

CALORIFIERS (Energy Storage Tanks)

Hoval

Responsibility for energy and environment

Favorite choice for fresh domestic hot water.

Calorifiers



Hoval CombiVal ER

200 - 1'000 L

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Hoval CombiVal ESR

200 - 500 L

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Hoval CombiVal ESSR

400 - 1'000 L

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Hoval CombiVal CR

200 - 2'000 L

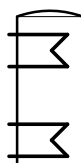
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Hoval CombiVal CSR

300 - 2'000 L

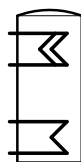
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Hoval MultiVal ERR

300 - 1'000 L

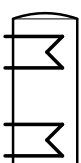
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Hoval MultiVal ESRR

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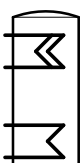
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Hoval MultiVal CRR

300 - 2'000 L

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Hoval MultiVal CSRR

540 - 2'000 L

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Heat exchanger:



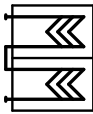
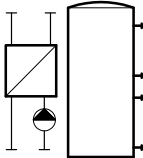
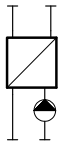
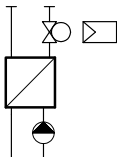
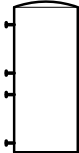
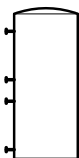
Standard



Large



Specially large

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■ Description

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 Polyurethan hard foam foamed on the calorifier
- Dismountable foil casing, red coloured, ERW (200) white coloured
- Pocket welded in
- including thermometer

On request

- Flange-Electrical heating inset

Delivery

- Calorifier with foil casing installed

Hoval calorifier

CombiVal ER (800,1000)

- Calorifier made of steel, enamelled inside
- Smooth pipe heat exchanger enamelled, built in
- Magnesium protection anode built in
- Flange below as cleaning flange or for the installation as flange electrical heating inset or as immersion sleeve
- Flange above as additional cleaning flange (SVGW-regulation)
- Flange for electrical heating inset or immersion sleeve
- Thermal insulation made of polyurethan soft foam with polystyrene hard shell, red coloured
- Including immersion sleeve including reducing elbow fitting
- Including thermometer

On request

- Flange-Electrical heating inset
- Flange including immersion sleeve

Delivery

- Calorifier, thermal insulation as well as immersion sleeve and thermometer delivered separately packed

On site

- Mounting of thermal insulation

Flange-electrical heating inset for CombiVal ER (200-1000)

Type EFHR 4 to EFHR 9

- Made of Incoloy® alloy 825
- Heat input 4,3 to 8,5 kW, according to rules of the power station
- Incl. temperature control and overheating protection
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V

Delivery

- Delivered separately packed

On site

- Installation of the heating inset



ER (200-500)



ER (800,1000)

Range

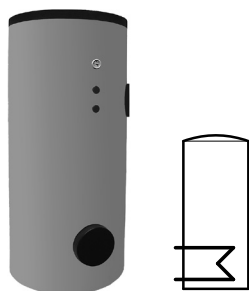
CombiVal	
ER	(200)
ERW	(200)
ER	(300)
ER	(400)
ER	(500)
ER	(800)
ER	(1000)

Certifications

CombiVal ER (200-1000)	Test number of SVGW * 0503 - 4950
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* Swiss Association for Gas and Water Supply

■ Part N°


**Calorifier
CombiVal ER (200-1000)**
Part N°

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

CombiVal Type	Content litres	Heating surface m ²	
ER (200)	200	0,95	7002 610
ERW (200) white	200	0,95	7002 614
ER (300)	300	1,45	7002 611
ER (400)	400	1,80	7002 612
ER (500)	500	1,90	7002 613
ER (800)	750	3,70	7010 169
ER (1000)	1000	4,50	7010 170

Accessories
**Flange-electrical heating inset EFHR
for CombiVal ER (200-1000)**

Heat input (kW)
according to rules of the power station

Type	Heat input 3 x 400 V [kW]	changeable to	Install. length mm	CombiVal ER
EFHR				

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



4-180	4,3		380	(200-500)	6032 215
		2,9 kW/3x400 V			
		2,1 kW/3x400 V			
		1,4 kW/1x230 V			
6-180	6,0		440	(300-500)	6032 216
		4,0 kW/3x400 V			
		3,0 kW/3x400 V			
		2,0 kW/1x230 V			
9-250	8,5		380	(800-1000)	6032 217
		5,7 kW/3x400 V			
		4,2 kW/3x400 V			
		2,8 kW/1x230 V			

■ Part N°

Part N°



Flange including immersion sleeve
for CombiVal ER (800,1000)
for temperature sensor

2022 993



Correx external current-anode
for long-term corrosion protection for
installation in the water heater instead
of magnesium protection anodes inclusive
reducing elbow fitting.

6847 60

Either a correx external current-anode or
one and/or two magnesium anodes may be
used.



Cable sensor KVT 20/5/6S
5 m cable and plug

6012 687



Cable sensor KVT 20/5/6
with 5 m cable

2022 992



Temperature sensor TF 25/12K
with cable for connection to modulating
gas boiler with TopTronic® RS-OT

2426 17

**At TopTronic®T - temperature sensor is
included in the boiler control or in the
control set.**



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 6K,
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 Δp = 1 bar)
Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes
see Solar/Solar armature groups

■ Technical data

Calorifier CombiVal ER (200-500)

Type		(200)	(300)	(400)	(500)
• Content	Litre	200	300	400	500
• Max. working pressure / test pressure	bar	6 / 12	6 / 12	6 / 12	6 / 12
• Working temperature maximal	°C	95	95	95	95
• Thermal insulation PU-foam foamed onto calorifier	mm	45	50	50	50
• Thermal conductance λ	Watt/mK	0,034	0,034	0,034	0,034
• Stand still loss qB at 60 °C	W	77	89	97	121
• Weight	kg	56	85	101	150
Dimensions		see table of dimensions			

Heating battery (built in)

• Heating surface	m²	0,95	1,45	1,80	1,90
• Heating water	Litre	6,4	10,1	12,6	13,3
• Flow resistance ¹	z-value	7	10	12	13
• Max. working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110	110

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

Calorifier CombiVal ER (800,1000)

Type		(800)	(1000)
• Content	Litre	750	1000
• Working pressure / test pressure	bar	6 / 12	6 / 12
• Working temperature maximal	°C	95	95
• Thermal insulation PU-soft foam	mm	100	100
• Thermal conductance λ	Watt/mK	0,039	0,039
• Stand still loss qB at 60 °C	W	156	174
• Weight	kg	243	303
Dimensions		see table of dimensions	

Heating battery (built in)

• Heating surface	m²	3,70	4,50
• Heating water	Litre	33,8	40,8
• Flow resistance ¹	z-value	6	8
• Working pressure / test pressure	bar	8 / 13	8 / 13
• Working temperature maximal	°C	110	110

¹ Flow resistance in bar = volume flow (m³/h)² x z

Flange-electrical heating inset to CombiVal ER (200-1000)

With temperature control and overheating protection.

Factory set-up: 3 x 400 V.

Heat input (kW) according to rules of the power works

Type	3x400 V Factory setting Heat input [kW]	for CombiVal ER
4-180	4,3	(200-500)
6-180	6,0	(300-500)
9-250	8,5	(800,1000)

■ Technical data

Hot water output

Heating-up with the boiler, heating flow 70 °C

CombiVal Type	m³/h²	mbar³	Biral¹-loading pump		Hot water output			kW⁶	flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	60 °C		
ER (200)	1,0	7	AX12	2,5	290	520	280	21,1	1-2
	2,0	26	AX12	1,5	305	650	350	26,4	2
ER (300)	1,0	10	AX12	2,5	425	640	345	26,0	3
	2,0	38	AX13	3,0	445	830	450	33,7	4
	3,0	87	A13	2,6	455	930	505	37,8	5
ER (400)	1,0	12	AX12	2,5	550	710	385	28,8	4
	2,0	48	AX13	3,0	575	945	510	38,4	7
	3,0	108	A13	2,6	585	1060	570	43,0	9
ER (500)	1,0	13	AX12	2,5	675	730	395	29,6	5
	2,0	52	AX13	3,0	695	965	520	39,2	8
	3,0	116	A13	2,6	710	1090	590	44,3	10
ER (800)	2,0	25	AX12	1,5	1050	1500	785	60,9	17
	3,0	56	A13	2,6	1070	1700	890	69,0	20
	4,5	126	A14	3,0	1085	1855	970	75,3	22
ER (1000)	2,0	30	AX12	1,5	1375	1740	910	70,6	20
	3,0	68	A13	2,6	1395	1955	1020	79,4	23
	4,5	152	A14	3,0	1410	2135	1115	86,7	26

¹ Biral loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

Heating-up with electrical heating inset

CombiVal Type	Electrical heating-up Litres	Persons ¹
ER (200)	160	1-2
ER (300)	240	2-3
ER (400)	340	3-4
ER (500)	440	4-5
ER (800)	630	8-10
ER (1000)	840	11-13

¹ Persons = Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

■ Technical data

Hot water output

Heating-up with the boiler, heating flow 80 °C

CombiVal Type	m³/h²	mbar³	Biral¹-loading pump		Hot water output			kW⁶	flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	60 °C		
ER (200)	1,0	7	AX12	2,5	305	660	405	26,8	2-3
	2,0	26	AX12	1,5	325	825	505	33,5	3
ER (300)	1,0	10	AX12	2,5	440	810	495	32,9	4
	2,0	38	AX13	3,0	465	1050	640	42,6	5
	3,0	87	A13	2,6	480	1080	720	47,9	6
ER (400)	1,0	12	AX12	2,5	570	900	550	36,5	6
	2,0	48	AX13	3,0	600	1195	730	48,5	9
	3,0	108	A13	2,6	615	1340	815	54,4	11
ER (500)	1,0	13	AX12	2,5	695	925	565	37,6	7
	2,0	52	AX13	3,0	720	1220	745	49,5	10
	3,0	116	A13	2,6	740	1380	840	56,0	12
ER (800)	2,0	25	AX12	1,5	1090	1900	1120	77,1	22
	3,0	56	A13	2,6	1115	2150	1270	78,3	27
	4,5	126	A14	3,0	1135	2350	1385	95,4	30
ER (1000)	2,0	30	AX12	1,5	1420	2200	1300	89,3	26
	3,0	68	A13	2,8	1450	2475	1460	100,5	31
	4,5	152	A14	3,0	1470	2700	1595	109,6	35

¹ Biral loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

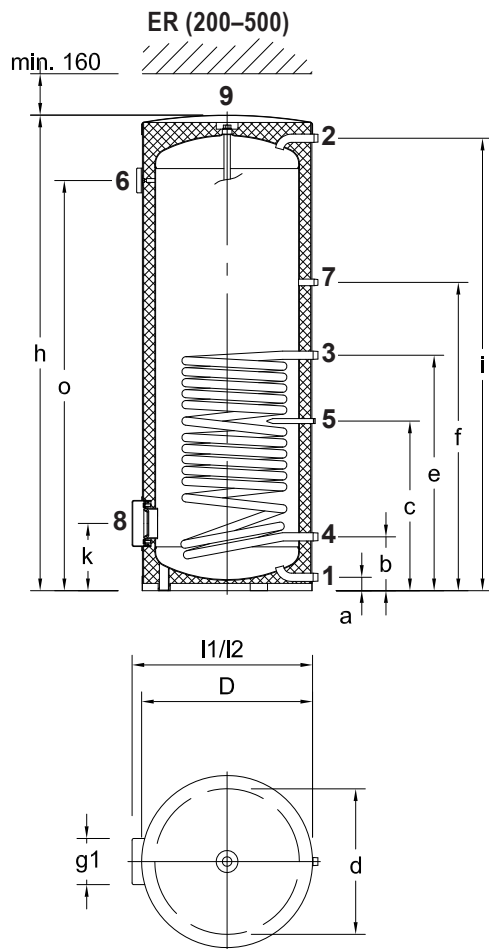
Heating-up with electrical heating inset

CombiVal Type	Electrical heating-up litre	People ¹
ER (200)	160	1-2
ER (300)	240	2-3
ER (400)	340	3-4
ER (500)	440	4-5
ER (800)	630	8-10
ER (1000)	840	11-13

¹ People = Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

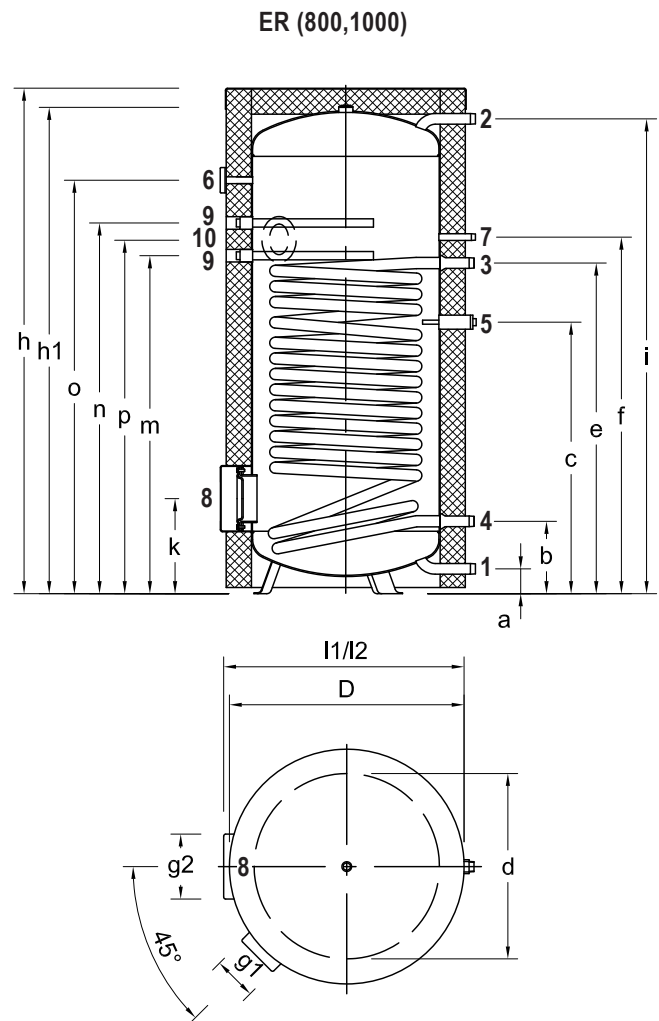
■ Dimensions



- 1 Cold water Type (200) R $\frac{3}{4}$ ", Type (300 - 500) R1"
 - 2 Hot water Type (200) R $\frac{3}{4}$ ", Type (300 - 500) R1"
 - 3 Flow heating Type (200 - 500) R 1"
 - 4 Return heating Type (200 - 500) R 1"
 - 5 Connection for Capillar-thermostat, Cable sensor
 - 6 Thermometer
 - 7 Circulation R $\frac{3}{4}$ "
 - 8 Hand hole-flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
 - 9 Anode sleeve Rp 1"
- Type (200-500), Screw connection uninsulated

CombiVal ER Type	d	D	g1	g2 *	l1	l2 *
(200)	450	540	180	-	585	625
(300)	597	700	180	-	745	785
(400)	597	700	180	-	745	785
(500)	597	700	180	-	745	785
(800)	750	950	180	280	975	1020
(1000)	850	1050	180	280	1075	1120

* using a flange electrical immersion heater



- 1 Cold water R 1 $\frac{1}{4}$ "
 - 2 Hot water R 1 $\frac{1}{4}$ "
 - 3 Flow heating R 1 $\frac{1}{4}$ "
 - 4 Return heating R 1 $\frac{1}{4}$ "
 - 5 Sleeve Rp 1 $\frac{1}{2}$ " incl. reducing elbow fitting down to Rp $\frac{1}{2}$ " for sensor, thermostat
 - 6 Sleeve Rp $\frac{1}{2}$ " for thermometer
 - 7 Circulation R $\frac{3}{4}$ "
 - 8 Hand hole-flange (electrical heating inset) Ø 257/180, pitch circle Ø 225 mm, 10 x M10
 - 9 Anode sleeve Rp 1 $\frac{1}{4}$ "
 - 10 Hand hole-flange Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10
- (The installation of a flange electrical heating inset is not possible.)

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	Tilt.-mea.
(200)	55	193	508	688	901	1464	-	1370	248	-	-	1226	-	1530
(300)	55	221	549	721	921	1326	-	1229	276	-	-	1067	-	1472
(400)	55	221	684	908	1112	1623	-	1526	276	-	-	1355	-	1738
(500)	55	221	696	966	1264	1953	-	1856	276	-	-	1683	-	2044
(800)	99	287	1079	1314	1417	2040	1937	1885	377	1342	1472	1642	1408	1962
(1000)	103	295	1086	1323	1488	2063	1964	1901	387	1380	1510	1652	1446	1991

■ Description

Hoval calorifier

CombiVal ESR (200-500)

- 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 Polyurethan hard foam foamed on the calorifier
- Dismantable foil casing, red coloured
- Pocket welded in
- Including thermometer

On request

- Flange-Electrical heating inset
- ESR (500) Screw-in electrical heating inset 1 1/2"

Delivery

- Calorifier with foil casing installed

Flange-electrical heating inset for CombiVal ESR (200-500)

Type EFHR 4 to EFHR 6

- Made of Incoloy® alloy 825
- Heat input 4,3 to 6,0 kW, according to rules of the power station
- Incl. temperature control and overheating protection
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V

Delivery

- delivered separately packed

On-site

- Installation of the electrical heating inset

Screw-in electrical heating inset

Type EP-2 to EP-6

- Made of Incoloy® alloy 825
- Heat input 2,0 - 6,0 kW
- incl. temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 up to No use for exclusively electrical heating.

Delivery

- Delivered separately packed

On site

- Installation of the heating inset



Range CombiVal

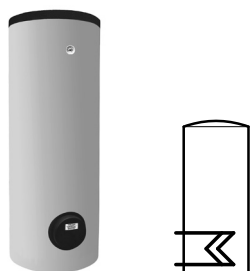
ESR	(200)
ESR	(300)
ESR	(400)
ESR	(500)

Certifications

CombiVal ESR (200-500)	Test number of SVGW * 0503 - 4950
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* Swiss Association for Gas and Water Supply

■ Part N°


Calorifier
CombiVal ESR (200-500)

Part N°

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

CombiVal	Volumen dm³	Heating surface m²	
ESR (200)	200	1,8	7004 393
ESR (300)	300	2,6	7004 394
ESR (400)	370	3,8	7004 395
ESR (500)	470	4,0	7004 396

Accessories

Flange-electrical heating inset for
CombiVal ESR (200-500)

Heating input (kW)
according to rules of the power station

Type	Heat input 3 x 400 V [kW]	Changeable to	Install. length mm	CombiVal ESR	
EFHR					
<i>CombiVal ESR (200-500) mountable only below</i>					
4-180	4,3		380	(200-500)	6032 215
		2,9 kW/3x400 V			
		2,1 kW/3x400 V			
		1,4 kW/1x230 V			
6-180	6,0		440	(300-500)	6032 216
		4,0 kW/3x400 V			
		3,0 kW/3x400 V			
		2,0 kW/1x230 V			


Screw-in electrical heating inset
for CombiVal ESR

Incl. temperature control and overheating protection. Delivered separately, installation on-site, No use for exclusively electrical heating.

Type	Heat input kW	Voltage [V]	Installation length mm	
<i>CombiVal ESR (500) mountable only above</i>				
EP-2	2,0	1 x 230	500	2002 412
EP-3	3,0	3 x 400	390	2022 216
EP-4,5	4,5	3 x 400	500	2022 217
EP-6	6,0	3 x 400	620	2022 218


Correx external current-anode

6847 60

for long-term corrosion protection for installation in the water heater instead of magnesium protection anodes inclusive reducing elbow fitting.

Either a correx external current-anode or one and/or two magnesium anodes may be used.

■ Part N°

		Part N°
	Cable sensor KVT 20/5/6S 5 m cable and plug	6012 687
	Cable sensor KVT 20/5/6 with 5 m cable	2022 992
	Temperature sensor TF 25/12K with cable for connection to modulating gas boiler with TopTronic® RS-OT	2426 17
At TopTronic®T - temperature sensor is included in the boiler control or in the control set. Excluding heat pumps		
	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 6K, 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 Δp = 1 bar) Flow coefficient value (kvs) 1.62	2005 915
Further types/sizes see Solar/Solar armature groups		

■ Technical data

Calorifier CombiVal ESR (200-500)

Type	CombiVal	ESR (200)	ESR (300)	ESR (400)	ESR (500)
Calorifier					
• Content	litre	200	300	370	470
• Max. working pressure / test pressure	bar	10 / 13	10 / 13	10 / 13	10 / 13
• Working temperature maximal	°C	95	95	95	95
• Thermal insulation PU-foam, foamed onto calorifier	mm	45	50	50	50
• Thermal conductance λ	Watt/mK	0,034	0,034	0,034	0,034
• Stand still loss qb at 60 °C	Watt	77	89	97	121
• Weight	kg	68	100	118	167
Dimensions		see table of dimensions			

Heating battery (built in)

• Heating surface	m ²	1,80	2,60	3,80	4,00
• Heating water content	litre	12,7	18,0	34,8	36,6
• Max. working pressure / test pressure	bar	10 / 13	10 / 13	10 / 13	10 / 13
• Working temperature maximal	°C	110	110	110	110
• Flow resistance ¹	z-value	13	17	6	7

¹ Flow resistance boiler in mbar = volume flow (m³/h)² x z

Heating-up with electrical heating inset

CombiVal	electrical heating-up litre	persons ¹
ESR (200)	160	1-2
ESR (300)	240	2-3
ESR (400)	340	3-4
ESR (500)	440	4-5
ESR (500) ²	150	1-2

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation.
(standard value without reloading)

² with screw-in electrical heating

May deviate depending on the power of the electric heater insert and release time.

Flange-electrical heating inset to CombiVal ESR (200-500)

With temperature control and overheating protection.

Factory set-up: 3 x 400 V.

Heat input (kW) according to rules of the power works

Type	3x400 V Factory setting Heat input [kW]	for CombiVal ESR
4-180	4,3	(200-500)
6-180	6,0	(300-500)

■ Technical data

Hot water output

Heating-up with the boiler, heating flow 70 °C

CombiVal		loading pump Biral ¹		Hot water output			kW ⁶	flats ⁷	
				dm³/10 min. ⁴	dm³/h ⁵				
Type	m³/h²	mbar³	Type	mWC	45 °C	45 °C	60 °C		
ESR (200)	1,0	13	AX12	2,5	310	705	380	28,6	3
	2,0	51	AX13	3,0	330	905	495	36,7	4
	3,0	115	A13	2,6	345	1040	580	42,2	5
ESR (300)	1,0	17	AX12	2,5	445	860	472	34,9	7
	2,0	68	AX13	3,0	475	1135	615	46,1	8
	3,0	153	A13	2,6	490	1315	740	53,4	9
ESR (400)	1,0	6	AX12	2,5	540	945	515	38,4	8
	2,0	25	AX13	3,0	575	1325	725	53,8	12
	3,0	56	A13	2,6	600	1565	850	63,5	14
ESR (500)	1,0	7	A12	2,5	665	1000	530	40,6	9
	2,0	26	AX13	3,0	705	1405	755	57,0	15
	3,0	59	A13	2,6	720	1570	880	63,8	18

Heating-up with the boiler, heating flow 80 °C

CombiVal		loading pump Biral ¹		Hot water output			kW ⁶	flats ⁷	
				dm³/10 min. ⁴	dm³/h ⁵				
Type	m³/h²	mbar³	Type	mWC	45 °C	45 °C	60 °C		
ESR (200)	1,0	13	AX12	2,5	330	915	530	37,1	4
	2,0	51	AX13	3,0	355	1165	670	47,3	5
	3,0	115	A13	2,6	370	1320	750	53,6	6
ESR (300)	1,0	17	AX12	2,5	470	1090	640	44,3	7
	2,0	68	AX13	3,0	510	1500	870	60,9	9
	3,0	153	A13	2,6	535	1740	1110	70,6	10
ESR (400)	1,0	6	AX12	2,5	565	1195	705	48,5	10
	2,0	25	AX13	3,0	615	1722	1000	69,9	16
	3,0	56	A13	2,6	650	2070	1170	84,0	18
ESR (500)	1,0	7	AX12	2,5	690	1260	735	51,2	12
	2,0	26	AX13	3,0	745	1805	1040	73,3	19
	3,0	59	A13	2,6	775	2090	1260	84,9	22

¹ The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² Volume flow of the loading pump.

³ Heating-side flow resistance in the heating battery.

⁴ Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C.

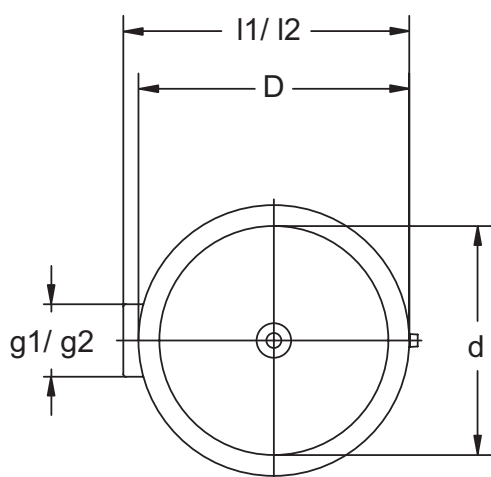
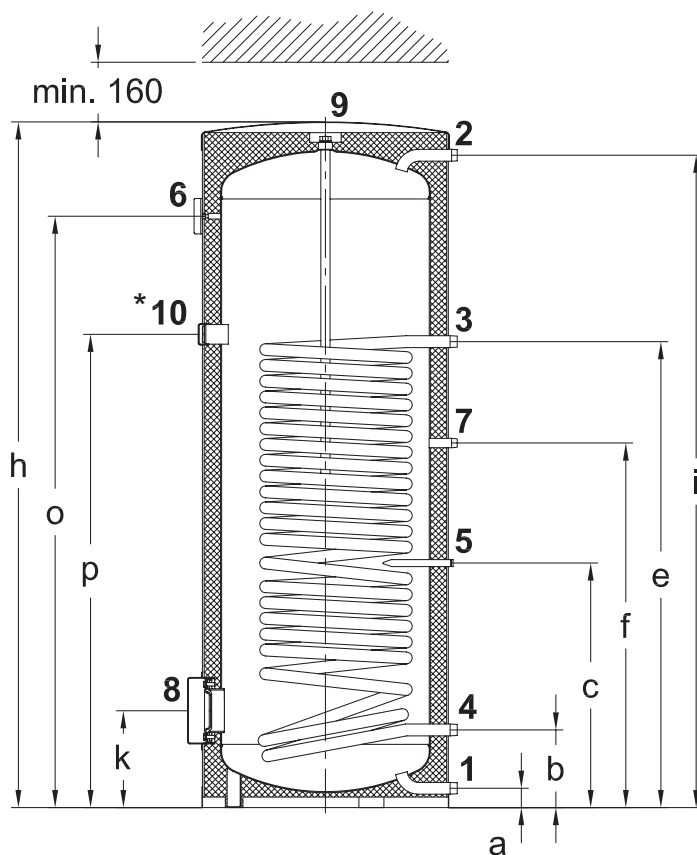
⁵ Continuous output per hour. Cold water temperature 10 °C

⁶ Power input at 45/10 °C

⁷ 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)

Hot water outputs and maximum hot water temperatures in heating systems with heat pumps on demand.

Dimensions



- 1 Cold water Type (200) R $\frac{3}{4}$ ", Type (300 - 500) R1"
- 2 Hot water Type (200) R $\frac{3}{4}$ ", Type (300 - 500) R1"
- 3 Flow heating Type (200, 300) R 1", Type (400, 500) R1 $\frac{1}{4}$ "
- 4 Return heating Type (200, 300) R 1", Type (400, 500) R1 $\frac{1}{4}$ "
- 5 Connection for Capillar-thermostat, Cable sensor
- 6 Thermometer
- 7 Circulation R $\frac{3}{4}$ "
- 8 Hand hole-flange (electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
- 9 Anode sleeve Rp 1"
- Type (200-500), Screw connection uninsulated
- 10 Connection for screw-in electrical heating inset Rp 1 $\frac{1}{2}$ "

CombiVal ESR Type	d	D	g1	g2*	l1	l2*
(200)	450	540	180	185	585	625
(300)	597	700	180	185	745	785
(400)	597	700	180	185	745	785
(500)	597	700	180	185	745	785

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

* using a flange electrical immersion heater

CombiVal ESR Type	a	b	c	e	f	h	i	k	o	p	Tilting measure
(200)	55	193	508	961	802	1464	1370	248	1226	-	1530
(300)	55	221	549	991	850	1326	1229	276	1067	-	1472
(400)	55	221	683	1324	908	1623	1526	276	1355	-	1738
(500)	55	221	686	1377	1265	1953	1856	276	1683	1430	2044

■ Description

Hoval calorifier

CombiVal ESSR (400,500)

- 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 polyurethan 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 1 ½"

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 external current-anode built in
- 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
- Thermal insulation made of polyurethan soft foam with polystyrene hard shell, red coloured
- Sensor channel
- Including thermometer

On request

- Flange-electrical heating inset

Delivery

- Calorifier, thermal insulation as well as thermometer delivered separately packed

On site

- Mounting of thermal insulation

Flange-electrical heating inset for CombiVal ESSR (400-1000)

Type EFHR 4 to EFHR 9

- Made of Incoloy® alloy 825
- Heat input 4,3 to 8,5 kW, according to rules of the power station
- Incl. temperature control and overheating protection
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V

Delivery

- Delivered separately packed

On site

- Installation of the heating inset

Screw-in electrical heating insets for CombiVal ESSR (400,500)

Type EP-2 to EP-4,5

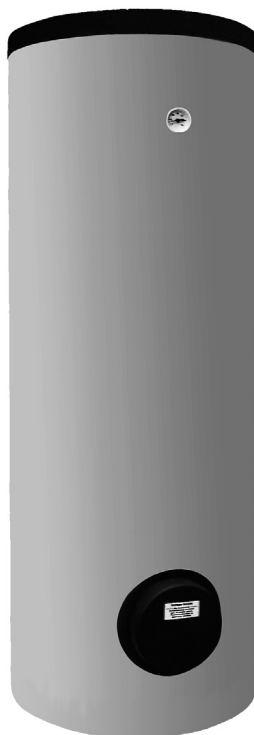
- Made of Incoloy® alloy 825
- Heat input 2,0 - 4,5 kW
- incl. temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-4,5 with 3 x 400 V
- No use for exclusively electrical heating.

Delivery

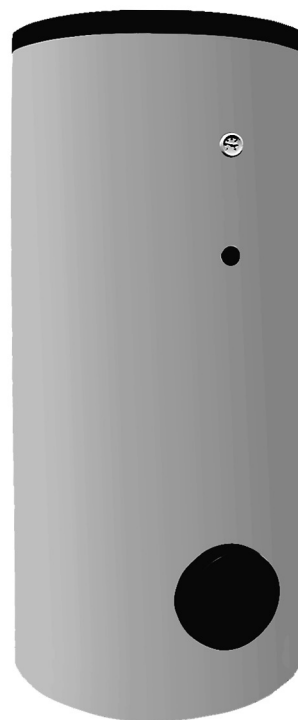
- Delivered separately packed

On site

- Installation of the heating inset



ESSR (400,500)



ESSR (800,1000)

Range CombiVal

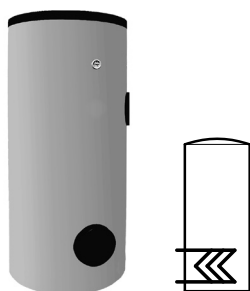
ESSR	(400)
ESSR	(500)
ESSR	(800)
ESSR	(1000)

Certifications

CombiVal ER (400-1000)	Test number of SVGW * 0503 - 4950
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* Swiss Association for Gas and Water Supply

■ Part N°


Calorifier
CombiVal ESSR (400-1000)

Part N°

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

CombiVal Type	Content litres	Heating surface m ²	
ESSR (400)	360	4,85	7011 269
ESSR (500)	450	5,90	7011 270
ESSR (800)	730	7,00	7010 176
ESSR (1000)	950	9,15	7010 177

Accessories
Flange-electrical heating inset EFHR
for CombiVal ESSR (400-1000)

Heating input (kW)
 according to rules of the power station



Type	Heat input 3 x 400 V [kW]	Changeable to	Install. length mm	CombiVal ESSR	
EFHR					

CombiVal ESSR (400,500) mountable only below

CombiVal ESSR (800,1000) mountable only above

4-180	4,3		380	(400-1000)	6032 215
		2,9 kW/3x400 V			
		2,1 kW/3x400 V			
		1,4 kW/1x230 V			
6-180	6,0		440	(400-1000)	6032 216
		4,0 kW/3x400 V			
		3,0 kW/3x400 V			
		2,0 kW/1x230 V			

CombiVal ESSR (800,1000) mountable only below

9-250	8,5		380	(800,1000)	6032 217
		5,7 kW/3x400 V			
		4,2 kW/3x400 V			
		2,8 kW/1x230 V			

Screw-in electrical heating inset
for CombiVal ESSR (400-500)

Incoloy® alloy 825, incl. 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	for CombiVal ESSR	
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CombiVal ESSR (400-500) mountable only above

EP-2	2,0	1 x 230	500	(400-500)	2002 412
EP-3	3,0	3 x 400	390	(400-500)	2022 216
EP-4,5	4,5	3 x 400	500	(400-500)	2022 217

■ Part N°

Part N°



Correx external current-anode
for long-term corrosion protection for
installation in the water heater instead
of magnesium protection anodes inclusive
reducing elbow fitting.

6847 60

Either a correx external current-anode or one
and/or two magnesium anodes may be used.



Cable sensor KVT 20/5/6S
5 m cable and plug

6012 687



Cable sensor KVT 20/5/6
with 5 m cable

2022 992



Temperature sensor TF 25/12K
with cable for connection to modulating
gas boiler with TopTronic® RS-OT

2426 17

**At TopTronic®T - temperature sensor is
included in the boiler control or in the
control set.**



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 6K,
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 3/4"
Hot water temperature max. 90°C
Adjustment range 30-60°C
Flow rate 27 l/min (at Δp = 1 bar)
Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes
see Solar/Solar armature groups

■ Technical data

Calorifier CombiVal ESSR (400, 500)

Type		(400)	(500)	(800)	(1000)
• Content	dm ³	360	450	730	950
• Max. working pressure / test pressure	bar	6 / 12	6 / 12	6 / 12	6 / 12
• Working temperature maximal	°C	95	95	95	95
• Thermal insulation PU-foam foamed onto calorifier	mm	50	50	-	-
• Thermal insulation PU-foam	mm	-	-	100	100
• Thermal conductance λ	Watt/mK	0,034	0,034	0,034	0,034
• Stand still loss qB at 60 °C	W	97	121	156	174
• Weight	kg	160	200	290	385

Dimensions see table of dimensions

Heating battery (built in)

• Heating surface	m ²	4,85	5,90	7,00	9,15
• Heating water	dm ³	33,9	41,5	49,0	63,9
• Flow resistance ¹	z-value	8	10	11	14
• Max. working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110	110

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

Heating-up with electrical heating inset

CombiVal	electrical heating-up ²		electrical heating-up ³	
Type	dm ³	persons ¹	dm ³	persons ¹
ESSR (400)	340	3-4	110	1-2
ESSR (500)	440	4-5	150	1-2
ESSR (800)	630	8-10	210	2-3
ESSR (1000)	840	11-13	280	3

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

² Electrical heating inset integrated in lower flange.

³ Electrical heating inset integrated in upper flange.

The value can differ according to the output of the electrical heating inset and the release time.

Flange-electrical heating inset to CombiVal ESSR (400-1000)

With temperature control and overheating protection.
Factory set-up: 3 x 400 V.
Heat input (kW) according to rules of the power works 3x400V.

Type EFHR	Factory setting Heat input [kW]	for CombiVal ESSR
4-180	4,3	(400 - 1000)
6-180	6,0	(400 - 1000)
9-250	8,5	(800 - 1000)

■ Technical data

Hot water output

Heating up with the boiler, heating flow 60 °C

CombiVal Type	m³/h²	mbar³	loading pump Biral ¹		Hot water output			kW⁶	flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	55 °C		
ESSR (400)	1,0	8	AX12	2,5	515	710	400	29,1	6
	2,0	33	AX13	3,0	550	990	520	40,1	8
	3,0	75	A13	2,6	570	1140	590	46,2	9
ESSR (500)	1,0	10	AX12	2,5	630	800	450	32,7	6
	2,0	41	AX13	3,0	670	1150	610	46,8	9
	3,0	91	A13	2,6	690	1350	700	54,8	12
ESSR (800)	3,0	102	A13	2,6	1060	1500	780	60,9	16
	4,5	229	A15	4,8	1080	1720	880	70,0	18
ESSR (1000)	3,0	129	A14	4,2	1360	1750	940	71,3	20
	4,5	290	A15	4,8	1395	2070	1080	84,0	24

Heating-up with the boiler, heating flow 70 °C

CombiVal Type	m³/h²	mbar³	loading pump Biral ¹		Hot water output			kW⁶	flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	55 °C		
ESSR (400)	1,0	8	AX12	2,5	545	1170	650	47,5	10
	2,0	33	AX13	3,0	590	1615	850	65,6	13
	3,0	75	A13	2,6	615	1860	960	75,5	15
ESSR (500)	1,0	10	AX12	2,5	660	1280	725	52,0	15
	2,0	41	AX13	3,0	715	1835	980	74,5	19
	3,0	91	A13	2,6	745	2150	1120	87,3	21
ESSR (800)	3,0	102	A13	2,6	1115	2425	1275	98,5	31
	4,5	229	A15	4,4	1150	2790	1435	113,3	38
ESSR (1000)	3,0	129	A13	2,6	1425	2885	1550	117,1	40
	4,5	290	A15	4,8	1475	3400	1775	138,0	48

Heating-up with the boiler, heating flow 80 °C

CombiVal Type	m³/h²	mbar³	loading pump Biral ¹		Hot water output			kW⁶	flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	60 °C		
ESSR (400)	1,0	8	AX12	2,5	575	1430	870	58,1	15
	2,0	33	AX13	3,0	630	2000	1170	81,2	20
	3,0	75	A13	2,6	660	2315	1330	94,0	23
ESSR (500)	1,0	10	AX12	2,5	690	1560	960	63,3	20
	2,0	41	AX13	3,0	760	2270	1335	92,2	25
	3,0	91	A13	2,6	800	2670	1550	108,4	28
ESSR (800)	3,0	102	A13	2,6	1170	3005	1755	122,0	36
	4,5	229	A15	4,8	1220	3475	1995	141,1	44
ESSR (1000)	3,0	129	A14	4,2	1490	3555	2105	144,3	49
	4,5	290	A15	4,8	1555	4220	2450	171,3	58

¹ Biral loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °C / 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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

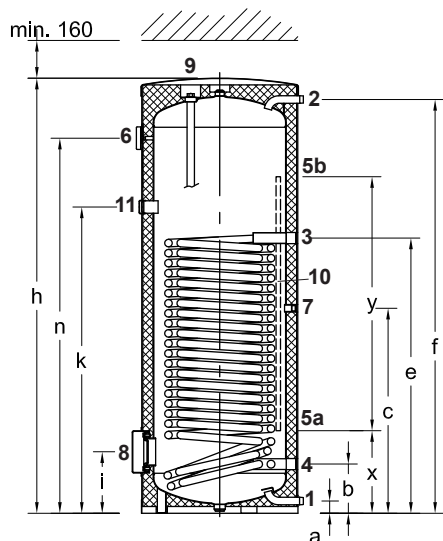
⁶ kW = Power input at 45/10 °C

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)

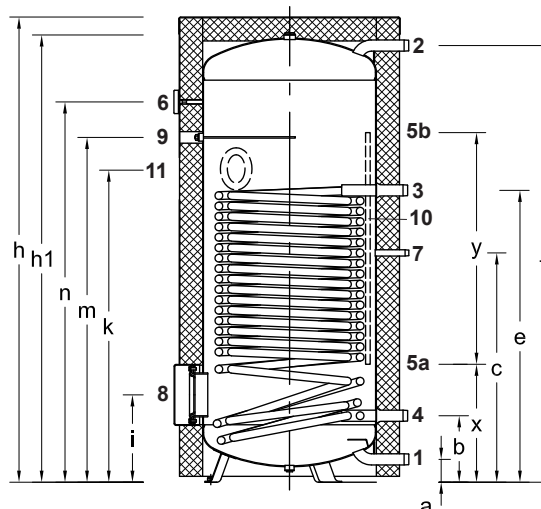
Hot water outputs and maximum hot water temperatures in heating systems with heat pumps on demand.

