

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	CombiVal C	Content l
(300)	B 301	(200)	B 212
(500)	B 475	(300)	B 289
(800)	747	(400)	B 411
(1000)	968	(500)	B 490
(1500)	1472	(750)	756
(2000)	2000	(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 charging 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
- Observe limit values for chloride content in domestic water - see "Engineering".

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
- Not suitable for exclusively electric 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
- Not suitable for exclusively electric 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
(4-10)	50
(4-16)	90
(4-20)	115
(4-30)	175
(4-40)	230
(4-50)	275

Part No.

8006 375
8006 376
8006 377
8006 378
8006 379
8006 380

Version with copper-free heat exchanger

TransTherm® aqua LS

with copper-free heat exchanger

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

8006 509
8006 510
8006 511
8006 512
8006 513
8006 514



TopTronic® E control module black

- 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

6043 844



Return changeover valve set

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

Nominal diameter	Output kW	kvs m³/h
DN 20	50-90	6.3
DN 25	115-175	10
DN 32	230-275	16
DN 40	350	25
DN 50	450	40
DN 65	580	63
DN 80	700	100

Part No.

7010 832
7010 836
7011 009
7011 025
7016 331
7016 332
7016 333



Test valve DN 8 G 1/4"
for TransTherm® aqua L, LS and F, FS
Test valve suitable for flame treatment for hygienic-microbiologic tests.

2049 861



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
CS 20	Rp 1"	2.0
CS 25	Rp 1 1/4"	3.6
CS 32	Rp 1 1/2"	5.0
CS 40	Rp 2"	7.0

2062 165
2062 166
2062 167
2062 168

Additional sludge separators
see "Various system components"



Temperature monitor 0...120 °C
for TransTherm® aqua L, LS, F, FS

2048 299



Safety temperature monitor 70...130 °C
for TransTherm® aqua L, LS, F, FS

2048 300



Safety temperature limiter 70...130 °C
for TransTherm® aqua L, LS, F, FS

2049 619



**Immersion sleeve G 1/2" stainless steel
for thermostat**
for TransTherm® aqua L, LS, F, FS
Installation length = 100 mm
Outer Ø: 8 mm, inner Ø: 6.5 mm

2048 285



**Immersion sleeve G 1/2" stainless steel
for 2 thermostats**
for TransTherm® aqua L, LS, F, FS
Installation length = 100 mm
Outer Ø: 15 mm, inner Ø: 13.5 mm

2048 288

Part No.

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
E (300)	B ▶	301
E (500)	B ▶	475
E (800)		747
E (1000)		968
E (1500)		1472
E (2000)		2000

Part No.

- 6044 187
- 6044 188
- 6044 189
- 6044 190
- 6044 191
- 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
C (200)	B ▶	212
C (300)	B ▶	289
C (400)	B ▶	411
C (500)	B ▶	490
C (750)		756
C (1000)		990
C (1500)		1415
C (2000)		1975
C (2500)		2450

- 6049 693
- 6049 694
- 6049 695
- 6049 696
- 6049 697
- 6049 698
- 6049 699
- 6049 700
- 6049 701

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.

EFHK-E Type	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal
4-180	4.0	2.6 kW/3x400 V 2.0 kW/3x400 V 1.3 kW/3x400 V 1.3 kW/1x230 V	380	E (300-2000)
6-180	6.0	4.0 kW/3x400 V 3.0 kW/3x400 V 2.0 kW/3x400 V 2.0 kW/1x230 V	460	E (300-2000)
9-180	8,5	6,0 kW/3x400 V 4,5 kW/3x400 V 3,0 kW/3x400 V 3,0 kW/1x230 V	615	E (800-2000)

Part No.

6053 353

6053 354

6052 438



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.

