

PERFORMANCE OF PIPEWORK PACKAGE UNIT

Pipework Package Unit PPU is used for the adjustment of thermal power of water heaters, i.e. for the adjustment of thermal media debit via the heater and respectfully, the temperature of supplied air (in the location of control panel installation where the thermostat is installed). PPU is used with a dedicated air heater, installed into the ventilation equipment for the adjustment of air curtain water heaters etc.

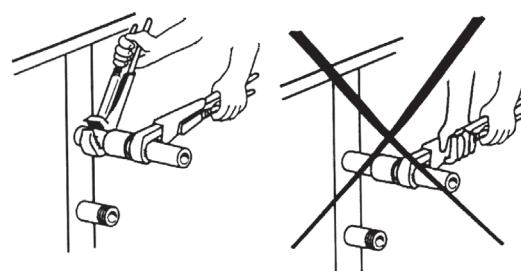
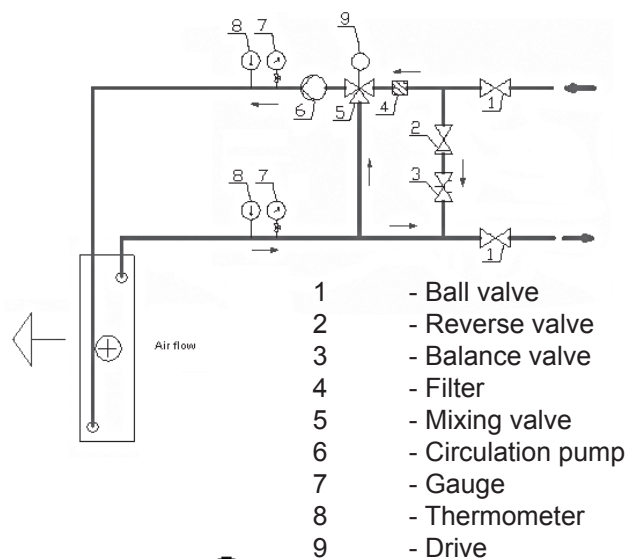
Pipework Package Unit PPU must be used in a dry room where the temperature from +5°C to +50°C is maintained. The adjusted thermal media must be free of old dry solids (sand, dirt) or chemical substances as they may harm the mixing unit. No modifications of Pipework Package Unit are allowed because in such case the warranty shall be cancelled.

Prior the installation, the Pipework Package Unit PPU should be transported and stored in original packing. During the transportation, packing protects the Pipework Package Unit against dirt. During the transportation, the product should be protected against mechanical damage, for instance, against impact, falling or vibration. Pipework Package Unit should be stored in a dry room where the temperature from +5°C to +50°C is maintained. In case of damage due to improper transportation or storage, the warranty shall not apply.

Pipework Package Unit PPU should be installed in a location will pump or electric drive bodies. If the ambient temperature is higher than 90°C, thermally-resistant electric wires should be used. Electric wires should not come in contact with the surface of the mixing unit. Pipework Package Unit PPU (pump and electric drive) has no switches. Pipework Package Unit should be connected to the equipment ensuring its control. The pump rotation can be chosen of three levels. They are adjusted with a switch on the pump body. The installation and wiring diagrams are presented below.

Installation diagram

Wiring diagram



PPU- hydraulic tests were not performed with Pipework Package Units!

ENCODING AND PARAMETERS OF PIPEWORK PACKAGE UNITS

PPU-1.6-25/20

- PPU - Pipework Package Unit
- 1.6 - nominal water flow $-k_{vs}$ 1.6
- 25/20 - Grundfos water pump model or PPU can be delivered with WILO pump analogue

- 1. Grundfos UPS 25-20; UPS 25-40; UPS 25-60; UPS 25-80; UPS 32-80; UPS 40-60;
- Wilo Star-RS 25/2; Star-RS 25/4; Star-RS 25/6; TOP-S 25/7 1~; TOP-S 30/10 1~; WILO TOP-S 40/7 1~
- 1.1 Max. operation pressure 10 bar
- 1.2 Fluid temperature: from +2°C to +110°C;
- 1.3 Engine is protected against thermal overload;

