UP, UPS, UPSD

Circulator pumps

50/60 Hz

be
think
innovate

GRUNDFOS

Type key

Small and medium UP circulator pumps

Example	UP	S	D	40	-50	F

Type range

S = electric speed control

Twin-head pump

Nominal diameter (DN) of suction and discharge ports [mm]

Maximum head [dm]

Pipe connection:
(no letter) = pipe thread
F = flange
Pump housing:
(no letter) = cast iron
N = stainless steel
A = pump housing with air separator, upward water flow
K = cold-water version
KU = cold-water version (foam-filled terminal box and stator)

Large UP circulator pumps

Example	UPS	D	65	-60	(/2)	F(-)	280

Type range

Twin-head pump

Nominal flange diameter [mm]

Max. head [dm]

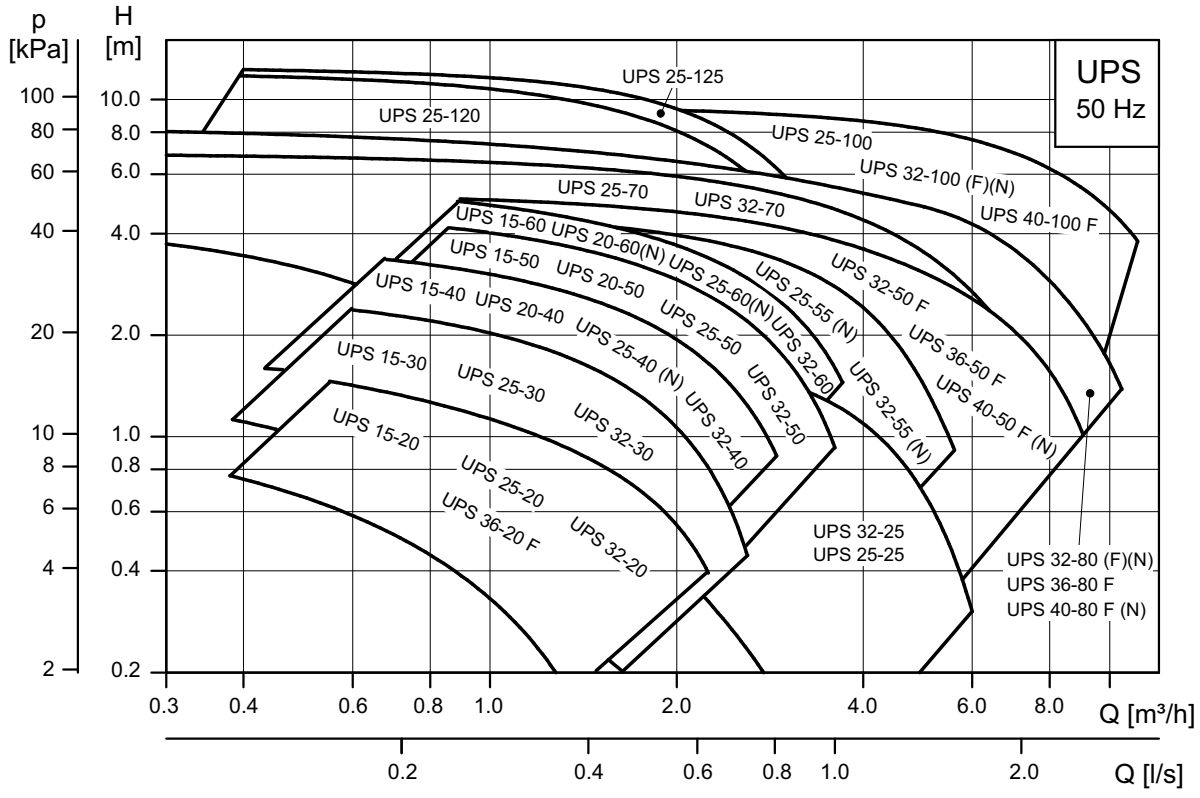
Number of motor poles (stated if available both as 2- and 4-pole motor)

F - Pump with flanges
B - Pump with bronze housing (EuP, suitable for drinking water)

Port-to-port length [mm]

Performance ranges

Small and medium UP circulator pumps for heating systems, 50 Hz

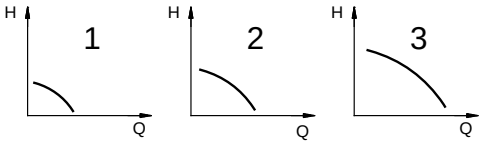


TM00 9602 1709

2. Functions of large UP circulator pumps

Speed switch

The pump offers three speeds for adjustment of pump performance to the system in question.



