

SE1, SEV pumps

1.1 to 11 kW
50 Hz



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1. Introduction

Introduction

This data booklet deals with Grundfos sewage and wastewater pump types SE1 and SEV.

These pump types are available:

- SE1 pumps with S-tube impeller
- SEV pumps with SuperVortex (free-flow) impeller.



Fig. 1 SE1 and SEV pumps



The S-tube impeller is the only impeller available in the wastewater market that does not compromise either efficiency or free passage through the pump.

The pumps are SuperVortex or S-tube impeller pumps specifically designed for pumping sewage and wastewater in a wide range of municipal, private and industrial applications.

The pumps are made of wear-resistant materials, such as cast iron and stainless steel. These materials ensure long and reliable operation.

The pumps are fitted with motors of 1.1 kW up to and including 11 kW. The motors are either 2- or 4-pole motors, depending on the motor size.

The free passage (spherical) in the pumps is 50 to 100 mm, depending on pump type.

The pumps are available for these types of installation:

- dry installation, vertical or horizontal
- submerged installation on auto-coupling system
- submerged installation, free-standing on ring stand.

Applications

The typical application is the transfer of liquids such as:

- wastewater with a high content of fibres
- drainage water and surface water
- domestic wastewater
- municipal wastewater
- industrial wastewater
- process and cooling water.

The 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 in wastewater treatment plants
- stormwater pumping stations
- public buildings
- blocks of flats
- factories/industry.

SMARTdesign



smartdesign

smartdesign describes the functional design of our products that combines elegant appearance with smart features, created with customer needs in mind. **smartdesign** doesn't only look good; the design also makes installation, operation and maintenance of the product easier and more user-friendly.

The **smartdesign** features of our SE1 and SEV pumps include:

- designed for dry and submerged installation (without the need for external cooling)
- moisture-proof cable plug connection made of corrosion-resistant stainless steel with conductors embedded in polyethane sealant
- stainless steel clamp connection between motor housing and pump housing for easy service
- double mechanical cartridge shaft seal for easy service and perfect seal face alignment
- power supply cable incorporating wires for thermal sensors in the motor windings
- no additional cable required for sensors in pumps with sensors
- monitoring of operating conditions for pumps with sensors
- moisture detector for continuous monitoring of motor enclosure and automatic cut-out in case of leakage
- heavy-duty bearings greased for life
- pumps built for frequency converter operation
- smooth pump surface preventing dirt and impurities from sticking to the pump
- self-cleaning S-**tube** impeller with long vane reducing the risk of jamming or clogging, or SuperVortex impeller with high pumping efficiency and less downtime
- explosion-proof motors for potentially explosive environments
- motor insulation class F (155 °C)
- enclosure class IP68 with one thermal sensor in each phase.

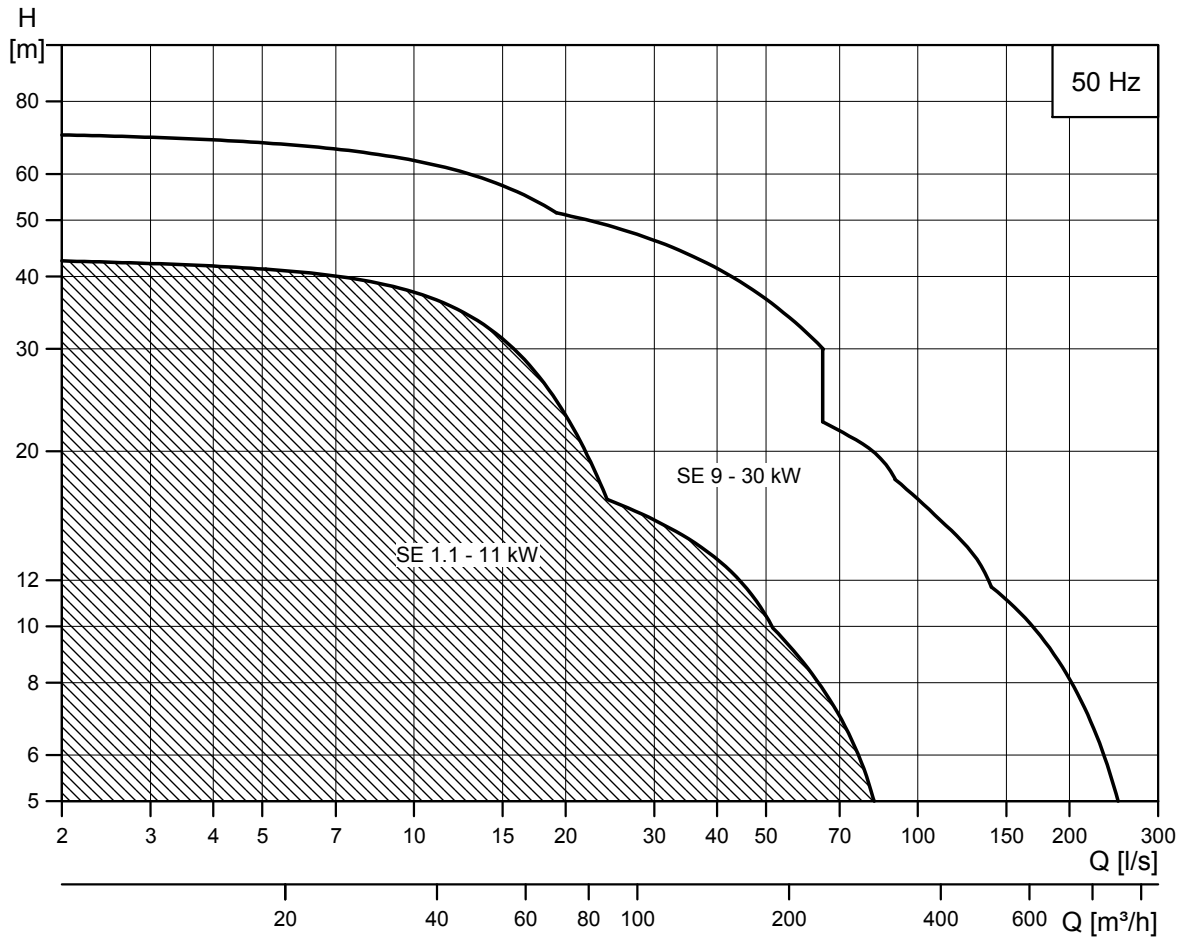
2. Performance range

Performance overview

Figure 2 shows the performance range of SE1 and SEV sewage and wastewater pumps. It gives an overview of the various sizes and impeller types.

Note: For information about the performance range of each individual pump, see pages 46 to 99.

If you require a duty point outside the grey performance range below, please see the Grundfos SL, SE and S range data booklets available in WebCAPS.



TM05 4165 2112

Fig. 2 Performance range

3. Identification

Type key

The pump can be identified by means of the type designation. The type designation is stated on the nameplate on the top cover of the pump. The example below shows the following:

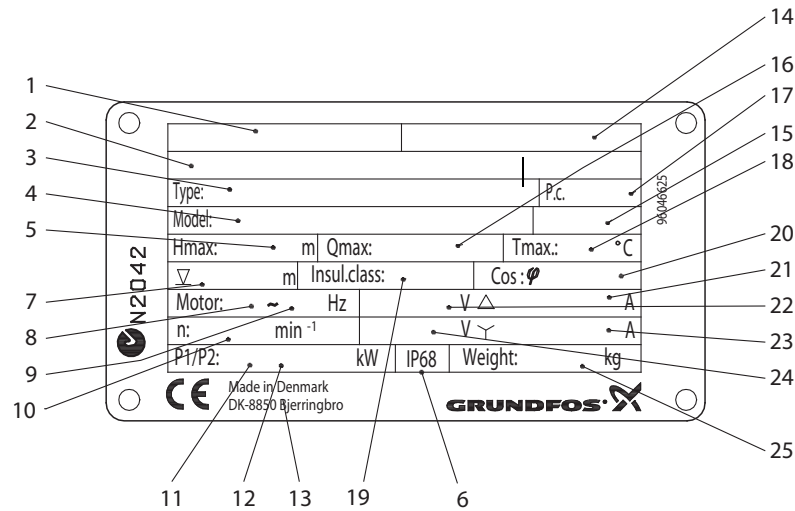
- S-tube pump with 80 mm spherical free passage and 80 mm outlet
- motor with 4 kW shaft power, sensor version, explosion-proof version, 4-pole, for 3 x 380-415 V, 50 Hz, and star-delta starting
- pump with cast iron impeller, pump housing and motor top according to EN-GJL-200/250.

Code	Example	SE	1	.80	.80	.40	.A	.Ex	.4	.5	1D	B
SE	Pump range Grundfos sewage and wastewater pump											
Blank	Material Standard											
1	Impeller type S-tube impeller											
V	SuperVortex (free-flow) impeller											
80	Pump passage Maximum solids size [mm]											
80	Pump discharge Nominal diameter of pump discharge port [mm]											
40	Output power, P2 P2 = code number from type designation/10 [kW]											
Blank	Sensor version Standard											
A	Sensor version											
Blank	Pump version Non-explosion-proof pump (standard)											
Ex	Explosion-proof pump											
2	Number of poles 2 poles, 3000 min ⁻¹ , 50 Hz											
4	4 poles, 1500 min ⁻¹ , 50 Hz											
Blank	Number of phases Three-phase motor											
5	Mains frequency 50 Hz											
0D	Supply voltage and starting method 380-415 V, DOL											
1D	380-415 V, Y/D											
0E	220-240 V, DOL											
1E	220-240 V, Y/D											
0B	400-415 V, DOL											
Blank	Generation First generation											
A	Second generation											
B	Third generation etc.											
The generation code distinguishes between structurally different pumps with the same power rating.												
Blank	Pump materials Cast iron impeller, pump housing and motor top according to EN-GJL-200/250.											
Q	Impeller of stainless steel according to EN 1.4408, cast-iron pump housing and motor top according to EN-GJL-250.											
R	Complete pump in stainless steel according to EN 1.4408.											
S	Stainless steel pump housing, impeller and intermediate flange (according to EN 1.4408) and motor top in cast iron according to EN-GJL-250 (available on request).											
D	Stainless steel pump according to EN 1.4517/1.4539 (available on request).											

Nameplate

The nameplate is located on the top cover of the pump.

The extra nameplate supplied with the pump should be fixed at the installation site.



TM02 8398 0405

Fig. 3 Nameplate

Pos.	Description
1	Notified body and EU explosion protection mark
2	Explosion protection mark X for special requirements applicable to explosion-proof equipment according to IEC 60079-15
3	Type designation
4	Product number and serial number
5	Maximum head [m]
6	Enclosure class
7	Maximum installation depth [m]
8	Number of phases
9	Frequency [Hz]
10	Speed [min^{-1}]
11	Motor input power P1 [kW]
12	Motor output power P2 [kW]
13	Country of origin

Pos.	Description
14	Ex designation and certificate number
15	EN approval
16	Maximum flow rate [m^3/h]
17	Production code (year and week)
18	Maximum liquid temperature [$^{\circ}\text{C}$]
19	Insulation class
20	Power factor
21	Rated current 1
22	Rated voltage 1
23	Rated current 2
24	Rated voltage 2
25	Weight [kg]

4. Selection of product

Ordering a pump

When ordering a pump, you have to take the following aspects into consideration:

- pump type
- custom-built variation (option)
- explosion-proof version
- accessories
- pump controller.

Pump type

We recommend an SE1 or SEV pump for these general operating conditions and applications:

General operating conditions	SE1	SEV
Dry solids content up to 3 %	x	x
Dry solids content up to 5 %		x
Relatively low content of fibres and solids	x	x
Relatively high content of fibres and solids		x
Relatively low number of operating hours	x	x
Relatively high number of operating hours	x	
Applications		
Stormwater	x	x
Groundwater	x	x
Drainage and surface water	x	x
Drainage and surface water with small impurities	x	x
Abrasive surface water	x	x
Wastewater with long fibres e.g. from laundries	x	x
Domestic wastewater with discharge from toilets	x	x
Municipal sewage	x	x
Sewage from commercial buildings	x	x
Industrial process water with fibres/solids		x
Industrial process water with solids	x	x
Industrial process water without solids and fibres	x	

After selecting the pump type, you can identify the specific pump that best meets your requirements in the sections *Product range* on page 9 and *Type key* on page 6.

The list below is a detailed description of the product you get if you order this pump:

Pump	Product number
SEV.65.65.22.2.50D	96047697

- pump as specified in the type key
- 10 metres of cable (standard length)
- paint: NCS 9000 N (black), gloss code 30, thickness 100 µm
- thermal switch in motor windings
- tested according to DIN 9906, Annex A.

For selection of a standard pump, see *Performance curves and technical data* on pages 46 to 99.

Note: Pump-specific data can also be found on www.grundfos.com (in WebCAPS) by entering the product number 96047697.

Customised solutions

The pumps can be customised to meet individual requirements. Many pump features and options are available for customisation, such as explosion-proof versions, cable lengths and special materials.

For customised solutions, see the table in *List of variants*, page 18. For requirements or designs not mentioned in the table, please contact Grundfos.

Explosion-proof version

The entire SE1, SEV range is available in explosion-proof versions.

The SE1 and SEV pumps have the following explosion protection classifications:

- CE 0344 II2 GD Ex c d IIB T4, T3 Ex c tD A21 IP68 T135 °C, T200 °C X
- CE 0344 II 2 GD Ex c d mb IIB T4, T3 Ex c tD A21 IP68 T135 °C, T200 °C X.

Explosion-proof versions for Australia are approved as Ex nA II T3 according to IEC 79-15 (corresponding to AS 2380.9).

The SE1 and SEV sensor versions are provided with a classification according to:

- EN 60079-0: 2006
- EN 60079-1: 2007
- EN 60079-18: 2004
- EN 13463-1: 2001
- EN 13463-5: 2003.

Accessories

Depending on installation type and pump variant, accessories may be required. See *Accessories*, page 115, for selection of the correct accessories.

Note: Ordered accessories are not factory-fitted.

Pump controller

The following controllers are available:

- Dedicated Controls, DC control cabinets. See also page 117.
- LC and LCD 107 operated by air bells. See also page 119.
- LC and LCD 108 operated by float switches. See also page 119.
- LC and LCD 110 operated by electrodes. See also page 119.

5. Product range

Product range

SE1 standard and Ex pumps, sensor version

SE1.50, DN 65 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.2]	Hz [.5]	Voltage [V]						Material variant	
					3 x 380-415		3 x 220-240		3 x 400-415		R	Q
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL			
SE1.50.65.22	No	No	2		96047509		96047513		96048364	No	No	
	No	Yes	2		96047511		96047515		96102066	No	No	
	Yes	No	2		96177629		96338698		96177735	No	No	
	Yes	Yes	2		96177673		96338722			No	No	
SE1.50.65.30	No	No	2		96047517		96047521		96048368	No	No	
	No	Yes	2		96047519		96047523		96102068	No	No	
	Yes	No	2		96177630		96338699		96177736	No	No	
	Yes	Yes	2		96177674		96338723			No	No	
SE1.50.65.40	No	No	2			96047525		96047529	96048372	No	No	
	No	Yes	2			96047527		96047531	96102071	No	No	
	Yes	No	2			96177631		96338700	96177737	No	No	
	Yes	Yes	2			96177675		96338724		No	No	

SE1.50, DN 80 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.2]	Hz [.5]	Voltage [V]						Material variant	
					3 x 380-415		3 x 220-240		3 x 400-415		R	Q
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL			
SE1.50.80.22	No	No	2		96047981		96047985		96047399	No	No	
	No	Yes	2		96047983		96047987		96102073	No	No	
	Yes	No	2		96177632		96338701		96177738	No	No	
	Yes	Yes	2		96177676		96338725			No	No	
SE1.50.80.30	No	No	2		96047989		96047993		96047395	No	No	
	No	Yes	2		96047991		96047995		96102075	No	No	
	Yes	No	2		96177633		96338702		96177739	No	No	
	Yes	Yes	2		96177677		96338726			No	No	
SE1.50.80.40	No	No	2			96047997		96048001	96047391	No	No	
	No	Yes	2			96047999		96048003	96102078	No	No	
	Yes	No	2			96177634		96338703	96177740	No	No	
	Yes	Yes	2			96177678		96338727		No	No	

SE1.80, DN 80 discharge

Pump type	Sensor	Explosion-proof	Poles	Hz	Voltage [V]					Material variant	
					3 x 380-415		3 x 220-240		3 x 400-415	R	Q
					[.A]	[.EX]	[.4]	[.5]	[0D] DOL		
SE1.80.80.15	No	No	4		96047533		96047541		96048376	No	No
	No	Yes	4		96047537		96047545		96102080	No	No
	Yes	No	4		96177635		96338704		96177741	No	No
	Yes	Yes	4		96177679		96338728			No	No
SE1.80.80.22	No	No	4		96047549		96047557		96048384	No	No
	No	Yes	4		96047553		96047561		96102081	No	No
	Yes	No	4		96177636		96338705			No	No
	Yes	Yes	4		96177680		96338729			No	No
SE1.80.80.30	No	No	4		96047565		96047581		96048392	No	No
	No	Yes	4		96047569		96047593		96102082	No	No
	Yes	No	4		96177637		96338706		96177743	No	No
	Yes	Yes	4		96177681		96338730			No	No
SE1.80.80.40	No	No	4			96047597	96047605		96048408	No	No
	No	Yes	4			96047601	96047609		96102084	No	No
	Yes	No	4			96177638	96338707		96177744	No	No
	Yes	Yes	4			96177682	96338731			No	No
SE1.80.80.55	No	No	4			96047613	96047621		96048416	No	No
	No	Yes	4			96047617	96047624		96102087	No	No
	Yes	No	4			96177639	96338708		96177745	No	No
	Yes	Yes	4			96177683	96338732			No	No
SE1.80.80.75	No	No	4			96047627	96047635		96048424	No	No
	No	Yes	4			96047631	96047638		96102090	No	No
	Yes	No	4			96177640	96338709		96177746	No	No
	Yes	Yes	4			96177684	96338733			No	No

SE1 standard and Ex pumps, sensor version

SE1.80, DN 100 discharge

Pump type	Sensor	Explosion-proof	Poles	Hz	Voltage [V]					Material variant	
					3 x 380-415		3 x 220-240		3 x 400-415	R	Q
					[.A]	[.EX]	[.4]	[.5]	[0D] DOL		
SE1.80.100.15	No	No	4		96048005		96048013		96047387	No	No
	No	Yes	4		96048009		96048017		96102092	No	No
	Yes	No	4		96177641		96338710		96177747	No	No
	Yes	Yes	4		96177685		96338734			No	No
SE1.80.100.22	No	No	4		96048021		96048029		96047379	No	No
	No	Yes	4		96048025		96048033		96102093	No	No
	Yes	No	4		96177642		96338711		96177748	No	No
	Yes	Yes	4		96177686		96338735			No	No
SE1.80.100.30	No	No	4		96048037		96048061		96047371	No	No
	No	Yes	4		96048041		96048057		96102094	No	No
	Yes	No	4		96177643		96338712		96177749	No	No
	Yes	Yes	4		96177687		96338736			No	No
SE1.80.100.40	No	No	4			96048069	96048077		96047355	No	No
	No	Yes	4			96048073	96048081		96102096	No	No
	Yes	No	4			96177644	96338713		96177750	No	No
	Yes	Yes	4			96177688	96338737			No	No
SE1.80.100.55	No	No	4			96048085	96048093		96047347	No	No
	No	Yes	4			96048089	96048096		96102099	No	No
	Yes	No	4			96177645	96338714		96177751	No	No
	Yes	Yes	4			96177689	96338738			No	No
SE1.80.100.75	No	No	4			96048099	96048107		96047339	No	No
	No	Yes	4			96048103	96048110		96102102	No	No
	Yes	No	4			96177646	96338715		96177752	No	No
	Yes	Yes	4			96177690	96338739			No	No

SE1 standard and Ex pumps, sensor version**SE1.100, DN 100 discharge**

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant		
					3 x 380-415		3 x 220-240	3 x 400-415	R	Q
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	
SE1.100.100.40	No	No	4		96047641		96047649	96048432	No	No
	No	Yes	4		96047645		96047653	96102105	No	No
	Yes	No	4		96177647		96338716	96177753	No	No
	Yes	Yes	4		96177691		96338740		No	No
SE1.100.100.55	No	No	4		96047657		96047665	96048440	No	No
	No	Yes	4		96047661		96047668	96102108	No	No
	Yes	No	4		96177648		96338717	96177754	No	No
	Yes	Yes	4		96177692		96338741		No	No
SE1.100.100.75	No	No	4		96047671		96047679	96048448	No	No
	No	Yes	4		96047675		96047682	96102111	No	No
	Yes	No	4		96177649		96338718	96177755	No	No
	Yes	Yes	4		96177693		96338742		No	No

SE1 standard and Ex pumps, sensor version**SE1.100, DN 150 discharge**

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant		
					3 x 380-415		3 x 220-240	3 x 400-415	R	Q
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	
SE1.100.150.40	No	No	4		96048113		96048121	96047331	No	No
	No	Yes	4		96048117		96048125	96102114	No	No
	Yes	No	4		96177650		96338719	96177756	No	No
	Yes	Yes	4		96177694		96338743		No	No
SE1.100.150.55	No	No	4		96048129		96048137	96047323	No	No
	No	Yes	4		96048133		96048140	96102117	No	No
	Yes	No	4		96177651		96782341	96177757	No	No
	Yes	Yes	4		96177695		96338744		No	No
SE1.100.150.75	No	No	4		96048143		96048151	96047315	No	No
	No	Yes	4		96048147		96048154	96102120	No	No
	Yes	No	4		96177652		96338721	96177758	No	No
	Yes	Yes	4		96177696		96338745		No	No

SEV standard and Ex pumps, sensor version

SEV.65, DN 65 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.2]	Hz [.5]	Voltage [V]			Material variant				
					3 x 380-415		3 x 220-240	3 x 400-415	R	Q		
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL			
SEV.65.65.22	No	No	2		96047697		96047705		96048462	No	No	
	No	Yes	2		96047701		96047709		96102122	No	No	
	Yes	No	2		96177653		96338746		96177759	No	No	
	Yes	Yes	2		96177697		96338766			No	No	
SEV.65.65.30	No	No	2		96047713		96047721		96048470	No	No	
	No	Yes	2		96047717		96047725		96102123	No	No	
	Yes	No	2		96177654		96338747		96177760	No	No	
	Yes	Yes	2		96177698		96338767			No	No	
SEV.65.65.40	No	No	2			96047729		96047737		96048478	No	No
	No	Yes	2			96047733		96047741		96102125	No	No
	Yes	No	2			96177655		96338748			No	No
	Yes	No	2			96177655		96338748		96177761	No	No
	Yes	Yes	2			96177699		96338768			No	No

The above range is also available with trimmed impeller to meet a specific duty point.
Contact Grundfos for more information.

SEV.65, DN 80 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.2]	Hz [.5]	Voltage [V]			Material variant				
					3 x 380-415		3 x 220-240	3 x 400-415	R	Q		
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL			
SEV.65.80.22	No	No	2		96048169		96048177		96047301	No	No	
	No	Yes	2		96048173		96048181		96102127	No	No	
	Yes	No	2		96177656		96338749		96177762	No	No	
	Yes	Yes	2		96177700		96338769			No	No	
SEV.65.80.30	No	No	2		96048185		96048193		96047293	No	No	
	No	Yes	2		96048189		96048197		96102128	No	No	
	Yes	No	2		96177657		96338750		96177763	No	No	
	Yes	Yes	2		96177701		96338770			No	No	
SEV.65.80.40	No	No	2			96048201		96048209		96047285	No	No
	No	Yes	2			96048205		96048213		96102130	No	No
	Yes	No	2			96177658		96338751		96177764	No	No
	Yes	Yes	2			96177702		96338771			No	No

The above range is also available with trimmed impeller to meet a specific duty point.
Contact Grundfos for more information.

SEV standard and Ex pumps, sensor version

SEV.80, DN 80 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant			
					3 x 380-415		3 x 220-240	3 x 400-415			
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	R	Q
SEV.80.80.11	No	No	4		96047745		96047751		96048486	No	No
	No	No	4		97637756		97679037		97638245	No	Yes
	No	No	4		96889323		97679507		96962883	Yes	No
	No	Yes	4		96047748		96047754		96102132	No	No
	Yes	No	4		96177659		96338752		96177765	No	No
	Yes	No	4		97638036		97679100		97638154	No	Yes
	Yes	No	4		96962192		97683044		96966646	Yes	No
	Yes	Yes	4		96177703		96338772			No	No
SEV.80.80.13	No	No	4		96047757		96047763		96048492	No	No
	No	No	4		97637757		97679038		97638246	No	Yes
	No	No	4		96889324		97679508		96962885	Yes	No
	No	Yes	4		96047760		96047766		96102133	No	No
	Yes	No	4		96177660		96338753		96177766	No	No
	Yes	No	4		97638037		97679101		97638155	No	Yes
	Yes	No	4		96962193		97683045		96966648	Yes	No
	Yes	Yes	4		96177704		96338773			No	No
SEV.80.80.15	No	No	4		96047769		96047775		96048498	No	No
	No	No	4		97637758		97679039		97638247	No	Yes
	No	No	4		96889325		97679509		96962886	Yes	No
	No	Yes	4		96047772		96047778		96102134	No	No
	Yes	No	4		96177661		96338754		96177767	No	No
	Yes	No	4		97638038		97679102		97638156	No	Yes
	Yes	No	4		96962194		97683046		96966649	Yes	No
	Yes	Yes	4		96177705		96338774			No	No
SEV.80.80.22	No	No	4		96047781		96047789		96047497	No	No
	No	No	4		97637759		97679040		97638248	No	Yes
	No	No	4		96889326		97679510		96962887	Yes	No
	No	Yes	4		96047785		96047793		96102135	No	No
	Yes	No	4		96177662		96338755		96177768	No	No
	Yes	No	4		97638039		97679103		97638157	No	Yes
	Yes	No	4		96962195		97683047		96966650	Yes	No
	Yes	Yes	4		96177706		96338775			No	No
SEV.80.80.40	No	No	2			96047829		96047837	96047473	No	No
	No	No	4			96047797		96047813	96047489	No	No
	No	No	2			97637761		97679042	97638250	No	Yes
	No	No	4			97637760		97679041	97638249	No	Yes
	No	No	2			96889328		97679512	96962888	Yes	No
	No	No	4			96889327		97679511	96962889	Yes	No
	No	Yes	2			96047833		96047841	96102138	No	No
	No	Yes	4			96047801		96047817	96102136	No	No
	Yes	No	2			96177664		96338757	96177770	No	No
	Yes	No	4			96177663		96338756	96177769	No	No
	Yes	No	2			97638051		97679105	97638159	No	Yes
	Yes	No	4			97638040		97679104	97638158	No	Yes
	Yes	No	2			96962197		97683049	96966651	Yes	No
	Yes	No	4			96962196		97683048	96966652	Yes	No
	Yes	Yes	2			96177708		96338777		No	No
Yes	Yes	4			96177707		96338776		No	No	
SEV.80.80.60	No	No	2			96047845		96047853	96047465	No	No
	No	No	2			97637762		97679043	97638251	No	Yes
	No	No	2			96889329		97679513	96962890	Yes	No
	No	Yes	2			96047849		96047857	96102141	No	No
	Yes	No	2			96177665		96338758	96177771	No	No
	Yes	No	2			97638052		97679106	97638160	No	Yes
	Yes	No	2			96962198		97683050	96966653	Yes	No
	Yes	Yes	2			96177709		96338778		No	No

The above range is also available in these variants:

- SEV...S and ...D stainless steel variants
- SEV...S, ...R and ...D stainless steel variants combined with Ex version with sensors
- with trimmed impeller to meet a specific duty point.

Contact Grundfos for more information.

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant		
					3 x 380-415		3 x 220-240	3 x 400-415		
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	R
SEV.80.80.75	No	No	2		96047861		96047869	96047457	No	No
	No	No	2		97637763		97679044	97638252	No	Yes
	No	No	2		96889330		97679514	96980890	Yes	No
	No	Yes	2		96047865		96047873	96102144	No	No
	Yes	No	2		96177666		96338759	96177772	No	No
	Yes	No	2		97638053		97679107	97638161	No	Yes
	Yes	No	2		96962199		97683051	96966654	Yes	No
	Yes	Yes	2		96177710		96338779		No	No
SEV.80.80.92	No	No	2		96047207		96047195	96047201	No	No
	No	No	2		97637764		97679045	97638253	No	Yes
	No	No	2		96889331		97679515	96962891	Yes	No
	No	Yes	2		96047204		96047192	96102147	No	No
	Yes	No	2		96177667		96338760	96177773	No	No
	Yes	No	2		97638054		97679108	97638162	No	Yes
	Yes	No	2		96962200		97683052	96966655	Yes	No
	Yes	Yes	2		96177711		96338780		No	No
SEV.80.80.110	No	No	2		96047877		96047885	96047449	No	No
	No	No	2		97637765		97679046	97638254	No	Yes
	No	No	2		96889332		97679516	96962892	Yes	No
	No	Yes	2		96047881		96047889	96102150	No	No
	Yes	No	2		96177668		96338761	96177774	No	No
	Yes	No	2		97638055		97679109	97638163	No	Yes
	Yes	No	2		96962201		97683053	96966656	Yes	No
	Yes	Yes	2		96177712		96338781		No	No

The above range is also available in these variants:

- SEV...S and ...D stainless steel variants
- SEV...S, ...R and ...D stainless steel variants combined with Ex version with sensors
- with trimmed impeller to meet a specific duty point.

Contact Grundfos for more information.

SEV standard and Ex pumps, sensor version

SEV.80, DN 100 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant				
					3 x 380-415		3 x 220-240	3 x 400-415				
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	R	Q	
SEV.80.100.11	No	No	4		96780674		96780675		96780761	No	No	
	No	No	4		97637766		97679047		97638255	No	Yes	
	No	No	4		96889333		97679517		96962934	Yes	No	
	No	Yes	4		96780714		96780715		96780764	No	No	
	Yes	No	4		96780694		96780695		96780774	No	No	
	Yes	No	4		97638056		97679110		97638164	No	Yes	
	Yes	No	4		96970539		97683054		96966658	Yes	No	
Yes	Yes	4		96780734		96780735			No	No		
SEV.80.100.13	No	No	4		96780676		96780677		96780762	No	No	
	No	No	4		97637767		97679048		97638256	No	Yes	
	No	No	4		96889334		97679518		96962935	Yes	No	
	No	Yes	4		96780716		96780717		96780765	No	No	
	Yes	No	4		96780696		96780697		96780775	No	No	
	Yes	No	4		97638057		97679111		97638165	No	Yes	
	Yes	No	4		96970540		97683055		96966660	Yes	No	
Yes	Yes	4		96780736		96780737			No	No		
SEV.80.100.15	No	No	4		96780678		96780679		96780763	No	No	
	No	No	4		97637768		97679049		97638257	No	Yes	
	No	No	4		96889335		97679519		96962936	Yes	No	
	No	Yes	4		96780718		96780719		96780766	No	No	
	Yes	No	4		96780698		96780699		96780776	No	No	
	Yes	No	4		97638058		97679112		97638166	No	Yes	
	Yes	No	4		96970541		97683056		96966661	Yes	No	
Yes	Yes	4		96780738		96780739			No	No		
SEV.80.100.22	No	No	4		96780680		96780681		96780760	No	No	
	No	No	4		97637769		97679050		97638258	No	Yes	
	No	No	4		96889336		97679520		96980821	Yes	No	
	No	Yes	4		96780720		96780721		96780767	No	No	
	No	Yes	4						97638258	No	Yes	
	Yes	No	4		96780700		96780701		96780777	No	No	
	Yes	No	4		97638059		97679113		97638167	No	Yes	
Yes	No	4		96970582		97683057		96966662	Yes	No		
Yes	Yes	4		96780740		96780741			No	No		
SEV.80.100.40	No	No	2			96780684		96780685		96780758	No	No
	No	No	4			96780682		96780683		96780759	No	No
	No	No	2			97637771		97679052		97638260	No	Yes
	No	No	4			97637770		97679051		97638259	No	Yes
	No	No	2			96889338		97679522		96962937	Yes	No
	No	No	4			96889337		97679521		96962938	Yes	No
	No	Yes	2			96780724		96780725		96780769	No	No
	No	Yes	4			96780722		96780723		96780768	No	No
	Yes	No	2			96780704		96780705		96780779	No	No
	Yes	No	4			96780702		96780703		96780778	No	No
	Yes	No	2			97638061		97679115		97638169	No	Yes
	Yes	No	4			97638060		97679114		97638168	No	Yes
	Yes	No	2			96970584		97683059		96966663	Yes	No
	Yes	No	4			96970583		97683058		96966664	Yes	No
Yes	Yes	2			96780744		96780745			No	No	
Yes	Yes	4			96780742		96780743			No	No	
SEV.80.100.60	No	No	2			96780686		96780687		96780757	No	No
	No	No	2			97637772		97679053		97638261	No	Yes
	No	No	2			96889339		97679523		96962939	Yes	No
	No	Yes	2			96780726		96780727		96780770	No	No
	Yes	No	2			96780706		96780707		96780780	No	No
	Yes	No	2			97638062		97679116		97638170	No	Yes
	Yes	No	2			96970585		97683060		96966665	Yes	No
Yes	Yes	2			96780746		96780747			No	No	

The above range is also available in these variants:

- SEV...S and ...D stainless steel variants
- SEV...S, ...R and ...D stainless steel variants combined with Ex version with sensors
- with trimmed impeller to meet a specific duty point.

Contact Grundfos for more information.

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant		
					3 x 380-415		3 x 220-240	3 x 400-415		
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL	R
SEV.80.100.75	No	No	2		96780688		96780689	96780756	No	No
	No	No	2		97637773		97679054	97638262	No	Yes
	No	No	2		96889340		97679524	96962940	Yes	No
	No	Yes	2		96780728		96780729	96780771	No	No
	Yes	No	2		96780708		96780709	96780781	No	No
	Yes	No	2		97638063		97679117	97638171	No	Yes
	Yes	No	2		96970586		97683061	96966666	Yes	No
	Yes	Yes	2		96780748		96780749		No	No
SEV.80.100.92	No	No	2		96780690		96780691	96780754	No	No
	No	No	2		97637774		97679055	97638263	No	Yes
	No	No	2		96889341		97679525	96962941	Yes	No
	No	Yes	2		96780730		96780731	97685006	No	No
	Yes	No	2		96780710		96780711	96780782	No	No
	Yes	No	2		97638064		97679118	97638172	No	Yes
	Yes	No	2		96970587		97683062	96966667	Yes	No
	Yes	Yes	2		96780750		96047173		No	No
SEV.80.100.110	No	No	2		96780692		96780693	96780755	No	No
	No	No	2		97637775		97679056	97638264	No	Yes
	No	No	2		96889342		97679526	96962942	Yes	No
	No	Yes	2		96780732		96780733	97685021	No	No
	Yes	No	2		96780712		96780713	96780783	No	No
	Yes	No	2		97638065		97679119	97638173	No	Yes
	Yes	No	2		96970588		97683063	96966659	Yes	No
	Yes	Yes	2		96780752		96780753		No	No

The above range is also available in these variants:

- SEV...S and ...D stainless steel variants
- SEV...S, ...R and ...D stainless steel variants combined with Ex version with sensors
- with trimmed impeller to meet a specific duty point.

Contact Grundfos for more information.

