EN

Technical information
Installation instructions

Calorifier
CombiVal CR (200-2000)
CombiVal CSR (300-2000)
MultiVal CRR (300-2000)
MultiVal CSRR (540-2000)

Hoval products must be installed and commissioned only by appropriately qualified experts. These instructions are intended exclusively for the **specialist**. Electrical installations may only be carried out by a qualified electrician.

Hoval

4 210 803 / 00 - 09/11

1. Important Notes on Installation

- The calorifier tank must be installed in a frost-free room
- Keep the piping as short as possible and insulate it to prevent heat loss
- These instructions should be kept readily available close to the location of the appliance

- Installation, commissioning and maintenance work must be carried out by suitably qualified personnel in accordance with these instructions.
- For reliable and safe operation it is necessary to have the appliance regularly serviced.
- No changes may be made to the calorifier. Unauthorised changes render the guarantee invalid.
- Heating water and drinking water must not come into contact with each other. In particular, the process water must not be allowed to circulate via the heat exchanger.
- It is not allowed to fix the calorifier tank to the basement.

2. Technical Data

2.1 Calorifier

- Calorifier (with integrated heat exchanger) made of stainless steel Duplex
- With flange for cleaning
- Heat exchanger design varies depending on its type:
  - CombiVal CR (200-1000): with integrated smooth pipe flat battery
  - CombiVal CR (1250-2000): with integrated smooth pipe heat exchanger
  - CombiVal CSR (300-1000): with integrated, flat/ smooth pipe heat exchanger system with enlarged heating surface
  - CombiVal CSR (1250-2000): with one integrated, triple coiled smooth-pipe battery and enlarged heating surface
  - MultiVal CRR (300-2000) with two integrated heat exchangers (lower unit for using solar energy, upper unit for additional heating with oil, gas or pellet boiler). For calorifiers with volumes up to 1000 l, the lower heat exchanger is designed as smooth pipe flat tube battery.
  - MultiVal CSRR (540-2000) with two integrated heat exchangers (lower unit for using solar energy, upper unit for heating with heat pump)

	volume (litres)	**stand-by losses* (W)**	**weight (kg)**
CombiVal CR (200)	200	70	65
CombiVal CR (300)	300	96	85
CombiVal CR (540)	540	138	106
CombiVal CR (630)	630	142	130
CombiVal CR (800)	800	150	168
CombiVal CR (1000)	1000	154	206
CombiVal CR (1250)	1220	163	227
CombiVal CR (1500)	1590	175	244
CombiVal CR (2000)	2100	200	342
CombiVal CSR (300)	300	96	104
CombiVal CSR (400)	400	128	123
CombiVal CSR (540)	540	138	152
CombiVal CSR (800)	800	150	213
CombiVal CSR (1000)	1000	154	257
CombiVal CSR (1250)	1140	163	300
CombiVal CSR (1500)	1400	175	346
CombiVal CSR (2000)	1900	200	462
MultiVal CRR (300)	300	96	91
MultiVal CRR (540)	540	138	117
MultiVal CRR (630)	630	142	140
MultiVal CRR (800)	800	150	183
MultiVal CRR (1000)	1000	154	240
MultiVal CRR (1250)	1220	163	261
MultiVal CRR (1500)	1590	175	266
MultiVal CRR (2000)	2100	200	364

*at 60 °C water temperature and 20 °C room temperature

	volume (litres)	stand-by losses* (W)	weight (kg)
MultiVal CSRR (540)	540	138	132
MultiVal CSRR (540)	540	138	141
MultiVal CSRR (630)	630	142	158
MultiVal CSRR (630)	630	142	167
MultiVal CSRR (630)	630	142	176
MultiVal CSRR (800)	800	150	202
MultiVal CSRR (800)	800	150	221
MultiVal CSRR (1000)	1000	154	234
MultiVal CSRR (1000)	1000	154	238
MultiVal CSRR (1250)	1250	163	245
MultiVal CSRR (1500)	1500	175	280
MultiVal CSRR (2000)	2000	200	390

*at 60 °C water temperature and 20 °C room temperature

2.2 Hot water output at heating flow 80 °C

2.2.1 CombiVal CR (200-2000)

CombiVal			Loading pump Biral [1]				Hot water output dm³/10 min. [4]	Hot water output dm³/h [5]			
Type	m³/h [2]	mbar [3]	Type	mWS	Type	mWS	45 °C	45 °C	60 °C	kW [6]	flats [7]
CR (200)	0,5	5	MX10	2,0	AX12	2,4	339	405	263	16,5	2
	1,0	20	MX10	1,7	AX12	2,5	361	538	360	21,9	4
	1,5	45	MX10	1,5	AX12	2,0	381	660	412	26,8	4
	2,0	80	MX12	2,0	AX13	3,0	397	760	440	30,8	4
CR (300)	1,0	25	MX10	1,7	AX12	3,5	523	690	475	28,4	6
	1,5	55	MX10	1,5	AX12	2,0	552	790	550	35,3	8
	2,0	100	MX12	2,0	AX13	3,0	573	1000	596	40,5	8
	2,5	150	MX13	2,9	A13	3,2	582	1080	630	42,7	8
CR (540)	1,5	65	MX10	1,5	AX12	2,0	897	990	676	40,3	16
	2,0	112	MX12	2,0	AX13	3,0	936	1220	738	43,6	17
	2,5	175	MX13	2,9	A13	3,2	950	1310	788	46,5	19
	3,0	255	M14	4,8	A14	4,2	972	1438	865	48,3	21
CR (630)	2,5	175	MX13	2,9	A13	3,2	1075	1340	785	53,3	22
	3,0	255	M14	4,8	A14	4,2	1098	1480	875	58,6	23
CR (800)	2,0	120	MX12	2,0	A13	3,0	1348	1410	960	64,3	25
	2,5	190	MX13	2,9	A13	3,2	1369	1705	1030	69,4	30
	3,0	270	M14	4,8	A14	4,2	1401	1850	1075	77,2	31
	3,5	370	M14	4,4	A14	4,2	1414	1910	1120	80,3	32
CR (1000)	2,0	120	MX12	2,0	AX13	3,0	1620	1410	960	64,3	30
	2,5	190	MX13	2,9	A13	3,2	1640	1705	1030	69,4	32
	3,0	270	M14	4,8	A14	4,2	1675	1850	1075	77,2	33
	3,5	370	M14	4,4	A14	4,2	1680	1910	1120	80,3	36
CR (1250)	3,0	180	MX13	2,3	A13	2,6	1988	1790	1000	71,5	37
	4,0	320	M14	4,0	A15	5,2	2034	2150	1100	82,7	39
CR (1500)	3,0	200	M14	4,8	A14	4,2	2368	1890	1088	81,2	45
	4,0	360	M14	4,0	A15	5,1	2420	2326	1277	94,0	48
CR (2000)	3,0	225	M14	4,8	A14	4,2	3081	2120	1216	89,7	55
	4,0	400	M15	5,2	A14	5,1	3143	2600	1428	105	62

[1] Biral loading pump = The catalogue paragraph „Gas-fired boilers“ must be regarded in connection with gas heating boilers
[2] m³/h = Volume flow of the loading pump (80 °C)
[3] mbar = Heating-side flow resistance in the heating battery
[4] dm³/10 min. = Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C (according Procal test rules)
[5] dm³/h = Continuous output per hour. Cold water temperature 10 °C (according Procal test rules)
[6] kW = Power input at 45/10 °C
[7] flats = Power characteristic number 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)