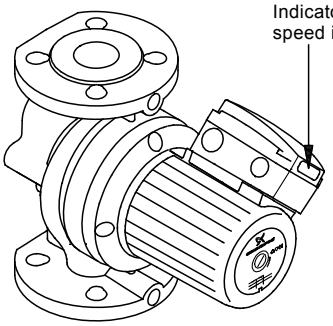
TM00 9247 4595

Fig. 7 Pump performance at the three speeds

The speeds of the various speed switch positions are shown in the table below. The values are approximate, depending on loads.

Switch position	Speed in % of maximum speed	
	Single-phase pumps	Three-phase pumps
1	approx. 60 %	approx. 70 %
2	approx. 80 %	approx. 85 %
3	100 %	100 %

Change to a lower speed enables reduction in energy consumption and less noise in the system.



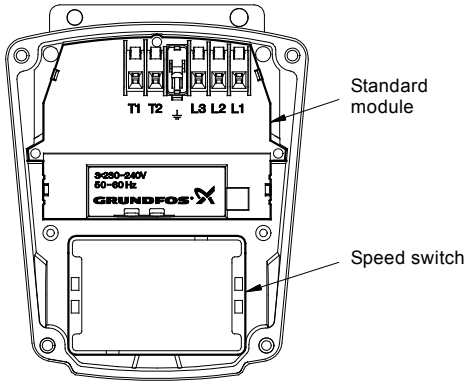
TM00 9747 0602

Fig. 8 Indicator lights on terminal box

Standard module

The module is standard in single-head pumps and is also available for twin-head pumps.

Connect the pump to the mains via an external contactor. Connect the contactor to the pump's built-in thermal overload switch to protect the pump against overload at all three speeds.



TM00 9237 0602

Fig. 9 Standard module

Standard module indicator lights

Function of the indicator lights on the terminal box:

Single-phase pumps

Single-phase pumps have a green indicator light.

Indicator light Green	Description
On	The power supply has been switched on.
Off	The power supply has been switched off.

Three-phase pumps

Three-phase pumps have a green and a red indicator light.

Indicator lights		Description
Green	Red	
Off	Off	The power supply has been switched off.
On	Off	The power supply has been switched on.
On	On	The power supply has been switched on. The direction of rotation is wrong.

Inlet pressure

To avoid cavitation noise and damage to the pump bearings, the listed minimum pressures are required at the pump suction port.

Small and medium UP pumps

Pump type	Liquid temperature		
	85 °C	90 °C	110 °C
UP, UPS, UPSD	[MPa (bar)]	[MPa (bar)]	[MPa (bar)]
	0.5 (0.049)	2.8 (0.27)	11 (1.08)

Large UP pumps

Pump type	Liquid temperature		
	75 °C	90 °C	120 °C
UPS, UPSD	[MPa (bar)]	[MPa (bar)]	[MPa (bar)]
32-60 F 220	0.005 (0.05)	0.02 (0.2)	0.15 (1.5)
32-120 F 220	0.04 (0.4)	0.07 (0.7)	0.195 (1.95)
40-60/2 F 250	0.015 (0.15)	0.045 (0.45)	0.175 (1.75)
40-120 F 250	0.01 (0.1)	0.04 (0.4)	0.17 (1.7)
40-180 F 250	0.04 (0.4)	0.07 (0.7)	0.195 (1.95)
40-185 F 250	0.055 (0.55)	0.09 (0.9)	0.18 (1.8)
50-60/2 F 280	0.005 (0.05)	0.035 (0.35)	0.165 (1.65)
50-120 F 280	0.04 (0.4)	0.07 (0.7)	0.195 (1.95)
50-180 F 280	0.035 (0.35)	0.065 (0.65)	0.19 (1.9)
50-185 F 280	0.085 (0.85)	0.1 (1)	0.215 (2.15)
65-60/2 F 340	0.045 (0.45)	0.075 (0.75)	0.2 (2)
65-120 F 340	0.09 (0.9)	0.12 (1.2)	0.245 (2.45)
65-180 F 340	0.07 (0.7)	0.1 (1)	0.225 (2.25)
65-185 F 340	0.09 (0.9)	0.13 (1.3)	0.235 (2.35)
80-60 F 360	0.12 (1.2)	0.15 (1.5)	0.275 (2.75)
80-120 F 360	0.16 (1.6)	0.19 (1.9)	0.315 (3.15)
100-30 F 450	0.105 (1.05)	0.135 (1.35)	0.26 (2.6)

