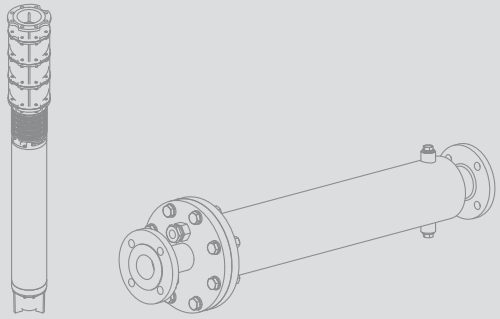
Pumpen Intelligenz.

Catalogue Water Supply

Sprinkler Pumps with Vds Approval

Borehole pumps
Accessories



Catalogue B5 – 50 Hz – 2009

B5

Plan your systems simply and effectively with our Select software.

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General notes and abbrevaitions

Abbreviations used and what they mean

Abbreviation	Meaning
1~	1-phase current
3~	3-phase current
D	Direct activation
DM	Three-phase motor in direct activation
DN	Nominal diameter of the flange connection
EM	Single-phase motor with starting capacitor
EMSC	Single-phase motor with built-in starting capacitor
GRD/GLRD	Mechanical seal
°d H	Degree of German water hardness; replaced with the SI unit mmol/l; Conversion: 1 °dH = 0.1783 mmol/l
H	Delivery head
H_Z	Approved range for sprinkler pumps
I_A	Starting current
I_N	Nominal current; current at P_2
I_W	Current consumption for power requirement of the shaft P_W
Inst.	Installation: H = horizontal, V = vertical
KLF	PTC thermistor sensor
KTL-coating	Electrophoretic painting (cataphoretic coating): Painting with high adhesive strength for long-lasting corrosion protection
KTW	Approval for products with plastics, for use in potable water applications
LB	Supply availability (L = warehouse goods, C = available in 2 weeks, K = available in 4 weeks, A = delivery time on request)
max. Ø	Maximum diameter of the unit, incl. cable
mmol/l	Millimol per litre; SI-unit for assessing the water hardness (total hardness or concentration of alkaline earth ions)
P_1	Power consumption (power supplied from the mains)
$P_N = P_2$	Motor rated power
P_W	Power requirement of the pump hydraulics
PN	Pressure class in bar (e. g. PN10 = suitable up to 10 bar)
PTC	Positive Temperature Coefficient (also see: KLF)
PT 100	Platinum temperature sensor with a resistance value of 100 Ω at 0 °C
Q (=$\dot{V}$)	Volume flow
Q_Z	Approved range for sprinkler pumps
RV	Non-return valve
RVF	Non-return valve, spring-mounted
SBM	Run signal or collective run signal
SD	Three-phase motor in star/delta activation
SD-R	Three-phase motor in star/delta activation, rewindable
SSM	Fault signal or collective fault signal
v	Speed
TrinkwV 2001	German Drinking Water Ordinance of 2001 (valid from 01.01.2003)
WRAS	Water Regulations Advisory Scheme (potable water approval for Great Britain and Northern Ireland)
WSK	Thermal winding contacts (in motor for monitoring the winding temperature, full motor protection by additional tripping unit)
Y/Δ	Star/delta activation
▲	Operating mode of double pumps: Individual operation of the relevant operating pump
▲+▲	Operating mode of double pumps: Parallel operation of both pumps
Ⓜ	Number of poles of electric motors: 2-pole motor = approx. 2900 rpm at 50 Hz
Ⓜ	Number of poles of electric motors: 4-pole motor = approx. 1450 rpm at 50 Hz
Ⓜ	Number of poles of electric motors: 6-pole motor = approx. 950 rpm at 50 Hz

Material designations and their meaning

Material	Meaning
1.4021	Chromium steel X20Cr13
1.4057	Chromium steel X17CrNi16-2
1.4112	Chromium steel X 90 Cr Mo V 18
1.4122	Chromium steel X39CrMo17-1
1.4301	Chromium nickel steel X5CrNi18-10
1.4305	Chromium nickel steel X8CrNiS18-9
1.4306	Chromium nickel steel X2CrNi19-11
1.4308	Chromium nickel steel GX5CrNi19-10
1.4401	Chromium nickel molybdenum steel X5CrNiMo17-12-2
1.4408	Chromium nickel molybdenum steel GX5CrNiMo19-11-2
1.4462	Chromium nickel molybdenum steel X2CrNiMoN22-5-3
1.4470	Chromium nickel molybdenum steel GX2CrNiMoN22-5-3
1.4517	Chromium nickel molybdenum with copper addition GX2CrNiMoCuN25-6-3-3
1.4541	Chromium nickel steel with titanium addition X6CrNiTi18-10
1.4542	Chromium nickel steel with copper and niobium addition X5CrNiCuNb16-4
1.4571	Chromium nickel steel with titanium addition X6CrNiMoTi17-12-2
1.4581	Chromium nickel molybdenum steel with niobium addition GX5CrNiMoNb19-11-2
Ceram	Coating with very high adhesive strength, protection from corrosion and abrasion
EN-GJL	Cast iron (with lamellar graphite)
EN-GJS	Cast iron (with spheroidal cast iron)
G-CuAl10Si	Nickel aluminium bronze
G-CuSn10	Zinc-free bronze
GG	see EN-GJL
GGG	see EN-GJS
NiAl-Bz	Nickel aluminium bronze
Noryl	Glass reinforced plastic
PC	Polycarbonate
SiC	Silicon carbide
ST	Steel
St. vz.	Galvanized steel
V2A (A2)	Material group, e.g. 1.4301, 1.4306
V4A (A4)	Material group, e.g. 1.4404, 1.4571

Wear and tear

Pumps or parts of pumps are subject to wear in accordance with state-of-the-art technology (DIN 31051/DIN-EN 13306). This wear may vary depending on operating parameters (temperature, pressure, speed, water condition) and installation/usage situation and may result in the malfunction or failure at different times of the above-mentioned products/components including their electrical/electronical ciruitry.
Wear parts are all components subject to rotary or dynamic strain including electronic components under tension, in particular:

- Seals (incl. mechanical seal), seal ring
- Stuffing box
- Bearing and shaft
- Impellers and pump part
- Ball race and wear ring
- Wear ring / wear plate
- Macerator
- Capacitor
- Relay / contactor / switch
- Electronic circuits, semiconductor components etc.

Pumps and continuous-flow machines (like submersible mixers and recirculation pumps), as well as their components with coatings (cataphoresis coating, 2K- or Ceram-coating) are subject to constant wear due to the abrasive fluid contents. It is for that reason that the coating is also listed with the wearing parts contained in these units!

We do not accept liability for faults or defects arising from natural tear and wear.

Wilo – General terms of delivery and service

The latest version of our general terms of delivery and service can be found on the Internet at

www.wilo.com

Sprinkler systems

Sprinkler systems are automatic fire extinguishing systems, which are used for preventative fire protection in special buildings such as skyscrapers, commercial buildings, department stores, industrialinstallations, places of public assembly and underground car parks.

The sprinkler head was invented in 1874 by the American Henry S. Parmalee, a piano manufacturer. Originally, the sprinkler heads were sealed with a small metal plate that was held in place by a device connected to a solder. The solder melts with a corresponding rise in temperature and the holding device releases the small metal plate, which is in turn expelled by the pressure of the water behind it, which then starts spraying.

Several sprinkler heads that are connected to a water pipe system are placed on the ceiling of the room or on the upper part of the side walls. The sprinkler heads are in turn sealed with glass ampoules that are filled with a special dyed fluid. There is a constant water pressure in a sprinkler system that is monitored at the central sprinkler control point. In the event of a fire, the special fluid in the glass ampoules heats up and expands, causing the ampoules to burst. That opens the nozzles and water is released from the sprinkler pipe system. The colour of the special fluid indicates the triggering temperature. This triggering temperature is on average approximately 30 °C above the anticipated room temperature.

The resulting drop in pressure is detected and leads to the opening of special valves and the starting of our sprinkler pumps. Water is immediately pumped at high pressure out of the tanks provided or from a water connection designed for that purpose and into the sprinkler system. The water is expelled from all open water nozzles and extinguishes or minimises the fire.

The dimensions of the pipework and of the water supply are designed in such a way that only enough water for a particular number of water nozzles is available, which is called the effective surface. If more sprinkler heads open than are available within the effective surface, then the amount of water available per sprinkler head drops and the effectiveness of the system is diminished.

Sprinkler systems are therefore chiefly capable of fighting a fire in its initial stages (incipient fire) and not for fighting a fire blazing at great intensity. A fireproof separation must be erected between areas that lack a sprinkler system and ones that have one in order to ensure that a blazing fire originating in an unprotected area is not able to cross over into an area of the building that is protected with a sprinkler system.

What are referred to as dry pipe systems are implemented in areas where there is a risk of frost where the sprinkler pipes could freeze. The pipe system in these installations is filled with compressed air. The installation is not filled with water until a sprinkler head has been triggered.

As is the case with conventional fire detectors, sprinkler control points are generally connected to fire detection systems and trigger a fire alarm when a drop in pressure has been detected. Depending on the programming, these are transmitted to the police, fire department, factory security offices or other offices providing aid.

As a rule, the configuration of sprinkler systems in Germany is in accordance with the VdS Regulation CEA 4001 (VdS Damage Prevention, CEA Comité Européen des Assurances). The American Standard of the NFPA (National Fire Protection Association) – also known in modified or further developed form of the directives as FM (Factory Mutual) Standard – is however increasingly enjoying the favour of international building companies and is as a rule also accepted in the meantime by German government authorisation agencies. The system is configured according to the fire hazard level in the area to be protected by determining the water saturation of the fire source between 2.25 mm/min and 30 mm/min (1 mm/min is equivalent to 1 l/m^2/min), the effective time between 30 and 90 min and of the distance between the sprinkler heads.

Verband der Sachversicherer e.V. (VdS) – (German association of property insurers)

Formation

The German insurance industry recognised at an early stage that it is absolutely essential to make risks controllable and insurable in active damage prevention. Already around 100 years ago, they founded the "Sprinkler monitoring agency". During the Third Reich, the association of private fire insurers and the association of public fire insurers were closed. Nevertheless, the sprinkler monitoring agency could continue their work to a large extent up until 1944. After an interruption due to the war, in 1947 it was possible to resume work. In June 1948, the inspection authority was integrated into the newly founded Verband der Sachversicherer e.V. (VdS) (German association of property insurers).

In the following years, the technical VdS departments for fire protection and housebreaking/theft protection were continuously expanded. The fusion of the three German insurance associations: Verband der Sachversicherer e.V., HUK-Verband and Deutscher Transportversicherungsverband to form the Verband der Schadenversicherer e.V. (VDS) in 1995 was only an temporary solution before fusion with the Verband der Lebensversicherer and the Gesamtverband der Deutschen Versichersicherungswirtschaft e.V. (GDV) in 1996. The technical departments of the former association were transformed to the VdS Schadenverhütung GmbH on 1997, whose sole shareholder is GDV.

Today, the VdS Schadenverhütung GmbH – or VdS for short – is a modern company, trusted by all groups involved with safety – insurers, manufacturers, service providers, authorities and consumers. The expertise of VdS is documented by numerous accreditations/notifications.

The fire protection department

The fire protection department is an institution that is recognised worldwide. VdS employees are highly qualified experts who work as accident prevention professionals. VdS has been dedicated to fire protection for nearly one hundred years.

This expert knowledge flows into the development of conclusive overall fire protection and safety technology designs. The safety standard defined together with the customer, which is therefore to be aimed at, results in individual protection at the highest level. In a nutshell, the VdS pursues the following objectives: Personal injuries are prevented, and physical damage and financial losses, including downtimes due to failures and possibly the loss of image which results from this, are minimised.

By participating in national and international regulatory committees, but also by means of their own developed guidelines, etc. in the area of fire extinguishing, fire alarm and smoke extraction systems, VdS has a major influence on fire protection and safety technology worldwide. VdS thus has an international knowledge potential at its disposal which can be used for a wide range of applications.

VdS CEA guidelines for sprinkler systems: Planning and installation

These guidelines contain the requirements and provide recommendations for planning, installation and maintenance of stationary sprinkler systems in buildings and industrial plants. They also define special requirements for sprinkler systems, which are essential for personal protection measures. The requirements and recommendations of these guidelines also apply to every addition, extension, repair, maintenance action or other change to the sprinkler system. These guidelines include the classification of dangers, the type of water supply, the components to be used, the installation and testing of the system, as well as the maintenance and extension of existing systems. Demands are placed on the building and partitions, which are required for sprinkler systems to work properly in accordance with these guidelines.

Source: VdS

Material selection by water analysis

Corrosion

A preliminary assessment of the corrosion potential for pump unit components can be performed based on a water analysis. The passivity of any material in terms of the pumped fluid requires that a suitable protective layer is formed on the surface that is in contact with the fluid. In the case of grey cast iron, this is what is called the "lime-rust protective layer" which, depending on the composition of the pumped water, can form and help prevent further corrosion. Two criteria are necessary for this protective layer to act successfully:

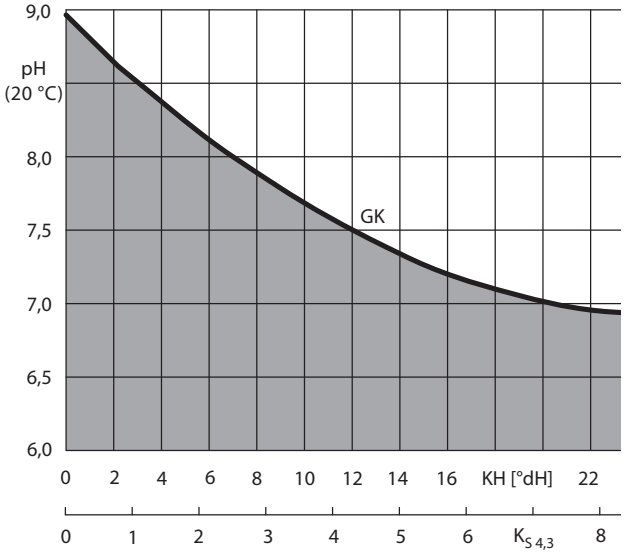


Fig. 1: Tendency to deposit limy layers

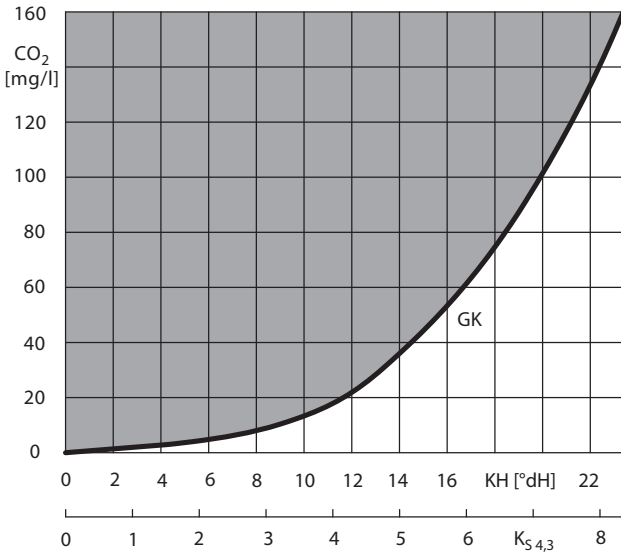


Fig. 2: Chemical resistance of the deposited protective layer to the carbonic acid that is present

- Tendency to deposit limy layers according to Fig. 1
  Main parameters: pH value and carbonate hardness and/or acid capacity $K_{S\,4,3}$ of the pumped water.
- Chemical resistance of the deposited protective layer to the carbonic acid that is present according to Fig. 2
  Main parameters: free CO_2 content and carbonate hardness / acid capacity $K_{S\,4,3}$ (the aggressive range is equivalent to the free, non-corresponding CO_2 content).

The curve shown in the figures represents the equilibrium curve (GK) between favourable and damaging, or incapability of the layer formation. Material corrosion will probably take place in the "aggressive" range (shaded in grey). In this case, we recommend our special version C or D made of corrosion-resistant materials.

Only the carbonate hardness (sum of calcium and magnesium bicarbonate $Ca(HCO_3)_2 + Mg(HCO_3)_2$) is decisive for the formation of the protective layer, not the overall hardness.

Other constituents or parameters of natural water can have a damaging effect on the resistance of standard materials above the specified concentrations:

- SO_4^{2-} approx. 200 mg/l
- Cl^- approx. 150 mg/l
- Evaporation residues approx. 500 mg/l
- Electrical conductivity approx. 1000 µS/cm
- And traces of Cl_2, H_2S, NH_3, NH_4, sulphur, humic acids, hydrocarbons.

If these substances are combined, even low concentrations can lead to material corrosion. The warmer an aggressive pumped fluid is, the faster corrosion takes place. If there are critical substances, please consult us. Wilo offers technically mature special designs even for aggressive fluids, such as sea water or brackish water.

Formation of troublesome coatings and deposits

Coatings have a negative effect on pumping or impair the heat dissipation of the drive motor. Undesired deposits may be formed if there is an excessive tendency toward lime deposits according to Fig. 1 (hard water) (e.g. iron approx. 0.2 mg/l or manganese approx. 0.1 mg/l, ochre coatings or manganese dioxide).

Solid matter in the pumped fluid

If the pumped fluid contains solid matter, material may be deposited in the pump, depending on its content and composition. Wilo submersible pumps are designed for a maximum sand content of 35 mg/l. Pumps with components made of more wear-resistant materials on request.

Gaseous constituents

Some applications require the pumping of gaseous fluids (e.g. mineral and thermal water). Gas bubbles change the pumping characteristics considerably under certain conditions and can lead to unfavourable operating conditions. In such cases, please consult the factory.

Installation of sprinkler pumps

General notes

The purpose of the pumps is to deliver the required flow rates and pressures for the sprinkler systems and nozzles. The pumps may not be used for any other purpose than for fighting fires.

The pressure on the pump pressure side must drop continuously with increasing flow rate, i.e. the pump must have a stable pump curve.

The used electric motors must be able to provide sufficient power for all pump loading conditions from a zero flow rate to the end of the pump curve. The end of the pump curve (Qz/Hz), measured at the pump pressure side, is equivalent to 0.83 times the value which is reached at an NPSH value of 9.5 m.

The pump may not be used as a fixed point for the pipes. The pressure/ascending pipe is to be supported directly after the pump – when installed as a pressure shroud pump directly upstream and downstream of the pump – and connected stress-free. The installation instructions are to be observed in particular for compensators.

Arrangements with several pumps

If more than one pump is to be installed for a single water supply source with increased reliability or a double water supply, these pumps must be driven by different power sources.

In all cases, the pumps must have pump curves which are adjusted to each other and must be able to pump simultaneously at all flow rates. If two pumps are installed, every single one must be able to deliver the required flow rate and the required pressure. If three pumps are installed, each pump must be able to deliver at least 50 % of the pumped flow rate and the required pressure.

In the case of several water sources, the sprinkler pumps must be able to be supplied from each individual water tank as desired if they are not separated from one another. In the case of pressure shroud operation, the temperature in the pump compartment must be maintained at a minimum of +4 °C.

Maximum temperature and composition of the pumped fluid

The water temperature of the water supply may not exceed 40 °C. If submersible pumps are used, the water temperature may not exceed 25 °C unless it can be verified that the motor is suitable for temperatures up to 40 °C. The water must be free of fibrous or other suspended matter which could result in the pipes becoming clogged. Salt or brackish water may not constantly be in the sprinkler lines.

Valves and accessories

Check valves are to be installed in the pump lines and a non-return valve in the pressure pipe of the pumps. Water must continuously flow through the pump which ensures that overheating is prevented during operation against closed check valves. If the water is fed back into the tank and if the flow rate is not more than 2 % of the approved flow rate, the flow volume does not have to be taken into account in the hydraulic calculation.

Pumping conditions

General information

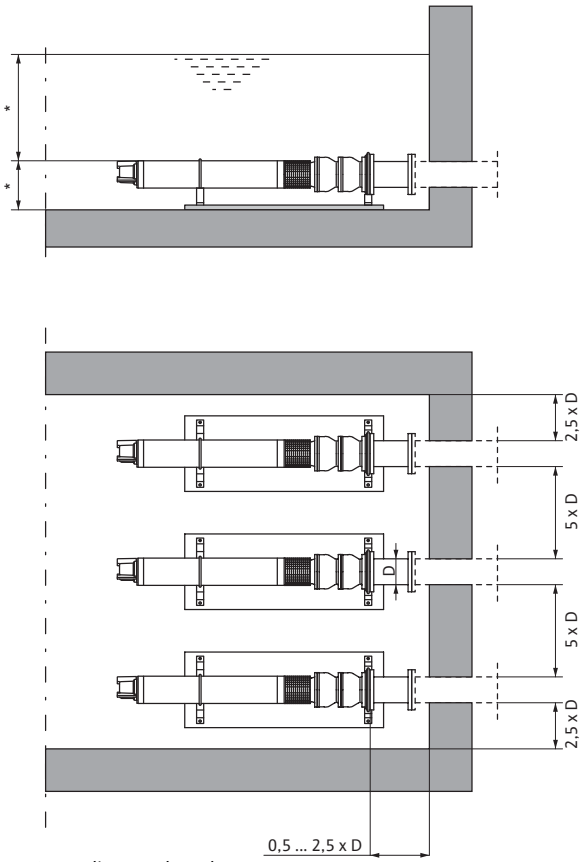
The submersible pump must always be covered by water, or the water must be able to flow freely to the pump. Even when using it as a pressure shroud pump, the water must have the appropriate primary pressure.

Installation conditions

The submersible pump is to be placed in the tank according to the figure. The conditions in accordance with Fig. 8.02 in the planning and installation documentation of the VdS [VdS CEA 001:2005-09 (02)] apply to supply lines for dry-installed pressure shroud pumps.

Source: VdS CEA 4001:2005-09 (02) Sprinkler systems, planning and installation

Note: This text is an excerpt from the VdS guideline VdS CEA 4001:2005-09. We would like to thank VdS for being able to publish this part of the guideline. Further information about planning and installing sprinkler pumps can be found in the guideline. It is available from VdS.