2.2.2 CombiVal CSR (300-2000)

CombiVal			Loading pump Biral [1]				Hot water output dm³/10 min. [4]	Hot water output dm³/h [5]			
Type	m³/h [2]	mbar [3]	Type	mWS	Type	mWS	45 °C	45 °C	60 °C	kW [6]	flats [7]
CSR (300)	1,0	35	MX10	1,7	AX12	2,5	623	1290	795	52,7	9
	2,0	140	MX12	2,0	AX13	3,0	705	1790	1050	72,9	12
CSR (400)	1,5	38	MX10	1,7	AX12	2,0	778	1420	890	57,6	13
	2,0	152	MX12	2,0	AX13	3,0	881	2030	1215	82,7	17
CSR (540)	1,0	59	MX10	1,7	AX12	2,5	1008	1655	1060	67,4	20
	2,0	236	MX13	3,4	A13	3,8	1145	2480	1525	100,9	29
CSR (800)	1,5	160	MX12	2,4	AX13	3,8	1487	2410	1595	98,1	34
	2,5	444	M14	5,1	A14	4,8	1655	3420	2110	139,1	46
CSR (1000)	1,5	160	MX12	2,4	A12	2,6	1759	2410	1595	98,1	37
	2,5	444	M14	5,1	A14	4,8	1927	3420	2110	139,1	49
CSR (1250)	3,0	27	MX12	1,0	A12	1,5	2369	4045	2545	164,6	58
	4,0	48	MX13	1,0	A13	2,0	2485	4741	2920	193,0	68
CSR (1500)	3,0	36	MX12	1,0	A12	1,8	2769	4400	2825	179,1	69
	4,0	64	MX13	1,0	A13	2,0	2909	5243	3295	213,4	80
CSR (2000)	3,0	45	MX12	1,0	A12	1,8	3470	4540	2975	184,7	80
	4,0	80	MX13	1,0	A13	2,0	3623	5455	3452	222,0	88

[1] Biral loading pump = The catalogue paragraph „Gas-fired boilers“ must be regarded in connection with gas heating boilers
[2] m³/h = Volume flow of the loading pump (80 °C)
[3] mbar = Heating-side flow resistance in the heating battery
[4] dm³/10 min. = Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C (according Procal test rules)
[5] dm³/h = Continuous output per hour. Cold water temperature 10 °C (according Procal test rules)
[6] kW = Power input at 45/10 °C
[7] flats = Power characteristic number 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)

2.2.3 MultiVal CRR (300-2000)

MultiVal			Loading pump Biral [1]				Hot water output dm³/10 min. [4]	Hot water output dm³/h [5]			
Type	m³/h [2]	mbar [3]	Type	mWS	Type	mWS	45 °C	45 °C	60 °C	kW [6]	flats [7]
CRR (300)	1,5	20	MX10	1,5	AX12	2,0	160	315	175	12,8	1
	2,0	36	MX12	2,0	A13	3,0	167	335	185	13,6	1
CRR (540)	1,5	41	MX10	1,5	AX12	2,0	260	595	335	24,2	3
	2,5	115	MX12	2,0	AX13	2,2	280	675	378	27,4	4
CRR (630)	2,0	72	MX12	2,0	AX13	3,6	315	640	357	25,9	6
	3,0	162	M14	2,4	A13	2,6	330	695	390	28,3	7
CRR (800)	2,0	85	MX12	2,0	AX13	3,0	375	710	400	28,8	8
	2,5	130	MX13	2,9	A13	3,2	383	750	420	30,5	9
	3,0	190	M14	4,8	A15	6,1	390	780	435	31,6	10
CRR (1000)	2,0	85	MX12	2,0	Ax13	3,0	448	710	400	28,8	9
	2,5	130	MX13	2,9	A13	3,2	456	750	420	30,5	10
	3,0	190	M14	4,8	A15	6,1	463	780	435	31,6	11
CRR (1250)	2,5	130	MX13	2,9	A13	3,2	547	780	435	31,5	10
	3,0	190	M14	4,8	A15	6,1	560	810	449	32,6	12
CRR (1500)	2,5	165	MX13	2,9	A13	3,2	670	1020	574	41,4	14
	3,0	235	M14	4,8	A15	6,1	681	1060	594	43,1	16
CRR (2000)	2,5	165	MX13	2,9	A13	3,2	835	1020	574	41,4	18
	3,0	235	M14	4,8	A15	6,1	846	1060	594	43,1	20

[1] Biral loading pump = The catalogue paragraph „Gas-fired boilers“ must be regarded in connection with gas heating boilers
[2] m³/h = Volume flow of the loading pump (80 °C)
[3] mbar = Heating-side flow resistance in the heating battery
[4] dm³/10 min. = Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C (according Procal test rules)
[5] dm³/h = Continuous output per hour. Cold water temperature 10 °C (according Procal test rules)
[6] kW = Power input at 45/10 °C
[7] flats = Power characteristic number 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)

2.3 Hot water output at heating flow 60 °C

2.3.1 MultiVal CSRR (540-2000)

MultiVal			Loading pump Biral [1]				Hot water output dm³/10 min. [4]	Hot water output dm³/h [5]			
Type	m³/h [2]	mbar [3]	Type	mWS	Type	mWS	45 °C	45 °C	55 °C	kW [6]	flats [7]
CSRR (540)	1.5	18	AX 13	3.2	MX 12	2.4	481	230	179	9.4	2
CSRR (540)	2.5	62	AX 13	2.2	MX 13	2.9	497	324	252	13.2	2
CSRR (630)	1.5	18	AX 13	3.2	MX 12	2.4	552	230	179	9.4	2
CSRR (630)	2.5	62	AX 13	2.2	MX 13	2.9	568	324	252	13.2	2
CSRR (630)	3.0	81	A 13	2.7	MX 13	2.2	589	454	353	18.5	3
CSRR (800)	2.5	62	AX 13	2.2	MX 13	3	710	324	252	13.2	3
CSRR (800)	3.5	110	A 13	2.2	MX 13	1.8	734	474	368	19.3	3
CSRR (1000)	3.5	110	A 13	2.2	MX 13	1.8	908	474	368	19.3	4
CSRR (1000)	4.5	243	A 14	3	M 14	3.5	938	658	512	26.8	5
CSRR (1250)	4.5	243	A 14	3	M 14	3.5	1105	658	512	26.8	5
CSRR (1500)	5.5	151	A 14	2.3	M 14	2.3	1442	791	615	32.2	7
CSRR (2000)	5.5	151	A 14	2.3	M 14	2.3	1860	791	615	32.2	8

[1] Biral loading pump = Combined with heat pumps
[2] m³/h = Volume flow of the loading pump (60 °C)
[3] mbar = Heating-side flow resistance in the heating battery
[4] dm³/10 min. = Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C (according Procal test rules)
[5] dm³/h = Continuous output per hour. Cold water temperature 10 °C (according Procal test rules)
[6] kW = max. heat pump capacity for heating battery
[7] flats = Power characteristic number 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)

