

TECHNICAL DATA

Operating range: from 4 to 29 m³/h

Pumped liquid: clean, free of solids and abrasives, non-viscous, non-aggressive, non-crystallised and chemically neutral, with properties similar to water.

Pumped liquid temperature range: from -15 to 70 °C.

Maximum ambient temperature: + 40°C

Maximum operating pressure: 14 bar (1400 kPa) PN16

TECHNICAL DATA

.Fire-fighting pump sets in accordance with UNI EN 12845 European Standard
Fixed fire-fighting installations - Automatic sprinkler systems

NOTES ON UNI EN 12845

UNI EN 12845, the Italian version of European Standard EN 12845, sets the design, installation and maintenance criteria for sprinkler systems. It replaces the earlier Italian standards UNI 9489 and UNI 9490.

An automatic sprinkler system is designed to detect the presence of fire and extinguish it during the initial stages, or to keep flames under control until they can be extinguished fully using other means.

The classic sprinkler system is composed of: a water source, a fire-fighting pump unit, a series of control valves, and a sprinkler circuit.

MULTI-PUMP SET COMPOSITION

The pumps of UNI EN 12845 sets will have the same characteristics; in addition:

- if TWO pumps are installed, each pump must deliver the total system load (100 %),
- if THREE pumps are installed, each pump must deliver 50 % of the load required by the design.

"In applications in which more than one pump is installed with higher or duplicated feed, only one of the pumps will be electrically driven (section 10.2 of the standard)".

In case of single water supply, there are no limitations on the number of electric pumps that can be installed.

UNI EN 12845 FIRE-FIGHTING PUMP SET OPERATION

In normal conditions, (zero water request), the system is under static pressure.

The first time there is a water request, the compensation pump activates (if present), reinstating the system pressure.

In case of significant water request (activation of the fire-fighting sprinklers), the pressure drops until the two pressure switches connected in series activate the main pump.

The two pressure switches must be calibrated to start the pumps at the following pressure values:

ONE-PUMP SETS	P = 0,8 X MAX PUMP PRESSURE	
TWO-PUMP SETS	PUMP 1: P1 = 0,8 X MAX PRESSURE	PUMP 2: P2 = 0,6 X MAX PRESSURE

E.g.: Max pump pressure 10 bar - pump 1 starts at 8 bar, pump 2 starts at 6 bar

The main pump continues to operate until it is manually stopped using the STOP pushbutton on the electric control panel.

In case of hydrant systems refer to UNI 10779 - July 07. In addition to prescribing feed pumps in compliance with UNI EN 12845, UNI 10779 allows automatic stopping of the pumps 20 minutes after the closing of the hydrants, in case of non permanently supervised operation. DAB pump sets are suitable for sprinkler systems with manual stop, and for hydrant systems with automatic stop.

PUMPS - UNI EN 12845

UNI EN 12845 (10.1) standard prescribes "Horizontal or vertical pumps with coinciding maximum and zero flow rate head. They can be driven by electric motor or Diesel engine. For HHP and HHS pre-calculated systems, they shall be able to supply 140 % of the flow rate at 70 % of the head of the operating point (100 %).

PRESSURE COMPENSATION PUMP - "JOCKEY"

The compensation pump (jockey) is a pump that intervenes when the collection of a small amount of water is required. This avoids pointless starts of the main pumps in case of small system leaks. DAB fire-fighting sets are available with and without jockey pump.

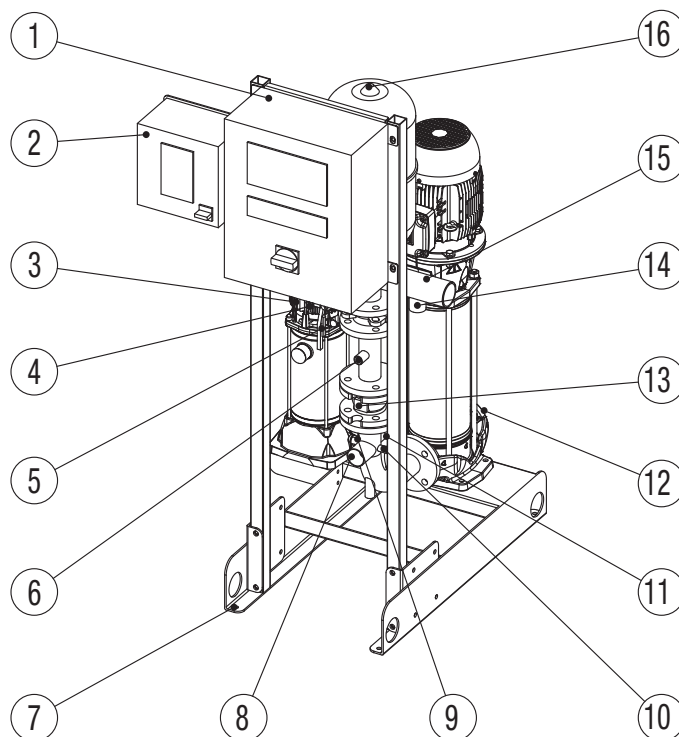
WARNING - NOTE

In case of higher or duplicated feed, only one electric pump can be used. According to the UNI EN 12825 (10.2) standard, "In applications in which more than one pump is installed with higher or duplicated feed, only one of the pumps will be electrically driven".

