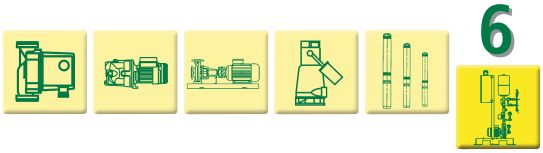
BOOSTER SETS



DAB

PUMP PERFORMANCE

DWT GROUP

PUMPS • MOTORS • ELECTRONICS

TECHNICAL CATALOGUE SECTIONS:

CONTENTS

DAB PUMP PERFORMANCE

PUMP SET SELECTION PARAMETERS

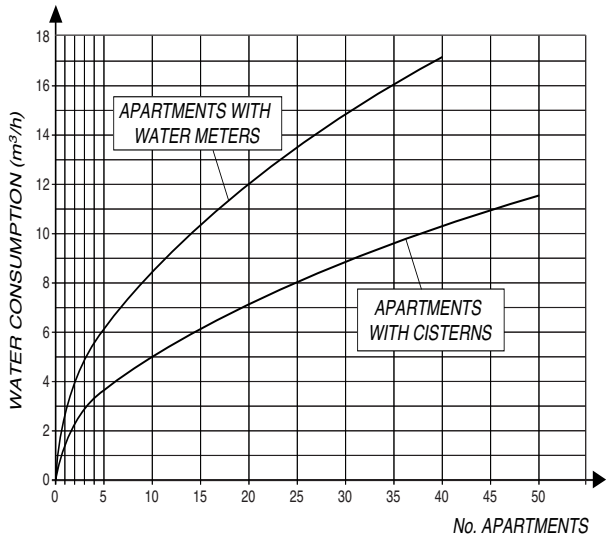
TO SUPPLY WATER TO APARTMENTS, HOTELS HOSPITALS AND SIMILAR BUILDINGS

To choose a pump set it is important to have two basic items of information: how much water is required and to what height must it be pumped. The following table describes how water is used in the case of a house or apartment

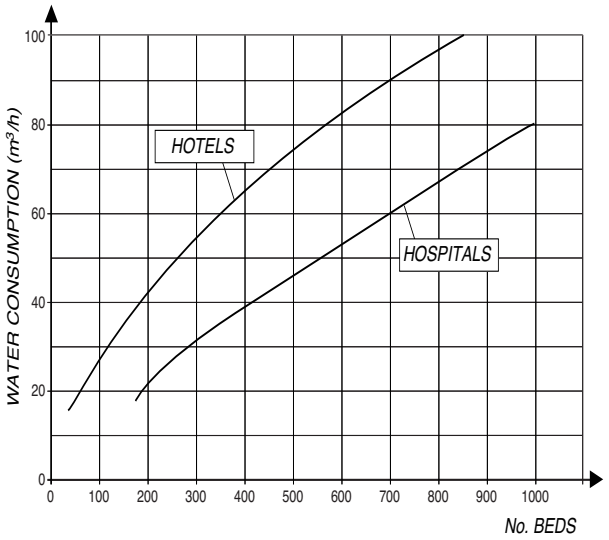
	Q (l/min)
Toilet with direct flush valve	90
Bath tub	15
Shower	12
Washing machine	12
Dishwasher	10
Kitchen sink	9
Wash basin	6
Bidet	6
Toilet with cistern flush	6
	166

Clearly, 166 l/min per apartment is excessive because shower, toilet, etc. are not used simultaneously. Therefore, to calculate the quantity of water needed we can use mathematical formulae that give us the necessary flow rate per number of apartments. The calculation results are given in the following tables.

For apartments



For hotels and hospitals



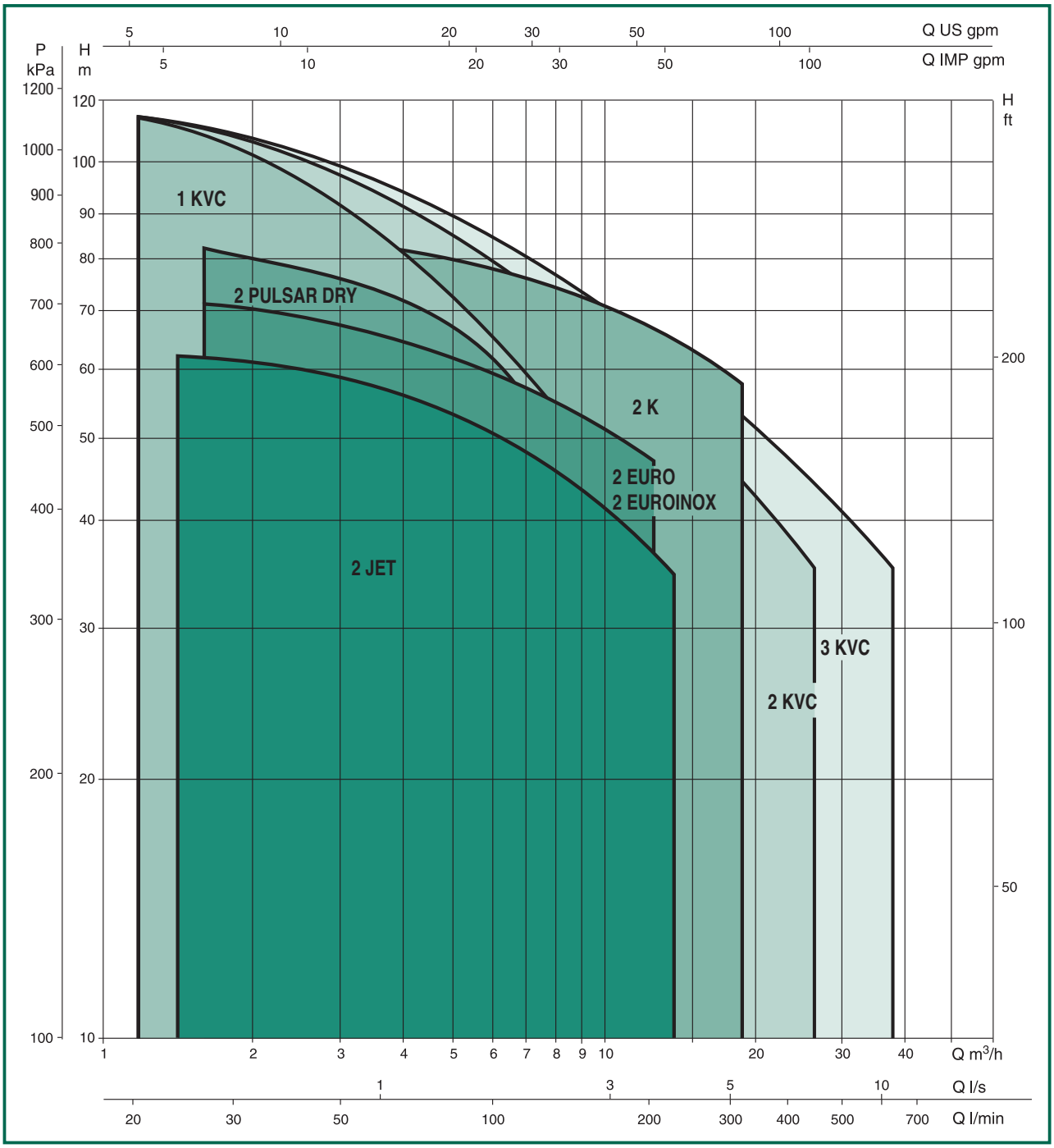
For apartments with two bathrooms, the flow rate should be increased by 30%, by 25% for 3 bathrooms and by 20% for 4 bathrooms. For holiday resorts, the number of apartments should be multiplied by 1.2.

So, once we know the number of apartments or beds, we can calculate the amount of water needed. The pump set must lift water to the highest floor of the building and must have a minimum pressure of 1 bar (approx 10 m) at the most distant user point. The set must however also be able to compensate for leakages from the distribution system, and it is also aided by the water mains pressure; the pump set head is therefore equivalent to:
H = (building H + leaks H + residual H) – water mains H (m)

Considering that leaks amount to approximately 20% of building H, we obtain:
H = (1.2 x building H + 10) – water mains H (m)

Summarising: 1) From the number of apartments we can calculate flow rate Q.
2) From the building height and water mains pressure we can calculate H.
3) IN the tables given on the following pages we can choose the pump set whose curve end point coincides with the calculated Q and H values and which has at least 2 bar (20 m) between curve start and curve end.

SELECTION TABLES



2 JET PUMP SETS
WITH 2 JET SELF-PRIMING PUMPS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses
The electric pumps employed, the JET self-priming models, offer the ability to function also in the presence of air, gas or small amounts of sand in the water.
These pumps are invaluable when drawing water from artesian wells and in the presence of suction difficulties.
Jet self-priming pumps are notable for their supreme reliability, simplicity of operation and absence of maintenance requirements.
The sets are supplied as standard with tanks and with air supply connector.

Construction features

HYDRAULIC SECTION

- 2 JET type self-priming centrifugal electric pumps;
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in tropicalized galvanized steel;
- 2 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 1/4” air supply connectors in suction of each pump;
- 2 Tropicalized cast iron female plugs for closing manifolds;
- Radial pressure gauge with isolator valve;
- 1 pressure transducer on discharge manifold (pressure detection).

ELECTRICAL SECTION

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating installed on the discharge manifold of the set.
The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.

Front panel components:
- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms reset button
- run, trip and alarm indicator lights

Components inside the control panel enclosure:
- control circuit board with fuses and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts or pressure switches, standard or supplementary tanks)

The control panel is prearranged for the connection of:
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

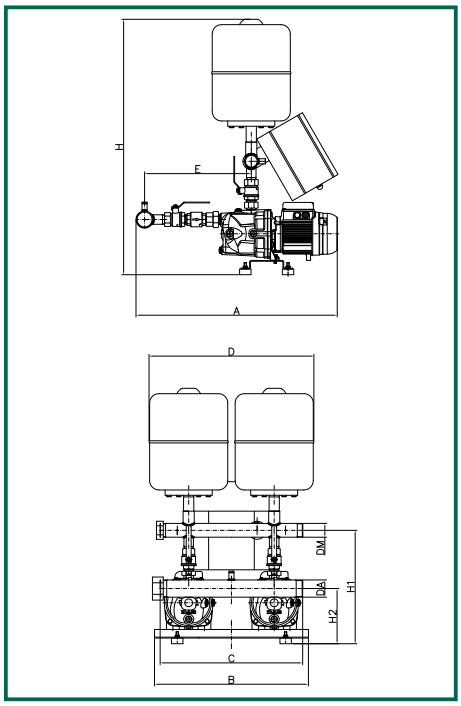
The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

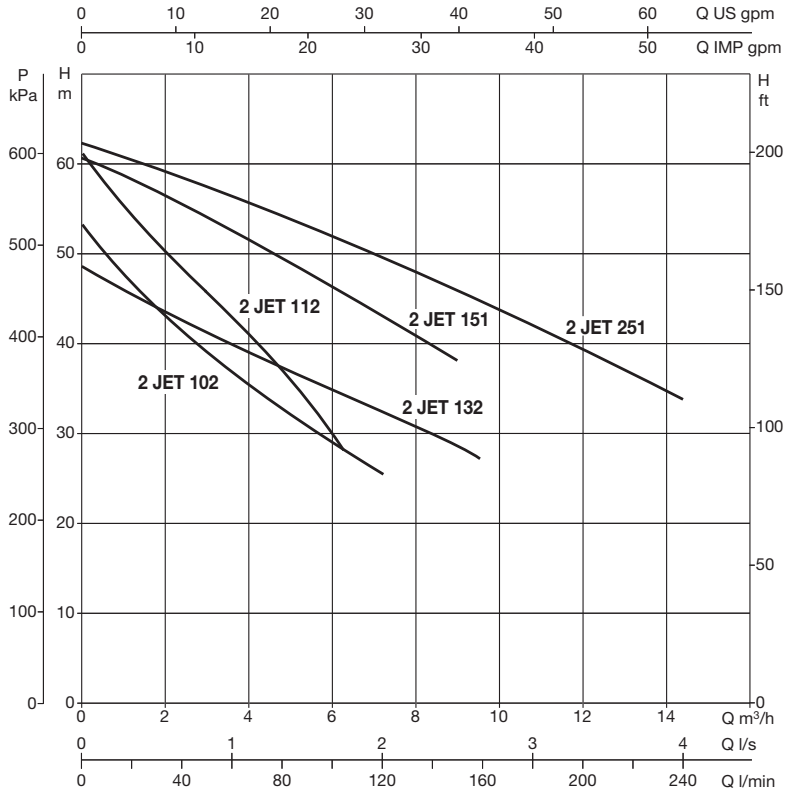
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 JET PUMP SETS

Liquid temperature range: from 0°C to +35°C
Maximum ambient temperature: +40°C

Maximum flow rate: 14.4 m³/h





MODEL	A	B	C	D	E	H	H1	H2	Ø MANIFOLDS DNA (suction)	Ø MANIFOLDS DNM (discharge)	WEIGHT Kg
2 JET 102 M	715	540	500	575	385	830	398	194	2"	1 1/2"	71
2 JET 112 M	715	540	500	575	385	830	398	194	2"	1 1/2"	74
2 JET 132 M	715	540	500	575	385	830	398	194	2"	1 1/2"	77
2 JET 151 M	715	540	500	565	385	830	398	194	2"	1 1/2"	101
2 JET 251 M	715	540	500	575	385	830	398	194	2"	1 1/2"	75
2 JET 102 T	715	540	500	575	385	830	398	194	2"	1 1/2"	75
2 JET 112 T	715	540	500	575	385	830	398	194	2"	1 1/2"	78
2 JET 132 T	715	540	500	575	385	830	398	194	2"	1 1/2"	81
2 JET 151 T	960	540	500	565	535	850	458	184	2"	1 1/2"	105
2 JET 251 T	960	540	500	565	535	850	458	184	2"	1 1/2"	108

MODEL	SUPPLY VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE MAX AVAILABLE BAR	STANDARD PRESSURE (BAR)
2 JET 102 M	1x220-240 V ~	2x0,75	2x1	2x5,1	6,6-3,0	5	3,5
2 JET 112 M	1x220-240 V ~	2x1	2x1,36	2x7	6,6-3,0	5,8	4
2 JET 132 M	1x220-240 V ~	2x1	2x1,36	2x7	9,6-3,0	4,6	3
2 JET 151 M	1x220-240 V ~	2x1,1	2x1,5	2x7,2	9,4-5,0	6,1	4
2 JET 251 M	1x220-240 V ~	2x1,85	2x2,5	2x10	14,0-7,2	6,4	4
2 JET 102 T	3x400 V ~	2x0,75	2x1	2x1,98	6,6-3,0	5	3,5
2 JET 112 T	3x400 V ~	2x1	2x1,36	2x2,7	6,6-3,0	5,8	4
2 JET 132 T	3x400 V ~	2x1	2x1,36	2x2,7	9,6-3,0	4,6	3
2 JET 151 T	3x400 V ~	2x1,1	2x1,5	2x3	9,4-5,0	6	4
2 JET 251 T	3x400 V ~	2x1,85	2x2,5	2x4	14,4-7,2	6	4

2 K PUMP SETS
WITH 2 K CENTRIFUGAL PUMPS WITH TWIN OPPOSING IMPELLERS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for small and medium systems for civil use.
The use of K type centrifugal electric pumps with twin opposing impellers, featuring an excellent power-pressure ratio, ensures high efficiency and very low noise operation.
These pumps are characterised by their rugged construction, compact dimensions and extreme reliability.
The sets are supplied as standard with tanks and with air supply connector.

Construction features

HYDRAULIC SECTION

- 2 K type twin impeller centrifugal pumps
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in tropicalized galvanized steel;
- 2 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 2 Tropicalized cast iron female plugs for closing manifolds;
- 1/4" air supply connectors in suction of each pump;
- Radial pressure gauge with isolator valve;
- 1 pressure transducer on discharge manifold (pressure detection).

ELECTRICAL SECTION

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating installed on the discharge manifold of the set.
The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.

Front panel components:
- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms reset button
- run, trip and alarm indicator lights

Components inside the control panel enclosure:
- control circuit board, fuses, and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks).

The control panel is prearranged for the connection of:
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

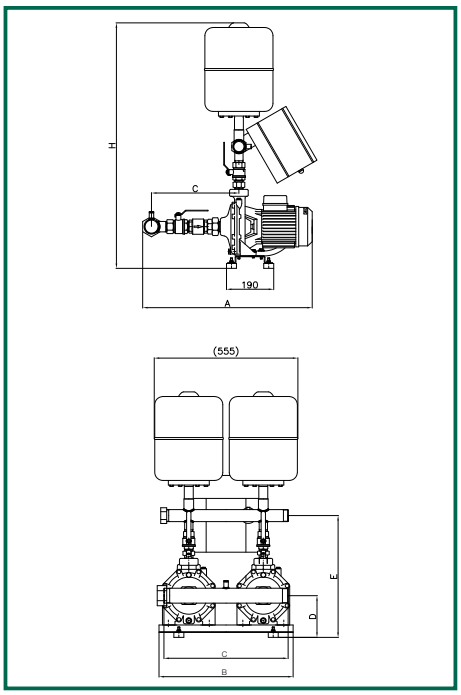
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

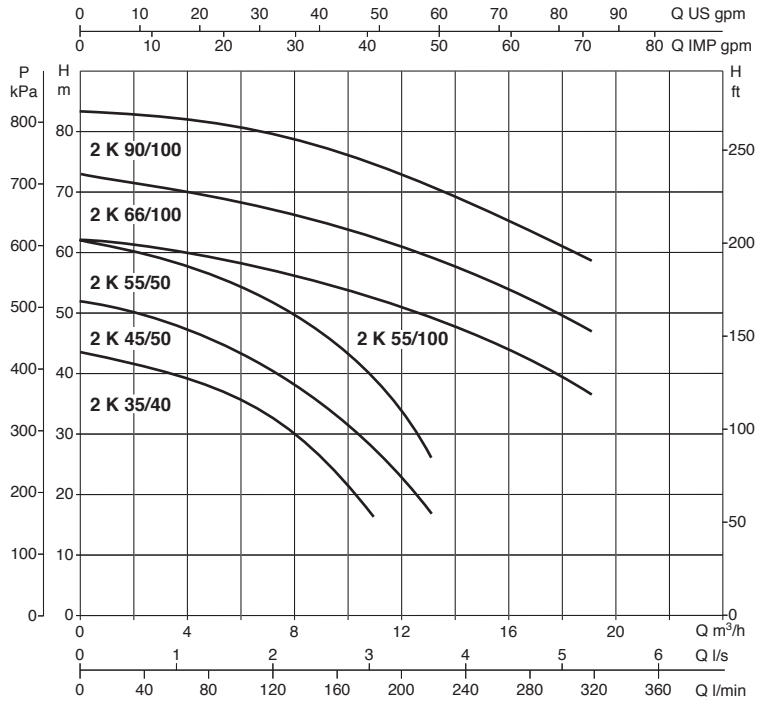
2 K PUMP SETS

Liquid temperature range: from -10°C a +50°C (K 35/40 - K 45/50 - K 55/100) from -10°C a +70°C (K 55/50 - K 66/100 - K 90/100)

Maximum flow rate: 19 m³/h

Maximum ambient temperature: +40°C





MODEL	A	B	C	D	E	H	H1	H2	Ø MANIFOLDS DNA (suction)	Ø MANIFOLDS DNM (discharge)	WEIGHT Kg
2 K 35/40 M	700	540	500	555	400	910	457	150	2"	1 1/2"	69
2 K 45/50 M	700	540	500	555	400	910	480	205	2"	1 1/2"	85
2 K 55/50 M	700	540	500	555	400	910	480	205	2"	1 1/2"	92
2 K 35/40 T	700	540	500	555	400	910	457	150	2"	1 1/2"	73
2 K 45/50 T	700	540	500	555	400	910	480	205	2"	1 1/2"	89
2 K 55/50 T	700	540	500	555	400	910	480	205	2"	1 1/2"	92
2 K 55/100 T	900	580	500	545	400	1120	570	220	2 1/2"	2 1/2"	155
2 K 66/100 T	900	580	500	545	400	1120	570	220	2 1/2"	2 1/2"	160
2 K 90/100 T	900	580	500	545	400	1120	570	220	2 1/2"	2 1/2"	167

MODEL	SUPPLY VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE MAX AVAILABLE BAR	STANDARD PRESSURE (BAR)
2 K 35/40 M	1x220-240 V ~	2x0,75	2x1	2x5,5	9,0-6,0	4,2	2,5
2 K 45/50 M	1x220-240 V ~	2x1,1	2x1,5	2x8,3	10,8-6,0	5,2	3,5
2 K 55/50 M	1x220-240 V ~	2x1,85	2x2,5	2x12,8	12,0-7,0	6,2	4
2 K 35/40 T	3x400 V ~	2x0,75	2x1	2x3,5	9,6-6,0	4,2	2,5
2 K 45/50 T	3x400 V ~	2x1,1	2x1,5	2x3,6	10,8-6,0	5,2	3,5
2 K 55/50 T	3x400 V ~	2x1,85	2x2,5	2x4,8	12,0-7,0	6,2	4
2 K 55/100 T	3x400 V ~	2x2,2	2x3	2x6,7	18,0-10,0	6,2	4
2 K 66/100 T	3x400 V ~	2x3	2x4	2x8,4	18,0-10,0	7,3	5
2 K 90/100 T	3x400 V ~	2x4	2x5,5	2x9,7	21,0-14,0	8,4	6

1-2-3 KVC PUMP SETS

WITH 1-2-3 MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMPS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
The use of multistage vertical axis centrifugal pumps is a guarantee of high performance and efficiency levels.
These pumps are characterised by their compact dimensions, rugged construction, extreme reliability and very low noise operation.

Construction features

HYDRAULIC SECTION

- KVC type 1-2-3 multistage vertical axis electric pumps;
- Skid in galvanized sheet steel;
- Suction and discharge manifolds in AISI 304 stainless steel (1KVC without suction manifold) ;
- 1 - 2 - 3 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valves with union on suction ports of each pump;
- 1/4" air supply connectors in suction of each pump;
- 2 INOX female plugs for closing manifolds;
- Axial pressure gauge with isolator valve;
- Galvanized steel column for mounting of control cabinet.

Electrical section

1KVC PUMP SETS

Single-phase version. 1 two-pole pressure switch connected to electric pump, complete with power plug.
Three-phase version. Remote motor protector panel with reset pushbutton, 1 two-pole pressure switch connected to electric pump.

2KVC PUMP SETS

Control panel in impact-resistant self-extinguishing plastic with IP 55 protection rating. The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.
Pressure detection is performed by a pressure transmitter installed on the discharge manifold.

Front panel components:
- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms RESET button
- run, trip and alarm indicator lights

Components inside the control panel enclosure
- control circuit board, fuses, contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks).

3KVC PUMP SETS

Control panel in impact-resistant self-extinguishing plastic with IP 55 protection rating. The control panel enclosure houses the main power switch, thermal magnetic cut-outs to protect the electric pumps, electric pump starting sequence changeover system, low voltage 24V control circuit, MAN-0-AUT selectors. (start pushbuttons for single-phase version panel), indicator lights on front panel. Installed on specifically designed column mounted on pumps skid.
3 preset pressure switches for pumps starting / stopping.

The control panel of 2KVC and 3KVC pump sets is prearrange for connection of:
Pressure switch or float switch kit to protect against dry running (*)
Overpressure cut-out pressure switch kit (*)

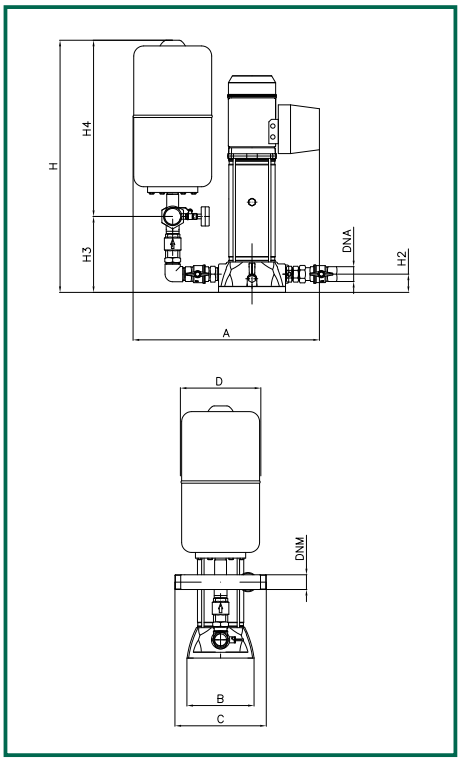
(*) to be ordered separately as an optional

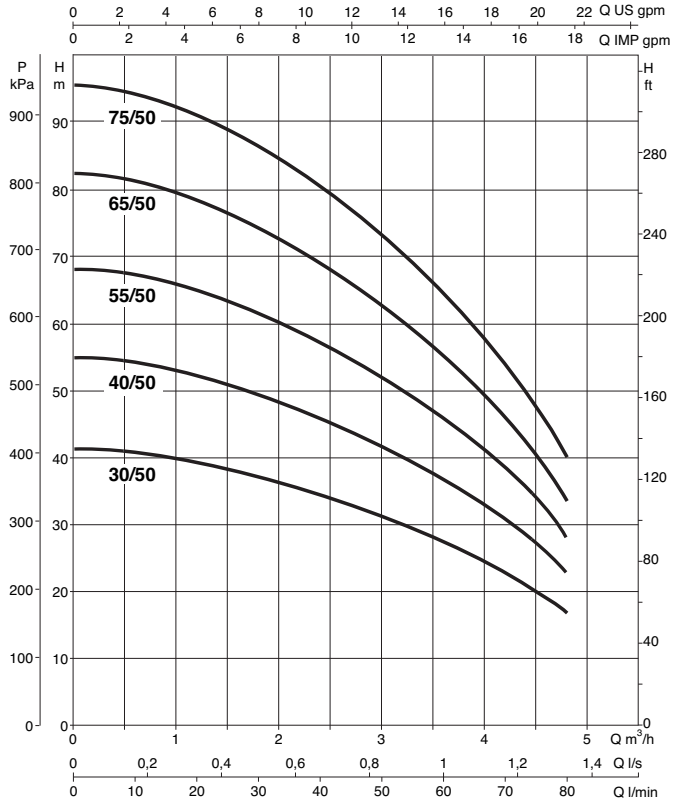
The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KVC 50 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





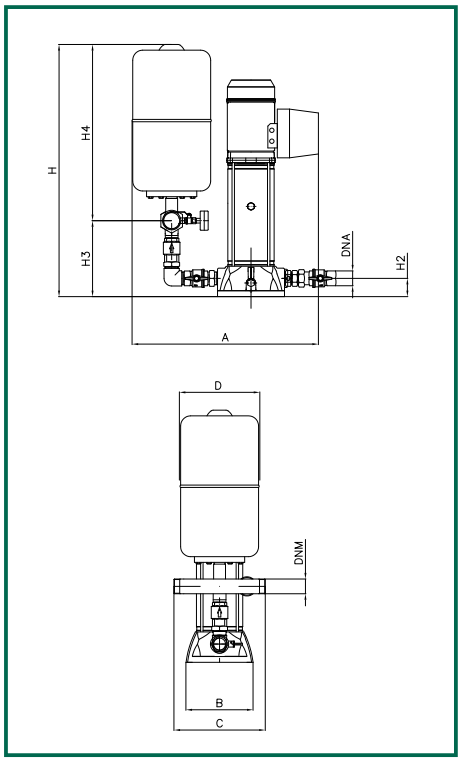
MODEL	A	B	C	D	H	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
									DNA (suction)	DNM (discharge)	Monophase	Three-phase
GRUPPI 1KVC 30/50	630	300	300	260	730	60	290	450	1" 1/4	1" 1/2	26	26
GRUPPI 1KVC 40/50	630	300	300	260	730	60	290	450	1" 1/4	1" 1/2	28	28
GRUPPI 1KVC 55/50	630	300	300	260	730	60	290	450	1" 1/4	1" 1/2	29	29
GRUPPI 1KVC 65/50	630	300	300	260	730	60	290	450	1" 1/4	1" 1/2	32	32
GRUPPI 1KVC 75/50	630	300	300	260	730	60	290	450	1" 1/4	1" 1/2	33	32

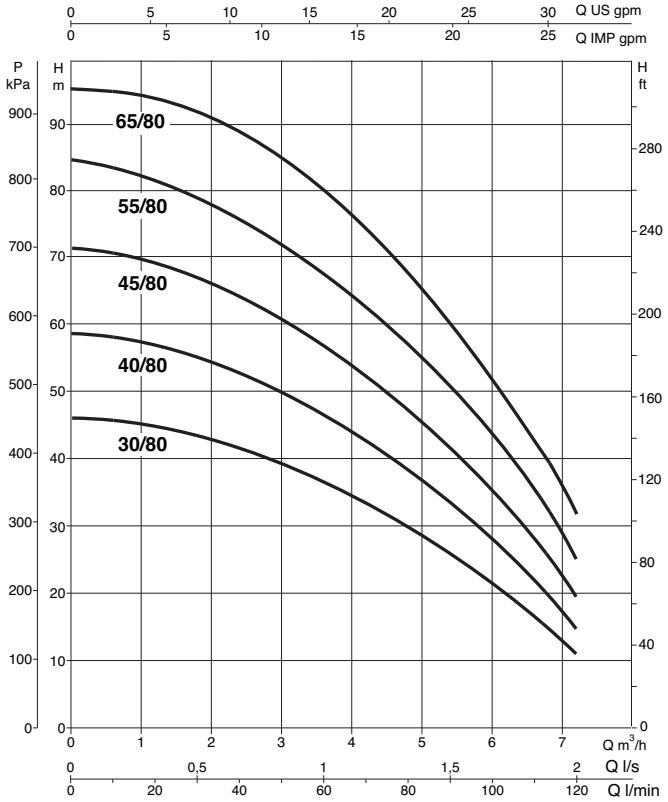
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH
	50 Hz	kW	HP	A	m³/h	BAR	BAR
1KVC 30/50 M	1x 220-240 v	0,55	0,75	4	4,5 - 1	4	2,5 – 3,5
1KVC 30/50 T	3x 400 v	0,55	0,75	1,4	4,5 - 1	4	2,5 – 3,5
1KVC 40/50 M	1x 220-240 v	0,8	1,1	5,6	4,5 – 1	5,2	4 – 5
1KVC 40/50 T	3x 400 v	0,8	1,1	2,2	4,5 – 1	5,2	4 – 5
1KVC 55/50 M	1x 220-240 v	1	1,36	6,4	4,5 – 1	6,5	5 – 6
1KVC 55/50 T	3x 400 v	1	1,36	2,6	4,5 – 1	6,5	5 – 6
1KVC 65/50 M	1x 220-240 v	1,1	1,5	7,4	4,5 – 1	8	6,5 – 7,5
1KVC 65/50 T	3x 400 v	1,1	1,5	3,1	4,5 – 1	8	6,5 – 7,5
1KVC 75/50 M	1x 220-240 v	1,5	2	9	4,5 – 1	9	7,5 – 8,5
1KVC 75/50 T	3x 400 v	1,5	2	3,6	4,5 – 1	9	7,5 – 8,5

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KVC 80 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





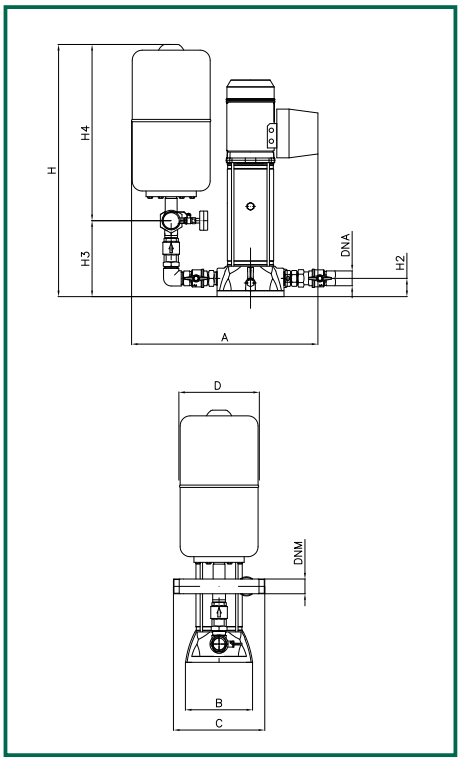
MODEL	A	B	C	D	H	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
									DNA (suction)	DNM (discharge)	Monophase	Three-phase
GRUPPI 1KVC 30/80	620	300	300	260	730	60	290	450	1" 1/4	1" 1/2	28	27
GRUPPI 1KVC 40/80	620	300	300	260	730	60	290	450	1" 1/4	1" 1/2	29	29
GRUPPI 1KVC 45/80	620	300	300	260	730	60	290	450	1" 1/4	1" 1/2	32	32
GRUPPI 1KVC 55/80	620	300	300	260	730	60	290	450	1" 1/4	1" 1/2	33	32
GRUPPI 1KVC 65/80	620	300	300	260	730	60	290	450	1" 1/4	1" 1/2	-	34

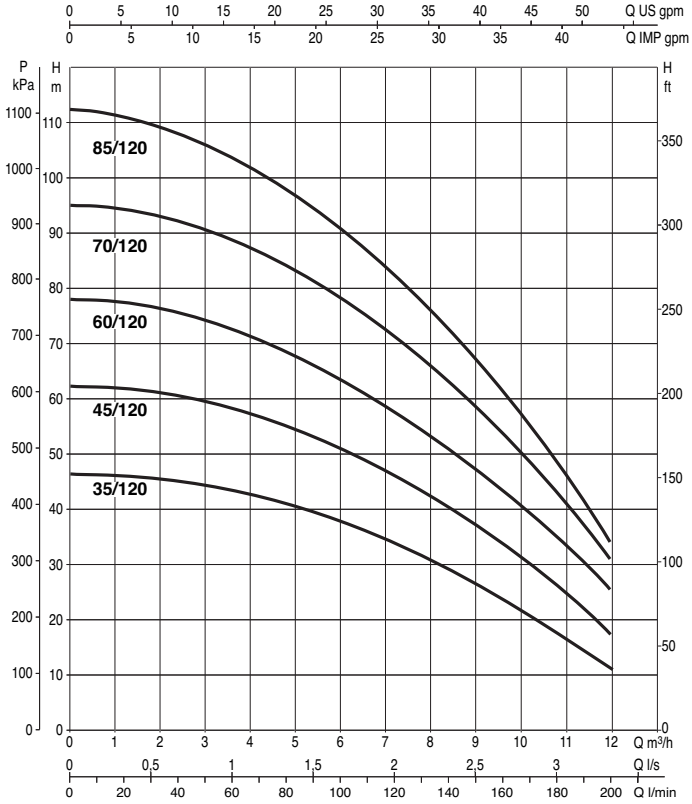
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
1KVC 30/80 M	1x 220-240 v	0,8	1,1	5,6	7 - 2	4,5	3 – 4
1KVC 30/80 T	3x 400 v	0,8	1,1	2,2	7 - 2	4,5	3 – 4
1KVC 40/80 M	1x 220-240 v	1	1,36	6,5	7 – 2	5,5	4 – 5
1KVC 40/80 T	3x 400 v	1	1,36	2,6	7 – 2	5,5	4 – 5
1KVC 45/80 M	1x 220-240 v	1,1	1,5	7,4	7 – 2	6,8	5 – 6
1KVC 45/80 T	3x 400 v	1,1	1,5	3,1	7 – 2	6,8	5 – 6
1KVC 55/80 M	1x 220-240 v	1,5	2	9	7 – 2	8	6 – 7
1KVC 55/80 T	3x 400 v	1,5	2	3,6	7 – 2	8	6 – 7
1KVC 65/80 T	3x 400 v	2,2	3	4	7 - 2	9,2	7 – 8

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KVC 120 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





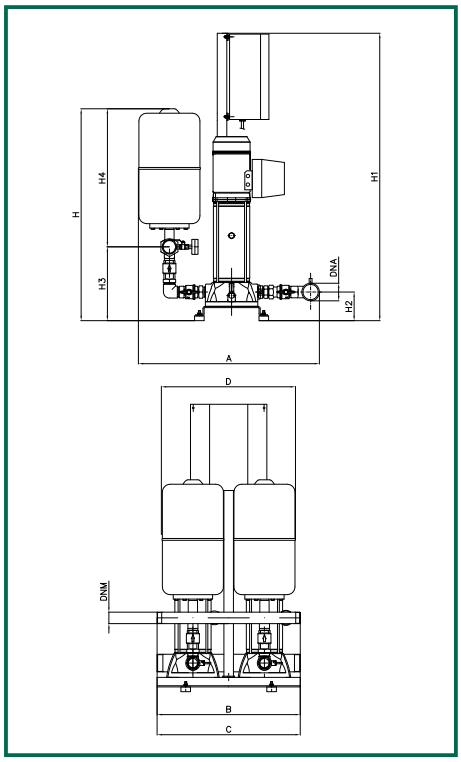
MODEL	A	B	C	D	H	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
									DNA (suction)	DNM (discharge)	Monophase	Three-phase
GRUPPI 1KVC 35/120	620	300	300	260	730	260	290	450	1" 1/4	1" 1/2	32	32
GRUPPI 1KVC 45/120	620	300	300	260	730	260	290	450	1" 1/4	1" 1/2	44	34
GRUPPI 1KVC 60/120	620	300	300	260	730	260	290	450	1" 1/4	1" 1/2	-	36
GRUPPI 1KVC 70/120	620	300	300	260	730	260	290	450	1" 1/4	1" 1/2	-	38
GRUPPI 1KVC 85/120	620	300	300	260	730	260	290	450	1" 1/4	1" 1/2	-	39

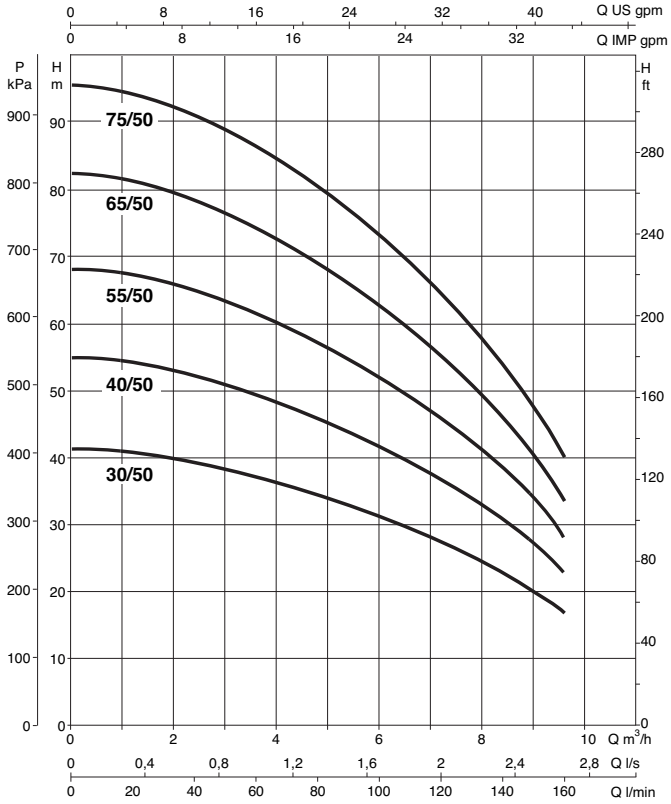
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
1KVC 35/120 M	1x 220-240 v	1,1	1,5	7,4	11 – 2	4,5	3 – 4
1KVC 35/120 T	3x 400 v	1,1	1,5	3,5	11 – 2	4,5	3 – 4
1KVC 45/120 M	1x 220-240 v	1,85	2,5	12	11 – 2	6	4,5 – 5,5
1KVC 45/120 T	3x 400 v	1,85	2,5	4,6	11 – 2	6	4,5 – 5,5
1KVC 60/120 T	3x 400 v	2,2	3	5,4	11 – 2	7,5	5,5 – 6,5
1KVC 70/120 T	3x 400 v	3	4	6,8	11 – 2	9	7 – 8
1KVC 85/120 T	3x 400 v	3	4	7,8	11 – 2	10,5	9 – 10

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVC 50 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





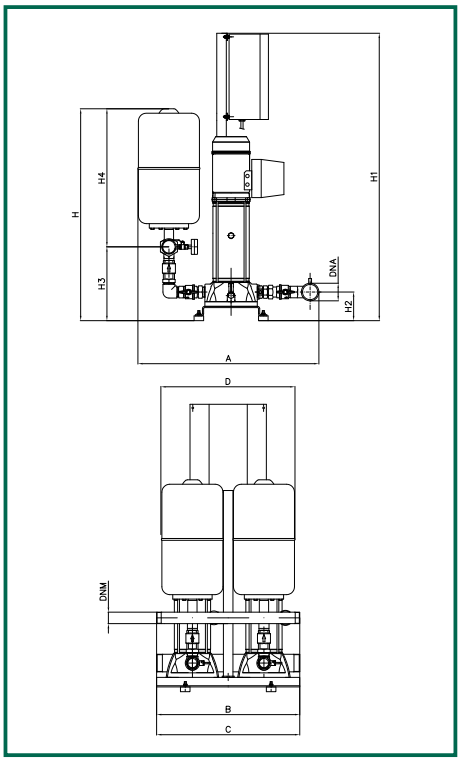
MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
2KVC 30/50	760	550	500	560	800	920	95	260	610	2"	2"	70	70
2KVC 40/50	760	550	500	560	800	920	95	260	610	2"	2"	74	74
2KVC 55/50	760	550	500	560	800	920	95	260	610	2"	2"	76	76
2KVC 65/50	760	550	500	560	800	920	95	260	610	2"	2"	82	81
2KVC 75/50	760	550	500	560	800	920	95	260	610	2"	2"	84	83

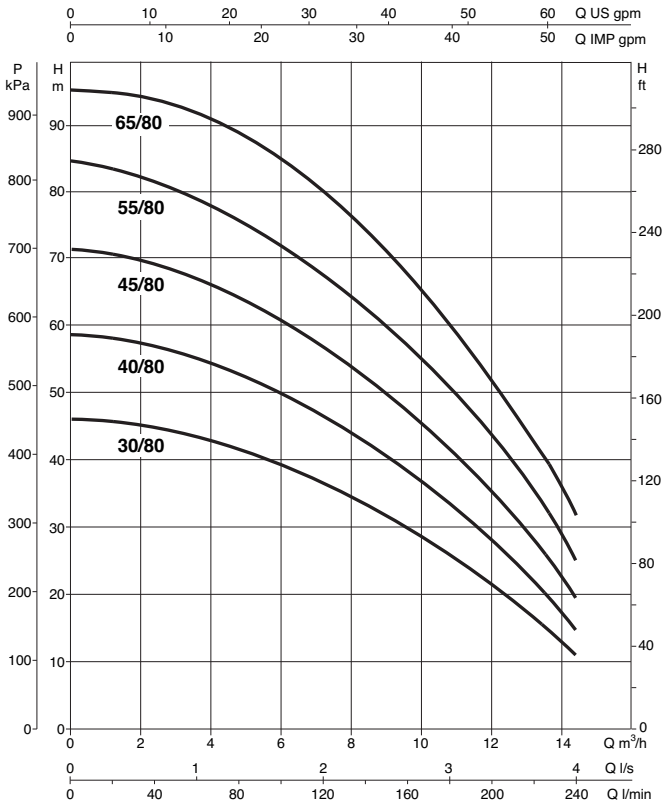
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
2KVC 30/50 M	1x 220-240 v	2x 0,55	2x 0,75	2x 4	9 - 1	4	2,5
2KVC 30/50 T	3x 400 v	2x 0,55	2x 0,75	2x 1,4	9 – 1	4	2,5
2KVC 40/50 M	1x 220-240 v	2x 0,8	2x 1,1	2x 5,6	9 – 1	5,2	3,5
2KVC 40/50 T	3x 400 v	2x 0,8	2x 1,1	2x 2,2	9 – 1	5,2	3,5
2KVC 55/50 M	1x 220-240 v	2x 1	2x 1,36	2x 6,4	9 – 1	6,5	4,5
2KVC 55/50 T	3x 400 v	2x 1	2x 1,36	2x 2,6	9 – 1	6,5	4,5
2KVC 65/50 M	1x 220-240 v	2x 1,1	2x 1,5	2x 7,4	9 – 1	8	5,5
2KVC 65/50 T	3x 400 v	2x 1,1	2x 1,5	2x 3,1	9 – 1	8	5,5
2KVC 75/50 M	1x 220-240 v	2x 1,5	2x 2	2x 9	9 – 1	9	6,5
2KVC 75/50 T	3x 400 v	2x 1,5	2x 2	2x 3,6	9 – 1	9	6,5

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVC 80 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





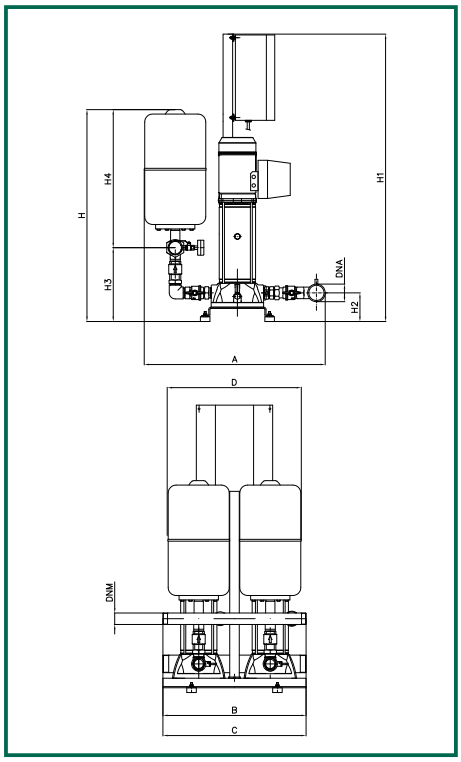
MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
2KVC 30/80	760	550	500	560	800	920	95	260	610	2"	2"	73	73
2KVC 40/80	760	550	500	560	800	920	95	260	610	2"	2"	76	76
2KVC 45/80	760	550	500	560	800	920	95	260	610	2"	2"	82	82
2KVC 55/80	760	550	500	560	800	920	95	260	610	2"	2"	84	82
2KVC 65/80	760	550	500	560	800	920	95	260	610	2"	2"	-	85

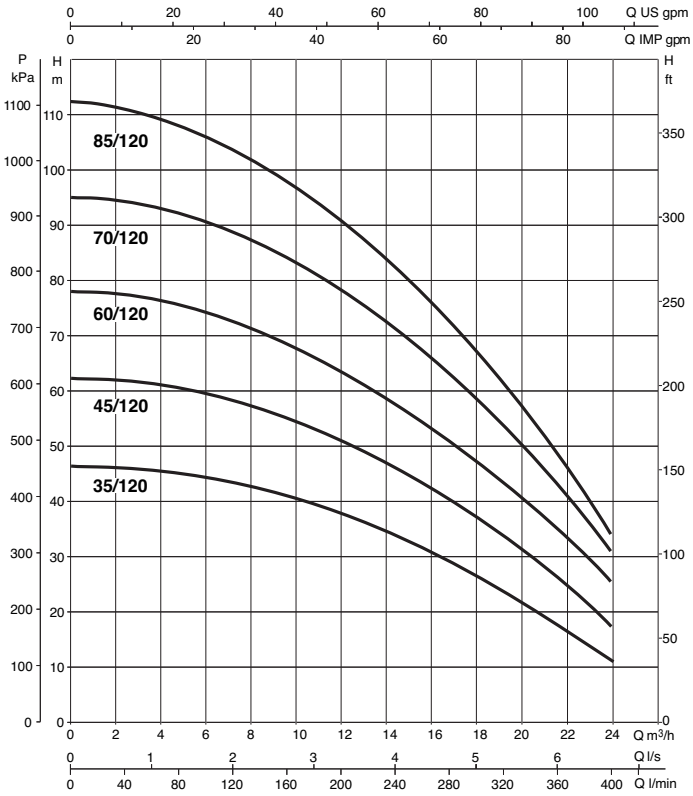
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
2KVC 30/80 M	1x 220-240 v	2x 0,8	2x 1,1	2x 5,6	14 - 2	4,5	3
2KVC 30/80 T	3x 400 v	2x 0,8	2x 1,1	2x 2,2	14 – 2	4,5	3
2KVC 40/80 M	1x 220-240 v	2x 1	2x 1,36	2x 6,5	14 – 2	5,5	4
2KVC 40/80 T	3x 400 v	2x 1	2x 1,36	2x 2,6	14 – 2	5,5	4
2KVC 45/80 M	1x 220-240 v	2x 1,1	2x 1,5	2x 7,4	14 – 2	6,8	5
2KVC 45/80 T	3x 400 v	2x 1,1	2x 1,5	2x 3,1	14 – 2	6,8	5
2KVC 55/80 M	1x 220-240 v	2x 1,5	2x 2	2x 9	14 – 2	8	6
2KVC 55/80 T	3x 400 v	2x 1,5	2x 2	2x 3,6	14 – 2	8	6
2KVC 65/80 T	3x 400 v	2x 2,2	2x 3	2x 4	14 – 2	9,2	7

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVC 120 PUMP SETS

Liquid temperature range: from -10°C to +50°
Maximum ambient temperature: +40°C





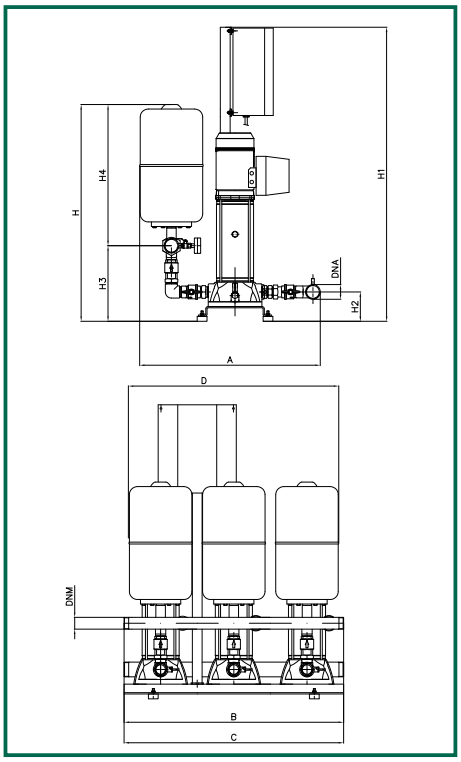
MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
2KVC 35/120	760	550	500	560	800	920	95	260	610	2"	2"	82	82
2KVC 45/120	760	550	500	560	800	920	95	260	610	2"	2"	86	86
2KVC 60/120	760	550	500	560	800	920	95	260	610	2"	2"	-	90
2KVC 70/120	760	550	500	560	800	920	95	260	610	2"	2"	-	94
2KVC 85/120	760	550	500	560	800	920	95	260	610	2"	2"	-	95

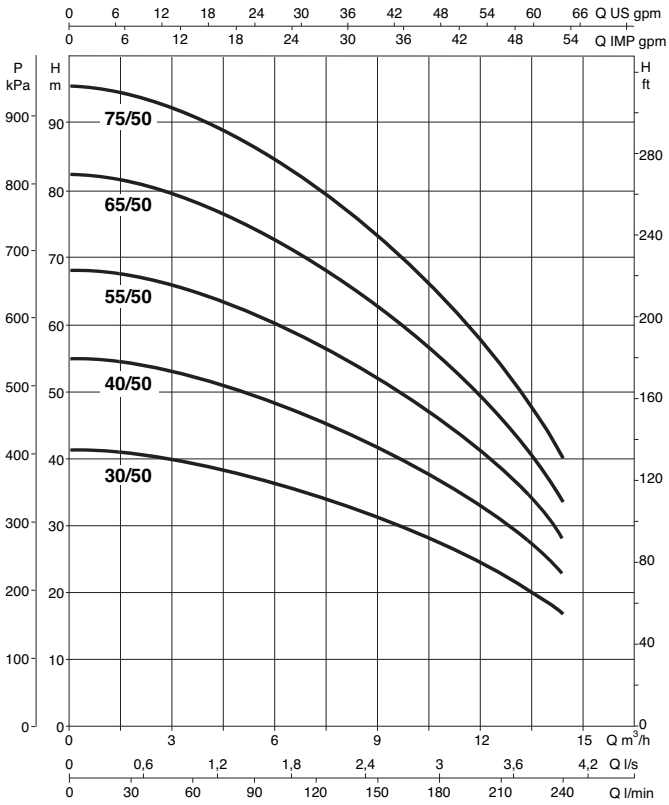
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
2KVC 35/120 M	1x 220-240 v	2x 1,1	2x 1,5	2x 7,4	22 – 2	4,5	3
2KVC 35/120 T	3x 400 v	2x 1,1	2x 1,5	2x 3,5	22 – 2	4,5	3
2KVC 45/120 M	1x 220-240 v	2x 1,85	2x 2,5	2x 12	22 – 2	6	4
2KVC 45/120 T	3x 400 v	2x 1,85	2x 2,5	2x 4,6	22 – 2	6	4
2KVC 60/120 T	3x 400 v	2x 2,2	2x 3	2x 5,4	22 – 2	7,5	5
2KVC 70/120 T	3x 400 v	2x 3	2x 4	2x 6,8	22 – 2	9	6
2KVC 85/120 T	3x 400 v	2x 3	2x 4	2x 7,8	22 – 2	10,5	7

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVC 50 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





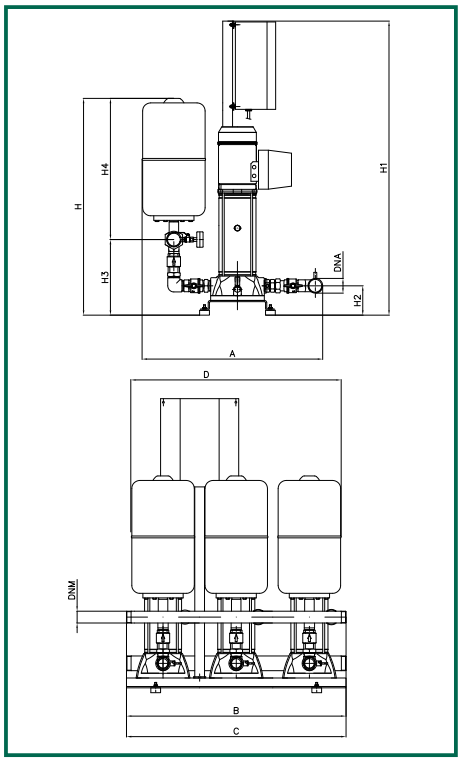
MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
3KVC 30/50	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	109	109
3KVC 40/50	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	115	115
3KVC 55/50	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	119	119
3KVC 65/50	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	128	127
3KVC 75/50	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	132	130

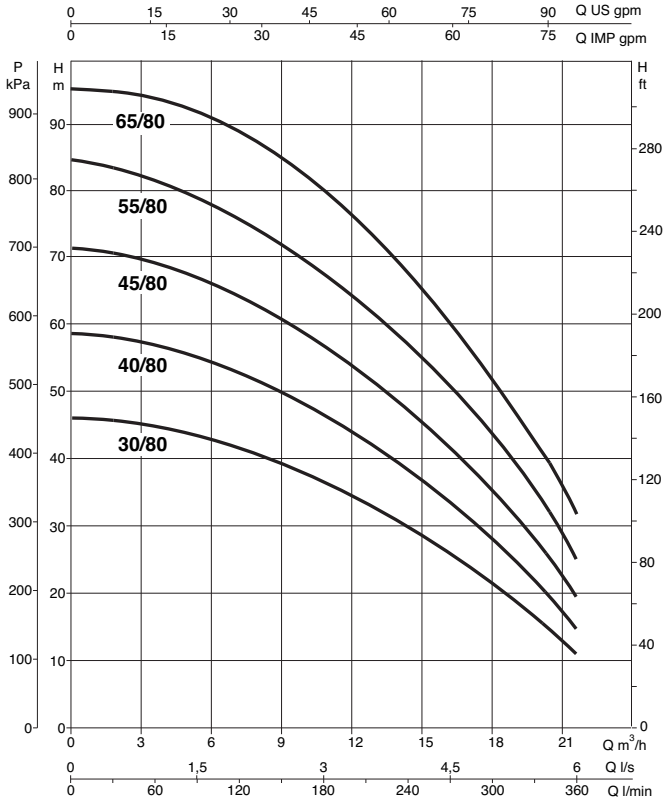
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
3KVC 30/50 M	1x 220-240 v	3x 0,55	3x 0,75	3x 4	13,5 - 1	4	1,5 – 3,5
3KVC 30/50 T	3x 400 v	3x 0,55	3x 0,75	3x 1,4	13,5 - 1	4	1,5 – 3,5
3KVC 40/50 M	1x 220-240 v	3x 0,8	3x 1,1	3x 5,6	13,5 – 1	5,2	3 – 5
3KVC 40/50 T	3x 400 v	3x 0,8	3x 1,1	3x 2,2	13,5 – 1	5,2	3 – 5
3KVC 55/50 M	1x 220-240 v	3x 1	3x 1,36	3x 6,4	13,5 – 1	6,5	4 – 6
3KVC 55/50 T	3x 400 v	3x 1	3x 1,36	3x 2,6	13,5 – 1	6,5	4 – 6
3KVC 65/50 M	1x 220-240 v	3x 1,1	3x 1,5	3x 7,4	13,5 – 1	8	5,5 – 7,5
3KVC 65/50 T	3x 400 v	3x 1,1	3x 1,5	3x 3,1	13,5 – 1	8	5,5 – 7,5
3KVC 75/50 M	1x 220-240 v	3x 1,5	3x 2	3x 9	13,5 – 1	9	6,5 – 8,5
3KVC 75/50 T	3x 400 v	3x 1,5	3x 2	3x 3,6	13,5 – 1	9	6,5 – 8,5

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVC 50 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





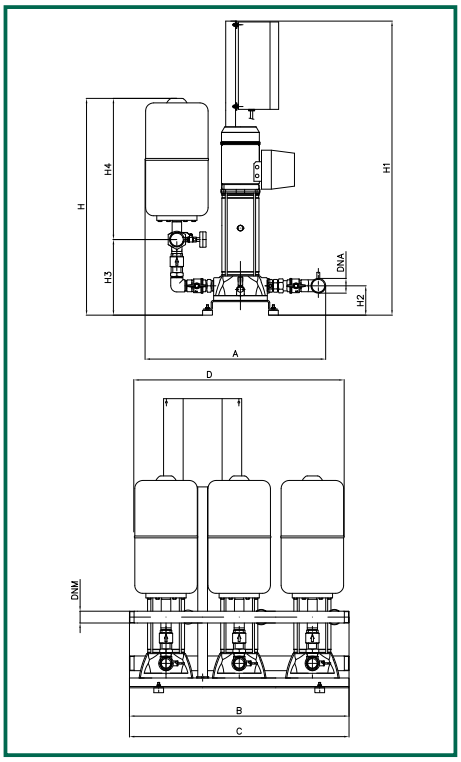
MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
3KVC 30/80	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	115	114
3KVC 40/80	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	119	119
3KVC 45/80	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	128	128
3KVC 55/80	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	131	128
3KVC 65/80	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	-	133

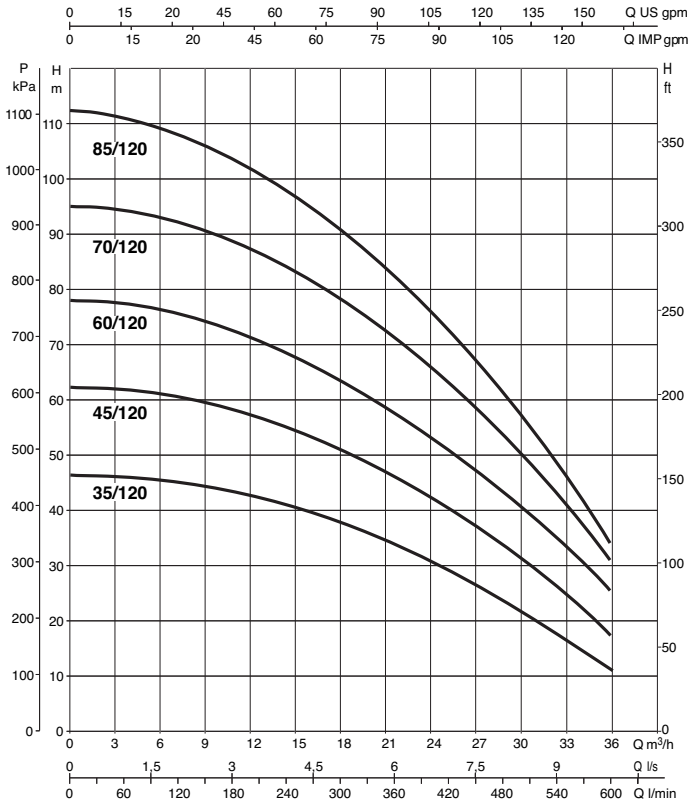
MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
3KVC 30/80 M	1x 220-240 v	3x 0,8	3x 1,1	3x 5,6	21 - 2	4,5	2 – 4
3KVC 30/80 T	3x 400 v	3x 0,8	3x 1,1	3x 2,2	21 - 2	4,5	2 – 4
3KVC 40/80 M	1x 220-240 v	3x 1	3x 1,36	3x 6,5	21 – 2	5,5	3 – 5
3KVC 40/80 T	3x 400 v	3x 1	3x 1,36	3x 2,6	21 – 2	5,5	3 – 5
3KVC 45/80 M	1x 220-240 v	3x 1,1	3x 1,5	3x 7,4	21 – 2	6,8	4 – 6
3KVC 45/80 T	3x 400 v	3x 1,1	3x 1,5	3x 3,1	21 – 2	6,8	4 – 6
3KVC 55/80 M	1x 220-240 v	3x 1,5	3x 2	3x 9	21 – 2	8	5 – 7
3KVC 55/80 T	3x 400 v	3x 1,5	3x 2	3x 3,6	21 – 2	8	5 – 7
3KVC 65/80 T	3x 400 v	3x 2,2	3x 3	3x 4	21 - 2	9,2	6 – 8

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVC 120 PUMP SETS

Liquid temperature range: from -10°C to +50°C
Maximum ambient temperature: +40°C





MODEL	A	B	C	D	H	H1	H2	H3	H4	Ø MANIFOLDS		WEIGHT Kg	
										DNA (suction)	DNM (discharge)	Monophase	Three-phase
3KVC 35/120	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	128	128
3KVC 45/120	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	134	134
3KVC 60/120	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	-	140
3KVC 70/120	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	-	146
3KVC 85/120	650	900	810	850	950	1100	100	410	610	2" 1/2	2" 1/2	-	148

MODEL	SUPPLY VOLTAGE	P2 NOMINAL		In	FLOW RATE	PRESSURE MAX AVAILABLE	PRESSURE SWITCH CALIBRATION
	50 Hz	kW	HP	A	m³/h	BAR	BAR
3KVC 35/120 M	1x 220-240 v	3x 1,1	3x 1,5	3x 7,4	33 – 2	4,5	2 – 4
3KVC 35/120 T	3x 400 v	3x 1,1	3x 1,5	3x 3,5	33 – 2	4,5	2 – 4
3KVC 45/120 M	1x 220-240 v	3x 1,85	3x 2,5	3x 12	33 – 2	6	3,5 – 5,5
3KVC 45/120 T	3x 400 v	3x 1,85	3x 2,5	3x 4,6	33 – 2	6	3,5 – 5,5
3KVC 60/120 T	3x 400 v	3x 2,2	3x 3	3x 5,4	33 – 2	7,5	4,5 – 6,5
3KVC 70/120 T	3x 400 v	3x 3	3x 4	3x 6,8	33 – 2	9	6 – 8
3KVC 85/120 T	3x 400 v	3x 3	3x 4	3x 7,8	33 – 2	10,5	8 – 10

2 EURO PUMP SETS
WITH 2 EURO MULTISTAGE CENTRIFUGAL PUMPS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses These sets are acclaimed for their supreme reliability, simplicity of operation and absence of maintenance requirements. The sets are supplied as standard with tanks and with air supply connector.

Construction features

HYDRAULIC SECTION

- 2 EURO multistage centrifugal pumps
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in tropicalized galvanized steel;
- 2 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 1/4" air supply connectors in suction of each pump;
- 2 Tropicalized galvanized cast iron female plugs for closing manifolds;
- Radial pressure gauge with isolator valve;
- 1 pressure transmitter on discharge manifold (pressure detection).

ELECTRICAL SECTION

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating installed on the discharge manifold of the set. The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.

Front panel components:

- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms RESET button
- run, trip and alarm indicator lights

Components inside the control panel enclosure:

- control circuit board, fuses, and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks)

The control panel is prearranged for the connection of:
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

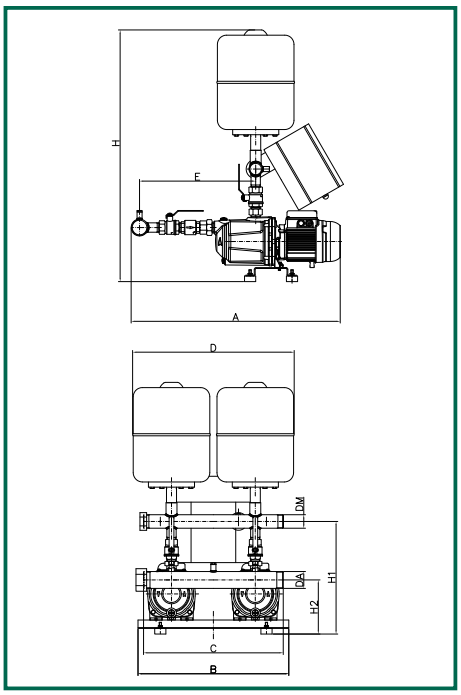
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

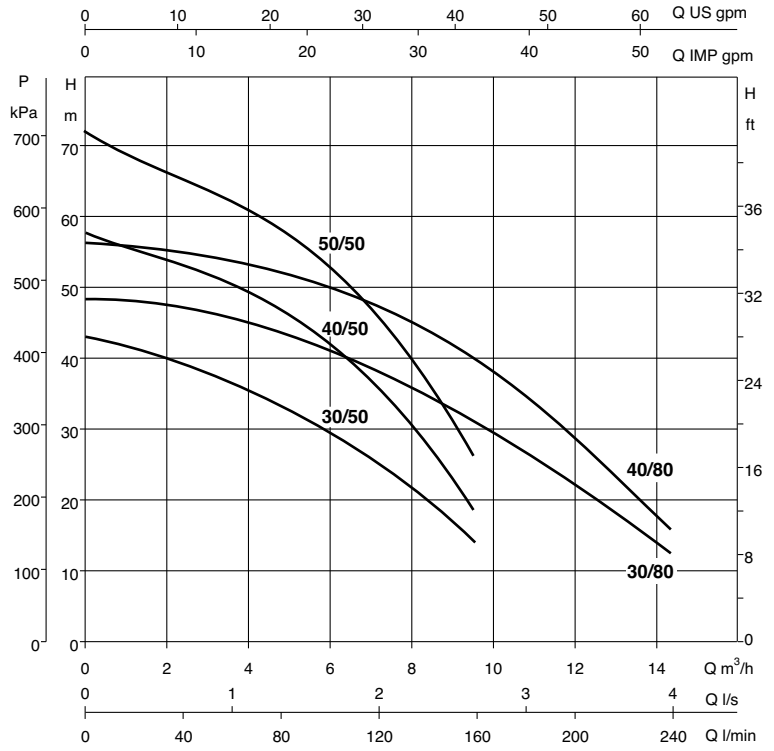
2 EURO PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Maximum flow rate: 14,5 m³/h

Maximum ambient temperature: +40°C





MODEL	A	B	C	D	E	H	H1	H2	Ø MANIFOLDS DNA (suction)	Ø MANIFOLDS DNM (discharge)	WEIGHT Kg
2 EURO 30/50 M	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 40/50 M	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 50/50 M	755	540	500	578	415	830	402	194	2"	1 1/2"	56
2 EURO 30/80 M	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 40/80 M	755	540	500	578	415	830	402	194	2"	1 1/2"	56
2 EURO 30/50 T	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 40/50 T	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 50/50 T	755	540	500	578	415	830	402	194	2"	1 1/2"	58
2 EURO 30/80 T	755	540	500	578	415	830	402	194	2"	1 1/2"	57
2 EURO 40/80 T	755	540	500	578	415	830	402	194	2"	1 1/2"	58

MODEL	SUPPLY VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE MAX AVAILABLE BAR	STANDARD PRESSURE (bar)
2 EURO 30/50 M	1x220-240 V~	2x0,55	2x0,75	2x3,9	8,0-4,4	3,8	2,5
2 EURO 40/50 M	1x220-240 V~	2x0,75	2x1	2x5,3	8,0-5,2	5,3	3,5
2 EURO 50/50 M	1x220-240 V~	2x1	2x1,36	2x6,3	7,6-5,2	6,5	4,5
2 EURO 30/80 M	1x220-240 V~	2x0,8	2x1,1	2x5,3	11,0-7,0	4,3	3
2 EURO 40/80 M	1x220-240 V~	2x1	2x1,36	2x6,3	10,0-6,0	5,5	4
2 EURO 30/50 T	3x400 V~	2x0,55	2x0,75	2x1,6	8,0-4,4	3,8	2,5
2 EURO 40/50 T	3x400 V~	2x0,75	2x1	2x2,2	8,0-5,2	5,3	3,5
2 EURO 50/50 T	3x400 V~	2x1	2x1,36	2x2,5	7,6-5,2	6,5	4,5
2 EURO 30/80 T	3x400 V~	2x0,8	2x1,1	2x2,2	11,0-7,0	4,3	3
2 EURO 40/80 T	3x400 V~	2x1	2x1,36	2x2,5	10,0-6,0	5,5	4

DAB PUMP PERFORMANCE

2 EUROINOX PUMP SETS
WITH 2 EUROINOX MULTISTAGE CENTRIFUGAL SELF-PRIMING PUMPS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses
The electric pumps employed, EUROINOX multistage centrifugal models, offer the ability to function also in the presence of air, gas or small amounts of sand in the water.
These pumps are invaluable when drawing water from artesian wells and in the presence of suction difficulties.
These sets are acclaimed for their supreme reliability, simplicity of operation and absence of maintenance requirements.
The sets are supplied as standard with tanks and with air supply connector.

Construction features

HYDRAULIC SECTION

- 2 EUROINOX multistage centrifugal electric pumps;
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in AISI 304 stainless steel;
- 2 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 1/4” air supply connectors in suction of each pump;
- 2 Stainless steel female plugs for closing manifolds;
- Radial pressure gauge with isolator valve;
- 1 pressure transmitter on discharge manifold (pressure detection).

ELECTRICAL SECTION

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating installed on the discharge manifold of the set.
The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.

Front panel components:
- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms RESET button
- run, trip and alarm indicator lights

Components inside the control panel enclosure
- control circuit board, fuses, and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks).

The control panel is prearranged for the connection of:
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

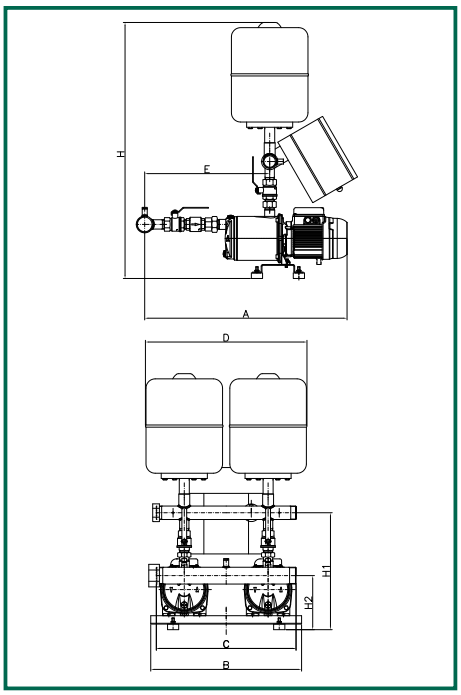
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

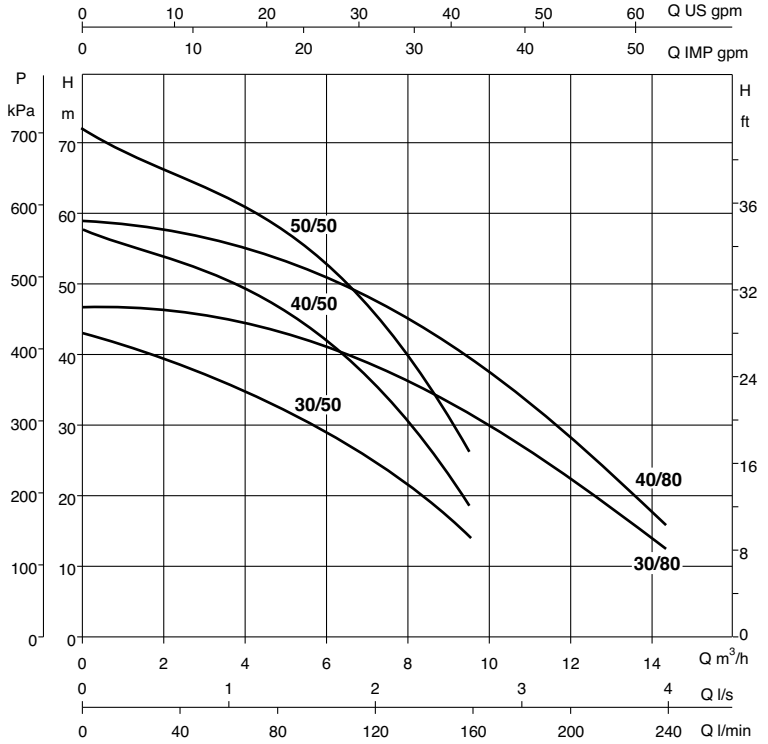
2 EUROINOX PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Maximum flow rate: 14,5 m³/h

Maximum ambient temperature: +40°C





MODEL	A	B	C	D	E	H	H1	H2	Ø MANIFOLDS DNA (suction)	Ø MANIFOLDS DNM (discharge)	WEIGHT Kg
2 EUROINOX 30/50 M	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 40/50 M	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 50/50 M	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 30/80 M	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 40/80 M	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 30/50 T	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 40/50 T	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 50/50 T	760	540	500	578	450	830	420	194	2"	1 1/2"	58
2 EUROINOX 30/80 T	760	540	500	578	450	830	420	194	2"	1 1/2"	57
2 EUROINOX 40/80 T	760	540	500	578	450	830	420	194	2"	1 1/2"	58

MODEL	SUPPLY VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE MAX AVAILABLE BAR	STANDARD PRESSURE (bar)
2 EUROINOX 30/50 M	1x220-240 V~	2x0,55	2x0,75	2x3,9	8,0-4,4	3,8	2,5
2 EUROINOX 40/50 M	1x220-240 V~	2x0,75	2x1	2x5,3	8,0-5,2	5,3	3,5
2 EUROINOX 50/50 M	1x220-240 V~	2x1	2x1,36	2x6,3	7,6-5,2	6,5	4,5
2 EUROINOX 30/80 M	1x220-240 V~	2x0,8	2x1,1	2x5,3	11,0-7,0	4,3	3
2 EUROINOX 40/80 M	1x220-240 V~	2x1	2x1,36	2x6,3	10,0-6,0	5,5	4
2 EUROINOX 30/50 T	3x400 V~	2x0,55	2x0,75	2x1,6	8,0-4,4	3,8	2,5
2 EUROINOX 40/50 T	3x400 V~	2x0,75	2x1	2x2,2	8,0-5,2	5,3	3,5
2 EUROINOX 50/50 T	3x400 V~	2x1	2x1,36	2x2,5	7,6-5,2	6,5	4,5
2 EUROINOX 30/80 T	3x400 V~	2x0,8	2x1,1	2x2,2	11,0-7,0	4,3	3
2 EUROINOX 40/80 T	3x400 V~	2x1	2x1,36	2x2,5	10,0-6,0	5,5	4

2 PULSAR DRY PUMP SETS
WITH 2 PULSAR DRY 5” BOREHOLE PUMPS

CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses
These sets are acclaimed for their supreme reliability, simplicity of operation and absence of maintenance requirements.
The sets are supplied as standard with tanks and with air supply connector.

Construction features

HYDRAULIC SECTION
- 2 PULSAR DRY centrifugal electric pumps;
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in AISI 304 stainless steel;
- 2 membrane pressure tanks;
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 1/4” air supply connectors in suction of each pump;
- 2 Stainless steel female plugs for closing manifolds;
- Radial pressure gauge with isolator valve;
- 1 pressure transmitter on discharge manifold (pressure detection).

ELECTRICAL SECTION
Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating installed on the discharge manifold of the set.
The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.

Front panel components:
- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms RESET button
- run, trip and alarm indicator lights

Components inside the control panel enclosure
- control circuit board, fuses, and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks).

The control panel is prearranged for the connection of:
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

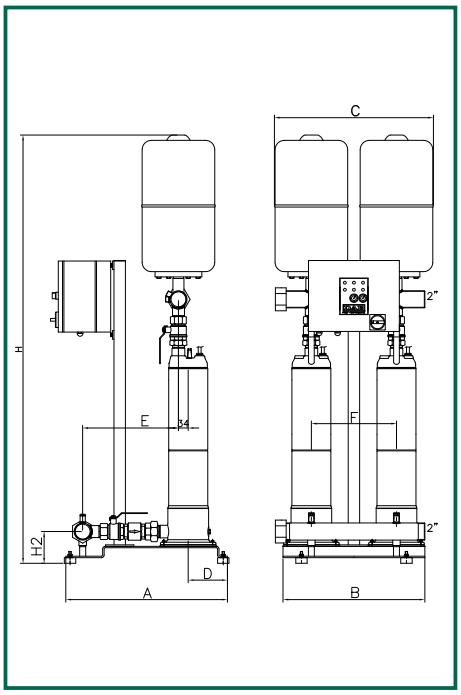
The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

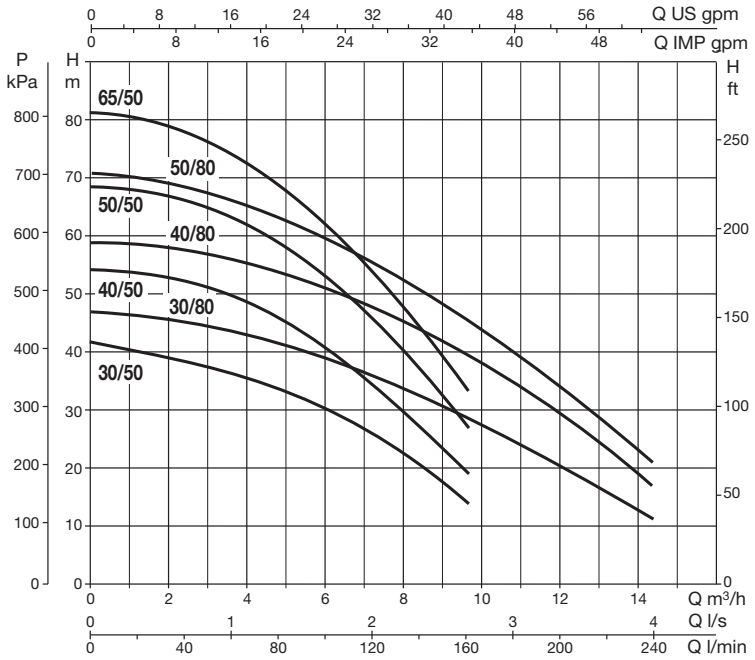
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 PULSAR DRY PUMP SETS

Liquid temperature range: from 0°C to +40°C (for domestic use)
Maximum ambient temperature: +40°C

Maximum flow rate: 14,5 m³/h





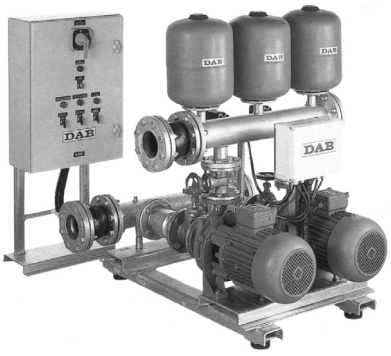
MODEL	A	B	D	E	F	C	H	H2	Ø MANIFOLDS DNA (suction)	Ø MANIFOLDS DNM (discharge)	WEIGHT Kg
2 PULSAR DRY 30/50 M	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 40/50 M	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 50/50 M	560	500	139	338	300	560	1482	112	2"	2"	66
2 PULSAR DRY 65/50 M	560	500	139	338	300	560	1509	112	2"	2"	66
2 PULSAR DRY 30/80 M	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 40/80 M	560	500	139	338	300	560	1482	112	2"	2"	67
2 PULSAR DRY 50/80 M	560	500	139	338	300	560	1509	112	2"	2"	66
2 PULSAR DRY 30/50 T	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 40/50 T	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 50/50 T	560	500	139	338	300	560	1415	112	2"	2"	66
2 PULSAR DRY 65/50 T	560	500	139	338	300	560	1509	112	2"	2"	66
2 PULSAR DRY 30/80 T	560	500	139	338	300	560	1415	112	2"	2"	67
2 PULSAR DRY 40/80 T	560	500	139	338	300	560	1482	112	2"	2"	67
2 PULSAR DRY 50/80 T	560	500	139	338	300	560	1509	112	2"	2"	66

MODEL	SUPPLY VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE MAX AVAILABLE BAR	STANDARD PRESSURE (bar)
2 PULSAR DRY 30/50 M	1x220-240 V~	2x0,55	2x0,75	2x4,5	8,2-4,4	3,8	2,5
2 PULSAR DRY 40/50 M	1x220-240 V~	2x0,75	2x1	2x5,5	8,0-4,4	5	3,5
2 PULSAR DRY 50/50 M	1x220-240 V~	2x1	2x1,36	2x7	7,6-5,0	6,5	4
2 PULSAR DRY 65/50 M	1x220-240 V~	2x1,2	2x1,6	2x8	7,6-5,0	8	5
2 PULSAR DRY 30/80 M	1x220-240 V~	2x0,75	2x1	2x5,4	11,0-7,0	4,5	3
2 PULSAR DRY 40/80 M	1x220-240 V~	2x1	2x1,36	2x7	11,0-7,1	5,8	4
2 PULSAR DRY 50/80 M	1x220-240 V~	2x1,2	2x1,6	2x8,2	11,2-8,0	7,2	5
2 PULSAR DRY 30/50 T	3x400 V~	2x0,55	2x0,75	2x1,8	8,2-4,4	3,8	2,5
2 PULSAR DRY 40/50 T	3x400 V~	2x0,75	2x1	2x2	8,0-4,4	5	3,5
2 PULSAR DRY 50/50 T	3x400 V~	2x1	2x1,36	2x2,6	7,6-5,0	6,5	4
2 PULSAR DRY 65/50 T	3x400 V~	2x1,2	2x1,6	2x3,1	7,6-5,5	8	5
2 PULSAR DRY 30/80 T	3x400 V~	2x0,75	2x1	2x2	11,0-7,0	4,5	3
2 PULSAR DRY 40/80 T	3x400 V~	2x1	2x1,36	2x2,5	11,0-7,1	5,8	4
2 PULSAR DRY 50/80 T	3x400 V~	2x1,2	2x1,6	2x3	11,2-8,0	7,0	5

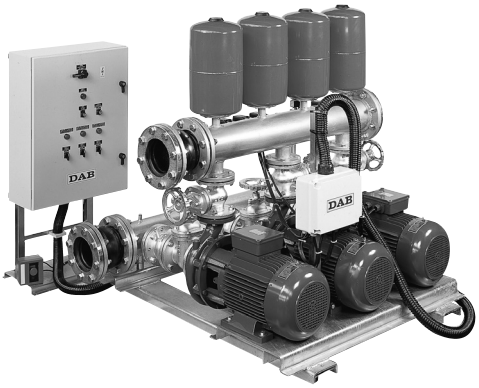
1K – 2K – 3K PUMP SETS
K TYPE SINGLE IMPELLER CENTRIFUGAL PUMPS

1-2-3 PUMPS

1 K pump sets



2 K pump sets



3 K pump sets

CE

GENERAL DATA

Applications

Pump sets offered for water lifting and transfer systems and for water pipelines in special industrial and agricultural processes.
Built with advanced characteristics, these pump sets are distinguished by their high technology aimed at achieving the maximum efficiency.
The use of "K" type single impeller high flow rate electric pumps makes for simplicity of construction, extreme reliability and rugged construction.
The requirement of significant hydraulic performance levels and absolute reliability finds a perfect response with the impeccable features of these pump sets.

Construction features

SETS WITH 1-2-3 PUMPS

HYDRAULIC SECTION
- 1-2-3 K type single impeller vertical axis centrifugal pumps;
- Skid in galvanised steel complete with 4 rubber antivibration feet;
- Flanged gate valve, flanged anti water hammer check valve, flexible coupling flanged on the suction port;
- Flanged galvanised discharge manifold complete with galvanized blank flange and flanged gate valve;
- Antivibration flexible coupling for connection to discharge pipe;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for adjustable mounting of the control panel;
- Membrane pressure tanks.

ELECTRICAL SECTION
CONTROL PANEL
Direct Starting for unit power ratings up to 11 kW inclusive.
Cabinet in sheet steel with IP 55 protection rating and lever handle with lock. Door lock switch, remote motor protectors with thermal relays and electric pump fuses, low voltage control circuit (24 Volt) feeding remote motor protectors, adjustable delayed pumps stop time (supplementary run), system to change starting sequence for sets of 2-3 electric pumps. Selectors for Automatic (by means of pressure switches installed on discharge manifold) or Manual operation of electric pumps. Terminal board for connection of minimum pressure switch for pump stopping, float switch to protect against dry running, remote pump start command.

CONTROL PRESSURE SWITCHES
Electric pump control pressure switches precalibrated and installed on the discharge manifold. The pressure switches operate the remote motor protectors to invert the electric pumps in cascade mode.

JOCKEY PUMP – COMPENSATION FUNCTION (cuts in to compensate for small quantity water demand to avoid wasteful starts of the main electric pumps).
The sets are available also with the KV 3 jockey pump complete with valves and connected to the suction and discharge manifolds. Electric control and protection circuit for jockey pump in main electric pump control cabinet for 1-2 K sets. Separate control cabinet for 3 K pump sets.