2.4 Heat exchanger

	Heating surface (m^2)		for collector surface to (m^2)	Pressure loss z-value *	
	bottom	top		bottom	top
CombiVal CR (200)	0,9			20	
CombiVal CR (300)	1,2			24	
CombiVal CR (540)	1,8			28	
CombiVal CR (630)	1,8			28	
CombiVal CR (800)	2,4			30	
CombiVal CR (1000)	2,4			30	
CombiVal CR (1250)	3,0			20	
CombiVal CR (1500)	3,5			22	
CombiVal CR (2000)	4,0			25	
CombiVal CSR (300)	2,9			35	
CombiVal CSR (400)	3,5			38	
CombiVal CSR (540)	4,9			59	
CombiVal CSR (800)	6,9			71	
CombiVal CSR (1000)	6,9			71	
CombiVal CSR (1250)	10,0			3	
CombiVal CSR (1500)	12,0			4	
CombiVal CSR (2000)	13,0			5	
MultiVal CRR (300)	1,2	0,6	6,0	20 (50% glycol)	9
MultiVal CRR (540)	1,6	1,2	8,0	28 (50% glycol)	18
MultiVal CRR (630)	1,6	1,2	10,0	28 (50% glycol)	18
MultiVal CRR (800)	2,4	1,35	12,0	47 (50% glycol)	21
MultiVal CRR (1000)	2,4	1,35	16,0	47 (50% glycol)	21
MultiVal CRR (1250)	3,0	1,35	16,0	27 (50% glycol)	21
MultiVal CRR (1500)	3,5	1,7	18,0	30 (50% glycol)	26
MultiVal CRR (2000)	4,0	1,7	20,0	34 (50% glycol)	26
MultiVal CSRR (540)	1,6	3,5	12,0	18	8
MultiVal CSRR (540)	1,6	4,9	12,0	18	10
MultiVal CSRR (630)	1,6	3,5	12,0	18	8
MultiVal CSRR (630)	1,6	4,9	12,0	18	10
MultiVal CSRR (630)	1,6	6,9	12,0	18	9
MultiVal CSRR (800)	2,4	4,9	18,0	35	10
MultiVal CSRR (800)	2,4	7,2	18,0	35	9
MultiVal CSRR (1000)	2,4	7,2	18,0	35	9
MultiVal CSRR (1000)	2,4	10,0	18,0	35	12
MultiVal CSRR (1250)	4,8	10,0	36,0	35	12
MultiVal CSRR (1500)	4,8	12,0	36,0	35	5
MultiVal CSRR (2000)	4,8	12,0	36,0	35	5

*) Pressure loss in mbar = $(m^3/h)^2$ x z

Operating pressure
Secondary circuit (sanitary water):
Operating pressure for all tanks: 6 bar

Primary circuit (heat exchanger): 10 bar

Max. operating temperature
Calorifier: 95 °C
Primary circuit: 95 °C

Thermal insulation
80 mm polyester fiber non-woven (200-1000)
100 mm polypropylene (1250)
Outer casing made of Polystyrol, red coloured

delivery
Size up to 1000 litres: Calorifier fully cased.
Size up to 1250 litres: Calorifier and thermal insulation delivered separately packed

Screw-in electrical heating insets
Can be mounted in **1½**" sleeve or flange (with special flange cover).

Integration in 1½" sleeve

	heating capacity [kW]	length (mm)	CombiVal CR	CombiVal CSR	MultiVal CRR	MultiVal CSRR
EP-3	3,0	390	200-2000	300-2000	300-2000	540-2000
EP-4,5	4,5	500	200-2000	300-2000	300-2000	540-2000
EP-6	6,0	620	540-2000	540-2000	540-2000	540-2000
EP-9	9,0	850	800-2000	800-2000	800-2000	800-2000

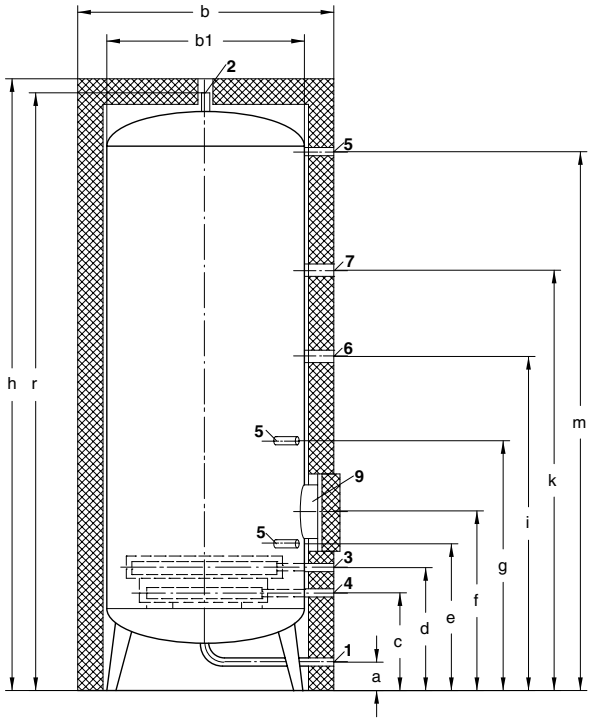
Integration in flange

	heating capacity [kW]	length (mm)	CombiVal CR	CombiVal CSR	MultiVal CRR	MultiVal CSRR
EP-3	3,0	390	200-2000	300-2000	300-2000	540-2000
EP-4.5	4,5	500	200-2000	400-2000	300-2000	540-2000
EP-6	6,0	620	540-2000	800-2000	540-2000	540-2000
EP-9	9,0	850	800-2000	1500-2000	800-2000	800-2000

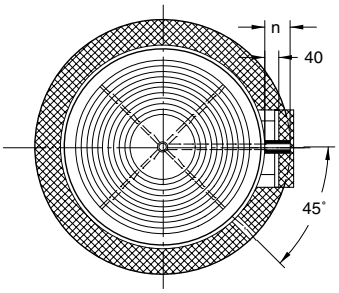
2.5 Dimensions CombiVal CR (200-2000)

CombiVal CR (200 - 1000)

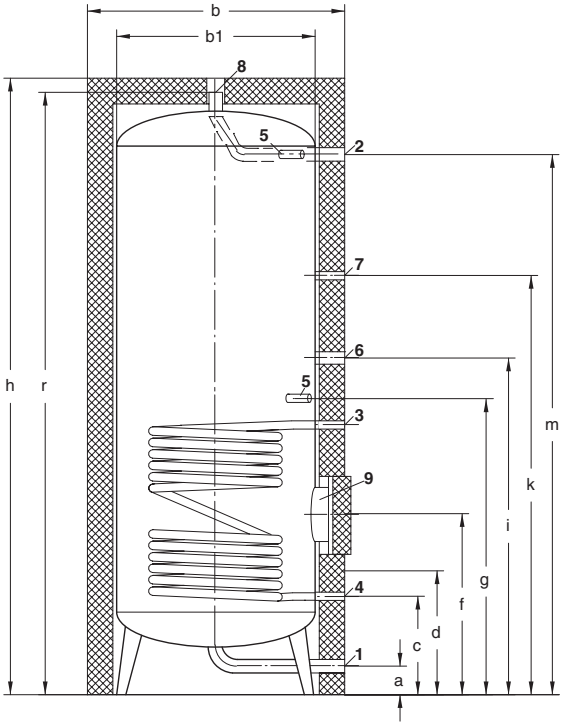
(Dimensions in mm)



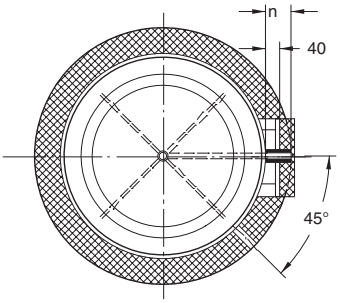
Smooth pipe flat tube battery



CombiVal CR (1250 - 2000)