* depending on the relevant pump type

Electrical connection

Cable cross-section and fuse protection

Wilo-EMU...	Pump	Motor	P_2	Cable	Fuse
			[kW]	[mm^2]	[A]
K 86 (S)	K 86-1a	NU 60-2/32	9	4G 2.5 + 3x2.5	25
	K 86S-1b	NU 60-2/24	7.5	4G 2.5 + 3x2.5	25
	K 86S-1c	NU 60-2/23	5	4G 2.5 + 3x2.5	25
	K 86-2a	NU 60-2/51	18	4G 4 + 3x4	50
	K 86S-2b	NU 60-2/40	14	4G 4 + 3x4	35
	K 86S-2c	NU 60-2/32	10	4G 2.5 + 3x2.5	25
	K 86S-3a	NU 80-2/35	26	4G 6 + 3x6	63
	K 86S-3b	NU 80-2/28	21	4G 6 + 3x6	63
	K 86S-3c	NU 60-2/51	18	4G 4 + 3x4	50
	K 86S-4a	NU 80-2/45	35	4G 10 + 3x10	100
	K 86S-4b	NU 80-2/40	28	4G 10 + 3x10	80
K 87 (S)	K 87-1a	NU 60-2/32	9.5	4G 2.5 + 3x2.5	25
	K 87-2a	NU 60-2/51	19	4G 4 + 3x4	50
	K 87S-2c	NU 60-2/40	14	4G 4 + 3x4	35
	K 87S-2d	NU 60-2/32	11	4G 4 + 3x4	35
	K 87-3a	NU 80-2/40	28	4G 10 + 3x10	80
	K 87S-3b	NU 80-2/35	26	4G 6 + 3x6	63
	K 87S-3c	NU 80-2/28	21	4G 6 + 3x6	63
	K 87S-3d	NU 60-2/51	18	4G 4 + 3x4	50
	K 87S-4a	NU 80-2/45	34	4G 10 + 3x10	100
	K 87S-4b	NU 80-2/40	28	4G 10 + 3x10	80
KM 350 (S)	KM 350-1a	NU 80-2/35	27.5	4G 6 + 3x6	63
	KM 350S-1b	NU 80-2/28	19	4G 4 + 3x4	50
	KM 350S-1c	NU 80-2/28	15	4G 4 + 3x4	35
	KM 350-2a	NU 80-2/68	55	4G 16 + 3x16	125
	KM 350-2a	NU 901-2/50	55	4G 16 + 3x16	125
	KM 350S-2b	NU 80-2/60	53	4G 16 + 3x16	125
	KM 350S-2c	NU 80-2/55	46	4G 16 + 3x16	125
	KM 350S-2d	NU 80-2/45	36	4G 10 + 3x10	100
	KM 350S-2e	NU 80-2/40	30	4G 10 + 3x10	80
	KM 350S-3a	NU 901-2/50	70	4G 25 + 3x25	160
	KM 350S-3b	NU 80-2/60	53	4G 16 + 3x16	125
KM 750 (S)	KM 750-1a	NU 80-2/68	56	4G 16 + 3x16	125
	KM 750-1a	NU 901-2/50	56	4G 16 + 3x16	125
	KM 750S-1b	NU 80-2/60	53	4G 16 + 3x16	125
	KM 750S-1c	NU 80-2/45	35	4G 10 + 3x10	100
	KM 750S-1d	NU 80-2/40	32	4G 10 + 3x10	80
	KM 750S-2a	NU 901-2/75	100	7x 1x35	224
	KM 750S-2b	NU 901-2/60	85	4G 25 + 3x25	200
	KM 750S-2c	NU 901-2/50	70	4G 25 + 3x25	160
	KM 750S-2d	NU 901-2/50	64	4G 25 + 3x25	160

Cable
Special cable for use in water, application temperature: 30 °C, max. conductor temperature: 90 °C, max. temperature in the event of short-circuit: 250 °C, load capacity according to DIN VDE 0298, Part 4, activation type: star-delta (400/690 V)

Electrical connection

Cable cross-section and fuse protection

Wilo-EMU...	Pump	Motor	P_2	Cable	Fuse
			[kW]	[mm²]	[A]
KM 1300 (S)	KM 1300-1a	NU 901-2/75	97	7x 1x35	224
	KM 1300S-1b	NU 901-2/60	85	4G 25 + 3x25	200
	KM 1300S-1c	NU 901-2/50	70	4G 25 + 3x25	160
	KM 1300S-1d	NU 80-2/60	53	4G 16 + 3x16	125
	KM 1300S-2a	NU 901-2/90	137	7x 1x50	315
	KM 1300S-2b	NU 901-2/75	105	7x 1x50	250
D 500	D 500-1a	NU 911-4/60	52	4G25 + 3x25	125
	D 500S-1b	NU 911-4/50	42	4G16 + 3x16	100
	D 500S-1f	NU 801-4/68	26	4G6 + 3x6	63
	D 500S-1f	NU 911-4/50	42	4G16 + 3x16	100
	D 500S-1g	NU 801-4/55	21	4G6 + 3x6	63
	D 500-2a	NU 121-4/90	118	7x 1x50	250
	D 500S-2c	NU 121-4/65	88	7x 1x35	200
	D 500S-2d	NU 911-4/90	73	4G35 + 3x35	200
	D 500S-2e	NU 911-4/75	62	4G25 + 3x25	200
	D 500S-2f	NU 911-4/60	52	4G25 + 3x25	160
	D 500-3a	NU 121-4/135	172	7x 1x70	400
	D 500-3a	U 156-4/84	185	7x 1x70	400
	D 500S-3b	NU 121-4/110	148	7x 1x50	315
	D 500S-3b	U 156-4/64	148	7x 1x50	315
	D 500S-3c	NU 121-4/100	133	7x 1x50	315
	D 500S-3c	U 156-4/55	129	7x 1x50	315
	D 500S-3d	NU 121-4/90	118	7x 1x50	315
	D 500-4a	U 156-4/110	235	7x 1x95	500
	D 500S-4b	U 156-4/84	185	7x 1x70	400

Cable
Special cable for use in water, application temperature: 30 °C, max. conductor temperature: 90 °C, max. temperature in the event of short-circuit: 250 °C, load capacity according to DIN VDE 0298, Part 4, activation type: star-delta (400/690 V)

Max. cable length taking loop impedance Z_V into account

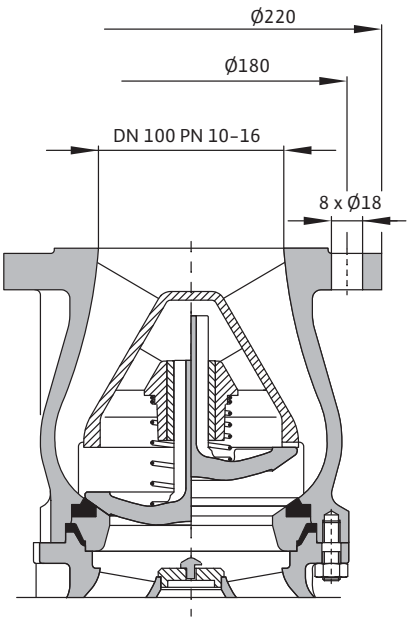
Cable	Fuse	Short-circuit current	Loop impedance Z_V [mΩ]								
			10	50	100	200	300	400	500	600	700
[mm²]	[A]	[A]	Max. line length [m]								
2.5	20	85	149	146	144	138	133	127	122	116	111
	25	110	115	112	110	104	99	93	88	82	77
	32	150	84	82	79	73	68	62	57	51	46
	35	165	76	74	71	66	60	55	49	44	38
	40	190	66	64	61	56	50	45	39	34	28
	50	250	50	48	45	40	34	29	23	18	12
4	25	110	183	180	175	166	158	149	140	131	122
	32	150	134	131	126	117	109	100	91	82	73
	35	165	122	118	114	105	96	87	79	70	61
	40	190	106	102	98	89	80	71	63	54	45
	50	250	80	77	72	63	55	46	37	28	19
	63	320	62	59	54	46	37	28	19	10	2

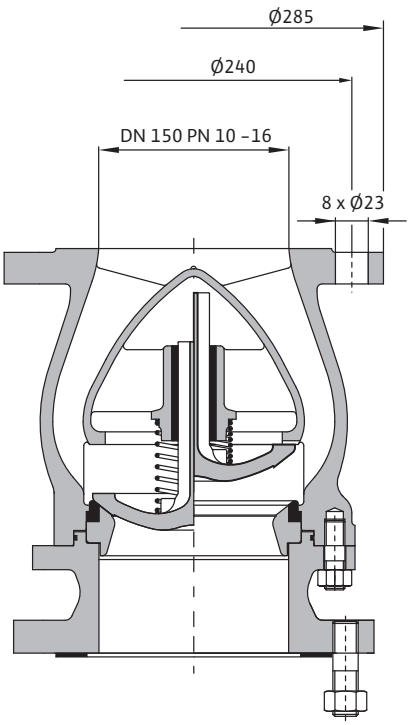
Electrical connection

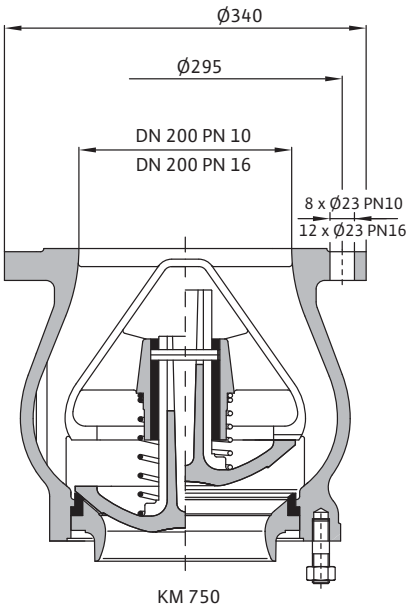
Max. cable length taking loop impedance Z_V into account

Cable	Fuse	Short-circuit current	Loop impedance Z_V [mΩ]								
			10	50	100	200	300	400	500	600	700
[mm^2]	[A]	[A]	Max. line length [m]								
6	32	150	202	196	190	177	163	150	137	124	110
	35	165	183	178	171	158	145	132	118	105	92
	40	190	159	154	147	134	121	107	94	81	68
	50	250	121	115	109	95	82	69	56	42	29
	63	320	94	89	82	69	55	42	29	16	2
	80	425	70	65	58	45	32	19	5		
10	50	250	202	193	182	160	137	115	93	71	49
	63	320	157	148	137	115	93	71	48	26	4
	80	425	118	109	98	76	53	31	9		
	100	570	87	78	67	45	23	1			
16	63	320	249	235	218	182	147	112	77	42	7
	80	425	187	173	155	120	85	50	14		
	100	570	138	124	107	72	36	1			
	125	735	107	92	75	40	5				
25	80	425	294	272	244	189	134	78	23		
	100	570	218	196	168	113	57	2			
	125	735	168	146	118	63	7				
	160	970	126	104	76	21					
	200	1260	96	73	46						
35	100	570	300	270	232	155	79	3			
	125	735	231	201	162	86	10				
	160	970	173	143	105	28					
	200	1260	132	101	63						
	224	1460	113	82	44						
	250	1660	98	68	29						
50	125	735	312	271	220	116	13				
	160	970	234	193	141	38					
	200	1260	178	137	85						
	224	1460	152	111	59						
	250	1660	133	91	40						
	315	2200	98	56	5						
70	160	970	336	277	203	55					
	200	1260	255	196	122						
	224	1460	218	159	85						
	250	1660	190	131	57						
	315	2200	140	81	7						
	400	2840	105	46							
95	200	1260	351	270	168						
	224	1460	301	219	117						
	250	1660	262	180	79						
	315	2200	193	111	9						
	400	2840	145	63							
	500	3800	103	21							

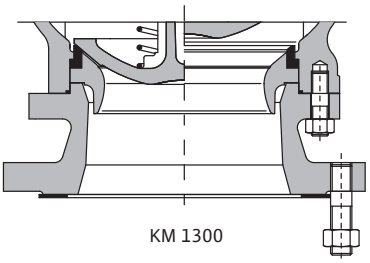
Non-return valves (certified)







KM 750



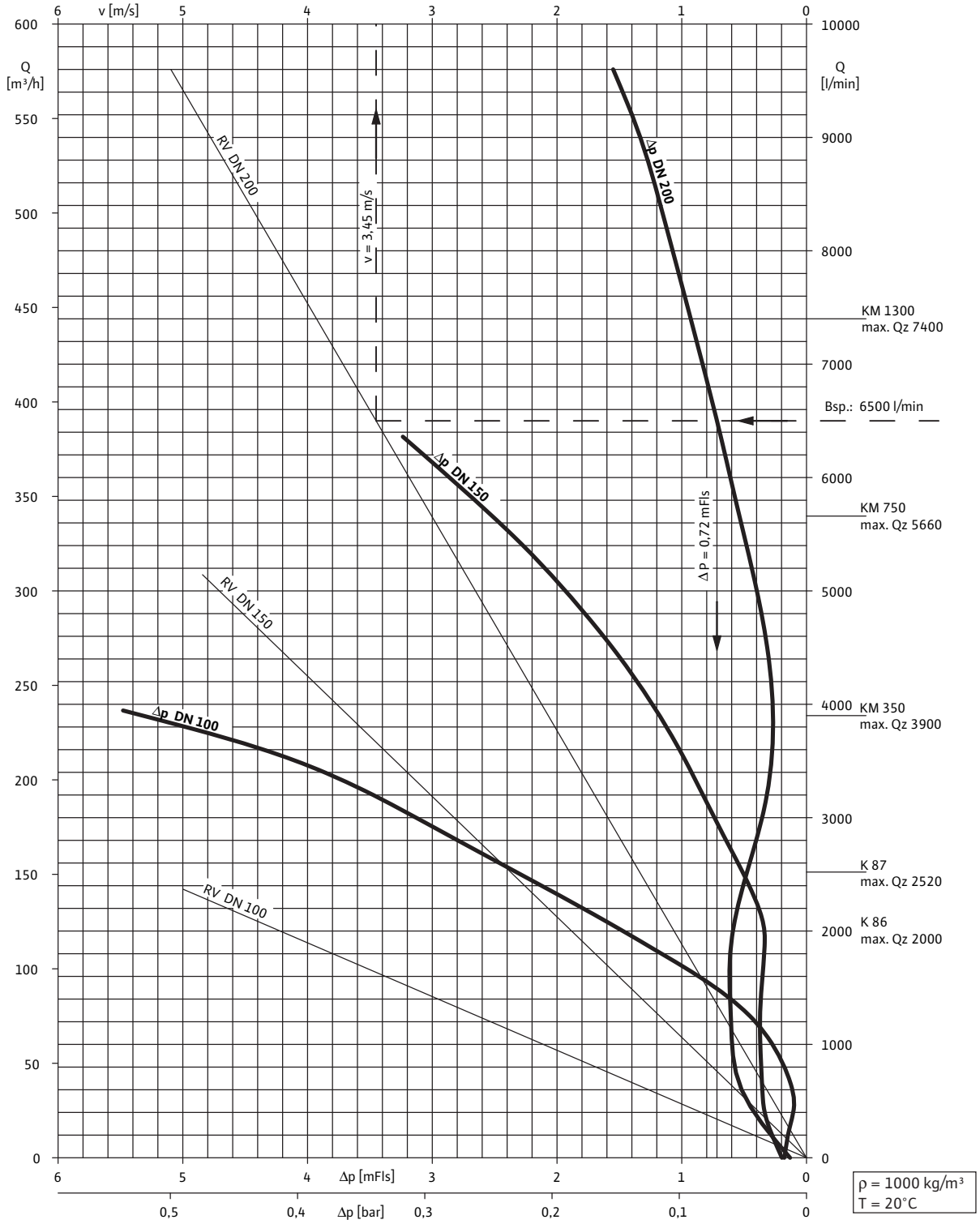
KM 1300

Dimensions, weights

Wilo-EMU...	Length	Weight	Volume flow at 5 m/s	Pressure losses	Friction coefficient	Equivalent pipe length (steel)
	–		Q	–	ζ	–
	[mm]	[kg]	[l/min]	[m]	–	[m]
K 86...	70	5.3	2370	2,05 (DN 100, 5 m/s)	1,61 (DN 100, 5 m/s)	10 (114x3,2)
K 87...	70	5.3	2370	2,05 (DN 100, 5 m/s)	1,61 (DN 100, 5 m/s)	10 (114x3,2)
KM 350...	320	50.2	5310	2,21 (DN 150, 5 m/s)	1,74 (DN 150, 5 m/s)	16,9 (168,3x4,0)
KM 750...	225	43.3	9420	1,55 (DN 200, 5 m/s)	1,22 (DN 200, 5 m/s)	15,6 (219,1x4,5)
KM 1300...	370	85.6	9420	1,55 (DN 200, 5 m/s)	1,22 (DN 200, 5 m/s)	15,6 (219,1x4,5)
D 500...	–	–	–	–	–	–

The pressure losses of the non-return valves are not included in the individual pump curves. They are to be taken into account in the system curve. Final testing at the factory is performed without the non-return valve attached.

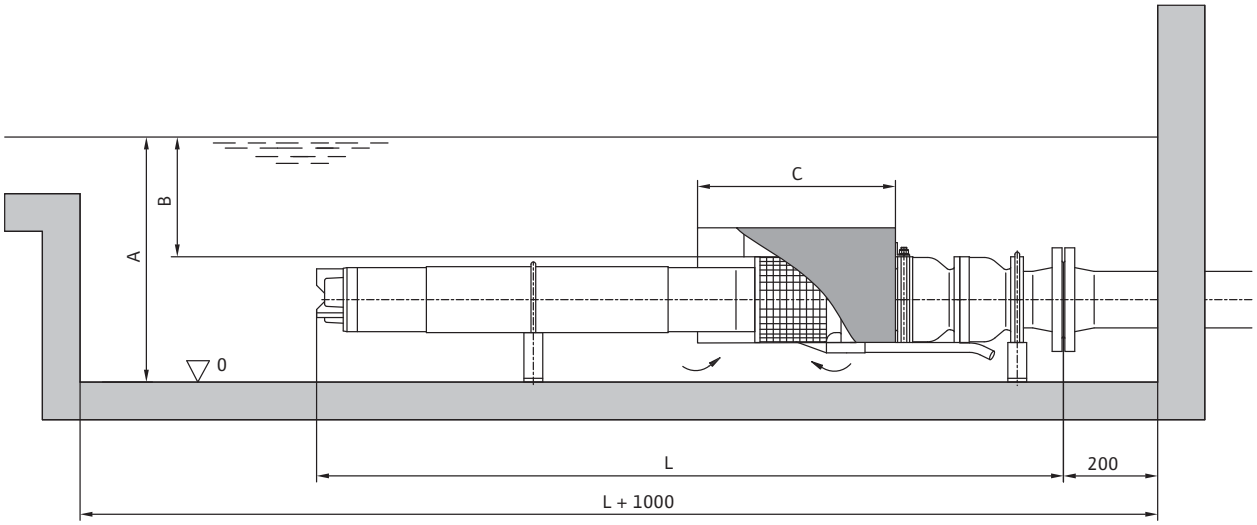
Non-return valves (certified)

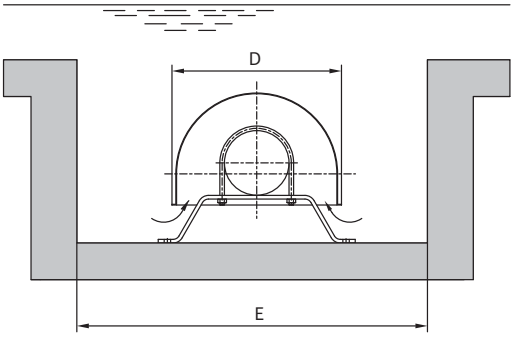


Bearing brackets and anti-vortex plate

Minimum water coverage

Minimum water coverage for pumps with anti-vortex plate.
The minimum water level depends on the tank design and the incoming water!





„L“ is the length of the unit. See correspondent dimension drawing.

Dimensions, weights

Wilo-EMU...	Minimum water submersion	Minimum water submersion above the suction piece with anti-vortex plate	Minimum water submersion above the suction piece without anti-vortex plate	Length	Width	Basin width
	A	W		C	D	E
	[mm]					
K 86...	500	230	400	500	416	1000
K 87...	500	230	600	500	416	1000
KM 350...	550	210	800	600	416	1200
KM 750...	1150	750	900	600	436	1200
KM 1300...	1280	850	1200	800	576	1500
D 500...	1600	1200	1800	1000	620	1600

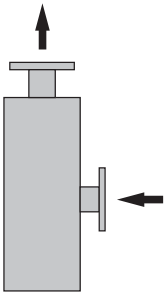
Pressure shroud

Pressure shroud pumps are made for vertical installation, and, up to a certain number of stages, for horizontal installation. The connection dimensions and dimensions of the pressure shroud for horizontal and vertical installation can be found on the product data sheet of the respective type. The pressure shroud for vertical installation can be provided with a foot plate and the one for horizontal installation with feet on customer request. Galvanised steel and rust-proof stainless steel are the material choices.

Type key e.g. H SO G 1x	
H	**Pressure shroud installation** V = vertical, H = horizontal
SO	**Connection type** A = axial, S = lateral, SO = top side, SU = bottom side, SR = right side*, SL = left side*, * = viewed from the pressure side
G	**Connection type** F = flange connection, G = threaded connection
1	**Motor version** 1 = potable water filling (is filled from the outside) 0 = motor prefilled with water-glycol mixture (no filling with potable water possible)
x	**Distance of the suction connection** from the upper edge of the pressure shroud to the centre axis of the suction connection in mm (only for pumps with lateral suction connection)

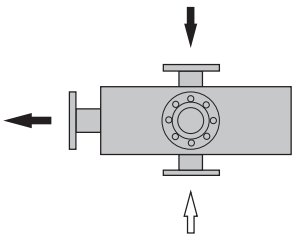
Vertical installation, axial suction connection

Vertical installation, lateral suction connection



Horizontal installation, axial suction connection

Horizontal installation, lateral suction connection



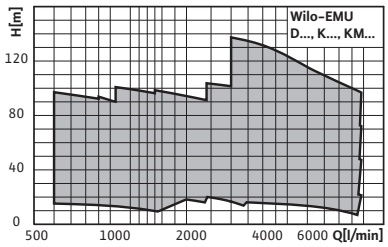
Equipment/function

	K 86...	K 87...	KM 350...	KM 750...	KM 1300...	D 500...
Design						
Submersible	•	•	•	•	•	•
NEMA connection	•	•	•	•	•	•
Standardised connection	–	–	•	•	•	•
Integrated non-return valve	–	–	–	–	–	–
Without non-return valve	•	•	•	•	•	•
Single-phase AC motor	–	–	–	–	–	–
Three-phase AC motor	•	•	•	•	•	•
Direct activation	•	•	•	•	•	•
Star-delta activation	•	•	•	•	•	•
FC operation	–	–	–	–	–	–
Motor with cast stator	–	–	–	–	–	–
Rewindable motor	•	•	•	•	•	•
Oil motor filling	–	–	–	–	–	–
Water-glycol motor filling	•	•	•	•	•	•
Potable water motor filling	optional	optional	optional	optional	optional	optional
Hydraulics/motor preassembled	•	•	•	•	•	•
Application						
Horizontal installation	•	•	•	•	•	•
Vertical installation	•	•	•	•	•	•
Equipment/function						
PT 100 motor temp. monitoring	–	–	–	–	–	–
PTC motor temperature monitoring	–	–	–	–	–	–
Dry-running protection system	–	–	–	–	–	–
Accessories						
Bearing brackets for horizontal installation	optional	optional	optional	optional	optional	optional
Cooling jacket	optional	optional	optional	optional	optional	optional
Non-return valve	optional	optional	optional	optional	optional	optional
Pressure shroud	optional	optional	optional	optional	optional	optional
Materials						
Pump housing	Grey cast iron	Grey cast iron	Grey cast iron	Grey cast iron	Grey cast iron	Grey cast iron
Pump housing (special version)	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze
Impeller	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze
Impeller (special version)	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze
Motor housing	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Motor housing (special version)	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel

• = available, – = not available

Series overview Wilo-EMU sprinkler pumps D..., K... und KM...

Series: Wilo-EMU sprinkler pumps D..., K... and KM...



> Application

- For pumping water to supply sprinkler systems
- For pumping water without long-fibre and abrasive constituents

Series overview Wilo-EMU sprinkler pumps D..., K... und KM...

Series: Wilo-EMU sprinkler pumps D..., K... and KM...

> Special features/product benefits
- VdS-certified
- Certified non-return valve available as an accessory
- Version in cast iron material (bronze version is possible as an alternative)
- Pressure shroud installation possible
- Vertical and horizontal installation possible (depending on number of stages)

> More information **Page**

- Series description 20

Series description Wilo-EMU sprinkler pumps D..., K... and KM...

Design
Sprinkler pump with sectional construction

Type key
Example, hydraulics:

e.g.	**Wilo-EMU KM 1300S-2a**
KM1300	Basic hydraulics
S	Trimmed impeller
2	Number of hydraulic stages
a	Defined impeller diameter

Example, motor:

e.g.	**Wilo-EMU NU 801-2/60**
NU	Submersible motor (NU..., U...)
801	Size (6... = 6"; 8... = 8"; 9... = 10"; 12... = 12"; 15... = 16")
2	Number of poles
60	Package length (cm)

Application
- For pumping water to supply sprinkler systems
- For pumping water without long-fibre and abrasive constituents

Special features/product benefits
- VdS-certified
- Certified non-return valve available as an accessory
- Version in bronze material
- Pressure shroud installation possible
- Vertical and horizontal installation possible (depending on number of stages)

Technical data
- Mains connection: 3~400 V/50 Hz
- Immersed operating mode: S1
- Max. fluid temperature: 25 °C
- Minimum motor flow: 0.1 m/s
- Max. sand content: 35 g/m^3
- Max. number of starts: 10/h
- Max. submersion depth: 300 m
- Protection class: IP 68

Equipment/function
- Multistage submersible-motor pump with semi-axial impellers
- NEMA coupling (depending on type)
- Three-phase AC motor for direct or star-delta starting
- Motor with rewindable stator

Description/design
Sprinkler pump for vertical or horizontal installation in tanks to supply sprinkler systems.

Hydraulics
Multistage submersible-motor pump with semi-axial hydraulics. Housing parts made of EN-GJL with 2K coating or G-CuSn10, impellers made of G-CuSn10. Guide housing with stationary wear rings made of special bronze. Pressure port as flange connection.

Motor
Three-phase AC motor with rewindable PVC-insulated winding for direct and star-delta starting. Motor shroud made of A2/A4-quality stainless steel or steel/G-CuSn10. Pump connection up to 8"as NEMA connection, as standardised connection starting from 10". Sealing of motor shaft achieved through the use of a mechanical seal made of solid silicon carbide material.

Thrust bearing with rockers for absorption of high axial thrust. Negative axial thrust is absorbed by the counter-thrust bearing. Self-lubricating bearing. NU... series motors are filled with water-glycol mixture as standard. Alternatively, they can be filled with potable water (T version). U... series motors generally have to be filled with potable water.

Cooling
The motor is cooled by the fluid. The motor must always be immersed when operated. The limit values for maximum fluid temperature and minimum flow velocity must be adhered to. Vertical installation is possible with or without cooling jacket. For horizontal installation, bearing brackets must be used for reinforcement of the unit. An anti-vortex plate or cooling jacket may be used to improve the inlet flow.

Pressure shroud
The pressure shroud is used for direct installation of the unit in the pipe system. Standard models are without mounted non-return valves. The maximum inlet pressure is 10 bar or 5 bar on D 500 unit.

