VarioVal FLS (800,1000)

Stratified storage tank
(suitable for heat pumps)

Stratified storage tank

- For single family homes with approx. 4-6 persons
- Heating with solar, low-temperature heat generator (heat pumps) or for high-temperature heat generators
- Annual solar coverage rate depends on heat demand, collector field size, collector field storage ratio and location
- Stratified storage tank made of steel, primed on the outside, for heating support
- Water heating via fresh water module (option)
- With built-in plain tube heat exchanger for connection to solar collectors
  (800) up to 10 m^2 collector surface
  (1000) up to 15 m^2 collector surface
- Layer installations:
  - Stratification pipe (pipe in pipe)
  - Horizontal baffle plates
  - Vertical baffle plates
  - Guide tubes (bent upwards/downwards) for fresh water module connections
  - Heating flow/return guide tubes (also with return in layer channel)
  - Separating plate in the central area for separation of the temperature zone
- Sensor terminal blocks
- Thermometer (with capillary)
- Thermal insulation
  - Made of polyester fibre fleece 140 mm
  - Outer plastic jacket with patented aluminium sealing bracket, red
  - Insulated cover flap (can be knocked out) for heat exchanger connections

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

Design on request

- Heating module HMV20-3BM/SPS-S 8 with thermal insulation box
- Can be expanded with
  - Heating armature group HAV20-3BM-R/SPS-S 8
  - Solar armature group SAV20/SPS-S 7
- Fresh water module
  - TransTherm® aqua FT/FTC: For direct storage tank mounting with supplied fixing bolts (not pre-assembled) and connection set
  - TransTherm® aqua F: wall installation (pipework on site)
- Circulation lance
- Screw-in electric heating element

VarioVal FLS

VarioVal FLS incl. TransTherm® aqua FT/FTC

Model range

VarioVal FLS type	Solar heat exchanger m^2	dm^3
(800)	2	13.4
(1000)	3	18.9

Notice
SPF certificate stratification efficiency
SPF-18-009-SE

VarioVal FLS (800,1000) - selection table

		Hydraulic components + necessary TopTronic® E modules								Additional accessories		
		1st mixer circuit	2nd mixer circuit		Solar armature group	Return switching	Buffer management	Fresh water module		Screw-in electric heating element	Electrical box	Circulation heat exchanger lance
		●	opt.		opt.	●	●	●		●	●	opt.
		Consisting of:										
Heat generator		Heating module HMV20-3BM SPS-S 8	HA group HAV20-3BM-R SPS-S 8	TopTronic® E module expansion heating circuit	Solar group SAV20FR SPS-S 7 PM2	TopTronic® E solar module	Stratified charging set SLS32-3-H RL	TopTronic® E buffer module	TransTherm® aqua F TransTherm® aqua FT TransTherm® aqua FTC			
Air/water heat pumps:												
UltraSource® B comfort C	(8,11)	●	●	●	●	●	●		●	●	opt.[2]	opt.
Belaria® pro comfort	(8-15)	●	●	●	●	●	●		●	opt.	opt.[2]	opt.
Belaria® comfort ICM	(8,13)	●	●	●	●	●	●		●	●	opt.[2]	opt.
Brine heat pumps:												
UltraSource® T comfort	(8,13)	●	●	●	●	●	●		●	opt.	opt.[2]	opt.
Thermalia® comfort	(8-13)	●	●	●	●	●	●		●	opt.	opt.[2]	opt.
Thermalia® comfort H	(7,10)	●	●	●	●	●	●		●	opt.	opt.[2]	opt.
TopGas® classic	(12-30)	●	●	●	●	●	[3]	●	●	opt.	opt.[2]	opt.
UltraGas®	(15-35)	●	●	●	●	●		●	●	opt.	opt.[2]	opt.
UltraOil®	(16-35)	●	●	●	●	●		●	●	opt.	opt.[2]	opt.
BioLyt	(13-25)	●	●	●	●	●		●	●	opt.	opt.[1]	opt.

[1] A module expansion or a controller module can be installed in the heat generator.
[2] Two TopTronic® E controller modules can be mounted in the heat generator or in the wall casing. If the storage tank is fully equipped, a separate electrical box must be ordered for an additional module.
[3] Return switching to be installed by the client.

Stratified storage tank

VarioVal FLS (800,1000)

Stratified storage tank made of steel, primed on the outside, for heating support.
Water heating optionally via fresh water module. With built-in plain tube heat exchanger for connection to solar collectors. Thermal insulation made of polyester fibre 140 mm and external plastic coating, colour red. Suitable for heat pumps up to 20 kW (up to 2500 l/h).

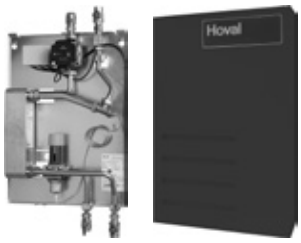
VarioVal FLS type	Total volume dm³	Solar heat exchanger m²	Solar heat exchanger dm³	Part No.
(800)	796	2	13.4	6046 238
(1000)	892	3	18.9	6046 239

Electric heating elements
see chapter “Electric heating elements”

Accessories

		Part No.
	**Heating module HMV20-3BM** with pressure distributor for 2 mixer circuits, incl. 1 heating armature group with 3-way motor mixer and pump SPS-S 8 and thermal insulation box	6046 091
	Notice In combination with heat pumps, always use the stratified charging set SLS32-3-H RL.	
	**Heating armature group HAV20-3BM-R** to extend the HMV20-3BM for a second mixer circuit Pump SPS-S 8	6046 092
	**Solar armature group SAV20FR** with PWM interface (TopTronic® E) inc. safety group 6 bar with manometer, FlowRotor and air vent Pump SPS-S 7 PM2	6046 093
	**Layer charge set SLS32-3-H RT** connection set for return switching for direct mounting on VarioVal for heat pumps up to 17 kW Connection set between tank and pressure distributer on heating module, layer charge set with 3-way valve incl. motor drive.	6048 003

Accessories



Fresh water module TransTherm® aqua FT/FTC
Fresh water module for hygienic water heating with thermostatic control of the hot water temperature by means of quick-acting water temperature controller. Incl. red casing and connection set AS20-FW for direct installation on the VarioVal FLS.

