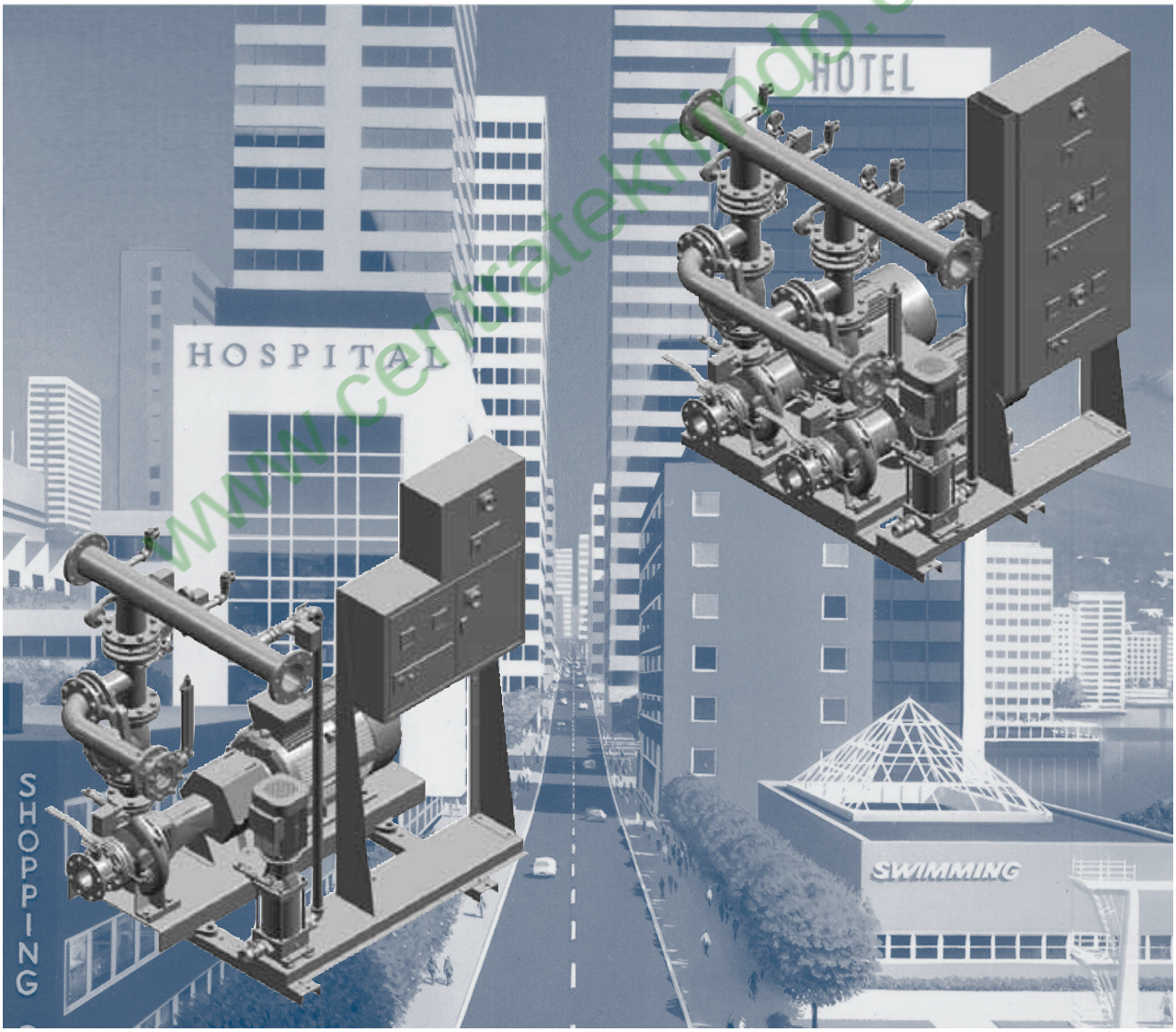
# Hydro UNI-NB/NK

## Grundfos fire systems

Fire pump sets to UNI 9490 and 10779 standards
with electrically powered pumps (50 Hz)





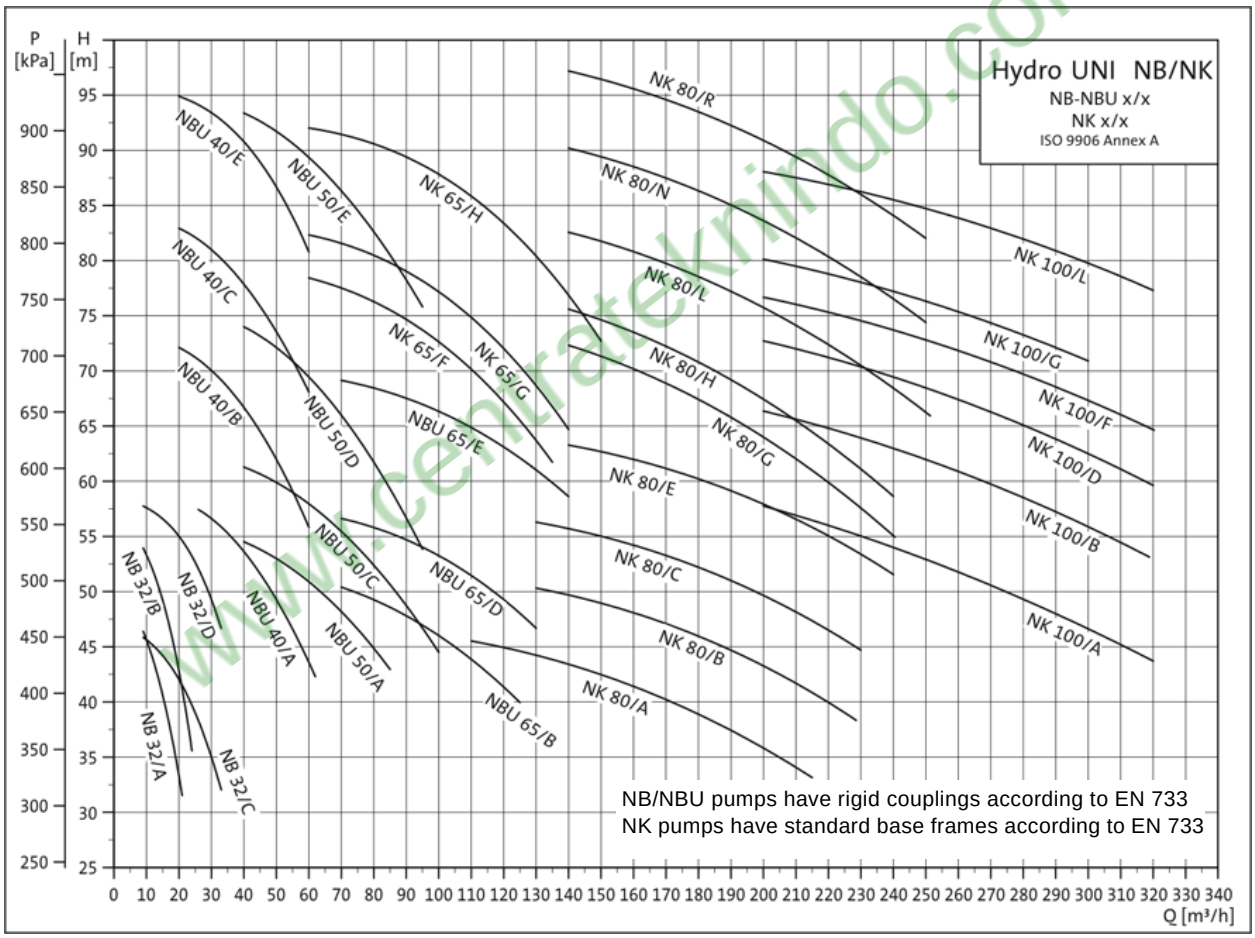
# Contents

# Applications

Grundfos Hydro UNI-NB/NK automatic fire pump sets are typically used in fire fighting applications for supplying water to fire hose reels, fire hydrants or sprinkler systems.

The Hydro UNI-NB/NK fire pump sets described in this data booklet cover all flow rates up to 320 $m^3$/h and heads up to 100 m. Fire pump sets with a performance exceeding this range are available on request. Please contact Grundfos.

## Performance range

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## General introduction

Hydro UNI-NB/NK automatic fire pump sets are designed according to the Italian standards UNI 9490 of April 1989 and UNI 10779 of May 2002, both covering fire fighting equipment.

Please note that in the following the term ‘unit’ covers the fire pump set described in this data booklet, whereas the term ‘system’ covers the fire hydrants or sprinkler systems of a building.

In accordance with UNI 9490, Hydro UNI-NB/NK units with one duty pump are designed for fire systems of the low hazard class type, units with two duty pumps are designed for fire systems of the ordinary hazard class type.

Hydro UNI-NB/NK are normally supplied as factory-tested units equipped with

- One or two Grundfos NB or NK single-stage, end-suction electrically powered duty pumps.
  In two-pump units
  - each of the two pumps must be capable of achieving the required performance (one pump is a standby pump),
  - the two pumps must be supplied from separate power supplies to ensure continued operation in case of power cut or failure to the first duty pump.
  See *Duty pumps* on page 11.
- One Grundfos CR multistage electrically powered jockey pump. The jockey pump is also connected to the common discharge manifold.
  The jockey pump automatically maintains pressure in the system in case of leaks and prevents the duty pumps from starting up when not required.
  See *Jockey pump* on page 13.
- One separate control panel for each pump.
  See *Control panels* on page 15.

All the pumps are connected in parallel to a common discharge manifold and fitted with hydraulic components and fittings.

The units are designed for easy reading of gauges and signals.

The pumps are prepared for the connection of a priming circuit in the case of suction lift installation.

In order to prevent damage caused by overheating due to possible operation against closed isolating valve, the pumps are equipped with connection for a bypass.

To ensure correct operation of the jockey pump, the unit must be equipped with at least two 24-litre, PN-16 diaphragm tanks. Additional tanks may be connected to a port fitted for the purpose in the discharge manifold.

A common suction manifold is available as an option. A unit with suction manifold is called complete (CPL) version.

## Other fire pump sets for fire fighting

Apart from the Hydro UNI-NB/NK, the Grundfos fire system product range according to UNI standards includes

- **Hydro Syntex-NB/NK** fire pump set with two horizontal, single-stage, end-suction pumps (NB/NK) of which one is electrically powered and one is diesel powered
- **Hydro Diesel-NB/NK** fire pump set with one (or two) horizontal, single-stage, end-suction, diesel powered pumps (NB/NK)
- **Hydro UNI-CR** fire pump set with one or two vertical, multistage, in-line, electrically powered pumps (CR).