Smooth pipe heat exchanger



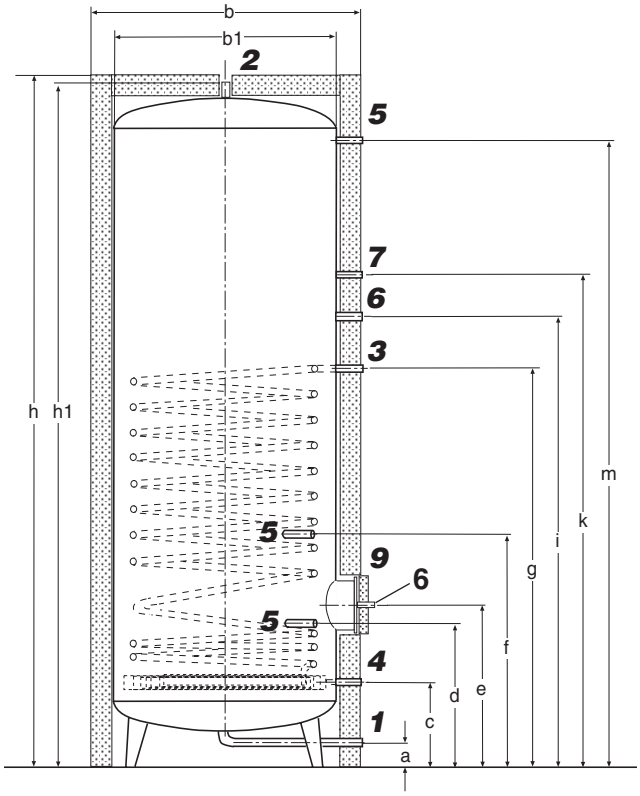
1 Cold water — Type (200-630), R 1"; Type (800-2000), R 1½"
2 Hot water — Type (200-630), Rp 1"; Type (800-2000), R 1½"
3 Flow heating — Type (200-1000), R 1", (1250-2000) R 1¼"
4 Return heating — Type (200-1000), R 1", (1250-2000) R 1¼"
5 Sleeve Rp ½" for sensor, thermostat, thermometer
Immersion sleeve length 200 mm, Ø 8 mm internal, installed
6 Connection for screw-in electrical heating inset Rp 1½"
7 Circulation Rp 1", CR (300) - CR (2000)
CR (200) without circulation
8 Ventilation Rp 1"
9 Hand hole flange Ø 270/200 Pitch circle Ø 240 mm, 12 x M10

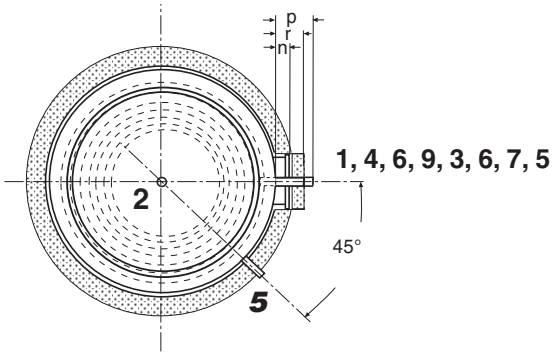
CombiVal Type CR	b Ø	b1 Ø	h	a	c	d	e	f	g	i	k	m	n	r	Tilting measure mm
(200)	680	500	1430	100	310	390	465	570	700	845	–	1210	120	1390	1430
(300)	680	500	1930	100	310	390	465	570	770	1060	1320	1710	120	1890	1920
(540)	830	650	1960	90	310	390	465	570	770	1060	1320	1710	120	1915	1950
(630)	880	700	1970	90	310	390	465	570	770	1060	1320	1710	120	1925	1980
(800)	970	790	1980	80	310	390	465	570	770	1060	1320	1710	120	1940	1990
(1000)	1070	890	2000	70	310	390	465	570	770	1160	1420	1710	120	1942	2000
(1250)	1170	950	2020	70	310	895	–	570	995	1060	1320	1710	150	1945	2050
(1500)	1320	1100	2050	70	310	895	–	570	995	1060	1320	1710	150	1973	2150
(2000)	1470	1250	2070	70	310	895	–	570	995	1060	1320	1710	150	1993	2260

2.6 Dimensions CombiVal CSR (300-2000)

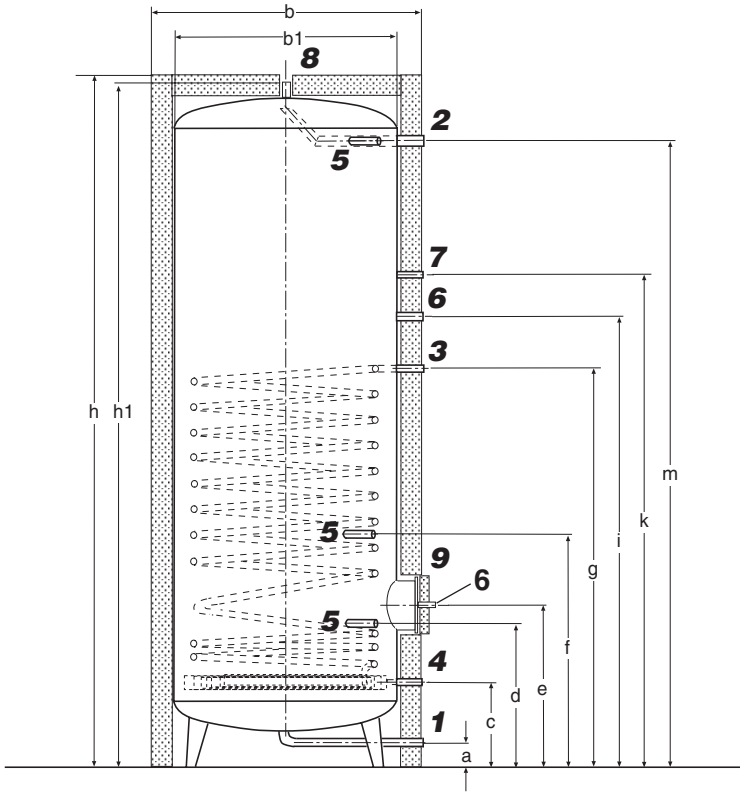
CombiVal CSR (300-540)

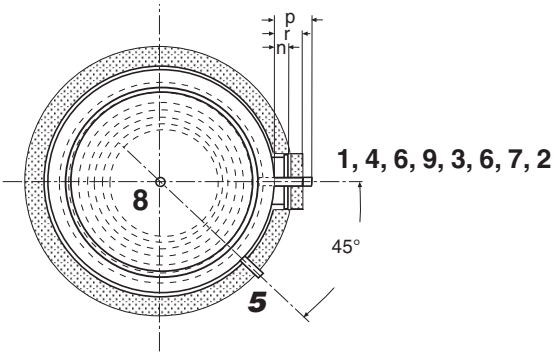
(Dimensions in mm)





CombiVal CSR (800-2000)





