Data booklet

SE and SL pumps

9-30 kW

50 Hz



GRUNDFOS

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1. Introduction

This data booklet describes Grundfos SE and SL heavy-duty wastewater pumps, 9-30 kW.



TM077249

SE and SL pumps

The 9-30 kW SE and SL pumps are a range of SuperVortex and S-tube® impeller pumps specifically designed for transferring sewage and wastewater in a wide range of municipal, private and industrial applications.

SE pumps are equipped with an internal closed-loop cooling system, which enables dry installation.

SL pumps do not have a cooling system as they are used for submersible installations only.

The pumps are made of resistant materials, such as cast iron and stainless steel. These materials ensure proper operation.

The pumps are fitted with IEC and IE3 efficiency motor components. The motors are either 2-, 4- or 6-pole motors, depending on the motor size.

The free passage in the pumps is 35 to 125 mm.

The pumps are available for:

- submersible installation on an auto coupling with completely submerged motor
- submersible installation on an auto coupling with liquid covering the pump housing
- vertical dry installation
- horizontal dry installation.

Applications

- drainage and surface water
- domestic wastewater
- municipal wastewater
- industrial wastewater
- process and cooling water.

SE and SL pumps are ideal for pumping the above liquids from places such as:

- municipal network pumping stations
- inlet pumping stations in wastewater treatment plants
- primary and secondary clarification tanks in wastewater treatment plants
- stormwater pumping stations
- public buildings
- residential buildings
- factories and industry.

Hydraulic variants

To meet customer demands, Grundfos SE and SL pumps are offered with three different hydraulic platforms depending on hydraulic variant and pump size.

SE and SL wastewater pumps are available with:

- Open S-tube® (semi-open impeller) hydraulics (SE and SL).
- Closed S-tube® (channel impeller) hydraulics (SE1/SE2 and SL1/SL2).
- SuperVortex (free flow impeller) hydraulics (SEV and SLV).

SE/SL pumps with open S-tube® hydraulics



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Grundfos SE/SL pumps with open S-tube® hydraulics are the ideal choice when there is a need for a wastewater pump with high wire-to-water efficiency and must operate

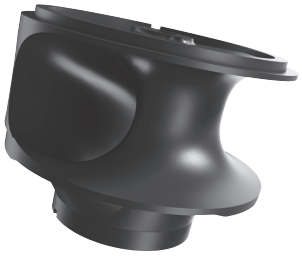
over a wider Allowable Operating Range (AOR). Open S-tube® impellers can be trimmed to meet a specific duty-point

Pumps are available in the following material variants:

- Cast iron (standard solution) - Applicable for the vast majority of wastewater applications.
- Stainless steel - Q material variant (standard solution) - Applicable for the vast majority of wastewater applications with larger volume of abrasives.
- White cast iron - W material wariant (customised solution) - Ideal when the pumped liquid contains a high amount of abrasive solids.

SE/SL pumps are available in super-high – and high head variants.

SE1/SE2 and SL1/SL2 pumps with closed S-tube® hydraulics



TM078831

Grundfos SE/SL pumps with closed S-tube® (1- or 2-channel impellers, depending on pump size) hydraulics are the ideal choice when there is a need for a wastewater pump with large free passage and must operate with a wide and flat efficiency curve.

Pumps are available in the following material variants:

- Cast iron (standard solution)
  Applicable for the vast majority of wastewater applications.
- Stainless steel – Q material variant (standard solution)
  Applicable for the vast majority of wastewater applications with larger volume of abrasives.
- Duplex stainless steel (customised solution)
  Ideal when the pumped liquid contains a high amount of abrasive solids.

SEV/SLV pumps with SuperVortex hydraulics



TM078834

Grundfos SEV/SLV pumps with SuperVortex hydraulics are the ideal choice when you require a wastewater pump that has a free-flow impeller for higher efficiency, a large and uncompromised free spherical passage and is optimised for applications balancing a high solids content and relatively low operating hours. SuperVortex impellers can be trimmed to meet a specific duty-point.

Pumps are available in the following material variants:

- Cast iron (standard solution)
  Applicable in the vast majority of wastewater applications.
- Stainless steel – Q material variant (standard solution)
  Applicable for the vast majority of wastewater applications for a larger volume of abrasives.
- Duplex stainless steel (customised solution)
  Ideal when the pumped liquid contains a higher content of abrasive solids.

SEV/SLV pumps are available in super-high head variant.

Product features

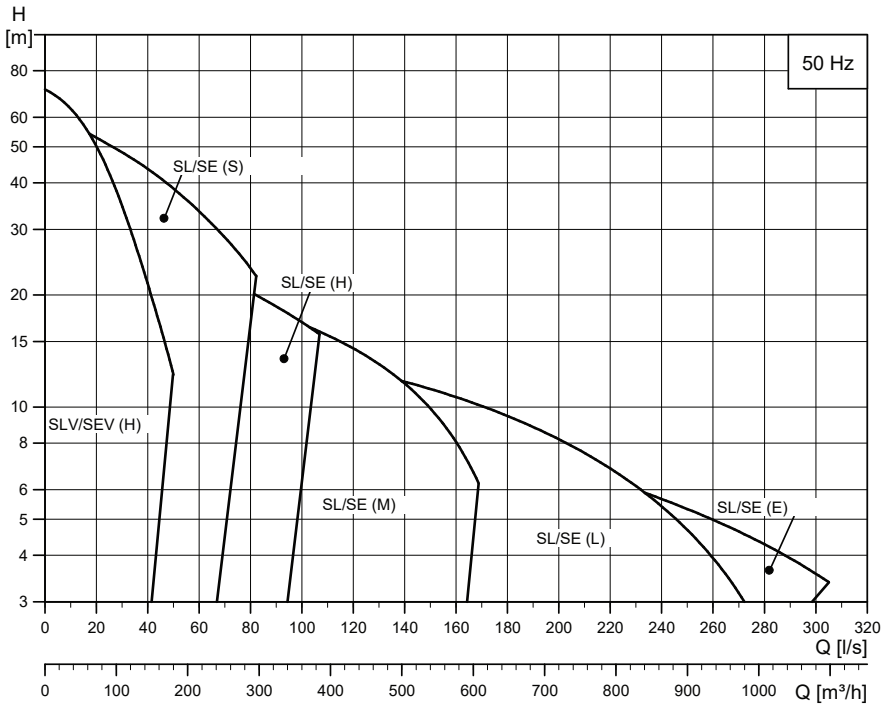
Grundfos SE and SL pumps offer the following benefits:

- optimzied high-efficiency and self-cleaning hydraulics to minimize the risk of clogging
- moisture-tight sealed cable entry at the motor top compartment made of corrosion-resistant stainless steel
- double mechanical cartridge shaft seals, fully assembled and tested at the factory, for reliable sealing between the liquid in the pump housing and the motor
- integrated sensors for continuous monitoring and protection of the pump during operation
- SmartTrim system allowing easy adjustment of the impeller clearance without disassembly of the pump, maintaining maximum performance throughout the life of the pump
- high-efficiency electrical motors built on IE3 motor components and fulfilling the latest standards
- explosion-proof pumps for applications involving a high risk of ignition.

2. Performance range

Performance range, SE, SL and S pumps

Performance range, SE and SL pumps



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3. Pump options

The SE and SL pumps can be customised to meet individual requirements. The following pump features and options are available:

- Sensor variant
  - Standard: pump fitted with standard sensors
  - A: pump fitted with sensor version 1 [1)]
  - B: pump fitted with sensor version 2 [1)]
- Pressure range
  - 52S: super-high head
  - 52H: high head
  - 52M: medium head
  - 52L: low head
  - 52E: extra-low head
- Material for closed S-tube® hydraulics
  - Standard: cast iron pump housing, cast iron impeller, cast iron motor housing
  - Stainless steel
    (Q variant):
    cast iron pump housing, stainless steel impeller, cast iron motor housing
- Material for open S-tube® hydraulics
  - Standard: cast iron pump housing, cast iron impeller, cast iron suction cover, cast iron motor housing
  - Stainless steel
    (Q variant):
    cast iron pump housing, stainless steel impeller, cast iron suction cover, cast iron motor housing
  - White iron (WI - customised solution): cast iron pump housing, white iron impeller, white iron suction cover, cast iron motor housing
- Material for SuperVortex hydraulics
  - Standard: cast iron pump housing, cast iron impeller, cast iron motor housing
  - Stainless steel
    (Q variant):
    cast iron pump housing, stainless steel impeller, cast iron motor housing
- Pump version
  - N: pump without ATEX approval
  - Ex: pump with ATEX approval
- Supply voltage
- Thermal protection
  - Standard: thermal switches
  - T: thermistor (PTC), including 15 m power cable

1) Use screened cables to ensure optimal data communication with the pump.

For variants, see Variants of customised pumps. For requirements or designs not included in the list, contact Grundfos.

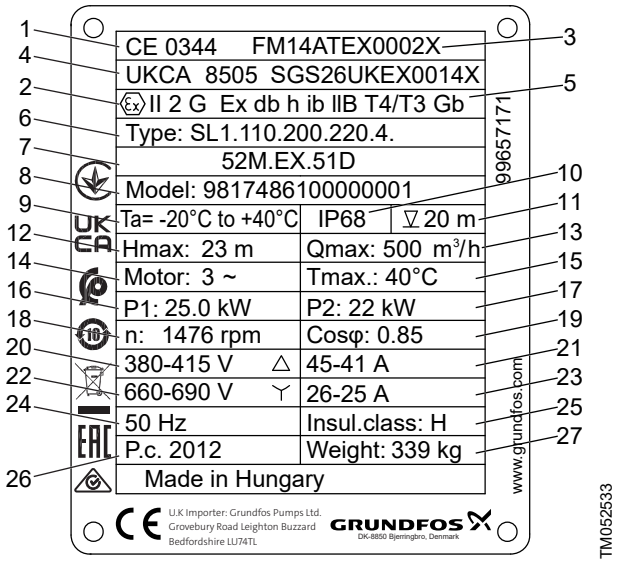
Related information

Performance range, SE, SL and S pumps
Variants of customised pumps

4. Identification

Nameplate

The pumps can be identified by the nameplate on the motor top cover.



Nameplate example for Ex-proof pump

Pos.	Description
1	EU Notified Body approving the Ex manufacturer
2	Explosion protection mark (ATEX)
3	EU Explosion protection certificate number
4	UK Approved Body approving the Ex manufacturer and UK Explosion protection certificate number
5	Explosion protection marking
6	Pump type designation
7	Pump type designation (line 2)
8	Model number
9	Ambient temperature
10	Enclosure class
11	Maximum installation depth
12	Maximum head
13	Maximum flow rate
14	Number of phases
15	Maximum liquid temperature
16	Rated power input P1
17	Rated power output P2
18	Rated speed
19	Cos φ, 1/1-load
20	Rated voltage, delta connection
21	Rated current, delta connection
22	Rated voltage, star connection
23	Rated current, star connection
24	Frequency
25	Insulation class
26	Production code *
27	Weight

* production code, last 2 digits of the year (YY), number of the week (WW)

Type key

Example: **SL1.110.200.245.4.52M.EX.6.1G.A**

Code	Explanation	Designation
SE	Sewage pump with cooling jacket	Pump type
SL	Sewage pump without cooling jacket	
[ ]	Open S-tube® impeller (semi-open)	Impeller type
1	Closed single-channel S-tube® impeller	
2	Closed two-channel S-tube® impeller	
V	SuperVortex (free-flow) impeller	
[ ]	Maximum solids size [mm]	Pump free passage [mm]
75		
80		
85		
95		
110		
125		
200	Pump outlet nominal diameter	Pump outlet [mm]
245	24.5 kW: P2 / 10	Power [kW]
[ ]	Standard pump or standard Ex pump	Sensor version
A	Sensor version 1 or sensor version 1, Ex pump	
B	Sensor version 2 or sensor version 2, Ex pump	
2	2-pole motor	Number of poles
4	4-pole motor	
6	6-pole motor	
52	Frame size of the pump	Frame size
S	Super-high pressure	Pressure range
H	High pressure	
M	Medium pressure	
L	Low pressure	
E	Extra-low pressure	
[ ]	Cast iron pump housing, cast iron impeller, cast iron suction cover, cast iron motor housing	Material code for pump housing, impeller, suction cover and motor housing
Q	Cast iron pump housing, stainless-steel impeller, cast iron suction cover, cast iron motor housing	
W	Cast iron pump housing, white cast iron impeller and suction cover, cast iron motor housing	
N	Pump without EX approval	Pump version
EX	Pump with EX approval	
5	50 Hz	Frequency
6	60 Hz	
1D	3 × 380-415D, 660-690Y (Standard)	Voltage for 50 Hz
1E	3 × 220-240D, 380-415Y	
1N	3 × 500-550D	

Code	Explanation	Designation
1F	3 × 220-230D, 380-400Y	Voltage for 60 Hz
1G [2]	3 × 380-480D, 660-690Y (Standard)	
1M	3 × 575-600D	
11 [3]	3 × 460D (Standard)	
15 [3]	3 × 380D, 660Y	
[ ]	1st generation	Generation code
A	2nd generation	
Z	Custom-built products	Customisation
[ ]	Thermal switches	Thermal protection
T	PTC thermistor	

2) Only for 2- and 4-pole motors.

3) Only for 6-pole motors.

5. Product selection

Consider the following:

- Liquid type
- Inflow requirement
- Total head requirement
  - After a few months, the typical surface roughness in pipes is 0.0004 to 0.2 inches (0.5 to 1 mm).
- Size of the pipe on the discharge side
  - For a self-cleaning effect in the pipes, the flow velocity must exceed 2.3 ft/s (0.7 m/s) for horizontal and 3.3 ft/s (1 m/s) for vertical piping. Not exceeding 10 ft/s (3 m/s) flow velocity is recommended.
- Standby pump requirements
  - To avoid sedimentation, the pumps must be started at least twice a day.
- Inlet conditions to avoid cavitation
- Installation type
- Customisation needs
- Accessory needs

If sizing and selection is done via Grundfos online selection tool in www.grundfos.com, the selection recommendations may list one or more standard pumps.

- To identify the pump, use the Type key.

Related information

Type key
Hydraulics selection
Variants of customised pumps
Operating conditions
9. Accessories

Hydraulics selection

Use the following tables to identify the most suitable pump hydraulics type.

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Surface water						
Drainage water	Grey cast iron	x		x	x	Observe operating conditions when selecting optimal hydraulic variant. Observe content of abrasives in the pumped liquid. Observe free passage through pump or consider pre-screening of water.
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
River water	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Storm water	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Wastewater						
Domestic wastewater from buildings	Grey cast iron	x		x	x	Observe and consider: Local legislation and free passage through pump such as EN 12050. Local legislation and free passage through pump such as EN 16932:2018. Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution). Content of abrasives in the pumped liquid. Operational time and hydraulic efficiency. The need for ceramic-coated pumps (optional).
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Untreated municipal wastewater	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
High head/low flow wastewater handling	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Wastewater with long fibrous material	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Wastewater with abrasive/ unsuspended solids (dry matter content up to 3%)	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Wastewater with abrasive/ unsuspended solids (dry matter content up to 5%)	Grey cast iron	x		-	x	
	Stainless steel (Q variant)	(x)		-	x	
	White cast iron (W variant)		x			

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Sludge						
Raw sludge with dry matter content up to 4% (un-screened)	Grey cast iron	x		x	x	Observe and consider: Local legislation and free passage through pump such as EN 12050. Local legislation and free passage through pump such as EN 16932:2018. Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution). Content of abrasives in the pumped liquid. Operational time and hydraulic efficiency. The need for ceramic-coated pumps (optional).
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Digested sludge with dry matter content up to 4-5% depending on screening	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Activated sludge with dry matter content up to 4-5% depending on screening	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Industrial wastewater containing:						
Suspensions like paint, lacquer and varnish	Grey cast iron			x	x x	Observe and consider: Operating conditions when selecting optimal hydraulic variant. Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution). Operational time and hydraulic efficiency. Content of abrasives in the pumped liquid The need for ceramic-coated pumps (optional). The need for alternative seal face materials in shaft seals, contact Grundfos.
	Stainless steel (Q variant)			x	x x	
	White cast iron (W variant)			x		
Acidic wastewater (down to pH 6.5)	Grey cast iron			x	x x	
	Stainless steel (Q variant)			x	x x	
	White cast iron (W variant)			x		
Basic wastewater (up to pH 14)	Grey cast iron			x	x x	
	Stainless steel (Q variant)			x	x x	
	White cast iron (W variant)			x		
Highly abrasive industrial effluent, causing wear						
Lime water	Grey cast iron		(x)		(x) x	Consider operational time and hydraulic efficiency. Observe the need for ceramic-coated pumps in cast iron execution (optional). Observe the need for alternative seal face materials in shaft seals, contact Grundfos.
	Stainless steel (Q variant)		(x)		(x) x	
	White cast iron (W variant)			(x)		
Lime milk containing quartz and pigment suspensions	Grey cast iron		(x)		(x) x	
	Stainless steel (Q variant)		(x)		(x) x	
	White cast iron (W variant)			(x)		
Effluent industrial wastewater containing solids	Grey cast iron		(x)		(x) x	
	Stainless steel (Q variant)		(x)		(x) x	
	White cast iron (W variant)			(x)		
Effluent industrial wastewater containing high content of dust and ashes	Grey cast iron		(x)		(x) x	
	Stainless steel (Q variant)		(x)		(x) x	
	White cast iron (W variant)			(x)		

Additional water types						
Brackish water	Grey cast iron	x		x	x	Material variants depend on both temperature and chloride content of brackish water, see brochure titled "GRUNDFOS SL, SE, S PUMP VARIANTS, 1.1 - 520 kW (Product brochure)" (publication no. 97745765) available in Grundfos Product Center. Observe the need for cathodic protection and coating of the pump.
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Sea water	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			

Legend

x	Recommended choice
(x)	Optional, contact Grundfos.

Basic pump configuration

- See Type key to identify the pump specification.

Example: Product name	
Pump type: Sewage pump with cooling jacket	SE
Impeller type: 1-channel, closed S-tube®	1.
Pump free passage: 85 mm	85.
Pump outlet: DN 100	100.
Power: 13 kW	130.
Sensor version: Standard pump or standard Ex pump	
Number of poles: 4-pole motor	4

Features of a standard pump:

- 10 m cable
- paint: NCS 9000N, RAL 9005 (black), average thickness 150 µm
- three thermal switches, one in each phase, or three thermal sensors (PTC)
- one moisture switch below the motor top cover
- one level switch in the leakage chamber
- tested according to ISO 9906:2012, grade 3B.

Note: For further information on technical data, visit the Grundfos Product Center.

Related information

Type key

8. Performance curves and technical data

Variants of customised pumps

Motor

Various cable lengths	Cable length depends on motor size and power supply.	10 m
		15 m
		25 m
		30 m
		50 m
EMC power cables	Screened power cables for variable-speed drives. Cable length depends on motor size and power supply. See the notification on the EMC cables in the .	10 m
		15 m
		25 m
		30 m
		50 m
Special motor	Special voltage is available on request.	Contact Grundfos
PTC thermistors in windings		

Motor protection

Thermal switch/PTC + moisture switch + level switch	Standard
Thermal switch/PTC + moisture switch + level switch	Standard Ex version
Thermal switch/PTC + moisture switch + Pt1000 + level switch	Sensor version 1
Thermal switch/PTC + moisture switch + Pt1000 + level switch	Sensor Ex version 1
Thermal switch/PTC + moisture switch + Pt1000 + PVS3 + SM 113 and IO 113 [4] + level switch	Sensor version 2
Thermal switch/PTC + moisture switch + Pt1000 + PVS3 + SM 113 and IO 113 [4] + level switch	Sensor Ex version 2

4) IO 113 is not part of the pump delivery. It must be ordered separately.

Tests*

Test at specified duty point based on standard impeller/curve	
Trimmed impeller for specified duty test	(Only SuperVortex impellers)
Duty point verification report (according to ISO 9906:2012 grade 3B)	Duty point verification test guaranteed by Grundfos
Duty point verification report (according to ISO 9906:2012 grade 2B and 2U)	Duty point verification test guaranteed by Grundfos
Duty point verification report (according to ISO 9906:2012 grade 1B and 1U)	Duty point verification test guaranteed by Grundfos
Performance test report (according to grade 3B)	
Performance test report (according to grade 2B and 2U)	
Performance test report (according to grade 1B, 1E and 1U)	
Witness test	

Note: Test requests must be specified upon ordering.

* For tests and test reports, contact Grundfos.

Certificates*

ATEX-approved-pump report	Special Grundfos report
Certificate of compliance with order	According to EN10204 2.1
Impeller balancing certificate	
Pump certificate	According to EN10204 2.2
Inspection certificate	According to EN10204 3.1
Material specification report	According to EN10204 3.1B
Material report with certificate	According to EN10204 3.2
Hydrostatic pressure test certificate	
Painting certificate (including verification of painting thickness)	
Electric motor test report certificate	
Inspection certificate, Lloyds Register	According to EN10204 3.2
Inspection certificate, DNV (Det Norske Veritas)	According to EN10204 3.2
Inspection certificate, Germanischer Lloyd	According to EN10204 3.2
Inspection certificate, American Bureau of Shipping	According to EN10204 3.2
Inspection certificate, Bureau Veritas	According to EN10204 3.2
Inspection certificate, Registro Italiano Navale Agenture	According to EN10204 3.2
Other third-party test certificates	
IECEx approved pump	
IECEx approved report	(special Grundfos report)

* For certificates, contact Grundfos.

Miscellaneous*

Duplex stainless-steel impeller according to EN1.4517	Increased resistance against abrasive liquids
White iron impeller and white iron suction cover with guide vane	Resistant to high/extreme content of long fibres
FKM sealing (optional)	Resistant to acids Resistant to mineral and vegetable oils Resistant to most solvents, such as toluene, petrol, trichloroethylene
Cable protection hose	Resistant to acids Resistant to most oils Resistant to most solvents
Ceramic coating of impeller and pump housing	Reduced wear rate of cast-iron parts Increased corrosion resistance Beneficial in case of low number of operating hours
Extra epoxy coating, 300 µm or 450 µm	Increased corrosion resistance
Top coating (black RAL 9005, red RAL 3000 and other colours)	
Special packaging	
Special nameplate	
Other variants	

* For miscellaneous variants, contact Grundfos.

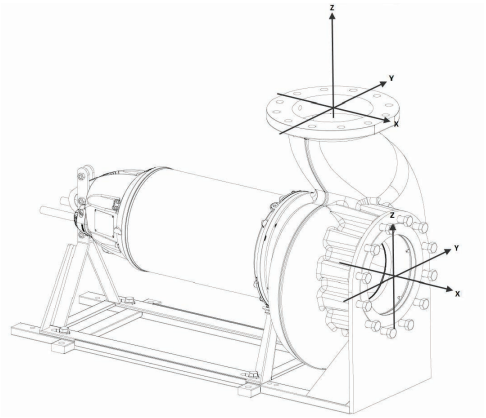
Flange forces

The flange forces and moments comply with EN ISO 5199.

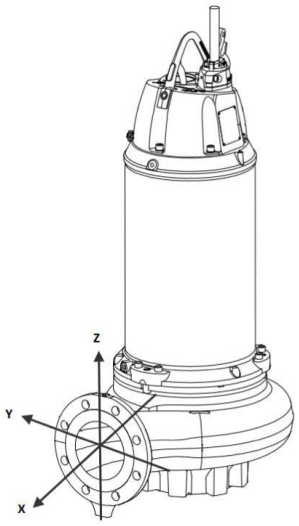
See forces for both horizontal and vertical installations in EN ISO 5199, Table B.3 by selecting the correct flange dimension. Forces cannot be used directly for end-suction wastewater pumps without using a coefficient. See it in EN ISO 5199, Table B.5 by selecting the correct pump family.

For Grundfos wastewater pumps, the pump families and coefficients are stated below.

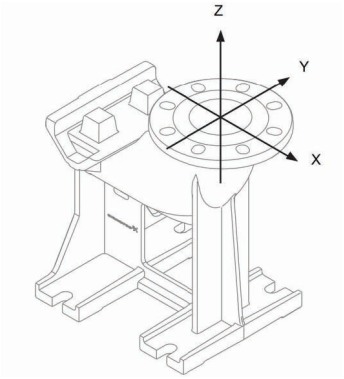
Horizontally installed pumps	
Pump family A4	coefficient 0.35
Vertically installed pumps	
Pump family 10A	coefficient 0.30



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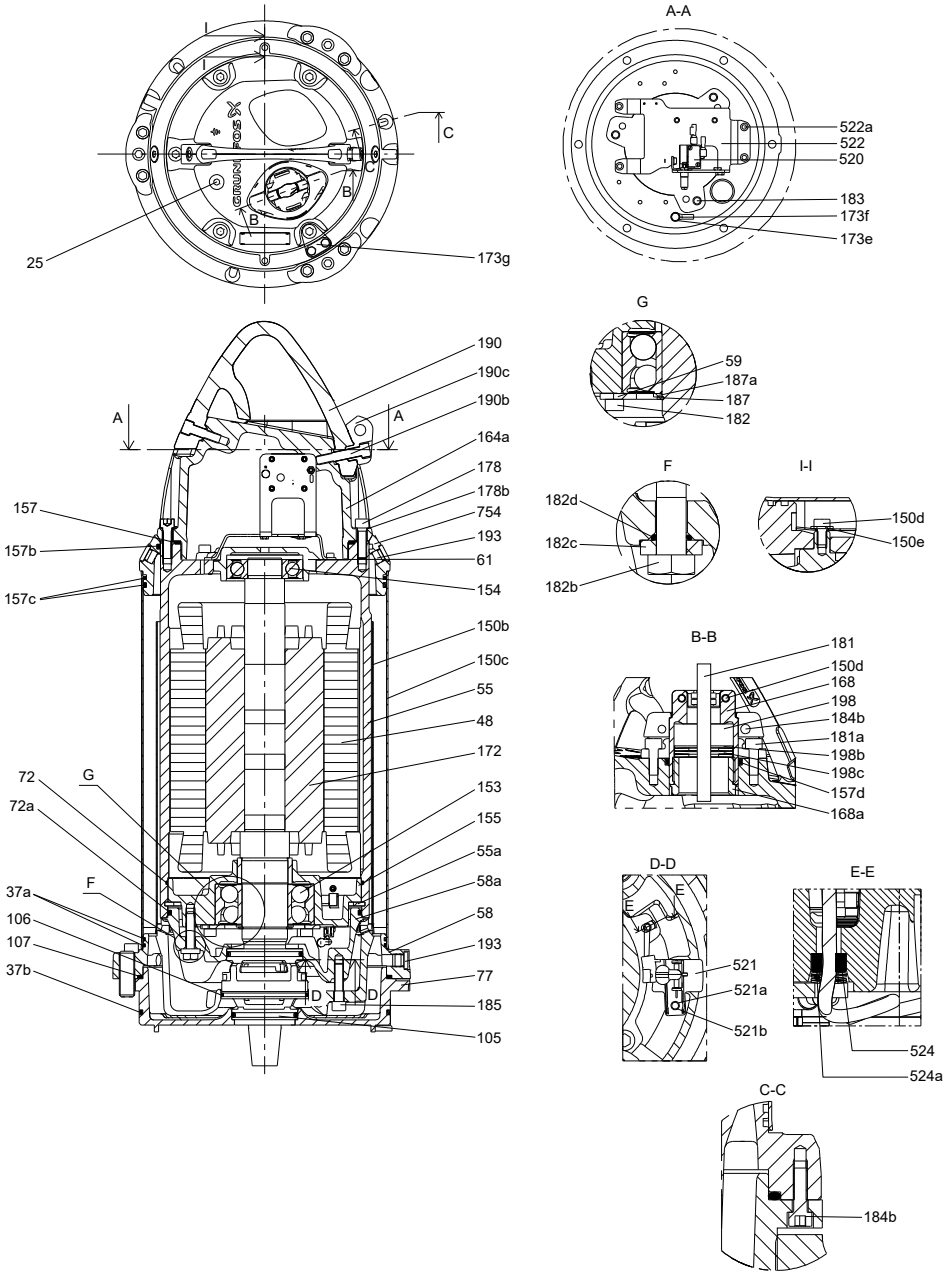
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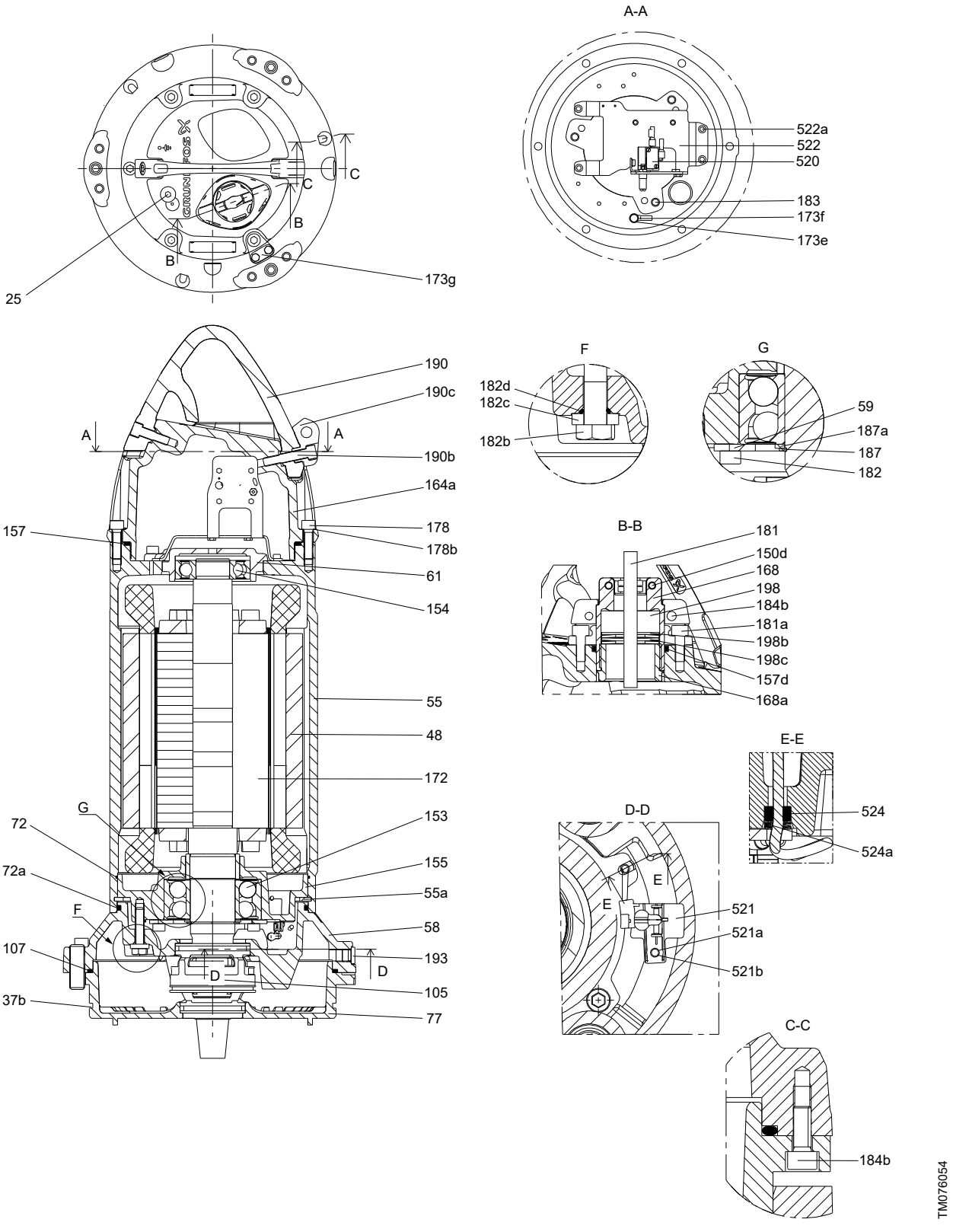
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6. Construction

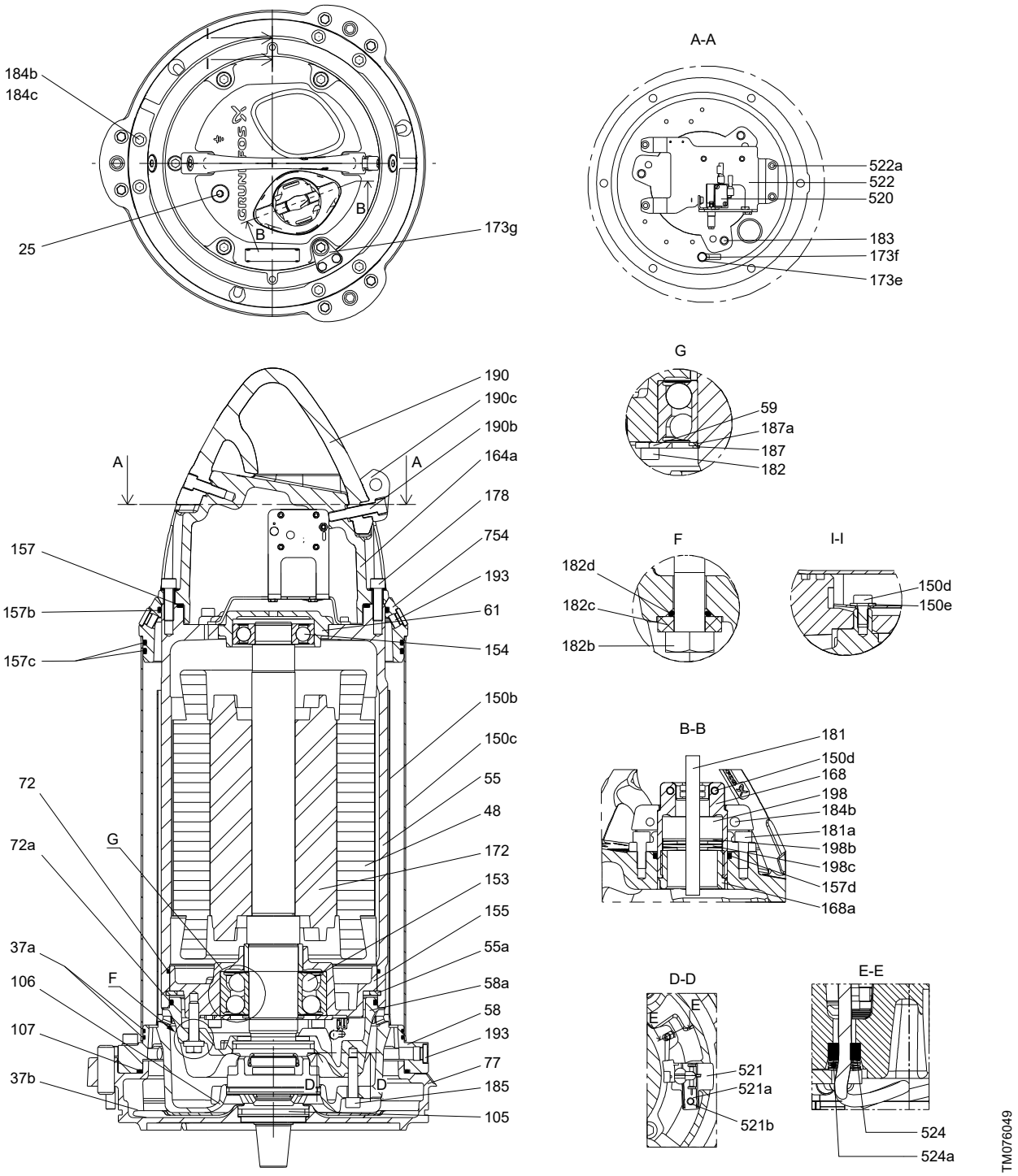
Sectional drawings, motors



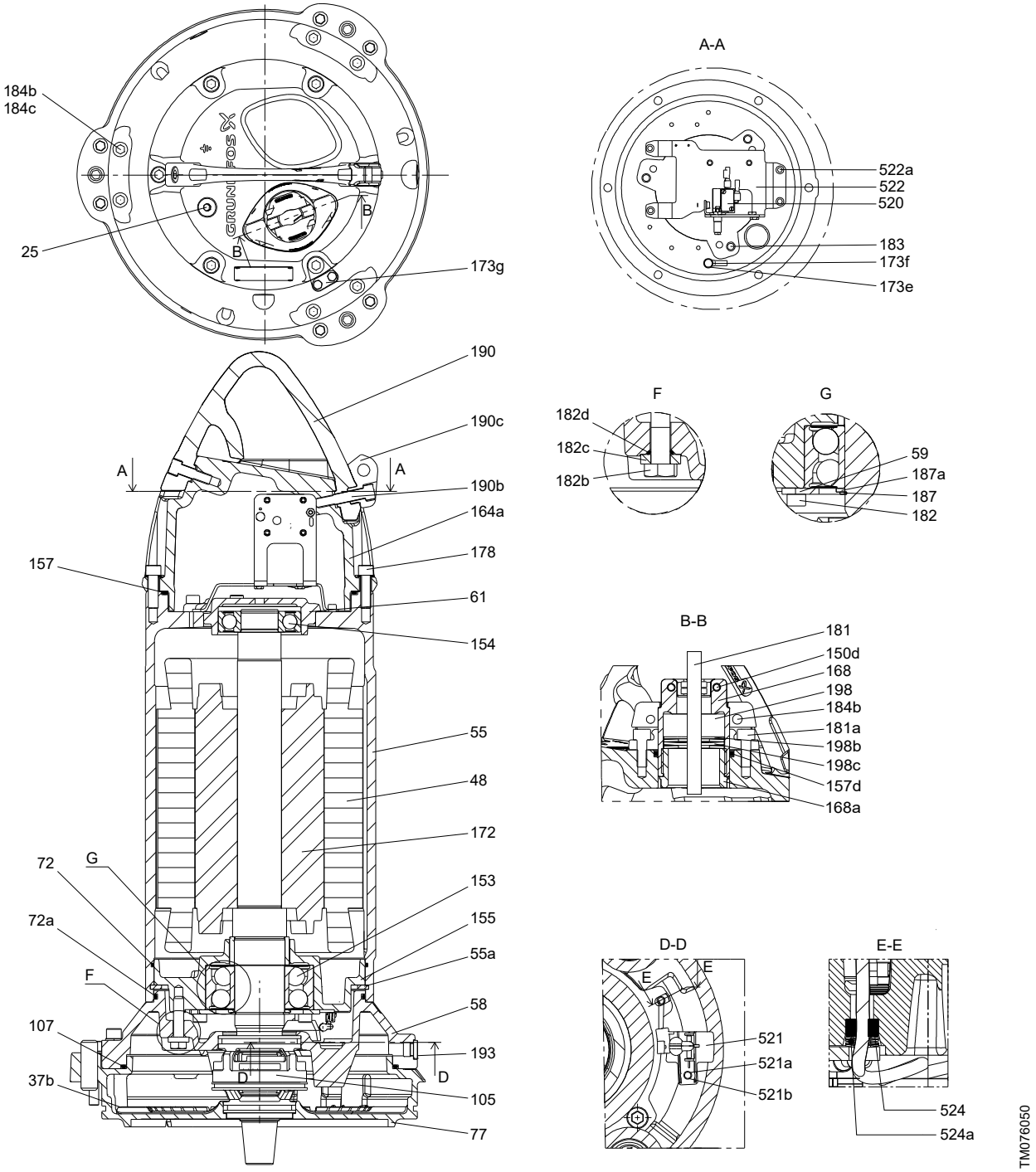
SE pump with cooling jacket (2- and 4-pole motors)



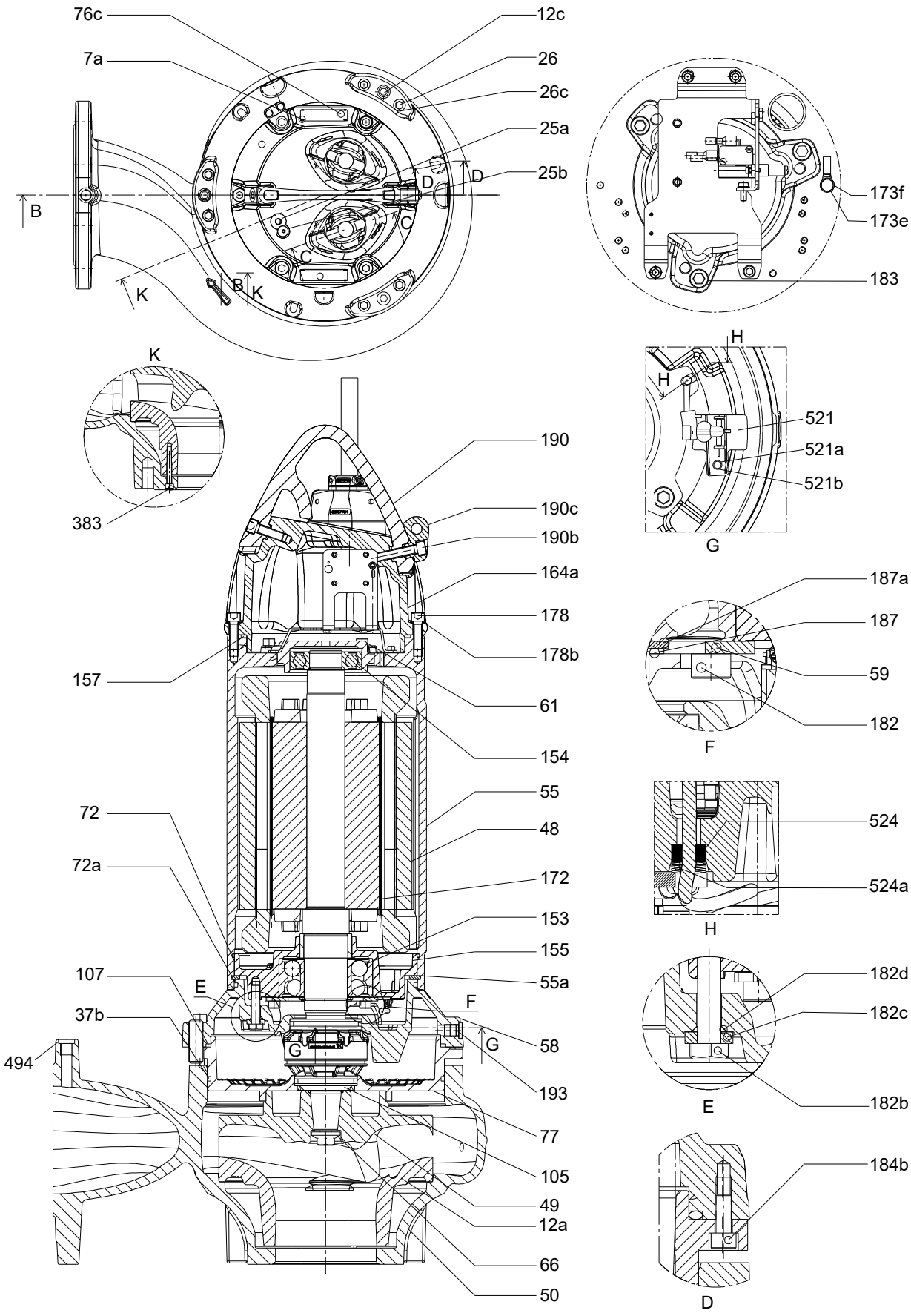
SL pump without cooling jacket (2- and 4-pole motors)



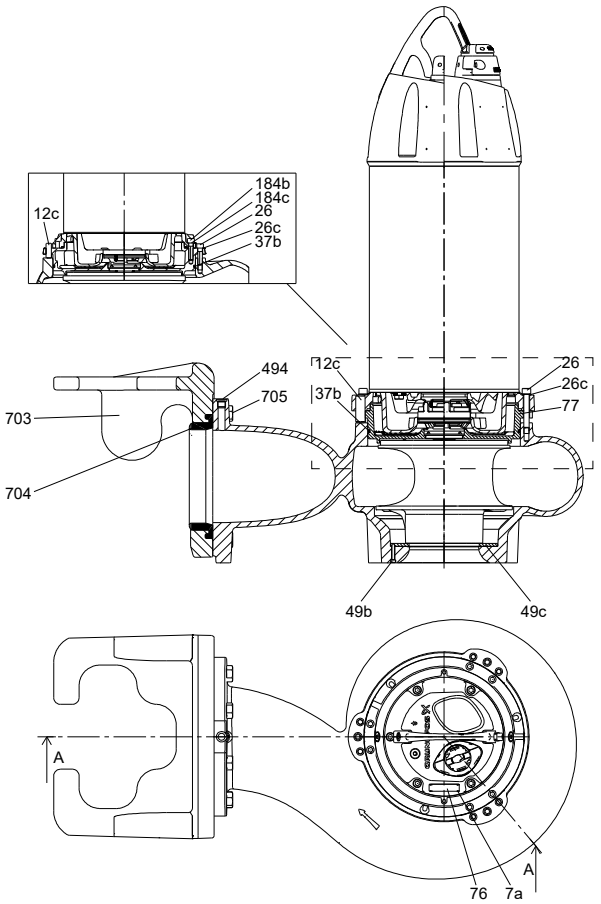
SE pump with cooling jacket (6-pole motors)



SL pump without cooling jacket (6-pole motors)

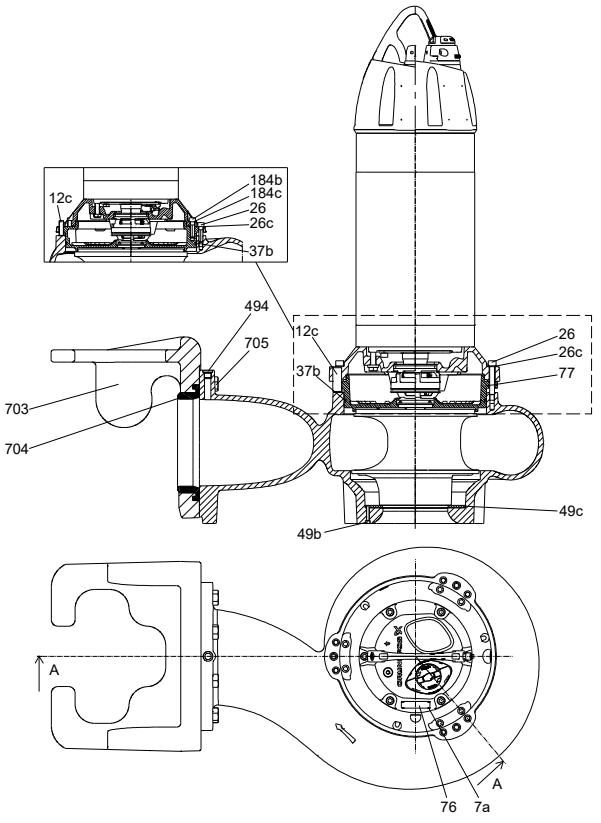


SL pump with Open S-tube® impeller



TM076051

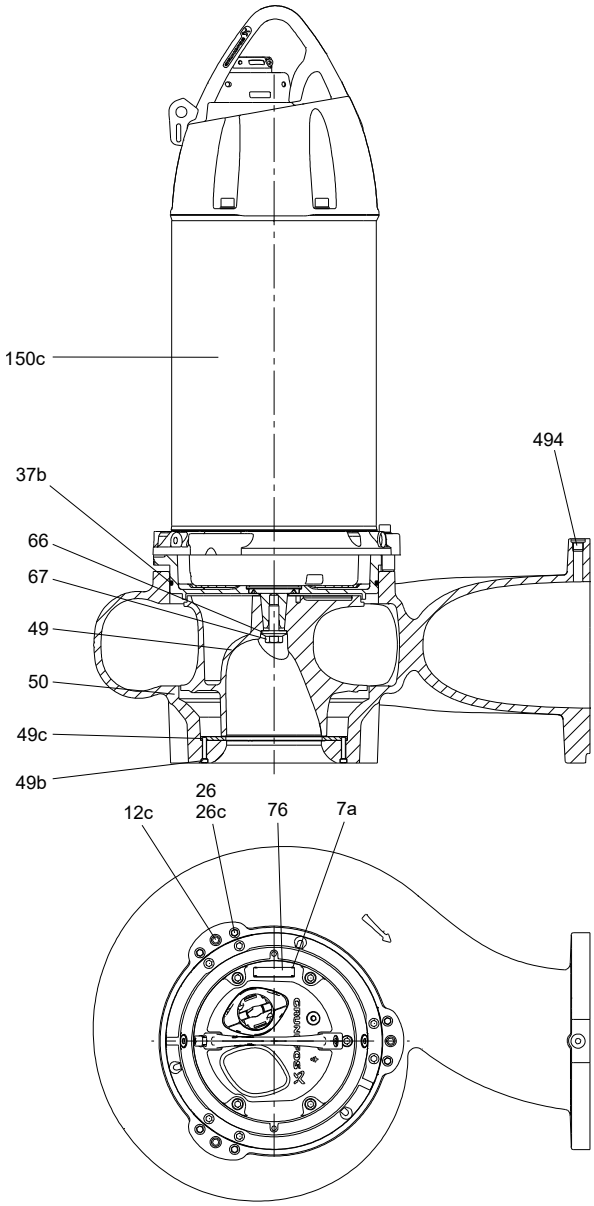
SE pump with guide claw (6-pole motors)



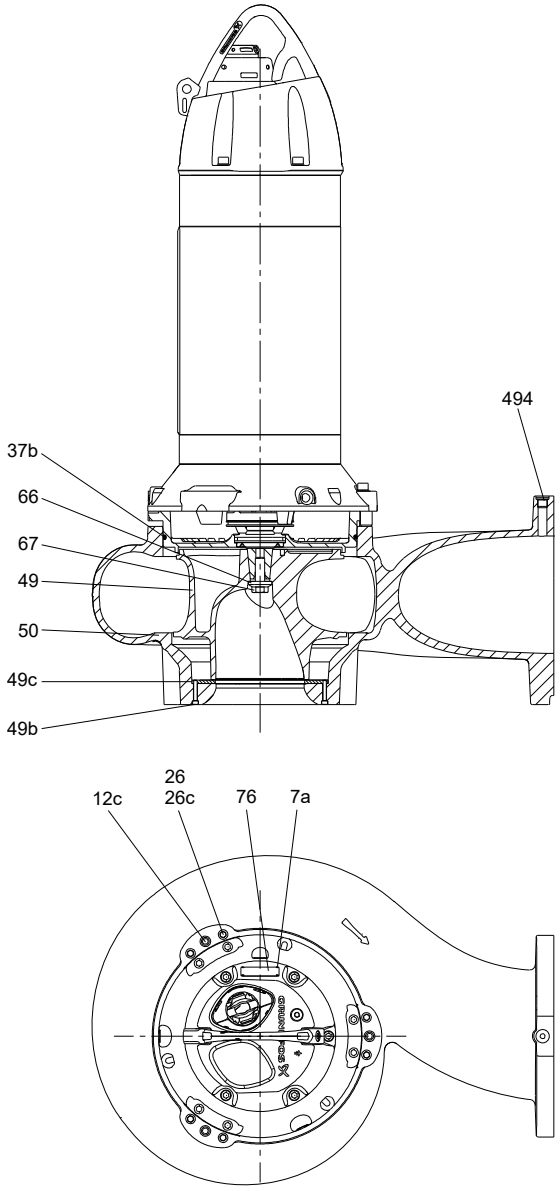
TM076052

SL pump with guide claw (6-pole motors)

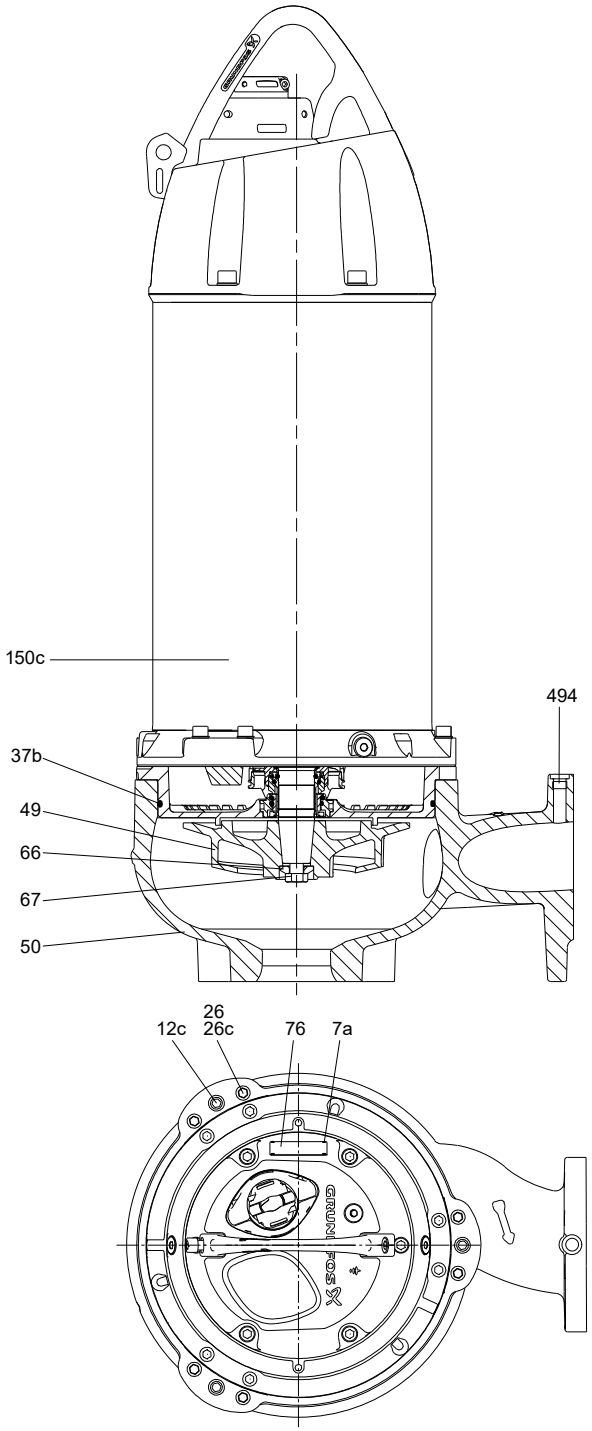
Sectional drawings, pumps



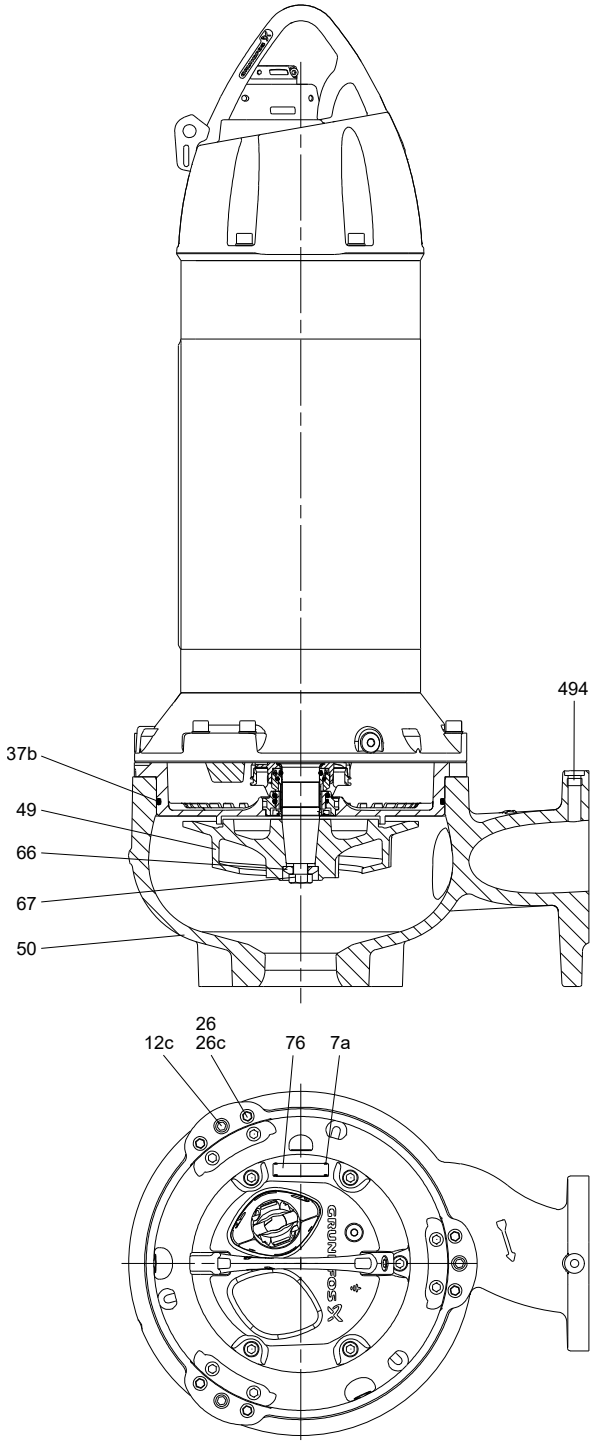
*SE pump, with closed S-**tube**® impeller*



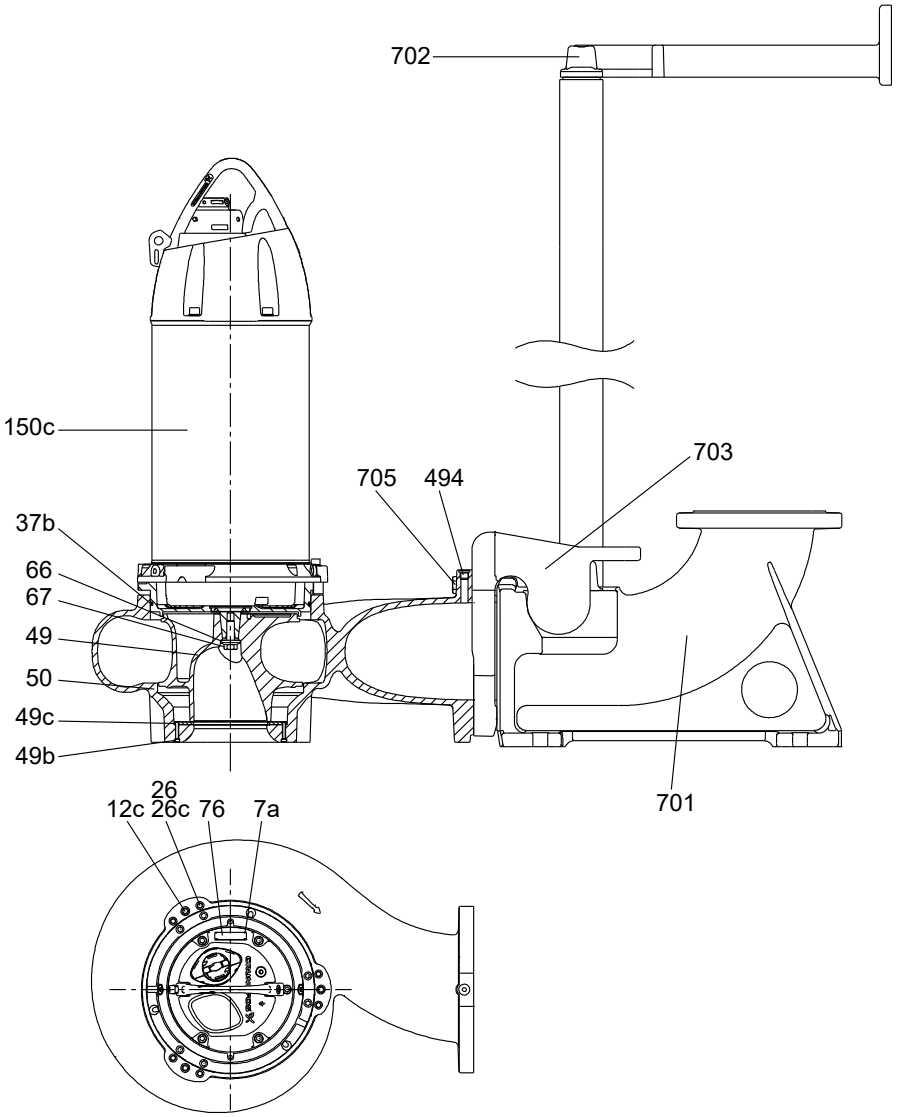
*SL pump, with closed S-**tube**® impeller*