# Identification

## Type key

| Type designation Hydro UNI-NB/NK | 9 | B | A | A | A | 001 |
|---|---|---|---|---|---|---|

Fixed number

**Fire pump set**

B HUNI NB/NK: One or two NB or NK pumps with one jockey pump

**Hydraulic variants**

A Standard version
B With suction manifold (CPL version)
C With discharge manifold dimensioned for two pumps operating simultaneously
D Variant B + variant C
E Without flowmeter and test circuit
F* Bronze impeller in duty pumps
G Stainless steel manifold
H CPL version with stainless steel manifolds

**Duty pump variants**

A Standard version
B Programmable and automatic test of duty pump(s)
E Timer on duty pump (according to UNI 10779)
H Timer and automatic test of duty pump (according to UNI 10779)
L Starting method differs from standard (DOL or SD)

**Jockey pump variants**

A CR 3 pump
2 CR 5 pump
5 CR 10 pump
6 CR 15 pump

Serial number (consecutive numbering)

* Optional except for NK 80/M, NK 80/P, NK 100/C and NK 100/E, see *Material specification* on page 11.

## Operation

The jockey pump keeps the system pressurized and compensates for leaks in order to prevent the duty pumps from starting up unnecessarily.

When required, the first duty pump will be started automatically in order to provide the flow rate described in operating conditions in this section.

The second duty pump is a standby pump guaranteeing the supply of water to the fire system in case of power failure or any other failure of the first duty pump.

Each pump is controlled by a separate controller.

## Starting method

Duty pumps up to and including 7.5 kW are started direct-on-line (DOL). Duty pumps of 11 kW and upwards are star/delta-started (SD) in order to avoid line overloads, stress on rotating parts and wear of system components.

## Monitoring

In accordance with the requirements of UNI 9490, a remote alarm device must be connected to the duty pump control panel to indicate

- power failure
- phase failure
- pump start-up.

Furthermore, the alarm device must

- be equipped with a buffer battery
- give both audible and visual alarm signals
- be installed in manned premises, see *Accessories* on page 10.

## Automatic operation

If the pressure in the system drops, the pumps will start up automatically and feed the system with water. The starting sequence is

1. jockey pump
2. first duty pump and, if necessary,
3. second duty pump.
   **Note:** The second duty pump is intended to start up if there is a failure of the first duty pump.

Only the jockey pump is stopped automatically by means of a pressure switch when the upper pressure limit is reached.

The duty pumps can only be stopped manually by means of a push-button on the pump control panel. Alternatively, in fire hydrant systems the duty pumps may be stopped automatically by a timer (available as an accessory). The timer may be set to start counting from twenty minutes after water consumption has ceased. See *Accessories* on page 10.

Special "MAN-0-AUT" selector switches on the pump control panels allow each individual pump to be started and stopped at any time, see *Control panels* on page 15.

## Test operation

In accordance with UNI 9490 test operation must be used during initial start-up and for periodic control testing.

The duty pumps can be tested one at a time by turning the selector switches on the control panel of the relevant pump to position “MAN”.

Open the test circuit isolating valve and press the ON-button on the pump to be tested in order to simulate water consumption and pumping.

It will now be possible to measure

- FLOW RATE - by means of a flowmeter fitted in the test circuit
- HEAD - by means of a pressure gauge fitted in the discharge pipe
- SUCTION HEAD - by means of a pressure and vacuum gauge fitted in the suction pipe
- Input CURRENT - by means of an ammeter
- Mains VOLTAGE - by means of a voltmeter.

# Unit functions

## Operating conditions

| | |
|---|---|
| Flow rate | Up to 320 $m^3$/h per pump. |
| Operating pressure | Up to 10 bar. |
| Performance | According to ISO 9906 A. |
| Rated pressure | PN 16 - for components and materials. |
| Pumped liquid | Water without solids or fibres. |
| Water temperature | >0°C to +50°C. |
| Ambient temperature | 10°C to +40°C. |
| Suction lift (with degassed water) | $H = p_b \times 10.2 - NPSH - H_f - H_s$<br>H = suction lift in m<br>$p_b$ = barometric pressure in bar<br>NPSH* = net positive suction head in m<br>$H_f$ = friction loss in suction pipe in m<br>$H_s$ = safety margin (min. 0.5 m).<br>* For information on NPSH for the pump, please contact Grundfos. |
| Max. inlet pressure | 6 bar |
| Electrical power | Up to 90 kW + jockey pump. |
| Starting method | Direct-on-line (DOL) up to and incl. 7.5 kW<br>star/delta (SD) for 11 kW and upwards. |
| Electricity supply | 3 x 400 V, 50 Hz, N, PE. |

# Unit configuration

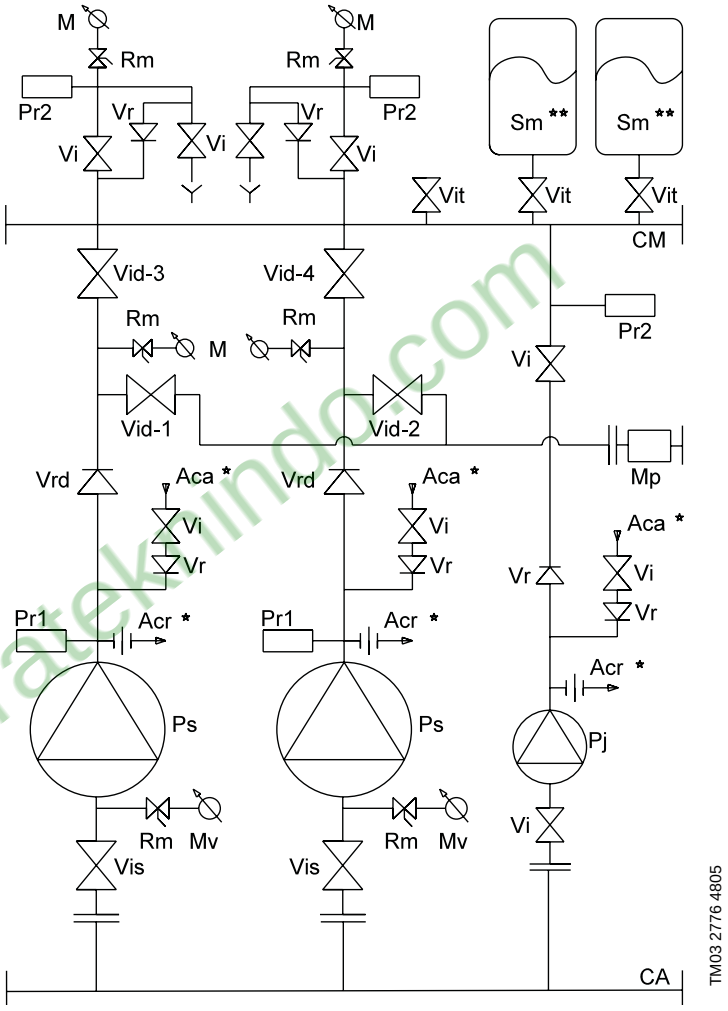
## System diagram

**Configuration (example):**
**Two duty pumps + one jockey pump**

| Ref. | Description |
|---|---|
| Aca | Priming circuit connection * |
| Acr | Bypass connection * |
| CA | Suction manifold (optional) |
| CM | Discharge manifold |
| M | Pressure gauge |
| Mp | Flowmeter |
| Mv | Pressure and vacuum gauge |
| Pj | Jockey pump |
| Pr1 | Pressure switch (discharge pressure) |
| Pr2 | Pressure switch (cut-in, cut-out of pump) |
| Ps | Duty pump |
| Rm | Multi-function valve for pressure gauge |
| Sm | Diaphragm tanks, 24 litres, PN 16 (accessory) ** |
| Vi(t) | Isolating valve (ball valve) |
| Vid | Isolating valve on discharge side (butterfly type) |
| Vis | Isolating valve on suction side (ball or butterfly type) |
| Vr | Spring-loaded non-return valve |
| Vrd | Inspectable non-return valve on discharge side of duty pump |

* Connections to be made during installation

** During installation, fit at least two 24-litre diaphragm tanks, PN 16, see *Accessories* on page 10 and *Installation* on page 16.





