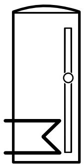
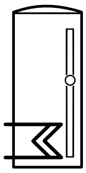
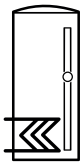
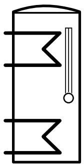
Page

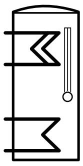
Calorifiers
Enamelled



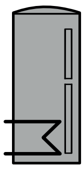


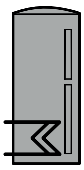


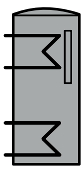


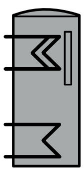


Calorifiers
Stainless steel

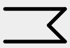








Heat exchanger:

 standard

 large

 specially large

Hoval calorifier CombiVal ER (200-500)

- Calorifier made of steel enamelled inside
- Smooth pipe heat exchanger enamelled, built in
- Magnesium protection anode built in
- Flange for electrical heating inset
- Thermal insulation made of polyurethane hard foam foamed on the calorifier
- Dismountable foil casing, red coloured, ERW (200) white coloured
- Including thermometer
- Sensor channel

On request
- Flange electrical heating inset

Delivery
- Calorifier with foil casing installed


ER (200-500) ER (800,1000)

Range
CombiVal

Type		
ER	(200)	B
ERW	(200)	B
ER	(300)	B
ER	(400)	B
ER	(500)	B
ER	(800)	
ER	(1000)	

Hoval calorifier CombiVal ER (800,1000)

- Calorifier made of steel, enamelled inside
- Smooth pipe heat exchanger enamelled, built in
- 2 magnesium protection anodes built in
- Flange below as cleaning flange or for the installation as flange electrical heating inset or blank flange with immersion sleeve
- Flange above as additional cleaning flange (SVGW regulation)
- Flange for electrical heating inset or immersion sleeve
- Thermal insulation made of polyester fleece with foil jacket, red coloured
- with thermometer
- Two terminal bars for contact sensor

On request
- Flange electrical heating inset
- Flange including immersion sleeve

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

Flange electrical heating inset
Type EFHK-E 4 to EFHK-E 9
- Made of Incoloy® alloy 825
- Heat input 4.0 to 8.5 kW, according to rules of the power station
- Incl. temperature control and safety temperature limiter
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V
- No use for exclusively electrical heating.

Delivery
- Delivered separately packed

On site
- Installation of the heating inset

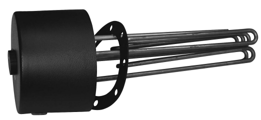
Calorifier

CombiVal ER (200-1000)

Calorifier made of steel enamelled inside.
Smooth pipe heat exchanger enamelled, built in

CombiVal ER type		Volume dm³	Heating surface m²	Part No.
(200)	B	196	0.95	7015 960
(200) ERW (white)	B	196	0.95	7015 961
(300)	B	302	1.45	7015 962
(400)	B	382	1.80	7015 963
(500)	B	473	1.90	7015 964
(800)		735	3.70	7014 422
(1000)		968	4.50	7014 423

Accessories



Flange-electrical heating inset EFHR for CombiVal ER (200-1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating.

CombiVal ER (200-1000) mountable only below Installation in the flange above is not possible!

EFHK-E	Heat input 3x400 V [kW]	Install. length [mm]	Changeable to	CombiVal ER	Part No.
4-180	4.0 kW/ 3x400 V	380		(200-500)	6049 561
			2.6 kW/3x400 V 2.0 kW/3x400 V 1.3 kW/3x400 V 1.3 kW/1x230 V		
6-180	6.0 kW/ 3x400 V	460		(300-500)	6049 562
			4.0 kW/3x400 V 3.0 kW/3x400 V 2.0 kW/3x400 V 2.0 kW/1x230 V		
9-250	8.5 kW/ 3x400 V	615		(800-1000)	6052 438
			5.7 kW/3x400 V 4.2 kW/3x400 V 2.8 kW/3x400 V 2.8 kW/1x230 V		

Part No.

Flange cover 180 - ¾″
for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve
Seal and screws included

2077 035

Flange with immersion sleeve
for enamel-painted calorifiers
for temperature sensor
Flange dimensions: outer Ø 180 mm, pitch circle Ø 150 mm, 8 x M10

6028 468

Correx® impressed current anode set
for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting.
Installation length: 395 mm

684 760

Either a Correx® impressed current anode **or** one and/or two magnesium anodes may be used.

Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67

2056 788

Immersion sensor TF/2P/5/6T, L = 5.0 m
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
operating temperature: -20…105 °C, index of protection: IP67

2055 888

Immersion sensor TF/12N/2.5/6T, L = 2.5 m
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
Operating temperature: -20…105 °C, index of protection: IP67

2056 791

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

		Part No.
	**Calorifier thermostat control TW 12** universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside. 15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well	6010 080
	**Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Further types/sizes
see Solar/Solar armature groups

Calorifier CombiVal ER (200-500)

Type	CombiVal	(200)	(300)	(400)	(500)
• Volume	litres	196	302	382	473
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95	95
• Thermal insulation PU-foam foamed onto calorifier	mm	75	50	75	75
• Thermal insulation λ	W/mK	0.027	0.027	0.027	0.027
• Fire protection class		B2	B2	B2	B2
Heat loss at 65 °C	W	49	67	65	76
• Transport weight	kg	77	104	134	146
• U value	W/m²K	0.328	0.404	0.307	0.308
Dimensions			see table of dimensions		
Heating battery *(built in)*					
• Heating surface	m²	0.95	1.45	1.80	1.90
• Heating water	litres	6.4	9.9	12.2	12.8
• Flow resistance [1]	z value	7	10	12	13
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13	10/13
• Max. operating temperature	°C	110	110	110	110

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z

Calorifier CombiVal ER (800,1000)

Type	CombiVal	(800)	(1000)
• Volume	litres	735	968
• Operating pressure/test pressure	bar	10/13	10/13
• Max. operating temperature	°C	95	95
• Thermal insulation made of polyester fleece	mm	100	100
• Thermal insulation λ	W/mK	0.040	0.040
• Fire protection class		B2	B2
Heat loss at 65 °C	W	127	142
• Transport weight	kg	251	324
• U value	W/m²K	0.376	0.370
Dimensions		see table of dimensions	
Heating battery *(built in)*			
• Heating surface	m²	3.70	4.50
• Heating water	dm³	34.2	40.6
• Flow resistance [1]	z value	6	8
• Operating pressure/test pressure	bar	10/13	10/13
• Max. operating temperature	°C	110	110

[1] Flow resistance heating battery in bar = volume flow $(m^3/h)^2$ x z

Flange electrical heating inset to CombiVal ER (200-1000)
With temperature control and safety temperature limiter.
Factory set-up: 3 x 400 V.
Heat input (kW) according to rules of the power works.
No use for exclusively electrical heating.

EFHK-E Type	Heat input [kW]	Voltage [V]	Installation length [mm]	For CombiVal ER
4-180	4.0	3 x 400	380	(200-500)
6-180	6.0	3 x 400	460	(300-500)
9-180	9.0	3 x 400	615	(800,1000)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1	200			200		
2	300	200		300	200	
3			200			200
4	400			400		
5	500	300		500	300	
6			300			300
7						
8						
9	800	400				
10	1000	500		800	400	
11			400	1000	500	
12			500			
13						400
14						500
15						
16						
17						
18						
19						
20						
21						
22		800				
23						
24						
25						
26		1000				
27						
28					800	
29						
30			800			
31						
32						
33					1000	
34						
35			1000			
36						
37						
38						800
39						
40						
41						
42						
43						
44						
45						1000
46						
47						
48						
49						
50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						
53						
54						
55						
56						
57						
58						
59						
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61						
62						
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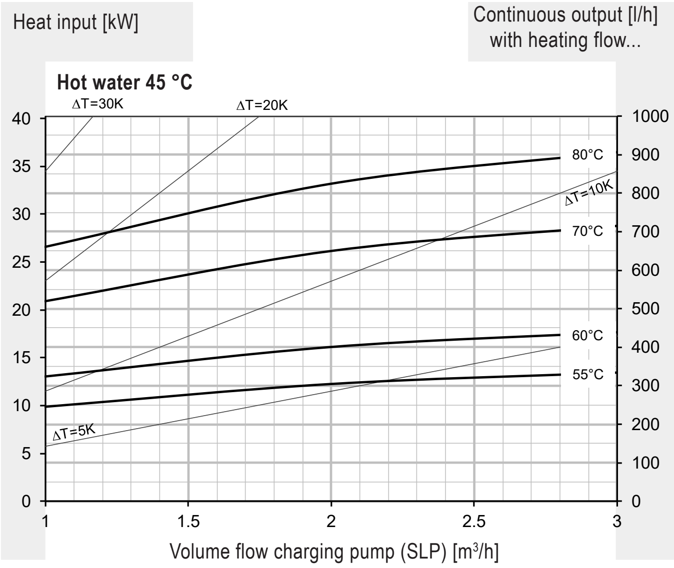
100						

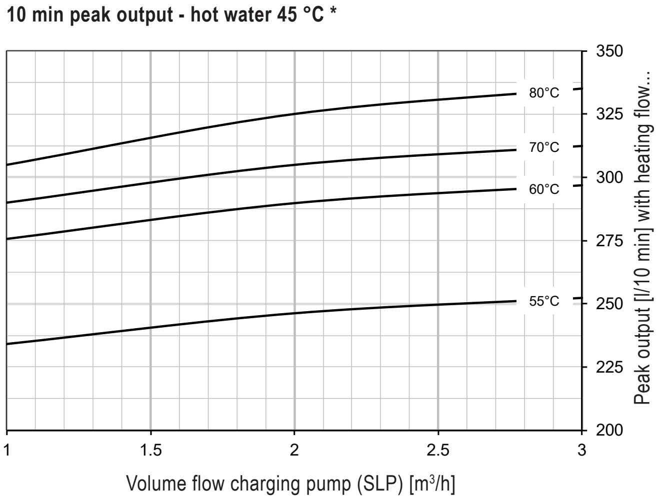
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

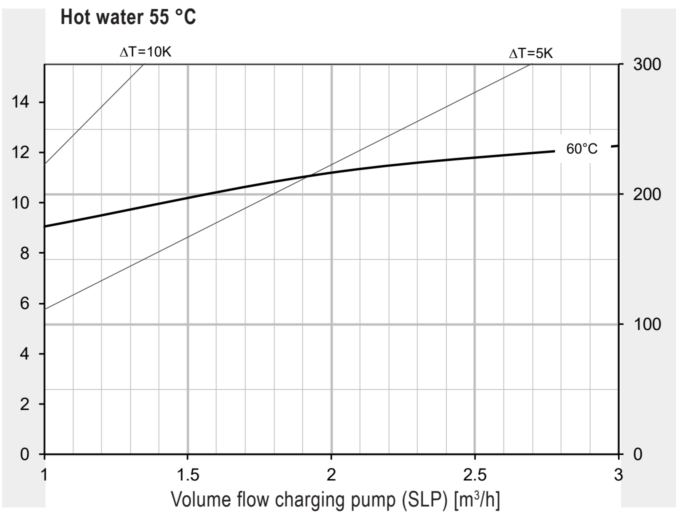
CombiVal ER (200)

Hot water output
Continuous output

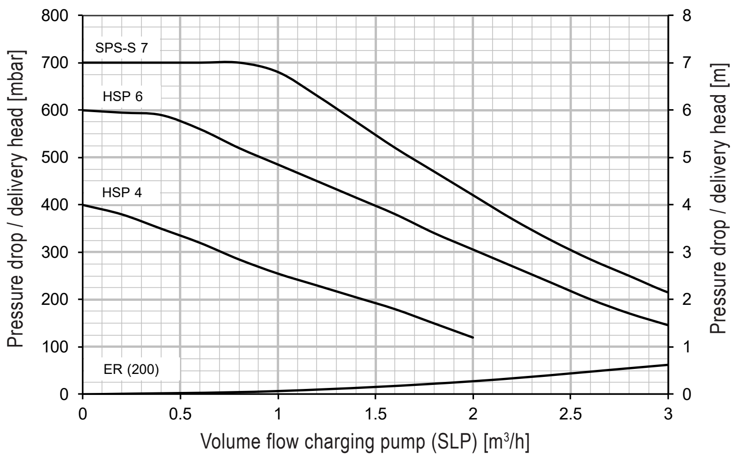
Reading example
see engineering

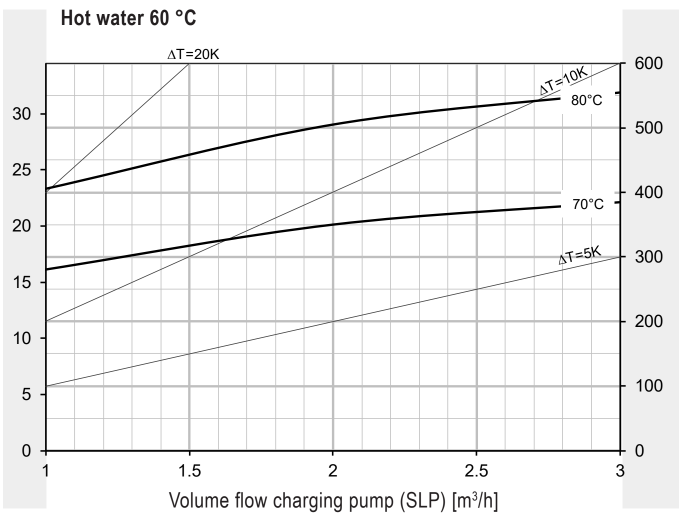






Pressure loss heating coil - delivery head charging pump



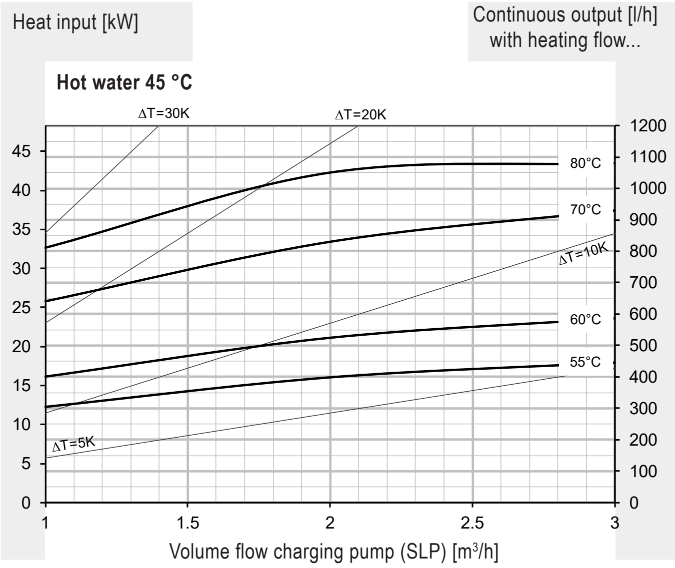


* Calorifier heated to 60 °C

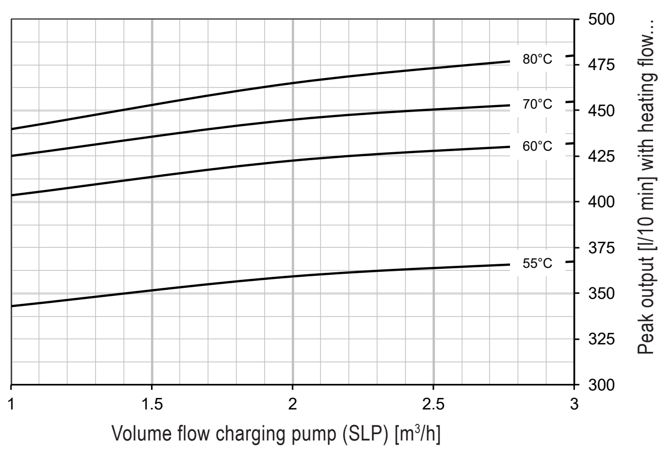
CombiVal ER (300)

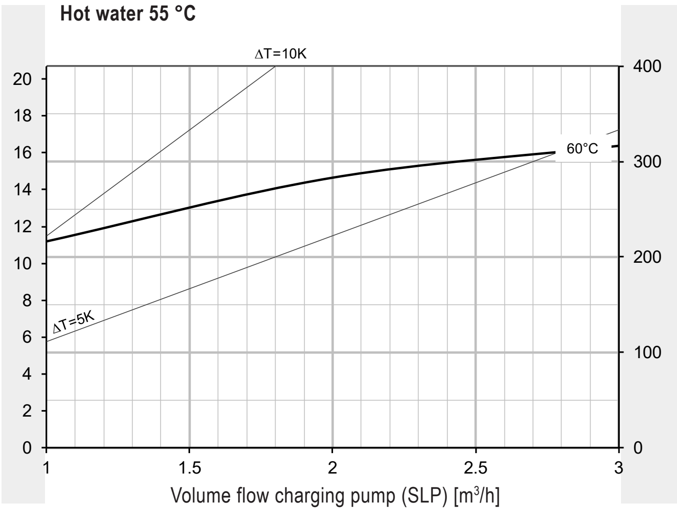
Hot water output
Continuous output

Reading example
see engineering

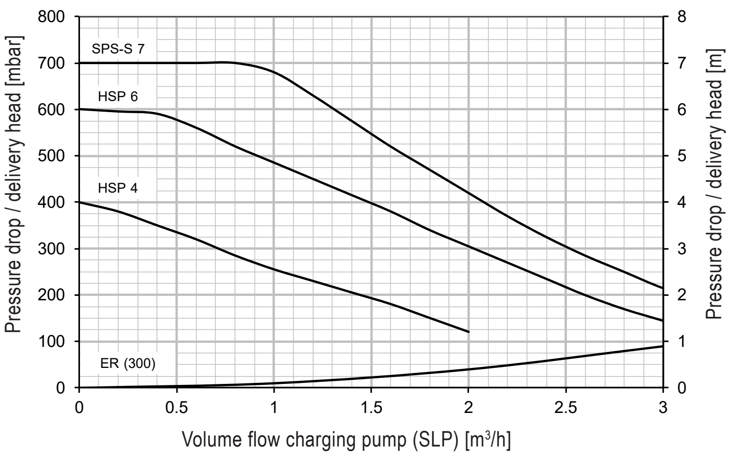


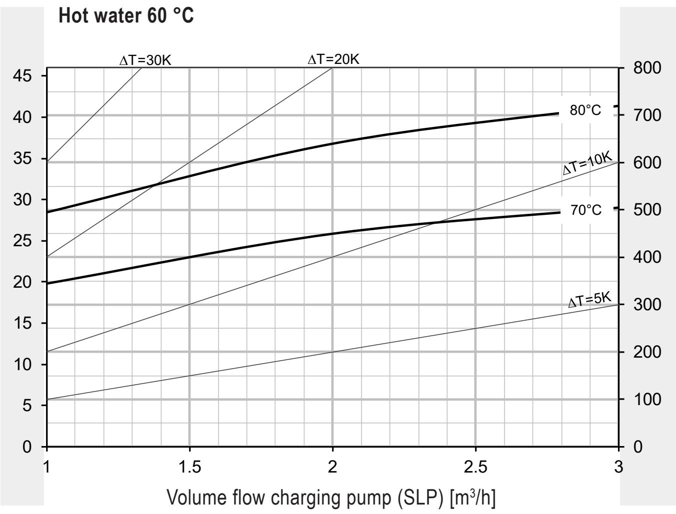
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



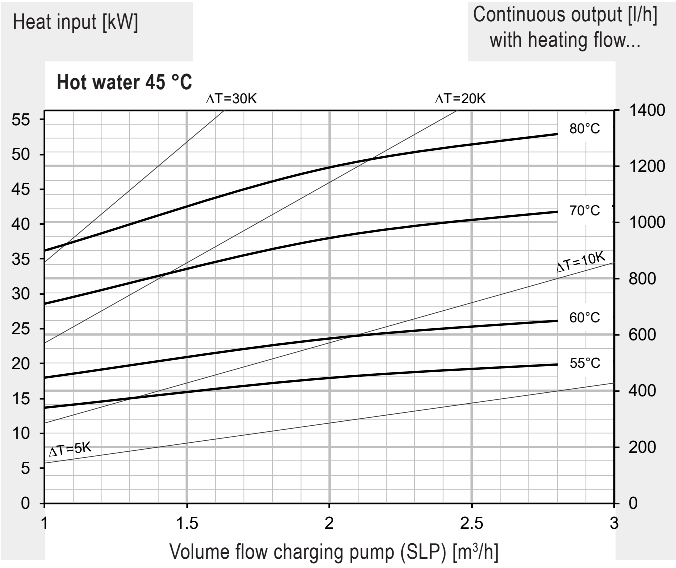


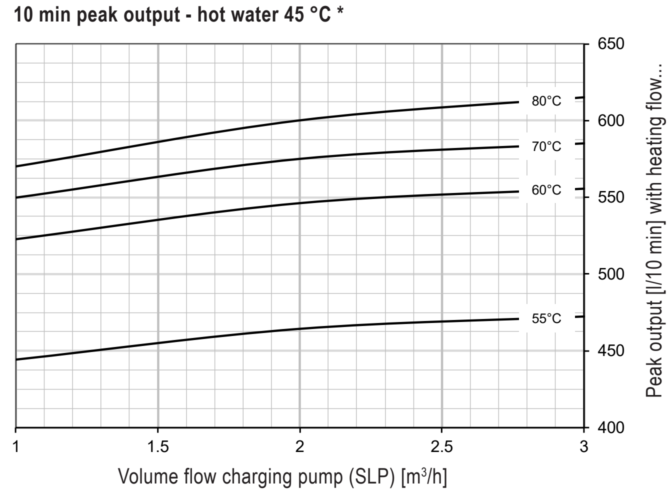
* Calorifier heated to 60 °C

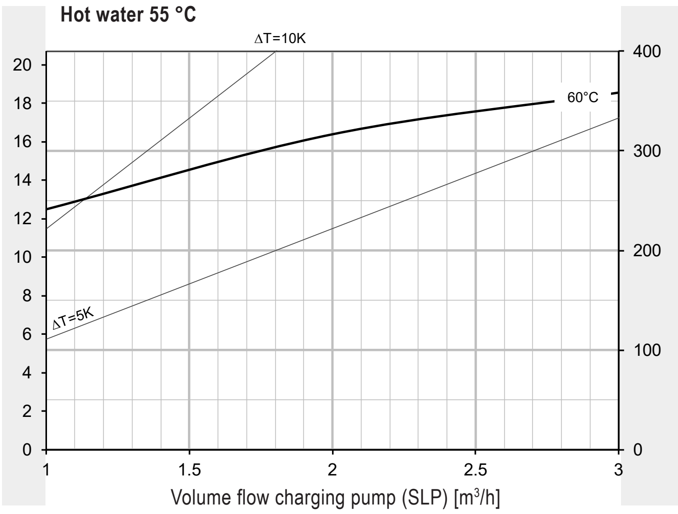
CombiVal ER (400)

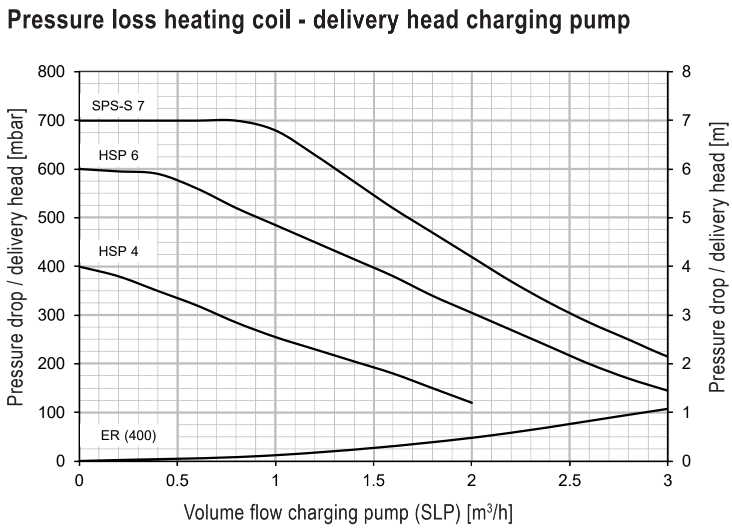
Hot water output
Continuous output

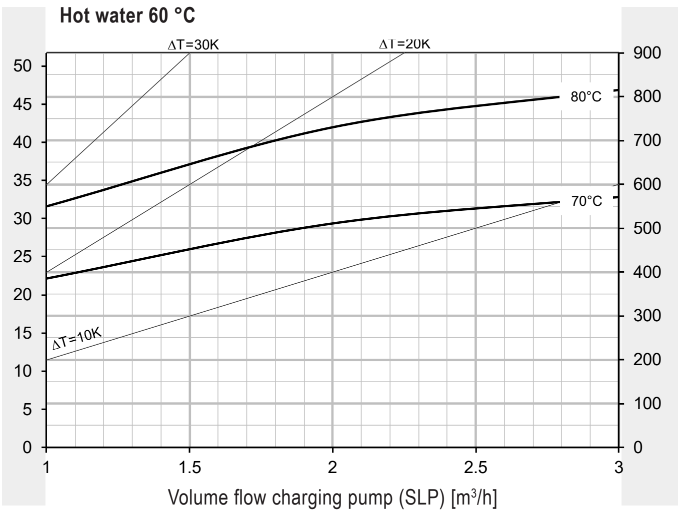
Reading example
see engineering











* Calorifier heated to 60 °C

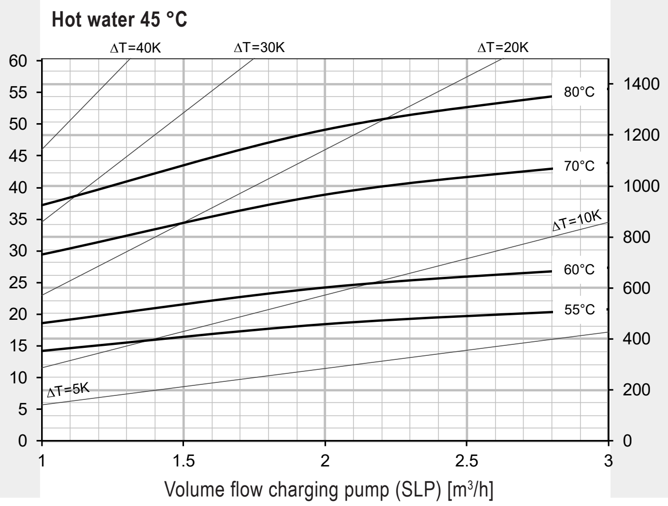
CombiVal ER (500)

Hot water output
Continuous output

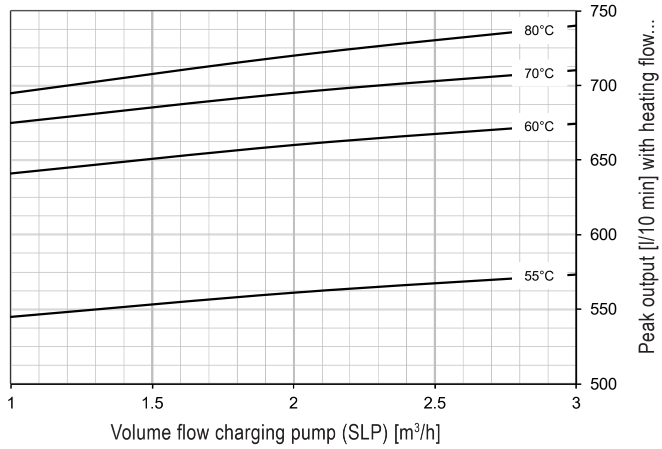
Reading example
see engineering

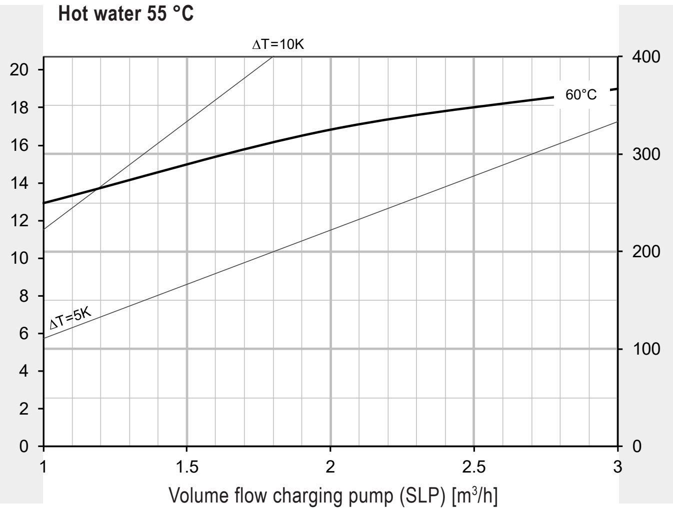
Heat input [kW]

Continuous output [l/h] with heating flow...

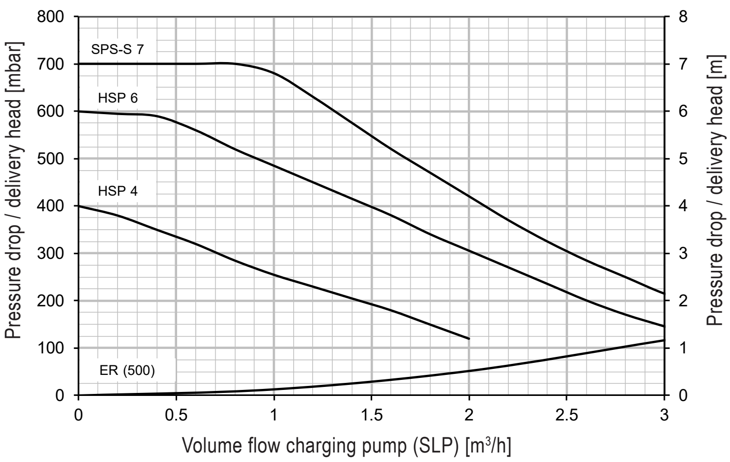


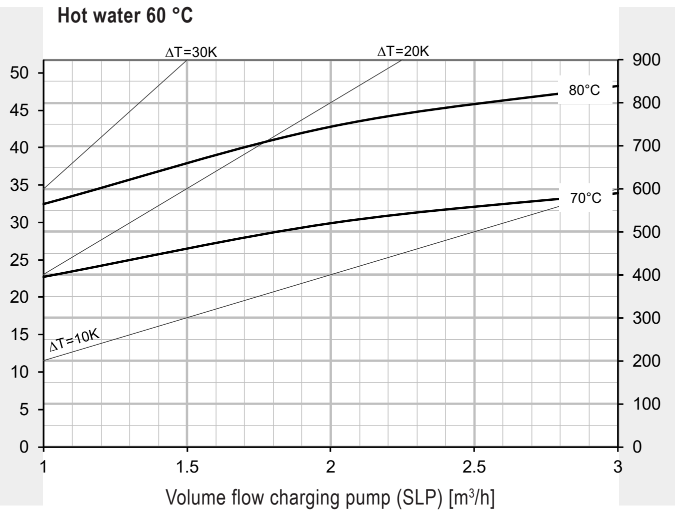
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



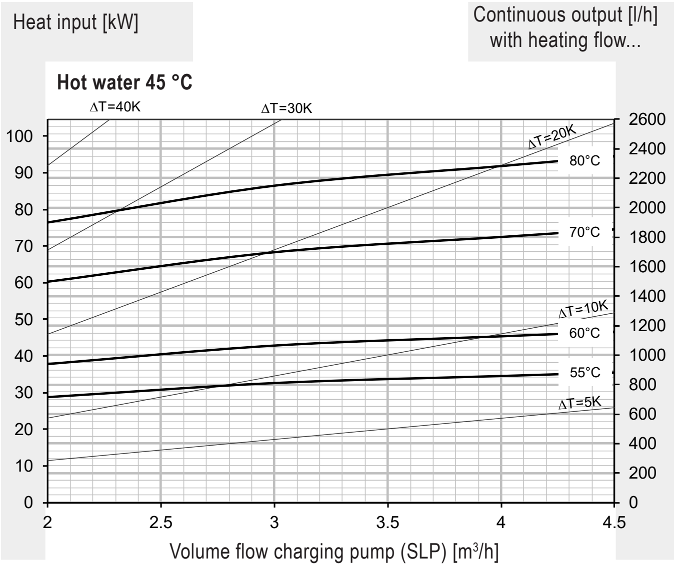


* Calorifier heated to 60 °C

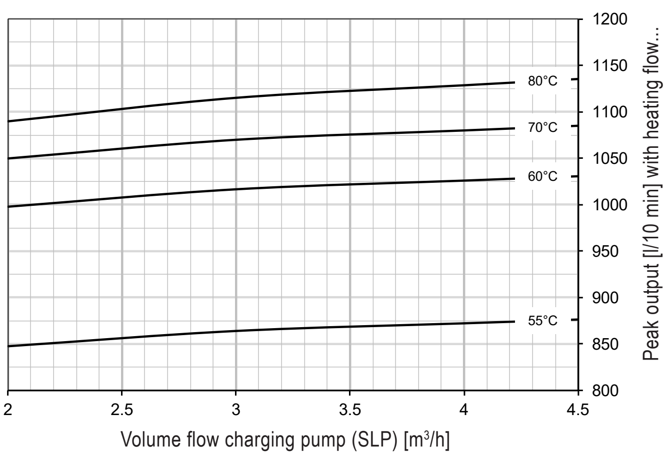
CombiVal ER (800)

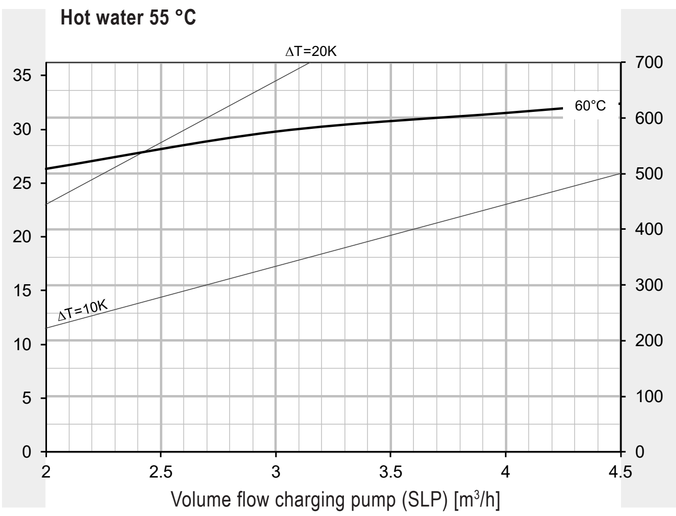
Hot water output
Continuous output

Reading example
see engineering

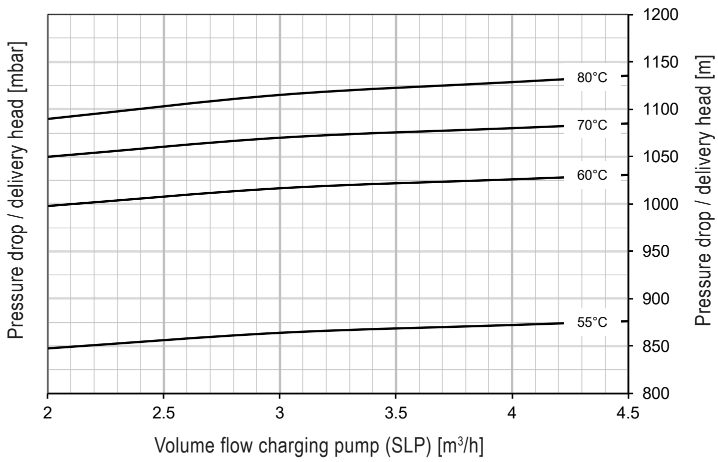


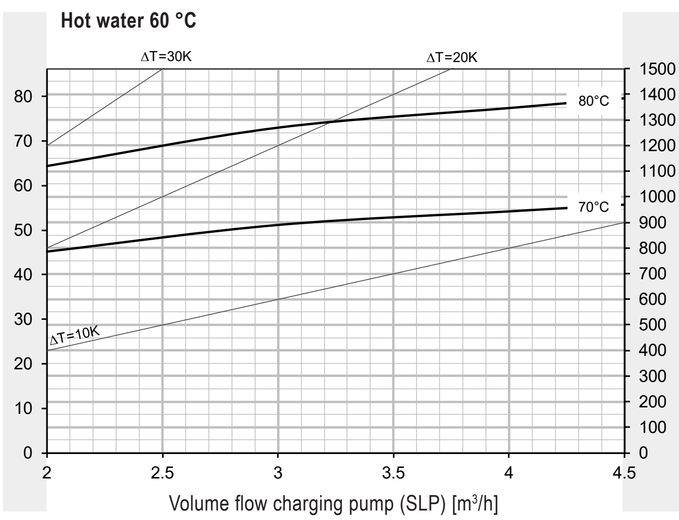
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



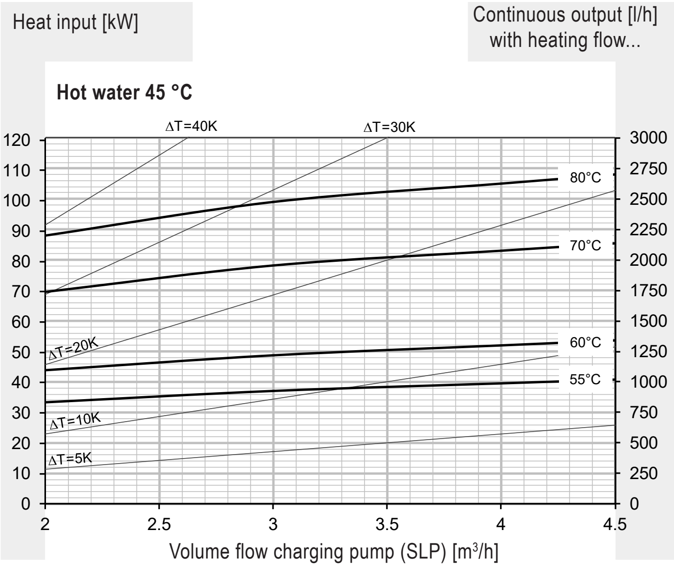


* Calorifier heated to 60 °C

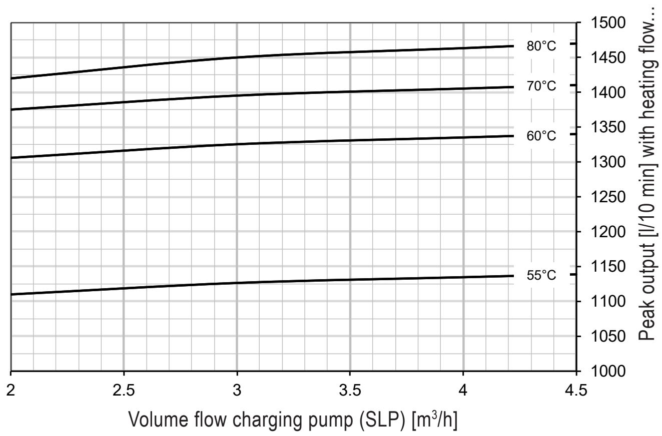
CombiVal ER (1000)

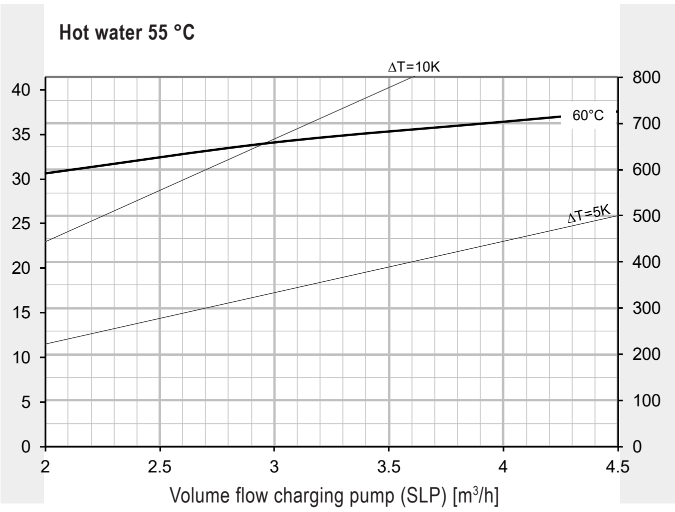
Hot water output
Continuous output

Reading example
see engineering

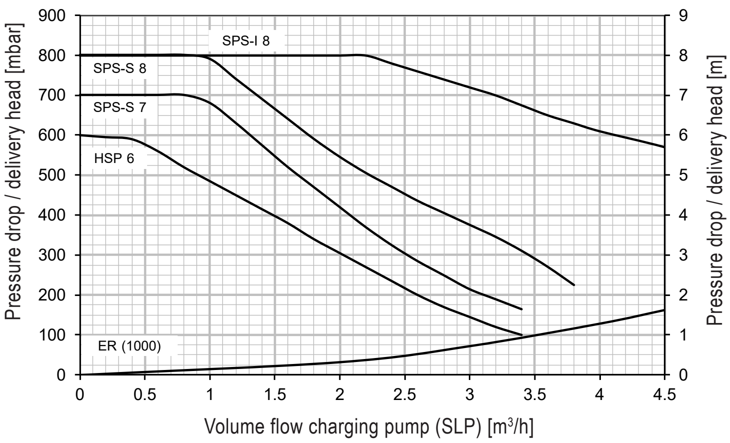


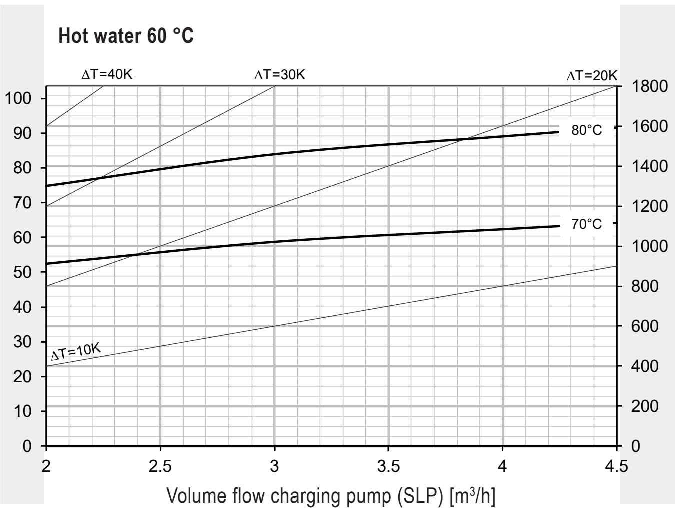
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump

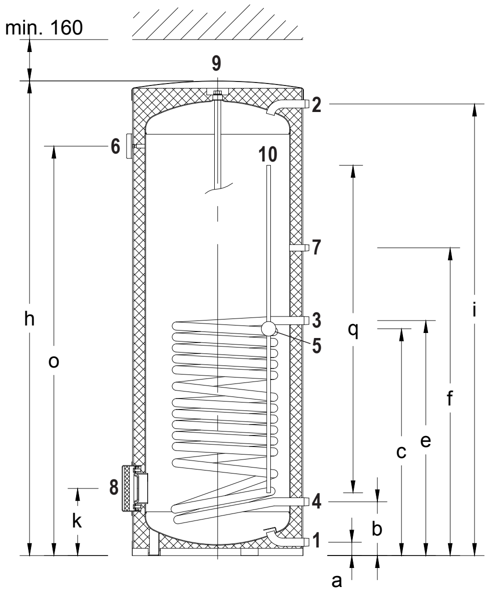


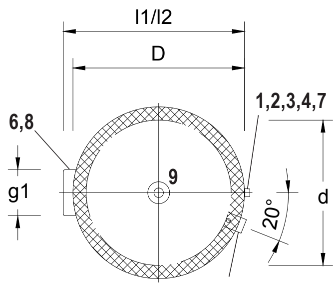


* Calorifier heated to 60 °C

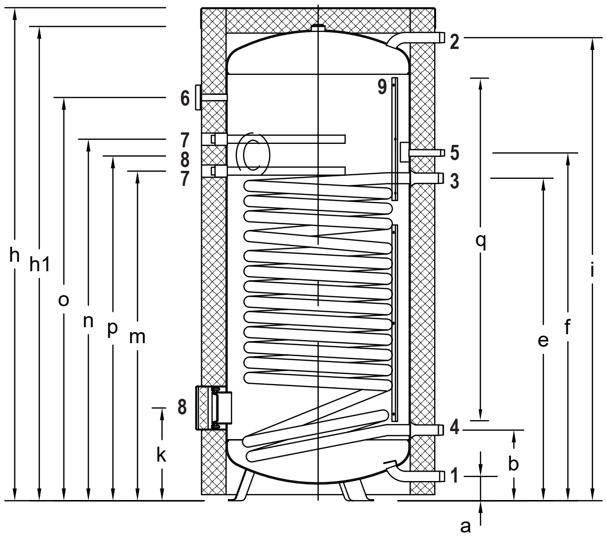
CombiVal ER (200-500)

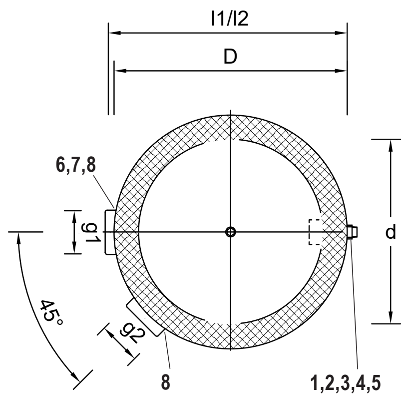
(Dimensions in mm)





CombiVal ER (800,1000)





CombiVal ER (200-500):

1 Cold water — type (200) G ¾″, type (300-500) G 1″
2 Hot water — type (200) G ¾″, type (300-500) G 1″
3 Flow heating — G 1″
4 Return heating — G 1″
5 Removable cap (60 mm) for positioning the sensor in the sensor channel
6 Thermometer
7 Circulation G ¾″
8 Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
9 Anode sleeve Rp 1″, screw connection uninsulated
10 Sensor duct inner Ø 11 mm

CombiVal ER (800,1000):

1 Cold water — G 1¼″
2 Hot water — G 1¼″
3 Flow heating — G 1¼″
4 Return heating — G 1¼″
5 Circulation G ¾″
6 Thermometer
7 Anode sleeve Rp 1¼″, screw connection uninsulated
8 Hand-hole flange Ø 180/120 mm, pitch circle Ø 150 mm, 8 x M10 (installation of a flange electrical heating inset:
- bottom possible,
- top not possible.)

9 Sensor terminal bar (split into two)

CombiVal ER Type	d	D	g1	g2	l1	l2 *
(200)	450	600	180	-	635	650
(300)	597	700	180	-	795	810
(400)	597	750	180	-	795	810
(500)	597	750	180	-	795	810
(800)	750	950	180	180	975	1020
(1000)	850	1050	180	180	1075	1120

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

CombiVal ER Type	a	b	c	e	f	h	h1	i	k	m	n	o	p	q	Tilting measure
(200)	55	193	702	688	901	1464	-	1370	248	-	-	1226	-	870	1583
(300)	55	221	633	721	921	1326	-	1229	276	-	-	1067	-	735	1524
(400)	55	221	782	908	1112	1623	-	1526	276	-	-	1355	-	1030	1788
(500)	55	221	946	966	1264	1953	-	1856	276	-	-	1683	-	1360	2093
(800)	99	287	-	1314	1417	2040	1937	1885	377	1342	1472	1642	1408	1400	1962
(1000)	103	295	-	1323	1488	2063	1964	1901	387	1380	1510	1652	1446	1400	1991

Hoval calorifier CombiVal ESR (200-400)

- Calorifier made of steel enamelled inside
- Large smooth pipe heat exchanger enamelled, built in
- Magnesium protection anode built in
- Flange for electrical heating inset
- Thermal insulation made of polyurethane hard foam foamed on the calorifier
- Dismantable foil casing, red coloured
- Including thermometer
- Sensor channel

On request
- Flange electrical heating inset

Delivery
- Calorifier with foil casing installed

Flange electrical heating inset
Type EFHK-E 4 to EFHK-E 6
- Made of Incoloy® alloy 825
- Heat input 4.0 to 6.0 kW, according to rules of the power station
- Incl. temperature control and safety temperature limiter
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Range
CombiVal
Type

ESR	(200)	B
ESR	(300)	B
ESR	(400)	B

Calorifier

CombiVal ESR (200-400)

Calorifier made of steel enamelled inside.
With smooth pipe heat exchanger, built in.

CombiVal ESR Type		Volume dm³	Heating surface m²	Part No.
(200)	B	193	1.8	7015 965
(300)	B	298	2.6	7015 966
(400)	B	379	3.8	7015 967

Accessories

Flange electrical heating inset for CombiVal ESR (200-400)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-E	Heat input 3x400 V [kW]	Install. length [mm]	Changeable to	CombiVal ESR	Part No.
CombiVal ESR (200-400) mountable only below					
4-180	4.0	380	2.6 kW/3x400 V 2.0 kW/3x400 V 1.3 kW/3x400 V 1.3 kW/1x230 V	(200-400)	6049 561
6-180	6.0	460	4.0 kW/3x400 V 3.0 kW/3x400 V 2.0 kW/3x400 V 2.0 kW/1x230 V	(300, 400)	6049 562

		Part No.
	**Flange cover 180 - ¾″** for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve Seal and screws included	2077 035
	**Flange with immersion sleeve** for enamel-painted calorifiers for temperature sensor Flange dimensions: outer Ø 180 mm, pitch circle Ø 150 mm, 8 x M10	6028 468
	**Correx® impressed current anode set** for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting. Installation length: 395 mm	684 760
	Either a Correx® impressed current anode or one and/or two magnesium anodes may be used.	
	**Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67	2056 788
	**Immersion sensor TF/2P/5/6T, L = 5.0 m** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m without plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, operating temperature: -20…105 °C, index of protection: IP67	2055 888
	**Immersion sensor TF/12N/2.5/6T, L = 2.5 m** for gas boiler with RS-OT Cable length: 2.5 m Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, Operating temperature: -20…105 °C, index of protection: IP67	2056 791
	At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.	

		Part No.
	**Calorifier thermostat control TW 12** universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside. 15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well	6010 080
	**Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Further types/sizes
see Solar/Solar armature groups

Calorifier CombiVal ESR (200-400)

Type	CombiVal	ESR (200)	ESR (300)	ESR (400)
Calorifier				
• Volume	litres	193	298	379
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95
• Thermal insulation PU-foam, foamed onto calorifier	mm	75	50	75
• Thermal insulation λ	W/mK	0.027	0.027	0.027
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	48	68	68
• Transport weight	kg	91	118	156
• U value	W/m^2K	0.32	0.41	0.32
Dimensions			see table of dimensions	
Heating battery *(built in)*				
• Heating surface	m^2	1.80	2.60	3.80
• Heating water content	litres	12.2	16	34
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	110	110	110
• Flow resistance [1]	z value	13	17	6

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z

Flange electrical heating inset
to CombiVal ESR (200-400)
With temperature control and
safety temperature limiter.
Factory set-up: 3 x 400 V
Heat input (kW) according to rules
of the power works
No use for exclusively electrical heating.

EFHK-E Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal ESR
4-180	4.0	3 x 400	380	(200-400)
6-180	6.0	3 x 400	460	(300,400)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1				200		
2	200					
3						
4	300			300		
5		200			200	
6	400		200	400		200
7						
8						
9		300				
10			300		300	
11						300
12						
13						
14		400				
15						
16						
17					400	
18			400			
19						
20						
21						
22						400
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50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						
53						
54						
55						
56						
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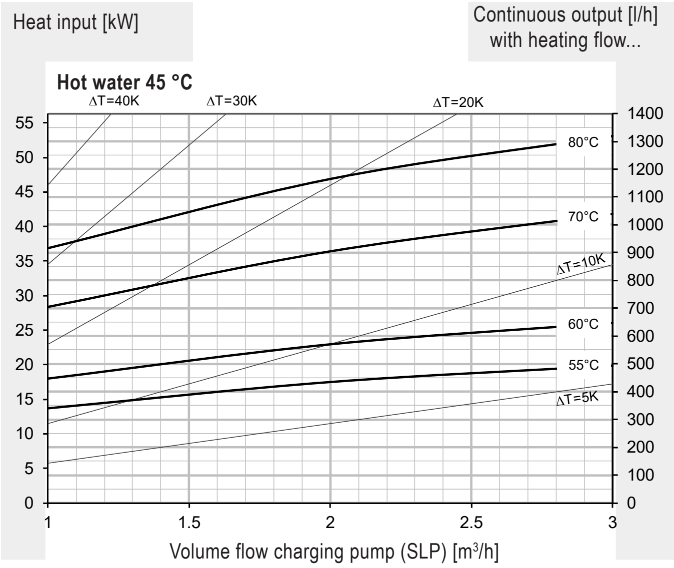
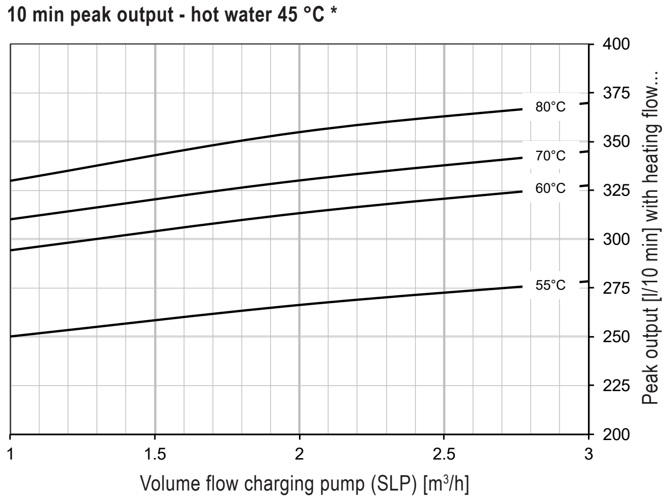
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

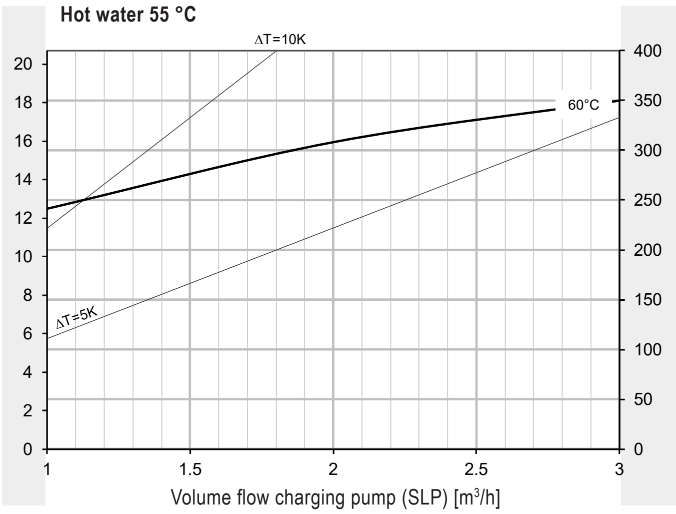
CombiVal ESR (200)

Hot water output
Continuous output

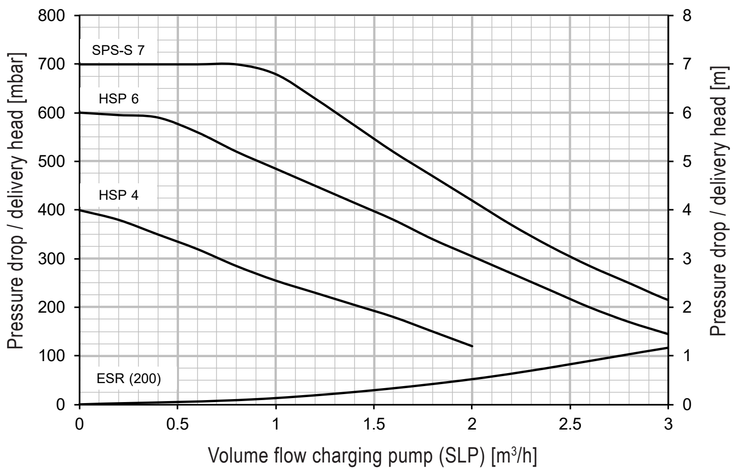
Reading example
see engineering

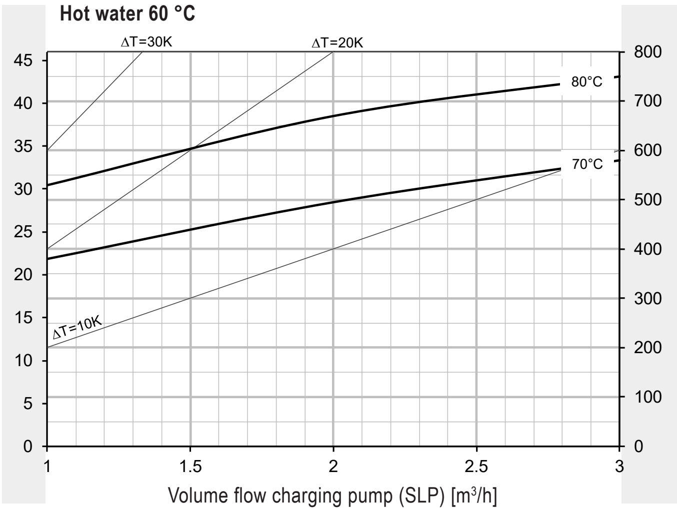






Pressure loss heating coil - delivery head charging pump



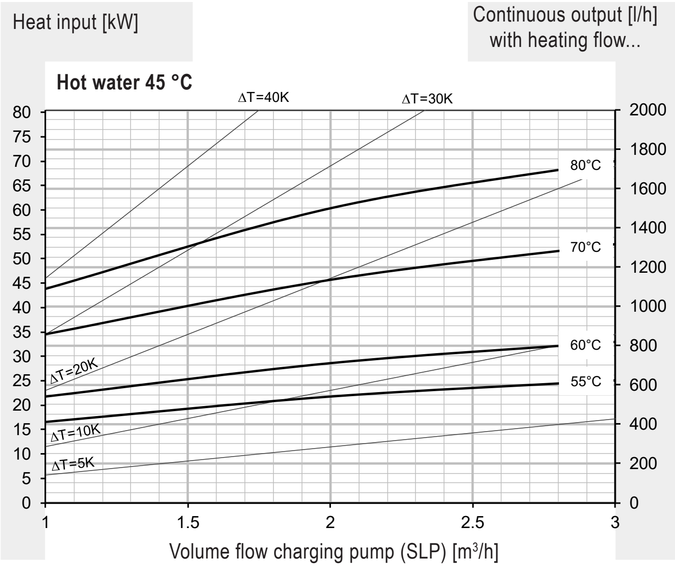


* Calorifier heated to 60 °C

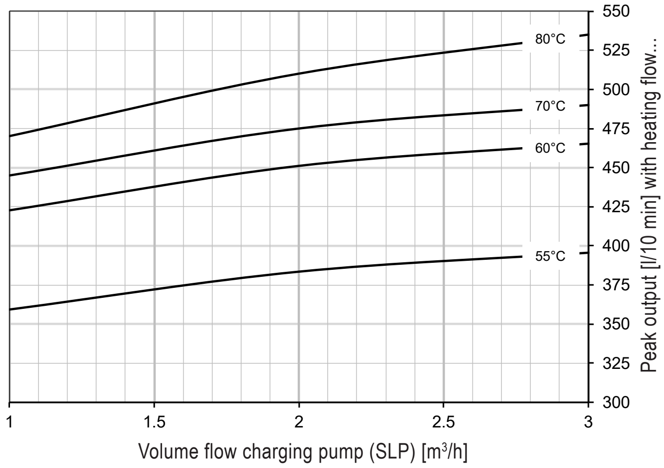
CombiVal ESR (300)

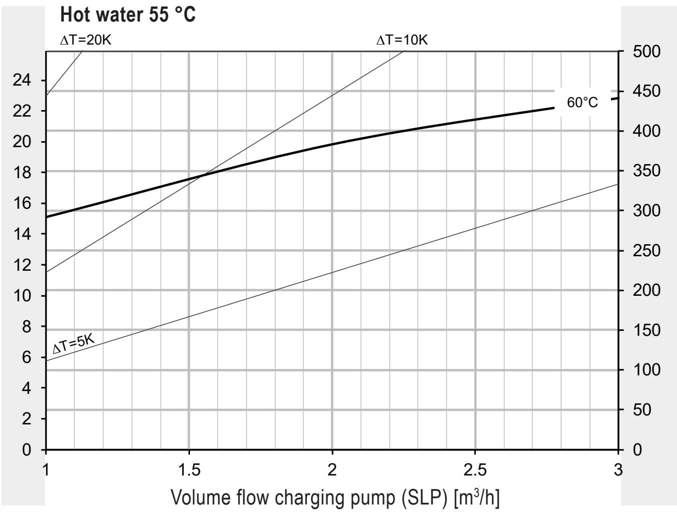
Hot water output
Continuous output

Reading example
see engineering

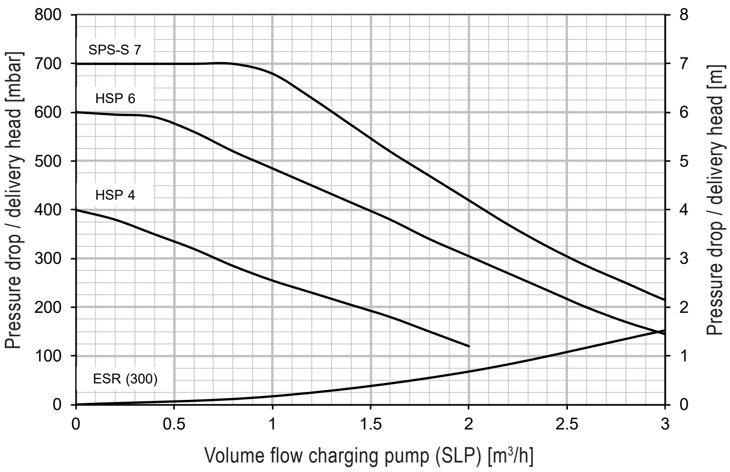


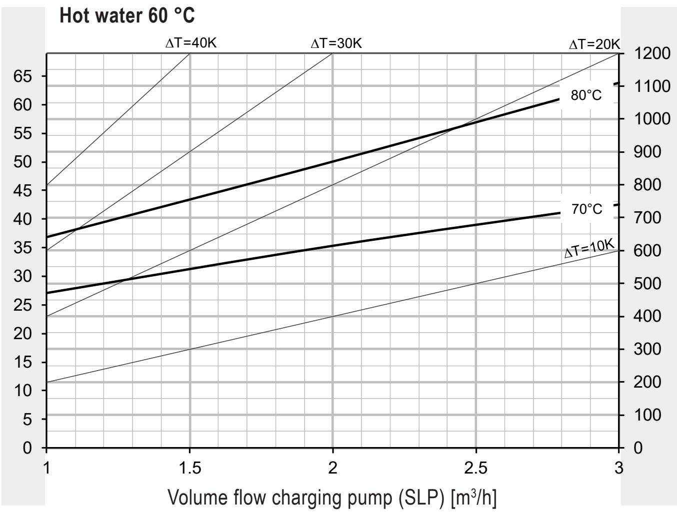
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



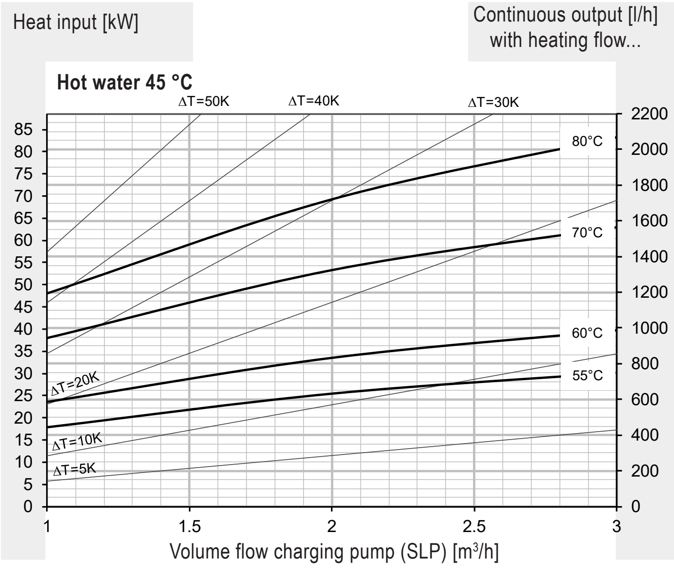


* Calorifier heated to 60 °C

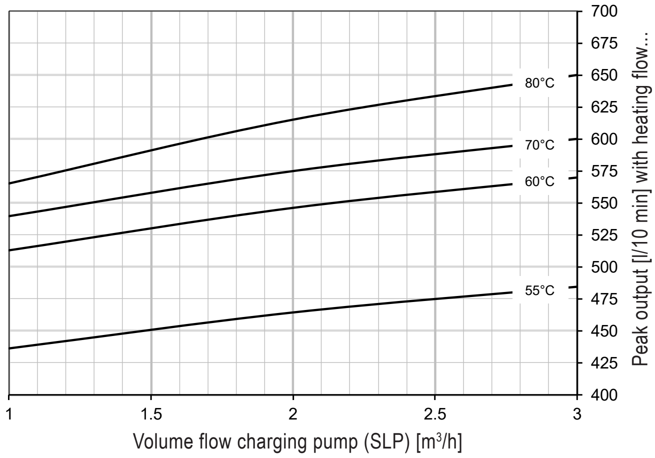
CombiVal ESR (400)

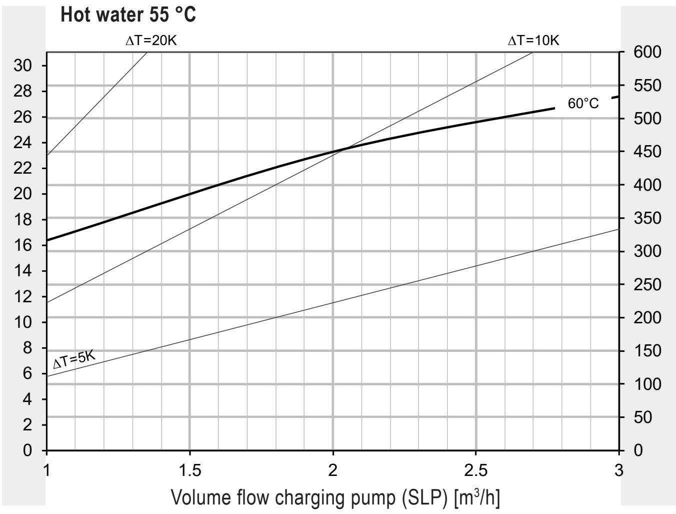
Hot water output
Continuous output

Reading example
see engineering

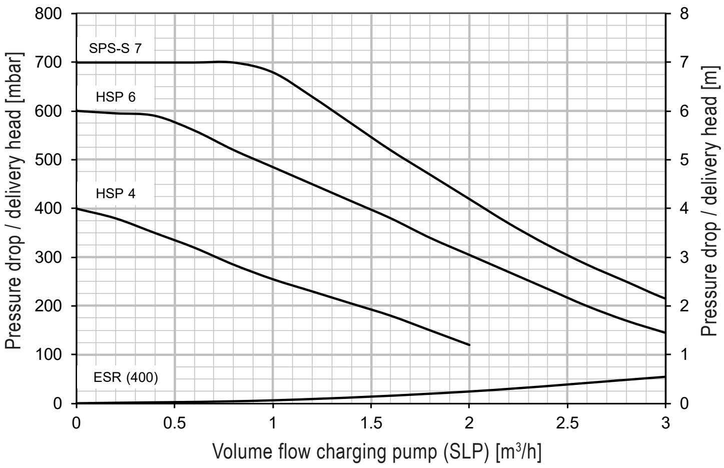


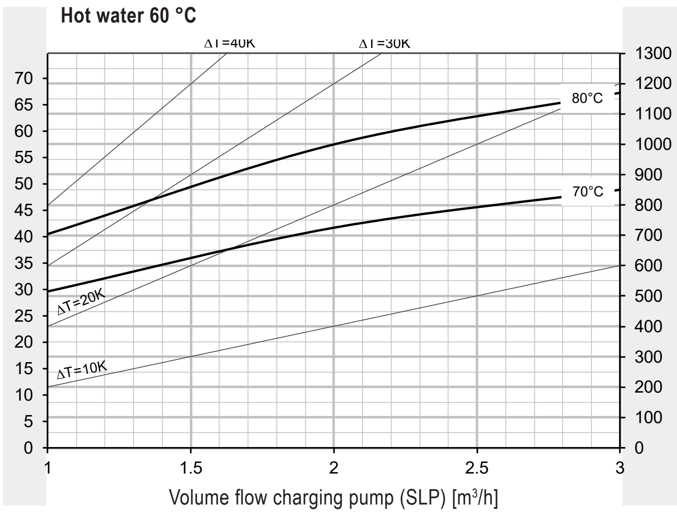
10 min peak output - hot water 45 °C *





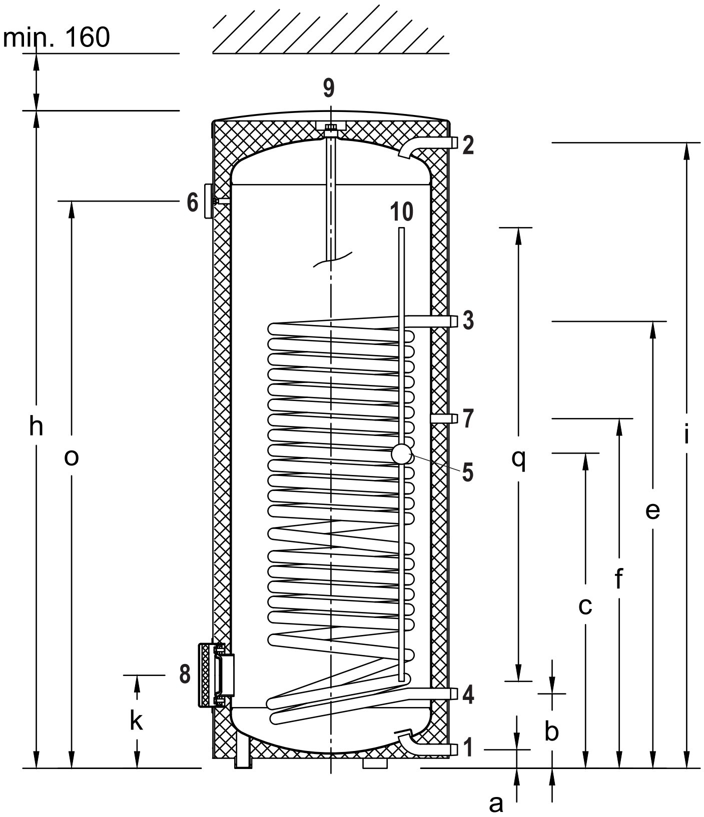
Pressure loss heating coil - delivery head charging pump

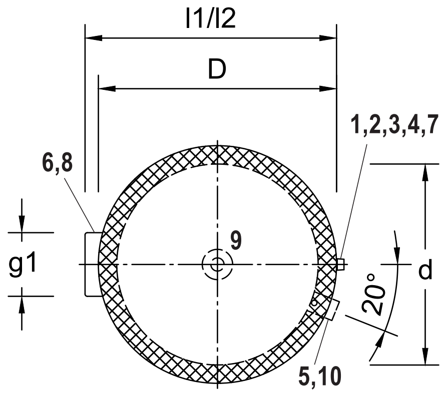




* Calorifier heated to 60 °C

CombiVal ESR (200-400)
(Dimensions in mm)





1	Cold water	Type (200) G ¾″, Type (300-400) G 1″
2	Hot water	Type (200) G ¾″, Type (300-400) G 1″
3	Flow heating	Type (200,300) G 1″, Type (400) G 1¼″
4	Return heating	Type (200,300) G 1″, Type (400) G 1¼″
5	Removable cap (60 mm) for positioning the sensor in the sensor channel	
6	Thermometer	
7	Circulation G ¾″	
8	Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10	
9	Anode sleeve Rp 1″, screw connection uninsulated	
10	Sensor duct inner Ø 11 mm	

CombiVal ESR Type	d	D	g1	l1	l2*
(200)	450	600	180	635	650
(300)	597	700	180	745	760
(400)	597	750	180	795	810

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

CombiVal ESR Type	a	b	c	e	f	h	i	k	o	p	q	Tilting measure
(200)	55	193	702	902	789	1464	1370	248	1226	-	870	1583
(300)	55	221	633	991	850	1326	1229	276	1067	-	735	1524
(400)	55	221	782	1324	908	1623	1526	276	1355	-	1030	1788

Hoval calorifier
CombiVal ESSR (500)

- Calorifier made of steel enamelled inside
- Pipe register with extra large heating surface as heat exchanger, enamelled, built in
- Magnesium protection anode built in
- Flange for electrical heating inset
- Thermal insulation made of polyurethane hard foam foamed on the calorifier
- Dismantable foil casing, red coloured
- Sensor channel
- Including thermometer

On request
- Flange electrical heating inset
- Screw-in electrical heating inset 1½″

Delivery
- Calorifier with foil casing installed

Hoval calorifier
CombiVal ESSR (800,1000)

- Calorifier made of steel, enamelled inside
- Pipe register with large heating surface as heat exchanger, enamelled, built in
- Correx® potentiostat included
- 2 impressed current anodes incl. connecting cable integrated
- Flange below as cleaning flange or for the installation of a flange electrical heating inset or blank flange with immersion sleeve
- Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- Thermal insulation made of polyester fleece with foil jacket, red coloured
- Two terminal bars for contact sensor
- Including thermometer

On request
- Flange electrical heating inset

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

Range
CombiVal
Type

ESSR	(500)	B
ESSR	(800)	
ESSR	(1000)	

Flange electrical heating inset
Type EFHK-E 4 to EFHK-E 9
- Made of Incoloy® alloy 825
- Heat input 4.0 to 8.5 kW, according to rules of the power station
- Incl. temperature control and safety temperature limiter
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the heating inset

Screw-in electrical heating insets
Type EP 2,5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.0 to 4.5 kW
- incl. temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating.

Delivery
- Delivered separately packed

On site
- Installation of the heating inset

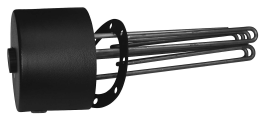
Calorifier

CombiVal ESSR (500-1000)

Calorifier made of steel enamelled inside.
Pipe register as heat exchanger enamelled, built in

CombiVal ESSR type		Volume dm³	Heating surface m^2	Part No.
(500)	B	465	5.90	7015 970
(800)		733	7.00	7018 051
(1000)		961	9.15	7018 052

Accessories



Flange electrical heating insets for CombiVal ESSR (500-1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Heat output [kW] depending on specifications from electricity provider
No use for exclusively electrical heating

Type EFHK-E	Heat input 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal ESSR	Part No.
CombiVal ESSR (500) mountable only below					
CombiVal ESSR (800,1000) mountable below and above					
4-180	4.0 kW/ 3x400 V		380	(500-1000)	6049 561
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0 kW/ 3x400 V		460	(500-1000)	6049 562
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-250	8.5 kW/ 3x400 V		615	(800,1000)	6052 438
		5.7 kW/3x400 V			
		4.2 kW/3x400 V			
		2.8 kW/3x400 V			
		2.8 kW/1x230 V			

Screw-in electrical heating inset for CombiVal ESSR (500)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating.

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	for CombiVal ESSR	Part No.
CombiVal ESSR (500) mountable only above					
EP 2.5	2.35	3 x 400	390	(500)	6049 557
EP 3.5	3.6	3 x 400	500	(500)	6049 558
EP 5	4.9	3 x 400	620	(500)	6049 559

Part No.

Flange cover 180 - ¾″ — 2077 035
for the installation of the electric
heating element or Correx® impressed
current anode in flange Ø 180/110 mm,
enamelled on the inside with Rp ¾″ sleeve
Seal and screws included

Flange with immersion sleeve — 6028 468
for enamel-painted calorifiers
for temperature sensor
Flange dimensions: outer Ø 180 mm,
pitch circle Ø 150 mm, 8 x M10

Correx® impressed current anode set — 684 760
for long-term corrosion protection for
installation in the enamel-painted
calorifier incl. reducing elbow fitting.
Installation length: 395 mm

**Included in the scope of delivery
for ESSR (800,1000).**

Either a Correx® impressed current anode
or one and/or two magnesium anodes
may be used.

**Immersion sensor TF/2P/5/6T,
L = 5.0 m, with plug** — 2056 788
for TopTronic® E controller modules/
module expansions with exception of
basic module district heating/fresh
water or basic module district heating
com, cable length: 5 m with plug
sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
sensor may already be included in scope
of delivery of heat generator/controller
module/module expansion, operating
temperature: -20…105 °C, index of
protection: IP67

**Immersion sensor TF/2P/5/6T,
L = 5.0 m** — 2055 888
for TopTronic® E controller modules/
module expansions with exception of
basic module district heating/fresh
water or basic module district
heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
operating temperature: -20…105 °C,
index of protection: IP67

**Immersion sensor TF/12N/2.5/6T,
L = 2.5 m** — 2056 791
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
Operating temperature: -20…105 °C,
index of protection: IP67

**At TopTronic® E, immersion sensor
is included in the boiler control or
in the heating controller set.**

		Part No.
	**Calorifier thermostat control TW 12** universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside. 15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well	6010 080
	**Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Further types/sizes
see Solar/Solar armature groups

Calorifier CombiVal ESSR (500-1000)

Type	CombiVal	(500)	(800)	(1000)
• Volume	dm³	465	733	961
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95
• Thermal insulation PU foam, foamed onto calorifier	mm	75	-	-
• Thermal insulation λ	W/mK	0.027	0.027	0.027
• Thermal insulation polyester fleece	mm	-	100	100
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	78	126	144
• Transport weight	kg	232	304	387
• U value	W/m²K	0.316	0.374	0.375
Dimensions			see table of dimensions	
Heating battery *(built in)*				
• Heating surface	m²	5.90	7.00	9.15
• Heating water	dm³	41	49.4	64.6
• Flow resistance [1]	z value	10	11	14
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	110	110	110

[1] Flow resistance heating battery in mbar = volume flow (m³/h)² x z

Flange electrical heating inset
to CombiVal ESSR (500-1000)
With temperature control and
safety temperature limiter.
Factory set-up: 3 x 400 V
Heat input (kW) according to rules
of the power works 3 x 400 V
No use for exclusively electrical heating.

EFHK-E Type	Heat output [kW]	Voltage [V]	Istallation length [mm]	For CombiVal ESSR
4-180	4.0	3 x 400	380	(500-1000)
6-180	6.0	3 x 400	460	(500-1000)
9-180	8.5	3 x 400	615	(800,1000)

Screw-in electric heating elements
to CombiVal ESSR (500)
of Incoloy® alloy 825, with temperature control
and safety temperature limiter.
Delivery separately, installation on site.
Heat input (kW) according to rules
of the power works.
No use for exclusively electrical heating.

Type	Heat output [kW]	Voltage [V]	Istallation length [mm]	For CombiVal ESSR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(500)
EP 3.5	3.6	3 x 400	500	(500)
EP 5	4.9	3 x 400	620	(500)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort 1)			Standard 2)		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12	500					
13						
14				500		
15						
16						
17						
18	800					
19						
20						
21		500				
22				800		
23						
24	1000					
25						
26					500	
27						
28			500			
29						
30						
31						
32						
33						
34						
35						
36				1000		500
37						
38		800				
39						
40						
41						
42						
43						
44			800			
45						
46						
47						
48		1000				
49					800	
50						

	Comfort 1)			Standard 2)		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						
53						
54						
55						
56						
57						800
58			1000			
59						
60						
61						
62						
63					1000	
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						1000
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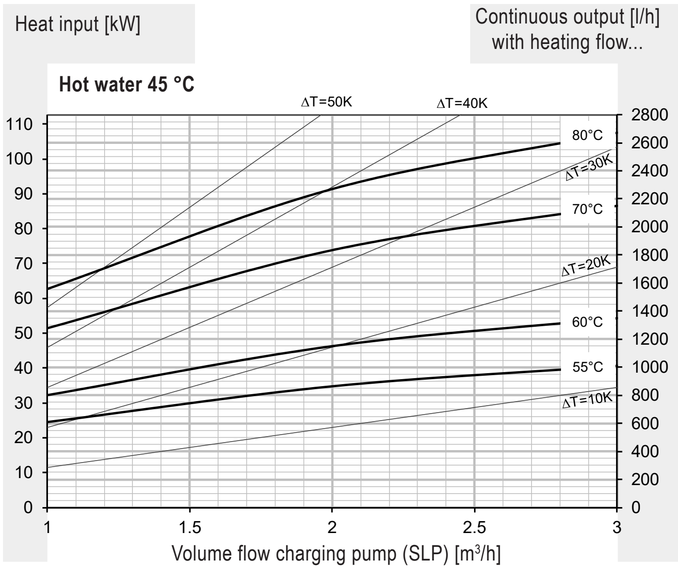
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100						

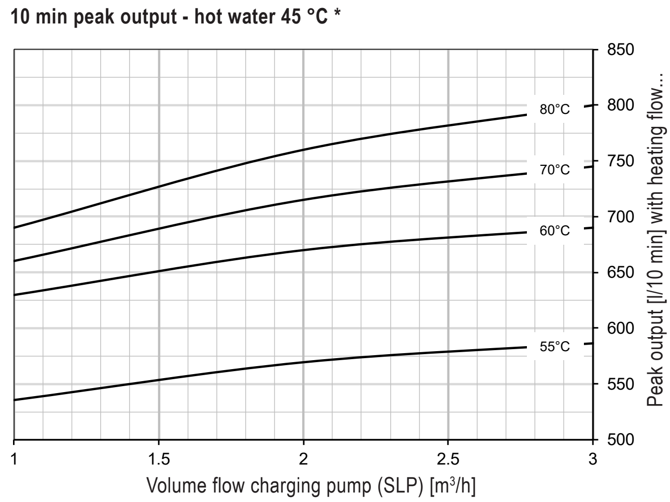
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
1) Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
2) Calculation with simultaneity factor according to Dresden Technical University

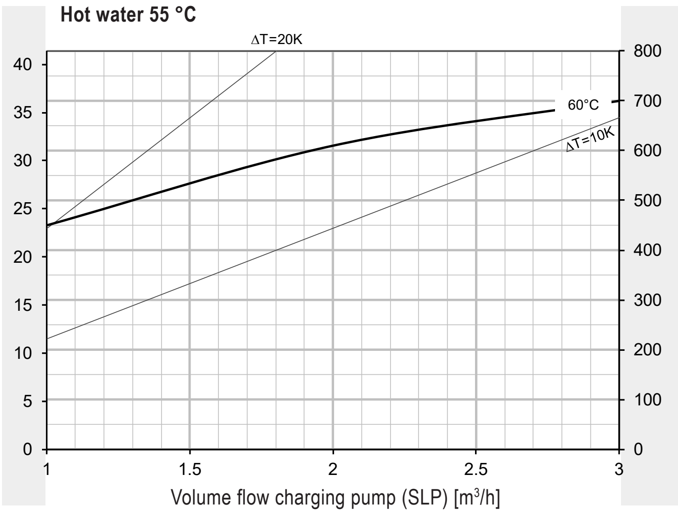
CombiVal ESSR (500)

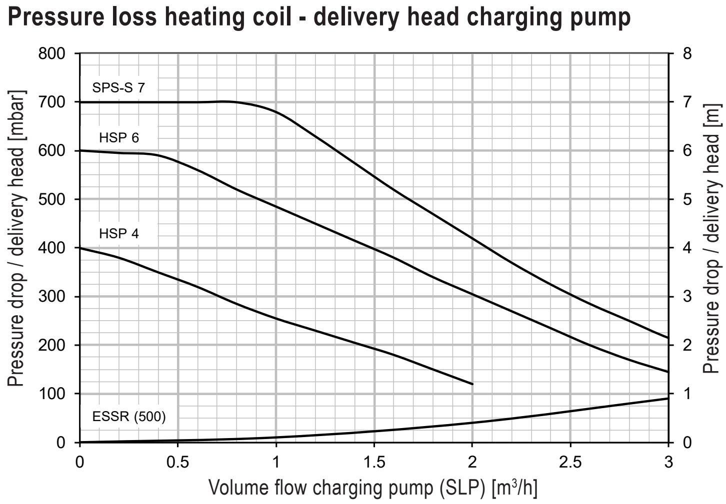
Hot water output
Continuous output

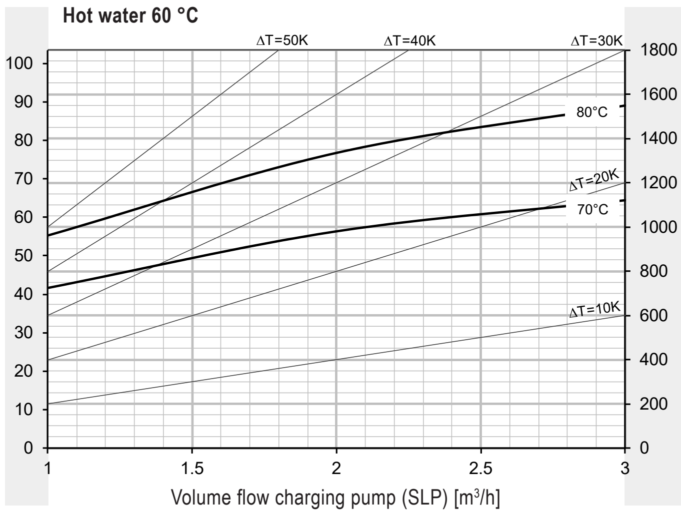
Reading example
see engineering











* Calorifier heated to 60 °C

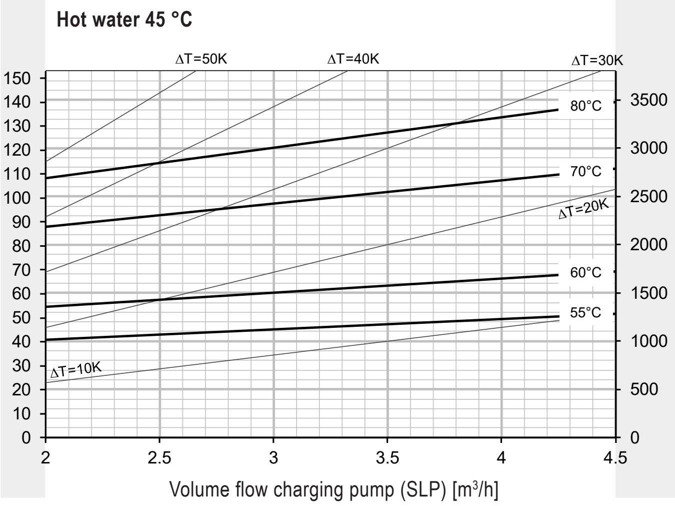
CombiVal ESSR (800)

Hot water output
Continuous output

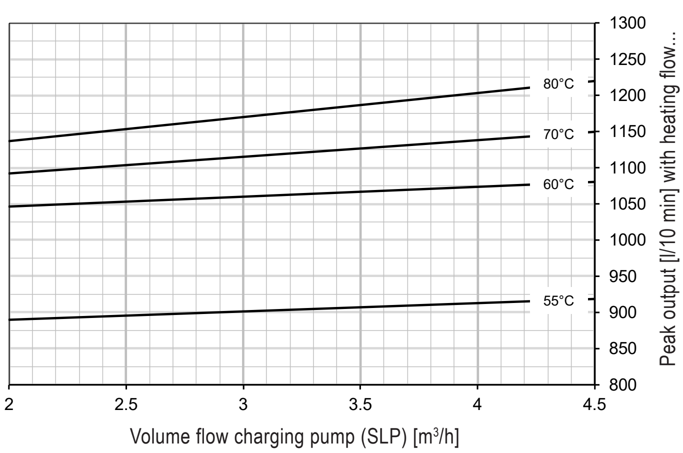
Reading example
see engineering

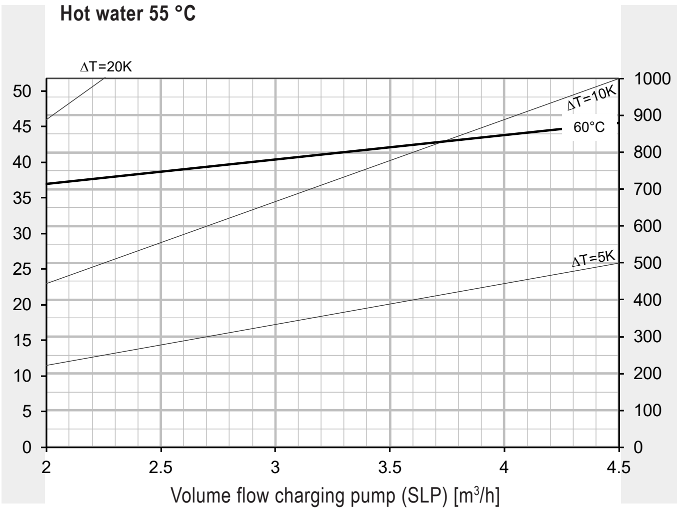
Heat input [kW]

Continuous output [l/h] with heating flow...

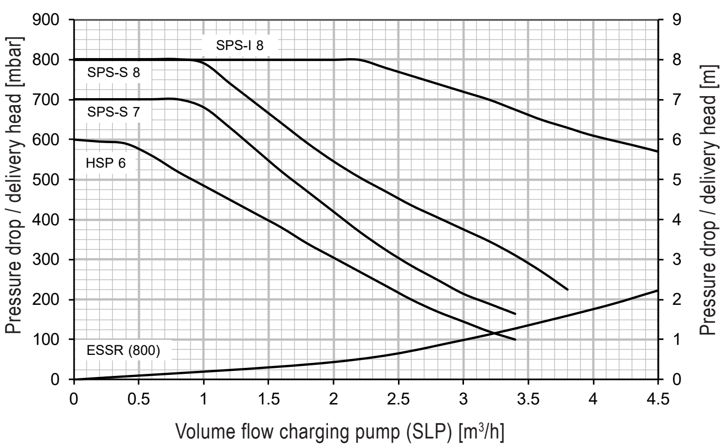


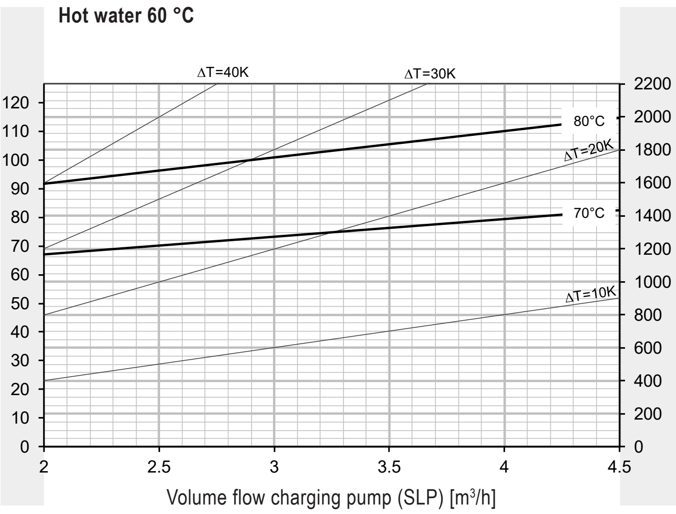
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



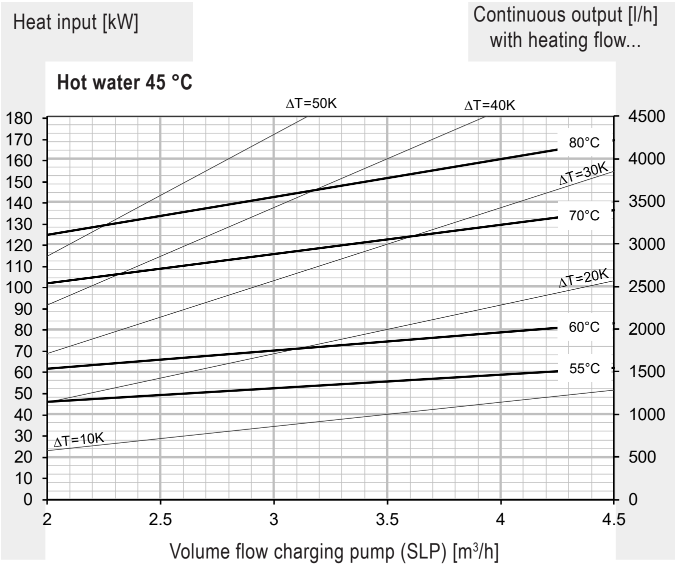


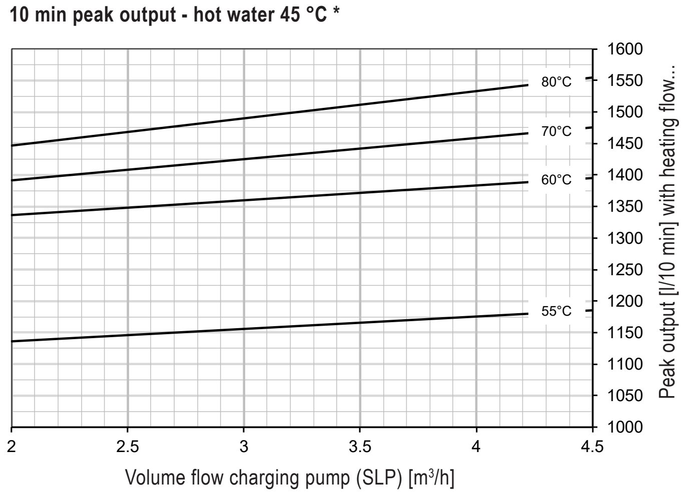
* Calorifier heated to 60 °C

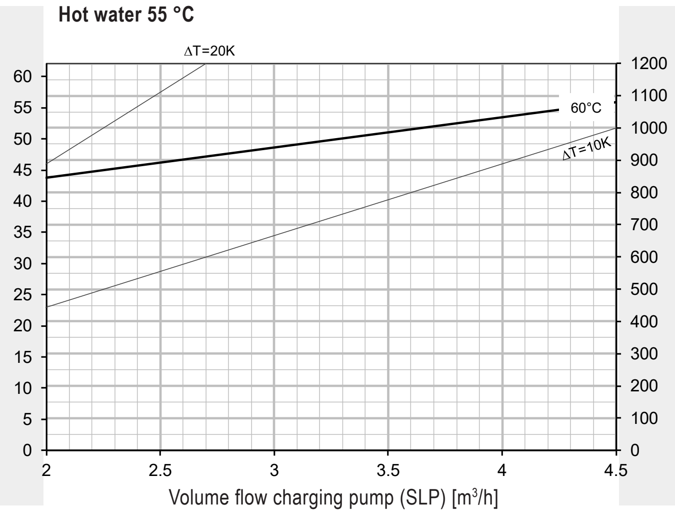
CombiVal ESSR (1000)

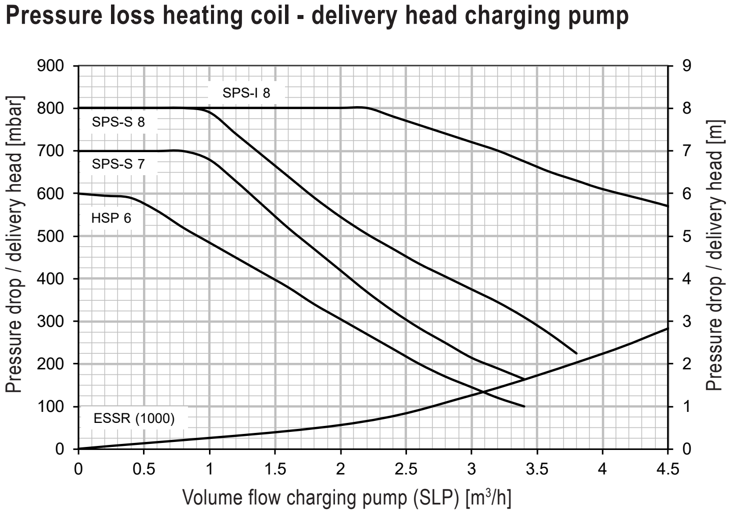
Hot water output
Continuous output

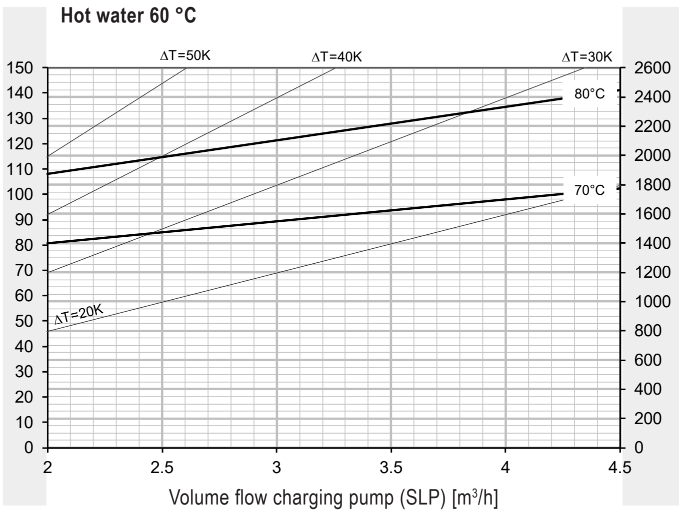
Reading example
see engineering







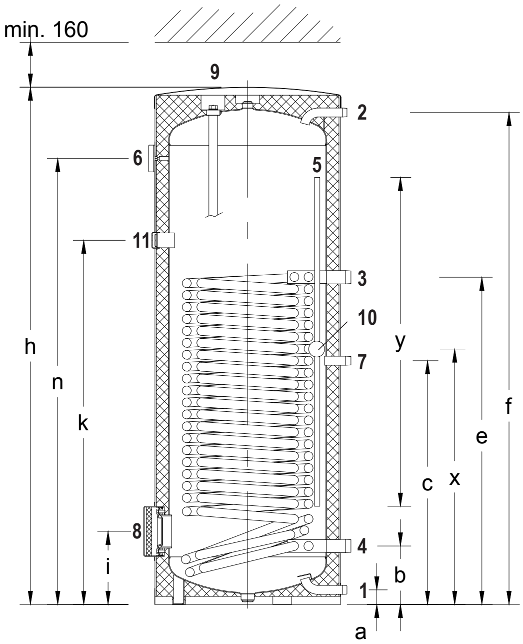


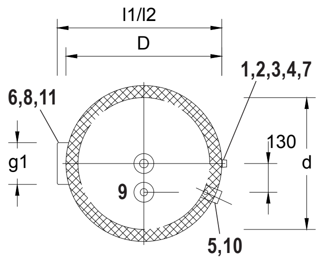


* Calorifier heated to 60 °C

CombiVal ESSR (500)

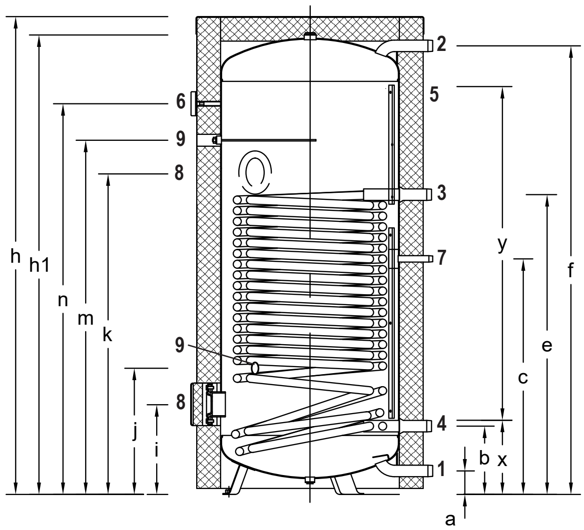
(Dimensions in mm)

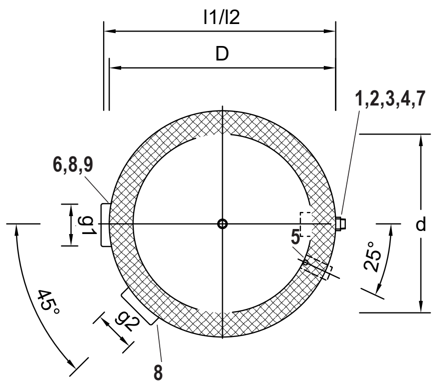




1 Cold water G 1″
2 Hot water G 1″
3 Flow heating G 1 ¾″
4 Return heating G 1 ¾″
5 Sensor channel inner Ø 11 mm
6 Thermometer
7 Circulation G ¾″
8 Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
9 Anode sleeve Rp 1¼″, (turned through 90° in section) screw connection uninsulated
10 Removable cap (60 mm) for positioning the sensor in the sensor channel
11 Connection for screw-in electrical heating inset Rp 1½″

CombiVal ESSR (800,1000)





1	Cold water	G 1½″
2	Hot water	G 1½″
3	Flow heating	G 1½″
4	Return heating	G 1½″
5	Sensor terminal bar	
6	Thermometer	
7	Circulation	R ¾″
8	Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle Ø 150 mm, 8 x M10	
9	Correx® impressed current anode coupling or magnesium anode	Rp ¾″

CombiVal ESSR Type	d	D	Ø g1	Ø g2	l1	l2 *
(500)	597	750	180	-	795	810
(800)	750	950	180	180	975	1020
(1000)	850	1050	180	180	1075	1120

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

CombiVal ESSR Type	a	b	c	e	f	h	h1	i	j	k	m	n	x	y	Tilting measure
(500)	55	221	919	1234	1856	1953	-	275	-	-	1683	1319	946	1360	2093
(800)	99	287	990	1260	1885	2033	1937	382	520	1413	1497	1642	297	1400	1962
(1000)	103	297	1045	1360	1902	2063	1963	388	525	1446	1485	1652	305	1400	1991

Hoval calorifier MultiVal ERR (300-500)

- Calorifier made of steel enamelled inside
- 2 smooth pipe heat exchangers enamelled, built in
  - for alternative use at the bottom
  - for additional heating with an oil, gas or wood boiler at the top
- Magnesium protection anode built in
- Flange for electrical heating inset
- Thermal insulation made of polyurethane hard foam hulls, foamed on the calorifier
- Dismantable foil casing, red coloured
- Sensor channel
- Immersion sleeve welded in
- Including thermometer
- 1½″ sleeve for a screw-in electrical heating inset

Delivery
- Calorifier with foil casing installed

On request
- Screw-in electrical heating inset
- Flange electrical heating inset

Flange electrical heating inset

- Made of Incoloy® alloy 825
- Heat input 4.0 to 6.0 kW, according to rules of the power station
- Incl. temperature control and safety temperature limiter
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the heating inset

Screw-in electrical heating inset
Type EP 2.5 to EP 5

- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Including temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Range
MultiVal

Type		
ERR	(300)	B
ERR	(400)	B
ERR	(500)	B

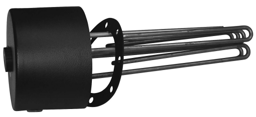
Calorifier

MultiVal ERR (300-500)

Made of steel enamelled inside,
with 2 heat exchangers. Calorifier fully cased.