Options
- Standard versions available from stock with 25 m cable (ready for delivery indicated by "L")

Scope of delivery
- Hydraulics + motor fully mounted
- Connecting cable in accordance with VDE/KTW, cable cross-section and length per customer request
- Installation and operating instructions

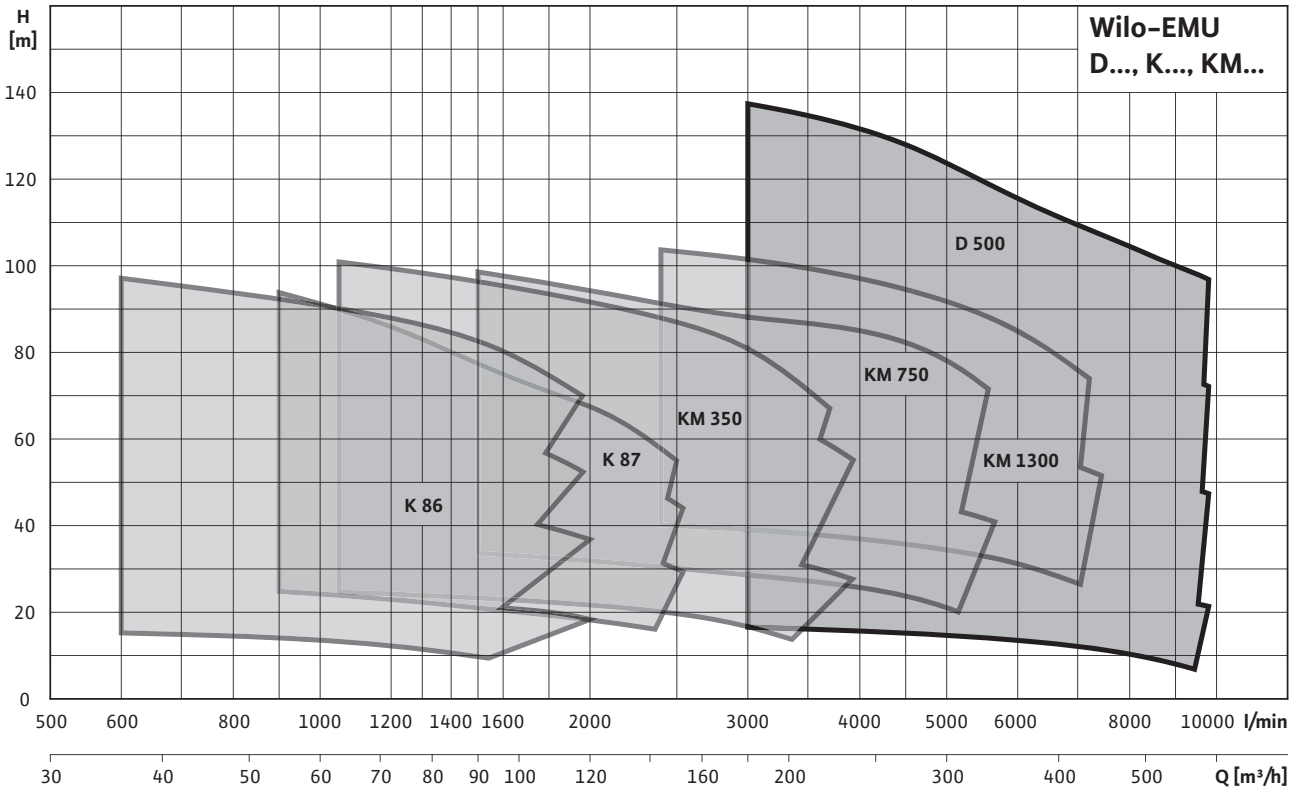
Configuration
It is important to observe VdS regulation VdS CEA 4001:2005-09 when installing sprinkler pumps. Please contact VdS for details.

Accessories
- Pressure shroud
- Bearing brackets and anti-vortex plate
- Non-return valve (certified)

Series description Wilo-EMU sprinkler pumps D..., K... and KM...

Note
Most of these units are configured products. In some cases, however, standard versions can be delivered directly from stock. For more details about delivery times, please see the LB column in the ordering information tables:

- L = in-stock items; available from stock in specified standard configuration
- A = delivery time on request; configured product per customer request



Technical data

Motordaten

Wilo-EMU...	Mains connection	Fluid temperature	Operating mode (submerged)	Min. flow rate at the motor	Insulation class	Protection class	Max. submersion depth	Max. switching frequency	Permitted voltage tolerance
	–			v	–				
	–			[m/s]	–		[m]	[1/h]	[%]
NU 60...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C	IP 68	300	15	+/- 10
NU 801...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C	IP 68	300	10	+/- 10
NU 80...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C	IP 68	300	10	+/- 10
NU 901...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C	IP 68	300	10	+/- 10
NU 911...	3~400 V, 50 Hz	3 °C...20 °C	S1	0.1	PVC 80°C	IP 68	300	10	+/- 10
NU 12...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C/PE2 90°C	IP 68	300	10	+/- 10
U 15...	3~400 V, 50 Hz	3 °C...25 °C	S1	0.1	PVC 80°C/PE2 90°C	IP 68	300	10	+/- 10

Motor material

Wilo-EMU...	Motor shaft	Motor shaft (special version)	Motor housing	Motor housing (special version)	Motor shroud	Motor shroud (special version)	Screwed connection, motor	Screwed connection, motor (special version)
	–							
	–							
NU 60...	1.4057	1.4462	NiAl-Bz	NiAl-Bz	1.4301	1.4571	A2	A2
NU 801...	1.4021	1.4462	EN-GJL	G-CuSn10	1.4301	1.4571	A2	A2
NU 80...	1.4021	1.4462	EN-GJL	G-CuSn10	1.4301	1.4571	A2	A2
NU 901...	1.4021	1.4462	EN-GJL	G-CuSn10	1.4301	1.4571	A2	A2
NU 911...	1.4057	1.4462	EN-GJL	G-CuSn10	1.4301	1.4571	A2	A2
NU 12...	1.4462	1.4462	EN-GJL	G-CuSn10	1.0308	G-CuSn10	A2	A2
U 15...	1.0308	1.0308	EN-GJL	G-CuSn10	1.0308	G-CuSn10	A2	A2

Technical data

Hydraulics material

Wilo-EMU...	Impeller	Impeller (special version)	Pump shaft	Pump shaft (special version)	Pump housing	Pump housing (special version)	Screwed connection, pump	Screwed connection, pump (special version)
	–							
	–							
K 86...	G-CuSn10	G-CuSn10	1.4021	1.4122	EN-GJL	G-CuSn10	A2	A2
K 87...	G-CuSn10	G-CuSn10	1.4021	1.4122	EN-GJL	G-CuSn10	A2	A2
KM 350...	NiAl-Bz	NiAl-Bz	1.4021	1.4122	EN-GJL	G-CuSn10	A2	A2
KM 750...	NiAl-Bz	NiAl-Bz	1.4021	1.4122	EN-GJL	G-CuSn10	A2	A2
KM 1300...	G-CuSn10	–	1.4021	–	EN-GJL	–	A2	–
D 500...	NiAl-Bz	NiAl-Bz	1.4021	1.4122	EN-GJL	G-CuSn10	A2	A2

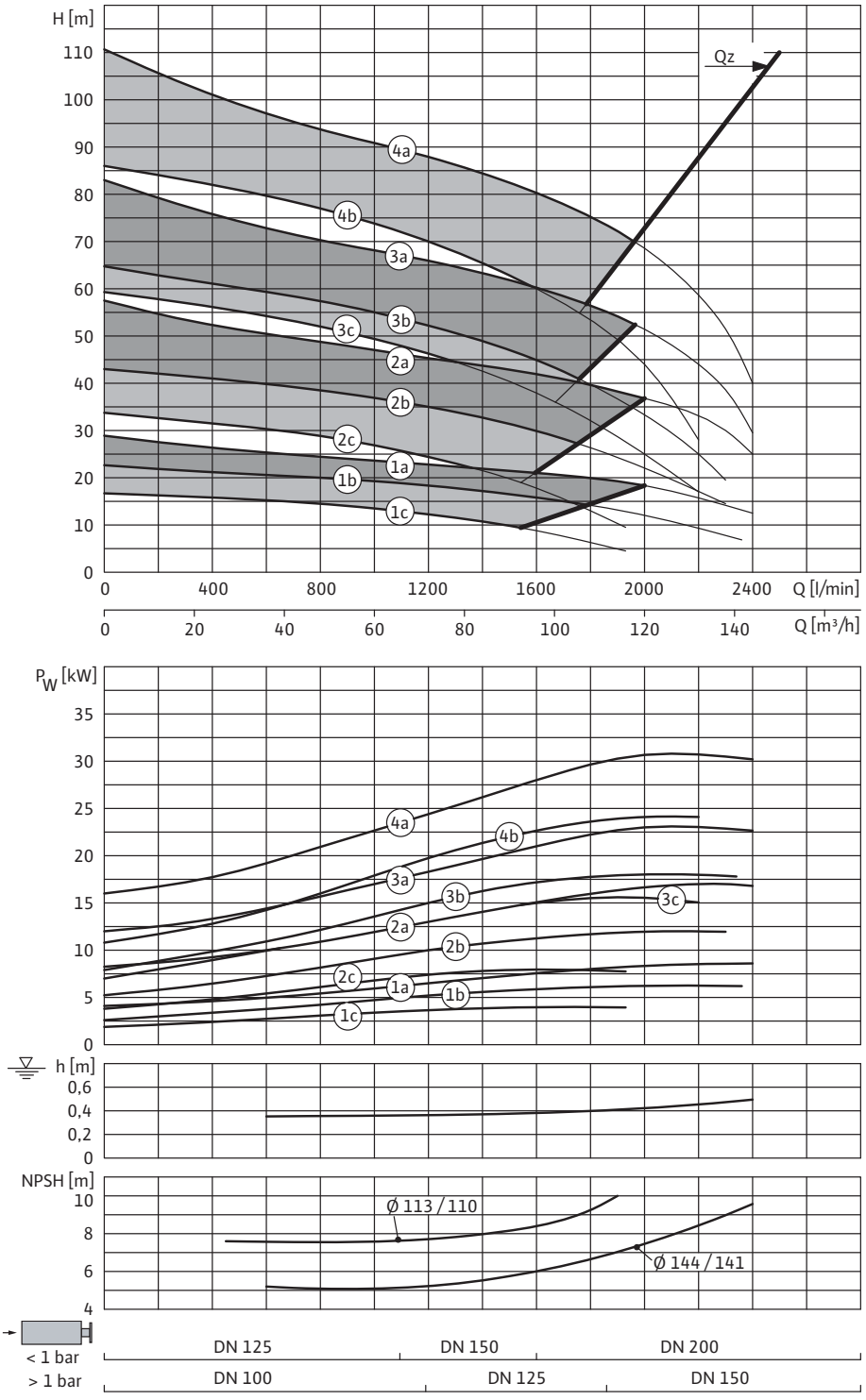
Certification and emergency operation properties

Wilo-EMU...	Sprinkler approval for				Running time	Emergency flow rate without pressure shroud	Emergency flow rate with pressure shroud
	Germany (VdS)	Czech Republic	Slovakia	Hungary	–		
	–				[h]	[%]	
K 86...	P 4840420	c.216/C5A/2007/0002	SK03-ZSV-0370	618/4-9/2006	max. 48	min. 2	min. 4
K 87...	P 4840421	c.216/C5A/2007/0002	SK03-ZSV-0370	618/4-10/2006	max. 48	min. 2	min. 4
KM 350...	P 4840422	c.216/C5A/2007/0003	SK03-ZSV-0370	618/4-21/2006	max. 48	min. 2	min. 4
KM 750...	P 4840423	c.216/C5A/2007/0003	SK03-ZSV-0370	618/4-17/2006	max. 48	min. 2	min. 4
KM 1300...	P 4840424	c.216/C5A/2007/0003	SK03-ZSV-0370	618/4-19/2006	max. 48	min. 2	min. 4
D 500...	P 4080003	–	–	–	max. 48	min. 2	min. 4

• = available, – = not available

Overview pump curve Wilo-EMU K 86

Overview pump curve Wilo-EMU K 86



4a = K 86S-4a + NU 801-2/45
4b = K 86S-4b + NU 801-2/40

3a = K 86S-3a + NU 801-2/35
3b = K 86S-3b + NU 801-2/28
3c = K 86S-3c + NU 60-2/51

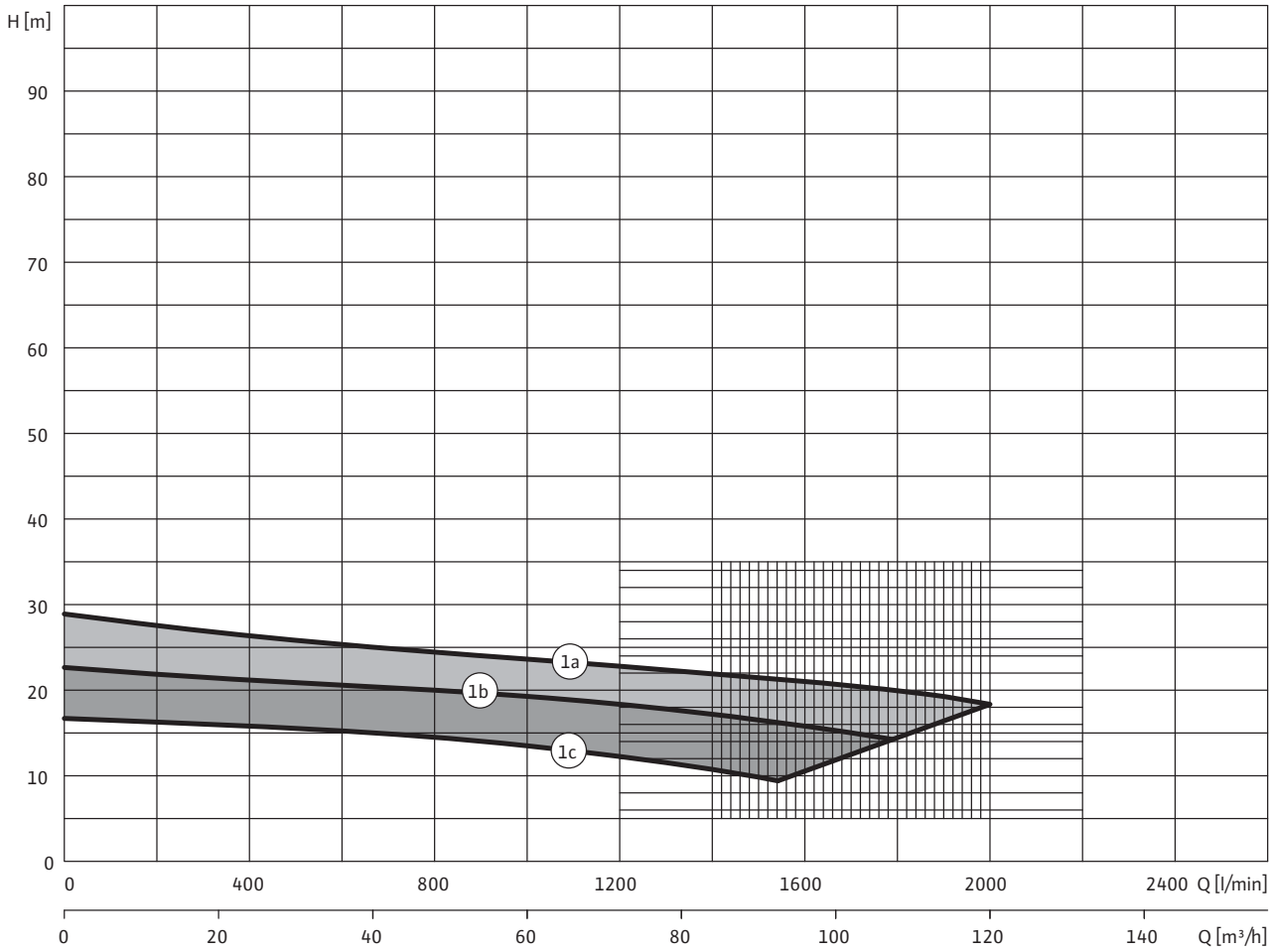
2a = K 86-2a + NU 60-2/51
2b = K 86S-2b + NU 60-2/40
2c = K 86S-2c + NU 60-2/32

1a = K 86-1a + NU 60-2/32
1b = K 86S-1b + NU 60-2/24
1c = K 86S-1c + NU 60-2/23

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU K 86-1

Pump curves Wilo-EMU K 86-1



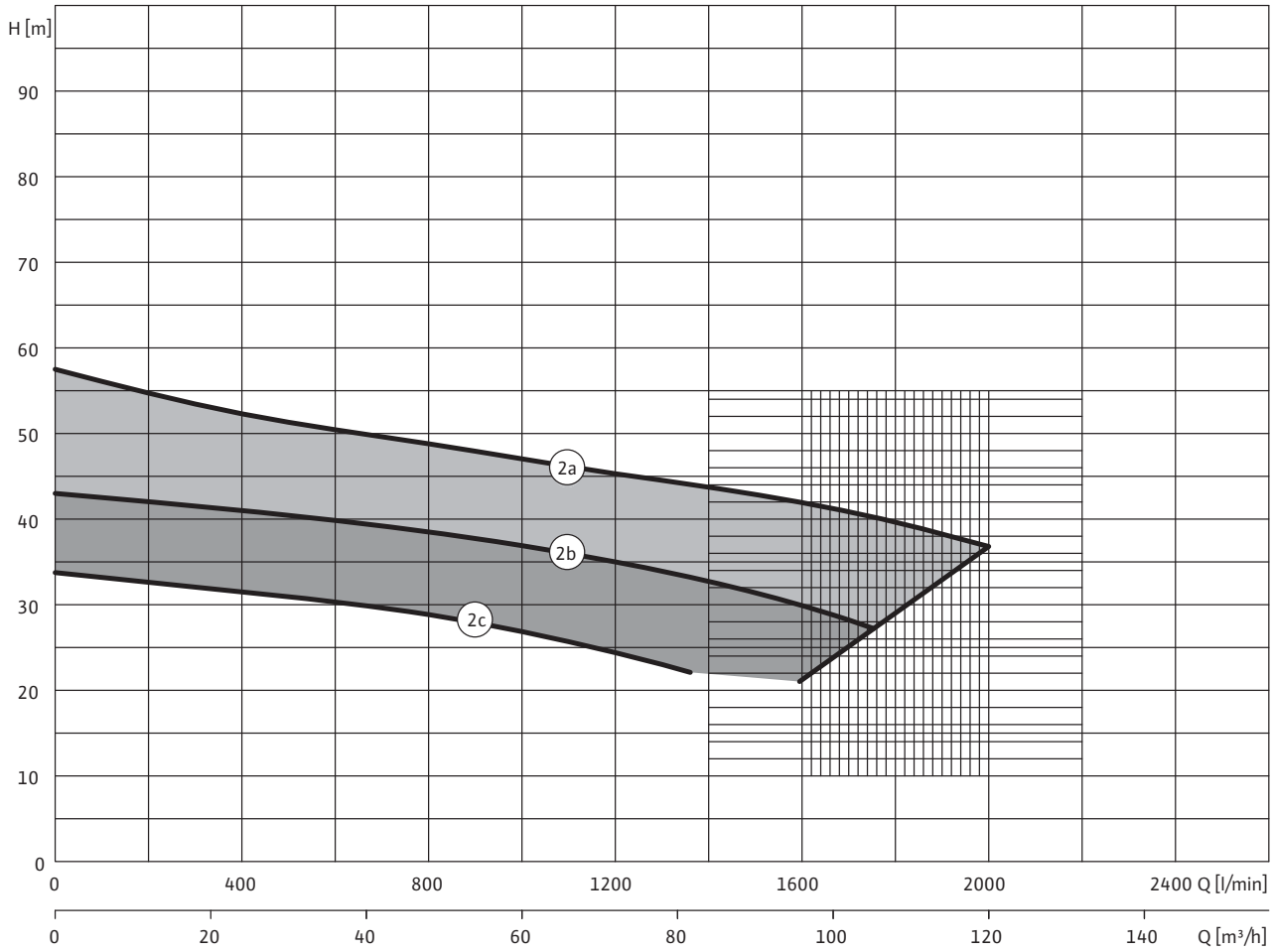
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 86-1a	NU 60-2/32	9	21.5	135	70	V+H	•	•
K 86S-1b	NU 60-2/24	7.5	17.1	93	46	V+H	•	•
K 86S-1c	NU 60-2/23	5	11.3	75	38	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 86-2

Pump curves Wilo-EMU K 86-2



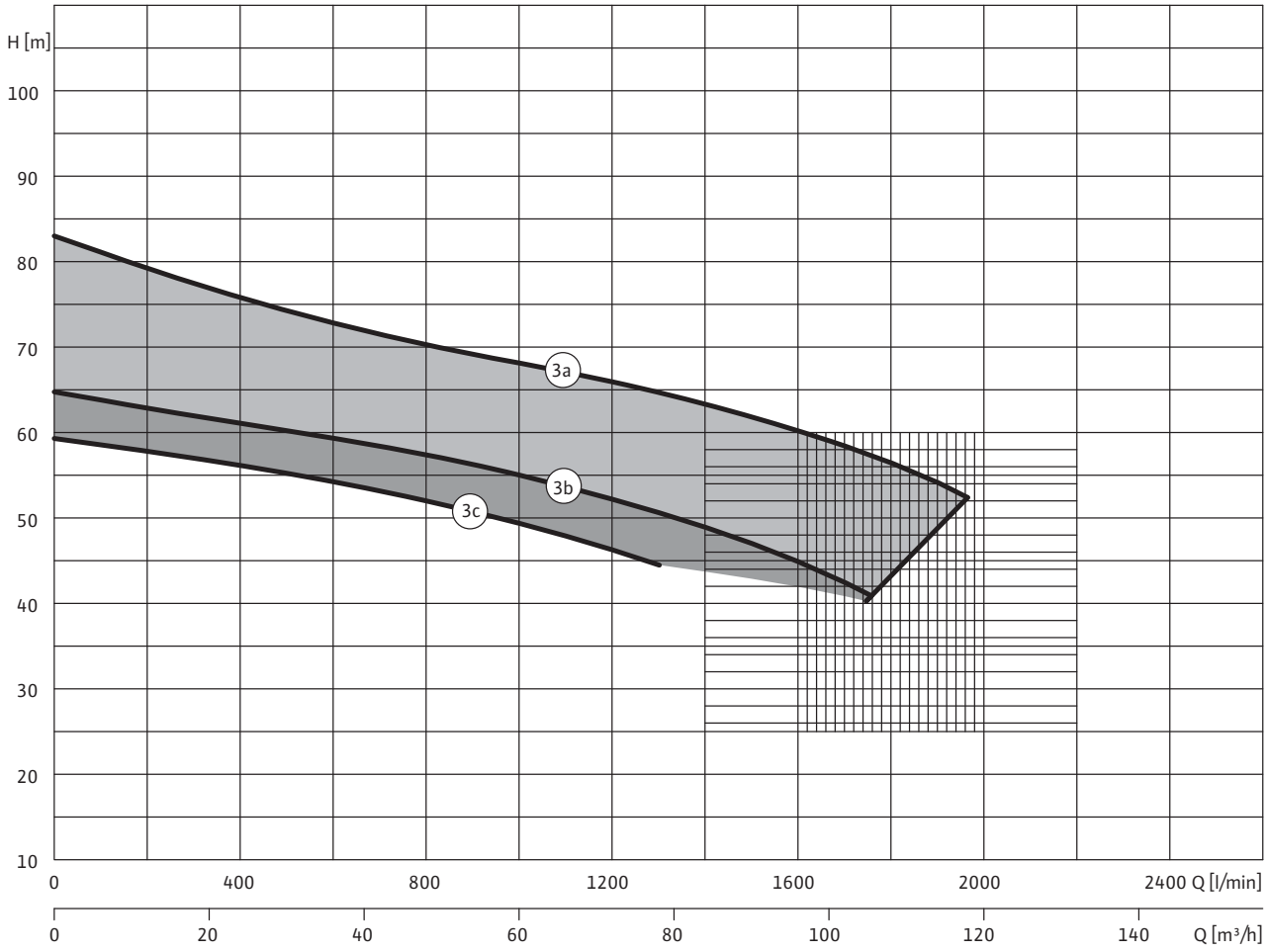
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 86-2a	NU 60-2/51	18	38	225	115	V+H	•	•
K 86S-2b	NU 60-2/40	14	29.5	165	85	V+H	•	•
K 86S-2c	NU 60-2/32	10	23	135	70	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 86-3