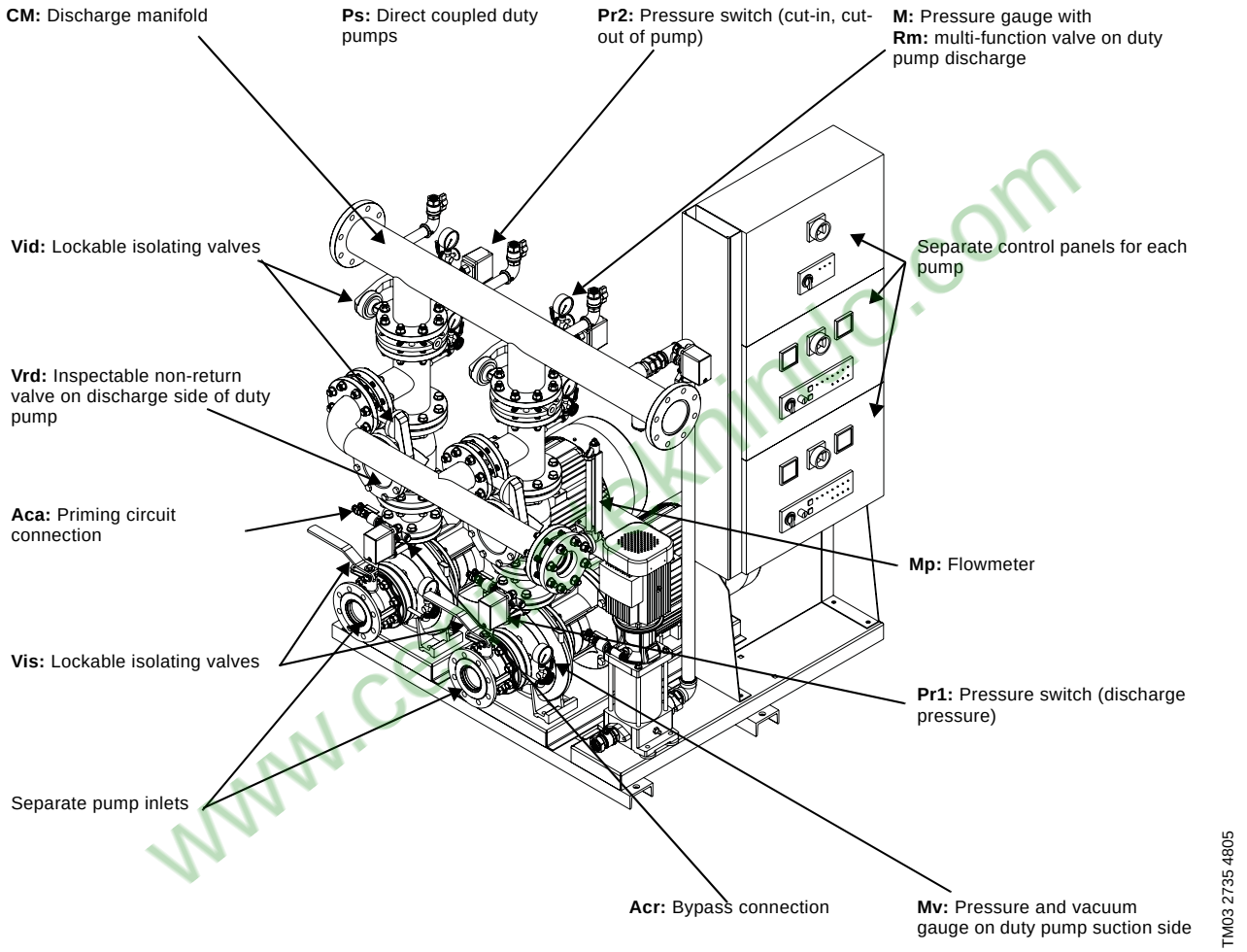

## Components and materials

| Ref. | Description | Quantity | Materials |
|---|---|---|---|
| Pj | Jockey pump (CR 3) | 1 | Grundfos vertical multistage centrifugal pump; vital parts are made of stainless steel |
| Ps | Duty pump (NB/NK) | 1 or 2 | Grundfos cast iron, single-stage, end-suction pump |
| CM | Discharge manifold | 1 | Galvanised steel, flanged, PN 16 |
| CA | Suction manifold (optional) | 1 | Galvanised steel, flanged, PN 16 |
| Vi | Isolating valves | see diagram | Ball type, nickel-coated brass housing, threaded, PN 16 |
| Vid | Isolating valves (discharge side of duty pumps) | 2 per pump | Cast iron butterfly type, lockable handle, flanged, PN 16 |
| Vis | Isolating valves (suction side of duty pumps) | 1 per pump | Full bore ball type, cast iron housing, lockable handle, flanged, PN 16, or butterfly type (for NK 100 pumps refer to Vid component) |
| Vr | Spring-loaded non-return valves | see diagram | Polymer or brass, PN 16 |
| Vrd | Inspectable non-return valves (discharge side of duty pumps) | 1 per pump | Flap type with rubber seal, flanged, PN 16 |
| Pr | Pressure switches | 2 per pump | NBR diaphragm, contacts of silver-plated copper, PN 16 |
| M | Pressure gauges | 2 per pump | 10 bar full scale deflection, PN 16, ¼" attachment, glycerine bath |
| Mv | Pressure and vacuum gauge | 1 per pump | –0.5 - 6 bar, PN 16, ¼" attachment |
| Mp | Flowmeter for direct reading | 1 | Flange type, calibrated flowmeter, PN 16 |
| | Control panels | 1 per pump | Painted metal cabinet, IP 54 |
| | Brackets for control panels | 2 pairs | Galvanised steel |
| | Base frame | 1 | Galvanised steel (for Hydro UNI-NB units) |
| | | 1 set | Galvanised/painted steel (for Hydro UNI-NK units) |

# Unit configuration

## Configuration drawing

The following drawing shows the standard configuration of a Hydro UNI-NB/NK unit with two duty pumps. For any changes or adaptations to specific requirements or additions of optional components and/or accessories not included in our standard scope of supply, please consult Grundfos.




**Hydro UNI-NB** units are normally supplied pre-assembled on a common base frame. The pumps are fitted by means of bolts and the control panels are fastened on stands.

**Hydro UNI-NK** units are normally supplied in separate macro-components. This is due to the size and weight of individual parts and to facilitate shipping, handling and positioning at the installation site. The separate components are normally

- duty pump on its own base frame with pre-installed hydraulic components
- discharge manifold with accessories fitted
- test circuit manifold with isolating valves and a flow-meter
- pump control panels on separate stands
- jockey pump fastened to the same base frame as the control panels.

## Operating pressure

Hydro UNI-NB/NK units supply a maximum pressure of 10 bar as specified in the UNI 9489 standard. But the components and materials used are capable of operating at a pressure of 16 bar. The choice of materials provides operational compatibility with respect to two aspects stipulated in the relevant standards:

- UNI 10779 specifies a rated pressure of system components for connection to the fire brigade fire engine of at least 1.2 Mpa (12 bar).
- UNI 9490 and UNI 10779 specify a minimum pressure for fire systems of at least 14 bar when exposed to hydrostatic test during start-up and during periodic functional tests twice a year at minimum time spans of five months.

## Hydraulic components

A manifold is fitted on the pump discharge side. An isolating valve and a non-return valve are fitted between the discharge manifold and each individual pump. An isolating valve is fitted on the suction port of each duty pump to allow the connection of separate suction pipes.

As an option, a Hydro UNI-NB/NK unit may be fitted with a discharge manifold sized for simultaneous operation of both duty pumps and/or a suction manifold (CPL version).

To facilitate installation, all the pumps are fitted with components designed for the connection of a priming circuit in the case of suction lift installation.

Further components can be identified in *System diagram* on page 8.

In order to prevent damage caused by overheating due to possible operation against closed isolating valve, the pumps are equipped with connection for a bypass.

## Inspection and checks

As prescribed by UNI 9490, check the performance of the unit at start-up and during periodic functional tests prescribed by the standard. The pressure delivered by the unit is equal to the difference between the values read on the pressure gauge on the discharge and the pressure/vacuum gauge on the suction side.

Carry out the flow rate measurements required during start-up and regular checks by directly reading a flowmeter fitted in a test manifold with isolating valves. Flowmeter configuration and measurement precision should be as required by UNI 9490.

If determined by specific system requirements, the test manifold and flowmeter may be fitted reversely to the factory configuration during installation.

## Jockey pump options

CR 3 pumps are standard as jockey pump. The following CR pump versions are also available as jockey pumps for Hydro UNI-NB/NK units:

- CR 5, CR 10 or CR 15, see *Jockey pump* on page 13 and *Electrical data and performance data of jockey pumps* on page 19.

## Accessories

The following accessories are available for Hydro UNI-NB/NK units:

- timers to enable automatic duty pump cut-out when pressure is maintained above the pump cut-in pressure for at least 20 minutes (according to UNI 10779, this only applies to systems with fire hydrants);
- 24-litre, PN 16 diaphragm tanks with replaceable diaphragm;
- remote alarm devices for indication of
  - power failure
  - phase failure
  - start-up of duty pumps,
  with audible and visual alarm signals, equipped with buffer battery (according to UNI 9490);
- 220 V locked power socket with fuses;
- device for periodic, automatic, programmable testing of duty pumps with indication of missing pump performance (not required by UNI 9490).

In case you need other components or accessories, please contact Grundfos.

## Versions on request

The following Hydro UNI-NB/NK versions are available on request:

- with direct-on-line starting in stead of the standard star-delta starting (from 11 kW and upwards)
- without flowmeter circuit
- with flowmeter supplied separately
- with discharge manifold designed for simultaneous operation of both duty pumps
- with end-suction pumps of other sizes than described in this data booklet
- with performance levels exceeding the range described in this data booklet
- with more than two duty pumps
- with suction manifold (CPL version)
- with AISI 316 (DIN W.-Nr. 1.4401) stainless steel manifolds
- with bronze impeller in duty pumps, see *Material specification* on page 11.

## General description of duty pumps

The duty pumps (or supply pumps, as they are called in UNI 9490) are designed in accordance with UNI 9489 with specific reference to

- performance tolerance (according to ISO 9906 Annex A)
- value for NPSHR
- maximum head.

**NB, NBU pumps** are of the close-coupled type.

**NK pumps** are of the long-coupled type.

**All pumps** are end-suction, single-stage, centrifugal pumps with volute casing, axial suction port and radial discharge port, with flanges complying with DIN 2533.

Rated performance and main dimensions comply with DIN/EN 733 (formerly DIN 24255).

All pumps are dynamically balanced to guarantee reliability and durability.

## Operating conditions

| | |
|---|---|
| Water temperature | >0°C to +140°C (standard) |
| Maximum operating pressure | 1.6 Mpa (16 bar) up to +120°C |
| Maximum inlet pressure | Equal to the difference between 16 bar and the maximum head of the specific pump model |
| Suction lift | Influenced by actual NPSH value (max. 5.5 m), see *Operating conditions* on page 7 |

### Pumped liquids

Thin, clean, non-explosive liquids, not containing solids or fibres and mechanically and chemically non-aggressive to the pump materials.

### Maximum operating pressure

The DIN/EN 733 standard requires 1.0 MPa (10 bar). However, NB and NK are built to PN16 requirements, for a pressure of 1.6 Mpa (16 bars).

## Description of construction

### Impeller

The impeller is of the double-curved, closed type with smooth blades ensuring high efficiency.

All impellers are hydraulically balanced to compensate for the axial thrust and to minimise the effect of load on the shaft and seal.

### Mechanical shaft seal

The standard dimensions of the mechanical shaft seal comply with DIN 24960 and is a Grundfos type BAQE.

A channel in the pump head leading from the discharge side to the shaft seal chamber ensures a constant flow of pumped liquid for cooling and lubrication.

The BAQE seal is not suitable for liquids containing abrasive particles. Modified versions are available as options.

### Bearing bracket (NK)

NK pumps include a bearing bracket with two sturdy lubricated-for-life ball bearings.

### Material specification

| Pos. | Component | Material |
|---|---|---|
| 1 | Pump housing | Cast iron 250 UNI - ISO 185 |
| 2 | Pump head | Cast iron 250 UNI - ISO 185 |
| 3 | Impeller | Cast iron 250 UNI - ISO 185 |
| 3 | Impeller * | Bronze GCuSn5Zn5Pb5 - UNI 7013/8A-72 |
| 4 | Pump shaft (NB) | Stainless steel AISI 304 - UNI 6900/71 |
| 5 | Pump shaft (NK) | Stainless steel AISI 420 - UNI 6900/71 |
| 6 | Mechanical shaft seal | Carbon/Silicon carbide - EPDM |
| 7 | O-ring | FPM |
| 8 | Spacer | Stainless steel AISI 304 - UNI 6900/71 |
| 9 | Cover | Cast iron 250 UNI - ISO 185 |
| 10 | Air vent screw | Stainless steel AISI 304 - UNI 6900/71 |

* Optional except for NK 80/M, NK 80/P NK 100/C, NK 100/E, see *Electrical data and performance data of duty pumps* on page 18.

### Sectional drawings

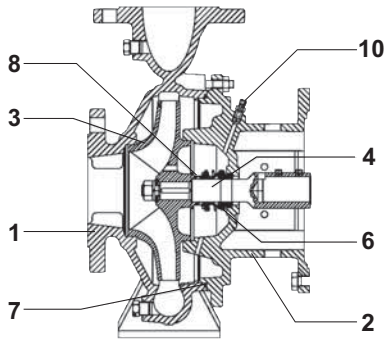



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**Fig. 1** Sectional drawing, NB pump

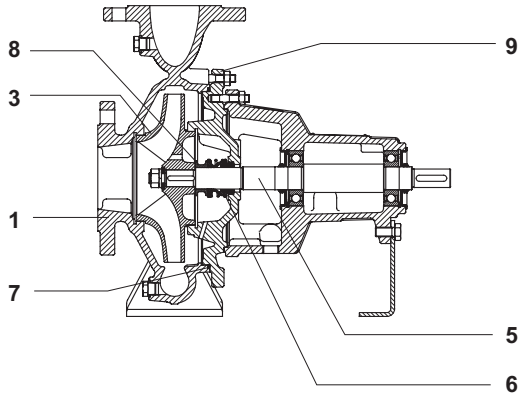


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**Fig. 2** Sectional drawing, NK pump

### Feet, coupling and design

**NB pumps** are equipped with feet on the pump housing.

**NBU pumps** are equipped with feet on the pump housing and on the motor.

**NK pumps** are equipped with feet on the pump housing, on the bearing bracket and on the motor. All parts are fitted to a steel base frame according to DIN 23661, with feet fastened to the base frame by means of bolts.

