

Hoval Modul-plus
Calorifier

- Calorifier made of stainless steel
- Heating water casing made of steel
- Heat exchanger made of modular elements made of steel for hot water output up to 10000 l/h at 60 °C and heating output from 60-720 kW
- Thermal insulation
 - Inner polyurethane rigid foam shells
 - Middle mineral wool mats (hard), 50 mm
 - External panelling incl. floor with mineral wool mats (soft), 50 mm
 - With EPP hoods on the front
- Casing made of sheet steel, red powder-coated
- Counter flange and screws completely installed

On request

- Charging pump
- Divided version

Delivery

- Calorifier and casing are delivered separately



Control panel with thermostats

Type EK 107-90

- For installation into the casing of the Modul-plus
- Incl. thermometer 0-150 °C
- Incl. temperature control from 30-90 °C
- Operating temperature max. 90 °C

Type EK 108-110

- For installation in the casing at the Modul-plus
- Incl. thermometer 0-150 °C
- Incl. temperature control 30-90 °C
- Temperature limiter STB 110 °C
- Operating temperature max. 110 °C

Range

Modul-plus

F (21)

F (31)

F (41)

F (51)

F (32)

F (42)

F (52)

F (21) S

F (31) S

F (41) S

F (51) S

F (32) S

F (42) S

F (52) S

FH (21) S

FH (31) S

FH (41) S

FH (51) S

FH (32) S

FH (42) S

FH (52) S

F (21) SM

F (31) SM

F (41) SM

F (51) SM

F (32) SM

F (42) SM

F (52) SM

FH (21) SM

FH (31) SM

FH (41) SM

FH (51) SM

FH (32) SM

FH (42) SM

FH (52) SM

FH (21) SX

FH (31) SX

FH (41) SX

FH (51) SX

FH (32) SX

FH (42) SX

FH (52) SX

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

Calorifier



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

Delivery
Calorifier and casing delivered
separately packed.

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

Modul-plus type	Height mm	kW ¹	Flats ²	Heating surface m²
F (21)	1615	76.5	9	2.84
		115.5	12	
F (31)	1615	113.9	17	4.26
		148.5	20	
		187.2	25	
F (41)	1800	136.3	30	5.68
		213.6	40	
		250.2	45	
F (51)	2160	199.4	45	7.10
		268.6	70	
		321.5	80	
F (32)	1615	227.9	60	8.52
		297.0	75	
		329.6	80	
		374.4	90	
F (42)	1800	272.6	100	11.36
		354.0	> 100	
		427.3	> 100	
F (52)	2160	398.8	> 100	14.20
		537.2	> 100	
		634.8	> 100	

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

² See technical data for more
specific information.

Part No.

7014 740

7014 741

7014 742

7014 743

7014 744

7014 745

7014 746

On-site welding

Same model as above, that means

- operating pressure hot water 6 bar
- heating 5 bar
for domestic water up to max. 30 mg/l
chloride content
- opening for cleaning in front

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

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

Calorifier


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

Modul-plus type	Height mm	kW ¹	Flats ²	Heating surface m ²
F (21) S	1615	76.5	9	2.84
		115.5	12	
F (31) S	1615	113.9	17	4.26
		148.5	20	
		187.2	25	
F (41) S	1800	136.3	30	5.68
		213.6	40	
		250.2	45	
F(51) S	2160	199.4	45	7.10
		268.6	70	
		321.5	80	
F (32) S	1615	227.9	60	8.52
		297.0	75	
		329.6	80	
		374.4	90	
F (42) S	1800	272.6	100	11.36
		354.0	> 100	
		427.3	> 100	
F (52) S	2160	398.8	> 100	14.20
		537.2	> 100	
		634.8	> 100	

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

² See technical data for more specific information

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

Modul-plus type	Height mm	Heating surface m ²
FH (21) S	1615	2.84
FH (31) S	1615	4.26
FH (41) S	1800	5.68
FH (51) S	2160	7.10
FH (32) S	1615	8.52
FH (42) S	1800	11.36
FH (52) S	2160	14.20

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

Part No.

7014 747

7014 749

7014 751

7014 753

7014 755

7014 757

7014 759

Calorifier


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

Modul-plus type	Height mm	kW ¹	NL index ²	Heating surface m ²
F (21) SM	1615	76.5	10	2.84
		115.5	18	
F (31) SM	1615	113.9	18	4.26
		148.5	25	
		187.2	35	
F (41) SM	1800	136.3	24	5.68
		213.6	43	
		250.2	43	
F (51) SM	2160	199.4	40	7.10
		268.6	59	
		321.5	74	
F (32) SM	1615	227.9	49	8.52
		297.0	69	
		329.6	79	
		374.4	93	
F (42) SM	1800	272.6	64	11.36
		354.0	89	
		427.3	114	
F (52) SM	2160	398.8	107	14.20
		537.2	157	
		634.8	195	

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

² See technical data for more specific information

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

Modul-plus type	Height mm	Heating surface m ²
FH (21) SM	1615	2.84
FH (31) SM	1615	4.26
FH (41) SM	1800	5.68
FH (51) SM	2160	7.10
FH (32) SM	1615	8.52
FH (42) SM	1800	11.36
FH (52) SM	2160	14.20

Part No.

7014 770

7014 771

7014 772

7014 773

7014 774

7014 775

7014 776

7014 777

7014 778

7014 779

7014 780

7014 781

7014 782

7014 783

Calorifier


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

Modul-plus type	Height mm	NL index ² Heating surface m ²		
FH (21) SX	1615	76.5	10	2.84
		115.5	18	
FH (31) SX	1615	113.9	18	4.26
		148.5	25	
		187.2	35	
FH (41) SX	1800	136.3	24	5.68
		213.6	43	
		250.2	43	
FH (51) SX	2160	199.4	40	7.10
		268.6	59	
		321.5	74	
FH (32) SX	1615	227.9	49	8.52
		297.0	69	
		329.6	79	
		374.4	93	
FH (42) SX	1800	272.6	64	11.36
		354.0	89	
		427.3	114	
FH (52) SX	2160	398.8	107	14.20
		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

Part No.

7014 784

7014 785

7014 786

7014 787

7014 788

7014 789

7014 790

Accessories



Electrical box EK 107/90
for Modul-plus
Casing with removable front,
made of sheet steel,
red powder-coated.
With thermometer 0-150 °C and
temperature controller 30-90 °C.
Operating temperature heating 90 °C.

6042 308



Electrical box EK 108/110
for Modul-plus
Casing with removable front,
made of sheet steel,
red powder-coated.
With thermometer 0-150 °C and
temperature controller 30-90 °C.
Temperature limiter STB 110 °C.
Operating temperature heating 110 °C.

6042 309



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

6041 091



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

6025 189

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.

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

Type		(21)	(31)	(41)	(51)	(32)	(42)	(52)
• Module numbers		2	3	4	5	6	8	10
Calorifier								
• Content	litres	249	367	485	603	721	957	1193
• Heating surface	m ²	2.84	4.26	5.68	7.1	8.52	11.36	14.2
• Max. hot water temperature	°C	95	95	95	95	95	95	95
• Flow resistance ¹⁾	z value	1.4	2.4	3	3.6	0.74	0.9	1.1
• Heat loss at 65 °C	W	164	188	212	236	417	444	497
• Operating pressure	normal type ²⁾	bar	6	6	6	6	6	6
	type high-rise building ³⁾	bar	10	10	10	10	10	10
• Test pressure	normal type ²⁾	bar	12	12	12	12	12	12
	type high-rise building ³⁾	bar	16	16	16	16	16	16
• Weight without casing	normal type ²⁾	kg	165	215	265	315	470	570
	type high-rise building ³⁾	kg	205	275	345	415	630	770
• Weight casing	kg	104	104	115	140	121	135	160
Heating								
• Heating water content	litres	30	45	60	75	90	120	150
• Max. heating water temperature	°C	110	110	110	110	110	110	110
• Flow resistance ¹⁾	z value	2	2.8	3.6	4.7	0.78	1	1.4
• Operating pressure	normal type ²⁾	bar	5	5	5	5	5	5
	type high-rise building ³⁾	bar	8	8	8	8	8	8
• Test pressure	normal type ²⁾	bar	8	8	8	8	8	8
	type high-rise building ³⁾	bar	12.8	12.8	12.8	12.8	12.8	12.8

¹⁾ Flow resistance heating battery in mbar = flow rate (m³/h)² x z (1 mbar = 0.1 kPa)

²⁾ Normal version: F (21-52), F (21-52) S, F(21-52) SM

³⁾ High-pressure version: FH (21-52) S, FH (21-52) SM, FH (21-52) SX

Performance figure

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

Reading example
see engineering

	Comfort			Standard		
NL	70°C	80°C	90°C	70°C	80°C	90°C
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12	F21			F21		
13						
14						
15						
16						
17						
18		F21				
19						
20						
21						
22						
23						
24			F21	F21		
25						
26	F31					
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37		F31				
38						
39						F21
40						
41						
42				F31		
43						
44						
45						
46						
47						
48	F41					
49						
50						