Pump curves Wilo-EMU K 86-3



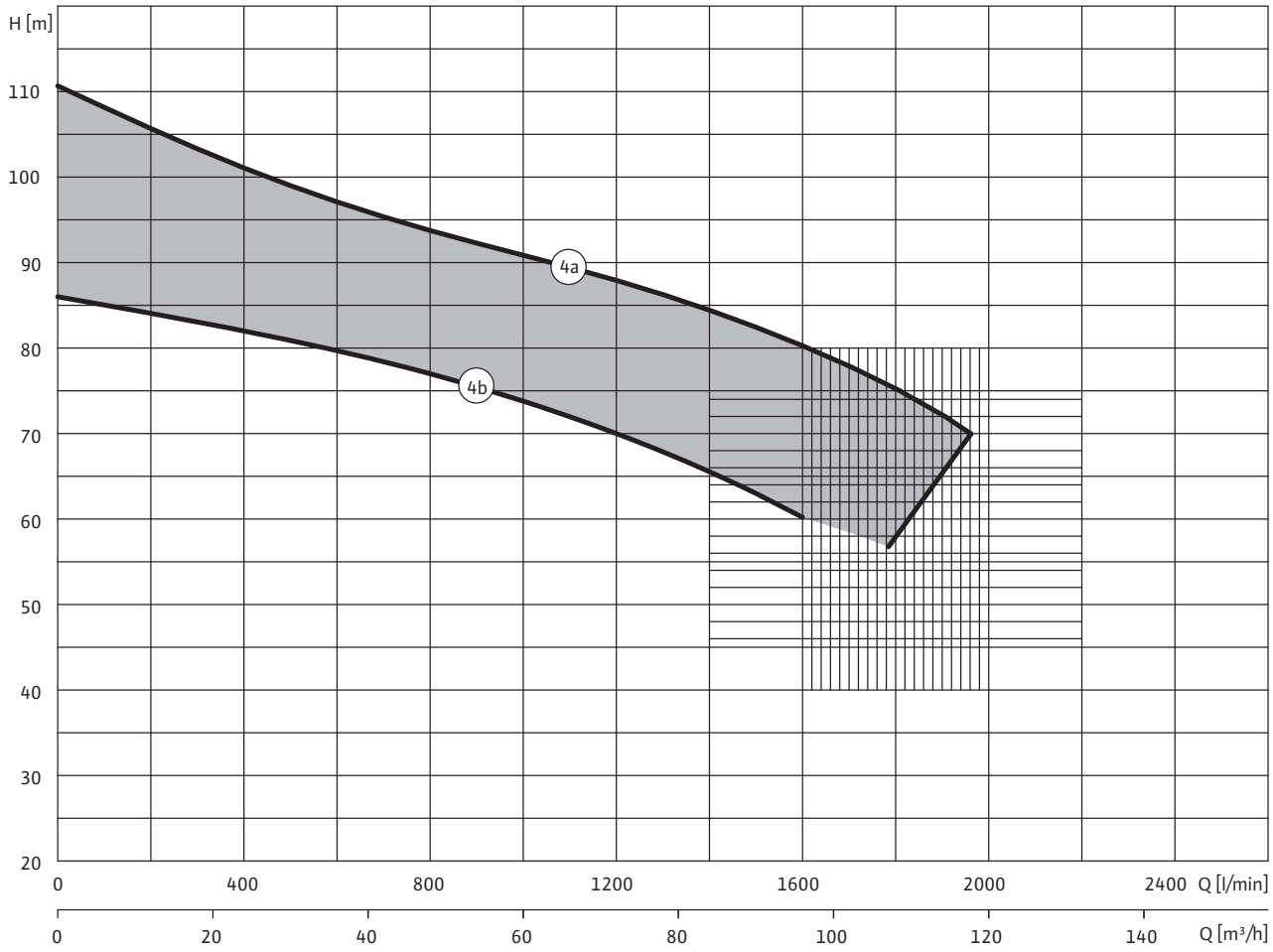
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 86S-3a	NU 801-2/35	26	52	270	140	V+H	•	•
K 86S-3b	NU 801-2/28	21	42.5	186	95	V+H	•	•
K 86S-3c	NU 60-2/51	18	38	225	115	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 86-4

Pump curves Wilo-EMU K 86-4



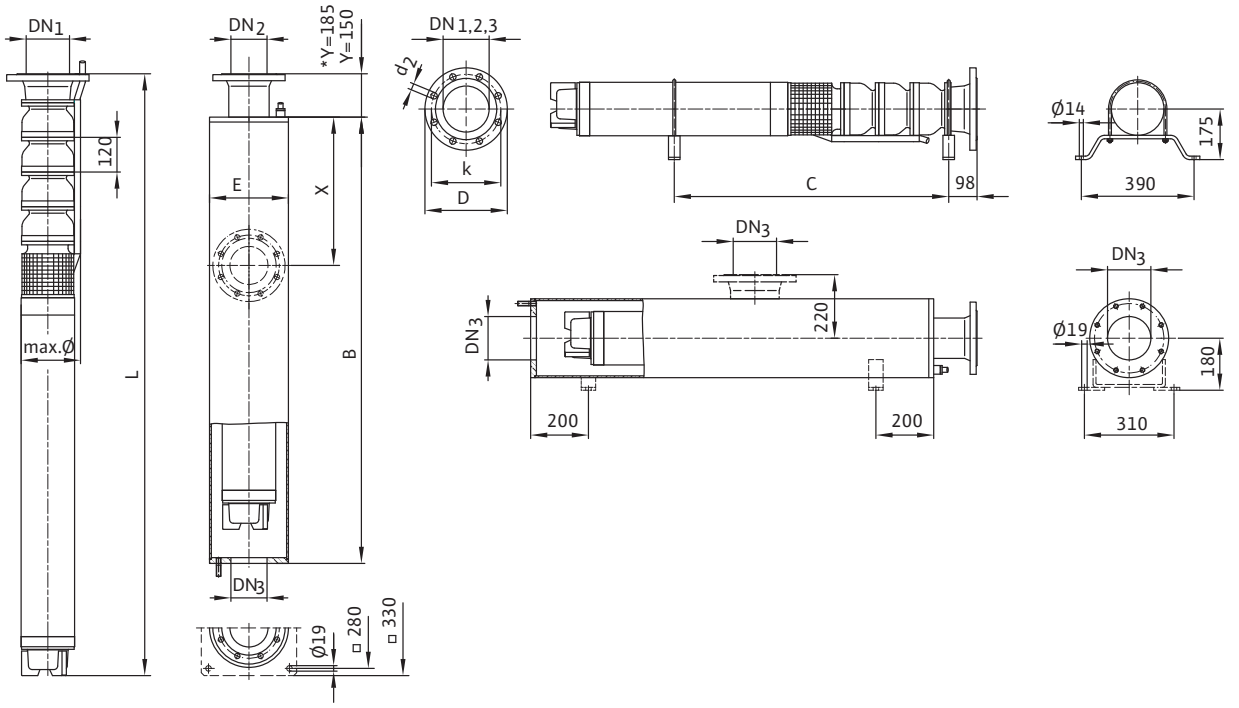
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 86S-4a	NU 801-2/45	35	70	365	190	V+H	•	•
K 86S-4b	NU 801-2/40	28	58	315	165	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU K 86

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
K 86-1a	NU 60-2/32	144/141	1220	700	273	1165	220	68	85
K 86S-1b	NU 60-2/24	131/128	1140	660	273	1085	220	65	77
K 86S-1c	NU 60-2/23	113/110	1140	660	273	1085	220	65	77
K 86-2a	NU 60-2/51	144/141	1520	910	273	1465	221	78	113
K 86S-2b	NU 60-2/40	128/125	1420	860	273	1365	221	74	103
K 86S-2c	NU 60-2/32	113/110	1340	820	273	1285	220	72	95
K 86S-3a	NU 801-2/35	142/139	1650	1030	273	1603	223	82	164
K 86S-3b	NU 801-2/28	128/125	1580	1000	273	1533	223	80	152
K 86S-3c	NU 60-2/51	123/120	1640	1030	273	1585	221	81	124
K 86S-4a	NU 801-2/45	142/139	1870	1200	273	1823	230	89	191
K 86S-4b	NU 801-2/40	128/125	1820	1180	273	1772	230	87	183

[3] with flange connection DN 100
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU K 86

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
K 86...	DN 100	DN 100	DN 100	10-16	10-16	10	8x18	180	220
K 86...	DN 125	DN 125	DN 125	10-16	10-16	10	8x18	210	250
K 86...	DN 150	DN 150*	DN 150	10-16	10-16	10	8x22	240	285
K 86...	-	-	DN 200	-	-	10	8x22	295	340

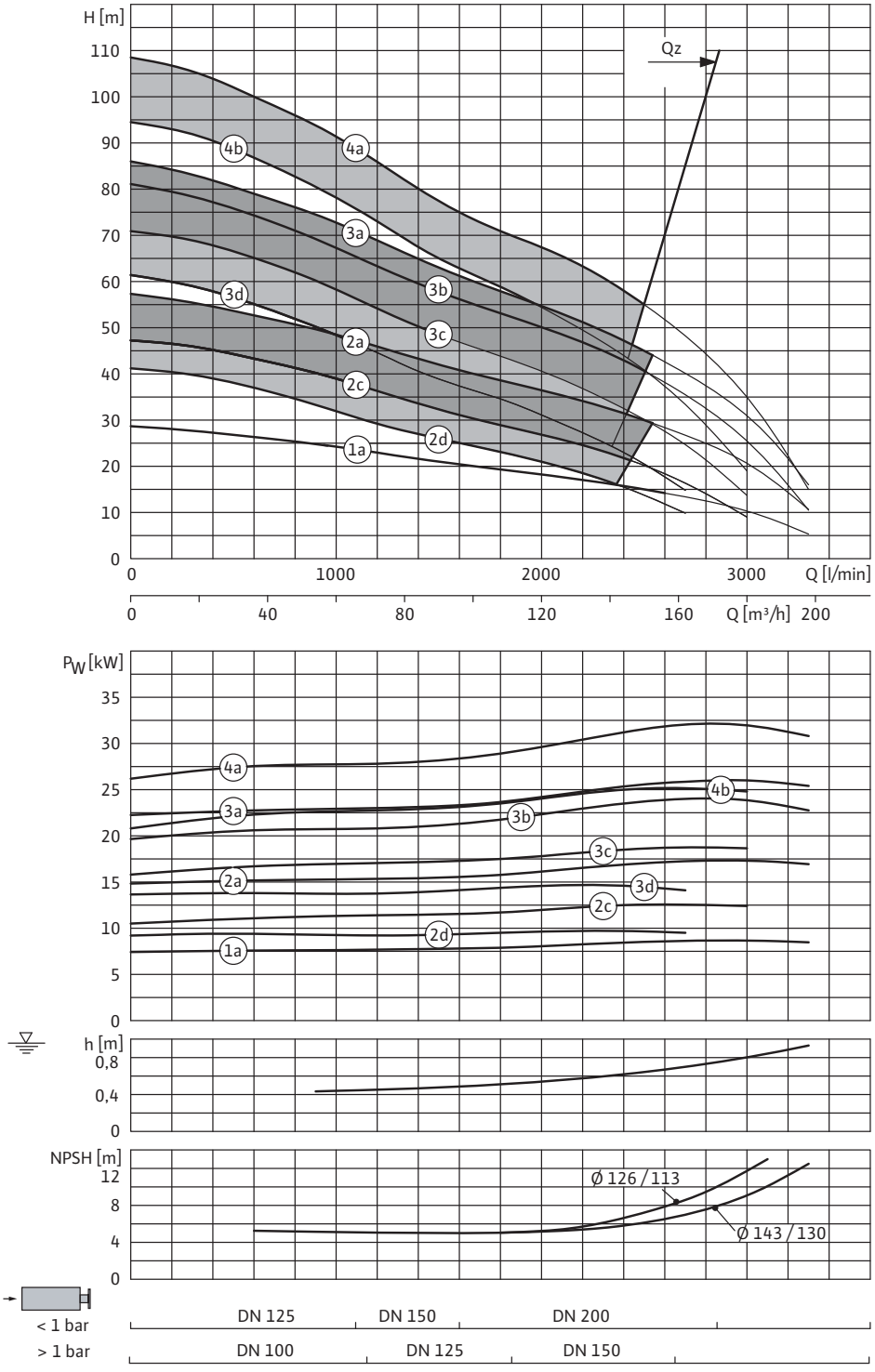
Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
K 86-1a	NU 60-2/32	–	4G2,5 + 3x2,5	A	–
K 86S-1b	NU 60-2/24	–	4G2,5 + 3x2,5	A	–
K 86S-1c	NU 60-2/23	–	4G2,5 + 3x2,5	A	–
K 86-2a	NU 60-2/51	–	4G4 + 3x4	A	–
K 86-2a	NU 60-2/51	25	4G4 + 3x4	L	6036103
K 86S-2b	NU 60-2/40	–	4G4 + 3x4	A	–
K 86S-2c	NU 60-2/32	–	4G2,5 + 3x2,5	A	–
K 86S-3a	NU 801-2/35	–	4G6 + 3x6	A	–
K 86S-3b	NU 801-2/28	–	4G6 + 3x6	A	–
K 86S-3c	NU 60-2/51	–	4G4 + 3x4	A	–
K 86S-4a	NU 801-2/45	–	4G10 + 3x10	A	–
K 86S-4b	NU 801-2/40	–	4G10 + 3x10	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

Overview pump curve Wilo-EMU K 87

Overview pump curve Wilo-EMU KM 87



4a = K 87S-4a + NU 801-2/45
4b = K 87S-4b + NU 801-2/40

3a = K 87-3a + NU 801-2/40
3b = K 87S-3b + NU 801-2/35
3c = K 87S-3c + NU 801-2/28
3d = K 87S-3d + NU 60-2/51

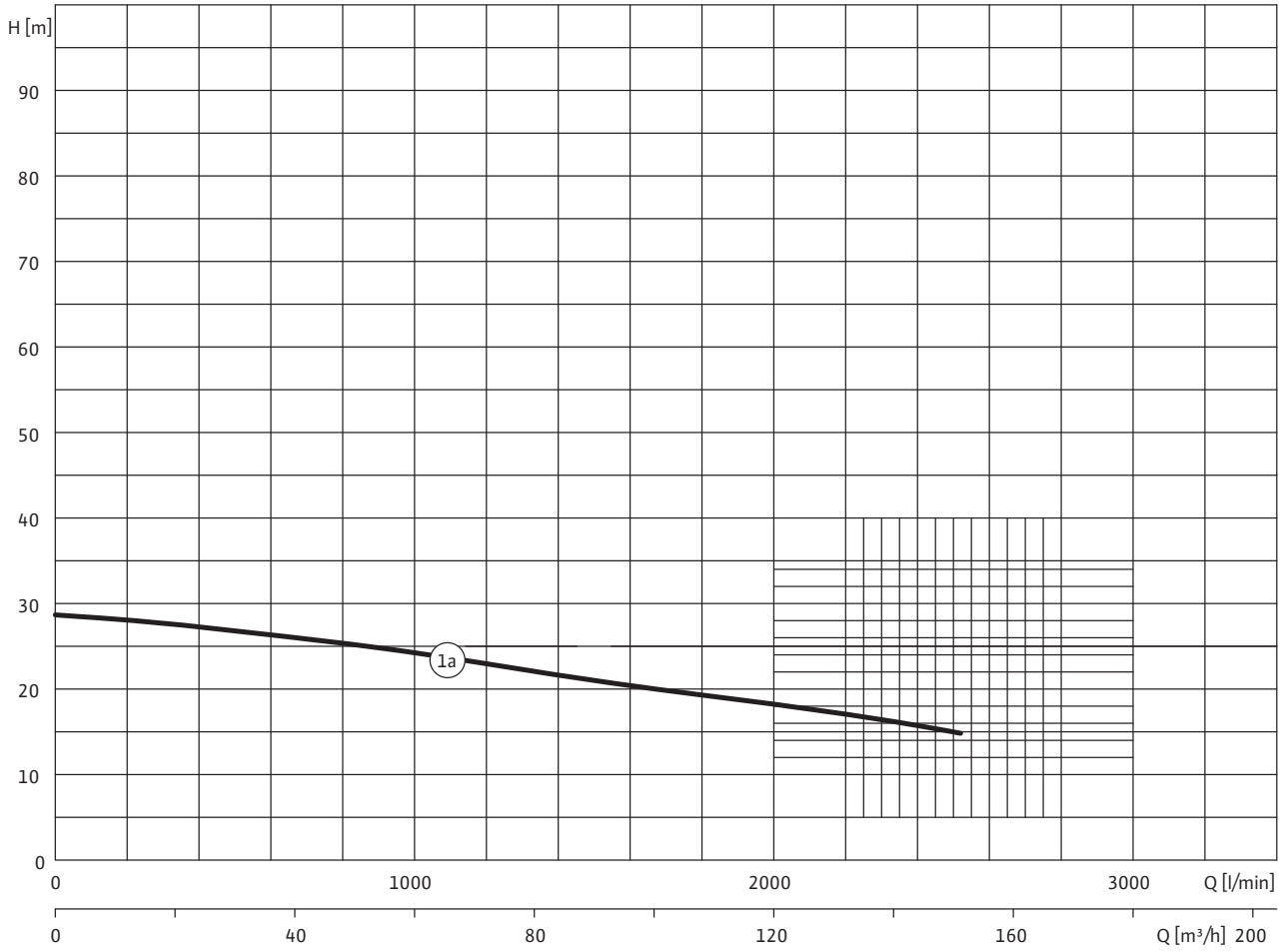
2a = K 87-2a + NU 60-2/51
2c = K 87S-2c + NU 60-2/40
2d = K 87S-2d + NU 60-2/32

1a = K 87-1a + NU 60-2/32

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU K 87-1

Pump curves Wilo-EMU K 87-1



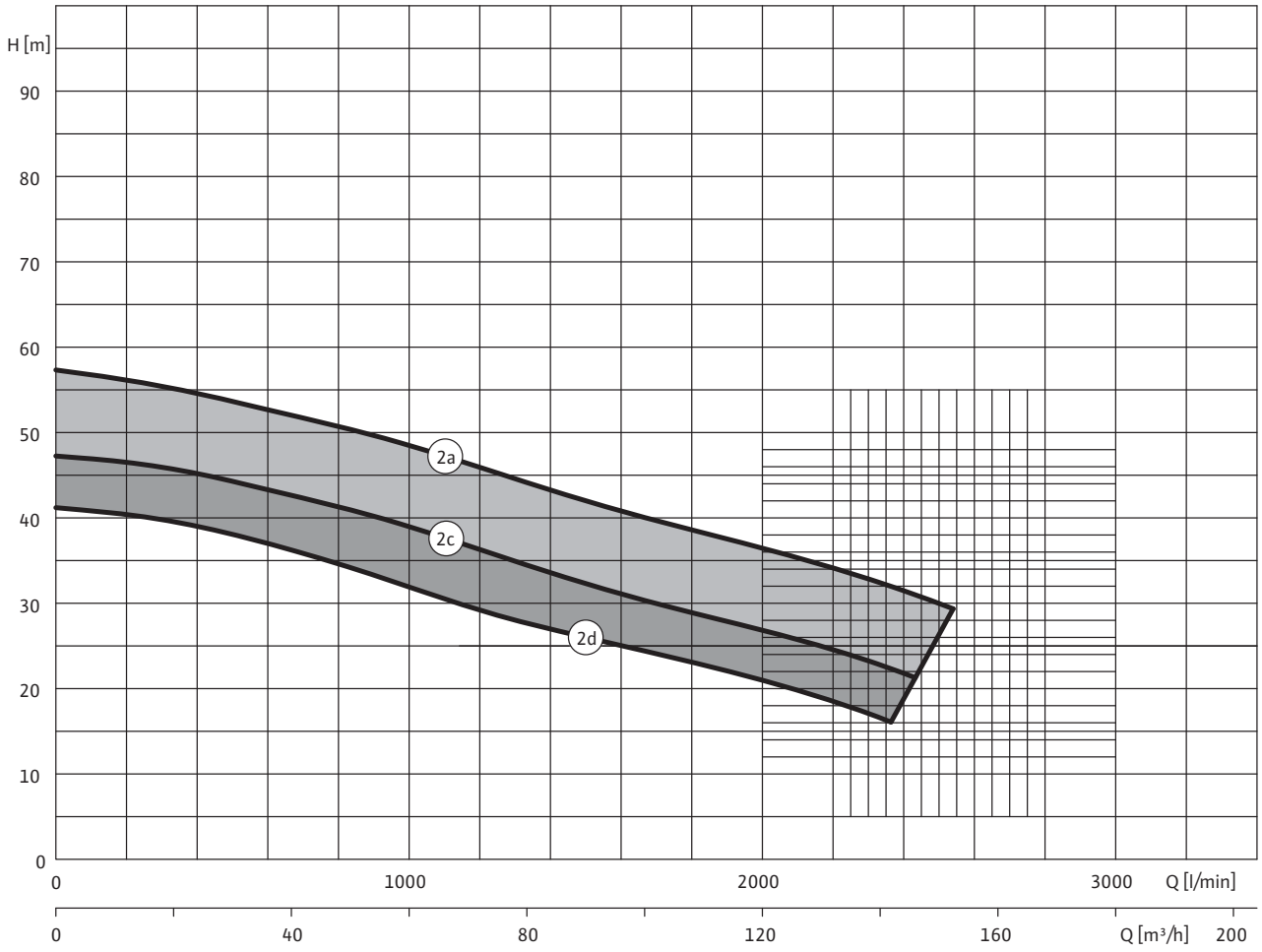
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 87-1a	NU 60-2/32	9.5	22	135	70	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 87-2

Pump curves Wilo-EMU K 87-2



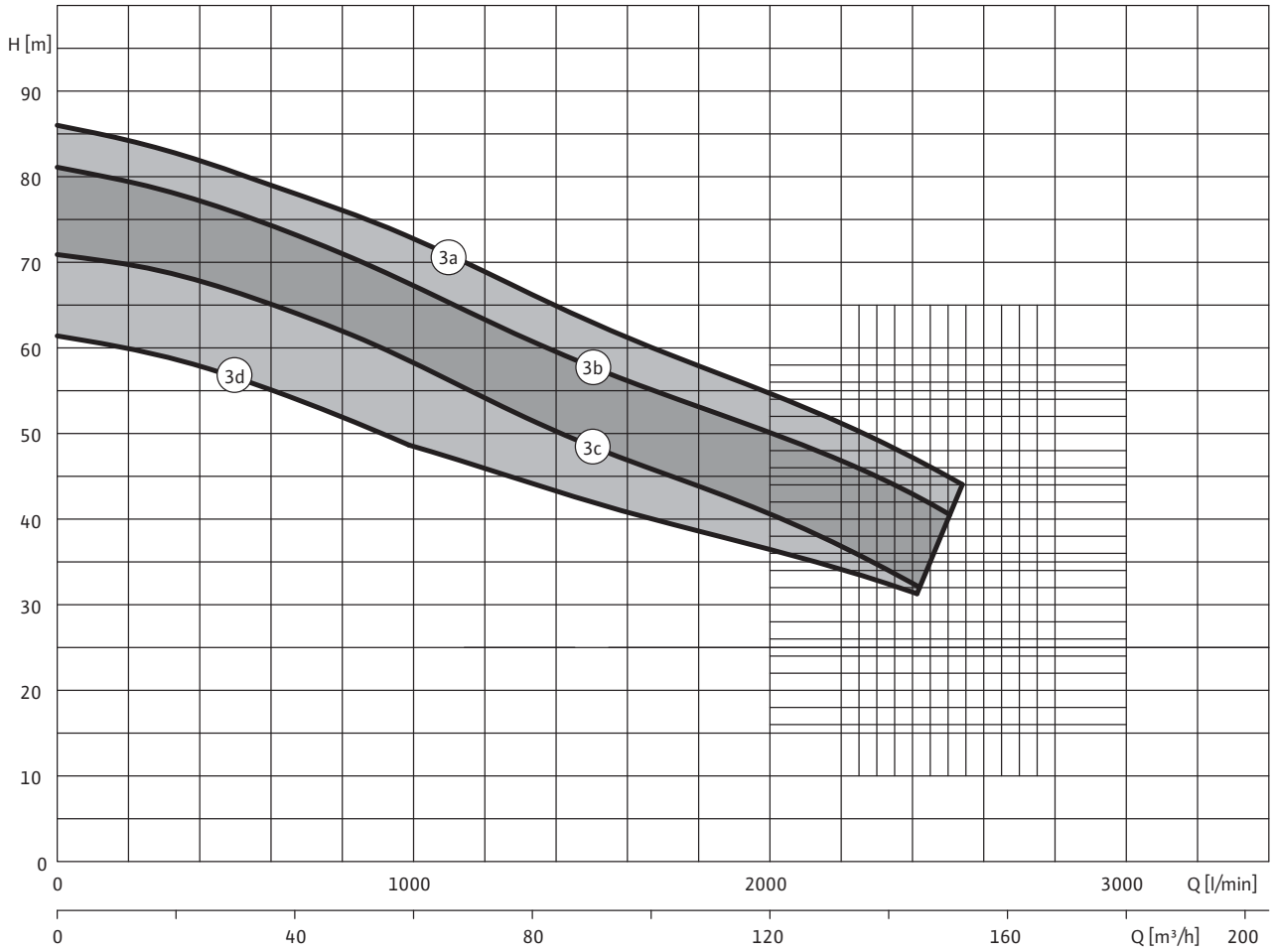
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 87-2a	NU 60-2/51	19	40	225	115	V+H	•	•
K 87S-2c	NU 60-2/40	14	29.5	165	85	V+H	•	•
K 87S-2d	NU 60-2/32	11	24.5	135	70	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 87-3