Fresh water module TransTherm® aqua	Output kW	Part No.
FT (65)	65	6046 240
FTC (57)	57	6046 241

Accessories for TransTherm® aqua FT/FTC

Circulation heat exchanger lance R 1″
is screwed into the buffer storage tank and integrated into the circulation line.
Material: Copper, tinned inside
Transmission power approx. 1 kW at 60 °C
Hot water temperature in the buffer storage tank without mixing through the storage tank temperature.
Circulation connections R ½″
Installation length 660 mm

Part No. 2038 434

Accessories for TransTherm® aqua F

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

Fresh water module TransTherm® aqua F	Output kW	Part No.
(6-10)	50	8006 387
(6-16)	90	8006 388

Version with copper-free heat exchanger

Fresh water module TransTherm® aqua F	Output kW	Part No.
(6-10)	50	8006 521
(6-16)	90	8006 522

Return switching valve set DN 20
for TransTherm® aqua F (50–90 kW)
Set consisting of temperature sensor, switching valve, drive, seals and screw fittings.

Part No. 7010 832

Test valve DN 8 G ¼"
for TransTherm® aqua L, F, FS
Test valve suitable for flame treatment for hygienic-microbiologic tests.

Part No. 2049 861

Sludge separator with magnet
Type: MB3 DN 25 Rp 1″
With variable connection for vertical or horizontal pipelines
Removal of ferromagnetic and non-magnetic dirt and sludge particles from heating or cooling circuits with the medium water or water/glycol (50/50 %)
Brass casing
Sludge separation up to a particle size of 5 µm
With unscrewable casing bottom part for cleaning and inspection work complete with sludge removal tap

Nominal diameter: DN 25
Pipe connection: Rp 1″ internal thread
Installation length: 90 mm
Max. operating pressure: 6 bar
Max. flow temperature: 110 °C
Max. throughput: 2.0 m³/h
Max. flow speed: 1.0 m/s
Max. pressure drop: 3.8 kPa
Contents: 0.36 l
Weight: 2.3 kg

Part No. 2062 165

Accessories

Part No.

Sludge separator with magnet
Type: MBL DN 32 Rp 1¼″
With variable connection for vertical or horizontal pipelines
Performance-enhancing magnetic assistance from removable, external magnet.
Fast and continuous removal of ferromagnetic and non-magnetic dirt and sludge particles from heating or cooling circuits with the medium water or water/glycol (50/50 %)
Brass casing
Sludge separation up to a particle size of 5 micrometres - separation and sludge removal without interrupting operation by the spiral pipe insert
With unscrewable casing bottom part for cleaning and inspection work complete with sludge removal tap.

Nominal diameter: DN 32
Pipe connection: Rp 1¼″ (internal thread)
Installation length: 128 mm
Max. operating pressure: 10 bar
Max. flow temperature: 110 °C
Max. throughput: 3.6 m³/h
Max. flow speed: 1.0 m/s
Max. pressure drop: 2.2 kPa
Contents: 0.75 l
Weight: 3.6 kg
Type: MBL DN 32 IT

2062 166

Additional sludge separators
see “Various system components”

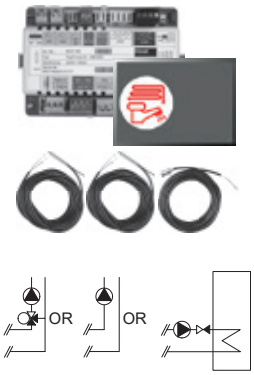
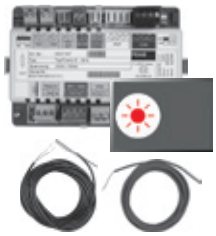
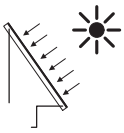
Notice
Information about engineering, space requirement, dimensioning table, dimensions, see “Hoval TransTherm® aqua F”

TopTronic® E control module black with 4.3″ colour touchscreen
For operation of all controller modules connected to the bus system (basic, solar, buffer modules etc.)
Connection to the Hoval bus system via RJ45 plug connection or via plug terminals (max. 0.75 mm²), flat design with flexible installation option
Installation:
- in control panel of the heat generator
- in the Hoval wall casing
- in the control panel front,
black high-gloss cover,
customer-specific configurable start screen,
Display of current weather or weather forecast (only possible in combination with HovalConnect)