	Comfort			Standard		
NL	70°C	80°C	90°C	70°C	80°C	90°C
51			F31			
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65		F41				
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76	F51					
77						
78						
79	F32				F31	
80						
81						
82						
83			F41			
84						
85						
86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99		F51				
100						
>100	F42/F52	F32/F42/ F52	F51/F32/ F42/F52	F41/F51/ F32/F42/ F52	F41/F51/ F32/F42/ F52	F41/F31/ F51/F32/ F42/F52

T = heating flow

NL = performance figure

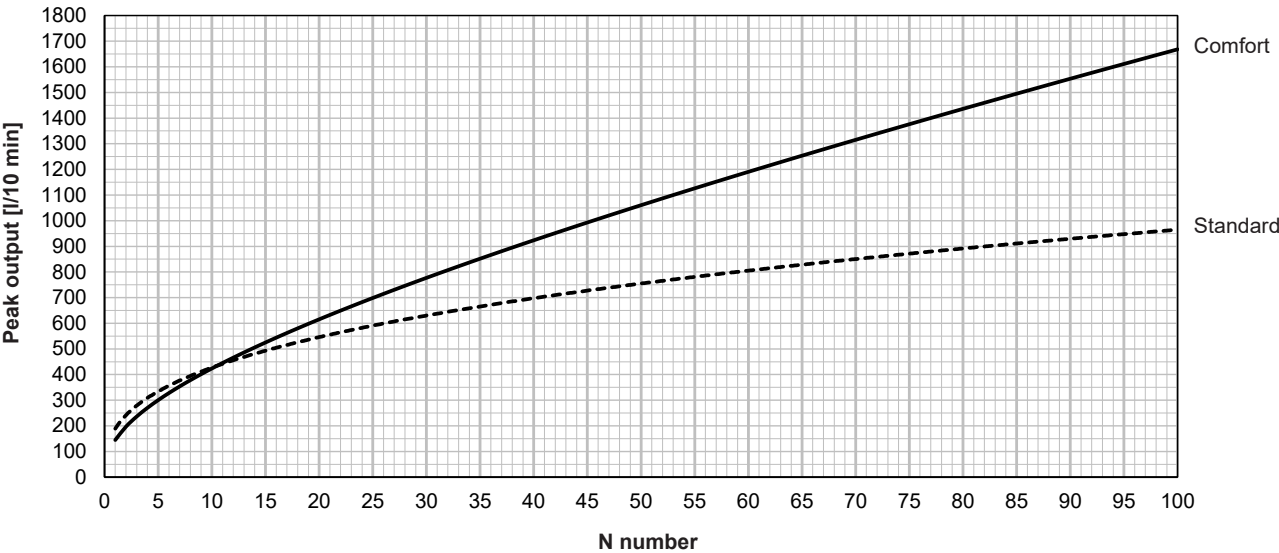
Performance figure NL acc. to DIN 4708 = number of flats which can be supplied with domestic hot water when the calorifier is heated and permanently reheated with the heat generator. (Standard flat: 1 bathroom - 4 rooms - 3.5 persons)

¹⁾ Calculation with simultaneity factor according to DIN 4708 (preferred for Switzerland)

²⁾ Calculation with simultaneity factor according to Dresden Technical University

10 min peak output/N number with domestic hot water 45 °C
according to DIN 4708 (Comfort) and Dresden Technical University (Standard)

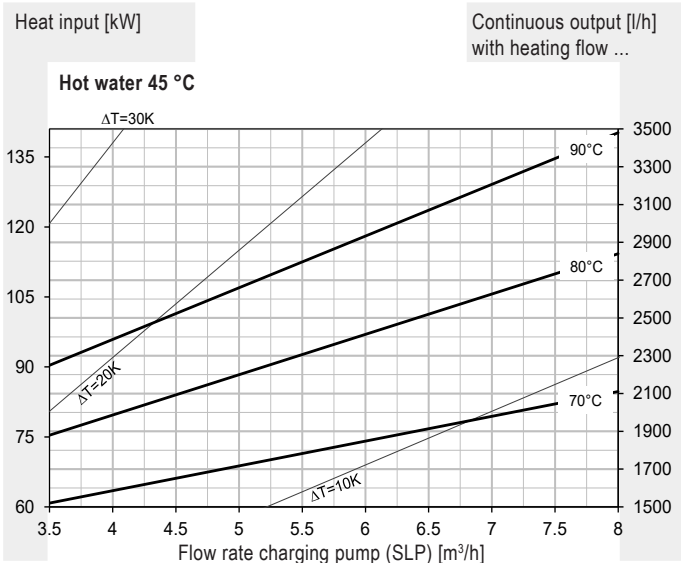
Reading example
see engineering



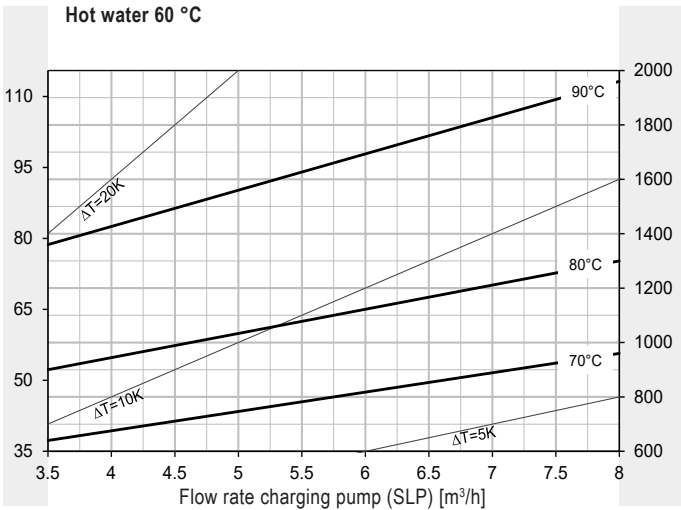
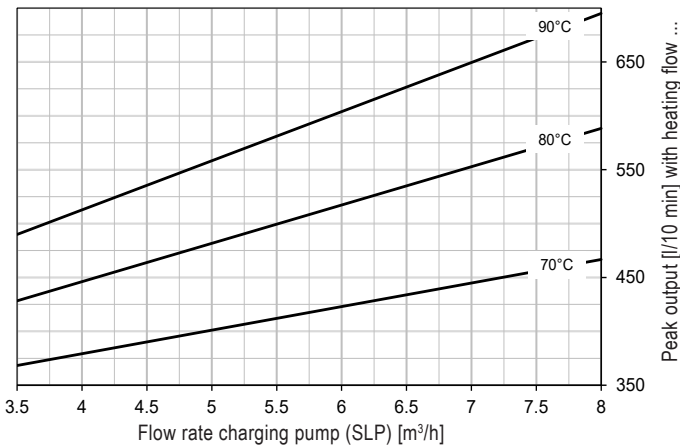
Modul-plus F (21)

Hot water output
Continuous output

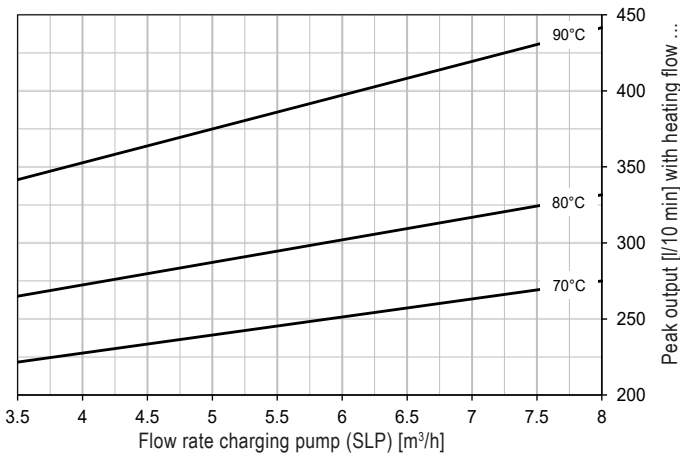
Reading example
see engineering



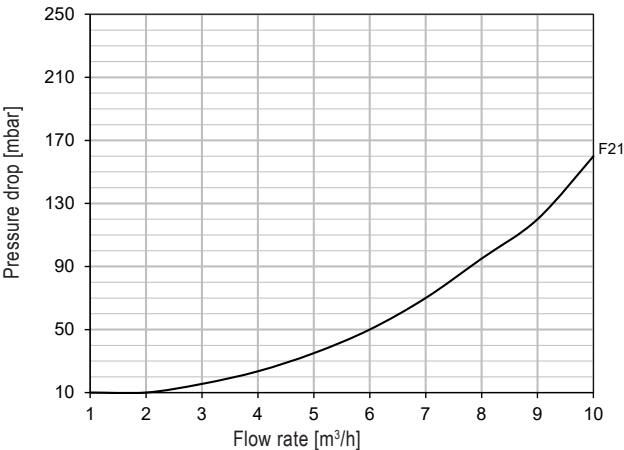
10 min peak output - hot water 45 °C *



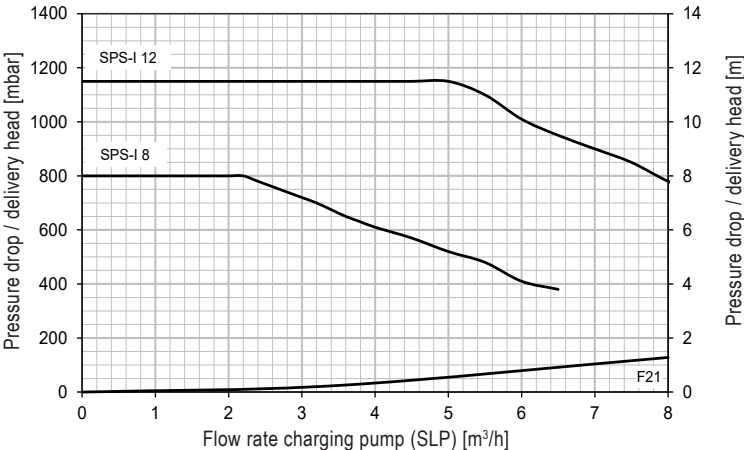
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump



Cold water temperature = 10 °C

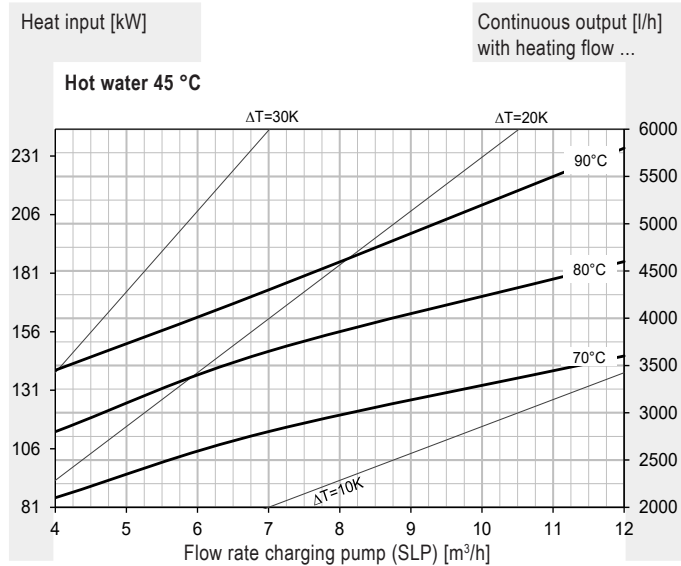
ΔT = temperature difference between primary side/heating side (between flow and return)

* Calorifier heated to 60 °C

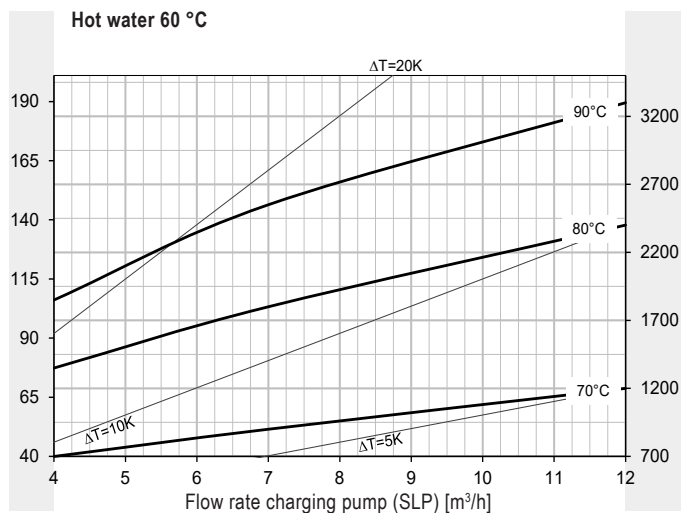
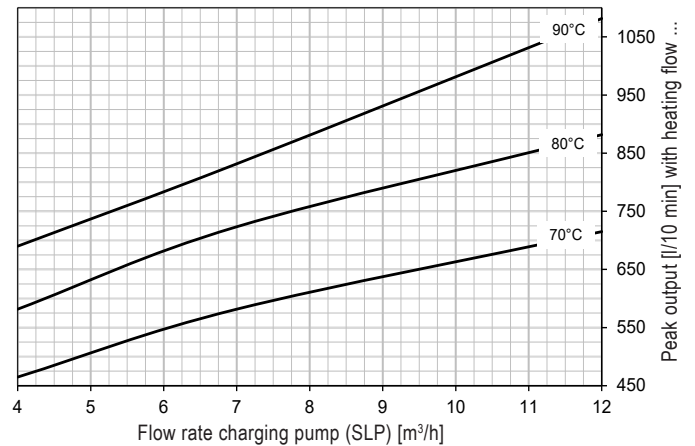
Modul-plus F (31)

Hot water output Continuous output

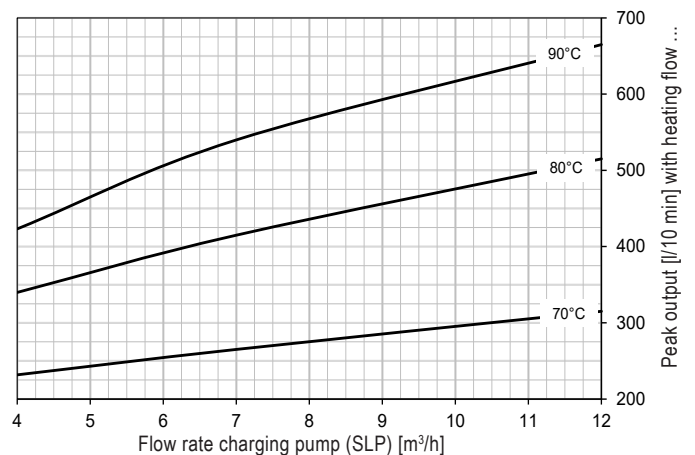
Reading example
see engineering



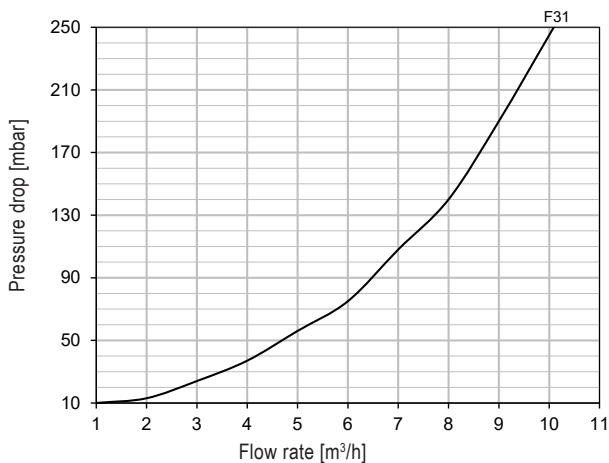
10 min peak output - hot water 45 °C *



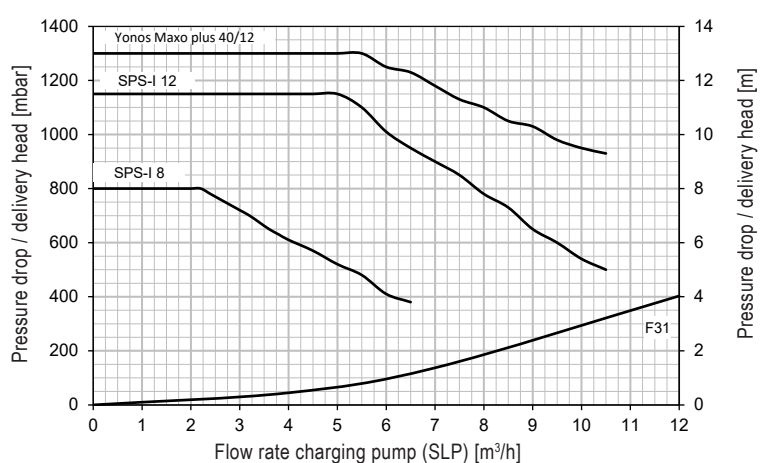
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump



Cold water temperature = 10 °C

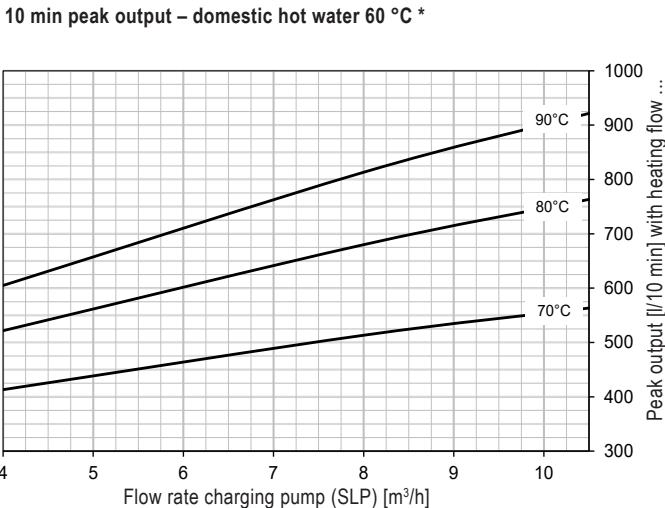
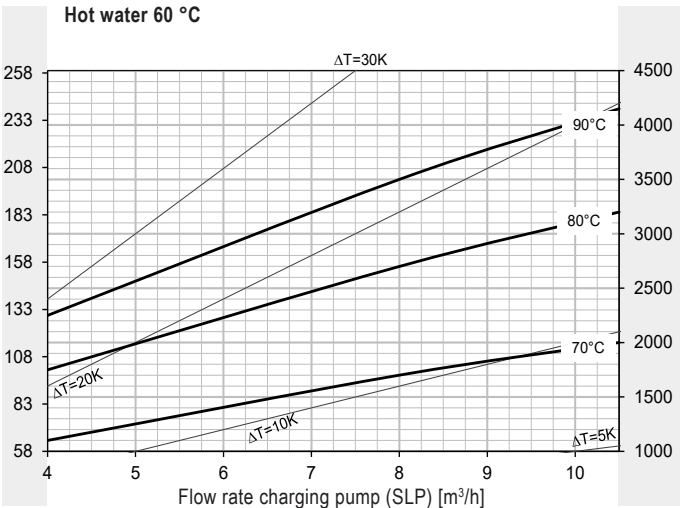
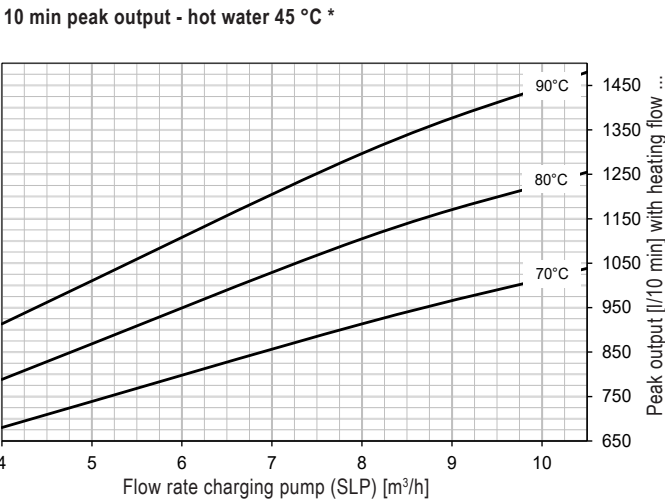
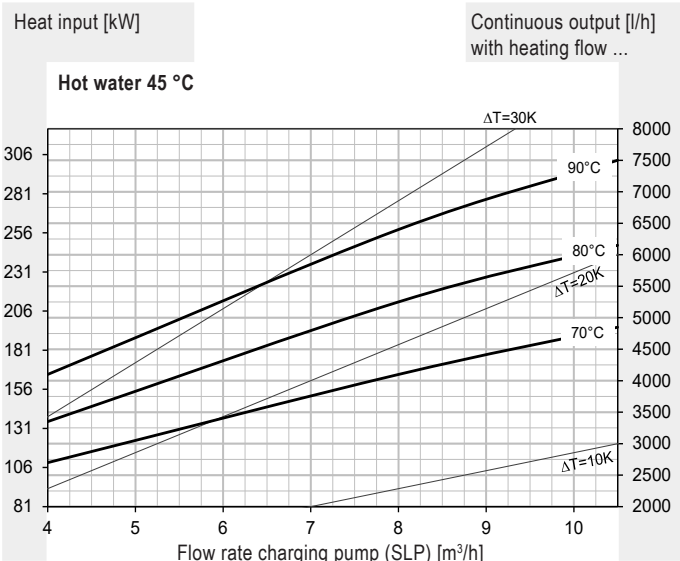
ΔT = temperature difference between primary side/heating side (between flow and return)

* Calorifier heated to 60 °C

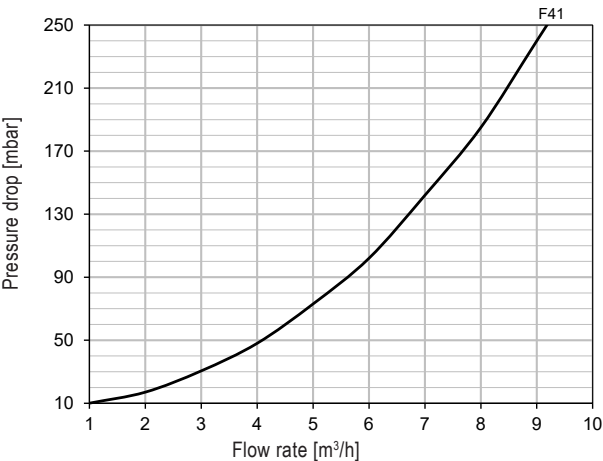
Modul-plus F (41)

Hot water output
Continuous output

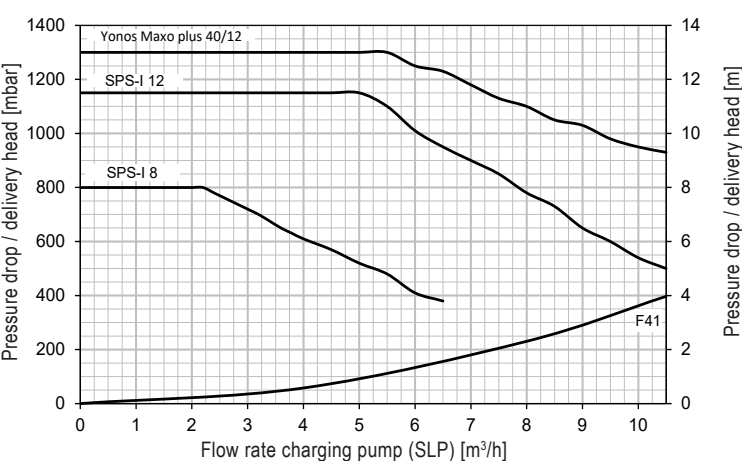
Reading example
see engineering



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump

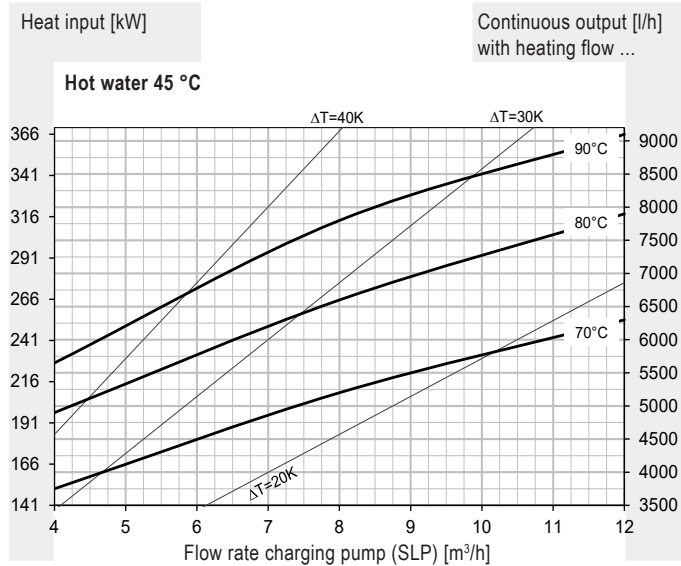


Cold water temperature = 10 °C
ΔT = temperature difference between primary side/heating side (between flow and return)
* Calorifier heated to 60 °C

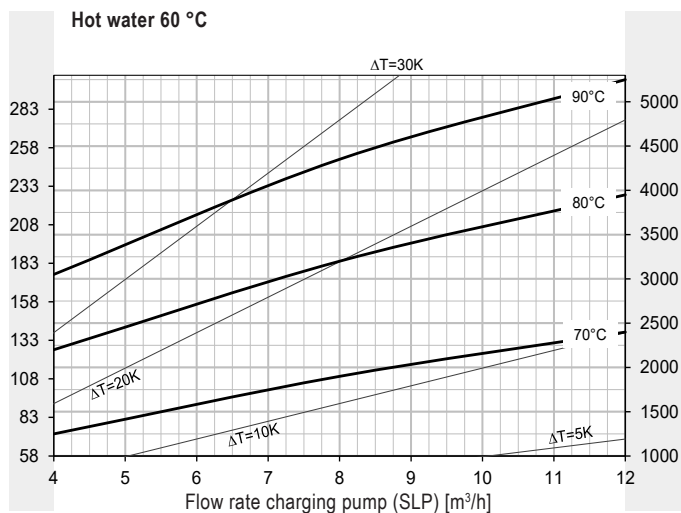
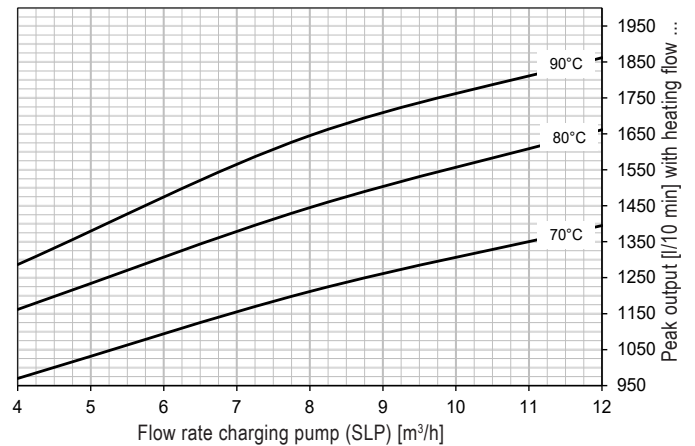
Modul-plus F (51)