MultiVal ERR type		Volume dm³	Heating surface top m²	Heating surface bottom m²	Part No.
(300)	B	295	0.80	1.55	7015 971
(400)	B	381	1.00	2.15	7016 752
(500)	B	471	1.30	2.15	7016 753

Accessories



Flange electrical heating inset
for MultiVal ERR (300-500)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-E	Heat input 3 x 400 V [kW]	Changeable to	Install. depth [mm]	MultiVal ERR	Part No.
MultiVal ERR (300-500) mountable only below					
4-180	4.0		380	(300-500)	6049 561
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	(400-500)	6049 562
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			

Screw-in electrical heating inset
for MultiVal ERR (300-500)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site
No use for exclusively electrical heating.

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	for MultiVal ERR	Part No.
MultiVal ERR (300-500) mountable only above					
EP 2.5	2.35	3 x 400 (1 x 230)	390	(300-500)	6049 557
EP 3.5	3.6	3 x 400	500	(300-500)	6049 558
EP 5	4.9	3 x 400	620	(400,500)	6049 559

		Part No.
	**Flange cover 180 - ¾″** for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve Seal and screws included	2077 035
	**Flange with immersion sleeve** for enamel-painted calorifiers for temperature sensor Flange dimensions: outer Ø 180 mm, pitch circle Ø 150 mm, 8 x M10	6028 468
	**Correx® impressed current anode set** for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting. Installation length: 395 mm	684 760
	Either a Correx® impressed current anode **or** one and/or two magnesium anodes may be used.	
	**Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67	2056 788
	**Immersion sensor TF/2P/5/6T, L = 5.0 m** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m without plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, operating temperature: -20…105 °C, index of protection: IP67	2055 888
	**Immersion sensor TF/12N/2.5/6T, L = 2.5 m** for gas boiler with RS-OT Cable length: 2.5 m Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, Operating temperature: -20…105 °C, index of protection: IP67	2056 791
	At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.	

Part No.

Calorifier thermostat control TW 12 — 6010 080
universal storage tank thermostat
controller for thermostatic pump
charge demand, setting in
casing, visible from outside.
15-95 °C, switching differential 6 K,
capillar length 700 mm incl. fastening
material for Hoval storage tanks, can
be used with integrated immersion well

Thermostatic water mixer TM200 — 2005 915
3-way-mixing valve for regulating
of the water temperature
Material: brass
Connection dimension R ¾″
Hot water temperature max. 90 °C
Adjustment range 30-60 °C
Flow rate 27 l/min (at delta p = 1 bar)
Flow coefficient value (kvs) 1.62 m³/h

Thermostatic mixing valve JRG
3-way mixing valve made of brass
for regulating the water temperature.
Hot water max. 90 °C
Setting range 45-65 °C
Factory-set to: 55 °C
Pressure: PN 10
Connections: external thread
incl. screwed joint

Type	Dimension	Connection size	kvs value m³/h	Part No.
JRG 25	1″	1 ½″	4.0	2061 407
JRG 32	1 ¼″	2″	8.5	2061 408
JRG 40	1 ½″	2 ¼″	12.0	2061 409

Calorifier

Type	MultiVal	(300)	(400)	(500)
• Volume	litres	295	381	471
• Volume (upper battery)	litres	110	126	181
• Operating pressure/test pressure	bar	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95
• Expanded PU hard foam thermal insulation	mm	75	75	75
• Thermal insulation λ	W/mK	0.027	0.027	0.027
• Thermal insulation polyester fleece	mm	-	-	-
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	61	69	78
• Transport weight	kg	128	149	170
• U value	W/m²K	0.307	0.326	0.316
• For flat collectors up to	m²	8	10	11
Dimensions			see table of dimensions	
Heating battery bottom				
• Heating surface	m²	1.55	2.15	2.15
• Heating water	litres	10.3	15.1	15.1
• Flow resistance water	z value	10	3.6	3.6
• Flow resistance water/glycol 50 %	z value	13	3.9	3.9
• Max. operating pressure/test pressure	bar	8/13	8/13	8/13
• Max. operating temperature	°C	110	110	110
Heating battery top				
• Heating surface	m²	0.80	1.00	1.30
• Heating water	litres	5.7	6.95	8.9
• Flow resistance [1]	z value	6	8	9
• Operating pressure/test pressure	bar	8/13	8/13	8/13
• Max. operating temperature	°C	110	110	110

[1] Flow resistance heating battery in mbar = volume flow (m³/h)² x z

Flange electrical heating inset to MultiVal ERR (300-500)
With temperature control and safety temperature limiter.
Factory set-up: 3 x 400 V
Heat input (kW) according to rules of the power works.
No use for exclusively electrical heating.

EFHK-E Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal ERR
4-180	4.0	3 x 400	380	(300-500)
6-180	6.0	3 x 400	460	(400,500)

Screw-in electrical heating insets to MultiVal ERR (300-500)
Made of Incoloy® alloy 825, incl. temperature control and safety temperature limiter.
Delivered separately, installation on site.
Heat input (kW) according to rules of the power works.
No use for exclusively electrical heating.

Type	Heat output [kW]	Voltage [V]	Install. length [mm]	For CombiVal ERR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(300-500)
EP 3.5	3.6	3 x 400	500	(300-500)
EP 5	4.9	3 x 400	620	(400,500)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1	300/400			300/400		
2	500	300	300	500	300	300
3		400	400		400	400
4		500	500		500	500
5						
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	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
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54						
55						
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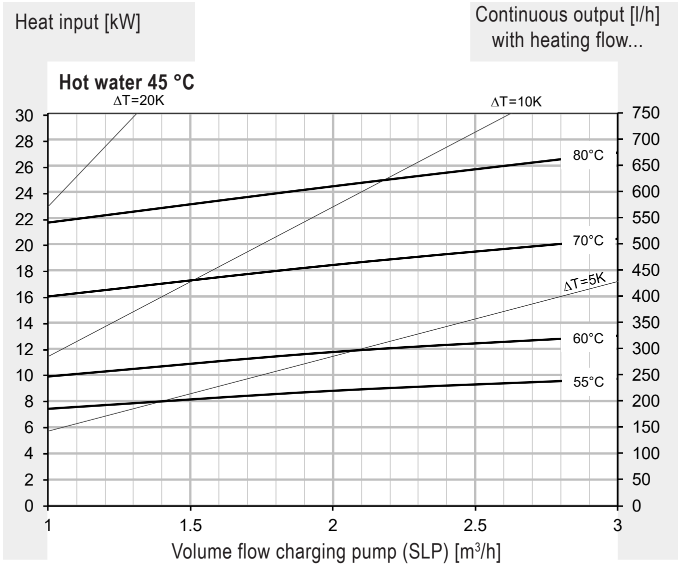
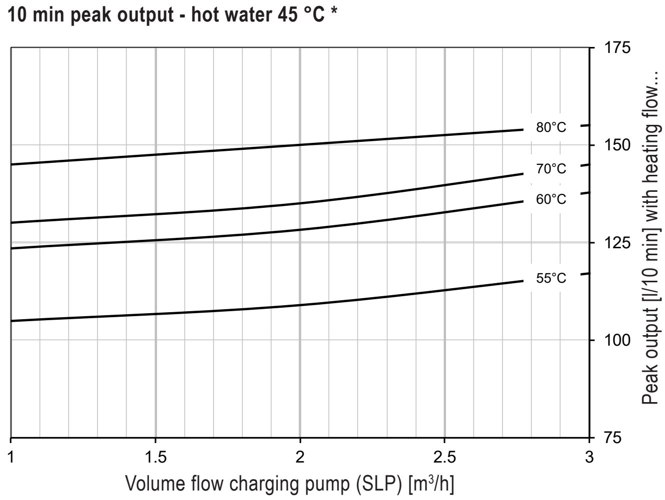
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

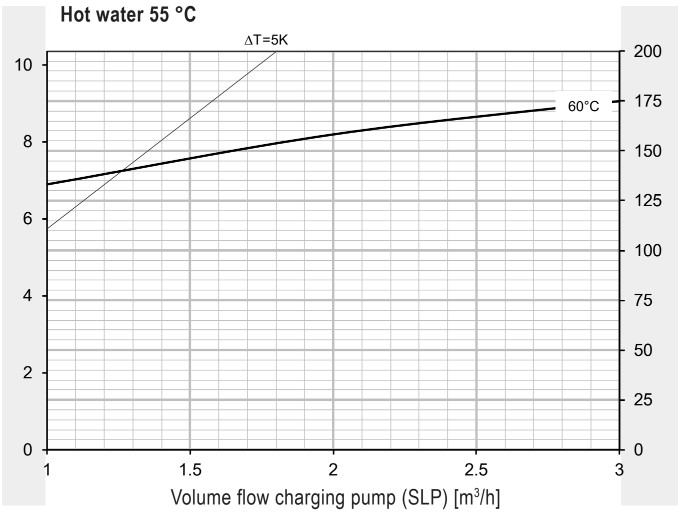
MultiVal ERR (300)

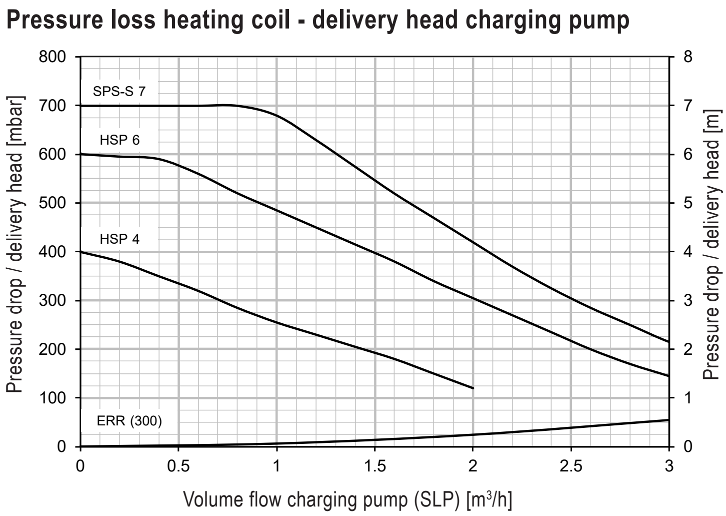
Hot water output
Continuous output

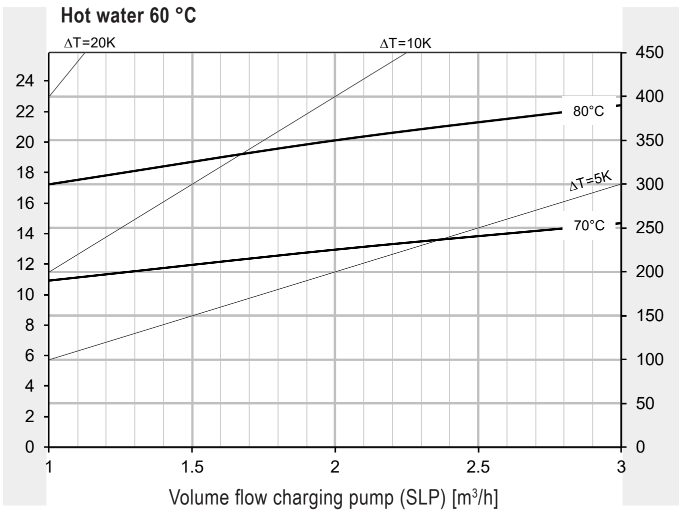
Reading example
see engineering









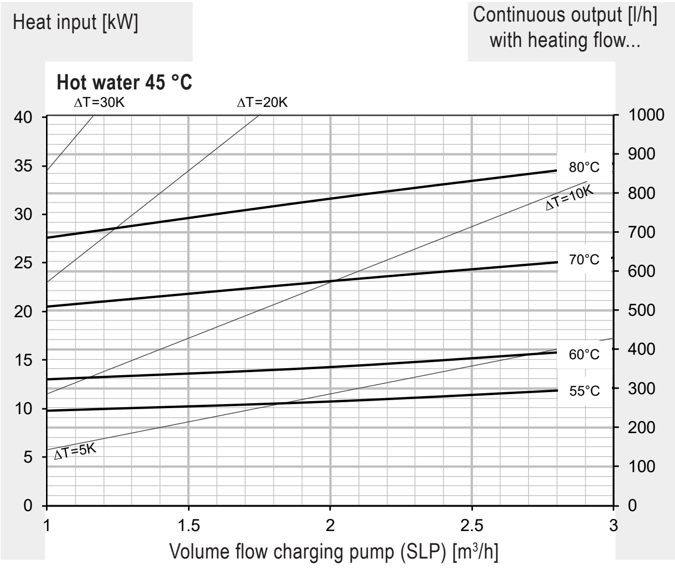


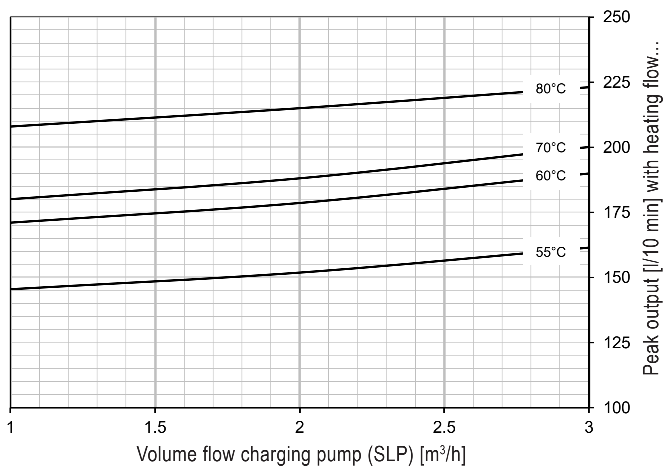
* Calorifier heated to 60 °C

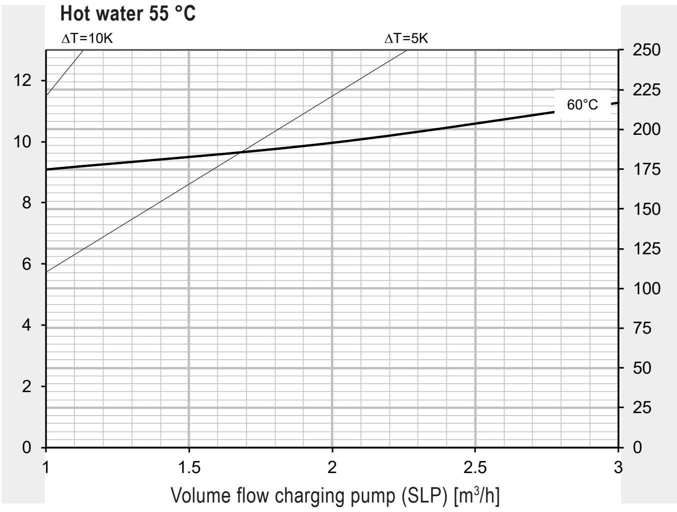
MultiVal ERR (400)

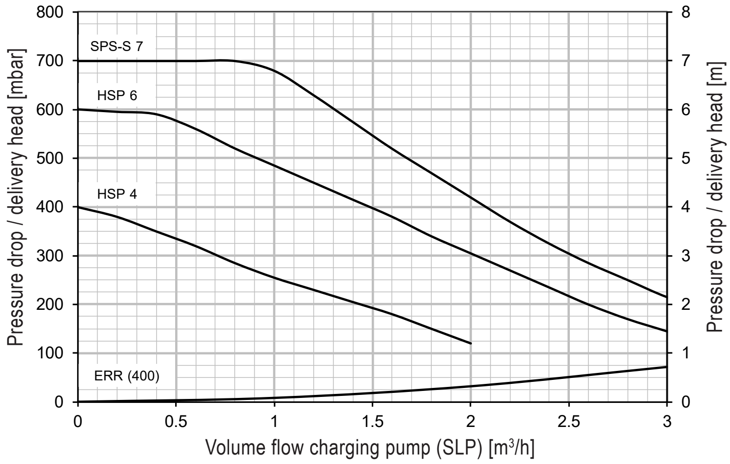
Hot water output
Continuous output

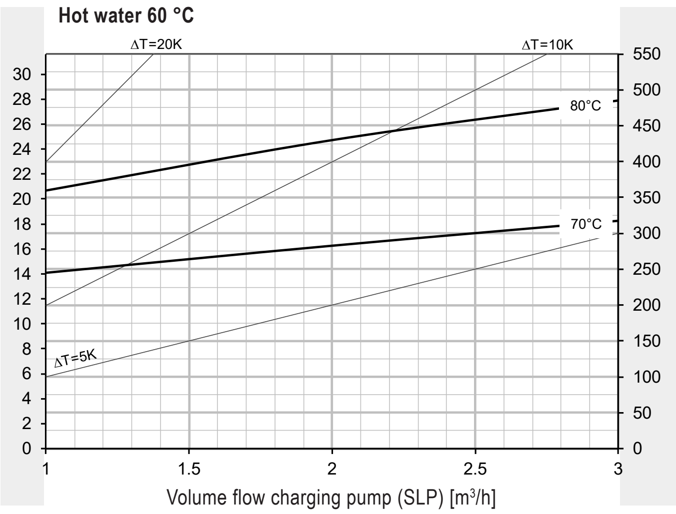
Reading example
see engineering









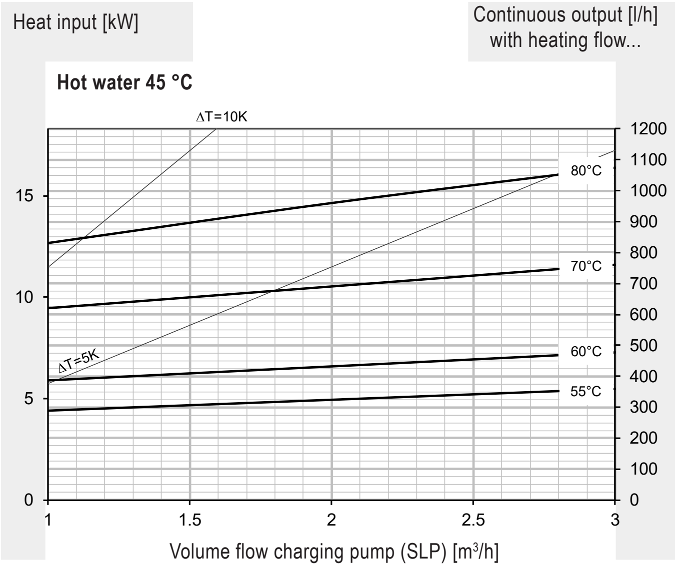


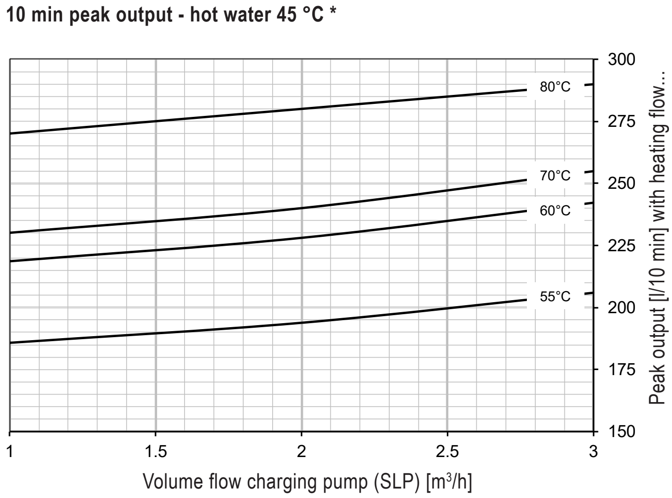
* Calorifier heated to 60 °C

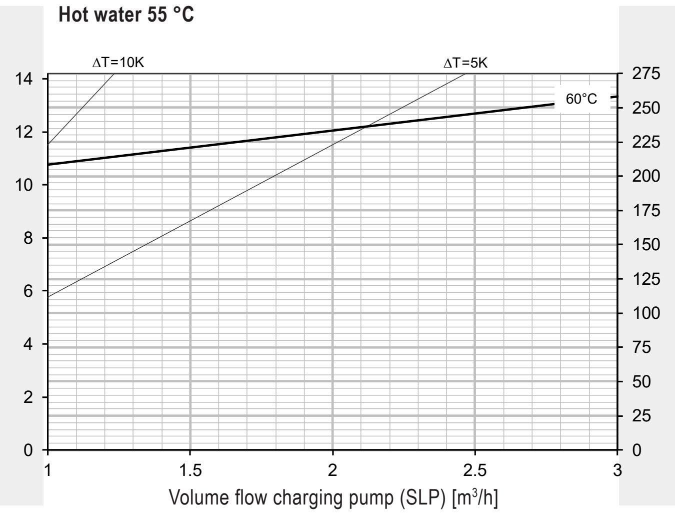
MultiVal ERR (500)

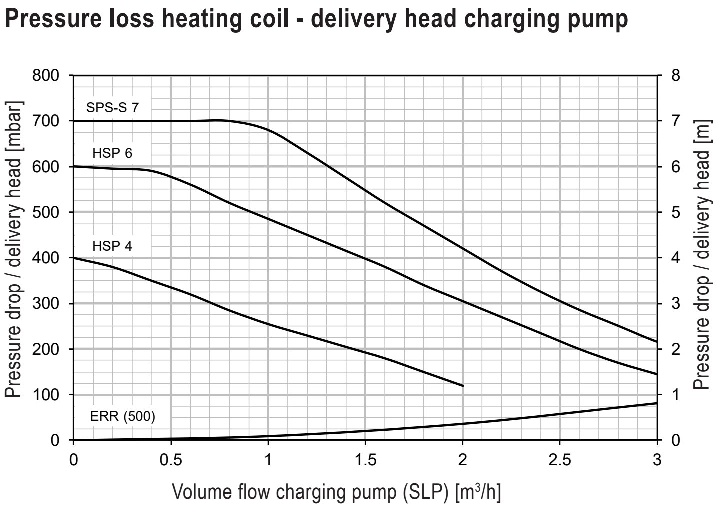
Hot water output
Continuous output

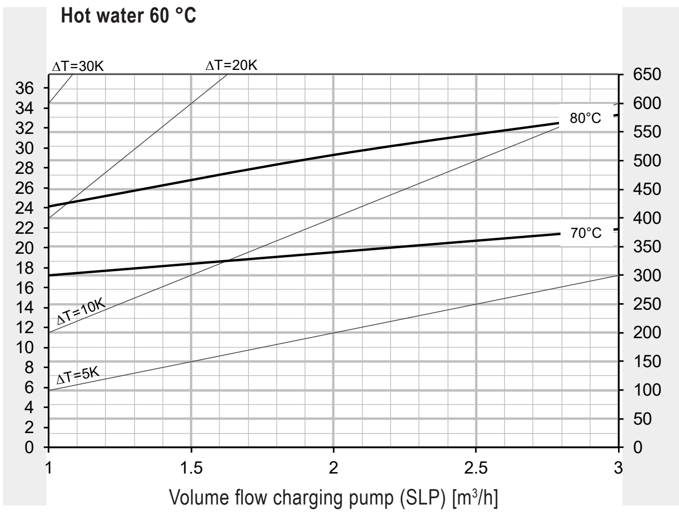
Reading example
see engineering





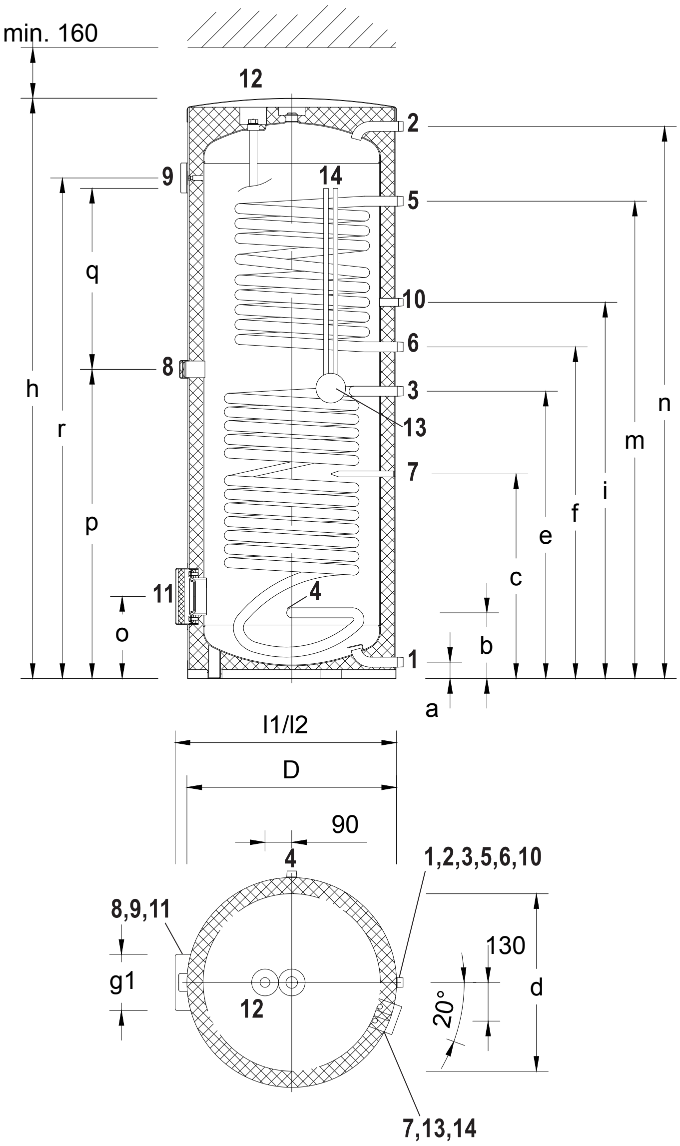






* Calorifier heated to 60 °C

MultiVal ERR (300)
(Dimensions in mm)



1	Cold water	G 1″
2	Hot water	G 1″
3	Flow solar circuit	G 1″
4	Return solar circuit	G 1″
5	Flow re-heating	G 1″
6	Return re-heating	G 1″
7	Connection for sensor, thermostat (turned through 20° in section)	
8	Connection for screw-in electrical heating inset Rp 1½″	
9	Thermometer	
10	Circulation	G ¾″
11	Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10	
12	Anode sleeve Rp 1″, screw connection uninsulated (turned through 90° in section)	
13	Removable cap (100 mm) for positioning the sensor in the sensor channel	
14	2 x sensor duct inner Ø 11 mm	

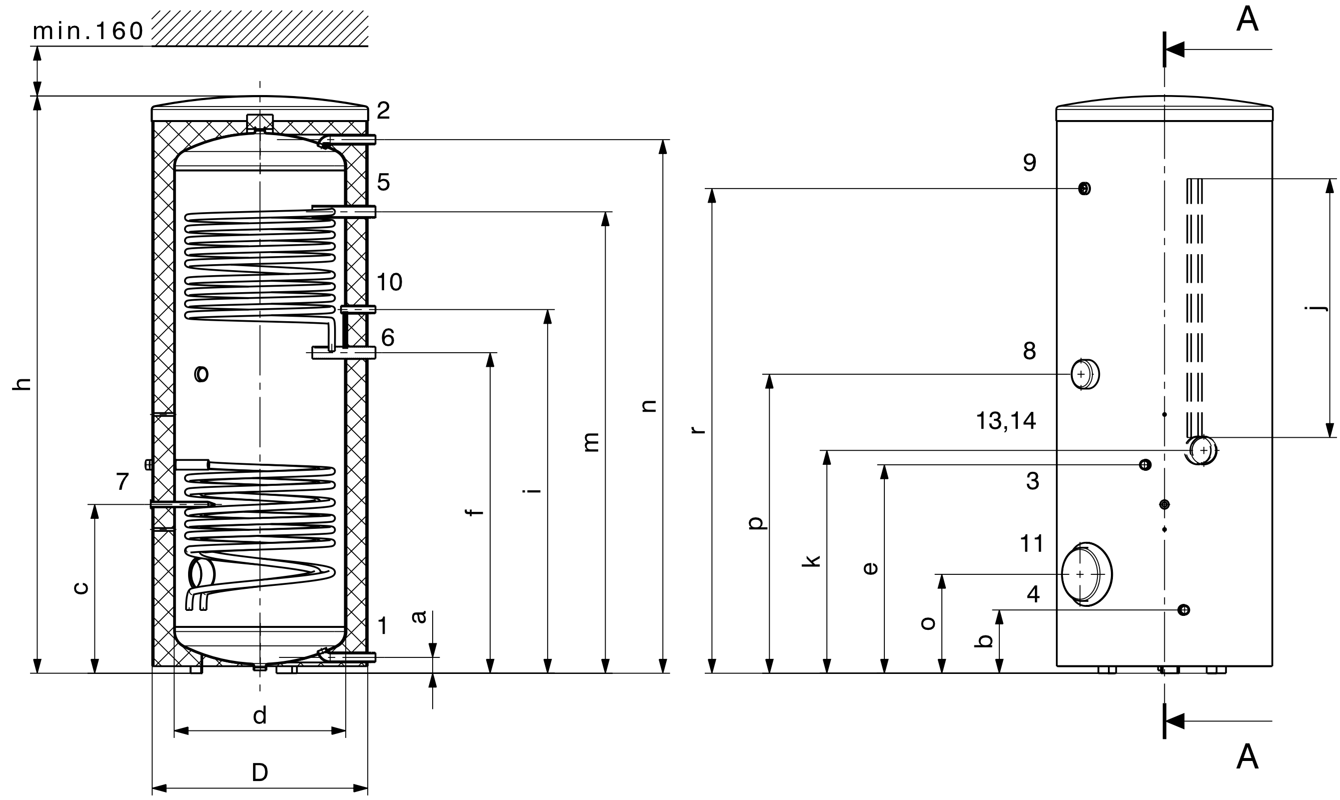
MultiVal ERR Type	d	D	Ø g1	l1	l2 *
(300)	500	650	180	695	710

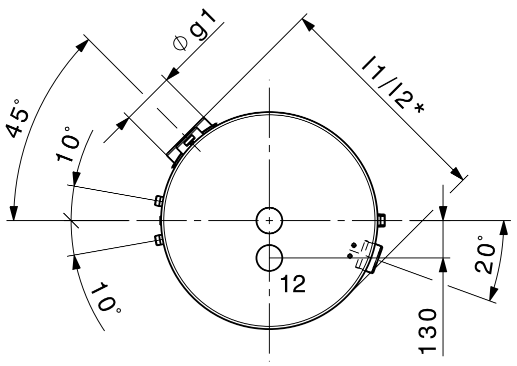
* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

MultiVal ERR Type	a	b	c	e	f	h	i	m	n	o	p	q	r	Tilting measure
(300)	90	275	704	985	1085	1835	1180	1445	1729	325	1015	367	1505	1947

MultiVal ERR (400,500)
(Dimensions in mm)





1 Cold water G 1″
2 Hot water G 1″
3 Flow solar circuit G 1″
4 Return solar circuit G 1″
5 Flow re-heating G 1″
6 Return re-heating G 1″
7 Connection for sensor, thermostat
8 Connection for screw-in electrical heating inset Rp 1½″
9 Thermometer
10 Circulation G ¾″
11 Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
12 Anode coupling Rp 1″, screw connection uninsulated
13 Removable cap for positioning the sensor in the sensor channel
14 2 x sensor duct inner Ø 11 mm

MultiVal ERR Type	d	D	Ø g1	l1	l2 *
(400)	597	750	180	791	831
(500)	597	750	180	791	831

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

MultiVal ERR Type	a	b	c	e	f	h	i	j	k	m	n	o	p	r	Tilting measure
(400)	55	220	587	725	1007	1621	1112	500	817	1355	1526	344	958	1356	1731
(500)	55	220	587	725	1115	1951	1265	900	775	1605	1856	344	1040	1686	2029

Hoval calorifier MultiVal ESRR (500)

- Calorifier made of steel enamelled inside
- 2 smooth pipe heat exchangers enamelled, built in
  - at the bottom: for solar use
  - for heating with heat pumps
- Magnesium protection anode or impressed current anode built in
- Flange for electrical heating inset
- Thermal insulation made of polyurethane hard foam hulls, foamed on the calorifier, dismantable foil casing, colour red
- Sensor channel
- Immersion sleeve welded in
- With thermometer
- 1½″ sleeve for a screw-in electrical heating inset

Delivery
- Calorifier fully cased

On request
- Flange electrical heating inset

Hoval calorifier MultiVal ESRR (800-1000)

- Calorifier made of steel enamelled inside
- 2 smooth pipe heat exchangers enamelled, built in
  - at the bottom: for solar use
  - for heating with heat pumps
- Correx® potentiostat included
- 2 impressed current anodes incl. connecting cable integrated
- Flange below as cleaning flange or for the installation of a flange electrical heating inset or blank flange with immersion sleeve
- Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- Thermal insulation made of polyester fleece with foil jacket, colour red
- Two terminal bars for contact sensor
- With thermometer

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

On request
- Flange electrical heating inset

Multival ESRR (500) Multival ESRR (800,1000)

Range
MultiVal
Type

ESRR	(500)	B
ESRR	(800)	
ESRR	(1000)	

Screw-in electrical heating inset

Type EP 2,5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Including temperature control and safety temperature limiter.
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Flange electrical heating inset

Type EFHK-E 4 to EFHK-E 9
- Made of Incoloy® alloy 825
- Heat input 4.0 to 8.5 kW, according to rules of the power station
- Incl. temperature control and safety temperature limiter.
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the heating inset

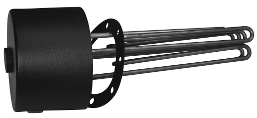
Calorifier

MultiVal ESRR (500-1000)

Made of steel enamelled,
with 2 heat exchangers
MultiVal ESRR (500) fully cased.
MultiVal ESRR (800,1000) calorifier and thermal insulation delivered separately packed.

MultiVal ESRR type		Volume dm³	Heating surface top m²	Heating surface bottom m²	Part No.
(500)	B	463	4.30	2.15	7016 754
(800)		731	5.20	2.60	7018 053
(1000)		956	6.10	3.40	7018 054

Accessories



Flange electrical heating inset EFHR for MultiVal ESRR (500-1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

MultiVal ESRR (500) mountable only below
MultiVal ESRR (800,1000) mountable above and below

Type EFHK-E	Heat input 3 x 400 V [kW]	Changeable to	Install. length [mm]	MultiVal ESRR	Part No.
4-180	4.0 kW/ 3 x 400 V		380	(500-1000)	6049 561
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0 kW/ 3 x 400 V		460	(500-1000)	6049 562
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	8.5 kW/ 3 x 400 V		615	(800,1000)	6052 438
		5.7 kW/3x400 V			
		4.2 kW/3x400 V			
		2.8 kW/3x400 V			
		2.8 kW/1x230 V			

Screw-in electrical heating inset for MultiVal ESRR (500)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Not suitable for exclusively electric heating.

MultiVal ESRR (500) mountable only above

Type	Heat input [kW]	Voltage [V]	Installation length [mm]	For MultiVal ESRR	Part No.
EP 2.5	2.35	3 x 400	390	(500)	6049 557
EP 3.5	3.6	3 x 400	500	(500)	6049 558
EP 5	4.9	3 x 400	620	(500)	6049 559

		Part No.
	**Flange cover 180 - ¾″** for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve Seal and screws included	2077 035
	**Flange with immersion sleeve** for enamel-painted calorifiers for temperature sensor Flange dimensions: outer Ø 180 mm, pitch circle Ø 150 mm, 8 x M10	6028 468
	**Correx® impressed current anode set** for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting. Installation length: 395 mm Included in the scope of delivery of ESRR (800,1000) **Either** a Correx® impressed current anode **or** one and/or two magnesium anodes may be used.	684 760
	**Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67	2056 788
	**Immersion sensor TF/2P/5/6T, L = 5.0 m** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m without plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, operating temperature: -20…105 °C, index of protection: IP67	2055 888
	**Immersion sensor TF/12N/2.5/6T, L = 2.5 m** for gas boiler with RS-OT Cable length: 2.5 m Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, Operating temperature: -20…105 °C, index of protection: IP67 **At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.**	2056 791

	Part No.

Calorifier thermostat control TW 12
universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside.
15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well — 6010 080

Thermostatic water mixer TM200
3-way-mixing valve for regulating of the water temperature
Material: brass
Connection dimension R ¾″
Hot water temperature max. 90 °C
Adjustment range 30-60 °C
Flow rate 27 l/min (at delta p = 1 bar)
Flow coefficient value (kvs) 1.62 m³/h — 2005 915

Thermostatic mixing valve JRG
3-way mixing valve made of brass
for regulating the water temperature.
Hot water max. 90 °C
Setting range 45-65 °C
Factory-set to: 55 °C
Pressure: PN 10
Connections: external thread
incl. screwed joint

Type	Dimension	Connection size	kvs value m³/h	Part No.
JRG 25	1″	1½″	4.0	2061 407
JRG 32	1¼″	2″	8.5	2061 408
JRG 40	1½″	2¼″	12.0	2061 409

Calorifier MultiVal ESRR

Type		(500)	(800)	(1000)
• Volume	litres	463	731	958
• Volume (upper battery)	litres	235	444	535
• Operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	95	95	95
• Expanded PU hard foam thermal insulation	mm	75	-	-
• Thermal insulation λ	W/mK	0.027	0.040	0.040
• Polyester fibre fleece thermal insulation	mm	-	100	100
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	81	128	144
• Transport weight	kg	234	301	383
• U value	W/m²K	0.333	0.380	0.375
• Dimensions			see table of dimensions	
Heating battery low (built in)			Plain tube heat exchanger for solar use	
• Heating surface	m²	2.15	2.6	3.4
• Heating water content	litres	15.1	17.8	24.1
• Flow resistance water [1]	z value	3.6	4.5	7.5
Flow resistance water/glycol 50 %	z value	3.9	5.8	10
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	110	110	110
• For flat collectors up to [2]	m²	11	15	20
Heating battery up (built in)			Plain tube heat exchanger for heat pumps	
• Heating surface	m²	4.3	5.2	6.1
• Heating water content	litres	30.1	36.1	42.6
• Flow resistance [1]	z value	8	8	10
• Operating pressure/test pressure	bar	10/13	10/13	10/13
• Max. operating temperature	°C	110	110	110

[1] Flow resistance heating battery in mbar = volume flow (m³/h)² x z
[2] Collector surface, related to the heat exchanger heating surface only

Flange electrical heating inset to MultiVal ESRR (500-1000)
With temperature control and safety temperature limiter.
Factory set-up: 3 x 400 V.
Heat input (kW) according to rules of the power works
No use for exclusively electrical heating.

EFHK-E Type	Heat output [kW]	Voltage [V]	Istallation length [mm]	For MultiVal ESRR
4-180	4.0	3 x 400	380	(500-1000)
6-180	6.0	3 x 400	460	(500-1000)
9-180	8.5	3 x 400	615	(800,1000)

Screw-in electrical heating inset to MultiVal ESRR (500)
Incoloy® alloy 825, incl. temperature control and safety temperature limiter.
Delivered separately, installation on site.
Heat input (kW) according to rules of the power works.
No use for exclusively electrical heating.

Type	Heat output [kW]	Voltage [V]	Istallation length [mm]	For MultiVal ESRR
EP 2,5	2.35	3 x 400 (1 x 230)	390	(500)
EP 3,5	3.6	3 x 400	500	(500)
EP 5	4.9	3 x 400	620	(500)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1						
2						
3						
4						
5						
6						
7						
8						
9	500					
10				500		
11						
12	800					
13	1000					
14				800		
15				1000		
16						
17		500				
18						
19			500			
20						
21					500	
22						
23						500
24		800				
25						
26		1000				
27			800			
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30					800	
31			1000			
32						
33					1000	
34						800
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39						
40						1000
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43						
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48						
49						
50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						
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54						
55						
56						
57						
58						
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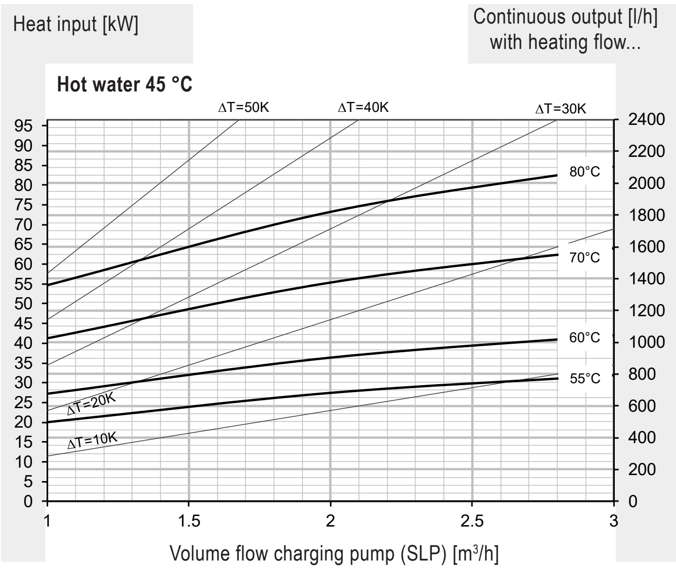
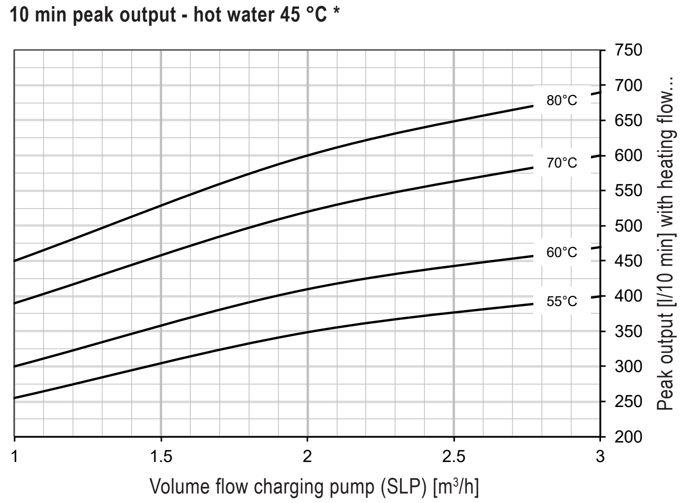
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

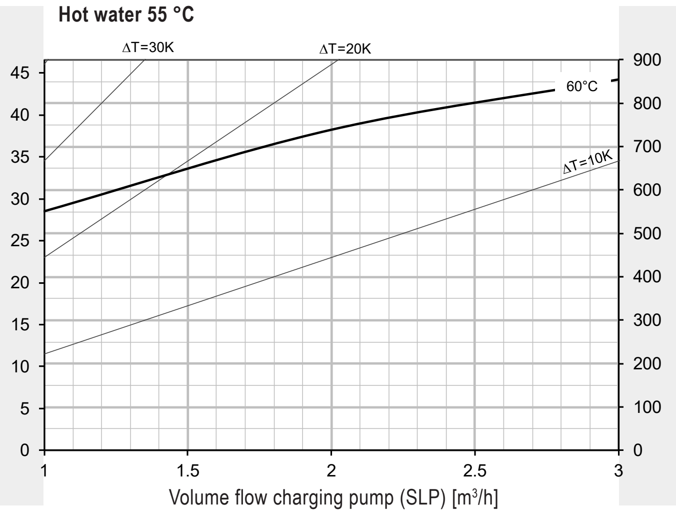
MultiVal ESRR (500)

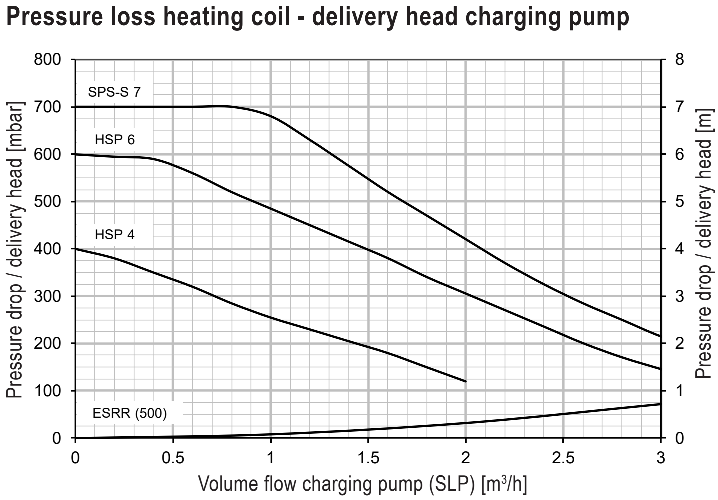
Hot water output
Continuous output

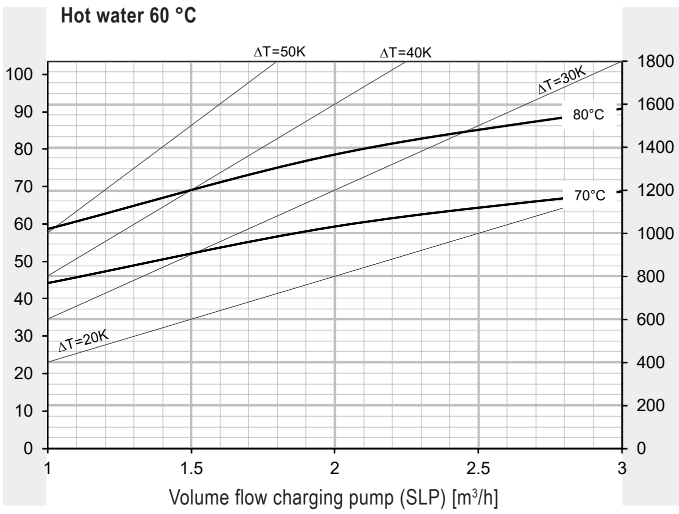
Reading example
see engineering









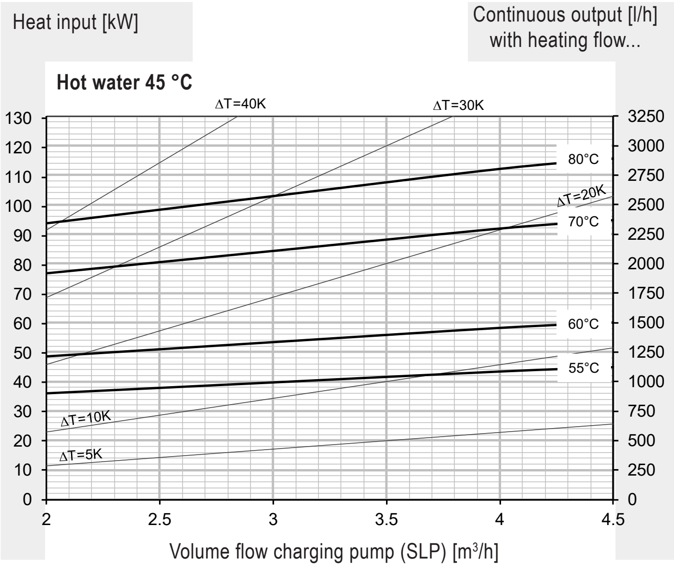


* Calorifier heated to 60 °C

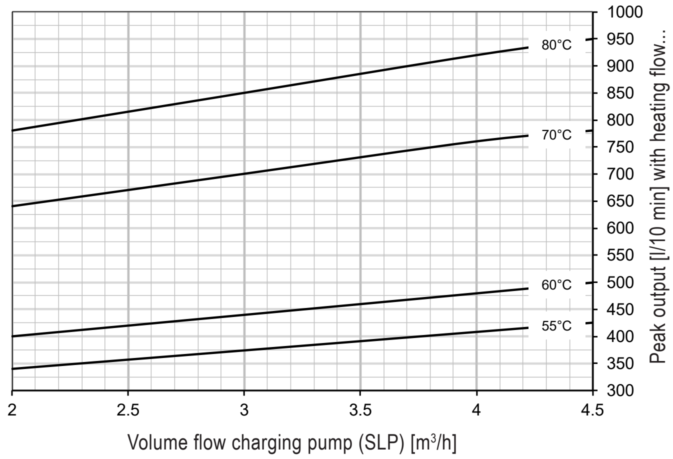
MultiVal ESRR (800)

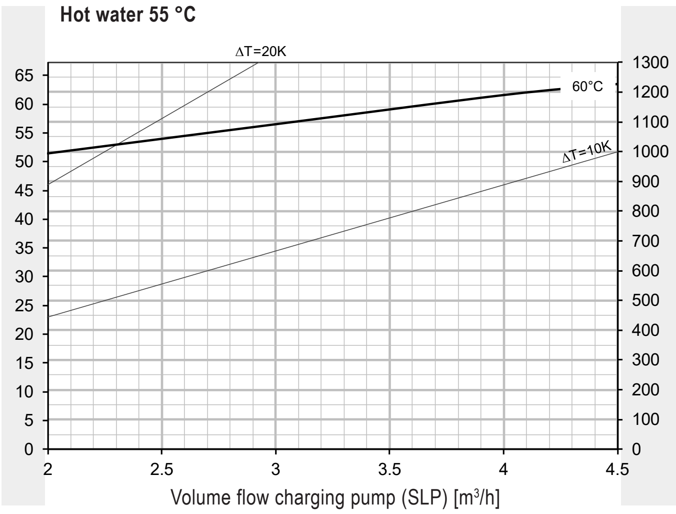
Hot water output
Continuous output

Reading example
see engineering

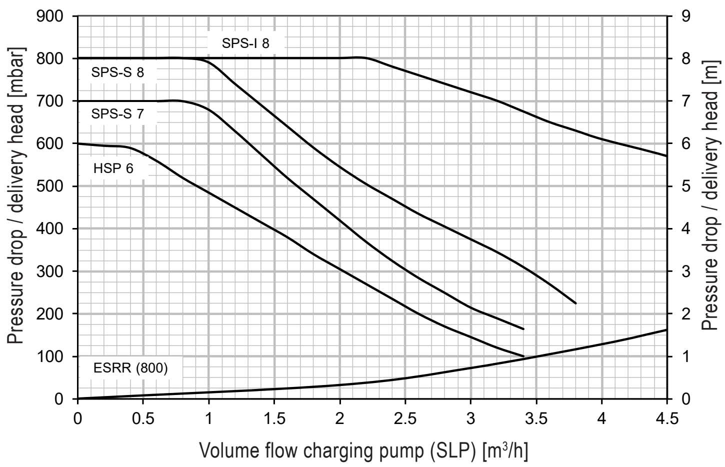


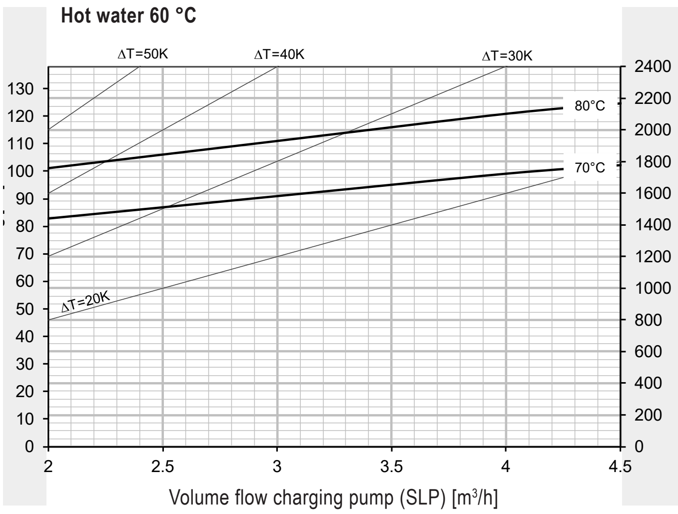
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



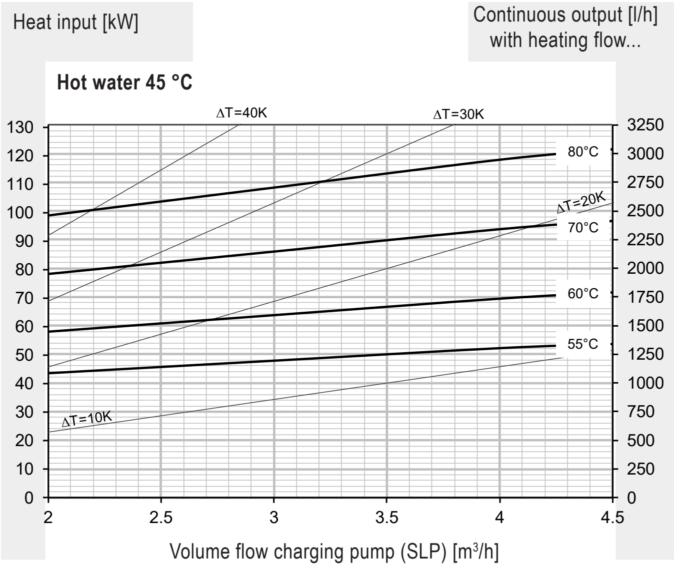


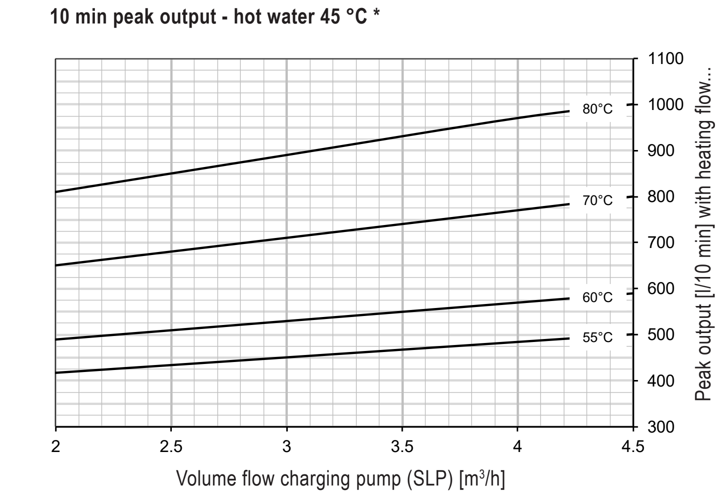
* Calorifier heated to 60 °C

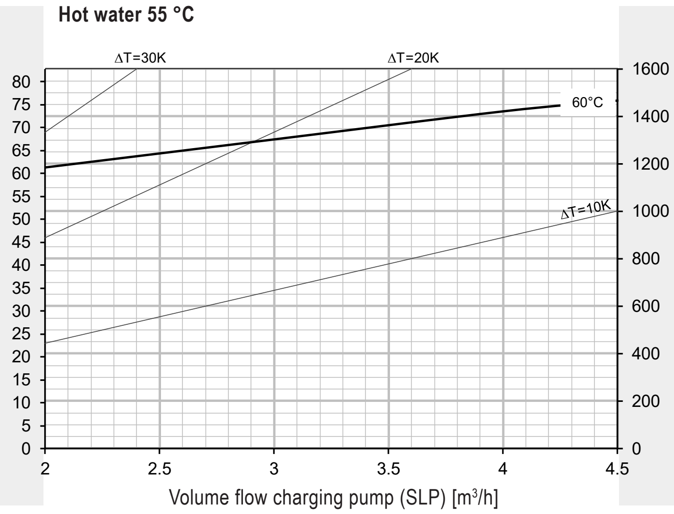
MultiVal ESRR (1000)

Hot water output
Continuous output

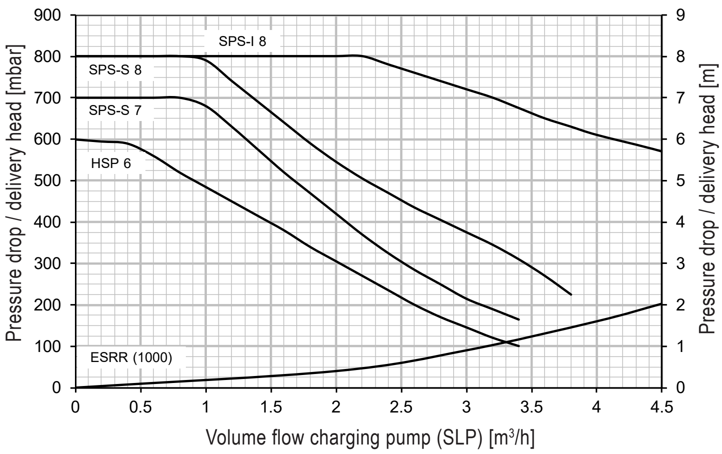
Reading example
see engineering

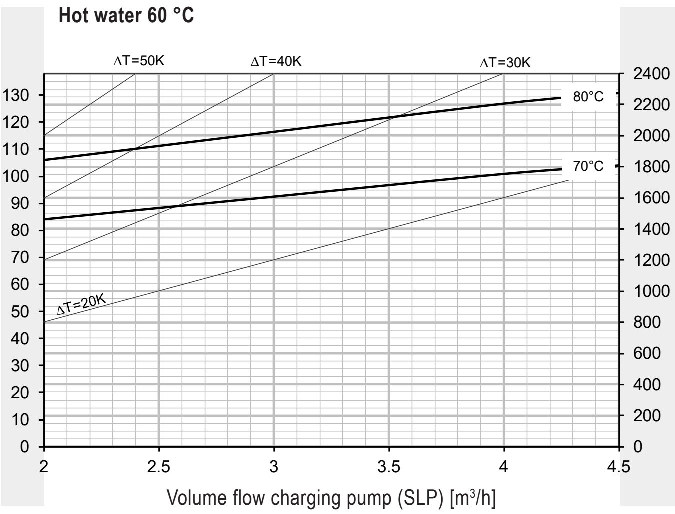






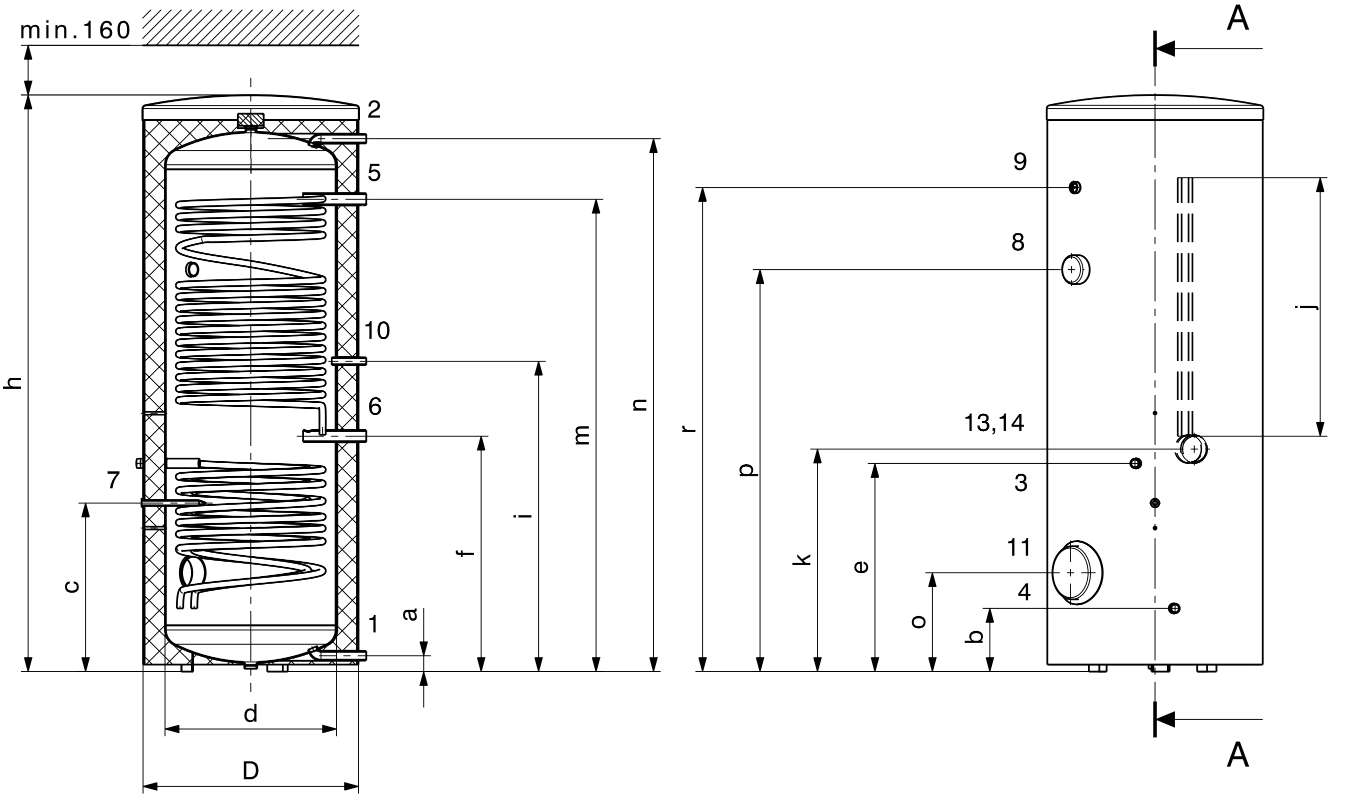
Pressure loss heating coil - delivery head charging pump

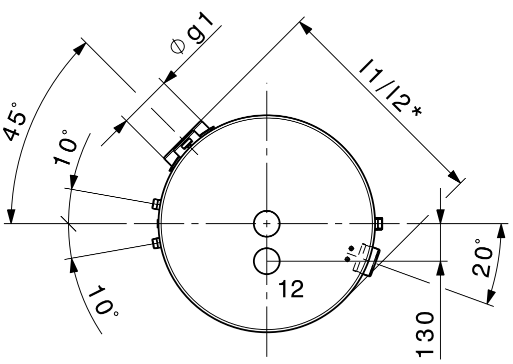




* Calorifier heated to 60 °C

MultiVal ESRR (500)
(Dimensions in mm)





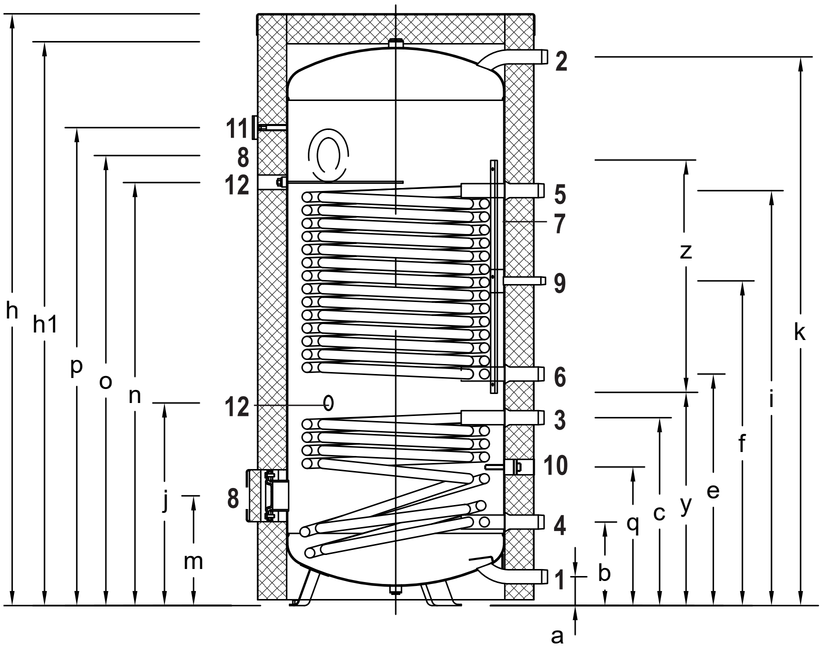
1	Cold water	G 1″
2	Hot water	G 1″
3	Flow solar circuit	G 1″
4	Return solar circuit	G 1″
5	Flow re-heating	G 1″
6	Return re-heating	G 1″
7	Connection for sensor, thermostat	
8	Connection for screw-in electrical heat element Rp 1½″	
9	Thermometer	
10	Circulation	G ¾″
11	Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle Ø 150 mm, 8 x M10	
12	Anode sleeve Rp 1¼″, screw connection uninsulated	
13	Removable cap for positioning the sensor in the sensor channel	
14	2 x sensor duct inner Ø 11 mm	

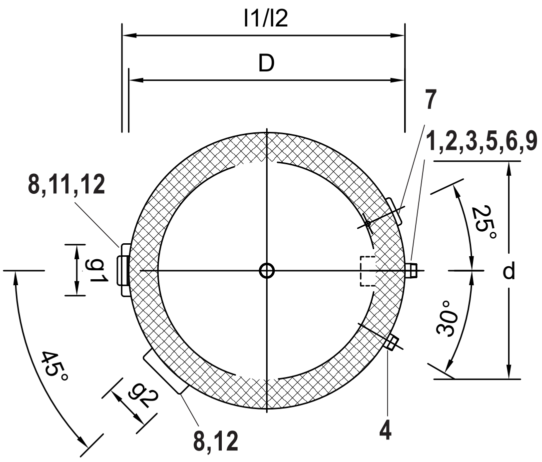
MultiVal ESRR	a	b	c	d	D	e	f	Ø g1	h	i	j	k	l1	l2	m	n	o	p	Tilting measure
(500)	55	220	587	597	750	725	820	180	1951	1081	900	775	791	831*	1645	1856	344	1400	2029

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

MultiVal ESRR (800,1000)
(Dimensions in mm)





1	Cold water	G 1½″
2	Hot water	G 1½″
3	Flow solar circuit	G 1½″
4	Return solar circuit	G 1½″ (turned through 30° in section)
5	Flow re-heating	G 1½″
6	Return re-heating	G 1½″
7	Sensor terminal bar	
8	Hand-hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle Ø 150 mm, 8 x M10	
9	Circulation	G ¾″
10	Connection for sensor, thermostat	
11	Thermometer	
12	Correx® impressed current anode coupling Rp ¾″	

MultiVal ESRR	a	b	c	d	D	e	f	Ø g1	Ø g2	h	h1	i	j	k	l1	l2	m	n	o	p	q	y	z	Tilting measure
(800)	99	287	645	750	950	795	1116	180	180	2033	1937	1426	750	1885	975	1020	382	1455	1540	1642	457	725	800	1962
(1000)	103	297	701	850	1050	851	1171	180	180	2063	1963	1481	750	1902	1075	1120	388	1526	1546	1652	463	777	800	1991

* Using a flange electrical immersion heater

Variation because of the production tolerance possible
Dimension +/- 10 mm

Hoval calorifier
CombiVal CR (200-1000)

- Calorifier made of stainless steel
- Flat section coils made of stainless steel, built in
- Thermal insulation made of polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
  (200) 1-part
  (300-800) 2-part
  (1000) 3-part
- CombiVal CR (200-500)
  1 ½″ sleeve for the mounting of a screw-in electrical heating inset, sensor terminal bar
- CombiVal CR (800,1000)
  Flange above as additional cleaning flange (SVGW regulation) or for the installation of an electrical heating flange inset.
- Flange below as cleaning flange or for installation of a flange-mounted electric heating element
- With thermometer
- Two terminal strips for contact sensors
- For domestic water up to max. 70 mg/l chloride content, with impressed current anode up to 200 mg/l chloride content
- Connection cable for equipotential bonding, permanently mounted

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

On request
- Electrical heating inset
- Electrical heating inset for flange above
- Flange cover with sleeve for flange below for the installation of a screw-in electrical heating inset
- Correx® impressed current anode set


CombiVal CR (500) CombiVal CR (1000)

Range
CombiVal
Type

CR	(200)	B
CR	(300)	B
CR	(500)	
CR	(800)	
CR	(1000)	

Screw-in electrical heating inset
Type EP 2,5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Incl. temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating.

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Flange electrical heating inset
Type EFHK-C 4 to EFHK-C 9
- Made of Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, according to the rules of the power works
- Incl. temperature control and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating.

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

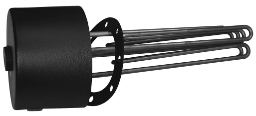
Calorifier

CombiVal CR (200-1000)

With built-in flat section coil made of stainless steel. CombiVal CR (200-1000) thermal insulation fully installed.

CombiVal CR type		Volume dm³	Heating surface m²	Part No.
(200)	B	218	1.28	7016 755
(300)	B	316	1.28	7016 756
(500)		544	1.70	7016 757
(800)		818	2.63	7016 758
(1000)		1042	2.63	7016 759

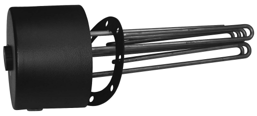
Accessories



Flange electrical heating insets for upper flange for CombiVal CR (800,1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	CombiVal CR	Part No.
4-180	4.0 kW/ 3x400 V		380	(800,1000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0 kW/ 3x400 V		460	(800,1000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0 kW/ 3x400 V		670	(800,1000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		1.3 kW/1x230 V			

Part No.



Flange electrical heating insets for lower flange for CombiVal CR (200-1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	CombiVal CR	Part No.
4-180	4.0 kW/ 3x400 V		380	(200-1000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0kW/ 3x400 V		460	(200-1000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0 kW/ 3x400 V		670	(800,1000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Screw-in electrical heating inset
made of Incoloy® alloy 825, with temperature control and overheating protection.
Delivered separately, installation on site
No use for exclusively electrical heating (danger of furring).

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	For CombiVal CR	Part No.
EP 2,5	2.35	3 x 400 1x230	390	(200-500)	6049 557
EP 3,5	3.6	3 x 400	500	(200-500)	6049 558
EP 5	4.9	3 x 400	620	(500)	6049 559

Accessories

Part No.

Flange cover 180 - 1½″
for the installation of the Correx® impressed current anode
in flange Ø 180/110 mm,
stainless steel with Rp 1½″ sleeve
Seal and screws included

2002 205

Correx® electrical anode set
for long-term corrosion protection for installation in the stainless steel calorifier with reducer R 1 ½″ - Rp ¾″.
For installation in a sleeve coupling with Rp 1 ½″.
Possible installation positions:
Sleeve coupling for screw-in electrical heating element
With chloride content ≥ 70 mg/l recommended as essential. See also planning guidelines

Type	Install. length (mm)	For CombiVal CR	Part No.
C 400	395	(200 - 800)	6031 813
C 400	395	(1000,2000)	6052 439

Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67

2056 788

Immersion sensor TF/2P/5/6T, L = 5.0 m
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
operating temperature: -20…105 °C, index of protection: IP67

2055 888

Immersion sensor TF/12N/2.5/6T, L = 2.5 m
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
Operating temperature: -20…105 °C, index of protection: IP67

2056 791

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

	Part No.
 **Calorifier thermostat control TW 12** universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside. 15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well	6010 080
 **Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Further types/sizes
see Solar/Solar armature groups

Calorifier CombiVal CR (200-1000)

Type		(200)	(300)	(500)	(800)	(1000)
• Volume	litres	218	316	544	818	1042
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95	95	95
• Thermal insulation polyester fleece	mm	120	120	120	100	100
• Thermal insulation λ	W/mK	0.035	0.035	0.035	0.035	0.035
• Fire protection class		B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	56	67	80	136	142
• Transport weight	kg	95	108	129	191	205
• U value	W/m²K	0.315	0.472	0.423	0.483	0.459
Dimensions				see table of dimensions		
Heating battery *(built in)*						
• Heating surface	m²	1.28	1.28	1.70	2.63	2.63
• Heating water content	dm³	4.1	4.1	5.1	7.4	7.4
• Flow resistance [1]						
• Water	z value	11.65	11.65	15.50	24.00	24.00
• Water/glycol 50 %	z value	15.73	15.73	20.93	32.40	32.40
• Max. operating pressure/test pressure	bar	3/6	3/6	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95	95	95

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z

Screw-in electrical heating inset
made of Incoloy® alloy 825, with temperature control and safety temperature limiter.
Delivered separately, installation on site.
Heat input (kW) according to rules of the power works.
No use for exclusive electrical heating (danger of furring).

Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(200-500)
EP 3.5	3.6	3 x 400	500	(200-500)
EP 5	4.9	3 x 400	620	(500)

Flange electrical heating inset for upper flange for CombiVal CR (800,1000)
With temperature control and safety temperature limiter.
Factory set-up 3 x 400 V.
Heat output (kW) according to rules of the power works

EFHK-C Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CR
4-180	4	3 x 400	380	(800,1000)
6-180	6	3 x 400	460	(800,1000)
9-180	9	3 x 400	670	(800,1000)

Flange electrical heating inset for lower flange for CombiVal CR (200-1000)
With temperature control and safety temperature limiter.
Factory set-up 3 x 400 V.
Heat output (kW) according to rules of the power works

EFHK-C Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CR
4-180	4	3 x 400	380	(200-1000)
6-180	6	3 x 400	460	(200-1000)
9-180	9	3 x 400	670	(800,1000)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1						
2						
3						
4						
5	200			200		
6						
7						
8						
9	300					
10				300		
11		200				
12						
13		300			200	
14			200			
15					300	
16	500					
17						200
18			300			
19				500		
20		500				
21						
22						300
23						
24						
25					500	
26						
27			500			
28						
29						
30	800					
31						
32	1000					
33						
34						500
35						
36						
37						
38		800		800		
39						
40						
41				1000		
42						
43						
44						
45		1000				
46						
47						
48						
49					800	
50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52			800			
53						
54						
55					1000	
56						
57			1000			
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						800
69						
70						
71						
72						
73						
74						
75						1000
76						
77						
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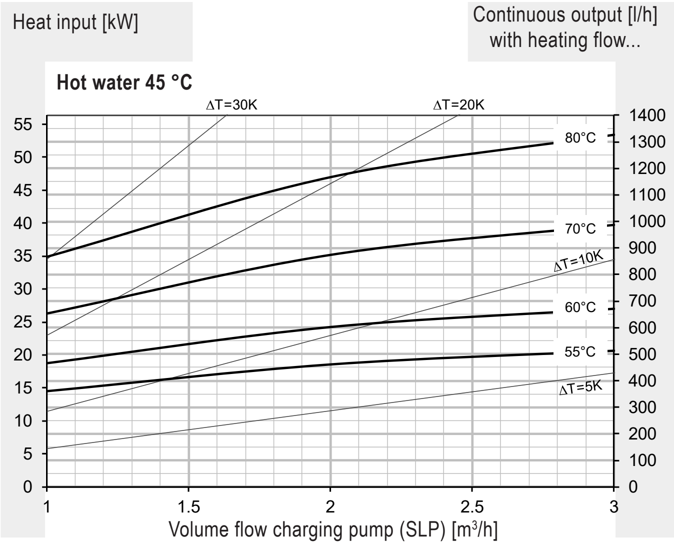
100						

T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

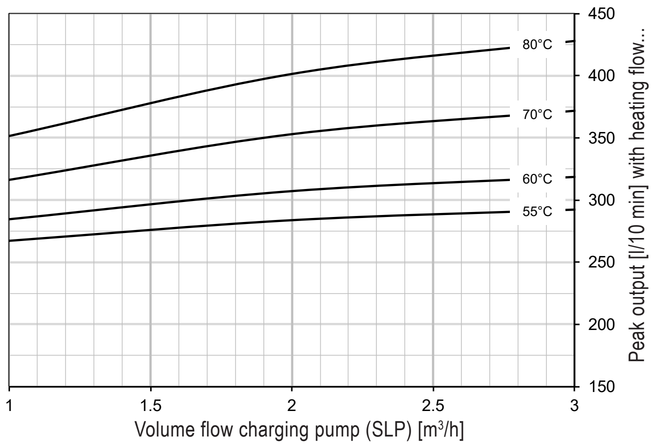
CombiVal CR (200)

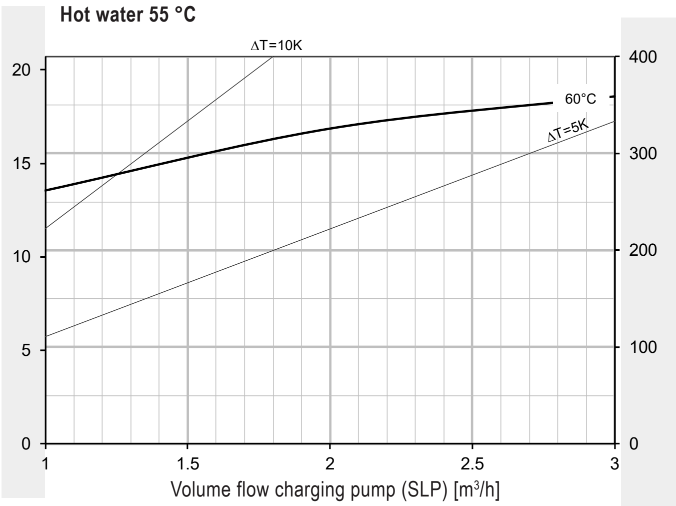
Hot water output
Continuous output

Reading example
see engineering

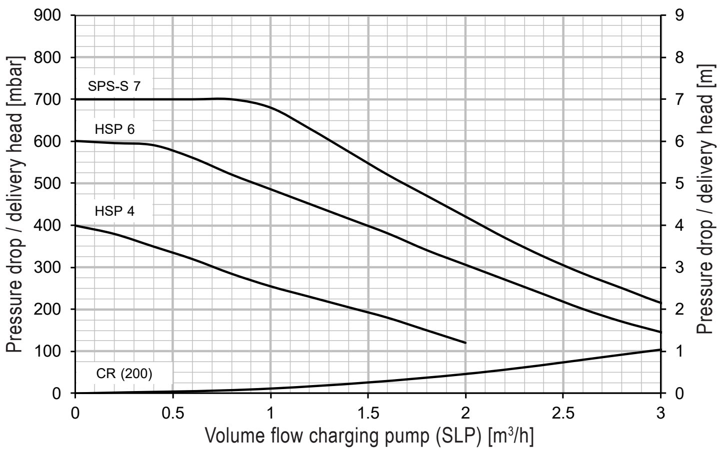


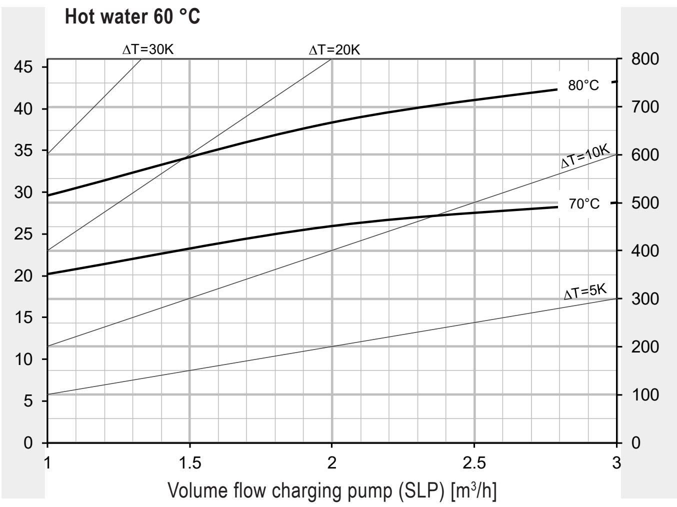
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



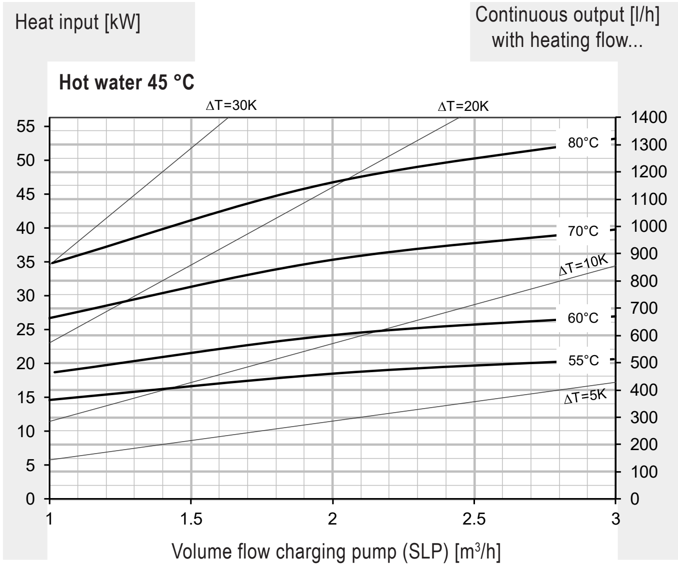


* Calorifier heated to 60 °C

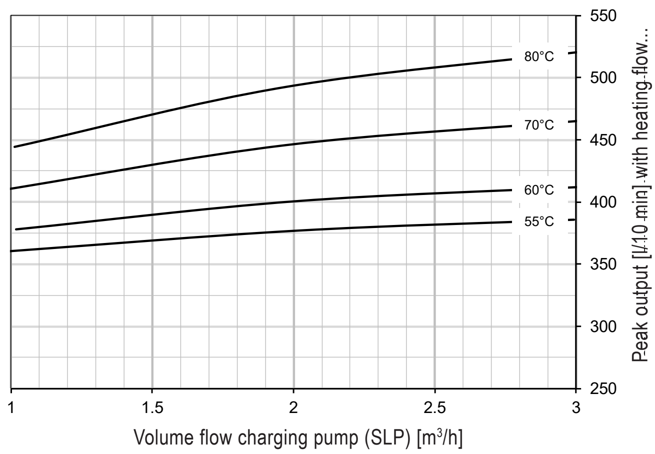
CombiVal CR (300)

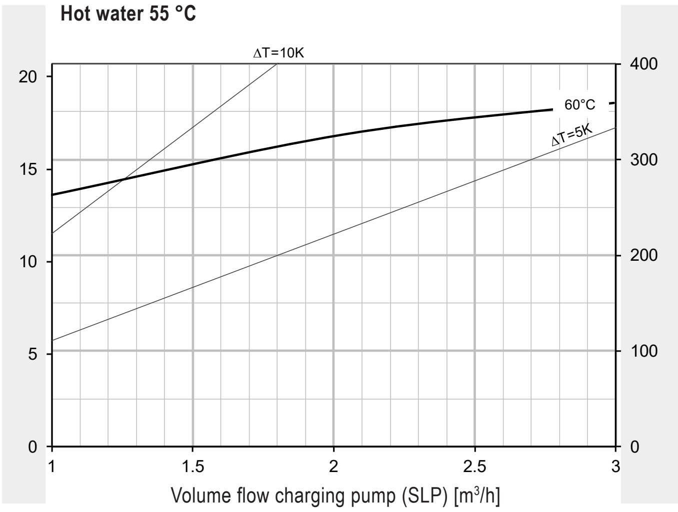
Hot water output
Continuous output

Reading example
see engineering

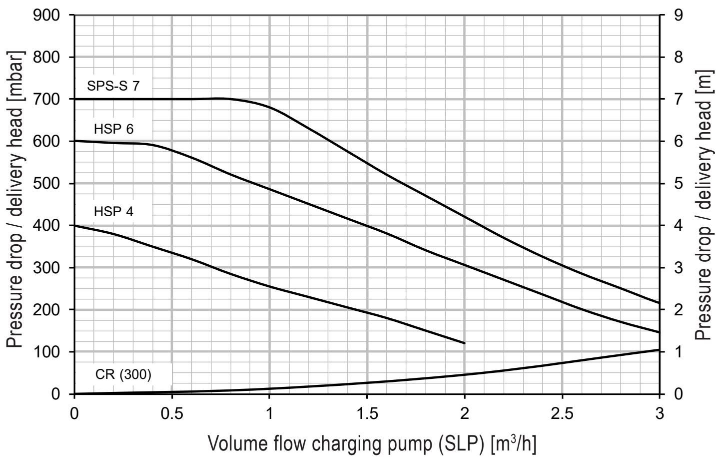


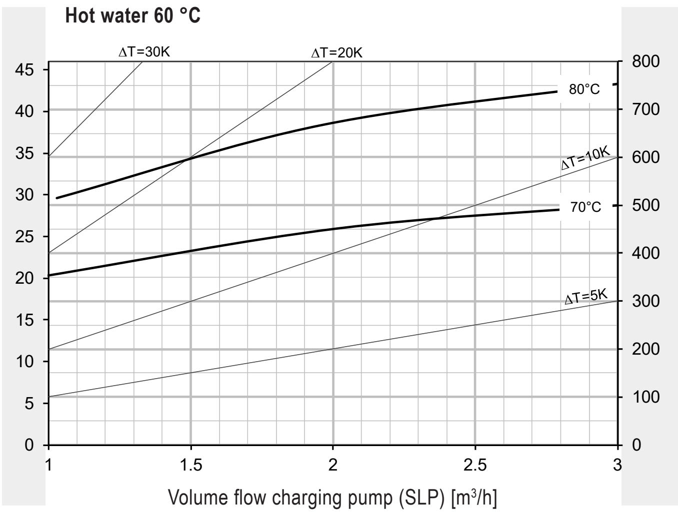
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump





* Calorifier heated to 60 °C

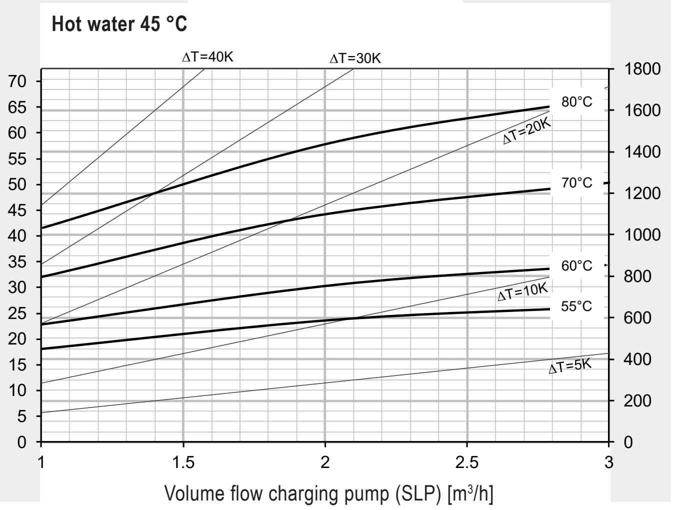
CombiVal CR (500)

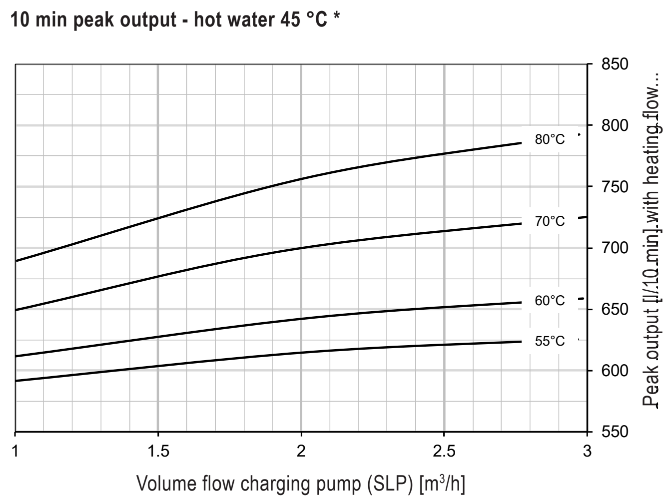
Hot water output
Continuous output

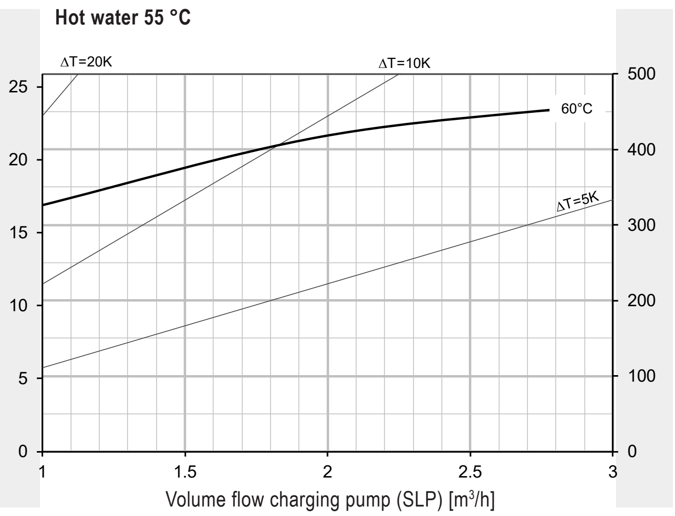
Reading example
see engineering

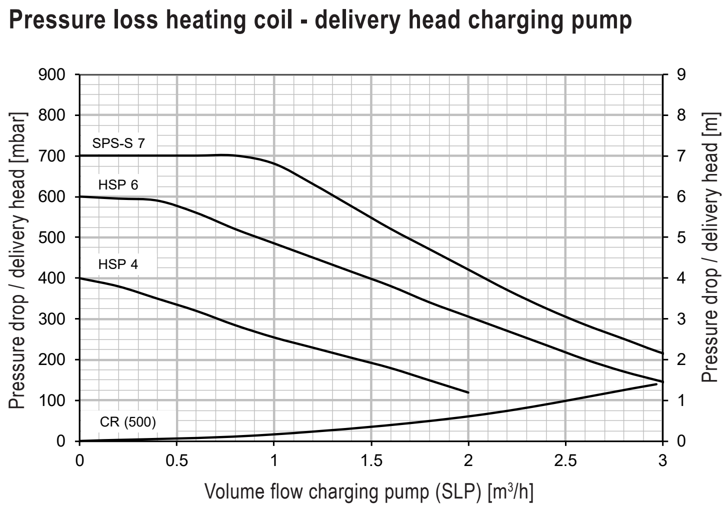
Heat input [kW]

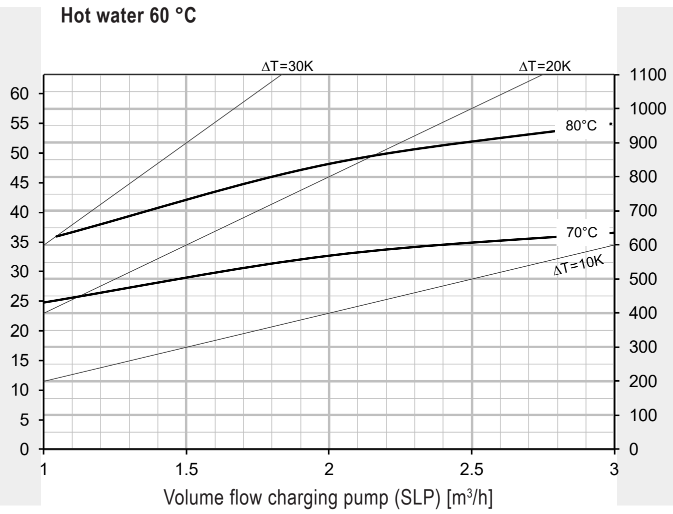
Continuous output [l/h] with heating flow...