Pump curves Wilo-EMU K 87-3



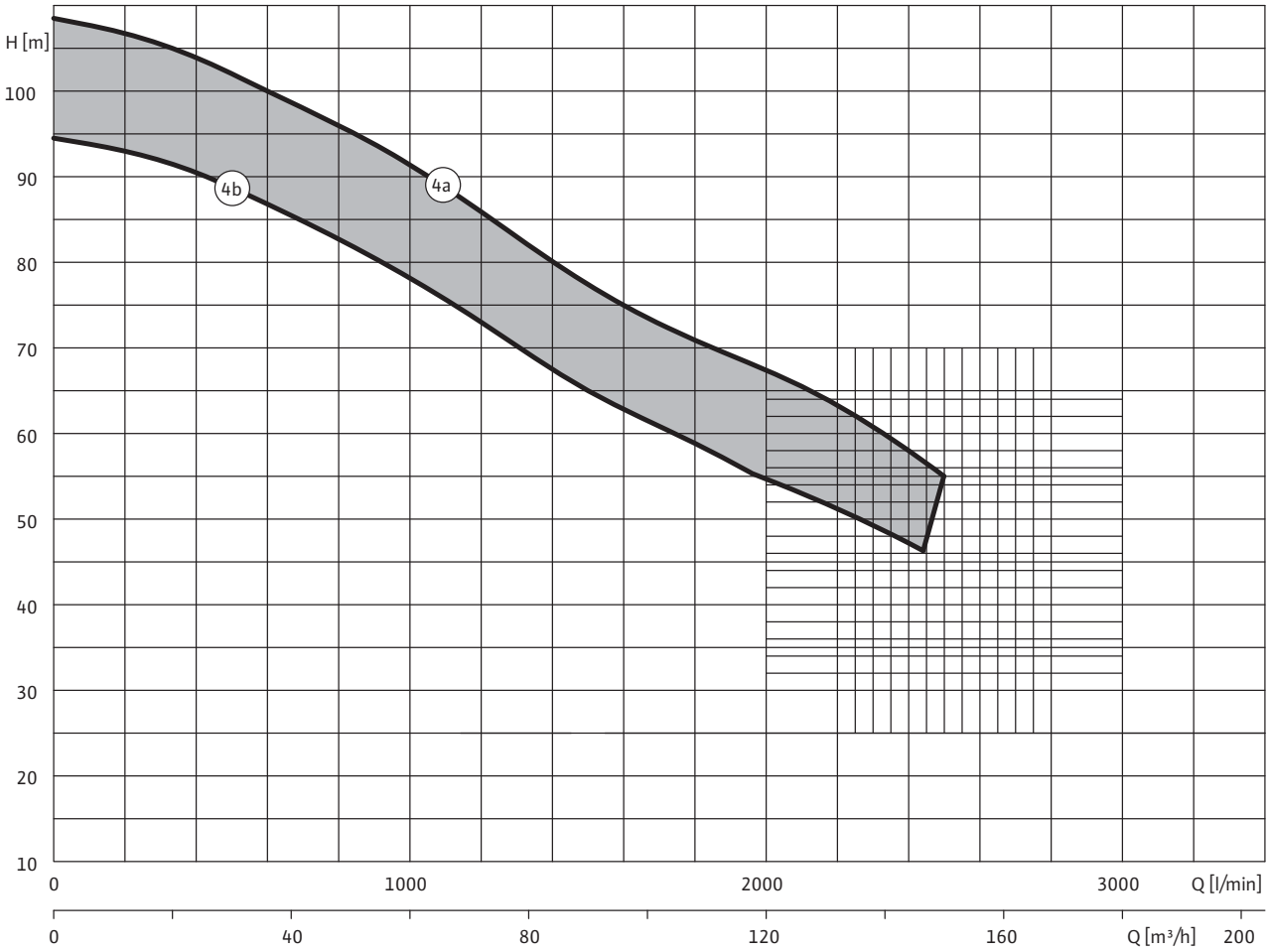
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 87-3a	NU 801-2/40	28	58	315	165	V+H	•	•
K 87S-3b	NU 801-2/35	26	52	270	140	V+H	•	•
K 87S-3c	NU 801-2/28	21	42.5	186	95	V+H	•	•
K 87S-3d	NU 60-2/51	18	38	225	115	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU K 87-4

Pump curves Wilo-EMU K 87-4



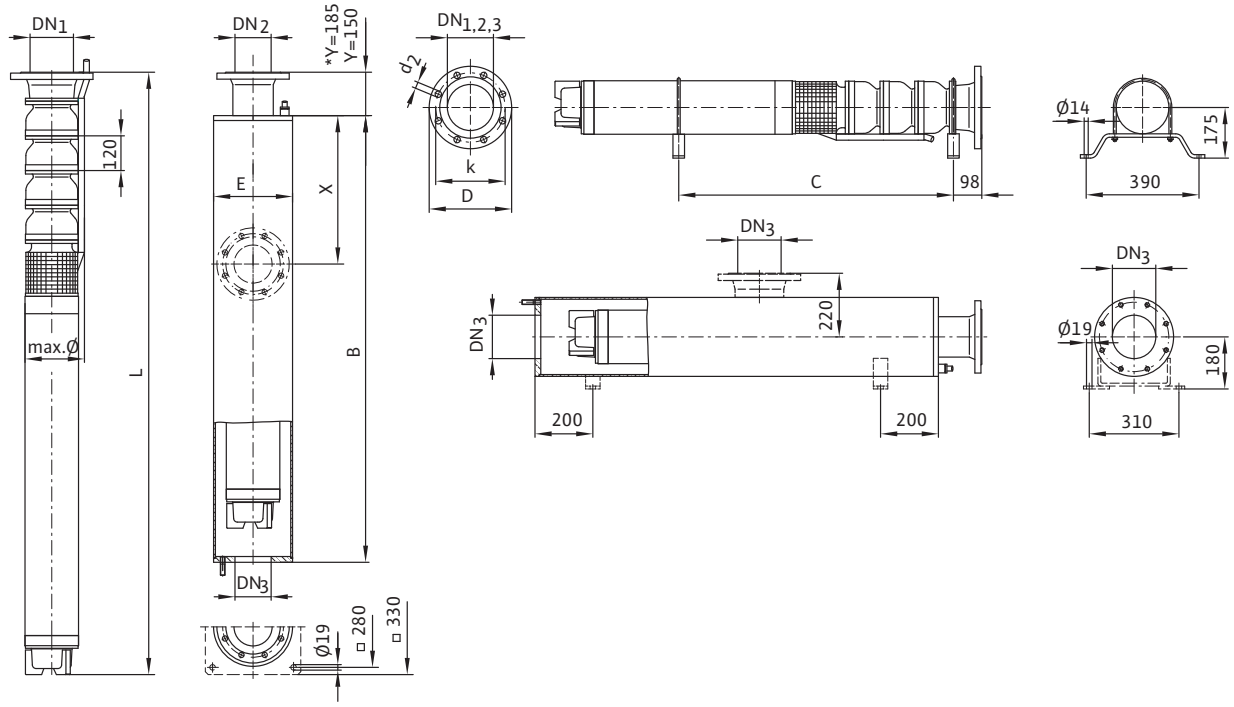
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
K 87S-4a	NU 801-2/45	34	68	365	190	V+H	•	•
K 87S-4b	NU 801-2/40	28	58	315	165	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU K 87

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
K 87-1a	NU 60-2/32	143/130	1220	700	273	1165	220	68	85
K 87-2a	NU 60-2/51	143/130	1520	910	273	1465	221	78	113
K 87S-2c	NU 60-2/40	129/116	1420	860	273	1365	221	74	103
K 87S-2d	NU 60-2/32	126/113	1340	820	273	1285	221	72	95
K 87-3a	NU 801-2/40	143/130	1700	1060	273	1653	230	84	173
K 87S-3b	NU 801-2/35	137/124	1650	1030	273	1603	223	82	164
K 87S-3c	NU 801-2/28	129/116	1580	1000	273	1533	223	80	152
K 87S-3d	NU 60-2/51	126/113	1640	1030	273	1585	221	81	124
K 87S-4a	NU 801-2/45	137/124	1870	1200	273	1823	230	89	191
K 87S-4b	NU 801-2/40	137/116	1820	1180	273	1773	230	87	183

[3] with flange connection DN 100
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU K 87

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
K 87...	DN 100	DN 100	DN 100	10-16	10-16	10	8x18	180	220
K 87...	DN 125	DN 125	DN 125	10-16	10-16	10	8x18	210	250
K 87...	DN 150	DN 150*	DN 150	10-16	10-16	10	8x22	240	285
K 87...	-	-	DN 200	-	-	10	8x22	295	340

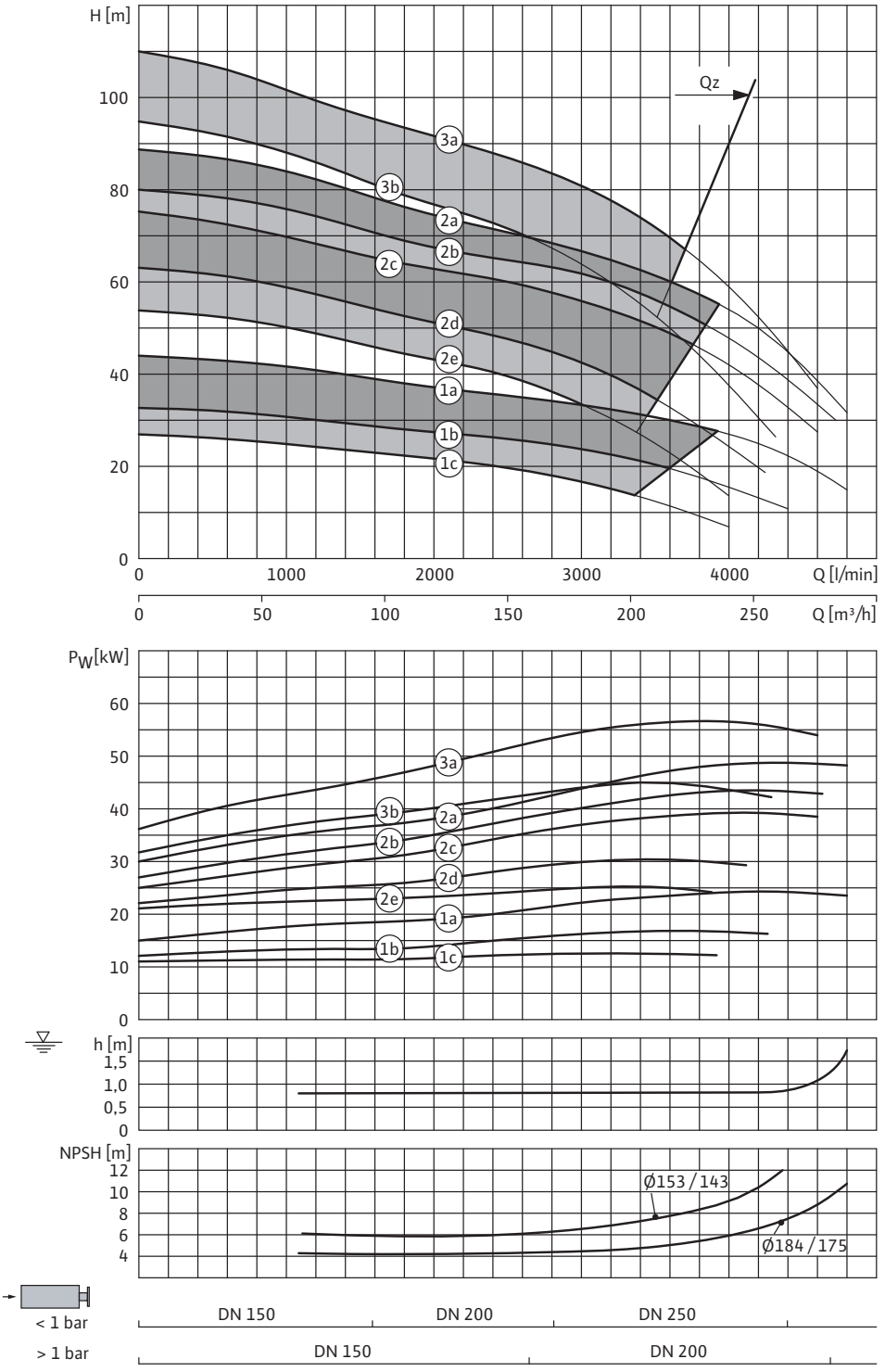
Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
K 87-1a	NU 60-2/32	–	4G2,5 + 3x2,5	A	–
K 87-2a	NU 60-2/51	–	4G4 + 3x4	A	–
K 87S-2c	NU 60-2/40	–	4G4 + 3x4	A	–
K 87S-2d	NU 60-2/32	–	4G4 + 3x4	A	–
K 87-3a	NU 801-2/40	–	4G10 + 3x10	A	–
K 87-3a	NU 801-2/40	25	4G10 + 3x10	L	6036104
K 87S-3b	NU 801-2/35	–	4G6 + 3x6	A	–
K 87S-3b	NU 801-2/35	25	4G6 + 3x6	L	6036106
K 87S-3c	NU 801-2/28	–	4G6 + 3x6	A	–
K 87S-3c	NU 801-2/28	25	4G6 + 3x6	L	6036107
K 87S-3d	NU 60-2/51	–	4G4 + 3x4	A	–
K 87S-4a	NU 801-2/45	–	4G10 + 3x10	A	–
K 87S-4b	NU 801-2/40	–	4G10 + 3x10	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

Overview pump curve Wilo-EMU KM 350

Overview pump curve Wilo-EMU KM 350



3a = KM 350S-3a + NU 901-2/50
3b = KM 350S-3b + NU 801-2/60

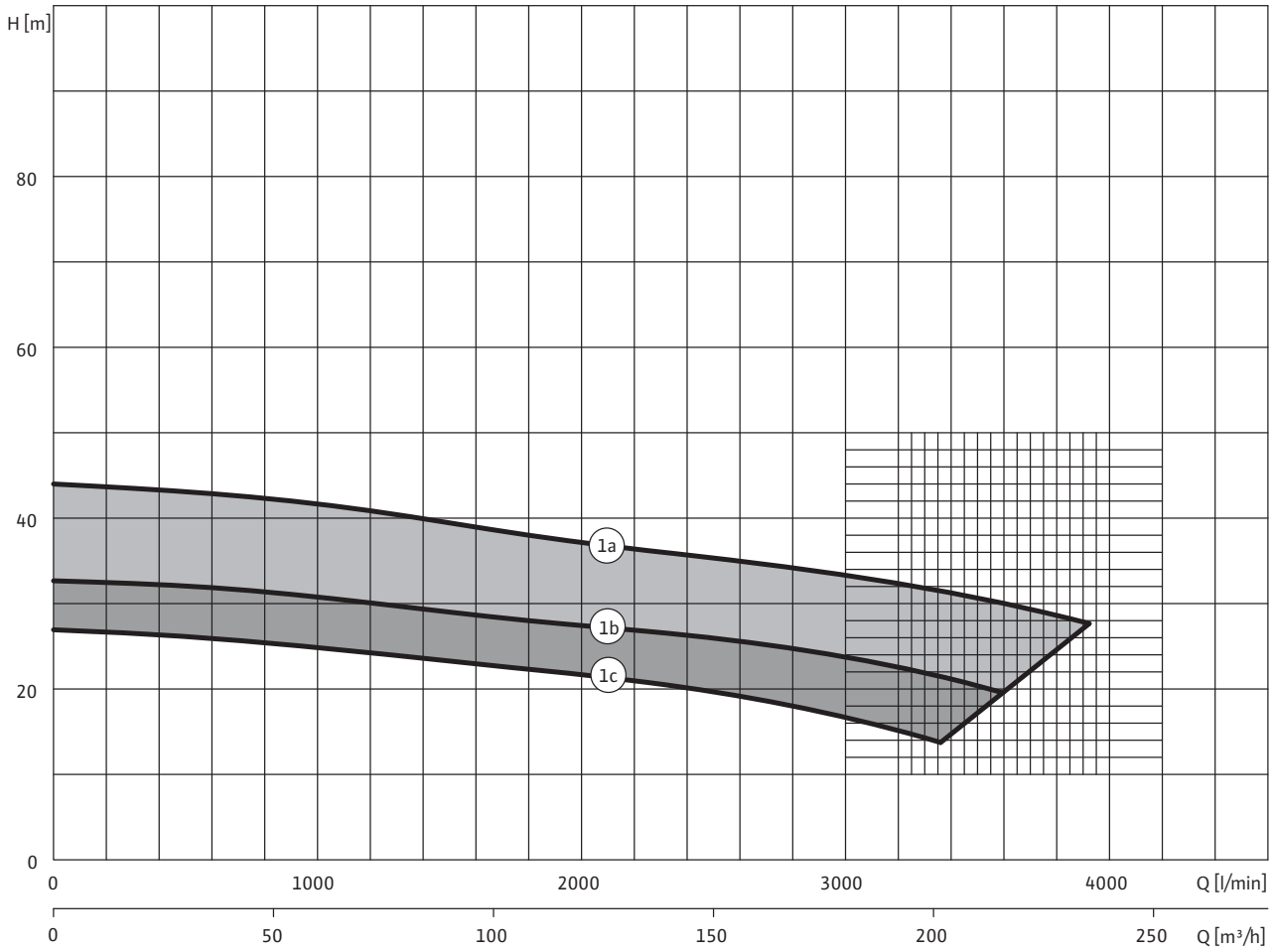
2a = KM 350-2a + NU 801-2/68
2a = KM 350-2a + NU 901-2/50
2b = KM 350S-2b + NU 801-2/60
2c = KM 350S-2c + NU 801-2/55
2d = KM 350S-2d + NU 801-2/45
2e = KM 350S-2e + NU 801-2/40

1a = KM 350-1a + NU 801-2/35
1b = KM 350S-1b + NU 801-2/28
1c = KM 350S-1c + NU 801-2/28

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU KM 350-1

Pump curves Wilo-EMU KM 350-1



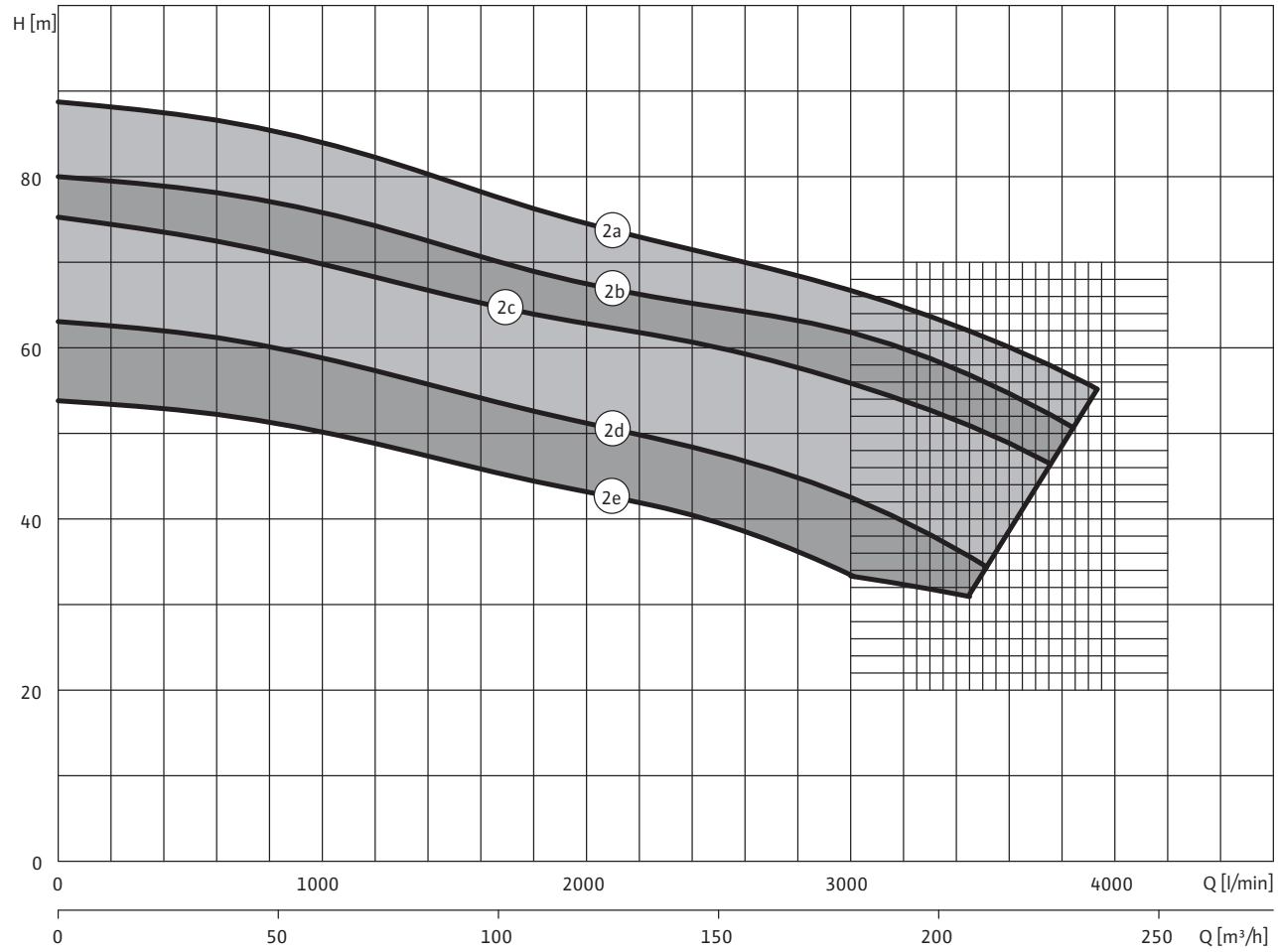
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 350-1a	NU 801-2/35	27.5	55	270	135	V+H	•	•
KM 350S-1b	NU 801-2/28	19	39	186	95	V+H	•	•
KM 350S-1c	NU 801-2/28	15	33	186	95	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU KM 350-2

Pump curves Wilo-EMU KM 350-2



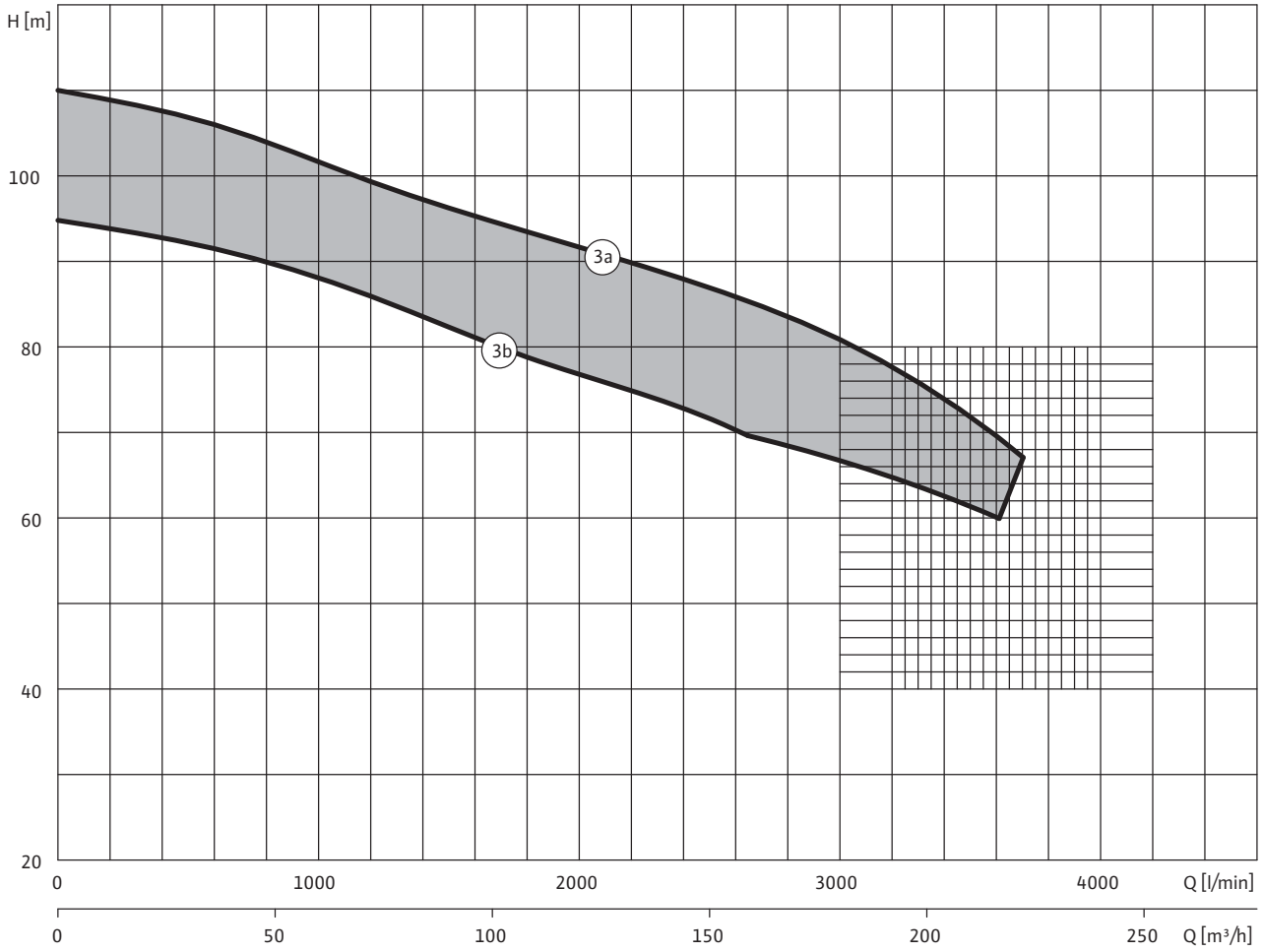
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 350-2a	NU 801-2/68	55	106	650	350	V	•	•
KM 350-2a	NU 901-2/50	55	112	650	360	V+H	•	•
KM 350S-2b	NU 801-2/60	53	104	580	290	V+H	•	•
KM 350S-2c	NU 801-2/55	46	93	530	270	V+H	•	•
KM 350S-2d	NU 801-2/45	36	71	365	190	V+H	•	•
KM 350S-2e	NU 801-2/40	30	60	315	165	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU KM 350-3