Electrical data

Small and medium UP

Supply voltage and frequency:	1 x 220 V, 50 Hz 1 x 230 V, 50 Hz 1 x 240 V, 50 Hz 3 x 230 V, 50 Hz 3 x 220 V, 50 Hz 3 x 400 V, 50 Hz 1 x 220 V, 60 Hz
Motor protection:	The pump requires no external motor protection, if the motor is fitted with a protection module.
Enclosure class:	IP 42, IP 44, IP54, IPX2D, IPX4D
Insulation class:	155/180 °C, F/H
Terminal box:	Cable connection: Pg 11 (cable diameter: 5.6 mm to 10.0 mm)

Large UP

Supply voltage and frequency:	1 x 230-240 V, 50 Hz 3 x 400-415 V, 50 Hz
Motor protection:	The pump requires no external motor protection, if the motor is fitted with a protection module.
Enclosure class:	IPX4D
Insulation class:	155/180 °C, F/H
Screwed cable entries:	1 x M20 for mains connection. 1 x M20 for signal output (blanked-off if pump with standard module). 1 x M16 for capacitor connection (only single-phase pumps).
EMC (electromagnetic compatibility):	EN 61 000-6-2 EN 61 000-6-3

Thermal overload switch of large UP

Voltage	250 V AC
Current	cos φ = 1.0: 2.5 A cos φ = 0.6: 1.6 A

Relay module

Start/stop input

External potential-free contact

- Maximum load: 250 V, 1.5 mA
- Minimum load: 100 V, 0.5 mA

Operating/fault signal output

Internal potential-free changeover contact

- Maximum load: 250 V, 2 A, AC
- Minimum load: 5 V, 100 mA, DC

Other data

Relative humidity: Max. 95 %.

Sound-pressure level of UPS: below 43 dB(A)

6. Performance curves and technical data

Curve conditions

The guidelines below apply to the performance curves in the following data sheets:

- The measurements have been made at a water temperature of 20 °C.
  - Test liquid: airless water.
  - The curves apply to a kinematic viscosity of υ = 1 mm2/s (1 cSt).
- All curves show average values and should not be used as guarantee curves. If a specific minimum performance is required, individual measurements must be made.
- The conversion between head H [m] and pressure p [kPa] has been made for water with a density of ρ = 1000 kg/m^3. For liquids with other densities, for example hot water, the discharge pressure is proportional with the density.

Speed

Small and medium UP

On request.

Large UP

The table below shows the speed range of the various Large UP pump types and speed switch positions.