EFHK-C Type	Heat output 3x400 V [kW]	Changeable to	Install. length [mm]	CombiVal
4-180	4.0	2.6 kW/3x400 V 2.0 kW/3x400 V 1.3 kW/3x400 V 1.3 kW/1x230 V	380	C (200-2000)
6-180	6.0	4.0 kW/3x400 V 3.0 kW/3x400 V 2.0 kW/3x400 V 2.0 kW/1x230 V	460	C (200-2000)
9-180	9.0	6.0 kW/3x400 V 4.5 kW/3x400 V 3.0 kW/3x400 V 3.0 kW/1x230 V	670	C (750-2000)

6049 564

6049 565

6049 566

For CombiVal E (300-2000)



Flange cover 180 - 3/4"
for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, enamelled on the inside with Rp 3/4" sleeve
Seal included



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.
Installation length: 395 mm

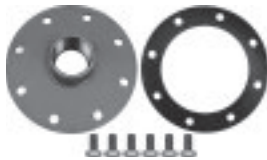
Either a Correx® impressed current anode **or** one/two magnesium anodes may be used.

Part No.

2077 035

684 760

For CombiVal C (200-2000)



Flange cover 180 - 1 1/2"
for the installation of the Correx® impressed current anode in flange Ø 180/110 mm, stainless steel with Rp 1 1/2" sleeve
Seal and screws included



UP 1.9-924

Kit Correx® impressed current anode CX 40-20-UP1.9-L395/1
for long-term corrosion protection for installation in the stainless steel calorifier
with reduction R 1 1/2" - Rp 3/4"
Installation length: 395 mm
1 Correx® impressed current anode (up to 800 l)

To install the impressed current anode set, the flange cover 180 - 1 1/2" must also be ordered

2077 911

6031 813

Performance data

TransTherm® aqua LS (1-10 to 1-50)

Domestic water secondary		Heating water temperature flow											
		55 °C (4-..)						60 °C (4-..)					
		(10)	(16)	(20)	(30)	(40)	(50)	(10)	(16)	(20)	(30)	(40)	(50)
60/5 °C	T return primary °C	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽprimary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
	Q max. kW	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽsecondary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
60/10 °C	T return primary °C	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽprimary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
	Q max. kW	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽsecondary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
60/15 °C	T return primary °C	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽprimary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
	Q max. kW	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽsecondary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
60/20 °C	T return primary °C	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽprimary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
	Q max. kW	-	-	-	-	-	-	-	-	-	-	-	-
	Ṽsecondary m³/h	-	-	-	-	-	-	-	-	-	-	-	-
55/5 °C	T return primary °C	-	-	-	-	-	-	30	30	30	30	30	30
	Ṽprimary m³/h	-	-	-	-	-	-	1.25	2.04	2.51	3.71	4.76	5.66
	Q max. kW	-	-	-	-	-	-	43	70	86	127	163	194
	Ṽsecondary 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
	Ṽprimary m³/h	-	-	-	-	-	-	1.11	2.04	2.51	3.71	4.76	5.63
	Q max. kW	-	-	-	-	-	-	38	70	86	127	163	193
	Ṽsecondary 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
	Ṽprimary m³/h	-	-	-	-	-	-	0.76	1.46	1.95	3.06	4.23	5.4
	Q max. kW	-	-	-	-	-	-	26	50	67	105	145	185
	Ṽsecondary 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
	Ṽprimary m³/h	-	-	-	-	-	-	0.47	0.9	1.17	1.9	2.63	3.36
	Q max. kW	-	-	-	-	-	-	16	31	40	65	90	115
	Ṽsecondary 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
	Ṽprimary 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
	Ṽsecondary 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
	Ṽprimary 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
	Ṽsecondary 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
	Ṽprimary 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
	Ṽsecondary 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
	Ṽprimary 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
	Ṽsecondary 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
Ṽ primary m³/h Flow rate primary
 Q max. kW Output
Ṽ secondary m³/h Flow rate 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)

Domestic water secondary		Heating water temperature flow											
		65 °C (4-...)						70 °C (4-...)					
		(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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
	Ṃprimary 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
	Ṃsecondary 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
 Ṃ primary m³/h Flow rate primary
 Q max. kW Output
 Ṃ secondary m³/h Flow rate 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