NB, NBU pumps are close-coupled to the electric motor via a rigid cylindrical coupling (stub shaft concept).

NK pumps are long-coupled to the electric motor via a direct coupling.

NB, NBU pumps are of the back pull-out design enabling removal and dismantling of the motor, impeller and shaft seal without disturbing the pump housing or pipework.

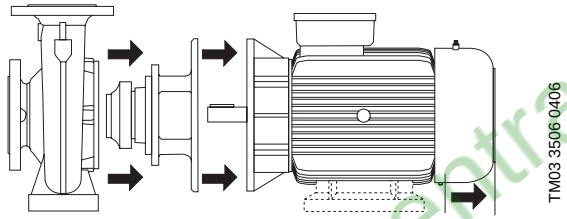



**Fig. 3** Schematic view of back pull-out principle of NB, NBU pump (NBU with feet on motor)

NK pumps are also of the back pull-out design enabling removal and dismantling of the motor, bearing bracket, impeller and shaft seal without disturbing the pump housing or pipework.

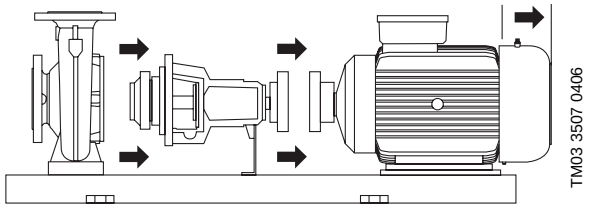



**Fig. 4** Schematic view of back pull-out principle of NK pump

## Motor

The motors of the duty pumps are sized according to the specifications of UNI 9490, specifically with regard to the power required at any of the performance values within the recommended fields of use, see *Electrical data and performance data of duty pumps* on page 18.

The motors are totally enclosed, fan-cooled, squirrel-cage standard motors with main dimensions according to IEC and DIN standards.

| | |
|---|---|
| Mounting designations according to ISO 34-7 | NB: B5<br>NBU: B3 and B5<br>NK: B3 |
| Supply voltage | 3 x 400 V, 50 Hz |
| Enclosure class | IP 55 |
| Insulation class | F, according to IEC 85 |
| Ambient temperature | Max. +40°C |
| Electrical tolerances | Compliant with VED 0530 standards |

## Product description

A jockey pump serves the purpose of maintaining the pressure in the fire system. The jockey pump compensates automatically for any loss of pressure caused by leaks and thus prevents the duty pumps from starting unnecessarily.

According to the terms of UNI 9490, the jockey pump does not contribute to the total performance required of the unit (duty pumps).

The standard version of the unit is equipped with a CR 3 jockey pump.

If a higher flow rate is required, other jockey pump models such as CR 5, CR 10 and CR 15 are available as an option, see *Electrical data and performance data of jockey pumps* on page 19.

Grundfos CR pumps are vertical multistage centrifugal pumps with a standard Grundfos motor coupled to the pump shaft by means of a rigid coupling. They are highly efficient and offer great mechanical and operational reliability.

The pump has a base and a pump head. The chamber stack and outer sleeve are secured between the base and pump head by means of staybolts. The base features in-line suction and discharge ports, with Grundfos oval and DIN flanges.

The vital parts of the pump, such as shaft, outer sleeve, chambers and impellers are made of stainless steel.

### Features and benefits

The vertical, multi-stage CR pumps from Grundfos offer the following features and benefits:

| | |
|---|---|
| High efficiency | Low power consumption and, consequently, low costs during automatic duty |
| Low NPSH | High suction flow |
| Air evacuation | Minimises damage in the event of operation with uneven suction flow |
| Mechanical cartridge shaft seal | Allows inspection and routine maintenance to be carried out conveniently on site without removing the motor or dismantling the pump |
| Outer sleeve sealed by O-rings | Offers high resistance to pressure shocks and is insensitive to temperature fluctuations |
| Reinforced stop ring | For heavy-duty, reliable impeller rotation |
| Silicon carbide bearing rings | High durability as they are more resistant to wear and the effects of rotation with uneven lubrication |

## Operating conditions

| | |
|---|---|
| Water temperature | 0°C to +90°C (standard) |
| Maximum operating pressure | 1.6 Mpa (16 bar) |
| Maximum inlet pressure | Equal to the difference between 16 bar and the maximum head of the specific pump model |
| Suction lift | Influenced by NPSH value (max. 3 m), see also *Operating conditions* on page 7 |

### Pumped liquid

Thin, clean, non-explosive liquids, not containing solids or fibres and mechanically and chemically non-aggressive to the pump materials.

## Description of construction

### Mechanical shaft seal

The standard dimensions of the mechanical shaft seal comply with DIN 24960 and is a Grundfos type HQQE. The shaft seal is not suitable for liquids containing abrasive particles. Modified versions are available as options.

### Material specification

| Pos. | Component | Material |
|---|---|---|
| 1 | Pump head * | Cast iron EN 200 ASTM 25B |
| 2 | Mechanical cartridge shaft seal | Tungsten carbide/tungsten carbide, EPDM |
| 3 | Pump shaft | Stainless steel AISI 316 / UNI 6900/71 |
| 4 | Impeller | Stainless steel AISI 304 / UNI 6900/71 |
| 5 | Chamber | Stainless steel AISI 304 / UNI 6900/71 |
| 6 | Pump base * | Cast iron EN 200 ASTM 25B |
| 7 | Bearing ring | Silicon carbide |
| 8 | Neck ring | PTFE |
| 9 | Outer sleeve | Stainless steel AISI 304 / UNI 6900/71 |
| 10 | Coupling guard | Stainless steel AISI 304 / UNI 6900/71 |
| | Elastomers | EPDM |

* Cast iron parts corrosion-proofed by electro-coating

### Sectional drawing

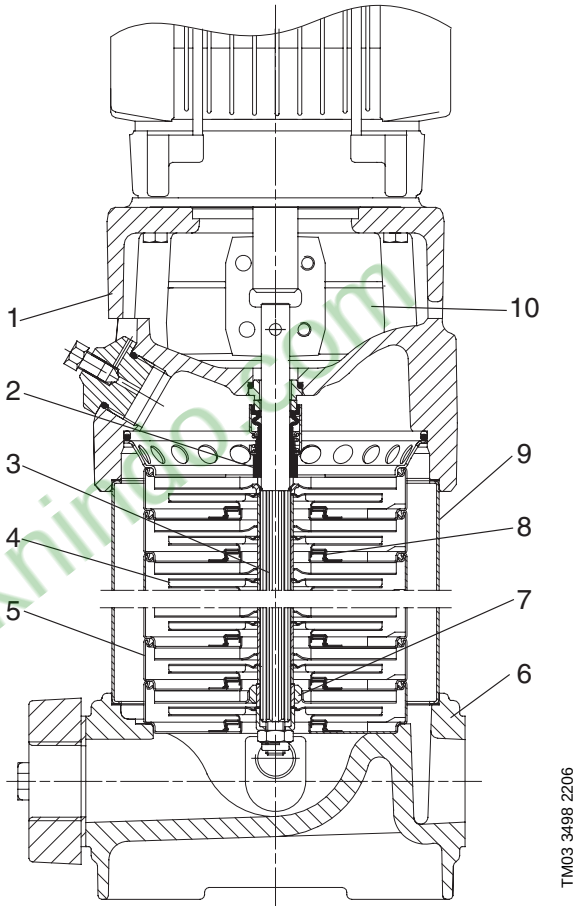



**Fig. 5** Sectional drawing CR pump

### Electric motor

Grundfos CR pumps are equipped with a Grundfos MG three-phase, two-pole, squirrel cage, totally enclosed, fan-cooled motor with dimensions complying with IEC and DIN standards.

| | |
|---|---|
| Mounting designation | V 18 up to and incl. 4 kW<br>V 1 for 5.5 kW and upwards |
| Supply voltage | 3 x 400 V, 50 Hz |
| Enclosure class | IP 55 |
| Insulation class | F, according to IEC 85 |
| Ambient temperature | Max. +40°C |
| Electrical tolerances | To IEC 34/EN 60034 |

## Control panels of duty and jockey pumps

The duty pumps and the jockey pump are controlled via separate control panels allowing easy reading of gauges and signals from their front doors. The starting method for motors with rated power up to and including 7.5 kW is direct-on-line (DOL); in order to avoid line overload, stress on rotating parts and wear of system components the starting method is star-delta (SD) for motors with power ratings from 11 kW and upwards. Other stating methods, such as DOL instead of SD, are available as options. The table below lists the components and functions available in the control panels. Ref. refers to Fig. 6 showing the front door of a control panel of a duty pump which is designed in compliance with UNI 9490 requirements.

| Ref. | Component | Duty pump | Jockey pump |
|---|---|---|---|
| | Metal cabinet IP 54 | ● | ● |
| A | Mains switch, lockable | ● | ● |
| | Relay | | ● |
| | Fuse and contactor circuit | ● | ● |
| | Transformer with fuses for auxiliary circuit | ● | ● |
| B | Ammeter | ● | |
| C | Voltmeter | ● | |
| D | Voltmeter selector 0-L1/L2-L2/L3-L1/L3-0 | ● | |
| E | MAN-0-AUT selector switch | ● | ● |
| | Selector switch with key, only removable when in position AUT | ● | |
| F | Start-stop buttons for test or manual operation | ● | |

| Ref. | Component | Duty pump | Jockey pump |
|---|---|---|---|
| | **Indicator lights** | | |
| | Mains voltage on | | ● |
| G | Auxiliary circuit supply on | ● | |
| H | Pump ready for operation | ● | |
| I | Pump operating | ● | ● |
| L | Voltage to motor (two LEDs) | ● | |
| M | Voltage or phase failure (two LEDs) with relay and buffer battery | ● | |
| | Relay operation | | ● |
| | **Other outputs** | | |
| | Potential-free NO/NC-contact for remote indication of power and/or phase failure. | ● | |
| | Potential-free NC-contact for remote indication that pump is operating and pressure supplied. | ● | |