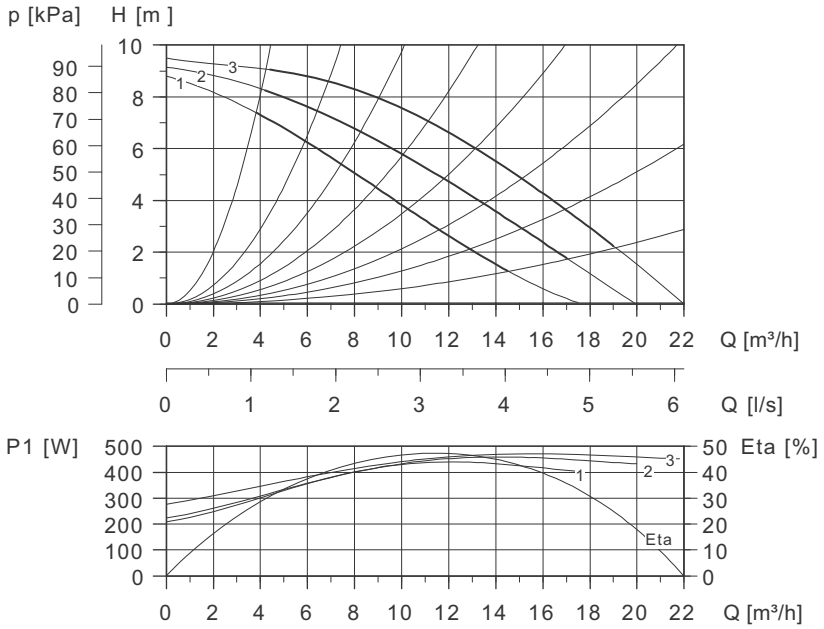
Pump type	Speed [min^{-1}]											
	Test voltage 1 x 230 V						Test voltage 3 x 400 V					
	Voltage range 1 x 230-240 V						Voltage range 3 x 400-415 V					
	Speed 1		Speed 2		Speed 3		Speed 1		Speed 2		Speed 3	
UPS, UPSD	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
32-60 F 220	2340	2780	2600	2850	2800	2910	2240	2630	2410	2720	2790	2900
32-120 F 220	2040	2770	2390	2840	2730	2920	2090	2660	2280	2740	2700	2910
40-60/2 F 250	2080	2630	2470	2760	2760	2870	2030	2350	2210	2500	2700	2820
40-120 F 250	2200	2770	2510	2840	2790	2920	2200	2590	2370	2690	2770	2890
40-180 F 250	2050	2750	2400	2840	2670	2890	2040	2660	2260	2750	2750	2910
40-185 F 250*	1920	2370	2300	2590	2530	2730	2130	2500	2300	2610	2750	2870
50-60/2 F 280	2180	2520	2510	2690	2790	2850	2230	2380	2400	2520	2790	2830
50-120 F 280	2050	2700	2460	2800	2690	2870	2020	2540	2240	2660	2720	2880
50-180 F 280	2200	2730	2490	2820	2690	2880	2450	2780	2590	2830	2860	2940
50-185 F 280*	2110	2620	2490	2750	2670	2860	2280	2540	2430	2650	2800	2860
65-60/2 F 340	2340	2520	2590	2690	2810	2840	2390	2440	2520	2570	2800	2830
65-120 F 340	2010	2590	2410	2750	2700	2850	2380	2730	2540	2790	2840	2930
65-180 F 340	-	-	-	-	-	-	2330	2750	2490	2810	2830	2930
65-185 F 340*	-	-	-	-	-	-	2400	2630	2530	2720	2830	2900
80-60 F 360	-	-	-	-	-	-	900	1190	1010	1270	1320	1420
80-120 F 360	-	-	-	-	-	-	2310	2530	2460	2640	2820	2880
100-30 F 450	-	-	-	-	-	-	1050	1360	1100	1140	1360	1370

* Only available as single-head pump (UPS)