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

6043 844

TopTronic® E controller modules

	Part No.
 **TopTronic® E heating circuit/hot water module TTE-HK/WW** Controller module for controlling consumers with integrated control functions for: - 1 heating/cooling circuit w/o mixer or - 1 heating/cooling circuit with mixer or - 1 hot water charging circuit - various additional functions Consisting of: - Fitting accessories - 2 x immersion sensor TF/2P/5/6T, L = 5 m - 1 contact sensor ALF/2P/4/T, L = 4 m - Basic plug set for controller module	6034 571
 **TopTronic® E solar module TTE-SOL** The controller module is suitable for use as temperature differential control, control of thermal solar plants, for heating process water and/or heating support. Controller module with integrated control functions for - solar circuit - collector cascade - storage tank cascade with up to 4 consumers - consumer loading, with type selection - temperature differential control - loading and unloading function for additional/reserve buffer tank - Integrated solar yield calculation Consisting of: - Fitting accessories - 1 immersion sensor TF/2P/5/6T, L = 5 m - 1 collector sensor TF/1.1P/2.5S/5.5T L = 2.5 m - Basic plug set for controller module	6037 058
	

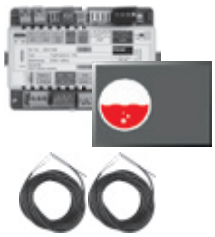
Notice
In a standalone application, the control module for operating the solar module and a wall casing must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!

TopTronic® E controller modules

Part No.



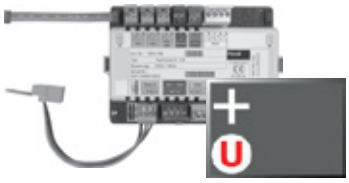
TopTronic® E buffer module TTE-PS 6037 057
Controller module with integrated control functions for:
- heating buffer management or
- cooling buffer management
- var. additional functions

Consisting of:
- Fitting accessories
- 2 immersion sensors TF/2P/5/6T L = 5 m
- Basic plug set for controller module

Notice
If the controller module is used without Hoval heat generator then a TopTronic® E control module must be ordered separately!

Notice
Depending on the complexity, module expansions are required for using the listed functions (max. 2 module expansion can be connected)!

Notice
The supplementary plug set may have to be ordered to implement functions differing from the standard!

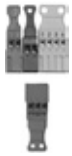
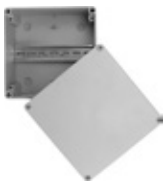


TopTronic® E module expansion Universal TTE-FE UNI 6034 575
Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions

Consisting of:
- Fitting accessories
- Plug set FE module

Notice
Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

Accessories for TopTronic® E

	Part No.
 **Supplementary plug set** for controller modules and module expansion TTE-FE HK	6034 503
 **TopTronic® E room control modules**	
TTE-RBM TopTronic® E room control modules	
easy white	6037 071
comfort white	6037 069
comfort black	6037 070
 **Enhanced language package TopTronic® E** one SD card required per control module Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA	6039 253
 **HovalConnect**	
HovalConnect LAN	6049 496
HovalConnect WLAN	6049 498
HovalConnect Modbus	6049 501
HovalConnect KNX	6049 593
TopTronic® E interface modules	
GLT module 0-10 V	6034 578
 **TopTronic® E sensors**	
AF/2P/K Outdoor sensor H x W x D = 80 x 50 x 28 mm	2055 889
TF/2P/5/6T Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T Collector sensor, L = 2.5 m	2056 776
 **Bivalent switch** for various release or switching functions	
Bivalent switch 1-piece	2056 858
Bivalent switch 2-piece	2061 826
 **System housing**	
System housing 182 mm	6038 551
System housing 254 mm	6038 552
 **TopTronic® E wall casing**	
WG-190 Wall casing small	6052 983
WG-360 Wall casing medium	6052 984
WG-360 BM Wall casing medium with control module cut-out	6052 985
WG-360-3 BM Wall casing compact with control module cut-out	6052 988
WG-510 Wall casing large	6052 986
WG-510 BM Wall casing large with control module cut-out	6052 987

Further information
see “Controls”

Services

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

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

Part No.

VarioVal FLS (800,1000)

Type		(800)	(1000)
Storage tank			
• Total volume	dm³	796	892
• Usable volume	dm³	777	872
• Operating pressure/test pressure	bar	3/4.5	3/4.5
• Max. operating temperature	°C	95	95
• Transport weight	kg	228	233
• Dimensions		See Dimensions	
Solar coil (permanently installed)			
• Heating surface	m²	2	3
• Contents	dm³	13.4	18.9
• Operating pressure/test pressure	bar	10/15	10/15
• Max. operating temperature	°C	110	110
• Flow resistance [1] water/glycol 50 % (z-value)		19	25
• Number of collectors (max. - gross at 2.5 m²)	pieces	4	6
• For flat collectors [2] up to approx.	m²	10	15
Thermal insulation			
• Insulation type		PE fibre fleece	PE fibre fleece
• Insulation thickness	mm	140	140
• Fire protection class		B2	B2
• Thermal conductance λ	W/mK	0.038	0.038
• U value	W/(m²K)	0.27	0.27
• Heat loss at 65 °C	W	91	100
• Energy efficiency class		B	B