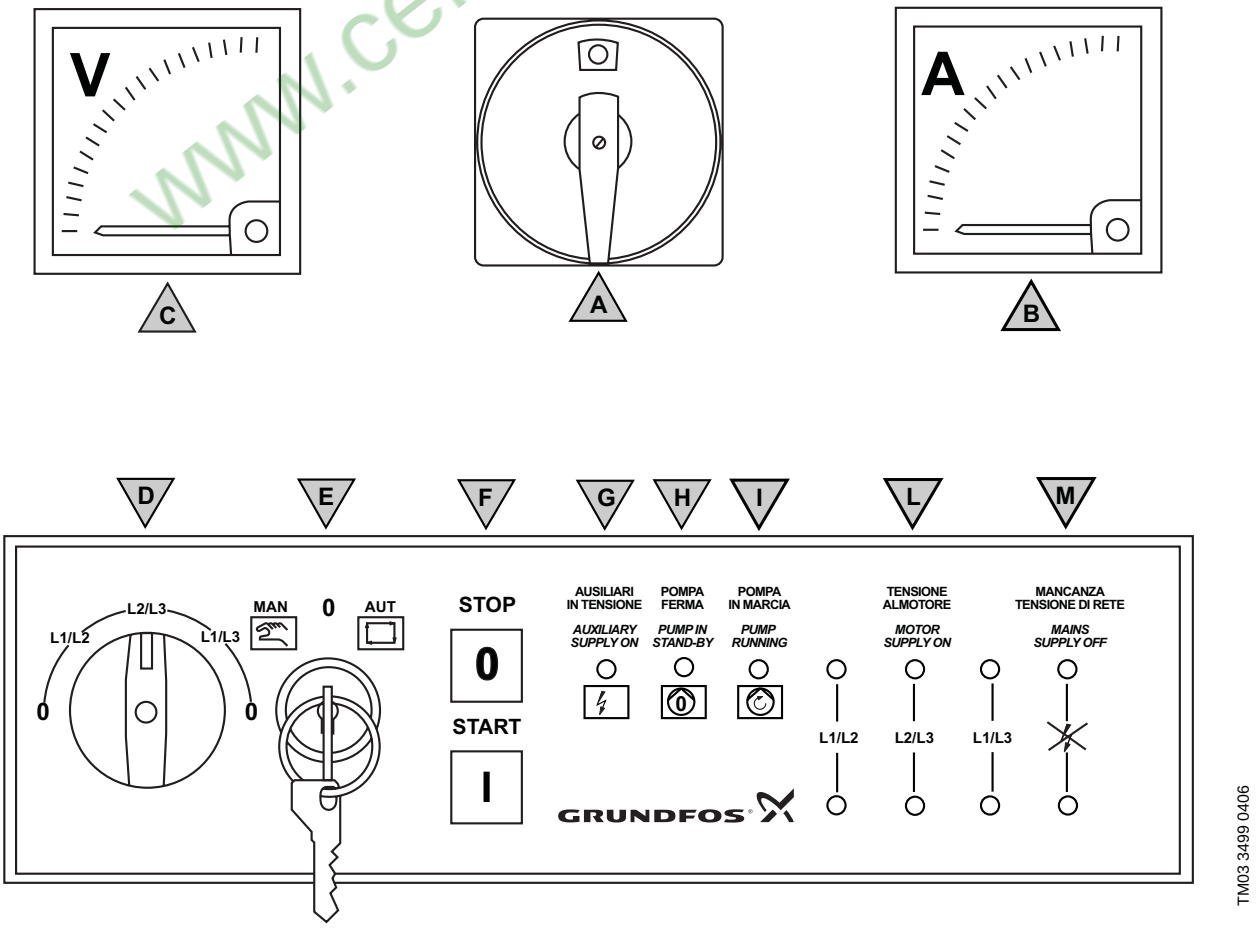



**Fig. 6** Front door of control panel of duty pump

## Requirements to the room

The UNI 9490 standard stipulates that a fire pump set for fire fighting must be located in a room designed exclusively for fire systems.

The UNI 10779 standard on fire hose reel and hydrant systems allows the installation of a fire pump set for fire fighting in rooms shared with other engineering systems provided the fire load in the room is low.

The Hydro UNI-NB/NK units must be installed in a weatherproof, frost-free, well-ventilated room so as to ensure that the electric motors are satisfactorily cooled. According to UNI 9490 the ambient temperature must be below +40°C when the pumps are operating at maximum load.

The unit must be placed with sufficient clearance in front of it and at the sides for inspection, testing and maintenance. The unit must be placed on a flat, even surface, such as a concrete floor or foundation. If the unit is not equipped with vibration dampers, it may be bolted direct to the floor or foundation.

## Requirements to the pipework

The pipes connected to the unit must be of appropriate size. Provide expansion joints on the discharge manifold - and the suction manifold, if fitted - to prevent resonance or mechanical stress due to incorrect alignment.

Always install pipe hangers on both the discharge and suction sides to ensure that the weight of the pipes does not rest on the manifold (including the suction manifold, if fitted) or on the pump.

To facilitate installation, the pumps are fitted with components designed for the connection of a priming circuit in the case of suction lift conditions.

To ensure the due precision of the flowmeter, follow the instructions in the installation and operating instructions when connecting the flowmeter downstream.

If determined by specific system requirements, the test manifold and flowmeter may be fitted reversely to the factory configuration during installation.

To ensure correct operation of the jockey pump, the unit must be equipped with at least two 24-litre, PN 16 diaphragm tanks, see *Product description* on page 4, *System diagram* on page 8 and *Accessories* on page 10. If necessary, additional diaphragm tanks may be connected to the discharge manifold.

## Requirements to control panels

To meet the requirements of UNI 9490, connect the duty pump control panels with remote alarm equipment to indicate power, phase failure and start-up of pumps. The alarm equipment should

- give audible and visual signals
- be equipped with a buffer battery
- be installed in a manned area, see *Accessories* on page 10.

## How to choose a unit

In a Hydro UNI-NB/NK unit, the second duty pump (if installed) is designed to act as a back-up to the first duty pump, see *Product description* on page 4 and *Electrical data and performance data of duty pumps* on page 18. Both pumps therefore supply the same performance.

When selecting a unit, consider certain criteria such as size of rated flow, requirements and specifications laid down by the system designer, local authority or regulatory requirements etc.

Using the specific performance required by the fire system as reference, proceed as follows:

- Required **flow: 50 $m^3$/h.**
  Go into the tables on page 18 under the heading “Flow”. Find the required flow, 50 $m^3$/h. This flow is the optimum operating flow. The unit type most effectively meeting this requirement is **NBU 40**.
  Find any required flow in the grey background ranges under the heading “Flow” in the tables on page 18 (Contact Grundfos if you need to refer to specific technical documentation).

| Duty pump NBU 40 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 60 | |
| | | | | Head [m] | | | | | | | | | | |

- Required **head: 60 m**.
  From the 50 $m^3$/h move down till you come to the part of the table with the heading “Head”. Move further downwards till you come to a figure equal to or slightly below/above the required head, in this case 62. The unit best meeting this requirement is the 15 kW **HUNI NBU 40/B** which supplies a head of 62 m.

| Duty pump NBU 40 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 60 | |
| | | | | Head [m] | | | | | | | | | | |
| **HUNI NBU 40/B** | **15** | **26** | **SD** | 73 | 71 | 70 | 69 | 68 | 66 | 64 | 62 | 60 | 56 | **A** |

- **Jockey pump**
  The column on the far right of the duty pump performance tables states a reference letter for the jockey pump. If you take this reference letter to the tables on page 19, you will find the jockey pump for your unit - in this case a 1.1 kW CR 3-15.

| Jockey pump | Jockey pump CR 3 | | | | Jockey pump flow [$m^3$/h] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 1.7 | 2.1 | 2.5 | 2.9 | 3.3 | 3.7 | 4.1 | 4.5 |
| | | | | | Jockey pump head [m] | | | | | | | | |
| **A** | CR 3-15 | 1.1 | 2.6 | DOL | 98 | 88 | 83 | 78 | 71 | 64 | 55 | 45 | 34 |

## Electrical data and performance data of duty pumps

The electrical data stated in the following tables refer to the duty pump. To select a unit, refer to the tables showing the electrical and performance data of a single duty pump (according to ISO 9906 Annex A).

| Duty pump NB 32 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NB 32/A | 4 | 8 | DOL | 51 | 46 | 44 | 41 | 36 | 31 | | | | | A |
| HUNI NB 32/B | 5.5 | 11 | | 58 | 54 | 52 | 49 | 46 | 41 | 36 | | | | A |
| HUNI NB 32/C | 5.5 | 11 | | 47 | 46 | 45 | 44 | 43 | 42 | 40 | 37 | 35 | 32 | A |
| HUNI NB 32/D | 7.5 | 15 | | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 51 | 49 | 46 | A |

| Duty pump NBU 40 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 60 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NBU 40/A | 11 | 20 | SD | 57 | 57 | 56 | 55 | 54 | 53 | 51 | 49 | 47 | 44 | A |
| HUNI NBU 40/B | 15 | 26 | | 73 | 71 | 70 | 69 | 68 | 66 | 64 | 62 | 60 | 56 | A |
| HUNI NBU 40/D | 18.5 | 32 | | 83 | 82 | 81 | 80 | 79 | 77 | 75 | 73 | 71 | | B |
| HUNI NBU 40/E | 22 | 39 | | 96 | 94 | 93 | 92 | 91 | 90 | 88 | 86 | 84 | 81 | B |

| Duty pump NBU 50 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NBU 50/A | 15 | 26 | SD | 55 | 52 | 51 | 49 | 48 | 47 | 45 | 43 | | | A |
| HUNI NBU 50/B | 18.5 | 32 | | 62 | 59 | 58 | 57 | 56 | 54 | 52 | 51 | 49 | 47 | A |
| HUNI NBU 50/D | 22 | 39 | | 74 | 71 | 69 | 68 | 66 | 64 | 62 | 59 | 57 | 54 | A |
| HUNI NBU 50/E | 30 | 53 | | 93 | 91 | 89 | 88 | 86 | 84 | 82 | 80 | 78 | 76 | B |

| Duty pump NBU/NK 65 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 90 | 100 | 110 | 120 | 125 | 130 | 135 | 140 | 150 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NBU 65/A | 18.5 | 32 | SD | 51 | 48 | 46 | 44 | | | | | | | A |
| HUNI NBU 65/C | 22 | 39 | | 56 | 55 | 53 | 51 | 49 | | | | | | A |
| HUNI NBU 65/E | 30 | 53 | | 69 | 68 | 67 | 65 | 63 | 62 | 61 | 60 | 59 | | A |
| HUNI NK 65/F | 37 | 64 | | 79 | 75 | 73 | 70 | 67 | 66 | 64 | 62 | | | A |
| HUNI NK 65/G | 37 | 64 | | 83 | 79 | 77 | 75 | 72 | 71 | 69 | 67 | 65 | | B |
| HUNI NK 65/H | 45 | 78 | | 92 | 90 | 88 | 86 | 83 | 82 | 80 | 79 | 77 | 73 | B |