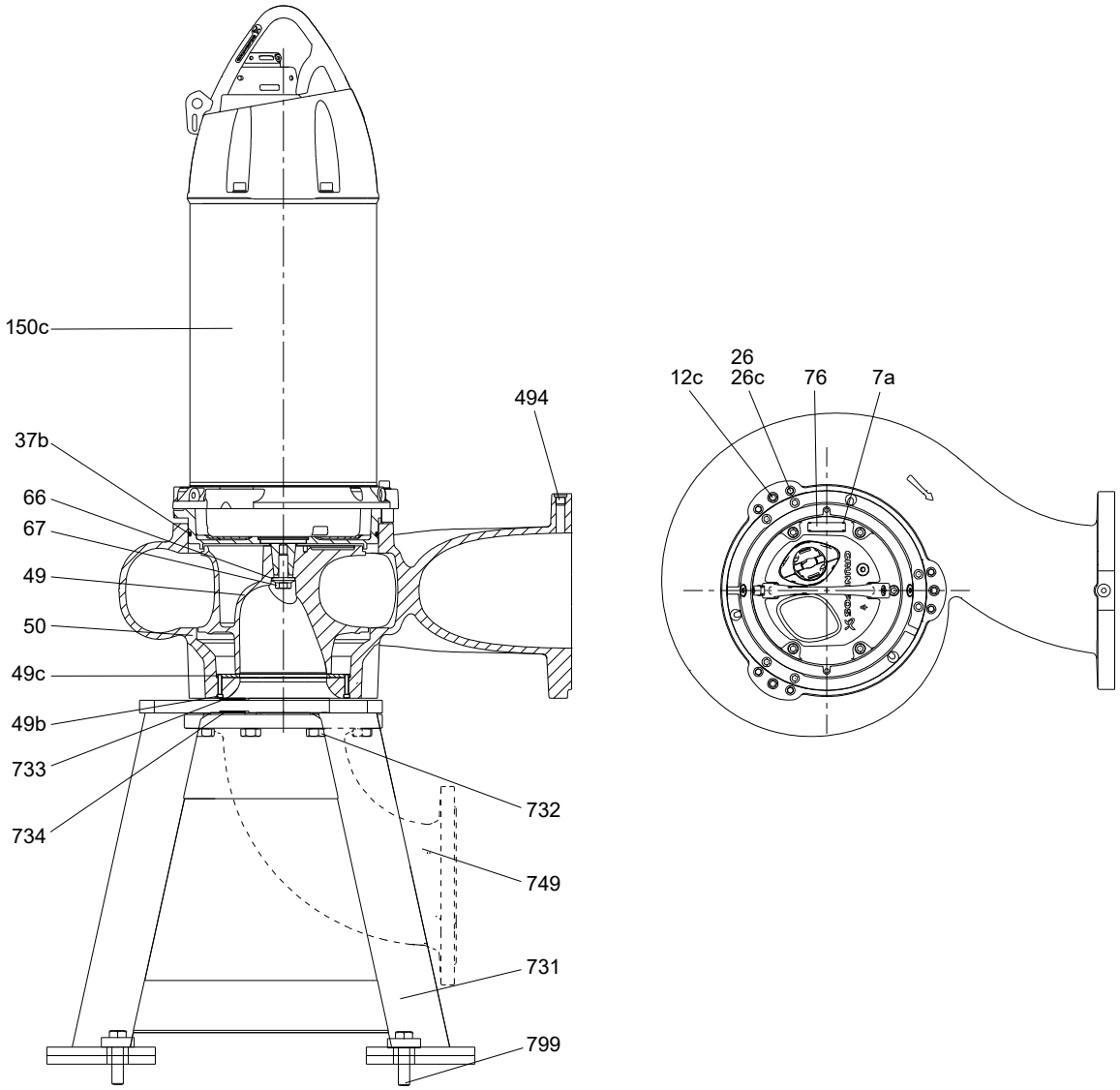
SE pump, with SuperVortex impeller



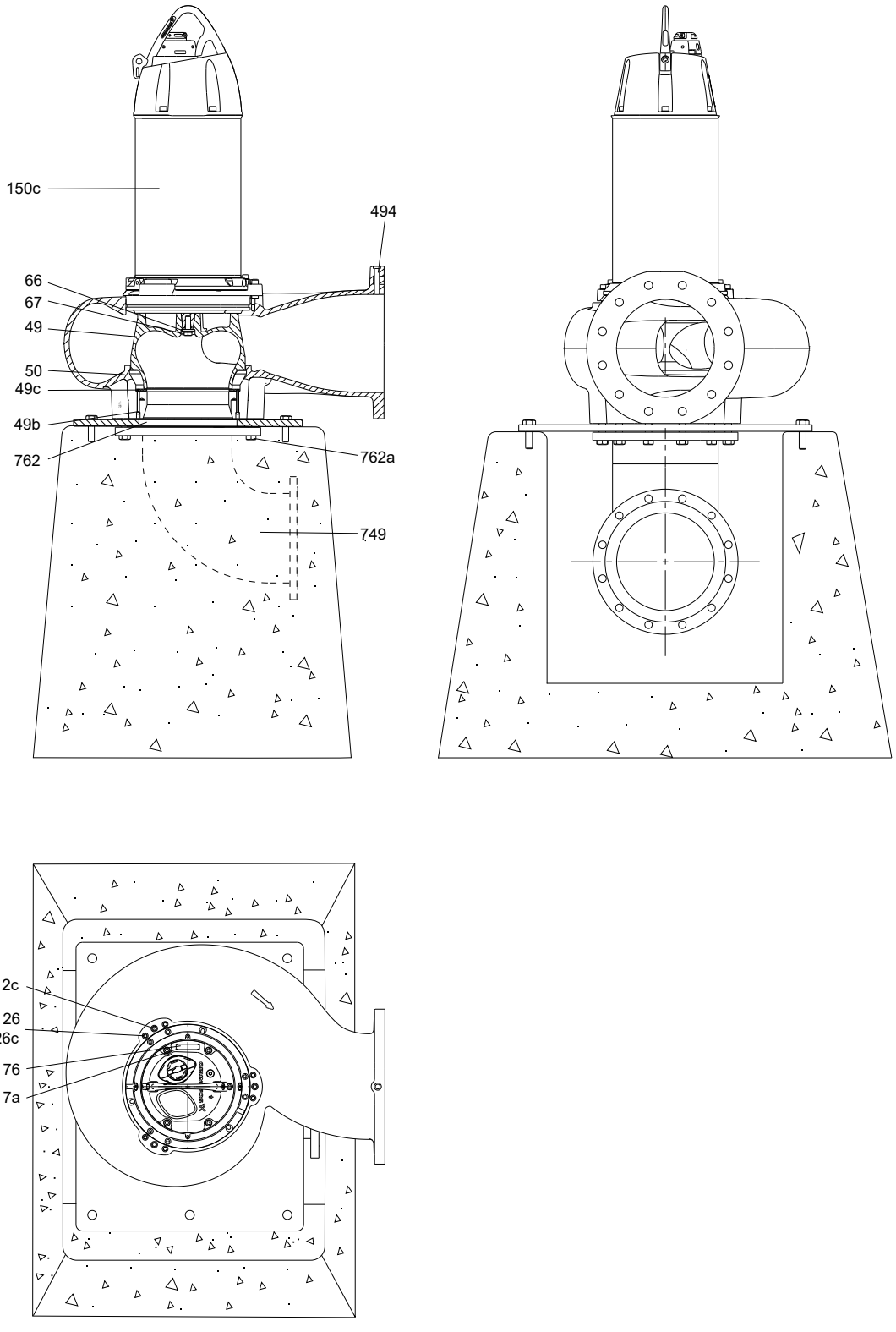
SL pump, with SuperVortex impeller



SE pump, with guide claw for auto-coupling

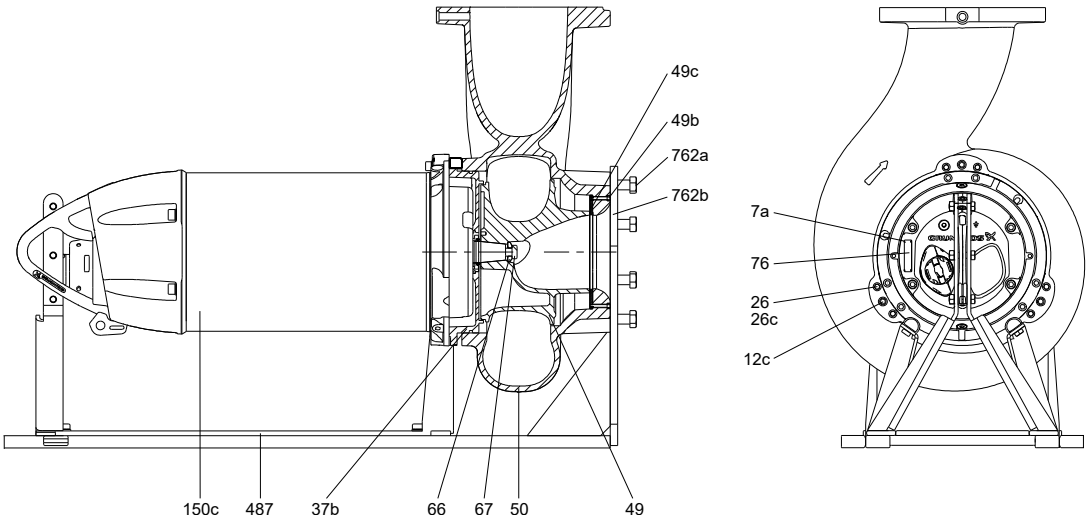


SE pump, dry installation on vertical base stand (recommended for SE pumps below 15 kW)



TM076046

SE pump, dry installation on concrete foundation (recommended for SE pumps from and above 15 kW)



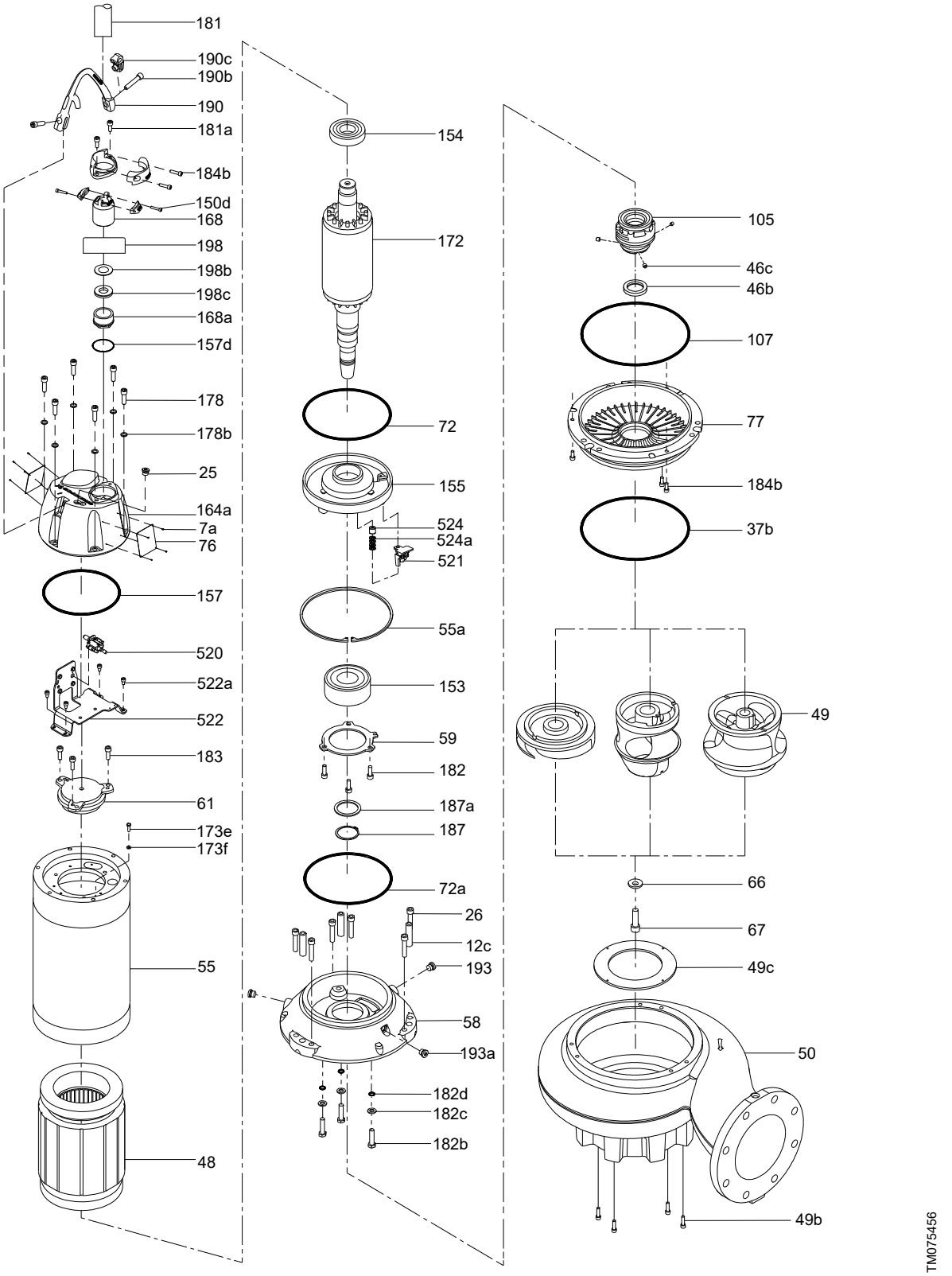
TM076047

SE pump, dry installation on horizontal base stand

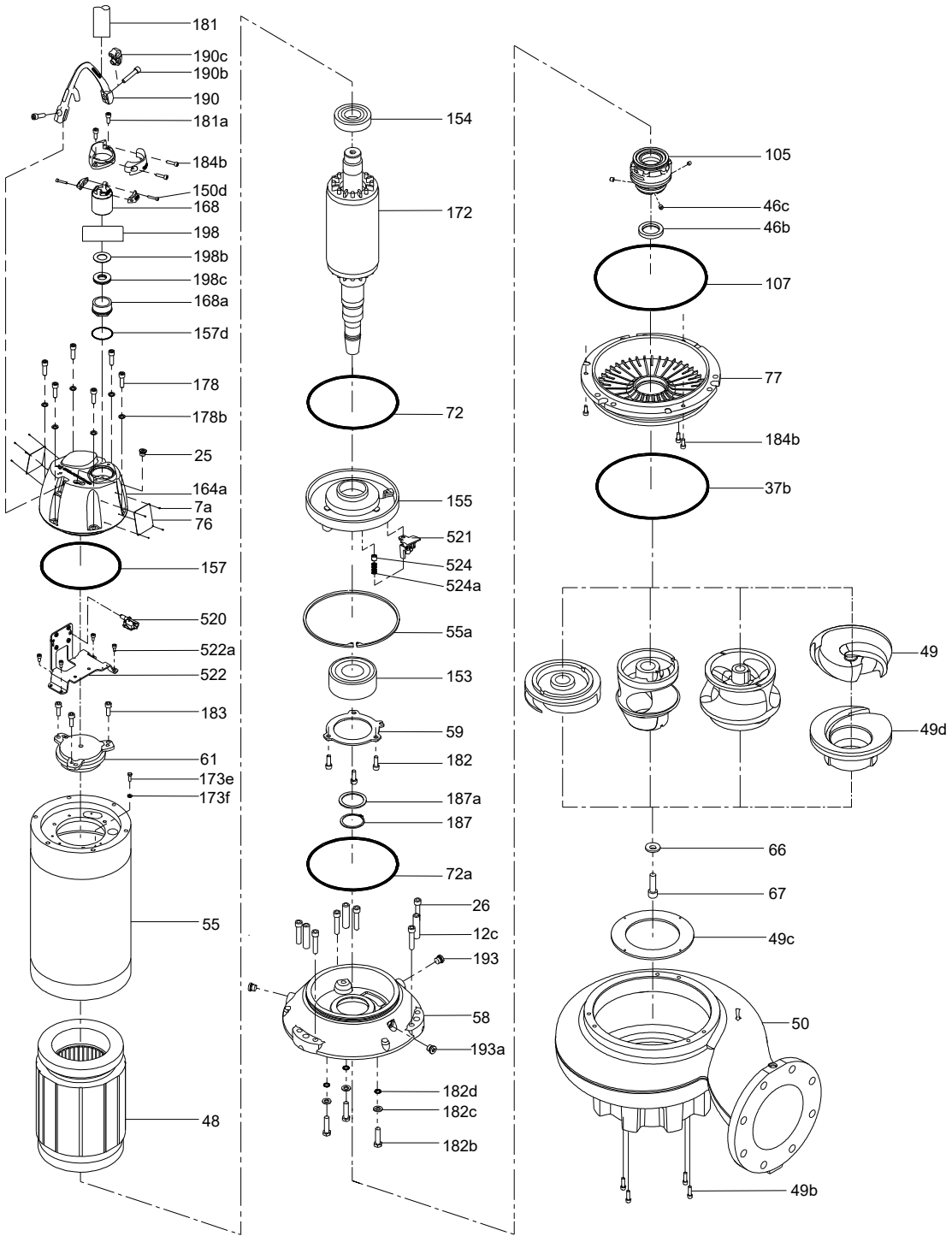
Related information

Installation on vertical base stand
Installation on concrete foundation
Recommendations for pump foundations

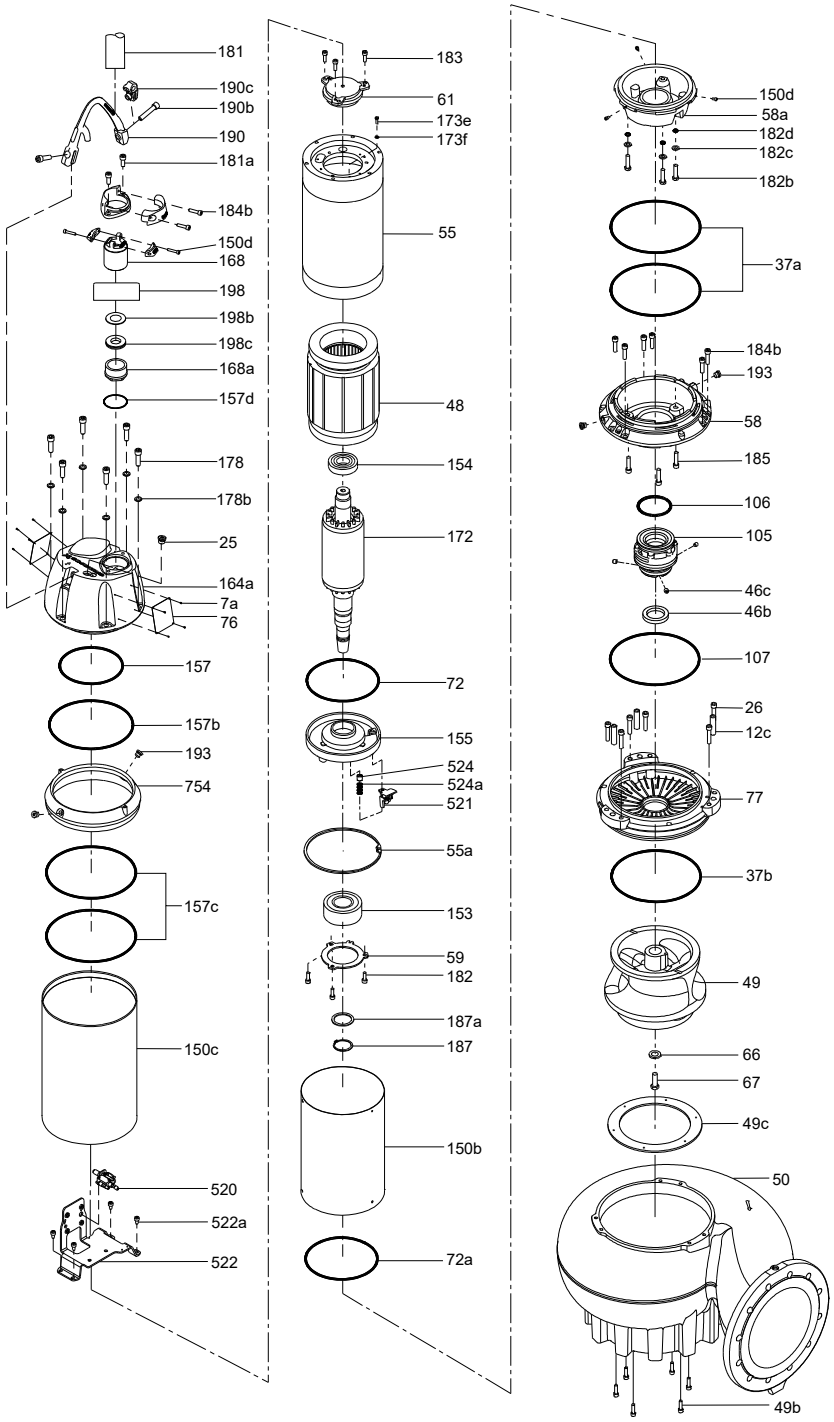
Exploded views



SLV, SL, SL1, SL2 pumps, 2-4 poles

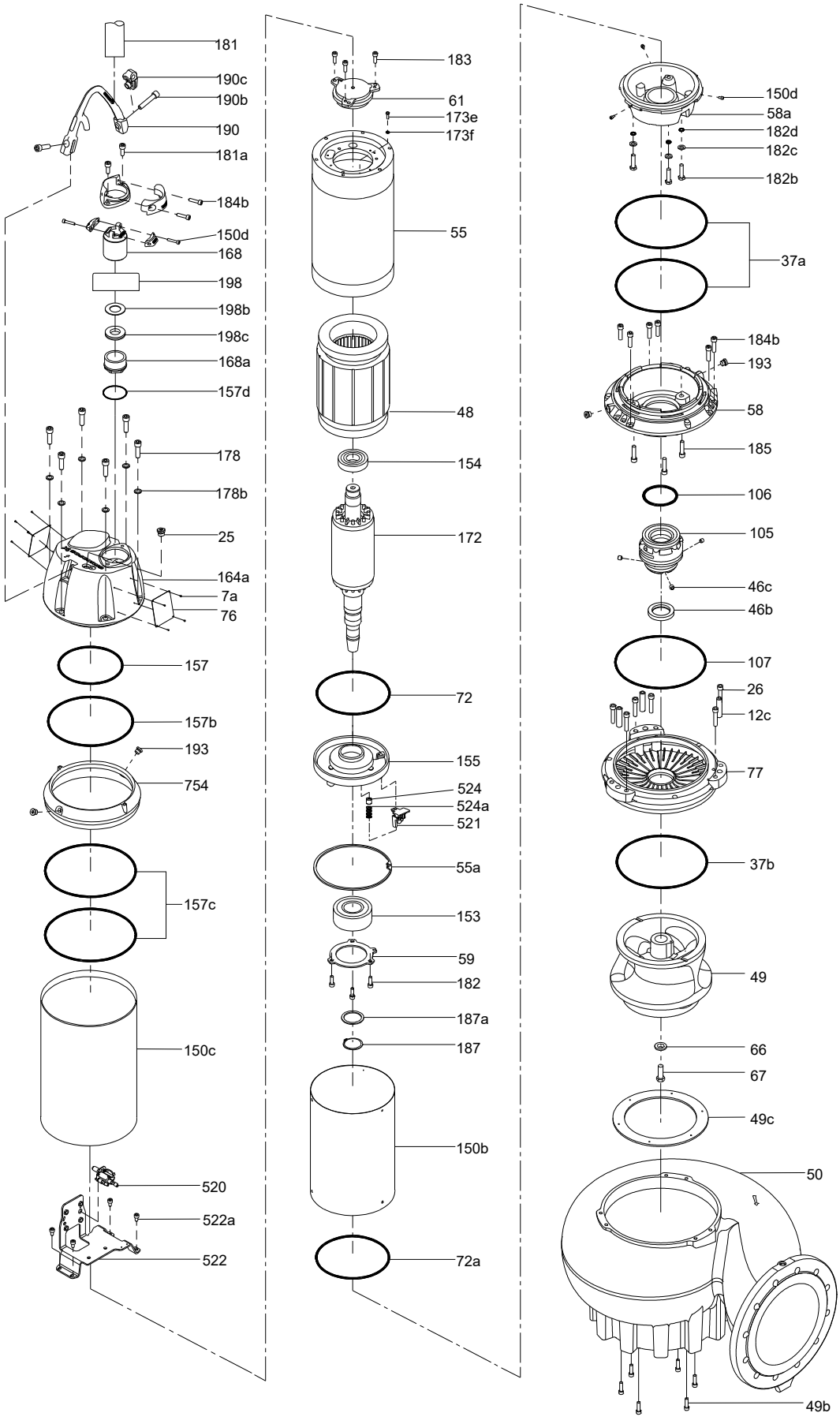


SLV Ex, SL Ex, SL1 Ex, SL2 Ex pumps, 2-4 poles

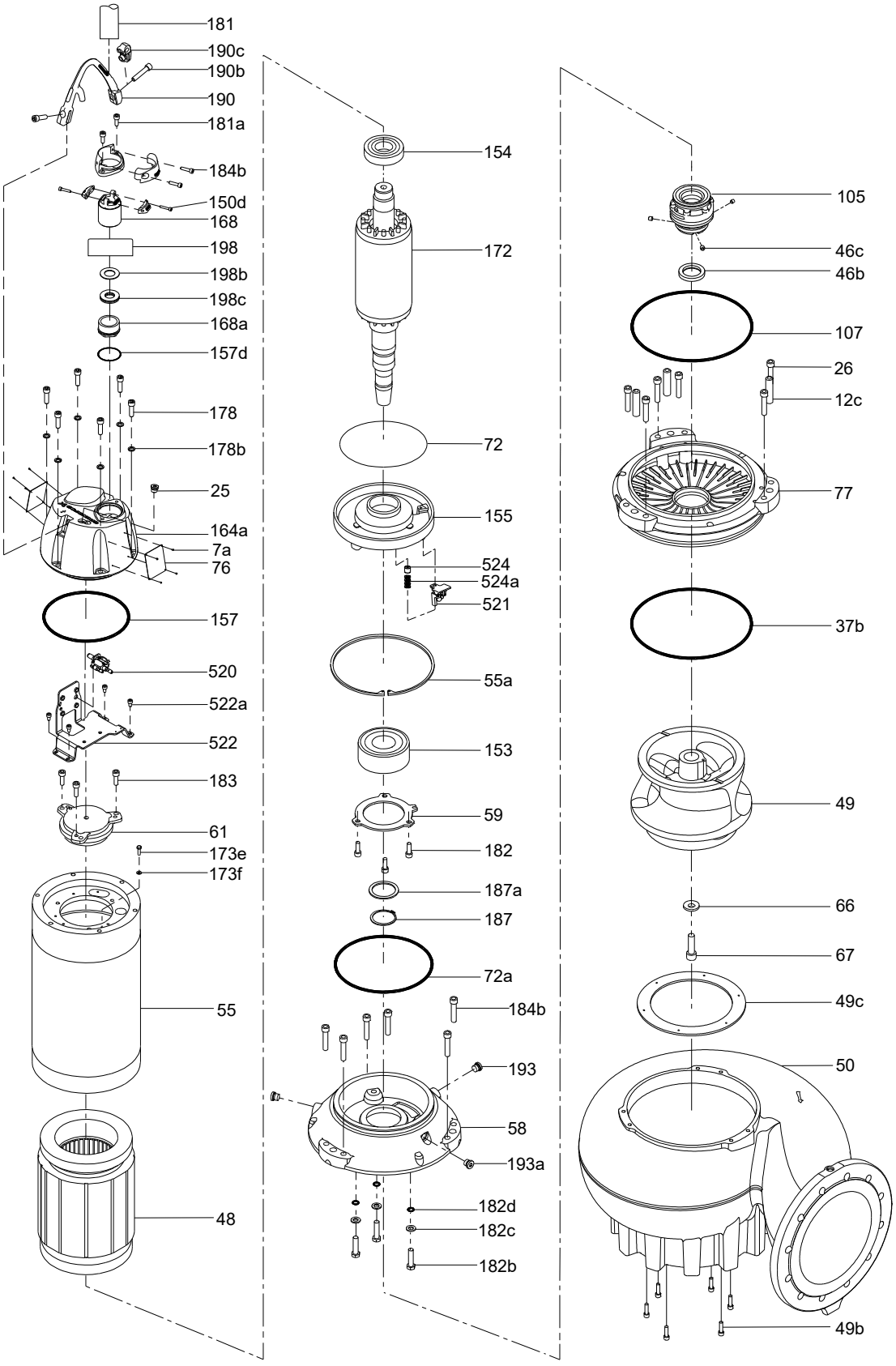


TM075458

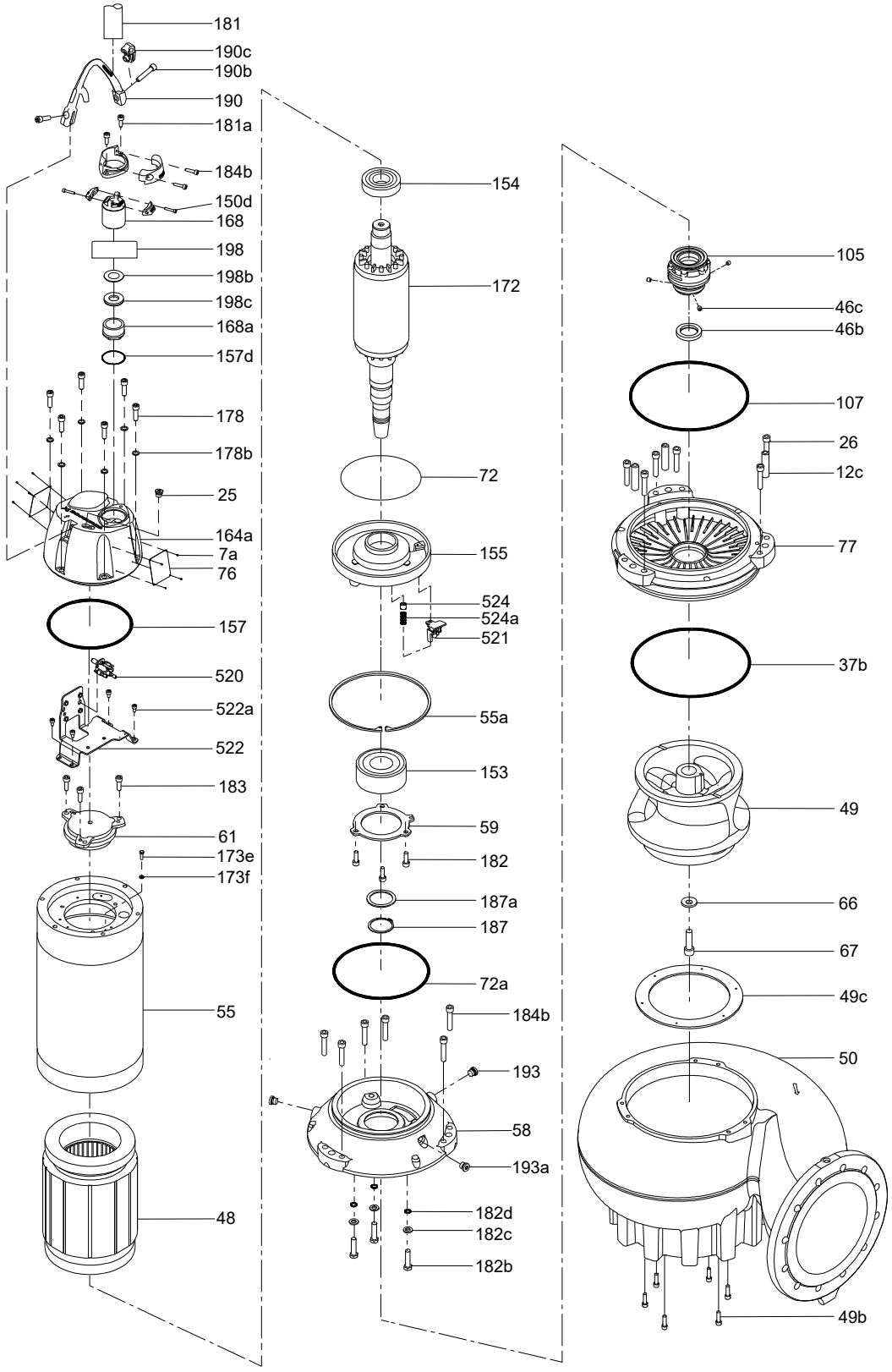
SE2 pumps, 6 poles



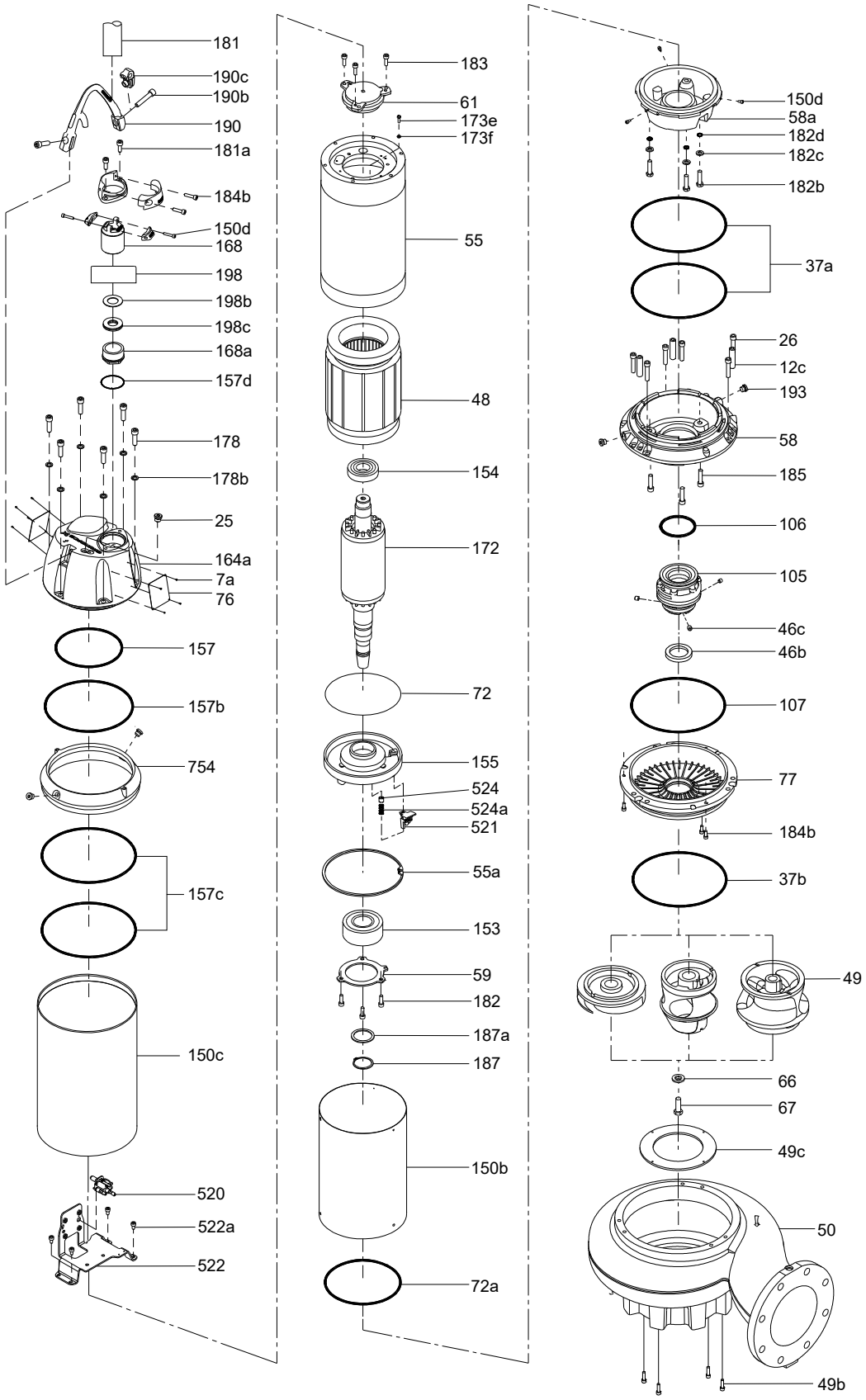
SE2 Ex pumps, 6 poles



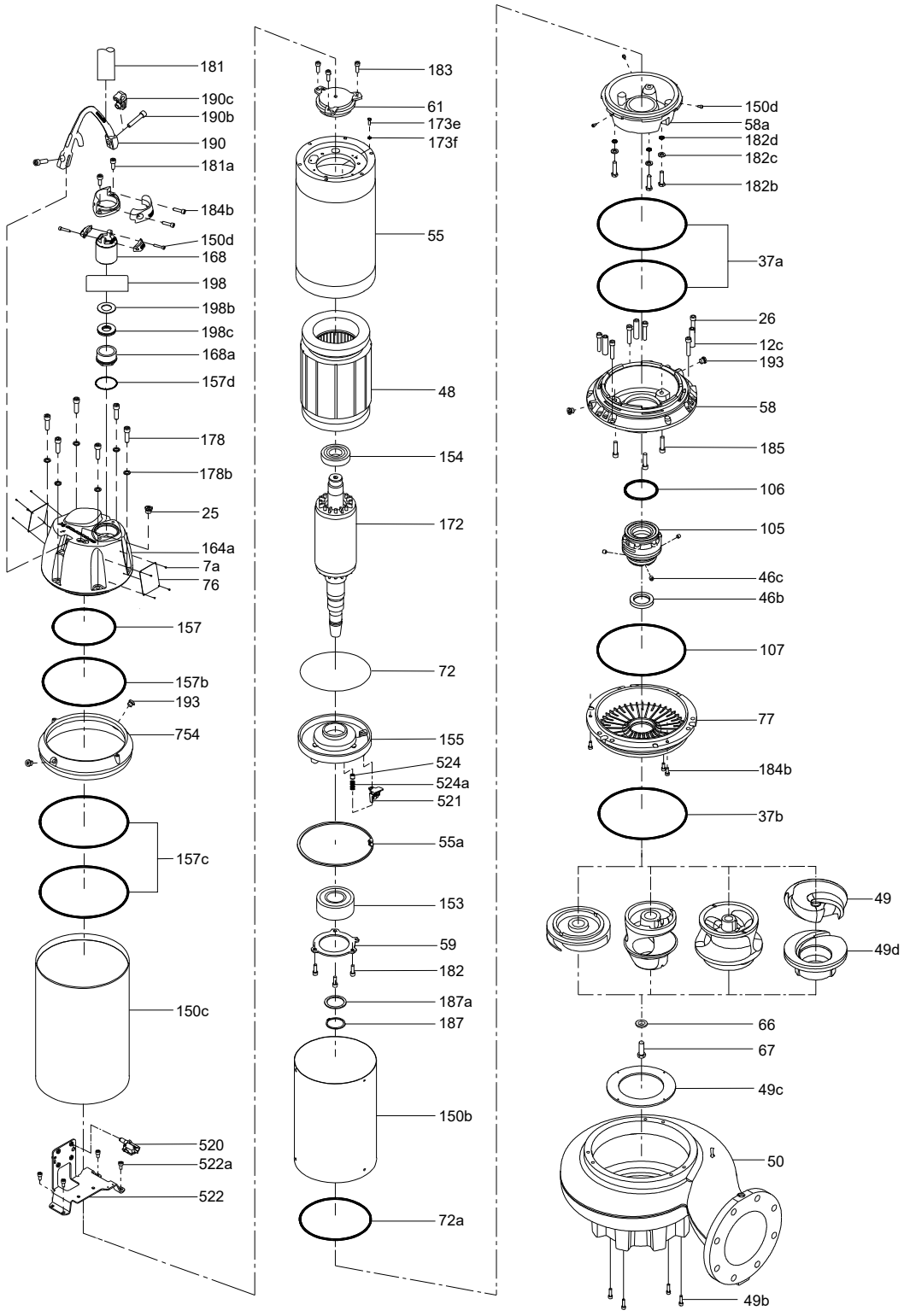
SL2 pumps, 6 poles



SL2 Ex pumps, 6 poles



SEV, SE, SE1, SE2 pumps, 2-4 poles



SEV Ex, SE Ex, SE1 Ex, SE2 Ex pumps, 2-4 poles

Components and material specification

The position numbers in the table below refer to the sectional drawings on the previous pages.

Motor components

Pos.	Component	Material	DIN W.-No./EN standard	AISI/ ASTM
12c	Adjusting screw	Stainless steel	1.4436	316
25	Pressure test plug	Stainless steel	1.4436	316
25a	Screw	Stainless steel	1.4436	316
25b	Lock washer	Stainless steel	1.4436	316
26	Screw	Stainless steel	1.4436	316
26c	Washer	Stainless steel	DIN 433	
37a	O-ring	NBR rubber		
37b	O-ring	NBR rubber		
46b	Lip seal			
46c	Screw			
48	Stator lamination			
55	Stator housing	Cast iron	EN-JL-1040	ASTM A48 Class 40B
55a	Circlip	DIN 472		
58	Intermediate seal housing (SE) / Upper seal housing	Cast iron	EN-JL-1040	ASTM A48 Class 40B
58a	Upper seal housing cover	Cast iron	EN-JL-1040	ASTM A48 Class 40B
59	Bearing bracket cover	Cast iron	EN-JL-1040	ASTM A48 Class 40B
61	Upper bearing bracket	Cast iron	EN-JL-1040	ASTM A48 Class 40B
66	Impeller washer	Stainless steel	1.4436	316
67	Impeller screw	Stainless steel	1.4436	316
72a	O-ring	NBR rubber		
77	Lower seal housing			
105	Shaft seal cartridge cpl.	SiC/SiC or SiC/carbon A		
106	O-ring for shaft seal			
107	O-ring	NBR rubber		
150b	Inner cooling jacket			
150d	Screw			
150e	Washer	Stainless steel	DIN 433	
153	Ball bearing	Stainless steel		
154	Ball bearing	Stainless steel		
155	Lower bearing bracket	Cast iron	EN-JL-1040	ASTM A48 Class 40B
157	O-ring	NBR rubber		
157b	O-ring	NBR rubber		
157d	O-ring	NBR rubber		
157c	O-ring	NBR rubber		
164a	Motor top cover	Cast iron	EN-JL-1040	ASTM A48 Class 40B
168	Cable entry	PA or cast iron		
168a	Cable entry lower			
168b	Cover for connector			
172	Shaft with rotor	Stainless steel	1.4462	UNS31803
173e	Screw	Stainless steel	1.4436	316
173f	Spring washer	Stainless steel	1.4436	316
173g	External ground connector	Stainless steel	1.4436	316
176a	Terminal block			
176c	Plug housing			
178	Screw	Stainless steel	1.4436	316
178b	Washer	Stainless steel	DIN 433	
181a	Screw	Stainless steel	1.4436	316
181	Cable			
181b	EMC cable/shield			
182	Screw	Stainless steel	1.4436	316
182b	Hexagon socket head cap screw	Stainless steel	1.4436	316
182c	Washer			
182d	O-ring			
183	Screw			
184b	Screw	Stainless steel	1.4436	316
184c	Washer	Stainless steel	DIN 433	
185	Screw			
187	Circlip			
187a	Washer	Stainless steel	1.4436	316
190b	Screw	Stainless steel	1.4408	CF8M
190	Lifting bracket	Stainless steel	1.4408	CF8M
193	Plug	Stainless steel	1.4408	CF8M
198	Rubber seal			
198b	Washer			
198a	Washer			
198c	Disc spring			
520a	Screw	Stainless steel	1.4436	316
520	Moisture switch, top			
520c	Screw			
521	Level switch			
521a	Washer	Zn DIN 127		
521b	Screw			
522	Bracket for moisture switch			
522b	Washer			
522c	Washer lock			
524	Rubber bush			
524a	Disc spring			
754	Cooling jacket ring			

Material declaration:

- Grey cast iron is manufactured according to EN 1561:1997.
- Cast stainless steel is manufactured according to EN 10283:2010.
- Conversion to other standards such as AISI/ASTM is normative, and products are not manufactured according to these.

Pump components

The position numbers in the table below refer to the sectional drawings on the previous pages.

Pos.	Component	Material	DIN W.-No./EN standard	AISI/ ASTM
7a	Rivet			
12c	Adjusting screw	Stainless steel	1.4436	316
26	Screw	Stainless steel	1.4436	316
37	O-ring	NBR rubber		
37b	O-ring	NBR rubber		
49	Impeller (closed S-tube®)	Cast iron	EN-GJL-250	A48 35B
		Stainless steel	1.4408	A351 CF8M
			1.4517	316
	Impeller (open S-tube®)	Cast iron	EN-GJL-250	A48 35B
		Stainless steel	1.4408	A351 CF8M
			1.4517	316
		White iron	EN 12513 EN-GJN-HB555 (XCr18)	A532 Class II B
	Impeller (SuperVortex)	Cast iron	EN-GJS-500-7	A536 grade 70-50-05
		Stainless steel	1.4408	A351 CF8M
			1.4517	316
49b	Screw			
49c	Wear ring	Carbon steel		
49d	Suction cover	Cast iron	EN-GJL-250	A48 35B
		Stainless steel	1.4408	A351 CF8M
		White iron	EN 12513 EN-GJN-HB555 (XCr18)	A532 Class II B
50	Pump housing	Cast iron	EN-JL-1040	ASTM A48 Class 40B
66	Impeller washer	Stainless steel	1.4436	316
67	Impeller screw	Stainless steel	1.4436	316
76	Nameplate			
150c	Outer cooling jacket	Stainless steel	1.4301	304
494	Plug	Stainless steel	1.4436	316

Material declaration:

- Grey cast iron is manufactured according to EN 1561:1997.
- Cast stainless steel is manufactured according to EN 10283:2010.
- Conversion to other standards such as AISI/ASTM is normative, and products are not manufactured according to these.

Accessories

Pos.	Component	Material	DIN W.-No./EN standard	AISI/ ASTM
487	Base stand, horizontal	Galvanised steel		
701 [5]	Auto-coupling base unit	Cast iron or stainless steel		
702	Guide-rail bracket	Cast iron or stainless steel		
703 [5]	Guide claw	Cast iron or stainless steel		
704	Rubber seal	Neoprene 60		
705	Screw	Steel 8.8	DN 933	316
731	Base stand, vertical	Galvanised steel		
732	Screw for base stand	Steel 8.8	DN 933	316
733	Flange seal, upper, for base stand			
734	Flange seal, lower, for base stand			
749	Bend	Cast iron		
761	Hose connector	Cast iron or stainless steel		
762	Base plate			
762a	Screw for hose connector [6] or base plate connector [7]	Steel 8.8	DN 933	316
763	Flange seal for hose connector			

5) Stainless steel available for DN 80 to DN 150.

6) For dry, vertical installation on vertical stand.

7) For dry, vertical installation on concrete base.

7. Product description

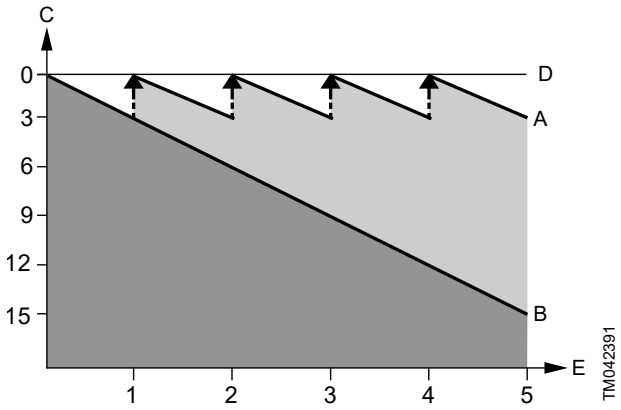
Features

SmartTrim

All Grundfos heavy-duty S-tube® impeller pumps are equipped with the SmartTrim impeller clearance adjustment system. This enables easy restoration of the factory-set impeller clearance and ensures peak pumping efficiency.

Only the adjustment screws on the exterior of the impeller housing need to be tightened, which can be done quickly and easily on-site, without dismantling the pump or using special tools.

For a video presenting the SmartTrim assembly, click here. (https://youtu.be/QZ6AodFNPBM)



Pos.	Description
A	With Grundfos SmartTrim impeller clearance adjustment system
B	Without impeller clearance adjustment system
C	Efficiency drop in percent (%)
D	Factory-set impeller clearance
E	Years

SmartSeal

The Grundfos SmartSeal auto-coupling gasket mounted on the pump outlet flange provides a completely leakproof connection between the pump and the base unit of the auto coupling. This optimises the efficiency of the entire pumping system and keeps operating costs at a minimum.

Ball bearings

The bearings are greased for life.

Main bearing: Double-row angular sealed contact ball bearing.

Support bearing: Single-row deep-groove ball bearing.

Shaft seal



The shaft seal consists of two mechanical seals and separates the motor from the pumped liquid.

The shaft seal is a cartridge seal for easy service. The combination of the primary and secondary seals in a cartridge results in a shorter assembly length compared to conventional shaft seals. Furthermore, this design minimises the risk of incorrect fitting.

The seal faces of the primary shaft seal are SiC/SiC and the seal faces of the secondary shaft seal are carbon A / ceramic.

Motor

SE and SL 9-30 kW motor components are compatible with the IEC, IE3, and NEMA premium efficiency standards.

The motor is a watertight and enclosed.

insulation class	H (180 °C)
temperature rise class	B (80 K)
enclosure class	IP68

Power cables

Standard (S1BN8-F)

Cable type [mm²]	Outer cable diameter [mm]		Minimum bending radius [mm]
	Min.	Max.	
7 × 4 + 5 × 1.5	21.2	22.8	70
7 × 6 + 5 × 1.5	24.5	26.1	80
7 × 10 + 5 × 1.5	25.2	26.8	110

EMC (S1BC4N8-F)

Cable type [mm²]	Outer cable diameter [mm]		Minimum bending radius [mm]
	Min.	Max.	
3 × 6 + 4 x2.5 + 5 × 0.5	26.3	28.3	90
3 × 10 + 4 × 2.5 +5 × 0.5	26.3	28.3	120
3 × 16 +4 × 4 + 5 × 0.5	26.3	28.3	140

When ordering a pump with an EMC cable, always indicate the main supply voltage as the connections for the correct voltage are placed inside the motor.

The standard cable length is 10 m. Other cable lengths are available on request.

The cable dimension depends on the motor size.

Surface treatment

Grundfos pumps have the following surface treatments:

- cataphoresis treatment of all cast iron parts
- powder painting: NCS 9000N, RAL 9005 (black), gloss code 30, thickness average 150 µm.

Motor liquid

The motor is factory-filled with Grundfos motor liquid SML-3, which is frostproof up to -20 °C.

Specification of SML-3:

- **Corrosion protection:** Grundfos motor liquid protects metals and alloys in the equipment against all forms of corrosion. The combination of low toxicity and FDA-approved ingredients with a high level of corrosion protection makes Grundfos motor liquid unique in the market. The anti-corrosion performance is demonstrated according to ASTM D 1384.
- **Compatibility and miscibility:** Grundfos motor liquid is compatible with most other heat transfer fluids based on mono-propylene glycol. Grundfos motor liquid must only be mixed with clean water. The product can be delivered as a dilution mixed with the proper amount of purified water.
- **Toxicity and safety:** Grundfos motor liquid consists of FDA-approved components for heat transfer fluids with incidental food contact. Neither the Grundfos motor liquid concentrate nor any dilution is classified according to the European Dangerous Preparations Directive.

Cable entry

The watertight, stainless-steel cable entry has soft shape and sealing rings to prevent cable damage or leaks. The cable entry has a user-friendly design, which allows cable disconnection in a fast and easy way.

Sensors

SE and SL pumps are available with built-in sensors.

Built-in sensors greatly reduce the risk of downtime and severe damage to the pump.

Sensors can be used for different purposes, depending on pump type and connection. For instance, moisture switches must cut out power in case of water penetrating through the cable entry, cable or shaft seal, while bearing temperature sensors are used for monitoring the temperatures in the bearings.

The standard built-in sensors and the optional sensors are indicated in the table below.

	Standard	Sensor version 1	Sensor version 2	Standard Ex	Sensor version 1 Ex	Sensor version 2 Ex
Thermal switch or PTC in windings	•	•	•	•	•	•
Moisture switch in motor top compartment	•	•	•	•	•	•
Level switch in leakage chamber	•	•	•	•	•	•
Pt1000 in motor winding		•	•		•	•
Pt1000 in upper bearing			•			•
Pt1000 in lower bearing			•			•
PVS3 vibration sensor			•			•
SM 113 sensor module [8)]			• [8)]			• [8)]
IO 113 module [9)]			• [9)]			• [9)]

8) For pumps fitted with two power cables, the SM 113 sensor module must be ordered separately and installed in the control cabinet.

9) The IO 113 with communication functionality must be chosen and ordered separately.

Moisture and Level switches

Non-Ex version:

A moisture switch and a level switch are mounted in a non-Ex pump. The moisture switch is placed in the top cover and the level switch is in the leakage chamber above the shaft seal.

Ex version:

A moisture switch and a level switch are mounted in an Ex pump. The moisture switch is placed in the top cover and the level switch is in the leakage chamber. See wiring diagrams in the Appendix.

In case of Ex pumps, wire all switches from the pump through the intrinsically safe apparatus to the IO 113 module. Intrinsically safe apparatus is not mandatory for non-Ex pumps. In case of using the SM 113 module, the IO 113 module must be used. If moisture or a leakage is detected, they break the electric circuit. This generates both a hardware and a software alarm in IO 113, and the alarm relay opens. If the pump is connected to Dedicated Controls, the IO 351B must be used.

When not used with the SM 113, the IO 113 can be replaced with another device, however, the proper functioning of thermal switches/PTC thermistors, and moisture/level switches with the pump controller to stop the pump needs to be ensured to maintain Ex safety.

Moisture- and level switches are motor protection devices protecting the motor from moisture or leakage. The moisture switch is non-reversing, and it must be replaced after being released. The level switch does not have to be replaced after being released.

The moisture- and level switches are to be connected to the safety circuit of the separate pump controller.

Level and moisture switch, PTC, and PTO must be installed with two Intrinsically Safe Apparatuses and must meet the following:

- Apparatus must be Ex approved [10)]
- V_{max} or U_i [11)] > V_{oc},V_t, or U_0 [12)]
- I_{max} or I_i [13)] ≥ I_{sc}, I_t, or I_0 [14)]
- P_{max} or P_i [15)] ≥ P_0 [16)]
- C_0 [17)] ≥ C_i + C_{cable} [18)]
- L_0 [19)] ≥ L_i + L_{cable} [20)]

10) The Ex approved barriers are either a multiple channel Ex approved barrier having parameters less then those quoted, or a combination of single channel Ex approved barriers for which the combinations of outputs are less than those quoted are nonignition capable for the Class, Division and Group or Class, Zone and Group of use.

11) V_{max} or U_i: Maximum voltage of the equipment in hazardous area. U_i=28 V.

12) V_{oc},V_t, or U_0: Voltage of the associated equipment (barrier itself) located in safe area

13) I_{max} or I_i: Maximum current of the equipment in hazardous area. I_i=299 mA.

14) I_{sc}, I_t, or I_0: Current of the associated equipment (barrier itself) located in safe area

15) P_{max} or P_i: Maximum power of the equipment in hazardous area. P_i=8.3 W.

16) P_0: Power of associated equipment (barrier itself) located in safe area

17) C_0: Capacitance of associated equipment (barrier itself) located in safe area

18) C_i + C_{cable}: Maximum capacitance of the equipment (together with cable) in hazardous area. C_i=0 µF.

19) L_0: Inductance of associated equipment (barrier itself) located in safe area

20) L_i + L_{cable}: Maximum inductance of the equipment (together with cable) in hazardous area. L_i=0 mH.

Intrinsically Safe Apparatus Selection

The boundary conditions for choosing the most suitable intrinsically safe apparatus are the following:

Minimum limitation:

- U_0 is greater than the voltage level provided by the used IO module

Zener barrier with positive polarity type is recommended when IO 113 or IO 351B is the supply module.

Use a multimeter to confirm the moisture/level switch circuit and the PTO/PTC circuit, to connect into the Zener barriers.

- Maximum resistance of PTO and common branch is 3 Ω
- Maximum resistance of PTC and common branch is 500 Ω
- Maximum resistance of moisture/level switch and common branch is 3 Ω.

IO 113 with communication functionality



The IO 113 with communication functionality is a protection module for Grundfos wastewater pumps.

The IO 113 with communication functionality has inputs for digital and analog sensors and can stop the pump if a sensor indicates a fault.

The IO 113 with communication functionality is connected to the Dedicated Controls (DC) system and allows advanced monitoring functions:

- motor temperature
- moisture in motor
- insulation resistance.

SM 113 sensor module



The SM 113 sensor module is used for collection and transfer of sensor data. The SM 113 sensor module works together with the IO 113 through power line communication using the Grundfos GENIbus protocol.

The SM 113 sensor module can collect data from:

- 3 current sensors, 4-20 mA
- 3 Pt1000 thermal sensors
- 1 PTC thermal sensor
- 1 digital input.

PVS 3 (pump vibration sensor)



TM077106

The pump vibration sensor monitors the vibration level of the pump in three axes. A change in the vibration level indicates an irregular situation, which can be caused by a clogged impeller, worn bearings or a closed outlet valve. Service inspection should be carried out to protect the pump and the pipe system from damage.

MP 204



MP 204 can be used as a stand-alone motor protector or it can be incorporated in a Grundfos Dedicated Controls system, where it functions as a motor protector. The pump is protected secondarily by measuring the temperature with a Pt100 sensor and a PTC sensor or thermal switch.

Customised sensor options

1. Each motor winding has three built-in thermistors, which can be used instead of the normal thermal switches. If used, a relay is needed to disconnect power in case of excess temperature.
2. The stator temperature sensor is an analogue sensor. Especially for versions without a cooling jacket, a temperature sensor in the stator can be used to give a warning before the stator/bearings or other parts have reached a harmful temperature and before the built-in thermal protection cuts-out the motor on overtemperature. In this way, the pump can operate with the stator housing above liquid level, for short periods and with long intervals.
3. The upper and lower bearing temperature are monitored by PT1000 type sensors.
4. The vibration level of the pump is monitored by a Grundfos PVS3 sensor (4-20 mA analogue sensor). A change in the vibration level indicates an abnormal situation. This can be caused by a clogged impeller, worn bearings or a closed outlet. It indicates that service inspection must be carried out to protect the pump or the pipe system from being damaged.
5. The winding resistance can be measured through the Grundfos IO 113 module with communication functionality.

Testing

All pumps are tested before leaving the factory. The factory test report is based on ISO 9906:2012, 3B. Test reports can be ordered directly together with the pump or can be ordered separately based on the pump serial number.

Other tests or third party inspection certificates are available on request.

Related information

Variants of customised pumps

Operating conditions

SL, SL1, SL2 and SLV pumps without cooling jacket, submerged installation

- Continuous operation: The pump is completely submerged to the top of the motor. See also Pump installation dimensions.
- Intermittent operation: The pump is submerged to the middle of the motor and with short periods of operation down to the top of the pump housing (maximum 20 starts per hour). See also Pump installation dimensions.

Note: Explosion-proof pumps must always be completely submerged.

SL pump installation types

Grundfos SL pumps can be installed vertically and submerged permanently on an auto-coupling system.

SE, SE1, SE2 and SEV pumps with cooling jacket, submerged or dry installation

- continuous and intermittent operation
- maximum 20 starts per hour

See also Pump installation dimensions.

SE pump installation types

Grundfos SE pumps can be installed:

- vertically and submerged permanently on an auto-coupling system
- vertically and dry, on a base stand (up to 15 kW) or on a concrete foundation (above 15 kW)
- horizontally and dry, on a horizontal base stand.

Frequency converter, CUE



TM084173

Grundfos SE/SL pumps are designed for speed-controlled operation to keep the energy consumption at a minimum.

To avoid the risk of sedimentation in the pipes, operate the speed-controlled pump within a speed range of 50 % to 100 % but never below 2.3 ft/s (0.7 m/s) for horizontal and 3.3 ft/s (1 m/s) for vertical piping.

A frequency converter that is connected to a wastewater pump must be able to deliver a high and constant start torque.

Grundfos offers a range of dedicated Grundfos CUE frequency converters up to 335 Hp designed to run wastewater pumps.

For more information, see the installation and operating instructions of the selected frequency converter at www.grundfos.com (Grundfos online selection tool).

Pumped liquids

- pH value: 6.5 to 14
- For fluctuating pH values, the range is pH 4 to 14.
- Liquid temperature: 32 to 104 °F (0 to 40 °C).

When pumping liquids with a density and/or a kinematic viscosity higher than water, use motors with correspondingly higher outputs.

For short periods (maximum 3 minutes), a temperature of up to 140 °F (60 °C) is permissible.

Sound pressure

The sound pressure level of the pump is lower than 70 dB.

Motor range

Shaft power [kW]	Number of poles
10	4
11	4, 6
13	2, 4, 6
15	2, 4
16	6
17	2, 4
18	6
18.5	2, 4
20	2, 4
22	2, 4, 6
24	2
26.5	2

Explosion-proof pumps

Use explosion-proof pumps in potentially explosive environments.