■ Dimensions

ESSR (400,500)



ESSR (800,1000)



- 1 Cold water R1"
- 2 Hot water R1"
- 3 Flow heating Rp 1 3/4"
- 4 Return heating Rp 1 3/4"
- 5 Sensor channel
- 5a Head of the sensor channel
- 5b Bottom of the sensor channel
- 6 Thermometer
- 7 Circulation Rp 3/4"
- 8 Hand hole-flange (flange electrical heating inset)
Ø 180/120 mm, pitch circle 150 mm, 8 x M10
- 9 Anode sleeve Rp 1 1/4"
Type (400,500), screw connection uninsulated
- 10 Removable cap for positioning the sensor in the sensor channel
- 11 Connection for screw-in electrical heating inset Rp 1 1/2"

- 1 Cold water R 1 1/2"
- 2 Hot water R 1 1/2"
- 3 Flow heating R 1 1/2"
- 4 Return heating R 1 1/2"
- 5 Sensor channel
- 5a Head of the sensor channel
- 5b Bottom Ende of the sensor channel
- 6 Thermometer
- 7 Circulation R 3/4"
- 8 Hand hole flange (flange electrical heating inset)
Ø 257/180, pitch circle Ø 225 mm, 10 x M10
- 9 Anode sleeve Rp 3/4" (external current-anode)
Type (800,1000), screw connection insulated
- 10 Removable cap for positioning the sensor in the sensor channel
- 11 Hand hole flange (flange electrical heating inset) Ø
180/110 mm, pitch circle Ø 150 mm, 8 x M10

CombiVal ESSR Type	d	D	Ø g1	Ø g2*	l1	l2*
(400)	597	700	180	-	745	785
(500)	597	700	180	-	745	785
(800)	750	950	180	280	975	1020
(1000)	850	1050	180	280	1075	1120

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

* using a flange electrical immersion heater

CombiVal ESSR Type	a	b	c	e	f	h	h1	i	k	m	n	x	y	Tilting measure
(400)	55	221	784	1054	1526	1621	-	275	-	1352	1139	313	954	1738
(500)	55	221	919	1234	1856	1953	-	275	-	1683	1319	500	933	2044
(800)	99	287	990	1260	1885	2033	1937	377	1408	1385	1642	535	954	1962
(1000)	103	297	1045	1360	1902	2063	1963	387	1446	1485	1652	528	954	1991

■ Description

Hoval calorifier

CombiVal CR (200-1000)

- Calorifier made of stainless steel
- Smooth pipe flat-tube heating battery made of stainless steel, built in
- Thermal insulation made of 80 mm 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)
 - 1½" sleeve for the mounting of a screw-in electrical heating inset
- CombiVal CR (630-1000)
 - 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 the installation of an electrical screw-in heating inset through flange cover with 1½" sleeve
- Thermometer separate (enclosed)
- with immersion pocket
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier fully cased

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

Hoval calorifier

CombiVal CR (1250-2000)

- Calorifier made of stainless steel
- Smooth pipe flat-tube heating battery made of stainless steel, built in
- Thermal insulation made of 100 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured

(1250-2000)	3-part
-------------	--------
- Flange above as additional cleaning flange or for the installation of an electrical heating flange inset according to the Swiss SVGW regulation.
- Flange below as cleaning flange according to the Swiss SVGW regulation or for the installation of an electrical screw-in heating inset through flange cover with 1½" sleeve
- Thermometer separate (enclosed) with immersion pocket
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier, thermal insulation set and thermometer delivered separately packed

On site

- Mounting of thermal insulation



CombiVal CR (200)

Range

CombiVal

CR	(200)
CR	(300)
CR	(500)
CR	(630)
CR	(800)
CR	(1000)
CR	(1250)
CR	(1500)
CR	(2000)

Certifications

<i>CombiVal CR</i> (200-2000)	<i>Test number of SVGW *</i> 0009 - 4304
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* Swiss Association for Gas and Water Supply

On request

- Screw-in electrical heating inset
- Flange cover with sleeve to the flange below for the installation of a screw-in electrical heating inset
- Flange electrical heating inset for flange above

Screw-in electrical heating inset for CombiVal CR (200-2000)

Type EP-2 to EP-9

- Made of Incoloy® alloy 825
- Heat input 2,0 - 9 kW
- incl. temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-9 with 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 for CombiVal CR (630-2000)

Type EFHRC 4 to EFHRC 9

- Made of Incoloy® alloy 825
- Heat output 4,3 - 8,5 kW, according to the rules of the power works
- incl. temperature control and overheating protection
- Connection 3 x 400 V

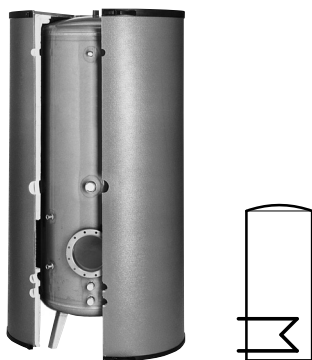
Delivery

- Delivered separately packed

On site of the customer

- Installation of the electrical heating inset

■ Part N°


**Calorifier
CombiVal CR (200-2000)**

Part N°

Calorifier made of stainless steel with built-in flat tube resp. smooth pipe heat exchanger made of stainless steel.

CombiVal CR (200-1000) fully cased

CombiVal CR (1250-2000) Calorifier and thermal insulation set packed separately

CombiVal Type	volume litre	
CR (200)	220	7007 940
CR (300)	320	7007 941
CR (500)	500	7010 200
CR (630)	630	7010 201
CR (800)	800	7010 202
CR(1000)	1020	7010 203
CR(1250)	1160	7010 204
CR(1500)	1590	7010 205
CR(2000)	2090	7010 206

Accessories
**Flange electrical heating insets for upper flange
for CombiVal CR (630-2000)**


Type	Heat input 3 x 400 V [kW]	changeable to	Installation length mm	CombiVal CR	
EFHRC					
4-180	4,3	2,9 kW/3x400 V 2,1 kW/3x400 V 1,4 kW/1x230 V	380	(630-2000)	6032 218
6-180	6,0	4,0 kW/3x400 V 3,0 kW/3x400 V 2,0 kW/1x230 V	460	(630-2000)	6032 219
9-180	8,5	5,7 kW/3x400 V 4,2 kW/3x400 V 2,8 kW/1x230 V	650	(630-2000)	6032 220

**Flange electrical heating insets for lower flange
for CombiVal CR (200-2000)**


Type	Heat input 3 x 400 V [kW]	changeable to	Installation length mm	CombiVal CR	
EFHRC					
4-270	4,3	2,9 kW/3x400V 2,1 kW/3x400V 1,4 kW/1x230V	380	(200-2000)	6032 221
6-270	6,0	4,0 kW/3x400V 3,0 kW/3x400V 2,0 kW/1x230V	460	(630-2000)	6032 222
9-270	8,5	5,7 kW/3x400V 4,2 kW/3x400V 2,8 kW/1x230V	650	(1000-2000)	6032 223

■ Part N°



Accessories

Part N°

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).

When mounted below, a flange cover with 1½" sleeve is necessary

Type	Heat input kW	Voltage [V]	Install. length mm	for CombiVal CR
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CombiVal CR (200-500) mountable above and below

CombiVal CR (630-2000) mountable only below

EP-2	2,0	1 x 230	500	(200-2000)	2002 412
EP-3	3,0	3 x 400	390	(200-2000)	2022 216
EP-4,5	4,5	3 x 400	500	(200-2000)	2022 217
EP-6	6,0	3 x 400	620	(500-2000)	2022 218
EP-9	9,0	3 x 400	850	(1000-2000)	2022 219

Flange cover

for the installation of the electrical heating inset in the flange below stainless steel, with 1½" sleeve

6000 647

**Cable sensor KVT 20/5/6S**

5 m cable and plug

6012 687

**Cable sensor KVT 20/5/6**

with 5 m cable

2022 992

**Temperature sensor TF 25/12K**

with cable for connection to modulating gas boiler with TopTronic® RS-OT

2426 17

At TopTronic®T - temperature sensor is included in the boiler control or in the control set.

**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 6K, 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 Δp = 1 bar)

Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes

see Solar/Solar armature groups

■ Technical data

Calorifier CombiVal CR (200-800)

Type		(200)	(300)	(500)	(630)	(800)
• Content	litre	220	320	500	630	800
• Max. working pressure / test pressure	bar	6/12	6/12	6/12	6/12	6/12
• Working temperature maximal	°C	95	95	95	95	95
• Thermal insulation bonded fabric	mm	80	80	80	80	80
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035	0,035
• Stand still loss at qB 60 °C	W	70	96	138	142	150
• Weight	kg	65	85	106	130	168
• Dimensions see table of dimensions						
Heating battery (built in)						
• Heating surface	m²	0,9	1,2	1,8	1,8	2,4
• Heating water content	litre	5,4	7,2	10,8	10,8	14,4
• Flow resistance¹						
• Water	z-value	20	24	28	28	30
• Polypropylen glycol/ water mixture 50 %	z-value	27	32	38	38	40
• max. working pressure / test pressure	bar	10 / 15	10 / 15	10 / 15	10 / 15	10 / 15
• Working temperature maximal	°C	95	95	95	95	95

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

Screw-in electrical heating inset

made of Incoloy® alloy 825, with temperature control and overheating protection.
 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 input kW	Voltage [V]	Installation depth mm	for CombiVal CR
EP-2	2,0	1 x 230	500	(200 - 2000)
EP-3	3,0	3 x 400	390	(200 - 2000)
EP-4,5	4,5	3 x 400	500	(200 - 2000)
EP-6	6,0	3 x 400	620	(500 - 2000)
EP-9	9,0	3 x 400	850	(1000 - 2000)

**Flange electrical heating inset
 for upper flange
 for CombiVal CR (630-2000)**

With temperature control and overheating protection.
 Factory set-up 3 x 400 V.
 Heat output (kW) according to rules of the power works

Type	3 x 400 V Factory setting Heat output [kW]	for CombiVal CR
EFHRC		
4-180	4,3	(630-2000)
6-180	6,0	(630-2000)
9-180	8,5	(630-2000)

**Flange electrical heating inset
 for lower flange
 for CombiVal CR (200-2000)**

With temperature control and overheating protection.
 Factory set-up 3 x 400 V.
 Heat output (kW) according to rules of the power works

Type	3 x 400 V Factory setting Heat output [kW]	for CombiVal CR
EFHRC		
4-270	4,3	(200-2000)
6-270	6,0	(630-2000)
9-270	8,5	(1000-2000)

■ Technical data

Calorifier CombiVal CR (1000-2000)

Type		(1000)	(1250)	(1500)	(2000)
• Content	litre	1020	1160	1590	2090
• max. working pressure / test pressure	bar	6/12	6/12	6/12	6/12
• Working temperature maximal	°C	95	95	95	95
• Thermal insulation bonded fabric	mm	80	100	100	100
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035
• Stand still loss at qB 60 °C	W	154	163	175	200
• Weight	kg	206	227	244	342
• Dimensions		see table of dimensions			
Heating battery (built in)					
• Heating surface	m²	2,4	3,0	3,5	4,0
• Heating water content	litre	14,4	28,0	32,0	37,0
• Flow resistance ¹					
• Water	z-value	30	20	22	25
• Polypropylenglycol/ water mixture 50 %	z-value	40	27	30	34
• max. working pressure / test pressure	bar	10 / 15	10 / 15	10 / 15	10 / 15
• Working temperature maximal	°C	95	95	95	95

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

Screw-in electrical heating inset

made of Incoloy® alloy 825, with temperature control and overheating protection.

Delivery 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 input kW	Voltage [V]	Installation depth mm	for CombiVal CR
EP-2	2,0	1 x 230	500	(300-2000)
EP-3	3,0	3 x 400	390	(200-2000)
EP-4,5	4,5	3 x 400	500	(200-2000)
EP-6	6,0	3 x 400	620	(500-2000)
EP-9	9,0	3 x 400	850	(1000-2000)

Hot water output**Heating-up with the electrical heating inset**

CombiVal Type	electrical heating-up ² litre	heating-up ¹ persons	electrical heating-up ³ litre	heating-up ¹ persons
CR (200)	140	1-2	80	1
CR (300)	210	3-4	150	1-2
CR (500)	400	5-6	265	2-3
CR (630)	470	6-7	310	3-4
CR (800)	600	8-10	400	4-5
CR (1000)	750	11-13	470	5-6
CR (1250)	940	14-16	610	8-10
CR (1500)	1120	15-18	790	11-12
CR (2000)	1500	21-25	1050	14-16

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

² Screw-in electrical heating inset built into the lower flange.

³ Screw-in electrical heating inset built into the top 1½" sleeve or into the flange electrical heating inset into the upper flange (dimension „i“).

The value can differ according to the output of the electrical heating inset and the release time.

■ Technical data

Hot water output

Heating up with the boiler, heating flow 70 °C

CombiVal Type	m ³ /h ²	mbar ³	loading pump Biral ¹		Hot water output			kW ⁶	flats ⁷
			Type	mWC	dm ³ /10 min. ⁴	45 °C	60 °C		
CR (200)	0,5	5	AX12	2,5	323	312	177	12,7	2
	1,0	20	AX12	2,5	340	420	250	17,0	3
	1,5	45	AX12	2,0	350	520	279	21,2	3
	2,0	80	AX13	3,0	370	600	304	24,6	3
CR (300)	1,0	25	AX12	2,5	500	550	326	22,6	5
	1,5	55	AX12	2,0	514	640	376	26,2	7
	2,0	100	AX13	3,0	531	740	410	30,3	7
	2,5	150	A13	3,2	546	835	432	33,9	7
CR (500)	1,5	65	AX12	2,0	865	790	462	32,4	14
	2,0	112	AX13	3,0	886	925	510	37,5	15
	2,5	175	A13	3,2	905	1040	540	42,2	16
	3,0	255	A14	4,2	911	1080	600	43,9	17
CR (630)	2,0	112	AX13	3,0	1010	925	510	37,5	16
	2,5	175	A13	3,2	1030	1040	540	42,2	17
	3,0	255	A14	4,2	1047	1140	600	46,5	18
CR (800)	2,0	120	AX13	3,0	1285	1190	671	48,8	23
	2,5	190	A13	3,2	1312	1365	715	55,4	24
	3,0	270	A14	4,2	1322	1430	745	57,9	25
	3,5	370	A15	5,2	1346	1570	770	63,8	26
CR (1000)	2,0	120	AX13	3,0	1557	1190	671	48,8	27
	2,5	190	A13	3,2	1587	1365	715	55,4	28
	3,0	270	A14	4,2	1594	1430	745	57,9	29
	3,5	370	A15	5,2	1618	1570	770	63,8	30
CR (1250)	3,0	180	A13	2,6	1930	1403	740	57,1	31
	4,0	320	A15	5,2	1950	1532	780	62,4	32
CR (1500)	3,0	200	A14	4,2	2301	1595	800	64,9	37
	4,0	360	A15	5,2	2327	1751	895	71,3	39
CR (2000)	3,0	225	A14	4,2	3090	1775	880	72,3	49
	4,0	400	A15	5,2	3040	1960	1007	79,6	51

¹ Biral loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

■ Technical data

Hot water output

Heating up with the boiler, heating flow 80 °C

CombiVal			Loading pump Biral¹		Hot water output			kW⁶	flats⁷
					dm³/10 min.⁴	dm³/h⁵			
						45 °C	45 °C		
Type	m³/h²	mbar³	Type	mWC					
CR (200)	0,5	5	AX12	2,4	339	405	263	16,5	2
	1,0	20	AX12	2,5	361	538	360	21,9	4
	1,5	45	AX12	2,0	381	660	412	26,8	4
	2,0	80	AX13	3,0	397	760	440	30,8	4
CR (300)	1,0	25	AX12	3,5	523	690	475	28,4	6
	1,5	55	AX12	2,0	552	790	550	35,3	8
	2,0	100	AX13	3,0	573	1000	596	40,5	8
	2,5	150	A13	3,2	582	1080	630	42,7	8
CR (500)	1,5	65	AX12	2,0	897	990	676	40,3	16
	2,0	112	AX13	3,0	936	1220	738	43,6	17
	2,5	175	A13	3,2	950	1310	788	46,5	19
	3,0	255	A14	4,2	972	1438	865	48,3	21
CR (630)	2,5	175	A13	3,2	1075	1340	785	53,3	22
	3,0	255	A14	4,2	1098	1480	875	58,6	23
CR (800)	2,0	120	AX13	3,0	1348	1410	960	64,3	25
	2,5	190	A13	3,2	1369	1705	1030	69,4	30
	3,0	270	A14	4,2	1401	1850	1075	77,2	31
	3,5	370	A15	5,2	1414	1910	1120	80,3	32
CR (1000)	2,0	120	AX13	3,0	1620	1410	960	64,3	30
	2,5	190	A13	3,2	1640	1705	1030	69,4	32
	3,0	270	A14	4,2	1675	1850	1075	77,2	33
	3,5	370	A15	5,2	1680	1910	1120	80,3	36
CR (1250)	3,0	180	A13	2,6	1988	1790	1000	71,5	37
	4,0	320	A15	5,2	2034	2150	1100	82,7	39
CR (1500)	3,0	200	A14	4,2	2368	1890	1088	81,2	45
	4,0	360	A15	5,2	2420	2326	1277	94,0	48
CR (2000)	3,0	225	A14	4,2	3081	2120	1216	89,7	55
	4,0	400	A15	5,2	3143	2600	1428	105	62

¹ Biral loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

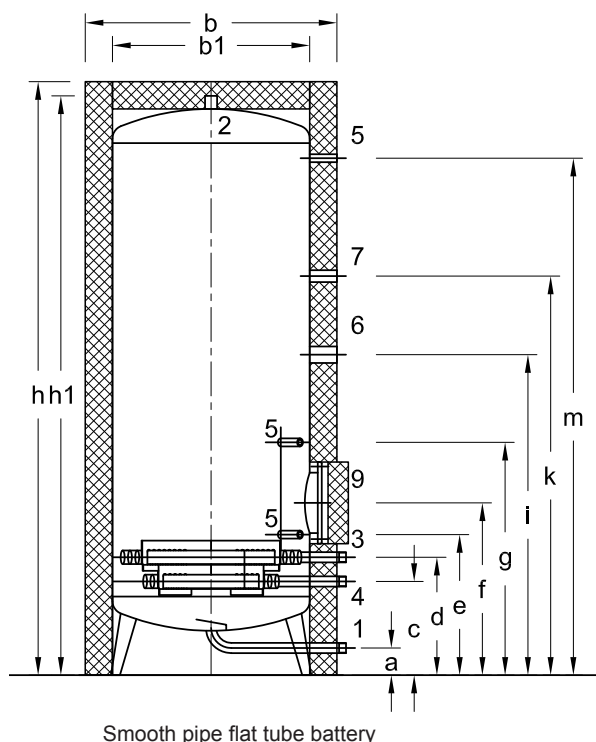
⁶ kW = Power input at 45/10 °C

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)

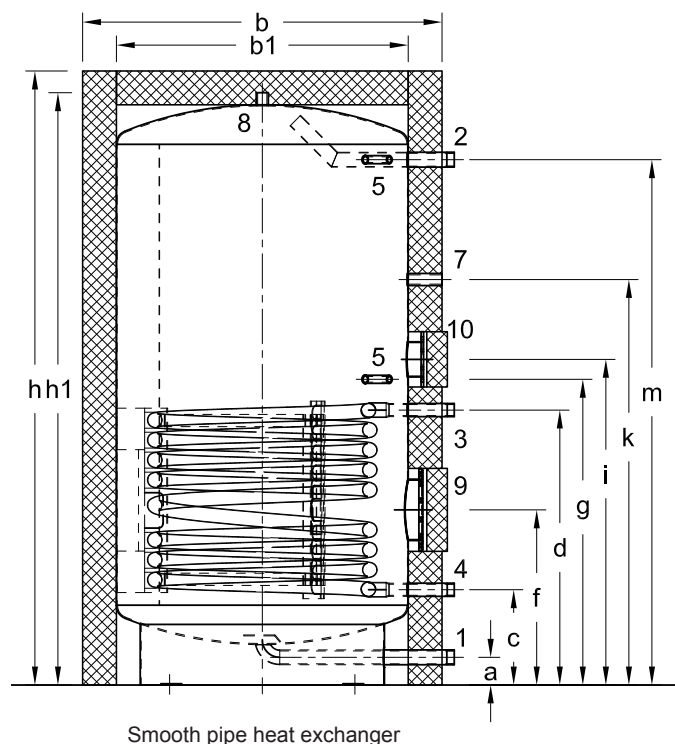
Dimensions

CombiVal CR (200 - 1000)

(Dimensions in mm)



CombiVal CR (1250 - 2000)



- 1 Cold water Type (200-630), Rp 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), Rp 1", (1250-2000) R 1¼"
- 4 Return heating Type (200-1000), Rp 1", (1250-2000) R 1¼"
- 5 Sleeve Rp ½" for sensor, thermostat, thermometer
Immersion sleeve length 200 mm, Ø 8 mm internal, installed
- 6 CR (200-500)
Connection for screw-in electrical heating inset Rp 1½"
CR (630-1000)
Hand hole flange (flange electrical heating inset)
Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10

- 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
- 10 Hand hole flange (flange electrical heating inset) Ø 180/110 mm,
pitch circle Ø 150 mm, 8 x M10

CombiVal CR

Type	b Ø	b1 Ø	h	h1	a	c	d	e	f	g	i	k	m	Tilting measure
(200)	680	500	1430	1390	100	310	390	465	570	700	845	—	1210	1430
(300)	680	500	1930	1890	100	310	390	465	570	770	1060	1320	1710	1920
(500)	830	650	1960	1915	90	310	390	465	570	770	1060	1320	1710	1950
(630)	880	700	1970	1923	90	310	390	465	570	770	1060	1320	1710	1980
(800)	970	790	1980	1923	80	310	390	465	570	770	1060	1320	1710	1990
(1000)	1070	890	2000	1923	80	310	390	465	570	770	1160	1420	1710	2000
(1250)	1170	950	2020	1928	90	310	895	—	570	995	1060	1320	1710	2050
(1500)	1320	1100	2050	1943	70	310	895	—	570	995	1060	1320	1710	2150
(2000)	1420	1200	2070	1978	70	310	895	—	570	995	1060	1320	1710	2260

■ Description

Hoval Calorifier

CombiVal CSR (300-1000)

- Calorifier made of stainless steel
- Thermal insulation made of 80 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
(300-800) 2-part
(1000) 3-part
- CSR (300-500): patented smooth pipe/plain tube heat exchanger system with large heating surface made of stainless steel, built-in for use with heat pumps or condensing boilers
- CSR (200-500)
1½" sleeve for the installation of a screw-in electrical heating inset
- CSR (800-1000)
with special plain tube heat exchanger system with large heating surface 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 of a screw-in electrical heating inset by means of a flange cover with 1½" sleeve (pre-mounted and included in the delivery)
- Thermometer separate (enclosed)
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier fully cased
- Flange cover for the lower flange with 1½" sleeve for the installation of the electrical heating inset (pre-mounted)

On request

- Screw-in electrical heating inset
- Flange electrical heating inset for flange above

Hoval Calorifier

CombiVal CSR (1250-2000)

- Calorifier made of stainless steel
- Thermal insulation made of 100 mm 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 screw-in electrical heating inset by means of a flange cover with 1½" sleeve (pre-mounted and included in the delivery)
- Flange above as additional cleaning flange (Swiss SVGW regulation) or for the installation of a flange electrical heating inset
- with special plain tube heat exchanger system with large heating surface of stainless steel, built-in for use with heat pumps or condensing boilers
- Thermometer separate (enclosed)
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier and thermal insulation set delivered separately packed
- Flange cover for lower flange with 1½" sleeve for the installation of the electrical heating inset (pre-mounted)

On request

- Screw-in electrical heating inset
- Flange electrical heating inset for flange above

On site

- Mounting of thermal insulation

Screw-in electrical heating inset for CombiVal CSR (300-2000)

Type EP-2 to EP-9

- Made of Incoloy® alloy 825
- Heat input 2,0 - 9 kW
- incl. temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-9 with 3 x 400 V
- No use for exclusively electrical heating.



CombiVal CSR (800)

Range

CombiVal		Heating surface m ²
CSR	(300)	2,9
CSR	(400)	3,5
CSR	(500)	4,9
CSR	(800)	6,7
CSR	(1000)	6,7
CSR	(1000)	10
CSR	(1250)	10
CSR	(1500)	12
CSR	(2000)	13

Certifications

CombiVal	Test number of SVGW *
CSR (300-2000)	0009-4304

* Swiss Association for Gas and Water Supply

Delivery

- Delivered separately packed

On site

- Installation of the electrical heating inset

Flange electrical heating inset for CombiVal CSR (800-2000)

Type EFHRC 4 to EFHRC 9

- Made of Incoloy® alloy 825
- Heat output 4,3 - 8,5 kW, according to the regulation of the current supply
- With temperature regulation and overheating protection
- Connection 3 x 400 V

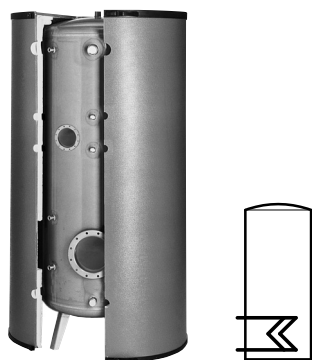
Delivery

- Delivered separately packed

On site

- Mounting of thermal insulation

■ Part N°


Calorifier
CombiVal CSR (300-2000)
Part N°

With smooth pipe/ plain tube heat exchanger made of stainless steel built in.
 CombiVal CSR(300-1000) fully cased.
 CombiVal CSR(1250-2000) calorifier and thermal insulation delivered separately packed.

CombiVal Type		Volume dm ³	Heating surface m ²	
CSR	(300)	300	2,9	7007 949
CSR	(400)	420	3,5	7007 950
CSR	(500)	500	4,9	7010 208
CSR	(800)	770	6,7	7011 295
CSR	(1000)	990	6,7	7011 296
CSR	(1000)	970	10	7011 297
CSR	(1250)	1130	10	7010 211
CSR	(1500)	1480	12	7010 212
CSR	(2000)	1980	13	7010 213

■ Part N°

Accessories

Part N°

**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 for CombiVal mm	CSR
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CombiVal CSR (300-500) mountable above or below

CombiVal CSR (800-2000) mountable only below

EP-3	3,0	3 x 400	390	(300-2000)	2022 216
EP-4,5	4,5	3 x 400	500	(400-2000)	2022 217
EP-6	6,0	3 x 400	620	(500-2000)	2022 218
EP-9	9,0	3 x 400	850	(1500-2000)	2022 219

**Flange cover**

for the installation of the electrical heating inset in the flange below stainless steel, with 1½" sleeve

6000 647

**Cable sensor KVT 20/5/6S**

5 m cable and plug

6012 687

**Cable sensor KVT 20/5/6**

with 5 m cable

2022 992

**Temperature sensor TF 25/12K**

with cable for connection to modulating gas boiler with TopTronic® RS-OT

2426 17

At TopTronic®T - temperature sensor is included in the boiler control or in the control set.

**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 6K, 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 Δp = 1 bar)
Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes

see Solar/Solar armature groups

■ Technical data

Calorifier CombiVal CSR (300-2000)

Type		(300)	(400)	(500)	(800)	(1000)	(1000)	(1250)	(1500)	(2000)
• Volume	dm ³	300	420	500	770	990	970	1130	1480	1980
• Working pressure / test pressure	bar	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12
• Working temperature maximal	°C	95	95	95	95	95	95	95	95	95
• Thermal insulation bonded fabric	mm	80	80	80	80	80	80	100	100	100
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035	0,035	0,035	0,035	0,035	0,035
• Stand still loss qB at 60 °C	W	96	128	138	150	154	154	163	175	200
• Weight	kg	104	123	152	212	230	284	300	346	462
• Dimensions		see table of dimensions								
• Heating surface total	m ²	2,9	3,5	4,9	6,7	6,7	10,0	10,0	12,0	13,0
• Heating water	dm ³	19	23	30	40	40	107	107	130	140
• Flow resistance water ¹	z-Wert	35	38	59	14	14	12	3	4	5
• Working pressure / test pressure	bar	10/15	10/15	10/15	10/15	10/15	10/15	10/15	10/15	10/15
• Working temperature maximal	°C	95	95	95	95	95	95	95	95	95

¹ Flow resistance battery in mbar = volume flow (m³/h)² x z (m³/h)² x z (1 mbar= 0,1 kPa)

Screw-in electrical heating inset

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

	Heat input	Voltage	Installation length	for CombiVal CSR
Type	kW	[V]	mm	
EP-2	2,0	1 x 230	500	(400-2000)
EP-3	3,0	3 x 400	390	(300-2000)
EP-4,5	4,5	3 x 400	500	(400-2000)
EP-6	6,0	3 x 400	620	(500-2000)
EP-9	9,0	3 x 400	850	(1500-2000)

Flange electrical heating inset

for upper flange
for CombiVal CSR (800-2000)

With temperature regulation and overheating protection
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

Type	3 x 400 V Factory set-up Heat input [kW]	for CombiVal CSR
EFHRC		
4-180	4,3	(800-2000)
6-180	6,0	(800-2000)
9-180	8,5	(800-2000)

Flange electrical heating inset

for lower flange
for CombiVal CSR (300-2000)

With temperature regulation and overheating protection
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

Type	3 x 400 V Factory set-up Heat input [kW]	for CombiVal CSR
EFHRC		
4-270	4,3	(300-2000)
6-270	6,0	(630-2000)
9-270	8,5	(1500-2000)

Heating-up with the electrical heating inset

Mounting above - use with heat pump

CombiVal Type	Electrical heating-up litre	Persons ¹	CombiVal Type	Electrical heating-up litre	Persons ¹
CSR (300)	73	1	CSR (300)	235	3-4
CSR (400)	80	1-2	CSR (400)	314	5-6
CSR (500)	205	3-4	CSR (500)	413	6-8
CSR (800)	297	5-6	CSR (800)	611	10-12
CSR (1000)	408	6-8	CSR (1000)	773	12-15
CSR (1250)	387	6-7	CSR (1250)	912	13-16
CSR (1500)	532	8-9	CSR (1500)	1235	15-17
CSR (2000)	786	10-13	CSR (2000)	1617	20-25

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

■ Technical data

Hot water output

Heating up with the boiler, heating flow 60 °C

CombiVal	Heating surface			Loading pump Biral ³			Hot water output		
							dm ³ /10 min. ⁵	dm ³ /h ⁶	
Type	m ²	m ³ /h ¹	mbar ²	Type	mWC	kW ⁴	45°C	45°C	55°C
CSR (300)	2,9	1,0	35,0	AX12	2,5	17,9	480	439	342
	2,9	2,0	140,0	AX13	3,0	21,3	494	524	408
	2,9	3,0	315,0	A15	6,1	23,2	502	569	442
CSR (400)	3,5	1,0	38,0	AX12	2,5	19,7	623	485	377
	3,5	2,0	152,0	AX13	3,0	24,0	640	588	458
	3,5	3,0	342,0	A15	6,1	25,8	648	635	494
CSR (500)	4,9	1,0	59,0	AX12	2,5	27,5	790	675	525
	4,9	2,0	236,0	A14	5,0	37,1	830	911	708
	4,9	3,0	531,0	A15	6,1	42,3	851	1038	807
CSR (800)	6,7	1,5	40,5	AX13	3,8	31,2	1213	766	596
	6,7	2,5	112,5	A14	4,5	36,6	1235	900	700
	6,7	3,5	220,5	A15	5,6	40,6	1251	997	776
CSR (1000)	6,7	1,5	40,5	AX13	3,8	31,2	1485	766	596
	6,7	2,5	112,5	A14	4,5	36,6	1507	900	700
	6,7	3,5	220,5	A15	5,6	40,6	1523	997	776
CSR (1000)	10,0	1,5	31,5	AX13	3,8	39,1	1517	961	748
	10,0	2,5	87,5	A14	4,5	47,9	1553	1178	916
	10,0	3,5	171,5	A15	5,6	55,5	1584	1363	1060
CSR (1250)	10,0	1,75	9,2	AX13	3,3	41,4	1866	1017	791
	10,0	2,40	17,3	A13	3,2	45,2	1881	1111	864
	10,0	2,85	24,4	A14	4,1	47,0	1888	1154	897
	10,0	3,60	38,9	A14	3,6	49,1	1897	1205	938
	10,0	4,00	48,0	A14	3,3	50,0	1901	1228	955
	10,0	4,65	64,9	A15	4,8	51,0	1905	1252	974
	10,0	5,54	92,1	A15	4,0	52,1	1909	1279	995
	10,0	5,65	95,8	A15	3,9	52,2	1910	1283	998
	10,0	7,05	149,1	A16	5,2	53,4	1915	1312	1020
CSR (1500)	12,0	1,75	12,3	AX13	3,3	52,6	2250	1292	1005
	12,0	2,40	23,0	A13	3,2	59,0	2276	1449	1127
	12,0	2,85	32,5	A14	4,1	61,9	2289	1522	1184
	12,0	3,60	51,8	A14	3,6	66,0	2305	1621	1261
	12,0	4,00	64,0	A14	3,3	67,3	2311	1654	1287
	12,0	4,65	86,5	A15	4,8	69,3	2319	1703	1324
	12,0	5,54	122,8	A15	4,0	71,5	2328	1757	1366
	12,0	5,65	127,7	A15	3,9	72,0	2330	1769	1376
	12,0	7,05	198,8	A16	5,2	73,9	2338	1816	1412
CSR (2000)	13,0	1,75	15,3	AX13	3,3	58,2	2952	1429	1112
	13,0	2,40	28,8	A13	3,2	66,1	2985	1625	1264
	13,0	2,85	40,6	A14	4,1	69,2	2997	1701	1323
	13,0	3,60	64,8	A14	3,6	74,2	3018	1823	1418
	13,0	4,00	80,0	A14	3,3	76,0	3025	1866	1452
	13,0	4,65	108,1	A15	4,8	78,9	3037	1938	1507
	13,0	5,54	153,5	A15	4,0	81,5	3048	2002	1557
	13,0	5,65	159,6	A15	3,9	81,9	3049	2013	1565
	13,0	7,05	248,5	A16	5,2	84,8	3061	2083	1620

¹ m³/h = Volume flow of the loading pump (60°C)² mbar = Heating-side flow resistance in the heating battery³ Loading pump Biral = The charging pump is to be understood as a guideline and must be recalculated for the specific design.⁴ kW = Power input at 45/10°C⁵ dm³/10 min. = Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C.⁶ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

The number of flats with heat pumps depends on many factors and has to be calculated correspondingly!

■ Technical data

Hot water output

Heating up with the boiler, heating flow 70°C

CombiVal Type	Heating surface			Loading pump Biral ¹		Hot water output			kW ⁶	Flats ⁷
	m ²	m ³ /h ²	mbar ³	Type	mWC	dm ³ /10 min. ⁴	45°C	60°C		
CSR (300)	2,9	1,0	35	AX12	2,5	542	808,5	566,0	32,9	14
	2,9	2,0	140	AX13	3,0	586	1072,3	750,6	43,6	17
CSR (400)	3,5	1,0	38	AX12	2,5	695	920,6	644,5	37,5	17
	3,5	2,0	152	AX13	3,0	746	1226,3	858,4	49,9	23
CSR (500)	4,9	1,0	59	AX12	2,5	861	1099,3	769,5	44,7	23
	4,9	2,0	236	AX13	3,0	938	1562,6	1093,8	63,6	33
CSR (800)	6,7	1,5	41	AX13	3,8	1260	1051,1	735,8	42,8	26
	6,7	2,5	113	A13	3,2	1295	1257,0	879,9	51,2	30
	6,7	3,5	221	A15	5,8	1318	1397,9	978,5	56,9	33
CSR (1000)	6,7	1,5	41	AX13	3,8	1532	1051,1	735,8	42,8	29
	6,7	2,5	113	A13	3,2	1567	1257,0	879,9	51,2	35
	6,7	3,5	221	A15	5,8	1590	1397,9	978,5	56,9	37
CSR (1000)	10,0	1,5	32	AX13	3,8	1576	1315,2	920,6	53,5	35
	10,0	2,5	88	A13	3,2	1627	1622,4	1135,7	66,0	41
	10,0	3,5	172	A14	3,6	1672	1889,1	1322,4	76,9	47
CSR (1250)	10,0	3,0	9	A14	4,0	1993	1779,8	1245,9	72,4	49
	10,0	4,0	17	A14	3,3	2020	1945,3	1361,7	79,2	53
CSR (1500)	12,0	3,0	12	A14	4,0	2374	2034,5	1424,2	82,8	59
	12,0	4,0	23	A14	3,3	2410	2249,9	1575,0	91,6	64
CSR (2000)	13,0	3,0	15	A14	4,0	3075	2166,9	1516,9	88,2	70
	13,0	4,0	29	A14	3,3	3111	2381,8	1667,3	97,0	75

Heating up with the boiler, heating flow 80°C

CombiVal Type	Heating surface			Loading pump Biral ¹		Hot water output			kW ⁶	Flats ⁷
	m ²	m ³ /h ²	mbar ³	Type	mWC	dm ³ /10 min. ⁴	45°C	60°C		
CSR (300)	2,9	1,0	59	AX12	2,5	592	1110	777	45,2	12
	2,9	2,0	140	AX13	3,0	654	1484	1039	60,4	17
CSR (400)	3,5	1,0	38	AX12	2,5	746	1227	859	49,9	15
	3,5	2,0	152	AX13	3,0	823	1687	1181	68,7	21
CSR (500)	4,9	1,0	59	AX12	2,5	924	1474	1032	60,0	20
	4,9	2,0	236	AX13	3,0	1037	2151	1506	87,6	29
CSR (800)	6,7	1,5	41	AX13	3,8	1324	1434	1004	58,4	34
	6,7	2,5	113	A13	3,2	1376	1747	1223	71,1	41
	6,7	3,5	221	A15	5,8	1410	1951	1366	79,4	45
CSR (1000)	6,7	1,5	41	AX13	3,8	1596	1434	1004	58,4	37
	6,7	2,5	113	A13	3,2	1648	1747	1223	71,1	44
	6,7	3,5	221	A15	5,8	1682	1951	1366	79,4	49
CSR (1000)	10,0	1,5	32	AX13	3,8	1655	1785	1250	72,7	45
	10,0	2,5	88	A13	3,2	1730	2237	1566	91,0	55
	10,0	3,5	172	A14	3,6	1793	2617	1832	106,5	64
CSR (1250)	10,0	3,0	9	A14	4,0	2147	2706	1894	110,2	70
	10,0	4,0	17	A14	3,3	2195	2991	2094	121,8	77
CSR (1500)	12,0	3,0	12	A14	4,0	2545	3058	2140	124,5	83
	12,0	4,0	23	A14	3,3	2602	3402	2382	138,5	91
CSR (2000)	13,0	3,0	15	A14	4,0	3248	3207	2245	130,5	95
	13,0	4,0	29	A14	3,3	3315	3609	2526	146,9	105

¹ Loading pump Biral = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70°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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

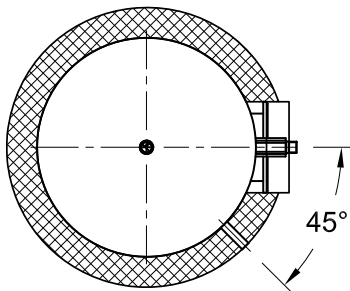
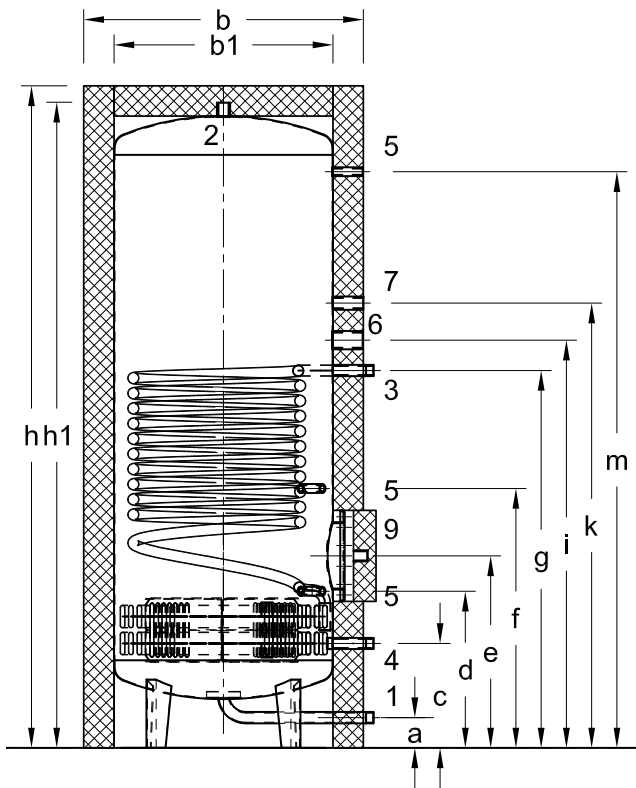
⁶ kW = Power input at 45/10°C

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)

■ Dimensions

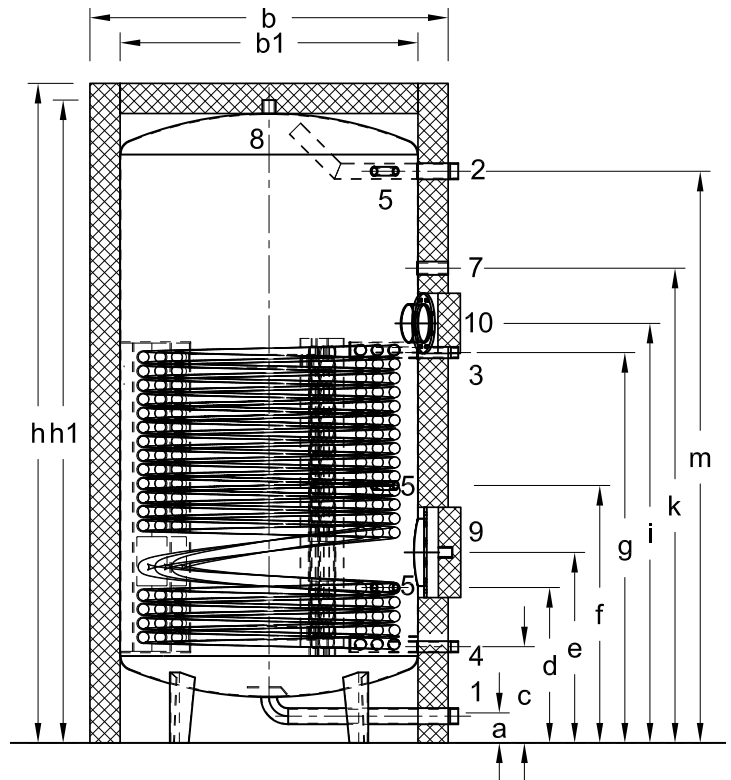
CombiVal CSR (300-540)

(Dimensions in mm)

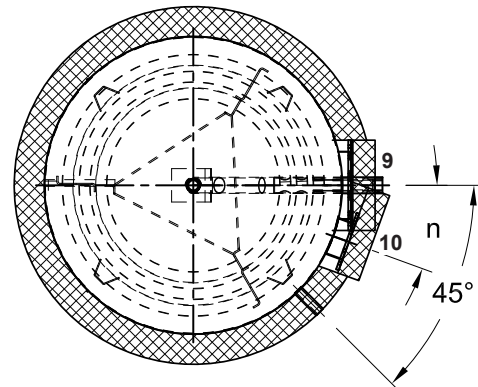


- 1 Cold water Type (300-500), R 1" Type (800-2000), R 1½"
- 2 Hot water Type (300-500), Rp 1" Type (800-2000), R 1½"
- 3 Flow heating Type (300-1000), R 1" Type (1250-2000), R 1½"
- 4 Return heating Type (300-1000), R 1" Type (1250-2000), R 1½"
- 5 Sleeves Rp ½" for sensor, thermostat, thermometer
Immersion sleeve length 200 mm, Ø 8 mm internal, installed

CombiVal CSR (800-2000)



CSR (800,1000): plain tube heating battery 6,7 m² = double wound
 CSR (1000-2500): plain tube heating battery 10-13m² = triple wound



- 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 and flange cover with 1½" sleeve
- 10 Hand hole flange (flange electrical heating inset) Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10

CombiVal Type CSR	Heating surface m²	b Ø	b1 Ø	h	h1	a	c	d	e	f	g	i	k	m	n	Tilting measure
(300)	2,9	680	500	1930	1890	90	310	465	570	770	1300	1410	1510	1710	-	1920
(400)	3,5	780	600	1875	1830	80	310	465	570	770	1300	1410	1510	1630	-	1865
(500)	4,9	830	650	1960	1915	90	310	465	570	770	1120	1210	1320	1710	-	1950
(800)	6,7	970	790	2000	1923	80	310	465	570	950	1190	1255	1370	1710	25°	1990
(1000)	6,7	1070	890	2000	1923	80	310	465	570	950	1190	1255	1420	1710	20°	2000
(1000)	10	1070	890	2000	1923	80	310	465	570	950	1190	1255	1420	1710	20°	2000
(1250)	10	1170	950	2020	1928	90	310	650	570	895	1110	1310	1210	1710	20°	2050
(1500)	12	1320	1100	2050	1943	70	310	650	570	895	1110	1310	1210	1710	15°	2150
(2000)	13	1420	1200	2070	1978	70	310	650	570	895	1045	1245	1145	1710	15°	2260

■ Engineering

General information

Instructions and guidelines

The following instructions and guidelines have to be observed:

- Technical data and mounting instructions of Hoval.
- Hydraulic instructions
- Heating water requirement:
Total hardness less than 1°f.
PH-value 8,3 - 9,5 and for appliances with parts made of aluminium or nonferrous metal 8,3 - max. 9. Oxygen content < 0,1 mg/l
- Directives SVGW.
- Instructions of the local firepolice as well as country specific instructions.
- VKF fire protection regulations.
- SWKI directive 92-1 hydraulic circuit of heat pump heating systems.
- FWS (Swiss Society for Promotion of Heat Pumps) and AWP (Working Committee for Heat Pumps) guidelines and leaflets.
- Directives SWKI 97-1 „Water treatment for heating, steam, cooling and air conditioning installations“.
- Directives SWKI 93-1 „Safety-related device for heating systems“
- Directives „Procal“ Protection against corrosion and boiler scale formation in heating and service water installations“.
- Instructions of the power station (concerning heat input of the electrical heating inset).
- Instructions concerning working pressure and working temperature.