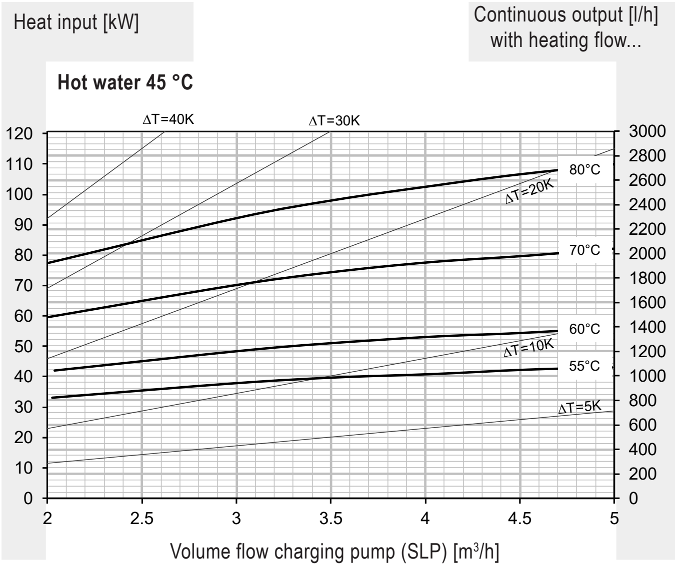


* Calorifier heated to 60 °C

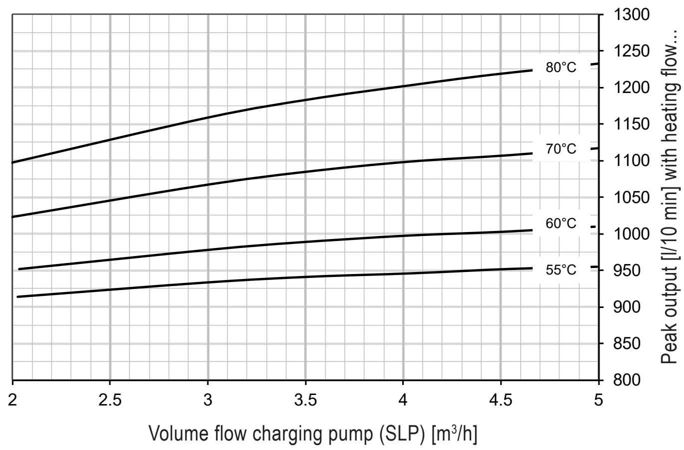
CombiVal CR (800)

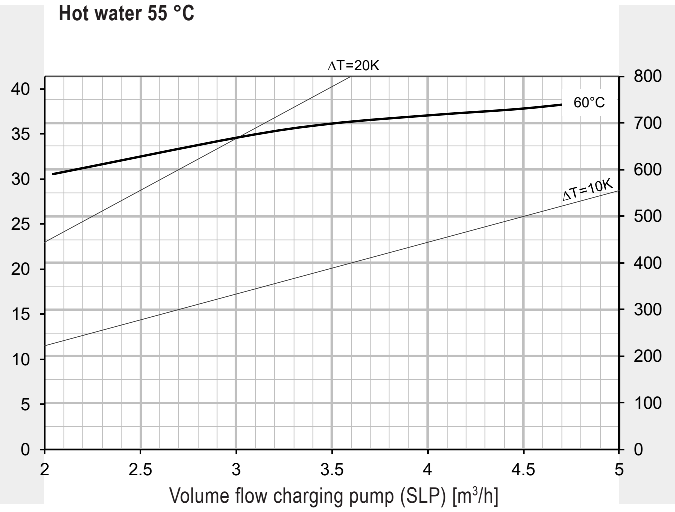
Hot water output
Continuous output

Reading example
see engineering

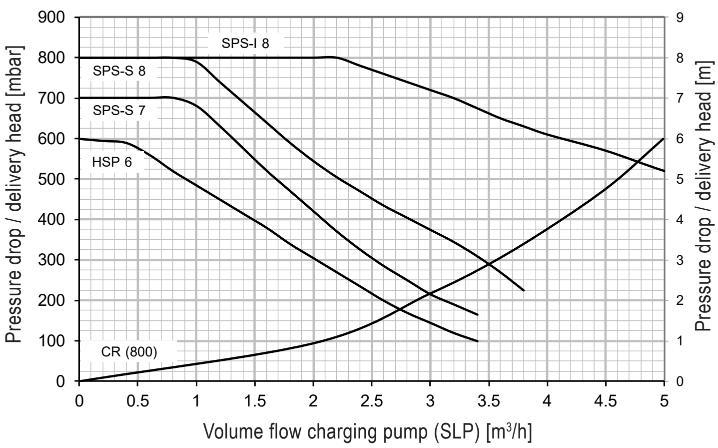


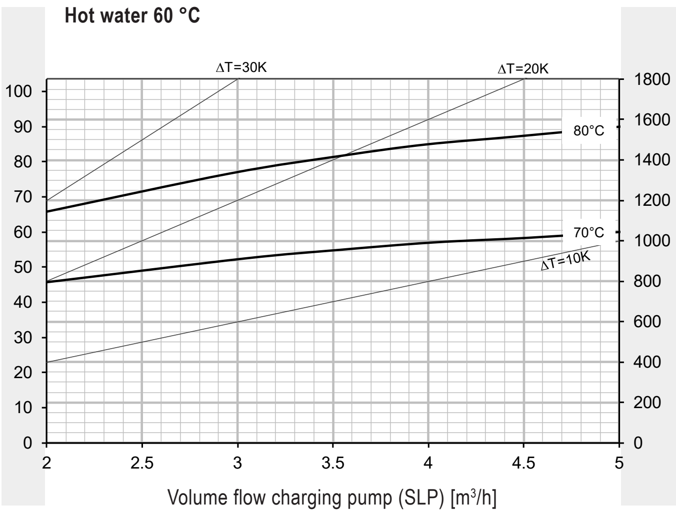
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



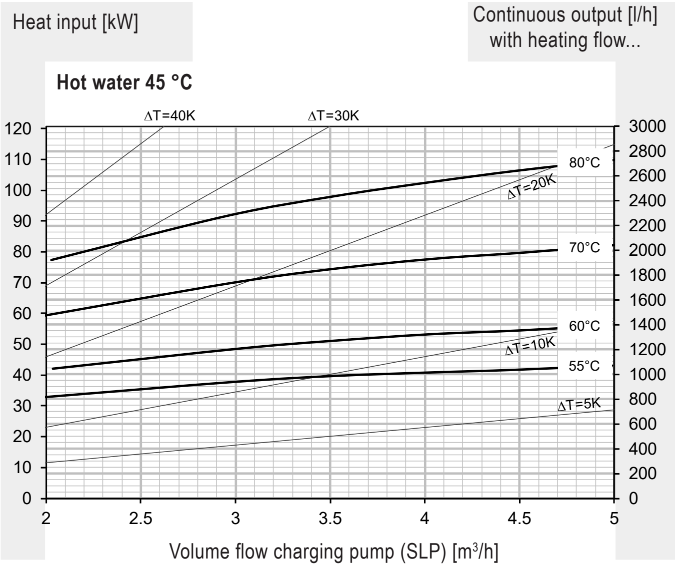


* Calorifier heated to 60 °C

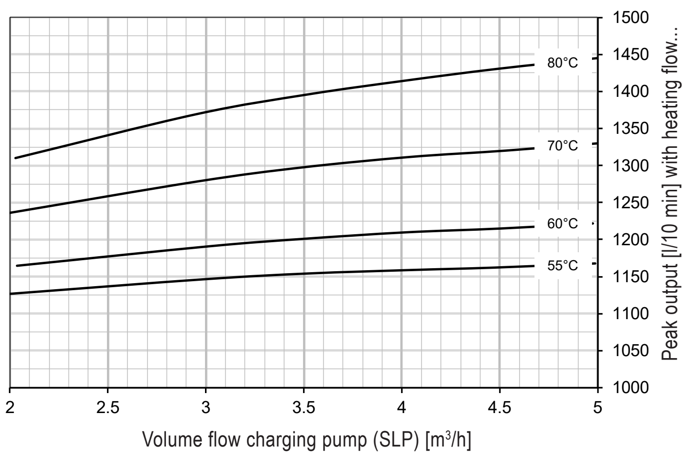
CombiVal CR (1000)

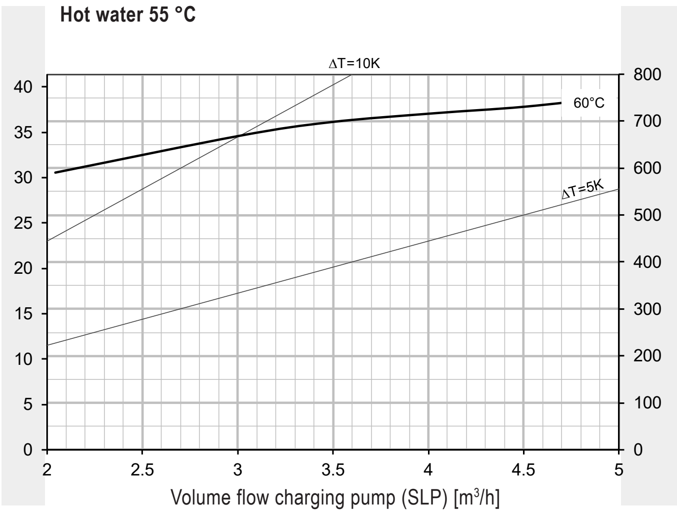
Hot water output
Continuous output

Reading example
see engineering

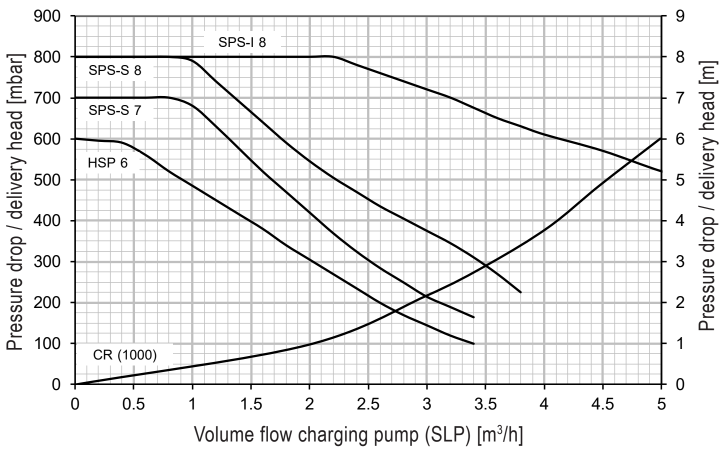


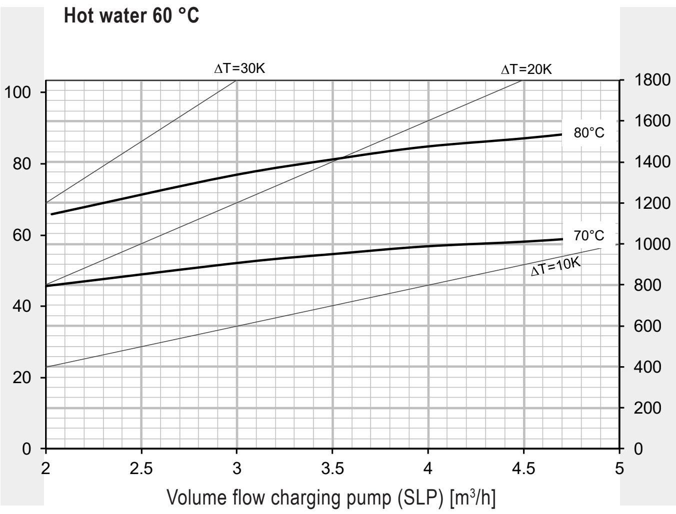
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump

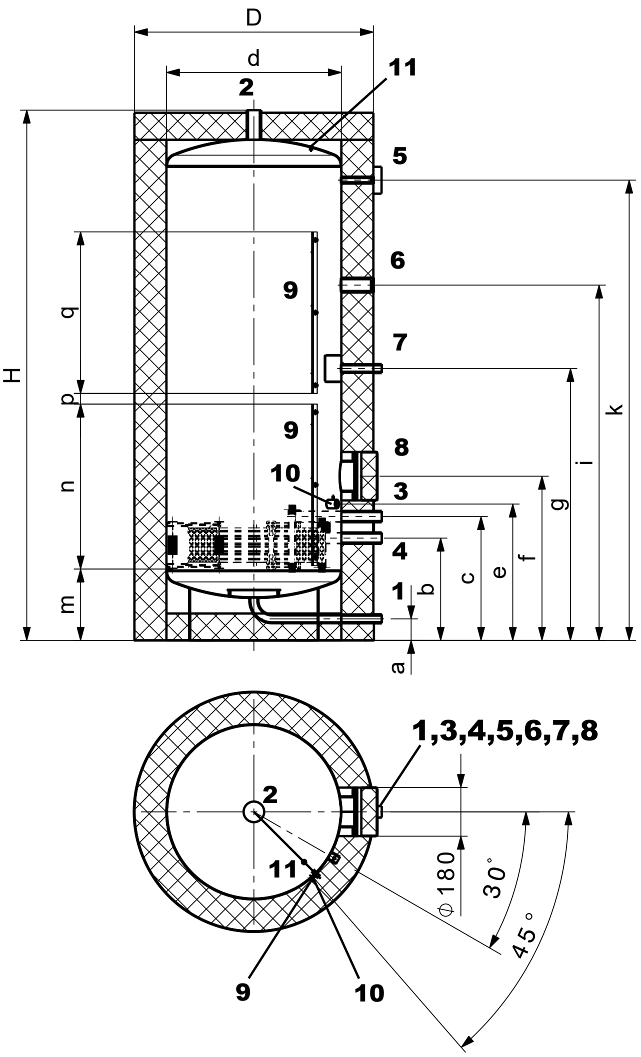




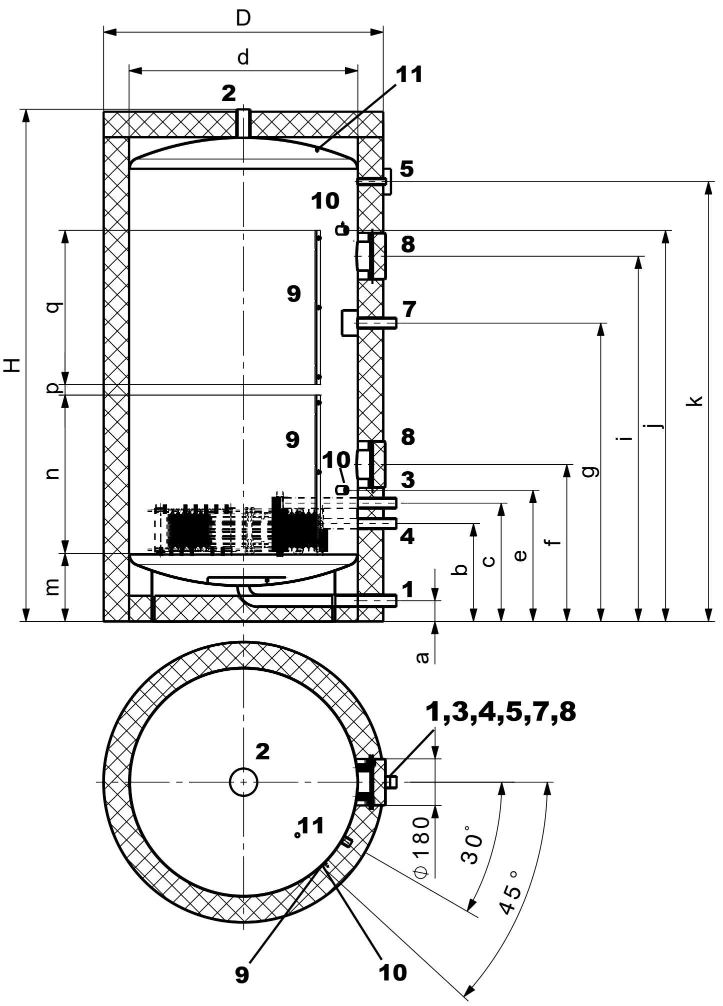
* Calorifier heated to 60 °C

CombiVal CR (200-500)

(Dimensions in mm)



CombiVal CR (800,1000)



1	Cold water	type (200-500)	G 1″ (ET)
		type (800,1000)	G 1½″ (ET)
2	Hot water		Rp 1½″ (IT)
3	Flow heating		G 1¼″ (ET)
4	Return heating		G 1¼″ (ET)
5	Sleeve with mounted immersion sleeve and thermometer (immersion sleeve: L = 200 mm, inner Ø = 8 mm)		Rp ½″ (IT)
6	Connection for screw-in electric heating element		Rp 1½″ (IT)
7	Circulation	type (200-500)	G 1″ (ET)
		type (800,1000)	G 1¼″ (ET)
8	Hand-hole flange (flange electrical heating inset) Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10		

9	Sensor terminal bar 600 x 30 mm	type (200)	1x
		type (300-1000)	2x
10	Sleeve with grounding bolt for impressed current		Rp ¾″ (IT)
	anode (perforated thermal insulation)	type (200-800)	1x
		type (1000)	2x
	Attention: observe the installation length		
11	Equipotential bonding		

Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

CombiVal CR type	D	d	H	a	b	c	e	f	g	i	j	k	m	n	p	q	Tilting measure
(200)	790	550	1213	80	380	460	510	610	760	860	-	980	310	540	-	-	1448
(300)	740	500	1949	80	380	460	510	610	1010	1320	-	1710	310	540	100	540	2085
(500)	890	650	1970	80	380	460	510	610	1010	1320	-	1710	310	540	100	540	2162
(800)	990	790	1991	80	380	460	510	610	1160	1420	-	1710	310	540	100	540	2224
(1000)	1090	890	1991	80	380	460	510	610	1160	1420	1520	1710	310	540	100	540	2270

Hoval Calorifier CombiVal CSR (300-1000)

- Calorifier made of stainless steel
- Thermal insulation made of polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
  (300-800) 2-part
  (1000) 3-part
- CSR (300-500): 2 flat section coils with large heating surface made of stainless steel, built in for use with heat pumps or condensing boilers
- CSR (300-500)
  1 ½″ sleeve for the installation of a screw-in electrical heating inset, sensor terminal bar
- CSR (800-1000)
  2 flat section coils of stainless steel, built in for use with heat pumps or condensing boilers
- Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- Flange below as cleaning flange or for the installation as flange electrical heating inset
- Connection cable for equipotential bonding, permanently mounted
- With thermometer
- Two terminal bars for contact sensor
- For domestic water up to max. 70 mg/l chloride content, with impressed current anode up to 200 mg/l chloride content

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

On request
- Flange cover with 1½″ sleeve for the installation of the electric heating element
- Screw-in electrical heating inset
- Flange electrical heating inset for flange above
- Correx® impressed current anode set

Range
CombiVal
Type

CSR	(300)	B
CSR	(400)	B
CSR	(500)	
CSR	(800)	
CSR	(1000)	
CSR	(1250)	
CSR	(1500)	
CSR	(2000)	

Hoval Calorifier CombiVal CSR (1250-2000)

- Calorifier made of stainless steel
- Thermal insulation made of polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
  (1250-2000) 3-part
- Flange below as cleaning flange or for the installation of a flange electrical heating inset
- Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- With 2 special flat section coils surface of stainless steel, built in for use with heat pumps or condensing boilers
- With thermometer
- Two terminal bars for contact sensor
- Connection cable for equipotential bonding, permanently mounted
- For domestic water up to max. 70 mg/l chloride content with impressed current anode up to 200 mg/l chloride content

Delivery
- Calorifier and thermal insulation set delivered separately packed

On request
- Flange cover with 1½″ sleeve for the installation of the electric heating element
- Screw-in electrical heating inset
- Flange electrical heating inset for flange above
- Correx® impressed current anode set

On site
- Mounting of thermal insulation

Screw-in electrical heating inset
Type EP 2.5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Incl. temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Flange electrical heating inset
Type EFHK-C 4 to EFHK-C 9
- Made of Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, according to the regulation of the current supplier
- With temperature regulation and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Mounting of thermal insulation

Calorifier

CombiVal CSR (300-2000)

With integrated flat section coils made of stainless steel, incl. distributor bar for parallel connection of the coils
CombiVal CSR (300-1000)
thermal insulation fully mounted.
CombiVal CSR (1250-2000) calorifier and thermal insulation delivered separately packed

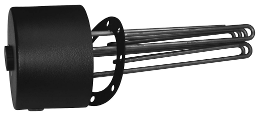
CombiVal CSR Type		Volume dm³	Heating surface m^2	Part No.
(300)	B	316	2.56	7016 760
(400)	B	439	3.4	7016 761
(500)		544	5.26	7016 762
(800)		818	6.3	7016 763
(1000)		1042	10.0	7016 764
(1250)		1189	10.0	7016 765
(1500)		1625	11.3	7016 766
(2000)		1958	12.7	7016 767

Accessories

Flange electrical heating insets for upper flange for CombiVal CSR (800-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3 x 400 V [kW]	Changeable to	Install. length [mm]	CombiVal CSR	Part No.
4-180	4.0		380	(800-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	(800-2000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0		670	(800-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Part No.



Flange electrical heating insets for lower flange for CombiVal CSR (300-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal CSR	Part No.
4-180	4.0		380	(300-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	(300-2000)	6049 565
		4.0 kW/3x400V			
		3.0 kW/3x400V			
		2.0 kW/3x400 V			
		2.0 kW/1x230V			
9-180	9.0		670	(800-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Screw-in electrical heating inset
made of Incoloy® alloy 825,
with temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site,
no use for exclusively electrical heating (danger of furring).

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	For CombiVal CSR	Part No.
EP 2.5	2.35	3 x 400 (1 x 230)	390	(300-500)	6049 557
EP 3.5	3.5	3 x 400	500	(300-500)	6049 558
EP 5	4.9	3 x 400	620	(400,500)	6049 559

Part No.

Accessories

Flange cover 180 - 1½″
for the installation of the Correx®
impressed current anode
in flange Ø 180/110 mm,
stainless steel with Rp 1½″ sleeve
Seal and screws included

2002 205

Correx® electrical anode set
for long-term corrosion protection for
installation in the stainless steel calorifier
with reducer R 1 ½″ - Rp ¾″.
For installation in a sleeve coupling
with R p 1½″.
Possible installation positions:
Sleeve coupling for screw-in
electrical heating element
With chloride content ≥ 70 mg/l recommended
as essential. See also engineering guidelines.

Type	Install. length (mm)	For CombiVal CSR	Part No.
C 400	395	(200-800)	6031 813
C 400	395	(1000-2000)	6052 439

Immersion sensor TF/2P/5/6T,
L = 5.0 m, with plug
for TopTronic® E controller modules/
module expansions with exception of
basic module district heating/fresh
water or basic module district heating
com, cable length: 5 m with plug
sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
sensor may already be included in scope
of delivery of heat generator/controller
module/module expansion, operating
temperature: -20…105 °C, index of
protection: IP67

2056 788

Immersion sensor TF/2P/5/6T,
L = 5.0 m
for TopTronic® E controller modules/
module expansions with exception of
basic module district heating/fresh
water or basic module district
heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
operating temperature: -20…105 °C,
index of protection: IP67

2055 888

Immersion sensor TF/12N/2.5/6T,
L = 2.5 m
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm,
dewpoint-proof,
Operating temperature: -20…105 °C,
index of protection: IP67

2056 791

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

		Part No.
	**Calorifier thermostat control TW 12** universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside. 15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well	6010 080
	**Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Further types/sizes
see Solar/Solar armature groups

Calorifier CombiVal CSR (300-2000)

Type		(300)	(400)	(500)	(800)	(1000)	(1250)	(1500)	(2000)
• Volume	dm^3	316	439	544	818	1042	1189	1625	1958
• Operating pressure/test pressure	bar	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95	95	95	95	95	95
• Thermal insulation polyester fleece	mm	120	120	120	100	100	120	120	120
• Thermal insulation λ	W/mK	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
• Fire protection class		B2	B2	B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	67	72	80	136	142	154	176	180
• Transport weight	kg	122	140	161	224	268	314	431	468
• U value	W/m^2K	0.272	0.259	0.259	0.387	0.360	0.346	0.338	0.338
• Dimensions		see table of dimensions							
• Heating coil *(built-in)*	m^2	2.56	3.4	5.26	6.3	10.0	10.0	11.3	12.7
• Heating water	dm^3	7.2	9.3	13.8	16.3	25.3	25.3	28.4	31.8
• Flow resistance water [1]	z value	1.88	2.48	3.84	4.61	7.24	7.24	8.24	9.28
• Flow resistance water/glycol 50 %	z value	2.54	3.35	5.18	6.22	9.37	9.37	11.12	12.53
• Operating pressure/test pressure	bar	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95	95	95	95	95	95

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z $(m^3/h)^2$ x z (1 mbar = 0.1 kPa)

Screw-in electrical heating inset
Incoloy® alloy 825, incl. temperature control and safety temperature limiter.
Delivered separately, installation on site,
Heat input (kW) according to rules of the power works.
No use for exclusive electrical heating.

Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CSR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(300-500)
EP 3.5	3.6	3 x 400	500	(300-500)
EP 5	4.9	3 x 400	620	(400,500)

Flange electrical heating inset
for upper flange
for CombiVal CSR (800-2000)
With temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

EFHK-C type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CSR
4-180	4	3 x 400	380	(800-2000)
6-180	6	3 x 400	460	(800-2000)
9-180	9	3 x 400	670	(800-2000)

Flange electrical heating inset
for lower flange
for CombiVal CSR (300-1000)
With temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

EFHK-C type	Heat output [kW]	Voltage [V]	Installation length [mm]	For CombiVal CSR
4-180	4	3 x 400	380	(300-2000)
6-180	6	3 x 400	460	(300-2000)
9-180	9	3 x 400	670	(800-2000)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13	300					
14						
15				300		
16						
17						
18						
19						
20						
21	400	300				
22						
23						
24						
25						
26				400	300	
27						
28						
29			300			
30	500	400				
31						
32						
33						
34						
35						
36						
37						300
38				500	400	
39						
40						
41			400			
42						
43		500				
44						
45						
46						
47						
48						
49	800					
50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						
53						400
54						
55						
56					500	
57						
58			500			
59						
60						
61						
62						
63						
64				800		
65						
66						
67						
68						
69						
70		800				
71	1000					
72						
73						
74						
75						
76	1250					500
77						
78						
79						
80						
81						
82						
83						
84						
85						
86						
87						
88						
89						
90						
91						
92					800	
93						
94	1500			1000		
95						
96						
97						
98			800			
99						
100		1000		1250		

T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

CombiVal CSR (300)

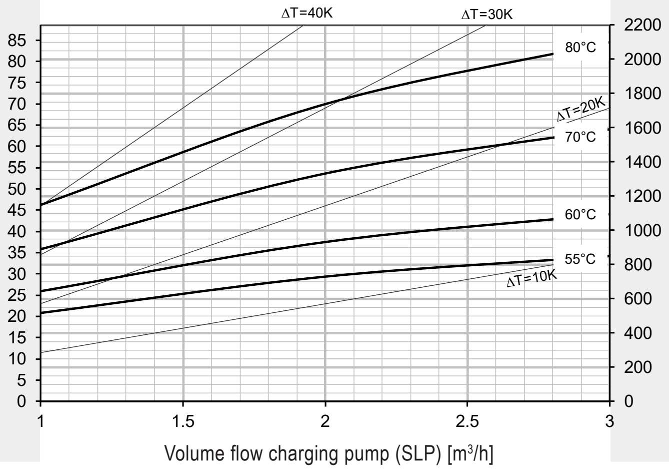
Hot water output
Continuous output

Reading example
see engineering

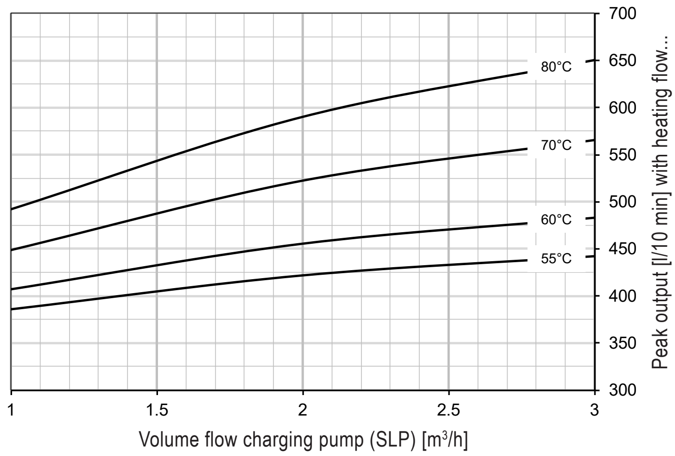
Heat input [kW]

Continuous output [l/h] with heating flow...

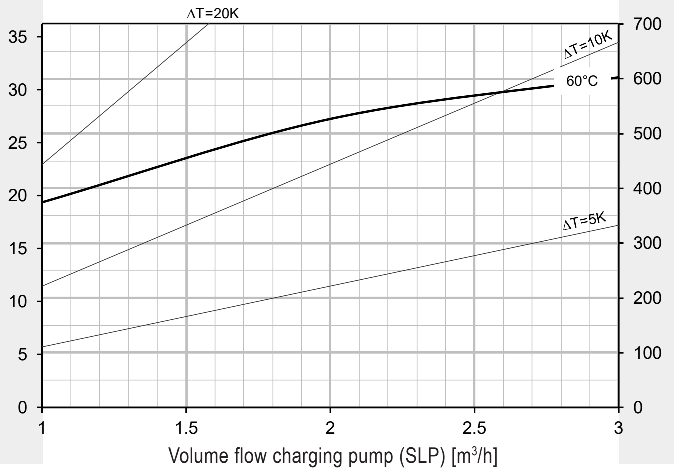
Hot water 45 °C



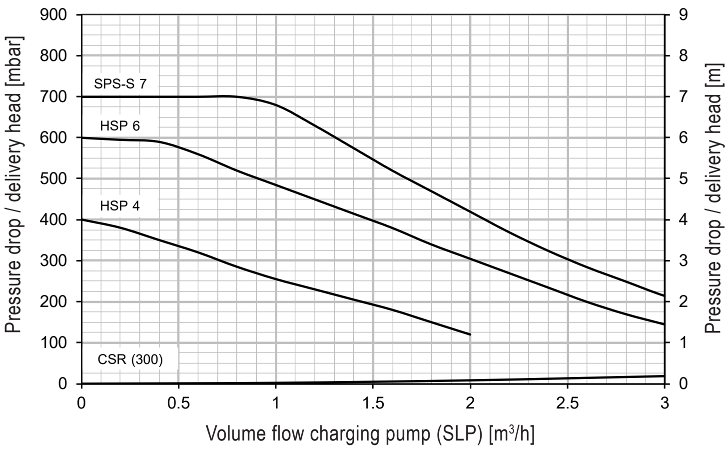
10 min peak output - hot water 45 °C *



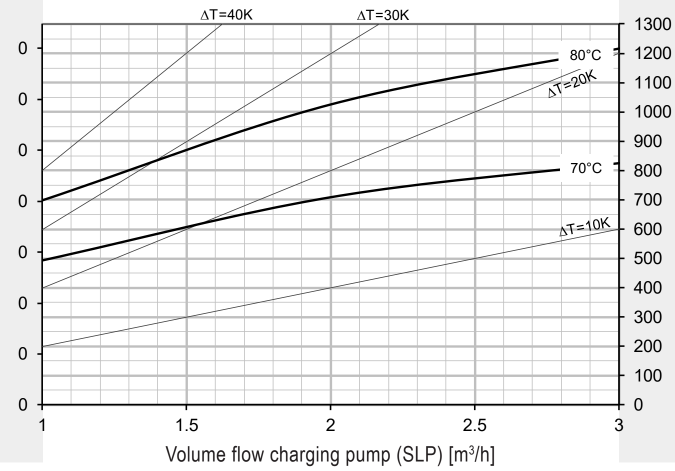
Hot water 55 °C



Pressure loss heating coil - delivery head charging pump



Hot water 60 °C

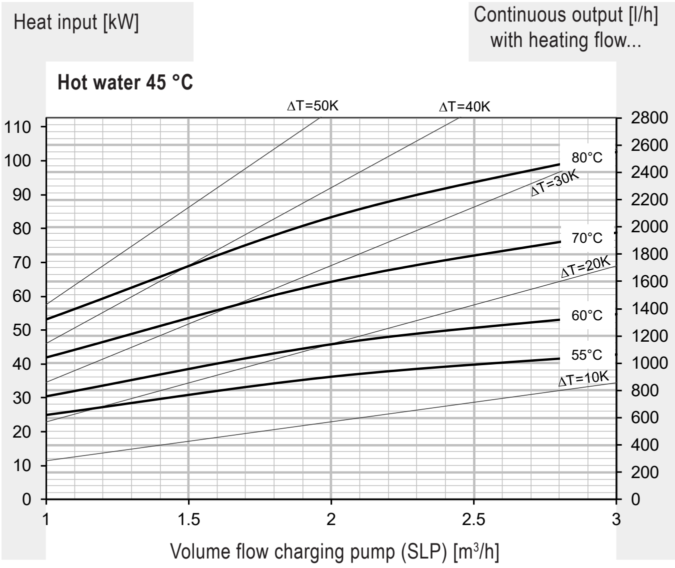


* Calorifier heated to 60 °C

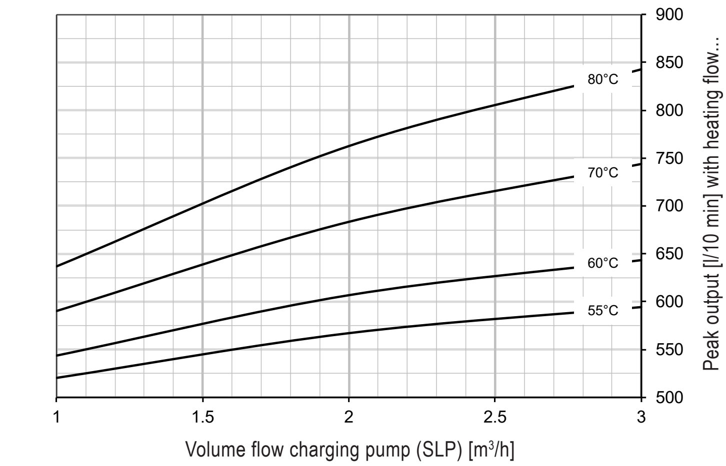
CombiVal CSR (400)

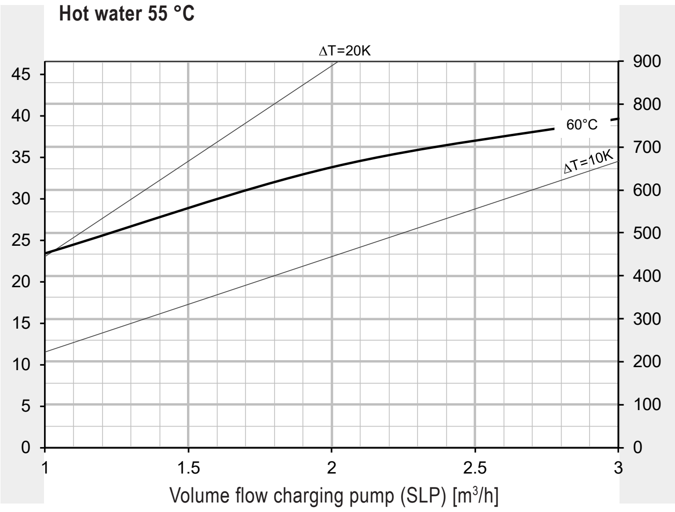
Hot water output
Continuous output

Reading example
see engineering

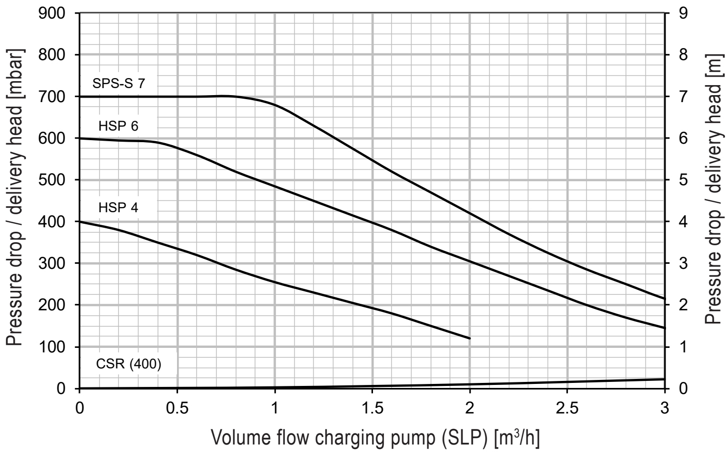


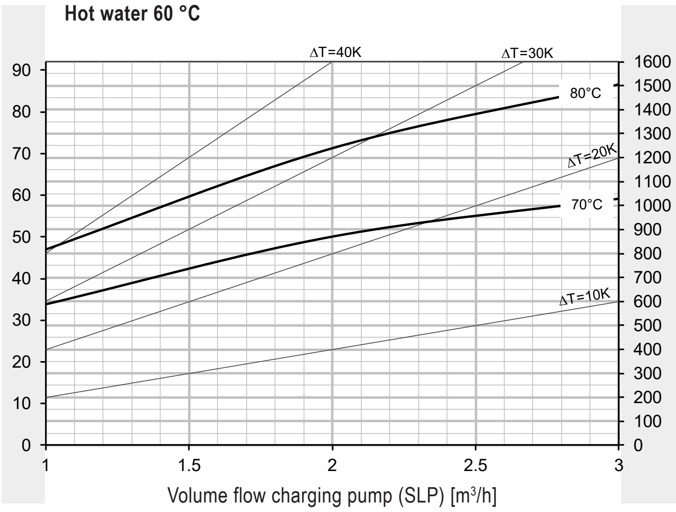
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump





* Calorifier heated to 60 °C

CombiVal CSR (500)

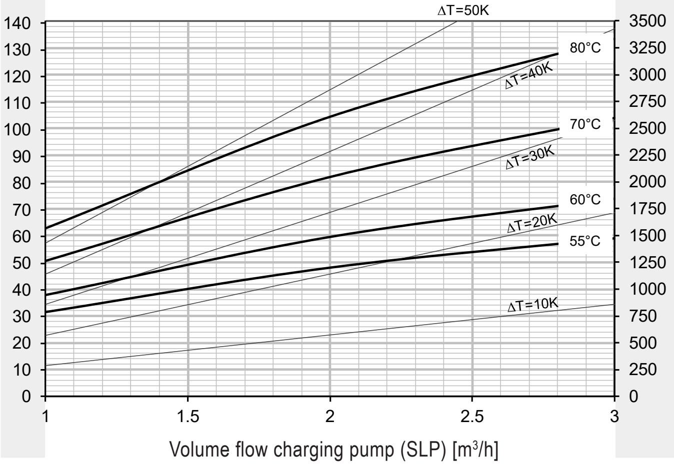
Hot water output
Continuous output

Reading example
see engineering

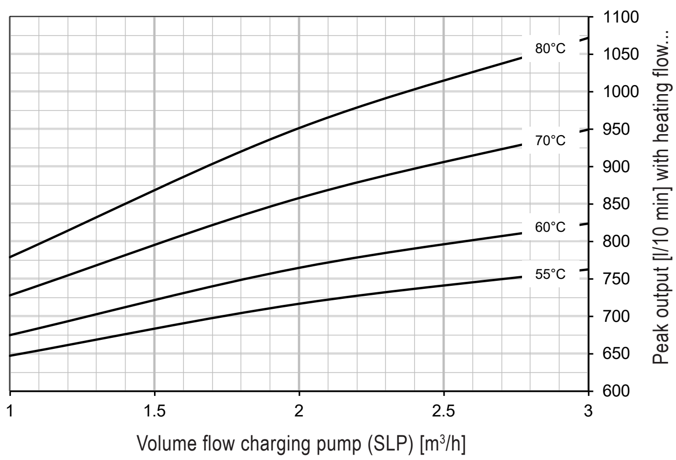
Heat input [kW]

Continuous output [l/h] with heating flow...

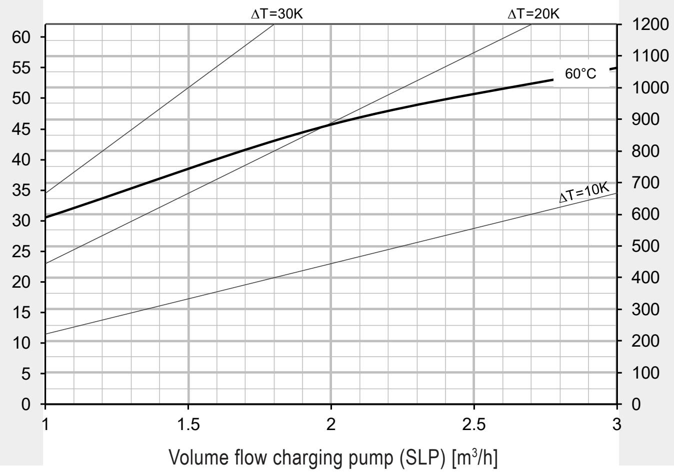
Hot water 45 °C



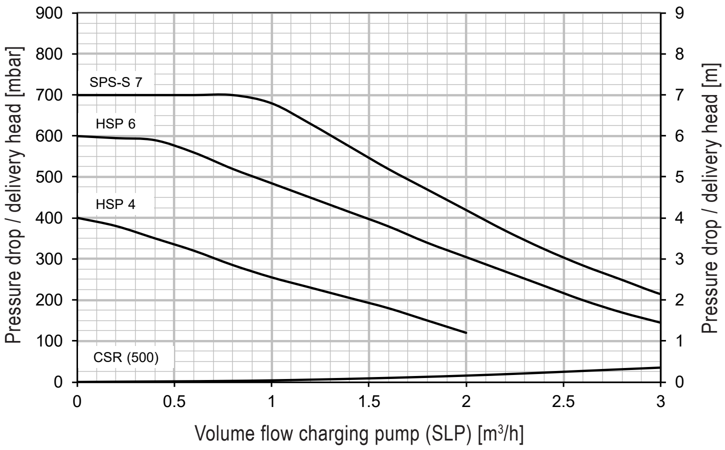
10 min peak output - hot water 45 °C *



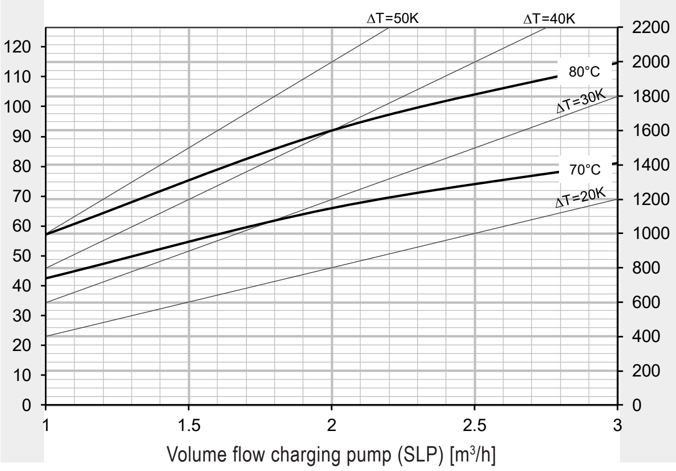
Hot water 55 °C



Pressure loss heating coil - delivery head charging pump



Hot water 60 °C

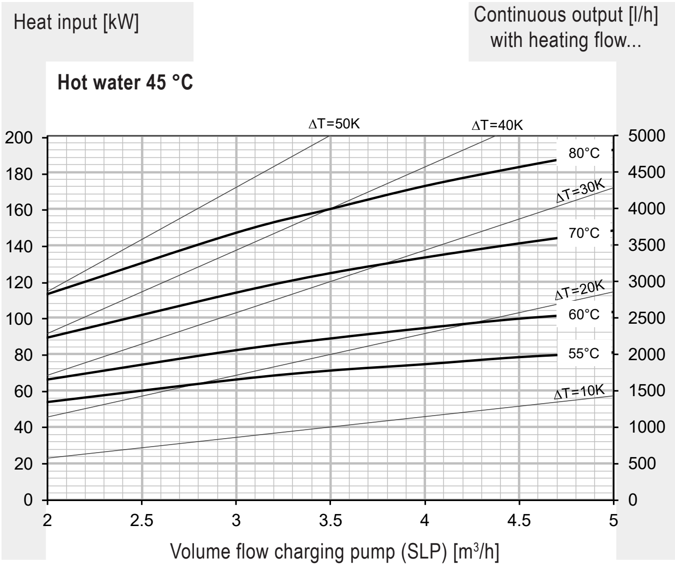


* Calorifier heated to 60 °C

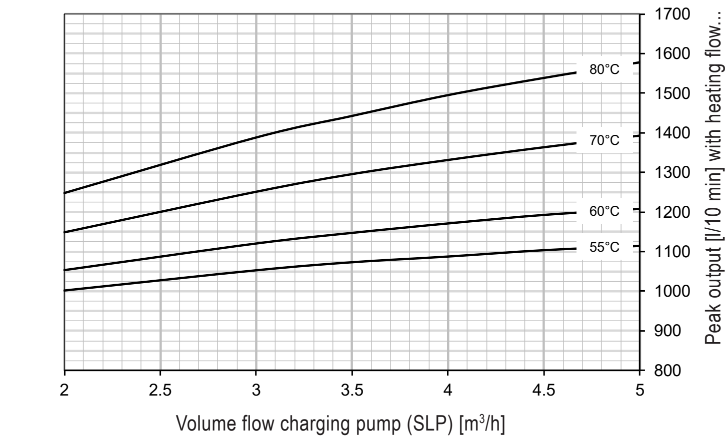
CombiVal CSR (800)

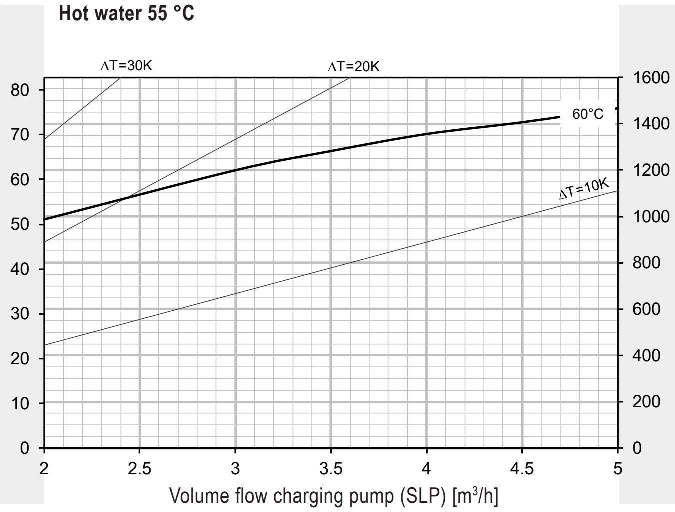
Hot water output
Continuous output

Reading example
see engineering

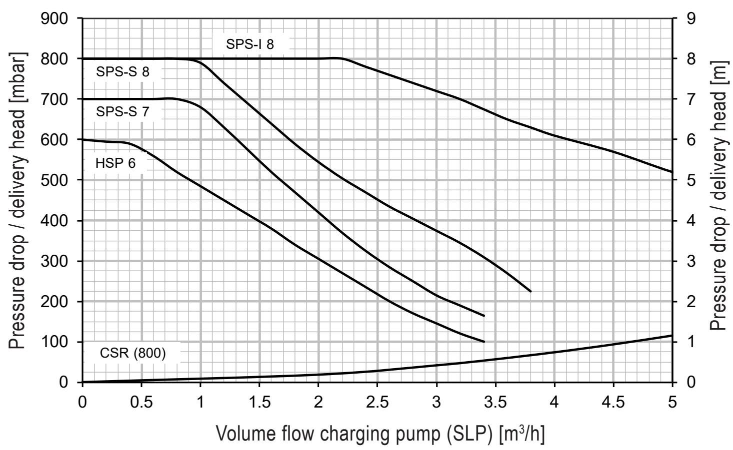


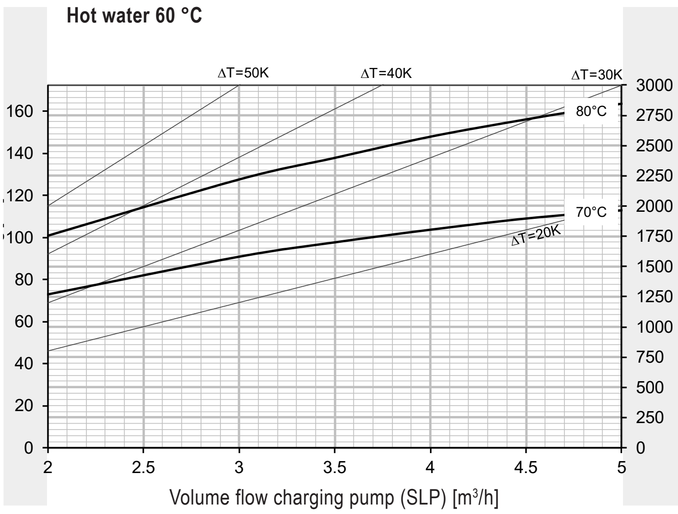
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



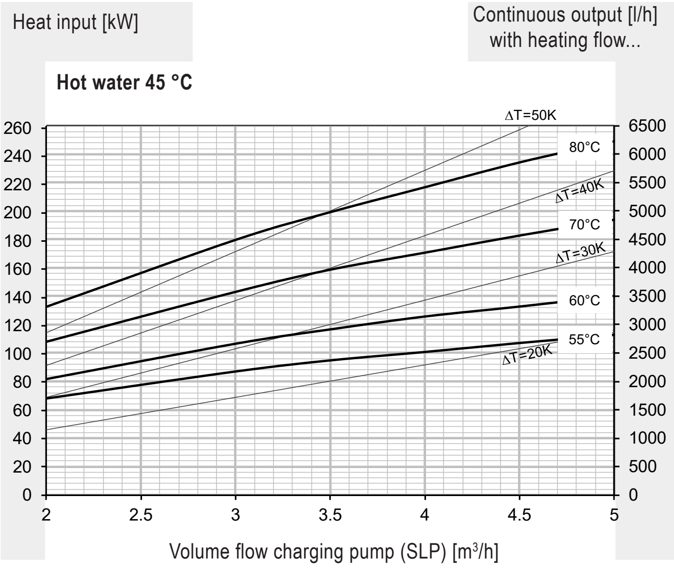


* Calorifier heated to 60 °C

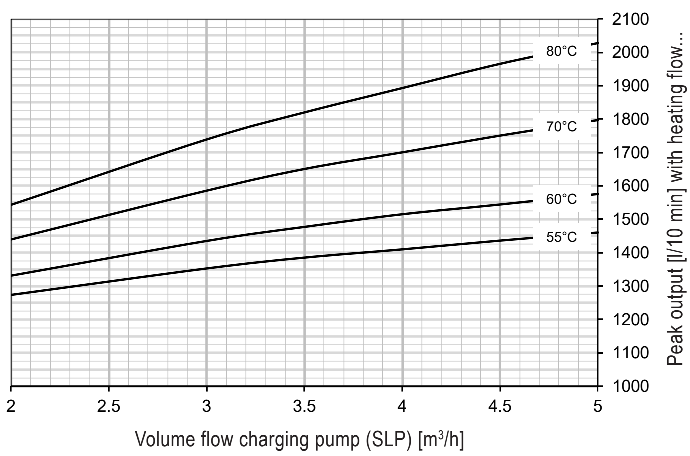
CombiVal CSR (1000)

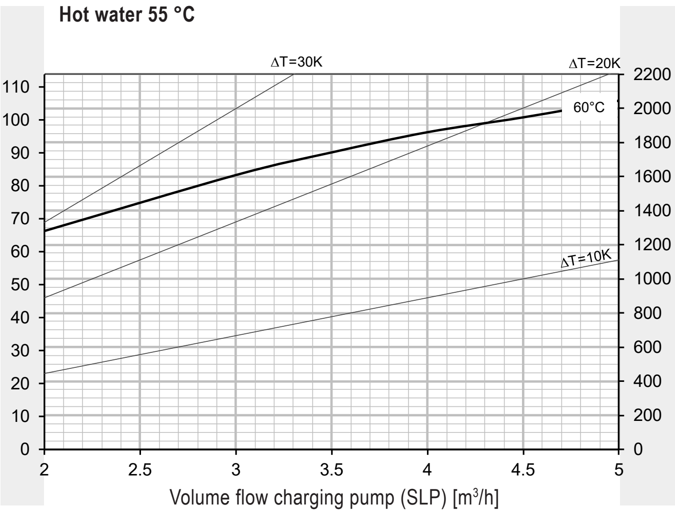
Hot water output
Continuous output

Reading example
see engineering

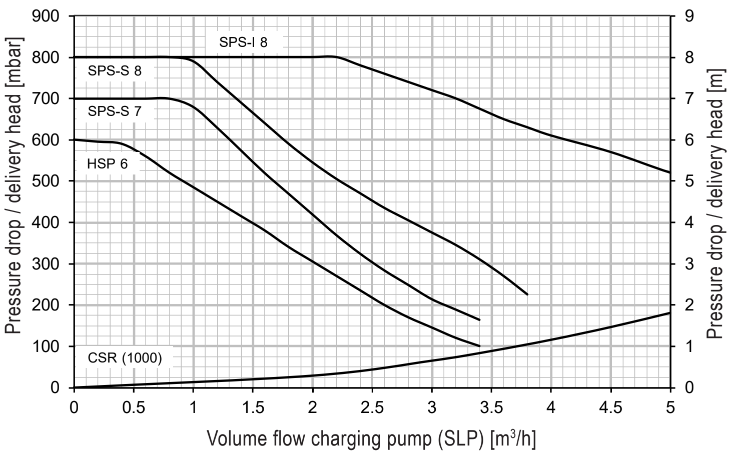


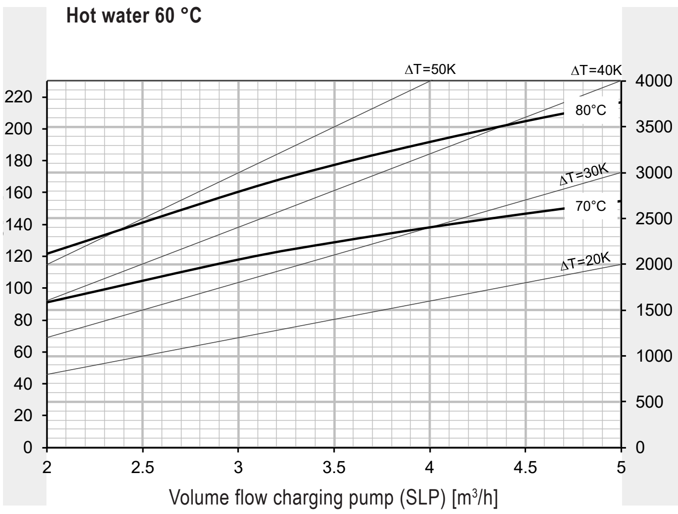
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



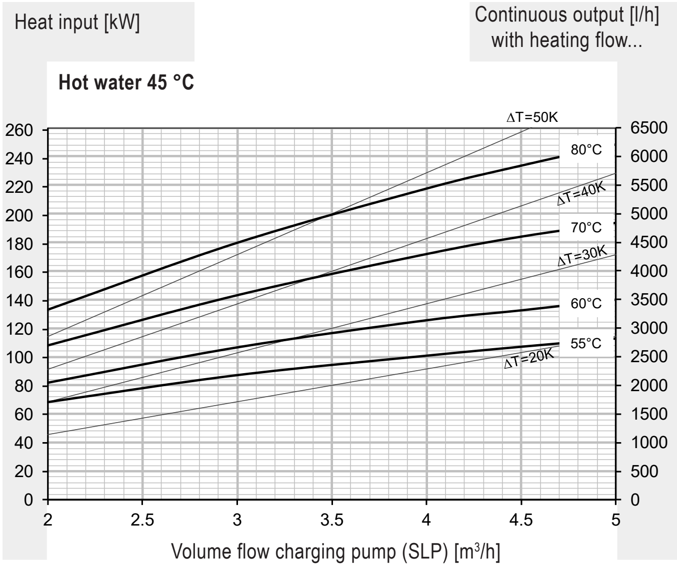


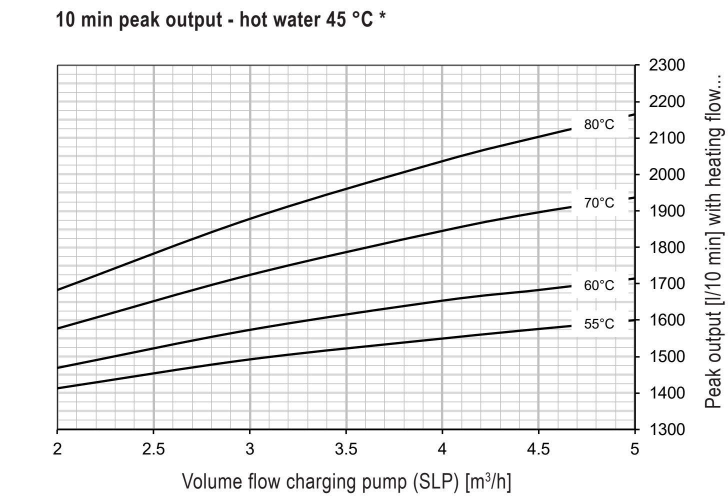
* Calorifier heated to 60 °C

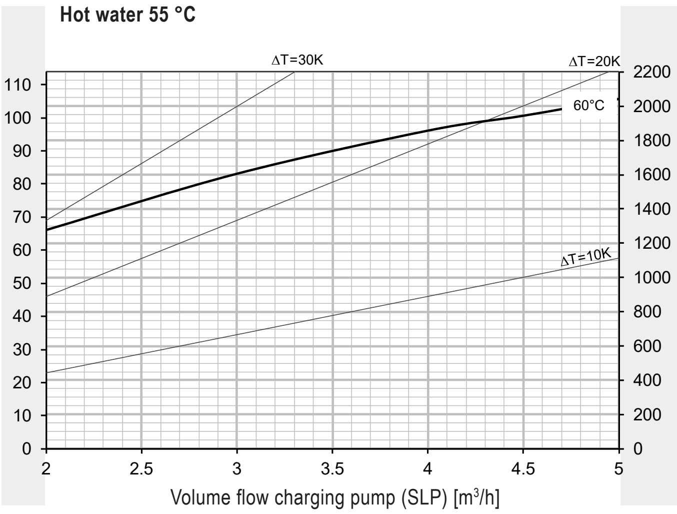
CombiVal CSR (1250)

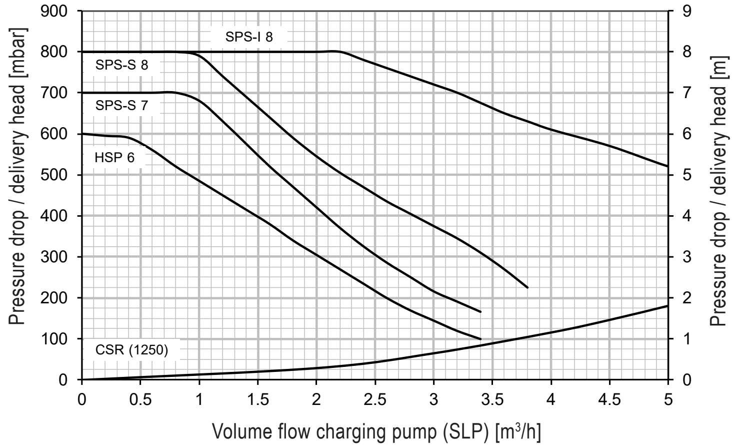
Hot water output
Continuous output

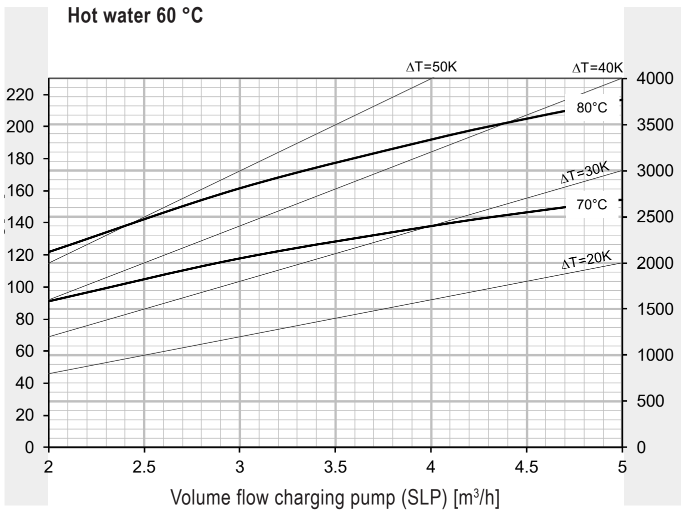
Reading example
see engineering









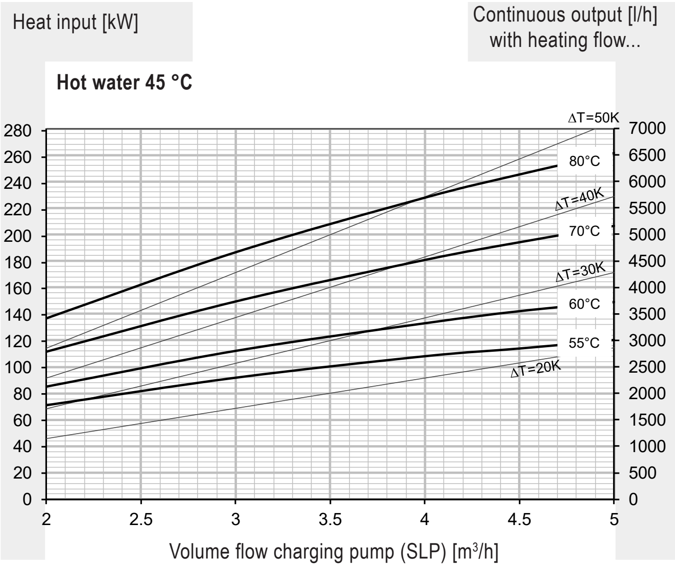


* Calorifier heated to 60 °C

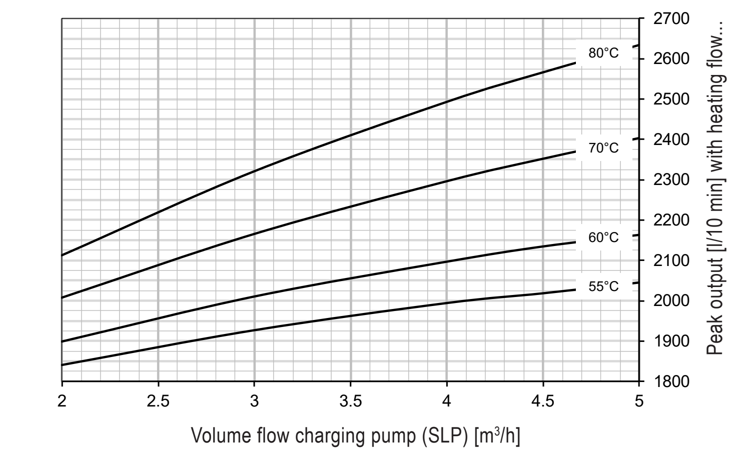
CombiVal CSR (1500)

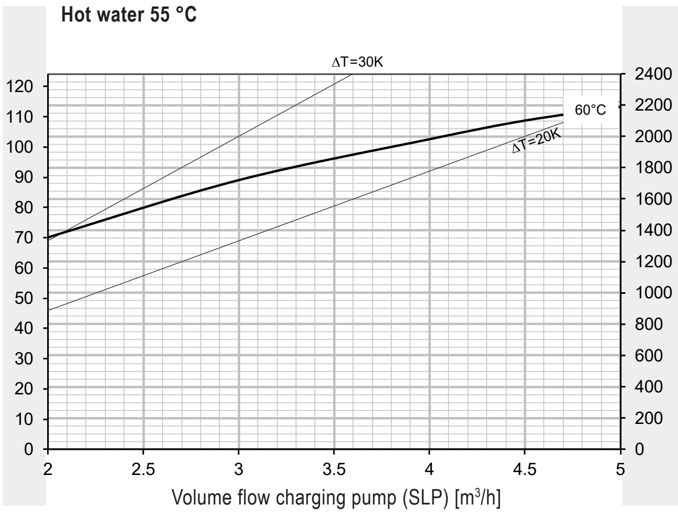
Hot water output
Continuous output

Reading example
see engineering

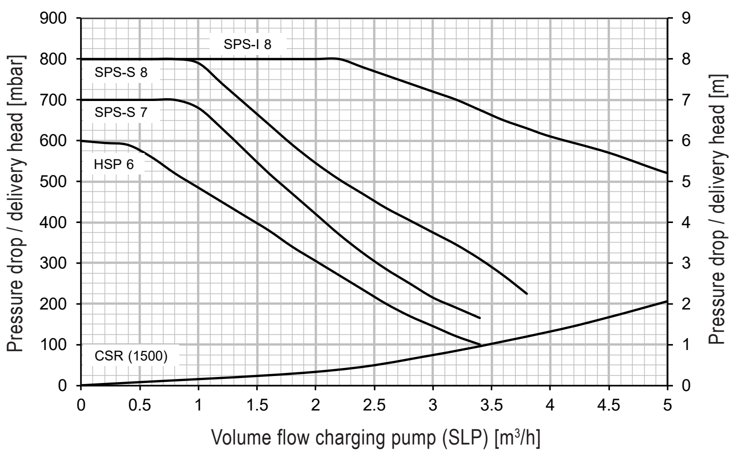


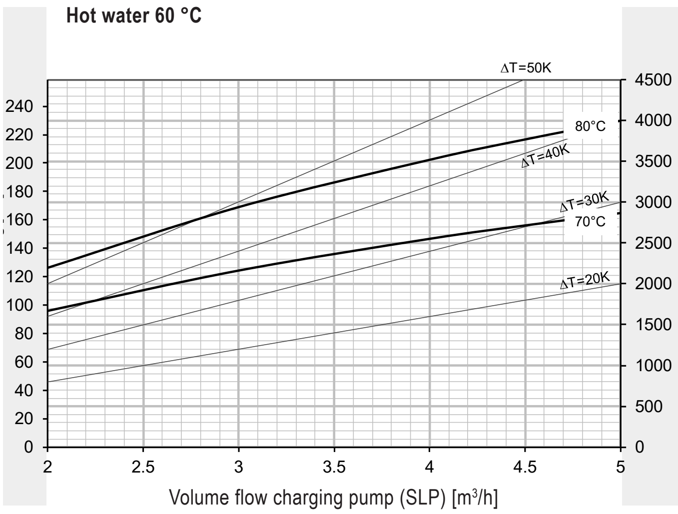
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



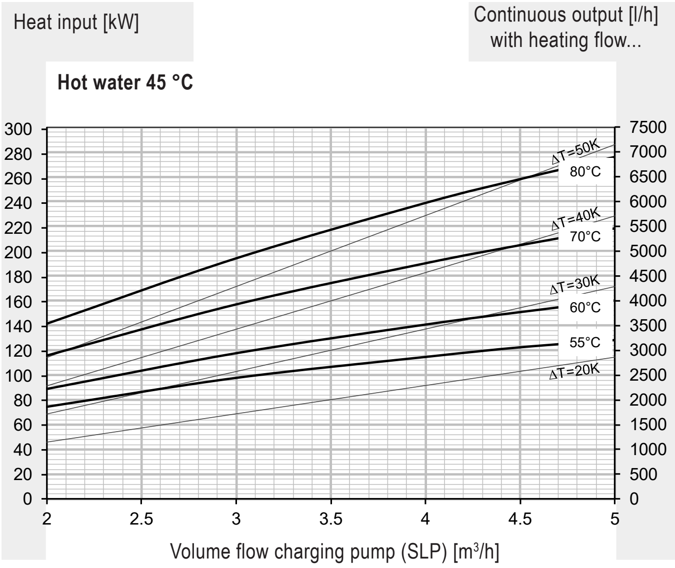


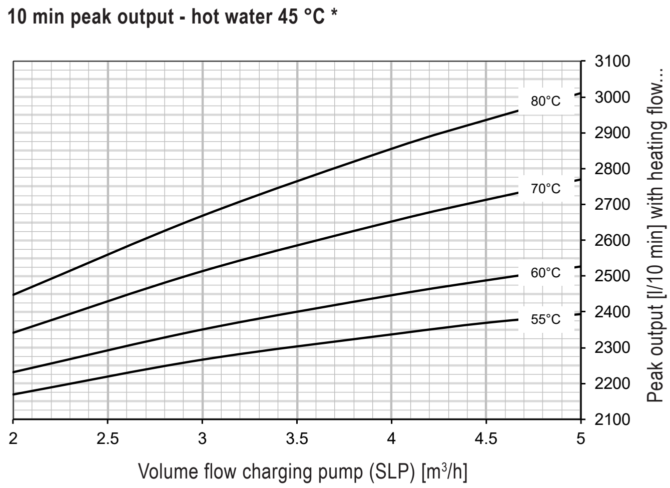
* Calorifier heated to 60 °C

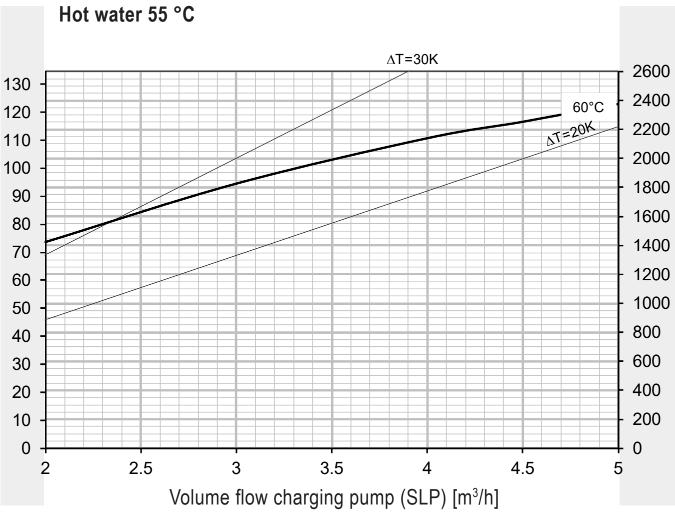
CombiVal CSR (2000)

Hot water output
Continuous output

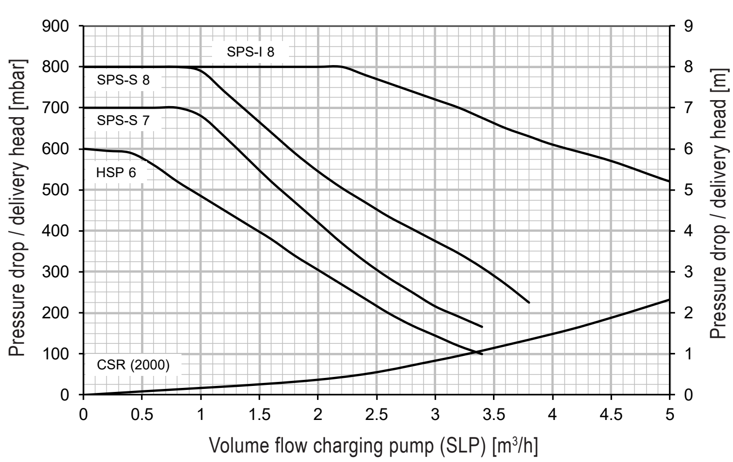
Reading example
see engineering

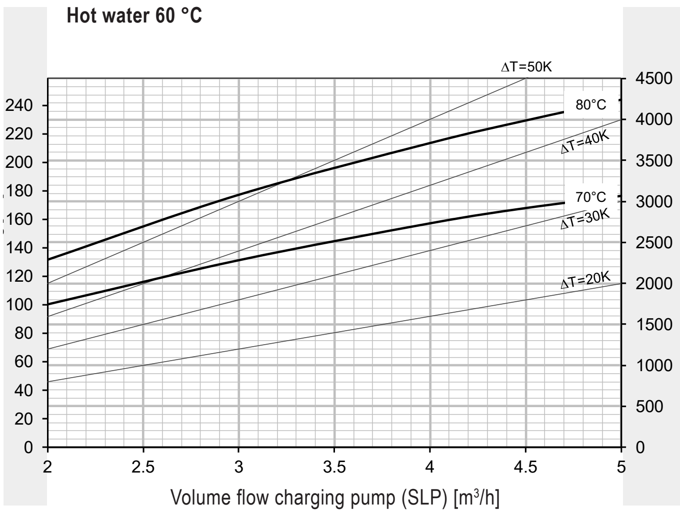






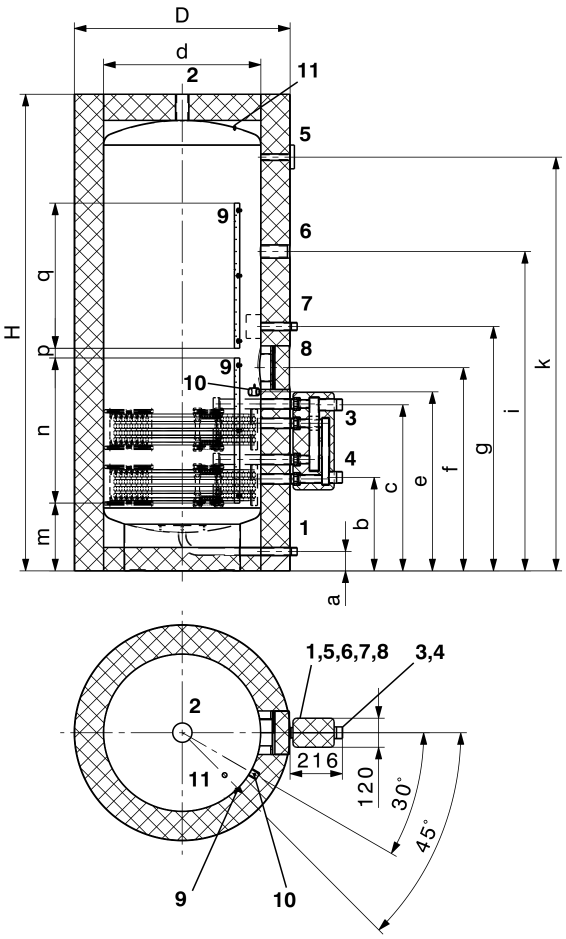
Pressure loss heating coil - delivery head charging pump



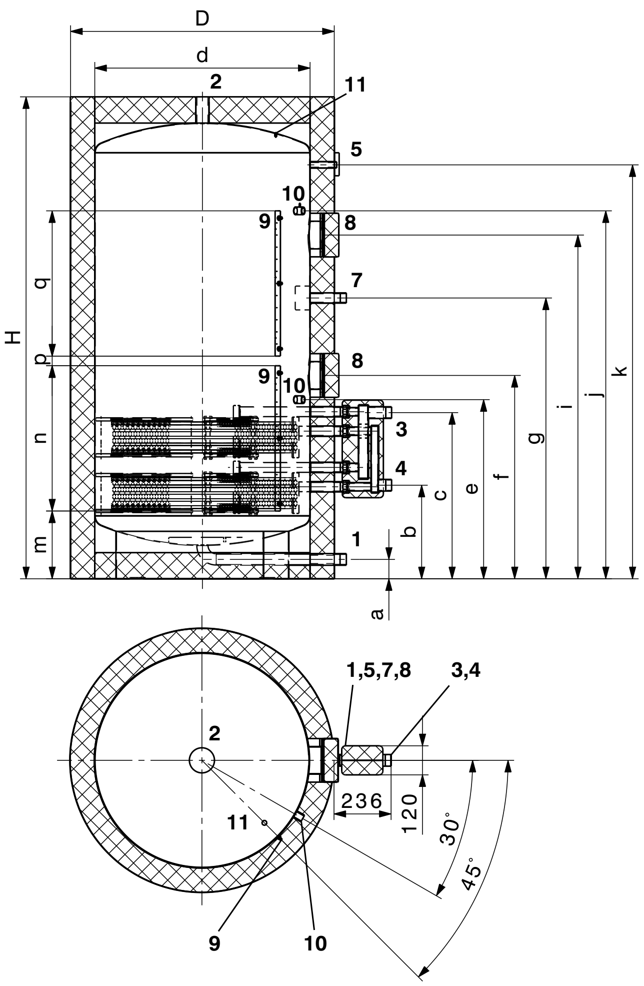


* Calorifier heated to 60 °C

CombiVal CSR (300-500)
(Dimensions in mm)



CombiVal CSR (800-2000)



1	Cold water	type (300-500)	G 1″ (ET)
		type (800-2000)	G 1½″ (ET)
2	Hot water		Rp 1½″ (IT)
3	Flow heating		R 1½″ (ET)
4	Return heating		R 1½″ (ET)
5	Sleeve with mounted immersion sleeve and thermometer (immersion sleeve: L = 200, inner Ø = 8 mm)		Rp ½″ (IT)
6	Connection for screw-in electric heating element		Rp 1½″ (IT)
7	Circulation	type (300-500)	G 1″ (ET)
		type (800-1250)	G 1¼″ (ET)
		type (1500,2000)	G 1½″ (ET)

8 Hand-hole flange (flange electrical heating inset) ø 180/110 mm, pitch circle ø 150 mm, 8x M10
9 Sensor terminal bar 600 x 30 mm
10 Sleeve with grounding bolt for impressed current anode (perforated thermal insulation) — Rp ¾″ (IT); type (300-800) 1x; type (1000-2000) 2x
Attention: observe the installation length
11 Equipotential bonding

Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

CombiVal Type CSR	D	d	H	a	b	c	e	f	g	i	j	k	m	n	p	q	Tilting measure
(300)	740	500	1949	80	380	690	740	840	1010	1320	-	1710	310	540	100	540	2085
(400)	840	600	1885	80	380	690	740	840	1010	1320	-	1630	310	540	100	540	2064
(500)	890	650	1970	80	380	690	740	840	1010	1320	-	1710	310	540	100	540	2162
(800)	990	790	1991	80	380	690	740	840	1160	1420	-	1710	310	540	100	540	2224
(1000)	1090	890	1991	80	380	690	740	840	1160	1420	1520	1710	310	540	100	540	2270
(1250)	1190	950	1997	80	380	690	740	840	1160	1420	1520	1710	310	540	100	540	2325
(1500)	1340	1100	2012	80	380	690	740	840	1160	1420	1520	1710	310	540	100	540	2417
(2000)	1440	1200	2046	80	380	690	740	840	1160	1420	1520	1710	310	540	100	540	2502

Hoval Calorifier
MultiVal CRR (500-1000)

- Calorifier made of stainless steel
- Thermal insulation made of polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
  (500,800) 2-part
  (1000) 3-part
- MultiVal CRR (500)
  1½″ sleeve for the installation of a screw-in electrical heating inset
- MultiVal CRR (800,1000)
  Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- Flange below as cleaning flange or for installation of a flange electric heating element
- With thermometer
- With immersion sleeve
- Two terminal strips for contact sensors
- 2 flat section coils made ofstainless steel, built in
  - below for the alternative use as flat register at (800,1000)
  - above for supplemental heating with oil, gas or wood boiler
- Connection cable for equipotential bonding, permanently mounted
- For domestic water up to max. 70 mg/l chloride content, with impressed current anode up to 200 mg/l chloride content

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

On request
- Screw-in electrical heating inset
- Flange electrical heating inset for upper flange
- Flange cover with sleeve to the lower flange for the installation of a screw-in electrical heating inset
- Correx® impressed current anode set


MultiVal CRR (500) MultiVal CRR (1000)

Range
MultiVal
Type

CRR	(500)
CRR	(800)
CRR	(1000)

Screw-in electrical heating inset
Type EP 2,5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Incl. temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Flange electrical heating insets
Type EFHK-C 4 to EFHK-C 9
- Made of Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, according to the regulation of the current supplier
- With temperature regulation and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
Mounting of thermal insulation

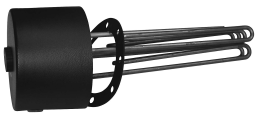
Part No.

Calorifier

MultiVal CRR (500-1000)
With integrated flat section coils made of stainless steel.
MultiVal CRR (500-1000) thermal insulation fully installed.

MultiVal CRR type	Volume dm³	Heating surface top m²	Heating surface bottom m²	Part No.
(500)	544	1.28	1.70	7014 794
(800)	818	1.28	2.63	7014 795
(1000)	1042	1.28	2.63	7014 796

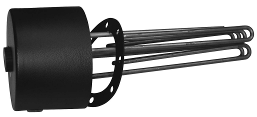
Accessories



Flange electrical heating insets for upper flange for MultiVal CRR (800,1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	MultiVal CRR	Part No.
4-180	4.0 kW/ 3x400 V		380	(800,1000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0 kW/ 3x400 V		460	(800,1000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0 kW/ 3x400 V		670	(800,1000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/3x400 V			

Part No.



Flange electrical heating insets for lower flange for MultiVal CRR (500-1000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	MultiVal CRR	Part No.
4-180	4.0 kW/ 3x400 V	2.6 kW/3x400 V 2.0 kW/3x400 V 1.3 kW/3x400 V 1.3 kW/1x230 V	380	(500-1000)	6049 564
6-180	6.0 kW/ 3x400 V	4.0 kW/3x400 V 3.0 kW/3x400 V 2.0 kW/3x400 V 2.0 kW/1x230 V	460	(500-1000)	6049 565
9-180	9.0 kW/ 3x400 V	6.0 kW/3x400 V 4.5 kW/3x400 V 3.0 kW/3x400 V 3.0 kW/1x230 V	670	(800,1000)	6049 566

Screw-in-electrical heating inset
Incoloy® alloy 825,
With temperature controller and safety temperature limiter (see Engineering).
Delivery separate, installation on site
No use for exclusively electrical heating

Type	Heat input [kW]	Voltage [V]	Installation depth [mm]	for MultiVal CRR	Part No.
EP 2.5	2.35	3x400 (1x230)	390	(500)	6049 557
EP 3.5	3.6	3x400	500	(500)	6049 558
EP 5	4.9	3x400	620	(500)	6049 559

		Part No.
	**Flange cover 180 - 1½″** for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, stainless steel with Rp 1½″ sleeve Seal and screws included	2002 205
	**Correx® electrical anode set** for long-term corrosion protection for installation in the stainless steel calorifier with reducer R 1 ½″ - Rp ¾″. For installation in a sleeve coupling with Rp 1 ½″. Possible installation positions: Sleeve coupling for screw-in electrical heating element With chloride content ≥ 70 mg/l recommended as essential. See also engineering guidelines.	

Type	Installation length (mm)	for MultiVal CRR	Part No.
C 400	395	(500)	6031 813
C 400	395	(1000-2000)	6052 439

		Part No.
	**Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67	2056 788
	**Immersion sensor TF/2P/5/6T, L = 5.0 m** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m without plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, operating temperature: -20…105 °C, index of protection: IP67	2055 888
	**Immersion sensor TF/12N/2.5/6T, L = 2.5 m** for gas boiler with RS-OT Cable length: 2.5 m Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, Operating temperature: -20…105 °C, index of protection: IP67	2056 791

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

		Part No.

Calorifier thermostat control TW 12
universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside.
15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well — 6010 080

Thermostatic water mixer TM200
3-way-mixing valve for regulating of the water temperature
Material: brass
Connection dimension R ¾″
Hot water temperature max. 90 °C
Adjustment range 30-60 °C
Flow rate 27 l/min (at delta p = 1 bar)
Flow coefficient value (kvs) 1.62 m³/h — 2005 915

Thermostatic mixing valve JRG
3-way mixing valve made of brass for regulating the water temperature.
Hot water max. 90 °C
Setting range 45-65 °C
Factory-set to: 55 °C
Pressure: PN 10
Connections: external thread incl. screwed joint

Type	Dimension	Connection size	kvs value m^3/h	Part No.
JRG 25	1″	1 ½″	4.0	2061 407
JRG 32	1 ¼″	2″	8.5	2061 408
JRG 40	1 ½″	2 ¼″	12.0	2061 409

Calorifier MultiVal CRR (500-1000)

Type		(500)	(800)	(1000)
• Volume	dm^3	544	818	1042
• Volume (upper heating battery)	dm^3	220	345	405
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95
• Thermal insulation polyester fleece	mm	120	100	100
• Thermal insulation λ	W/mK	0.035	0.035	0.035
• Fire protection class		B2	B2	B2
• Heat loss at 65 °C	W	80	136	142
• Transport weight	kg	145	205	219
• U value	W/m^2K	0.259	0.437	0.360
• For flat collectors up to	m^2	8	12	16
Dimensions			see table of dimensions	
Heating battery at the bottom *(built in)*				
• Heating surface	m^2	1.70	2.63	2.63
• Heating water content	dm^3	5.10	7.40	7.40
• Flow resistance [1] water	z value	15.50	24.00	24.00
• Flow resistance [1] water/glycol 50 %	z value	20.93	32.40	32.40
• Max. operating pressure/test pressure	bar	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95
Heating battery on top *(built in)*				
• Heating surface	m^2	1.28	1.28	1.28
• Heating water content	litres	4.10	4.10	4.10
• Flow resistance [1]	z value	11.65	11.65	11.65
• Max. operating pressure/test pressure	bar	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z

Screw-in electrical heating inset
Incoloy® alloy 825, with temperature control and safety temperature limiter.
Delivered separately, installation on site.
Heat input (kW) according to rules of the power works.
Not only suitable for electrical heating.

Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CRR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(500)
EP 3.5	3.6	3 x 400	500	(500)
EP 5	4.9	3 x 400	620	(500)

Flange electrical heating inset
for upper flange
for MultiVal CRR (800,1000)
with temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V.
Heat output (kW) according to rules of the power works.
No use for exclusively electrical heating

EFHK-C Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CRR
4-180	4	3 x 400	380	(800,1000)
6-180	6	3 x 400	460	(800,1000)
9-180	9	3 x 400	670	(800,1000)

Flange electrical heating inset
for lower flange
for MultiVal CRR (500-1000)
with temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V.
Heat output (kW) according to rules of the power works.
No use for exclusively electrical heating

EFHK-C type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CRR
4-180	4	3 x 400	380	(500-1000)
6-180	6	3 x 400	460	(500-1000)
9-180	9	3 x 400	670	(800,1000)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL ˅						
1						
2						
3						
4						
5						
6						
7						
8						
9	500					
10				500		
11						
12		500				
13	800					
14	1000				500	
15				800		
16		800				
17			500	1000		
18		1000				
19					800	
20						
21						500
22			800		1000	
23						
24			1000			
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28						800
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50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL ˅						
51						
52						
53						
54						
55						
56						
57						
58						
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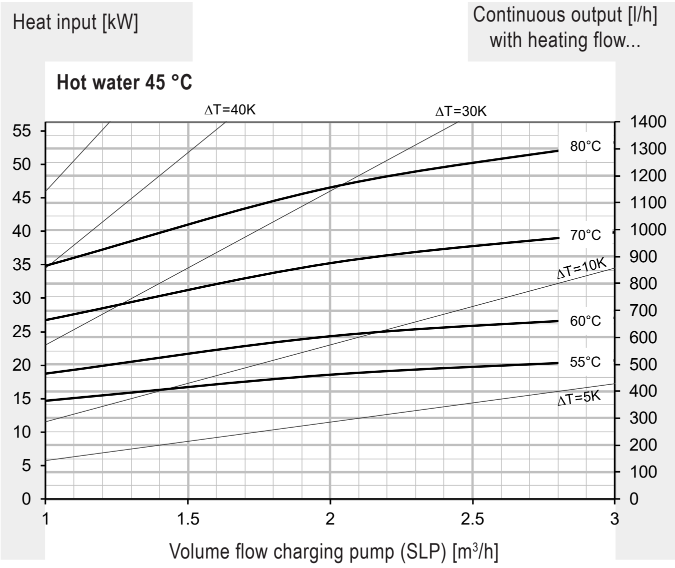
100						

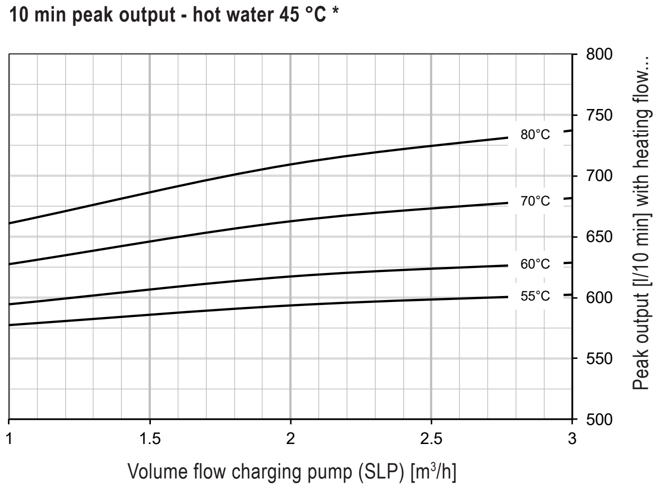
T = heating flow
NL = performance figure
and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

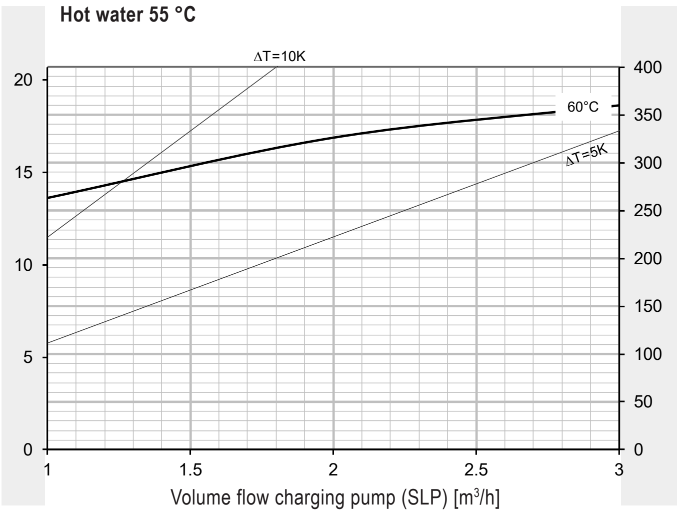
CombiVal CRR (500)

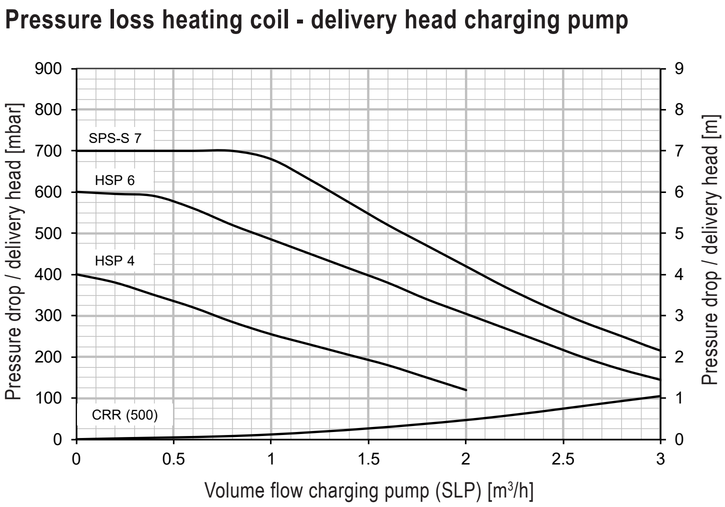
Hot water output
Continuous output

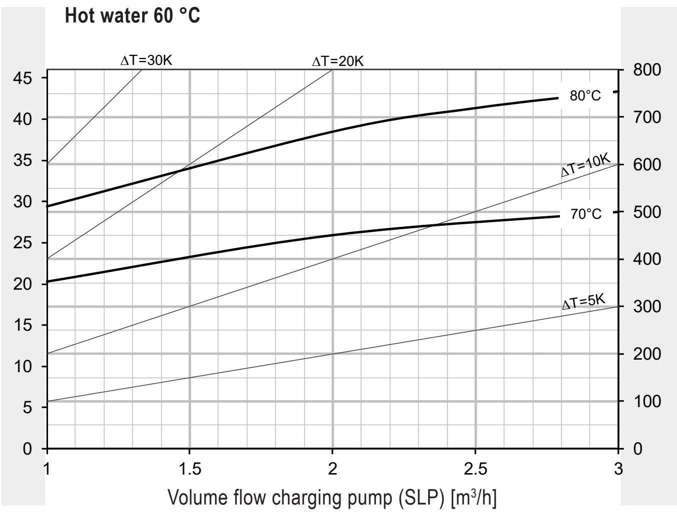
Reading example
see engineering









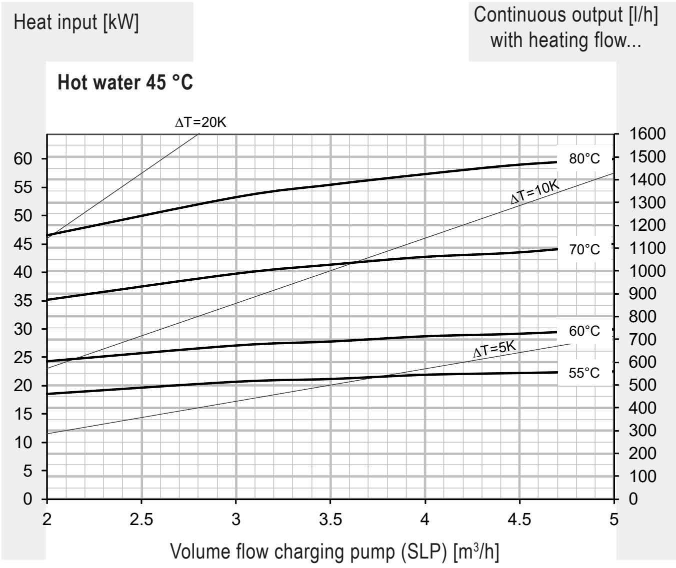


* Calorifier heated to 60 °C

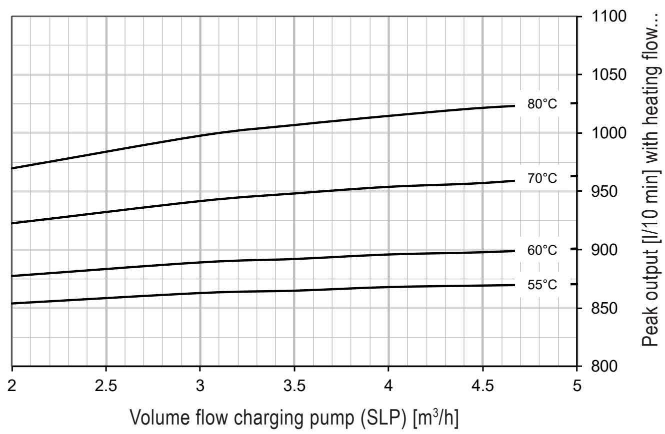
CombiVal CRR (800)

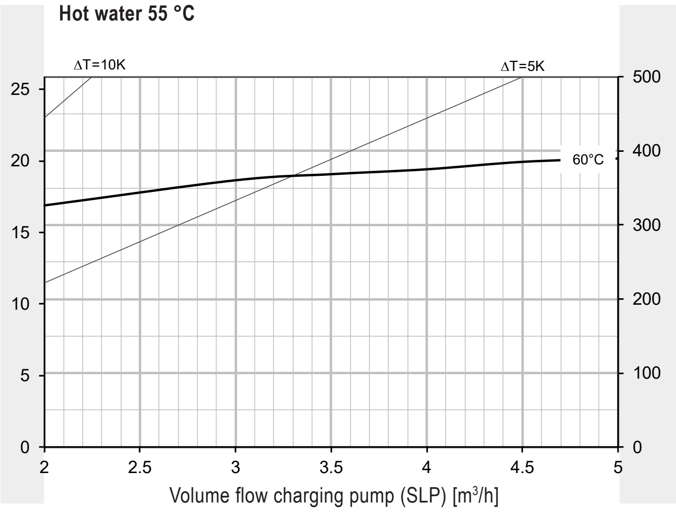
Hot water output
Continuous output

Reading example
see engineering

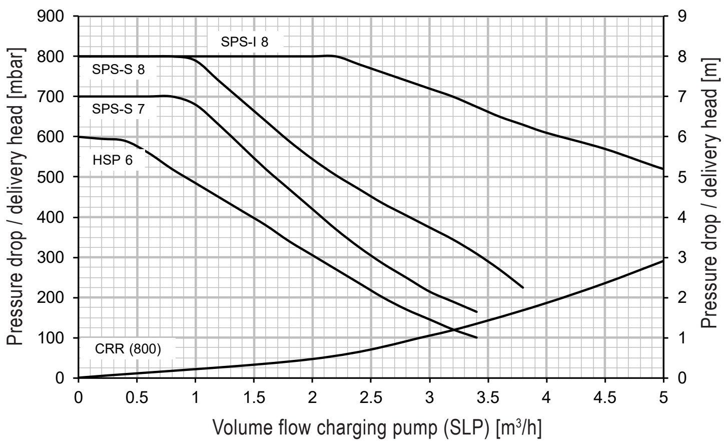


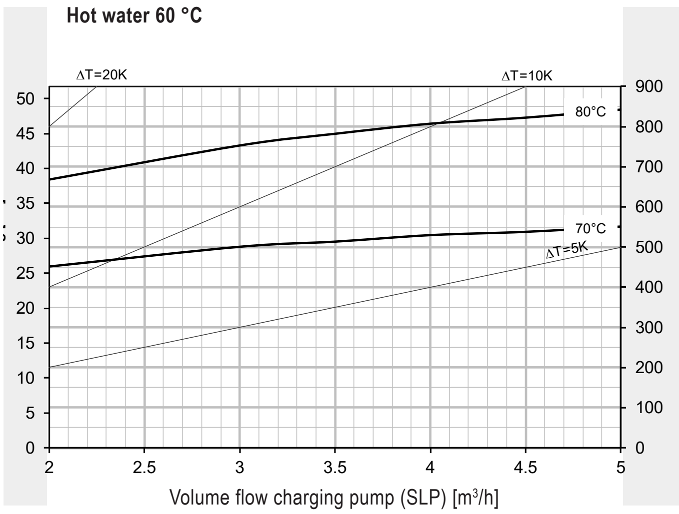
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



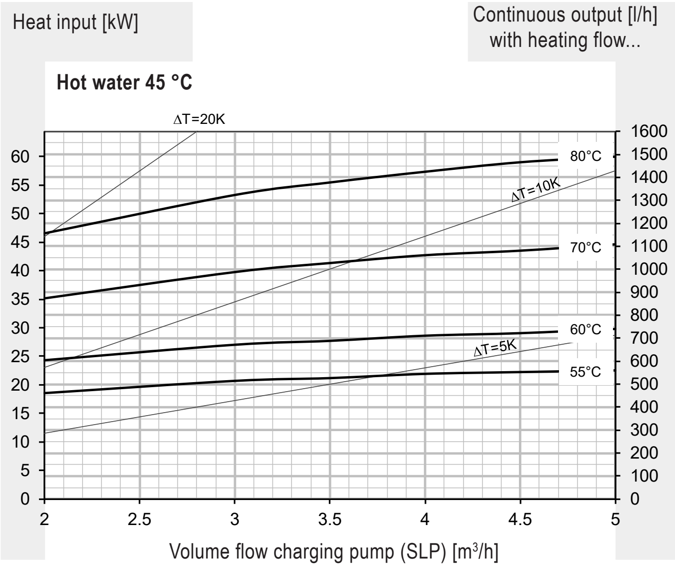


* Calorifier heated to 60 °C

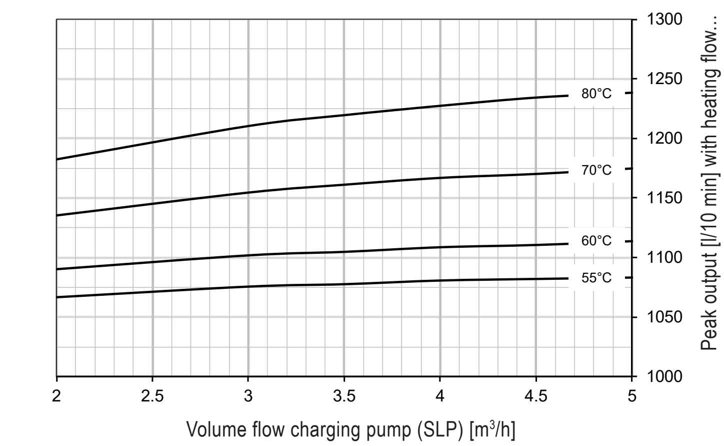
CombiVal CRR (1000)

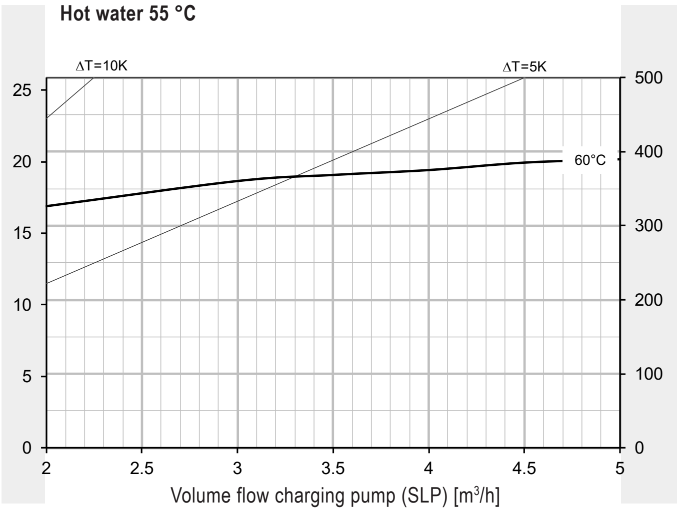
Hot water output
Continuous output

Reading example
see engineering

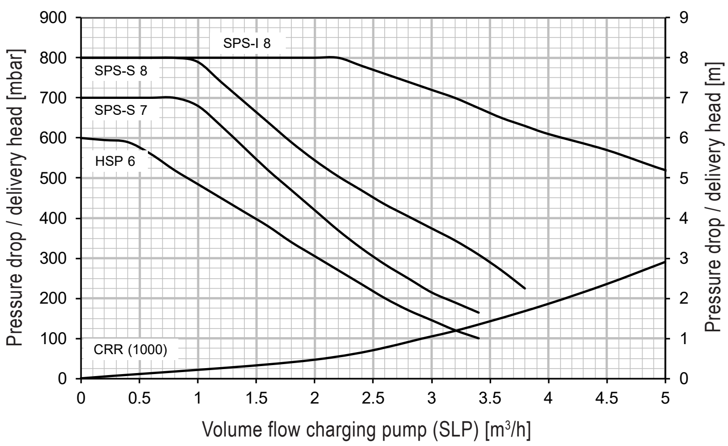


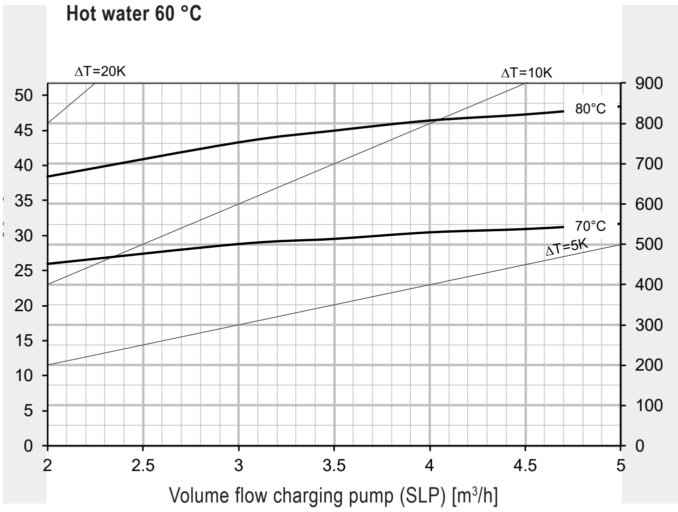
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump

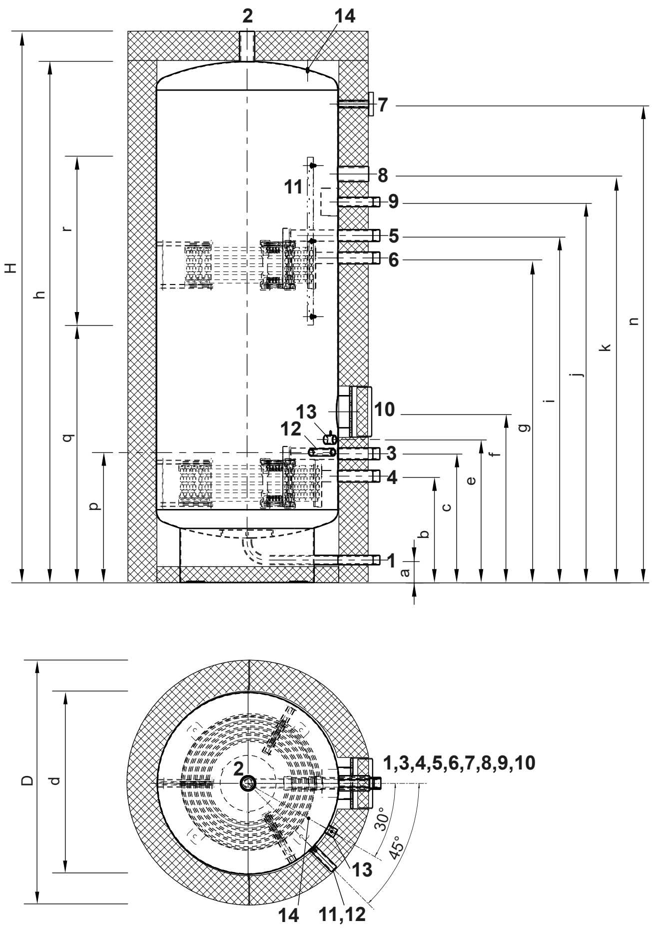




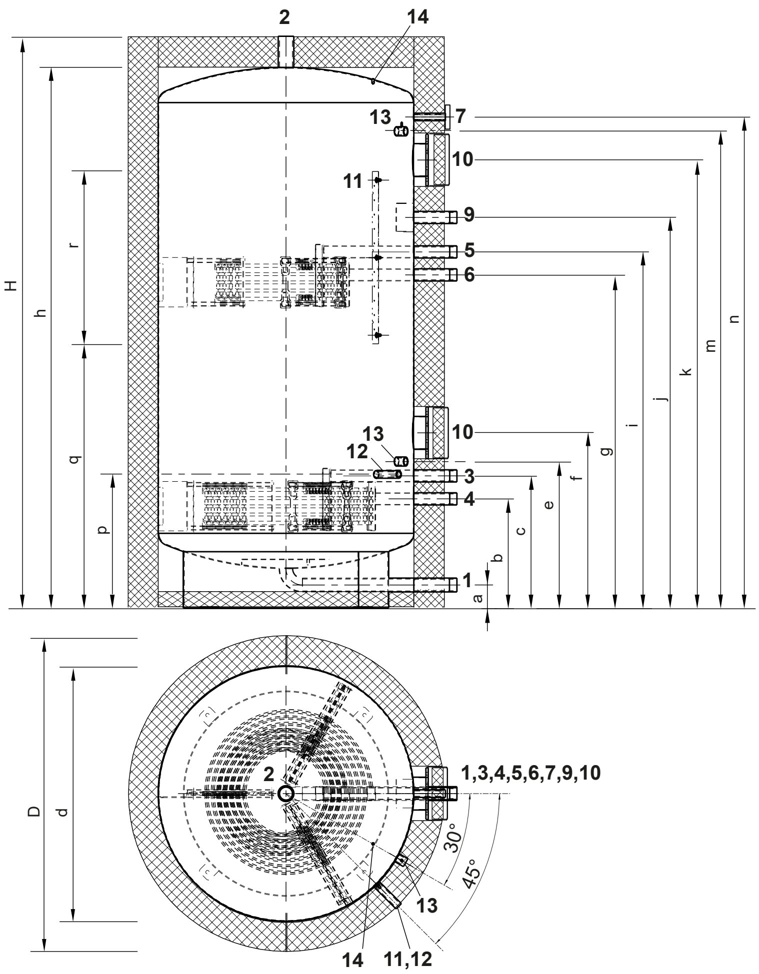
* Calorifier heated to 60 °C

MultiVal CRR (500)

(Dimensions in mm)



MultiVal CRR (800,1000)



1	Cold water	Type (500)	G 1″ (ET)
		Type (800,1000)	G 1½″ (ET)
2	Hot water		Rp 1½″ (IT)
3	Flow solar circuit		G 1¼″ (ET)
4	Return solar circuit		G 1¼″ (ET)
5	Flow re-heating		G 1¼″ (ET)
6	Return re-heating		G 1¼″ (ET)
7	Sleeve with mounted immersion sleeve and thermometer (immersion sleeve: L = 200, inner Ø = 8 mm)		Rp ½″ (IT)
8	Connection for screw-in electrical heating		Rp 1½″ (IT)
9	Circulation	Type (500)	G 1″ (ET)
		Type (800,1000)	G 1¼″ (ET)

10	Hand-hole flange (flange electrical heating inset) ø 180/110 mm, pitch circle ø 150 mm, 8 x M10		
11	Sensor terminal bar 600 x 30 mm		
12	Sleeve with mounted immersion sleeve for sensor, thermostat (immersion sleeve: L = 200, inner Ø = 8 mm)		Rp ½″ (IT)
13	Sleeve with grounding bolt for impressed current anode (perforated thermal insulation)		Rp ¾″ (IT)
		Type (500)	1x
		Type (1000)	2x
	Attention: observe the installation length		
14	Equipotential bonding		

Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

MultiVal Type	D	d	H	h	a	b	c	e	f	g	i	j	k	m	n	p	q	r	Tilting measure
CRR (500)	890	650	1970	1862	80	380	460	510	610	1160	1240	1360	1460	-	1710	465	950	540	2162
CRR (800)	990	790	1991	1883	80	380	460	510	610	1160	1240	1360	1560	-	1710	465	950	540	2224
CRR (1000)	1090	890	1991	1883	80	380	460	510	610	1160	1240	1360	1560	1660	1710	465	950	540	2270

Hoval calorifier MultiVal CSRR (500-2000)

- Calorifier made of stainless steel
- Thermal insulation made of polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
  (500,800) 2-part
  (1000-2000) 3-part
- MultiVal CSRR (500)
  1 ½″ sleeve for the installation of a screw-in electrical heating inset
- MultiVal CSRR (800-2000)
  Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset or of a screw-in electrical heating inset by means of flange cover with 1 ½″ sleeve
- Flange below as cleaning flange or for the installation of a flange electrical heating inset or of a screw-in electrical heating inset by means of flange cover with 1 ½″ sleeve
- With thermometer
- Terminal bar for contact sensor
- With immersion sleeve
- 2 flat section coils made of stainless steel, built in
  - at the bottom: flat section coil for solar use
  - at the top: flat section coil for heating with heat pumps
- Connection cable for equipotential bonding, permanently mounted
- For domestic water up to max. 70 mg/l chloride content with impressed current anode up to 200 mg/l chloride content

Delivery
- MultiVal CSRR (500-1000)
  Calorifier and thermal insulation completely installed (can be removed for installation)
- MultiVal CSRR (1500-2000)
  Calorifier and thermal insulation delivered separately packed

On request
- Screw-in electrical heating inset
- Flange cover with sleeve for flange below with sleeve to flange below for the installation of a screw-in electrical heating inset
- Correx® impressed current anode set

On site
- MultiVal CSRR (1500-2000)
  Mounting of thermal insulation

MultiVal CSRR (500)

Range

MultiVal Type	
CSRR	(500)
CSRR	(800)
CSRR	(1000)
CSRR	(1500)
CSRR	(2000)

Screw-in electrical heating inset
Type EP 2.5 to EP 5
- Made of Incoloy® alloy 825
- Heat input 2.35 to 4.9 kW
- Including temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 5: 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Flange electrical heating insets
Type EFHK-C 4 to EFHK-C 9
- Made of Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, according to the rules of the current supplier
- With temperature regulation and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Delivered separately packed

On site
- Mounting of thermal insulation

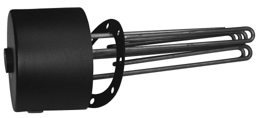
Calorifier

MultiVal CSRR (500-2000)

With 2 integrated flat section coils made of stainless steel, incl. distributor bar for parallel connection of the coils MultiVal CSRR (540-1000) fully mounted. MultiVal CSRR (1500-2000) calorifier and thermal insulation delivered separately packed.