When an explosion-proof pump is operated by a frequency converter, the explosion protection classification of the pumps is Ex db IIB T3 Gb.

For a directly driven explosion-proof pumps, the explosion protection classification of the pumps is Ex db IIB T4 Gb.

All installations must be approved by the local authorities.

DC and LC control units

Grundfos offers dedicated pump controllers for monitoring liquid levels in the wastewater collecting tanks to ensure correct operation and the protection of the pumps.

The following Grundfos pump controllers are available:

- Grundfos Dedicated Controls (DC)
- Grundfos LC controllers.

Grundfos DC Controllers



TM084174

Grundfos Dedicated Controls control cabinet

Grundfos Dedicated Controls (DC) is a control system designed for installation in municipal wastewater transport, commercial buildings or network pumping stations with up to six wastewater pumps and an optional mixer or a flush valve.

Advanced control and data communication are possible with the Grundfos Dedicated Controls system. The control cabinets are delivered with a built-in main switch and thermal-magnetic circuit breaker.

Features and benefits:

- advanced Flow Calculation
- automatic energy optimization
- easy installation and configuration
- configuration wizard
- electrical overview
- advanced data communication
- advanced alarm and warning priority

- several languages
- daily emptying
- mixer control or flush valve
- user-defined functions
- anti-blocking
- start level variation
- advanced pump alternation with pump groups
- SMS scheduling
- communication to SCADA, BMS, GRM or cell phone.

Dedicated Controls is ordered either with or without a built-in communication interface module (CIM).

The communication module enables the possibility for fieldbus protocol (e.g. PROFIBUS DP, Modbus RTU and PROFINET IO/Modbus TCP) and the communication line.

For further information about Grundfos Dedicated Controls, see www.grundfos.com (Grundfos online selection tool):

- Grundfos Dedicated Controls, brochure http://net.grundfos.com/qr/i/96925597
- Grundfos iSolutions, brochure http://net.grundfos.com/qr/i/99249771
- Grundfos Controls Guide, product guide http://net.grundfos.com/qr/i/96932422
- Grundfos Dedicated Controls, data booklet http://net.grundfos.com/qr/i/96932407.

Additional features, CUE or VFD

The Grundfos variable frequency drive (CUE) or a general variable frequency drive (VFD) offers better pump protection and a steadier flow through the pipe system.

Features and benefits:

- anti-blocking
- automatic energy optimization
- specific-energy test
- output frequency
- monitoring of:
  - voltage[21)]
  - current
  - phase sequence[21)]
  - power[21)]
  - energy[21)]
  - torque[21)]
- reverse start[22)]
- run flushing
- stop flushing
- PID control.

21) These functions are only available with a Grundfos CUE.

22) Reversing at full speed is not recommended. When reduced reverse operation settings are applied, make sure that constant torque is enabled in VFD (Grundfos CUE, Siemens Simatic, ABB, Schneider Electric) to have maximum torque available when reversing.

Grundfos LC controllers

The LC 231 pump controller is designed for level control, monitoring and protection of Grundfos pumping stations featuring one or two pumps, starting direct-on-line. The LC 231 controller is built into a polymer cabinet.

The LC 241 is a modular pump controller that has a metal or polymer cabinet and can be customized.

The LC 231 and 241 controllers are designed for level control, monitoring and protection of Grundfos pumping stations featuring one or two pumps, starting direct-on-line with 0-23 A, star-delta with 0-59 A or soft starter with 0-72 A.

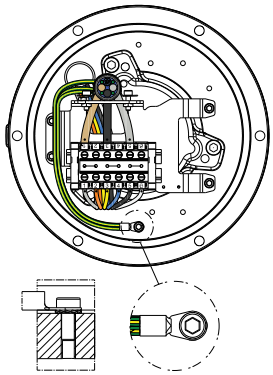


TM074000

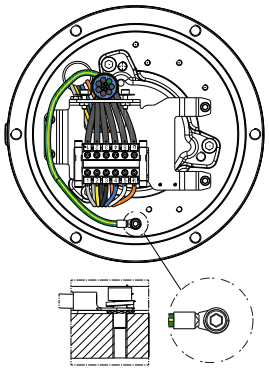
LC 231 and LC 241 controller units

Wiring diagrams

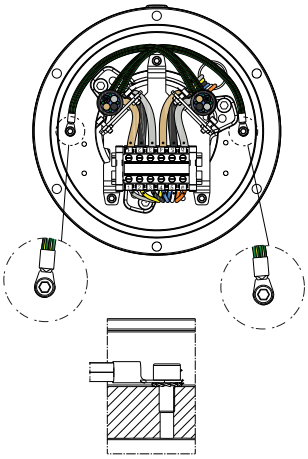
Cable connection



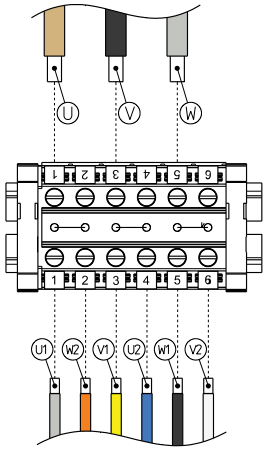
Earthing screw, single cable

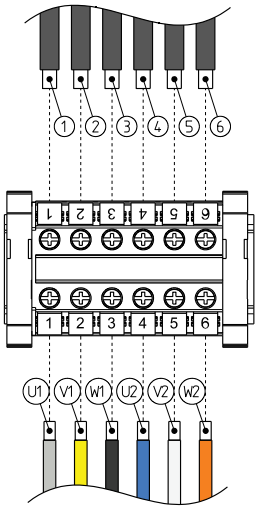


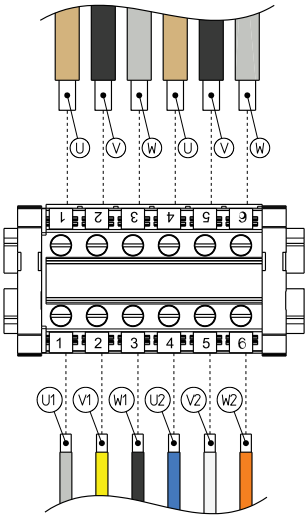
Earthing screw, dual cable



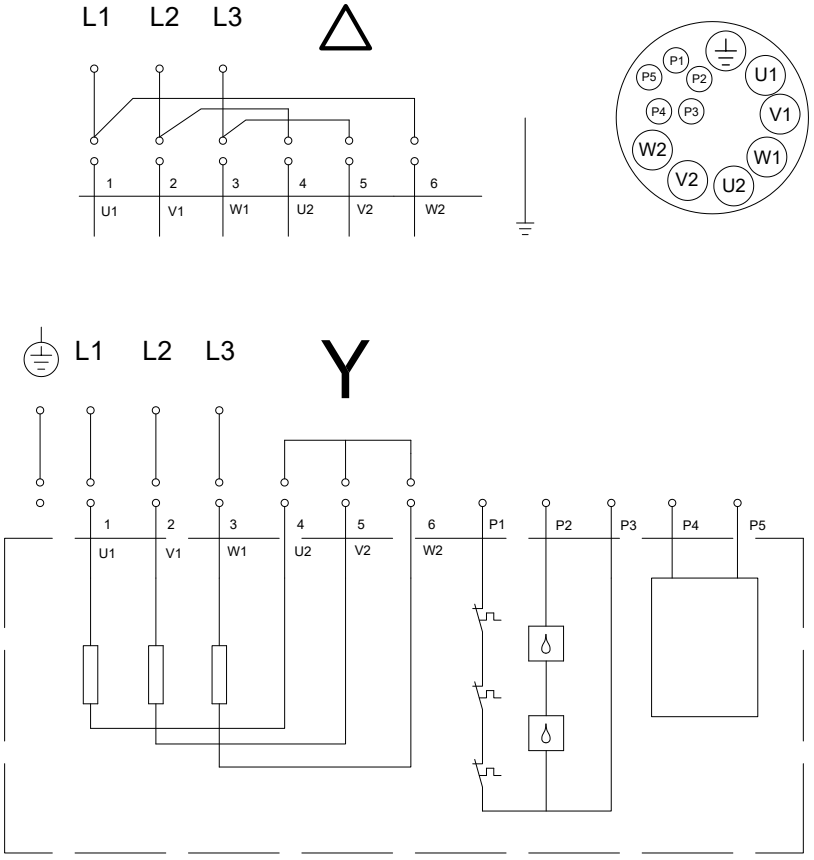
Earthing screw, dual cable EMC







Single-cable, star-delta connection

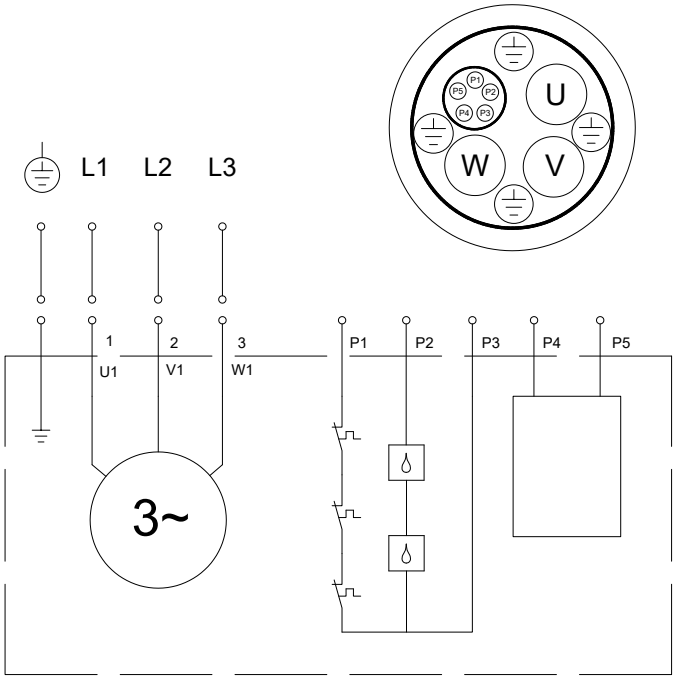


12-wire, star-delta connections (Y/D)

Pos.	Description
O	Optional

EMC single-cable or double-cable

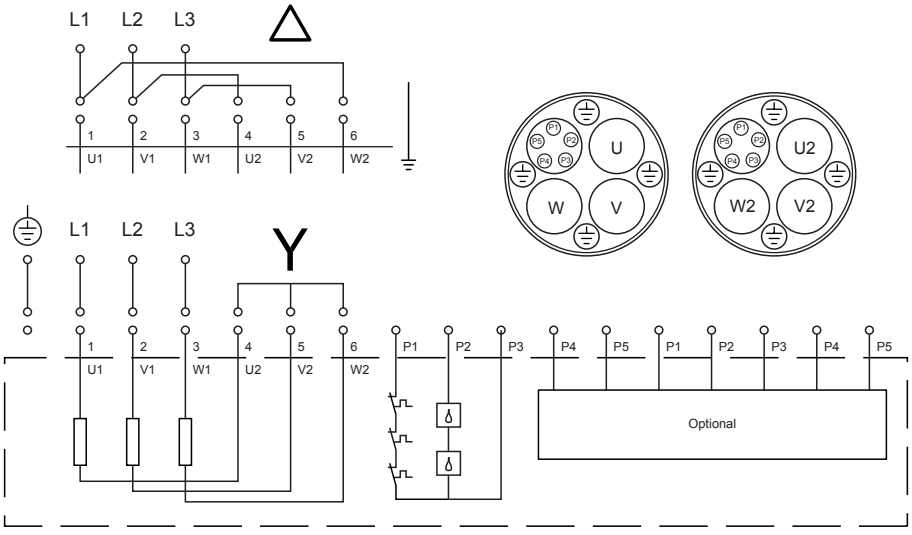
Always indicate the main supply voltage when ordering the pump as it is connected at the factory according to this information.



TM052694

8-wire, EMC cable

Pos.	Description
O	Optional



TM074220

18-wire / EMC double-cable

Sensor wiring

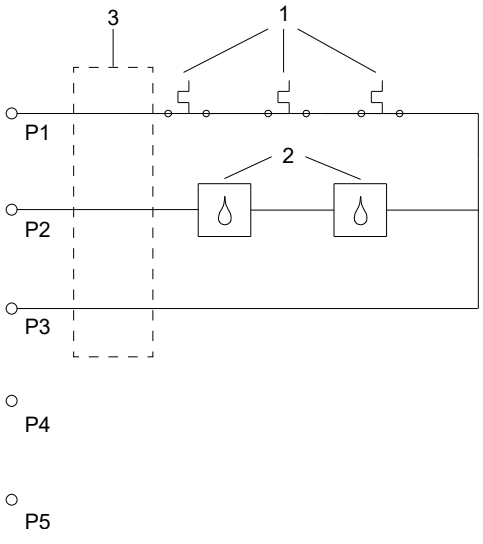
Sensor wiring schematics for single-cable pumps

For sensor versions, see Features.

Related information

Features

Standard, single cable



TM052687

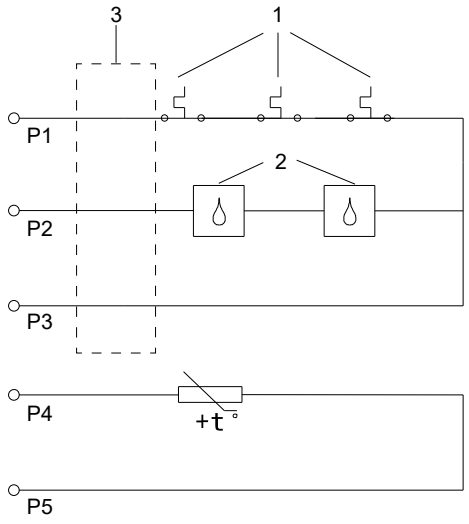
Standard and Standard Ex, single cable

Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
3	Intrinsically Safe Apparatuses [23] and Thermistor Relay [24]

[23] For non-Ex products it is optional.

[24] In case of pumps installed with PTC.

Sensor version 1, single cable



TM052690

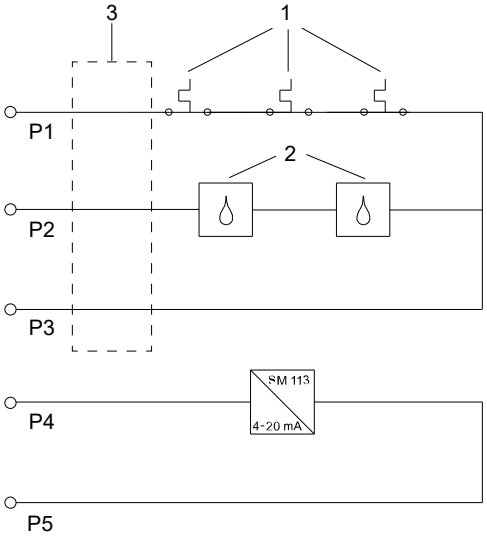
Sensor version 1 and Sensor version 1 Ex, single cable

Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
3	Intrinsically Safe Apparatuses [25] and Thermistor Relay [26]

[25] For non-Ex products it is optional.

[26] In case of pumps installed with PTC.

Sensor version 2, single cable



TM052692

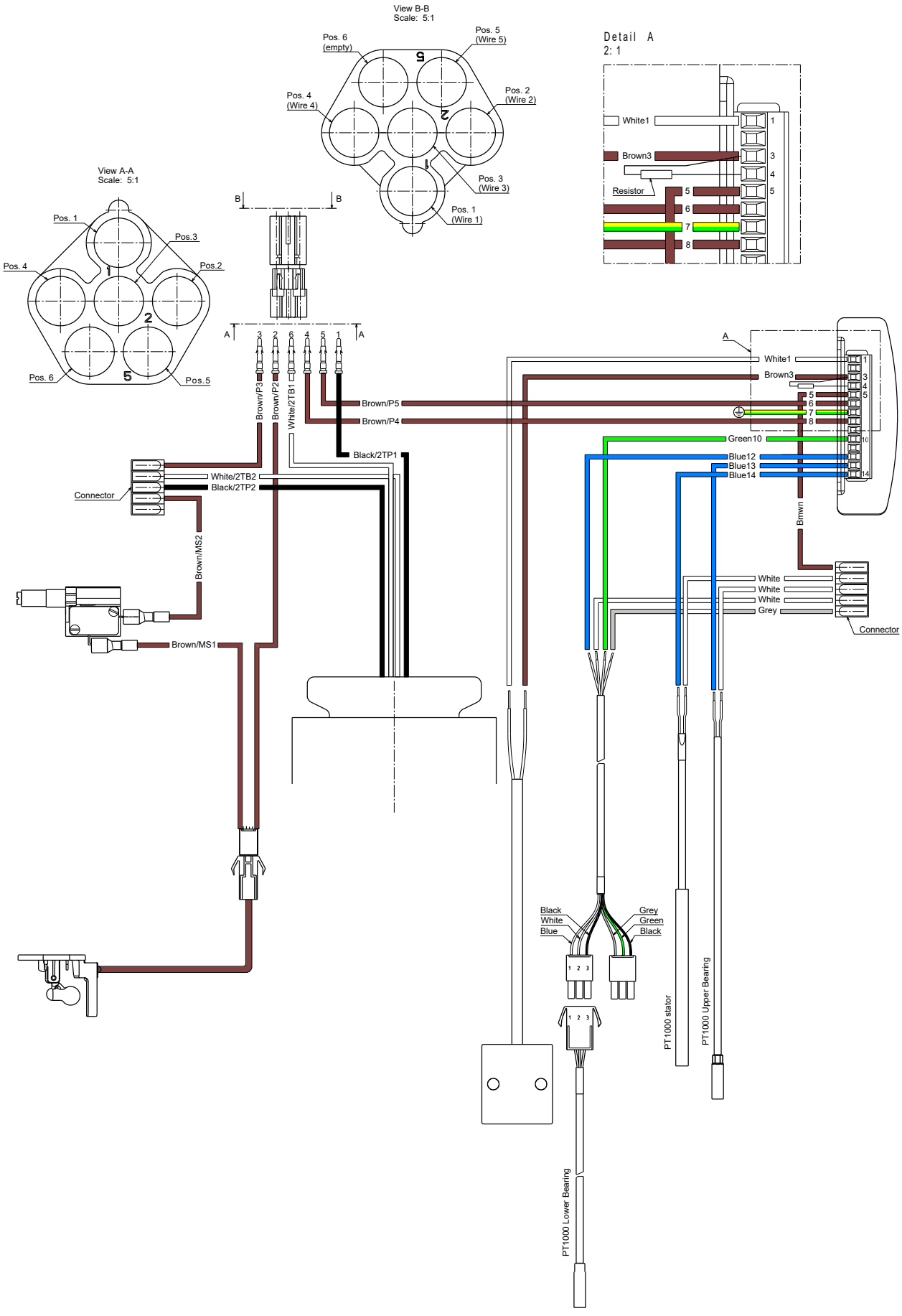
Sensor version 2 and Sensor version 2 Ex, single cable

Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
3	Intrinsically Safe Apparatuses [27] and Thermistor Relay [28]

[27] For non-Ex products it is optional.

[28] In case of pumps installed with PTC.

Sensor version 2 Ex PTC single-cable



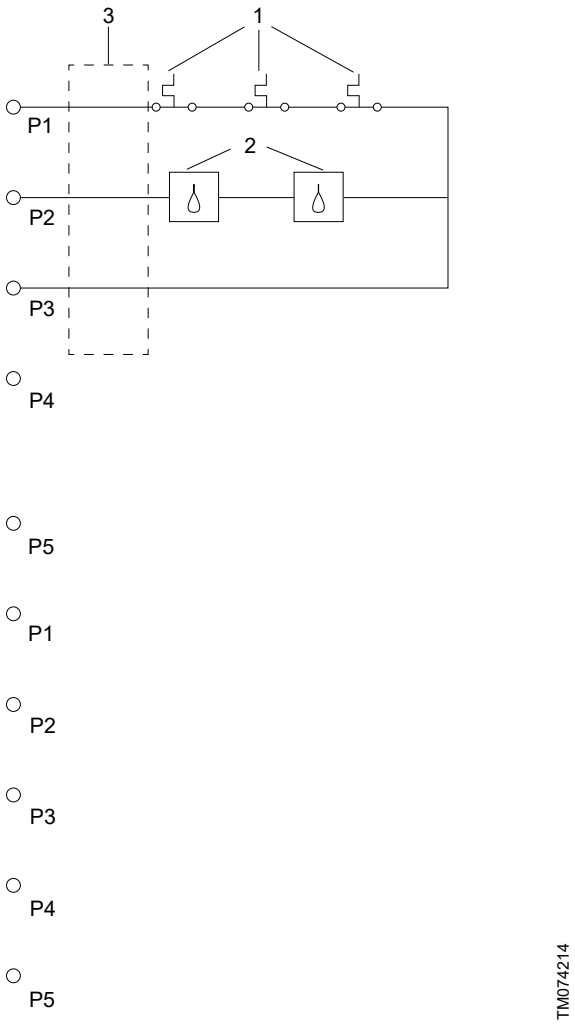
Sensor wiring schematics for double-cable pumps

For sensor versions, see Features.

Related information

Features

Standard, double cable



TM074214

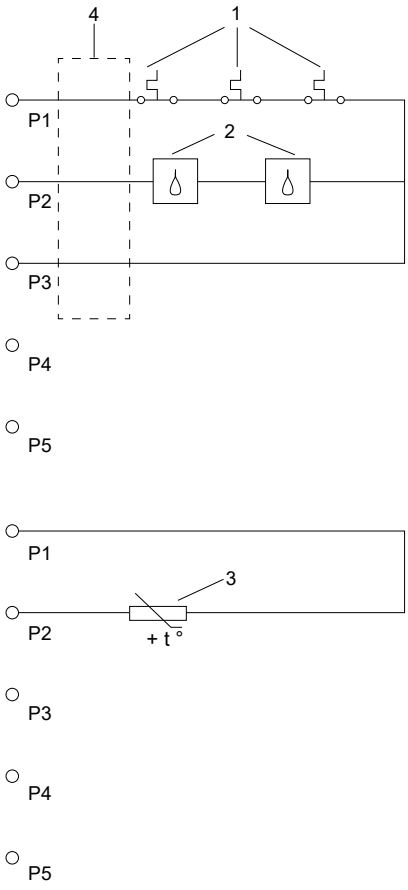
Standard and Standard Ex, double cable

Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
3	Intrinsically Safe Apparatuses [29] and Thermistor Relay [30]

[29] For non-Ex products it is optional.

[30] In case of pumps installed with PTC.

Sensor 1, double cable



TM074218

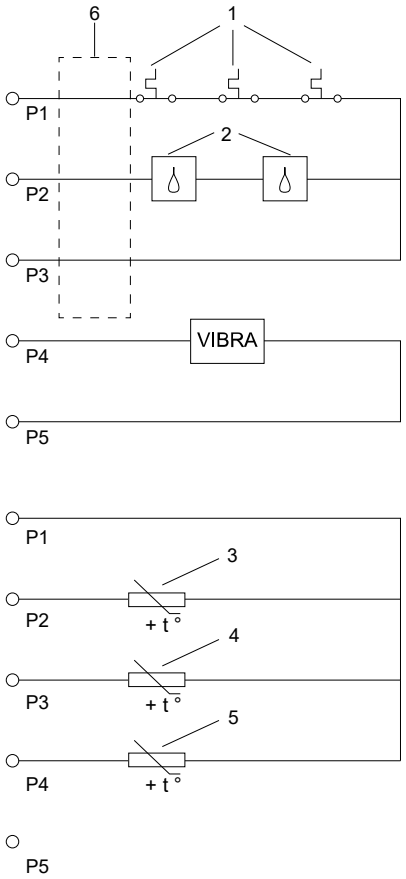
Sensor 1 and Sensor 1 Ex, double cable

Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
3	Pt1000 stator
4	Intrinsically Safe Apparatuses [31] and Thermistor Relay [32]

[31] For non-Ex products it is optional.

[32] In case of pumps installed with PTC.

Sensor 2, double cable



TM074216

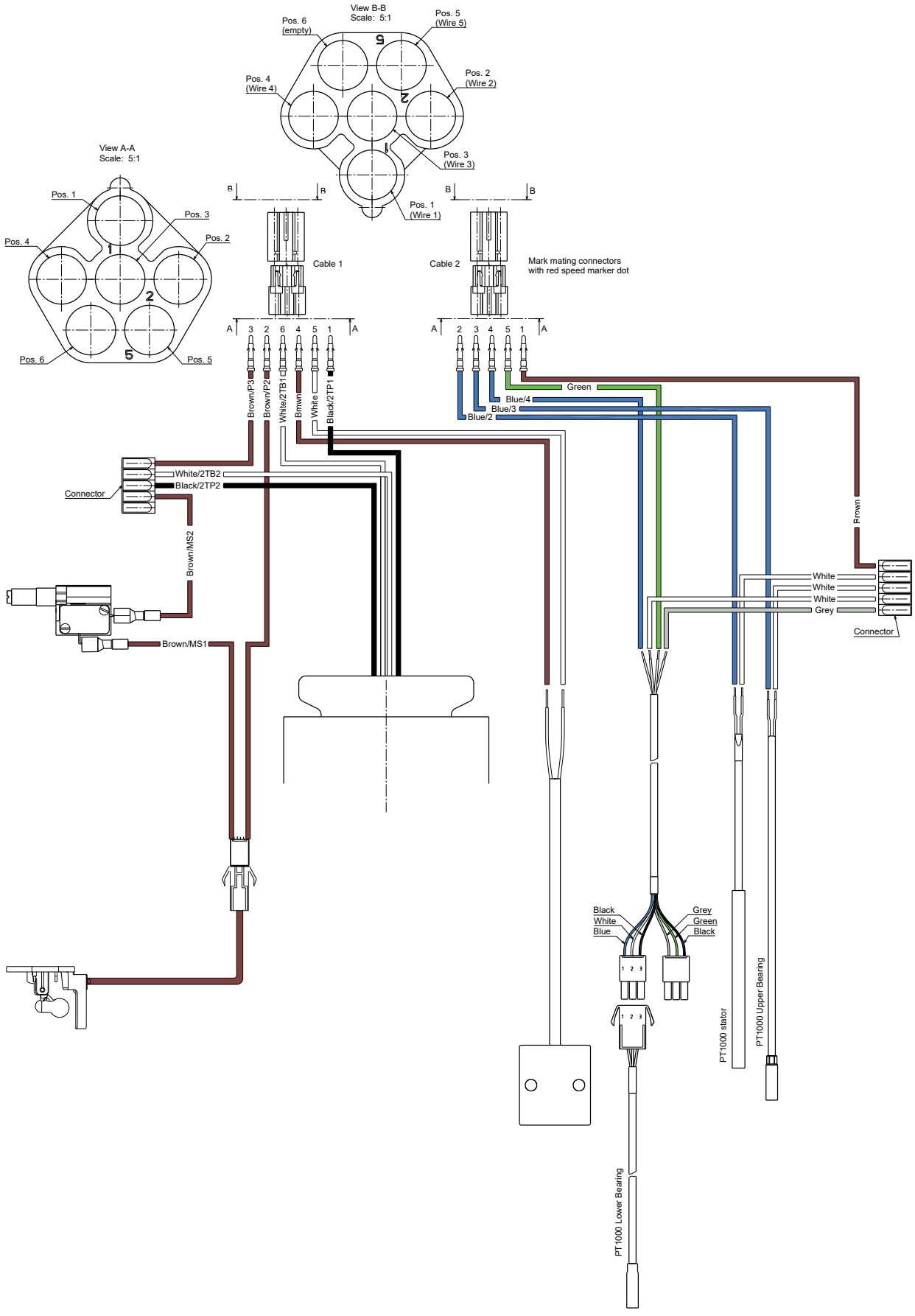
Pos.	Description
1	Thermal switches / Thermistor
2	Moisture/Level switch
VIBRA	Vibration sensor
3	Pt1000 stator
4	Pt1000 upper bearing
5	Pt1000 lower bearing
6	Intrinsically Safe Apparatuses [33] and Thermistor Relay [34]

[33] For non-Ex products it is optional.

[34] In case of pumps installed with PTC.

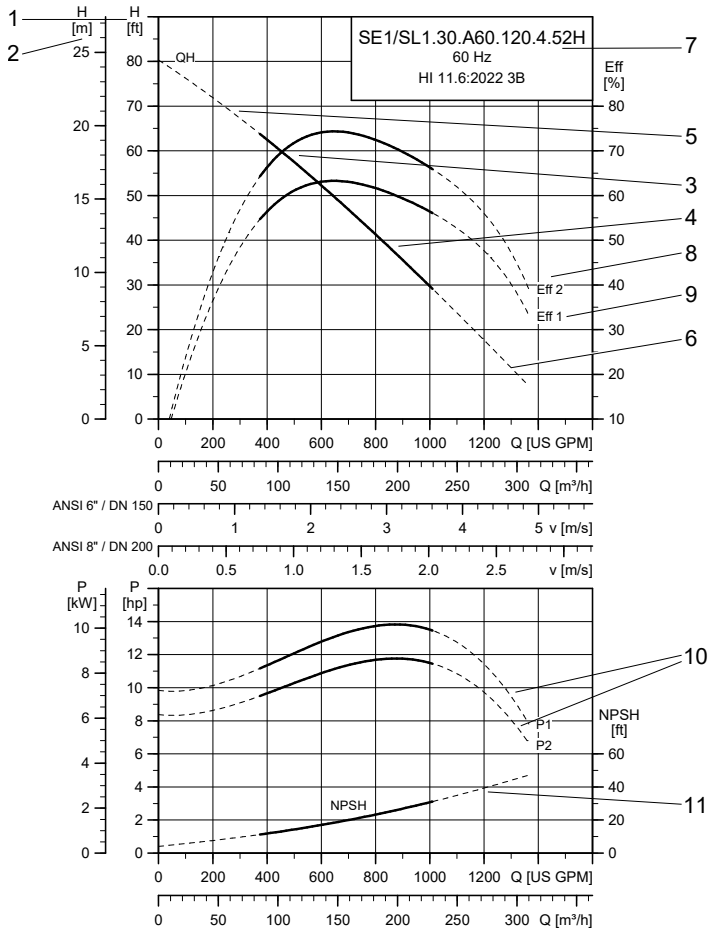
Sensor 2 and Sensor 2 Ex, double cable

Sensor version 2 Ex PTC double-cable



8. Performance curves and technical data

How to read performance curves



TM079083

Pos.	Description
1	Total pump head
2	$H = H_{total}$
3	QH curve
4	The solid line represents the allowed operating range.
5	The dotted line represents the range within which the pump is not designed to operate.
6	The pump should not operate outside the solid line or against a closed valve (shut-off valve).
7	Pump type
8	Eff2: the hydraulic efficiency (pump)
9	Eff1: the total efficiency (pump + motor)
10	Power curve indicates input power [P_1] and output power [P_2] of the pump.
11	The shown NPSH curve for all variants is defined as maximum NPSH curves according to ANSI/HI 11.6:2017 3B.

Note: Pumps are tested according to ANSI HI11.6:2017 grade 3B tolerances. Testing equipment and measuring instruments are designed and calibrated according to the standards mentioned. The pumps are approved according to tolerances for the entire curve, specified in grade 3B.

Explanation of SE/SL Open S-tube® performance curves

The curves for SE/SL pumps with Open S-tube® are full curves which start at 0 Flow and ends at 0 Head. For other Grundfos wastewater pumps the curves are cut in both high head and high flow.

The Hydraulic Institute (HI) standard ANSI/HI 9.6.3-2012 define values based on which region on the curve the pump should operate within.

There are three definitions that is important in this context:

BEP = **B**est **E**fficiency **P**oint, which is the point on the QH curve where the pump will operate with the highest efficiency

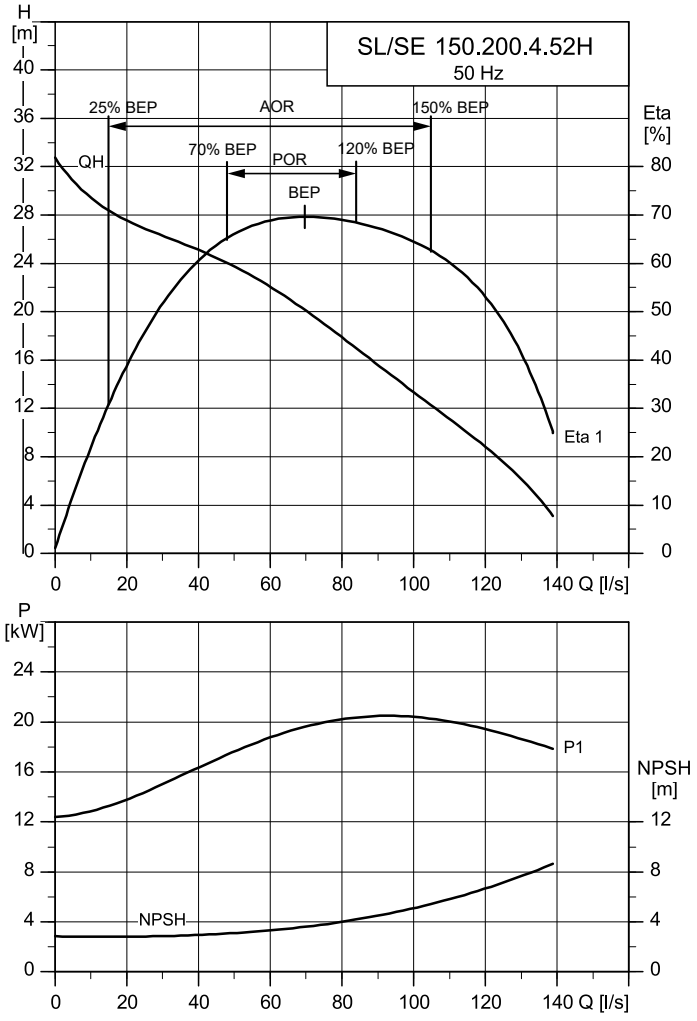
POR = **P**referred **O**perating **R**ange, which is the range where the pump will have the highest efficiency and lowest vibrations. **POR** range is typically between **70** to **120%** of the flow in **BEP.** When operating within the **POR**, the pump requires a smaller NPSH margin.

AOR = **A**llowable **O**perating **R**ange, which is the range where the pump is allowed to operate with shorter time between service intervals, without compromising the lifetime of the pump. **AOR** for SE/SL 9-30 kW pumps with Open S-tube® is from **25%** of **BEP** till **150%** of **BEP**.

Operating outside **POR** will:

- reduce the lifetime of the bearings
- increase the vibration level on the pump and system
- increase the stress on the shaft seals, cable inlets
- increase the stress on the cable and cable inlet
- increase stress in other components of the pump, as well as on the installation accessories and connected piping

compared to operating inside the **POR** range.



TM086206

Curve conditions

The guidelines below apply to the curves indicated in the performance charts in Performance curves and technical data.

- Tolerances according to: ANSI HI11.6:2017, grade 3B.
- The curves show pump performance with different impeller diameters at rated speed.
- The curves apply to the pumping of airless water at a temperature of 68 °F (+20 °C) and a kinematic viscosity of 1 cSt/s (1 mm^2/s).
- **ETA:** The lines show the hydraulic efficiency values of the pump for the different impeller diameters.
- **NPSH:** The curves show maximum NPSH values according to ANSI HI11.6:2017.
- In case of densities other than 62.5 lb/ft^3(1000 kg/m^3), the outlet pressure is proportional to the density.
- When pumping liquids with a density higher than 62.5 lb/ft^3 (1000 kg/m^3), use motors with correspondingly higher outputs.

Calculation of total head

The total pump head consists of the height difference between the measuring points, the differential head and the dynamic head.

H_{total}	$= H_{geo} + H_{stat} + H_{dyn}$
H_{geo}:	height difference between measuring points.
H_{stat}:	differential head between the inlet and the outlet side of the pump.
H_{dyn}:	calculated values based on the velocity of the pumped liquid on the inlet and the outlet side of the pump.

Performance tests

The requested duty point for each pump is tested according to ANSI HI11.6:2017, grade 3B, and without certification.

In case of pumps ordered on the basis of the impeller diameter only (no requested duty point), the pumps are tested at a duty point which is 2/3 of the maximum flow rate of the published performance curves which is related to the ordered impeller diameter (according to ANSI HI11.6:2017, grade 3B).

If the customer requires either more points on the curve to be checked or certain minimum performances or certificates, individual measurements must be carried out, and a certificate can be ordered.

Certificates

Certificates are available on request and have to be confirmed for each order.

Witness test

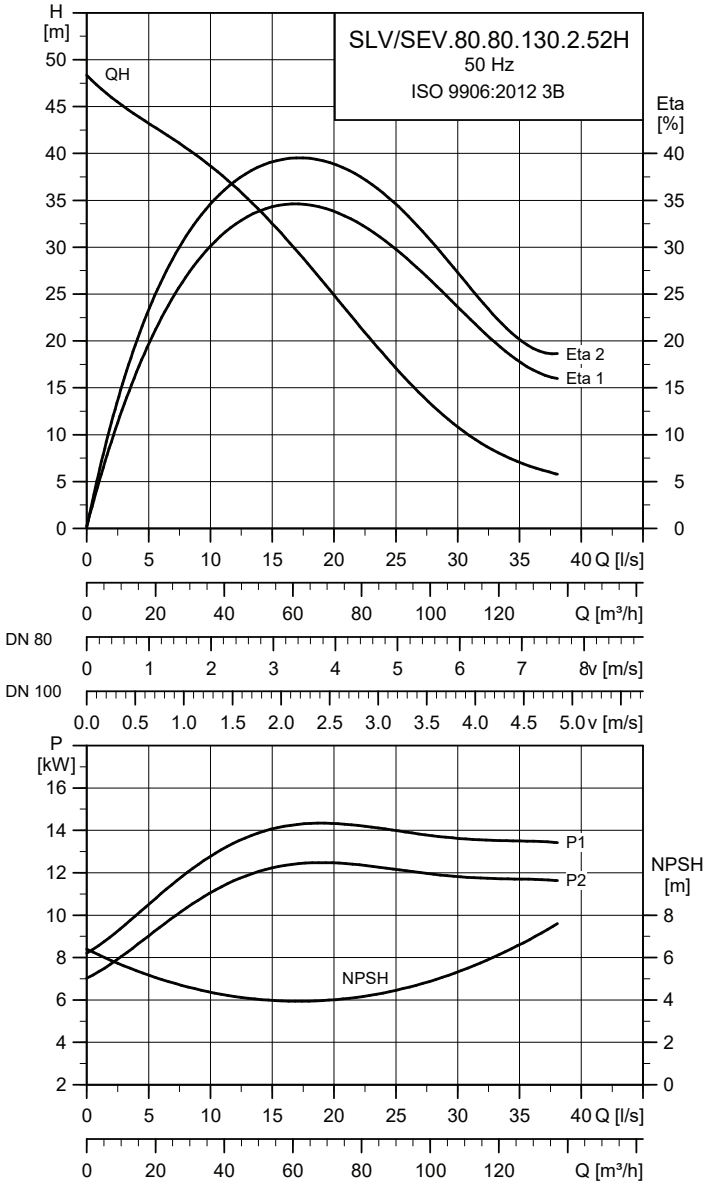
According to ANSI HI11.6:2017, the customer can witness the testing procedure.

The witness test is not a certificate and will not result in a written statement from Grundfos. The witness test itself is the only guarantee that everything is carried out as prescribed in the testing procedure.

If a witness test is required, the request must be stated on the order.

SuperVortex impeller

SLV/SEV.80.80.130.2.52H



TM053639

Electrical data

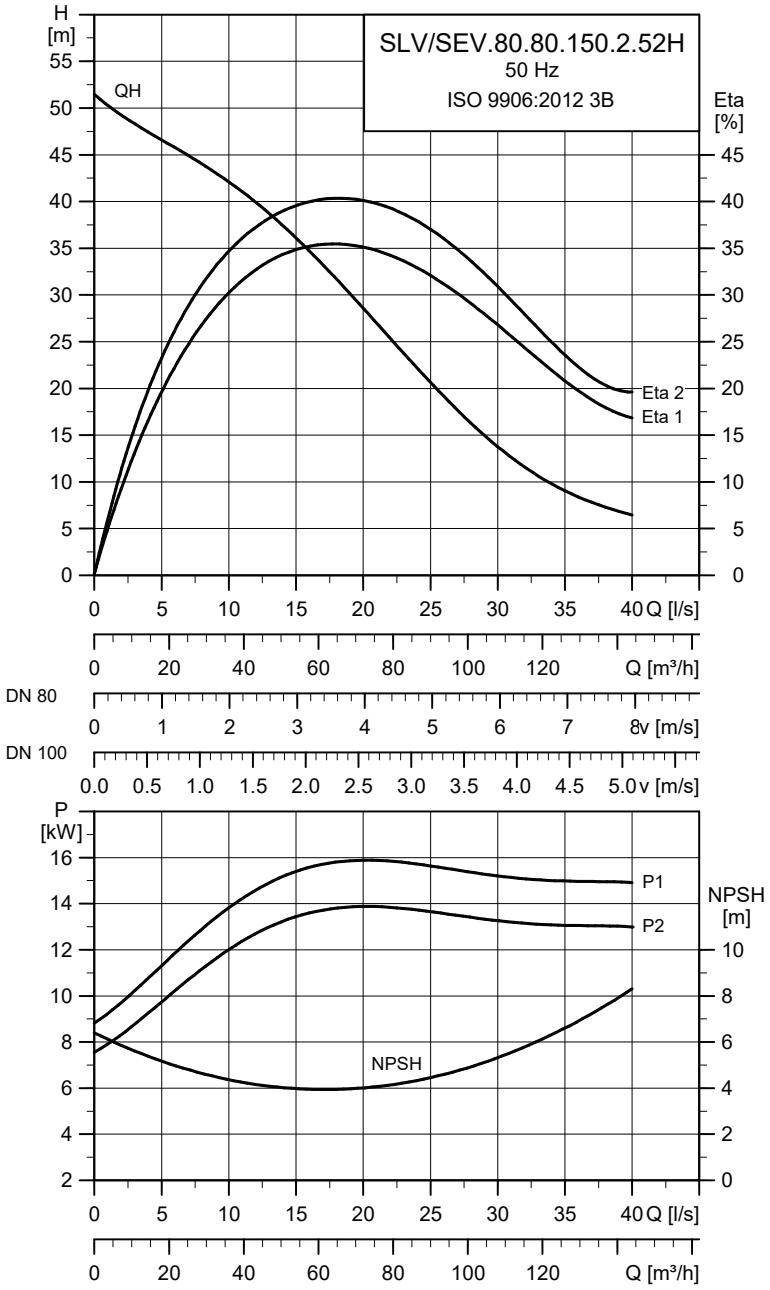
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.130.2.52H	380-415	15	13	2	2947	Y/D	27-25	245	79	82	86	0.72	0.81	0.86	0.0490	137
	660-690						16-15	138								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.130.2.52H	221.5	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.150.2.52H



TM053638

Electrical data

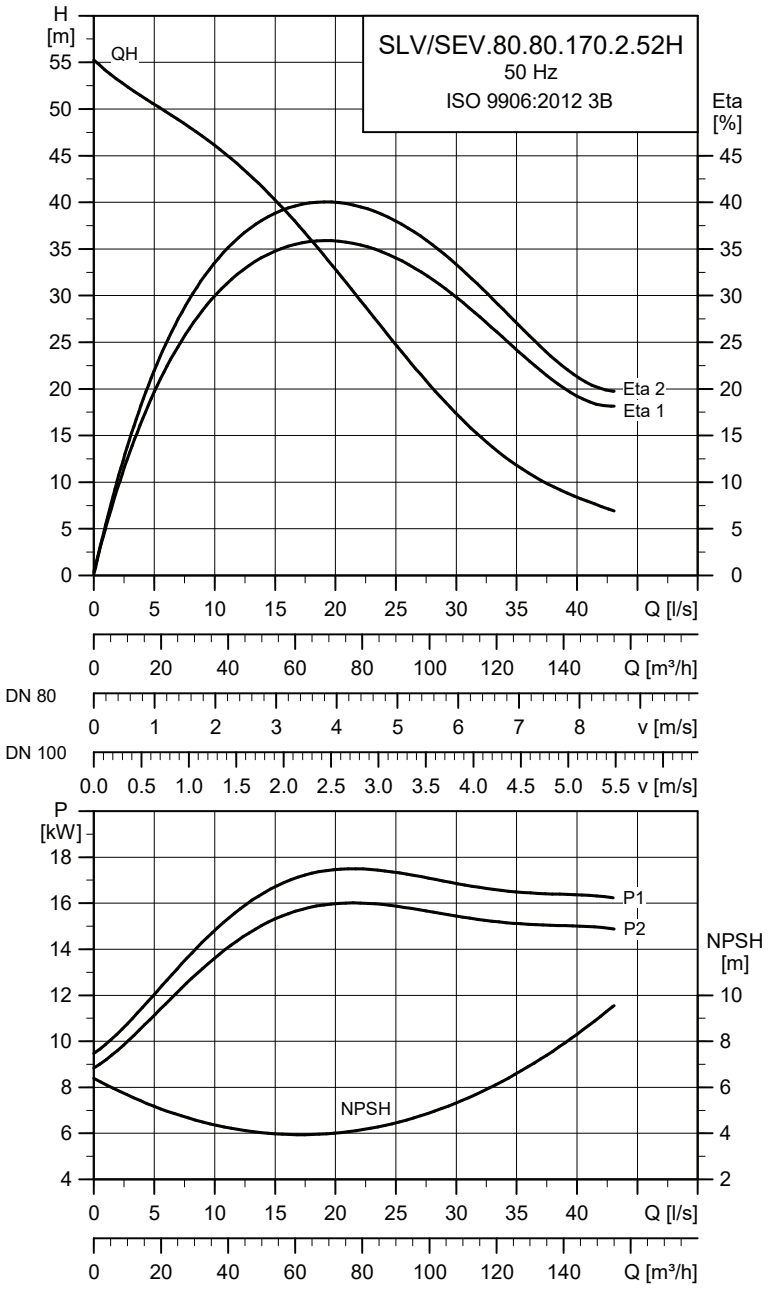
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.150.2.52H	380-415	17	15	2	2947	Y/D	30-28	245	80	84	88	0.75	0.84	0.88	0.0490	137
	660-690						18-17	138								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.150.2.52H	228	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.170.2.52H



TM053620

Electrical data

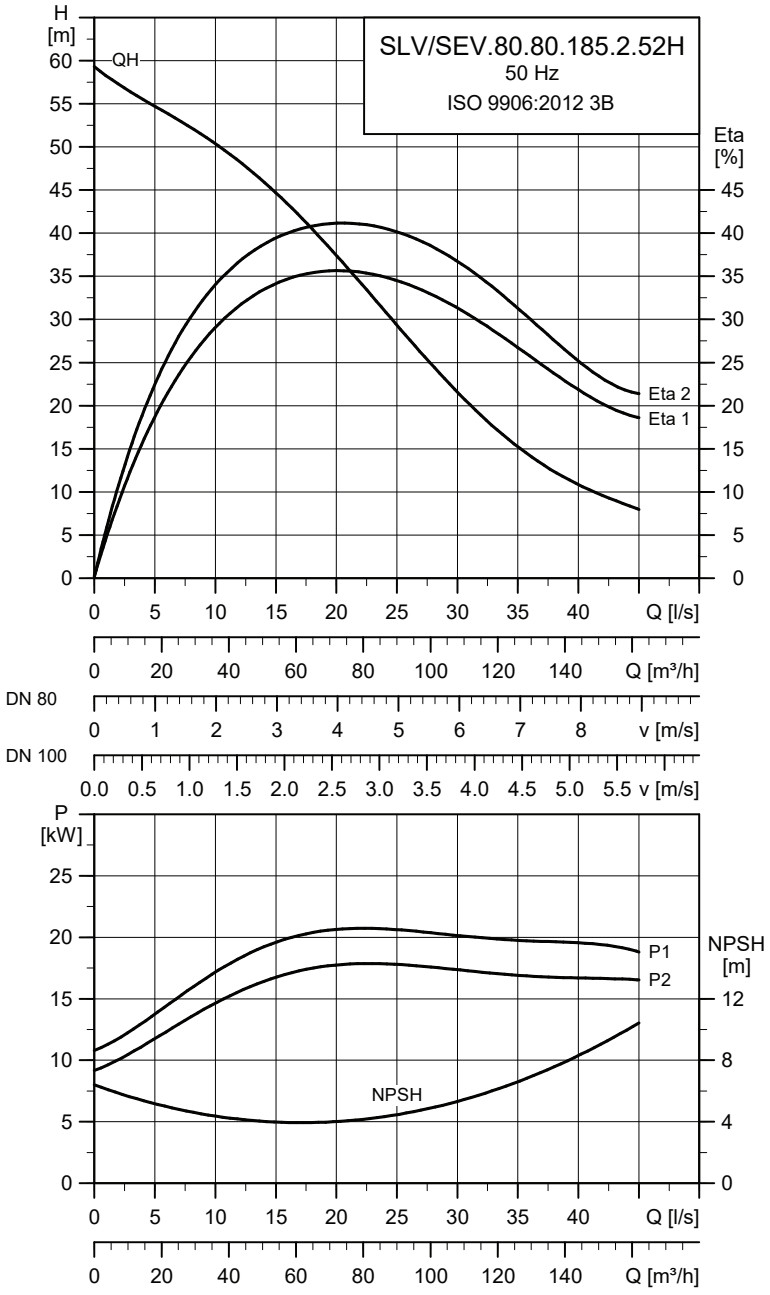
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.170.2.52H	380-415	19	17	2	2950	Y/D	34-32	318	84	88	88	0.73	0.82	0.86	0.0580	210
	660-690						20-19	175								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.170.2.52H	235	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.185.2.52H



TM053600

Electrical data

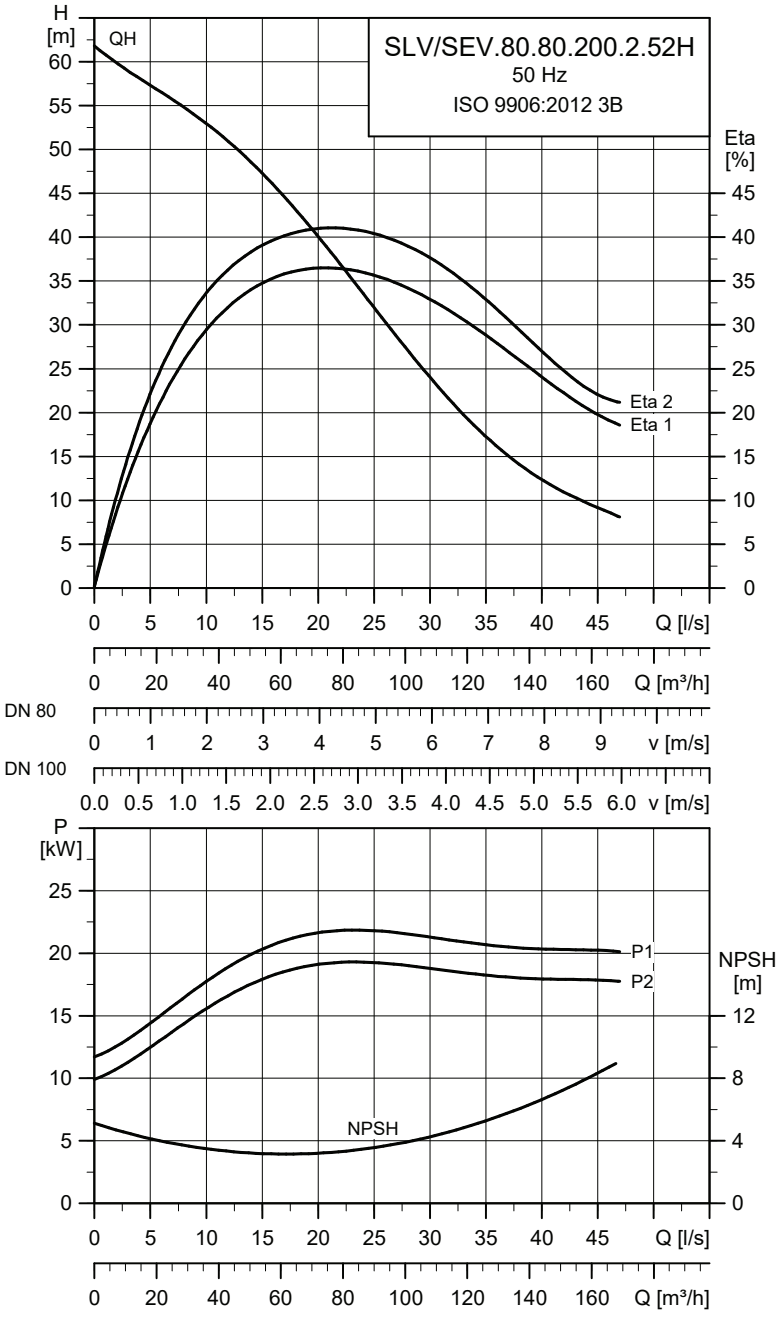
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.185.2.52H	380-415	21	18.5	2	2950	Y/D	38-35	318	85	88	88	0.75	0.84	0.86	0.0580	210
	660-690						22-21	175								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.185.2.52H	242	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.200.2.52H



TM053619

Electrical data

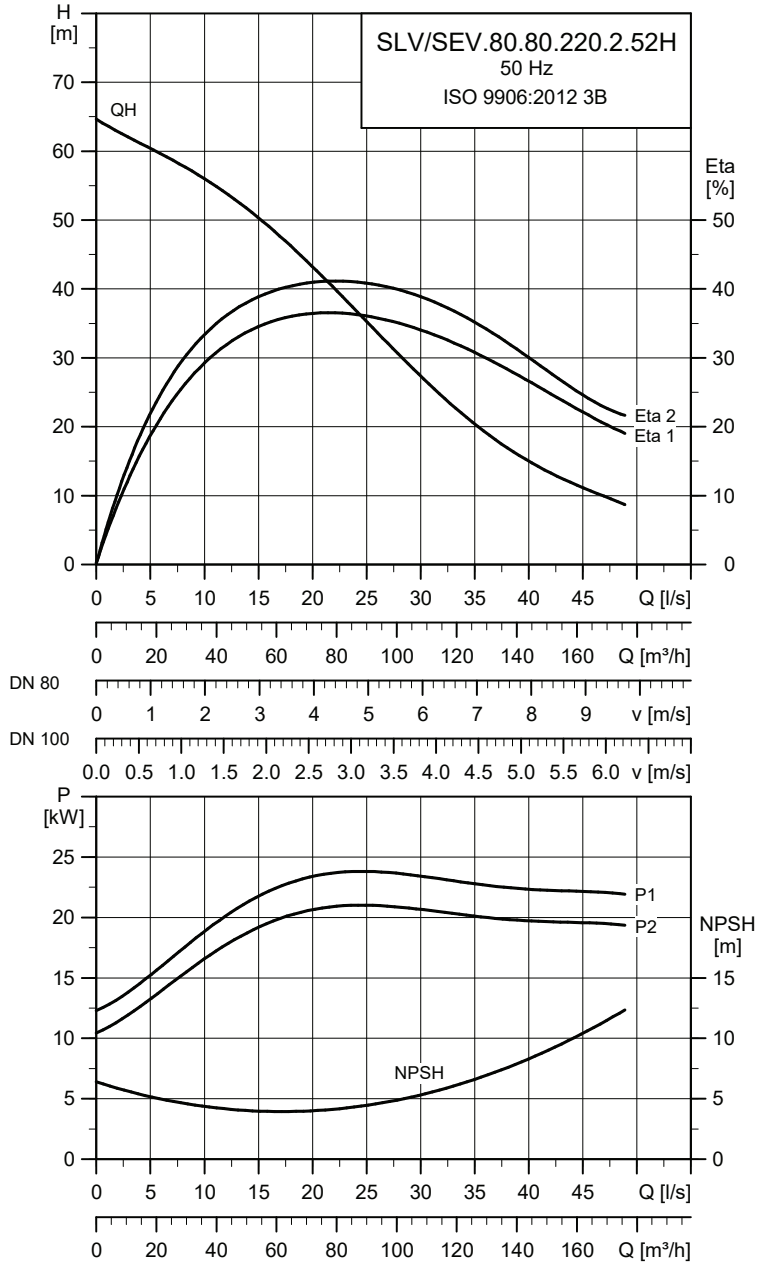
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.200.2.52H	380-415	23	20	2	2937	Y/D	39-36	388	85	88	88	0.79	0.86	0.89	0.0650	228
	660-690						23-22	213								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.200.2.52H	247	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.220.2.52H



TM053599

Electrical data

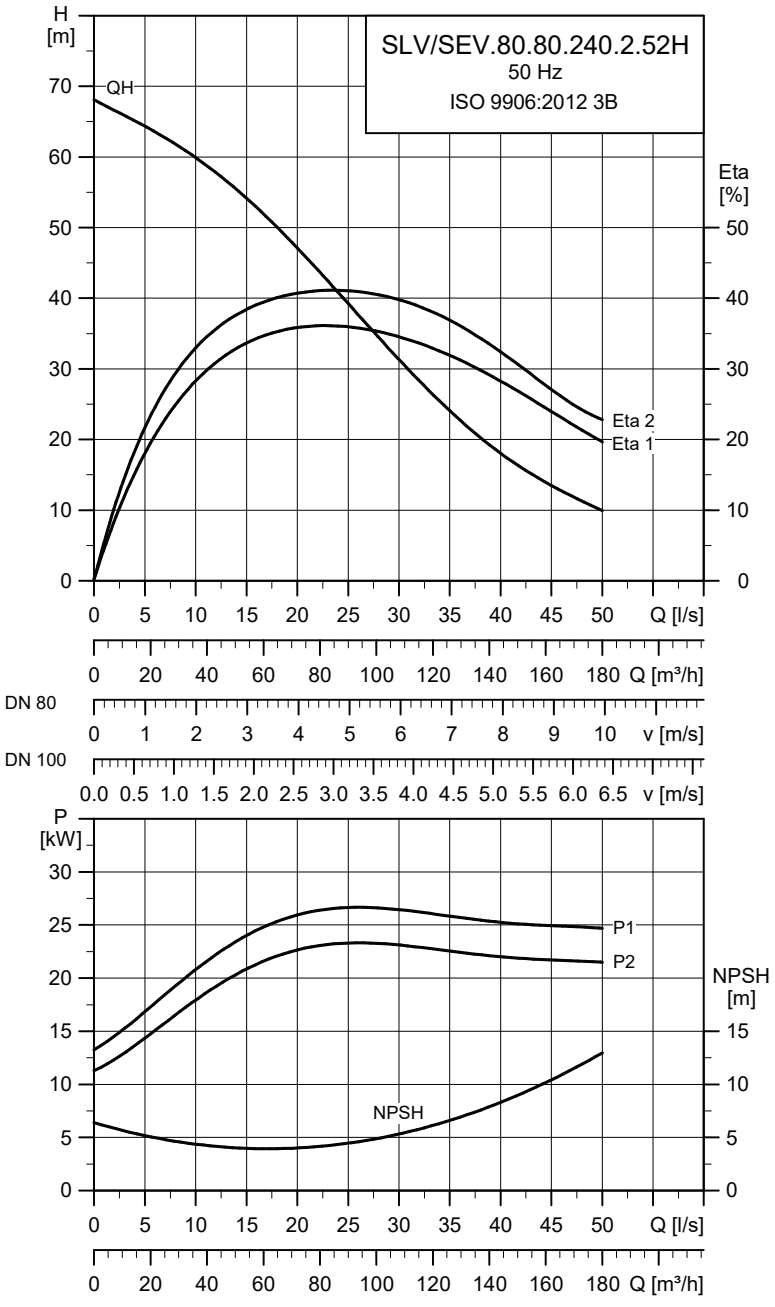
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.220.2.52H	380-415	25	22	2	2937	Y/D	43-40	388	86	88	88	0.81	0.87	0.89	0.0650	228
	660-690						25-24	213								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.220.2.52H	253	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.240.2.52H



TM053618

Electrical data

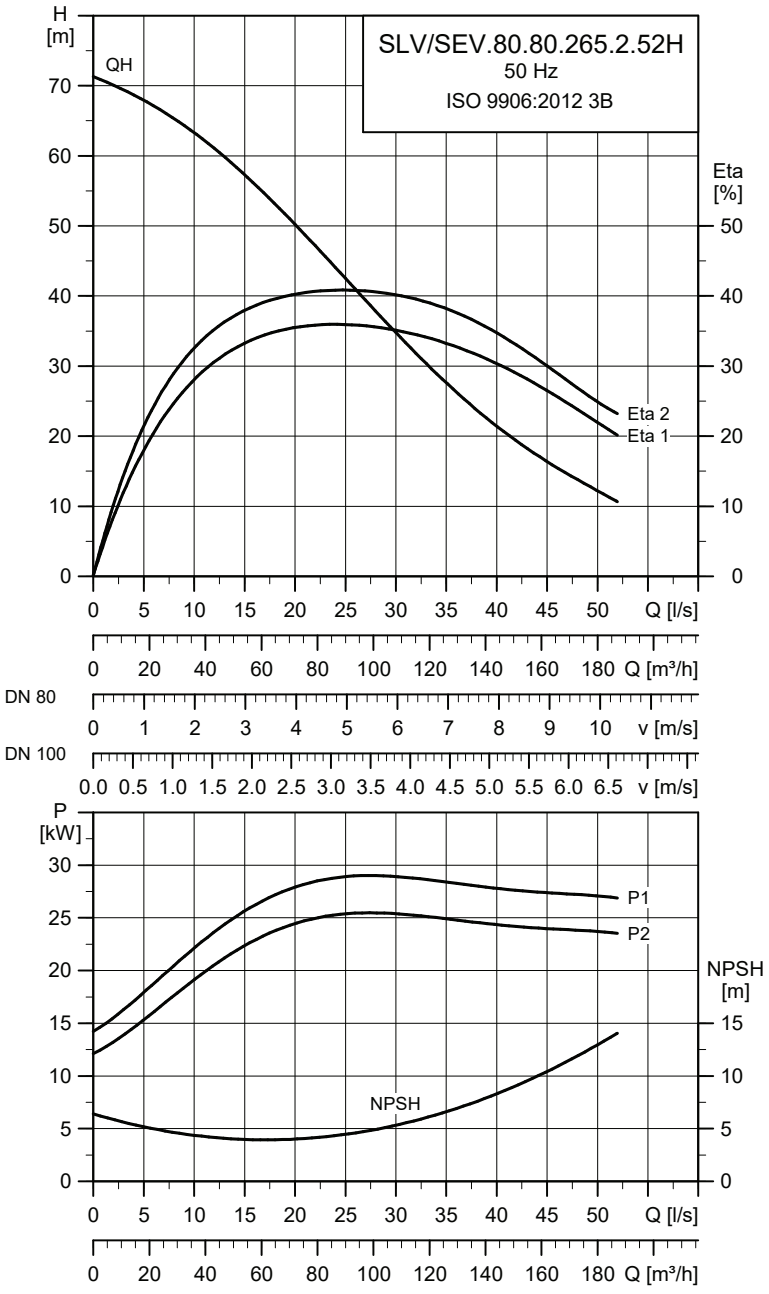
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.240.2.52H	380-415	27	24	2	2955	Y/D	51-47	582	84	86	88	0.69	0.77	0.82	0.0650	228
	660-690						30-28	320								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.240.2.52H	262	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

SLV/SEV.80.80.265.2.52H



TM053598

Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SLV/SEV.80.80.265.2.52H	380-415	30	26.5	2	2955	Y/D	56-51	582	85	87	88	0.71	0.79	0.83	0.0650	228
	660-690						32-31	320								

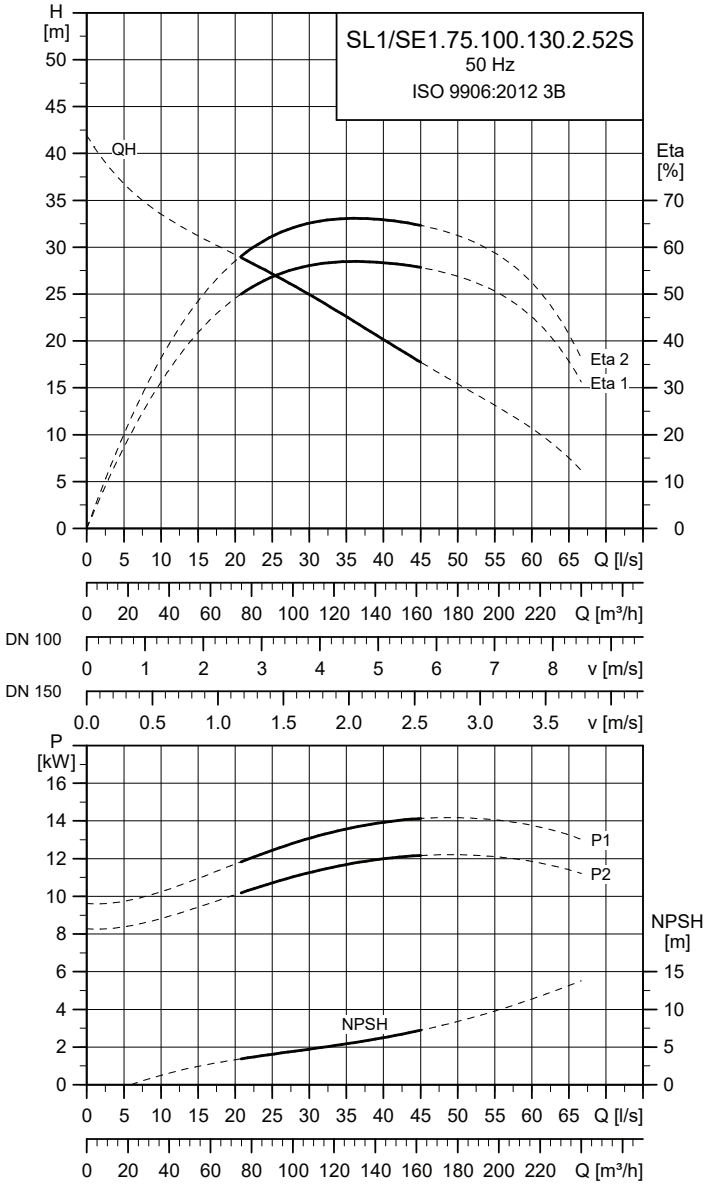
Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SLV/SEV.80.80.265.2.52H	271	80	10	20

Note: Pumps with stainless steel SuperVortex impellers have the same performance curves as the corresponding cast iron versions.