Hot water output Continuous output

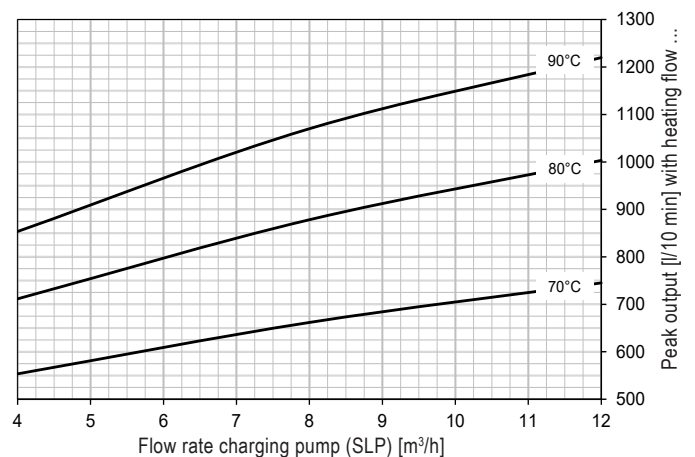
Reading example
see engineering



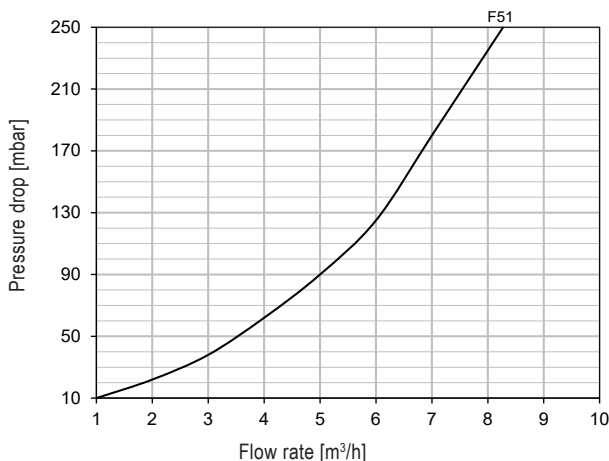
10 min peak output - hot water 45 °C *



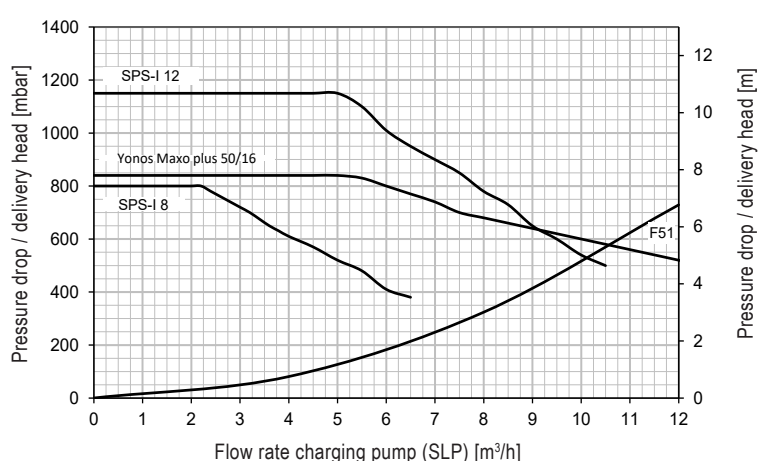
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump



Cold water temperature = 10 °C

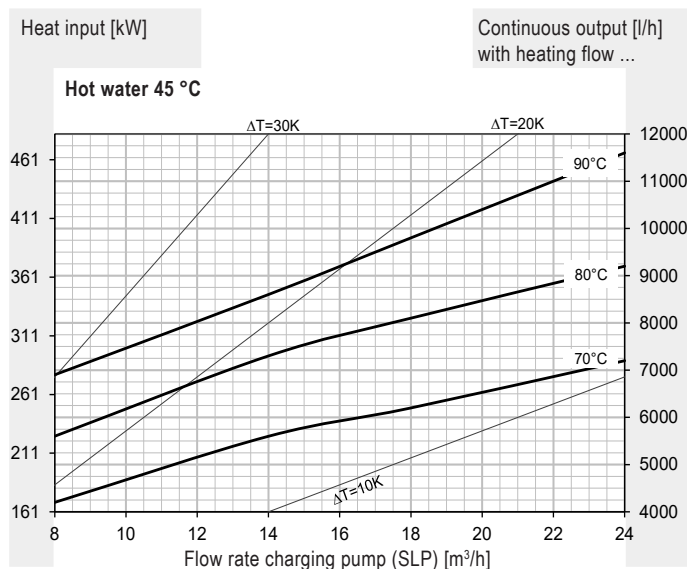
ΔT = temperature difference between primary side/heating side (between flow and return)

* Calorifier heated to 60 °C

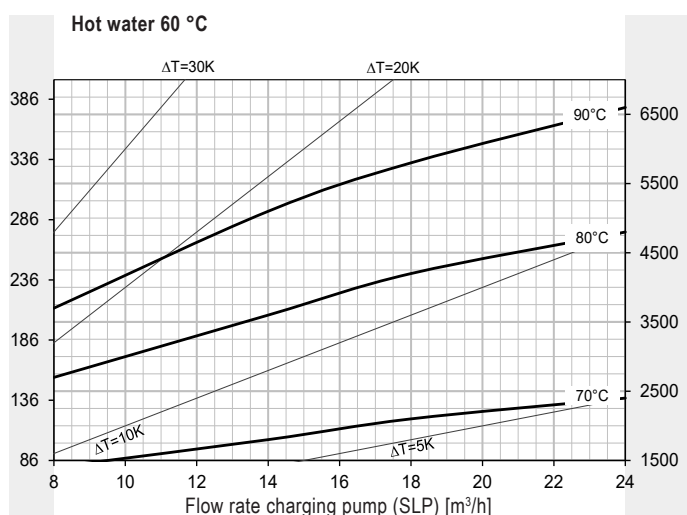
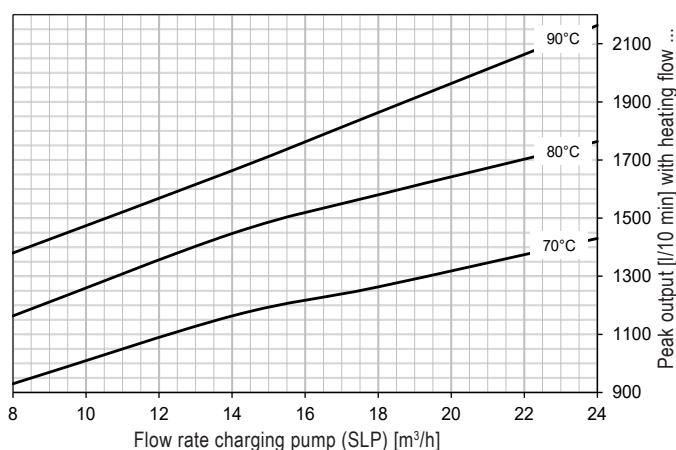
Modul-plus F (32)