WEEKLY TEST RUN (must be requested at time of order - cannot be retrofitted)
The pump sets are available also with a weekly test run system, composed of a programmable weekly timer, an audible-illuminated alarm, a drain solenoid valve on the discharge manifold, an automatic reset emergency stop pushbutton, and a minimum pressure switch.
With the weekly test run the electric pumps are started periodically for a few minutes to prevent mechanical seizure during prolonged periods of disuse.

At the end of the test any faults are signalled by the alarm function.

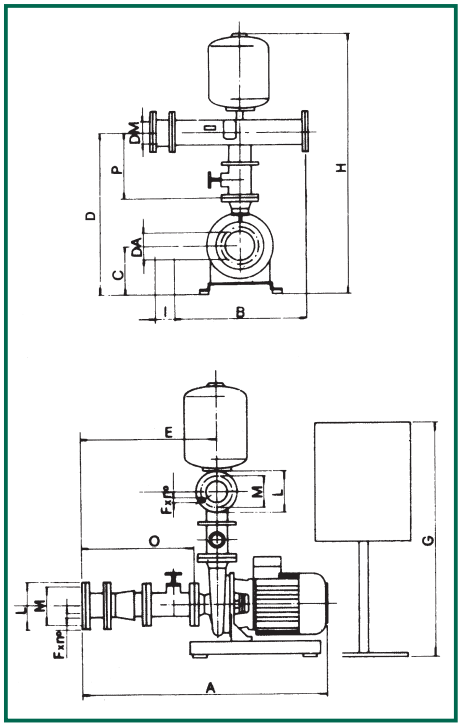
The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.
1K - 2K - 3K pump sets are also available in the "Economic" version;
- control cabinet without supplementary timer, mounted on the pumps skid
- flexible hose or antivibration coupling to connect to the installation as optional equipment.

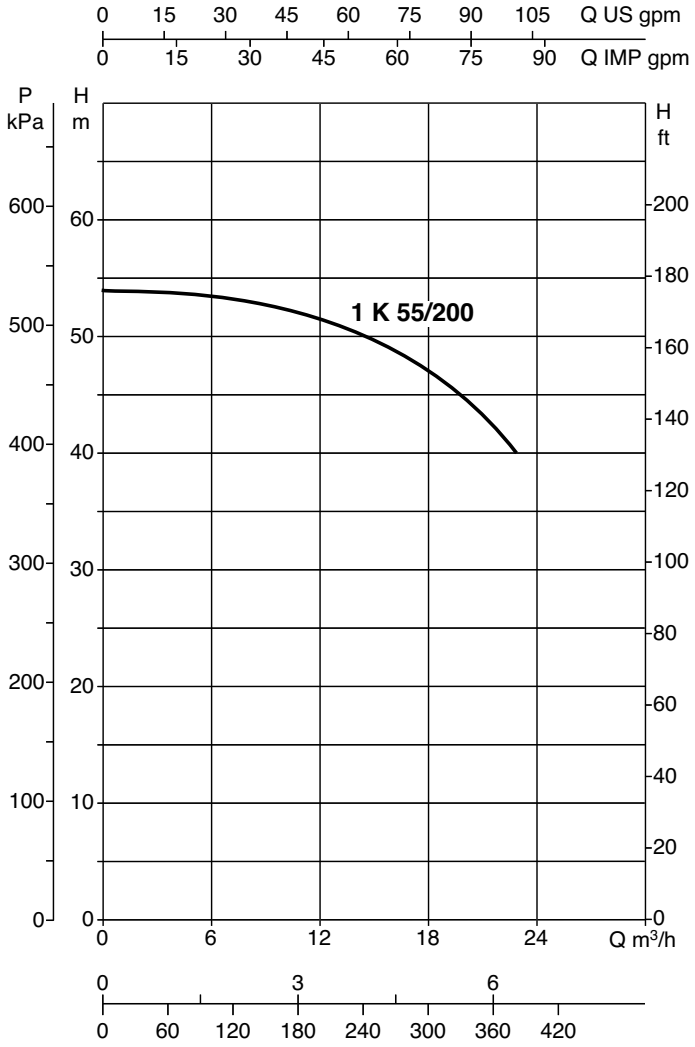
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 K PUMP SETS

Liquid temperature range: from 15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 20 m³/h





MODEL	A	B	C	D	E	G	H	O	P	MANIFOLD DIMENSIONS DNA (suction) Ø DA	DNA I	DNA L	DNA M	DNA Fxn°	DNM (discharge) Ø DM	DNM I	DNM L	DNM M	DNM Fxn°	WEIGHT Kg
1 K 55/200 T	750	450	210	600	360	1005	1165	290	200	2"	–	–	–	–	2 1/2"	–	–	–	–	130

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	JOCKEY PUMP * P2 kW	JOCKEY PUMP * P2 HP
1 K 55/200 T	3x400 V ~	4	5,5	16,3-9,4	17,0-8,0	4,3÷5,1	5,2	KV 6/7 T	1,1	1,5

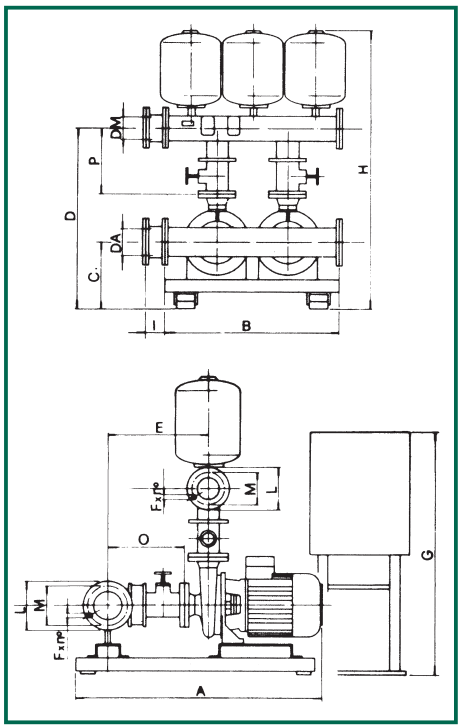
(1) Data referred to service pumps
* Jockey pump available on request

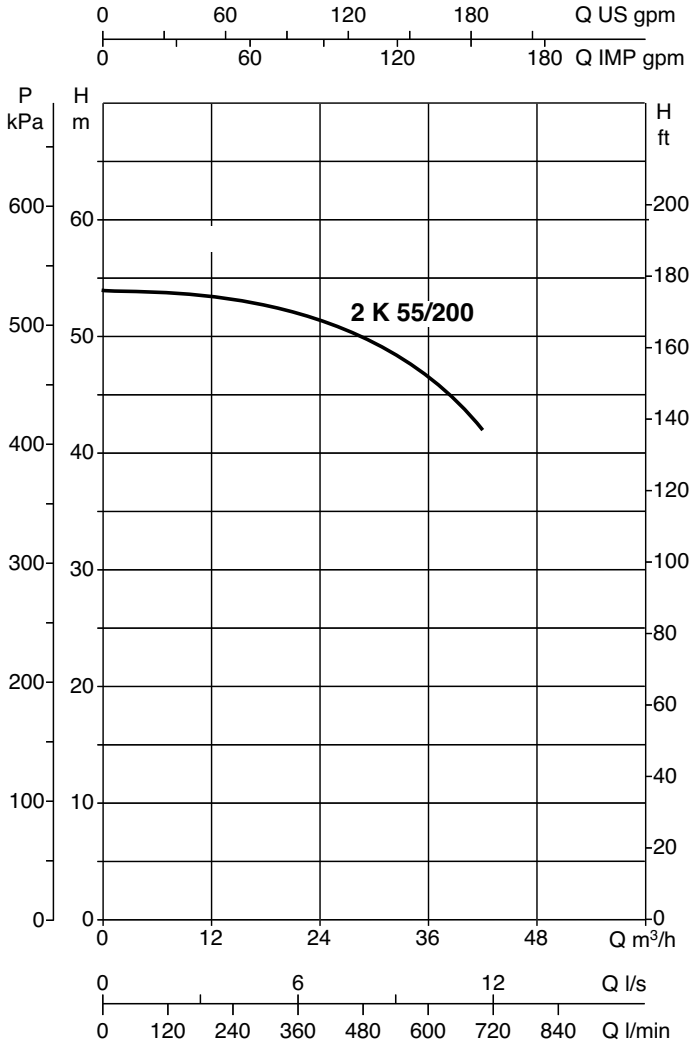
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 K PUMP SETS

Liquid temperature range: from 15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 40 m³/h





MODEL	A	B	C	D	E	G	H	O	P	MANIFOLD DIMENSIONS DNA (suction) Ø DA	I	L	M	Fxn°	DNM (discharge) Ø DM	I	L	M	Fxn°	WEIGHT Kg
2 K 55/200 T	850	720	200	585	425	1005	1165	380	260	DN 80	130	200	160	18x4	DN 80	130	200	160	18x4	242

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	P2 kW	P2 HP
2 K 55/200 T	3x400 V ~	2x4	2x5,5	2x16,3-9,4	34,0-16,0	4,3÷5,1	5,2	KV 6/7 T	1,1	1,5

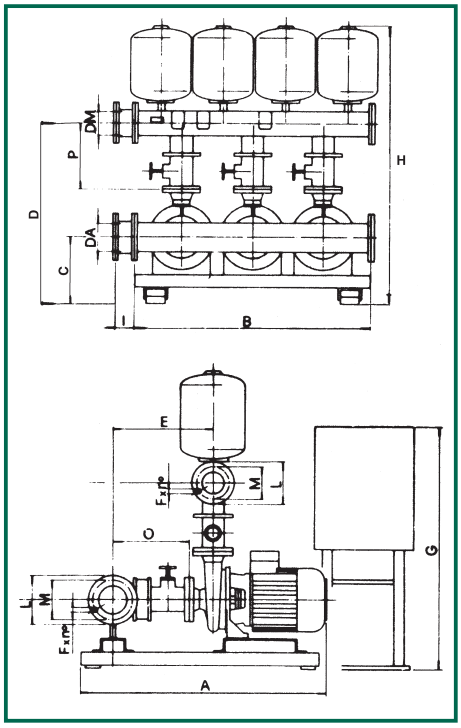
(1) Data referred to service pumps
* Jockey pump available on request

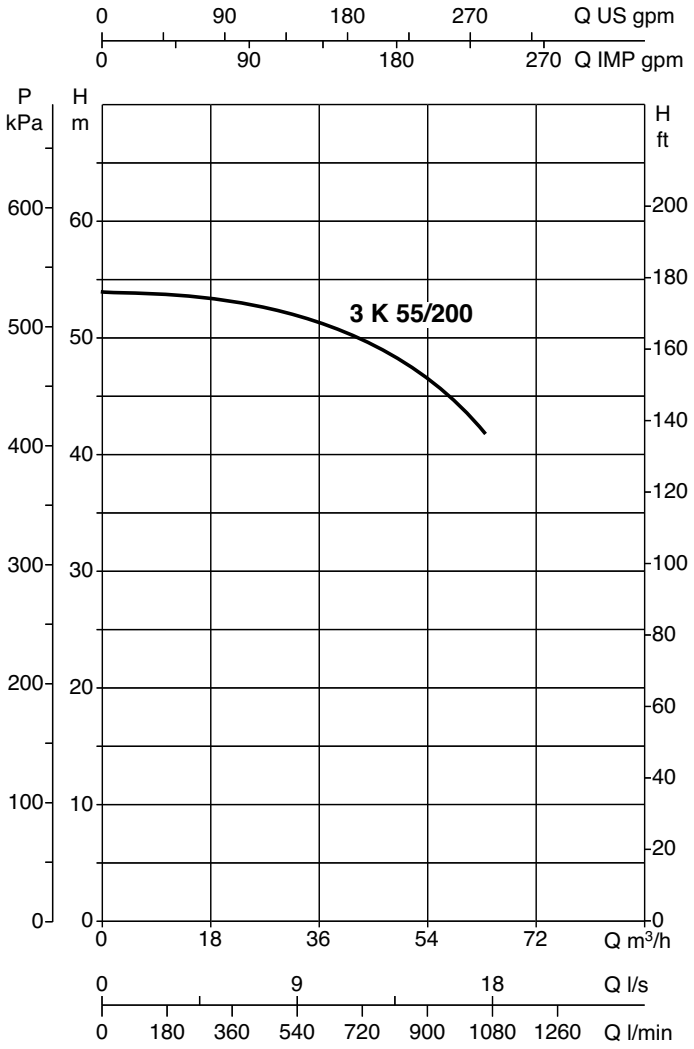
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 K PUMP SETS

Liquid temperature range: from 15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 108 m³/h



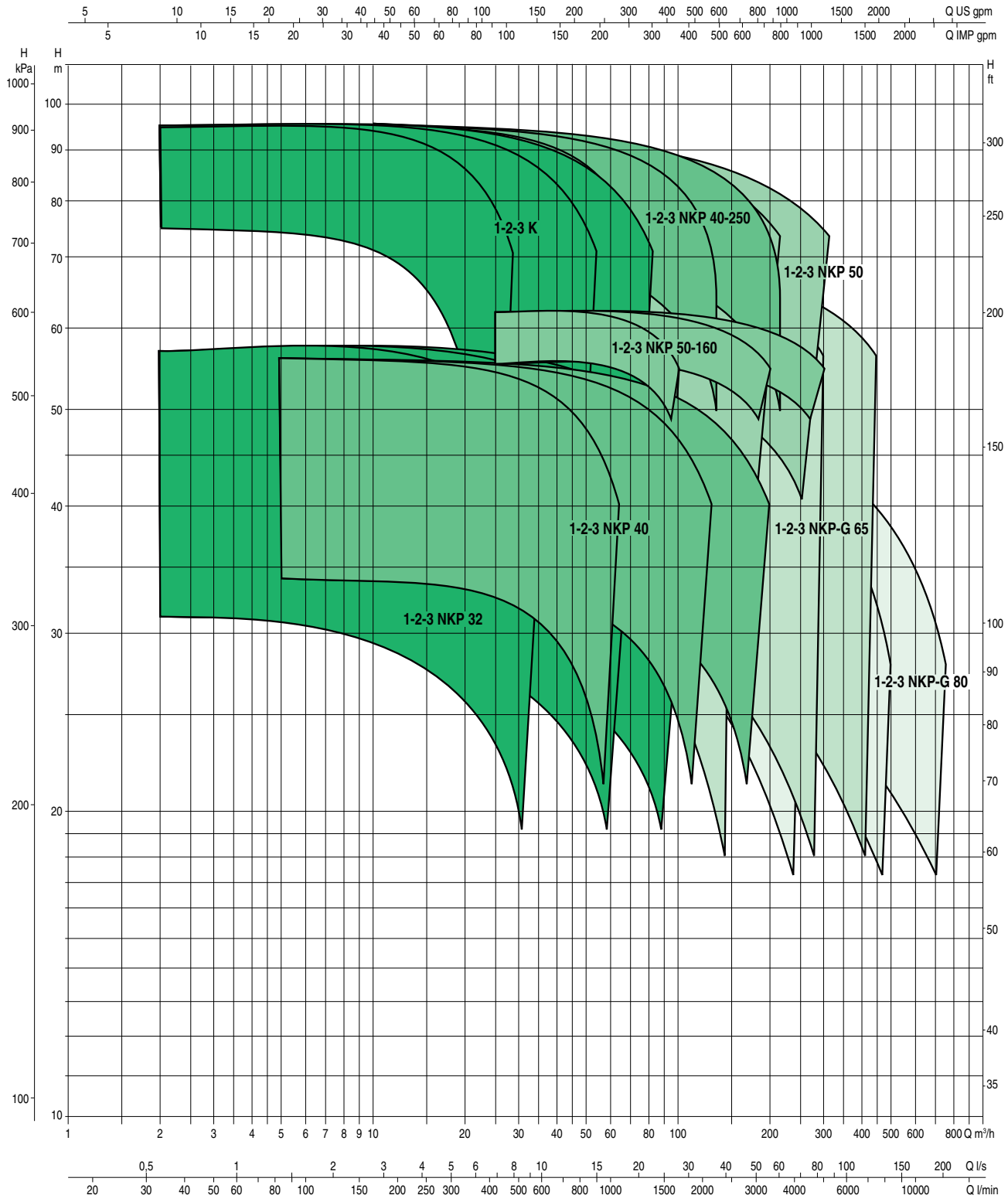


MODEL	A	B	C	D	E	G	H	O	P	MANIFOLD DIMENSIONS DNA (suction) Ø DA	I	L	M	Fxn°	DNM (discharge) Ø DM	I	L	M	Fxn°	WEIGHT Kg
3 K 55/200 T	900	1100	200	595	435	1005	1185	390	260	DN 100	135	220	180	18x8	DN 100	135	220	180	18x8	365

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	P2 kW	HP
3 K 55/200 T	3x400 V ~	3x4	3x5,5	3x16,3-9,4	51,0-24,0	4,3÷5,1	5,2	KV 6/7 T	1,1	1,5

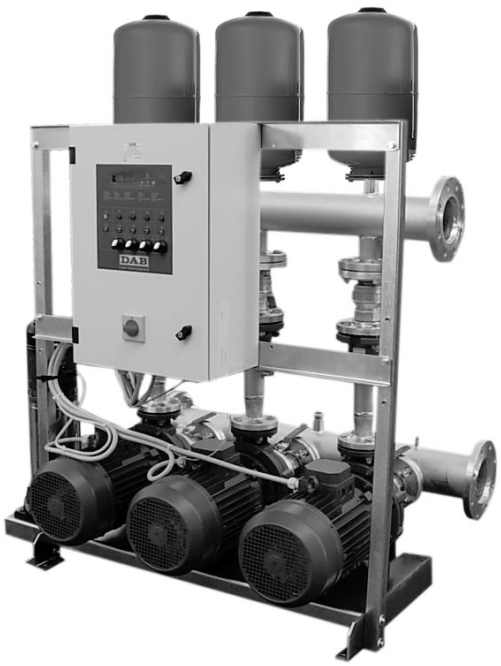
(1) Dati riferiti alle pompe di servizio
* Pompa pilota fornibile su richiesta

PERFORMANCE RANGE



INDUSTRIAL PUMP SETS

1-2-3 TWIN IMPELLER K
1-2-3 ENBLOC NKP - NKP-G



CE

GENERAL DATA

The industrial pump sets are designed and constructed to meet modern technical requirements of civil, agricultural and industrial installations. The use of standardised centrifugal electric pumps and/or twin impeller electric pumps ensures an excellent power / performance ratio.
Applications of industrial pump sets cover a very wide variety of sectors:
Industry - Hotels - Water pipelines – Irrigation – Residential building – Spa centres.

The basic principles that guided our engineers in developing these pump sets were simplicity, flexibility and reliability.

BENEFITS DURING USE
High performance – Multi-functional – Low noise – More compact – Reduced maintenance.

OPERATING PRINCIPLE
In the rest condition (zero water demand) the system is maintained under static pressure. Following a water demand from a user the system pressure falls. The fall in pressure is detected by an electronic pressure transmitter located on the pump set discharge manifold and connected to the pumps controller located on the front of the control cabinet. The controller reads the pressure signal and controls starting and stopping of all the pumps in accordance with preset user-editable parameters (average pressure required, pumps start delay interval, danger pressure values, etc.). The electric pumps start in cascade sequence thereby sharing the maximum flow rate required by the installation across several pumps. (e.g. one pump running -> 20 m3/h; two pumps running -> 40 m3/h)
The jockey pump starts up to compensate for minor pressure drops in the system thereby avoiding wasteful starting of the main pumps. At each operating cycle the pumps starting sequence is inverted.

COMPOSITION OF INDUSTRIAL PUMP SETS

ELECTRIC PUMPS UTILISED

Main electric pumps
Centrifugal twin impeller electric pumps, series K 70-80 / 300-400
Pump body in cast iron, impeller in technopolymer, pump shaft in AISI 304, carbon / ceramic mechanical seal

Centrifugal enbloc electric pumps with integral shaft NKP series 32 - 40 - 50 in compliance with DIN-EN 733.
Pump body and impeller in cast iron, pump shaft in AISI 304, carbon / silicon carbide - EPDM mechanical seal

Centrifugal enbloc electric pumps with NKP-G coupling series 65 - 80 in compliance with DIN-EN 733.
Pump body and impeller in cast iron, pump shaft in AISI 304, carbon / silicon carbide - EPDM mechanical seal

Electric jockey pump
Multistage vertical axis centrifugal pump
Pump body and impeller in technopolymer, pump shaft in AISI 303, carbon / ceramic mechanical seal

MECHANICAL STRUCTURE
Galvanized steel skid supporting all the main electric pumps, complete with holes for anchoring to the floor.
Galvanized steel base supporting the jockey pump and fixed to the main pumps skid. Control cabinet support from mounted to the pumps skid

HYDRAULIC STRUCTURE
- Intake* and discharge manifolds in galvanized steel sized for the total flow rate of the pump set, complete with blank flange (OPTIONAL antivibration couplings).
- N.1 isolator valve **on suction of each main electric pump.**
- N.1 diverter adapter, n.1 check valve, n.1 isolator valve **on discharge line of each main electric pump.**
- N.1 20 l 16 bar membrane expansion vessel for each of the main electric pumps.
- N.1 4-20 mA pressure transmitter and pressure gauge installed on the discharge manifold of the pump set.
- N.1 jockey pump connected to the suction* and discharge manifolds and complete with suction and discharge isolator valves and discharge check valve.

** sets with 1 main electric pump are supplied without a suction manifold.*

CONTROL PANEL FUNCTIONS

Control panel in metal IP 55 enclosure, mounted to the electric pumps skid and containing:
- main door lock disconnect switch,
- 400/24V control circuits transformer,
- motor cut-outs protecting the main electric pumps and the jockey pump,
- direct starters for pumps up to 7.5 kW,
- star-delta starters for pumps above 7.5 kW,
- terminal board for power input connections and external signals.

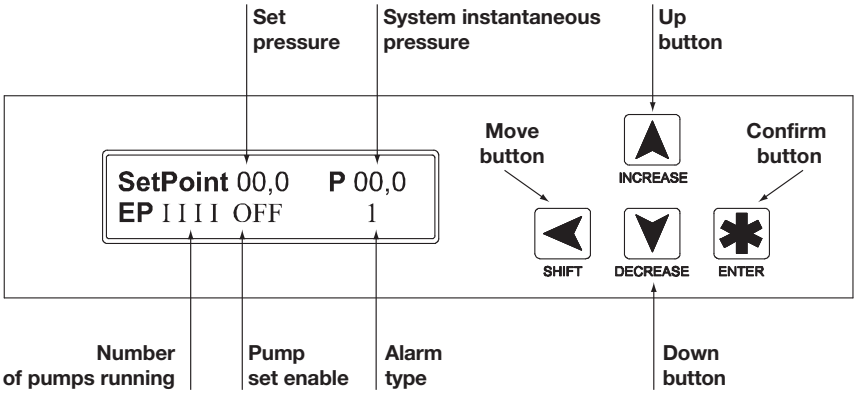
On front panel: AUT - 0 – MAN mode selector, indicator lights for power ON, pumps run, pumps trip, dry run, overpressure and underpressure alarm, KL 1 controller. The pumps controller, equipped with data programming buttons and display, manages the pump set operating logic. The pump set is factory-set to a standard pressure value (SET POINT). The controller manages starting and stopping of the main pumps in accordance with pressure differentials (adjustable) and a delay interval (adjustable). The jockey pump keeps the installation at a pressure that is slightly higher than that of the main pumps.

One of the following operating modes can be selected on the controller:
1) **Standard** - 1-2-3 pumps with or without jockey pump (all pumps start in cascade).
2) **Back-up** - pump N° 1 and pump N° 2 start in cascade mode, the third pump starts in the event of faults of pump 1 or pump 2.
3) **With 4 pumps** - without jockey pump (all pumps start in cascade sequence)

The controller stops the pumps in the following cases:
- pump current surge
- dry running – low suction pressure (after an adjustable time interval and only on installing a minimum pressure switch)
- pumps overpressure (adjustable pressure value)

FUNCTIONS DISPLAYED ON CONTROLLER
The two-line display allows the following parameters to be consulted:
- programmed SET POINT pressure
- system instantaneous pressure
- number of pumps running
- number of pump working hours
- various alarms

On request as an OPTIONAL extra the following parameters can be displayed:
- installed electrical power (kW)
- total power consumption (kWh)
- instantaneous flow rate (l/min)



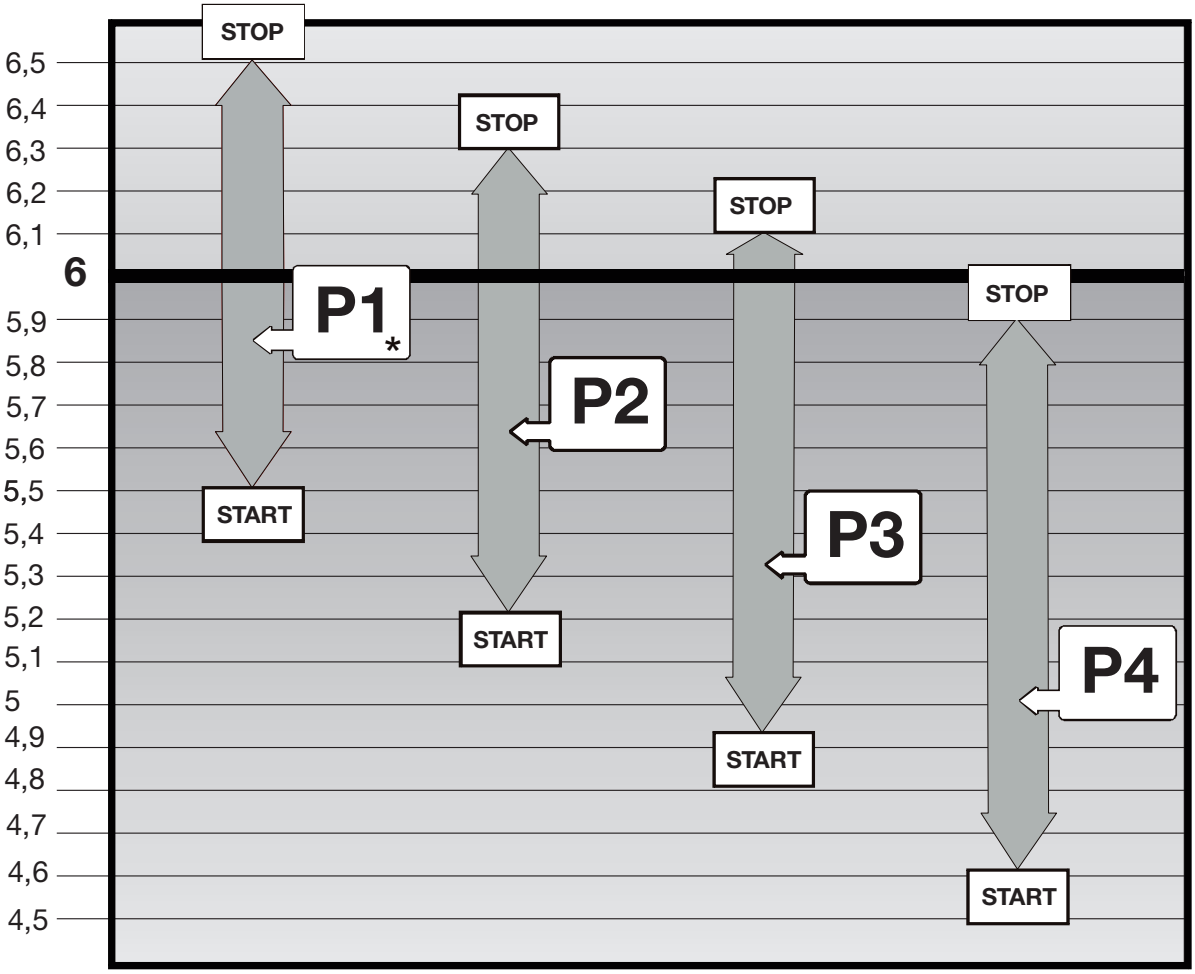
ALARMS KEY	
1	Motors maintenance
2	Parameters error
4	Pressure transmitter
8	Motor cut-outs
32	Overpressure
H2O?	Minimum water pressure (3 self resets)
64	Minimum pressure (manual reset)

PUMPS ANTI-BLOCKING
The control panel incorporates the PUMPS ANTI-BLOCKING FUNCTION, available on the KL 1 controller, as standard.
The anti-seize function starts the main pumps periodically (adjustable time) to avoid them from blocking or seizing of installation components during long periods of disuse.
The main pumps are started in sequence for several seconds.
At the end of the test, if any faults were detected an alarm will appear on the display and the N.O. alarm contact will be closed.

EXTERNAL CONNECTIONS CONTROL PANEL
The control panel terminal board offers the following voltage-free N.O. alarm contacts:
sensor fault, overpressure, dry run, pump current surge, 24V control circuit fault.

PRESSURE CALIBRATION

EXAMPLE OF CALIBRATION OF THE PRESSURE SET POINT ON THE PUMPS CONTROLLER



** Electric pump P1 or jockey pump*

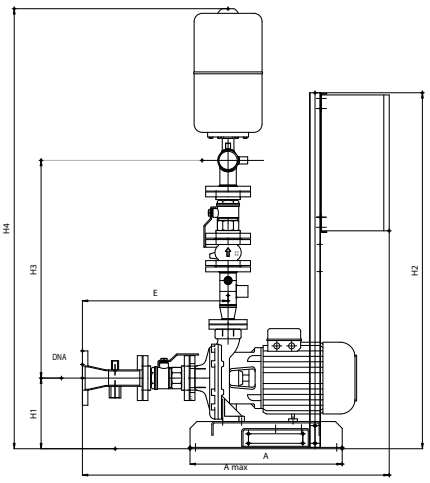
SetPoint Pressure: set at **6 bar (example)**

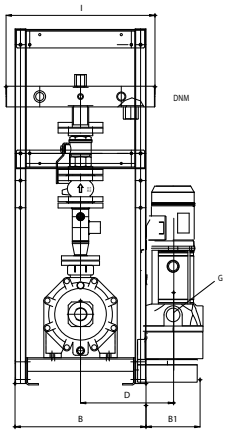
Jockey pump P1 Start/Stop differential: set to **1 bar** (standard DAB value)
Pumps P2, P3 and P4 Start Differential: set to **0.3 bar** (standard DAB value)
Pumps P2, P3 and P4 Stop Differential: set to **0.2 bar** (standard DAB value

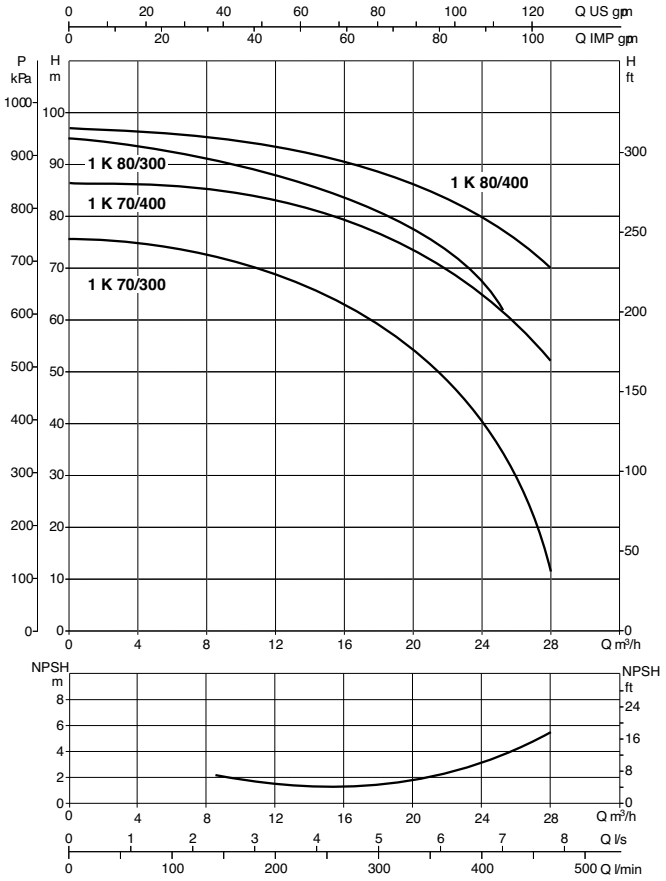
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 K PUMP SETS

Liquid temperature range: from 15°C to +70°C
Jockey pump liquid temperature range: from 0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1K 70/300 + KVCX 65/50	3x400 V	5,5	7,5	1,1	12,9	6-22	7,3	6,5
1K 80/300 + KVCX 65/80	3x400 V	7,5	10	1,1	15	6-24	9,2	8,5
1K 70/400 + KVCX 65/80	3x400 V	9,2	12,5	2,2	18	9-30	8,3	7,5
1K 80/400 + KVCX 65/80	3x400 V	11	15	2,2	21	9-30	9,5	8,5

MODEL	A	A max	B	B1*	C	D*	E	G*	H1	H2	H3	H4	I	DNA	DNM
1K 70/300 + KVCX 65/50	560	1129	482	199	-	343	536	1” 1/4	260	1310	801	1619	548	DN80	2” 1/2
1K 80/300 + KVCX 65/80	560	1129	482	199	-	343	536	1” 1/4	260	1310	801	1619	548	DN80	2” 1/2
1K 70/400 + KVCX 65/80	560	1129	482	199	-	343	536	1” 1/4	260	1310	801	1619	548	DN80	2” 1/2
1K 80/400 + KVCX 65/80	560	1129	482	199	-	343	536	1” 1/4	260	1310	801	1619	548	DN80	2” 1/2

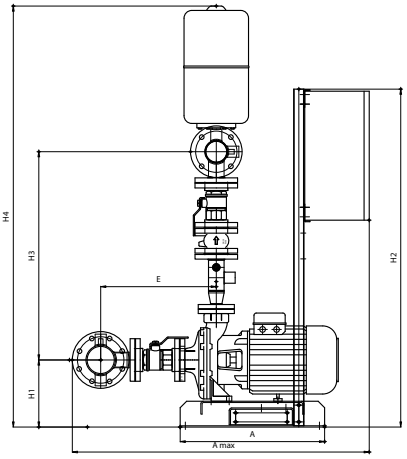
Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.

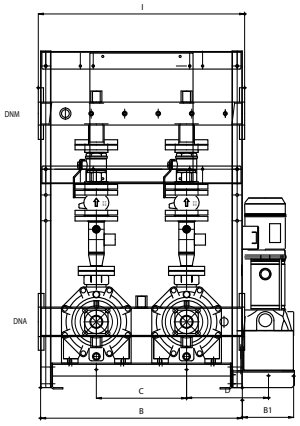
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

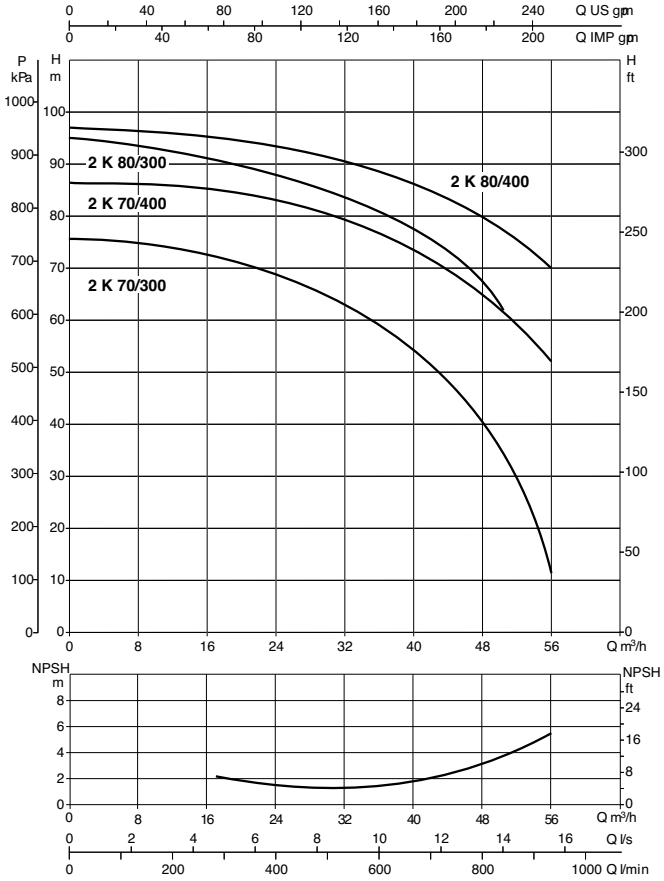
2 K PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C

Maximum flow rate: 60 m³/h







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2K 70/300 + KVCX 65/50	3x400 V	2 x 5,5	2 x 7,5	1,1	2 x 12,9	6-44	7,3	6,5
2K 80/300 + KVCX 65/80	3x400 V	2 x 7,5	2 x 10	1,1	2 x 15	6-48	9,2	8,5
2K 70/400 + KVCX 65/80	3x400 V	2 x 9,2	2 x 12,5	2,2	2 x 18	9-60	8,3	7,5
2K 80/400 + KVCX 65/80	3x400 V	2 x 11	2 x 15	2,2	2 x 21	9-60	9,5	8,5

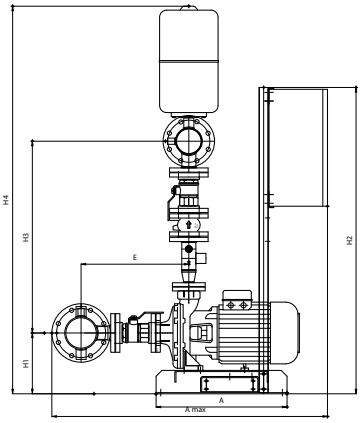
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
2K 70/300 + KVCX 65/50	560	1151	782	199	350	318	448	260	1310	807	1632	800	DN100	DN 80
2K 80/300 + KVCX 65/80	560	1151	782	199	350	318	448	260	1310	807	1632	800	DN100	DN 80
2K 70/400 + KVCX 65/80	560	1151	782	199	350	318	448	260	1310	807	1632	800	DN100	DN 80
2K 80/400 + KVCX 65/80	560	1151	782	199	350	318	448	260	1310	807	1632	800	DN100	DN 80

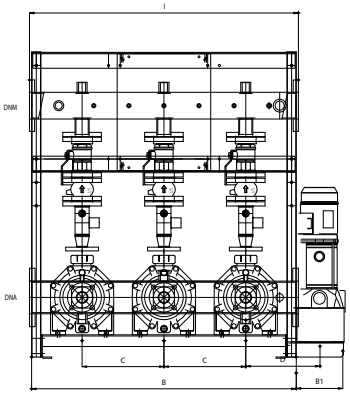
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

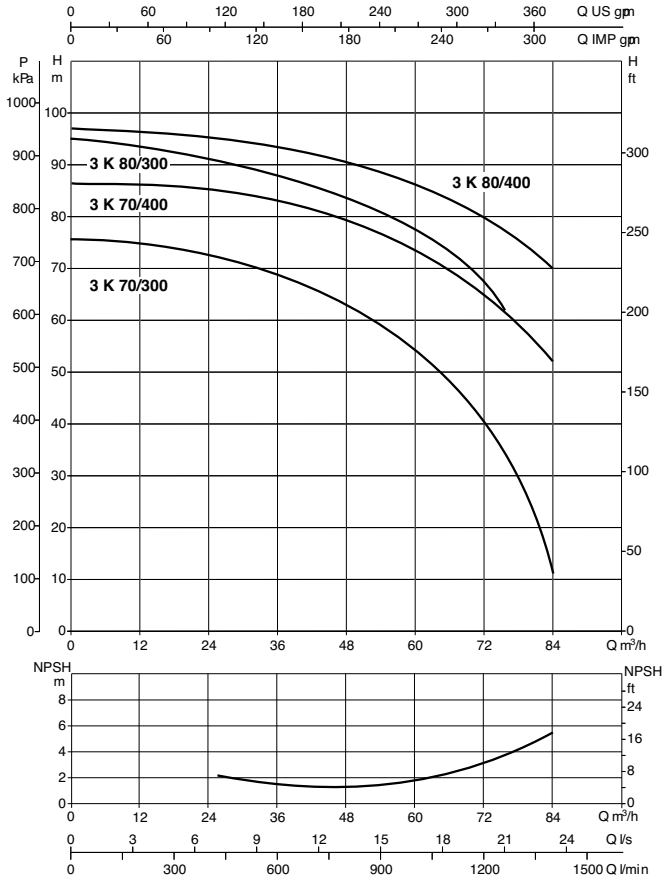
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 K PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3K 70/300 + KVCX 65/50	3x400 V	3 x 5,5	3 x 7,5	1,1	3 x 12,9	6-66	7,3	6,5
3K 80/300 + KVCX 65/80	3x400 V	3 x 7,5	3 x 10	1,1	3 x 15	6-72	9,2	8,5
3K 70/400 + KVCX 65/80	3x400 V	3 x 9,2	3 x 12,5	2,2	3 x 18	9-90	8,3	7,5
3K 80/400 + KVCX 65/80	3x400 V	3 x 11	3 x 15	2,2	3 x 21	9-90	9,5	8,5

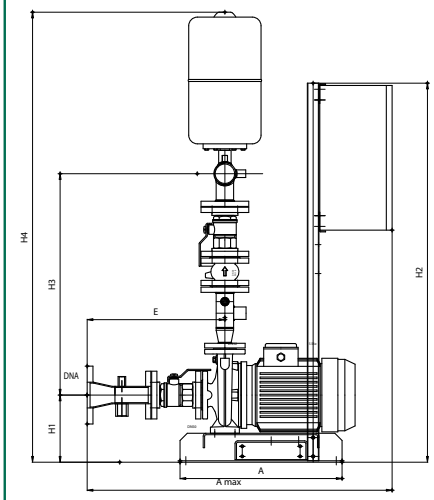
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
3K 70/300 + KVCX 65/50	560	1179	1132	199	350	318	461	260	1310	820	1657	1150	DN 125	DN 100
3K 80/300 + KVCX 65/80	560	1179	1132	199	350	318	461	260	1310	820	1657	1150	DN 125	DN 100
3K 70/400 + KVCX 65/80	560	1179	1132	199	350	318	461	260	1310	820	1657	1150	DN 125	DN 100
3K 80/400 + KVCX 65/80	560	1179	1132	199	350	318	461	260	1310	820	1657	1150	DN 125	DN 100

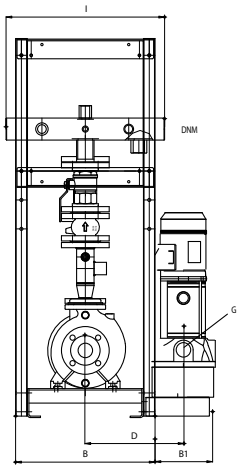
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

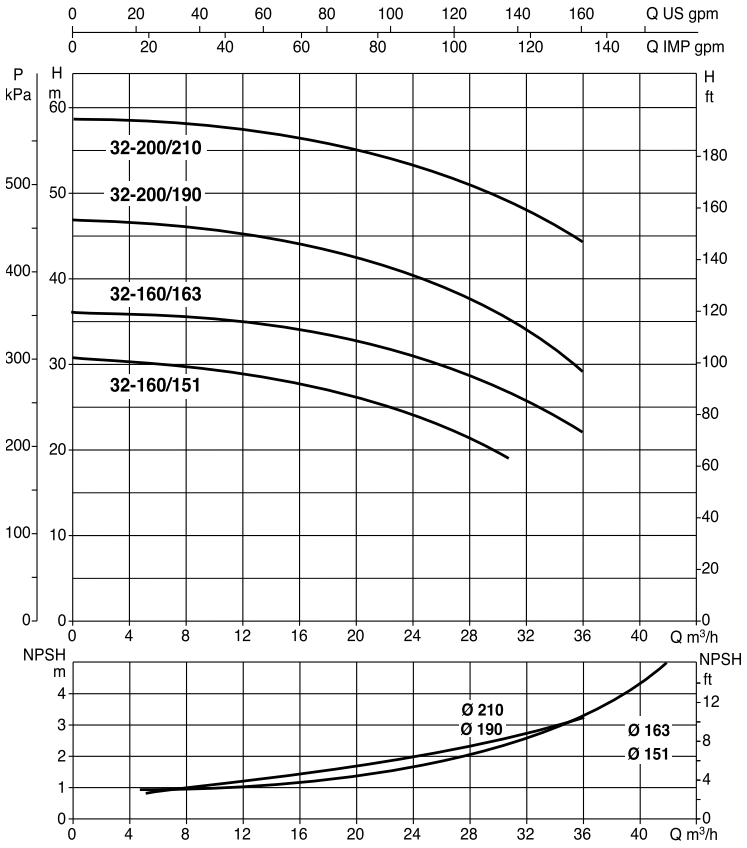
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP 32 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP 32-160/151 + KVCX 65/50	3x400 V	3	4	1,1	6,7	4 – 28	3	2,5
1NKP 32-160/163 + KVCX 65/50	3x400 V	4	5,5	1,1	8,7	4 – 32	3,5	3
1NKP 32-200/190 + KVCX 65/50	3x400 V	5,5	7,5	1,1	11,6	4 - 32	4,5	4
1NKP 32-200/210 + KVCX 65/50	3x400 V	7,5	10	1,1	14	4 – 32	5,6	5

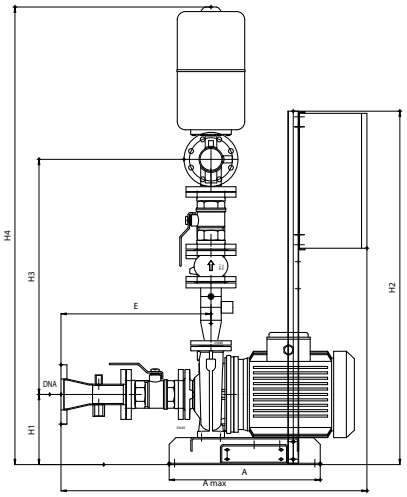
MODEL	A	A max	B	B1*	D*	E	G*	H1	H2	H3	H4	I	DNA	DNM
1NKP 32-160/151 + KVCX 65/50	560	1054	482	199	343	476	1" 1/4	232	1310	765	1555	548	DN80	2" 1/2
1NKP 32-160/163 + KVCX 65/50	560	1054	482	199	343	476	1" 1/4	232	1310	765	1555	548	DN80	2" 1/2
1NKP 32-200/190 + KVCX 65/50	560	1054	482	199	343	476	1" 1/4	260	1310	785	1603	548	DN80	2" 1/2
1NKP 32-200/210 + KVCX 65/50	560	1054	482	199	343	476	1" 1/4	260	1310	785	1603	548	DN80	2" 1/2

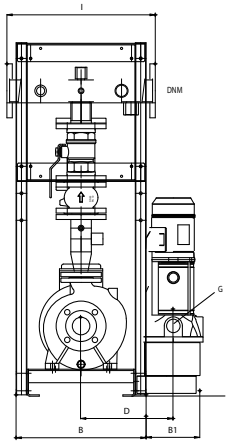
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

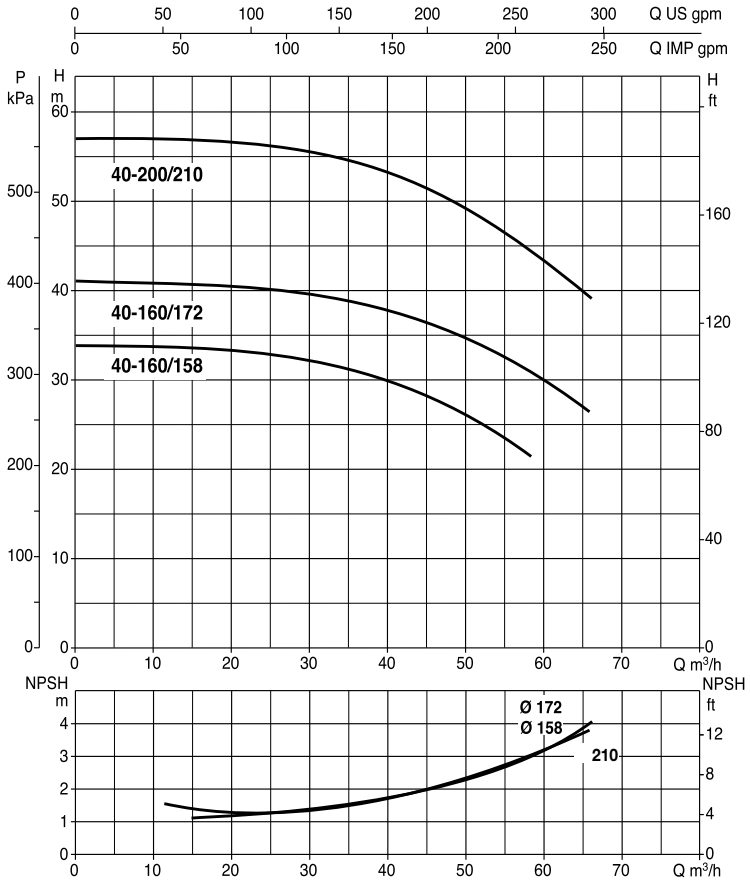
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP 40-160/158 + KVCX 65/50	3x400 V	5,5	7,5	1,1	11,6	10 – 55	3,3	3
1NKP 40-160/172 + KVCX 65/50	3x400 V	7,5	10	1,1	14	10 – 60	4	3,5
1NKP 40-200/210 + KVCX 65/80	3x400 V	11	15	2,2	22,5	10 – 60	5,5	5

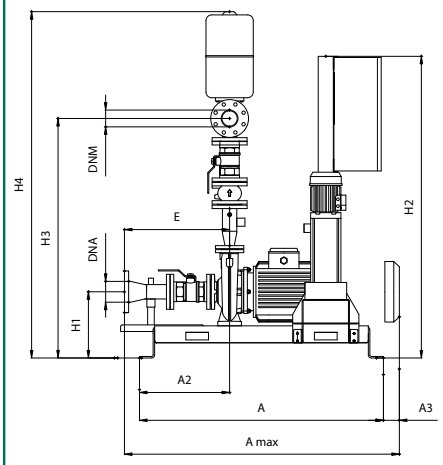
MODEL	A	A max	B	B1*	D*	E	G*	H1	H2	H3	H4	I	DNA	DNM
1NKP 40-160/158 + KVCX 65/50	560	1114	482	199	343	536	1" 1/4	232	1310	851	1648	550	DN100	DN80
1NKP 40-160/172 + KVCX 65/50	560	1114	482	199	343	536	1" 1/4	232	1310	851	1648	550	DN100	DN80
1NKP 40-200/210 + KVCX 65/80	560	1114	482	199	343	556	1" 1/4	260	1310	871	1696	550	DN100	DN80

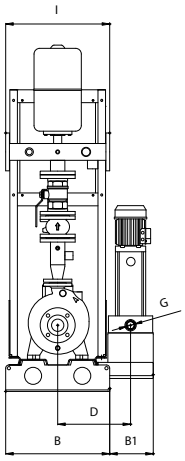
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

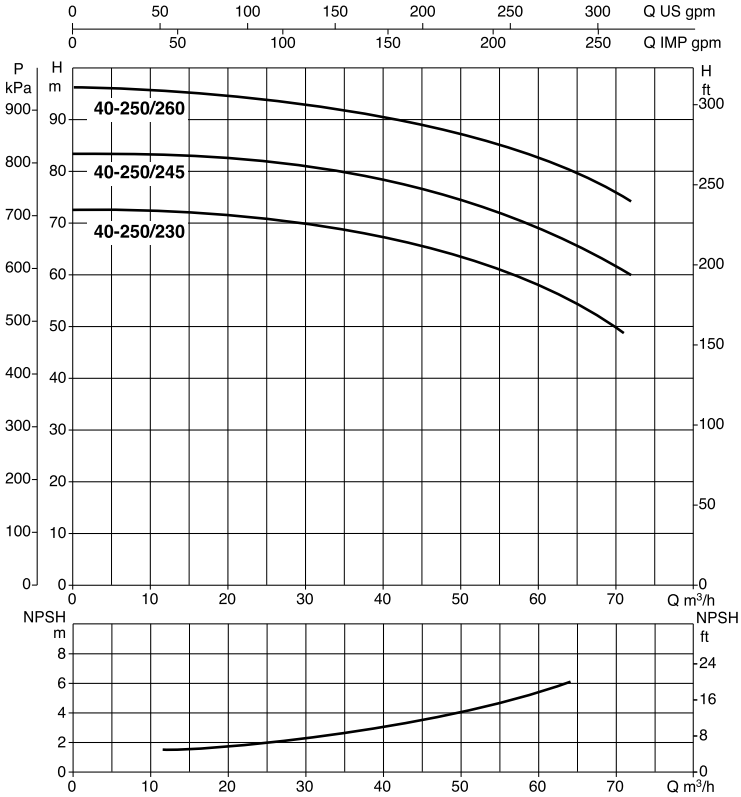
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP 40-250/230 + KVCX 65/80	3x400 V	15	20	2,2	31	10 – 70	7	6,5
1NKP 40-250/245 + KVCX 65/80	3x400 V	18,5	25	2,2	36	10 – 70	8	7,5
1NKP 40-250/260 + KVCX 65/80	3x400 V	22	30	2,2	43	10 – 70	9,3	8,5

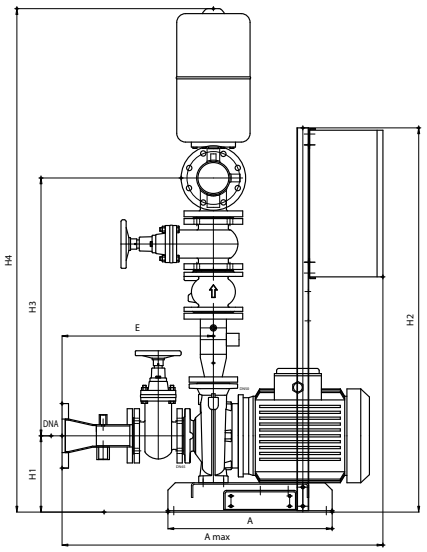
MODEL	A max	A	A2	A3	B	B1*	D*	E	G*	I	H1	H2	H3	H4	DNA	DNM
1NKP 40-250/230 + KVCX 65/80	1370	1290	477	-	550	230	385	556	1" 1/4	550	530	1600	1270	1835	DN100	DN80
1NKP 40-250/245 + KVCX 65/80	1290	1290	579	-	550	230	385	556	1" 1/4	550	350	1600	1270	1835	DN100	DN80
1NKP 40-250/260 + KVCX 65/80	1290	1290	579	-	550	230	385	556	1" 1/4	550	350	1600	1270	1835	DN100	DN80

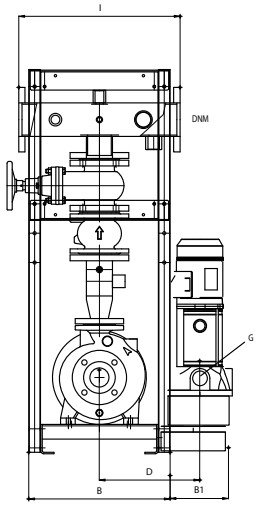
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

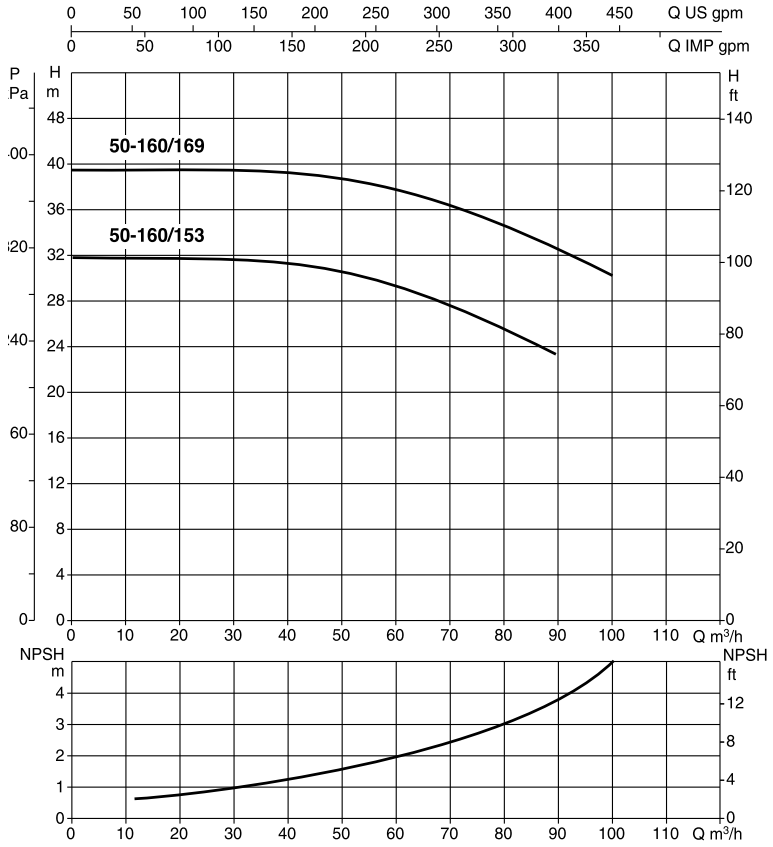
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP 50-160/153 + KVCX 65/50	3x400 V	7,5	10	1,1	14	10 – 80	3	2,5
1NKP 50-160/169 + KVCX 65/80	3x400 V	11	15	2,2	22,5	10 – 90	3,8	3,3

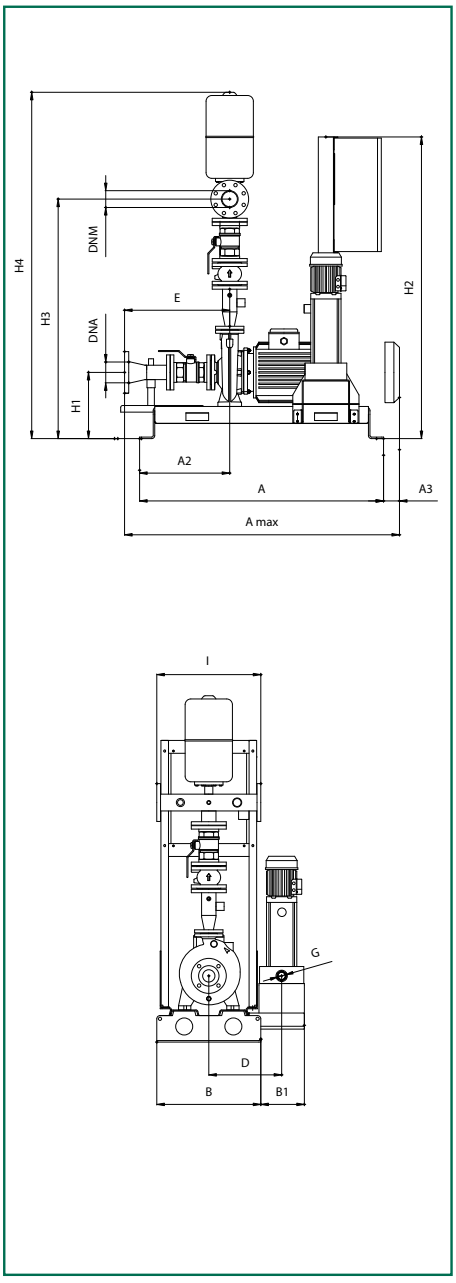
MODEL	A	A max	B	B1*	D*	E	G*	H1	H2	H3	H4	I	DNA	DNM
1NKP 50-160/153 + KVCX 65/50	560	1094	482	199	343	516	1” 1⁄4	260	1310	879	1716	550	DN100	DN100
1NKP 50-160/169 + KVCX 65/80	560	1094	482	199	343	516	1” 1⁄4	260	1310	879	1716	550	DN100	DN100

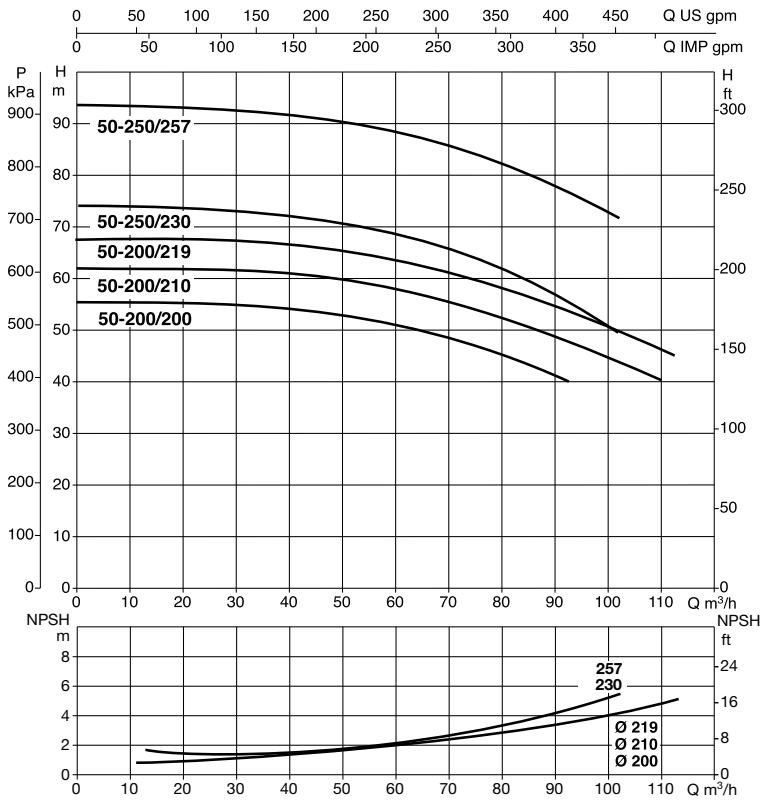
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C





MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP 50-200/200 + KVCX 65/80	3x400 V	15	20	2,2	31	10 – 90	5,2	5
1NKP 50-200/210 + KVCX 65/80	3x400 V	18,5	25	2,2	36	10 – 110	6	5,5
1NKP 50-200/219 + KVCX 65/80	3x400 V	22	30	2,2	43	10 – 110	6,5	6
1NKP 50-250/230 + KVCX 65/80	3x400 V	22	30	2,2	43	10 – 100	7	6,5
1NKP 50-250/257 + KVCX 65/80	3x400 V	30	40	2,2	57	10 – 100	9	8,5

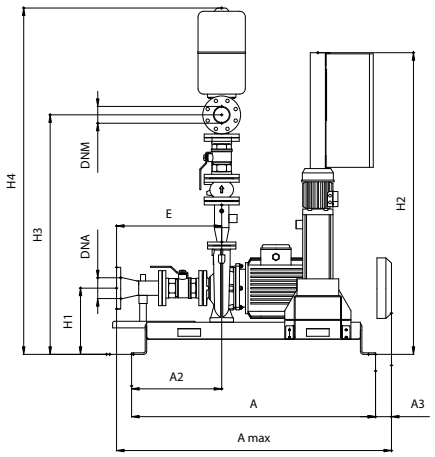
MODEL	A max	A	A2	A3	B	B1*	D*	E	G*	I	H1	H2	H3	H4	DNA	DNM
1NKP 50-200/200 + KVCX 65/80	1372	1290	434	-	550	230	385	516	1" 1/4	550	330	1600	1230	1805	DN100	DN100
1NKP 50-200/210 + KVCX 65/80	1290	1290	579	-	550	230	385	516	1" 1/4	550	330	1600	1230	1805	DN100	DN100
1NKP 50-200/219 + KVCX 65/80	1290	1290	579	-	550	230	385	516	1" 1/4	550	330	1600	1230	1805	DN100	DN100
1NKP 50-250/230 + KVCX 65/80	1290	12990	579	-	550	230	385	516	1" 1/4	550	350	1600	1275	1855	DN100	DN100
1NKP 50-250/257 + KVCX 65/80	1290	12990	579	-	550	230	385	516	1" 1/4	550	350	1600	1275	1855	DN100	DN100

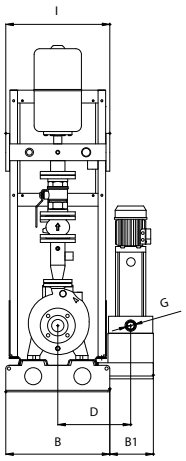
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

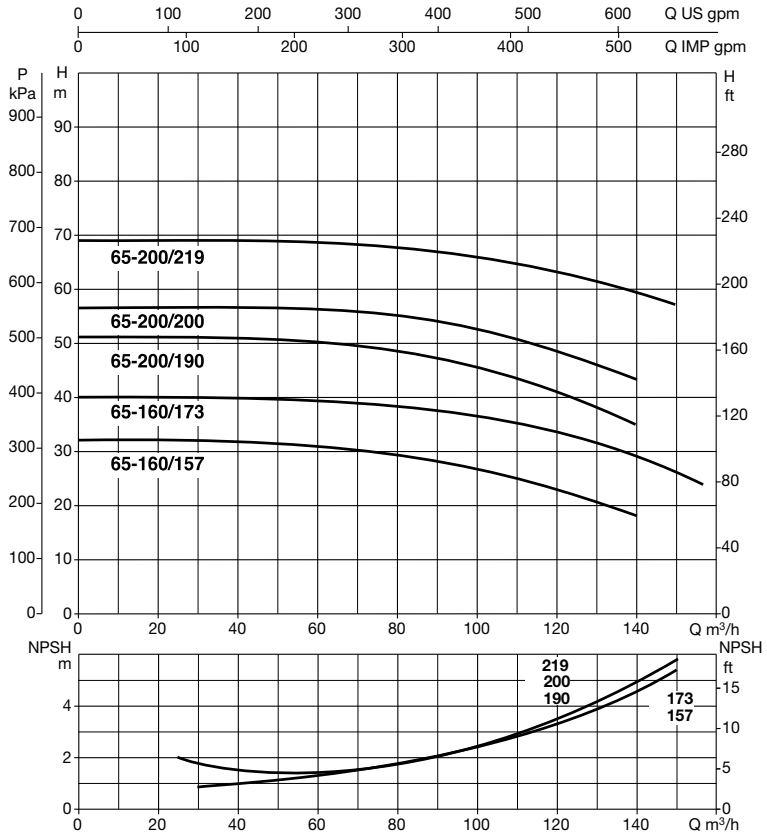
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP-G 65 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP-G 65-160/157 + KVCX 65/80	3x400 V	11	15	2,2	20,4	20 - 140	3	2,5
1NKP-G 65-160/173 + KVCX 65/80	3x400 V	15	20	2,2	27,5	20 – 150	3,8	3,5
1NKP-G 65-200/190 + KVCX 65/80	3x400 V	18,5	25	2,2	33,5	20 - 140	5	4,5
1NKP-G 65-200/200 + KVCX 65/80	3x400 V	22	30	2,2	39,5	20 – 140	5,5	5
1NKP-G 65-200/219 + KVCX 65/80	3x400 V	30	40	2,2	52,5	20 - 140	6,5	6

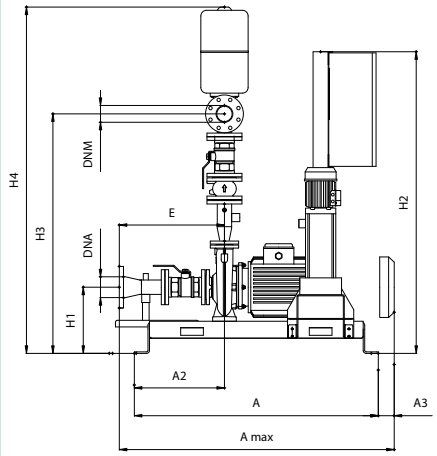
MODEL	A max	A	A2	A3	B	B1*	D*	E	G*	I	H1	H2	H3	H4	DNA	DNM
1NKP-G 65-160/157 + KVCX 65/80	1400	1290	445	-	550	230	385	556	1” 1/4	550	350	1600	1320	1910	DN125	DN125
1NKP-G 65-160/173 + KVCX 65/80	1400	1290	445	-	550	230	385	556	1” 1/4	550	350	1600	1320	1910	DN125	DN125
1NKP-G 65-200/190 + KVCX 65/80	1400	1290	445	-	550	230	385	556	1” 1/4	550	350	1600	1345	1935	DN125	DN125
1NKP-G 65-200/200 + KVCX 65/80	1380	1290	511	45	550	230	385	556	1” 1/4	550	350	1600	1345	1935	DN125	DN125
1NKP-G 65-200/219 + KVCX 65/80	1440	1290	464	60	550	230	385	556	1” 1/4	550	370	1600	1365	1955	DN125	DN125

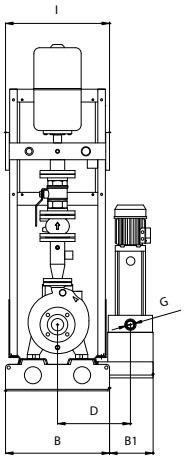
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

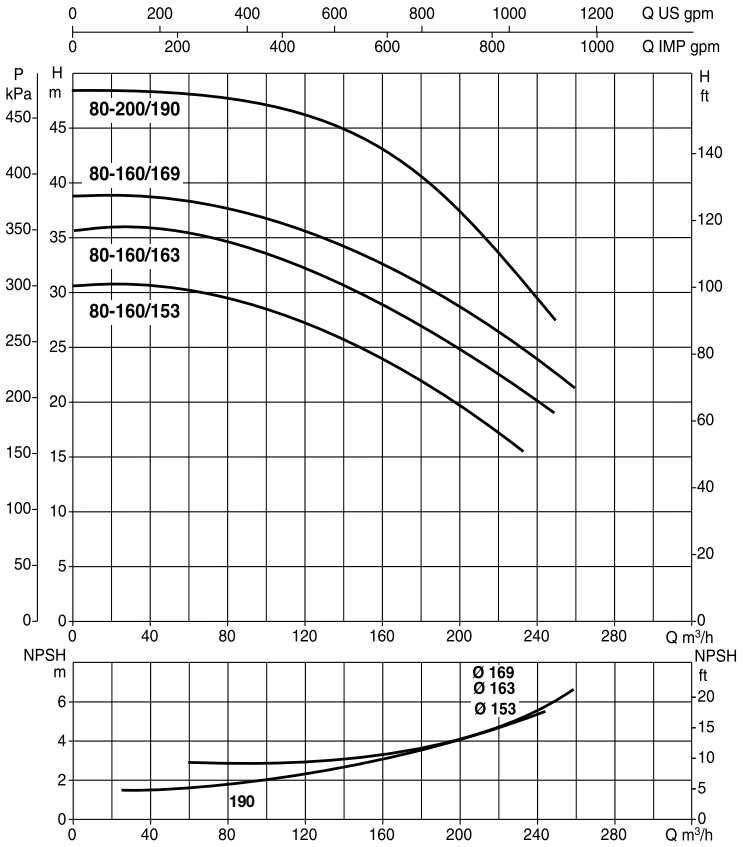
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 NKP-G 80 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
1NKP-G 80-160/153 + KVCX 65/80	3x400 V	15	20	2,2	27,5	40 - 220	2,8	2,5
1NKP-G 80-160/163 + KVCX 65/80	3x400 V	18,5	25	2,2	33,5	40 – 240	3,3	3
1NKP-G 80-160/169 + KVCX 65/80	3x400 V	22	30	2,2	39,5	40 - 240	3,7	3,3
1NKP-G 80-200/190 + KVCX 65/80	3x400 V	30	40	2,2	52,5	40 – 240	4,6	4,5

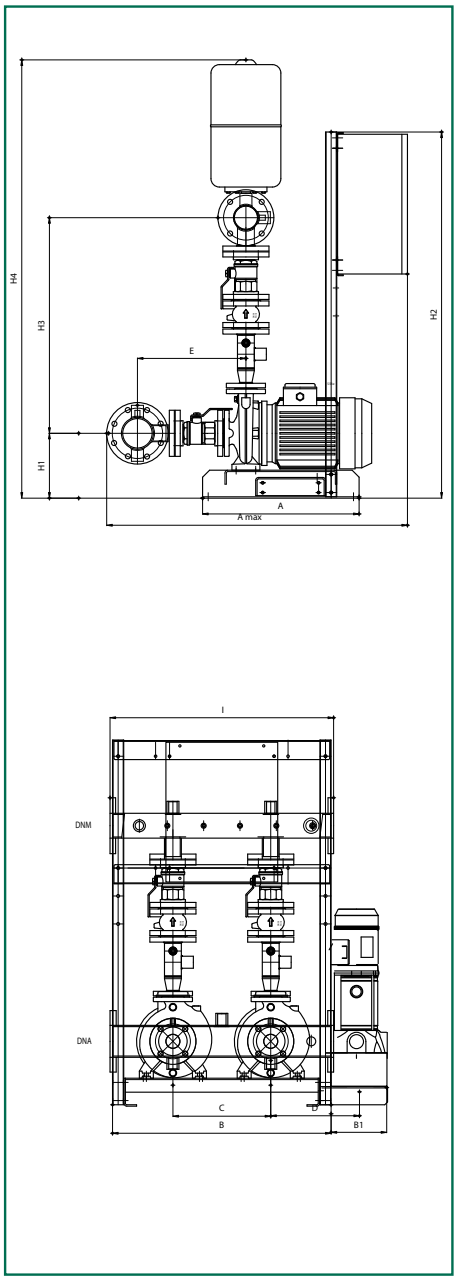
MODEL	A max	A	A2	A3	B	B1*	D*	E	G*	I	H1	H2	H3	H4	DNA	DNM
1NKP-G 80-160/153 + KVCX 65/80	1445	1290	445	-	550	230	385	596	1" 1/4	550	350	1600	1435	2040	DN150	DN150
1NKP-G 80-160/163 + KVCX 65/80	1445	1290	445	-	550	230	385	596	1" 1/4	550	350	1600	1435	2040	DN150	DN150
1NKP-G 80-160/169 + KVCX 65/80	1420	1290	511	45	550	230	385	596	1" 1/4	550	350	1600	1435	2040	DN150	DN150
1NKP-G 80-200/190 + KVCX 65/80	1510	1290	434	60	550	230	385	596	1" 1/4	550	370	1600	1480	2085	DN150	DN150

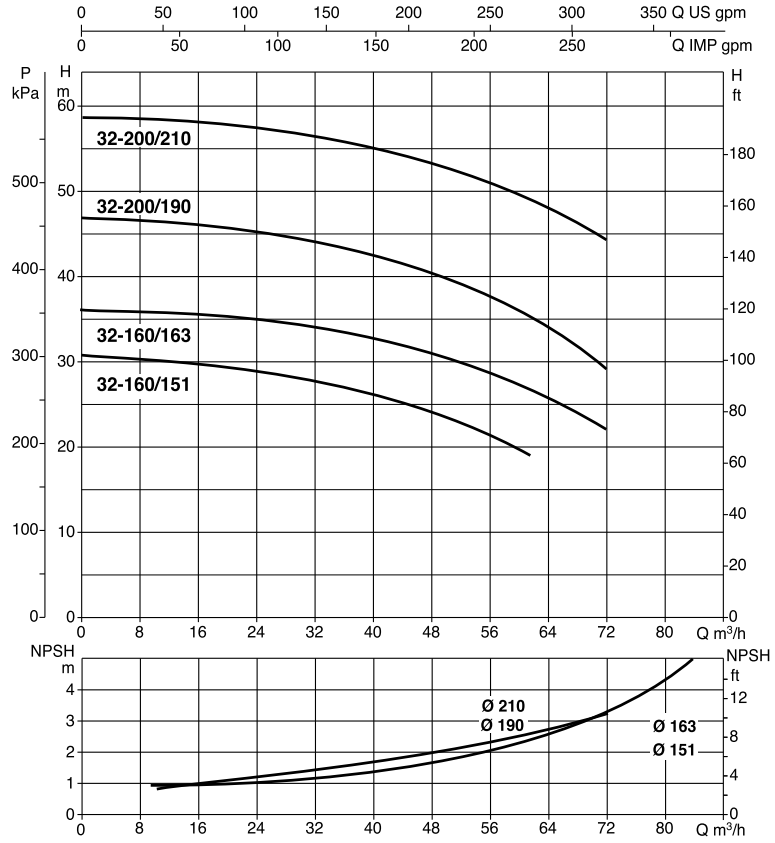
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1, D and G.**

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP 32 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C





MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP 32-160/151 + KVCX 65/50	3x400 V	2 x 3	2 x 4	1,1	2 x 6,7	4 – 56	3	2,5
2NKP 32-160/163 + KVCX 65/50	3x400 V	2 x 4	2 x 5,5	1,1	2 x 8,7	4 – 64	3,5	3
2NKP 32-200/190 + KVCX 65/50	3x400 V	2 x 5,5	2 x 7,5	1,1	2 x 11,6	4 - 64	4,5	4
2NKP 32-200/210 + KVCX 65/50	3x400 V	2 x 7,5	2 x 10	1,1	2 x 14	4 – 64	5,6	5

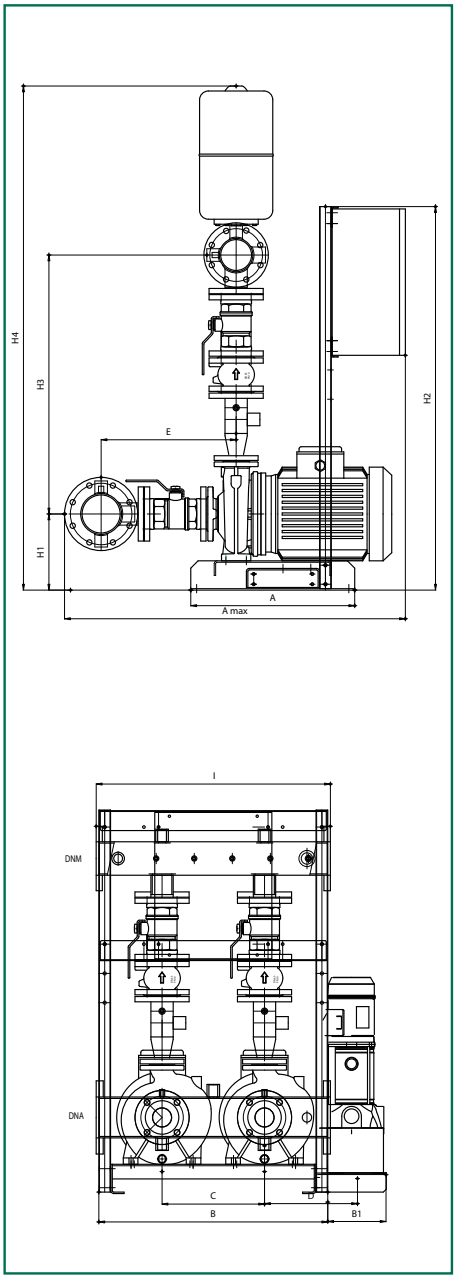
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
2NKP 32-160/151 + KVCX 65/50	560	1078	782	199	350	318	388	232	1310	771	1568	800	DN100	DN80
2NKP 32-160/163 + KVCX 65/50	560	1078	782	199	350	318	388	232	1310	771	1568	800	DN100	DN80
2NKP 32-200/190 + KVCX 65/50	560	1078	782	199	350	318	388	260	1310	791	1616	800	DN100	DN80
2NKP 32-200/210 + KVCX 65/50	560	1078	782	199	350	318	388	260	1310	791	1616	800	DN100	DN80

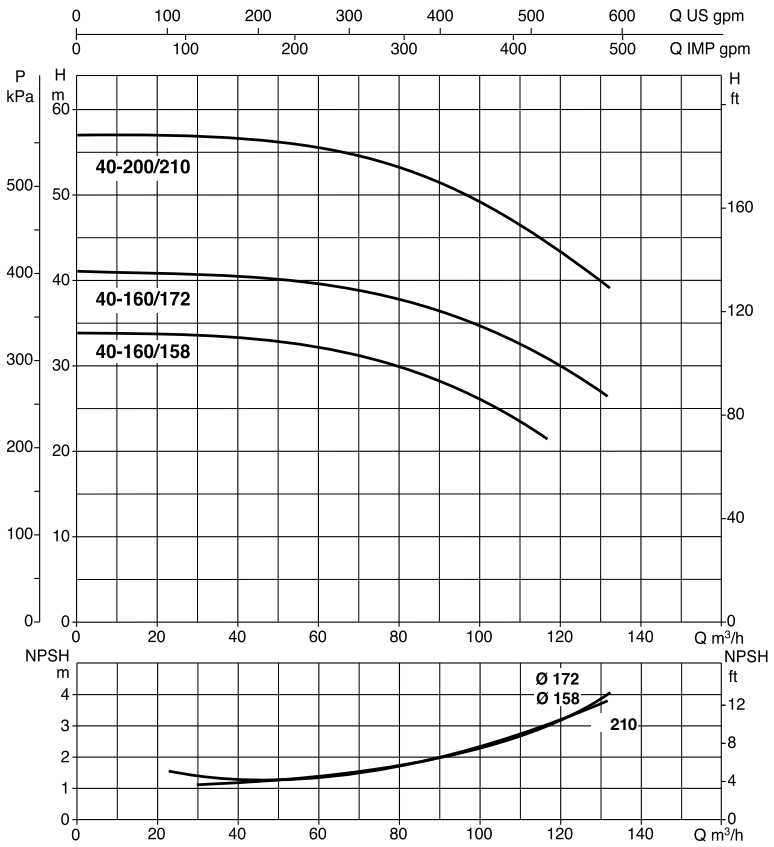
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C





MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP 40-160/158 + KVCX 65/50	3x400 V	2 x 5,5	2 x 7,5	1,1	2 x 11,6	10 – 110	3,3	3
2NKP 40-160/172 + KVCX 65/50	3x400 V	2 x 7,5	2 x 10	1,1	2 x 14	10 – 120	4	3,5
2NKP 40-200/210 + KVCX 65/80	3x400 V	2 x 11	2 x 15	2,2	2 x 22,5	10 – 120	5,5	5

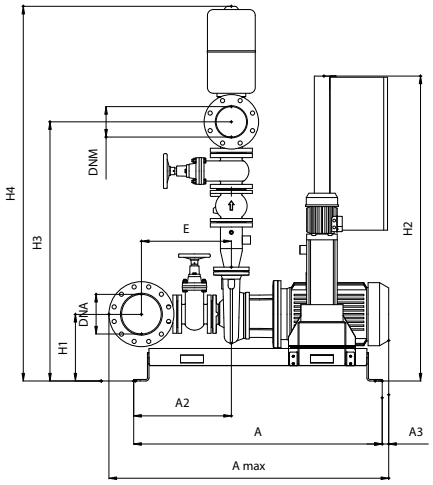
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
2NKP 40-160/158 + KVCX 65/50	560	1144	782	199	350	318	441	232	1310	865	1674	800	DN125	DN100
2NKP 40-160/172 + KVCX 65/50	560	1144	782	199	350	318	441	232	1310	865	1674	800	DN125	DN100
2NKP 40-200/210 + KVCX 65/80	560	1164	782	199	350	318	461	260	1310	885	1772	800	DN125	DN100

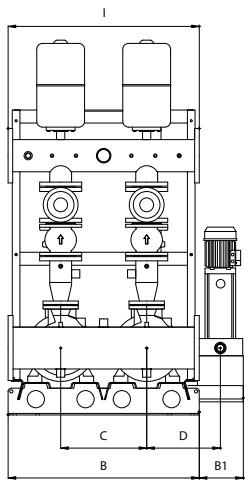
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

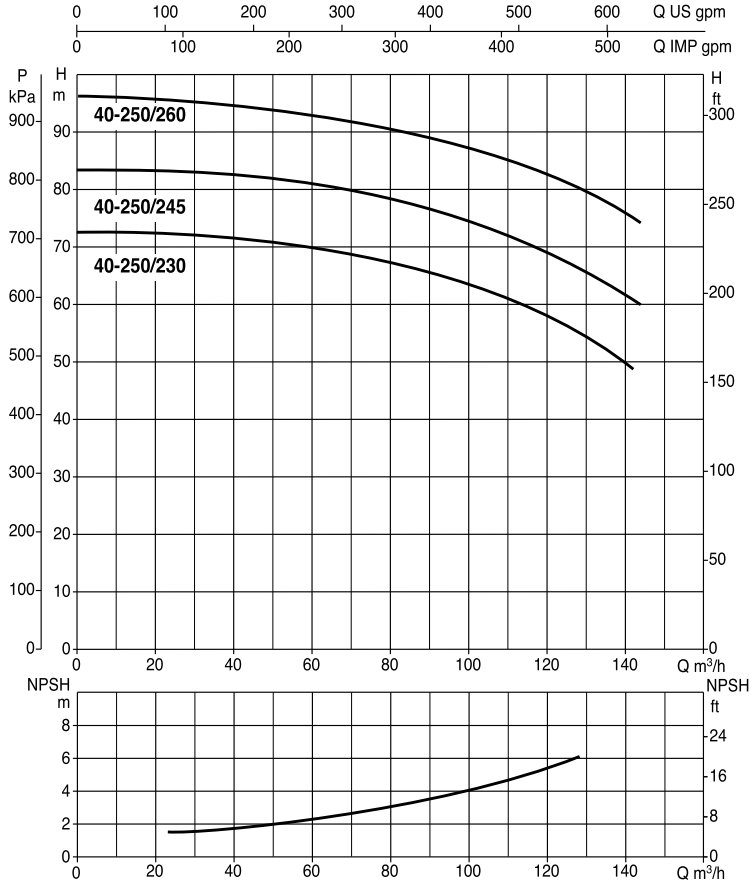
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP 40-250/230 + KVCX 65/80	3x400 V	2 x 15	2 x 20	2,2	2 x 31	10 – 140	7	6,5
2NKP 40-250/245 + KVCX 65/80	3x400 V	2 x 18,5	2 x 25	2,2	2 x 36	10 – 140	8	7,5
2NKP 40-250/260 + KVCX 65/80	3x400 V	2 x 22	2 x 30	2,2	2 x 43	10 – 140	9,3	8,5