SEV standard and Ex pumps, sensor version

SEV.100, DN 100 discharge

Pump type	Sensor [.A]	Explosion- proof [.EX]	Poles [.4]	Hz [.5]	Voltage [V]			Material variant			
					3 x 380-415		3 x 220-240	3 x 400-415	R	Q	
					[0D] DOL	[1D] Y/D	[0E] DOL	[1E] Y/D	[0B] DOL		
SEV.100.100.30	No	No	4		96047893		96047909		96047443	No	No
	No	No	4		97637776		97679057		97638265	No	Yes
	No	No	4		96889343		97679527		96965899	Yes	No
	No	Yes	4		96047897		96047913		96102152	No	No
	Yes	No	4		96177669		96338762		96177775	No	No
	Yes	No	4		97638066		97679120		97638174	No	Yes
	Yes	No	4		96962223		97683064		96966668	Yes	No
	Yes	Yes	4		96177713		96338782			No	No
SEV.100.100.40	No	No	4			96047925	96047933		96047427	No	No
	No	No	4			97637777	97679058		97638266	No	Yes
	No	No	4			96889344	97679528		96965900	Yes	No
	No	Yes	4			96047929	96047937		96102154	No	No
	Yes	No	4			96177670	96338763		96177776	No	No
	Yes	No	4			97638067	97679121		97638175	No	Yes
	Yes	No	4			96962224	97683065		96966669	Yes	No
	Yes	Yes	4			96177714	96338783			No	No
SEV.100.100.55	No	No	4			96047941	96047949		96047419	No	No
	No	No	4			97637778	97679059		97638267	No	Yes
	No	No	4			96889345	97679529		96965901	Yes	No
	No	Yes	4			96047945	96047953		96102157	No	No
	Yes	No	4			96177671	96338764		96177777	No	No
	Yes	No	4			97638068	97679122		97638176	No	Yes
	Yes	No	4			96962225	97683066		96966670	Yes	No
	Yes	Yes	4			96177715	96338784			No	No
SEV.100.100.75	No	No	4			96047957	96047965		96047411	No	No
	No	No	4			97637779	97679060		97638268	No	Yes
	No	No	4			96889346	97679530		96965932	Yes	No
	No	Yes	4			96047961	96047969		96102160	No	No
	Yes	No	4			96177672	96338765		96177778	No	No
	Yes	No	4			97638069	97679123		97638177	No	Yes
	Yes	No	4			96962226	97683067		96966671	Yes	No
	Yes	Yes	4			96177716	96338785			No	No

The above range is also available in these variants:

- SEV...S and ...D stainless steel variants
- SEV...S, ...R and ...D stainless steel variants combined with Ex version with sensors
- with trimmed impeller to meet a specific duty point.

Contact Grundfos for more information.

6. Variants

List of variants

Motor		
Various cable lengths	Note: When you use a cable length different from the standard length (i.e. 10 m), a new cable cross section must be calculated.	15 m
		20 m
		25 m
		30 m
		40 m
		50 m
EMC power cables	Screened power cables designed for frequency converter operation.	10 m
		15 m
		20 m
		25 m
		30 m
		40 m
		50 m
Tests		
Test at specified duty on standard impeller curve		
Trimmed SEV impeller for specified duty test*		
Additional test of entire QH curve (including report)	Duty points from pump performance curve.	
Different test standard	Efficiency guaranteed by Grundfos.	ISO 9906, Annex A
Customer-requested duty point	Test according to customer-specified duty point on standard pump curve.	ISO 9906, Annex A
Vibration test (including report)	According to Grundfos factory quality standard.	
String test	Contact Grundfos.	
Witness test	Contact Grundfos.	
Certificates		
ATEX-approved pump report	Special Grundfos report. Contact Grundfos.	
Certificate of compliance with order	According to EN10204 2.1.	According to Annex A grades 1 and 2.
Pump certificate	According to EN10204 2.2.	According to Annex A grades 1 and 2.
Inspection certificate	According to EN10204 3.1.	According to Annex A grades 1 and 2.
Material specification report	According to EN10204 3.1B.	
Material report with certificate	According to EN10204 3.2.	Material supplier information.
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.	
Registro Italiano Navale Agenture	According to EN10204 3.2.	
Other third-party test certificates	Contact Grundfos.	

Miscellaneous		
Solution	Customer benefits	
FKM sealing (optional)	<ul style="list-style-type: none"> Resistant to acids resistant to mineral oils and vegetable oils resistant to most solvents (toluene, petrol, trichloroethylene etc.). 	Contact Grundfos.
Cable protection hose	<ul style="list-style-type: none"> Resistant to acids resistant to most oils resistant to most solvents etc. 	Contact Grundfos.
Heavy-duty wear ring kit	<ul style="list-style-type: none"> Wear and seal ring kit for the handling of abrasive media increased wear resistance of impeller in abrasive applications increased reliability and life of pump. 	Contact Grundfos.
Aluminium anodes	<ul style="list-style-type: none"> Increased life of pumps in aggressive environments such as maritime applications increased corrosion resistance. 	Contact Grundfos
Stainless steel SuperVortex impeller according to EN 1.4517	<ul style="list-style-type: none"> 	Contact Grundfos.
Ceramic coating of impeller and pump housing	<ul style="list-style-type: none"> Reduced wear rate of cast iron parts increased corrosion resistance beneficial in case of low number of operating hours. 	Contact Grundfos.
Extra epoxy coating, 300 µm	<ul style="list-style-type: none"> Increased corrosion resistance. 	Contact Grundfos.
Top coating (black RAL9005, red RAL 3000 and other colours)		Contact Grundfos.
Special packaging		Contact Grundfos.
Special nameplate		Contact Grundfos.
Other variants		Contact Grundfos.

* SEV impellers can be trimmed on request.

7. Construction

SE1

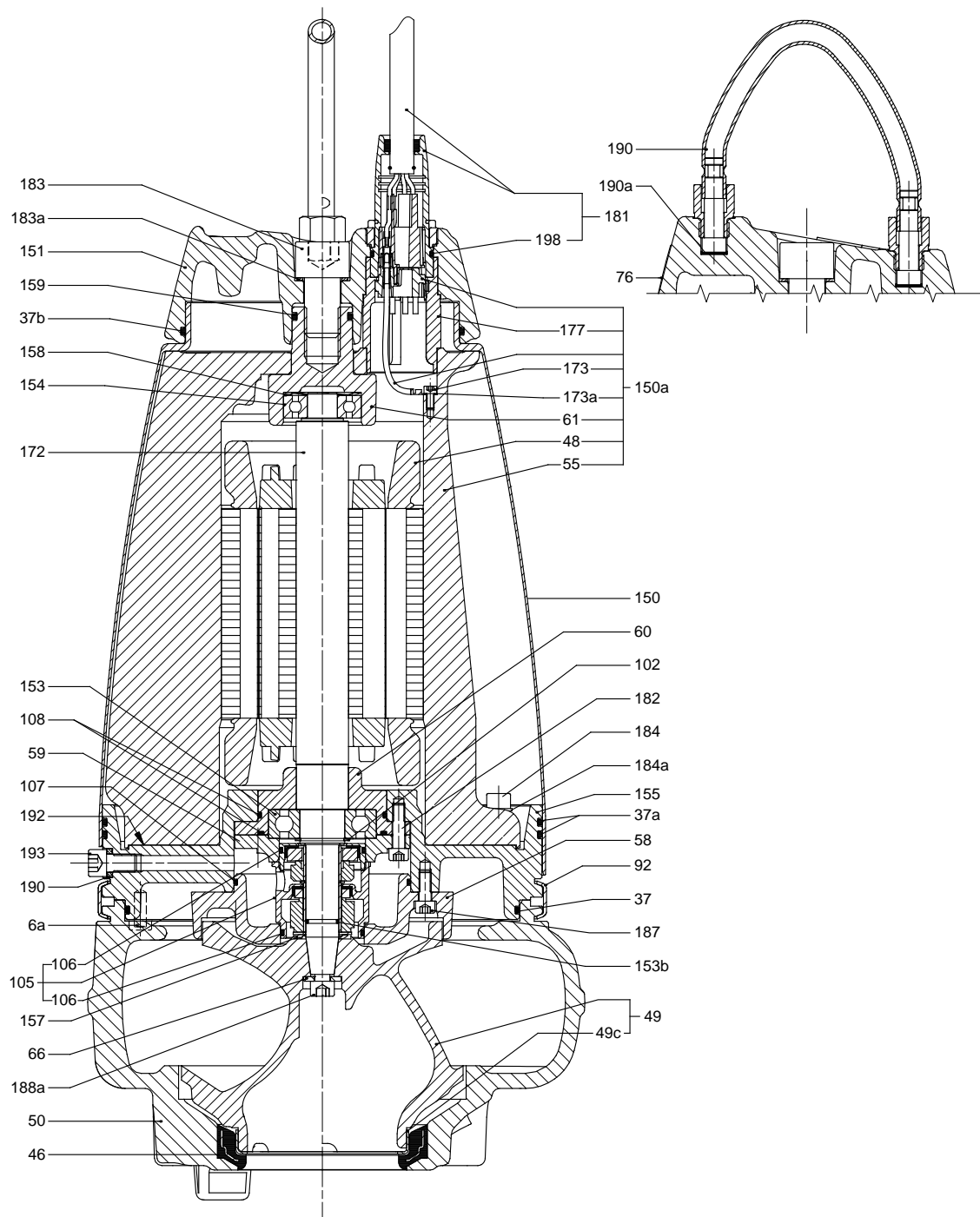


Fig. 4 Sectional drawing, SE1 pump with S-tube impeller

TM02 8077 2404

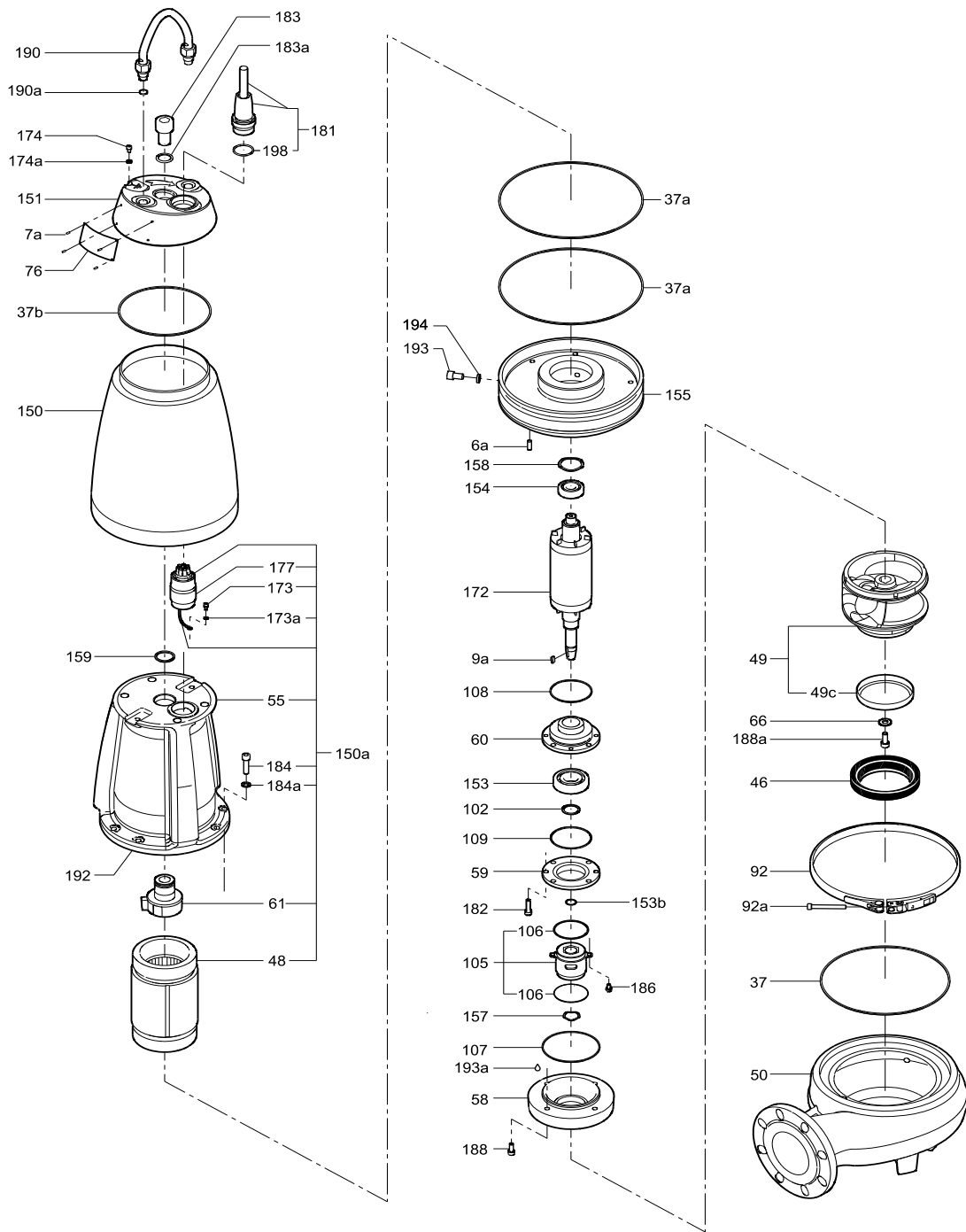


Fig. 5 Exploded view, SE1 pump with S-tube impeller

TM02 8078 2404

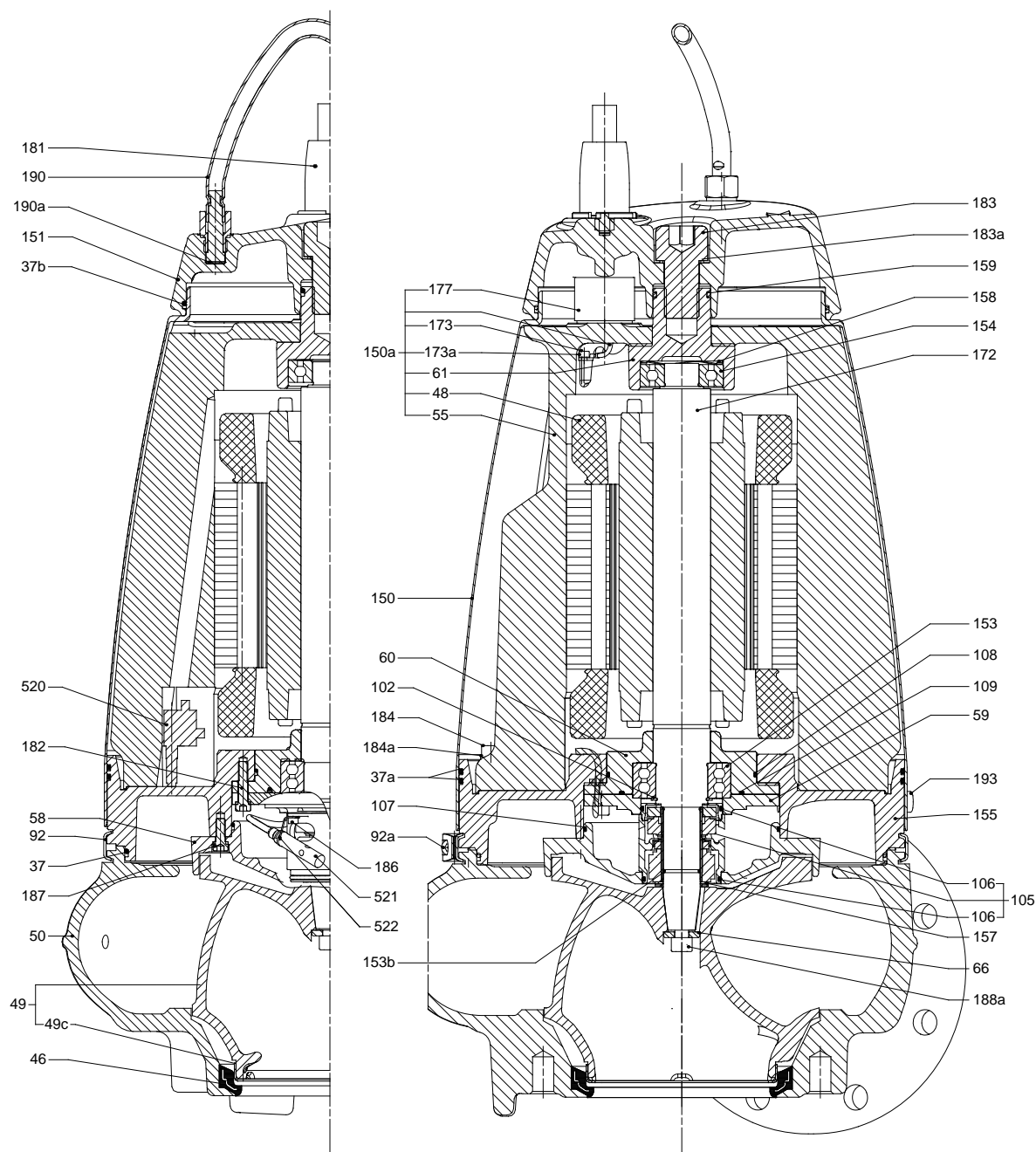


Fig. 6 Sectional drawing, SE1 pump with S-tube impeller (sensor version)

TM03 1520 2305

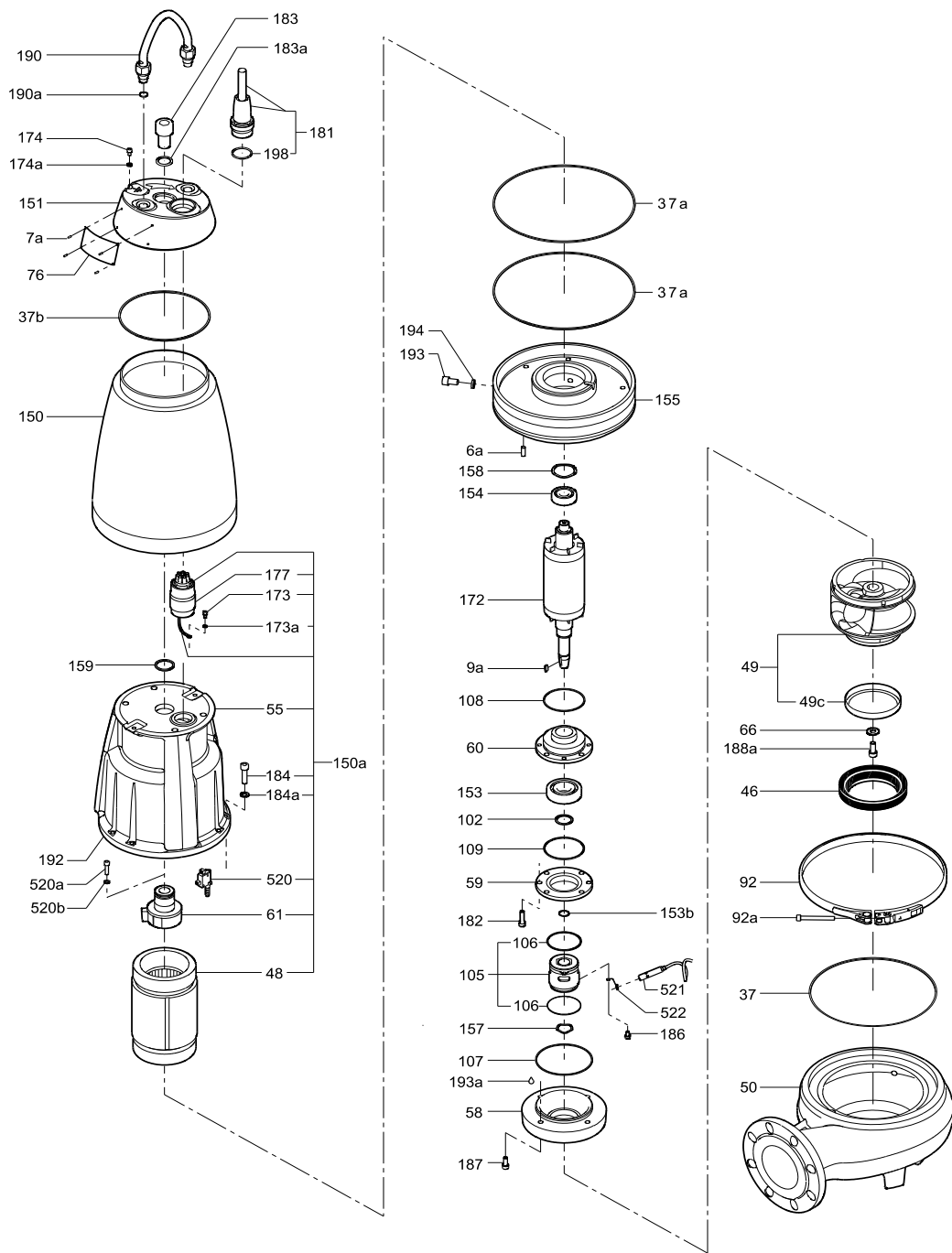


Fig. 7 Exploded view, SE1 pump with S-tube impeller (sensor version)

TM03 1522 4606

SEV

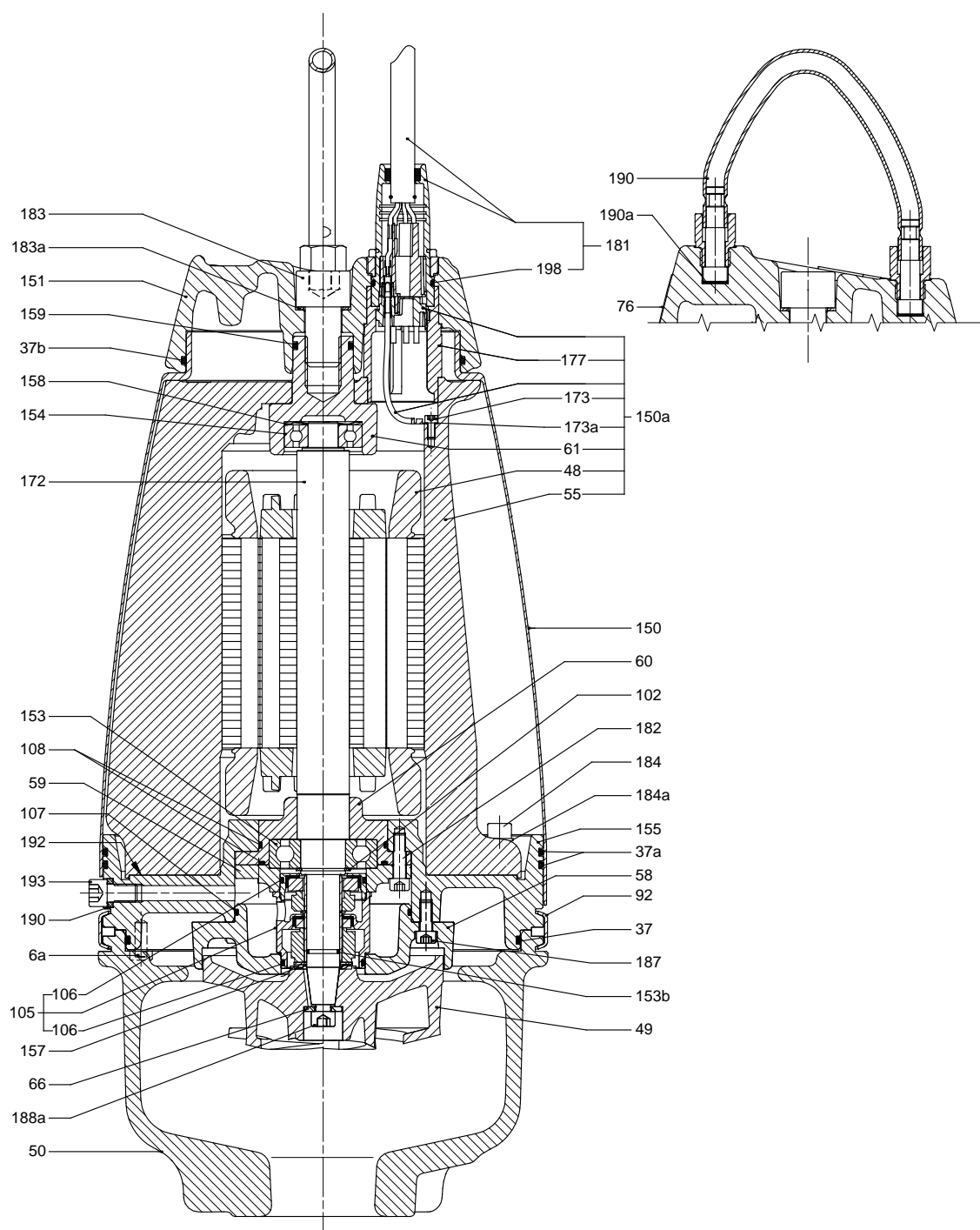


Fig. 8 Sectional drawing, SEV pump with SuperVortex impeller

TM02 8450 2404

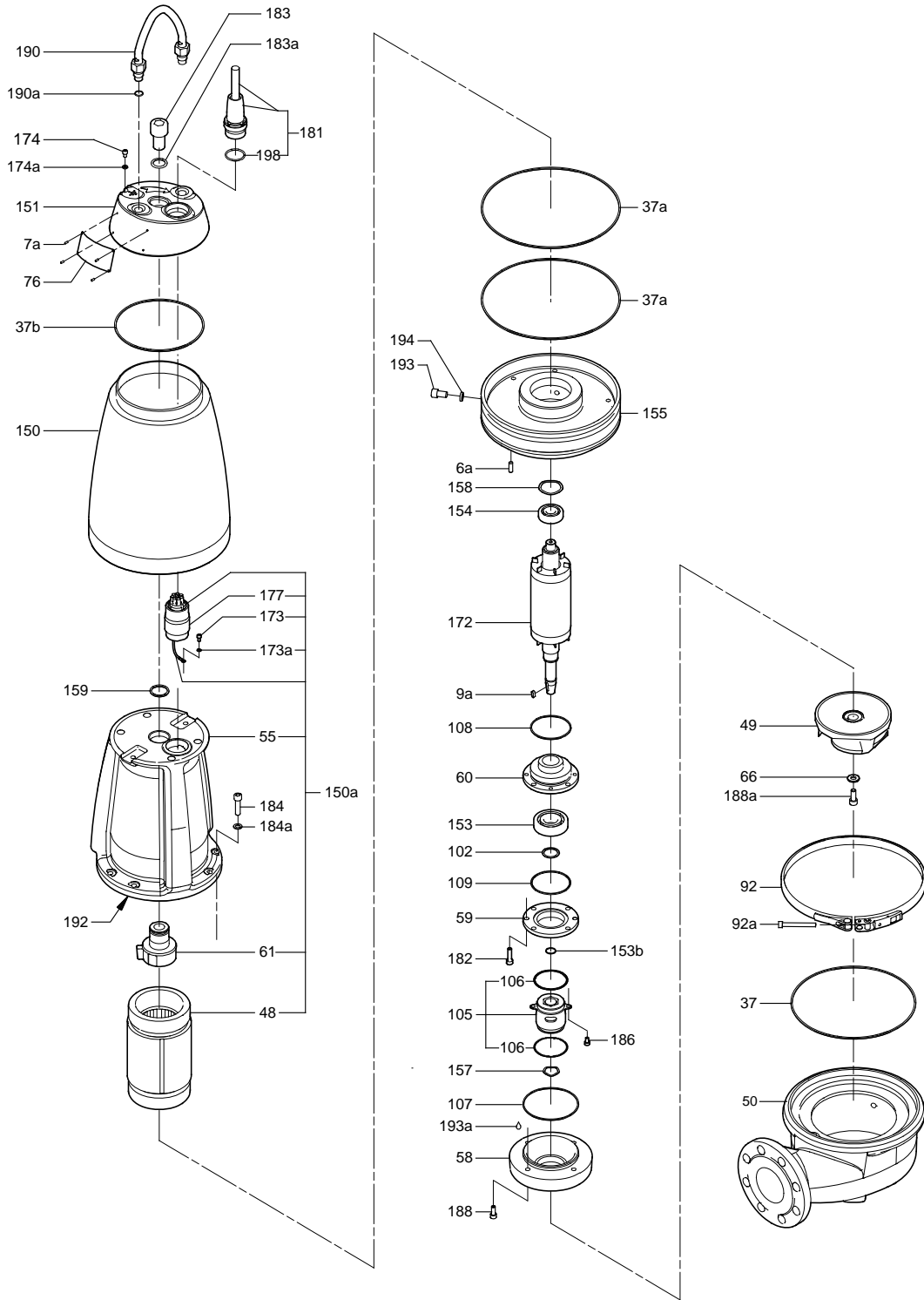


Fig. 9 Exploded view, SEV pump with SuperVortex impeller

TM02 84419 2404

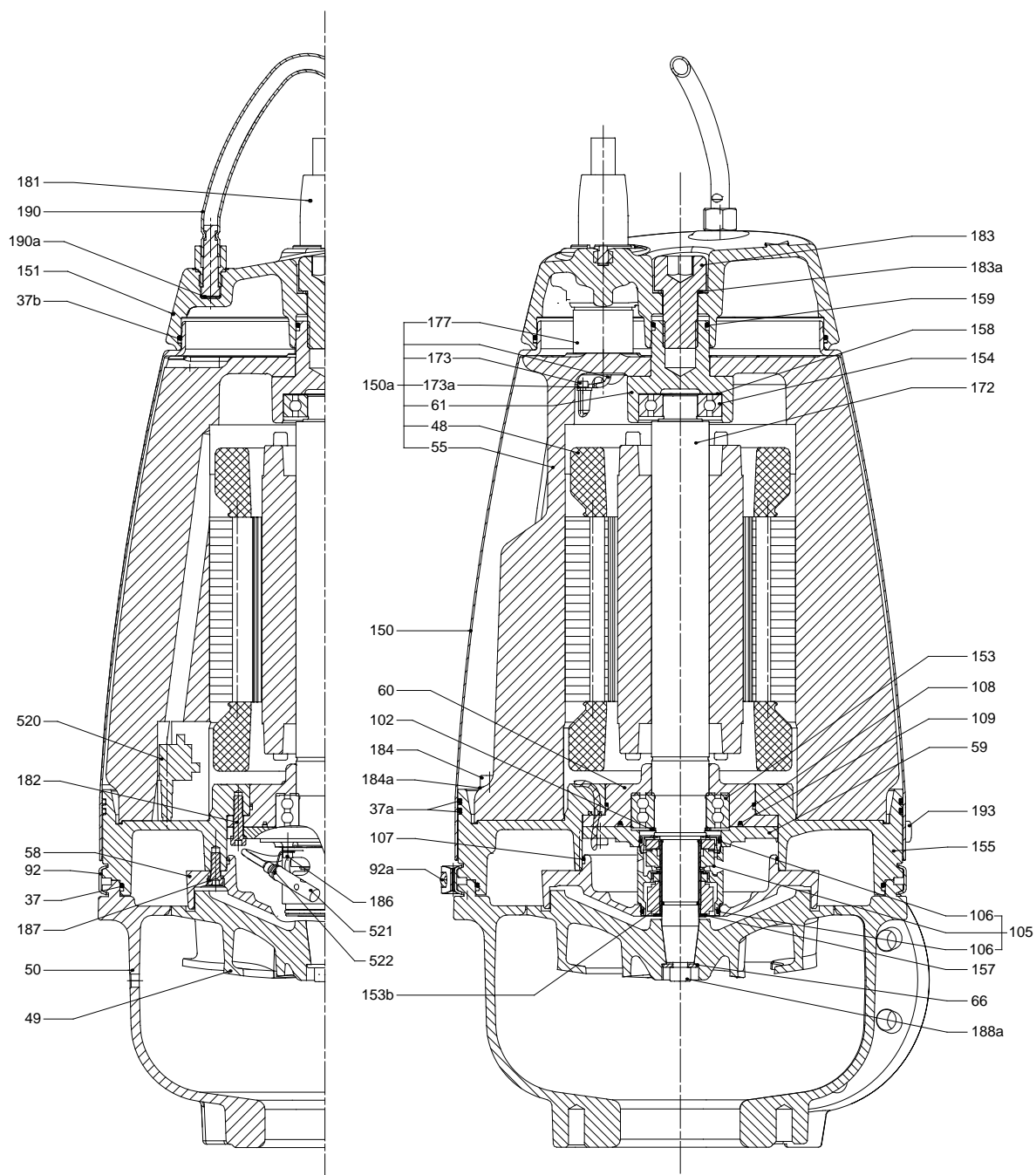


Fig. 10 Sectional drawing, SEV pump with SuperVortex impeller (sensor version)

TM02 1519 2305

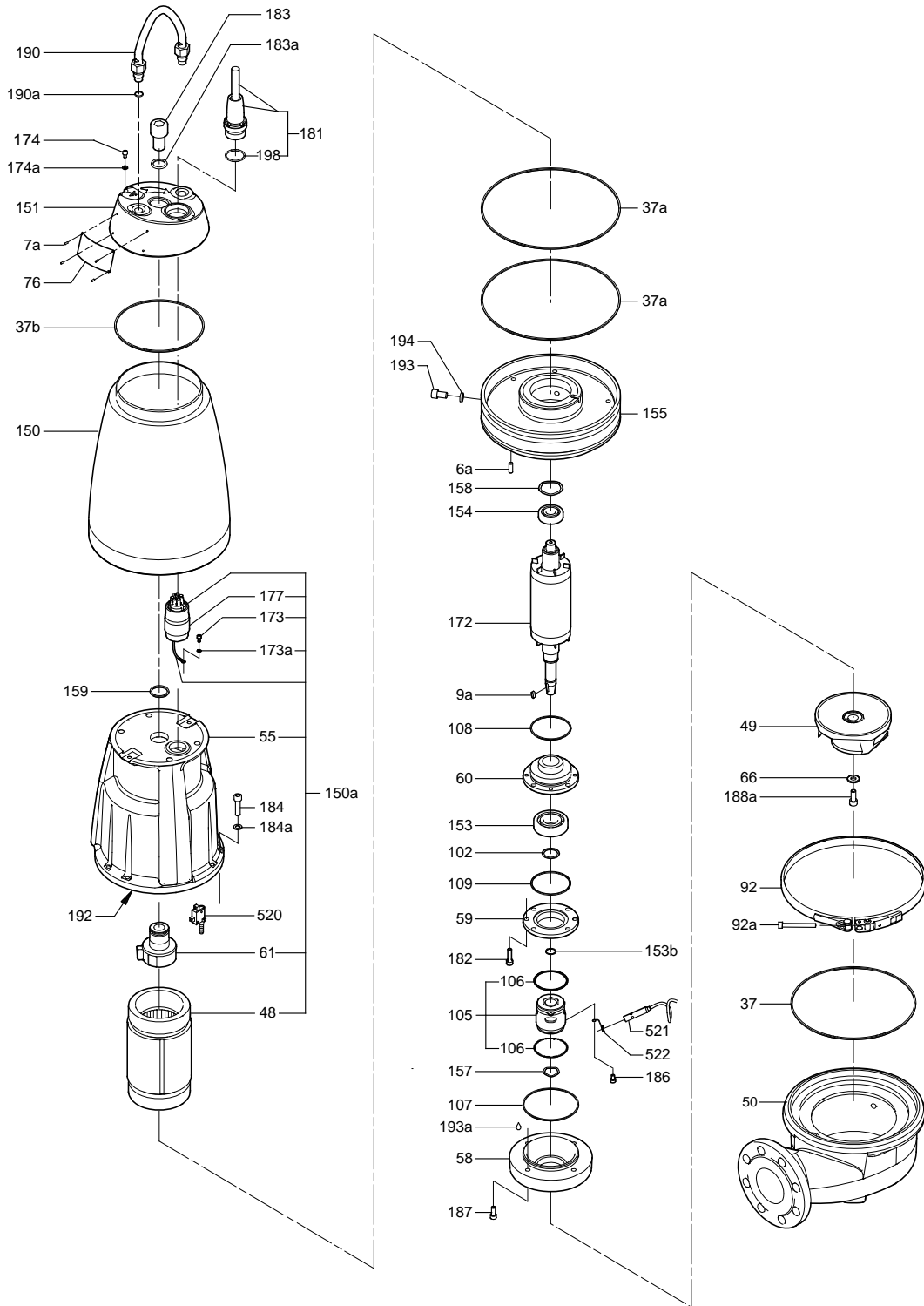


Fig. 11 Exploded view, SEV pump with SuperVortex impeller (sensor version)

TM02 1521 2305

Material specification, SE1 and SEV standard pumps

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

Pos.	Designation	Material	EN standard	AISI/ASTM
6a	Tubular pin (intermediate flange/pump housing)	D8 x 22 DIN 1481 A2	1.4301	304
7a	Blind rivet	D3.2 x 6.5, DIN 7337 A2	1.4301	304
9a	Parallel key, 5 x 5 x 16	DIN 6885		
37	O-ring (intermediate flange/pump housing)	NBR rubber		
37a	O-ring (intermediate flange/sleeve)	NBR rubber		
37b	O-ring (sleeve/motor top)	NBR rubber		
46	Seal ring, inlet	NBR rubber/stainless steel	1.4301	304
48	Stator			
49	SuperVortex impeller	Cast iron, EN-GJL-200	EN-JL 1030	
	S-tube impeller	Cast iron, EN-GJL-250	EN-JL1040	
49c	Wear ring, impeller	Stainless steel	1.4301	304
50	Pump housing	Cast iron, EN-GJL-200	EN-JL1030	
55	Stator housing	Aluminium, EN AB-AISI 10 mg		
58	Cover for oil chamber	Cast iron, EN-GJL-200	EN-JL1030	
59	Bearing cover	Cast iron, EN-GJL-250	EN-JL1040	
60	Bearing retainer, drive end, machined	Cast iron, EN-GJL-250	EN-JL1040	
61	Bearing retainer, non-drive end, machined	Cast iron, EN-GJS-450-10	EN-JS1040	
66	Washer for impeller	Stainless steel	1.4305	303
76	Nameplate	Stainless steel	1.4401	316
92	Clamp	Stainless steel	1.4401	316
92a	Screw for clamp	Stainless steel, M8 x 70	A2	
102	O-ring (shaft/driving tube)	NBR rubber		
105	Shaft seal complete (rotating part of MG1/25-G60 Q1Q1PGG, stationary part of MG1/25-G60 Q1Q1PGG, rotating part of BT-AR/25 BXPFF, stationary part of BT-AR/25 BXPFF)	Stainless steel, SiC/SiC Carbon/ceramics		
106	O-ring for shaft seal	NBR rubber		
107	O-ring (cover for oil chamber/intermediate flange)	NBR rubber		
108	O-ring (bearing cover)	NBR rubber		
109	Bearing retainer, drive end			
150	Sleeve	Stainless steel	1.4301/ (optional 1.4401)	304/(316)
150a	Stator housing complete			
151	Motor top	Cast iron, EN-GJL-250	EN-JL1040	
153	Bearing, drive end	Ball bearing, 6306.2CS.C4.STG		
153b	Retaining ring	UK 30 x 1.5		
154	Bearing, non-drive end	Ball bearing, 6304.2Z.C3.BQH		
155	Intermediate flange	Cast iron, EN-GJL-250	EN-JL1040	
157	Corrugated spring (bearing, drive end)	Stainless steel		
158	Corrugated spring (bearing, non-drive end)	Carbon steel, D42/51 x 0.5	Inconel X750 1.1248	
159	O-ring (bearing retainer, non-drive end/motor top)	NBR rubber		
172	Shaft with rotor	Carbon steel/stainless steel	1.0432/1.4401	ASTM A105/AISI 316
173	Earth screw (stator housing)	Stainless steel		
173a	Lock washer	Stainless steel, M12 x 5		
174	Earth screw external	Stainless steel, DIN 912 A2		
174a	Washer for external earth screw	Stainless steel, D5.1 DIN 127B A2		
177	Plug protector		1.4408	ASTM 351 (CF8M)

Pos.	Designation	Material	EN standard	AISI/ASTM
181	Cable/outer plug part	H07RN-F		
182	Screw (bearing cover/intermediate flange)	Stainless steel, DIN 912 A2		
183	Cheese-head screw (motor top)	Stainless steel, M24 x 40 ISO 4762 A2		
183a	Washer (motor top)	Stainless steel, D26/D34 x 2 Cu DIN 7603A BN447		
184	Screw (intermediate flange/stator housing)	Stainless steel, M10 x 40 DIN 912 A2		
184a	Washer (intermediate flange/stator housing)	Stainless steel, D10.5/18 x 1.6 A2		
186	Screw (shaft seal complete/bearing cover)	Stainless steel, M6 x 10 DIN 912 A2		
188	Screw (cover for oil chamber/intermediate flange)	Stainless steel, M8 x 20 DIN 912 A2		
188a	Screw (shaft)	Stainless steel, M10 x 25 DIN 912 A2 ISO 4762		
190	Lifting bracket	Stainless steel	1.4301	304
190a	Rubber sleeve	NBR rubber		
192	Cooling paste			
193	Screw (intermediate flange)	Stainless steel, M12 x 20 DIN 912 A2-70		
193a	Oil	Shell Ondina 917		
194	Gasket	Nylon, 20 x 12.2 x 5		
198	O-ring	NBR rubber		
520	Moisture switch (only sensor version)			
521	Water-in-oil sensor (WIO) (only sensor version)			
522	Bracket for WIO sensor (only sensor version)			

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 as AISI/ASTM are normative and products are not manufactured according to these.