MultiVal CSRR type	Volume dm³	Heating surface top m²	Heating surface bottom m²	Part No.
(500)	544	5.20	1.70	7016 768
(800)	818	7.40	2.63	7016 769
(1000)	1042	10.00	2.63	7016 770
(1500)	1625	11.30	5.00	7016 771
(2000)	1958	11.30	5.00	7016 772

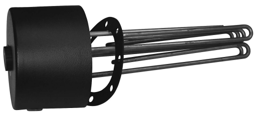
Accessories



Flange electrical heating insets for upper flange for MultiVal CSRR (800-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	MultiVal CSRR	Part No.
4-180	4.0		380	(800-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	(800-2000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0		670	(800-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Part No.



Flange electrical heating insets for lower flange for MultiVal CSRR (500-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
No use for exclusively electrical heating

Type EFHK-C	Heat input 3x400 V [kW]	Changeable to	Installation length [mm]	MultiVal CSRR	Part No.
4-180	4.0		380	(500-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	(500-2000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0		670	(800-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Screw-in electrical heating inset
Incoloy® alloy 825, with temperature controller and safety temperature limiter (see Engineering). Delivered separately, installation on site.
No use for exclusively electrical heating (calcination danger)

Type	Heat input [kW]	Voltage [V]	Installation depth [mm]	For MultiVal CSRR	Part No.
EP 2.5	2.35	3 x 400 (1 x 230)	390	(500)	6049 557
EP 3.5	3.6	3 x 400	500	(500)	6049 558
EP 5	4.9	3 x 400	620	(500	6049 559

Part No.

Correx® electrical anode set
for long-term corrosion protection for installation in the stainless steel calorifier with reducer R 1 ½″ - Rp ¾″.
For installation in a sleeve coupling with Rp 1½″.
Possible installation positions:
Sleeve coupling for screw-in electrical heating element
With chloride content ≥ 70 mg/l recommended as essential. See also engineering guidelines.

Type	Install. length (mm)	For MultiVal CSRR	Part No.
C 400	395	(200-800)	6031 813
C 400	395	(1000-2000)	6052 439

Flange cover 180 - 1½″
for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, stainless steel with Rp 1½″ sleeve
Seal and screws included

2002 205

Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67

2056 788

Immersion sensor TF/2P/5/6T, L = 5.0 m
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
operating temperature: -20…105 °C,
index of protection: IP67

2055 888

Immersion sensor TF/12N/2.5/6T, L = 2.5 m
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
Operating temperature: -20…105 °C,
index of protection: IP67

2056 791

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

Part No.

Calorifier thermostat control TW 12
universal storage tank thermostat controller for thermostatic pump charge demand, setting in casing, visible from outside.
15-95 °C, switching differential 6 K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well

6010 080

Thermostatic water mixer TM200
3-way-mixing valve for regulating of the water temperature
Material: brass
Connection dimension R ¾″
Hot water temperature max. 90 °C
Adjustment range 30-60 °C
Flow rate 27 l/min (at delta p = 1 bar)
Flow coefficient value (kvs) 1.62 m³/h

2005 915

Thermostatic mixing valve JRG
3-way mixing valve made of brass for regulating the water temperature.
Hot water max. 90 °C
Setting range 45-65 °C
Factory-set to: 55 °C
Pressure: PN 10
Connections: external thread incl. screwed joint

Type	Dimension	Connection size	kvs value m³/h	Part No.
JRG 25	1″	1 ½″	4.0	2061 407
JRG 32	1 ¼″	2″	8.5	2061 408
JRG 40	1 ½″	2 ¼″	12.0	2061 409

Calorifier MultiVal CSRR (500-2000)

Type		(500)	(800)	(1000)	(1500)	(2000)
• Volume	dm^3	544	818	1042	1625	1958
• Volume (upper battery)	dm^3	375	530	650	1023	1368
• Operating pressure/test pressure	bar	6/12	6/12	6/12	6/12	6/12
• Max. operating temperature	°C	95	95	95	95	95
• Thermal insulation polyester fleece	mm	120	100	100	120	120
• Thermal insulation λ	W/mK	0.035	0.035	0.035	0.035	0.035
• Fire protection class		B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	80	136	142	176	180
• Transport weight	kg	176	257	303	501	529
• U value	W/m^2K	0.259	0.390	0.360	0.338	0.315
Dimensions		see table of dimensions				
Heating battery bottom *(built in)*						
• Heating surface	m^2	1.70	2.63	2.63	5.00	5.00
• Heating water	dm^3	5.30	7.40	7.40	13.60	13.60
• Flow resistance [1] water	z value	15.50	24.00	24.00	45.25	45.25
• Flow resistance water/glycol 50 %	z value	20.93	32.40	32.40	61.09	61.09
• Operating pressure/test pressure	bar	3/6	3/6	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95	95	95
• For flat collectors [2] up to	m^2	12	18	18	36	36
Heating battery top *(built in)*						
• Heating surface	m^2	5.20	7.40	10.0	11.30	11.30
• Heating water	dm^3	13.60	19.00	25.30	28.40	28.40
• Flow resistance [1]	z value	3.84	5.44	7.24	8.24	8.24
• Operating pressure/test pressure	bar	3/6	3/6	3/6	3/6	3/6
• Max. operating temperature	°C	95	95	95	95	95

[1] Flow resistance heating battery in mbar = volume flow $(m^3/h)^2$ x z
[2] Collector surface, related to the heat exchanger heating surface only

Screw-in electrical heating inset
Incoloy® alloy 825, incl. temperature control
and Safety temperature limiter.
Delivered separately, installation on site, 3 x 400 V.
Heat input (kW) according to rules of the power works.
No use for exclusive electrical heating.

Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CSRR
EP 2.5	2.35	3 x 400 (1 x 230)	390	(500)
EP 3.5	3.6	3 x 400	500	(500)
EP 5	4.9	3 x 400	620	(500)

Flange electrical heating inset for upper flange
for MultiVal CSRR (500-2000)
With temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

EFHK-C Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CSRR
4-180	4	3 x 400	380	(800-2000)
6-180	6	3 x 400	460	(800-2000)
9-180	9	3 x 400	670	(800-2000)

Flange electrical heating inset for lower flange
for MultiVal CSRR (500-2000)
With temperature regulation and safety temperature limiter.
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

EFHK-C Type	Heat output [kW]	Voltage [V]	Installation length [mm]	For MultiVal CSRR
4-180	4	3 x 400	380	(500-2000)
6-180	6	3 x 400	460	(500-2000)
9-180	9	3 x 400	670	(800-2000)

Performance figure

Selection of the storage tank type
at a hot water temperature of 45 °C

Reading example
see engineering

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24	500					
25						
26						
27						
28						
29						
30				500		
31						
32		500				
33						
34						
35						
36						
37						
38						
39						
40			500			
41					500	
42						
43						
44						
45						
46	800					
47						
48						
49						
50						

	Comfort [1]			Standard [2]		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v						
51						
52						500
53						
54						
55						
56						
57						
58						
59						
60				800		
61	1000					
62						
63						
64		800				
65						
66						
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72						
73						
74						
75						
76						
77	1500					
78						
79						
80				1000		
81	2000		800			
82						
83						
84		1000			800	
85						
86						
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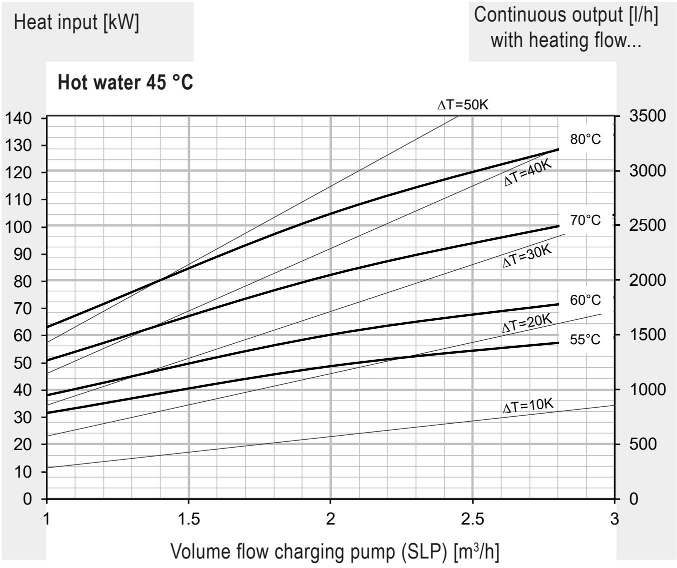
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100		1500				

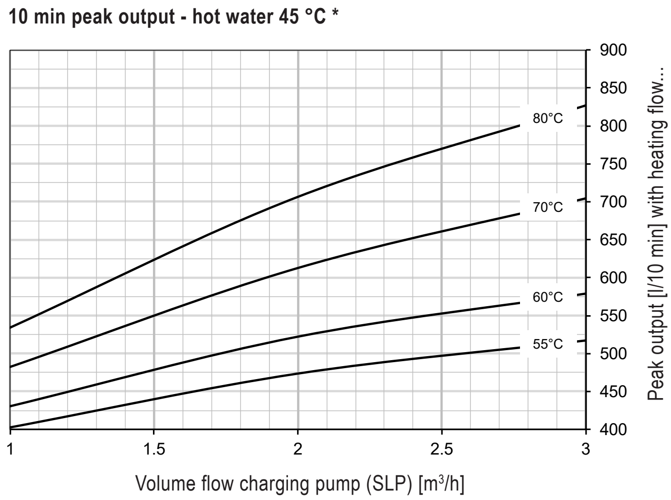
T = Heating flow
NL = Performance figure
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator (standard flat: 1 bathroom - 4 rooms - 3.5 persons)
[1] Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)
[2] Calculation with simultaneity factor according to Dresden Technical University

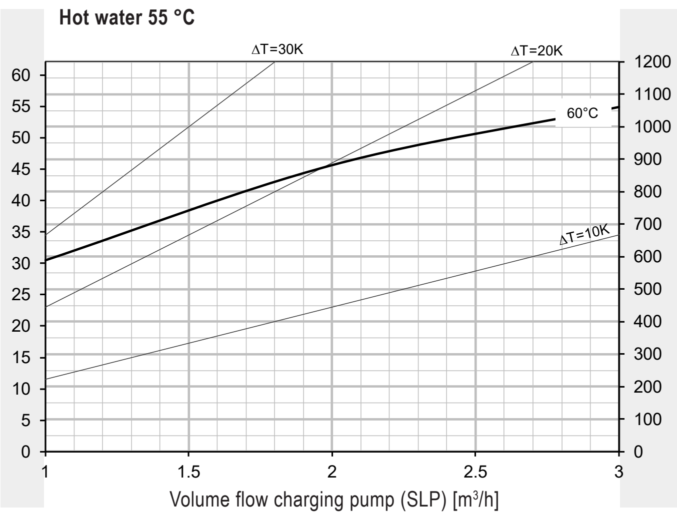
CombiVal CSRR (500)

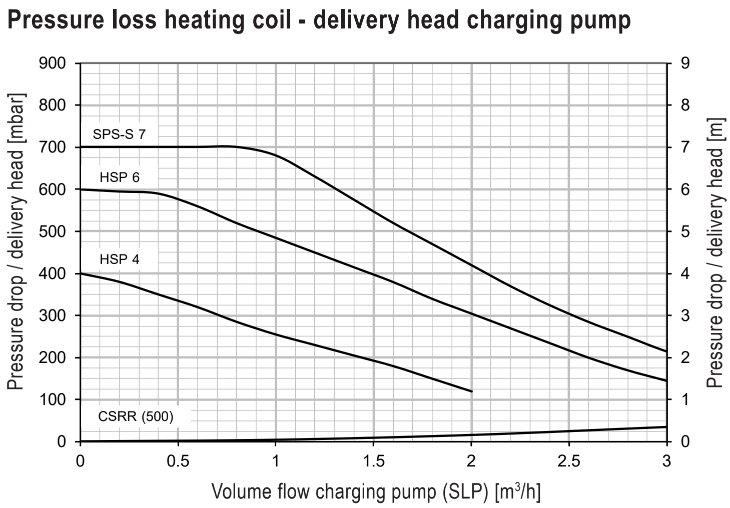
Hot water output
Continuous output

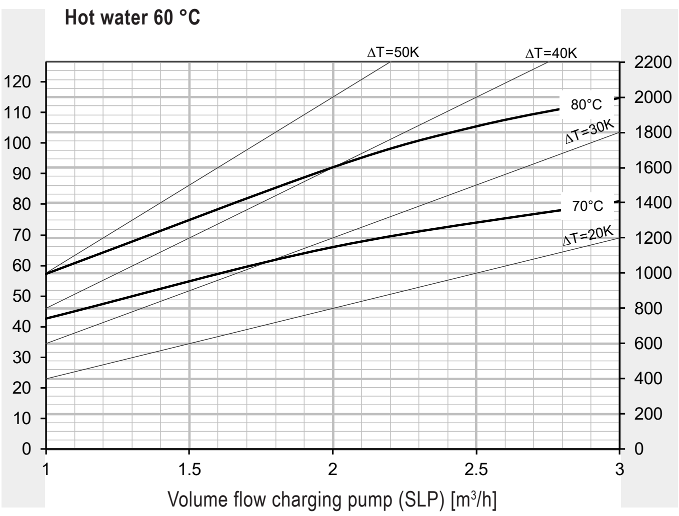
Reading example
see engineering









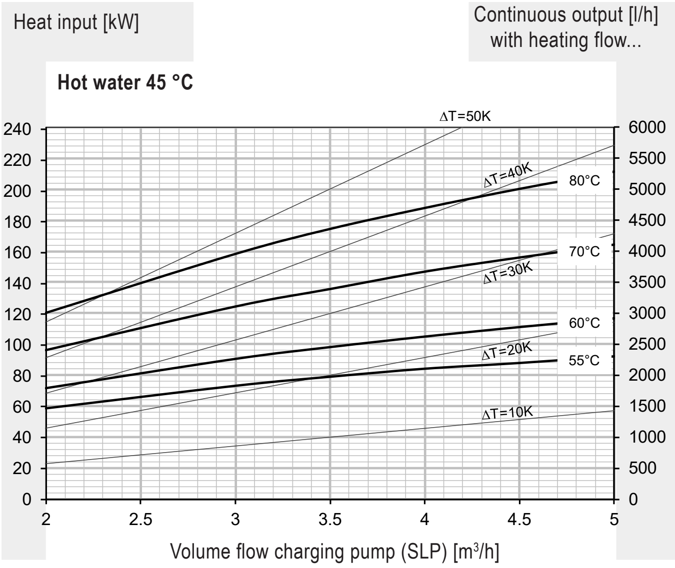


* Calorifier heated to 60 °C

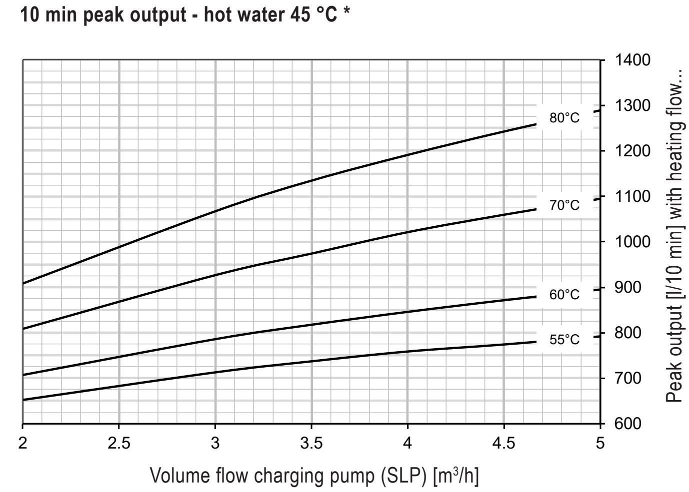
CombiVal CSRR (800)

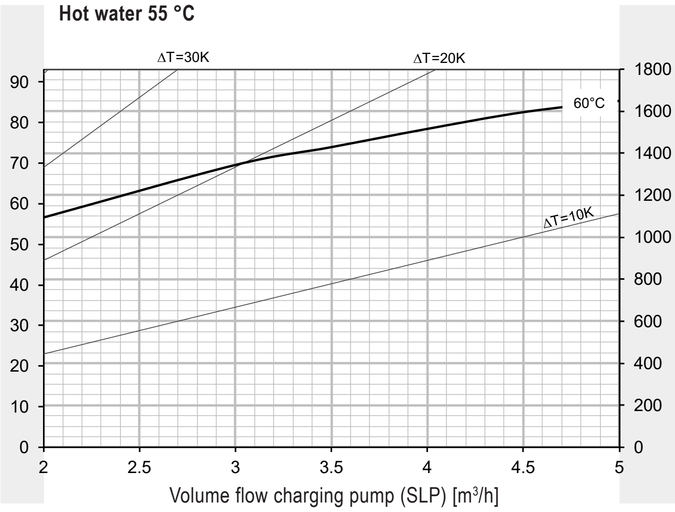
Hot water output
Continuous output

Reading example
see engineering

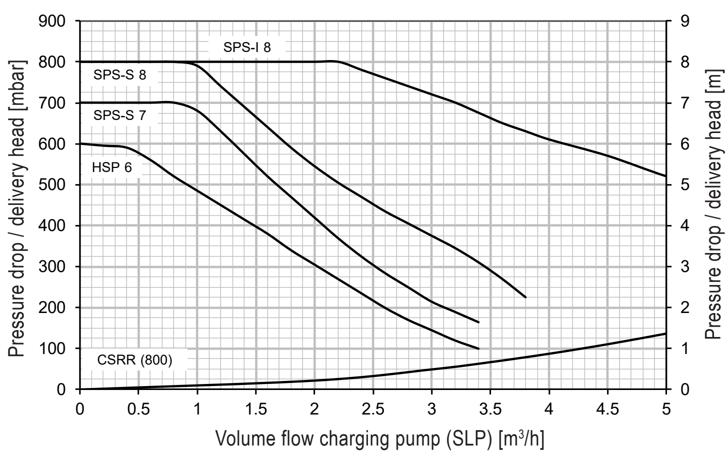


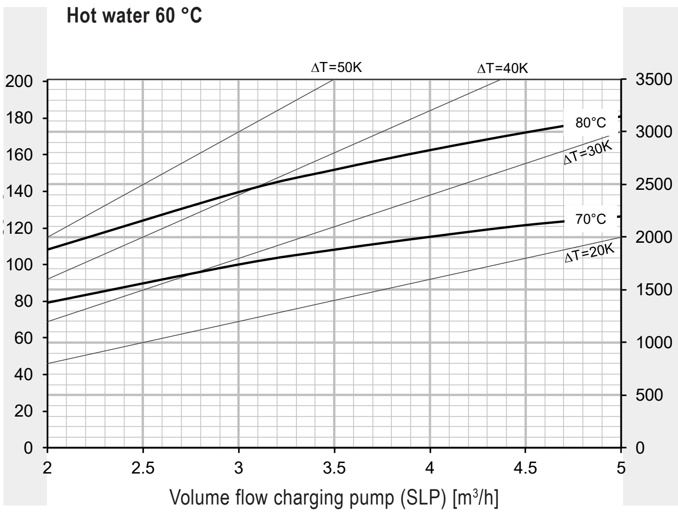
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



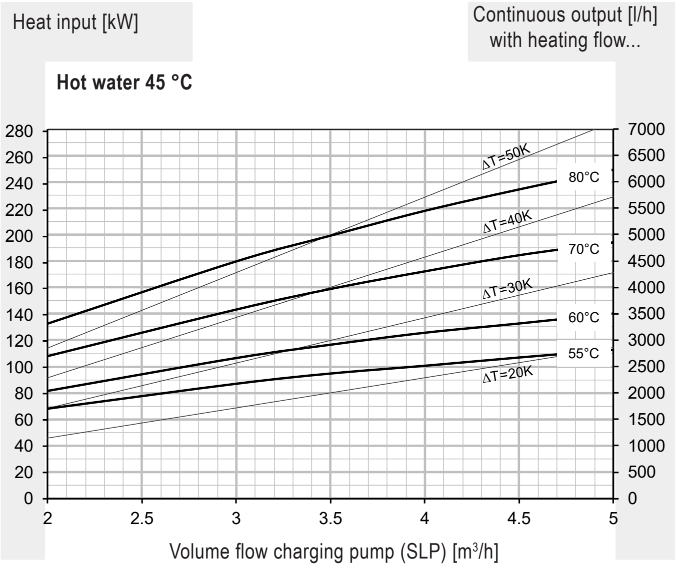


* Calorifier heated to 60 °C

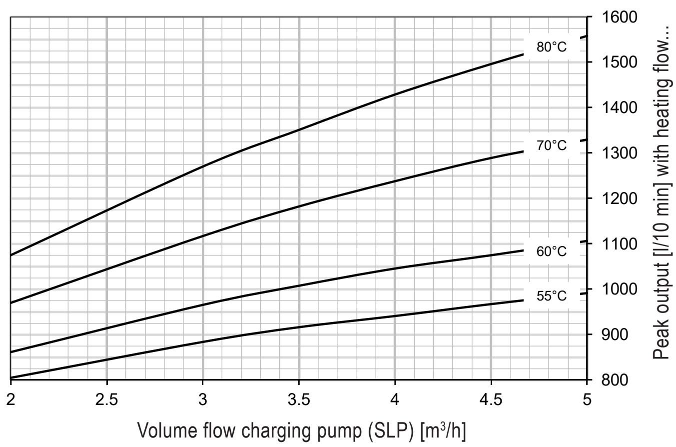
CombiVal CSRR (1000)

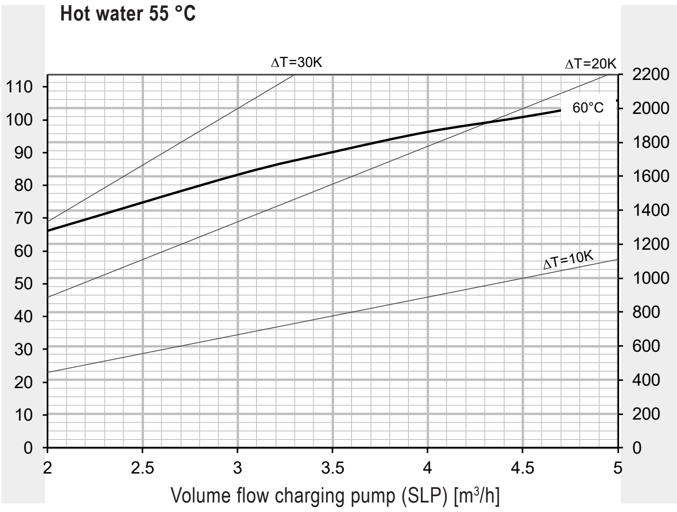
Hot water output
Continuous output

Reading example
see engineering

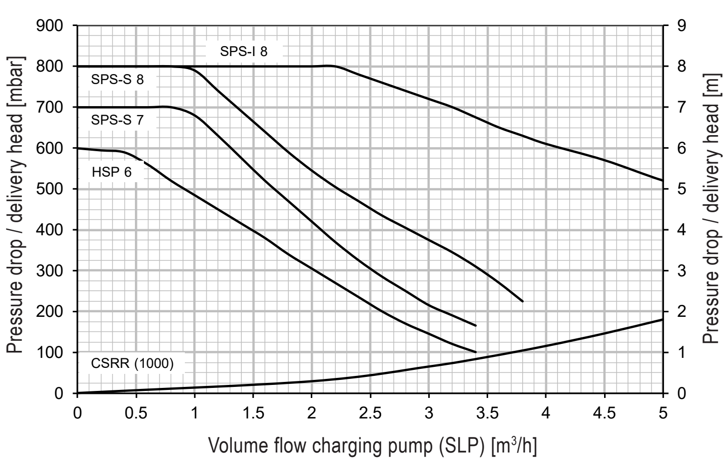


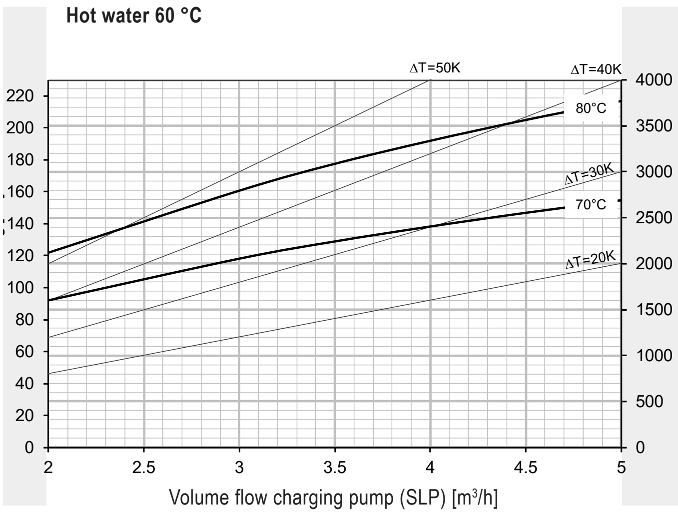
10 min peak output - hot water 45 °C *





Pressure loss heating coil - delivery head charging pump



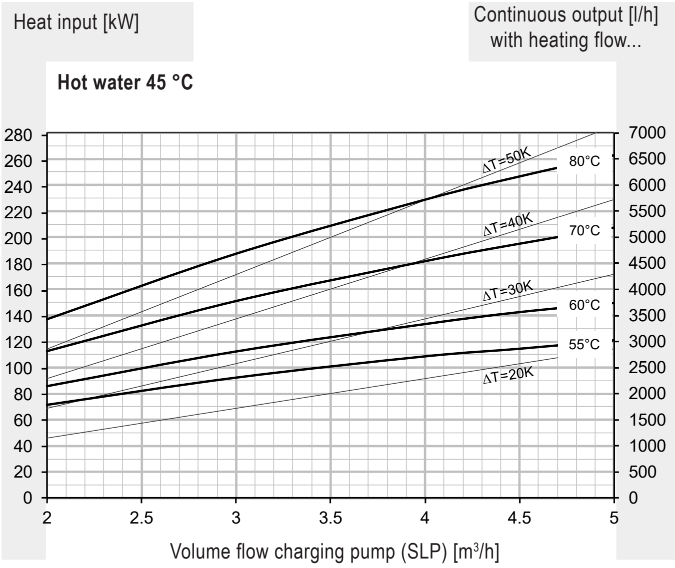


* Calorifier heated to 60 °C

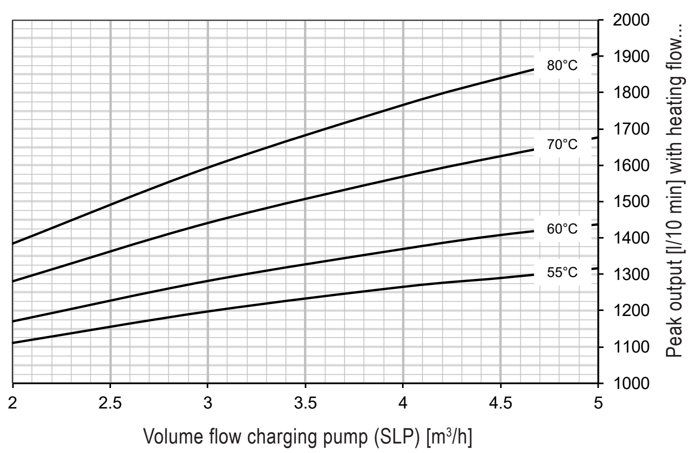
CombiVal CSRR (1500)

Hot water output
Continuous output

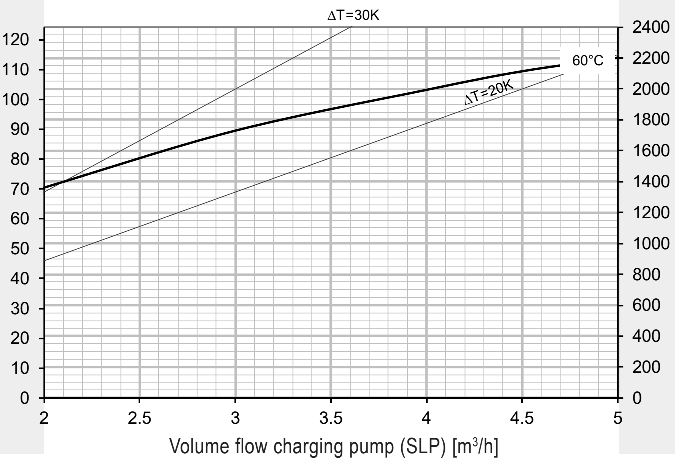
Reading example
see engineering



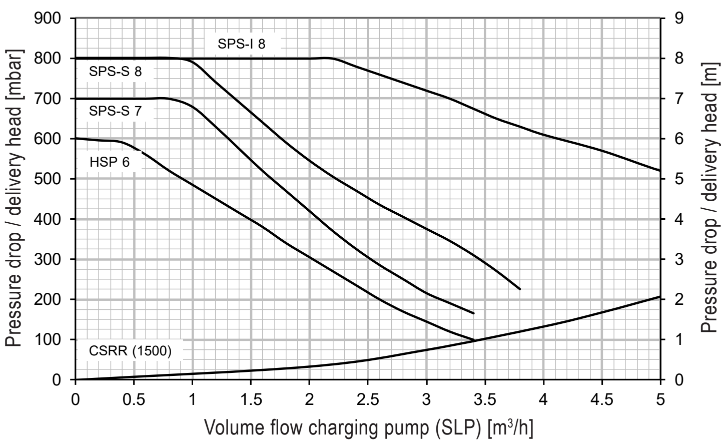
10 min peak output - hot water 45 °C *



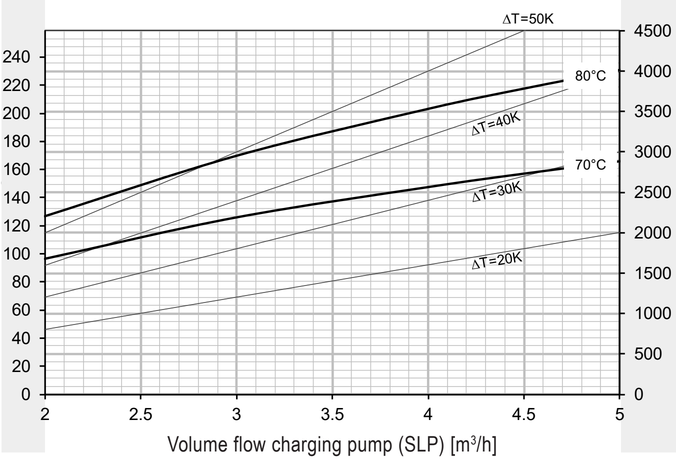
Hot water 55 °C



Pressure loss heating coil - delivery head charging pump



Hot water 60 °C



* Calorifier heated to 60 °C

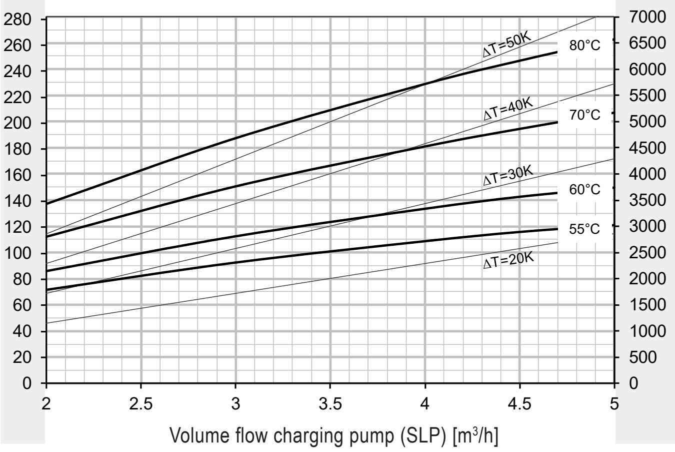
CombiVal CSRR (2000)

Hot water output
Continuous output

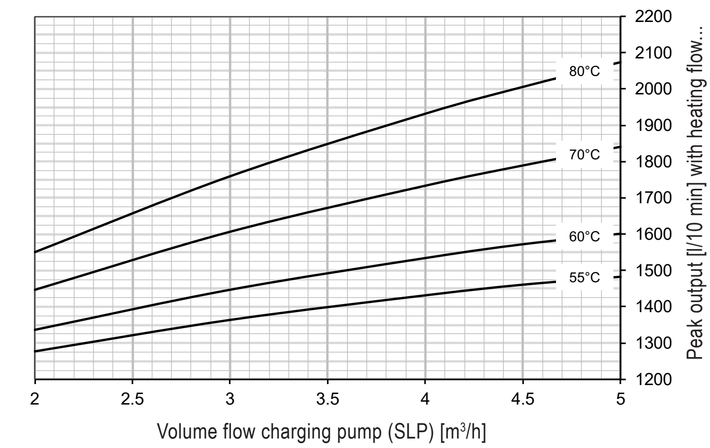
Reading example
see engineering

Heat input [kW] | Continuous output [l/h] with heating flow...

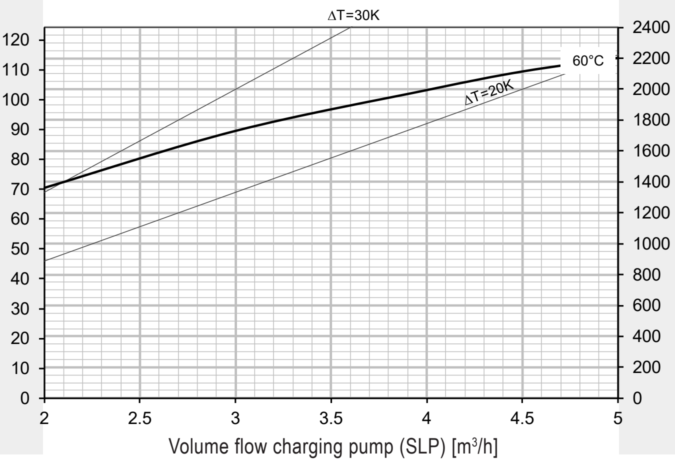
Hot water 45 °C



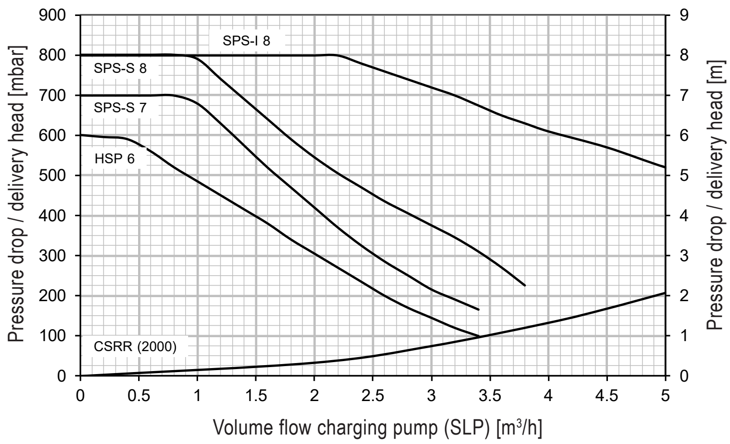
10 min peak output - hot water 45 °C *



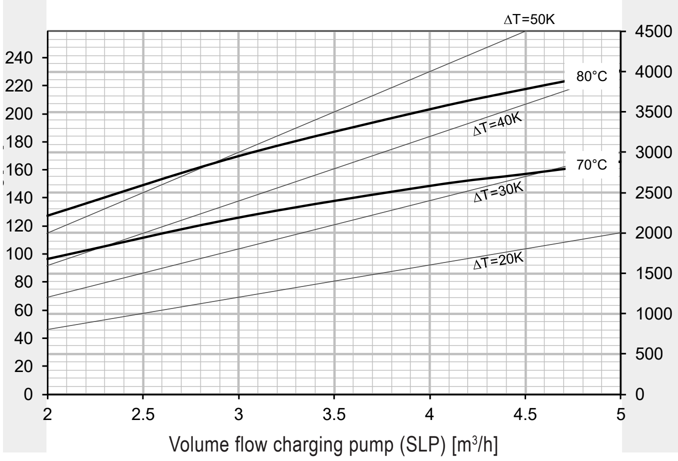
Hot water 55 °C



Pressure loss heating coil - delivery head charging pump

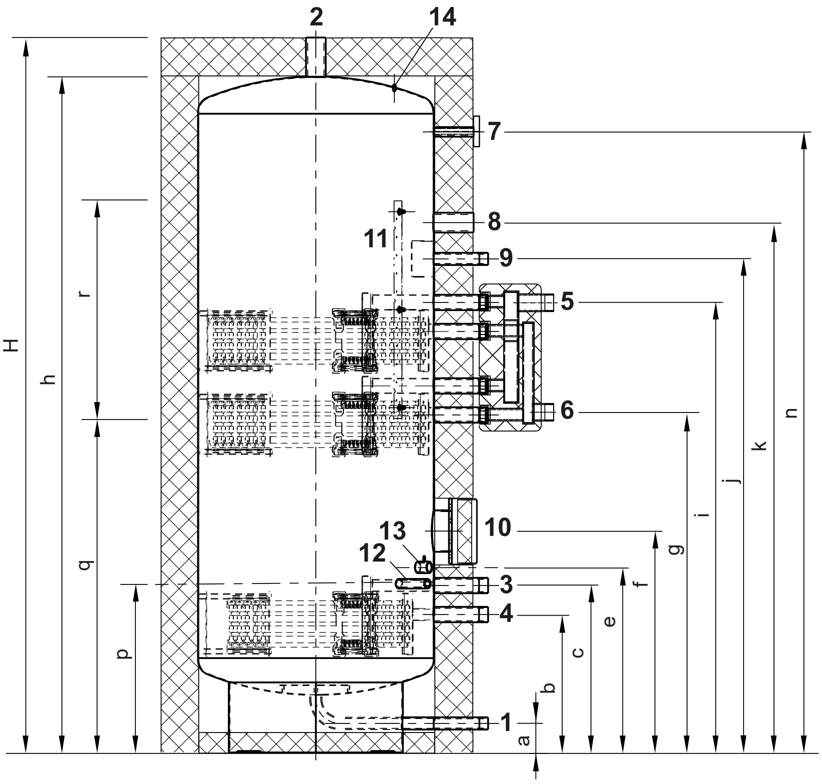


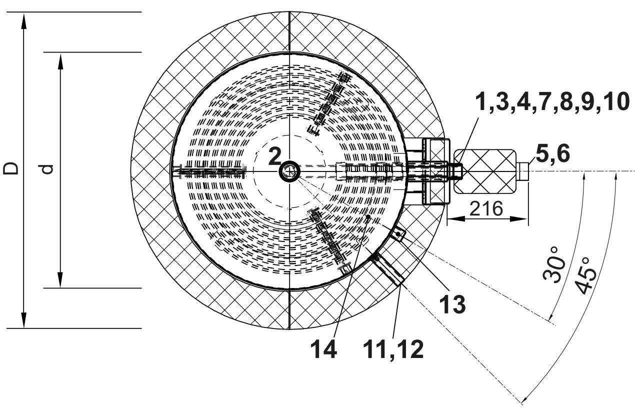
Hot water 60 °C



* Calorifier heated to 60 °C

MultiVal CSRR (500)
(Dimensions in mm)



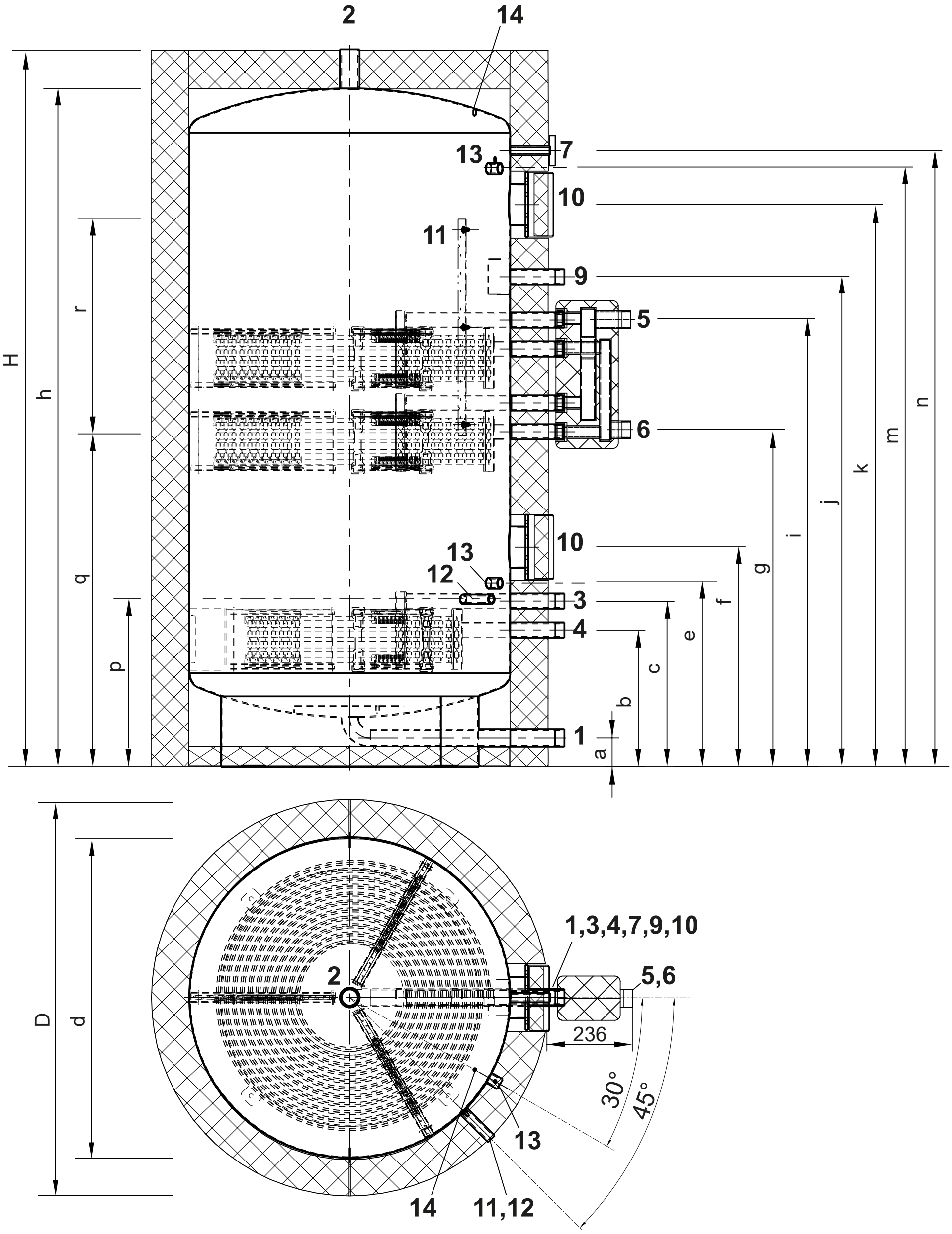


1	Cold water	G 1″ (ET)
2	Hot water	Rp 1½″ (IT)
3	Flow solar circuit	G 1¼″ (ET)
4	Return solar circuit	G 1¼″ (ET)
5	Flow re-heating	R 1½″ (ET)
6	Return re-heating	R 1½″ (ET)
7	Sleeve with mounted immersion sleeve and thermometer (immersion sleeve: L = 200, inner Ø = 8 mm)	Rp ½″ (IT)
8	Connection for screw-in electrical heating	Rp 1½″ (IT)
9	Circulation	G 1″ (ET)
10	Hand-hole flange (flange electrical heating inset) ø 180/110 mm, pitch circle ø 150 mm, 8x M10	
11	Sensor terminal bar 600 x 30 mm	
12	Sleeve with mounted immersion sleeve for sensor, thermostat (immersion sleeve: L = 200, inner Ø = 8 mm)	Rp ½″ (IT)
13	Sleeve with grounding bolt for impressed current anode (perforated thermal insulation) Type (500) Attention: observe the installation length	Rp ¾″ (IT) 1x
14	Equipotential bonding	

Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

MultiVal CSRR	D	d	H	h	a	b	c	e	f	g	i	j	k	n	p	q	r	Tilting measure
(500)	890	650	1970	1862	80	380	460	510	610	930	1240	1360	1460	1710	465	950	540	2162

MultiVal CSRR (800-2000)
(Dimensions in mm)



1	Cold water	G 1½″ (ET)
2	Hot water	Rp 1½″ (IT)
3	Flow solar circuit	G 1¼″ (ET)
4	Return solar circuit	G 1¼″ (ET)
5	Flow re-heating	R 1½″ (ET)
6	Return re-heating	R 1½″ (ET)
7	Sleeve with mounted immersion sleeve and thermometer (immersion sleeve: L = 200, inner Ø = 8 mm)	Rp ½″ (IT)
9	Circulation Type (800,1000)	G 1¼″ (ET)
	Type (1500,2000)	G 1½″ (ET)
10	Hand-hole flange (flange electrical heating inset) Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10	
11	Sensor terminal bar 600 x 30 mm	
12	Sleeve with mounted immersion sleeve for sensor, thermostat (immersion sleeve: L = 200, inner Ø = 8 mm)	Rp ½″ (IT)
13	Sleeve with grounding bolt for impressed current anode (perforated thermal insulation)	Rp ¾″ (IT)
	Type (800)	1x
	Type (1000-2000)	2x
	Attention: observe the installation length	
14	Equipotential bonding	

Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

MultiVal CSRR	D	d	H	h	a	b	c	e	f	g	i	j	k	m	n	p	q	r	Tilting measure
(800)	990	790	1991	1883	80	380	460	510	610	930	1240	1360	1560	-	1710	465	950	540	2224
(1000)	1090	890	1991	1883	80	380	460	510	610	930	1240	1360	1560	1660	1710	465	950	540	2270
(1500)	1340	1100	2012	1904	80	380	460	510	610	930	1240	1360	1560	1660	1710	465	950	540	2417
(2000)	1440	1200	2046	1938	80	380	460	510	610	860	1170	1360	1560	1660	1710	465	950	540	2502

Hoval CombiVal WPE, WPER, WPEF
Compact device for domestic hot water

Air/water heat pump
- With fully hermetic reciprocating compressor, aluminium helical tube condenser in double shell, lamellar tube evaporator (Cu/Al) and thermostatic expansion valve
- Fan (2-stage)
- Air intake/outlet to the top or sideways
- Air intake/outlet aperture Ø 160 mm
- Refrigerant R134a
- Recirculated air/outside air mode
- Microprocessor comfort control. Different possibilities of combination of heat generators (heat pump, electrical immersion heater and boiler). Independent fan functions for ventilation. Automatic legionella program, alarm with error display
- Defrosting operation
- Can be used in conjunction with photovoltaic (SmartGrid-ready)
- Air temperature range -10 °C to +35 °C

Calorifier
- Calorifier made of steel with double enamel coating
- Volume 270 dm³
- WPER with enamelled plain tube heat exchanger for heating boiler operation (integral)
- Magnesium protective anode
- Electric heating 2.0 kW
- Thermal insulation from polyurethane, not removable
- Attractive red casing; upper cover and front panel black
- WPER (300): with integrated heater battery
- WPEF (300): with cleaning flange on the end

Delivery
- Heat pump with calorifier ready-assembled, insulated, lagged and wired
- Ready for operation
- Metal base available at extra charges

On site
- Charging pump and sensor for heating boiler operation
- Air ducting

Range

CombiVal Type			Refrigerant	Output kW
WPE	(300)	A	R134a	1.78
WPER	(300) [1)]	A	R134a	1.78
WPEF	(300) [2)]	A	R134a	1.78

[1] With integrated heating battery
[2] With cleaning flange on the front

Tests

Hoval CombiVal WPE (300)
Test number WPZ-B-111-16-11

Part No.

Calorifier heat pump

Hoval CombiVal WPE, WPER, WPEF

Recirculated air/outside air mode Air/water heat pump for water heating. Calorifier made of steel with double enamelled coating and electric heating built in.
WPER: with integrated heating register.
WPEF: with cleaning flange on the end.
Cased and ready to plug in. Defrosting operation and microprocessor comfort control included.

CombiVal Type		Persons [1] approx.	Output kW	Heating surface m^2	Part No.
WPE	A	4	1.78	-	7016 339
WPER	A	4	1.78	1.00	7016 340
WPEF	A	4	1.78	-	7016 341

[1] Persons = number of persons who can be supplied with domestic hot water (approximate values).

Accessories (only for Hoval CombiVal WPER (300))

Immersion sensor TF/2P/5/6T, L = 5.0 m, with plug — 2056 788
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 5 m with plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67

Immersion sensor TF/2P/5/6T, L = 5.0 m — 2055 888
for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com,
cable length: 5 m without plug
sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
operating temperature: -20…105 °C, index of protection: IP67

Immersion sensor TF/12N/2.5/6T, L = 2.5 m — 2056 791
for gas boiler with RS-OT
Cable length: 2.5 m
Sensor sleeve diameter: 6 x 50 mm, dewpoint-proof,
Operating temperature: -20…105 °C, index of protection: IP67

At TopTronic® E, immersion sensor is included in the boiler control or in the heating controller set.

Service

Commissioning
Commissioning by works service or Hoval trained authorised serviceman/company is condition for warranty.

For commissioning and other services please contact your Hoval sales office.

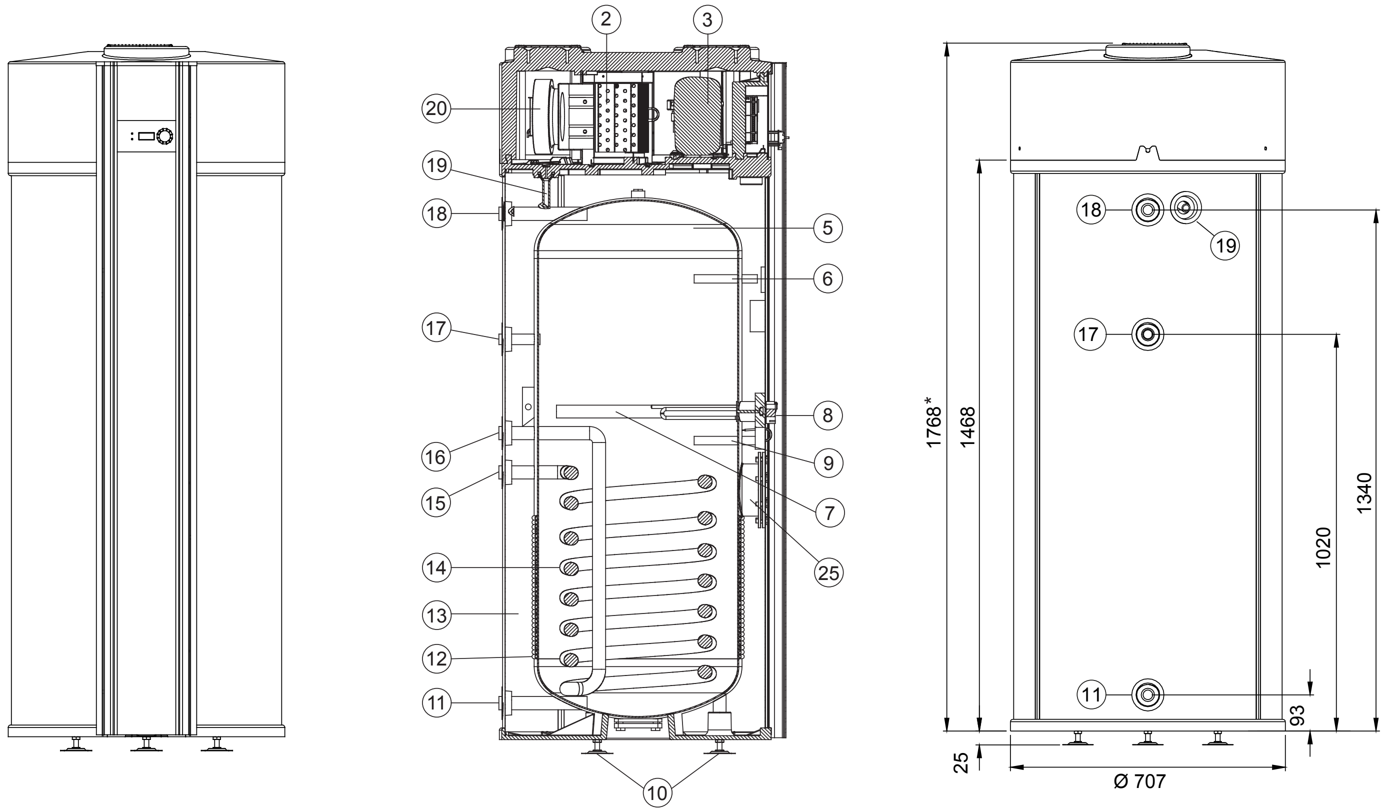
Calorifier heat pump

Type		WPE	WPER	WPEF
• Content	litres	270	258	270
• Operating/test pressure	bar	10/13	10/13	6/12
• Max. operating temperature				
- Max. heat pump operation	°C	62	62	62
- Boiler operation	°C	65	65	65
- Electric operation	°C	65	65	65
• Recommended economy temp.				
- Heat pump operation	°C	48	48	48
• Polystyrene foam thermal insulation	mm	80	80	80
• Electrical power dissipation at 55 °C (EN16147:2011)	Watt	20	20	20
• Transport weight	kg	137	160	137
• Dimensions				
- Height	mm	1780	1780	1780
- Diameter	mm	710	710	710
- Depth	mm	720	720	720
- Air inlet/outlet Ø	mm	160	160	160
Heater coils (integral)				
• Heating surface	m^2	-	1.0	-
• Heating water	litres	-	5.9	-
• Flow resistance at 1 m^3/h	mbar	-	25	-
• Operating pressure	bar	-	3	-
• Flow temperature maximum	°C	-	80	-
Heat pump				
• Refrigerant		R 134a	R 134a	R 134a
• Filling	kg	0.9	0.9	0.9
• Average heat output [1]	kW	1.78	1.78	1.78
• Average electrical power consumption [1]	kW	0.49	0.49	0.49
• Performance [1]	COP	3.61	3.61	3.61
• Power consumption	A	2.0	2.0	2.0
• Max. starting current	A	9.6	9.6	9.6
• Electric fuse protection	A	13 T	13 T	13 T
• Max. supply air temperature	°C	35	35	35
• Min. supply air temperature	°C	-10	-10	-10
• Nominal air quantity (not under load)				
- Stage 1	m^3/h	200	200	200
- Stage 2	m^3/h	300	300	300
• Ext. pressure				
- Stage 1	Pa	80	80	80
- Stage 2	Pa	-	-	-
• Sound power level	dB(A)	59	59	59
• Sound pressure level 1 m				
- Stage 1	dB(A)	49	49	49
- Stage 2	dB(A)	55	55	55
• Electrical immersion heater 230 V	kW	2.0	2.0	2.0
• Electric connection (device) voltage/frequency	V/Hz	230/50	230/50	230/50
Hot water output/day [2]	number of persons	4	4	4

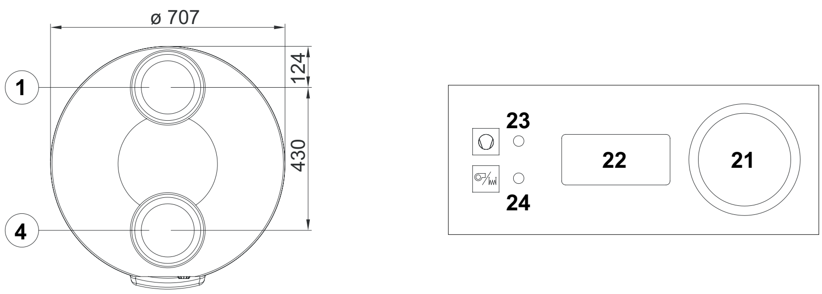
[1] According to the following standards: EN16147:2011, EHPA Testing Regulation V1.8 A20 / W10-53 (60 % r.h.), EN12102 und EN9614-2
[2] Number of persons who can be supplied with hot water at the plants without hot water circulation (approximate values without recharge).

Hoval CombiVal WPE, WPER, WPEF

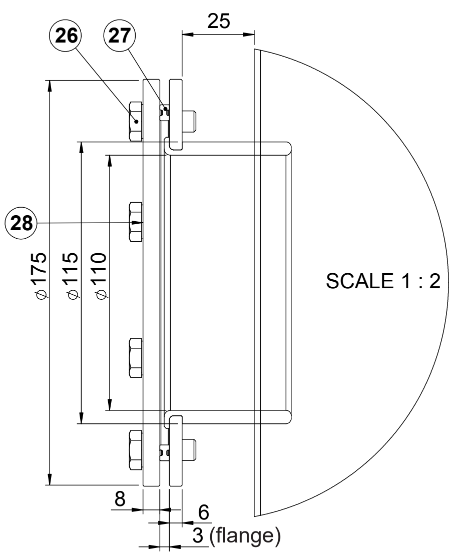
(Dimensions in mm)



* with adjustable foot set 1890-1920 mm
Tilting measure with standard feet 1930 mm



Cleaning flange with CombiVal WPEF



Deviations possible as a result of manufacturing tolerances. Dimensions +/- 10 mm

1 Air outlet Ø 160 mm
2 Evaporator
3 Compressor
4 Air inlet Ø 160 mm
5 Enamelled tank
6 Immersion tube for sensor Ø 15 mm, length 160 mm
7 Anode
8 Heating element
9 Immersion tube for operating sensor Ø 15 mm, length 160 mm
10 Adjustable feet
11 Cold water inlet R 1″
12 Safety condenser
13 Thermal insulation
14 Heating coil (only WPER)
15 Inlet heating coil (only WPER) R 1″
16 Outlet heating coil (only WPER) R 1″
17 Circulation nozzle R ¾″
18 Hot water outlet R 1″
19 Condensate discharge (plastic, Ø DN 15)
20 Fan
21 Operating button - rotary push-button
22 Control panel (display)
23 Operating/warning light heat pump
24 Operating/warning light auxiliary heating
25 Cleaning flange Ø 110 mm (only WPEF)
26 Screw M12x25-8.8-Fe/Zn8 (PN-EN ISO 4017)
27 Flange seal Ø 174 x 3
28 Dummy flange

Regulations and guidelines

The following regulations and guidelines should be complied with:
- technical information and installation guide of Hoval company
- DIN EN 1736: Refrigerating systems and heat pumps
- DIN EN 378: Refrigerating systems and heat pumps - Safety and environmental requirements
- DIN EN 13313: Refrigerating systems and heat pumps - Competence of personnel
- VDI Directive 2035: Protection against corrosion and boiler scale in heating and domestic hot water systems.
- Technical instructions on noise (TA-Lärm)
- Chemicals climate protection regulation

Ecology
Ordinance on substances (federal)
- Handling of refrigerant art. 45 (professional authorisation)
- List of refrigerant and heat carrier fluids according to VWF (regulation about protection of waters from water-hazardous liquids) regulation article 22, Paragraph 2
- Sound protection regulation 814.331
- SN (Swiss norms) 253 120 (definitions of refrigerant)
- Cantonal and local regulations

Electric connection
- VSE (Association of Swiss Engineers) recommendations for connection of heat pump plants for heating and water heating to the network of electric power stations (2.29d, September 1983).
- Regulations of local electric power stations
- VDE directives
- Technical connection condition (TAB 2007) for connecting to the low voltage grid

Planning and construction
- Hydraulic switches
- Regulations of SVGW (Swiss Association for Gas and Water Supply) (especially guideline W3), as well as regulation of local water supply
- SN 253 130, Requirements to installation place
- Cantonal and local fire police regulations as well as country-specific regulations
- Fire protection regulations of the VKF (Association of Cantonal Insurance Companies)
- Guidelines of SWKI (Swiss Association of Heat and Climate Engineers) 91-1 and aeration and deaeration of the heating room
- FWS (Swiss Society for Promotion of Heat Pumps) and AWP (Working Committee for Heat Pumps) guidelines and leaflets
- Guidelines “Procal corrosion and boiler scale protection in heating and industrial water plants”.
- The LRV (air purity regulation) regulations must be kept (bivalent plants)
- Regulations concerning operating pressure and temperature
- EN 806 “Technical rules for drinking water installation”.
- ÖNORM B 2531 (national supplement to EN 806).

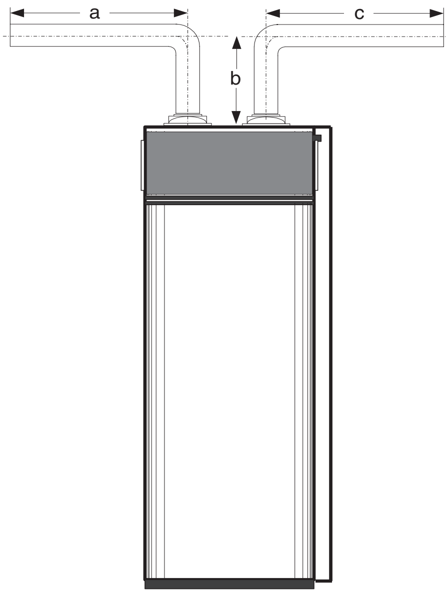
Installation

Hoval calorifier heat pumps of type CombiVal WPE, WPER can be installed in every unheated room with floor drain for the condensed water. The room temperature must not be below 6 °C with devices without additional heating system. Minimum room size 20 m^3.
The intake air should not contain any aggressive substances (ammonia, sulphur, chlorine, halogens, etc.).

Air connection

Intake on top at front
Outlet on top at the back
(see Dimensions)

- The length of air tubes with max. 2 bows amounts to:
  Intake/blow pipeline — total length
  Ø 160 mm — max. 3 m
  with extension to 200 mm:
  Ø 200 mm — max. 7 m
- *The indicated total length should not be exceeded!*



Maximum total length = a+b+c+b

Plumbing installation

- If possible the DHW distribution system should be without circulation.
- Select short pipeline configurations.
- Pay attention to compatibility of water pipelines and calorifier.

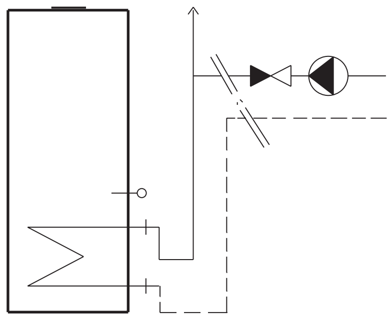
Using copper and galvanised steel tubes always pay attention to the succession of flow direction: copper after galvanised steel.

- The hot water pipes must be thermally insulated in accordance with the local (cantonal) regulations, as well as the currently valid Energy Saving Ordinance.

- If water pipeline pressure is higher than 5 bar, a pressure reduction valve is to be fitted into the cold water pipeline.
- Condensed water connection (at the rear of the heat pump, Ø DN 15) must be led away via siphon into the sewer. Condensed water drain can be dumped together with drainage of expansion water from the safety valve. Depending on humidity condensate can achieve 0.3 l/h.

Heating assembly (WPER)

- The additional heating coil must be provided with charging pump by the customer.
- There should be installed an automatic aspirator in the heating water flow.
- Flow and return should be connected in such a way, that with switched off charging pump (heating with heat pump or electrically) no back circulation and no gravity circulation can take place.
- Expansion of heating water must be always ensured (also during electric charging resp. heat pump operation).

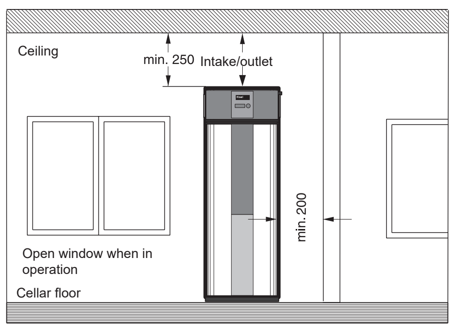


Electric connection

- Ready-for-use wiring (plug with 2 m cable) (power socket 230 V)

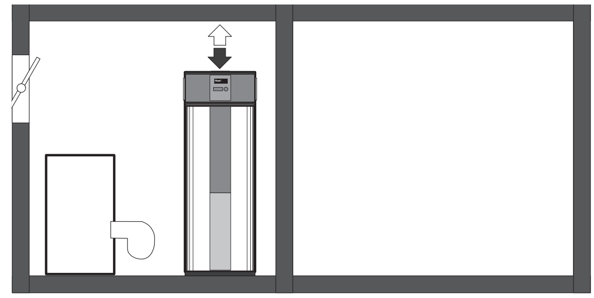
Required space

- Installation area diameter 700 mm
- Minimum distance to the walls min. 200 mm
- Required space operation side min. 600 mm
- Minimum distance to the ceiling: 250 mm



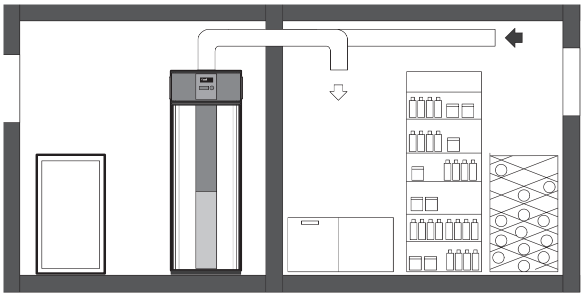
Installation in the heating room

- *Air ducting*
  Air drawn from and blown into the room
- Recovery of unusable waste heat



Installation in the heating room
with heating only heat pump

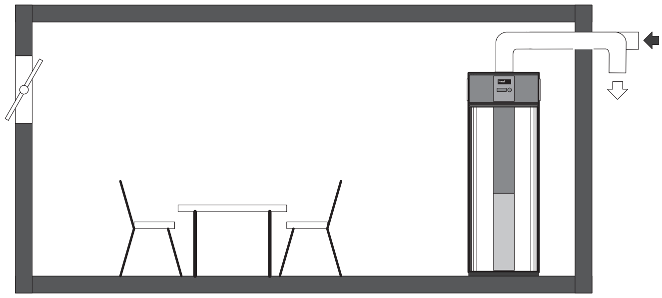
- *Air ducting*
  Air drawn from and blown
  into the neighbouring room
- Min. room volume 25 m^3
- Cooling, dehumidification
  (wine cellar, storeroom)



Installation in the utility room

- *Air ducting*
  Air drawn from and blown into the room
- Min. room volume 20 m^3
- Dehumidification, use of heat
  from condensed water (laundry)

- *Air ducting*
  Air drawn from and blown either
  into the room or externally
- When the air is circulating,
  the window can be closed.



Air duct pipelines
- Intake/blow pipes made of plain tube,
  min. Ø 160 or 200 mm.
- Max. total length of pipeline should be
  3 or 7 m, with max. 2 bows (90°).
  (For each further bow the total length
  of pipe must be reduced by 1 m.)
- Supply of pipeline incl. accessories by the
  customer (ventilating pipe made of plastic,
  aluminium or galvanised sheet steel).

Hoval Modul-plus calorifier

- Calorifier made of stainless steel
- Heating water casing made of steel
- Heat exchanger made of modular elements made of steel for hot water output up to 10,000 l/h at 60 °C and heating output from 60 - 720 kW
- Thermal insulation
  - inner polyurethane rigid foam shells
  - middle mineral wool mats (hard), 50 mm
  - External panelling incl. floor with mineral wool mats (soft), 50 mm
  - with EPP hoods on the front
- Casing made of sheet steel, red powder-coated
- Counter flanges, seals and screws on site
- *Normal model:* opening for cleaning at the front side
  Special model:
  openings for cleaning at the front and back side

On request
- Charging pump
- Divided version

Delivery
- Calorifier and casing are delivered separately

Control panel with thermostats

Type EK 107-90
- For installation into the casing of the Modul-plus
- Incl. thermometer
- Incl. temperature control from 40 to 80 °C
- Thermostat 90 °C
- Operating temperature max. 90 °C

Type EK 108-110
- For installation in the casing at the Modul-plus
- Incl. thermometer
- Incl. temperature control 40-80 °C
- Thermostat 95 °C
- Operating temperature max. 110 °C

Range

Modul-plus
F (21)
F (31)
F (41)
F (51)
F (32)
F (42)
F (52)
F (21) S
F (31) S
F (41) S
F (51) S
F (32) S
F (42) S
F (52) S
FH (21) S
FH (31) S
FH (41) S
FH (51) S
FH (32) S
FH (42) S
FH (52) S
F (21) SM
F (31) SM
F (41) SM
F (51) SM
F (32) SM
F (42) SM
F (52) SM
FH (21) SM
FH (31) SM
FH (41) SM
FH (51) SM
FH (32) SM
FH (42) SM
FH (52) SM
FH (21) SX
FH (31) SX
FH (41) SX
FH (51) SX
FH (32) SX
FH (42) SX
FH (52) SX

F = Standard version with up to 30 mg/l chloride content
F..S = Special version with up to 100 mg/l chloride content
FH..S = Special version max. DHW max. 10 bar Heating max. 8 bar up to 100 mg/l chloride content
F..SM = Special version with magnesium anode up to 200 mg/l chloride content
FH..SM = Special higher-pressure version DHW max. 10 bar Heating max. 8 bar with magnesium anode up to 200 mg/l chloride content
FH..SX = Special higher-pressure version DHW max. 10 bar Heating max. 8 bar with Correx® anode up to 300 mg/l chloride content

Calorifier

Modul-plus
High output calorifier made of stainless steel with heating water casing made of steel.

Delivery
Calorifier and casing delivered separately packed.

Type:
Operating pressure hot water 6 bar.
Heating 5 bar.
For domestic water up to max. 30 mg/l chloride content. Opening for cleaning in front.

Modul-plus type	Height mm	kW [1]	Flats [2]	Heating surface m^2	Part No.
F (21)	1615	76.5	10	2.84	7014 740
		115.5	18		
F (31)	1615	113.9	18	4.26	7014 741
		148.5	25		
		187.2	35		
F (41)	1800	136.3	24	5.68	7014 742
		213.6	43		
		250.2	53		
F(51)	2160	199.4	40	7.10	7014 743
		268.6	59		
		321.5	74		
F (32)	1615	227.9	49	8.52	7014 744
		297.0	69		
		329.6	79		
		374.4	93		
F (42)	1800	272.6	64	11.36	7014 745
		354.0	89		
		427.3	114		
F (52)	2160	398.8	107	14.20	7014 746
		537.2	157		
		634.8	195		

[1] kW = power input at 45/10 °C, flow temperature at 80 °C

[2] See technical data for more specific information.

On-site welding

Same model as above, that means
- operating pressure hot water 6 bar
- heating 5 bar
  for domestic water up to max. 30 mg/l chloride content
- opening for cleaning in front

but as welding on site (delivered in parts: module elements, base rail and casing)

The chloride content of the filling and replacement water for the heating system must be < 30 mg/l, otherwise it must be desalinated.

Calorifier

Modul-plus

Special edition:
Operating pressure hot water 6 bar.
Heating 5 bar.
For domestic water up to max. 100 mg/l chloride content. Opening for cleaning in front and at the back.

Modul-plus type	Height mm	kW [1]	Flats [2]	Heating surface m²	Part No.
F (21) S	1615	76.5	10	2.84	7014 747
		115.5	18		
F (31) S	1615	113.9	18	4.26	7014 749
		148.5	25		
		187.2	35		
F (41) S	1800	136.3	24	5.68	7014 751
		213.6	43		
		250.2	43		
F(51) S	2160	199.4	40	7.10	7014 753
		268.6	59		
		321.5	74		
F (32) S	1615	227.9	49	8.52	7014 755
		297.0	69		
		329.6	79		
		374.4	93		
F (42) S	1800	272.6	64	11.36	7014 757
		354.0	89		
		427.3	114		
F (52) S	2160	398.8	107	14.20	7014 759
		537.2	157		
		634.8	195		

[1] kW = power input at 45/10 °C, flow temperature 80 °C

[2] See technical data for more specific information

Special model for high-rise buildings: operating pressure hot water 10 bar, heating 8 bar.
For domestic water up to max. 100 mg/l chloride content. Opening for cleaning in front and at the back.

Modul-plus type	Height mm	Heating surface m²	Part No.
FH (21) S	1615	2.84	7014 748
FH (31) S	1615	4.26	7014 750
FH (41) S	1800	5.68	7014 752
FH (51) S	2160	7.10	7014 754
FH (32) S	1615	8.52	7014 756
FH (42) S	1800	11.36	7014 758
FH (52) S	2160	14.20	7014 769

The chloride content of the filling and replacement water for the heating system must be < 100 mg/l, otherwise it must be desalinated.

Calorifier

Modul-plus

Special edition:
Operating pressure hot water 6 bar.
Heating 5 bar.
For domestic water up to max. 200 mg/l chloride content. Opening for cleaning in front and at the back. Butt-welded with magnesium anode.

Modul-plus type	Height mm	kW [1]	NL index[2]	Heating surface m²	Part No.
F (21) SM	1615	76.5	10	2.84	7014 770
		115.5	18		
F (31) SM	1615	113.9	18	4.26	7014 771
		148.5	25		
		187.2	35		
F (41) SM	1800	136.3	24	5.68	7014 772
		213.6	43		
		250.2	43		
F (51) SM	2160	199.4	40	7.10	7014 773
		268.6	59		
		321.5	74		
F (32) SM	1615	227.9	49	8.52	7014 774
		297.0	69		
		329.6	79		
		374.4	93		
F (42) SM	1800	272.6	64	11.36	7014 775
		354.0	89		
		427.3	114		
F (52) SM	2160	398.8	107	14.20	7014 776
		537.2	157		
		634.8	195		

[1] kW = power input at 45/10 °C, flow temperature 80 °C

[2] See technical data for more specific information

Special model for high-rise buildings:
operating pressure hot water 10 bar,
heating 8 bar.
For domestic water up to max. 200 mg/l chloride content. Opening for cleaning in front and at the back. Butt-welded with magnesium anode.

Modul-plus type	Height mm	Heating surface m²	Part No.
FH (21) SM	1615	2.84	7014 777
FH (31) SM	1615	4.26	7014 778
FH (41) SM	1800	5.68	7014 779
FH (51) SM	2160	7.10	7014 780
FH (32) SM	1615	8.52	7014 781
FH (42) SM	1800	11.36	7014 782
FH (52) SM	2160	14.20	7014 783

Calorifier

Modul-plus

Special edition:
Operating pressure hot water 10 bar.
Heating 8 bar.
For domestic water up to max. 300 mg/l chloride content. Opening for cleaning in front and at the back. Butt-welded with Correx® anode.

Modul-plus type	Height mm	kW [1]	NL index[2]	Heating surface m²	Part No.
FH (21) SX	1615	76.5	10	2.84	7014 784
		115.5	18		
FH (31) SX	1615	113.9	18	4.26	7014 785
		148.5	25		
		187.2	35		
FH (41) SX	1800	136.3	24	5.68	7014 786
		213.6	43		
		250.2	43		
FH (51) SX	2160	199.4	40	7.10	7014 787
		268.6	59		
		321.5	74		
FH (32) SX	1615	227.9	49	8.52	7014 788
		297.0	69		
		329.6	79		
		374.4	93		
FH (42) SX	1800	272.6	64	11.36	7014 789
		354.0	89		
		427.3	114		
FH (52) SX	2160	398.8	107	14.20	7014 790
		537.2	157		
		634.8	195		

[1] kW = power input at 45/10 °C, flow temperature 80 °C

[2] See technical data for more specific information

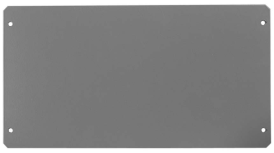
Accessories

		Part No.

Electrical box
For installation in the Modul-plus.
Casing made of sheet steel,
red powder-coated. With thermometer
and temperature regulator 40-80 °C.
Version 110 °C with temperature limiter 95 °C.

Type	Operating temperature heating	Part No.
EK 107-90	90 °C	6042 308
EK 108-110	110 °C	6042 309

Cover with thermometer — 6041 091
for Modul-plus
for covering if no
electrical box is used,
with thermometer.
Powder-coated sheet steel
Colour: red



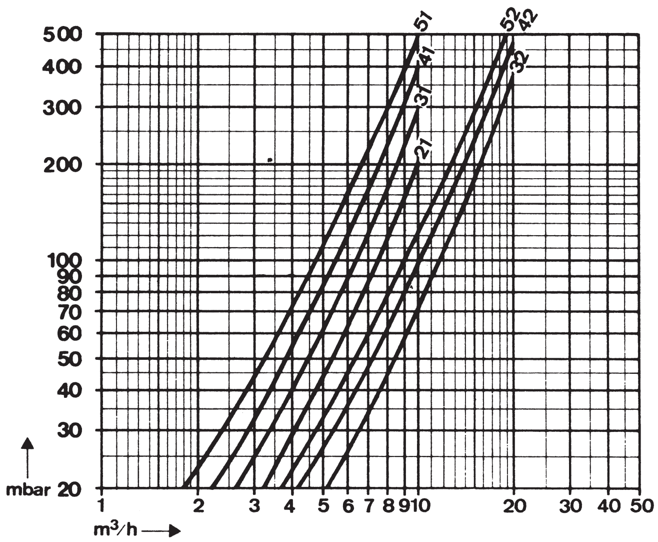
Blind cover — 6025 189
for Modul-plus
for covering if no
electrical box is used.
Powder-coated sheet steel
Colour: red

Modul-plus F (21-52), FH (21-52) and F (21-52) S

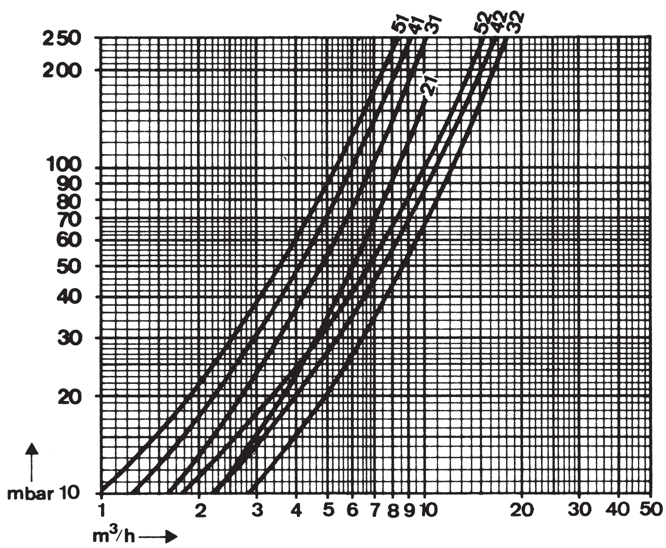
Type			(21)	(31)	(41)	(51)	(32)	(42)	(52)
• Module numbers			2	3	4	5	6	8	10
Calorifier									
• Content		litres	249	367	485	603	721	957	1193
• Heating surface		m^2	2.84	4.26	5.68	7.1	8.52	11.36	14.2
• Max. hot water temperature		°C	95	95	95	95	95	95	95
• Flow resistance [1]		z value	1.4	2.4	3	3.6	0.74	0.9	1.1
• Heat loss at 65 °C		W	164	188	212	236	417	230	497
• Operating pressure	- normal type [2]	bar	6	6	6	6	6	6	6
	- type high-rise building [3]	bar	10	10	10	10	10	10	10
• Test pressure	- normal type [2]	bar	12	12	12	12	12	12	12
	- type high-rise building [3]	bar	16	16	16	16	16	16	16
• Weight without casing									
	- normal type [2]	kg	165	215	265	315	370	470	570
	- type high-rise building [3]	kg	205	275	345	415	490	630	770
• Weight casing		kg	104	104	115	140	121	135	160
Heating									
• Heating water content		litres	30	45	60	75	90	120	150
• Max. heating water temperature		°C	110	110	110	110	110	110	110
• Flow resistance [1]		z value	2	2.8	3.6	4.7	0.78	1	1.4
• Operating pressure	- normal type [2]	bar	5	5	5	5	5	5	5
	- type high-rise building [3]	bar	8	8	8	8	8	8	8
• Test pressure	- normal type [2]	bar	8	8	8	8	8	8	8
	- type high-rise building [3]	bar	12.8	12.8	12.8	12.8	12.8	12.8	12.8

[1] Flow resistance (mbar) = volume flow $(m^3/h)^2$ x z
[2] Normal version: F (21-52), F (21-52) S, F(21-52) SM
[3] High-pressure version: FH (21-52) S, FH (21-52) SM, FH (21-52) SX

Flow resistance heating



Flow resistance hot water



Hot water output at 70 °C heating flow temperature
Heating flow connected on the top of the calorifier (crosscurrent)

Modul-plus	No. of modules	Volume	Heating surface			Charging pump		Hot water output dm^3/10 min.[3]	Hot water output dm^3/h [4]			
Type		dm^3	m^2	m^3/h	mbar [1]	Type	mWC [2]	45 °C	60 °C	45 °C	kW [5]	Flats [6]
F (21) [7]	2	230	2.84	3.5	25	SPS-I 8	6.2	434	640	1520	61.8	7
				8	120	SPS-I 12	6.5	488	960	2110	86.2	11
F (31) [7]	3	345	4.26	4	40	SPS-I 8	5.7	575	700	2100	85.4	12
				7	120	SPS-I 12	7.7	600	900	2800	113.9	18
				12	450	Stratos 40/12	4.5	635	1200	3600	146.5	25
F (41) [7]	4	460	5.68	4	55	SPS-I 8	5.5	814	1100	2700	109.8	18
				8	240	SPS-I 12	5.3	900	1700	4100	166.8	31
				10.5	440	Stratos 40/12	5.5	942	2000	4850	197.3	39
F (51) [7]	5	575	7.10	4	75	SPS-I 8	5.3	1028	1250	3750	152.6	29
				8	300	SPS-I 12	4.7	1137	1900	5200	211.6	44
				12	720	Stratos 50/16	7.5	1221	2400	6300	256.3	56
F (32) [7]	6	690	8.52	8	45	SPS-I 12	7.2	1151	1400	4200	170.9	34
				14	165	Stratos 40/12	6.2	1200	1800	5600	227.9	49
				18	300	Stratos 50/12	4.0	1234	2100	6200	252.3	56
				24	530	Stratos 65/12	2.5	1271	2400	7200	293.0	67
F (42) [7]	8	920	11.36	8	62	SPS-I 12	6.7	1628	2200	5400	219.7	49
				12	150	Stratos 40/12	7.4	1714	2800	6700	272.6	64
				16	260	Stratos 40/12	4.5	1800	3400	8200	333.7	83
F (52) [7]	10	1150	14.20	8	82	SPS-I 12	6.9	2057	2500	7500	305.2	77
				16	340	Stratos 40/12	3.7	2274	3800	10400	423.2	116
				21	610	Stratos 50/16	4.9	2391	4500	11800	480.2	136

Hot water output at 80 °C heating flow temperature
Heating flow connected on the top of the calorifier (crosscurrent)

Modul-plus	No. of modules	Volume	Heating surface			Charging pump		Hot water output dm^3/10 min.[3]	Hot water output dm^3/h [4]			
Type		dm^3	m^2	m^3/h	mbar [1]	Type	mWC [2]	45 °C	60 °C	45 °C	kW [5]	Flats [6]
F (21) [7]	2	230	2.84	3.5	25	SPS-I 8	6.2	478	900	1880	76.5	10
				8	120	SPS-I 12	6.5	542	1300	2840	115.5	18
F (31) [7]	3	345	4.26	4	40	SPS-I 8	5.7	652	1350	2800	113.9	18
				7	120	SPS-I 12	7.7	706	1800	3650	148.5	25
				12	450	Stratos 40/12	4.5	778	2400	4600	187.2	35
F (41) [7]	4	460	5.68	4	55	SPS-I 8	5.5	907	1750	3350	136.3	24
				8	240	SPS-I 12	5.3	1042	2700	5250	213.6	43
				10.5	440	Stratos 40/12	5.5	1113	3200	6150	250.2	53
F (51) [7]	5	575	7.10	4	75	SPS-I 8	5.3	1187	2200	4900	199.4	40
				8	300	SPS-I 12	4.7	1356	3200	6600	268.6	59
				12	720	Stratos 50/16	7.5	1477	3950	7900	321.5	74
F (32) [7]	6	690	8.52	8	45	SPS-I 12	7.2	1305	2700	5600	227.9	49
				14	165	Stratos 40/12	6.2	1413	3600	7300	297.0	69
				18	300	Stratos 50/12	4.0	1485	4200	8100	329.6	79
				24	530	Stratos 65/12	2.5	1556	4800	9200	374.4	93
F (42) [7]	8	920	11.36	8	62	SPS-I 12	6.7	1814	3500	6700	272.6	64
				12	150	Stratos 40/12	7.4	1970	4600	8700	354.0	89
				16	260	Stratos 40/12	4.5	2113	5400	10500	427.3	114
F (52) [7]	10	1150	14.20	8	82	SPS-I 12	6.9	2374	4400	9800	398.8	107
				16	340	Stratos 40/12	3.7	2713	6400	13200	537.2	157
				21	610	Stratos 50/16	4.9	2877	7400	15600	634.8	195

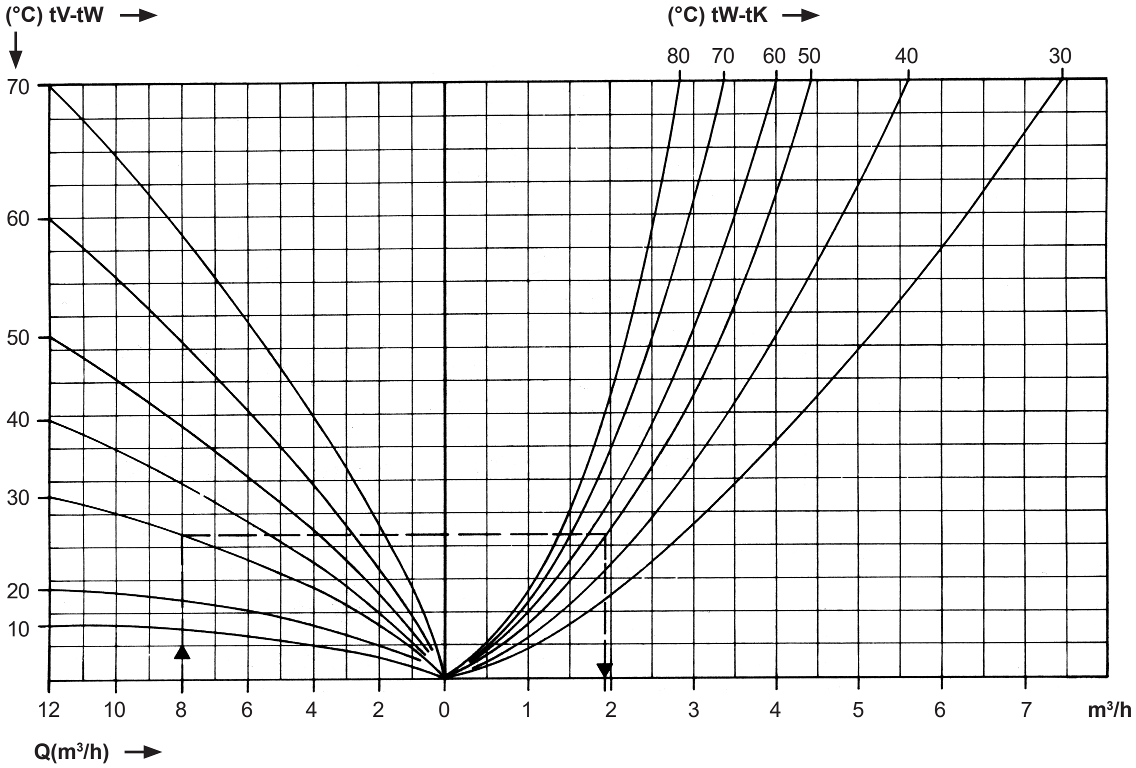
Hot water output at 90 °C heating flow temperature

Use only if high performance is permanently expected (e.g. industry, commercial enterprise).
Heating flow connected on the top of the calorifier (crosscurrent)

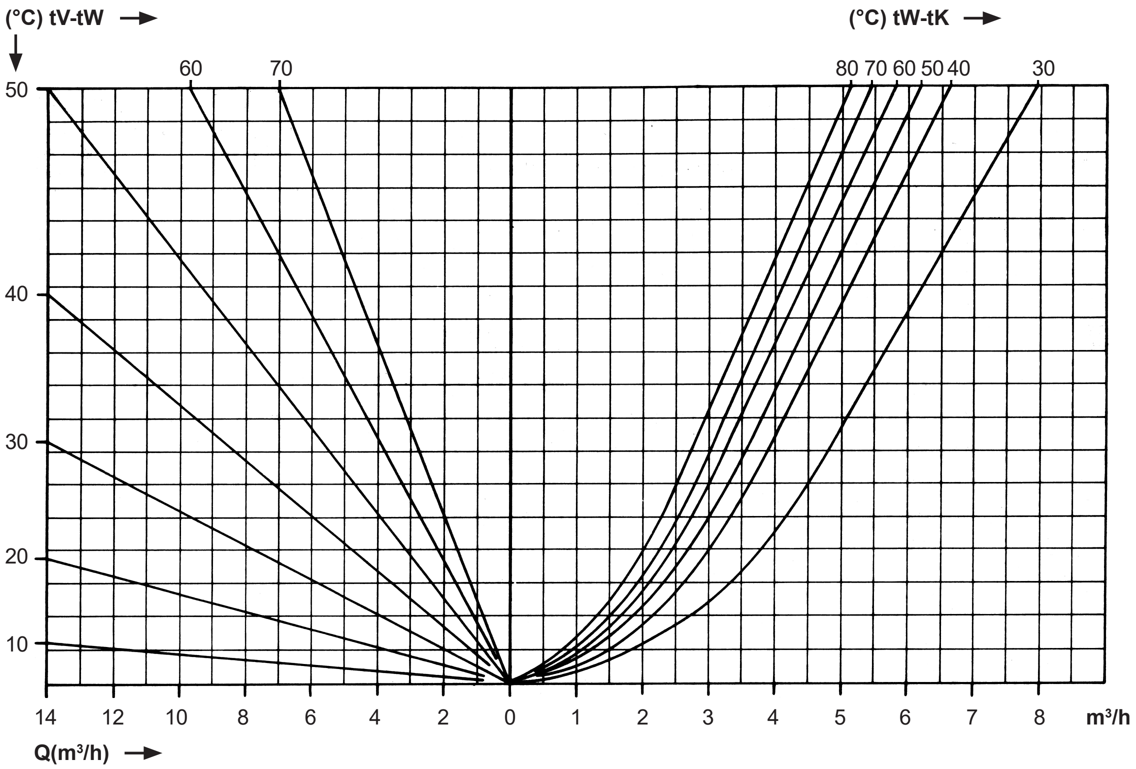
Modul-plus	No. of modules	Volume	Heat surface			Charging pump		Hot water output			
								dm^3/10 min. 3)	dm^3/h 4)		
Type		dm^3	m^2	m^3/h	mbar 1)	Type	mWC 2)	45 °C	60 °C	45 °C	kW 5)
F (21) 7)	2	230	2.84	3.5	25	SPS-I 8	6.2	550	1360	2250	91.5
				8	120	SPS-I 12	6.5	650	1960	3480	141.6
F (31) 7)	3	345	4.26	4	40	SPS-I 8	5.7	713	1850	3450	140.4
				7	120	SPS-I 12	7.7	793	2550	4300	175.0
				12	450	Stratos 40/12	4.5	893	3300	5800	236.0
F (41) 7)	4	460	5.68	4	55	SPS-I 8	5.5	978	2250	4100	166.8
				8	240	SPS-I 12	5.3	1157	3500	6400	260.4
				10.5	440	Stratos 40/12	5.5	1250	4150	7500	305.2
F (51) 7)	5	575	7.10	4	75	SPS-I 8	5.3	1329	3050	5650	229.9
				8	300	SPS-I 12	4.7	1543	4350	7800	317.4
				12	720	Stratos 50/16	7.5	1692	5250	9100	370.3
F (32) 7)	6	690	8.52	8	45	SPS-I 12	7.2	1426	3700	6900	280.8
				14	165	Stratos 40/12	6.2	1585	5100	8600	350.0
				18	300	Stratos 50/12	4.0	1671	5800	9800	398.8
				24	530	Stratos 65/12	2.5	1785	6600	11600	472.0
F (42) 7)	8	920	11.36	8	62	SPS-I 12	6.7	1956	4500	8200	333.7
				12	150	Stratos 40/12	7.4	2142	5800	10400	423.2
				16	260	Stratos 40/12	4.5	2314	7000	12800	520.9
F (52) 7)	10	1150	14.20	8	82	SPS-I 12	6.9	2658	6100	11300	459.8
				16	340	Stratos 40/12	3.7	3085	8700	15600	634.8
				21	610	Stratos 50/16	4.9	3316	10 000	17500	712.2

1) mbar = flow resistance in the calorifier
2) mWC = residual overpressure
3) dm^3/10 min. = calorifier heated up to 60 °C
4) dm^3/h = continual output per hour, cold water temperature 10 °C.
5) kW = power input at 45 °C/ 10 °C
6) Flats = performance figure in accordance with DIN 4708 = number of flats which can be supplied with hot water if the water heater is heated with the boiler and is permanently after-heated (standard flat: 1 bath - 4 rooms - 3.5 persons)
7) = valid for all module-plus types F (21-52), FH (21-52), F (21-52) S, FH (21-52) S, F (21-52) SM, FH (21-52) SM, FH (21-52) SX

Modul-plus F (21), FH (21), F (21) S, FH (21) S, F (21) SM, FH (21) SM, FH (21) SX



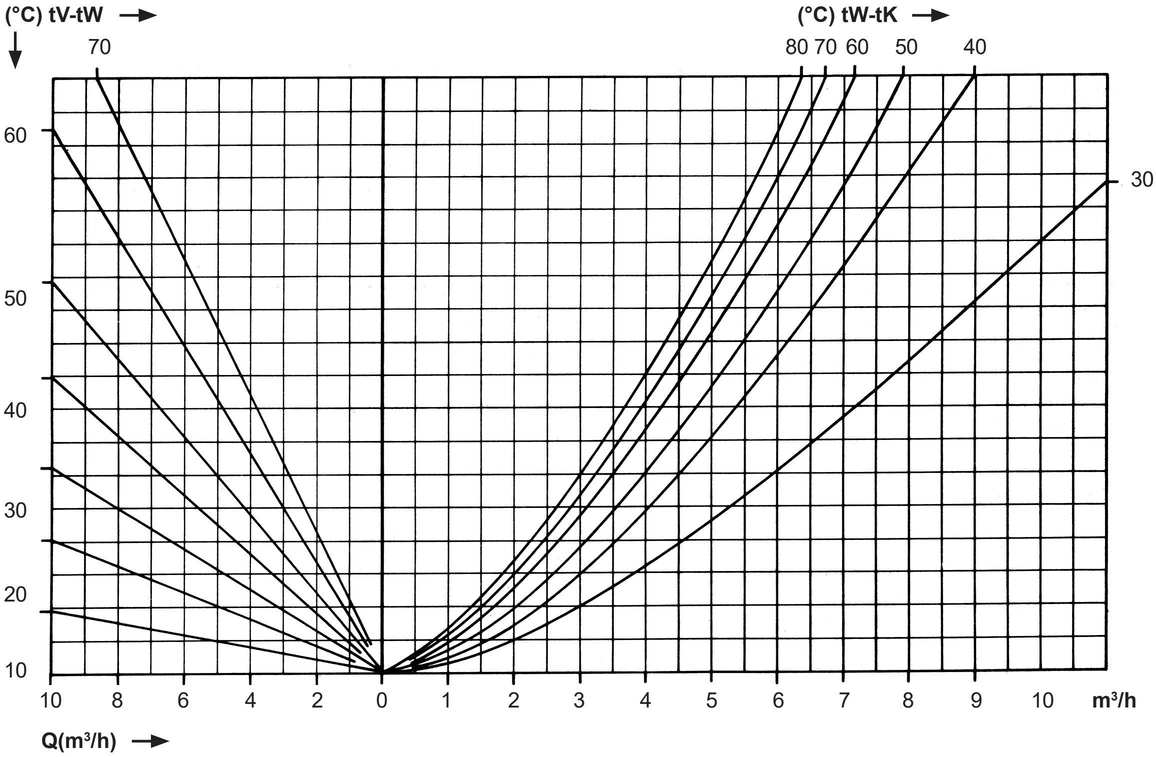
Modul-plus F (31), FH (31), F (31) S, FH (31) S, F (31) SM, FH (31) SM, FH (31) SX



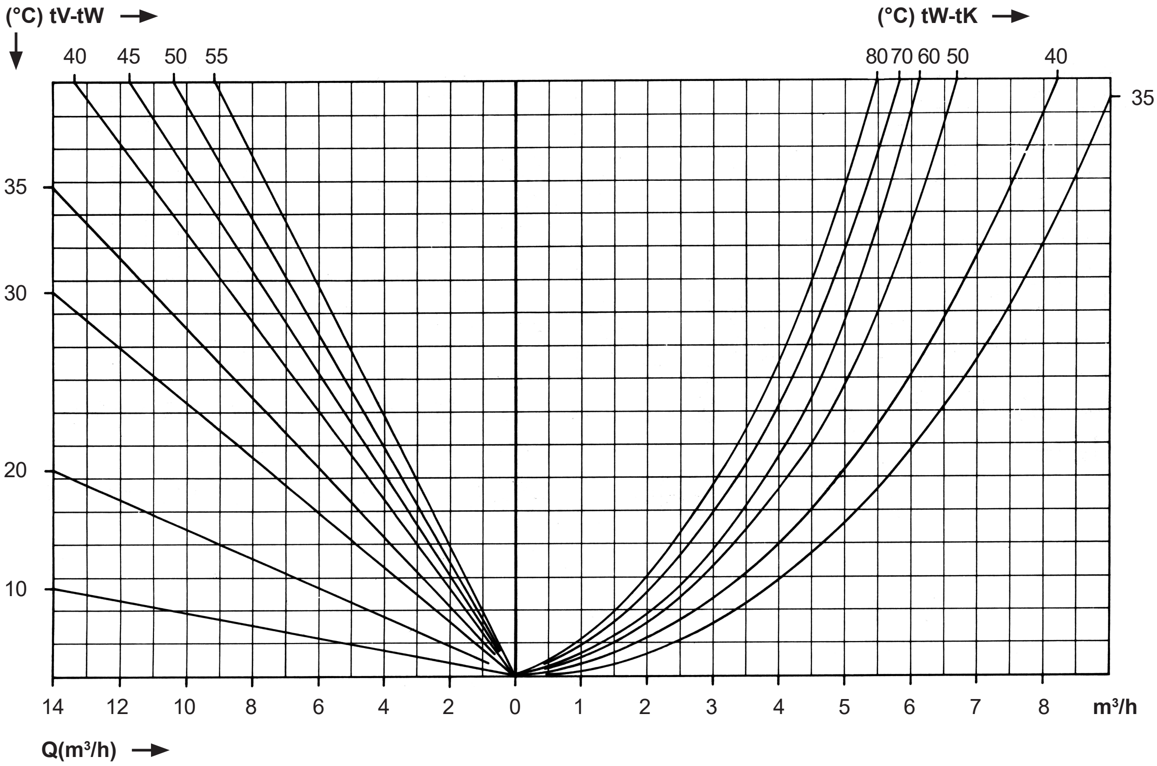
Q = Heating water flow rate m³/h
tV = Heating water flow °C
tW = Hot water °C
tK = Cold water °C
m³/h = Hot water continuous output m³/h *
dm³/10 min. = Top performance in 10 min. *

* = Hot water outputs with counterflow connection (heating supply connected at the top of the calorifier)

Modul-plus F (41), FH (41), F (41) S, FH (41) S, F (41) SM, FH (41) SM, FH (41) SX



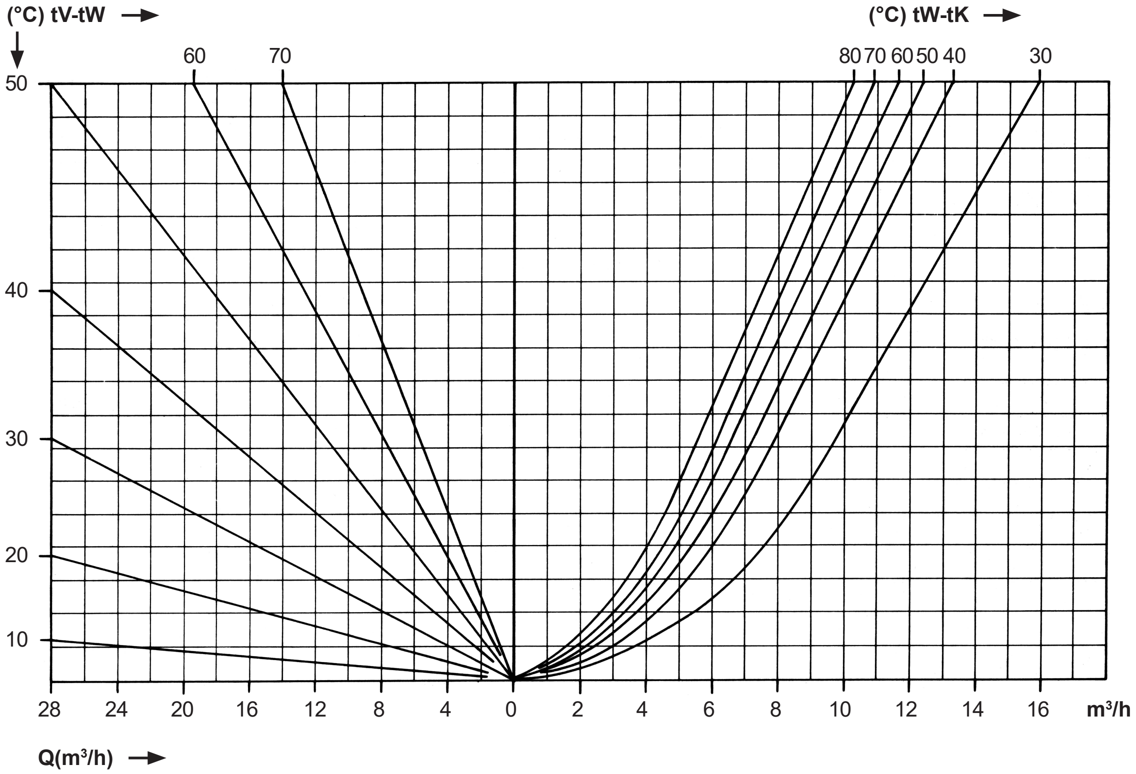
Modul-plus F (51), FH (51), F (51) S, FH (51) S, F (51) SM, FH (51) SM, FH (51) SX