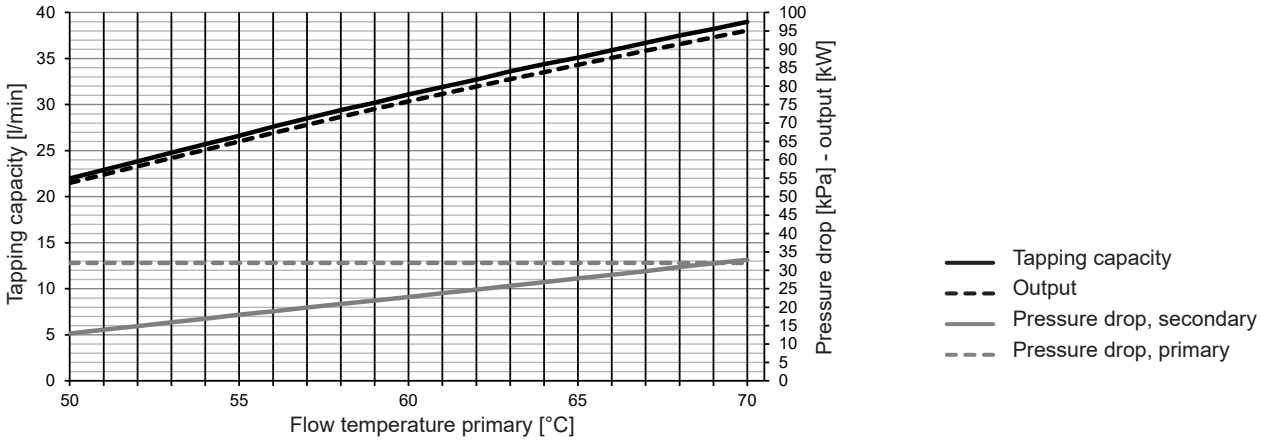
[1] Flow resistance of heating coil in mbar = flow rate (m³/h)² x z (1 mbar = 0.1 kPa)

[2] Collector surface area, with regard to heat exchanger area only

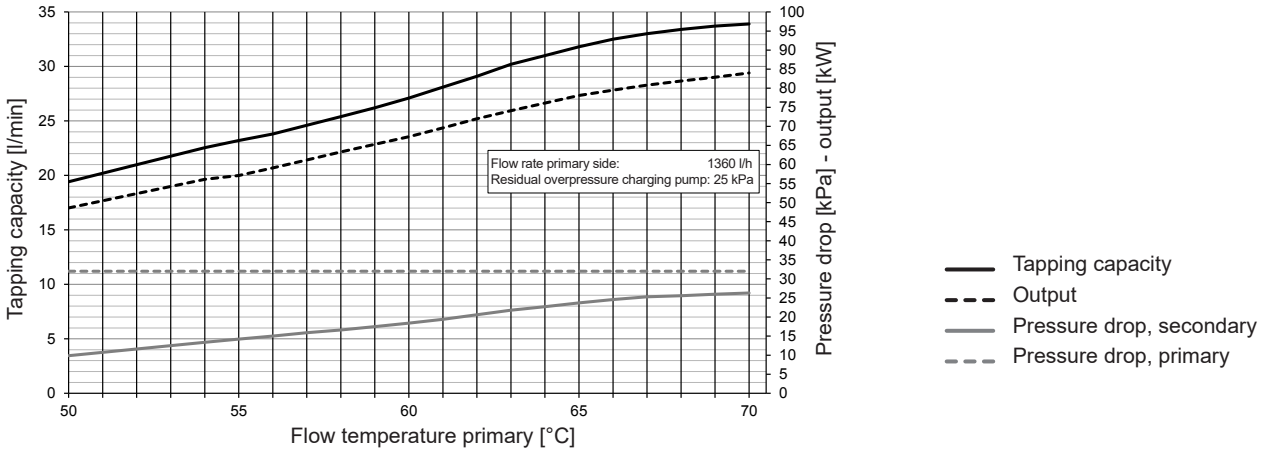
Performance data

TransTherm® aqua FT/FTC

Hoval TransTherm® aqua FT (65)
Hot water temperature 45 °C: tapping capacity - output - pressure drops



Hoval TransTherm® aqua FTC (57)
Hot water temperature 45 °C: tapping capacity - output - pressure drops



