

Hydro Multi-S

Grundfos booster systems with two or three CM, CMV or CR pumps
50 Hz



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1. Product introduction

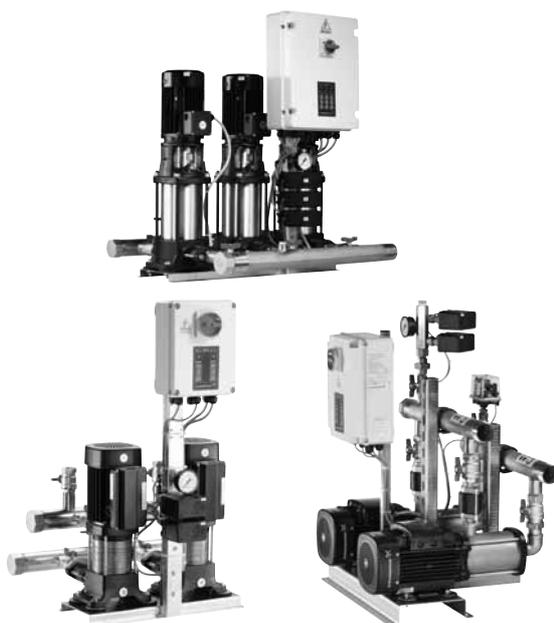


Fig. 1 Hydro Multi-S booster systems

Grundfos Hydro Multi-S booster systems are designed for pressure boosting of clean water.

Examples:

- blocks of flats
- hotels
- schools.

Grundfos Hydro Multi-S booster systems consist of two or three identical Grundfos CM, CMV or CR pumps connected in parallel and mounted on a common base frame and a control cabinet with motor-protective circuit breaker and integrated controller.

Hydro Multi-S booster systems are supplied as complete, pre-assembled and tested systems including suction and discharge manifolds, isolating valves, non-return valves, pressure gauge and pressure switches.

To ensure reliable operation, the booster system must be fitted with a suitable diaphragm tank. The size of the diaphragm tank can be found on page 20.

Automatic pump operation is based on system demand and controlled by pressure switches (one for each pump).

How does Hydro Multi-S work?

When a tap is opened, water will be drawn from the diaphragm tank. The pressure will drop to the first cut-in pressure, and the first pump will cut in.

As the consumption rises, more pumps will cut in until the performance of the pumps in operation corresponds to the demand.

When the water consumption falls, the discharge pressure will rise to the cut-out pressure and the pressure switch will cut out one pump and as the consumption falls, more pumps will be cut out.

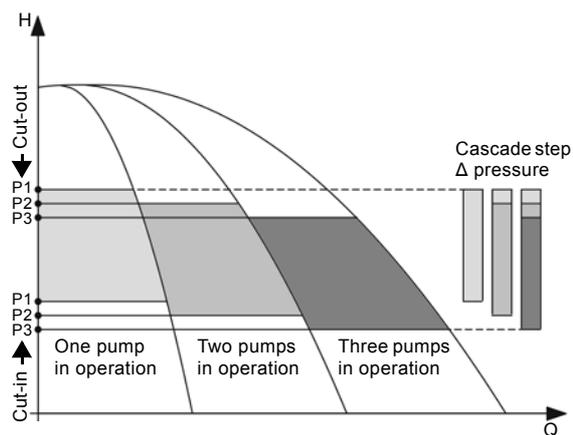
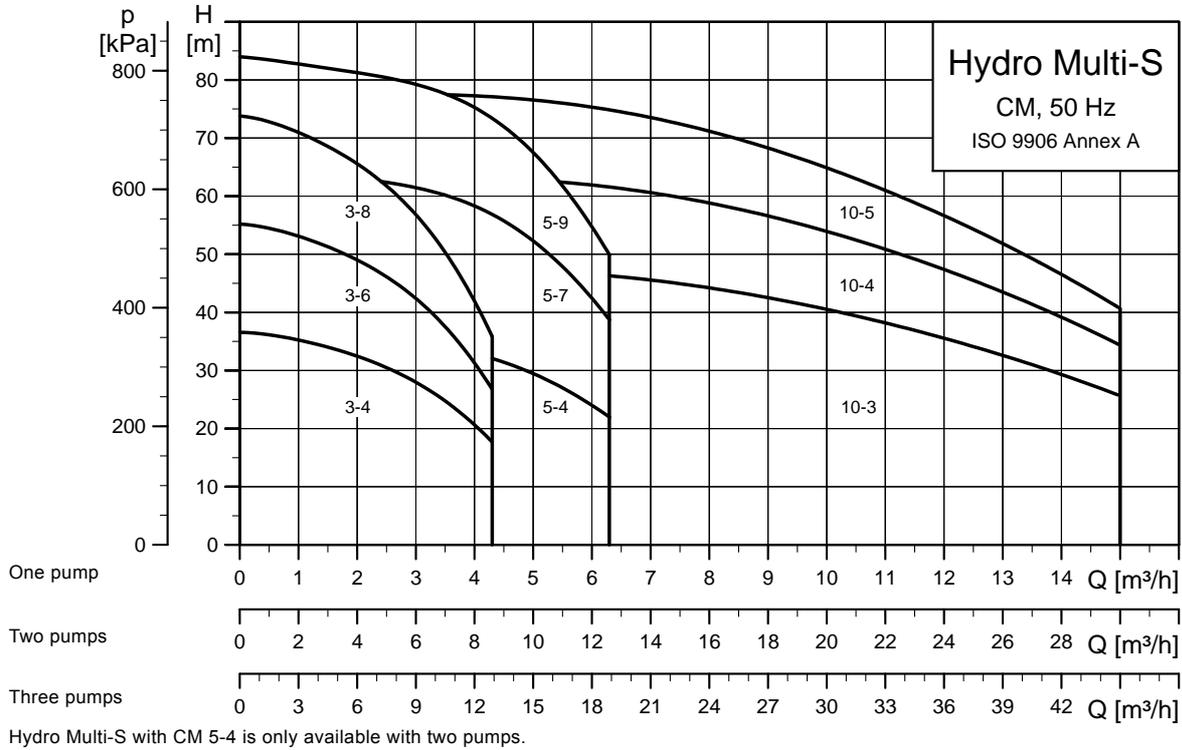