Dimensioning

approximate hot water demand

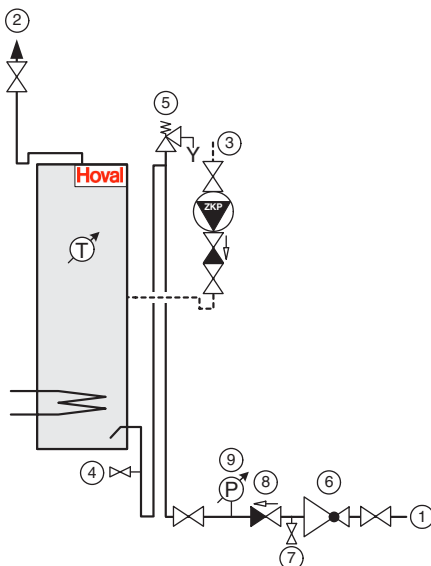
- Bases according Procal (KRW1.12.81)
- Notes see also „Calorifier“, „Engineering hot water“.
- In apartment construction, the average hot water demand comports 30 - 50 dm³ at 60 °C per person and day.

Notice

- Planning notes,
- Heat source usage,
- Application examples with functional diagrams and functional description,
- Energy requirements,
- Installation notes see Engineering

Plumbing

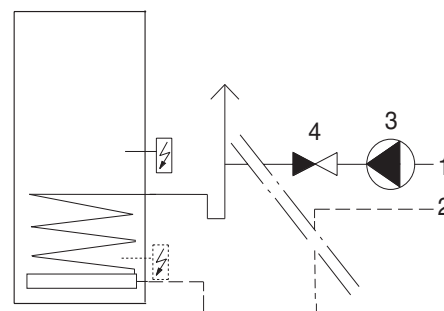
- For electrical heating a hot water distribution system without circulation is to be planned if possible.
- The hot water pipe is thermally insulated and siphoned (minimum ≥ 200 mm) to install.
- Maximum safety adjustment: 1 bar less than the maximum operating pressure



- 1 Cold water
- 2 Hot water
- 3 Circulation
- 4 Drain
- 5 Safety valve
- 6 Pressure reduction valve
- 7 Testing device
- 8 Return flow inhibitor
- 9 Connection for pressure gauge

Heating assembly

- Flow and return should be connected in such a way, that with switched off loading 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).
- There should be installed an automatic aspirator in the heating water flow.
- Mount vent at the top of the hot water pipe.

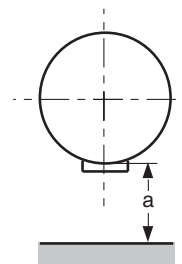


- 1 Flow
- 2 Return
- 3 Loading pump
- 4 Pressure reduction valve

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	litre	a
CombiVal CSR	300 - 540	≥ 600
CombiVal CSR	800 - 2000	≥ 950



■ Description

Hoval calorifier

MultiVal ERR (300,400,500)

- Calorifier made of steel enamelled inside
- 2 smooth pipe heat exchanger 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 Polyurethan hard foam hulls, foamed on the calorifier
- Dismantable foil casing, red coloured
- Sensor channel
- with 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

Hoval calorifier

MultiVal ERR (800,1000)

- Calorifier made of steel enamelled inside
- 2 smooth pipe heat exchanger enamelled, built in
 - for alternative use at the bottom
 - for additional heating with an oil, gas or wood boiler at the top
- Thermal insulation made of polyurethan soft foam with polystyrene hard shell, red coloured
- Sensor channel
- including thermometer
- 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

Delivery

- Calorifier, thermal insulation set and thermometer delivered separately packed

On request

- Flange-electrical heating inset

On site

- Mounting of thermal insulation

Flange-electrical heating inset for MultiVal ERR (300-1000)

Type EFHR 4 to EFHR 9

- made of Incoloy® alloy 825
- Heat input 4,3 to 8,5 kW, according to rules of the power station
- incl. temperature control and overheating protection
- Connection 3 x 400 V (factory set-up), resp. 1 x 230 V

Delivery

- Delivered separately packed

On site

- Installation of the heating inset

Screw-in electrical heating inset for MultiVal ERR (300-500)

Type EP-2 to EP-6

- made of Incoloy® alloy 825
- Heat input 2,0 - 6,0 kW
- including temperature control and overheating protection Connection: EP-2 with 1 x 230 V, EP-3 to EP-6 with 3 x 400 V
- No use for exclusively electrical heating.

Delivery

- Delivered separately packed

On site

- Installation of the electrical heating inset



MultiVal ERR (300,400,500)



MultiVal ERR (800,1000)

Range MultiVal

ERR	(300)
ERR	(400)
ERR	(500)
ERR	(800)
ERR	(1000)

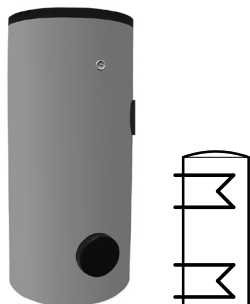
Certifications

MultiVal ERR
(300-1000)

Test number of SVGW *
0503 - 4950

* Swiss Association for Gas and Water Supply

■ Part N°



Calorifier ERR

Part N°

Calorifier

MultiVal ERR (300,400,500)

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

MultiVal Type	volume litre	
ERR (300)	300	7004 089
ERR (400)	390	7005 469
ERR (500)	480	7004 090

Calorifier

MultiVal ERR (800,1000)

Made of steel enamelled inside, with 2 heat exchangers. Calorifier and thermal insulation set delivered separately packed.

MultiVal Type	volume litre	
ERR (800)	750	7010 171
ERR (1000)	950	7010 172

Accessories

Flange-electrical heating inset for MultiVal ERR (300-1000)

Heat input [kW]
according to rules of the power station



Type	Heat input 3 x 400 V [kW]	Changeable to	Install. depth mm	MultiVal ERR	
<i>MultiVal ERR (300-500) mountable only below</i>					
<i>MultiVal ERR (800,1000) mountable only above</i>					
4-180	4,3		380	(300-1000)	6032 215
		2,9 kW/3x400 V			
		2,1 kW/3x400 V			
		1,4 kW/1x230 V			
6-180	6,0		440	(400-1000)	6032 216
		4,0 kW/3x400 V			
		3,0 kW/3x400 V			
		2,0 kW/1x230 V			
<i>MultiVal ERR (800,1000) mountable only below</i>					
9-250	8,5		380	(800-1000)	6032 217
		5,7 kW/3x400 V			
		4,2 kW/3x400 V			
		2,8 kW/1x230 V			

Screw-in electrical heating inset for MultiVal ERR (300-500)

Incl. 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	for CombiVal ERR	
<i>MultiVal ERR (300-500) mountable only above</i>					
EP-2	2,0	1 x 230	500	(300-500)	2002 412
EP-3	3,0	3 x 400	390	(300-500)	2022 216
EP-4,5	4,5	3 x 400	500	(300-500)	2022 217
EP-6	6,0	3 x 400	620	(500)	2022 218

■ Part N°

Part N°



Correx external current-anode
for long-term corrosion protection for installation in the water heater instead of magnesium protection anodes inclusive reducing elbow fitting.

6847 60

Either a correx external current-anode **or** one and/or two magnesium anodes may be used.



Cable sensor KVT 20/5/6S
5 m cable and plug

6012 687



Cable sensor KVT 20/5/6
with 5 m cable

2022 992



Temperature sensor TF 25/12K
with cable for connection to modulating gas boiler with TopTronic® RS-OT

2426 17

At TopTronic®T - temperature sensor is included in the boiler control or in the control set.



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 6K, 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 3/4"
Hot water temperature max. 90°C
Adjustment range 30-60°C
Flow rate 27 l/min (at Δp = 1 bar)
Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes
see Solar/Solar armature groups

■ Technical data

Calorifier

Type		(300)	(400)	(500)	(800)	(1000)
• Content (lower battery)	litre	300	380	480	750	950
• Content (upper battery)	litre	110	148	195	305	380
• Working pressure / test pressure	bar	6 / 12	6 / 12	6 / 12	6 / 12	6 / 12
• Working temperature maximal	°C	95	95	95	95	95
• Thermal insulation PU-foam	mm	50	50	50	100	100
• Thermal conductance λ	Watt/mK	0,034	0,034	0,034	0,039	0,039
• Stand still loss qB at 60 °C	W	96	114	127	163	181
• Weight	kg	106	130	160	217	275
• For flat collectors up to	m²	8	10	11	16	20
• Dimensions	see table of dimensions					
Heating battery low						
• Heating surface	m²	1,55	1,80	1,90	2,80	3,40
• Heating water	litre	10,3	12,5	13,2	13,5	16,8
• Flow resistance water	z-value	10	12	13	5	7
• Flow resistance water / glykol 50 %	z-value	13	15	17	7	9
• max. working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110	110	110
Heating battery up						
• Heating surface	m²	0,80	1,00	1,30	1,20	1,20
• Heating water	litre	5,7	6,95	8,9	8,2	7,9
• Flow resistance ¹	z-value	6	8	9	7	7
• Working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110	110	110

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

■ Technical data

Hot water output

Heating-up with the boiler, upper heating battery – heating flow 70 °C

MultiVal Type	m³/h²	mbar³	loading pump Biral¹ Type	mWC	Hot water output			kW⁶	Flats⁷
					dm³/10 min.⁴	45 °C	60 °C		
ERR (300)	1,0	6	AX12	2,5	130	400	190	16,2	1
	2,0	23	AX13	3,0	135	460	225	18,7	1
	3,0	52	A13	2,6	145	510	255	20,7	1-2
ERR (400)	1,0	8	AX12	2,5	180	510	245	20,7	1-2
	2,0	32	AX13	3,0	188	575	283	23,4	2
	3,0	72	A13	2,5	200	635	318	25,8	2-3
ERR (500)	1,0	9	AX12	2,5	230	620	300	25,2	2
	2,0	35	AX13	3,0	240	690	340	28,0	3
	3,0	78	A13	2,5	255	760	380	30,9	3-4
ERR (800)	2,0	30	A13	3,0	440	575	295	23,3	3
	3,0	67	A13	2,5	450	635	335	25,8	4
	4,0	151	A15	5,2	460	685	590	27,8	5
ERR (1000)	2,0	28	A13	3,0	530	545	280	22,1	5
	3,0	63	A13	2,5	540	605	300	24,6	6
	4,0	143	A14	3,2	550	650	315	26,4	7

¹ loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °C/ 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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

Flange-electrical heating inset to MultiVal ERR (300-1000)

With temperature control and overheating protection.

Factory set-up: 3 x 400 V.

Heat input (kW) according to rules of the power works

Type EFHR	Factory setting Heat input [kW]	for MultiVal ERR
4-180	4,3	(300-1000)
6-180	6,0	(400-1000)
9-250	8,5	(800-1000)

Heating up with the electrical heating inset

MultiVal	Electrical heating-up litre	Persons ¹
ERR (300)	255	2-3
ERR (400)	355	3-4
ERR (500)	420	4-5
ERR (800)	630	8-10
ERR (1000)	840	12-14

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

■ Technical data

Hot water output

Heating-up with the boiler, upper heating battery – heating flow 80 °C

MultiVal Type	m³/h²	mbar³	loading pump Biral¹		Hot water output			kW⁶	Flats⁷
			Type	mWC	dm³/10 min.⁴	45 °C	60 °C		
ERR (300)	1,0	6	AX12	2,5	145	540	300	21,9	1
	2,0	23	AX13	3,0	150	610	350	24,8	1-2
	3,0	52	A13	2,5	155	675	390	27,4	1-2
ERR (400)	1,0	8	AX12	2,5	208	685	360	27,8	1-2
	2,0	32	AX13	3,0	215	785	430	31,9	2
	3,0	72	A13	2,6	223	875	485	35,6	2-3
ERR (500)	1,0	9	AX12	2,5	270	830	420	33,7	3
	2,0	35	AX13	3,0	280	960	510	39,0	3-4
	3,0	78	A13	2,6	290	1075	580	43,6	4
ERR (800)	2,0	30	A13	2,5	450	765	420	31,1	3
	3,0	67	A13	2,5	455	840	450	34,1	4
	4,0	151	A15	5,2	465	895	470	36,3	5
ERR (1000)	2,0	28	A13	3,0	540	705	425	28,6	5
	3,0	63	A13	2,5	550	800	430	32,5	6
	4,0	143	A14	3,2	560	850	445	34,5	7

¹ loading pump = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °C/ 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.

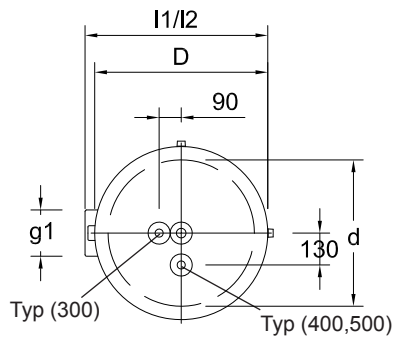
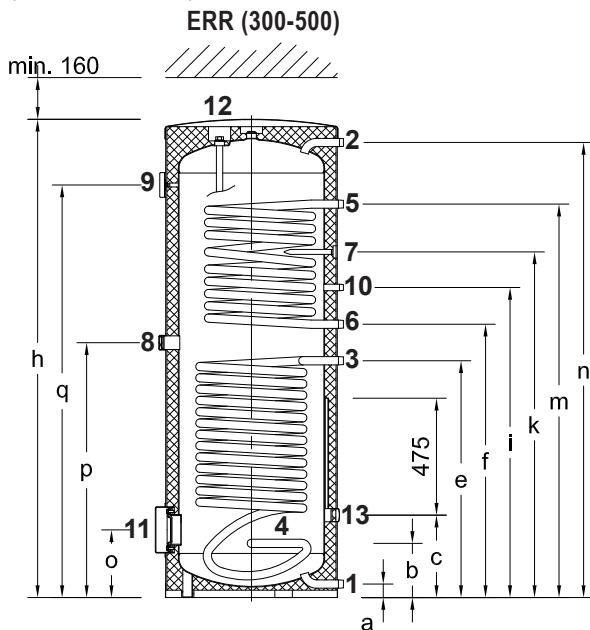
⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

■ Dimensions

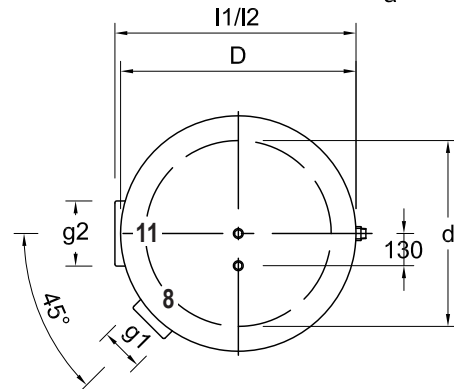
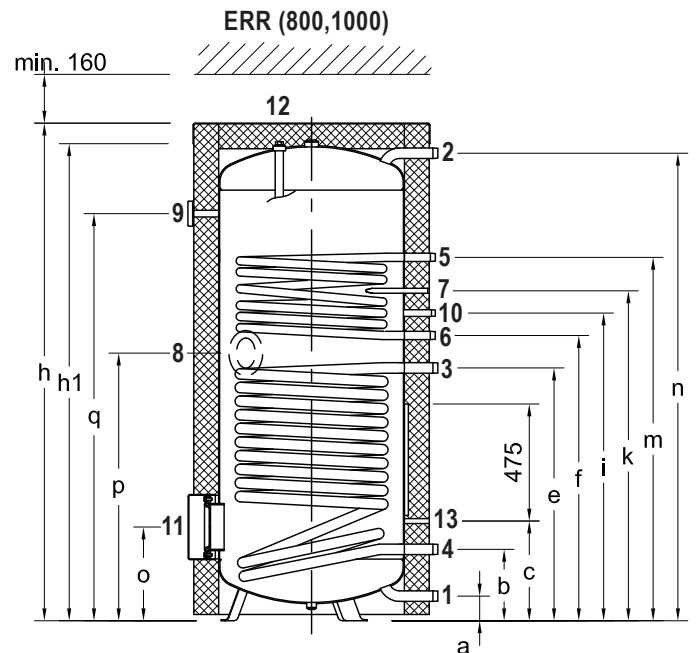
(dimensions in mm)



- 1 Cold water R1"
- 2 Hot water R1"
- 3 Flow solar circuit R1"
- 4 Return solar circuit R1"
- 5 Flow re-heating R1"
- 6 Return re-heating R1"
- 7 Connection for capillar-thermostat, cable sensor
- 8 Connection for screw-in electrical heating inset Rp 1 1/2"
- 9 Thermometer
- 10 Circulation R 3/4"
- 11 Hand hole-flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10
- 12 Anode sleeve Rp 1"
- Type (300,500) screw connection uninsulated
- 13 Removable cap for positioning the sensor in the sensor channel

MultiVal ERR Type	d	D	Ø g1	Ø g2*	I1	I2*
(300)	500	600	180	-	645	685
(400)	597	700	180	-	745	785
(500)	597	700	180	-	745	785
(800)	750	950	180	280	975	1020
(1000)	850	1050	180	280	1075	1120

* using a flange electrical immersion heater



- 1 Cold water R 1 1/4"
- 2 Hot water R 1 1/4"
- 3 Flow solar circuit R 1 1/4"
- 4 Return solar circuit R 1 1/4"
- 5 Flow re-heating R 1"
- 6 Return re-heating R 1"
- 7 Connection for sensor, thermostat, thermometer
- 8 Hand hole flange (flange electrical heating inset) Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10
- 9 Thermometer
- 10 Circulation R 3/4"
- 11 Hand hole-flange (flange electrical heating inset) Ø 257/180, pitch circle Ø 225 mm, 10 x M10
- 12 Anode sleeve Rp 1 1/4"
- Type (800,1000), Screw connection insulated
- 13 Removable cap for positioning the sensor in the sensor channel

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

MultiVal ERR Type	a	b	c	e	f	h	h1	i	k	m	n	o	p	q	Tilting measure
(300)	90	255	335	965	1065	1835	-	1180	1290	1425	1729	325	1015	1505	1892
(400)	55	221	336	909	1007	1621	-	1125	1224	1355	1526	276	958	1355	1710
(500)	55	221	336	966	1115	1951	-	1265	1410	1605	1856	276	1040	1683	2044
(800)	99	287	401	1019	1150	2033	1931	1240	1330	1465	1885	377	1085	1642	1973
(1000)	103	298	412	1030	1154	2063	1962	1244	1334	1424	1902	387	1085	1653	2003

■ Description

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 external 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
- 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
- External current protection anode built-in
- 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
- Thermal insulation made of polyurethane hard foam hulls, Colour red
- Sensor channel
- With thermometer

Delivery

- Calorifier and thermal insulation delivered separately packed.

On request

- Flange electrical heating inset

On site

- Mounting of thermal insulation

Screw-in electrical heating inset

Type EP-2 to EP-4,5

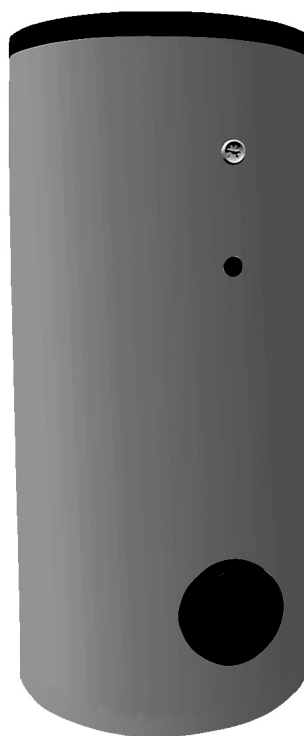
- made of Incoloy® alloy 825
- Heat input 2,0 to 4,5 kW
- including temperature control and overheating protection
- Connection EP-2 with 1 x 230 V, EP-3 to EP-4.5 with 3 x 400 V
- No use for exclusively electrical heating

Delivery

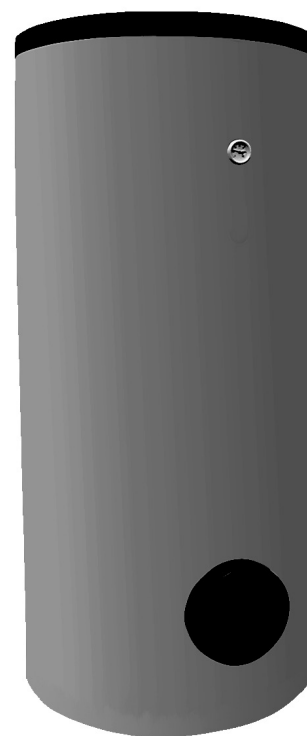
- Delivered separately packed

On site

- Installation of the electrical heating inset



MultiVal ESRR (500)



MultiVal ESRR (800,1000)

Range

MultiVal ESRR

(500)
(800)
(1000)

Certifications

MultiVal ESRR
(500-1000)

Test number of SVGW *
0503-4950

* Swiss Association for Gas and Water Supply

Flange-electrical heating inset

Type EFHR 4 to EFHR 9

- made of Incoloy® alloy 825
- Heat input 4,3 to 8,5 kW, according to rules of the power station
- incl. temperature control and overheating protection
- Connection 3 x 400 V

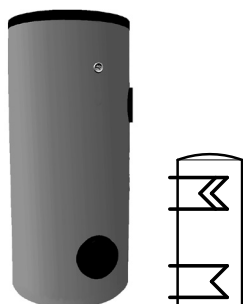
Delivery

- Delivered separately packed

On site

- Installation of the heating inset

■ Part N°


Calorifier
MultiVal ESRR (500-1000)
Part N°

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 litre	heat exchanger surface		
		top m²	bottom m²	
(500)	420	4,3	1,85	7011 271
(800)	690	5,2	2,6	7010 174
(1000)	900	6,1	3,4	7010 175

Accessories**Screw-in electrical heating inset**

Incoloy® alloy 825, incl. temperature control and overheating protection. Delivered separately, installation on-site.
 No use for exclusively electrical heating.



Type	Heat input kW	Voltage [V]	Installation length mm	for MultiVal ESRR	
<i>MultiVal ESRR (500) mountable only above</i>					
EP-3	3,0	3 x 400	390	(500)	2022 216
EP-4,5	4,5	3 x 400	500	(500)	2022 217
EP-6	6,0	3 x 400	620	(500)	2022 218

Flange-electrical heating inset EFHR for
MultiVal ESRR (500-1000)

Type EFHR	Heat input 3 x 400 V [kW]	Changeable to	Install. lenght mm	MultiVal ESRR	
<i>MultiVal ESRR (500) mountable only below</i>					
<i>MultiVal ESRR (800,1000) mountable only above</i>					
4-180	4,3		380	(500-1000)	6032 215
		2,9 kW/3x400 V			
		2,1 kW/3x400 V			
		1,4 kW/1x230 V			
6-180	6,0		440	(500-1000)	6032 216
		4,0 kW/3x400 V			
		3,0 kW/3x400 V			
		2,0 kW/1x230 V			
<i>MultiVal ESRR (800,1000) mountable only below</i>					
9-250	8,5		380	(800,1000)	6032 217
		5,7 kW/3x400 V			
		4,2 kW/3x400 V			
		2,8 kW/1x230 V			



■ Part N°

Part N°



Cable sensor KVT 20/5/6S
5 m cable and plug

6012 687



Cable sensor KVT 20/5/6
with 5 m cable

2022 992



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 6K,
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 Δp = 1 bar)
Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes
see Solar/Solar armature groups



Correx external current-anode
for long-term corrosion protection for
installation in the water heater instead
of magnesium protection anodes inclusive
reducing elbow fitting.

6847 60

Either a correx external current-anode or
one and/or two magnesium anodes may be
used.

■ Technical data

Calorifier MultiVal ESRR

Hoval MultiVal ESRR		(500)	(800)	(1000)
• Content (lower battery)	litre	420	686	897
• Content (upper battery)	litre	280	444	535
• Working pressure / test pressure	bar	6 / 12	6 / 12	6 / 12
• Working temperature maximal	°C	95	95	95
• Thermal insulation	mm	50	100	100
• Thermal conductance λ	Watt/mK	0,034	0,04	0,04
• Stand still loss qB at 60 °C	W	127	163	181
• Weight	kg	230	282	365

• Dimensions see table of dimensions

Heating battery low (built in)		Plain tube heat exchanger for solar use		
• Heating surface	m ²	1,85	2,6	3,4
• Heating water content	litre	13	17,8	24,1
• Flow resistance water ¹	z-value	3,5	4,5	7,5
Flow resistance water / glykol 50 %	z-value	4,6	5,8	10
• max. working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110
• For flat collectors up to ²	m ²	11	15	20

Heating battery up (built in)		Plain tube heat exchanger for heat pumps		
• Heating surface	m ²	4,3	5,2	6,1
• Heating water content	litre	30,1	36,1	42,6
• Flow resistance ¹	z-value	8	8	10
• Working pressure / test pressure	bar	8 / 13	8 / 13	8 / 13
• Working temperature maximal	°C	110	110	110

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

² Collector surface, related to the heat exchanger heating surface only

Hot water output

Heating-up with the boiler, heating flow 60°C

MultiVal Type	Heating surface			Loading pump Biral ³		kW ⁴	Hot water output		
	m ²	m ³ /h ¹	mbar ²	Type	mWC		dm ³ /10 min. ⁵	45°C	55°C
ESRR (500)	4,3	1,0	4	AX12	2,5	27,4	300	674	551
		2,0	14	AX13	3,0	36,8	410	903	739
		3,0	32	A13	2,8	42,5	470	1045	855
ESRR (800)	5,2	3,0	41	A13	2,8	54,3	440	1335	1092
		3,5	55	A14	3,6	56,8	460	1395	1141
		4,0	72	A14	3,3	59,2	480	1455	1190
		4,5	91	A15	4,8	61,0	500	1500	1227
ESRR (1000)	6,1	3,0	68	A13	2,8	64,8	530	1593	1303
		3,5	92	A14	3,6	67,8	550	1665	1362
		4,0	120	A14	3,3	70,7	570	1736	1420
		4,5	152	A15	4,8	72,8	590	1790	1465

1 m³/h Volume flow of the loading pump (60°C)

2 mbar Heating-side flow resistance in the heating battery

3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.

4 kW Power input at 45/10°C

5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60°C.

6 dm³/h Continuous output per hour. Cold water temperature 10°C

Hot water outputs and maximum hot water temperatures in heating systems with heat pumps on demand.

■ Technical data

Heating-up with the boiler, heating flow 70°C

MultiVal Type	Heating surface m ²	m ³ /h ¹	mbar ²	Loading pump Biral ³		kW ⁴	Hot water output			Wohnungen ⁷
							dm ³ /10 min. ⁵	dm ³ /h ⁶	60°C	
ESRR500	4,3	1,0	4	AX12	2,5	41,7	390	1025	769	8
		2,0	14	AX13	3,0	56,0	520	1375	1031	12
		3,0	32	A13	2,8	64,7	600	1590	1193	17
ESRR800	5,2	3,0	41	A13	2,8	85,8	700	2109	1582	19
		3,5	55	A14	3,6	89,7	730	2204	1653	21
		4,0	72	A14	3,3	93,6	760	2299	1724	22
		4,5	91	A15	4,8	96,5	780	2370	1778	24
ESRR1000	6,1	3,0	68	A13	2,8	87,3	710	2145	1609	21
		3,5	92	A14	3,6	91,2	740	2241	1681	23
		4,0	120	A14	3,3	95,2	770	2338	1754	25
		4,5	152	A15	4,8	98,1	800	2410	1808	26

- 1 m³/h Volume flow of the loading pump (70°C)
2 mbar Heating-side flow resistance in the heating battery
3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.
4 kW Power input at 45/10°C
5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60°C.
6 dm³/h Continuous output per hour. Cold water temperature 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)

Heating-up with the boiler, heating flow 80°C

MultiVal Type	Heating surface m ²	m ³ /h ¹	mbar ²	Loading pump Biral ³		kW ⁴	Hot water output			Wohnungen ⁷
							dm ³ /10 min. ⁵	dm ³ /h ⁶	60°C	
ESRR500	4,3	1,0	4	AX12	2,5	55,2	450	1357	1018	12
		2,0	14	AX13	3,0	74,1	600	1820	1365	16
		3,0	32	A13	2,8	85,7	690	2105	1579	19
ESRR800	5,2	3,0	41	A13	2,8	104,7	850	2572	1929	24
		3,5	55	A14	3,6	109,4	890	2688	2016	25
		4,0	72	A14	3,3	114,1	920	2803	2102	26
		4,5	91	A15	4,8	117,6	950	2890	2168	27
ESRR1000	6,1	3,0	68	A13	2,8	109,9	890	2701	2026	28
		3,5	92	A14	3,6	114,9	930	2823	2117	29
		4,0	120	A14	3,3	119,8	970	2944	2208	30
		4,5	152	A15	4,8	123,5	1000	3035	2276	31

- 1 m³/h Volume flow of the loading pump (80°C)
2 mbar Heating-side flow resistance in the heating battery
3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.
4 kW Power input at 45/10°C
5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60°C.
6 dm³/h Continuous output per hour. Cold water temperature 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)

Hot water outputs and maximum hot water temperatures in heating systems with heat pumps on demand.

■ Technical data

Screw-in electrical heating inset

Incoloy® alloy 825, incl. temperature control and overheating protection.

Delivered separately, installation on-site.

Heat input (kW) according to rules of the power works.

No use for exclusive electrical heating.

Type	Heat input kW	Voltage [V]	Installation depth mm	for MultiVal ESRR
EP-2	2,0	1 x 230	500	(500)
EP 3	3,0	3 x 400	390	(500)
EP 4,5	4,5	3 x 400	500	(500)

Heating-up with the electrical heating inset

MultiVal ESRR Type	A		B		C	
	Electrical heating-up dm ³	Persons ¹	Electrical heating-up dm ³	Persons ¹	Electrical heating-up dm ³	Persons ¹
(500)	100	1-2	-	-	380	5-6
(800)	-	-	170	2-3	609	10-12
(1000)	-	-	200	3-4	780	13-15

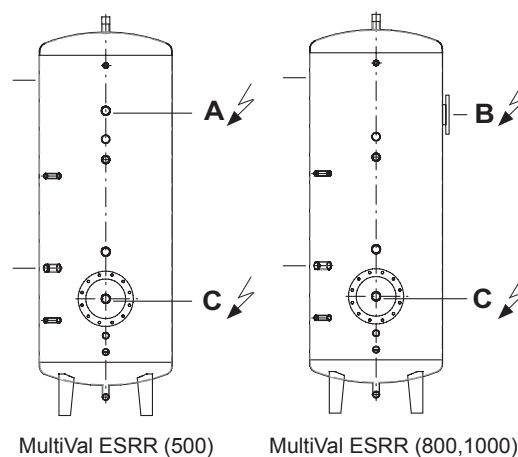
¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

A Screw-in electrical heating inset, mounted in separate connection piece
for the type MultiVal ESRR (500)

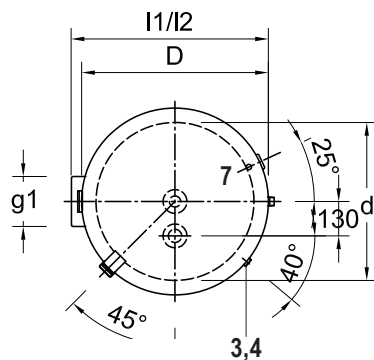
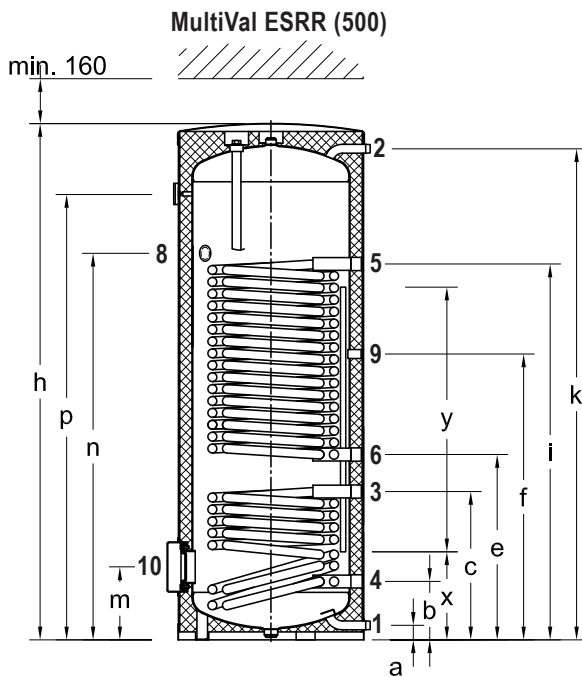
B Flange-Electrical heating inset, mounted in flange
for the type MultiVal ESRR (800, 1000)

C Flange electrical heating inset, mounted in the flange
for the type MultiVal ESRR (500-1000)

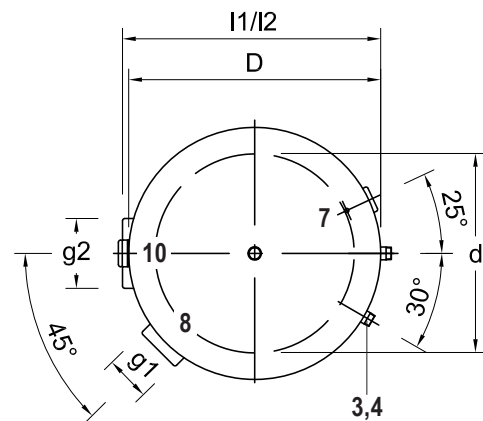
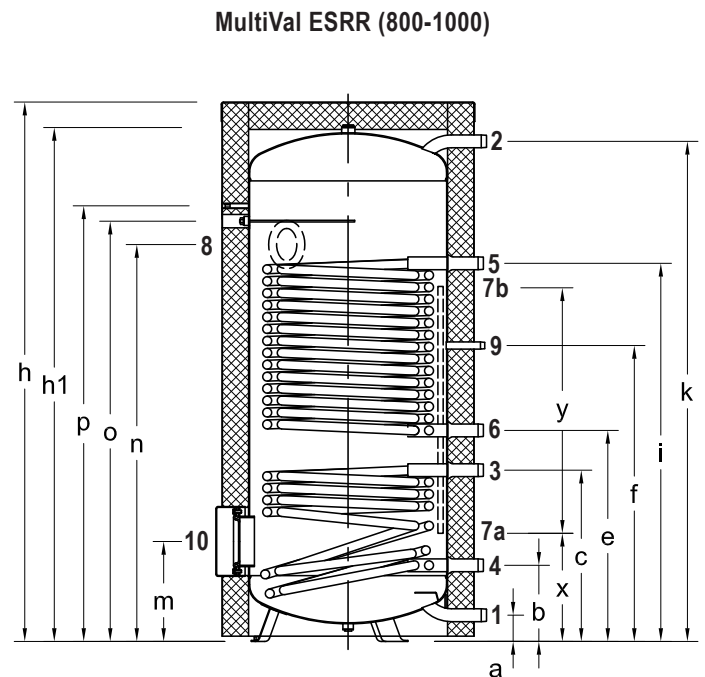


■ Dimensions

(all dimensions in mm)



- 1 Cold water R 1"
- 2 Hot water R 1"
- 3 Flow solar circuit Rp 1¼"
- 4 Return solar circuit 1¼"
- 5 Heating flow Rp 1¼"
- 6 Heating return Rp 1¼"
- 7 Sensor channel Ø inside 11 mm
- 8 Connection for screw-in electrical heating inset Rp 1½"
- 9 Circulation Rp ¾"
- 10 Hand hole flange (flange electrical heating inset) Ø 180/120 mm, pitch circle 150 mm, 8 x M10



- 1 Cold water R 1½"
- 2 Warm water R 1½"
- 3 Flow solar circuit R 1½"
- 4 Return solar circuit R 1½"
- 5 Heating flow R 1½"
- 6 Heating return R 1½"
- 7 Sensor channel Ø innen 11 mm
- 7a Lower end sensor duct
- 7b Upper end sensor duct
- 8 Hand hole flange(flange electrical heating inset) Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10
- 9 Circulation R ¾"
- 10 Hand hole flange (flange electrical heating inset) Ø 257/180 mm, pitch circle Ø 225 mm, 10 x M10

MultiVal ESRR	a	b	c	d	D	e	f	Ø g1	Ø g2	h	h1	i	k	l1	l2	m	n	o	p	x	y	Tilting measure
(500)	55	221	561	597	700	701	1080	180	-	1921	-	1421	1859	745	785	275	1438	-	1683	320	960	1990
(800)	99	287	645	750	950	795	1116	180	280	2033	1937	1426	1885	975	1020	377	1490	1471	1642	511	1000	1962
(1000)	103	297	701	850	1050	851	1171	180	280	2063	1963	1481	1902	1075	1120	387	1545	1526	1652	504	1000	1991

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

Description

Hoval Calorifier

MultiVal CRR (300-1000)

- Calorifier made of stainless steel
- Thermal insulation made of 80 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
(300-800) 2-part
(1000) 3-part
- MultiVal CRR (300-500)
1½" sleeve for the installation of a screw-in electrical heating inset
- MultiVal CRR (630-1000)
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 the installation of a screw-in electrical heating inset by means of flange cover with 1½" sleeve
- Thermometer separate (enclosed)
- 2 smooth pipe heat exchangers made of steel, integrated
 - below for the alternative use as flat register at (800,1000)
 - above for supplemental heating with oil, gas oder wood boiler
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier fully cased

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

Hoval Calorifier

MultiVal CRR (1250-2000)

- Calorifier made of stainless steel
- Thermal insulation made of 100 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, (1250-2000) red coloured 3-part
- Thermometer separate (enclosed)
- 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 of a screw-in electrical heating inset by means of flange cover with 1½" sleeve
- 2 smooth pipe heat exchangers made of steel, integrated
 - below for the alternative use as flat register at (800,1000)
 - above for supplemental heating with oil, gas oder wood boiler
- For drinking water up to max. 70 mg/l chloride content

Delivery

- Calorifier, thermal insulation set and thermometer delivered separately packed

On site

- Mounting of the thermal insulation

On request

- Screw-in electrical heating inset
- Flange cover with sleeve for the installation of a screw-in electrical heating inset
- Flange electric heating inset for upper flange

Screw-in electrical heating inset for MultiVal CRR (300-2000)

Type EP-2 to EP-9

- made of Incoloy® alloy 825
- Heat input 2,0 - 9 kW
- incl. temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-9 with 3 x 400 V
- No use for exclusively electrical heating.