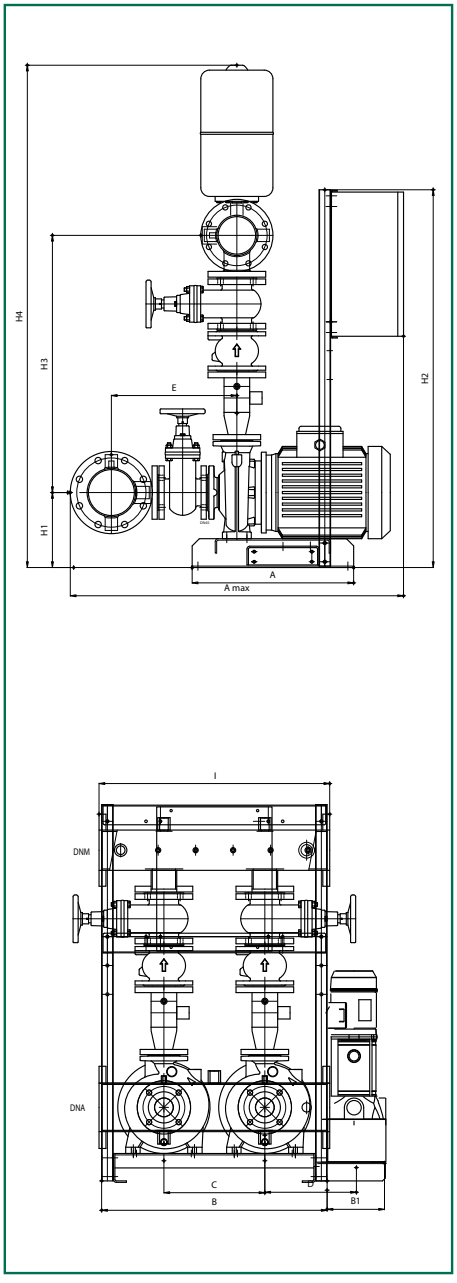
MODEL	A max	A	A2	A3	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
2NKP 40-250/230 + KVCX 65/80	1400	1290	477	-	1000	230	450	385	460	1000	350	1600	1280	1860	DN125	DN100
2NKP 40-250/245 + KVCX 65/80	1300	1290	579	-	1000	230	450	385	460	1000	350	1600	1280	1860	DN125	DN100
2NKP 40-250/260 + KVCX 65/80	1300	1290	579	-	1000	230	450	385	460	1000	350	1600	1280	1860	DN125	DN100

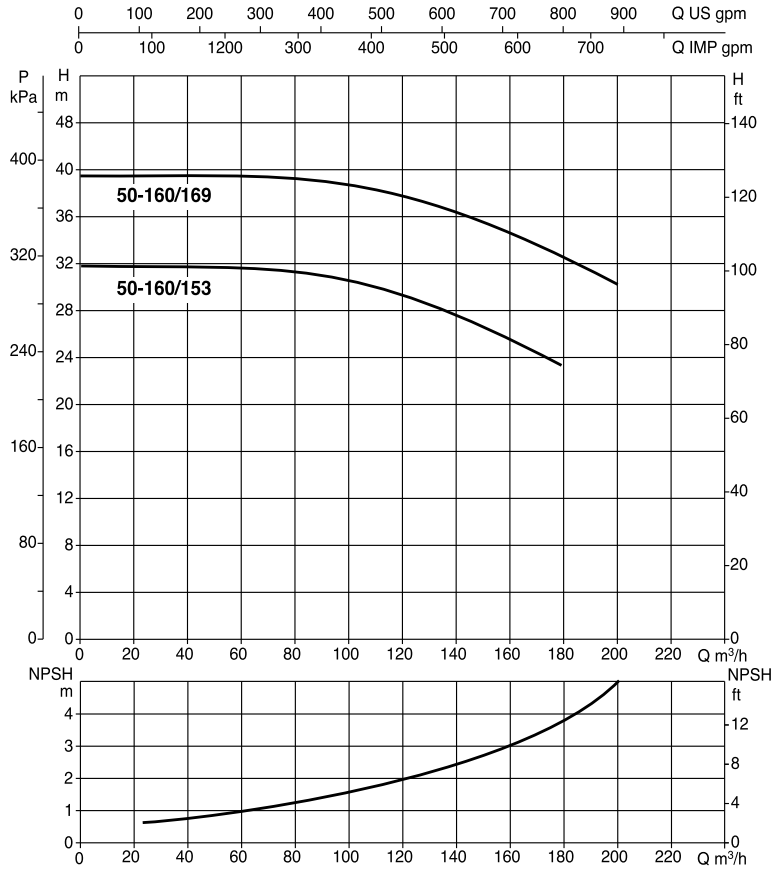
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C





MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP 50-160/153 + KVCX 65/50	3x400 V	2 x 7,5	2 x 10	1,1	2 x 14	10 – 160	3	2,5
2NKP 50-160/169 + KVCX 65/80	3x400 V	2 x 11	2 x 15	2,2	2 x 22,5	10 – 180	3,8	3,3

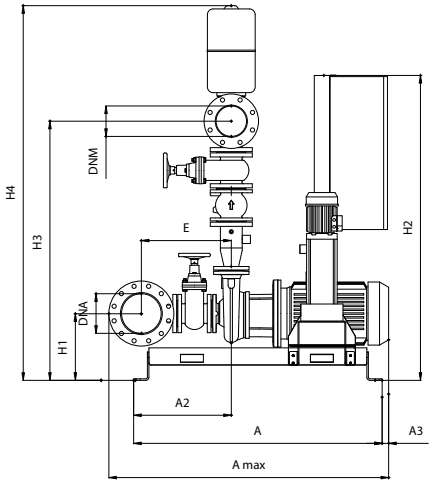
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
2NKP 50-160/153 + KVCX 65/50	560	1156	782	199	350	318	435	260	1310	892	1742	800	DN150	DN125
2NKP 50-160/169 + KVCX 65/80	560	1156	782	199	350	318	435	260	1310	892	1742	800	DN150	DN125

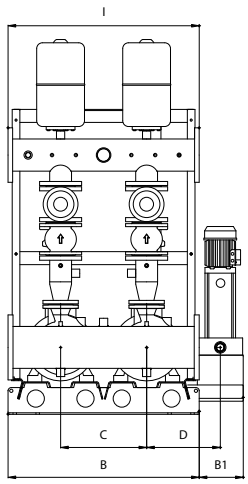
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

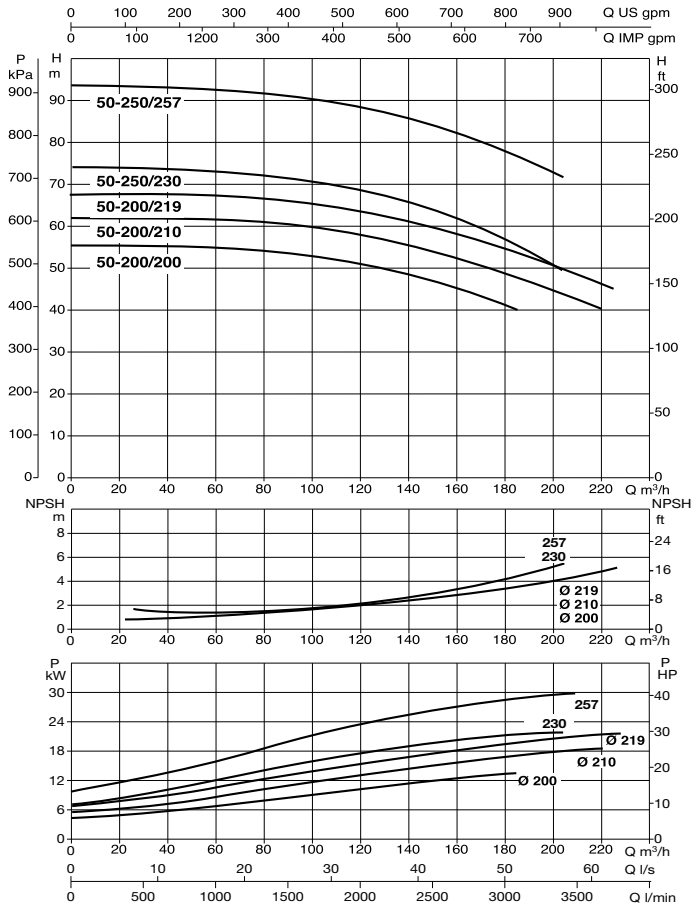
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP 50-200/200 + KVCX 65/80	3x400 V	2 x 15	2 x 20	2,2	2 x 31	10 – 180	5,2	5
2NKP 50-200/210 + KVCX 65/80	3x400 V	2 x 18,5	2 x 25	2,2	2 x 36	10 – 220	6	5,5
2NKP 50-200/219 + KVCX 65/80	3x400 V	2 x 22	2 x 30	2,2	2 x 43	10 – 220	6,5	6
2NKP 50-250/230 + KVCX 65/80	3x400 V	2 x 22	2 x 30	2,2	2 x 43	10 – 200	7	6,5
2NKP 50-250/257 + KVCX 65/80	3x400 V	2 x 30	2 x 40	2,2	2 x 57	10 – 200	9	8,5

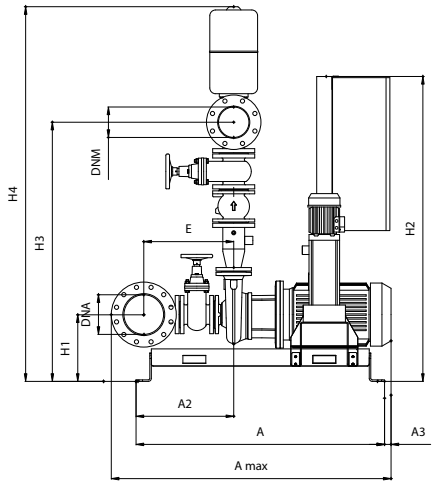
MODEL	A max	A	A2	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
2NKP 50-200/200 + KVCX 65/80	1440	1290	434	1000	230	450	385	435	1000	330	1600	1245	1835	DN150	DN125
2NKP 50-200/210 + KVCX 65/80	1290	1290	579	1000	230	450	385	435	1000	330	1600	1245	1835	DN150	DN125
2NKP 50-200/219 + KVCX 65/80	1290	1290	579	1000	230	450	385	435	1000	330	1600	1245	1835	DN150	DN125
2NKP 50-250/230 + KVCX 65/80	1290	1290	579	1000	230	450	385	435	1000	350	1600	1290	1880	DN150	DN125
2NKP 50-250/257 + KVCX 65/80	1290	1290	579	1000	230	450	385	435	1000	350	1600	1290	1880	DN150	DN125

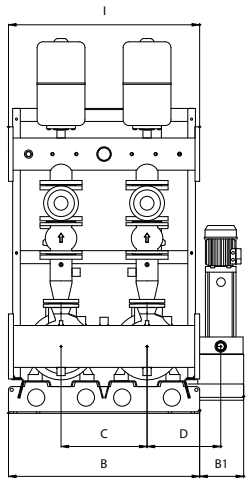
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

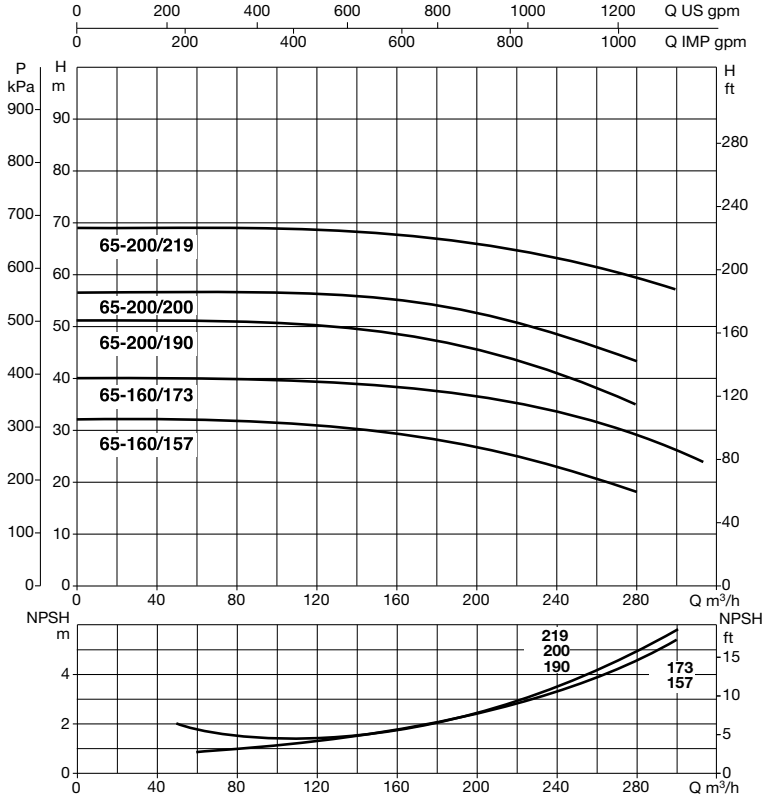
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP-G 65 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP-G 65-160/157 + KVCX 65/80	3x400 V	2 x 11	2 x 15	2,2	2 x 20,4	20 - 280	3	2,5
2NKP-G 65-160/173 + KVCX 65/80	3x400 V	2 x 15	2 x 20	2,2	2 x 27,5	20 – 300	3,8	3,5
2NKP-G 65-200/190 + KVCX 65/80	3x400 V	2 x 18,5	2 x 25	2,2	2 x 33,5	20 - 280	5	4,5
2NKP-G 65-200/200 + KVCX 65/80	3x400 V	2 x 22	2 x 30	2,2	2 x 39,5	20 – 280	5,5	5
2NKP-G 65-200/219 + KVCX 65/80	3x400 V	2 x 30	2 x 40	2,2	2 x 52,5	20 - 280	6,5	6

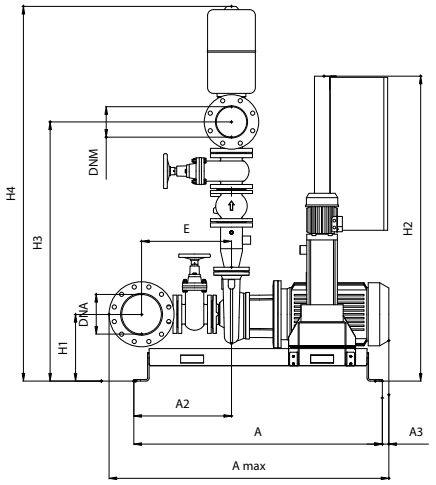
MODEL	A max	A	A2	A3	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
2NKP-G 65-160/157 + KVCX 65/80	1490	1290	445	-	1000	230	450	385	470	1000	350	1600	1335	1940	DN200	DN150
2NKP-G 65-160/173 + KVCX 65/80	1490	1290	445	-	1000	230	450	385	470	1000	350	1600	1335	1940	DN200	DN150
2NKP-G 65-200/190 + KVCX 65/80	1490	1290	445	-	1000	230	450	385	470	1000	350	1600	1360	1965	DN200	DN150
2NKP-G 65-200/200 + KVCX 65/80	1465	1290	511	45	1000	230	450	385	470	1000	350	1600	1360	1965	DN200	DN150
2NKP-G 65-200/219 + KVCX 65/80	1530	1290	464	60	1000	230	450	385	470	1000	370	1600	1380	1985	DN200	DN150

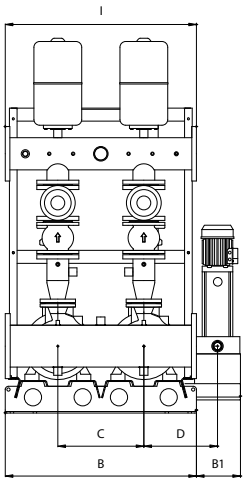
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

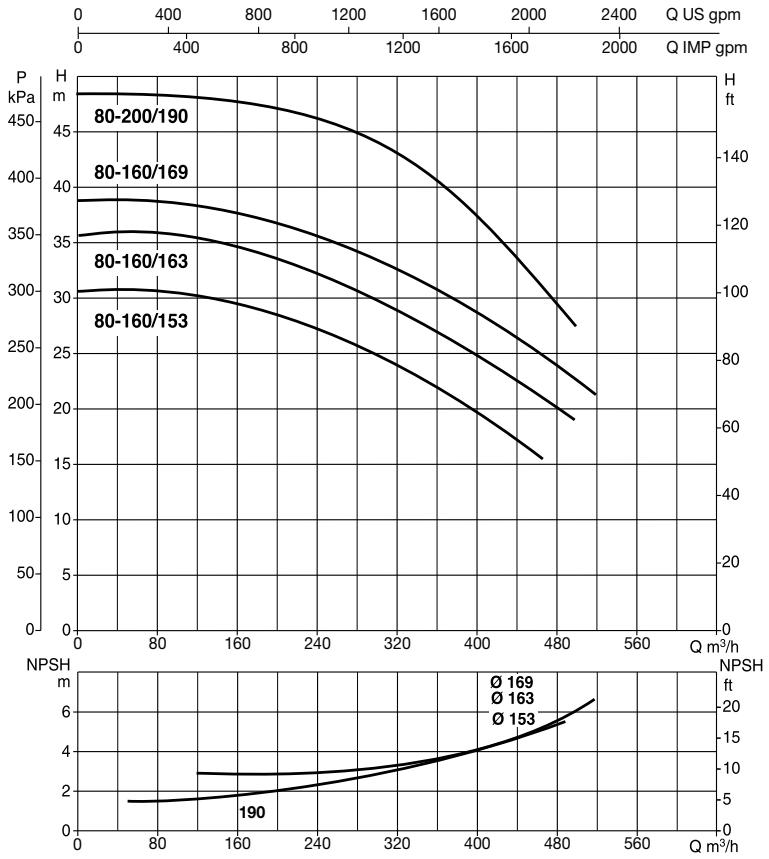
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 NKP-G 80 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
2NKP-G 80-160/153 + KVCX 65/80	3x400 V	2 x 15	2 x 20	2,2	2 x 27,5	40 - 440	2,8	2,5
2NKP-G 80-160/163 + KVCX 65/80	3x400 V	2 x 18,5	2 x 25	2,2	2 x 33,5	40 – 480	3,3	3
2NKP-G 80-160/169 + KVCX 65/80	3x400 V	2 x 22	2 x 30	2,2	2 x 39,5	40 - 480	3,7	3,3
2NKP-G 80-200/190 + KVCX 65/80	3x400 V	2 x 30	2 x 40	2,2	2 x 52,5	40 – 480	4,6	4,5

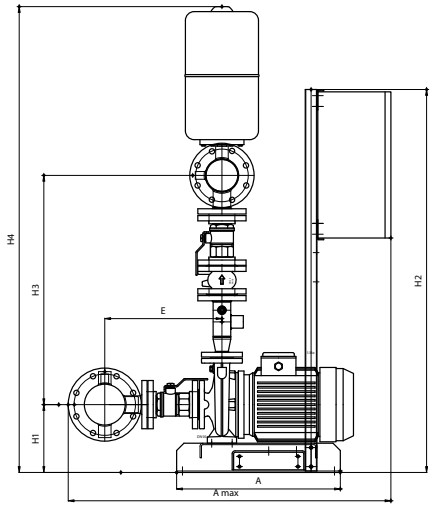
MODEL	A max	A	A2	A3	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
2NKP-G 80-160/153 + KVCX 65/80	1580	1290	445	-	1000	230	450	385	532	1000	350	1600	1460	2090	DN250	DN200
2NKP-G 80-160/163 + KVCX 65/80	1580	1290	445	-	1000	230	450	385	532	1000	350	1600	1460	2090	DN250	DN200
2NKP-G 80-160/169 + KVCX 65/80	1560	1290	511	45	1000	230	450	385	532	1000	350	1600	1460	2090	DN250	DN200
2NKP-G 80-200/190 + KVCX 65/80	1650	1290	434	60	1000	230	450	385	532	1000	370	1600	1505	2135	DN250	DN200

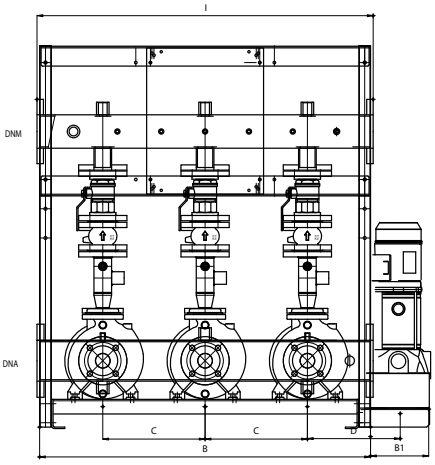
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

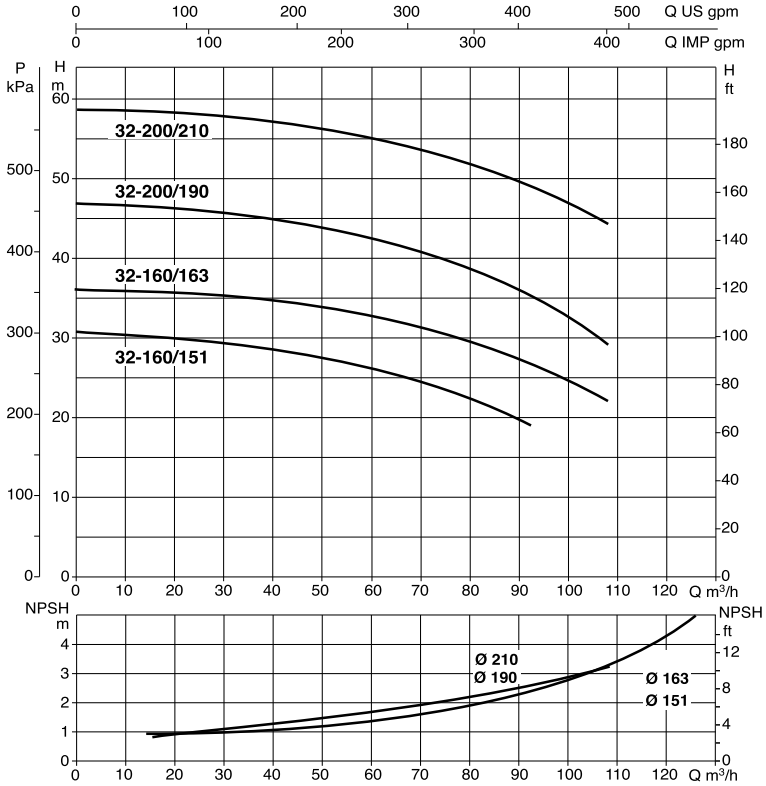
Le curve di prestazione sono basate su valori di viscosità cinematica = 1 mm^2/s e densità pari a 1000 Kg/m^3. Tolleranza delle curve secondo ISO 9906.

GRUPPI 3 NKP 32

Campo di temperatura del liquido pompato: da -15°C a +70°C
Campo di temperatura del liquido pompa pilota: da +0°C a +40°C
Massima temperatura ambiente: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP 32-160/151 + KVCX 65/50	3x400 V	3 x 3	3 x 4	1,1	3 x 6,7	4 – 84	3	2,5
3NKP 32-160/163 + KVCX 65/50	3x400 V	3 x 4	3 x 5,5	1,1	3 x 8,7	4 – 96	3,5	3
3NKP 32-200/190 + KVCX 65/50	3x400 V	3 x 5,5	3 x 7,5	1,1	3 x 11,6	4 - 96	4,5	4
3NKP 32-200/210 + KVCX 65/50	3x400 V	3 x 7,5	3 x 10	1,1	3 x 14	4 – 96	5,6	5

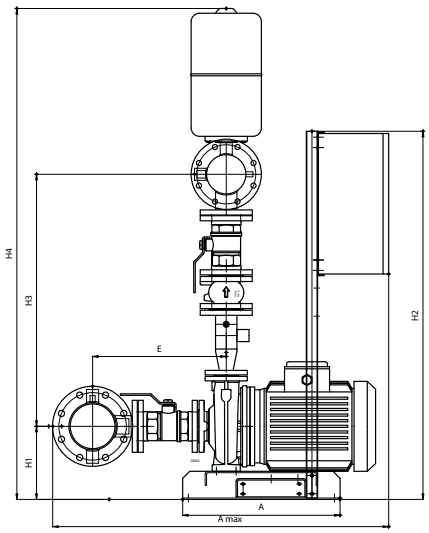
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
3NKP 32-160/151 + KVCX 65/50	560	1104	1132	199	350	318	401	232	1310	784	1593	1150	DN125	DN100
3NKP 32-160/163 + KVCX 65/50	560	1104	1132	199	350	318	401	232	1310	784	1593	1150	DN125	DN100
3NKP 32-200/190 + KVCX 65/50	560	1104	1132	199	350	318	401	260	1310	804	1641	1150	DN125	DN100
3NKP 32-200/210 + KVCX 65/50	560	1104	1132	199	350	318	401	260	1310	804	1641	1150	DN125	DN100

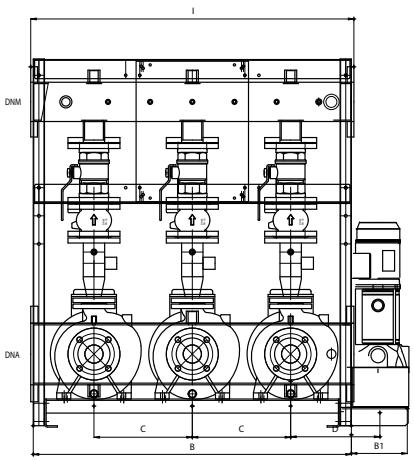
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

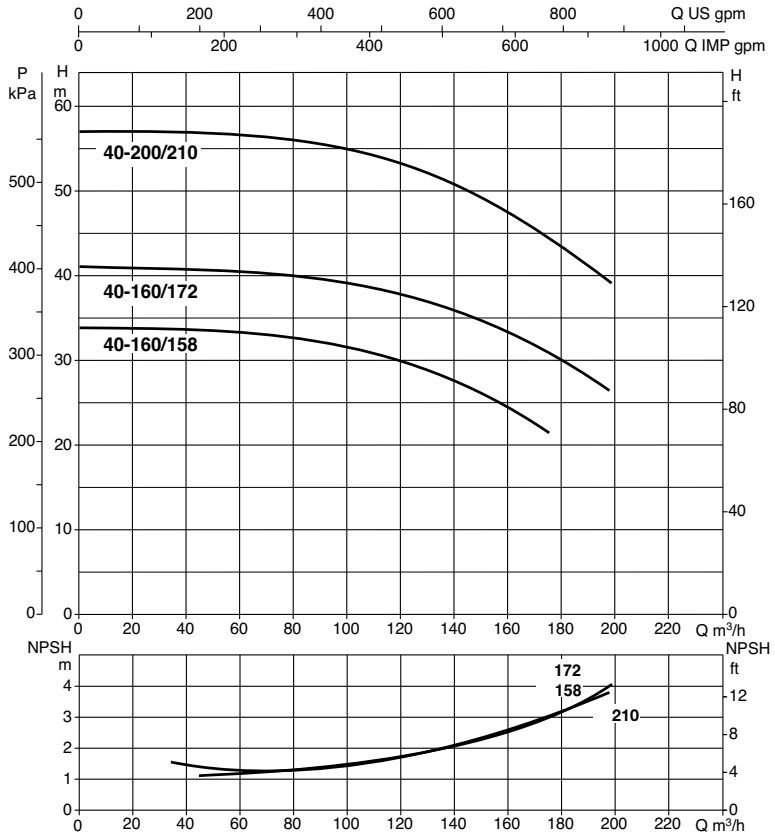
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP 40-160/158 + KVCX 65/50	3x400 V	3 x 5,5	3 x 7,5	1,1	2 x 11,6	10 – 165	3,3	3
3NKP 40-160/172 + KVCX 65/50	3x400 V	3 x 7,5	3 x 10	1,1	3 x 14	10 – 180	4	3,5
3NKP 40-200/210 + KVCX 65/80	3x400 V	3 x 11	3 x 15	2,2	2 x 22,5	10 – 180	5,5	5

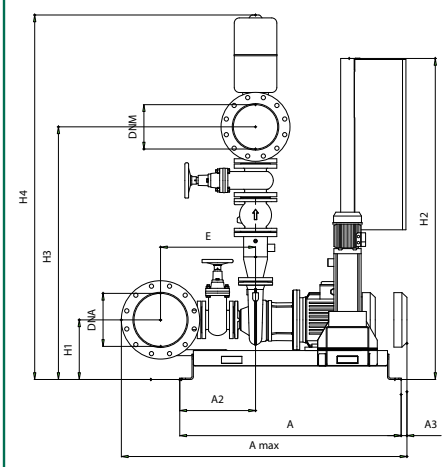
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
3NKP 40-160/158 + KVCX 65/50	560	1176	1132	199	350	318	456	232	1310	877	1699	1150	DN150	DN125
3NKP 40-160/172 + KVCX 65/50	560	1176	1132	199	350	318	456	232	1310	877	1699	1150	DN150	DN125
3NKP 40-200/210 + KVCX 65/80	560	1176	1132	199	350	318	456	260	1310	897	1747	1150	DN150	DN125

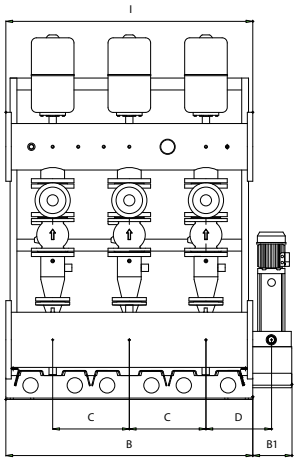
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

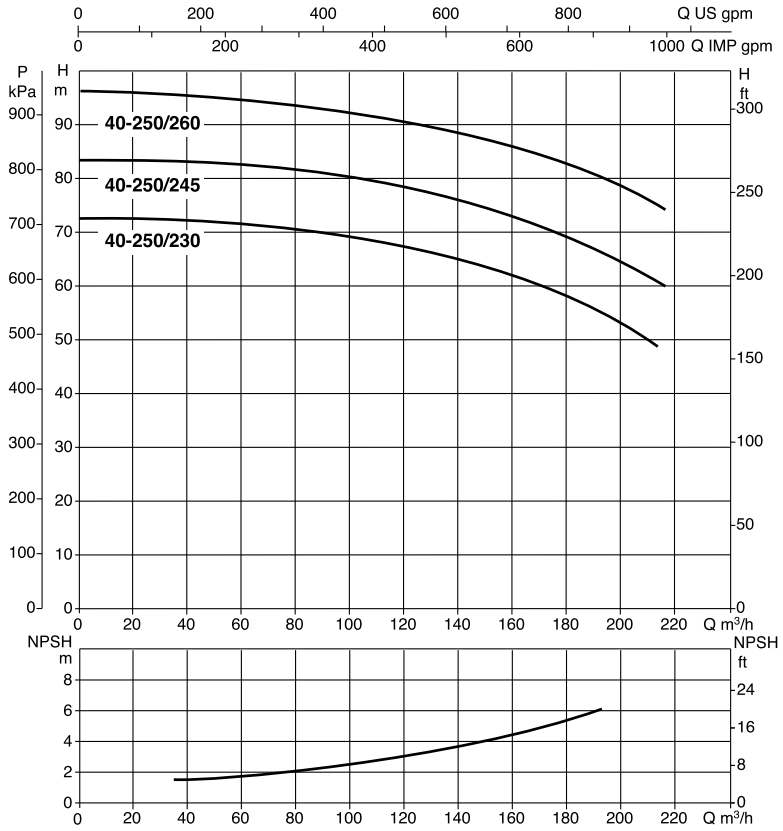
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP 40 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m³/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP 40-250/230 + KVCX 65/80	3x400 V	3 x 15	3 x 20	2,2	3 x 31	10 – 210	7	6,5
3NKP 40-250/245 + KVCX 65/80	3x400 V	3 x 18,5	3 x 25	2,2	3 x 36	10 – 210	8	7,5
3NKP 40-250/260 + KVCX 65/80	3x400 V	3 x 22	3 x 30	2,2	3 x 43	10 – 210	9,3	8,5

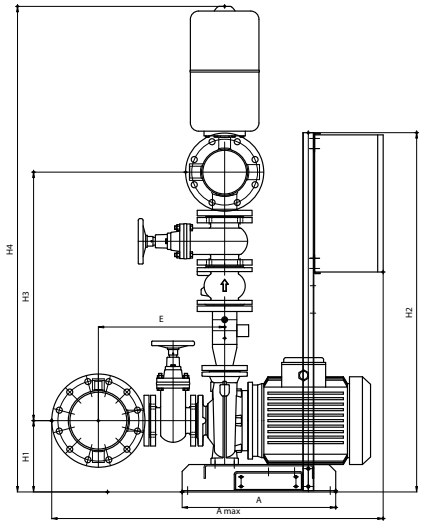
MODEL	A max	A	A2	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
3NKP 40-250/230 + KVCX 65/80	1435	1290	477	1450	230	450	385	475	1450	350	1600	1295	1855	DN150	DN125
3NKP 40-250/245 + KVCX 65/80	1335	1290	579	1450	230	450	385	475	1450	350	1600	1295	1855	DN150	DN125
3NKP 40-250/260 + KVCX 65/80	1335	1290	579	1450	230	450	385	475	1450	350	1600	1295	1855	DN150	DN125

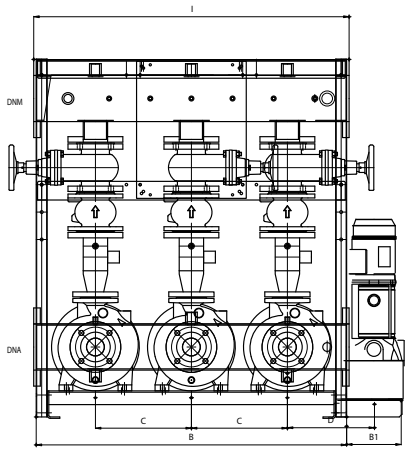
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

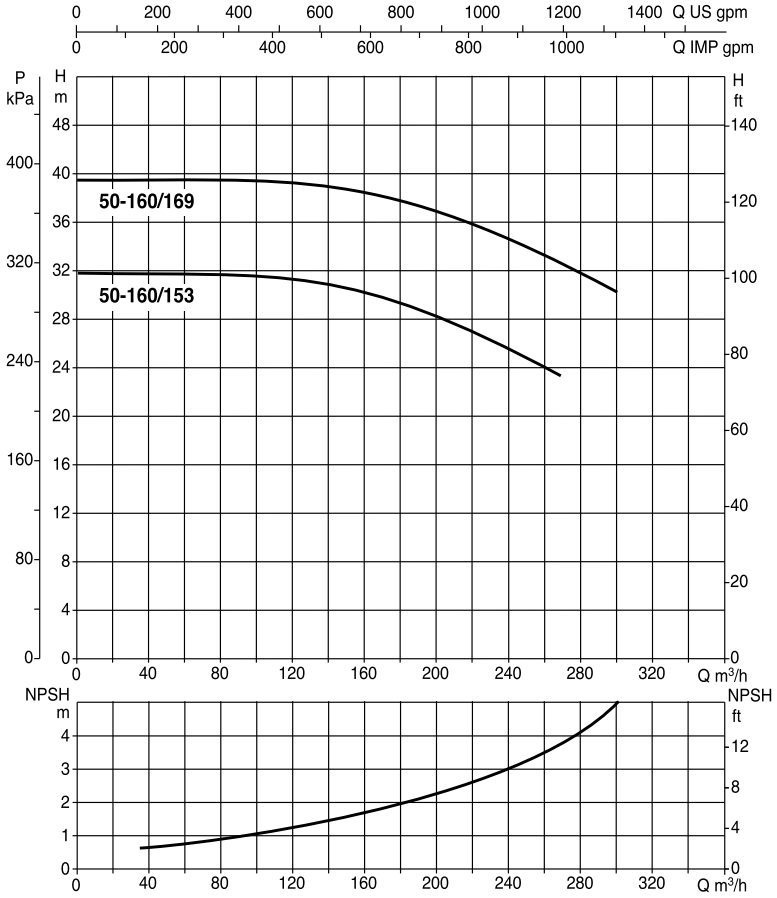
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP 50-160/153 + KVCX 65/50	3x400 V	3 x 7,5	3 x 10	1,1	3 x 14	10 – 240	3	2,5
3NKP 50-160/169 + KVCX 65/80	3x400 V	3 x 11	3 x 15	2,2	2 x 22,5	10 – 270	3,8	3,3

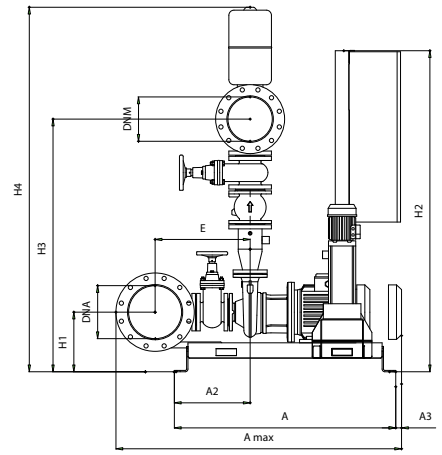
MODEL	A	A max	B	B1*	C	D*	E	H1	H2	H3	H4	I	DNA	DNM
3NKP 50-160/153 + KVCX 65/50	560	1209	1132	199	350	318	461	260	1310	906	1770	1150	DN200	DN150
3NKP 50-160/169 + KVCX 65/80	560	1209	1132	199	350	318	461	260	1310	906	1770	1150	DN200	DN150

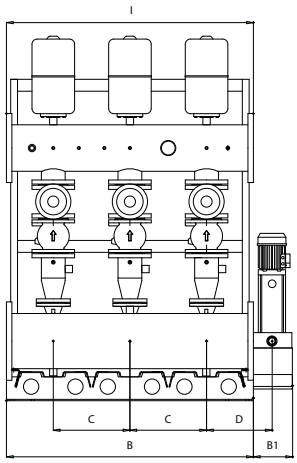
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

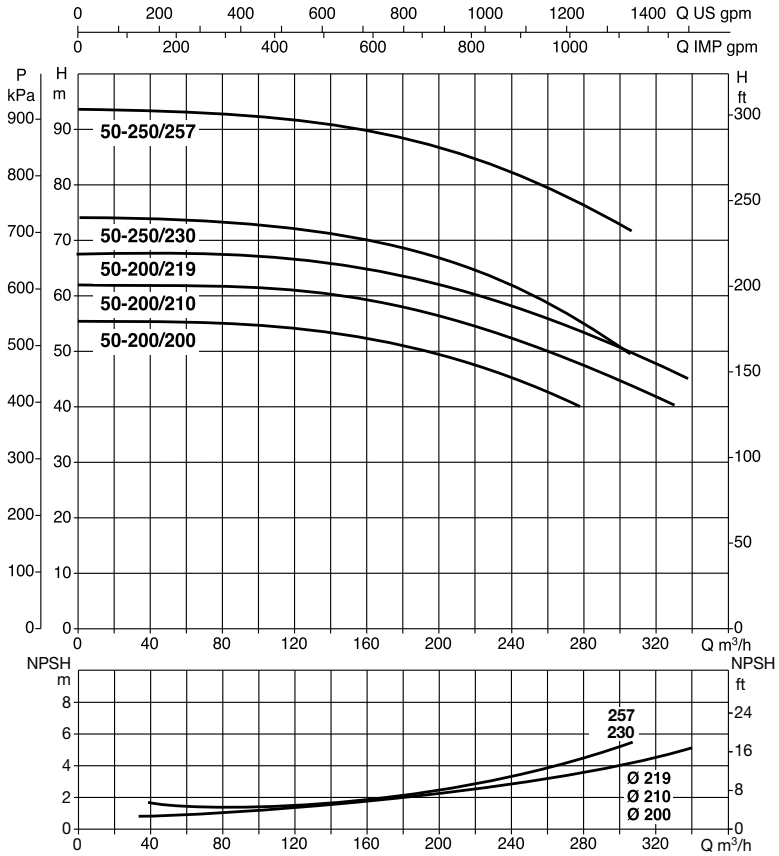
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP 50-200/200 + KVCX 65/80	3x400 V	3 x 15	3 x 20	2,2	2 x 31	10 – 270	5,2	5
3NKP 50-200/210 + KVCX 65/80	3x400 V	3 x 18,5	3 x 25	2,2	3 x 36	10 – 330	6	5,5
3NKP 50-200/219 + KVCX 65/80	3x400 V	3 x 22	3 x 30	2,2	3 x 43	10 – 330	6,5	6
3NKP 50-250/230 + KVCX 65/80	3x400 V	3 x 22	3 x 30	2,2	3 x 43	10 – 300	7	6,5
3NKP 50-250/257 + KVCX 65/80	3x400 V	3 x 30	3 x 40	2,2	2 x 57	10 – 300	9	8,5

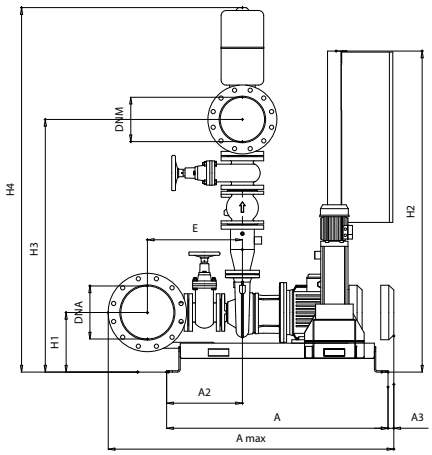
MODEL	A max	A	A2	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
3NKP 50-200/200 + KVCX 65/80	1495	1290	434	1450	230	450	385	460	1450	330	1600	1260	1865	DN200	DN150
3NKP 50-200/210 + KVCX 65/80	1345	1290	579	1450	230	450	385	460	1450	330	1600	1260	1865	DN200	DN150
3NKP 50-200/219 + KVCX 65/80	1345	1290	579	1450	230	450	385	460	1450	330	1600	1260	1865	DN200	DN150
3NKP 50-250/230 + KVCX 65/80	1345	1290	579	1450	230	450	385	460	1450	350	1600	1305	1910	DN200	DN150
3NKP 50-250/257 + KVCX 65/80	1345	1290	579	1450	230	450	385	460	1450	350	1600	1305	1910	DN200	DN150

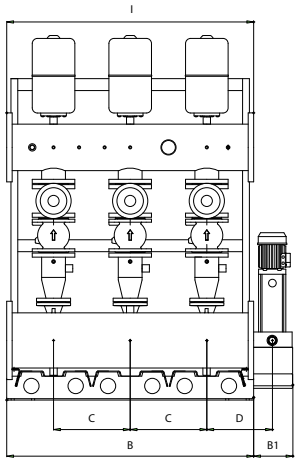
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

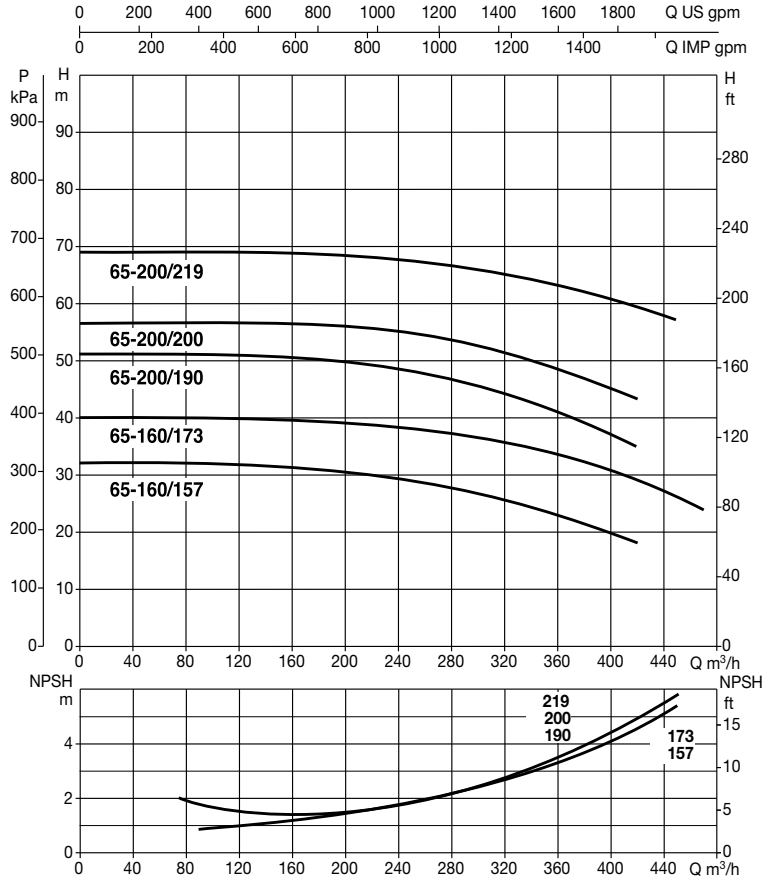
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP-G 65 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C







MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP-G 65-160/157 + KVCX 65/80	3x400 V	3 x 11	3 x 15	2,2	3 x 20,4	20 - 420	3	2,5
3NKP-G 65-160/173 + KVCX 65/80	3x400 V	3 x 15	3 x 20	2,2	3 x 27,5	20 – 450	3,8	3,5
3NKP-G 65-200/190 + KVCX 65/80	3x400 V	3 x 18,5	3 x 25	2,2	3 x 33,5	20 - 420	5	4,5
3NKP-G 65-200/200 + KVCX 65/80	3x400 V	3 x 22	3 x 30	2,2	3 x 39,5	20 – 420	5,5	5
3NKP-G 65-200/219 + KVCX 65/80	3x400 V	3 x 30	3 x 40	2,2	3 x 52,5	20 - 420	6,5	6

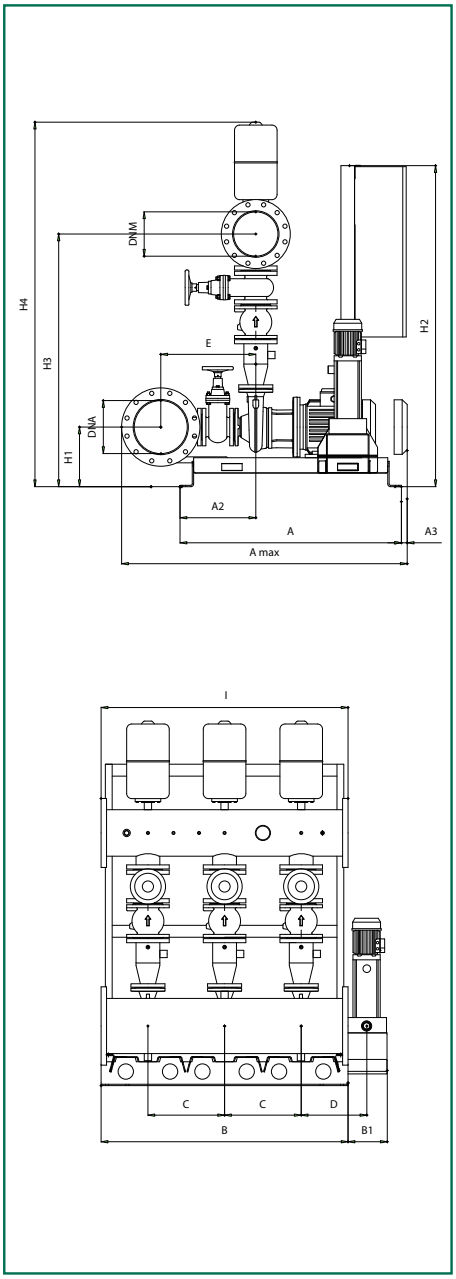
MODEL	A max	A	A2	A3	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
3NKP-G 65-160/157 + KVCX 65/80	1550	1290	445	-	1450	230	450	385	500	1450	350	1600	1365	2000	DN250	DN200
3NKP-G 65-160/173 + KVCX 65/80	1550	1290	445	-	1450	230	450	385	500	1450	350	1600	1365	2000	DN250	DN200
3NKP-G 65-200/190 + KVCX 65/80	1550	1290	445	-	1450	230	450	385	500	1450	350	1600	1390	2005	DN250	DN200
3NKP-G 65-200/200 + KVCX 65/80	1525	1290	511	45	1450	230	450	385	500	1450	350	1600	1390	2005	DN250	DN200
3NKP-G 65-200/219 + KVCX 65/80	1590	1290	464	60	1450	230	450	385	500	1450	370	1600	1410	2045	DN250	DN200

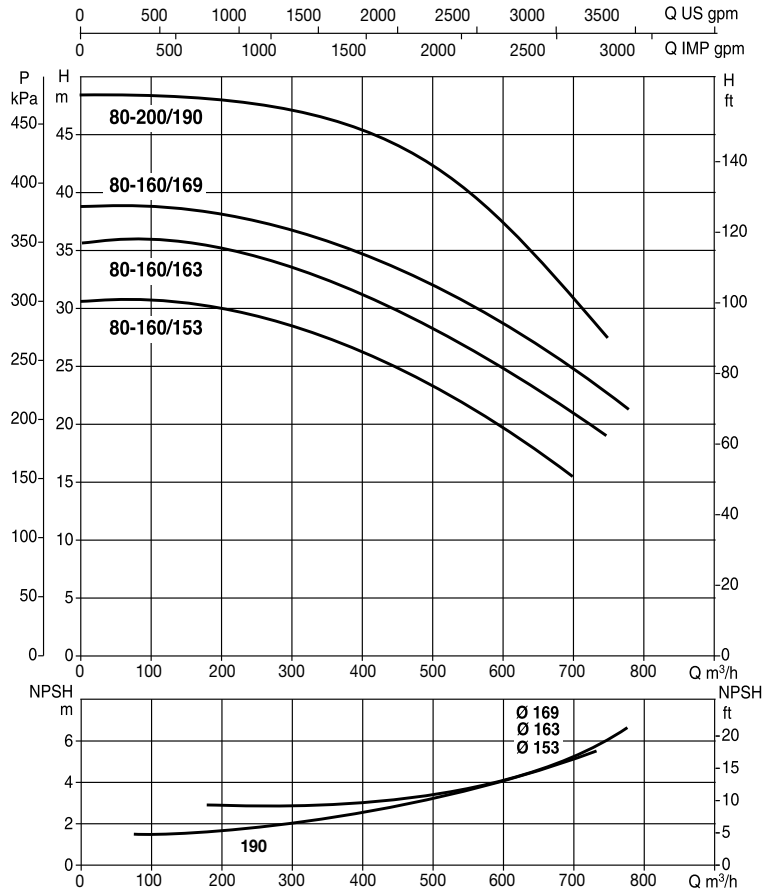
*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 NKP-G 80 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Jockey pump liquid temperature range: from +0°C to +40°C
Maximum ambient temperature: +40°C





MODEL	ELECTRICAL DATA							
	Power supply G	P2 Nominal kW	P2 Nominal HP	P2 nomin. jockey kW	In pump A	Flow rate m3/h	Maximum available pressure (bar)	DAB standard pressure (bar)
3NKP-G 80-160/153 + KVCX 65/80	3x400 V	3 x 15	3 x 20	2,2	3 x 27,5	40 - 660	2,8	2,5
3NKP-G 80-160/163 + KVCX 65/80	3x400 V	3 x 18,5	3 x 25	2,2	3 x 33,5	40 – 720	3,3	3
3NKP-G 80-160/169 + KVCX 65/80	3x400 V	3 x 22	3 x 30	2,2	3 x 39,5	40 - 720	3,7	3,3
3NKP-G 80-200/190 + KVCX 65/80	3x400 V	3 x 30	3 x 40	2,2	3 x 52,5	40 – 720	4,6	4,5

MODEL	A max	A	A2	A3	B	B1*	C	D*	E	I	H1	H2	H3	H4	DNA	DNM
3NKP-G 80-160/153 + KVCX 65/80	1635	1290	445	-	1450	230	450	385	560	1450	350	1600	1490	2145	DN300	DN250
3NKP-G 80-160/163 + KVCX 65/80	1635	1290	445	-	1450	230	450	385	560	1450	350	1600	1490	2145	DN300	DN250
2NKP-G 80-160/169 + KVCX 65/80	1615	1290	511	45	1450	230	450	385	560	1450	350	1600	1490	2145	DN300	DN250
3NKP-G 80-200/190 + KVCX 65/80	1705	1290	434	60	1450	230	450	385	560	1450	370	1600	1535	2190	DN300	DN250

*** Dimensions are referred to the set with jockey pump. For dimensions of the set without the jockey pump, disregard dimensions B1 and D.**

ACCESSORIES FOR INDUSTRIAL BOOSTER SETS

ANTIVIBRATION COUPLINGS

To be fitted to suction and discharge manifolds to reduce vibration of the pump set transmitted to the system.

PUMP SET MODEL		1K 70-80 300/400	1 NKP 32	1 NKP 40	1 NKP 50	1 NKP-G65	1 NKP-G 80	2K 70-80 300/400	2 NKP 32	2 NKP 40	2 NKP 50	2 NKP-G65	2 NKP-G 80	3K 70-80 300/400	3 NKP 32	3 NKP 40	3 NKP 50	3 NKP-G65	3 NKP-G 80
ANTIVIBRATION COUPLING	FOR SUCTION	DN 80	DN 80	DN 100	DN 100	DN 125	DN 150	DN 100	DN 100	DN 125	DN 150	DN 200	DN 250	DN 125	DN 125	DN 150	DN 200	DN 250	DN 300
	FOR DISCHARGE	2"1/2	2"1/2	DN 80	DN 100	DN 125	DN 150	DN 80	DN 80	DN 100	DN 125	DN 150	DN 200	DN 100	DN 100	DN 125	DN 150	DN 200	DN 250

MINIMUM PRESSURE SWITCH

To install on the suction manifold and connect to the pump set control panel.
Stops the pump set in the presence of low suction pressure.

FOOT VALVES

Required for positive suction installation (e.g. pump set installed above the water tank).
To be installed in the pump set water tank on the pipe connected to the suction manifold.

PUMP SET MODEL	1K 70-80 300/400	1 NKP 32	1 NKP 40	1 NKP 50	1 NKP-G65	1 NKP-G 80	2K 70-80 300/400	2 NKP 32	2 NKP 40	2 NKP 50	2 NKP-G65	2 NKP-G 80	3K 70-80 300/400	3 NKP 32	3 NKP 40	3 NKP 50	3 NKP-G65	3 NKP-G 80
FOOT VALVES	DN 80	DN 80	DN 100	DN 100	DN 125	DN 150	DN 100	DN 100	DN 125	DN 150	DN 200	DN 250	DN 125	DN 125	DN 150	DN 200	DN 250	DN 300

MEMBRANE EXPANSION VESSEL

The main functions of the membrane expansion vessel are to reduce the number of hourly pump starts and limit water hammering during starting of the electric pumps.
In addition to the standard expansion vessels supplied with DAB pump sets, it is also possible to install supplementary membrane expansion vessels in such a way as to reduce the number of hourly starts still further.

For calculation of the expansion vessel capacity, use the following simplified formula, which is applicable to both vertical and horizontal vessels.

$$V_m = \frac{Q_p \times (P+0,5) \times 1000}{140}$$

V_m = Expansion vessel capacity (litres)
Q_p = average flow rate of one pump in the set (m3/h)*
P = average operating pressure of pump set or Set Point (bar)

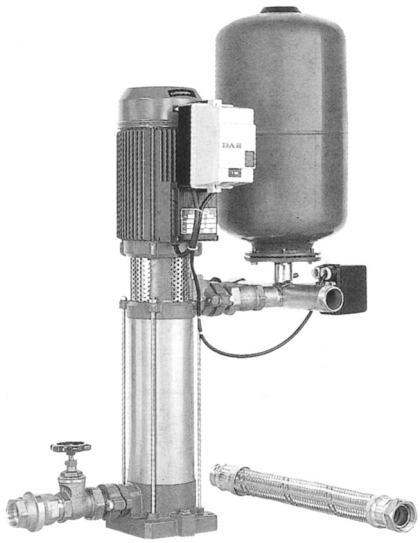
*when calculating the expansion vessel capacity it is sufficient to consider the flow rate of just one of the pumps

Once you have calculated the capacity of the membrane expansion vessel, select the one immediately above the value (e.g.: 460 litres required = install 500 litre expansion vessel). For capacities above 1000 litres, install more than one vessel (e.g. 1500 litres required = install one 1000 litre vessel and one 500 litre vessel)

EXPANSION VESSELS CAPACITY	
VERTICAL	VERTICAL
100 liters	**100** liters
200 liters	**200** liters
300 liters	**300** liters
500 liters	
750 liters	
1000 liters	

1KV 3 - 6 - 10 PUMP SETS
WITH 1 MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMP

1 PUMP



CE

GENERAL DATA

Applications

Water lifting sets specifically suitable for civil and industrial use.
The type of electric pumps used – the centrifugal multistage vertical axis KV series – ensure high performance and exceptional efficiency.
Rugged, compact, and with a limited footprint, these pump sets are extremely reliable and silent-running.

Construction features

SETS WITH 1 PUMP

HYDRAULIC SECTION

- 1 Vertical multistage electric pump KV3 KV 6 - KV 10;
- 1 membrane pressure tank;
- Radial pressure gauge;
- Threaded discharge manifold in tropicalized galvanized steel;
- Ball valves with union on suction and discharge ports;
- Check valve on suction side;
- Radial pressure gauge with isolator valve;
- Antivibration flexible hose;
- Tropicalized galvanized cast iron female plug for closing the manifold.

ELECTRICAL SECTION

Single-phase power supply

1 Two-pole pressure switch with cable gland connected to the motor and complete with power cable equipped with plug.

Three-phase power supply

Remote motor protector panel with reset pushbutton, secured to the motor by means of a tropicalized galvanized bracket, and electrically connected to the motor, complete with terminal board for connection of the power line -
1 Two-pole pressure switch with cable gland, connected to the motor protector panel.

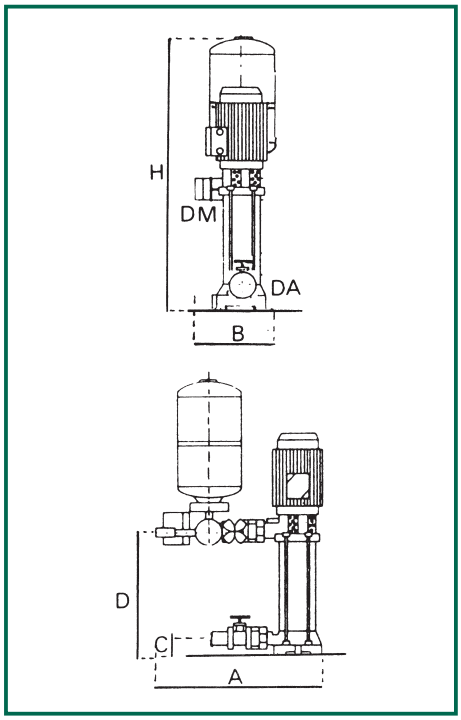
The pump sets are supplied in a strong carton complete with instruction leaflet and wiring diagram.

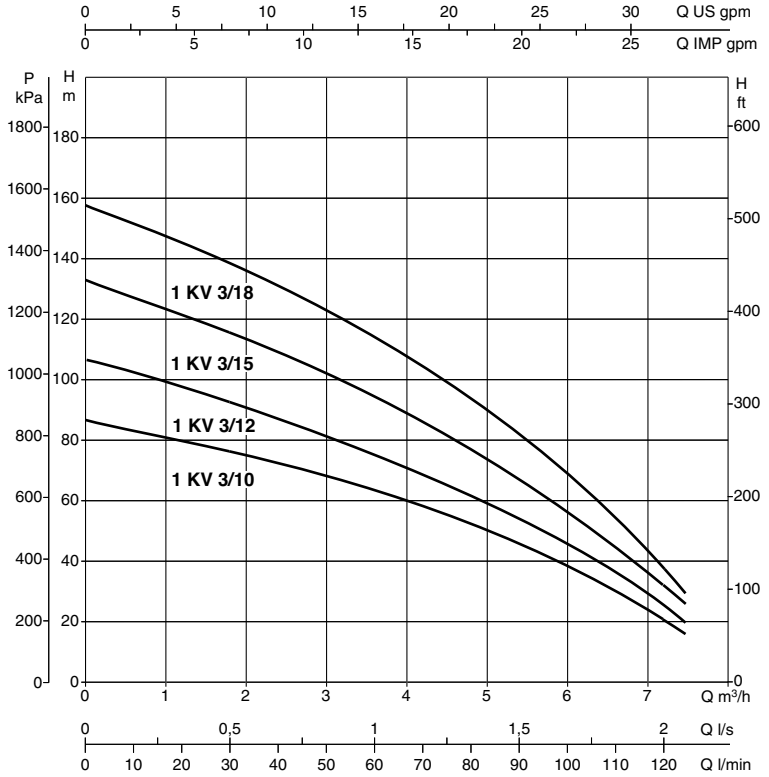
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KV 3 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 7,2 m³/h





MODEL	A	B	C	D	H	Ø MANIFOLD DNA (suction)	Ø MANIFOLD DNM (discharge)	WEIGHT Kg
1 KV 3/10 M	760	300	120	473	993	1¼"	1½"	39
1 KV 3/12 M	760	300	120	596	1116	1¼"	1½"	40
1 KV 3/10 T	760	300	120	473	993	1¼"	1½"	39
1 KV 3/12 T	760	300	120	596	1116	1¼"	1½"	40
1 KV 3/15 T	760	300	120	692	1212	1¼"	1½"	41
1 KV 3/18 T	760	300	120	788	1318	1¼"	1½"	47

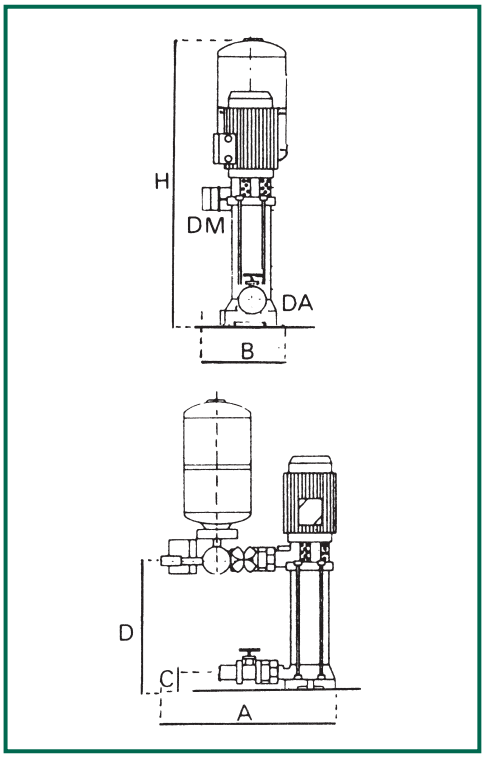
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
1 KV 3/10 M	1x220-240 V ~	1,1	1,5	7,8	7,2-1,8	5÷6	8,2
1 KV 3/12 M	1x220-240 V ~	1,5	2	9,6	7,2-1,8	6÷1	10,2
1 KV 3/10 T	3x400 V ~	1,1	1,5	3,2	7,2-1,8	5÷6	8,2
1 KV 3/12 T	3x400 V ~	1,5	2	3,7	7,2-1,8	6÷1	10,2
1 KV 3/15 T	3x400 V ~	1,85	2,5	4,3	7,2-1,8	8÷9	13
1 KV 3/18 T	3x400 V ~	2,2	3	5,8	7,2-1,8	10÷11	15,8

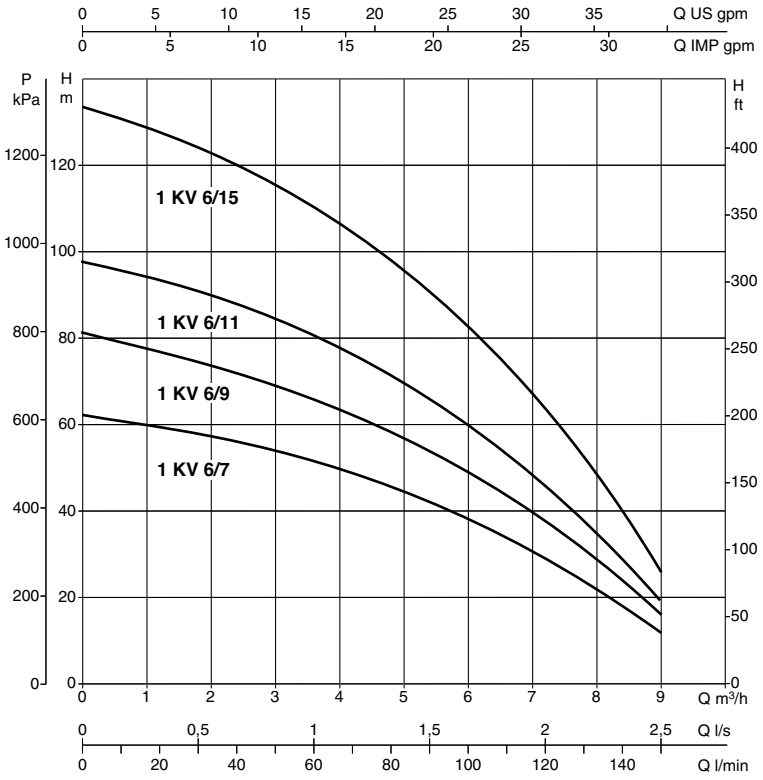
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KV 6 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 9 m³/h





MODEL	A	B	C	D	H	Ø MANIFOLD DNA (suction)	Ø MANIFOLD DNM (discharge)	WEIGHT Kg
1 KV 6/7 M	760	300	120	436	956	1¼"	1½"	37
1 KV 6/9 M	760	300	120	500	1020	1¼"	1½"	40
1 KV 6/7 T	760	300	120	436	956	1¼"	1½"	37
1 KV 6/9 T	760	300	120	500	1020	1¼"	1½"	40
1 KV 6/11 T	760	300	120	564	1084	1¼"	1½"	38
1 KV 6/15 T	760	300	120	692	1212	1¼"	1½"	45

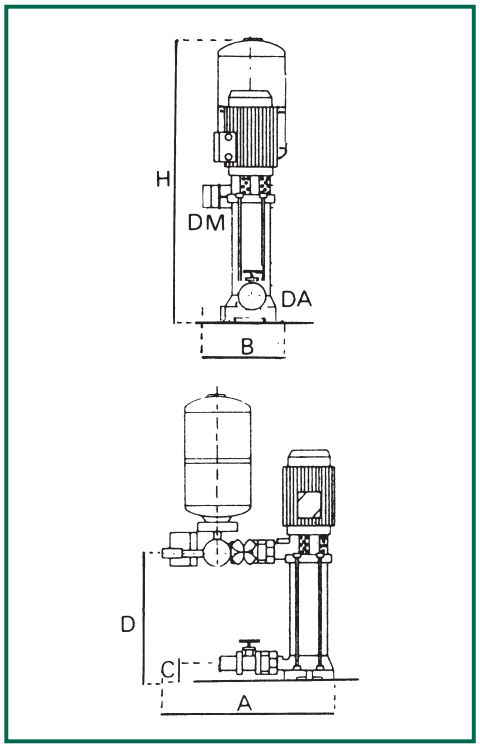
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
1 KV 6/7 M	1x220-240 V ~	1,1	1,5	7,5	8,5-2,4	4÷5	6
1 KV 6/9 M	1x220-240 V ~	1,5	2	9,4	8,5-2,4	5÷6	8
1 KV 6/7 T	3x400 V ~	1,1	1,5	2,9	8,5-2,4	4÷5	6
1 KV 6/9 T	3x400 V ~	1,5	2	3,6	8,5-2,4	5÷6	8
1 KV 6/11 T	3x400 V ~	1,85	2,5	4,2	8,5-2,4	6÷7	9,8
1 KV 6/15 T	3x400 V ~	2,2	3	6,3	8,5-2,4	8÷9	13

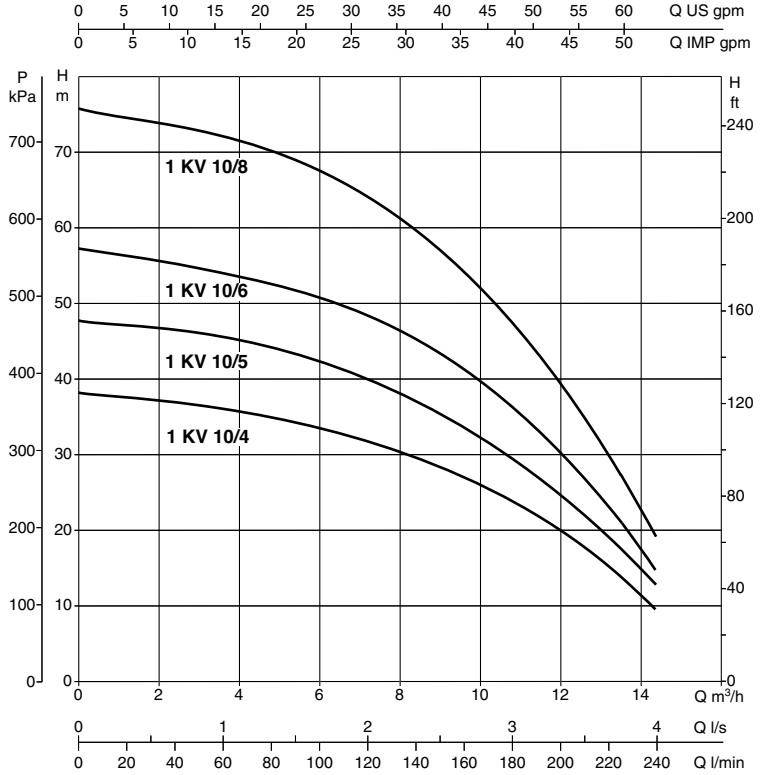
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KV 10 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 14,5 m^3/h





MODEL	A	B	C	D	H	Ø MANIFOLD DNA (suction)	Ø MANIFOLD DNM (discharge)	WEIGHT Kg
1 KV 10/4 M	760	300	120	340	860	1¼"	1½"	35
1 KV 10/5 M	760	300	120	372	892	1¼"	1½"	40
1 KV 10/4 T	760	300	120	340	860	1¼"	1½"	35
1 KV 10/5 T	760	300	120	372	892	1¼"	1½"	40
1 KV 10/6 T	760	300	120	404	920	1¼"	1½"	38
1 KV 10/8 T	760	300	120	468	988	1¼"	1½"	43

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m^3/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
1 KV 10/4 M	1x220-240 V ~	1,1	1,5	8,3	13,2-3,0	2÷3	3,8
1 KV 10/5 M	1x220-240 V ~	1,5	2	10,4	13,2-3,0	3÷4	4,8
1 KV 10/4 T	3x400 V ~	1,1	1,5	3,5	13,2-3,0	2÷3	3,8
1 KV 10/5 T	3x400 V ~	1,5	2	3,9	13,2-3,0	3÷4	4,8
1 KV 10/6 T	3x400 V ~	1,85	2,5	5	13,2-3,0	4÷5	5,5
1 KV 10/8 T	3x400 V ~	2,2	3	6,8	13,2-3,0	5÷6	7,2

2-3 KV 3 - 6 - 10 PUMP SETS

WITH 2-3 MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMPS

2 PUMPS

3 PUMPS

3 KV

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
The use of multistage vertical axis centrifugal pumps is a guarantee of high performance and efficiency levels.
These pumps are characterised by their compact dimensions, rugged construction, extreme reliability and very low noise operation.

GRUPPI CON 3 POMPE

Construction features

HYDRAULIC SECTION

- 2-3 vertical multistage electric pumps KV3 - 6 - 10
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in galvanized steel for 2 KV 3-6-10 and 3 KV 3-6 pump sets, flanged manifolds for 3 KV 10 pump sets
- Plugs or blank flanges to close the manifolds
- Ball valves with union on suction and discharge ports of each pump;
- Check valve with union on suction port of each pump;
- 2 membrane pressure tanks;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for mounting of the control panel

ELECTRICAL SECTION 2 KV

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating.
The control panel protects the electric pumps and starts them in sequence, keeping the system at a factory-set average pressure value.
The average pressure value can be adjusted by means of a trimmer located inside the panel.
At each operating cycle the pumps starting sequence is inverted.
Pressure reading is performed by a pressure transmitter installed on the discharge manifold.

Front panel components:

- main disconnect switch with padlockable doorlock
- AUT -- MAN operating mode selection buttons
- alarms RESET button
- run, trip and alarm indicator lights

Components inside the control panel enclosure

- control circuit board, fuses, and contactors
- power input terminals (single phase or three-phase)
- terminals to connect dry-run or overpressure protection pressure switches (optional)
- N.O. alarm signalling contacts
- function selection mini dipswitches (pressure transmitter or pressure switches, standard or supplementary tanks).

ELECTRICAL SECTION 3 KV

Control panel made of impact-resistant self-extinguishing plastic with IP55 protection rating.
The panel incorporates: main power switch, thermal magnetic cut-outs to protect the electric pumps, electric pump starting sequence changeover system, low voltage 24V control circuit for control pressure switches, MAN-0-AUT selectors.
(start pushbuttons for single-phase version panel), indicator lights on front panel.
Installed on specifically designed column mounted on pumps skid.
Preset pressure switches for starting / stopping of pumps.

The control panel is prearranged for the connection of
• Pressure switch or float switch kit to protect against dry running (*)
• Overpressure cut-out pressure switch kit (*)
(*) **to be ordered separately as an optional**

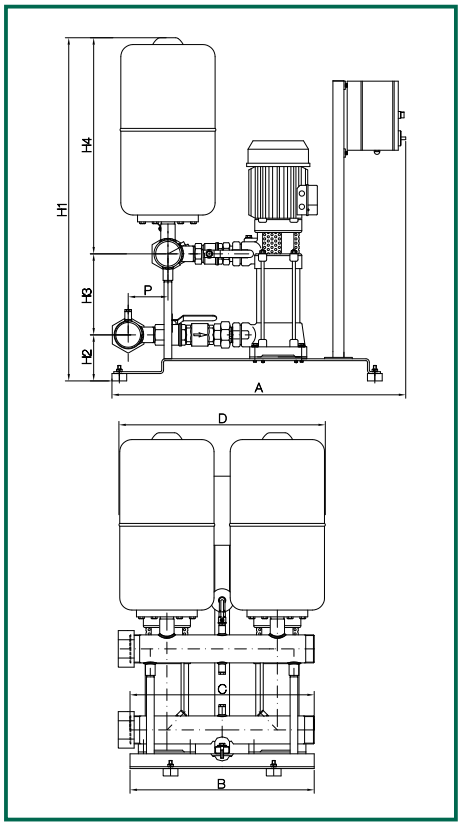
The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions and wiring diagram.