Fig. 2 Operation with cut-in and cut-out

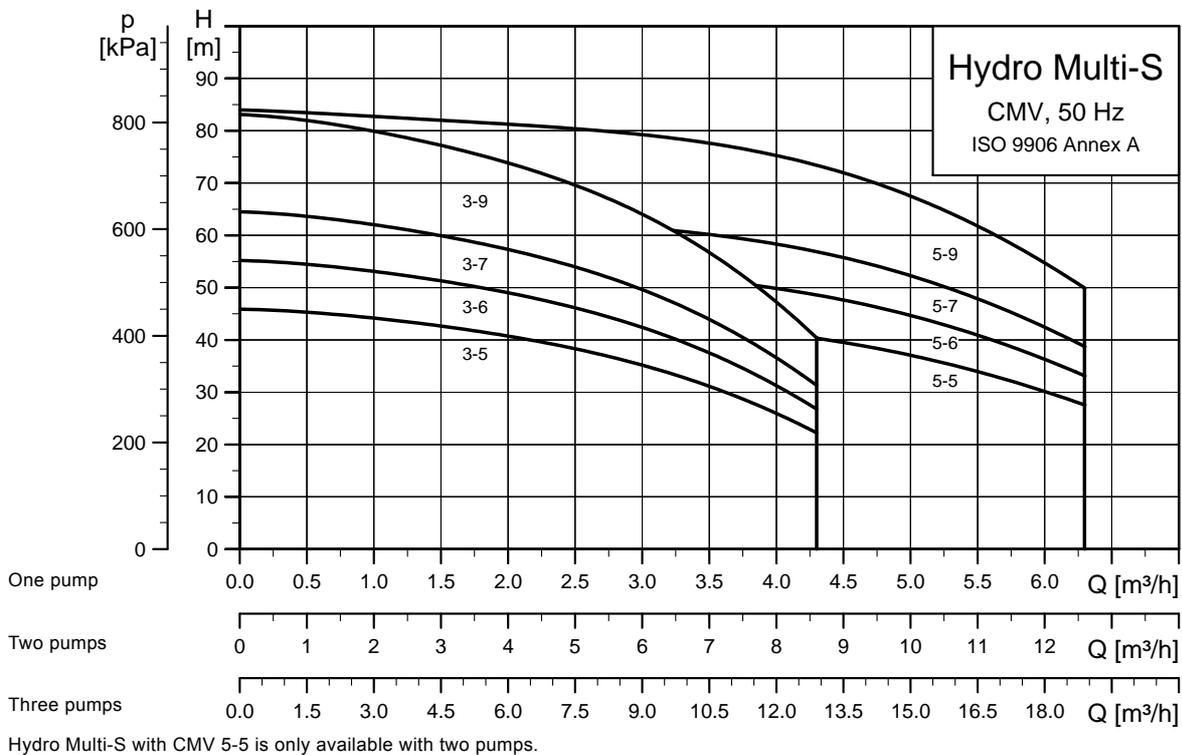
2. Performance range

Hydro Multi-S with CM pumps



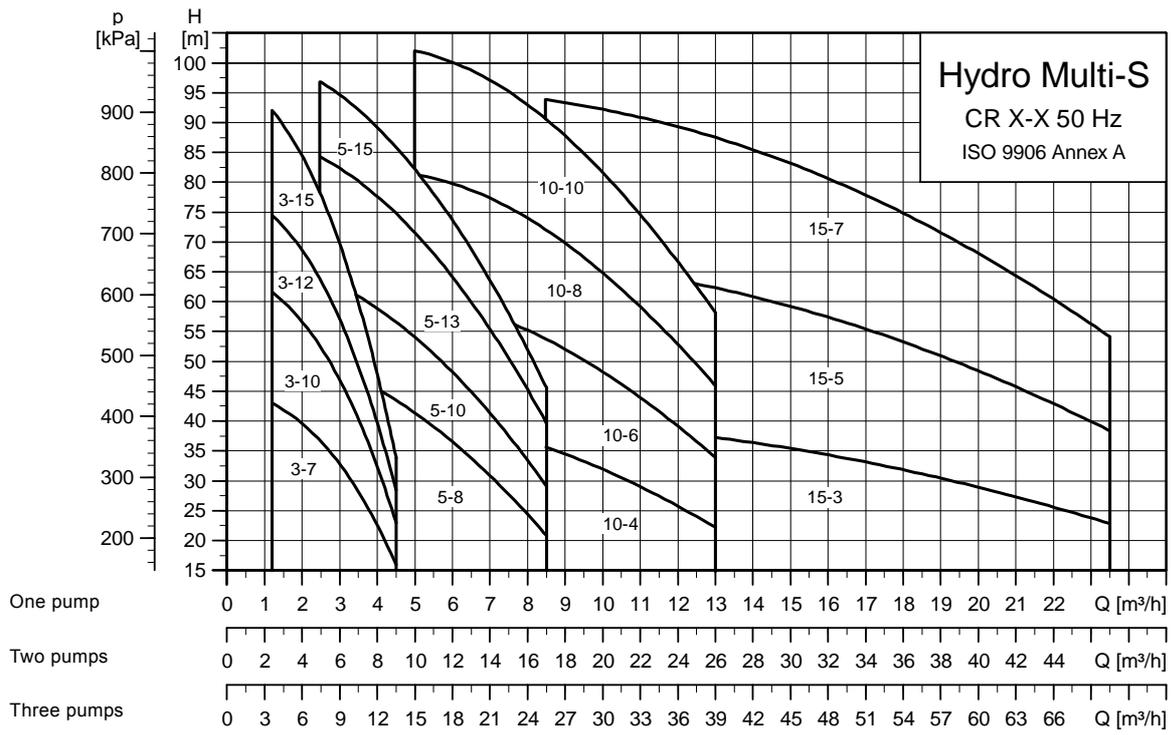
TM05 0548 1211

Hydro Multi-S with CMV pumps



TM05 0027 1211

Hydro Multi-S with CR pumps



TM03 9805 4407

3. Product range

Hydro Multi-S with CM pumps



GrA9833

| Pump type | CM 3 | | | CM 5 | | | CM 10 | | | | | |
|---|--|------|------|------|--------|-----|--------|------|------|-----|-----|-----|
| | -4 | -6 | -8 | -4 | -7 | -9 | -3 | -4 | -5 | | | |
| Hydraulic data | | | | | | | | | | | | |
| Maximum head [m] | 36.7 | 55.2 | 73.8 | 37 | 65 | 84 | 47.6 | 63.2 | 77.8 | | | |
| Maximum flow rate [m ³ /h] | 12.6 | | | 18.6 | | | 43.5 | | | | | |
| Liquid temperature [°C] | 5-40 | | | 5-40 | | | 5-40 | | | | | |
| Maximum operating pressure [bar] | 10 | | | 10 | | | 10 | | | | | |
| Maximum inlet pressure [bar] | The inlet pressure plus the pressure when the pumps are operating against a closed valve should always be lower than the maximum operating pressure. | | | | | | | | | | | |
| Motor data | | | | | | | | | | | | |
| Number of pumps | 2 or 3 | | | 2 | 2 or 3 | | 2 or 3 | | | | | |
| Motor power [kW] | Single-phase motor | | | 0.5 | 0.67 | 0.9 | 0.67 | 1.3 | 1.9 | 1.9 | - | - |
| | Three-phase motor | | | 0.46 | 0.65 | 1.2 | 0.87 | 1.58 | 2.2 | 2.2 | 3.2 | 3.2 |
| Supply voltage | 3 x 380-415 V, PE, 50 Hz | | | • | • | • | • | • | • | • | - | - |
| | 1 x 220-240 V, N, PE, 50 Hz | | | • | • | • | • | • | • | • | • | • |
| Shaft seal | | | | | | | | | | | | |
| AQQE | • | • | • | • | • | • | • | • | • | • | • | |
| Materials | | | | | | | | | | | | |
| Stainless-steel manifolds, stainless-steel base frame, standard valves | | | | | | | | | | | | |
| | • | • | • | • | • | • | • | • | • | • | - | |
| Galvanized-steel manifolds, galvanized-steel base frame, standard valves (CME-A pumps only) | | | | | | | | | | | | |
| | • | • | • | • | • | • | • | • | • | • | - | |
| Galvanized-steel manifolds, galvanized-steel base frame painted black, standard valves | | | | | | | | | | | | |
| | A | A | A | A | A | A | A | A | A | A | A | |
| Pipework connections | | | | | | | | | | | | |
| Rp 2 | • | • | • | - | - | - | - | - | - | - | - | |
| Rp 2 1/2 | - | - | - | • | • | • | • | • | • | • | • | |
| Rp 3 | - | - | - | - | - | - | • | • | • | • | • | |
| Functions | | | | | | | | | | | | |
| Automatic cascade control | • | • | • | • | • | • | • | • | • | • | • | |
| Automatic pump changeover | • | • | • | • | • | • | • | • | • | • | • | |
| Dry-running protection | • | • | • | • | • | • | • | • | • | • | • | |
| Emergency operation | • | • | • | • | • | • | • | • | • | • | • | |
| Automatic resetting of dry-running fault | • | • | • | • | • | • | • | • | • | • | • | |
| Startup delay between pumps | • | • | • | • | • | • | • | • | • | • | • | |
| Motor protection by means of a thermal overload relay | • | • | • | • | • | • | • | • | • | • | • | |
| Short-circuit protection by means of fuses | • | • | • | • | • | • | • | • | • | • | • | |

• Available as standard.

A Only available in the ASEAN countries.

Hydro Multi-S with CMV pumps



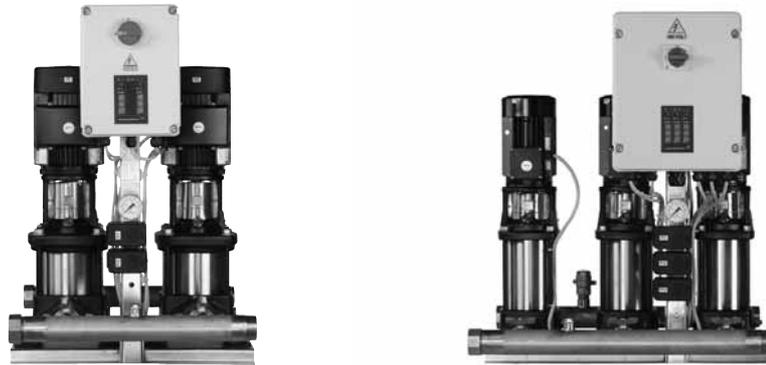
GrB2186 - GrB2184

| Pump type | CMV 3 | | | | CMV 5 | | | | |
|--|--|------|------|------|-------|--------|-----|------|-----|
| | -5 | -6 | -7 | -9 | -5 | -6 | -7 | -9 | |
| Hydraulic data | | | | | | | | | |
| Maximum head [m] | 43 | 52.8 | 62.4 | 81 | 45 | 55 | 64 | 84 | |
| Maximum flow rate [m ³ /h] | 12.6 | | | | 18.6 | | | | |
| Liquid temperature [°C] | 5-40 | | | | 5-40 | | | | |
| Maximum operating pressure [bar] | 10 | | | | 10 | | | | |
| Maximum inlet pressure [bar] | The inlet pressure plus the pressure when the pumps are operating against a closed valve should always be lower than the maximum operating pressure. | | | | | | | | |
| Motor data | | | | | | | | | |
| Number of pumps | 2 or 3 | | | | 2 | 2 or 3 | | | |
| Motor power [kW] | Single-phase motor | 0.5 | 0.67 | 0.9 | - | 0.9 | 1.3 | 1.3 | 1.9 |
| | Three-phase motor | 0.62 | 0.65 | 0.84 | 1.2 | 1.2 | 1.2 | 1.58 | 2.2 |
| Supply voltage | 3 x 380-415 V, PE, 50 Hz | • | • | • | - | • | • | • | • |
| | 1 x 220-240 V, N, PE, 50 Hz | • | • | • | • | • | • | • | • |
| Shaft seal | | | | | | | | | |
| AQQE | • | • | • | • | • | • | • | • | |
| Materials | | | | | | | | | |
| Galvanized-steel manifolds, galvanized-steel base frame, standard valves | • | • | • | • | • | • | • | • | |
| Galvanized-steel manifolds, galvanized-steel base frame painted black, standard valves | A | A | A | A | A | A | A | A | |
| Pipework connections | | | | | | | | | |
| Rp 2 | • | • | • | • | • | • | • | • | |
| Rp 2 1/2 | - | - | - | - | - | - | - | - | |
| Rp 3 | - | - | - | - | - | - | - | - | |
| Functions | | | | | | | | | |
| Automatic cascade control | • | • | • | • | • | • | • | • | |
| Automatic pump changeover | • | • | • | • | • | • | • | • | |
| Dry-running protection | - | - | - | - | - | - | - | - | |
| Emergency operation | • | • | • | • | • | • | • | • | |
| Automatic resetting of dry-running fault | • | • | • | • | • | • | • | • | |
| Startup delay between pumps | • | • | • | • | • | • | • | • | |
| Motor protection by means of a thermal overload relay | • | • | • | • | • | • | • | • | |
| Short-circuit protection by means of fuses | • | • | • | • | • | • | • | • | |

• Available as standard.