Material specification, SEV Q variant

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

Pos.	Designation	Material	EN standard	AISI/ASTM
6a	Tubular pin (intermediate flange/pump housing)	D8 x 22 DIN 1481 A2	1.4301	304
7a	Blind rivet	D3.2 x 6.5, DIN 7337 A2	1.4301	304
9a	Parallel key, 5 x 5 x 16	DIN 6885		
37	O-ring (intermediate flange/pump housing)	NBR rubber		
37a	O-ring (intermediate flange/sleeve)	NBR rubber		
37b	O-ring (sleeve/motor top)	NBR rubber		
48	Stator			
49	SuperVortex impeller	Stainless steel	1.4408	316A/351 CF8M
50	Pump housing	Cast iron, EN-GJL-200	EN-JL1030	
55	Stator housing	Aluminium, EN AB-AISi 10 mg		
58	Cover for oil chamber	Cast iron, EN-GJL-200	EN-JL1030	
59	Bearing cover	Cast iron, EN-GJL-250	EN-JL1040	
60	Bearing retainer, drive end, machined	Cast iron, EN-GJL-250	EN-JL1040	
61	Bearing retainer, non-drive end, machined	Cast iron, EN-GJS-450-10	EN-JS1040	
66	Washer for impeller	Stainless steel	1.4305	303
76	Nameplate	Stainless steel	1.4401	316
92	Clamp	Stainless steel	1.4401	316
92a	Screw for clamp	Stainless steel, M8 x 70	A2	
102	O-ring (shaft/driving tube)	NBR rubber		
105	Shaft seal complete (rotating part of MG1/25-G60 Q1Q1PGG, stationary part of MG1/25-G60 Q1Q1PGG, rotating part of BT-AR/25 BXPFF, stationary part of BT-AR/25 BXPFF)	Stainless steel, SiC/SiC Carbon/ceramics		
106	O-ring for shaft seal	NBR rubber		
107	O-ring (cover for oil chamber/intermediate flange)	NBR rubber		
108	O-ring (bearing cover)	NBR rubber		
109	Bearing retainer, drive end			
150	Sleeve	Stainless steel	1.4301/(optional 1.4401)	304/(316)
150a	Stator housing complete			
151	Motor top	Cast iron, EN-GJL-250	EN-JL1040	
153	Bearing, drive end	Ball bearing, 6306.2CS.C4.STG		
153b	Retaining ring	UK 30 x 1.5		
154	Bearing, non-drive end	Ball bearing, 6304.2Z.C3.BQH		
155	Intermediate flange	Cast iron, EN-GJL-250	EN-JL1040	
157	Corrugated spring (bearing, drive end)	Stainless steel		
158	Corrugated spring (bearing, non-drive end)	Carbon steel, D42/51 x 0.5	Inconel X750 1.1248	
159	O-ring (bearing retainer, non-drive end/motor top)	NBR rubber		
172	Shaft with rotor	Carbon steel/stainless steel	1.0432/1.4401	ASTM A105/AISI 316
173	Earth screw (stator housing)	Stainless steel		
173a	Lock washer	Stainless steel, M12 x 5		
174	Earth screw external	Stainless steel, DIN 912 A2		
174a	Washer for external earth screw	Stainless steel, D5.1 DIN 127B A2		
177	Plug protector		1.4408	ASTM 351 (CF8M)

Pos.	Designation	Material	EN standard	AISI/ASTM
181	Cable/outer plug part	H07RN-F		
182	Screw (bearing cover/intermediate flange)	Stainless steel, DIN 912 A2		
183	Cheese-head screw (motor top)	Stainless steel, M24 x 40 ISO 4762 A2		
183a	Washer (motor top)	Stainless steel, D26/D34 x 2 Cu DIN 7603A BN447		
184	Screw (intermediate flange/stator housing)	Stainless steel, M10 x 40 DIN 912 A2		
184a	Washer (intermediate flange/stator housing)	Stainless steel, D10.5/18 x 1.6 A2		
186	Screw (shaft seal complete/bearing cover)	Stainless steel, M6 x 10 DIN 912 A2		
188	Screw (cover for oil chamber/intermediate flange)	Stainless steel, M8 x 20 DIN 912 A2		
188a	Screw (shaft)	Stainless steel, M10 x 25 DIN 912 A2 ISO 4762		
190	Lifting bracket	Stainless steel	1.4301	304
190a	Rubber sleeve	NBR rubber		
192	Cooling paste			
193	Screw (intermediate flange)	Stainless steel, M12 x 20 DIN 912 A2-70		
193a	Oil	Shell Ondina 917		
194	Gasket	Nylon, 20 x 12.2 x 5		
198	O-ring	NBR rubber		
520	Moisture switch (only sensor version)			
521	Water-in-oil sensor (WIO) (only sensor version)			
522	Bracket for WIO sensor (only sensor version)			

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 as AISI/ASTM are normative and products are not manufactured according to these.

Material specification, SEV...S variant (on request)

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

Pos.	Designation	Material	EN standard	AISI/ASTM
6a	Tubular pin (intermediate flange/pump housing)	D8 x 22 DIN 1481 A2	1.4301	304
7a	Blind rivet	D3.2 x 6.5, DIN 7337 A2	1.4301	304
9a	Parallel key, 5 x 5 x 16	DIN 6885		
37	O-ring (intermediate flange/pump housing)	FKM rubber		
37a	O-ring (intermediate flange/sleeve)	FKM rubber		
37b	O-ring (sleeve/motor top)	FKM rubber		
48	Stator			
49	SuperVortex impeller	Stainless steel	1.4408	316/351 CF8M
50	Pump housing	Stainless steel	1.4401	316
55	Stator housing	Aluminium, EN AB-AISi 10 mg		
58	Cover for oil chamber	Cast iron, EN-GJL-200	1.4408	316/351 CF8M
59	Bearing cover	Cast iron, EN-GJL-250	EN-JL1040	
60	Bearing retainer, drive end, machined	Cast iron, EN-GJL-250	EN-JL1040	
61	Bearing retainer, non-drive end, machined	Cast iron, EN-GJS-450-10	EN-JS1040	
66	Washer for impeller	Stainless steel	1.4305	303
76	Nameplate	Stainless steel	1.4401	316
92	Clamp	Stainless steel	1.4401	316
92a	Screw for clamp	Stainless steel, M8 x 70	A2	
102	O-ring (shaft/driving tube)	FKM rubber		
105	Shaft seal complete (rotating part of MG1/35-G60-00, stationary part of MG1/35-G60-2 and MG1/35-G60-3, rotating part of BT Pr/AR 35, stationary part of BT PF C 63 x 36 x 10)	Stainless steel, SiC/SiC Carbon/ceramics		
106	O-ring for shaft seal	FKM rubber		
107	O-ring (cover for oil chamber/intermediate flange)	FKM rubber		
108	O-ring (bearing cover)	FKM rubber		
109	Bearing retainer, drive end			
150	Sleeve	Stainless steel	1.4301/(optional 1.4401)	304/(316)
150a	Stator housing complete			
151	Motor top	Cast iron, EN-GJL-250	EN-JL1040	
153	Bearing, drive end	Ball bearing, 6306.2CS.C4.STG		
153b	Retaining ring	UK 30 x 1.5		
154	Bearing, non-drive end	Ball bearing, 6304.2Z.C3.BQH		
155	Intermediate flange	Stainless steel	1.4408	316
157	Corrugated spring (bearing, drive end)	Stainless steel		
158	Corrugated spring (bearing, non-drive end)	Carbon steel, D42/51 x 0.5	Inconel X750 1.1248	
159	O-ring (bearing retainer, non-drive end/motor top)	FKM rubber		
172	Shaft with rotor	Carbon steel/stainless steel	1.0432/1.4462	UNS31803
173	Earth screw (stator housing)	Stainless steel		
173a	Lock washer	Stainless steel, M12 x 5		
174	Earth screw external	Stainless steel, DIN 912 A2		
174a	Washer for external earth screw	Stainless steel, D5.1 DIN 127B A2		
177	Plug protector		1.4408	ASTM 351 (CF8M)

Pos.	Designation	Material	EN standard	AISI/ASTM
181	Cable/outer plug part	H07RN-F		
182	Screw (bearing cover/intermediate flange)	Stainless steel, DIN 912 A2		
183	Cheese-head screw (motor top)	Stainless steel, M24 x 40 ISO 4762 A2		
183a	Washer (motor top)	Stainless steel, D26/D34 x 2 Cu DIN 7603A BN447		
184	Screw (intermediate flange/stator housing)	Stainless steel, M10 x 40 DIN 912 A2		
184a	Washer (intermediate flange/stator housing)	Stainless steel, D10.5/18 x 1.6 A2		
186	Screw (shaft seal complete/bearing cover)	Stainless steel, M6 x 10 DIN 912 A2		
188	Screw (cover for oil chamber/intermediate flange)	Stainless steel, M8 x 20 DIN 912 A2		
188a	Screw (shaft)	Stainless steel, M10 x 25 DIN 912 A2 ISO 4762		
190	Lifting bracket	Stainless steel	1.4401	316
190a	Rubber sleeve	FKM rubber		
192	Cooling paste			
193	Screw (intermediate flange)	Stainless steel, M12 x 20 DIN 912 A2-70		
193a	Oil	Shell Ondina 917		
194	Gasket	Nylon, 20 x 12.2 x 5		
198	O-ring	FKM rubber		
520	Moisture switch (only sensor version)			
521	Water-in-oil sensor (WIO) (only sensor version)			
522	Bracket for WIO sensor (only sensor version)			

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 as AISI/ASTM are normative and products are not manufactured according to these.

Material specification, SEV...R variant

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

Pos.	Designation	Material	EN standard	AISI/ASTM
6a	Tubular pin (intermediate flange/pump housing)	D8 x 22 DIN 1481 A2	1.4401	316
7a	Blind rivet	D3.2 x 6.5, DIN 7337 A2	1.4401	316
9a	Parallel key, 5 x 5 x 16	DIN 6885		
37	O-ring (intermediate flange/pump housing)	FKM rubber		
37a	O-ring (intermediate flange/sleeve)	FKM rubber		
37b	O-ring (sleeve/motor top)	FKM rubber		
48	Stator			
49	SuperVortex impeller	Stainless steel	1.4408	316/351 CF8M
50	Pump housing	Stainless steel	1.4408	316/351 CF8M
55	Stator housing	Aluminium, EN AB-AISi 10 mg		
58	Cover for oil chamber	Stainless steel	1.4408	316/351 CF8M
59	Bearing cover	Cast iron, EN-GJL-250	EN-JL1040	
60	Bearing retainer, drive end, machined	Cast iron, EN-GJL-250	EN-JL1040	
61	Bearing retainer, non-drive end, machined	Cast iron, GJS-450-10	EN-JS1040	
66	Washer for impeller	Stainless steel	1.4401	316
76	Nameplate	Stainless steel	1.4401	316
92	Clamp	Stainless steel	1.4401	316
92a	Screw for clamp	Stainless steel, M8 x 70	A2	
102	O-ring (shaft/driving tube)	FKM rubber		
105	Shaft seal complete (rotating part of MG1/35-G60-00, stationary part of MG1/35-G60-2 and MG1/35-G60-3, rotating part of BT Pr/AR 35, stationary part of BT PF C 63 x 36 x 10)	Stainless steel, SiC/SiC Carbon/ceramics		
106	O-ring for shaft seal	FKM rubber		
107	O-ring (cover for oil chamber/intermediate flange)	FKM rubber		
108	O-ring (bearing cover)	FKM rubber		
109	Bearing retainer, drive end			
150	Sleeve	Stainless steel	1.4401	316
150a	Stator housing complete			
151	Motor top	Stainless steel	1.4408	316/351 CF8M
153	Bearing, drive end	Ball bearing, 6306.2CS.C4.STG		
153b	Retaining ring	UK 30 x 1.5		
154	Bearing, non-drive end	Ball bearing, 6304.2Z.C3.BQH		
155	Intermediate flange	Stainless steel	1.4408	316/351 CF8M
157	Corrugated spring (bearing, drive end)	Stainless steel		
158	Corrugated spring (bearing, non-drive end)	Carbon steel, D42/51 x 0.5	Inconel X750 1.1248	
159	O-ring (bearing retainer, non-drive end/motor top)	FKM rubber		
172	Shaft with rotor	Carbon steel/stainless steel	1.0432/1.4462	ASTM A105/UNS3180
173	Earth screw (stator housing)	Stainless steel		
173a	Lock washer	Stainless steel, M12 x 5		
174	Earth screw external	Stainless steel, DIN 912 A2		
174a	Washer for external earth screw	Stainless steel, D5.1 DIN 127B A2		
177	Plug protector		1.4408	ASTM 351 (CF8M)

Pos.	Designation	Material	EN standard	AISI/ASTM
181	Cable/outer plug part	H07RN-F		
182	Screw (bearing cover/intermediate flange)	Stainless steel, DIN 912 A2		
183	Cheese-head screw (motor top)	Stainless steel, M24 x 40 ISO 4762 A2		
183a	Washer (motor top)	Stainless steel, D26/D34 x 2 Cu DIN 7603A BN447		
184	Screw (intermediate flange/stator housing)	Stainless steel, M10 x 40 DIN 912 A2		
184a	Washer (intermediate flange/stator housing)	Stainless steel, D10.5/18 x 1.6 A2		
186	Screw (shaft seal complete/bearing cover)	Stainless steel, M6 x 10 DIN 912 A2		
188	Screw (cover for oil chamber/intermediate flange)	Stainless steel, M8 x 20 DIN 912 A2		
188a	Screw (shaft)	Stainless steel, M10 x 25 DIN 912 A2 ISO 4762		
190	Lifting bracket	Stainless steel	1.4401	316
190a	Rubber sleeve	FKM rubber		
192	Cooling paste			
193	Screw (intermediate flange)	Stainless steel, M12 x 20 DIN 912 A2-70		
193a	Oil	Shell Ondina 917		
194	Gasket	Nylon, 20 x 12.2 x 5		
198	O-ring	FKM rubber		
520	Moisture switch (only sensor version)			
521	Water-in-oil sensor (WIO) (only sensor version)			
522	Bracket for WIO sensor (only sensor version)			

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 as AISI/ASTM are normative and products are not manufactured according to these.

Material specification, SEV...D variant (on request)

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

Pos.	Designation	Material	EN standard	AISI/ASTM
6a	Tubular pin (intermediate flange/pump housing)	D8 x 22 DIN 1481 A2	1.4401	316
7a	Blind rivet	D3.2 x 6.5, DIN 7337 A4-50	1.4401	316
9a	Parallel key, 5 x 5 x 16	DIN 6885		
37	O-ring (intermediate flange/pump housing)	FKM rubber		
37a	O-ring (intermediate flange/sleeve)	FKM rubber		
37b	O-ring (sleeve/motor top)	FKM rubber		
48	Stator			
49	SuperVortex impeller	Stainless steel	1.4517	A890
50	Pump housing	Stainless steel	1.4517	A890
55	Stator housing	Aluminium, EN AB-AISI 10 mg		
58	Cover for oil chamber	Stainless steel	1.4517	A890
59	Bearing cover	Cast iron, EN-GJL-250	EN-JL1040	
60	Bearing retainer, drive end, machined	Cast iron, EN-GJL-250	EN-JL1040	
61	Bearing retainer, non-drive end, machined	Cast iron, GJS-450-10	EN-JS1040	
66	Washer for impeller	Stainless steel	1.4401	316
76	Nameplate	Stainless steel	1.4401	316
92	Clamp	Stainless steel	1.4539	904L
92a	Screw for clamp	Stainless steel, M8 x 70	A4	
102	O-ring (shaft/driving tube)	FKM rubber		
105	Shaft seal complete (rotating part of MG1/35-G60-00, stationary part of MG1/35-G60-2 and MG1/35-G60-3, rotating part of BT Pr/AR 35, stationary part of BT PF C 63 x 36 x 10)	Stainless steel, SiC/SiC Carbon/ceramics		
106	O-ring for shaft seal	FKM rubber		
107	O-ring (cover for oil chamber/intermediate flange)	FKM rubber		
108	O-ring (bearing cover)	FKM rubber		
109	Bearing retainer, drive end			
150	Sleeve	Stainless steel	1.4539	904L
150a	Stator housing complete			
151	Motor top	Stainless steel	1.4517	A890
153	Bearing, drive end	Ball bearing, 6306.2CS.C4.STG		
153b	Retaining ring	UK 30 x 1.5		
154	Bearing, non-drive end	Ball bearing, 6304.2Z.C3.BQH		
155	Intermediate flange	Stainless steel	1.4517	A890
157	Corrugated spring (bearing, drive end)	Stainless steel		
158	Corrugated spring (bearing, non-drive end)	Carbon steel, D42/51 x 0.5	Hastelloy C-276 1.1248	
159	O-ring (bearing retainer, non-drive end/motor top)	FKM rubber		
172	Shaft with rotor	Carbon steel/stainless steel	1.0432/1.4462	UNS31803
173	Earth screw (stator housing)	Stainless steel		
173a	Lock washer	Stainless steel, M12 x 5		
174	Earth screw external	Stainless steel, DIN 912 A4-50		
174a	Washer for external earth screw	Stainless steel, D5.1 DIN 127B A4		
177	Plug protector		1.4517	A890

Pos.	Designation	Material	EN standard	AISI/ASTM
181	Cable/outer plug part	H07RN-F		
182	Screw (bearing cover/intermediate flange)	Stainless steel, DIN 912 A4-50		
183	Cheese-head screw (motor top)	Stainless steel, M24 x 40 ISO 4762 A4-50		
183a	Washer (motor top)	Stainless steel, D26/D34 x 2 Cu DIN 7603A BN447		
184	Screw (intermediate flange/stator housing)	Stainless steel, M10 x 40 DIN 912 A2		
184a	Washer (intermediate flange/stator housing)	Stainless steel, D10.5/18 x 1.6 A2		
186	Screw (shaft seal complete/bearing cover)	Stainless steel, M6 x 10 DIN 912 A2		
188	Screw (cover for oil chamber/intermediate flange)	Stainless steel, M8 x 20 DIN 912 A4-50		
188a	Screw (shaft)	Stainless steel, M10 x 25 DIN 912 A4-50 ISO 4762		
190	Lifting bracket	Stainless steel	1.4401	316
190a	Rubber sleeve	FKM rubber		
192	Cooling paste			
193	Screw (intermediate flange)	Stainless steel, M12 x 20 DIN 912 A4-70		
193a	Oil	Shell Ondina 917		
194	Gasket	Nylon, 20 x 12.2 x 5		
198	O-ring	FKM rubber		
520	Moisture switch (only sensor version)			
521	Water-in-oil sensor (WIO) (only sensor version)			
522	Bracket for WIO sensor (only sensor version)			

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 as AISI/ASTM are normative and products are not manufactured according to these.

8. Product description

Features

Ball bearings

The ball bearings are greased for life.

Main bearings: Double-row angular contact ball bearing.

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

Shaft seal



TM04 9827 0211

Fig. 12 Double mechanical cartridge 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 that enables 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 and can be installed on site without the need for special tools.

The primary seal is SiC/SiC, and the secondary is carbon/ceramics.

Motor

The motor is a watertight, totally encapsulated motor.

- Insulation class: F (155 °C).
- Temperature rise class: F (105 °C).
- Enclosure class: IP68.

For motor protection and sensors, see *Sensors* below.

Power supply cables

Standard cable

Cable type	Outer cable diameter [mm]	Bending radius	
		Fixed	Free
Lyniflex 4 G 1.5 mm ² + 3 x 1 mm ²	15.5 ± 0.5	60	90
Lyniflex 4 G 2.5 mm ² + 3 x 1 mm ²	17.0 ± 0.5	66	99
Lyniflex 7 G 2.5 mm ² + 3 x 1 mm ²	18.5 ± 0.5	74	111

EMC cable

Cable type	Outer cable diameter [mm]	Bending radius	
		Fixed	Free
3G3GC3G-F3x1AiC+4 G 2.5 mm ²	17.5 ± 0.5	85	170

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

See *List of variants*, page 18.

The number and dimension of cables depend on the motor size.

Cable entry



TM04 9826 0211

Fig. 13 Moisture-proof cable plug

The stainless steel plug is fastened with a union nut. The nut and O-rings provide sealing against liquid penetration.

The plug is filled with a polyamide material, cast into the plug around the conductors of the cable to prevent moisture from penetrating into the motor via the cable core.

Sensors



TIM04 9836 0211

Fig. 14 Analogue water-in-oil sensor

As standard, the pumps have a thermal switch built into the motor windings for stator temperature measurements.

Customised sensor options

- Pt1000 sensor in motor windings for stator temperature measurements.
- WIO (water-in-oil) sensor.
The WIO sensor fitted in the oil chamber of the SE pump monitors whether water enters the pump from the liquid side. The sensor measures the water content (0 to 20 %) in the oil and converts the value into an analog current signal which is sent to an IO 111 sensor module. It also sends a signal if the water content is outside the normal range (warning), or if there is air in the oil chamber (alarm).
The sensor is fitted in a stainless-steel tube for mechanical protection.
- Moisture switch.
The moisture switch fitted in the motor chamber monitors whether water enters the pump. If moisture is detected in the motor chamber, the moisture switch will trip out and send a warning to the IO 111 sensor module.

IO 111 sensor module



TIM04 9837 0211

Fig. 15 Grundfos IO 111 sensor module

The sensor module collects the following signals from sensors in the pump:

- stator temperature
- stator insulation resistance
- water in oil chamber
- moisture in motor.

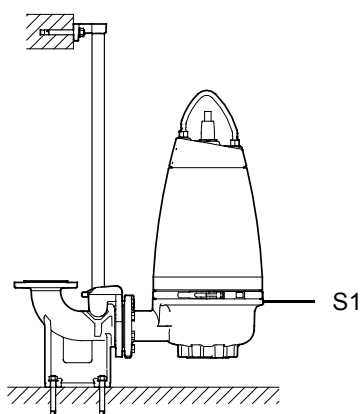
Note: All pump versions with sensor come with an IO 111 sensor module. As standard, it is therefore not necessary to order an IO 111 separately.

Testing

All pumps are tested before leaving the factory. The factory test report is based on ISO 9906, Annex A. Test reports can be ordered directly with the pump or separately based on the pump serial number. Other tests or third-party inspection certificates are available on request. See *List of variants*, page 18.

Operating conditions

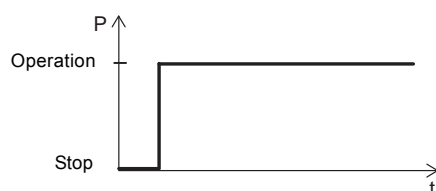
The SE1 and SEV pumps are designed for **both** dry and submerged installation.



TM02 8404 5103

Fig. 16 Submerged pump on auto coupling

- Continuous operation S1 (stop level) when the pump housing is submerged.



TM02 7776 4003

Fig. 17 Continuous operation

- Intermittent operation with max. 20 starts per hour when the pump housing is submerged.

Pumped liquids

Pump type	Material variant	Installation	Material	pH value
SE1/SEV	Standard	Dry and submerged	Cast iron impeller, pump housing and motor top	6.5 to 14 ²⁾
SEV	Q	Dry and submerged	Stainless steel impeller. Cast iron pump housing and motor top.	6 to 14 ²⁾
SEV	S ¹⁾	Submerged	Stainless steel impeller and pump housing; cast iron motor top.	5.5 to 14 ²⁾
		Dry	Cast iron motor top.	1 to 14
SEV	R	Dry and submerged	Complete pump in stainless steel	1 to 14
SEV	D ¹⁾	Dry and submerged	Stainless steel pump according to EN 1.4517/1.4539	0 to 14

¹⁾ Material variants S and D are available on request.

²⁾ For fluctuating pH values, the range is pH 4 to 14.

Liquid temperature: 0 °C to +40 °C.

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

For short periods (max. 1 hour), a temperature of up to +60 °C is permissible (non-Ex versions only).

Sound pressure level

The sound pressure level of the pump is lower than the limiting values stated in the EC Machinery Directive 2006/42/EC.

Motor range

Shaft power [kW]	Number of poles
1.1	4
1.3	4
1.5	4
2.2	2/4
3	2/4
4	2/4
5.5	4
6	2
7.5	2/4
9.2	2
11	2

Pump controllers

The pumps must be connected to a control box with a motor protection relay with IEC trip class 10 or 15.

Note: Pumps for hazardous locations must be connected to a control box with a motor protection relay with IEC trip class 10.

The following Grundfos pump controllers are available:

- Dedicated Controls, DC control cabinets
- LC and LCD 107 operated by air bells
- LC and LCD 108 operated by float switches
- LC and LCD 110 operated by electrodes.

For further details, see *Accessories*, page 115.

Frequency converter operation

All SE1/SEV pump types are designed for speed-controlled operation to keep the energy consumption at a minimum.

To avoid the risk of sedimentation in the pipes, we recommend that you operate the speed-controlled pump within a speed range of 30 % to 100 % and at a flow rate above 1 m/s.

For more information about speed-controlled operation of pumps, see the CUE data booklet (publication no 96706948) on www.grundfos.com (WebCAPS).

Approvals

The SE1 and SEV pumps have been tested by KEMA. The explosion-proof versions hold two examination certificates:

- ATEX (EU): KEMA08ATEX0125X
- IECEX: IECEX KEM08.0039X.





Both certificates have been issued by KEMA according to the ATEX directive.

Approval standards


The standard versions are approved by LGA (notified body under the Construction Products Directive) according to EN 12050-1 or EN 12050-2 as specified on the pump nameplate.

Explanation to Ex approval

The SE1 and SEV pumps have the following explosion protection classifications:

Direct-driven pump, without sensor	CE 0344  II 2 G Ex c d IIB T4 X
Direct-driven pump, with sensor	CE 0344  II 2 G Ex c d mb IIB T4 X
Pump driven by frequency converter, without sensor	CE 0344  II 2 G Ex c d IIB T3 X
Pump driven by frequency converter, with sensor	CE 0344  II 2 G Ex c d mb IIB T3 X

Europe

Directive/standard	Code	Description
ATEX	CE 0344	= CE mark of conformity according to the ATEX directive 94/9/EC, Annex X. 0344 is the number of the notified body which has certified the quality system for ATEX.
		= Explosion protection mark.
	II	= Equipment group according to the ATEX directive, Annex II, point 2.2, defining the requirements applicable to the equipment in this group.
	2	= Equipment category according to the ATEX directive, Annex II, point 2.2, defining the requirements applicable to the equipment in this category.
Harmonised European standard	G	= Explosive atmospheres caused by gases, vapours or mists.
	Ex	= The equipment conforms to the harmonised European standard.
	c	Constructional safety according to EN 13463-5: 2003 and EN 13463-1: 2009.
	d	= Flame-proof enclosure according to EN 60079-1: 2007.
	mb	= Encapsulation according to EN 60079-18: 2004.
	II	= Suitable for use in explosive atmospheres (not mines).
	B	= Classification of gases according to EN 60079-0:2006, Annex A. Gas group B includes gas group A.
	T4/T3	= Maximum surface temperature is 135 °C / 200 °C according to EN 60079-0:2006.
	X	The equipment is subject to special conditions for safe use. The conditions are mentioned in the certificate and the installation and operating instructions.

Australia

Explosion-proof versions for Australia are approved as Ex d IIB T3/T4 X Gb or Ex d mb T3/T4 X Gb.

Standard	Code	Description
IEC 60079-0 and IEC 60079-1	Ex	= Area classification according to AS 2430.1.
	d	= Flame-proof enclosure according to IEC 60079-1: 2007.
	mb	= Encapsulation according to IEC 60079-18: 2004.
	II	= Suitable for use in explosive atmospheres (not mines).
	B	= Classification of gases according to IEC 60079-0: 2004, Annex A. Gas group B includes gas group A.
	T4/T3	= Maximum surface temperature is 135 °C / 200 °C according to IEC 60079-0: 2006.
	X	The equipment is subject to special conditions for safe use. The conditions are mentioned in the certificate and the installation and operating instructions.
	Gb	= Equipment protection level.