TransTherm® aqua LS	Cold water 10 °C Domestic water 60 °C					
	(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 Usable storage tank content

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

Ṽs **l/10 min** 10 minutes peak flow rate 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)

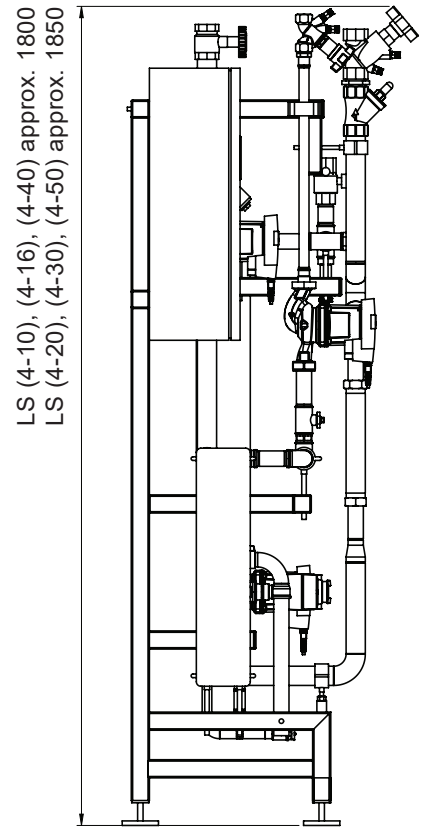
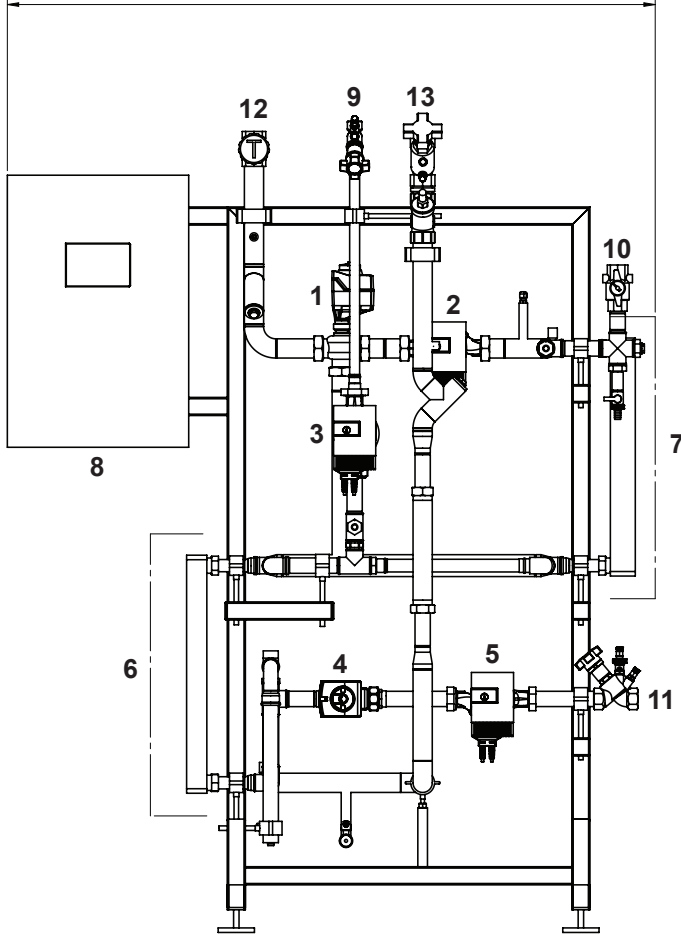
Type		(300)	(500)	(800)	(1000)	(1500)	(2000)
• Volume	dm ³	301	475	747	968	1472	2000
• Max. operating pressure/test pressure	bar	10/13	10/13	10/13	10/13	10/13	10/13
• Max. DHW temperature	°C	95	95	95	95	95	95
• Thermal insulation		PU hard foam		polyester fleece			
	mm	75	75	100	100	120	120
• Thermal 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/m ² K	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	dm ³	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/m ² K	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)