Delivery

- Delivered separately packed

On site

- Installation of the electrical heating inset



MultiVal CRR (800)

Range MultiVal

CRR	(300)
CRR	(500)
CRR	(630)
CRR	(800)
CRR	(1000)
CRR	(1250)
CRR	(1500)
CRR	(2000)

Certifications

MultiVal CRR
(300 - 2000)

Test number of SVGW *
0009 - 4304

* Swiss Association for Gas and Water Supply

Flange electrical heating insets for MultiVal CRR (630-2000)

Type EFHRC 4 to EFHRC 9

- Made of Incoloy® alloy 825
- Heat output 4,3 - 8,5 kW, according to the regulation of the current supplye
- With temperature regulation and overheating protection
- Connection 3 x 400 V

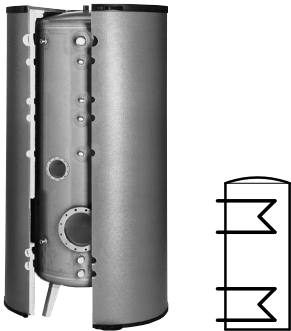
Delivery

- Delivered separately packed

On site

- Mounting of thermal insulation

■ Part N°



**Calorifier
MultiVal CRR (300-2000)**

Part N°

Calorifier made of stainless steel with integrated heat exchanger made of stainless steel.
MultiVal CRR (300-1000) fully cased
MultiVal CRR (1250-2000) Calorifier and thermal insulation packed separately

MultiVal Type	Volume litre	
CRR (300)	310	7007 957
CRR (500)	500	7010 196
CRR (630)	620	7010 197
CRR (800)	790	7010 198
CRR (1000)	1010	7010 219
CRR (1250)	1150	7010 220
CRR (1500)	1570	7010 221
CRR (2000)	2070	7010 222

■ Part N°

Accessories

Part N°

**Screw-in-electrical heating inset**

Incoloy® alloy 825, incl. temperature control and overheating protection.

Delivery separate, installation on-site

No use for exclusively electrical heating.

For installation below a flange cover with an 1½" sleeve is necessary.

Type	Heat input kW	Installation depth mm	for MultiVal Typ CRR
------	------------------	--------------------------	-------------------------

*MultiVal CRR (300-500) mountable above and below
MultiVal CRR (630-2000) mountable only below*

EP-3	3,0	3 x 400	390	(300-2000)	2022 216
EP-4,5	4,5	3 x 400	500	(300-2000)	2022 217
EP-6	6,0	3 x 400	620	(500-2000)	2022 218
EP-9	9,0	3 x 400	850	(800-2000)	2022 219

**Flange cover**

for the installation of the electrical heating inset in the flange below stainless steel, with 1½" sleeve

6000 647

**Cable sensor KVT 20/5/6S**

5 m cable and plug

6012 687

**Cable sensor KVT 20/5/6**

with 5 m cable

2022 992

**Temperature sensor TF 25/12K**

with cable for connection to modulating gas boiler with TopTronic® RS-OT

2426 17

At TopTronic®T - temperature sensor is included in the boiler control or in the control set.

**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 6K, 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 Δp = 1 bar)

Flow coefficient value (kvs) 1.62

2005 915

Further types/sizes

see Solar/Solar armature groups

■ Technical data

Calorifier MultiVal CRR (300-1000)

Type		(300)	(500)	(630)	(800)	(1000)
• Content (lower heating battery)	dm ³	310	500	620	790	1010
• Content (upper heating battery)	dm ³	120	205	260	345	405
• max. working pressure/test pressure	bar	6/12	6/12	6/12	6/12	6/12
• working temperature maximal	°C	95	95	95	95	95
• Thermal insulation bonded fabric	mm	80	80	80	80	80
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035	0,035
• Stand still loss at qB 60 °C	W	96	138	142	150	154
• Weight	kg	91	117	140	183	240
• For flat collectors up to	m ²	6	8	10	12	16

Dimensions

see table of dimensions

Heating battery at the bottom (built in)

• Heating surface	m ²	1,2	1,6	1,6	2,4	2,4
• Heating water content	dm ³	7,2	10,8	10,8	14,4	14,4
• Flow resistance ¹ water	z-value	14	19	19	35	35
• Flow resistance ¹ water/ glykol 50%	z-value	20	28	28	47	47
• max. working pressure/test pressure	bar	10/15	10/15	10/15	10/15	10/15
• working temperature maximal	°C	95	95	95	95	95

Heating battery on top (built in)

• Heating surface	m ²	0,6	1,2	1,2	1,35	1,35
• Heating water content	litre	4,5	7,3	7,3	9,10	9,10
• Flow resistance ¹	z-value	9	18	18	21	21
• max. working pressure/test pressure	bar	10/15	10/15	10/15	10/15	10/15
• working temperature maximal	°C	95	95	95	95	95

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

Screw-in electrical heating inset

Incoloy® alloy 825, with temperature control and overheating protection.

Delivery separate, installation on site.

Heat input (kW) according to rules of the power works.

Not only for electrical heating suitable.

Type	Heat input kW	Voltage [V]	Installation depth mm	for MultiVal CRR
EP-2	2,0	1 x 230	500	(300-2000)
EP-3	3,0	3 x 400	390	(300-2000)
EP-4,5	4,5	3 x 400	500	(300-2000)
EP-6	6,0	3 x 400	620	(500-2000)
EP-9	9,0	3 x 400	850	(800-2000)

Flange electrical heating inset

for upper flange

for MultiVal CRR (300-2000)

with temperature regulation and overheating protection.

Factory set-up: 3 x 400 V.

Heat output (kW) according to rules of the power works.

Type EFH.RC	Factory set-up Heat input [kW] 3 x 400 V	for MultiVal CRR
4-180	4,3	(630-2000)
6-180	6,0	(630-2000)
9-180	8,5	(630-2000)

Flange electrical heating inset

for lower flange

for MultiVal CRR (300-2000)

with temperature regulation and overheating protection.

Factory set-up: 3 x 400 V.

Heat output (kW) according to rules of the power works.

Type EFHRC	Factory set-up Heat input [kW] 3 x 400 V	for MultiVal CRR
4-270	4,3	(300-2000)
6-270	6,0	(630-2000)
9-270	8,5	(1000-2000)

■ Technical data

Calorifier MultiVal CRR (1250-2000)

Type		(1250)	(1500)	(2000)
• Content (lower heating battery)	litre	1150	1570	2070
• Content (upper heating battery)	litre	490	650	860
• Working pressure / test pressure	bar	6/12	6/12	6/12
• Working temperature maximal	°C	95	95	95
• Thermal insulation bonded fabric	mm	100	100	100
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035
• Stand still loss at qB 60 °C	W	163	175	200
• Weight	kg	261	266	364
• For flat collectors up to	m ²	16	18	20
• Dimensions	see table of dimensions			

Heating battery at the bottom (built in)

• Heating surface	m ²	3,0	3,5	4,0
• Heating water content	litre	28	32	37
• Flow resistance ¹ water	z-value	20	22	25
Polypropylenglycol/ water mixture 50 %	z-value	27	30	34
• Working pressure / test pressure	bar	10 / 15	10 / 15	10 / 15
• Working temperature maximal	°C	95	95	95

Heating battery on top (built in)

• Heating surface	m ²	1,35	1,70	1,70
• Heating water content	litre	10	13	13
• Flow resistance ¹¹	z-value	21	26	26
• Working pressure / test pressure	bar	10 / 15	10 / 15	10 / 15
• Working temperature maximal	°C	95	95	95

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

■ Technical data

Hot water output

Heating-up with the boiler, upper heating battery - heating flow 70 °C

MultiVal Type	m³/h²	mbar³	Loading pump Biral¹ Type	mWC	Hot water output			kW⁶	Flats⁷
					dm³/10 min.⁴	45 °C	60 °C		
CRR (300)	1,5	20	AX12	2,0	150	250	124	10,2	1
	2,0	36	A13	3,0	155	264	130	10,8	1
CRR (500)	1,5	41	AX12	2,0	250	473	236	19,3	2
	2,5	115	AX13	2,2	265	535	265	21,8	3
CRR (630)	2,0	72	AX13	2,2	290	505	250	20,6	5
	3,0	162	A13	2,5	305	552	271	22,5	6
CRR (800)	2,0	85	AX13	3,0	350	562	281	22,9	6
	2,5	130	A13	3,2	357	595	297	24,3	7
	3,0	190	A15	6,1	362	616	306	25,1	8
CRR (1000)	2,0	85	AX13	3,0	423	562	281	22,9	6
	2,5	130	A13	3,2	430	595	297	24,3	8
	3,0	190	A15	6,1	435	616	306	25,1	9
CRR (1250)	2,5	130	A13	3,2	520	618	315	25,2	8
	3,0	190	A15	6,1	530	639	340	26,0	10
CRR (1500)	2,5	165	A13	3,2	635	811	415	33,0	12
	3,0	235	A15	6,1	645	844	452	34,4	14
CRR (2000)	2,5	165	A13	3,2	800	811	415	33,0	14
	3,0	235	A15	6,1	810	844	452	34,4	16

¹ loading pump Biral = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

² m³/h = Volume flow of the loading pump (70 °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.

⁵ dm³/h = Continuous output per hour. Cold water temperature 10 °C.

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)

Heating-up with electrical heating inset

MultiVal Type	electrical heating-up litre	persons ¹
CRR (300)	150	1-2
CRR (500)	265	2-3
CRR (630)	310	3-4
CRR (800)	400	4-5
CRR (1000)	470	5-6
CRR (1250)	610	8-10
CRR (1500)	790	11-12
CRR (2000)	1050	14-16

¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

■ Technical data

Hot water output

Heating with the boiler, upper heating battery - heating flow 80 °C

MultiVal Type	m³/h²	mbar³	loading pump Biral¹ Type	mWC	Hot water output			kW⁶	Flats⁷
					dm³/10 min.⁴	45 °C	60 °C		
CRR (300)	1,5	20	AX12	2,0	160	315	175	12,8	1
	2,0	36	AX13	3,0	167	335	185	13,6	1
CRR (500)	1,5	41	AX12	2,0	260	595	335	24,2	3
	2,5	115	AX13	2,2	280	675	378	27,4	4
CRR (630)	2,0	72	A13	3,6	315	640	357	25,9	6
	3,0	162	A13	2,6	330	695	390	28,3	7
CRR (800)	2,0	85	AX13	3,0	375	710	400	28,8	8
	2,5	130	A13	3,2	383	750	420	30,5	9
	3,0	190	A15	6,1	390	780	435	31,6	10
CRR (1000)	2,0	85	AX13	3,0	448	710	400	28,8	9
	2,5	130	A13	3,2	456	750	420	30,5	10
	3,0	190	A15	6,1	463	780	435	31,6	11
CRR (1250)	2,5	130	A13	3,2	547	780	435	31,5	10
	3,0	190	A15	6,1	560	810	449	32,6	12
CRR (1500)	2,5	165	A13	3,2	670	1020	574	41,4	14
	3,0	235	A15	6,1	681	1060	594	43,1	16
CRR (2000)	2,5	165	A13	3,2	835	1020	574	41,4	18
	3,0	235	A15	6,1	846	1060	594	43,1	20

¹ loading pump Biral = The charging pump is to be understood as a guideline and must be recalculated for the specific design.

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.

⁵ dm³/h = Steady state/Continuous output per hour. Cold water temperature 10 °C.

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)

Heating up with electrical heating inset

MultiVal Type	electrical heating litre	persons ¹
CRR (300)	150	1-2
CRR (500)	265	2-3
CRR (630)	310	3-4
CRR (800)	400	4-5
CRR (1000)	470	5-6
CRR (1250)	610	8-10
CRR (1500)	790	11-12
CRR (2000)	1050	14-16

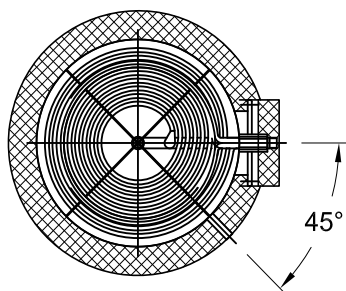
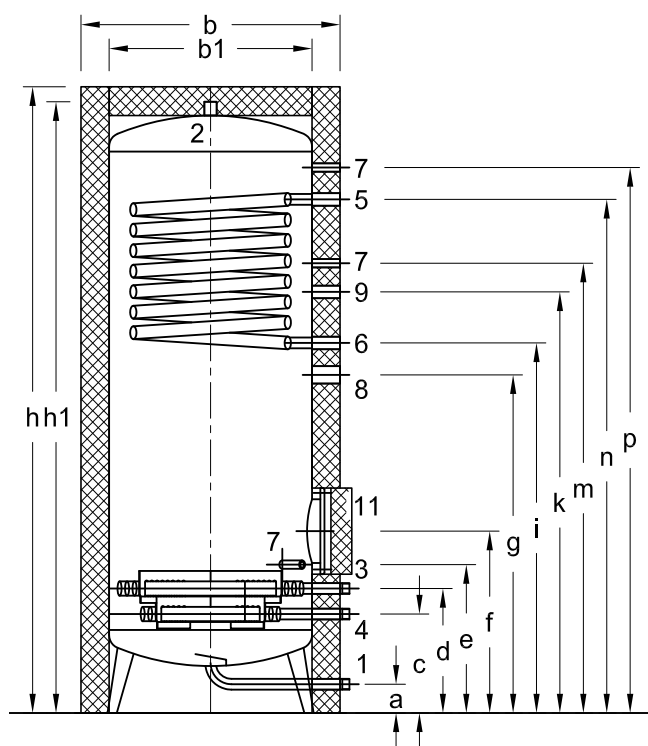
¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

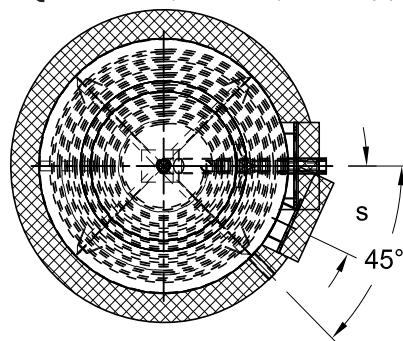
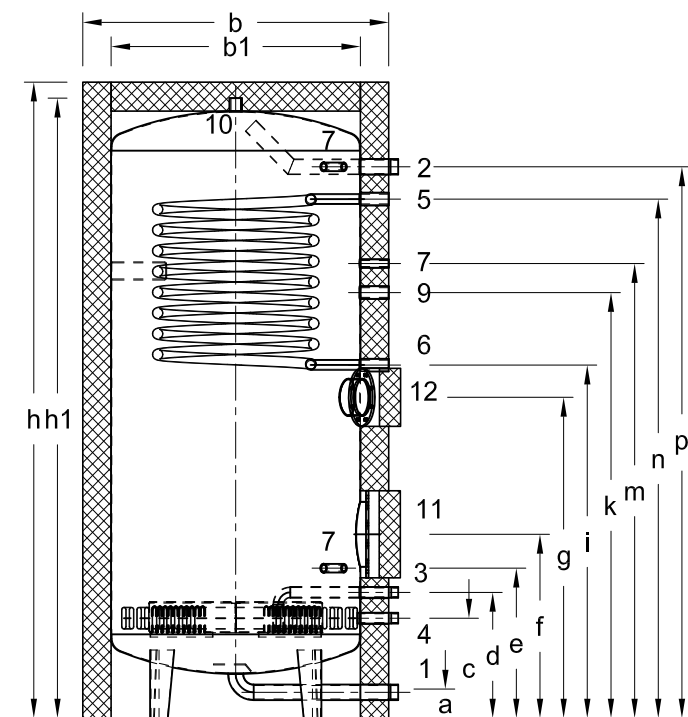
■ Dimensions

MultiVal CRR (300-630)

(Dimensions in mm)



MultiVal CRR (800-2000)



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

- 1 Cold water Type (300-630), R 1"
- 2 Hot water 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" (DN25)
- 7 Sleeves Rp ½" for sensor, thermostat, thermometer
immersion sleeve length 200 mm, Ø 8 mm inside, installed

- 8 MultiVal CRR (300,500)
Connection for screw-in electrical heating inset Rp 1½"
- MultiVal CRR (630)
Hand hole flange (flange electrical heating inset)
Ø 180/110 mm, pitch circle 150 mm, 8 x M10
- 9 Circulation Rp 1"
- 10 Ventilation Rp 1"
- 11 Hand hole flange Ø 270/200 mm,
pitch circle Ø 240 mm, 12 x M10
- 12 Hand hole flange (flange electrical heating inset)
Ø 180/110 mm, pitch circle Ø 150 mm, 8 x M10

MultiVal Type	b Ø	b1 Ø	h	a	c	d	e	f	g	i	k	m	n	p	h1	s	Tilting measure
CRR (300)	680	500	1930	100	310	390	465	570	1060	1220	1320	1410	1610	1710	1890	-	1920
CRR (500)	830	650	1960	90	310	390	465	570	1060	1160	1320	1410	1610	1710	1915	-	1950
CRR (630)	880	700	1970	90	310	390	465	570	1060	1160	1320	1410	1610	1710	1923	25°	1980
CRR (800)	970	790	1980	80	310	390	465	570	995	1095	1320	1410	1610	1710	1923	25°	1990
CRR (1000)	1070	890	2000	80	310	390	465	570	995	1095	1320	1410	1610	1710	1923	20°	2000
CRR (1250)	1170	950	2020	90	310	895	995	570	995	1095	1320	1410	1610	1710	1928	20°	2050
CRR (1500)	1320	1100	2050	70	310	895	995	570	995	1095	1320	1410	1610	1710	1943	15°	2150
CRR (2000)	1420	1200	2070	70	310	895	995	570	995	1095	1320	1410	1610	1710	1978	15°	2260

■ Description

HoVal Calorifier MultiVal CSRR (500-2000)

- Calorifier made of stainless steel
- Thermal insulation made of 80 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
(500-800) 2-part
(1000) 3-part
- Thermal insulation made of 100 mm polyester fleece with patented aluminium sealing bracket. Outer casing made of polypropylene, red coloured
(1250-2000) 3-part
- MultiVal CSRR (500)
1½" sleeve for the installation of a screw-in electrical heating inset
- MultiVal CSRR (630-2000)
Flange above as additional cleaning flange (Swiss SVGW regulation)
- 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 1½" sleeve
- Thermometer separately enclosed
- With flange NW 200 for cleaning
- 2 heat exchangers made of stainless steel, built in
 - at the bottom: plain tube heat exchanger for solar use.
 - at the top: large smooth pipe heat exchanger for heating with heat pumps.
- For drinking water up to max. 70 mg/l chloride content

Delivery

- MultiVal CSRR (500-1000)
Calorifier fully cased
- MultiVal CSRR (1250-2000)
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.

On site

- Mounting of thermal insulation for MultiVal CSRR (1250-2000)

Screw-in electrical heating inset for MultiVal CSRR (500-2000) Type EP-2 to EP-9

- made of Incoloy® alloy 825
- Heat input 2,0 - 9 kW
- including temperature control and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-9 with 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 for MultiVal CSRR (500-2000) Type EFHRC 4 to EFHRC 9

- Made of Incoloy® alloy 825
- Heat output 4,3 bis 8,5 kW, according to the rules of the current supplier
- With temperature regulation and overheating protection
- Connection 3 x 400 V

Delivery

- Delivered separately packed

On site

- Mounting of thermal insulation



MultiVal CSRR (800)

Range MultiVal CSRR

(500)
(630)
(800)
(1000)
(1250)
(1500)
(2000)

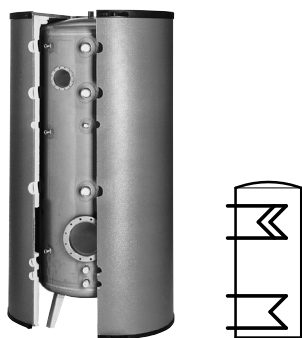
Certifications

MultiVal CSRR
(500-2000)

Test number of SVGW *
0009-4304

* Swiss Association for Gas and Water Supply

■ Part N°

**Calorifier
MultiVal CSRR (500-2000)**
Part N°


With 2 heat exchangers made of stainless steel built in.
MultiVal CSRR (540-1000) fully cased.
MultiVal CSRR (1250-2000) Calorifier and thermal insulation delivered separately packed.

MultiVal CSRR Type	Volume litre	heat exchanger surface		
		top m²	bottom m²	
(500)	500	3,5	1,6	7010 223
(500)	500	4,9	1,6	7010 224
(630)	600	3,5	1,6	7010 225
(630)	590	4,9	1,6	7010 226
(630)	570	6,9	1,6	7010 227
(800)	750	4,9	2,4	7010 228
(800)	740	7,2	2,4	7010 229
(1000)	940	7,2	2,4	7010 230
(1000)	930	10,0	2,4	7010 231
(1250)	1080	10,0	4,8	7010 232
(1500)	1460	12,0	4,8	7010 233
(2000)	1960	12,0	4,8	7010 234

■ Part N°



Accessories

Part N°

Screw-in electrical heating inset

Incoloy® alloy 825, incl. temperature control and overheating protection. Delivered separately, installation on-site.

No use for exclusively electrical heating (Calcination danger)

When installed below a flange cover with 1½" sleeve is necessary.

Type	Heat input kW	Voltage [V]	Installation depth mm	for MultiVal CSRR
------	------------------	----------------	-----------------------------	-------------------------

MultiVal CSRR (500) mountable above and below

MultiVal CSRR (630-2000) mountable only below

EP-3	3,0	3 x 400	390	(500-2000)	2022 216
EP-4,5	4,5	3 x 400	500	(500-2000)	2022 217
EP-6	6,0	3 x 400	620	(500-2000)	2022 218
EP-9	9,0	3 x 400	850	(1000-2000)	2022 219



Flange cover

for the installation of the electrical heating inset in the flange below stainless steel, with 1½" sleeve

6000 647



Cable sensor KVT 20/5/6S

5 m cable and plug

6012 687



Cable sensor KVT 20/5/6

with 5 m cable

2022 992

■ Technical data

Calorifier MultiVal

Hoval MultiVal CSRR		(500)	(500)	(630)	(630)	(630)
• Content (lower battery)	litre	500	500	600	590	570
• Content (upper battery)	litre	360	360	420	420	420
• Working pressure / test pressure	bar	6 / 12	6 / 12	6 / 12	6 / 12	6 / 12
• Working temperature maximal	°C	95	95	95	95	95
• Thermal insulation bonded fabric	mm	80	80	80	80	80
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035	0,035
• Stand still loss qB at 60 °C	W	138	138	142	142	142
• Weight	kg	132	141	158	167	176

• Dimensions

see table of dimensions

Heating battery low (built in)

Stainless steel plain tube heat exchanger for solar use

• Heating surface	m ²			1,6		
• Heating water	litre			7,6		
• Flow resistance water ¹	z-value			18		
Flow resistance water / glykol 50 %	z-value			26		
• max. working pressure / test pressure	bar			10 / 15		
• Working temperature maximal	°C			95		
• For flat collectors up to ²	m ²			12		

Heating battery up (built in)

Stainless steel smooth pipe heat exchanger for heat pumps

• Heating surface	m ²	3,5	4,9	3,5	4,9	6,9
• Heating water	litre	25	35	25	35	52
• Flow resistance ¹	z-value	8	10	8	10	9
• Working pressure / test pressure	bar	10/15	10/15	10/15	10/15	10/15
• Working temperature maximal	°C	95	95	95	95	95

Hoval MultiVal CSRR		(800)	(800)	(1000)	(1000)	(1250)	(1500)	(2000)
• Content (lower battery)	litre	750	740	940	930	1080	1460	1960
• Content (upper battery)	litre	530	530	650	650	833	1000	1333
• Working pressure / test pressure	bar	10 / 13	10 / 13	10 / 13	10 / 13	10 / 13	10 / 13	10 / 13
• Working temperature maximal	°C	95	95	95	95	95	95	95
• Thermal insulation bonded fabric	mm	80	80	80	80	100	100	100
• Thermal conductance λ	Watt/mK	0,035	0,035	0,035	0,035	0,035	0,035	0,035
• Stand still loss qB at 60 °C	W	150	150	154	154	163	175	200
• Weight	kg	202	221	234	238	245	280	390

• Dimensions

see table of dimensions

Heating battery low (built in)

Stainless steel plain tube heat exchanger for solar use

• Heating surface	m ²	2,4	2,4	2,4	2,4	4,8	4,8	4,8
• Heating water	litre	12,5	12,5	12,5	12,5	25	25	25
• Flow resistance water ¹	z-value	35	35	35	35	35	35	35
Flow resistance water / glykol 50 %	z-value	47	47	47	47	47	47	47
• max. working pressure / test pressure	bar	10 / 15	10 / 15	10 / 15	10 / 15	10 / 15	10 / 15	10 / 15
• Working temperature maximal	°C	95	95	95	95	95	95	95
• For flat collectors up to ²	m ²	18	18	18	18	36	36	36

Heating battery up (built in)

Stainless steel smooth pipe heat exchanger for heat pumps

• Heating surface	m ²	4,9	7,2	7,2	10,0	10,0	12,0	12,0
• Heating water	litre	35	71	71	107	107	130	130
• Flow resistance ¹	z-value	10	9	9	12	12	5	5
• Working pressure / test pressure	bar	10/15	10/15	10/15	10/15	10/15	10/15	10/15
• Working temperature maximal	°C	95	95	95	95	95	95	95

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

² Collector surface, related to the heat exchanger heating surface only

■ Technical data

Hot water output

Heating-up with the heat pump, heating flow 60°C

MultiVal Type	Heating surface m ²	m ³ /h ¹	mbar ²	Loading pump Biral ³		kW ⁴	Hot water output		
				Type	mWC		dm ³ /10 min. ⁵ 45°C	dm ³ /h ⁶ 45°C	dm ³ /h ⁶ 55°C
CSRR500	3,5	1,5	18	AX12	2,0	23,6	560	581	452
	3,5	2,5	50	AX13	2,2	28,9	581	709	552
CSRR500	4,9	1,5	23	AX12	2,0	30,6	588	753	586
	4,9	2,5	63	AX13	2,2	38,4	620	943	733
CSRR630	3,5	1,5	18	AX12	2,0	23,6	637	581	452
	3,5	2,5	50	AX13	2,2	28,9	658	709	552
	3,5	3,0	72	AX13	3,0	30,1	663	739	575
CSRR630	4,9	1,5	23	AX13	3,8	30,6	665	753	586
	4,9	2,5	63	A12	2,2	38,4	697	943	733
	4,9	3,0	90	A13	2,7	40,2	705	988	768
CSRR630	6,9	1,5	20	AX12	2,0	35,8	687	879	684
	6,9	2,5	56	A12	2,2	45,9	728	1128	878
	6,9	3,0	81	A13	2,7	49,6	743	1218	947
CSRR800	4,9	2,5	63	A12	2,2	37,6	835	924	719
	4,9	3,5	123	A14	3,5	41,9	852	1028	800
CSRR800	7,2	2,5	56	A12	2,2	47,5	875	1166	907
	7,2	3,5	110	A14	3,5	54,8	905	1345	1046
CSRR1000	7,2	3,5	110	A14	3,5	54,8	1060	1345	1046
	7,2	4,5	182	A15	4,9	59,2	1078	1454	1131
CSRR1000	10,0	3,5	147	A14	3,5	70,5	1125	1732	1347
	10,0	4,5	243	A15	4,9	77,4	1153	1901	1478
CSRR1250	10,0	4,5	243	A15	4,9	77,5	1388	1904	1481
CSRR1500	12,0	5,5	151	A15	4,0	81,0	1617	1990	1548
CSRR2000	12,0	5,5	151	A15	4,0	81,0	2045	1990	1548

- 1 m³/h Volume flow of the loading pump (60°C)
 2 mbar Heating-side flow resistance in the heating battery
 3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.
 4 kW Power input at 45/10°C
 5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C.
 6 dm³/h Continuous output per hour. Cold water temperature 10 °C.

The number of flats with heat pumps depends on many factors and has to be calculated correspondingly.

Heating up with the boiler, heating flow 70°C

MultiVal Type	Heating surface m ²	m ³ /h ¹	mbar ²	Loading pump Biral ³		kW ⁴	Hot water output			Flats ⁷
				Type	mWC		dm ³ /10 min. ⁵ 45°C	dm ³ /h ⁶ 45°C	dm ³ /h ⁶ 60°C	
CSRR500	3,5	1,5	18	AX12	2,0	33,8	653	831	582	16
	3,5	2,5	50	AX13	2,2	41,3	683	1014	710	19
CSRR500	4,9	1,5	23	AX12	2,0	43,0	690	1057	740	20
	4,9	2,5	63	AX13	2,2	54,2	736	1332	933	25
CSRR630	3,5	1,5	18	AX12	2,0	33,8	739	831	582	17
	3,5	2,5	50	AX13	2,2	41,3	769	1014	710	20
	3,5	3,0	72	AX13	3,0	43,0	776	1055	739	21
CSRR630	4,9	1,5	23	AX13	3,8	43,0	776	1057	740	21
	4,9	2,5	63	A12	2,2	54,2	822	1332	933	27
	4,9	3,0	90	A13	2,7	56,9	833	1399	979	28
CSRR630	6,9	1,5	20	AX12	2,0	49,9	805	1227	859	24
	6,9	2,5	56	A12	2,2	65,1	867	1600	1120	31
	6,9	3,0	81	A13	2,7	70,2	887	1724	1207	32
CSRR800	4,9	2,5	63	A12	2,2	53,1	975	1306	914	28
	4,9	3,5	123	A14	3,5	59,7	1001	1467	1027	31
CSRR800	7,2	2,5	56	A12	2,2	66,9	1031	1643	1150	35
	7,2	3,5	110	A14	3,5	77,5	1074	1904	1333	40
CSRR1000	7,2	3,5	110	A14	3,5	77,5	1245	1904	1333	43
	7,2	4,5	182	A15	4,9	84,3	1273	2070	1449	47
CSRR1000	10,0	3,5	147	A14	3,5	98,6	1332	2423	1696	53
	10,0	4,5	243	A15	4,9	109,0	1374	2678	1875	57
CSRR1250	10,0	4,5	243	A15	4,9	109,0	1636	2678	1875	64
CSRR1500	12,0	5,5	151	A15	4,0	115,1	1899	2827	1979	71
CSRR2000	12,0	5,5	151	A15	4,0	115,1	2375	2827	1979	77

- 1 m³/h Volume flow of the loading pump (70°C)
 2 mbar Heating-side flow resistance in the heating battery
 3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.
 4 kW Power input at 45/10°C
 5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C.
 6 dm³/h Continuous output per hour. Cold water temperature 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)

■ Technical data

Heating up with the boiler, heating flow 80°C

CombiVal Type	Heating surface m ²	m ³ /h ¹	mbar ²	Loading pump Biral ³ Type	mWC	kW ⁴	Hot water output			Flats ⁷
							dm ³ /10 min. ⁵ 45°C	dm ³ /h ⁶ 45°C	60°C	
CSRR500	3,5	1,5	18	AX12	2,0	47,3	708	1163	814	22
	3,5	2,5	50	AX13	2,2	58,4	753	1436	1005	26
CSRR500	4,9	1,5	23	AX12	2,0	59,1	756	1452	1016	26
	4,9	2,5	63	AX13	2,2	76,1	825	1869	1308	31
CSRR630	3,5	1,5	18	AX12	2,0	47,3	794	1163	814	23
	3,5	2,5	50	AX13	2,2	58,4	839	1436	1005	29
	3,5	3,0	72	AX13	3,0	61,3	851	1506	1054	30
CSRR630	4,9	1,5	23	AX13	3,8	60,0	846	1475	1032	29
	4,9	2,5	63	A12	2,2	76,1	911	1869	1308	34
	4,9	3,0	90	A13	2,7	80,5	930	1978	1385	35
CSRR630	6,9	1,5	20	AX12	2,0	69,3	884	1702	1191	32
	6,9	2,5	56	A12	2,2	90,3	970	2218	1553	39
	6,9	3,0	81	A13	2,7	98,2	1002	2413	1689	42
CSRR800	4,9	2,5	63	A12	2,2	74,6	1062	1832	1282	39
	4,9	3,5	123	A14	3,5	84,3	1102	2072	1450	42
CSRR800	7,2	2,5	56	A12	2,2	92,9	1137	2282	1597	45
	7,2	3,5	110	A14	3,5	108,9	1203	2675	1872	51
CSRR1000	7,2	3,5	110	A14	3,5	108,9	1374	2675	1872	57
	7,2	4,5	182	A15	4,9	119,0	1415	2924	2047	61
CSRR1000	10,0	3,5	147	A14	3,5	137,1	1490	3369	2358	69
	10,0	4,5	243	A15	4,9	152,1	1551	3737	2616	75
CSRR1250	10,0	4,5	243	A15	4,9	152,1	1813	3737	2616	85
CSRR1500	12,0	5,5	151	A15	4,0	161,7	2090	3974	2782	97
CSRR2000	12,0	5,5	151	A15	4,0	161,7	2566	3974	2782	105

- 1 m³/h Volume flow of the loading pump (80°C)
- 2 mbar Heating-side flow resistance in the heating battery
- 3 Loading pump Biral The charging pump is to be understood as a guideline and must be recalculated for the specific design.
- 4 kW Power input at 45/10°C
- 5 dm³/10 min. Hot water peak performance in 10 minutes. Calorifier heated up to 60 °C.
- 6 dm³/h Continuous output per hour. Cold water temperature 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)

Screw-in electrical heating inset

Incoloy® alloy 825, incl. temperature control and overheating protection.
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 input kW	Voltage [V]	Installation depth mm	for MultiVal CSRR
EP-2	2,0	1 x 230	500	(500-2000)
EP-3	3,0	3 x 400	390	(500-2000)
EP-4,5	4,5	3 x 400	500	(500-2000)
EP-6	6,0	3 x 400	620	(500-2000)
EP-9	9,0	3 x 400	850	(800-2000)

Flange electrical heating inset for lower flange for MultiVal CSRR (500-2000)

With temperature regulation and overheating protection
Factory set-up: 3 x 400 V
Heat output (kW) according to the rules of the power works

Type	Factory set-up Heat Heat input [kW]	for MultiVal CSRR
4-270	4,3	(500-2000)
6-270	6,0	(630-2000)
9-270	8,5	(1000-2000)

Heating-up with the electrical heating inset in the lower flange

MultiVal Type	Electrical heating-up litre	Persons ¹
CSRR (500)	410	6-8
CSRR (630)	470	8-10
CSRR (800)	600	10-12
CSRR (1000)	760	12-15
CSRR (1250)	930	13-16
CSRR (1500)	1240	15-17
CSRR (2000)	1680	20-25

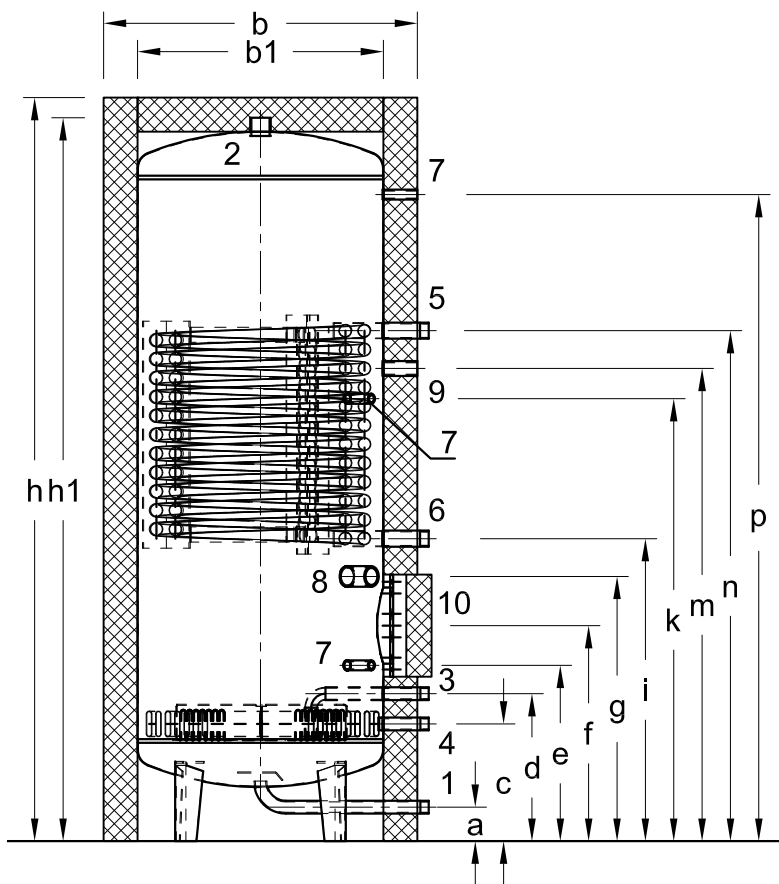
¹ Number of people, that can be supplied with hot water, for plants without warm water circulation (standard value without reloading).

The value can differ according to the output of the electrical heating inset and the release time.

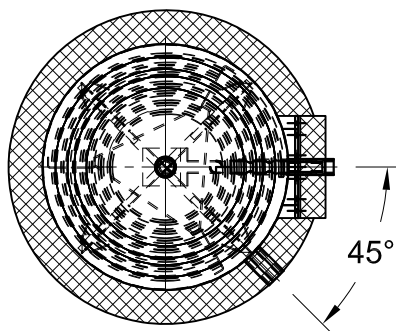
■ Dimensions

MultiVal CSRR (500)

(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 | 3,5/4,9 m ² | Rp 1 1/4" |
| 6 Heating return | 3,5/4,9 m ² | Rp 1 1/4" |
| 7 Sleeves for sensor, thermostats and thermometers including immersion sleeve | Rp | 1/2" |
| 8 Connection for screw-in electrical heating inset | Rp | 1 1/2" |
| 9 Circulation | Rp | 1" |
| 10 Hand hole flange Ø 270/200 mm, pitch circle Ø 240 mm, 12 x M10 | | |

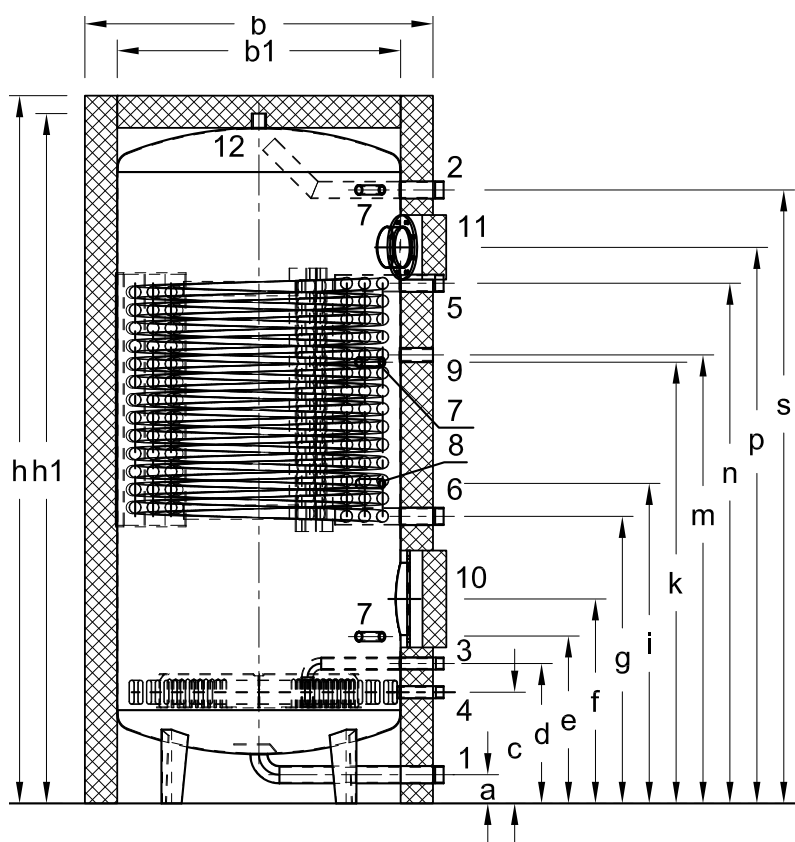


MultiVal CSRR	Heat surface top m ²	Heat surface bottom m ²	b Ø	b1 Ø	h	h1	a	c	d	e	f	g	i	k	m	n	p	Tilting measure
(500)	3,5	1,6	830	650	1963	1905	90	310	390	465	570	700	800	1170	1250	1350	1710	1930
(500)	4,9	1,6	830	650	1963	1905	90	310	390	465	570	700	800	1300	1250	1550	1710	1930

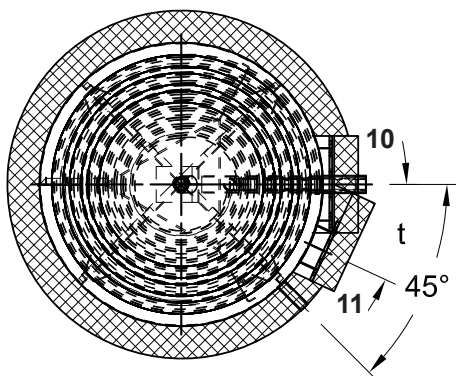
■ Dimensions

MultiVal CSRR (630-2000)

(Dimensions in mm)



1 Cold water	(630)	R	1"
	(800- 2000)	R	1½"
2 Hot water	(630)	Rp	1"
	(800- 2000)	Rp	1½"
3 Flow solar circuit		R	1"
4 Return solar circuit		R	1"
5 Heating flow	(630) 3,5/4,9 m²	Rp	1¼"
	(630) 6,9 m²	Rp	1½"
	(800) 4,9 m²	Rp	1¼"
	(800,1000) 7,2/10,0 m²	Rp	1½"
	(1250-2000)	Rp	1½"
6 Heating return	(630) 3,5/4,9 m²	Rp	1¼"
	(630) 6,9 m²	Rp	1½"
	(800) 4,9 m²	Rp	1¼"
	(800,1000) 7,2/10,0 m²	Rp	1½"
	(1250-2000)	Rp	1½"
7 Sleeves for sensor, thermostats and thermometers including immersion sleeve		Rp	½"
8 (1250-2000) sleeves for sensor, thermostats and thermometers including immersion sleeve		Rp	½"
9 Circulation		Rp	1"
10 Hand hole flange Ø 270/200 mm, (flange electrical heating inset) pitch circle Ø 240 mm, 12 x M10			
11 Hand hole flange 180/110 mm, pitch hole 150 mm, 8 x M10			
12 Ventilation		Rp	1"



MutiVal	Heating surface		b	b1	h	h1	a	c	d	e	f	g	i	k	m	n	p	s	t	Tilting measure
CSRR	m²	m²	Ø	Ø																
(630)	3.5	1.6	880	700	1973	1923	90	310	390	465	570	800	700	1170	1250	1350	1450	1710	25°	1940
(630)	4.9	1.6	880	700	1973	1923	90	310	390	465	570	800	700	1300	1250	1550	1650	1710	25°	1940
(630)	6.9	1.6	880	700	1973	1923	90	310	390	465	570	800	700	1300	1250	1550	1650	1710	25°	1940
(800)	4.9	2.4	970	790	1984	1934	90	310	390	465	570	800	700	1230	1250	1450	1550	1710	25°	1950
(800)	7.2	2.4	970	790	1984	1934	90	310	390	465	570	800	700	1230	1250	1450	1550	1710	25°	1950
(1000)	7.2	2.4	1070	890	1989	1939	90	310	390	465	570	800	700	1230	1250	1450	1550	1710	20°	1960
(1000)	10.0	2.4	1070	890	1989	1939	90	310	390	465	570	800	700	1230	1250	1550	1650	1710	20°	1960
(1250)	10.0	4.8	1170	950	1980	1928	90	310	390	465	570	800	900	1300	1250	1550	1650	1710	20°	1980
(1500)	12.0	4.8	1320	1100	1994	1943	90	310	390	465	570	800	900	1300	1250	1550	1650	1710	15°	2070
(2000)	12.0	4.8	1420	1200	2034	1978	90	310	390	465	570	800	900	1300	1250	1550	1650	1710	15°	2130

■ Description

Hoval Calorifier Modul-plus

- 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
 - made of mineral wool mats (50 mm) at the calorifier
 - made of Polyurethan-foam at the front
 - made of mineral wool mats (50 mm) at the casing incl. bottom
- Casing made of sheet steel, red/dark 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

- Loading pump

Delivery

- Calorifier and casing are delivered separately



Control panel with thermostats

Type EK 105-90

- for installation into the casing of the Modul-plus
- incl. thermometer
- incl. temperature control from 40 - 80 °C
- Thermostat 90 °C
- Working temperature max. 90 °C

Type EK 106-110

- for installation in the casing at the Modul-plus
- incl. thermometer
- incl. temperature control 40 - 80 °C
- Thermostat 95 °C
- Working temperature max. 110 °C

Range

F (21)
F (31)
F (41)
F (51)
F (32)
F (42)
F (52)

■ Part N°

**Calorifier
Modul-plus****Part N°**

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

Delivery

Calorifier and casing delivered separately packed.