A Only available in the ASEAN countries.

Hydro Multi-S with CR pumps



GrA5737 - GrA5736

| Pump type | CR 3 | | | | CR 5 | | | | CR 10 | | | | CR 15 | | |
|--|-----------------------------|------|------|------|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|
| | -7 | -10 | -12 | -15 | -8 | -10 | -13 | -15 | -4 | -6 | -8 | -10 | -3 | -5 | -7 |
| Hydraulic data | | | | | | | | | | | | | | | |
| Maximum head [m] | 46 | 66 | 79 | 98 | 54 | 68 | 88 | 102 | 40 | 61 | 82 | 103 | 42 | 70 | 98 |
| Maximum flow rate [m ³ /h] | 13.5 | | | | 25.5 | | | | 39 | | | | 69 | | |
| Liquid temperature [°C] | 5-50 | | | | 5-50 | | | | 5-50 | | | | 5-50 | | |
| Maximum operating pressure [bar] | 10 | 10 | 16 | 16 | 10 | 10 | 16 | 16 | 10 | 10 | 16 | 16 | 10 | 10 | 16 |
| Maximum inlet pressure [bar] | 5.3 | 3.3 | 8.0 | 6.1 | 4.5 | 3.1 | 7.1 | 5.7 | 5.9 | 3.8 | 7.7 | 5.6 | 5.7 | 2.9 | 6.1 |
| Motor data | | | | | | | | | | | | | | | |
| Number of pumps | 2 or 3 | | | | 2 or 3 | | | | 2 or 3 | | | | 2 or 3 | | |
| Motor power [kW] | 0.55 | 0.75 | 1.10 | 1.10 | 1.1 | 1.5 | 2.2 | 2.2 | 1.5 | 2.2 | 3.0 | 4.0 | 3.0 | 4.0 | 5.5 |
| Supply voltage | 3 x 380-415 V, PE, 50 Hz | | | | ● | | | | ● | | | | ● | | |
| | 1 x 220-240 V, N, PE, 50 Hz | | | | ● | | | | ● | | | | ● | | |
| Shaft seal | | | | | | | | | | | | | | | |
| HQQE | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Materials | | | | | | | | | | | | | | | |
| Stainless-steel manifolds, stainless-steel base frame, standard valves | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Galvanized-steel manifolds, galvanized-steel base frame painted black, standard valves | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Pipework connections | | | | | | | | | | | | | | | |
| Rp 2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | - | - | - |
| Rp 2 1/2 | - | - | - | - | - | - | - | - | ● | ● | ● | ● | - | - | - |
| Rp 3 | - | - | - | - | - | - | - | - | - | - | - | - | ● | ● | ● |
| Functions | | | | | | | | | | | | | | | |
| Automatic cascade control | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Automatic pump changeover | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Dry-running protection | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Emergency operation | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Automatic resetting of dry-running fault | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Startup delay between pumps | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Motor protection by means of a thermal overload relay | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Short-circuit protection by means of fuses | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Available as standard.

A Only available in the ASEAN countries.

4. Identification

Type key

| Example | Hydro Multi | -S | 2 | CR 15-3 | U3 | A- | B- | A |
|--|-------------|----|---|---------|----|----|----|---|
| System name | | | | | | | | |
| System type S: Fixed-speed pumps | | | | | | | | |
| Number of pumps | | | | | | | | |
| Pump type | | | | | | | | |
| Supply voltage code U3: 3 x 380-415 V, N, PE, 50 Hz U4: 3 x 380-415 V, PE, 50 Hz U5: 3 x 380-415 V, N, PE, 60 Hz U6: 3 x 380-415 V, PE, 60 Hz U9: 3 x 220-240 V, PE, 60 Hz UA: 3 x 440-480 V, PE, 60 Hz UC: 1 x 220-240 V, N, PE, 50 Hz UD: 1 x 220-240 V, N, PE, 60 Hz UE: 1 x 220-240 V, PE, 60 Hz UF: 3 x 208-230/440-480 V, N, PE, 60 Hz UG: 3 x 208-230/440-480 V, PE, 60 Hz | | | | | | | | |
| Design type A: System with the breaker cabinet mounted on the system. B: System with wall-mounted breaker cabinet and 5 m wires. | | | | | | | | |
| Starting method B: Direct on line (DOL) C: Star-delta (SD) | | | | | | | | |
| Material code A: Stainless-steel manifolds, stainless-steel base frame, standard valves B: Stainless-steel manifolds, stainless-steel base frame, stainless-steel valves C: Galvanized-steel manifolds, galvanized-steel base frame, standard valves (CME-A pumps only) G: Galvanized-steel manifolds, galvanized-steel base frame, standard valves H: Galvanized-steel manifolds, galvanized-steel base frame painted black, standard valves I: Stainless-steel manifolds, stainless-steel base frame painted black, standard valves P: Stainless-steel manifolds, galvanized-steel base frame, standard valves | | | | | | | | |

5. Operating conditions

| Data | Pump type | |
|----------------------------|---|--|
| | CM and CMV | CR |
| Maximum flow rate | Up to 45 m ³ /h | Up to 69 m ³ /h |
| Maximum operating pressure | 10 bar | 10/16 bar |
| Liquid temperature | 5-40 °C | 5-50 °C |
| Ambient temperature | 5-60 °C | 5-40 °C ¹⁾ 5-60 °C ²⁾ |
| Power | Up to 3.2 kW | Up to 5.5 kW |
| Starting method | Direct on line Star-delta | |
| Supply voltage | 3 x 380-415 V, PE, 50 Hz 1 x 220-240 V, N, PE, 50 Hz | |
| Voltage tolerance | - 10 %/+ 10 % | |
| Relative air humidity | Max. 95 % | |
| Enclosure class | IP54 | |

1) Applies to motor sizes of 0.37 kW and up to and including 0.75 kW.

2) Applies to motor sizes of 1.1 kW and up to and including 5.5 kW.

6. Construction

Hydro Multi-S booster systems consist of two or three identical CM, CMV or CR pumps connected in parallel and mounted on a common base frame provided with a control cabinet and all the necessary fittings.

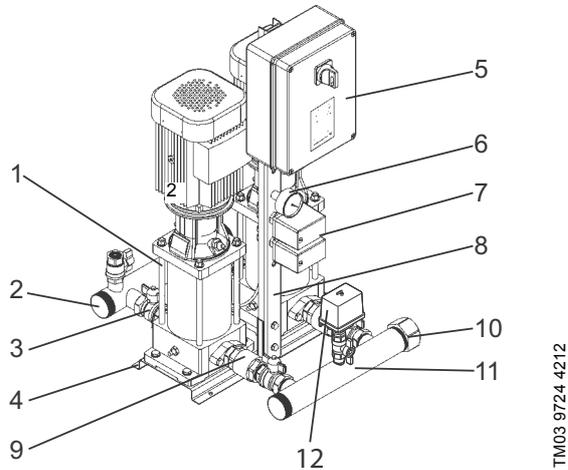


Fig. 3 Hydro Multi-S with CR 5 pumps

| Pos. | Components | Number |
|------|--------------------------------|------------|
| 1 | Pump | 2 or 3 |
| 2 | Discharge manifold | 1 |
| 3 | Isolating valve | 2 per pump |
| 4 | Base frame | 1 |
| 5 | Control cabinet | 1 |
| 6 | Pressure gauge | 1 |
| 7 | Pressure switch | 1 per pump |
| 8 | Stand | 1 |
| 9 | Non-return valve ¹⁾ | 1 per pump |
| 10 | Screw cap | 2 |
| 11 | Suction manifold | 1 |
| 12 | Pressure switch ²⁾ | 1 |

¹⁾ Non-return valve installed on the suction side of Hydro Multi-S CMV.

²⁾ Optional on Hydro Multi-S CMV.

CM, CMV pumps

The Grundfos CM and CMV pumps are non-self-priming, multistage, end-suction centrifugal pumps. The pumps are of the close-coupled type.

The CM pump is horizontally mounted and the CMV pump is vertically mounted.

All pumps incorporate a maintenance-free mechanical O-ring shaft seal with fixed driver.

Materials

The CM and CMV pumps are available in the following material variants:

| Variants | Components | Materials |
|----------|-----------------------------|--------------------|
| CM-A | Suction and discharge parts | EN-GJL-200 |
| | Pump shaft | EN 1.4301/AISI 304 |
| | Impellers/chambers | EN 1.4301/AISI 304 |
| CM-I | Suction and discharge parts | EN 1.4301/AISI 304 |
| | Pump shaft | EN 1.4301/AISI 304 |
| | Impellers/chambers | EN 1.4301/AISI 304 |
| CMV | Suction and discharge parts | EN-GJL-200 |
| | Pump shaft | EN 1.4301/AISI 304 |
| | Impellers/chambers | EN 1.4301/AISI 304 |



Fig. 4 CM pumps



Fig. 5 CMV pump

Shaft seal

The shaft seal for the CM and CMV pumps is of the O-ring type, which makes it very flexible when different types of O-ring and seal face material are needed.