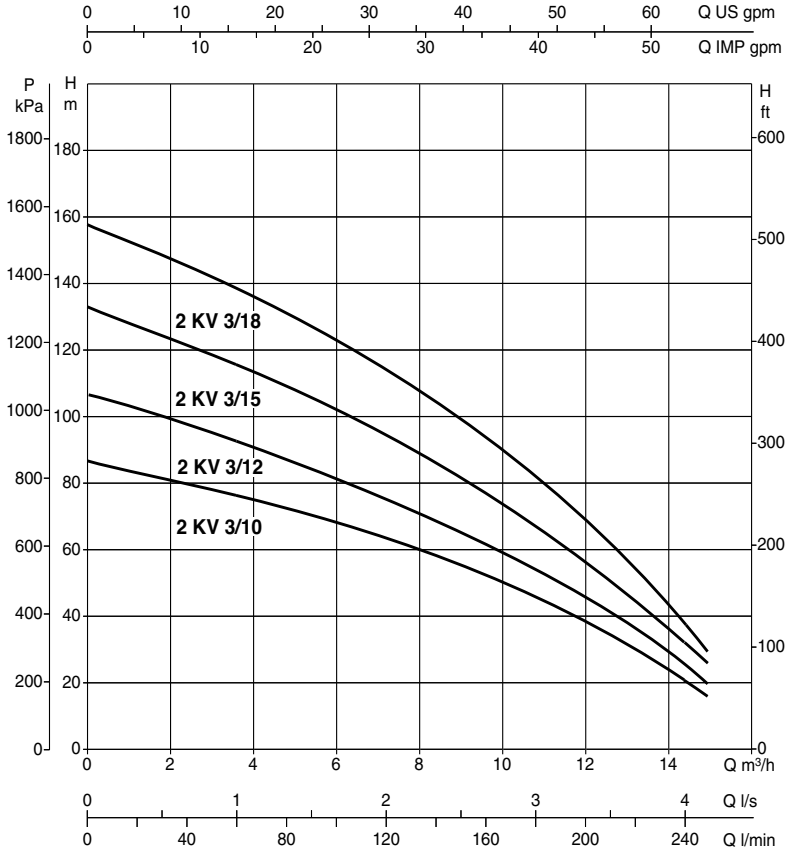
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KV 3 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°C

Maximum flow rate: 14,4 m³/h





MODEL	A	B	C	D	P	H1	H2	H3	H4	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
2 KV 3/10 M	798	500	500	560	108	1117	125	412	580	2”	2”	118
2 KV 3/12 M	798	500	500	560	108	1181	125	476	580	2”	2”	124
2 KV 3/10 T	798	500	500	560	108	1117	125	412	580	2”	2”	123
2 KV 3/12 T	798	500	500	560	108	1117	125	476	580	2”	2”	129
2 KV 3/15 T	798	500	500	560	108	1277	125	572	580	2”	2”	134
2 KV 3/18 T	798	500	500	560	108	1373	125	668	580	2”	2”	141

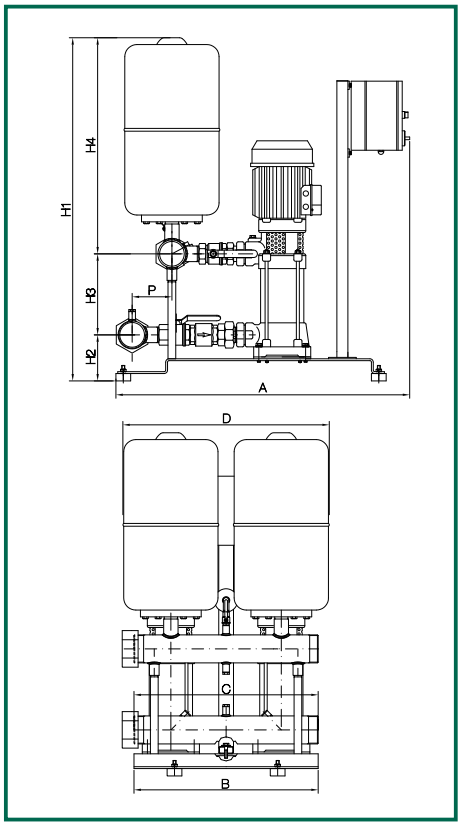
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
2 KV 3/10 M	1x220-240 V ~	2x1,1	2x1,5	2x7,8	14,4-3,6	8,2	5
2 KV 3/12 M	1x220-240 V ~	2x1,5	2x2	2x9,6	14,4-3,6	10,2	6
2 KV 3/10 T	3x400 V ~	2x1,1	2x1,5	2x3,2	14,4-3,6	8,2	5
2 KV 3/12 T	3x400 V ~	2x1,5	2x2	2x3,7	14,4-3,6	10,2	6
2 KV 3/15 T	3x400 V ~	2x1,85	2x2,5	2x4,3	14,4-3,6	13	7
2 KV 3/18 T	3x400 V ~	2x2,2	2x3	2x5,8	14,4-3,6	15,8	9

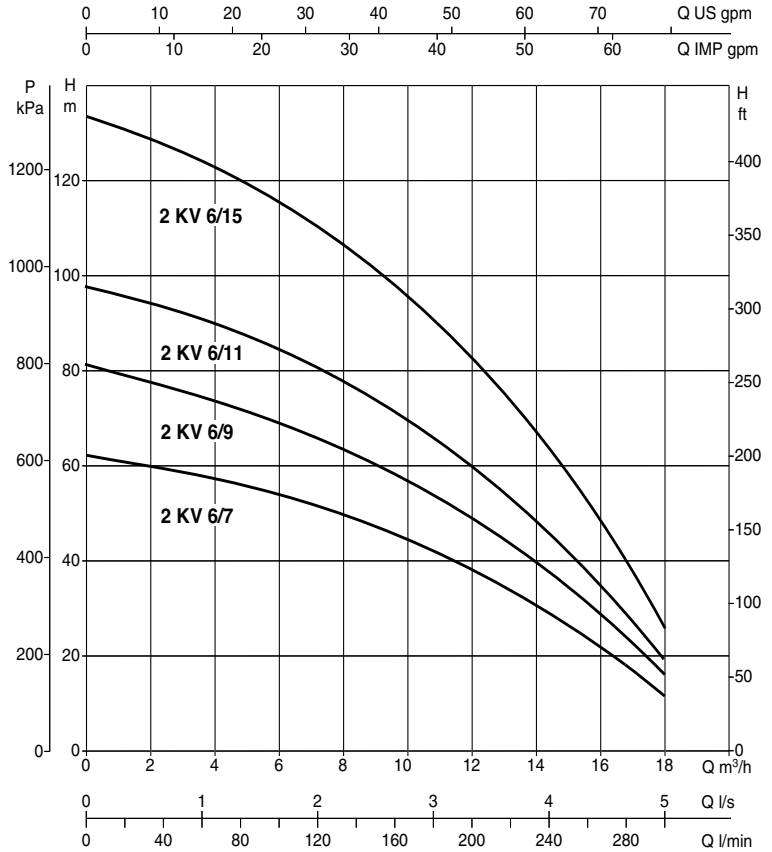
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KV 6 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°C

Maximum flow rate: 18 m³/h





MODEL	A	B	C	D	P	H1	H2	H3	H4	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
2 KV 6/7 M	798	500	500	560	108	1021	125	316	580	5802”	2”	116
2 KV 6/9 M	798	500	500	560	108	1085	125	380	580	5802”	2”	121
2 KV 6/7 T	798	500	500	560	108	1021	125	316	580	5802”	2”	121
2 KV 6/9 T	798	500	500	560	108	1085	125	380	580	5802”	2”	126
2 KV 6/11 T	798	500	500	560	108	1149	125	414	580	5802”	2”	128
2 KV 6/15 T	798	500	500	560	108	1277	125	572	580	5802”	2”	140

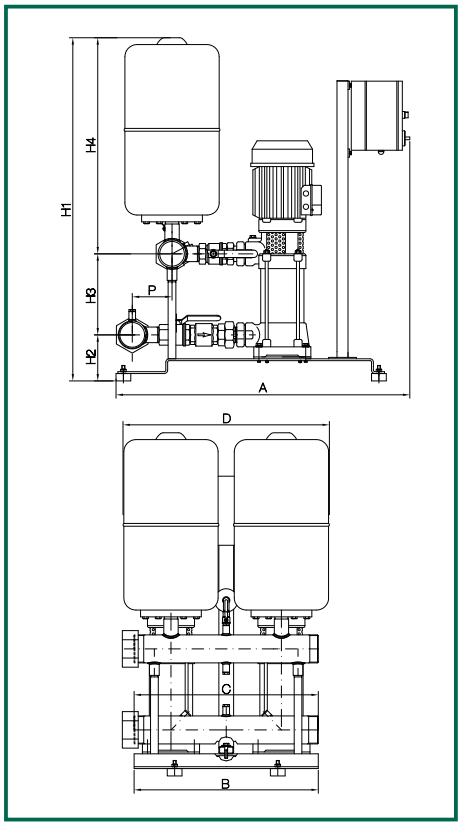
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
2 KV 6/7 M	1x220-240 V ~	2x1,1	2x1,5	2x7,5	17,0-4,8	6	4
2 KV 6/9 M	1x220-240 V ~	2x1,5	2x2	2x9,4	17,0-4,8	8	5
2 KV 6/7 T	3x400 V ~	2x1,1	2x1,5	2x2,9	17,0-4,8	6	4
2 KV 6/9 T	3x400 V ~	2x1,5	2x2	2x3,6	17,0-4,8	8	5
2 KV 6/11 T	3x400 V ~	2x1,85	2x2,5	2x4,2	17,0-4,8	9,8	6
2 KV 6/15 T	3x400 V ~	2x2,2	2x3	2x6,3	17,0-4,8	13	8

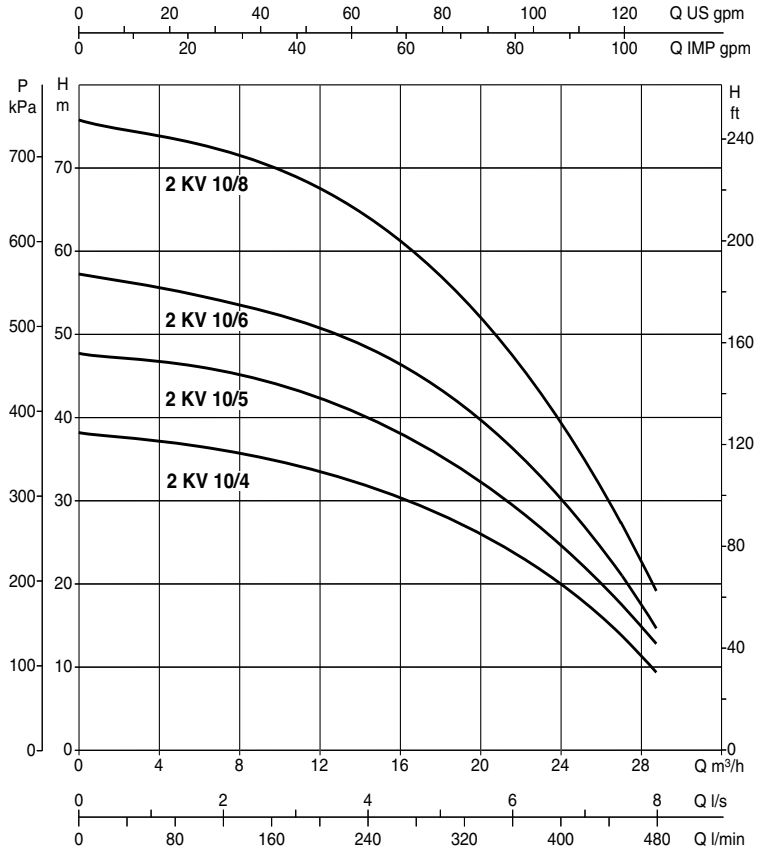
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KV 10 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 28,5 m³/h





MODEL	A	B	C	D	P	H1	H2	H3	H4	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
2 KV 10/4 M	798	500	500	560	108	925	125	220	580	2½"	2½"	112
2 KV 10/5 M	798	500	500	560	108	957	125	252	580	2½"	2½"	115
2 KV 10/4 T	798	500	500	560	108	925	125	220	580	2½"	2½"	117
2 KV 10/5 T	798	500	500	560	108	957	125	252	580	2½"	2½"	120
2 KV 10/6 T	798	500	500	560	108	989	125	284	580	2½"	2½"	126
2 KV 10/8 T	798	500	500	560	108	1053	125	348	580	2½"	2½"	132

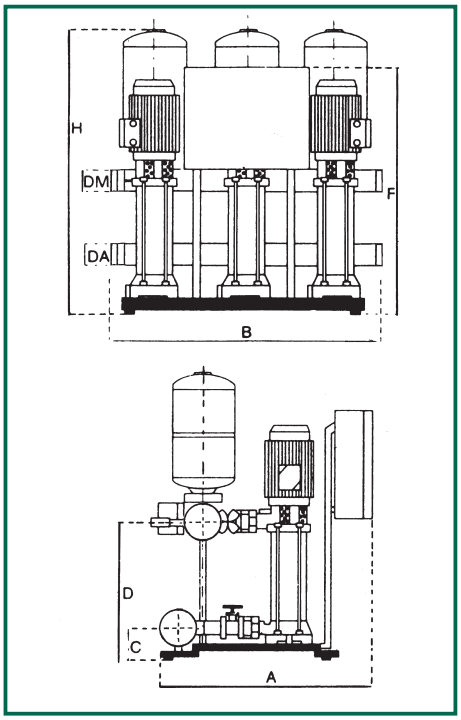
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
2 KV 10/4 M	1x220-240 V ~	2x1,1	2x1,5	2x8,3	26,4-6,0	3,8	2,5
2 KV 10/5 M	1x220-240 V ~	2x1,5	2x2	2x10,4	26,4-6,0	4,8	3
2 KV 10/4 T	3x400 V ~	2x1,1	2x1,5	2x3,5	26,4-6,0	3,8	2,5
2 KV 10/5 T	3x400 V ~	2x1,5	2x2	2x3,9	26,4-6,0	4,8	3
2 KV 10/6 T	3x400 V ~	2x1,85	2x2,5	2x5	26,4-6,0	5,5	4
2 KV 10/8 T	3x400 V ~	2x2,2	2x3	2x6,8	26,4-6,0	7,2	5

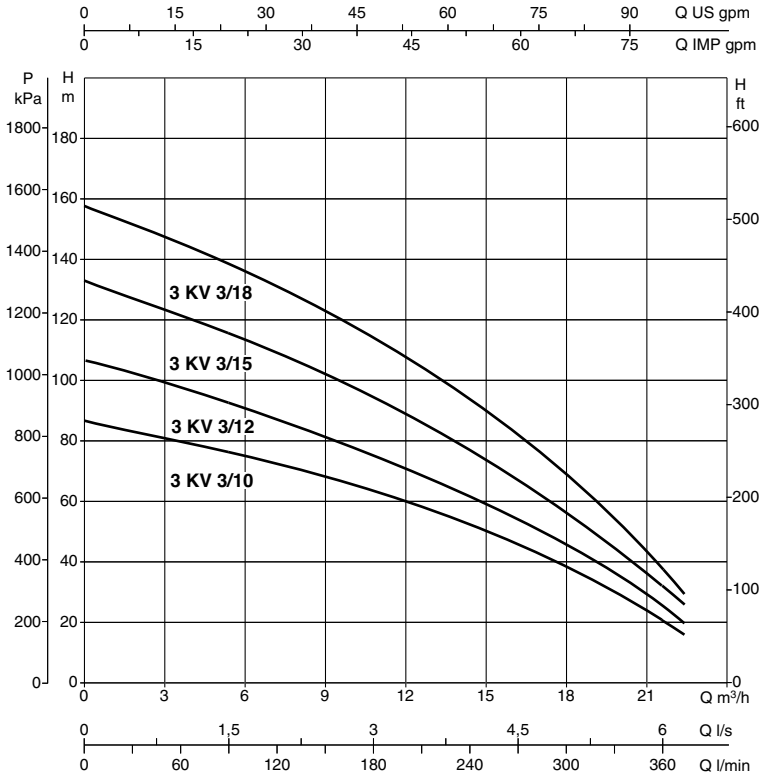
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KV 3 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°C

Maximum flow rate: 22 m³/h





MODEL	A	B	C	D	F	H	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
3 KV 3/10 M	710	825	120	532	847	1122	2½"	2½"	156
3 KV 3/12 M	710	825	120	596	911	1186	2½"	2½"	168
3 KV 3/10 T	785	825	120	532	847	1122	2½"	2½"	156
3 KV 3/12 T	785	825	120	596	911	1186	2½"	2½"	165
3 KV 3/15 T	785	825	120	692	1007	1282	2½"	2½"	168
3 KV 3/18 T	785	825	120	788	1181	1378	2½"	2½"	183

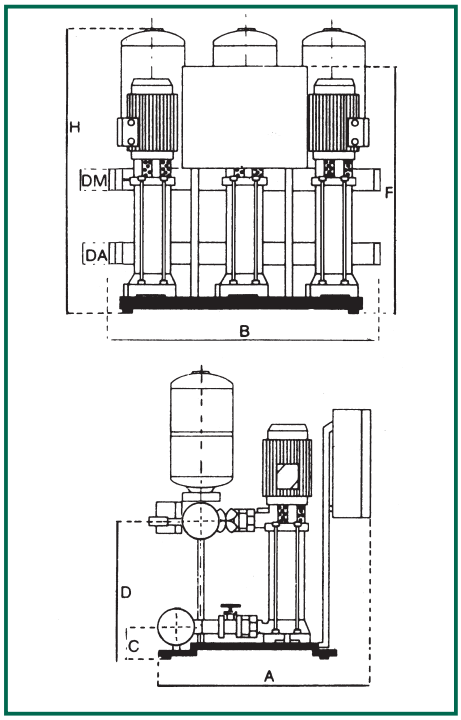
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
3 KV 3/10 M	1x220-240 V ~	3x1,1	3x1,5	3x7,8	21,6-5,4	8,2	4÷6
3 KV 3/12 M	1x220-240 V ~	3x1,5	3x2	3x9,6	21,6-5,4	10,2	6÷8
3 KV 3/10 T	3x400 V ~	3x1,1	3x1,5	3x3,2	21,6-5,4	8,2	4÷6
3 KV 3/12 T	3x400 V ~	3x1,5	3x2	3x3,7	21,6-5,4	10,2	6÷8
3 KV 3/15 T	3x400 V ~	3x1,85	3x2,5	3x4,3	21,6-5,4	13	8÷10
3 KV 3/18 T	3x400 V ~	3x2,2	3x3	3x5,8	21,6-5,4	15,8	10÷12

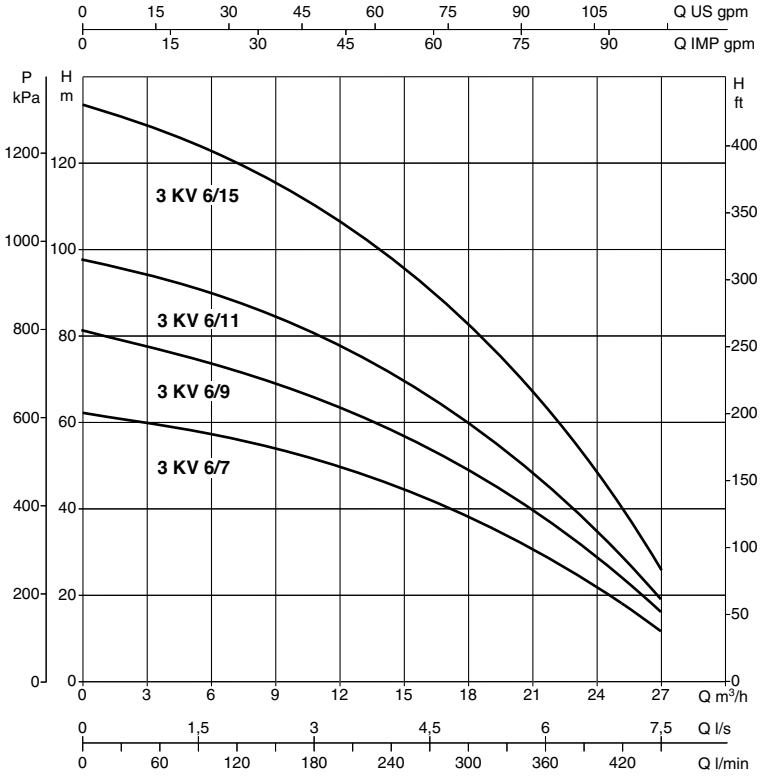
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KV 6 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°

Maximum flow rate: 27 m³/h





MODEL	A	B	C	D	F	H	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
3 KV 6/7 M	710	825	120	436	750	1026	2½"	2½"	153
3 KV 6/9 M	710	825	120	500	815	1090	2½"	2½"	162
3 KV 6/7 T	785	825	120	436	750	1026	2½"	2½"	153
3 KV 6/9 T	785	825	120	500	815	1090	2½"	2½"	162
3 KV 6/11 T	785	825	120	664	880	1154	2½"	2½"	170
3 KV 6/15 T	785	825	120	692	1065	1282	2½"	2½"	177

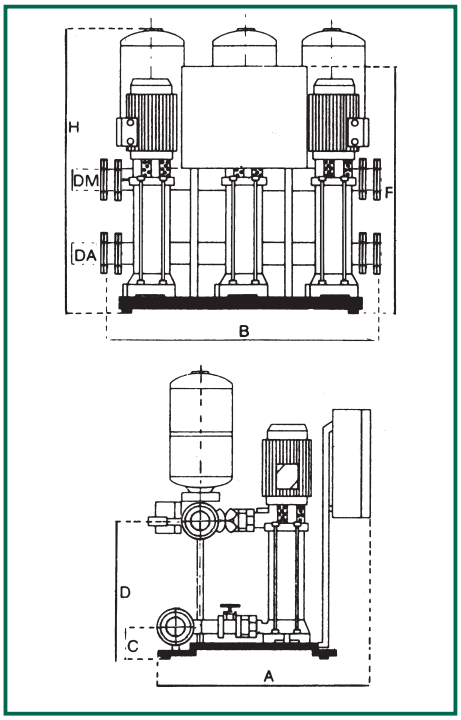
MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
3 KV 6/7 M	1x220-240 V ~	3x1,1	3x1,5	3x7,5	25,5-7,2	3÷5	6
3 KV 6/9 M	1x220-240 V ~	3x1,5	3x2	3x9,4	25,5-7,2	5÷7	8
3 KV 6/7 T	3x400 V ~	3x1,1	3x1,5	3x2,9	25,5-7,2	3÷5	6
3 KV 6/9 T	3x400 V ~	3x1,5	3x2	3x3,6	25,5-7,2	5÷7	8
3 KV 6/11 T	3x400 V ~	3x1,85	3x2,5	3x4,2	25,5-7,2	6÷8	9,8
3 KV 6/15 T	3x400 V ~	3x2,2	3x3	3x6,3	25,5-7,2	8÷10	13

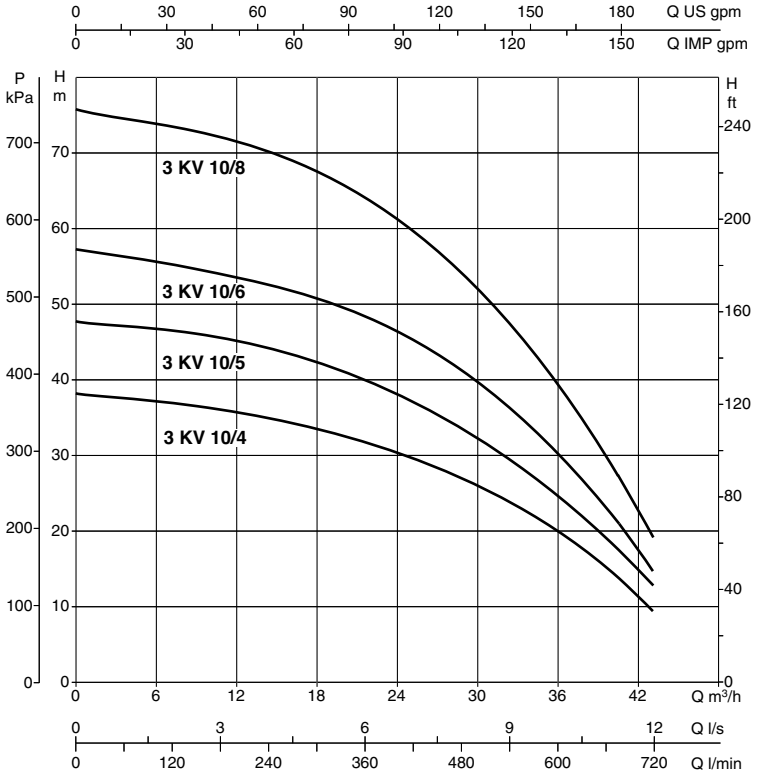
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KV 10 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 43 m³/h





MODEL	A	B	C	D	F	H	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
3 KV 10/4 M	740	940	120	340	655	942	DN 80	DN 80	201
3 KV 10/5 M	740	940	120	372	690	974	DN 80	DN 80	216
3 KV 10/4 T	810	940	120	340	810	942	DN 80	DN 80	201
3 KV 10/5 T	810	940	120	372	810	974	DN 80	DN 80	216
3 KV 10/6 T	810	940	120	404	810	1006	DN 80	DN 80	210
3 KV 10/8 T	810	940	120	468	855	1070	DN 80	DN 80	225

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)
3 KV 10/4 M	1x220-240 V ~	3x1,1	3x1,5	3x8,3	39,6-9,0	2÷3	3,8
3 KV 10/5 M	1x220-240 V ~	3x1,5	3x2	3x10,4	39,6-9,0	3÷4	4,8
3 KV 10/4 T	3x400 V ~	3x1,1	3x1,5	3x3,5	39,6-9,0	2÷3	3,8
3 KV 10/5 T	3x400 V ~	3x1,5	3x2	3x3,9	39,6-9,0	3÷4	4,8
3 KV 10/6 T	3x400 V ~	3x1,85	3x2,5	3x5	39,6-9,0	4÷5	5,5
3 KV 10/8 T	3x400 V ~	3x2,2	3x3	3x6,8	39,6-9,0	5÷6	7,2

1NKV - 2NKV - 3NKV PUMP SETS

1-2-3 PUMPS

WITH VERTICAL AXIS MULTISTAGE CENTRIFUGAL PUMPS

2 NKV

3 NKV

Construction features

SETS WITH 1-2-3 PUMPS

- Sets composed of N. 1-2-3 main vertical axis multistage centrifugal pumps type NKV
- AISI 304 stainless steel impellers, all parts in contact with the liquid are stainless
- Asynchronous three-phase motor, motor-pump connection with rigid coupling.
- Pump body in cast iron, impeller in technopolymer, pump shaft in stainless steel, carbon / ceramic mechanical seal. Three-phase asynchronous motor
- Pumps mounted to a single skid in galvanized steel.
- Available also with KV 3 jockey pump.

HYDRAULIC SECTION OF PUMP SET

Suction manifold, discharge manifold, differential transducer, electrical control panel, n. 1-2-3 expansion vessels each of 20 litre capacity.
Suction port of each pump equipped with isolator valve;
Discharge port of each pump equipped with isolator and check valve.

ELECTRICAL CONTROL PANEL

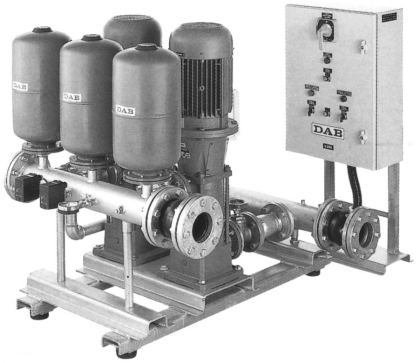
- Control panel in metal IP 54 enclosure, mounted to the electric pumps skid.
Direct starting up to 7.5 kW inclusive, start delta starting above this value
Front of control panel features AUT-0- MAN mode selectors and run indicator lights.

For information, please contact our sales network.

1KV - 2KV - 3KV 50 PUMP SETS

WITH MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMPS

1 KV PUMP SETS



2 KV PUMP SETS

3 KV PUMP SETS

Applications

Characterised by the use of “KV” type multi-impeller vertical axis electric pumps, these sets are acclaimed for their high efficiency, application versatility, and very low noise operation. Utilised in large scale civil and industrial installations, selection of these sets must be performed by skilled engineers capable of assessing the effective requirements of the systems on which they are to be installed.

Construction features

SETS WITH 1-2-3 PUMPS

HYDRAULIC SECTION

- 1-2-3 vertical multistage electric pumps KV 50;
- Skid in galvanised steel complete with 4 rubber antivibration feet;
- Flanged suction and discharge manifolds in galvanized steel complete with blank flange;
- Isolator valves on suction and discharge
- Flanged check valve on suction side;
- Antivibration flexible coupling for connection to discharge pipe;
- BY-PASS circuit complete with isolator valve and automatic safety valve;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for adjustable mounting of the control panel;
- Membrane pressure tanks.

ELECTRICAL SECTION

CONTROL PANEL

Direct Starting for unit power ratings up to 7.5 kW inclusive.
Star-Delta starting for unit power ratings up to 9.2 kW inclusive.
Cabinet in sheet steel with IP 55 protection rating and lever handle with lock. Door lock switch, remote motor protectors with thermal relays and electric pump fuses, low voltage control circuit (24 Volt) feeding remote motor protectors, adjustable delayed pumps stop time (supplementary run), system to change starting sequence for sets of 2-3 electric pumps. Selector for Automatic (my means of pressure switches installed on discharge manifold) or Manual operation of electric pumps. Terminal board for connection of minimum pressure switch for pump stopping, float switch to protect against dry running, remote pump start command.

CONTROL PRESSURE SWITCHES

Electric pump control pressure switches precalibrated and installed on the discharge manifold. The pressure switches operate the remote motor protectors to invert the electric pumps in cascade mode.

JOCKEY PUMP – COMPENSATION FUNCTION (cuts in to compensate for small quantity water demand to avoid wasteful starting of the main electric pumps)
The sets are available also with the KV 3 jockey pump complete with valves and connected to the suction and discharge manifolds. Electric control and protection circuit for jockey pump in main electric pump control cabinet for 1-2 K sets. Separate control cabinet for 3 K pump sets.

WEEKLY TEST RUN (must be requested at time of order - cannot be retrofitted)
The pump sets are available also with a weekly test run system, composed of a programmable weekly timer, an audible-illuminated alarm, a drain solenoid valve on the discharge manifold, an automatic reset emergency stop pushbutton, and a minimum pressure switch.
With the weekly test run the electric pumps are started periodically for a few minutes to prevent mechanical seizure during prolonged periods of disuse.

At the end of the test any faults are signalled by the alarm function. The 1-2-3 KV 50/7 - 1-2-3 KV 50/6 - 1-2-3 KV 50/8 - 1-2-3 KV 50/9 pump sets are supplied without membrane pressure tanks and without flexible couplings.

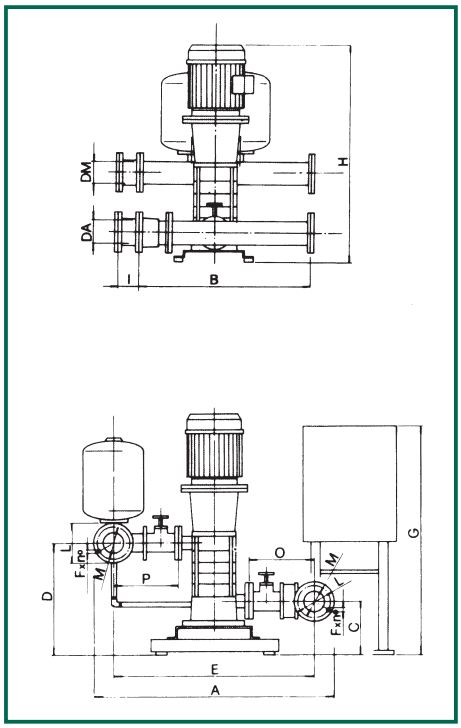
The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.

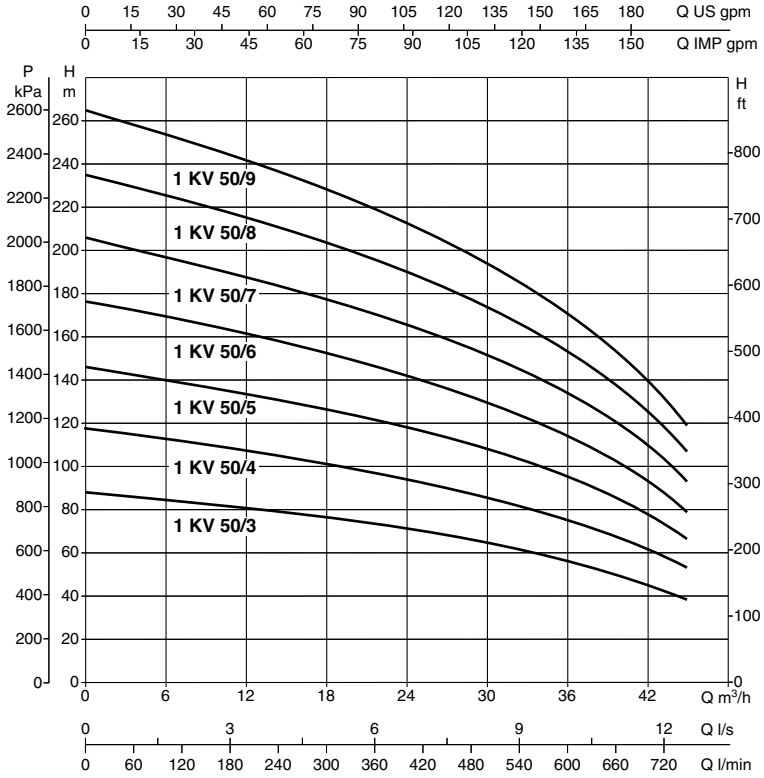
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KV 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°C

Maximum flow rate: 46 m³/h





MODEL	A	B	C	D	E	G	H	O	P	I	L	M	Fxn°	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
1 KV 50/3	1175	550	233	423	855	1005	1060	250	235	130	200	160	18x4	DN 80 - PN 16	DN 80 - PN 16	390
1 KV 50/4	1175	550	233	477	855	1005	1180	250	235	130	200	160	18x4	DN 80 - PN 16	DN 80 - PN 16	418
1 KV 50/5	1175	550	233	531	855	1005	1310	250	235	130	200	160	18x4	DN 80 - PN 16	DN 80 - PN 16	470
1 KV 50/6	1175	550	233	585	855	1005	1405	250	235	130	200	160	18x4	DN 80 - PN 16	DN 80 - PN 16	485
1 KV 50/7	1175	550	233	639	855	1005	1485	250	235	130	200	160	18x4	DN 80 - PN 25	DN 80 - PN 25	503
1 KV 50/8	1175	550	233	693	855	1005	1540	250	235	130	200	160	18x4	DN 80 - PN 25	DN 80 - PN 25	513
1 KV 50/9	1175	550	233	747	855	1005	1690	250	235	130	200	160	18x4	DN 80 - PN 25	DN 80 - PN 25	650

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	JOCKEY PUMP * P2 kW	JOCKEY PUMP * P2 HP
1 KV 50/3 T	3x400 V ~	9,2	12,5	18	46,0-12,0	6÷7	8,6	KV 3/12 T	1,5	2
1 KV 50/4 T	3x400 V ~	11	15	22	46,0-12,0	8÷9	11,5	KV 3/15 T	1,85	2,5
1 KV 50/5 T	3x400 V ~	15	20	30	46,0-12,0	10÷11	14,8	KV 3/18 T	2,2	3
1 KV 50/6 T	3x400 V ~	18,5	25	36	46,0-12,0	12÷13	17,6	–	–	–
1 KV 50/7 T	3x400 V ~	22	30	40	46,0-12,0	14÷15	20,4	–	–	–
1 KV 50/8 T	3x400 V ~	22	30	40	46,0-12,0	16÷17	23	–	–	–
1 KV 50/9 T	3x400 V ~	30	40	56	46,0-12,0	18÷19	26	–	–	–

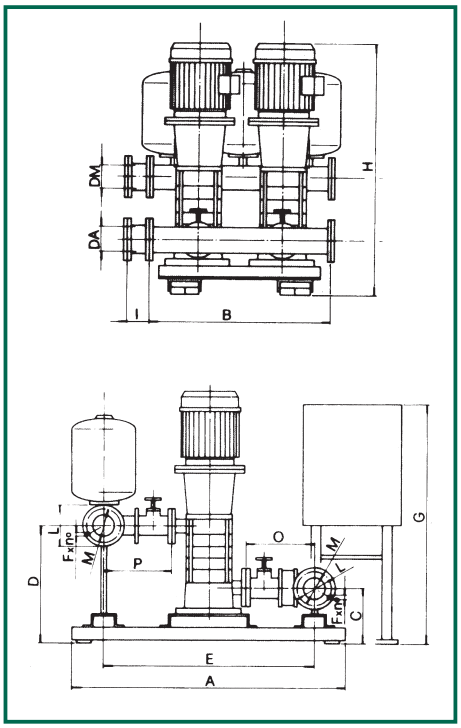
(1) Data referred to service pumps
* Jockey pump available on request

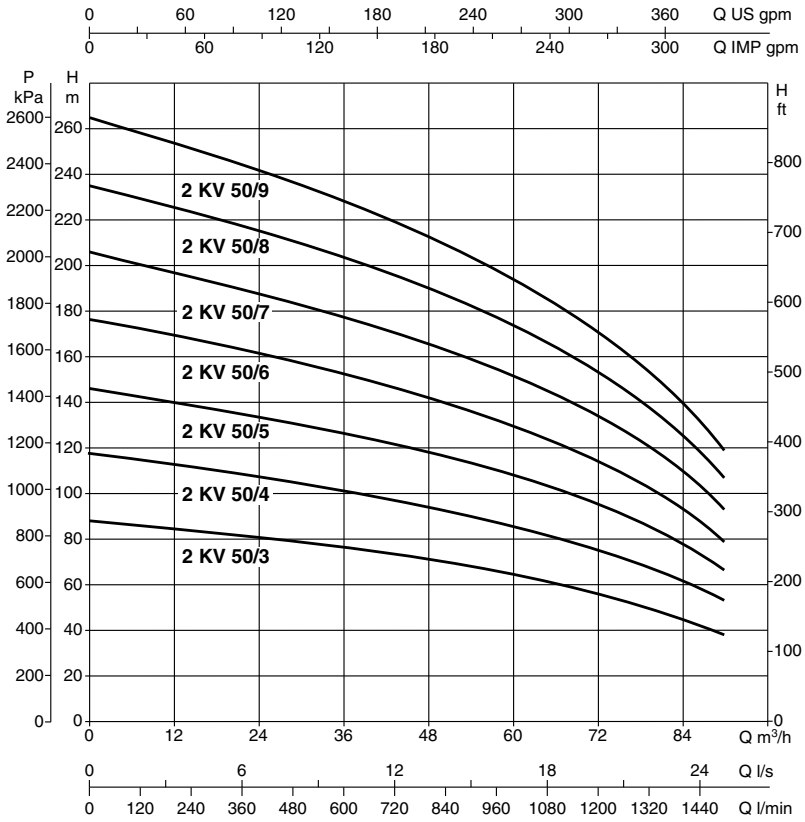
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KV 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°C

Maximum flow rate: 92 m³/h





MODEL	A	B	C	D	E	G	H	O	P	I	L	M	Fxn°	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
2 KV 50/3	1400	1000	300	483	1130	1250	1120	500	270	170	250	210	18x8	DN 125 - PN 16	DN 125 - PN 16	740
2 KV 50/4	1400	1000	300	537	1130	1250	1240	500	270	170	250	210	18x8	DN 125 - PN 16	DN 125 - PN 16	790
2 KV 50/5	1400	1000	300	591	1130	1250	1380	500	270	170	250	210	18x8	DN 125 - PN 16	DN 125 - PN 16	885
2 KV 50/6	1400	1000	300	645	1130	1250	1465	500	270	170	250	210	18x8	DN 125 - PN 16	DN 125 - PN 16	906
2 KV 50/7	1400	1000	300	699	1130	1250	1545	500	270	170	250	210	18x8	DN 125 - PN 25	DN 125 - PN 25	942
2 KV 50/8	1400	1000	300	753	1130	1250	1600	500	270	170	250	210	18x8	DN 125 - PN 25	DN 125 - PN 25	976
2 KV 50/9	1400	1000	300	807	1130	1250	1750	500	270	170	250	210	18x8	DN 125 - PN 25	DN 125 - PN 25	1200

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	JOCKEY PUMP * P2 kW	JOCKEY PUMP * P2 HP
2 KV 50/3 T	3x400 V ~	2x9,2	2x12,5	2x18	92,0-24,0	5,5÷7	8,6	KV 3/12 T	1,5	2
2 KV 50/4 T	3x400 V ~	2x11	2x15	2x22	92,0-24,0	7,5÷9	11,5	KV 3/15 T	1,85	2,5
2 KV 50/5 T	3x400 V ~	2x15	2x20	2x30	92,0-24,0	9,5÷11	14,8	KV 3/18 T	2,2	3
2 KV 50/6 T	3x400 V ~	2x18,5	2x25	2x36	92,0-24,0	11,5÷13	17,6	–	–	–
2 KV 50/7 T	3x400 V ~	2x22	2x30	2x40	92,0-24,0	13,5÷15	20,4	–	–	–
2 KV 50/8 T	3x400 V ~	2x22	2x30	2x40	92,0-24,0	15,5÷17	23	–	–	–
2 KV 50/9 T	3x400 V ~	2x30	2x40	2x56	92,0-24,0	17,5÷19	26	–	–	–

(1) Data referred to service pumps
* Jockey pump available on request

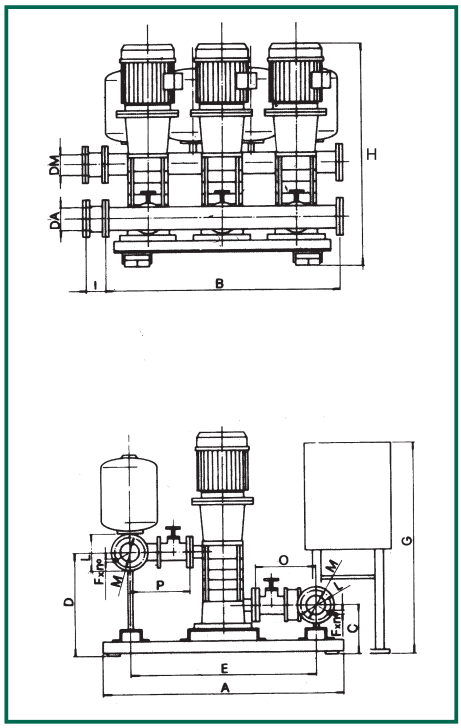
DAB PUMP PERFORMANCE

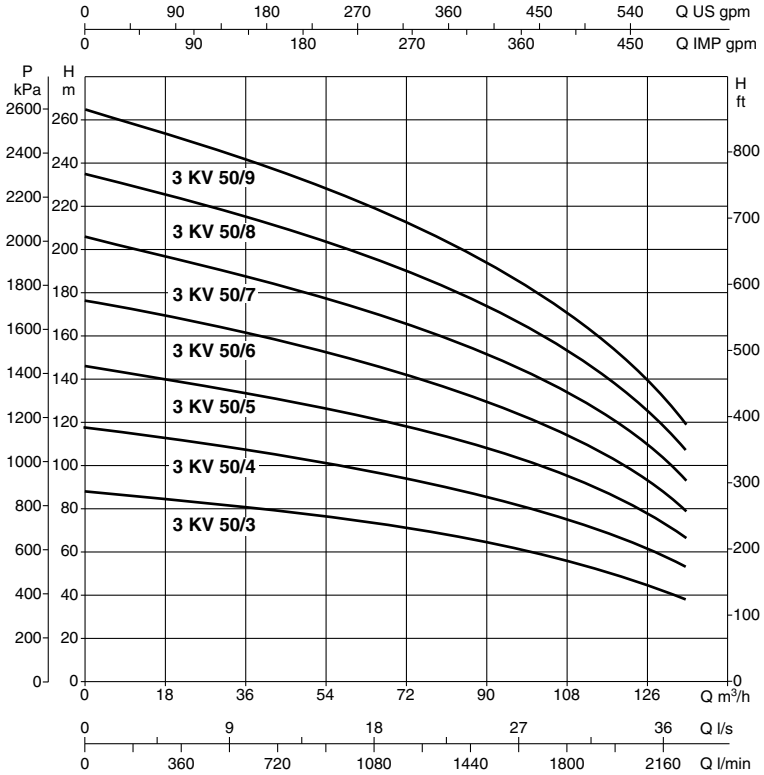
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KV 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : +40°

Maximum flow rate: 138 m³/h



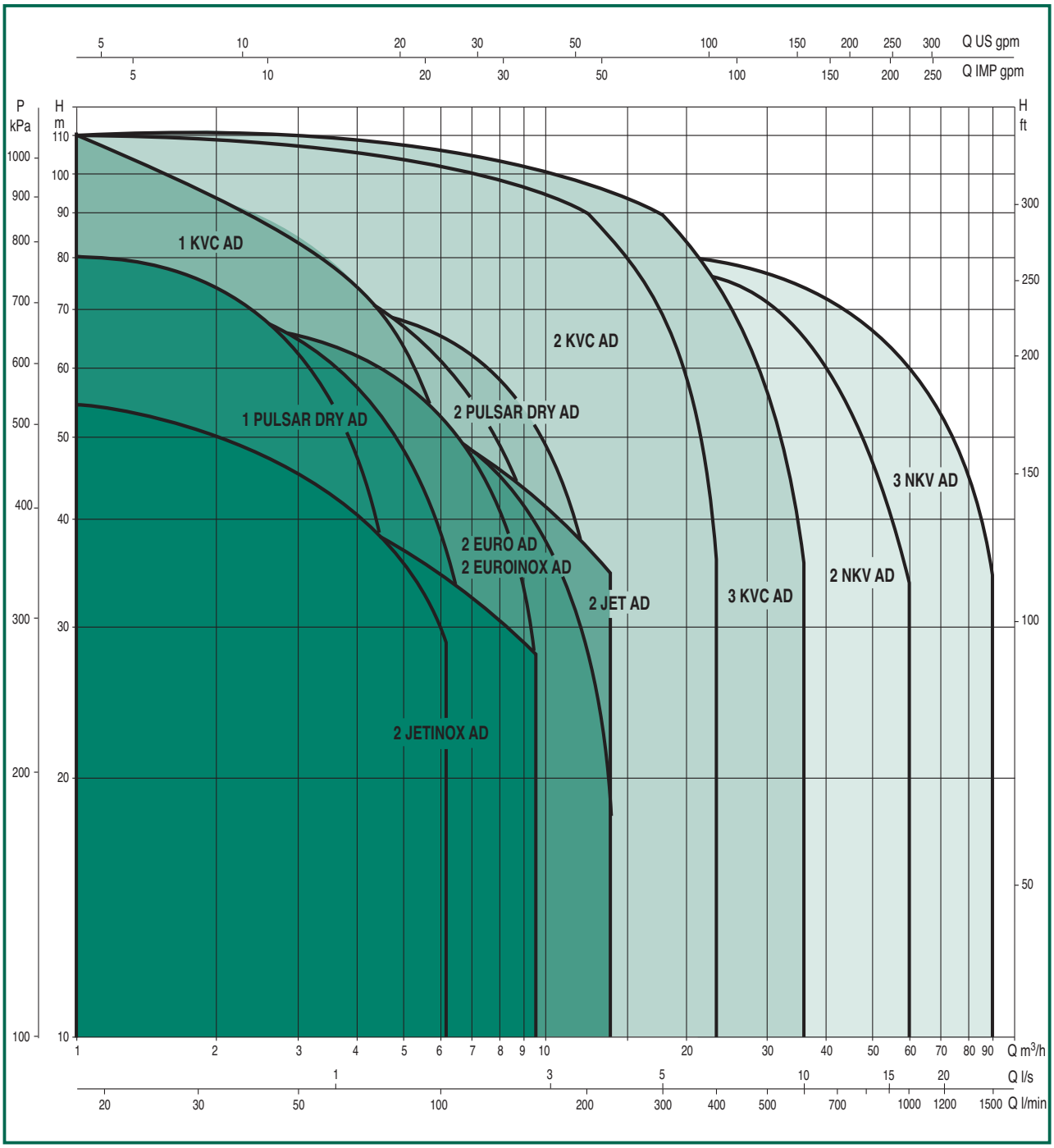


MODEL	A	B	C	D	E	G	H	O	P	I	L	M	Fxn°	Ø MANIFOLD DNA (suc.)	Ø MANIFOLD DNM (disc.)	WEIGHT Kg
3 KV 50/3	1400	1200	300	483	1160	1250	1120	510	280	180	285	240	22x8	DN 150 - PN 16	DN 150 - PN 16	1050
3 KV 50/4	1400	1200	300	536	1160	1250	1240	510	280	180	285	240	22x8	DN 150 - PN 16	DN 150 - PN 16	1156
3 KV 50/5	1400	1200	300	591	1160	1250	1380	510	280	180	285	240	22x8	DN 150 - PN 16	DN 150 - PN 16	1290
3 KV 50/6	1400	1200	300	645	1160	1250	1465	510	280	180	285	240	22x8	DN 150 - PN 16	DN 150 - PN 16	1325
3 KV 50/7	1400	1200	300	699	1160	1250	1465	510	280	180	285	240	22x8	DN 150 - PN 25	DN 150 - PN 25	1390
3 KV 50/8	1400	1200	300	753	1160	1250	1600	510	280	180	285	240	22x8	DN 150 - PN 25	DN 150 - PN 25	1450
3 KV 50/9	1400	1200	300	807	1160	1250	1750	510	280	180	285	240	22x8	DN 150 - PN 25	DN 150 - PN 25	1770

MODEL	POWER SUPPLY 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	FLOW RATE m³/h(1)	PRESSURE SWITCH CALIBRATION (bar)	MAX AVAILABLE PRESSURE (bar)	JOCKEY PUMP * TYPE	JOCKEY PUMP * P2 kW	JOCKEY PUMP * P2 HP
3 KV 50/3 T	3x400 V ~	3x9,2	3x12,5	3x18	138,0-36,0	5÷7	8,6	KV 3/12 T	1,5	2
3 KV 50/4 T	3x400 V ~	3x11	3x15	3x22	138,0-36,0	7÷9	11,5	KV 3/15 T	1,85	2,5
3 KV 50/5 T	3x400 V ~	3x15	3x20	3x30	138,0-36,0	10÷12	14,8	KV 3/18 T	2,2	3
3 KV 50/6 T	3x400 V ~	3x18,5	3x25	3x36	138,0-36,0	12÷14	17,6	–	–	–
3 KV 50/7 T	3x400 V ~	3x22	3x30	3x40	138,0-36,0	13÷15	20,4	–	–	–
3 KV 50/8 T	3x400 V ~	3x22	3x30	3x40	138,0-36,0	16÷18	23	–	–	–
3 KV 50/9 T	3x400 V ~	3x30	3x40	3x56	138,0-36,0	18÷20	26	–	–	–

(1) Data referred to service pumps
* Jockey pump available on request

SELECTION TABLES



DOMESTIC PUMP SETS WITH ACTIVE DRIVER

CE

BENEFITS DURING USE

Constant pressure – Low noise operation – Low running costs – Reduced water consumption – More compact (no need for expansion vessels) – Reduced maintenance – Protected against dry run conditions

GENERAL DATA

Pump sets equipped with Active Driver are designed and built to meet the **constant pressure** requirements imposed by modern water distribution system technology. Constant pressure control is used in an increasing number of applications in the most diverse range of sectors:
Water pipelines - Irrigation - Industry - Hotels - Residential building - Spa centres. The basic principles that guided our engineers in developing these pump sets were **simplicity, flexibility** and **reliability.**

SHORT INTRODUCTION TO Active Driver

The Active Driver module is a comprehensive device that includes water pipeline connections, a pressure sensor, a flow sensor, and an electronic inverter. When applied to the discharge line of **each electric pump**, Active Driver controls the speed of the pump to which it is connected in such a way as to ensure **constant pressure** irrespective of variations in the water flow rate demand. The water that flows though Active Driver's connections also helps to dissipate the heat produced by the internal electronic components.

OPERATION

As soon as the system pressure drops due to a water demand, just one pump will run in order to meet the flow rate demanded. Starting of the second and third pump occurs in a cascade sequence once the first pump has reached its maximum rotation speed. Pump pressure can be user adjusted by means of the Active Driver + and – keys (usually all pumps are set to the same pressure value).

The pumps are stopped automatically in the following situations:
- pump current surge
- dry running
- low power supply voltage
- surpassing of an adjustable pressure set-point value
- overheating of Active Driver electronics.

Sets with **two pumps** and with **three pumps** equipped with Active Driver are supplied complete with a **protection control unit** containing thermal magnetic cut-outs and the power line input terminals.

FUNCTIONS DISPLAYED on Active Driver

- Pump operating frequency (Hz)
- Instantaneous pressure (bar)
- Pump current draw (ampere)
- Operating alarms

Active Driver EXTERNAL CONNECTIONS (models M/T 2.2 - T/T 3.0 - T/T 5.5 only)

Inputs: pump disable, pressure switch / float switch to protect against dry running, second pressure Set point.
Outputs: two voltage-free contacts for alarm / stop signalling, pump running.

DAB PUMP PERFORMANCE

2 JET PUMP SETS

CE

GENERAL DATA

Applications

Booster sets specifically suitable for domestic use and small civil, agricultural or industrial installations requiring self-priming performance of the pump (the ability to provide continuous suction even in the presence of air).
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 2 JET type centrifugal self-priming pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in galvanized steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on suction port of each pump
- 2 Tropicalized galvanized cast iron plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

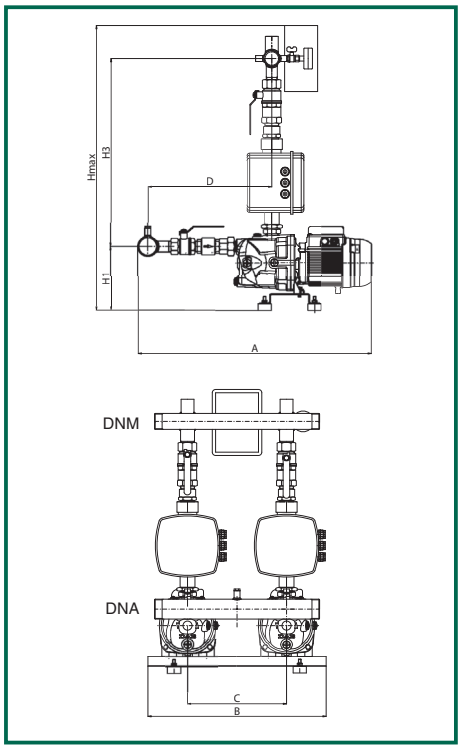
- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

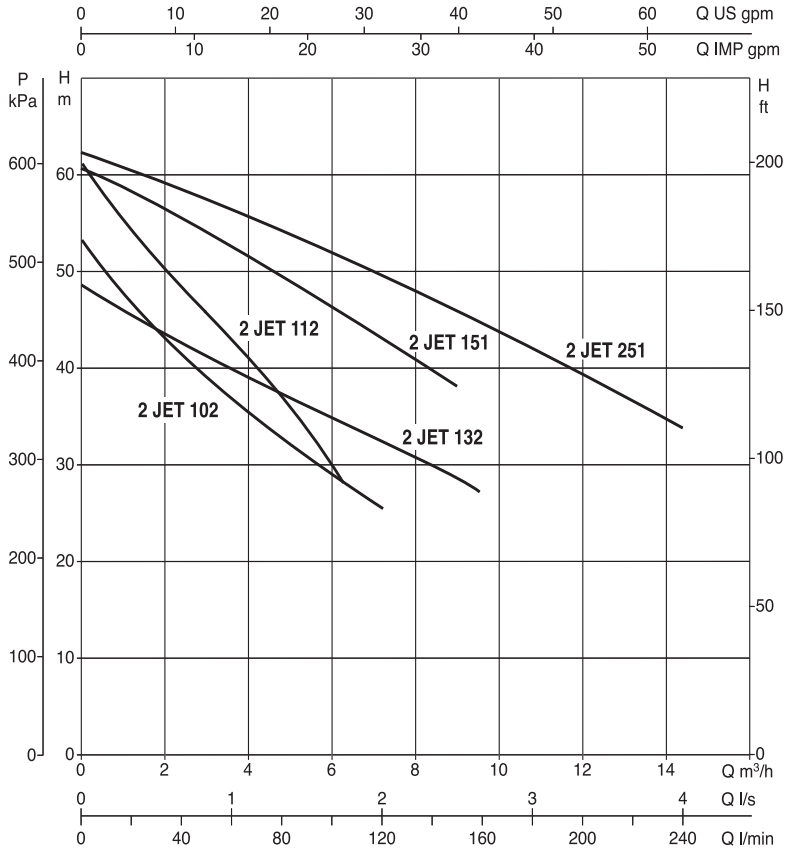
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 JET PUMP SETS

Liquid temperature range: from 0°C to +35°C
Maximum ambient temperature : +40°C

Maximum flow rate: 14,4 m³/h





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2JET 92) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	C	D	H max	H1	H3	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
2 JET AD 102	706	540	300	374	862	193	569	2”	1” 1/2	850	610	1000	0,52	56
2 JET AD 112	706	540	300	374	862	193	569	2”	1” 1/2	850	610	1000	0,52	56
2 JET AD 132	706	540	300	374	862	193	569	2”	1” 1/2	850	610	1000	0,52	56
2 JET AD 151	706	540	300	374	862	193	569	2”	1” 1/2	850	610	1000	0,52	96
2 JET AD 251	706	540	300	374	862	193	569	2”	1” 1/2	850	610	1000	0,52	105

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 JET AD 102	1x220-240 V~	2x0,75	2x1	M/T 1,0	2x5,7	6,6-3,0	5	4
2 JET AD 112	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,4	6,6-3,0	5,8	4,5
2 JET AD 132	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x8,1	9,6-3,0	4,6	3,5
2 JET AD 151	1x220-240 V~	2x1,1	2x1,5	M/T 2,2	2x9	9,4-5,0	6	5
2 JET AD 251	3x400 V~ (3+N) *	2x1,85	2x2,5	M/T 2,2	2x12	14,4-7,2	6	5

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.
*** Available on request for single-phase power supply (1x220-240 V~).**

2 EURO PUMP SETS

CE

GENERAL DATA

Applications

Booster sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 2 EURO multistage centrifugal pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in galvanized steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on suction port of each pump
- 2 Tropicalized galvanized cast iron plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

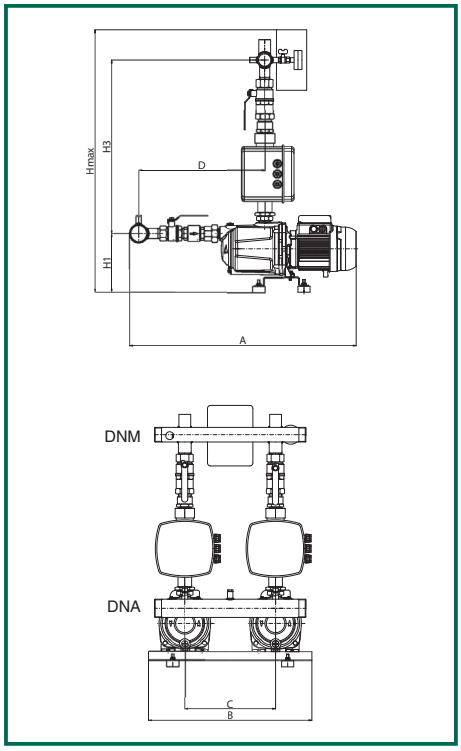
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

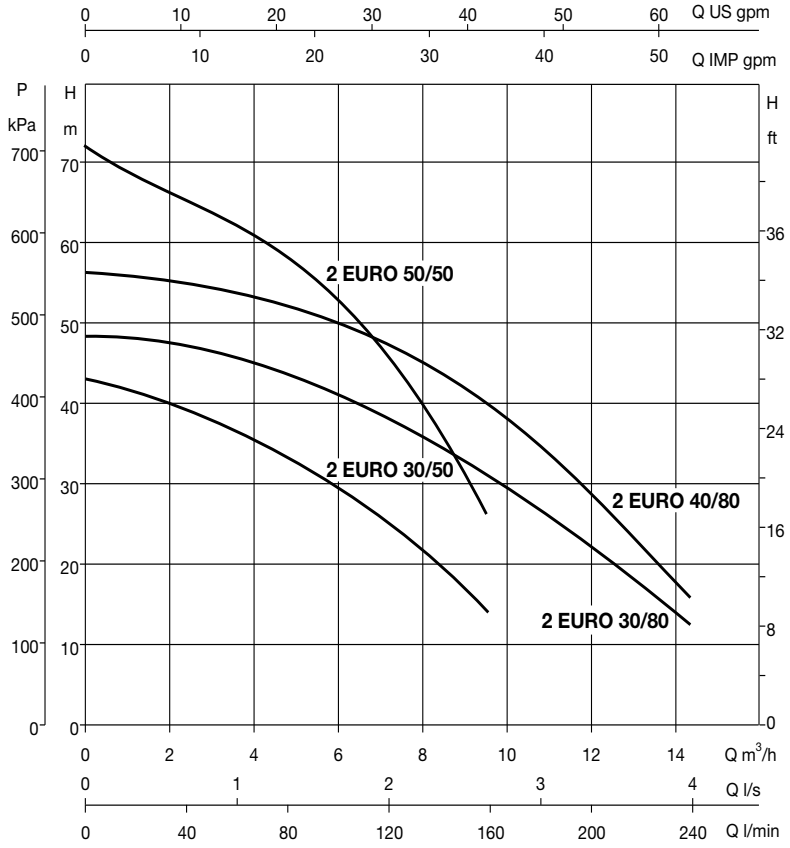
2 EURO PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Maximum flow rate: 14,5 m³/h

Maximum ambient temperature : +40°C





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2EURO 40/50) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	C	D	H max	H1	H3	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
2 EURO AD 30/50	748	540	300	416	867	194	574	2"	1" 1/2	850	610	1000	0,52	57
2 EURO AD 50/50	748	540	300	416	867	194	574	2"	1" 1/2	850	610	1000	0,52	57
2 EURO AD 30/80	748	540	300	416	867	194	574	2"	1" 1/2	850	610	1000	0,52	57
2 EURO AD 40/80	748	540	300	416	867	194	574	2"	1" 1/2	850	610	1000	0,52	57

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 EURO AD 30/50	1x220-240 V~	2x0,55	2x0,75	M/T 1,0	2x4,8	8,0-4,4	3,8	3
2 EURO AD 50/50	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,6	7,6-5,2	6,5	5
2 EURO AD 30/80	1x220-240 V~	2x0,8	2x1,1	M/T 1,0	2x6,5	11,0-7,0	4,3	3,5
2 EURO AD 40/80	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,6	10,0-6,0	5,5	4,5

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

2 JETINOX PUMP SETS

CE

GENERAL DATA

Applications

Booster sets specifically suitable for domestic use and small civil, agricultural or industrial installations requiring self-priming performance of the pump (the ability to provide continuous suction even in the presence of air).
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 2 JETINOX type centrifugal self-priming pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in AISI 304 stainless steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on suction port of each pump
- 2 AISI 304 stainless steel plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

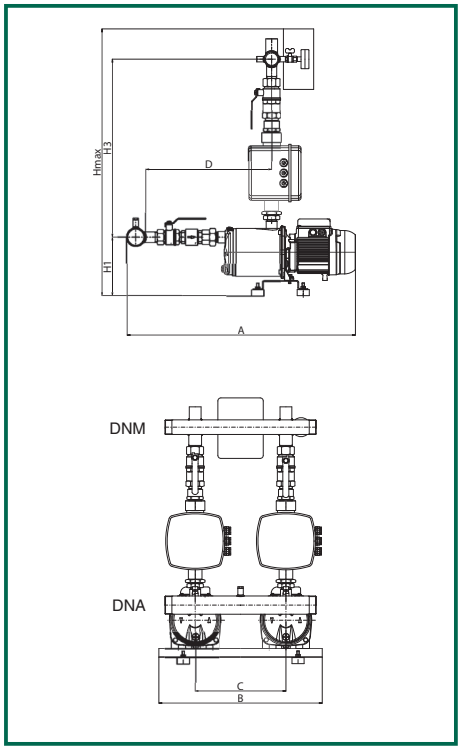
- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

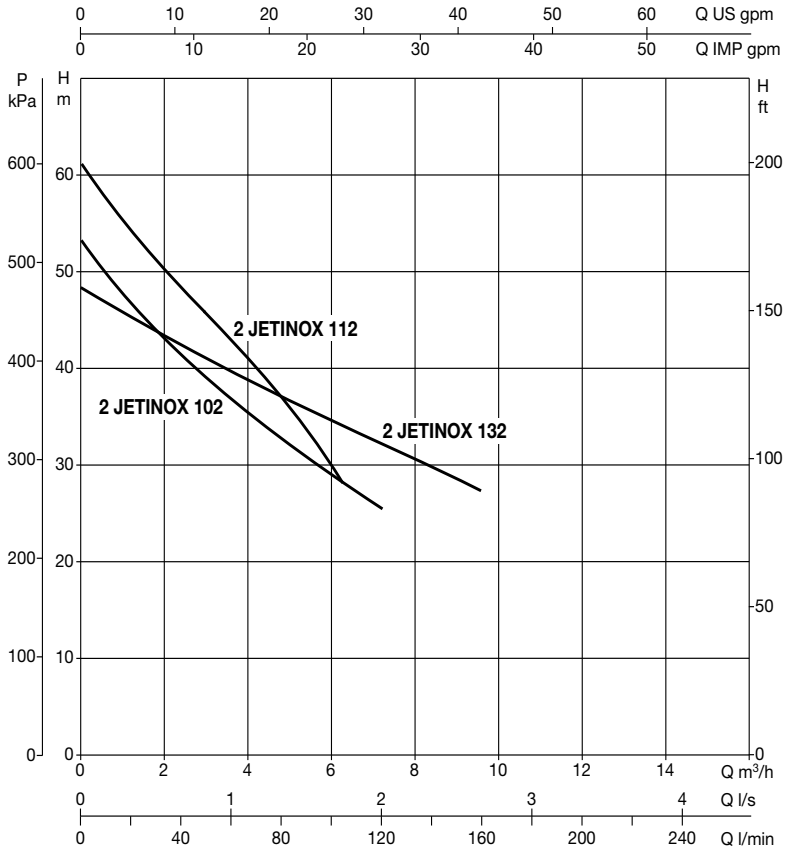
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 JETINOX PUMP SETS

Liquid temperature range: from 0°C to 35°C
Maximum ambient temperature : +40°C

Maximum flow rate: 14,4 m³/h





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2JETINOX 92) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	C	D	H max	H1	H3	DNA	DNM	PACK DIMENSIONS L/A	L/B	H	VOLUME m³	WEIGHT Kg
2 JETINOX AD 102	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	56
2 JETINOX AD 112	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	56
2 JETINOX AD 132	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	56

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 JETINOX AD 102	1x220-240 V~	2x0,75	2x1	M/T 1,0	2x5,7	6,6-3,0	5	4
2 JETINOX AD 112	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,4	6,6-3,0	5,8	4,5
2 JETINOX AD 132	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x8,1	9,6-3,0	4,6	3,5

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

2 EUROINOX PUMP SETS

CE

GENERAL DATA

Applications

Booster sets specifically suitable for domestic use and small civil, agricultural or industrial installations requiring self-priming performance of the pump (the ability to provide continuous suction even in the presence of air).
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION A

- 2 EUROINOX multistage centrifugal electric pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in AISI 304 stainless steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on suction port of each pump
- 2 AISI 304 stainless steel plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

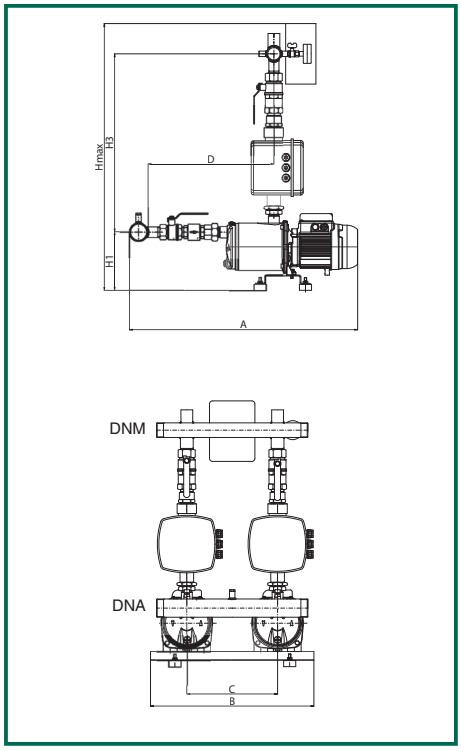
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

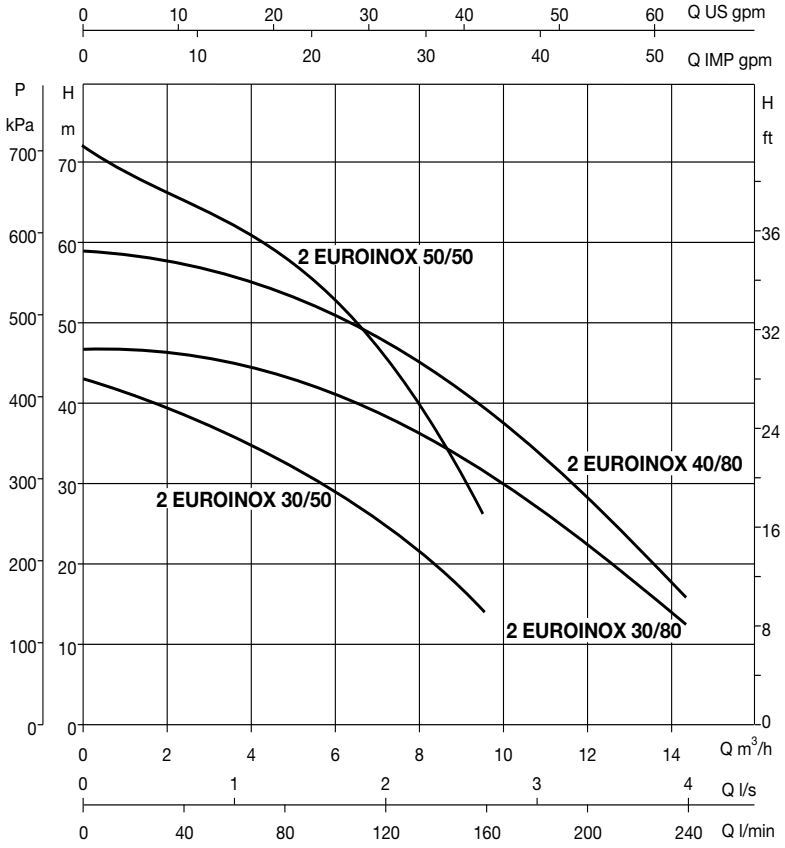
2 EUROINOX PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
(for other uses)

Maximum flow rate: 14,5 m³/h

Maximum ambient temperature : +40°C





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2EUROINOX 40/50) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	C	D	H max	H1	H3	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
2 EUROINOX AD 30/50	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	57
2 EUROINOX AD 50/50	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	57
2 EUROINOX AD 30/80	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	57
2 EUROINOX AD 40/80	755	540	300	416	882	193	588	2"	1" 1/2	850	610	1000	0,52	57

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 EUROINOX AD 30/50	1x220-240 V~	2x0,55	2x0,75	M/T 1,0	2x4,8	8,0-4,4	3,8	3
2 EUROINOX AD 50/50	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,6	7,6-5,2	6,5	5
2 EUROINOX AD 30/80	1x220-240 V~	2x0,8	2x1,1	M/T 1,0	2x6,5	11,0-7,0	4,3	3,5
2 EUROINOX AD 40/80	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,6	10,0-6,0	5,5	4,5

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

1 PULSAR DRY PUMP SETS

CE

GENERAL DATAI

Applications

Booster sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 1 PULSAR DRY centrifugal electric pump
- Ball valves with union on suction and discharge ports
- Check valve on suction side
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*

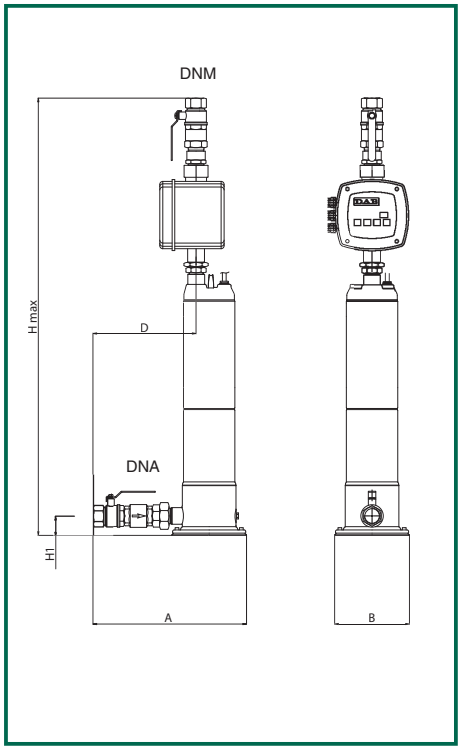
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

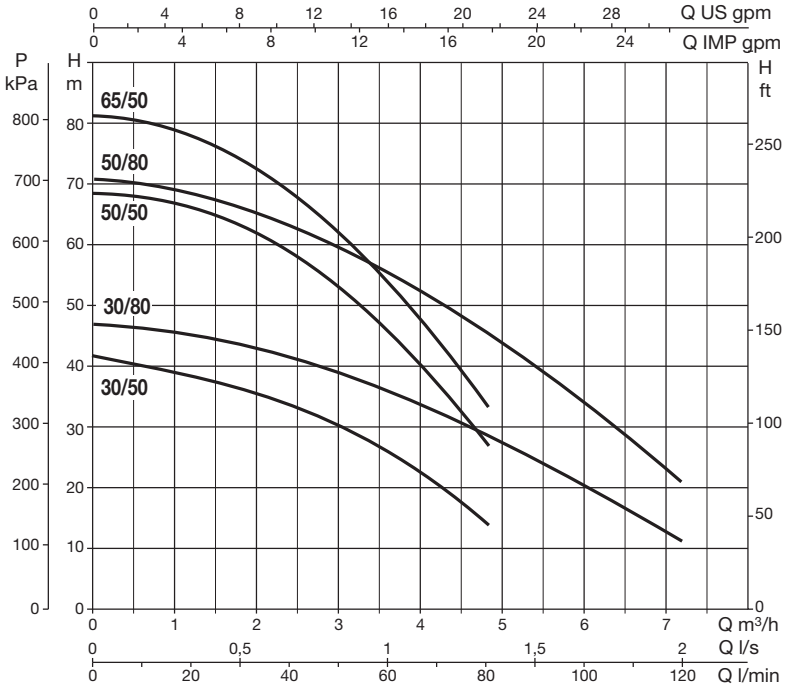
1 PULSAR DRY PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Max. flow rate: 7,25 m³/h

Maximum ambient temperature : +40°C





Activation of sets with smaller pumps (e.g. 1PULSAR DRY 40/80) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	D	H max	H1	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
1 PULSAR DRY AD 30/50	411	200	276	1169	52	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 PULSAR DRY AD 50/50	411	200	276	1169	52	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 PULSAR DRY AD 65/50	411	200	276	1169	52	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 PULSAR DRY AD 30/80	411	200	276	1169	52	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 PULSAR DRY AD 50/80	411	200	276	1169	52	1" 1/4	1" 1/4	850	610	1000	0,52	40

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
1 PULSAR DRY AD 30/50	1x220-240 V~	0,55	0,75	M/T 1,0	5,3	4,1-2,2	3,8	3
1 PULSAR DRY AD 50/50	1x220-240 V~	1	1,36	M/T 1,0	7,8	3,8-2,5	6,5	5,5
1 PULSAR DRY AD 65/50	1x220-240 V~	1,2	1,6	M/T 2,2	9,2	3,8-2,5	8,2	7
1 PULSAR DRY AD 30/80	1x220-240 V~	0,75	1	M/T 1,0	6,0	5,5-3,5	4,5	4
1 PULSAR DRY AD 50/80	1x220-240 V~	1,2	1,6	M/T 2,2	9,8	5,6-4,0	7,2	6

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

2 PULSAR DRY PUMP SETS

CE

GENERAL DATA

Applications

Booster sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 2 PULSAR DRY centrifugal electric pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in AISI 304 stainless steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on suction port of each pump
- 2 AISI 304 stainless steel plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

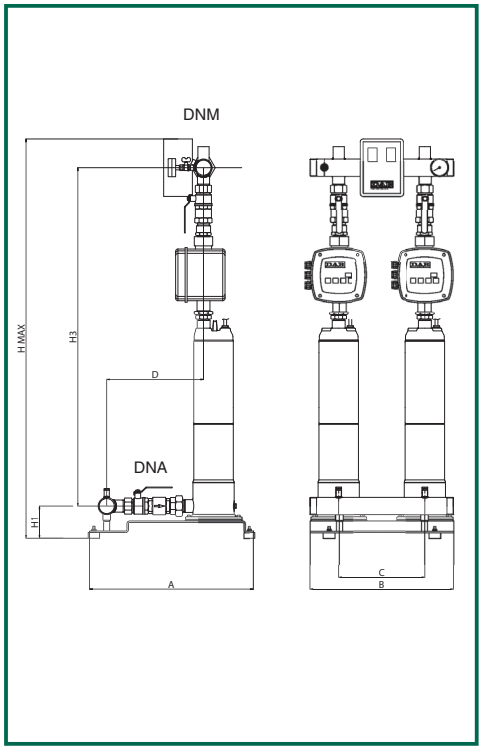
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

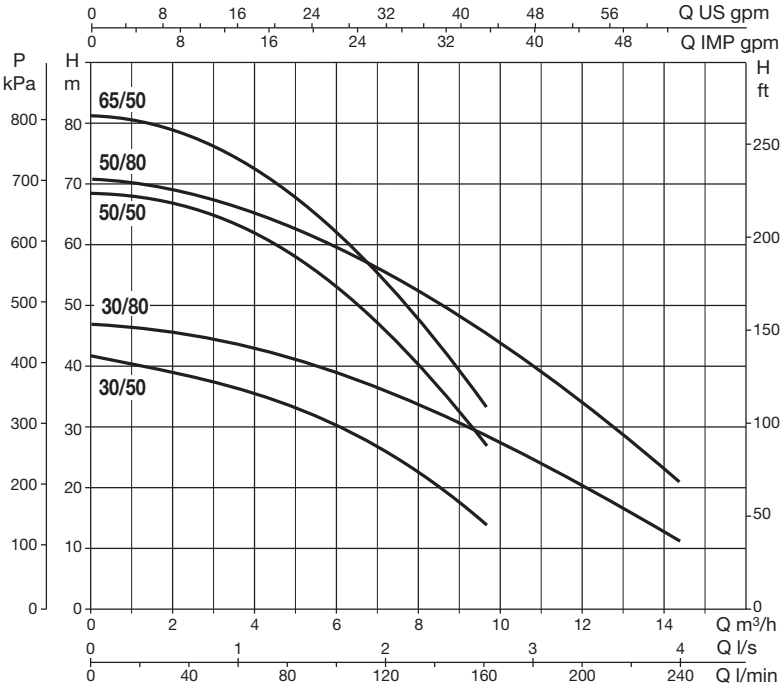
2 PULSAR DRY PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Max. flow rate: 14,5 m³/h

Maximum ambient temperature : +40°C





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2PULSAR DRY 40/80) is obtained simply by performing a set-up procedure of the Active Driver module.

MODEL	A	B	C	D	H max	H1	H3	DNA	DNM	PACK DIMENSIONS L/A	L/B	H	VOLUME m³	WEIGHT Kg
2 PULSAR DRY AD 30/50	570	500	300	337	1390	112	1178	2”	2”	1150	800	1000	1,38	67
2 PULSAR DRY AD 50/50	570	500	300	337	1390	112	1178	2”	2”	1150	800	1000	1,38	67
2 PULSAR DRY AD 65/50	570	500	300	337	1390	112	1178	2”	2”	1150	800	1000	1,38	67
2 PULSAR DRY AD 30/80	570	500	300	337	1390	112	1178	2”	2”	1150	800	1000	1,38	68
2 PULSAR DRY AD 50/80	570	500	300	337	1390	112	1178	2”	2”	1150	800	1000	1,38	68

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	MODEL ACTIVE DRIVER	In (pump set) A	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 PULSAR DRY AD 30/50	1x220-240 V~	2x0,55	2x0,75	M/T 1,0	2x5,3	8,2-4,4	3,8	3
2 PULSAR DRY AD 50/50	1x220-240 V~	2x1	2x1,36	M/T 1,0	2x7,8	7,6-5,0	6,5	5,5
2 PULSAR DRY AD 65/50	1x220-240 V~	2x1,2	2x1,6	M/T 2,2	2x9,2	7,6-5,0	8,2	7
2 PULSAR DRY AD 30/80	1x220-240 V~	2x0,75	2x1	M/T 1,0	2x6,0	11,0-7,0	4,5	4
2 PULSAR DRY AD 50/80	1x220-240 V~	2x1,2	2x1,6	M/T 2,2	2x9,0	11,2-8,0	7,2	6

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

1 KVC PUMP SETS

CE

GENERAL DATA

Applications

Booster sets, particularly suitable for domestic applications and small systems for civil or industrial uses, irrigation systems and washing installations

These sets are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 1 KVC type multistage vertical centrifugal electric pump
- Ball valves with union on suction and discharge ports
- Check valve on pump discharge
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*

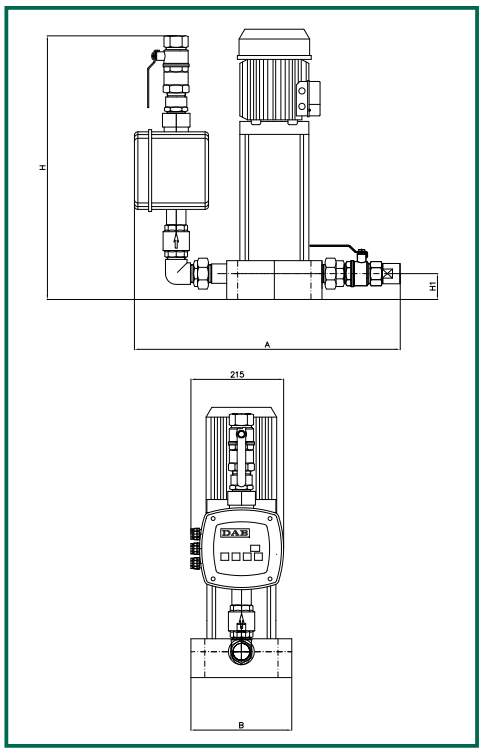
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

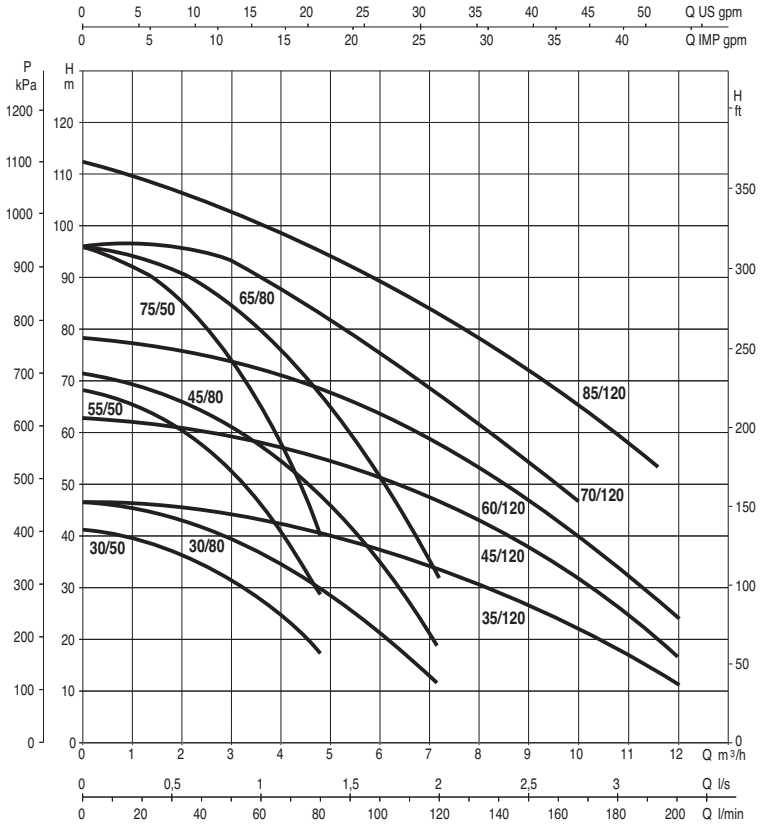
1 KVC PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Maximum flow rate: 12 m³/h

Maximum ambient temperature : +40°C





Activation of sets with smaller pumps (e.g. 1KVCX 20/50) is obtained simply by performing a setup procedure of the Active Driver module.

MODEL	A	B	H	H1	DNA	DNM	PACK DIMENSIONS L/A	L/B	H	VOLUME m³	WEIGHT Kg
1 KVC AD 30/50	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	32
1 KVC AD 55/50	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	35
1 KVC AD 75/50	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	39
1 KVC AD 30/80	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	34
1 KVC AD 45/80	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	38
1 KVC AD 65/80	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 KVC AD 35/120	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	34
1 KVC AD 45/120	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	37
1 KVC AD 60/120	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	39
1 KVC AD 70/120	530	250	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	40
1 KVC AD 85/120	530	234	620	60	1" 1/4	1" 1/4	850	610	1000	0,52	41

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	HP	In (pump set) A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
1 KVC AD 30/50	1x220-240 V~	0,55	0,75	4,1	M/T 1,0	4,5-1	4	3,5
1 KVC AD 55/50	1x220-240 V~	1	1,36	7,6	M/T 1,0	4,5-1	6,5	5,5
1 KVC AD 75/50	1x220-240 V~	1,5	2	10,7	M/T 2,2	4,5-1	9,2	8
1 KVC AD 30/80	1x220-240 V~	0,8	1,1	6,5	M/T 1,0	7+2	4,5	3,5
1 KVC AD 45/80	1x220-240 V~	1,1	1,5	9,3	M/T 2,2	7+2	6,6	5,5
1 KVC AD 65/80	1x220-240 V~	2,2	3	12	M/T 2,2	7+2	9,2	8
1 KVC AD 35/120	1x220-240 V~	1,1	1,5	10,4	M/T 2,2	11-2	4,4	3,5
1 KVC AD 45/120	1x220-240 V~	1,85	2,50	13,6	M/T 2,2	11-2	6,0	5,0
1 KVC AD 60/120	3x400 V~	2,2	3	5,4	T/T 3,0	11-2	7,5	6
1 KVC AD 70/120	3x400 V~	3	4	6,8	T/T 3,0	11-2	9,5	7
1 KVC AD 85/120	3x400 V~	3	34	7,8	T/T 5,5	11-2	11	8

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

2 KVC PUMP SETS

CE

GENERAL DATA

Applications

Booster sets, particularly suitable for domestic applications and small systems for civil or industrial uses, irrigation systems and washing installations.

These units are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 2 KVC type multistage vertical centrifugal electric pumps
- Skid in galvanized sheet steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in AISI 304 stainless steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on discharge port of each pump
- 2 AISI 304 stainless steel plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

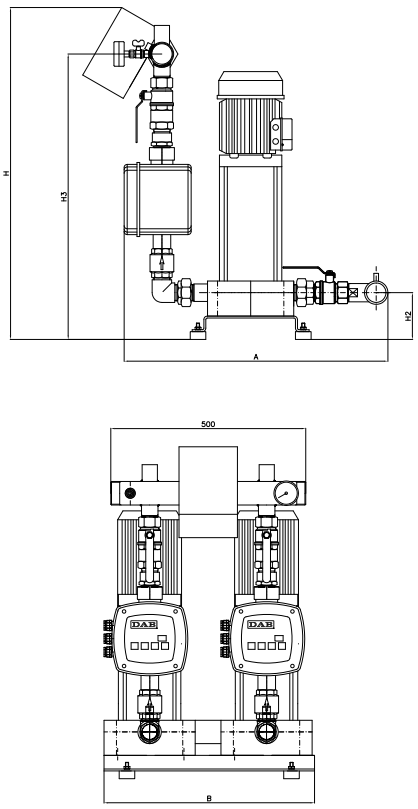
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

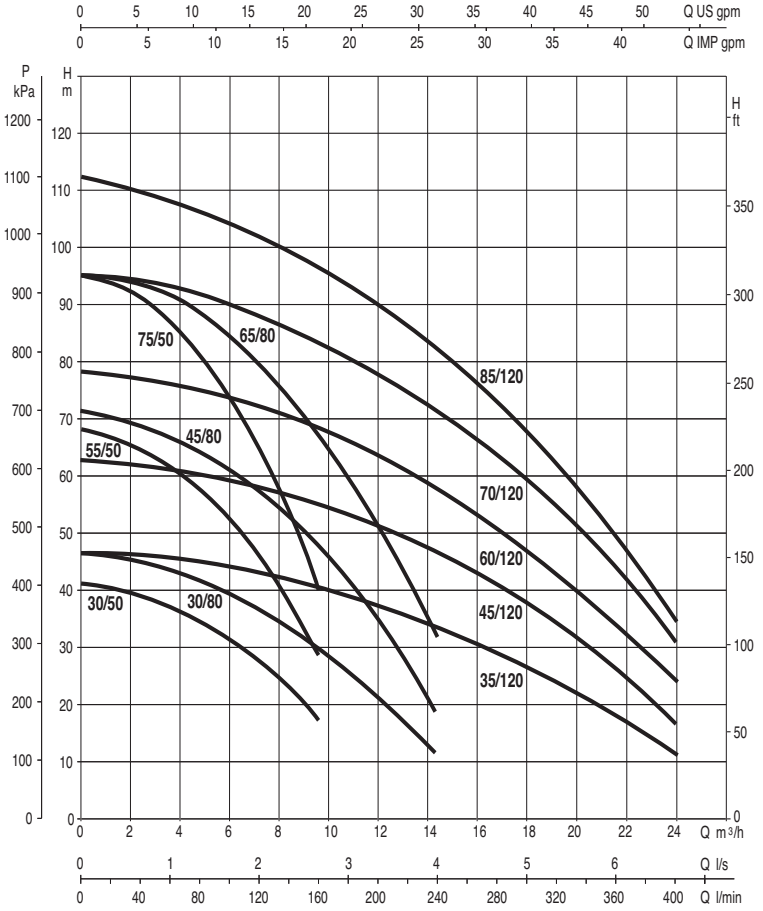
2 KVC PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses)

Maximum flow rate: 24 m³/h

Maximum ambient temperature: +40°C





Overall performance values referred to TWO pumps running simultaneously.

Activation of sets with smaller pumps (e.g. 2KVCX 20/50) is obtained simply by performing a setup procedure of the Active Driver module.

MODEL	A	B	H	H2	H3	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
2 KVC AD 30/50	660	550	830	100	710	2”	2”	1000	610	1000	0,61	76
2 KVC AD 55/50	660	550	830	100	710	2”	2”	1000	610	1000	0,61	83
2 KVC AD 75/50	660	550	830	100	710	2”	2”	1000	610	1000	0,61	91
2 KVC AD 30/80	660	550	830	100	710	2”	2”	1000	610	1000	0,61	80
2 KVC AD 45/80	660	550	830	100	710	2”	2”	1000	610	1000	0,61	89
2 KVC AD 65/80	660	550	830	100	710	2”	2”	1000	610	1000	0,61	93
2 KVC AD 35/120	660	550	830	100	710	2”	2”	1000	610	1000	0,61	81
2 KVC AD 45/120	660	550	830	100	710	2”	2”	1000	610	1000	0,61	85
2 KVC AD 60/120	660	550	830	100	710	2”	2”	1000	610	1000	0,61	89
2 KVC AD 70/120	660	550	830	100	710	2”	2”	1000	610	1000	0,61	93
2 KVC AD 85/120	660	550	830	100	710	2”	2”	1000	610	1000	0,61	95

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In (pump set) A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2 KVC AD 30/50	1x220-240 V~	2x0,55	2x0,75	2x4,1	M/T 1,0	9-1	4	3,5
2 KVC AD 55/50	1x220-240 V~	2x1	2x1,36	2x7,6	M/T 1,0	9-1	6,5	5,5
2 KVC AD 75/50	3x400 V~ + N *	2x1,5	2x2	2x10,7	M/T 2,2	9-1	9,5	8
2 KVC AD 30/80	1x220-240 V~	2x0,8	2x1,1	2x6,5	M/T 1,0	14+2	4,5	3,5
2 KVC AD 45/80	1x220-240 V~	2x1,1	2x1,5	2x9,3	M/T 2,2	14+2	6,6	5,5
2 KVC AD 65/80	3x400 V~ + N *	2x2,2	2x3	2x12	M/T 2,2	14+2	9,5	8
2 KVC AD 35/120	1x220-240 V~	2x1,1	2x1,5	2x10,4	M/T 2,2	22-2	4,4	3,5
2 KVC AD 45/120	1x220-240 V~	2x1,85	2x2,50	2x13,6	M/T 2,2	22-2	6,0	5,0
2 KVC AD 60/120	3x400 V~	2x2,2	2x3	2x5,4	T/T 3,0	22-2	7,5	6
2 KVC AD 70/120	3x400 V~	2x3,0	2x4	2x6,80	T/T 3,0	22-2	9,5	7
2 KVC AD 85/120	3x400 V~	2x3,0	2x4	2x7,80	T/T 5,5	22-2	11	8

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

*** Available on request for single-phase power supply (1x220-240 V~).**

3 KVC PUMP SETS

CE

GENERAL DATA

Applications

Booster sets, particularly suitable for domestic applications and small systems for civil or industrial uses, irrigation systems and washing installations

These units are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

HYDRAULIC SECTION

- 3 KVC type multistage vertical centrifugal electric pumps
- Skid in galvanized steel complete with 4 rubber antivibration feet
- Suction and discharge manifolds in AISI 304 stainless steel
- Ball valves with union on suction and discharge ports of each pump
- Check valves on discharge ports of each pump
- 2 AISI 304 stainless steel plugs for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8-litre membrane pressure tank (optimises the number of pump starts)

ELECTRICAL SECTION

- 1 Active driver module on the pump discharge line *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

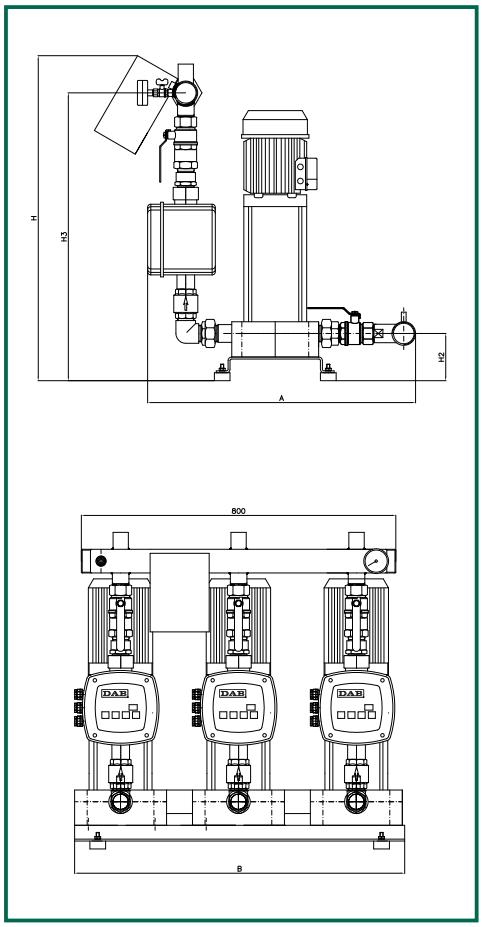
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

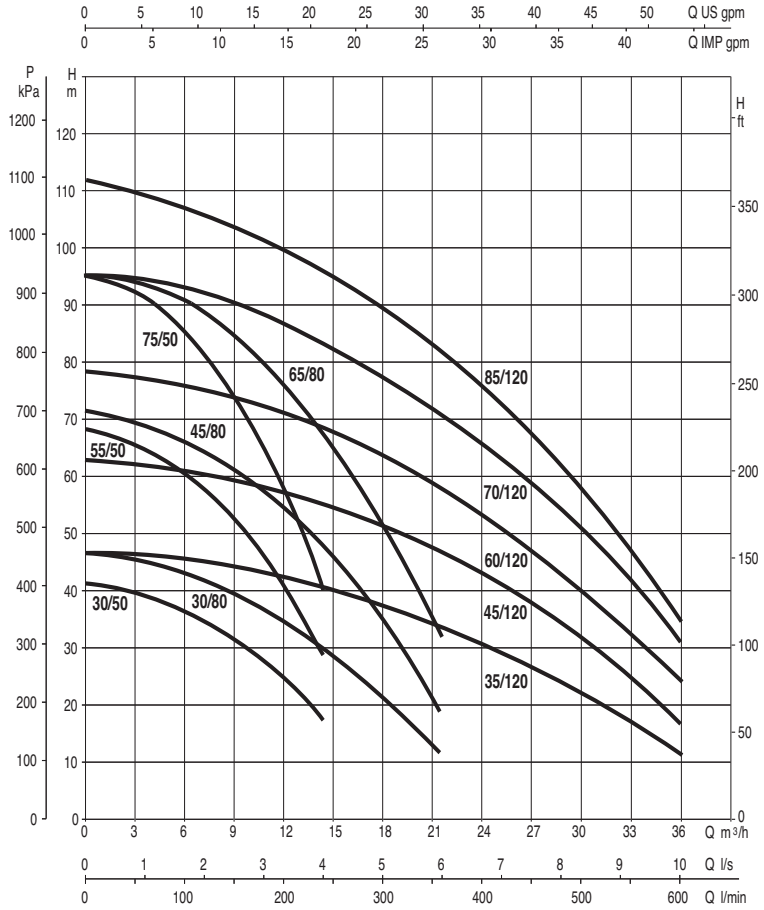
3 KVC PUMP SETS

Liquid temperature range: from 0°C to +35°C (for domestic use)
from 0°C to +40°C (for other uses

Maximum flow rate: 36 m³/h

Maximum ambient temperature: +40°C





Overall performance values referred to THREE pumps running simultaneously.