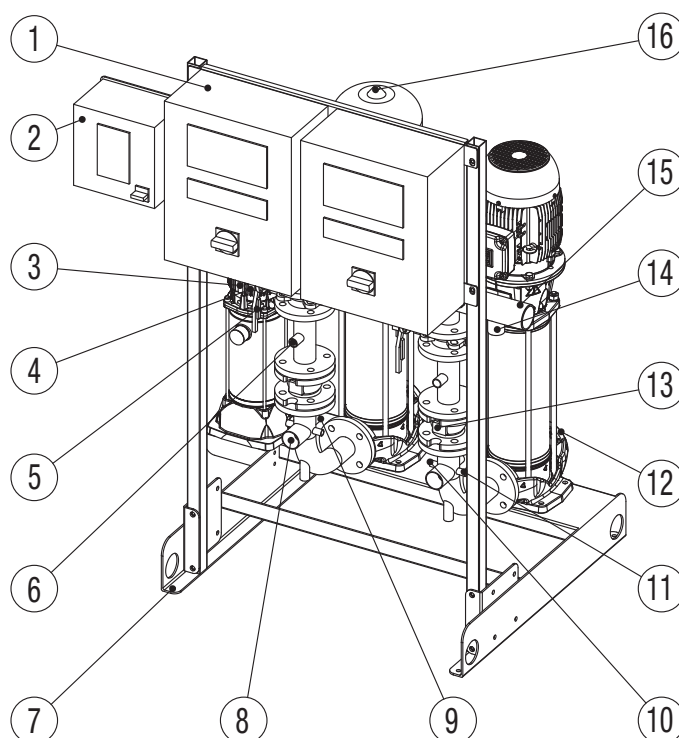
1/2 NKV

UNI EN 12845 FIRE-FIGHTING SETS WITH VERTICAL PUMPS

N.	COMPONENTS
1	Independent control panel for each main pump
2	Jockey pump control panel
3	Jockey pump
4	Jockey pump pressure switch
5	Lockable shut-off valve
6	Start pressure switch circuit
7	Ground anchoring holes
8	2" connection for priming tank
9	¼" connection for water recirculation
10	Running pump pressure switch
11	Check valve test system
12	Independent suctions
13	Check valve on service pump
14	1" connection for pump room sprinkler flow switch
15	Unique delivery manifold
16	Jockey pump expansion vessel



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16	Jockey pump expansion vessel



ELECTRIC PUMP CONTROL PANEL

UNI EN 12845 FIRE-FIGHTING PUMP SETS



TECHNICAL DATA

Nominal power input voltage: 400 V +/- 5%

Phases: 3

Frequency: 50-60 Hz

Number of pumps that can be connected: 1

Maximum nominal power of use:
from 3 to 110 kW (depending on model).

Maximum nominal current of use: from 10 Amp to 250 Amp.

Ambient temperature operation limits: from +4 °C to +40 °C.

Relative humidity (without condensation):

50% at 40 °C MAX (90% a 20 °C)

Max. altitude: 3000 m (a.s.l.).

Protection class: IP55

Control panel construction:

According to EN60204, EN 60439-1, and UNI EN 12845/10779.

COMPONENTS

The control and protection panel includes the following components

INTERIOR OF CABINET

Connector for the powering of a GSM Modem (230 V, protected by fuse).

Motor protection fuses (aM type); current surge relay-motor protectors are not permitted by the standard.

Auxiliary circuit protection fuses (Gg type).

Direct pump starters (up to 7,5 kW).

Star/triangle starters (11 kW and over).

24 V auxiliary circuit transformers.

Alarm relay with terminal box for remote status control (as required by the UNI EN 12845 standard).

System start-up input connection terminal box.

ON FRONT PANEL

Electric pump control unit with:

Multifunction instrument with display (voltmeter, ammeter, cosfi metre, wattmeter, alarms and status).

Start and stop pushbuttons.

Status and alarm notification lamps.

Alarm/notification lamp test pushbutton.

0 - 1 selector (0 = automatic disabled; 1 = automatic on), key removable only for position one (AUTOMATIC ON).

REMOTELY CONTROLLED ALARMS:

Voltage present.

Phase sequence.

Pump start request from the pressure switches.

Pump start request from priming tank.

Pump in operation.

Start failed.

The above alarms can be remotely controlled in the following ways:

With relay wiring to the CSR-1 control panel (optional).

With RS-485 wiring to the CSR-1 control panel (optional).

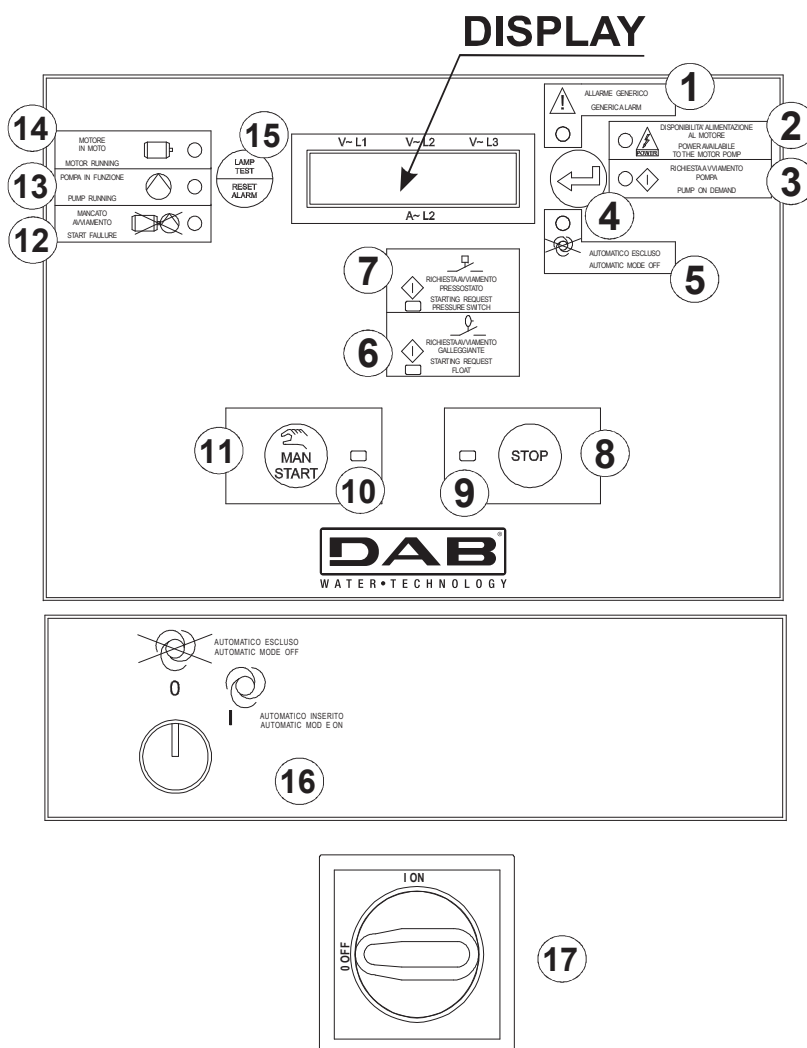
With GSM Modem inside the cabinet, for forwarding status and/or alarm signals (optional).