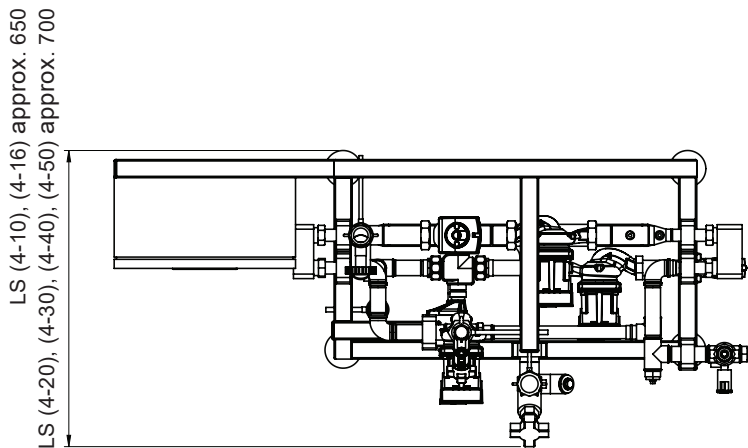
LS (4-10), (4-16), (4-20) approx. 1450
 LS (4-30) approx. 1500
 LS (4-40), (4-50) approx. 1550
 LS (4-50) approx. 1600



LS (4-10), (4-16), (4-40) approx. 1800
 LS (4-20), (4-30), (4-50) approx. 1850

1 Primary 3-way control valve				
2 Primary circulating pump				
3 Recirculation pump				
4 2-way control valve	9 Circulation	(4-10) (4-16)	(4-20) (4-30)	(4-40) (4-50)
5 Secondary circulating pump	10 Hot water	DN 20 Rp 3/4"	DN 20 Rp 3/4"	DN 25 Rp 1"
6 Heat exchanger (pre-heater)	11 Cold water	DN 25 Rp 1"	DN 25 Rp 1"	DN 32 Rp 1 1/4"
7 Heat exchanger (supplementary heater)	12 Flow heating water	DN 25 Rp 1"	DN 32 Rp 1 1/4"	DN 32 Rp 1 1/4"
8 Control panel with control	13 Return heating water	DN 25 Rp 1"	DN 32 Rp 1 1/4"	DN 40 Rp 1 1/2"

Rp = Internal thread



LS (4-10), (4-16) approx. 650
 LS (4-20), (4-30), (4-40), (4-50) approx. 700

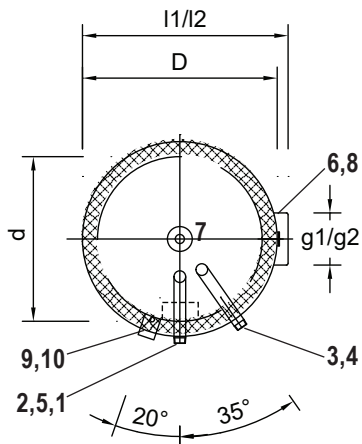
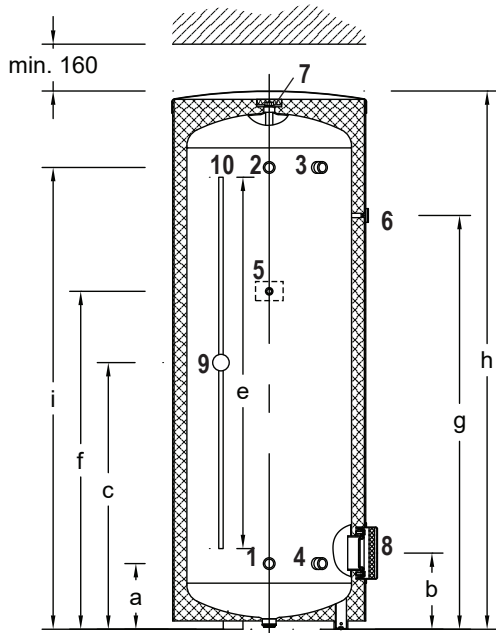
Adapters for heat meter:

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

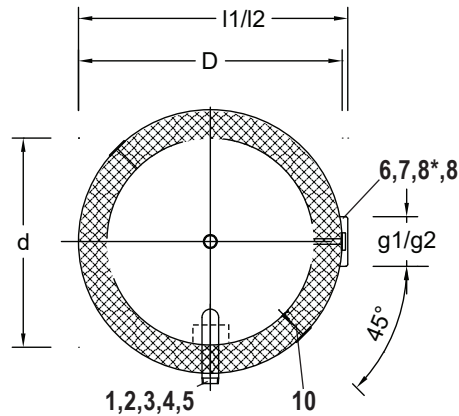
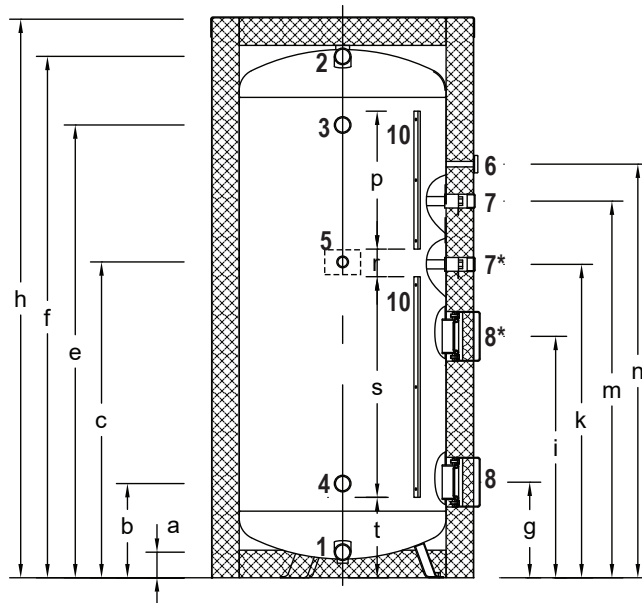
TransTherm® aqua LS Weight in kg

(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 (charging return) Type (300,500) G 1 1/4" (ET)
Type (800-2000) G 2" (ET)
- 2 Hot water Type (300,500) G 1 1/4" (ET)
Type (800-2000) G 2" (ET)
- 3 Charging flow - hot Type (300,500) G 1 1/4" (ET)
Type (800-2000) G 2" (ET)
- 4 Charging return - cold Type (300,500) G 1 1/4" (ET)
Type (800-2000) G 2" (ET)

- 5 Circulation Type (300,500) G 3/4" (ET)
Type (800-2000) G 1 1/4" (ET)
- 6 Thermometer
- 7 Anode sleeve Type (300,500) G 1" (IT)
Type (800-2000) G 1 1/4" (IT)
- 7* Anode sleeve Type (1500,2000) G 1 1/4" (IT)
- 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)

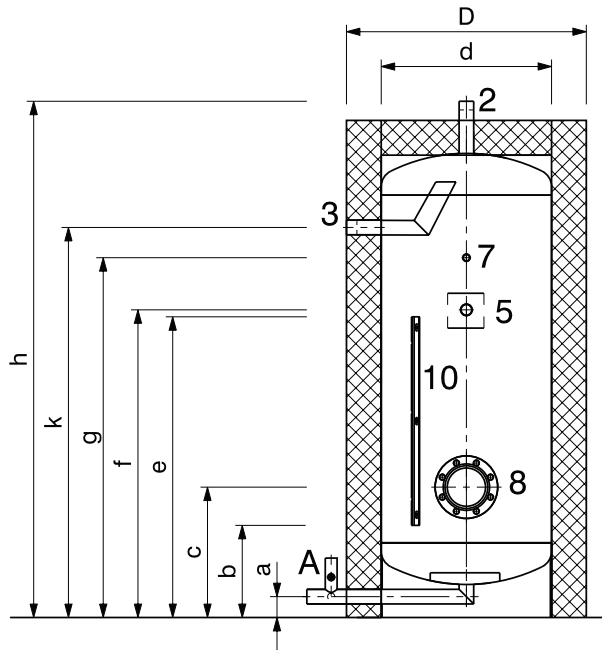
CombiVal E type	Ø g1	Ø g2	l1	l2 *
(300)	180	-	745	785
(500)	180	-	745	785
(800)	180	180	975	1020
(1000)	180	180	1075	1120
(1500)	180	180	1265	1310
(2000)	180	180	1465	1510