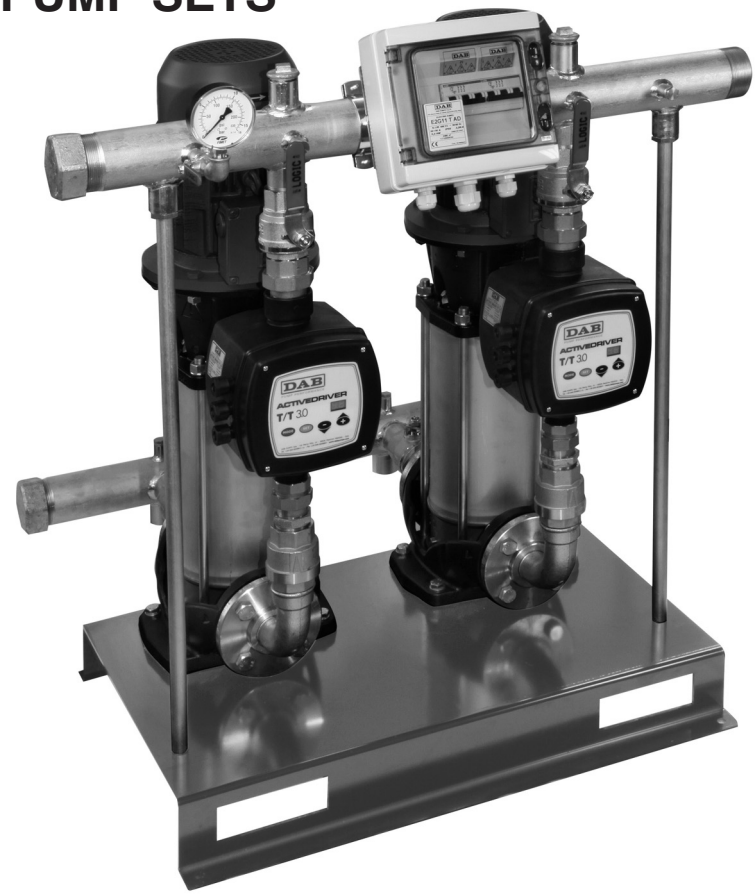
Activation of sets with smaller pumps (e.g. 3KVCX 20/50) is obtained simply by performing a setup procedure of the Active Driver module.

MODEL	A	B	H	H2	H3	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
3 KVC AD 30/50	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	131
3 KVC AD 55/50	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	141
3 KVC AD 75/50	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	150
3 KVC AD 30/80	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	136
3 KVC AD 45/80	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	150
3 KVC AD 65/80	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	156
3 KVC AD 35/120	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	150
3 KVC AD 45/120	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	156
3 KVC AD 60/120	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	162
3 KVC AD 70/120	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	168
3 KVC AD 85/120	750	900	740	100	710	2" 1/2	2" 1/2	1000	800	1400	1,2	170

MODEL	VOLTAGE 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In (pump set) A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
3 KVC AD 30/50	1x220-240 V~	3x0,55	3x0,75	3x4,1	M/T 1,0	13,5-1	4	3,5
3 KVC AD 55/50	3x400 V~ + N *	3x1	3x1,36	3x7,6	M/T 1,0	13,5-1	6,5	5,5
3 KVC AD 75/50	3x400 V~ + N *	3x1,5	3x2	3x10,7	M/T 2,2	13,5-1	9,5	8
3 KVC AD 30/80	3x400 V~ + N *	3x0,8	3x1,1	3x6,5	M/T 1,0	21-2	4,5	3,5
3 KVC AD 45/80	3x400 V~ + N *	3x1,1	3x1,5	3x9,3	M/T 2,2	21-2	6,6	5,5
3 KVC AD 65/80	3x400 V~ + N *	3x2,2	3x3	3x12	M/T 2,2	21-2	9,5	8
3 KVC AD 35/120	3x400 V~ + N *	3x1,1	3x1,5	3x10,4	M/T 2,2	33-2	4,4	3,5
3 KVC AD 45/120	3x400 V~ + N *	3x1,85	3x2,5	3x13,6	M/T 2,2	33-2	6,0	5,0
3 KVC AD 60/120	3x400 V	3x2,2	3x3	3x5,4	T/T 3,0	33-2	7,5	6
3 KVC AD 70/120	3x400 V	3x3,0	3x4	3x6,80	T/T 3,0	33-2	9,5	7
3 KVC AD 85/120	3x400 V	3x3,0	3x4	3x7,80	T/T 5,5	33-2	11	8

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.
*** Available on request for single-phase power supply (1x220-240 V~).**

2 NKV 10-15 PUMP SETS



CE

GENERAL DATA

Applications

Booster sets specifically suitable for civil or industrial use, irrigation systems and washing installations. These units are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

- 2 NKV 10-15 type multistage vertical centrifugal electric pumps
- Skid in galvanized sheet steel
- Suction and discharge manifolds in galvanized steel (stainless steel on request)
- Ball valves with union on suction and discharge ports of each pump
- Check valves on discharge ports of each pump
- 2 plugs or blank flanges in galvanized steel for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank

Electrical section

- 1 Modulo Active Driver on discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

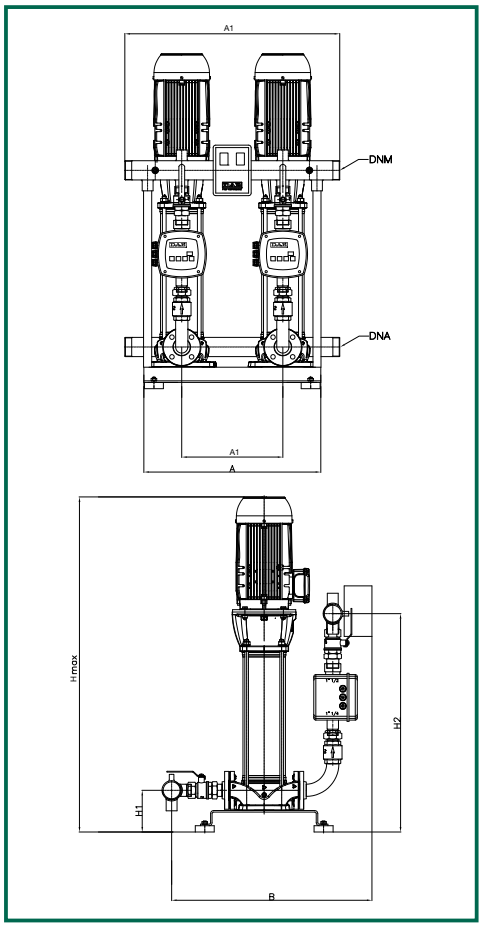
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

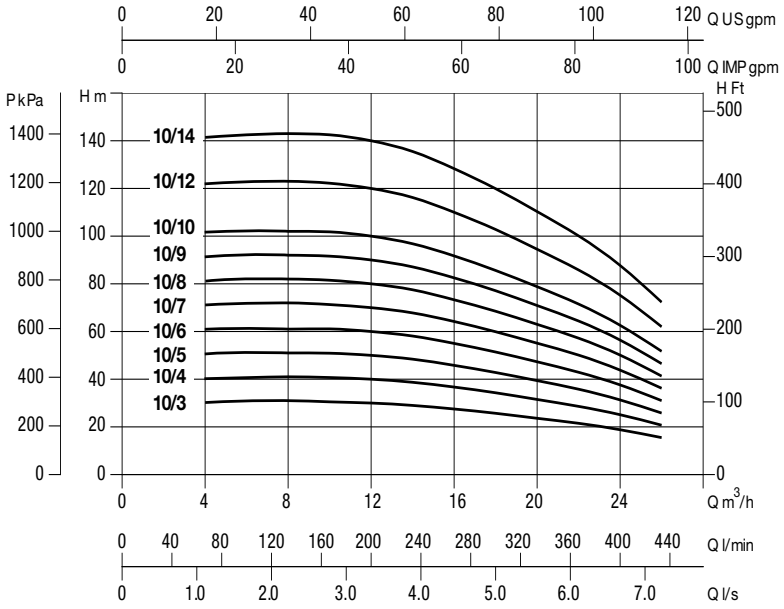
2 NKP 10 PUMP SETS

Liquid temperature range: from 0°C to +50°C

Maximum flow rate: 24 m³/h

Maximum ambient temperature: +40°C





Overall performance values referred to TWO pumps running simultaneously.

MODEL	A	B	A1	C	H1	H2	H_{max}	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
2NKV AD 10/3	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	258
2NKV AD 10/4	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	268
2NKV AD 10/5	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	276
2NKV AD 10/6	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	278
2NKV AD 10/7	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	298
2NKV AD 10/8	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	300
2NKV AD 10/9	800	850	900	400	180	940	1095	2" 1/2	2" 1/2	1000	1000	1400	1,4	302
2NKV AD 10/10	800	850	900	400	180	940	1143	2" 1/2	2" 1/2	1000	1000	1400	1,4	322
2NKV AD 10/12	800	850	900	400	180	940	1209	2" 1/2	2" 1/2	1000	1000	1400	1,4	326
2NKV AD 10/14	800	850	900	400	180	940	1405	2" 1/2	2" 1/2	1000	1000	2000	1,4	382

MODEL	VOLTAGE 50 HZ	P2 NOMINAL kW	P2 NOMINAL HP	In (pump set) A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2NKV AD 10/3	1x220-240 V	2x1,1	2x1,5	2x7,5	M/T 2,2	26 - 4	3	2,5
2NKV AD 10/4	1x220-240 V	2x1,5	2x2	2x9,6	M/T 2,2	26 - 4	4	3,0
2NKV AD 10/5	3x400 V	2x2,2	2x3	2x4,7	T/T 3,0	26 - 4	5	4,0
2NKV AD 10/6	3x400 V	2x2,2	2x3	2x4,7	T/T 3,0	26 - 4	6	5,0
2NKV AD 10/7	3x400 V	2x3	2x4	2x5,8	T/T 3,0	26 - 4	7	6
2NKV AD 10/8	3x400 V	2x3	2x4	2x5,8	T/T 3,0	26 - 4	8	6,5
2NKV AD 10/9	3x400 V	2x3	2x4	2x5,8	T/T 3,0	26 - 4	9	7,7
2NKV AD 10/10	3x400 V	2x4	2x5,5	2x7,6	T/T 5,5	26 - 4	10	8,5
2NKV AD 10/12	3x400 V	2x4	2x5,5	2x7,6	T/T 5,5	26 - 4	12	10
2NKV AD 10/14	3x400 V	2x5,5	2x7,5	2x11	T/T 5,5	26 - 4	14	12

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

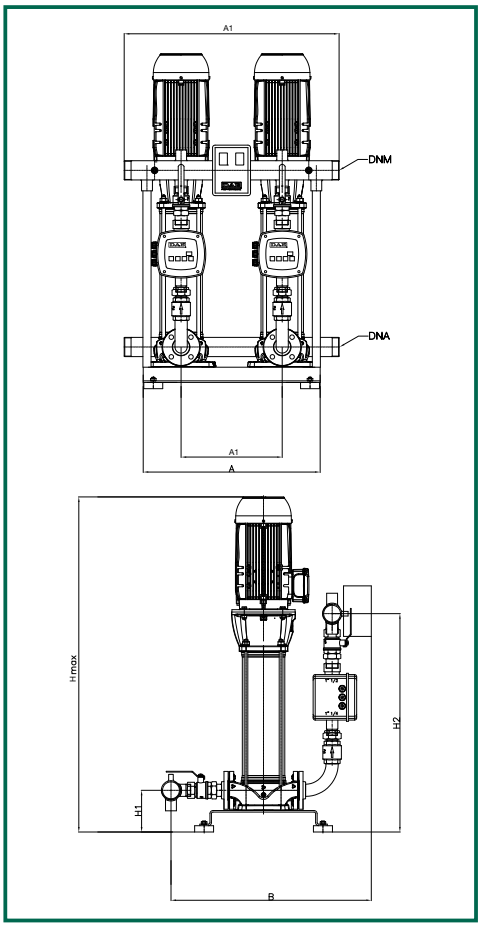
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

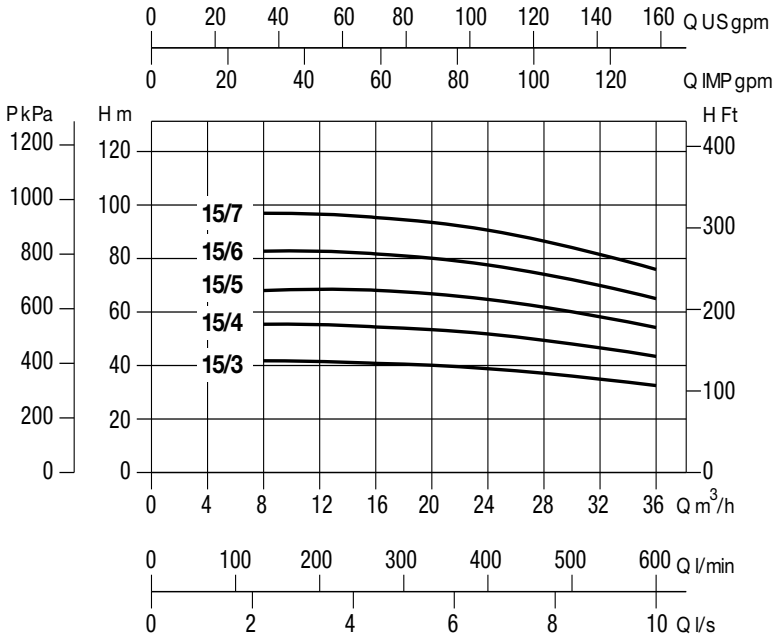
2 NKV 15 PUMP SETS

Liquid temperature range: from 0°C to +50°C

Maximum flow rate: 30 m³/h

Maximum ambient temperature: +40°C





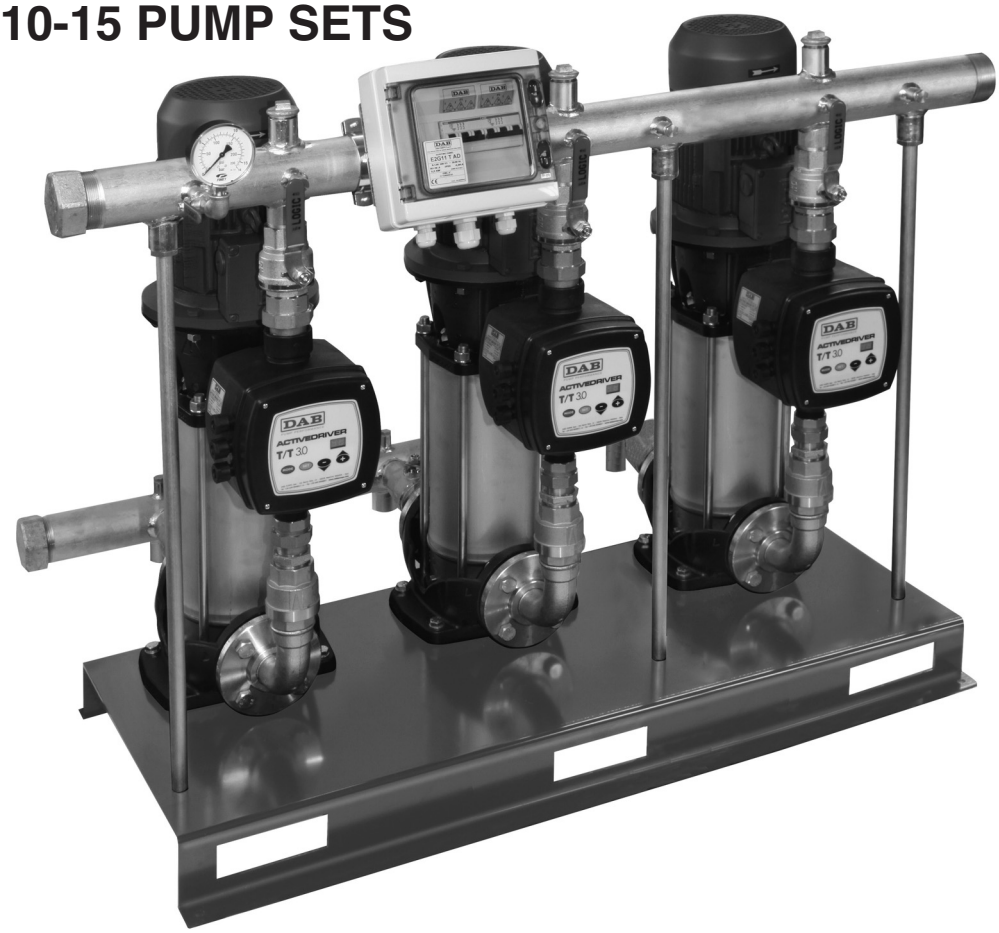
Overall performance values referred to TWO pumps running simultaneously.

MODEL	A	B	A1	C	H1	H2	H_{max}	DNA	DNM	PACK DIMENSIONS L/A	L/B	H	VOLUME m³	WEIGHT Kg
2NKV AD 15/3	800	850	900	400	190	1000	1160	DN100	DN80	1000	1000	1400	1,4	314
2NKV AD 15/4	800	850	900	400	190	1000	1160	DN100	DN80	1000	1000	1400	1,4	334
2NKV AD 15/5	800	850	900	400	190	1000	1160	DN100	DN80	1000	1000	1400	1,4	336
2NKV AD 15/6	800	850	900	400	190	1000	1320	DN100	DN80	1000	1000	1400	1,4	392
2NKV AD 15/7	800	850	900	400	190	1000	1355	DN100	DN80	1000	1000	1400	1,4	395

MODEL	VOLTAGE 50 HZ	P2 NOMINAL kW	P2 NOMINAL HP	In (pump set) A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
2NKV AD 15/3	3x400 V	2x3	2x4	2x5,8	T/T 3,0	36 - 8	4	3,5
2NKV AD 15/4	3x400 V	2x4	2x5,5	2x7,6	T/T 5,5	36 - 8	5	4
2NKV AD 15/5	3x400 V	2x4	2x5,5	2x7,6	T/T 5,5	36 - 8	6,5	5
2NKV AD 15/6	3x400 V	2x5,5	2x7,5	2x11	T/T 5,5	36 - 8	7,5	6,5
2NKV AD 15/7	3x400 V	2x5,5	2x7,5	2x11	T/T 5,5	36 - 8	9	8

I gruppi vengono forniti completi di un robusto imballo di cartone con paletta di legno e libretto istruzioni di installazione / manutenzione.

3 NKV 10-15 PUMP SETS



CE

GENERAL DATA

Applications

Booster sets specifically suitable for civil or industrial use, irrigation systems and washing installations.

These units are acclaimed for their supreme reliability, simplicity of operation and minimal maintenance requirements.

Construction features - components

- 3 NKV 10-15 type multistage vertical centrifugal electric pumps
- Skid in galvanized sheet steel
- Suction and discharge manifolds in galvanized steel (stainless steel on request)
- Ball valves with union on suction and discharge ports of each pump
- Check valves on discharge ports of each pump
- 2 plugs or blank flanges in galvanized steel for closing manifolds
- Radial pressure gauge with isolator valve
- 1 8 litre membrane pressure tank

Electrical section

- 1 Active Driver module on the discharge line of each pump *(see Active Driver information at the beginning of this heading)*
- 1 protection control unit

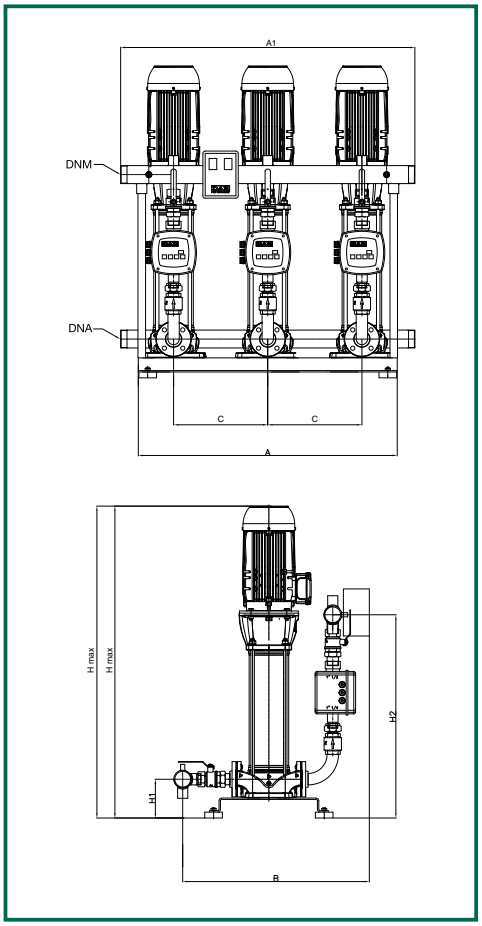
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

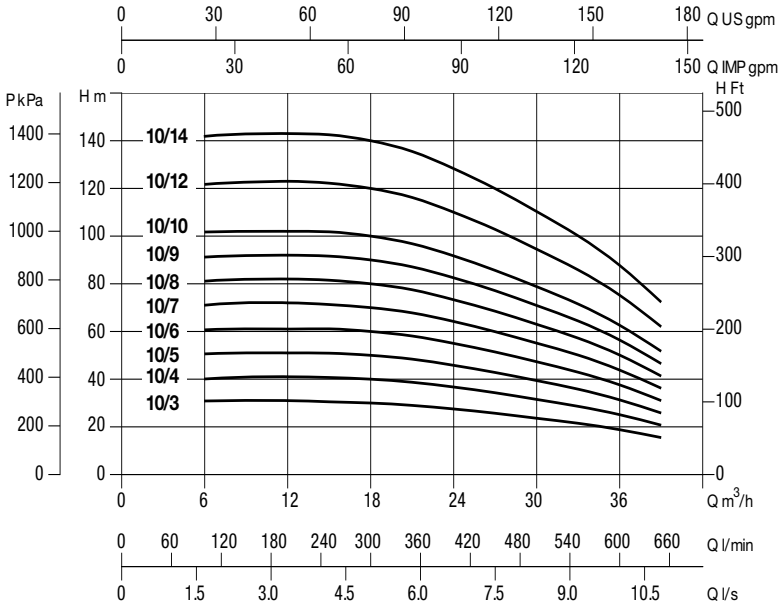
3 NKV 10 PUMP SETS

Liquid temperature range: from 0°C to +50°C

Maximum flow rate: 36 m³/h

Maximum ambient temperature: +40°C





Overall performance values referred to THREE pumps running simultaneously.

MODEL	A	B	A1	C	H1	H2	H_{max}	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m³	WEIGHT Kg
3NKV AD 10/3	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	385
3NKV AD 10/4	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	400
3NKV AD 10/5	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	412
3NKV AD 10/6	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	415
3NKV AD 10/7	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	445
3NKV AD 10/8	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	448
3NKV AD 10/9	1200	850	1300	400	180	950	1100	DN80	DN80	1400	1800	2000	5,2	452
3NKV AD 10/10	1200	850	1300	400	180	950	1150	DN80	DN80	1400	1800	2000	5,2	481
3NKV AD 10/12	1200	850	1300	400	180	950	1260	DN80	DN80	1400	1800	2000	5,2	485
3NKV AD 10/14	1200	850	1300	400	180	950	1455	DN80	DN80	1400	1800	2000	5,2	571

MODEL	VOLTAGE 50 HZ	P2 NOMINAL kW	P2 NOMINAL HP	In A	MODEL ACTIVE DRIVER	FLOW RATE m³/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
3NKV AD 10/3	1x220-240 V	3x1,1	3x1,5	3x7,5	M/T 2,2	39 - 6	3	2,5
3NKV AD 10/4	1x220-240 V	3x1,5	3x2	3x9,6	M/T 2,2	39 - 6	4	3,0
3NKV AD 10/5	3x400 V	3x2,2	3x3	3x4,7	T/T 3,0	39 - 6	5	4,0
3NKV AD 10/6	3x400 V	3x2,2	3x3	3x4,7	T/T 3,0	39 - 6	6	5,0
3NKV AD 10/7	3x400 V	3x3	3x4	3x5,8	T/T 3,0	39 - 6	7	6
3NKV AD 10/8	3x400 V	3x3	3x4	3x5,8	T/T 3,0	39 - 6	8	6,5
3NKV AD 10/9	3x400 V	3x3	3x4	3x5,8	T/T 3,0	39 - 6	9	7,7
3NKV AD 10/10	3x400 V	3x4	3x5,5	3x7,6	T/T 5,5	39 - 6	10	8,5
3NKV AD 10/12	3x400 V	3x4	3x5,5	3x7,6	T/T 5,5	39 - 6	12	10
3NKV AD 10/14	3x400 V	3x5,5	3x7,5	3x11	T/T 5,5	39 - 6	14	12

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions..

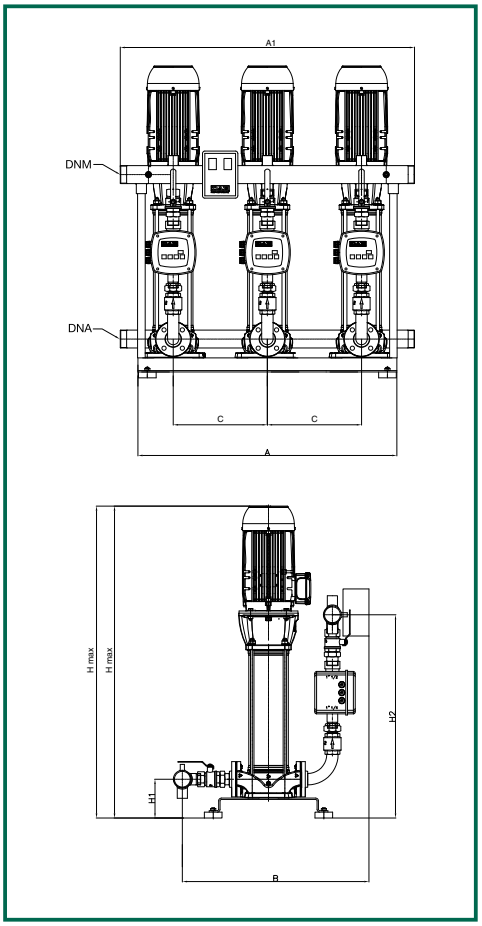
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

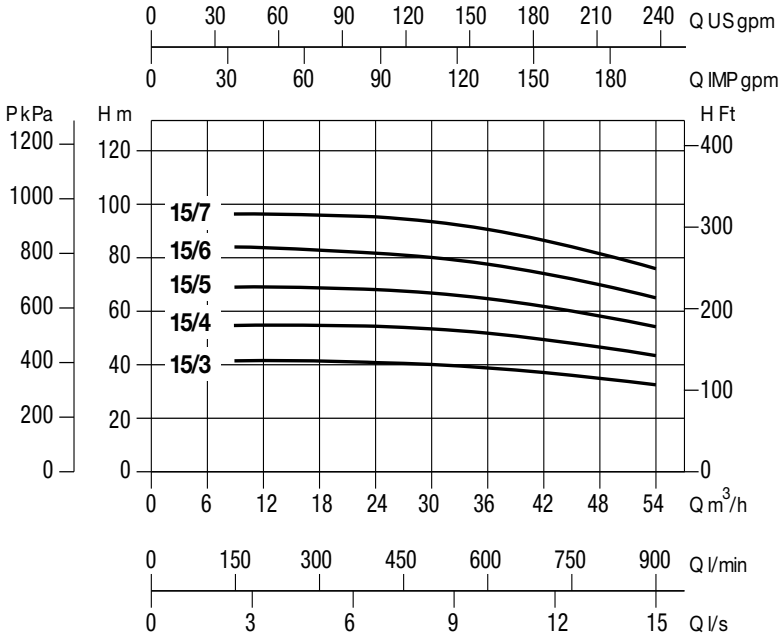
3 NKV 15 PUMP SETS

Liquid temperature range: from 0°C to +50°C

Maximum flow rate: 45 m^3/h

Maximum ambient temperature: +40°C





Overall performance values referred to TWO pumps running simultaneously.

MODEL	A	B	A1	C	H1	H2	H_{max}	DNA	DNM	PACK DIMENSIONS L/A	PACK DIMENSIONS L/B	PACK DIMENSIONS H	VOLUME m^3	WEIGHT Kg
3NKV AD 15/3	1200	850	1300	400	190	1000	1165	DN125	DN100	1400	1800	2000	5,2	545
3NKV AD 15/4	1200	850	1300	400	190	1000	1165	DN125	DN100	1400	1800	2000	5,2	575
3NKV AD 15/5	1200	850	1300	400	190	1000	1165	DN125	DN100	1400	1800	2000	5,2	578
3NKV AD 15/6	1200	850	1300	400	190	1000	1325	DN125	DN100	1400	1800	2000	5,2	662
3NKV AD 15/7	1200	850	1300	400	190	1000	1360	DN125	DN100	1400	1800	2000	5,2	668

MODEL	VOLTAGE 50 HZ	P2 NOMINAL kW	P2 NOMINAL HP	In A	MODEL ACTIVE DRIVER	FLOW RATE m^3/h	MAX AVAILABLE PRESSURE (bar)	STANDARD PRESSURE (bar)
3NKV AD 15/3	3x400 V	3x3	3x4	3x5,8	T/T 3,0	54 - 8	4	3,5
3NKV AD 15/4	3x400 V	3x4	3x5,5	3x7,6	T/T 5,5	54 - 8	5	4
3NKV AD 15/5	3x400 V	3x4	3x5,5	3x7,6	T/T 5,5	54 - 8	6,5	5
3NKV AD 15/6	3x400 V	3x5,5	3x7,5	3x11	T/T 5,5	54 - 8	7,5	6,5
3NKV AD 15/7	3x400 V	3x5,5	3x7,5	3x11	T/T 5,5	54 - 8	9	8

The pump sets are supplied in a strong carton on a wooden pallet complete with installation / maintenance instructions.

CONSTANT PRESSURE SETS
INVERTER DRIVEN

CE

APPLICATIONS

Inverter-driven pump sets are designed and built to meet the constant pressure requirements imposed by modern water distribution system technology. Constant pressure control is used in an increasing number of applications in the most diverse range of sectors:
Water pipelines - Irrigation - Industry - Hotels - Residential building - Spa centres.
The basic principles that guided our engineers in developing these pump sets were simplicity, flexibility and reliability. Unlike conventional pumps, which run at fixed speed, an inverter-driven pump can adapt its performance curve to the demands of the system. In their most classic application, sets with inverter-driven pumps are utilised to maintain constant pressure in relation to changing flow rates, avoiding pressure fluctuations in the event of small changes in the flow rate.

BENEFITS DURING USE

Constant pressure – Low running costs – Elimination of water hammer phenomena – smaller dimensions
Reduced maintenance – Reduced need for retiming – Lower water consumption.

CONSTRUCTION FEATURES

Inverter-driven pump sets are composed of two or three centrifugal electric pumps, fully assembled on a galvanized steel skid, tested and ready for installation. Complete with isolator and check valves for each pump, galvanized steel suction and discharge manifolds, expansion vessels, pressure transducer, emergency pressure switches and **control panel with inverter.**

CONTROL PANEL WITH INVERTER

The inverter provides stepless control of rotation speed of an electric pump in such a way as to maintain **constant pressure despite changes in flow rate.** The other fixed speed electric pumps are started in cascade mode once the inverter-driven pump reaches maximum speed. During this stage the inverter-driven pump functions with modulating control to compensate for system pressure fluctuations. At each operating cycle the inverter control is switched to a different pump in such a way as to **equalise running hours over all electric pumps.**

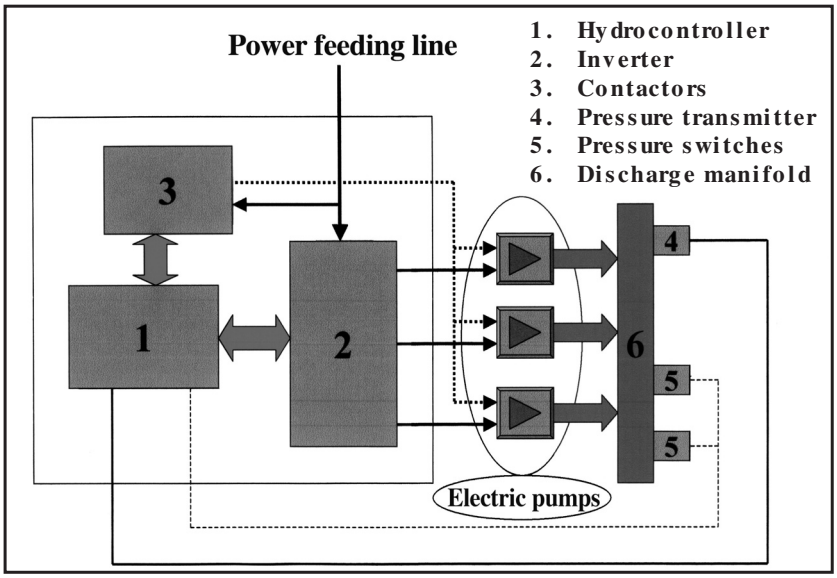
OPERATING DIAGRAM
INVERTER PANEL OPERATION

The pressure transmitter reads the pressure on the discharge manifold and communicates the value to the HYDROCONTROLLER unit on the front panel. Manifold pressure is correlated with the HYDROCONTROLLER pressure set point:

- if the pressure value falls, the HYDROCONTROLLER transmits an 0-10 V signal to the inverter, which responds by increasing the speed of the controlled electric pump
- if the pressure value rises, the HYDROCONTROLLER transmits an 0-10 V signal to the inverter, which responds by decreasing the speed of the controlled electric pump

When the pump reaches maximum speed (2,900 rpm at 50 hz), HYDROCONTROLLER starts the other fixed speed pumps. The inverter is switched to control the second or third pump each time the system restarts.

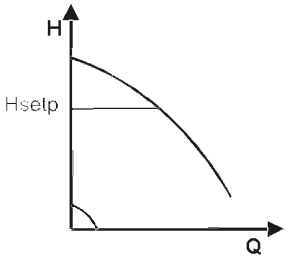
In the event of faults the set is automatically switched to pressure switch control mode



OPERATING MODES - SYSTEM TYPE.

Inverter-driven sets are factory-set for constant pressure operation.

They can however be used with different types of systems, by selecting the required system on the display.



- Constant pressure booster sets

1) Constant pressure control with **internal SETP.**

Set on the control panel display (unit of measurement: BAR)

2) Constant relative pressure control with **external SETP.**

Set by means of an external potentiometer (unit of measurement: BAR).

- Constant differential pressure systems (closed circuits - circulation type).

1) Constant differential pressure control with internal SETP.

Set on the control panel display (unit of measurement: BAR)

Operation of one pump at a time with changeover of starting order every 24 hours.

Automatic pump changeover in the event of failure of the operating pump.

2) Constant relative or differential pressure control with external SETP.

Set by means of an external potentiometer (unit of measurement: METRES).

CONTROL PANEL FEATURES

Control panel in metal IP 55 enclosure, mounted to the electric pumps skid.

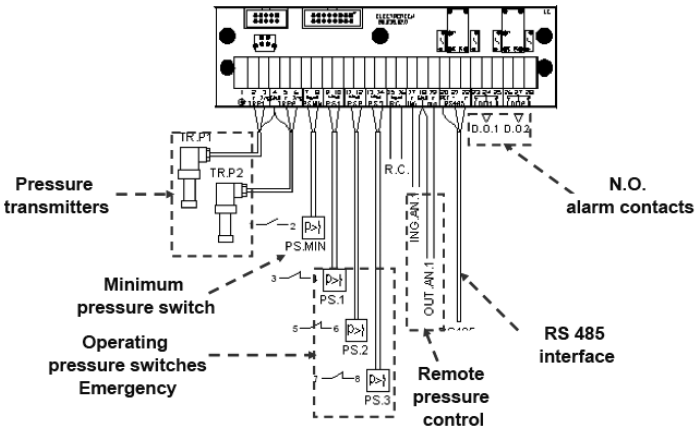
The control panel is self-protected and it protects the electric pumps from overloads, short-circuits and pump low discharge pressure.

The control panel is prearranged for the connection of:

- RS 485 output for PC based control and supervision of the set (*)
- Pressure switch or float switch kit for shut-down in dry running conditions (*)
- Overpressure cut-out pressure switch kit (*)

(*) (to be ordered separately as an optional)

Morsettiera

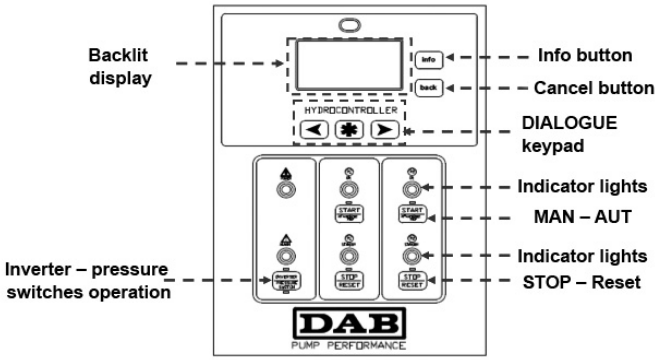


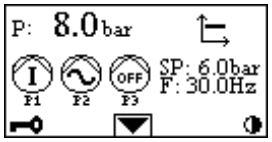
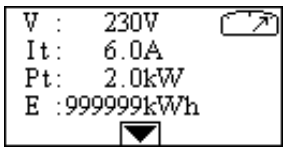
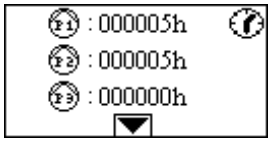
CONNECTION TERMINAL ASSIGNMENTS

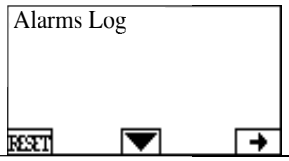
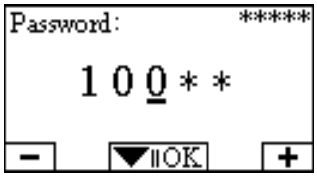
Terminal	FUNCTION
TRP1 **1 – 2 – 3**	Pressure transducer 1 connection. Terminals ref. 1= ⏚ , 2= power input 3= ing.
TRP2 **1 – 4 – 5 – 6**	Pressure transducer 2 connection. Terminals ref. 1= ⏚ , 4= GND, 5=power input, 6=ing.2.
P.S. MIN. **7 – 8**	Minimum pressure transducer connection. (connect exclusively voltage-free contacts)
P.S. 1. **9 – 10**	Control pressure transducer connection for electric pump 1. (connect exclusively voltage-free contacts)
P.S. 2. **11 – 12**	Control pressure transducer connection. for electric pump 2. (connect exclusively voltage-free contacts)
P.S. 3. **13 – 14**	Control pressure transducer connection. for electric pump 3. (connect exclusively voltage-free contacts)
R. C. **15 – 16**	Terminals for connection of a configurable remote control 15= ing., 16=power input. (connect exclusively voltage-free contacts)
ING. **17 – 18 – 5**	Connection of EXT. SETP potentiometer Terminals ref. 17=ING, 18=GND, 5= power input. (connect 10 k-ohm 1 W potentiometers)
OUT. **18 – 19**	External instrument connection. Terminals ref. 18=GND, 19= OUT. (connect instruments with max. current draw of 5 mA, 10 V)
RS485 **20 – 21 – 22**	RS485 remote serial communication interface Terminals ref. 20=REF, 21=D+, 22=D-
23 – 24 – 25 **(D.O. 1)**	Voltage free contact terminals for remote alarm signal. Terminals ref. 23=NC, 24=COM. 25=N.O. with control panel unpowered or in alarm status (voltage free contacts, rating250V ac 5A)
26 – 27 – 28 **(D.O. 2)**	Connection of remote contact to signal menu programmed functions. Terminals ref. 26=NC, 27=COM. 28=N.O. with control panel unpowered or in alarm status. (voltage-free contacts, rated 250V ac 5A)

FRONT PANEL DISPLAY INFORMATION

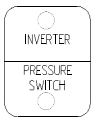
External view



HOME PAGE	DESCRIPTION PAGE
HOME PAGE  **HOME PAGE**  	"HOME PAGE" view contains a graphic description of the main settings of the inverter control panel. - **p** = system instantaneous pressure - = constant pressure system - = pumps feeding example: P1 inverter control, P2 mains power feeding, P3 OFF. - **F** = inverter controlled electric pump frequency. - = menu keypad lock / unlock. - = go to next parameter - = LCD contrast control. - = e.g. alarm 16, inverter trip with system controlled by pressure switches. **Key to electric pumps status** - = pump controlled by inverter. - = pump fed from mains. - = pump operation inhibited. - = pump on standby ready to run. - = pump tripped - operation inhibited. - = pump supplied by operator in manual mode.
PAGE 02  	System electrical parameters display page. - **V** = panel supply voltage. - **I t** = System total current draw. - **Pt** = System instantaneous power consumption. - **E** = System total energy consumption. This parameter is updated whenever the operating hours are reset.
PAGE 03  	Pumps operating hours. Page showing the overall hours of run of the motors. To reset alarm AL1 indicated in the monitor page, (pumps maintenance request) hold down the STOP buttons of the respective pump requiring maintenance for more than 3 seconds.

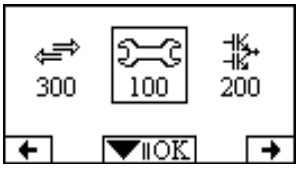
PAGE 04 	Page to display alarms in chronological sequence. If alarms are present, they are shown in descending order from the most recent to the oldest.
PAGE 05 	**PASSWORD input page.** - This page shows 5 zeros in place of the 5 numbers of the password to be entered. **User** password: type **10009** - Press button **SB10** ➤ to select the first number to enter. - Press button **SB10** ➤ to enter the numbers of the chosen password. - Each time you enter a number, press **SB9** ✱ to confirm. After entering the password check to ensure it is correct and then press **SB9** ✱ to confirm the entire password and progress to the next parameters entry pages.

How to access the controller menu.



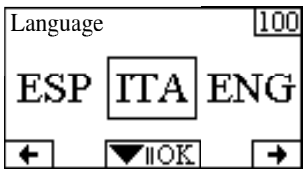
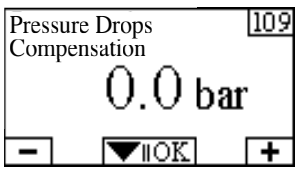
- Press button **SB1** and stop the system;
- Press button **SB8** (in relation to the symbol 🔑): the display will illuminate and you will be granted access to the following pages.
- Press **SB9** ✱ to display the following pages of the menu.

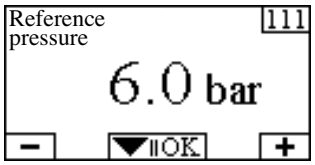
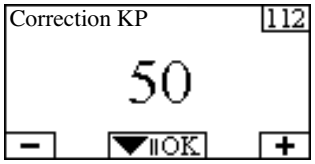
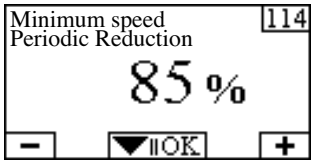
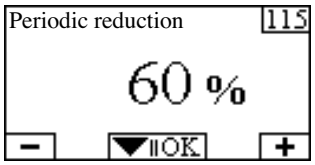
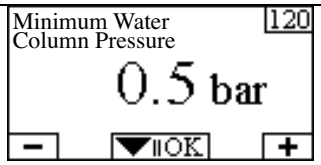
PARAMETERS CONFIGURATION



You can access the various parameters with password 10009

To move between parameters use the buttons under the arrows shown on the display

		Adjustment range	Default Settings
	**[100] Language** Menu language 1) Italian 2) English 3) French 4) German 5) Spanish		Italian
	**[109] Pressure Drops Compensation** Automatic increase (in bar) of Reference Pressure, for cascade starting of pumps.	0.0 – 1.0 bar	Depends on type of set

	**[111] Reference pressure 1** Pressure Setpoint in bar, to keep constant.	0.0 – 25.0 bar	Depends on type of set
	**[112] Correction KP** Instantaneous correction of System Instantaneous Pressure and Reference Pressure.	0 - 250	50
	**[114] Minimum Periodic Reduction Speed** Minimum speed % Set below which stopping of the inverter-driven pump is enabled.	0 - 100 %	90.00 %
	**[115] Minimum speed** Inverter speed % Set to enable stopping of pumps in cascade.	0 - 100 %	60.00 %
	**[120] Minimum Water Column Pressure** Pressure Set to enter on the basis of the water column pressure on the discharge port.	0.0 - 2.0 bar	0.5 bar

TROUBLESHOOTING: ALARMS DISPLAY

Alarms are indicated on the display by means of a numerical code.

The alarms are shown in sequence from the most recent to the first one saved.

Error states		
Display indication	**Description**	**Restart sequence**
AL4	Transducer leads interrupted or inverted.	– Check electrical connections and transducer functionality.
AL8	Pumps jammed, motor phase missing Ampere scale calibration error	– Free pump manually. – Check motor fuses.
AL16	Inverter protection. Alarms code list FC51 given on page 29 of the inverter handbook.	– Disconnect power from control panel. – Wait for 5 minutes and then reconnect power. – If error persists, renew inverter.
AL32	Overpressure	– Stop the system; – Check correct setting of parameter 124
AH2O	Minimum pressure	– Check that the system circuit is full of water. – Enable electric pumps starting.
AL64	No water	– Check that the system circuit is full of water. – Enable electric pumps starting.

2KE - 3KE PUMP SETS
WITH CENTRIFUGAL PUMPS
WITH TWIN OPPOSING IMPELLERS

2 KE Sets

3 KE Sets

CE

GENERAL DATA

Applications

Water lifting sets suitable for civil use: condominiums, hotels, tourism facilities and industry.
The use of K type twin-impeller centrifugal electric pumps, featuring an excellent power-pressure ratio, ensures constancy of flow rate. These pumps are characterised by their rugged construction, compact dimensions, high efficiency and very low noise operation.

Construction features

SETS WITH 2-3 PUMPS

HYDRAULIC SECTION

- 2-3 Horizontal axis twin impeller centrifugal pumps;
- Skid in galvanised steel complete with 4 rubber antivibration feet;
- 1 Ball valve with union and 1 check valve on suction port;
- Flanged discharge manifold in galvanized steel and female plug in galvanized and tropicalized cast iron;
- Ball valve with discharge union;
- Antivibration flexible coupling for connection to discharge line;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for adjustable mounting of the control panel;
- Membrane pressure tanks.

ELECTRICAL SECTION

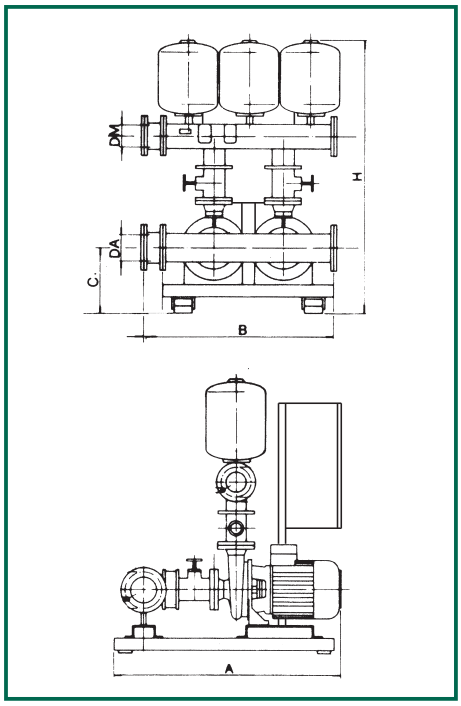
For characteristics of the control panel with inverter refer to the description at the start of this heading.
The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.

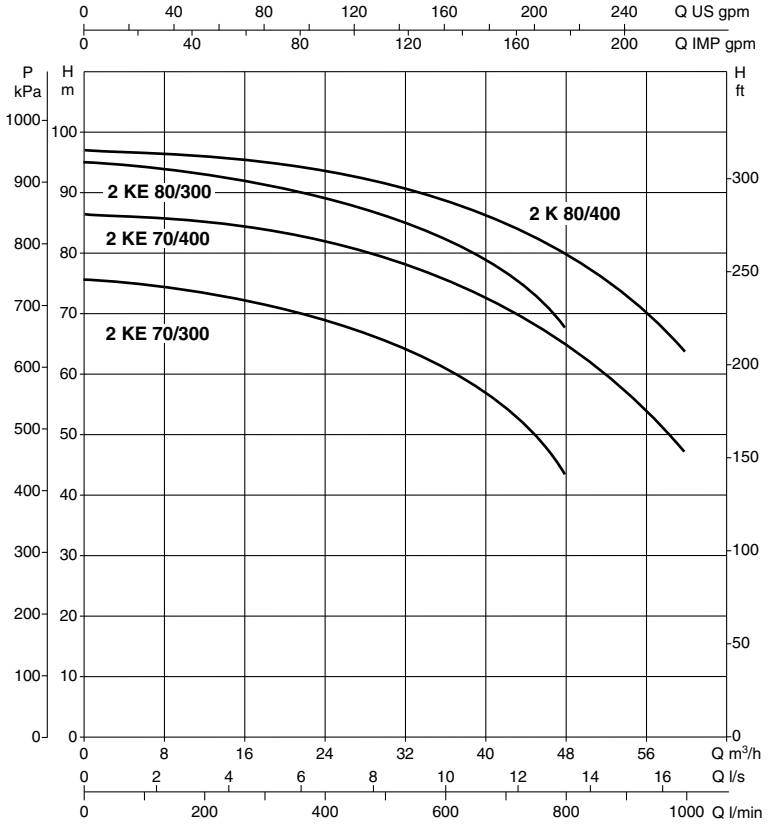
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 62 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
2 KE 70/300	1050	720	200	600	480	1200	DN 80 - PN 10	DN 80 - PN 10	204
2 KE 80/300	1050	720	200	600	480	1200	DN 80 - PN 10	DN 80 - PN 10	209
2 KE 70/400	1050	720	200	600	480	1200	DN 80 - PN 10	DN 80 - PN 10	209
2 KE 80/400	1050	720	200	600	480	1200	DN 80 - PN 10	DN 80 - PN 10	225

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
	50 Hz	kW	HP	A		
2 KE 70/300	3x400 V ~	2x5,5	2x7,5	2x12,3	6 - 48	7,3 - 4,5
2 KE 80/300	3x400 V ~	2x7,5	2x10	2x17,3	6 - 48	9 - 6,5
2 KE 70/400	3x400 V ~	2x9,2	2x12,5	2x17,8	9 - 62	8 - 4
2 KE 80/400	3x400 V ~	2x11	2x15	2x20,6	9 - 62	9 - 5,5

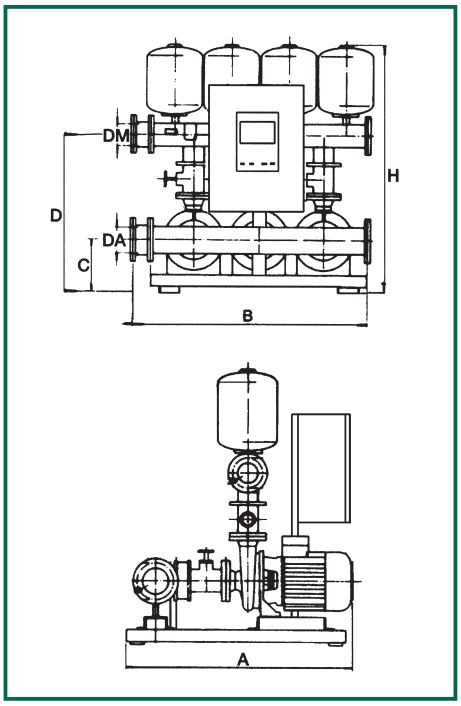
Sets with unit power ratings over 7.5 kW: star/delta starting for the second pump

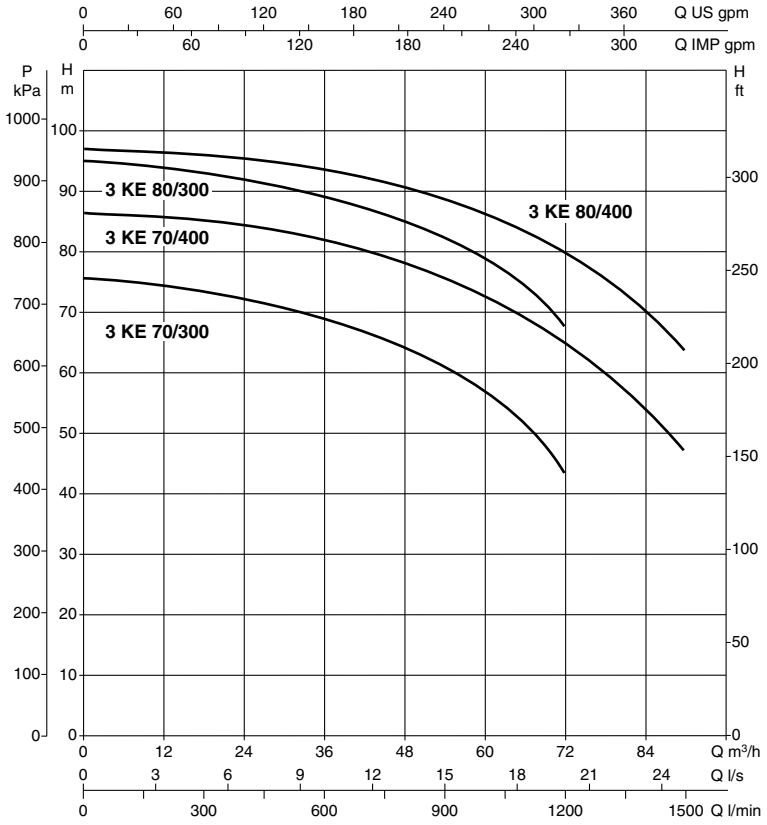
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 93 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
3 KE 70/300	1220	1100	200	595	435	1185	DN 100 - PN 16	DN 100 - PN 16	328
3 KE 80/300	1220	1100	200	595	435	1185	DN 100 - PN 16	DN 100 - PN 16	404
3 KE 70/400	1220	1100	200	595	435	1185	DN 100 - PN 16	DN 100 - PN 16	353
3 KE 80/400	1220	1100	200	595	435	1185	DN 100 - PN 16	DN 100 - PN 16	428

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX	ADJUSTABLE PRESSURE
	50 Hz	kW	HP	A	m³/h	MAX – MIN (bar)
3 KE 70/300	3x400 V ~	3x5,5	3x7,5	3x12,3	6 - 72	7,3 - 4,5
3 KE 80/300	3x400 V ~	3x7,5	3x10	3x17,3	6 - 72	9 - 6,5
3 KE 70/400	3x400 V ~	3x9,2	3x12,5	3x17,8	9 - 93	8 - 4
3 KE 80/400	3x400 V ~	3x11	3x15	3x20,6	9 - 93	9 - 5,5

Sets with unit power ratings over 7.5 kW: star/delta starting for the second and third pumps

2KE - 3KE PUMP SETS
WITH SINGLE IMPELLER CENTRIFUGAL PUMPS

2 KE pump sets

3 KE pump sets

CE

GENERAL DATA

Applications

Pump sets designed for lifting and transfer systems in special industrial and agricultural processes.
The use of “K” type single impeller high flow rate electric pumps makes for simplicity of construction, extreme reliability and rugged construction.

Construction features

SETS WITH 2-3 PUMPS

HYDRAULIC SECTION

- 2-3 Horizontal axis single impeller centrifugal electric pumps;
- Skid in galvanised steel complete with 4 rubber antivibration feet;
- Flanged gate valve, flanged anti water hammer check valve, flexible coupling flanged on the suction port;
- Flanged galvanised discharge manifold complete with galvanized blank flange and flanged gate valve;
- Antivibration flexible coupling for connection to discharge pipe;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for adjustable mounting of the control panel;
- Membrane pressure tanks.

ELECTRICAL SECTION

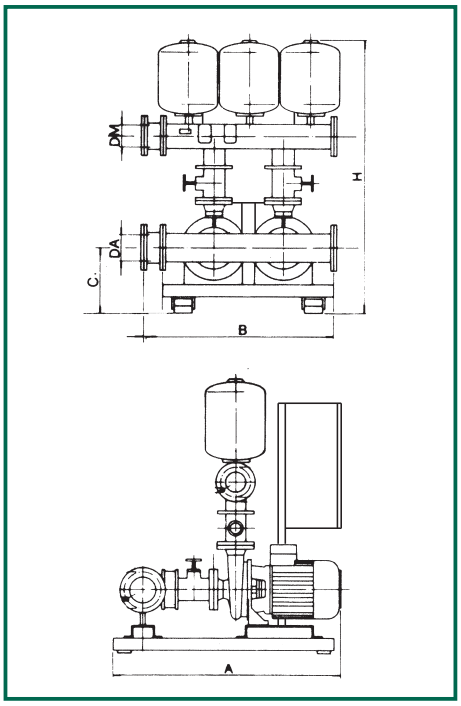
For characteristics of the control panel with inverter refer to the description at the start of this heading.
The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.

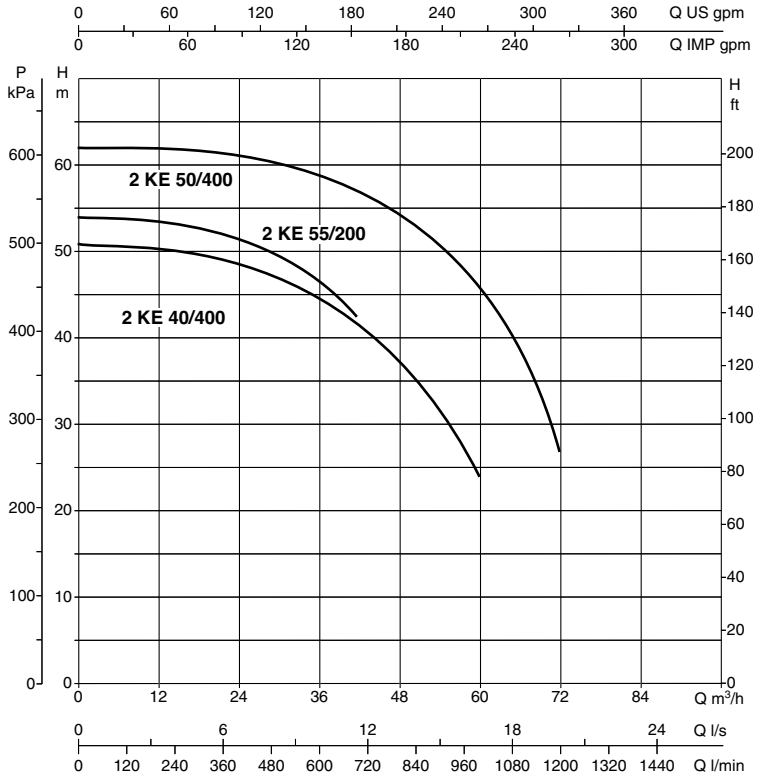
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 72 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
2 KE 55/200	1050	720	200	585	435	1200	DN 80 - PN 10	DN 80 - PN 10	204
2 KE 40/400	1050	720	200	585	435	1200	DN 80 - PN 10	DN 80 - PN 10	485
2 KE 50/400	1050	720	200	585	435	1200	DN 80 - PN 10	DN 80 - PN 10	485

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
	50 Hz	kW	HP	A		
2 KE 55/200	3x400 V ~	2x4	2x5,5	2x9,4	6 - 40	5 - 4
2 KE 40/400	3x400 V ~	2x5,5	2x7,5	2x11,5	12 - 60	4,8 - 2,5
2 KE 50/400	3x400 V ~	2x7,5	2x10	2x15	13 - 66	5,8 - 3,3

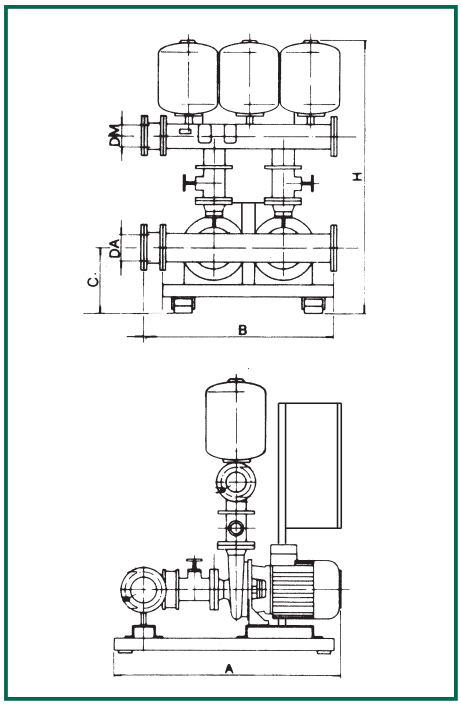
Sets with unit power ratings over 7.5 kW: star/delta starting for the second pump

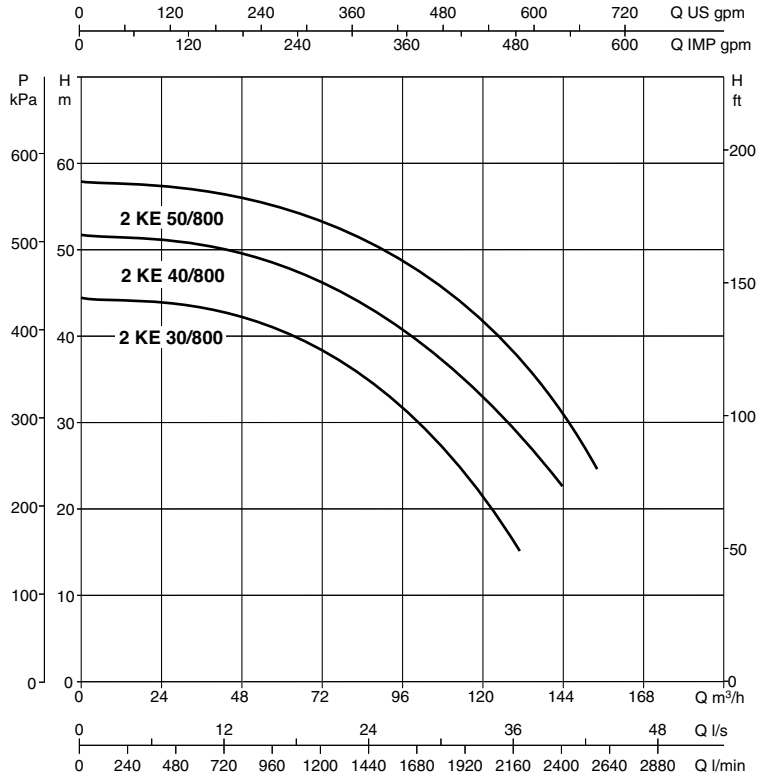
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 156 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
2 KE 30/800	1300	1000	300	805	650	1450	DN 150 - PN 10	DN 125 - PN 10	543
2 KE 40/800	1300	1000	300	805	650	1450	DN 150 - PN 10	DN 125 - PN 10	551
2 KE 50/800	1300	1000	300	805	650	1450	DN 150 - PN 10	DN 125 - PN 10	572

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
	50 Hz	kW	HP	A		
2 KE 30/800	3x400 V ~	2x7,5	2x10	2x14	18 - 126	4 - 2
2 KE 40/800	3x400 V ~	2x9,2	2x12,5	2x18	24 - 132	4,8 - 2,5
2 KE 50/800	3x400 V ~	2x11	2x15	2x20,5	24 - 156	5,4 - 2,4

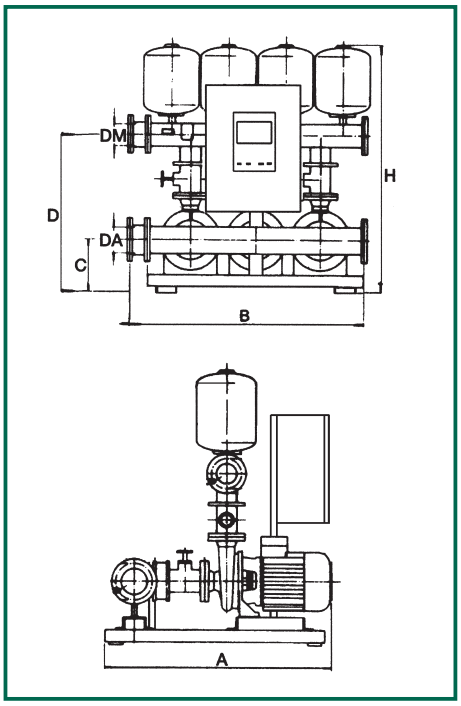
Sets with unit power ratings over 7.5 kW: star/delta starting for the second pump

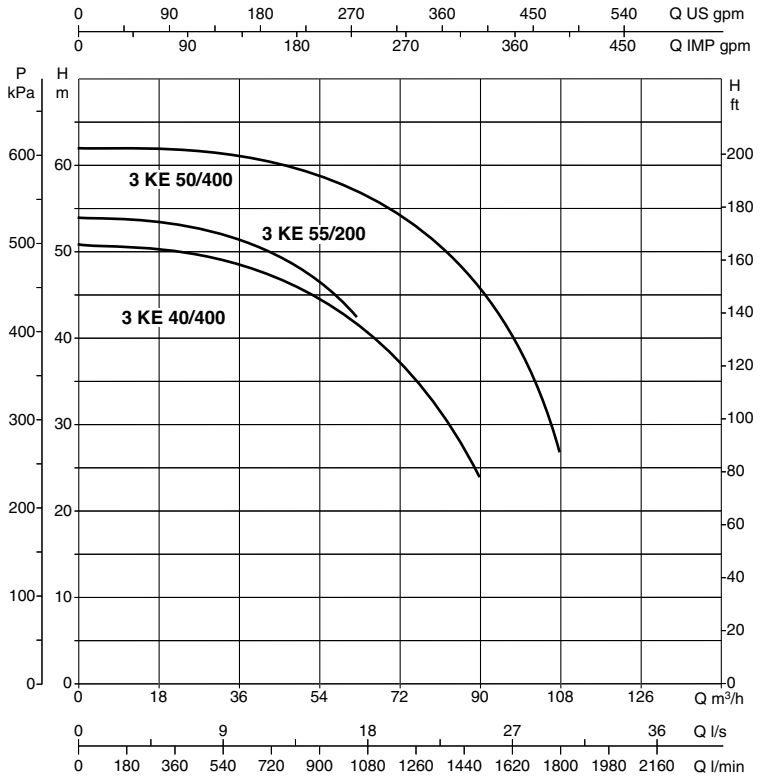
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 108 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
3 KE 55/200	1220	1100	200	595	435	1185	DN 100	DN 100	328
3 KE 40/400	1220	1100	200	595	435	1185	DN 125	DN 125	695
3 KE 50/400	1220	1100	200	595	435	1185	DN 125	DN 125	717

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
	50 Hz	kW	HP	A		
3 KE 55/200	3x400 V ~	3x4	3x5,5	3x16 - 9	6 - 60	5 - 4
3 KE 40/400	3x400 V ~	3x5,5	3x7,5	3x12	12 - 90	4,8 - 2,5
3 KE 50/400	3x400 V ~	3x7,5	3x10	3x15	13 - 99	5,8 - 3,3

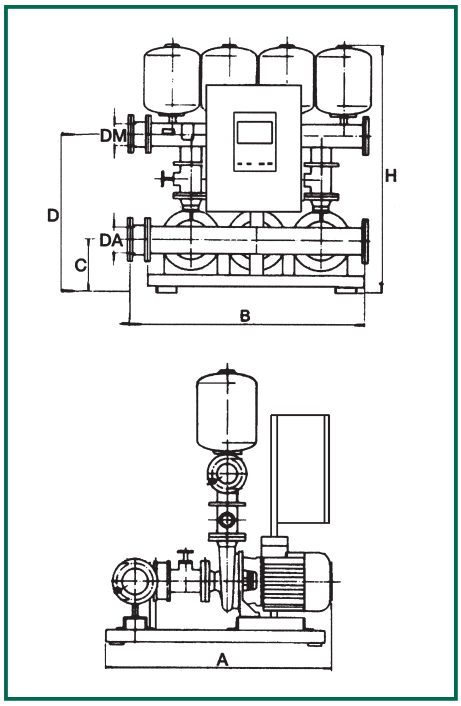
Sets with unit power ratings over 7.5 kW: star/delta starting for the second and third pumps

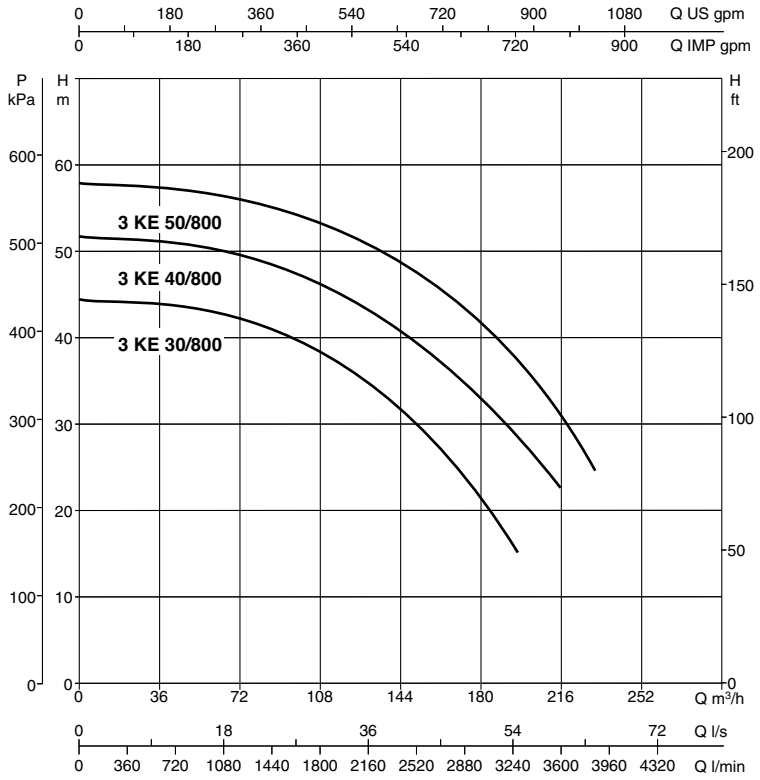
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KE PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 234 m³/h





MODEL	A	B	C	D	E	H	MANIFOLDS		WEIGHT Kg
							DNA	DNM	
3 KE 30/800	1300	1200	300	805	650	1415	DN 150 - PN 10	DN 150 - PN 10	780
3 KE 40/800	1300	1200	300	805	650	1415	DN 150 - PN 10	DN 150 - PN 10	798
3 KE 50/800	1300	1200	300	805	650	1415	DN 150 - PN 10	DN 150 - PN 10	818

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
	50 Hz	kW	HP	A		
3 KE 30/800	3x400 V ~	3x7,5	3x10	3x12	18 - 189	4 - 2
3 KE 40/800	3x400 V ~	3x9,2	3x12,5	3x15	24 - 198	4,8 - 2,5
3 KE 50/800	3x400 V ~	3x11	3x15	3x18	24 - 234	5,4 - 2,4

Sets with unit power ratings over 7.5 kW: star/delta starting for the second and third pumps

2-3 KVE 3 - 6 – 10 PUMP SETS

WITH 2-3 MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMPS

2 PUMPS

3 PUMPS

2 KVE

CE

Applications

Water lifting sets specifically suitable for domestic applications and small systems for civil, agricultural or industrial uses.
The use of multistage vertical axis centrifugal pumps is a guarantee of high performance and efficiency levels.
These pumps are characterised by their compact dimensions, rugged construction, extreme reliability and very low noise operation.

Construction features

SETS WITH 2-3 PUMPS

HYDRAULIC SECTION

- 2-3 vertical multistage electric pumps KV3 - 6 - 10
- Base in tropicalized galvanized sheet steel complete with 4 rubber antivibration feet;
- Threaded suction and discharge manifolds in tropicalized galvanized steel for 2 KV 3-6-10 and 3 KV 3-6 pump sets, flanged manifolds for 3 KV 10 pump sets;
- Plugs or blank flanges to close the manifolds
- Ball valves with union on suction and discharge ports of each pump;
- Check valve on suction port of each pump;
- 2-3 membrane pressure tanks;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for mounting of the control panel;

ELECTRICAL SECTION

For characteristics of the control panel with inverter refer to the description at the start of this heading.

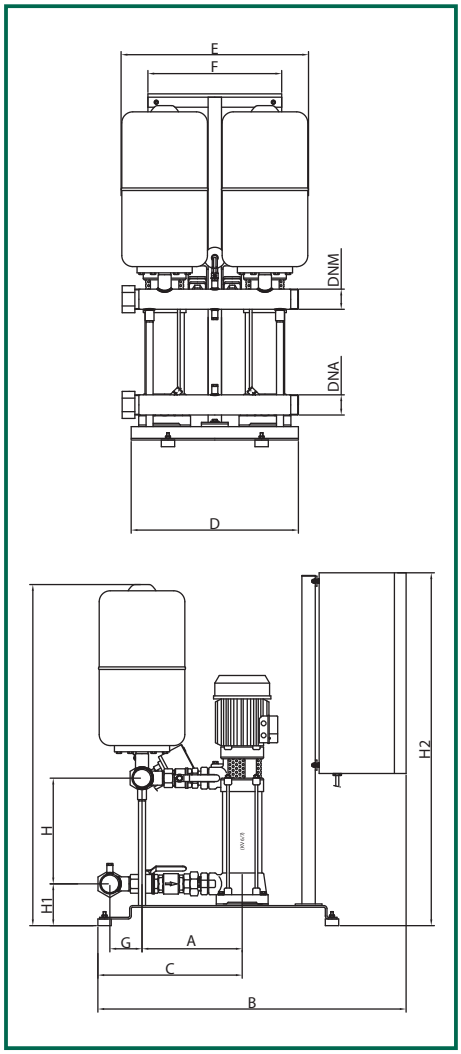
The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.