The shaft seal has a fixed seal driver which ensures a reliable rotation of all parts, even under the most extreme operating conditions.

Due to the special design of the shaft seal and the interfaces to the rest of the pump, the dry-running capabilities are significantly better compared to most other similar shaft seals and pump types.

Furthermore, improvements have been made to reduce the risk and effect of seizing up.



Fig. 6 Exploded view of shaft seal

Note: The available shaft seals for CM and CMV pumps are very robust and durable, but dry running must always be avoided.

Motor

CM pumps are fitted with totally enclosed, fan-cooled, 2-pole motors with principal dimensions to EN 50347. Electrical tolerances comply with EN 60034.

Electrical data

Enclosure class: IP55

Insulation class: F

Supply voltages: 3 x 380-415 V, PE, 50 Hz

1 x 220-240 V, N, PE, 50 Hz

A motor-protective circuit breaker is incorporated in the control cabinet.

Single-phase motors have a built-in thermal relay to IEC 34-11, TP 211 (slow overload and locked rotor).

CR pump

The Grundfos CR pump is a non-self-priming, vertical, multistage centrifugal pump.

The pump consists of a base and a pump head. The chamber stack and the sleeve are secured between the pump head and the base with staybolts. The base has suction and discharge ports on the same level (in line).



TMI03 9925 4607

Fig. 7 CR pump

Shaft seal

All pumps have a maintenance-free mechanical HQQE shaft seal of the cartridge type.

Motor

The CR pump is fitted with a totally enclosed, fan-cooled, 2-pole Grundfos standard motor with principal dimensions to EN standards.

Electrical tolerances comply with EN 60034.

Electrical data

Enclosure class: IP55

Insulation class: F

Supply voltages: 3 x 380-415 V, PE, 50 Hz

1 x 220-240 V, N, PE, 50 Hz

A motor-protective circuit breaker is incorporated in the control cabinet.

Single-phase motors have a built-in thermal relay to IEC 34-11, TP 211 (slow overload and locked rotor).

Three-phase Grundfos motors of 3 kW and up have a built-in thermistor (PTC) according to DIN 44082 (IEC 34-11: TP 211).

Materials

| Components | Materials | EN | AISI/ASTM |
|--------------|-----------------|--|----------------------|
| Pump head | Cast iron | EN-JL1030 | ASTM 25B |
| Shaft | Stainless steel | 1.4401 ¹⁾ 1.4057 ²⁾ | AISI 316 AISI 431 |
| Impeller | Stainless steel | 1.4301 | AISI 304 |
| Chamber | Stainless steel | 1.4301 | AISI 304 |
| Sleeve | Stainless steel | 1.4301 | AISI 304 |
| Base | Cast iron | EN-JL1030 | ASTM 25B |
| Neck ring | PTFE | | |
| Rubber parts | EPDM | | |

¹⁾ CR 3, 5.

²⁾ CR 10, 15.

7. Functions

Description of functions

Hydro Multi-S offers the following features:

- Automatic cascade control of pumps by means of two or three pressure switches.
- Automatic pump changeover at any start/stop cycle.
- If a pump is in fault status, it is automatically taken out of operation.
- Automatic resetting of dry-running fault.
- Manual resetting of overload trip.
- Possibility of emergency operation.
- Pump and system protection:
 - Short-circuit protection by means of fuses.
 - Motor protection by means of a thermal overload relay.
 - Dry-running protection by means of a pressure switch or level switch (optional on Hydro Multi-S CMV).
 - Startup delay between two pumps:
Prevents simultaneous startup of pumps.

8. Mechanical installation

Installation

A Hydro Multi-S booster system must be installed in a well-ventilated room to ensure sufficient cooling of the pumps. Hydro Multi-S is not suitable for outdoor installation.

Place the booster system in such a way that there is sufficient clearance around it for the operator to be able to work freely.

Enclosure class: IP54.

Motor cooling

To ensure adequate cooling of motor and electronics, the following must be observed:

- Place Hydro Multi-S in a well-ventilated room.
- Motor cooling fins, holes in fan cover and fan blades must be kept clean.

Maximum ambient temperature

Hydro Multi-S with CM and CMV pumps

All motor sizes: Max. 60 °C.

Hydro Multi-S with CR pumps

0.37 to 0.75 kW: Max. 40 °C.

1.1 to 5.5 kW: Max. 60 °C.

Pipework

The pipes connected to the booster system must be of adequate size. Fit expansion joints in the suction and discharge manifolds to avoid resonance. The pipes are to be connected to the suction and discharge manifolds.

The booster system should be tightened up prior to startup.

We recommend that you fit pipe supports both on the suction and the discharge side.

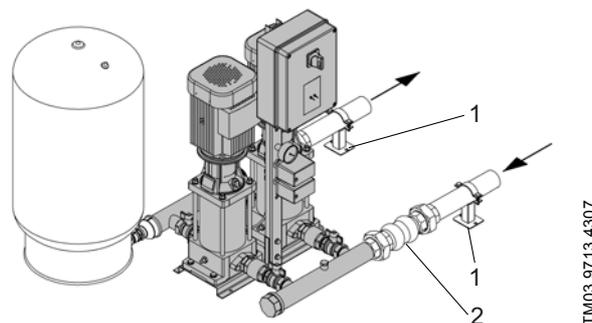


Fig. 8 Example of installation with expansion joints and pipe supports (Grundfos standard scope of supply in grey colour)

| Pos. | Description |
|------|-----------------|
| 1 | Pipe support |
| 2 | Expansion joint |

Foundation

Position the booster system on an even and solid surface.

Hydro Multi-S systems with CM pumps must always be bolted to the floor.

Hydro Multi-S systems with CMV or CR pumps must either be bolted to the floor or fitted with machine shoes.

9. Sizing

General

When sizing a booster system, it is important to ensure the following:

- The performance of the booster system must be able to meet the maximum duty demand, both in flow rate and pressure.
- The booster system should not be oversized as this will affect installation and operating costs.
- The size and number of pumps must be appropriate related to their performance. This also applies to the standby pump, if any.
- The number and size of the diaphragm tanks must be adequate.
- Dry-running protection must be installed.

Pump size

The booster system should be capable of meeting the maximum duty demand. But as this will occur for a comparatively short part of the day only, it is important to select a type of pump which can meet the varying demand throughout the duty period.

We do not recommend to select a pump type with a performance lower than the lowest possible consumption, nor to select a pump type with a performance higher than the highest possible consumption.

Number of pumps

In most applications, constant water supply is a major factor. Often it is not acceptable if the system does not maintain its maximum flow rate even during pump maintenance or repairs. In order to prevent any disruption of the supply in such a situation, the system is sized with a standby pump, i.e. Hydro Multi-S with two or three pumps in installations where the demand can be met just by one or two pumps, respectively.

NPSH

In order to avoid cavitation, in the case of operation with a suction lift, long or winding suction line, always check the NPSH value of the pump at the highest duty flow rate (see the pump performance curve in the specific technical literature).

Maximum flow requirement

Total consumption and maximum flow rate depend on the application. The maximum flow requirement can be calculated by means of the table below which is based on statistical data.

| Consumer | Unit | Q_{year} | Consumption period | Q_{day} | fd* | $Q(m)_{\text{day}}$ | ft* | Max. flow rate |
|--------------------|-------------------------|--------------------------|--------------------|-------------------------|-----|-------------------------|-----|-----------------------|
| | | m^3/year | days/year | m^3/day | | m^3/day | | m^3/h |
| Residence building | Residence (2.5 persons) | 183 | 365 | 0.5 | 1.3 | 0.65 | 1.7 | 0.046 |
| Office building | Employee | 25 | 250 | 0.1 | 1.2 | 0.12 | 3.6 | 0.018 |
| Shopping centre | Employee | 25 | 300 | 0.08 | 1.2 | 0.1 | 4.3 | 0.018 |
| Supermarket | Employee | 80 | 300 | 0.27 | 1.5 | 0.4 | 3.0 | 0.05 |
| Hotel | Bed | 180 | 365 | 0.5 | 1.5 | 0.75 | 4.0 | 0.125 |
| Hospital | Bed | 300 | 365 | 0.8 | 1.2 | 1.0 | 3.0 | 0.12 |
| School | Pupil | 8 | 200 | 0.04 | 1.3 | 0.065 | 2.5 | 0.007 |

* fd: Maximum consumption factor per day.
ft: Maximum consumption factor per hour.

Example: Hotel with 540 beds

Number of beds: n
 Total annual consumption: $Q_{\text{year}} \times n$
 Consumption period: d
 Average consumption per day: $(Q_{\text{year}} \times n)/d$
 Maximum consumption per day: $Q(m)_{\text{day}} = fd \times Q_{\text{day}}$
 Maximum flow requirement per hour: $Q_{\text{max}} = \text{max. flow rate/hour} \times \text{number of beds.}$

Calculation

$n = 540$ beds
 $Q_{\text{year}} \times n = 180 \times 540 = 97,200 \text{ m}^3/\text{year}$
 $d = 365$ days/year
 $(Q_{\text{year}} \times n)/d = 97,200/365 = 266.3 \text{ m}^3/\text{day}$
 $Q(m)_{\text{day}} = fd \times Q_{\text{day}} = 1.5 \times 266.3 = 399.4 \text{ m}^3/\text{day}$
 $Q_{\text{max}} = \text{Max. flow rate/hour} \times \text{number of beds} = 0.125 \times 540 = 67.5 \text{ m}^3/\text{h.}$

Required discharge pressure

The required discharge pressure, p_{set} , of Hydro Multi-S can be calculated with the following equation:

$$p_{\text{set}} = p_{\text{tap}(\text{min})} + p_f + (h_{\text{max}}/10.2)$$

$$p_{\text{boost}} = p_{\text{set}} - p_{\text{in}(\text{min})}$$

Key

p_{set} = Required discharge pressure [bar].