Table 1. Siemens drives

| Pipework Package Unit | PPU-0.63-25/20 | PPU-1.0-25/20 | PPU-1.6-25/20 | PPU-1.6-25/40 | PPU-2.5-25/40 | PPU-2.5-25/60 | PPU-4-25/60 | PPU-6,3-25/60 | PPU-10-25/80 | PPU-16-25/80 | PPU-16-32/80 | PPU-25-32/80 | PPU-40-40/60 |
|-------------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|---------------|
| Drive | SIEMENS SSP61 | | | | | | SIEMENS SSB61 | | SIEMENS SSC61 | | | | SIEMENS SQX62 |
| Power supply | AC/DC 24V 50/60 Hz | | | | | | | | | | | | AC 24V |
| Tripping time | 34 s | | | | | | 75 s | | 30 s | | | | 35 s |
| Max. energy consumption | 2 W | | | | | | | | | | | | 8 W |
| Control signal | DC 0...10V | | | | | | | | | | | | |
| Nominal power | 100 N | | | | | | 200 N | | 300 N | | | | 700 N |
| Operational temperature | 1°C to 50°C | | | | | | | | | | | | -15°C to 50°C |

Table 2. Valves

| Pipework Package Unit | PPU-0.63-25/20 | PPU-1.0-25/20 | PPU-1.6-25/20 | PPU-1.6-25/40 | PPU-2.5-25/40 | PPU-2.5-25/60 | PPU-4-25/60 | PPU-6,3-25/60 | PPU-10-25/80 | PPU-16-25/80 | PPU-16-32/80 | PPU-25-32/80 | PPU-40-40/60 |
|-----------------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|----------------|-----------------|
| Valve SIEMENS | VXP47.10-0.63 | VXP47.10-1.0 | VXP47.10-1.6 | | VXP47.15-2.5 | | VXP4 5.20-4.0 | VXP4 5.25-6.3 | VXP45.25-10.0 | VXP45.32-16.0 | | VXP4 5.40-25.0 | VXG41.50-40.0 |
| Max. static pressure | 16 bar | | | | | | | | | | | | |
| Fluid temperature | 1°C to +110°C | | | | | | | | | | | | -25°C to +140°C |
| Run | 2.5 mm | | | | | | 5.5 mm | | | | | | 20 mm |
| k_{vs} | 0,63 m³/h | 1,0 m³/h | 1,6 m³/h | | 2,5 m³/h | | 4,0 m³/h | 6,3 m³/h | 10,0 m³/h | 16,0 m³/h | | 25,0 m³/h | 40,0 m³/h |