ELECTRIC PUMP CONTROL PANEL

UNI EN 12845 FIRE-FIGHTING PUMP SETS

ELECTRIC PUMP CONTROL UNIT

The A1 electronic control unit supplied with the control panel offers the following features: automatic start from the pressure switches or the priming float switch, manual start, automatic monitoring of pump set faults and incorrect or unavailable power input voltage.



**ALIMENTAZIONE DELLA POMPA SPRINKLER
NON SPEGNERE IN CASO DI INCENDIO**

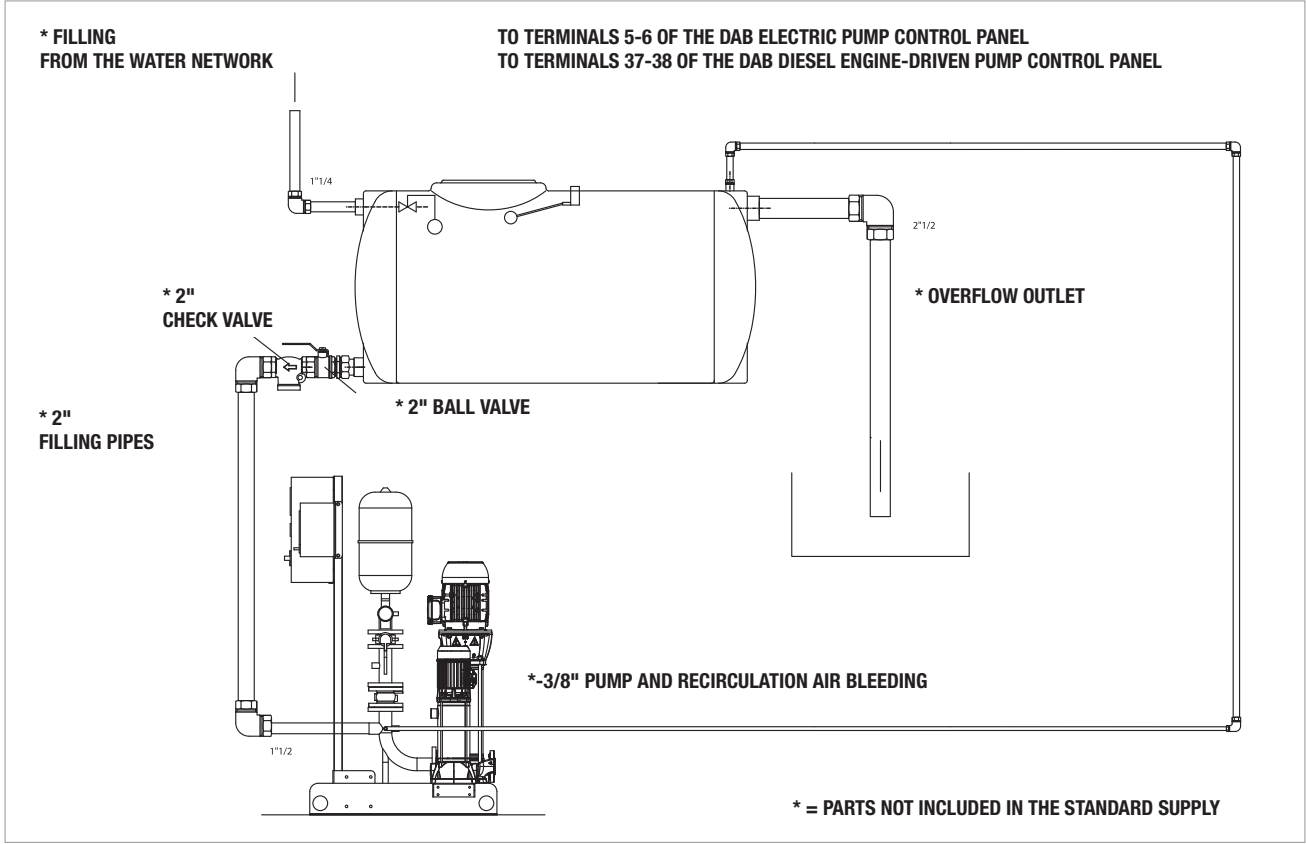
**SPRINKLER PUMP MOTOR SUPPLY
NOT TO BE SWITCHED OF IN THE EVENT OF FIRE**

REF.	FUNCTION
1	LAMP - Generic alarm
2	LAMP - Power input to the motor detected
3	LAMP - Pump START request
4	Press to display the instruments
5	LAMP - Automatic start disabled
6	LAMP - START request from the priming tank float switch
7	LAMP - START request (call) from the pressure switches
8	MANUAL STOP pushbutton
9	LAMP - MANUAL STOP with STOP pushbutton notification