| Duty pump NK 80 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 140 | 155 | 170 | 185 | 200 | 215 | 230 | 240 | 250 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NK 80/A | 30 | 53 | SD | 46 | 43 | 42 | 40 | 38 | 36 | 33 | | | | A |
| HUNI NK 80/B | 37 | 64 | | 51 | 50 | 49 | 47 | 45 | 43 | 41 | 38 | | | A |
| HUNI NK 80/C | 37 | 64 | | 56 | 56 | 55 | 53 | 52 | 50 | 48 | 45 | | | A |
| HUNI NK 80/D | 45 | 78 | | 63 | 63 | 62 | 61 | 59 | 57 | 55 | | | | A |
| HUNI NK 80/E | 45 | 78 | | 63 | 63 | 62 | 61 | 60 | 58 | 56 | 54 | 52 | | A |
| HUNI NK 80/F | 55 | 96 | | 72 | 72 | 71 | 69 | 67 | 64 | 61 | 58 | | | A |
| HUNI NK 80/H | 55 | 96 | | 75 | 75 | 74 | 72 | 70 | 67 | 64 | 61 | 58 | | A |
| HUNI NK 80/L | 75 | 130 | | 83 | 82 | 81 | 80 | 78 | 76 | 73 | 70 | 68 | 66 | B |
| HUNI NK 80/M | 75 | 130 | | 90 | 90 | 89 | 87 | 85 | 83 | 80 | 77 | 74 | | B |
| HUNI NK 80/P | 75 | 130 | | 95 | 95 | 94 | 93 | 91 | 89 | 86 | 83 | | | B |
| HUNI NK 80/R | 75 | 130 | | 98 | 97 | 96 | 95 | 93 | 91 | 89 | 86 | 84 | 82 | B |

| Duty pump NK 100 | | | | Flow [$m^3$/h] with 1 duty pump in operation | | | | | | | | | | Jockey pump |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 215 | 230 | 245 | 260 | 275 | 290 | 300 | 310 | 320 | |
| | | | | Head [m] | | | | | | | | | | |
| HUNI NK 100/A | 55 | 96 | SD | 61 | 56 | 55 | 54 | 52 | 50 | 48 | 47 | 45 | 44 | A |
| HUNI NK 100/B | 75 | 130 | | 67 | 65 | 64 | 63 | 61 | 59 | 57 | 56 | 54 | 53 | A |
| HUNI NK 100/C | 75 | 130 | | 73 | 72 | 70 | 69 | 67 | 66 | 64 | 62 | 60 | | A |
| HUNI NK 100/E | 75 | 130 | | 76 | 75 | 74 | 73 | 71 | 69 | 67 | 65 | | | A |
| HUNI NK 100/G | 75 | 130 | | 80 | 79 | 78 | 77 | 75 | 74 | 72 | 71 | | | B |
| HUNI NK 100/L | 90 | 151 | | 88 | 87 | 86 | 85 | 84 | 83 | 81 | 80 | 78 | 77 | B |

The grey background indicates that the performances fully comply with the applicable standards; any data can be selected as duty point.

DOL = direct-on-line starting; SD = star/delta-starting. Non-standard starting configuration is available as an option.

## Electrical data and performance data of jockey pumps

The standard version of the unit is equipped with a CR 3 jockey pump.

### Standard jockey pumps

The standard type CR 3 jockey pumps offer the following electrical data and performance data, which comply with ISO 9906 Annex A. The column on the far right of the duty pump performance tables on page 19 states a reference letter for the jockey pump.

| Jockey pump | Jockey pump CR 3 | | | | Jockey pump flow [$m^3$/h] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 1.7 | 2.1 | 2.5 | 2.9 | 3.3 | 3.7 | 4.1 | 4.5 |
| | | | | | Jockey pump head [m] | | | | | | | | |
| A | **CR 3-15** | 1.1 | 2.6 | DOL | 98 | 88 | 83 | 78 | 71 | 64 | 55 | 45 | 34 |
| B | **CR 3-17** | 1.5 | 3.4 | | 113 | | 98 | 92 | 84 | 77 | 66 | 55 | 43 |

The grey background indicates the performance in automatic operation according to the relevant pressure switch settings

### Jockey pumps on request

If specific requirements call for higher flow rates, other jockey pump sizes such as CR 5, CR 10 and CR 15 are available as options.

The following tables show the appropriate, alternative jockey pump for each fire pump set.

| Unit | Ref. jockey pump |
|---|---|
| **HUNI NB 32/A** | C |
| **HUNI NB 32/B** | |
| **HUNI NB 32/C** | |
| **HUNI NB 32/D** | |
| **HUNI NBU 40/A** | |
| **HUNI NBU 40/B** | D |
| **HUNI NBU 40/D** | |
| **HUNI NBU 40/E** | |
| **HUNI NBU 50/A** | C |
| **HUNI NBU 50/B** | |
| **HUNI NBU 50/D** | D |
| **HUNI NBU 50/E** | |

| Unit | Ref. jockey pump |
|---|---|
| **HUNI NBU 65/A** | C |
| **HUNI NBU 65/C** | |
| **HUNI NBU 65/E** | D |
| **HUNI NK 65/F** | |
| **HUNI NK 65/G** | |
| **HUNI NK 65/H** | |
| **HUNI NK 80/A** | C |
| **HUNI NK 80/B** | |
| **HUNI NK 80/C** | |
| **HUNI NK 80/D** | |
| **HUNI NK 80/E** | |
| **HUNI NK 80/F** | D |

| Unit | Ref. jockey pump |
|---|---|
| **HUNI NK 80/H** | D |
| **HUNI NK 80/L** | |
| **HUNI NK 80/M** | |
| **HUNI NK 80/P** | |
| **HUNI NK 80/R** | |
| **HUNI NK 100/A** | C |
| **HUNI NK 100/B** | C if CR 5 |
| | D if CR 10-CR 15 |
| **HUNI NK 100/C** | D |
| **HUNI NK 100/E** | |
| **HUNI NK 100/H** | |
| **HUNI NK 100/L** | |

The electrical data and performance data of optional jockey pump models can be obtained from the following tables. These data also comply with ISO 9906 Annex A. For selection, look up the reference letter related to the various jockey pumps in the above tables.

| Jockey pump | Jockey pump CR 5 | | | | Jockey pump flow [$m^3$/h] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 3.6 | 4.3 | 5 | 5.7 | 6.4 | 7.1 | 7.8 | 8.5 |
| | | | | | Jockey pump head [m] | | | | | | | | |
| C | **CR 5-13** | 2.2 | 4.8 | DOL | 88 | | 76 | 72 | 66 | 61 | 54 | 47 | 40 |
| D | **CR 5-16** | 2.2 | 4.8 | | 108 | 97 | 93 | 88 | 81 | 74 | 66 | 58 | 48 |

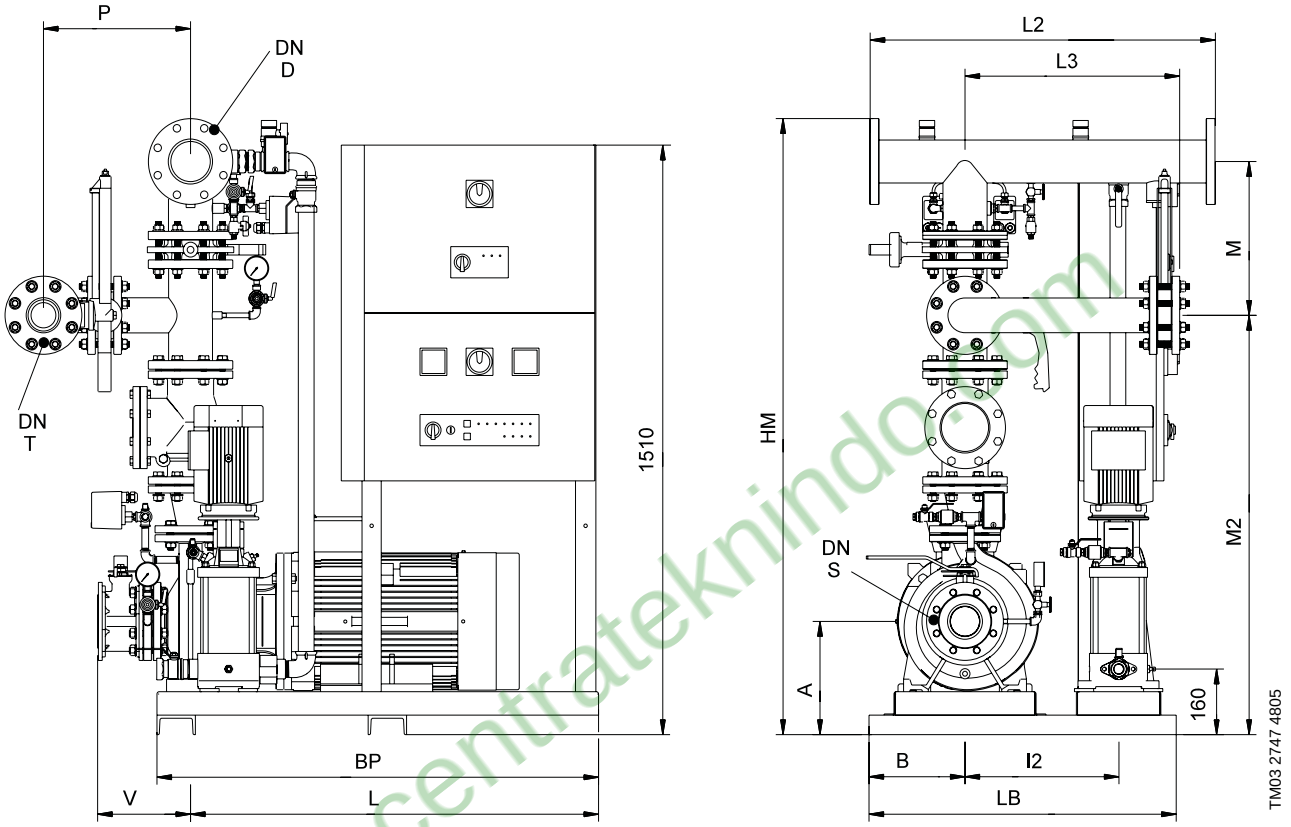
| Jockey pump | Jockey pump CR 10 | | | | Jockey pump flow [$m^3$/h] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | 6.4 | 7.2 | 8 | 8.8 | 9.6 | 10.4 | 11.2 | 12 |
| | | | | | Jockey pump head [m] | | | | | | | | |
| C | **CR 10-8** | 3 | 6.2 | DOL | 82 | 79 | 77 | 74 | 71 | 67 | 63 | 58 | 53 |
| D | **CR 10-10** | 4 | 8 | | 103 | | 96 | 93 | 89 | 84 | 79 | 73 | 66 |

| Jockey pump | Jockey pump CR 15 | | | | Jockey pump flow [$m^3$/h] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump | $P_2$ [kW] | $I_{1/1}$ [A] | Starting method | 0 | | 13 | 14.5 | 16 | 17.5 | 19 | 20.5 | 22 |
| | | | | | Jockey pump head [m] | | | | | | | | |
| C | **CR 15-6** | 5.5 | 11 | DOL | 85 | | 75 | 73 | 70 | 66 | 62 | 57 | 52 |
| D | **CR 15-8** | 7.5 | 15.2 | | 113 | | | 97 | 93 | 88 | 83 | 77 | 70 |

The grey background indicates the performance in automatic operation according to the relevant pressure switch settings.