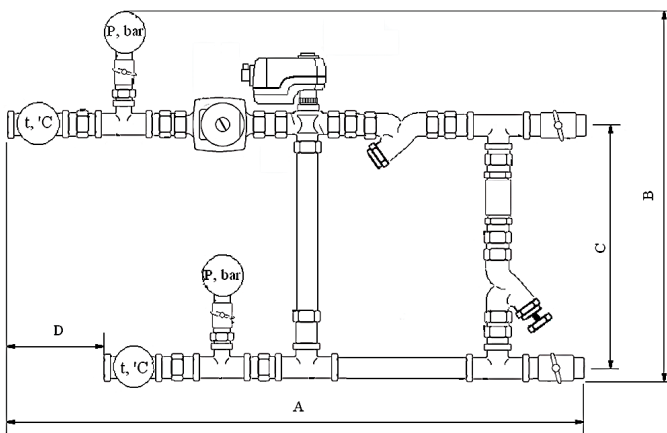


Table 3. Pipework Package Unit dimensions

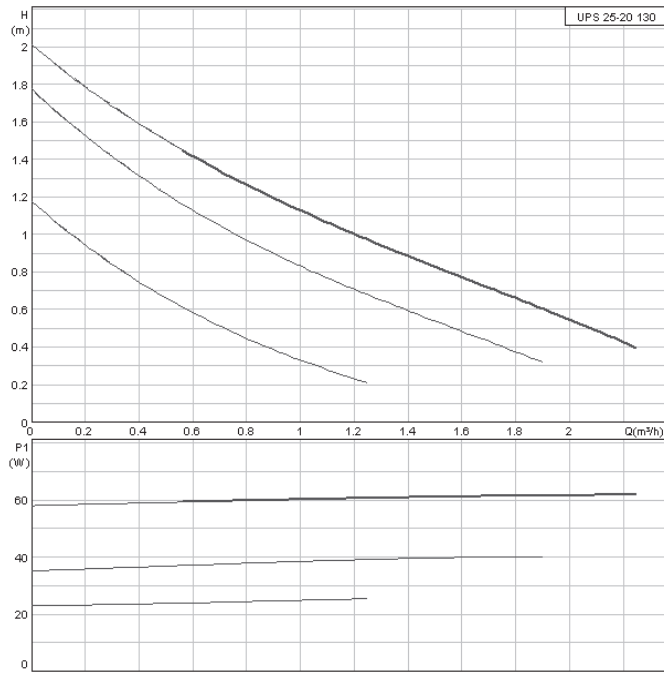
| Dimensions, mm | PPU-0.63-25/20 | PPU-1.0-25/20 | PPU-1.6-25/20 | PPU-1.6-25/40 | PPU-2.5-25/40 | PPU-2.5-25/60 | PPU-4-25/60 | PPU-6,3-25/60 | PPU-10-25/80 | PPU-16-25/80 | PPU-16-32/80 | PPU-25-32/80 | PPU-40-40/60 |
|----------------------|----------------|---------------|---------------|---------------|---------------|---------------|-------------|---------------|--------------|--------------|--------------|--------------|--------------|
| A | 780 | | | | | | 850 | 880 | 930 | 1050 | 1300 | | |
| B | 520 | | | | | | 530 | 660 | 650 | 700 | 730 | | |
| C | 220 | | | | | | 220 | 260 | 300 | 330 | 340 | | |
| D | 320 | | | | | | 320 | 320 | 320 | 330 | 550 | | |
| G (DN) | 1/2" (15) | | | | | | 3/4" (20) | 1" (25) | 1 3/4" (32) | 1 1/2" (40) | 2" (40) | | |
| PPU weight net, kg | 8,1 | | | 8,4 | | 9,4 | 12,6 | 16 | 25 | 33 | | | |
| PPU gross weight, kg | 8,6 | | | 8,9 | | 9,9 | 13,1 | 16,5 | 25,8 | 33,8 | | | |

Note: dimensions specified with 10 mm bias

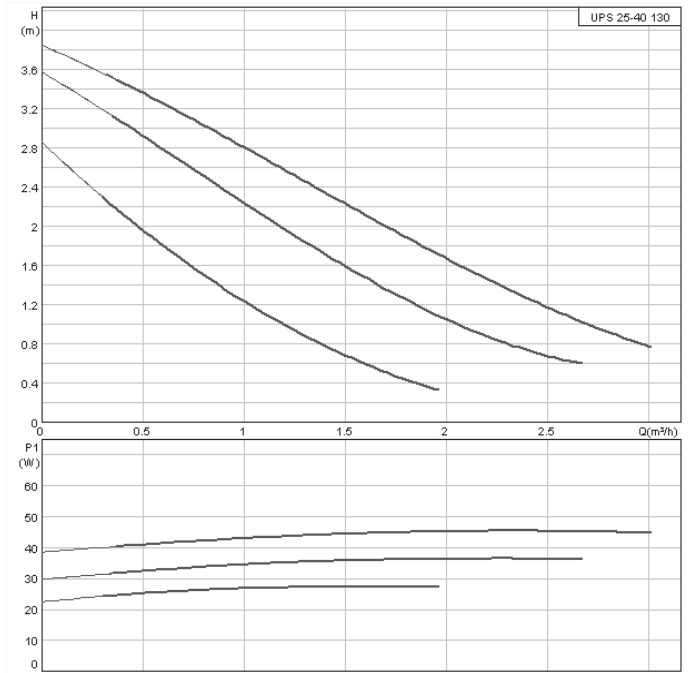
Table 4. Grundfos pump specifications

| | UPS 25-20 | | UPS 25-40 | | UPS 25-60 | | UPS 25-80 | | UPS 32-80 | | UPS 40-60 | |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Speed | P_1 [W] | I_n [A] | P_1 [W] | I_n [A] | P_1 [W] | I_n [A] | P_1 [W] | I_n [A] | P_1 [W] | I_n [A] | P_1 [W] | I_n [A] |
| 3 Max | 65 | 0,26 | 60 | 0,26 | 90 | 0,40 | 190 | 0,83 | 240 | 1,05 | 280 | 1,3 |
| 2 - | 40 | 0,18 | 45 | 0,20 | 65 | 0,30 | 175 | 0,78 | 205 | 0,91 | 260 | 1,25 |
| 1 Min | 25 | 0,11 | 30 | 0,13 | 45 | 0,20 | 130 | 0,60 | 135 | 0,62 | 250 | 1,25 |