* Using a flange electrical immersion heater

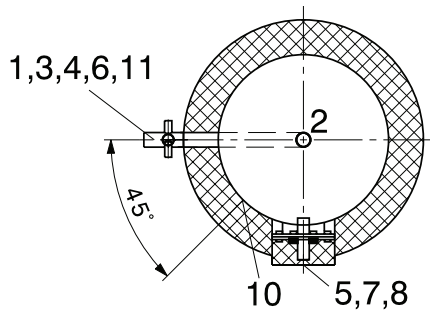
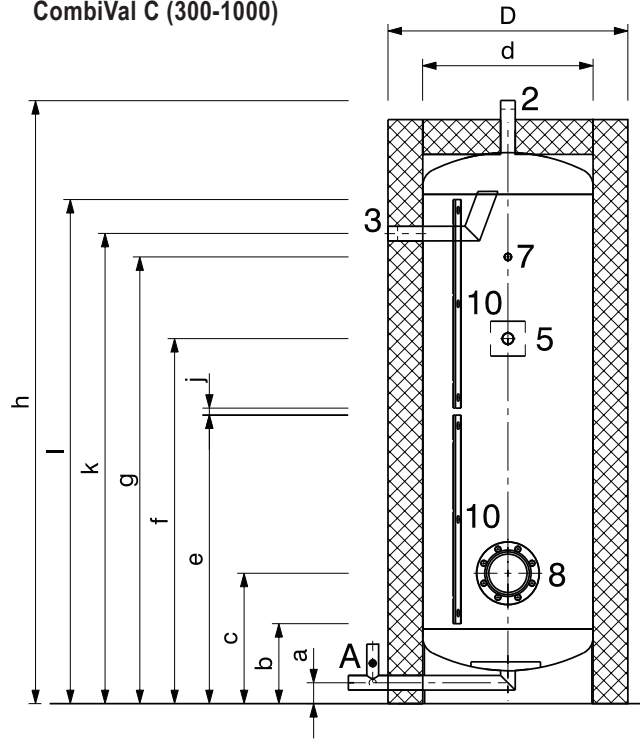
Variation because of the production tolerance possible
Dimension +/- 10 mm

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

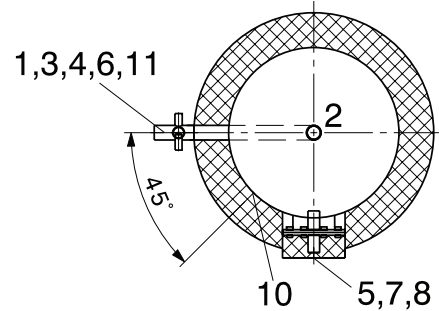
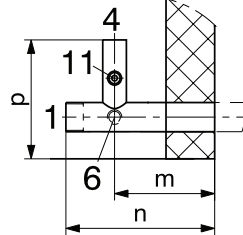
CombiVal C (200)
(Dimensions in mm)



CombiVal C (300-1000)