Pump curves Wilo-EMU KM 350-3



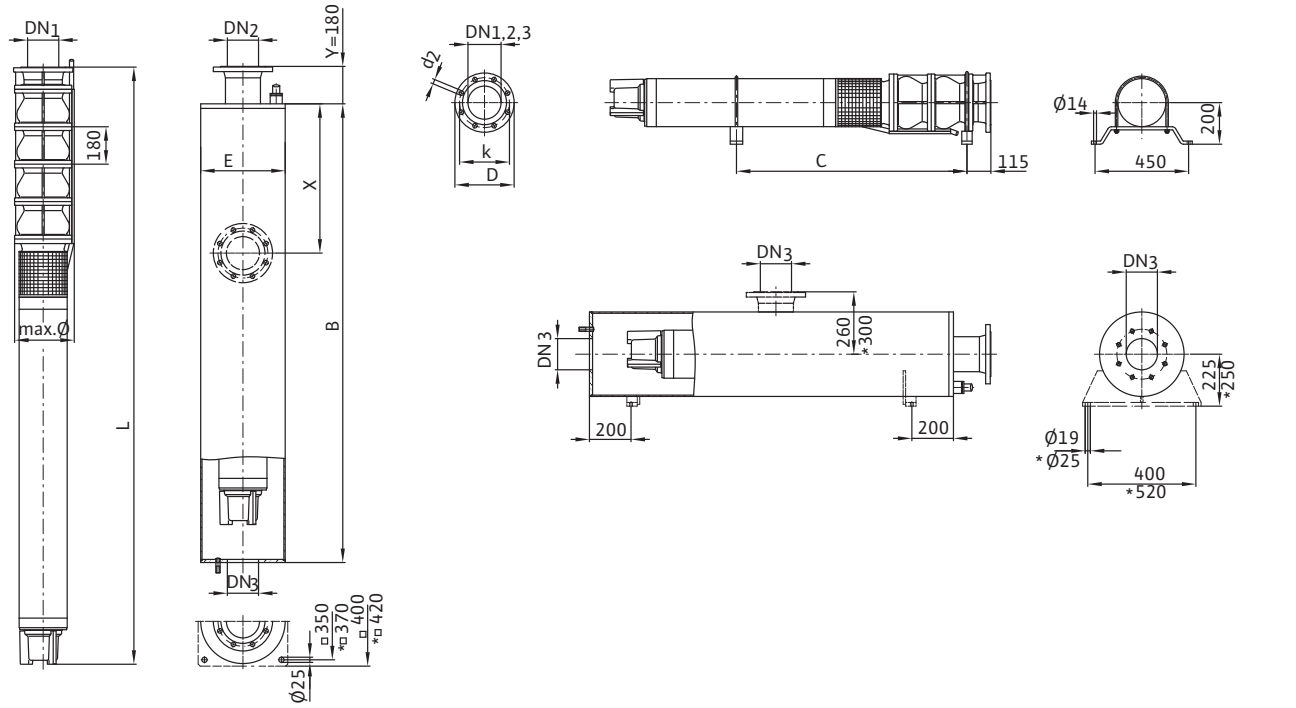
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 350S-3a	NU 901-2/50	70	138	650	360	V+H	•	•
KM 350S-3b	NU 801-2/60	53	104	580	290	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU KM 350

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
KM 350-1a	NU 801-2/35	184/175	1690	930	355,6	1515	290	127	192
KM 350S-1b	NU 801-2/28	164/154	1620	900	355,6	1445	288	123	180
KM 350S-1c	NU 801-2/28	153/143	1620	900	355,6	1445	288	123	180
KM 350-2a	NU 801-2/68	184/175	2200	-	355,6	2025	303	151	284
KM 350-2a	NU 901-2/50	184/175	2230	1300	406,4*	2060	303	208	361
KM 350S-2b	NU 801-2/60	176/167	2120	1240	355,6	1945	303	147	270
KM 350S-2c	NU 801-2/55	171/161	2070	1210	355,6	1895	303	145	262
KM 350S-2d	NU 801-2/45	161/151	1970	1160	355,6	1795	297	140	244
KM 350S-2e	NU 801-2/40	153/143	1920	1140	355,6	1745	297	138	236
KM 350S-3a	NU 901-2/50	170/160	2410	1480	406,4*	2240	308	220	395
KM 350S-3b	NU 801-2/60	161/151	2300	1420	355,6	2125	303	156	304

[3] with flange connection DN 150
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU KM 350

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
KM 350...	DN 150	DN 150	DN 150	10-16	10-16	10	8x22	240	285
KM 350...	-	-	DN 200	-	-	10	8x22	295	340
KM 350...	-	-	DN 250	-	-	10	12x22	350	395

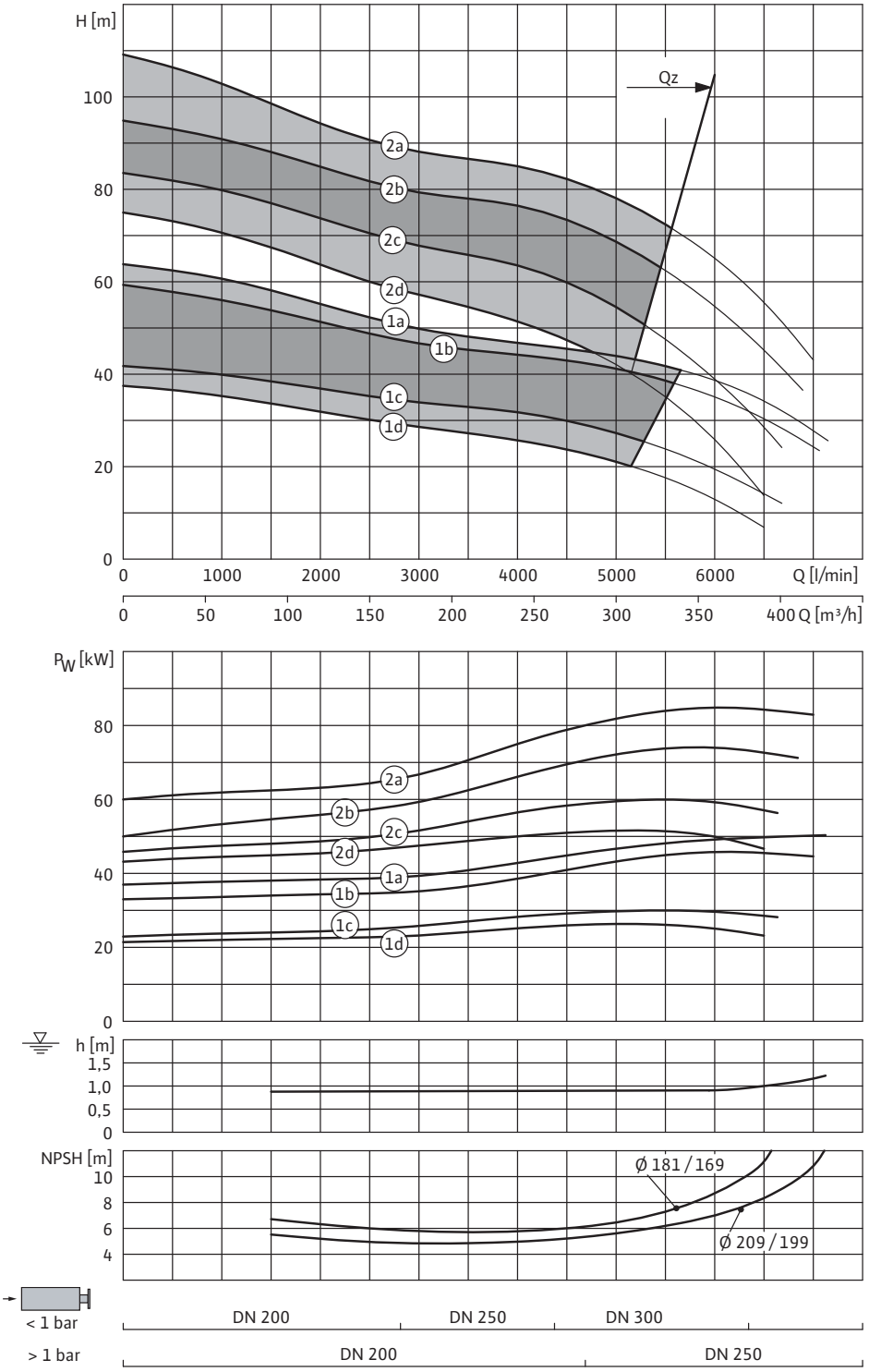
Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
KM 350-1a	NU 801-2/35	–	4G6 + 3x6	A	–
KM 350S-1b	NU 801-2/28	–	4G4 + 3x4	A	–
KM 350S-1c	NU 801-2/28	–	4G4 + 3x4	A	–
KM 350-2a	NU 801-2/68	–	4G16 + 3x16	A	–
KM 350-2a	NU 901-2/50	–	4G16 + 3x16	A	–
KM 350-2a	NU 901-2/50	25	4G16 + 3x16	L	6036108
KM 350S-2b	NU 801-2/60	–	4G16 + 3x16	A	–
KM 350S-2b	NU 801-2/60	25	4G16 + 3x16	L	6036109
KM 350S-2c	NU 801-2/55	–	4G16 + 3x16	A	–
KM 350S-2c	NU 801-2/55	25	4G16 + 3x16	L	6036110
KM 350S-2d	NU 801-2/45	–	4G10 + 3x10	A	–
KM 350S-2d	NU 801-2/45	25	4G10 + 3x10	L	6036111
KM 350S-2e	NU 801-2/40	–	4G10 + 3x10	A	–
KM 350S-3a	NU 901-2/50	–	4G25 + 3x25	A	–
KM 350S-3b	NU 801-2/60	–	4G16 + 3x16	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

Overview pump curve Wilo-EMU KM 750

Overview pump curve Wilo-EMU KM 750



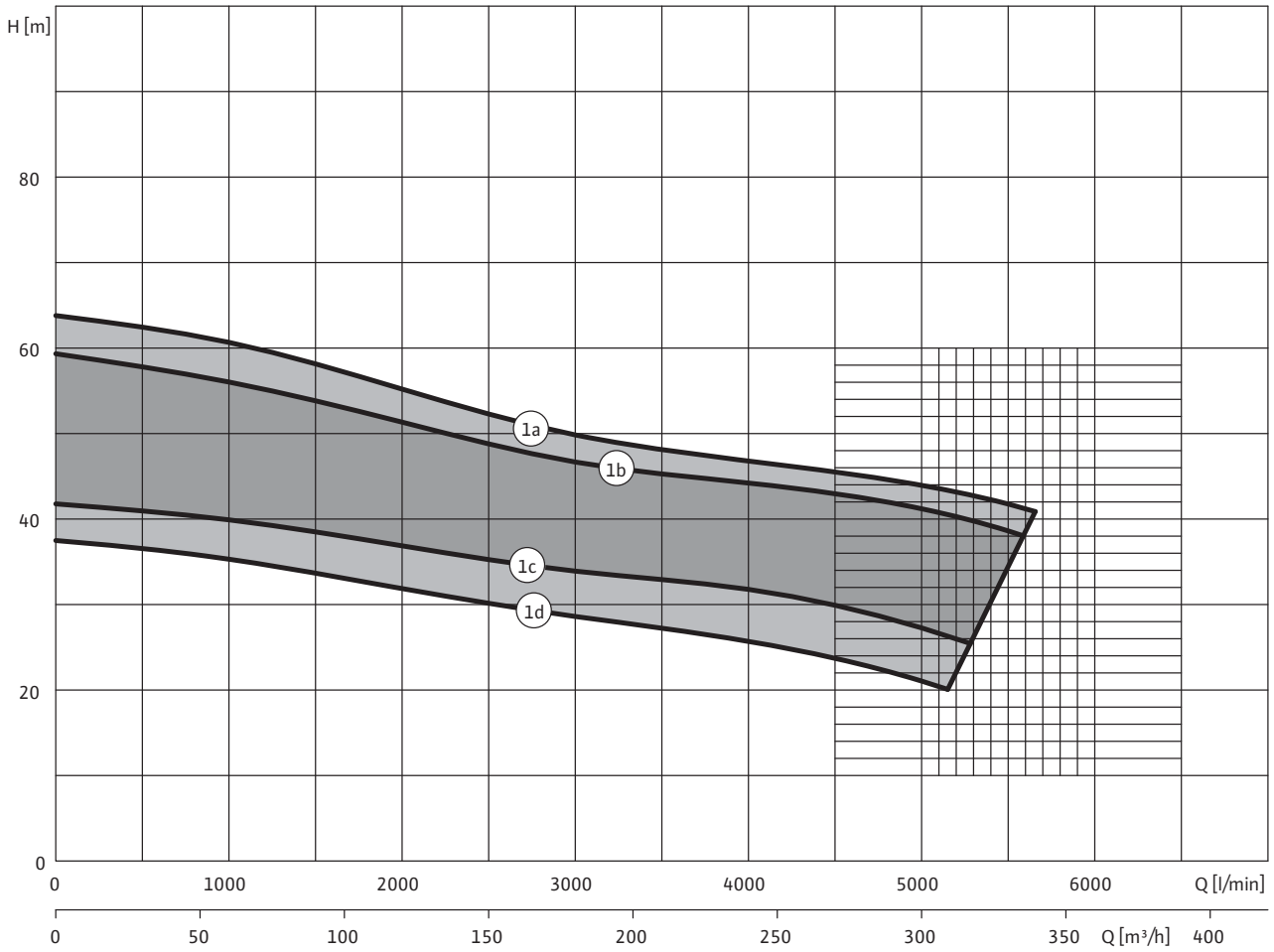
2a = KM 750S-2a + NU 901-2/75
2b = KM 750S-2b + NU 901-2/60
2c = KM 750S-2c + NU 901-2/50
2d = KM 750S-2d + NU 901-2/50

1a = KM 750-1a + NU 801-2/68
1a = KM 750-1a + NU 901-2/50
1b = KM 750S-1b + NU 801-2/60
1c = KM 750S-1c + NU 801-2/45
1d = KM 750S-1d + NU 801-2/40

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU KM 750-1

Pump curves Wilo-EMU KM 750-1



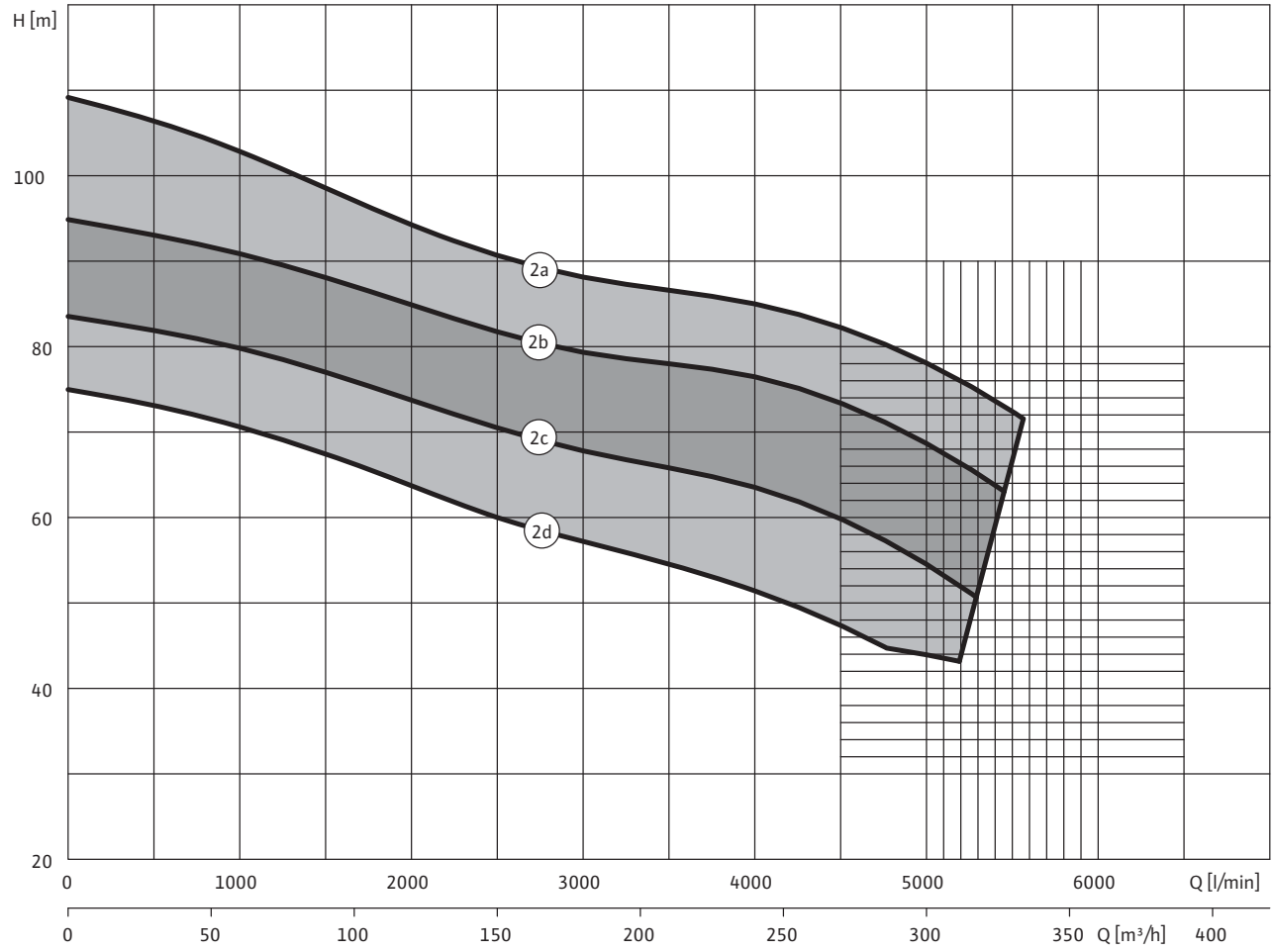
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 750-1a	NU 801-2/68	56	108	650	350	V	•	•
KM 750-1a	NU 901-2/50	56	114	650	360	V+H	•	•
KM 750S-1b	NU 801-2/60	53	104	580	290	V+H	•	•
KM 750S-1c	NU 801-2/45	35	70	365	190	V+H	•	•
KM 750S-1d	NU 801-2/40	32	61	315	165	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU KM 750-2

Pump curves Wilo-EMU KM 750-2



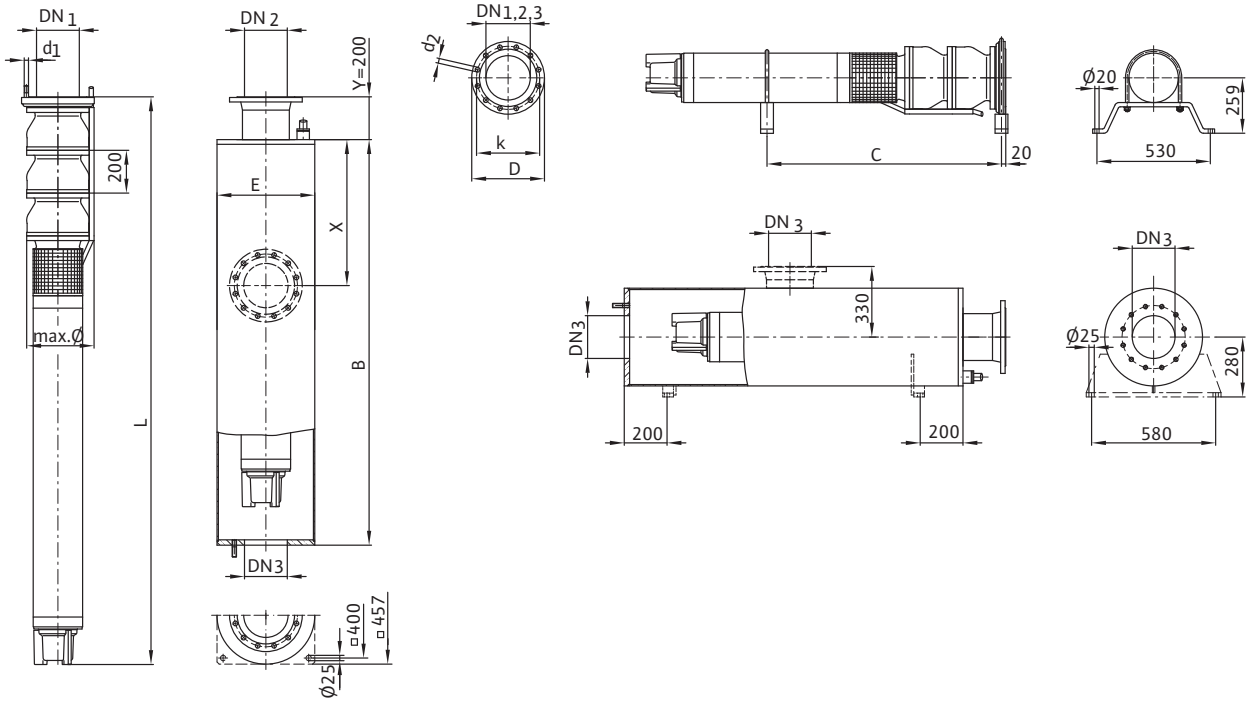
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 750S-2a	NU 901-2/75	100	192	1250	690	V+H	•	•
KM 750S-2b	NU 901-2/60	85	168	900	475	V+H	•	•
KM 750S-2c	NU 901-2/50	70	138	650	360	V+H	•	•
KM 750S-2d	NU 901-2/50	64	128	650	360	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU KM 750

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
KM 750-1a	NU 801-2/68	209/199	1960	-	457	1805	350	237	259
KM 750-1a	NU 901-2/50	209/199	1990	1170	457	1840	350	239	336
KM 750S-1b	NU 801-2/60	205/195	1880	1170	457	1725	350	231	245
KM 750S-1c	NU 801-2/45	186/175	1730	1030	457	1575	350	221	219
KM 750S-1d	NU 801-2/40	181/169	1680	1010	457	1525	350	217	211
KM 750S-2a	NU 901-2/75	200/190	2440	1490	457	2290	346	271	442
KM 750S-2b	NU 901-2/60	194/184	2290	1420	457	2140	357	260	403
KM 750S-2c	NU 901-2/50	186/175	2190	1370	457	2040	357	253	377
KM 750S-2d	NU 901-2/50	181/169	2190	1370	457	2040	357	253	377

[3] with flange connection DN 200
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU KM 750

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
KM 750...	DN 200	DN 200	DN 200	10	10	10	8xM20	295	340
KM 750...	-	-	DN 250	-	-	10	-	350	395
KM 750...	-	-	DN 300	-	-	10	-	400	445
KM 750...	DN 200	DN 200	-	16	16	-	12xM20	295	340

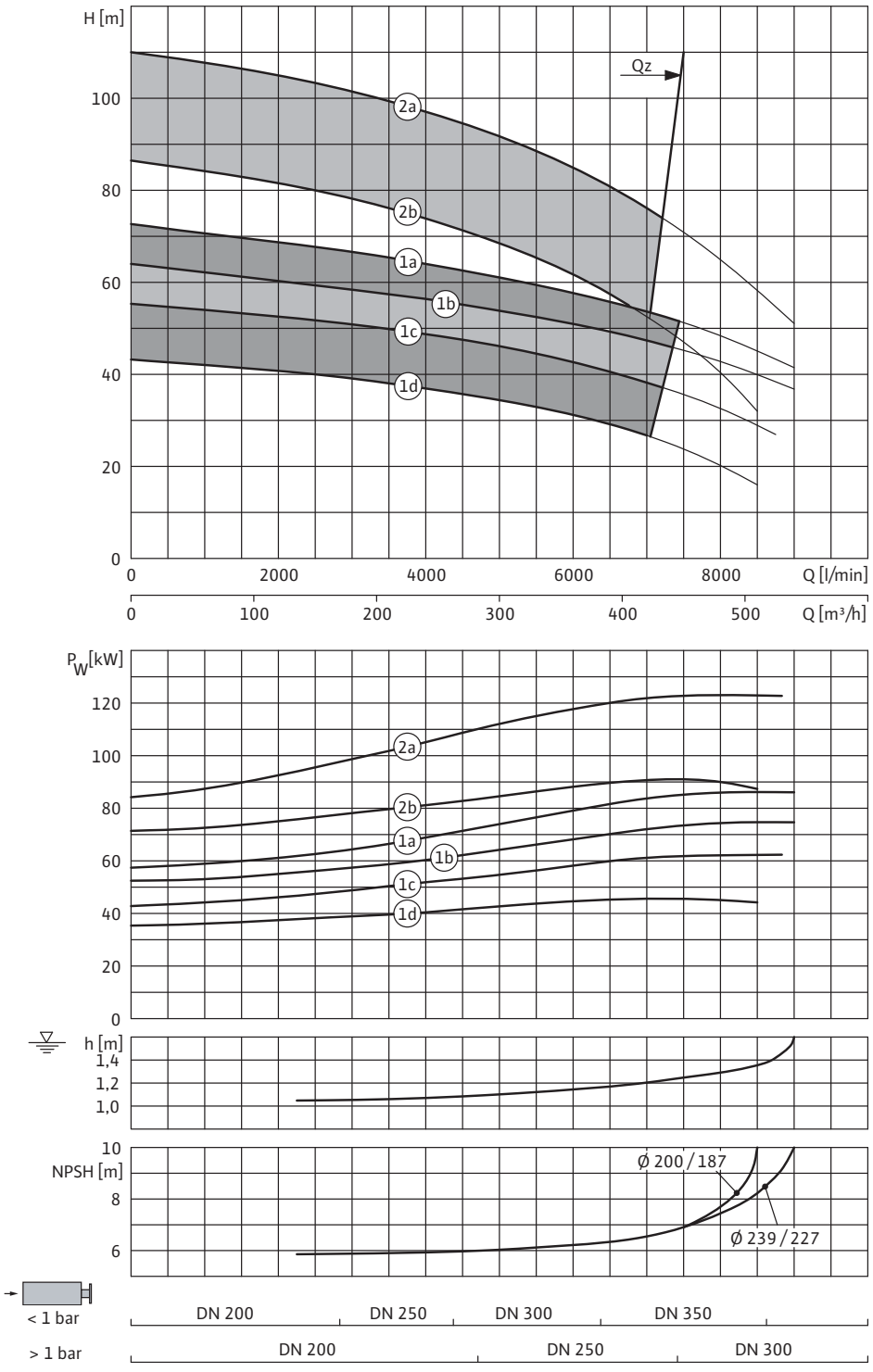
Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
KM 750-1a	NU 801-2/68	–	4G16 + 3x16	A	–
KM 750-1a	NU 901-2/50	–	4G16 + 3x16	A	–
KM 750-1a	NU 901-2/50	25	4G16 + 3x16	L	6036112
KM 750S-1b	NU 801-2/60	–	4G16 + 3x16	A	–
KM 750S-1c	NU 801-2/45	–	4G10 + 3x10	A	–
KM 750S-1d	NU 801-2/40	–	4G10 + 3x10	A	–
KM 750S-2a	NU 901-2/75	–	7x 1x35	A	–
KM 750S-2a	NU 901-2/75	25	7x 1x35	L	6036113
KM 750S-2b	NU 901-2/60	–	4G25 + 3x25	A	–
KM 750S-2b	NU 901-2/60	25	4G25 + 3x25	L	6036114
KM 750S-2c	NU 901-2/50	–	4G25 + 3x25	A	–
KM 750S-2c	NU 901-2/50	25	4G25 + 3x25	L	6036115
KM 750S-2d	NU 901-2/50	–	4G25 + 3x25	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