Hot water output Continuous output

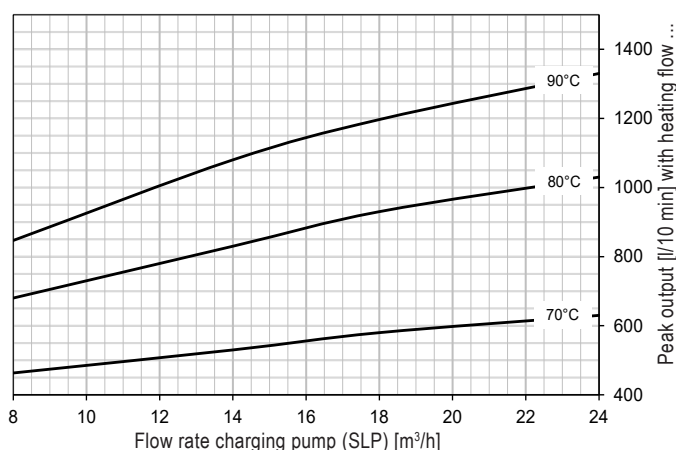
Reading example
see engineering



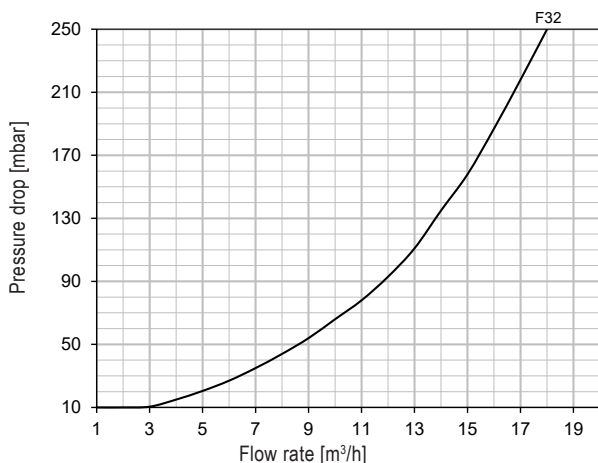
10 min peak output - hot water 45 °C *



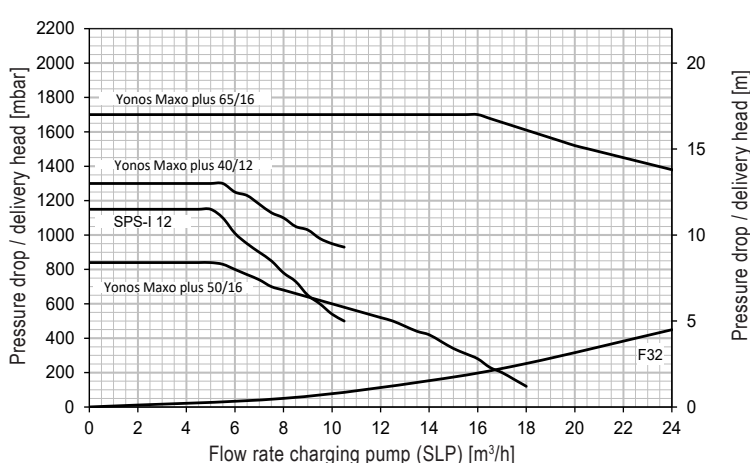
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump



Cold water temperature = 10 °C

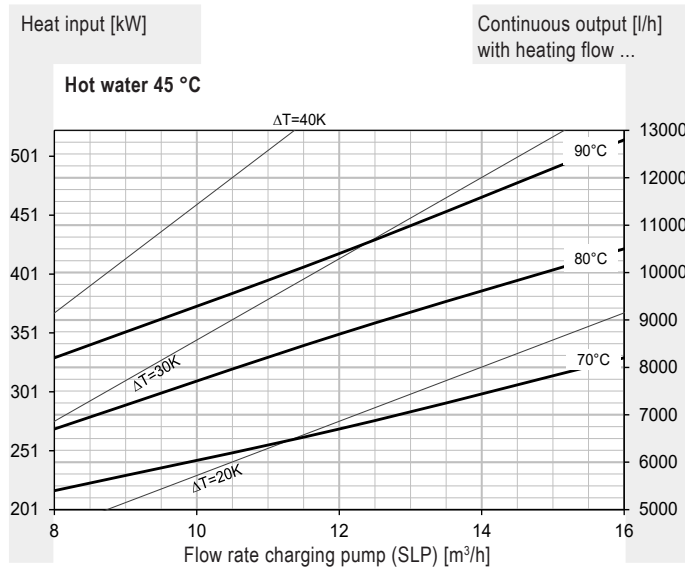
ΔT = temperature difference between primary side/heating side (between flow and return)

* Calorifier heated to 60 °C

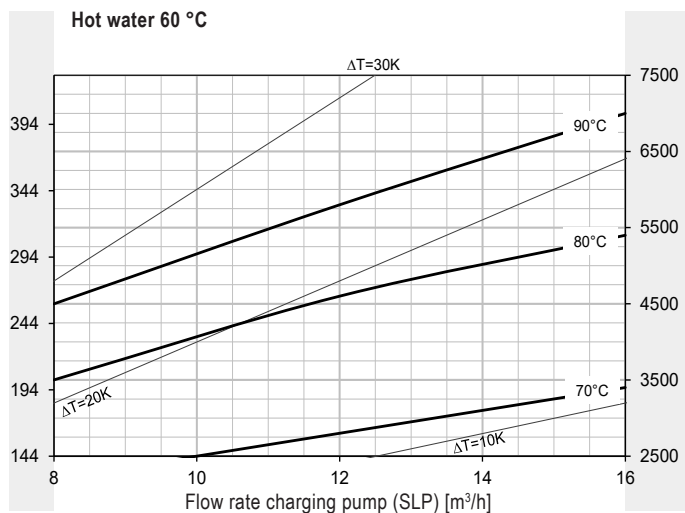
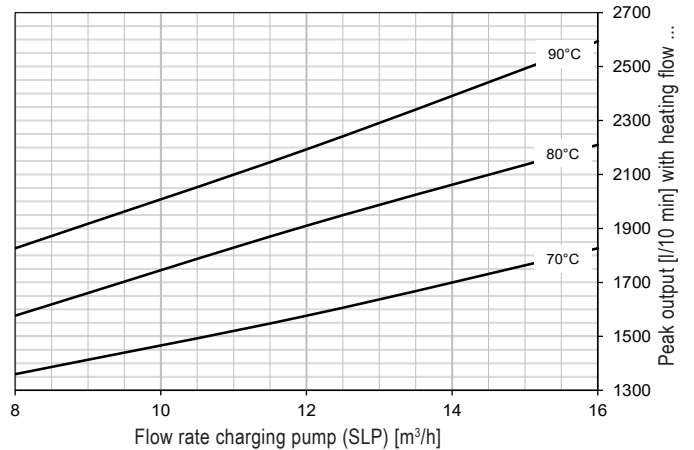
Modul-plus F (42)

Hot water output Continuous output

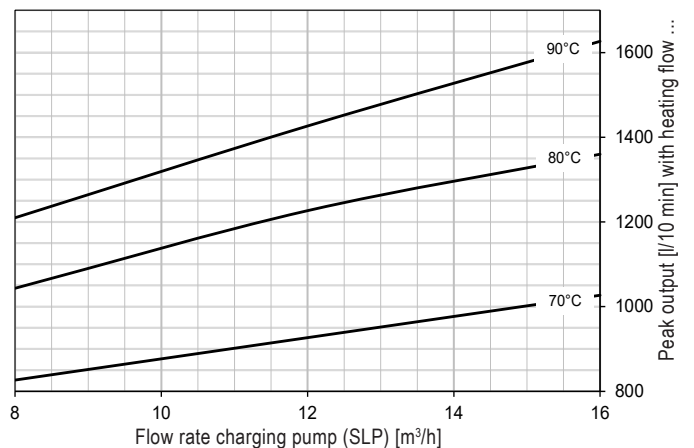
Reading example
see engineering



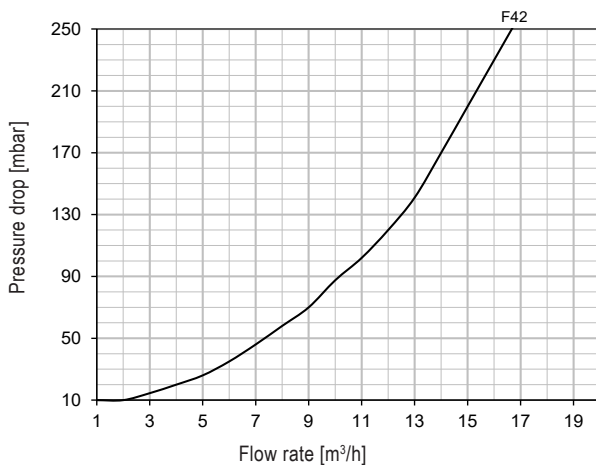
10 min peak output - hot water 45 °C *



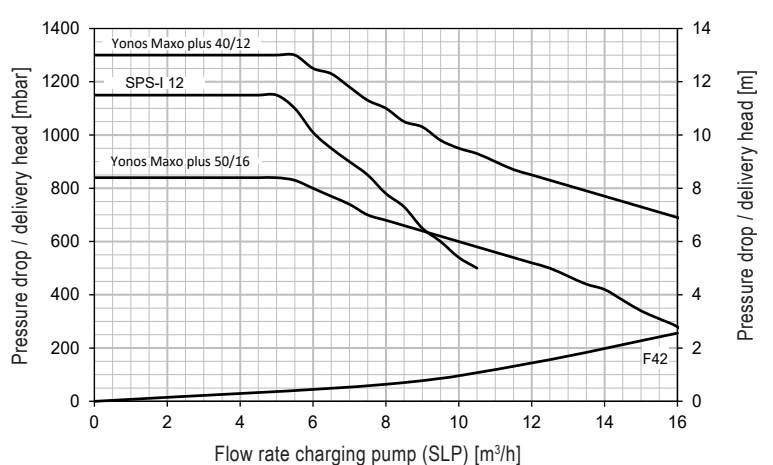
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



