ModvlvS DN25

The ModvlvS DN25 series is a complete range that meets all the installation needs with specific models: middle and low temperature heating systems, need of energy metering, cooling systems; everything with the possibility of a management control by means of climatic controllers even built-in the pump unit. DN25 pump units can be connected to heating systems with powers up to 50 kW, with a very low energy consumption ensured by high efficiency synchronous circulating pumps. The connections to the circuit or to the zone manifold are made with a 1" female thread. Moreover the pump units of M3 version are equipped with a by-pass balancing valve that allows an accurate regulation of the differential pressure of the loop. The range is supplemented by: zone manifolds, connections, safety units, mixing valves and actuators.

M2

2-WAY UNMIXED PUMP UNIT

The unit for 1" (180 mm) circulating pumps consists of:

Supply
- Connection.
- Flanged ball valve with T-handle.
- High efficiency synchronous pre-wired circulating pump (for the models that include it).
- Flanged ball valve supplied with in-handle thermometer (red ring, range 0°C-120°C).

Return
- Flanged ball valve with 20 mbar check valve (which can be excluded by rotating the handle by 45°) supplied with in-handle thermometer (blue ring; 0°C-120°C).
- Magnetic filter and ball valve (in the models where it is present)
- Connection.

Centre distance 125 mm. EPP insulation box (Dimensions: 250x380x170 mm).
PN 10, max temperature 110°C (unit without pump).
External connections: 1" Female.

FIELD OF USE
For power up to 50 kW (with Δt 20 K) and maximum flow rate 2150 l/h.
Kvs Value: 8.0.
Approximate data calculated with a 6 m head circulating pump. For an accurate sizing or for higher flow rates, please refer to the curve.

Code 1": **20355R**
With circulating pump: **20355R-(P6/A6/P8)**

With magnetic filter: Code 1": **203652**
With circulating pump: **203652-(P6/A6/P8)**

Available circulating pumps:
Wilo Para 25/6 SC **(P6)**
Grundfos UPM3S Auto 25-60 **(A6)**
Wilo Para 25/8 SC **(P8)**

Available model provided with magnetic filter

CE

M3

3-WAY UNMIXED PUMP UNIT WITH BY-PASS

The unit for 1" (180 mm) circulating pumps is the same as the model M2. **It is also equipped with a balancing by-pass valve (0-0.5 bar).**