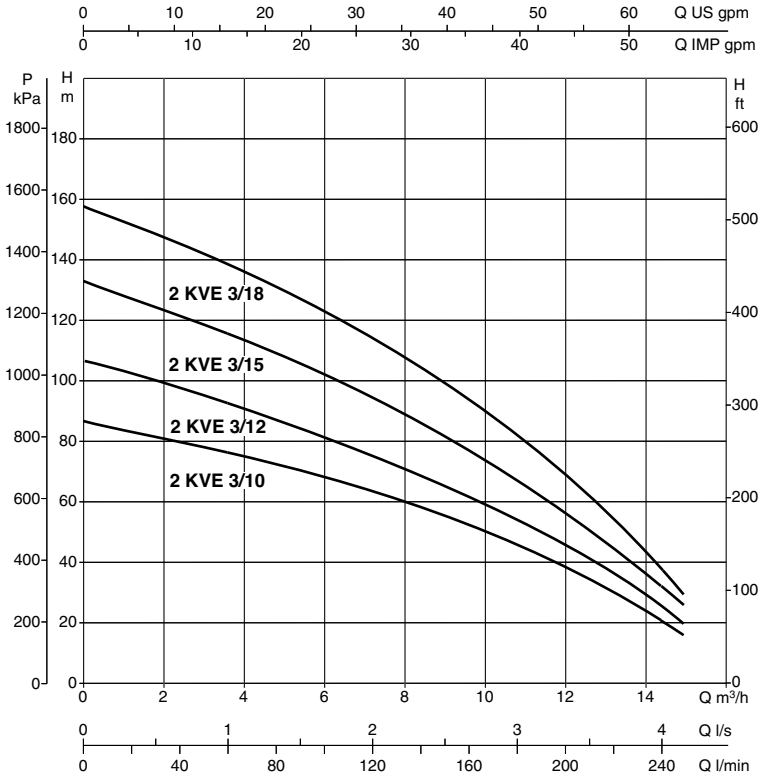
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVE 3 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 16 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
2 KVE 3/10	292	922	432	500	560	400	100	1117	412	1055	2”	2”	123
2 KVE 3/12	292	922	432	500	560	400	100	1181	476	1055	2”	2”	131
2 KVE 3/15	292	922	432	500	560	400	100	1277	572	1055	2”	2”	134
2 KVE 3/18	292	922	432	500	560	400	100	1373	668	1055	2”	2”	141

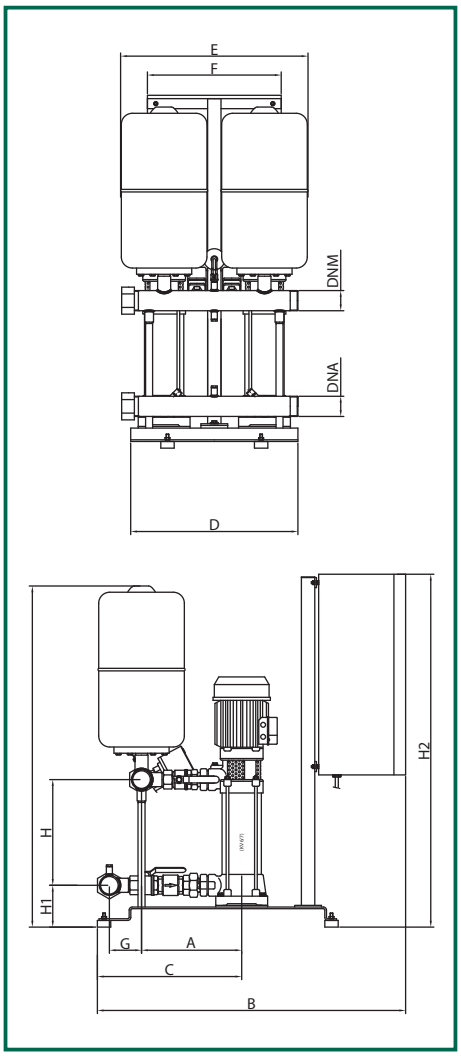
MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
2 KVE 3/10	3x400 V ~	2x1,1	2x1,5	2x3,2	2 - 16	7 - 2
2 KVE 3/12	3x400 V ~	2x1,5	2x2	2x3,7	2 - 16	9 - 2,5
2 KVE 3/15	3x400 V ~	2x1,84	2x2,5	2x4,3	2 - 16	11 - 3
2 KVE 3/18	3x400 V ~	2x2,2	2x3	2x5,8	2 - 16	13 - 4

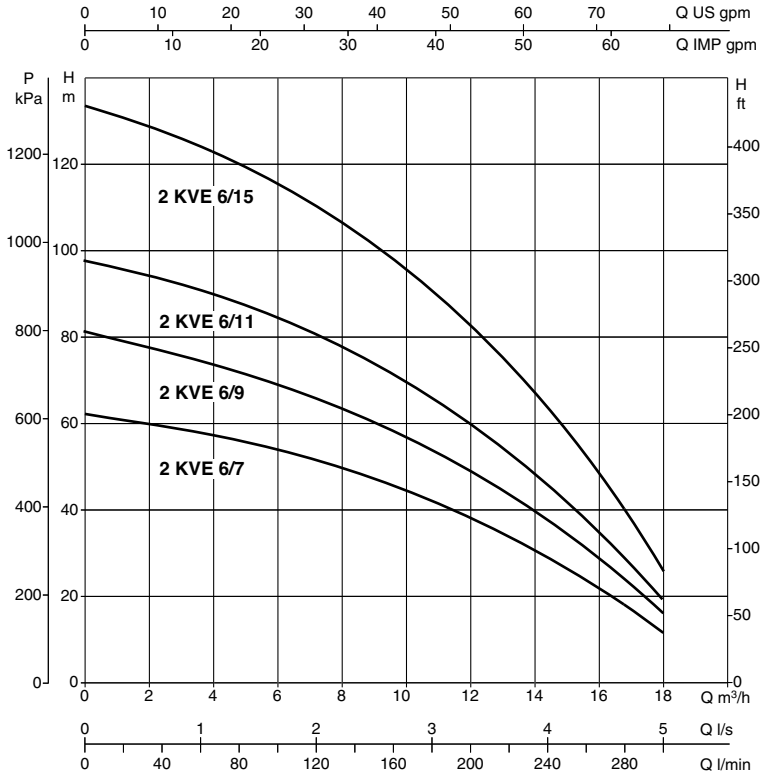
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVE 6 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 18 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
2 KVE 6/7	292	922	432	500	560	400	100	1021	316	1055	2”	2”	125
2 KVE 6/9	292	922	432	500	560	400	100	1085	380	1055	2”	2”	121
2 KVE 6/11	292	922	432	500	560	400	100	1149	444	1055	2”	2”	127
2 KVE 6/15	292	922	432	500	560	400	100	1277	572	1055	2”	2”	147

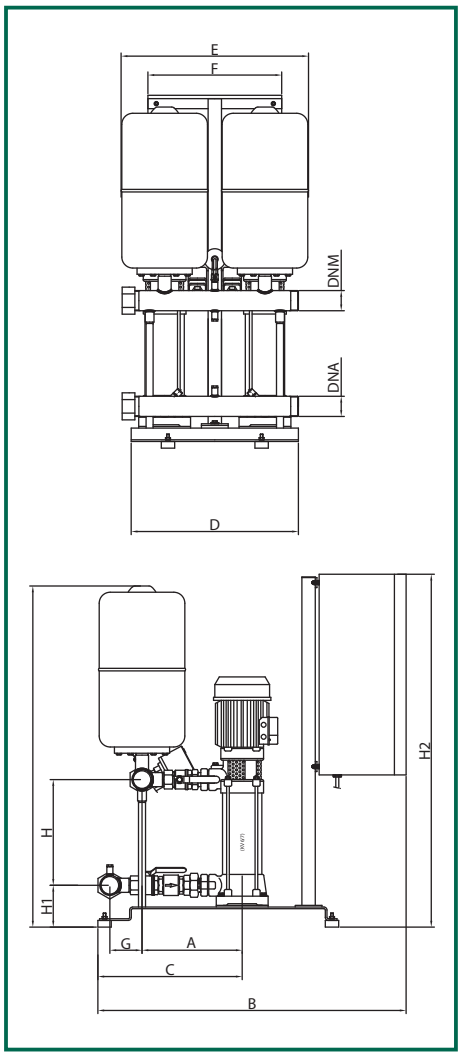
MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
2 KVE 6/7	3x400 V ~	2x1,1	2x1,5	2x2,9	2 - 18	5 - 2
2 KVE 6/9	3x400 V ~	2x1,5	2x2	2x3,6	2 - 18	7 - 2,5
2 KVE 6/11	3x400 V ~	2x1,84	2x2,5	2x4,2	2 - 18	9 - 3
2 KVE 6/15	3x400 V ~	2x2,2	2x3	2x6,3	2 - 18	12 - 4

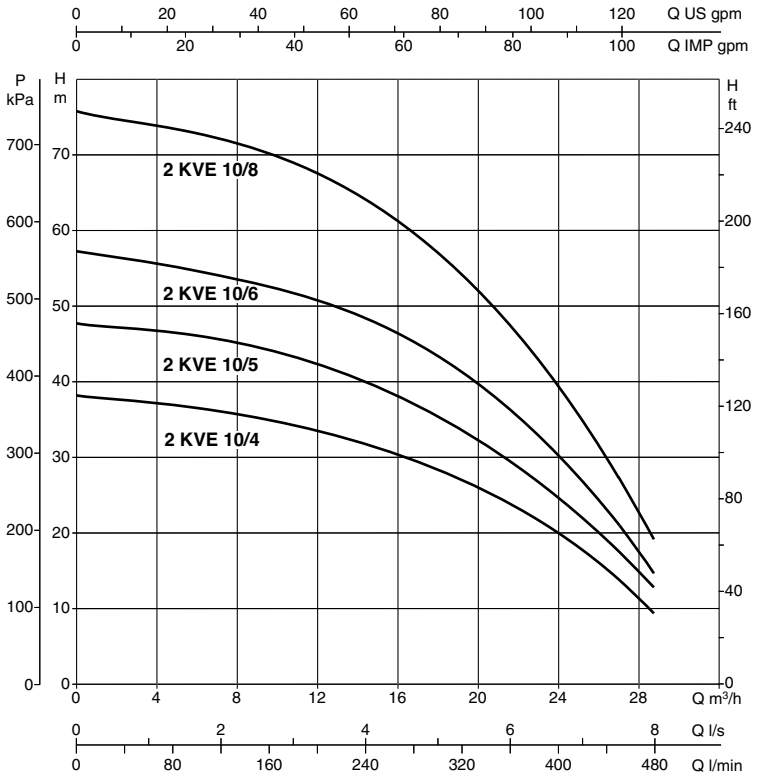
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVE 10 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 29 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
2 KVE 10/4	300	922	432	500	560	400	100	925	220	1055	2 1/2"	2 1/2"	117
2 KVE 10/5	300	922	432	500	560	400	100	957	252	1055	2 1/2"	2 1/2"	130
2 KVE 10/6	300	922	432	500	560	400	100	989	284	1055	2 1/2"	2 1/2"	135
2 KVE 10/8	300	922	432	500	560	400	100	1053	348	1055	2 1/2"	2 1/2"	133

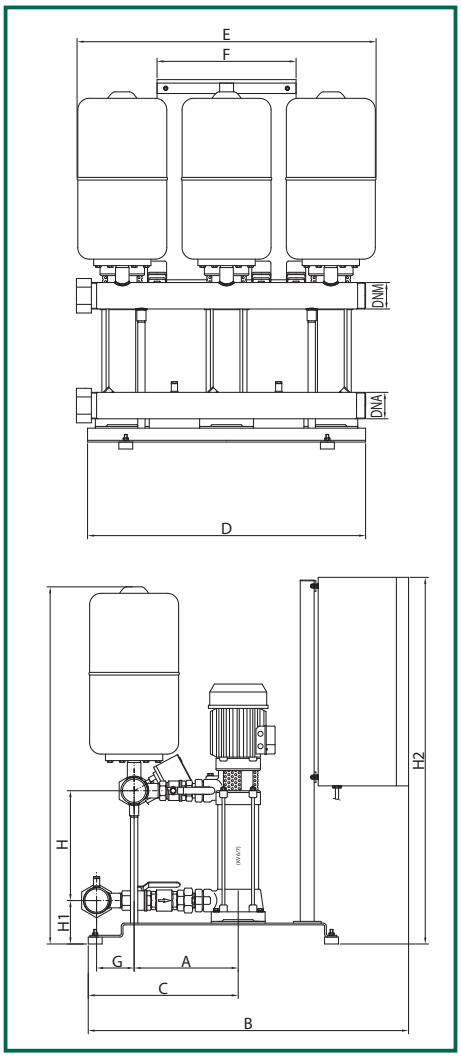
MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
2 KVE 10/4	3x400 V ~	2x1,1	2x1,5	2x3,5	3 - 29	3,5 - 1,5
2 KVE 10/5	3x400 V ~	2x1,5	2x2	2x3,9	3 - 29	4,5 - 2
2 KVE 10/6	3x400 V ~	2x1,5	2x2	2x5	3 - 29	5 - 2
2 KVE 10/8	3x400 V ~	2x2,2	2x3	2x6,8	3 - 29	7 - 3

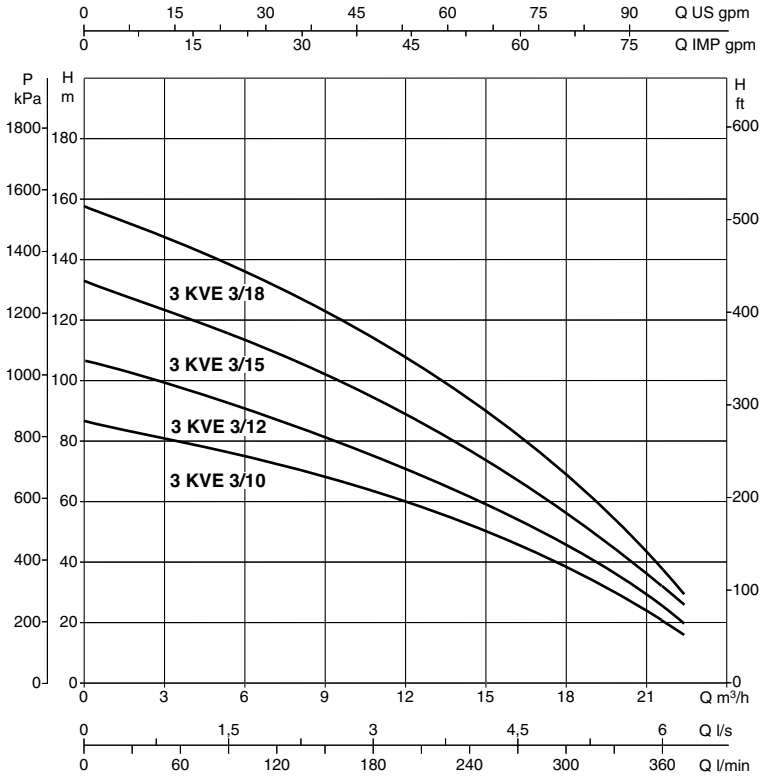
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVE 3 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 24 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
3 KVE 3/10	300	922	432	800	860	400	100	1125	412	1055	2 1/2"	2 1/2"	248
3 KVE 3/12	300	922	432	800	860	400	100	1189	476	1055	2 1/2"	2 1/2"	250
3 KVE 3/15	300	922	432	800	860	400	100	1285	572	1055	2 1/2"	2 1/2"	253
3 KVE 3/18	300	922	432	800	860	400	100	1381	668	1055	2 1/2"	2 1/2"	255

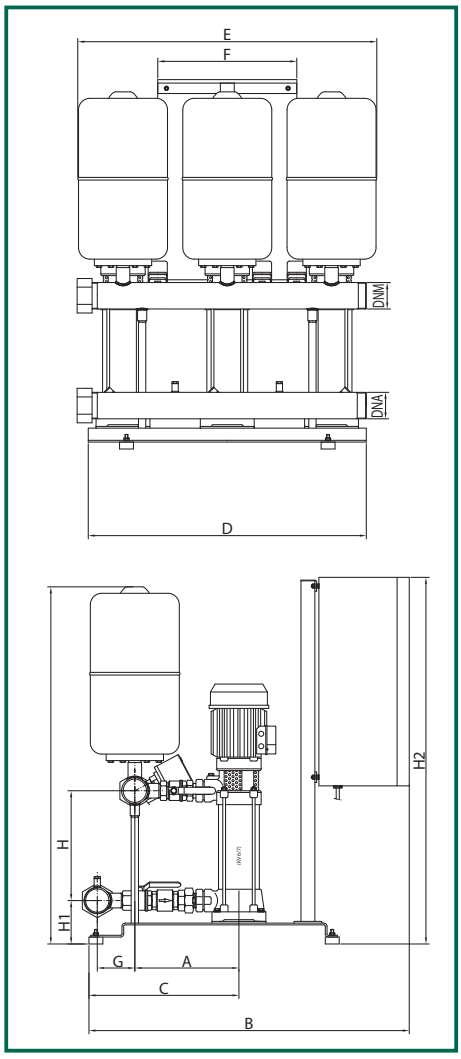
MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
3 KVE 3/10	3x400 V ~	3x1,1	3x1,5	3x3,2	2 - 24	7 - 2
3 KVE 3/12	3x400 V ~	3x1,47	3x2	3x3,7	2 - 24	9 - 2,5
3 KVE 3/15	3x400 V ~	3x1,87	3x2,5	3x4,3	2 - 24	11 - 3
3 KVE 3/18	3x400 V ~	3x2,2	3x3	3x5,8	2 - 24	13 - 4

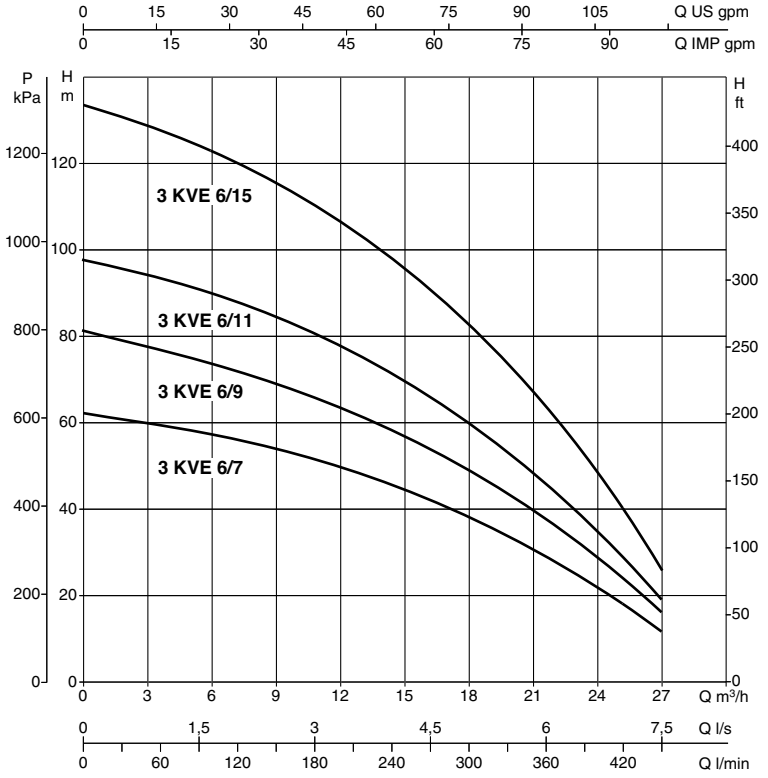
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVE 6 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 27 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
3 KVE 6/7	300	922	432	800	860	400	100	1029	316	1055	2 1/2"	2 1/2"	125
3 KVE 6/9	300	922	432	800	860	400	100	1093	380	1055	2 1/2"	2 1/2"	248
3 KVE 6/11	300	922	432	800	860	400	100	1157	444	1055	2 1/2"	2 1/2"	256
3 KVE 6/15	300	922	432	800	860	400	100	1285	572	1055	2 1/2"	2 1/2"	265

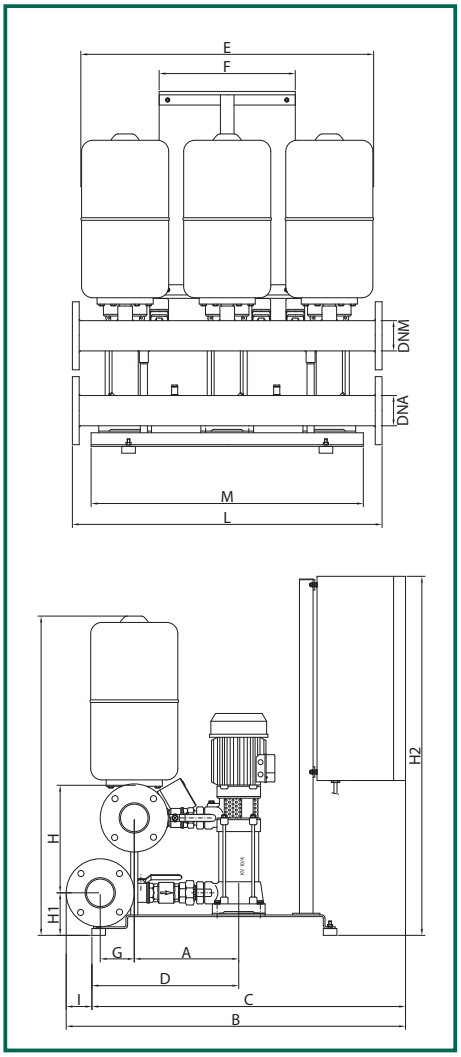
MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
3 KVE 6/7	3x400 V ~	3x1,1	3x1,5	3x2,9	2 - 27	5 - 2
3 KVE 6/9	3x400 V ~	3x1,47	3x2	3x3,6	2 - 27	7 - 2,5
3 KVE 6/11	3x400 V ~	3x1,84	3x2,5	3x4,2	2 - 27	9 - 3
3 KVE 6/15	3x400 V ~	3x2,2	3x3	3x6,3	2 - 27	12 - 4

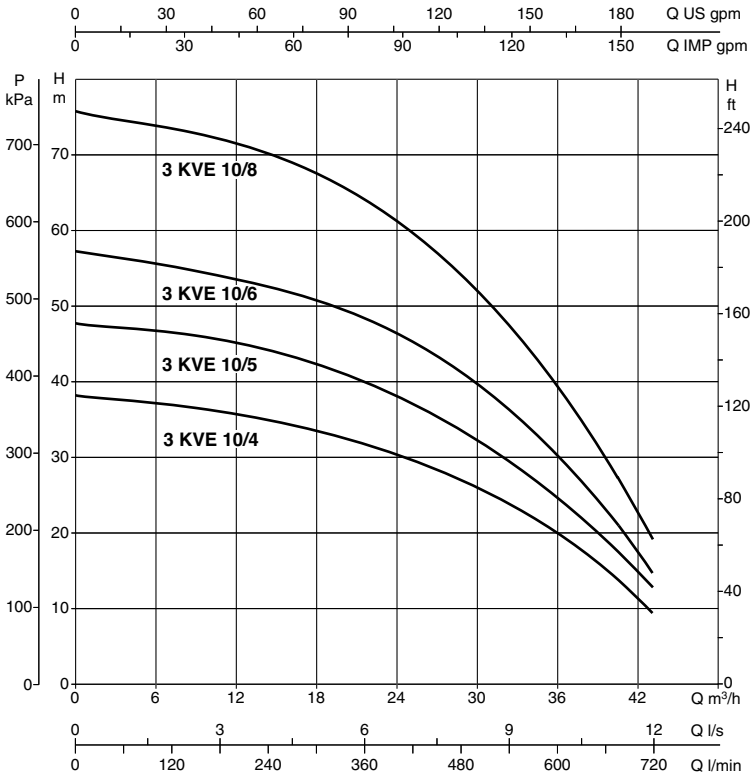
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVE 10 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 43 m³/h





MODEL	A	B	C	D	E	F	G	H	H1	H2	I	L	M	MANIFOLDS DNA	MANIFOLDS DNM	WEIGHT Kg
3 KVE 10/4	307	997	922	432	860	400	100	938	220	1055	76	910	800	DN 80	DN 80	268
3 KVE 10/5	307	997	922	432	860	400	100	970	252	1055	76	910	800	DN 80	DN 80	269
3 KVE 10/6	307	997	922	432	860	400	100	1002	284	1055	76	910	800	DN 80	DN 80	271
3 KVE 10/8	307	997	922	432	860	400	100	1066	348	1055	76	910	800	DN 80	DN 80	267

MODEL	POWER INPUT 50 Hz	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q MIN - MAX m³/h	ADJUSTABLE PRESSURE MAX – MIN (bar)
3 KVE 10/4	3x400 V ~	3x1,1	3x1,5	3x3,5	3 - 43	3,5 - 1,5
3 KVE 10/5	3x400 V ~	3x1,47	3x2	3x3,9	3 - 43	4,5 - 2
3 KVE 10/6	3x400 V ~	3x1,84	3x2,5	3x5	3 - 43	5 - 2
3 KVE 10/8	3x400 V ~	3x2,2	3x3	3x6,8	3 - 43	7 - 3

2NKVE - 3NKVE - 2KVE 50 - 3KVE 50 PUMP SETS
WITH MULTISTAGE VERTICAL AXIS CENTRIFUGAL PUMPS

2 NKVE sets

3 NKVE sets

CE

Applications

Characterised by the use of multi-impeller vertical axis electric pumps, these sets are acclaimed for their high efficiency, application versatility, and very low noise operation. Utilised in large scale civil and industrial installations, selection of these sets must be performed by skilled engineers capable of assessing the effective requirements of the systems on which they are to be installed.

Construction features

SETS WITH 2-3 PUMPS

HYDRAULIC SECTION

- 2-3 Multistage vertical electric pumps NKV 10 - NKV 15 - NKV 20 - KV 50;
- Skid in galvanized steel;
- Flanged suction and discharge manifolds in galvanized steel complete with blank flange;
- Isolator valves on suction and discharge ports;
- Check valve for each pump;
- Radial pressure gauge with isolator valve;
- Galvanized steel column for mounting of the control panel;
- Membrane pressure tanks.

ELECTRICAL SECTION

For characteristics of the control panel with inverter refer to the description at the start of this heading.

The pump sets are supplied in a strong carton on a wooden pallet complete with instruction leaflet and wiring diagram.

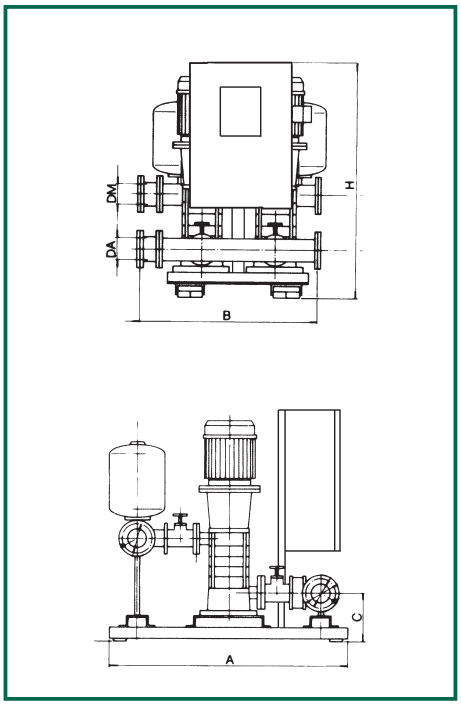
For information on 2NKVE and 3NKVE PUMP SETS.
Please contact our sales network.

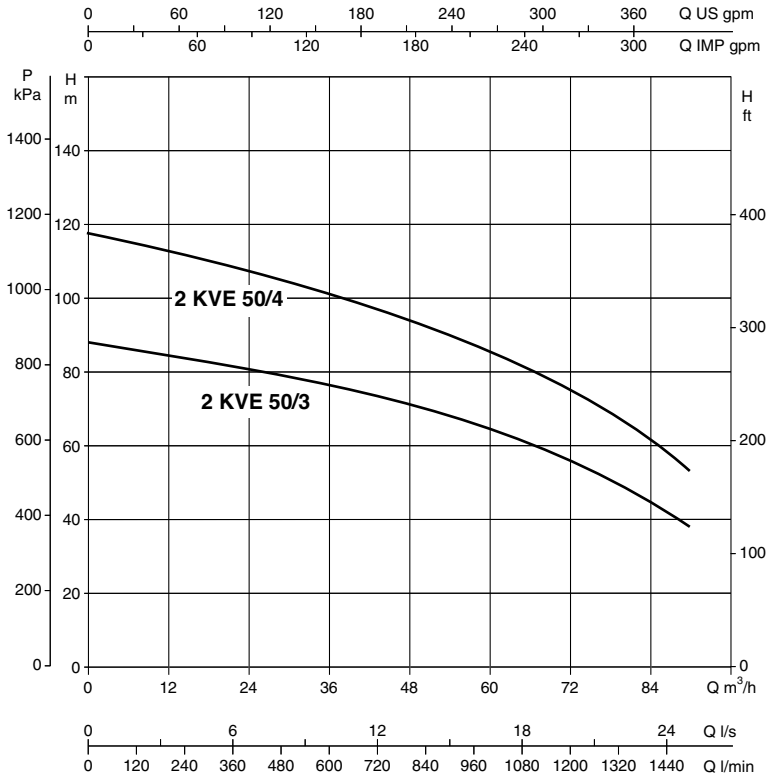
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

2 KVE 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 90 m³/h





MODEL	A	B	C	H max	MANIFOLDS		WEIGHT Kg
					DNA	DNM	
2 KVE 50/3	1400	1000	300	1400	DN 125 - PN 10	DN 125 - PN 16	677
2 KVE 50/4	1400	1000	300	1400	DN 125 - PN 10	DN 125 - PN 16	782

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX	ADJUSTABLE PRESSURE
	50 Hz	kW	HP	A	m³/h	MAX – MIN (bar)
2 KVE 50/3	3x400 V ~	2x9,2	2x12,5	2x18	12 - 90	8 - 4
2 KVE 50/4	3x400 V ~	2x11	2x15	2x22	12 - 90	10 - 5

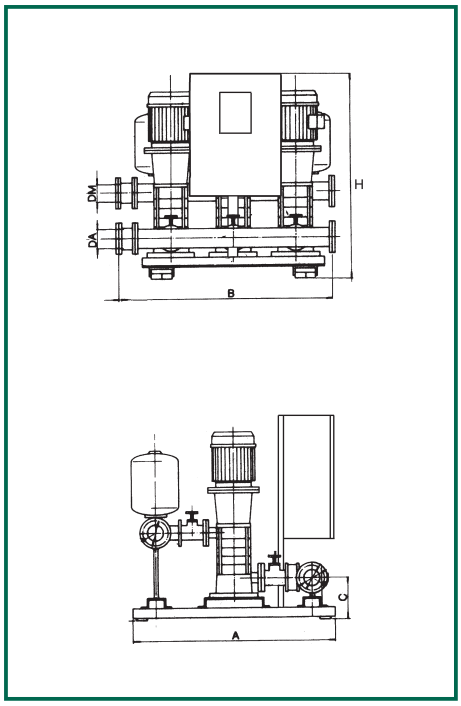
Sets with unit power ratings over 7.5 kW: star/delta starting for the second pump

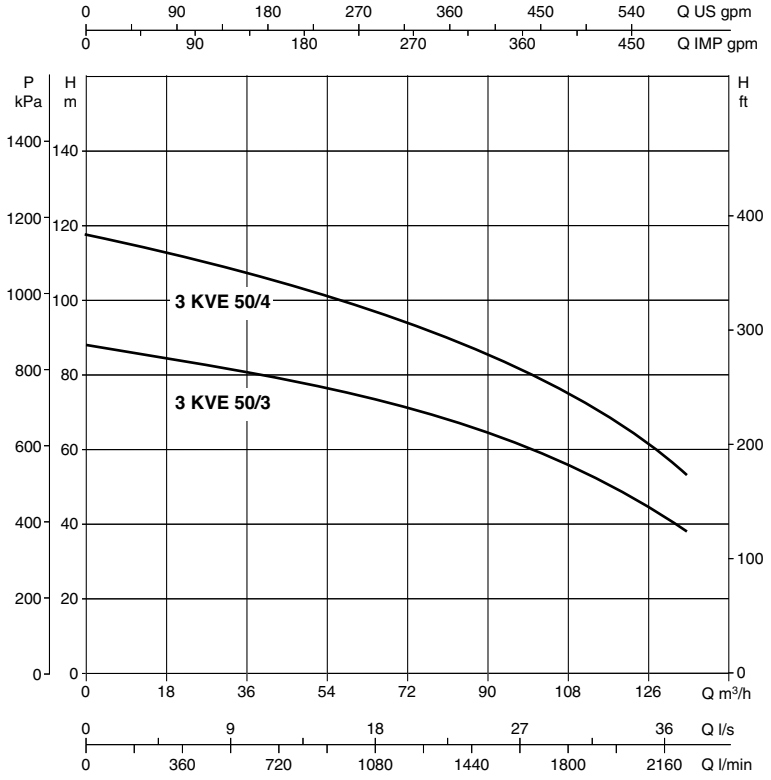
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

3 KVE 50 PUMP SETS

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: +40°C

Maximum flow rate: 135 m³/h





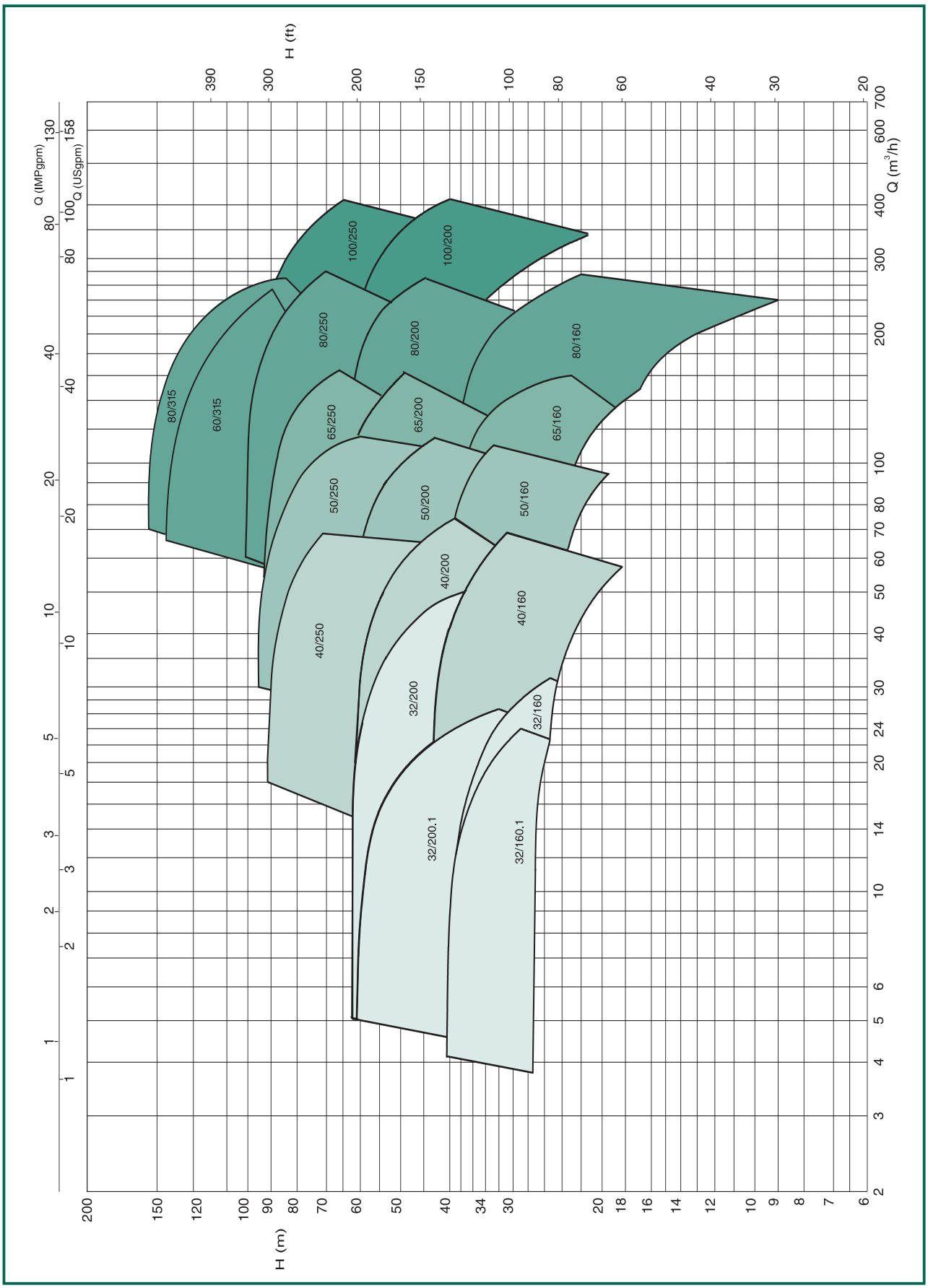
MODEL	A	B	C	H max	MANIFOLDS		WEIGHT Kg
					DNA	DNM	
3 KVE 50/3	1400	1200	300	1400	DN 125 - PN 10	DN 125 - PN 16	1007
3 KVE 50/4	1400	1200	300	1400	DN 125 - PN 10	DN 125 - PN 16	1167

MODEL	POWER INPUT	P2 NOMINAL		In	Q MIN - MAX	ADJUSTABLE PRESSURE
	50 Hz	kW	HP	A	m³/h	MAX – MIN (bar)
3 KVE 50/3	3x400 V ~	3x9,2	3x12,5	3x18	12 - 135	8 - 4
3 KVE 50/4	3x400 V ~	3x11	3x15	3x22	12 - 135	10 - 5

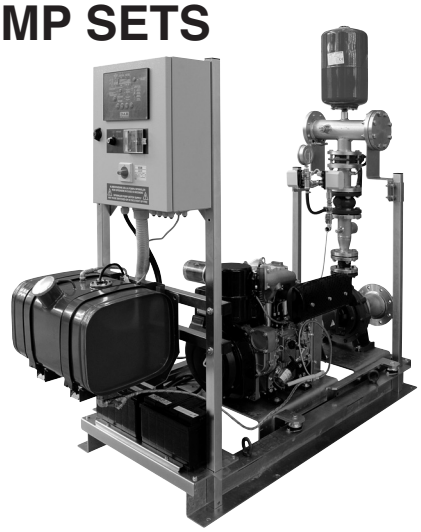
Sets with unit power ratings over 7.5 kW: star/delta starting for the second and third pumps

FIRE-FIGHTING PUMP UNITS TO UNI-EN 12845

SELECTION TABLES



FIRE FIGHTING PUMP SETS
TO UNI EN 12845



CE

GENERAL DATA

NOTES ON UNI EN 12845
UNI EN 12845, the Italian version of European standard EN 12845, establishes design, installation and maintenance criteria for sprinkler systems. This standard replaces the previous Italian standards UNI 9489 and UNI 9490.
An automatic sprinkler system is designed to detect the presence of fire and extinguish it in the initial stages, or to keep flames under control until they can be extinguished fully using ancillary means. The classic sprinkler system is composed of: a water source, a fire-fighting pump unit, a series of control valves, and a sprinklers circuit.

PUMP SETS COMPOSITION
The pumps of EN 12845 sets will have identical characteristics and, in addition:
- if TWO pumps are installed each will be designed to deliver the total flow rate of the system (100%)
- if THREE pumps are installed, each will be designed to deliver 50% of the total flow rate

"In applications in which more than one pump is installed with higher or duplicated feed, only one of the pumps will be electrically driven (10.2)".
It therefore follows that in the case of higher or duplicated feeds, the units will be composed of:

- 1 pump driven by an electric motor or Diesel engine (100 %)
- 1 electric pump + 1 Diesel pump (100% + 100%)
- 1 electric pump + 2 Diesel pumps ? (50% + 50% + 50%)
- 3 Diesel engine pumps ? (50% + 50% + 50%)

In the case of a single water supply, there are no limits restricting the number of electric pumps that can be installed. DAB PUMPS supplies modular pump sets, thus making it possible to configure all the versions envisaged by EN 12845.

OPERATION OF EN 12845 FIRE-FIGHTING PUMPS SET
In normal conditions (zero water demand) the system is maintained under static pressure. The first demand for water results in start-up of the jockey pump, which restores system pressure. If a significant flow rate of water is demanded (opening of sprinklers), the pressure will drop until two pressure switches connected in series trip to start up the main pump (electric or Diesel). The pressure switches are calibrated in such a way as to start the pumps at the following pressure values:

Sets with one pump	Max. pump pressure x 0.8	
Sets with two pumps	Pump 1 Max. pressure x 0.8	Pump 2 Max. pressure x 0.6

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

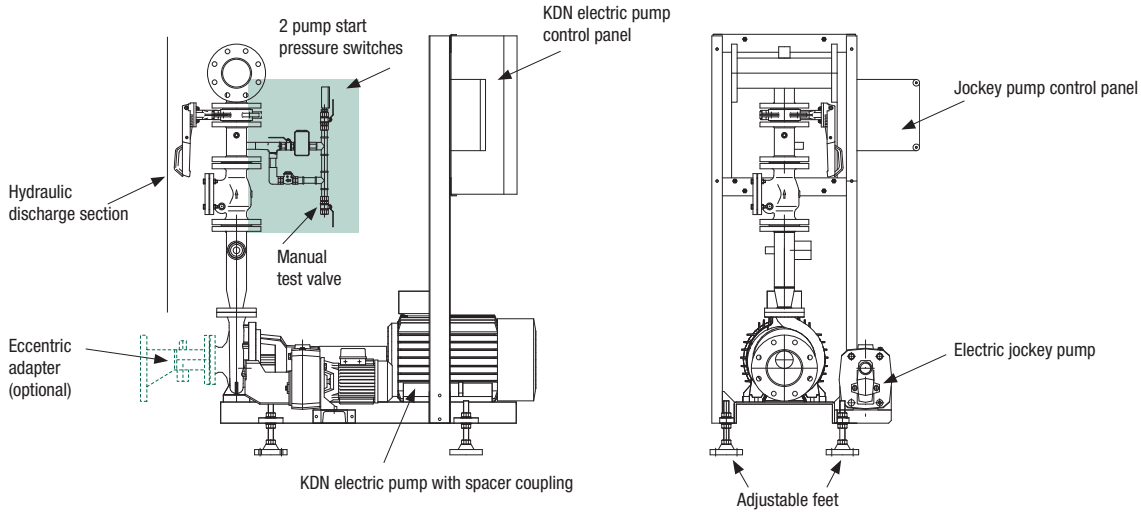
The main pump continues to run until it is **stopped manually** by pressing the STOP *pushbutton on the control panel.*
In the case of hydrant circuits, refer to UNI 10779 – July 07. Apart from prescribing feed pumps in compliance with UNI EN 12845, UNI 10779 allows automatic stopping of the pumps 20 minutes after closing of the hydrants, in the case of operation that is not permanently supervised. DAB pump sets are suitable for sprinkler installations with manual stopping and for hydrant installations with automatic stopping.

EN 12845 PUMPS
EN 12845 (10.1) prescribes "Horizontal (preferable) or vertical pumps, with identical maximum head and head at zero flow rate. The pumps can be driven by an **electric motor or Diesel engine.**
For pre-calculated HHP and HHS systems, the pumps will be capable of delivering 140 % of the flow rate at 70 % of the head of the working point (100%). The coupling between prime mover and pump must be such as to ensure that both prime mover and pump can be removed independently in such a way that the internal parts of the pump can be renewed without affecting the pipelines. Pumps with axial suction will be of the back pull-out type.
In order to meet the foregoing requirements in full, DAB uses standardised pumps with **spacer coupling**, both in the version with electric motor and in the version with Diesel engine.

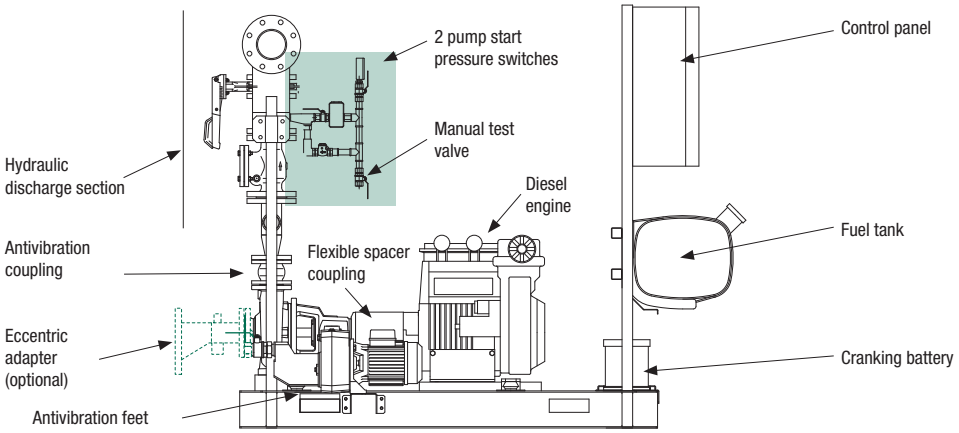
JOCKEY PUMP
The pressure compensation or "jockey" pump cuts in following minor water demands. This therefore avoids unnecessary starting of the main pumps to compensate for minor leaks in the water circuit. DAB fire-fighting sets are available with or without a jockey pump.

COMPONENTS OF SETS TO UNI EN 12845

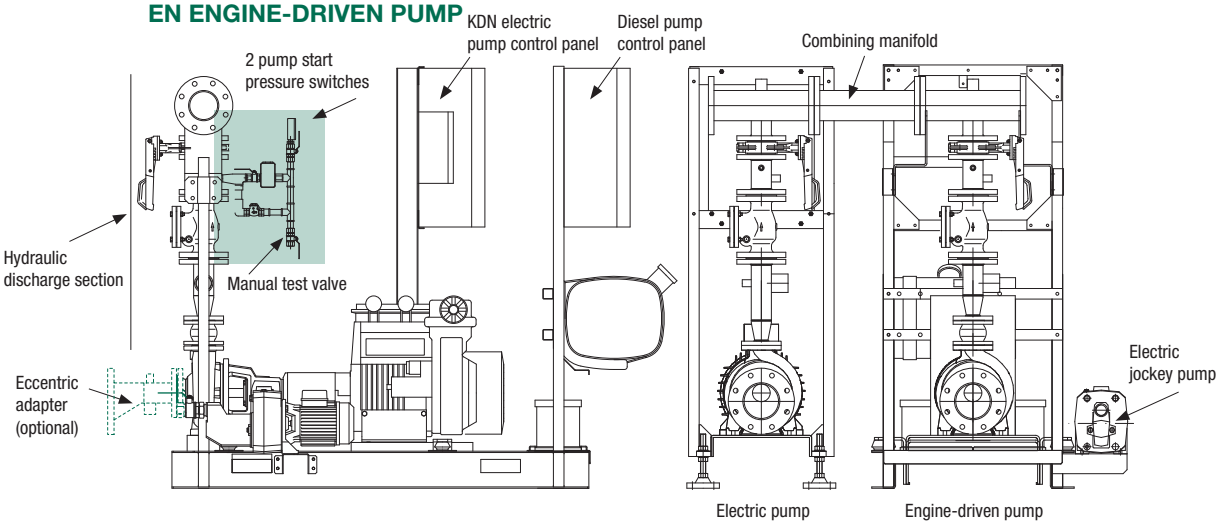
EN ELECTRIC PUMP SET



DIESEL PUMP SET



EN ELECTRIC PUMP
EN ENGINE-DRIVEN PUMP



EN 12845 ELECTRIC PUMP

MECHANICAL STRUCTURE
Standardised KDN electric pump on skid, pump body and impeller in cast iron (bronze impeller on request).
Coupled by means of flexible spacer coupling to asynchronous three-phase electric motor designed to deliver the max. power absorbed by the KDN pump.
Electric pump control panel mounted on KDN pump skid

HYDRAULIC STRUCTURE
Axial suction port. Eccentric diverter adapter (supplied as an accessory).
Max. flow rate of water at pump suction side 1.5 m/s (10.6.2.3)
Radial discharge port, with concentric diverter adapter, 2" connection for priming tank (only installations with negative suction), check valve, circuit with 2 start-up pressure switches, isolator valve (with manual DN125 reduction), galvanized discharge manifold.

ELECTRIC PUMP CONTROL PANEL FUNCTIONS
The electric pump control panel, housed in an IP 55 metal enclosure, is equipped with the following components:

Interior of cabinet: main door lock disconnect switch,
fuses (max. current relays – motor protection cut-outs are not permitted),
direct starters for pumps up to 7.5 kWatt,
star-delta starters for pumps above 7.5 kWatt,
24V control circuits transformer,
control circuits relay,
terminal board.

On front panel: electric pump control unit,
multifunction instrument with display (voltmeter, ammeter, cosfì metre, wattmeter, alarms),
start and stop pushbuttons,
indicator lights,
indicator light with test pushbutton,
AUT - 0 - MAN selector with key removable in AUT position,
lamp test pushbutton.

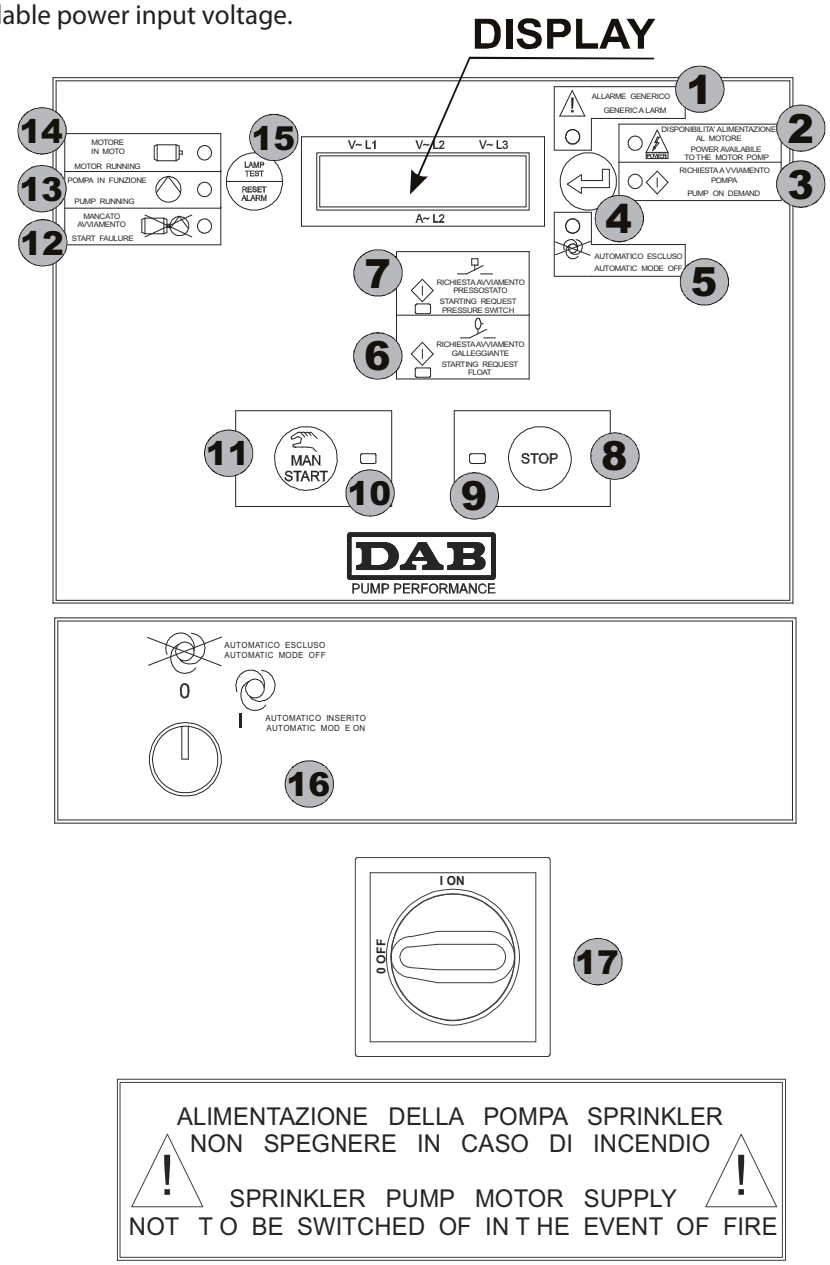
Includes following N.O. contacts on the terminal board, to be connected to our remote signals panel:
power/phase presence, pump start request, pump running, failed starting.
The panel is prearranged for installation of a GSM Modem (optional) so that pump set alarm and/or functional status information can be sent by SMS mobile text messages.

JOCKEY PUMP
If present, a jockey pump connected to the electric pump or Diesel pump discharge manifold, complete with:
ball valve on suction side,
check valve and ball valve on discharge side,
pressure switch,
20 litre expansion vessel,
protection panel.

CENTRALINA DI CONTROLLO E COMANDO ELETTROPOMPA

The A1 electronic pump controller supplied with the control panel offers the following features: automatic starting by pressure switches or the suction float switch, manual starting, automatic surveillance of pump set faults and incorrect or unavailable power input voltage.

Fig.1



Ref.	Function
1	Generic alarm indicator light
2	Motor power supply OK indicator light
3	Pump START request indicator light
4	Press to display instruments
5	Automatic start inhibited indicator light
6	Indicator light for START request from tank float switch
7	Indicator light - START request (call) from pressure switches
8	MANUAL STOP pushbutton
9	Indicator light - MANUAL STOP with STOP pushbutton

Ref.	Function
10	Indicator light - MANUAL START with MAN START pushbutton
11	MANUAL START pushbutton
12	Failed start indicator light
13	Indicator light - ELECTRIC PUMP RUNNING with motor running, as detected by electric pump run pressure switch
14	Indicator light – MOTOR RUNNING as per current sensing check
15	Lamp test / reset pushbutton
16	Automatic inhibit selector
17	Power disconnect switch

EN 12845 DIESEL PUMP

MECHANICAL STRUCTURE
Standardized KDN pump, pump body and impeller in cast iron (bronze impeller on request).
Coupled by means of flexible spacer coupling to air or liquid-cooled Diesel engine (with water-water heat exchanger on request) designed to deliver the max. power absorbed by the KDN pump in compliance with ISO 3046.
Galvanized steel skid supporting KDN pump, Diesel engine, control panel and fuel tank.
System for damping vibration transmitted by the Diesel engine by means of rubber antivibration feet.
Fuel tank sized for 6 hours of continuous running; two cranking batteries.

HYDRAULIC STRUCTURE

Axial suction port. Eccentric diverter adapter (supplied as an accessory).
Max. water flow rate at pump suction side 1.5 m/s (10.6.2.3)
Flanged antivibration coupling on radial discharge port, with concentric diverter adapter, 2" connection for priming tank (only installations with negative suction), check valve, circuit with 2 start-up pressure switches, isolator valve (with manual DN 125 reduction), galvanized discharge manifold.

CONTROL PANEL FUNCTIONS

The Diesel pump control panel, housed in an IP 55 metal enclosure, is equipped with the following components:

Interior of cabinet: main door lock disconnect switch, fuses, two switching battery chargers, control circuits relay, terminal board.

On front panel: pump control unit, multifunction instrument with display (voltmeter, ammeter, rev counter, duty hours counter, fuel level gauge, oil pressure gauge) start and stop pushbuttons, indicator lights, TEST button for first start-up (*), AUT - 0 - MAN selector with key removable in AUT position.

Includes following N.O. contacts on the terminal board, to be connected to our remote signals panel: pump running, selector not on AUT, failed starting, control panel and/or batteries fault.
The panel is prearranged for installation of a GSM Modem (optional) so that pump set alarm and/or functional status information can be sent by SMS mobile text messages.

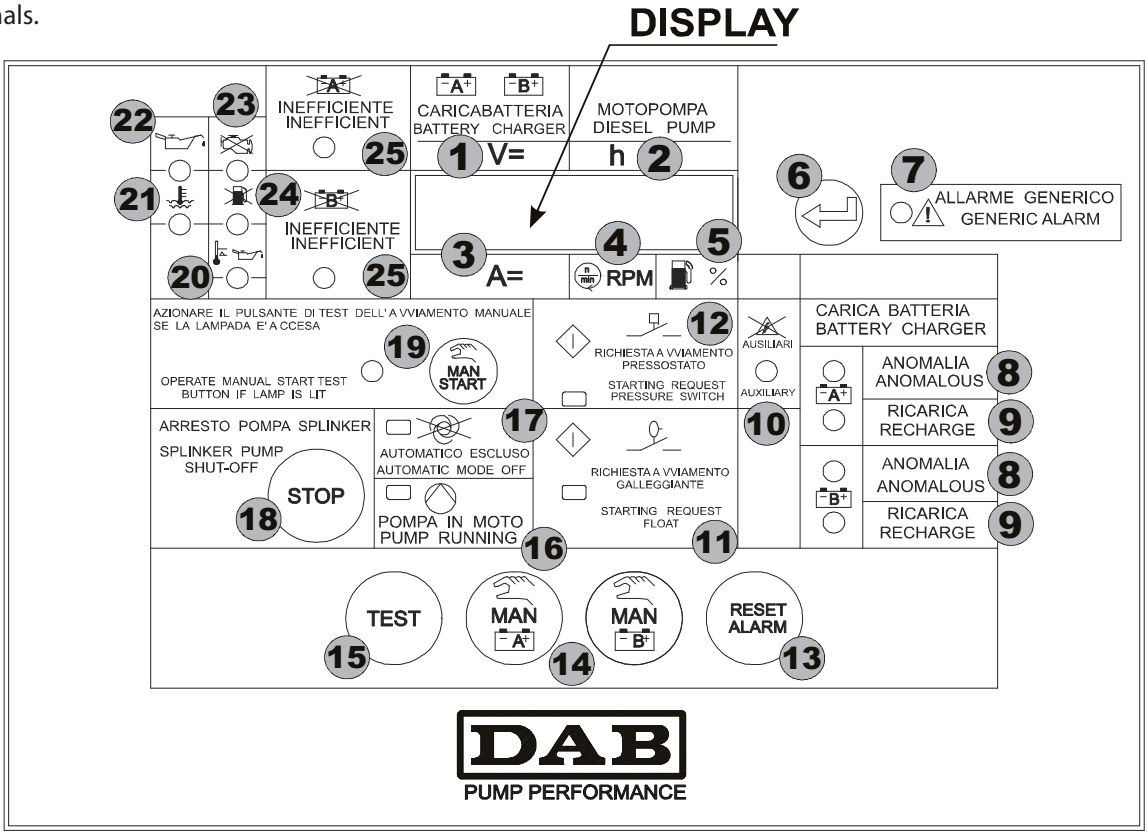
The panel receives the signal from the pressure switches and starts the pump, even during mains power loss conditions. Pump running status is detected by means of a speed sensor signal (10.9.7.5)
The panel is equipped with a starting system with two 12V batteries (10.9.8.)
If one of the batteries is faulty, the panel automatically cranks the engine with the other battery (6 alternated starts)

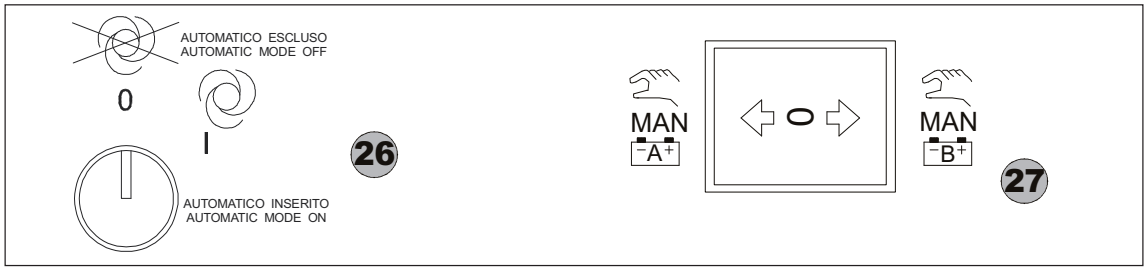
(*) When the Diesel pump is commissioned on site, the failed starting alarm must be checked (EN 12845 10.9.13.2). *For this purpose there is a TEST pushbutton on the front panel to simulate 6 alternated start attempts using the two batteries without supplying fuel to the engine. At the end of the test the failed starting alarm is activated (indicator light + N.O. contact)*

DIESEL PUMP CONTROLLER

The A1 electronic pump controller supplied with the control panel offers the following features: automatic starting with 6 alternate pulses on the 2 batteries, with starter gear engaged check, manual starting, batteries efficiency check specifically, during starting stage, automatic surveillance of pump set faults and display of battery charge signals.

Fig.1





Ref.	Function
1	Battery charger A and B voltmeters
2	Hour meter
3	Battery charger A and B ammeters
4	Rev counter
5	Fuel level gauge
6	- Press briefly to show instruments - Hold down for LED test
7	Generic alarm
8	Fault detected by battery charger during battery charge duty
9	Battery charger ON
10	Battery chargers mains power loss alarm
11	Start Request from pump priming tank float switch
12	START request (call) from pressure switches
13	Reset faults

Ref.	Function
14	Manual start of engine-driven pump with batteries A and B (always active)
15	Start test
16	Engine-driven pump running
17	Automatic mode inhibited
18	Engine-driven pump set stop pushbutton
19	Manual start test indicator light and pushbutton
20	Oil or water heater not functioning
21	Overtemperature alarm
22	Low oil pressure alarm
23	Failed starting alarm
24	Low fuel alarm
25	Battery A and B not functional alarm
26	Automatic inhibit selector
27	Pushbutton under breakable cover for emergency start with battery A or B

FIRE PUMP HOUSES

The Italian reference standard for correct construction of technical premises to accommodate fire pump units is **UNI 11292** (August 2008). The following section contains excerpts from the standard.

Location of pump house
The pump house must be above the ground or underground and separate from, adjoining, or inside the protected building
- Access must be easy (also when the set is running) and clearly signed.
- The doors to the room, which must be made of fireproof material, must be at least **2 m high and 80 cm wide.**
- The facility for easy entrance / removal of the main components of the fire pump unit must be guaranteed.

Characteristics of the pump house
- The rooms must be naturally ventilated with permanent openings (at least 0.1 m^2)
- The interior walls must be light in colour, preferably white.
- Minimum dimensions must be such as to allow maintenance work to be performed in conditions of safety.
- The height of the room must be at least 2.4 m.
- Dimensions of the interior work space around the pump set must be at least **0.8 m on at least three sides of each set.**

Functional characteristics
- The 200 lux lighting system must provide a guaranteed minimum of 25 lux for 60 minutes in the case of a mains power outage.
- The room must be equipped with a **drainage system to expel any collected water.**
- Underground pump houses must be connected to the sewerage system, providing a water flow rate of at least **20 m^3/h**.

If this is not possible, a minimum of **TWO drainage pumps is required (one duty and one back-up)** having a flow capacity of at least 5% of the maximum flow rate of the fire pump unit (and anyway **no less than 10 m^3/h).**
One of said pumps must be connected to an emergency power supply providing run time of at least 30 minutes in the case of a mains power outage.
- A drain pump fault condition must be signalled in a manned station.

Operations for Diesel pumps.
A diesel-engine pump, although more reliable than an electric pump (because a Diesel engine is operational also during mains power losses), calls for special precautions to prevent excessive noise levels, vibration, exhaust gas contamination, and overheating.

The following section lists several precautions to be taken to ensure the unit functions with the maximum possible efficiency.

Diesel pump exhaust gas.
Always route exhaust gas to the exterior of the pumps room by means of dedicated ducting connected to the exhaust silencer supplied with the Diesel pump.

The exhaust duct must run at least 2.4 m above the reference surface (UNI 11292), at least 1.5 m from doors, windows, etc. (UNI 11292), and must also be protected from the weather and equipped with a drainage system to remove any accumulated condensate

In order to remain below the maximum exhaust back pressure value (600 mm w.g. for air-cooled engines and 1000 mm w.g. for turbocharged – liquid cooled engines), comply with the following prescriptions:
• exhaust ducts must be no longer than 10 metres
• the cross section of the duct must be at least equal to the cross section of the engine exhaust pipe

For the calculation of the duct cross-section for lengths in excess of 10 metres, increase the section by 10% for each 10 metres of ducting. E.g. 50 mm duct L 20m S= (50mm + 10%) + 10% at least 55.5mm. Minimise the number of bends (max. 6), and fit the widest radius bends possible.
It is essential to avoid contamination of the fire pumps water tank in the event of fuel spills from the pump fuel tank.
For this purpose DAB can supply an optional detention tank to be installed under the Diesel pump fuel tank.

Diesel pumps ventilation
For optimal operation the heat irradiated from the engine must be dispersed to the exterior of the pumps room.
The engine also requires a suitable supply of clean air for the combustion process.

In the majority of cases natural circulation caused by the temperature difference between the interior and exterior is insufficient.The following measures must therefore be adopted (UNI 11292 5.4.2)
• air intake opening, protected by a grille, having a net surface area of at least twice the surface area S of the cooling device (e.g. water radiator).
• warm air expulsion opening, protected by a grille, having a net surface area of at least 1.5 times the surface area S of the cooling device.
In the case of engines with a water-water cooler, the surface area S (m^2) will be – 0.002 x engineP (kW)
In this case, surface S of the ducts / openings must be at least 0.15 m^2.

A fan must be installed for extraction of air from the pump house, with back-up power supply to ensure continuity of operation also during power outages:
• with air-cooled engines
• with engines having a water-water cooler *
(*where ventilation openings cannot be provided)

Fan airflow – air-cooled engines
Q (m^3/h) = 100x Engine power (kWatt)

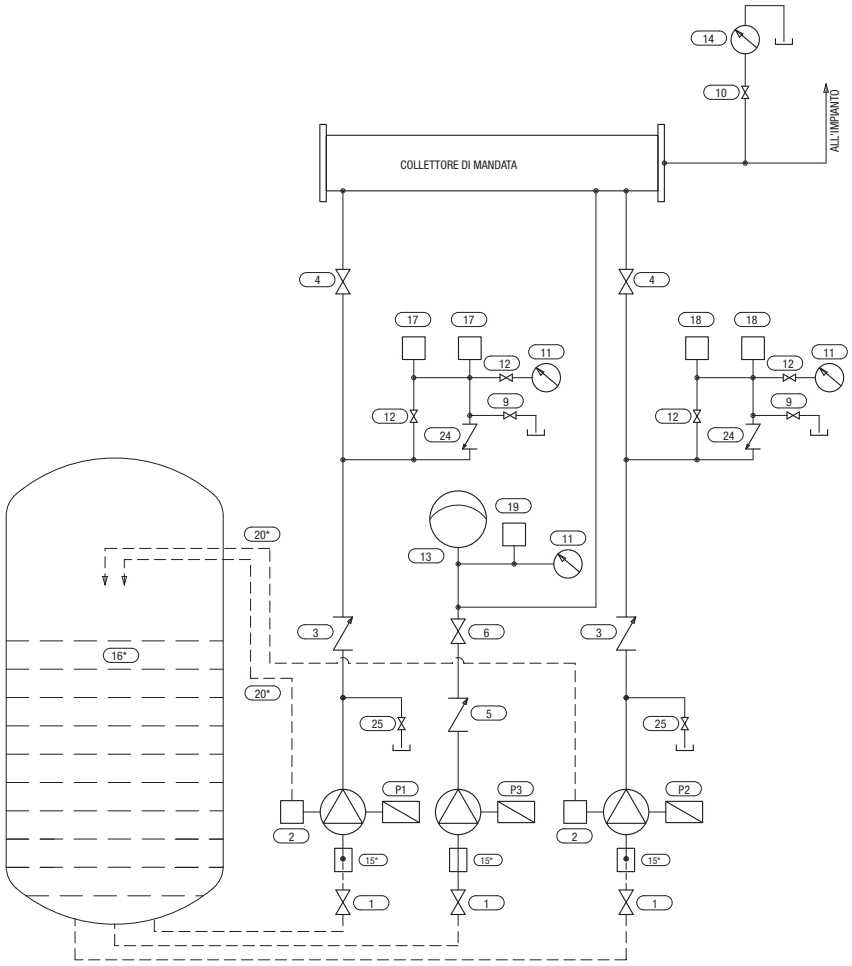
Fan airflow – engines with cooler
Q (m^3/h) = 50x Engine power (kWatt)

The fan must start simultaneously with the Diesel pump
(DAB control panels are equipped with a dedicated fan control contact)

HYDRAULIC LAYOUTS

FLOODED SUCTION HYDRAULIC LAYOUTS

According to EN 12845, è '*positive suction type installation is to be preferred, with at least 2/3 of the tank level above the pump suction port*'. Each pump has a suction pipe of at least 65 mm.

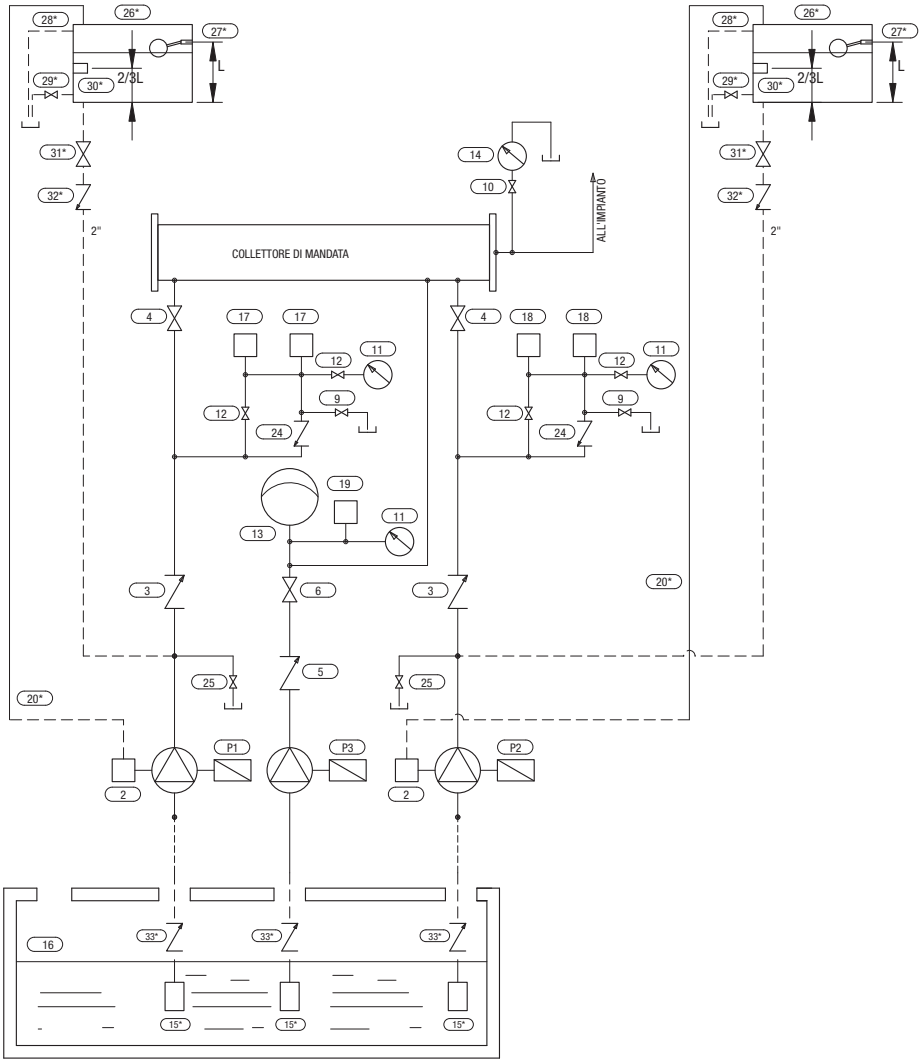


REF	DENOMINATION	REF	DENOMINATION
25	Check valve test line	10*	Flow meter isolator valve
24	Manual test circuit check valve	9	Pump manual test valve
20*	Water recirculation and air bleed pipeline	6	Discharge isolator valve
19	Electric jockey pump pressure switch	5	Check valve
18	Electric pump 2 start-up pressure switches	4	Discharge isolator valve
17	Electric pump 1 start-up pressure switches	3	Check valve
16*	Water reserve	2	Water recirculation and air bleed diaphragm
15*	Suction strainer	1*	Suction isolator valve
14*	Flow meter	P3	Jockey pump
13	Membrane expansion vessel	P2	Feed pump 2
12	Pressure switch isolator valve	P1	Feed pump 1
11	Pressure gauge		
* Components not included in the standard supply			

HYDRAULIC LAYOUTS

SUCTION LIFT HYDRAULIC LAYOUTS

In suction lift type installation, the distance between the pump suction and tank minimum level must be less than 3.2 m. A foot valve must be installed for each pump suction line. A priming tank is required for each main pump.



REF	DENOMINATION	REF	DENOMINATION
33*	Foot valve	15*	Suction strainer
32*	Lift line check valve	14*	Flow meter
31*	Lift line isolator valve	13	Membrane expansion vessel
30*	Tank float	12	Pressure switch isolator valve
29*	Tank drain valve	11	Pressure gauge
28*	Overflow outlet	10*	Flow meter isolator valve
27*	Tank replenishment	9	Pump manual test valve
26*	priming tank	6	Discharge isolator valve
25	Check valve test line	5	Check valve
24	Manual test circuit check valve	4	Discharge isolator valve
20*	Water recirculation and air bleed pipeline	3	Check valve
19	Electric jockey pump pressure switch	2	Water recirculation and air bleed diaphragm
18	Electric pump 2 start-up pressure switches	P3	Jockey pump
17	Electric pump 1 start-up pressure switches	P2	Feed pump 2
16*	Water reserve	P1	Feed pump 1
* Components not included in the standard supply			

MAINTENANCE AND PERIODIC CHECKS

MAINTENANCE, INSPECTION AND CHECKS

Standard EN 12845 awards prominence to maintenance of the fire-fighting system, including the pumps unit.
The system must be maintained constantly in perfect working order.

According to EN 12845 20.1.1, the user is required to perform a programme of inspections and checks, and must have a schedule of testing, assistance and maintenance, documenting and recording all activities and retaining the documents in a specific register kept on site in the installation building.
The user is required to take steps to ensure that the programme of testing, assistance and maintenance is performed under contract by the system installer or **by a similarly qualified company.**

The installer must provide the user with a procedure for checking and inspecting the plant with special reference to system operation and the pumps emergency manual start-up procedures.

WEEKLY CHECK (TO BE PERFORMED AT INTERVALS OF NO LONGER THAN ONCE EVERY 7 DAYS)

The following values must be checked and recorded:

- pressure gauge readings
- water levels in the tanks – water reserves
- correct position of the isolator valves

Perform tests for automatic starting of the pumps (electric motor or Diesel engine-driven) in accordance with the following procedure

a) Open the manual test valve
b) Check that the pumps start and make a note of the starting pressure
c) Close the manual test valve
   If the pump is driven by a Diesel engine, the engine must run for at least 5 minutes
d) Stop the pump by pressing the STOP pushbutton
e) PROCEDURE EXCLUSIVELY FOR DIESEL PUMPS.
   Immediately after being stopped, the Diesel pump must be restarted by pressing the manual test pushbutton "OPERATE MANUAL START ".
f) Stop the pump by pressing the STOP pushbutton

The oil pressure and the water flow rate in engines with a heat exchanger will be monitored during the test.

MONTHLY CHECK
Check the level and specific gravity of the acid in the cranking batteries by means of a densitometer. If the specific gravity of the acid is low, check the battery charger and, if necessary, change the batteries.

THREE-MONTHLY CHECK
(at intervals of no more than 13 weeks – 20.3.2)
Check any modifications in the system, change of the risk class, etc.
Check the sprinklers, pipelines, and pipeline supporting systems
Start up the pumps and check pressure and flow rate
Check the operation of any generator sets connected to the system
Check the correct position of the isolator valves

SIX-MONTHLY CHECK
(at intervals of no more than 13 weeks – 20.3.3)
Check the dry alarm valves (in the system)
Check functionality of alarms in the local control room and/or Fire Department control room

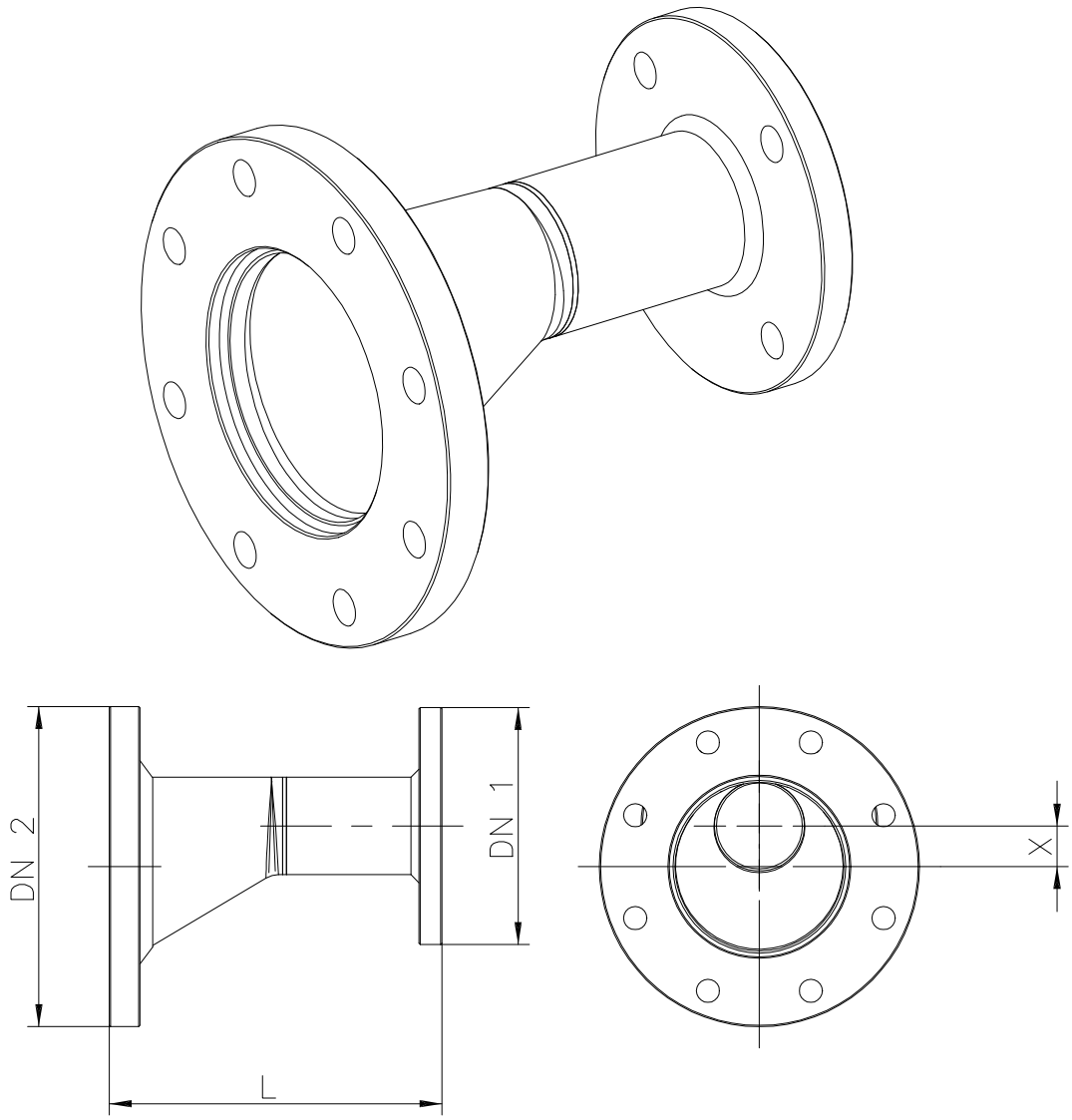
YEARLY CHECK
(at intervals of no more than 12 months)
Check operation of the feed pumps at full load and failure to start

THREE-YEARLY CHECK
Check external and INTERNAL corrosion of the tanks and refurbish protective coatings if necessary.
Check isolator and check valves and renew if necessary.

TEN-YEARLY CHECK
After no more than 10 years clean all tanks and check the internal structure

ACCESSORIES – SUCTION KIT

The kit is composed of a conical eccentric adapter, screws and seals.
This kit is required to avoid air pockets in the suction line and to maintain water velocity to less than 1.5 m/s (EN 10.6.2.3).
Fit 1 suction kit to each of the main pumps



ECCENTRIC SUCTION ADAPTERS EN 12845				
MODEL	DN 1 - PN 16 PUMP SIDE	DN 2 - PN 16 SYSTEM SIDE	L	X
NKV 10	DN 40	DN 65*	200	14
KDN 32 NKV 15 - NKV 20	DN 50	DN 80	225	14
KDN 40	DN 65	DN 100	240	19
KDN 50	DN 65	DN 125	260	32
KDN 65	DN 80	DN 150	276	40
KDN 80	DN 100	DN 200	289	52
KDN 100	DN 125	DN 250	345	67

*The standard envisages a minimum of DN 80 for negative suction installations. In this case consult our sales network.

ACCESSORIES – ISOLATOR VALVES FOR SUCTION

Isolator valves are required to allow pump maintenance to be carried out in the case of flooded suction installations.
1 VALVE is required for each 1KDN set (electric or Diesel).

MODEL SET	BUTTERFLY VALVES
1 KDN 32	BUTTERFLY VALVE DN 80
1 KDN 40	BUTTERFLY VALVE DN 100
1 KDN 50	BUTTERFLY VALVE DN 125
1 KDN 65	BUTTERFLY VALVE DN 150
1 KDN 80	BUTTERFLY VALVE DN 200
1 KDN 100	BUTTERFLY VALVE DN 250

FOOT VALVES WITH SUCTION ROSE

These are required to maintain priming of the pipe suction, in case of suction lift installations.
1 VALVE is required for each 1KDN set (electric or Diesel).

MODEL SET	ANTIVIBRATION COUPLING
1 KDN 32	FOOT VALVE WITH SUCTION ROSE DN 80
1 KDN 40	FOOT VALVE WITH SUCTION ROSE DN 100
1 KDN 50	FOOT VALVE WITH SUCTION ROSE DN 125
1 KDN 65	FOOT VALVE WITH SUCTION ROSE DN 150
1 KDN 80	FOOT VALVE WITH SUCTION ROSE DN 200
1 KDN 100	FOOT VALVE WITH SUCTION ROSE DN 250

ACCESSORIES - ANTIVIBRATION SUCTION COUPLING

The antivibration coupling is utilised to reduce the amount of vibration transmitted to the system, this being especially important when the prime mover is a Diesel engine.
1 COUPLING is required for each 1KDN set (electric or Diesel).

MODEL SET	ANTIVIBRATION COUPLING
1 KDN 32	DN 80 ANTIVIBRATION COUPLING
1 KDN 40	DN 100 ANTIVIBRATION COUPLING
1 KDN 50	DN 125 ANTIVIBRATION COUPLING
1 KDN 65	DN 150 ANTIVIBRATION COUPLING
1 KDN 80	DN 200 ANTIVIBRATION COUPLING
1 KDN 100	DN 250 ANTIVIBRATION COUPLING

ACCESSORIES - ANTIVIBRATION COUPLING FOR DISCHARGE MANIFOLDS

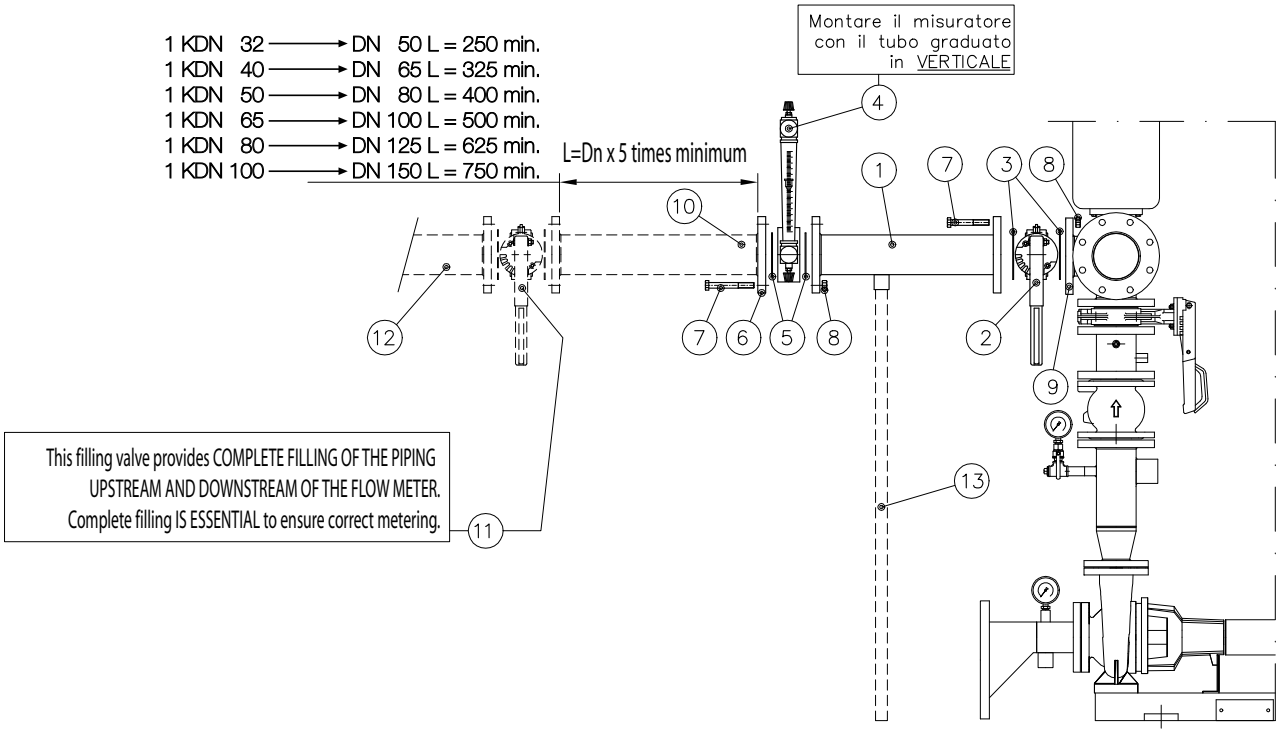
The antivibration coupling is utilised to reduce the amount of vibration transmitted to the system, this being especially important when the prime mover is a Diesel engine.
1 COUPLING is sufficient for one or two 1KDN sets (electric or Diesel).

MODEL SET	ANTIVIBRATION COUPLING
1 KDN 32	2” ANTIVIBRATION COUPLING
1 KDN 40	2” ? ANTIVIBRATION COUPLING
1 KDN 50	DN 80 ANTIVIBRATION COUPLING
1 KDN 65	DN 100 ANTIVIBRATION COUPLING
1 KDN 80	DN 125 ANTIVIBRATION COUPLING
1 KDN 100	DN 150 ANTIVIBRATION COUPLING

ACCESSORIES – FLOW METER

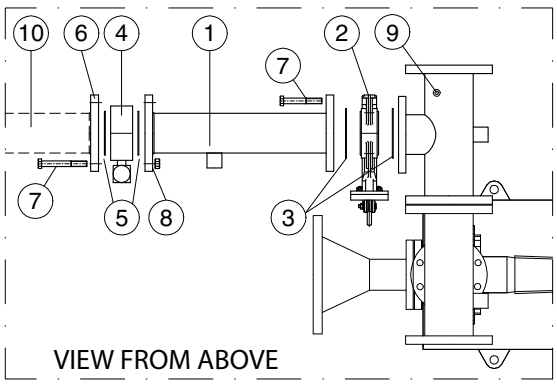
The flow meter must be installed on a branch on the discharge manifold. The kits are suitable for sets with 1 or 2 pumps.

ASSEMBLY INSTRUCTIONS FOR 1-2 EN 12845 PUMP SETS



LEGENDA

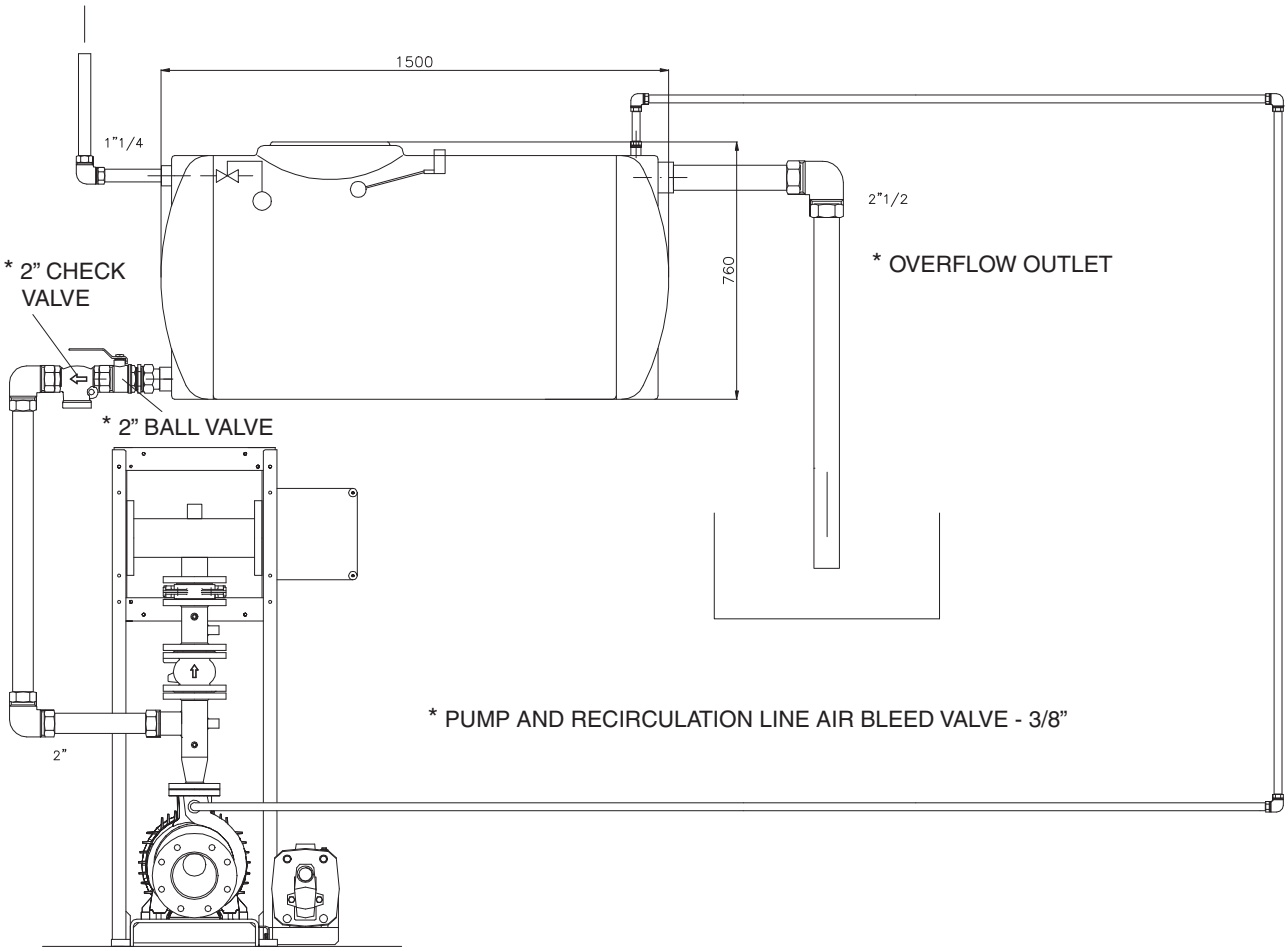
1 FLOW METER EXTENSION
2 BUTTERFLY VALVE
3 BUTTERFLY ISOLATOR SEALS
4 FLOW METER
5 FLOW METER SEALS
6 COUNTER-FLANGE
7 FIXING SCREWS
8 NUTS
9 METER ADAPTER PIPE
10 STRAIGHT PIPE 5 TIMES DIAMETER (not included in DAB supply)
11 FILLING VALVE (not included in DAB supply)
12 DRAIN PIPE (not included in DAB supply)
13 SUPPORT FOOT (not included in DAB supply)



ACCESSORIES – PRIMING TANK

A 500 l priming tank must be installed for each of the main pumps exclusively in the case of SUCTION LIFT configuration.

* FILLING
  FROM THE WATER MAINS

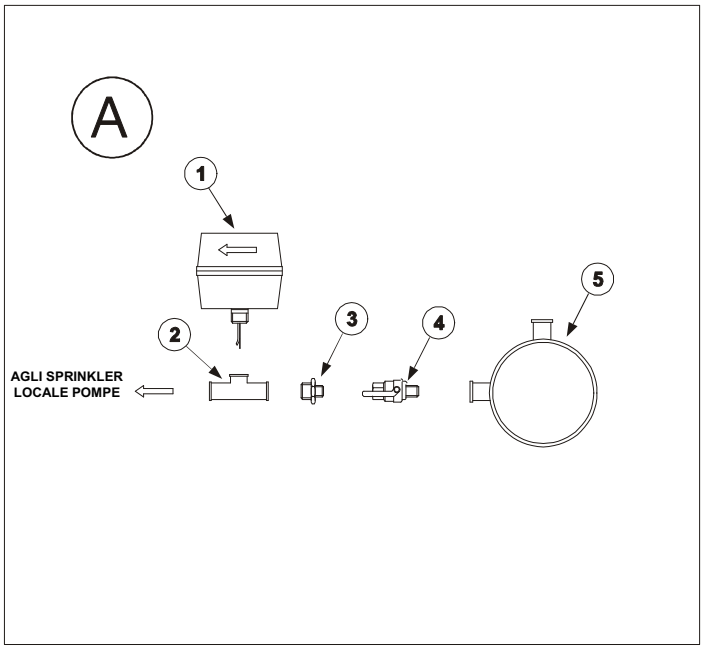


* 2" FILLING PIPE

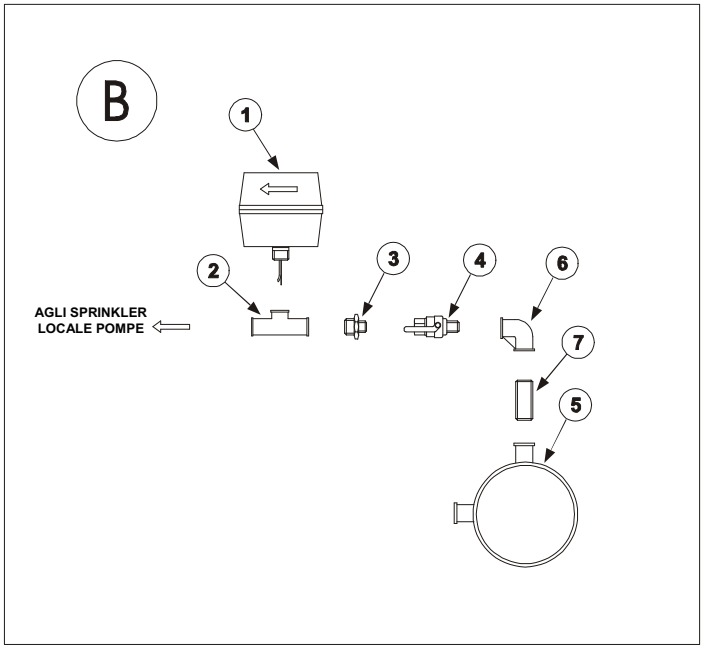
* = COMPONENTS NOT INCLUDED IN THE STANDARD SUPPLY

ACCESSORIES – FLOW SWITCH KIT

The flow switch detects activation of the sprinklers in the pump house (EN 12845 10.3.2).
The flow switch kit must be installed on the 1” pipe of the discharge manifold of the DAB fire pump unit and then connected to the CSR alarm control panel.



KEY
1. Flow switch
2. Tee union
3. 1” 1/4 x 1” reduction
4. 1” ball valve
5. Discharge manifold



KEY
1. Flow switch
2. Tee union
3. 1” 1/4 x 1” reduction
4. 1” ball valve
5. Discharge manifold
6. 1” elbow
7. 1” nipple

- **The flow switch kit must be installed on the 1” pipe of the discharge manifold of the DAB fire pump unit. Seal the threads of the various components with Teflon tape, plumbers’ hemp or anaerobic sealing paste.**
- **The flow switch detects activation of the sprinklers in the pump house (EN 12845 10.3.2).**
- **The Normally Open contact of the 1” flow switch must be connected to an alarm device installed in a manned station (e.g. DAB alarm control panel – model CSR EN 12845).**

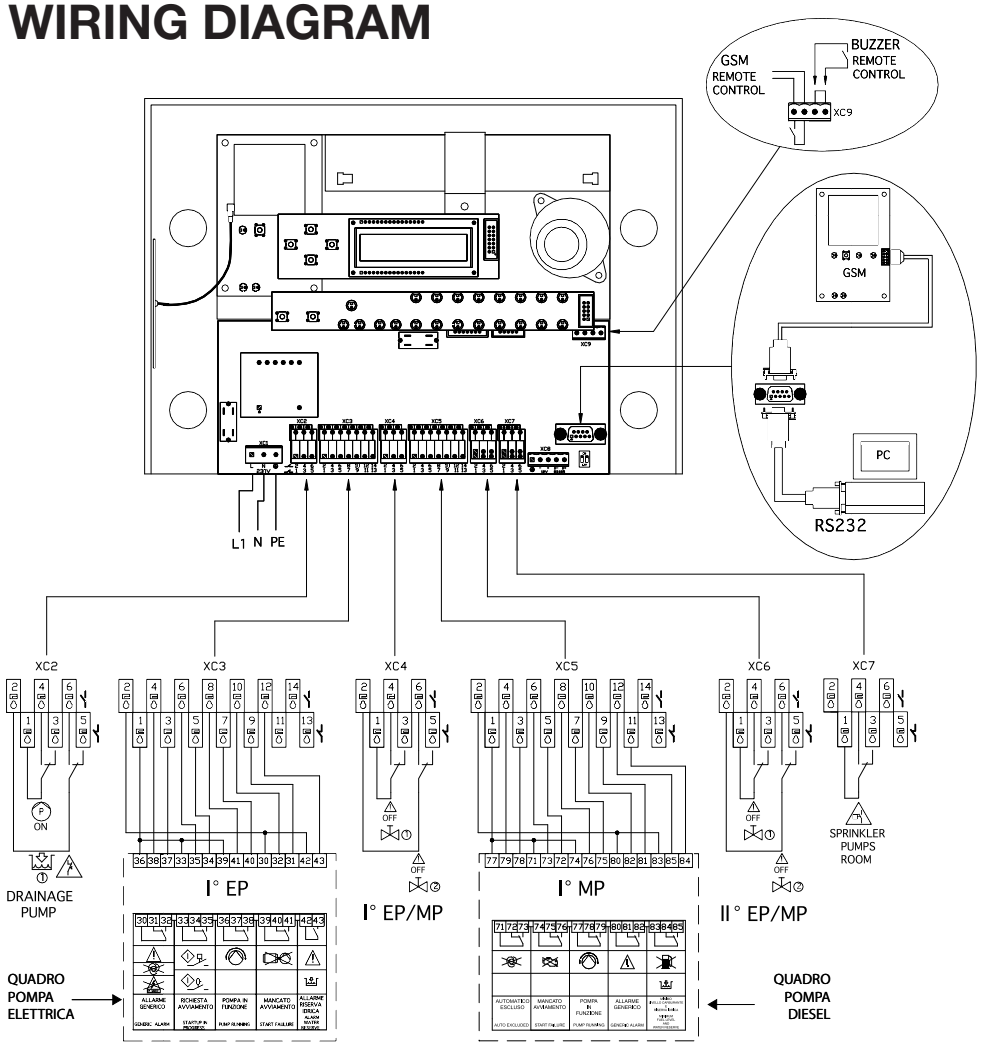
ACCESSORIES – CSR-1 ALARM CONTROL PANEL

Provides visual and audible signalling of the operational status of the fire pumps.
The panel must be installed in a manned location and must be connected to the electric or Diesel pumps by means of multicore cables.
A single CSR-1 panel can monitor one or two electric or Diesel pumps

It is also possible to connect the CSR-1 panel to the electric or Diesel pumps control panels utilising just 4 wires (serial interface) with the use of RS 232/485 modules (accessory not included in the CSR-1).