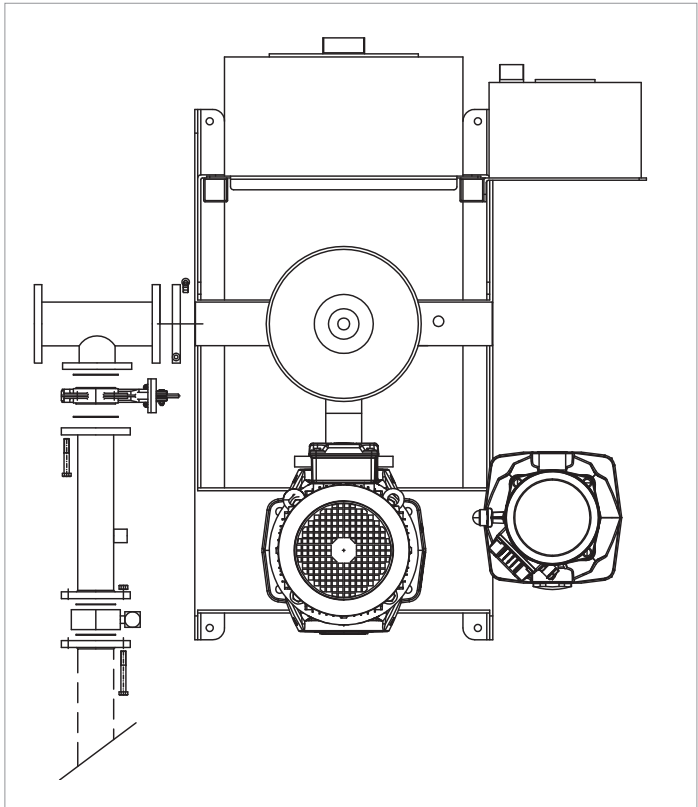
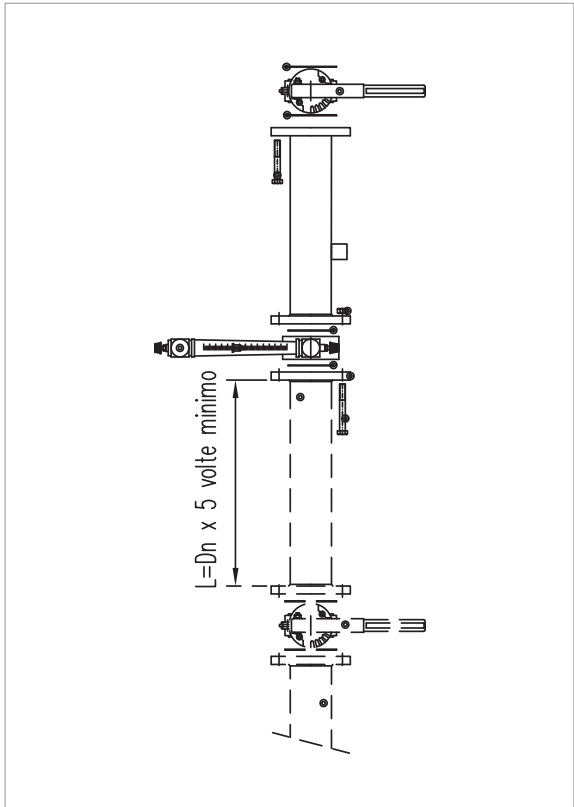
REF.	FUNCTION
10	LAMP - MANUAL START with MAN START pushbutton notification
11	MANUAL START pushbutton
12	LAMP - Start failed
13	LAMP - ELECTRIC PUMP RUNNING with motor running; detected by the electric pump running pressure switch
14	LAMP - MOTOR RUNNING; controlled by the ammeter detection
15	Reset lamp test pushbutton
16	Automatic mode disabling selector
17	Power input disconnection switch

UNI EN 12845 PRIMING TANK

One 500 l priming tank must be installed for each main pump, only in case of **positive suction feed**.



FLOW METER KIT

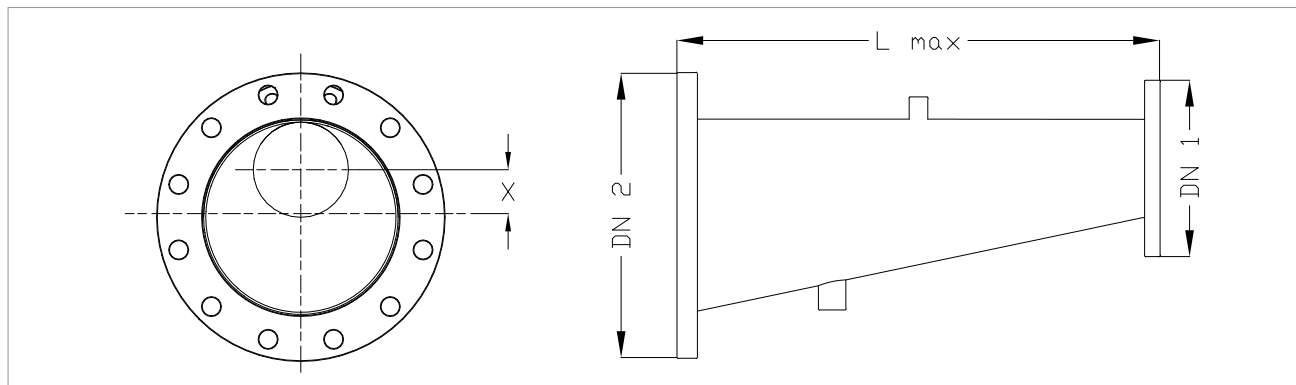


SUCTION KIT

The kit consists of a conical eccentric adaptor, screws and washers.

It is required in order to avoid air pockets at the suction, and to keep the water speed below 1,5 m/s, as required by section 10.6.2.3 of UNI EN 12845.

No. 1 kit must be installed at the suction of each main pump.