# Dimensions and weights

## Hydro UNI-NB/NBU units with one duty pump and jockey pump




| Unit | DN S ● | DN D | DN T | Dimensions [mm] A | B | BP | HM | I2 | L | LB | L2 | L3 | M | M2 | P | V | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HUNI NB 32/A** | 50 | 50 | 40 | 270 | 240 | 1000 | 1387 | 320 | 930 | 715 | 820 | 554 | 453 | 851 | 313 | 182 | 278 |
| **HUNI NB 32/B** | | | | | | | | | | | | | | | | | 300 |
| **HUNI NB 32/C** | | | | | | | | | | | | | | | | | 312 |
| **HUNI NB 32/D** | | | | | | | | | | | | | | | | | 317 |
| **HUNI NBU 40/A** | 65 | 65 | 50 | 300 | 250 | 1150 | 1489 | 400 | 1053 | 800 | 900 | 556 | 456 | 940 | 333 | 222 | 429 |
| **HUNI NBU 40/B** | | | | 290 | | | 1524 | | | | | | | 975 | | | 443 |
| **HUNI NBU 40/C** | | | | | | | | | | | | | | | | | 464 |
| **HUNI NBU 40/E** | | | | | | | | | | | | | | | | | 502 |
| **HUNI NBU 50/A** | 65 | 80 | 65 | 300 | | | 1594 | | | | | | 486 | 1008 | 366 | | 455 |
| **HUNI NBU 50/C** | | | | | | | | | | | | | | | | | 475 |
| **HUNI NBU 50/D** | | | | 290 | | 1150 | 1609 | | 1053 | | | | | 1023 | | | 518 |
| **HUNI NBU 50/E** | | | | 320 | | 1300 | 1639 | | 1203 | | | | | 1053 | | | 612 |
| **HUNI NBU 65/B** | 80 | 100 | 80 | 290 | | 1150 | 1678 | | 1053 | | | 558 | 492 | 1076 | 381 | 244 | 505 |
| **HUNI NBU 65/D** | | | | | | | | | | | | | | | | | 543 |
| **HUNI NBU 65/E** | | | | 320 | | 1300 | 1708 | | 1203 | | | | | 1106 | | | 637 |

All flange connections to Hydro UNI-NB/NBU units are PN 16.

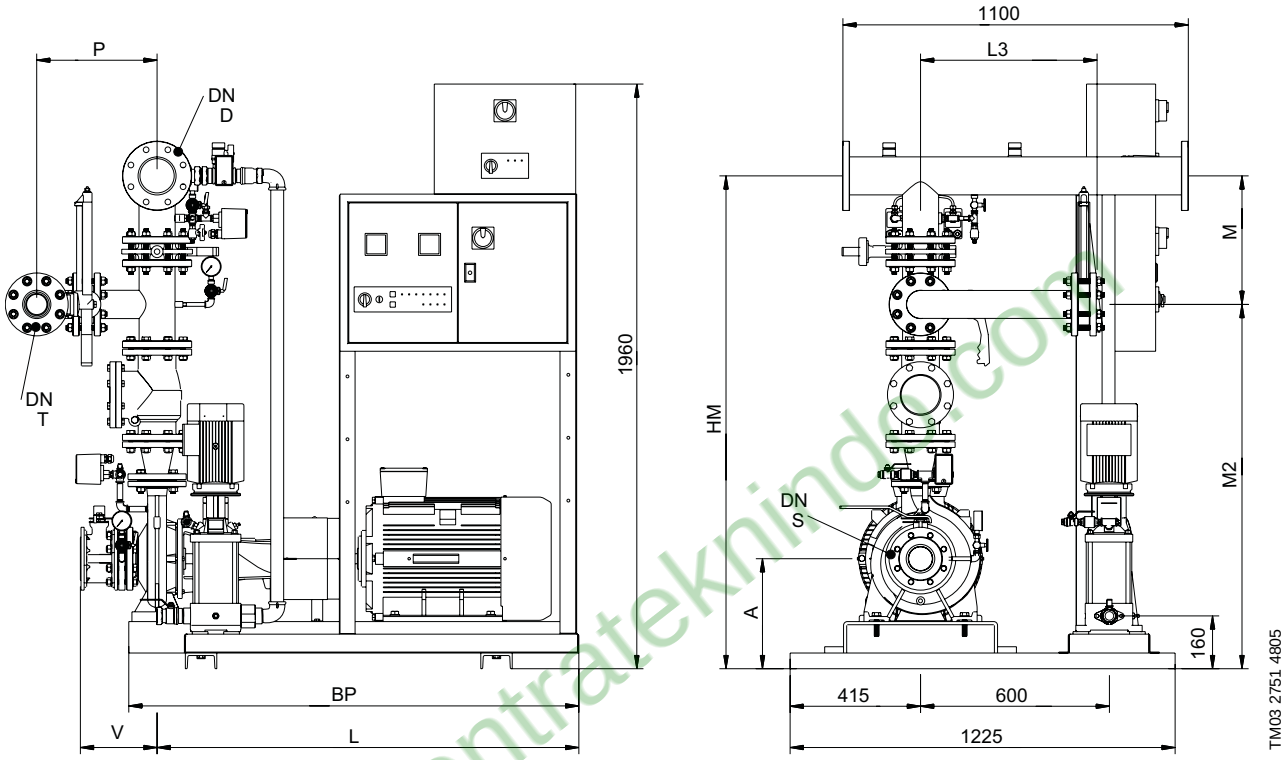
● Jockey pump suction port: Rp 1.
Other jockey pump models, such as CR 5, CR 10 and CR 15, are available as options, see *Electrical data and performance data of jockey pumps* on page 19.
For the dimensions of units with alternative jockey pumps, please contact Grundfos.
As an option, units can be supplied with a suction manifold (CPL version); for dimensions, please contact Grundfos.

**Note:** The tolerance for the dimensions shown in the above table is ± 20 mm.
Dimensions may be changed without notice as a result of technological improvements to the components and/or materials used.

The drawings and dimensions shown above apply to the Hydro UNI-NB/NBU units described in this data booklet. For any changes or adaptations to specific requirements or additions of optional components and/or accessories not included in our standard scope of supply, please consult Grundfos.

# Dimensions and weights

## Hydro UNI-NK units with one duty pump and jockey pump




| Unit | DN S ● | DN D | DN T | Dimensions [mm] A | BP | HM | L | L3 | M | M2 | P | V | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HUNI NK 65/F** | 80 | 100 | 80 | 350 | 1435 | 1763 | 1345 | 558 | 492 | 1161 | 381 | 244 | 720 |
| **HUNI NK 65/G** | | | | | | | | | | | | | 720 |
| **HUNI NK 65/H** | | | | 375 | 1475 | 1800 | | | | 1186 | | | 793 |
| **HUNI NK 80/A** | 100 | 125 | 100 | 350 | 1435 | 1952 | 1360 | 560 | | 1281 | 457 | 281 | 739 |
| **HUNI NK 80/B** | | | | | | | | | | | | | 744 |
| **HUNI NK 80/C** | | | | | | | | | | | | | 744 |
| **HUNI NK 80/E** | | | | 375 | | 1977 | | | | 1306 | | | 811 |
| **HUNI NK 80/G** | | | | 400 | 1725 | 2032 | 1385 | | | 1361 | | | 913 |
| **HUNI NK 80/H** | | | | | | | | | | | | | 913 |
| **HUNI NK 80/L** | | | | 430 | 1800 | 2062 | 1665 | | 546 | 1391 | | | 1028 |
| **HUNI NK 80/N** | | | | | | | | | | | | | 1028 |
| **HUNI NK 80/R** | | | | | | | | | | | | | 1028 |
| **HUNI NK 100/A** | 125 | 150 | 125 | 400 | 1825 | 2125 | 1385 | 562 | | 1436 | 506 | 224 | 984 |
| **HUNI NK 100/B** | | | | 430 | 1800 | | 1665 | | | 1466 | | | 1125 |
| **HUNI NK 100/D** | | | | | | | | | | | | | 1125 |
| **HUNI NK 100/F** | | | | | | | | | | | | | 1125 |
| **HUNI NK 100/G** | | | | | | | | | | | | | 1125 |
| **HUNI NK 100/L** | | | | | | 2155 | | | | | | | 1186 |

All flange connections to Hydro UNI-NK units are PN 16.

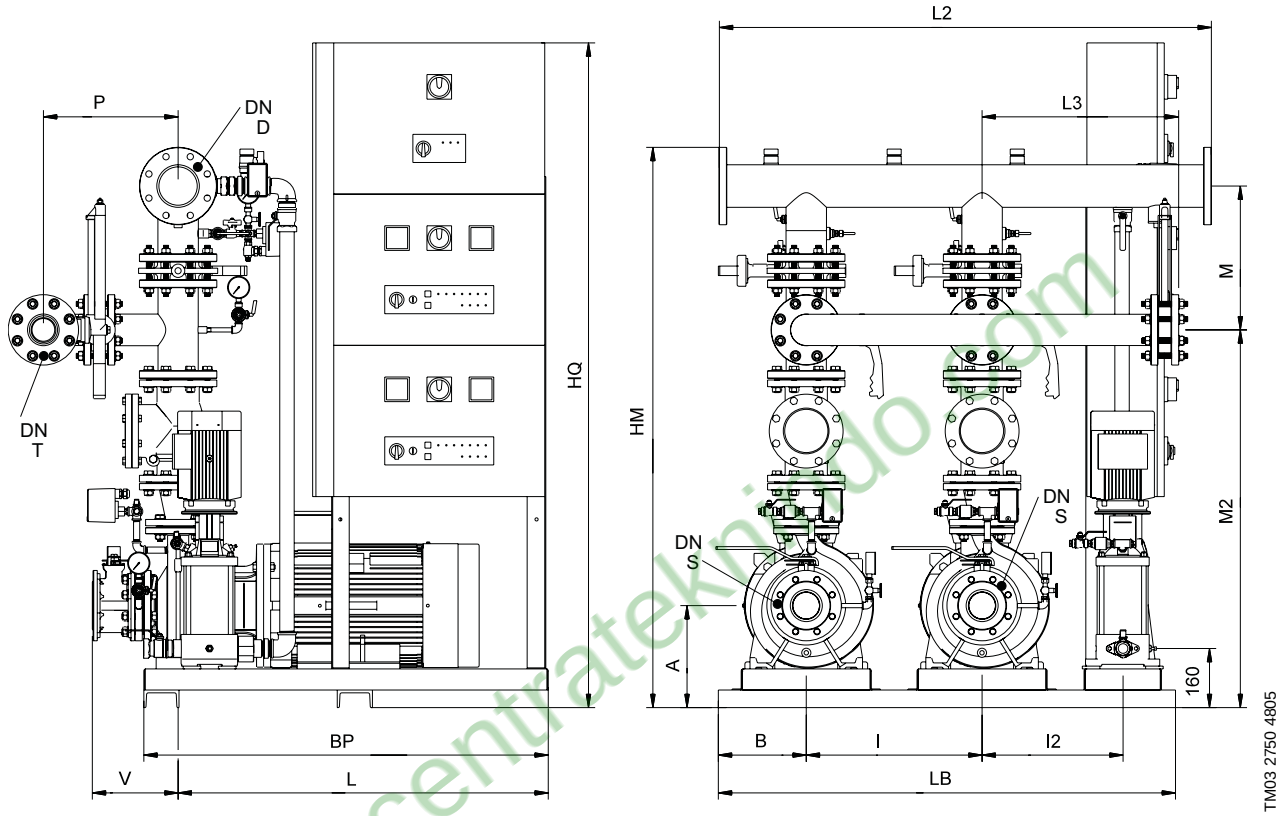
● Jockey pump suction port: Rp 1.
Other jockey pump models, such as CR 5, CR 10 and CR 15, are available as options, see *Electrical data and performance data of jockey pumps* on page 19.
For the dimensions of units with alternative jockey pumps, please contact Grundfos.
As an option, units can be supplied with a suction manifold (CPL version); for dimensions, please contact Grundfos.