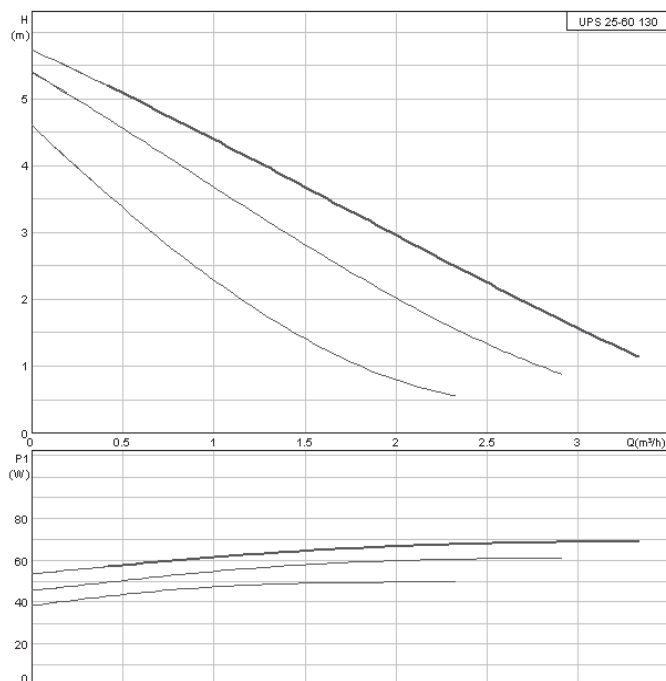
Grundfos UPS 25-20



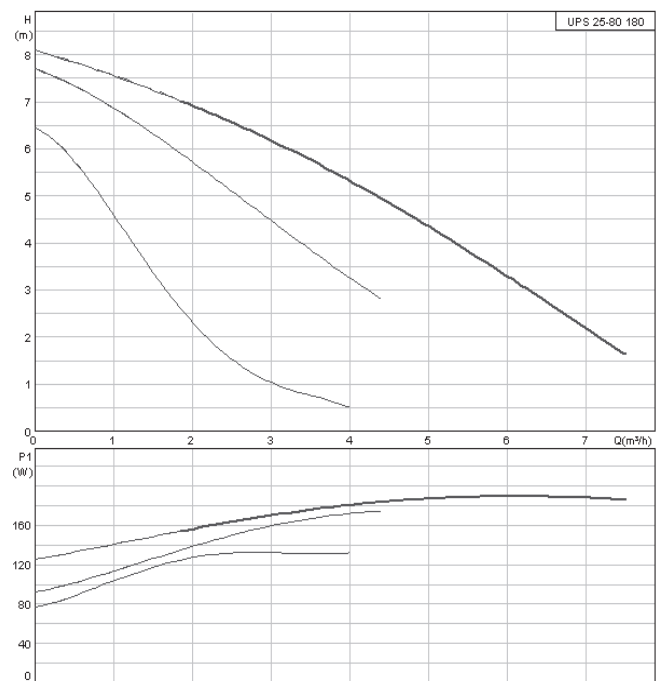
Grundfos UPS 25-40



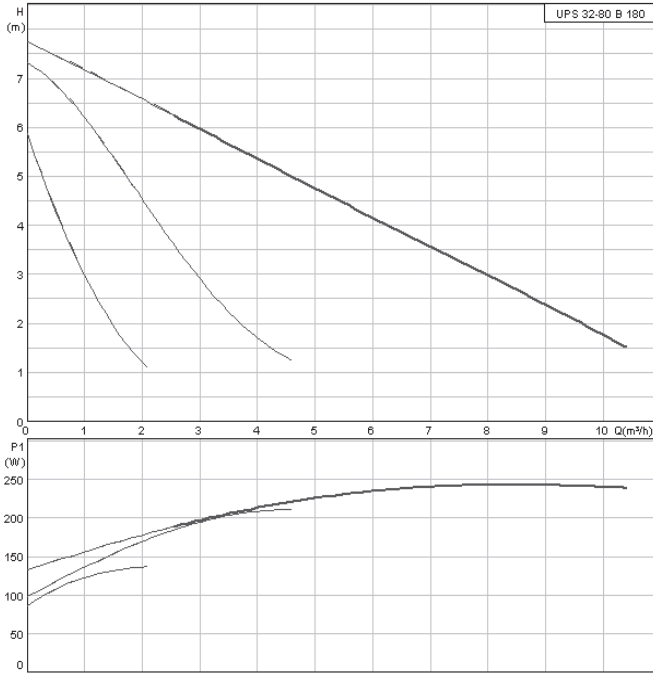