Type:

Working pressure hot water 6 bar.

Heating 5 bar.

For drinking water up to max. 30 mg/l chloride content. Opening for cleaning in front.

Modul-plus Type	height mm	kW ¹	NL-index ²	
F (21) I	1615	76,5	10	7004 789
		115,5	18	
F (31) I	1615	113,9	18	7004 790
		148,5	25	
		187,2	35	
F (41) I	1800	136,3	24	7004 791
		213,6	43	
		250,2	53	
F(51) I	2160	199,4	40	7004 792
		268,6	59	
		321,5	74	
F (32) I	1615	227,9	49	7004 793
		297,0	69	
		329,6	79	
		374,4	93	
F (42) I	1800	227,6	64	7004 794
		354,0	89	
		427,3	114	
F (52) I	2160	398,8	107	7004 795
		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

Welding on-site

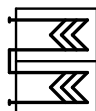
Same model as above, that means

- Working pressure hot water 6 bar.
- Heating 5 bar.
- For drinking 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.

■ Part N°

**Calorifier
Modul-plus****Part N°**

Special edition:
Working pressure hot water 6 bar.
Heating 5 bar.
For drinking 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
F (21) II	1615	76,5	10
		115,5	18
F (31) II	1615	113,9	18
		148,5	25
		187,2	35
F (41) II	1800	136,3	24
		213,6	43
		250,2	53
F (51) II	2160	199,4	40
		268,6	59
		321,5	74
F (32) II	1615	227,9	49
		297,0	69
		329,6	79
		374,4	93
F (42) II	1800	227,6	64
		354,0	89
		427,3	114
F (52) II	2160	398,8	107
		537,2	157
		634,8	195

7004 796

7004 797

7004 798

7004 799

7004 800

7004 801

7004 802

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:
Working pressure hot water 10 bar,
Heating 8 bar.
For drinking water up to max. 100 mg/l
chloride content. Opening for cleaning in
front and at the back.

Modul- plus Type	height mm
F (21) II	1615
F (31) II	1615
F (41) II	1800
F (51) II	2160
F (32) II	1615
F (42) II	1800
F (52) II	2160

7004 803

7004 804

7004 805

7004 806

7004 807

7004 808

7004 809

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

■ Part N°


**Calorifier
Modul-plus**
Part N°

Special edition:
Working pressure hot water 6 bar.
Heating 5 bar.
For drinking 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	
F (21) III	1615	76,5	10	7004 810
		115,5	18	
F (31) III	1615	113,9	18	7004 811
		148,5	25	
		187,2	35	
F (41) III	1800	136,3	24	7004 812
		213,6	43	
		250,2	53	
F (51) III	2160	199,4	40	7004 813
		268,6	59	
		321,5	74	
F (32) III	1615	227,9	49	7004 814
		297,0	69	
		329,6	79	
		374,4	93	
F (42) III	1800	227,6	64	7004 815
		354,0	89	
		427,3	114	
F (52) III	2160	398,8	107	7004 816
		537,2	157	
		634,8	195	

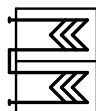
¹ kW = power input at 45/10 °C,
flow temperature 80 °C

² See technical data for more specific information

Special model for high-rise buildings:
Working pressure hot water 10 bar,
Heating 8 bar.
For drinking 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	
F (21) III	1615	7004 817
F (31) III	1615	7004 818
F (41) III	1800	7004 819
F (51) III	2160	7004 820
F (32) III	1615	7004 821
F (42) III	1800	7004 822
F (52) III	2160	7004 823

■ Part N°

**Calorifier
Modul-plus****Part N°**

Special edition:

Working pressure hot water 10 bar.

Heating 8 bar.

For drinking 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
F (21) III	1615	76,5	10
		115,5	18
F (31) III	1615	113,9	18
		148,5	25
		187,2	35
F (41) III	1800	136,3	24
		213,6	43
		250,2	53
F (51) III	2160	199,4	40
		268,6	59
		321,5	74
F (32) III	1615	227,9	49
		297,0	69
		329,6	79
		374,4	93
F (42) III	1800	227,6	64
		354,0	89
		427,3	114
F (52) III	2160	398,8	107
		537,2	157
		634,8	195

7007 059

7007 060

7007 061

7007 062

7007 063

7007 064

7007 065

¹ kW = power input at 45/10 °C,
flow temperature 80 °C² See technical data for more specific information

■ Part N°



Necessary accessories

Part N°

Electrical box

For installation into the Modul-plus. Incl. thermometer and temperature control 40-80 °C. Model 110 °C incl. thermostat 95 °C.

Typ	working temperature heating
EK 105-90	90 °C
EK 106-110	110 °C

686 677
686 678



Blind cover

for Modul-plus
for covering, if no electrical box
is used.

6025 189

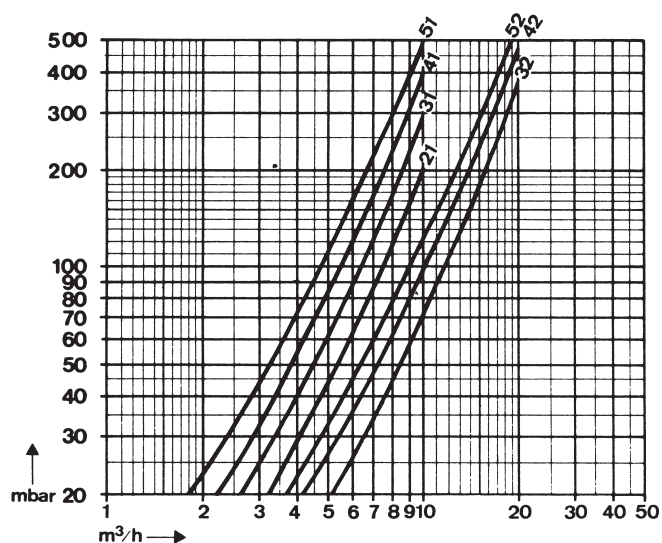
■ Technical data

Modul-plus

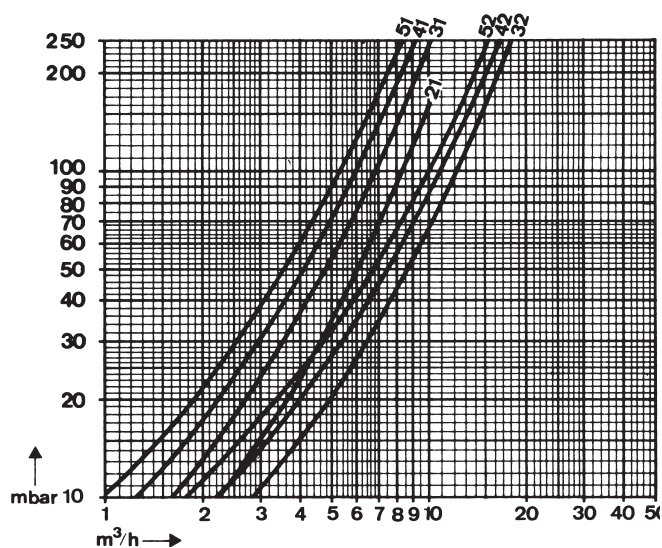
Type		F (21)	F (31)	F (41)	F (51)	F (32)	F (42)	F (52)
• Modul numbers		2	3	4	5	6	8	10
Calorifier								
• Content	litre	230	345	460	575	690	920	1150
• Heating surface	m ²	2,84	4,26	5,68	7,1	8,52	11,36	14,2
• Max. hot water temperature	°C	80	80	80	80	80	80	80
• Flow resistance ¹	z-value	1,4	2,4	3	3,6	0,74	0,9	1,1
• Stand still loss ²	W	495	495	540	698	712	775	1000
• Working pressure - normal type								
- type high-rise building	bar	6	6	6	6	6	6	6
• Test pressure - normal type	bar	10	10	10	10	10	10	10
- type high-rise building	bar	12	12	12	12	12	12	12
- type high-rise building	bar	15	15	15	15	15	15	15
• Weight without casing								
normal type	kg	165	215	265	315	370	470	570
type high-rise building	kg	205	275	345	415	490	630	770
• Weight casing								
	kg	104	104	115	140	121	135	160
Heating								
• Heating water content	litre	30	45	60	75	90	120	150
• Maximal 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
• Working pressure - normal type								
- type high-rise building	bar	5	5	5	5	5	5	5
• Test pressure - normal type	bar	8	8	8	8	8	8	8
- type high-rise building	bar	7,5	7,5	7,5	7,5	7,5	7,5	7,5
- type high-rise building	bar	12	12	12	12	12	12	12

¹ Flow resistance (mbar) = volume flow (m³/h)² x z² At calorifier temperature 60 °C

Flow resistance heating



Flow resistance hot water



■ Technical data

Hot water output at 70 °C heating flow temperature

Heating flow connected on the top of the calorifier (crosscurrent)

Modul-plus	numbers modules	content	heating surface	Hot water output								
				loading pump Biral				dm ³ /10 min. ²		dm ³ /h ³		
				Type	mWC ⁶	45 °C	60 °C	45 °C	kW ⁴	Flats ⁵		
F (21)	2	230	2,84	3,5	25	A13	2,4	434	640	1520	61,8	7
				8	120	A16	4,2	488	960	2110	86,2	11
F (31)	3	345	4,26	4	40	A13	2,0	575	700	2100	85,4	7
				7	120	A15	2,9	600	900	2800	113,9	11
				12	450	Modul A 40-10 220 RED	6,1	635	1200	3600	146,5	17
F (41)	4	460	5,68	4	55	A13	2,0	814	1100	2700	109,8	15
				8	240	A16	4,2	900	1700	4100	166,8	28
				10,5	440	Modul A 40-10 220 RED	7,8	942	2000	4850	197,3	35
F (51)	5	575	7,10	4	75	A13	2,0	1028	1250	3750	152,6	17
				8	300	A16	4,2	1137	1900	5200	211,6	32
				12	720	Modul A 50-12 270 RED	9,0	1221	2400	6300	256,3	45
F (32)	6	690	8,52	8	45	A15	2,0	1151	1400	4200	170,9	20
				14	165	Modul A 50-6 240 RED	3,3	1200	1800	5600	227,9	30
				18	300	Modul A 50-12 270 RED	6,2	1234	2100	6200	252,3	38
				24	530	Modul A 65-12 340 RED	8,0	1271	2400	7200	293,0	45
F (42)	8	920	11,36	8	62	A15	2,0	1628	2200	5400	219,7	40
				12	150	Modul A 50-6 240 RED	3,9	1714	2800	6700	272,6	50
				16	260	Modul A 40-10 220 RED	4,1	1800	3400	8200	333,7	>50
F (52)	10	1150	14,20	8	82	A15	2,0	2057	2500	7500	305,2	>50
				16	340	Modul A 40-10 220 RED	4,0	2274	3800	10400	423,2	>50
				21	610	Modul A 65-12 340 RED	8,1	2391	4500	11800	480,2	>50

Hot water output at 80 °C heating flow temperature

Heating flow connected on the top of the calorifier (crosscurrent)

Modul-plus	numbers modules	content	heating surface	Hot water output								
				loading pump Biral				dm ³ /10 min. ²		dm ³ /h ³		
				Type	mWC ⁶	45 °C	60 °C	45 °C	kW ⁴	Flats ⁵		
F (21)	2	230	2,84	3,5	25	A13	2,4	478	900	1880	76,5	9
				8	120	A16	4,2	542	1300	2840	115,5	12
F (31)	3	345	4,26	4	40	A13	2,0	652	1350	2800	113,9	17
				7	120	A15	2,9	706	1800	3650	148,5	20
				12	450	Modul A 40-10 220 RED	6,1	778	2400	4600	187,2	25
F (41)	4	460	5,68	4	55	A13	2,0	907	1750	3350	136,3	30
				8	240	A16	4,2	1042	2700	5250	213,6	40
				10,5	440	Modul A 40-10 220 RED	7,8	1113	3200	6150	250,2	45
F (51)	5	575	7,10	4	75	A13	2,0	1187	2200	4900	199,4	45
				8	300	A16	4,2	1356	3200	6600	268,6	70
				12	720	Modul A 50-12 270 RED	9,0	1477	3950	7900	321,5	80
F (32)	6	690	8,52	8	45	A15	2,0	1305	2700	5600	227,9	60
				14	165	A501V2	3,3	1413	3600	7300	297,0	75
				18	300	Modul A 50-12 270 RED	4,1	1485	4200	8100	329,6	80
				24	530	Modul A 65-12 340 RED	8,0	1556	4800	9200	374,4	90
F (42)	8	920	11,36	8	62	A15	2,0	1814	3500	6700	272,6	100
				12	150	Modul A 50-6 240 RED	3,9	1970	4600	8700	354,0	>100
				16	260	Modul A 40-10 220 RED	4,0	2113	5400	10500	427,3	>100
F (52)	10	1150	14,20	8	82	A15	2,0	2374	4400	9800	398,8	>100
				16	340	Modul A 40-10 220 RED	4,0	2713	6400	13200	537,2	>100
				21	610	Modul A 65-12 340 RED	8,1	2877	7400	15600	634,8	>100

■ Technical data

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)

Modulplus Type	numbers modules	content dm³	heat surface m²	m³/h	mbar¹	Hot water output					
						loading pump Biral		dm³/10 min. ²		dm³/h³	
						Type	mWC⁶	45 °C	60 °C	45 °C	kW⁴
F (21)	2	230	2,84	3,5	25	A13	2,4	550	1360	2250	91,5
				8	120	A16	4,2	650	1960	3480	141,6
F (31)	3	345	4,26	4	40	A13	2,0	713	1850	3450	140,4
				7	120	A15	2,9	793	2550	4300	175,0
				12	450	Modul A 40-10 220 RED	6,1	893	3300	5800	236,0
F (41)	4	460	5,68	4	55	A13	2,0	978	2250	4100	166,8
				8	240	A16	4,2	1157	3500	6400	260,4
				10,5	440	Modul A 40-10 220 RED	7,8	1250	4150	7500	305,2
F (51)	5	575	7,10	4	75	A13	2,0	1329	3050	5650	229,9
				8	300	A16	4,2	1543	4350	7800	317,4
				12	720	Modul A 50-12 270 RED	9,0	1692	5250	9100	370,3
F (32)	6	690	8,52	8	45	A15	2,0	1426	3700	6900	280,8
				14	165	Modul A 50-6 240 RED	3,3	1585	5100	8600	350,0
				18	300	Modul A 50-12 340 RED	6,2	1671	5800	9800	398,8
				24	530	Modul A 65-12 340 RED	8,0	1785	6600	11600	472,0
F (42)	8	920	11,36	8	62	A15	2,0	1956	4500	8200	333,7
				12	150	Modul A 50-6 240 RED	3,9	2142	5800	10400	423,2
				16	260	Modul A 40-10 220 RED	4,1	2314	7000	12800	520,9
F (52)	10	1150	14,20	8	82	A15	2,0	2658	6100	11300	459,8
				16	340	Modul A 40-10 220 RED	4,0	3085	8700	15600	634,8
				21	610	Modul A 65-12 340 RED	8,1	3316	10 000	17500	712,2

¹ mbar = flow resistance in the calorifier

¹ litre/10 min. = calorifier heated up to 60 °C

³litre/h = continual output per hour, cold water temperature 10 °C.

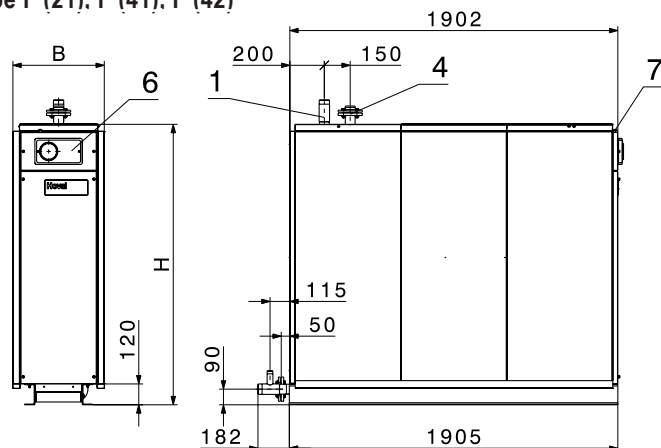
⁴kW = power input at 45 °C/ 10 °C

⁵ flats = number of flats with 1 bath each, which can be supplied with hot water (1 bath, 3-4 rooms, 4 persons per flat)

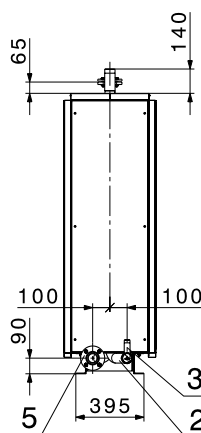
⁶ mWC = Residual overpressure

■ Dimensions

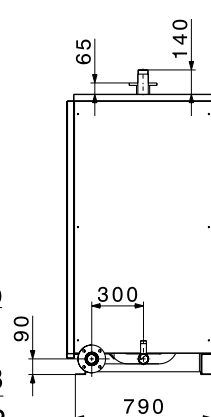
Type F (21), F (41), F (42)



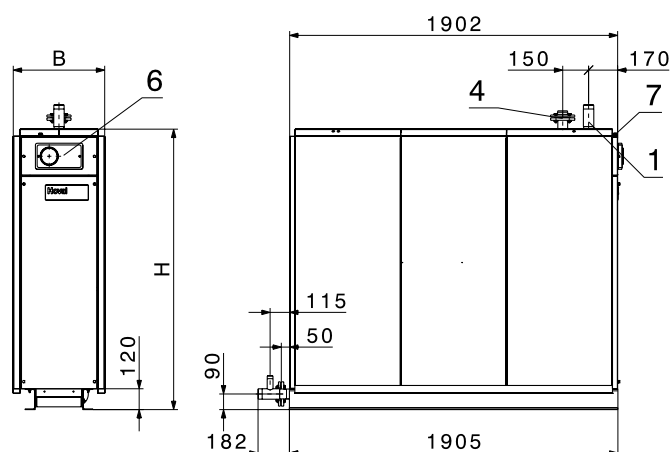
Type F (21), F (41)



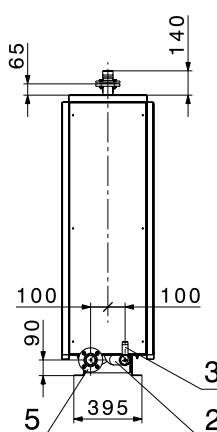
Type F (42)



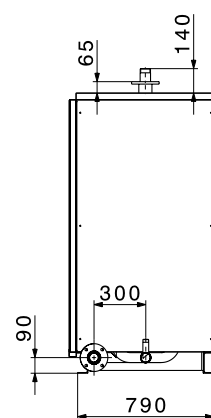
Type F (31), F (51), F (32), F (52)



Type F (31), F (51)



Type F (32), F (52)



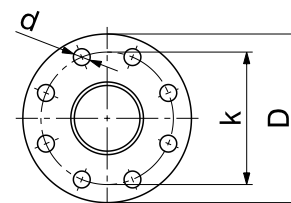
- 1 Hot water 2"
- 2 Cold water 2"
- 3 Circulation 1"
- 4 Heating flow*
- 5 Heating return*
- 6 Control panel
- 7 Electrical connection

* operating pressure 5 bar = standard flanges PN6

F 21 - 51	DN50
F 32 - 52	DN65

* operating pressure 8 & 10 bar = special flanges

	D	k	d
F 21 - 51	DN50	140	110
F 32 - 52	DN65	160	130



Type	B	H
F (21)/1615	530	1615
F (31)/1615	530	1615
F (41)/1800	530	1800
F (51)/2160	530	2160

Type	B	H
F (32)/1615	885	1615
F (42)/1800	885	1800
F (52)/2160	885	2160

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

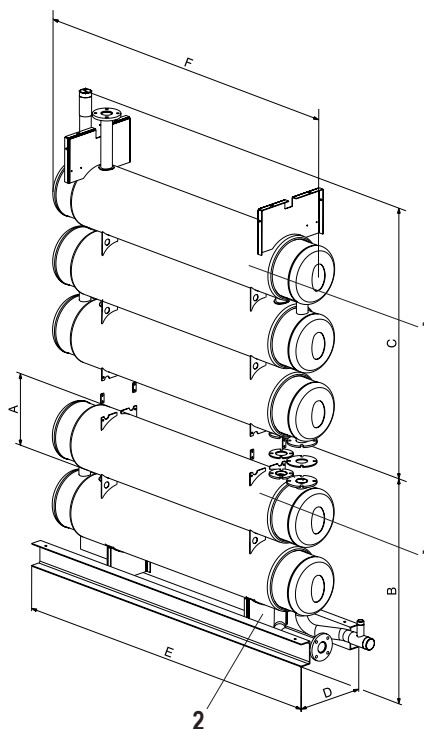
■ Engineering

Installation on site

Installation on-site Modul-plus F (31 - 52)

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

- The calorifier is delivered in separate parts: module elements, base rail and casing.
- Installation of the calorifier into the appropriate room on site.
- Welding together by Hoval.
- The element welding on-site incl. pressure test has to be acquired from Hoval.



- 1 Modular elements
2 Base rail with saddles

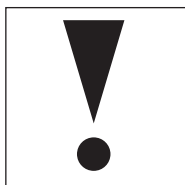
Dimensions of the separate parts

Modul-plus Type	A	B	C	D	E	F
F31 F32	330	877	738	395 790	1905	1766
F41 F42	330	877	923	395 790	1905	1766
F51 F52	330	877	1283	395 790	1905	1766

■ Engineering

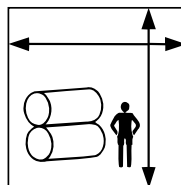
Installation on site

Planning information



Important preparations

- Former calorifier has to be removed already.
- The heating room, if necessary with a base, has to be ready at the beginning of work.



Preparation of the heating room

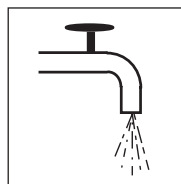
Necessary space

There has to be enough space available for the installation of the calorifier in the heating room (see list required space).



Calorifier material

- The material will be delivered in different parts and has to be installed **on site**.

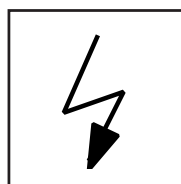


Water connection

There has to be a water connection with fresh water 3/4" (DN20) in the heating room, for the filling and pressure test of the welded calorifier.

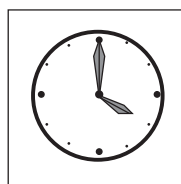


- If the installation of the calorifier will not be done immediately after delivery, the different parts have to be stored protected from weather.



Electrical connection

There has to be available a 5 pole electric connection, 3 x 400 V for the welding machine.



Schedule

Installation on site	½ day
Welding incl. pressure test	½ day
Casing on site	¼ day

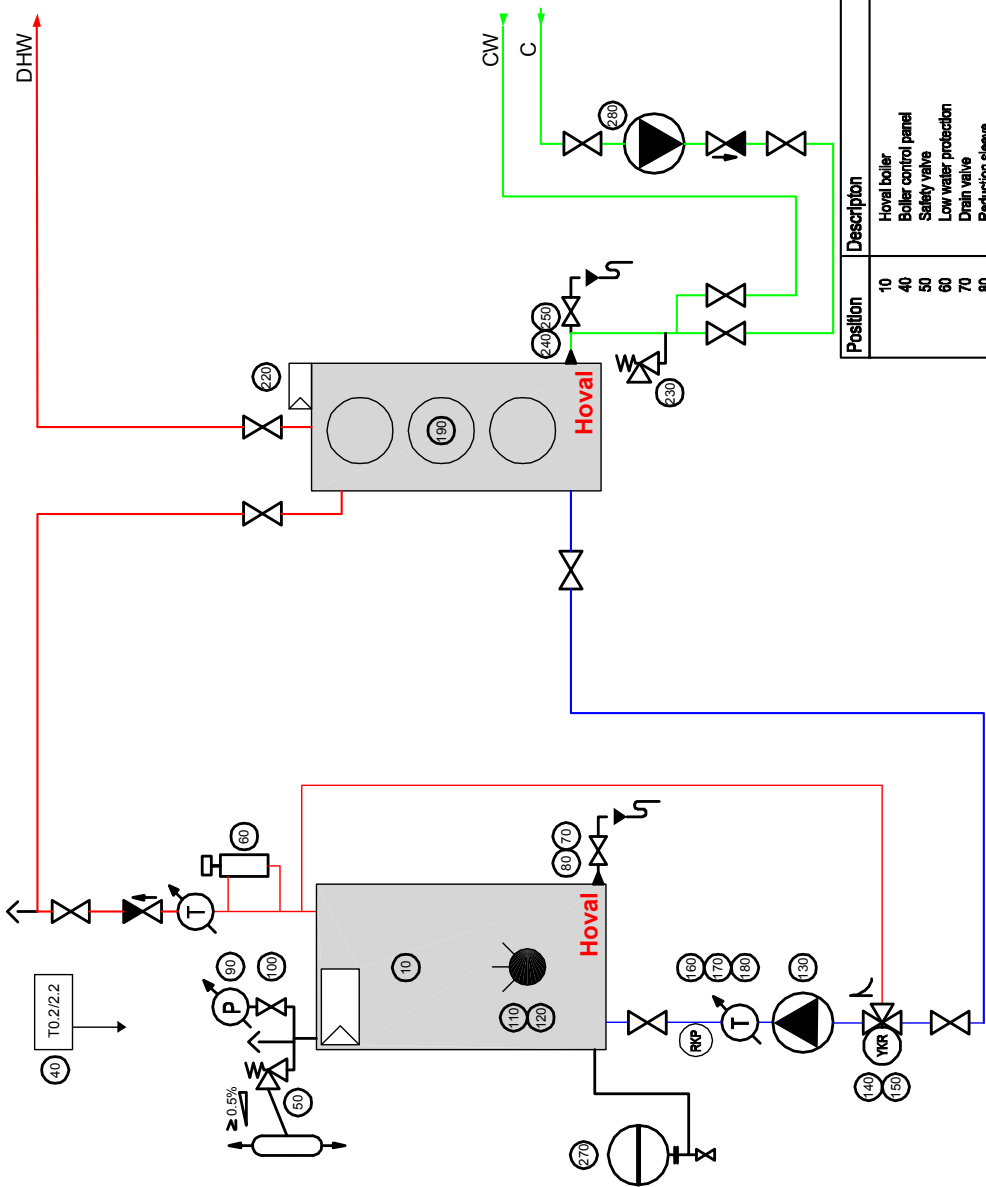
Required space for installation and welding in the heating room

Minimal dimensions in the heating room in m

	F (31/32)	F (41/42)	F (51/52)
length	2,0	2,0	2,0
width	1,8	1,8	1,8
height	2,0	2,0	2,5

■ Examples

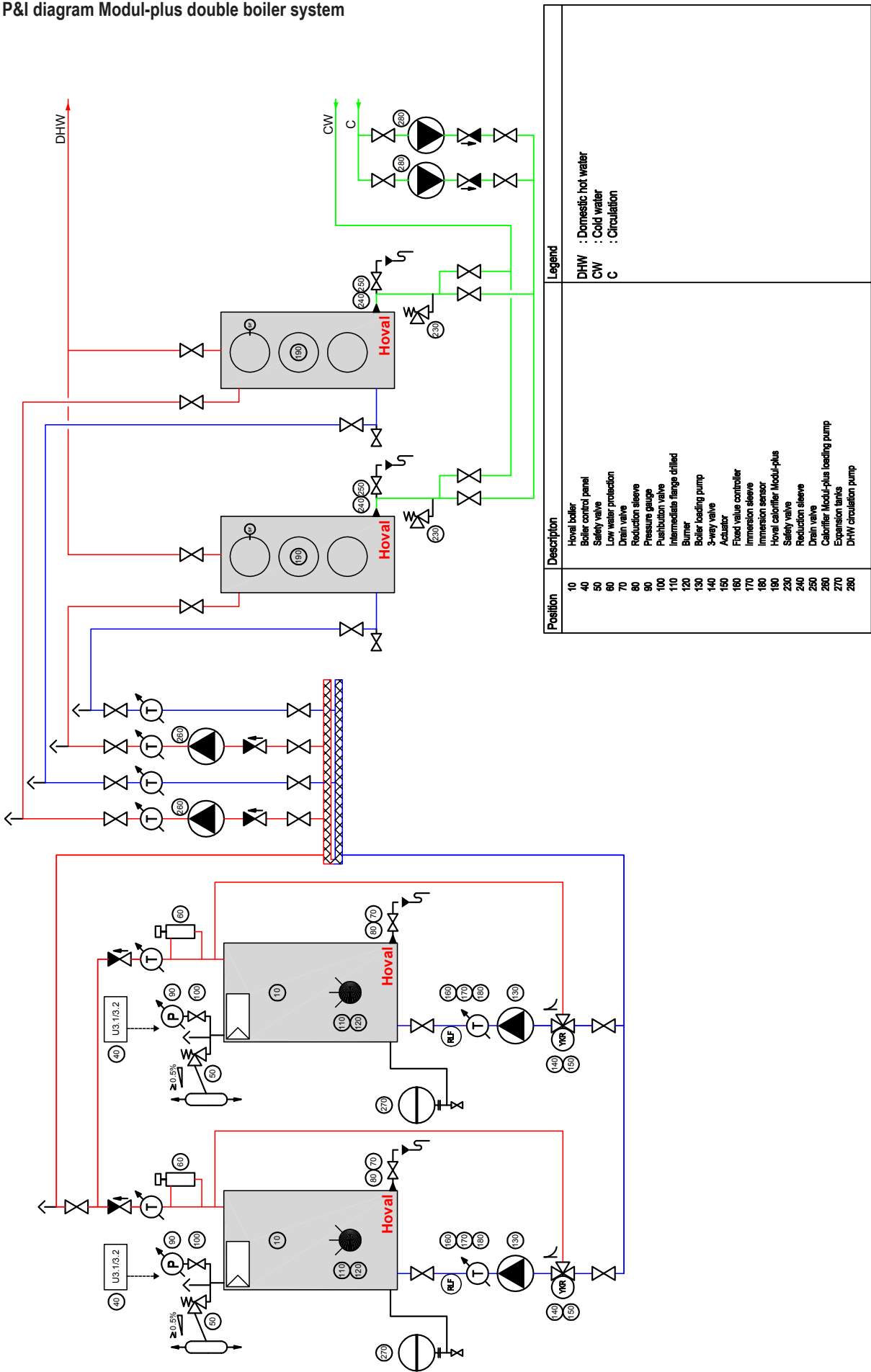
P&I diagram Modul-plus single boiler system



Position	Description	Legend
10	Hoval boiler	DHW : Domestic hot water
40	Boiler control panel	CW : Cold water
50	Safety valve	C : Circulation
60	Low water protection	
70	Drain valve	
80	Reduction sleeve	
90	Pressure gauge	
100	Pushbutton valve	
110	Intermediate flange drilled	
120	Burner	
130	Boiler loading pump	
140	3-way valve	
150	Actuator	
160	Fixed valve controller	
170	Immersion sleeve	
180	Immersion sensor	
190	Hoval calorifier Modul-plus	
220	Calorifier Modul-plus control panel	
230	Safety valve	
240	Reduction sleeve	
250	Drain valve	
270	Expansion tanks	
280	DHW circulation pump	

■ Examples

P&I diagram Modul-plus double boiler system



■ **Description**

Hoval CombiVal WPE, WPER

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

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

Design

- 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
- Air temperature range -10 °C to +35 °C

WPER (300):

available with integrated heater battery

Delivery

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

On site

- Loading pump and sensor for heating boiler operation
- Air ducting



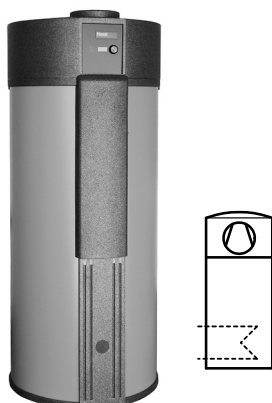
CombiVal Type	Refrigerant	Output kW
WPE (300)	R134a	1,42
WPER (300) ¹	R134a	1,42

¹ with integrated heater battery

Certifications

Test number of SVGW	0411-4897
Test certificate	
WPZ	Nr. B-029-12-17

■ Part N°



Calorifier - heat pump

Part N°

Hoval CombiVal WPE, WPER

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. Cased and ready to plug in. Defrosting operation and microprocessor comfort control included.

Type	Persons ¹ approx.	Electrical immersion kW	Heating battery m ²	
WPE	4	2,0	-	7011 509
WPER	4	2,0	1,0	7011 510

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

Accessories

for recharge



Cable sensor KVT 20/5/6S
5 m cable and plug

6012 687



Cable sensor KVT 20/5/6
with 5 m cable

2022 992



Temperature sensor TF 25/12K
with cable for connection to modulating gas boiler with TopTronic® RS-OT

2426 17

With TopTronic®T - temperature sensor is included in the boiler control or in the control set.

Service

Commissioning

Commissioning must be made by works service or Hoval trained authorized serviceman/ company is condition for warranty.

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

■ Technical data

Calorifier - heat pump

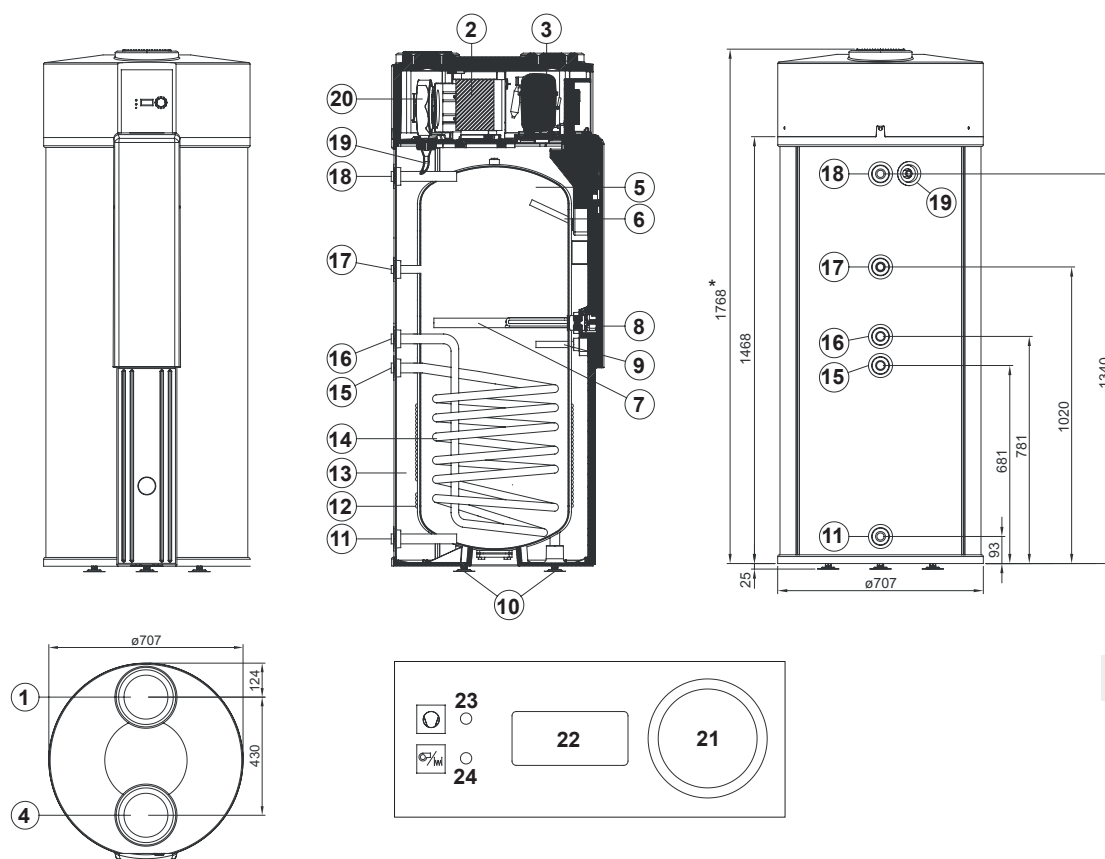
Type			WPE	WPER
• Volume	liter		266	258
• Operating pressure / test pressure			bar	6 / 12 6 / 12
• Max. operating temperature:	Heat pump operation	°C	55	55
	Boiler operation	°C	65	65
	Electric operation	°C	65	65
• Recommended economy temp.: Heat pump operation:		°C	48	48
• Polystyrene foam thermal insulation	mm		35-100	35-100
• Heat loss	Watt		92	92
• Weight	kg		114	137
• Dimensions:	Height	mm	1780	1780
	Diameter	mm	710	710
	Depth	mm	720	720
	Air inlet / outlet Ø	mm	160	160
<i>Heater coils (integral)</i>				
• Heating surface	m ²		-	1,0
• Heating water	liter		-	5,9
• Flow resistance at 1m ³ /h	mbar		-	25
• Operating pressure	bar		-	3
• Flow temperature maximum	°C		-	80
<i>Heat pump</i>				
• Refrigerant			R 134a	R 134a
• Filling	kg		0,86	0,86
• Heat output ¹	kW		1,42	1,42
• Electric power consumption ¹	kW		0,395	0,395
• Performance ¹	COP		2,82	2,82
• Power consumption	A		2,6	2,6
• max. starting current	A		9,8	9,8
• Electric fuse protection	A		13 T	13 T
• Supply air temperature maximal	°C		35	35
• Supply air temperature minimal	°C		-10	-10
• Nominal air quantity (not under load)				
	Stage 1	m ³ /h	200	200
	Stage 2	m ³ /h	300	300
• Ext. pressure				
	Stage 1	Pa	30	30
	Stage 2	Pa	80	80
• Sound pressure level				
	Stage 1	dB(A)	49	49
	Stage 2	dB(A)	55	55
• Electrical immersion heater 230 V	kW		2,0	2,0
• Electric connection (device) voltage/frequency	V / Hz		230 / 50	230 / 50
• Hot water output / day ²				
	number of persons		4	4

¹ according to the following standards: EN16147:2011, EHPA Testing Regulation V1.5² Number of persons who can be supplied with hot water at the plants without hot water circulation (approximate values without recharge).