UNI EN 12845 ECCENTRIC SUCTION ADAPTORS

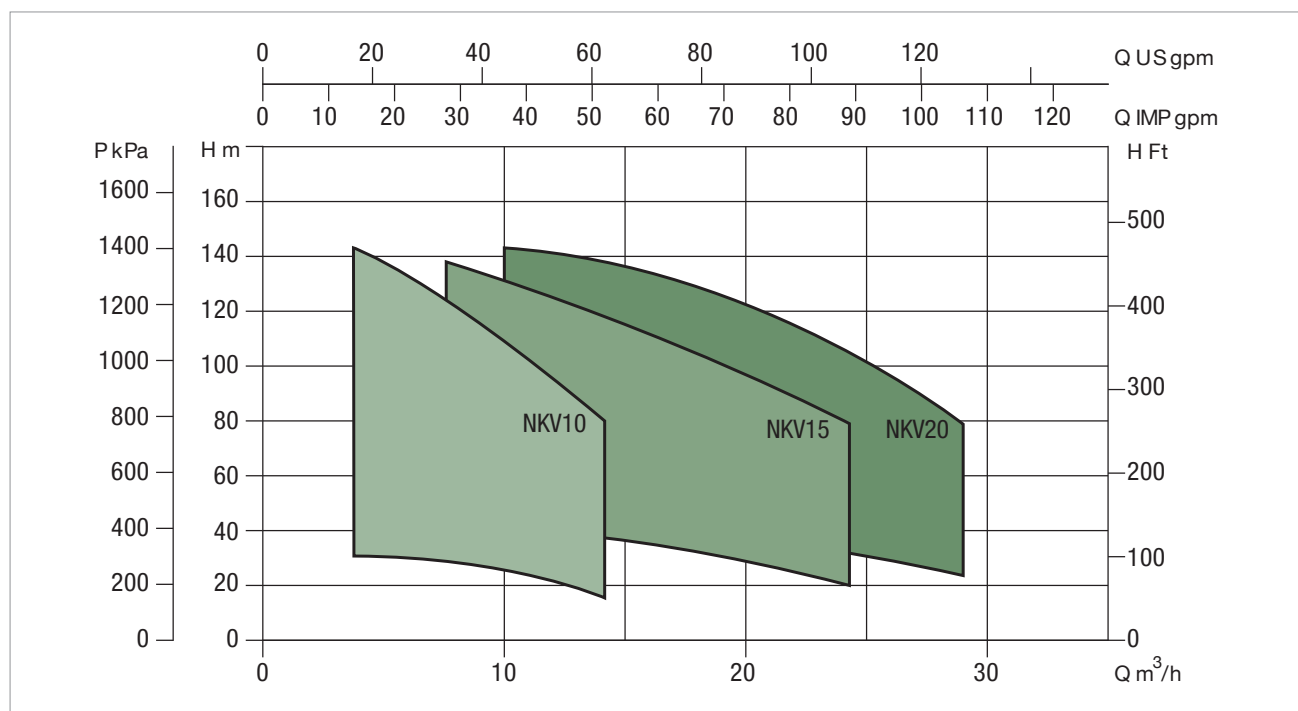
PUMP MODEL	ADAPTOR MODEL	DN1 – PN 16 PUMP SIDE	DN2 – PN16 SYSTEM SIDE	L (mm)	X (mm)
NKV 10	KIT ASP.NKV10 EN12845 (DN65 - 19°)	DN 40	DN 65*	145	14
NKV 15 – NKV 20 KDN 32	KIT ASP.KDN32/NKV15-20 EN12845(DN80-19°)	DN 50	DN 80	200	14
KDN 40	KIT ASP.KDN40 EN12845 (DN100 - 19°)	DN 65	DN 100	235	19
KDN 50	KIT ASP.KDN50 EN12845 (DN125 - 19°)	DN 65	DN 125	320	32
KDN 65	KIT ASP.KDN65 EN12845 (DN150 - 19°)	DN 80	DN 150	380	40
KDN 80	KIT ASP.KDN80 EN12845 (DN200 - 19°)	DN 100	DN 200	570	52
KDN 100	KIT ASP.KDN100 EN12845 (DN250 - 19°)	DN 125	DN 250	685	67

*The standard requires DN 80 minimum for positive suction installations. In this case contact our sales network.

PERFORMANCE RANGE

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO 9906.

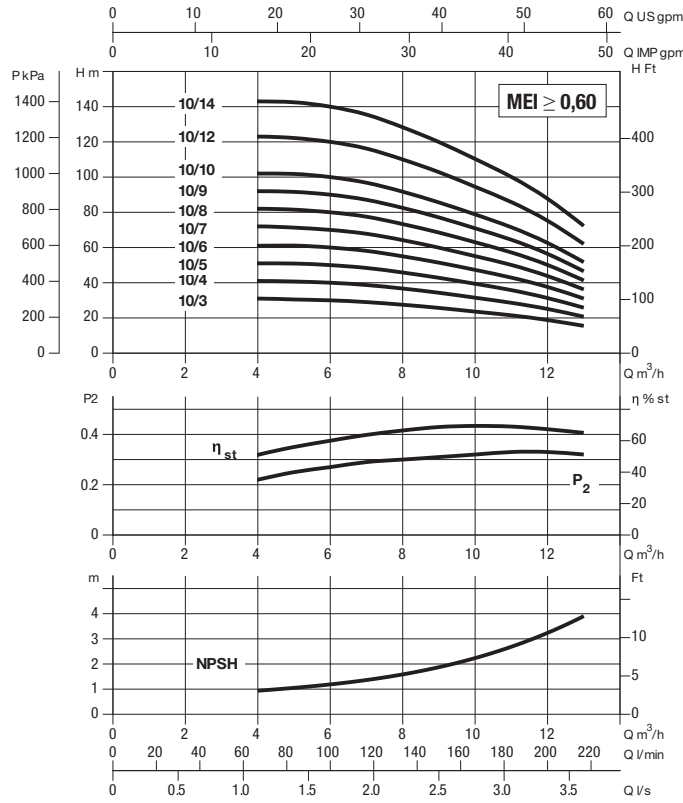
GRAPHIC SELECTION TABLE



NKV 10 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

Pumped liquid temperature range: from -15 °C to +70 °C - Maximum ambient temperature: from +4 °C to +40 °C - Maximum flow rate: 13 m³/h

≈ 2900 1/min



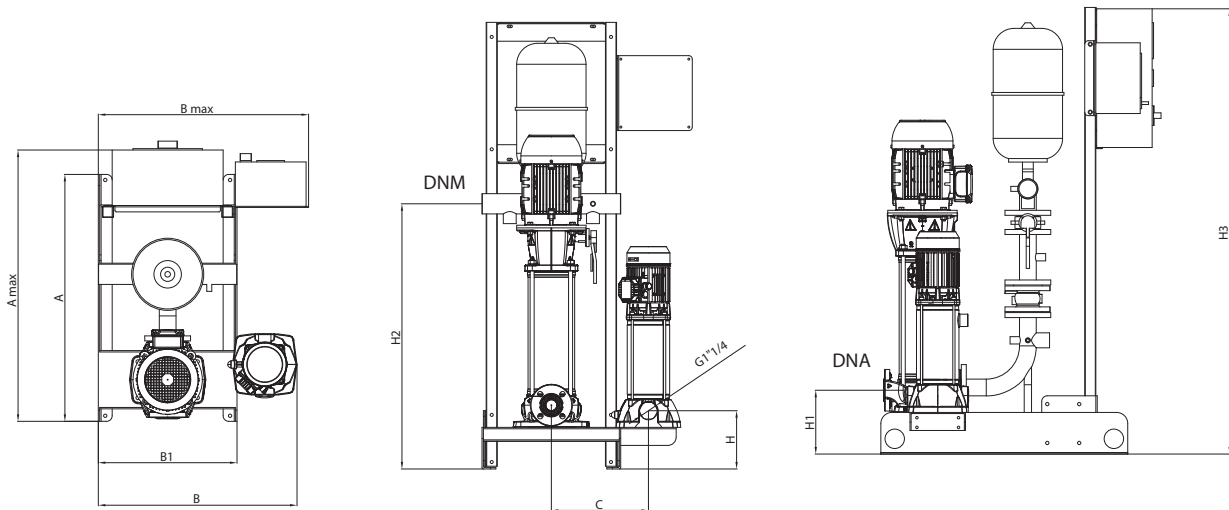
Performance curves and electric data referred to only one pump in operation.