Closed S-tube® impeller

SL1/SE1.75.100.130.2.52S



TM053624

Electrical data

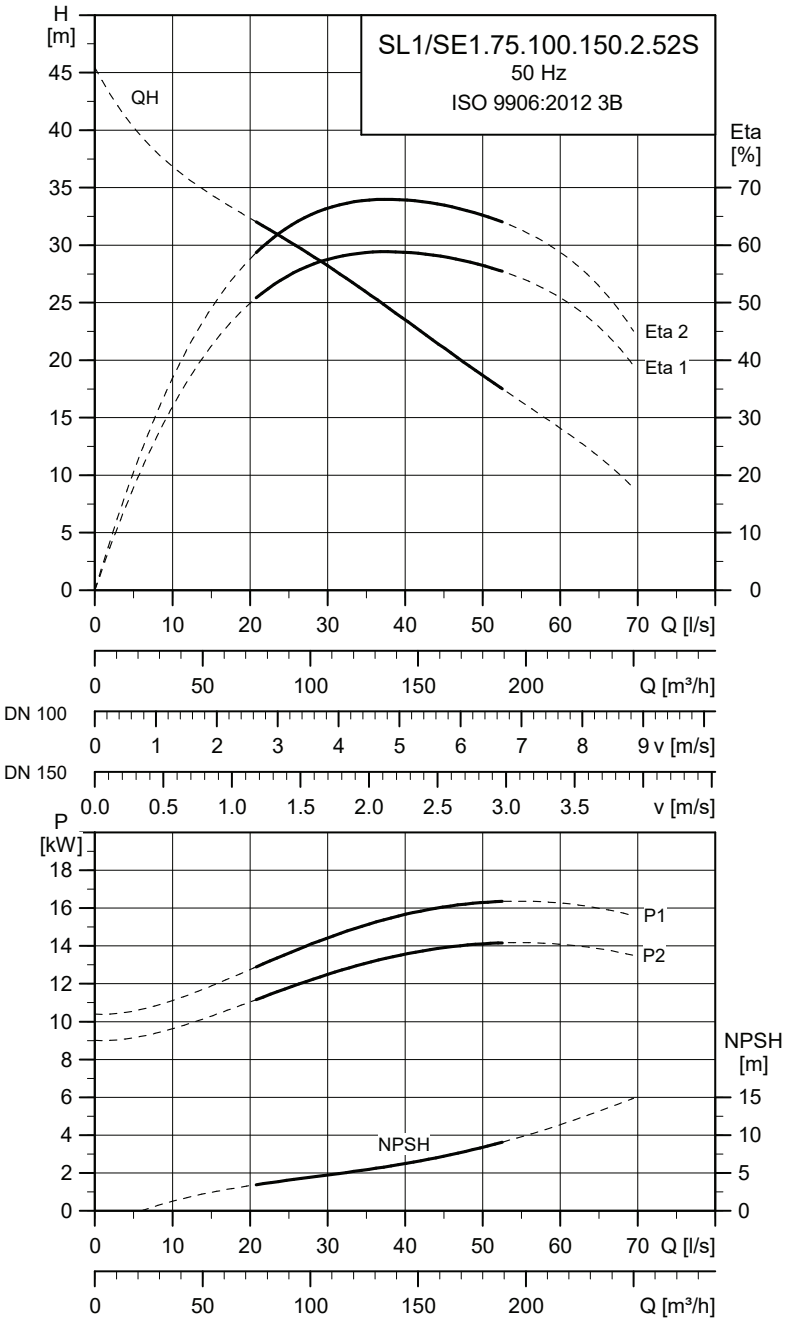
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.75.100.130.2.52S	380-415	15	13	2	2973	Y/D	27-25	245	79	82	86	0.72	0.81	0.86	0.0490	137
	660-690						16-15	138								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.75.100.130.2.52S	178	75	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.75.100.150.2.52S



TM053604

Electrical data

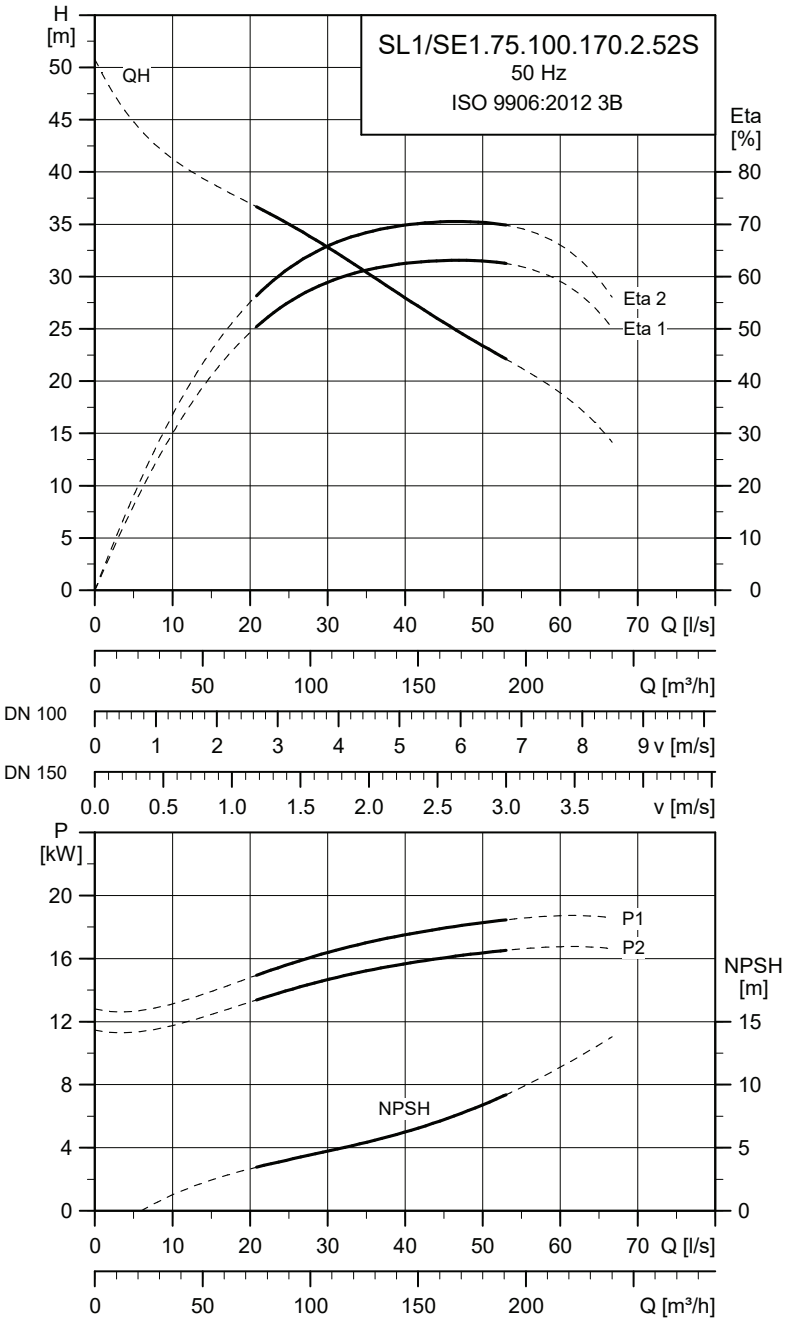
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.75.100.150.2.52S	380-415	17	15	2	2966	Y/D	30-28	245	80	84	88	0.75	0.84	0.88	0.0490	137
	660-690						18-17	138								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.75.100.150.2.52S	182	75	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.75.100.170.2.52S



TM053623

Electrical data

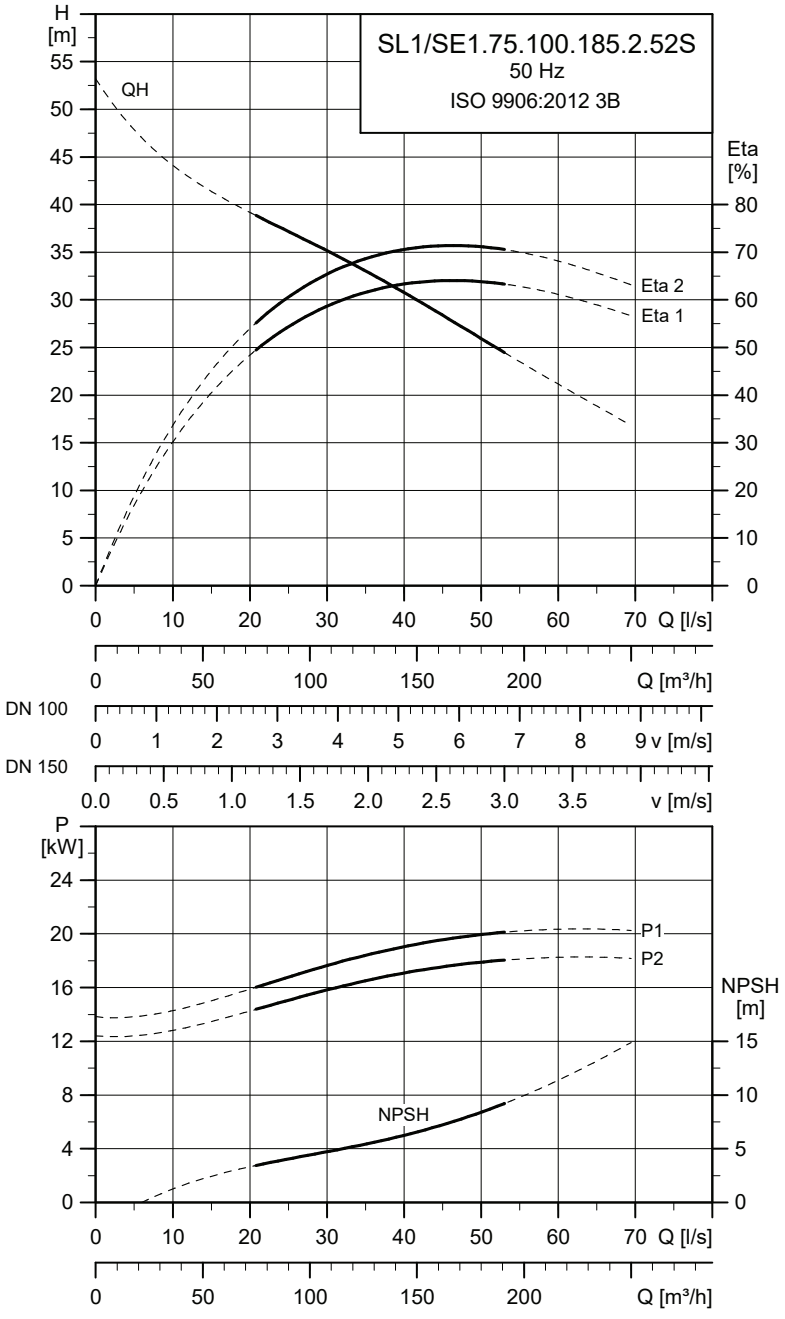
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.75.100.170.2.52S	380-415	19	17	2	2969	Y/D	34-32	318	84	88	88	0.73	0.82	0.86	0.0580	210
	660-690						20-19	175								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.75.100.170.2.52S	186.5	75	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.75.100.185.2.52S



TM053603

Electrical data

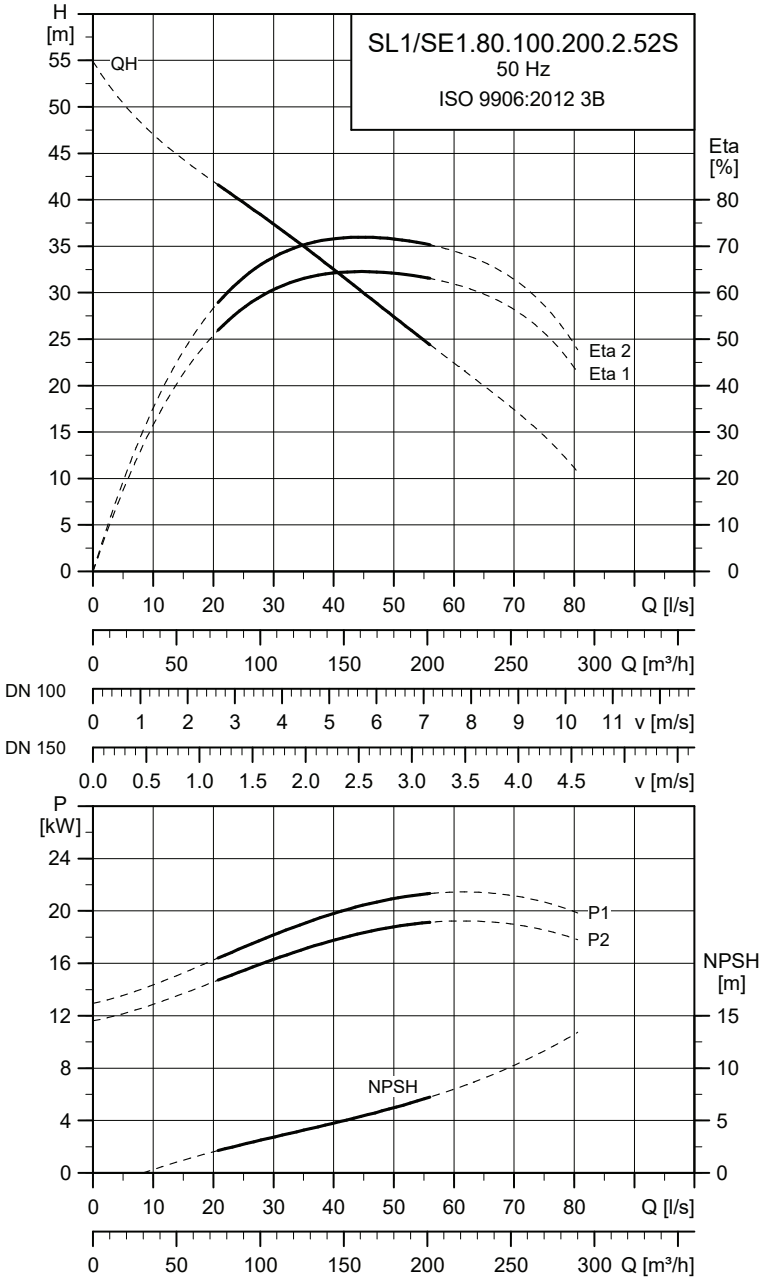
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.75.100.185.2.52S	380-415	21	18.5	2	2964	Y/D	38-35	318	85	88	88	0.75	0.84	0.86	0.0580	210
	660-690						22-21	175								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.75.100.185.2.52S	192	80	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.80.100.200.2.52S



TM053622

Electrical data

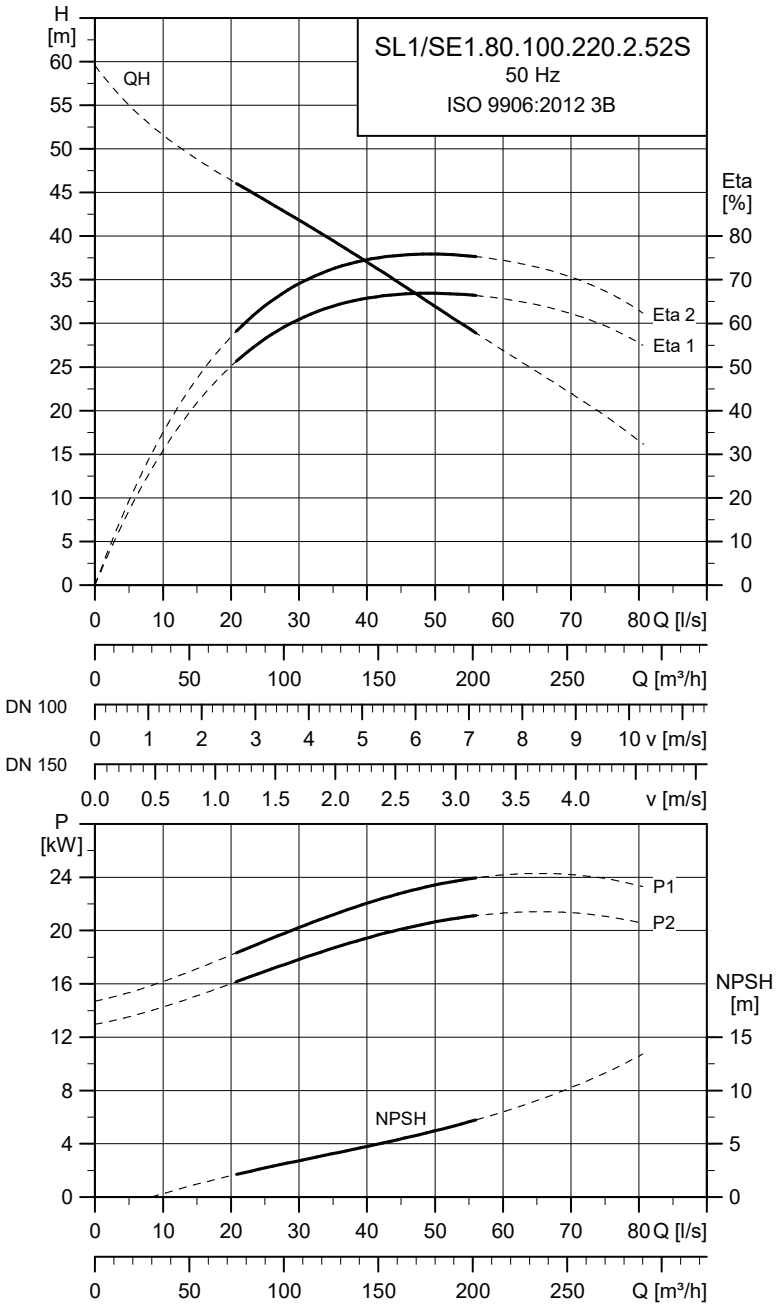
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.80.100.200.2.52S	380-415	23	20	2	2968	Y/D	39-36	388	85	88	88	0.79	0.86	0.89	0.0650	228
	660-690						23-22	213								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.80.100.200.2.52S	197.5	80	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.80.100.220.2.52S



TM053602

Electrical data

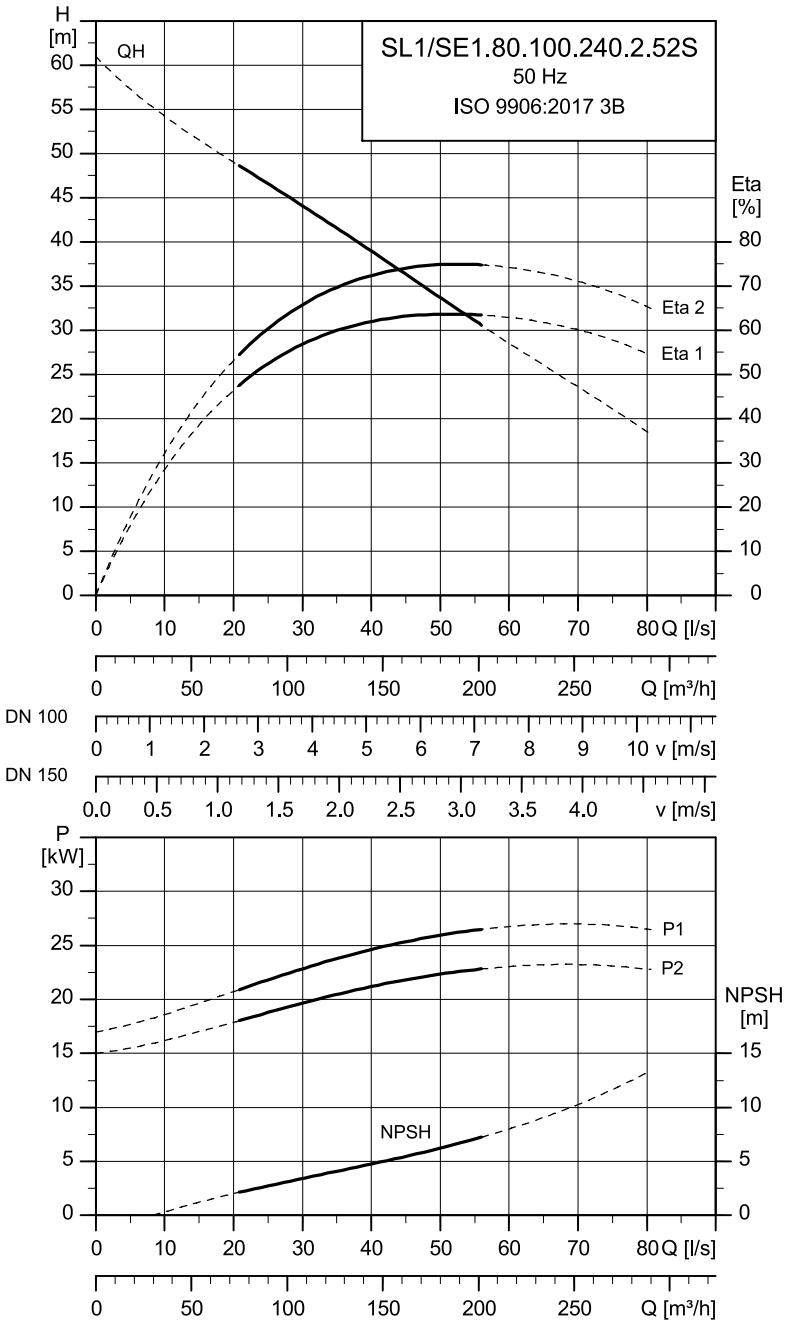
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.80.100.220.2.52S	380-415	25	22	2	2963	Y/D	43-40	388	86	88	88	0.81	0.87	0.89	0.0650	228
	660-690						25-24	213								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.80.100.220.2.52S	253	80	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.80.100.240.2.52S



TM053621

Electrical data

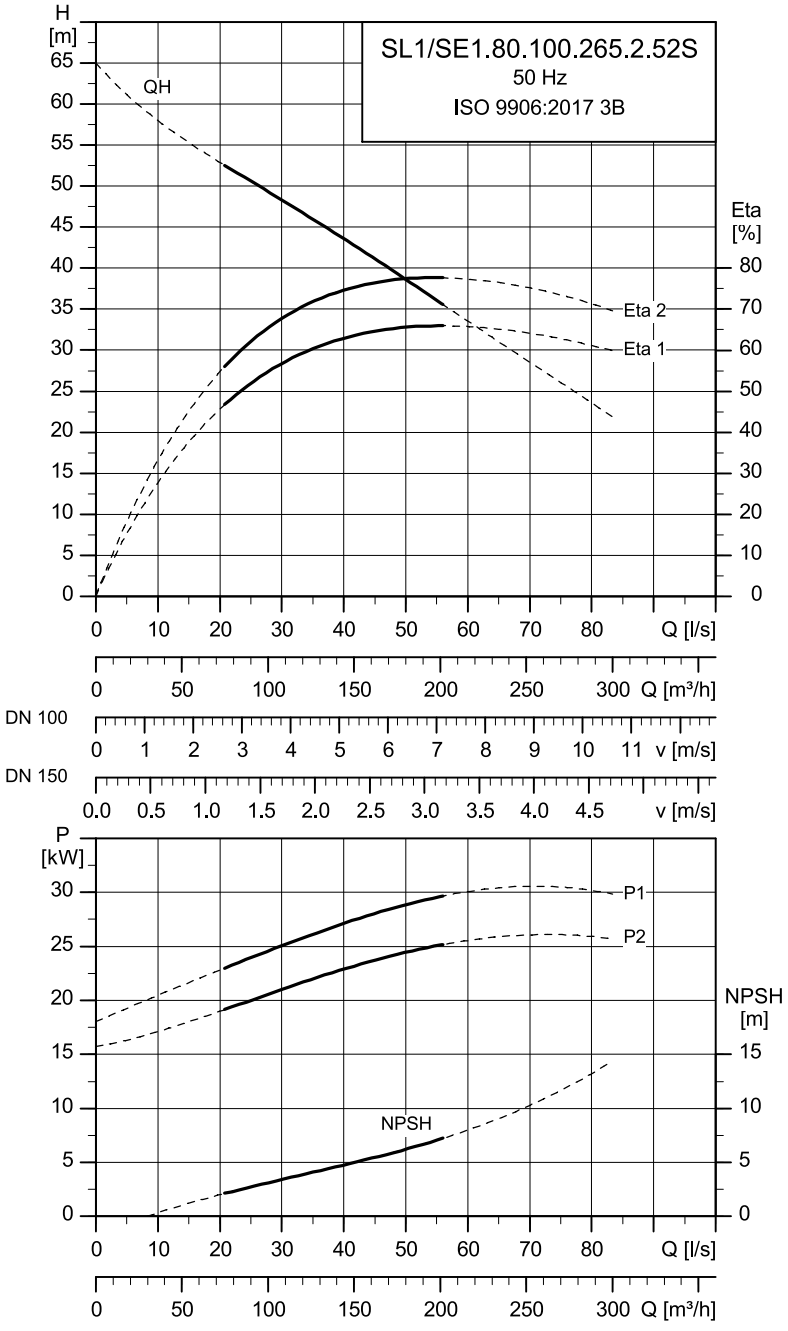
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.80.100.240.2.52S	380-415	27	24	2	2971	Y/D	51-47	582	84	86	88	0.69	0.77	0.82	0.0650	228
	660-690						30-28	320								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.80.100.240.2.52S	209	80	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.80.100.265.2.52S



TM053601

Electrical data

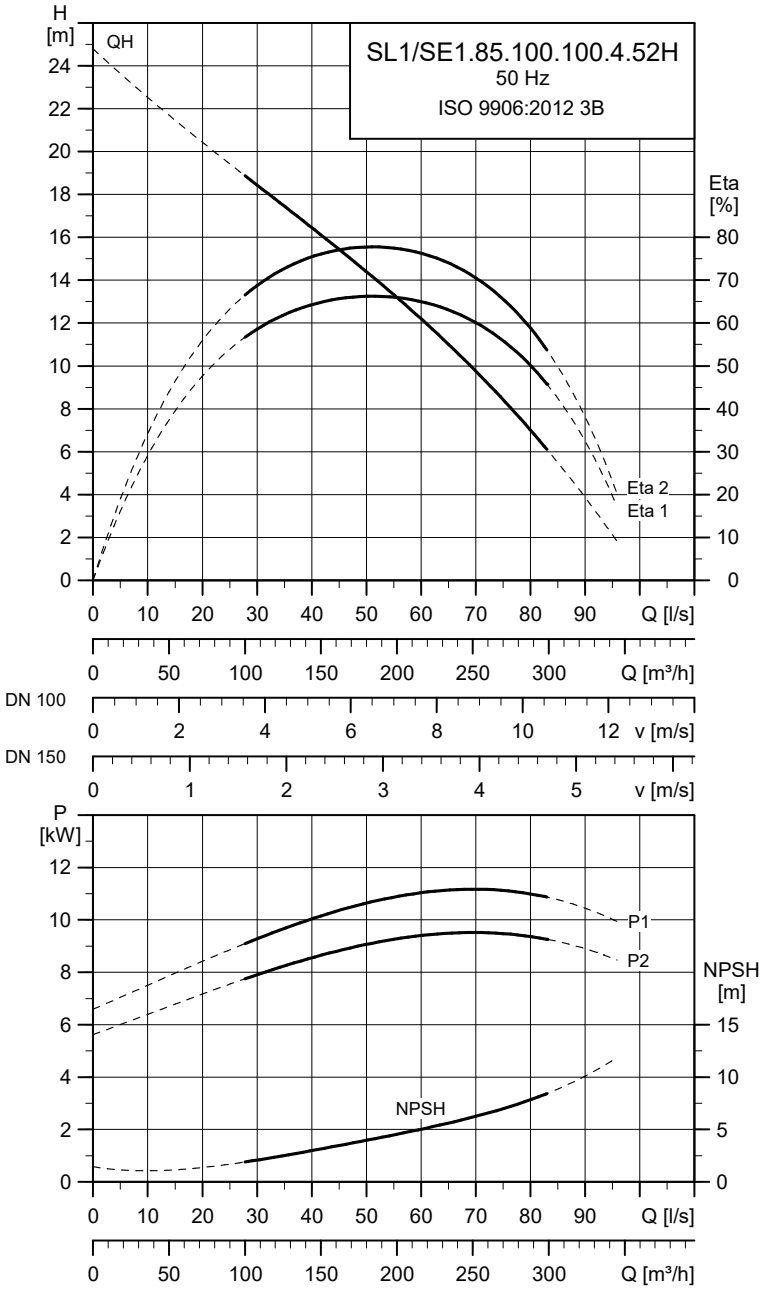
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.80.100.265.2.52S	380-415	30	26.5	2	2967	Y/D	56-51	582	85	87	88	0.71	0.79	0.83	0.0650	228
	660-690						32-31	320								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.80.100.265.2.52S	215	80	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.100.4.52H



TM066802

Electrical data

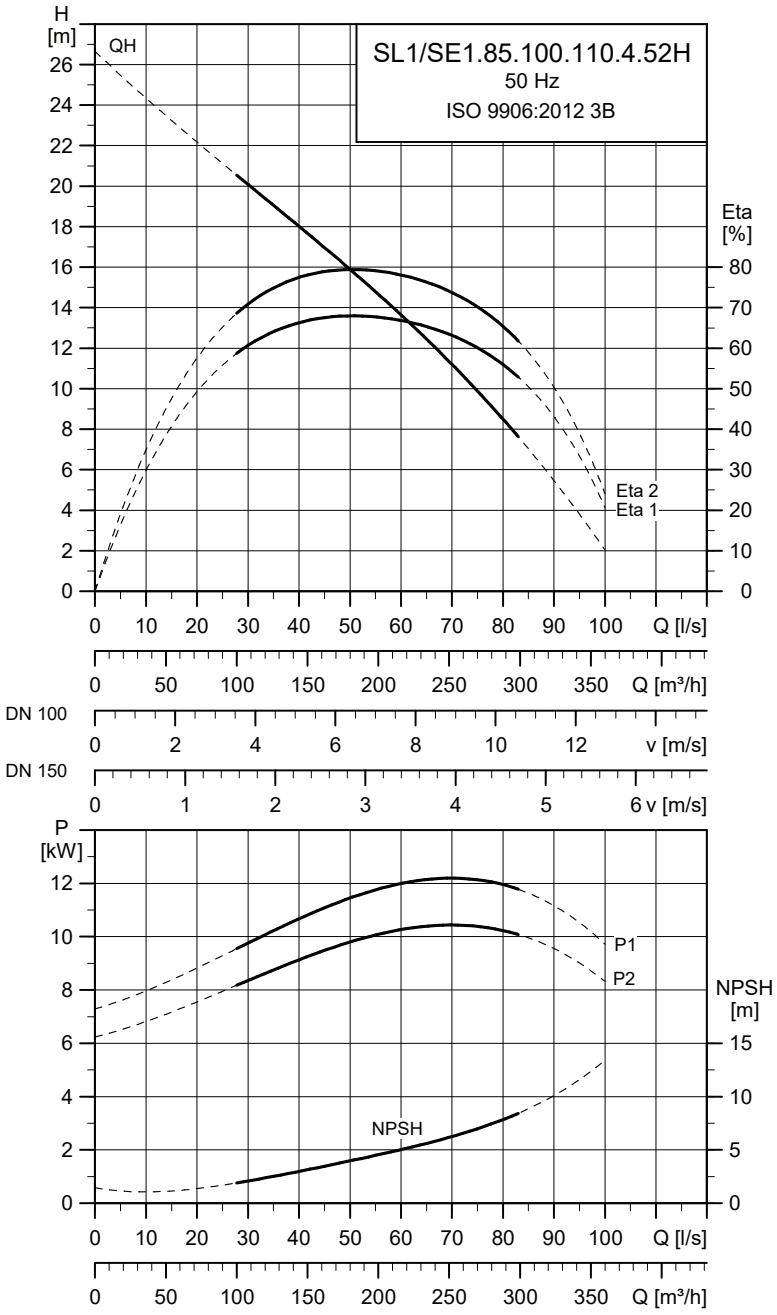
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.100.4.52H	380-415	12	10	4	1482	Y/D	23-21	210	84	85	86	0.69	0.7	0.80	0.0580	222
	660-690						13-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.100.100.4.52H	266	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.110.4.52H



TM066803

Electrical data

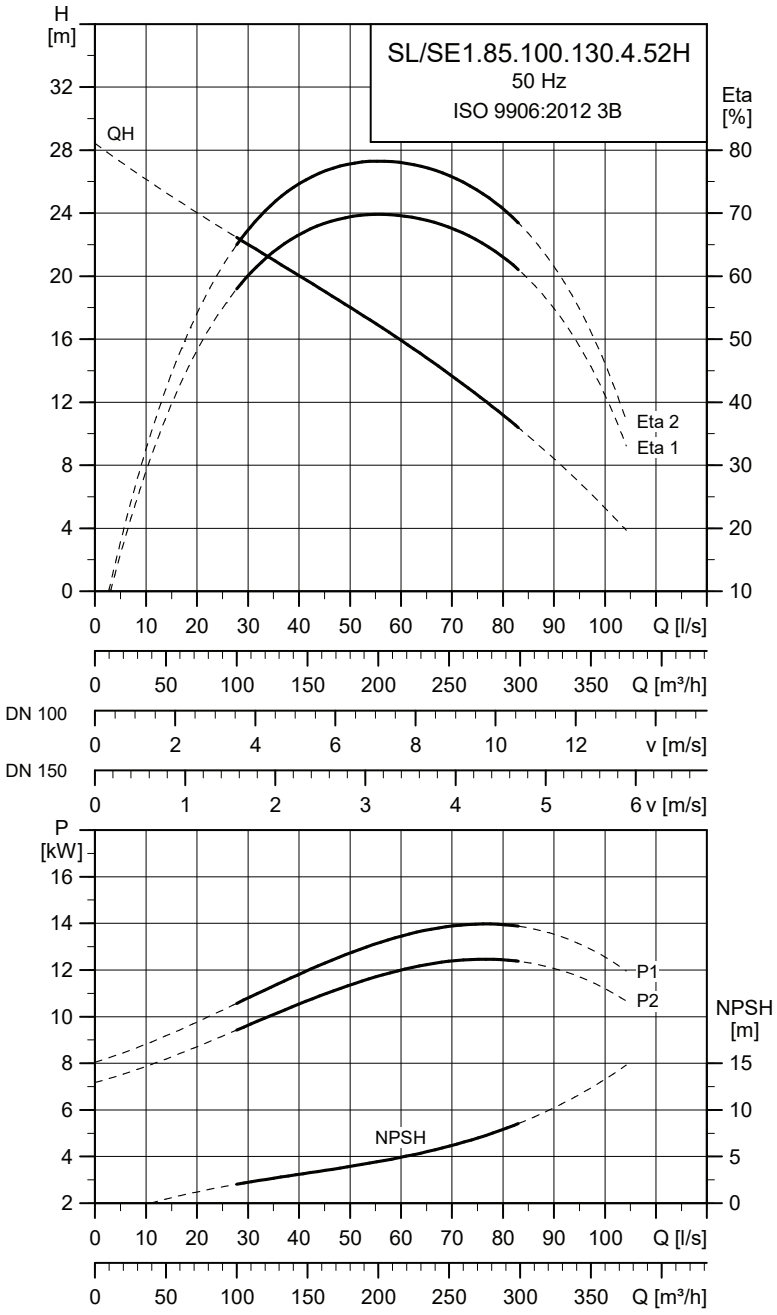
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.110.4.52H	380-415	13	11	4	1481	Y/D	24-22	210	84	86	86	0.70	0.76	0.82	0.0580	222
	660-690						14-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.100.110.4.52H	276	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.130.4.52H



Electrical data

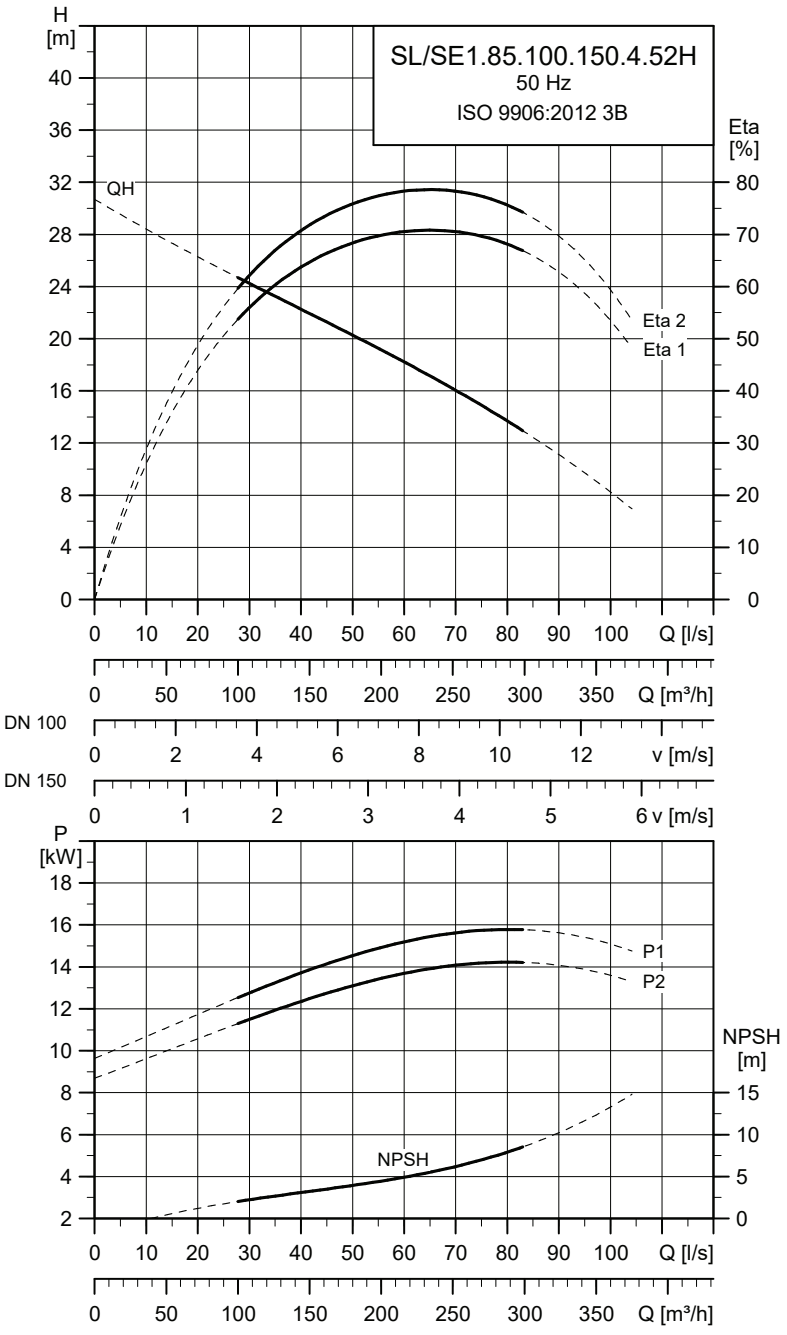
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.130.4.52H	380-415	15	13	4	1483	Y/D	28-25	283	87	88	88	0.66	0.77	0.83	0.0750	304
	660-690						16-15	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.100.130.4.52H	281	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.150.4.52H



TM066805

Electrical data

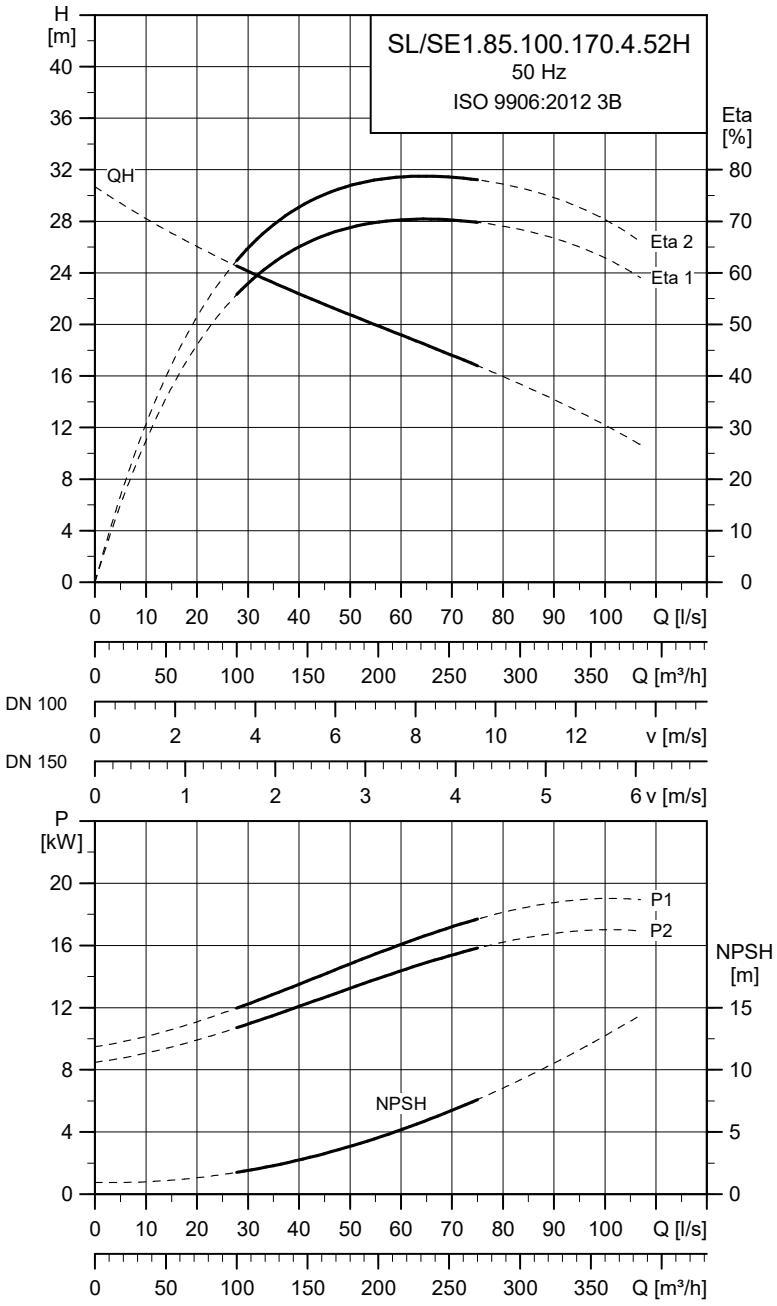
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.150.4.52H	380-415	17	15	4	1480	Y/D	31-29	283	87	88	88	0.70	0.80	0.84	0.0750	304
	660-690						18-17	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.100.150.4.52H	292	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.170.4.52H



TM066806

Electrical data

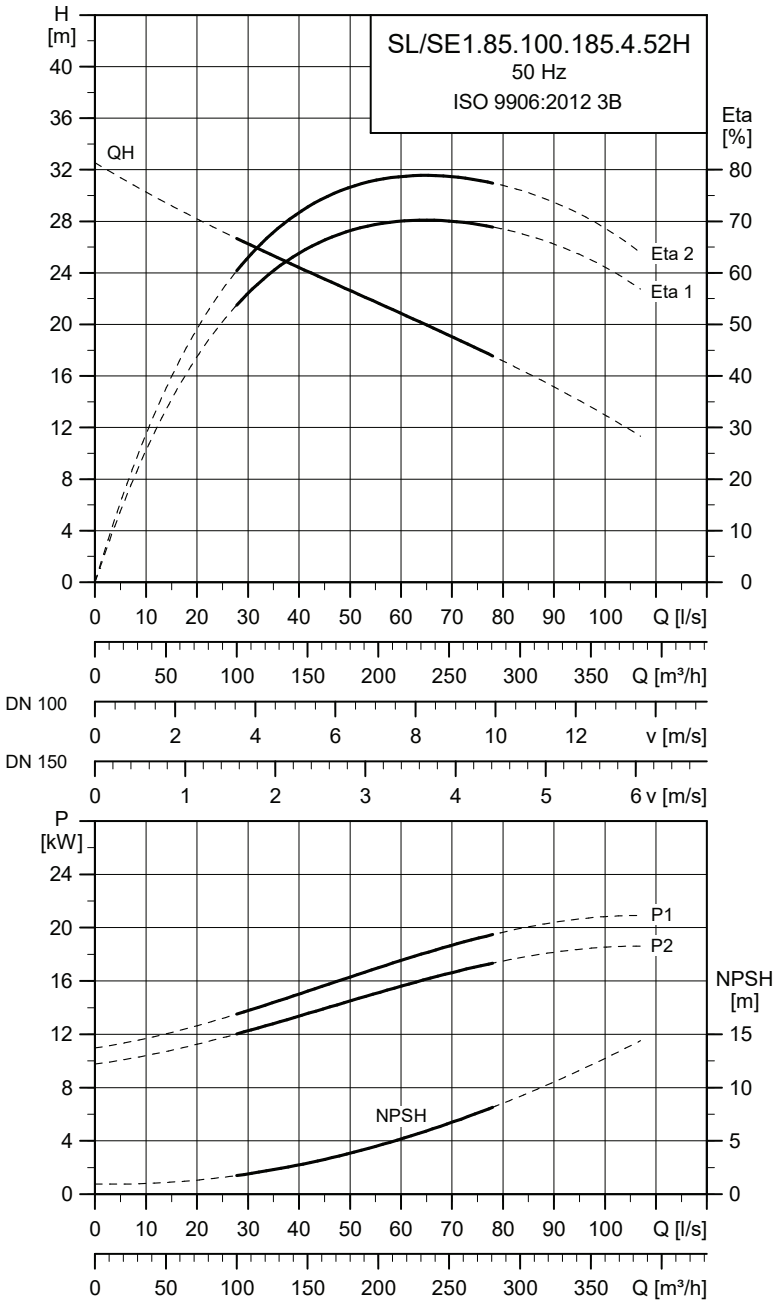
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.170.4.52H	380-415	19	17	4	1480	Y/D	39-36	381	84	87	88	0.68	0.72	0.77	0.0750	304
	660-690						23-22	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.100.170.4.52H	293	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.100.185.4.52H



TM066807

Electrical data

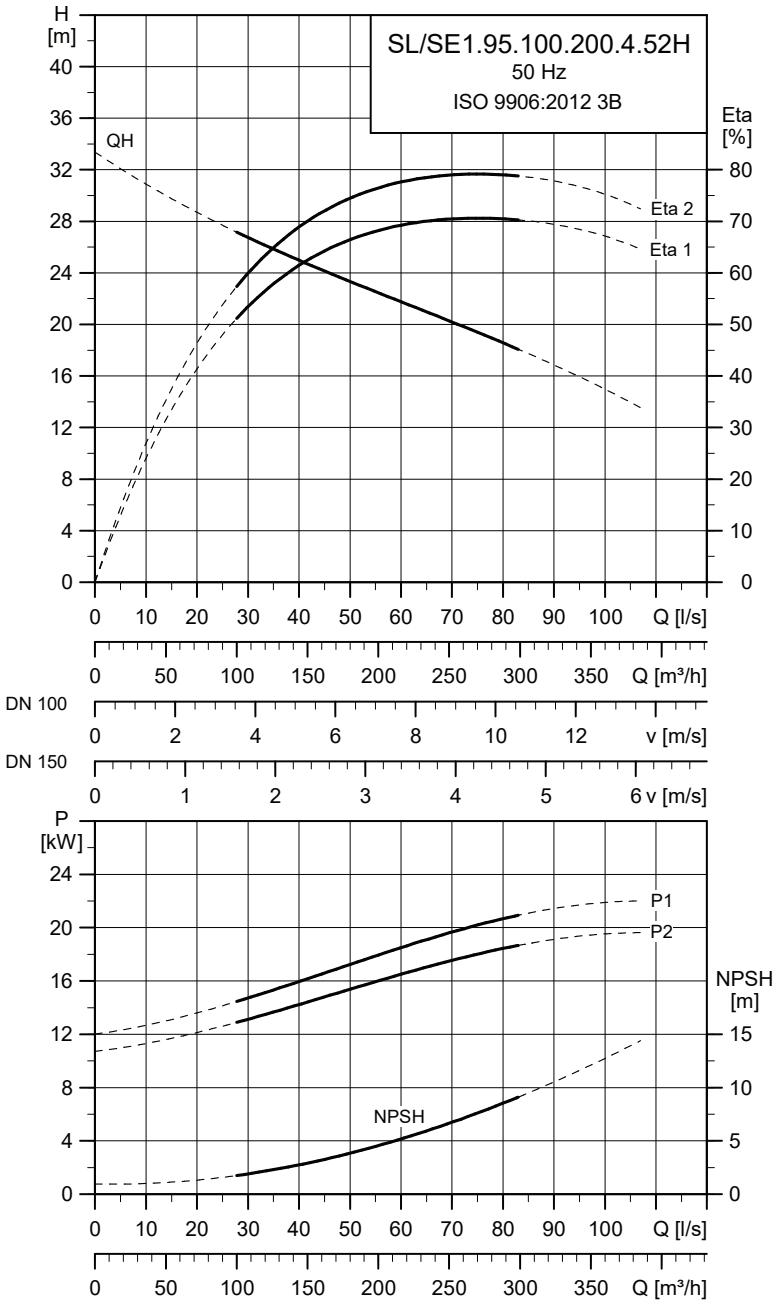
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.100.185.4.52H	380-415	21	18.5	4	1479	Y/D	41-37	381	85	87	88	0.69	0.73	0.79	0.0750	304
	660-690						24-23	209								

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.85.100.185.4.52H	299	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.95.100.200.4.52H



TM066808

Electrical data

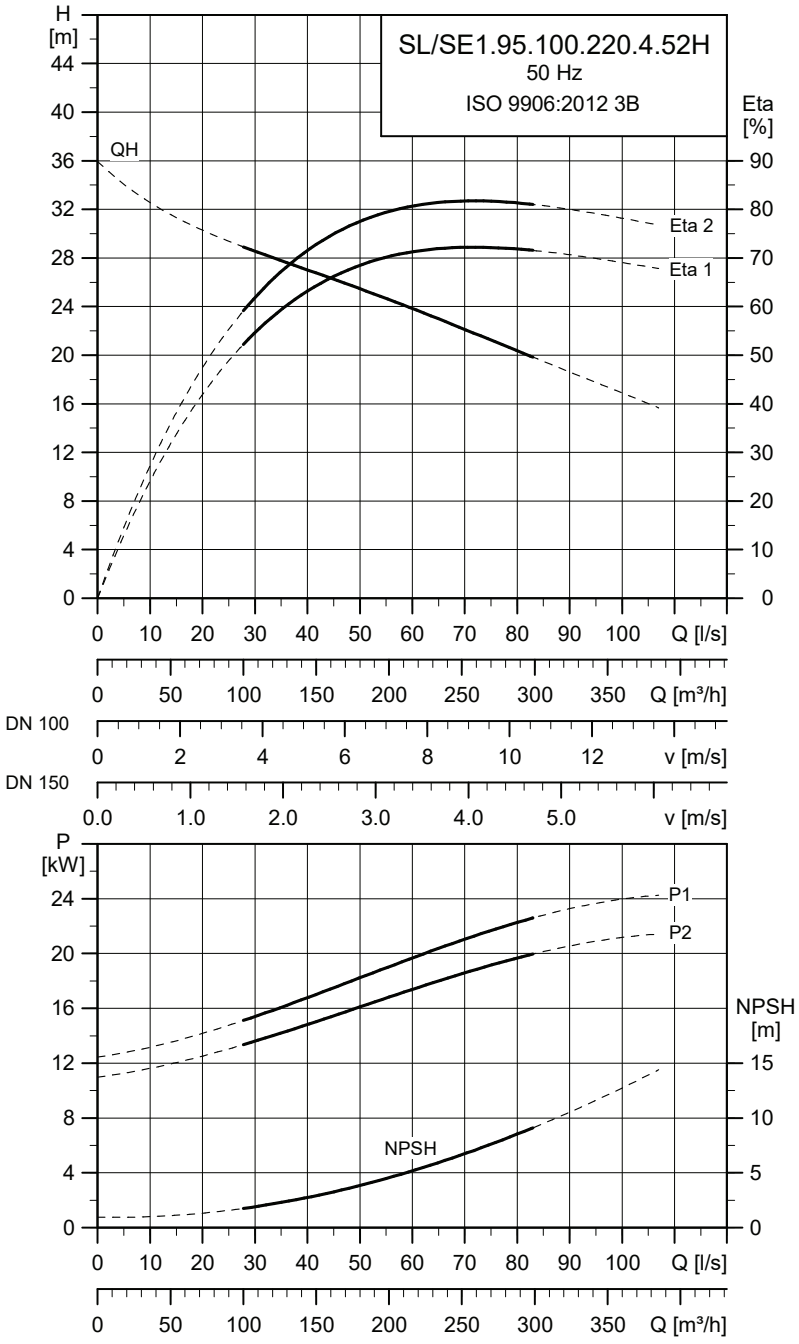
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.95.100.200.4.52H	380-415	23	20	4	1478	Y/D	43-39	381	85	88	88	0.69	0.74	0.81	0.0750	304
	660-690						25-24	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.95.100.200.4.52H	300	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.95.100.220.4.52H