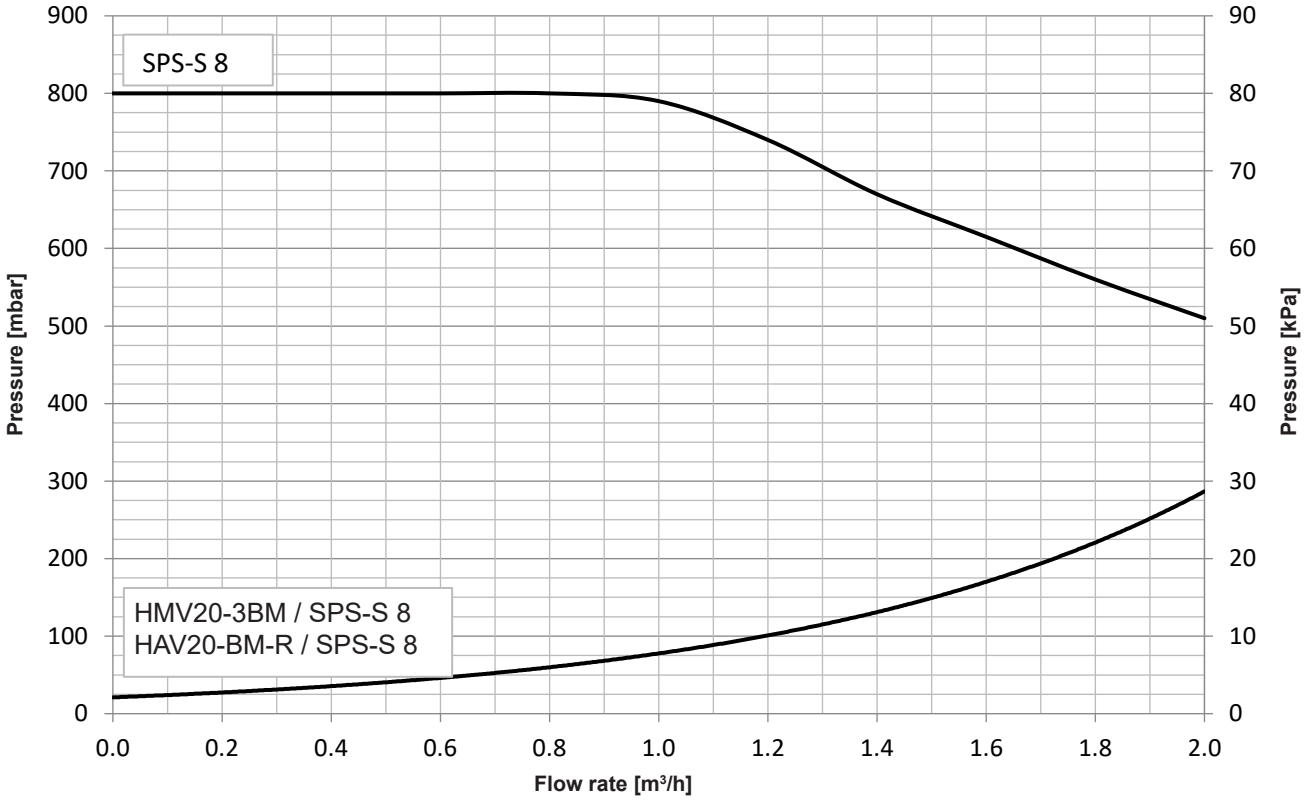
Performance data

TransTherm® aqua F (6-10 up to 6-16)