CSR-1 TO ELECTRIC AND DIESEL PUMP CONTROL PANEL WIRING DIAGRAM

CSR-1



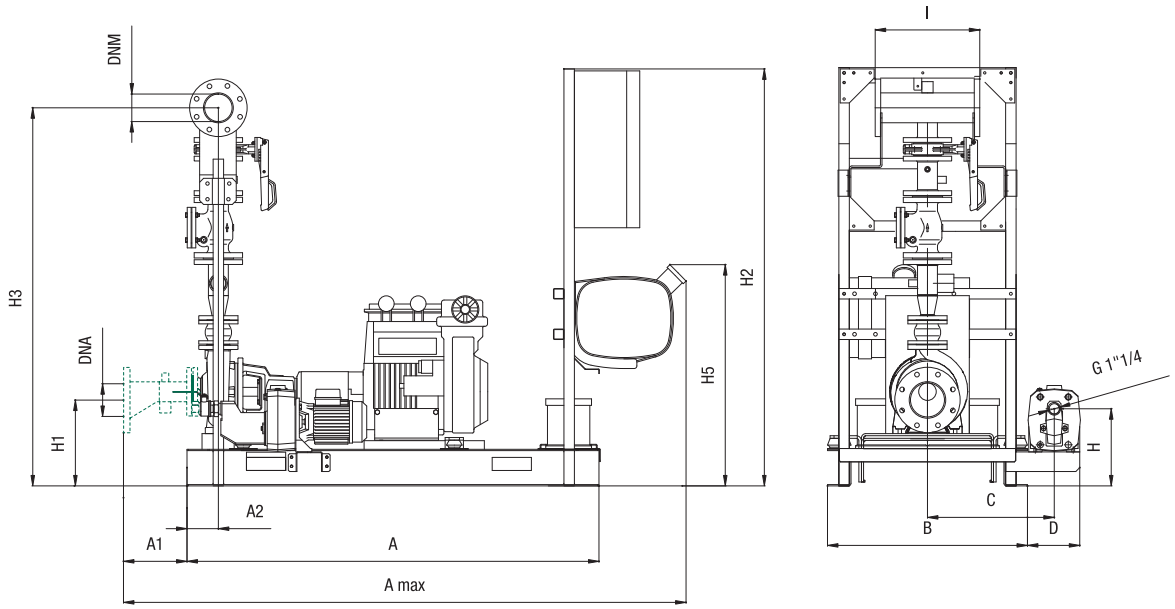
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	H	H1	H2	H3	H5	I	DNA	DNM	without jockey pump Kg	with jockey pump Kg
1KDN 32-160/177	**MD EN 12845**	1576	2110	200	120	795	485	200	295	315	1600	1202	846	400	80	2"	520	550
1KDN 32-200/207/180/200/219	**MD EN 12845**	1576	2110	200	120	795	485	200	295	323	1600	1232	846	400	80	2"	520	550
1KDN 40-160/161/177	**MD EN 12845**	1576	2135	225	120	795	485	200	295	315	1600	1262	846	400	100	2" 1/2	570	600
1KDN 40-200/200-219	**MD EN 12845**	1576	2155	245	120	795	485	200	295	343	1600	1307	846	400	100	2" 1/2	590	620
1KDN 40-250/230-240	**MD EN 12845**	1576	2155	245	120	795	485	200	295	343	1600	1352	846	400	100	2" 1/2	600	630
1KDN 40-250/260	**MD EN 12845**	1576	2155	245	120	795	485	200	295	363	1600	1372	846	400	100	2" 1/2	650	680
1KDN 50-160/161	**MD EN 12845**	1576	2170	260	120	795	485	200	295	312	1600	1330	846	400	125	80	610	640
1KDN 50-160/177	**MD EN 12845**	1576	2170	260	120	795	485	200	295	332	1600	1350	846	400	125	80	620	650
1KDN 50-200/190	**MD EN 12845**	1576	2170	260	120	795	485	200	295	332	1600	1370	846	400	125	80	630	660
1KDN 50-200/210	**MD EN 12845**	1576	2170	260	120	795	485	200	295	332	1600	1370	846	400	125	80	630	660
1KDN 50-200/219	**MD EN 12845**	1576	2170	260	120	795	485	200	295	332	1600	1370	846	400	125	80	630	660
1KDN 50-250/230-250	**MD EN 12845**	1576	2170	260	120	795	485	200	295	352	1600	1415	846	400	125	80	690	720
1KDN 65-160/153	**MD EN 12845**	1576	2185	275	120	795	485	200	295	303	1600	1420	846	400	150	100	650	680
1KDN 65-160/177	**MD EN 12845**	1576	2185	275	120	795	485	200	295	323	1600	1440	846	400	150	100	660	690
1KDN 65-200/190	**MD EN 12845**	1576	2185	275	120	795	485	200	295	323	1600	1465	846	400	150	100	690	720
1KDN 65-200/200-219	**MD EN 12845**	1576	2185	275	120	795	485	200	295	343	1600	1485	846	400	150	100	700	730

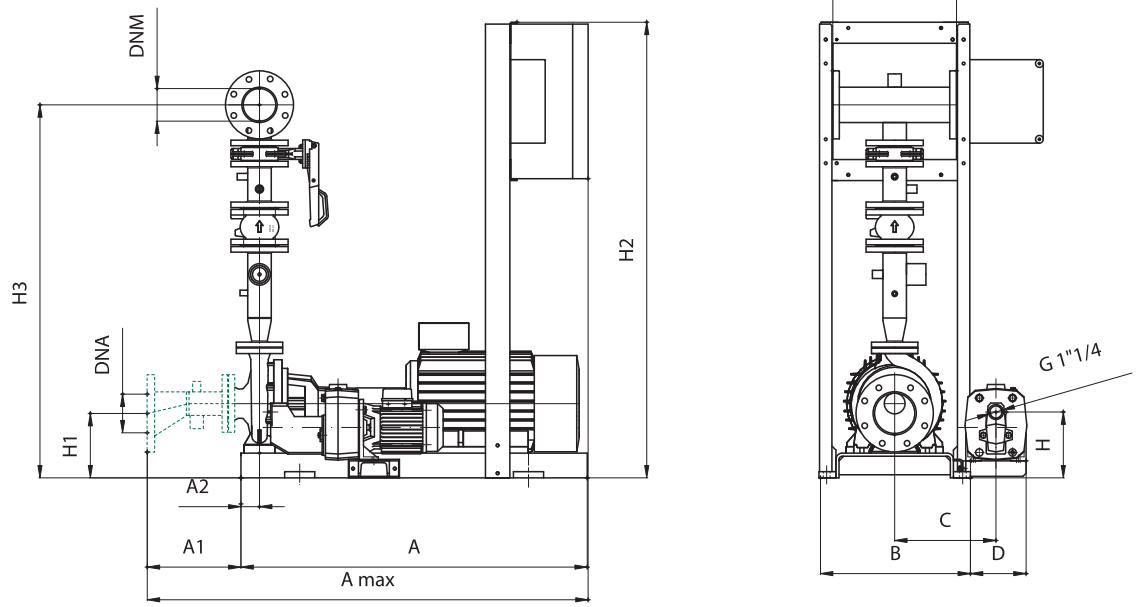
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

GRUPPI KDN

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP MODULE – DIMENSIONS



* COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY

DESCRIPTION		A	Amax	A1	A2	B	C	D	H	H1	H2	H3	I	DNA	DNM	without jockey pump Kg	with jockey pump Kg
1KDN 32-160/177	EN 12845	1000	1280	257	60	450	307	180	220	195	1475	1082	400	80	2”	270	300
1KDN 32-200/207/180/200	EN 12845	1000	1280	257	60	450	307	180	220	223	1475	1132	400	80	2”	320	350
1KDN 32-200/219	EN 12845	1120	1380	257	60	490	327	180	220	223	1475	1132	400	80	2”	350	380
1KDN 40-160/161	EN 12845	1000	1306	283	60	450	307	180	220	195	1475	1142	400	100	2” 1/2	310	340
1KDN 40-160/177	EN 12845	1120	1406	283	60	490	327	180	220	223	1475	1167	400	100	2” 1/2	320	350
1KDN 40-200/200/219	EN 12845	1120	1426	303	60	490	327	180	220	223	1475	1187	400	100	2” 1/2	430	450
1KDN 40-250/230/240/260	EN 12845	1250	1538	288	75	540	352	180	220	243	1475	1252	400	100	2” 1/2	450	480
1KDN 50-160/161/177	EN 12845	1120	1440	316	60	490	327	180	220	212	1475	1230	400	125	80	350	380
1KDN 50-200/190/210	EN 12845	1120	1440	316	60	490	327	180	220	212	1475	1250	400	125	80	420	450
1KDN 50-200/219	EN 12845	1120	1440	316	60	490	327	180	220	232	1475	1270	400	125	80	480	510
1KDN 50-250/230	EN 12845	1250	1550	300	75	540	352	180	220	232	1475	1295	400	125	80	500	530
1KDN 50-250/250	EN 12845	1400	1700	300	75	590	377	180	220	272	1475	1335	400	125	80	550	580
1KDN 65-160/153/177	EN 12845	1120	1145	330	60	490	327	180	220	203	1475	1325	400	150	100	440	470
1KDN 65-200/190/200	EN 12845	1250	1565	315	75	540	352	180	220	223	1475	1365	400	150	100	520	550
1KDN 65-200/219	EN 12845	1400	1715	315	75	590	377	180	220	263	1475	1405	400	150	100	620	650

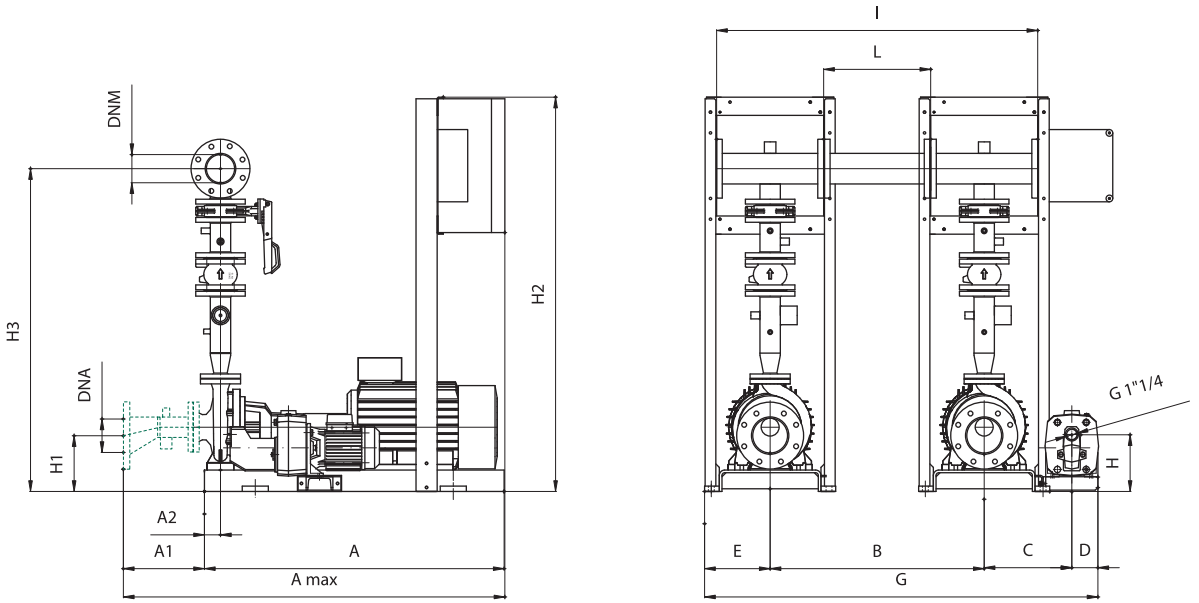
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

2 ELECTRIC PUMP MODULES – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	G	H	H1	H2	H3	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 32-160/177	**EN 12845**	1000	1280	257	60	800	307	100	225	1432	220	195	1475	1082	1200	400	80	2”	270	300
KDN 32-200/207/180/200	**EN 12845**	1000	1280	257	60	800	307	100	225	1432	220	223	1475	1132	1200	400	80	2”	320	350
KDN 32-200/219	**EN 12845**	1120	1380	257	60	800	327	100	245	1472	220	223	1475	1132	1200	400	80	2”	350	380
KDN 40-160/161	**EN 12845**	1000	1306	283	60	800	307	100	225	1432	220	195	1475	1142	1200	400	100	2” 1/2	310	340
KDN 40-160/177	**EN 12845**	1120	1406	283	60	800	327	100	245	1472	220	223	1475	1167	1200	400	100	2” 1/2	320	350
KDN 40-200/200/219	**EN 12845**	1120	1426	303	60	800	327	100	245	1472	220	223	1475	1187	1200	400	100	2” 1/2	430	450
KDN 40-250/230/240/260	**EN 12845**	1250	1538	288	75	800	352	100	270	1522	220	243	1475	1252	1200	400	100	2” 1/2	450	480
KDN 50-160/161/177	**EN 12845**	1120	1440	316	60	800	327	100	245	1472	220	212	1475	1230	1200	400	125	80	350	380
KDN 50-200/190/210	**EN 12845**	1120	1440	316	60	800	327	100	245	1472	220	212	1475	1250	1200	400	125	80	420	450
KDN 50-200/219	**EN 12845**	1120	1440	316	60	800	327	100	245	1472	220	232	1475	1270	1200	400	125	80	480	510
KDN 50-250/230	**EN 12845**	1250	1550	300	75	800	352	100	270	1522	220	232	1475	1295	1200	400	125	80	500	530
KDN 50-250/250	**EN 12845**	1400	1700	300	75	800	377	100	295	1572	220	272	1475	1335	1200	400	125	80	550	580
KDN 65-160/153/177	**EN 12845**	1120	1145	330	60	800	327	100	245	1472	220	203	1475	1325	1200	400	150	100	440	470
KDN 65-200/190/200	**EN 12845**	1250	1565	315	75	800	352	100	270	1522	220	223	1475	1365	1200	400	150	100	520	550
KDN 65-200/219	**EN 12845**	1400	1715	315	75	800	377	100	295	1572	220	263	1475	1405	1200	400	150	100	620	650

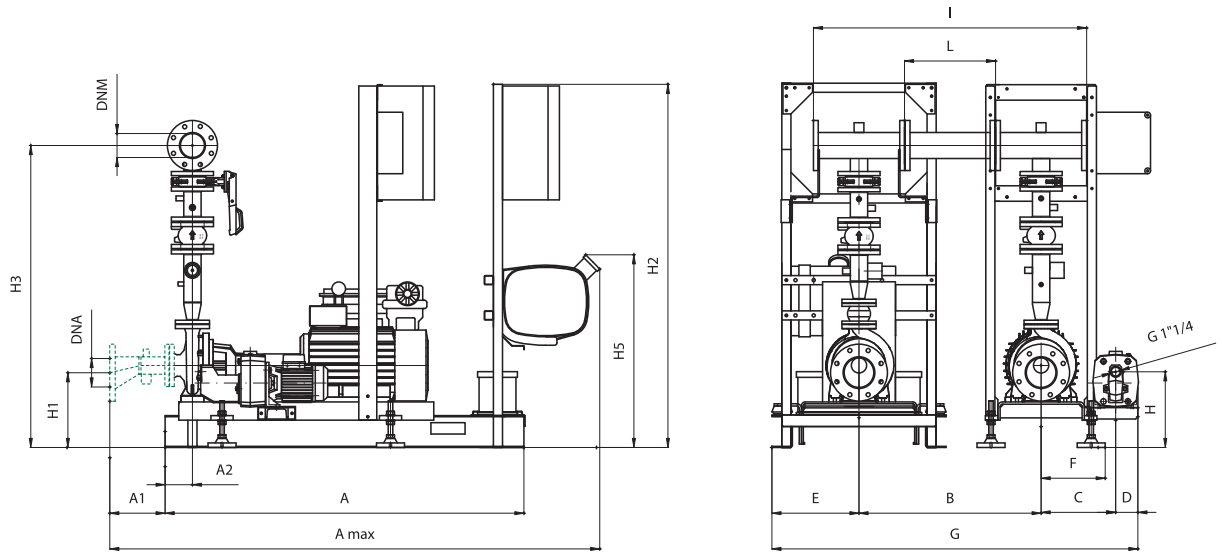
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP + DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION	A	Amax	A1	A2	B	C	D	E	F	G	H	H1	H2	H3	H5	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 32-160/177	1576	2110	200	120	800	307	100	383	262	1590	340	315	1600	1202	846	1200	400	80	2"	520	300
KDN 32-200/207-180-200-219	1576	2110	200	120	800	307	100	383	262	1590	320	323	1600	1232	846	1200	400	80	2"	520	350
KDN 40-160/161-177	1576	2135	225	120	800	307	100	383	262	1590	340	315	1600	1262	846	1200	400	100	2" 1/2	570	340
KDN 40-200/200-219	1576	2155	245	120	800	327	100	383	282	1610	340	343	1600	1307	846	1200	400	100	2" 1/2	590	350
KDN 40-250/230	1576	2155	245	120	800	352	100	383	307	1635	320	343	1600	1352	846	1200	400	100	2" 1/2	600	480
KDN 40-250/240-260	1576	2155	245	120	800	352	100	383	307	1635	320	363	1600	1372	846	1200	400	100	2" 1/2	650	480
KDN 50-160/161	1576	2170	260	120	800	327	100	383	282	1610	320	312	1600	1330	846	1200	400	125	80	610	380
KDN 50-160/177	1576	2170	260	120	800	327	100	383	282	1610	340	332	1600	1350	846	1200	400	125	80	620	380
KDN 50-200/190-210-219	1576	2170	260	120	800	327	100	383	282	1610	340	332	1600	1370	846	1200	400	125	80	630	510
KDN 50-250/230-250	1576	2170	260	120	800	352	100	383	307	1635	340	352	1600	1415	846	1200	400	125	80	690	580
KDN 65-160/153	1576	2185	275	120	800	327	100	383	282	1610	320	303	1600	1420	846	1200	400	150	100	650	470
KDN 65-160/177	1576	2185	275	120	800	352	100	383	282	1635	340	323	1600	1440	846	1200	400	150	100	660	470
KDN 65-200/190	1576	2185	275	120	800	352	100	383	307	1635	320	323	1600	1465	846	1200	400	150	100	690	550
KDN 65-200/200-219	1576	2185	275	120	800	377	100	383	307	1660	340	343	1600	1485	846	1200	400	150	100	700	650

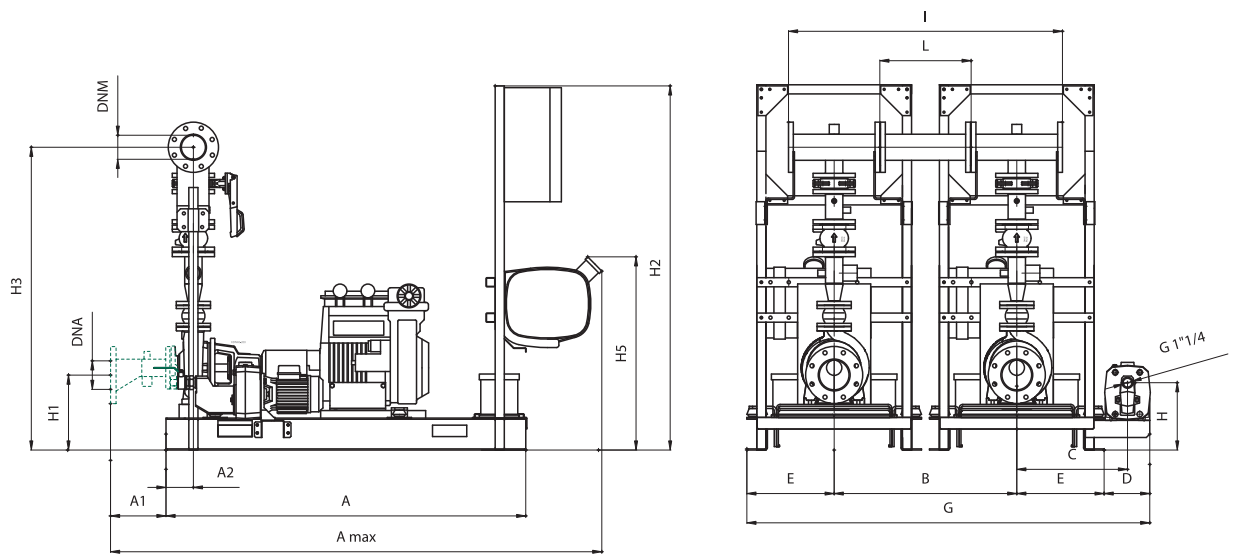
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

2 DIESEL PUMP MODULES – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION	A	Amax	A1	A2	B	C	D	E	G	H	H1	H2	H3	H5	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 32-160/177	1576	2110	200	120	800	485	200	383	1766	295	315	1600	1202	846	1200	400	80	2"	520	550
KDN 32-200/207-180-200-219	1576	2110	200	120	800	485	200	383	1766	295	323	1600	1232	846	1200	400	80	2"	520	550
KDN 40-160/161-177	1576	2135	225	120	800	485	200	383	1766	295	315	1600	1262	846	1200	400	100	2" 1/2	570	600
KDN 40-200/200-219	1576	2155	245	120	800	485	200	383	1766	295	343	1600	1307	846	1200	400	100	2" 1/2	590	620
KDN 40-250/230-240	1576	2155	245	120	800	485	200	383	1766	295	343	1600	1352	846	1200	400	100	2" 1/2	600	630
KDN 40-250/260	1576	2155	245	120	800	485	200	383	1766	295	363	1600	1372	846	1200	400	100	2" 1/2	650	680
KDN 50-160/161	1576	2170	260	120	800	485	200	383	1766	295	312	1600	1330	846	1200	400	125	80	610	640
KDN 50-160/177	1576	2170	260	120	800	485	200	383	1766	295	332	1600	1350	846	1200	400	125	80	620	650
KDN 50-200/190-210-219	1576	2170	260	120	800	485	200	383	1766	295	332	1600	1370	846	1200	400	125	80	630	660
KDN 50-250/230-250	1576	2170	260	120	800	485	200	383	1766	295	352	1600	1415	846	1200	400	125	80	690	720
KDN 65-160/153	1576	2185	275	120	800	485	200	383	1766	295	303	1600	1420	846	1200	400	150	100	650	680
KDN 65-160/177	1576	2185	275	120	800	485	200	383	1766	295	323	1600	1440	846	1200	400	150	100	660	690
KDN 65-200/190	1576	2185	275	120	800	485	200	383	1766	295	323	1600	1465	846	1200	400	150	100	690	720
KDN 65-200/200-219	1576	2185	275	120	800	485	200	383	1766	295	343	1600	1485	846	1200	400	150	100	700	730

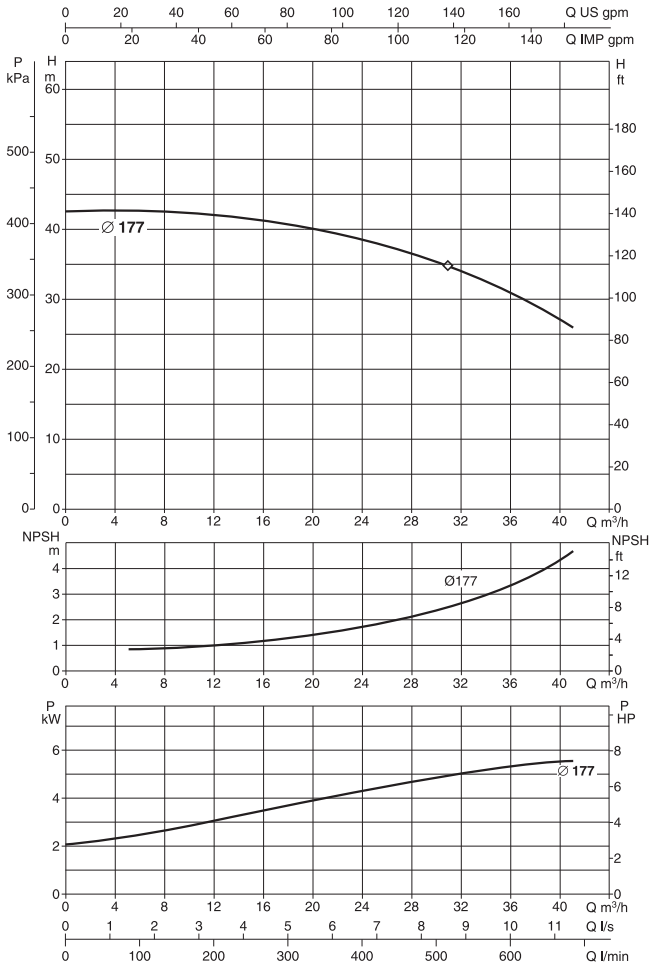
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 32-160 PUMP UNITS SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 40 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 32-160/177 5,5	3 x 400 V	JET 251 T	5,5	7,5	1,85	2,5	KDN 32 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 32-160/177 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

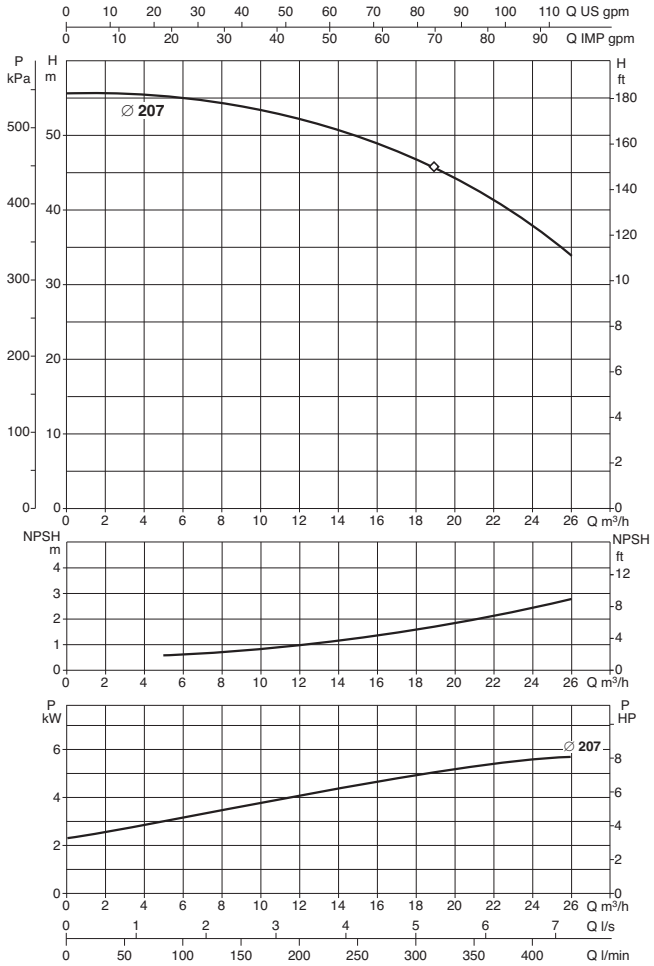
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KDN 32-200.1 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 26 m^3/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 32-200.1/207 7,5	3 x 400 V	JET 251 T	7,5	10	1,85	2,5	KDN 32 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 32-200.1/207 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845	0,22 m^2

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

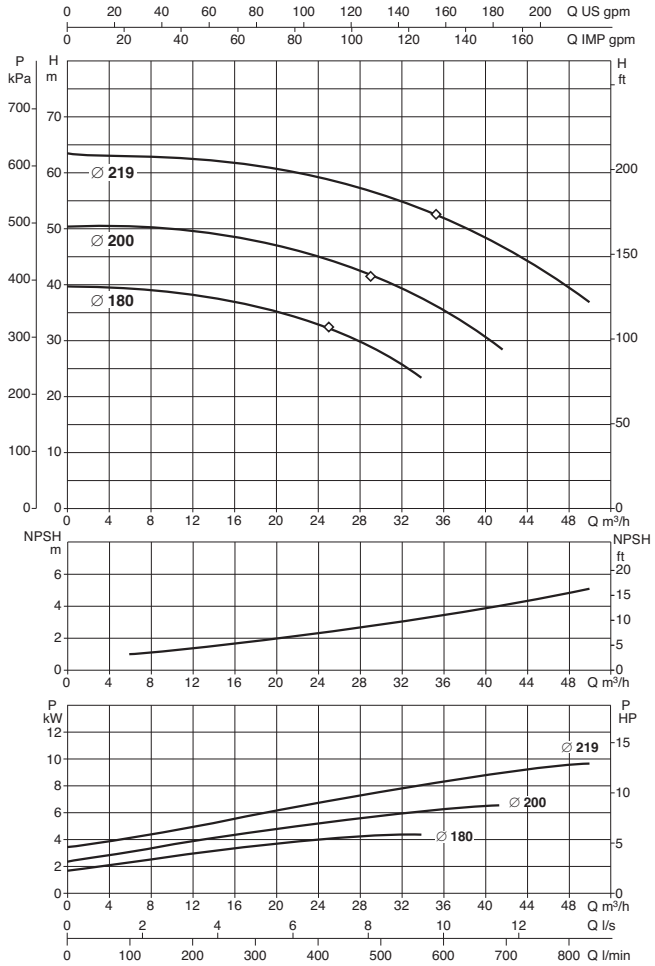
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 32-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 48 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 32-200/180 5,5	3 x 400 V	JET 251 T	5,5	7,5	1,85	2,5	KDN 32 EN 12845
1KDN 32-200/200 7,5	3 x 400 V	JET 251 T	7,5	10	1,85	2,5	KDN 32 EN 12845
1KDN 32-200/219 11	3 x 400 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 32-200/180 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845	0,22 m²
1KDN 32-200/200 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845	0,22 m²
1KDN 32-200/219 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 32 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

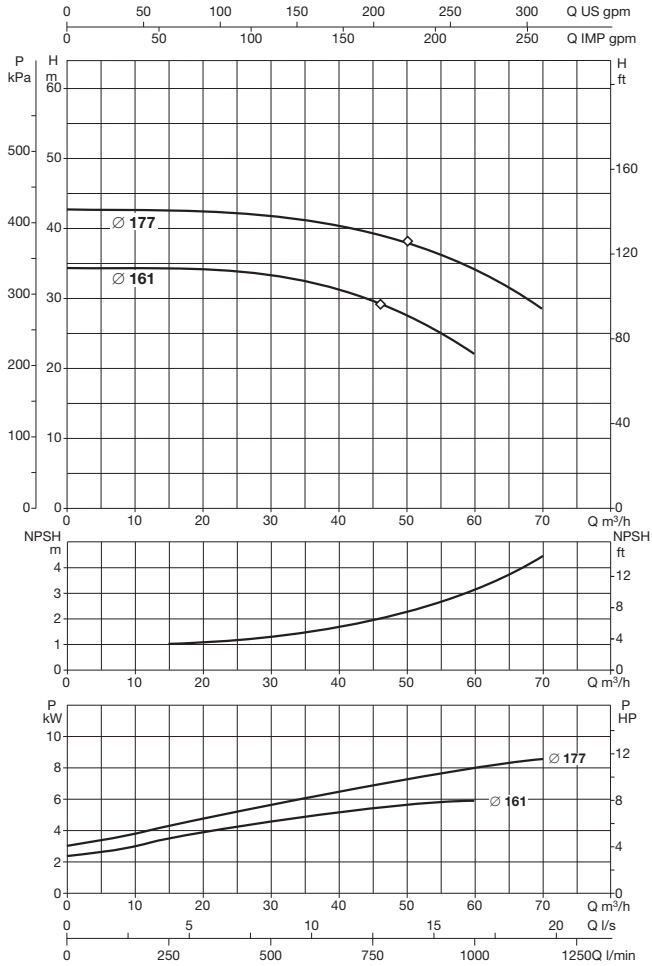
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KDN 40-160 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 70 m^3/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 40-160/161 7,5	3 x 400 V	JET 251 T	7,5	10	1,85	2,5	KDN 40 EN 12845
1KDN 40-160/177 11	3 x 400 V	JET 251 T	11	15	1,85	2,5	KDN 40 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 40-160/161 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 40 EN 12845	0,22 m^2
1KDN 40-160/177 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 40 EN 12845	0,22 m^2

* Jockey pump on request.
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

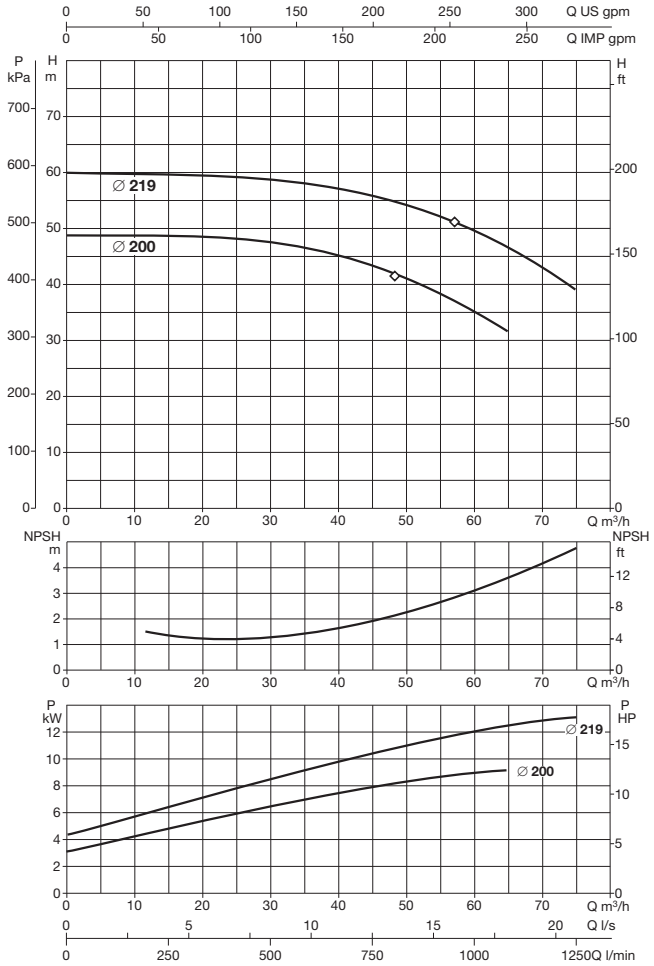
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 40-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 70 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 40-200/200 11	3 x 400 V	JET 251 T	11	15	1,85	2,5	KDN 40 EN 12845
1KDN 40-200/219 15	3 x 400 V	JET 251 T	15	20	1,85	2,5	KDN 40 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 40-200/200 MD	1 x 220-240 V	JET 251 T	15	20	1,85	2,5	KDN 40 EN 12845	0,22 m²
1KDN 40-200/219 MD	1 x 220-240 V	JET 251 T	15	20	1,85	2,5	KDN 40 EN 12845	0,22 m²

* Jockey pump on request.
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

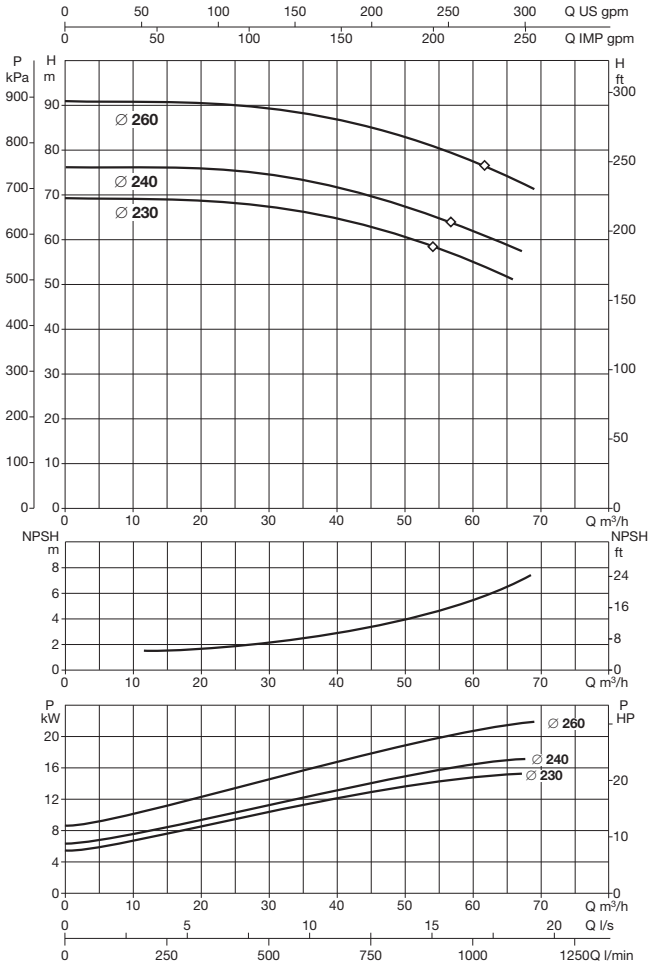
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 40-250 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 70 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 40-250/230 15	3 x 400 V	JET 251 T	15	20	1,85	2,5	KDN 40 EN 12845
1KDN 40-250/240 18,5	3 x 400 V	JET 251 T	18,5	25	1,85	2,5	KDN 40 EN 12845
1KDN 40-250/260 22	3 x 400 V	JET 251 T	22	30	1,85	2,5	KDN 40 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 40-250/230 MD	1 x 220-240 V	JET 251 T	19	25	1,85	2,5	KDN 40 EN 12845	0,22 m²
1KDN 40-250/240 MD	1 x 220-240 V	JET 251 T	19	25	1,85	2,5	KDN 40 EN 12845	0,22 m²
1KDN 40-250/260 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 40 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

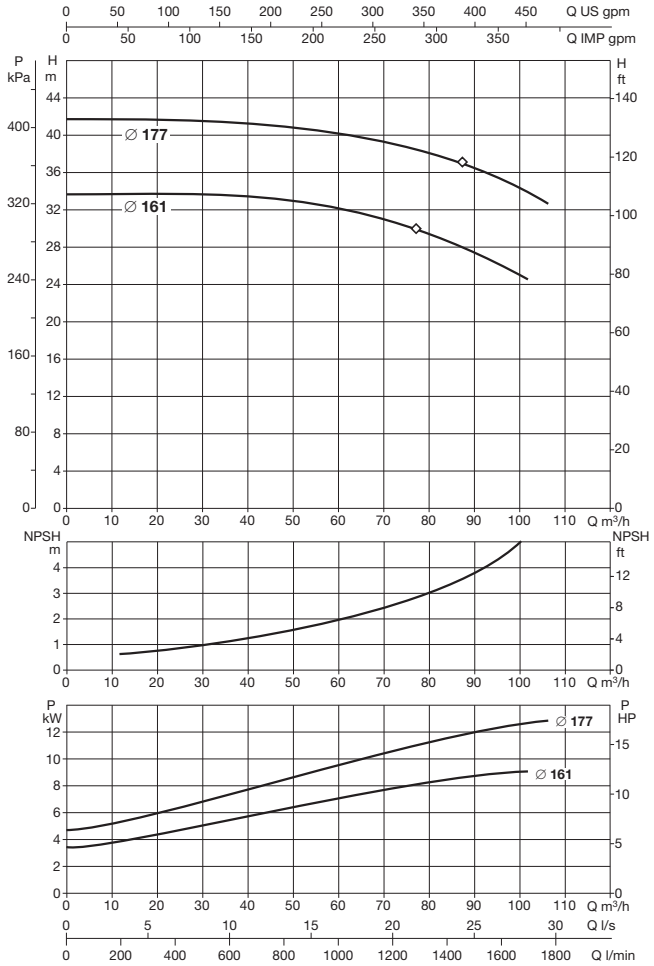
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 50-160 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 100 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 50-160/161 11	3 x 400 V	JET 251 T	11	15	1,85	2,5	KDN 50 EN 12845
1KDN 50-160/177 15	3 x 400 V	JET 251 T	15	20	1,85	2,5	KDN 50 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 50-160/161 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 50 EN 12845	0,22 m²
1KDN 50-160/177 MD	1 x 220-240 V	JET 251 T	15	20	1,85	2,5	KDN 50 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

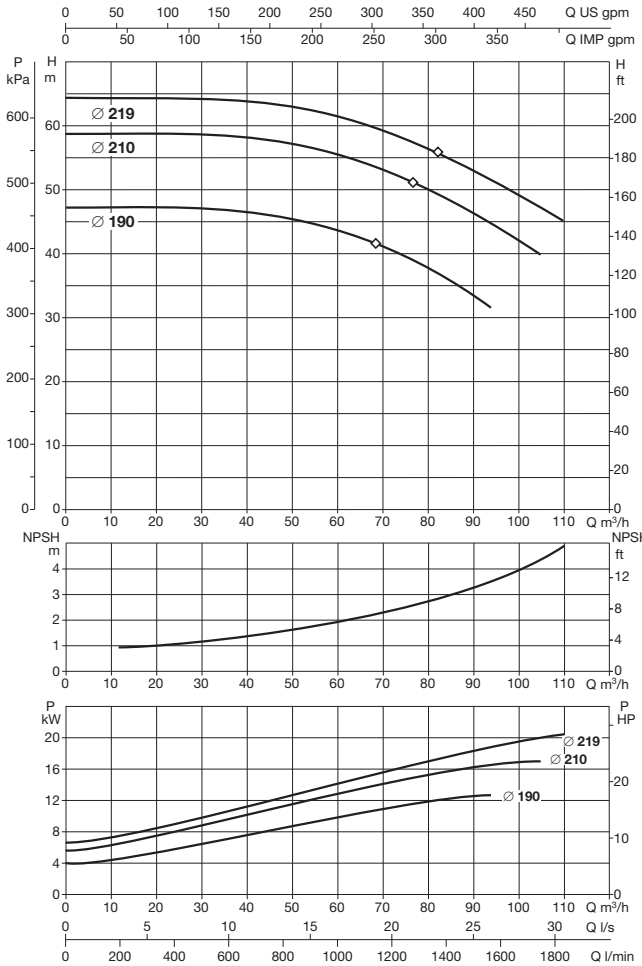
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 50-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 110 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 50-200/190 15	3 x 400 V	JET 251 T	15	20	1,85	2,5	KDN 50 EN 12845
1KDN 50-200/210 18,5	3 x 400 V	JET 251 T	18,5	25	1,85	2,5	KDN 50 EN 12845
1KDN 50-200/219 22	3 x 400 V	JET 251 T	22	30	1,85	2,5	KDN 50 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 50-200/190 MD	1 x 220-240 V	JET 251 T	15	20	1,85	2,5	KDN 50 EN 12845	0,22 m²
1KDN 50-200/210 MD	1 x 220-240 V	JET 251 T	19	25	1,85	2,5	KDN 50 EN 12845	0,22 m²
1KDN 50-200/219 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 50 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

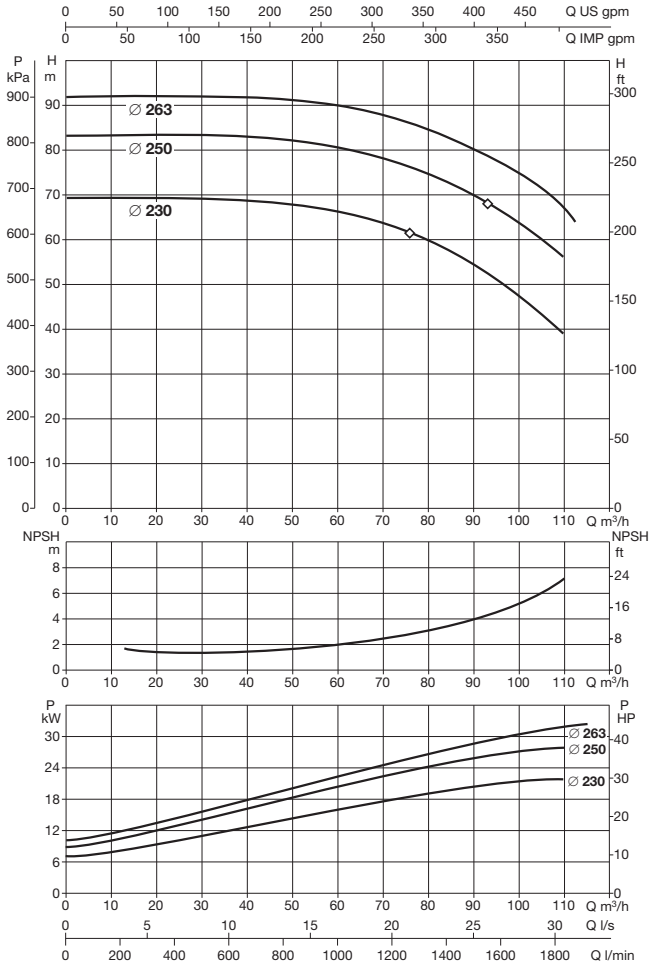
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 50-250 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 110 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 50-250/230 22	3 x 400 V	JET 251 T	22	30	1,85	2,5	KDN 50 EN 12845
1KDN 50-250/250 30	3 x 400 V	JET 251	30	40	1,85	2,5	KDN 50 EN 12845
1KDN 50-250/263 37	3 x 400 V	KV 3/12 T	37	50	1,5	2	KDN 50 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 50-250/230 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 50 EN 12845	0,22 m²
1KDN 50-250/250 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 50 EN 12845	0,22 m²
1KDN 50-250/263 MD	1 x 220-240 V	KV 3/12 T	37	50	1,5	2	KDN 50 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

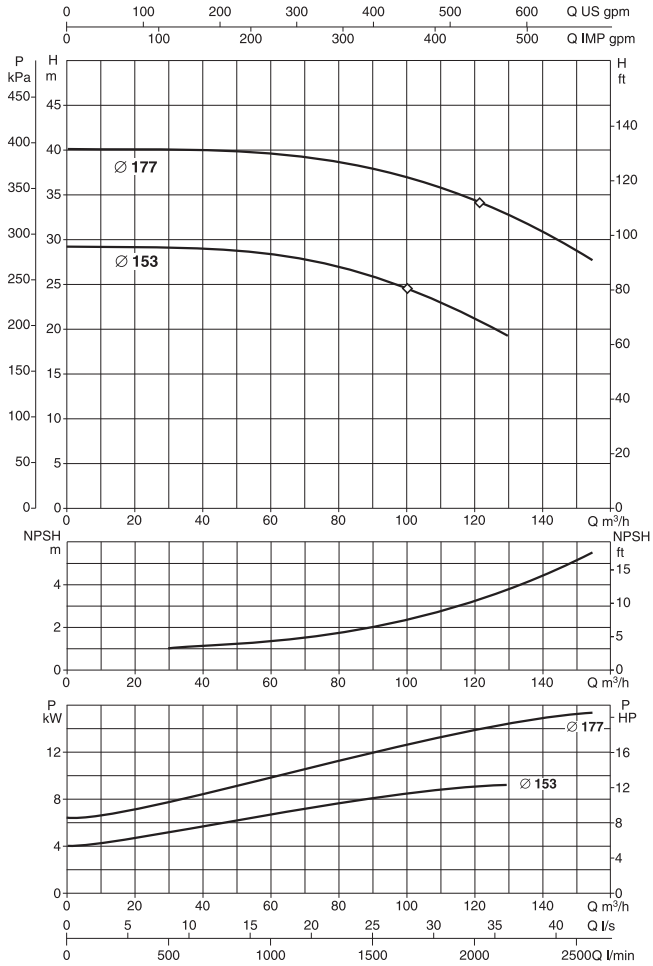
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 65-160 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 150 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 65-160/153 11	3 x 400 V	JET 251 T	11	15	1,85	2,5	KDN 65 EN 12845
1KDN 65-160/177 15	3 x 400 V	JET 251 T	15	20	1,85	2,5	KDN 65 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 65-160/153 MD	1 x 220-240 V	JET 251 T	11	15	1,85	2,5	KDN 65 EN 12845	0,22 m²
1KDN 65-160/177 MD	1 x 220-240 V	JET 251 T	15	20	1,85	2,5	KDN 65 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump

DAB PUMP PERFORMANCE

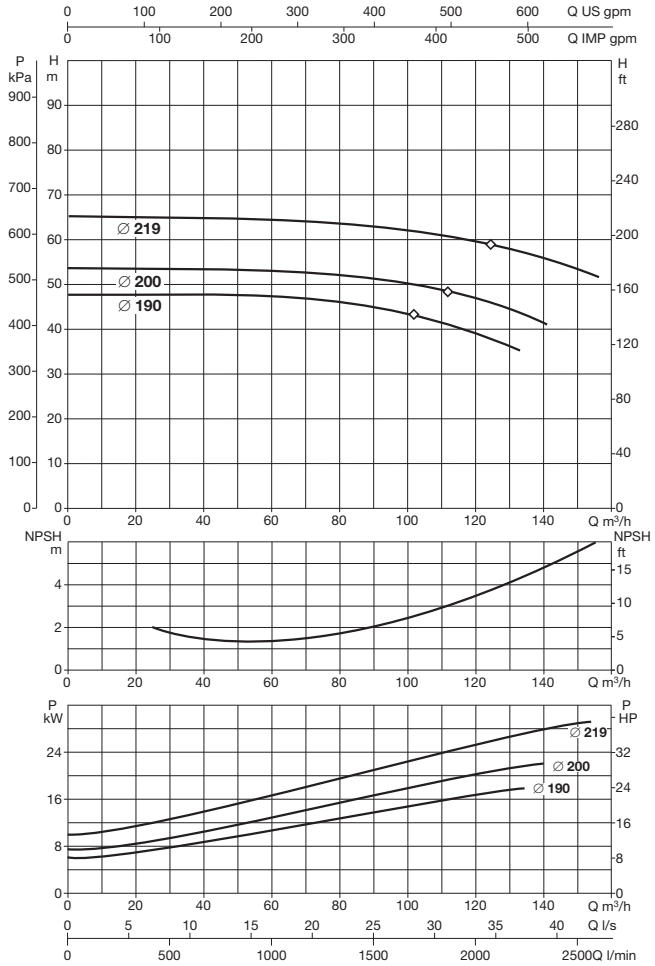
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 65-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 150 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 65-200/190 18,5	3 x 400 V	JET 251 T	18,5	25	1,85	2,5	KDN 65 EN 12845
1KDN 65-200/200 22	3 x 400 V	JET 251 T	22	30	1,85	2,5	KDN 65 EN 12845
1KDN 65-200/219 30	3 x 400 V	JET 251 T	30	40	1,85	2,5	KDN 65 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 65-200/190 MD	1 x 220-240 V	JET 251 T	19	25	1,85	2,5	KDN 65 EN 12845	0,22 m²
1KDN 65-200/200 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 65 EN 12845	0,22 m²
1KDN 65-200/219 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 65 EN 12845	0,22 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

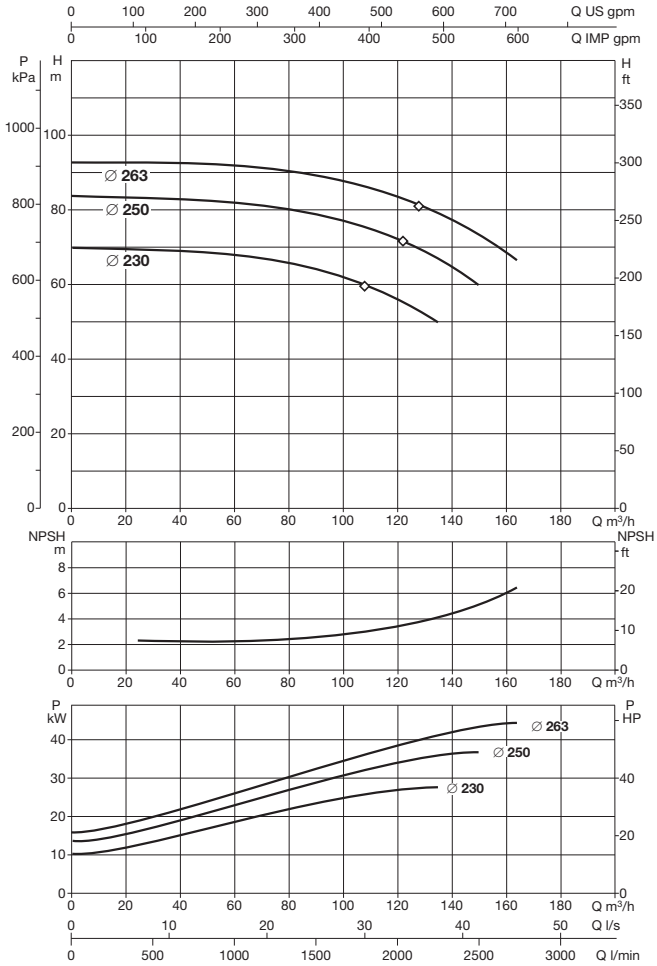
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 65-250 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 160 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		METER KIT
			kW	HP	kW	HP	
1KDN 65-250/230 30	3 x 400 V	JET 251 T	30	40	1,85	2,5	KDN 65 EN 12845
1KDN 65-250/250 37	3 x 400 V	KVCX 65/80 T	37	50	2,2	3	KDN 65 EN 12845
1KDN 65-250/263 45	3 x 400 V	KVCX 65/80 T	45	60	2,2	3	KDN 65 EN 12845

1KDN DIESEL PUMP EN 12845

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 65-250/230 MD	1 x 220-240 V	JET 251 T	26	35	1,85	2,5	KDN 65 EN 12845	0,22 m²
1KDN 65-250/250 MD	1 x 220-240 V	KVCX 65/80 T	37	50	2,2	3	KDN 65 EN 12845	0,40 m²
1KDN 65-250/263 MD	1 x 220-240 V	KVCX 65/80 T	53	64	2,2	3	KDN 65 EN 12845	0,40 m²

* Jockey pump on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

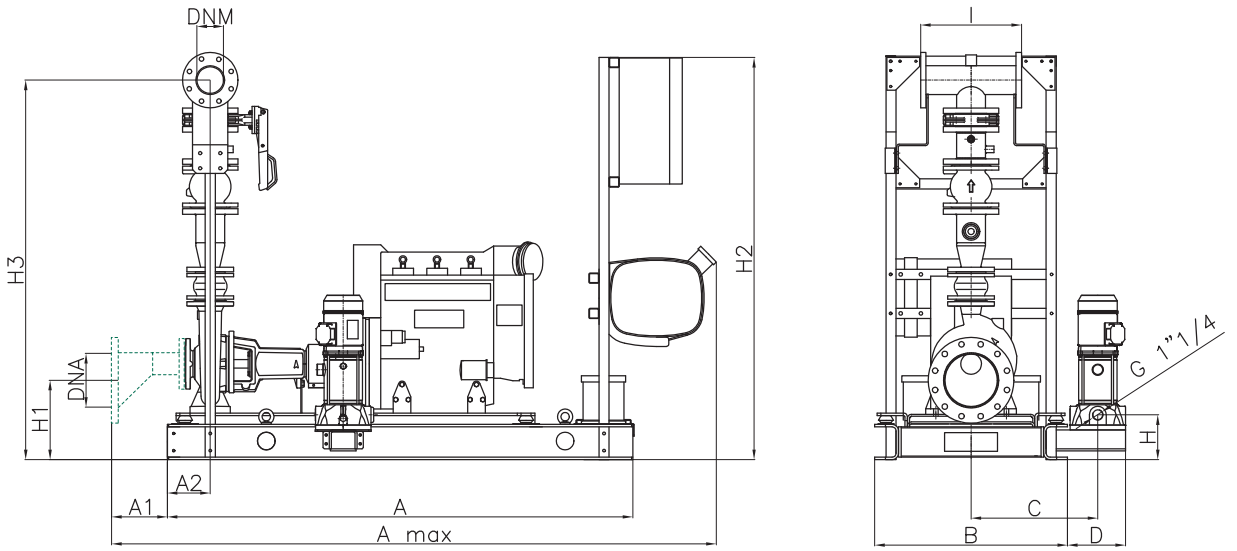
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	H	H1	H2	H3	I	DNA	DNM	without jockey pump kg	with jockey pump kg
1KDN 65-250/230	**MD EN 12845**	1846	2400	209	170	765	505	242	178	340	1595	1505	400	150	100	730	760
1KDN 65-250/250-263	**MD EN 12845**	1846	2400	209	170	765	505	242	178	340	1595	1505	400	150	100	800	830
1KDN 80-160/177	**MD EN 12845**	1846	2370	167	250	765	505	242	178	328	1595	1575	400	200	125	800	830

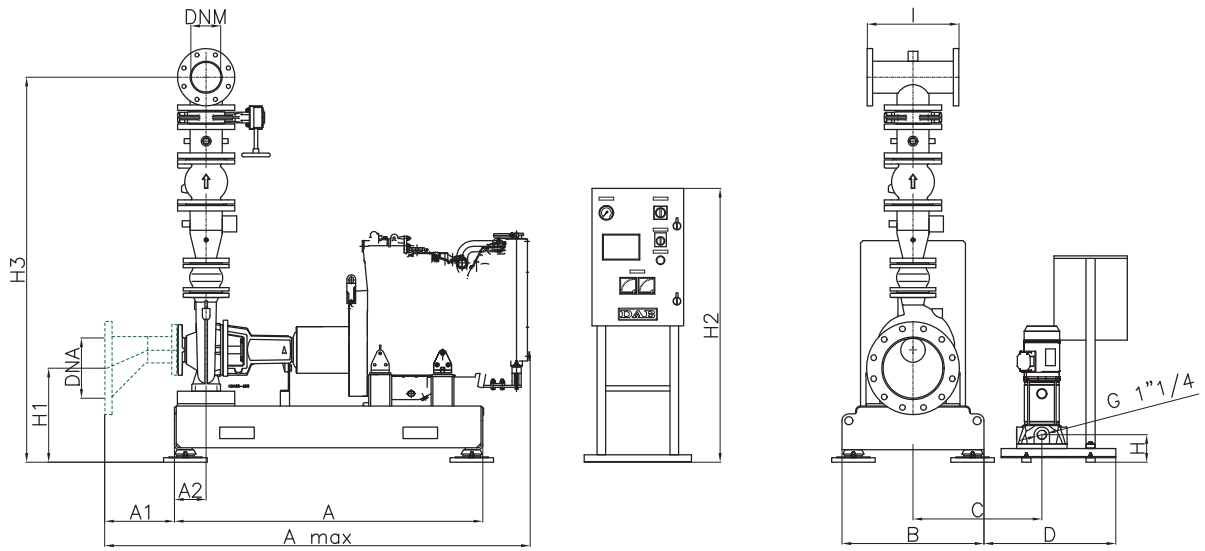
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	H	H1	H2	H3	I	DNA	DNM	without jockey pump kg	with jockey pump kg
1KDN 80-200/200	**MD EN 12845**	1346	1834	278	139	620	562	575	120	438	1200	1680	400	200	125	930	960
1KDN 80-200/222	**MD EN 12845**	1346	1834	278	139	620	562	575	120	438	1200	1680	400	200	125	940	970
1KDN 80-250/240	**MD EN 12845**	1459	1939	278	139	722	613	575	120	453	1200	1725	400	200	125	1000	1030
1KDN 80-250/260-270	**MD EN 12845**	1682	2202	278	139	722	613	575	120	453	1200	1725	400	200	125	1200	1230
1KDN 100-200/200	**MD EN 12845**	1346	1887	335	139	620	562	575	120	423	1200	1803	600	250	150	1100	1130
1KDN 100-200/210	**MD EN 12845**	1459	1995	335	139	722	613	575	120	438	1200	1818	600	250	150	1160	1190
1KDN 100-200/219	**MD EN 12845**	1682	2258	335	139	722	613	575	120	438	1200	1818	600	250	150	1265	1295
1KDN 100-250/240-250	**MD EN 12845**	1682	2273	349	139	722	613	575	120	438	1200	1818	600	250	150	1280	1310
1KDN 100-250/260	**MD EN 12845**	1750	2218	368	120	800	652	575	120	450	1200	1861	600	250	150	1300	1330

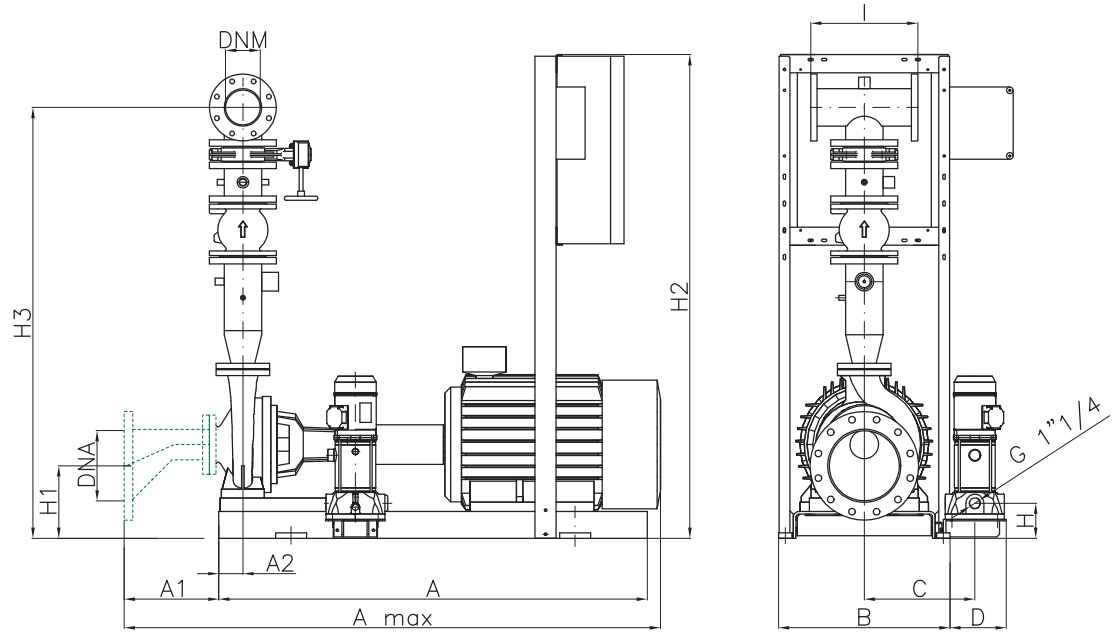
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	H	H1	H2	H3	I	DNA	DNM	without jockey pump kg	with jockey pump kg
1KDN 65-250/230-250	**30-37 EN 12845**	1400	1773	289	90	590	388	215	131	260	1800	1434	400	150	100	680	710
1KDN 65-250/263	**45KW EN 12845**	1400	1828	289	90	590	388	215	131	285	1800	1460	400	150	100	760	790
1KDN 80-160/177	**30KW EN 12845**	1400	1743	342	75	590	388	215	131	248	1800	1504	400	200	125	720	750
1KDN 80-200/200	**37KW EN 12845**	1400	1811	342	75	590	388	215	131	248	1800	1528	400	200	125	750	780
1KDN 80-200/222	**45KW EN 12845**	1400	1866	342	75	590	388	215	131	273	1800	1553	400	200	125	820	850
1KDN 80-250/240	**55KW EN 12845**	1600	1976	327	90	640	413	210	131	298	1800	1608	400	200	125	920	950
1KDN 80-250/260-270	**75-90 EN 12845**	1800	2127	327	95	710	448	210	131	328	1800	1639	400	200	125	1170	1200
1KDN 100-200/200	**45KW EN 12845**	1400	1922	398	90	590	388	215	131	258	1800	1645	600	250	150	1120	1150
1KDN 100-200/210	**55KW EN 12845**	1600	2032	383	90	640	413	210	131	283	1800	1670	600	250	150	1200	1230
1KDN 100-200/219	**75KW EN 12845**	1800	2183	383	90	710	448	210	131	313	1800	1700	600	250	150	1280	1310
1KDN 100-250/240-250	**75-90 EN 12845**	1800	2198	398	90	710	448	210	131	313	1800	1700	600	250	150	1320	1350
1 KDN 100-250/260	**110KW EN 12845**	2000	2447	398	90	860	523	210	131	368	1800	1755	600	250	150	1430	1460

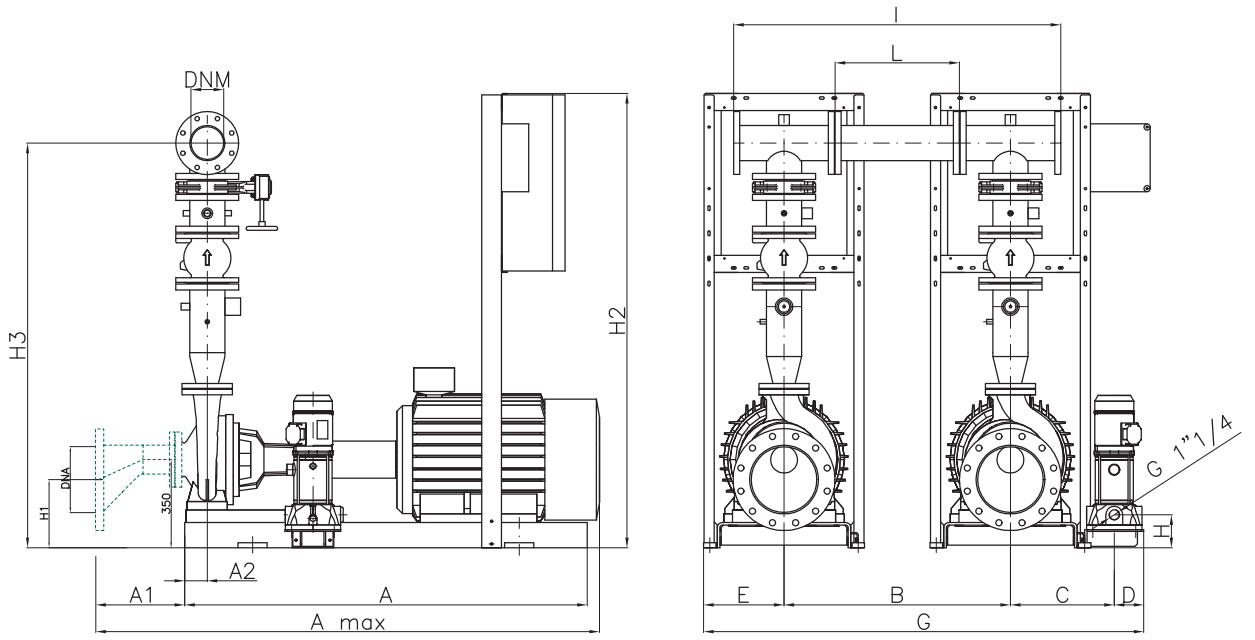
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	G	H	H1	H2	H3	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 65-250/230-250	**30-37 EN 12845**	1400	1773	289	90	900	388	122	295	1705	131	260	1800	1434	1300	500	150	100	680	710
KDN 65-250/263	**45KW EN 12845**	1400	1828	289	90	900	388	122	295	1705	131	285	1800	1460	1300	500	150	100	760	790
KDN 80-160/177	**30KW EN 12845**	1400	1743	342	75	900	388	122	295	1705	131	248	1800	1504	1300	500	200	125	720	750
KDN 80-200/200	**37KW EN 12845**	1400	1811	342	75	900	388	122	295	1705	131	248	1800	1528	1300	500	200	125	750	780
KDN 80-200/222	**45KW EN 12845**	1400	1866	342	75	900	388	122	295	1705	131	273	1800	1553	1300	500	200	125	820	850
KDN 80-250/240	**55KW EN 12845**	1600	1976	327	90	900	413	122	320	1755	131	298	1800	1608	1300	500	200	125	920	950
KDN 80-250/260-270	**75-90 EN 12845**	1800	2127	327	95	900	448	122	355	1825	131	328	1800	1639	1300	500	200	125	1170	1200
KDN 100-200/200	**45KW EN 12845**	1400	1922	398	90	1100	388	122	295	1905	131	258	1800	1645	1700	500	250	150	1120	1150
KDN 100-200/210	**55KW EN 12845**	1600	2032	383	90	1100	413	122	320	1955	131	283	1800	1670	1700	500	250	150	1200	1230
KDN 100-200/219	**75KW EN 12845**	1800	2183	383	90	1100	448	122	355	2025	131	313	1800	1700	1700	500	250	150	1280	1310
KDN 100-250/240-250	**75-90 EN 12845**	1800	2198	398	90	1100	448	122	35	2025	131	313	1800	1700	1700	500	250	150	1320	1350
KDN 100-250/260	**110KW EN 12845**	2000	2447	398	90	1100	523	122	430	2175	131	368	1800	1755	1700	500	250	150	1430	1460

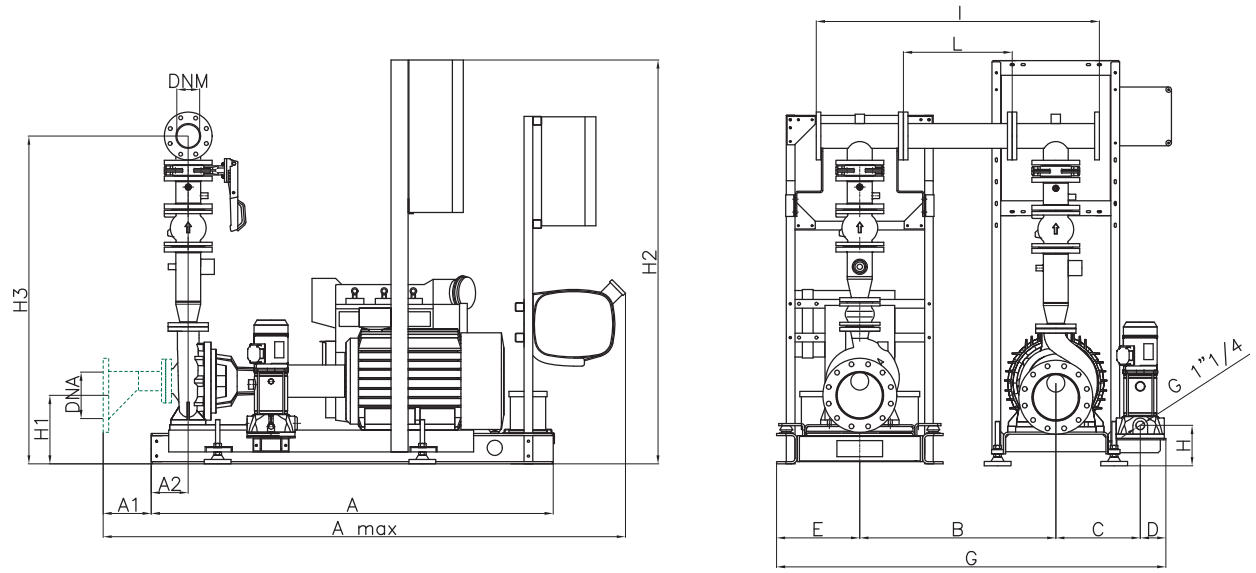
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP + DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	F	H	H1	H2	H3	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 65-250/230	**MD EN 12845**	1846	2400	209	170	900	388	122	383	1793	211	340	1985	1505	1300	500	150	100	730	710
KDN 65-250/250-263	**MD EN 12845**	1846	2400	209	170	900	388	122	383	1793	186	340	1855	1505	1300	500	150	100	800	790
KDN 80-160/177	**MD EN 12845**	1846	2370	167	250	900	388	122	383	1793	211	328	1880	1575	1300	500	200	125	800	750

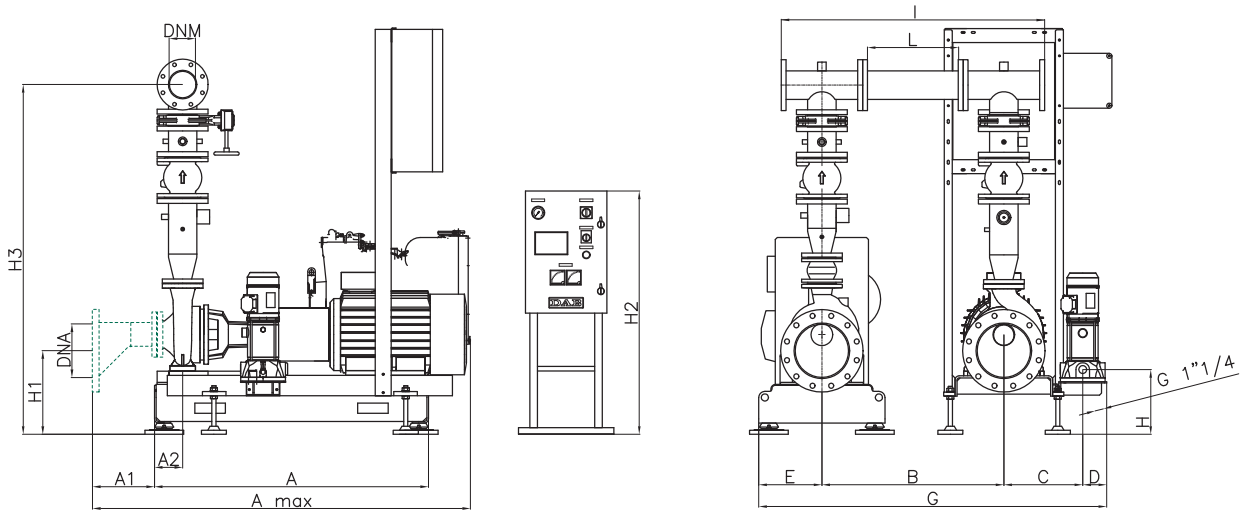
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

ELECTRIC PUMP + DIESEL PUMP MODULE – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	L	G	H	H1	H2	H3	I	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 80-200/200	**MD EN 12845**	1346	1860	304	139	900	388	122	310	500	1720	321	438	1200	1680	1300	200	125	930	780
KDN 80-200/222	**MD EN 12845**	1346	1862	304	139	900	388	122	310	500	1720	296	438	1200	1680	1300	200	125	940	850
KDN 80-250/240	**MD EN 12845**	1459	1965	304	139	900	448	122	361	500	1831	256	453	1200	1725	1300	200	125	1000	950
KDN 80-250/260-270	**MD EN 12845**	1682	2228	304	139	900	448	122	361	500	1831	256	453	1200	1725	1300	200	125	1200	1200
KDN 100-200/200	**MD EN 12845**	1346	2057	360	139	1100	413	122	310	500	1945	271	423	1200	1803	1700	250	150	1100	1150
KDN 100-200/210	**MD EN 12845**	1459	2208	360	139	1100	448	122	361	500	2031	256	438	1200	1818	1700	250	150	1160	1230
KDN 100-200/219	**MD EN 12845**	1682	2283	360	139	1100	448	122	361	500	2031	256	438	1200	1818	1700	250	150	1265	1310
KDN 100-250/240-250	**MD EN 12845**	1682	2298	374	139	1100	448	122	361	500	2031	256	438	1200	1818	1700	250	150	1280	1350
KDN 100-250/260	**MD EN 12845**	1750	2472	374	120	1100	523	122	400	500	2145	213	450	1200	1861	1700	250	150	1300	1460

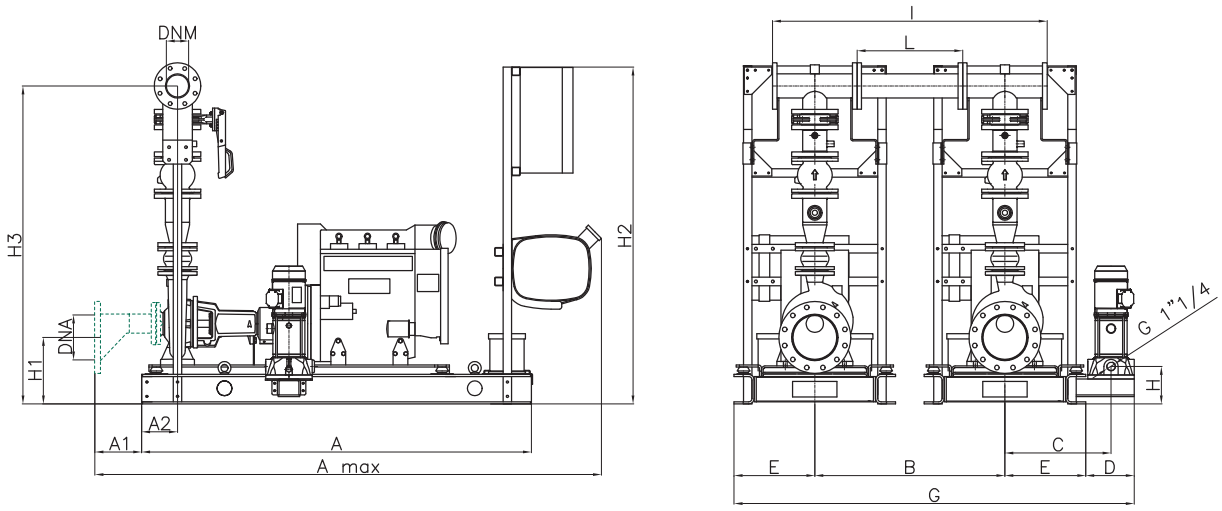
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

FIRE-FIGHTING UNITS TO UNI EN 12845



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	F	H	H1	H2	H3	I	L	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 65-250/230	**MD EN 12845**	1846	2400	209	170	900	505	242	383	383	178	340	1595	1505	1300	500	150	100	730	760
KDN 65-250/250-263	**MD EN 12845**	1846	2400	209	170	900	505	242	383	383	178	340	1595	1505	1300	500	150	100	800	830
KDN 80-160/177	**MD EN 12845**	1846	2370	167	250	900	505	242	383	383	178	328	1595	1575	1300	500	200	125	800	830

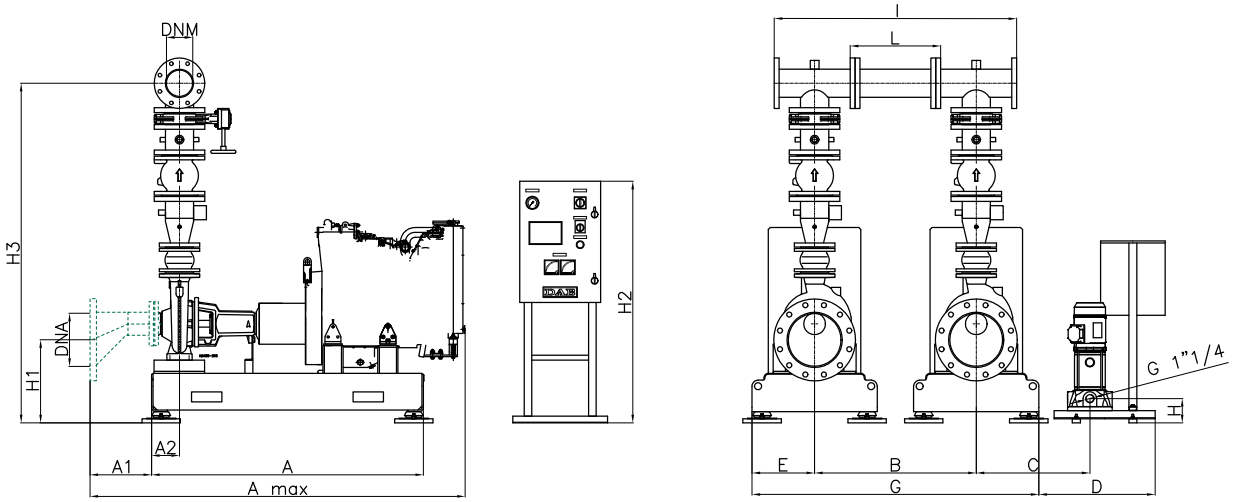
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

KDN PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°CC

2 DIESEL PUMP MODULES – DIMENSIONS



*** COMPONENTS SHOWN WITH BROKEN LINES ARE NOT INCLUDED IN THE STANDARD SUPPLY**

DESCRIPTION		A	Amax	A1	A2	B	C	D	E	L	G	H	H1	H2	H3	I	DNA	DNM	without jockey pump kg	with jockey pump kg
KDN 80-200/200	**MD EN 12845**	1346	1834	278	139	900	562	575	310	500	1520	120	438	1200	1680	1300	200	125	930	960
KDN 80-200/222	**MD EN 12845**	1346	1834	278	139	900	562	575	310	500	1520	120	438	1200	1680	1300	200	125	940	970
KDN 80-250/240	**MD EN 12845**	1459	1939	278	139	900	613	575	361	500	1622	120	453	1200	1725	1300	200	125	1000	1030
KDN 80-250/260-270	**MD EN 12845**	1682	2202	278	139	900	613	575	361	500	1622	120	453	1200	1725	1300	200	125	1200	1230
KDN 100-200/200	**MD EN 12845**	1346	1887	335	139	1100	562	575	310	500	1720	120	423	1200	1803	1700	250	150	1100	1130
KDN 100-200/210	**MD EN 12845**	1459	1995	335	139	1100	613	575	361	500	1822	120	438	1200	1818	1700	250	150	1160	1190
KDN 100-200/219	**MD EN 12845**	1682	2258	335	139	1100	613	575	361	500	1822	120	438	1200	1818	1700	250	150	1265	1295
KDN 100-250/240-250	**MD EN 12845**	1682	2273	349	139	1100	613	575	361	500	1822	120	438	1200	1818	1700	250	150	1280	1310
KDN 100-250/260	**MD EN 12845**	1750	2218	368	120	1100	652	575	400	500	2404	120	450	1200	1861	1700	250	150	1300	1330

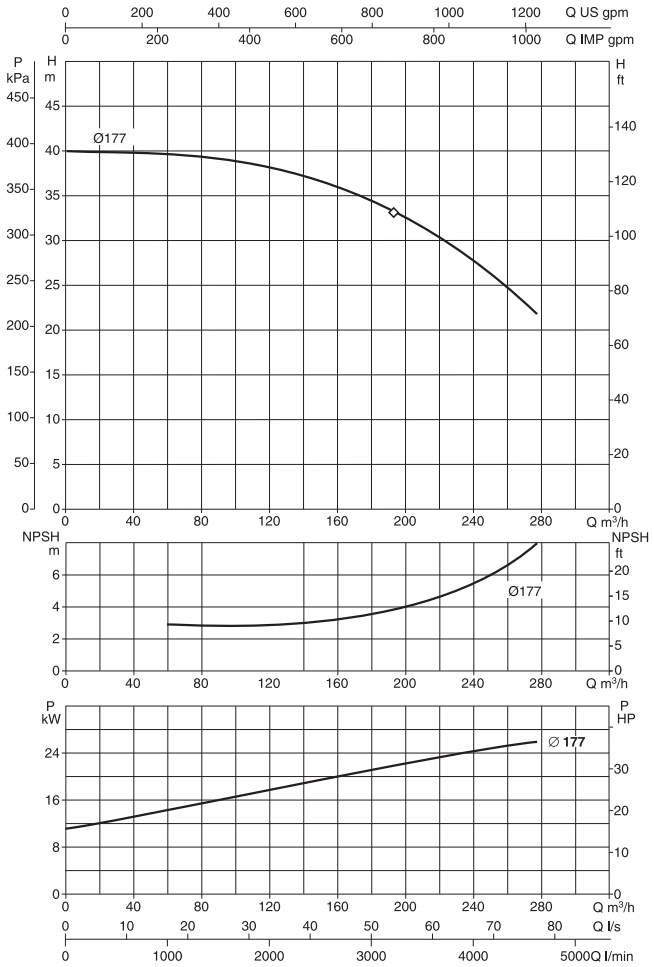
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KDN 80-160 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature : from +4°C to +40°C

Maximum flow rate: 250 m^3/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		FLOW METER KIT
			kW	HP	kW	HP	
1KDN 80-160/177 30	3 x 400 V	KVCX 65/80 T	30	40	2,2	3	KDN 80 EN 12845

1KDN EN 12845 DIESEL PUMP

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 80-160/177 MD	1 x 220-240 V	KVCX 65/80 T	26	35	2,2	3	KDN 80 EN 12845	0,22 m^2

* Jockey pump available on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

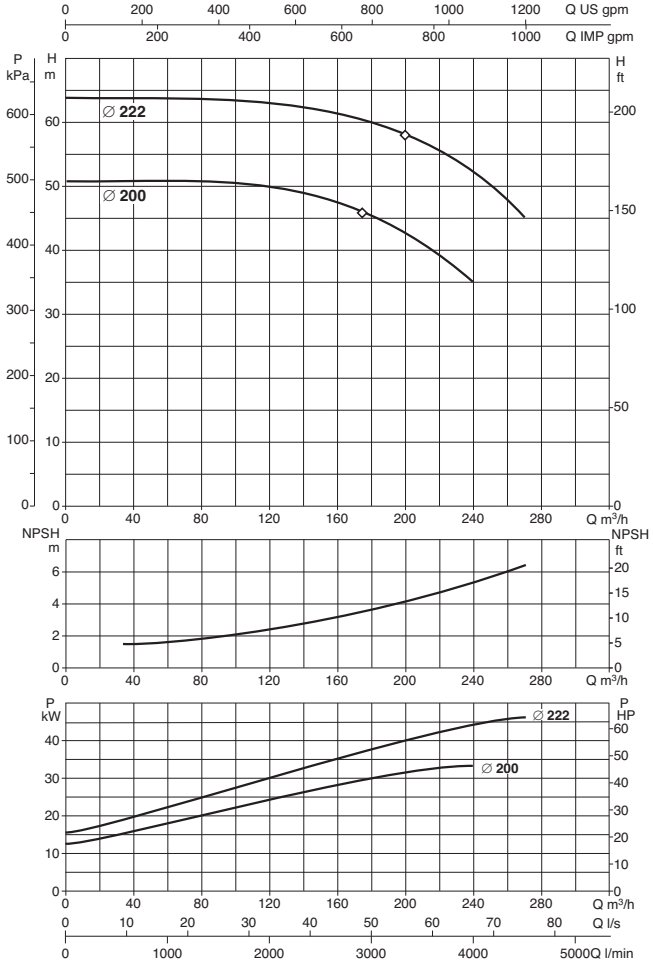
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 80-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 250 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		FLOW METER KIT
			kW	HP	kW	HP	
1KDN 80-200/200 37	3 x 400 V	KVCX 65/80 T	37	50	2,2	3	KDN 80 EN 12845
1KDN 80-200/222 45	3 x 400 V	KVCX 65/80 T	45	60	2,2	3	KDN 80 EN 12845

1KDN EN 12845 DIESEL PUMP

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 80-200/200 MD	1 x 220-240 V	KVCX 65/80 T	37	50	2,2	3	KDN 80 EN 12845	0,40 m²
1KDN 80-200/222 MD	1 x 220-240 V	KVCX 65/80 T	53	71	2,2	3	KDN 80 EN 12845	0,40 m²

* Jockey pump available on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

DAB PUMP PERFORMANCE

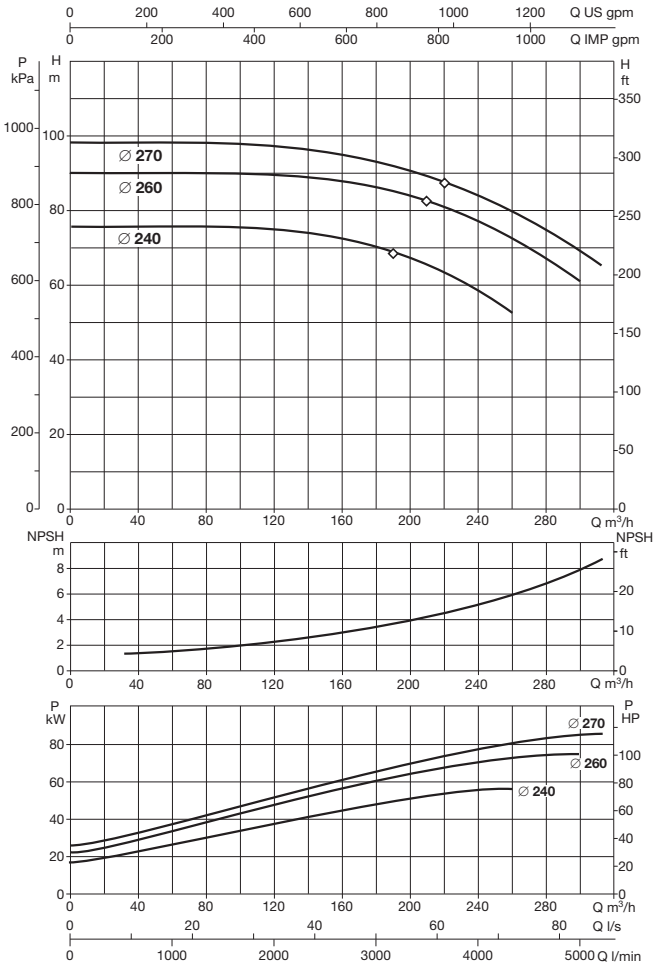
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 80-250 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 280 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		FLOW METER KIT
			kW	HP	kW	HP	
1KDN 80-250/240 55	3 x 400 V	KVCX 65/80 T	55	75	2,2	3	KDN 80 EN 12845
1KDN 80-250/260 75	3 x 400 V	KVCX 65/80 T	75	100	2,2	3	KDN 80 EN 12845
1KDN 80-250/270 90	3 x 400 V	KVCX 65/80 T	90	120	2,2	3	KDN 80 EN 12845

1KDN EN 12845 DIESEL PUMP

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 80-250/240 MD	1 x 220-240 V	KVCX 65/80 T	68	91	2,2	3	KDN 80 EN 12845	0,40 m²
1KDN 80-250/260 MD	1 x 220-240 V	KVCX 65/80 T	103	138	2,2	3	KDN 80 EN 12845	0,40 m²
1KDN 80-250/270 MD	1 x 220-240 V	KVCX 65/80 T	103	138	2,2	3	KDN 80 EN 12845	0,40 m²

* Jockey pump available on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

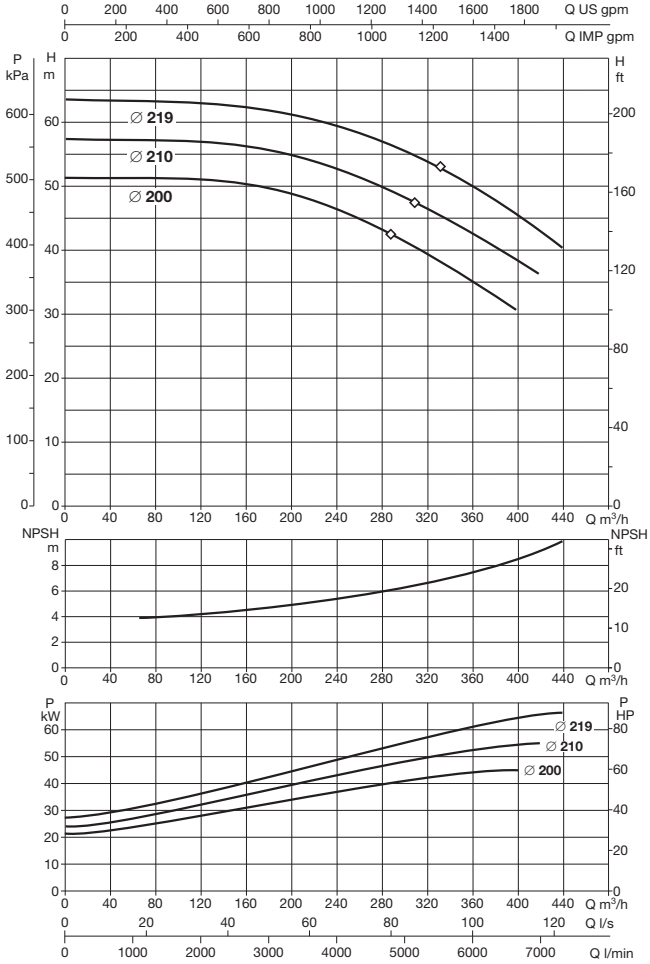
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

1 KDN 100-200 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 400 m^3/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		FLOW METER KIT
			kW	HP	kW	HP	
1KDN 100-200/200 45	3 x 400 V	KVCX 65/80 T	45	60	2,2	3	KDN 80 EN 12845
1KDN 100-200/210 45	3 x 400 V	KVCX 65/80 T	55	75	2,2	3	KDN 80 EN 12845
1KDN 100-200/219 75	3 x 400 V	KVCX 65/80 T	75	100	2,2	3	KDN 80 EN 12845

1KDN EN 12845 DIESEL PUMP

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 100-200/200 MD	1 x 220-240 V	KVCX 65/80 T	53	71	2,2	3	KDN 80 EN 12845	0,40 m^2
1KDN 100-200/210 MD	1 x 220-240 V	KVCX 65/80 T	68	91	2,2	3	KDN 80 EN 12845	0,40 m^2
1KDN 100-200/219 MD	1 x 220-240 V	KVCX 65/80 T	103	138	2,2	3	KDN 80 EN 12845	0,40 m^2

* Jockey pump available on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

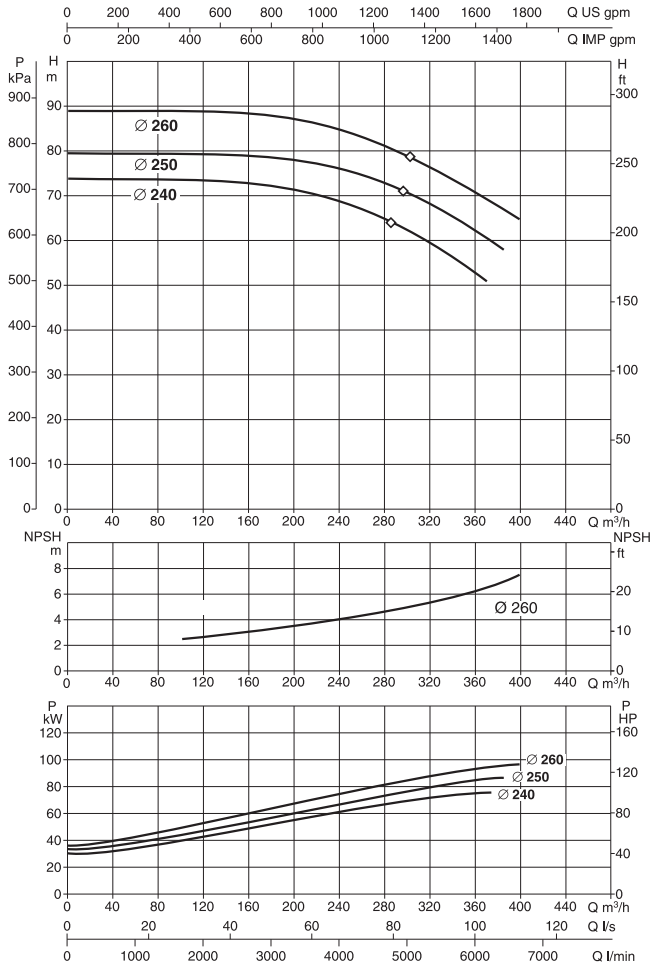
The performance curves are based on kinematic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Tolerance of curves to ISO 9906.