TM066809

Electrical data

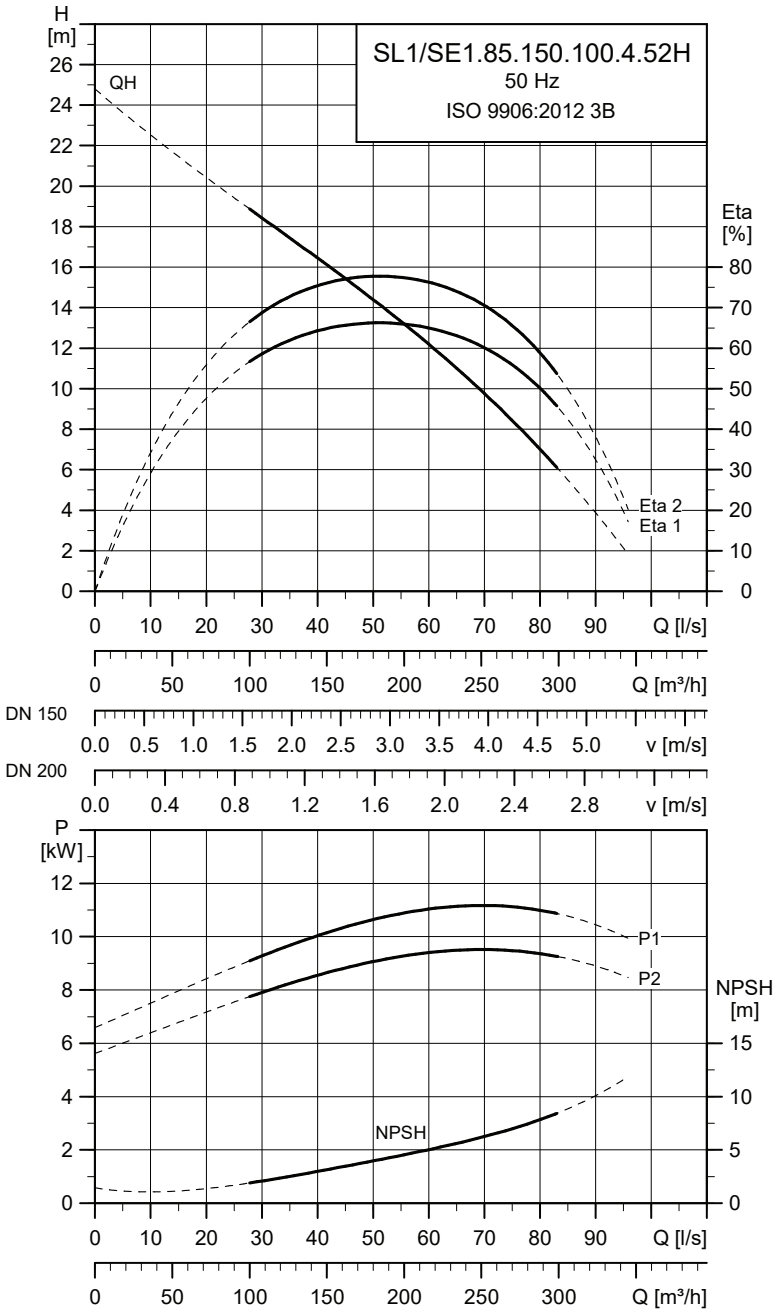
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.95.100.220.4.52H	380-415	25	22	4	1476	Y/D	45-41	381	86	88	88	0.70	0.76	0.85	0.0750	304
	660-690						26-25	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.95.100.220.4.52H	309	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.100.4.52H



TM053628

Electrical data

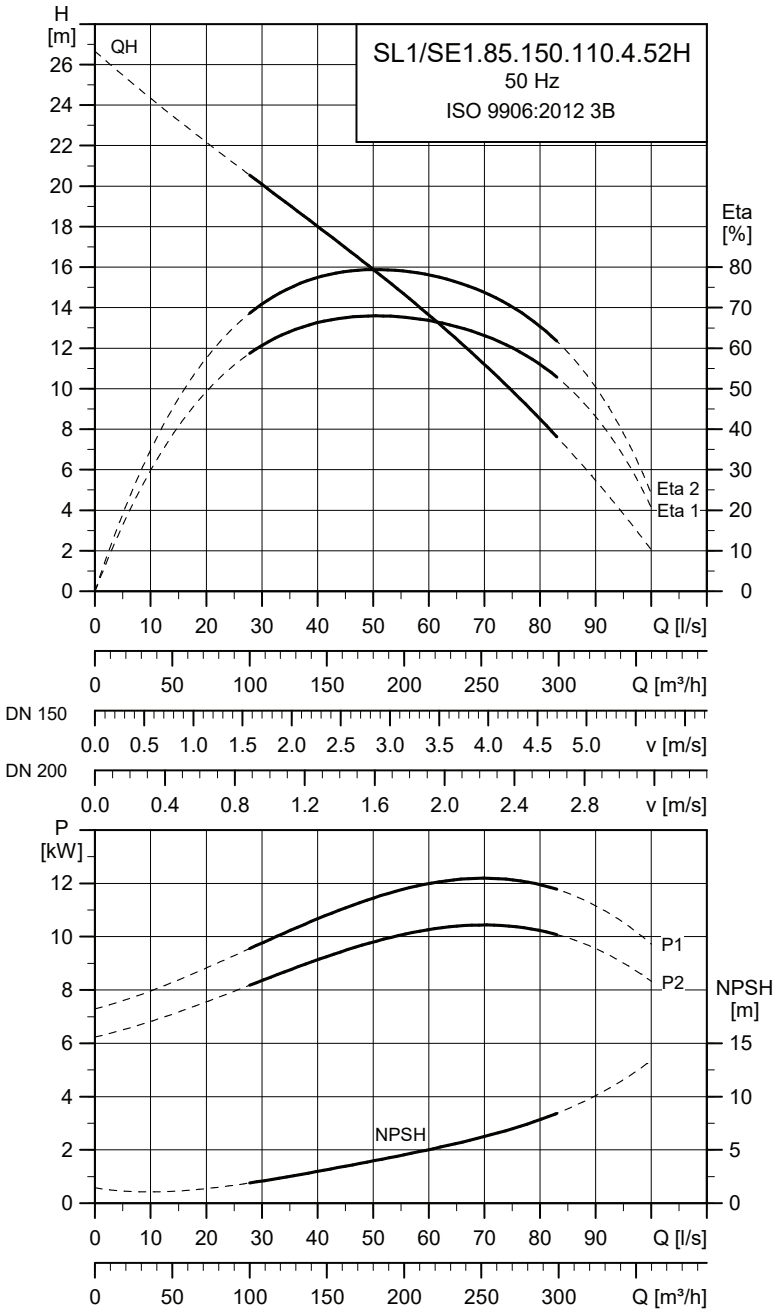
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.100.4.52H	380-415	12	10	4	1482	Y/D	23-21	210	84	85	86	0.69	0.74	0.80	0.0580	222
	660-690						13-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.100.4.52H	266	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.110.4.52H



TM053608

Electrical data

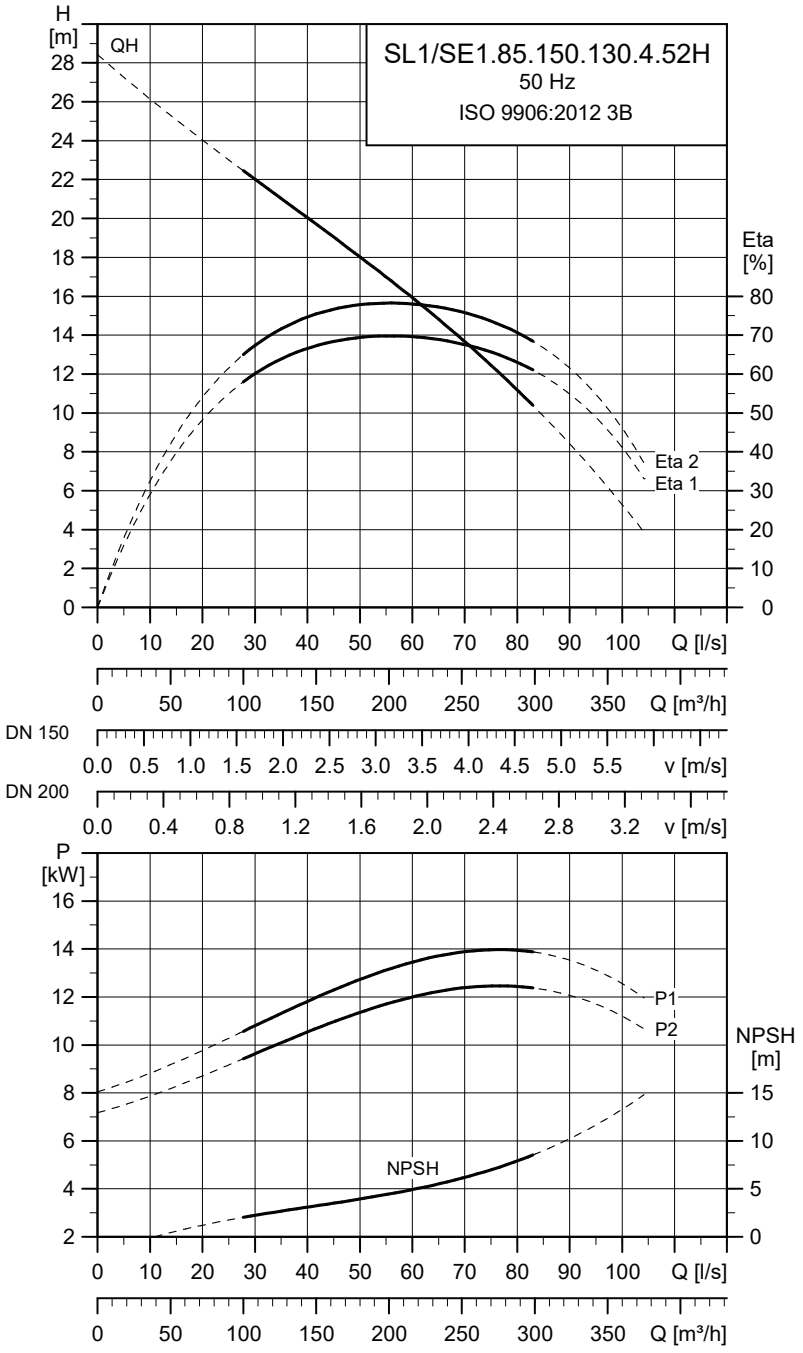
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.110.4.52H	380-415	13	11	4	1481	Y/D	24-22	210	84	86	86	0.70	0.76	0.82	0.0580	222
	660-690						14-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.110.4.52H	276	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.130.4.52H



TM053627

Electrical data

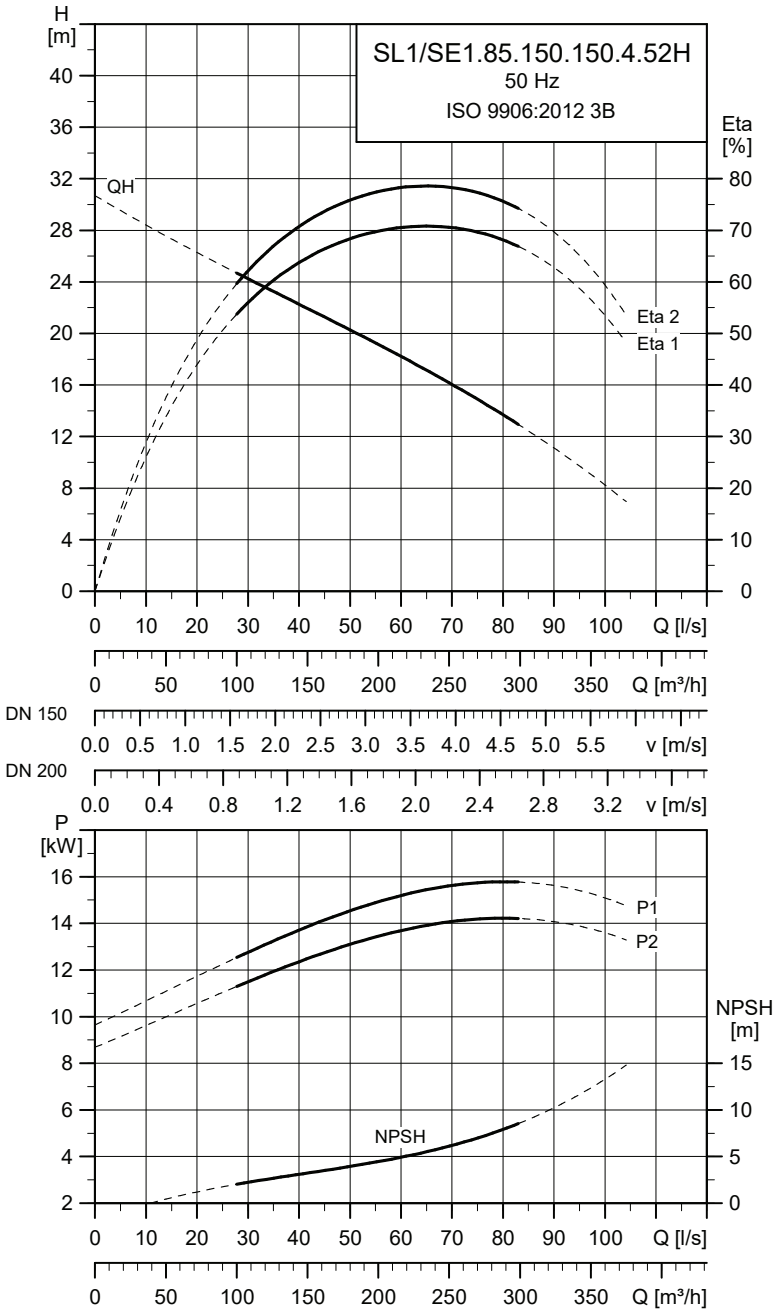
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.130.4.52H	380-415	15	13	4	1483	Y/D	28-25	534	87	88	88	0.66	0.77	0.83	0.0750	304
	660-690						16-15	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.130.4.52H	281	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.150.4.52H



TM053607

Electrical data

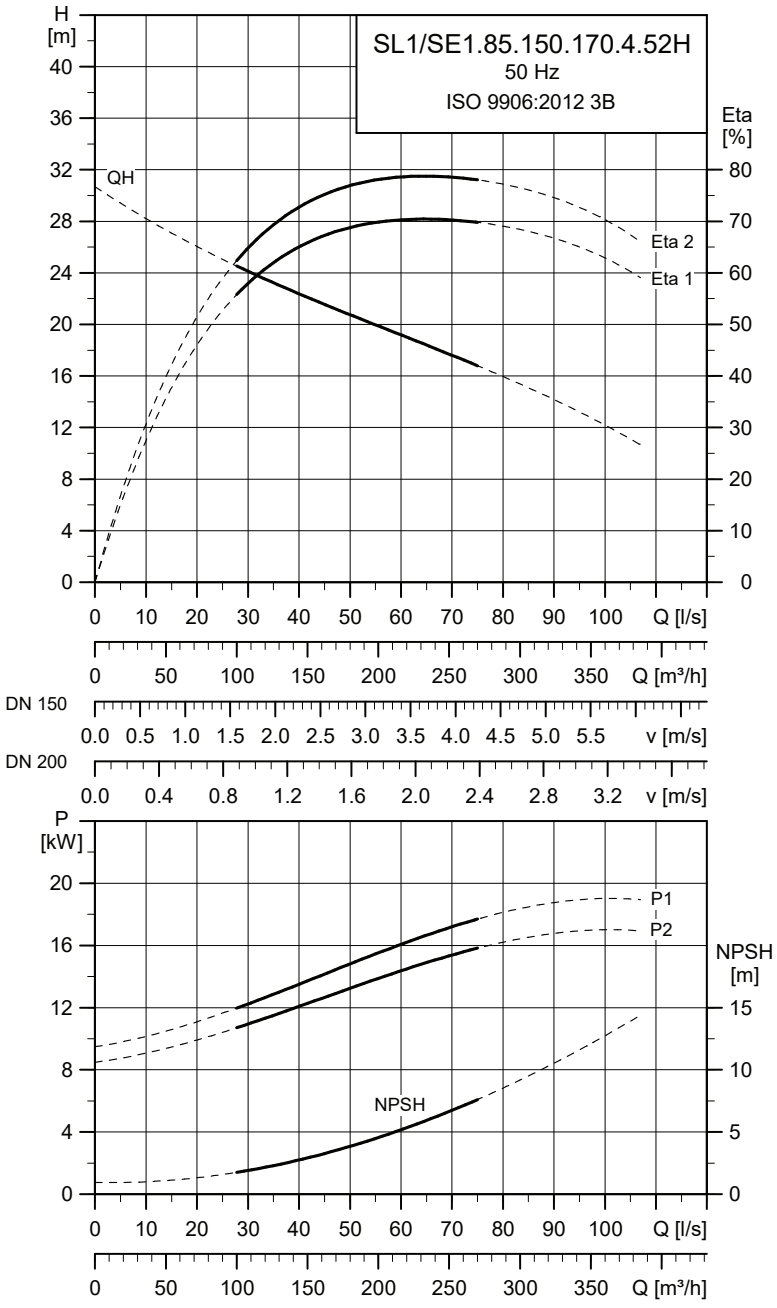
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.150.4.52H	380-415	17	15	4	1480	Y/D	31-29	283	87	88	88	0.70	0.80	0.84	0.0750	304
	660-690						18-17	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.150.4.52H	292	85	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.170.4.52H



TM053626

Electrical data

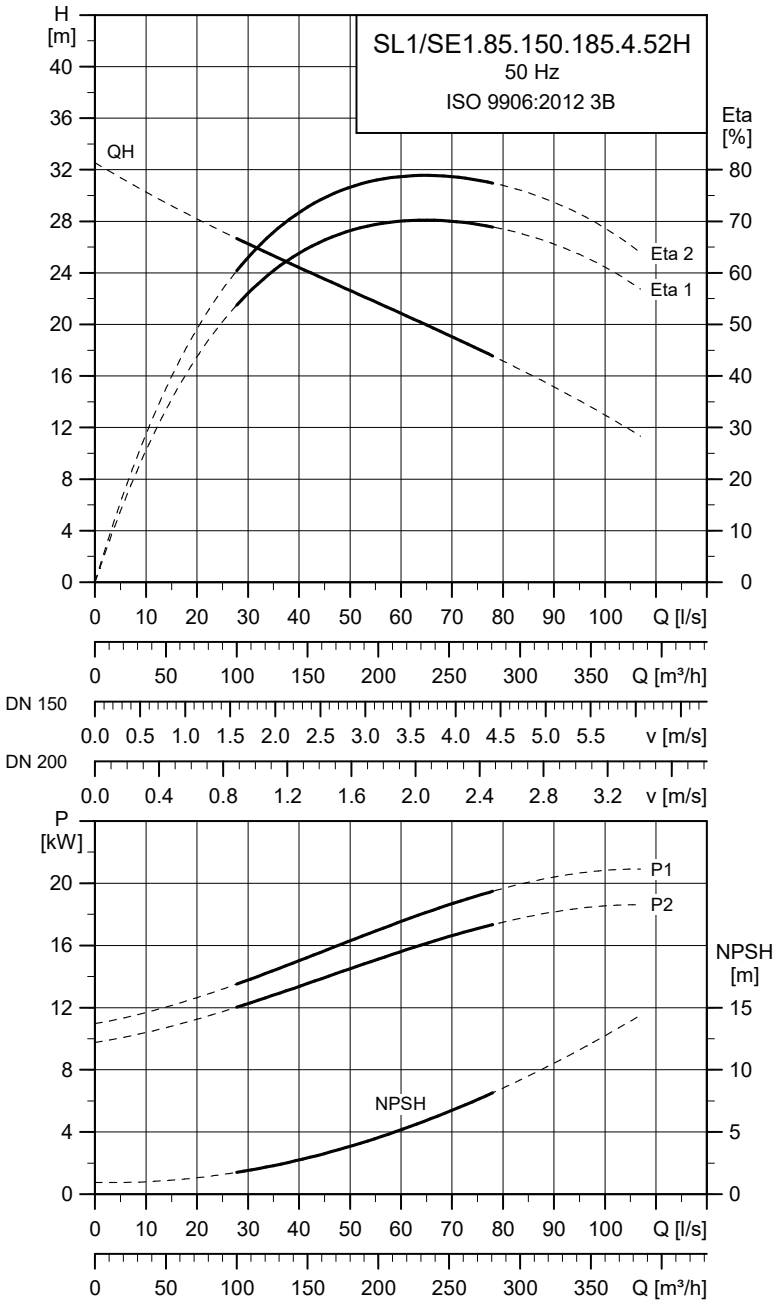
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.170.4.52H	380-415	19	17	4	1480	Y/D	39-36	381	84	87	88	0.68	0.72	0.77	0.0750	304
	660-690						23-22	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.170.4.52H	293	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.85.150.185.4.52H



TM053605

Electrical data

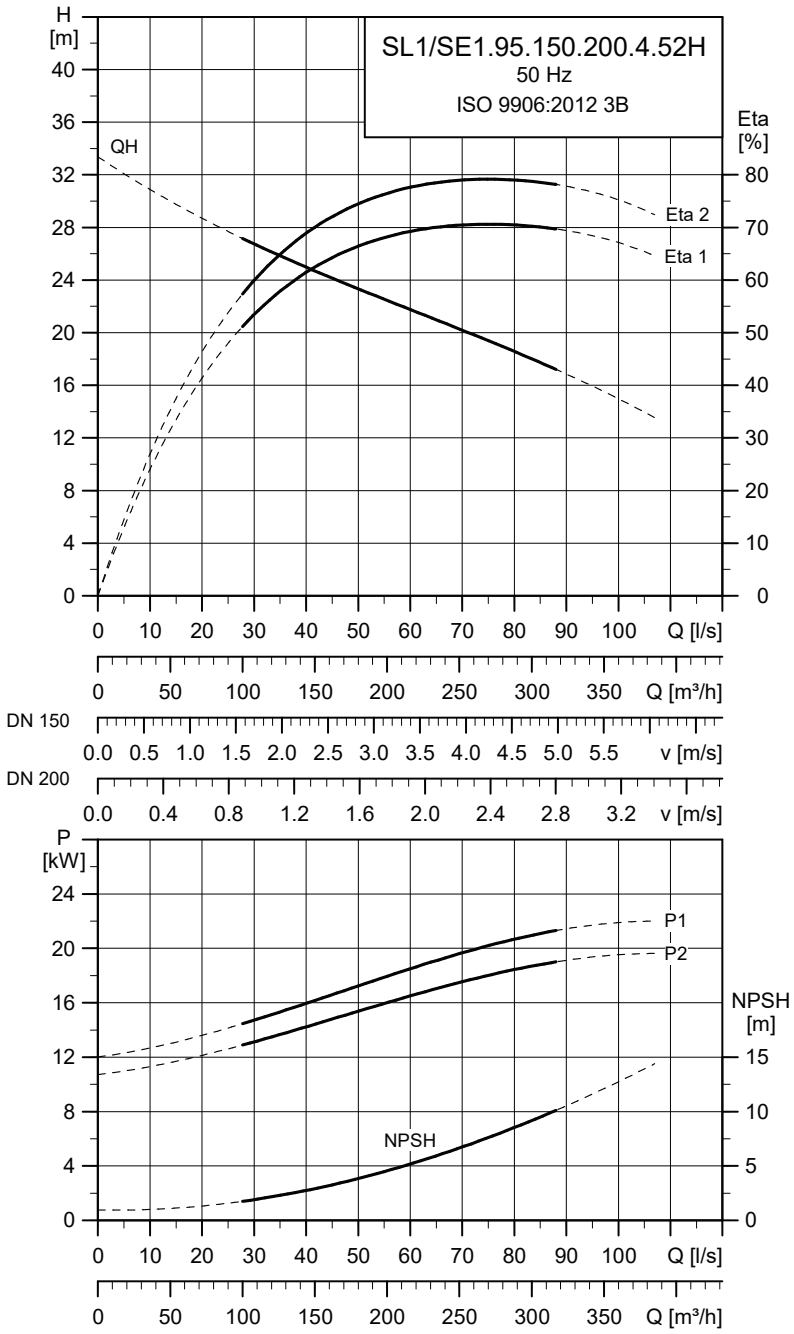
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.85.150.185.4.52H	380-415	21	18.5	4	1479	Y/D	41-37	381	85	87	88	0.69	0.73	0.79	0.0750	304
	660-690						24-23	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.85.150.185.4.52H	299	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.95.150.200.4.52H



TM053625

Electrical data

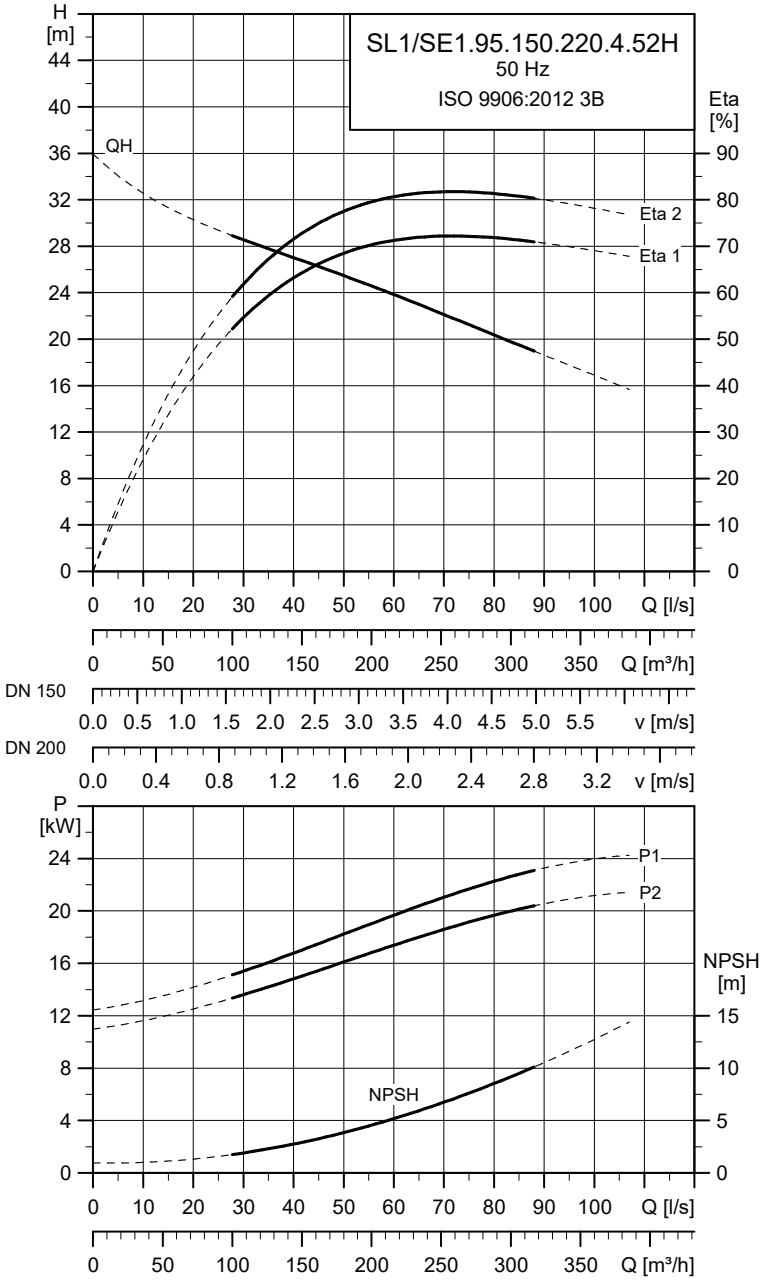
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.95.150.200.4.52H	380-415	23	20	4	1478	Y/D	43-39	381	85	88	88	0.69	0.74	0.81	0.0750	304
	660-690						25-24	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.95.150.200.4.52H	300	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.95.150.220.4.52H



Electrical data

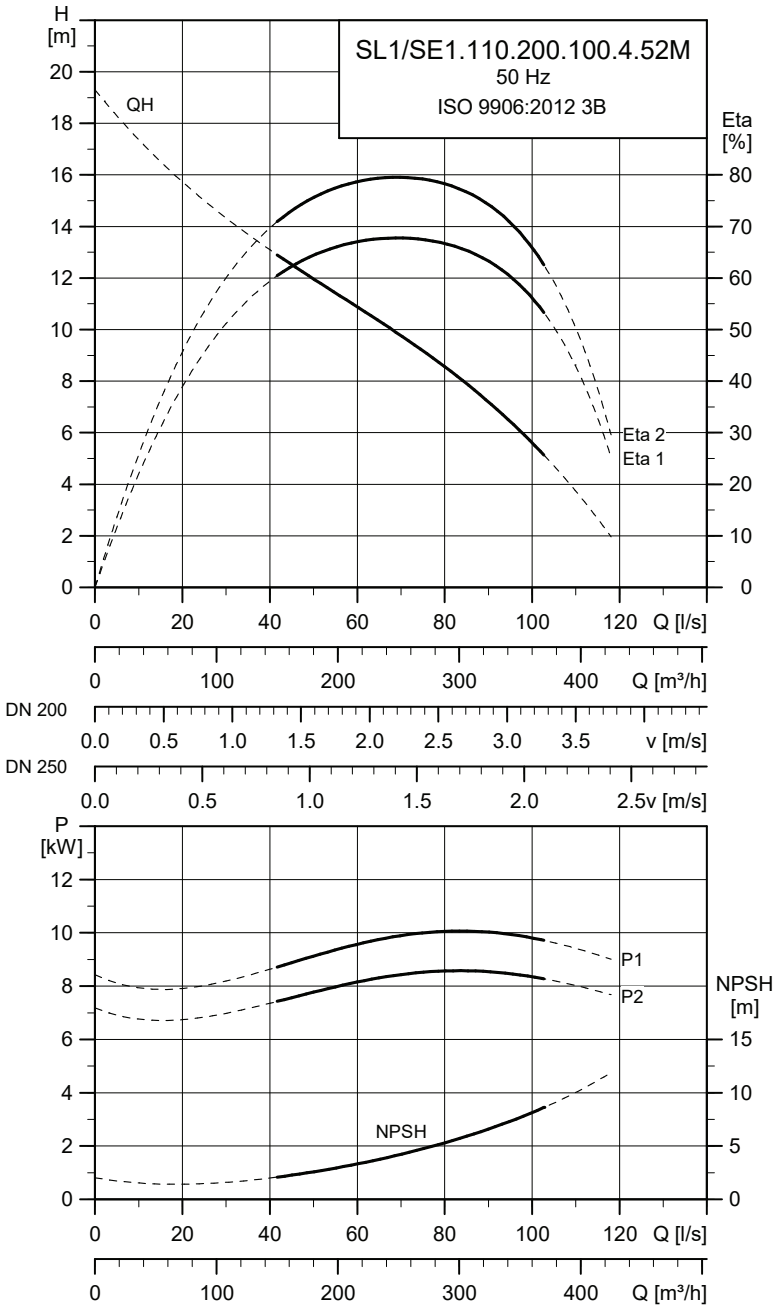
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.95.150.220.4.52H	380-415	25	22	4	1476	Y/D	45-41	381	86	88	88	0.70	0.76	0.85	0.0750	304
	660-690						26-25	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.95.150.220.4.52H	309	95	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.100.4.52M



TM053632

Electrical data

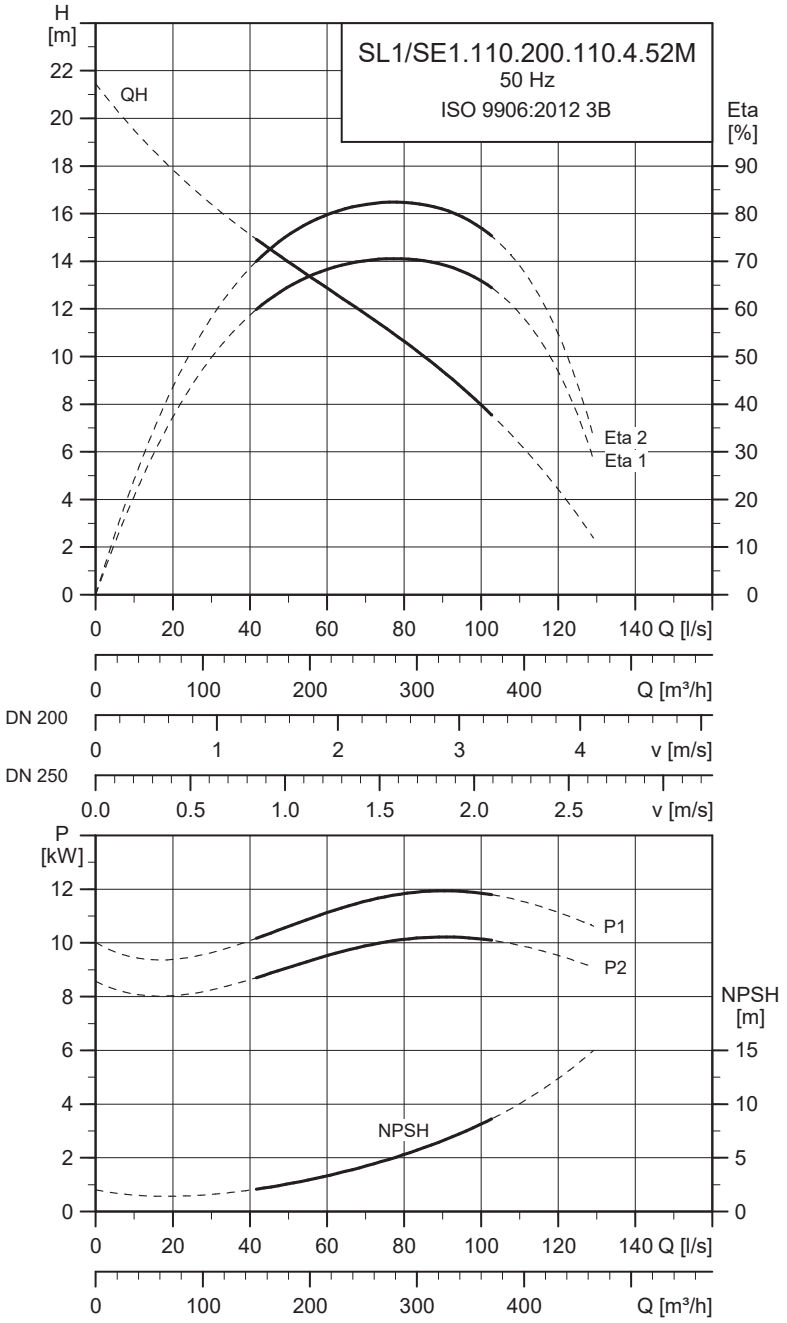
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.100.4.52M	380-415	12	10	4	1482	Y/D	23-21	210	84	85	86	0.69	0.74	0.80	0.0580	222
	660-690						13-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.110.200.100.4.52M	246	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.110.4.52M



TM093185

Electrical data

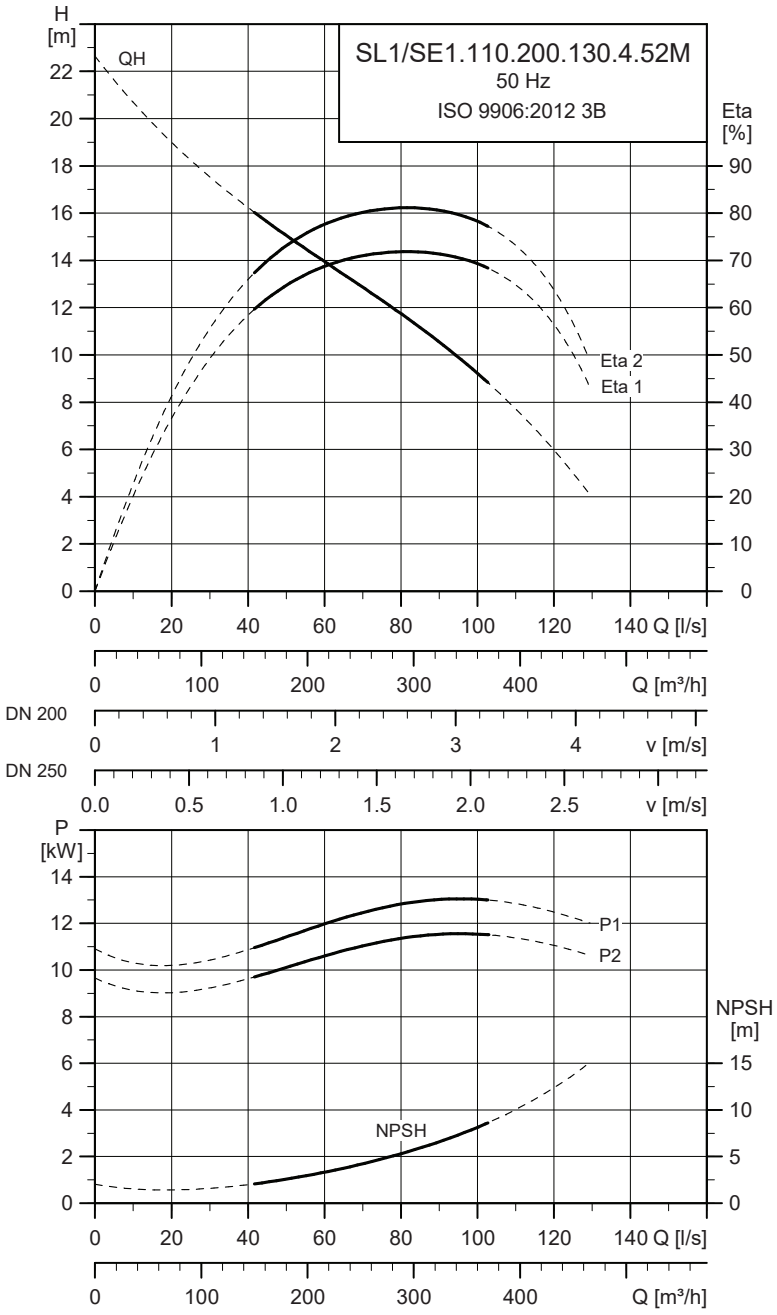
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.110.4.52M	380-415 / 660-690	13	11	4	1481	Y/D	24-22 / 14-13	210 / 116	84	86	86	0.70	0.76	0.82	0.0580	222

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.110.200.110.4.52M	256	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.130.4.52M



TM053631

Electrical data

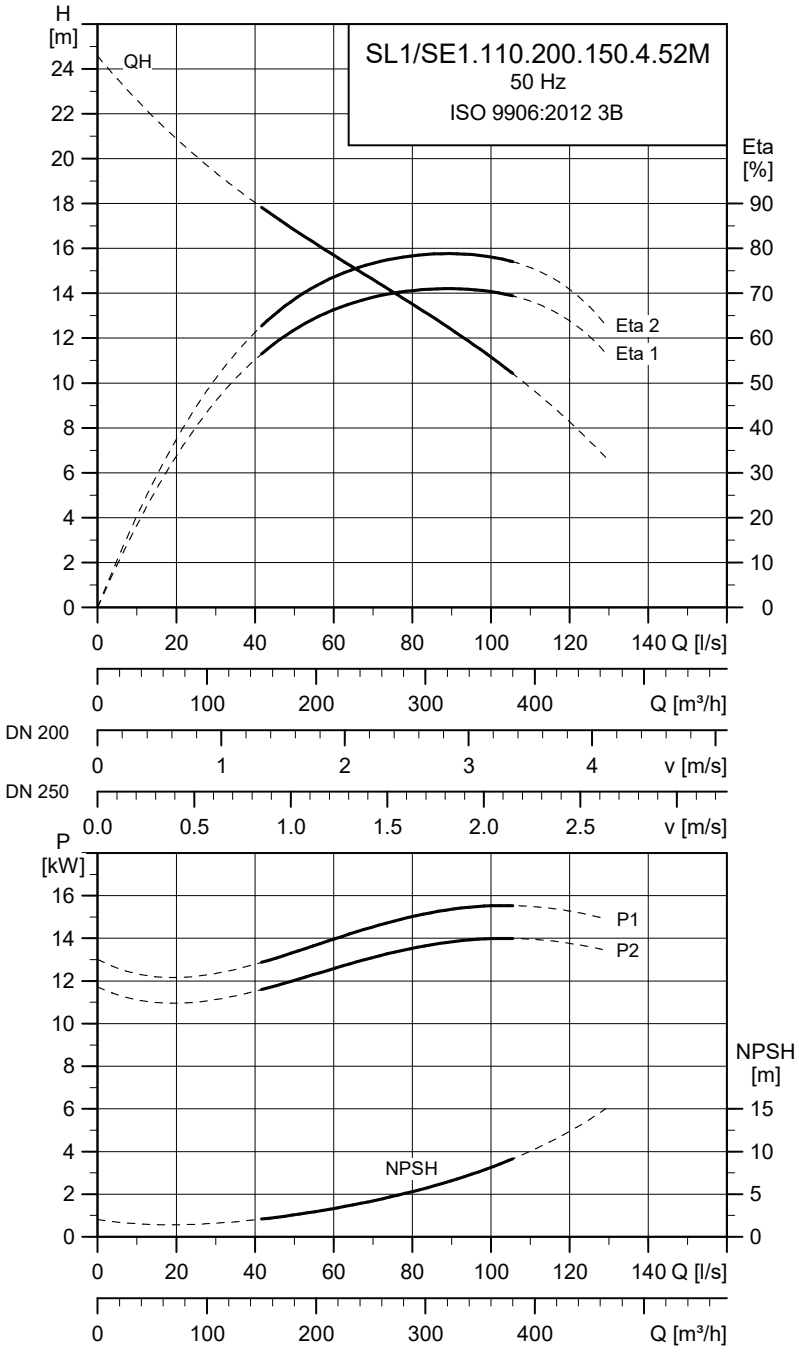
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.130.4.52M	380-415 / 660-690	15	13	4	1483	Y/D	28-25 / 16-15	283 / 156	87	88	88	0.66	0.77	0.83	0.0750	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.110.200.130.4.52M	264	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.150.4.52M



Electrical data

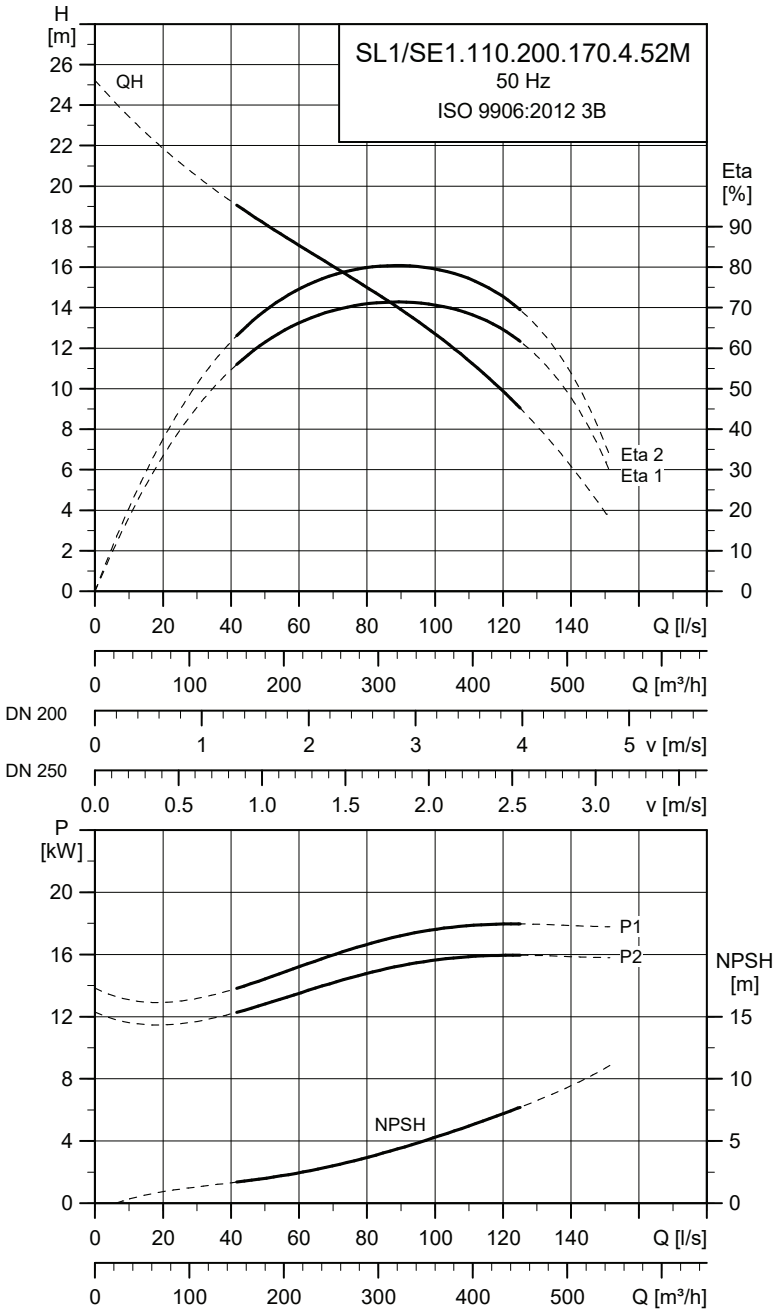
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.150.4.52M	380-415	17	15	4	1480	Y/D	31-29	283	87	88	88	0.70	0.80	0.84	0.0750	304
	660-690						18-17	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.110.200.150.4.52M	273	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.170.4.52M



TM053630

Electrical data

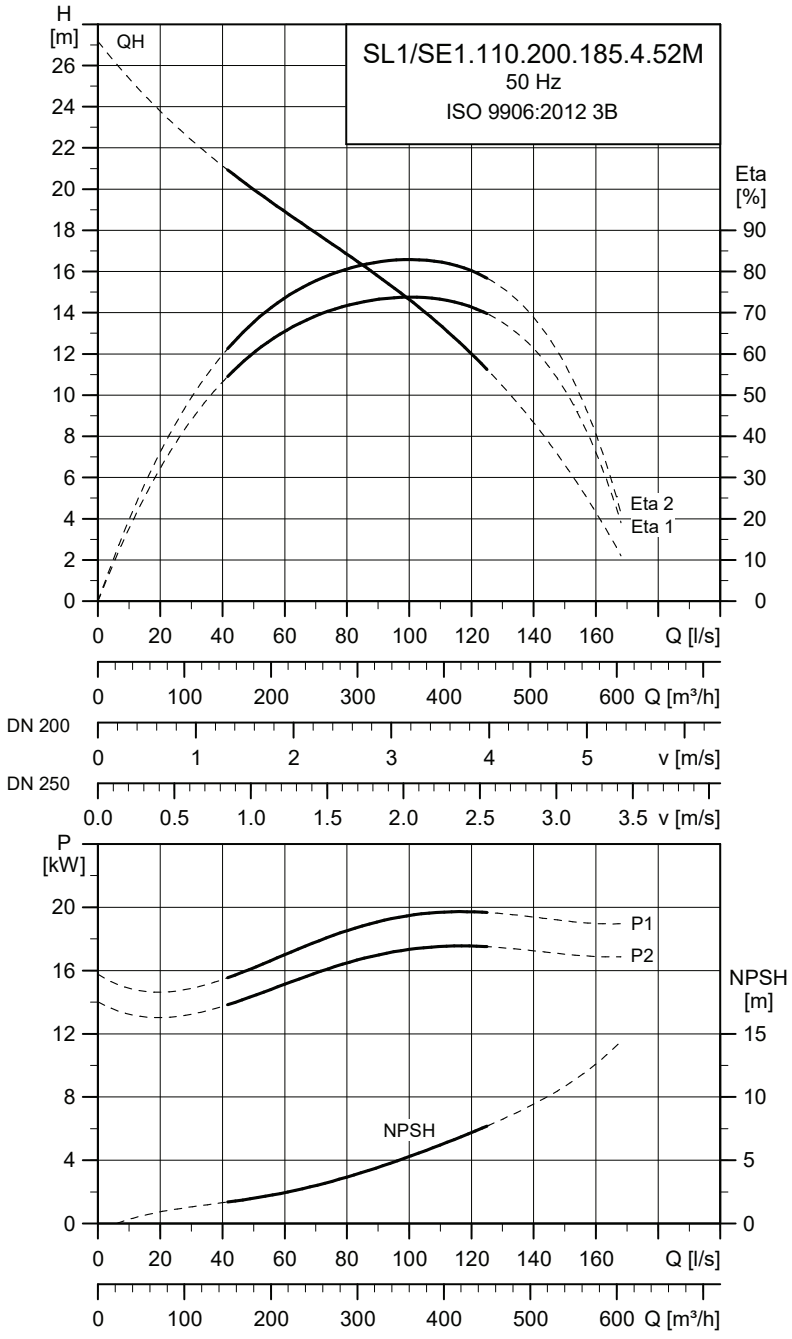
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.170.4.52M	380-415 / 660-690	19	17	4	1480	Y/D	39-36 / 23-22	381 / 209	84	87	88	0.68	0.72	0.77	0.0750	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.110.200.170.4.52M	277	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.185.4.52M



TM053610

Electrical data

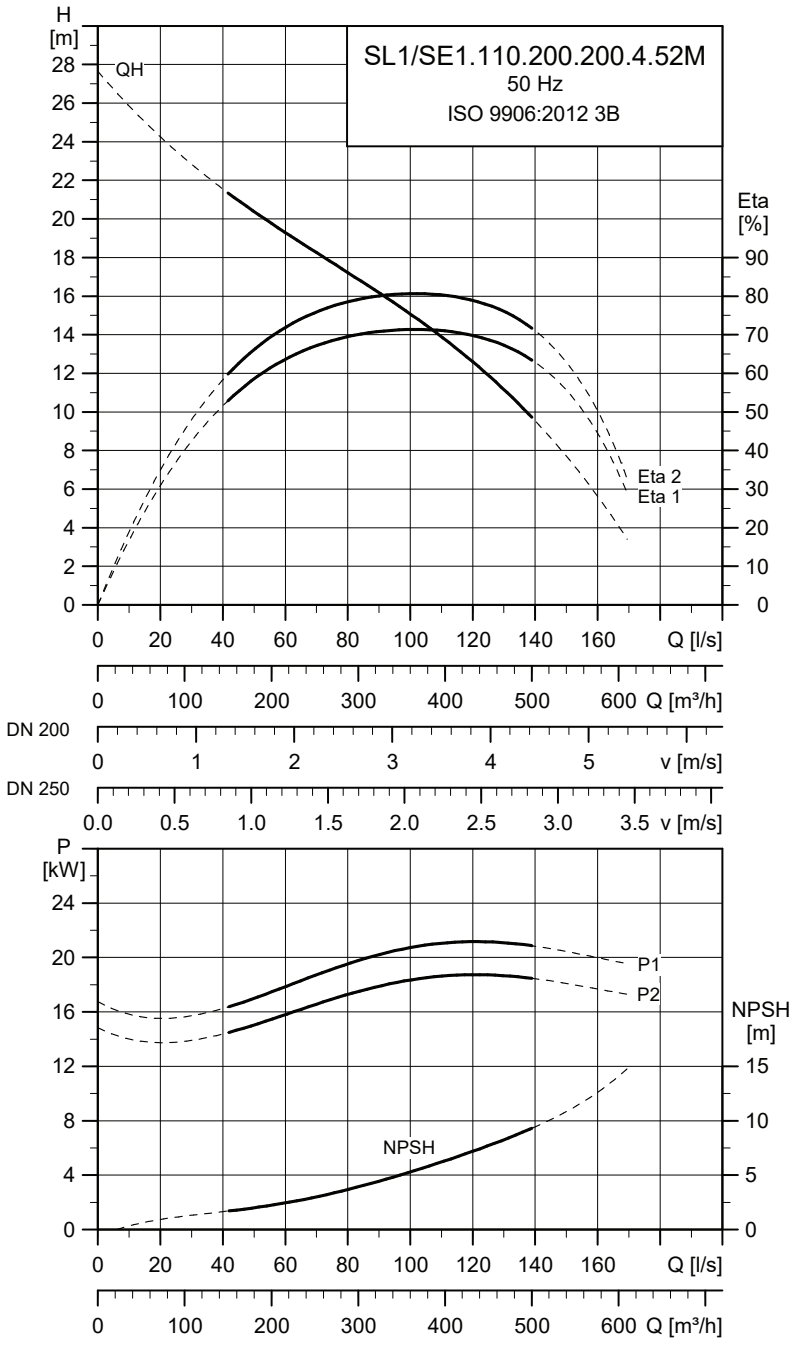
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.185.4.52M	380-415	21	18.5	4	1479	Y/D	41-37	381	85	87	88	0.69	0.73	0.79	0.0750	304
	660-690						24-23	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL1/SE1.110.200.185.4.52M	285	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.200.4.52M



Electrical data

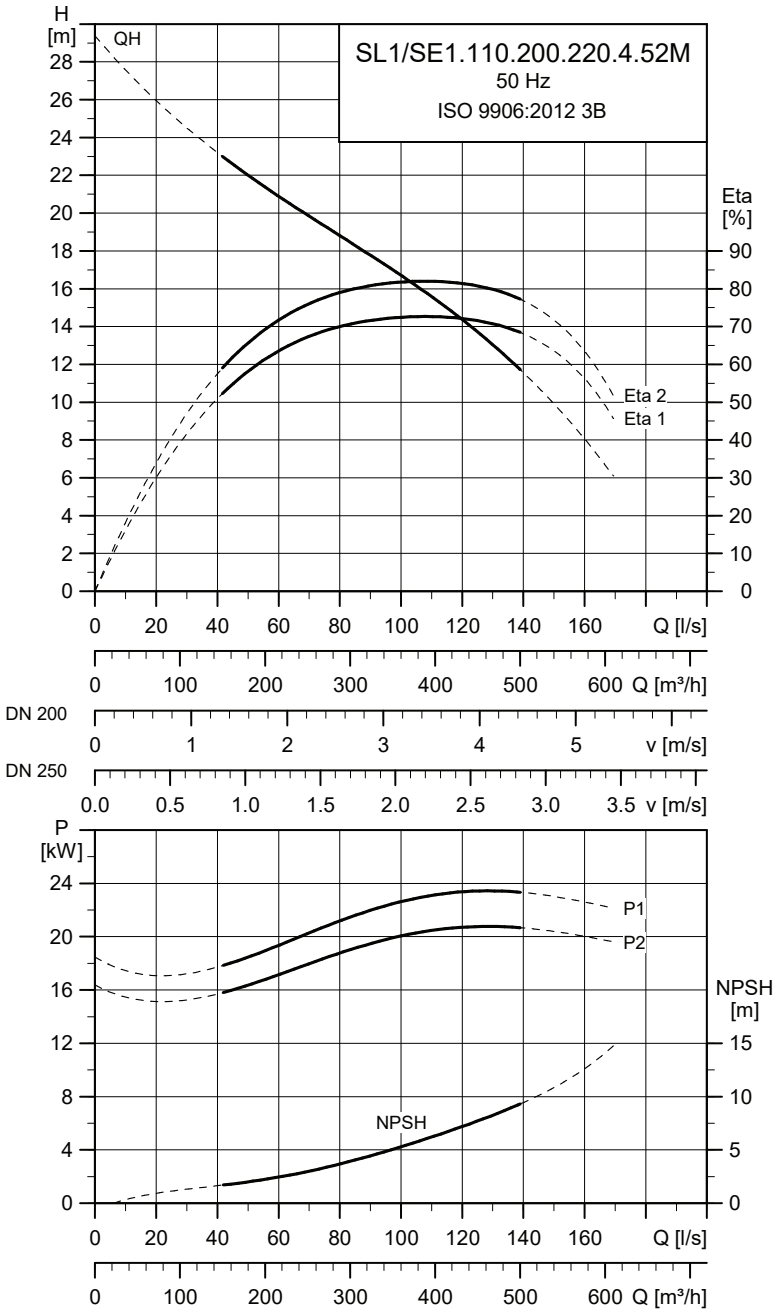
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.200.4.52M	380-415 / 660-690	23	20	4	1478	Y/D	43-39 / 25-24	381 / 209	85	88	88	0.69	0.74	0.81	0.0750	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.110.200.200.4.52M	293	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL1/SE1.110.200.220.4.52M



TM053609

Electrical data

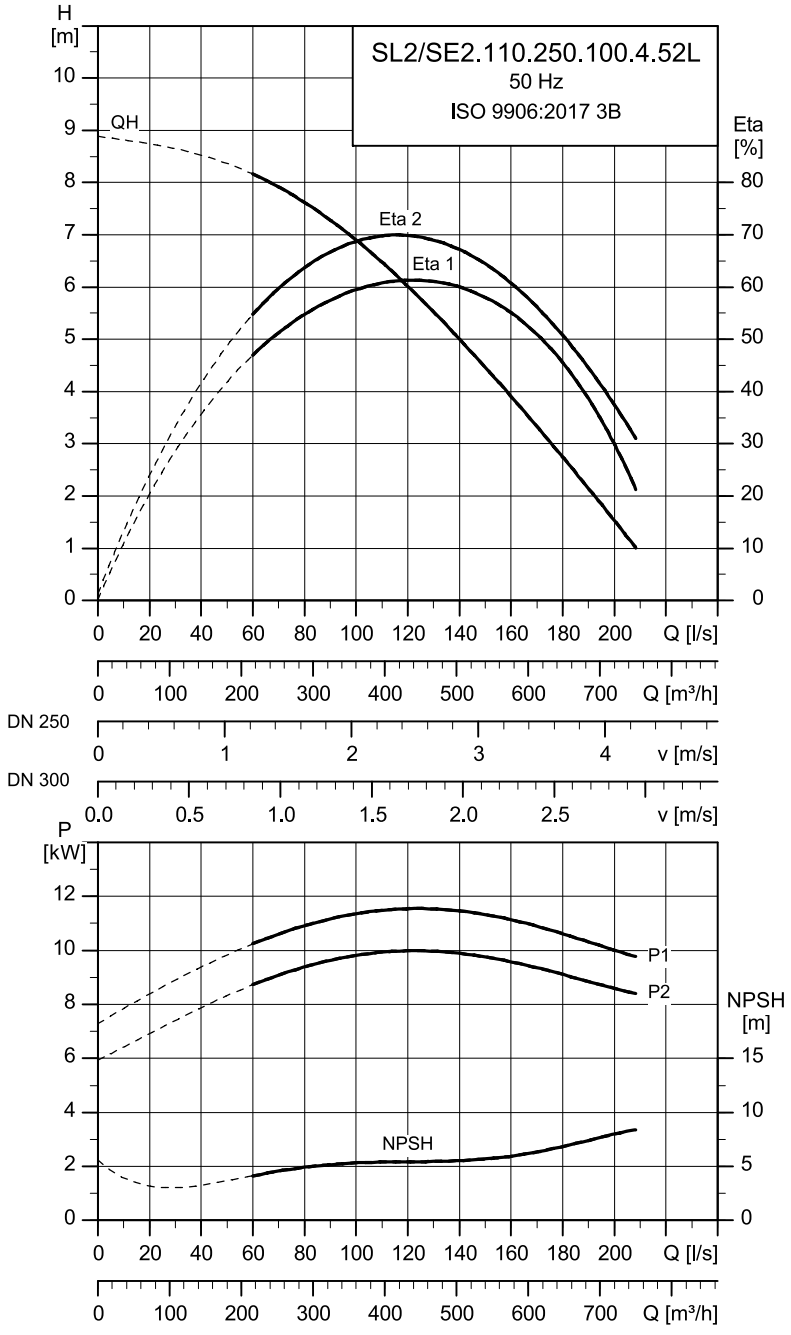
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL1/SE1.110.200.220.4.52M	380-415 / 660-690	25	22	4	1476	Y/D	45-41 / 26-25	381 / 209	86	88	88	0.70	0.76	0.85	0.0750	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL1/SE1.110.200.220.4.52M	302	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.100.4.52L



TM074325

Electrical data

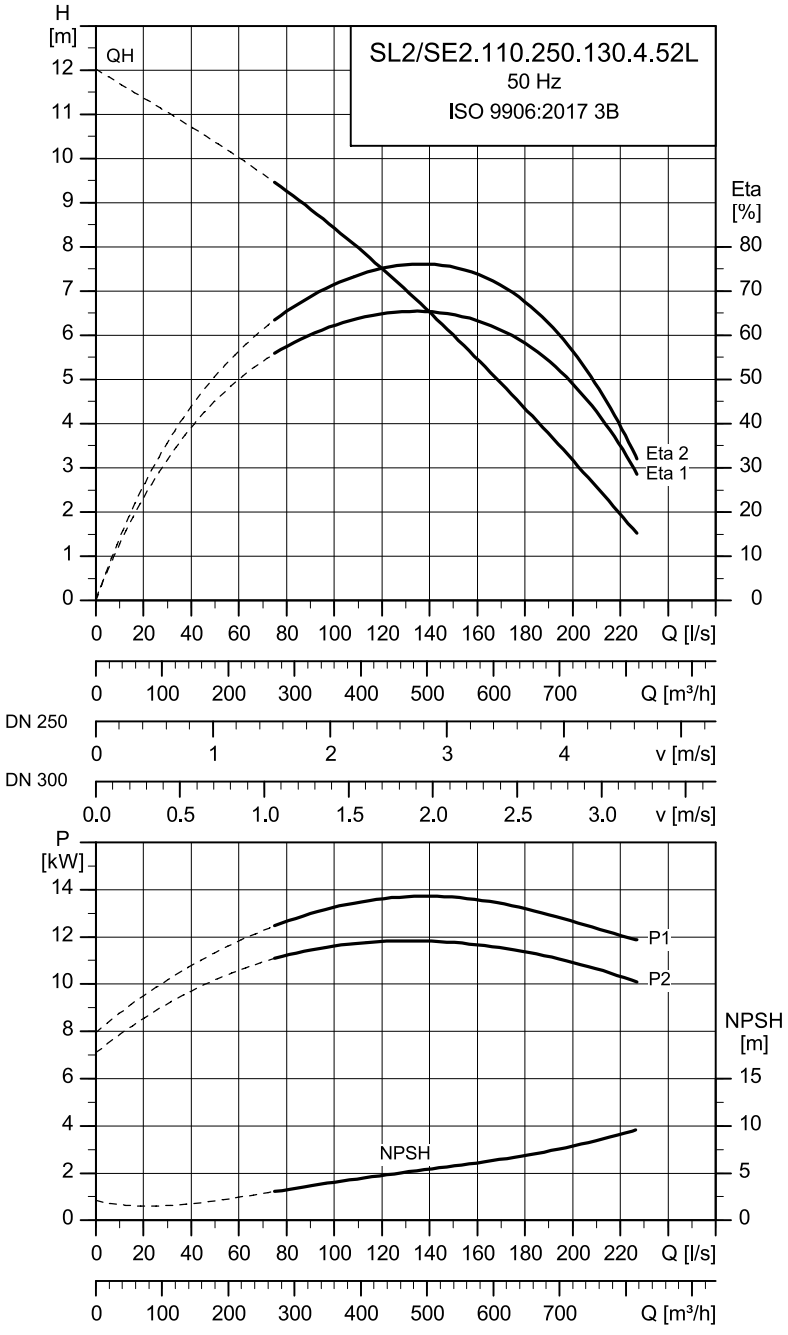
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.100.4.52L	380-415	12	10	4	1481	Y/D	23-21	210	84	85	86	0.69	0.74	0.80	0.0580	222
	660-690						13-13	116								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.100.4.52L	231	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.130.4.52L