Code 1": **20358R**
With circulating pump: **20358R-(P6/A6/P8)**

Available model provided with integrated magnetic filter

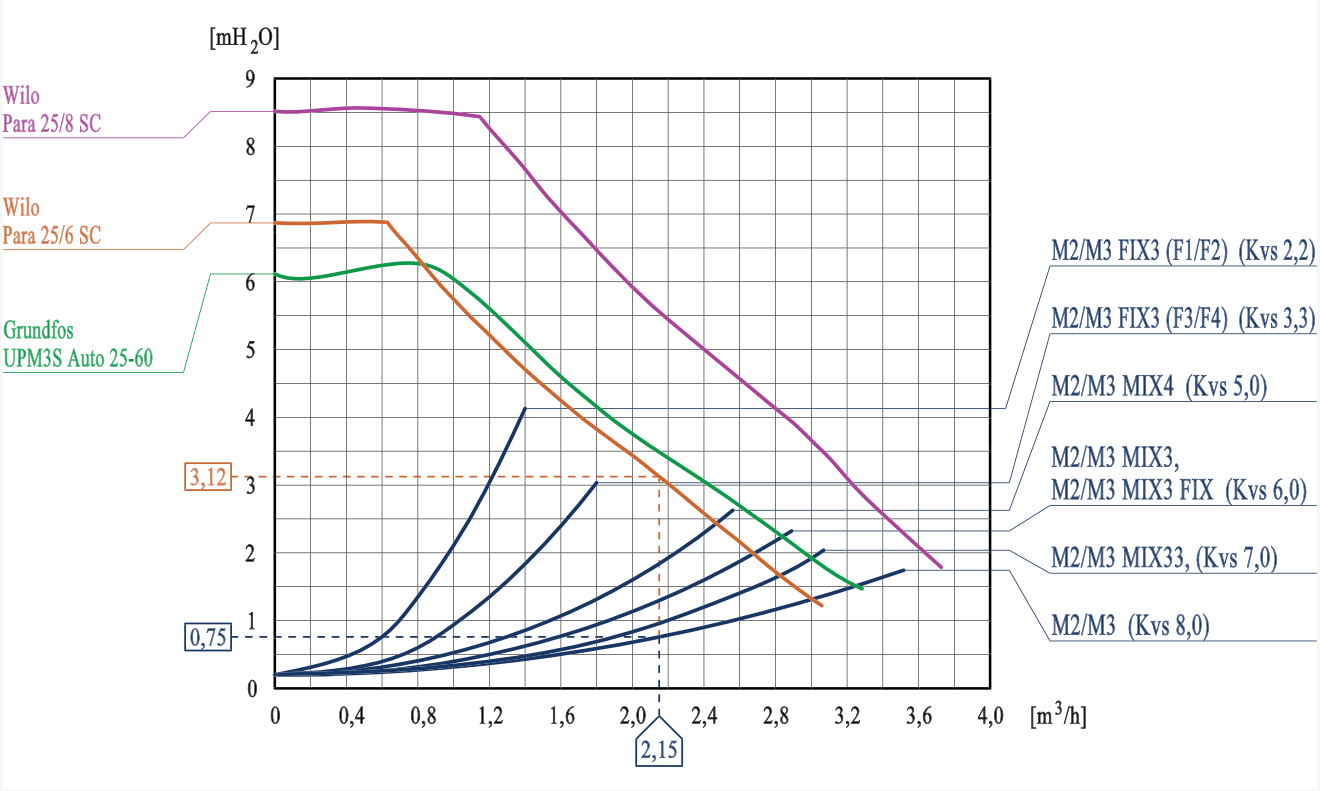
Standard version: right supply. Left supply version available with extra price: look at price list.

Method to select the circulating pump

The selection of the right circulating pump is determined by the need to provide the installation with a flow suitable to develop the power fixed in the planning stage. Knowing this datum and taking into consideration the temperature difference Δt between the supply and the return, we can calculate the flow in **kg/h**. It is also important to take into consideration the kind of pump unit that is used, that is known in advance because it has been selected on the basis of the kind of installation to be realized. **Example:** For an installation with a **M2** pump unit that requires a power **P = 50 kW** with a temperature difference **Dt = 20 K** the flow is calculated as follows:

$$\frac{50kW \times 860}{20K} = 2150\ kg/h$$

Now we have to claculate the total head loss of the installation, to be able to select a circulating pump that is not under-sized. As concerns the pump unit we know the head losses looking to the diagram the curve of the used model. In this case we found that, for the model **M2** with a flow rate of **2150 kg/h (2.15 m³/h)** the head loss is 0.75 m of water column.



To this head loss we have to add the total head loss of the installation (pipes, connections, radiant elements, etc): this is a datum given by the planner. As we can see from the diagram the circulating pump **Wilo Para 25/6 SC** at a flow rate of **2.15 m³/h** has a head of **3.12 m.**: taking into consideration that the pump unit absorbs **0.75 m** il will left **2.37 m (as 3.12 - 0.75 = 2.37 m)** of water column available to compensate the head losses of the installation. Therefore we have to see if this datum is sufficient, in that case we can use the **Wilo Para 25/6 SC**, otherwise we have to use another circulating pump provided with a bigger head.

NOTE: if necessary it is possible to calculate by a mathematical calculus the head losses (at the required flow rate) produced by the presence of an hydraulic device, if we know its Kvs; therefore, with a good approximation, assuming a standard temperature of 20°C and overlooking the effects of viscosity of the fluid, it follows that:

$$Kvs = \frac{Q}{\sqrt{h}}$$

where the flow **Q** is expressed in m³/h and **h**, the pressure difference at the outlets of the device (head loss), is expressed in bar.
Then, reversing the previous formula, we obtain:

$$h = \left(\frac{Q}{Kvs}\right)^2$$

in the example above:

$$\left(\frac{2,15}{8}\right)^2 = 0,072\ bar$$

as 1 bar is about 10.198 mH_2O, then the head loss is 0.73 mH_2O, value that, taking into consideration the approximations, corresponds to the value shown in the diagram.