**Note:** The tolerance for the dimensions shown in the above table is ± 20 mm.
Dimensions may be changed without notice as a result of technological improvements to the components and/or materials used.

The drawings and dimensions shown above apply to the Hydro UNI-NK units described in this data booklet. For any changes or adaptations to specific requirements or additions of optional components and/or accessories not included in our standard scope of supply, please consult Grundfos.

# Dimensions and weights

## Hydro UNI-NB/NBU units with two duty pumps and jockey pump




| Unit | DN S ● | DN D ■ | DN T | Dimensions [mm] A | B | BP | HM | HQ | I | I2 | L | LB | L2 | L3 | M | M2 | P | V | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HUNI NB 32/A** | | | | | | | | | | | | | | | | | | | 446 |
| **HUNI NB 32/B** | 50 | 50 | 40 | 270 | 240 | 1000 | 1387 | 1770 | 400 | 320 | 930 | 1115 | 1220 | 554 | 453 | 851 | 313 | 182 | 490 |
| **HUNI NB 32/C** | | | | | | | | | | | | | | | | | | | 514 |
| **HUNI NB 32/D** | | | | | | | | | | | | | | | | | | | 524 |
| **HUNI NBU 40/A** | | | | 300 | | | 1489 | | | | | | | | | 940 | | | 736 |
| **HUNI NBU 40/B** | 65 | 65 | 50 | | | | | | | | | | | | 456 | | 333 | | 764 |
| **HUNI NBU 40/C** | | | | 290 | | | 1524 | | | | | | | | | 975 | | | 806 |
| **HUNI NBU 40/E** | | | | | | 1150 | | 1870 | | | 1053 | | | 556 | | | | 222 | 882 |
| **HUNI NBU 50/A** | | | | 300 | | | 1594 | | | | | | | | | 1008 | | | 783 |
| **HUNI NBU 50/C** | 65 | 80 | 65 | | 250 | | | | 500 | 400 | | 1300 | 1400 | | 486 | | 366 | | 823 |
| **HUNI NBU 50/D** | | | | 290 | | | 1609 | | | | | | | | | 1023 | | | 909 |
| **HUNI NBU 50/E** | | | | 320 | | 1300 | 1639 | 1960 | | | 1203 | | | | | 1053 | | | 1097 |
| **HUNI NBU 65/B** | | | | | | | | | | | | | | | | 1076 | | | 877 |
| **HUNI NBU 65/D** | 80 | 100 | 80 | 290 | | 1150 | 1678 | 1870 | | | 1053 | | | 558 | 492 | | 381 | 244 | 953 |
| **HUNI NBU 65/E** | | | | 320 | | 1300 | 1708 | 1960 | | | 1203 | | | | | 1106 | | | 1141 |

All flange connections to Hydro UNI-NB/NBU units are PN 16.

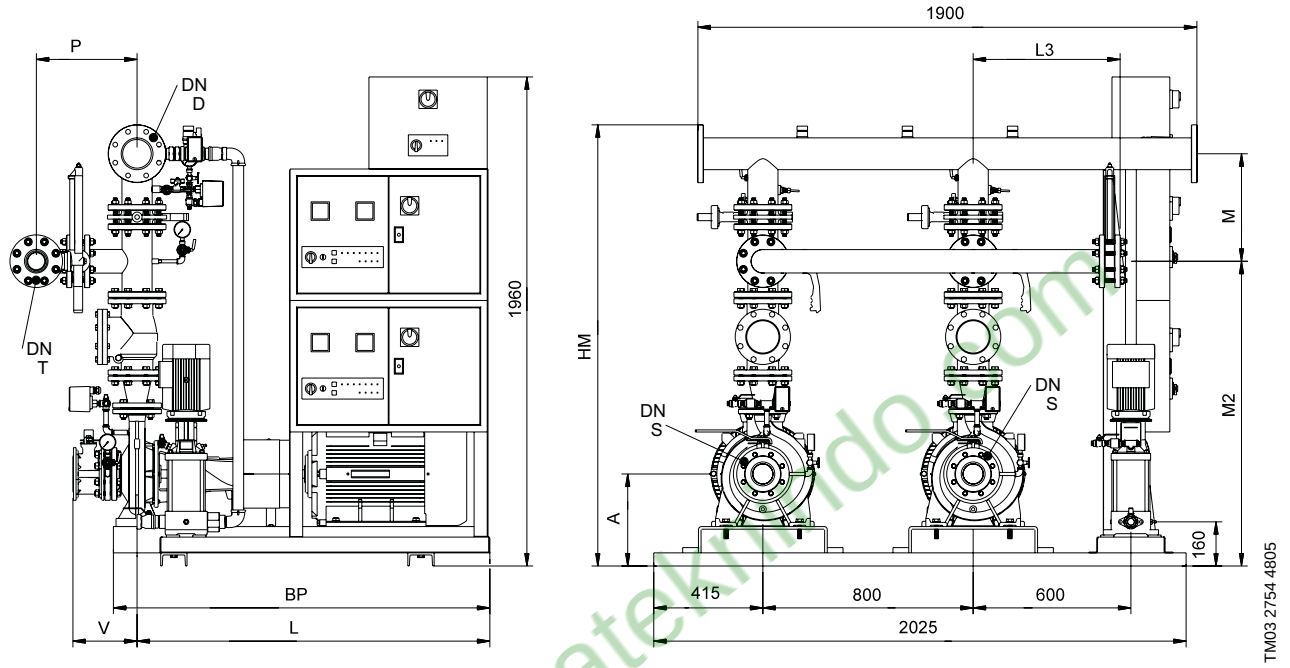
- ● Jockey pump suction port: Rp 1.
  Other jockey pump models, such as CR 5, CR 10 and CR 15, are available as options, see *Electrical data and performance data of jockey pumps* on page 19.
  For the dimensions of units with alternative jockey pumps, please contact Grundfos.
  As an option, units can be supplied with a suction manifold (CPL version); for dimensions, please contact Grundfos.
- ■ As an option, units can be supplied with a discharge manifold sized for simultaneous operation of both duty pumps; for dimensions, please contact Grundfos.

**Note:** The tolerance for the dimensions shown in the above table is ± 20 mm.
Dimensions may be changed without notice as a result of technological improvements to the components and/or materials used.

The drawings and dimensions shown above apply to the Hydro UNI-NB/NBU units described in this data booklet. For any changes or adaptations to specific requirements or additions of optional components and/or accessories not included in our standard scope of supply, please consult Grundfos.

# Dimensions and weights

## Hydro UNI-NK units with two duty pumps and jockey pump




| Unit | DN S ● | DN D ■ | DN T | Dimensions [mm] A | BP | HM | L | L3 | M | M2 | P | V | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HUNI NK 65/F** | 80 | 100 | 80 | 350 | 1435 | 1763 | 1345 | 558 | 492 | 1161 | 381 | 244 | 1309 |
| **HUNI NK 65/G** | | | | | | | | | | | | | 1309 |
| **HUNI NK 65/H** | | | | 375 | 1475 | 1800 | | | | 1186 | | | 1455 |
| **HUNI NK 80/A** | 100 | 125 | 100 | 350 | 1435 | 1952 | 1360 | 560 | 546 | 1281 | 457 | 281 | 1340 |
| **HUNI NK 80/B** | | | | | | | | | | | | | 1350 |
| **HUNI NK 80/C** | | | | | | | | | | | | | 1350 |
| **HUNI NK 80/E** | | | | 375 | | 1977 | | | | 1306 | | | 1484 |
| **HUNI NK 80/G** | | | | 400 | 1725 | 2032 | 1385 | | | 1361 | | | 1685 |
| **HUNI NK 80/H** | | | | | | | | | | | | | 1685 |
| **HUNI NK 80/L** | | | | 430 | 1800 | 2062 | 1665 | | | 1391 | | | 1915 |
| **HUNI NK 80/N** | | | | | | | | | | | | | 1915 |
| **HUNI NK 80/R** | | | | | | | | | | | | | 1915 |
| **HUNI NK 100/A** | 125 | 150 | 125 | 400 | 1825 | 2125 | 1385 | 562 | | 1436 | 506 | 224 | 1819 |
| **HUNI NK 100/B** | | | | 430 | 1800 | 2155 | 1665 | | | 1466 | | | 2101 |
| **HUNI NK 100/D** | | | | | | | | | | | | | 2101 |
| **HUNI NK 100/F** | | | | | | | | | | | | | 2101 |
| **HUNI NK 100/G** | | | | | | | | | | | | | 2101 |
| **HUNI NK 100/L** | | | | | | | | | | | | | 2223 |

All flange connections to Hydro UNI-NK units are PN 16.

- ● Jockey pump suction port: Rp 1.
  Other jockey pump models, such as CR 5, CR 10 and CR 15, are available as options, see *Electrical data and performance data of jockey pumps* on page 19.
  For the dimensions of units with alternative jockey pumps, please contact Grundfos.
  As an option, units can be supplied with a suction manifold (CPL version); for dimensions, please contact Grundfos.
- ■ As an option, units can be supplied with a discharge manifold sized for simultaneous operation of both duty pumps; for dimensions, please contact Grundfos.

**Note:** The tolerance for the dimensions shown in the above table is ± 20 mm.
Dimensions may be changed without notice as a result of technological improvements to the components and/or materials used.

The drawings and dimensions shown above apply to the Hydro UNI-NK units described in this data booklet. For any changes or adaptations to specific requirements or additions of optional components and/or accessories not included in our standard scope of supply, please consult Grundfos.

| | |
|---|---|
| **96635219** 0906 | **GB** |

Subject to alterations.

**GRUNDFOS A/S** . DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00

www.grundfos.com

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