TM066728

Electrical data

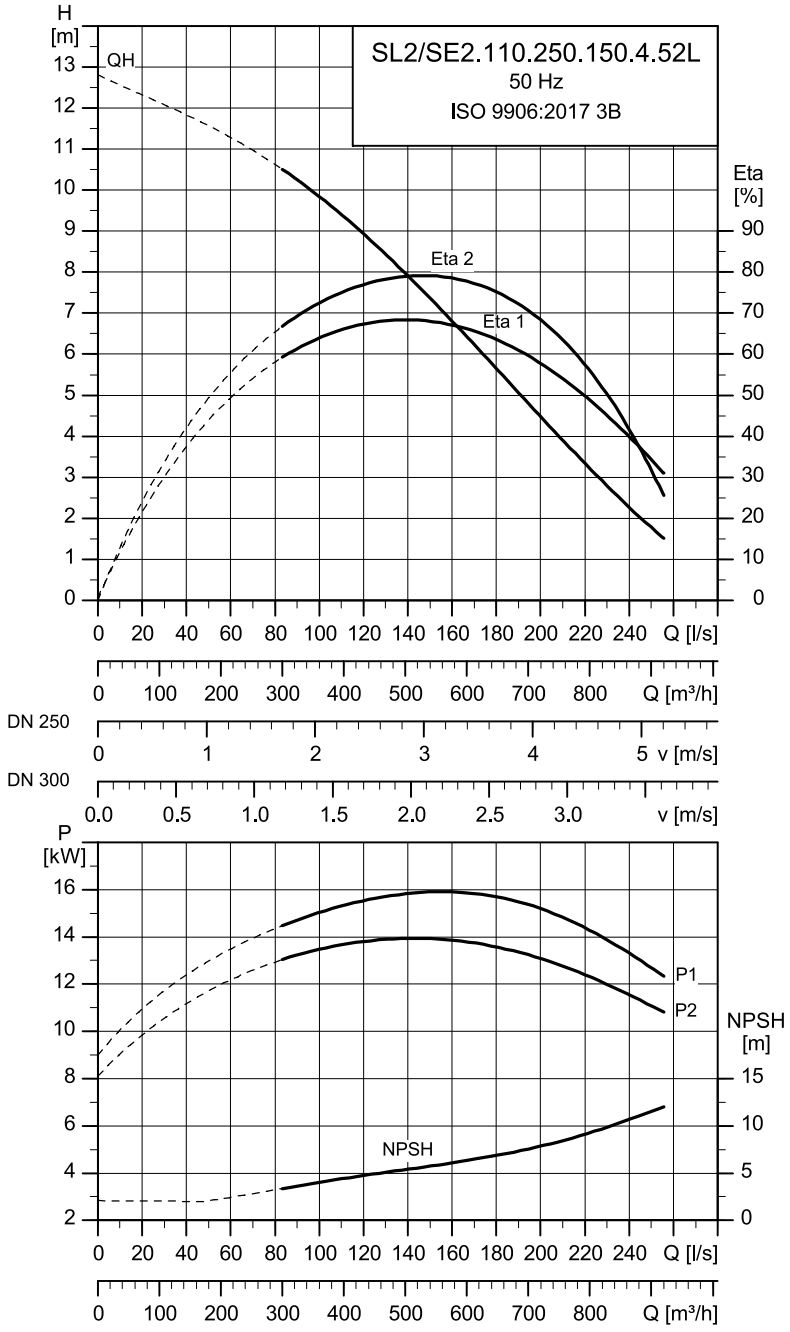
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.130.4.52L	380-415	15	13	4	1483	Y/D	28-25	283	87	88	88	0.66	0.77	0.83	0.0750	304
	660-690						16-15	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.130.4.52	237	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.150.4.52L



TM066729

Electrical data

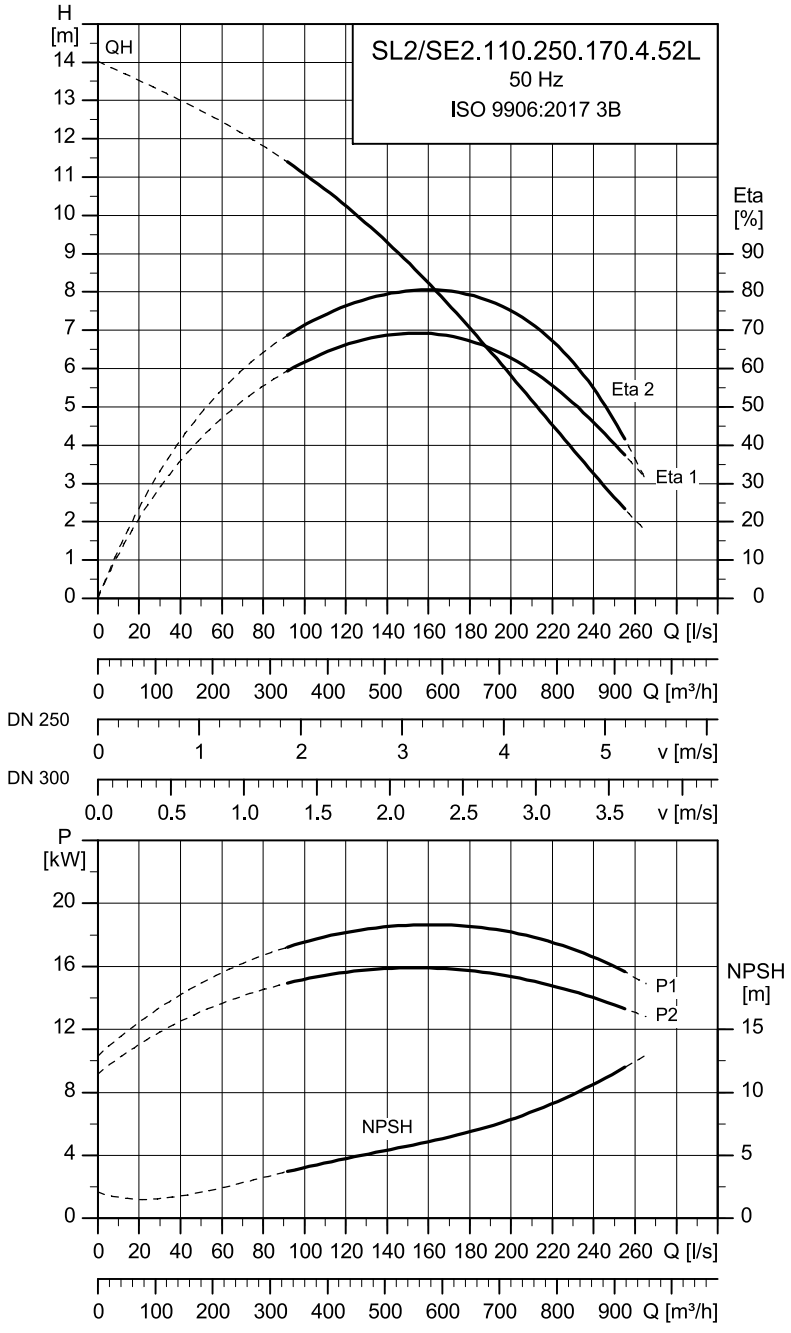
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.150.4.52L	380-415	17	15	4	1480	Y/D	31-29	283	87	88	88	0.70	0.80	0.84	0.0750	304
	660-690						18-17	156								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.150.4.52	247	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.170.4.52L



TM066730

Electrical data

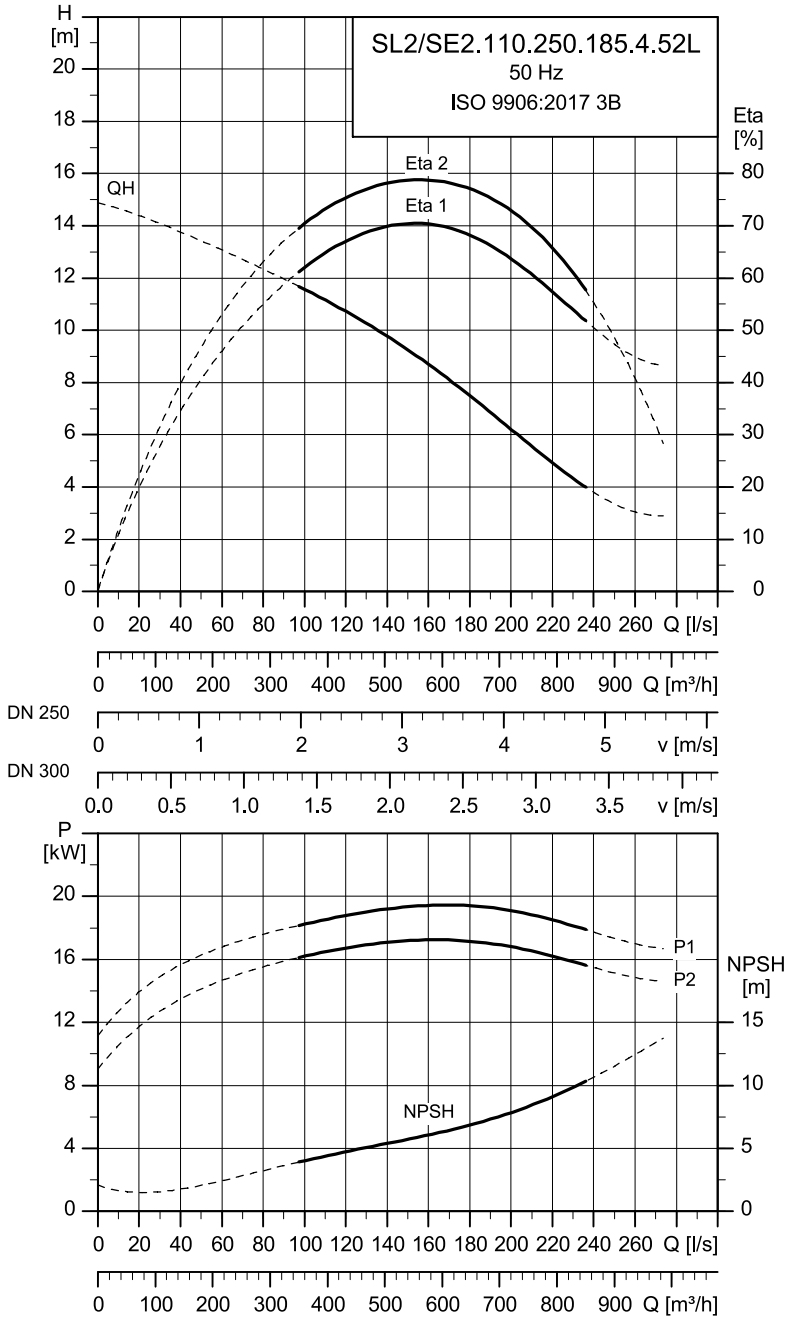
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.170.4.52L	380-415	19	17	4	1480	Y/D	39-36	381	84	87	88	0.68	0.72	0.77	0.0750	304
	660-690						23-22	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.170.4.52	255	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.185.4.52L



Electrical data

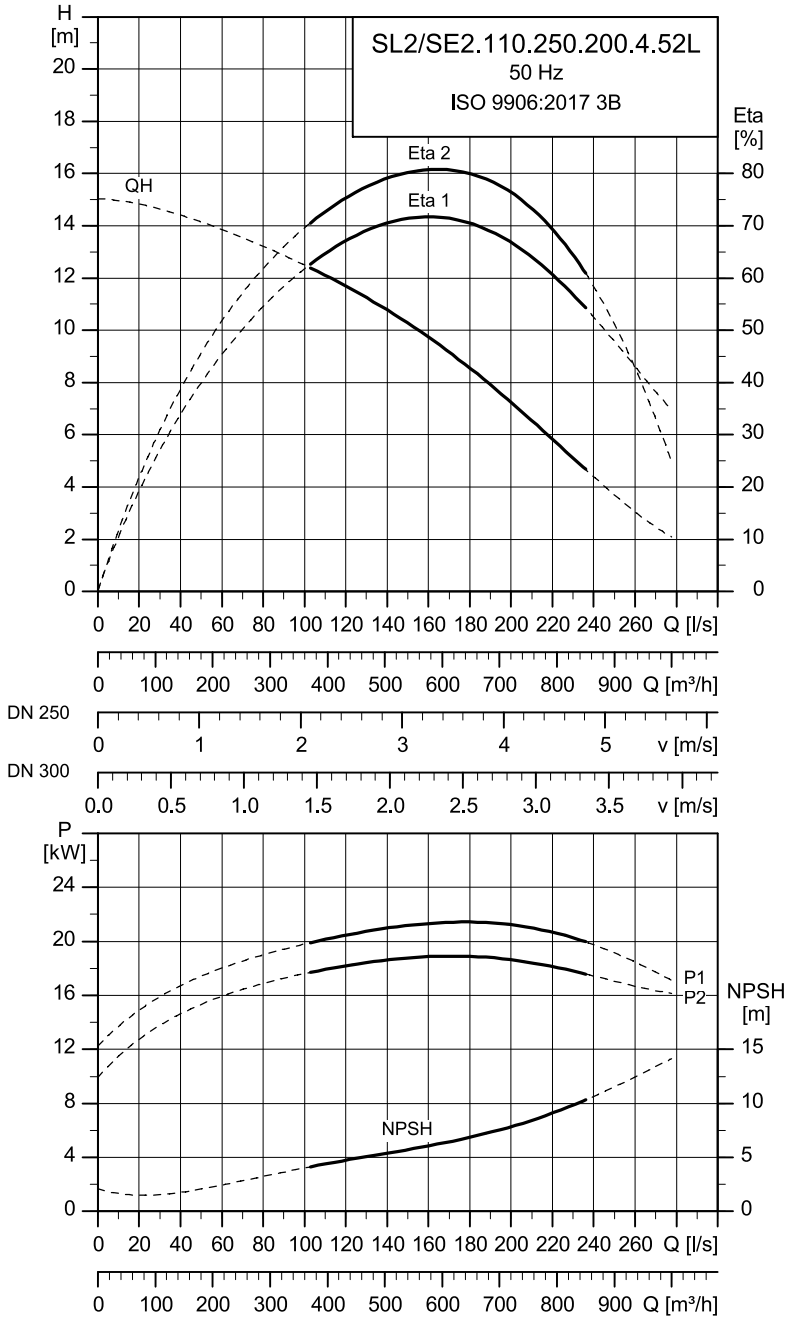
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.185.4.52L	380-415	21	18.5	4	1479	Y/D	41-37	381	85	87	88	0.69	0.73	0.79	0.0750	304
	660-690						24-23	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.185.4.52	259	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.200.4.52L



TM066732

Electrical data

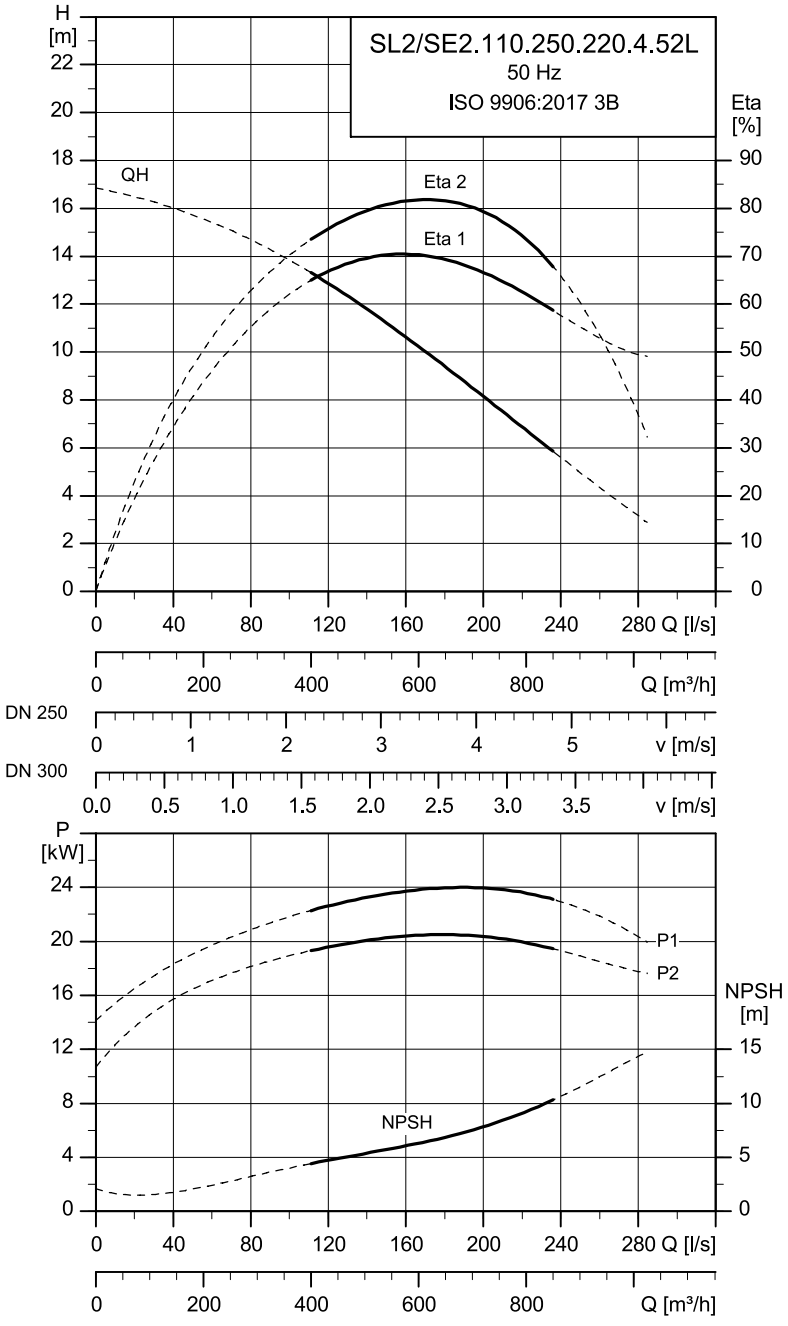
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.200.4.52L	380-415	23	20	4	1478	Y/D	43-39	381	85	88	88	0.69	0.74	0.81	0.0750	304
	660-690						25-24	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.200.4.52	264	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.110.250.220.4.52L



Electrical data

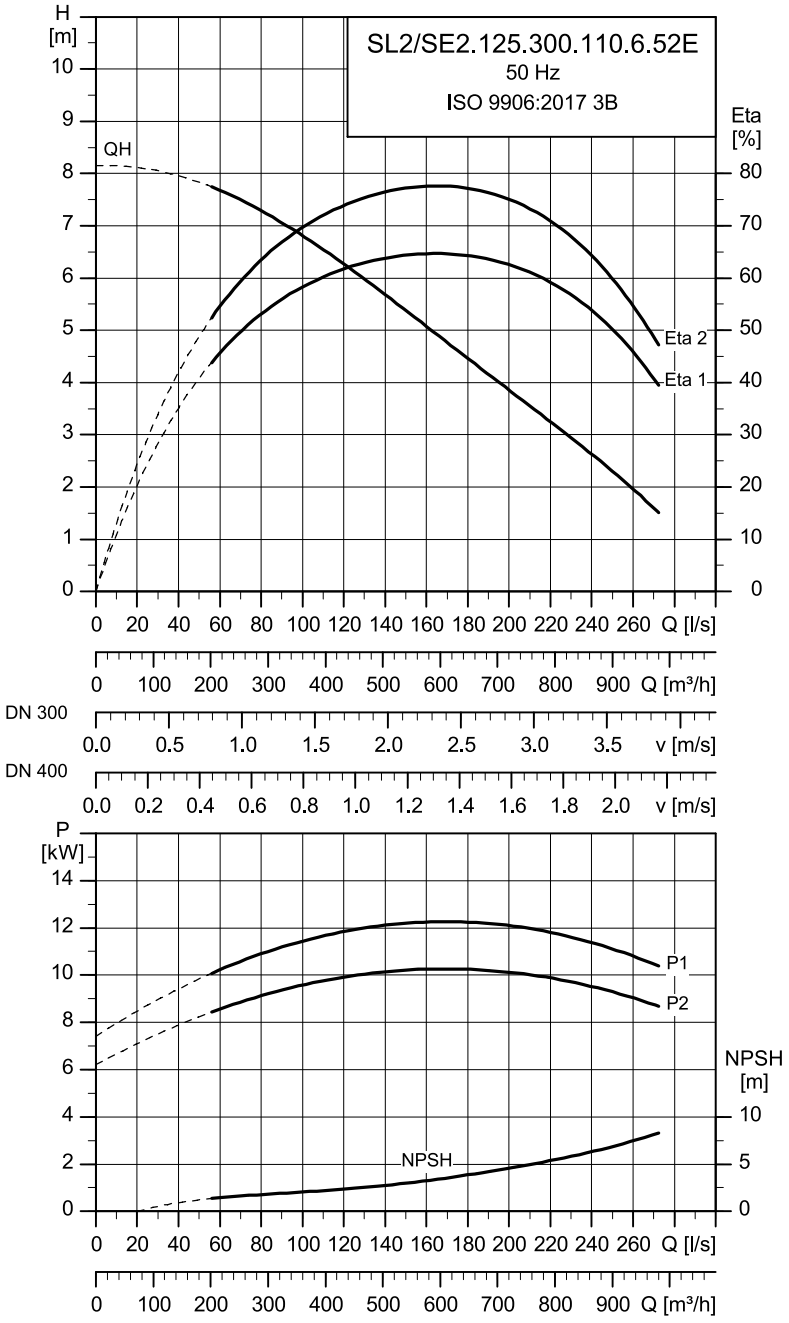
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.110.250.220.4.52L	380-415	25	22	4	1476	Y/D	45-41	381	86	88	88	0.70	0.76	0.85	0.0750	304
	660-690						26-25	209								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.110.250.220.4.52	271	110	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.125.300.110.6.52E



TM069926

Electrical data

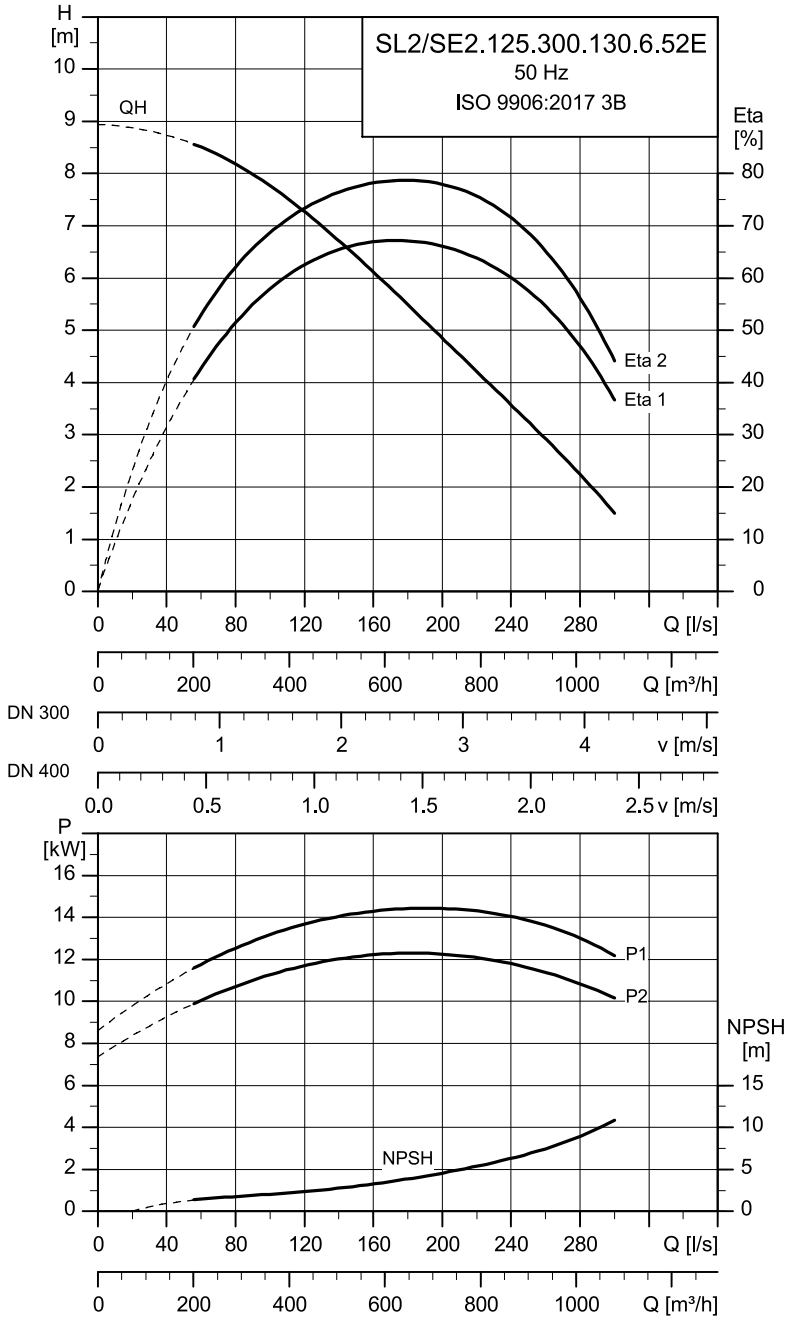
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.125.300.110.6.52E	380-415 / 660-690	13	11	6	983	Y/D	28-26 / 16-16	185 / 177	84	86	86	0.52	0.62	0.70	0.0940	503

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL2/SE2.125.300.110.6.52E	298	125	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.125.300.130.6.52E



TM069927

Electrical data

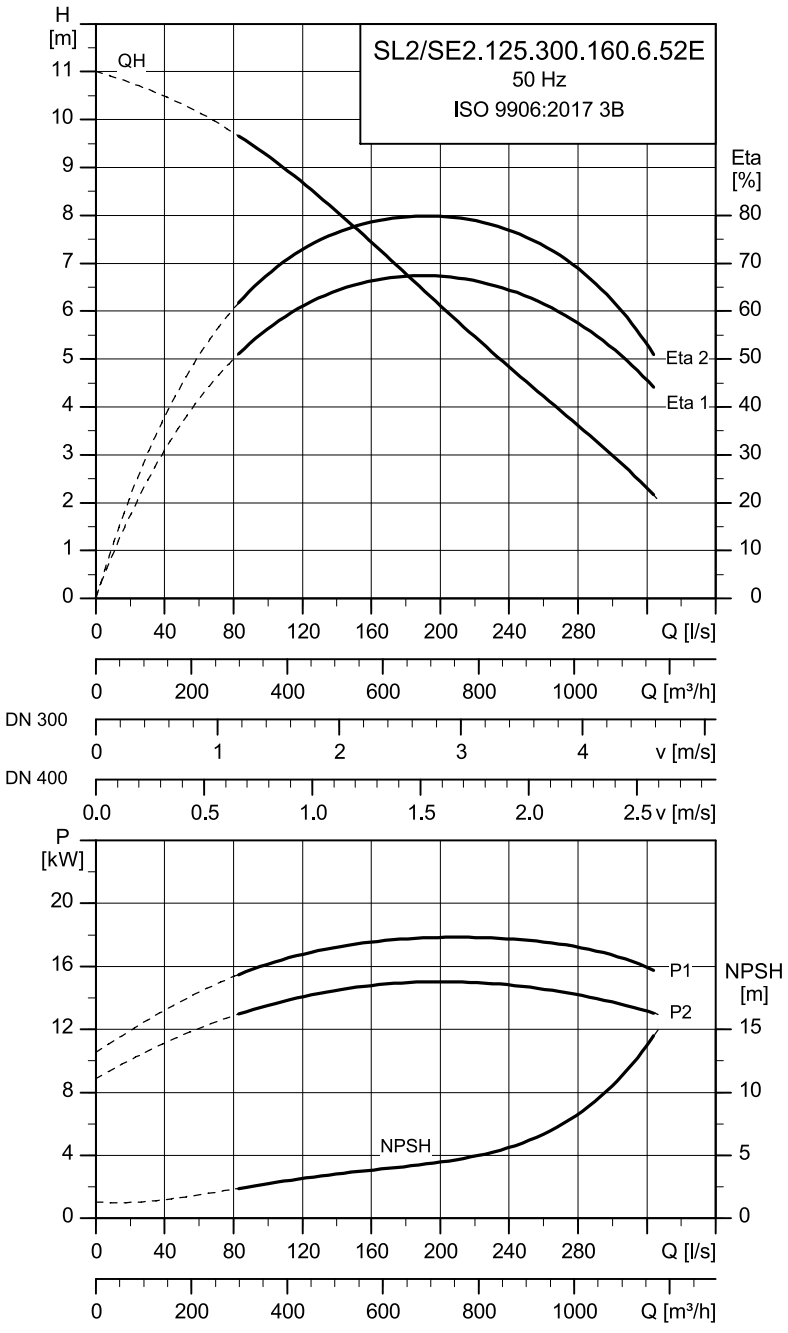
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.125.300.130.6.52E	380-415 / 660-690	15	13	6	980	Y/D	31-29 / 18-17	185 / 177	85	86	86	0.56	0.66	0.74	0.0940	503

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL2/SE2.125.300.130.6.52E	304	125	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.125.300.160.6.52E



TM069928

Electrical data

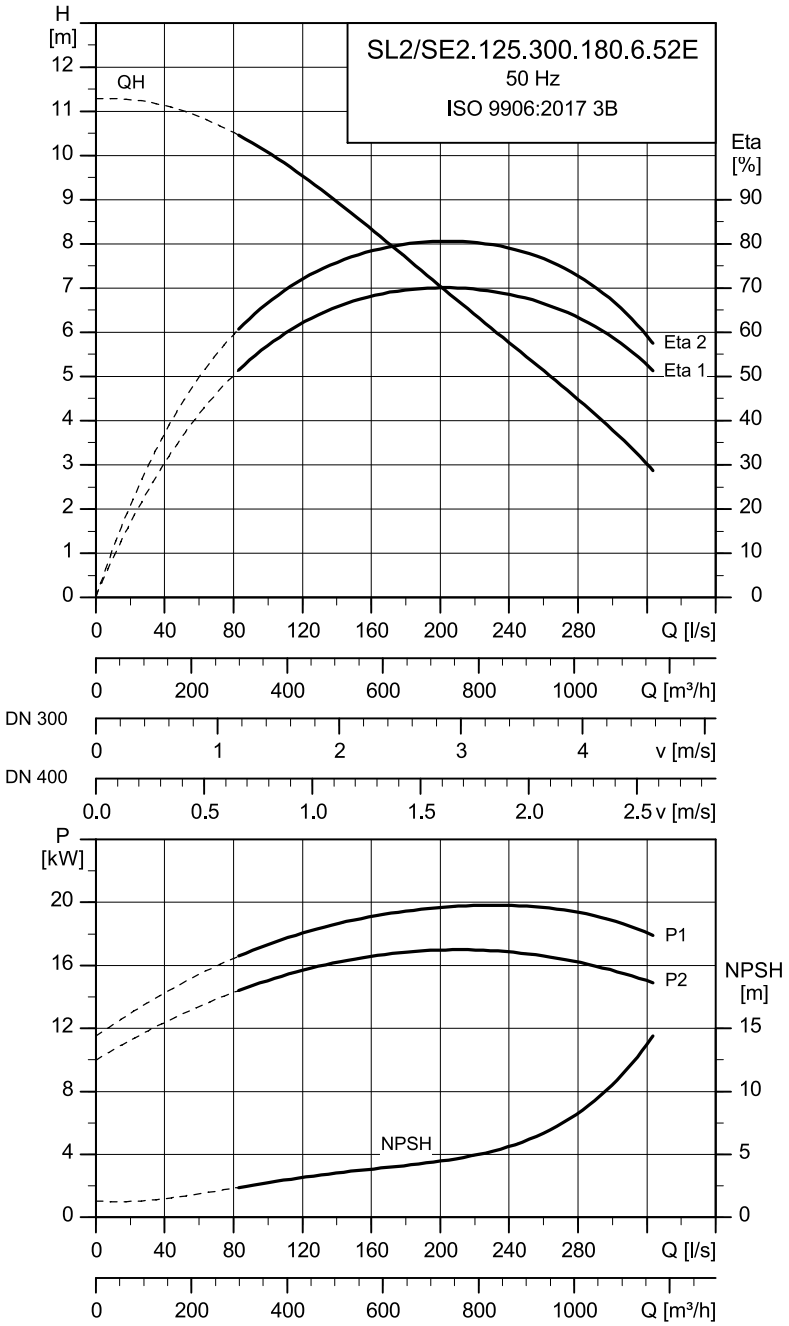
Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.125.300.160.6.52E	380-415 / 660-690	19	16	6	975	Y/D	36-33 / 21-20	185 / 177	86	86	86	0.61	0.72	0.79	0.0940	503

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL2/SE2.125.300.160.6.52E	327	125	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

SL2/SE2.125.300.180.6.52E



TM069929

Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL2/SE2.125.300.180.6.52E	380-415	21	18	6	971	Y/D	40-37	185	86	86	85	0.64	0.75	0.82	0.0940	503
	660-690						23-22	177								

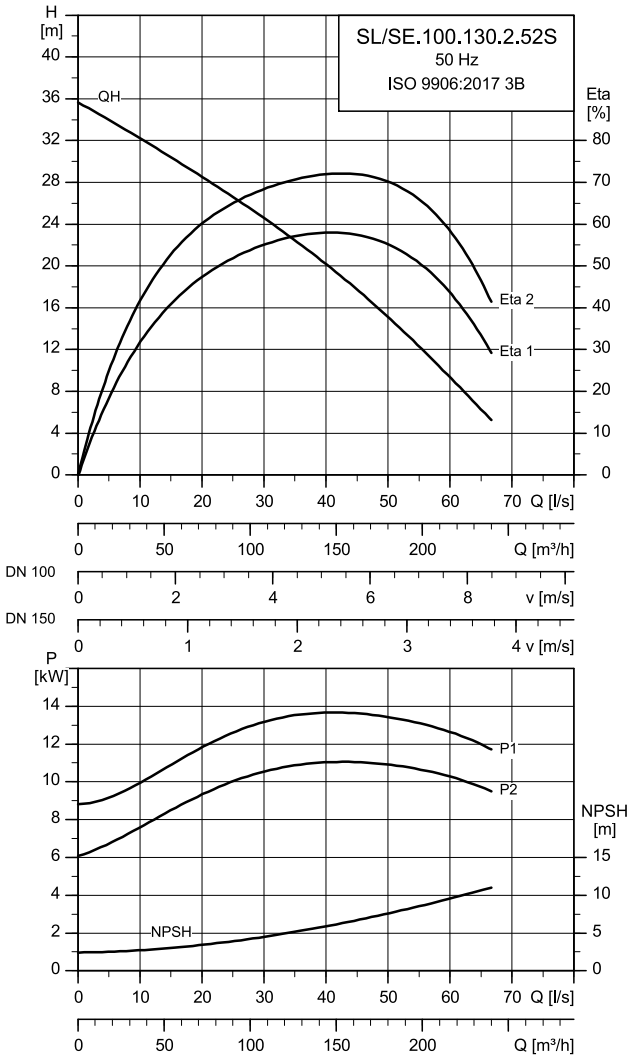
Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL2/SE2.125.300.180.6.52E	329	125	10	20

Note: Pumps with stainless steel closed S-**tube**® impellers have the same performance curves as the corresponding cast iron version.

Open S-tube® impeller

SL/SE.100.130.2.52S



TM078460

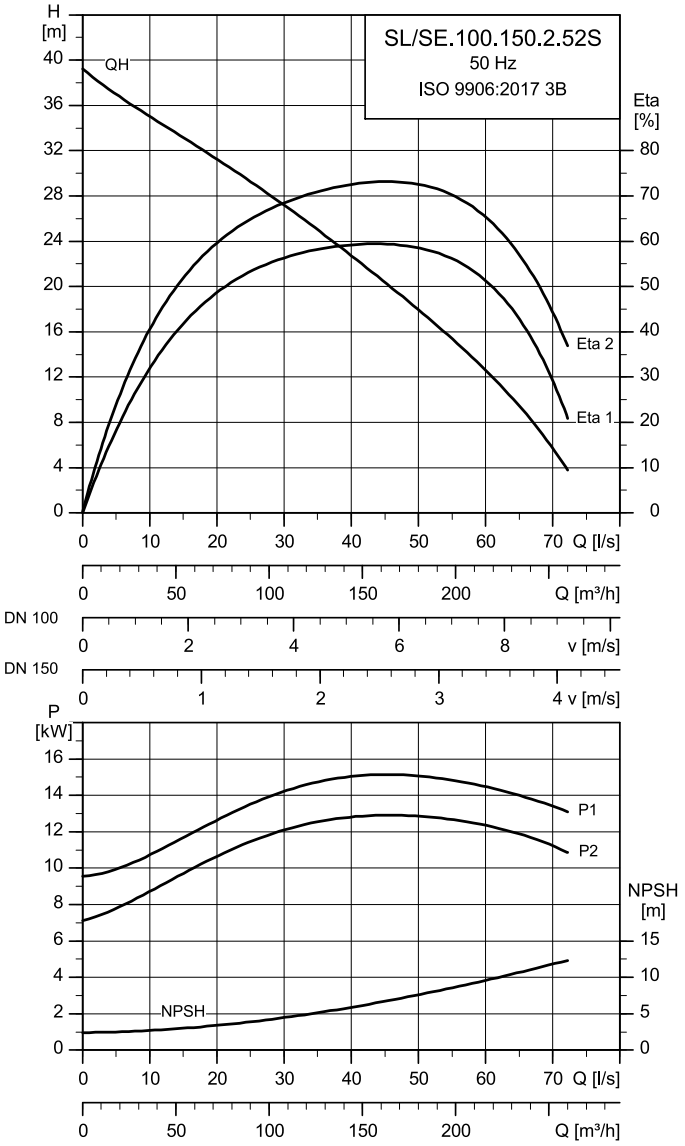
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.130.2.52S	380-415	15.2	13	2	2973	Y/D	27-25	138	79	82	86	0.72	0.81	0.86	0.049	137
	660-690						16-15	245								

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.130.2.52S	179.0	-	PN 10	20

SL/SE.100.150.2.52S



TM078461

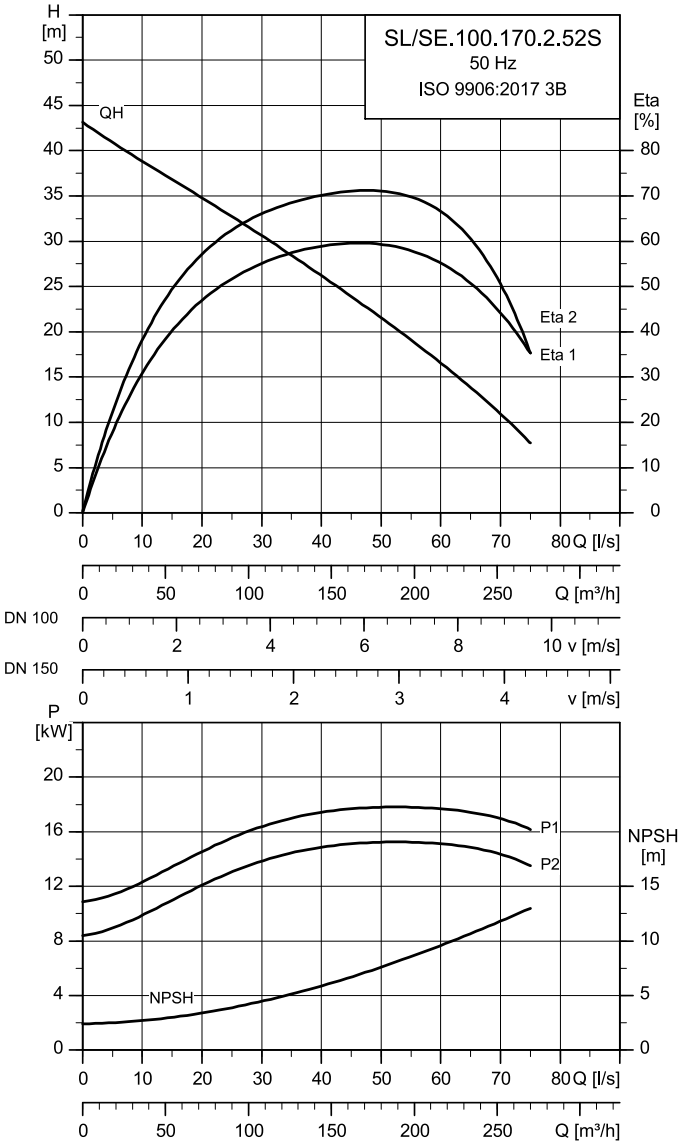
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.150.2.52S	380-415 / 660-690	17.1	15	2	2966	Y/D	30-28 / 18-17	138 / 245	80	84	88	0.75	0.84	0.88	0.049	137

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.150.2.52S	185.0	-	PN 10	20

SL/SE.100.170.2.52S



TM078462

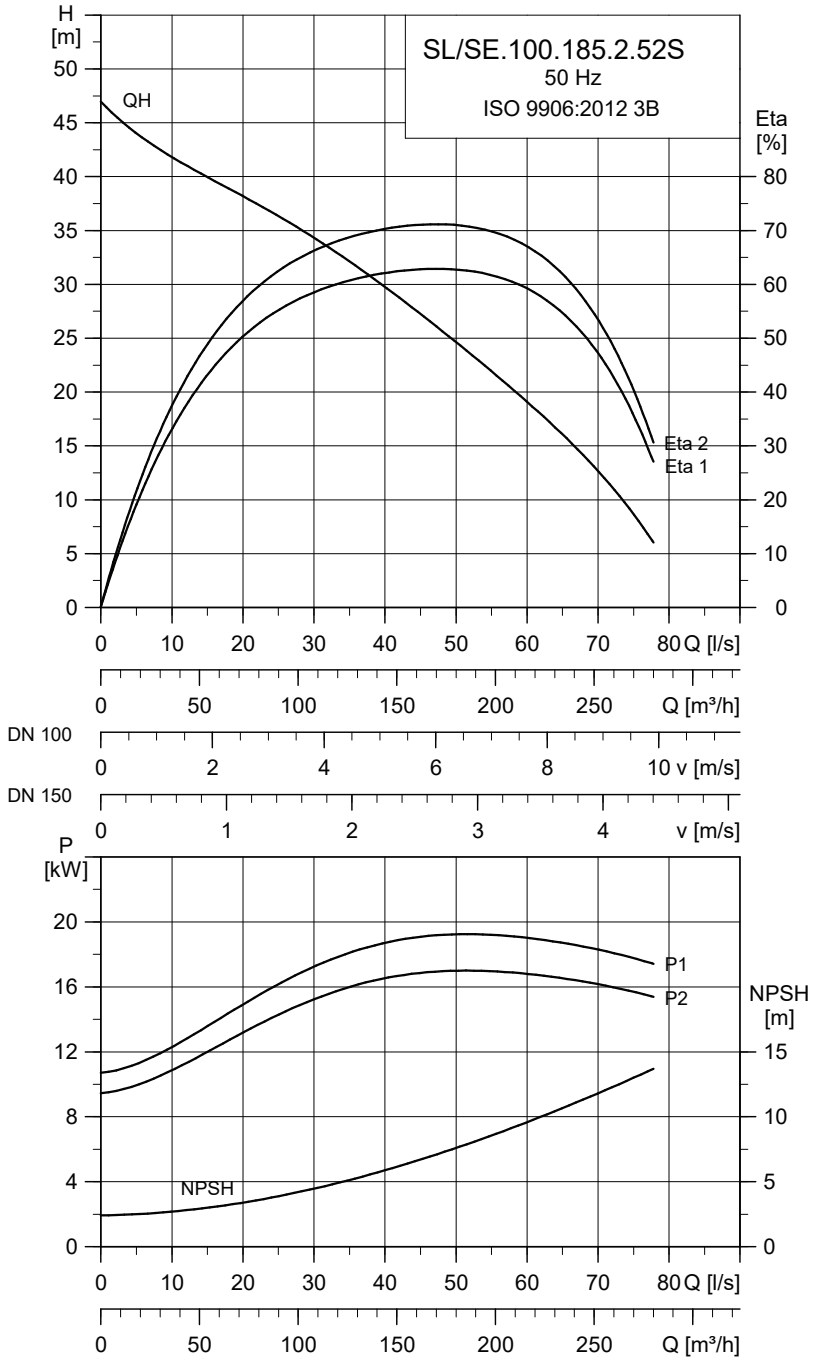
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	η_{motor} [%] 3/4	η_{motor} [%] 1/1	Cos φ 1/2	Cos φ 3/4	Cos φ 1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.170.2.52S	380-415 660-690	19.2	17	2	2969	Y/D	34-32 20-19	175 318	84	88	88	0.73	0.82	0.86	0.058	210

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.170.2.52S	190.5	-	PN 10	20

SL/SE.100.185.2.52S



TM078463

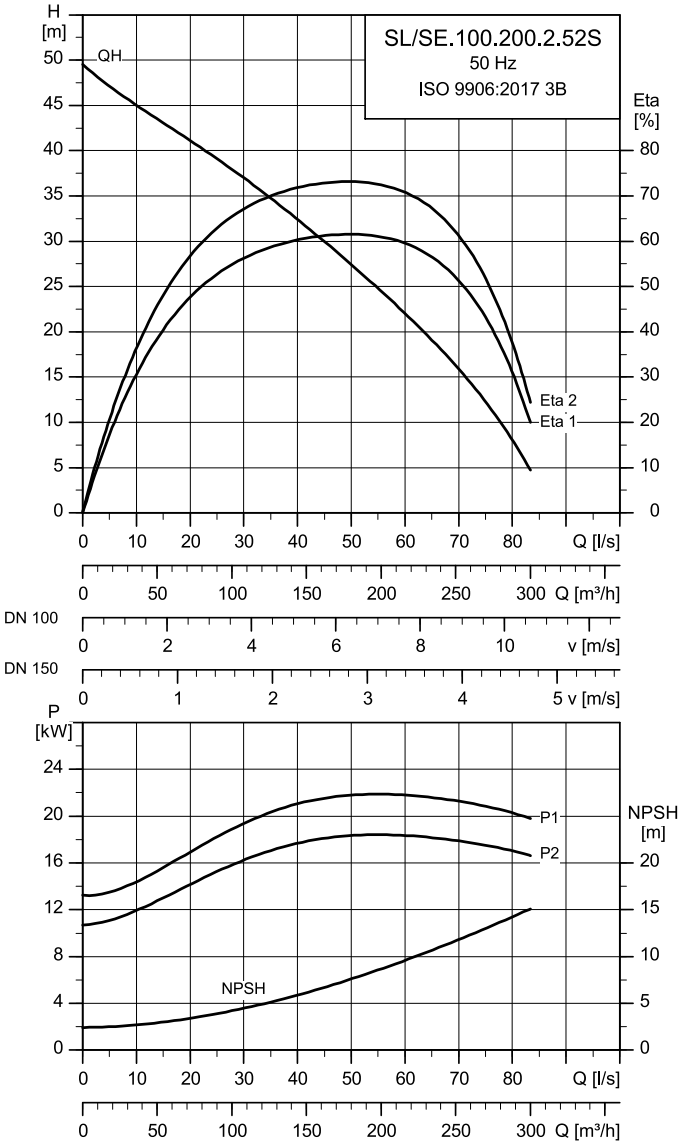
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.185.2.52S	380-415	21	18.5	2	2964	Y/D	38-35	175	85	88	88	0.75	0.84	0.86	0.058	210
	660-690						22-21	318								

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.185.2.52S	196.0	-	PN 10	20

SL/SE.100.200.2.52S



TM078464

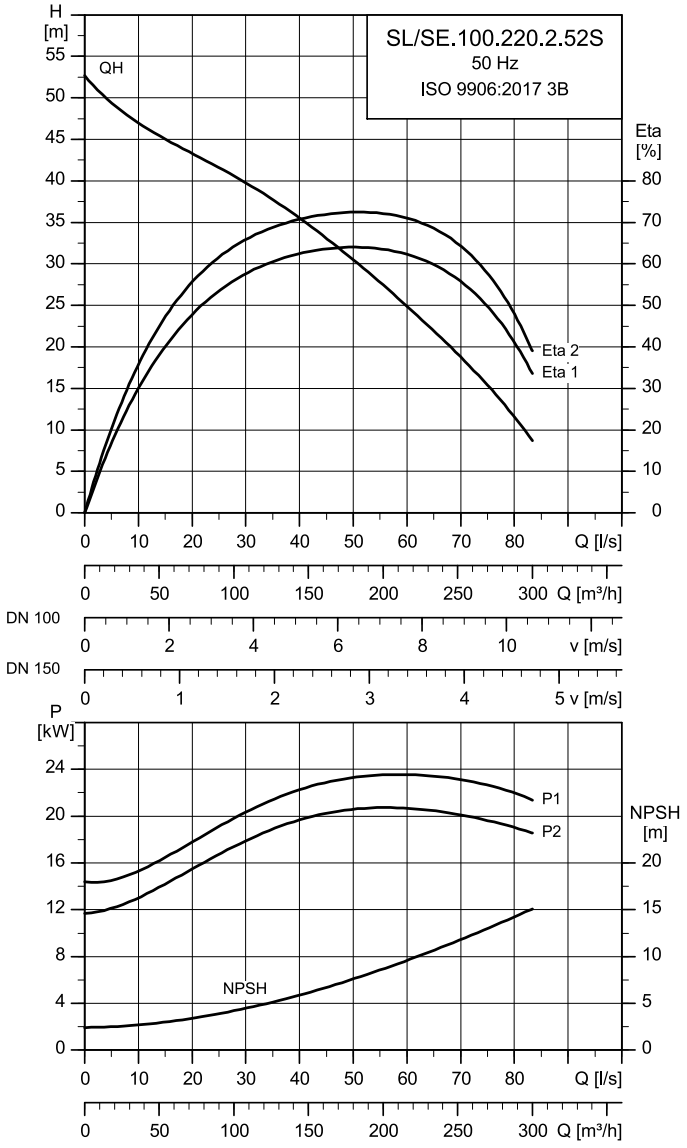
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	η_{motor} [%] 3/4	η_{motor} [%] 1/1	Cos φ 1/2	Cos φ 3/4	Cos φ 1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.200.2.52S	380-415 660-690	22.7	20	2	2968	Y/D	39-36 23-22	213 388	85	88	88	0.79	0.86	0.89	0.065	228

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.200.2.52S	201.5	-	PN 10	20

SL/SE.100.220.2.52S



TM078465

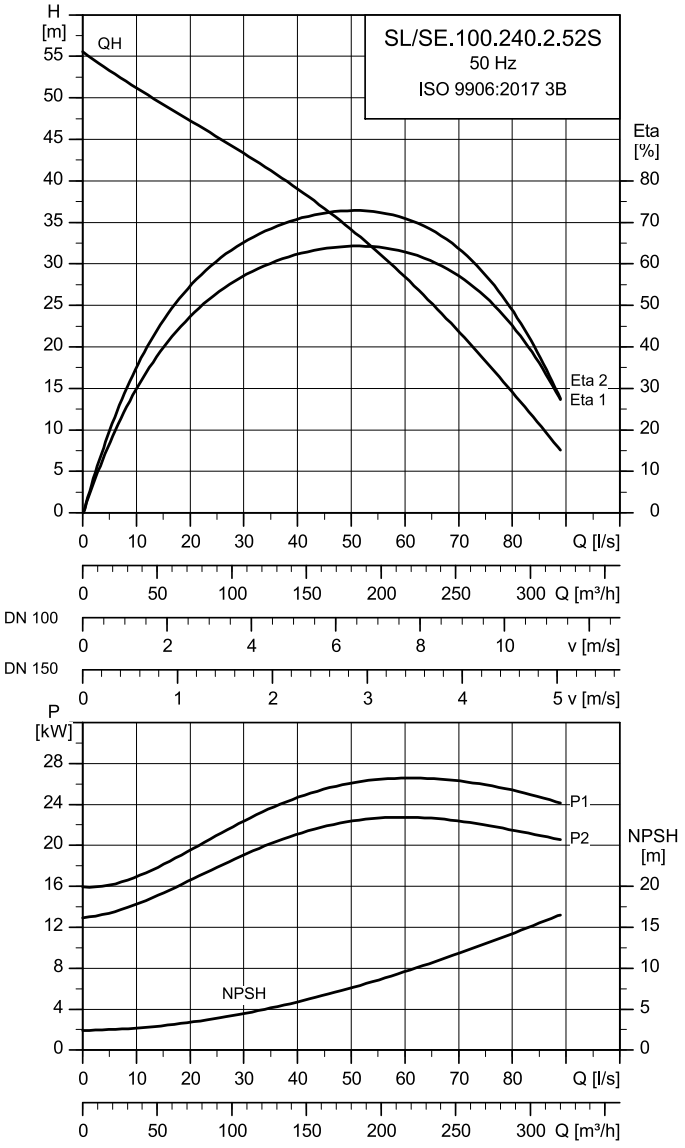
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.220.2.52S	380-415 / 660-690	25	22	2	2963	Y/D	43-40 / 25-24	213 / 388	86	88	88	0.81	0.87	0.89	0.065	228

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.220.2.52S	205.3	-	PN 10	20

SL/SE.100.240.2.52S



TM078466

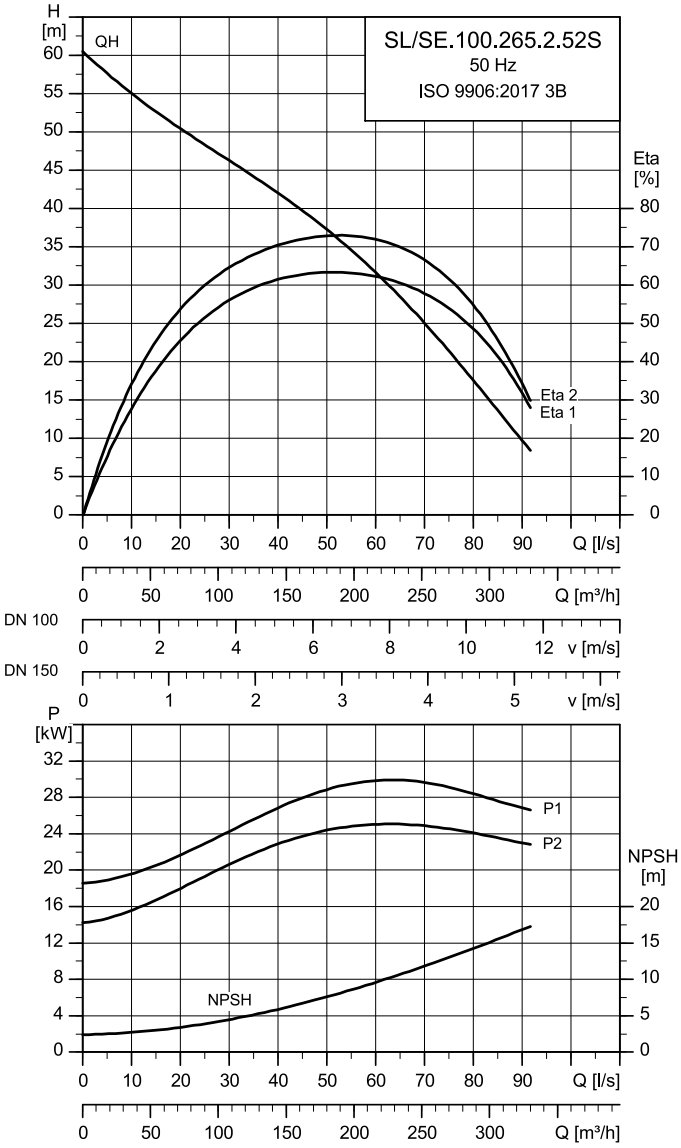
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.240.2.52S	380-415 / 660-690	27.4	24	2	2971	Y/D	51-47 / 30-28	320 / 582	84	86	88	0.69	0.77	0.82	0.065	228

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.240.2.52S	210.0	-	PN 10	20

SL/SE.100.265.2.52S



TM078467

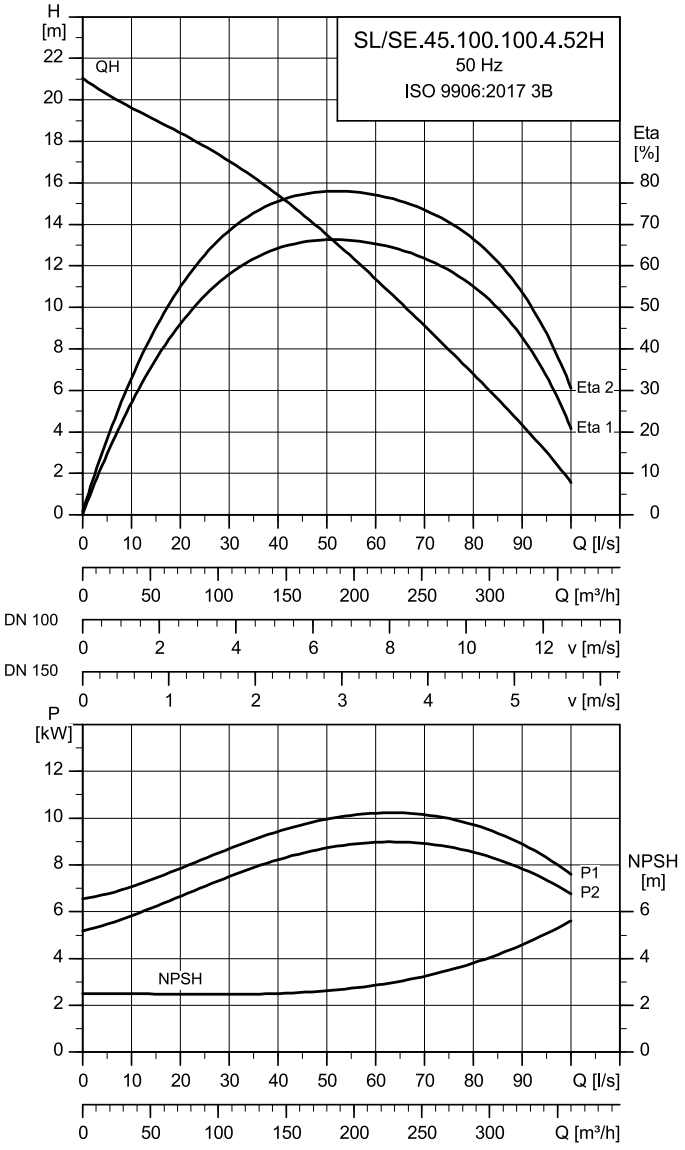
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.265.2.52S	380-415 / 660-690	30.1	26.5	2	2967	Y/D	56-51 / 32-31	320 / 582	85	87	88	0.71	0.79	0.83	0.065	228