■ Dimensions

Hoval CombiVal WPE, WPER

(Dimensions in mm)



* with base 1890-1920 mm

- | | |
|--|--|
| 1 Air outlet Ø 160 mm | 13 Insulation |
| 2 Evaporator | 14 Heating coil (only WPER) |
| 3 Compressor | 15 Inlet heating coil (only WPER) R 1" |
| 4 Air inlet Ø 160 mm | 16 Outlet heating coil (only WPER) R 1" |
| 5 Enamelled tank | 17 Circulation nozzle R ¾" |
| 6 Immersion tube for sensor Ø 15 mm, length 160 mm | 18 Hot water outlet R 1" |
| 7 Anode | 19 Condensate discharge (plastic, Ø DN15) |
| 8 Heating element | 20 Fan |
| 9 Immersion tube for operating sensor Ø 15 mm, length 160 mm | 21 Operating button - rotary/pushbutton |
| 10 Adjustable feet | 22 Control panel (display) |
| 11 Cold water inlet R 1" | 23 Operating/warning light heat pump |
| 12 Safety condenser | 24 Operating/warning light auxiliary heating |

■ Engineering

Regulations and guidelines

The following regulations and guidelines should be complied with:

- Technical information and installation guide of Hoval company

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

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.

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 m³. The intake air should not contain any aggressive substances (ammonia, sulphur, chlorine, halogens, etc.).

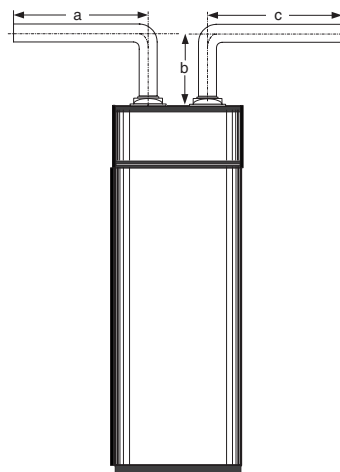
Air connection

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. 3m
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

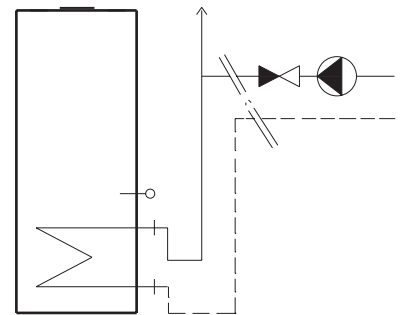
- If possible the DHW distribution system should be without circulation.
- Select short pipeline configurations.
- Pay attention to compatibility of water pipelines and calorifier.

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

- Warm water pipelines must be thermally insulated according to the local (cantonal) regulations.
- 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 DN15) 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)

- Calorifier or additional heater coils must be provided with loading 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 loading 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).

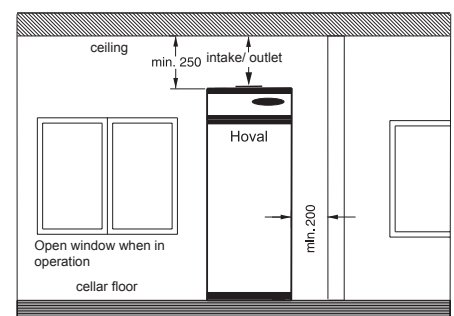


Electric connection

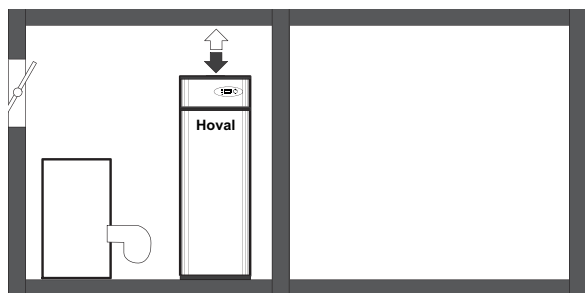
- Ready-for-use wiring (plug with 2 m cable) (power socket 230 V)

Required space

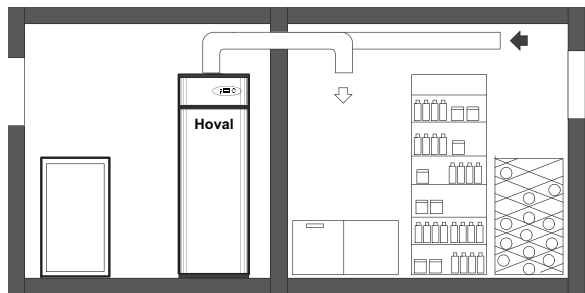
- Installation area diameter 700 mm
- Minimum distance to the walls min. 200 mm
- Required space operation side min. 600 mm
- Minimum distance to the ceiling: 250 mm



■ Examples

**Installation in the heating room**

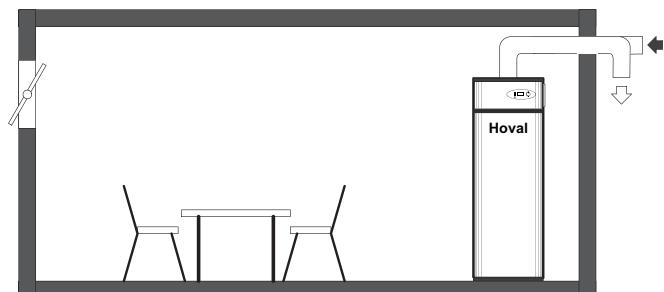
- *Air ducting*
Air drawn from and blown into the room
- Recovery of unusable waste heat

**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 m³
- Cooling, dehumidification (wine cellar, storeroom)

**Installation in the utility room**

- *Air ducting*
Air drawn from and blown into the room
- min. room volume 20 m³
- 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 1m.)
- Supply of pipeline incl. accessories by the customer (ventilating pipe made of plastic, aluminium or galvanized sheet steel).

Description

Calorifier charging system

Consisting of:

- calorifier charging module FWH
- hot water charging tank LSWE

Calorifier charging module FWH

- Fully assembled station with plate heat exchanger for the provision of domestic hot water using the tank storage principle
- The station is installed on a floor-standing welded steel frame.
- The primary side (heating side) contains the three-way valve, high-efficiency pump, air-bleeding, contact sensor and the filling and drain 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, non-return valve and a filling/drain valve. A flow sensor ensures the correct outlet temperature for the hot process water storage tank. Pipes made from stainless steel.
- Connections welded, with flat-sealing screw connections and ending in ball valves.
- Stainless steel plate heat exchanger EN 1.4404, copper-soldered
- PU rigid foam 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 supply) in the storage tank.
- Tank immersion sensor mounted on the tank on site and connected to the controller.
- T-piece with ball valves for on-site connection of the circulation group. Connect the pump to the controller on site.

Delivery

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

On site

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

Integrated electronic controller for the hot water charging system, incl. sensor, with thermal disinfection of the DHW storage tank (anti-legionella circuit)

Control functions

- Demand for hot water charging via switch-on and switch-off sensor in the charging tank and time program
- Maintenance of the desired hot water temperature in the storage tank and at the heat exchanger outlet; regulation of the DHW charging temperature to set value or to the disinfection temperature via mixer control in the primary circuit
- Demand for heating and process water charging pump
- Boiler demand
- Circulation pump switched on and off in accordance with time program
- Legionella protection via heating of the storage tank to an adjustable disinfection temperature at the preset starting time once per day or once per week



Calorifier charging module	Output
Type	kW
FWH (69)	69
FHW (110)	110
FWH (138)	138
FHW (185)	185
FWH (274)	274
FWH (522)	522

Delivery

- Incl. thermometer, non-return valves, cut-off ball valves on the drinking water side.
- All armatures required for operation, such as strainers, flow balancing and cut-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 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.

Water quality

see end of this brochure

Hot water charging tank LSWE

- Temperature-controlled steel charging tank without integrated heating coil for combination with storage tank charging station FWH.
- With one or two (from a tank volume of 1500 l) flanges, Ø 250 mm, with mounted blind plate for maintenance or for the installation of an additional heat exchanger or electric heating element.
- High degree of protection against corrosion through enamelling in accordance with DIN 4753 and Mg protective anode (up to a tank volume of 1000 l) or high-quality impressed current anode (1500-2000 l).
- Charging tank LSWE 500 with PU rigid foam foamed on the tank, 800-2000l, with separately supplied polyurethane soft foam thermal insulation, insulation thickness 120 mm, and foil casing.



Calorifier charging tank	Content
Type	litres
LSWE (500)	500
LSWE (800)	800
LSWE (1000)	1000
LSWE (1500)	1500
LSWE (2000)	2000

Screw-in electric heating elements

Type EP-2 to EP-9

- Made from Incoloy® alloy 825
- Heat outputs 2 to 9 kW
- With temperature regulator and overheating protection
- Connection: EP-2 with 1 x 230 V, EP-3 to EP-9 with 3 x 400 V
- Not suitable for exclusively electric heating.

Delivery

- Included in separate packaging

On site

- Installation of the electric heating element

Flange-mounted electric heating elements for LSWE (500-2000)

Type EFHR 8.5

- Made from Incoloy® alloy 825
- Heat output 8.5 kW, depending on specifications from electricity provider
- With temperature regulator and overheating protection
- Connection 3 x 400V

Delivery

- Included in separate packaging

On site

- Installation of the electric heating element

Water quality

see end of this brochure

■ Part N°


Calorifier charging module FWH

Part N°

Storage tank charging station
Output

Type		kW	
FWH (69)		69	6032 014
FWH (110)		110	6031 569
FWH (138)		138	6032 015
FWH (185)		185	6031 570
FWH (274)		274	6032 016
FWH (522)		522	6032 017

Hot water charging tank LSWE

Enamelled charging tank with one flange, without heating coil, Type series (500-1000)

Enamelled storage tank calorifier
 Flange Ø 257 mm with mounted blind plate
 Flange protective cover incl. Mg protective anode
 incl. thermal insulation:
 LSWE (500) foamed onto the tank
 LSWE (800,1000) PU soft foam
 made from steel

Type

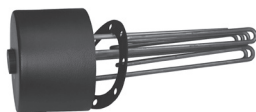
LSWE (500)	7006 319
LSWE (800)	7010 986
LSWE (1000)	7010 987

Enamelled large charging tank with two flanges, without heating coil, Type series (1500,2000)

Enamelled storage tank calorifier
 two flanges Ø 257 mm with mounted blind plate
 incl. PU soft foam thermal insulation, 120 mm, with plastic casing and flange protective cover
 incl. impressed current anode
 made from steel

Type

LSWE (1500)	7006 799
LSWE (2000)	7006 800


Flange-mounted electric heating elements for LSWE (500-2000)

Heat output [kW]
 depending on specifications from electricity provider

EFHR	Factory-installed circuit	Install. length mm	changeable to	for LSWE	
9-250	8.5 kW/3x400 V	380		(500-2000)	6032 217
			5.7 kW/3x400 V 4.2 kW/3x400 V 2.8 kW/1x230 V		

■ Part N°

Part N°


**Screw-in electric heating elements
for LSWE (500-2000)**

With temperature regulator and overheating protection. Delivered separately, installation on site.

Not suitable for exclusively electric heating.

EP-2: 230 V

EP-3 - EP-9: 3 x 400 V

Type	Heat output kW	Install. length mm	for LSWE	
EP-2	2.0	500	(500-2000)	2002 412
EP-3	3.0	390	(500-2000)	2022 216
EP-4.5	4.5	500	(500-2000)	2022 217
EP-6	6.0	620	(500-2000)	2022 218
EP-9	9.0	850	(1500,2000)	2022 219


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 6K, capillar length 700 mm incl. fastening material for Hoval storage tanks, can be used with integrated immersion well

6010 080


Correx external current-anode

for long-term corrosion protection for installation in the water heater instead of magnesium protection anodes inclusive reducing elbow fitting.

6847 60

Included in the scope of supply for the LSWE (1500,2000).

In every case, **either** a Correx impressed current anode **or** one/two magnesium anodes may be used.


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 Δp = 1 bar)

Flow coefficient value (kvs) 1.62

2005 915

■ Technical data

Calorifier charging module FWH (69-138)

FWH type		(69)		(110)		(138)	
Output	kW	69		110		138	
Circuit		Prim.	Sec.	Prim.	Sec.	Prim.	Sec.
• Design temperature On/Off	°C	70/30	10/60	70/30	10/60	70/30	10/60
• Flow rate	l/min	24.7	19.7	38.8	31.0	49.8	39.6
• LMTD heat exchanger	K	14.4	14.4	14.4	14.4	14.4	14.4
• Content, heat exchanger	l	0.72	0.78	1.14	1.20	1.68	1.75
• Pump delivery head (max. stage)	mbar	630	530	500	510	395	460
• Residual overpressure, pump	mbar	308	324	187	318	187	259
• Flow temperature (Tmax)	°C	95	95	95	95	95	95
• max. operating pressure	bar	6	10	6	10	6	10
• Electrical connection	V AC	230	230	230	230	230	230

Calorifier charging module FWH (185-522)

FWH type		(185)		(274)		(522)	
Output	kW	185		274		522	
Circuit		Prim.	Sec.	Prim.	Sec.	Prim.	Sec.
• Design temperature On/Off	°C	70/30	10/60	70/30	10/60	70/30	10/60
• Flow rate	l/min	62.7	50.1	99.1	79.1	185.8	148.6
• LMTD heat exchanger	K	14.4	14.4	14.4	14.4	14.4	14.4
• Content, heat exchanger	l	2.04	2.10	4.76	4.90	11.44	11.70
• Pump delivery head (max. stage)	mbar	650	440	850	560	600	450
• Residual overpressure, pump	mbar	332	257	528	292	321	287
• Flow temperature (Tmax)	°C	95	95	95	95	95	95
• Max. operating pressure	bar	6	10	6	10	6	10
• Electrical connection	V AC	230	230	230	230	230	230

Hot water charging tank LSWE (500-2000)

LSWE type		(500)	(800)	(1000)	(1500)	(2000)
• Content	litres	500	800	1000	1500	2000
• Thermal insulation		PU rigid foam, foamed on		PU soft foam, delivered separately		
• Max. operating pressure/test pressure	bar	6/9	6/9	6/9	6/9	6/9
• Max. DHW temperature	°C	95	95	95	95	95
• Diameter ¹	mm	650	790	790	1000	1100
• Diameter ²	mm	750	1030	1030	1240	1340
• Height	mm	1600	1840	1980	2130	2450
• Weight	kg	105 ²	142	150	224	284

¹ without thermal insulation

² with thermal insulation

■ Technical data

Hot water outputs

Charging module FWH (69)

Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	1482	1185	1185	1693	281	1685	401	2407
800	1482	1185	1185	1693	331	1985	473	2835
1000	1482	1185	1185	1693	364	2185	520	3121
1500	1482	1185	1185	1693	447	2685	639	3835
2000	1482	1185	1185	1693	531	3185	758	4550

Charging module FWH (110)

Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	2328	1860	1860	2657	393	2360	562	3371
800	2328	1860	1860	2657	443	2660	633	3800
1000	2328	1860	1860	2657	477	2860	681	4086
1500	2328	1860	1860	2657	560	3360	800	4800
2000	2328	1860	1860	2657	643	3860	919	5514

Charging module FWH (138)

Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	2988	2376	2376	3394	479	2876	685	4109
800	2988	2376	2376	3394	529	3176	756	4537
1000	2988	2376	2376	3394	563	3376	804	4823
1500	2988	2376	2376	3394	646	3876	923	5537
2000	2988	2376	2376	3394	729	4376	1042	6251

Charging module FWH (185)

Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	3762	3006	3006	4294	584	3506	835	5009
800	3762	3006	3006	4294	634	3806	906	5437
1000	3762	3006	3006	4294	668	4006	954	5723
1500	3762	3006	3006	4294	751	4506	1073	6437
2000	3762	3006	3006	4294	834	5006	1192	7151

Charging module FWH (274)

Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	5947	4748	4748	6783	875	5248	1250	7498
800	5947	4748	4748	6783	925	5548	1321	7926
1000	5947	4748	4748	6783	958	5748	1369	8212
1500	5947	4748	4748	6783	1041	6248	1488	8926
2000	5947	4748	4748	6783	1125	6748	1607	9641

Charging module FWH (522)

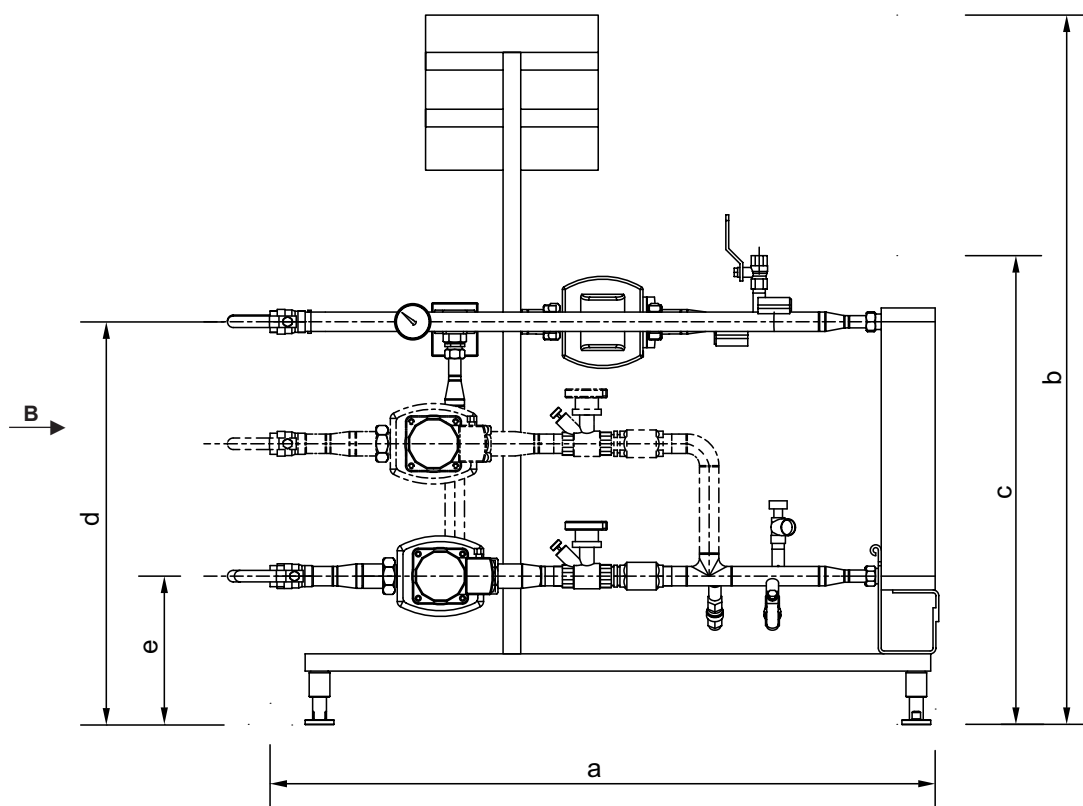
Charging tank content [l]	Flow rate Primary (flow 70°C - return 30°C) [l/h]	Flow rate Secondary (CW 10°C - DHW 60°C) [l/h]	Hot water outputs					
			Continuous output		Peak output			
			(10°C -> 60°C) [l / h]	(10°C -> 45°C) [l / h]	(10°C -> 60°C) [l / 10 min]	(10°C -> 45°C) [l / h]	(10°C -> 45°C) [l / 10 min]	(10°C -> 45°C) [l / h]
500	11146	8915	8915	12736	1569	9415	2242	13451
800	11146	8915	8915	12736	1619	9715	2313	13879
1000	11146	8915	8915	12736	1653	9915	2361	14165
1500	11146	8915	8915	12736	1736	10415	2480	14879
2000	11146	8915	8915	12736	1819	10915	2599	15593

■ Dimensions

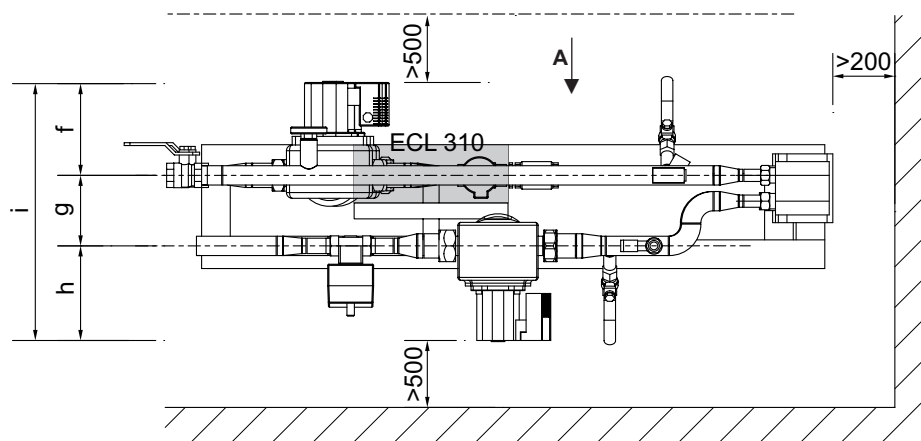
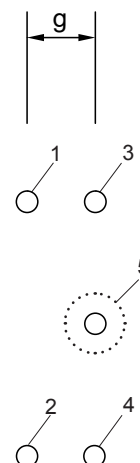
(Dimensions in mm)

Charging module FWH (69-522)

View A



View B



Connections

FWH type			(69)	(110)	(138)	(185)	(274)	(522)
1	Heating flow	ext. thread	1"	1"	1"	1 1/4"	1 1/4"	2"
2	Heating return	ext. thread	1"	1"	1"	1 1/4"	1 1/4"	2"
3	Drinking water warm	int. thread	1"	1"	1"	1 1/4"	1 1/4"	2"
4	Drinking water cold	int. thread	1"	1"	1"	1 1/4"	1 1/4"	2"
5	Drinking water circulation (on site)	int. thread	1"	1"	1"	1 1/4"	1 1/4"	2"

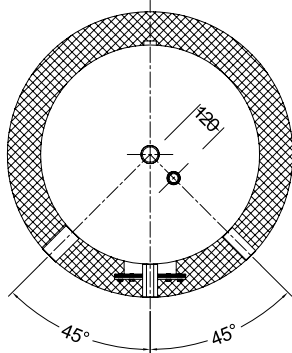
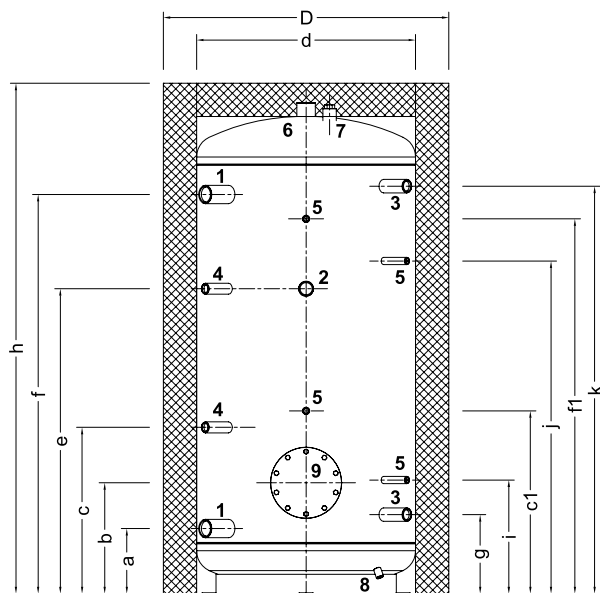
Dimensions

FWH type	a	b	c	d	e	f	g	h	i
(69)	1301	1273	670	528	258	172	123	116	450
(110)	1372	1473	897	782	303	172	150	116	450
(138)	1456	1473	897	782	303	193	150	158	500
(185)	1492	1473	901	782	303	193	172	193	500
(274)	1570	1473	901	782	303	172	172	189	550
(522)	1881	1473	811	683	303	193	324	203	725

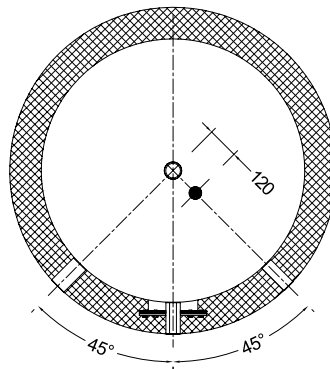
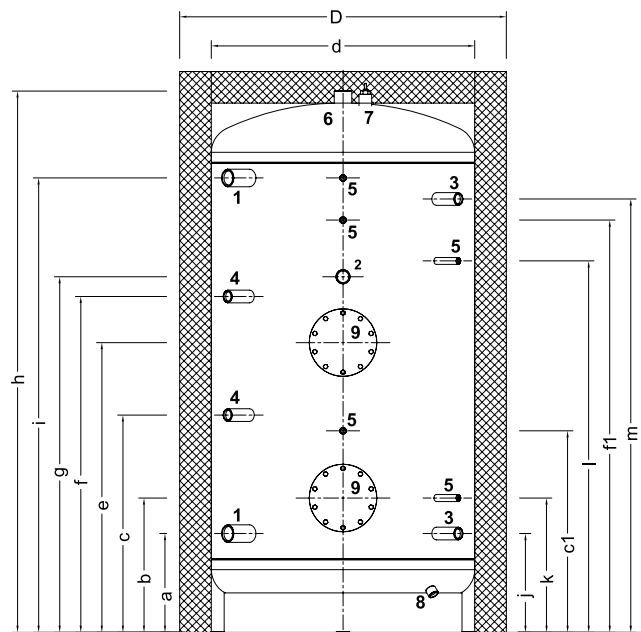
■ Dimensions

(Dimensions in mm)

Charging tank LSWE (500-1000)



Charging tank LSWE (1500,2000)



Connections

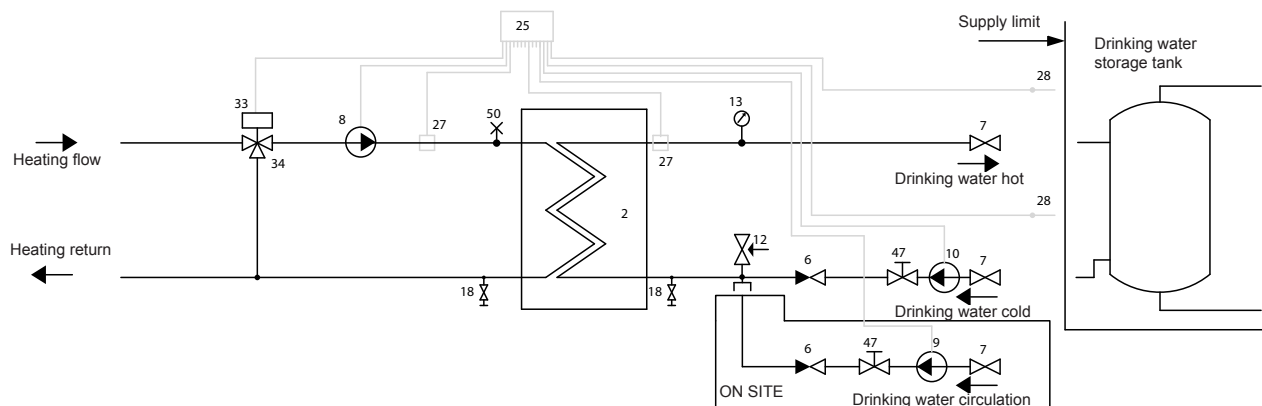
		LSWE type	Sleeve	Length [mm]
1	Drinking water connection	(500)	Rp 2"	50
		(800-2000)	Rp 2"	120
2	Connection for screw-in electric heating element	(500)	Rp 1½"	50
		(800-2000)	Rp 1½"	120
3	Drinking water connection	(500)	Rp 1¼"	50
		(800-2000)	Rp 1¼"	120
4	Circulation connection	(500)	Rp 1"	50
		(800,1000)	Rp 1"	120
		(1500,2000)	Rp 1¼"	120
5	Sleeve for immersion sleeve, thermostat or thermometer	(500)	Rp ½"	50
		(800-2000)	Rp ½"	120
6	Sleeve	(500-2000)	Rp 5"	50
7	Anode	(500-2000)	Rp 1¼"	45
8	Drain connection	(500)	Rp ½"	100
		(800)	Rp ½"	35
		(1000-2000)	Rp 1"	30
9	Hand hole flange (flange-mounted electric heating element)	Ø 257/180 mm, pitch circle Ø 225 mm, 10 x M10		

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

Dimensions

LSWE type	a	b	c	c1	d	D	e	f	f1	g	h	i	j	k	l	m	Tilted measure without insulation
(500)	230	360	600	600	650	750	900	1330	1330	210	1600	400	1200	1375	-	-	1785
(800)	235	400	600	600	790	1030	1100	1440	1440	285	1840	410	1200	1470	-	-	1800
(1000)	235	400	600	675	790	1030	1100	1650	1440	310	1980	410	1200	1580	-	-	1950
(1500)	375	510	825	765	1000	1240	1100	1275	1565	1350	2130	1725	375	510	1410	1645	2120
(2000)	350	545	900	810	1100	1340	1200	1450	1755	1550	2450	2000	450	580	1590	1720	2420

■ Examples



- | | | | |
|----|---------------------|----|------------------------|
| 2 | Heat exchanger | 18 | Drain |
| 6 | Non-return valve | 25 | Controller ECL310/A217 |
| 7 | Ball valve | 27 | Contact sensor |
| 8 | Primary pump | 28 | Immersion sensor |
| 9 | Circulation pump | 33 | Actuator 230V |
| 10 | Tank charging pump | 34 | 3-way mixing valve |
| 12 | Safety valve 10 bar | 47 | Control valve |
| 13 | Thermometer 0-120°C | 50 | Air vent |

■ Description

Hoval fresh water module FWM 70

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

- High-output stainless steel plate heat exchanger
- Integrated heating water charging pump
- Flow switch for heating water charging pump
- Cut-off armatures
- Thermostatic hot water temperature control
- Piping pre-installed for quick assembly
- Wall-mounted
- Ready-to-connect
- Wall casing
- Cover panel

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 70 kW (30 l/min)

Hoval circulation module for fresh water module FWM 70

Pre-assembled, for installation on-site, incl. cable and plug

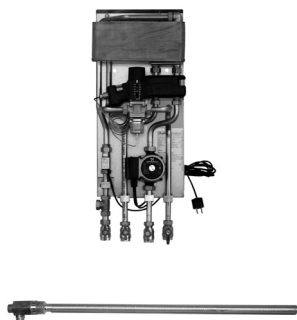
Circulating pump with integrated timer and circulation temperature control, as well as with pre-mounted safety valve.

Minimum requirements on water quality for fresh water modules (copper brazed stainless steel plate heat exchanger) - see Engineering hot water



FWM 70 incl. circulation module

■ Part N°



Hoval fresh water module FWM 70

Part N°

Fresh water module FWM 70

6027 874

Hygienic water heater with thermostatic control of the hot water temperature by means of quick-acting water temperature controller, heating charging pump for constant hot water temperature and optimum buffer utilisation, incl. cover panel.

Circulation heat exchanger lance R1''

2038 434

is screwed into the buffer storage tank and integrated into the circulation pipe.
Material: copper, inside tin-plated
Transfer output approx. 1 kW at 60°C hot water temperature in the buffer storage tank without mixing of the tank temperature.
Circulation connections R ½"

Circulation module

6027 875

for FWM (70) Hoval Z FWM (70)
pre-assembled, for later installation to FWM (70)
consisting of:
circulating pump with timer
integrated control of temperature
non-return valve, ball valve Rp ¾"
Cable and plug, safety valve 10 bar

■ Technical data

Hoval fresh water module FWM 70

Type fresh water module

FWM 70

FWM 70

Output	kW		70
Connection dimension		Heating flow/ return Cold / hot water	G 3/4" (external thread) G 3/4" (external thread)
Dimensions W x H x D	mm	With casing Without casing	H 700 x W 315 x D 165 H 700 x W 300 x D 160
Weight (incl. packaging)	kg		20
Controller protection class			IP 54
Supply voltage	V		230
Heat exchanger DHW side:			
Max. operating pressure	bar		10
Test pressure	bar		13
Max. DHW temperature	°C		70
Design temperatures Cold water / hot water			Cold water 10°C - hot water 45°C
Heat exchanger, heating side:			
Max. operating pressure	bar		10
Test pressure	bar		13
Max. permissible operating temperature	°C		120
Design temperatures Heating flow / return	°C		Heating flow 65°C - return 25°C
Flow resistance	z value		181

Hot water outputs:

Type FWM:

FWMZ 70

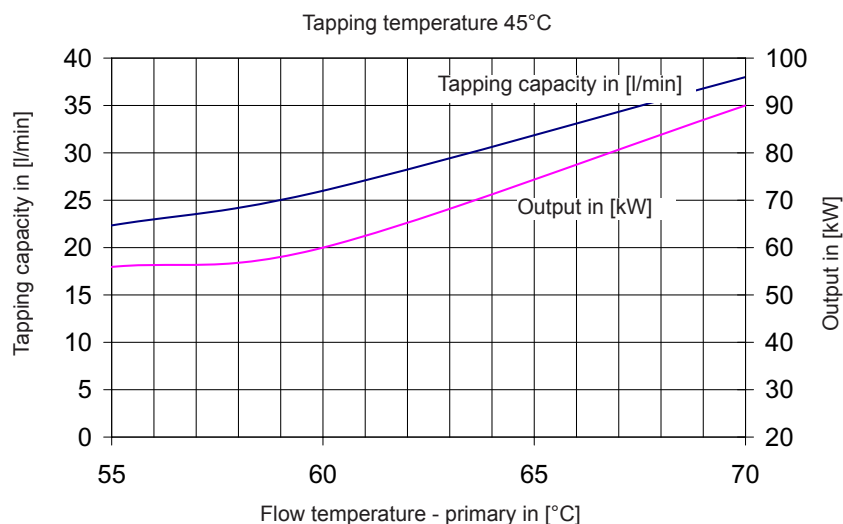
Output:

kW**70**

Continuous hot water output
Tank volume

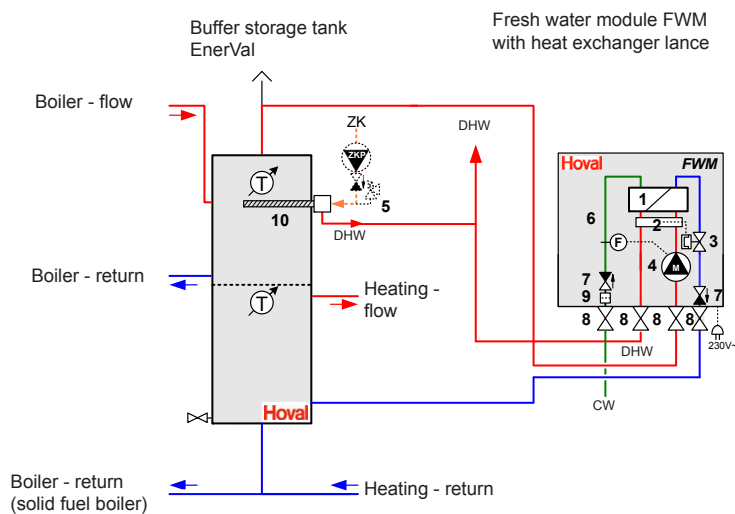
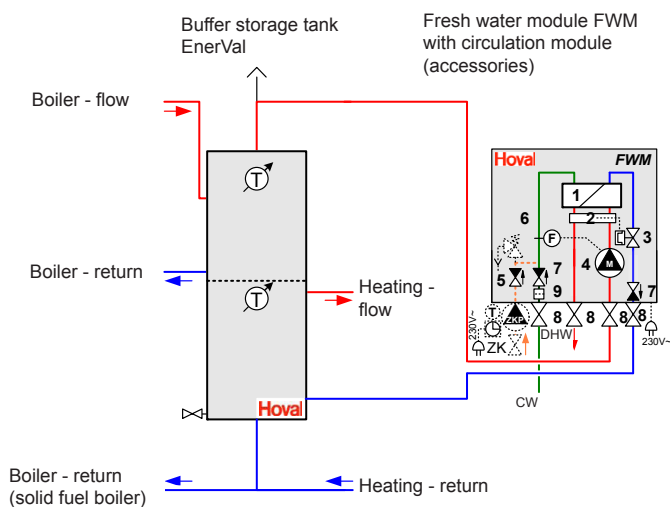
l/min - 45°C

10 > 45°C at flow
Heating = 65°C

30

■ Technical data

Construction FWM 70

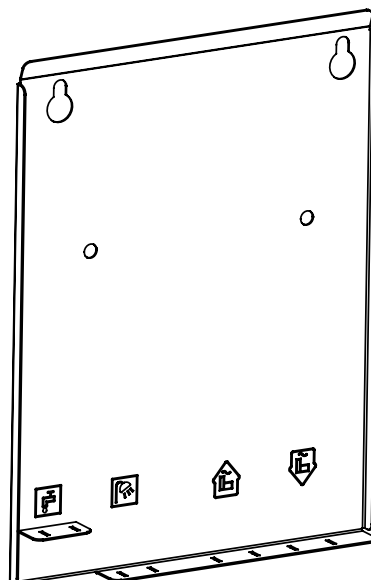
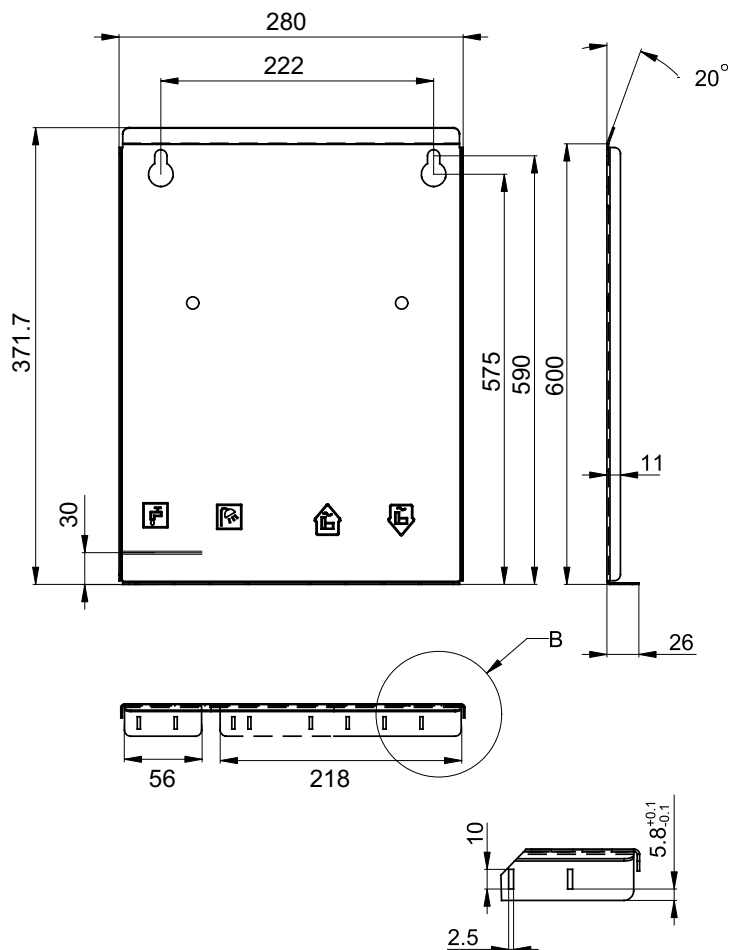


- | | |
|--|-------------------------------------|
| 1 Stainless steel plate heat exchanger | 7 Non-return valve |
| 2 Hot water sensor, quick-acting | 8 Cut-off ball valve - flat-sealing |
| 3 Thermostatic control | 9 Strainer |
| 4 Heating water charging pump | 10 Heat exchanger lance |
| 5 Circulation (optional) | 11 Safety valve |
| 6 Flow switch | |

■ Dimensions

Hoval FWM 70

(Dimensions in mm)



■ Technical data

Functional description Hoval FWM 70

The Hoval fresh water module FWM 70, with all piping pre-installed and ready-to-connect, consists of a soldered stainless steel plate heat exchanger, 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.

■ Description

Hoval fresh water module FWM-E

Fresh water module for water heating in the continuous flow principle, comprising:

- Electronic hot water temperature regulator with display
- Steplessly controlled energy-saving charging pump
- Demand-dependent output control of the charging pump
- Hot water temperature can be set from 30°C to 70°C
- FWM-E (245-700):
Energy-saving circulation pump
FWM-E (50-145): optional, see Accessories
- Air-bleeding
- Seal-less, compact stainless steel plate heat exchanger with thermal insulation
- Compact design for minimum space requirement
- Regulation of the circulation temperature via output control of the circulation pump
- Circulation pump switching times can be set
- Thermal disinfection can be performed in the hot water system
- Including sensor and thermometer
- Safety valve (included in circulation set for the FWM-E (50)) and strainer in the cold water pipe
- Non-return valve in the circulation pipe and in the cold water pipe
- Mounted on wall frame, with full pipework and pre-wired, pipes made from stainless steel, flat-sealing
- Thermal insulation
FWM-E (50): with thermal insulation box

Option

- Cover:
FWM-E (80-365): sheet steel, painted white
- Accessories:
FWM-E (80-700):
Return flow switch comprising temperature sensor and switching valve with drive



FWM-E (245) with cover



FWM-E (245) without cover

Minimum water quality requirements for the use of a fresh water module (copper-soldered stainless steel plate heat exchanger)
see Engineering Hot water

■ Part N°



Hoval fresh water module FWM-E

Part N°

Fresh water module FWM-E

FWM-E (50)	6023 563
FWM-E (80)	6028 460
FWM-E (145)	6028 461
FWM-E (245)	6023 547
FWM-E (365)	6028 143
FWM-E (484)	6023 549
FWM-E (700)	6024 101

Cover

for FWM-E (80-145)

2038 406

Cover

for FWM-E (245-365)

2038 405

Return flow switch

for FWM-E (80-145)

Set consisting of temperature sensor and switching valve incl. drive

6030 344

Return flow switch

for FWM-E (245-484)

Set consisting of temperature sensor and switching valve incl. drive

6030 345

Circulation set

for FWM-E (50)

consisting of ball valve ¾", non-return valve, safety valve, circulation pump and temperature sensor.