Wiring diagrams

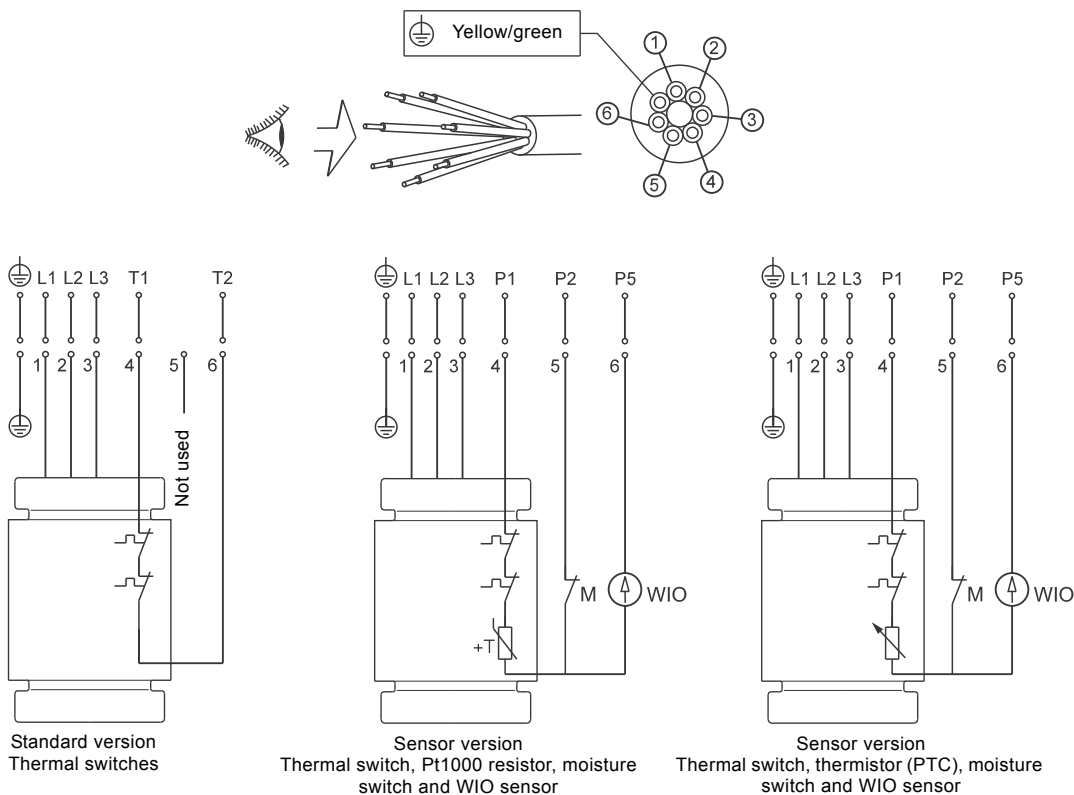


Fig. 18 Wiring diagram, 7-core cable, DOL

TM04 6884 0710

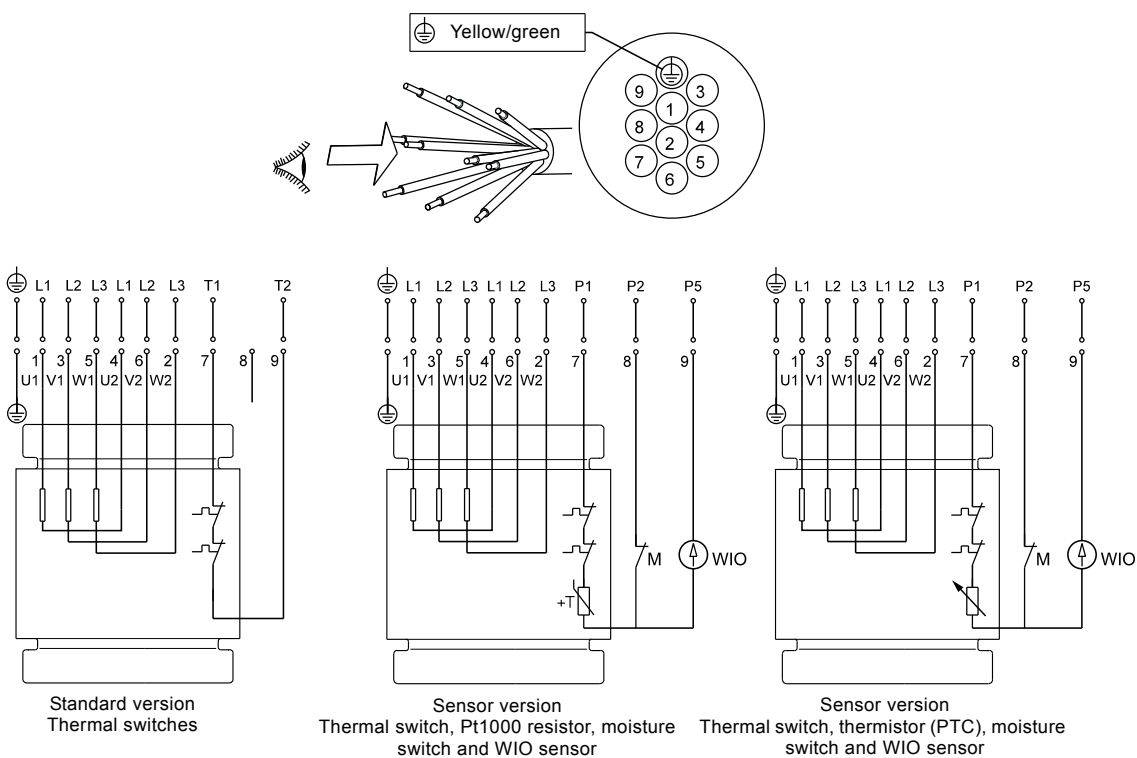
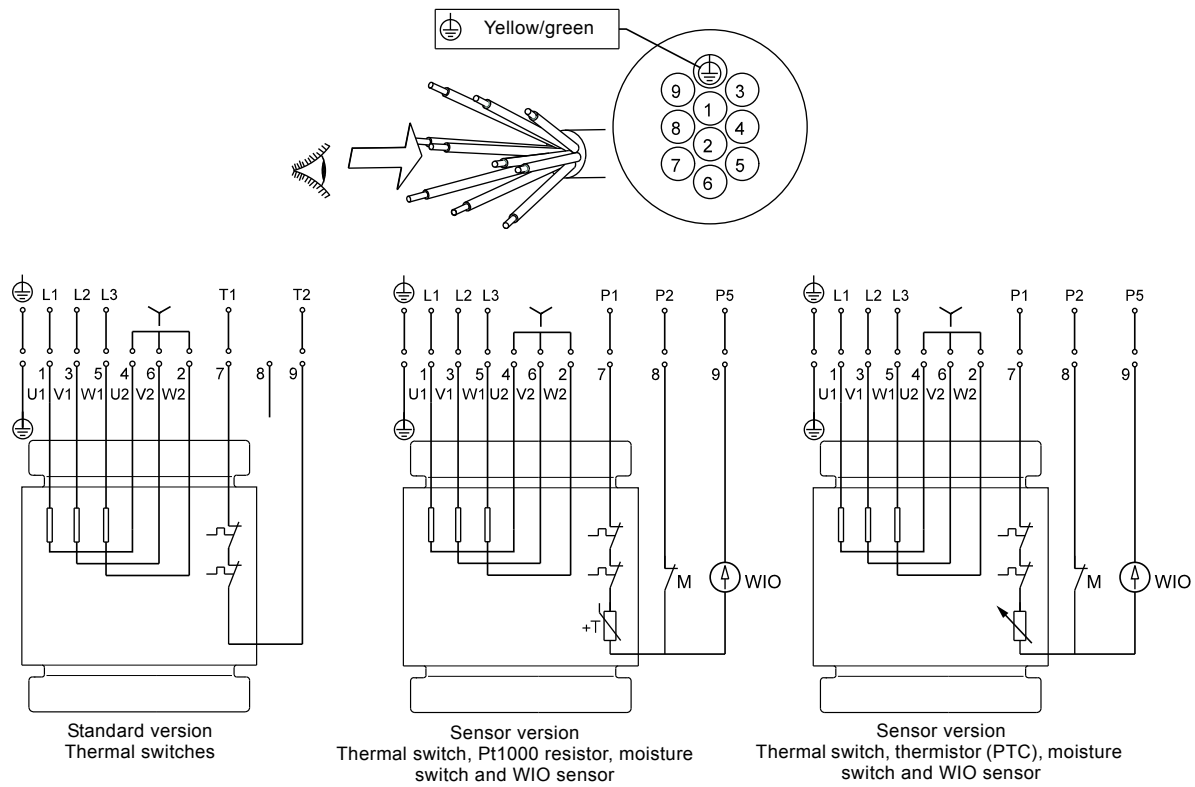


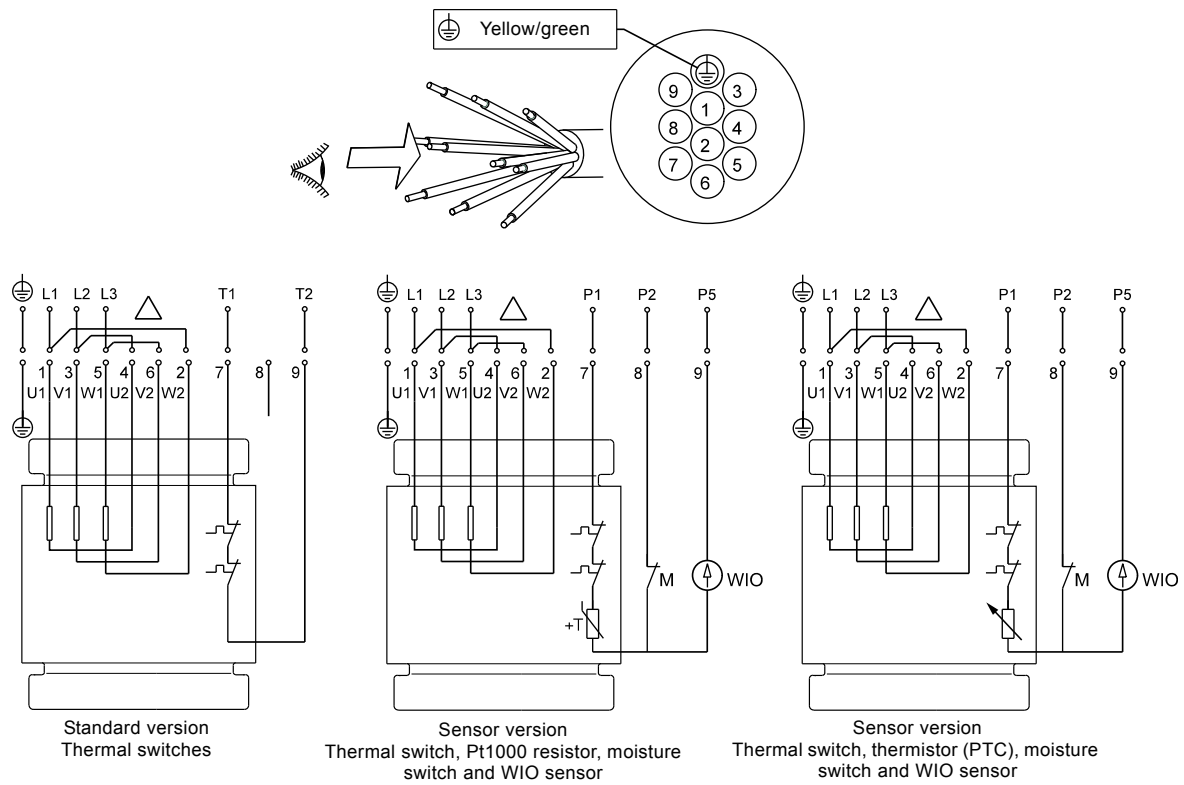
Fig. 19 Wiring diagram, 10-core cable, star/delta (Y/D)

TM04 6885 0710



TM04 6886 0710

Fig. 20 Wiring diagram, 10-core cable, star-connected (Y)



TM04 6887 0710

Fig. 21 Wiring diagram, 10-core cable, delta-connected (D)

9

Curve charts

SE1, SEV pumps

9. Curve charts

How to read the performance curves

SE1.80.100.15
50 Hz
ISO 9906 Annex A

Total pump head
 $H = H_{total}$

QH curve

Pump type

Eta 1 is the total efficiency (pump + motor)

Eta 2 is the hydraulic efficiency (pump)

Power curves indicating input power (P1)

Power curves indicating output power (P2)

NPSH [m]

Y-axis (Left): P [kW], H [m]

Y-axis (Right): Eta [%]

X-axis (Top): Q [l/s]

X-axis (Bottom): v [m/s] (for DN 100 and DN 150)

Fig. 22 Performance curves

TM02 7961 2012

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GRUNDFOS

Curve conditions

The guidelines below apply to the curves on pages 46 to 99.

- Tolerances according to ISO 9906, Annex A.
- The curves show pump performance with different impeller diameters at the rated speed.
- The curves apply to the pumping of airless water at a temperature of +20 °C and a kinematic viscosity of 1 mm²/s (1 cSt).
- The Eta curves show the hydraulic efficiency of the pump for the different impeller diameters.
- The NPSH curves show average values measured under the same conditions as the performance curves.

When sizing the pump, add a safety margin of at least 0.5 m.

- In the case of densities other than 1000 kg/m³, the discharge pressure is proportional to the density.
- When pumping liquids with a density higher than 1000 kg/m³, motors with correspondingly higher outputs must be used.

Calculation of total head

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

$$H_{\text{total}} = H_{\text{geo}} + H_{\text{stat}} + H_{\text{dyn}}$$

- H_{geo} : Height difference between measuring points.
- H_{stat} : Differential head across the pump.
- H_{dyn} : Calculated values based on the velocity of the pumped liquid on the suction and discharge sides of the pump.

Performance tests

The requested duty point for every pump is tested according to ISO 9906, Annex A, and without certification.

In the case of pumps ordered on the basis of impeller diameter only (no requested duty point), the pump will be tested at a duty point which is 2/3 of the maximum flow of the published performance curve which is related to the ordered impeller diameter (according to ISO 9906, Annex A).

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

Certificates

Certificates have to be confirmed for every order and are available on request as follows:

- certificate of compliance with the order (EN 10204-2.1)
- pump test sheet.

Witness test

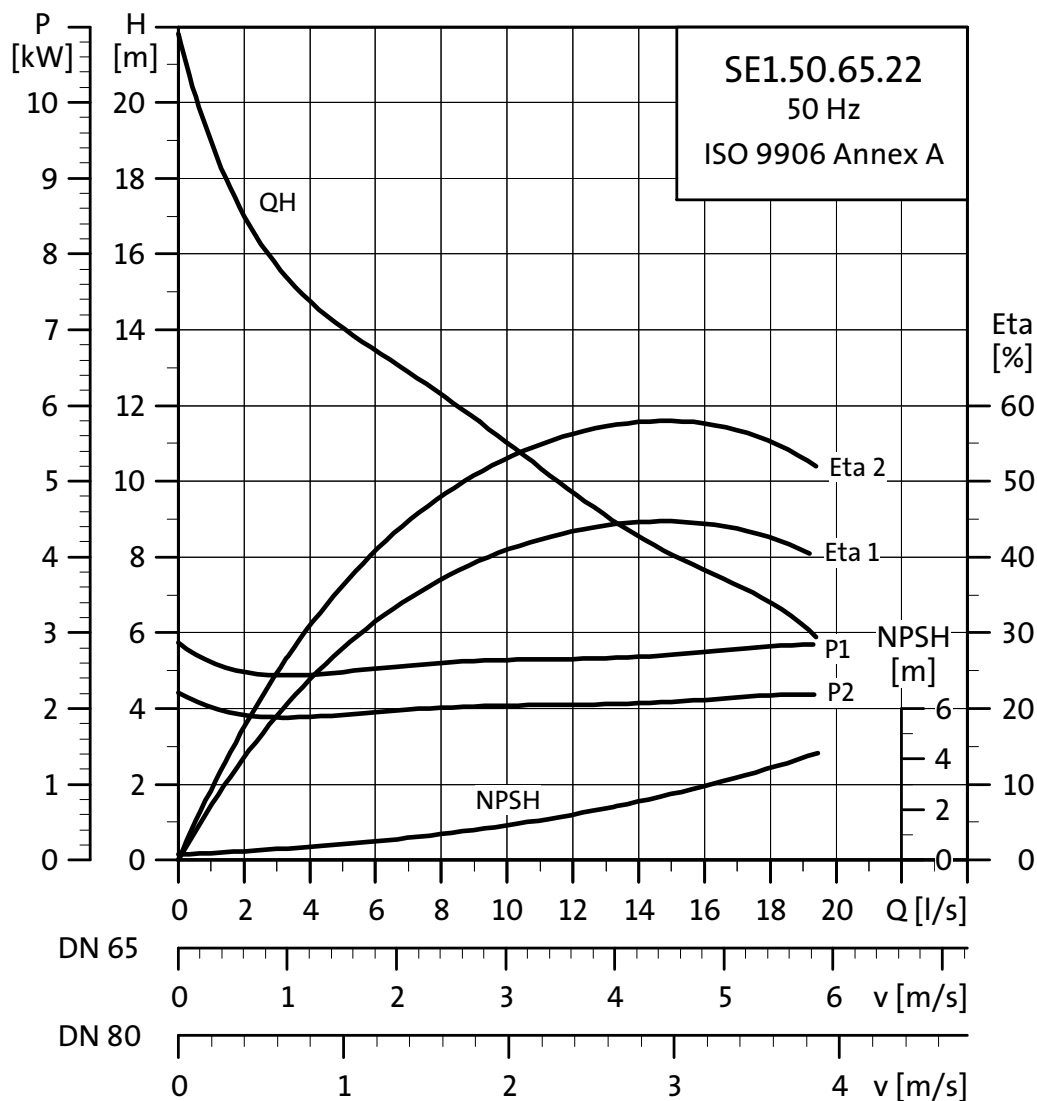
It is possible for the customer to witness the testing procedure according to ISO 9906.

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

If the customer wants to carry out a witness test of the pump performance, such request must be stated on the order.

10. Performance curves and technical data

SE1.50.65.22.(Ex).2



TM02 7955 4503

Electrical data

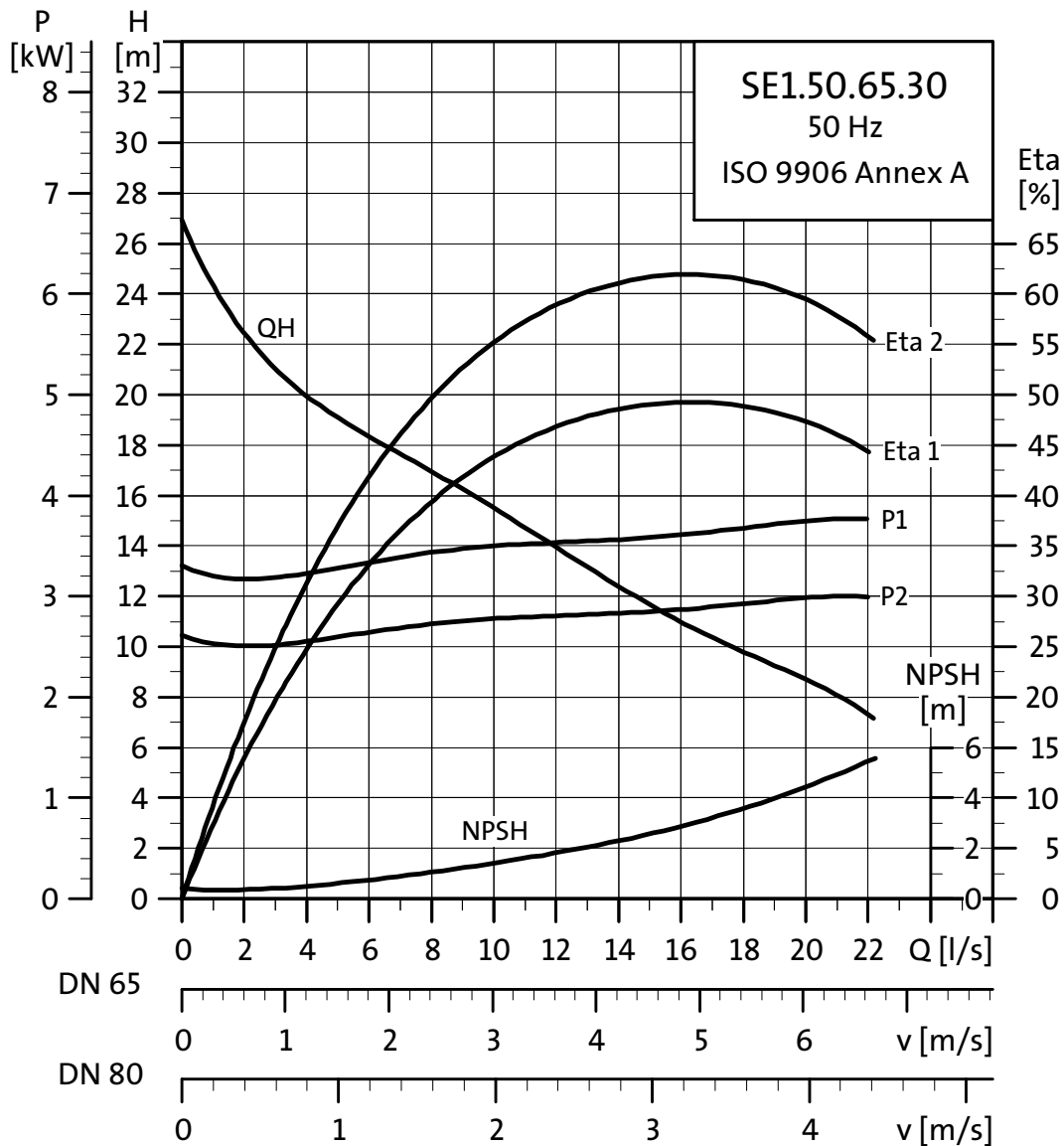
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.8	2.2	2	2895	DOL	5.0	37	73.5	76.6	77	0.72	0.81	0.86	0.0102	23				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.50.65.30.(Ex).2



TM02 7956 4503

Electrical data

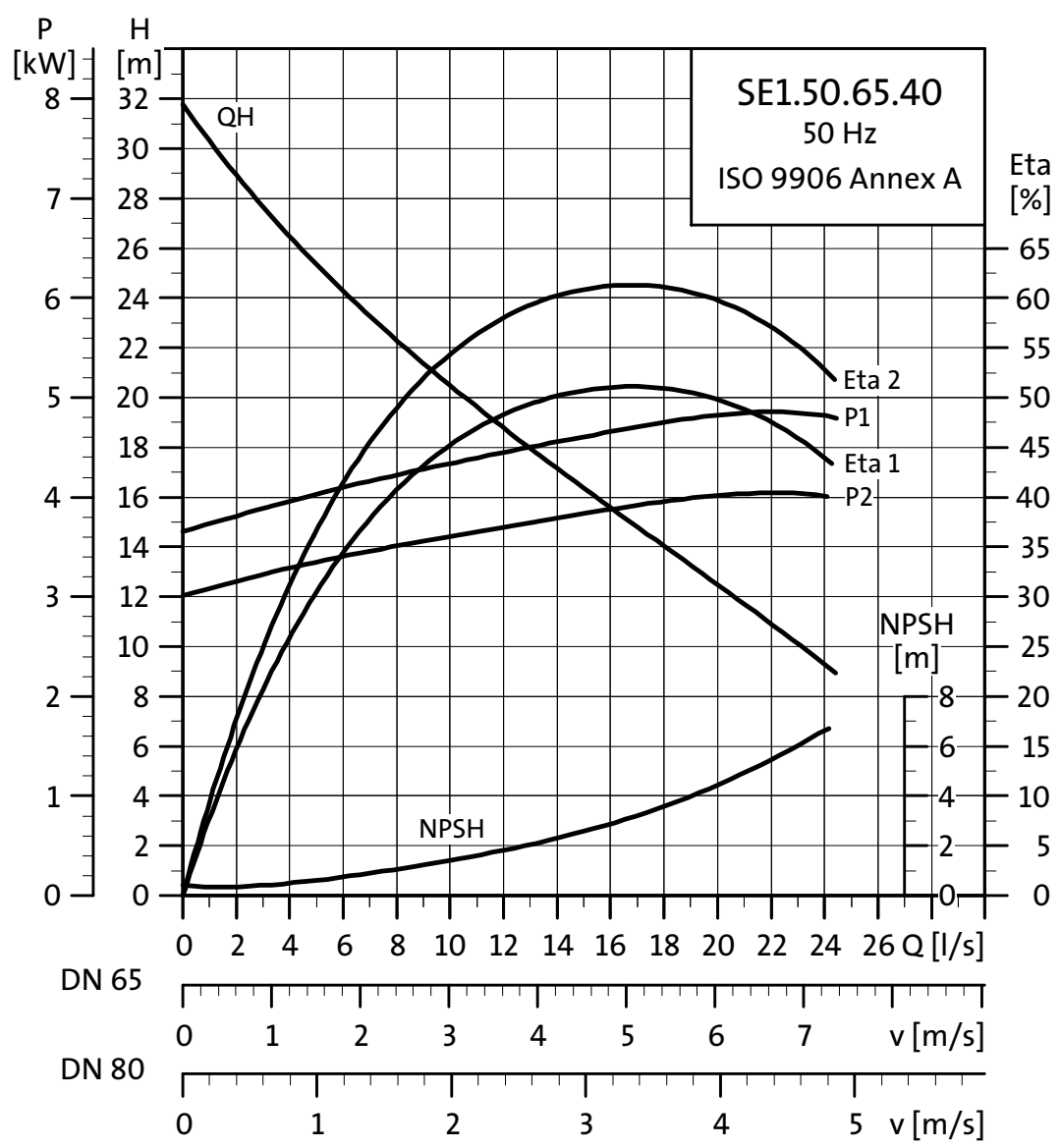
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	3.8	3.0	2	2910	DOL	6.6	51	75.1	78.5	79.6	0.74	0.83	0.87	0.0123	33	

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.50.65.40.(Ex).2



TM02 7958 4503

Electrical data

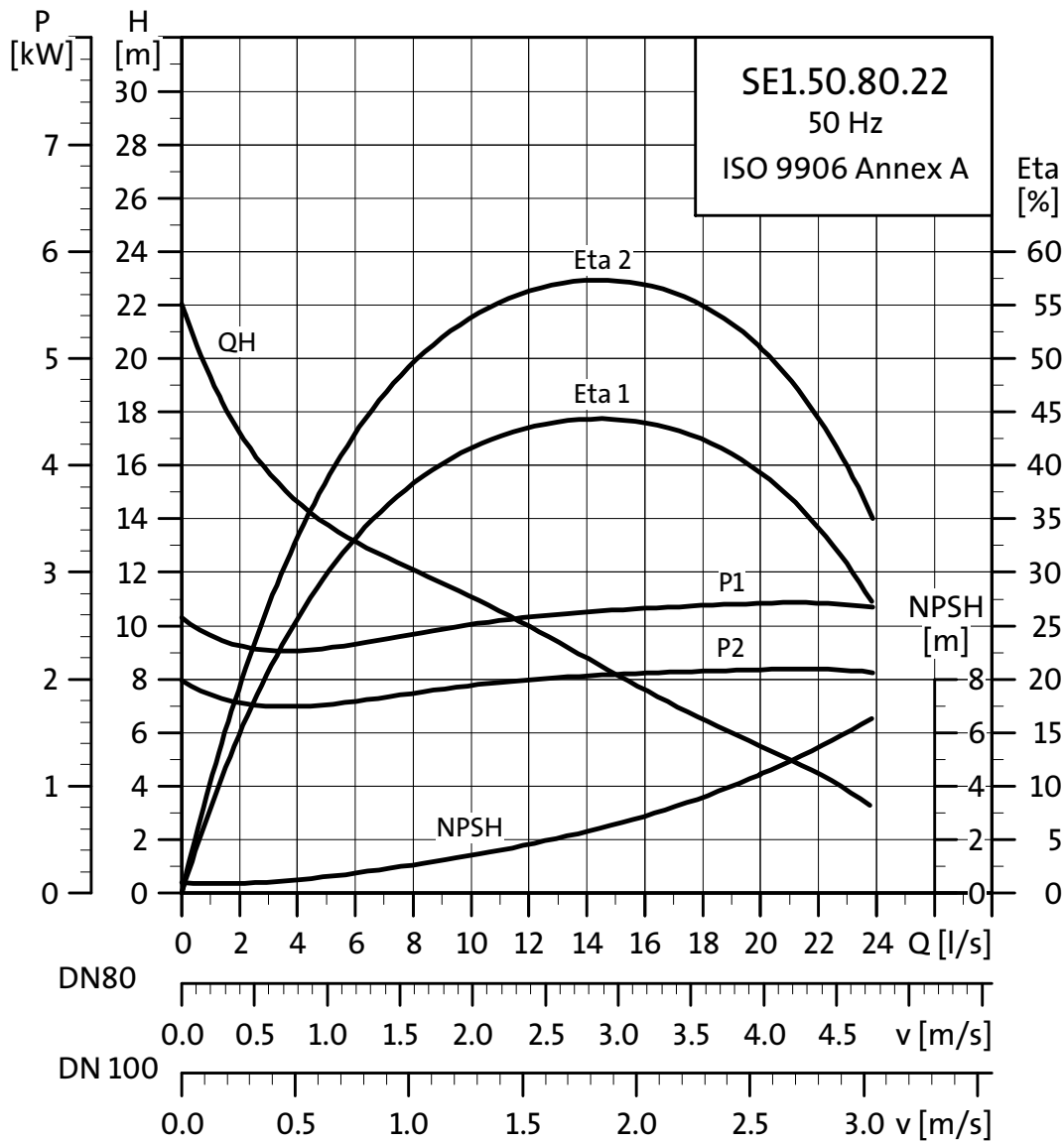
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.8	4.0	2	2925	Y/D	8.6	71	79.2	82.4	83.3	0.68	0.78	0.84	0.0194	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.50.80.22.(Ex).2



TM02 7954 4503

Electrical data

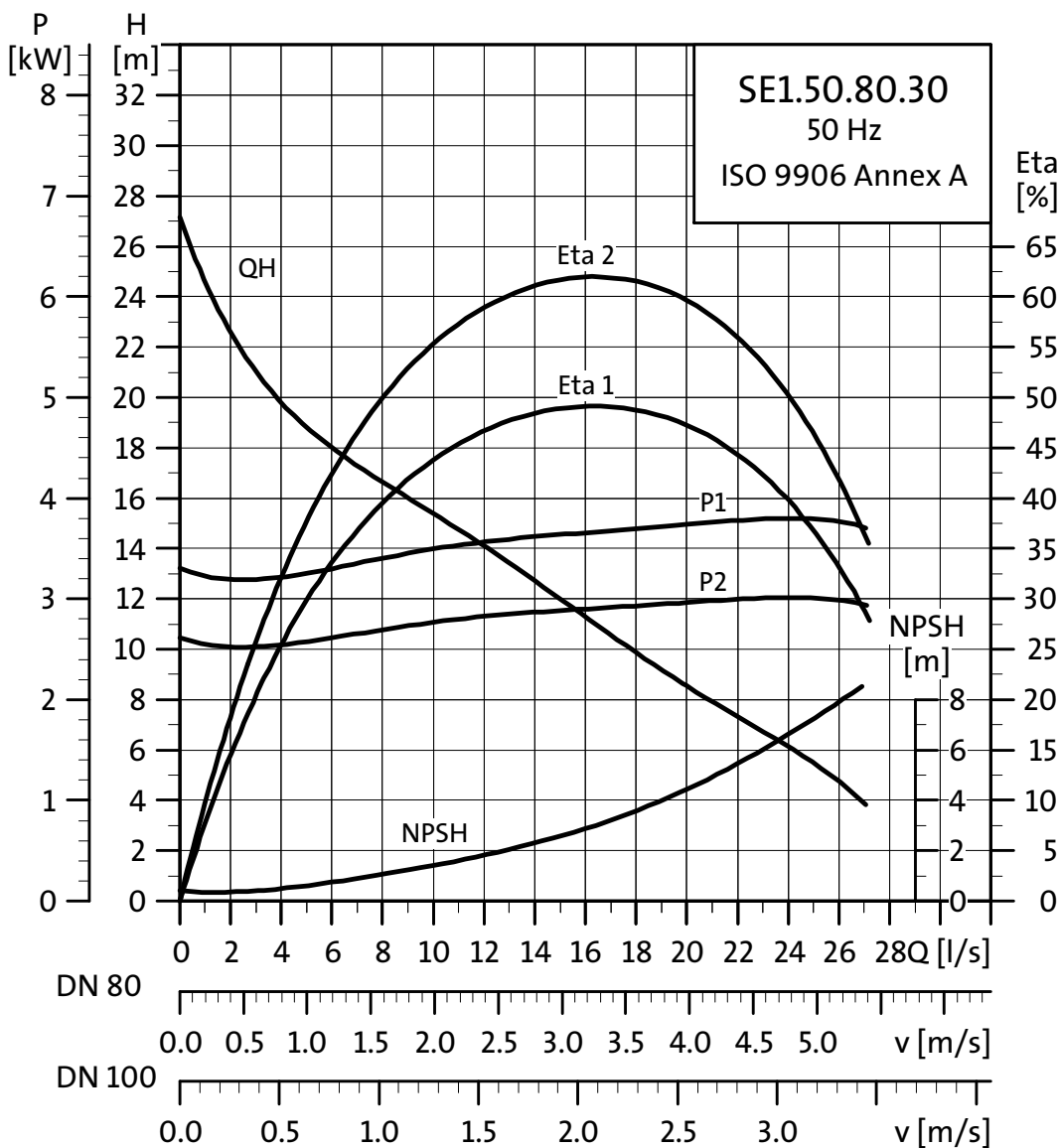
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.8	2.2	2	2895	DOL	5.0	37	73.5	76.6	77	0.72	0.81	0.86	0.0102	23				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.50.80.30.(Ex).2



TM02 7957 4503

Electrical data

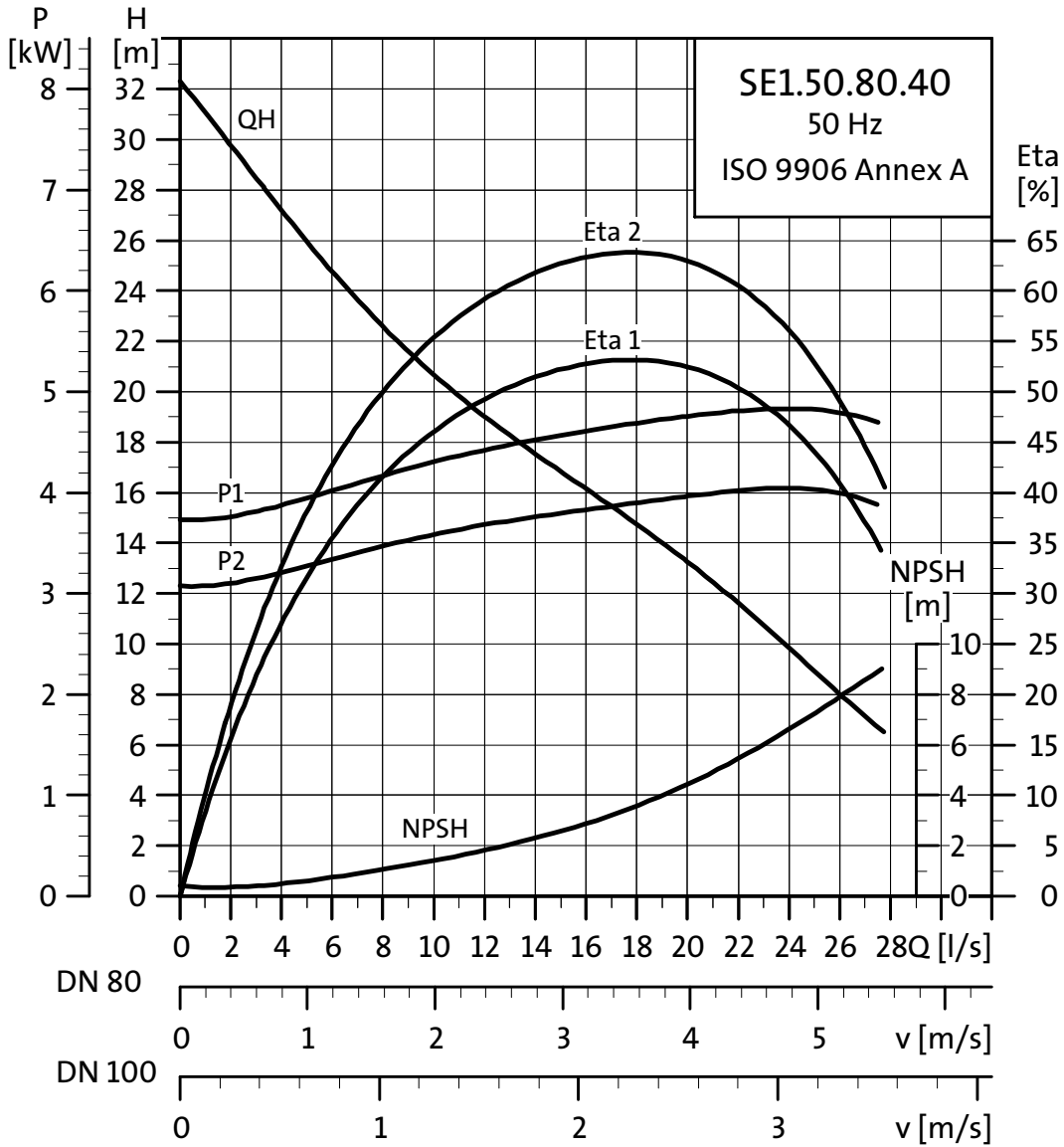
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	3.8	3.0	2	2910	DOL	6.6	51	75.1	78.5	79.6	0.74	0.83	0.87	0.0123	33				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.50.80.40.(Ex).2