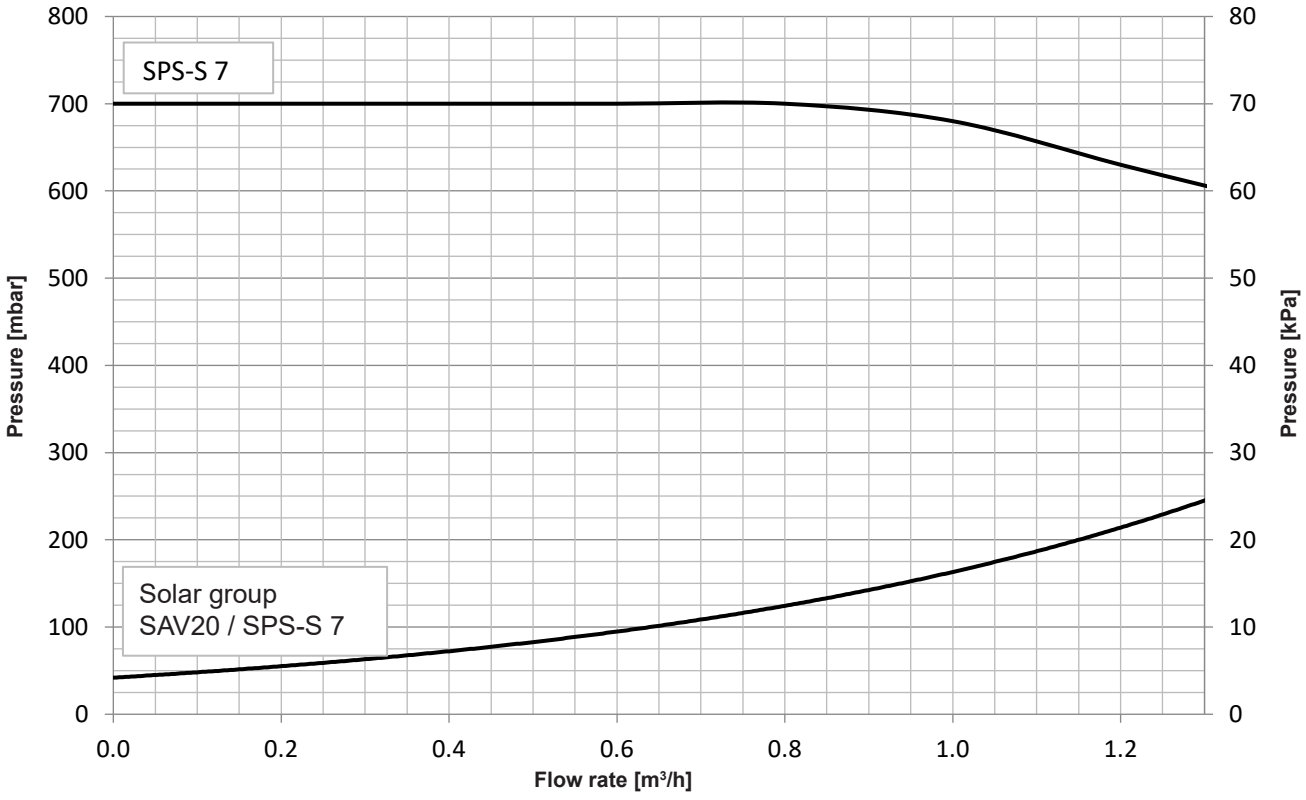
			Heating water temperature flow							
			55 °C (6-...)		60 °C (6-...)		65 °C (6-...)		70 °C (6-...)	
DHW secondary	**TransTherm® aqua F**		(10)	(16)	(10)	(16)	(10)	(16)	(10)	(16)
60/5 °C	T return primary	°C	-	-	-	-	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	**1.08**	**1.88**	**1.32**	**2.09**
	Q max.	kW	-	-	-	-	43	75	60	95
	V̇ secondary	**m³/h**	-	-	-	-	**0.67**	**1.17**	**0.94**	**1.48**
60/10 °C	T return primary	°C	-	-	-	-	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	**0.8**	**1.5**	**1.08**	**1.94**
	Q max.	kW	-	-	-	-	32	60	50	90
	V̇ secondary	**m³/h**	-	-	-	-	**0.55**	**1.03**	**0.86**	**1.54**
60/15 °C	T return primary	°C	-	-	-	-	30	30	30	30
	V̇ primary	**m³/h**	-	-	-	-	**0.55**	**1.05**	**0.97**	**1.8**
	Q max.	kW	-	-	-	-	22	42	44	82
	V̇ secondary	**m³/h**	-	-	-	-	**0.42**	**0.8**	**0.84**	**1.57**
60/20 °C	T return primary	°C	-	-	-	-	**30**	**30**	30	30
	V̇ primary	**m³/h**	-	-	-	-	**0.3**	**0.6**	**0.62**	**1.14**
	Q max.	kW	-	-	-	-	12	24	28	52
	V̇ secondary	**m³/h**	-	-	-	-	**0.26**	**0.52**	**0.6**	**1.12**
55/5 °C	T return primary	°C	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	**1.25**	**2.04**	**0.8**	**1.5**	**1.08**	**2.09**
	Q max.	kW	-	-	43	70	32	60	50	95
	V̇ secondary	**m³/h**	-	-	**0.74**	**1.2**	**0.55**	**1.03**	**0.86**	**1.63**
55/10 °C	T return primary	°C	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	**1.11**	**2.04**	**1.3**	**2.06**	**1.08**	**1.87**
	Q max.	kW	-	-	38	70	52	82	49	85
	V̇ secondary	**m³/h**	-	-	**0.73**	**1.34**	**0.99**	**1.57**	**0.94**	**1.62**
55/15 °C	T return primary	°C	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	**0.76**	**1.46**	**0.97**	**1.65**	**1.1**	**1.88**
	Q max.	kW	-	-	26	50	44	75	44	75
	V̇ secondary	**m³/h**	-	-	**0.56**	**1.08**	**0.95**	**1.61**	**0.94**	**1.62**
55/20 °C	T return primary	°C	-	-	30	30	30	30	30	30
	V̇ primary	**m³/h**	-	-	**0.47**	**0.9**	**0.95**	**1.68**	**0.84**	**1.47**
	Q max.	kW	-	-	16	31	38	67	38	67
	V̇ secondary	**m³/h**	-	-	**0.39**	**0.76**	**0.94**	**1.65**	**0.94**	**1.65**
50/5 °C	T return primary	°C	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**1.28**	**2.04**	**1.25**	**2.06**	**1.08**	**1.87**
	Q max.	kW	37	58	44	70	50	82	49	85
	V̇ secondary	**m³/h**	**0.71**	**1.11**	**0.84**	**1.34**	**0.95**	**1.57**	**0.94**	**1.62**
50/10 °C	T return primary	°C	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**1.28**	**2.04**	**1.1**	**1.88**	**0.97**	**1.65**
	Q max.	kW	38	58	44	70	44	75	44	75
	V̇ secondary	**m³/h**	**0.82**	**1.25**	**0.95**	**1.51**	**0.95**	**1.61**	**0.95**	**1.61**
50/15 °C	T return primary	°C	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.29**	**2.03**	**1.11**	**1.95**	**0.95**	**1.68**	**0.84**	**1.47**
	Q max.	kW	37	58	38	67	38	67	38	67
	V̇ secondary	**m³/h**	**0.91**	**1.43**	**0.94**	**1.65**	**0.94**	**1.65**	**0.94**	**1.65**
50/20 °C	T return primary	°C	30	30	30	30	30	30	30	30
	V̇ primary	**m³/h**	**1.15**	**2.03**	**0.96**	**1.69**	**0.83**	**1.45**	**0.73**	**1.28**
	Q max.	kW	33	58	33	58	33	58	33	58
	V̇ secondary	**m³/h**	**0.95**	**1.67**	**0.95**	**1.67**	**0.95**	**1.67**	**0.95**	**1.67**
45/5 °C	T return primary	°C	19	18	17	16	16	15	15	13
	V̇ primary	**m³/h**	**0.86**	**1.91**	**0.86**	**1.92**	**0.87**	**1.83**	**0.84**	**1.62**
	Q max.	kW	35	80	42	95	48	104	52	104
	V̇ secondary	**m³/h**	**0.76**	**1.73**	**0.90**	**2.05**	**1.04**	**2.24**	**1.13**	**2.24**
45/10 °C	T return primary	°C	21	21	20	19	19	17	17	16
	V̇ primary	**m³/h**	**0.86**	**1.91**	**0.86**	**1.92**	**0.87**	**1.69**	**0.77**	**1.49**
	Q max.	kW	33	74	39	89	45	91	46	91
	V̇ secondary	**m³/h**	**0.81**	**1.84**	**0.97**	**2.20**	**1.13**	**2.25**	**1.13**	**2.24**
45/15 °C	T return primary	°C	24	23	23	22	21	20	20	19
	V̇ primary	**m³/h**	**0.86**	**1.91**	**0.87**	**1.8**	**0.8**	**1.55**	**0.71**	**1.36**
	Q max.	kW	30	69	37	78	39	78	40	78
	V̇ secondary	**m³/h**	**0.88**	**1.99**	**1.07**	**2.26**	**1.14**	**2.27**	**1.16**	**2.26**
45/20 °C	T return primary	°C	27	26	25	25	24	23	23	23
	V̇ primary	**m³/h**	**0.86**	**1.92**	**0.85**	**1.63**	**0.72**	**1.4**	**0.63**	**1.22**
	Q max.	kW	27	63	33	65	33	66	33	65
	V̇ secondary	**m³/h**	**0.96**	**2.18**	**1.16**	**2.27**	**1.16**	**2.29**	**1.15**	**2.27**

T return primary °C Primary return temperature
V̇ primary **m³/h** Primary flow rate
Q max. kW Output
V̇ secondary **m³/h** Secondary flow rate
The specified technical data relates to the full load of the module in each case.