1 KDN 100-250 PUMP SETS

FIRE-FIGHTING UNITS TO UNI EN 12845

Liquid temperature range: from -15°C to +70°C
Maximum ambient temperature: from +4°C to +40°C

Maximum flow rate: 400 m³/h



1 KDN EN 12845 ELECTRIC PUMP

MODEL	POWER INPUT	JOCKEY PUMP *	P2 MAIN FEED PUMP		P2 JOCKEY PUMP		FLOW METER KIT
			kW	HP	kW	HP	
1KDN 100-250/240 75	3 x 400 V	KVCX 65/80 T	75	100	2,2	3	KDN 80 EN 12845
1KDN 100-250/250 90	3 x 400 V	KVCX 65/80 T	90	120	2,2	3	KDN 80 EN 12845
1KDN 100-250/260 110	3 x 400 V	KVCX 65/80 T	110	150	2,2	3	KDN 80 EN 12845

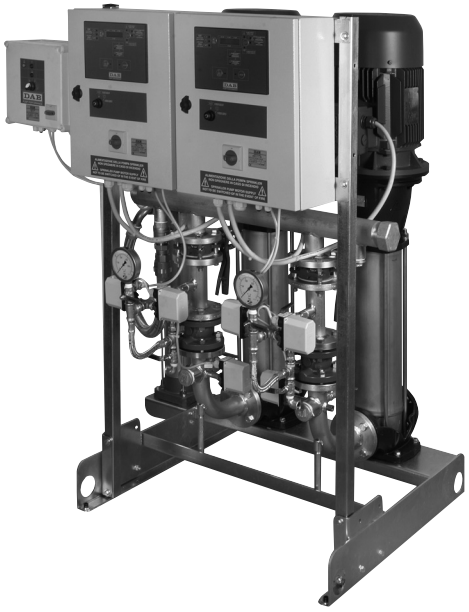
1KDN EN 12845 DIESEL PUMP

MODEL	POWER INPUT BATTERY CHARGER	JOCKEY PUMP *	** P2 DIESEL PUMP		P2 JOCKEY PUMP		FLOW METER KIT	FAN SURFACE AREA
			kW	HP	kW	HP		
1KDN 100-250/240 MD	1 x 220-240 V	KVCX 65/80 T	103	138	2,2	3	KDN 80 EN 12845	0,40 m²
1KDN 100-250/250 MD	1 x 220-240 V	KVCX 65/80 T	103	138	2,2	3	KDN 80 EN 12845	0,40 m²
1KDN 100-250/260 MD	1 x 220-240 V	KVCX 65/80 T	109	146	2,2	3	KDN 80 EN 12845	0,40 m²

* Jockey pump available on request
** Continuous power ISO 3046. The engine is able to deliver +10% of the power required by the pump.

FIRE-FIGHTING PUMP

SETS TO UNI EN 12845
With NKV vertical pumps



CE

GENERAL DATA

TECHNICAL DATA
Fire-fighting pump units manufactured in compliance with the prescriptions of European standard UNI EN 12845 Fixed fire-fighting installations - Automatic sprinkler systems.

NOTES ON UNI EN 12845
UNI EN 12845, the Italian version of European standard EN 12845, establishes design, installation and maintenance criteria for sprinkler systems and 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 in the initial stages, or to keep flames under control until they can be extinguished fully using ancillary means.
The classic sprinkler system is composed of: a water source, a fire-fighting pump unit, a series of control valves, and a sprinklers circuit.

COMPOSITION OF MULTIPLE PUMP UNITS
The pumps of EN 12845 sets will have identical characteristics and, in addition:
- if TWO pumps are installed each will be designed to deliver the total flow rate of the system (100%)
- if THREE pumps are installed, each will be designed to deliver 50% of the total flow rate.

"In applications in which more than one pump is installed with higher or duplicated feed, only one of the pumps will be electrically driven (10.2)".
In the case of a single water supply, there are no limits restricting the number of electric pumps that can be installed.

OPERATION OF EN 12845 FIRE-FIGHTING PUMP SET
In normal conditions (zero water demand) the system is maintained under static pressure.
The first demand for water results in start-up of the jockey pump, which restores system pressure.
If a significant flow rate of water is demanded (opening of sprinklers), the pressure will drop until the two pressure switches connected in series trip to start up the main pump.
The two start-up pressure switches must be calibrated in such a way as to start the pumps at the following pressure values:

SETS WITH ONE PUMP	P = 0.8 X MAX. PUMP PRESSURE	
SETS WITH TWO PUMPS	PUMP 1: P1 = 0.8 X MAX. PRESSURE	PUMP 2: P2 = 0.6 X MAX. PRESSURE

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

The main pump continues to run until it is stopped manually by pressing the STOP pushbutton on the control panel.

In the case of hydrant circuits, refer to UNI 10779 – July 07. Apart from prescribing feed pumps in compliance with UNI EN 12845, UNI 10779 allows automatic stopping of the pumps 20 minutes after closing of the hydrants, in the case of operation that is not permanently supervised. DAB pump sets are suitable for sprinkler installations with manual stopping and for hydrant installations with automatic stopping.

EN 12845 PUMPS

UNI-EN 12845 (10.1) prescribes “Horizontal or vertical pumps, with identical maximum head and head at zero flow rate. The pumps can be driven by an electric motor or Diesel engine.
For pre-calculated HHP and HHS systems, the pumps will be capable of delivering 140 % of the flow rate at 70 % of the head of the working point (100%).

JOCKEY PUMP

The pressure compensation or “jockey” pump cuts in following minor water demands thereby avoiding wasteful starting of the main pumps.
DAB fire-fighting sets are available with or without a jockey pump.

WARNING NOTE

The use of a single electric pump is limited in the case of higher or double water supply.
In compliance with UNI-EN 12845 (10.2) “in cases in which more than one pump is installed in a higher or double water supply, no more than one of the pumps shall be driven by an electric motor”.

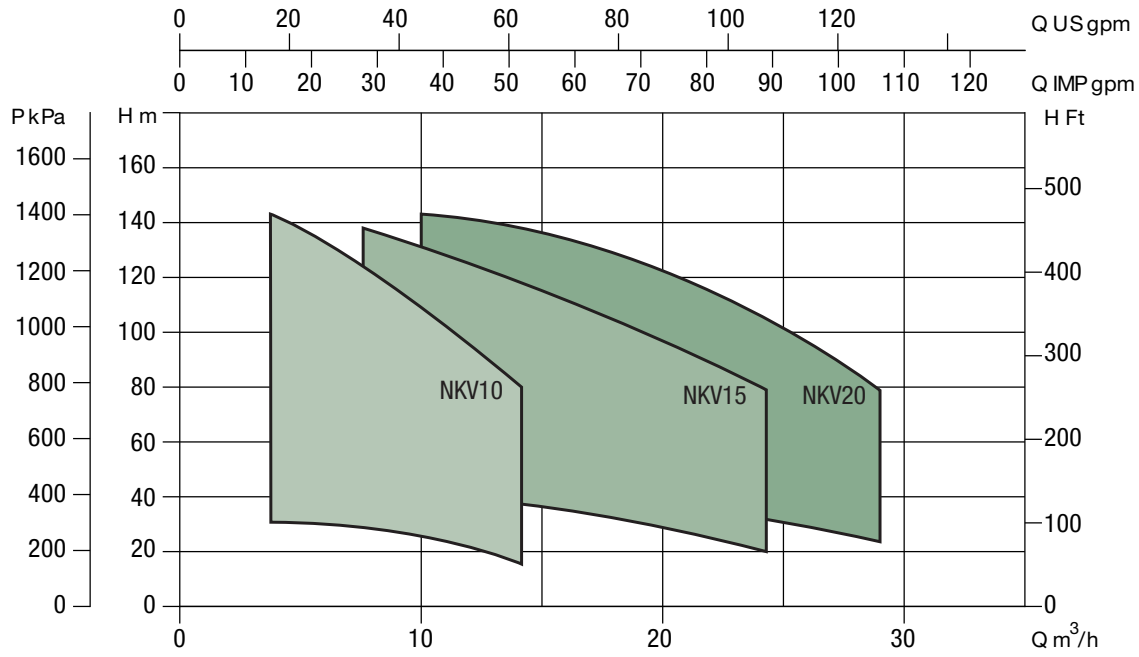
PERFORMANCE RANGE

GRAPHIC SELECTION TABLE

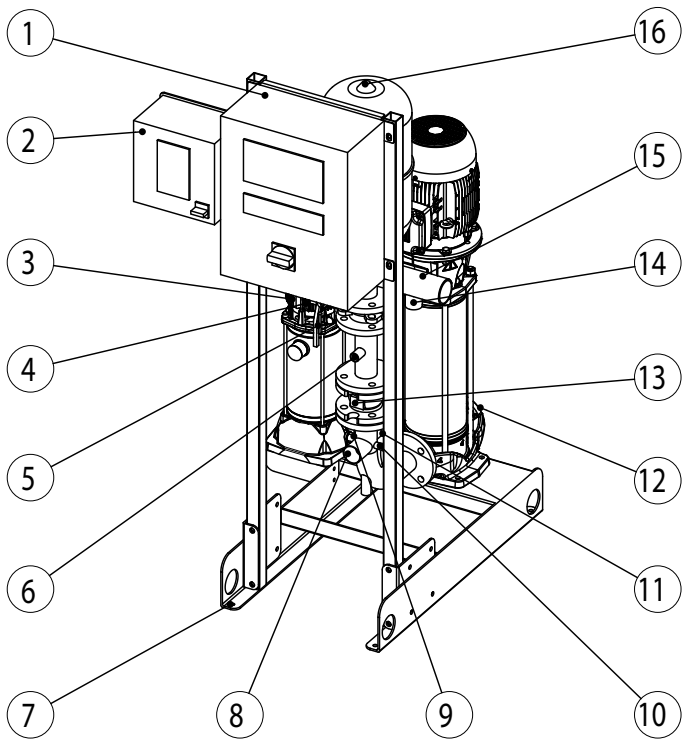
The performance curves are based on kinematic viscosity values = 1 mm^2/s and density equivalent to 1000 kg/m^3. Tolerance of curves to ISO 9906.

NKV

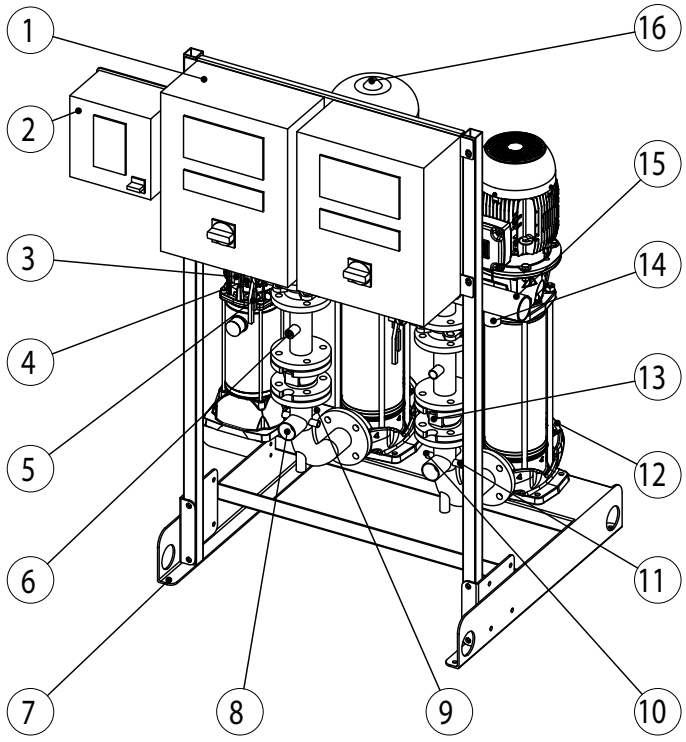
≅ 2900 1/min



COMPONENTS



1	Independent control panel for each main pump
2	Jockey pump control panel
3	Jockey pump
4	Jockey pump pressure switch
5	Padlockable isolator valve
6	Starting pressure switches circuit
7	Floor anchor holes
8	2” connection for priming tank
9	1/4” connection for water recirculation
10	Pump operation pressure switch
11	Test system for check valve
12	Independent suction pipes
13	Check valve on service pump
14	1” connection for pump house sprinklers flow switch
15	Single discharge manifold
16	Expansion vessel for jockey pump



1	Independent control panel for each main pump
2	Jockey pump control panel
3	Jockey pump
4	Jockey pump pressure switch
5	Padlockable isolator valve
6	Starting pressure switches circuit
7	Floor anchor holes
8	2” connection for priming tank
9	1/4” connection for water recirculation
10	Pump operation pressure switch
11	Test system for check valve
12	Independent suction pipes
13	Check valve on service pump
14	1” connection for pump house sprinklers flow switch
15	Single discharge manifold
16	Expansion vessel for jockey pump

EN 12845I ELECTRIC PUMP

MECHANICAL STRUCTURE
Skid in galvanized steel to support all pump sets and control panels.

MAIN ELECTRIC PUMPS
Main vertical axis multistage centrifugal pumps model NKV
AISI 304 stainless steel impellers, all parts in contact with liquid are stainless.
Asynchronous three-phase motor, motor-pump connection with rigid coupling.
The pumps start automatically in response to a pressure drop in the fire-fighting system, and are stopped manually (hydrants plant to UNI-EN 12845).

HYDRAULIC STRUCTURE
Axial suction and discharge port with max. water velocity at the suction port of 1.5 m/s (UNI-EN 10.6.2.3).
Independent flanged suction connection for each electric pump.
Components on discharge line of each main electric pump:
90° curved pipe with connections for priming and recirculation tank, check valve, circuit with two start-up pressure switches, padlockable isolator valve and discharge manifold made of galvanized steel complete with connection for pump room sprinklers flow switch.

ELECTRIC PUMP CONTROL PANEL FUNCTIONS
1 control panel for each main electric pump in IP 55 cabinet for the main pump. Electric pump control panel mounted on pump skid
The electric pump control panel, housed in an IP 55 metal enclosure, is equipped with the following components:

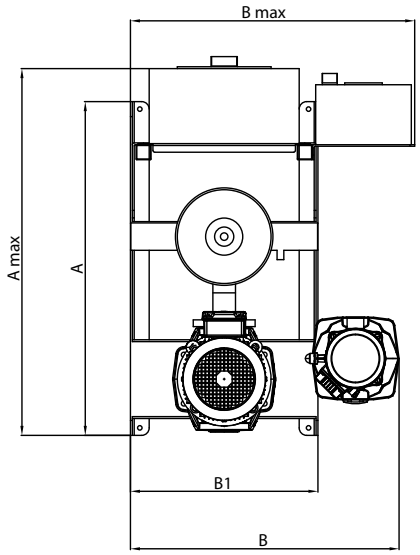
Interior of cabinet:
main door lock disconnect switch, fuses (current-surge relays-motor protectors are not permitted), direct starting for pumps up to 7.5 kW, star-delta starting for pumps above 7.5 kW, 24V control circuits transformer, auxiliary relays, terminal board.

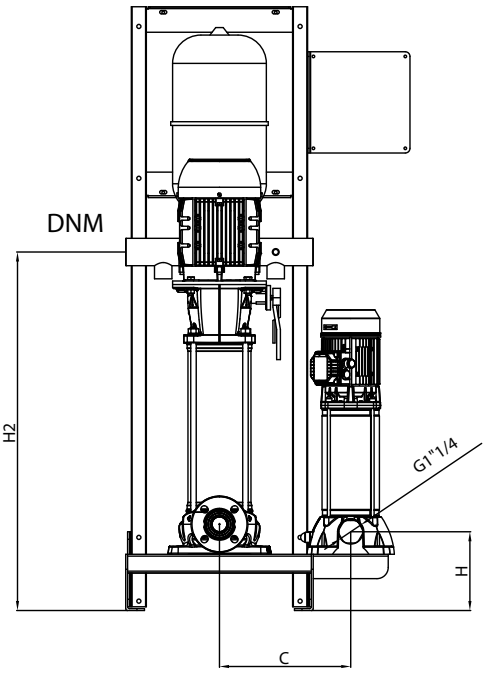
On front panel:
electric pump controller, multifunction instrument with display (voltmeter, ammeter, alarms) start and stop pushbuttons, indicator lights, indicator light with TEST button, AUT - 0 - MAN selector with key removable in AUT position, lamp test pushbutton.
Includes the following N.O. contacts on the terminal board, to be connected to our remote signals panel:
power/phase presence, pump start request, pump running, failed starting.

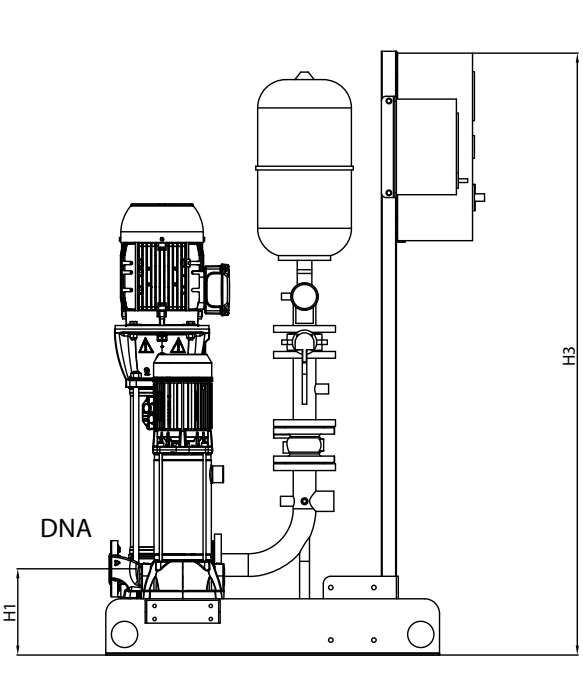
The panel is prearranged for installation of a GSM Modem (optional) so that pump set alarm and/or functional status information can be sent by SMS mobile text messages.

JOCKEY PUMP
The electric jockey pump starts and stops automatically to compensate for minor water demands thus making unnecessary for the main pumps to start.
The jockey pump is connected to the discharge manifold of the electric feed pump and is complete with: ball valve on suction, ball check valve on discharge, pressure switch, 20 l expansion vessel, protection control panel.

1 ELECTRIC PUMP SET DIMENSIONS

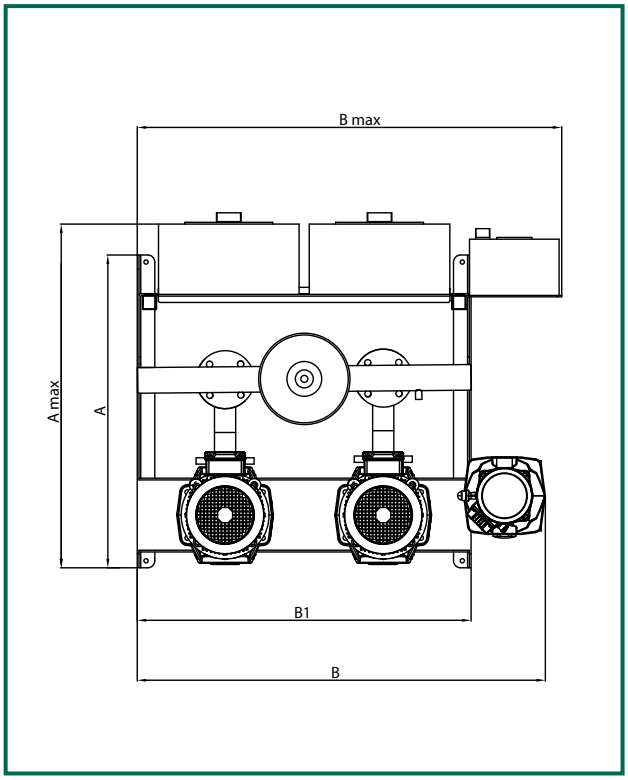


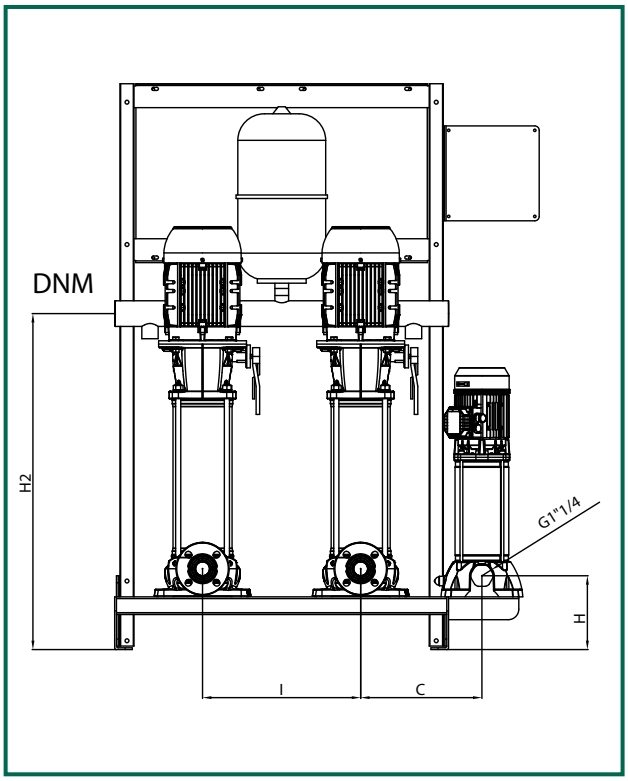


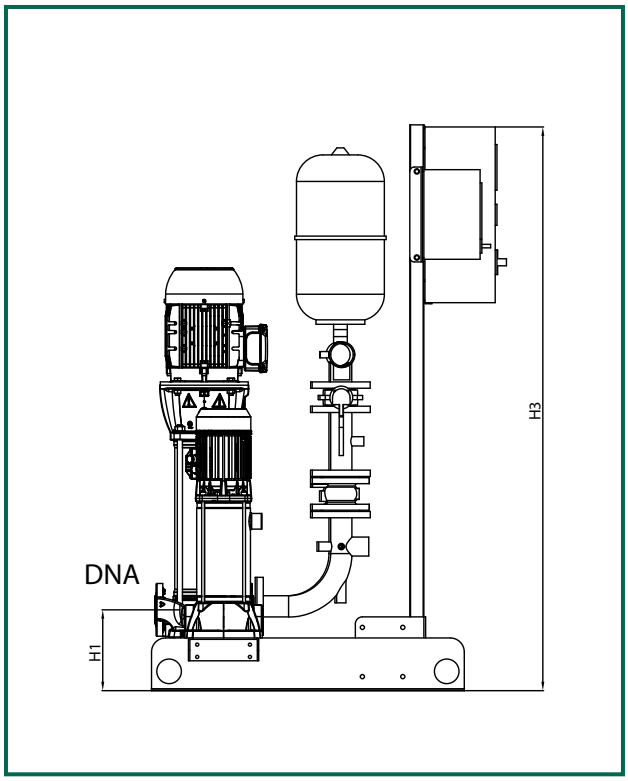


MODEL	A	A max	B	B1	B max	C	H	H1	H2	H3	DNA	DNM
1 NKV10	1000	1100	700	500	745	350	210	230	960	1600	40	2”
1 NKV15	1000	1100	700	500	745	350	210	240	970	1600	50	2” 1/2
1 NKV20	1000	1100	700	500	745	350	210	240	970	1600	50	2” 1/2

2 ELECTRIC PUMPS SET DIMENSIONS





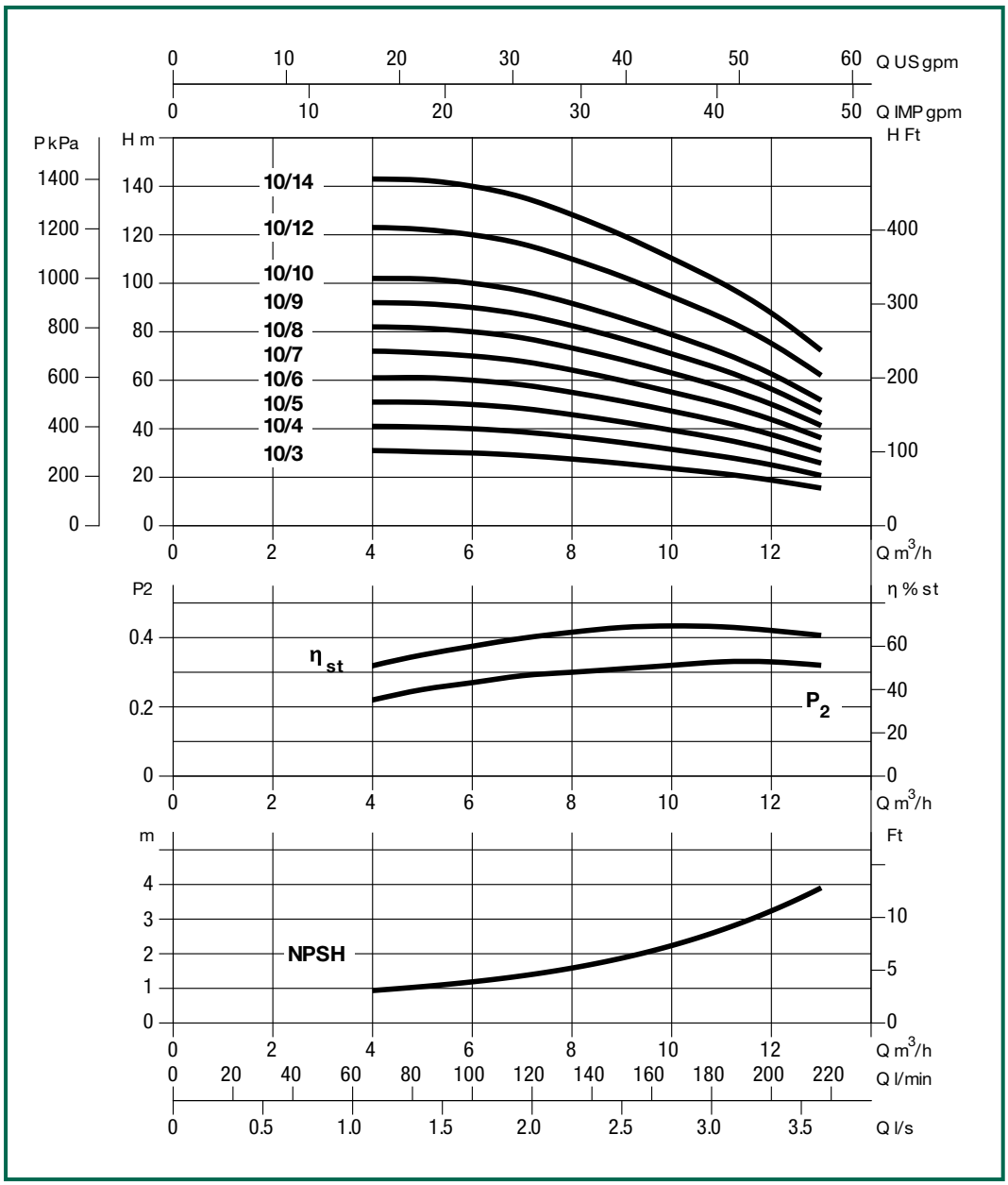


MODEL	A	A max	B	B1	B max	C	I	H	H1	H2	H3	DNA	DNM
2 NKV10	1000	1100	1100	950	1200	350	450	210	230	960	1600	40	2"
2 NKV15	1000	1100	1100	950	1200	350	450	210	240	970	1600	50	2" 1/2
2 NKV20	1000	1100	1100	950	1200	350	450	210	240	970	1600	50	2" 1/2

ELECTRICAL AND HYDRAULIC DATA

Performance curves and electrical data referred to a single pump in operation

NKV10 ≅ 2900 1/min



MODEL	ELECTRICAL DATA					HYDRAULIC DATA													
	SUPPLY VOLTAGE 50 Hz	JOCKEY PUMP *	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q m³/h	0	1	2	3	4	5	6	7	8	9	10	11	12	13
						l/min	0	16,7	33	50	66	83	100	117	132	150	167	183	200	217
NKV 10/3	3x400 V	JET 251 T	1,10	1,5	4,35/2,50	H (m)	30,3	30,4	30,5	30,7	31	30,5	30,0	29,0	27,5	25,7	23,6	21,5	18,8	15,5
NKV 10/4	3x400 V	JET 251 T	1,50	2	5,60/3,25		40,4	40,5	40,7	40,9	41	40,7	40,0	38,7	36,7	34,3	31,5	28,6	25,1	20,7
NKV 10/5	3x400 V	JET 251 T	2,2	3	8,15/4,70		50,5	50,7	50,9	51,1	51	50,9	50,0	48,4	45,8	42,8	39,4	35,8	31,3	25,8
NKV 10/6	3x400 V	JET 251 T	2,2	3	8,15/4,70		60,5	60,8	61,1	61,4	61	61,1	60,0	58,1	55,0	51,4	47,3	42,9	37,6	31,0
NKV 10/7	3x400 V	KV 3/10 T	3,0	4	5,8		70,6	71,0	71,3	71,6	72	71,3	70,0	67,8	64,2	59,9	55,1	50,1	43,8	36,2
NKV 10/8	3x400 V	KV 3/12 T	3,0	4	5,8		80,7	81,1	81,5	81,8	82	81,5	80,0	77,5	73,3	68,5	63,0	57,2	50,1	41,3
NKV 10/9	3x400 V	KV 3/12 T	3,0	4	5,8		90,8	91,2	91,6	92,0	92	91,6	90,0	87,1	82,5	77,1	70,9	64,4	56,4	46,5
NKV 10/10	3x400 V	KV 3/18 T	4,0	5,5	7,6		100,9	101,4	101,8	102,3	102	101,8	100,0	96,8	91,7	85,6	78,8	71,5	62,6	51,7
NKV 10/12	3x400 V	KV 3/18 T	4,0	5,5	7,6		121,1	121,6	122,2	122,7	123	122,2	120,0	116,2	110,0	102,8	94,5	85,8	75,2	62,0
NKV 10/14	3x400 V	KV 3/18 T	5,5	7,5	11		141,3	141,9	142,5	143,2	143	142,5	140,0	135,5	128,3	119,9	110,3	100,1	87,7	72,3

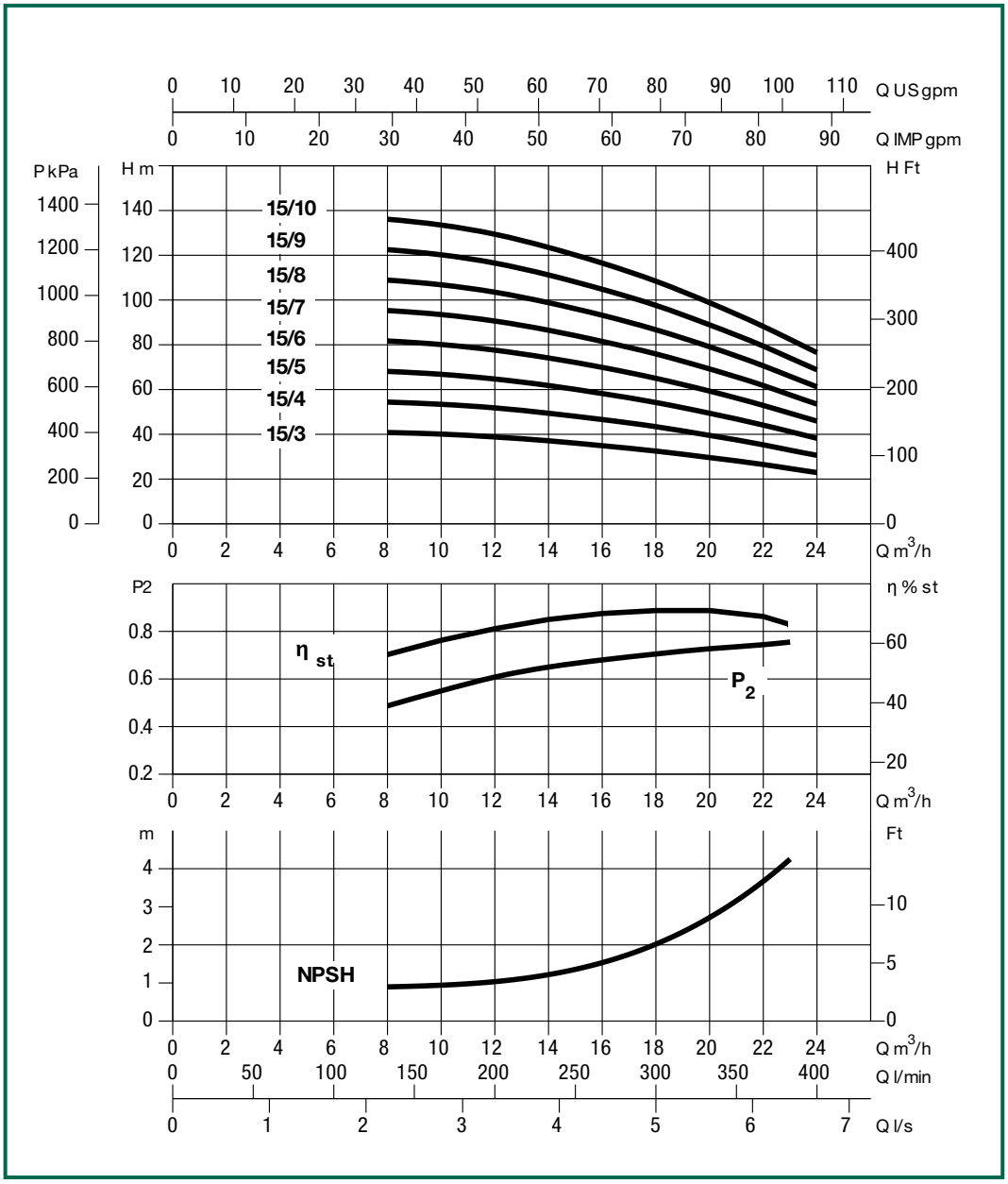
*Jockey pump on demand

ELECTRICAL AND HYDRAULIC DATA

Performance curves and electrical data referred to a single pump in operation

NKV15

≅ 2900 1/min



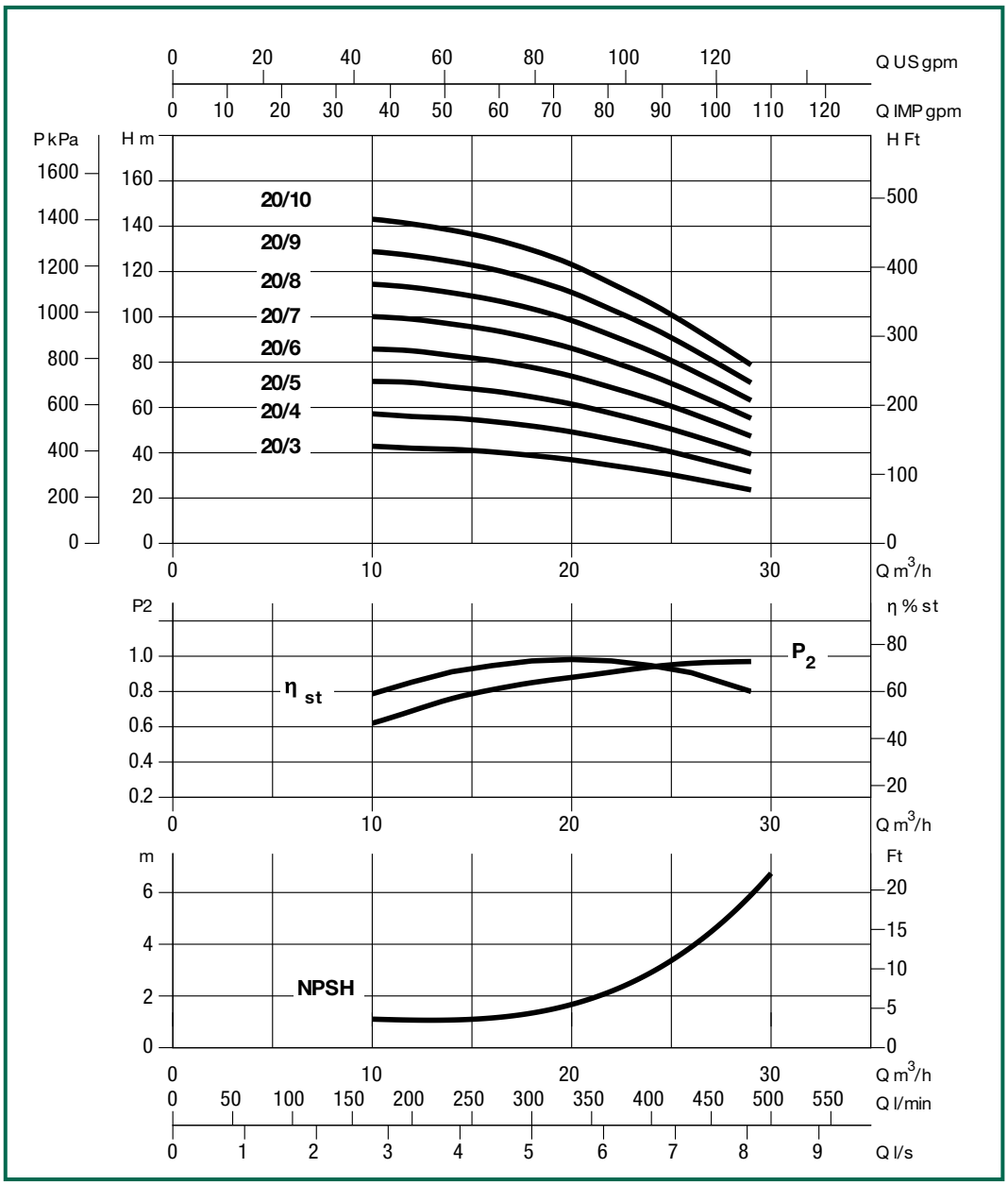
MODEL	ELECTRICAL DATA					HYDRAULIC DATA														
	SUPPLY VOLTAGE 50 Hz	JOCKEY PUMP *	P2 NOMINAL kW	P2 NOMINAL HP	In A	Q m³/h	0	2	4	6	8	10	12	14	16	18	20	22	23	24
						l/min	0	33	66	99	132	167	200	233	264	300	334	367	383	396
NKV 15/3	3x400 V	JET 251 T	3,00	4	5,8	H (m)	40,8	40,4	40,0	39,8	40	39,1	38,3	36,8	34,8	32,5	29,7	26,1	24,2	21,9
NKV 15/4	3x400 V	JET 251 T	4,00	5,5	7,6		54,4	53,8	53,4	53,1	53	52,1	51,0	49,0	46,4	43,3	39,6	34,8	32,2	29,2
NKV 15/5	3x400 V	JET 251 T	4,00	5,5	7,6		68,0	67,3	66,7	66,4	66	65,2	63,8	61,3	58,1	54,1	49,5	43,5	40,3	36,5
NKV 15/6	3x400 V	KV 3/12 T	5,5	7,5	11		81,6	80,7	80,1	79,7	79	78,2	76,5	73,6	69,7	64,9	59,4	52,2	48,3	43,8
NKV 15/7	3x400 V	KV 3/12 T	5,5	7,5	11		95,2	94,2	93,4	93,0	92	91,2	89,3	85,8	81,3	75,8	69,3	60,9	56,4	51,1
NKV 15/8	3x400 V	KV 3/18 T	7,5	10	14,8		108,8	107,6	106,8	106,2	106	104,3	102,0	98,1	92,9	86,6	79,2	69,6	64,4	58,4
NKV 15/9	3x400 V	KV 3/18 T	7,5	10	14,8		122,4	121,1	120,1	119,5	119	117,3	114,8	110,3	104,5	97,4	89,1	78,4	72,5	65,7
NKV 15/10	3x400 V	KV 3/18 T	11,0	15	22,4		136,0	134,5	133,5	132,8	132	130,4	127,5	122,6	116,1	108,2	99,0	87,1	80,5	73,0

*Jockey pump on demand

ELECTRICAL AND HYDRAULIC DATA

Performance curves and electrical data referred to a single pump in operation

NKV20 ≅ 2900 1/min

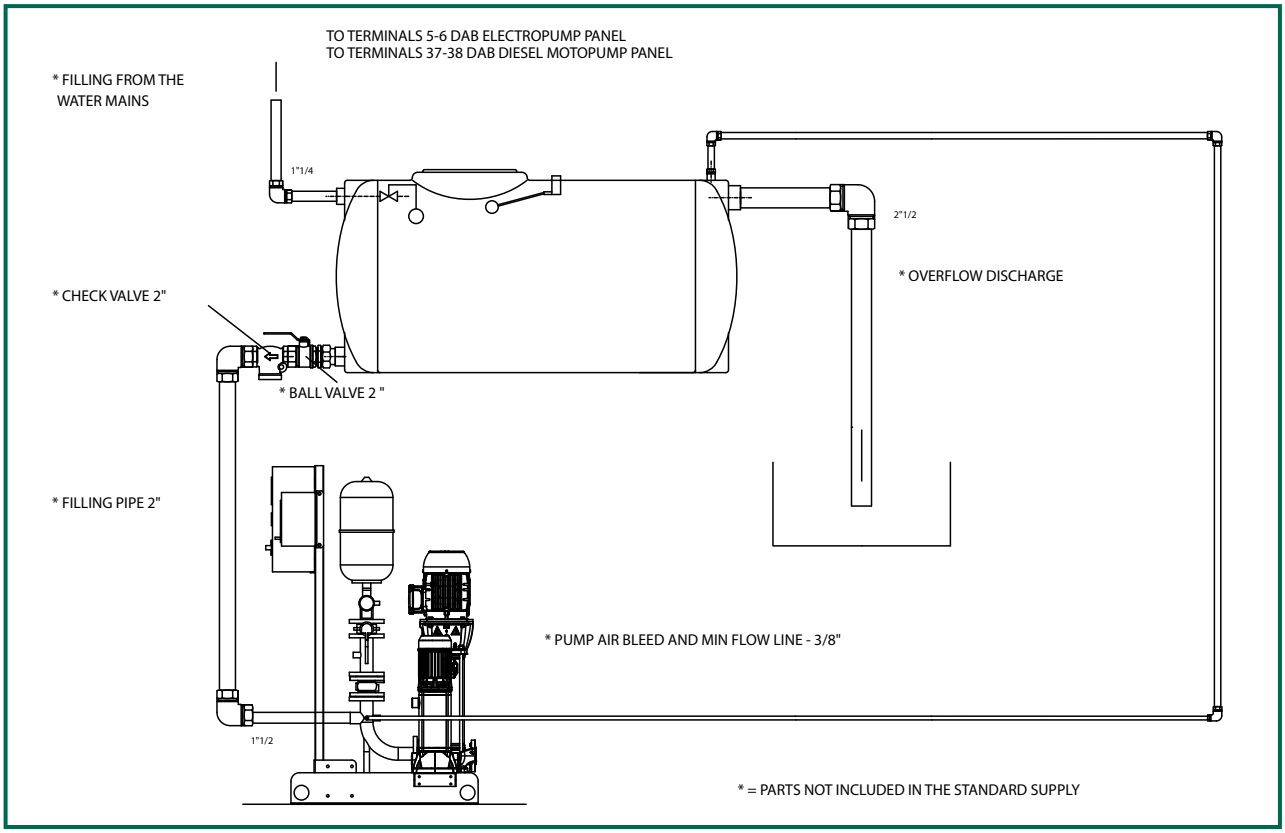


MODEL	ELECTRICAL DATA					HYDRAULIC DATA													
	SUPPLY VOLTAGE	JOCKEY PUMP *	P2 NOMINAL		In	Q m³/h	0	4	8	10	12	14	16	18	20	22	24	26	29
	50 Hz		kW	HP	A	l/min	0	66	132	167	200	233	264	300	334	367	396	433	483
NKV 20/3	3x400 V	JET 251 T	4,00	5,5	7,6	H (m)	43,9	43,2	43,1	42,9	42	41,5	40,4	38,8	36,9	34,4	31,8	28,7	23,6
NKV 20/4	3x400 V	JET 251 T	5,50	7,5	11		58,6	57,6	57,5	57,2	56	55,3	53,8	51,8	49,2	45,9	42,4	38,2	31,5
NKV 20/5	3x400 V	JET 251 T	5,50	7,5	11		73,2	71,9	71,9	71,5	71	69,1	67,3	64,7	61,5	57,4	52,9	47,8	39,4
NKV 20/6	3x400 V	KV 3/12 T	7,5	10	14,8		87,9	86,3	86,3	85,8	85	82,9	80,7	77,7	73,8	68,8	63,5	57,4	47,3
NKV 20/7	3x400 V	KV 3/18 T	7,5	10	14,8		102,5	100,7	100,6	100,1	99	96,8	94,2	90,6	86,1	80,3	74,1	66,9	55,2
NKV 20/8	3x400 V	KV 3/18 T	11,0	15	22,4		117,2	115,1	115,0	114,4	113	110,6	107,6	103,6	98,4	91,8	84,7	76,5	63,1
NKV 20/9	3x400 V	KV 3/18 T	11,0	15	22,4		131,8	129,5	129,4	128,8	127	124,4	121,1	116,5	110,8	103,2	95,3	86,0	70,9
NKV 20/10	3x400 V	KV 3/18 T	11,0	15	22,4		146,5	143,9	143,8	143,1	141	138,2	134,5	129,5	123,1	114,7	105,9	95,6	78,8

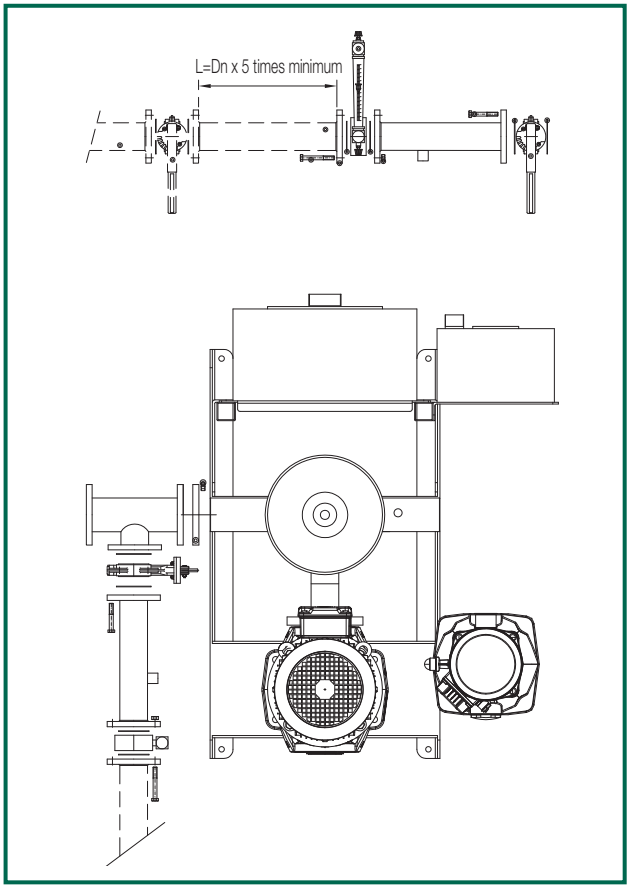
*Jockey pump on demand

UNI-EN 12845 PRIMING TANK

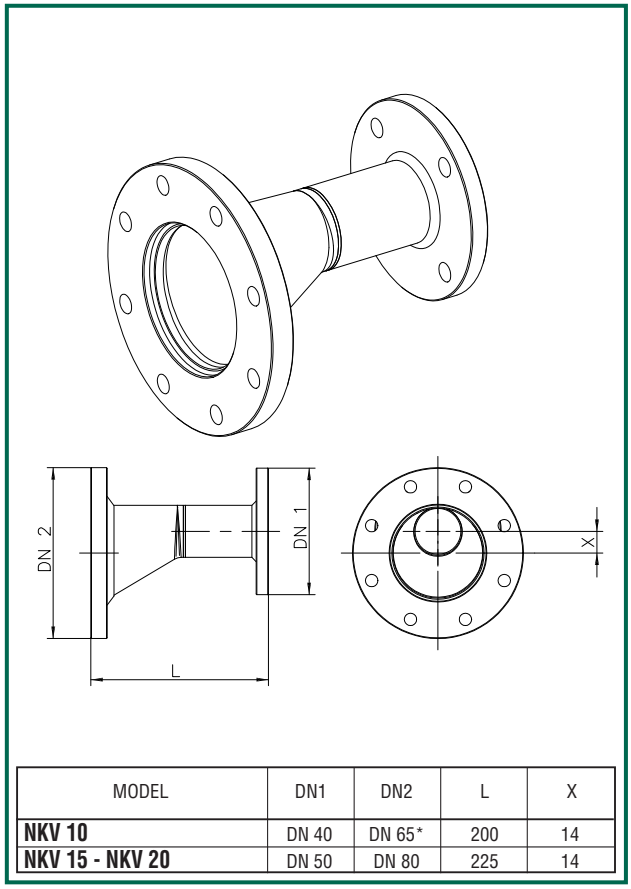
A 500 l priming tank must be installed for each of the main pumps exclusively in the case of **SUCTION LIFT configuration.**



FLOW METER KIT



SUCTION KIT



MODEL	DN1	DN2	L	X
NKV 10	DN 40	DN 65*	200	14
NKV 15 - NKV 20	DN 50	DN 80	225	14

*The standard envisages a minimum of DN 80 for negative suction installations. In this case consult our sales network.

PUMP SETS WITH SUBMERGED ELECTRIC PUMPS TO UNI-EN 12845

Booster sets to UNI-EN 12845 to supply automatic fire-fighting systems.
The basic version is composed of:
- a 4” or 6” submerged pump plus, if included, a 4” jockey pump

OPERATION

Following a system pressure drop the jockey pump (if present) is started.
If the required water flow rate is significant (opening of hydrants, sprinklers, etc.), the further reduction in pressure will result in **AUTOMATIC starting of the first main electric pump.**
In the case of a set with two electric pumps, if it proves **impossible to start the first pump** the further lowering of pressure will cause the second electric pump to start up.
Each electric pump is connected to its own control panel each of which must be fed by separate power lines.

CONSTRUCTION FEATURES

ELECTRIC PUMPS

Multistage centrifugal submerged pumps for 4” or 6” wells.
For electric pump technical specifications, refer to the “Submerged pumps” section in the “Drainage and subsoil” document.

HYDRAULIC SECTION

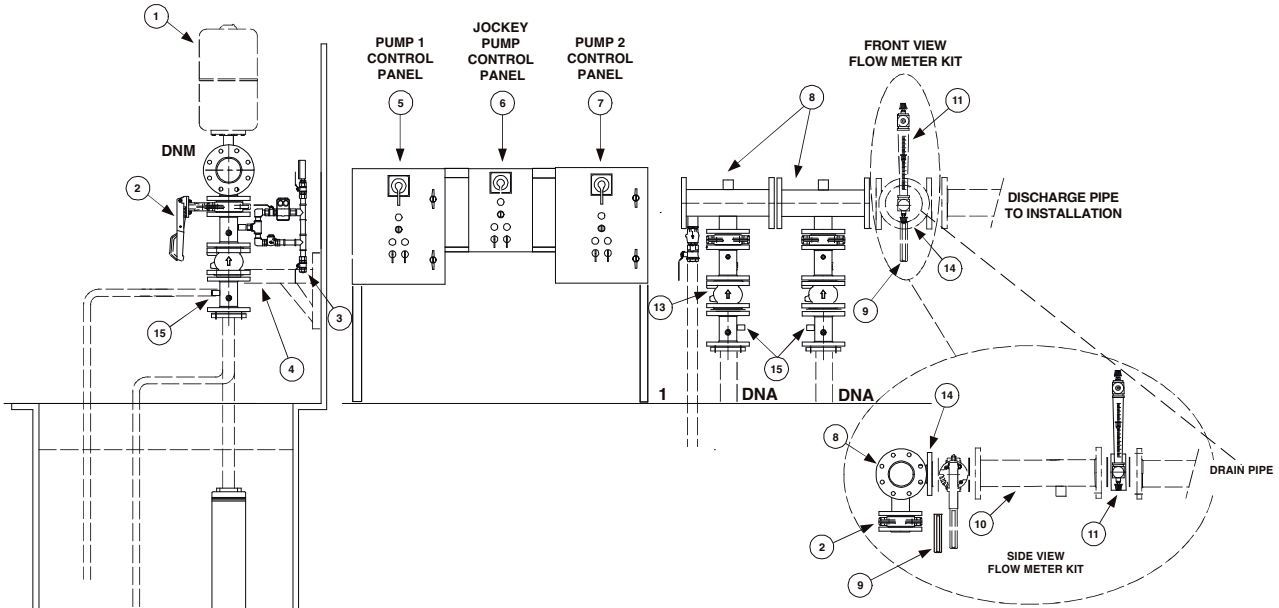
Preassembled manifold with: flanged connection for each pump, pressure gauge, pump run indication pressure switch, check valve, butterfly isolator valve, discharge manifold in galvanized steel with pressure gauges and pump start pressure switches, expansion vessel.
The hydraulic section is sized in compliance with the criteria of UNI-EN 12845.

ELECTRICAL CONTROL PANELS

An IP 55 control panel for **each pump** with indicator lights and main disconnect switch on the front panel, fuses, pump contactors, 1 voltmeter, 1 ammeter, AUT-0 selector, START – STOP pushbuttons, selector inside cabinet for operation in compliance with UNI 10779 (*).
Alarm contacts on terminal board for: incorrect voltage, voltage drop, pump running, failed starting.
(*) Only for hydrant systems that are not constantly supervised, AUTOMATIC stopping is implemented once the pressure has remained constantly above the pump starting pressure for at least 20 minutes.
(UNI 10779). **Panels supplied assembled to support frames.**

The electrical and hydraulic connections between electric pumps, control panels, and discharge manifold are not included in the supply.

CONNECTION INSTRUCTIONS FOR PUMP SETS TO EN 12845 - UNI 10779 WITH 4”-6”-8” SUBMERGED PUMPS



1 Membrane expansion vessel	8 Discharge manifold
2 Isolator valve	9 Flow meter isolator valve (optional)
3 manual test valve	10 Flow meter test pipe (optional)
4 Wall brackets (not supplied by DAB)	11 Flow meter (optional)
5 Electric pump 1 control panel	12 Pump start-up pressure switches Wire the contacts of the 2 pressure switches in series (Normally Open with installation empty zero pressure) and connect the 2 remaining wires to terminals 3-4 of the DAB control panel
6 Jockey pump control panel	13 Check valve
7 Electric pump 2 control panel	14 TI Flow meter
	15 Red 3/8 pipe water recirculation and air bleed

DN A dimensions (pumps connection)

4 Electric pumps	6 Electric pumps	8 Electric pumps
DN 50	DN 80	DN 100

DN M dimensions (discharge manifold leading to installation)

4 Electric pumps	6 Electric pumps	8 Electric pumps
DN 80	DN 125	DN 125

Sequence of cables connection for submerged electric pumps with direct starting Franklin motor

	CONTROL PANEL TERMINAL BOARD	SUBMERGED ELECTRIC PUMP CABLE COLOUR
UP TO 7,5 Kw	U1	BLACK
	V1	BLUE (or GREY)
	W1	BROWN

Sequence of cables connection for submerged electric pumps with star-delta starting Franklin motor

	CONTROL PANEL TERMINAL BOARD	SUBMERGED ELECTRIC PUMP CABLE COLOUR
UP TO 7,5 Kw	U1	BLACK
	V1	BLUE (or GREY)
	W1	BROWN
	U2	BROWN
	V2	BLACK
	W2	BLUE (or GREY)

N.B. To reverse the direction of rotation of a pump, invert the positions of any two of pump control panel feeding cables L1-L2-L3. Check the presence of jockey pump control panel jumper KK .

INSTALLATION EXAMPLES OF UNI-EN 12845 FIRE-FIGHTING SYSTEMS WITH TANK

SBAI UNI EN 11292

Enbloc system for underground installation complete with water reserve, technical compartment, and pump set, designed and built in compliance with UNI EN 12845 and UNI 11292.
Technical compartment equipped with forced ventilation and two drainage pumps, complete with generator set.

Access to the technical room by means of a ladder protected by a prefabricated structure; facility to make the fire water tank transportable by means of internal support inserts..

The benefits of the SBAI system are as follows: ease of installation, safety in compliance with standards.

All systems are constructed in compliance with UNI EN 12845 and UNI 11292.

STORAGE TANK

The storage tank can be made of steel having a gauge of between 5 and 6 mm depending on the capacity, with internal U braces.
Externally the entire module is protected by a thick layer of bitumen paint or, on request, a root-roof polyester liner, while the interior of the tank is protected with a red lead anti-rust primer.
There is a manhole on the top of the tank providing access to the inspection well, protected by a grating and prearranged for connection of the replenishment pipe, breather pipe, and a pipe for insertion of the level float.
If the capacity of a single tank is insufficient two or more tanks can be combined by means of a prearranged flanged interconnecting pipe.

Vano pompe con gruppo antincendio montato.

TRANSPORT AND INSTALLATION

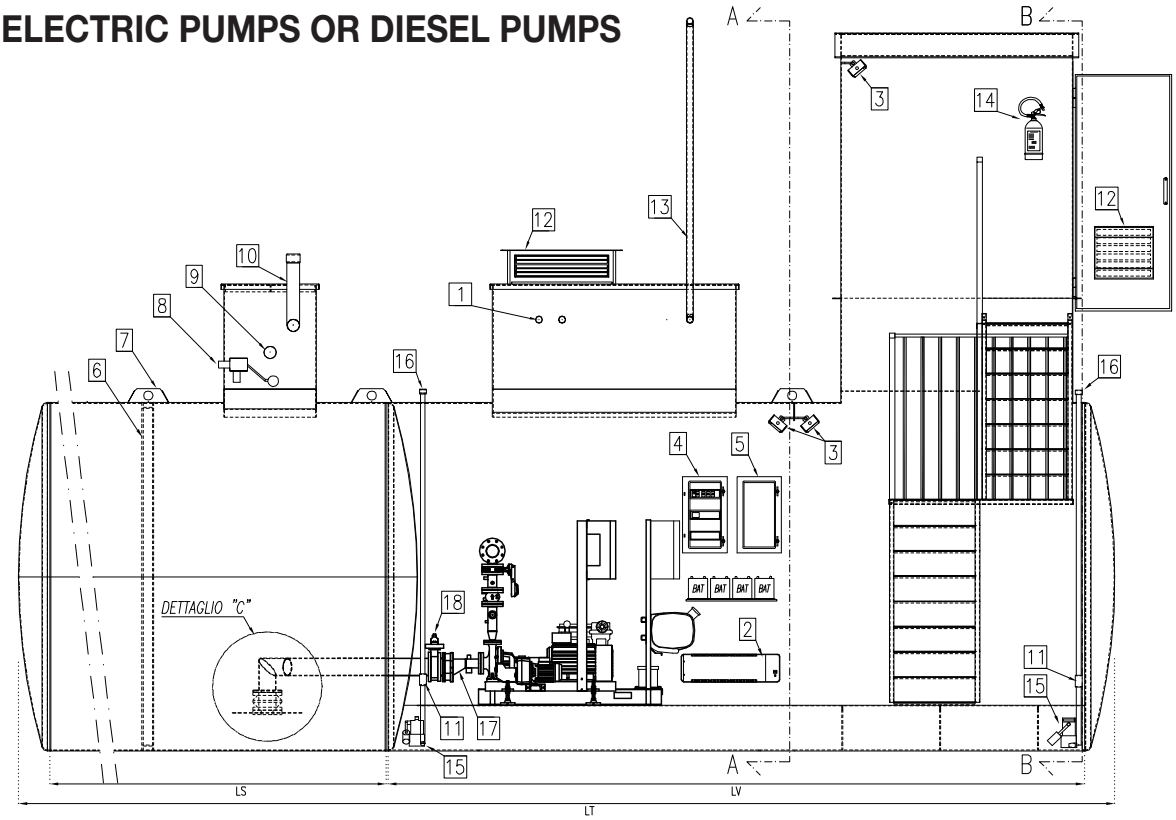
Because of the system dimensions transportation is relatively simple and it can be included as an integral part of the offer.

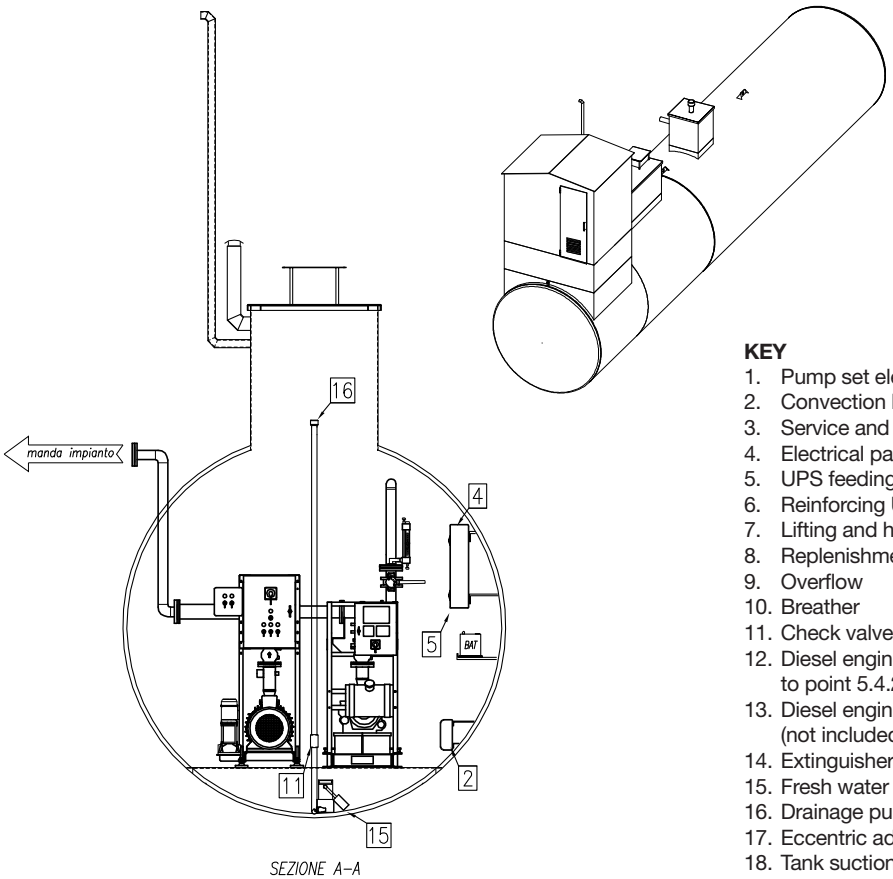
Example of storage tank.

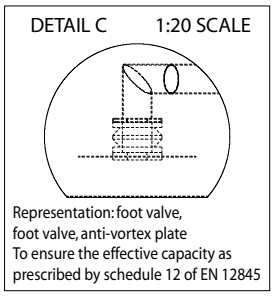
For installation of the entire system the only prerequisite is to lay a bed of sand beforehand.

INSTALLATION EXAMPLE OF FIRE-FIGHTING SYSTEM WITH UNDERGROUND TANK AND PUMPS ROOM TO UNI 11292

WITH ELECTRIC PUMPS OR DIESEL PUMPS







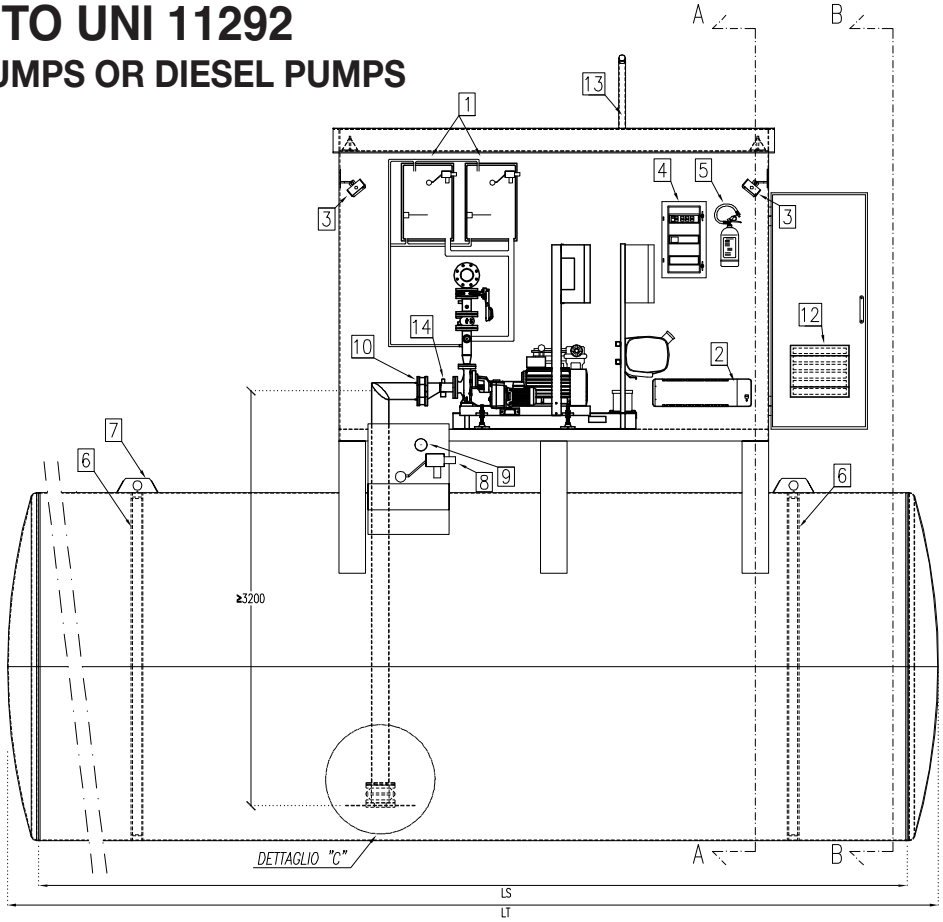
KEY

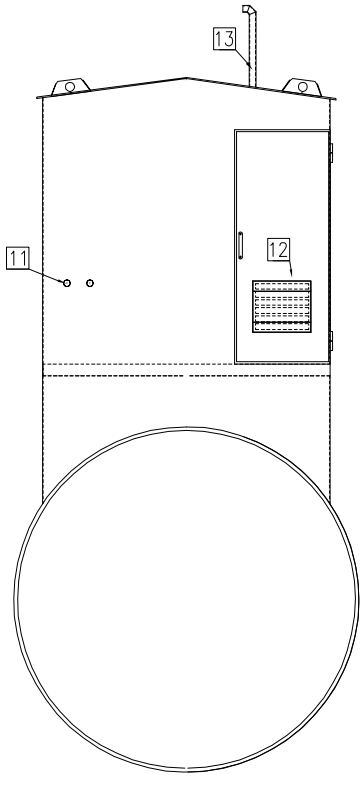
1. Pump set electrical power feeding conduits
2. Convection heater
3. Service and emergency lights
4. Electrical panel.
5. UPS feeding the lift pumps
6. Reinforcing U beam
7. Lifting and handling eyebolt
8. Replenishment stub pipes
9. Overflow
10. Breather
11. Check valve
12. Diesel engine ventilation and cooling grille to point 5.4.2 UNI 11292
13. Diesel engine exhaust duct (not included in the supply)
14. Extinguisher class 34A144 BC
15. Fresh water lift pumps
16. Drainage pumps attachment to be connected to drain
17. Eccentric adapter
18. Tank suction isolator valve

All systems are constructed in compliance with UNI EN 12845 and UNI 11292.

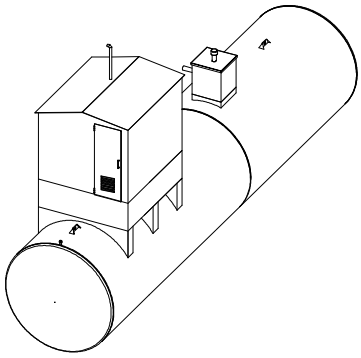
INSTALLATION EXAMPLE OF FIRE-FIGHTING SYSTEM WITH ABOVE GROUND TANK AND PREFABRICATED PUMP HOUSE TO UNI 11292

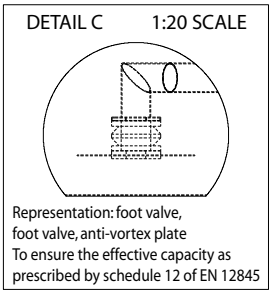
WITH ELECTRIC PUMPS OR DIESEL PUMPS





SEZIONE B-B





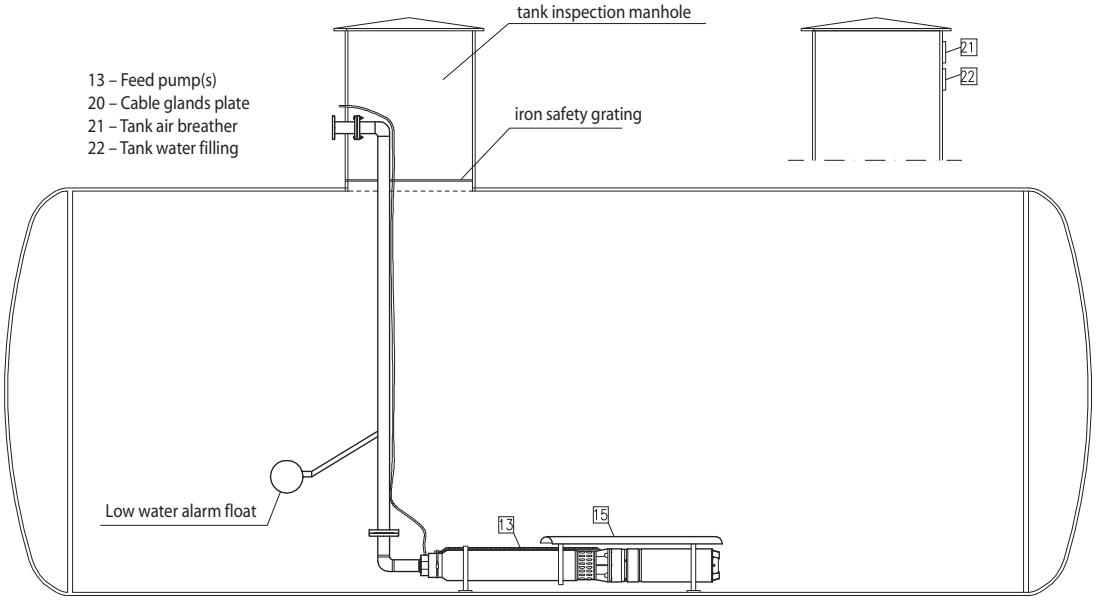
Representation: foot valve,
foot valve, anti-vortex plate
To ensure the effective capacity as
prescribed by schedule 12 of EN 12845

KEY

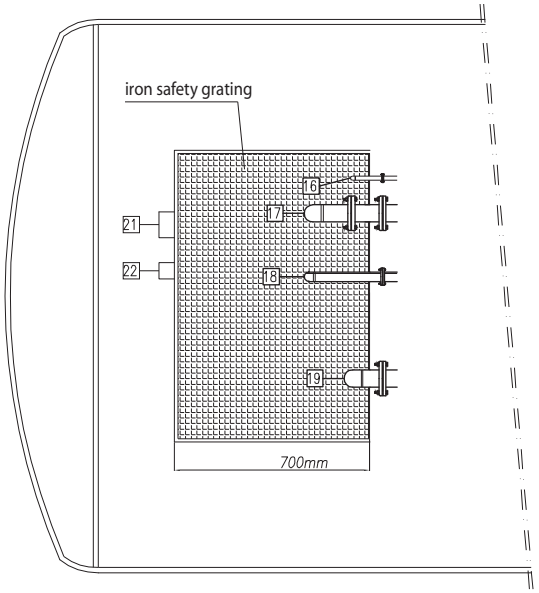
1. Priming tanks
2. Convection heater
3. Service and emergency lights
4. Electrical panel.
5. Extinguisher class 34A144 BC
6. Reinforcing U beam
7. Lifting and handling eyebolt
8. Replenishment stub pipes
9. Overflow
10. Antivibration coupling
11. Pump set electrical power feeding conduits
12. Diesel engine ventilation and cooling grille to point 5.4.2 UNI 11292
13. Diesel engine exhaust duct (not included in the supply)
14. Eccentric adapter

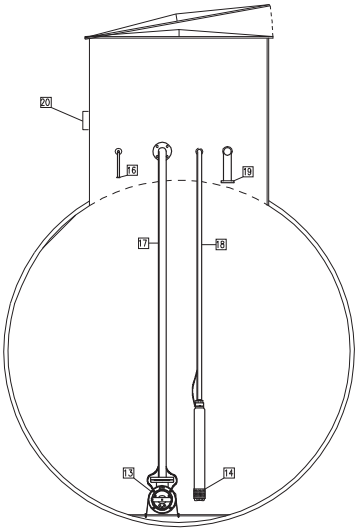
All systems are constructed in compliance with UNI EN 12845 and UNI 11292.

INSTALLATION EXAMPLE OF FIRE-FIGHTING SYSTEM WITH SUBMERGED PUMPS



DETAIL OF ADJUSTMENT – CONTROL GEAR ROOM
SUBMERGED PUMP FIRE-FIGHTING SET

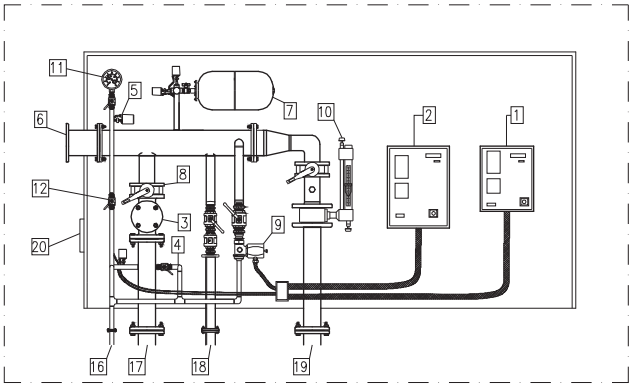




KEY

1. Feed pump control panel
2. Jockey pump control panel
3. Inspectable check valve
4. Water recirculation diaphragm
5. Main pump start-up pressure switch
6. Discharge manifold
7. Membrane expansion vessel
8. Suction valve
9. Weekly test solenoid valve
10. Flow meter
11. Pressure gauge
12. Manual test cock
13. Feed pump(s)
14. Jockey pump
15. Anti-vortex plate
16. Test circuits drain pipe
17. Feed pump discharge pipe
18. Jockey pump discharge pipe
19. Flow meter water drain pipe
16. Cable glands plate
17. Tank air breather

All systems are constructed in compliance with UNI EN 12845 and UNI 11292.



All systems are constructed in compliance with UNI EN 12845 and UNI 11292.

FIRE-FIGHTING BOOSTER SETS
TO UNI-EN 9490 – 10779

Standard UNI 9490 has been replaced by UNI EN 12845
For information, please contact our sales network.

NOTES

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DAB PUMPS LTD.
Unit 4, Stortford Hall Industrial
Park Dunmow Road, Bishops Stortford, Herts
CM23 5GZ - UK
Tel. +44 1279 652 776
Fax +44 1279 657 727

DAB PUMPS B.V.
Albert Einsteinweg, 4
5151 DL Drunen - Nederland
Tel. +31 416 387280
Fax +31 416 387299
info.nl@dabpumps.com

DAB PUMPS B.V.
Brusselstraat 150
B-1702 Groot-Bijgaarden - Belgium
Tel. +32 2 4668353
Fax +32 2 4669218

DAB PUMPEN DEUTSCHLAND GmbH
Tackweg 11
D - 47918 Tönisvorst - Germany
Tel. +49 2151 82136-0
Fax +49 2151 82136-36

PUMPS AMERICA, INC. DAB PUMPS DIVISION
3226 Benchmark Drive
Ladson, SC 29456 USA
Ph. 1-843-824-6332
Toll Free 1-866-896-4DAB (4322)
Fax 1-843-797-3366

DAB PUMPS IBERICA S.L.
Parque Empresarial San Fernando
Edificio Italia Planta 1ª
28830 - San Fernando De Henares - Madrid
Spain
Ph. +34 91 6569545
Fax +34 91 6569676

DAB PUMPS RUSSIA
127247 Dmitovskoe sh., 100 bld. 3
Moscow, Russia
Тел +7 095 485-1679

DAB PUMPS CHINA
Shandong Sheng Qingdao Shi
Jinji Jishu Kaifaqu Kaituo Rd
ZIP PC266510
CN - China
Tel. +8613608963089
Fax. +8653286812210

DAB PUMPS S.p.A.
Via M. Polo, 14 - 35035 Mestrino (PD) - Italy
Tel. +39 049 9048811 - Fax +39 049 9048847
http://www.dabpumps.com

Vendite Italia:
Tel. 049 9048873-75-76
049 9048950
Fax 049 9048888

Export Sales Dept:
Ph. (+39) 049 9048895-96-97
049 9048964-996
Fax (+39) 049 9048900

Assistenza Tecnica Clienti:
Customer Technical Assistance:
Ph. (+39) 049 9048911
Fax (+39) 049 9048920

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