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.265.2.52S	215.0	-	PN 10	20

SL/SE.100.100.4.52H



TM078468

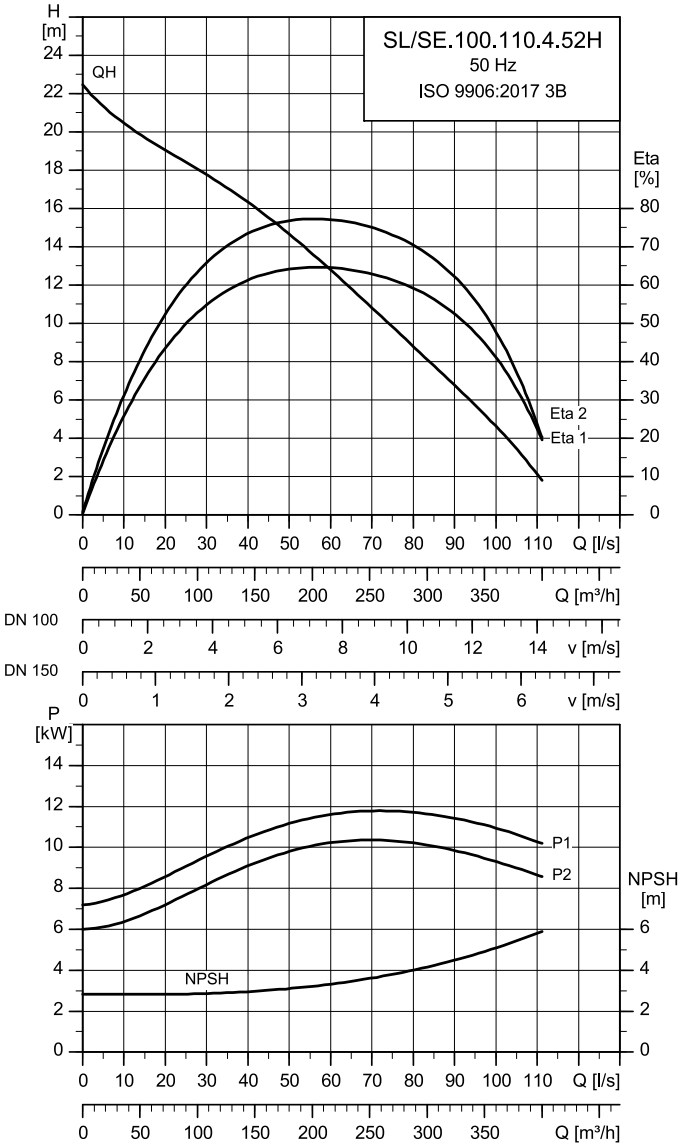
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	η_{motor} [%] 3/4	η_{motor} [%] 1/1	Cos φ 1/2	Cos φ 3/4	Cos φ 1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.100.4.52H	380-415 / 660-690	11.6	10	4	1482	Y/D	23-21 / 13-13	116 / 210	84	85	86	0.69	0.74	0.80	0.058	222

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.100.4.52H	260	-	PN 10	20

SL/SE.100.110.4.52H



TM078469

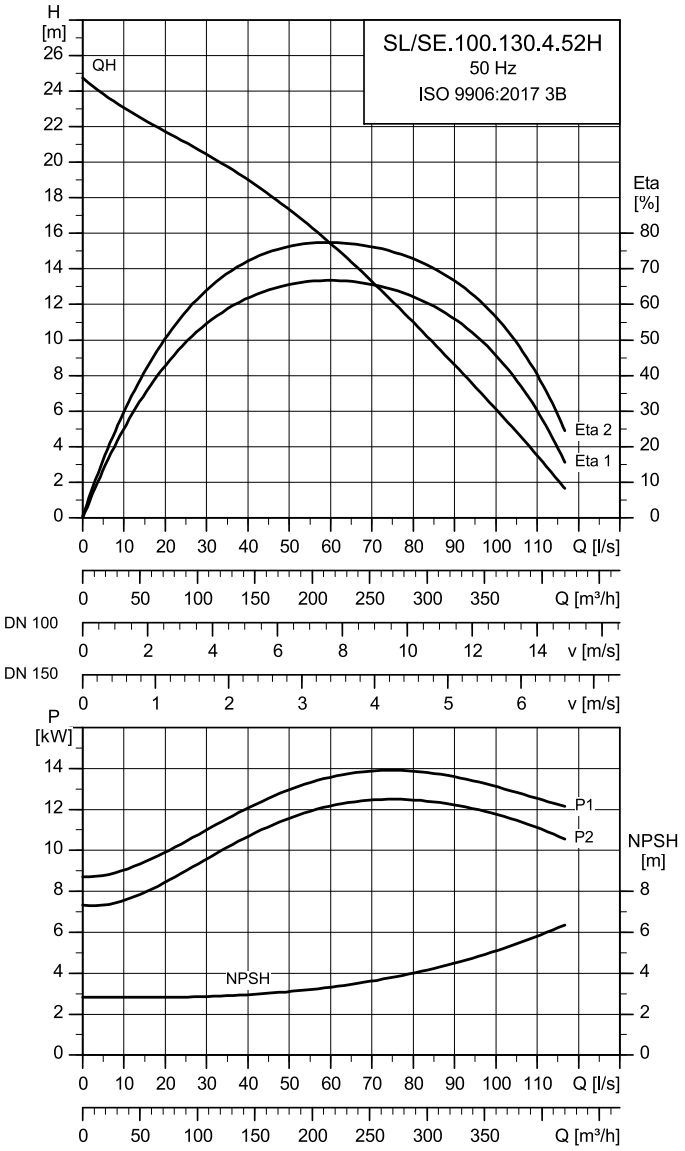
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	η_{motor} [%] 3/4	η_{motor} [%] 1/1	Cos φ 1/2	Cos φ 3/4	Cos φ 1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.110.4.52H	380-415 660-690	12.7	11	4	1481	Y/D	24-22 14-13	116 210	84	86	86	0.70	0.76	0.82	0.058	222

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.110.4.52H	272	-	PN 10	20

SL/SE.100.130.4.52H



TM078470

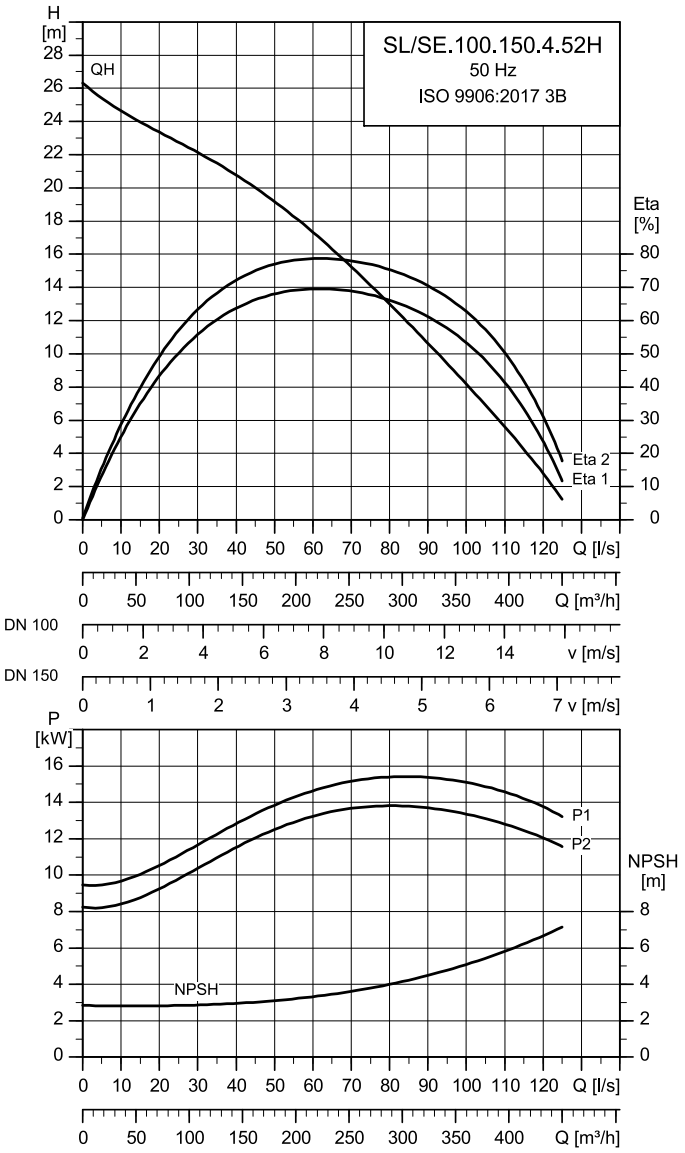
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	η_{motor} [%] 3/4	η_{motor} [%] 1/1	Cos φ 1/2	Cos φ 3/4	Cos φ 1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.130.4.52H	380-415 / 660-690	14.8	13	4	1483	Y/D	28-25 / 16-15	156 / 283	87	88	88	0.66	0.77	0.83	0.075	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.130.4.52H	284	-	PN 10	20

SL/SE.100.150.4.52H



TM078471

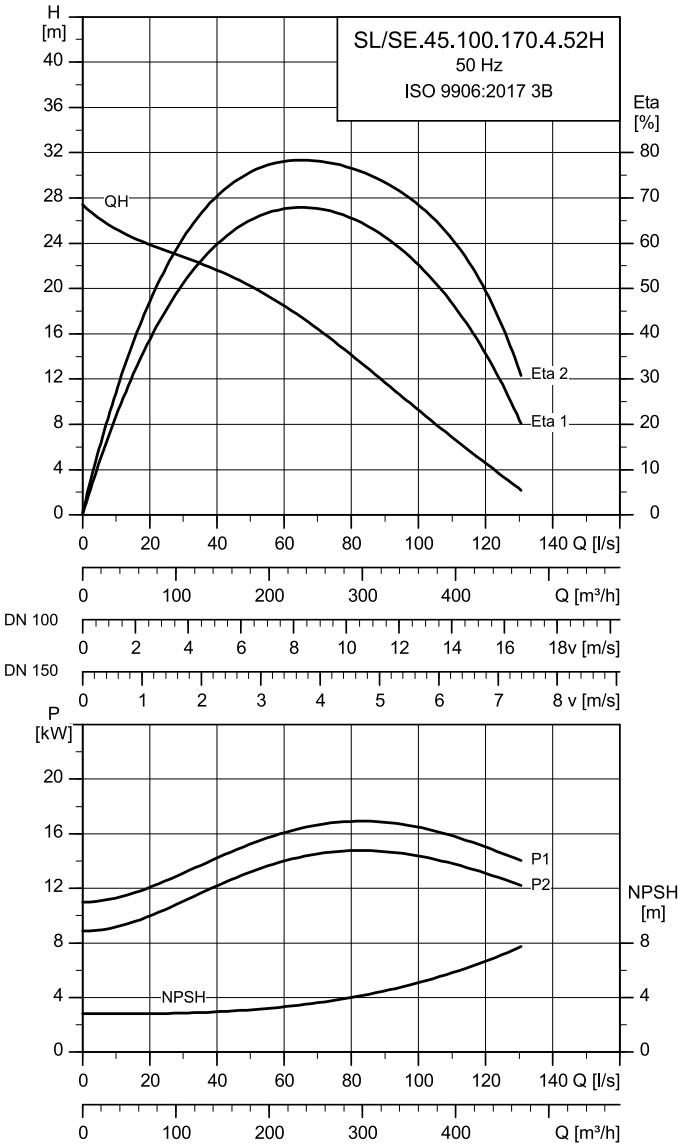
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.100.150.4.52H	380-415 / 660-690	17	15	4	1480	Y/D	31-29 / 18-17	156 / 283	87	88	88	0.70	0.80	0.84	0.075	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.150.4.52H	292.1	-	PN 10	20

SL/SE.100.170.4.52H



TM078475

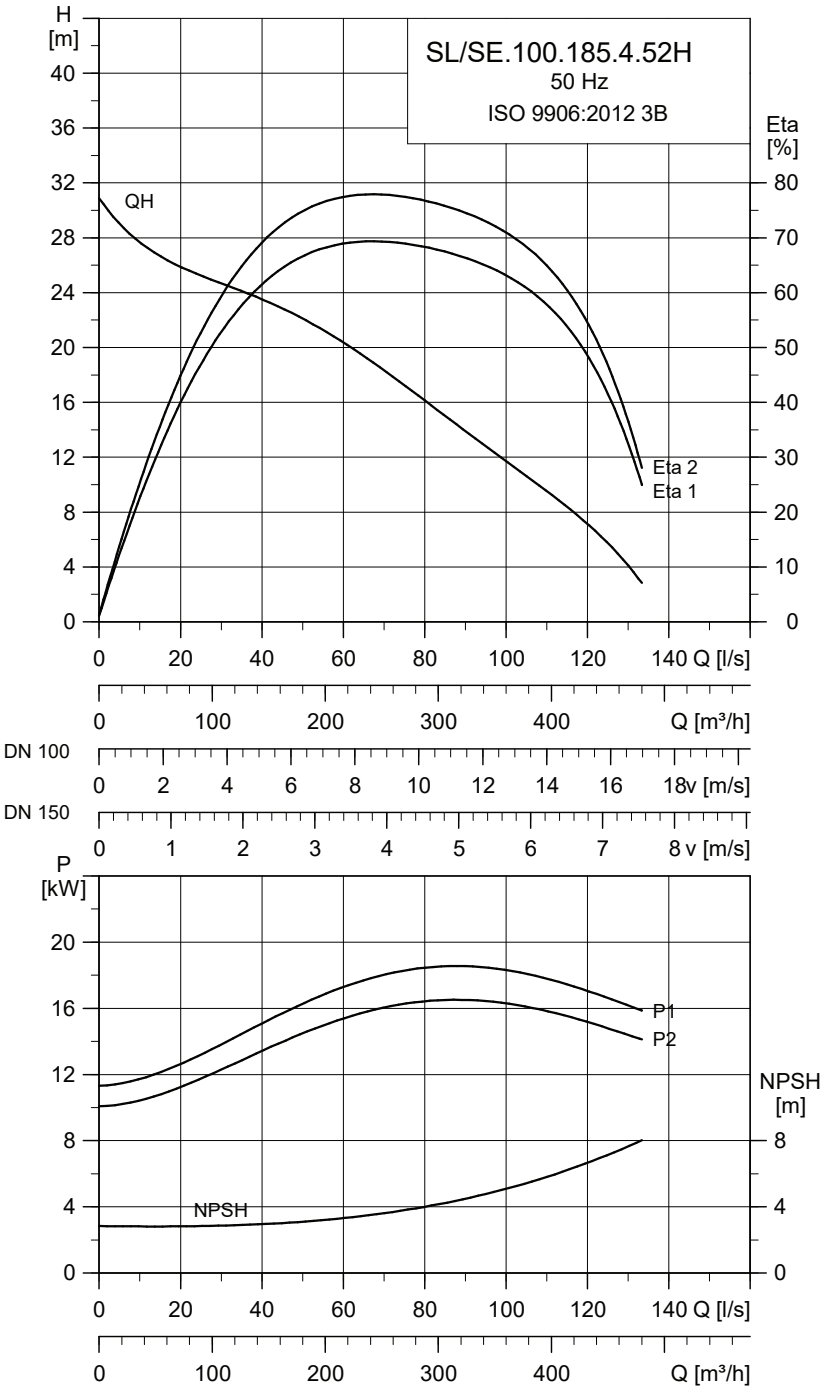
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.170.4.52H	380-415 / 660-690	19.3	17	4	1480	Y/D	39-36 / 23-22	209 / 381	84	87	88	0.68	0.72	0.77	0.075	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.170.4.52H	298	-	PN 10	20

SL/SE.100.185.4.52H



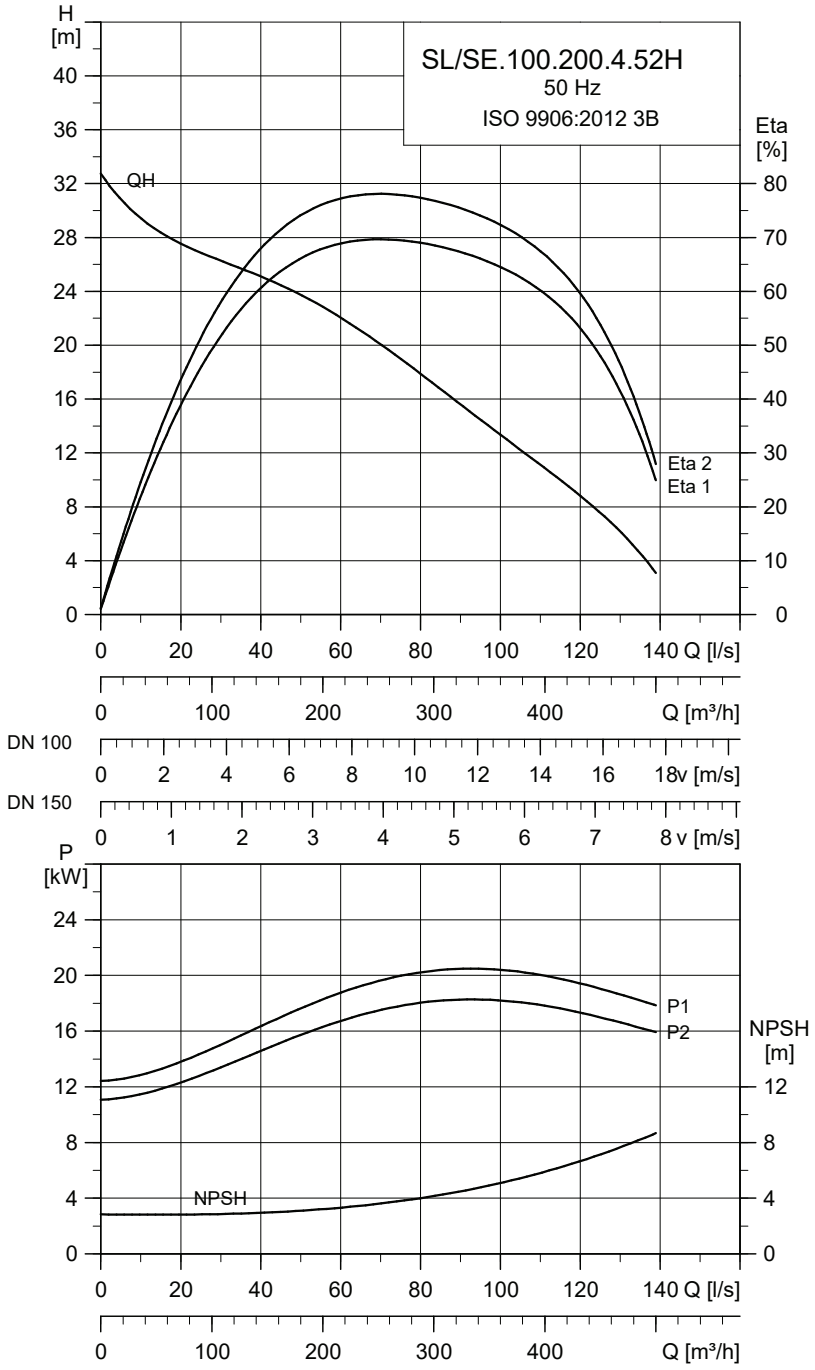
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.185.4.52H	380-415	21	18.5	4	1479	Y/D	41-37	209	85	87	88	0.69	0.73	0.79	0.075	304
	660-690						24-23	381								

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.185.4.52H	305.6	-	PN 10	20

SL/SE.100.200.4.52H



TM078473

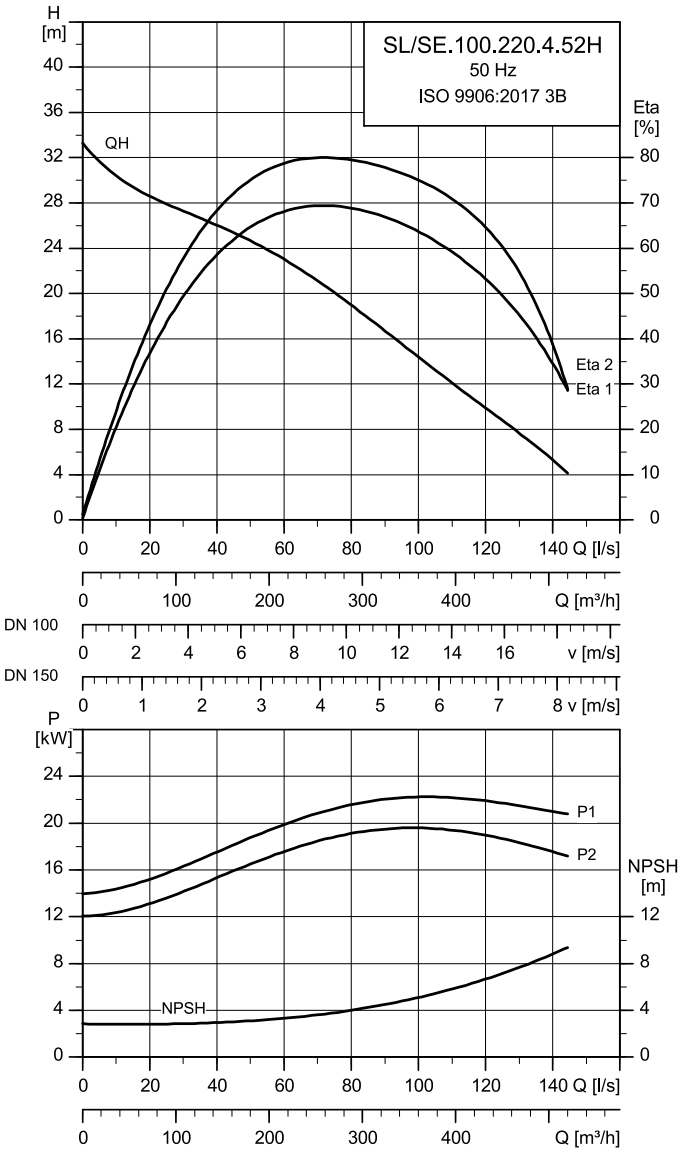
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.200.4.52H	380-415 660-690	22.7	20	4	1478	Y/D	43-39 25-24	209 381	85	88	88	0.69	0.74	0.81	0.075	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.200.4.52H	312.96	-	PN 10	20

SL/SE.100.220.4.52H



TM078474

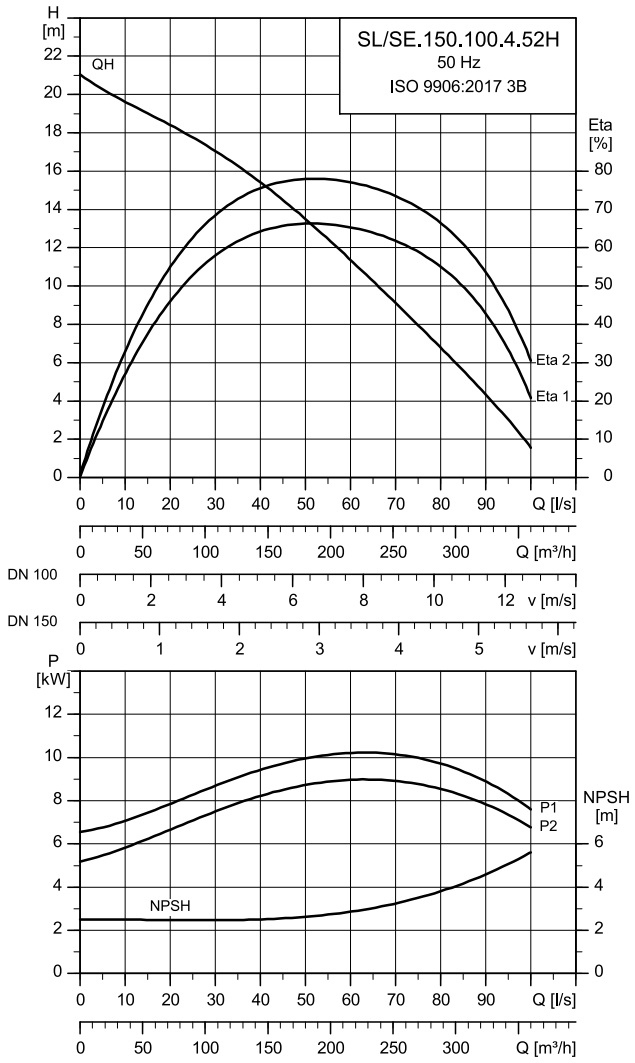
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%]			Cos φ			Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
									1/2	3/4	1/1	1/2	3/4	1/1		
SL/SE.100.220.4.52H	380-415 660-690	25	22	4	1476	Y/D	45-41 26-25	209 381	86	88	88	0.70	0.76	0.85	0.075	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2)	Max. installation depth [m]
SL/SE.100.220.4.52H	320	-	PN 10	20

SL/SE.150.100.4.52H



TM082735

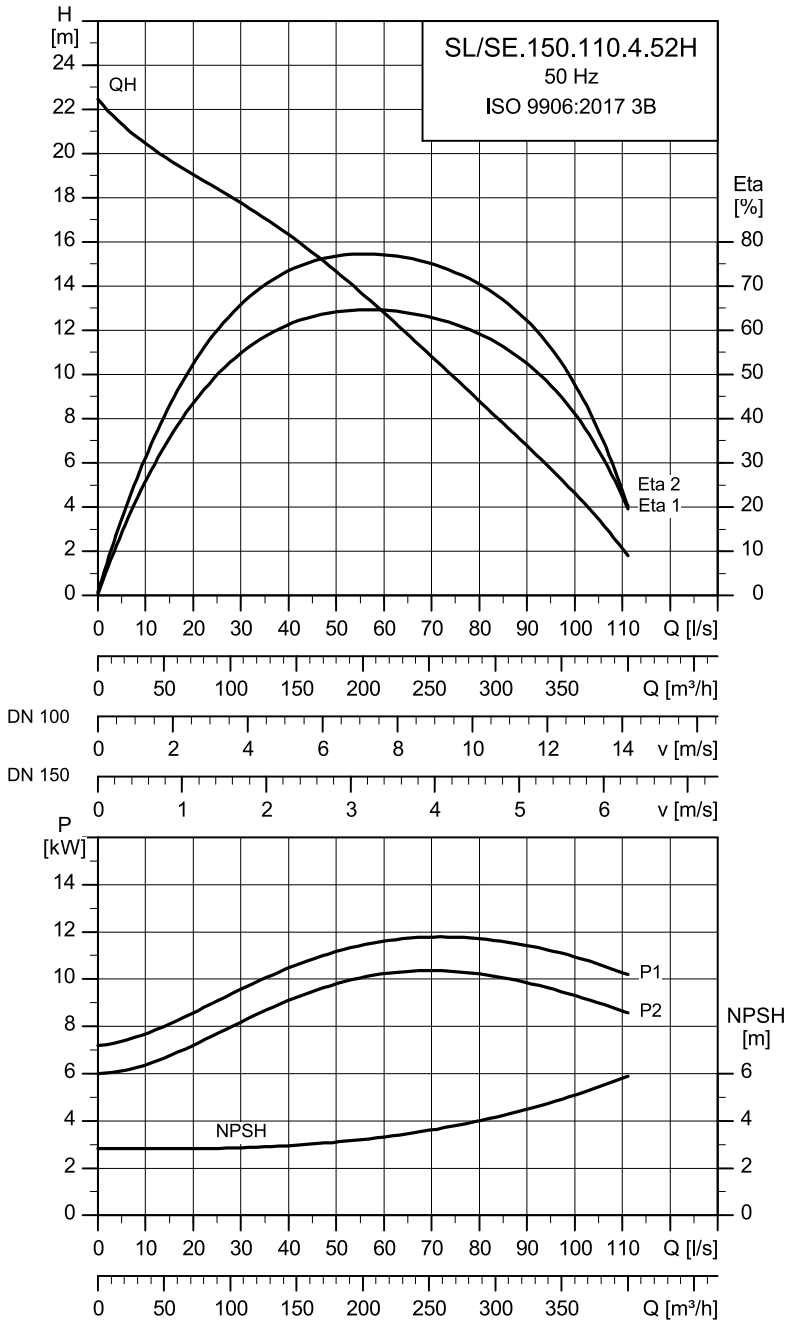
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.100.4.52H	380-415 / 660-690	11.6	10	4	1482	Y/D	23-21 / 13-13	116 / 210	84	85	86	0.69	0.74	0.8	0.105	222

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL/SE.150.100.4.52H	260	-	PN 10	20

SL/SE.150.110.4.52H



TM082736

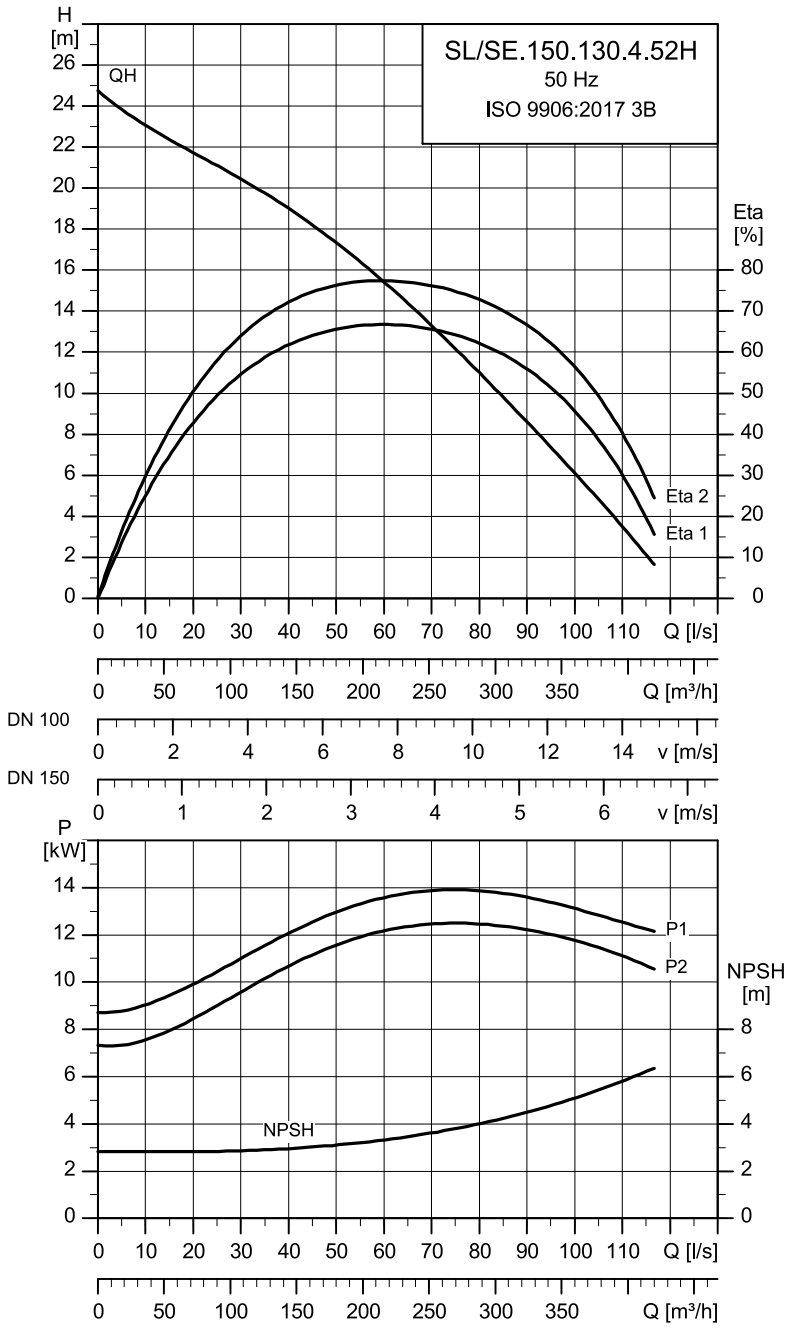
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.110.4.52H	380-415 / 660-690	12.7	11	4	1481	Y/D	24-22 / 14-13	116 / 210	84	86	86	0.70	0.76	0.82	0.072	222

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL/SE.150.110.4.52H	272	-	PN 10	20

SL/SE.150.130.4.52H



TM082737

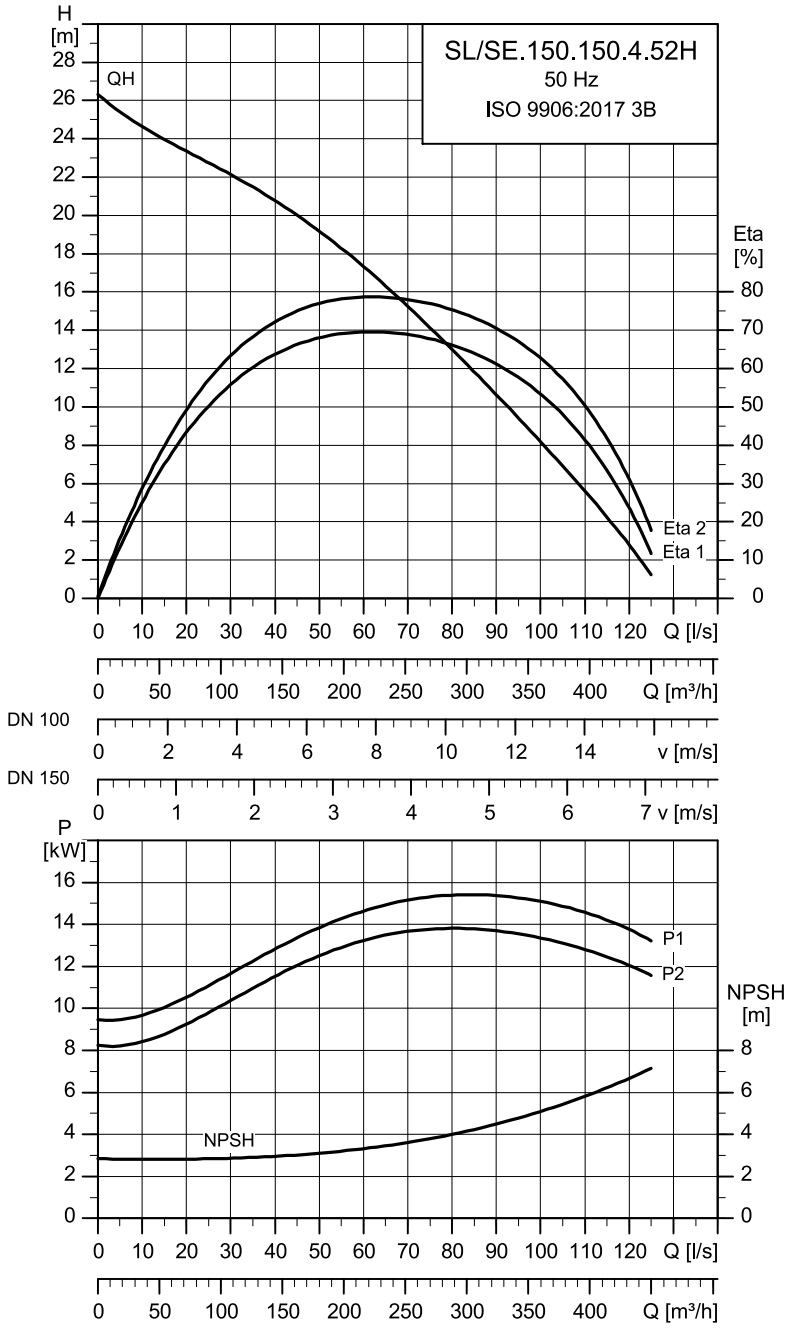
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No. of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.130.4.52H	380-415 / 660-690	14.8	13	4	1483	Y/D	49-45 / 28-26	308 / 534	87	88	88	0.64	0.75	0.81	0.126	419

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL/SE.150.130.4.52H	284	-	PN 10	20

SL/SE.150.150.4.52H



TM082738

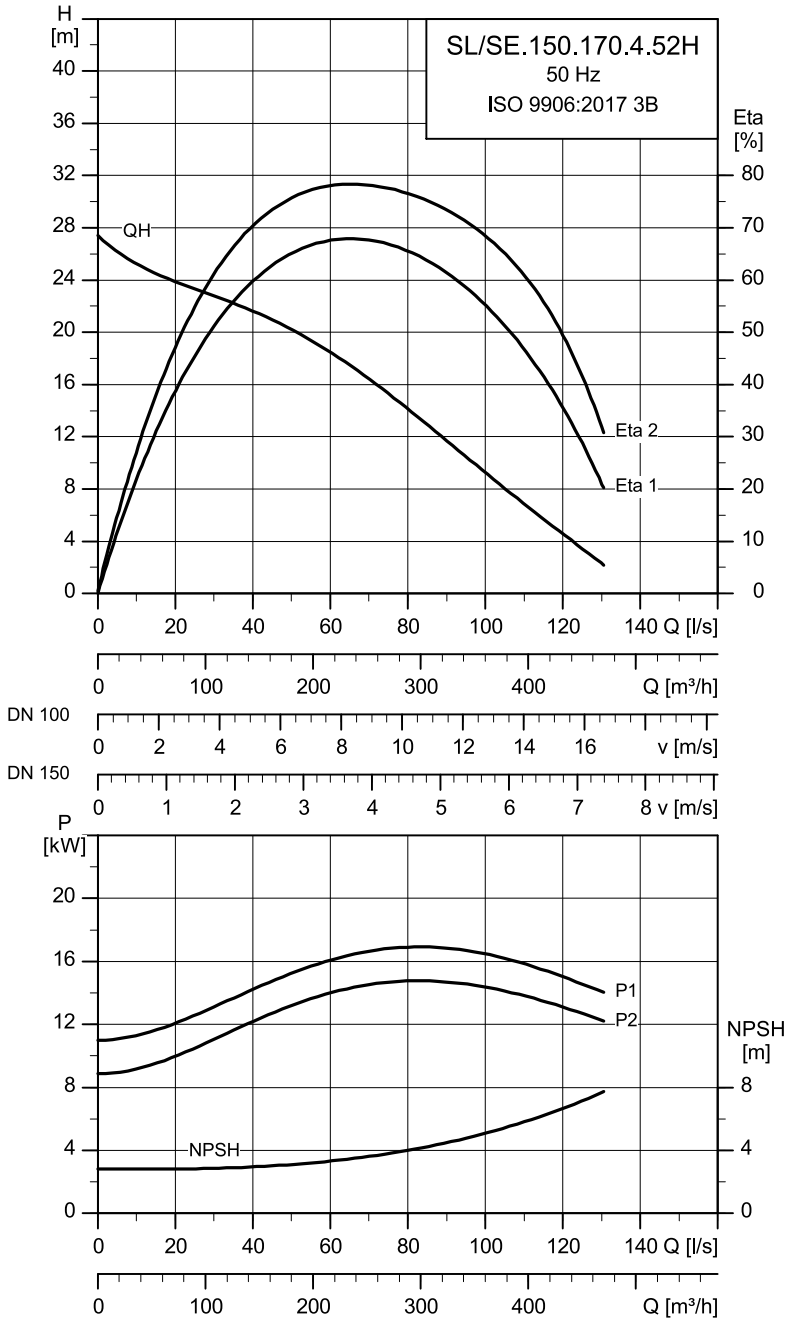
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No. of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.150.4.52H	380-415 / 660-690	17	15	4	1480	Y/D	31-29 / 18-17	156 / 283	87	88	88	0.70	0.80	0.84	0.135	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL/SE.150.130.4.52H	284	-	PN 10	20

SL/SE.150.170.4.52H



TM082739

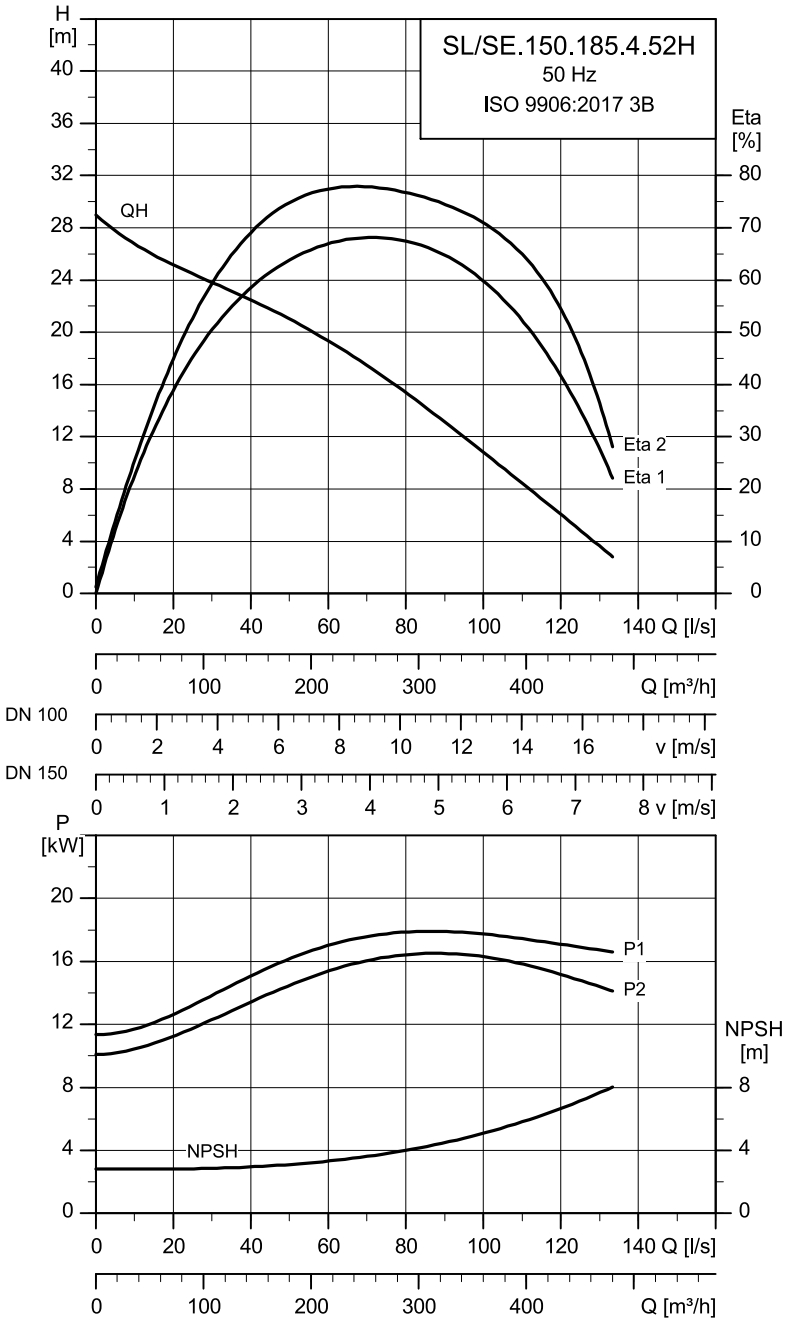
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.170.4.52H	380-415 / 660-690	19.3	17	4	1480	Y/D	68-63 / 40-36	390 / 677	84	87	88	0.66	0.70	0.75	0.142	560

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL/SE.150.170.4.52H	298	-	PN 10	20

SL/SE.150.185.4.52H



TM082740

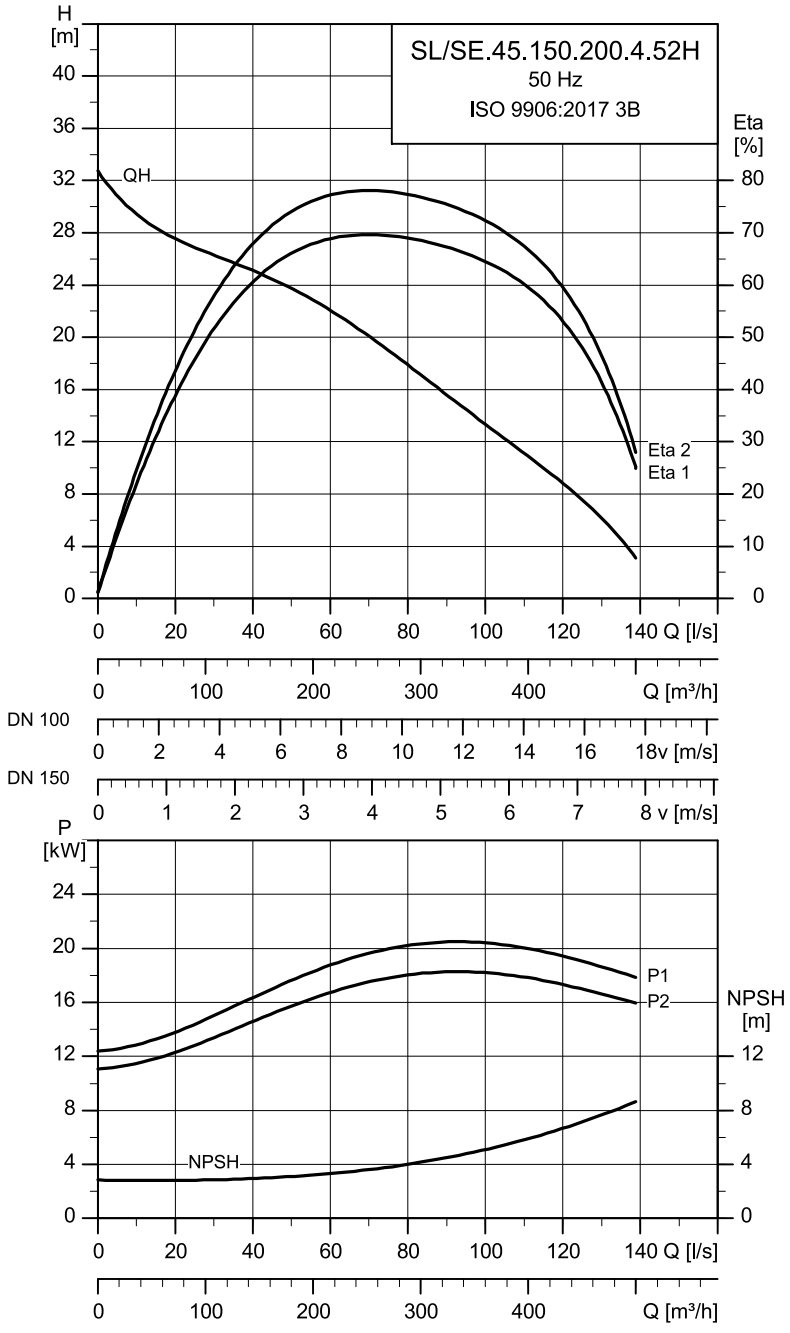
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.185.4.52H	380-415	21	18.5	4	1479	Y/D	41-37	209	85	87	88	0.69	0.73	0.79	0.151	304
	660-690						24-23	381								

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL/SE.150.185.4.52H	305.60	-	PN 10	20

SL/SE.150.200.4.52H



TM082741

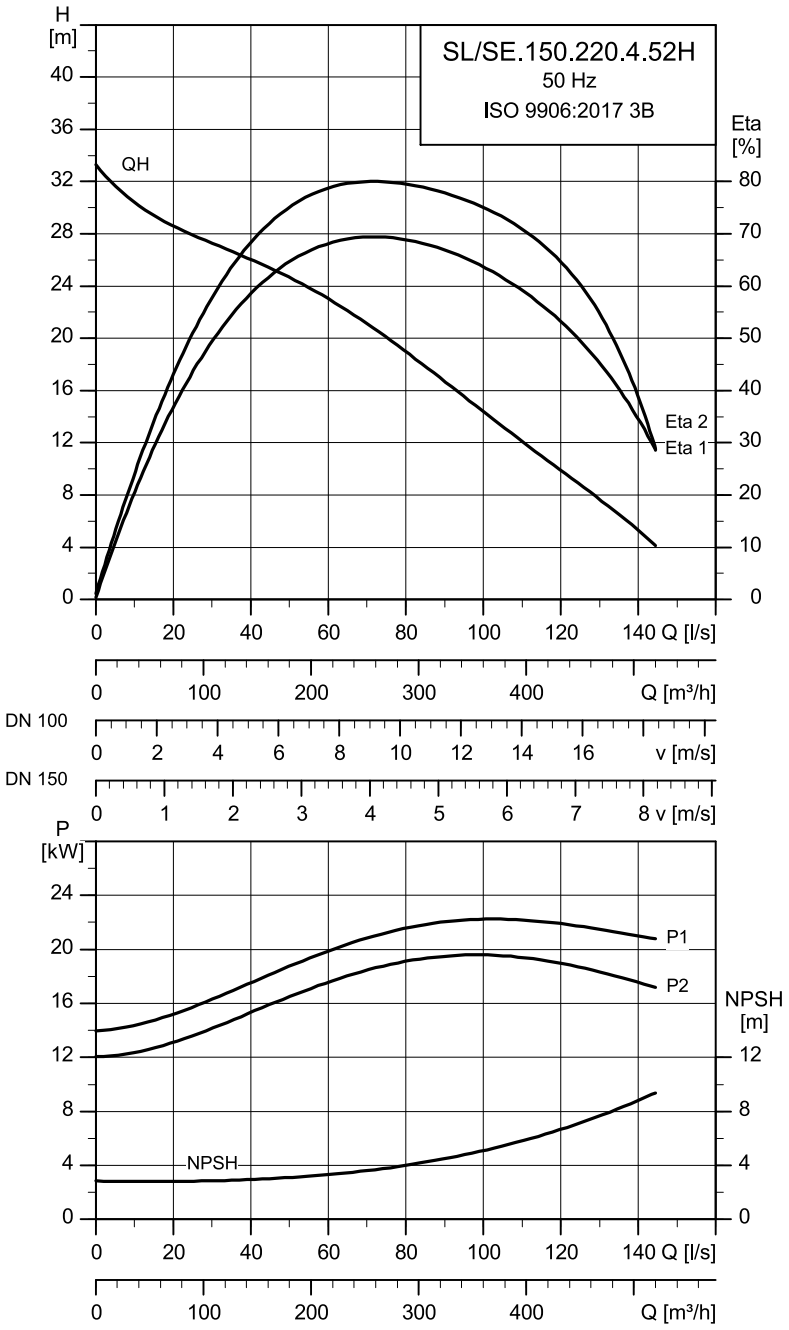
Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.200.4.52H	380-415 / 660-690	22.7	20	4	1478	Y/D	43-39 / 25-24	209 / 381	85	88	88	0.69	0.74	0.81	0.161	304

Pump data

Pump type	Impeller diameter	Max. solids size	Outlet flange pressure (according to EN 1092-2)	Max. installation depth
	[mm]	[mm]	PN	[m]
SL/SE.150.200.4.52H	312.96	-	PN 10	20

SL/SE.150.220.4.52H



TM082742

Electrical data

Pump type	Voltage variant	P1 [kW]	P2 [kW]	No.of poles	RPM	Starting method	I_N [A]	I_{start} [A]	η_{motor} [%] 1/2	3/4	1/1	Cos φ 1/2	3/4	1/1	Moment of inertia [kgm²]	Breakdown torque M_{max} [Nm]
SL/SE.150.220.4.52H	380-415 660-690	25	22	4	1476	Y/D	45-41 26-25	209 381	86	88	88	0.70	0.76	0.85	0.171	304

Pump data

Pump type	Impeller diameter [mm]	Max. solids size [mm]	Outlet flange pressure (according to EN 1092-2) PN	Max. installation depth [m]
SL/SE.150.220.4.52H	320	-	PN 10	20

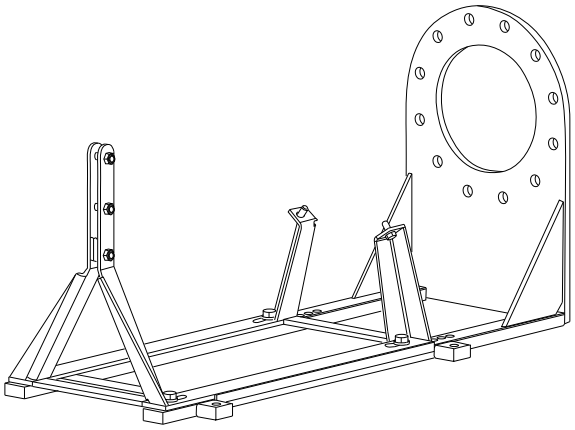
9. Accessories

Installation systems

Dry, horizontal

Horizontal base stand for Grundfos SE pumps

- Horizontal base stand with bolts and nuts.
- Steel, epoxy-coated.



TM053866

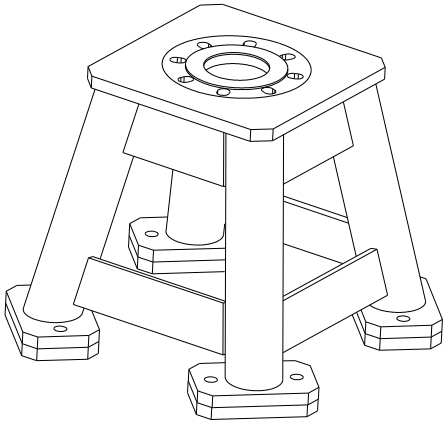
Pump type	Pressure range	Pump inlet	Pump outlet	Product number
SEV.XX.80	H	DN 100	DN 80	99867046
SE/SE1.XX.100	S	DN 100	DN 100	99867046
	H	DN 150	DN 100	99867050
SE/SE1.XX.150	H	DN 150	DN 150	99867050
SE1.XX.200	M	DN 200	DN 200	99867461
SE2.XX.250	L	DN 250	DN 250	99867462
SE2.XX.300	E	DN 300	DN 300	99867474

Dry, vertical

Vertical base stand installation kit

- vertical base stand with bolts and flange seal.
- material variants
  - steel, epoxy-coated
  - stainless steel.

Note: suitable only for SE pumps up to 15 kW.



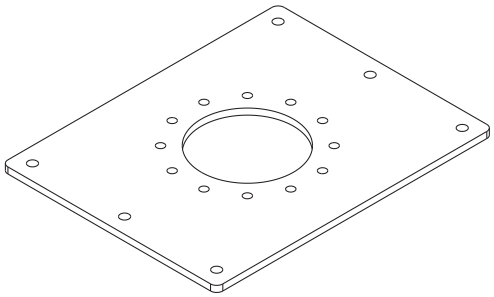
TM084845

Pump type	Pressure range	Pump inlet	Pump outlet	Product number
				Steel
SEV.XX.80	H	DN 100	DN 80	92593728
SE/SE1.XX.100	S	DN 100	DN 100	92593728
	H	DN 150	DN 100	92593750
SE/SE1.XX.150	H	DN 150	DN 150	92593750
SE1.XX.200	M	DN 200	DN 200	92593742
SE2.XXX.250	L	DN 250	DN 250	92593764
SE2.XXX.300	E	DN 300	DN 300	92593745

Base plate installation kit

- base plate with bolts and flange seal.
- steel, epoxy-coated.

Note: suitable only for SE pumps DN80 to DN300.



TM078361

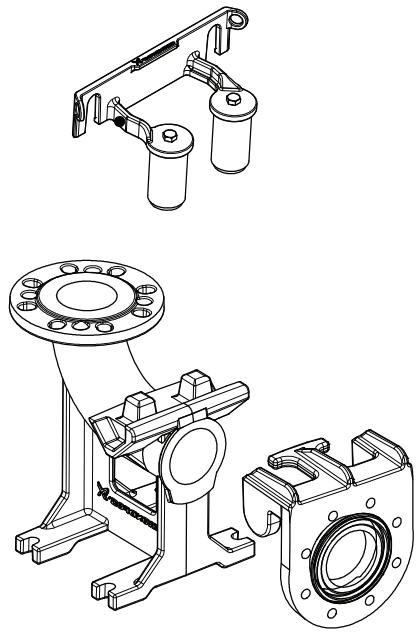
Base plate

Pump type	Pump inlet	Pump outlet	Product number	
			Steel	Stainless steel
SEV.XX.80	DN 100	DN 80	92837287	96090110
SE/SE1.XX.100	DN 100	DN 100	92837287	96090110
	DN 150	DN 100	92837293	96835614
SE/SE1.XX.150	DN 150	DN 150	92837293	96835614
SE1.XX.200	DN 200	DN 200	92837295	96090119
SE2.XXX.250	DN 250	DN 250	96308240	
SE2.XXX.300	DN 300	DN 300	96308241	

Submerged, vertical, permanent on auto coupling

Auto-coupling system DN 80 - DN 300

- complete auto-coupling system with guide shoe, base unit, upper guide-rail holder, bolts, nuts and gaskets.



TM053872

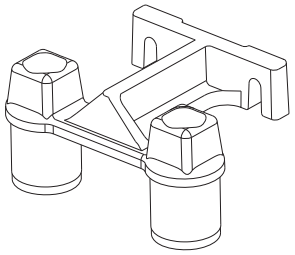
Note: If the guide rails exceed 6 m, consider using intermediate guide rail holders (IGRH) to support the system.

Pump type	Pressure range	Pump inlet	Pump outlet	Auto-coupling inlet	Auto-coupling outlet	Product number		
						Cast iron	Stainless steel	Duplex
SEV/SLV.XX.80	H	DN 100	DN 80	DN 80	DN 100	96102240	96825106	97904193
SE/SL/SE1/SL1.XX.100	S	DN 100	DN 100	DN 100	DN 100	96090994	96825108	97904194
	H	DN 150	DN 100	DN 100	DN 150	96102241	-	-
SE/SL/SE1/SL1.XX.150	H	DN 150	DN 150	DN 150	DN 150	97695489	96989863	97904196
SE1/SL1.XXX.200	M	DN 200	DN 200	DN 200	DN 200	96641489	-	-
SE2/SL2.XXX.250	L	DN 250	DN 250	DN 250	DN 250	92886585	-	-
SE2/SL2.XXX.300	E	DN 300	DN 300	DN 300	DN 300	96255839	-	-

Auto-coupling spare parts DN 80 - DN 300

Intermediate guide-rail holders IGRH / UGRH

Note: If the guide rails exceed 6 m, consider using intermediate guide rail holders (IGRH) to support the system.

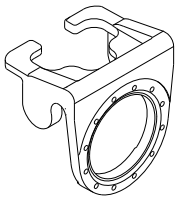


TM062841

Pump type	Pressure range	Pump inlet	Pump outlet	Product number			
				IGRH	UGRH		
				Cast iron	Cast iron	Stainless steel	Duplex
SEV/SLV.XX.80	H	DN 100	DN 80	96825142	97904181	91800840	98535073
SE/SL/SE1/SL1.XX.100	S	DN 100	DN 100	96825161	96825158	91800841	98535074
	H	DN 150	DN 100	96825161	97904181	-	-
SE/SL/SE1/SL1.XX.150	H	DN 150	DN 150	96829331	96825172	91800842	98535075
SE1/SL1.XXX.200	M	DN 200	DN 200	97918997	97918997	-	-
SE2/SL2.XXX.250	L	DN 250	DN 250	97918997	97918997	-	-
SE2/SL2.XXX.300	E	DN 300	DN 300	97918997	97918997	-	-

Auto-coupling spare parts DN 80 - DN 300

Complete guide shoe



TM066850

Pump type	Pressure range	Pump inlet	Pump outlet	Product number		
				Cast iron	Stainless steel	Duplex
SEV/SLV.XX.80	H	DN 100	DN 80	96047079	96798839	97904169
SE/SL/SE1/SL1.XX.100	S	DN 100	DN 100	96046814	96798838	97904174
	H	DN 150	DN 100	96047079	-	-
SE/SL/SE1/SL1.XX.150	H	DN 150	DN 150	96590097	96956233	97904175
SE1/SL1.XXX.200	M	DN 200	DN 200	96295570	-	-
SE2/SL2.XXX.250	L	DN 250	DN 250	98778262	-	-
SE2/SL2.XXX.300	E	DN 300	DN 300	96255574	-	-

Lifting chain

- complete, certified lifting chain for all pump types
- maximum load: 800 kg
- material variants:
  - galvanised steel
  - stainless steel.