Grundfos UPS 25-60



Grundfos UPS 25-80



Grundfos UPS 32-80



Grundfos UPS 40-60/2F 220

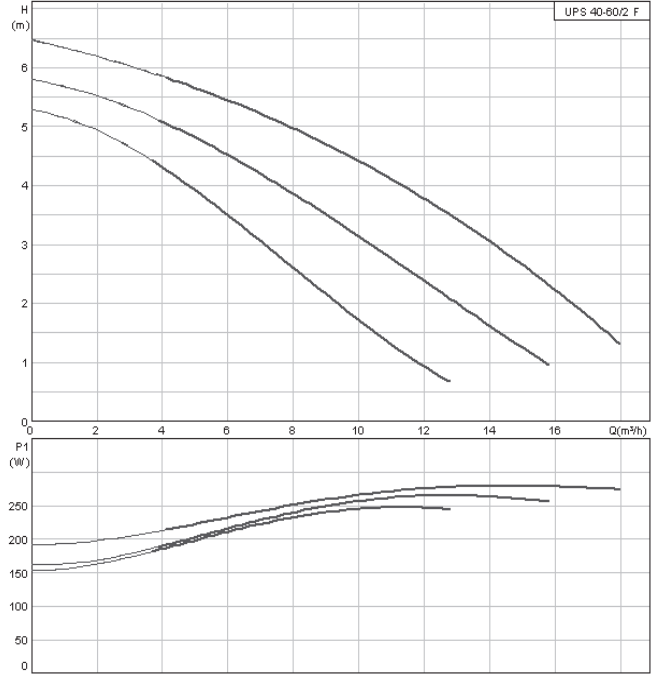
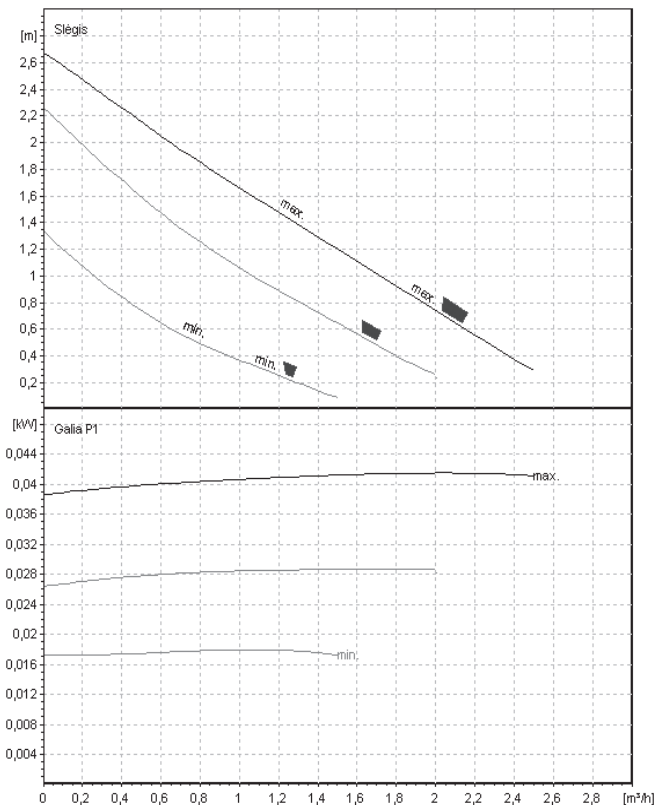