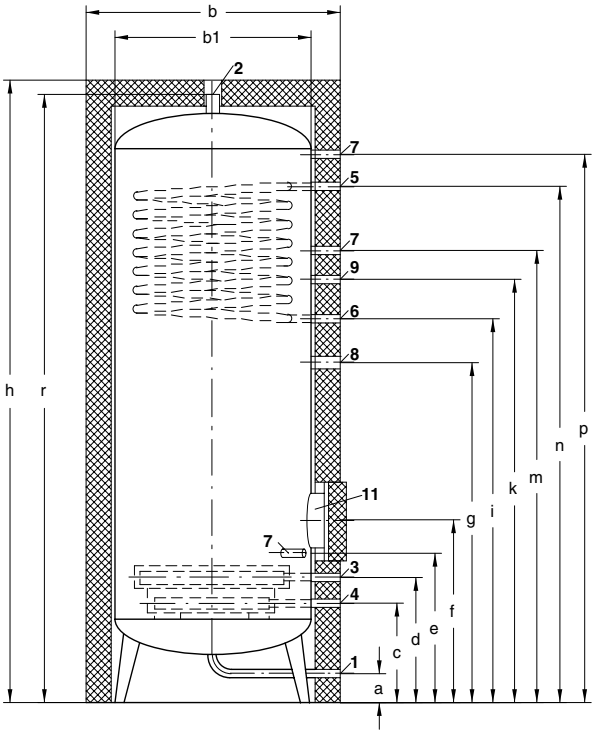
1 Cold water — Type (300-540), R 1"; Type (800-2000), R 1½"
2 Hot water — Type (300-540), Rp 1"; Type (800-2000), R 1½"
3 Flow heating — Type (300-1000), R 1"; Type (1250-2000), R 1½"
4 Return heating — Type (300-1000), R 1"; Type (1250-2000), R 1½"
5 Sleeve Rp ½" for sensor, thermostat, thermometer
Immersion sleeve length 200 mm, Ø 8 mm internal, installed
6 Connection for screw-in electrical heating inset Rp 1½"
7 Circulation Rp 1"
8 Ventilation Rp 1"
9 Hand hole flange Ø 270/200
Pitch circle Ø 240 mm, 12 x M10

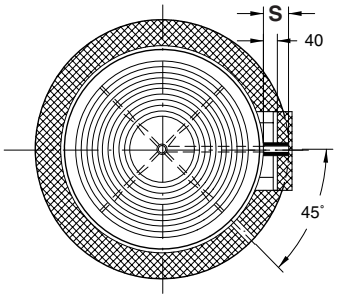
CombiVal Type CSR	b Ø	b1 Ø	h	h1	a	c	d	e	f	g	i	k	m	n	p	r	Tilting measure mm
(300)	680	500	1930	1890	90	310	465	570	770	1300	1410	1510	1710	40	122	90	1920
(400)	780	600	1875	1830	80	310	465	570	770	1300	1410	1510	1630	40	122	90	1865
(540)	830	650	1960	1915	90	310	465	570	770	1120	1210	1320	1710	40	122	90	1950
(800)	970	790	1980	1940	80	310	465	570	770	1165	1255	1370	1710	40	120	90	1990
(1000)	1070	890	2000	1935	70	310	465	570	770	1165	1255	1420	1710	40	120	90	2000
(1250)	1170	950	2020	1945	70	310	650	570	895	1110	1310	1210	1710	40	150	90	2050
(1500)	1320	1100	2050	1973	70	310	650	570	895	1110	1310	1210	1710	40	150	90	2150
(2000)	1470	1250	2070	1993	70	310	650	570	895	1045	1245	1145	1710	40	150	90	2260

2.7 Dimensions MultiVal CRR (300-2000)

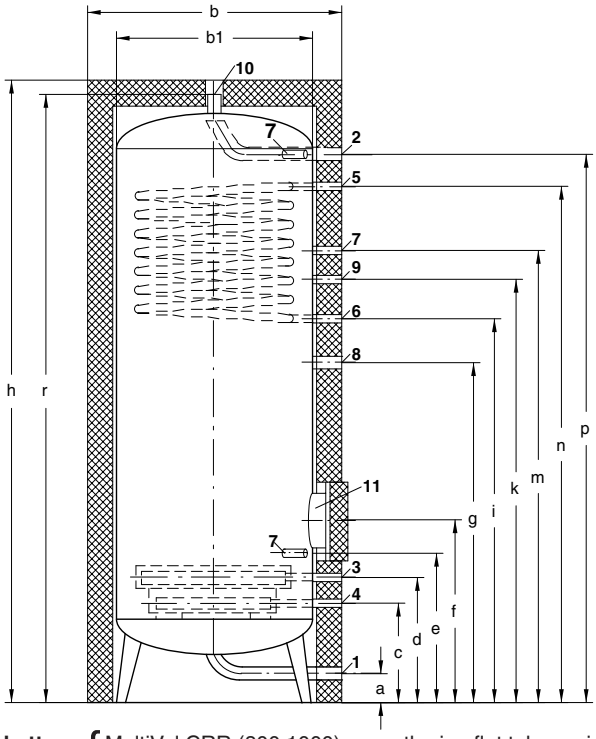
MultiVal CRR (300 – 630)

(Dimensions in mm)

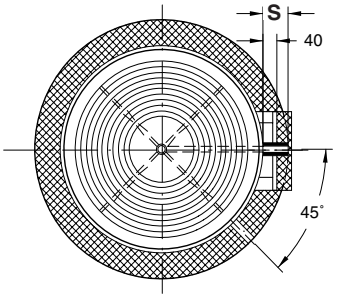




MultiVal CRR (800 – 2000)



Heating battery at the bottom:
- MultiVal CRR (800,1000): smooth pipe flat tube register
- MultiVal CRR (1250-2000): smooth pipe heat exchanger