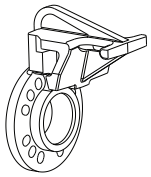


TM026126

Material	Length [m]	Product number
Galvanised steel	2	98425759
	4	98425760
	6	98425781
	8	98425782
	10	98425783
Stainless steel	2	98425796
	4	98425797
	6	98425798
	8	98425799
	10	98425800

Adaptors

Adaptor for Flygt type autocouplings



TM069949

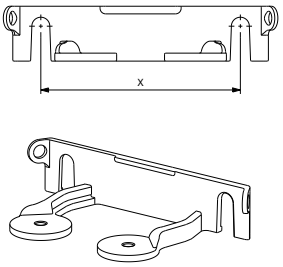
Pump type	Pressure range	Pump inlet	Pump outlet	Adaptor outlet	Product number
SEV/SLV.XX.80	H	DN 100	DN 80	DN 100	96105790
SE/SL/SE1/ SL1.XX.100	S	DN 100	DN 100	DN 100	96105782
	H	DN 150	DN 100	DN 150	98617437
SE/SL/SE1/ SL1.XX.150	H	DN 150	DN 150	DN 150	98617437
SE/SL/SE1/ SL1.XX.150	H	DN 150	DN 150	DN 150	96006638 [3] [5]
SE1/SL1.XXX.20	M	DN 200	DN 200	DN 200	98365764 [3] [6]
SE2/ SL2.XXX.250	L	DN 250	DN 250	DN 250	98365769 [3] [6]
SE2/ SL2.XXX.300	E	DN 300	DN 300	DN 300	98381199 [3] [6]

[35] For 2" guide pipes

[36] For 3" guide pipes

10. Installation

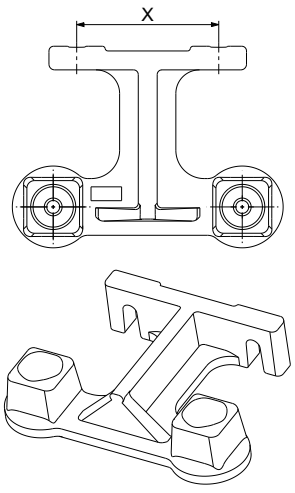
Upper guide-rail bracket dimensions



TM069913

Model A

Cast iron			X
Product number	**Size**	**Model**	**[mm]**
96090993	DN 80	A	180
96102240	DN 100 / DN 80		200
96090994	DN 100		
96102241	DN 150 / DN 100		
97695489	DN 150		
96641489	DN 200	B	150
96782483	DN 250		
96782484	DN 300		

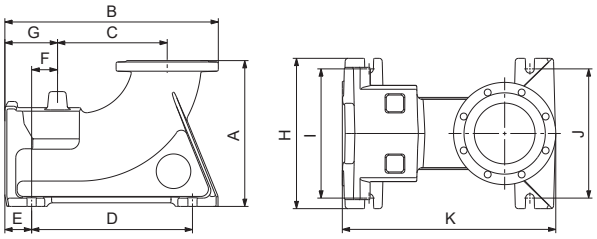


TM069915

Model B

Stainless steel			X
Product number	**Size**	**Model**	**[mm]**
96825106	DN 80	A	180
96825108	DN 100		200
96989863	DN 150		210

Auto-coupling dimensions



TM070592

Cast iron

Product number	Size	Dimensions [mm]										
		A	B	C	D	E	F	G	H	I	J	K
96090993	DN 80	345	326.6	171	160	41	13	54	240	220	220	214.2
96102240	DN 100/DN 80	413	403.0	220	220	68	0	68	300	260	230	340.6
96090994	DN 100	413	403.0	220	220	68	0	68	300	260	230	340.6
96102241	DN 150/DN 100	450	500.5	280	280	78	0	78	340	300	300	404.6
97695489	DN 150	450	500.5	280	280	78	0	78	340	300	300	404.6
96641489	DN 200	485	710	365	535	89	86	175	500	430	430	709
96782483	DN 250	545	752.5	375	565	89	86	175	540	468.7	468.7	744
96782484	DN 300	650	860	450	670	80	95	175	620	551	551	844

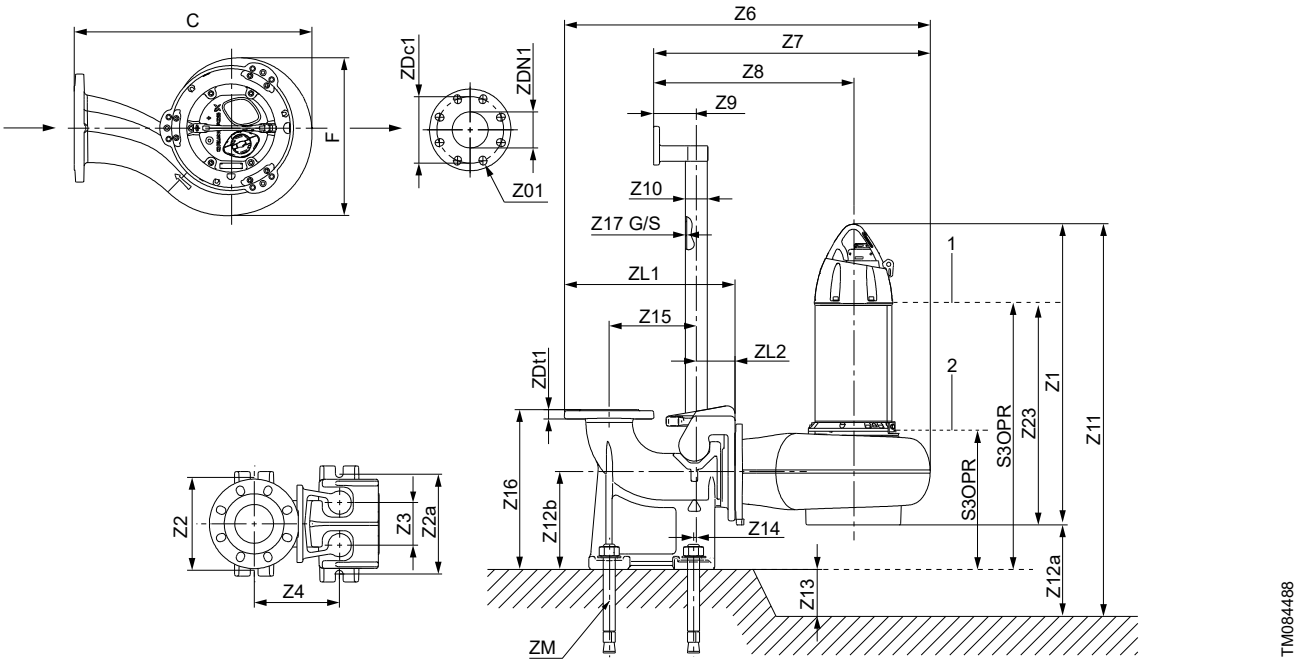
Stainless steel

Product number	Size	Dimensions [mm]										
		A	B	C	D	E	F	G	H	I	J	K
96825106	DN 80	345	326.6	171	160	27	27	54	240	220	220	228
96825108	DN 100	413	403	220	220	68	0	68	300	230	260	340.6
96989863	DN 150	450	500.5	280	280	78	0	78	340	300	300	404.6

Pump installation dimensions

Submerged installation

Installation on auto coupling



Auto-coupling dimensions

Pos.	Description
1	minimum liquid level (S3OPR) for SL pumps, submersible installation without cooling jacket
2	minimum liquid level (S3OPR) for SE pumps, submersible installation with cooling jacket

SE/SL/SE1/SL1/SE2/SL2/SEV/SLV (part 1)

Pump type	C	F	Z01	Z1	Z2	Z2a	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z12b
SE1/SL1.75.100.130.2.52S	476	382	8 X 19	1.149	230	260	110	220	918	654	463	110	60	1.241	92	240
SE/SL.100.130.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.75.100.150.2.52S	476	382	8 X 19	1.149	230	260	110	220	918	654	463	110	60	1.241	92	240
SE/SL.100.150.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.75.100.170.2.52S	476	382	8 X 19	1.149	230	260	110	220	918	654	463	110	60	1.241	92	240
SE/SL.100.170.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.75.100.185.2.52S	476	382	8 X 19	1.149	230	260	110	220	918	654	463	110	60	1.241	92	240
SE/SL.100.185.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.80.100.200.2.52S	476	383	8 X 19	1.165	230	260	110	220	918	654	463	110	60	1.257	92	240
SE/SL.100.200.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.80.100.220.2.52S	476	383	8 X 19	1.165	230	260	110	220	918	654	463	110	60	1.257	92	240
SE/SL.100.220.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.80.100.240.2.52S	476	383	8 X 19	1.165	230	260	110	220	918	654	463	110	60	1.257	92	240
SE/SL.100.240.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SE1/SL1.80.100.265.2.52S	476	383	8 X 19	1.165	230	260	110	220	918	654	463	110	60	1.257	92	240
SE/SL.100.265.2.52S	476	382	8 X 19	1.152	230	260	110	220	918	654	463	110	60	1.244	92	240
SEV/SLV.80.80.130.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.150.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.170.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.185.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.200.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240

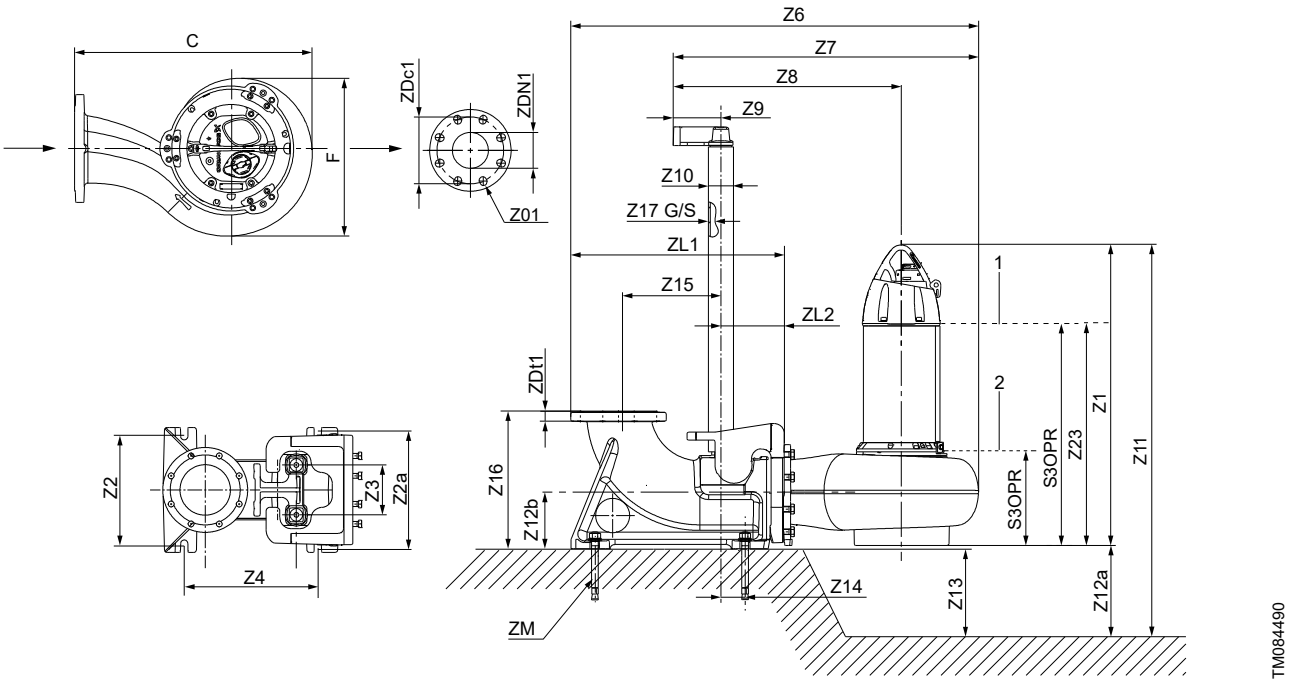
Pump type	C	F	Z01	Z1	Z2	Z2a	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z12b
SEV/SLV.80.80.220.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.240.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SEV/SLV.80.80.265.2.52H	527	394	8 X 18	1.137	230	260	110	220	990	705	508	110	60	1.227	90	240
SE1/SL1.85.100.100.4.52H	609	462	8 X 19	1.172	300	300	110	280	1.178	797	568	110	60	1.312	140	275
SE/SL.100.100.4.52H	609	461	8 X 19	1.173	300	300	110	280	1.178	797	568	110	60	1.313	140	275
SE1/SL1.85.100.110.4.52H	609	462	8 X 19	1.172	300	300	110	280	1.178	797	568	110	60	1.312	140	275
SE/SL.100.110.4.52H	609	461	8 X 19	1.173	300	300	110	280	1.178	797	568	110	60	1.313	140	275
SE1/SL1.85.100.130.4.52H	609	462	8 X 19	1.172	300	300	110	280	1.178	797	568	110	60	1.312	140	275
SE/SL.100.130.4.52H	609	461	8 X 19	1.173	300	300	110	280	1.178	797	568	110	60	1.313	140	275
SE1/SL1.85.100.150.4.52H	609	462	8 X 19	1.172	300	300	110	280	1.178	797	568	110	60	1.312	140	275
SE/SL.100.150.4.52H	609	461	8 X 19	1.173	300	300	110	280	1.178	797	568	110	60	1.313	140	275
SE1/SL1.85.100.170.4.52H	625	495	8 X 19	1.169	300	300	110	280	1.194	813	568	110	60	1.309	140	275
SE/SL.100.170.4.52H	625	495	8 X 19	1.173	300	300	110	280	1.194	813	568	110	60	1.313	140	275
SE1/SL1.85.100.185.4.52H	625	495	8 X 19	1.169	300	300	110	280	1.194	813	568	110	60	1.309	140	275
SE/SL.100.185.4.52H	625	495	8 X 19	1.173	300	300	110	280	1.194	813	568	110	60	1.313	140	275
SE1/SL1.95.100.200.4.52H	625	495	8 X 19	1.169	300	300	110	280	1.194	813	568	110	60	1.309	140	275
SE/SL.100.200.4.52H	625	495	8 X 19	1.173	300	300	110	280	1.194	813	568	110	60	1.313	140	275
SE1/SL1.95.100.220.4.52H	625	495	8 X 19	1.169	300	300	110	280	1.194	813	568	110	60	1.309	140	275
SE/SL.100.220.4.52H	625	495	8 X 19	1.173	300	300	110	280	1.194	813	568	110	60	1.313	140	275
SE1/SL1.85.150.100.4.52H	605	454	8X23	1.169	300	300	123	280	1.157	793	568	110	89	1.271	102	275
SE/SL.150.100.4.52H	605	454	8X23	1.173	300	300	123	280	1.157	793	568	110	89	1.275	102	275
SE1/SL1.85.150.110.4.52H	605	454	8X23	1.169	300	300	123	280	1.157	793	568	110	89	1.271	102	275
SE/SL.150.110.4.52H	605	454	8X23	1.173	300	300	123	280	1.157	793	568	110	89	1.275	102	275
SE1/SL1.85.150.130.4.52H	605	454	8X23	1.169	300	300	123	280	1.157	793	568	110	89	1.271	102	275
SE/SL.150.130.4.52H	605	454	8X23	1.173	300	300	123	280	1.157	793	568	110	89	1.275	102	275
SE1/SL1.85.150.150.4.52H	605	454	8X23	1.169	300	300	123	280	1.157	793	568	110	89	1.271	102	275
SE/SL.150.150.4.52H	605	454	8X23	1.173	300	300	123	280	1.157	793	568	110	89	1.275	102	275
SE1/SL1.85.150.170.4.52H	621	487	8X23	1.169	300	300	123	280	1.173	809	568	110	89	1.271	102	275
SE/SL.150.170.4.52H	621	487	8X23	1.173	300	300	123	280	1.173	809	568	110	89	1.275	102	275
SE1/SL1.85.150.185.4.52H	621	487	8X23	1.169	300	300	123	280	1.173	809	568	110	89	1.271	102	275
SE/SL.150.185.4.52H	621	487	8X23	1.173	300	300	123	280	1.173	809	568	110	89	1.275	102	275
SE1/SL1.95.150.200.4.52H	621	487	8X23	1.169	300	300	123	280	1.173	809	568	110	89	1.271	102	275
SE/SL.150.200.4.52H	621	487	8X23	1.173	300	300	123	280	1.173	809	568	110	89	1.275	102	275
SE1/SL1.95.150.220.4.52H	621	487	8X23	1.169	300	300	123	280	1.173	809	568	110	89	1.271	102	275
SE/SL.150.220.4.52H	621	487	8X23	1.173	300	300	123	280	1.173	809	568	110	89	1.275	102	275

SE/SL/SE1/SL1/SE2/SL2/SEV/SLV (part 2)

Pump type	Z13	Z14	Z15	Z16	Z17G	Z17S	Z23	S3OPR [37)]	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
SE1/SL1.75.100.130.2.52S	3	0	220	413	3	3	309	398/944	180	DN100	24	442	68	4 X M16
SE/SL.100.130.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.75.100.150.2.52S	3	0	220	413	3	3	309	398/944	180	DN100	24	442	68	4 X M16
SE/SL.100.150.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.75.100.170.2.52S	3	0	220	413	3	3	309	398/944	180	DN100	24	442	68	4 X M16
SE/SL.100.170.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.75.100.185.2.52S	3	0	220	413	3	3	309	398/944	180	DN100	24	442	68	4 X M16
SE/SL.100.185.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.80.100.200.2.52S	3	0	220	413	3	3	325	414/960	180	DN100	24	442	68	4 X M16
SE/SL.100.200.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.80.100.220.2.52S	3	0	220	413	3	3	325	414/960	180	DN100	24	442	68	4 X M16
SE/SL.100.220.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.80.100.240.2.52S	3	0	220	413	3	3	325	414/960	180	DN100	24	442	68	4 X M16
SE/SL.100.240.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SE1/SL1.80.100.265.2.52S	3	0	220	413	3	3	325	414/960	180	DN100	24	442	68	4 X M16
SE/SL.100.265.2.52S	3	0	220	413	3	3	312	401/947	180	DN100	24	442	68	4 X M16
SEV/SLV.80.80.130.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16

Pump type	Z13	Z14	Z15	Z16	Z17G	Z17S	Z23	S3OPR [37)]	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
SEV/SLV.80.80.150.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.170.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.185.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.200.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.220.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.240.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SEV/SLV.80.80.265.2.52H	3	0	220	413	3	3	297	384/930	160	DN80	24	463	68	4 X M16
SE1/SL1.85.100.100.4.52H	41	0	280	450	3	3	332	431/977	180	DN100	25	569	78	4 × M16
SE/SL.100.100.4.52H	52	0	280	450	3	3	333	421/932	180	DN100	25	569	78	4 × M16
SE1/SL1.85.100.110.4.52H	41	0	280	450	3	3	332	431/977	180	DN100	25	569	78	4 × M16
SE/SL.100.110.4.52H	52	0	280	450	3	3	333	421/932	180	DN100	25	569	78	4 × M16
SE1/SL1.85.100.130.4.52H	41	0	280	450	3	3	332	431/977	180	DN100	25	569	78	4 × M16
SE/SL.100.130.4.52H	52	0	280	450	3	3	333	421/967	180	DN100	25	569	78	4 × M16
SE1/SL1.85.100.150.4.52H	41	0	280	450	3	3	332	431/942	180	DN100	25	569	78	4 × M16
SE/SL.100.150.4.52H	52	0	280	450	3	3	333	421/967	180	DN100	25	569	78	4 × M16
SE1/SL1.85.100.170.4.52H	57	0	280	450	3	3	329	412/958	180	DN100	25	569	78	4 × M16
SE/SL.100.170.4.52H	57	0	280	450	3	3	333	416/962	180	DN100	25	569	78	4 × M16
SE1/SL1.85.100.185.4.52H	57	0	280	450	3	3	329	412/958	180	DN100	25	569	78	4 × M16
SE/SL.100.185.4.52H	57	0	280	450	3	3	333	416/962	180	DN100	25	569	78	4 × M16
SE1/SL1.95.100.200.4.52H	57	0	280	450	3	3	329	412/958	180	DN100	25	569	78	4 × M16
SE/SL.100.200.4.52H	57	0	280	450	3	3	333	416/962	180	DN100	25	569	78	4 × M16
SE1/SL1.95.100.220.4.52H	57	0	280	450	3	3	329	412/923	180	DN100	25	569	78	4 × M16
SE/SL.100.220.4.52H	57	0	280	450	3	3	333	416/927	180	DN100	25	569	78	4 × M16
SE1/SL1.85.150.100.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.100.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.85.150.110.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.110.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.85.150.130.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.130.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.85.150.150.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.150.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.85.150.170.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.170.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.85.150.185.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.185.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.95.150.200.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.200.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16
SE1/SL1.95.150.220.4.52H	3	0	280	450	3	3	329	428/974	240	DN150	25	552	78	4XM16
SE/SL.150.220.4.52H	3	0	280	450	3	3	333	432/978	240	DN150	25	552	78	4XM16

37) SE minimum liquid level / SL minimum liquid level



Auto-coupling dimensions

SE/SE1/SE2/SEV (part 1)

Pump type	C	F	Z01	Z1	Z2	Z2a	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z12b
SE1/SL1.110.200.100.4.52M	756	502	8 X 23	1.197	430	430	200	535	1.517	1.101	845	170	89	1.337	140	196
SE1/SL1.110.200.110.4.52M	756	502	8 X 23	1.197	430	430	200	535	1.517	1.101	845	170	89	1.337	140	196
SE1/SL1.110.200.130.4.52M	756	502	8 X 23	1.197	430	430	200	535	1.517	1.101	845	170	89	1.337	140	196
SE1/SL1.110.200.150.4.52M	756	502	8 X 23	1.197	430	430	200	535	1.517	1.101	845	170	89	1.337	140	196
SE1/SL1.110.200.170.4.52M	786	561	8 X 23	1.196	430	430	200	535	1.547	1.131	845	170	89	1.336	140	196
SE1/SL1.110.200.185.4.52M	786	561	8 X 23	1.196	430	430	200	535	1.547	1.131	845	170	89	1.336	140	196
SE1/SL1.110.200.200.4.52M	786	561	8 X 23	1.196	430	430	200	535	1.547	1.131	845	170	89	1.336	140	196
SE1/SL1.110.200.220.4.52M	786	561	8 X 23	1.196	430	430	200	535	1.547	1.131	845	170	89	1.336	140	196
SE2/SL2.110.250.100.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.130.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.150.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.170.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.185.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.200.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.110.250.220.4.52L	849	680	12 X 23	1.211	471	469	200	565	1.651	1.194	845	170	89	1.352	141	224
SE2/SL2.125.300.110.6.52E	952	696	12 × 25	1.263	551	551	200	670	1.859	1.344	992	170	89	1.403	140	226
SE2/SL2.125.300.130.6.52E	952	696	12 × 25	1.263	551	551	200	670	1.859	1.344	992	170	89	1.403	140	226
SE2/SL2.125.300.160.6.52E	981	754	12 × 25	1.263	551	551	200	670	1.888	1.373	992	170	89	1.403	140	226
SE2/SL2.125.300.180.6.52E	981	754	12 × 25	1.263	551	551	200	670	1.888	1.373	992	170	89	1.403	140	226

SE/SE1/SE2/SEV (part 2)

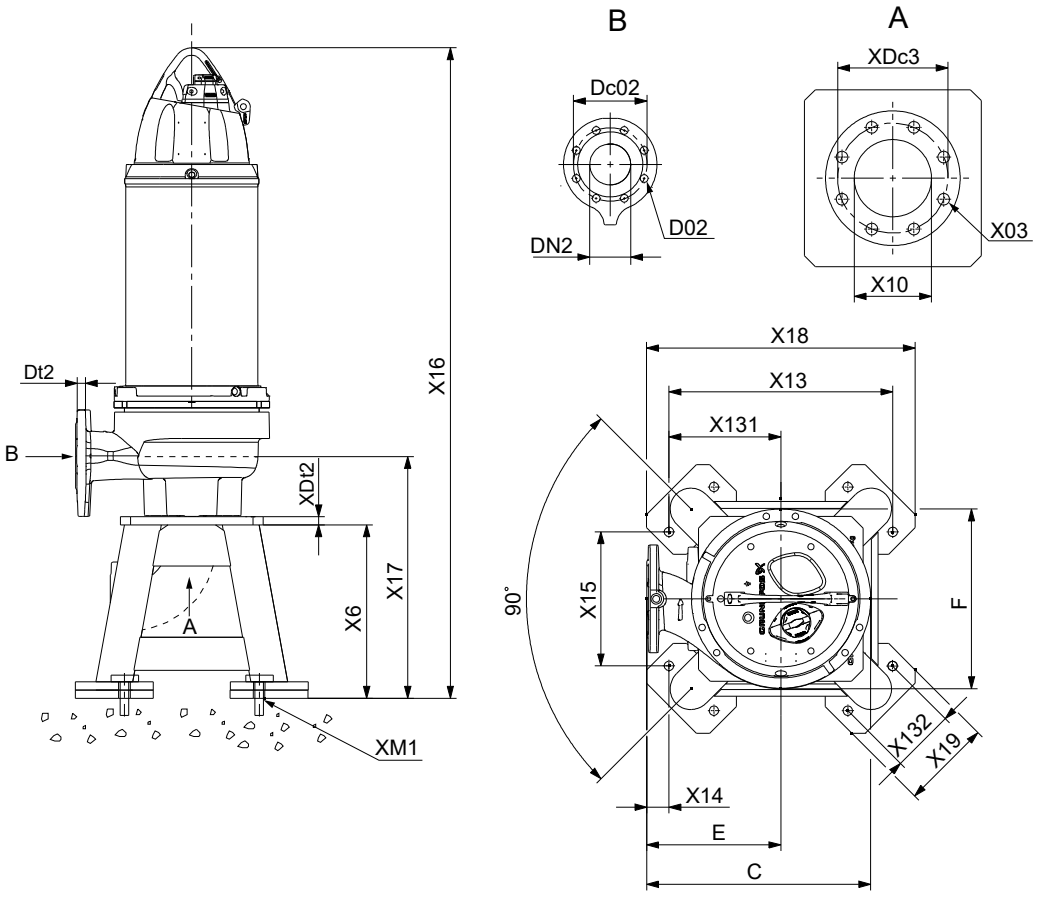
Pump type	Z13	Z14	Z15	Z16	Z17G	Z17S	Z23	S3OPR [37)]	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
SE1/SL1.110.200.100.4.52M	134	86	365	485	3	3	357	363/909	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.110.4.52M	134	86	365	485	3	3	357	363/909	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.130.4.52M	134	86	365	485	3	3	357	363/909	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.150.4.52M	134	86	365	485	3	3	357	363/909	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.170.4.52M	134	86	365	485	3	3	356	362/908	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.185.4.52M	134	86	365	485	3	3	356	362/908	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.200.4.52M	134	86	365	485	3	3	356	362/908	297	DN200	35	761	175	4 X M24
SE1/SL1.110.200.220.4.52M	134	86	365	485	3	3	356	362/908	297	DN200	35	761	175	4 X M24
SE2/SL2.110.250.100.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24

Pump type	Z13	Z14	Z15	Z16	Z17G	Z17S	Z23	S3OPR [37]	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
SE2/SL2.110.250.130.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.110.250.150.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.110.250.170.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.110.250.185.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.110.250.200.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.110.250.220.4.52L	117	86	375	545	3	3	371	395/941	350	DN250	36	802	175	4 X M24
SE2/SL2.125.300.110.6.52E	114	95	450	650	3	3	977	419/965	400	DN 300	36	911	226	4 × M24
SE2/SL2.125.300.130.6.52E	114	95	450	650	3	3	977	419/965	400	DN 300	36	911	226	4 × M24
SE2/SL2.125.300.160.6.52E	114	95	450	650	3	3	977	419/965	400	DN 300	36	911	226	4 × M24
SE2/SL2.125.300.180.6.52E	114	95	450	650	3	3	977	419/965	400	DN 300	36	911	226	4 × M24

37) SE minimum liquid level / SL minimum liquid level

Dry, vertical installation

Installation on vertical base stand



Vertical base stand dimensions

SE/SE1 (part 1)

Pump type	C	E	F	X6	X10	X13	X14	X15	X16	X17	X18
SE1.75.100.130.2.52S	476	285	382	425	DN100	475	47	285	1.594	576	571
SE.100.130.2.52S	476	285	382	425	DN100	475	47	285	1.597	576	571
SE1.85.100.100.4.52H	609	380	462	596	DN150	716	22	484	1.788	772	808
SE.100.100.4.52H	609	380	461	596	DN150	716	22	484	1.789	783	808
SE1.85.100.110.4.52H	609	380	462	596	DN150	716	22	484	1.788	772	808
SE.100.110.4.52H	609	380	461	596	DN150	716	22	484	1.789	783	808

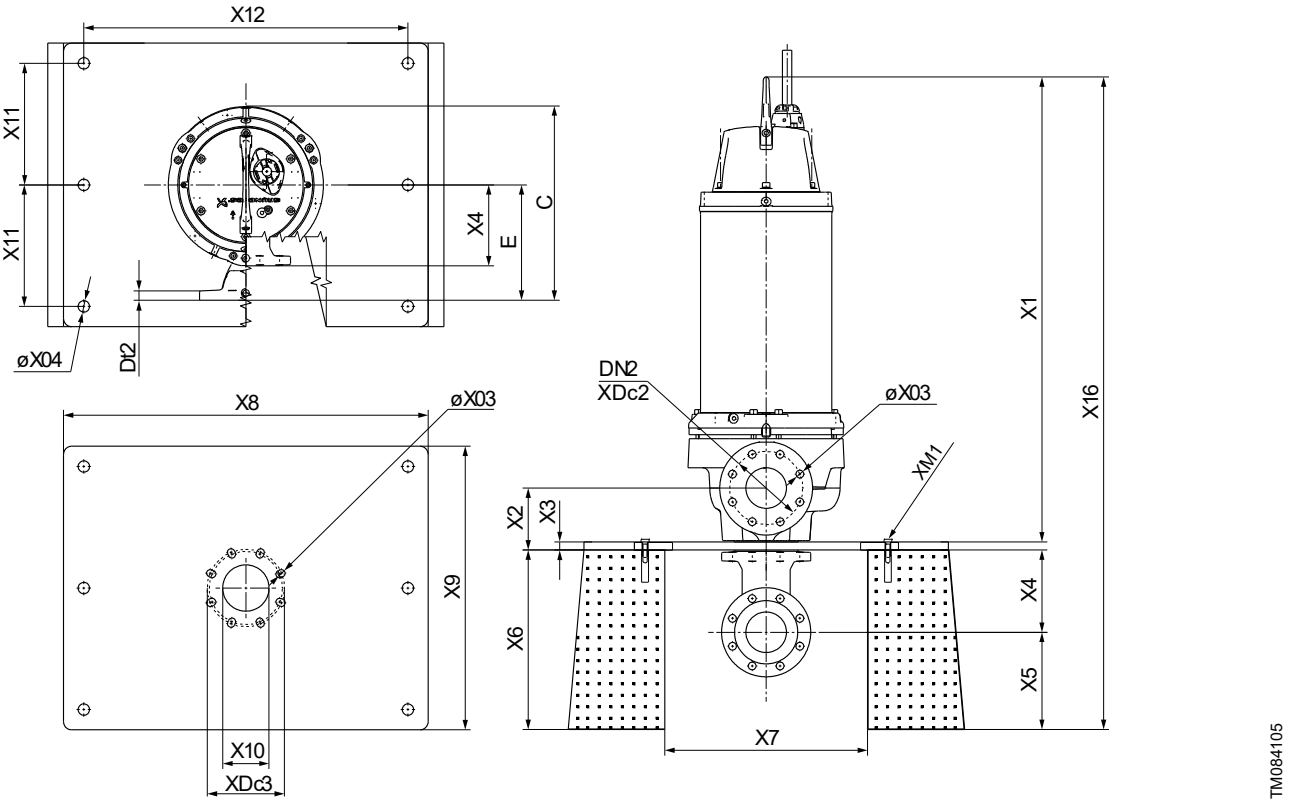
Pump type	C	E	F	X6	X10	X13	X14	X15	X16	X17	X18
SEV.80.80.130.2.52H	527	330	394	425	DN100	475	92	285	1.582	578	571
SE1.85.100.130.4.52H	609	380	462	596	DN150	716	22	484	1.788	772	808
SE.100.130.4.52H	609	380	461	596	DN150	716	22	484	1.789	783	808
SE1.85.150.100.4.52H	605	380	454	596	DN150	716	22	484	1.785	772	808
SE.150.100.4.52H	605	380	454	596	DN150	716	22	484	1.789	772	808
SE1.85.150.110.4.52H	605	380	454	596	DN150	716	22	484	1.785	772	808
SE.150.110.4.52H	605	380	454	596	DN150	716	22	484	1.789	772	808
SE1.85.150.130.4.52H	605	380	454	596	DN150	716	22	484	1.785	772	808
SE.150.130.4.52H	605	380	454	596	DN150	716	22	484	1.789	772	808
SE1.110.200.100.4.52M	756	500	502	694	DN200	766	117	534	1.911	884	858
SE1.110.200.110.4.52M	756	500	502	694	DN200	766	117	534	1.911	884	858
SE1.110.200.130.4.52M	756	500	502	694	DN200	766	117	534	1.911	884	858
SE2.110.250.100.4.52L	849	500	680	824	DN250	906	47	594	2.035	1.024	1.005
SE2.110.250.130.4.52L	849	500	680	824	DN250	906	47	594	2.035	1.024	1.005
SE2.125.300.110.6.52E	952	600	696	852	DN300	906	147	594	2.146	1.112	1.005
SE2.125.300.130.6.52E	952	600	696	852	DN300	906	147	594	2.146	1.112	1.005

SE/SE1 (part 2)

Pump type	X19	X131	X132	XM1	XDt2	XDc3	X03	Dt2	DN2	Dc02	D02
SE1.75.100.130.2.52S	190	238	135	M16X8	20	180	19	25	DN100	180	19
SE.100.130.2.52S	190	238	135	M16X8	20	180	19	25	DN100	180	19
SE1.85.100.100.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SE.100.100.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SE1.85.100.110.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SE.100.110.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SEV.80.80.130.2.52H	190	238	135	M16X8	20	180	19	25	DN80	160	18
SE1.85.100.130.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SE.100.130.4.52H	220	358	164	M20X8	25	240	24	25	DN100	180	19
SE1.85.150.100.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE.150.100.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE1.85.150.110.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE.150.110.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE1.85.150.130.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE.150.130.4.52H	220	358	164	M20X8	25	240	24	27	DN150	240	23
SE1.110.200.100.4.52M	220	383	164	M20X8	25	297	27	30	DN200	297	23
SE1.110.200.110.4.52M	220	383	164	M20X8	25	297	27	30	DN200	297	23
SE1.110.200.130.4.52M	220	383	164	M20X8	25	297	27	30	DN200	297	23
SE2.110.250.100.4.52L	270	453	220	M20X8	30	350	24	32	DN250	350	23
SE2.110.250.130.4.52L	270	453	220	M20X8	30	350	24	32	DN250	350	23
SE2.125.300.110.6.52E	270	453	220	M20X8	30	400	26	32	DN300	400	25
SE2.125.300.130.6.52E	270	453	220	M20X8	30	400	26	32	DN300	400	25

Dry, vertical installation

Installation on concrete foundation



Concrete foundation dimensions

SE/SE1/SE2 (part 1)

Pump type	C	E	X02	X03	X04	X1	X2	X3	X4	X5	X6	X7	X8
SE1.75.100.150.2.52S	476	285	19	18	28	1.149	171	20	203	240	443	500	900
SE.100.150.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.75.100.170.2.52S	476	285	19	18	28	1.149	171	20	203	240	443	500	900
SE.100.170.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.75.100.185.2.52S	476	285	19	18	28	1.149	171	20	203	240	443	500	900
SE.100.185.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.80.100.200.2.52S	476	285	19	18	28	1.165	171	20	203	240	443	500	900
SE.100.200.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.80.100.220.2.52S	476	285	19	18	28	1.165	171	20	203	240	443	500	900
SE.100.220.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.80.100.240.2.52S	476	285	19	18	28	1.165	171	20	203	240	443	500	900
SE.100.240.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SE1.80.100.265.2.52S	476	285	19	18	28	1.165	171	20	203	240	443	500	900
SE.100.265.2.52S	476	285	19	18	28	1.152	171	20	203	240	443	500	900
SEV.80.80.150.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.170.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.185.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.200.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.220.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.240.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SEV.80.80.265.2.52H	527	330	18	18	28	1.137	173	20	203	240	443	500	900
SE1.85.100.150.4.52H	609	380	19	23	28	1.172	196	20	253	368	621	500	900

Pump type	C	E	X02	X03	X04	X1	X2	X3	X4	X5	X6	X7	X8
SE.100.150.4.52H	609	380	19	23	28	1.173	207	20	253	368	621	500	900
SE1.85.100.170.4.52H	625	380	19	23	28	1.169	212	20	253	368	621	500	900
SE.100.170.4.52H	625	380	19	23	28	1.173	212	20	253	368	621	500	900
SE1.85.100.185.4.52H	625	380	19	23	28	1.169	212	20	253	368	621	500	900
SE.100.185.4.52H	625	380	19	23	28	1.173	212	20	253	368	621	500	900
SE1.95.100.200.4.52H	625	380	19	23	28	1.169	212	20	253	368	621	500	900
SE.100.200.4.52H	625	380	19	23	28	1.173	212	20	253	368	621	500	900
SE1.95.100.220.4.52H	625	380	19	23	28	1.169	212	20	253	368	621	500	900
SE.100.220.4.52H	625	380	19	23	28	1.173	212	20	253	368	621	500	900
SE.150.130.4.52H	605	380	23	24	28	1.173	196	20	253	343	596	500	900
SE1.85.150.150.4.52H	605	380	23	23	28	1.169	196	20	253	368	621	500	900
SE.150.150.4.52H	605	380	23	23	28	1.173	196	20	253	368	621	500	900
SE1.85.150.170.4.52H	621	380	23	23	28	1.169	196	20	253	368	621	500	900
SE.150.170.4.52H	621	380	23	23	28	1.173	196	20	253	368	621	500	900
SE1.85.150.185.4.52H	621	380	23	23	28	1.169	196	20	253	368	621	500	900
SE.150.185.4.52H	621	380	23	23	28	1.173	196	20	253	368	621	500	900
SE1.95.150.200.4.52H	621	380	23	23	28	1.169	196	20	253	368	621	500	900
SE.150.200.4.52H	621	380	23	23	28	1.173	196	20	253	368	621	500	900
SE1.95.150.220.4.52H	621	380	23	23	28	1.169	196	20	253	368	621	500	900
SE.150.220.4.52H	621	380	23	23	28	1.173	196	20	253	368	621	500	900
SE1.110.200.150.4.52M	756	500	23	23	28	1.197	210	20	303	397	700	500	900
SE1.110.200.170.4.52M	786	500	23	23	28	1.196	210	20	303	397	700	500	900
SE1.110.200.185.4.52M	786	500	23	23	28	1.196	210	20	303	397	700	500	900
SE1.110.200.200.4.52M	786	500	23	23	28	1.196	210	20	303	397	700	500	900
SE1.110.200.220.4.52M	786	500	23	23	28	1.196	210	20	303	397	700	500	900
SE2.110.250.150.4.52L	849	500	23	23	27	1.211	223	23	350	369	719	500	900
SE2.110.250.170.4.52L	849	500	23	23	27	1.211	223	23	350	369	719	500	900
SE2.110.250.185.4.52L	849	500	23	23	27	1.211	223	23	350	369	719	500	900
SE2.110.250.200.4.52L	849	500	23	23	27	1.211	223	23	350	369	719	500	900
SE2.110.250.220.4.52L	849	500	23	23	27	1.211	223	23	350	369	719	500	900
SE2.125.300.160.6.52E	981	600	25	24	28	1.263	250	20	403	397	800	500	900
SE2.125.300.180.6.52E	981	600	25	24	28	1.263	250	20	403	397	800	500	900

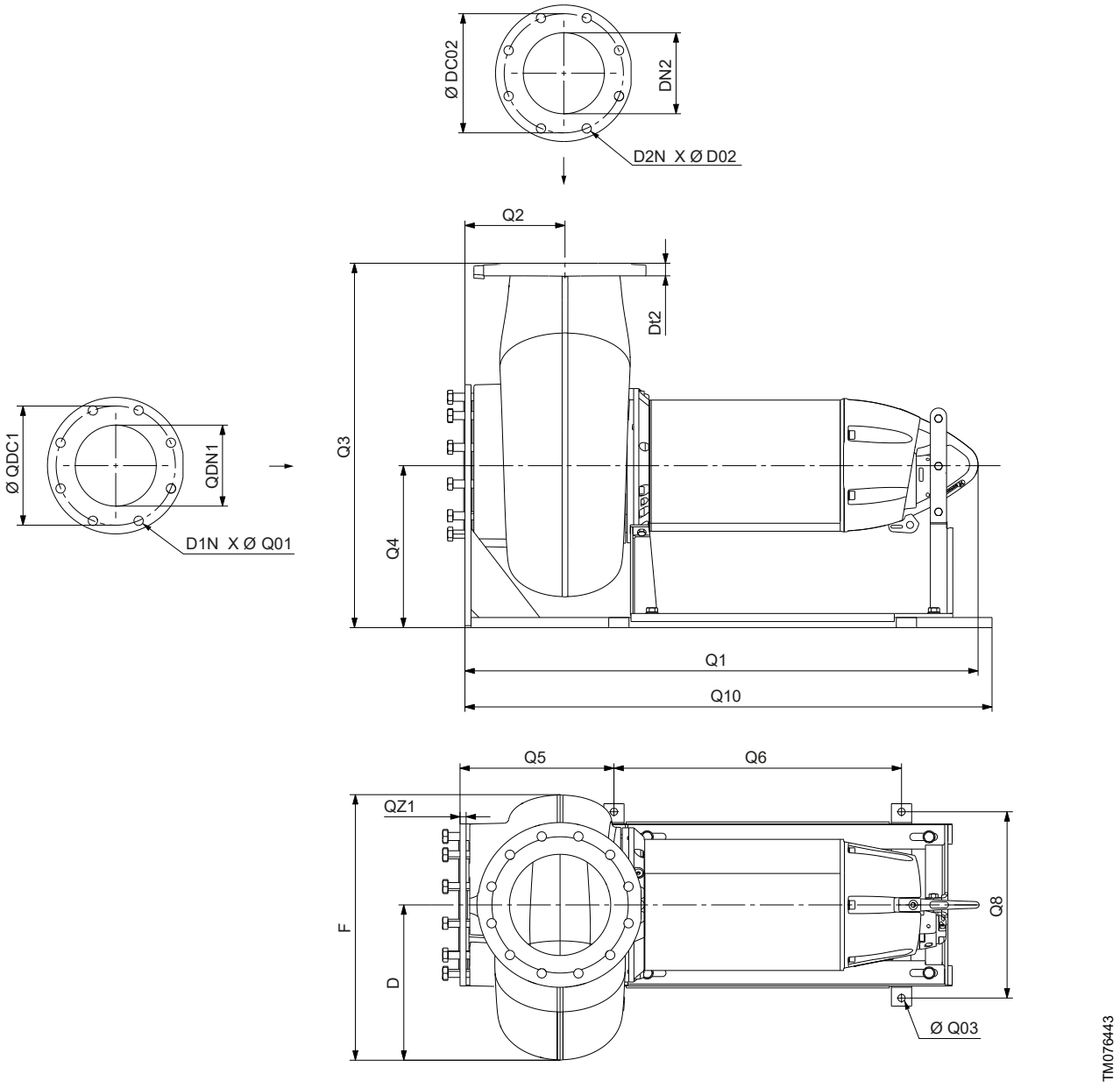
SE/SE1/SE2 (part 2)

Pump type	X9	X10	X11	X12	X16	XDc3	DN2	XDC2	Dt2	XM1
SE1.75.100.150.2.52S	700	DN100	300	800	1.612	180	DN100	180	25	M24X6
SE.100.150.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.75.100.170.2.52S	700	DN100	300	800	1.612	180	DN100	180	25	M24X6
SE.100.170.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.75.100.185.2.52S	700	DN100	300	800	1.612	180	DN100	180	25	M24X6
SE.100.185.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.80.100.200.2.52S	700	DN100	300	800	1.628	180	DN100	180	25	M24X6
SE.100.200.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.80.100.220.2.52S	700	DN100	300	800	1.628	180	DN100	180	25	M24X6
SE.100.220.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.80.100.240.2.52S	700	DN100	300	800	1.628	180	DN100	180	25	M24X6
SE.100.240.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SE1.80.100.265.2.52S	700	DN100	300	800	1.628	180	DN100	180	25	M24X6
SE.100.265.2.52S	700	DN100	300	800	1.615	180	DN100	180	25	M24X6
SEV.80.80.150.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SEV.80.80.170.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SEV.80.80.185.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SEV.80.80.200.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SEV.80.80.220.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SEV.80.80.240.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6

Pump type	X9	X10	X11	X12	X16	XDc3	DN2	XDC2	Dt2	XM1
SEV.80.80.265.2.52H	700	DN100	300	800	1.600	180	DN80	160	25	M24X6
SE1.85.100.150.4.52H	700	DN150	300	800	1.813	240	DN100	180	25	M24X6
SE.100.150.4.52H	700	DN150	300	800	1.814	240	DN100	180	25	M24X6
SE1.85.100.170.4.52H	700	DN150	300	800	1.810	240	DN100	180	25	M24X6
SE.100.170.4.52H	700	DN150	300	800	1.814	240	DN100	180	25	M24X6
SE1.85.100.185.4.52H	700	DN150	300	800	1.810	240	DN100	180	25	M24X6
SE.100.185.4.52H	700	DN150	300	800	1.814	240	DN100	180	25	M24X6
SE1.95.100.200.4.52H	700	DN150	300	800	1.810	240	DN100	180	25	M24X6
SE.100.200.4.52H	700	DN150	300	800	1.814	240	DN100	180	25	M24X6
SE1.95.100.220.4.52H	700	DN150	300	800	1.810	240	DN100	180	25	M24X6
SE.100.220.4.52H	700	DN150	300	800	1.814	240	DN100	180	25	M24X6
SE.150.130.4.52H	700	DN150	300	800	1.789	240	DN150	240	27	M20X8
SE1.85.150.150.4.52H	700	DN150	300	800	1.810	240	DN150	240	27	M24X6
SE.150.150.4.52H	700	DN150	300	800	1.814	240	DN150	240	27	M24X6
SE1.85.150.170.4.52H	700	DN150	300	800	1.810	240	DN150	240	27	M24X6
SE.150.170.4.52H	700	DN150	300	800	1.814	240	DN150	240	27	M24X6
SE1.85.150.185.4.52H	700	DN150	300	800	1.810	240	DN150	240	27	M24X6
SE.150.185.4.52H	700	DN150	300	800	1.814	240	DN150	240	27	M24X6
SE1.95.150.200.4.52H	700	DN150	300	800	1.810	240	DN150	240	27	M24X6
SE.150.200.4.52H	700	DN150	300	800	1.814	240	DN150	240	27	M24X6
SE1.95.150.220.4.52H	700	DN150	300	800	1.810	240	DN150	240	27	M24X6
SE.150.220.4.52H	700	DN150	300	800	1.814	240	DN150	240	27	M24X6
SE1.110.200.150.4.52M	700	DN200	300	800	1.917	296	DN200	297	30	M24X6
SE1.110.200.170.4.52M	700	DN200	300	800	1.916	296	DN200	295	30	M24X6
SE1.110.200.185.4.52M	700	DN200	300	800	1.916	296	DN200	295	30	M24X6
SE1.110.200.200.4.52M	700	DN200	300	800	1.916	296	DN200	295	30	M24X6
SE1.110.200.220.4.52M	700	DN200	300	800	1.916	296	DN200	295	30	M24X6
SE2.110.250.150.4.52L	700	DN250	300	800	1.953	350	DN250	350	32	M24X6
SE2.110.250.170.4.52L	700	DN250	300	800	1.953	350	DN250	350	32	M24X6
SE2.110.250.185.4.52L	700	DN250	300	800	1.953	350	DN250	350	32	M24X6
SE2.110.250.200.4.52L	700	DN250	300	800	1.953	350	DN250	350	32	M24X6
SE2.110.250.220.4.52L	700	DN250	300	800	1.953	350	DN250	350	32	M24X6
SE2.125.300.160.6.52E	700	DN300	300	800	2.083	400	DN300	400	32	M24X6
SE2.125.300.180.6.52E	700	DN300	300	800	2.083	400	DN300	400	32	M24X6

Dry, horizontal installation

Installation on horizontal base stand



Horizontal base stand dimensions

SE/SL/SE1/SL1/SE2/SL2/SEV/SLV (part 1)

Pump type	D	F	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q10	QZ1
SE1.75.100.130.2.52S	191	382	1.164	166	685	400	380	710	460	1.305	15
SE.100.130.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.75.100.150.2.52S	191	382	1.164	166	685	400	380	710	460	1.305	15
SE.100.150.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.75.100.170.2.52S	191	382	1.164	166	685	400	380	710	460	1.305	15
SE.100.170.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.75.100.185.2.52S	191	382	1.164	166	685	400	380	710	460	1.305	15
SE.100.185.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.80.100.200.2.52S	191	383	1.180	166	685	400	380	710	460	1.305	15
SE.100.200.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.80.100.220.2.52S	191	383	1.180	166	685	400	380	710	460	1.305	15
SE.100.220.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.80.100.240.2.52S	191	383	1.180	166	685	400	380	710	460	1.305	15
SE.100.240.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.80.100.265.2.52S	191	383	1.180	166	685	400	380	710	460	1.305	15
SE.100.265.2.52S	191	382	1.167	166	685	400	380	710	460	1.305	15
SE1.85.100.100.4.52H	229	462	1.187	191	780	400	380	710	460	1.305	15
SE.100.100.4.52H	255	461	1.188	202	780	400	380	710	460	1.305	15
SE1.85.100.110.4.52H	229	462	1.187	191	780	400	380	710	460	1.305	15
SE.100.110.4.52H	255	461	1.188	202	780	400	380	710	460	1.305	15
SEV.80.80.130.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.85.100.130.4.52H	229	462	1.187	191	780	400	380	710	460	1.305	15
SE.100.130.4.52H	255	461	1.188	202	780	400	380	710	460	1.305	15
SEV.80.80.150.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.85.100.150.4.52H	229	462	1.187	191	780	400	380	710	460	1.305	15
SE.100.150.4.52H	255	461	1.188	202	780	400	380	710	460	1.305	15
SEV.80.80.170.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.85.100.170.4.52H	245	495	1.184	207	780	400	380	710	460	1.305	15
SE.100.170.4.52H	271	495	1.188	207	780	400	380	710	460	1.305	15
SEV.80.80.185.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.85.100.185.4.52H	245	495	1.184	207	780	400	380	710	460	1.305	15
SE.100.185.4.52H	271	495	1.188	207	780	400	380	710	460	1.305	15
SEV.80.80.200.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.95.100.200.4.52H	245	495	1.184	207	780	400	380	710	460	1.305	15
SE.100.200.4.52H	271	495	1.188	207	780	400	380	710	460	1.305	15
SEV.80.80.220.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.95.100.220.4.52H	245	495	1.184	207	780	400	380	710	460	1.305	15
SE.100.220.4.52H	271	495	1.188	207	780	400	380	710	460	1.305	15
SE1.85.150.100.4.52H	225	454	1.184	191	780	400	380	710	460	1.305	15
SE.150.100.4.52H	251	454	1.188	191	780	400	380	710	460	1.305	15
SE1.85.150.110.4.52H	225	454	1.184	191	780	400	380	710	460	1.305	15
SE.150.110.4.52H	251	454	1.188	191	780	400	380	710	460	1.305	15
SE1.85.150.130.4.52H	225	454	1.184	191	780	400	380	710	460	1.305	15
SE.150.130.4.52H	251	454	1.188	191	780	400	380	710	460	1.305	15
SE1.85.150.150.4.52H	225	454	1.184	191	780	400	380	710	460	1.305	15
SE.150.150.4.52H	251	454	1.188	191	780	400	380	710	460	1.305	15
SE1.85.150.170.4.52H	241	487	1.184	191	780	400	380	710	460	1.305	15
SE.150.170.4.52H	267	487	1.188	191	780	400	380	710	460	1.305	15
SE1.85.150.185.4.52H	241	487	1.184	191	780	400	380	710	460	1.305	15
SE.150.185.4.52H	267	487	1.188	191	780	400	380	710	460	1.305	15
SE1.95.150.200.4.52H	241	487	1.184	191	780	400	380	710	460	1.305	15
SE.150.200.4.52H	267	487	1.188	191	780	400	380	710	460	1.305	15
SE1.95.150.220.4.52H	241	487	1.184	191	780	400	380	710	460	1.305	15
SE.150.220.4.52H	267	487	1.188	191	780	400	380	710	460	1.305	15

Pump type	D	F	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q10	QZ1
SEV.80.80.240.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SEV.80.80.265.2.52H	197	394	1.152	168	730	400	380	710	460	1.305	15
SE1.110.200.100.4.52M	279	502	1.212	205	900	400	380	710	460	1.305	15
SE1.110.200.110.4.52M	279	502	1.212	205	900	400	380	710	460	1.305	15
SE1.110.200.130.4.52M	279	502	1.212	205	900	400	380	710	460	1.305	15
SE1.110.200.150.4.52M	279	502	1.212	205	900	400	380	710	460	1.305	15
SE1.110.200.170.4.52M	307	561	1.211	205	900	400	380	710	460	1.305	15
SE1.110.200.185.4.52M	307	561	1.211	205	900	400	380	710	460	1.305	15
SE1.110.200.200.4.52M	307	561	1.211	205	900	400	380	710	460	1.305	15
SE1.110.200.220.4.52M	307	561	1.211	205	900	400	380	710	460	1.305	15
SE2.110.250.100.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.130.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.150.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.170.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.185.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.200.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.110.250.220.4.52L	349	680	1.226	215	900	400	380	710	460	1.305	15
SE2.125.300.110.6.52E	407	693	1.281	248	1.000	400	380	710	460	1.305	15
SE2.125.300.130.6.52E	407	693	1.281	248	1.000	400	380	710	460	1.305	15
SE2.125.300.160.6.52E	443	754	1.281	248	1.000	400	380	710	460	1.305	15
SE2.125.300.180.6.52E	443	754	1.281	248	1.000	400	380	710	460	1.305	15

SE/SL/SE1/SL1/SE2/SL2/SEV/SLV (part 2)

Pump type	QDc1	QDN1	Q01	D1N	D02	D2N	Dc02	DN2	Dt2	Q03
SE1.75.100.130.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.130.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.75.100.150.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.150.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.75.100.170.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.170.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.75.100.185.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.185.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.80.100.200.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.200.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.80.100.220.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.220.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.80.100.240.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.240.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.80.100.265.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE.100.265.2.52S	180	DN100	M16	8	19	8	180	DN100	25	18
SE1.85.100.100.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.100.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE1.85.100.110.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.110.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.130.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.85.100.130.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.130.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.150.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.85.100.150.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.150.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.170.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.85.100.170.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.170.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.185.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.85.100.185.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18

Pump type	QDc1	QDN1	Q01	D1N	D02	D2N	Dc02	DN2	Dt2	Q03
SE.100.185.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.200.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.95.100.200.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.200.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SEV.80.80.220.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.95.100.220.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE.100.220.4.52H	240	DN150	M20	8	19	8	180	DN100	25	18
SE1.85.150.100.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.100.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.85.150.110.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.110.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.85.150.130.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.130.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.85.150.150.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.150.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.85.150.170.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.170.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.85.150.185.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.185.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.95.150.200.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.200.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE1.95.150.220.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SE.150.220.4.52H	240	DN150	M20	8	23	8	240	DN150	27	18
SEV.80.80.240.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SEV.80.80.265.2.52H	180	DN100	M16	8	18	8	160	DN80	25	18
SE1.110.200.100.4.52M	297	DN200	M20	8	23	8	297	DN200	30	18
SE1.110.200.110.4.52M	297	DN200	M20	8	23	8	297	DN200	30	18
SE1.110.200.130.4.52M	297	DN200	M20	8	23	8	297	DN200	30	18
SE1.110.200.150.4.52M	297	DN200	M20	8	23	8	297	DN200	30	18
SE1.110.200.170.4.52M	297	DN200	M20	8	23	8	295	DN200	30	18
SE1.110.200.185.4.52M	297	DN200	M20	8	23	8	295	DN200	30	18
SE1.110.200.200.4.52M	297	DN200	M20	8	23	8	295	DN200	30	18
SE1.110.200.220.4.52M	297	DN200	M20	8	23	8	295	DN200	30	18
SE2.110.250.100.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.130.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.150.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.170.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.185.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.200.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.110.250.220.4.52L	350	DN250	M20	12	23	12	350	DN250	32	18
SE2.125.300.110.6.52E	400	DN 300	M20	12	25	12	400	DN300	32	18
SE2.125.300.130.6.52E	400	DN 300	M20	12	25	12	400	DN300	32	18
SE2.125.300.160.6.52E	400	DN 300	M20	12	25	12	400	DN300	32	18
SE2.125.300.180.6.52E	400	DN 300	M20	12	25	12	400	DN300	32	18

Recommendations for pump foundations

Note: This applies for pumps above 20 Hp (15 kW).

According to the ANSI/HI 1.4 standard, the following pump foundations are recommended.

All rotating equipment generates vibrations, when a mass, such as an impeller or rotor, is turning at high speeds. Proper installation and anchorage of Grundfos pumps and installation accessories are critical to limit vibrations and achieve reliable, smooth operation. All mechanically connected pipes, fittings and supports to the pump are all part of a single system.

The rotating mass of the entire pump together with the forces from the motor and hydraulics generate disturbances related to the speed of the motor. Unbalance and impeller vane pass in hydraulics are the two most important frequencies affecting vibration. When these frequencies coincide with the natural frequency of the entire mechanical system, the vibration level increases substantially.

Grundfos pumps are designed and produced according to the highest quality standards. The method and grade of balancing is specified by the manufacturer in order to achieve acceptable vibration levels. Although the pump itself can withstand rather high vibration levels under running conditions without considerable lifetime reduction, the pipes and supportive structure may suffer and crack if vibration levels are too high. Furthermore, noticeable noise levels might be generated.

The occurrence of high vibration levels is increased in variable speed applications, where the pump is operated over a range of speeds rather than at a single constant speed. Most variable speed drives provide the possibility to exclude certain frequencies.

To ensure acceptable vibration levels in the field, all parts of the system must be sufficiently stiff and firmly anchored to minimize vibrations:

- The foundation and concrete must have adequate strength to support the weight of the pump including accessories, the weight of the liquid in the pump and discharge pipe and the forces generated by the pump.
- The mass of the concrete foundation must be at least three to five times the mass of the supported equipment and must have sufficient rigidity to withstand the axial, transverse, and torsional loads generated by these machines.
- The foundation must be 6 in wider than the base plate.
- The concrete used in the foundation must have a minimum tensile strength of 363 psi (250 N/cm^2).
- Use epoxy grout and screws to fix the pump base plate to the foundation.

Pull-out strengths for bolts and anchor bolts

Submerged installation with and without cooling jacket on auto-coupling:

Auto-coupling base unit	Bolts	Pull-out resistance [kN]
DN 100	4 × M16	5
DN 150		8
DN 200	4 × M24	16
DN 250		30
DN 300		40

Dry vertical and horizontal installation:

Dry horizontal installation	Anchor bolts	Pull-out resistance [kN]
DN 100	8 × M16	5
DN 150	8 × M20	18
DN 200		
DN 250	12 × M20	18
DN 300		

Dry vertical installation	Anchor bolts	Pull-out resistance [kN]
DN 100	8 × M16	5
DN 150	8 × M20	18
DN 200		
DN 250		
DN 300		

11. Grundfos Product Center

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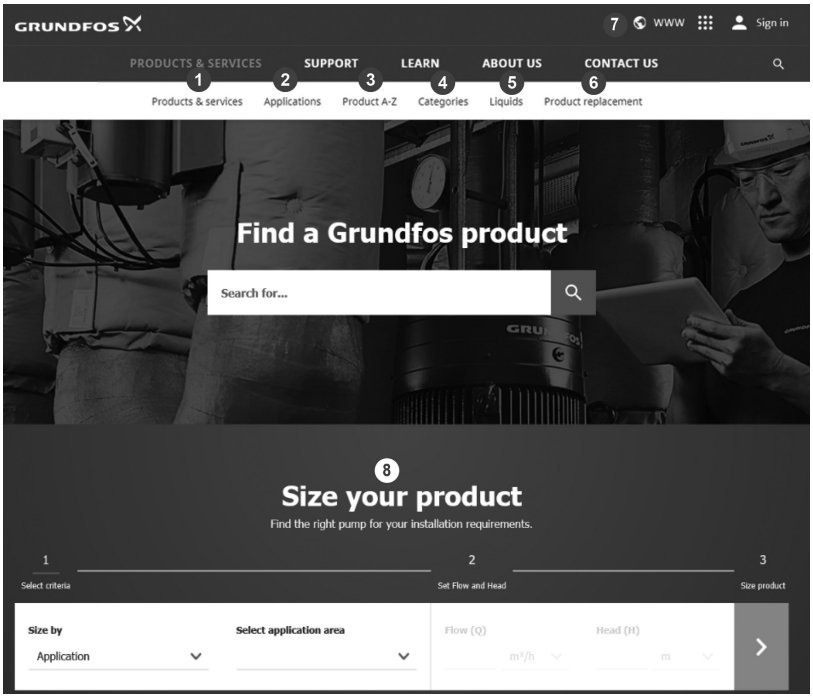
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Pos.	Description
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2	**Applications** enables you to choose an application to see how Grundfos can help you design and optimize your system.
3	**Products A-Z** enables you to look through a list of all the Grundfos products.
4	**Categories** enables you to look for a product category.
5	**Liquids** enables you to find pumps designed for aggressive, flammable or other special liquids.
6	**Product replacement** enables you to find a suitable replacement.
7	**WWW** enables you to select the country, which changes the language, the available product range and the structure of the website.
8	**Sizing** enables you to size a product based on your application and operating conditions.

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