TM02 7959 4503

Electrical data

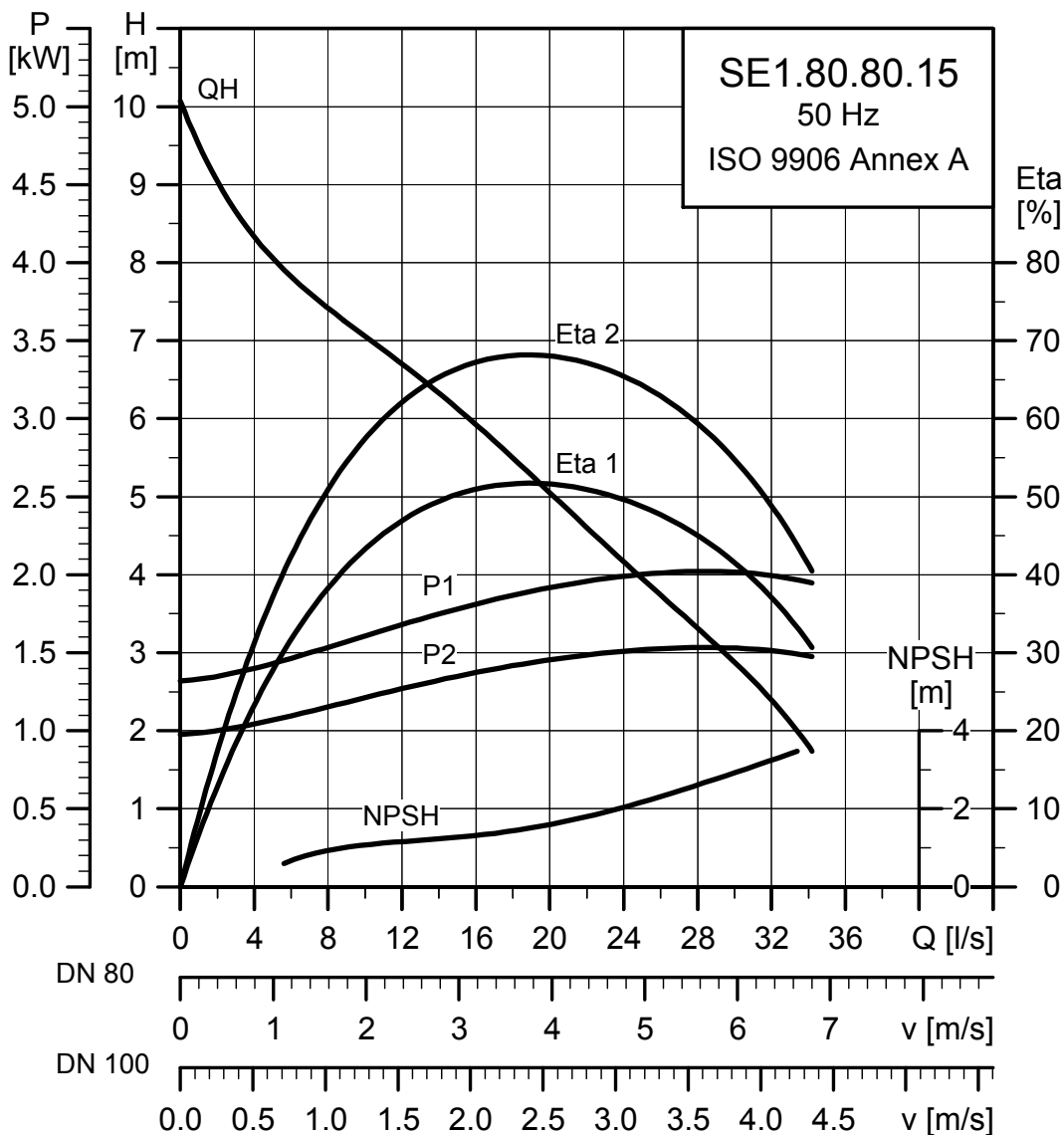
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.8	4.0	2	2925	Y/D	8.6	71	79.2	82.4	83.3	0.68	0.78	0.84	0.0194	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	50	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.15.(Ex).4



TM02 7960 2012

Electrical data

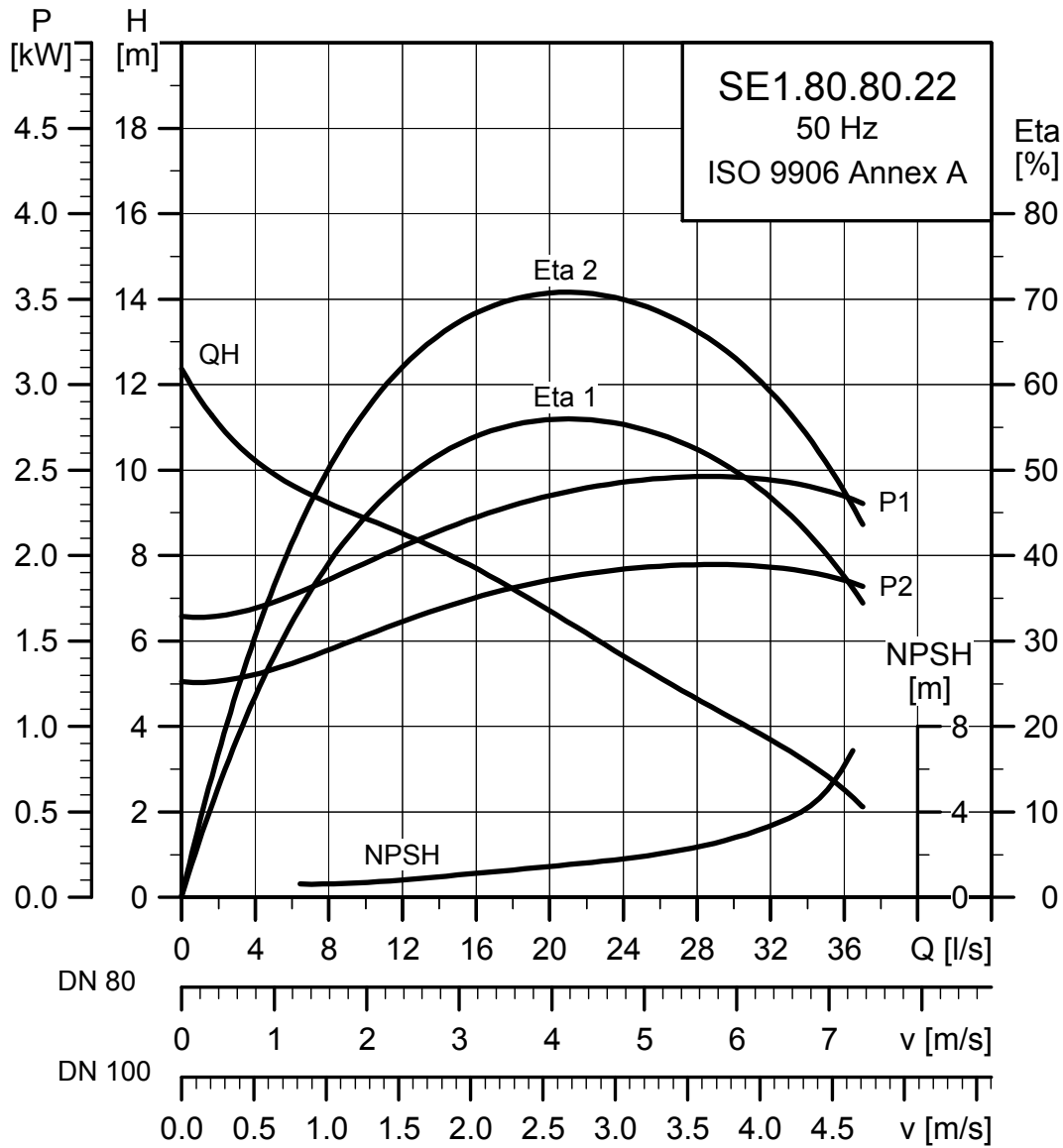
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.1	1.5	4	1435	DOL	4.2	22	67	71	72	0.56	0.68	0.76	0.0492	28				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.22.(Ex).4



TM02 7962 2012

Electrical data

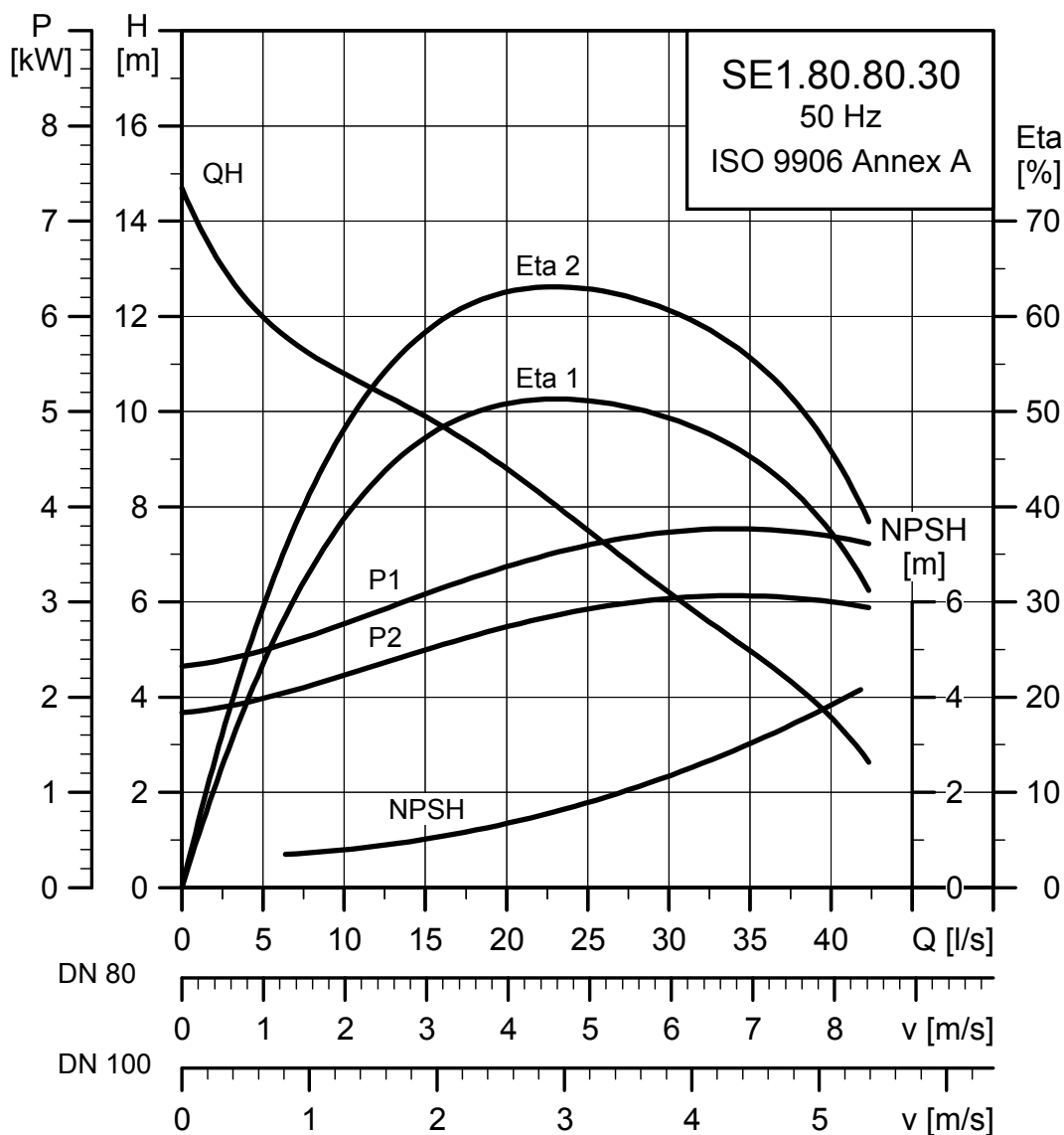
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.9	2.2	4	1445	DOL	5.9	32	70.9	75.2	76.3	0.53	0.66	0.74	0.0570	45				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.30.(Ex).4



TM02 7964 2012

Electrical data

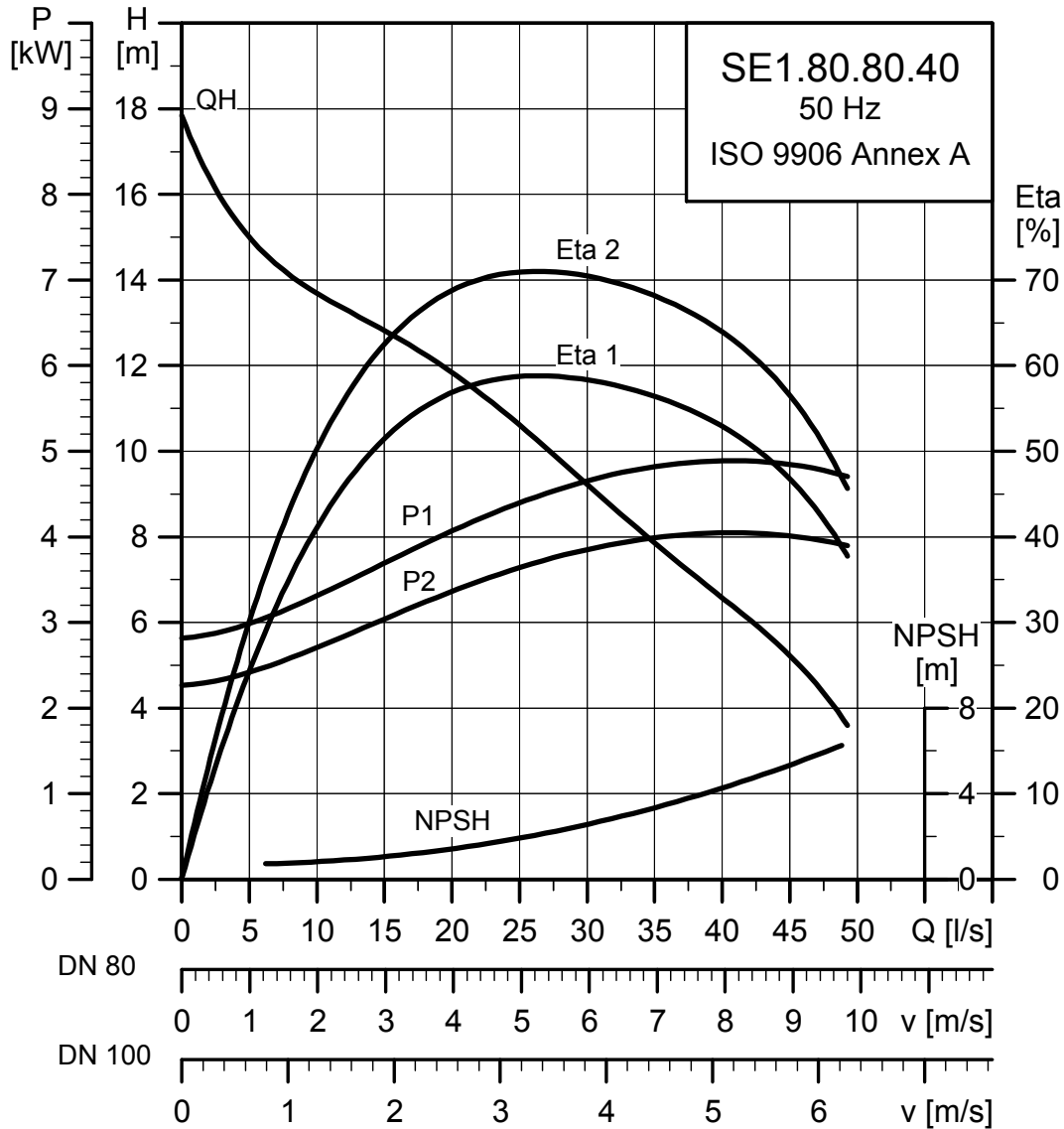
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	3.7	3.0	4	1455	DOL	7.8	43	76.4	79.9	81.2	0.5	0.64	0.73	0.0966	71				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.40.(Ex).4



TM02 7966 2012

Electrical data

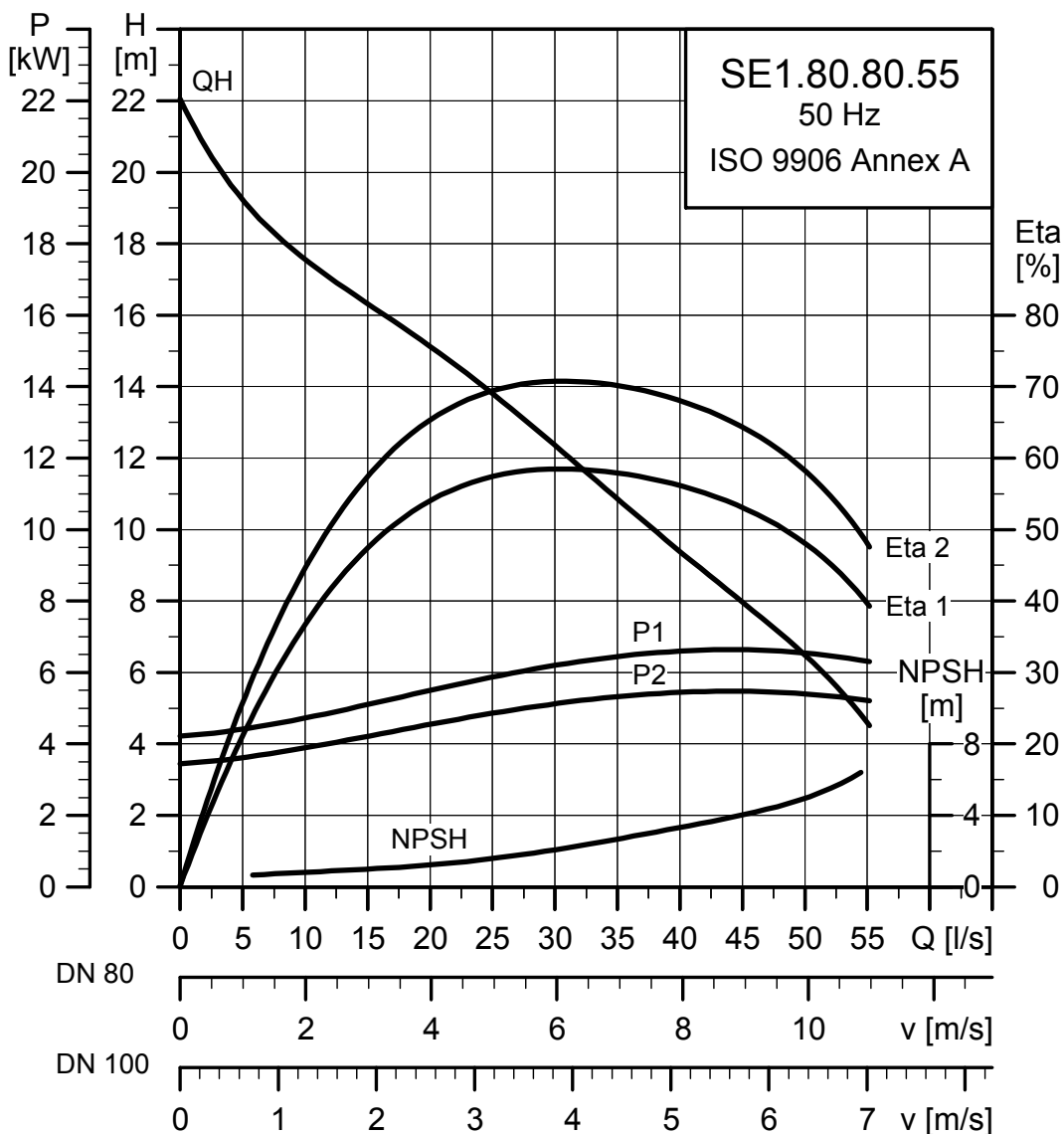
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67	78.2	81.7	82.2	0.52	0.65	0.73	0.1141	100				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.55.(Ex).4



TM02 7968 2012

Electrical data

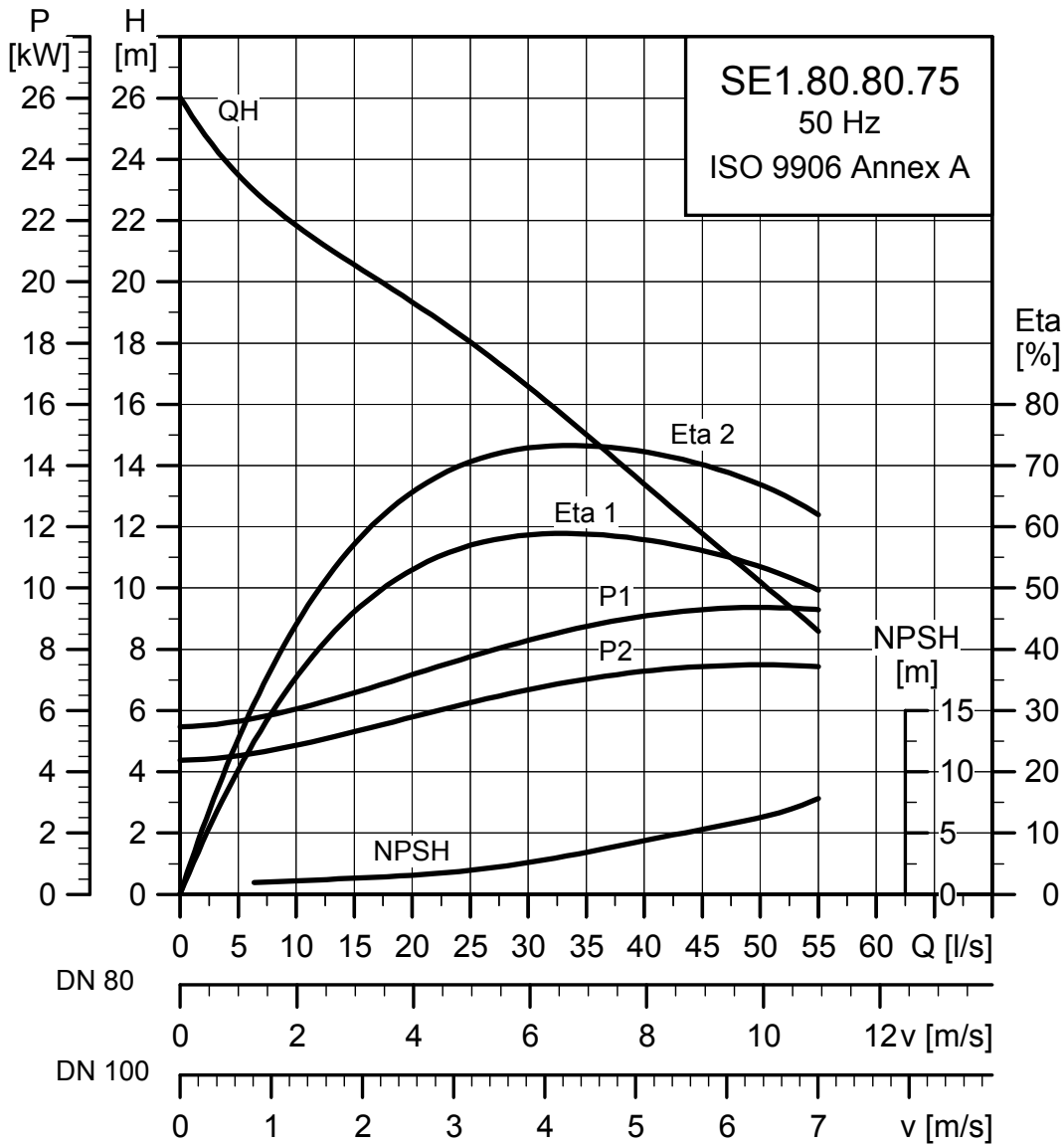
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	6.5	5.5	4	1455	Y/D	13.4	87	81	83.3	83.9	0.52	0.65	0.74	0.1295	122				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.80.75.(Ex).4



TIM02 7970 2012

Electrical data

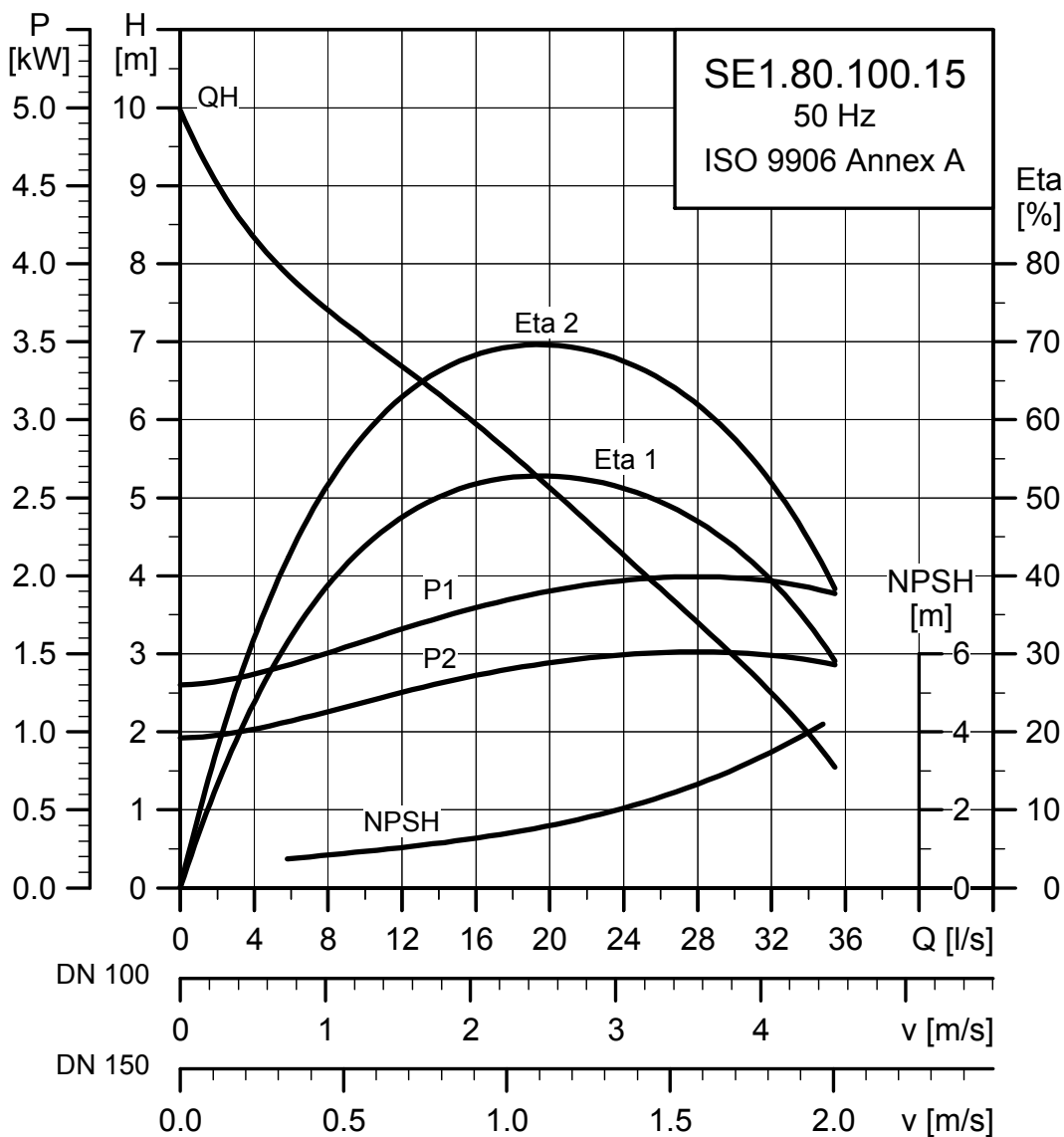
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	9.0	7.5	4	1455	Y/D	17.3	107	81.3	83.5	83.4	0.61	0.72	0.79	0.1618	141				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.15.(Ex).4



TM02 7961 2012

Electrical data

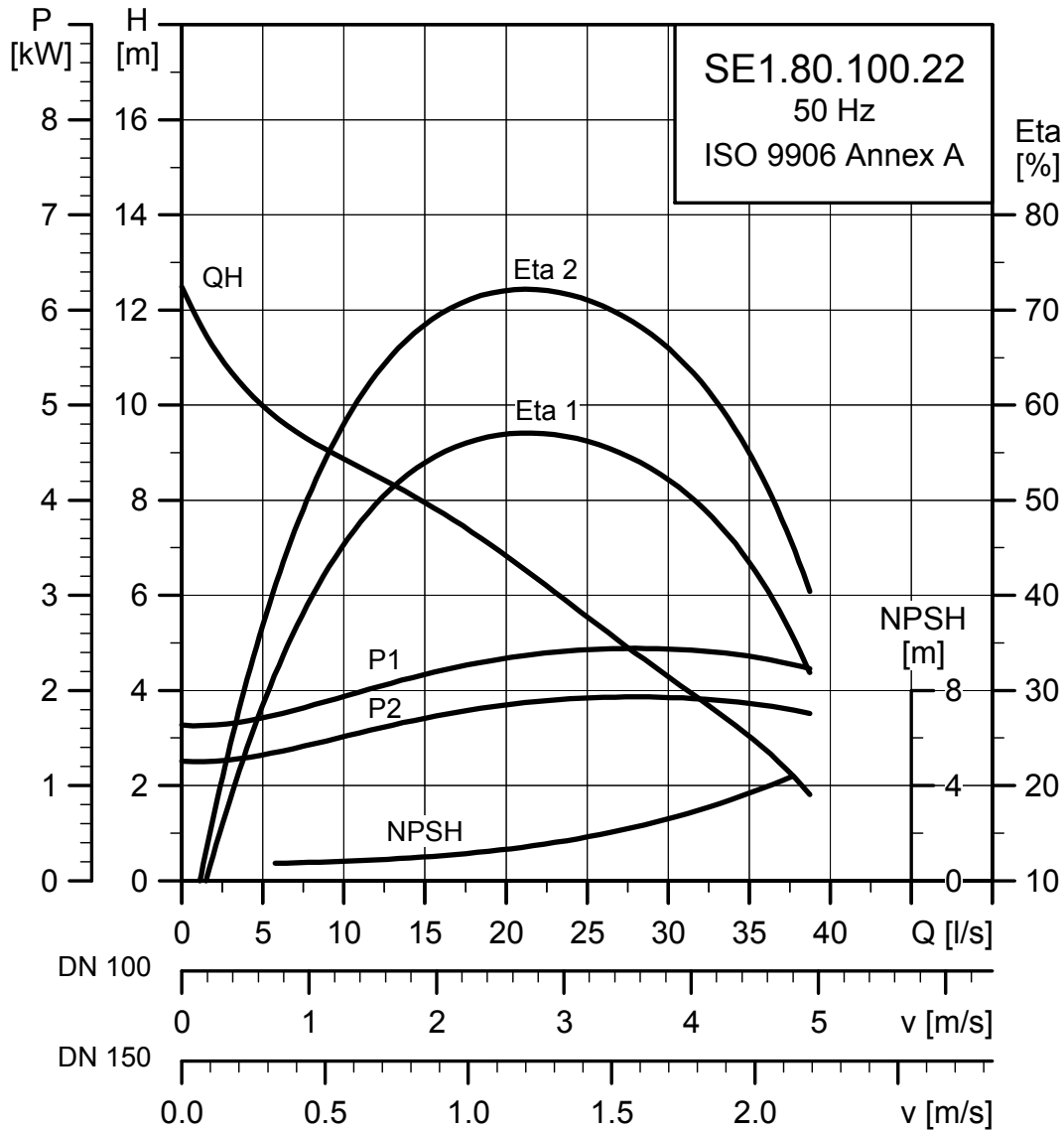
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.1	1.5	4	1435	DOL	4.2	22	67	71	72	0.56	0.68	0.76	0.0492	28				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.22.(Ex).4



TM02 7963 2012

Electrical data

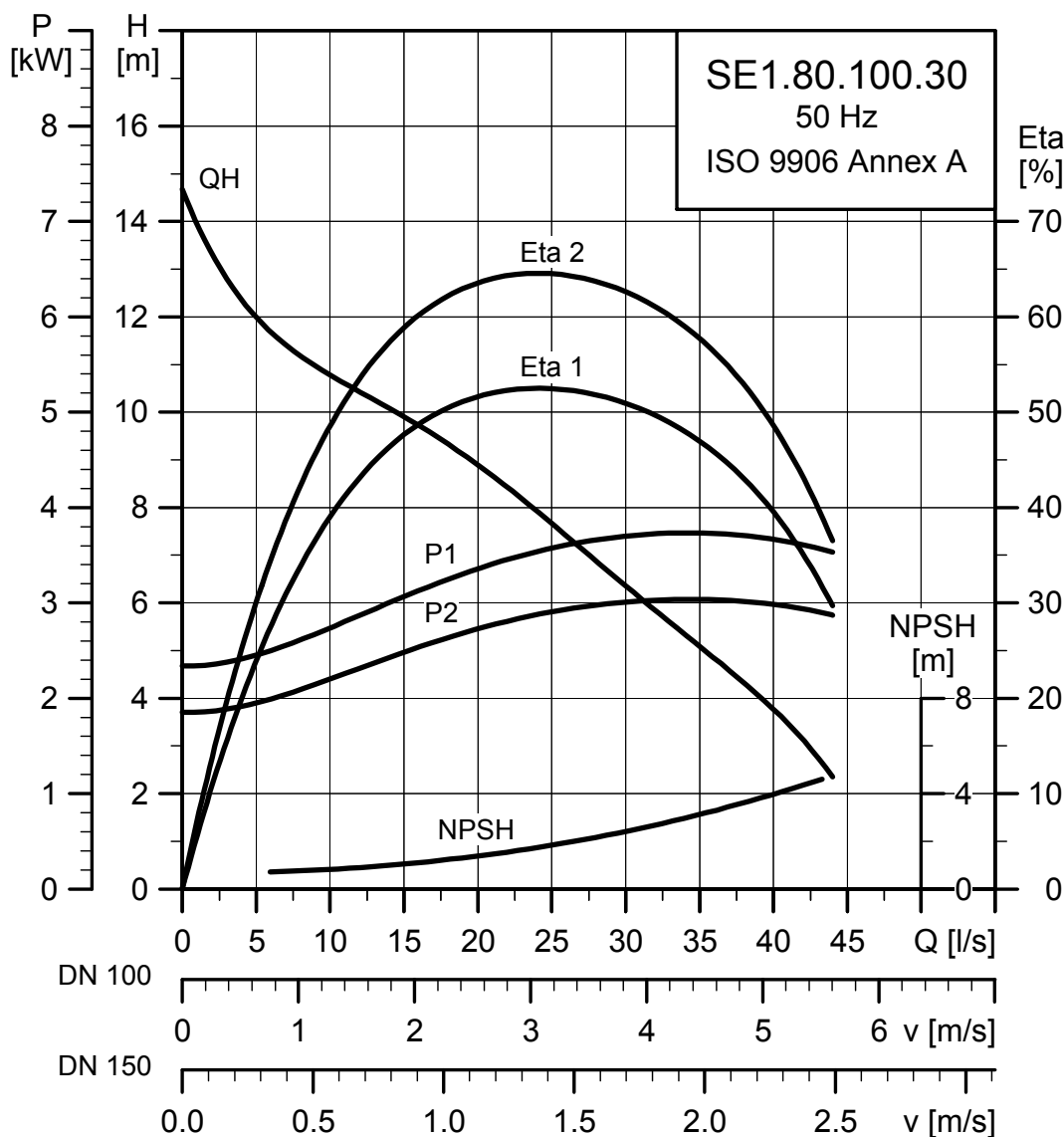
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.9	2.2	4	1445	DOL	5.9	32	70.9	75.2	76.3	0.53	0.66	0.74	0.0570	45				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.30.(Ex).4