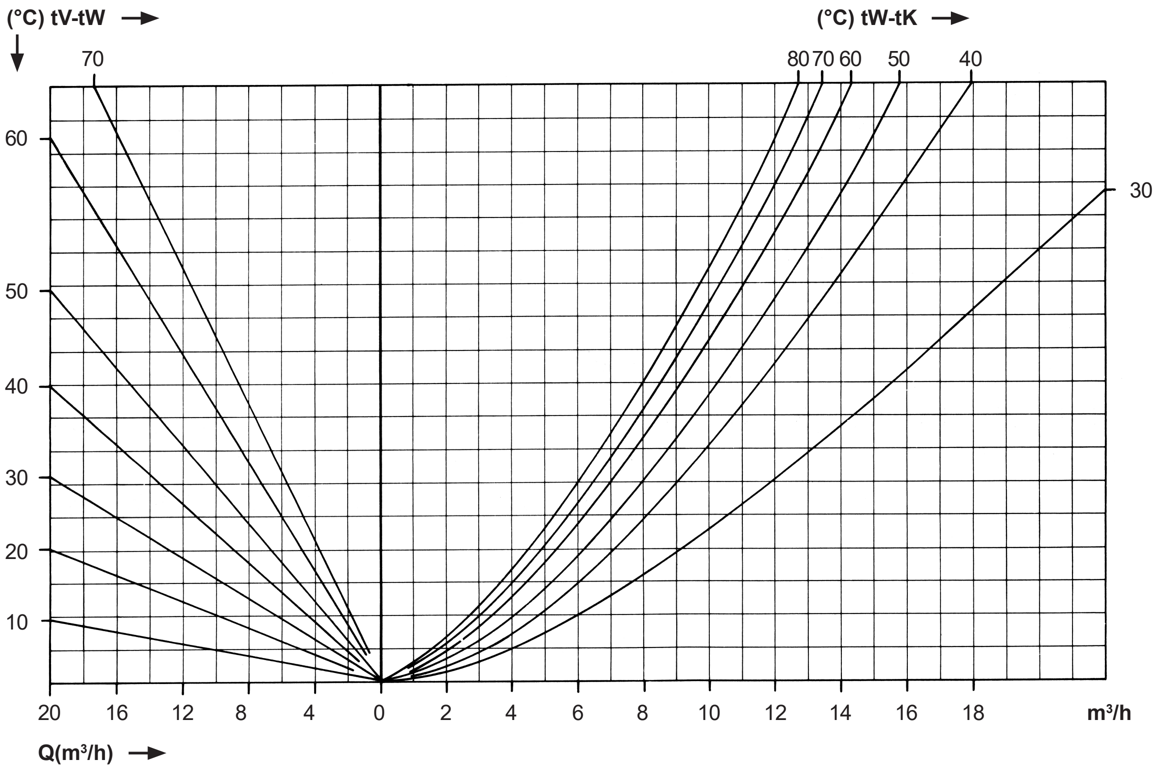
Q = Heating water flow rate m³/h
tV = Heating water flow °C
tW = Hot water °C
tK = Cold water °C
m³/h = Hot water continuous output m³/h *
dm³/10 min. = Top performance in 10 min. *

* = Hot water outputs with counterflow connection (heating supply connected at the top of the calorifier)

Modul-plus F (32), FH (32), F (32) S, FH (32) S, F (32) SM, FH (32) SM, FH (32) SX



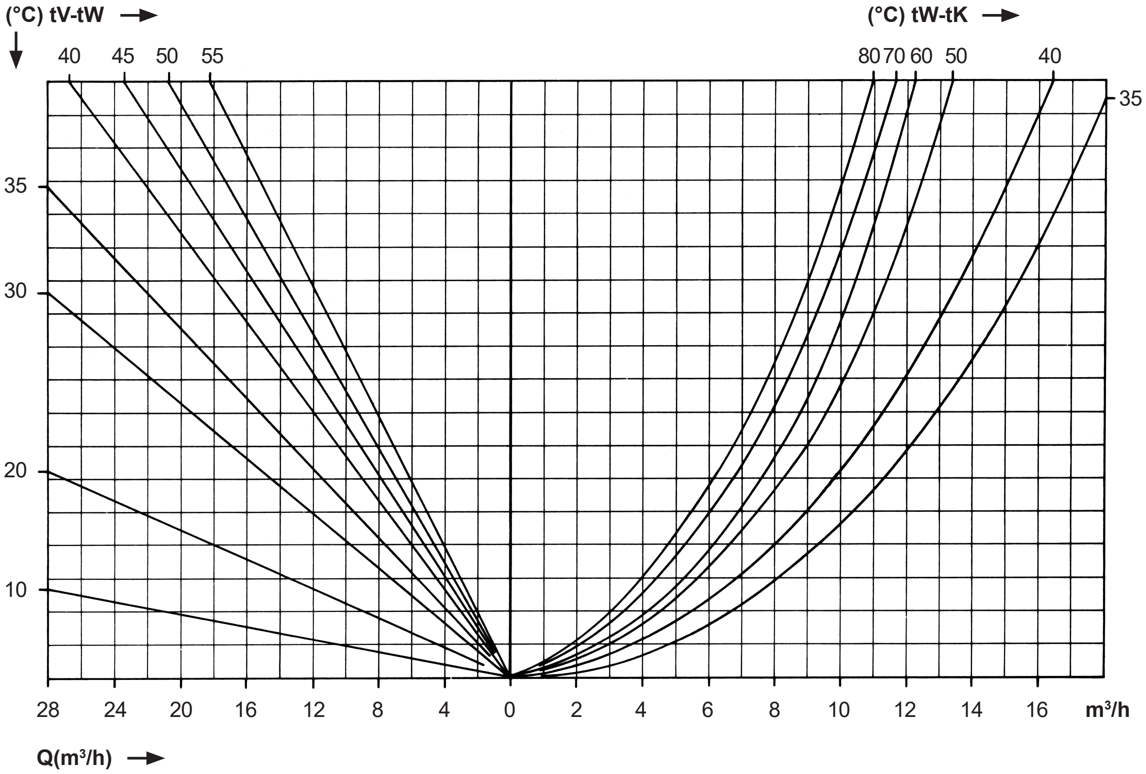
Modul-plus F (42), FH (42), F (42) S, FH (42) S, F (42) SM, FH (42) SM, FH (42) SX



Q = Heating water flow rate m³/h
tV = Heating water flow °C
tW = Hot water °C
tK = Cold water °C
m³/h = Hot water continuous output m³/h *
dm³/10 min. = Top performance in 10 min. *

* = Hot water outputs with counterflow connection (heating supply connected at the top of the calorifier)

Modul-plus F (52), FH (52), F (52) S, FH (52) S, F (52) SM, FH (52) SM, FH (52) SX

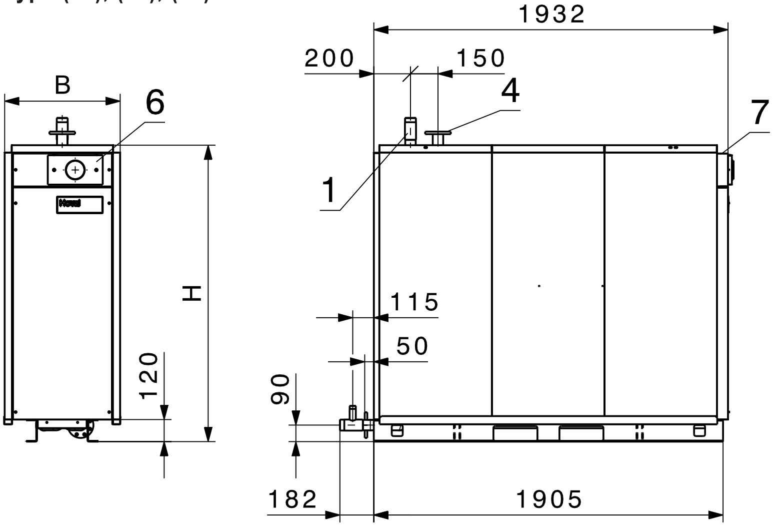


Q	=	Heating water flow rate m³/h
tV	=	Heating water flow °C
tW	=	Hot water °C
tK	=	Cold water °C
m³/h	=	Hot water continuous output m³/h *
dm³/10 min.	=	Top performance in 10 min. *

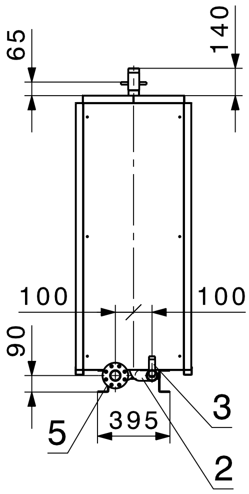
* = Hot water outputs with counterflow connection (heating supply connected at the top of the calorifier)

Modul-plus F (21-52), FH (21-52), F (21-52) S, FH (21-52) S, F (21-52) SM, FH (21-52) SM, FH (21-52) SX

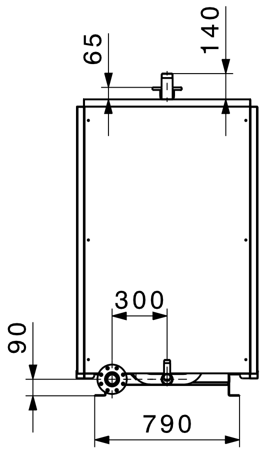
Type (21), (41), (42)



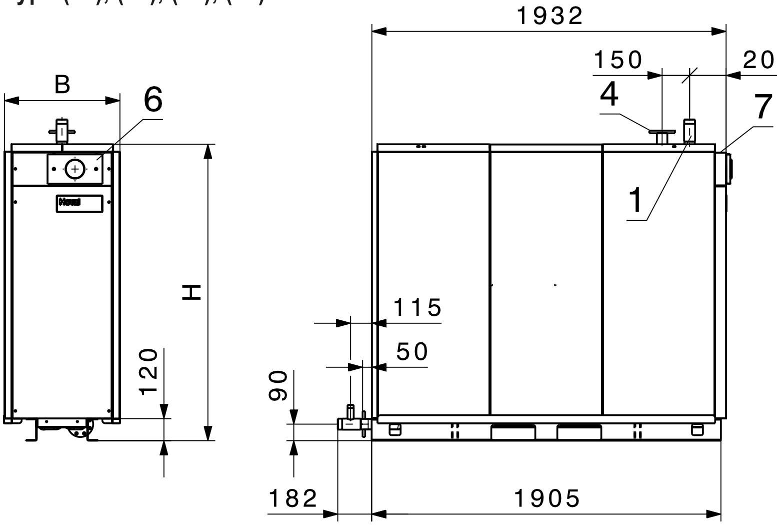
Type (21), (41)



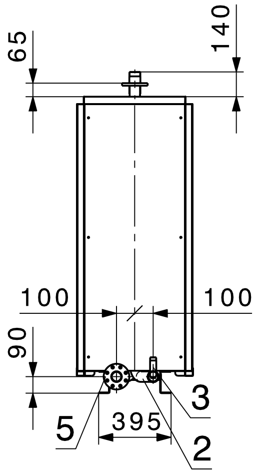
Type (42)



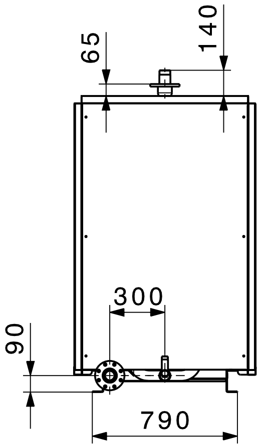
Type (31), (51), (32), (52)



Type (31), (51)



Type (32), (52)



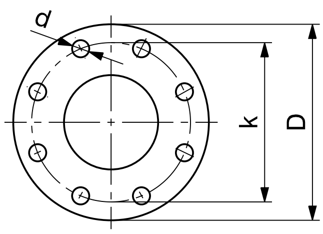
1 Hot water 2″
2 Cold water 2″
3 Circulation 1″
4 Heating flow *
5 Heating return *
6 Control panel
7 Electrical connection

* **Operating pressure 5 bar = standard flanges PN6**

(21 - 51)	DN 50
(32 - 52)	DN 65

* **Operating pressure 8 & 10 bar = special flanges**

		D	k	d
(21 - 51)	DN 50	140	110	14
(32 - 52)	DN 65	160	130	14



Type	B	H
(21)	630	1615
(31)	630	1615
(41)	630	1800
(51)	630	2160

Type	B	H
(32)	985	1615
(42)	985	1800
(52)	985	2160

With adjustable feet, all dimensions +30 mm

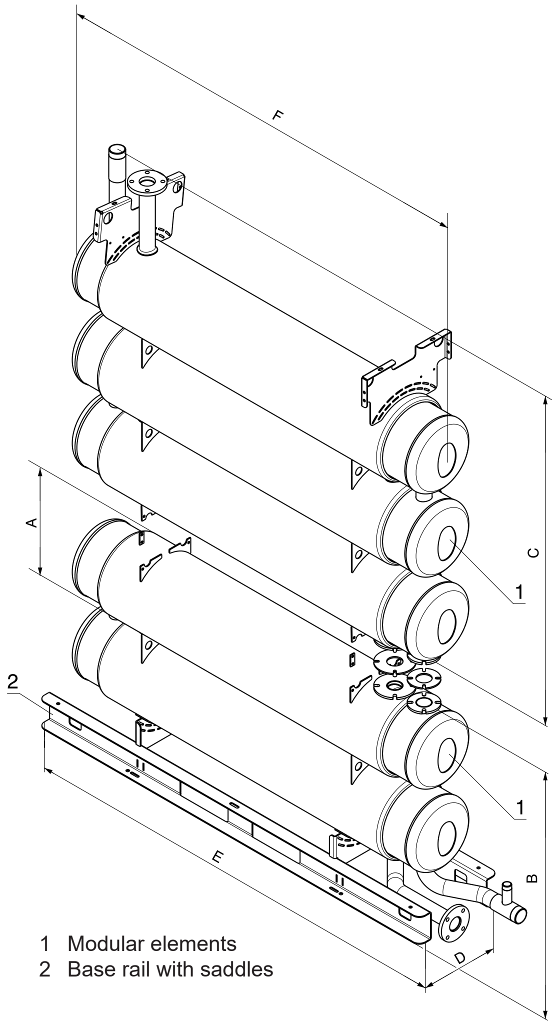
Variation because of the production tolerance possible
Dimension +/- 10 mm

Installation on site Modul-plus F (31-52), FH (31-52), F (31-52) S, FH (31-52) S, F (31-52) SM, FH (31-52) SM, FH (31-52) SX

If it is not possible to install the complete calorifier locally, an on-site installation is possible.

- The calorifier is delivered in two parts: module elements incl. plinth rail and the casing.
- The calorifier is dismantled by Hoval on site, transported into the installation room in individual parts and reassembled there.

More accurate scope of services
see the end of the section



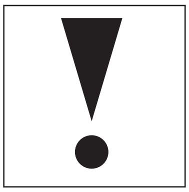
1 Modular elements
2 Base rail with saddles

Dimensions of the separate parts

Modul-plus type	A	B	C	D	E	F
(31) (32)	330	877	878	395 790	1905	1766
(41) (42)	330	877	1063	395 790	1905	1766
(51) (52)	330	877	1423	395 790	1905	1766

Installation on site

Planning hints



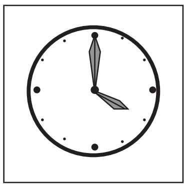
Important preparations

- Old calorifier must be removed.
- The heating room, if necessary with boiler base, must be available with beginning of work.

Water connection
A fresh water connection ¾″, for filling and testing the welded calorifier, must be available in the boiler room.

Calorifier material

- The material is delivered in two parts.
- The calorifier is separated for transporting in on site.



Time schedule

Transport	½ day
Installation on site incl. pressure test	½ day
Installation of casing	½ day

Heating room preparation

Required space
In the heating room sufficient space for the assembly of the calorifier must be available (see space requirement below).

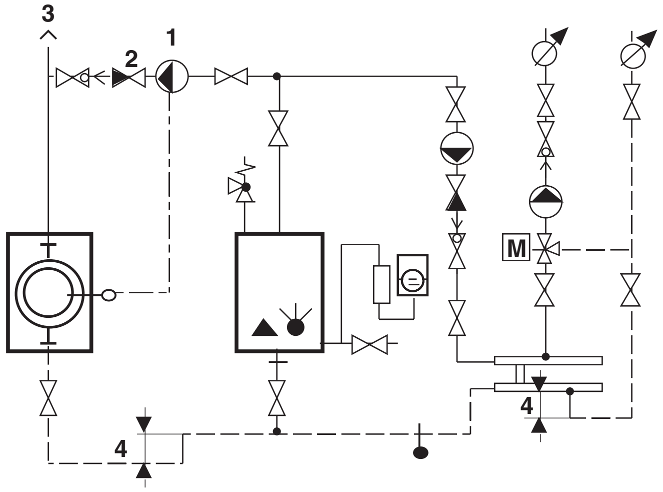
Required space for installation in the boiler room

Min. room dimensions in mm

	(31/32)	(41/42)	(51/52)
Length	2.0	2.0	2.0
Width	1.8	1.8	1.8
Height	2.0	2.0	2.5

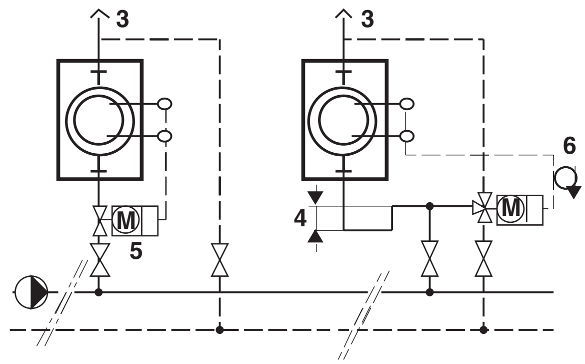
Diagram of heating

Calorifier in central heating station

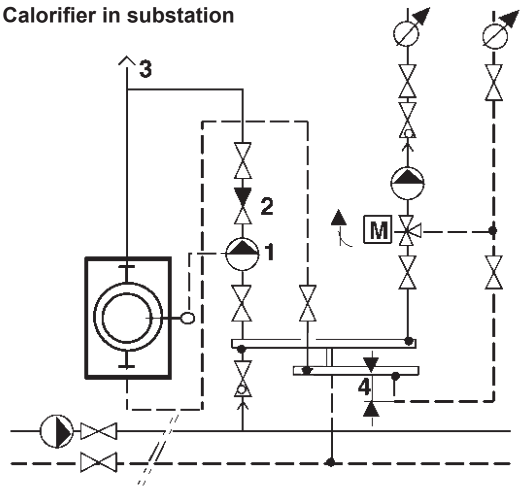


Connection to room heating distance pipe max. 110 °C, 8 bar

(the corresponding plant regulations must be observed in the case of district heating supplies).



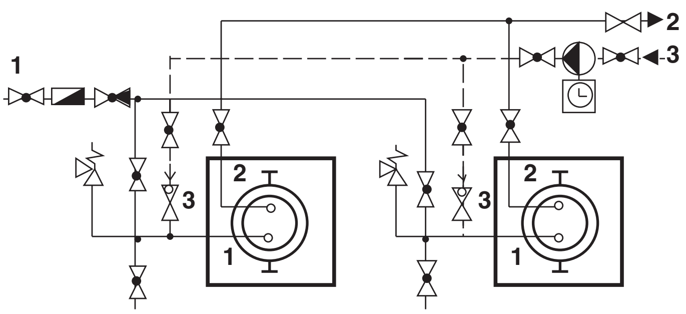
Calorifier in substation



1. Charging pump, controlled by the calorifier temperature control
2. Backflow preventer, tight shut-off
3. Automatic air vent
4. Pocket for avoiding single-pipe gravity circulation. Height at least 3 x pipe diameter
5. Motor through valve. Operating time max. 2 min., with emergency control function (e.g. spring return)
6. Motor three-way valve operating time max. 2 min., with emergency control function

Diagram of DHW connection

2 calorifiers connected in parallel



1 = cold water
2 = hot water
3 = circulation

Calorifier charging system
Consisting of:
- calorifier charging module TransTherm aqua L
- hot water charging tank CombiVal E or CombiVal C (optional)

Calorifier charging module TransTherm aqua L

- Fully assembled station with plate heat exchanger for the provision of domestic hot water using the tank storage principle
- Intended for wall installation
- The primary side (heating side) contains the three-way valve, high-efficiency pump, air-bleeding, contact sensor and the filling and drain valve, line balancing valve. These components ensure a constant flow temperature at the plate heat exchanger. Pipes made from steel
- The secondary side (DHW side) contains the safety valve (10 bar), non-return valve and a filling/drain valve, line balancing valve. A flow sensor ensures the correct charging temperature for the hot process water storage tank. Pipes made from stainless steel
- Stainless steel plate heat exchanger 1.4404, copper-soldered or copper-free
- EPP insulation, 30 mm, for the heat exchanger
- Switch-on and switch-off of the charging pump is regulated via two sensors (included in the scope of delivery) in the storage tank.
- Mount tank sensor on the tank on site and connect it to the controller
- T-piece with dummy plug for on-site connection of the circulation group. Connect the pump to the controller on site.
- TopTronic® E control with integrated thermal disinfection of the DHW storage tank (anti-legionella circuit)

Delivery
- The storage tank required is not included in the scope of delivery

On site
- Installation of a circulation unit; the necessary connection is provided.
- Electrical connection of the controller

Suitable hot water charging tanks
see next page

TopTronic® E controller

TopTronic® E basic module district heating/fresh water
- Control unit for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for
  - primary valve control
  - cascade management
  - 1 heating/cooling circuit with mixer
  - 1 heating/cooling circuit without mixer
  - 1 hot water loading circuit
  - various additional functions

Range
Calorifier charging module

TransTherm aqua L type	Output kW
(1-10)	50
(1-16)	90
(1-20)	115
(1-30)	175
(1-40)	230
(1-50)	275

Range
Hot water charging tank

CombiVal E		Content l
(300)	B	301
(500)	B	475
(800)		747
(1000)		968
(1500)		1472
(2000)		2000

CombiVal C		Content l
(200)	B	212
(300)	B	289
(400)	B	411
(500)	B	490
(750)		756
(1000)		990
(1500)		1415
(2000)		1975
(2500)		2450

- Various functions for hot water:
  - selection of different basic programs (week programs, economy mode, holiday until, etc.)
  - various operating modes (e.g. accumulator priority or parallel mode)
  - buffer storage circuit on the primary or secondary side
  - adjustable loading criteria (e.g.: adjustable loading times, undershooting the minimum nominal value, etc.)
  - adjustable switch-off criteria (e.g. achieving the setpoint valve, achieving the lower sensor setpoint value, etc.)
  - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Complete plug set for DH module
- RPM-regulated pumps

No further module expansions or controller modules can be installed in the control panel!

Option

TopTronic® E control module
- Simple, intuitive operating concept
- Display of the most important operating states
- Configurable start screen
- Operating mode selection
- Configurable day and week programs
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with HovalConnect option)
- Adaptation of the heating strategy based on the weather forecast (with HovalConnect option)

Notice
The TopTronic® E control module for operating the basic module district heating/fresh water must be ordered separately!

Further information about the TopTronic® E
see “Controls”

Delivery
- All armatures required for operation, such as flow balancing and shut-off valves, backflow preventer, air-bleeding and drain valve are fitted.

Caution
As a result of thermal disinfection of the domestic hot water for legionella protection, increased water temperatures (at least 65-70 °C) occur. Depending on the water quality, this may result in increased calcification at the installed armatures and heat exchangers and also brings the risk of scalding at the tapping points. Corresponding protective measures must be implemented on site.

CombiVal C (200-2500)

- Charging tank made from stainless steel (without built-in heating coil) for combination with calorifier charging module TransTherm aqua L.
- (200-1000) with one flange
  (1500-2000) with two flanges
  (2500) with one manhole
  in each case with installed dummy flange plate for maintenance or, for types (200-2000), installation of a flange-type electrical heating insert
- Thermal insulation: Neodul® insulation (EPS rigid foam outside and 20 mm polyester fibre fleece inside) with zip, outer jacket made of polypropylene, colour red
  (200-1000) 2-piece
  (1500) 3-piece
  (2000-2500) 4-piece
- Thermometer incl. immersion sleeve loose (packed with the product)
- Sensor terminal bar
- For domestic water up to max. 70 mg/l chloride content, (200-2000) with impressed current anode up to 200 mg/l chloride content

Delivery
- (200-1000) charging tank with thermal insulation set completely installed
  (1500-2500) charging tank, thermal insulation set separately packed

Design on request
- (200-2000) Flange-mounted electric heating element

On site
- Installation of immersion sleeve for thermometer
- (1500-2500) Installation of the thermal installation kit and attachments of the protection rosettes

Flange-mounted electric heating elements for CombiVal C (200-2000)

Type EFHK-C 4 to EFHK-C 9
- Made from Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, depending on specifications from electricity provider
- With temperature regulator and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating.

Delivery
- Included in separate packaging

On site
- Installation of the electrical heating element

CombiVal E (300-2000)

- Charging tank made of steel, enamelled inside (without built-in heating coil) for combination with calorifier charging module TransTherm aqua L
- (300-1000) with one flange
  (1500,2000) with two flanges
  in each case with installed dummy flange plate for maintenance or installation of a flange-type electrical heating insert
- (300-1000) one built-in magnesium protection anode
  (1500,2000) two built-in magnesium protection anodes
- Thermal insulation made of
  - (300,500) polyurethane rigid foam, directly foamed, with dismantable foil casing, 1-part, red coloured
  - (800-2000) polyester fleece with foil jacket, completely removable, red coloured
    (800-1500) 2-part
    (2000) 3-part
- with thermometer
- (300,500) sensor channel
  (800-2000) two terminal bars for contact sensor

Delivery
- (300,500) with foil casing completely mounted
- (800-2000) with thermal insulation set completely mounted (removable)

Design on request
- Flange electrical heating element

On site
- Installation of the thermometer
- Attachment of the glue-on protection rosettes to the thermal insulation

Flange-mounted electric heating elements for CombiVal E (300-2000)

Type EFHK-E 4-180 to EFHK-E 6-180
- Made from Incoloy® alloy 825
- Heat output 4.0 or 6.0 kW, depending on specifications from electricity provider
- With temperature regulator and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating.

Delivery
- Included in separate packaging

On site
- Installation of the electrical heating element

Water quality
see end of this brochure

Part No.

Calorifier charging module

TransTherm aqua L
Fully assembled station with plate heat exchanger for the provision of domestic hot water using the storage tank charging principle and built-in Hoval TopTronic® E control.
The required storage tank is not supplied.

TransTherm aqua L	Output kW	Part No.
(1-10)	50	8005 864
(1-16)	90	8005 865
(1-20)	115	8005 866
(1-30)	175	8005 867
(1-40)	230	8005 868
(1-50)	275	8005 869

Version with copper-free heat exchanger

TransTherm aqua L
with copper-free heat exchanger

TransTherm aqua L	Output kW	Part No.
(1-10)	50	8006 491
(1-16)	90	8006 492
(1-20)	115	8006 493
(1-30)	175	8006 494
(1-40)	230	8006 495
(1-50)	275	8006 496

TopTronic® E control module black 6043 844

- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:
- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Accessories

Return changeover valve set
Consisting of:
- Temperature sensor
- Changeover valve
- Drive (8 sec.)
- Seals
- Screw connections

Nominal diameter	Output kW	kvs m^3/h	Part No.
DN 20	50-90	6.3	7010 832
DN 25	115-175	10	7010 836
DN 32	230-275	16	7011 009
DN 40	350	25	7011 025
DN 50	450	40	7016 331
DN 65	580	63	7016 332
DN 80	700	100	7016 333

Notice:
When using a circulation set (also on-site recirculation pump), it is imperative to install a return switching valve set.

Circulation set
for TransTherm aqua L, F
Piping of parts in contact with domestic water in stainless steel and gunmetal
Consisting of:
- Temperature sensor PT1000
- Recirculation pump Wilo Yonos PARA
- Regulating valve
- Non-return valve

Connection	Volume flow m^3/h	Recirculation pump	Part No.
DN 20 ¾″ Rp	1.9	Z15/7.0 RKC	8005 279
DN 25 1″ Rp	3.4	Z25/1-8 (0-10 V)	8005 280
DN 32 1¼″ Rp	5.8	Z25/1-8 (0-10 V)	8005 281

Test valve DN 8 G ¼″ — Part No. 2049 861
for TransTherm aqua L, LS and F
Test valve suitable for flame treatment for hygienic-microbiologic tests.

Part No.

Sludge separator with magnet
MB3/L DN25...DN50
With variable connection for vertical
or horizontal pipelines
Fast and continuous removal of ferromagnetic
and non-magnetic dirt and sludge particles.
Sludge separation up to a particle size of 5 µm.
Brass housing
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C

Type	Connection	Flow rate [m³/h] at 1 m/s flow speed	Part No.
CS 20	Rp 1″	2.0	2062 165
CS 25	Rp 1¼″	3.6	2062 166
CS 32	Rp 1½″	5.0	2062 167
CS 40	Rp 2″	7.0	2062 168

Additional sludge separators
see “Various system components”

Temperature monitor 0…120 °C
for TransTherm aqua L, LS, F
2048 299

Safety temperature monitor 70…130 °C
for TransTherm aqua L, LS, F
2048 300

Immersion sleeve stainless steel
for thermostat
for TransTherm aqua L, LS, F
2048 285

Safety temperature limiter 70…130 °C
for TransTherm aqua L, LS, F
2049 619

Immersion sleeve stainless steel
for 2 thermostats
for TransTherm aqua L, LS, F
2048 288

Hot water charging tank

CombiVal E

Enamelled charging tank
(without heating coil)
CombiVal E (300-1000) with one flange
CombiVal E (1500,2000) with two flanges
- (300,500) thermal insulation mounted with foil casing
- (800-2000) thermal insulation set completely mounted (removable)

CombiVal type		Content l	Part No.
E (300)	B	301	6044 187
E (500)	B	475	6044 188
E (800)		747	6044 189
E (1000)		968	6044 190
E (1500)		1472	6044 191
E (2000)		2000	6044 192

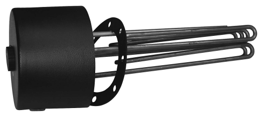
CombiVal C

Stainless steel charging tank
(without heating coil)
CombiVal C (200-1000) with one flange
CombiVal C (1500-2000) with two flanges
CombiVal C (2500) with one manhole
Thermal insulation set
- (200-1000) completely mounted (removable)
- (1500-2000) separately packed

CombiVal type		Content l	Part No.
C (200)	B	212	6049 693
C (300)	B	289	6049 694
C (400)	B	411	6049 695
C (500)	B	490	6049 696
C (750)		756	6049 697
C (1000)		990	6049 698
C (1500)		1415	6049 699
C (2000)		1975	6049 700
C (2500)		2450	6049 701

Part No.

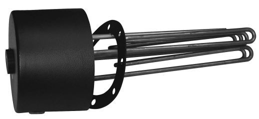
Accessories



Flange electrical heating insets for CombiVal E
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Not suitable for exclusively electric heating.

Installation permitted only in charging tank CombiVal E.

Type EFHK-E	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal	Part No.
4-180	4.0		380	E (300-2000)	6049 561
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	E (300-2000)	6049 562
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	8.5		615	E (300-2000)	6052 438
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			



Flange electrical heating insets for CombiVal C (200-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Not suitable for exclusively electric heating.

Type EFHK-C	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal	Part No.
4-180	4.0		380	C (200-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.4 kW/1x230 V			
6-180	6.0		460	C (200-2000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0		670	C (200-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Part No.

For CombiVal E (300-2000)

Flange cover 180 - ¾″
for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve
Seal and screws included

2077 035

UP 2.3-919

Correx® impressed current anode set
for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting.

Type	Install. length (mm)	For CombiVal E	Part No.
E 400	395	(300-2000)	684 760

Either a Correx® impressed current anode **or** one/two magnesium anodes may be used.

For CombiVal C (200-2000)

Flange cover 180 - 1½″
for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, stainless steel with Rp 1½″ sleeve
Seal and screws included

2002 205

UP 1.9-924

Correx impressed current anode
for long-term corrosion protection for installation in the stainless steel calorifier with reduction R 1½″ - Rp ¾″
Recommended as essential for chloride content ≥ 70 mg/l. See also project planning guidelines.

Type	Install. length (mm)	For CombiVal C	Part No.
C 400	395	(200-2000)	6031 813

To install the impressed current anode set, the flange cover 180 - 1½ ″ must also be ordered

Performance data

TransTherm aqua L (1-10 to 1-50)

			Heating water temperature flow											
			55 °C (1-..)						60 °C (1-..)					
Domestic water secondary	**TransTherm aqua L**		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/10 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/15 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/20 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
55/5 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇primary	**m³/h**	-	-	-	-	-	-	**1.25**	**2.04**	**2.51**	**3.71**	**4.76**	**5.66**
	Q max.	kW	-	-	-	-	-	-	43	70	86	127	163	194
	V̇secondary	**m³/h**	-	-	-	-	-	-	**0.74**	**1.2**	**1.48**	**2.18**	**2.8**	**3.33**
55/10 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇primary	**m³/h**	-	-	-	-	-	-	**1.11**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	-	-	-	-	-	-	38	70	86	127	163	193
	V̇secondary	**m³/h**	-	-	-	-	-	-	**0.73**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
55/15 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇primary	**m³/h**	-	-	-	-	-	-	**0.76**	**1.46**	**1.95**	**3.06**	**4.23**	**5.4**
	Q max.	kW	-	-	-	-	-	-	26	50	67	105	145	185
	V̇secondary	**m³/h**	-	-	-	-	-	-	**0.56**	**1.08**	**1.44**	**2.26**	**3.12**	**3.98**
55/20 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇primary	**m³/h**	-	-	-	-	-	-	**0.47**	**0.9**	**1.17**	**1.9**	**2.63**	**3.36**
	Q max.	kW	-	-	-	-	-	-	16	31	40	65	90	115
	V̇secondary	**m³/h**	-	-	-	-	-	-	**0.39**	**0.76**	**0.99**	**1.6**	**2.22**	**2.83**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	37	58	72	105	135	162	44	70	86	127	163	193
	V̇secondary	**m³/h**	**0.71**	**1.11**	**1.37**	**2**	**2.58**	**3.09**	**0.84**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.73**	**4.81**	**5.69**
	Q max.	kW	38	58	72	105	135	162	44	70	86	128	165	195
	V̇secondary	**m³/h**	**0.82**	**1.25**	**1.77**	**2.26**	**2.9**	**3.48**	**0.95**	**1.51**	**1.85**	**2.75**	**3.55**	**4.19**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.11**	**1.95**	**2.48**	**3.76**	**4.76**	**5.69**
	Q max.	kW	37	58	72	105	135	162	38	67	85	129	163	195
	V̇secondary	**m³/h**	**0.91**	**1.43**	**1.77**	**2.58**	**3.32**	**3.99**	**0.94**	**1.65**	**2.09**	**3.18**	**4.01**	**4.8**
50/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	V̇primary	**m³/h**	**1.15**	**2.03**	**2.55**	**3.7**	**4.75**	**5.69**	**0.96**	**1.69**	**2.13**	**3.24**	**3.63**	**5.16**
	Q max.	kW	**33**	**58**	**73**	**106**	**136**	**163**	**33**	**58**	**73**	**111**	**145**	**177**
	V̇secondary	**m³/h**	**0.95**	**1.67**	**2.1**	**3.05**	**3.91**	**4.69**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**

T return primary	°C	Temperature primary return
V̇ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
V̇ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua L (1-10 to 1-50)

			Heating water temperature flow											
			65 °C (1-..)						70 °C (1-..)					
Domestic water secondary	**TransTherm aqua L**		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.08**	**1.88**	**2.5**	**3.73**	**4.84**	**5.77**	**1.32**	**2.09**	**2.59**	**3.76**	**4.82**	**5.72**
	Q max.	kW	43	75	100	149	193	230	60	95	118	171	219	260
	$\dot{V}$secondary	**m³/h**	**0.67**	**1.17**	**1.55**	**2.33**	**3.01**	**3.59**	**0.94**	**1.48**	**1.84**	**2.67**	**3.42**	**4.06**
60/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.8**	**1.5**	**2.01**	**3.16**	**4.34**	**5.39**	**1.08**	**1.94**	**2.48**	**3.77**	**4.95**	**5.92**
	Q max.	kW	32	60	80	126	173	215	50	90	115	175	230	275
	$\dot{V}$secondary	**m³/h**	**0.55**	**1.03**	**1.38**	**2.17**	**2.98**	**3.7**	**0.86**	**1.54**	**1.98**	**3.01**	**3.95**	**4.73**
60/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.55**	**1.05**	**1.38**	**2.13**	**3.08**	**3.96**	**0.97**	**1.8**	**2.37**	**3.73**	**4.84**	**5.72**
	Q max.	kW	22	42	55	85	123	158	44	82	108	170	220	260
	$\dot{V}$secondary	**m³/h**	**0.42**	**0.8**	**1.05**	**1.63**	**2.35**	**3.02**	**0.84**	**1.57**	**2.08**	**3.24**	**4.21**	**4.98**
60/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.3**	**0.6**	**0.8**	**1.28**	**1.75**	**2.33**	**0.62**	**1.14**	**2.05**	**2.4**	**3.43**	**4.22**
	Q max.	kW	**12**	**24**	**32**	**51**	**70**	**93**	28	52	68	109	156	192
	$\dot{V}$secondary	**m³/h**	**0.26**	**0.52**	**0.69**	**1.1**	**1.51**	**2**	**0.6**	**1.12**	**1.47**	**2.36**	**3.36**	**4.14**
55/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.8**	**1.5**	**2.01**	**3.16**	**4.34**	**5.39**	**1.08**	**2.09**	**2.53**	**3.74**	**4.84**	**5.76**
	Q max.	kW	32	60	80	126	173	215	50	95	115	170	220	262
	$\dot{V}$secondary	**m³/h**	**0.55**	**1.03**	**1.38**	**2.17**	**2.98**	**3.7**	**0.86**	**1.63**	**1.97**	**2.92**	**3.78**	**4.5**
55/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.3**	**2.06**	**2.53**	**3.71**	**4.81**	**5.64**	**1.08**	**1.87**	**2.42**	**3.74**	**4.84**	**5.72**
	Q max.	kW	52	82	101	148	192	225	49	85	110	170	220	260
	$\dot{V}$secondary	**m³/h**	**0.99**	**1.57**	**1.93**	**2.83**	**3.67**	**4.3**	**0.94**	**1.62**	**2.1**	**3.24**	**4.21**	**4.98**
55/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.97**	**1.65**	**2.11**	**3.71**	**4.81**	**5.64**	**1.1**	**1.88**	**2.41**	**3.74**	**4.22**	**5.1**
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**4.84**	**0.94**	**1.62**	**2.1**	**3.19**	**4.21**	**5**
55/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.95**	**1.68**	**2.13**	**3.23**	**4.24**	**5.14**	**0.84**	**1.47**	**1.87**	**2.84**	**3.72**	**4.51**
	Q max.	kW	**38**	**67**	**85**	**129**	**169**	**205**	38	67	85	129	169	205
	$\dot{V}$secondary	**m³/h**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.25**	**2.06**	**2.53**	**3.71**	**4.81**	**5.64**	**1.08**	**1.87**	**2.42**	**3.56**	**4.84**	**5.72**
	Q max.	kW	50	82	101	148	192	225	49	85	110	162	220	260
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.57**	**1.93**	**2.83**	**3.67**	**4.3**	**0.94**	**1.62**	**2.1**	**3.09**	**4.21**	**4.98**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.1**	**1.88**	**2.41**	**3.71**	**4.81**	**5.64**	**0.97**	**1.65**	**2.11**	**3.25**	**4.22**	**5.1**
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**4.84**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**5**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**0.95**	**1.68**	**2.13**	**3.23**	**4.24**	**5.14**	**0.84**	**1.47**	**1.87**	**2.84**	**3.72**	**4.51**
	Q max.	kW	38	67	85	129	169	205	38	67	85	129	169	205
	$\dot{V}$secondary	**m³/h**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**
50/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	$\dot{V}$primary	**m³/h**	**0.83**	**1.45**	**1.81**	**2.44**	**3.63**	**4.44**	**0.73**	**1.28**	**1.61**	**2.44**	**3.19**	**3.89**
	Q max.	kW	**33**	**58**	**73**	**111**	**145**	**177**	**33**	**58**	**73**	**111**	**145**	**177**
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**

T return primary	°C	Temperature primary return
$\dot{V}$ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
$\dot{V}$ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua L (1-10 to 1-50)

Temperature primary 70 °C flow/30 °C return

Domestic water heating

			Cold water 10 °C Domestic water 60 °C					
		TransTherm aqua L	(10)	(16)	(20)	(30)	(40)	(50)
		kW	50	90	115	175	230	275
		m³/h	0.86	1.54	1.97	3.00	3.94	4.71
		l/min	14.3	25.7	32.9	50.0	65.7	78.6
		l/s	0.2	0.4	0.5	0.8	1.1	1.3
Tank size l								
200	**$\dot{V}$s**	**l/10 min**	343	457	529	-	-	-
	Hourly output	l/h at 60 °C	1057	1743	2171	-	-	-
	NL index		13	22	29	-	-	-
300	**$\dot{V}$s**	**l/10 min**	443	557	629	800	-	-
	Hourly output	l/h at 60 °C	1157	1843	2271	3300	-	-
	NL index		21	31	39	57	-	-
400	**$\dot{V}$s**	**l/10 min**	543	657	729	900	-	-
	Hourly output	l/h at 60 °C	1257	1943	2371	3400	-	-
	NL index		23	41	49	69	-	-
500	**$\dot{V}$s**	**l/10 min**	643	757	829	1000	1157	-
	Hourly output	l/h at 60 °C	1357	2043	2471	3500	4443	-
	NL index		25	44	56	80	100	-
800	**$\dot{V}$s**	**l/10 min**	943	1057	1129	1300	1457	-
	Hourly output	l/h at 60 °C	1657	2343	2771	3800	4743	-
	NL index		33	52	64	94	123	-
1000	**$\dot{V}$s**	**l/10 min**	1143	1257	1329	1500	1657	1786
	Hourly output	l/h at 60 °C	1857	2543	2971	4000	4943	5714
	NL index		38	57	69	100	128	152
1500	**$\dot{V}$s**	**l/10 min**	-	1757	1829	2000	2157	2286
	Hourly output	l/h at 60 °C	-	3043	3471	4500	5443	6214
	NL index		-	71	83	114	143	167
2000	**$\dot{V}$s**	**l/10 min**	-	2257	2329	2500	2657	2786
	Hourly output	l/h at 60 °C	-	3543	3971	5000	5943	6714
	NL index		-	84	97	128	158	182
2500	**$\dot{V}$s**	**l/10 min**	-	2757	2829	3000	3157	3286
	Hourly output	l/h at 60 °C	-	4043	4471	5500	6443	7214
	NL index		-	99	115	144	174	198

$\dot{V}$s **l/10 min** 10 minutes peak volume flow at 60 °C

NL index Performance figure in accordance with DIN 4708 = number of flats, which can be supplied with hot water if the water heater is heated with the boiler and is permanently after-heated (Standard flat: 1 bath - 4 rooms - 3.5 persons)

Performance data

TransTherm aqua L (1-10 to 1-50)

Tapping point (mixing temperature)

			Cold water 10 °C Domestic water 45 °C					
		TransTherm aqua L	(10)	(16)	(20)	(30)	(40)	(50)
		kW	50	90	115	175	230	275
		m³/h	1.22	2.20	2.82	4.29	5.63	6.73
		l/min	20.4	36.7	46.9	71.4	93.9	112.2
		l/s	0.3	0.6	0.8	1.2	1.6	1.9
Tank size l								
200	**$\dot{V}$s**	**l/10 min**	490	653	755	-	-	-
	Hourly output	l/h at 45 °C	1510	2490	3102	-	-	-
	NL index		13	22	29	-	-	-
300	**$\dot{V}$s**	**l/10 min**	633	796	898	1143	-	-
	Hourly output	l/h at 45 °C	1653	2633	3245	4714	-	-
	NL index		21	31	39	57	-	-
400	**$\dot{V}$s**	**l/10 min**	776	939	1041	1286	-	-
	Hourly output	l/h at 45 °C	1796	2776	3388	4857	-	-
	NL index		23	41	49	69	-	-
500	**$\dot{V}$s**	**l/10 min**	918	1082	1184	1429	1653	-
	Hourly output	l/h at 45 °C	1939	2918	3531	5000	6347	-
	NL index		25	44	56	80	100	-
800	**$\dot{V}$s**	**l/10 min**	1347	1510	1612	1857	2082	-
	Hourly output	l/h at 45 °C	2367	3347	3959	5429	6776	-
	NL index		33	52	64	94	123	-
1000	**$\dot{V}$s**	**l/10 min**	1633	1796	1898	2143	2367	2551
	Hourly output	l/h at 45 °C	2653	3633	4245	5714	7061	8163
	NL index		38	57	69	100	128	152
1500	**$\dot{V}$s**	**l/10 min**	-	2510	2612	2857	3082	3265
	Hourly output	l/h at 45 °C	-	4347	4959	6429	7776	8878
	NL index		-	71	83	114	143	167
2000	**$\dot{V}$s**	**l/10 min**	-	3224	3327	3571	3796	3980
	Hourly output	l/h at 45 °C	-	5061	5673	7143	8490	9592
	NL index		-	84	97	128	158	182
2500	**$\dot{V}$s**	**l/10 min**	-	3939	4041	4286	4510	4694
	Hourly output	l/h at 45 °C	-	5776	6388	7857	9204	10306
	NL index		-	99	115	144	174	198

$\dot{V}$s	**l/10 min**	10 minutes peak volume flow at 45 °C
NL index		Performance figure in accordance with DIN 4708 = number of flats, which can be supplied with hot water if the water heater is heated with the boiler and is permanently after-heated (Standard flat: 1 bath - 4 rooms - 3.5 persons)

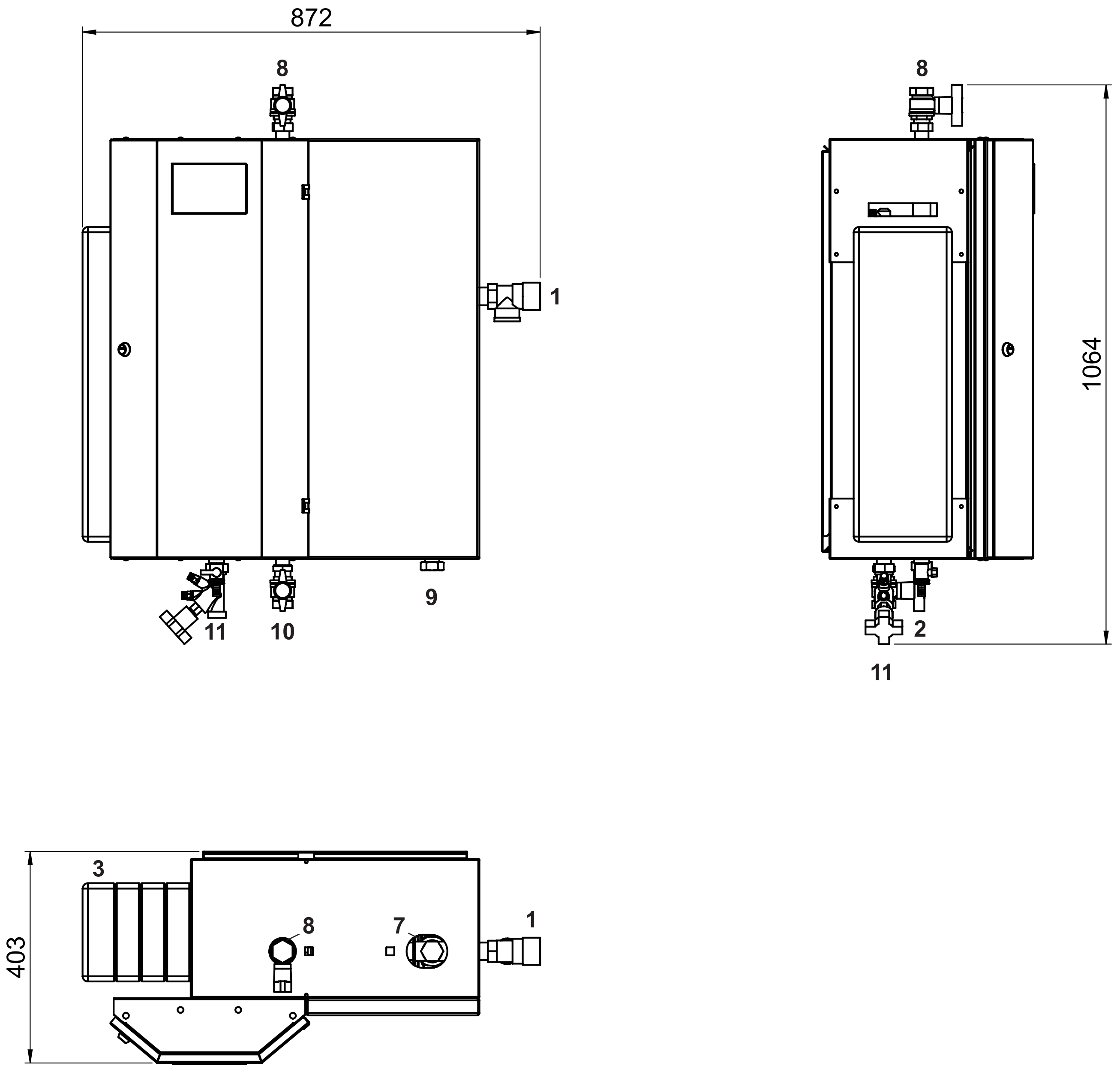
Hot water charging tank CombiVal E (300-2000)

Type		(300)	(500)	(800)	(1000)	(1500)	(2000)
• Volume	dm³	301	475	747	968	1472	2000
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13	10/13	10/13	10/13
• Max. DHW temperature	°C	95	95	95	95	95	95
• Thermal insulation		PU hard foam		polyester fleece			
	mm	75	75	100	100	120	120
• Thermal insulation λ	W/mK	0.027	0.027	0.040	0.040	0.040	0.040
• Fire protection class		B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	58	75	128	139	170	190
• Transport weight	kg	97	126	205	264	400	600
• U value	W/m²K	0.290	0.303	0.381	0.362	0.339	0.325

Hot water charging tank CombiVal C (200-2500)

Type		(200)	(300)	(400)	(500)	(750)	(1000)	(1500)	(2000)	(2500)
• Volume	dm³	212	289	411	490	756	990	1415	1975	2450
• Max. operating pressure/test pressure	bar	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12
• Max. DHW temperature	°C	95	95	95	95	95	95	95	95	95
• Thermal insulation		Neodul® insulation (EPS rigid foam outside and polyester fibre fleece inside)								
	mm	100	100	100	100	100	100	120	120	120
• Thermal insulation λ	W/mK	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316
• Fire protection class		B2	B2	B2	B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	62	68	77	82	120	140	162	180	206
• Transport weight	kg	55	70	83	85	119	150	215	265	445
• U value	W/m²K	0.329	0.329	0.329	0.329	0.329	0.329	0.273	0.273	0.273

Charging module TransTherm aqua L (1-10)
(Dimensions in mm)



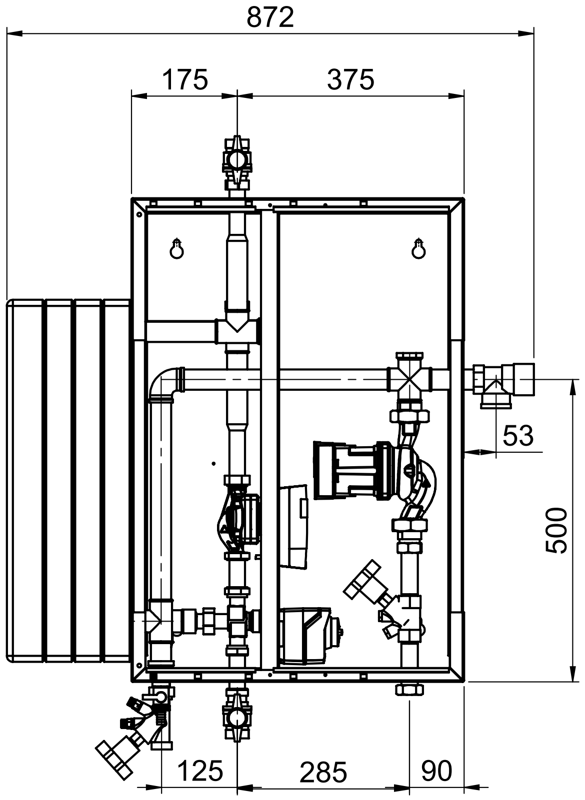
1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger

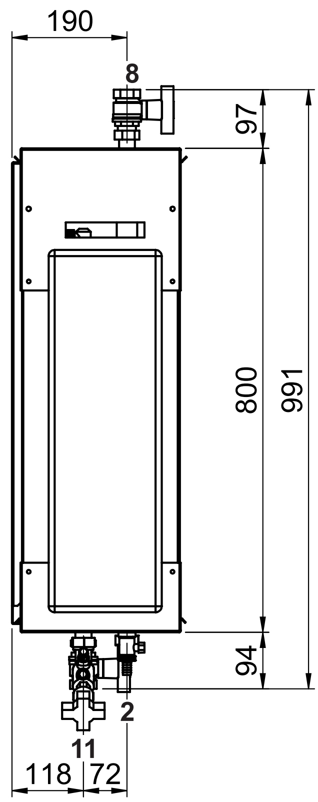
		(1-10)
7	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
8	Hot water	DN 25, Rp 1″
9	Cold water	DN 20, Gp 1″
10	Flow heating water	DN 25, Rp 1″
11	Return heating water	DN 25, Gp 1″

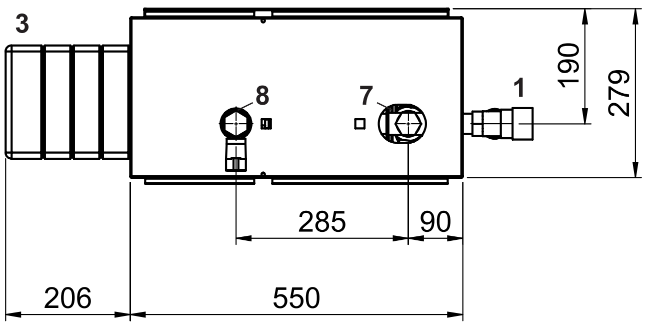
Gp = straight internal thread

TransTherm aqua L	Weight in kg
(1-10)	56

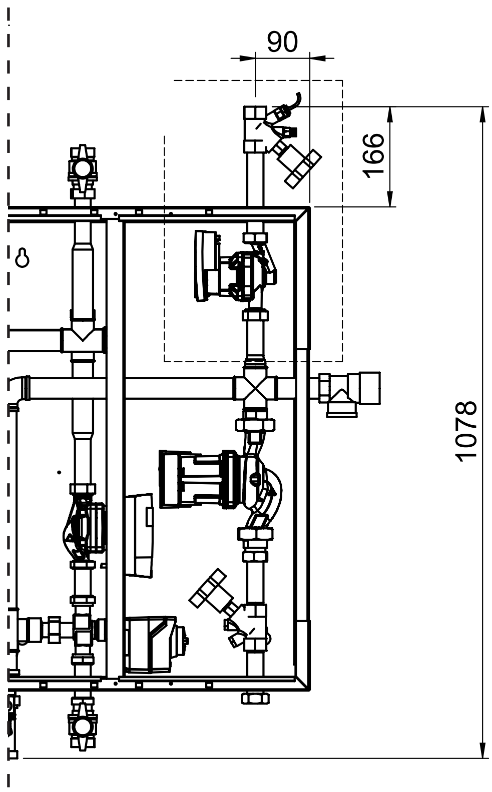
Charging module TransTherm aqua L (1-10)
(Dimensions in mm)







Version incl. circulation set



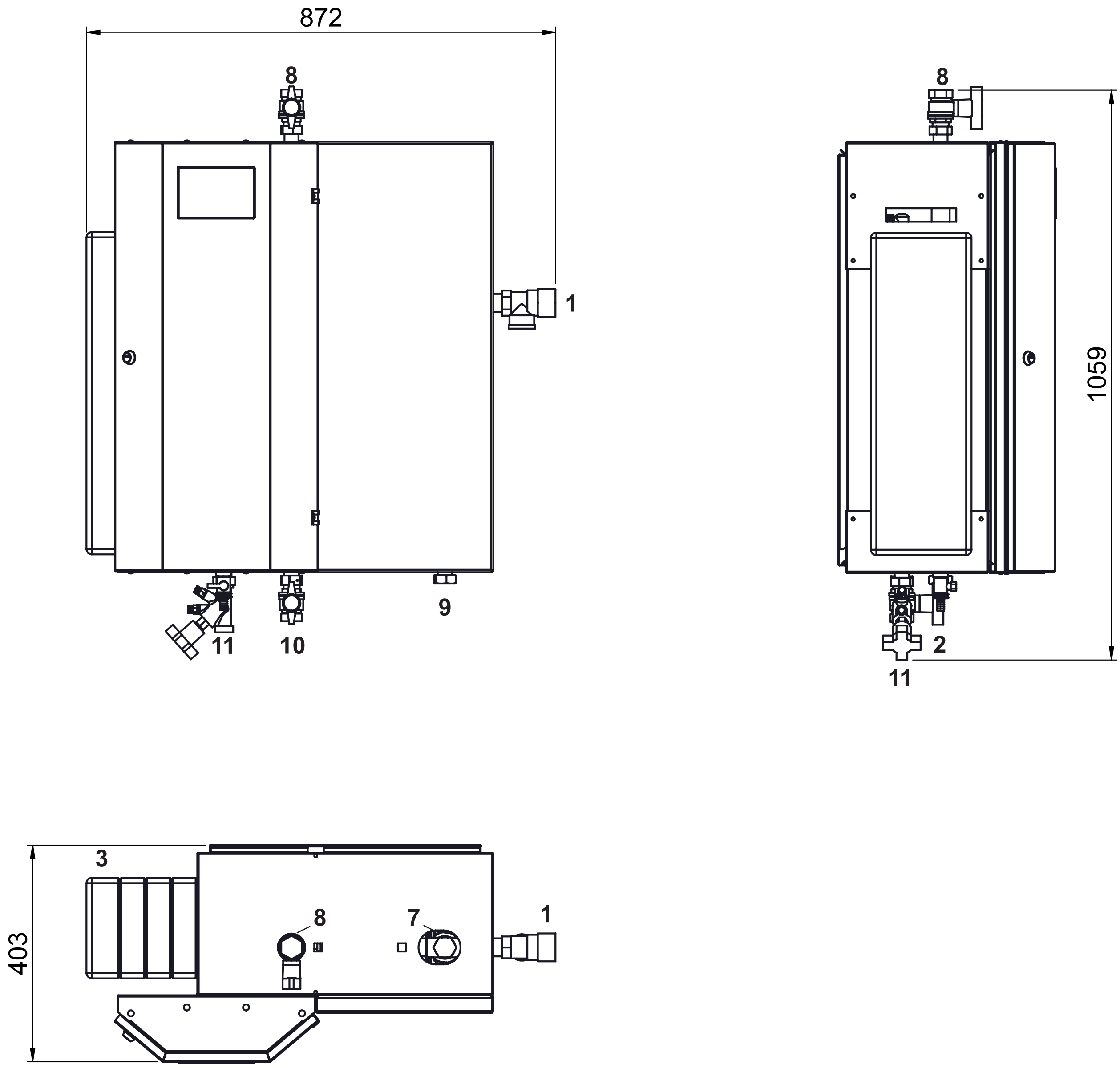
1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger
4 Primary three-way valve
5 Primary circulating pump
6 Secondary circulating pump

		(1-10)
7	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
8	Hot water	DN 25, Rp 1″
9	Cold water	DN 20, Gp 1″
10	Flow heating water	DN 25, Rp 1″
11	Return heating water	DN 25, Gp 1″

Gp = straight internal thread

Charging module TransTherm aqua L (1-16, 1-20)

(Dimensions in mm)



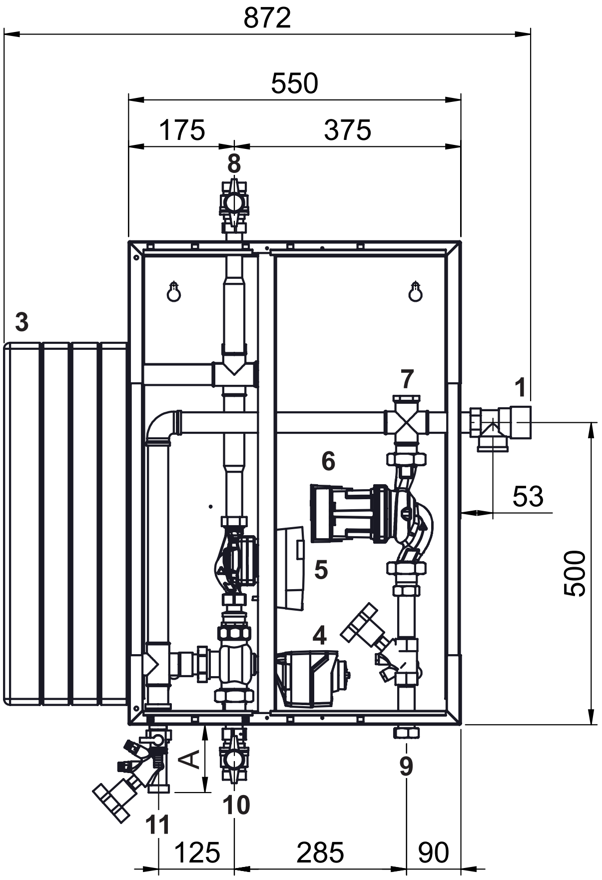
1 Safety valve
  Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger

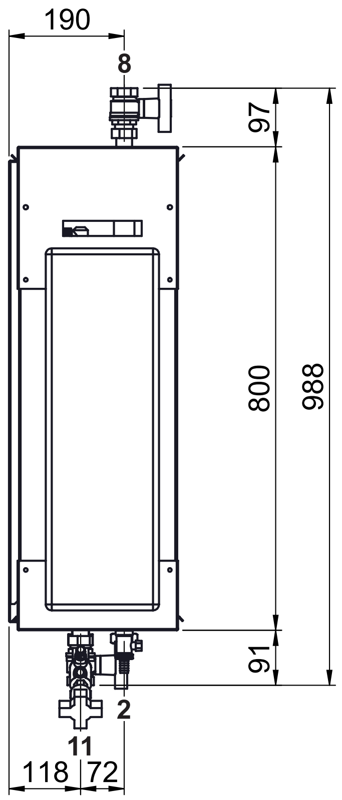
		(1-16) (1-20)
7	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
8	Hot water	DN 25, Rp 1″
9	Cold water	DN 20, Gp 1″
10	Flow heating water	DN 25, Rp 1″
11	Return heating water	DN 25, Gp 1″

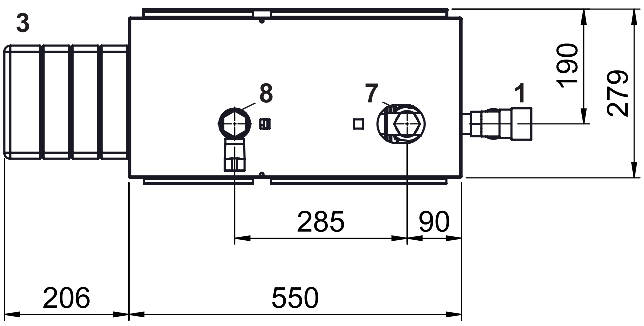
Gp = straight internal thread

TransTherm aqua L	Weight in kg
(1-16)	58
(1-20)	60

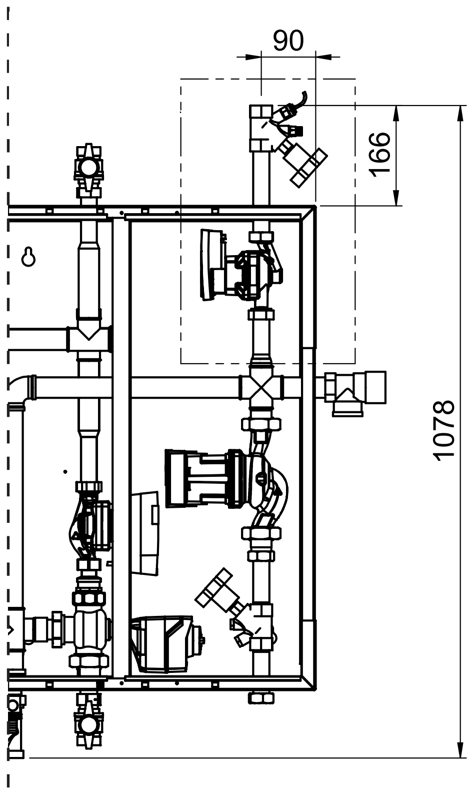
Charging module TransTherm aqua L (1-16, 1-20)
(Dimensions in mm)







Version incl. circulation set



1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger
4 Three-way valve primary
5 Primary circulating pump
6 Secondary circulating pump

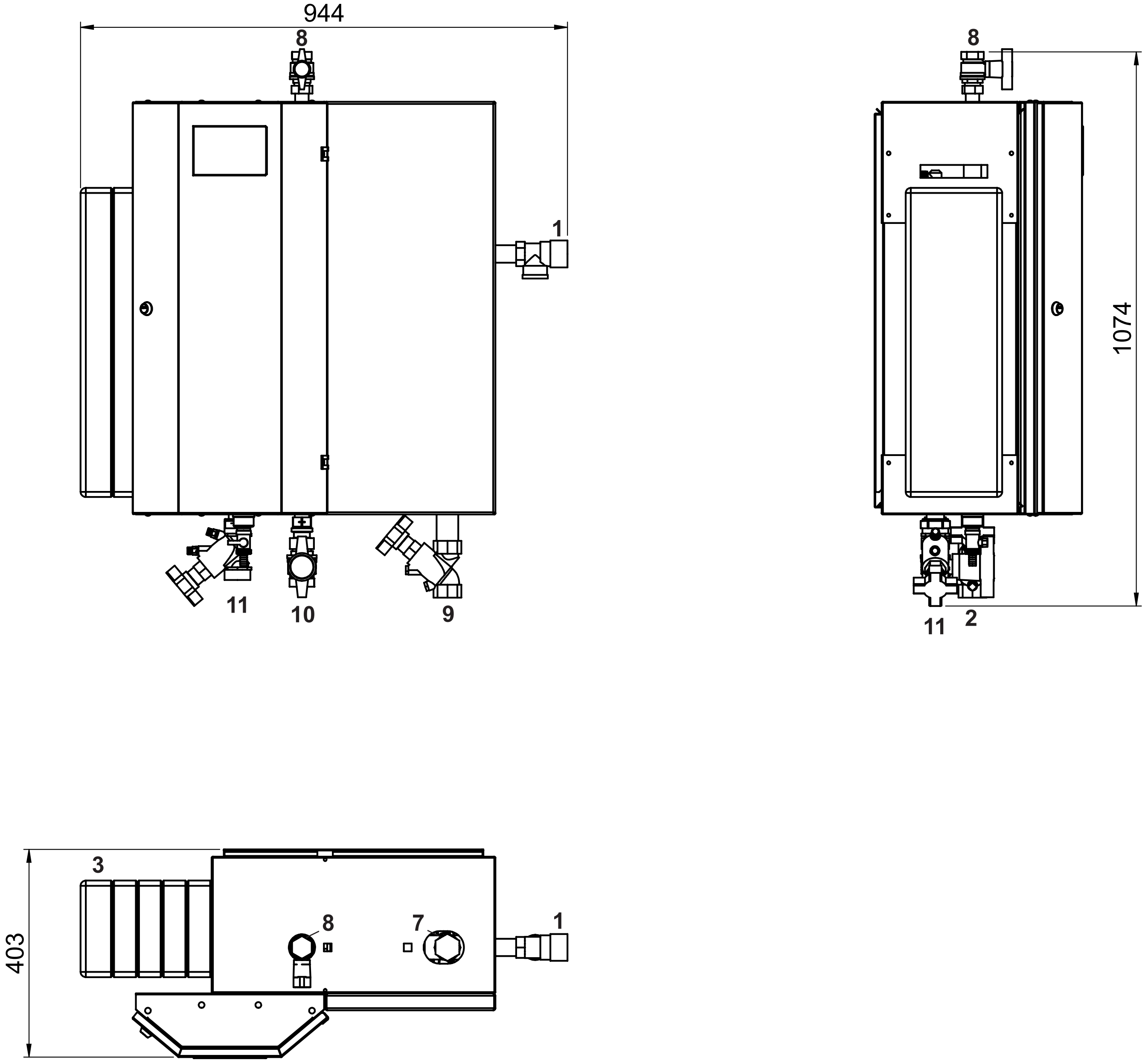
		(1-16) (1-20)
7	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
8	Hot water	DN 25, Rp 1″
9	Cold water	DN 20, Gp 1″
10	Flow heating water	DN 25, Rp 1″
11	Return heating water	DN 25, Gp 1″

	A	B	C
(1-16)	112	166	1078
(1-20)	128	193	1121

Gp = straight internal thread

Charging module TransTherm aqua L (1-30 to 1-50)

(Dimensions in mm)



1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger

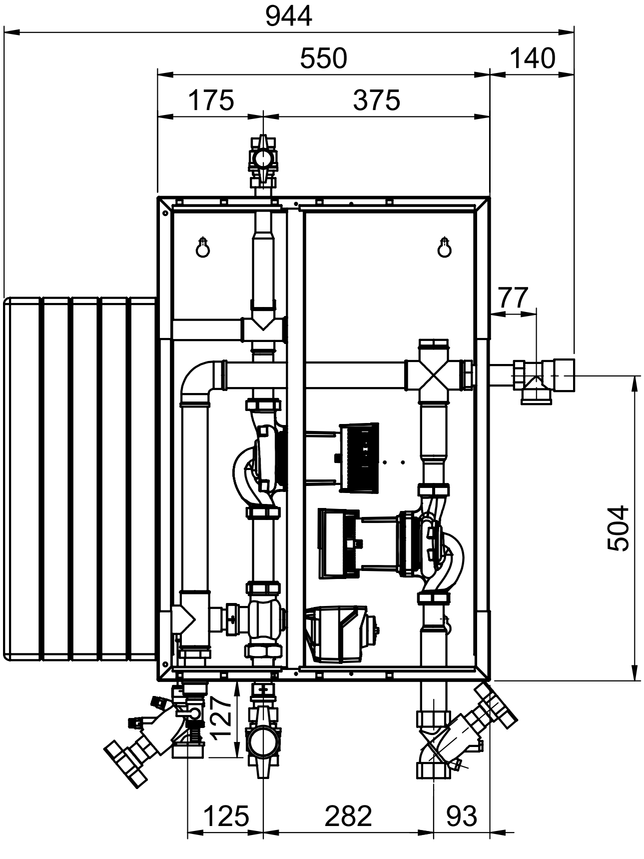
		(1-30) (1-40) (1-50)
7	Circulation	DN 32, Rp 1¼″ (25, Rp 1″) (20, Rp ¾″)
8	Hot water	DN 32, Rp 1¼″
9	Cold water	DN 32, Rp 1¼″
10	Flow heating water	DN 32, Rp 1¼″
11	Return heating water	DN 32, Gp 1½″

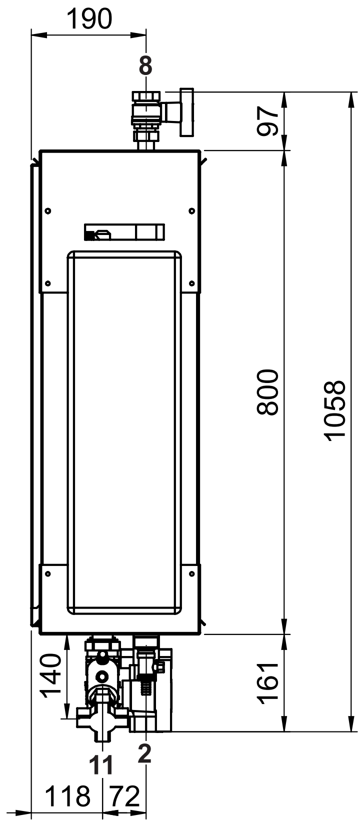
Gp = straight internal thread

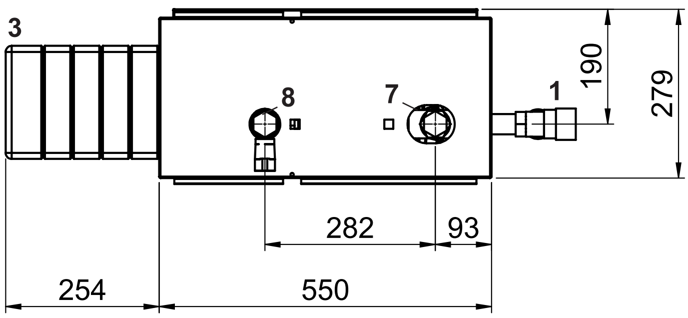
TransTherm aqua L	Weight in kg
(1-30)	66
(1-40)	68
(1-50)	70

Charging module TransTherm aqua L (1-30 to 1-50)

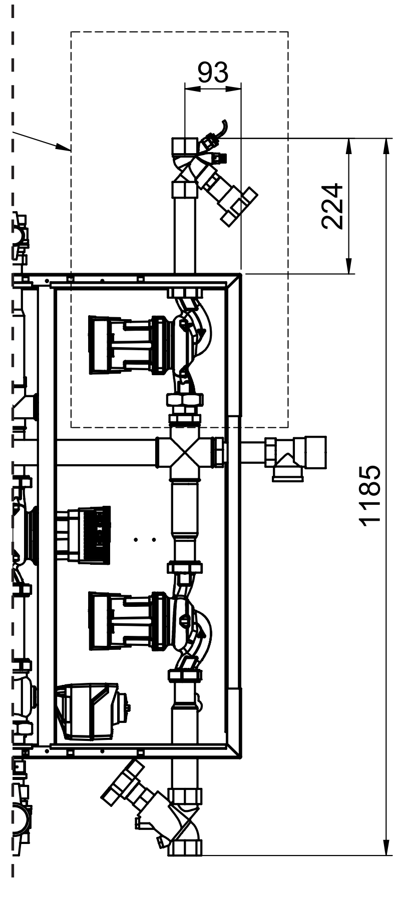
(Dimensions in mm)







Version incl. circulation set

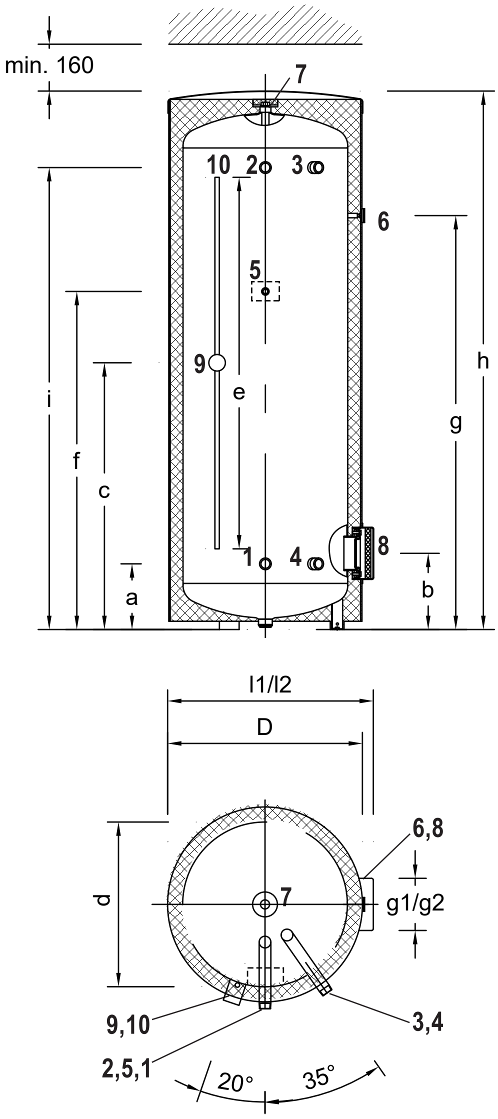


1 Safety valve
  Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger
4 Primary three-way valve
5 Primary circulating pump
6 Secondary circulating pump

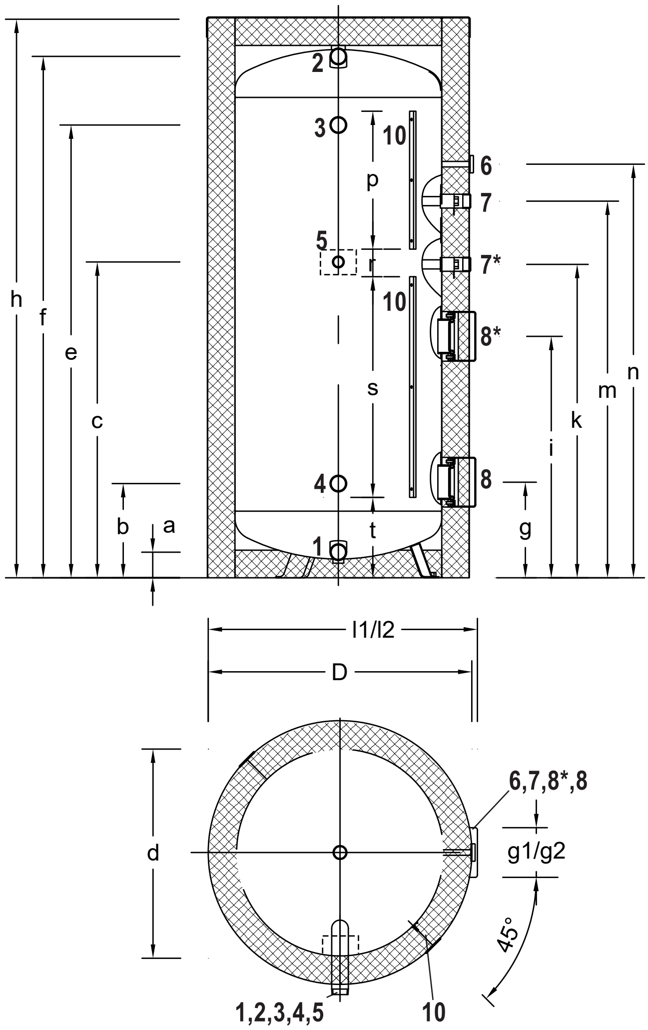
		(1-30) (1-40) (1-50)
7	Circulation	DN 32, Rp 1¼″ (25, Rp 1″) (20, Rp ¾″)
8	Hot water	DN 32, Rp 1¼″
9	Cold water	DN 32, Rp 1¼″
10	Flow heating water	DN 32, Rp 1¼″
11	Return heating water	DN 32, Gp 1½″

Gp = straight internal thread

CombiVal E (300,500)
(Dimensions in mm)



CombiVal E (800-2000)



1	Cold water	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
2	Hot water	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
3	Charging flow - hot	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
4	Charging return - cold	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″

CombiVal E type	Ø g1	Ø g2	l1	l2 *
(300)	180	-	745	785
(500)	180	-	745	785
(800)	180	180	975	1020
(1500)	180	180	1075	1120
(2000)	180	180	1265	1310
(2000)	180	180	1465	1510

* Using a flange electrical immersion heater

5	Circulation	Type (300,500)	G ¾″
		Type (800-2000)	G 1 ¼″
6	Thermometer		
7	Anode sleeve	Type (300,500)	Rp 1″
		Type (800-2000)	Rp 1 ¼″
7*	Anode sleeve	Type (1500,2000)	Rp 1 ¼″

8 Hand-hole flange (flange electrical heating inset)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10

8* **Attention:** type (800,1000) does not have a second flange

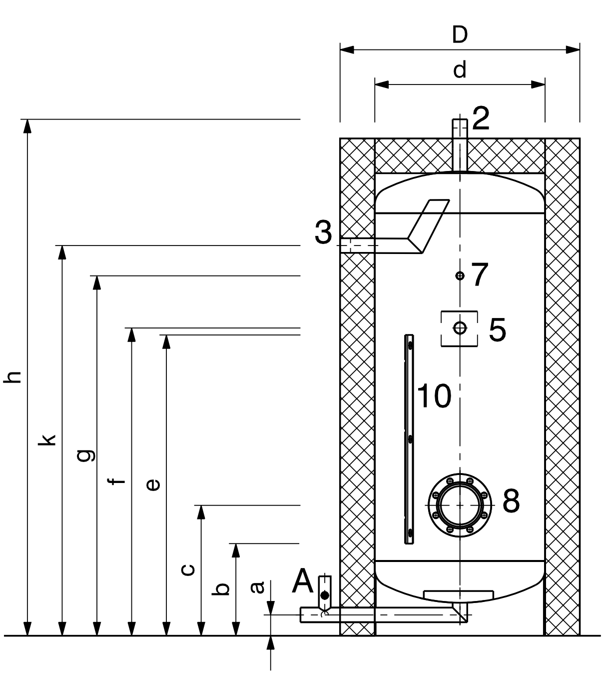
9 Removable cap (60 mm)
for positioning the sensor in the sensor channel

10 Sensor duct inner Ø 11 mm — Type (300,500)
Terminal strip for contact sensor — Type (800-2000)

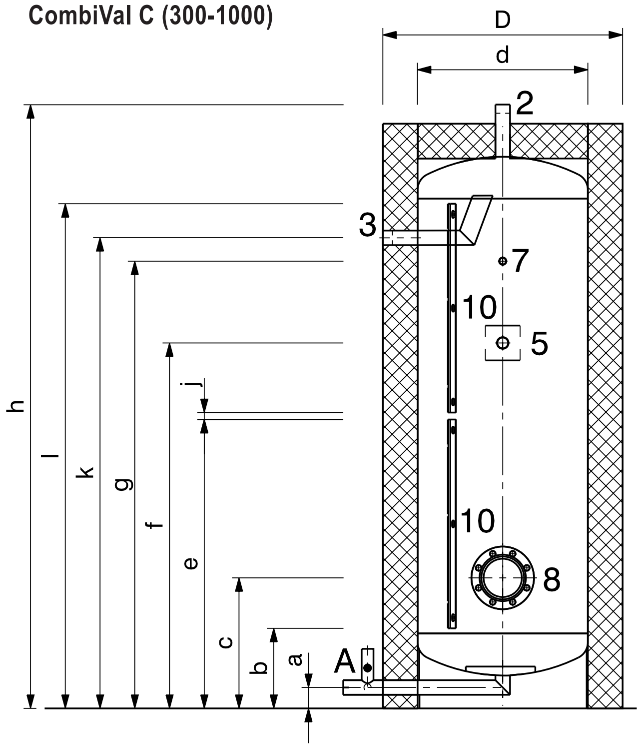
Variation because of the production tolerance possible Dimension +/- 10 mm

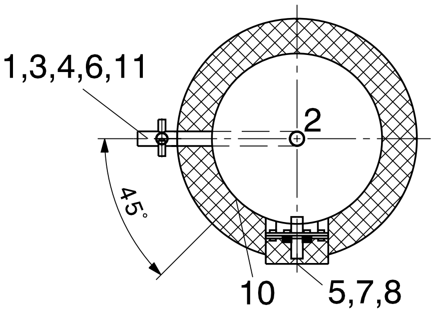
CombiVal E type	a	b	c	d	D	e	f	g	h	i	k	m	n	p	r	s	t	Tilting measure
(300)	235	325	613	500	650	735	1160	1505	1850	1584	-	-	-	-	-	-	-	1961
(500)	238	276	966	597	750	1360	1225	1500	1960	1674	-	-	-	-	-	-	-	2082
(800)	101	352	1150	750	950	1647	1893	347	2030	-	-	1336	1505	500	100	800	297	1960
(1000)	100	355	1158	850	1050	1655	1910	360	2060	-	-	1331	1500	500	100	800	305	2000
(1500)	105	375	1357	1000	1240	1782	2049	390	2240	890	1167	1521	1657	640	120	760	300	2370
(2000)	118	406	1388	1200	1440	1648	1933	421	2150	921	1118	1248	1498	520	100	760	330	2350

CombiVal C (200)
(Dimensions in mm)

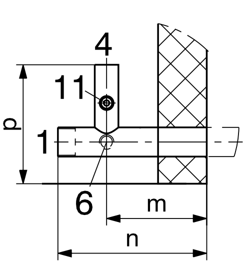


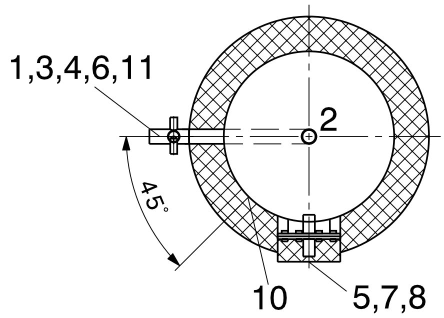
CombiVal C (300-1000)





Detail A





1	Cold water with baffle plate	Type (200,300)	Rp 1 ¼″
		Type (400,500)	Rp 1 ½″
		Type (750,1000)	Rp 2″
2	Hot water	Type (200,300)	Rp 1 ¼″
		Type (400,500)	Rp 1 ½″
		Type (750,1000)	Rp 2″
3	Charging flow - hot	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
4	Charging return - cold	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
5	Circulation with baffle plate	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
6	Drain	Type (200-500)	Rp ½″
		Type (750,1000)	Rp ¾″

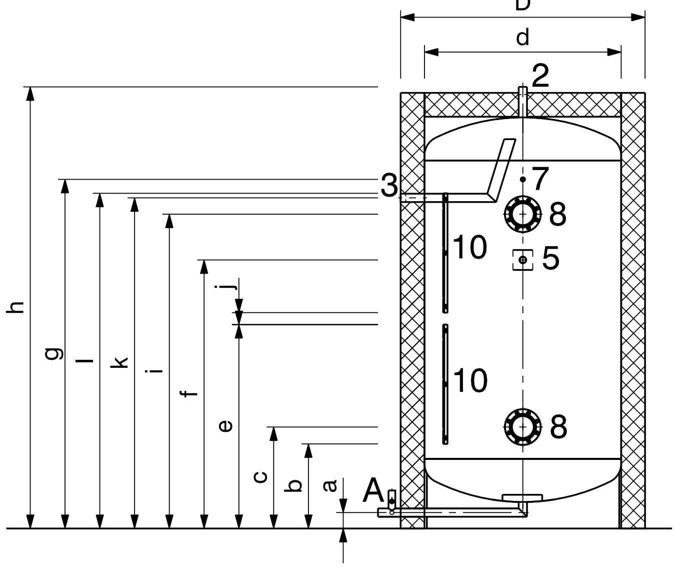
7 Sleeve (Rp ½″) for mountable immersion sleeve and thermometer (L = 100 mm, inner Ø = 8 mm)
8 Hand-hole flange (17.7 Nm)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10 or optional:
- flange-mounted electric heating element or
- impressed current anode set with flange cover, 180 - 1½″

10 Sensor terminal bar 600 x 30 mm
1 x type (200), 2 x type (300-1000)
11 Immersion sleeve M16 x 1.5 for sensor/thermostat

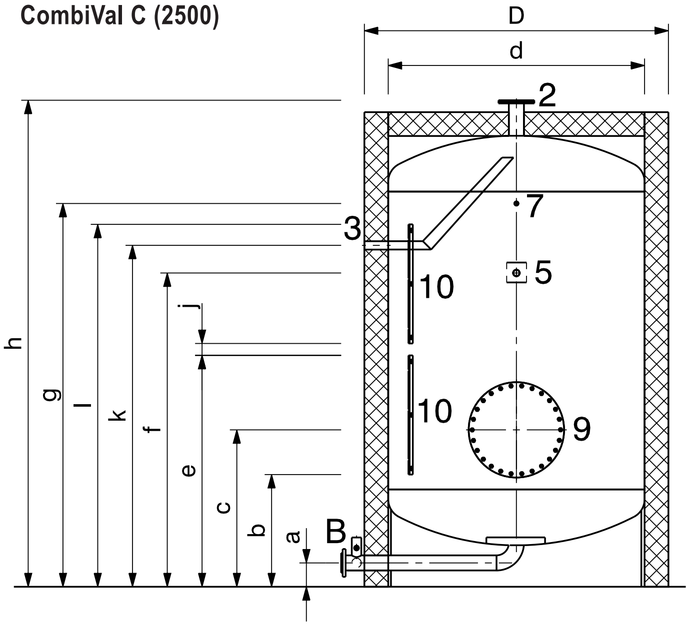
Variation because of the
production tolerance possible
Dimension +/- 10 mm

CombiVal C Type	a	b	c	d	D	e	f	g	h	j	k	l	m	n	p	Tilting measure
(200)	60	240	375	490	690	840	885	1035	1485	-	1125	-	130	190	174	1515
(300)	60	240	375	490	690	840	1050	1285	1735	20	1355	1460	135	205	174	1765
(400)	70	285	420	590	790	885	1095	1330	1745	20	1365	1505	135	205	184	1780
(500)	80	295	430	640	840	895	1105	1340	1765	20	1375	1515	130	190	194	1805
(750)	80	335	470	740	940	935	1310	1590	2085	60	1665	1595	135	205	194	2130
(1000)	80	365	500	890	1090	965	1215	1495	1890	20	1384	1585	135	205	203	1950

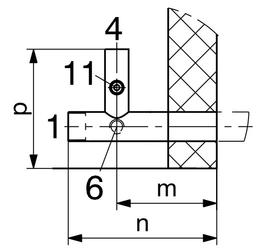
CombiVal C (1500,2000)
(Dimensions in mm)

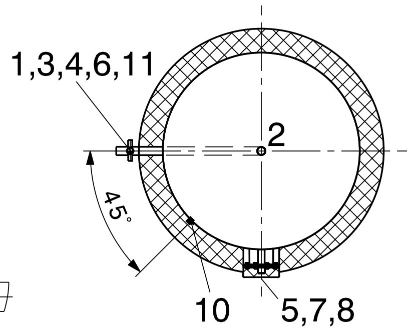


CombiVal C (2500)

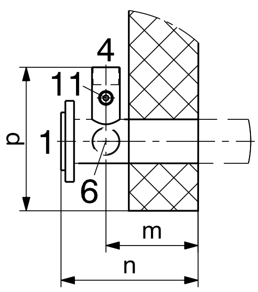


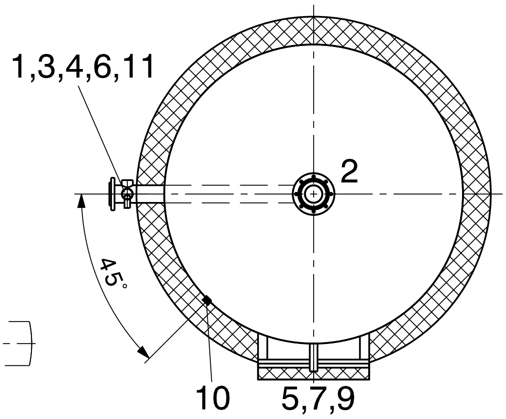
Detail A





Detail B





1 Cold water with baffle plate Type (1500,2000) Rp 2″
Type (2500) DN 65/PN 10
2 Hot water Type (1500,2000) Rp 2″
Type (2500) DN 65/PN 10
3 Charging flow - hot Type (1500-2000) Rp 1 ½″
4 Charging return - cold Type (1500-2000) Rp 1 ½″
5 Circulation with baffle plate Type (1500-2000) Rp 1 ½″
6 Drain Type (1500-2000) Rp ¾″
7 Sleeve (Rp ½″) for mountable immersion sleeve and thermometer (L = 100 mm, inner Ø = 8 mm)
8 Hand-hole flange (17.7 Nm)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10 or optional:
- flange-mounted electric heating element or
- impressed current anode set with flange cover, 180 - 1½″
9 Manhole flange (40 Nm)
Ø 400/480 mm, pitch circle 445 mm, 26 x M14 or optional
Flange adapter:
- for electric heating element or
- for impressed current anode set with flange cover, 180 - 1½″
10 Sensor terminal bar 600 x 30 mm
2 x type (1500-2500)
11 Immersion sleeve M16 x 1.5 for sensor/thermostat

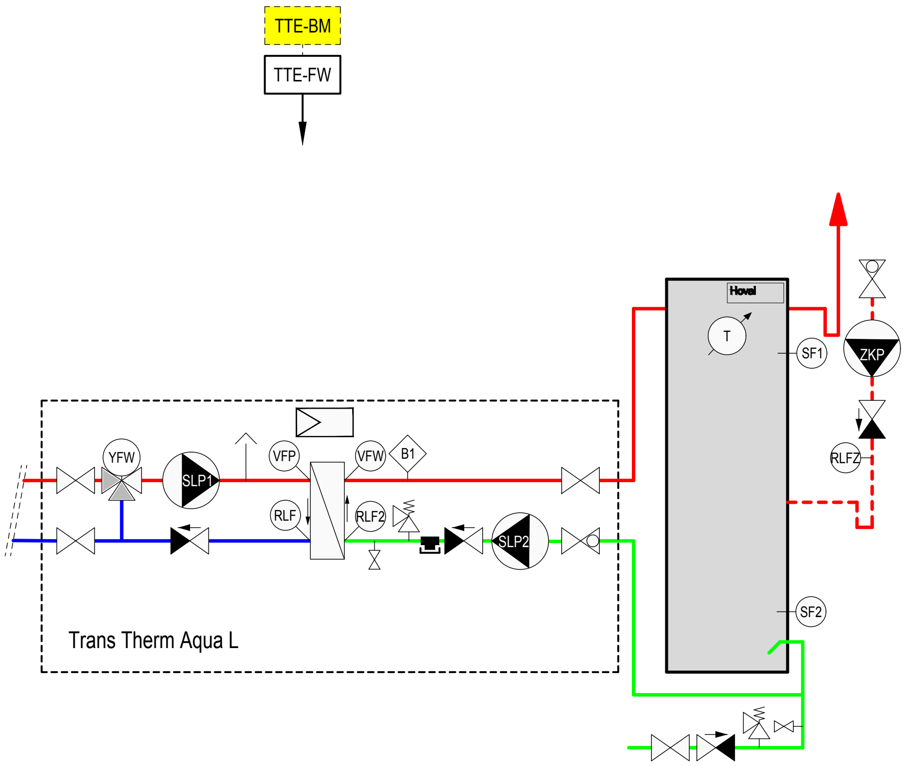
Variation because of the production tolerance possible
Dimension +/- 10 mm

CombiVal C Type	a	b	c	d	D	e	f	g	h	i	j	k	m	n	p	Tilting measure
(1500)	80	375	510	990	1230	975	1350	1755	2220	1580	60	1674	165	235	203	2300
(2000)	80	405	530	1090	1330	1005	1580	2035	2525	1860	165	1909	165	235	203	2610
(2500)	120	515	790	1290	1530	1115	1580	1930	2450	-	60	1719	165	250	243	2570

Water heating

TransTherm aqua L
- Circulation via storage tank
- Storage tank charging system

Hydraulic schematic BFAE050



TTE-FW	Basic module district heating/fresh water
B1	Flow temperature monitor (if required)
VFP	Primary flow sensor
VFW	Flow sensor hot water
RLF	Primary return sensor
RLF2	Return sensor cold water
SF1	Calorifier sensor 1
SF2	Calorifier sensor 2
RLFZ	Circulation sensor
PF1	Buffer sensor 1
SLP1	Calorifier charging pump primary
SLP2	Calorifier charging pump secondary
YFW	Three-way valve with actuator
ZKP	Recirculation pump

Option

BM	TopTronic® E control module

Notice
A safety valve (6 bar) must be installed in the cold water line. The loading module is already protected with a safety valve (10 bar).

Calorifier charging system
Consisting of:
- calorifier charging module TransTherm aqua LS
- hot water charging tank CombiVal E or CombiVal C (optional)

Calorifier charging module TransTherm aqua LS

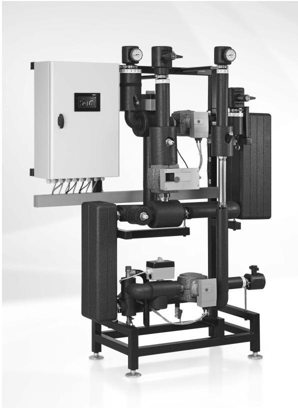
Heating circuit consisting of:
- ball valve
- thermometer
- strainer (optional)
- 3-way valve with actuator
- adapter for heat meter
- heat meter (optional)
- M-BUS for heat meter (optional)
- high-efficiency pump
- non-return valve
- flow temperature sensor
- return temperature sensor
- filling and drain valve ½″
- corrosion protection coating of all media carrying lines

Buffer storage circuit consisting of:
- stainless steel plate heat exchanger copper-soldered or copper-free
- flow temperature sensor
- temperature controller (optional)
- protection temperature monitor (optional)
- protection temperature limiter (optional)
- diaphragm safety valve 10 bar
- high-efficiency pump
- non-return valve
- ball valve
- temperature regulating valve with actuator
- filling and drain valve ½″
- return temperature sensor
- corrosion-resistant material of all media carrying lines

DWH circulation circuit consisting of:
- high-efficiency pump
- non-return valve
- line balancing valve
- circulation temperature sensor
- regulating valve
- sampling valve (optional)

Thermal insulation consisting of:
- thermal insulation of the heat exchanger with 30-mm EPP mouldings
- thermal insulation of the pipes with EPP mouldings. Insulation thickness of 50 % according to EnEV
- deep black, similar to RAL 9005
- suitable for damp rooms
- CFC-free
- normal flammability according to DIN 4102-1 and EN 13501-1 (fuel class: B2)
- no bleaching and disintegration of the insulation under the influence of UV light

Stand frame consisting of:
- frame with corrosion protection coating RAL 9005
- height-adjustable and vibration-damped feet



Range
Calorifier charging module

TransTherm aqua LS type	Output kW
(4-10)	50
(4-16)	90
(4-20)	115
(4-30)	175
(4-40)	230
(4-50)	275

Range
Hot water charging tank

CombiVal E		Content l
(300)	B	301
(500)	B	475
(800)		747
(1000)		968
(1500)		1472
(2000)		2000

CombiVal C		Content l
(200)	B	212
(300)	B	289
(400)	B	411
(500)	B	490
(750)		756
(1000)		990
(1500)		1415
(2000)		1975
(2500)		2450

Delivery
- The storage tank required is not included in the scope of delivery

On site
- Electrical connection of the controller

Suitable hot water charging tanks
see next page

TopTronic® E controller

TopTronic® E basic module district heating/fresh water
- Control unit for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for
  - primary valve control
  - cascade management
  - 1 heating/cooling circuit with mixer
  - 1 heating/cooling circuit without mixer
  - 1 hot water loading circuit
  - various additional functions
- Various functions for hot water:
  - selection of different basic programs (week programs, economy mode, holiday until, etc.)various operating modes (e.g. accumulator priority or parallel mode)
  - buffer storage circuit on the primary or secondary side
  - adjustable loading criteria (e.g.: adjustable loading times, undershooting the minimum nominal value, etc.)
  - adjustable switch-off criteria (e.g. achieving the setpoint valve, achieving the lower sensor setpoint value, etc.)
  - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Complete plug set for DH module
- RPM-regulated pumps

No further module expansions or controller modules can be installed in the control panel!

Option

TopTronic® E control module
- Simple, intuitive operating concept
- Display of the most important operating states
- Configurable start screen
- Operating mode selection
- Configurable day and week programs
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with HovalConnect option)
- Adaptation of the heating strategy based on the weather forecast (with HovalConnect option)

Notice
The TopTronic® E control module for operating the basic module district heating/fresh water must be ordered separately!

Further information about the TopTronic® E
see "Controls"

Delivery
- Incl. thermometer, non-return valves, cut-off ball valves on the domestic water side
- All armatures required for operation, such as strainers, flow balancing and shut-off valves, backflow preventer, air-bleeding and drain valve are fitted.