UPS 40-120 F 250, UPS 40-120 F B 250

1 x 230-240 V, 50 Hz

Performance curves



Approvals

EAC

И005 13

TM00 9430 0197 - TM06 5344 4415 - A-A-A

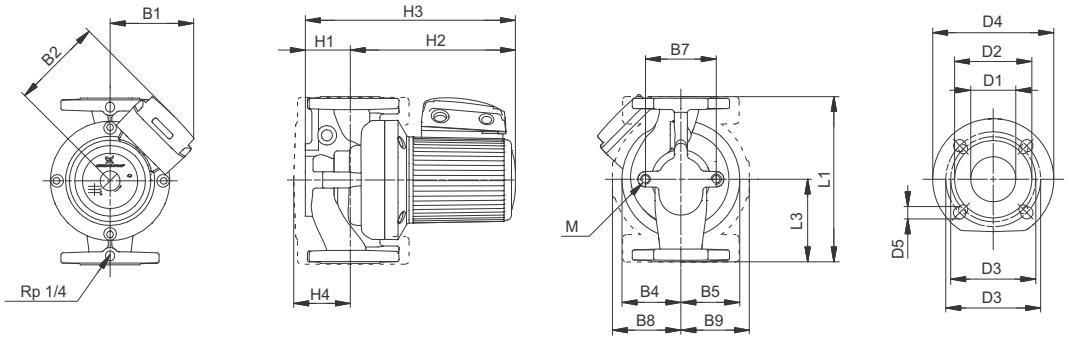
Electrical data

Speed	P_{max} [W]	P_{min} [W]	$I_{1/1}$ [A]	cos φ	C [µF]
1	440	210	2.20	0.87	12
2	460	225	2.30	0.87	12
3	470	280	2.20	0.93	12

Technical data

	PN 6 / PN 10	PN 6 / PN 10 bronze
Net weight [kg]	18.3	20.2
Gross weight [kg]	19.6	21.5
Shipping volume [m^3]	0.026	0.026
Liquid temperature [°C]	-10 °C to +120 °C	
System pressure [bar]	PN 6: 10 bar / PN 10: 15 bar	
IP class	IPX4D	

Dimensions



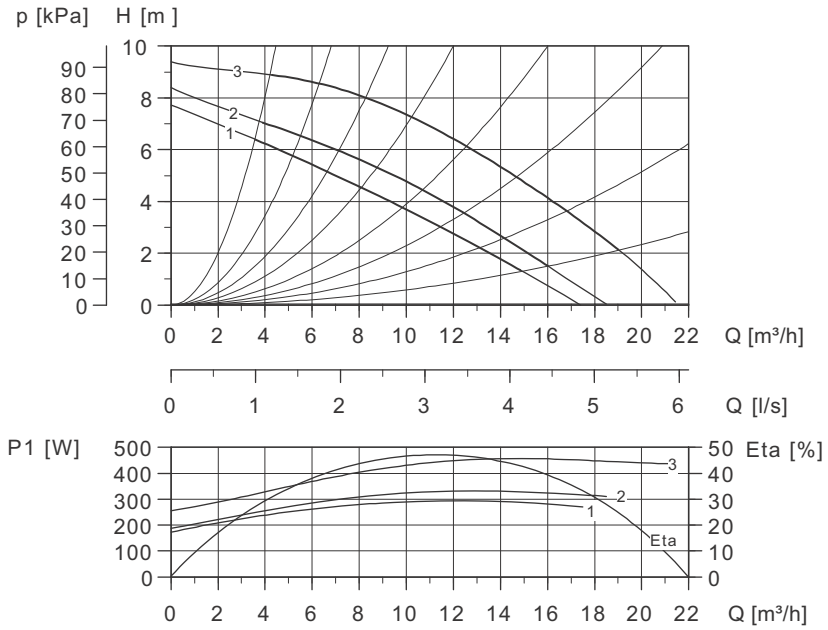
TM02 0701 3601

Dimensions [mm]	L1	L2	L3	B1	B2	B4	B5	B7	B8	B9	H1	H2	H3	H4	D1	D2	D3	D4	D5	M
PN 6 / PN 10 (bronze)	250		125	135	141	75	75	80	110	110	81	246	314	103	40	84	100/110	150	14/19	M12