Overview pump curve Wilo-EMU KM 1300

Overview pump curve Wilo-EMU KM 1300



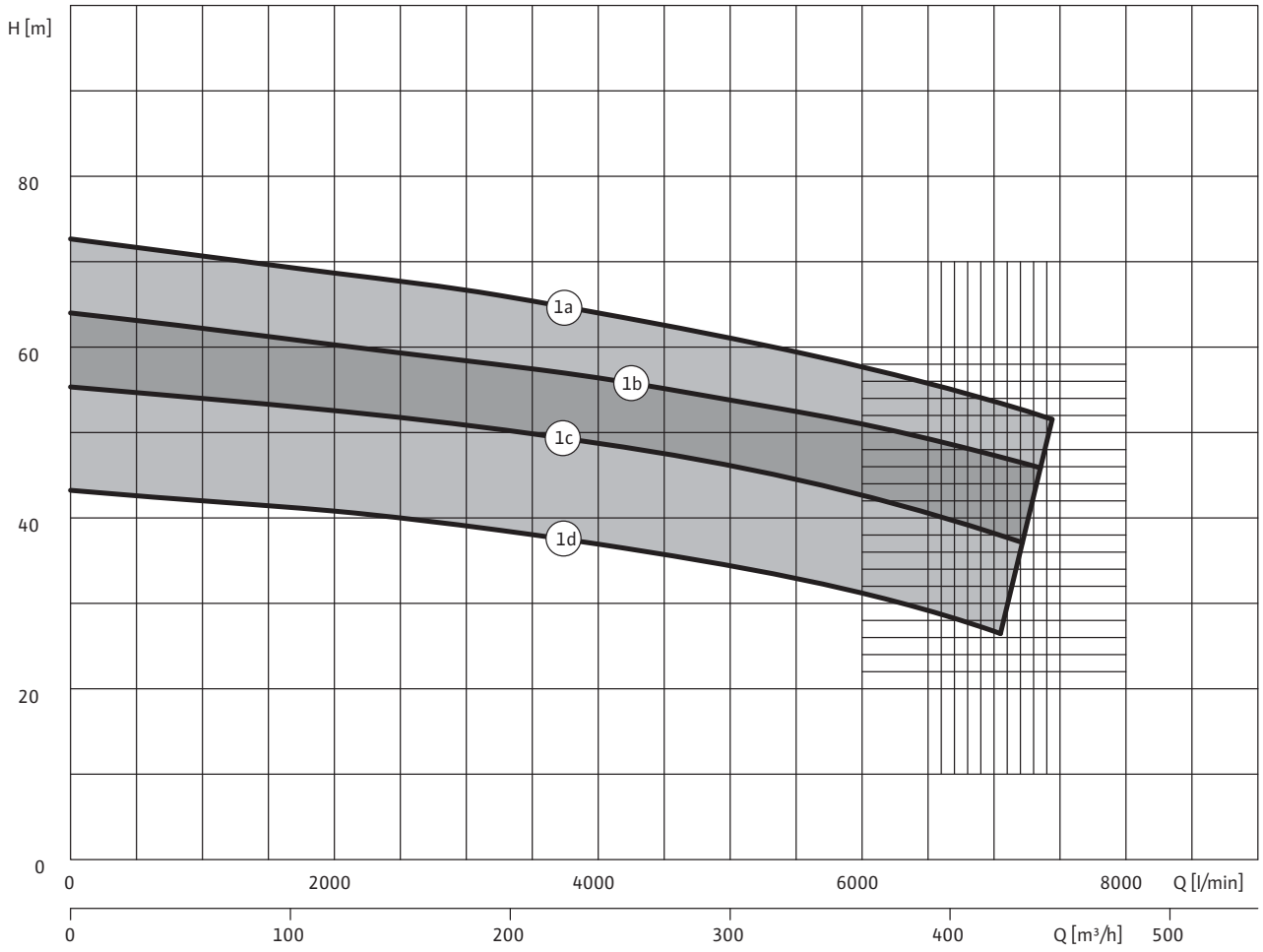
2a = KM 1300S-2a + NU 901-2/90
2b = KM 1300S-2b + NU 901-2/75

1a = KM 1300-1a + NU 901-2/75
1b = KM 1300S-1b + NU 901-2/60
1c = KM 1300S-1c + NU 901-2/50
1d = KM 1300S-1d + NU 801-2/60

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU KM 1300-1

Pump curves Wilo-EMU KM 1300-1



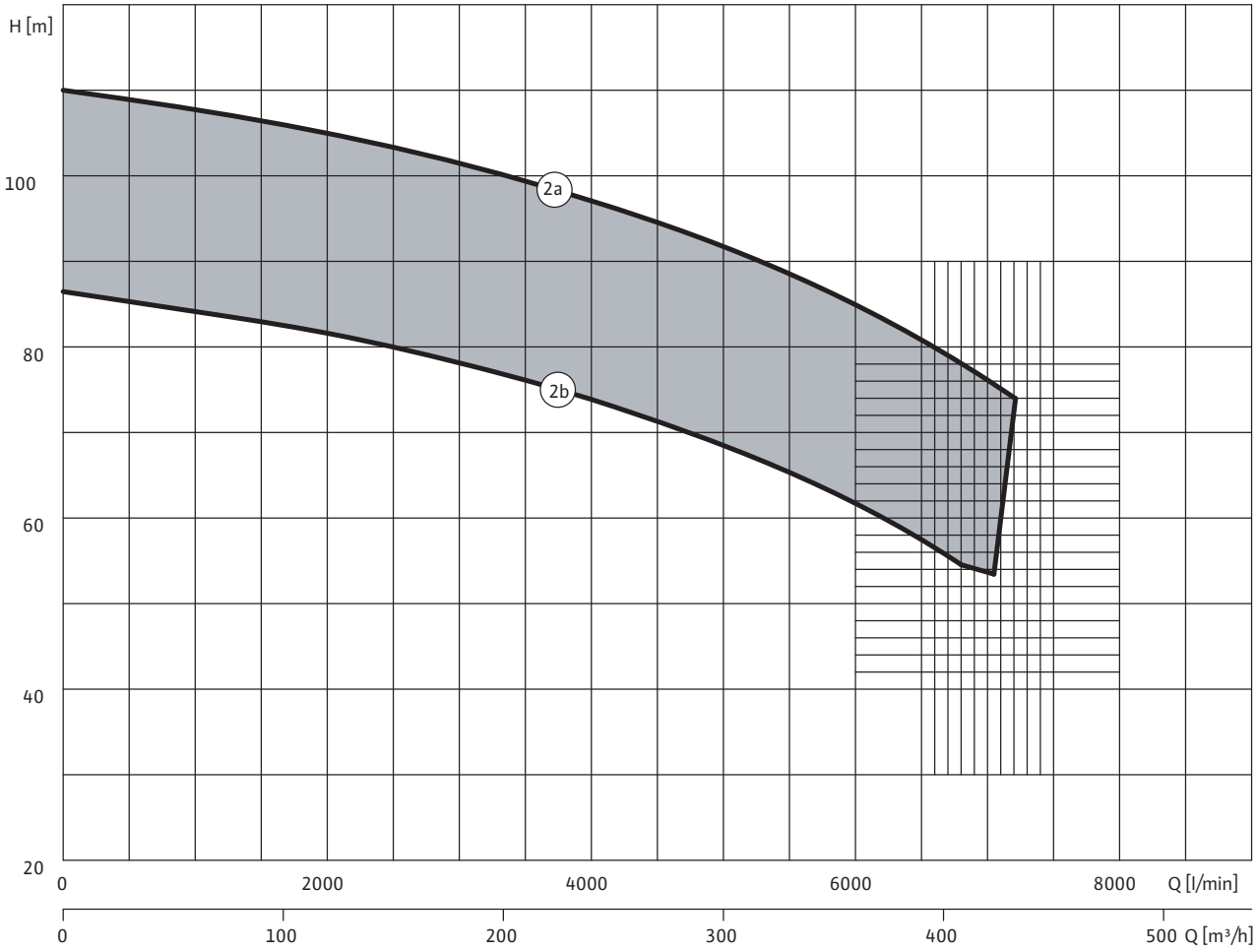
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 1300-1a	NU 901-2/75	97	186	1250	690	V+H	•	•
KM 1300S-1b	NU 901-2/60	85	168	900	475	V+H	•	•
KM 1300S-1c	NU 901-2/50	70	138	650	360	V+H	•	•
KM 1300S-1d	NU 801-2/60	53	104	580	290	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU KM 1300-2

Pump curves Wilo-EMU KM 1300-2



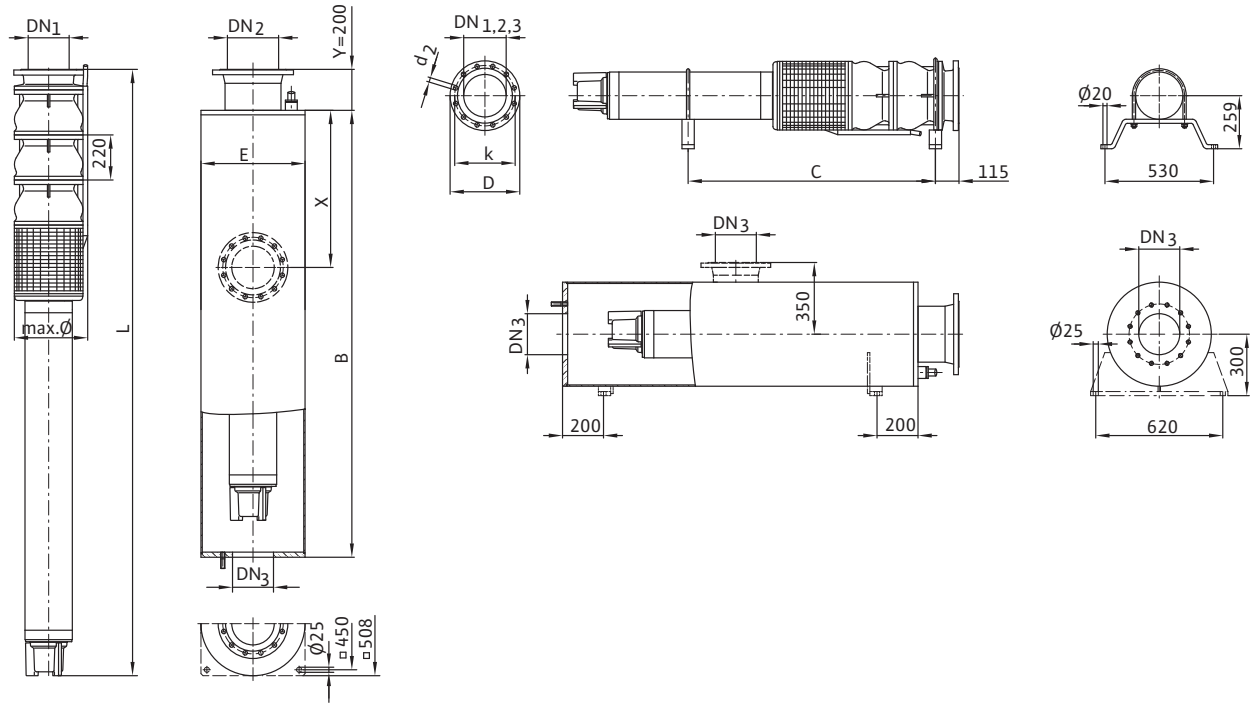
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
KM 1300S-2a	NU 901-2/90	137	255	1400	825	V+H	•	•
KM 1300S-2b	NU 901-2/75	105	205	1250	690	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU KM 1300

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
KM 1300-1a	NU 901-2/75	239/227	2390	1300	508	2190	364	279	444
KM 1300S-1b	NU 901-2/60	230/218	2240	1230	508	2040	380	268	405
KM 1300S-1c	NU 901-2/50	217/205	2140	1180	508	1940	380	260	379
KM 1300S-1d	NU 801-2/60	200/187	2030	1120	508	1825	375	251	288
KM 1300S-2a	NU 901-2/90	217/205	2760	1600	508	2560	366	308	546
KM 1300S-2b	NU 901-2/75	200/187	2610	1520	508	2410	366	296	507

[3] with flange connection DN 200
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU KM 1300

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
KM 1300...	DN 200	DN 200	DN 200	10	10	10	8x22	295	340
KM 1300...	DN 200	DN 200	-	16	16	-	12x22	295	340
KM 1300...	DN 250	DN 250	DN 250	10	10	10	12x22	350	395
KM 1300...	DN 250	DN 250	-	16	16	-	12x26	355	405
KM 1300...	-	-	DN 300	-	-	10	12x22	400	445
KM 1300...	-	-	DN 350	-	-	10	16x22	460	505

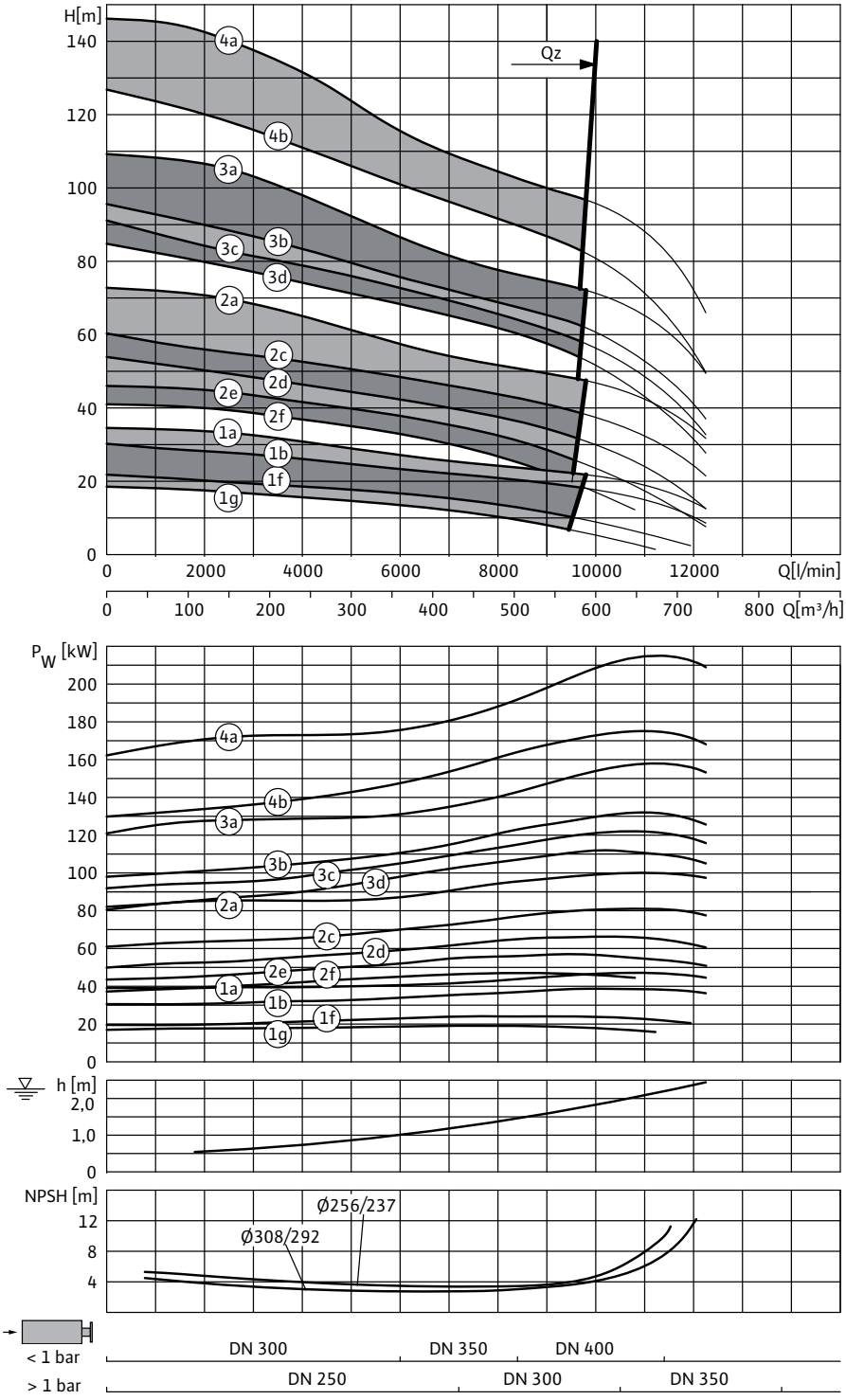
Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
KM 1300-1a	NU 901-2/75	–	7x 1x35	A	–
KM 1300S-1b	NU 901-2/60	–	4G25 + 3x25	A	–
KM 1300S-1c	NU 901-2/50	–	4G25 + 3x25	A	–
KM 1300S-1d	NU 801-2/60	–	4G16 + 3x16	A	–
KM 1300S-2a	NU 901-2/90	–	7x 1x50	A	–
KM 1300S-2a	NU 901-2/90	25	7x 1x50	L	6036116
KM 1300S-2b	NU 901-2/75	–	7x 1x50	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

Overview pump curve Wilo-EMU D 500

Overview pump curve Wilo-EMU D 500



4a = D 500-4a + U 156-4/110
4b = D 500S-4b + U 156-4/84

3a = D 500-3a + NU 121-4/135
3a = D 500-3a + U 156-4/84
3b = D 500S-3b + NU 121-4/110
3b = D 500S-3b + U 156-4/64
3c = D 500S-3c + NU 121-4/100
3c = D 500S-3c + U 156-4/55
3d = D 500S-3d + NU 121-4/90

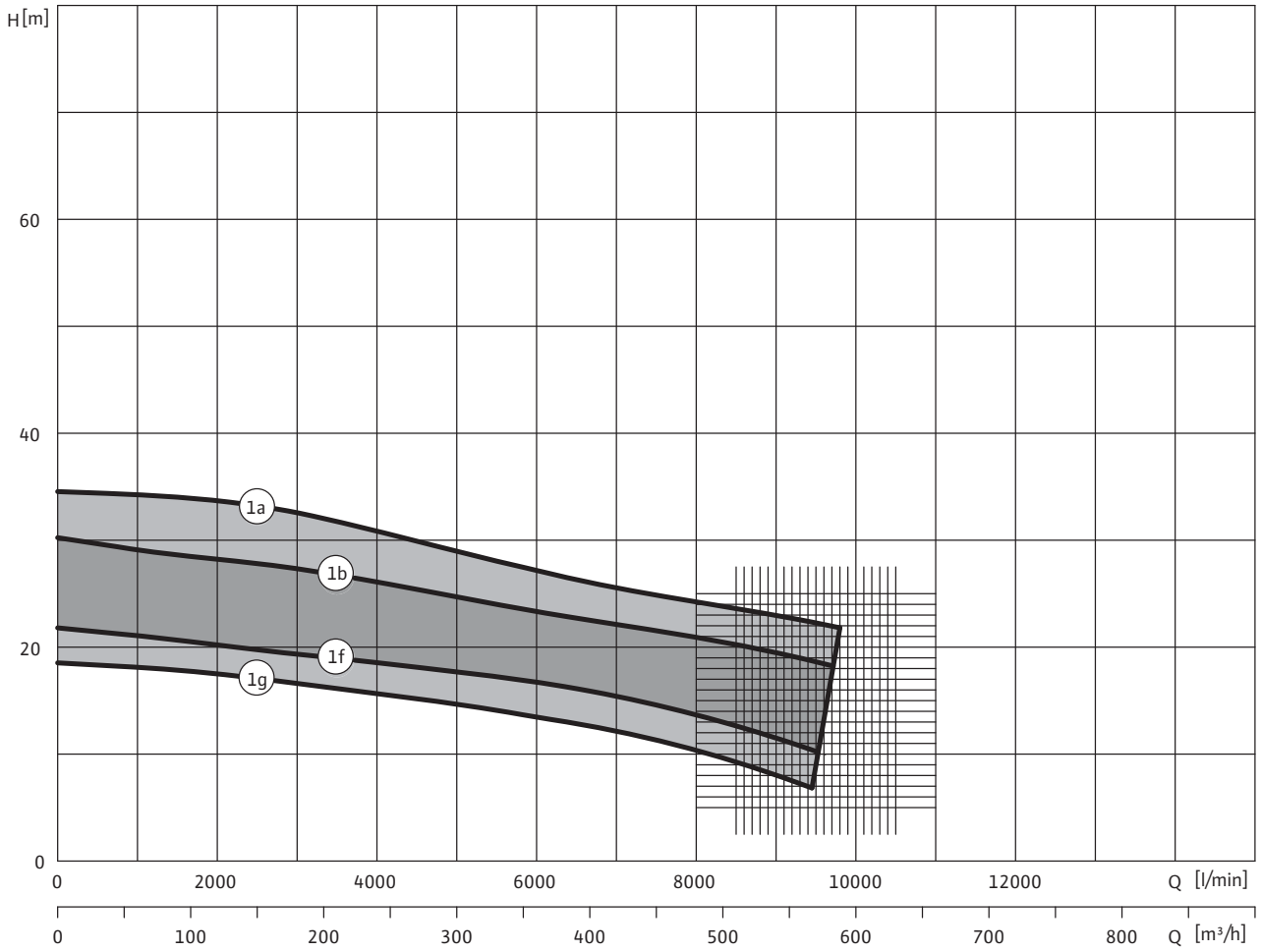
2a = D 500-2a + NU 121-4/90
2c = D 500S-2c + NU 121-4/65
2d = D 500S-2d + NU 911-4/90
2e = D 500S-2e + NU 911-4/75
2f = D 500S-2f + NU 911-4/60

1a = D 500-1a + NU 911-4/60
1b = D 500S-1b + NU 911-4/50
1f = D 500S-1f + NU 801-4/68
1f = D 500S-1f + NU 911-4/50
1g = D 500S-1g + NU 801-4/55