Residual overpressure heating module HMV20-3BM

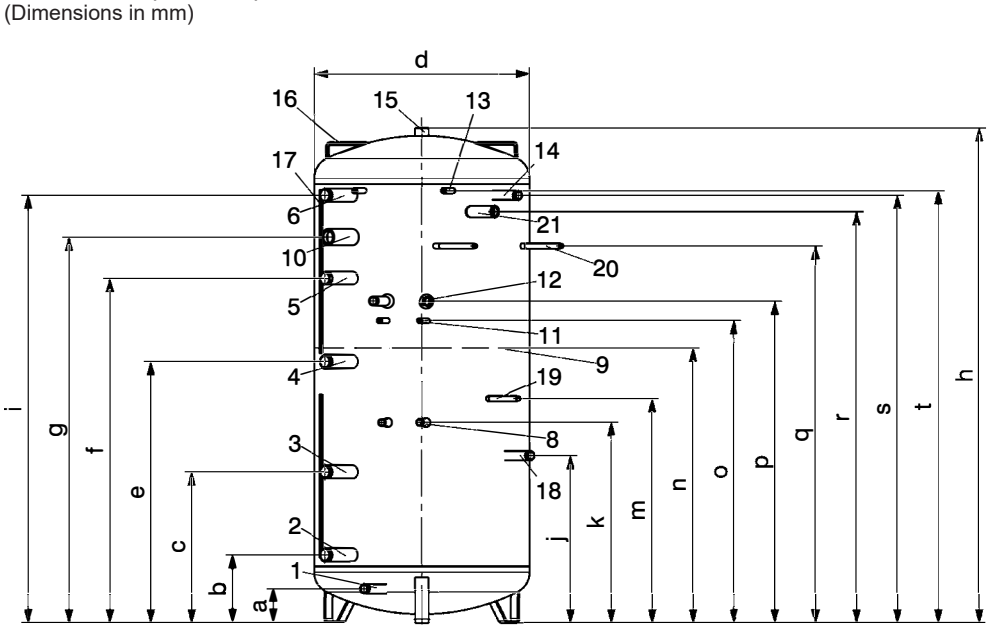


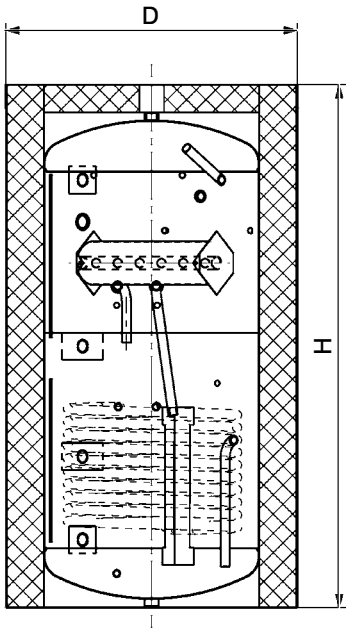
Residual overpressures solar group SAV20

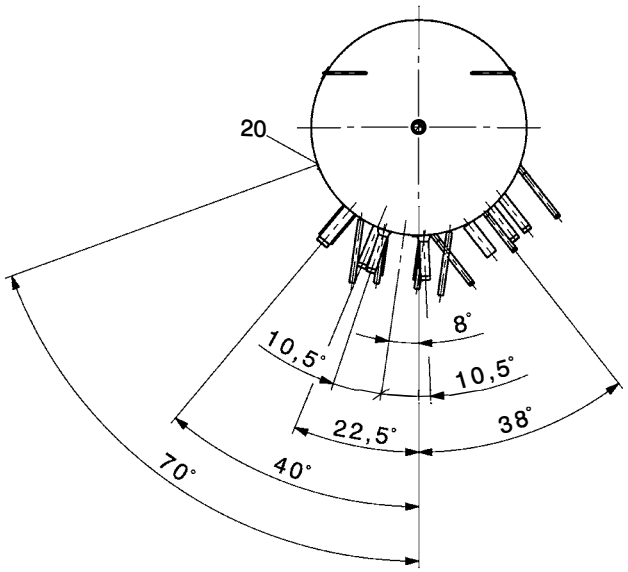


VarioVal FLS (800-1000)

(Dimensions in mm)







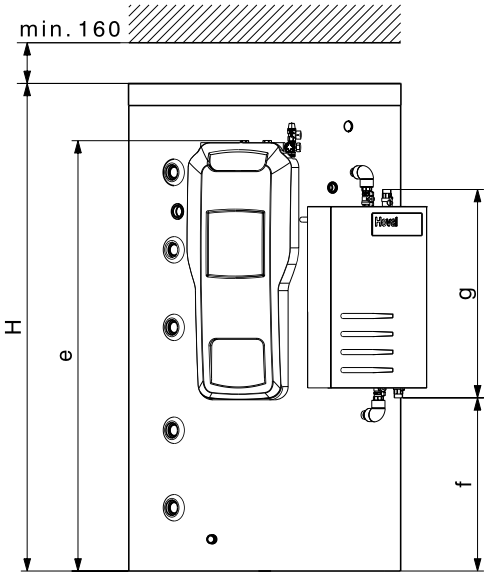
Deviations possible as a result of manufacturing tolerances.
Dimensions +/- 10 mm