UPS 40-120 F 250, UPS 40-120 F B 250

3 x 400-415 V, 50 Hz

Performance curves



Approvals

EAC

И005 13

TM00 9431 0197 - TM06 5344 4415 - A-A-A

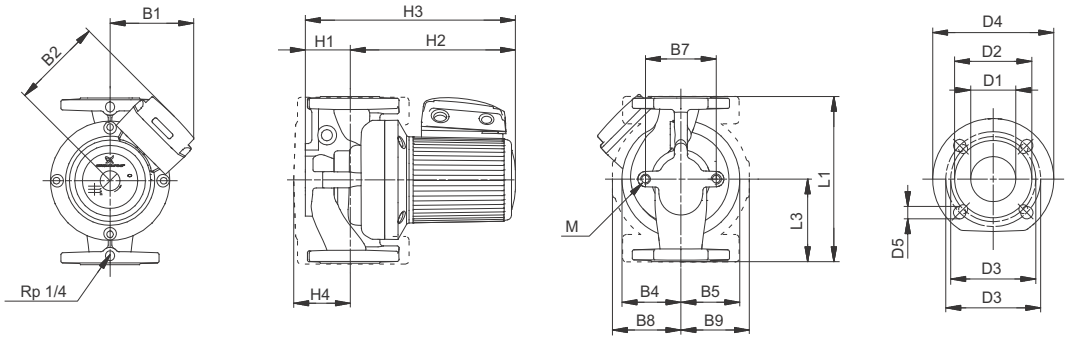
Electrical data

Speed	P_{max} [W]	P_{min} [W]	$I_{1/1}$ [A]	cos φ
1	290	175	0.49	0.85
2	330	190	0.56	0.85
3	460	260	0.92	0.72

Technical data

	PN 6 / PN 10	PN 6 / PN 10 bronze
Net weight [kg]	17.7	20.0
Gross weight [kg]	19.2	21.5
Shipping volume [m³]	0.026	0.026
Liquid temperature [°C]	-10 °C to +120 °C	
System pressure [bar]	PN 6: 10 bar / PN 10: 15 bar	
IP class	IPX4D	

Dimensions



TM02 0701 3601

Dimensions [mm]	L1	L2	L3	B1	B2	B4	B5	B7	B8	B9	H1	H2	H3	H4	D1	D2	D3	D4	D5	M
PN 6 / PN 10 (bronze)	250		125	135	141	75	75	80	110	110	81	246	314	103	40	84	100/110	150	14/19	M12

Small and medium UP: Cold-water circulator pumps, 50 Hz

Terminal box position: 9 h

Connection	Material	Pressure stage	Voltage [V]	Port-to-port length [mm]	Pump type	Product number	Data sheet page
Oval flange "21"	Cast iron	PN 10	1 x 230	120	UPS 21-60 FK	59556502	130
G 1 1/4	Cast iron	PN 10	1 x 230	130	UPS 20-40 K	59514517	131
G 1 1/2	Cast iron	PN 10	1 x 230	180	UPS 25-40 K	59544505	132
	Cast iron	PN 10	1 x 230	180	UPS 25-50 K	59545502	133
G 1 1/4	Cast iron, including cable 1145 mm	PN 10	1 x 230	180	UP 25-40 KU	59544524	134
		PN 10	1 x 230	180	UP 25-50 KU	59545520	135
		PN 10	1 x 230	180	UP 25-60 KU	59546510	136
G 1 1/2	Stainless steel	PN 10	1 x 240	150	UPS 20-60 NK	96913097	137
G 1 1/4	Stainless steel	PN 10	1 x 230	150	UP 20-30 NK	59643501	138

Small and medium UP: Standard circulator pumps, 60 Hz

Terminal box position: 9 h

Connection	Material	Pressure stage	Voltage [V]	Port-to-port length [mm]	Pump type	Product number	Data sheet page
G 1 1/4	Stainless steel	PN 10	1 x 220	150	UPS 20-62 N	95906736	139
G 1 1/2	Cast iron	PN 10	1 x 220	180	UPS 25-42	59544561	140
G 1 1/2	Cast iron	PN 10	1 x 220	180	UPS 25-62	59546515	141
G 1 1/2	Cast iron	PN 10	1 x 220	180	UPS 25-62 K	59546499	142
G 1 1/2	Cast iron	PN 10	1 x 220	180	UPS 25-72	95906739	143
Flange DN 40	Cast iron	PN 6/10	1 x 220	250	UPS 40-72 F	95906741	144
G 1 1/4	Stainless steel	PN 10	1 x 220	150	UP 20-32 N	59643502	145