2038 410

Circulation set

for FWM-E (80)

consisting of circulation pump, non-return valve, contact sensor, air vent, ball valve, thermometer.

6028 462

Circulation set

for FWM-E (145)

consisting of circulation pump, non-return valve, contact sensor, air vent, ball valve, thermometer.

6028 503

■ Technical data

Hoval fresh water module FWM-E (50-700)

Type	(50)	(80)	(145)	(245)	(365)	(484)	(700)
Heat exchanger	XB 06H-140	T100M-24	T100M-40	T100M-80	T100M-100	T100M-150	T200M-80
Primary pump	Star-RS15/ 6 -130	UPS 15-60	UPS 25-80	UPS 25-80	Magna GEO 25-100	Stratos 30/1-12	Stratos 40/1-12
IF module					incl.	incl.	incl.
Hot water circulation pump	Star Z 15 (Option)	UP 15-07 CIL2 130 (Option)	UP 15-30 N (Option)	UP 25-60 B	UP 25-60 B	UP 25-60 B	UP 25-80 N
Volume flow/ hot water sensor	VFS 2-40	VFS 2-40	VFS 5-100	VFS 5-100	VFS 10-200	VFS 10-200	VFS 20-400
Controller	FWC 3	FWC 4	FWC 4	FWC 4	FWC 4	FWC 4	FWC 4

■ Technical data

Fresh water module FWM-E (50)

DHW temperature °C	DHW Tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	20	50	60/20	18
10/45	14	34	50/27	21
10/45	25	60	75/16	15
10/55	18	55	75/20	15
10/55	12	36	60/30	18

Fresh water module FWM-E (80)

DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	19	47	50/27	29
10/55	18	57	60/32	29
10/60	29	80	70/30	29
10/45	40	97	75/18	24
10/55	33	102	75/24	29

Fresh water module FWM-E (145)

DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	35	85	50/27	53
10/55	33	102	60/32	53
10/60	42	145	70/30	53
10/45	83	202	75/19	52
10/55	60	186	75/24	53

Fresh water module FWM-E (245)

DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	60	145	50/25	85
10/55	56	175	60/30	85
10/60	71	245	70/28	85
10/45	133	323	75/17	80
10/55	97	310	75/22	85

Fresh water module FWM-E (365)

DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	88	214	50/26	132
10/55	83	259	60/31	132
10/60	106	365	70/30	132
10/45	183	444	75/17	111
10/55	150	467	75/24	132

Fresh water module FWM-E (484)

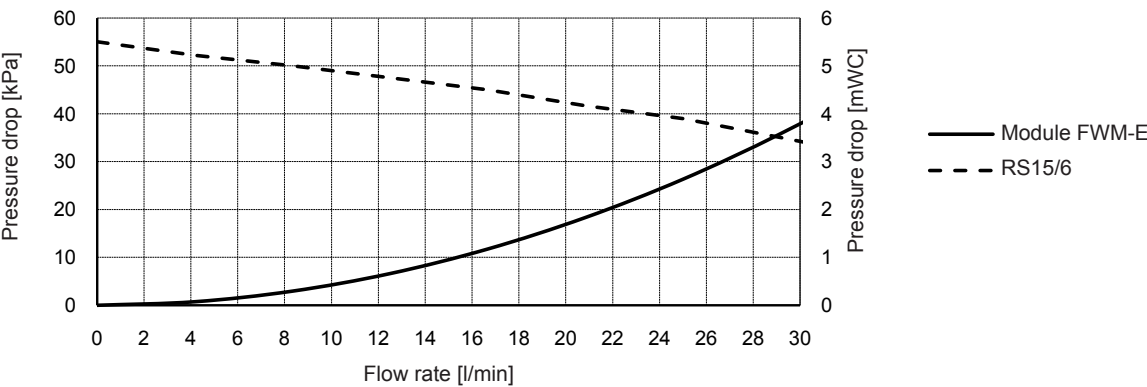
DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	118	286	50/25	168
10/55	111	345	60/30	168
10/60	140	484	70/28	168
10/45	183	444	75/15	107
10/55	183	571	75/22	155

Fresh water module FWM-E (700)

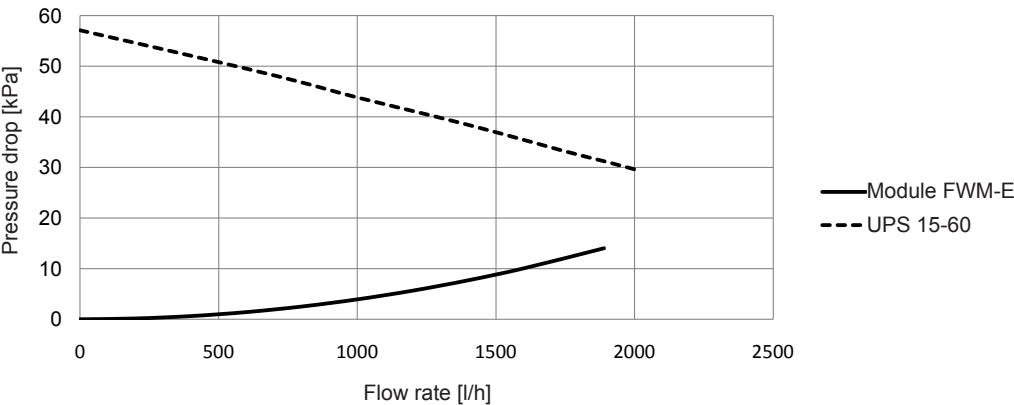
DHW temperature °C	DHW tapping quantity l/min.	DHW output kW	Flow / return Primary °C	Flow rate Primary l/min.
10/45	168	411	50/26	248
10/55	158	495	60/31	248
10/60	202	700	70/29	248
10/45	308	750	75/16	185
10/55	287	896	75/23	248

■ Technical data

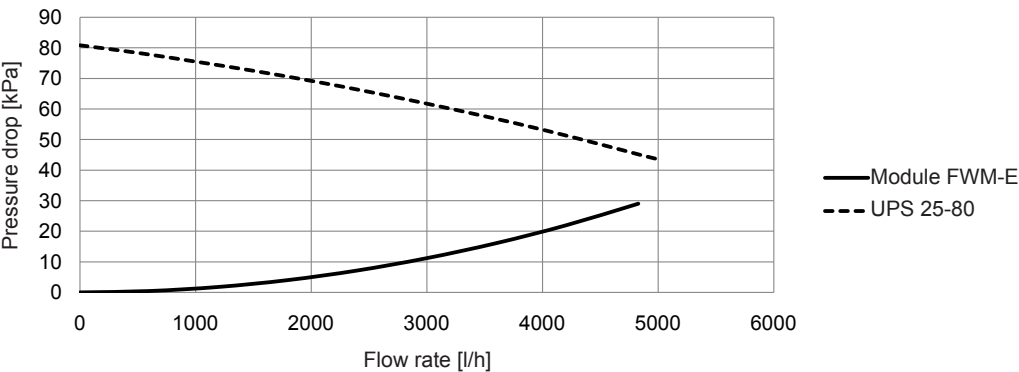
Hoval fresh water module FWM-E (50)



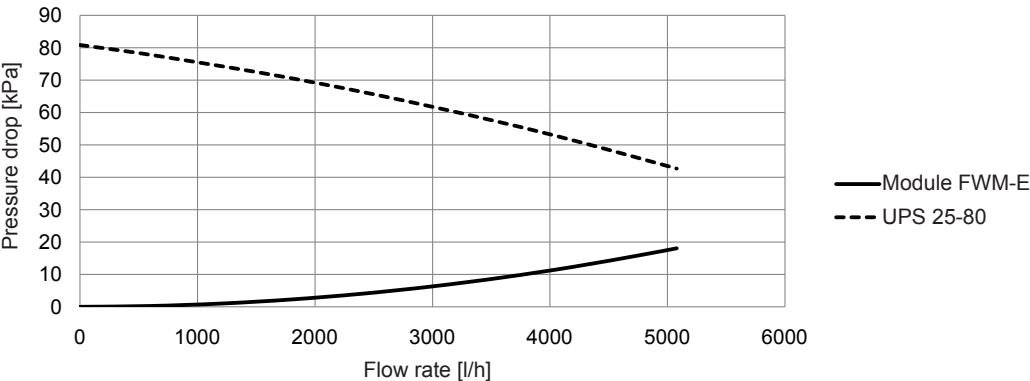
Hoval fresh water module FWM-E (80)



Hoval fresh water module FWM-E (145)

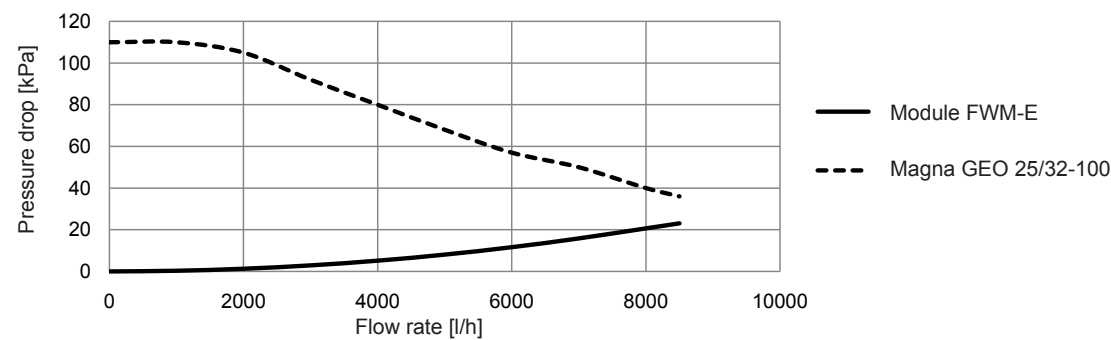


Hoval fresh water module FWM-E (245)

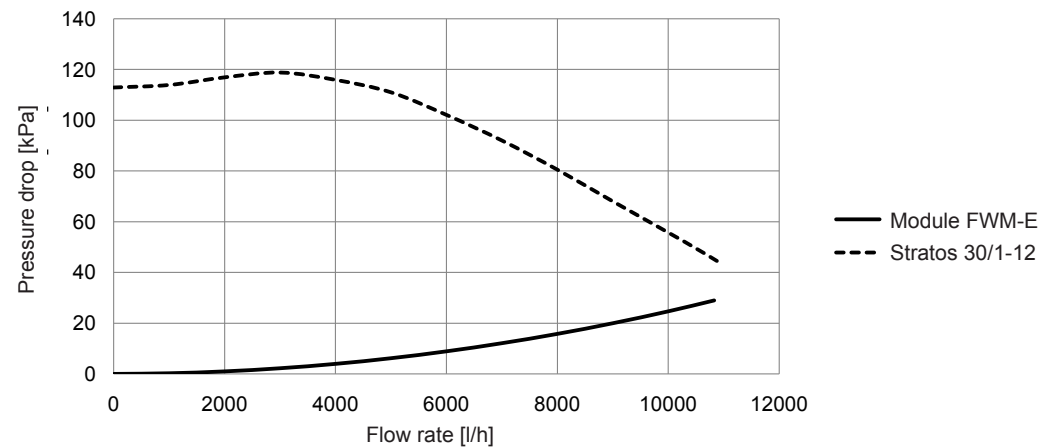


■ Technical data

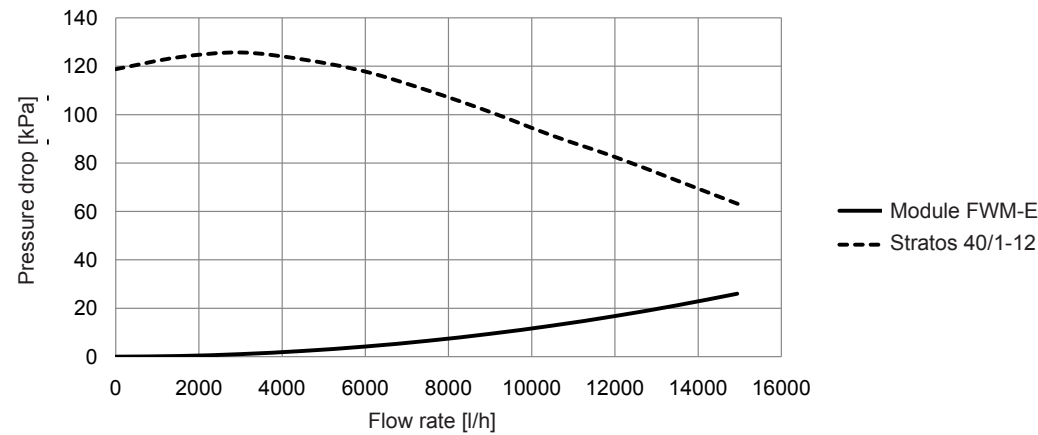
Fresh water module FWM-E (365)



Fresh water module FWM-E (484)



Fresh water module FWM-E (700)



■ Technical data

Functional description Hoval FWM-E

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.

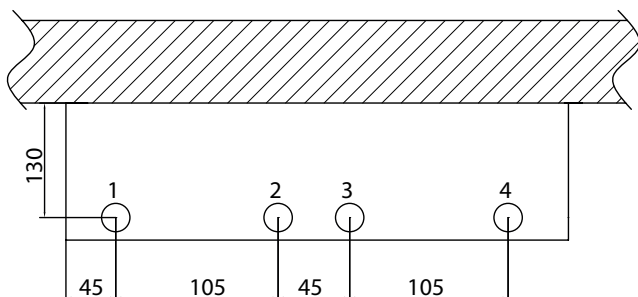
The rapid adjustment of the charging pump speed of rotation ensures maintenance of the desired hot water temperature, providing a constant tapping temperature and optimum maintenance of stratification in the buffer storage tank.

The optional buffer temperature sensor (flow sensor) indicates equal and strongly fluctuating buffer temperatures.

■ Dimensions

Hoval fresh water module FWM-E (50)

(Dimensions in mm)

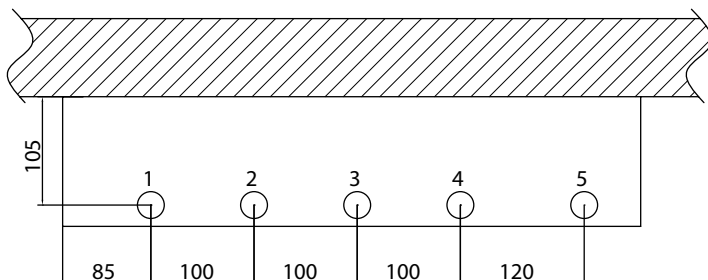


- 1 District heating flow
- 2 District heating return
- 3 Hot water circulation
- 4 DHW

Dimensions H 375 x W 345 x D 250

Hoval fresh water module FWM-E (80,145)

(Dimensions in mm)

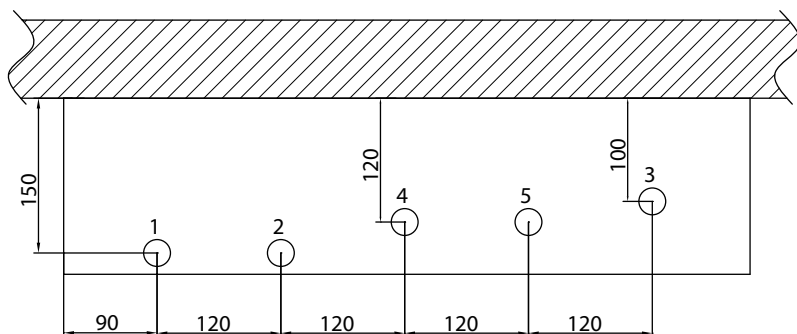


- 1 District heating flow
- 2 District heating return
- 3 Hot water circulation
- 4 DHW
- 5 Cold water

Dimensions H 960 x W 580 x D 280

Hoval fresh water module FWM-E (245)

(Dimensions in mm)



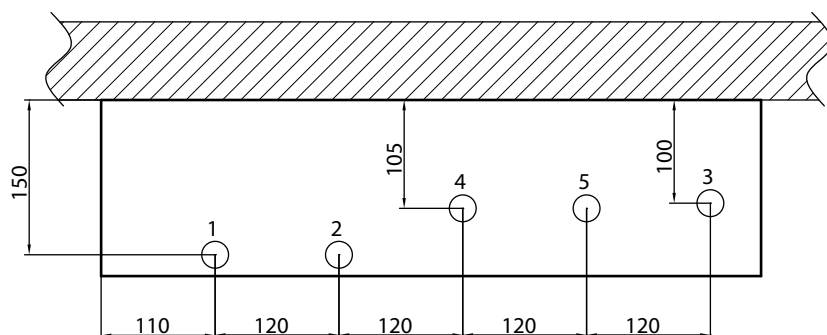
- 1 District heating flow
- 2 District heating return
- 3 Hot water circulation
- 4 DHW
- 5 Cold water

Dimensions H 940 x W 780 x D 340

■ Dimensions

Hoval fresh water module FWM-E (365,484)

(Dimensions in mm)



- 1 District heating flow
- 2 District heating return
- 3 Hot water circulation
- 4 DHW
- 5 Cold water

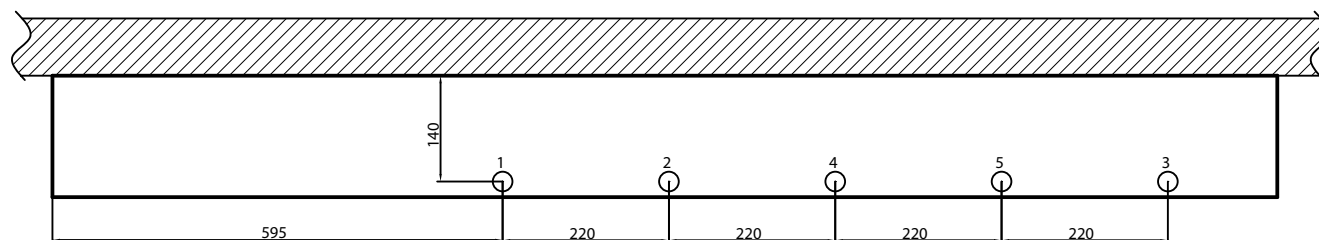
Dimensions

Type (365): H 1010 x W 970 x D 400

Type (484): H 1010 x W 1050 x D 400

Hoval fresh water module FWM-E (700)

(dimensions in mm)

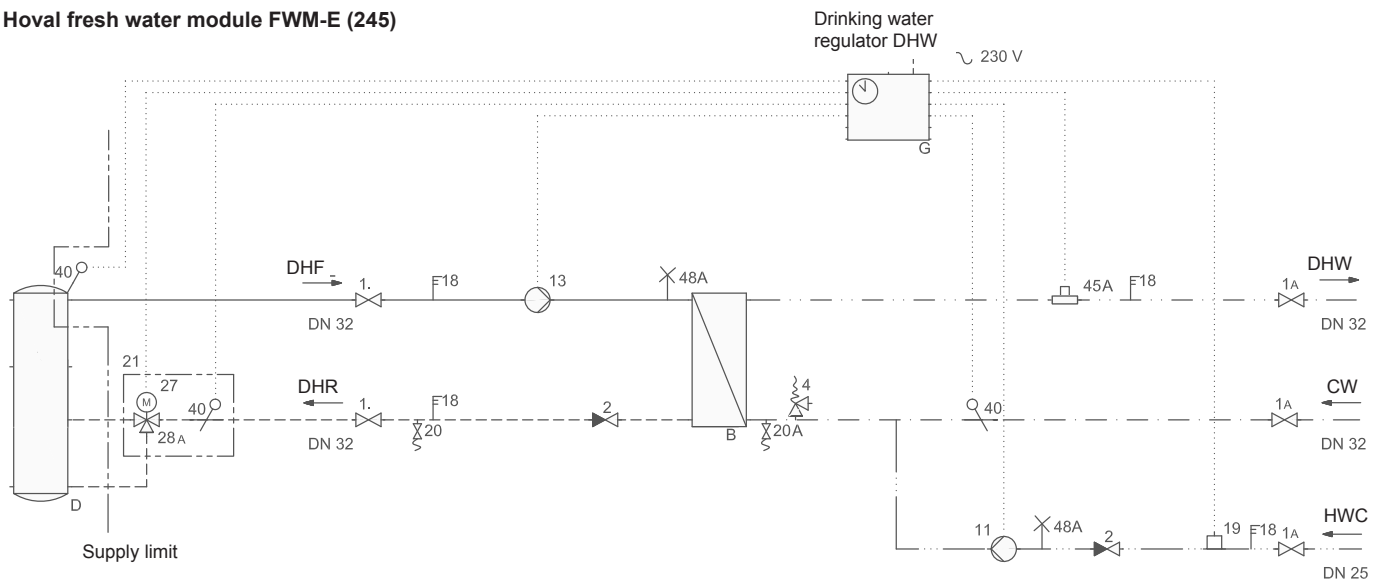


Dimensions H 1370 x W 1600 x D 480

- 1 District heating flow
- 2 District heating return
- 3 Hot water circulation
- 4 DHW
- 5 Cold water

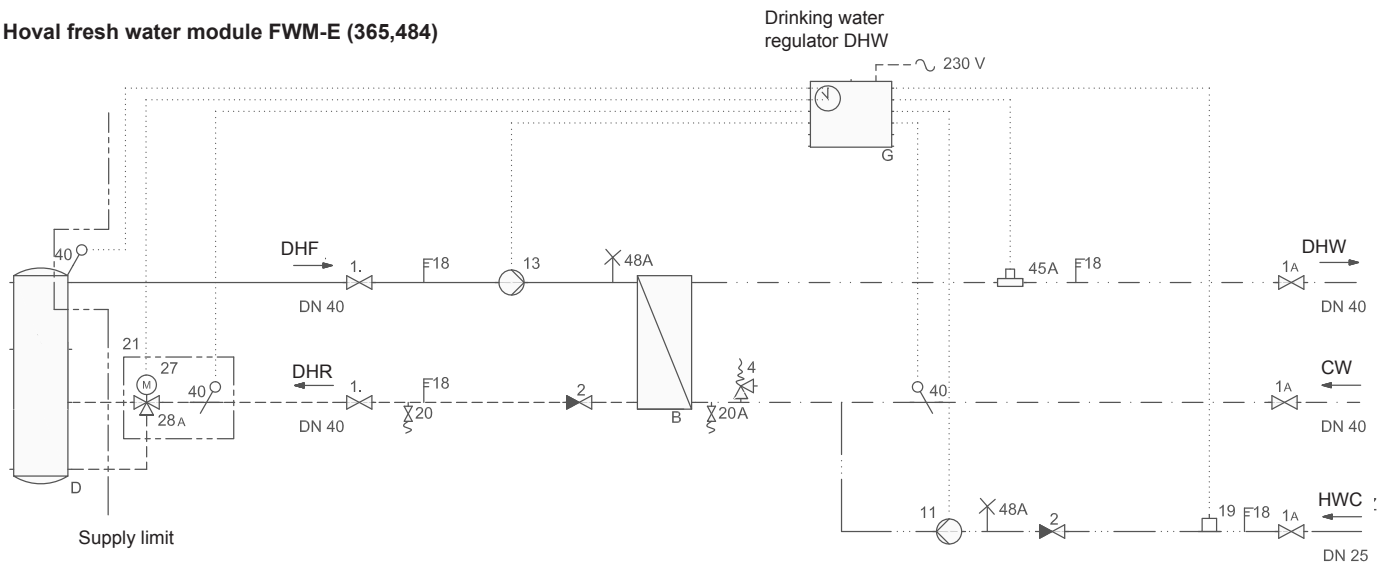
■ Examples

Hoval fresh water module FWM-E (245)



- | | | |
|-------------------------------|---------------------------------|------------------------------|
| 1 Cut-off ball valve | 19 Contact sensor | 45A27 Counter |
| 1A27 Cut-off ball valve, DVGW | 20 Filling/ drain cock | 48A27 Manual air-bleeding |
| 2 Non-return valve | 20A27 KFE spigot, DVGW | B Continuous-flow calorifier |
| 4 Safety valve | 21 To be ordered separately | D Hot water storage tank |
| 11 Hot water circulation pump | 27 Actuator | G Drinking water regulator |
| 13 Charging pump | 28A27 Three-way switching valve | |
| 18 Thermometer | 40 Immersion sensor | |

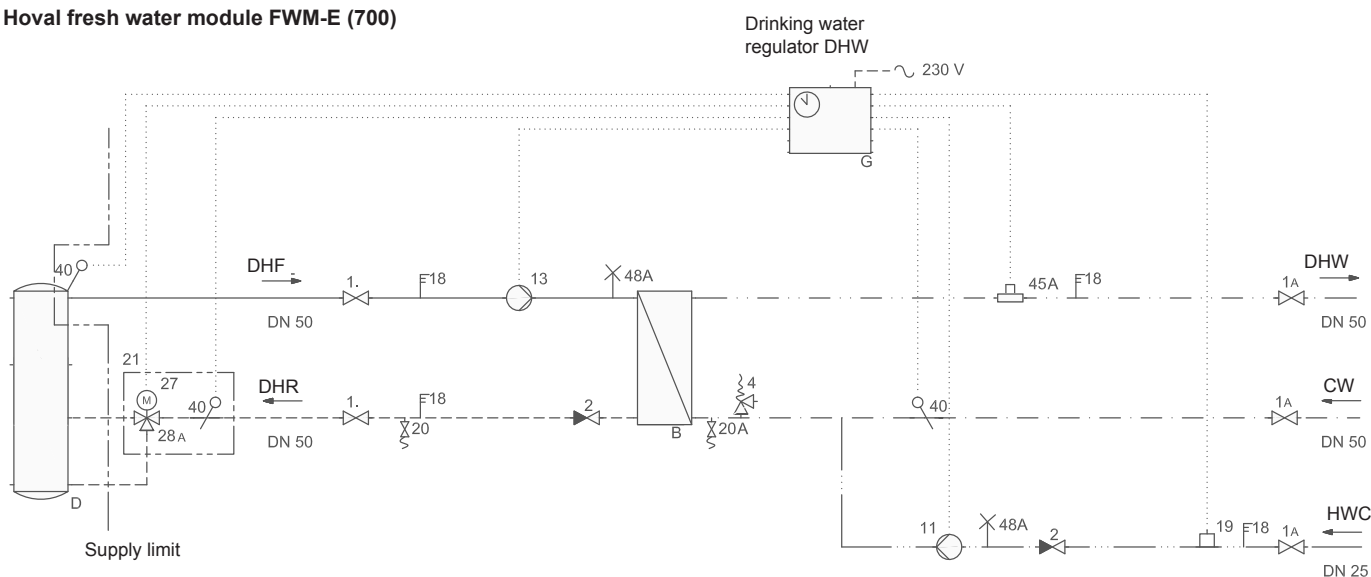
Hoval fresh water module FWM-E (365,484)



- | | | |
|-------------------------------|---------------------------------|------------------------------|
| 1 Cut-off ball valve | 19 Contact sensor | 45A27 Counter |
| 1A27 Cut-off ball valve, DVGW | 20 Filling/ drain cock | 48A27 Manual air-bleeding |
| 2 Non-return valve | 20A27 KFE spigot, DVGW | B Continuous-flow calorifier |
| 4 Safety valve | 21 To be ordered separately | D Hot water storage tank |
| 11 Hot water circulation pump | 27 Actuator | G Drinking water regulator |
| 13 Charging pump | 28A27 Three-way switching valve | |
| 18 Thermometer | 40 Immersion sensor | |

■ Examples

Hoval fresh water module FWM-E (700)



- | | | |
|-------------------------------|---------------------------------|------------------------------|
| 1 Cut-off ball valve | 19 Contact sensor | 45A27 Counter |
| 1A27 Cut-off ball valve, DVGW | 20 Filling/ drain cock | 48A27 Manual air-bleeding |
| 2 Non-return valve | 20A27 KFE spigot, DVGW | B Continuous-flow calorifier |
| 4 Safety valve | 21 To be ordered separately | D Hot water storage tank |
| 11 Hot water circulation pump | 27 Actuator | G Drinking water regulator |
| 13 Charging pump | 28A27 Three-way switching valve | |
| 18 Thermometer | 40 Immersion sensor | |

Description

Energy buffer storage EnerVal (200,300)

- Energy buffer storage made of steel for hydraulic integration with heat pumps
- Nominal content: 200, 300 l
- Thermal insulation made of polyurethane hard foam, foamed on the storage
- EnerVal (200): 5 connection sleeves Rp 1½"
- EnerVal (300): 8 connection sleeves Rp 1½"
- 1 sleeve Rp 1½" for sensor/thermometer
- 2 sensor channels welded as a tube on the boiler body

Delivery

- Energy buffer storage with foil casing completely mounted and packed

Energy buffer storage EnerVal (500)

- Energy buffer storage made of steel for hydraulic integration with boilers, heat pumps and solar installations
- Nominal Content 500 l
- 8 connection sleeves Rp 1½"
- 1 sleeve Rp 1½" for screw-in electrical heating inset
- 5 sleeves Rp 1½" for sensor/thermometer
- Thermal insulation made of polyurethane hard foam, foamed on the calorifier

Delivery

- Energy buffer storage with foil casing completely mounted and packed

Range EnerVal type	Nominal content litre
(200)	222
(300)	278
(500)	474
(800)	765
(1000)	956
(1500)	1365
(2000)	2039



Energy buffer storage EnerVal (800-2000)

- Energy buffer storage made of steel for hydraulic integration with boiler, solid fuel boiler, heat pumps and solar installations
- Nominal content 800-2000 l
- 11 connection sleeves Rp 1½", on EnerVal (1500-2000) as Rp 2"
- 5 sleeves Rp 1½" for sensor/thermometer
- 1 sleeve Rp 1½" for screw-in electrical heating inset
- Perforated separating plate in the central area for separation of the temperature zones
- Thermal insulation made of polyurethane soft foam with foil casing, colour red

Delivery

- Energy buffer storage with foil casing completely mounted and packed

Screw-in electrical heating inset type EP-2 to EP-9

- made of Incoly 825
- heat input 2,3 - 9 kW
- incl. temperature control and overheating protection
- No use for exclusively electrical heating.

Delivery

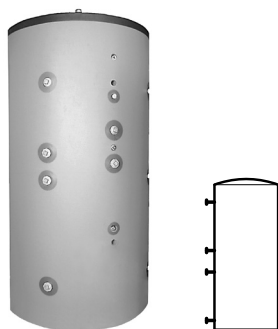
- delivered separately packed

On-site

- Installation of the electrical heating inset

Energy buffer storage tanks cannot be used in refrigeration systems. From 800 litres with steam-tight on-site insulation possible.

■ Part N°



**Energy buffer storage tank
EnerVal (200-2000)**

Part N°

EnerVal (200-2000) completely insulated,
steel tank interior raw,
exterior with coloured plastic coating

EnerVal type	Nominal content l	Ø raw mm	Ø insulated mm	height mm	
(200)	222	-	600	1440	7006 793
(300)	278	-	600	1780	7006 794
(500)	474	-	700	1900	7006 795
(800)	765	750	1030	1845	7008 139
(1000)	956	950	1030	2132	7008 140
(1500)	1365	985	1225	2142	7011 317
(2000)	2039	1200	1440	2142	7011 318

Accessories



Connection hose with T-piece
for EnerVal (800,1000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation
and a T-piece 1½"

6019 013



Connection hose with T-piece
for EnerVal (1500,2000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation
with a T-piece 2"

6023 573



Connection hose
for EnerVal (800,1000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation 1½"

6019 014



Connection hose
for EnerVal (1500,2000)
for the hydraulic parallel connection
of two energy buffer storage tanks
EnerVal
Consisting of:
flexible hose included insulation 2"

6023 574



Screw-in inject lance

For the installation horizontal in the energy
buffer storage tank. For the decrease of the
turbulence of the attached water.

Type	Screw-in depth [mm]	for EnerVal Type	
Rp 1½"	450	800,1000	6023 336
Rp 2"	600	1500,2000	6023 497

■ Part N°



Accessories

Part N°

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: 230V/10A cos=1
Control range 1.2 : 0°C ... +100°C
Switching differential 1.2 : 3-4% of the scale range
Immersion sleeve: G 1/2", L=150mm, D=15mm
Immersion sleeve brass nickel-plated
Version according to DIN EN 14597



Immersion thermostat RAK-TW1000.S SB 150

6010 082

Thermostat with immersion sleeve 1/2" - depth of immersion 150 mm, brass nickel-plated

Thermometer type TMOV

2002 059

including immersion sleeve 1/2"
0 - 120 °C



Protective pipe immersion sleeve SB150 1/2"

2018 836

brass nickel-plated
PN10 - 150 mm



Protective pipe immersion sleeve SB280 1/2"

2018 837

brass nickel-plated
PN10 - 280 mm



Screw-in electrical heating inset

heating inset made of Incoloy® alloy 825, with temperature control and overheating protection.

Delivery separately, installation on-site.

Type	Output kW	Voltage V	Mountage mm	for EnerVal Type	
EP-3	3,0	3 x 400	390	(200-1500)	2022 216
EP-4,5	4,5	3 x 400	500	(200-1500)	2022 217
EP-6	6,0	3 x 400	620	(500-1500)	2022 218
EP-9	9,0	3 x 400	850	(800-2000)	2022 219

■ **Technical data**

EnerVal (200-2000)

Type		(200)	(300)	(500)	(800)	(1000)	(1500)	(2000)
• Nominal content	Litre	222	278	474	765	956	1365	2039
• Working pressure / test pressure	bar	3/4	3/4	3/4	3/4	3/4	3/4	3/4
• Working temperature maximum	°C	95	95	95	95	95	95	95
• Thermal insulation PU soft foam	mm	50	50	50	120	120	120	120
• Thermal conductance λ	W/mK	0,034	0,034	0,034	0,041	0,041	0,041	0,041
• Stand still loss qB at 60 °C	W	67	98	142	126	133	154	175
• Weight with insulation	kg	55	60	73	110	127	190	271
• Weight without insulation	kg	–	–	–	98	115	175	255

• Dimensions

see table of dimensions

Screw-in electrical heat insets

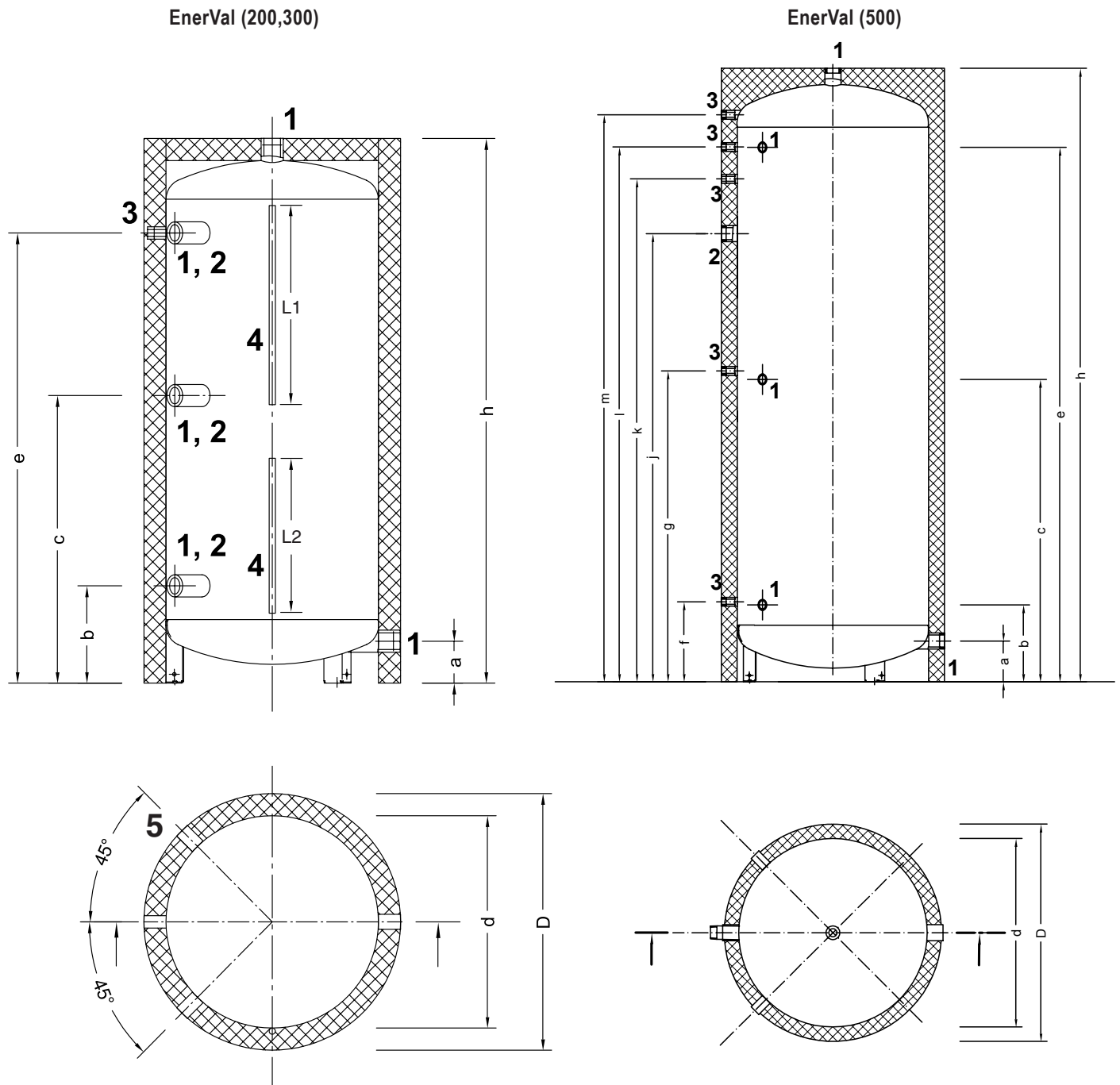
Heating inset made of Incoloy® alloy 825
with temperature control and overheating protection,
connection.

No use for exclusively electrical heating.