Pressure drop primary side/heating side - delivery head charging pump



Cold water temperature = 10 °C

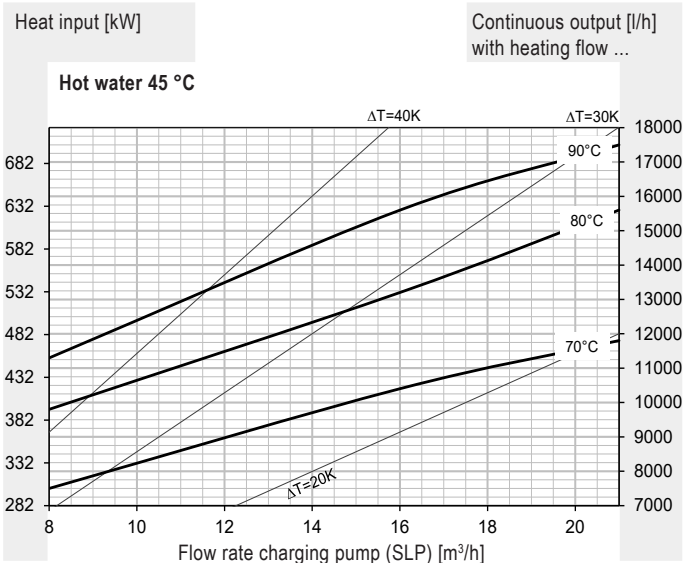
ΔT = temperature difference between primary side/heating side (between flow and return)

* Calorifier heated to 60 °C

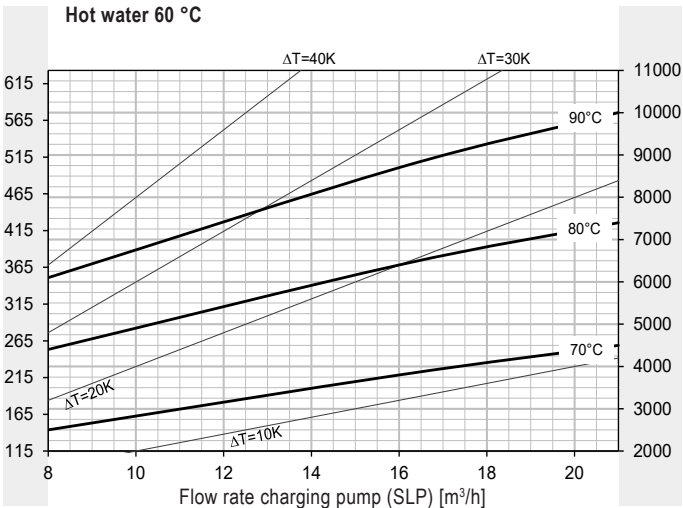
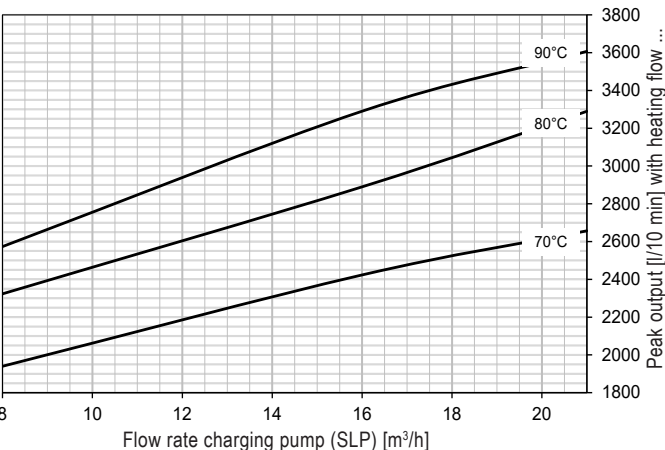
Modul-plus F (52)

Hot water output
Continuous output

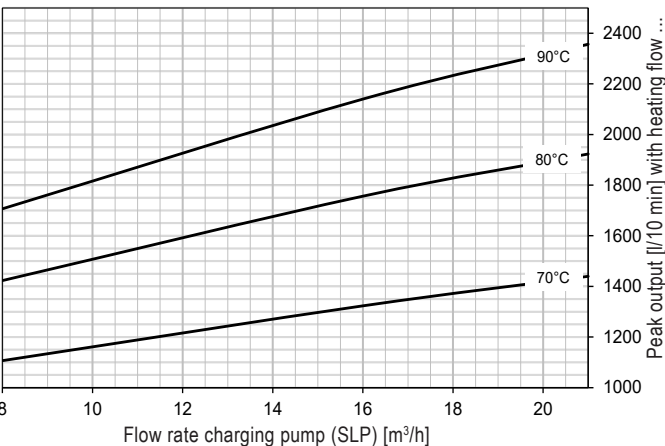
Reading example
see engineering



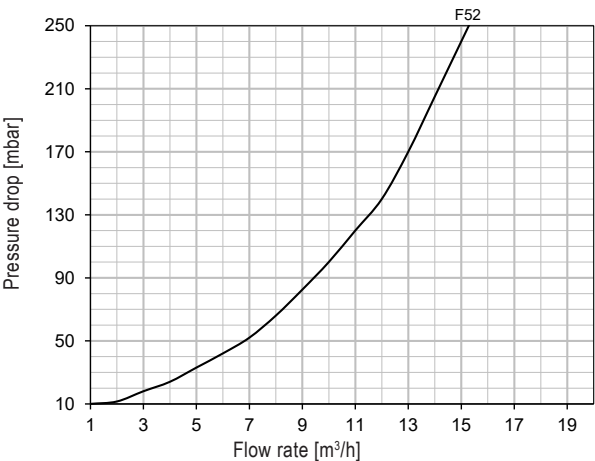
10 min peak output - hot water 45 °C *



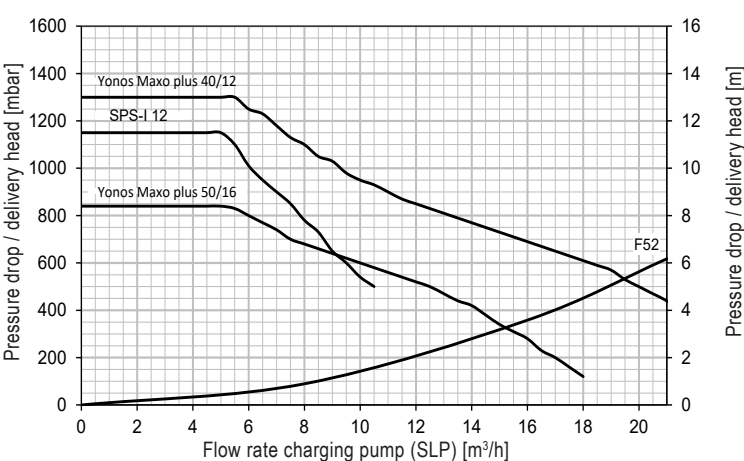
10 min peak output - domestic hot water 60 °C *



Pressure loss secondary side/domestic hot water side



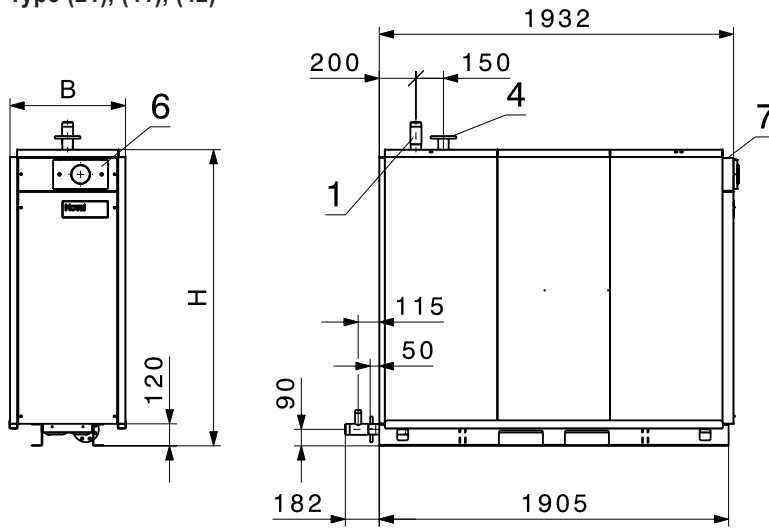
Pressure drop primary side/heating side - delivery head charging pump



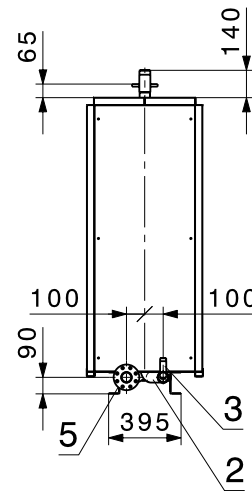
Cold water temperature = 10 °C
ΔT = temperature difference between primary side/heating side (between flow and return)
* Calorifier heated to 60 °C

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

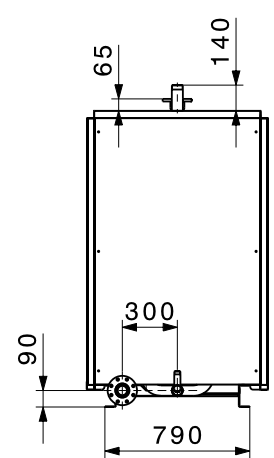
Type (21), (41), (42)