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO 9906.

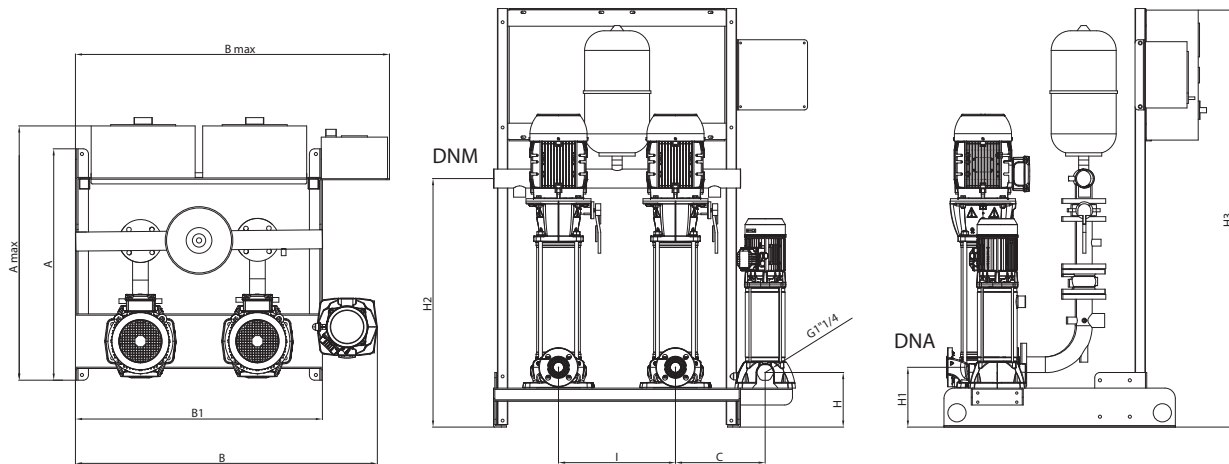
MODEL	ELECTRICAL DATA			
	POWER INPUT 50 Hz	P2 NOMINAL		In A
		kW	HP	
NKV 10/3	3x400 V	1,10	1,5	2,50
NKV 10/4	3x400 V	1,50	2	3,50
NKV 10/5	3x400 V	2,2	3	4,70
NKV 10/6	3x400 V	2,2	3	4,70
NKV 10/7	3x400 V	3,0	4	5,8
NKV 10/8	3x400 V	3,0	4	5,8
NKV 10/9	3x400 V	3,0	4	5,8
NKV 10/10	3x400 V	4,0	5,5	7,6
NKV 10/12	3x400 V	4,0	5,5	7,6
NKV 10/14	3x400 V	5,5	7,5	11

NKV 10 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

ELECTRIC PUMP SET 1



ELECTRIC PUMP SET 2

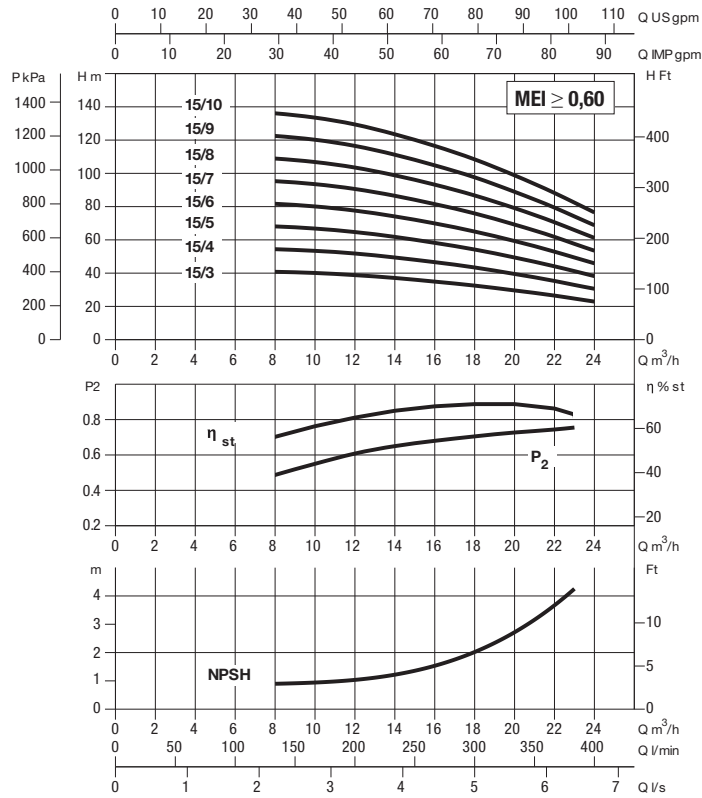


MODEL	A	A max	B	B1	B max	C	I	H	H1	H2	H3	DNA	DNM
1 NKV10	1000	1100	700	500	745	350	-	210	230	960	1600	40	2"
2 NKV10	1000	1100	1100	950	1200	350	450	210	230	960	1600	40	2"

NKV 15 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

Pumped liquid temperature range: from -15 °C to +70 °C - Maximum ambient temperature: from +4 °C to +40 °C - Maximum flow rate: 24 m³/h