Caution
As a result of thermal disinfection of the domestic hot water for legionella protection, increased water temperatures (at least 65-70 °C) occur. Depending on the water quality, this may result in increased calcification at the installed armatures and heat exchangers and also brings the risk of scalding at the tapping points. Corresponding protective measures must be implemented on site

CombiVal C (200-2500)
- Charging tank made from stainless steel (without built-in heating coil) for combination with calorifier charging module TransTherm aqua LS.
- (200-1000) with one flange
  (1500,2000) with two flanges
  (2500) with one manhole
  in each case with installed dummy flange plate for maintenance or, for types (200-2000), installation of a flange-type electrical heating insert
- Thermal insulation: Neodul® insulation (EPS rigid foam outside and 20 mm polyester fibre fleece inside) with zip, outer jacket made of polypropylene, colour red
  (200-1000) 2-piece
  (1500) 3-piece
  (2000-2500) 4-piece
- Thermometer incl. immersion sleeve loose (packed with the product)
- Sensor terminal bar
- For domestic water up to max. 70 mg/l chloride content, (200-2000) with impressed current anode up to 200 mg/l chloride content

Delivery
- (200-1000) charging tank with thermal insulation set completely installed
- (1500-2500) charging tank, thermal insulation set separately packed

Design on request
- (200-2000) Flange-mounted electric heating element

On site
- Installation of immersion sleeve for thermometer
- (1500-2500) Installation of the thermal installation kit and attachments of the protection rosettes

Flange-mounted electric heating elements for CombiVal C (200-2000)

Type EFHK-C 4 to EFHK-C 9
- Made from Incoloy® alloy 825
- Heat output 4.0 to 9.0 kW, depending on specifications from electricity provider
- With temperature regulator and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Included in separate packaging

On site
- Installation of the electrical heating element

CombiVal E (300-2000)
- Charging tank made of steel, enamelled inside (without built-in heating coil) for combination with calorifier charging module TransTherm aqua LS.
- (300-1000) with one flange
  (1500,2000) with two flanges
  in each case with installed dummy flange plate for maintenance or installation of a flange-type electrical heating insert.
- (300-1000) one built-in magnesium protection anode
  (1500,2000) two built-in magnesium protection anodes
- Thermal insulation made of
  - (300,500) polyurethane rigid foam, directly foamed, with dismantable foil casing, 1-part, red coloured
  - (800-2000) polyester fleece with foil jacket, completely removable, red coloured
    (800-1500) 2-part
    (2000) 3-part
- With thermometer
- (300,500) sensor channel
  (800-2000) two terminal bars for contact sensor

Delivery
- (300,500) with foil casing completely mounted
- (800-2000) with thermal insulation set completely mounted (removable)

Design on request
- Flange electrical heating element

On site
- Installation of the thermometer
- Attachment of the glue-on protection rosettes to the thermal insulation

Flange-mounted electric heating elements for CombiVal E (300-2000)

Type EFHK-E 4-180 to EFHK-E 6-180
- Made from Incoloy® alloy 825
- Heat output 4.0 or 6.0 kW, depending on specifications from electricity provider
- With temperature regulator and safety temperature limiter
- Connection 3 x 400 V
- No use for exclusively electrical heating

Delivery
- Included in separate packaging

On site
- Installation of the electrical heating element

Water quality
see end of this brochure

Calorifier charging module

TransTherm aqua LS

Fully assembled station with 2 plate heat exchangers for the provision of domestic hot water using the storage tank charging principle and built-in Hoval TopTronic® E control.
The required storage tank is not supplied.

TransTherm aqua LS	Output kW	Part No.
(4-10)	50	8006 375
(4-16)	90	8006 376
(4-20)	115	8006 377
(4-30)	175	8006 378
(4-40)	230	8006 379
(4-50)	275	8006 380

Version with copper-free heat exchanger

TransTherm aqua LS

with copper-free heat exchanger

TransTherm aqua LS	Output kW	Part No.
(4-10)	50	8006 509
(4-16)	90	8006 510
(4-20)	115	8006 511
(4-30)	175	8006 512
(4-40)	230	8006 513
(4-50)	275	8006 514

TopTronic® E control module black — Part No. 6043 844

- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:
- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

			Part No.

Return changeover valve set
Consisting of:
- Temperature sensor
- Changeover valve
- Drive (8 sec.)
- Seals
- Screw connections

Nominal diameter	Output kW	kvs m^3/h	Part No.
DN 20	50-90	6.3	7010 832
DN 25	115-175	10	7010 836
DN 32	230-275	16	7011 009
DN 40	350	25	7011 025
DN 50	450	40	7016 331
DN 65	580	63	7016 332
DN 80	700	100	7016 333

Test valve DN 8 G ¼″ 2049 861
for TransTherm aqua L, LS and F
Test valve suitable for flame treatment
for hygienic-microbiologic
tests.

Sludge separator with magnet
MB3/L DN25...DN50
With variable connection for
vertical or horizontal pipelines
Fast and continuous removal of ferromagnetic
and non-magnetic dirt and sludge particles.
Sludge separation up to a particle size of 5 µm.
Brass housing
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C

Type	Connection	Flow rate [m^3/h] at 1 m/s flow speed	Part No.
CS 20	Rp 1″	2.0	2062 165
CS 25	Rp 1¼″	3.6	2062 166
CS 32	Rp 1½″	5.0	2062 167
CS 40	Rp 2″	7.0	2062 168

Additional sludge separators
see “Various system components”

		Part No.
	**Temperature monitor 0…120 °C** for TransTherm aqua L, LS, F	2048 299
	**Safety temperature monitor 70…130 °C** for TransTherm aqua L, LS, F	2048 300
	**Safety temperature limiter 70…130 °C** for TransTherm aqua L, LS, F	2049 619
	**Immersion sleeve stainless steel for thermostat** for TransTherm aqua L, LS, F	2048 285
	**Immersion sleeve stainless steel for 2 thermostats** for TransTherm aqua L, LS, F	2048 288

Hot water charging tank

CombiVal E
(without heating coil)
CombiVal E (300-1000) with one flange
CombiVal E (1500,2000) with two flanges
- (300,500) thermal insulation mounted with foil casing
- (800-2000) thermal insulation set completely mounted (removable)

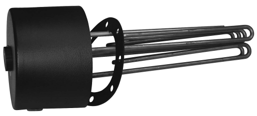
CombiVal type		Content l	Part No.
E (300)	B	301	6044 187
E (500)	B	475	6044 188
E (800)		747	6044 189
E (1000)		968	6044 190
E (1500)		1472	6044 191
E (2000)		2000	6044 192

CombiVal C
Stainless steel charging tank
(without heating coil)
CombiVal C (200-1000) with one flange
CombiVal C (1500-2000) with two flanges
CombiVal C (2500) with one manhole
Thermal insulation set
- (200-1000) completely mounted (removable)
- (1500-2000) separately packed

CombiVal type		Content l	Part No.
C (200)	B	212	6049 693
C (300)	B	289	6049 694
C (400)	B	411	6049 695
C (500)	B	490	6049 696
C (750)		756	6049 697
C (1000)		990	6049 698
C (1500)		1415	6049 699
C (2000)		1975	6049 700
C (2500)		2450	6049 701

Part No.

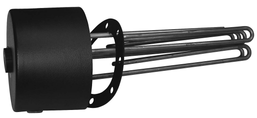
Accessories



Flange electrical heating insets
for CombiVal E
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Not suitable for exclusively electric heating.

Installation permitted only in charging tank CombiVal E.

Type EFHK-E	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal	Part No.
4-180	4.0		380	E (300-2000)	6049 561
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	E (300-2000)	6049 562
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			



Flange electrical heating insets
for CombiVal C (200-2000)
With temperature controller and safety temperature limiter (see Engineering).
Delivered separately, installation on site.
Not suitable for exclusively electric heating.

Type EFHK-C	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal	Part No.
4-180	4.0		380	C (200-2000)	6049 564
		2.6 kW/3x400 V			
		2.0 kW/3x400 V			
		1.3 kW/3x400 V			
		1.3 kW/1x230 V			
6-180	6.0		460	C (200-2000)	6049 565
		4.0 kW/3x400 V			
		3.0 kW/3x400 V			
		2.0 kW/3x400 V			
		2.0 kW/1x230 V			
9-180	9.0		670	C (200-2000)	6049 566
		6.0 kW/3x400 V			
		4.5 kW/3x400 V			
		3.0 kW/3x400 V			
		3.0 kW/1x230 V			

Part No.

For CombiVal E (300-2000)

Flange cover 180 - ¾″
for the installation of the electric heating element or Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp ¾″ sleeve
Seal and screws included

2077 035

UP 2.3-919

Correx® impressed current anode set
for long-term corrosion protection for installation in the enamel-painted calorifier incl. reducing elbow fitting.

Type	Install. length (mm)	For CombiVal E	Part No.
E 400	395	(300-2000)	684 760

Either a Correx® impressed current anode **or** one/two magnesium anodes may be used.

For CombiVal C (200-2000)

Flange cover 180 - 1½″
for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, stainless steel with Rp 1½″ sleeve
Seal and screws included

2002 205

UP 1.9-924

Correx impressed current anode
for long-term corrosion protection for installation in the stainless steel calorifier
with reduction R 1½″ - Rp ¾″
Recommended as essential for chloride content ≥ 70 mg/l. See also project planning guidelines.

Type	Install. length (mm)	For CombiVal C	Part No.
C 400	395	(200-2000)	6031 813

To install the impressed current anode set, the flange cover 180 - 1½″ must also be ordered

Performance data

TransTherm aqua LS (1-10 to 1-50)

			Heating water temperature flow											
			55 °C (4-..)						60 °C (4-..)					
Domestic water secondary	**TransTherm aqua LS**		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/10 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/15 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/20 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
55/5 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	**1.25**	**2.04**	**2.51**	**3.71**	**4.76**	**5.66**
	Q max.	kW	-	-	-	-	-	-	43	70	86	127	163	194
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	**0.74**	**1.2**	**1.48**	**2.18**	**2.8**	**3.33**
55/10 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	**1.11**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	-	-	-	-	-	-	38	70	86	127	163	193
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	**0.73**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
55/15 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	**0.76**	**1.46**	**1.95**	**3.06**	**4.23**	**5.4**
	Q max.	kW	-	-	-	-	-	-	26	50	67	105	145	185
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	**0.56**	**1.08**	**1.44**	**2.26**	**3.12**	**3.98**
55/20 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	-	-	**0.47**	**0.9**	**1.17**	**1.9**	**2.63**	**3.36**
	Q max.	kW	-	-	-	-	-	-	16	31	40	65	90	115
	$\dot{V}$secondary	**m³/h**	-	-	-	-	-	-	**0.39**	**0.76**	**0.99**	**1.6**	**2.22**	**2.83**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	37	58	72	105	135	162	44	70	86	127	163	193
	$\dot{V}$secondary	**m³/h**	**0.71**	**1.11**	**1.37**	**2**	**2.58**	**3.09**	**0.84**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.73**	**4.81**	**5.69**
	Q max.	kW	38	58	72	105	135	162	44	70	86	128	165	195
	$\dot{V}$secondary	**m³/h**	**0.82**	**1.25**	**1.77**	**2.26**	**2.9**	**3.48**	**0.95**	**1.51**	**1.85**	**2.75**	**3.55**	**4.19**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.11**	**1.95**	**2.48**	**3.76**	**4.76**	**5.69**
	Q max.	kW	37	58	72	105	135	162	38	67	85	129	163	195
	$\dot{V}$secondary	**m³/h**	**0.91**	**1.43**	**1.77**	**2.58**	**3.32**	**3.99**	**0.94**	**1.65**	**2.09**	**3.18**	**4.01**	**4.8**
50/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	$\dot{V}$primary	**m³/h**	**1.15**	**2.03**	**2.55**	**3.7**	**4.75**	**5.69**	**0.96**	**1.69**	**2.13**	**3.24**	**3.63**	**5.16**
	Q max.	kW	**33**	**58**	**73**	**106**	**136**	**163**	**33**	**58**	**73**	**111**	**145**	**177**
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.67**	**2.1**	**3.05**	**3.91**	**4.69**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**

T return primary	°C	Temperature primary return
$\dot{V}$ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
$\dot{V}$ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua LS (4-10 to 1-50)

			Heating water temperature flow											
			65 °C (4-..)						70 °C (4-..)					
Domestic water secondary	TransTherm aqua LS		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	1.08	1.88	2.5	3.73	4.84	5.77	1.32	2.09	2.59	3.76	4.82	5.72
	Q max.	kW	43	75	100	149	193	230	60	95	118	171	219	260
	$\dot{V}$secondary	m³/h	0.67	1.17	1.55	2.33	3.01	3.59	0.94	1.48	1.84	2.67	3.42	4.06
60/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.8	1.5	2.01	3.16	4.34	5.39	1.08	1.94	2.48	3.77	4.95	5.92
	Q max.	kW	32	60	80	126	173	215	50	90	115	175	230	275
	$\dot{V}$secondary	m³/h	0.55	1.03	1.38	2.17	2.98	3.7	0.86	1.54	1.98	3.01	3.95	4.73
60/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.55	1.05	1.38	2.13	3.08	3.96	0.97	1.8	2.37	3.73	4.84	5.72
	Q max.	kW	22	42	55	85	123	158	44	82	108	170	220	260
	$\dot{V}$secondary	m³/h	0.42	0.8	1.05	1.63	2.35	3.02	0.84	1.57	2.08	3.24	4.21	4.98
60/20 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.3	0.6	0.8	1.28	1.75	2.33	0.62	1.14	2.05	2.4	3.43	4.22
	Q max.	kW	12	24	32	51	70	93	28	52	68	109	156	192
	$\dot{V}$secondary	m³/h	0.26	0.52	0.69	1.1	1.51	2	0.6	1.12	1.47	2.36	3.36	4.14
55/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.8	1.5	2.01	3.16	4.34	5.39	1.08	2.09	2.53	3.74	4.84	5.76
	Q max.	kW	32	60	80	126	173	215	50	95	115	170	220	262
	$\dot{V}$secondary	m³/h	0.55	1.03	1.38	2.17	2.98	3.7	0.86	1.63	1.97	2.92	3.78	4.5
55/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	1.3	2.06	2.53	3.71	4.81	5.64	1.08	1.87	2.42	3.74	4.84	5.72
	Q max.	kW	52	82	101	148	192	225	49	85	110	170	220	260
	$\dot{V}$secondary	m³/h	0.99	1.57	1.93	2.83	3.67	4.3	0.94	1.62	2.1	3.24	4.21	4.98
55/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.97	1.65	2.11	3.71	4.81	5.64	1.1	1.88	2.41	3.74	4.22	5.1
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	$\dot{V}$secondary	m³/h	0.95	1.61	2.07	3.19	4.13	4.84	0.94	1.62	2.1	3.19	4.21	5
55/20 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.95	1.68	2.13	3.23	4.24	5.14	0.84	1.47	1.87	2.84	3.72	4.51
	Q max.	kW	38	67	85	129	169	205	38	67	85	129	169	205
	$\dot{V}$secondary	m³/h	0.94	1.65	2.09	3.18	4.16	5.05	0.94	1.65	2.09	3.18	4.16	5.05
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	1.25	2.06	2.53	3.71	4.81	5.64	1.08	1.87	2.42	3.56	4.84	5.72
	Q max.	kW	50	82	101	148	192	225	49	85	110	162	220	260
	$\dot{V}$secondary	m³/h	0.95	1.57	1.93	2.83	3.67	4.3	0.94	1.62	2.1	3.09	4.21	4.98
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	1.1	1.88	2.41	3.71	4.81	5.64	0.97	1.65	2.11	3.25	4.22	5.1
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	$\dot{V}$secondary	m³/h	0.95	1.61	2.07	3.19	4.13	4.84	0.95	1.61	2.07	3.19	4.13	5
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.95	1.68	2.13	3.23	4.24	5.14	0.84	1.47	1.87	2.84	3.72	4.51
	Q max.	kW	38	67	85	129	169	205	38	67	85	129	169	205
	$\dot{V}$secondary	m³/h	0.94	1.65	2.09	3.18	4.16	5.05	0.94	1.65	2.09	3.18	4.16	5.05
50/20 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	$\dot{V}$primary	m³/h	0.83	1.45	1.81	2.44	3.63	4.44	0.73	1.28	1.61	2.44	3.19	3.89
	Q max.	kW	33	58	73	111	145	177	33	58	73	111	145	177
	$\dot{V}$secondary	m³/h	0.95	1.67	2.1	3.19	4.17	5.09	0.95	1.67	2.1	3.19	4.17	5.09

T return primary	°C	Temperature primary return
$\dot{V}$ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
$\dot{V}$ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua LS (4-10 to 4-50)

Temperature primary 70 °C flow/30 °C return

Domestic water heating

				Cold water 10 °C Domestic water 60 °C					
			TransTherm aqua LS	(10)	(16)	(20)	(30)	(40)	(50)
			kW	50	90	115	175	230	275
			m³/h	0.86	1.54	1.97	3.00	3.94	4.71
			l/min	14.3	25.7	32.9	50.0	65.7	78.6
			l/s	0.2	0.4	0.5	0.8	1.1	1.3
Tank size l	**Usable storage tank content l**								
200	193	**V̇s**	**l/10 min**	336	450	522	-	-	-
		Hourly output	l/h at 60 °C	1050	1736	2164	-	-	-
		Charging after V̇s	**min**	13.5	7.5	5.9	-	-	-
		NL index		13	22	29	-	-	-
300	242	**V̇s**	**l/10 min**	385	499	571	742	-	-
		Hourly output	l/h at 60 °C	1099	1785	2213	3242	-	-
		Charging after V̇s	**min**	16.9	9.4	7.4	4.8	-	-
		NL index		21	31	39	57	-	-
400	352	**V̇s**	**l/10 min**	495	609	681	852	-	-
		Hourly output	l/h at 60 °C	1209	1895	2323	3352	-	-
		Charging after V̇s	**min**	24.6	13.7	10.7	7.0	-	-
		NL index		23	41	49	69	-	-
500	423	**V̇s**	**l/10 min**	566	680	752	923	1080	-
		Hourly output	l/h at 60 °C	1280	1966	2394	3423	4366	-
		Charging after V̇s	**min**	29.6	16.5	12.9	8.5	6.4	-
		NL index		25	44	56	80	100	-
800	727	**V̇s**	**l/10 min**	870	984	1056	1227	1384	-
		Hourly output	l/h at 60 °C	1584	2270	2698	3727	4670	-
		Charging after V̇s	**min**	50.9	28.3	22.1	14.5	11.1	-
		NL index		33	52	64	94	123	-
1000	828	**V̇s**	**l/10 min**	971	1085	1157	1328	1485	1614
		Hourly output	l/h at 60 °C	1685	2371	2799	3828	4771	5542
		Charging after V̇s	**min**	58.0	32.2	25.2	16.6	12.6	10.5
		NL index		38	57	69	100	128	152
1500	1227	**V̇s**	**l/10 min**	-	1484	1556	1727	1884	2013
		Hourly output	l/h at 60 °C	-	2770	3198	4227	5170	5941
		Charging after V̇s	**min**	-	47.7	37.3	24.5	18.7	15.6
		NL index		-	71	83	114	143	167
2000	1700	**V̇s**	**l/10 min**	-	1957	2029	2200	2357	2486
		Hourly output	l/h at 60 °C	-	3243	3671	4700	5643	6414
		Charging after V̇s	**min**	-	66.1	51.7	34.0	25.9	21.6
		NL index		-	84	97	128	158	182
2500	2200	**V̇s**	**l/10 min**	-	2457	2529	2700	2857	2986
		Hourly output	l/h at 60 °C	-	3743	4171	5200	6143	6914
		Charging after V̇s	**min**	-	85.6	67.0	44.0	33.5	28.0
		NL index		-	99	115	144	174	198

V̇s **l/10 min** 10 minutes peak volume flow at 60 °C

NL index Performance figure in accordance with DIN 4708 = number of flats, which can be supplied with hot water if the water heater is heated with the boiler and is permanently after-heated (Standard flat: 1 bath - 4 rooms - 3.5 persons)

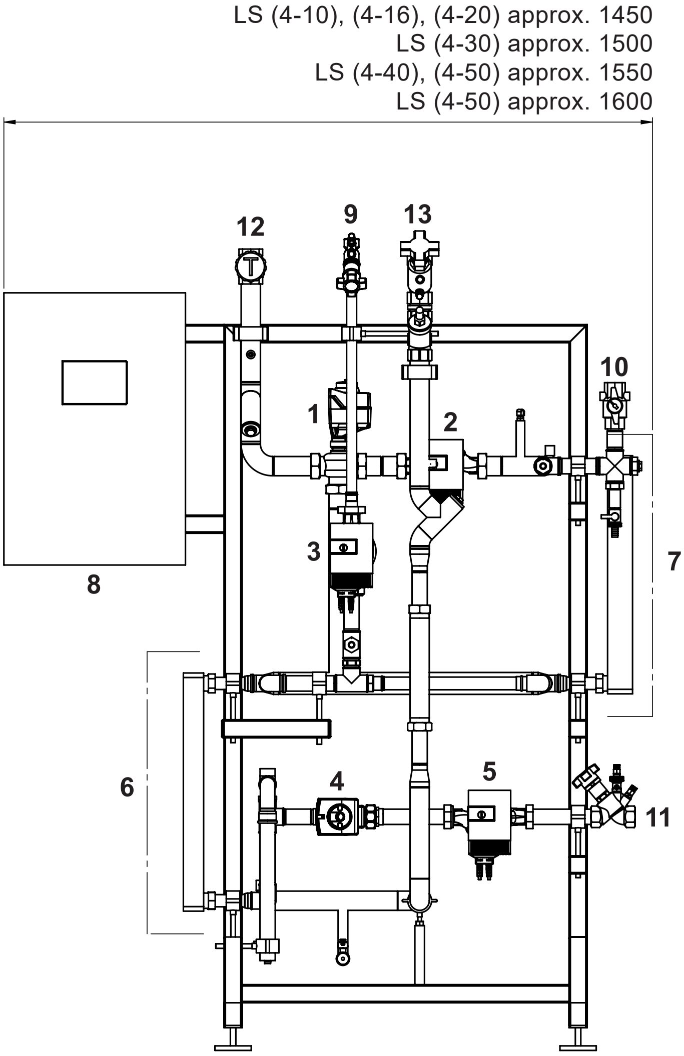
Hot water charging tank CombiVal E (300-2000)

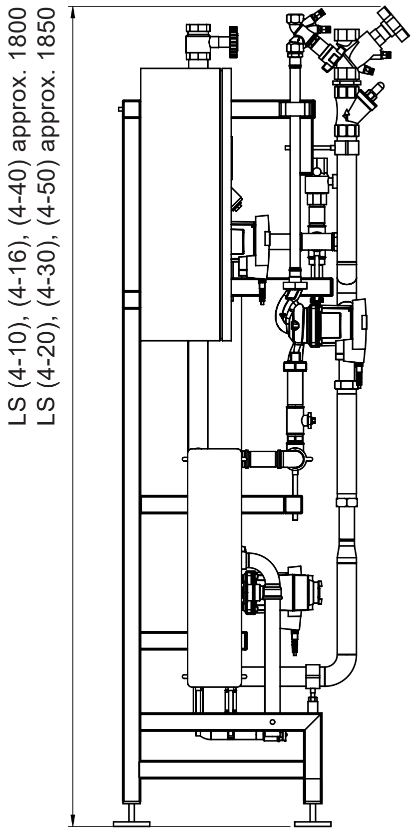
Type		(300)	(500)	(800)	(1000)	(1500)	(2000)
• Volume	dm³	301	475	747	968	1472	2000
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13	10/13	10/13	10/13
• Max. DHW temperature	°C	95	95	95	95	95	95
• Thermal insulation		PU hard foam		polyester fleece			
	mm	75	75	100	100	120	120
• Thermal insulation λ	W/mK	0.027	0.027	0.040	0.040	0.040	0.040
• Fire protection class		B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	58	75	128	139	170.0	190.0
• Transport weight	kg	97	126	205	264	400	600
• U value	W/m²K	0.290	0.303	0.381	0.362	0.339	0.325

Hot water charging tank CombiVal C (200-2500)

Type		(200)	(300)	(400)	(500)	(750)	(1000)	(1500)	(2000)	(2500)
• Volume	dm³	212	289	411	490	756	990	1415	1975	2450
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13
• Max. DHW temperature	°C	95	95	95	95	95	95	95	95	95
• Thermal insulation		Neodul® insulation (EPS rigid foam outside and polyester fibre fleece inside)								
	mm	100	100	100	100	100	100	120	120	120
• Thermal insulation λ	W/mK	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316	0.0316
• Fire protection class		B2	B2	B2	B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C	W	62	68	77	82	120	140	162	180	206
• Transport weight	kg	55	70	83	85	119	150	215	265	445
• U value	W/m²K	0.329	0.329	0.329	0.329	0.329	0.329	0.273	0.273	0.273

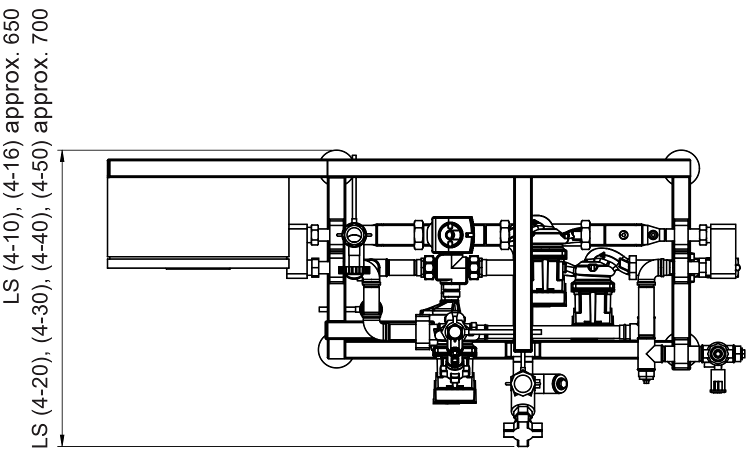
Charging module TransTherm aqua LS (4-10 to 4-50)
(Dimensions in mm)





1 Primary 3-way control valve
2 Primary circulating pump
3 Recirculation pump
4 2-way control valve
5 Secondary circulating pump
6 Heat exchanger (pre-heater)
7 Heat exchanger (supplementary heater)
8 Control panel with control

		(4-10) (4-16)	(4-20) (4-30)	(4-40)	(4-50)
9	Circulation	DN 20, Rp ¾″	DN 20 Rp ¾″	DN 25 Rp 1″	DN 25 Rp 1″
10	Hot water	DN 25, Rp 1″	DN 25 Rp 1″	DN 32 Rp 1 ¼″	DN 32 Rp 1 ¼″
11	Cold water	DN 25, Rp 1″	DN 25 Rp 1″	DN 32 Rp 1 ¼″	DN 32 Rp 1 ¼″
12	Flow heating water	DN 25, Rp 1″	DN 32 Rp 1 ¼″	DN 32 Rp 1 ¼″	DN 40 Rp 1 ½″
13	Return heating water	DN 25, Rp 1″	DN 32 Rp 1 ¼″	DN 32 Rp 1 ¼″	DN 40 Rp 1 ½″



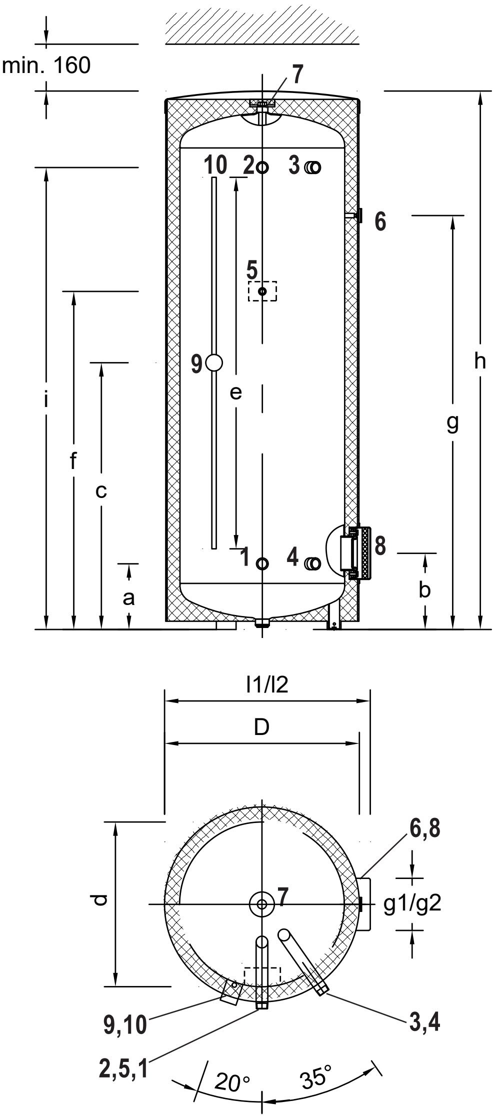
Adapters for heat meter:
PN16

(4-10)	DN 15	110 mm
(4-16)	DN 20	130 mm
(4-20) (4-30) (4-40) (4-50)	DN 25	260 mm

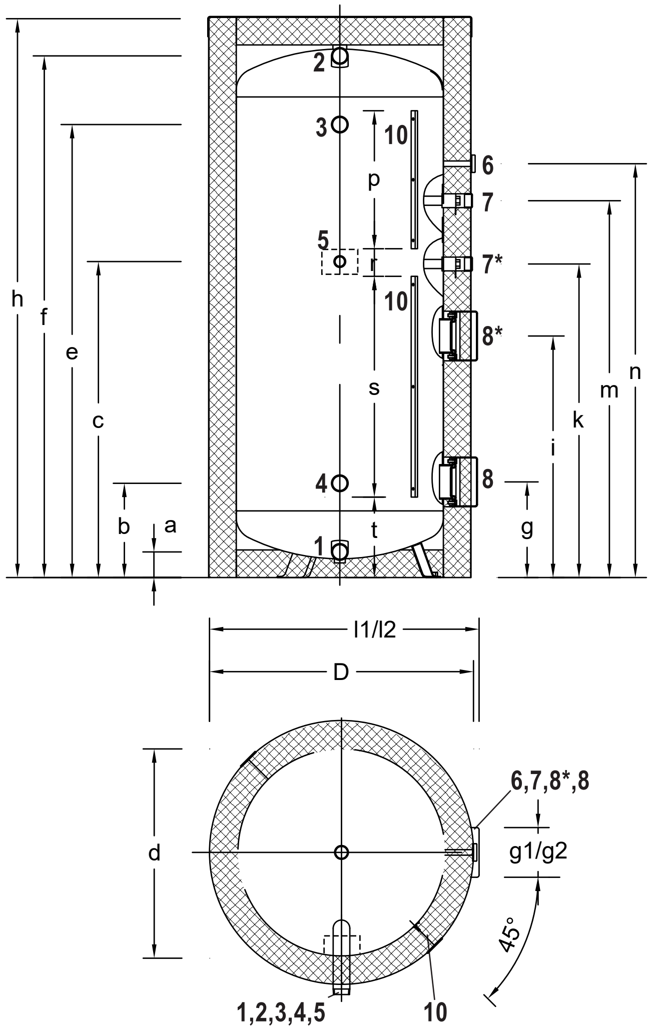
TransTherm aqua LS	Weight in kg
(4-10)	122
(4-16)	136
(4-20)	142
(4-30)	148
(4-40)	154
(4-50)	174

CombiVal E (300,500)

(Dimensions in mm)



CombiVal E (800-2000)



1	Cold water	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
2	Hot water	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
3	Charging flow - hot	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″
4	Charging return - cold	Type (300,500)	G 1 ¼″
		Type (800-2000)	G 2″

CombiVal E type	Ø g1	Ø g2	l1	l2 *
(300)	180	-	745	785
(500)	180	-	745	785
(800)	180	180	975	1020
(1000)	180	180	1075	1120
(1500)	180	180	1265	1310
(2000)	180	180	1465	1510

* Using a flange electrical immersion heater

5	Circulation	Type (300,500)	G ¾″
		Type (800-2000)	G 1 ¼″
6	Thermometer		
7	Anode sleeve	Type (300,500)	G 1″
		Type (800-2000)	G 1 ¼″
7*	Anode sleeve	Type (1500,2000)	G 1 ¼″

8 Hand-hole flange (flange electrical heating inset)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10

8* **Attention:** type (800,1000) does not have a second flange

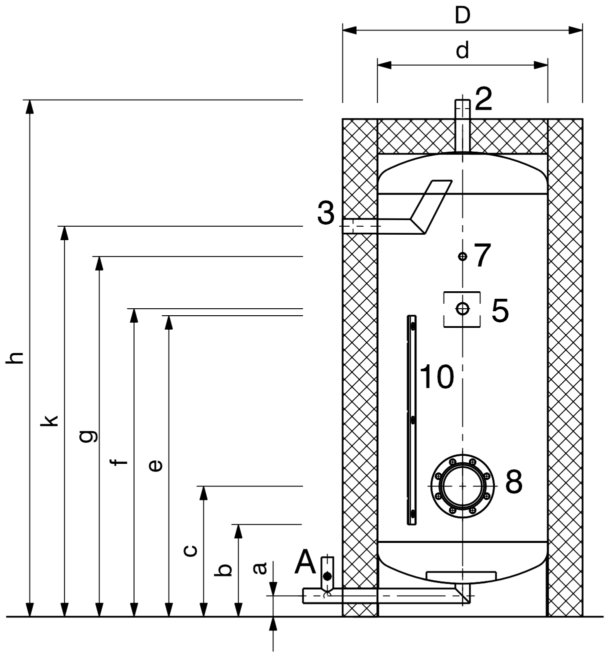
9 Removable cap (60 mm)
for positioning the sensor in the sensor channel

10 Sensor duct inner Ø 11 mm — Type (300,500)
Terminal strip for contact sensor — Type (800-2000)

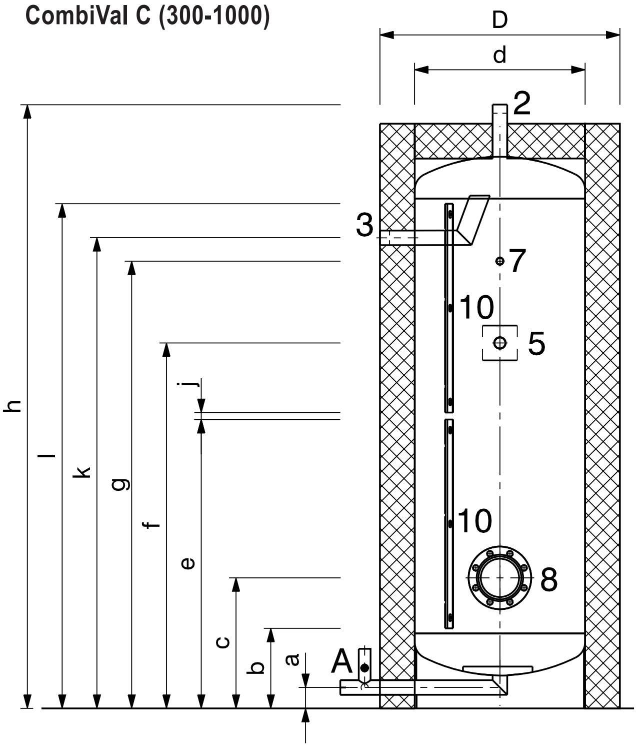
Variation because of the
production tolerance possible
Dimension +/- 10 mm

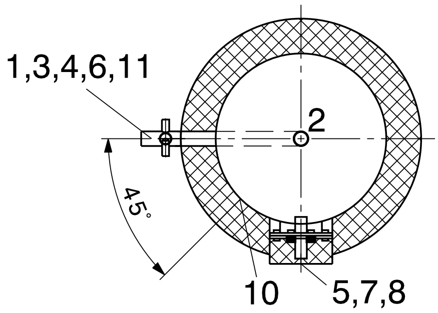
CombiVal E type	a	b	c	d	D	e	f	g	h	i	k	m	n	p	r	s	t	Tilting measure
(300)	235	325	613	500	650	735	1160	1505	1850	1584	-	-	-	-	-	-	-	1961
(500)	238	276	966	597	750	1360	1225	1500	1960	1674	-	-	-	-	-	-	-	2082
(800)	101	352	1150	750	950	1647	1893	347	2030	-	-	1336	1505	500	100	800	297	1960
(1000)	100	355	1158	850	1050	1655	1910	360	2060	-	-	1331	1500	500	100	800	305	2000
(1500)	105	375	1357	1000	1240	1782	2049	390	2240	890	1167	1521	1657	640	120	760	300	2370
(2000)	118	406	1388	1200	1440	1648	1933	421	2150	921	1118	1248	1498	520	100	760	330	2350

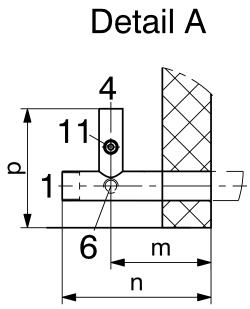
CombiVal C (200)
(Dimensions in mm)

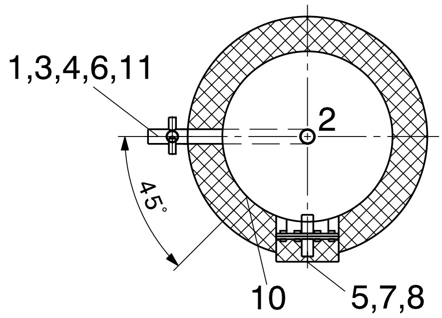


CombiVal C (300-1000)









1	Cold water with baffle plate	Type (200,300)	Rp 1 ¼″
		Type (400,500)	Rp 1 ½″
		Type (750,1000)	Rp 2″
2	Hot water	Type (200,300)	Rp 1 ¼″
		Type (400,500)	Rp 1 ½″
		Type (750,1000)	Rp 2″
3	Charging flow - hot	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
4	Charging return - cold	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
5	Circulation with baffle plate	Type (200-500)	Rp 1″
		Type (750,1000)	Rp 1 ¼″
6	Drain	Type (200-500)	Rp ½″
		Type (750,1000)	Rp ¾″

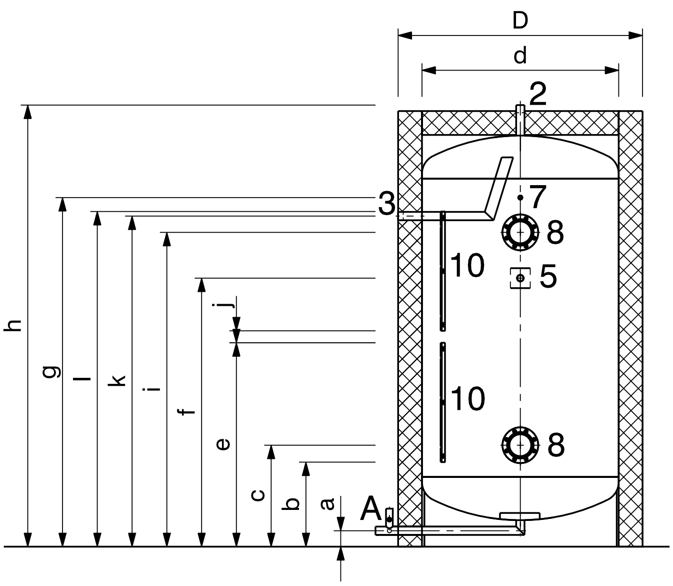
7 Sleeve (Rp ½″) for mountable immersion sleeve and thermometer (L = 100 mm, inner Ø = 8 mm)
8 Hand-hole flange (17.7 Nm)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10 or optional:
- flange-mounted electric heating element or
- impressed current anode set with flange cover, 180 - 1½″

10 Sensor terminal bar 600 x 30 mm
1 x type (200), 2 x type (300-1000)
11 Immersion sleeve M16 x 1.5 for sensor/thermostat

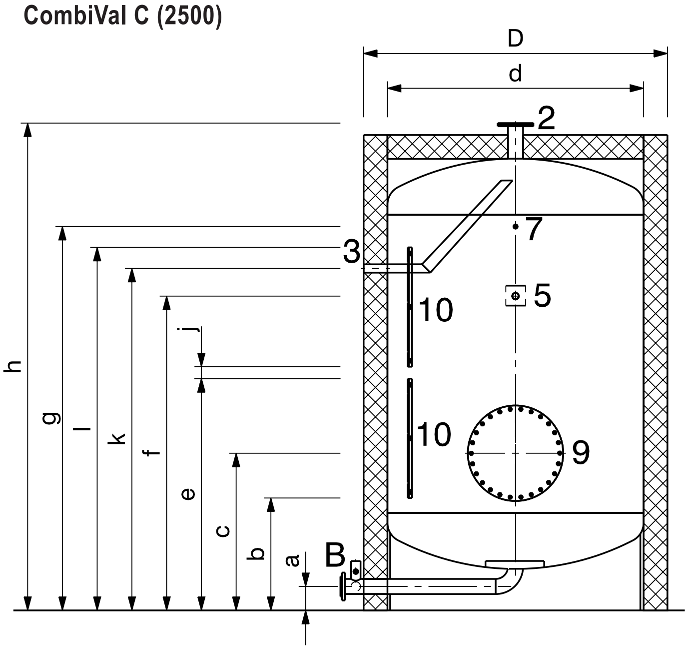
Variation because of the production tolerance possible
Dimension +/- 10 mm

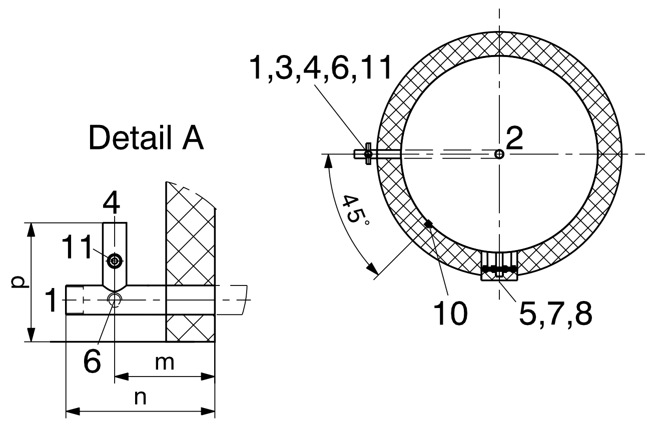
CombiVal C Type	a	b	c	d	D	e	f	g	h	j	k	l	m	n	p	Tilting measure
(200)	60	240	375	490	690	840	885	1035	1485	-	1125	-	130	190	174	1515
(300)	60	240	375	490	690	840	1050	1285	1735	20	1355	1460	135	205	174	1765
(400)	70	285	420	590	790	885	1095	1330	1745	20	1365	1505	135	205	184	1780
(500)	80	295	430	640	840	895	1105	1340	1765	20	1375	1515	130	190	194	1805
(750)	80	335	470	740	940	935	1310	1590	2085	60	1665	1595	135	205	194	2130
(1000)	80	365	500	890	1090	965	1215	1495	1890	20	1384	1585	135	205	203	1950

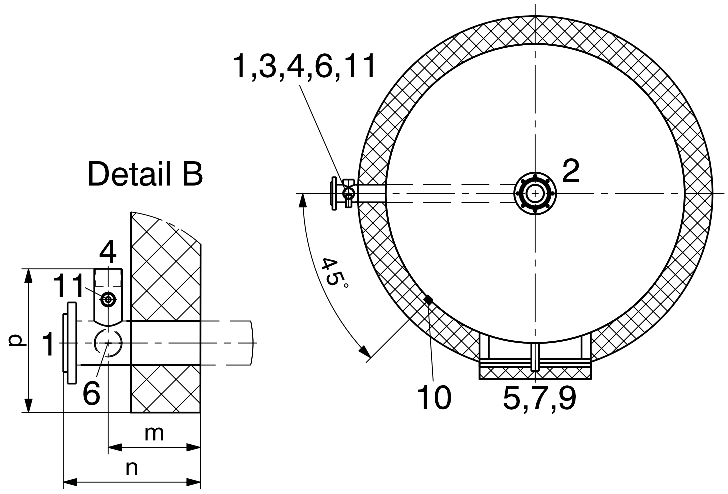
CombiVal C (1500,2000)
(Dimensions in mm)



CombiVal C (2500)







1	Cold water with baffle plate	Type (1500,2000)	Rp 2″
		Type (2500)	DN 65/PN 10
2	Hot water	Type (1500,2000)	Rp 2″
		Type (2500)	DN 65/PN 10
3	Charging flow - hot	Type (1500-2000)	Rp 1 ½″
4	Charging return - cold	Type (1500-2000)	Rp 1 ½″
5	Circulation with baffle plate	Type (1500-2000)	Rp 1 ½″
6	Drain	Type (1500-2000)	Rp ¾″

7 Sleeve (Rp ½″) for mountable immersion sleeve and thermometer (L = 100 mm, inner Ø = 8 mm)

8 Hand-hole flange (17.7 Nm)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10 or optional:
- flange-mounted electric heating element or
- impressed current anode set with flange cover, 180 - 1½″

9 Manhole flange (40 Nm)
Ø 400/480 mm, pitch circle 445 mm, 26 x M14 or optional
Flange adapter:
- for electric heating element or
- for impressed current anode set with flange cover, 180 - 1½″

10 Sensor terminal bar 600 x 30 mm
2 x type (1500-2500)

11 Immersion sleeve M16 x 1.5 for sensor/thermostat

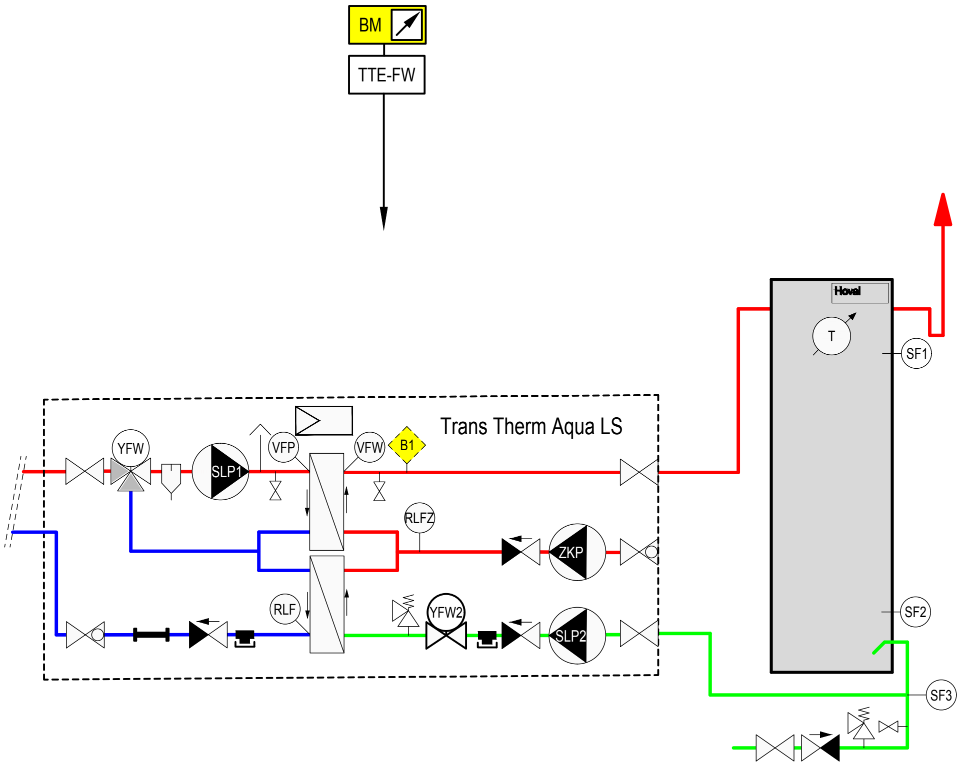
Variation because of the production tolerance possible
Dimension +/- 10 mm

CombiVal C Type	a	b	c	d	D	e	f	g	h	i	j	k	m	n	p	Tilting measure
(1500)	80	375	510	990	1230	975	1350	1755	2220	1580	60	1674	165	235	203	2300
(2000)	80	405	530	1090	1330	1005	1580	2035	2525	1860	165	1909	165	235	203	2610
(2500)	120	515	790	1290	1530	1115	1580	1930	2450	-	60	1719	165	250	243	2570

Water heating

TransTherm aqua LS
- 2 heat exchangers district heating
- Storage tank charging system

Hydraulic schematic BFAE070



TTE-FW	Basic module district heating/fresh water
B1	Flow temperature monitor (if required)
VFP	Primary flow sensor
VFW	Flow sensor hot water
RLF	Primary return sensor
SF1	Calorifier sensor 1
SF2	Calorifier sensor 2
SF3	Calorifier sensor 3
RLFZ	Circulation sensor
SLP1	Calorifier charging pump primary
SLP2	Calorifier charging pump secondary
YFW	Three-way valve with actuator
YFW2	Two-way valve with actuator
ZKP	Recirculation pump

Option

BM	TopTronic® E control module

Notice
A safety valve (6 bar) must be installed in the cold water line. The loading module is already protected with a safety valve (10 bar).

Calorifier continuous flow system

Consisting of:
- fresh water module TransTherm aqua F
- energy buffer storage tank (option)

Fresh water module TransTherm aqua F

- Fully installed station with plate heat exchanger for the provision of domestic hot water using the continuous flow principle
- Intended for wall installation
- The primary side (heating side) contains the three-way valve, high-efficiency pump, air-bleeding, sensor and drain valve, line balancing valve. These components ensure a constant flow temperature at the plate heat exchanger. Pipes made from steel
- The secondary side (DHW side) contains the safety valve (10 bar), non-return valve and a filling/drain valve. A flow sensor ensures the correct hot water temperature. Pipes made from stainless steel
- Stainless steel plate heat exchanger 1.4404, copper-soldered or copper-free
- EPP insulation, 30 mm, for the heat exchanger
- Flow sensor
- Switch-on and switch-off of the charging pump is regulated via two sensors (included in the scope of delivery) in the storage tank
- Mount tank sensor on the tank on site and connect it to the controller
- T-piece with dummy plug for on-site connection of the circulation group. Connect the pump to the controller on site
- TopTronic® E control with integrated thermal disinfection of the DHW storage tank (anti-legionella circuit)

Delivery
- The energy buffer storage tank required is not included in the scope of delivery

On site
- Installation of a circulation unit; the necessary connection is provided
- Electrical connection of the controller

Range
Fresh water module

TransTherm aqua F type	Output kW
(6-10)	50
(6-16)	90
(6-20)	115
(6-30)	175
(6-40)	230
(6-50)	275

TopTronic® E controller

TopTronic® E basic module district heating/fresh water
- Control unit for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for
  - primary valve control
  - cascade management
  - 1 heating/cooling circuit with mixer
  - 1 heating/cooling circuit without mixer
  - 1 hot water loading circuit
  - various additional functions

- Various functions for hot water:
  - selection of different basic programs (week programs, economy mode, holiday until, etc.)
  - various operating modes (e.g. accumulator priority or parallel mode)
  - buffer storage circuit on the primary or secondary side
  - adjustable loading criteria (e.g.: adjustable loading times, undershooting the minimum nominal value, etc.)
  - adjustable switch-off criteria (e.g. achieving the setpoint valve, achieving the lower sensor setpoint value, etc.)
  - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Complete plug set for DH module
- RPM-regulated pumps

No further module expansions or controller modules can be installed in the control panel!

Option

TopTronic® E control module
- Simple, intuitive operating concept
- Display of the most important operating states
- Configurable start screen
- Operating mode selection
- Configurable day and week programs
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with HovalConnect option)
- Adaptation of the heating strategy based on the weather forecast (with HovalConnect option)

Notice
The TopTronic® E control module for operating the basic module district heating/fresh water must be ordered separately!

Further information about the TopTronic® E
see “Controls”

Delivery
- All armatures required for operation, such as flow balancing and shut-off valves, backflow preventer, air-bleeding and drain valve are fitted.

Caution
As a result of thermal disinfection of the domestic hot water for legionella protection, increased water temperatures (at least 65-70 °C) occur. Depending on the water quality, this may result in increased calcification at the installed armatures and heat exchangers and also brings the risk of scalding at the tapping points. Corresponding protective measures must be implemented on site.

Fresh water module

TransTherm aqua F

Fully assembled station with plate heat exchanger for the provision of domestic hot water using the continuous flow principle and built-in Hoval TopTronic® E control.
The required energy buffer storage tank is not supplied.

TransTherm aqua F	Output kW	Part No.
(6-10)	50	8006 387
(6-16)	90	8006 388
(6-20)	115	8006 389
(6-30)	175	8006 390
(6-40)	230	8006 391
(6-50)	275	8006 392

Version with copper-free heat exchanger

TransTherm aqua F

with copper-free heat exchanger

TransTherm aqua F	Output kW	Part No.
(6-10)	50	8006 521
(6-16)	90	8006 522
(6-20)	115	8006 523
(6-30)	175	8006 524
(6-40)	230	8006 525
(6-50)	275	8006 526

TopTronic® E control module black — Part No. 6043 844

- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:
- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Accessories

Return changeover valve set
Consisting of:
- Temperature sensor
- Changeover valve
- Drive (8 sec.)
- Seals
- Screw connections

Nominal diameter	Output kW	kvs m^3/h	Part No.
DN 20	50-90	6.3	7010 832
DN 25	115-175	10	7010 836
DN 32	230-275	16	7011 009
DN 40	350	25	7011 025
DN 50	450	40	7016 331
DN 65	580	63	7016 332
DN 80	700	100	7016 333

Notice:
When using a circulation set (also on-site recirculation pump), it is imperative to install a return switching valve set.

Circulation set
for TransTherm aqua L, F
Piping of parts in contact with domestic water in stainless steel and gunmetal
Consisting of:
- Temperature sensor PT1000
- Recirculation pump Wilo Yonos PARA
- Regulating valve
- Non-return valve

Connection	Volume flow m^3/h	Recirculation pump	Part No.
DN 20 ¾″ Rp	1.9	Z15/7.0 RKC	8005 279
DN 25 1″ Rp	3.4	Z25/1-8 (0-10 V)	8005 280
DN 32 1¼″ Rp	5.8	Z25/1-8 (0-10 V)	8005 281

Test valve DN 8 G ¼″ — Part No. 2049 861
for TransTherm aqua L, LS and F
Test valve suitable for flame treatment
for hygienic-microbiologic
tests.

	Part No.

Sludge separator with magnet MB3/L DN25...DN50
With variable connection for
vertical or horizontal pipelines
Fast and continuous removal of ferromagnetic and non-magnetic dirt and sludge particles.
Sludge separation up to a particle size of 5 μm.
Brass housing
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C

Type	Connec-tion	Flow rate [m³/h] at 1 m/s flow speed	Part No.
MB3 DN25	Rp 1″	2.0	2062 165
MBL DN32	Rp 1¼″	3.6	2062 166
MBL DN40	Rp 1½″	5.0	2062 167
MBL DN50	Rp 2″	7.0	2062 168

Additional sludge separators
see “Various system components”

Temperature monitor 0…120 °C — 2048 299
for TransTherm aqua L, LS, F

Safety temperature monitor 70…130 °C — 2048 300
for TransTherm aqua L, LS, F

Safety temperature limiter 70…130 °C — 2049 619
for TransTherm aqua L, LS, F

Immersion sleeve stainless steel for thermostat — 2048 285
for TransTherm aqua L, LS, F

Immersion sleeve stainless steel for 2 thermostats — 2048 288
for TransTherm aqua L, LS, F

Performance data

TransTherm aqua F (6-10 to 6-50)

Heating water temperature flow

Domestic water secondary	TransTherm aqua F		55 °C (6-..) (10)	(16)	(20)	(30)	(40)	(50)	60 °C (6-..) (10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/10 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/15 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/20 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
55/5 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	**1.25**	**2.04**	**2.51**	**3.71**	**4.76**	**5.66**
	Q max.	kW	-	-	-	-	-	-	43	70	86	127	163	194
	V̇ secondary	**m³/h**	-	-	-	-	-	-	**0.74**	**1.2**	**1.48**	**2.18**	**2.8**	**3.33**
55/10 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	**1.11**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	-	-	-	-	-	-	38	70	86	127	163	193
	V̇ secondary	**m³/h**	-	-	-	-	-	-	**0.73**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
55/15 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	**0.76**	**1.46**	**1.95**	**3.06**	**4.23**	**5.4**
	Q max.	kW	-	-	-	-	-	-	26	50	67	105	145	185
	V̇ secondary	**m³/h**	-	-	-	-	-	-	**0.56**	**1.08**	**1.44**	**2.26**	**3.12**	**3.98**
55/20 °C	T return primary	°C	-	-	-	-	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	**0.47**	**0.9**	**1.17**	**1.9**	**2.63**	**3.36**
	Q max.	kW	-	-	-	-	-	-	16	31	40	65	90	115
	V̇ secondary	**m³/h**	-	-	-	-	-	-	**0.39**	**0.76**	**0.99**	**1.6**	**2.22**	**2.83**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.71**	**4.76**	**5.63**
	Q max.	kW	37	58	72	105	135	162	44	70	86	127	163	193
	V̇ secondary	**m³/h**	**0.71**	**1.11**	**1.37**	**2**	**2.58**	**3.09**	**0.84**	**1.34**	**1.64**	**2.43**	**3.12**	**3.69**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.28**	**2.04**	**2.51**	**3.73**	**4.81**	**5.69**
	Q max.	kW	38	58	72	105	135	162	44	70	86	128	165	195
	V̇ secondary	**m³/h**	**0.82**	**1.25**	**1.77**	**2.26**	**2.9**	**3.48**	**0.95**	**1.51**	**1.85**	**2.75**	**3.55**	**4.19**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**2.51**	**3.67**	**4.72**	**5.66**	**1.11**	**1.95**	**2.48**	**3.76**	**4.76**	**5.69**
	Q max.	kW	37	58	72	105	135	162	38	67	85	129	163	195
	V̇ secondary	**m³/h**	**0.91**	**1.43**	**1.77**	**2.58**	**3.32**	**3.99**	**0.94**	**1.65**	**2.09**	**3.18**	**4.01**	**4.8**
50/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	V̇ primary	**m³/h**	**1.15**	**2.03**	**2.55**	**3.7**	**4.75**	**5.69**	**0.96**	**1.69**	**2.13**	**3.24**	**3.63**	**5.16**
	Q max.	kW	**33**	**58**	**73**	**106**	**136**	**163**	**33**	**58**	**73**	**111**	**145**	**177**
	V̇ secondary	**m³/h**	**0.95**	**1.67**	**2.1**	**3.05**	**3.91**	**4.69**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**
45/5 °C	T return primary	°C	**19.02**	**18.23**	**17.87**	**17.87**	**17.57**	**17.27**	**17.14**	**16.42**	**16.07**	**16.07**	**15.78**	**15.49**
	V̇ primary	**m³/h**	**0.86**	**1.91**	**2.9**	**2.9**	**3.8**	**4.61**	**0.86**	**1.92**	**2.91**	**2.91**	**3.82**	**4.63**
	Q max.	kW	**35**	**80**	**123**	**123**	**162**	**199**	**42**	**95**	**145**	**145**	**192**	**235**
	V̇ secondary	**m³/h**	**0.76**	**1.73**	**2.65**	**2.65**	**3.50**	**4.27**	**0.90**	**2.05**	**3.13**	**3.13**	**4.14**	**5.05**
45/10 °C	T return primary	°C	**21.39**	**20.71**	**20.39**	**20.39**	**20.16**	**19.91**	**19.73**	**19.13**	**18.71**	**18.71**	**18.33**	**18**
	V̇ primary	**m³/h**	**0.86**	**1.91**	**2.89**	**2.89**	**3.81**	**4.62**	**0.86**	**1.92**	**2.84**	**2.84**	**3.63**	**4.32**
	Q max.	kW	**33**	**74**	**114**	**114**	**151**	**185**	**39**	**89**	**133**	**133**	**172**	**207**
	V̇ secondary	**m³/h**	**0.81**	**1.84**	**2.81**	**2.81**	**3.74**	**4.56**	**0.97**	**2.20**	**3.29**	**3.29**	**4.25**	**5.09**
45/15 °C	T return primary	°C	**23.94**	**23.4**	**23.15**	**23.15**	**22.92**	**22.71**	**22.58**	**21.75**	**21.33**	**21.33**	**21.02**	**20.77**
	V̇ primary	**m³/h**	**0.86**	**1.91**	**2.91**	**2.91**	**3.81**	**4.62**	**0.87**	**1.8**	**2.61**	**2.61**	**3.33**	**3.98**
	Q max.	kW	**30**	**69**	**106**	**106**	**139**	**170**	**37**	**78**	**115**	**115**	**148**	**178**
	V̇ secondary	**m³/h**	**0.88**	**1.99**	**3.05**	**3.05**	**4.02**	**4.90**	**1.07**	**2.26**	**3.31**	**3.31**	**4.26**	**5.12**
45/20 °C	T return primary	°C	**26.68**	**26.26**	**26.06**	**26.06**	**25.78**	**25.54**	**25.48**	**24.59**	**24.26**	**24.26**	**24.04**	**23.85**
	V̇ primary	**m³/h**	**0.86**	**1.92**	**2.91**	**2.91**	**3.71**	**4.41**	**0.85**	**1.63**	**2.36**	**2.36**	**3.02**	**3.61**
	Q max.	kW	**27**	**63**	**96**	**96**	**124**	**148**	**33**	**65**	**96**	**96**	**123**	**148**
	V̇ secondary	**m³/h**	**0.96**	**2.18**	**3.33**	**3.33**	**4.28**	**5.13**	**1.16**	**2.27**	**3.32**	**3.32**	**4.28**	**5.14**

T return primary	°C	Temperature primary return
V̇ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
V̇ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua F (6-10 to 6-50)

			Heating water temperature flow											
			65 °C (6-..)						70 °C (6-..)					
Domestic water secondary	TransTherm aqua F		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.08**	**1.88**	**2.5**	**3.73**	**4.84**	**5.77**	**1.32**	**2.09**	**2.59**	**3.76**	**4.82**	**5.72**
	Q max.	kW	43	75	100	149	193	230	60	95	118	171	219	260
	V̇ secondary	**m³/h**	**0.67**	**1.17**	**1.55**	**2.33**	**3.01**	**3.59**	**0.94**	**1.48**	**1.84**	**2.67**	**3.42**	**4.06**
60/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.8**	**1.5**	**2.01**	**3.16**	**4.34**	**5.39**	**1.08**	**1.94**	**2.48**	**3.77**	**4.95**	**5.92**
	Q max.	kW	32	60	80	126	173	215	50	90	115	175	230	275
	V̇ secondary	**m³/h**	**0.55**	**1.03**	**1.38**	**2.17**	**2.98**	**3.7**	**0.86**	**1.54**	**1.98**	**3.01**	**3.95**	**4.73**
60/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.55**	**1.05**	**1.38**	**2.13**	**3.08**	**3.96**	**0.97**	**1.8**	**2.37**	**3.73**	**4.84**	**5.72**
	Q max.	kW	22	42	55	85	123	158	44	82	108	170	220	260
	V̇ secondary	**m³/h**	**0.42**	**0.8**	**1.05**	**1.63**	**2.35**	**3.02**	**0.84**	**1.57**	**2.08**	**3.24**	**4.21**	**4.98**
60/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.3**	**0.6**	**0.8**	**1.28**	**1.75**	**2.33**	**0.62**	**1.14**	**2.05**	**2.4**	**3.43**	**4.22**
	Q max.	kW	**12**	**24**	**32**	**51**	**70**	**93**	28	52	68	109	156	192
	V̇ secondary	**m³/h**	**0.26**	**0.52**	**0.69**	**1.1**	**1.51**	**2**	**0.6**	**1.12**	**1.47**	**2.36**	**3.36**	**4.14**
55/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.8**	**1.5**	**2.01**	**3.16**	**4.34**	**5.39**	**1.08**	**2.09**	**2.53**	**3.74**	**4.84**	**5.76**
	Q max.	kW	32	60	80	126	173	215	50	95	115	170	220	262
	V̇ secondary	**m³/h**	**0.55**	**1.03**	**1.38**	**2.17**	**2.98**	**3.7**	**0.86**	**1.63**	**1.97**	**2.92**	**3.78**	**4.5**
55/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.3**	**2.06**	**2.53**	**3.71**	**4.81**	**5.64**	**1.08**	**1.87**	**2.42**	**3.74**	**4.84**	**5.72**
	Q max.	kW	52	82	101	148	192	225	49	85	110	170	220	260
	V̇ secondary	**m³/h**	**0.99**	**1.57**	**1.93**	**2.83**	**3.67**	**4.3**	**0.94**	**1.62**	**2.1**	**3.24**	**4.21**	**4.98**
55/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.97**	**1.65**	**2.11**	**3.71**	**4.81**	**5.64**	**1.1**	**1.88**	**2.41**	**3.74**	**4.22**	**5.1**
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	V̇ secondary	**m³/h**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**4.84**	**0.94**	**1.62**	**2.1**	**3.19**	**4.21**	**5**
55/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.95**	**1.68**	**2.13**	**3.23**	**4.24**	**5.14**	**0.84**	**1.47**	**1.87**	**2.84**	**3.72**	**4.51**
	Q max.	kW	**38**	**67**	**85**	**129**	**169**	**205**	38	67	85	129	169	205
	V̇ secondary	**m³/h**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.25**	**2.06**	**2.53**	**3.71**	**4.81**	**5.64**	**1.08**	**1.87**	**2.42**	**3.56**	**4.84**	**5.72**
	Q max.	kW	50	82	101	148	192	225	49	85	110	162	220	260
	V̇ secondary	**m³/h**	**0.95**	**1.57**	**1.93**	**2.83**	**3.67**	**4.3**	**0.94**	**1.62**	**2.1**	**3.09**	**4.21**	**4.98**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.1**	**1.88**	**2.41**	**3.71**	**4.81**	**5.64**	**0.97**	**1.65**	**2.11**	**3.25**	**4.22**	**5.1**
	Q max.	kW	44	75	96	148	192	225	44	75	96	148	192	232
	V̇ secondary	**m³/h**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**4.84**	**0.95**	**1.61**	**2.07**	**3.19**	**4.13**	**5**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**0.95**	**1.68**	**2.13**	**3.23**	**4.24**	**5.14**	**0.84**	**1.47**	**1.87**	**2.84**	**3.72**	**4.51**
	Q max.	kW	38	67	85	129	169	205	38	67	85	129	169	205
	V̇ secondary	**m³/h**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**	**0.94**	**1.65**	**2.09**	**3.18**	**4.16**	**5.05**
50/20 °C	T return primary	°C	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	V̇ primary	**m³/h**	**0.83**	**1.45**	**1.81**	**2.44**	**3.63**	**4.44**	**0.73**	**1.28**	**1.61**	**2.44**	**3.19**	**3.89**
	Q max.	kW	**33**	**58**	**73**	**111**	**145**	**177**	**33**	**58**	**73**	**111**	**145**	**177**
	V̇ secondary	**m³/h**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**	**0.95**	**1.67**	**2.1**	**3.19**	**4.17**	**5.09**
45/5 °C	T return primary	°C	**15.93**	**14.89**	**14.27**	**14.27**	**13.87**	**13.51**	**14.77**	**13.28**	**12.75**	**12.75**	**12.38**	**12.05**
	V̇ primary	**m³/h**	**0.87**	**1.83**	**2.64**	**2.64**	**3.38**	**4.03**	**0.84**	**1.62**	**2.35**	**2.35**	**3.01**	**3.59**
	Q max.	kW	**48**	**104**	**152**	**152**	**196**	**236**	**52**	**104**	**152**	**152**	**196**	**236**
	V̇ secondary	**m³/h**	**1.04**	**2.24**	**3.27**	**3.27**	**4.23**	**5.07**	**1.13**	**2.24**	**3.28**	**3.28**	**4.23**	**5.07**
45/10 °C	T return primary	°C	**18.68**	**17.4**	**16.93**	**16.93**	**16.59**	**16.29**	**17.23**	**16.05**	**15.64**	**15.64**	**15.34**	**15.09**
	V̇ primary	**m³/h**	**0.87**	**1.69**	**2.45**	**2.45**	**3.13**	**3.73**	**0.77**	**1.49**	**2.17**	**2.17**	**2.78**	**3.32**
	Q max.	kW	**45**	**91**	**134**	**134**	**172**	**206**	**46**	**91**	**133**	**133**	**172**	**206**
	V̇ secondary	**m³/h**	**1.13**	**2.25**	**3.30**	**3.30**	**4.24**	**5.09**	**1.13**	**2.24**	**3.29**	**3.29**	**4.24**	**5.09**
45/15 °C	T return primary	°C	**21.26**	**20.25**	**19.87**	**19.87**	**19.61**	**19.4**	**20.1**	**19.16**	**18.85**	**18.85**	**18.63**	**18.43**
	V̇ primary	**m³/h**	**0.8**	**1.55**	**2.24**	**2.24**	**2.87**	**3.43**	**0.71**	**1.36**	**1.98**	**1.98**	**2.54**	**3.03**
	Q max.	kW	**39**	**78**	**115**	**115**	**148**	**178**	**40**	**78**	**114**	**114**	**148**	**177**
	V̇ secondary	**m³/h**	**1.14**	**2.27**	**3.31**	**3.31**	**4.26**	**5.11**	**1.16**	**2.26**	**3.30**	**3.30**	**4.26**	**5.10**
45/20 °C	T return primary	°C	**24.16**	**23.43**	**23.14**	**23.14**	**22.96**	**22.81**	**23.25**	**22.6**	**22.39**	**22.39**	**22.24**	**22.1**
	V̇ primary	**m³/h**	**0.72**	**1.4**	**2.02**	**2.02**	**2.59**	**3.1**	**0.63**	**1.22**	**1.78**	**1.78**	**2.29**	**2.73**
	Q max.	kW	**33**	**66**	**96**	**96**	**123**	**148**	**33**	**65**	**96**	**96**	**124**	**148**
	V̇ secondary	**m³/h**	**1.16**	**2.29**	**3.32**	**3.32**	**4.28**	**5.13**	**1.15**	**2.27**	**3.32**	**3.32**	**4.29**	**5.13**

T return primary	°C	Temperature primary return
V̇ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
V̇ secondary	**m³/h**	Volume flow secondary

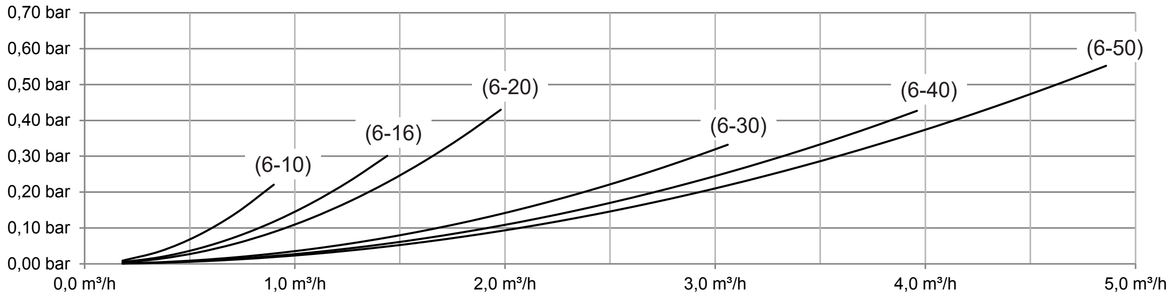
The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua F (6-10 to 6-50)

Apartments standard apartment according to DIN 4708 N	**Peak heat demand** standard apartment according to DIN 4708 with preparation 10 min WP [Wh]	**Sum volumetric flow domestic hot water** calculation flow rate according to DIN 4708 ΣVR at DHW 60 °C [l/s]	**Simultaneity factor** according to DIN 4708 g	**Peak volumetric flow domestic hot water** according to DIN 4708 VS at DHW 60 °C [l/s]	 [l/s]	**Peak volumetric flow domestic hot water** peak flow rate VS at DHW 60 °C [l/min]	 [m³/h]	**Capacity domestic hot water** peak flow rate Q at 70-> 30/60<-10 °C [kW]	**TransTherm aqua F** without/with CU-free heat exchanger Type	**Peak heat demand domestic hot water calorifier** according to DIN 4708 with preparation 10 min [Wh]	**required hot water volume** at 70/30 °C (40K) [m³]	**minimum required usable energy storage tank** volume at 70/30 °C (40K) [l]
1	5820	0.17	1.00	0.17	0.24	14.3	0.86	50	(6-10)	5820	0.13	200
2	11640	0.33	0.78	0.26	0.43	25.8	1.55	90	(6-16)	9079	0.20	300
3	17460	0.50	0.64	0.32	0.43	25.8	1.55	90	(6-16)	11174	0.24	300
4	23280	0.67	0.54	0.36	0.43	25.8	1.55	90	(6-16)	12571	0.27	300
5	29100	0.83	0.50	0.42	0.43	25.8	1.55	90	(6-16)	14550	0.31	500
6	34920	1.00	0.47	0.47	0.55	33.0	1.98	115	(6-20)	16412	0.35	500
7	40740	1.17	0.44	0.51	0.55	33.0	1.98	115	(6-20)	17926	0.39	500
8	46560	1.33	0.40	0.53	0.55	33.0	1.98	115	(6-20)	18624	0.40	500
9	52380	1.50	0.37	0.56	0.84	50.2	3.01	175	(6-30)	19381	0.42	500
10	58200	1.67	0.34	0.57	0.84	50.2	3.01	175	(6-30)	19788	0.43	500
11	64020	1.84	0.33	0.61	0.84	50.2	3.01	175	(6-30)	21127	0.45	500
12	69840	2.00	0.32	0.64	0.84	50.2	3.01	175	(6-30)	22349	0.48	500
13	75660	2.17	0.32	0.69	0.84	50.2	3.01	175	(6-30)	24211	0.52	800
14	81480	2.34	0.31	0.72	0.84	50.2	3.01	175	(6-30)	25259	0.54	800
15	87300	2.50	0.30	0.75	0.84	50.2	3.01	175	(6-30)	26190	0.56	800
16	93120	2.67	0.29	0.77	0.84	50.2	3.01	175	(6-30)	27005	0.58	800
17	98940	2.84	0.28	0.79	0.84	50.2	3.01	175	(6-30)	27703	0.60	800
18	104760	3.00	0.27	0.81	0.84	50.2	3.01	175	(6-30)	28285	0.61	800
19	110580	3.17	0.26	0.82	0.84	50.2	3.01	175	(6-30)	28751	0.62	800
20	116400	3.34	0.25	0.83	0.84	50.2	3.01	175	(6-30)	29100	0.63	800
21	122220	3.5	0.25	0.88	1.1	65.9	3.96	230	(6-40)	30555	0.66	800
22	128040	3.7	0.24	0.88	1.1	65.9	3.96	230	(6-40)	30730	0.66	800
23	133860	3.8	0.24	0.92	1.1	65.9	3.96	230	(6-40)	32126	0.69	800
24	139680	4.0	0.23	0.92	1.1	65.9	3.96	230	(6-40)	32126	0.69	800
25	145500	4.2	0.23	1.0	1.1	65.9	3.96	230	(6-40)	33465	0.72	800
26	151320	4.3	0.23	1.0	1.1	65.9	3.96	230	(6-40)	34804	0.75	800
27	157140	4.5	0.23	1.0	1.1	65.9	3.96	230	(6-40)	36142	0.78	800
28	162960	4.7	0.22	1.0	1.1	65.9	3.96	230	(6-40)	35851	0.77	800
29	168780	4.8	0.22	1.1	1.1	65.9	3.96	230	(6-40)	37132	0.80	1000
30	174600	5.0	0.22	1.1	1.1	65.9	3.96	230	(6-40)	38412	0.83	1000
31	180420	5.2	0.22	1.1	1.1	65.9	3.96	230	(6-40)	39692	0.85	1000
32	186240	5.3	0.21	1.1	1.1	65.9	3.96	230	(6-40)	39110	0.84	1000
33	192060	5.5	0.21	1.2	1.3	78.8	4.73	275	(6-50)	40333	0.87	1000
34	197880	5.7	0.20	1.1	1.3	78.8	4.73	275	(6-50)	39576	0.85	1000
35	203700	5.8	0.20	1.2	1.3	78.8	4.73	275	(6-50)	40740	0.88	1000
36	209520	6.0	0.20	1.2	1.3	78.8	4.73	275	(6-50)	41904	0.90	1000
37	215340	6.2	0.19	1.2	1.3	78.8	4.73	275	(6-50)	40915	0.88	1000
38	221160	6.3	0.19	1.2	1.3	78.8	4.73	275	(6-50)	42020	0.90	1000
39	226980	6.5	0.18	1.2	1.3	78.8	4.73	275	(6-50)	40856	0.88	1000
40	232800	6.7	0.18	1.2	1.3	78.8	4.73	275	(6-50)	41904	0.90	1000
41	238620	6.8	0.18	1.2	1.3	78.8	4.73	275	(6-50)	42952	0.92	1000
42	244440	7.0	0.18	1.3	1.3	78.8	4.73	275	(6-50)	43999	0.95	1500
43	250260	7.2	0.18	1.3	1.3	78.8	4.73	275	(6-50)	45047	0.97	1500
44	256080	7.3	0.17	1.2	1.3	78.8	4.73	275	(6-50)	43534	0.94	1500
45	261900	7.5	0.17	1.3	1.3	78.8	4.73	275	(6-50)	44523	0.96	1500
46	267720	7.7	0.17	1.3	1.3	78.8	4.73	275	(6-50)	45512	0.98	1500
47	273540	7.8	0.16	1.3	1.3	78.8	4.73	275	(6-50)	43766	0.94	1500
48	279360	8.0	0.16	1.3	1.3	78.8	4.73	275	(6-50)	44698	0.96	1500
49	285180	8.2	0.16	1.3	1.3	78.8	4.73	275	(6-50)	45629	0.98	1500
50	291000	8.3	0.16	1.3	1.3	78.8	4.73	275	(6-50)	46560	1.00	1500

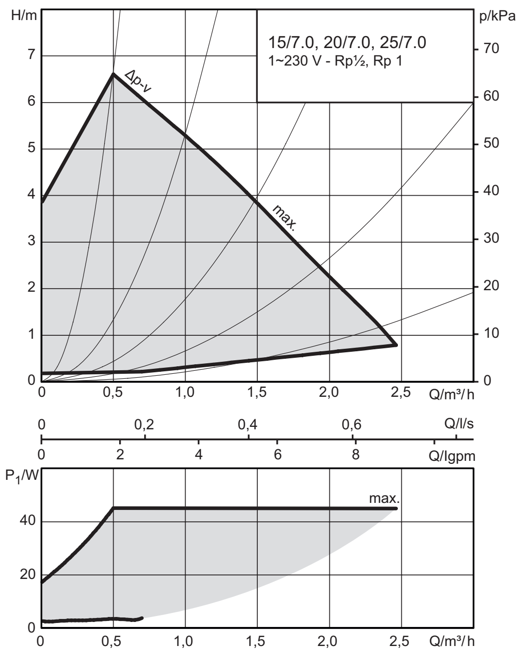
Pressure drop (ΔP / Q max) - domestic water side (secondary)



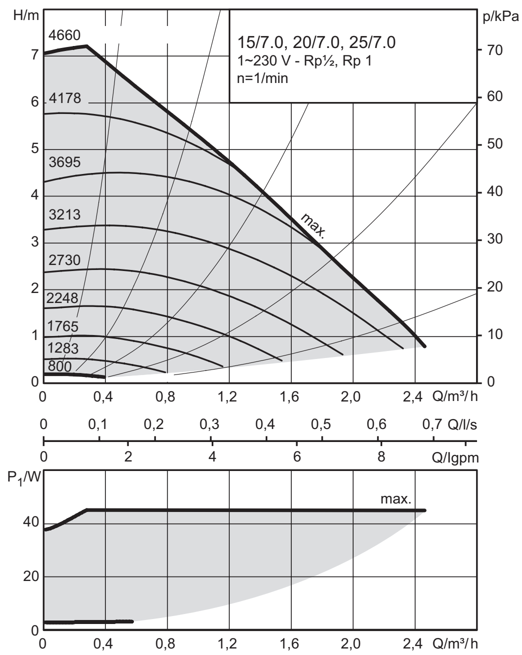
Circulating pumps characteristic curves

for circulation set ¾″

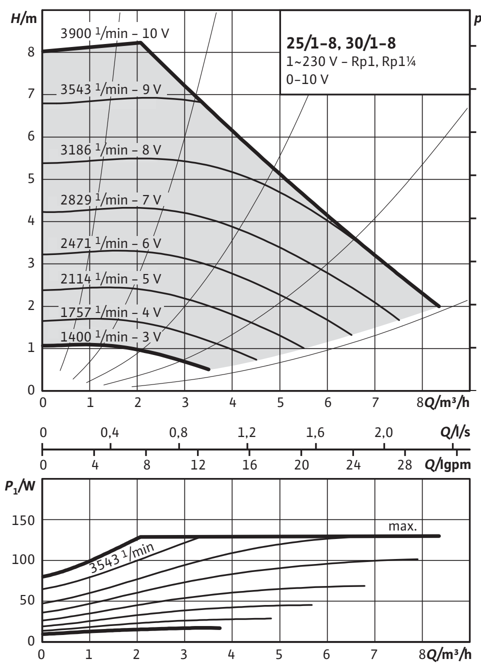
Δp-v (variable)



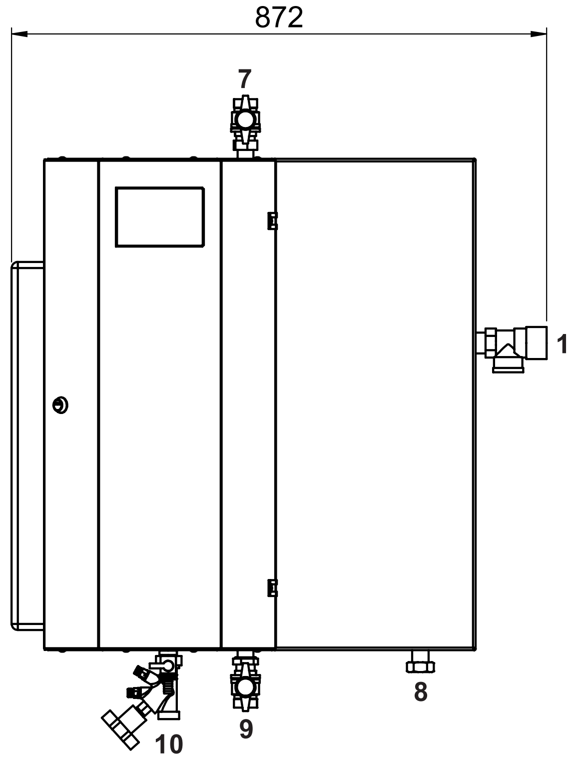
Constant speed

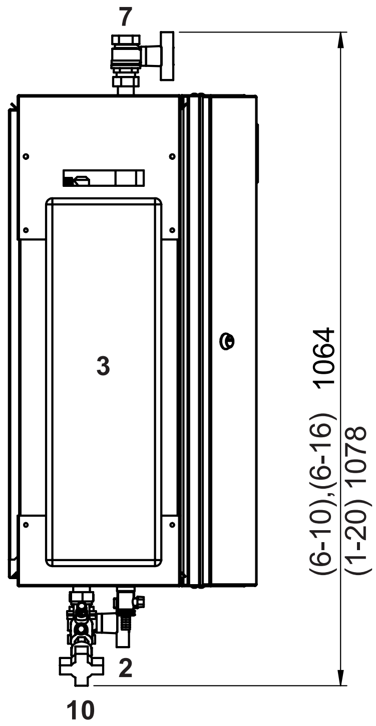


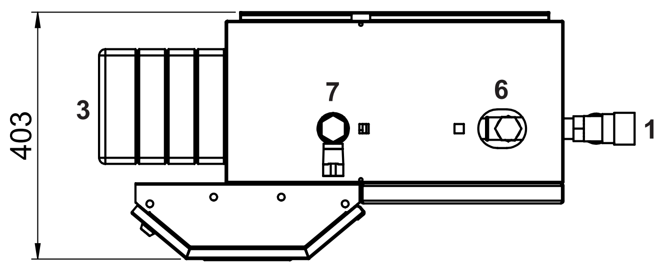
for circulation set 1″ and 1 ¼″



Charging module TransTherm aqua F (6-10 to 6-20)
(Dimensions in mm)







1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger

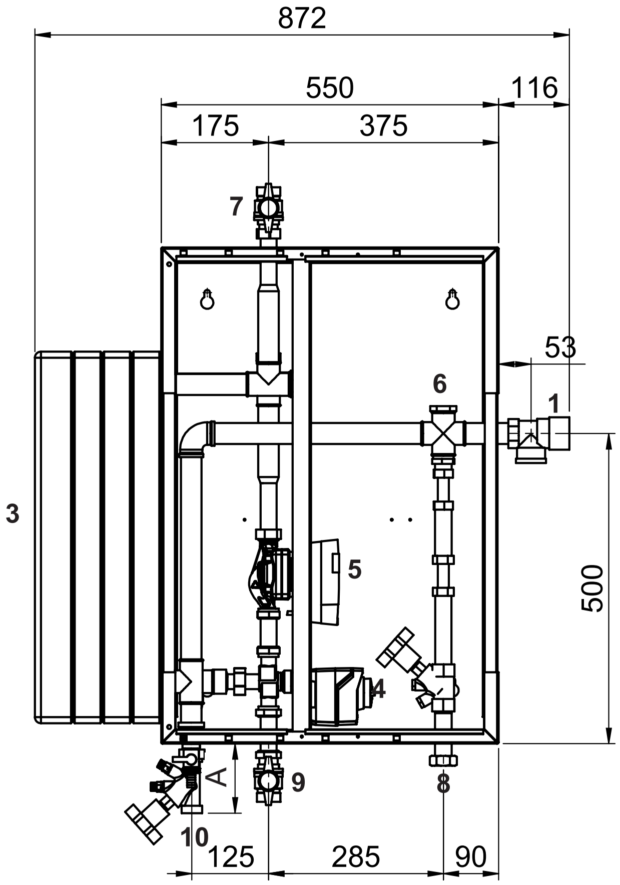
		(6-10) (6-16) (6-20)
6	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
7	Hot water	DN 25, Rp 1″
8	Cold water	DN 25, Gp 1″
9	Flow heating water	DN 25, Rp 1″
10	Return heating water	DN 20, Gp 1″

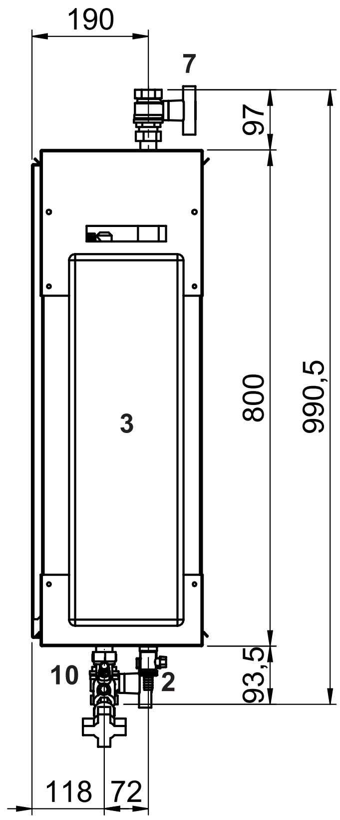
Gp = straight internal thread

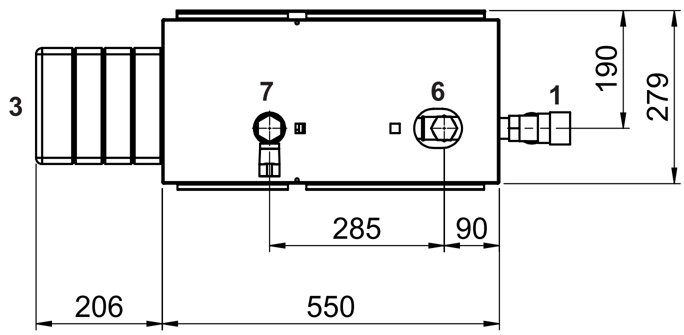
TransTherm aqua F	Weight in kg
(6-10)	52
(6-16)	54
(6-20)	56

Charging module TransTherm aqua F (6-10 to 6-20)

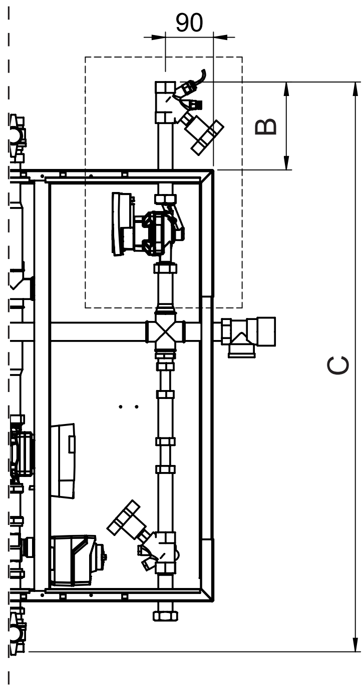
(Dimensions in mm)







Version incl. circulation set



	A	B	C
(6-10)	112	163	1056
(6-16)	112	163	1045
(6-20)	133	246	1143

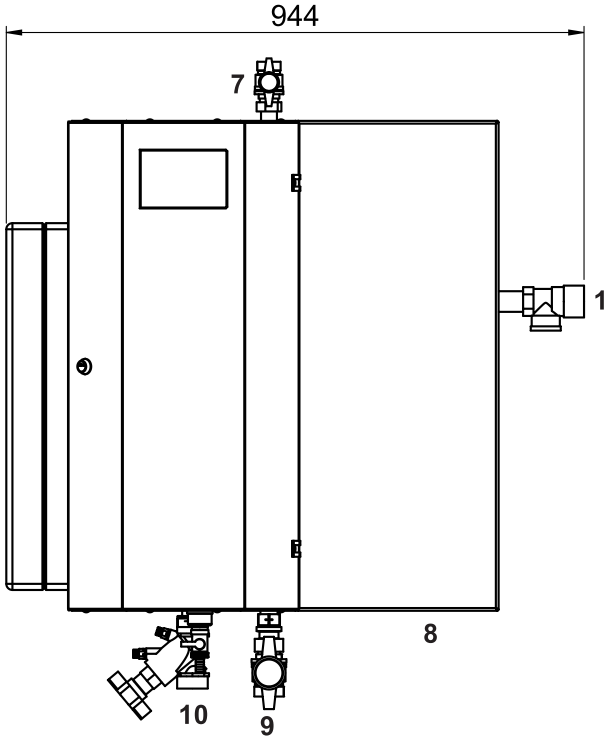
1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger
4 Primary three-way valve
5 Primary circulating pump

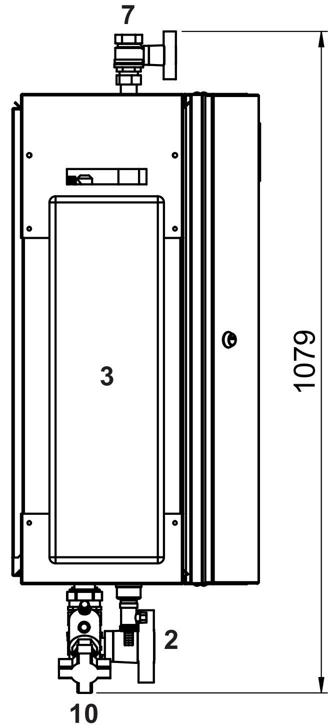
		(6-10) (6-16) (6-20)
6	Circulation	DN 25, Rp 1″ (20, Rp ¾″)
7	Hot water	DN 25, Rp 1″
8	Cold water	DN 25, Gp 1″
9	Flow heating water	DN 25, Rp 1″
10	Return heating water	DN 20, Gp 1″

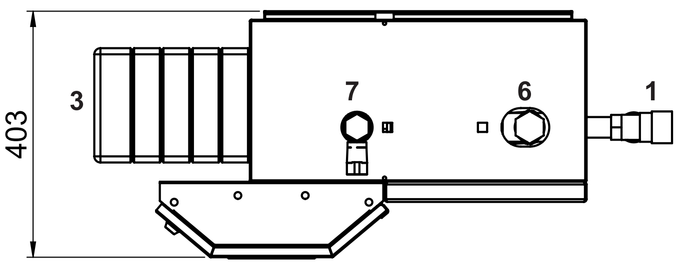
Gp = straight internal thread

Charging module TransTherm aqua F (6-30 to 6-50)

(Dimensions in mm)







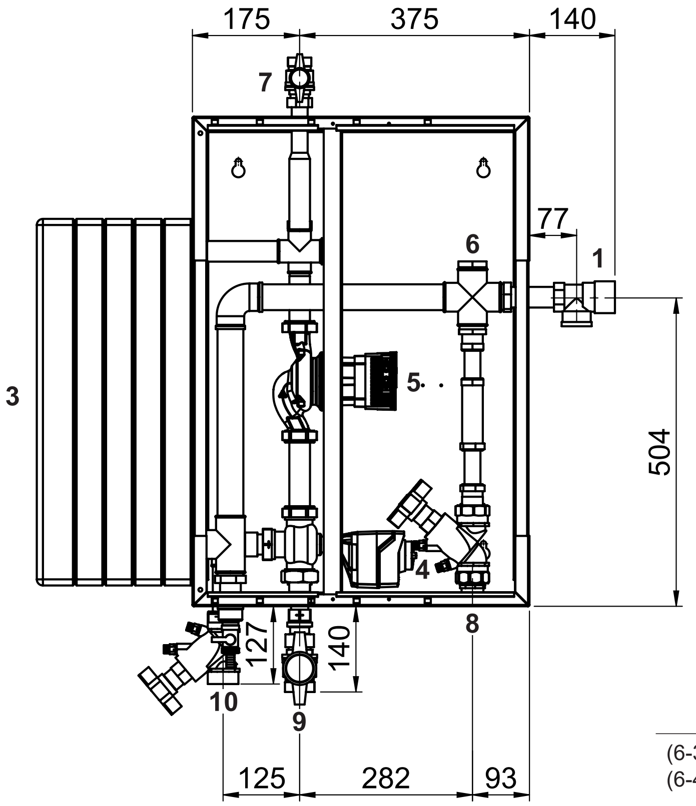
1 Safety valve
  Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger

		(6-30) (6-40) (6-50)
6	Circulation	DN 32, Rp 1 ¼″ (25 Rp 1″) (20 Rp ¾″)
7	Hot water	DN 32, Rp 1 ¼″
8	Cold water	DN 32, Rp 1 ¼″
9	Flow heating water	DN 32, Rp 1 ¼″
10	Return heating water	DN 32, Rp 1 ¼″

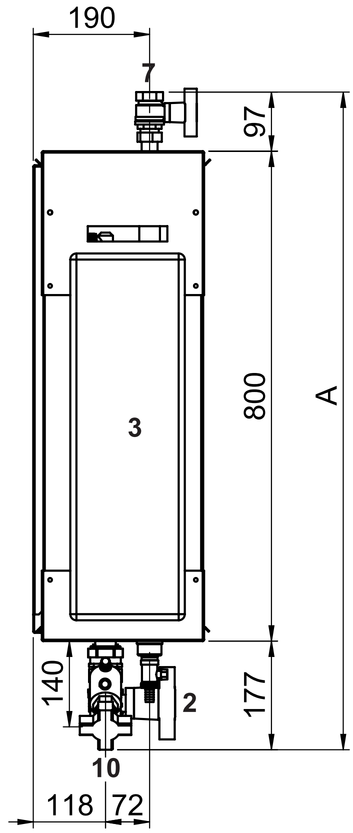
TransTherm aqua F	Weight in kg
(6-30)	62
(6-40)	64
(6-50)	66

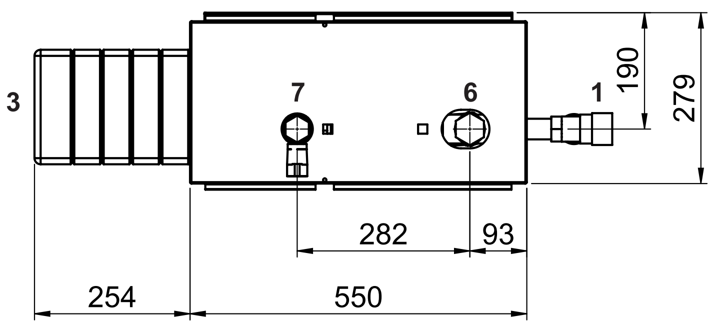
Charging module TransTherm aqua F (6-30 to 6-50)

(Dimensions in mm)

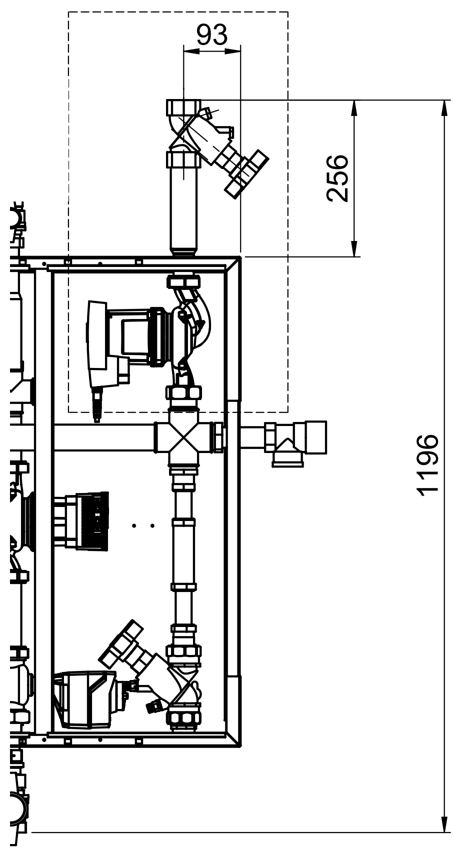


	A
(6-30)	140
(6-40), (6-50)	101





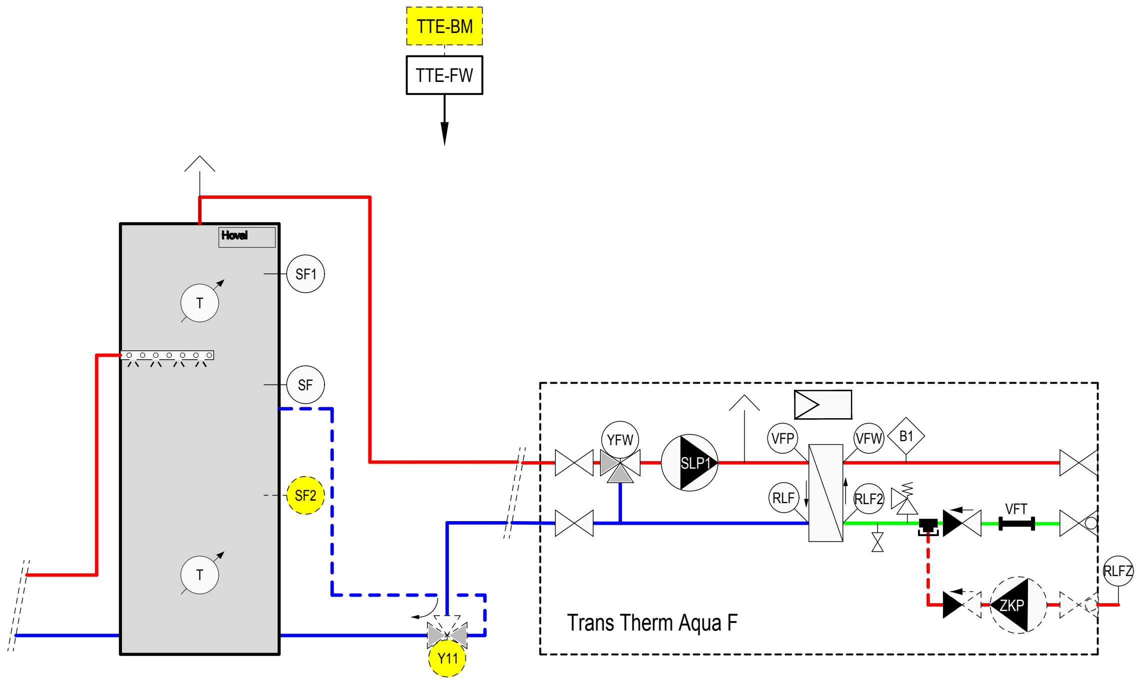
Version incl. circulation set



1 Safety valve
Hot water 10 bar
2 Filling/drain valve
3 Heat exchanger
4 Primary three-way valve
5 Primary circulating pump

		(6-30) (6-40) (6-50)
6	Circulation	DN 32, Rp 1 ¼″ (25 Rp 1″) (20 Rp ¾″)
7	Hot water	DN 32, Rp 1 ¼″
8	Cold water	DN 32, Rp 1 ¼″
9	Flow heating water	DN 32, Rp 1 ¼″
10	Return heating water	DN 32, Rp 1 ¼″

Water heating
TransTherm aqua F
Hydraulic schematic BFAE035



TTE-FW	Basic module district heating/fresh water
B1	Flow temperature monitor (if required)
VFP	Flow sensor primary
VFW	Flow sensor DHW
RLF	Return sensor primary
RLF2	Return sensor cold water
SF	Calorifier sensor
SF1	Calorifier sensor 1
RLFZ	Circulation sensor
SLP1	Calorifier charging pump primary
VFT	Flow rate sensor
YFW	Three-way valve with actuator
ZKP	Recirculation pump

Option

BM	TopTronic® E control module
SF2	Calorifier sensor 2
Y11	Return switching with actuator

Calorifier continuous flow system
Consisting of:
- fresh water module TransTherm aqua F
- energy buffer storage tank (option)

Fresh water module TransTherm aqua F
- Fully installed station with plate heat exchanger for the provision of domestic hot water using the continuous flow principle
- Stand frame consisting of:
  - frame with corrosion protection coating RAL 9005
  - height-adjustable and vibration-damped feet
- The primary side (heating side) contains the three-way valve, high-efficiency pump, air-bleeding, sensor and drain valve, line balancing valve. These components ensure a constant flow temperature at the plate heat exchanger. Pipes made from steel
- The secondary side (DHW side) contains the safety valve (10 bar), non-return valve and a filling/drain valve. A flow sensor ensures the correct hot water temperature. Pipes made from stainless steel
- Stainless steel plate heat exchanger 1.4404, copper-soldered or copper-free
- Flow rate sensor
- T-piece with dummy plug for on-site connection of the circulation group. Connect the pump to the controller on site.
- TopTronic® E control with integrated thermal disinfection of the DHW storage tank (anti-legionella circuit)

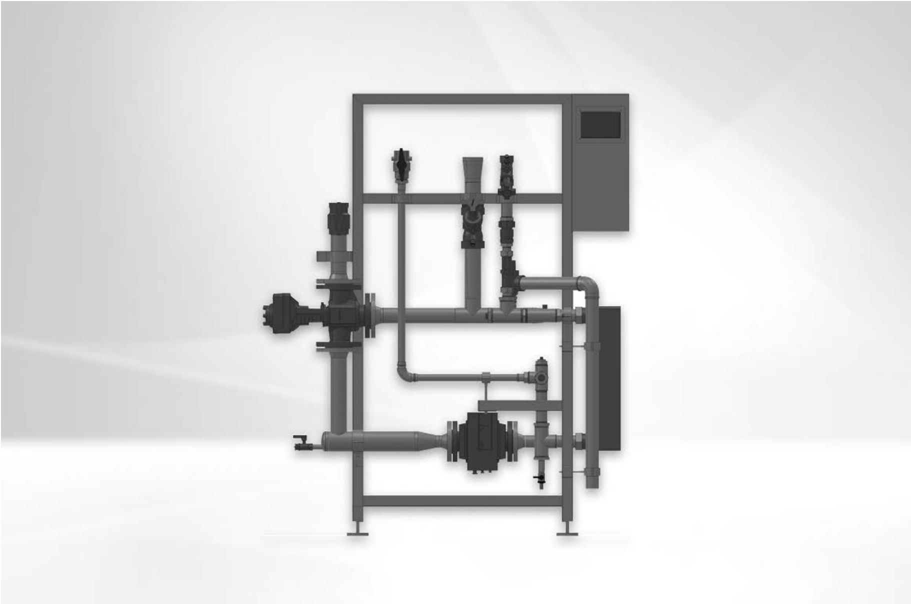
Thermal insulation consisting of:
- thermal insulation of the heat exchanger with 30-mm EPP mouldings
- thermal insulation of the pipes with EPP mouldings. Insulation thickness of 50 % according to EnEV
- deep black, similar to RAL 9005
- suitable for damp rooms
- CFC-free
- normal flammability according to DIN 4102-1 and EN 13501-1 (fuel class: B2)
- no bleaching and disintegration of the insulation under the influence of UV light

Delivery
- The energy buffer storage tank required is not included in the scope of delivery

On site
- Installation of a circulation unit; the necessary connection is provided.
- Electrical connection of the controller

TopTronic® E controller

TopTronic® E basic module district heating/fresh water
- Control unit for controlling district heating systems in non-communicative networks and the corresponding consumers with integrated control functions for
  - primary valve control
  - cascade management
  - 1 heating/cooling circuit with mixer
  - 1 heating/cooling circuit without mixer
  - 1 hot water loading circuit
  - various additional functions



Range
Fresh water module

TransTherm aqua F type	Output kW
(6-60)	350
(6-70)	450
(6-80)	580
(6-90)	700

- Various functions for hot water:
  - selection of different basic programs (week programs, economy mode, holiday until, etc.)
  - various operating modes (e.g. accumulator priority or parallel mode)
  - buffer storage circuit on the primary or secondary side
  - adjustable loading criteria (e.g.: adjustable loading times, undershooting the minimum nominal value, etc.)
  - adjustable switch-off criteria (e.g. achieving the setpoint valve, achieving the lower sensor setpoint value, etc.)
  - adjustable loading block (if the loading flow temperature is too low, the setpoint temperature is not reached, differential temperature-dependent solar circuit control)
- Definable switching times for recirculation pump control
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Complete plug set for DH module
- RPM-regulated pumps

No further module expansions or controller modules can be installed in the control panel!