Large UP: Single-head circulator pumps, standard module

Terminal box position: 1:30 h

Connection	Material	Pressure stage	Voltage [V]	Port-to-port length [mm]	Pump type	Product number	Data sheet Page
Flange DN 32 32 mm (1 1/4")	Cast iron	PN 6 / PN 10	1 x 230-240	220	UPS 32-60 F 220	96401771	146
	Cast iron	PN 6 / PN 10	1 x 230-240	220	UPS 32-120 F 220	96401837	148
	Cast iron	PN 6 / PN 10	3 x 400-415	220	UPS 32-60 F 220	96401777	147
	Cast iron	PN 6 / PN 10	3 x 400-415	220	UPS 32-120 F 220	96401839	149
	Bronze	PN 6 / PN 10	1 x 230-240	220	UPS 32-60 F B 220	96401797	146
	Bronze	PN 6 / PN 10	1 x 230-240	220	UPS 32-120 F B 220	96401844	148
	Bronze	PN 6 / PN 10	3 x 400-415	220	UPS 32-60 F B 220	96401808	147
	Bronze	PN 6 / PN 10	3 x 400-415	220	UPS 32-120 F B 220	96401846	149
Flange DN 40 40 mm (1 1/2")	Cast iron	PN 6 / PN 10	1 x 230-240	250	UPS 40-60/2 F 250	96401915	150
	Cast iron	PN 6 / PN 10	1 x 230-240	250	UPS 40-120 F 250	96401942	152
	Cast iron	PN 6 / PN 10	1 x 230-240	250	UPS 40-180 F 250	96401977	154
	Cast iron	PN 6 / PN 10	1 x 230-240	250	UPS 40-185 F 250	96430299	156
	Cast iron	PN 6 / PN 10	3 x 400-415	250	UPS 40-60/2 F 250	96401917	151
	Cast iron	PN 6 / PN 10	3 x 400-415	250	UPS 40-120 F 250	96401944	153
	Cast iron	PN 6 / PN 10	3 x 400-415	250	UPS 40-180 F 250	96401979	155
	Cast iron	PN 6 / PN 10	3 x 400-415	250	UPS 40-185 F 250	96430296	157
	Bronze	PN 6 / PN 10	1 x 230-240	250	UPS 40-60/2 F B 250	96401921	150
	Bronze	PN 6 / PN 10	1 x 230-240	250	UPS 40-120 F B 250	96401949	152
	Bronze	PN 6 / PN 10	1 x 230-240	250	UPS 40-180 F B 250	96401983	154
	Bronze	PN 6 / PN 10	3 x 400-415	250	UPS 40-60/2 F B 250	96401923	151
	Bronze	PN 6 / PN 10	3 x 400-415	250	UPS 40-120 F B 250	96401951	153
	Bronze	PN 6 / PN 10	3 x 400-415	250	UPS 40-180 F B 250	96401985	155
Flange DN 50 50 mm (2")	Cast iron	PN 6 / PN 10	1 x 230-240	280	UPS 50-60/2 F 280	96402053	158
	Cast iron	PN 6 / PN 10	1 x 230-240	280	UPS 50-120 F 280	96402101	160
	Cast iron	PN 6 / PN 10	1 x 230-240	280	UPS 50-180 F 280	96402134	162
	Cast iron	PN 6 / PN 10	1 x 230-240	280	UPS 50-185 F 280	96430300	164
	Cast iron	PN 6 / PN 10	3 x 400-415	280	UPS 50-60/2 F 280	96402055	159
	Cast iron	PN 6 / PN 10	3 x 400-415	280	UPS 50-120 F 280	96402103	161
	Cast iron	PN 6 / PN 10	3 x 400-415	280	UPS 50-180 F 280	96402136	163
	Cast iron	PN 6 / PN 10	3 x 400-415	280	UPS 50-185 F 280	96430297	165
	Bronze	PN 6 / PN 10	1 x 230-240	280	UPS 50-60/2 F B 280	96402064	158
	Bronze	PN 6 / PN 10	1 x 230-240	280	UPS 50-120 F B 280	96402108	160
	Bronze	PN 6 / PN 10	1 x 230-240	280	UPS 50-180 F B 280	96402140	162
	Bronze	PN 6 / PN 10	3 x 400-415	280	UPS 50-60/2 F B 280	96402072	159
	Bronze	PN 6 / PN 10	3 x 400-415	280	UPS 50-120 F B 280	96402110	161
	Bronze	PN 6 / PN 10	3 x 400-415	280	UPS 50-180 F B 280	96402142	163

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