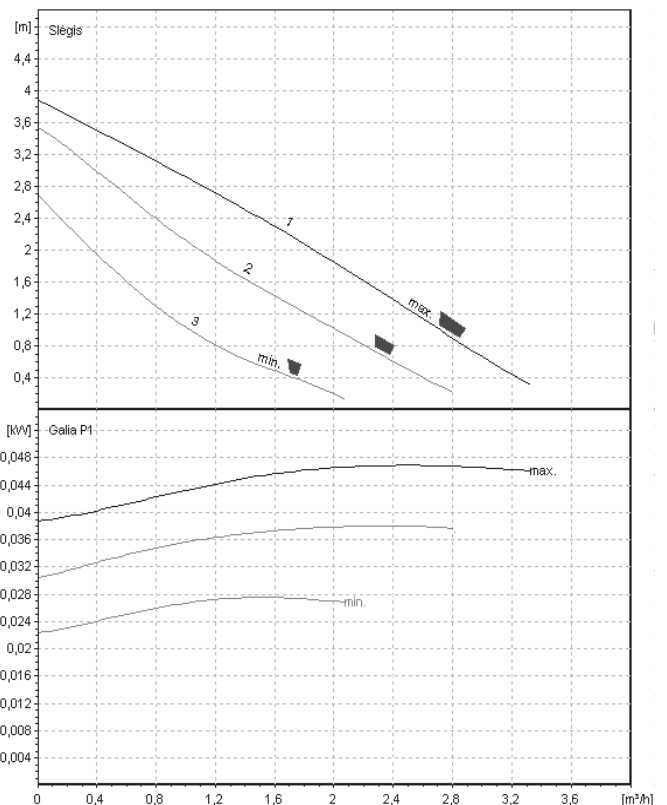
Table 5. WILO pump specifications

| Speed | Star-RS 25/2 | | Star-RS 25/4 | | Star-RS 25/6 | | TOP-S 25/7 1~ | | TOP-S 30/10 1~ | | WILO TOP-S 40/7 1~ | |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|--------------------|
| | P ₁ [W] | I _n [A] | P ₁ [W] | I _n [A] | P ₁ [W] | I _n [A] | P ₁ [W] | I _n [A] | P ₁ [W] | I _n [A] | P ₁ [W] | I _n [A] |
| 1 Max | 39-45 | 0,20 | 39-48 | 0,21 | 67-85 | 0,37 | 140-195 | 0,95 | 225-410 | 2,05 | 250-390 | 1,93 |
| 2 - | 27-30 | 0,13 | 30-38 | 0,17 | 43-65 | 0,38 | 110-175 | 0,87 | 185-395 | 1,95 | 220-380 | 1,88 |
| 3 Min | 17-18 | 0,08 | 22-28 | 0,13 | 30-46 | 0,20 | 85-120 | 0,62 | 170-340 | 1,75 | 200-330 | 1,70 |