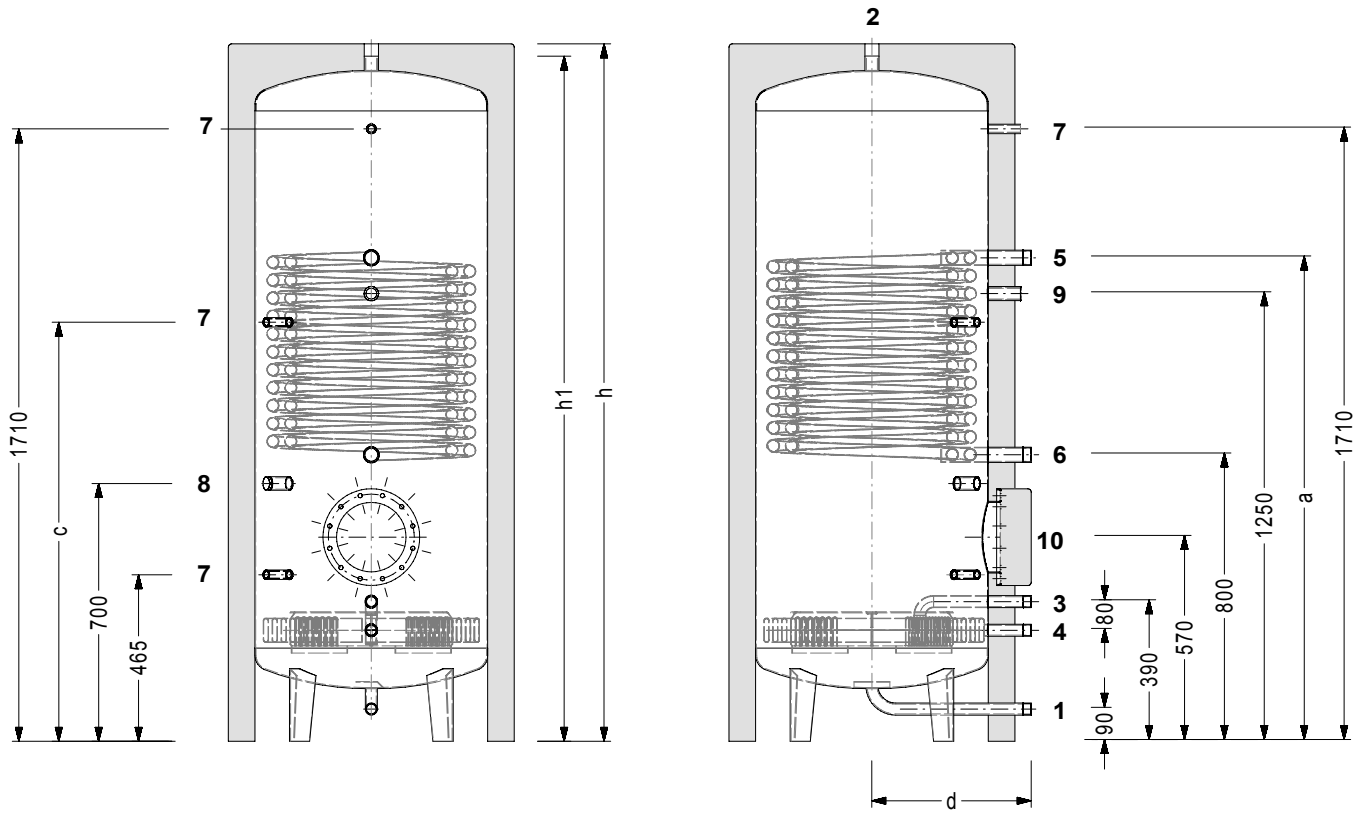


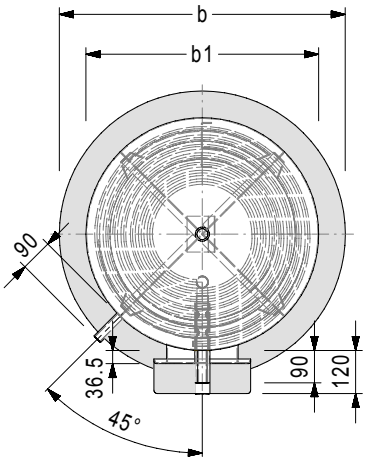
1 Cold water Type (300-630), R 1"
Type (800-2000), R 1½"
2 Hot water Type (300-630), Rp 1"
Type (800-2000), R 1½"
3 Flow solar circuit R 1"
4 Return solar circuit R 1"
5 Flow re-heating Rp 1"
6 Return re-heating Rp 1"
7 Sleeve Rp ½" for sensor, thermostat, thermometer
Immersion sleeve length 200 mm, Ø 8 mm internal, installed
8 Connection for screw-in electrical heating inset Rp 1½"
9 Circulation Rp 1"
10 Ventilation Rp 1"
11 Hand hole flange Ø 270/200
Pitch circle Ø 240 mm, 12 x M10

MultiVal Type CRR	b Ø	b1 Ø	h	a	c	d	e	f	g	i	k	m	n	p	r	s	Tilting measure mm
(300)	680	500	1930	100	310	390	465	570	1060	1220	1320	1410	1610	1710	1890	120	1920
(540)	830	650	1960	90	310	390	465	570	1060	1160	1320	1410	1610	1710	1915	120	1950
(630)	880	700	1970	90	310	390	465	570	1060	1160	1320	1410	1610	1710	1925	120	1980
(800)	970	790	1980	80	310	390	465	570	995	1095	1320	1410	1610	1710	1940	120	1990
(1000)	1070	890	2000	70	310	390	465	570	995	1095	1320	1410	1610	1710	1942	90	2000
(1250)	1170	950	2020	70	310	895	–	570	995	1095	1320	1410	1610	1710	1945	150	2050
(1500)	1320	1100	2050	70	310	895	–	570	995	1095	1320	1410	1610	1710	1973	150	2150
(2000)	1470	1250	2070	70	310	895	–	570	995	1095	1320	1410	1610	1710	1993	150	2260

2.8 Dimensions MultiVal CSRR (540,630)

(Dimensions in mm)