Option

TopTronic® E control module
- Simple, intuitive operating concept
- Display of the most important operating states
- Configurable start screen
- Operating mode selection
- Configurable day and week programs
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with HovalConnect option)
- Adaptation of the heating strategy based on the weather forecast (with HovalConnect option)

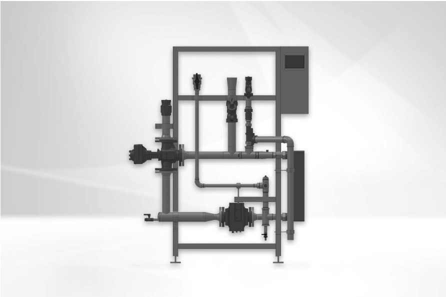
Notice
The TopTronic® E control module for operating the basic module district heating/fresh water must be ordered separately!

Further information about the TopTronic® E
see “Controls”

Delivery
- All armatures required for operation, such as strainers, flow balancing and shut-off valves, backflow preventer, air-bleeding and drain valve are fitted.

Caution
As a result of thermal disinfection of the domestic hot water for legionella protection, increased water temperatures (at least 65-70 °C) occur. Depending on the water quality, this may result in increased calcification at the installed armatures and heat exchangers and also brings the risk of scalding at the tapping points. Corresponding protective measures must be implemented on site.

Fresh water module



TransTherm aqua F

Fully assembled station with plate heat exchanger for the provision of domestic hot water using the continuous flow principle and built-in Hoval TopTronic® E control.
The required energy buffer storage tank is not supplied.

TransTherm aqua F	Output kW	Part No.
(6-60)	350	8006 393
(6-70)	450	8006 394
(6-80)	580	8006 395
(6-90)	700	8006 396

TopTronic® E control module black — Part No. 6043 844

- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:
- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Part No.

Accessories

Return changeover valve set
Consisting of:
- Temperature sensor
- Changeover valve
- Drive (8 sec.)
- Seals
- Screw connections

Nominal diameter	Output kW	kvs m³/h	Part No.
DN 20	50-90	6.3	7010 832
DN 25	115-175	10	7010 836
DN 32	230-275	16	7011 009
DN 40	350	25	7011 025
DN 50	450	40	7016 331
DN 65	580	63	7016 332
DN 80	700	100	7016 333

Notice:
When using a circulation set (also on-site recirculation pump), it is imperative to install a return switching valve set.

Circulation set
for TransTherm aqua L, F
Piping of parts in contact with domestic water in stainless steel and gunmetal
Consisting of:
- Temperature sensor PT1000
- Recirculation pump Wilo Yonos PARA
- Regulating valve
- Non-return valve

Connection	Volume flow m³/h	Recirculation pump	Part No.
DN 20 ¾″ Rp	1.9	Z15/7.0 RKC	8005 279
DN 25 1″ Rp	3.4	Z25/1-8 (0-10 V)	8005 280
DN 32 1¼″ Rp	5.8	Z25/1-8 (0-10 V)	8005 281

Test valve DN 8 G ¼″ 2049 861
for TransTherm aqua L, LS and F
Test valve suitable for flame treatment
for hygienic-microbiologic
tests.

Part No.

Sludge separator with magnet
MB3/L DN25...DN50
With variable connection for
vertical or horizontal pipelines
Fast and continuous removal of ferromagnetic
and non-magnetic dirt and sludge particles.
Sludge separation up to a particle size of 5 µm.
Brass housing
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C

Type	Connection	Flow rate [m³/h] at 1 m/s flow speed	Part No.
CS 20	Rp 1″	2.0	2062 165
CS 25	Rp 1¼″	3.6	2062 166
CS 32	Rp 1½″	5.0	2062 167
CS 40	Rp 2″	7.0	2062 168

Additional sludge separators
see “Various system components”

Temperature monitor 0…120 °C
for TransTherm aqua L, LS, F

2048 299

Safety temperature monitor 70…130 °C
for TransTherm aqua L, LS, F

2048 300

Safety temperature limiter 70…130 °C
for TransTherm aqua L, LS, F

2049 619

Immersion sleeve stainless steel
for thermostat
for TransTherm aqua L, LS, F

2048 285

Immersion sleeve stainless steel
for 2 thermostats
for TransTherm aqua L, LS, F

2048 288

Performance data

TransTherm aqua F (6-60 to 6-90)

			Heating water temperature flow											
			52 °C				55 °C				60 °C			
Domestic water secondary	TransTherm aqua F		(60)	(70)	(80)	(90)	(60)	(70)	(80)	(90)	(60)	(70)	(80)	(90)
60/5 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/10 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/15 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
60/20 °C	T return primary	°C	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
	Q max.	kW	-	-	-	-	-	-	-	-	-	-	-	-
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	-	-	-	-
55/5 °C	T return primary	°C	-	-	-	-	-	-	-	-	28	28	28	27
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	**7.27**	**10.06**	**12.62**	**15.81**
	Q max.	kW	-	-	-	-	-	-	-	-	270	370	470	600
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	**4.68**	**6.42**	**8.15**	**10.4**
55/10 °C	T return primary	°C	-	-	-	-	-	-	-	-	30	29	29	29
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	**7.30**	**9.04**	**11.82**	**14.63**
	Q max.	kW	-	-	-	-	-	-	-	-	255	320	420	530
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	**4.91**	**6.17**	**8.09**	**10.21**
55/15 °C	T return primary	°C	-	-	-	-	-	-	-	-	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	**5.20**	**7.23**	**9.25**	**13.01**
	Q max.	kW	-	-	-	-	-	-	-	-	180	250	320	450
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	**3.90**	**5.42**	**6.94**	**9.75**
55/20 °C	T return primary	°C	-	-	-	-	-	-	-	-	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	-	-	-	-	**3.18**	**4.34**	**5.78**	**7.51**
	Q max.	kW	-	-	-	-	-	-	-	-	110	150	200	260
	V̇ secondary	**m³/h**	-	-	-	-	-	-	-	-	**2.73**	**3.72**	**4.95**	**6.44**
50/5 °C	T return primary	°C	-	-	-	-	25	25	25	24	22	22	21	21
	V̇ primary	**m³/h**	-	-	-	-	**7.32**	**8.93**	**11.59**	**14.69**	**7.17**	**9.14**	**11.65**	**13.93**
	Q max.	kW	-	-	-	-	250	310	405	520	315	405	520	630
	V̇ secondary	**m³/h**	-	-	-	-	**4.82**	**5.97**	**7.80**	**10.02**	**6.07**	**7.80**	**10.02**	**12.14**
50/10 °C	T return primary	°C	-	-	-	-	27	27	27	26	24	24	24	23
	V̇ primary	**m³/h**	-	-	-	-	**7.17**	**8.95**	**11.64**	**14.45**	**6.78**	**8.62**	**11.52**	**13.16**
	Q max.	kW	-	-	-	-	230	290	380	480	280	360	485	560
	V̇ secondary	**m³/h**	-	-	-	-	**4.99**	**6.29**	**8.24**	**10.4**	**6.07**	**7.80**	**10.51**	**12.14**
50/15 °C	T return primary	°C	-	-	-	-	29	29	29	28	26	26	26	26
	V̇ primary	**m³/h**	-	-	-	-	**7.25**	**9.24**	**11.63**	**14.5**	**6.31**	**8.10**	**10.97**	**12.35**
	Q max.	kW	-	-	-	-	215	275	350	445	245	315	430	490
	V̇ secondary	**m³/h**	-	-	-	-	**5.33**	**6.81**	**8.67**	**11.02**	**6.07**	**7.80**	**10.65**	**12.14**
50/20 °C	T return primary	°C	-	-	-	-	30	30	30	30	30	29	29	29
	V̇ primary	**m³/h**	-	-	-	-	**5.03**	**6.59**	**9.02**	**11.96**	**6.00**	**7.6**	**10.35**	**11.6**
	Q max.	kW	-	-	-	-	145	190	260	345	210	270	370	420
	V̇ secondary	**m³/h**	-	-	-	-	**4.20**	**5.49**	**7.51**	**9.97**	**6.07**	**7.80**	**10.69**	**12.14**
45/5 °C	T return primary	°C	21	21	21	20	20	19	19	19	18	18	18	17
	V̇ primary	**m³/h**	**7.20**	**8.95**	**11.53**	**14.54**	**6.90**	**8.77**	**11.62**	**13.4**	**5.77**	**7.36**	**10.00**	**11.26**
	Q max.	kW	255	320	415	530	280	360	480	560	280	360	490	560
	V̇ secondary	**m³/h**	**5.53**	**6.94**	**9.00**	**11.50**	**6.07**	**7.80**	**10.4**	**12.14**	**6.07**	**7.80**	**10.62**	**12.14**
45/10 °C	T return primary	°C	23	23	23	23	22	22	22	21	20	20	20	19
	V̇ primary	**m³/h**	**7.12**	**9.21**	**11.51**	**14.45**	**6.44**	**8.23**	**11.13**	**12.57**	**5.36**	**6.86**	**9.27**	**7.24**
	Q max.	kW	235	305	385	490	245	315	430	490	245	315	430	490
	V̇ secondary	**m³/h**	**5.82**	**7.56**	**9.54**	**12.14**	**6.07**	**7.80**	**10.65**	**12.14**	**6.07**	**7.80**	**10.65**	**12.14**
45/15 °C	T return primary	°C	25	25	25	25	25	24	24	24	23	22	22	22
	V̇ primary	**m³/h**	**6.10**	**8.03**	**10.67**	**13.49**	**6.01**	**7.63**	**10.38**	**11.63**	**4.88**	**6.23**	**8.51**	**9.53**
	Q max.	kW	190	250	335	420	210	270	370	420	210	270	370	420
	V̇ secondary	**m³/h**	**5.49**	**7.23**	**9.68**	**12.14**	**6.07**	**7.80**	**10.69**	**12.14**	**6.07**	**7.80**	**10.69**	**12.14**
45/20 °C	T return primary	°C	25	25	25	25	27	27	27	27	25	25	25	25
	V̇ primary	**m³/h**	**2.73**	**3.53**	**4.66**	**6.42**	**5.46**	**6.97**	**9.57**	**10.65**	**4.37**	**5.59**	**7.68**	**8.57**
	Q max.	kW	85	110	145	200	175	225	310	350	175	225	310	350
	V̇ secondary	**m³/h**	**2.95**	**3.82**	**5.03**	**6.94**	**6.07**	**7.80**	**10.75**	**12.14**	**6.07**	**7.80**	**10.75**	**12.14**

T return primary	°C	Temperature primary return
V̇ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
V̇ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

TransTherm aqua F (6-60 to 6-90)

			Heating water temperature flow							
			65 °C				70 °C			
Domestic water secondary	TransTherm aqua F		(60)	(70)	(80)	(90)	(60)	(70)	(80)	(90)
60/5 °C	T return primary	°C	30	30	30	29	26	26	25	25
	$\dot{V}$ primary	**m³/h**	**7.15**	**9.17**	**11.72**	**14.69**	**7.42**	**9.40**	**11.66**	**14.64**
	Q max.	kW	290	370	480	610	375	480	60	760
	$\dot{V}$ secondary	**m³/h**	**4.57**	**5.83**	**7.57**	**9.62**	**5.91**	**7.57**	**9.46**	**11.98**
60/10 °C	T return primary	°C	30	30	30	30	28	28	28	27
	$\dot{V}$ primary	**m³/h**	**5.45**	**6.94**	**9.41**	**12.88**	**7.23**	**9.29**	**11.92**	**14.15**
	Q max.	kW	220	280	380	520	350	450	580	700
	$\dot{V}$ secondary	**m³/h**	**3.82**	**4.86**	**6.59**	**9.02**	**6.07**	**7.80**	**10.06**	**12.14**
60/15 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$ primary	**m³/h**	**3.72**	**4.83**	**6.44**	**8.67**	**6.72**	**8.78**	**11.73**	**13.49**
	Q max.	kW	150	195	260	350	310	405	540	630
	$\dot{V}$ secondary	**m³/h**	**2.89**	**3.76**	**5.01**	**6.74**	**5.97**	**7.80**	**10.4**	**12.14**
60/20 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$ primary	**m³/h**	**2.11**	**2.85**	**3.72**	**4.95**	**4.34**	**5.64**	**7.37**	**9.97**
	Q max.	kW	85	115	150	200	200	260	340	460
	$\dot{V}$ secondary	**m³/h**	**1.84**	**2.49**	**3.25**	**4.34**	**4.34**	**5.64**	**7.37**	**9.97**
55/5 °C	T return primary	°C	24	24	23	23	22	21	21	21
	$\dot{V}$ primary	**m³/h**	**7.42**	**9.24**	**11.64**	**14.38**	**6.30**	**8.03**	**10.99**	**12.26**
	Q max.	kW	350	440	560	700	350	450	620	700
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.63**	**9.71**	**12.14**	**6.07**	**7.80**	**10.75**	**12.14**
55/10 °C	T return primary	°C	26	26	26	25	24	24	24	23
	$\dot{V}$ primary	**m³/h**	**7.06**	**8.96**	**11.66**	**13.66**	**5.96**	**7.6**	**10.25**	**11.6**
	Q max.	kW	315	405	530	630	315	405	550	630
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.21**	**12.14**	**6.07**	**7.80**	**10.6**	**12.14**
55/15 °C	T return primary	°C	29	28	28	27	27	26	26	26
	$\dot{V}$ primary	**m³/h**	**6.67**	**8.48**	**11.48**	**12.91**	**5.62**	**7.16**	**9.70**	**10.96**
	Q max.	kW	280	360	490	560	280	360	490	560
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.62**	**12.14**	**6.07**	**7.80**	**10.62**	**12.14**
55/20 °C	T return primary	°C	30	30	30	30	29	29	29	28
	$\dot{V}$ primary	**m³/h**	**5.95**	**7.80**	**10.4**	**12.14**	**5.13**	**6.64**	**9.01**	**10.16**
	Q max.	kW	240	315	420	490	245	315	430	490
	$\dot{V}$ secondary	**m³/h**	**5.95**	**7.80**	**10.4**	**12.14**	**6.07**	**7.80**	**10.65**	**12.14**
50/5 °C	T return primary	°C	20	20	19	19	18	18	17	17
	$\dot{V}$ primary	**m³/h**	**6.06**	**7.72**	**10.43**	**11.77**	**5.30**	**6.74**	**9.05**	**10.27**
	Q max.	kW	315	405	550	630	315	405	550	630
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.6**	**12.14**	**6.07**	**7.80**	**10.6**	**12.14**
50/10 °C	T return primary	°C	22	22	22	21	21	20	20	19
	$\dot{V}$ primary	**m³/h**	**5.69**	**7.28**	**9.81**	**11.08**	**4.90**	**6.24**	**8.46**	**9.57**
	Q max.	kW	280	360	490	560	280	360	490	560
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.62**	**12.14**	**6.07**	**7.80**	**10.62**	**12.14**
50/15 °C	T return primary	°C	25	25	24	24	23	23	22	22
	$\dot{V}$ primary	**m³/h**	**5.30**	**6.74**	**9.14**	**10.29**	**4.52**	**5.76**	**7.82**	**8.83**
	Q max.	kW	245	315	430	490	245	315	430	490
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.65**	**12.14**	**6.07**	**7.80**	**10.65**	**12.14**
50/20 °C	T return primary	°C	27	26	27	26	26	26	25	25
	$\dot{V}$ primary	**m³/h**	**4.84**	**6.00**	**8.38**	**9.43**	**4.12**	**5.26**	**7.16**	**8.07**
	Q max.	kW	210	270	370	420	210	270	370	420
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.69**	**12.14**	**6.07**	**7.80**	**10.69**	**12.14**
45/5 °C	T return primary	°C	16	16	16	15	15	14	14	13
	$\dot{V}$ primary	**m³/h**	**4.99**	**6.34**	**8.58**	**9.69**	**4.39**	**5.59**	**7.59**	**8.58**
	Q max.	kW	280	360	490	560	280	360	490	560
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.62**	**12.14**	**6.07**	**7.80**	**10.62**	**12.14**
45/10 °C	T return primary	°C	19	18	18	18	17	17	17	16
	$\dot{V}$ primary	**m³/h**	**4.57**	**5.85**	**7.92**	**8.94**	**4.02**	**5.13**	**6.98**	**7.90**
	Q max.	kW	245	315	430	490	245	315	430	490
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.65**	**12.14**	**6.07**	**7.80**	**10.65**	**12.14**
45/15 °C	T return primary	°C	21	21	21	20	20	20	20	19
	$\dot{V}$ primary	**m³/h**	**4.15**	**5.30**	**7.24**	**8.15**	**3.64**	**4.66**	**6.37**	**7.18**
	Q max.	kW	210	270	370	420	210	270	370	420
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.69**	**12.14**	**6.07**	**7.80**	**10.69**	**12.14**
45/20 °C	T return primary	°C	24	24	24	24	23	23	23	23
	$\dot{V}$ primary	**m³/h**	**3.71**	**4.75**	**6.51**	**7.31**	**3.24**	**4.15**	**5.71**	**6.42**
	Q max.	kW	175	225	310	350	175	225	310	350
	$\dot{V}$ secondary	**m³/h**	**6.07**	**7.80**	**10.75**	**12.14**	**6.07**	**7.80**	**10.75**	**12.14**

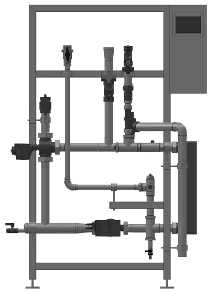
T return primary	°C	Temperature primary return
$\dot{V}$ primary	**m³/h**	Volume flow primary
Q max.	kW	Output
$\dot{V}$ secondary	**m³/h**	Volume flow secondary

The specified technical data relate to the full load of the module in each case.

Performance data

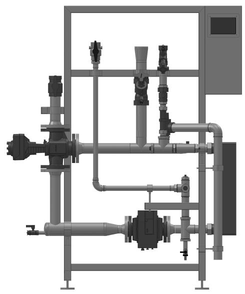
TransTherm aqua F (6-60)

Performance data		Q	VS	VS	VS	Energy storage tank
primary	secondary	kW	l/s	l/min	m³/h	min. content in l [1]
70 °C/30 °C	10 °C/60 °C	350	1.67	100.33	6.02	1405
65 °C/30 °C	10 °C/60 °C	220	1.05	63.07	3.78	883
65 °C/30 °C	10 °C/55 °C	315	1.67	100.33	6.02	1405
65 °C/30 °C	10 °C/50 °C	280	1.67	100.33	6.02	1405
60 °C/30 °C	10 °C/55 °C	255	1.35	81.22	4.87	1137
60 °C/30 °C	10 °C/50 °C	280	1.67	100.33	6.02	1405
55 °C/30 °C	10 °C/50 °C	230	1.37	82.42	4.95	1154
55 °C/30 °C	10 °C/45 °C	245	1.67	100.33	6.02	1405



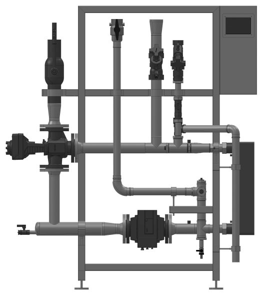
TransTherm aqua F (6-70)

Performance data		Q	VS	VS	VS	Energy storage tank
primary	secondary	kW	l/s	l/min	m³/h	min. content in l [1]
70 °C/30 °C	10 °C/60 °C	450	2.15	129.00	7.74	1806
65 °C/30 °C	10 °C/60 °C	280	1.34	80.27	4.82	1124
65 °C/30 °C	10 °C/55 °C	405	2.15	129.00	7.74	1806
65 °C/30 °C	10 °C/50 °C	360	2.15	129.00	7.74	1806
60 °C/30 °C	10 °C/55 °C	320	1.70	101.93	6.12	1427
60 °C/30 °C	10 °C/50 °C	360	2.15	129.00	7.74	1806
55 °C/30 °C	10 °C/50 °C	290	1.73	103.92	6.24	1455
55 °C/30 °C	10 °C/45 °C	315	2.15	129.00	7.74	1806



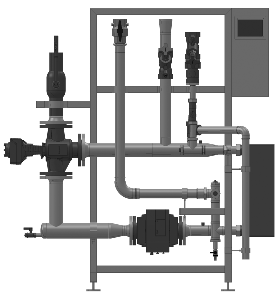
TransTherm aqua F (6-80)

Performance data		Q	VS	VS	VS	Energy storage tank
primary	secondary	kW	l/s	l/min	m³/h	min. content in l [1]
70 °C/30 °C	10 °C/60 °C	580	2.77	166.27	9.98	2328
65 °C/30 °C	10 °C/60 °C	380	1.82	108.93	6.54	1525
65 °C/30 °C	10 °C/55 °C	530	2.81	168.81	10.13	2363
65 °C/30 °C	10 °C/50 °C	490	2.93	175.58	10.54	2458
60 °C/30 °C	10 °C/55 °C	420	2.23	133.78	8.03	1873
60 °C/30 °C	10 °C/50 °C	485	2.90	173.79	10.43	2433
55 °C/30 °C	10 °C/50 °C	380	2.27	136.17	8.17	1906
55 °C/30 °C	10 °C/45 °C	430	2.93	176.10	10.57	2465



TransTherm aqua F (6-90)

Performance data		Q	VS	VS	VS	Energy storage tank
primary	secondary	kW	l/s	l/min	m³/h	min. content in l [1]
70 °C/30 °C	10 °C/60 °C	700	3.34	200.67	12.04	2809
65 °C/30 °C	10 °C/60 °C	520	2.48	149.07	8.94	2087
65 °C/30 °C	10 °C/55 °C	630	3.34	200.67	12.04	2809
65 °C/30 °C	10 °C/50 °C	560	3.34	200.67	12.04	2809
60 °C/30 °C	10 °C/55 °C	530	2.81	168.81	10.13	2363
60 °C/30 °C	10 °C/50 °C	560	3.34	200.67	12.04	2809
55 °C/30 °C	10 °C/50 °C	480	2.87	172.00	10.32	2408
55 °C/30 °C	10 °C/45 °C	490	3.34	200.67	12.04	2809



[1] The calculation for the content of the energy storage tank depends on the temperature spread.
Here, 0.7 has been set for the temperature spread and 2 for short non-draw-off times. See calculation of the required buffer volume

Performance data

Calculation of the required buffer volume

In order to provide the required energy for domestic water heating, a fresh water station is generally connected to a heating water puffer tank. The volume of the heating water buffer tank is determined by the domestic hot water requirement of the installation, the storage temperature in the heating water buffer tank and the user behaviour.

VP = V x t x (Tp/Tww) x Sn

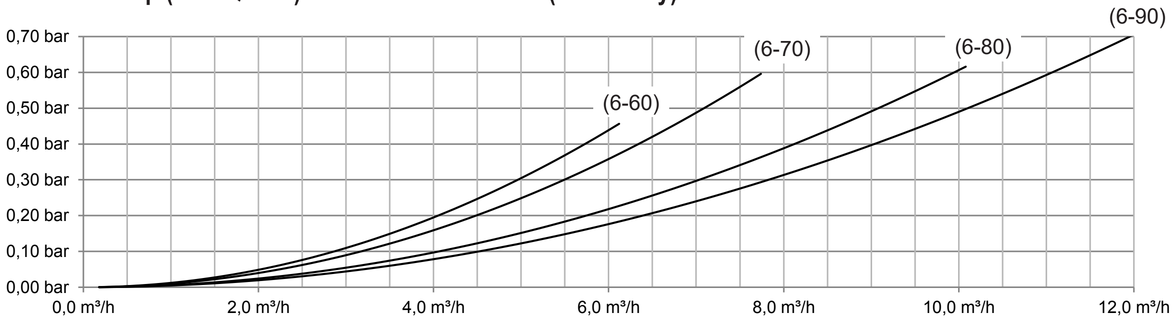
VP	Required minimum volume of the heating water buffer tank
V	Calculated peak flow of the fresh water module
t	Time for which the peak flow is required. The value can be gear towards, for example the duration of the tub filling, user information or the standard value from DIN 4708 (10 min.)
(Tp/Tww)	For the temperature spread between the heating water buffer tank and domestic water
	0.5 for a high temperature spread (e.g. 90/45 °C)
	0.7 for a medium temperature spread (e.g. 70/45 °C)
	1 for a low temperature spread (e.g. 55/45 °C)
Sn	Safety factor for observing user behaviour
	1 normal non-draw-off times
	2 short non-draw-off times
	3…4 very short non-draw-off times

Example calculation

VP	V	t	(Tp/Tww)	Sn
(litr)	(l/min)	(min)		
1576	78.8	10.0	1.0	2.0

(grey)	Result
(white)	Input

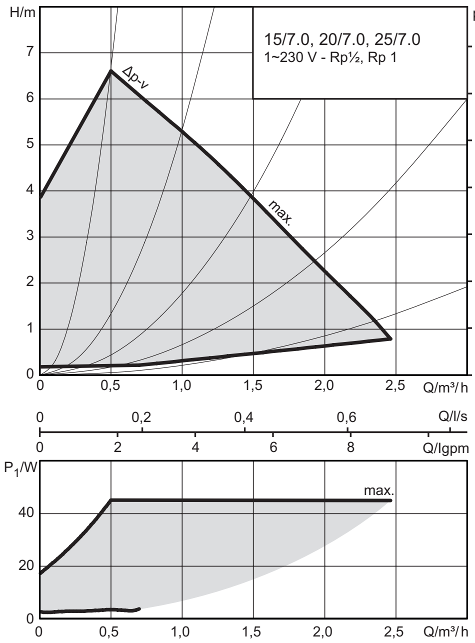
Pressure drop (ΔP / Q max) - domestic water side (secondary)



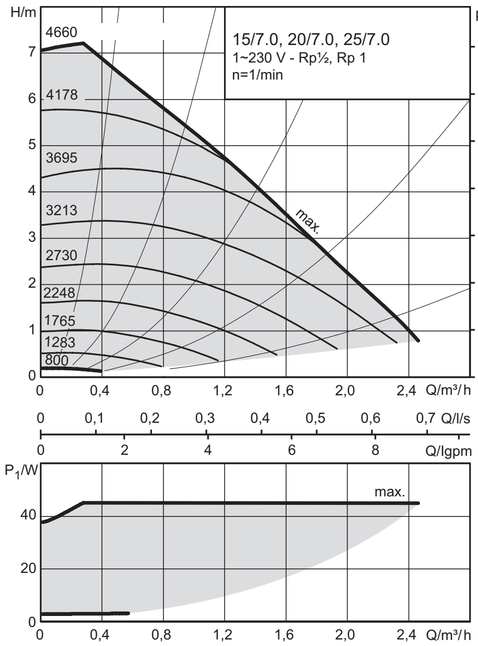
Circulating pump characteristic curves

for circulation set ¾″

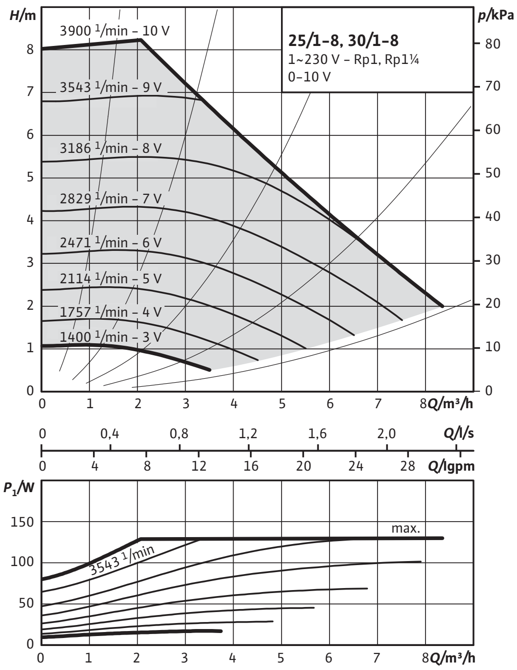
Δp-v (variable)



Constant speed

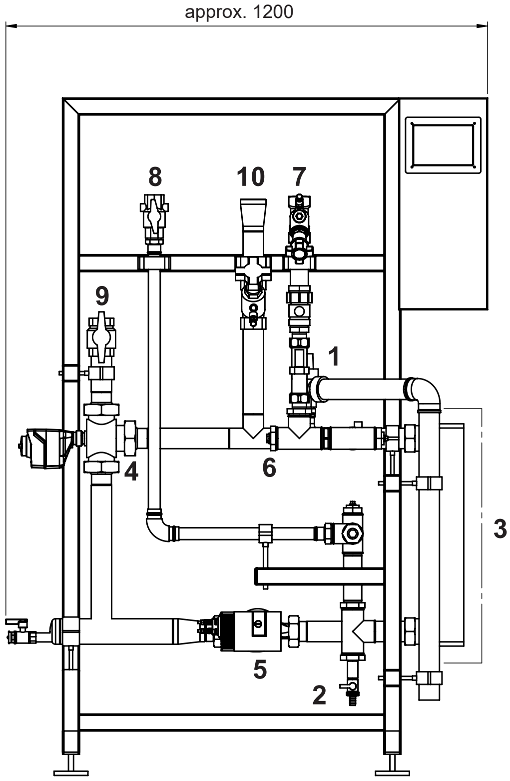


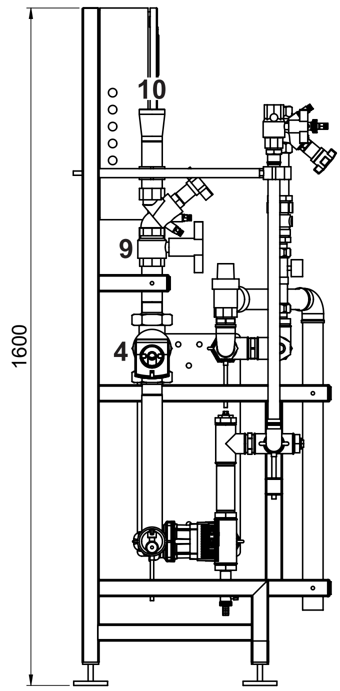
for circulation set 1″ and 1 ¼″

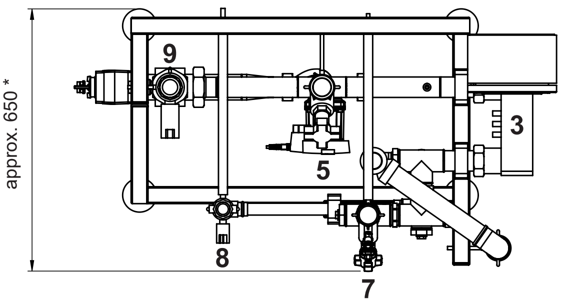


Charging module TransTherm aqua F (6-60)

(Dimensions in mm)

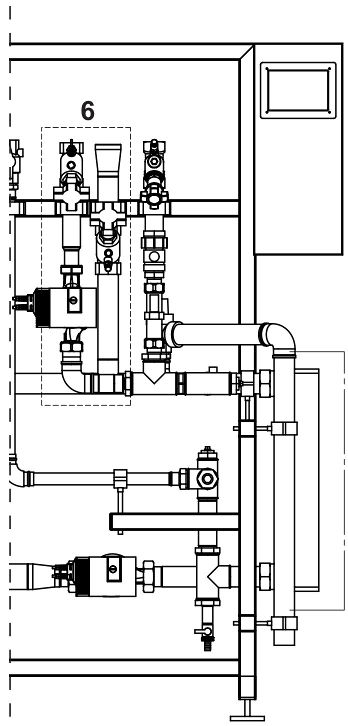






* with circulation 680

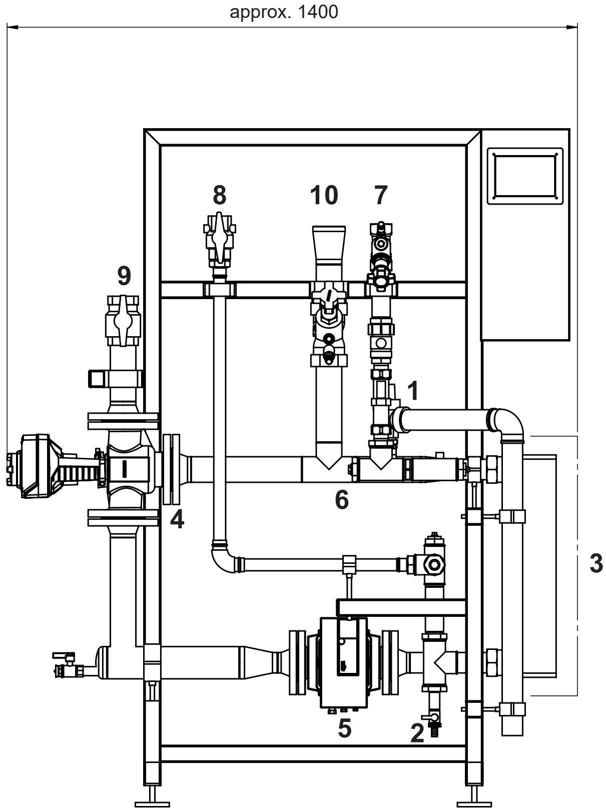
Version incl. circulation set

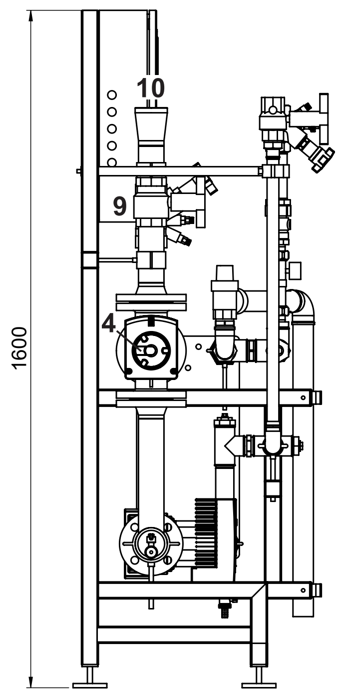


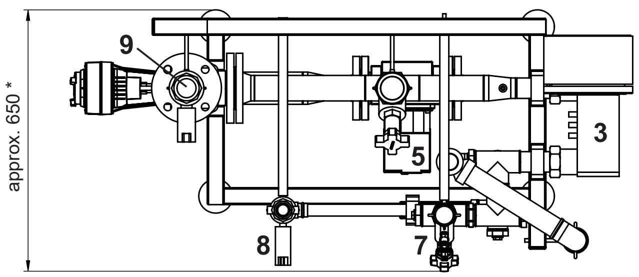
1	Safety valve Hot water 10 bar	
2	Filling/drain valve	
3	Heat exchanger	
4	Three-way valve	
5	Circulating pump	
6	Circulation	DN 32, Rp 1 ¼″ (DN 25, Rp 1″)
7	Cold water	DN 32, Rp 1 ¼″
8	Hot water	DN 32, Rp 1 ¼″
9	Flow heating water	DN 40, Rp 1 ½″
10	Return heating water	DN 40, Rp 1 ½″

TransTherm aqua F	Weight in kg
(6-60)	123

Charging module TransTherm aqua F (6-70)
(Dimensions in mm)

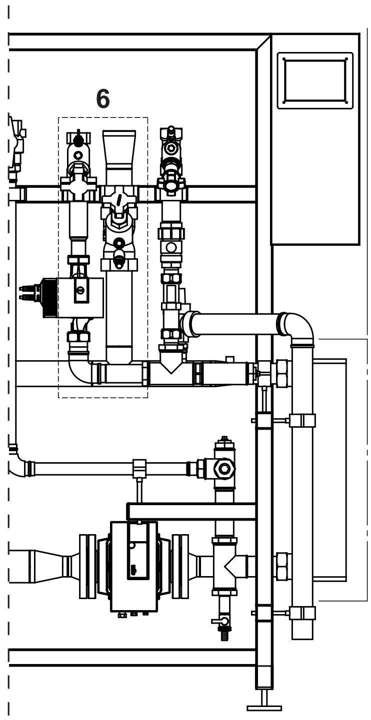






* with circulation 680

Version incl. circulation set

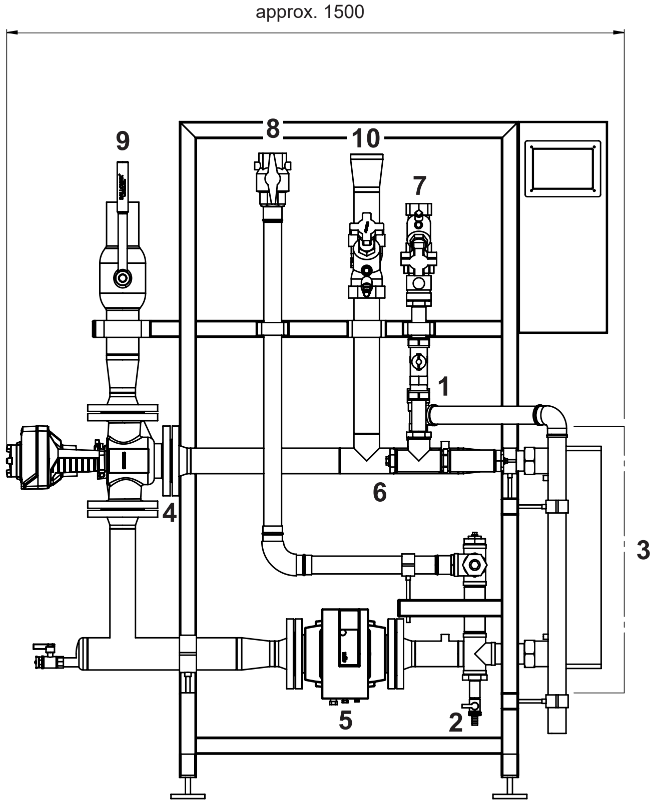


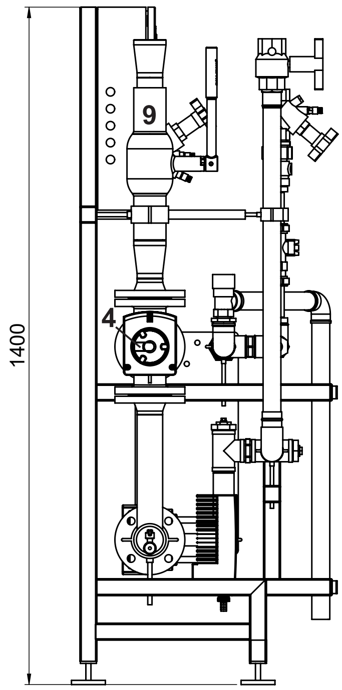
1	Safety valve Hot water 10 bar	
2	Filling/drain valve	
3	Heat exchanger	
4	Three-way valve	
5	Circulating pump	
6	Circulation	DN 32, Rp 1 ¼″ (DN 25, Rp 1″)
7	Cold water	DN 32, Rp 1 ¼″
8	Hot water	DN 32, Rp 1 ¼″
9	Flow heating water	DN 50, Rp 2″
10	Return heating water	DN 50, Rp 2″

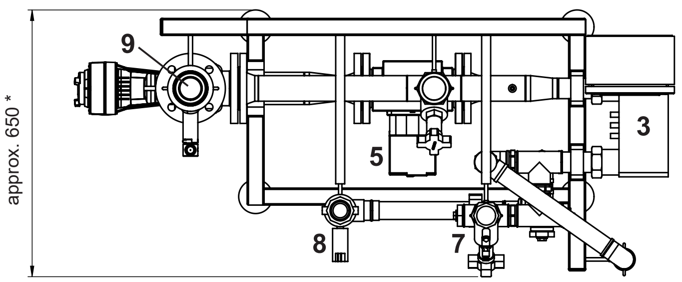
TransTherm aqua F	Weight in kg
(6-70)	172

Charging module TransTherm aqua F (6-80)

(Dimensions in mm)

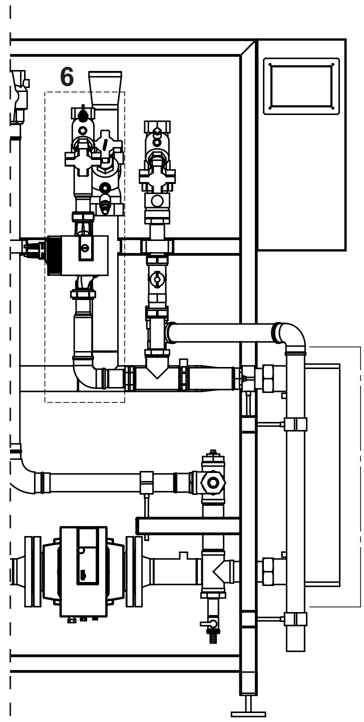






* with circulation 680

Version incl. circulation set

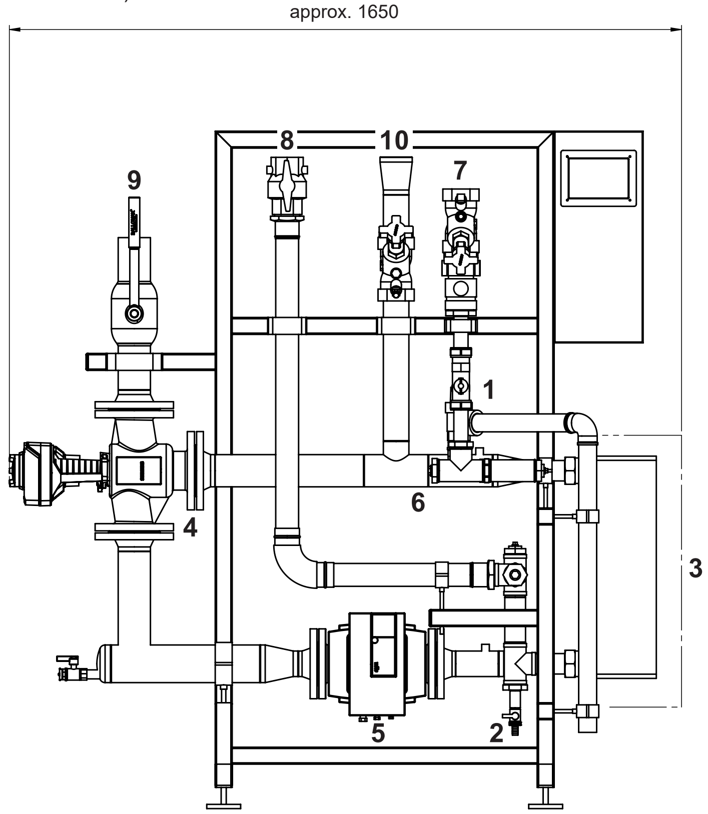


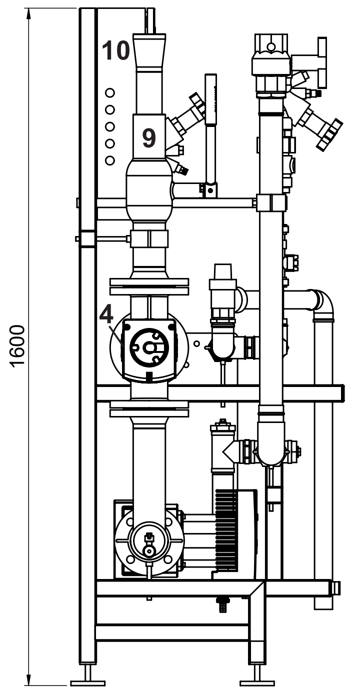
1	Safety valve Hot water 10 bar	
2	Filling/drain valve	
3	Heat exchanger	
4	Three-way valve	
5	Circulating pump	
6	Circulation	DN 32, Rp 1 ¼″ (DN 25, Rp 1″)
7	Cold water	DN 40, Rp 1 ½″
8	Hot water	DN 40, Rp 1 ½″
9	Flow heating water	DN 65 AE (weld-on end)
10	Return heating water	DN 65 AE (weld-on end)

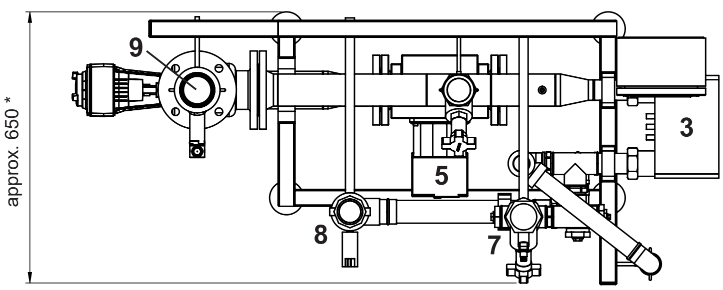
TransTherm aqua F	Weight in kg
(6-80)	202

Charging module TransTherm aqua F (6-90)

(Dimensions in mm)

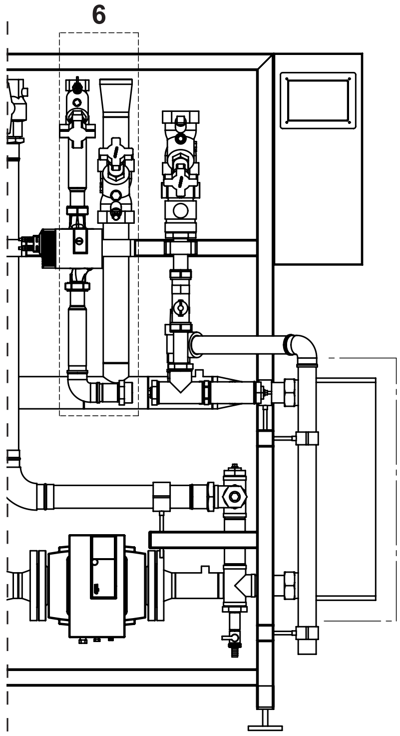






* with circulation 700

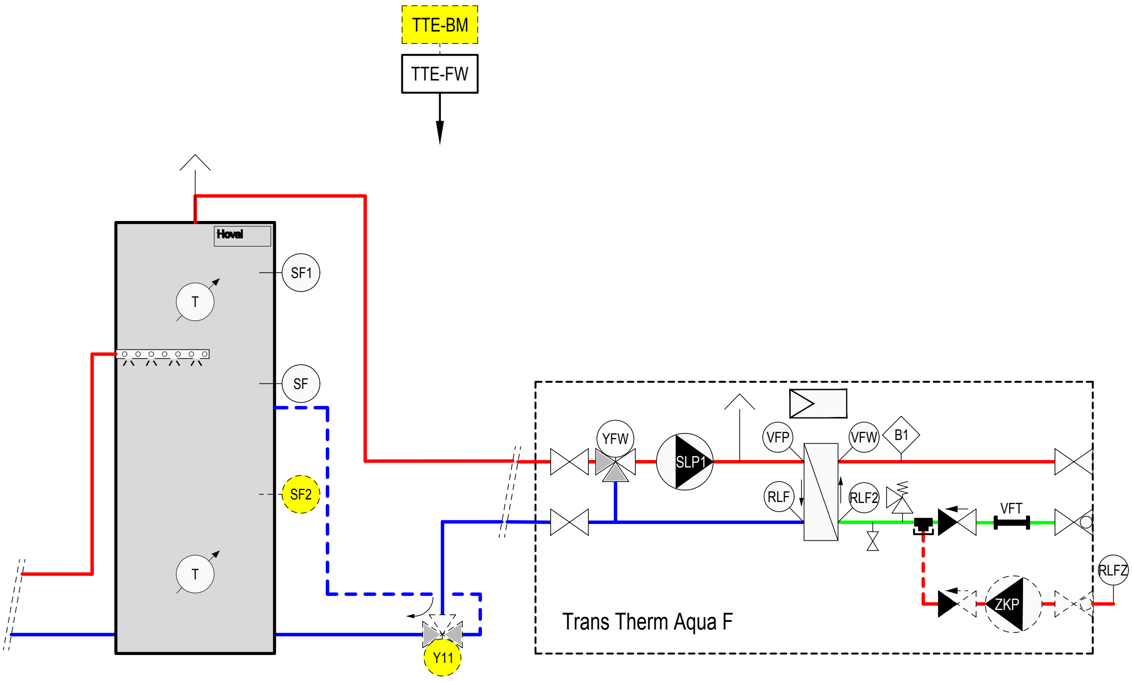
Version incl. circulation set



1	Safety valve Hot water 10 bar	
2	Filling/drain valve	
3	Heat exchanger	
4	Three-way valve	
5	Circulating pump	
6	Circulation	DN 32, Rp 1 ¼″ (DN 25, Rp 1″)
7	Cold water	DN 50, Rp 2″
8	Hot water	DN 50, Rp 2″
9	Flow heating water	DN 65 AE (weld-on end)
10	Return heating water	DN 65 AE (weld-on end)

TransTherm aqua F	Weight in kg
(6-90)	214

Water heating
TransTherm aqua F
Hydraulic schematic BFAE035



TTE-FW	Basic module district heating/fresh water
B1	Flow temperature monitor (if required)
VFP	Flow sensor primary
VFW	Flow sensor DHW
RLF	Return sensor primary
RLF2	Return sensor cold water
SF	Calorifier sensor
SF1	Calorifier sensor 1
RLFZ	Circulation sensor
SLP1	Calorifier charging pump primary
VFT	Flow rate sensor
YFW	Three-way valve with actuator
ZKP	Recirculation pump

Option

BM	TopTronic® E control module
SF2	Calorifier sensor 2
Y11	Return switching with actuator

Fresh water module TransTherm aqua FT/FTC

Fresh water module for hygienic water heating in the continuous flow principle for single- and two-family homes with:

- High-output, soldered stainless steel plate heat exchanger (heat exchanger solder - FT: copper, FTC: stainless steel)
- Integrated heating water charging pump
- Flow switch for heating water charging pump
- Cut-off armatures
- Thermostatic hot water temperature control
- Stainless steel piping for quick assembly
- Wall attachment
- Ready-to-connect
- Casing made of sheet steel painted in red or white
- Base plate

The quick-acting hot water temperature sensor accelerates the closing function of the regulating valve and protects the heat exchanger against overheating and scaling.

Output	65 kW (27 l/min) 57 kW (23 l/min)

Circulation module

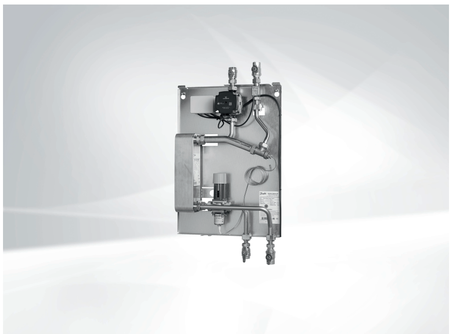
for TransTherm aqua FT (65), FTC (57)

- Pre-assembled, for installation on-site, incl. cable and plug
- Recirculation pump with integrated timer and circulation temperature control, as well as with pre-mounted safety valve (option)

Minimum requirements on water quality for fresh water modules see Engineering hot water

Part numbers

Fresh water module



TransTherm aqua FT (65)
TransTherm aqua FTC (57)

TransTherm aqua FT/FTC

Fresh water module for hygienic water heating with thermostatic control of the hot water temperature by means of quick-acting water temperature controller

Fresh water module TransTherm aqua	Output kW	Part No.
FT (65)	65	6040 453
FTC (57)	57	6048 769

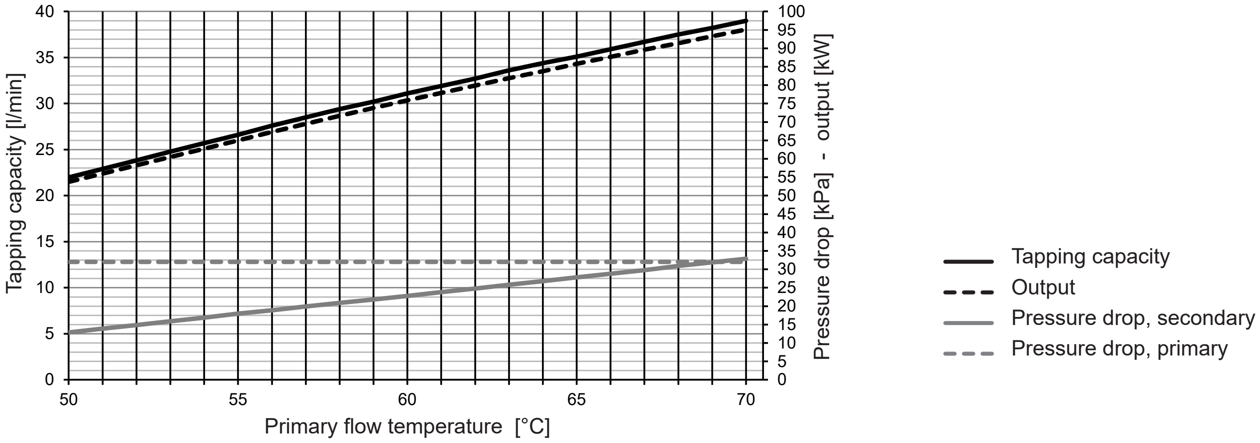
Accessories

		Part No.
	KH set DVGW version for TransTherm aqua FT/FTC	6040 456
	**Casing for TransTherm aqua FT/FTC** White colour	6044 175
	**Casing for TransTherm aqua FT/FTC** Red colour	6045 319
	**Circulation heat exchanger lance R 1″** is screwed into the buffer storage tank and integrated into the circulation line. Material: Copper, tinned inside Transmission power approx. 1 kW at 60 °C Hot water temperature in the buffer storage tank without mixing through the storage tank temperature. Circulation connections R ½″	2038 434
	**Circulation module** for TransTherm aqua FT (65) for TransTherm aqua FTC (57) preassembled, for subsequent installation on the fresh water module comprising: Circulation pump with timer switch Integrated control of the temperature Non-return valve, ball valve Rp ¾″ cable and plug, safety valve 10 bar	6040 455

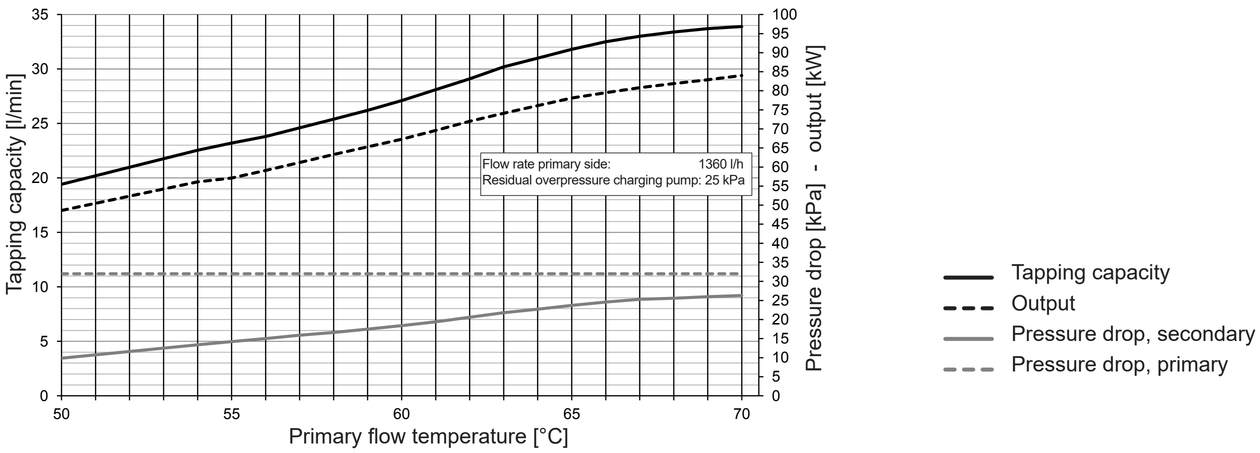
Hoval TransTherm aqua FT/FTC

Type			FT (65)	FTC (57)
Output		kW	65	57
Connection dimension	Heating flow/return	Inches	G ¾" (ext. thread)	
	Cold/hot water	Inches	G ¾" (ext. thread)	
Dimensions W x H x D	Without casing	mm	440 x 655 x 140	
	With casing	mm	450 x 715 x 150	
	With circulation	mm	440/450 x 940 x 140/150	
Weight (incl. packaging)		kg	20	23
Controller protection class			IP 54	IP 54
Supply voltage		V	230	
Plate heat exchanger stainless steel			copper-soldered	soldered stainless steel
Heat exchanger DHW side				
Operating pressure max.		bar	0.5	
Test pressure		bar	10	
DHW temperature max.		°C	70	
Design temperatures DHW side				
Cold water		°C	10	
Hot water		°C	45	
Continuous output		l/min	27	23
Heat exchanger heating side				
Operating pressure max.		bar	10	
Max. permissible operating temperature		°C	100	
Design temperatures heating side				
Heating flow		°C	55	
Heating return		°C	20	
Flow resistance		kPa	34	

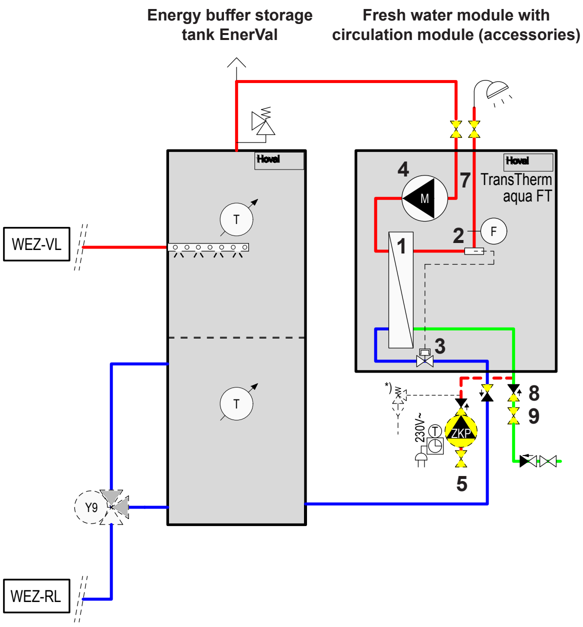
Hoval TransTherm aqua FT (65)
HW temperature 45 °C: Tapping capacity - Output - Pressure drops

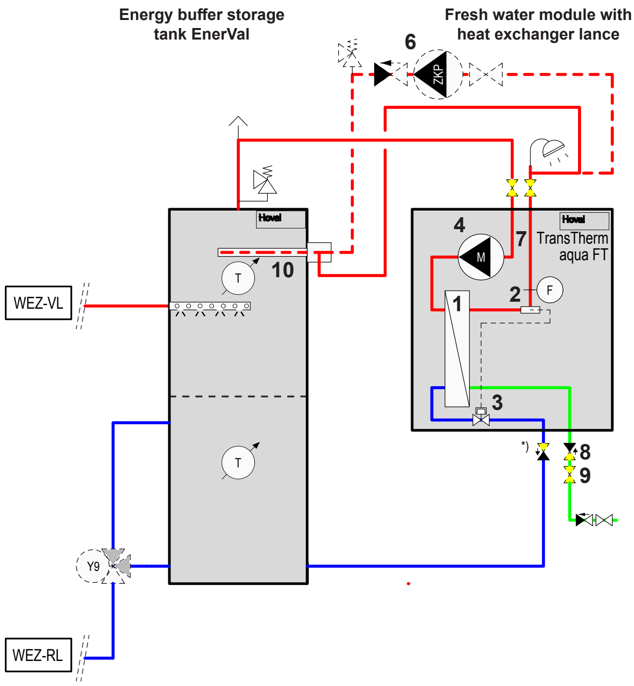


Hoval TransTherm aqua FTC (57)
HW temperature 45 °C: Tapping capacity - Output - Pressure drops



Construction TransTherm aqua FT/FTC





1 Stainless steel plate heat exchanger
2 Hot water sensor, quick-acting
3 Thermostatic control
4 Heating water charging pump
5 Circulation incl. safety valve (optional)
6 Circulation (optional)
7 Flow switch
8 Non-return valve (optional)
9 Cut-off ball valve - flat-sealing (optional)
10 Heat exchanger lance

* Safety valve also necessary with recirculation pump on site

Installation of strainer on site

Functional description
Hoval TransTherm aqua FT/FTC

The Hoval fresh water module TransTherm aqua FT/FTC, with all piping pre-installed and ready-to-connect, consists of a soldered stainless-steel plate heat exchanger (heat exchanger solder - FT: copper, FTC: stainless steel), an integrated heating water charging pump, a thermostatic controller with tapping detection and hot water temperature control and cut-off devices.

When a hot water tapping point is opened, the heating water charging pump is switched on via the flow detection device and the heating water transported from the buffer storage tank to the heat exchanger.

In the large-dimension plate heat exchanger, the hot water is heated in the counterflow principle, directly before removal and in a continuous flow process, from the cold water temperature to the desired DHW temperature.

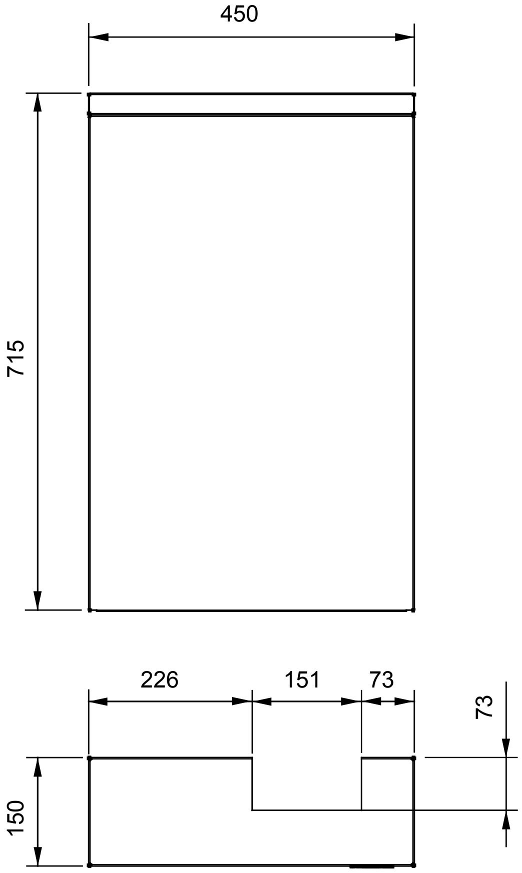
The quick-acting water temperature controller ensures maintenance of the desired hot water temperature, providing a constant tapping temperature and optimum maintenance of stratification in the buffer storage tank.

An optional recirculation pump with thermostat ensures that the circulating water maintains the desired temperature.

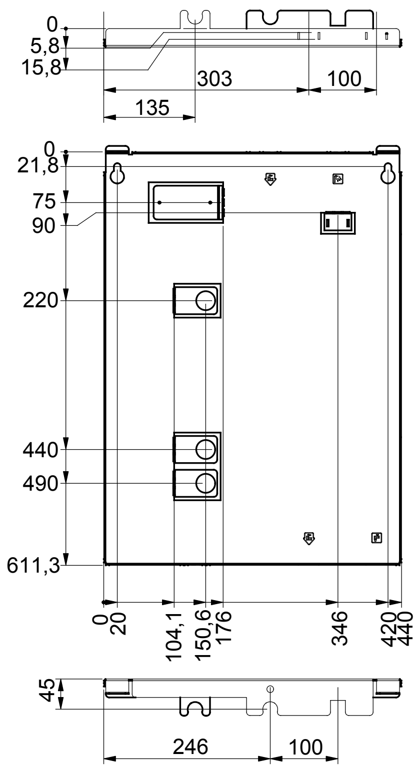
Hoval TransTherm aqua FT/FTC

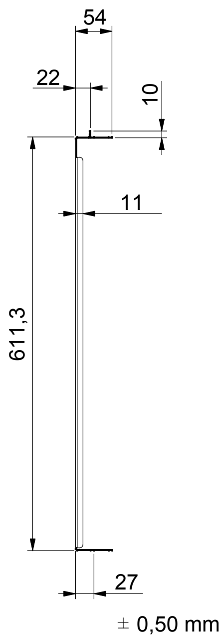
(Dimensions in mm)

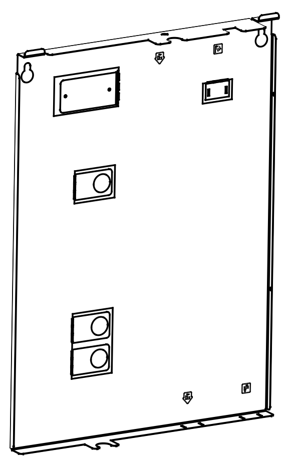
Casing



Base plate







Energy buffer storage tank EnerVal (100-300)

- Energy buffer storage tank made of steel for hydraulic integration with heat pumps
- Thermal insulation made of polyurethane hard foam, foamed on the storage
- Removable foil casing in red
- (100): 2 connection sleeves Rp 1 ½″, 2 connection nozzles R 1″
  (200): 5 connection sleeves Rp 1 ½″
  (300): 8 connection sleeves Rp 1 ½″
- 1 sleeve Rp 1 ½″ for sensor/thermometer
- 2 sensor channels

Delivery
- Energy buffer storage tank with foil casing completely mounted and packed (can be disassembled for introduction)

Energy buffer storage tank EnerVal (500)

- Energy buffer storage tank made of steel for hydraulic integration with boilers, heat pumps and solar installations
- Thermal insulation made of polyurethane hard foam, foamed on the calorifier
- Removable foil casing in red
- 8 connection sleeves Rp 1 ½″
- 1 sleeve Rp 1 ½″ for screw-in electrical heating inset
- 1 coupling Rp ½″ for sensor or thermometer
- 2 sensor channels

Delivery
- Energy buffer storage tank with foil casing completely mounted and packed

Range

EnerVal type		Nominal content l	Operating pressure bar
(100)	B	117	3
(200)	B	222	3
(300)	B	283	3
(500)	B	473	3
(800)		781	3
(1000)		922	3
(1500)		1416	3
(2000)		2000	3

Energy buffer storage tank EnerVal (800-2000)

- Energy buffer storage tank made of steel for hydraulic integration with boiler, solid fuel boiler, heat pumps and solar installations
- Thermal insulation made of polyester fleece with foil jacket, colour red
- 9 connection sleeves Rp 2″
- 2 connection sleeves Rp 3″
- 1 sleeve Rp ½″ for screw-in electrical heating inset
- 1 sleeve Rp ½″ for sensor/thermometer
- Terminal strips for contact sensors
- Perforated separating plate in the central area for separation of the temperature zones
- Flow diversions permanently installed
- 11 insulated cover caps made of EPP hard foam, 2-piece (can be broken out)
- 1 sleeve Rp ½″ with thermometer and immersion sleeve mounted

Delivery
- Energy buffer storage tank with foil casing completely mounted and packed
- Insulated cover caps already installed (can be removed and broken out)

Screw-in electrical heating inset type EP 2.5 to EP 7.5

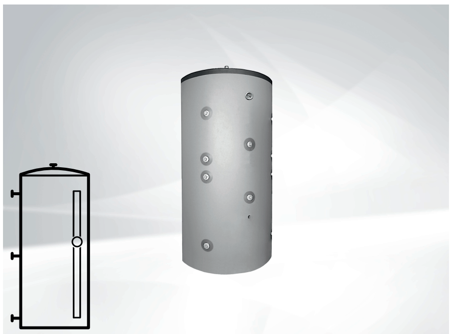
- Made of Incoloy® 825
- Heat input 2.35 to 7.5 kW
- Incl. temperature control and safety temperature limiter
- Connection:
  EP 2.5: 3 x 400 V (1 x 230 V)
  EP 3.5 and EP 7.5: 3 x 400 V

Delivery
- Delivered separately packed

On site
- Installation of the electrical heating inset

Energy buffer storage tanks 800-2000 cannot be used in refrigeration systems.

Energy buffer storage tank



EnerVal (100-2000)

Steel container unmachined on inside,
EnerVal (200-500) with casing finished,
EnerVal (800-2000) thermal insulation
already installed

EnerVal type		Nominal content l	Part No.
(100)	B	117	7016 826
(200)	B	222	7013 681
(300)	B	283	7015 975
(500)	B	473	7015 976
(800)		781	7016 785
(1000)		922	7016 786
(1500)		1416	7016 787
(2000)		2032	7016 788

Accessories

Connection hose with T-piece — Part No. 6019 013
for EnerVal (500)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation
and a T-piece 1½″

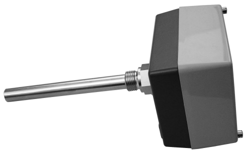
Connection hose with T-piece — Part No. 6023 573
for EnerVal (800-2000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation
with a T-piece 2″

Connection hose — Part No. 6019 014
for EnerVal (500)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation 1½″

Connection hose — Part No. 6023 574
for EnerVal (800-2000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation 2″

Accessories

	Part No.



Double thermostat ATH-22 — 2054 650
Usable as minimal thermostat flow
to open the loading pump.
Usable as maximal thermostat
to limit the flow.
Bottom part of the casing made of
die-cast aluminium with plastic cover,
with rigid shaft
1 separate temperature adjustment
each in the casing
Type of protection IP54
Switching capacity: 230 V/10 A cos=1
Control range 1.2: 0 °C … +100 °C
Switching differential 1.2: 3-4 %
of the scale range
Immersion sleeve: G ½″, L = 150 mm,
D = 15 mm
Immersion sleeve brass nickel-plated
Version according to DIN EN 14597

Immersion thermostat
RAK-TW1000.S SB 150 — 6010 082
Thermostat with immersion sleeve ½″ - depth
of immersion 150 mm, brass nickel-plated

Thermometer set - EnerVal (200-6000) — 6052 107
Thermometer Ø 80 mm
incl. immersion sleeve ½″ x 100 mm
With chrome-plate edge and Hoval logo
for sleeve mounting G 1/2″
Thermometer (length 80 mm Ø 80 mm),
Immersion sleeve (length 100 mm)

Screw-in electrical heating inset
of Incoloy® alloy 825, with temperature control
and safety temperature limiter.
Delivery separately, installation on site.

Type	Output [kW]	Voltage [V]	Installation [mm]	For EnerVal type	Part No.
EP 2.5	2.35	3 x 400	390	(200-1500)	6049 557
EP 3.5	3.6	3 x 400	500	(200-1500)	6049 558
EP 5	4.9	3 x 400	620	(500-1500)	6049 559
EP 7.5	7.5	3 x 400	850	(800-2000)	6049 560

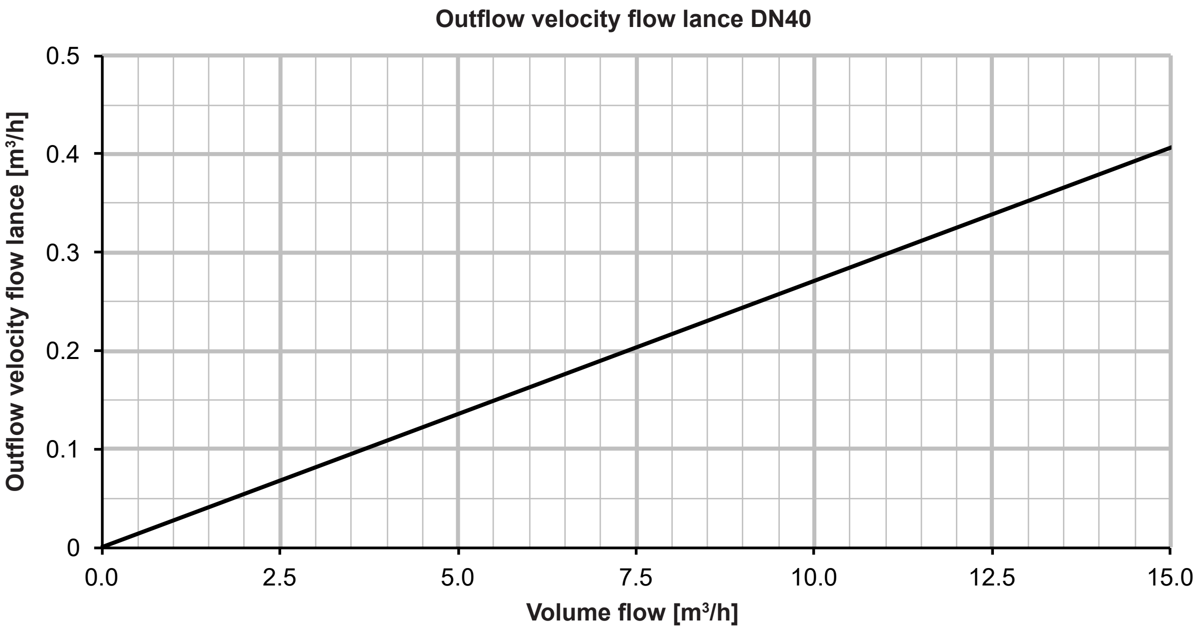
Inject lance for EnerVal (200-500) — 6051 645
For horizontal installation in the
energy buffer storage tank.
For the decrease of the turbulence of
the attached water.
Screw-in depth: 450 mm
Connection: Rp 1½″

EnerVal (100-2000)

Type			(100)	(200)	(300)	(500)	(800)	(1000)	(1500	(2000)
• Nominal content		litres	117	222	283	473	781	922	1416	2032
• Operating pressure/test pressure		bar	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
• Operating temperature min./max.		°C	5-95	5-95	5-95	5-95	20-95	20-95	20-95	20-95
• Thermal insulation	PU rigid foam foamed	mm	50	50	75	75	-	-	-	-
	polyester fleece	mm	-	-	-	-	120	120	120	120
• Thermal insulation λ		W/mK	0.027	0.027	0.027	0.027	0.040	0.040	0.040	0.040
• Fire protection class			B2	B2	B2	B2	B2	B2	B2	B2
• Heat loss at 65 °C		W	51	53	54	72	136	144	167	192
• Transport weight		kg	41	59	79	111	145	159	236	350
• U value		W/m²K	0.359	0.359	0.279	0.296	0.396	0.374	0.345	0.330
• Dimensions			see table of dimensions							

Screw-in electrical heat insets
made of Incoloy® alloy 825,
with temperature controller and safety temperature limiter,
delivered separately, installation on site.

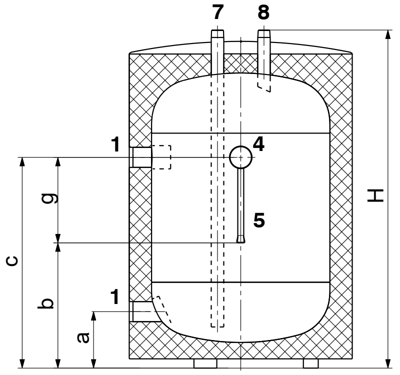
Type	Heat output [kW]	Voltage [V]	Installation length [mm]	for EnerVal
EP 2,5	2.35	3 x 400 (1 x 230)	390	(200-1500)
EP 3,5	3.6	3 x 400	500	(200-1500)
EP 5	4.9	3 x 400	620	(500-1500)
EP 7,5	7.5	3 x 400	850	(800-2000)

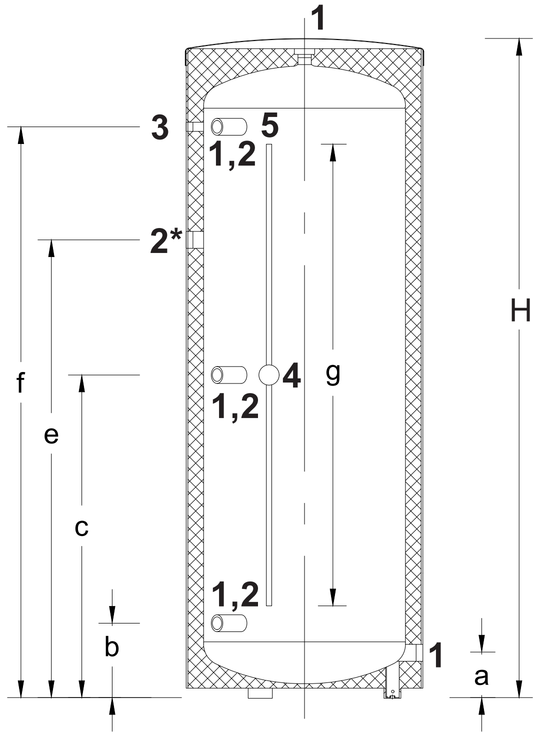


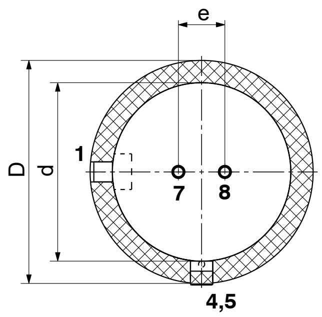
EnerVal (100)

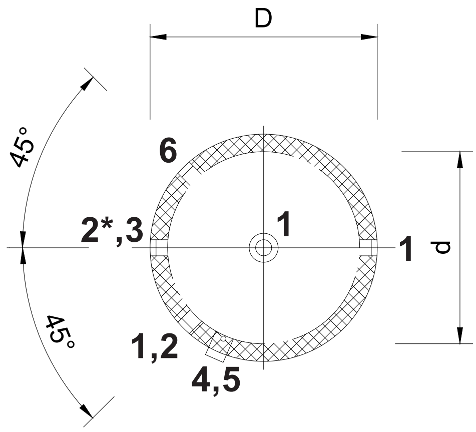
(Dimensions in mm)

EnerVal (200-500)









1	Heating connection	Rp 1½″ (IT)
2	Connection for screw-in electrical heating inset (positioning depending of the plants, see hydraulic schematics boiler)	Rp 1½″ (IT)
2*	Additional connection for screw-in electric immersion heater, only for EnerVal (500)	Rp 1½″ (IT)
3	Coupling for immersion sleeve, thermostat or thermometer	Rp ½″ (IT)
4	Removable cap (60 mm) for positioning the sensor in the sensor channel	
5	Sensor duct inner Ø 11 mm	
6	3 heating connections Rp 1 ½″ only for EnerVal (300,500)	Rp 1½″ (IT)
7	Heating circuit flow	R 1″ (ET)
8	Heating circuit return	R 1″ (ET)

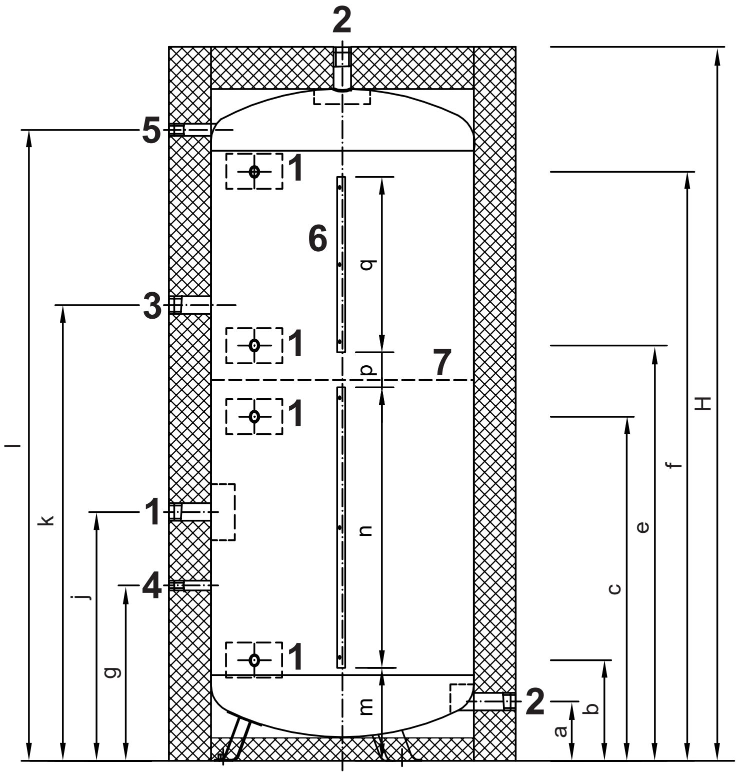
7+8 suitable for direct installation of an armature group LG/HA 25-2 and 32-2

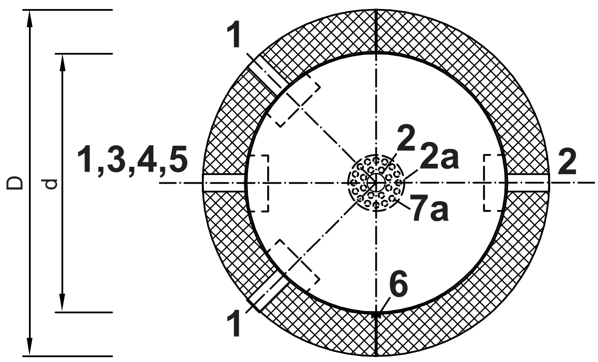
Couplings length: type (100,200) 50 mm, type (300,500) 75 mm

EnerVal type	D	d	H	a	b	c	e	f	g	Tilting measure
(100)	600	480	910	152	337	567	125	-	230	985
(200)	600	480	1440	152	300	720	-	1140	860	1560
(300)	650	480	1780	152	300	890	-	1479	1285	1895
(500)	750	597	1921	127	220	946	1400	1670	1360	2025

Variation because of the production tolerance possible
Dimension +/- 10 mm

EnerVal (800-2000)
(Dimensions in mm)





1	Heating connection	Rp 2″ (IT)
2	Heating connection	Rp 3″ (IT)
2a	Baffle plate for heating connection 2	
3	Connection for screw-in electric heating element	Rp 1½″ (IT)
4	Sleeve for immersion sleeve, thermostat or thermometer	Rp ½″ (IT)
5	Thermometer with immersion sleeve (mounted)	
6	Sensor terminal bar	
7	Isolation plate	
7a	Holes of the separating plate	

Length of all connecting pieces: 120 mm

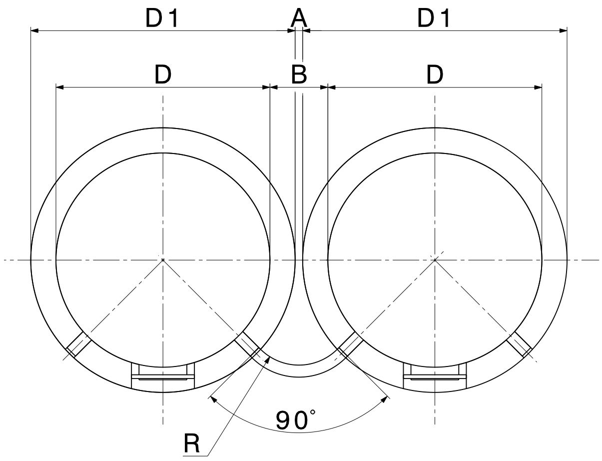
Variation because of the production tolerance possible
Dimension +/- 10 mm

EnerVal type	D	d	H	a	b	c	e	f	g	j	H	k	l	m	n	p	q	Tilting measure
(800)	1030	790	1845	108	235	932	1135	1497	410	657	1845	1230	1612	300	800	100	500	1888
(1000)	1030	790	2132	108	309	1006	1209	1699	500	710	2132	1300	1882	300	800	100	500	2172
(1500)	1240	1000	2142	220	358	1006	1209	1699	500	800	2142	1337	1839	300	800	100	500	2200
(2000)	1440	1200	2142	220	382	1030	1230	1692	500	800	2142	1230	1839	300	800	100	500	2200

Connection set for energy buffer storage tank EnerVal
(Dimensions in mm)

Connection of 2 EnerVal (500-1000)

EnerVal type	A	B	D	D1	R
(500)	20	270	597	750	180
(800-1000)	10	250	790	1030	210



Connection of 2 EnerVal (1500-2000)

EnerVal type	A	B	D	D1	R	Q
(1500)	60	300	1000	1240	266	5°
(2000)	10	250	1200	1440	250	8°

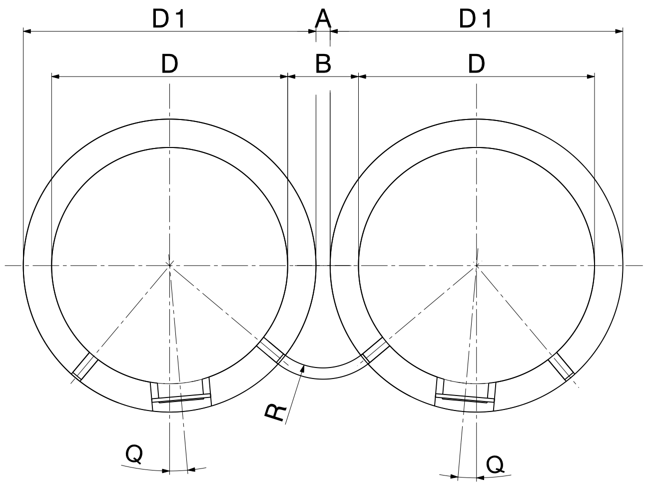
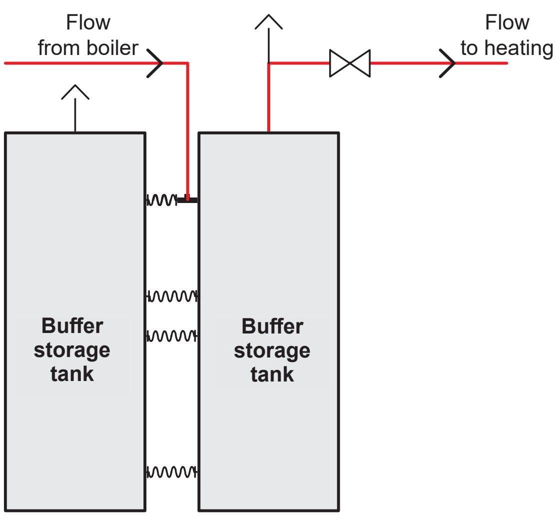


Illustration: connection of 2 energy buffer storage tanks EnerVal with connection set



Energy buffer storage tank EnerVal G (1000-4000)

- Steel energy buffer storage tank for the hydraulic integration of heating boilers, heat pumps and solar energy systems
- Flow diversions permanently installed
- 1x sleeve Rp 1½″ for screw-in electric heating element
- 8 connection sleeves Rp 2″
- 2 connection sleeves Rp 3″
- 1 sleeve Rp ½″ for sensor/thermometer
- 1 sleeve Rp ½″ with thermometer and immersion sleeve mounted
- Terminal strips for contact sensors
- Perforated separating plate in the central area for separation of the temperature zones
- 10 cover caps with EnerVal (1000-2500) insulated made of EPP hard foam, 2-piece (can be broken out)
- Thermal insulation made of polyester fibre with foil jacket, colour red

Delivery
- Energy buffer storage tank (1000,1500) mounted and packed with foil jacket (can be removed for installation)
- Energy buffer storage tank (2500) thermal insulation separate
- Cover caps (insulated, can be removed and broken out) for thermal insulation already mounted
- Energy buffer storage tank (4000) raw packed without thermal insulation (on site)

Energy buffer storage tank EnerVal G (6000)

- 8 connection sleeves R 3″ (ext. thread)
- 2 connection flanges DN 100 PN 6
- 1 sleeve Rp ½″ for sensor/thermometer
- 1 sleeve Rp ½″ with thermometer and immersion sleeve mounted
- Terminal strips for contact sensors
- 1 sleeve Rp 1½″ for screw-in electric heating element
- Flow diversions permanently installed
- Perforated separating plate in the central area for separation of the temperature zones

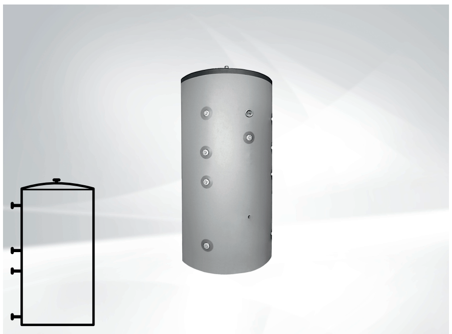
Delivery
- Energy buffer storage tank, packed, without thermal insulation
- Thermal insulation to be provided on site

Energy buffer storage tank
cannot be used in refrigeration plants.

Range

EnerVal G type	Nominal content l	Operating pressure bar
(1000)	927	6
(1500)	1425	6
(2500)	2419	6
(4000)	4021	6
(6000)	5897	6

Energy buffer storage tank



EnerVal G (1000-6000)

EnerVal G (1000,1500) fully insulated;
EnerVal G (2500), thermal insulation separately;
EnerVal G (4000,6000) packaged,
without thermal insulation.
Thermal insulation to be provided on site;
steel tank raw on the inside.

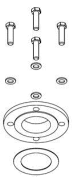
EnerVal G type	Nominal content l	Part No.
(1000)	927	7016 749
(1500)	1425	7016 750
(2500)	2419	7016 751
(4000)	4021	6052 105
(6000)	5897	6052 106

EnerVal G (1000-6000)
Cold accumulator version on request

Accessories

Thermometer set - EnerVal (200-6000) — Part No. 6052 107
Thermometer Ø 80 mm
incl. immersion sleeve ½″ x 100 mm
With chrome-plate edge and Hoval logo
for sleeve mounting G 1/2″
Thermometer (length 80 mm Ø 80 mm),
Immersion sleeve (length 100 mm)

Immersion thermostat
RAK-TW1000.S SB 150 — Part No. 6010 082
15-95 °C, setting (externally visible)
under the casing cover.
Incl. immersion sleeve ½″
- immersion depth 150 mm,
made from nickel-plated brass.

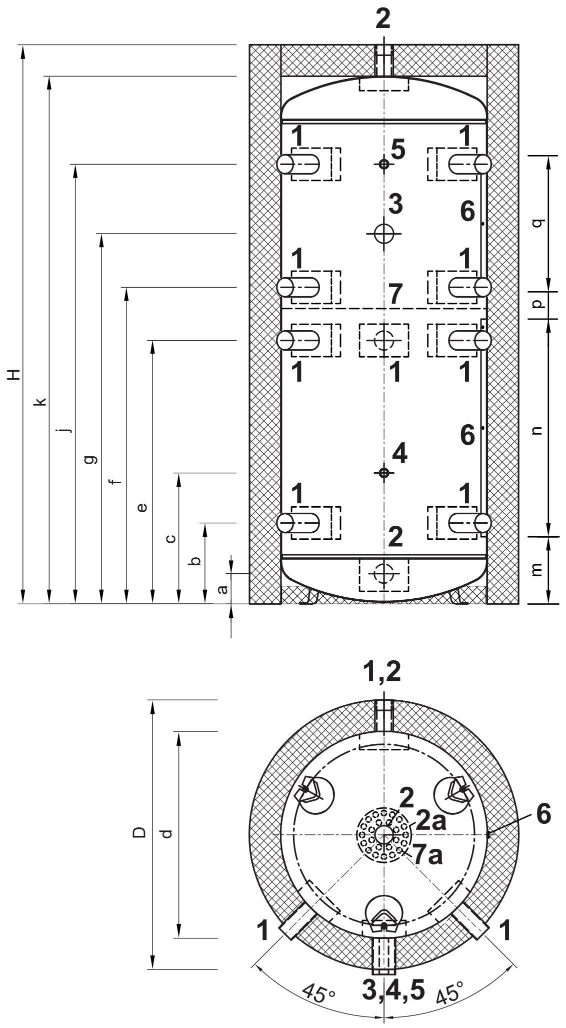


Threaded flange set PN6 DN80/3″ — Part No. 6042 783
with 1x seal and screw fitting

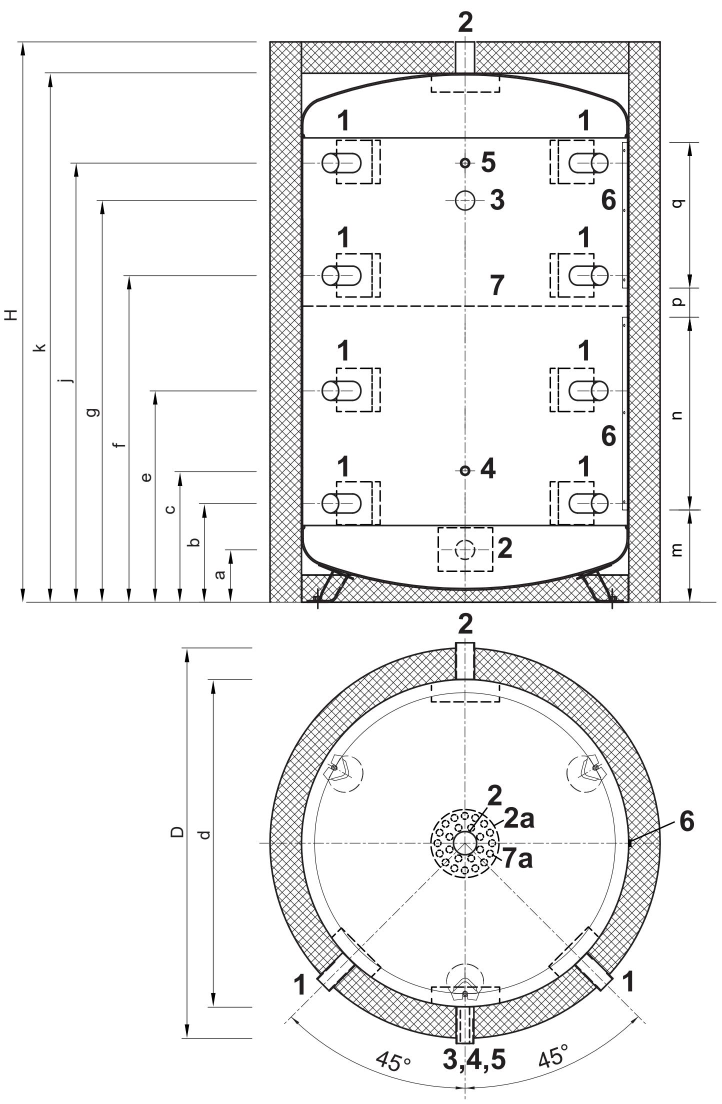
EnerVal G (1000-6000)

Type		(1000)	(1500)	(2500)	(4000)	(6000)
• Nominal content	l	922	1416	2419	4021	5897
• Operating/test pressure	bar	6/8	6/8	6/8	6/8	6/8
• Maximum operating temperature	°C	95	95	95	95	95
• Thermal insulation made from polyester fleece	mm	120	120	120	-	-
• Thermal insulation λ	W/mK	0.040	0.040	0.040	-	-
• Fire protection class		B2	B2	B2	-	-
• Heat loss at 65 °C	W	139	164	204	-	-
• Transport weight	kg	163	235	411	773	1013
• U value	W/m²K	0.360	0.338	0.310	-	-
• Dimensions		see dimensional drawing				

EnerVal G (1000)
(Dimensions in mm)



EnerVal G (1500,2500)

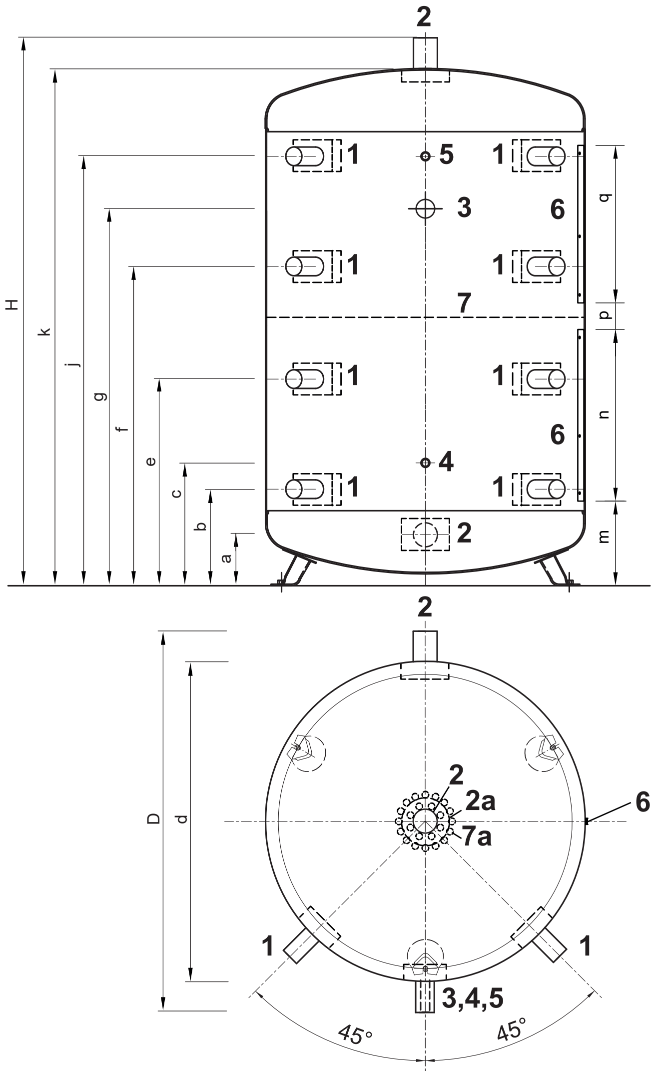


1	Heating connection	R 2″ (ET)
2	Heating connection	R 3″ (ET)
2a	Baffle plate for heating connection 2	
3	Connection for screw-in electric heating element	Rp 1½″ (IT)
4	Sleeve for immersion sleeve, thermostat or thermometer	Rp ½″ (IT)
5	Thermometer with immersion sleeve (mounted)	
6	Sensor terminal bar	
7	Isolation plate	
7a	Holes of the separating plate	

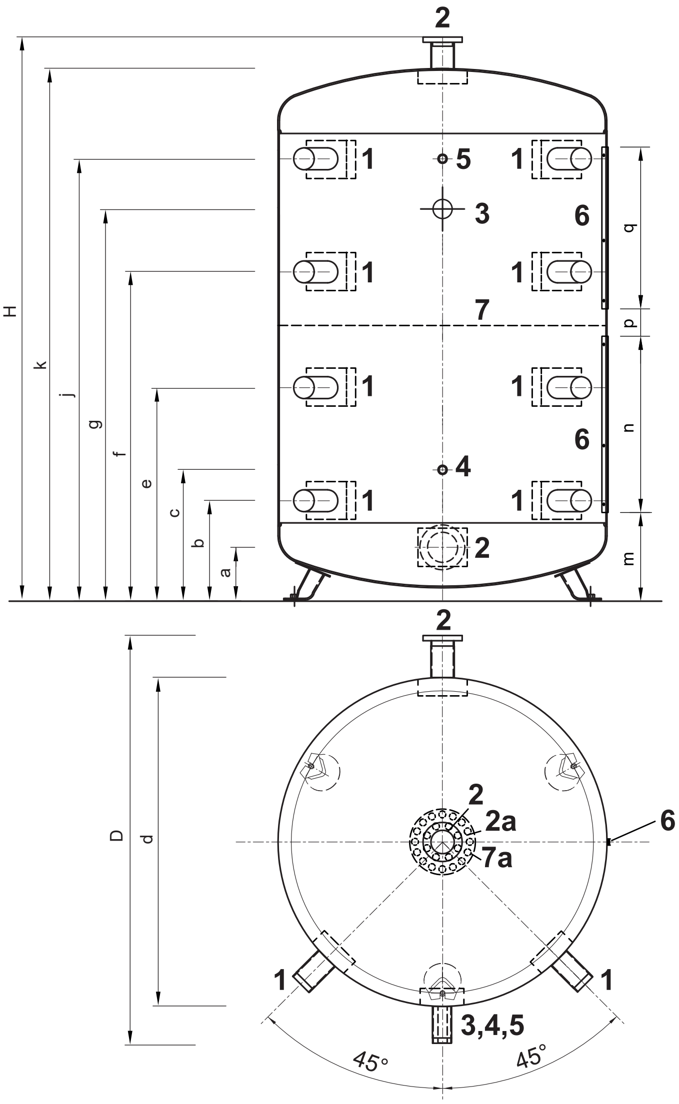
Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

EnerVal G type	D	d	H	a	b	c	e	f	g	j	k	m	n	p	q	Tilted measure
(1000)	1030	790	2135	116	309	500	1006	1209	1444	1679	2015	299	700	50	600	2177
(1500)	1240	1000	2149	200	377	568	807	1247	1462	1677	2029	367	700	50	600	2212
(2500)	1440	1200	2512	250	435	626	900	1538	1770	2003	2392	425	700	50	600	2560

EnerVal G (4000)
(Dimensions in mm)



EnerVal G (6000)



1	Heating connection	
	EnerVal G (4000): nozzle length: 200 mm	R 2″ (ET)
	EnerVal G (6000): nozzle length: 200 mm	R 3″ (ET)
2	Heating connection	
	EnerVal G (4000): nozzle length: 200 mm	R 3″ (ET)
	EnerVal G (6000): welded-on flange PN 6 flange, nozzle length: 200 mm	DN 100
2a	Baffle plate for heating connection 2	
3	Connection for screw-in electric heating element	Rp 1½″ (IT)
4	Sleeve for immersion sleeve, thermostat or thermometer	Rp ½″ (IT)
5	Thermometer with immersion sleeve (mounted)	
6	Sensor terminal bar	
7	Isolation plate	
7a	Holes of the separating plate	

Deviations possible as a result of manufacturing tolerances. Dimensions +/- 10 mm

Thermal insulation on site

EnerVal G type	D	d	H	a	b	c	e	f	g	j	k	m	n	p	q	Tilted measure
(4000)	2000	1500	2776	325	516	707	1090	1577	1947	2151	2576	506	700	50	600	2854
(6000)	2000	1500	3886	315	528	720	1435	2342	2796	3249	3686	518	700	50	600	3945

VarioVal FLS (800-1000)
Stratified storage tank
(suitable for heat pumps)

Stratified storage tank
- For single family homes with approx. 4-6 persons
- Heating with solar, low-temperature heat generator (heat pumps) or for high-temperature heat generators
- Annual solar coverage rate depends on heat demand, collector field size, collector field storage ratio and location
- Stratified storage tank made of steel, primed on the outside, for heating support
- Water heating via fresh water module (option)
- With built-in plain tube heat exchanger for connection to solar collectors (800) up to 10 m^2 collector surface (1000) up to 15 m^2 collector surface
- Layer installations:
  - Single-layer tube (tube in tube)
  - Horizontal guide plates
  - Vertical guide plates
  - Guide tubes (bent upwards/downwards) for fresh water module connections
  - Heating flow/return guide tubes (also with return in layer channel)
  - Separating plate in the central area for separation of the temperature zone
- Sensor terminal blocks
- Thermometer (with capillary)
- Thermal insulation
  - Made of polyester fibre fleece 140 mm
  - Outer plastic jacket with patented aluminium sealing bracket, red
  - Insulated cover flap (can be knocked out) for heat exchanger connections

Delivery
Calorifier and thermal insulation completely installed (can be removed for installation)

Design on request
- Heating module HMV20-3BM/SPS-S 7,5 with thermal insulation box
- Can be expanded with
  - Heating armature group HAV20-3BM-R/SPS-S 7.5
  - Solar armature group SAV20/SPS-S 7,5
- Fresh water module
  - TransTherm aqua FT/FTC: For direct storage tank mounting with supplied fixing bolts (not pre-assembled) and connection set
  - TransTherm aqua F: wall installation (pipework on site)
- Circulation lance
- Screw-in electric heating element

VarioVal FLS   VarioVal FLS incl. TransTherm aqua FT/FTC

Model range

VarioVal FLS Type	Solar heat exchanger m^2	dm^3
(800)	2	13.4
(1000)	3	18.9

Notice
SPF certificate stratification efficiency SPF-18-009-SE

VarioVal FLS (800,1000) - selection table

		Hydraulic components + necessary TopTronic® E modules								Additional accessories		
		1 mixer circuit	2nd mixer circuit		Solar armature group		Return switching	Buffer management	Fresh water module	Screw-in electric heating element	Electri-cal box	Circulation heat exchanger lance
		x	opt.		opt.		x	x	x	x	x	opt.
		Consisting of:										
Heat generator		Heating module HMV20-3BM SPS-S 7,5	HA group HAV20-3BM-R SPS-S 7,5	TopTronic® E module expansion heating circuit	Solar group SAV20FR SPS 7 PM2	TopTronic® E solar module	Stratified charging set SLS32-3-H RL	TopTronic® E buffer module	TransTherm aqua F TransTherm aqua FT TransTherm aqua FTC			
Belaria® pro	(8,13)	x	x	x	x	x	x	x	x	opt.	opt.[2]	opt.
Belaria® comfort ICM	(8,13)	x	x	x	x	x	x	-	x	x	opt.[2]	opt.
Thermalia® comfort	(6-17)	x	x	x	x	x	x	x	x	opt.	opt.[2]	opt.
Thermalia® comfort H	(7,10)	x	x	x	x	x	x	x	x	opt.	opt.[2]	opt.
UltraSource B comfort C	(8-17)	x	x	x	x	x	x	-	x	x	opt.[2]	opt.
UltraSource T comfort C	(8-17)	x	x	x	x	x	x	-	x	opt.	opt.[2]	opt.
TopGas® classic	(12-30)	x	x	x	x	x	- [3]	x	x	opt.	opt.[2]	opt.
UltraGas®	(15-35)	x	x	x	x	x	-	x	x	opt.	opt.[2]	opt.
UltraOil®	(16-35)	x	x	x	x	x	-	x	x	opt.	opt.[2]	opt.
MultiJet®	(12-25)	x	x	x	x	x	-	x	x	opt.	opt.[2]	opt.
BioLyt	(13-25)	x	x	x	x	x	-	x	x	opt.	opt.[1]	opt.