Detail A



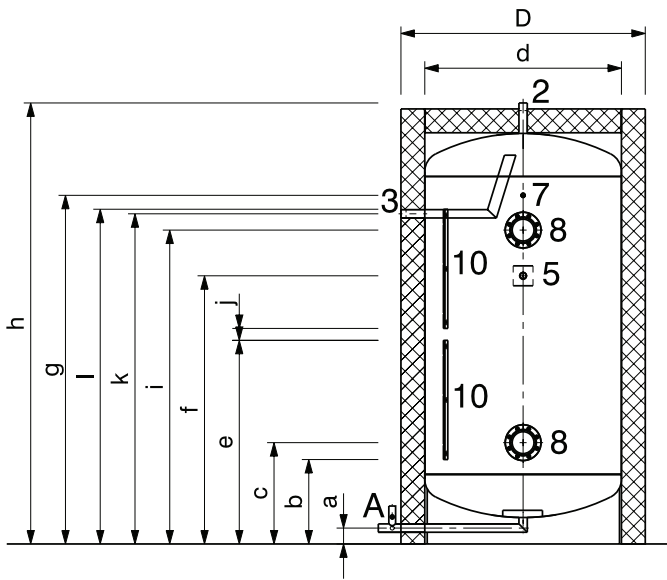
- 1 Cold water with baffle plate
Type (200,300) Rp 1 1/4" (IT)
Type (400,500) Rp 1 1/2" (IT)
Type (750,1000) Rp 2" (IT)
- 2 Hot water
Type (200,300) Rp 1 1/4" (IT)
Type (400,500) Rp 1 1/2" (IT)
Type (750,1000) Rp 2" (IT)
- 3 Charging flow - hot
Type (200-500) Rp 1" (IT)
Type (750,1000) Rp 1 1/4" (IT)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

- 7 Sleeve (Rp 1/2" (IT)) 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 - 1 1/2" (IT)
- 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

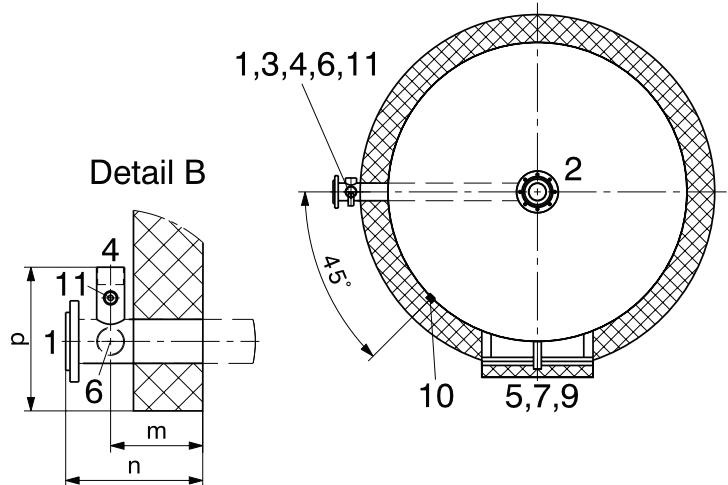
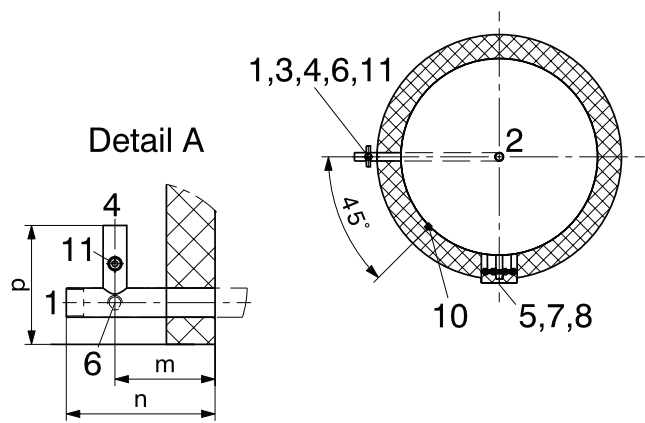
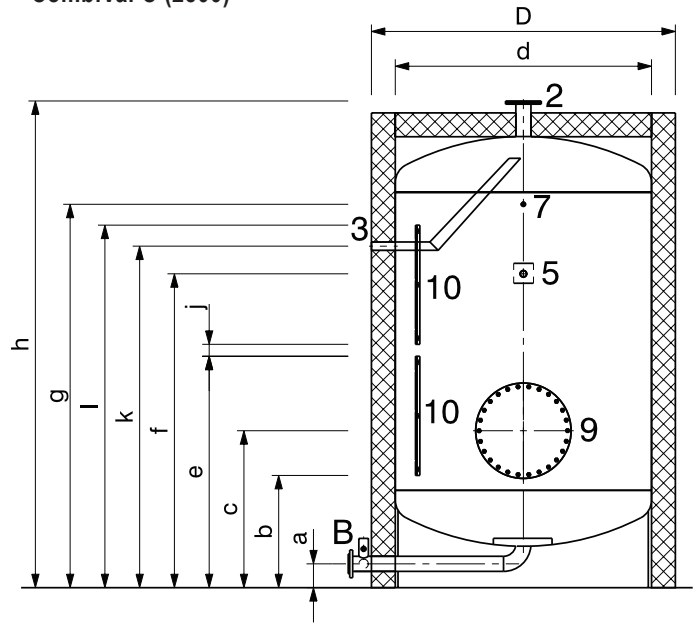
Variation because of the production tolerance possible
Dimension +/- 10 mm