TM02 7965 2012

Electrical data

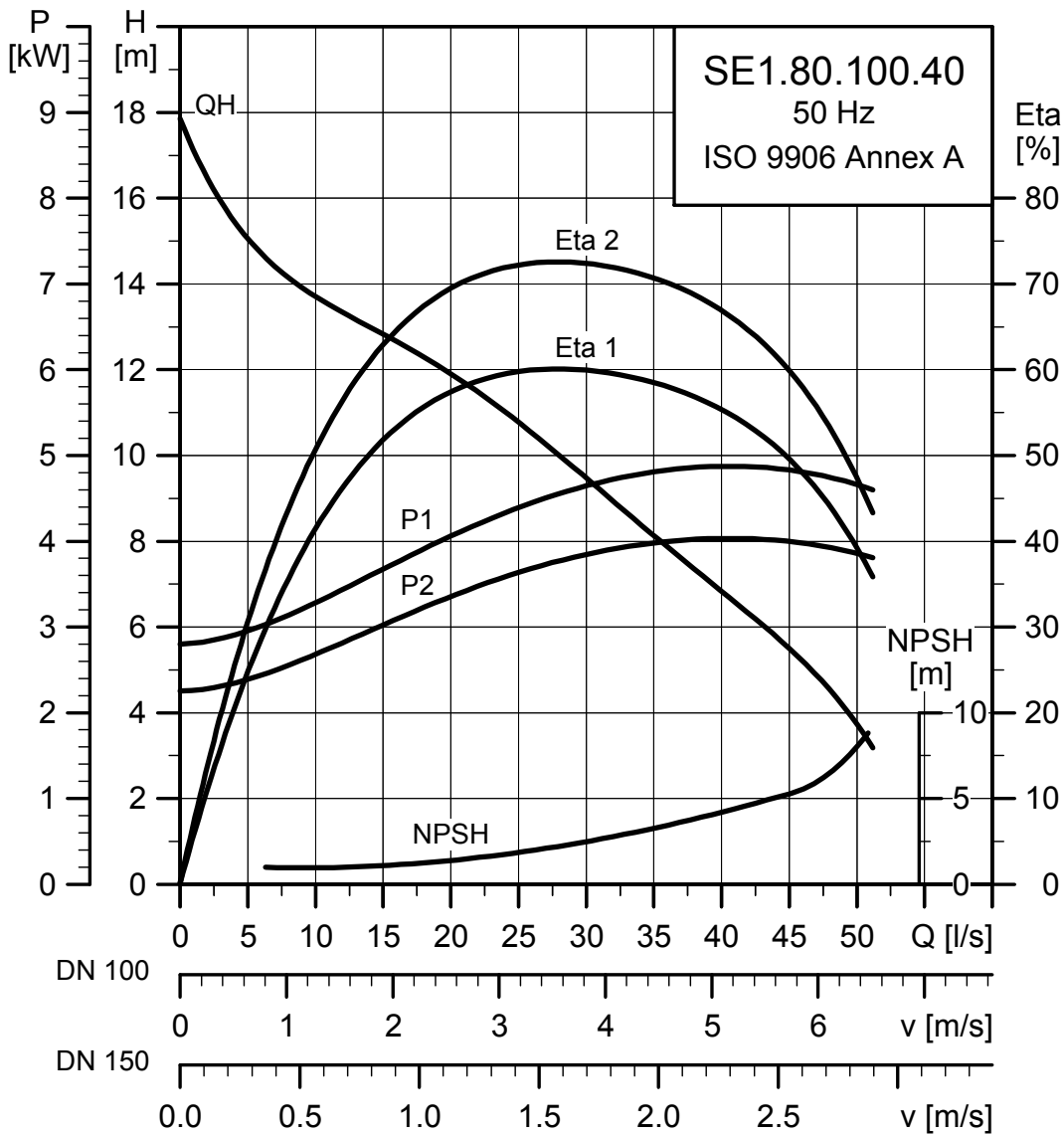
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	3.7	3.0	4	1455	DOL	7.8	43	76.4	79.9	81.2	0.5	0.64	0.73	0.0966	71				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.40.(Ex).4



TIM02 7967 2012

Electrical data

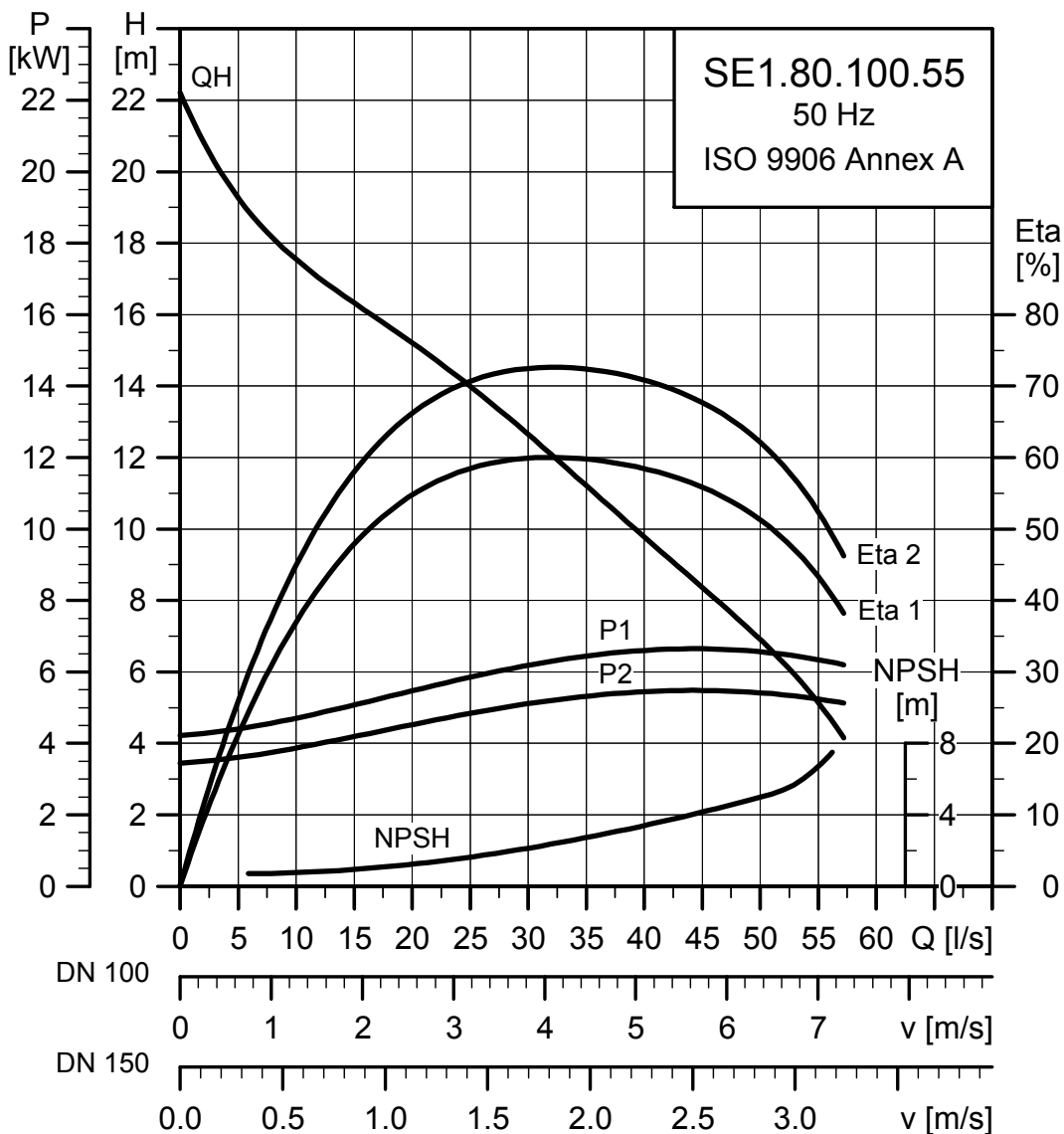
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67	78.2	81.7	82.2	0.52	0.65	0.73	0.1141	100				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.55.(Ex).4



TM02 7969 2012

Electrical data

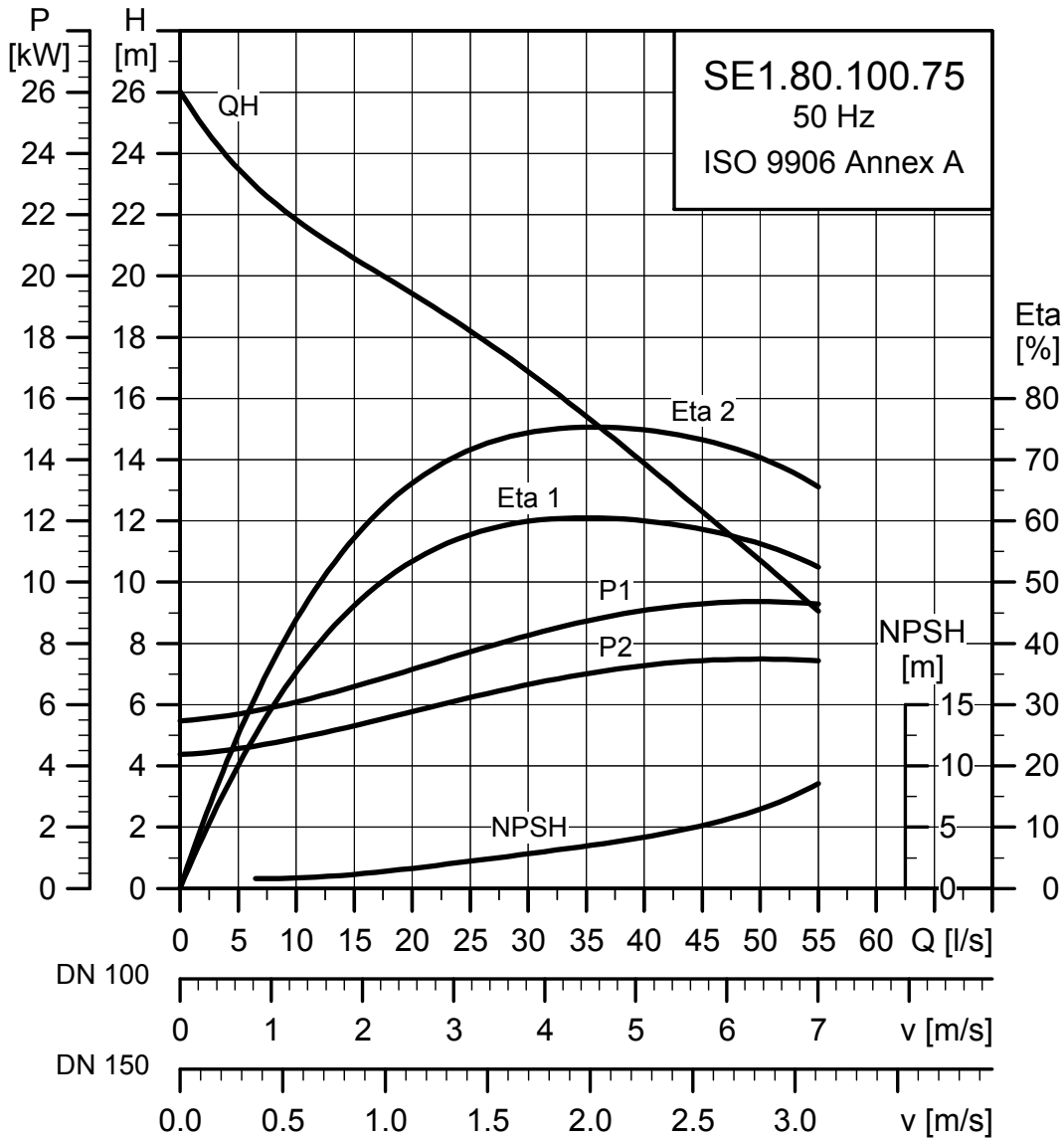
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _n			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	6.5	5.5	4	1455	Y/D	13.4	87	81	83.3	83.9	0.52	0.65	0.74	0.1295	122				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.80.100.75.(Ex).4



TM02.7971.2012

Electrical data

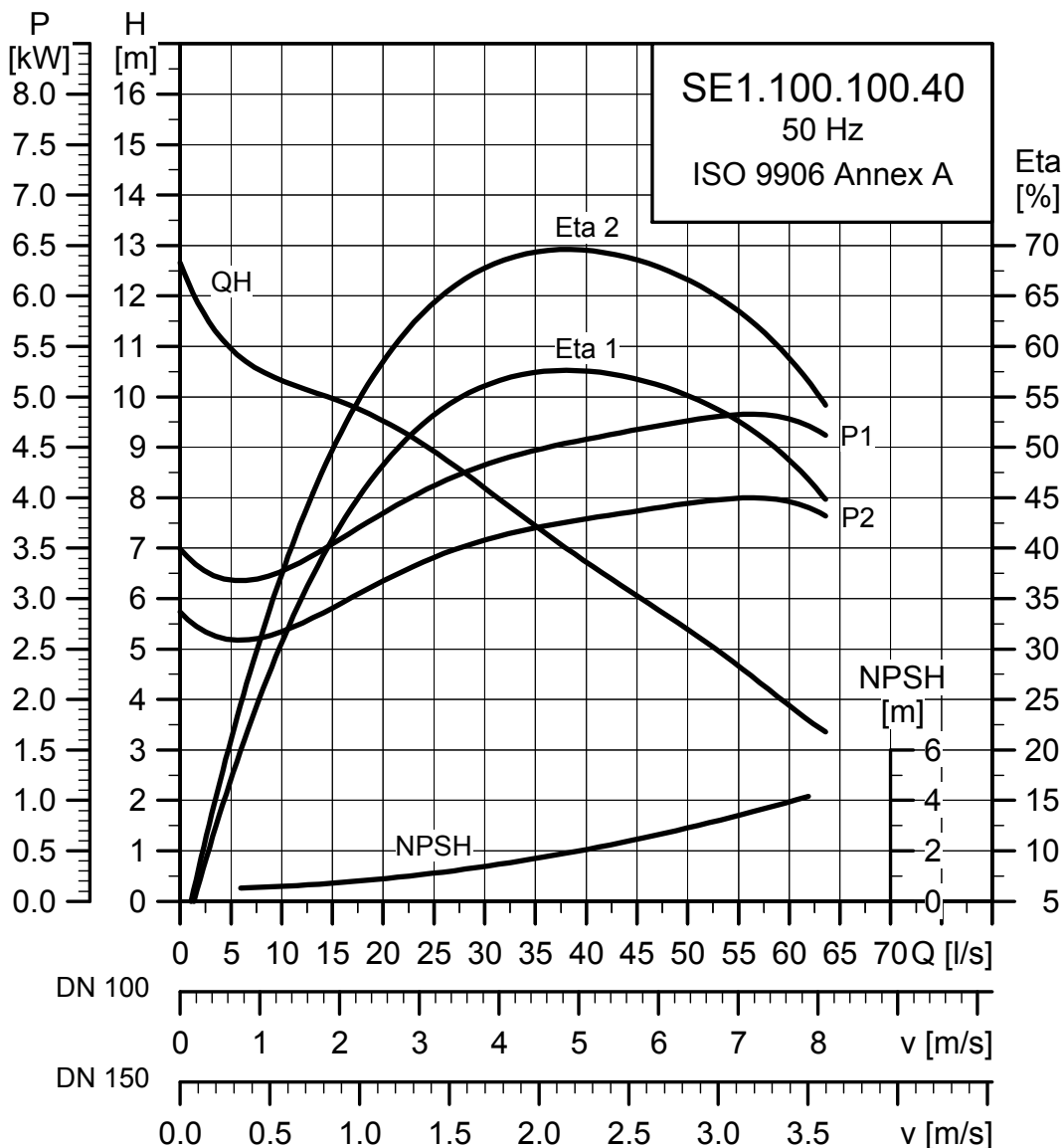
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	9.0	7.5	4	1445	Y/D	17.3	107		81.3	83.5	83.4	0.61	0.72	0.79	0.1618	141			

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	80	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.100.40.(Ex).4



TM02 7991 2012

Electrical data

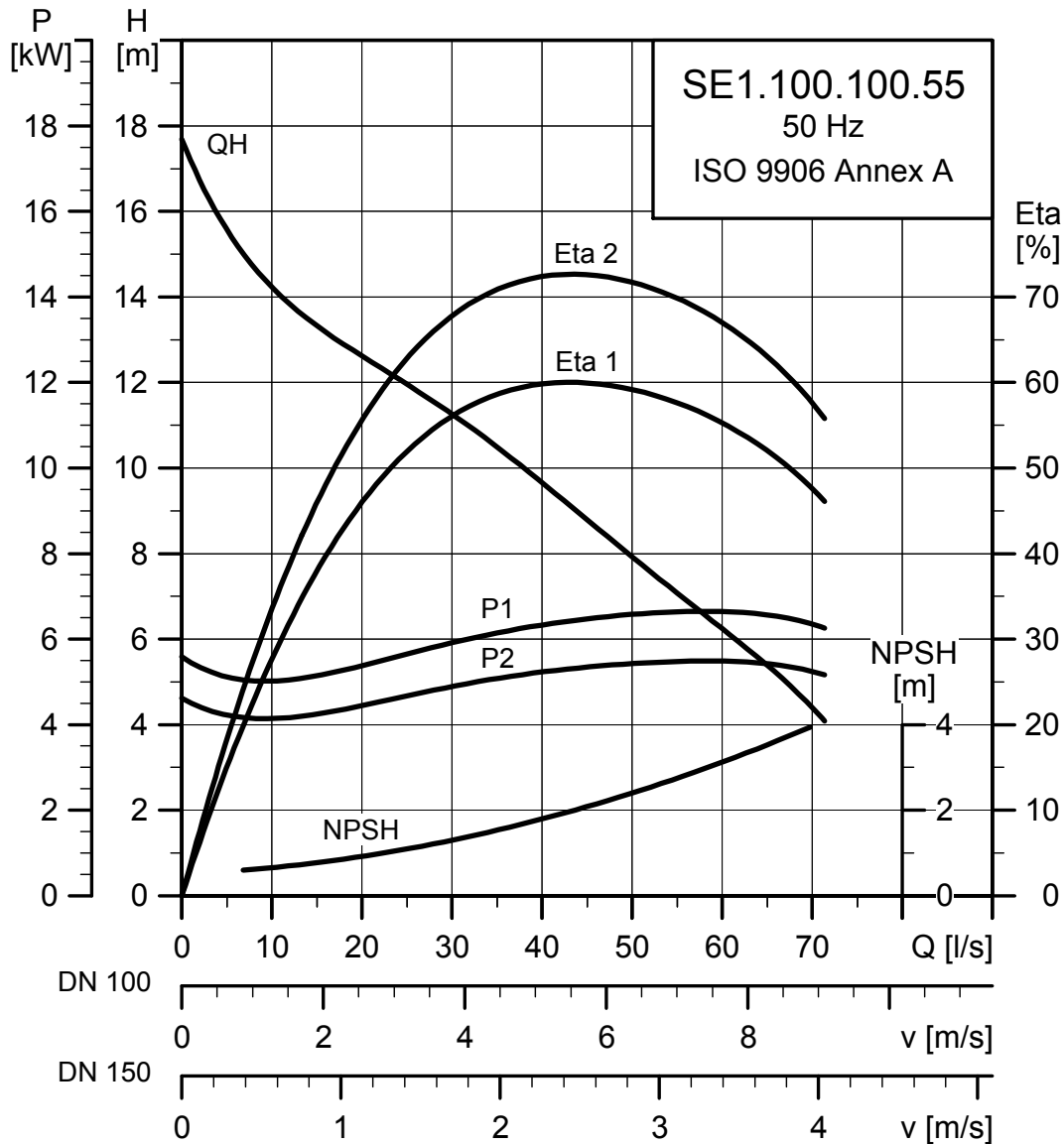
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]		1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67		78.2	81.7	82.2	0.52	0.65	0.73	0.1222	100

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.100.55.(Ex).4



TM02 7993 2012

Electrical data

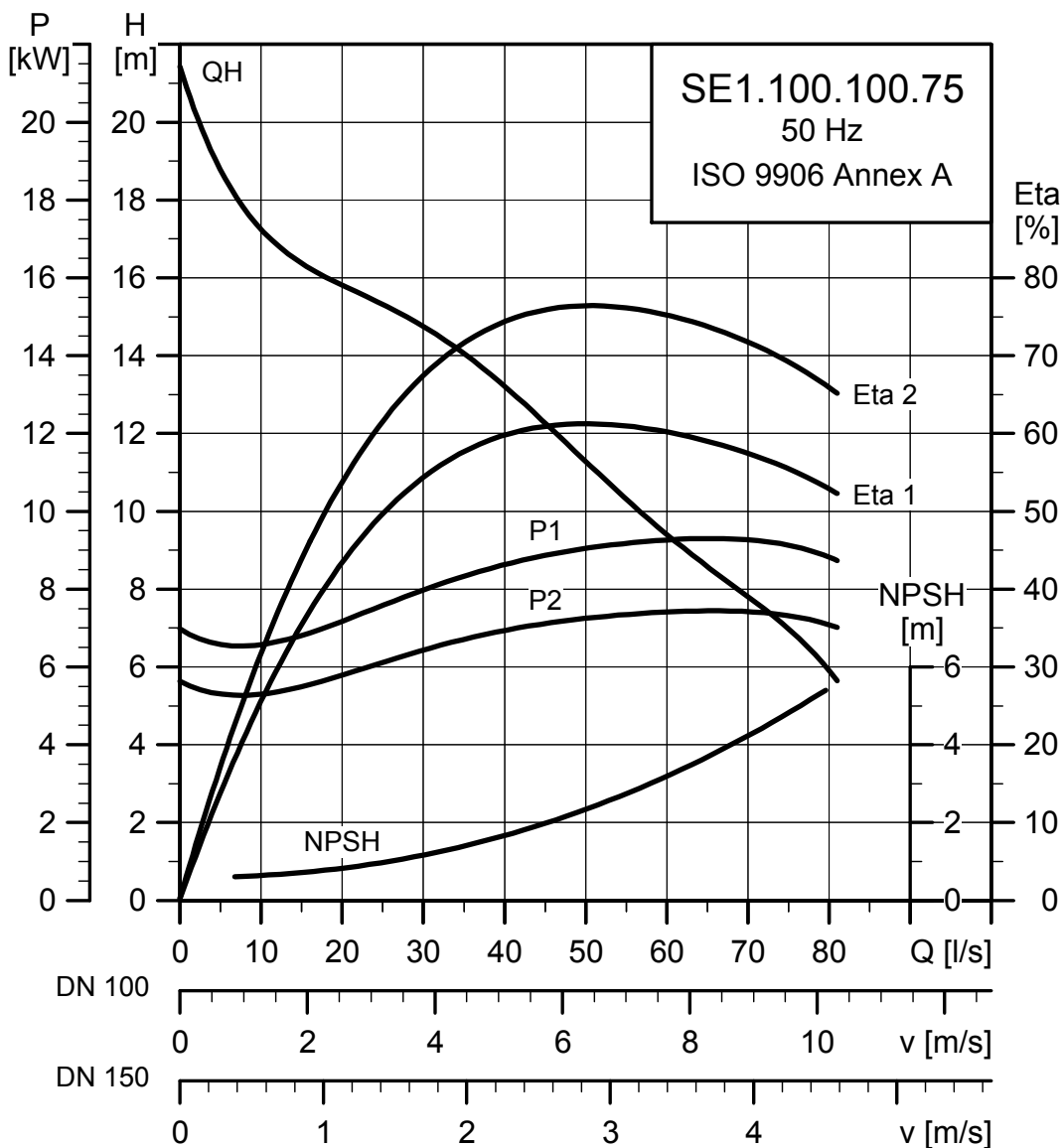
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]		1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	6.5	5.5	4	1455	Y/D	13.4	87		81	83.3	83.9	0.52	0.65	0.74	0.1393	122

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.100.75.(Ex).4



TM02 7995 2012

Electrical data

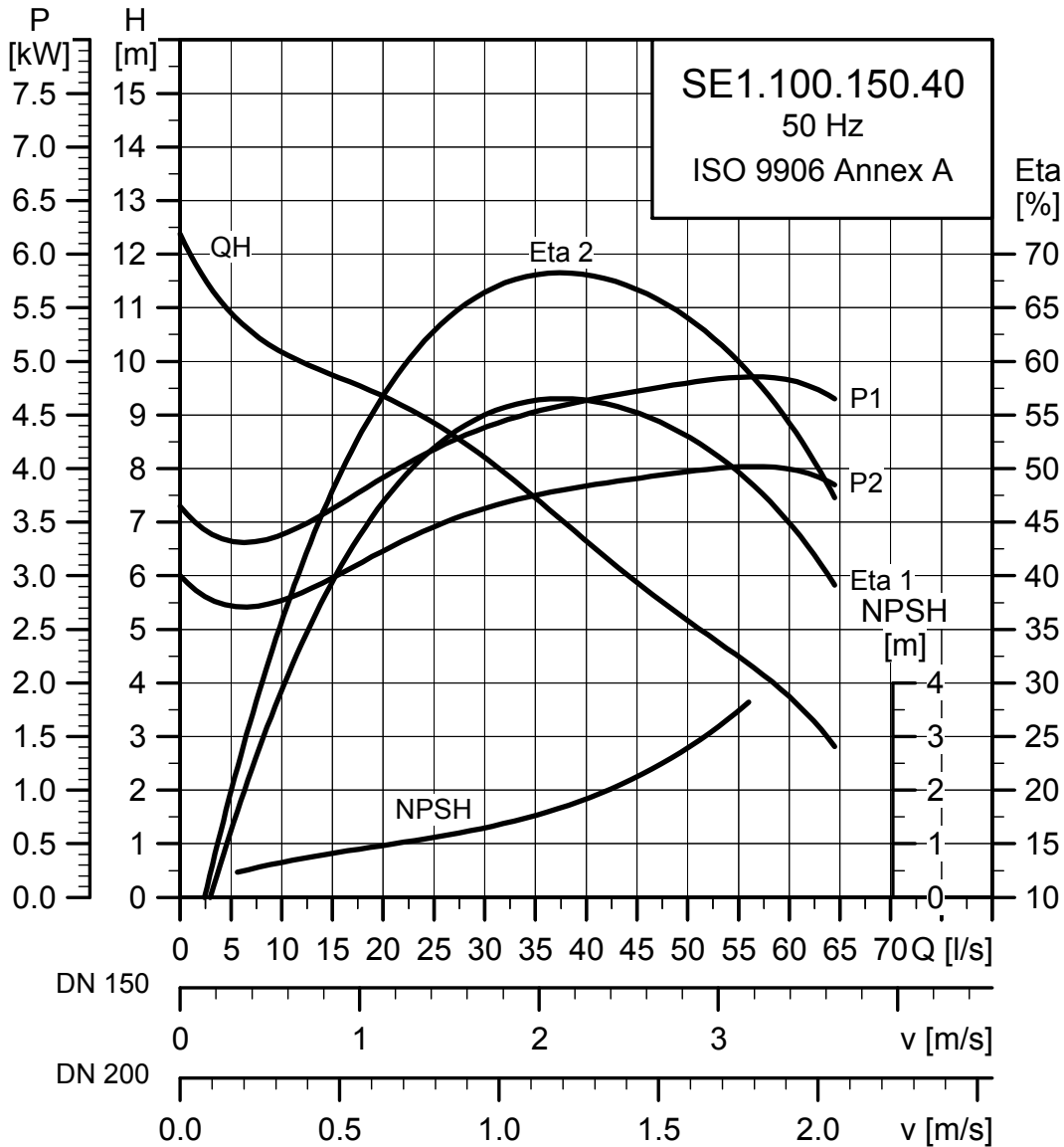
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	9.0	7.5	4	1455	Y/D	17.3	107	81.3	83.5	83.4	0.61	0.72	0.79	0.1860	141				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.150.40.(Ex).4



TM02 7992 2012

Electrical data

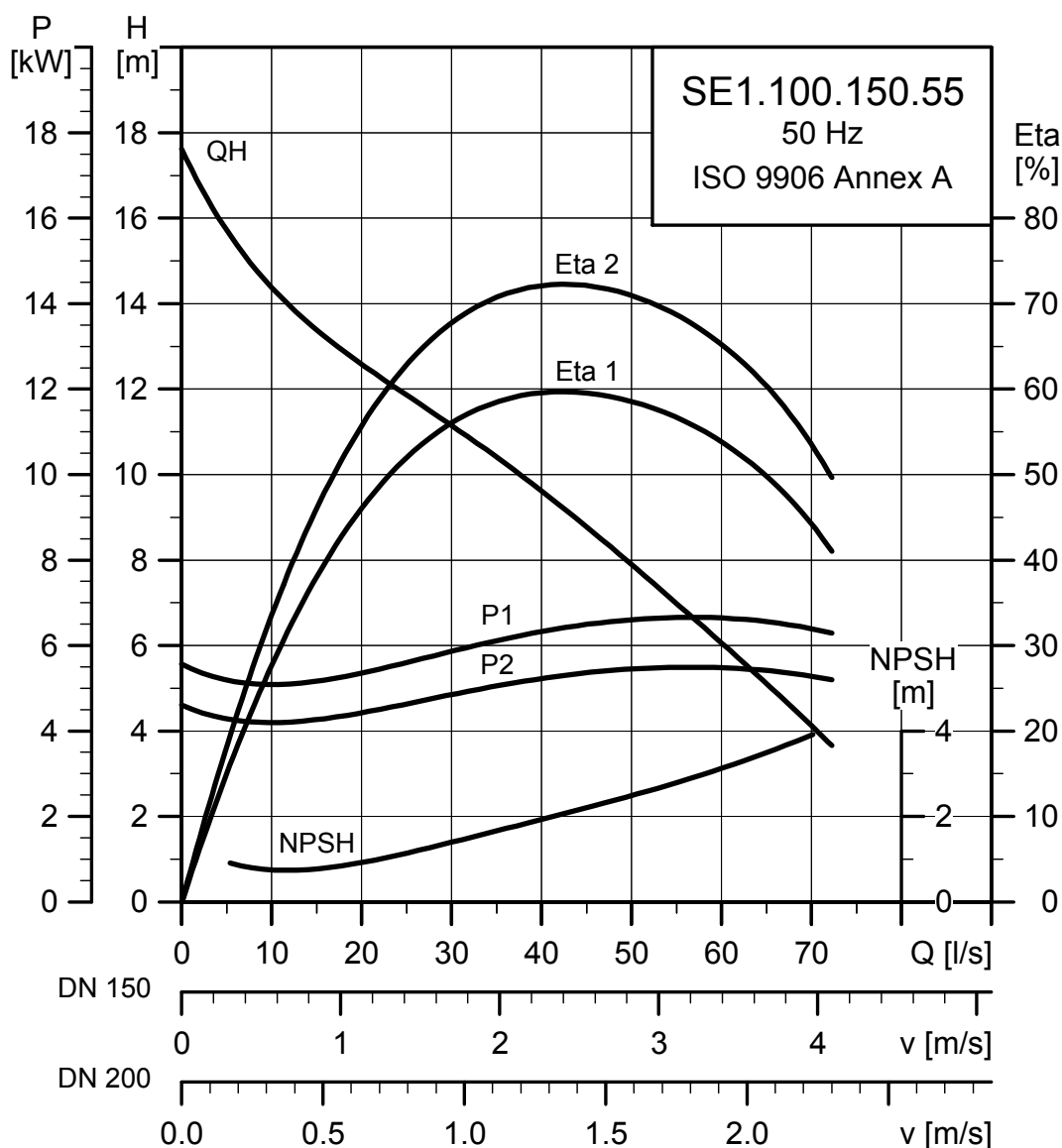
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67	78.2	81.7	82.2	0.52	0.65	0.73	0.1222	100				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.150.55.(Ex).4



TM02 7994 2012

Electrical data

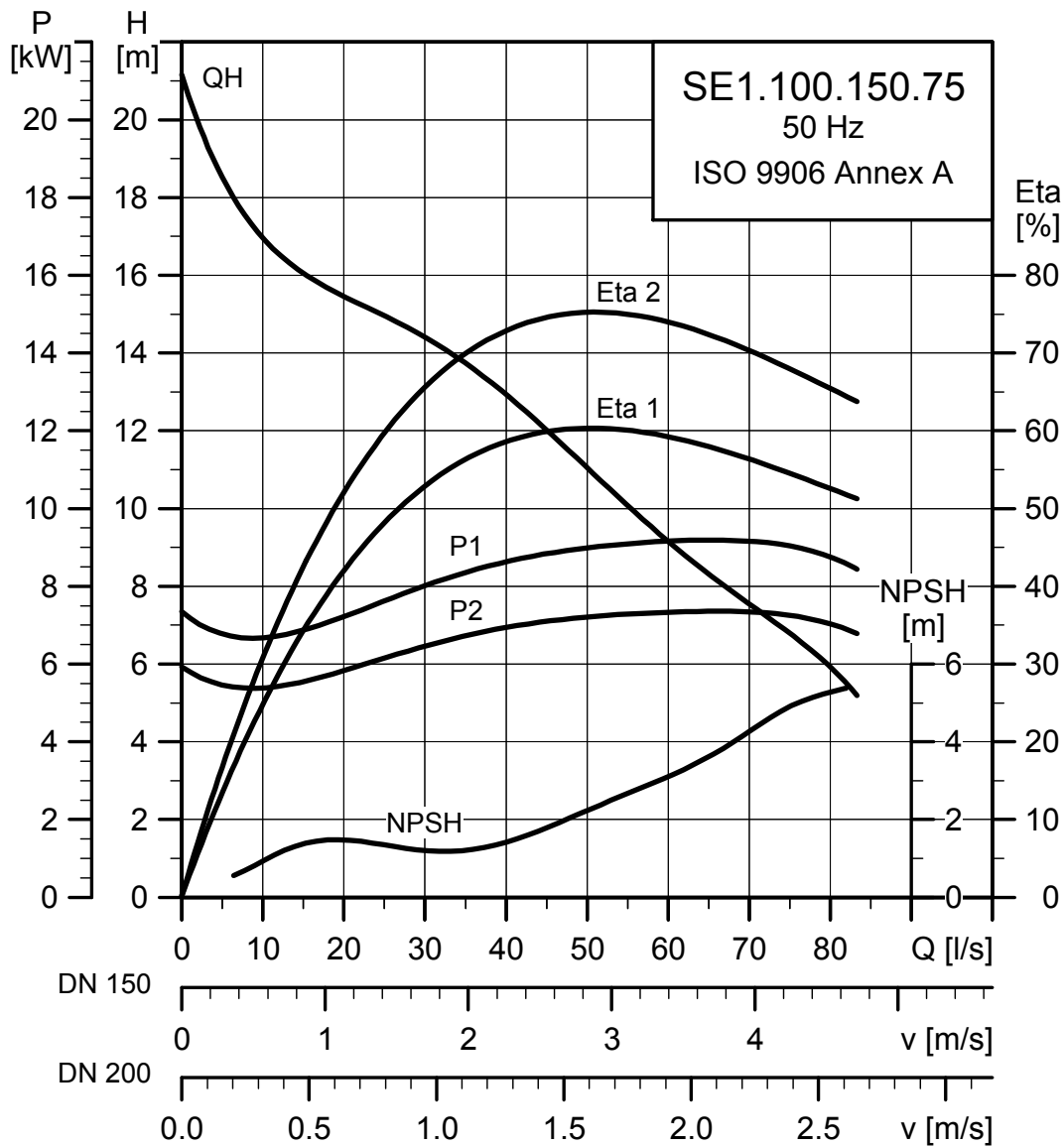
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min^{-1}	Starting method	I_N			I_{start}			$\eta_{\text{motor}} [\%]$			Cos ϕ			Moment of inertia [kgm ²]	Breakdown torque M_{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	6.5	5.5	4	1455	Y/D	13.4	87	81	83.3	83.9	0.52	0.65	0.74	0.1393	122				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SE1.100.150.75.(Ex).4