[1] A module expansion or a controller module can be installed in the heat generator.
[2] Two TopTronic® E controller modules can be mounted in the heat generator or in the wall casing. If the storage tank is fully equipped, a separate electrical box must be ordered for an additional module.
[3] Return switching to be installed by the client.

Part No.

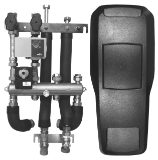
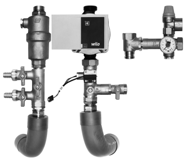
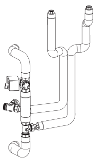
Stratified storage tank

VarioVal FLS (800-1000)

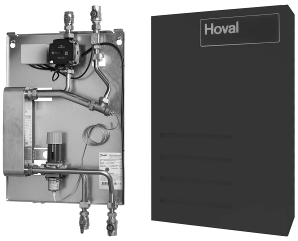
Stratified storage tank made of steel, primed on the outside, for heating support.
Water heating optionally via fresh water module. With built-in plain tube heat exchanger for connection to solar collectors. Thermal insulation made of polyester fibre 140 mm and external plastic coating, colour red. Suitable for heat pumps up to 20 kW (up to 2500 l/h).

VarioVal FLS	Total volume	Solar heat exchanger		Part No.
Type	dm^3	m^2	dm^3	
(800)	796	2	13.4	6046 238
(1000)	892	3	18.9	6046 239

Accessories

		Part No.
	**Heating module HMV20-3BM** with pressure distributor for 2 mixer circuits, incl. 1 heating armature group with 3-way motor mixer and pump SPS-S 7,5 and thermal insulation box	6046 091
	**Heating armature group HAV20-3BM-R** to extend the HMV20-3BM for a second mixer circuit Pump SPS-S 7,5	6046 092
	**Solar armature group SAV20FR** with PWM interface (TopTronic® E) inc. safety group 6 bar with manometer, FlowRotor and air vent Pump SPS 7 PM2	6046 093
	**Layer charge set SLS32-3-H RT cpl.** connection set for return switching for direct mounting on VarioVal. for heat pumps up to 17 kW Connection set between tank and pressure distributer on heating module, layer charge set with 3-way valve incl. motor drive.	6048 003

Accessories



Fresh water module TransTherm aqua FT/FTC
Fresh water module for hygienic water heating with thermostatic control of the hot water temperature by means of quick-acting water temperature controller. Incl. red casing and connection set AS20-FW for direct installation on the VarioVal FLS.

Fresh water module TransTherm aqua	Output kW	Part No.
FT (65)	65	6046 240
FTC (57)	57	6046 241

TransTherm aqua F
Fully assembled station with plate heat exchanger for the provision of domestic hot water using the continuous flow principle and built-in Hoval TopTronic® E control.
The required energy buffer storage tank is not supplied.

Fresh water module TransTherm aqua F	Output kW	Part No.
(6-10)	50	8006 387
(6-16)	90	8006 388

Version with copper-free heat exchanger

Fresh water module TransTherm aqua F	Output kW	Part No.
(6-10)	50	8006 521
(6-16)	90	8006 522

Accessories for TransTherm aqua FT/FTC

Circulation heat exchanger lance R 1″ — Part No. 2038 434
is screwed into the buffer storage tank and integrated into the circulation line.
Material: Copper, tinned inside
Transmission power approx. 1 kW at 60 °C
Hot water temperature in the buffer storage tank without mixing through the storage tank temperature.
Circulation connections R ½″

Part No.

Accessories for TransTherm aqua F

Return switching valve set DN 20
for TransTherm aqua F (50-90 kW)
Set consisting of temperature
sensor, switching valve,
drive, seals and screw fittings.

7010 832

Test valve DN 8 G ¼″
for TransTherm aqua L, LS and F
Test valve suitable for flame treatment
for hygienic-microbiologic
tests.

2049 861

Sludge separator with magnet MB3/L DN25...DN32
Fast and continuous removal of ferromagnetic
and non-magnetic dirt and sludge particles
Brass housing
Sludge separation up to a particle size of 5 µm
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C

Type	Connection	Flow rate [m^3/h] by1 m/s flow speed	Part No.
MB3 DN25	Rp 1″	2.0	2062 165
MBL DN32	Rp 1¼″	3.6	2062 166

Additional sludge separators
see “Various system components”

Notice
Information about engineering, space requirement, dimensioning table, dimensions, see “Hoval TransTherm aqua F”

Part No.

Accessories

Screw-in electrical heating inset
made of Incoloy® alloy 825, with temperature control and overheating protection.
Delivered separately, installation on site
No use for exclusively electrical heating.

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	Part No.
EP 2.5	2.35	3 x 400 (1 x 230)	390	6049 557
EP 3.5	3.6	3 x 400	500	6049 558
EP 5	4.9	3 x 400	620	6049 559

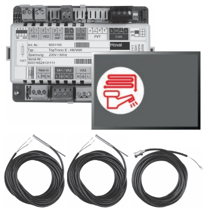
TopTronic® E control module black 6043 844

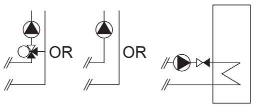
- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

Consisting of:
- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Part No.

TopTronic® E controller modules

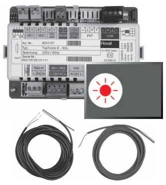


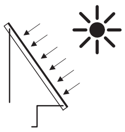


TopTronic® E heating circuit/hot water module TTE-HK/WW
Controller module for controlling consumers with integrated control functions for:
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer or
- 1 hot water loading circuit
- various additional functions

Consisting of:
- TopTronic® E heating circuit/hot water module incl. 2 pcs. mounting clips for top hat rail attachment
- 2 pcs. immersion sensor TF/2P/5/6T, L=5 m
- 1 pce. contact sensor ALF/2P/4/T, L=4 m
- basic plug set for controller module:
  - mains in
  - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
  - plug for 2x 230V output (mixer) (VA1/VA2)
  - plug for optocoupler input (SK-VA3) (flow temperature monitor)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10V or PWM output (VA10V)
- top hat rail with fitting accessories

6034 571





TopTronic® E solar module TTE-SOL
The controller module is suitable for use as temperature differential control, control of thermal solar plants, for heating process water and/or heating support.
Controller module with integrated control functions for
- Solar circuit
- Collector cascade
- Storage tank cascade with up to 4 consumers
- Consumer loading, with type selection
- Temperature differential control
- Loading and unloading function for additional/reserve buffer tank
- Integrated solar yield calculation

Consisting of:
- TopTronic® E solar module incl. 2 pcs. mounting clips for top hat rail attachment
- 1 pce. immersion sensor TF/2P/5/6T, L=5 m
- 1 pce. collector sensor TF/1.1P/2.5S/5.5T, L=2.5 m
- basic plug set for controller module:
  - Mains in
  - Plug for 230 V output (VA3)
  - Plug for 2x 230V output (VA1/VA2)
  - Plug for optocoupler input (SK-VA3)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10 V output (VA10V/PWM)
  - Plug for Hoval CAN bus
- top hat rail with fitting accessories

6037 058

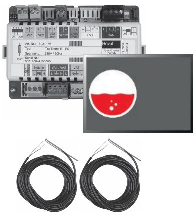
Notice
In a standalone application, the control module for operating the solar module and a wall casing must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!

Part No.

TopTronic® E controller modules



TopTronic® E buffer module TTE-PS
Controller module with integrated control functions for:
- heating buffer management

or
- cooling buffer management
- var. additional functions

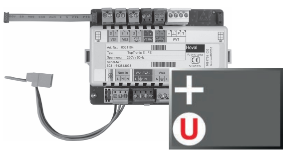
6037 057

Consisting of:
- TopTronic® E buffer module incl. 2 pcs. mounting clips for top hat rail attachment
- 2 pcs. immersion sensor TF/2P/5/6T, L=5 m
- basic plug set for controller module:
  - mains in
  - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
  - plug for 2x 230V output (mixer) (VA1/VA2)
  - plug for optocoupler input (SK-VA3) (flow temperature monitor)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10V or PWM output (VA10V)
  - plug for Hoval CAN bus
- top hat rail with fitting accessories

Notice
If the controller module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!



TopTronic® E module expansion Universal TTE-FE UNI
Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions.

6034 575

Consisting of:
- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Notice
Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Accessories for TopTronic® E

		Part No.
Supplementary plug set		
for controller modules and module expansion TTE-FE HK		6034 503

		Part No.
TopTronic® E controller modules		
TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070

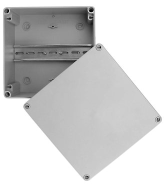
	Part No.
HovalConnect	
HovalConnect LAN	6049 496
HovalConnect WLAN	6049 498

HovalConnect available from mid-2020
Up to that point, TopTronic® E online is delivered.

	Part No.
TopTronic® E interface modules	
GLT Modul 0-10 V	6034 578
HovalConnect Modbus	6049 501
HovalConnect KNX	6049 593

		Part No.
TopTronic® E wall casing		
WG-190	Wall casing small	6035 563
WG-360	Wall casing medium	6035 564
WG-360 BM	Wall casing medium with control module cut-out	6035 565
WG-360-3 BM	Wall casing compact with control module cut-out	6046 830
WG-510	Wall casing large	6035 566
WG-510 BM	Wall casing large with control module cut-out	6038 533

		Part No.
TopTronic® E sensors		
AF/2P/K	Outdoor sensor	2055 889
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776



	Part No.
System housing	
System housing 182 mm	6038 551
System housing 254 mm	6038 552

	Part No.
Bivalent switch	2061 826

Further information
see “Controls”

VarioVal FLS (800-1000)

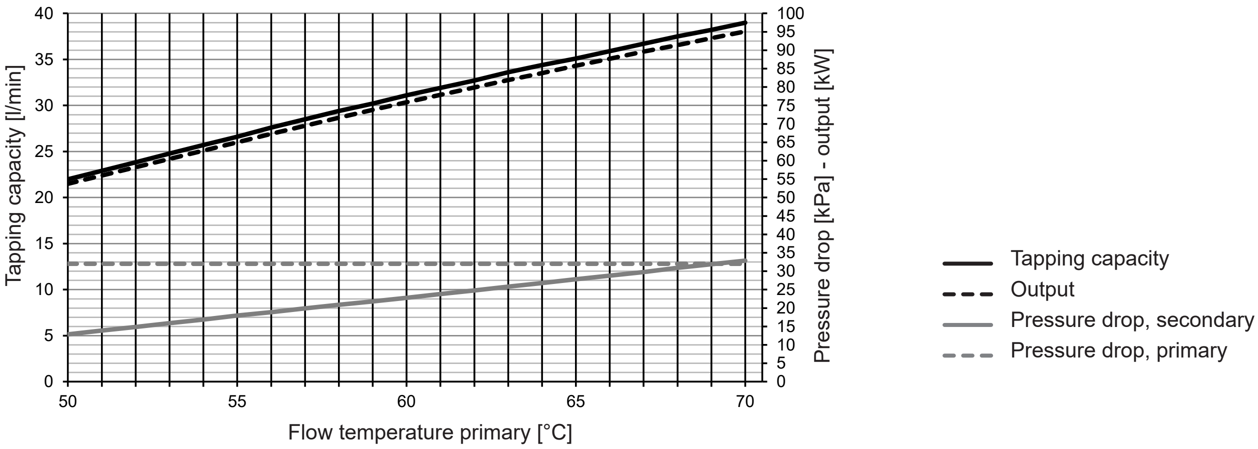
Type		(800)	(1000)
Storage tank			
• Total volume	dm³	796	892
• Usable volume	dm³	777	872
• Operating pressure/test pressure	bar	3/4.5	3/4.5
• Max. operating temperature	°C	95	95
• Transport weight	kg	228	233
• Dimensions		See Dimensions	
Solar coil (permanently installed)			
• Heating surface	m²	2	3
• Contents	dm³	13.4	18.9
• Operating pressure/test pressure	bar	10/15	10/15
• Max. operating temperature	°C	110	110
• Flow resistance [1] water/glycol 50 % (z-value)		19	25
• Number of collectors (max. - gross at 2.5 m²)	pieces	4	6
• For flat collectors [2] up to approx.	m²	10	15
Thermal insulation			
• Insulation type	-	PE fibre fleece	PE fibre fleece
• Insulation thickness	mm	140	140
• Fire protection class	-	B2	B2
• Thermal conductance λ	W/mK	0.038	0.038
• U value	W/(m²K)	0.27	0.27
• Heat loss at 65 °C	W	91	100
• Energy efficiency class		B	B

[1] Flow resistance of heating coil in mbar = flow rate (m³/h)² x z
[2] Collector surface area, with regard to heat exchanger area only

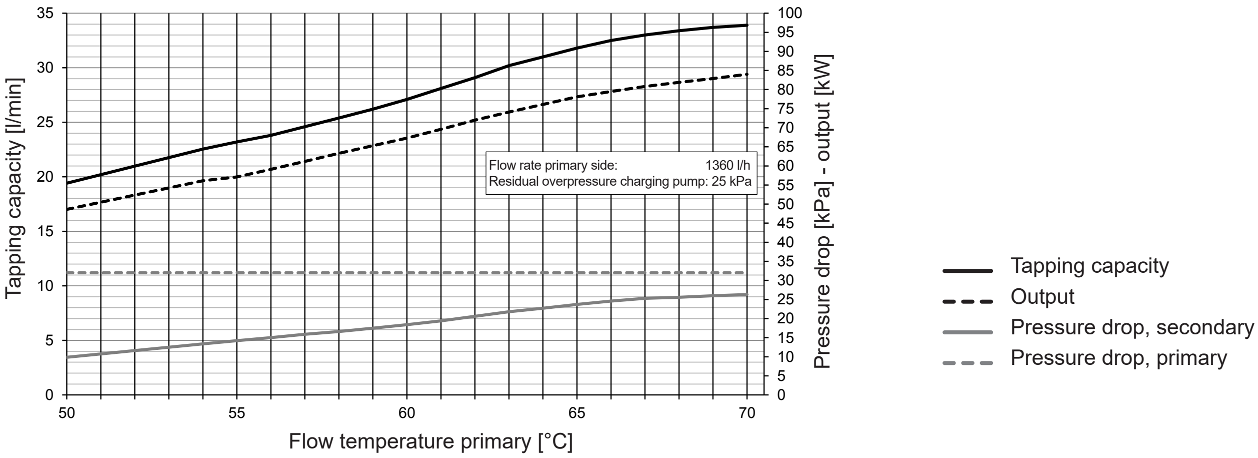
Performance data

TransTherm aqua FT/FTC

Hoval TransTherm aqua FT (65)
Hot water temperature 45 °C: tapping capacity - output - pressure drops



Hoval TransTherm aqua FTC (57)
Hot water temperature 45 °C: tapping capacity - output - pressure drops



Performance data

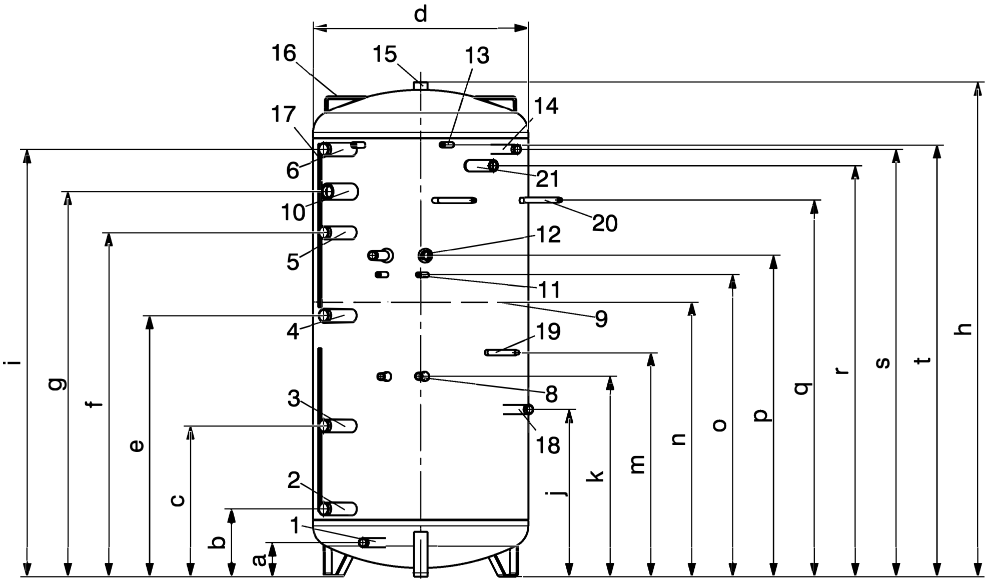
TransTherm aqua F (6-10 up to 6-16)

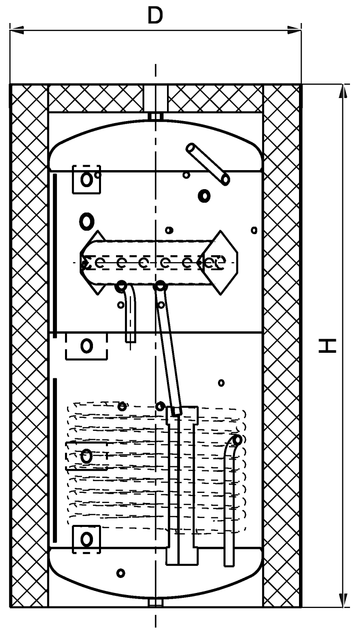
			Heating water temperature flow							
			55 °C (6-..)		60 °C (6-..)		65 °C (6-..)		70 °C (6-..)	
DHW secondary	**TransTherm aqua F**		(10)	(16)	(10)	(16)	(10)	(16)	(10)	(16)
60/5 °C	T return primary	°C	-	-	-	-	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	**1.08**	**1.88**	**1.32**	**2.09**
	Q max.	kW	-	-	-	-	43	75	60	95
	$\dot{V}$secondary	**m³/h**	-	-	-	-	**0.67**	**1.17**	**0.94**	**1.48**
60/10 °C	T return primary	°C	-	-	-	-	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	**0.8**	**1.5**	**1.08**	**1.94**
	Q max.	kW	-	-	-	-	32	60	50	90
	$\dot{V}$secondary	**m³/h**	-	-	-	-	**0.55**	**1.03**	**0.86**	**1.54**
60/15 °C	T return primary	°C	-	-	-	-	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	**0.55**	**1.05**	**0.97**	**1.8**
	Q max.	kW	-	-	-	-	22	42	44	82
	$\dot{V}$secondary	**m³/h**	-	-	-	-	**0,42**	**0,8**	**0,84**	**1,57**
60/20 °C	T return primary	°C	-	-	-	-	**30**	**30**	30	30
	$\dot{V}$primary	**m³/h**	-	-	-	-	**0.3**	**0.6**	**0.62**	**1.14**
	Q max.	kW	-	-	-	-	12	24	28	52
	$\dot{V}$secondary	**m³/h**	-	-	-	-	**0.26**	**0.52**	**0.6**	**1.12**
55/5 °C	T return primary	°C	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	**1.25**	**2.04**	**0.8**	**1.5**	**1.08**	**2.09**
	Q max.	kW	-	-	43	70	32	60	50	95
	$\dot{V}$secondary	**m³/h**	-	-	**0.74**	**1.2**	**0.55**	**1.03**	**0.86**	**1.63**
55/10 °C	T return primary	°C	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	**1.11**	**2.04**	**1.3**	**2.06**	**1.08**	**1.87**
	Q max.	kW	-	-	38	70	52	82	49	85
	$\dot{V}$secondary	**m³/h**	-	-	**0,73**	**1,34**	**0,99**	**1,57**	**0,94**	**1,62**
55/15 °C	T return primary	°C	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	**0.76**	**1.46**	**0.97**	**1.65**	**1.1**	**1.88**
	Q max.	kW	-	-	26	50	44	75	44	75
	$\dot{V}$secondary	**m³/h**	-	-	**0,56**	**1,08**	**0,95**	**1,61**	**0,94**	**1,62**
55/20 °C	T return primary	°C	-	-	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	-	-	**0.47**	**0.9**	**0.95**	**1.68**	**0.84**	**1.47**
	Q max.	kW	-	-	16	31	38	67	38	67
	$\dot{V}$secondary	**m³/h**	-	-	**0.39**	**0.76**	**0.94**	**1.65**	**0.94**	**1.65**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**1.28**	**2.04**	**1.25**	**2.06**	**1.08**	**1.87**
	Q max.	kW	37	58	44	70	50	82	49	85
	$\dot{V}$secondary	**m³/h**	**0.71**	**1.11**	**0.84**	**1.34**	**0.95**	**1.57**	**0.94**	**1.62**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**1.28**	**2.04**	**1.1**	**1.88**	**0.97**	**1.65**
	Q max.	kW	38	58	44	70	44	75	44	75
	$\dot{V}$secondary	**m³/h**	**0.82**	**1.25**	**0.95**	**1.51**	**0.95**	**1.61**	**0.95**	**1.61**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.29**	**2.03**	**1.11**	**1.95**	**0.95**	**1.68**	**0.84**	**1.47**
	Q max.	kW	37	58	38	67	38	67	38	67
	$\dot{V}$secondary	**m³/h**	**0.91**	**1.43**	**0.94**	**1.65**	**0.94**	**1.65**	**0.94**	**1.65**
50/20 °C	T return primary	°C	30	30	30	30	30	30	30	30
	$\dot{V}$primary	**m³/h**	**1.15**	**2.03**	**0.96**	**1.69**	**0.83**	**1.45**	**0.73**	**1.28**
	Q max.	kW	33	58	33	58	33	58	33	58
	$\dot{V}$secondary	**m³/h**	**0.95**	**1.67**	**0.95**	**1.67**	**0.95**	**1.67**	**0.95**	**1.67**
45/5 °C	T return primary	°C	19,02	18,23	17,14	16,42	15,93	14,89	14,77	13,28
	$\dot{V}$primary	**m³/h**	**0.86**	**1.91**	**0.86**	**1.92**	**0.87**	**1.83**	**0.84**	**1.62**
	Q max.	kW	35	80	42	95	48	104	52	104
	$\dot{V}$secondary	**m³/h**	**0.76**	**1.73**	**0.90**	**2.05**	**1.04**	**2.24**	**1.13**	**2.24**
45/10 °C	T return primary	°C	21,39	20,71	19,73	19,13	18,68	17,4	17,23	16,05
	$\dot{V}$primary	**m³/h**	**0.86**	**1.91**	**0.86**	**1.92**	**0.87**	**1.69**	**0.77**	**1.49**
	Q max.	kW	33	74	39	89	45	91	46	91
	$\dot{V}$secondary	**m³/h**	**0.81**	**1.84**	**0.97**	**2.20**	**1.13**	**2.25**	**1.13**	**2.24**
45/15 °C	T return primary	°C	23,94	23,4	22,58	21,75	21,26	20,25	20,1	19,16
	$\dot{V}$primary	**m³/h**	**0.86**	**1.91**	**0.87**	**1.8**	**0.8**	**1.55**	**0.71**	**1.36**
	Q max.	kW	30	69	37	78	39	78	40	78
	$\dot{V}$secondary	**m³/h**	**0.88**	**1.99**	**1.07**	**2.26**	**1.14**	**2.27**	**1.16**	**2.26**
45/20 °C	T return primary	°C	26,68	26,26	25,48	24,59	24,16	23,43	23,25	22,6
	$\dot{V}$primary	**m³/h**	**0.86**	**1.92**	**0.85**	**1.63**	**0.72**	**1.4**	**0.63**	**1.22**
	Q max.	kW	27	63	33	65	33	66	33	65
	$\dot{V}$secondary	**m³/h**	**0.96**	**2.18**	**1.16**	**2.27**	**1.16**	**2.29**	**1.15**	**2.27**

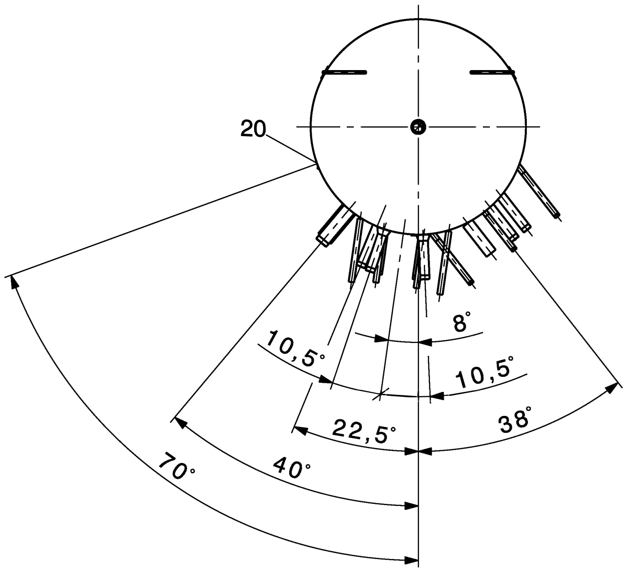
T return primary	°C	Primary return temperature
$\dot{V}$primary	**m³/h**	Primary volume flow
Q max.	kW	Output
$\dot{V}$secondary	**m³/h**	Secondary volume flow

The specified technical data relates to the full load of the module in each case.

VarioVal FLS (800-1000)
(Dimensions in mm)







Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

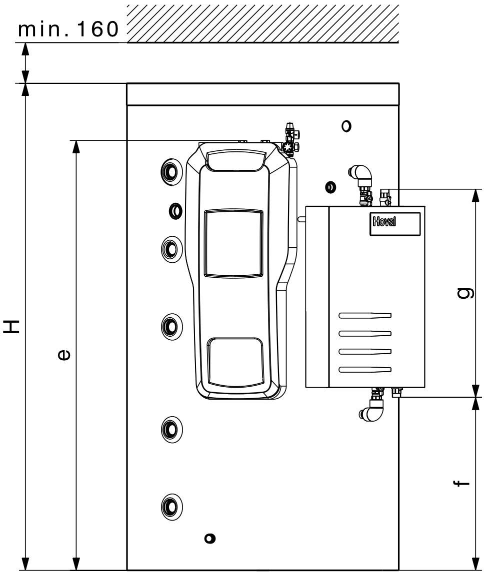
1	Drain	G 1″ (ext. thread)
2	Heat generator connection bottom (vertical baffle)	G 1½″ (ext. thread)
3	Heat generator connection 2 - bottom (inflow restrictor)	G 1½″ (ext. thread)
4	Heat generator connection middle (inflow restrictor)	G 1½″ (ext. thread)
5	Heat generator connection 2 - top (single-layer pipe)	G 1½″ (ext. thread)
6	Heat generator connection top (vertical baffle)	G 1½″ (ext. thread)
8	Flow (left) and return (right) solar circuit	G ¾″ (ext. thread)
9	Isolation plate	
10	Connection for screw-in electric heating element	Rp 1½″ (int. thread)
11	Fixing bolts bottom left and right for solar group	M10 (int. thread)
12	Flow (left) and return (right) heating	G 1″ (ext. thread)
13	Fixing bolts top left and right for heating group	M10 (int. thread)
14	Connection for fresh water station warm flow	G 1″ (ext. thread)
15	Possible air vent	Rp 1¼″ (int. thread)
16	Carry handle (2x)	
17	Sensor terminal strip (type (800) 2x, type (1000) 3x)	
18	Connection for fresh water station warm cold return	G 1″ (ext. thread)
19	Bolt at bottom for fresh water station	
20	Fixing bolts top left and right for Fresh water station	M10 (int. thread)
21	Connection for circulation lance	R 1″ (int. thread)

VarioVal FLS	d	D	h	H
(800)	790	1070	1816	1919
(1000)	790	1070	2016	2119

VarioVal FLS	a	b	c	e	f	g	i	j	k	m	n	o	p	q	r	s	t	Tilting measure without thermal insulation
(800)	125	249	554	959	1264	1415	1569	614	736	823	1009	1109	1180	1383	1509	1569	1586	1828
(1000)	125	249	554	959	1264	1415	1569	814	870	1023	1009	1243	1314	1583	1709	1769	1720	2030

Space requirements

Installation example - VarioVal FLS
- Heating module HMV20-3B
- HA group HAV20-3BM-R
- Solar group SAV20
- DH module TransTherm aqua FT (65)

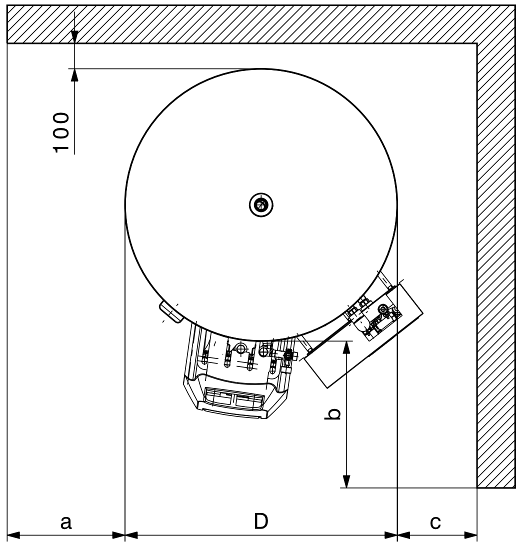


Notices on operation and accessibility
The operating side must be easily accessible. Preferably place heat generator to the left of the storage tank.

Accessibility, left according to heat generator (a):
- Installation and removal of the screw-in electric heating element
- Thermal insulation can be opened to position the sensors in the terminal strips
- Wall clearance, right (c):

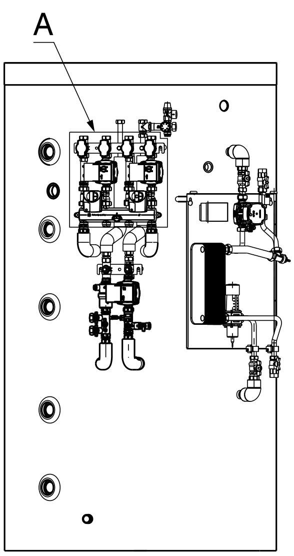
Installation of the pressure expansion tank
- Removal and installation of the DH module or the hood
- Hot water (domestic water) flow and return

Distance from the ceiling, top:
- Possibly for safety set

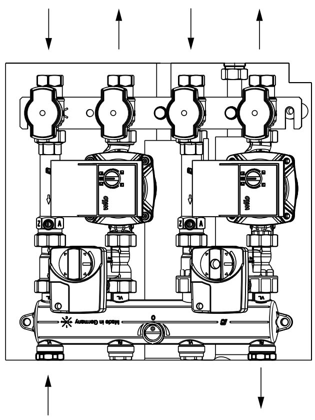


VarioVal FLS	a	b	c	D	e	f	g	H
(800)	≥650	≥1000	≥500	1070	1694	682	820	1919
(1000)	≥650	≥1000	≥500	1070	1828	882	820	2119

Representation without thermal insulating hood and DH module hood



Detail A



VarioVal RHS (800-1000)

Stratified combination storage tank
- For single family homes with approx. 4-6 persons
- Heating with solar and high-temperature heat generators
- Annual solar coverage rate depends on heat demand, collector field size, collector field storage ratio and location
- Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger
- With built-in plain tube heat exchanger for connection to solar collectors (800) up to 10 m^2 collector surface (1000) up to 15 m^2 collector surface
- Layer installations:
  - Horizontal guide plates
  - Vertical guide plates
  - Heating flow/return guide tubes (also with return in layer channel)
- Sensor terminal blocks
- Thermometer (with capillary)
- Thermal insulation
  - Polyester fibre fleece thermal insulation 100 mm
  - Outer plastic jacket with patented aluminium sealing bracket, colour red
  - Insulated cover flap (can be knocked out) for heat exchanger connections

Notice
SPF certificate stratification efficiency
SPF-18-009-SE

Domestic hot water calorifier
- Stainless-steel corrugated tube heat exchanger installed

Delivery
Calorifier and thermal insulation completely installed (can be removed for installation)

Design on request
- Heating module HMV20-3BM/SPS-S 7,5 with thermal insulation box
- Can be expanded with
  - Heating armature group HAV20-3BM-R/SPS-S 7,5
  - Solar armature group SAV20/SPS-S 7,5
- Circulation
- Screw-in electric heating element

VarioVal RL (600)
Stratified combination storage tank
- For single family homes with approx. 4-6 persons
- Heating with low-temperature heat generator (heat pumps) or for high-temperature heat generators
- Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger
- Layer installations:
  - Horizontal guide plates
  - Vertical guide plates
  - Heating flow/return guide tubes (also with return in layer channel)
  - Separating plate in the central area for separation of the temperature zone
- Sensor terminal blocks
- Thermometer (with capillary)
- Thermal insulation
  - Polyester fibre fleece thermal insulation 140 mm
  - Outer plastic jacket with patented aluminium sealing bracket, colour red
  - Insulated cover flap (can be knocked out) for heat exchanger connections

Domestic hot water calorifier
- Stainless-steel corrugated tube heat exchanger installed

Delivery
- Calorifier and thermal insulation completely installed (can be removed for installation)

Design on request
- Heating module HMV20-3BM/SPS-S 7,5 with thermal insulation box
- Can be expanded with heating armature group HAV20-3BM-R/SPS-S 7,5
- Circulation
- Screw-in electric heating element

VarioVal RLS (800-1000)
Stratified combination storage tank
- For single family homes with approx. 4-6 persons
- Heating with solar, low-temperature heat generator (heat pumps) or for high-temperature heat generators
- Annual solar coverage rate depends on heat demand, collector field size, collector field storage ratio and location
- Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger
- With built-in plain tube heat exchanger for connection to solar collectors (800) up to 10 m^2 collector surface (1000) up to 15 m^2 collector surface
- Layer installations:
  - Horizontal guide plates
  - Vertical guide plates
  - Heating flow/return guide tubes (also with return in layer channel)
  - Separating plate in the central area for separation of the temperature zone
- Sensor terminal blocks
- Thermometer (with capillary)
- Thermal insulation
  - Made of polyester fibre fleece 140 mm
  - Outer plastic jacket with patented aluminium sealing bracket, colour red
  - Insulated cover flap (can be knocked out) for heat exchanger connections

Domestic hot water calorifier
- Stainless-steel corrugated tube heat exchanger installed

Delivery
Calorifier and thermal insulation completely installed (can be removed for installation)

Design on request
- Heating module HMV20-3BM/SPS-S 7,5 with thermal insulation box
- Can be expanded with
  - Heating armature group HAV20-3BM-R/SPS-S 7,5
  - Solar armature group SAV20/SPS-S 7,5
- Circulation
- Screw-in electric heating element

VarioVal RL (600) - selection table

		Hydraulic components + necessary TopTronic® E modules							Additional accessories		
		1 mixer circuit	2nd mixer circuit		Solar armature group		Return switching	Buffer management	Screw-in electric heating element	Electrical box	Circulation set
		x	opt.		-		x	x	x	x	opt.
		Consisting of:									
Heat generator		Heating module HMV20-3BM SPS-S 7,5	HA group HAV20-3BM-R SPS-S 7,5	TopTronic® E module expansion heating circuit	Solar group SAV20FR SPS 7 PM2	TopTronic® E solar module	Stratified charging set SLS32-3-H RL	TopTronic® E buffer module			
Belaria® pro	(8,13)	x	x	x	-	-	x	x	opt.	opt.	opt.
Belaria® comfort ICM	(8,13)	x	x	x	-	-	x	-	x	-	opt.
Thermalia® comfort	(6-17)	x	x	x	-	-	x	x	opt.	-	opt.
Thermalia® comfort H	(7,10)	x	x	x	-	-	x	x	opt.	-	opt.
UltraSource® B comfort C	(8-17)	x	x	x	-	-	x	-	x	-	opt.
UltraSource® T comfort C	(8-17)	x	x	x	-	-	x	-	opt.	-	opt.
TopGas® classic	(12-30)	x	x	x	-	-	- 3)	x	opt.	opt.2)	opt.
UltraGas®	(15-35)	x	x	x	-	-	-	x	opt.	-	opt.
UltraOil®	(16-35)	x	x	x	-	-	-	x	opt.	-	opt.
MultiJet®	(12-25)	x	x	x	-	-	-	x	opt.	-	opt.
BioLyt	(13-23)	x	x	x	-	-	-	x	opt.	opt.1)	opt.

1) A module expansion or a controller module can be installed in the heat generator.
2) Two TopTronic® E controller modules can be mounted in the heat generator or in the wall casing. If the storage tank is fully equipped, a separate electrical box must be ordered for an additional module.
3) Return switching to be installed by the client

VarioVal RLS (800,1000) - selection table

		Hydraulic components + necessary TopTronic® E modules							Additional accessories		
		1 mixer circuit	2nd mixer circuit		Solar armature group		Return switching	Buffer management	Screw-in Electric heating element	Electrical box	Circulation set
		x	opt.		opt.		x	x	x	x	opt.
		Consisting of:									
Heat generator		Heating module HMV20-3BM SPS-S 7,5	HA group HAV20-3BM-R SPS-S 7,5	TopTronic® E module expansion heating circuit	Solar group SAV20FR SPS 7 PM2	TopTronic® E solar module	Stratified charging set SLS32-3-H RL	TopTronic® E buffer module			
Belaria® pro	(8,13)	x	x	x	x	x	x	x	opt.	opt.2)	opt.
Belaria® comfort ICM	(8,13)	x	x	x	x	x	x	-	x	opt.2)	opt.
Thermalia® comfort	(6-17)	x	x	x	x	x	x	x	opt.	opt.2)	opt.
Thermalia® comfort H	(7,10)	x	x	x	x	x	x	x	opt.	opt.2)	opt.
UltraSource® B comfort C	(8-17)	x	x	x	x	x	x	-	x	opt.2)	opt.
UltraSource® T comfort C	(8-17)	x	x	x	x	x	x	-	opt.	opt.2)	opt.
TopGas® classic	(12-30)	x	x	x	x	x	- 3)	x	opt.	opt.2)	opt.
UltraGas®	(15-35)	x	x	x	x	x	-	x	opt.	opt.2)	opt.
UltraOil®	(16-35)	x	x	x	x	x	-	x	opt.	opt.2)	opt.
MultiJet®	(12-25)	x	x	x	x	x	-	x	opt.	opt.2)	opt.
BioLyt	(13-25)	x	x	x	x	x	-	x	opt.	opt.1)	opt.

1) A module expansion or a controller module can be installed in the heat generator.
2) Two TopTronic® E controller modules can be mounted in the heat generator or in the wall casing. If the storage tank is fully equipped, a separate electrical box must be ordered for an additional module.
3) Return switching to be installed by the client

VarioVal RHS (800,1000) - selection table

		Hydraulic components + necessary TopTronic® E modules							Additional accessories		
		1 mixer circuit	2nd mixer circuit		Solar armature group		Return switching	Buffer management	Screw-in electric heating element	Electrical box	Circulation set
		x	opt.		opt.		-	x	opt.	x	opt.
		Consisting of:									
Heat generator		Heating module HMV20-3BM SPS-S 7,5	HA group HAV20-3BM-R SPS-S 7,5	TopTronic® E module expansion heating circuit	Solar group SAV20FR SPS 7 PM2	TopTronic® E solar module	Stratified charging set SLS32-3-H RL	TopTronic® E buffer module			
TopGas® classic	(12-30)	x	x	x	x	x	- [3]	x	opt.	opt. [2]	opt.
UltraGas®	(15-35)	x	x	x	x	x	-	x	opt.	opt. [2]	opt.
UltraOil®	(16-35)	x	x	x	x	x	-	x	opt.	opt. [2]	opt.
MultiJet®	(12-25)	x	x	x	x	x	-	x	opt.	opt. [2]	opt.
BioLyt	(13-25)	x	x	x	x	x	-	x	opt.	opt. [1]	opt.

[1] A module expansion or a controller module can be installed in the heat generator.
[2] Two TopTronic® E controller modules can be mounted in the heat generator or in the wall casing. If the storage tank is fully equipped, a separate electrical box must be ordered for an additional module.
[3] Return switching to be installed by the client

Stratified combination storage tank

Hoval VarioVal RHS (800,1000)

Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger.
With built-in plain tube heat exchanger for connection to solar collectors. Thermal insulation made of polyester fibre 100 mm and external plastic coating, colour red.

VarioVal RHS Type	Total volume	Solar heat exchanger m^2	Solar heat exchanger dm^3	Calorifier m^2	Calorifier dm^3	Part No.
(800)	796	2	18.6	5.5	30.0	6046 236
(1000)	892	3	20.4	6.7	36.3	6046 237

Hoval VarioVal RLS (800,1000)

Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger.
With built-in plain tube heat exchanger for connection to solar collectors. Thermal insulation made of polyester fibre 100 mm and external plastic coating, colour red.
Suitable for heat pumps up to 20 kW (up to 2500 l/h).

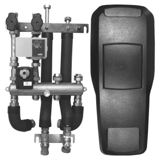
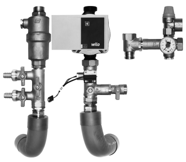
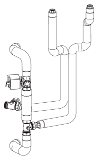
VarioVal RHS Type	Total volume	Solar heat exchanger m^2	Solar heat exchanger dm^3	Calorifier m^2	Calorifier dm^3	Part No.
(800)	796	2	18.6	6.7	36.3	6046 234
(1000)	892	3	20.4	8.2	44.6	6046 235

Hoval VarioVal RL (600)

Stratified combination storage tank made of steel, primed on the outside, for heating support and water heating with a built-in corrugated pipe heat exchanger.
Thermal insulation made of polyester fibre 140 mm and external plastic coating, colour red.
Suitable for heat pumps up to 20 kW (up to 2500 l/h).

VarioVal RL/RLS Type	Total volume	Solar heat exchanger m^2	Solar heat exchanger dm^3	Calorifier m^2	Calorifier dm^3	Part No.
(600)	647	-	-	6.7	36.3	6046 233

Accessories

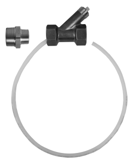
		Part No.
	**Heating module HMV20-3BM** with pressure distributor for 2 mixer circuits, incl. 1 heating armature group with 3-way motor mixer and pump SPS-S 7,5 and thermal insulation box	6046 091
	**Heating armature group HAV20-3BM-R** to extend the HMV20-3BM for a second mixer circuit Pump SPS-S 7,5	6046 092
	**Solar armature group SAV20FR** with PWM interface (TopTronic® E) inc. safety group 6 bar with manometer, FlowRotor and air vent Pump SPS 7 PM2	6046 093
	**Layer charge set SLS32-3-H RT cpl.** connection set for return switching for direct mounting on VarioVal. for heat pumps up to 17 kW Connection set between tank and pressure distributer on heating module, layer charge set with 3-way valve incl. motor drive.	6048 003
	**Thermostatic water mixer TM200** 3-way-mixing valve for regulating of the water temperature Material: brass Connection dimension R ¾″ Hot water temperature max. 90 °C Adjustment range 30-60 °C Flow rate 27 l/min (at delta p = 1 bar) Flow coefficient value (kvs) 1.62 m³/h	2005 915

Accessories

Part No.

Screw-in electrical heating inset
made of Incoloy® alloy 825, with temperature control and overheating protection.
Delivered separately, installation on site
No use for exclusively electrical heating.

Type	Heat input [kW]	Voltage [V]	Install. length [mm]	Part No.
EP 2.5	2.35	3 x 400 (1 x 230)	390	6049 557
EP 3.5	3.6	3 x 400	500	6049 558
EP 5	4.9	3 x 400	620	6049 559



Circulation set with double nipple — 2055 685
for VarioVal RL, RLS und RHS
polyethylene hose (cross-linked)
fitting for securing the PE hose
Y connection piece made of
brass Rp 1″ - Rp 1″ - R ¾″
Double nipple made of brass R 1″ -
R 5/4″ (ext. thread/ext. thread)

TopTronic® E control module black — 6043 844

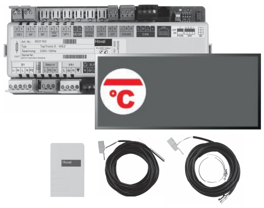
- For operation of all controller modules connected to the bus system (basic, solar, buffer modules, ecc.)
- Connection to the Hoval Bus system by RJ45 plug connection or plug-in terminals (max. 0.75 mm²)
- Flat design with flexible mounting option
- Mounting
  - in the control panel of the heat generator,
  - in the Hoval wall casing,
  - on the front of the control panel
- Colour touchscreen 4.3 inch with black high-gloss trim
- Customer-specific configuration of the start-up screen
- Display of the current weather or weather forecast (only possible in combination with HovalConnect)

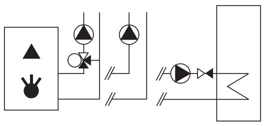
Consisting of:

- TopTronic® E control module black
- clamping device set for control module
- RJ45 Rast-5 CAN cable, L = 500

Part No.

TopTronic® E controller modules





TopTronic® E basic module heat generator TTE-WEZ
Controller module for controlling heat generators and the corresponding consumers with integrated control functions for:
- heat generator management
- additional heat generator management
- cascade management
- 1 heating/cooling circuit w/o mixer
- 1 heating/cooling circuit with mixer
- 1 hot water loading circuit
- various additional functions

Consisting of:
TopTronic® E basic module heat generator incl. 2 pcs. mounting clips for top hat rail attachment
- 1 pce. outdoor sensor AF/2P/K
- 1 pce. immersion sensor TF/2P/5/6T/S1 L = 5.0 m with plug
- 1 pce. contact sensor ALF/2P/4/T/S1 L = 4.0 m with plug
- basic plug set for basic module:
  - plug for buffer storage pump (SLP), direct circuit pump (DKP), mixer circuit pump (MK1), mixer (YK1), flow temperature monitor (B1), plug for variable output (VA1)
  - 2x plugs for sensors (AF/SF)
  - various plugs for inner wiring (mains in, mains out, connection automatic firing device, bus plug RS485, bus plug OpenTherm, CAN bus)

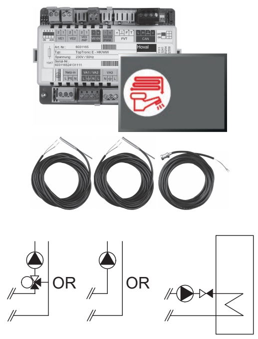
6037 053

Notice
If the basic module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 1 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!

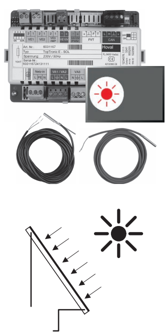
Part No.



TopTronic® E heating circuit/hot water module TTE-HK/WW
Controller module for controlling consumers with integrated control functions for:
- 1 heating/cooling circuit w/o mixer or
- 1 heating/cooling circuit with mixer or
- 1 hot water loading circuit
- various additional functions

Consisting of:
- TopTronic® E heating circuit/hot water module incl. 2 pcs. mounting clips for top hat rail attachment
- 2 pcs. immersion sensor TF/2P/5/6T, L = 5 m
- 1 pce. contact sensor ALF/2P/4/T, L = 4 m
- basic plug set for controller module:
  - mains in
  - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
  - plug for 2x230 V output (mixer) (VA1/VA2)
  - plug for optocoupler input (SK-VA3) (flow temperature monitor)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10 V or PWM output (VA10V)
- top hat rail with fitting accessories

6034 571



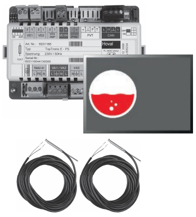
TopTronic® E solar module TTE-SOL
The controller module is suitable for use as temperature differential control, control of thermal solar plants, for heating process water and/or heating support.
Controller module with integrated control functions for
- Solar circuit
- Collector cascade
- Storage tank cascade with up to 4 consumers
- Consumer loading, with type selection
- Temperature differential control
- Loading and unloading function for additional/reserve buffer tank
- Integrated solar yield calculation

Consisting of:
- TopTronic® E solar module incl. 2 pcs. mounting clips for top hat rail attachment
- 1 pce. immersion sensor TF/2P/5/6T, L = 5 m
- 1 pce. collector sensor TF/1.1P/2.5S/5.5T, L = 2.5 m
- basic plug set for controller module:
  - Mains in
  - Plug for 230 V output (VA3)
  - Plug for 2x 230V output (VA1/VA2)
  - Plug for optocoupler input (SK-VA3)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10 V output (VA10V/PWM)
  - Plug for Hoval CAN bus
- top hat rail with fitting accessories

6037 058

Part No.

TopTronic® E controller modules



TopTronic® E buffer module TTE-PS — 6037 057

Controller module with integrated control functions for:
- heating buffer management

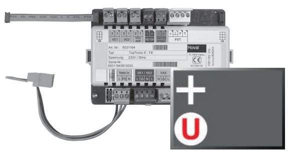
or
- cooling buffer management
- var. additional functions

Consisting of:
- TopTronic® E buffer module incl. 2 pcs. mounting clips for top hat rail attachment
- 2 pcs. immersion sensor TF/2P/5/6T, L = 5 m
- basic plug set for controller module:
  - mains in
  - plug for 230 V output (VA3) (direct circuit pump, mixer circuit pump)
  - plug for 2x230 V output (mixer) (VA1/VA2)
  - plug for optocoupler input (SK-VA3) (flow temperature monitor)
  - 2x plugs for sensors (VE1/VE2)
  - Plug for 0-10 V or PWM output (VA10V)
  - plug for Hoval CAN bus
- top hat rail with fitting accessories

Notice
If the controller module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!



TopTronic® E module expansion Universal TTE-FE UNI — 6034 575

Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions.

Consisting of:
- TopTronic® E module expansion
- top hat rail with fitting accessories
- ribbon cable for connecting the device bus to the controller module
- connection set for connecting the controller module to the mains voltage
- complete plug set for module expansions

Notice
Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Accessories for TopTronic® E

		Part No.
Supplementary plug set		
for controller modules and module expansion TTE-FE HK		6034 503

		Part No.
TopTronic® E controller modules		
TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070

	Part No.
HovalConnect	
HovalConnect LAN	6049 496
HovalConnect WLAN	6049 498

HovalConnect available from mid-2020
Up to that point, TopTronic® E online is delivered.

	Part No.
TopTronic® E interface modules	
GLT Modul 0-10 V	6034 578
HovalConnect Modbus	6049 501
HovalConnect KNX	6049 593

		Part No.
TopTronic® E wall casing		
WG-190	Wall casing small	6035 563
WG-360	Wall casing medium	6035 564
WG-360 BM	Wall casing medium with control module cut-out	6035 565
WG-360-3 BM	Wall casing compact with control module cut-out	6046 830
WG-510	Wall casing large	6035 566
WG-510 BM	Wall casing large with control module cut-out	6038 533

		Part No.
TopTronic® E sensors		
AF/2P/K	Outdoor sensor	2055 889
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776

	Part No.
System housing	
System housing 182 mm	6038 551
System housing 254 mm	6038 552

	Part No.
Bivalent switch	2061 826

Further information
see “Controls”

VarioVal RHS (800,1000)
VarioVal RL (600), VarioVal RLS (800,1000)

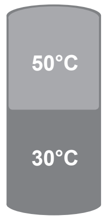
Type		RHS (800)	RHS (1000)	RL (600)	RLS (800)	RLS (1000)
Storage tank						
• Total volume	dm³	796	892	647	796	892
• Usable volume	dm³	747	835	611	741	827
• Operating pressure/test pressure	bar	3/4.5	3/4.5	3/4.5	3/4.5	3/4.5
• Max. operating temperature	°C	95	95	95	95	95
• Transport weight	kg	213	234	179	226	255
• Dimensions				See Dimensions		
Domestic/hot water (corrugated pipe firmly installed)						
• Heating surface	m²	5.5	6.7	6.7	6.7	8.2
• Contents	dm³	30	36.6	36.3	36.3	44.6
• Operating pressure/test pressure	bar	6/10	6/10	6/10	6/10	6/10
• Max. operating temperature	°C	95	95	95	95	95
• Flow resistance [1] water (z-value)		46	56	56	56	69
• Performance figure NL [2]	NL	1.6	2.1	1.4	1.7	2.4
Solar/coil (permanently installed)						
• Heating surface	m²	2	3	-	2	3
• Contents	dm³	13.4	18.9	-	13.4	18.9
• Operating pressure/test pressure	bar	10/15	10/15	-	10/15	10/15
• Max. operating temperature	°C	110	110	-	110	110
• Flow resistance [1] water/glycol 50 % (z-value)		19	25	-	19	25
• Number of collectors (max. - gross at 2.5 m²)	pieces	4	6	-	4	6
• For flat plate collector [3] up to approx.	m²	10	15	-	10	15
Thermal insulation						
• Insulation type	-	PE fibre fleece	PE fibre fleece	PE fibre fleece	PE fibre fleece	PE fibre fleece
• Insulation thickness	mm	100	100	140	140	140
• Fire protection class	-	B2	B2	B2	B2	B2
• Thermal conductance λ	W/mK	0.038	0.038	0.038	0.038	0.038
• U value	-	0.40	0.40	0.27	0.27	0.27
• Heat loss at 65 °C	W	120	128	80	91	100
• Energy efficiency class		C	C	B	B	B

[1] Flow resistance in mbar = flow rate $(m^3/h)^2 \times z$
[2] Performance figure NL with hot water 10/45 °C, stocking 50 % with 60 °C / 50 % with 30 °C, without supplemental heating
[3] Collector surface area, with regard to heat exchanger area only

Hot water outputs 45 °C

Heating function with heat generator, heating flow 50 °C

Domestic water: 10 °C/45 °C



Output capacity/tapping capacity/ 10 l/min
Fitting flow rate

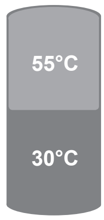
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0			110	140	180
5			140	170	230
10			190	230	300
15			290	360	470
20			540	600	600
25			600	600	600
30			600	600	600
35			600	600	600

Output capacity/tapping capacity/ 15 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0			60	70	110
5			70	90	130
10			90	100	150
15			110	130	190
20			140	170	240
25			200	240	340
30			320	380	540
35			590	690	900

Heating function with heat generator, heating flow 55 °C

Domestic water: 10 °C/45 °C



Output capacity/tapping capacity/ 10 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	220	270	180	230	280
5	280	340	230	290	360
10	370	460	310	400	480
15	570	600	480	540	600
20	600	600	600	600	600
25	600	600	600	600	600
30	600	600	600	600	600
35	600	600	600	600	600

Output capacity/tapping capacity/ 15 l/min
Fitting flow rate

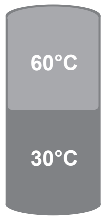
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	150	190	130	170	210
5	170	220	150	190	250
10	200	260	180	230	300
15	250	320	220	280	370
20	330	420	280	360	480
25	470	590	400	520	670
30	700	900	600	800	900
35	900	900	900	900	900

Output capacity/tapping capacity/ 20 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	80	110	70	100	150
5	90	120	80	110	160
10	100	140	90	120	190
15	110	160	110	140	210
20	130	190	130	170	250
25	160	230	150	200	300
30	200	300	190	260	380
35	270	400	260	340	520

Heating function with heat generator, heating flow 60 °C

Domestic water: 10 °C/45 °C



Output capacity/tapping capacity/ 10 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	290	350	240	310	370
5	360	440	310	390	470
10	490	600	420	520	570
15	600	600	600	600	600
20	600	600	600	600	600
25	600	600	600	600	600
30	600	600	600	600	600
35	600	600	600	600	600

Output capacity/tapping capacity/ 15 l/min
Fitting flow rate

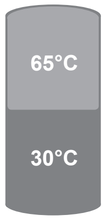
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	220	280	190	240	300
5	250	320	220	280	350
10	300	380	260	330	410
15	370	480	320	410	510
20	480	620	420	530	660
25	690	880	580	740	800
30	900	900	900	900	900
35	900	900	900	900	900

Output capacity/tapping capacity/ 20 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	160	220	130	170	230
5	180	240	150	190	260
10	200	270	170	220	290
15	230	310	190	250	340
20	270	370	230	290	400
25	320	440	280	350	480
30	400	560	350	440	600
35	540	740	460	590	800

Heating function with heat generator, heating flow 65 °C

Domestic water: 10 °C/45 °C



Output capacity/tapping capacity/ 10 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	360	430	300	380	450
5	450	550	380	480	570
10	550	600	510	580	600
15	600	600	600	600	600
20	600	600	600	600	600
25	600	600	600	600	600
30	600	600	600	600	600
35	600	600	600	600	600

Output capacity/tapping capacity/ 15 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	290	360	250	310	380
5	330	420	290	360	440
10	400	500	340	430	520
15	490	610	420	530	650
20	640	800	540	690	840
25	900	900	770	820	900
30	900	900	900	900	900
35	900	900	900	900	900

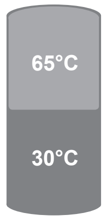
Output capacity/tapping capacity/ 20 l/min
Fitting flow rate

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	220	290	190	250	320
5	250	330	210	280	350
10	280	370	240	320	400
15	320	430	280	360	460
20	380	500	330	430	540
25	460	600	400	520	650
30	580	750	500	650	820
35	780	1000	650	850	1000

Hot water outputs 60 °C

Heating function with heat generator, heating flow 65 °C

Domestic water: 10 °C/60 °C



Output capacity/tapping capacity/ Fitting flow rate 10 l/min

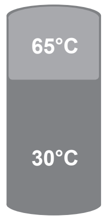
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	70	110	70	90	130
5	90	140	90	120	160
10	130	180	120	160	210
15	200	280	190	240	330
20	380	540	370	470	570
25	600	600	600	600	600
30	600	600	600	600	600
35	600	600	600	600	600

Output capacity/tapping capacity/ Fitting flow rate 15 l/min

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	30	60	35	50	70
5	35	70	40	60	85
10	40	80	50	70	100
15	50	100	60	90	130
20	60	130	70	110	170
25	90	180	110	160	240
30	140	290	170	260	380
35	250	530	310	470	650

Heating function with heat generator, heating flow 65 °C

Domestic water: 10 °C/60 °C



Output capacity/tapping capacity/ Fitting flow rate 10 l/min

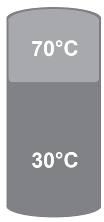
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	40	70	40	60	80
5	50	90	50	70	100
10	60	120	70	100	140
15	100	180	100	150	220
20	190	340	200	300	420
25	490	600	500	600	600
30	600	600	600	600	600
35	600	600	600	600	600

Output capacity/tapping capacity/ Fitting flow rate 15 l/min

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	30	35	35	35	40
5	30	35	35	35	50
10	30	40	35	40	60
15	30	50	35	50	80
20	30	70	40	70	100
25	30	100	50	100	150
30	40	160	60	150	240
35	80	300	100	280	430

Heating function with heat generator, heating flow 70 °C

Domestic water: 10 °C/60 °C



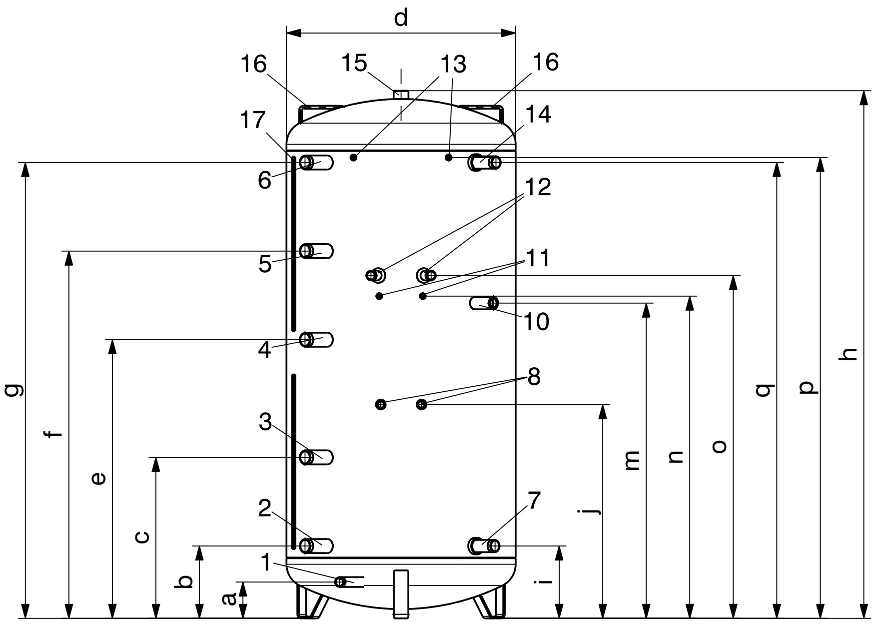
Output capacity/tapping capacity/ Fitting flow rate 10 l/min

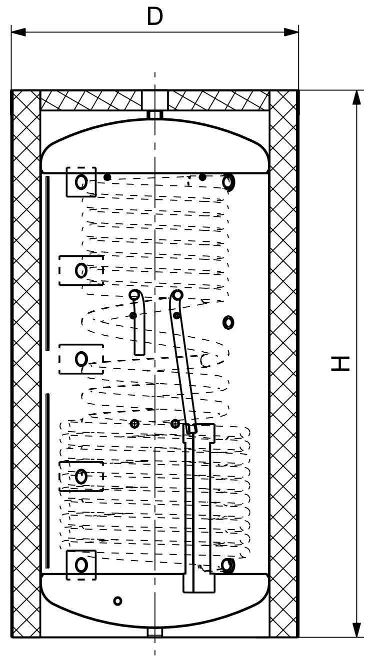
Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	80	120	70	90	130
5	100	150	90	120	160
10	140	200	130	160	220
15	210	310	190	240	340
20	410	590	370	470	600
25	600	600	600	600	600
30	600	600	600	600	600
35	600	600	600	600	600

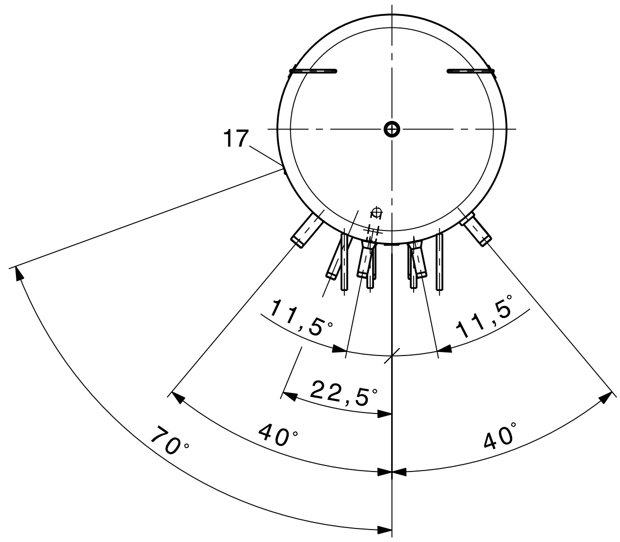
Output capacity/tapping capacity/ Fitting flow rate 15 l/min

Supplemental heating output [kW]	Tapping volume [l/h]				
	VarioVal RHS		VarioVal RL	VarioVal RLS	
	800	1000	600	800	1000
0	30	70	35	40	80
5	30	80	40	50	90
10	40	100	50	60	110
15	50	120	60	70	140
20	70	160	80	100	180
25	100	220	110	140	260
30	170	350	180	220	420
35	300	600	330	400	750

VarioVal RHS (800,1000)
(Dimensions in mm)







Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

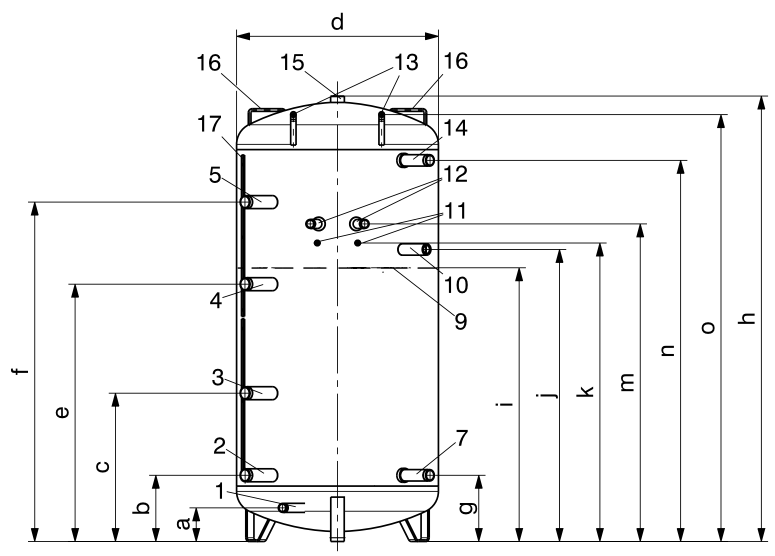
1	Drain	G 1″ (ext. thread)
2	Heat generator connection bottom (vertical baffle)	G 1½″ (ext. thread)
3	Heat generator connection 2 - bottom (inflow restrictor)	G 1½″ (ext. thread)
4	Heat generator connection middle (inflow restrictor)	G 1½″ (ext. thread)
5	Heat generator connection 2 - top (single-layer pipe)	G 1½″ (ext. thread)
6	Heat generator connection top (vertical baffle)	G 1½″ (ext. thread)
7	Domestic water cold (corrugated pipe)	R 1½″ (ext. thread)
8	Flow (left) and return (right) solar circuit	G ¾″ (ext. thread)
10	Connection for screw-in electric heating element	Rp 1½″ (int. thread)
11	Fixing bolts bottom left and right (heating module)	M10 (int. thread)
12	Flow (left) and return (right) heating	G 1″ (ext. thread)
13	Fixing bolts top left and right (heating module)	M10 (int. thread)
14	Domestic water hot (corrugated pipe)	R 1¼″ (ext. thread)
15	Possible air vent	Rp 1¼″ (int. thread)
16	Carry handle (2x)	
17	Sensor terminal strip (type (800) 2x, type (1000) 3x)	

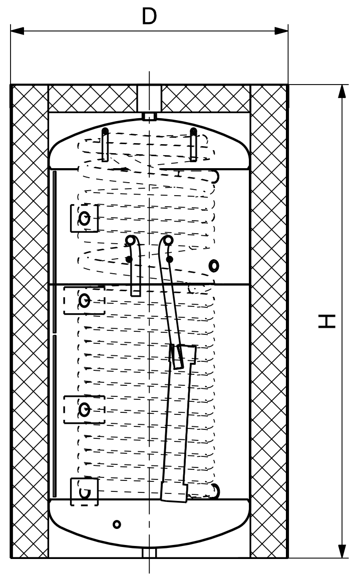
VarioVal RHS	d	D	h	H
(800)	790	990	1816	1886
(1000)	790	990	2016	2086

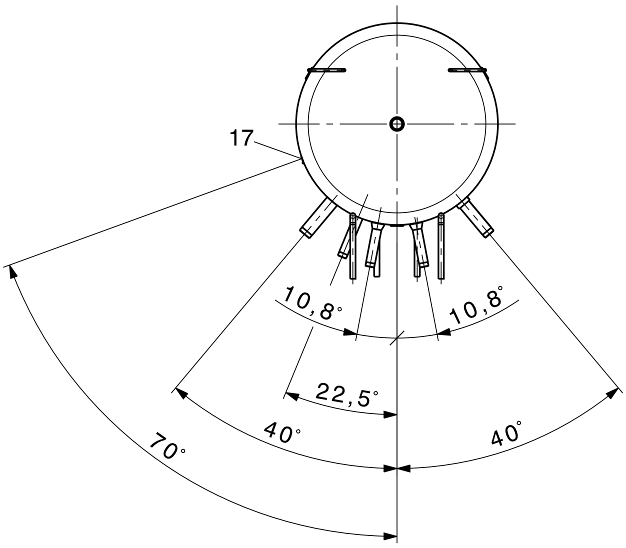
VarioVal RHS	a	b	c	e	f	g	i	j	m	n	o	p	q	Tilting measure without thermal insulation
(800)	125	249	554	959	1264	1569	249	736	1085	1109	1180	1586	1569	1828
(1000)	125	249	554	959	1264	1569	249	870	1085	1243	1314	1720	1769	2030

VarioVal RL (600)

(Dimensions in mm)







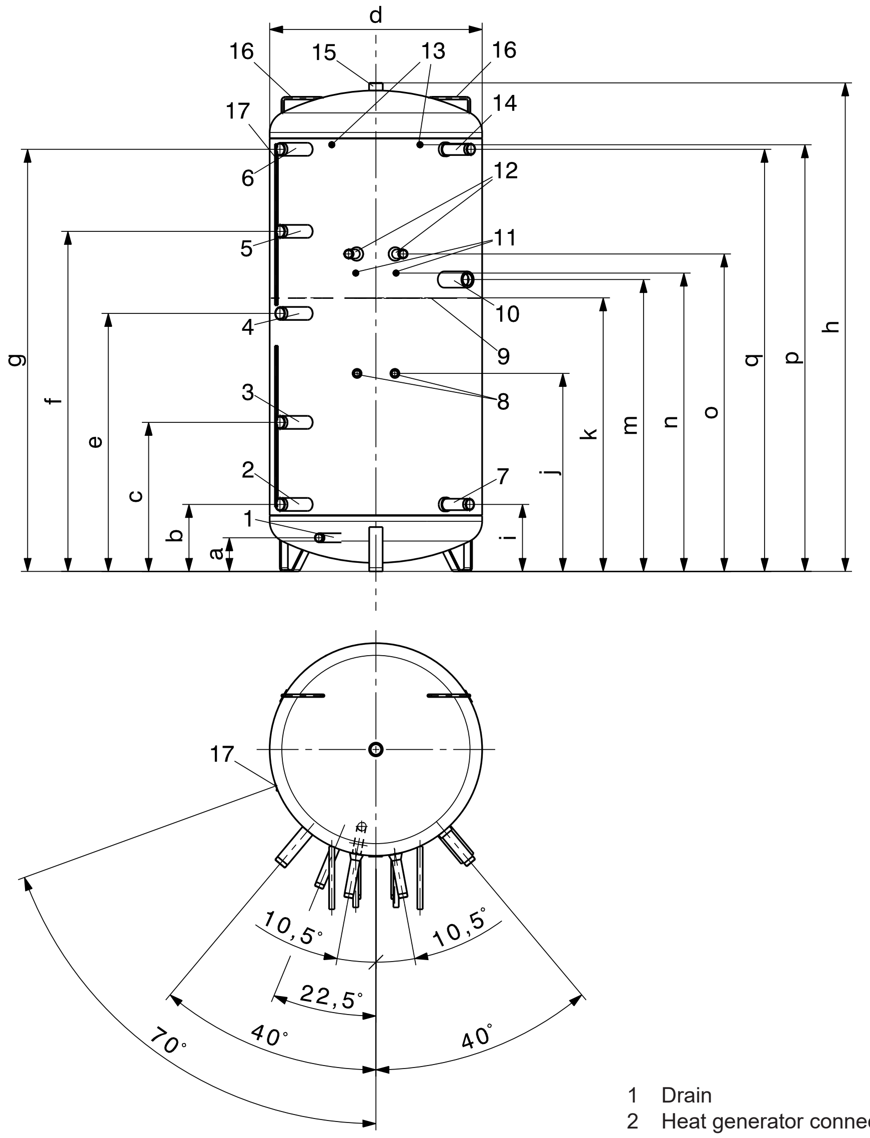
Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

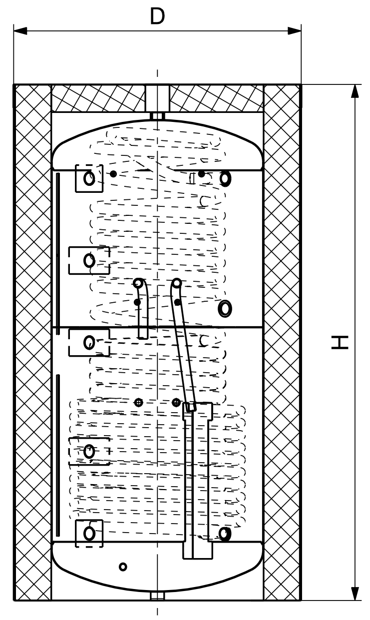
1	Drain	G 1″ (ext. thread)
2	Heat generator connection bottom (vertical baffle)	G 1½″ (ext. thread)
3	Heat generator connection 2 - bottom (inflow restrictor)	G 1½″ (ext. thread)
4	Heat generator connection middle (inflow restrictor)	G 1½″ (ext. thread)
5	Heat generator connection 2 - top (single-layer pipe)	G 1½″ (ext. thread)
7	Domestic water cold (corrugated pipe)	R 1½″ (ext. thread)
9	Isolation plate	
10	Connection for screw-in electric heating element	Rp 1½″ (int. thread)
11	Fixing bolts bottom left and right (heating module)	M10 (int. thread)
12	Flow (left) and return (right) heating	G 1″ (ext. thread)
13	Fixing bolts top left and right (heating module)	M10 (int. thread)
14	Domestic water hot (corrugated pipe)	R 1¼″ (ext. thread)
15	Possible air vent	Rp 1¼″ (int. thread)
16	Carry handle (2x)	
17	Sensor terminal bar (2x)	

VarioVal RL	d	D	h	H
(600)	750	1030	1655	1758

VarioVal RL	a	b	c	e	f	g	i	j	k	m	n	o	Tilting measure without thermal insulation
(600)	125	246	551	956	1261	246	1017	1085	1109	1180	1416	1586	1670

VarioVal RLS (800,1000)
(Dimensions in mm)





Deviations possible as a result
of manufacturing tolerances.
Dimensions +/- 10 mm

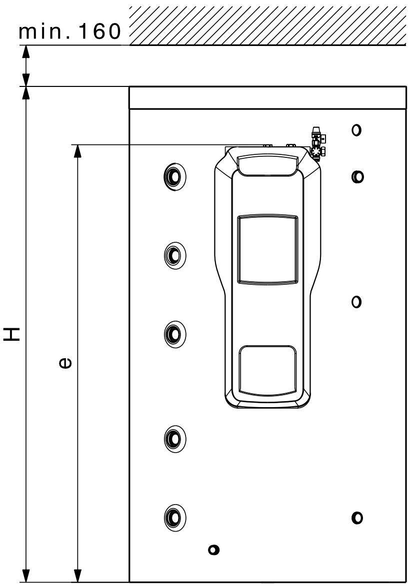
1	Drain	G 1″ (ext. thread)
2	Heat generator connection bottom (vertical baffle)	G 1½″ (ext. thread)
3	Heat generator connection 2 - bottom (inflow restrictor)	G 1½″ (ext. thread)
4	Heat generator connection middle (inflow restrictor)	G 1½″ (ext. thread)
5	Heat generator connection 2 - top (single-layer pipe)	G 1½″ (ext. thread)
6	Heat generator connection top (vertical baffle)	G 1½″ (ext. thread)
7	Domestic water cold (corrugated pipe)	R 1½″ (ext. thread)
8	Flow left and return right solar circuit	G ¾″ (ext. thread)
9	Isolation plate	
10	Connection for screw-in electric heating element	Rp 1½″ (int. thread)
11	Fixing bolts bottom left and right (heating module)	M10 (int. thread)
12	Flow (left) and return (right) heating	G 1″ (ext. thread)
13	Fixing bolts top left and right (heating module)	M10 (int. thread)
14	Domestic water hot (corrugated pipe)	Rp 1¼″ (int. thread)
15	Possible air vent	Rp 1¼″ (int. thread)
16	Carry handle (2x)	
17	Sensor terminal strip (type (800) 2x, type (1000) 3x)	

VarioVal RLS	d	D	h	H
(800)	790	1070	1816	1919
(1000)	790	1070	2016	2119

VarioVal RLS	a	b	c	e	f	g	i	j	k	m	n	o	p	q	Tilting measure without thermal insulation
(800)	125	249	554	959	1264	1569	249	736	1017	1085	1109	1180	1586	1569	1828
(1000)	125	249	554	959	1264	1569	249	870	1009	1085	1243	1314	1720	1769	2030

Space requirements

Installation example - VarioVal RLS (800):
- Heating module HMV20-3B
- HA group HAV20-3BM-R
- Solar group SAV20

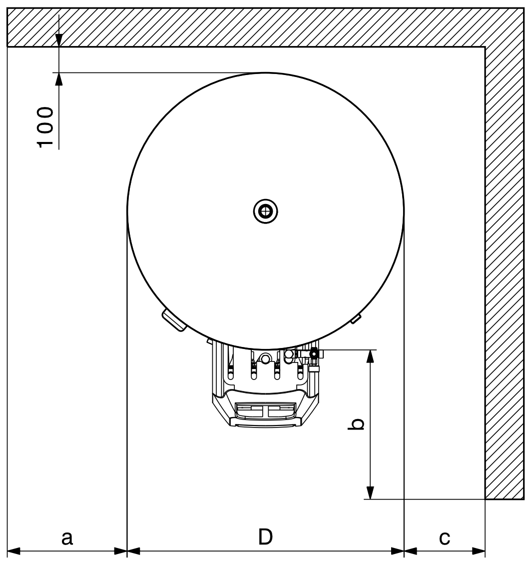


Notices on operation and accessibility
The operating side must be easily accessible. Preferably place heat generator to the left of the storage tank.

Accessibility, left according to heat generator (a):
- Thermal insulation can be opened to position the sensors in the terminal strips

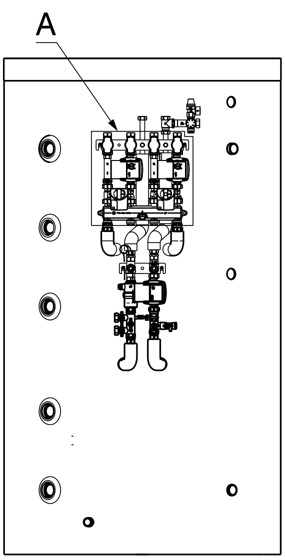
Wall clearance, right (c):
- Installation and removal of the screw-in electric heating element
- Installation of the pressure expansion tank
- Hot water (domestic water) flow and return

Distance from the ceiling, top:
- Possibly for safety set

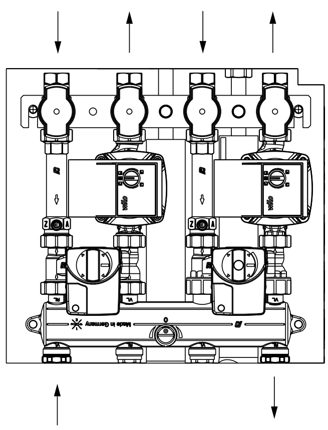


VarioVal Type	a	b	c	D	e	H
RL (600)	≥300	≥1000	≥650	1030	1694	1758
RLS (800)	≥300	≥1000	≥650	1070	1694	1919
RLS (1000)	≥300	≥1000	≥650	1070	1828	2119
RHS (800)	≥300	≥1000	≥650	990	1694	1886
RHS (1000)	≥300	≥1000	≥650	990	1828	2086

Representation without thermal insulating hood and DH module hood



Detail A



Instructions and guidelines

The following instructions and guidelines have to be observed:

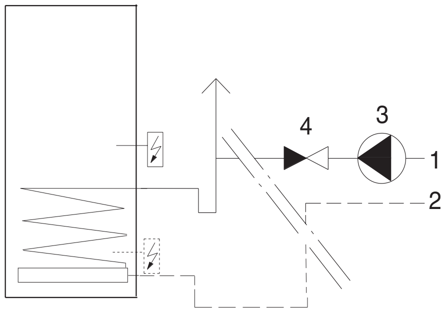
- technical data and mounting instructions of Hoval
- hydraulic regulations and those pertaining to instrumentation and control of Hoval
- instructions of the local fire police as well as country specific instructions
- instructions of the power station (concerning heat input of the electrical heating inset)
- fire protection instructions
- VDI 2035 Prevention of damage from corrosion and stone formation in hot water plants
- VDE 0100
- instructions concerning operating pressure and operating temperature
- DIN 4708 Central domestic hot water systems, page 1-3

Plumbing

- For electrical heating a hot water distribution system without circulation is to be planned if possible.
- Maximum safety adjustment: 1 bar less than the maximum operating pressure
- Please select the material of the connection components (pipes, sealing, safety valve,...) so that it can't get damaged by excessive temperatures caused by a malfunction of the temperature control circuit.

Assembly of the heating system

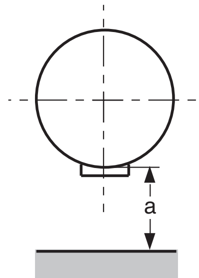
- The calorifier or additional heater coils must be provided with charging pump.
- An automatic deaerator must be installed at the highest point in the hot water flow.
- Flow and return pipes are to be attached in such way that with turned off charging pump and during electrical heating no back circulation and force of gravity circulation can occur.
- Expansion of heating water must be always ensured (also during electric charging resp. heat pump operation).



1 Flow
2 Return
3 Charging pump
4 Non-return valve

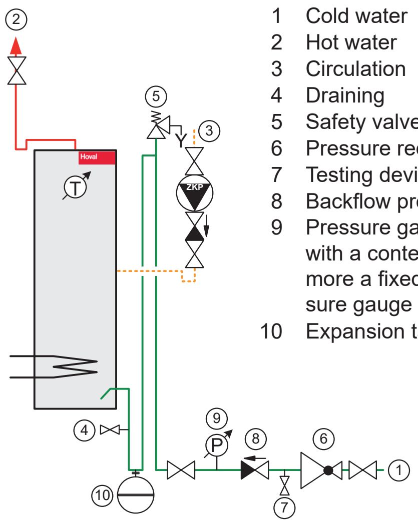
Necessary space

- The inspection opening has to be well accessible.
- Distance to the wall for the installation and removal of the electrical heating inset (a)



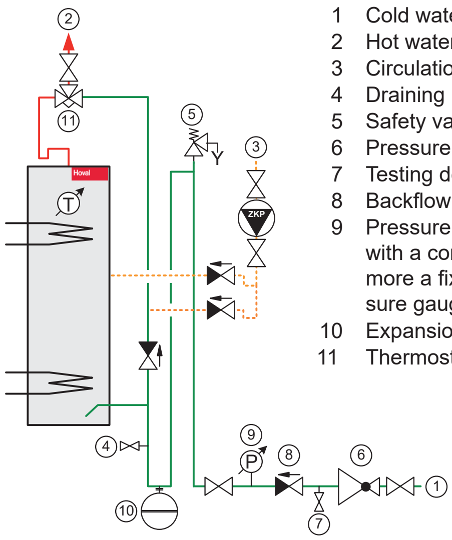
Calorifier		Type	a
CombiVal	ER/ESR/ESSR	200-500	≥ 600
MultiVal	ERR	300-500	≥ 750
CombiVal	ER/ESSR	800-1000	≥ 950
MultiVal	ESRR	800-1000	≥ 950
CombiVal	CR	200-500	≥ 750
MultiVal	CRR/CSRR	300-500	≥ 750
CombiVal	CR	800-2000	≥ 950
MultiVal	CRR/CSRR	800-2000	≥ 950
CombiVal	CSR	300-500	≥ 750
CombiVal	CSR	800-1000	≥ 950
Modul plus (on the left or right side, distance to the wall for casing installation)			≥ 700

Calorifier with one coil



1 Cold water
2 Hot water
3 Circulation
4 Draining
5 Safety valve
6 Pressure reducing valve
7 Testing device
8 Backflow preventer
9 Pressure gauge connection; with a content of 1000 l and more a fixed installed pressure gauge is required.
10 Expansion tank (optional)

Calorifier with two coils (incl. solar)



1 Cold water
2 Hot water
3 Circulation
4 Draining
5 Safety valve
6 Pressure reducing valve
7 Testing device
8 Backflow preventer
9 Pressure gauge connection; with a content of 1000 l and more a fixed installed pressure gauge is required.
10 Expansion tank (optional)
11 Thermostatic water mixer

Reading examples for the design of the storage tank size

for Hoval CombiVal CSR
Domestic hot water temperature 45 °C

1) **Comfort** design
Calculation with simultaneity factor according to **DIN 4708**

1 Performance figure NL = 23,

2 Heating flow T = 60 °C
► **CombiVal CSR (500)**

3 Heating flow T = 70 °C
► CombiVal CSR (400)

4 Heating flow T = 80 °C
► CombiVal CSR (300)

2) **Standard** design
Calculation with simultaneity factor according to **Dresden Technical University**

1 Performance figure NL = 23,

5 Heating flow T = 60 °C
► CombiVal CSR (400)

6 Heating flow T = 70 °C
► CombiVal CSR (300)

7 Heating flow T = 80 °C
► CombiVal CSR (300)

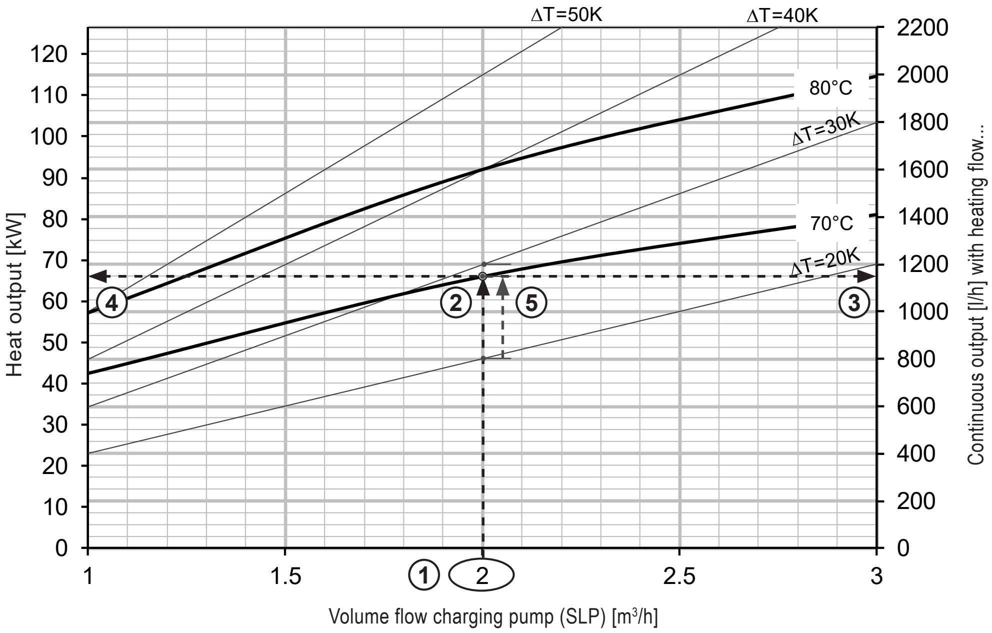
	Comfort 1)			Standard 2)		
T >	60°C	70°C	80°C	60°C	70°C	80°C
NL v	2	3	4	5	6	7
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13	300					
14						
15				300		
16						
17						
18						
19						
20						
21	400	300				
22						
23 1						
24						
25						
26				400	300	
27						
28						
29			300			
30	500	400				
31						
32						
33						
34						
35						
36						
37						300
38				500	400	

Calculation of the continuous domestic hot water output for Hoval CombiVal CSR (500)

Reading example 2: domestic hot water output at 60 °C with flow temperature 70 °C

1. Assumption of the charging volume flow 2 m^3/h
2. Intersection with curve $T_{\text{heating flow}}$ = 70 °C
3. ► Continuous output of approx. 1150 l/h
4. ► Heat output of approx. 66 kW without boiler supplement
5. Read the spread between flow and return, approx. 28 K, i.e. return flow is at approx. 42 °C)

Domestic hot water 60 °C



Fundamental selection criteria

Enamelled calorifiers must not be used where the water is completely softened.
If the pH value is below the balance pH value, the water is aggressive to metals. If the pH value is more than 0.3 below the balance pH value, an enamelled calorifier should not be used.
The water must comply with the limit values specified in the current drinking water ordinance.

Enamelled calorifiers

- If the **conductance** [1] is < 200 µS/cm, enamelled calorifiers are no longer adequately protected by a magnesium anode. If the conductance is < 100 µS/cm, a Correx® impressed current anode also no longer offers adequate protection.
- If the **total hardness** [2] is < 1 mmol/l, enamelled calorifiers are not adequately protected by a magnesium anode. If the total hardness is < 0.5 mmol/l, a Correx® impressed current anode also no longer offers adequate protection.
- Enamelled calorifiers must not be used where the water is completely softened. If the **residual hardness** [3] is > 1 mmol/l or higher than 50 % of the total hardness of the crude water, a Correx® impressed current anode can help.
- If the **pH value** [4] is more than 0.3 below the balance pH value, enamelled calorifiers should no longer be used. If the pH value is 0.1-0.3 below the balance pH value, a Correx® impressed current anode can help.
- Damage may result if the copper content is above 0.05 mg/l. The copper content must comply with the limit value specified in the current drinking water ordinance.

Limit values (in tabular form):

Type	Design	Corrosion protection	Conductance [1] µS/cm	Total hardness [2] mmol/l	Residual hardness [3] in proportion to total hardness of the tap water mmol/l	%	pH value [4] below the balance pH value -
CombiVal ER (200-500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal ER (800,1000)	S	2 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal ESR (200-400)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal ESSR (500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal ESSR (800,1000)	S	2 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
MultiVal ERR (300-500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
MultiVal ESRR (500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
MultiVal ESRR (800,1000)	S	2 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal E (300-1000)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3
CombiVal E (1500,2000)	S	2 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	1 x Correx® impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1-0.3

If the values are outside of the limit values, a stainless steel calorifier must be used.

In each case, **either** one Correx® impressed current anode **or** one/two magnesium anodes may be used.

W Customised design
S Standard design

Stainless steel calorifiers

Limit value filling and replacement water heating:

Modul-plus F (21-52),
Modul-plus F (21-52) S,
Modul-plus F (21-52) SM,
Modul-plus F (21-52) SX,
Modul-plus FH (21-52) S,
Modul-plus FH (21-52) SM,
Modul-plus FH (21-52) SX:
The chloride content of the filling and replacement water for the heating system must be < 50 mg/l. If this is not the case, the water must be demineralised.

Limit values domestic water:

Type	Design	Corrosion protection	Max. chloride content mg/l
CombiVal CR (200-800)	S W	- 1 x Correx® electrical anode(s)	< 70 < 200
CombiVal CR (1000)	S W	- 2 x Correx® electrical anode(s)	< 70 < 200
CombiVal CSR (300-800)	S W	- 1 x Correx® electrical anode(s)	< 70 < 200
CombiVal CSR (1000-2000)	S W	- 2 x Correx® electrical anode(s)	< 70 < 200
MutliVal CRR (500-800)	S W	- 1 x Correx® electrical anode(s)	< 70 < 200
MutliVal CRR (1000)	S W	- 2 x Correx® electrical anode(s)	< 70 < 200
MutliVal CSRR (500-800)	S W	- 1 x Correx® electrical anode(s)	< 70 < 200
MutliVal CSRR (1000-2000)	S W	- 2 x Correx® electrical anode(s)	< 70 < 200
CombiVal C (200-2500)	S W	- 1 x Correx® electrical anode(s)	< 70 < 200
Modul-plus F (21-52)	-	-	< 30
Modul-plus F (21-52) S	-	-	< 100
Modul-plus F (21-52) SM	-	Mg anodes	< 200
Modul-plus F (21-52) SX	-	Correx® electrical anodes	< 300
Modul-plus FH (21-52) S	-	-	< 100
Modul-plus FH (21-52) SM	-	Mg anodes	< 200
Modul-plus FH (21-52) SX	-	Correx® electrical anodes	< 300

W Customised design (on site)
S Standard design

In every case, **either** a Correx® electrical anode **or** one/two magnesium anodes may be used.

Plate heat exchangers

Information about the quality of the plant water on the heating side and the tap water where plate heat exchangers are used.
Heat exchangers that do not contain non-ferrous metals should be used if corrosion problems affecting copper-soldered heat exchangers or copper pipes are known in the area of the drinking water supply where the plate heat exchangers will be used.

Heating water side:
European Standard EN 14868, SWKI Directive BT 102-01, ÖNORM H 5195-1 and Directive VDI 2035 must be complied with.
In particular, the following specifications must be complied with:

- All parts of the heat exchanger which come into contact with water are made of copper or stainless steel. Due to the risk of corrosion, the **sum of the chloride, nitrate and sulphate content** [1] in the heating water must not exceed a total of 100 mg/l.
- The **pH value** [2] of the heating water should be between 8.3 and 9.5 after 6 to 12 weeks of heating operation to avoid obstruction of the flow as a result of deposits of corrosion products.
- Treated heating water must be checked at least once per year, unless the inhibitor manufacturer prescribes more frequent inspections in the directions for use.

Domestic water side:

- All parts of the heat exchanger which come into contact with water are made of copper or stainless steel.
- To prevent deposits and abrasion, a filter < 100 µm must be installed upstream of the heat exchanger.
- The maximum temperature on the domestic water side is 60 °C, whereby the **total hardness** [3] of the water must not exceed 14 °dH (2.5 mmol/l). If, for hygiene reasons, hot water temperatures of over 60 °C are required, measures must be implemented to prevent the formation of deposits (calcification). However, a hot water temperature of 70 °C must never be exceeded.
- The **pH value** [2] of the domestic water must be between 7 and 9.
- Due to the risk of corrosion, the **sum of the chloride, nitrate and sulphate content** [1] of the domestic water must not exceed a total of 100/300 mg/l. The **maximum free chloride concentration** [4] is 0.5 mg/l.
- Due to the risk of deposits forming, the **mineral content** [5] of the tap water must not exceed 250 mg/l. The maximum **conductance** [6] is 500/1000 µS/cm.
- **Softened water** [7] must be blended with at least 50 % tap water to ensure that the ratio of [Ca2+ and Mg2+] to [HCO3-] is over 0.5.
- If the sulphate [SO4 2-] content exceeds the carbonate [HCO3-] content, copper-soldered heat exchangers must not be used.

Limit values (in tabular form)		**Cu-soldered**		**Without non-ferrous metals**
		Plate heat exchanger heating water side	Plate heat exchanger domestic water side	Plate heat exchanger domestic water side
Conductance [6] of the tap water	µS/cm	-	< 500	< 1000
Residual hardness [7]	mmol/l	-	> 0.5	-
in relation to the total hardness of the tap water	%	-	> 50	-
pH value [2]	-	8.3 ... 9.5	7 ... 9	6 ... 10
Max. free chloride concentration [4]	mg/l	-	< 0.5	< 0.5
Chloride	mg/l	< 50	< 50	< 100
Nitrate	mg/l	< 100	< 100	< 300
Sulphate	mg/l	< 100	< 100	< 300
Sum of chloride, nitrate and sulphate content [1]	mg/l	< 100	< 100	< 300
Mineral content [5] of the tap water	mg/l	-	< 250	< 250
Total hardness [3]	°dH	-	< 14	< 15
	mmol/l	-	< 2.5	< 2.6

Electric immersion heaters

The electric immersion heaters are equipped with a temperature controller and a safety temperature limiter.

Safety temperature limiter
Switch-off temperature 98 °C - 6 K.
If the sanitary system cannot withstand these temperatures, a thermostatic water mixer must be built in.