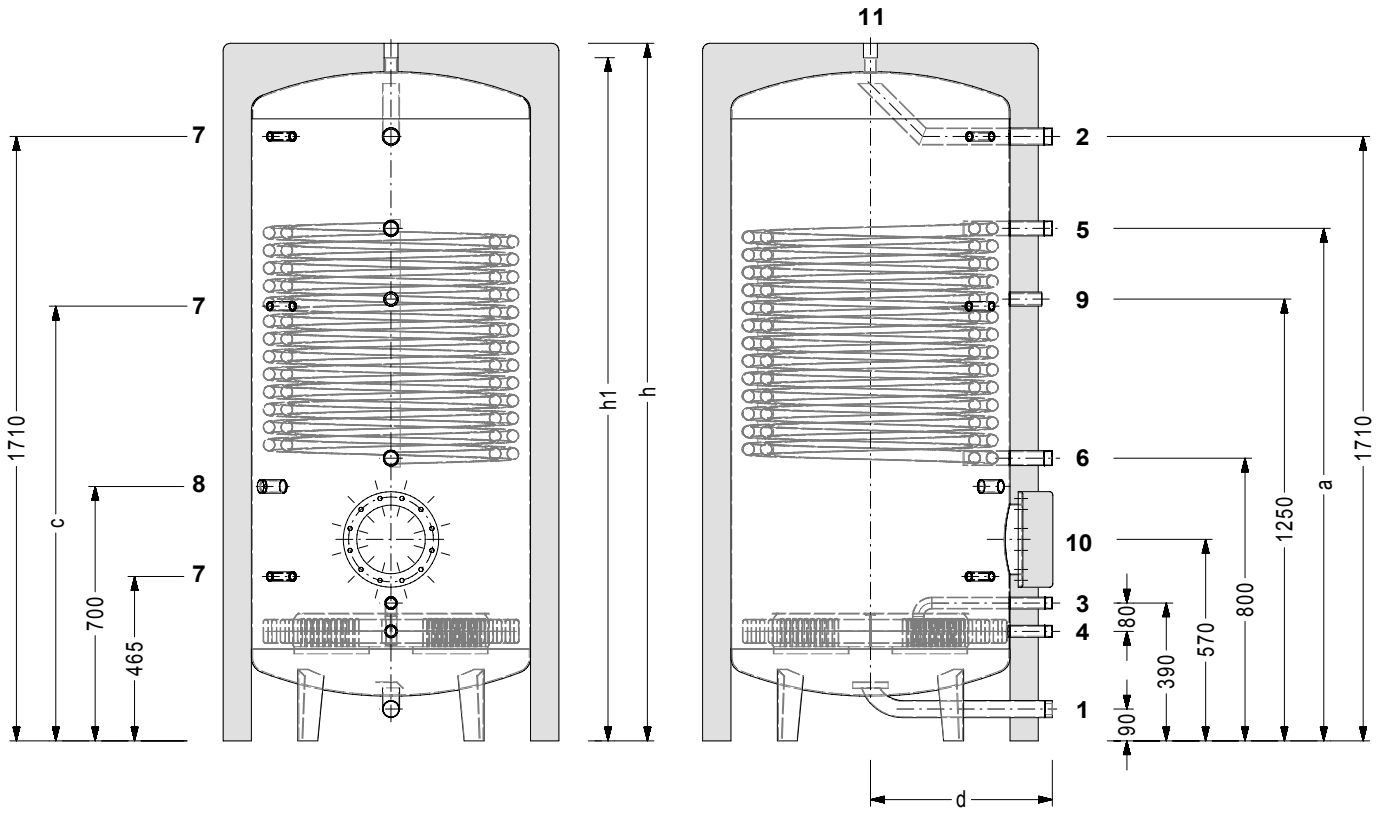


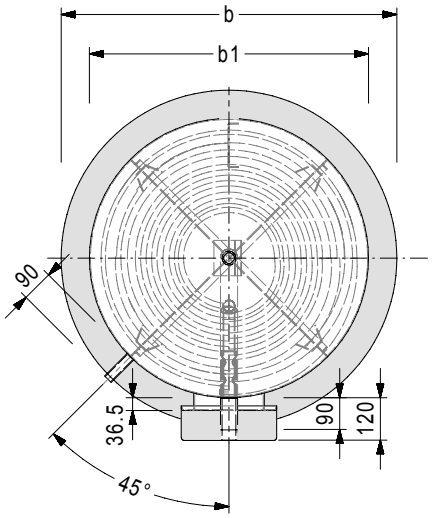
1	Cold water			R	1"
2	Hot water			Rp	1"
3	Flow solar circuit			R	1"
4	Return solar circuit			R	1"
5	Heating flow	(540, 630)	3,5/4,9 m²	Rp	1¼"
		(630)	6,9 m²	Rp	1½"
6	Heating return	(540, 630)	3,5/4,9 m²	Rp	1¼"
		(630)	6,9 m²	Rp	1½"
7	Sleeve for sensor, thermostat, thermometer with immersion sleeve			Rp	½"
8	Connection for screw-in electrical heating inset			Rp	1½"
9	Circulation			Rp	1"
10	Hand hole flange			NW	200

MultiVal Type CSRR	Heating surface top m²	bottom m²	b Ø	b1 Ø	h	h1	a	c	d	Tilting measure mm
(540)	3,5	1,6	830	650	1963	1913	1350	1170	445	1930
(540)	4,9	1,6	830	650	1963	1913	1550	1300	445	1930
(630)	3,5	1,6	880	700	1973	1923	1350	1170	470	1940
(630)	4,9	1,6	880	700	1973	1923	1550	1300	470	1940
(630)	6,9	1,6	880	700	1973	1923	1550	1300	470	1940

2.9 Dimensions MultiVal CSRR (800,1000)

(Dimensions in mm)



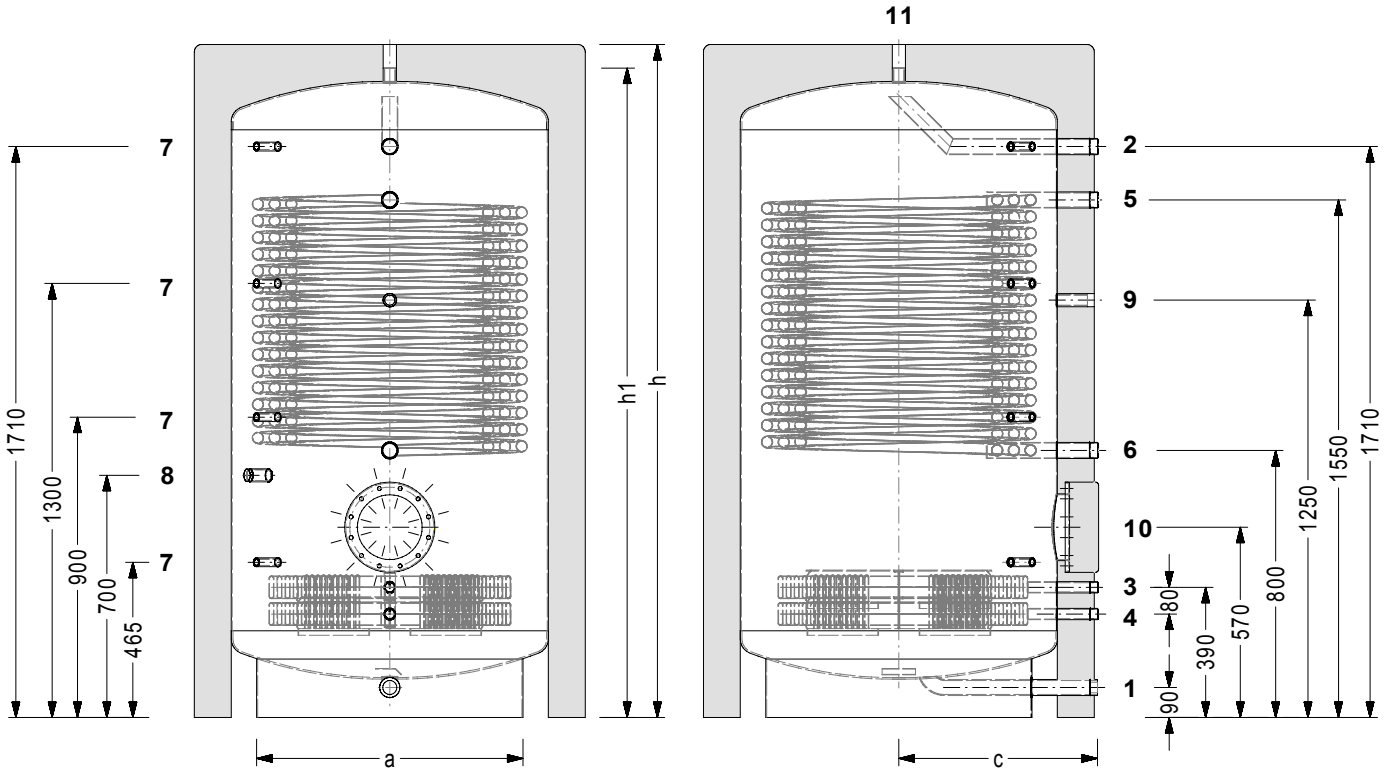


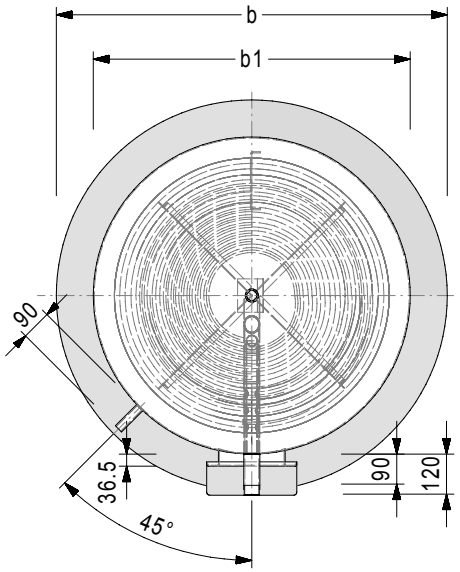
1	Cold water			R	1½"
2	Hot water			Rp	1½"
3	Flow solar circuit			R	1"
4	Return solar circuit			R	1"
5	Heating flow	(800)	4,9 m²	Rp	1¼"
		(800, 1000)	7,2/10,0 m²	Rp	1½"
6	Heating return	(800)	4,9 m²	Rp	1¼"
		(800, 1000)	7,2/10,0 m²	Rp	1½"
7	Sleeve for sensor, thermostat, thermometer with immersion sleeve			Rp	½"
8	Connection for screw-in electrical heating inset			Rp	1½"
9	Circulation			Rp	1"
10	Hand hole flange			NW	200
11	Ventilation			Rp	1"

MultiVal Type CSRR	Heating surface top m²	Heating surface bottom m²	b Ø	b1 Ø	h	h1	a	c	d	Tilting measure mm
(800)	4,9	2,4	970	790	1984	1934	1450	1230	515	1950
(800)	7,2	2,4	970	790	1984	1934	1450	1230	515	1950
(1000)	7,2	2,4	1070	890	1989	1939	1450	1230	560	1960
(1000)	10,0	2,4	1070	890	1989	1939	1550	1300	560	1960