$p_{\text{tap}(\text{min})}$ = Required minimum pressure at the highest tapping point [bar].

p_f = Total pipe friction loss [bar].

h_{max} = Height from booster discharge port to highest tapping point [m].

$p_{\text{in}(\text{min})}$ = Minimum inlet pressure [bar].

p_{boost} = Required boost [bar].

Calculation

$$p_{\text{tap}(\text{min})} = 2 \text{ bar}$$

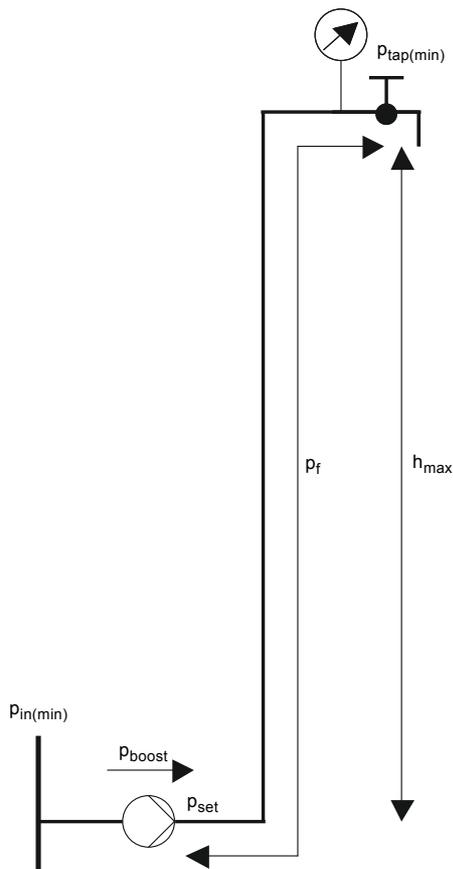
$$p_f = 1.2 \text{ bar}$$

$$h_{\text{max}} = 41.5 \text{ m}$$

$$p_{\text{in}(\text{min})} = 2 \text{ bar}$$

$$p_{\text{set}} = 2 + 1.2 + (41.5/10.2) = 7.3 \text{ bar}$$

$$p_{\text{boost}} = 7.3 - 2 = 5.3 \text{ bar.}$$



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Fig. 9 Calculation of required discharge pressure

How to select a Hydro Multi-S

The required flow rate (Q), pressure (H) and number of pumps in the booster system can be provided by the system designer or determined by following the procedure as described on page 16.

The y-axes to the left of the chart give the head in metres and in kPa.

The x-axis has three scales which give the flow (Q) in m³/h. The top axis indicates the single-pump flow, the middle axis accumulates the two-pump flow and the bottom axis accumulates the three-pump flow.

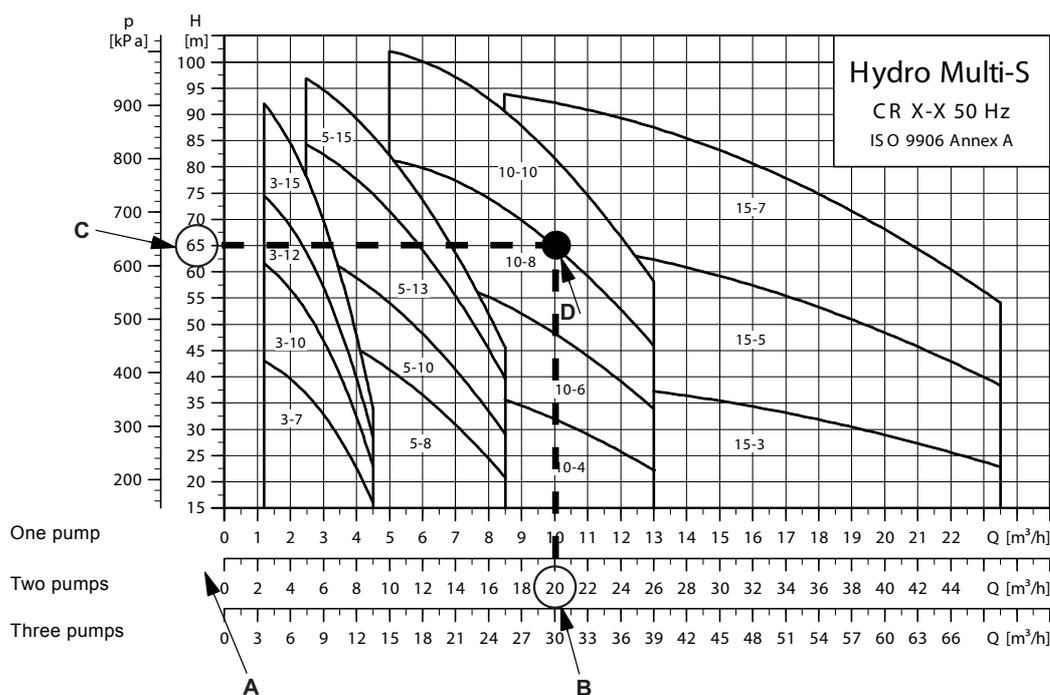


Fig. 10 Hydro Multi-S performance range

Example

To select the booster system, follow the procedures below and use the performance curves on page 4.

A Two pumps are required in the booster system.

B A flow rate of 20 m³/h is required.

Draw a vertical line from the required flow starting from the middle scale of the x-axis.

C A head of 65 m is required.

Draw a horizontal line from the required head.

The intersection point of the two lines gives the best pump type meeting the specifications.

D The booster system to be selected is:

Hydro Multi-S 2 CR 10-8.

Choose the Hydro Multi-S with three pumps if a standby pump is required as back-up.

E Complete the sizing by selecting a diaphragm tank and dry-running protection.

See the following section [Diaphragm tank sizing](#) and section [Diaphragm tank](#) on page 25.

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Diaphragm tank sizing

To ensure reliable automatic operation, the booster system must be fitted with a diaphragm tank. The tank should be connected to the discharge manifold or pipeline to meet the system requirement.

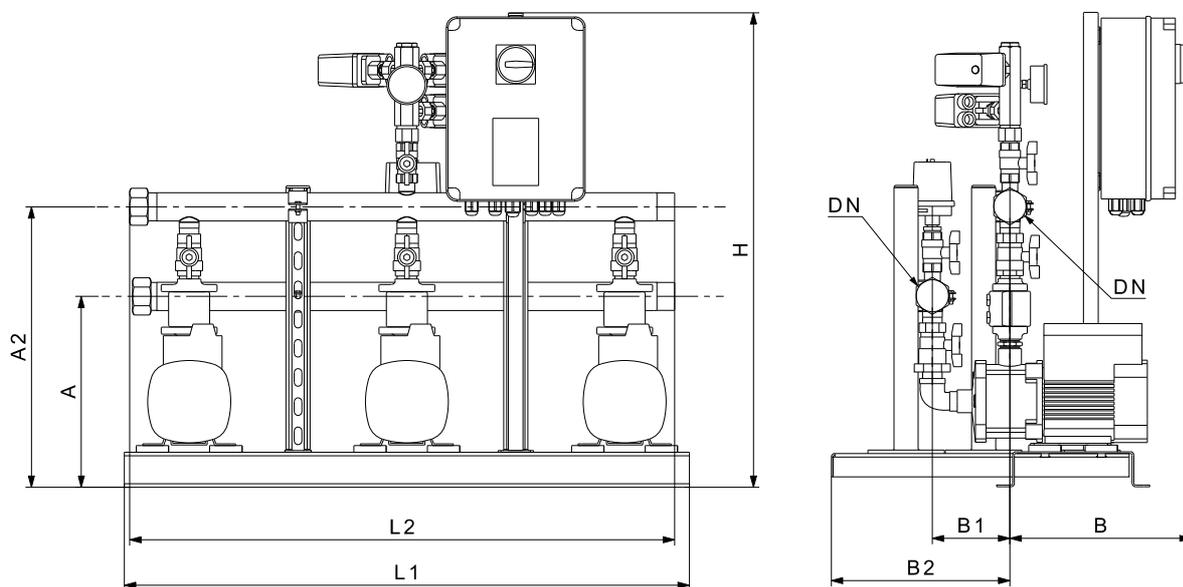
The minimum recommended tank volume is indicated in the table below:

| Pump type | Recommended tank size | |
|-----------|-----------------------|-------------------|
| | Two-pump system | Three-pump system |
| | [l] | [l] |
| CM 3-4 | 33 | 60 |
| CM 3-6 | 33 | 33 |
| CM 3-8 | 33 | 33 |
| CM 5-4 | 60 | |
| CM 5-7 | 60 | 80 |
| CM 5-9 | 60 | 60 |
| CM 10-3 | 130 | 170 |
| CM 10-4 | 130 | 170 |
| CM 10-5 | 130 | 130 |
| CMV 3-5 | 33 | 33 |
| CMV 3-6 | 33 | 33 |
| CMV 3-7 | 33 | 33 |
| CMV 3-9 | 33 | 33 |
| CMV 5-5 | 50 | |
| CMV 5-6 | 50 | 50 |
| CMV 5-7 | 50 | 50 |
| CMV 5-9 | 50 | 50 |
| CR 3-7 | 33 | 33 |
| CR 3-10 | 33 | 33 |
| CR 3-12 | 33 | 33 |
| CR 3-15 | 50 | 50 |
| CR 5-8 | 50 | 50 |
| CR 5-10 | 60 | 60 |
| CR 5-13 | 80 | 80 |
| CR 5-15 | 80 | 80 |
| CR 10-4 | 100 | 100 |
| CR 10-6 | 130 | 130 |
| CR 10-8 | 130 | 130 |
| CR 10-10 | 130 | 130 |
| CR 15-3 | 170 | 170 |
| CR 15-5 | 170 | 170 |
| CR 15-7 | 200 | 200 |
| CR 20-3 | 200 | 200 |
| CR 20-5 | 200 | 200 |
| CR 20-7 | 200 | 200 |

The recommended tank size is calculated on the basis of factory default settings of pressure switches.