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

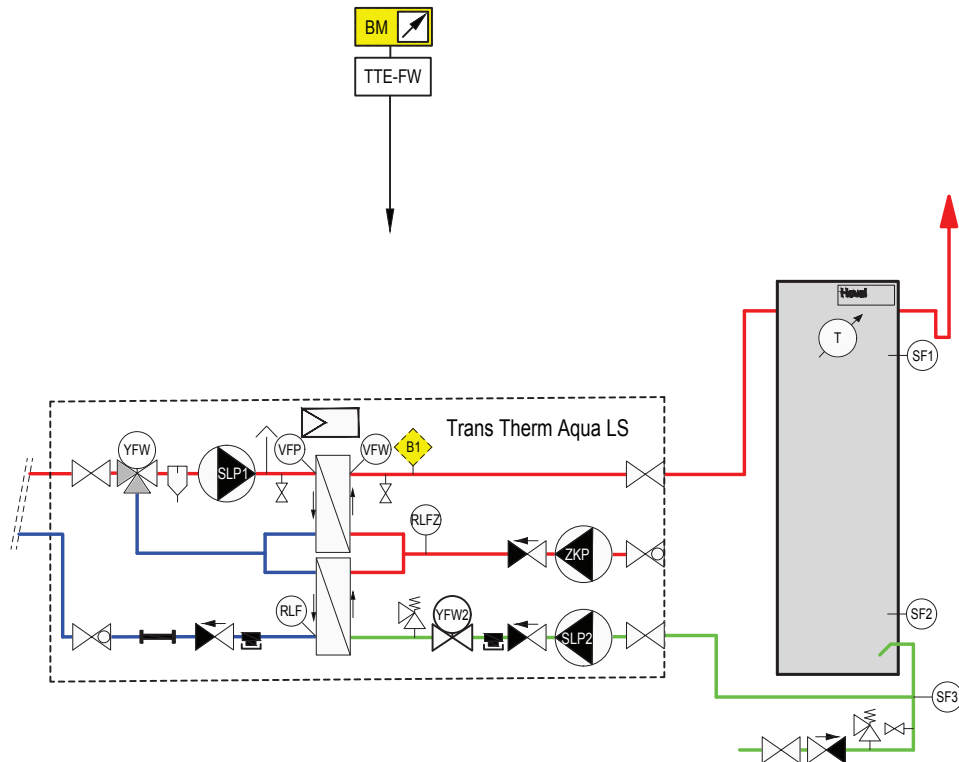
- 9 Manhole flange (40 Nm)
Ø 400/480 mm, pitch circle 445 mm, 26 x M14 or optional
Flange adapter:
- for electric heating element or
- for impressed current anode set with flange cover, 180 - 1 1/2" (IT)
- 10 Sensor terminal bar 600 x 30 mm
2 x type (1500-2500)
- 11 Immersion sleeve M16 x 1.5 for sensor/thermostat

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



- 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).