TM02 7996 2012

Electrical data

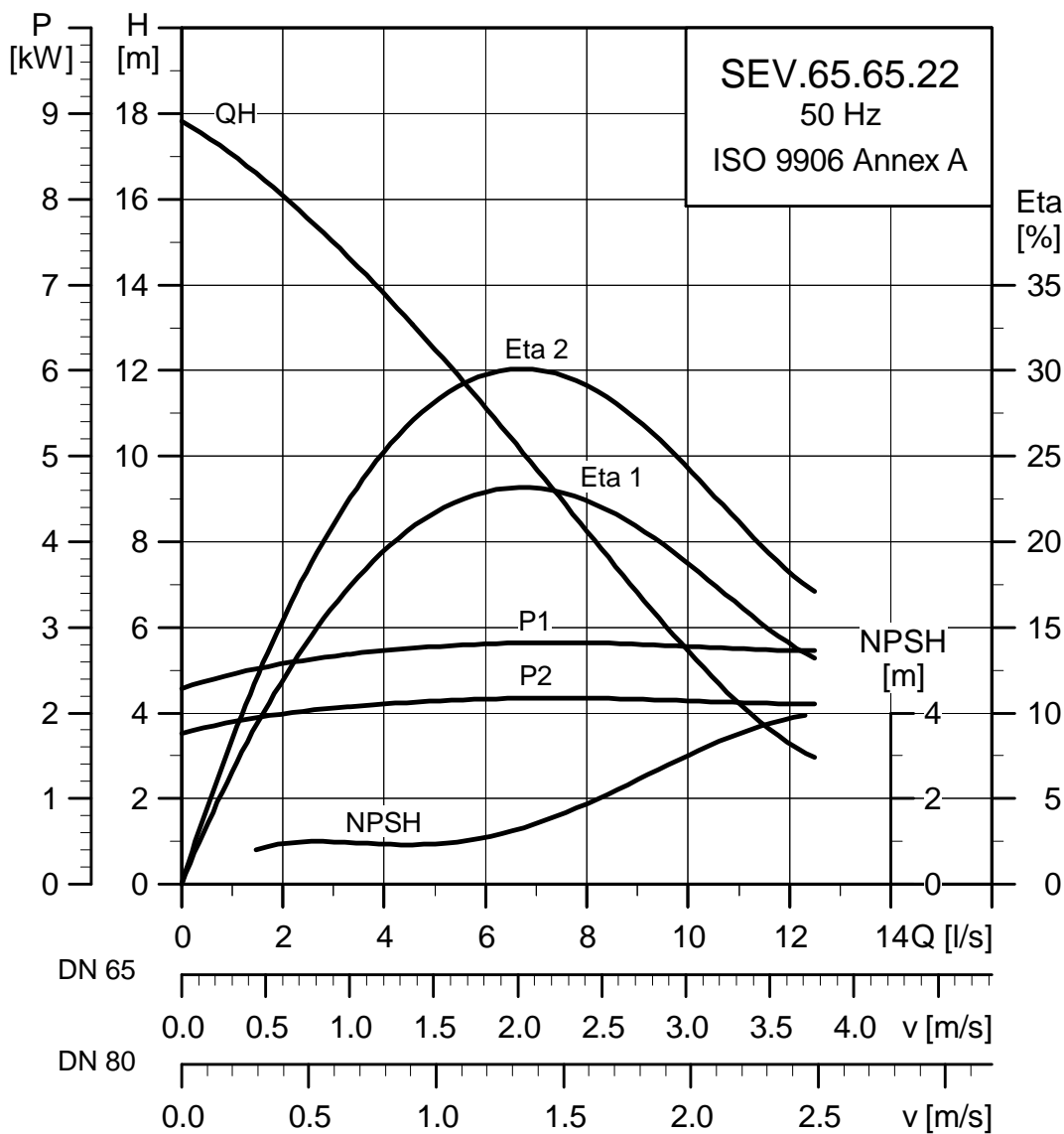
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	9.0	7.5	4	1455	Y/D	17.3	107	81.3	83.5	83.4	0.61	0.72	0.79	0.1860	141				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
S-tube	100	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.65.22.(Ex).2



TMM02 7976 4503

Electrical data

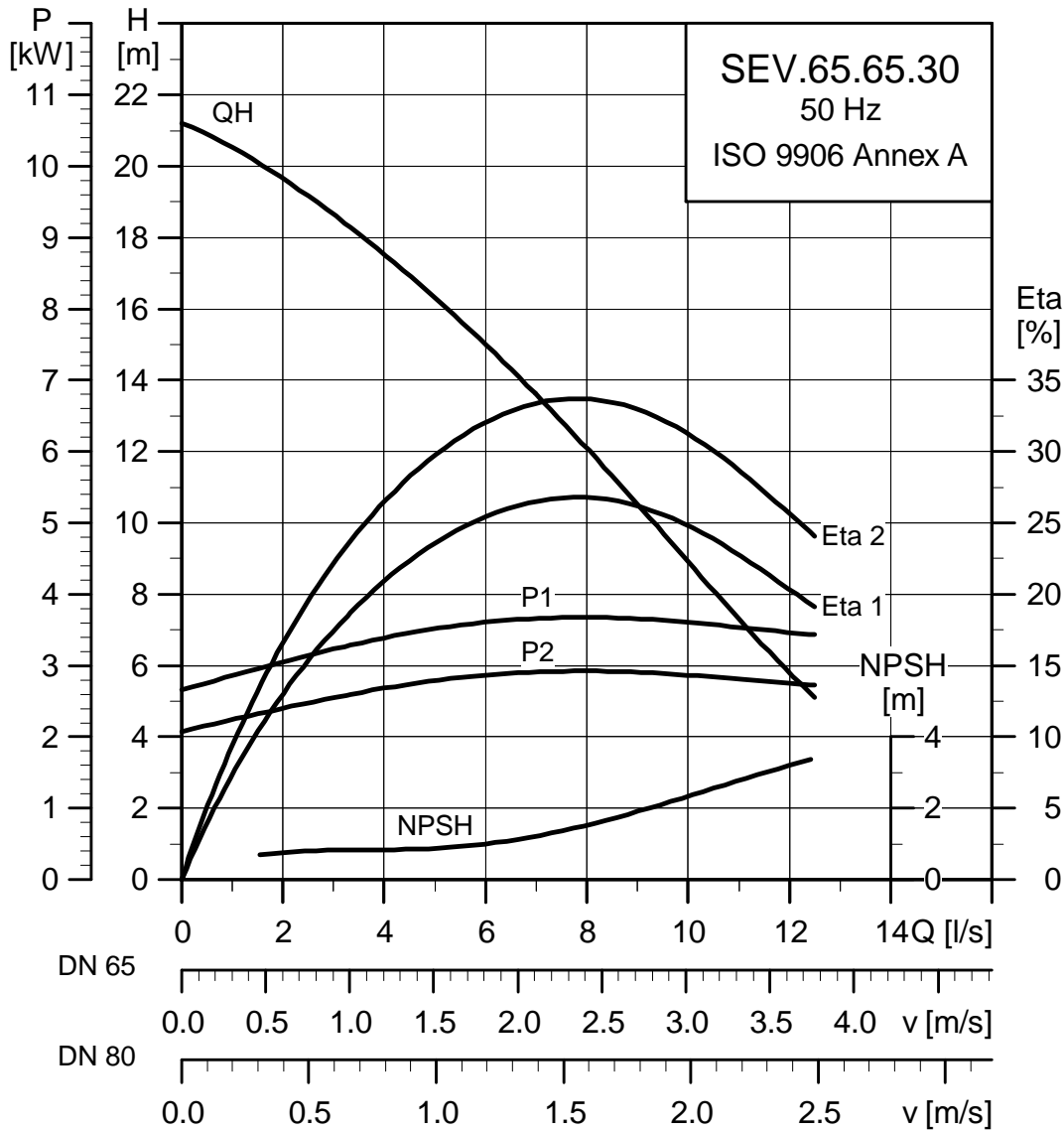
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.8	2.2	2	2895	DOL	5.0	37	73.5	76.6	77	0.72	0.81	0.86	0.0088	23				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.65.30.(Ex).2



TM02 7977 4503

Electrical data

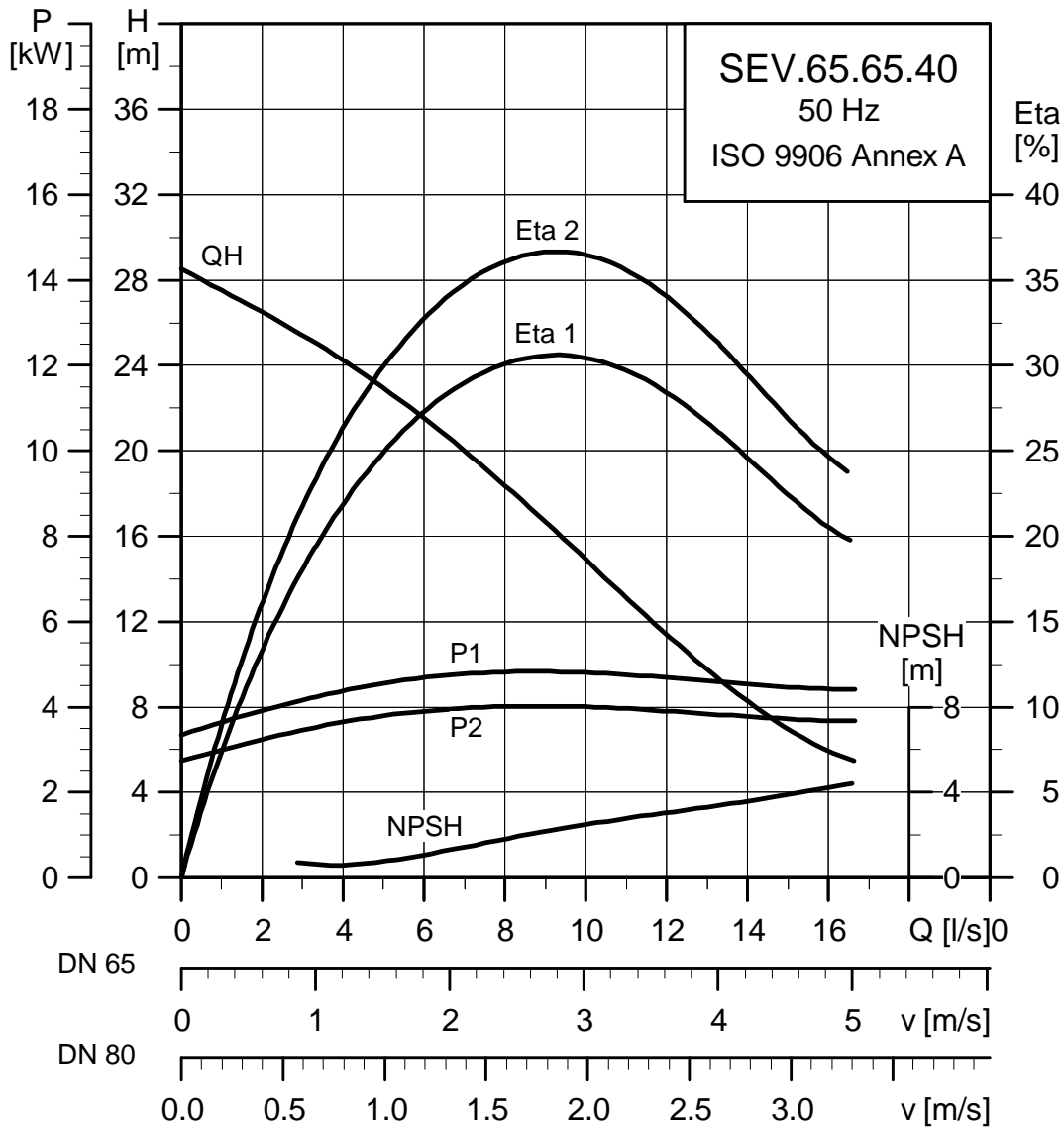
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	3.8	3.0	2	2910	DOL	6.6	51	75.1	78.5	79.6	0.74	0.83	0.87	0.0098	33				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.65.40.(Ex).2



TM02 7978 4503

Electrical data

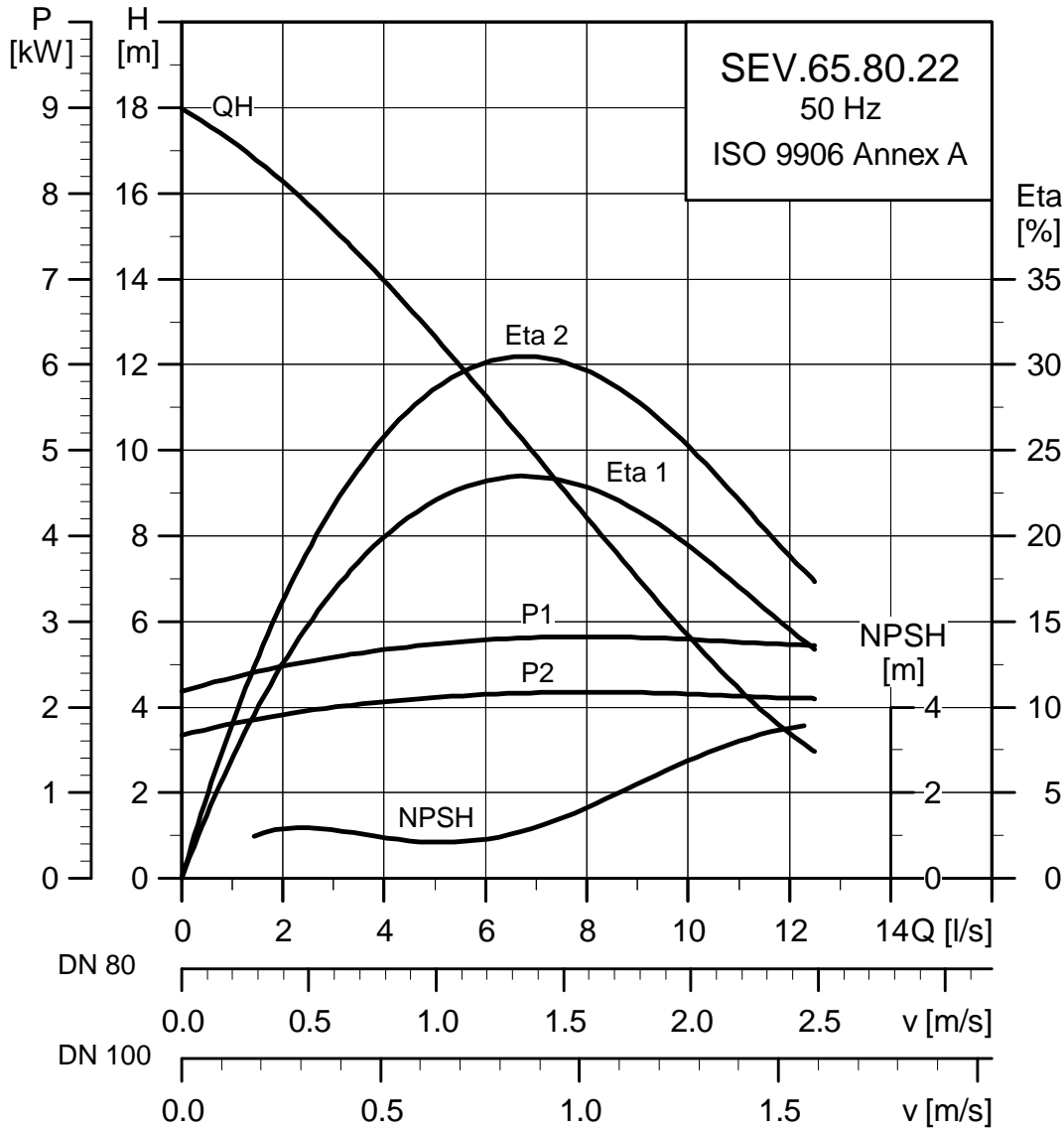
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	4.8	4.0	2	2925	Y/D	8.6	71	79.2	82.4	83.3	0.68	0.78	0.84	0.0126	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.80.22.(Ex).2



TM02 7979 4503

Electrical data

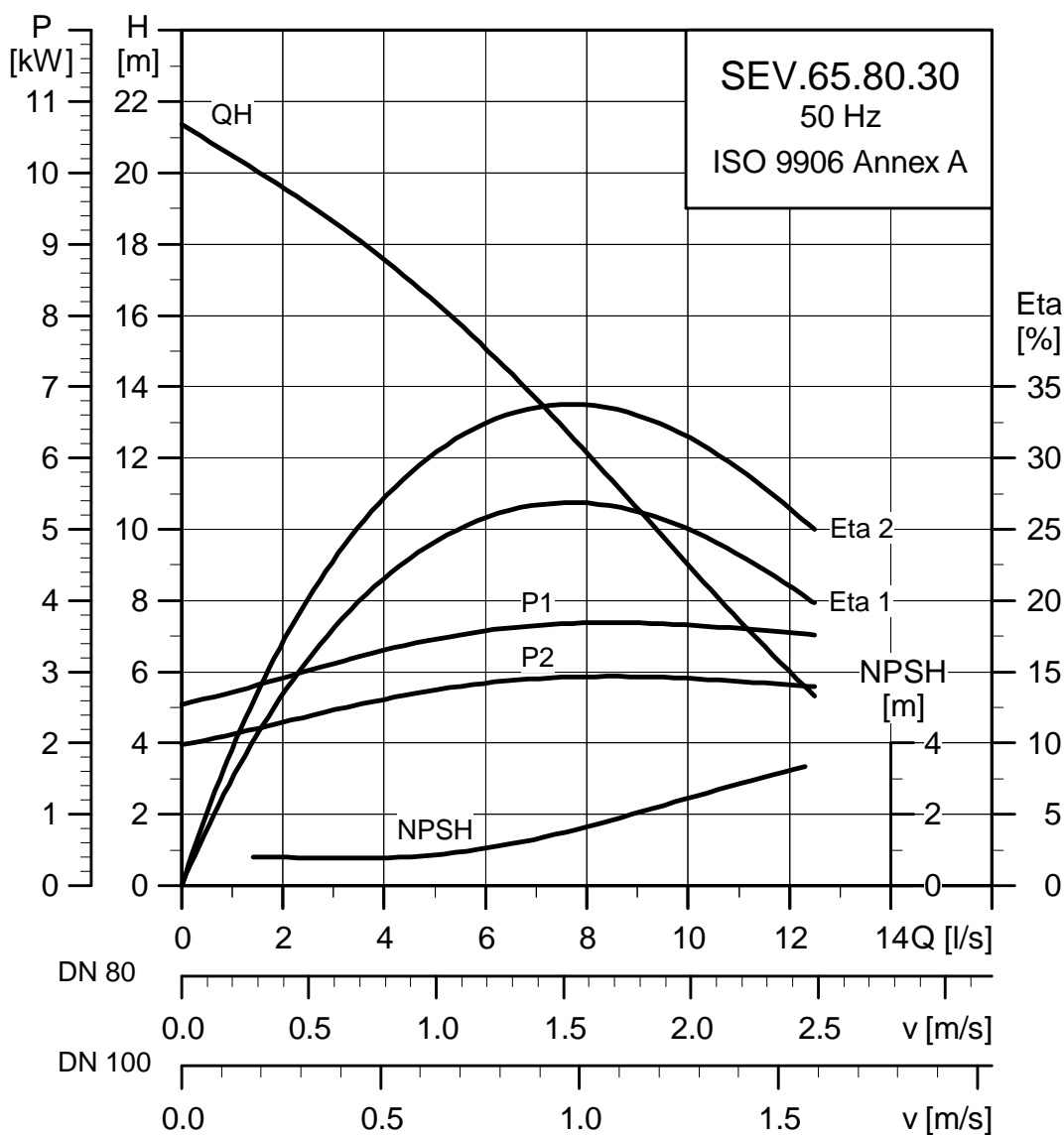
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.8	2.2	2	2895	DOL	5.0	37	73.5	76.6	77	0.72	0.81	0.86	0.0088	23				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.80.30.(Ex).2



TM02 7980 4503

Electrical data

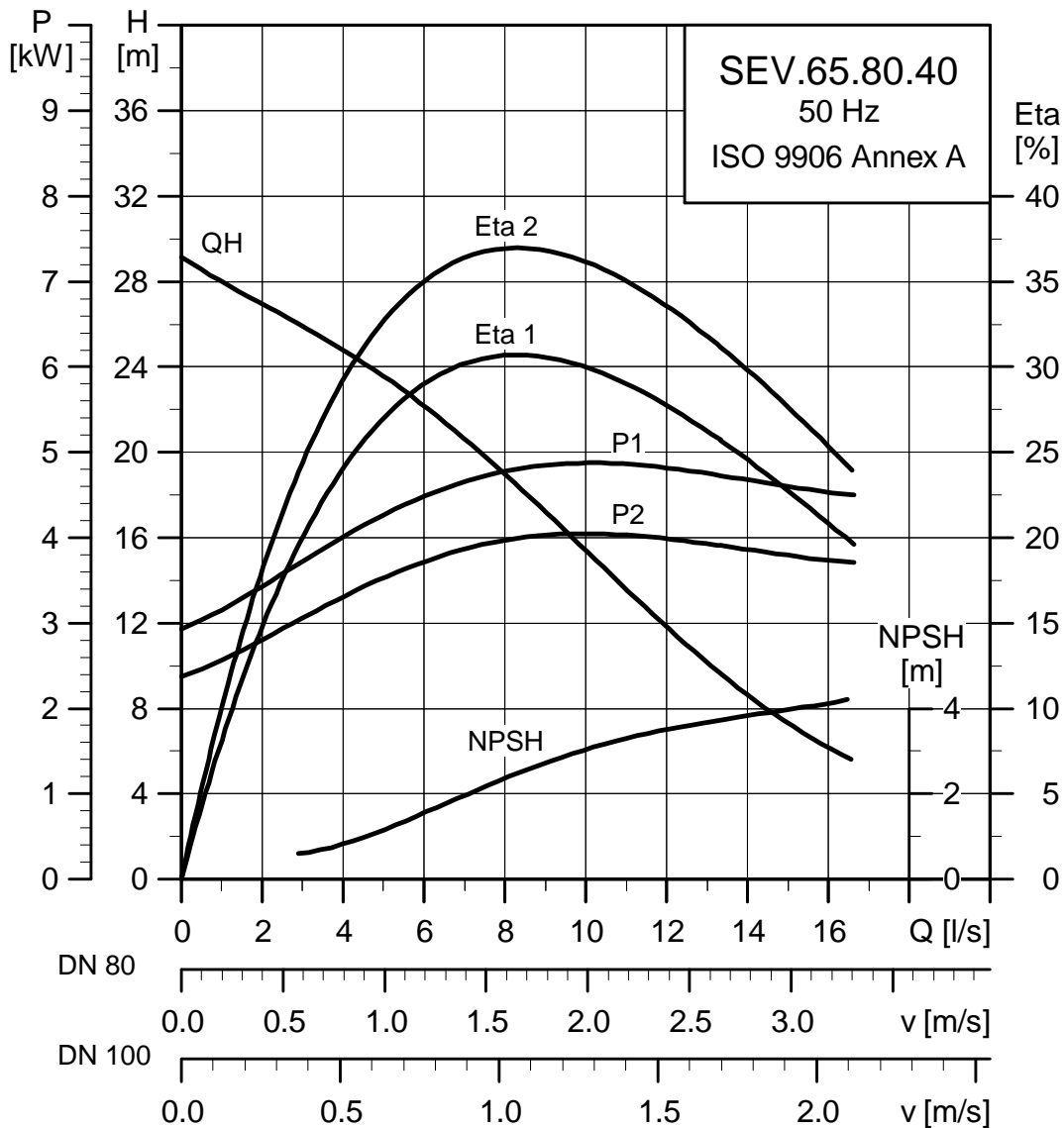
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	3.8	3.0	2	2910	DOL	6.6	51	75.1	78.5	79.6	0.74	0.83	0.87	0.0098	33				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.65.80.40.(Ex).2



TM02 7981 4503

Electrical data

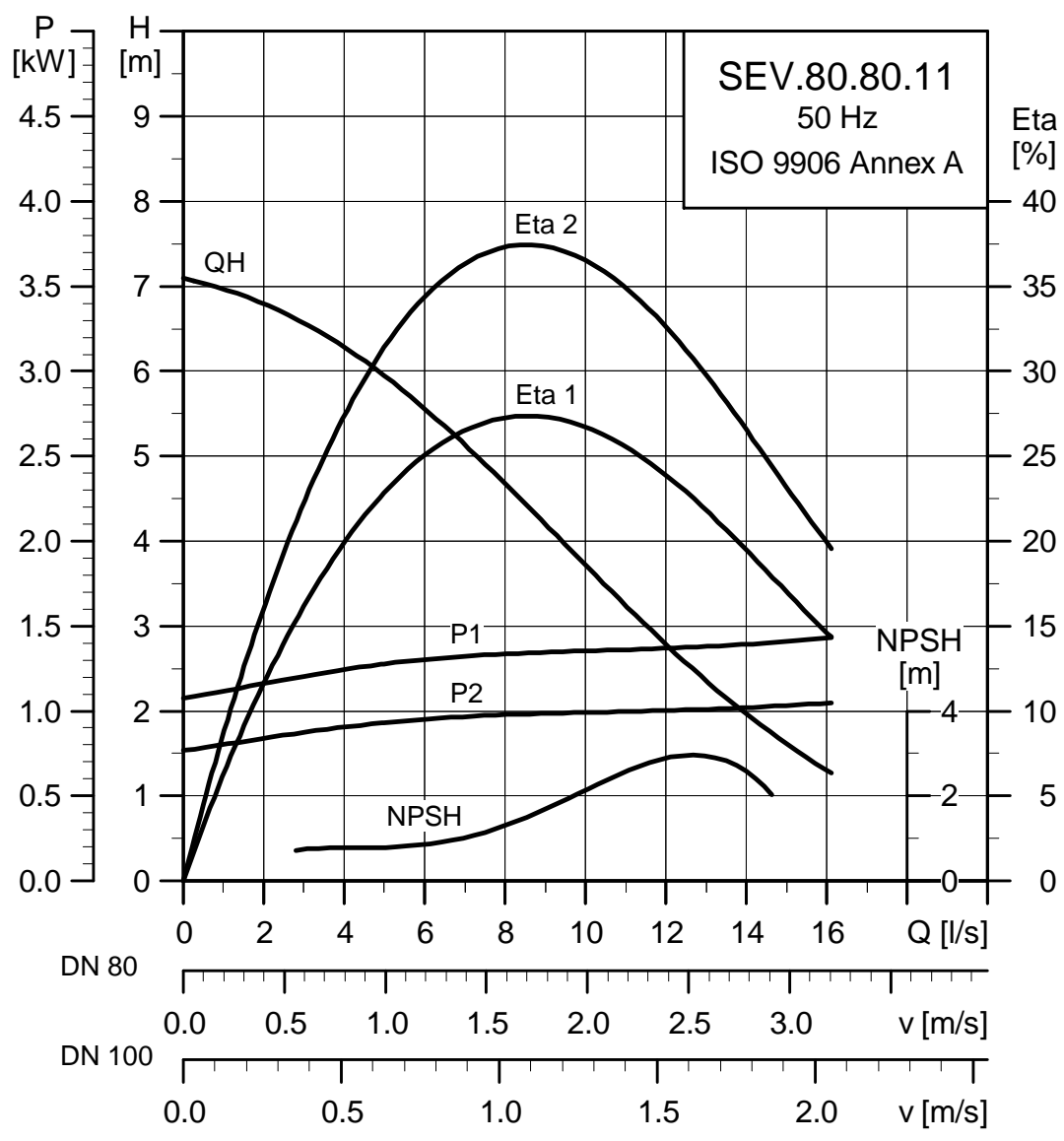
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.8	4.0	2	2925	Y/D	8.6	71	79.2	82.4	83.3	0.68	0.78	0.84	0.0126	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	65	20	20	IP68	F	40	4-14	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.11.(Ex).4



TIM02 7982 4503

Electrical data

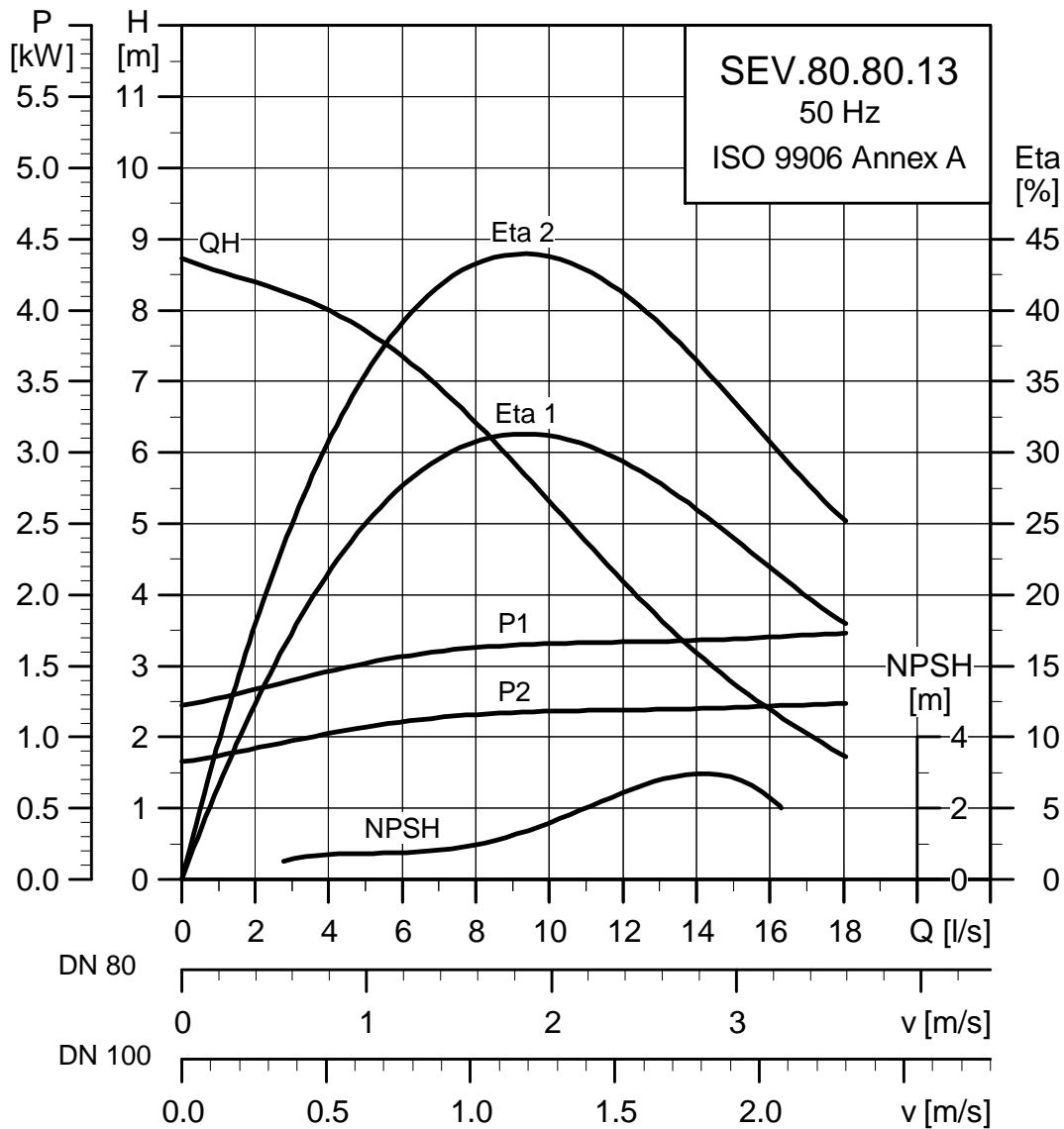
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	1.5	1.1	4	1440	DOL	2.8	13	65.6	71.2	73.2	0.52	0.64	0.73	0.0142	21				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.13.(Ex).4



TM02 7972 4503

Electrical data

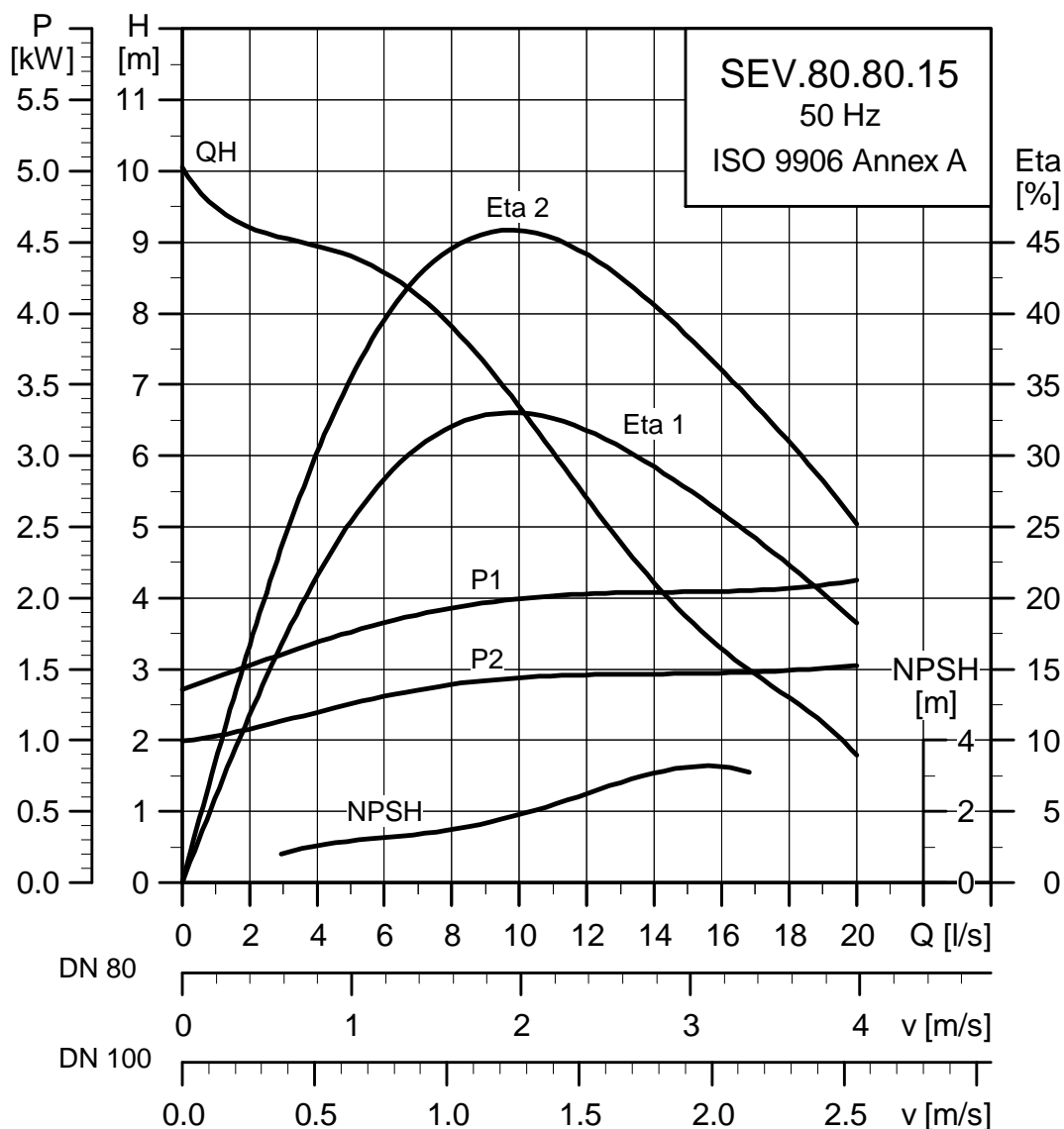
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						I _{start} [A]	I _{1/2} [A]	I _{1/1} [A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	1.8	1.3	4	1440	DOL	3.8	22	63.9	69.6	71.7	0.51	0.63	0.72	0.0165	28	