10. Technical data

Hydro Multi-S with two or three CM pumps - material code H



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Fig. 11 Dimensional sketch of a Hydro Multi-S booster system with CM pumps

| Pump type | U [V] | P2 [kW] | H [mm] | A [mm] | A2 [mm] | B [mm] | B1 [mm] | B2 [mm] | DN | Hydro Multi-S with two pumps | | | Hydro Multi-S with three pumps | | | | | | | | | | | | | | | |
|-----------|-------|---------|-----------|--------|-------------|-------------|-------------|---------|-------------|------------------------------|-----|----------------------|--------------------------------|-----------------|-----|----------------------|-------------|-----------|-----|-----------|----|-------------|----|-------------|-----|-----|-----|-----------|
| | | | | | | | | | | Dimensions [mm] | | I _{1/1} [A] | Weight [kg] | Dimensions [mm] | | I _{1/1} [A] | Weight [kg] | | | | | | | | | | | |
| | | | | | | | | | | L1 | L2 | | | L1 | L2 | | | | | | | | | | | | | |
| CM 3-4 | UC | 0.5 | 815 | 330 | 480 | 310 | 268 | 292 | 1 1/2" | 590 | 550 | 4.4 - 4.0 | 63 | 960 | 930 | 5.4 - 4.9 | 91 | | | | | | | | | | | |
| CM 3-4 | U4 | 0.46 | | | | | | | | | | | | | | | | 3.2 - 3.4 | 63 | 4.8 - 5.4 | 91 | | | | | | | |
| CM 3-6 | UC | 0.67 | | | | | | | | | | | | | | | | | | | | 7.7 - 7.1 | 73 | 7.8 - 9 | 101 | | | |
| CM 3-6 | U4 | 0.65 | | | | | | | | | | | | | | | | 5.2 - 6 | 73 | 7.7 - 7 | 96 | | | | | | | |
| CM 3-8 | UC | 0.9 | | | | | | | | | | | | | | | | | | | | | | | | 340 | 364 | 7.7 - 7.1 |
| CM 3-8 | U4 | 1.2 | 6.3 - 5.7 | 68 | 4.8 - 5.4 | 91 | | | | | | | | | | | | | | | | | | | | | | |
| CM 5-4 | UC | 0.67 | | | | | 865 | 385 | 530 | 310 | 268 | 292 | 2" | 590 | 575 | 6.3 - 5.7 | 71 | 960 | 945 | 7.7 - 7 | 99 | | | | | | | |
| CM 5-4 | U4 | 0.84 | 3.2 - 3.8 | 71 | 4.8 - 5.7 | 99 | | | | | | | | | | | | | | | | | | | | | | |
| CM 5-7 | UC | 1.3 | | | | | | | | | | | | | | | | | | | | 11.9 - 11.3 | 91 | 14.6 - 13.9 | 124 | | | |
| CM 5-7 | U4 | 1.58 | 6.2 - 6.8 | 91 | 9.3 - 10.2 | 124 | | | | | | | | | | | | | | | | | | | | | | |
| CM 10-3 | UC | 1.9 | | | | | | | | | | | | | | | | | | | | | | | | 960 | 450 | 615 |
| CM 10-3 | U4 | 2.2 | 8.1 - 8.8 | 117 | 12.3 - 13.2 | 165 | | | | | | | | | | | | | | | | | | | | | | |
| CM 10-4 | U4 | 3.2 | | | | | 13.6 - 12.8 | 117 | 20.4 - 19.2 | 180 | | | | | | | | | | | | | | | | | | |
| CM 10-5 | U4 | 3.2 | 405 | 347 | 377 | 13.6 - 12.8 | | | | | 117 | 20.4 - 19.2 | 180 | | | | | | | | | | | | | | | |

H: Galvanized-steel manifolds, galvanized-steel base frame painted black, standard valves

UC: 1 x 220-240 V, N, PE, 50 Hz

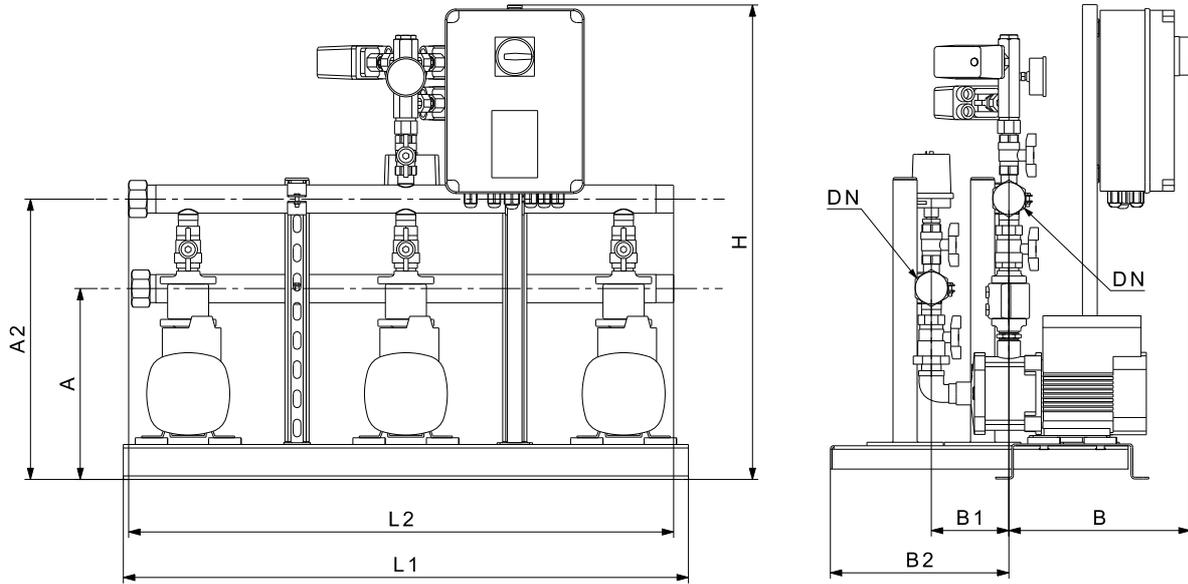
U4: 3 x 380-415 V, PE, 50 Hz

Please note that the dimensions stated may vary by ± 20 mm.

Due to improvements or modifications of the components, the dimensions may change without any previous notification.

All pump types for Hydro Multi-S with two or three CM pumps, material code H is only available for ASEAN countries.

Hydro Multi-S with two or three CM pumps



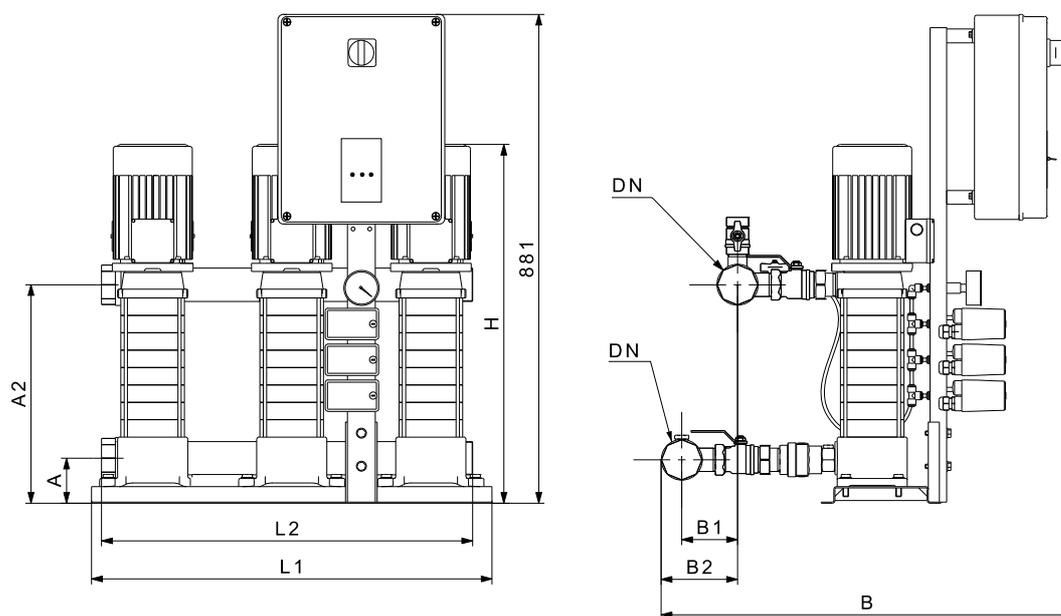
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Fig. 12 Dimensional sketch of a Hydro Multi-S booster system with CM pumps