Type	Output kW	Voltage V	Installation depth mm	for EnerVal Type
EP-2	2,3	1 x 230	500	(500-1500)
EP-3	3,0	3 x 400	390	(200-1500)
EP-4,5	4,5	3 x 400	500	(200-1500)
EP-6	6,0	3 x 400	620	(500-1500)
EP-9	9,0	3 x 400	850	(1000-2000)

■ **Dimensions**

(Dimensions in mm)



- 1 Heating connection Rp 1½"
- 2 Connection for screw-in electrical heating inset Rp 1½"
(Positioning depending of the plants, see hydraulic schematics boiler)
- 3 Sleeve for immersion sleeve, thermostat or thermometer Rp ½"
- 4 Sensor channel
- 5 Only EnerVal (300)

All connecting pieces lengths: 50 mm

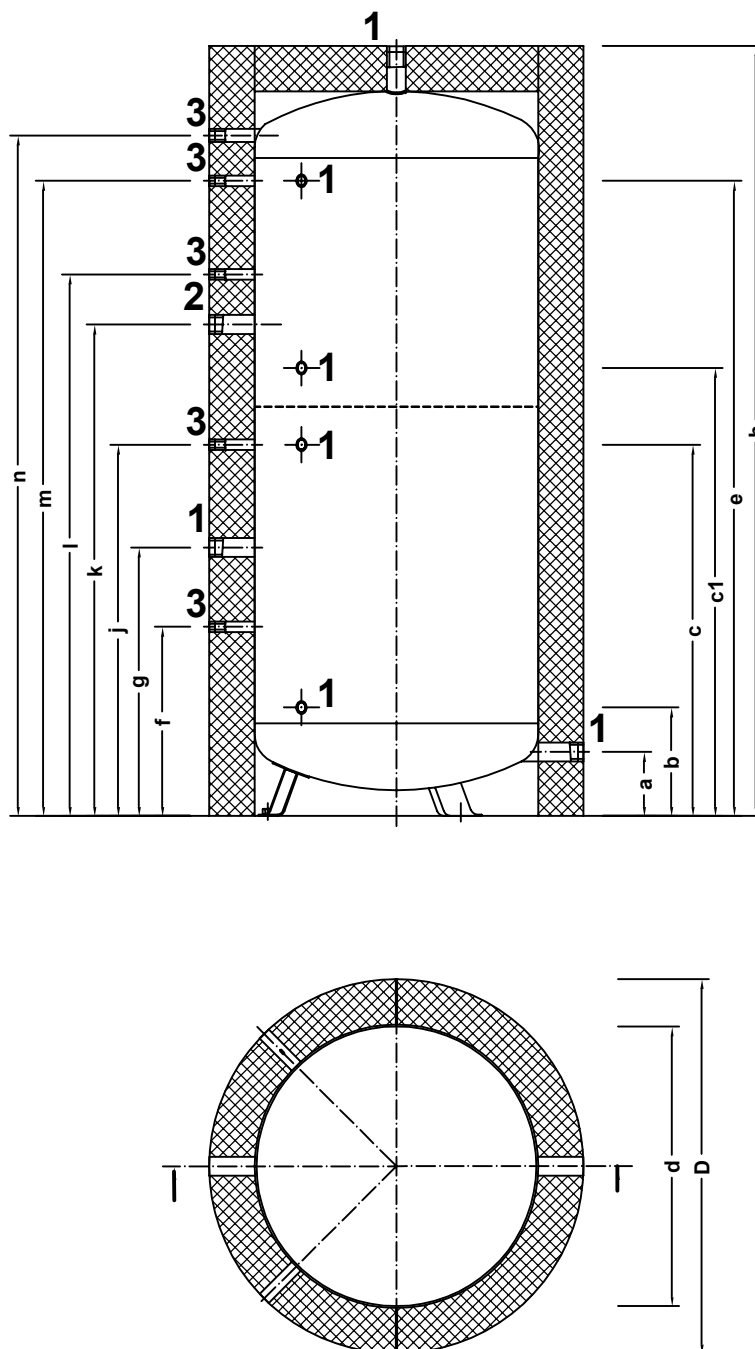
Variation because of the production tolerance possible
Dimension +/- 10 mm

EnerVal Type	L1	L2	a	b	c	d	D	e	f	g	h	j	k	l	m	Tilting measure
(200)	350	450	152	300	720	480	600	1140	-	-	1440	-	-	-	-	1460
(300)	550	600	152	300	890	480	600	1479	-	-	1780	-	-	-	-	1795
(500)	-	-	127	220	945	597	700	1670	250	971	1900	1400	1571	1671	1771	1923

■ Dimensions

EnerVal (800-2000)

(Dimensions in mm)



- 1 Heating connection
Type (800,1000) Rp 1½"
Type (1500,2000) Rp 2"
- 2 Sleeve for electric screw-in boiler nozzle Rp 1½"
- 3 Sleeve for immersion sleeve, thermostat or thermometer Rp ½"

All connecting pieces lengths: 120 mm

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

EnerVal Type	a	b	c	c1	d	D	e	f	g	h	j	k	l	m	n	Tilting measure
(800)	108	235	932	1135	790	1030	1497	410	657	1845	932	1230	1377	1497	1612	1888
(1000)	108	309	1006	1209	790	1030	1699	500	710	2132	1006	1300	1454	1699	1882	2172
(1500)	220	358	1006	1209	1000	1240	1699	500	800	2142	1006	1337	1487	1699	1839	2200
(2000)	220	382	1030	1230	1200	1440	1692	500	800	2142	1030	1230	1478	1692	1839	2200

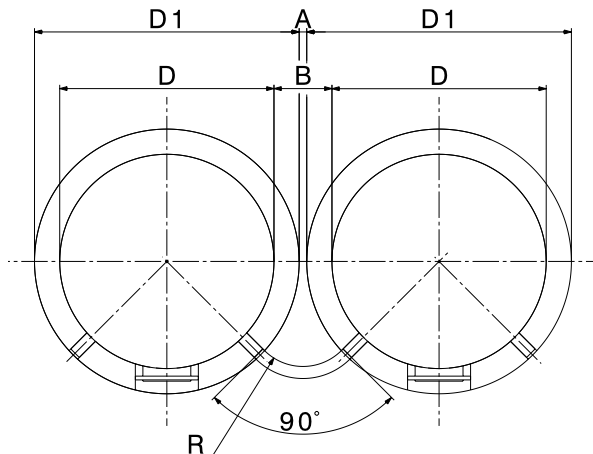
■ Dimensions

Connection set for energy buffer storage EnerVal

(Dimensions in mm)

The connection of 2 EnerVal (500-1000)

EnerVal Type	A	B	D	D1	R
(500)	70	270	597	697	180
(800 - 1000)	10	250	790	1030	210



The 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°

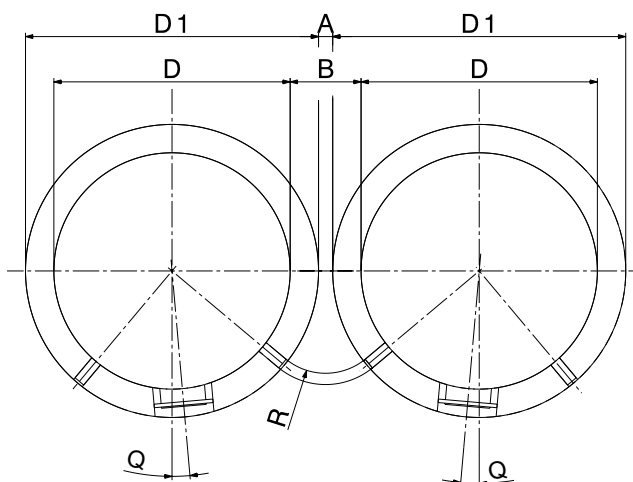
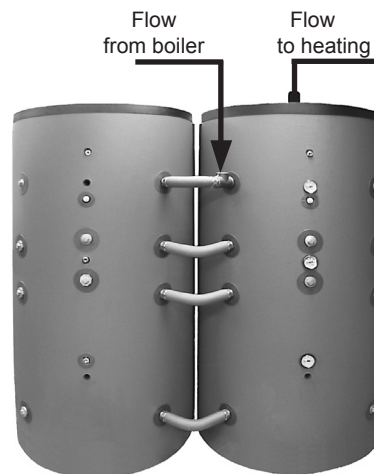
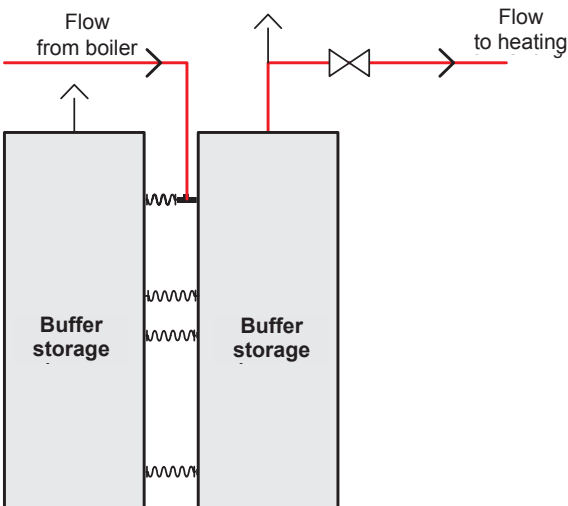


Illustration: Connection of 2 energy buffer storage EnerVal with connection set



Description

Buffer storage tank

EnerVal G (1000)

- Steel buffer storage tank for the hydraulic integration of heating boilers, heat pumps and solar energy systems
- 8 connection nozzles 3" OT
- 3 connections Rp 2"
- 2 connections Rp 1/2" for sensor / thermometer
- 2 sensor channels 1/4" - Ø 17.2 mm x Ø 13.2 mm
- With detachable polyurethane soft foam thermal insulation, insulation thickness: 120 mm
- Plastic outer shell with integrated zipper, colour red

Delivery

- Fully insulated buffer storage tank

Buffer storage tank

EnerVal G (1500,2500)

- Steel buffer storage tank for the hydraulic integration of heating boilers, solid fuel boilers, CHP plants, heat pumps and solar energy systems
- 10 connection nozzles 3" OT
- 4 sleeves Rp 1/2" for sensor / thermometer
- With detachable polyurethane soft foam thermal insulation, insulation thickness: 120 mm
- Plastic outer shell with integrated zipper, colour red

Delivery

- Fully insulated buffer storage tank (1500)
- Buffer storage tank (2500) and thermal insulation delivered in separate packaging

Buffer storage tank

EnerVal G (4000)

- Steel buffer storage tank for the hydraulic integration of heating boilers, solid fuel boilers, CHP plants, heat pumps and solar energy systems
- 10 connection nozzles 3" OT
- 4 sleeves Rp 1/2" for sensor / thermometer

Delivery

- Buffer storage tank, packed, without thermal insulation
- Thermal insulation to be provided on site

Buffer storage tank

EnerVal G (6000)

- Steel buffer storage tank for the hydraulic integration of heating boilers, solid fuel boilers, CHP plants, heat pumps and solar energy systems
- 10 connection flanges 4"
- 5 sleeves Rp 1/2" for sensor / thermometer



Series

EnerVal G Type	Nominal content l
(1000)	904
(1500)	1420
(2500)	2361
(4000)	4021
(6000)	5897

Delivery

- Buffer storage tank, packed, without thermal insulation
- Thermal insulation to be provided on site

Thermal insulation

for buffer storage tank
EnerVal G (1000-2500)

- Made from polyurethane soft foam
- With foil casing, colour red

Delivery

- Thermal insulation in separate packaging (2500)
- Fully insulated buffer storage tank (1000,1500), packaged

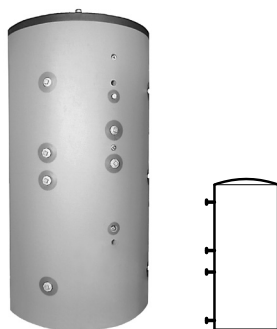
On site

- Fitting the thermal insulation
- Steam-tight insulation on site possible

Buffer storage tank

cannot be used in refrigeration plants.

■ Part N°

**Buffer storage tank
EnerVal G (1000-6000)****Part N°**

EnerVal G (1000,1500) fully insulated;
EnerVal G (2500) and thermal insulation delivered in separate packaging;
EnerVal G (4000,6000) packaged, without thermal insulation. Thermal insulation to be provided on site; steel tank raw on the inside, with coloured plastic coating on the outside

EnerVal G Type	Nom. content l	Ø raw mm	Ø insulated mm	Height mm	
(1000)	904	790	1030	2135	7011 099
(1500)	1420	1000	1240	2150	7011 550
(2500)	2361	1200	1440	2510	6032 230
(4000)	4021	1500	-	2770	6032 231
(6000)	5897	1500	-	3880	6032 232

Thermal insulation

Made from polyurethane soft foam with foil casing, colour red.
Delivered separately packed.

EnerVal G Type	Insulation thickness mm	
(2500)	120	6032 233

Accessories**Protective pipe immersion sleeve
SB150 ½"**

brass nickel-plated
PN10 - 150 mm

2018 836

**Protective pipe immersion sleeve
SB280 ½"**

brass nickel-plated
PN10 - 280 mm

2018 837

**Immersion thermostat RAK-TW1000.S
SB 150**

15-95°C, setting (externally visible) under the casing cover.
Incl. immersion sleeve ½" - immersion depth 150 mm,
made from nickel-plated brass.

6010 082

**Thermometer type TMOV
including immersion sleeve ½"**

0 - 120 °C

2002 059

■ Technical data

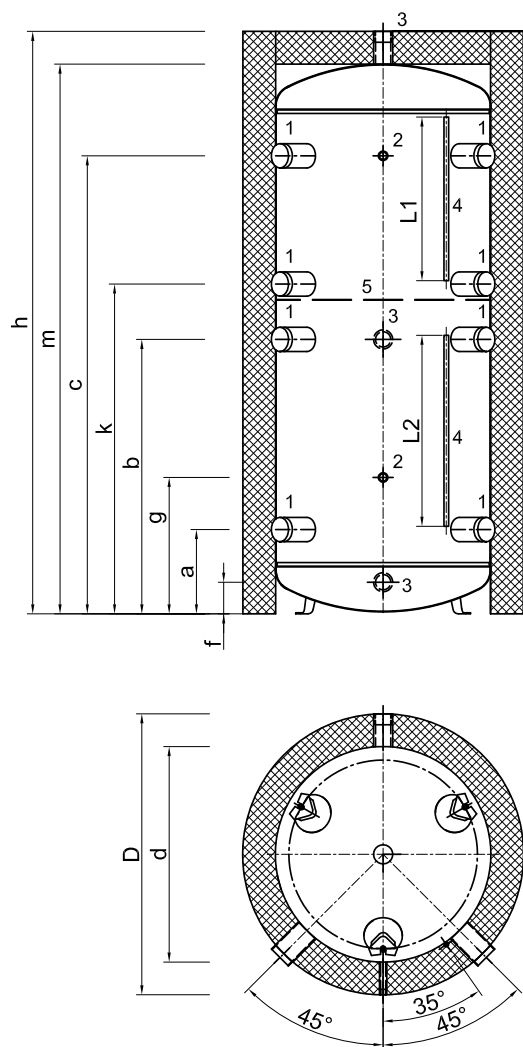
EnerVal G (1000-6000)

Type		(1000)	(1500)	(2500)	(4000)	(6000)
• Nominal content	l	904	1420	2361	4021	5897
• Operating/test pressure	bar	3/4	3/4	3/4	3/4	3/4
• Maximum operating temperature	°C	95	95	95	95	95
• Thermal insulation PU soft foam	mm	120	120	180	–	–
• Thermal conductance λ	w/mK	0.0341	0.0341	0.0341	–	–
• Standby losses qB at 60°C	w	151	xx	187	–	–
• Weight without insulation	kg	110	190	300	655	890
• Dimensions		see dimensional drawing				

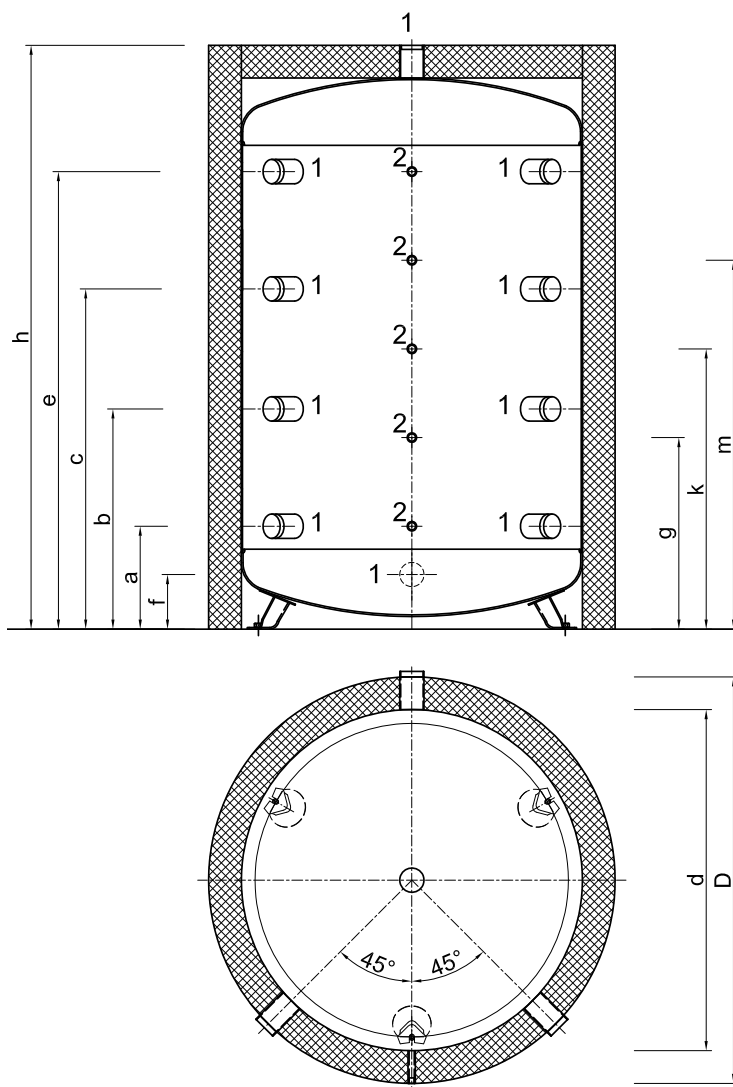
■ Dimensions

(Dimensions in mm)

EnerVal G (1000)



EnerVal G (1500,2500)



- 1 Connection nozzle
(1000-2500): R 3" (OT), nozzle length: 140 mm
- 2 Sleeve for immersion sleeve, thermostat or thermometer Rp 1/2"
- 3 Connection nozzle Rp 2"
- 4 Sensor channel 1/4"
- 5 Perforated plate

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

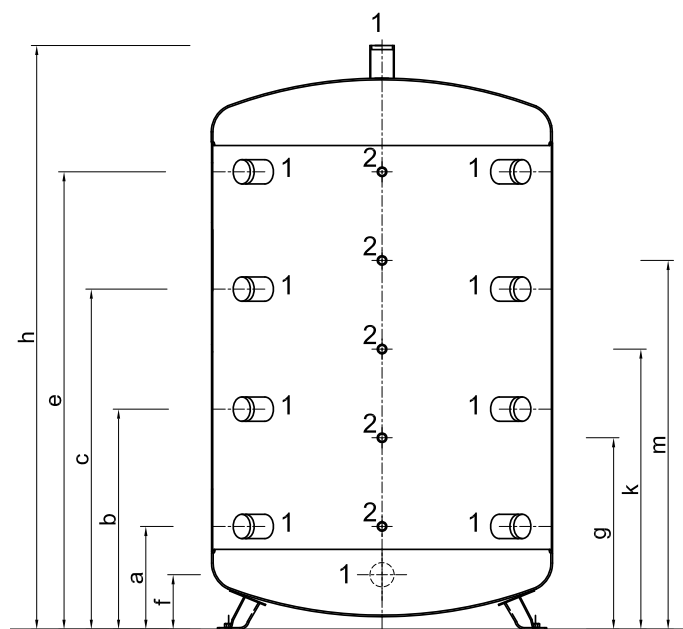
EnerVal G

Type	a	b	c	d	D	e	f	g	h	k	m	L1	L2	Tilted measure
(1000)	309	1006	1679	790	1030	-	116	500	2135	1209	2015	600	700	2177
(1500)	377	807	1247	1000	1240	1677	200	702	2149	1027	1352	-	-	2212
(2500)	435	900	1538	1200	1440	2003	250	827	2512	1219	1611	-	-	2560

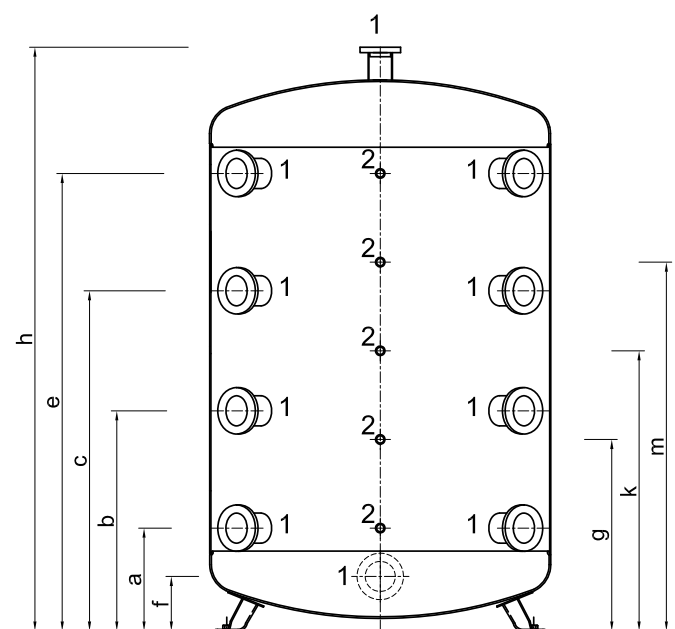
■ Dimensions

(Dimensions in mm)

EnerVal G (4000)



EnerVal G (6000)



- 1 Connection nozzle
(4000): R 3" (OT), nozzle length: 200 mm
(6000): VSF DN100 PN6 flange, nozzle length: 200 mm
- 2 Sleeve for immersion sleeve, thermostat or thermometer Rp ½"

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

EnerVal G Type	a	b	c	d	e	f	g	h	k	m	Tilted measure
(4000)	516	1090	1577	1500	2151	325	925	2716	1333	1742	3854
(6000)	528	1435	2342	1500	3249	315	1209	3886	1889	2569	3945

■ Engineering

General information

Instructions and guidelines

The following instructions and guidelines have to be observed:

- Technical data and mounting instructions of Hoval.
- Hydraulic instructions
- Instructions of the local firepolice 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 working pressure and working temperature.
- DIN 4708 Central domestic hot water systems, page 1 - 3

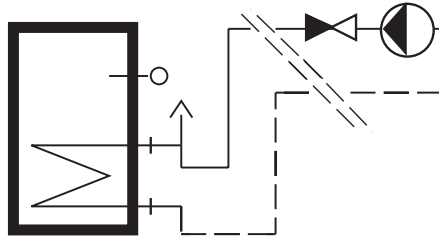
Plumbing

- 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,...) that they can't get damaged not even through to high temperature caused by a malfunction of temperature control circuit.

Assembly of the heating system

- The calorifier or additional heater coils must be provided with loading pump.

- There should be installed an automatic de-aerator in the hot flow.

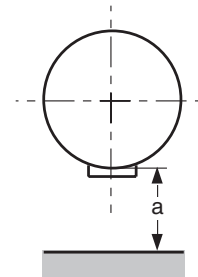


- Flow and return pipes are to be attached in such way that with turned off loading pump and during electrical heating no back circulation and force of gravity circulation can occur.
- Expansion of heating water must be always ensured (also during electric charging resp. heat pump operation).

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	litre	a
CombiVal ER/ESR/ESSR	160 - 500	≥ 600
MultiVal ERR	300 - 500	≥ 750
CombiVal ER/ESSR	800 - 1000	≥ 950
MultiVal ERR	800 - 1000	≥ 950
CombiVal CR	200 - 630	≥ 750
MultiVal CRR	300 - 630	≥ 750
CombiVal CR	800 - 2000	≥ 950
MultiVal CRR	800 - 2000	≥ 950
CombiVal WP VT		≥ 600
Modul plus		
(on the left or right side, distance to the wall for the casing installation)		≥ 700

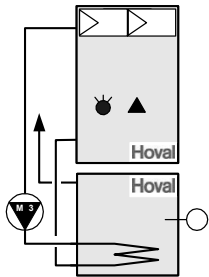
■ Engineering

Selection of the calorifier

(see also SIA Norm 384/1, Pos. 2.31)

Water calorifying System A

Calorifier with relatively small content (often built onto the boiler), which are permanently additionally heated. The content has to roughly correspond to the warm water need per 10 minutes.



- The hot water output in 10 minutes and the continual output per hour have to correspond to the hot water need peak per 10 minutes and per hour.
- The boiler output has to correspond to the hot water need peak per hour in minimum.
- For determining the calorifier a hot water temperature of 80 °C has to be chosen, whereas this temperature has to be achieved only during the heating-up of the calorifier, after that it will be reduced automatically.

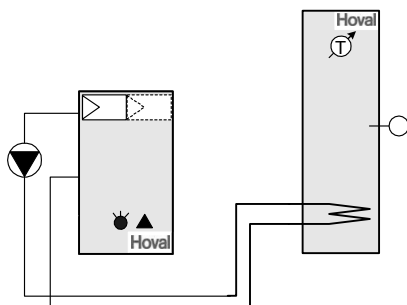
Water calorifying System B

Calorifier with a bigger volume than the warm water need per 10 minutes. Permanently additionally heated.

- The permanent hot water output (liter/h) can be smaller than the

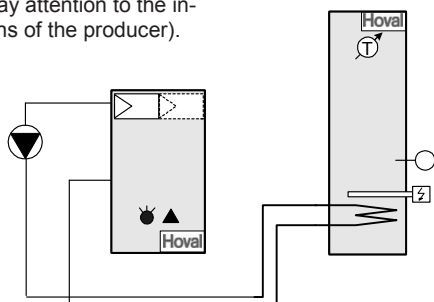
hot water need peak per hour.

The calorifier output is to be determined according to DIN-Norm 4708/sheet 3, considering the volume and the reheating-up time.

**Water calorifying System C**

Storage calorifier which are heated-up only once a day (for example electrical heating-up during summer)

- The usable storage volume has to correspond to the daily hot water need incl. the output resp. circulation losses. The usable volume is smaller than the total volume and depends on the installation position of the heating battery and the electrical heating inset (pay attention to the instructions of the producer).



- The minimal boiler output and the heat absorption of the calorifier has to be so big that the calorifier can be heated-up during the available time (for example during the night).

Water calorifying System D

Hot water layer storage with periodical reheating depending on the temperature.

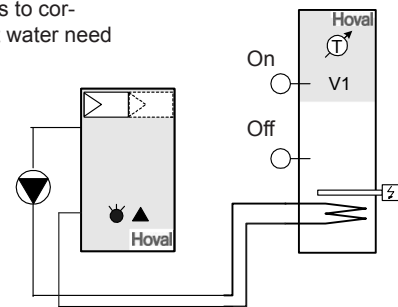
- The storage volume V1 must correspond to the warm water need peak per 10 minutes in minimum, in which the hot water output has to correspond to the hot water need peak per hour.

- At a bigger volume V1, the hot water output can be reduced (regulation according DIN 4708/sheet 3).

Water calorifying System E

Storage calorifier with big content and periodical reheating.

- The upper partial volume (V1) of the calorifier has to correspond to the hot water need peak per hour.

**Long burner running time**

- In order to ensure long burner running times, the heat absorption of the calorifier must be optimally adjusted to the available boiler output. It must be considered that the heat absorption - excluding system D - decreases with increasing hot water temperature.

■ Engineering

Water quality

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		pH-value ⁴ below the balance pH-value -
					mmol/l	%	
CombiVal ER (200-500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
CombiVal ER (800,1000)	S	2 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
CombiVal ER (200-1000)	W	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
CombiVal ESR (200-500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
CombiVal ESSR (400.500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
CombiVal ESSR (800,1000)	S	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
MultiVal ERR (300-1000)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	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	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
MultiVal ESRR (800-1000)	S	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
ElectroVal (300-500)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
LSWE (500-1000)	S	1 x Mg anode	> 200	> 1.0	> 1.0	> 50	< 0.3
	W	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3
LSWE (1500,2000)	S	Correx impressed current anode	> 100	> 0.5	> 1.0	> 50	0.1 - 0.3

W Customised design
S Standard design

In each case, **either** one Correx impressed current anode **or** one/two magnesium anodes may be used.

■ Engineering

Water quality

Stainless steel calorifiers

Modul-plus F (21-52) I & II: 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:

Type	De- sign	Corrosion protection	max. chloride content mg/l
CombiVal CR (200-2000)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
CombiVal CSR (300-2000)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
MutliVal CRR (300-2000)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
MutliVal CSRR (500-2000)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
CombiSol S (900, 1200)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
Ecotherm EF (300-2000)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
Ecotherm EH (540-1500)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
Sun&Fire (900)	S	-	< 70
	W	Correx impressed current anode(s)	< 200
SolKit (500)	S	-	< 30
Modul-plus F (21-52) I	-	-	< 30
Modul-plus F (21-52) II	-	-	< 100
Modul-plus F (21-52) III	-	Mg anodes	< 200
Modul-plus F (21-52) IIII	-	Correx impressed current anodes	< 300

W Customised design (on site)
S Standard design

In each case, **either** one Correx impressed current anode **or** one/two magnesium anodes may be used.

Plate heat exchangers (copper-soldered)

Quality of the plant water on the heating side and the tap water on the drinking water side where copper-soldered plate heat exchangers are 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 - 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.

Drinking 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 drinking 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 drinking 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 drinking water must not exceed a total of 100 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 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 [SO₄²⁻] content exceeds the carbonate [HCO₃⁻] content, copper-soldered heat exchangers must not be used.

Limit values (in tabular form):

Type	Conduct- ance ⁶ of the tap water µS/cm	Residual hardness ⁷ in relation to the total hardness of the tap water mmol/l	%	pH-value ² after 6-12 weeks	max. free chlo- ride concentra- tion ⁴ mg/l	Sum of chlo- ride, nitrate and sulphate content ¹ mg/l	Mineral content ⁵ of the tap water mg/l	Total hard- ness ³	
Plate heat exchanger - heating water side	-	-		8.3 - 9.5	-	< 100	-	-	-
Plate heat exchanger - drinking water side	< 500	> 0.5	> 50	7.0 - 9.0	< 0.5	< 100	< 250	< 14	< 2.5

1. General

- 1.1 The following Terms and Conditions shall apply to all our present and future contracts for deliveries and other services (even if the said Terms and Conditions are not specifically mentioned in verbal, telephonic or fax communications).
- 1.2 All deviations from the present Terms and Conditions, ancillary verbal agreements and subsequent contractual amendments shall only be valid if they have been confirmed by us in writing.
- 1.3 Buying terms and conditions of the client shall not be valid even if they are not specifically rejected by us. Our Standard Terms and Conditions of Delivery shall be regarded as accepted at the latest upon receipt of our goods and services by the client.
- 1.4 If a provision of the present Terms and Conditions of Delivery proves to be wholly or partially invalid, the contracting parties shall replace the aforesaid provision by a new provision which comes as close as possible to the legal and economic intention of the invalid provision.

2. Offers

- 2.1 Our offers shall be subject to change without notice.
- 2.2 Orders shall only be regarded as accepted when they have been confirmed by us in writing.
- 2.3 Illustrations, drawings and all technical details in catalogues and printed material shall be approximate values as customary within the industry. They shall only be binding if specific reference is made to them in the contract. We shall also reserve the right to make technical and design changes after the conclusion of the contract.
- 2.4 Cost estimates, drawings and other documents shall remain our property and shall be subject to copyright protection; they may not be made available to third parties.

3. Regulations in the country of destination

- 3.1 At the latest at the time of the order, the buyer shall draw our attention to the regulations and standards in force in the country of destination relating to the design of the delivered goods and the operation thereof and also to the execution of services.
- 3.2 Our deliveries and services shall comply with the regulations and standards in the country of destination provided the buyer has drawn our attention thereto in accordance with Section 3.1.
- 3.3 The buyer shall duly inform us of any special application features of goods ordered from us if these differ from our general recommendations.

4. Prices

- 4.1 Our prices shall be ex works, net, excluding packaging.
- 4.2 All ancillary costs, e.g. freight, insurance, export, transit, import and other approvals, licenses and authentications, shall be for the account of the buyer. The buyer shall also bear all taxes, charges, customs duty, etc., which are levied in connection with the contract.
- 4.3 We shall reserve the right to make price adjustments if wage rates or material prices change between the date of the order confirmation and the contractual performance of the contract. Price increases shall normally be notified three months in advance. We shall be bound to the price stated in the order confirmation for a period of three months after the effective date of the price increase.

5. Payment terms

- 5.1 Unless otherwise agreed in writing, our invoices shall be payable within thirty days with no cash discount. Payment shall be deemed to have been made when the amount in question is at our unrestricted disposal on our account in Swiss Francs.
- 5.2 Payment dates shall be observed even if any delays whatsoever occur after shipment of the goods from our works. The buyer shall not be permitted to reduce or withhold payments on account of complaints or counterclaims not recognised by us.
- 5.3 Payments shall also be made if insignificant components are missing but usage of the delivered goods is not rendered impossible as a result or if rectification work has to be carried out on the delivery. We shall be entitled to reject rectification of the defect as long as the buyer has not discharged his/its obligations to us.
- 5.4 If the buyer fails to comply with the agreed payment dates, default interest shall be paid from the agreed due date without a reminder being issued; the aforesaid interest shall be based on the interest rates prevailing at the domicile of the buyer, but shall be not less than four percent above the current discount rate of the Swiss Central Bank.
- 5.5 We shall be entitled to make deliveries of pending orders dependent upon settlement of outstanding claims.

6. Reservation of title

- 6.1 Delivered goods shall remain our property (reserved goods) pending full and complete payment of all present and future claims to which we are entitled regardless of their legal cause. This shall also apply if payments are made in settlement of specifically designated claims.
- 6.2 The buyer shall be entitled to process and sell reserved goods in the ordinary course of business.
- 6.3 If our reserved goods are combined or intermingled with other goods, the buyer shall hereby transfer his/its ownership rights in the new goods or chattels to us upon the conclusion of the contract in the amount of the invoice value of the reserved goods.
- 6.4 If the goods are resold by the buyer, he/it shall hereby transfer to us upon the conclusion of the contract with us his/its claims arising from the aforesaid resale in the amount of the invoice value of the reserved goods.
- 6.5 If the reserved goods are used by the buyer to perform a works or works delivery contract, his/its claim from the aforesaid works or works delivery contract shall hereby be assigned to us in the same amount and on the same date as for the purchase price claim (Section 6.4).
- 6.6 As long as he/it is honouring his/its payment obligations, the buyer shall, however, be authorised to collect his/its resale claim which has been assigned to us. He/it may not dispose of such claims by way of assignment to third parties, however. The empowerment of the buyer to collect the claim may be revoked by us at any time. We shall be entitled to notify third party debtors of the assignment. The buyer shall be entitled to provide us with the necessary information and documents in order to enable us to enforce our rights.
- 6.7 If the value of our securities exceeds our total claims by more than 10 %, we shall be obliged to release securities of our choice at the request of the buyer.
- 6.8 The buyer shall inform us immediately of any pledge or other impediment to our property enforced by third parties.
- 6.9 The buyer shall be obliged to collaborate in measures required to protect our title. He/it shall, in particular, empower us upon the conclusion of the contract to make entries or prior notice of the reservation of title at his/its cost in public registers, books and documents, etc., in accordance with the relevant national laws and shall perform all formalities in this respect.
- 6.10 The buyer shall maintain the reserved goods at his/its cost for the duration of the reservation of title and shall insure the said goods against theft, breakage, fire, water and other risks in our favour. He/it shall also take all steps to ensure that our property claims are neither adversely affected nor rescinded.

7. Delivery periods

- 7.1 Delivery periods and deadlines stated by us shall be approximate unless we have given an express written confirmation of a deadline as binding.
- 7.2 Delivery periods shall be deemed to have been met if notification of readiness to deliver has been sent to the buyer before the end of the delivery period.
- 7.3 The delivery period shall be prolonged if details required for the performance of the contract are not received on time or if they are subsequently changed by the buyer.
- 7.4 The delivery period shall also be reasonably prolonged if impediments arise which we cannot avert despite exercise of the necessary care (e.g. major operational disruptions, industrial disputes, delayed or defective deliveries, force majeure, etc.).
- 7.5 If an agreed delivery date is met by more than 14 days, the buyer shall be obliged to set us a reasonable period of grace. The buyer may only withdraw from the contract if our goods have not been delivered by the end of the said period of grace. Compensation claims for non-performance, delayed performance or any consequential losses shall be excluded unless there was gross negligence on our part.

8. Transfer of risk

- 8.1 Unless expressly agreed otherwise in writing, our „ex works“ deliveries shall be made in accordance with the international rules on the interpretation of commercial clauses of the International Chamber of Commerce (Incoterms) in the version in force on the date of the order confirmation.
- 8.2 The transfer of risk shall be determined by the aforesaid Incoterms.

- 8.3 Insurance against damages of any kind shall be the responsibility of the buyer.
- 8.4 Complaints in connection with the transport shall be immediately notified by the buyer to the last carrier upon receipt of the delivery.
- 8.5 If despatch is delayed at the request of the buyer or for any other reasons not attributable to us, the risk shall pass to the buyer on the original date envisaged for the „ex works“ delivery. We shall be entitled to demand payment from this date onwards.
- 9. Delivery inspection**
- 9.1 The buyer shall be required to inspect deliveries immediately. If the goods do not comply with the order or the delivery note or if visible defects are identified, he/it shall be obliged to notify the aforesaid to us in writing within eight days of receipt. Later complaints shall not be recognised. (Re transport damages, cf. Section 8.4)
- 10. Assembly and operations**
- 10.1 The assembly, putting into operation, operation and maintenance of the delivered goods shall be carried out in accordance with our guidelines. They may be executed by our staff or by appropriately trained third parties as agreed with the buyer.
- 10.2 If we require a commissioning certificate for certain product groups, warranty claims for the proper functioning of the equipment can only be enforced if a proper hand-over has been documented by a confirmed commissioning certificate received by us within one month of the hand-over.
- 11. Warranty**
- 11.1 Warranty period
- 11.1.1 The general warranty period shall be 12 months from the first commissioning but no longer than 18 months from the date on which the relevant goods left our works.
If despatch is delayed for reasons not attributable to us, the warranty shall lapse no later than 18 months after notification of the readiness to deliver.
The general warranty period shall exclude electrical components for which the warranty period shall be 6 months from the first commissioning but no later than 12 months from the date of shipment from our works.
- 11.1.2 We refer to Section 11.6.1 with regard to the warranty period for third party products.
- 11.1.3 The warranty period for components which we have repaired during the warranty period or have delivered as replacement shall be 12 months from the completion of our repair or from the date of the replacement delivery but no longer than the end of a period equivalent to twice the original warranty period as per Section 11.1.1.
- 11.2 Liability for material, design and workmanship defects
- 11.2.1 The contractual condition of the goods shall be based on the condition upon the transfer of risk.
- 11.2.2 Defects shall be notified to us immediately in writing.
- 11.2.3 We shall be liable for all components which can be shown to have become defective or unusable before the end of the warranty period as a result of defective materials, defective design or defective workmanship, with such components being repaired or replaced ex works immediately at our choice.
- 11.3 Liability for warranted qualities
- 11.3.1 Warranted qualities shall only be those which are specifically designated as such in the order confirmation or in the relevant specifications.
- 11.3.2 The aforesaid assurance shall apply at the latest until the end of the warranty period. If a taking-over test has been agreed with the buyer, the assurance shall be deemed as performed if proof of the relevant qualities is furnished during the aforesaid test.
- 11.3.3 If the warranted qualities are not performed or only partially performed, the buyer shall be entitled to an immediate rectification. The buyer shall grant us the necessary time and opportunity for this purpose.
- 11.3.4 If the rectification is abortive or only partially successful, the buyer shall be entitled to a reasonable reduction of the purchase price. If the defect is so serious that it cannot be rectified within a reasonable period of time, and if deliveries or services for the notified purpose are not usable or are only usable to a much lesser extent, the buyer shall be entitled to refuse acceptance of the defective component or to withdraw from the contract if part-acceptance is economically unreasonable. We shall only be obliged to refund amounts which have been paid to us for the components affected by the aforesaid withdrawal.
- 11.4 Exclusion of liability for defects
- 11.4.1 Our liability shall exclude damages which cannot be proved to have been sustained as a result of defective material, defective design or defective workmanship.
- 11.4.2 Damages shall therefore be excluded for example which were caused by
- improper work of other persons with regard to planning, site preparation, assembly, operation and maintenance;
 - plant concepts and designs which do not comply with the latest state of the art;
 - non-observance of our guidelines for planning, assembly, commissioning, operations and maintenance;
 - force majeure (e.g. thunderstorms).
- 11.4.3 The following shall be excluded in particular
- corrosion damages (e.g. as a result of aggressive water, unsuitable water treatment, oxygen intakes, emptying the plant over a longer period of time, falling below the dew point, chemical or electrochemical effects, etc.);
 - damages caused by air pollution (e.g. the accumulation of intense dust, aggressive vapours, etc.);
 - damages caused by unsuitable equipment and fuels;
 - damages caused by overcharging, excessive water pressure, scaling, improper electrical connections and inadequate fuse protection.
- 11.4.4 Components shall also be excluded from the warranty which are subject to natural wear and tear (e.g. burner nozzles, combustion chamber inserts, ignition and monitoring components in contact with fire, fireclay and wall facings, fuses, seals and flexible tubes).
- 11.5 Commissioning certificate
- 11.5.1 We hereby draw attention to the due and proper hand-over and - if envisaged - the commissioning certificate in accordance with Section 10.2 as prerequisites for our warranty.
- 11.6 Deliveries and services of sub-contractors
- 11.6.1 Our liability for third party products which form a major part of the delivered goods (e.g. warehouse and conveying equipment, burners, measuring and control equipment, electrical components, flue gas and waste water cleaning equipment) shall - if permissible - be limited to an assignment of our claims against the suppliers of the said third party products.
- 12. Exclusion of further liability**
- 12.1 The buyer shall have no rights and claims for materials, design and workmanship defects or the lack of warranted qualities unless specifically mentioned in Sections 11.1 to 11.6.
- 12.2 All claims for compensation, reduction in the contract price, rescission of the contract or withdrawal from the contract shall be excluded in particular unless these are specifically mentioned. Under no circumstances shall the buyer have any compensation claim for damages which were not sustained by the delivered goods themselves (e.g. replacement costs, cost for establishing the cause of the damage, expertises, production stoppages, production losses, lost orders, lost profit and other direct or indirect damages). The aforesaid liability exclusion shall not apply in the event of gross negligence on our part.
- 12.3 The exclusion as per Section 12.2 shall apply for all breaches of contract and all claims of the buyer regardless of why they were lodged from a legal point of view. It shall therefore also apply for a breach of any ancillary obligations (e.g. inadequate advice, etc.).
- 13. Jurisdiction**
- 13.1 The place of jurisdiction for the buyer and for us shall be Vaduz. We shall be entitled to bring action against the buyer at his/its domicile, however.
- 13.2 The legal relationship between the parties shall be governed by the substantive laws of Switzerland. The application of the UN convention on contracts for the international sale of goods (CISG) shall be excluded.

Responsibility for energy and environment.

The Hoval brand is internationally known as one of the leading suppliers of indoor climate control solutions. More than 66 years of experience have given us the necessary capabilities and motivation to continuously develop exceptional solutions and technically advanced equipment. Maximising energy efficiency and thus protecting the environment are both our commitment and our incentive. Hoval has established itself as an expert provider of intelligent heating and ventilation systems that are exported to over 50 countries worldwide.



Hoval heating technology

As an energy-neutral supplier with a full range of products, Hoval helps its customers to select innovative system solutions for a wide range of energy sources, such as heat pumps, biomass, solar energy, gas, oil and district heating. Services range from private residential units to large-scale industrial projects.



Hoval residential ventilation

Increased comfort and more efficient use of energy from private housing to industrial halls: our controlled residential ventilation products provide fresh, clean air for living and working space. Our innovative system for a healthy room climate uses heat and moisture recovery, while at the same time protecting energy resources and providing a healthier environment.



Hoval indoor climate systems

Supplying fresh air, removing extract air, heating, cooling, filtering and distributing air, utilising heat gains or recovering cold energy – no matter what the task, Hoval indoor climate systems provide tailor-made solutions with low planning and installation costs.