≈ 2900 1/min



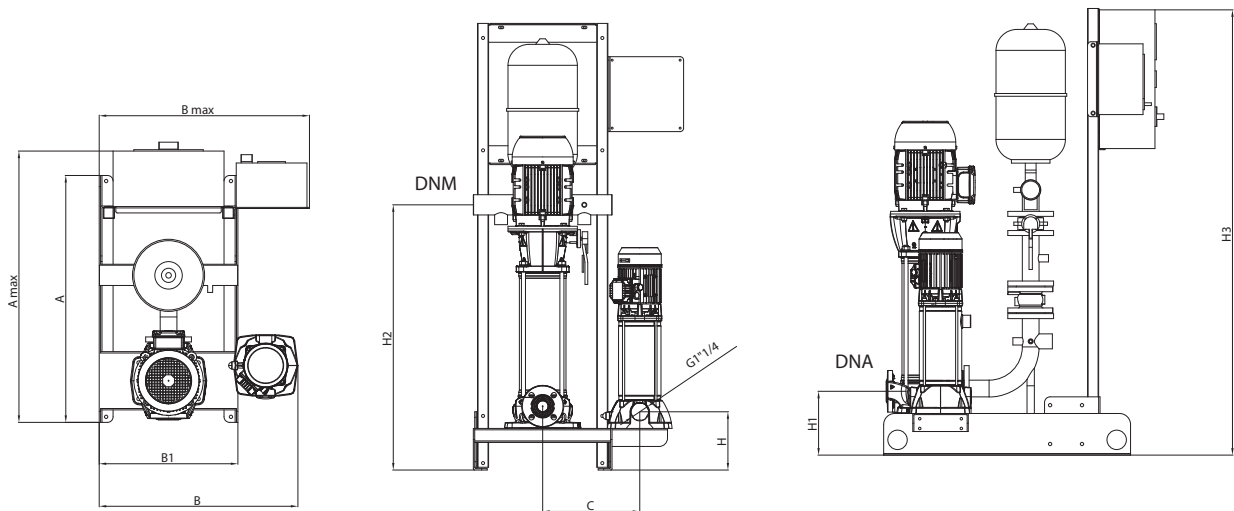
Performance curves and electric data referred to only one pump in operation.

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO 9906.

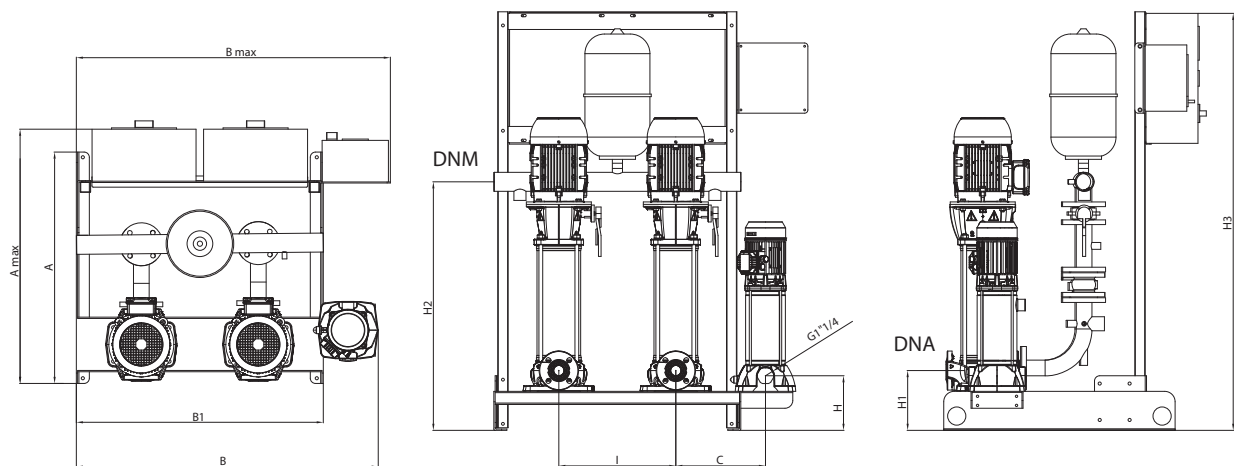
MODEL	ELECTRICAL DATA			
	POWER INPUT 50 Hz	P2 NOMINAL		In A
		kW	HP	
NKV 15/3	3x400 V	3,00	4	5,8
NKV 15/4	3x400 V	4,00	5,5	7,6
NKV 15/5	3x400 V	4,00	5,5	7,6
NKV 15/6	3x400 V	5,5	7,5	11
NKV 15/7	3x400 V	5,5	7,5	11
NKV 15/8	3x400 V	7,5	10	14,8
NKV 15/9	3x400 V	7,5	10	14,8
NKV 15/10	3x400 V	11,0	15	22,4

NKV 15 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

ELECTRIC PUMP SET 1



ELECTRIC PUMP SET 2

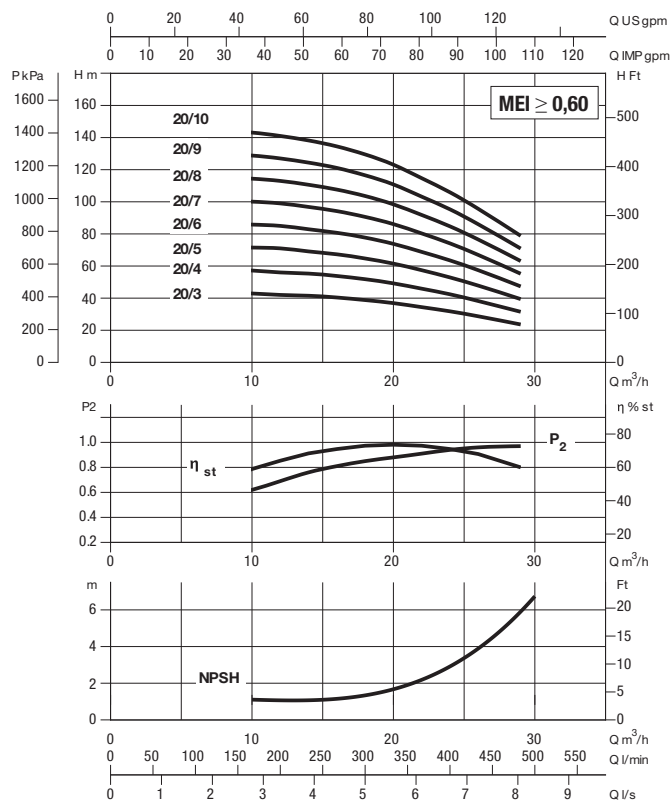


MODEL	A	A max	B	B1	B max	C	I	H	H1	H2	H3	DNA	DNM
1 NKV15	1000	1100	700	500	745	350	-	210	240	970	1600	50	2" 1/2
2 NKV15	1000	1100	1100	950	1200	350	450	210	240	970	1600	50	2" 1/2