| Pump type | U [V] | P2 [kW] | H [mm] | A [mm] | A2 [mm] | B [mm] | B1 [mm] | B2 [mm] | DN | Hydro Multi-S with two pumps | | | | Hydro Multi-S with three pumps | | | | | | | | | | | |
|-----------|-------|---------|-----------|--------|---------|-------------|---------|---------|--------|------------------------------|-----|-------------|-----------|--------------------------------|-----|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| | | | | | | | | | | Dimensions [mm] | | Weight [kg] | | Dimensions [mm] | | Weight [kg] | | | | | | | | | |
| | | | | | | | | | | L1 | L2 | I- / I[G] | I- / I[G] | L1 | L2 | I- / I[G] | I- / I[G] | | | | | | | | |
| CM 3-4 | UC | 0.5 | 815 | 330 | 480 | 310 | 130 | 305 | 1 1/2" | 590 | 550 | 4.4 - 4.0 | 65 | 68 | 960 | 930 | 5.4 - 4.9 | 95 | 100 | | | | | | |
| CM 3-4 | U4 | 0.46 | | | | | | | | | | | | | | | | | | 2 - 2.4 | 60 | 63 | 3 - 3.6 | 90 | 95 |
| CM 3-6 | UC | 0.67 | | | | | | | | | | | | | | | | | | 6.3 - 5.7 | 70 | 73 | 7.7 - 7 | 100 | 105 |
| CM 3-6 | U4 | 0.65 | | | | | | | | | | | | | | | | | | 3.2 - 3.4 | 65 | 68 | 4.8 - 5.4 | 95 | 100 |
| CM 3-8 | UC | 0.9 | | | | | | | | | | | | | | | | | | 7.7 - 7.1 | 75 | 78 | 9.4 - 8.7 | 105 | 110 |
| CM 3-8 | U4 | 1.2 | 5.2 - 6 | 75 | 78 | 7.8 - 9 | 105 | 110 | | | | | | | | | | | | | | | | | |
| CM 5-4 | UC | 0.67 | 865 | 385 | 530 | 310 | 135 | 305 | 2" | 590 | 575 | 6.3 - 5.7 | 70 | 76 | 960 | 945 | 7.7 - 7 | 100 | 108 | | | | | | |
| CM 5-4 | U4 | 0.84 | | | | | | | | | | | | | | | | | | 3.2 - 3.8 | 70 | 76 | 4.8 - 5.7 | 100 | 108 |
| CM 5-7 | UC | 1.3 | | | | | | | | | | | | | | | | | | 11.9 - 11.3 | 90 | 96 | 14.6 - 13.9 | 125 | 133 |
| CM 5-7 | U4 | 1.58 | | | | | | | | | | | | | | | | | | 6.2 - 6.8 | 90 | 96 | 9.3 - 10.2 | 125 | 133 |
| CM 5-9 | UC | 1.9 | | | | | | | | | | | | | | | | | | 15.6 - 14.2 | 95 | - | 19.1 - 17.4 | 130 | 150 |
| CM 5-9 | U4 | 2.2 | 8.1 - 8.8 | 95 | - | 12.3 - 13.2 | 130 | 150 | | | | | | | | | | | | | | | | | |
| CM 10-3 | UC | 1.9 | 960 | 450 | 615 | 385 | 160 | 230 | 2 1/2" | 625 | 615 | 15.6 - 14.2 | 105 | 122 | 990 | 980 | 19.1 - 17.4 | 150 | 175 | | | | | | |
| CM 10-3 | U4 | 2.2 | | | | | | | | | | | | | | | | | | 8.1 - 8.8 | 105 | 122 | 12.3 - 13.2 | 150 | 175 |
| CM 10-4 | U4 | 3.2 | | | | | | | | | | | | | | | | | | 13.6 - 12.8 | 115 | 122 | 20.4 - 19.2 | 165 | 190 |
| CM 10-5 | U4 | 3.2 | | | | 405 | 190 | 310 | | | | | | | | | | | | 13.6 - 12.8 | 120 | - | 170 | 190 | |
| | | | | | | 405 | 250 | 310 | | | | | | | | | | | | | | | | | |

I-: Stainless-steel base frame and manifolds, stainless-steel CM pumps/G: Galvanised-steel base frame and manifolds, cast-iron CM pumps
 UC: 1 x 220-240 V, N, PE, 50 Hz
 U4: 3 x 380-415 V, PE, 50 Hz
 Please note that the dimensions stated may vary by ± 20 mm.
 Due to improvements or modifications of the components, the dimensions may change without any previous notification.

Hydro Multi-S with two or three CMV pumps



TM05 1101 2111

Fig. 13 Dimensional sketch of a Hydro Multi-S booster system with CMV pumps

| Pump type | U [V] | P2 [kW] | H [mm] | A1 [mm] | A2 [mm] | B [mm] | B1 [mm] | B2 [mm] | DN | Hydro Multi-S with two pumps | | | Hydro Multi-S with three pumps | | | | |
|-----------|-------|---------|--------|---------|-------------|--------|-------------|---------|----|------------------------------|-----|----------------------|--------------------------------|-----------------|-----|----------------------|-------------|
| | | | | | | | | | | Dimensions [mm] | | I _{1/1} [A] | Weight [kg] | Dimensions [mm] | | I _{1/1} [A] | Weight [kg] |
| | | | | | | | | | | L1 | L2 | | | G/H | L1 | | |
| CMV 3-5 | UC | 0.50 | 412 | 81 | 210 | 727 | 105 | 135 | 2" | 500 | 460 | 4.4 - 4.0 | 32 | 750 | 710 | 5.4 - 4.8 | 38 |
| CMV 3-5 | U4 | 0.65 | | | 228 | | | | | | | 3.2 - 3.6 | 32 | | | 4.8 - 5.4 | 37 |
| CMV 3-6 | UC | 0.50 | 470 | | 228 | | | | | | | 4.4 - 4.0 | 34 | | | 5.4 - 4.8 | 40 |
| CMV 3-6 | U4 | 0.65 | 488 | | 247 | | | | | | | 3.2 - 3.6 | 32 | | | 4.8 - 5.4 | 38 |
| CMV 3-7 | UC | 0.90 | 544 | | 289 | | | | | | | 7.6 - 7.1 | 35 | | | 9.4 - 8.7 | 41 |
| CMV 3-7 | U4 | 0.84 | 452 | | 210 | | | | | | | 3.2 - 3.8 | 36 | | | 4.8 - 5.7 | 42 |
| CMV 3-9 | U4 | 1.20 | 522 | | 228 | | | | | | | 5.2 - 6.0 | 36 | | | 7.8 - 9.0 | 42 |
| CMV 5-5 | UC | 0.90 | 576 | | 269 | | | | | | | 7.6 - 7.1 | 35 | | | 9.4 - 8.7 | 40 |
| CMV 5-5 | U4 | 1.20 | 522 | | 228 | | | | | | | 5.2 - 6.0 | 35 | | | 7.8 - 9.0 | 41 |
| CMV 5-6 | UC | 1.30 | 240 | | 233 | | | | | | | 11.9 - 11.3 | 42 | | | 14.5 - 13.9 | 48 |
| CMV 5-6 | U4 | 1.20 | 240 | | 233 | | | | | | | 5.2 - 6.0 | 36 | | | 7.8 - 9.0 | 41 |
| CMV 5-7 | UC | 1.30 | 576 | | 269 | | | | | | | 11.9 - 11.3 | 43 | | | 14.5 - 13.9 | 48 |
| CMV 5-7 | U4 | 1.58 | 240 | 233 | 6.2 - 6.8 | 42 | 9.3 - 10.2 | 48 | | | | | | | | | |
| CMV 5-9 | UC | 1.30 | 576 | 269 | 11.9 - 11.3 | 45 | 14.5 - 13.9 | 50 | | | | | | | | | |
| CMV 5-9 | U4 | 1.58 | 576 | 269 | 6.2 - 6.8 | 44 | 9.3 - 10.2 | 50 | | | | | | | | | |

G: Galvanised-steel base frame and manifolds, cast-iron CMV pumps

UC: 1 x 220-240 V, N, PE, 50 Hz

U4: 3 x 380-415 V, PE, 50 Hz

Please note that the dimensions stated may vary by ± 20 mm.

Due to improvements or modifications of the components, the dimensions may change without any previous notification.