1	Drain	G 1″ (ext. thread)
2	Heat generator connection bottom (vertical baffle plate)	G 1½″ (ext. thread)
3	Heat generator connection 2 - bottom (inflow restrictor)	G 1½″ (ext. thread)
4	Heat generator connection middle (inflow restrictor)	G 1½″ (ext. thread)
5	Heat generator connection 2 - top (stratification pipe)	G 1½″ (ext. thread)
6	Heat generator connection top (vertical baffle plate)	G 1½″ (ext. thread)
8	Flow (left) and return (right) solar circuit	G ¾″ (ext. thread)
9	Separating plate	
10	Connection for screw-in electric heating element	Rp 1½″ (int. thread)
11	Fixing bolts bottom left and right for solar group	M10 (int. thread)
12	Flow (left) and return (right) heating	G 1″ (ext. thread)
13	Fixing bolts top left and right for heating group	M10 (int. thread)
14	Connection for fresh water station warm flow	G 1″ (ext. thread)
15	Possible air vent	Rp 1¼″ (int. thread)
16	Carry handle (2 x)	
17	Sensor terminal strip (type (800) 2 x, type (1000) 3 x)	
18	Connection for fresh water station warm cold return	G 1″ (ext. thread)
19	Bolt at bottom for fresh water station	
20	Fixing bolts top left and right for fresh water station	M10 (int. thread)
21	Connection for circulation lance	R 1″ (int. thread)

VarioVal FLS type	D	d	H	h	a	b	c	e	f	g	i	j	k	m	n	o	p	q	r	s	t	Tilting dimension
(800)	1070	790	1919	1816	125	249	554	959	1264	1415	1569	614	736	823	1009	1109	1180	1383	1509	1569	1586	1828
(1000)	1070	790	2119	2016	125	249	554	959	1264	1415	1569	814	870	1023	1009	1243	1314	1583	1709	1769	1720	2030

Space requirements

Installation example - VarioVal FLS
- Heating module HMV20-3B
- HA group HAV20-3BM-R
- Solar group SAV20
- DH module TransTherm® aqua FT (65)

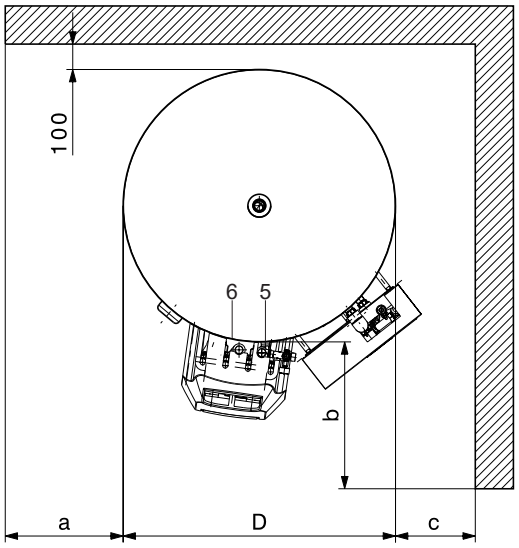


Notices on operation and accessibility
The operating side must be easily accessible. Preferably place heat generator to the left of the storage tank.

Accessibility, left according to heat generator (a):
- Installation and removal of the screw-in electric heating element
- Thermal insulation can be opened to position the sensors in the terminal strips
- Wall clearance, right (c):

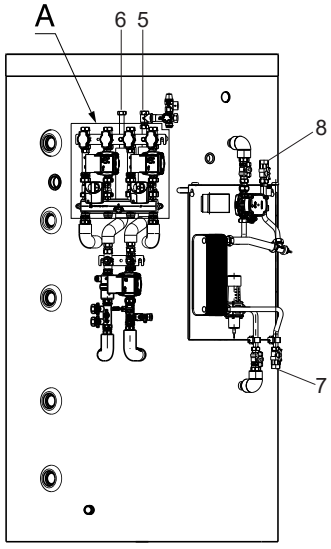
Installation of the diaphragm pressure expansion tank
- Removal and installation of the DH module or the hood
- Hot water (domestic water) flow and return

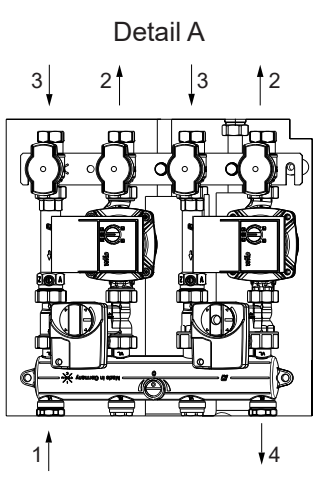
Distance from the ceiling, top:
- Possibly for safety set



VarioVal FLS	a	b	c	D	e	f	g	H
(800)	≥ 650	≥ 1000	≥ 500	1070	1694	682	820	1919
(1000)	≥ 650	≥ 1000	≥ 500	1070	1828	882	820	2119

Representation without thermal insulating hood and DH module hood





1	Heating flow	G 1″ (ET)
2	Flow heating circuit	Rp ¾″ (IT)
3	Return heating circuit	Rp ¾″ (IT)
4	Heating return	G 1″ (ET)
5	Solar circuit return	G ¾″ (IT)
6	Solar circuit flow	G ¾″ (IT)
7	Cold water	Rp ¾″ (IT)
8	Domestic hot water	Rp ¾″ (IT)