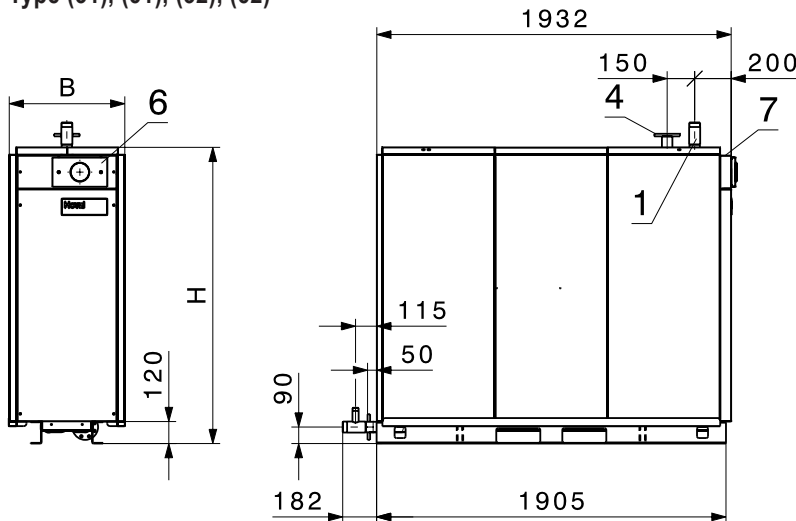
Type (21), (41)



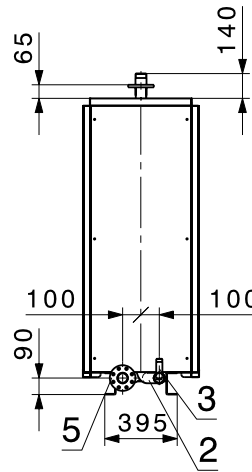
Type (42)



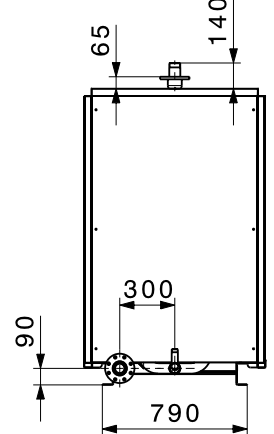
Type (31), (51), (32), (52)



Type (31), (51)



Type (32), (52)



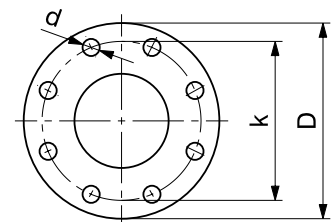
- 1 Hot water 2"
- 2 Cold water 2"
- 3 Circulation 1"
- 4 Heating flow *
- 5 Heating return *
- 6 Control panel
- 7 Electrical connection

* Operating pressure 5 bar = standard flanges PN 6 (4 x boreholes d)

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

* Operating pressure 8 & 10 bar = special flanges (8 x boreholes d)

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



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

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

	D	k	d
DN 50	140	110	14
DN 65	160	130	14

With adjustable feet, all dimensions +30 mm

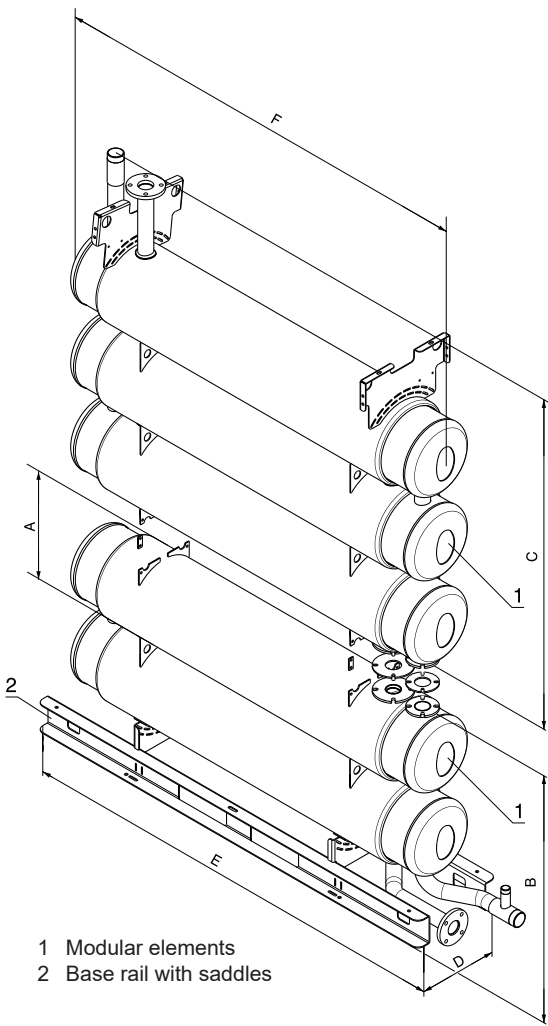
Variation because of the production
tolerance possible
Dimension +/- 10 mm

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

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

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

More accurate scope of services
see the end of the section

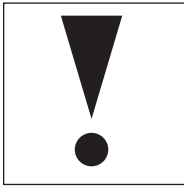


Dimensions of the separate parts

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

Installation on site

Planning hints



Important preparations

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



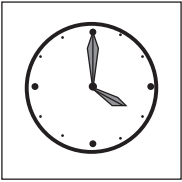
Water connection

A fresh water connection 3/4", for filling and testing the welded calorifier, must be available in the boiler room.



Calorifier material

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



Time schedule

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

Heating room preparation

Required space

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

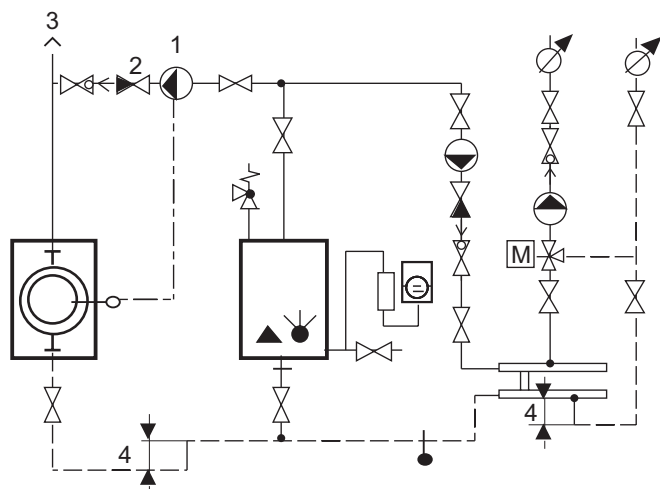
Required space for installation in the boiler room

Min. room dimensions in mm

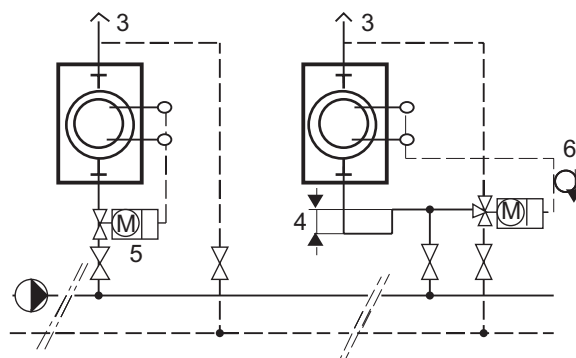
	(31/32)	(41/42)	(51/52)
Length	2.0	2.0	2.0
Width	1.8	1.8	1.8
Height	2.0	2.0	2.5

Diagram of heating

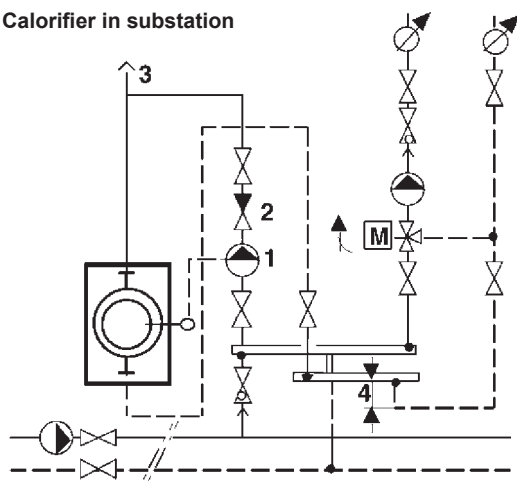
Calorifier in central heating station



Connection to room heating distance pipe max. 110 °C, 8 bar
(the corresponding plant regulations must be observed in the case of district heating supplies)



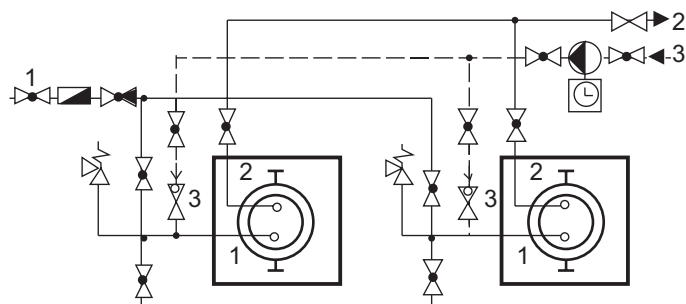
Calorifier in substation



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

Diagram of DHW connection

2 calorifiers connected in parallel



- 1 = cold water
- 2 = hot water
- 3 = circulation