Hydro Multi-S with two or three CR pumps

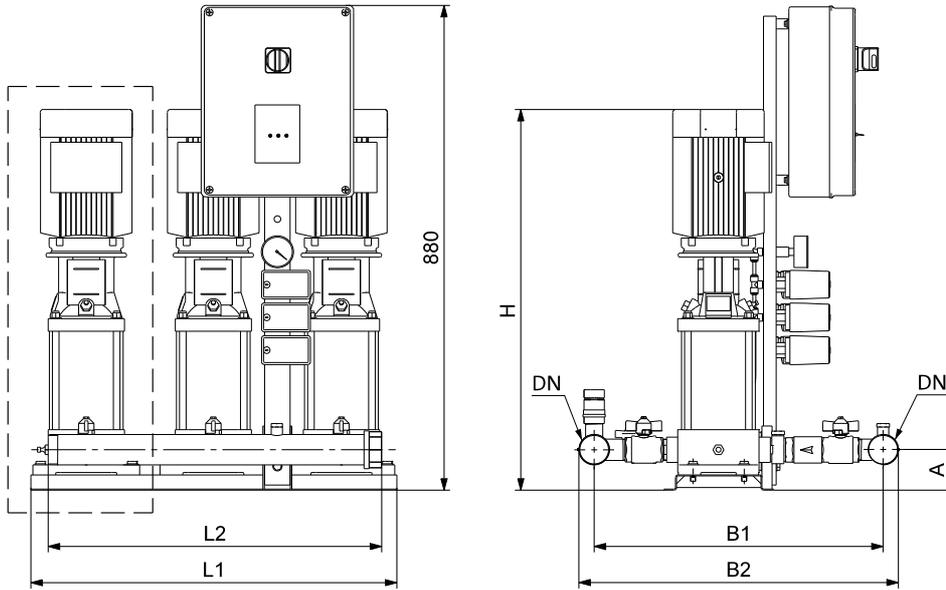


Fig. 14 Dimensional sketch of a Hydro Multi-S booster system with CR pumps

TM03 9721 4307

| Pump type | U [V] | P2 [kW] | A [mm] | H [mm] | Hydro Multi-S with two pumps | | | | | | Hydro Multi-S with three pumps | | | | | | | |
|-----------|-------|---------|--------|--------|------------------------------|------|-----|-----|-----|----------------------|--------------------------------|-----------------|-----|-----|-----|-----|----------------------|-------------|
| | | | | | Dimensions [mm] | | | | | l _{1/1} [A] | Weight [kg] | Dimensions [mm] | | | | | l _{1/1} [A] | Weight [kg] |
| | | | | | DN | B1 | B2 | L1 | L2 | | | DN | B1 | B2 | L1 | L2 | | |
| CR 3-7 | UC | 0.55 | 85 | 598 | 2" | 620 | 680 | 500 | 470 | 5.66 | 64 | 2" | 620 | 680 | 750 | 720 | 6.93 | 100 |
| CR 3-10 | UC | 0.75 | | 652 | | | | | | 7.21 | 71 | | | | | | 8.83 | 110 |
| CR 3-12 | UC | 1.10 | | 754 | | | | | | 10.47 | 76 | | | | | | 12.82 | 117 |
| CR 3-15 | UC | 1.10 | | 808 | | | | | | 10.47 | 78 | | | | | | 12.82 | 120 |
| CR 3-7 | U4 | 0.55 | | 552 | | | | | | 2.88 | 64 | | | | | | 4.32 | 100 |
| CR 3-10 | U4 | 0.75 | | 652 | | | | | | 3.72 | 71 | | | | | | 5.58 | 110 |
| CR 3-12 | U4 | 1.10 | | 688 | | | | | | 5.3 | 76 | | | | | | 7.95 | 117 |
| CR 3-15 | U4 | 1.10 | | 742 | | | | | | 5.3 | 78 | | | | | | 7.95 | 120 |
| CR 5-8 | UC | 1.10 | | 754 | | | | | | 10.47 | 76 | | | | | | 12.82 | 117 |
| CR 5-8 | U4 | 1.10 | | 688 | | | | | | 5.3 | 76 | | | | | | 7.95 | 117 |
| CR 5-10 | U4 | 1.50 | | 808 | | | | | | 6.8 | 89 | | | | | | 10.2 | 137 |
| CR 5-13 | U4 | 2.20 | | 929 | | | | | | 9.5 | 96 | | | | | | 14.25 | 147 |
| CR 5-15 | U4 | 2.20 | | 983 | | | | | | 9.5 | 99 | | | | | | 14.25 | 151 |
| CR 10-4 | U4 | 1.50 | | 739 | | | | | | 6.8 | 117 | | | | | | 10.2 | 182 |
| CR 10-6 | U4 | 2.20 | | 839 | | | | | | 9.5 | 125 | | | | | | 14.25 | 194 |
| CR 10-8 | U4 | 3.00 | 918 | 12.8 | 137 | 19.2 | 212 | | | | | | | | | | | |
| CR 10-10 | U4 | 4.00 | 1015 | 16 | 161 | 24 | 248 | | | | | | | | | | | |
| CR 15-3 | U4 | 3.00 | 835 | 12.8 | 145 | 19.2 | 224 | | | | | | | | | | | |
| CR 15-5 | U4 | 4.00 | 962 | 16 | 171 | 24 | 263 | | | | | | | | | | | |
| CR 15-7 | U4 | 5.50 | 1103 | 22 | 219 | 33 | 335 | | | | | | | | | | | |

Please note that the dimensions stated may vary by ± 20 mm. Due to improvements or modifications of the components, the dimensions may change without any previous notification.

11. Accessories

Diaphragm tank

A diaphragm tank must always be installed on the discharge side of the booster system.

Note: The diaphragm tanks are separate tanks without valve, fittings and pipes.



TM02 9097 1804

Diaphragm tank, 10 bar

| Capacity [litres] | Connection | Product number |
|-------------------|------------|----------------|
| 8 | G 3/4 | 96528335 |
| 12 | G 3/4 | 96528336 |
| 18 | G 3/4 | 96528337 |
| 24 | G 1 | 96528339 |
| 33 | G 1 | 96528340 |
| 60 | G 1 | 96528341 |
| 80 | G 1 | 96528342 |
| 100 | G 1 | 96528343 |
| 130 | G 1 | 96528344 |
| 170 | G 1 | 96528345 |
| 240 | G 1 | 96528346 |

Diaphragm tank, 16 bar

| Capacity [litres] | Connection | Product number |
|-------------------|------------|----------------|
| 8 | G 3/4 | 96573347 |
| 12 | G 3/4 | 96573348 |
| 25 | G 3/4 | 96573349 |
| 80 | DN 50 | 96573358 |
| 120 | DN 50 | 96573359 |
| 180 | DN 50 | 96573360 |
| 300 | DN 50 | 96573361 |

Dry-running protection



TM02 1747 2001

| Description | Product number |
|---|----------------|
| Dry-running protection by means of electrode relay (without electrodes and electrode cable) | 96020079 |

Audible alarm

The audible alarm sounds in case of a system alarm.

| Description | Sound pressure level [dB(A)] | Location | Product number |
|---------------|------------------------------|--------------------|----------------|
| Audible alarm | 80 | In control cabinet | 96020178 |
| | 100 | | 96020179 |

Machine shoes



TM04 3245 3908

Machine shoes reduce any vibrations from the system to the floor, allowing the system to be height-adjusted by ± 20 mm.

| Description | Hydro Multi-S with | Product number |
|----------------|--------------------|----------------|
| Machine shoe | CM 3 or CM 5 | 96412344 |
| | CMV 3 or CMV 5 | |
| | CR 3 or CR 5 | |
| | CM 10 | 96412345 |
| CR 10 or CR 15 | | |

Note: The product number covers one (1) machine shoe.

Hydro Multi-S with CM pumps must be bolted directly to the floor and therefore machine shoes cannot be used.

12. Alternative booster systems

Alternative booster systems

| Booster system | Data and features | |
|---|----------------------------|-----------------------------|
|  | Maximum head | 10 to 150 m |
| | Flow rate | 2 to 1080 m ³ /h |
| | Maximum operating pressure | 16 bar |
| | Number of pumps | 2 to 6 |
| | Pump types | CR, CRI, CRE, CRIE |
|  | Maximum head | 10 to 100 m |
| | Flow rate | 2 to 85 m ³ /h |
| | Maximum operating pressure | 10 bar |
| | Number of pumps | 2 or 3 |
| | Pump type | CME, CRE, CRIE |
|  | Maximum head | 10 to 100 m |
| | Flow rate | 2 to 55 m ³ /h |
| | Maximum operating pressure | 16 bar |
| | Number of pumps | 1 |
| | Pump types | CRE, CR* |

TM05 3234 2512

Features

- Optimised for your application!
- Easy to install and commission with the built-in startup wizard
- Many communication options
- Very user-friendly
- Large colour display for setting and monitoring
- Modular design.

Gr-1015574

Features

- Specially designed for water supply in buildings
- 100 % adaptation to consumption
- Easy to install and commission
- Small foot print
- Communication via Grundfos GO Remote.

Gr5164 - Gr5165

Features

- Easy to install and commission
- Constant pressure
- Communication via Grundfos GO Remote.**

* Hydro Solo-E incorporates a CRE pump and Hydro Solo-S a CR pump.

** Applies only to Hydro Solo-E.

13. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

<http://product-selection.grundfos.com>



SIZING enables you to size a pump based on entered data and selection choices.

REPLACEMENT enables you to find a replacement product. Search results will include information on

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.

The screenshot shows the Grundfos Product Center website. At the top, there is a navigation bar with the logo and menu items: HOME, FIND PRODUCT, COMPARE, YOUR PROJECTS, SAVED ITEMS, HELP. Below this is a search bar with a 'SEARCH' button and a placeholder text: 'Input product number or a whole or partial product name'. The main content area features four large buttons: 'SIZING' (Enter pump sizing), 'CATALOGUE' (Products and services), 'REPLACEMENT' (Replace an old pump with a new), and 'LIQUIDS' (Find pump by liquid). Below these is a 'QUICK SIZING' section with input fields for 'Flow (Q)*' (m³/h) and 'Head (H)*' (m), and radio buttons for 'Select what to size by': 'Size by application', 'Size by pump design', and 'Size by pump family'. A 'START SIZING' button is also present. At the bottom of the quick sizing section, there are options for 'ADVANCED SIZING' with checkboxes for 'Advanced sizing by application' and 'Guided selection'. Callout boxes provide detailed descriptions for the SIZING, REPLACEMENT, CATALOGUE, and LIQUIDS features.

SIZING enables you to size a pump based on entered data and selection choices.

REPLACEMENT enables you to find a replacement product. Search results will include information on

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.

CATALOGUE gives you access to the Grundfos product catalogue.

LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

| |
|----------------------|
| 96777913 1214 |
| ECM: 1146925 |

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