2.10 Dimensions MultiVal CSRR (1250-2000)

(Dimensions in mm)





1	Cold water	R	1½"
2	Hot water	Rp	1½"
3	Flow solar circuit	R	1"
4	Return solar circuit	R	1"
5	Heating flow	Rp	1½"
6	Heating return	Rp	1½"
7	Sleeve for sensor, thermostat, thermometer with immersion sleeve	Rp	½"
8	Connection for screw-in electrical heating inset	Rp	1½"
9	Circulation	Rp	1"
10	Hand hole flange	NW	200
11	Ventilation	Rp	1"

MultiVal Type CSRR	Heating surface top m²	bottom m²	b Ø	b1 Ø	h	h1	a	c	Tilting measure mm
(1250)	10,0	4,8	1170	950	1980	1929	798	595	1980
(1500)	12,0	4,8	1320	1100	1994	1945	960	670	2070
(2000)	12,0	4,8	1470	1250	2034	1984	960	745	2130

3. Installation

3.1 Mounting the thermal insulation

The thermal insulation kits for CombiVal-CR/CSR and MultiVal-CRR/CSRR up to size 1000 l are delivered preassembled!

CombiVal CR/CSR and MultiVal CRR/CSRR from size 12500 litres

Procedure for installation of the thermal installation is described in separate assembly instructions!

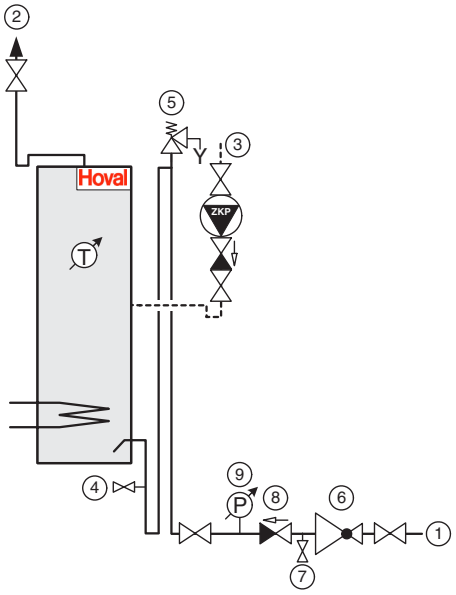
3.2 Installation of the DHW Connections

Amongst other regulations, DIN 1988 Part 2 and DIN 4753 Part 1 must be observed during installation:
- Before starting work on the hydraulic connections, the supply pipes and the entire process water circuit must be flushed.
- Recommendation: Install isolation valves on DHW side as well as in the heating circuit and solar circuit if present.
- approved diaphragm type safety valve must be installed. The correct nominal size is laid down in DIN 1988 Part 2, section 4.3.3.1.1 - Table 5.

nominal volume [litres]	minimum valve size (= size of inlet connection)	maximum heating capacity [kW]
≤ 200	R or Rp ½"	75
> 200 and ≤ 1000	R or Rp ¾"	150
> 1000 and ≤ 5000	R or Rp 1"	250

- Local regulations must be observed.

3.2.1 Diagram of DHW connection



1 Cold water
2 Hot water
3 Circulation
4 Drainage
5 Safety valve
6 Pressure reducing valce
7 Testing apparatus
8 Return flow inhibitor
9 Manometer connection;
with a content of 1000 l and more a fix installed manometer is required.

The connections must be made of stainless steel only; otherwise suitable isolating or bridging connectors must be used.

Notes on safety valve:
- Safety valve must be installed in cold water pipe
- There should be no shut-off fittings between the safety valve and the tank
- Position safety valve close to the tank and within easy reach. Mount supply pipe at least within the nominal size of the valve.
- Mount at a mass which is sufficient to allow for the connecting blow-off pipe to be placed inclining downwards. Recommendation: Mount above upper tank rim so that the tank does not have to be drained when (replacement) works are carried out.

Notes on blow-off pipe:
- The end of the blow-off pipe must be situated 20-40 mm above a drain funnel and clearly visible.
- The pipe must have at least the same size as the exit cross-section of the safety valve, be no more than 2 m long and have no more than two bends.
- The drain pipe placed after the drain funnel must have at least double the cross-section of the blow-off pipe.

A plate with the following wording on it must be placed near the blow-off pipe of the safety valve – preferably on the safety valve itself:

For safety reasons water may issue from the blow-off pipe during heating operation!
Do not close!

Installation of a pressure reducer
A pressure reducer must be installed in front of the calorifier when the operating overpressure is more than 80% of the safety valve trigger pressure.

Measures to prevent warm water from flowing back
A non-return valve should be installed in the cold water supply pipe irrespective of the way in which the drinking water calorifier is heated.

For closed drinking water calorifiers stopcocks should be installed within easy reach in front of and behind the non-return valve so that it can be tested and replaced easily.

The warranty period for stainless steel calorifiers applies under the following additional conditions:
- No carbon filters (water treatment) in front of the tank
- Water of drinking water quality and chloride content < 70 mg Cl/l

Where the chloride content is higher, there must be a sufficient number of impressed current anodes in continuous operation.

Do not bolt the tank to the floor.
Thermal expansion could damage the tank.

4. Commissioning

Filling the tank
During the filling procedure the tank, the pipes and the fittings must be completely emptied of air. This prevents undesirable pressure shocks in the hot water installations.

For the filling procedure:
- Ensure that the cold water supply system and the process water circuit have been flushed and connected (see section 3, Installation of the DHW Connections).
- Fill tank completely with water (with at least one hot water outlet opened).
- Bleed air out of tank, all hot water pipes and extraction points
- After filling: Test the cover of the maintenance flange as well as all DHW and heating side connections for seal and as necessary reseal them.
- Check that all the controlling and safety fittings are functioning perfectly.

Attention:
During the heating up procedure water may exit from the safety valve because of expansion.
This is normal and under no circumstances should steps be taken to prevent it.

5. Servicing

Cleaning and de-scaling
For hygienic reasons the calorifier should be regularly cleaned and de-scaled. The cleaning intervals depend on the water quality, operating temperature and the amount of hot water which is used.

For cleaning:
- Before opening the flange make sure that replacement seals are available. Used seals may not be replaced.
- Wash off scale and mud with a water jet and remove through flange opening.
- Encrusted calcium on the tank or on heating coils must not be removed using hard or metallic implements.
- Replace flange with new seal. First tighten the bolts opposite each other lightly, then tighten to 17,7 Nm.
- Check seals while filling.
- Observe pressure increase during heating procedure and check function of safety valve.

Copy for plant user

CONFIRMATION

The user (owner) of the system herewith confirms that

- he has received adequate instruction in the operating and maintenance of the installation,
- received and taken note of the operating and maintenance instructions and, where applicable other documents concerning the heat generator and any further components.
- and is consequently sufficiently familiar with the installation.

Place, Date: .....

Installation address: .....

.....

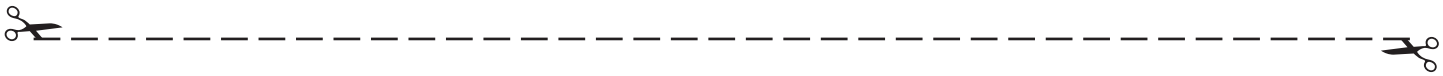
Type: .....

Ser.No.: .....

Year of manufacture: .....

System installer: .....

System user: .....



Copy of system installer

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Place, Date: .....

Installation address: .....

.....

Type: .....

Ser.No.: .....

Year of manufacture: .....

System installer: .....

System user: .....