NKV 20 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

Pumped liquid temperature range: from -15 °C to +70 °C - Maximum ambient temperature: from +4 °C to +40 °C - Maximum flow rate: 29 m³/h

≈ 2900 1/min



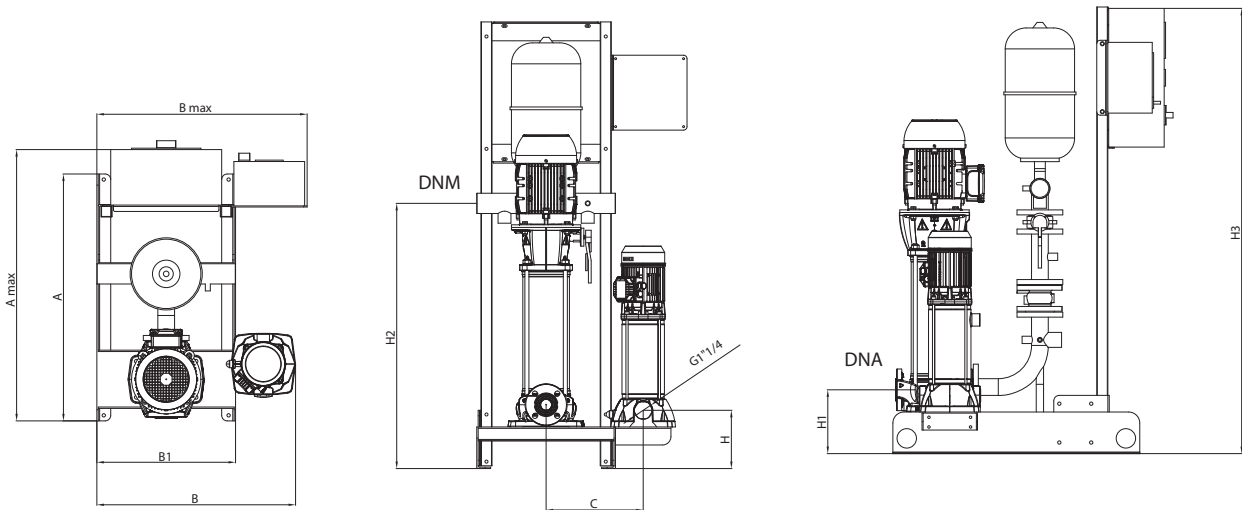
Performance curves and electric data referred to only one pump in operation.

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equal to 1000 kg/m³. Curve tolerance according to ISO 9906.

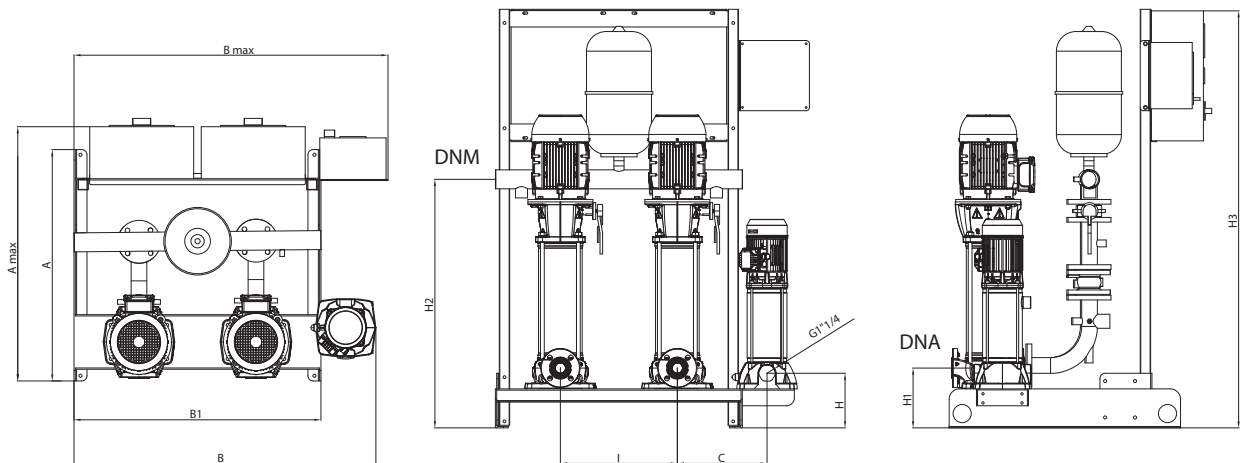
MODEL	ELECTRICAL DATA			
	POWER INPUT 50 Hz	P2 NOMINAL		In A
		kW	HP	
NKV 20/3	3x400 V	4,00	5,5	7,6
NKV 20/4	3x400 V	5,50	7,5	11
NKV 20/5	3x400 V	5,50	7,5	11
NKV 20/6	3x400 V	7,5	10	14,8
NKV 20/7	3x400 V	7,5	10	14,8
NKV 20/8	3x400 V	11,0	15	22,4
NKV 20/9	3x400 V	11,0	15	22,4
NKV 20/10	3x400 V	11,0	15	22,4

NKV 20 - UNI EN 12845 FIRE-FIGHTING PUMP SETS

ELECTRIC PUMP SET 1



ELECTRIC PUMP SET 2



MODEL	A	A max	B	B1	B max	C	I	H	H1	H2	H3	DNA	DNM
1 NKV20	1000	1100	700	500	745	350	-	210	240	970	1600	50	2" 1/2
2 NKV20	1000	1100	1100	950	1200	350	450	210	240	970	1600	50	2" 1/2