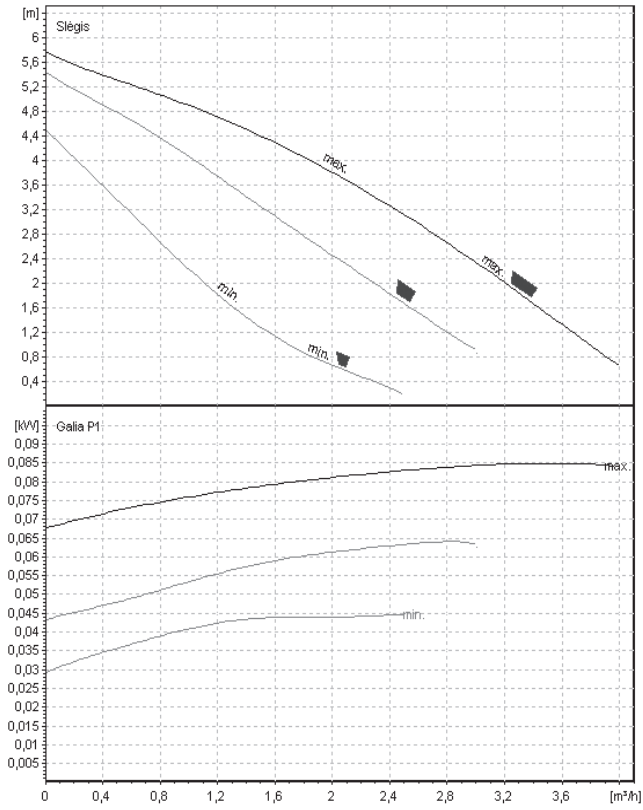
Wilco Star-RS 25/2



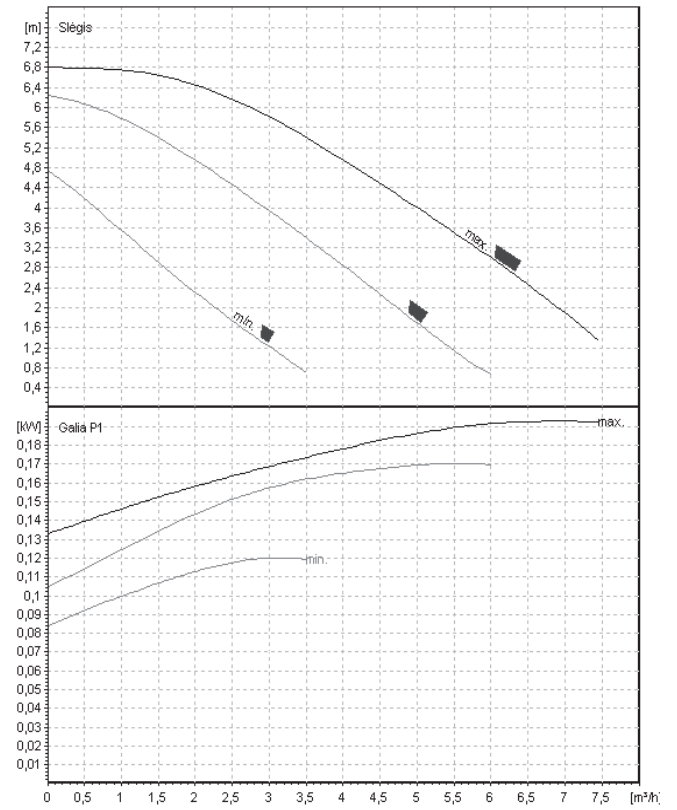
Wilco Star-RS 25/4



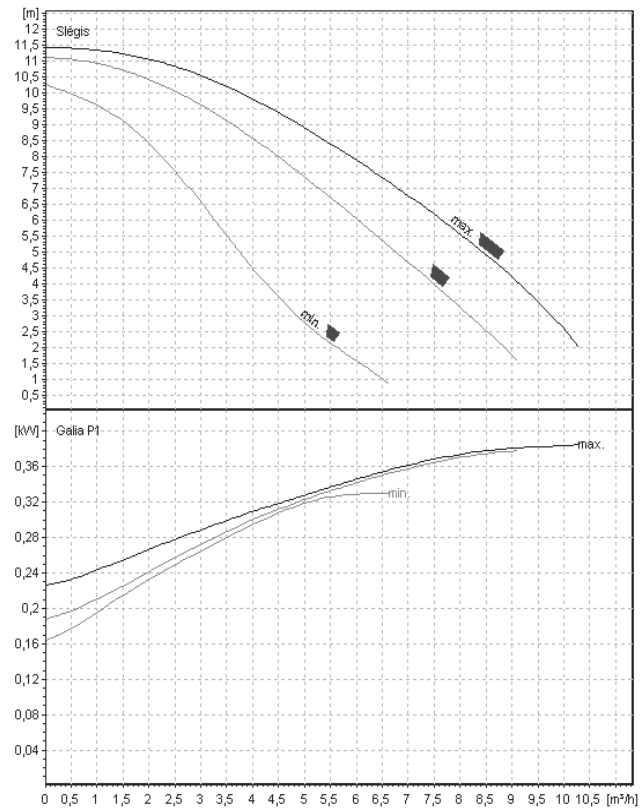
Wilo Star-RS 25/6



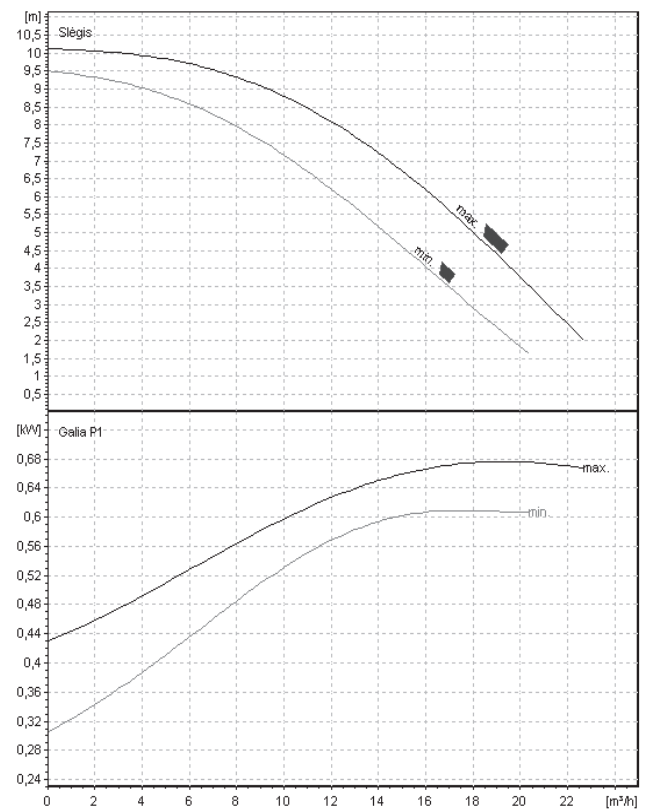
Wilo TOP-S 25/7 ~1



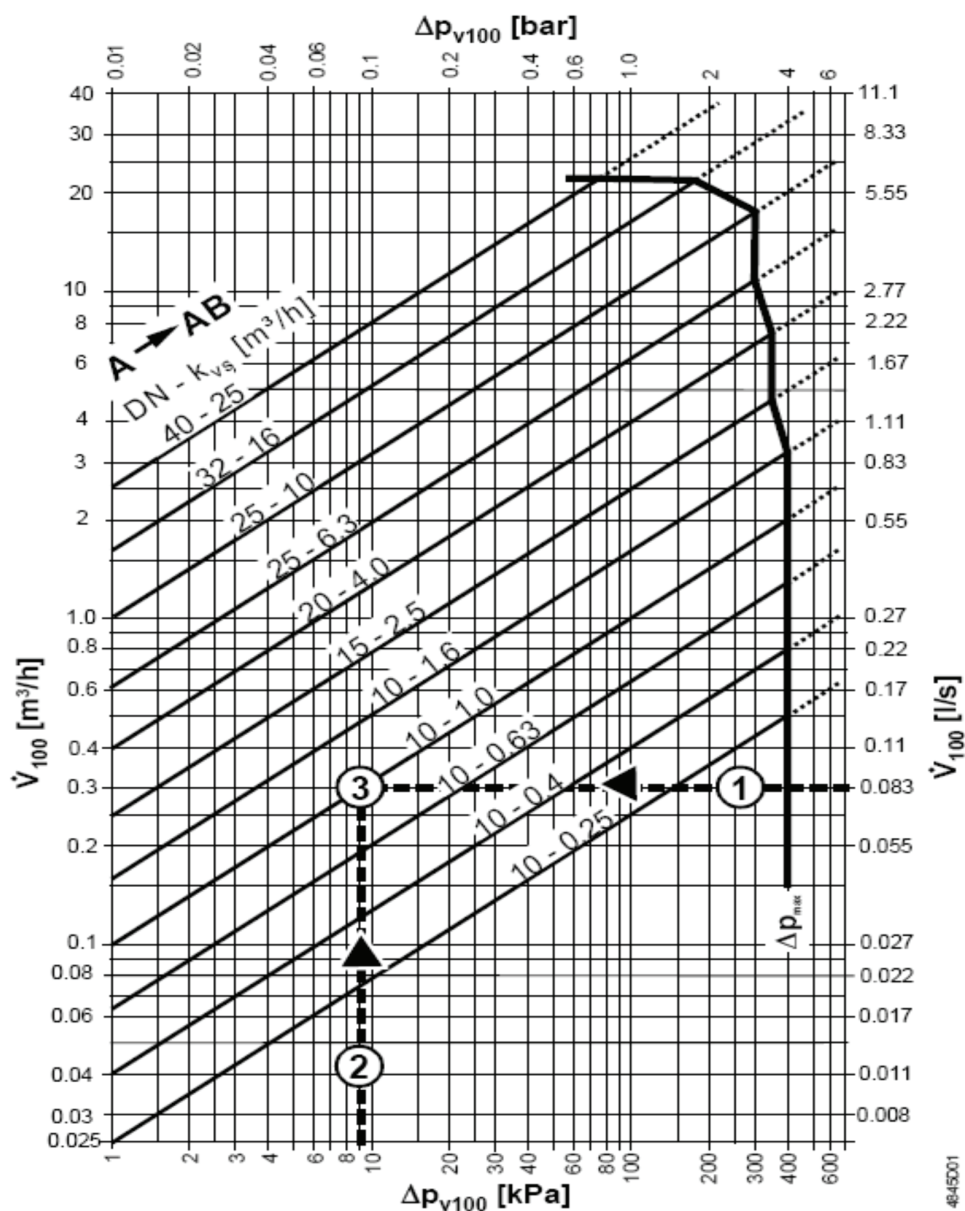
Wilo TOP-S 30/10 ~1



Wilo TOP-S 40/7 ~1



Size setting diagram



- Δp_{max} = Maximum permitted pressure difference in three way valve
- Δp_{v100} = Pressure difference of a completely open valve calculated debit (recommended 10 kPa)
- V_{100} = Fluid debit via completely open per valve (H_{100})
- 100 kPa = 1 bar = 10 mWS
- 1 m³/h = 0.278 l/s water at 20°C

- For instance:
1. $V_{100} = 0.083$ l/s
 2. $\Delta p_{v100} = 9$ kPa
 3. k_{vs} - amount = 1.0 m³/h

PERMITTED LEAKINESS VALUES OF THREE WAY VALVES 0...0.05% FROM k_{vs}



www.amalva.lt

VILNIUS

Ozo str. 10, LT-08200 tel. +370 (5) 2300 585 fax +370 (5) 2300 588

e-mail info@amalva.lt