3~400 V, 50 Hz, p = 1 kg/dm^3, v = 1x10^{-6} m^2/s, ISO 9906 Annex A

Pump curves, motor data, Wilo-EMU D 500-1

Pump curves Wilo-EMU D 500-1



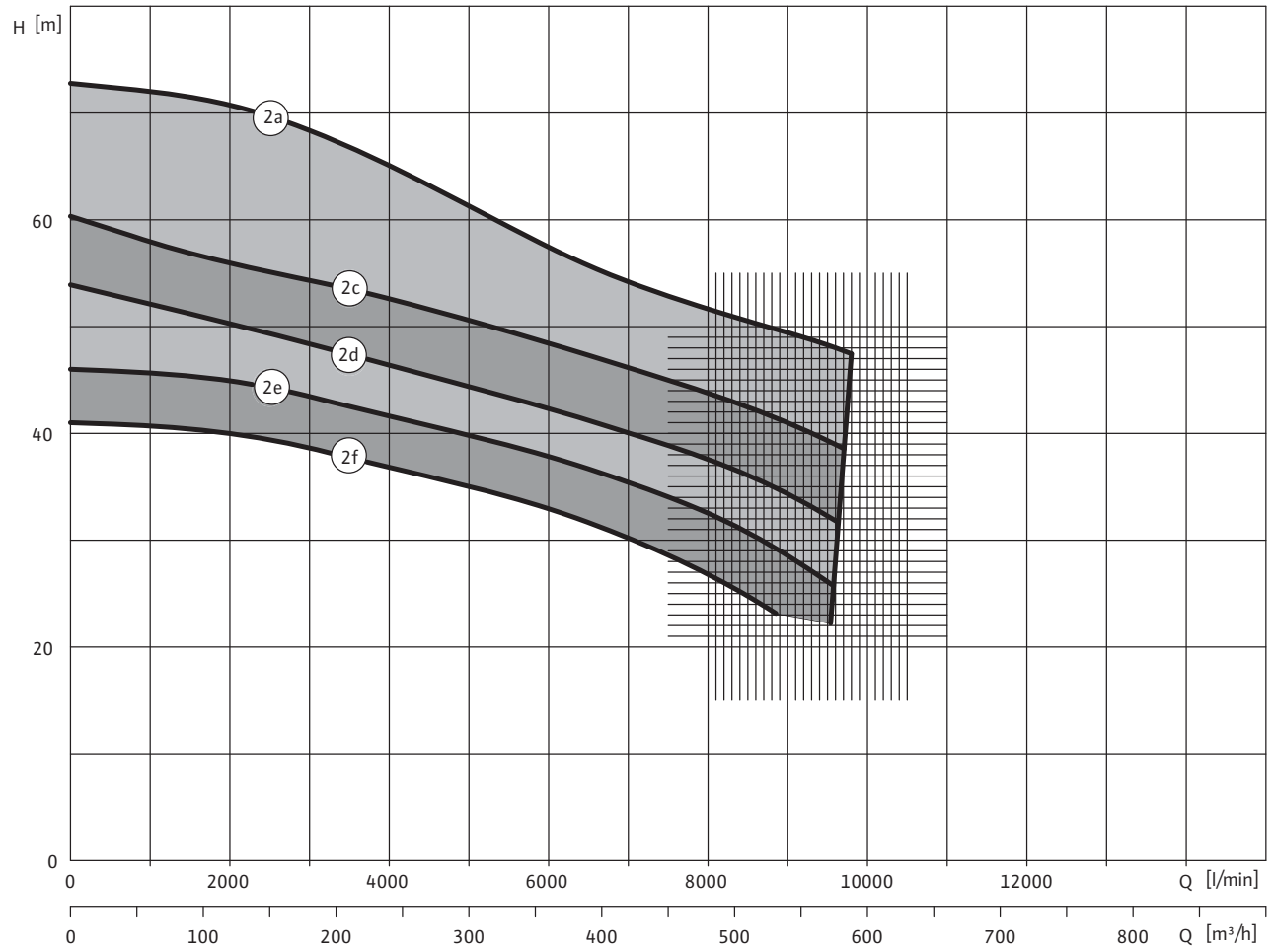
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
D 500-1a	NU 911-4/60	52	133	600	200	V+H	•	•
D 500S-1b	NU 911-4/50	42	106	490	164	V+H	•	•
D 500S-1f	NU 801-4/68	26	60	365	122	V	•	•
D 500S-1f	NU 911-4/50	42	106	490	164	V+H	•	•
D 500S-1g	NU 801-4/55	21	48	290	97	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU D 500-2

Pump curves Wilo-EMU D 500-2



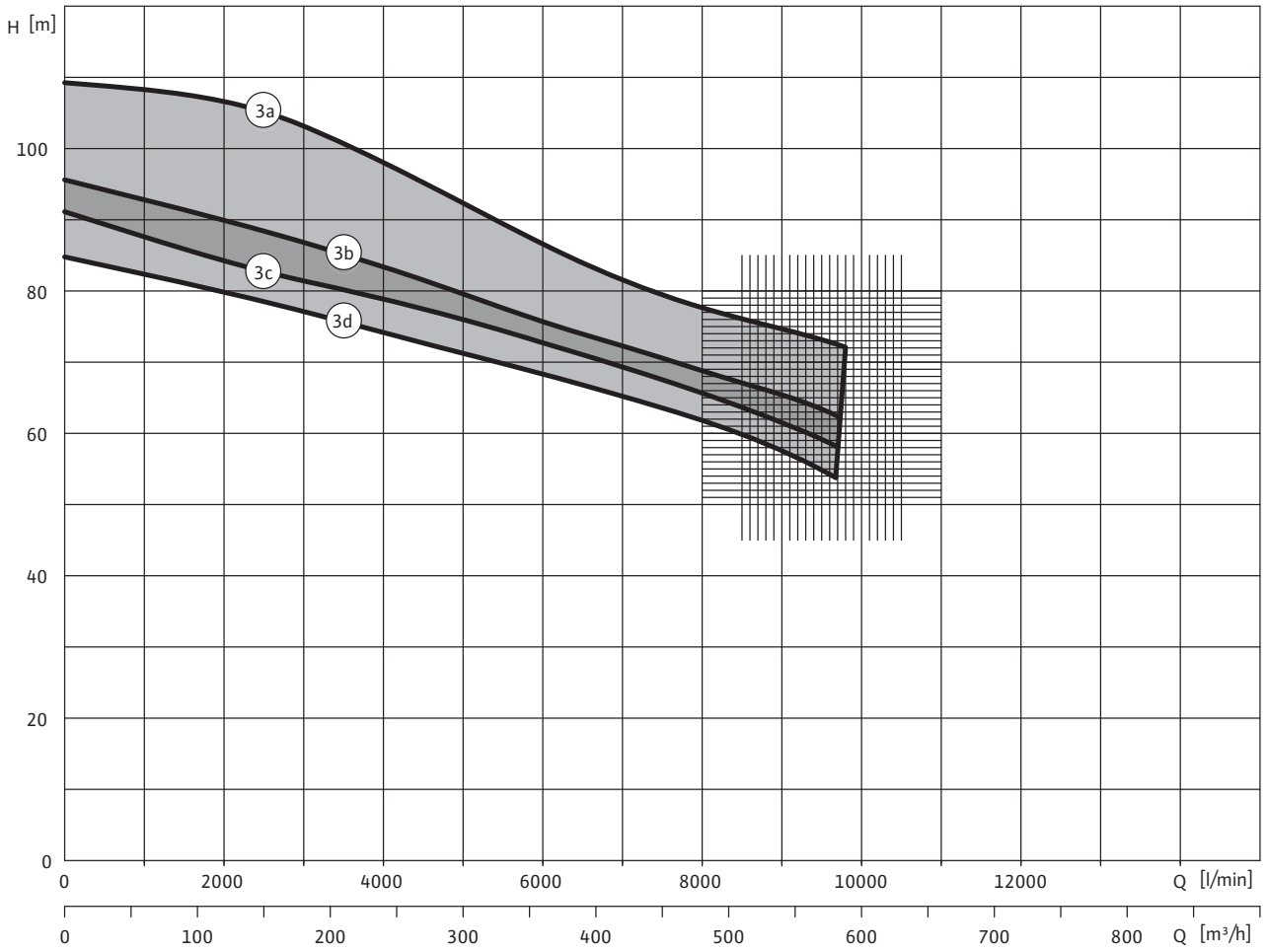
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
D 500-2a	NU 121-4/90	118	245	1380	460	V+H	•	•
D 500S-2c	NU 121-4/65	88	185	1000	335	V+H	•	•
D 500S-2d	NU 911-4/90	73	187	820	275	V+H	•	•
D 500S-2e	NU 911-4/75	62	156	700	235	V+H	•	•
D 500S-2f	NU 911-4/60	52	133	600	200	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU D 500-3

Pump curves Wilo-EMU D 500-3



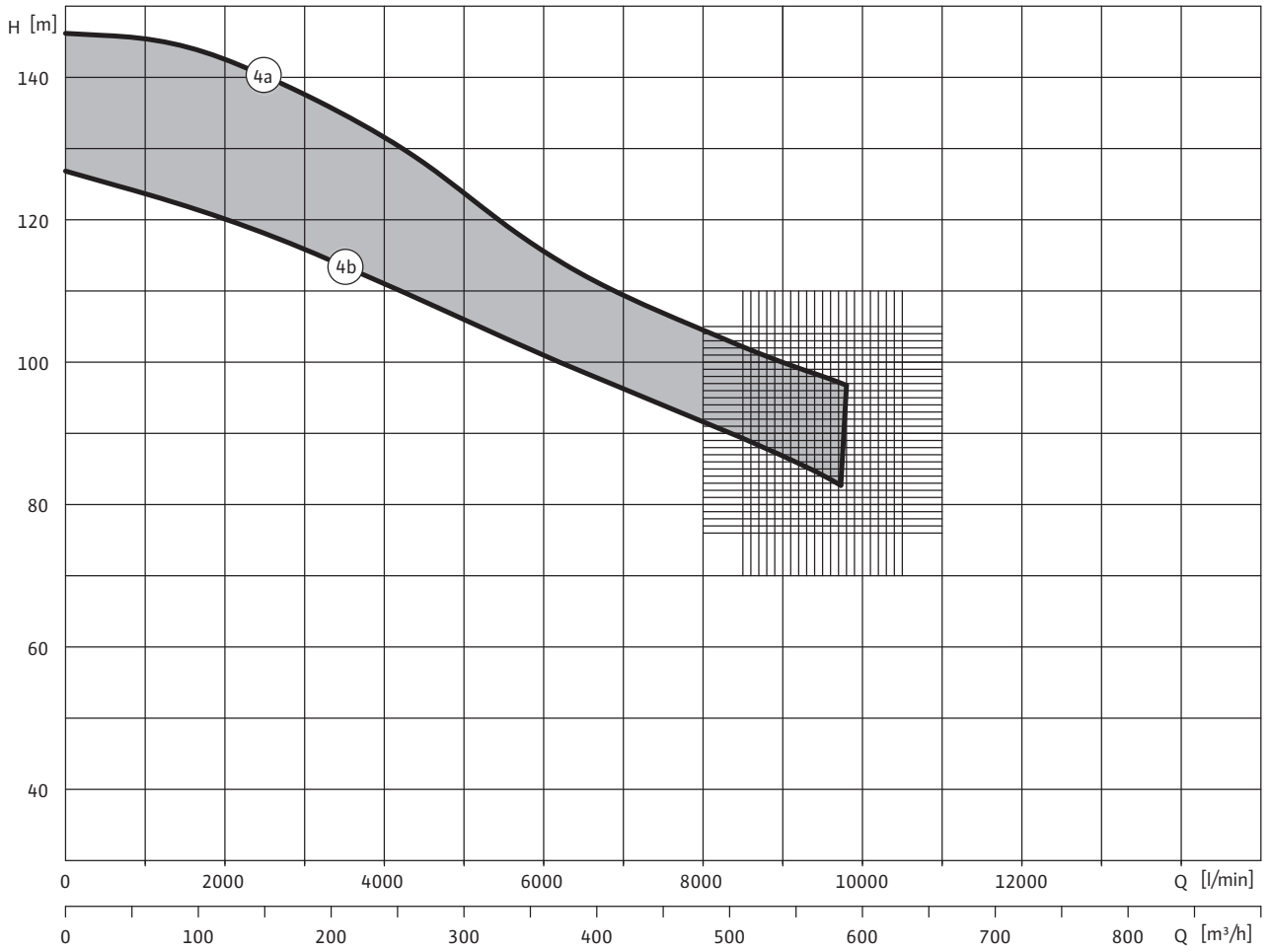
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
D 500-3a	NU 121-4/135	172	365	2000	670	V	•	•
D 500-3a	U 156-4/84	185	375	2300	770	V+H	•	•
D 500S-3b	NU 121-4/110	148	305	1700	570	V	•	•
D 500S-3b	U 156-4/64	148	300	1700	570	V+H	•	•
D 500S-3c	NU 121-4/100	133	290	1560	520	V	•	•
D 500S-3c	U 156-4/55	129	260	1400	470	V+H	•	•
D 500S-3d	NU 121-4/90	118	245	1380	460	V+H	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Pump curves, motor data, Wilo-EMU D 500-4

Pump curves Wilo-EMU D 500-4



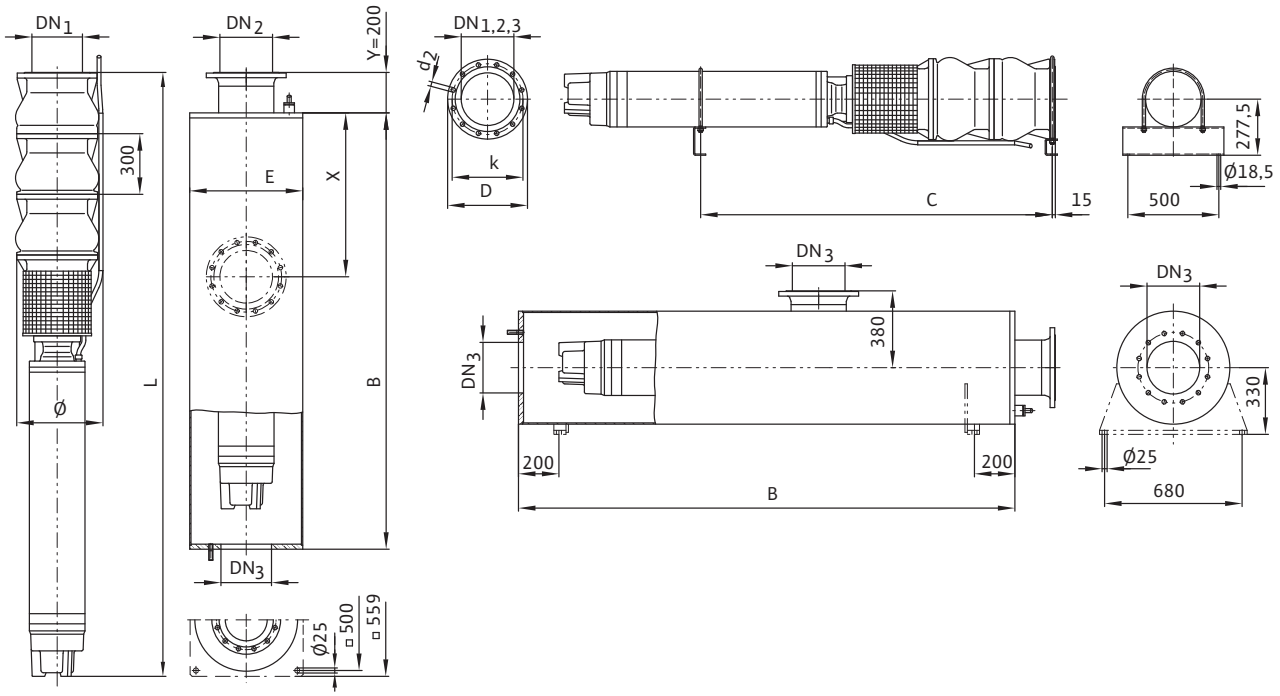
Motor data

Wilo-EMU...	Type of motor	Nominal motor power	Nominal current	Starting current – direct	Starting current – star-delta	Installation	Material version A	Material version C
	–	P_2	I_N	I_A		–	A	C
	–	[kW]	[A]			–		
D 500-4a	U 156-4/110	235	475	2850	950	V	•	•
D 500S-4b	U 156-4/84	185	375	2300	770	V	•	•

With star-delta starting, max. current peak during switching phase; after transient processes have died away and a switching phase of 80 ms. For the configuration of current generators, ask for a starting diagram.

Dimensions, weights Wilo-EMU D 500

Dimension drawing



Dimensions, weights

Wilo-EMU...	Type of motor	Impeller diameter	Dimensions					Weight	
	–		W	C	E	L	ø [3]	Shroud*	Unit
	–		[mm]					[kg]	
D 500-1a	NU 911-4/60	308/292	2370	1400	559	2113	455	345	460
D 500S-1b	NU 911-4/50	300/284	2270	1350	559	2013	448	336	434
D 500S-1f	NU 801-4/68	270/252	2230	-	559	1978	436	333	358
D 500S-1f	NU 911-4/50	270/252	2270	1350	559	2013	448	336	434
D 500S-1g	NU 801-4/55	256/237	2100	1260	559	1848	436	323	336
D 500-2a	NU 121-4/90	308/292	3190	1960	559	2933	451	415	890
D 500S-2c	NU 121-4/65	295/278	2940	1840	559	2683	444	394	800
D 500S-2d	NU 911-4/90	290/273	2970	1850	559	2713	461	397	648
D 500S-2e	NU 911-4/75	280/262	2820	1770	559	2563	455	384	609
D 500S-2f	NU 911-4/60	270/252	2670	1700	559	2413	455	371	570
D 500-3a	NU 121-4/135	308/292	3940	-	559	3687	458	481	1191
D 500-3a	U 156-4/84	308/292	3460	2260	559	3202	458	439	1322
D 500S-3b	NU 121-4/110	300/284	3690	-	559	3433	456	459	1070
D 500S-3b	U 156-4/64	300/284	3250	2160	559	2998	454	422	1178
D 500S-3c	NU 121-4/100	295/278	3333	-	559	3333	456	450	1035
D 500S-3c	U 156-4/55	295/278	3160	2110	559	2908	454	414	1113
D 500S-3d	NU 121-4/90	290/273	3490	2260	559	3233	451	441	1000
D 500-4a	U 156-4/110	308/292	-	-	-	3762	465	-	1619
D 500S-4b	U 156-4/84	300/284	-	-	-	3502	458	-	1432

[3] with flange connection DN 200
* Weight pressure shoud

Flange dimensions, ordering information Wilo-EMU D 500

Flange dimensions

Wilo-EMU...	Connection			Pressure class			Dimensions		
	DN_1	DN_2	DN_3	PN_1	PN_2	PN_3	d_2	k	D
	[mm]			[bar]			[mm]		
D 500...	DN 250	DN 250	DN 250	10	10	10	12x22	350	395
D 500...	DN 250	DN 250	-	16	16	-	12x26	355	405
D 500...	-	-	DN 300	-	-	10	12x22	400	445
D 500...	-	-	DN 350	-	-	10	16x22	460	505
D 500...	-	-	DN 400	-	-	10	16x26	515	565

Information for order placements

Wilo-EMU...	Type of motor	Length of connection cable	Cable cross-section	–	Art No.
	–	L	–	🚚	–
	–	[m]	[mm^2]	–	
D 500-1a	NU 911-4/60	–	4G25 + 3x25	A	–
D 500S-1b	NU 911-4/50	–	4G16 + 3x16	A	–
D 500S-1f	NU 801-4/68	–	4G6 + 3x6	A	–
D 500S-1f	NU 911-4/50	–	4G16 + 3x16	A	–
D 500S-1g	NU 801-4/55	–	4G6 + 3x6	A	–
D 500-2a	NU 121-4/90	–	7x 1x50	A	–
D 500S-2c	NU 121-4/65	–	7x 1x35	A	–
D 500S-2d	NU 911-4/90	–	4G35 + 3x35	A	–
D 500S-2e	NU 911-4/75	–	4G25 + 3x25	A	–
D 500S-2f	NU 911-4/60	–	4G25 + 3x25	A	–
D 500-3a	NU 121-4/135	–	7x 1x70	A	–
D 500-3a	U 156-4/84	–	7x 1x70	A	–
D 500S-3b	NU 121-4/110	–	7x 1x50	A	–
D 500S-3b	U 156-4/64	–	7x 1x50	A	–
D 500S-3c	NU 121-4/100	–	7x 1x50	A	–
D 500S-3c	U 156-4/55	–	7x 1x50	A	–
D 500S-3d	NU 121-4/90	–	7x 1x50	A	–
D 500-4a	U 156-4/110	–	7x 1x95	A	–
D 500S-4b	U 156-4/84	–	7x 1x70	A	–

🚚 = ready for delivery, L = stock, C = order-specific production approx. 2 weeks, K = order-specific production approx. 4 weeks, A = delivery time on request

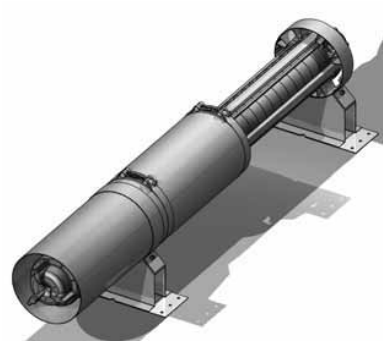
Mechanical accessories

Pressure shroud

Submersible-motor pumps can be installed in a pressure shroud for the purpose of pressure boosting. This makes it possible to install the unit directly in the pipe itself (similar to dry well installation).

Pressure shroud pumps can be installed vertically and, up to a certain number of stages, also horizontally. The connections for the pipeline system can be attached axially or laterally. The connections are also available as flange or threaded connections. The construction of the pressure shrouds has been standardised up to a size of 8". Starting with a size of 10", the construction can be customised. The pressure shrouds can be equipped with a pedestal on request. You can choose between galvanized steel and stainless steel as the material.

Cooling jacket pipes

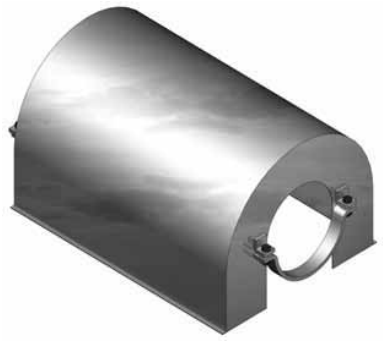


Submersible-motor pumps can be equipped with a cooling jacket pipe to achieve the flow velocity necessary for motor cooling. This is recommended especially if:

- Sludge deposits could form on the motor (e.g. for application in a pump sump immediately above ground)
- Improved motor cooling is required because of unusual operating conditions
- No unperforated well casing is present in the well, and the pump must be installed in the filtration pipe system
- Sand appears in the well
- Installation takes place in rock springs without pipe networks

Cooling jacket pipes are suitable for vertical and horizontal installation. You can choose between galvanized steel and stainless steel as materials (depending on type). For information on availability and order number, please see the catalogue pages for the respective type

Anti-vortex plate



The anti-vortex plate is mounted in the intake area of the submersible-motor pump, thus preventing air turbulence during operation. The fluid is fed to the unit in defined fashion through the use of an anti-vortex plate. This makes it possible to minimise the required minimum water submersion and better utilise the tank.

The anti-vortex plate is manufactured specifically for each type of unit in terms of size and construction. You can choose between galvanized steel and stainless steel as the material. Availability, materials used and order number can be found on the catalogue pages for the respective type.

Mechanical accessories

Non-return valves RV, RVF

Non-return valves prevent the backward flow of the volume flow and thus the emptying of the ascending pipe, the reverse running of the switched-off submersible-motor pump and any potential blocking of the pump by the trickling backward of solid matter. In addition, any water hammering that may occur as the result of reverse oscillations in the volume flow after the submersible-motor pump is switched off is reduced.

The non-return valve is installed on the pressure port of the submersible-motor pump and, in the case of larger systems, also after the elbow in the ascending pipe. Non-return valves are available in the following versions:

- Normal version with shutter (RV)
- Spring-mounted version (RVF)
- Non-return nozzle valve

We recommend the use of spring-mounted non-return valves (RVF) or non-return nozzle valves where there is a danger of water hammering.

For RV and RVF versions, the housings are available in cast iron or (on request) in zinc-free bronze. Flange connection in accordance with DIN 2501; Threaded connection per Whitworth pipe thread DIN 2999 or B.S.2779

Non-return nozzle valves are available in nominal diameters DN80 to DN300 and in pressure stages PN10 to PN40. The materials utilised include rust-free steel, bronze and elastomer parts (KTW-approved).

Bearing brackets for horizontal installation

Bearing brackets are used for reinforcement for horizontal installation of submersible-motor pumps. These are to be manufactured specifically for each type of unit in terms of size and construction. You can choose between galvanized steel and stainless steel as the material.

Availability, materials used and order number can be found on the catalogue pages for the respective type.

Wilo Catalogue Edition 2009

Heating, air-conditioning, cooling

Heating, air-conditioning, cooling
Circulation pumps
Glandless pumps and accessories, package heat exchanger assembly

Catalogue A1

Heating, air-conditioning, cooling
Glanded pumps
Pumps with in-line design and accessories

Catalogue A2

Heating, air-conditioning, cooling, water supply
Monobloc and norm pumps, axial split case pumps
Pumps and accessories

Catalogue A3

Water supply

Water supply
Domestic water supply, rainwater utilisation
Pumps, systems and accessories

Catalogue B1

Water supply
Borehole pumps, 3" to 24"
Pumps and systems for building services, domestic, municipal and industrial water supply

EMU Technologie

Catalogue B2

Water supply
High-pressure multistage centrifugal pumps
Pumps and accessories

Catalogue B3

Water supply
Pressure boosting systems
Single-pump and multi-pump systems in dry well installations

Catalogue B4

Water supply
Sprinkler pumps with VdS approval
Borehole pumps and accessories

EMU Technologie

Catalogue B5

Drainage and sewage

Drainage and sewage
Drainage pumps
Submersible pumps, self-priming pumps and accessories

EMU Technologie

Catalogue C1

Drainage and sewage
Sewage pumps, DN 32 to DN 600
Submersible pumps and accessories for building services, municipal and industrial applications

EMU Technologie

Catalogue C2

Drainage and sewage
Wastewater and sewage lifting units, pumps stations
Pump systems and accessories

Catalogue C3

Drainage and sewage
Submersible mixers
Mixers, re-circulation pumps, jet cleaners, grit collector pumps and accessories for municipal application in water treatment systems

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Catalogue C4

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