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.15.(Ex).4



TM02 7973 4503

Electrical data

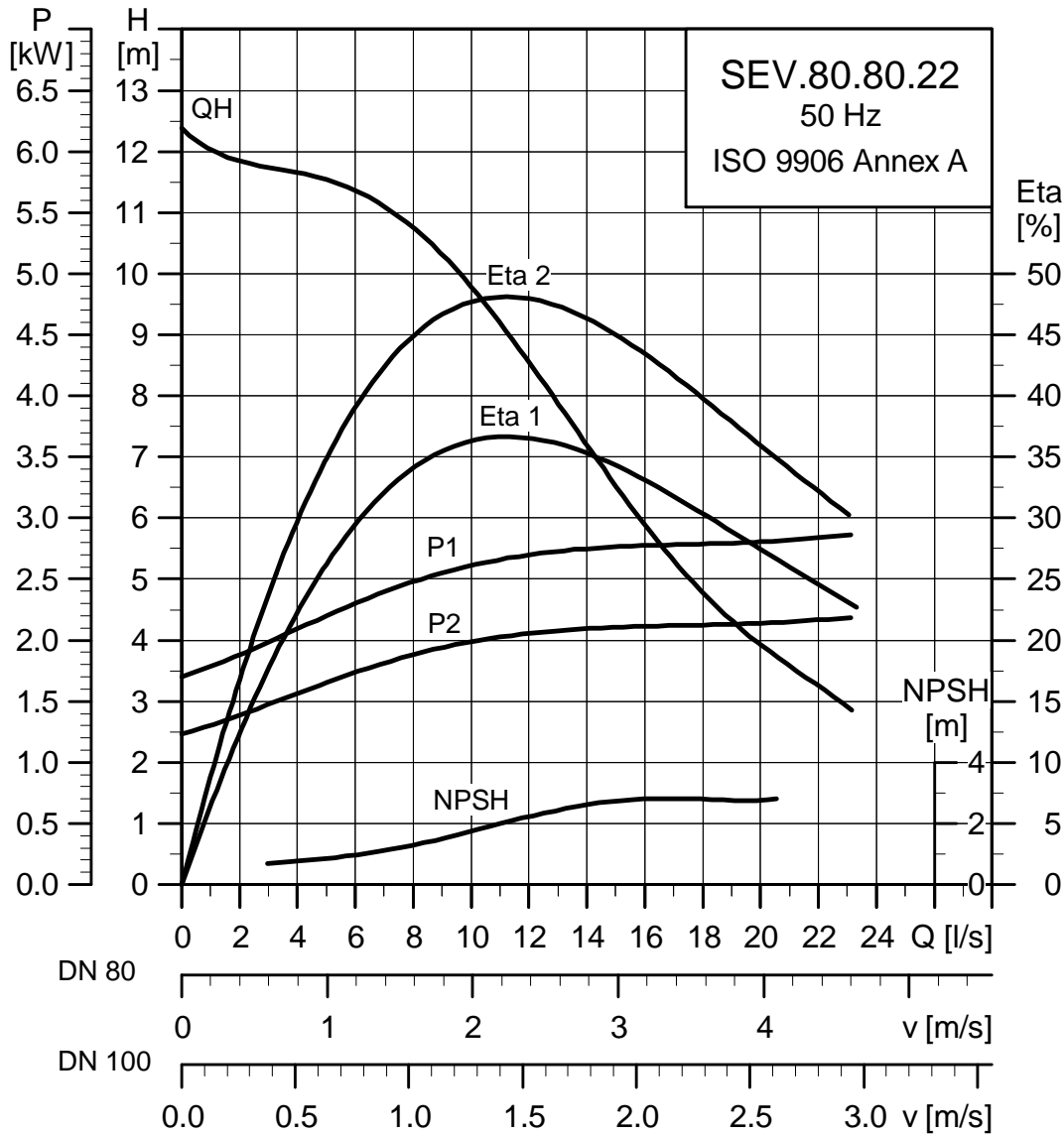
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	2.1	1.5	4	1435	DOL	4.2	22	67	71	72	0.56	0.68	0.76	0.0185	28				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.22.(Ex).4



TN02 7974 4503

Electrical data

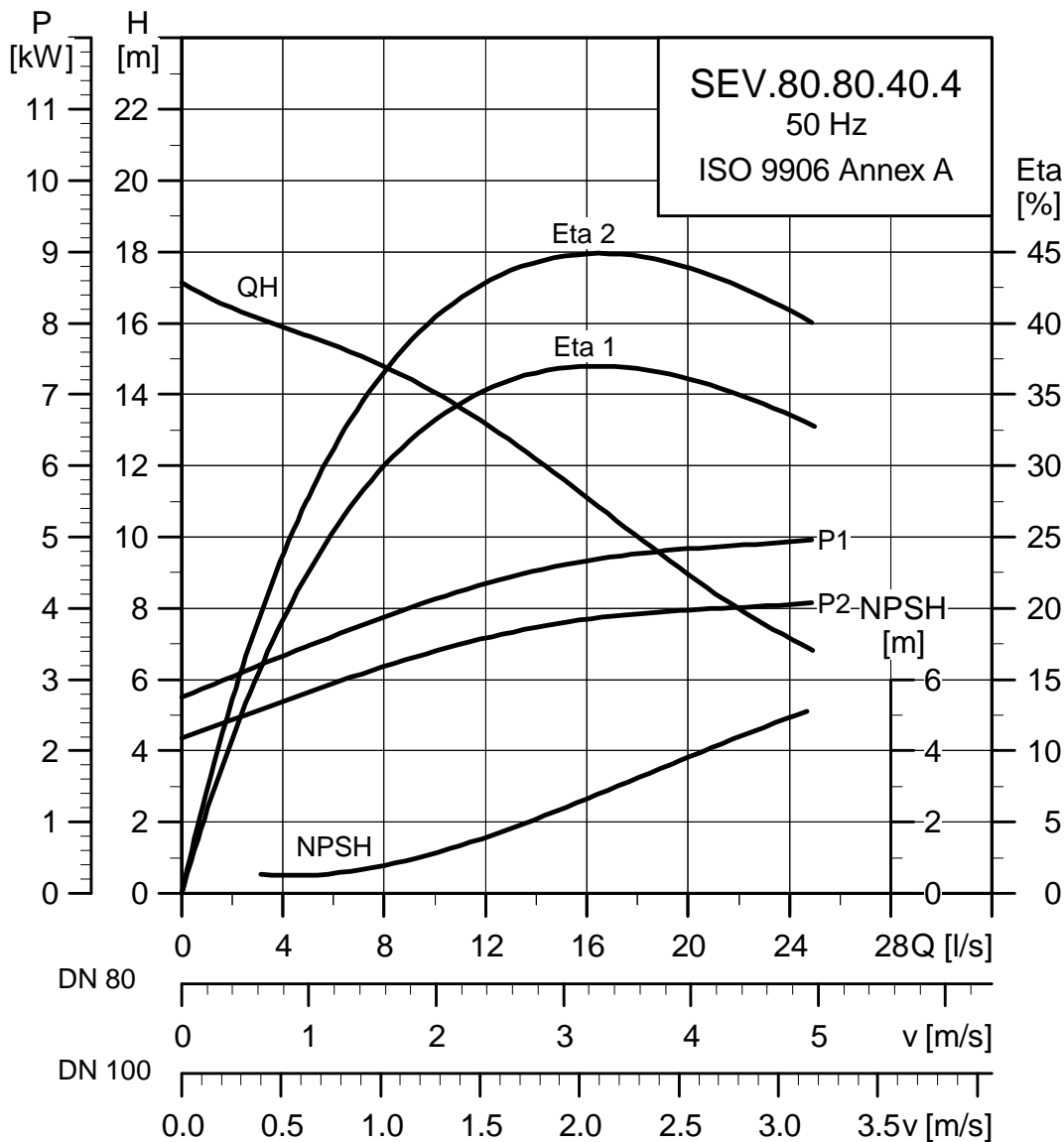
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						I _{start} [A]	I _{1/2} [A]	I _{1/1} [A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.9	2.2	4	1445	DOL	5.9	32	70.9	75.2	76.3	0.53	0.66	0.74	0.0240	45	

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.40.(Ex).4



TM02 7975 4503

Electrical data

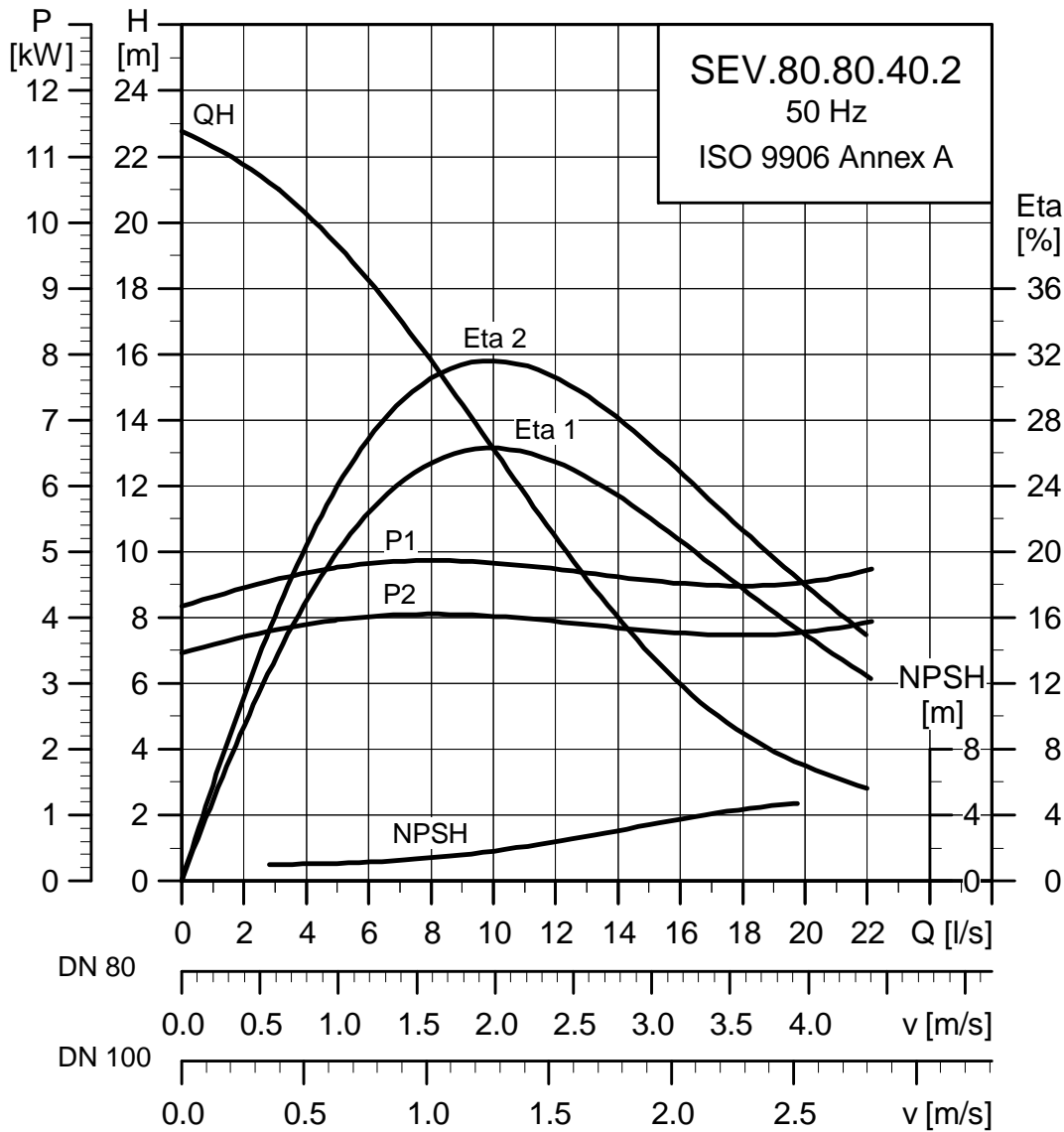
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67	78.2	81.7	82.2	0.52	0.65	0.73	0.0479	100				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH	Ex class
	[mm]		[m]			[°C]		
SuperVortex	80	20	20	IP68	F	40	4-10	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.40.(Ex).2



TM02 7983 4503

Electrical data

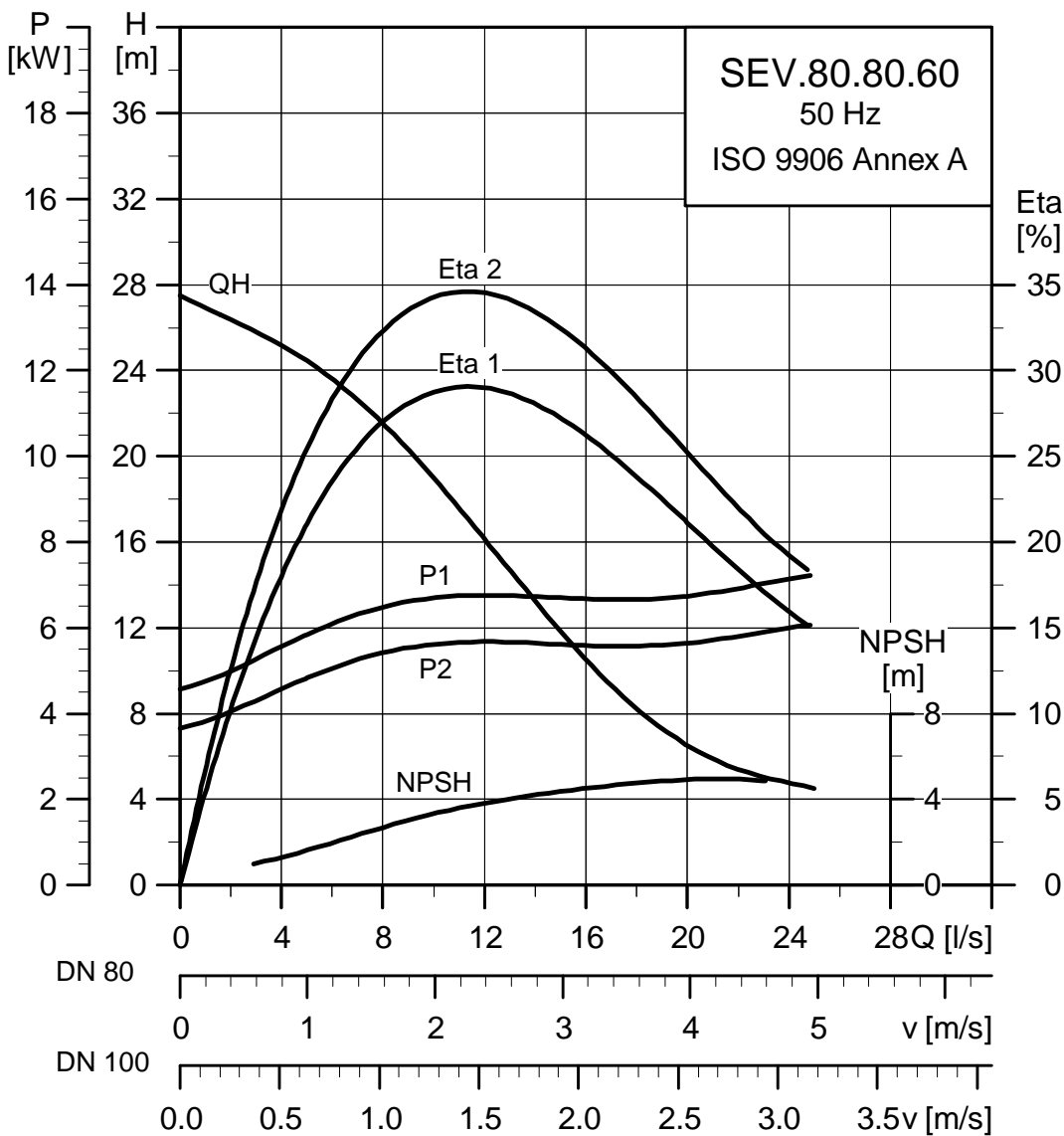
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.8	4.0	2	2925	Y/D	8.6	71	79.2	82.4	83.3	0.68	0.78	0.84	0.0127	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.60.(Ex).2



TM02 7984 4503

Electrical data

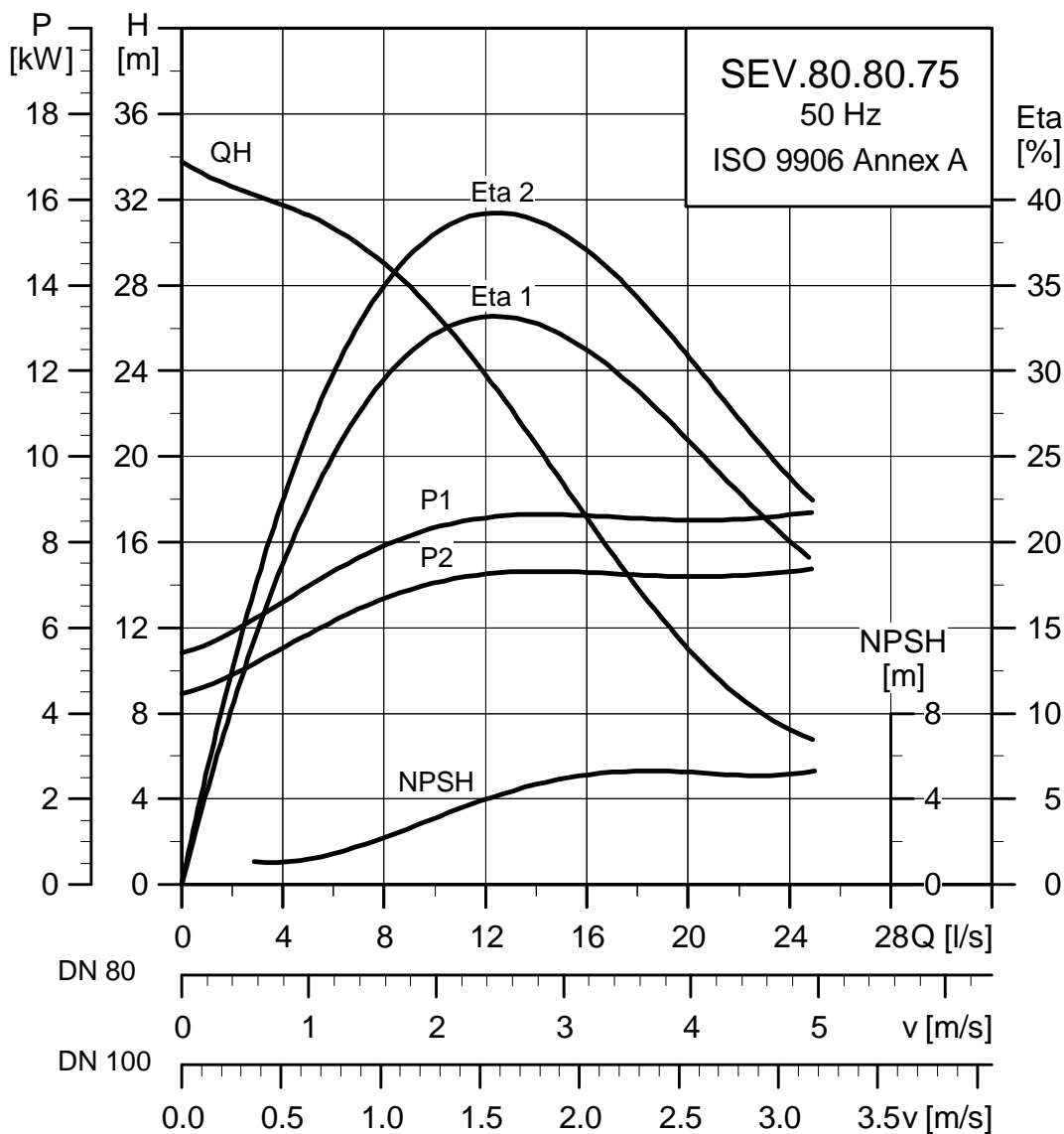
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	7.1	6.0	2	2945	Y/D	13.9	148		77.5	82.2	84.1	0.58	0.7	0.78	0.0190	112			

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.75.(Ex).2



TM02 7985 4503

Electrical data

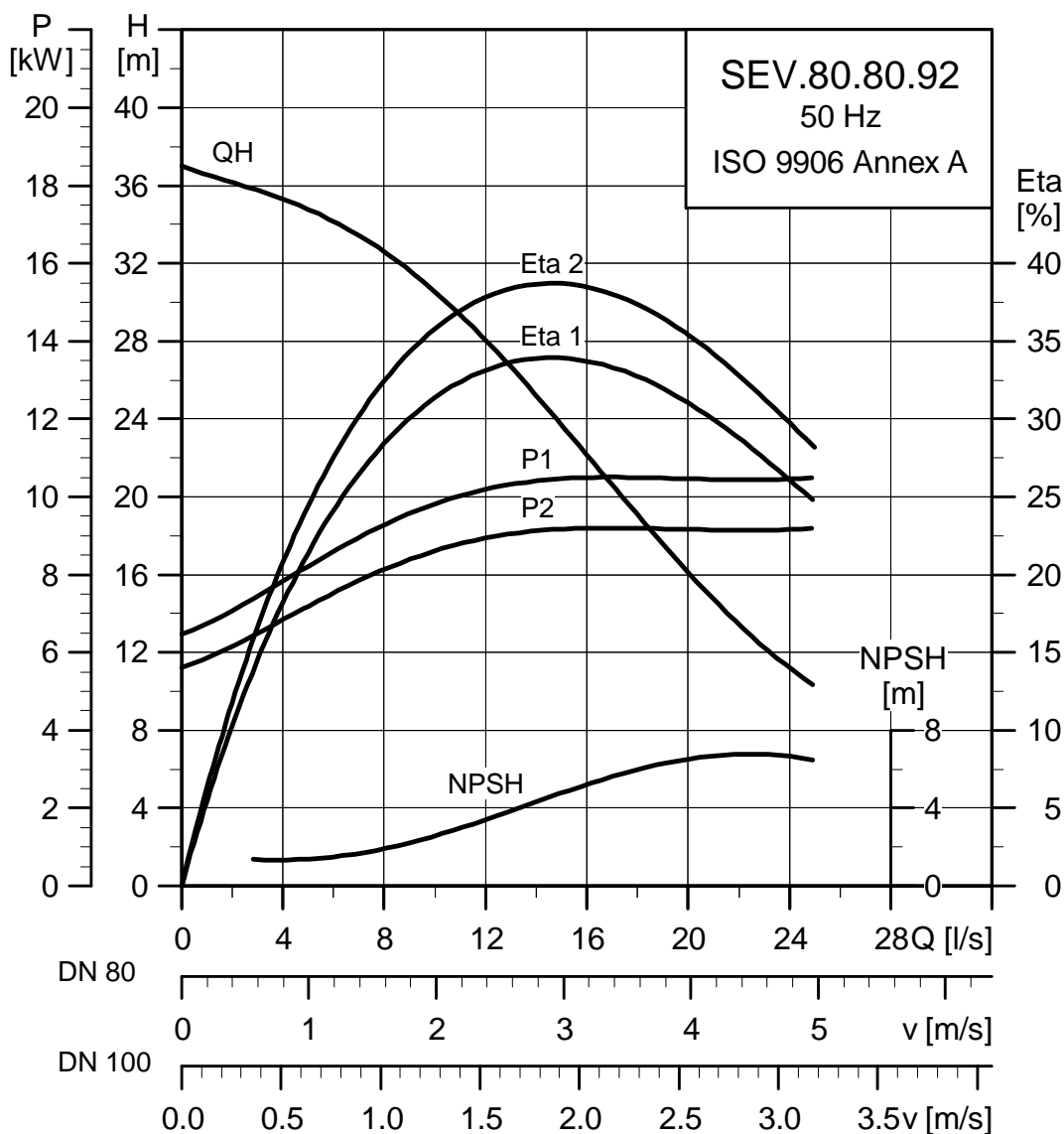
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	8.9	7.5	2	2940	Y/D	16.2	152	80.1	83.8	84.8	0.65	0.76	0.83	0.0215	112				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.92.(Ex).2



TM02 7986 4503

Electrical data

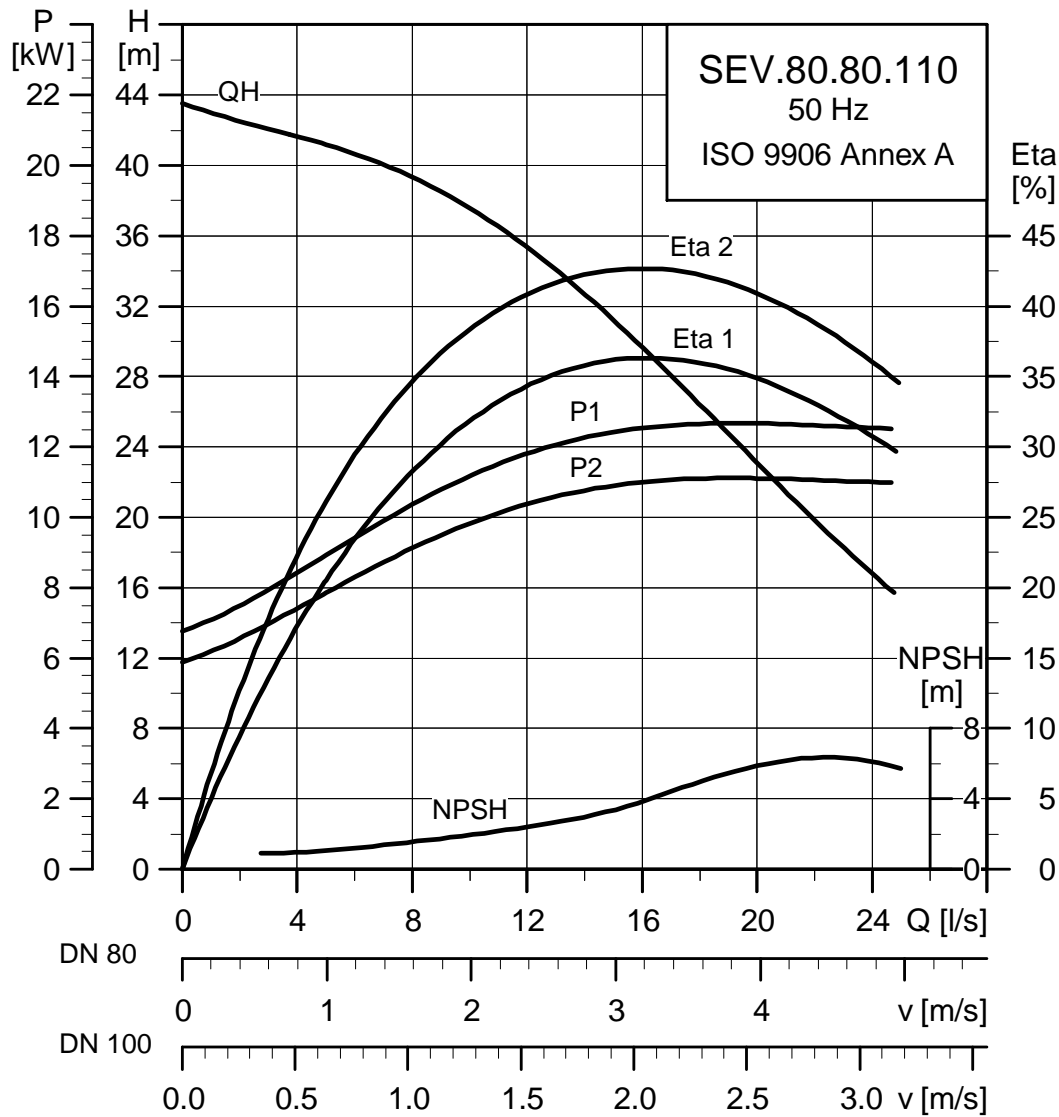
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min^{-1}	Starting method	I_N			I_{start}			$\eta_{\text{motor}} [\%]$			$\text{Cos } \phi$			Moment of inertia [kgm ²]	Breakdown torque M_{max} [Nm]
						I_N [A]	I_{start} [A]	I_{start}/I_N	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	10.5	9.2	2	2935	Y/D	18.0	162	8.99	85.4	87.4	87.6	0.78	0.85	0.89	0.0334	99			

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.80.110.(Ex).2



TM02 7987 4503

Electrical data

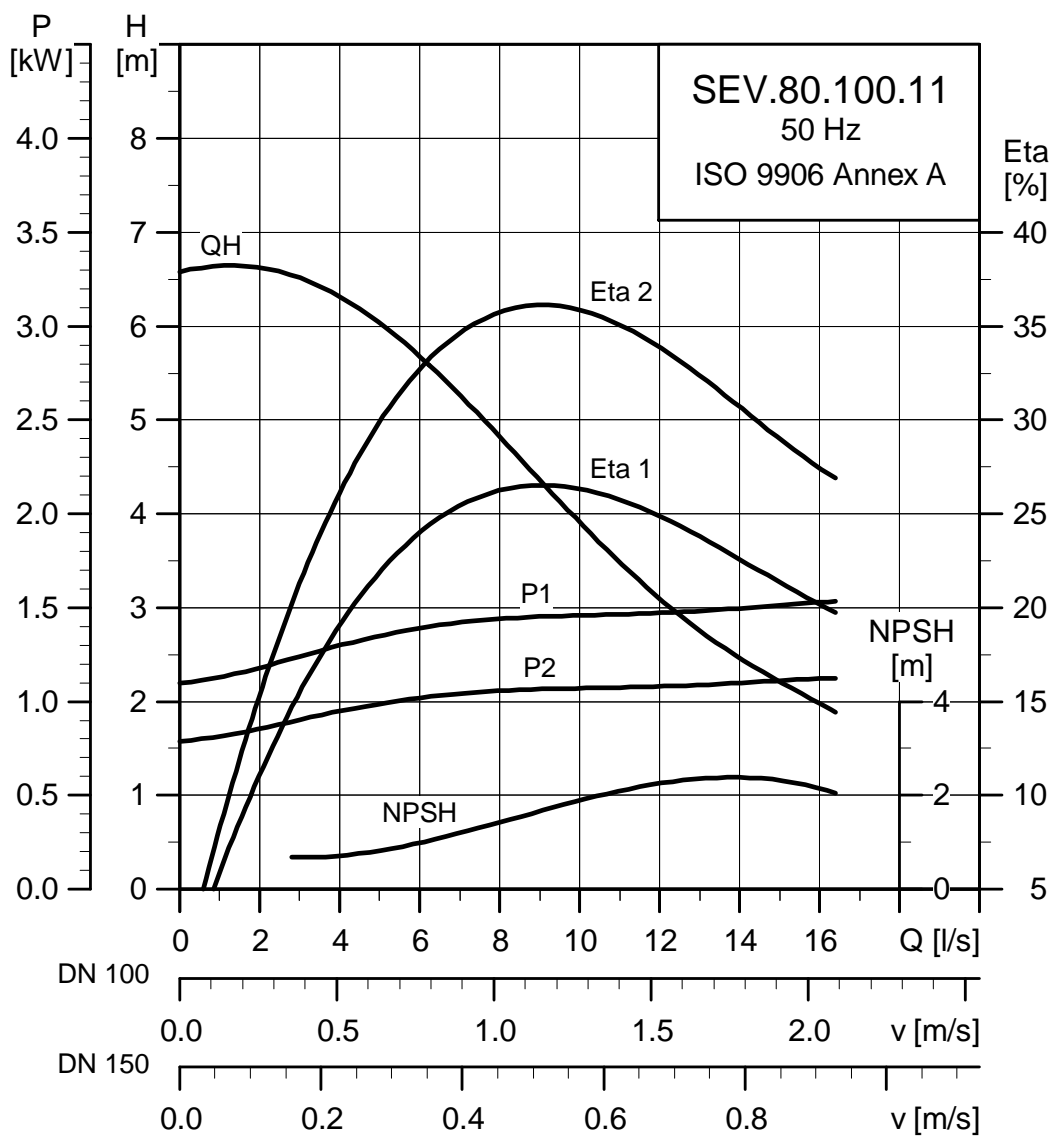
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	12.6	11.0	2	2935	Y/D	21.7	162	86.4	88.1	87.7	0.75	0.84	0.88	0.0368	118				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.11.(Ex).4



TM04 3463 4508

Electrical data

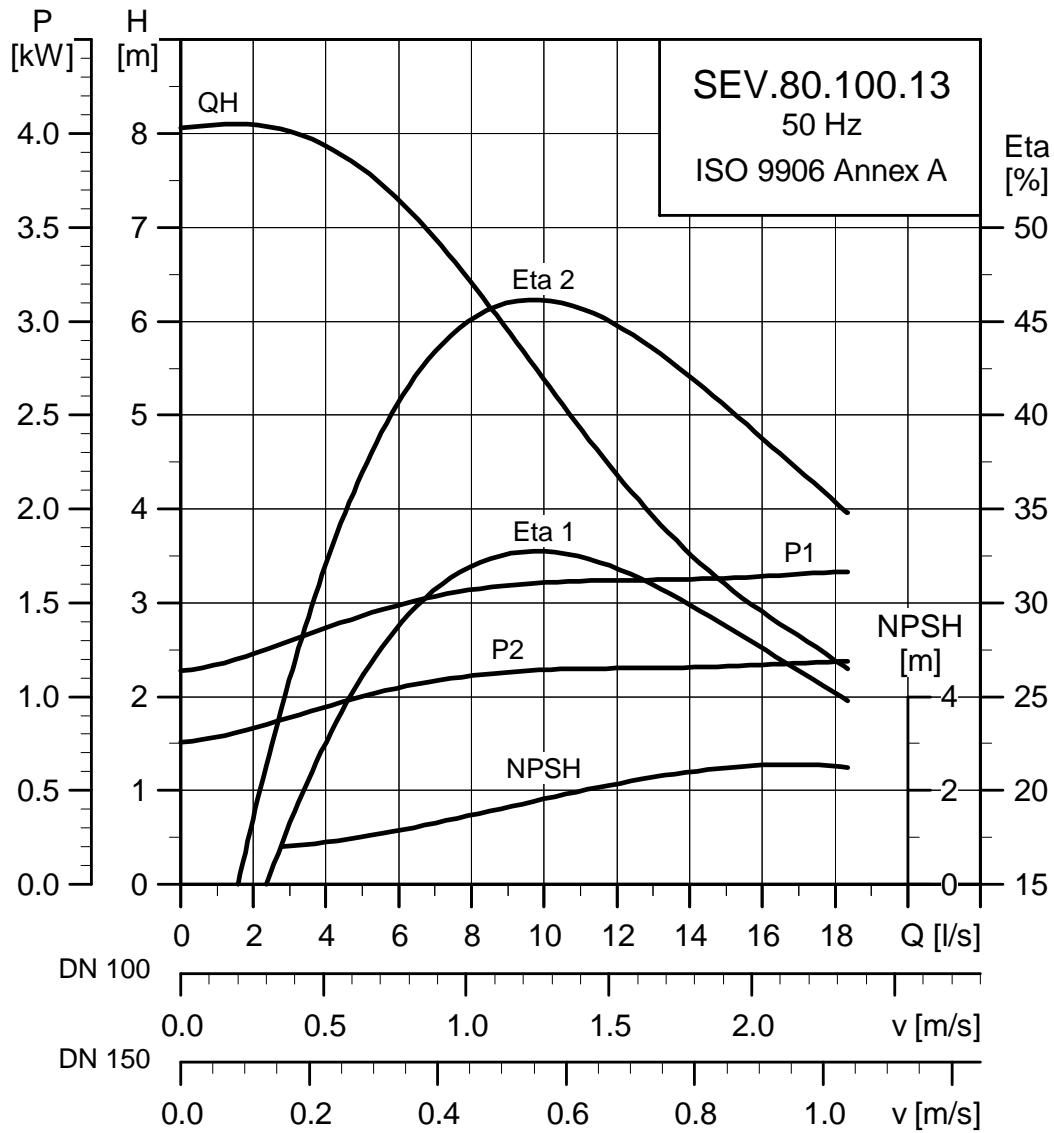
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	1.5	1.1	4	1440	DOL	2.8	12	65.6	71.2	73.2	0.52	0.64	0.73	0.0142	21				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.13.(Ex).4



TM04 3464 4508

Electrical data

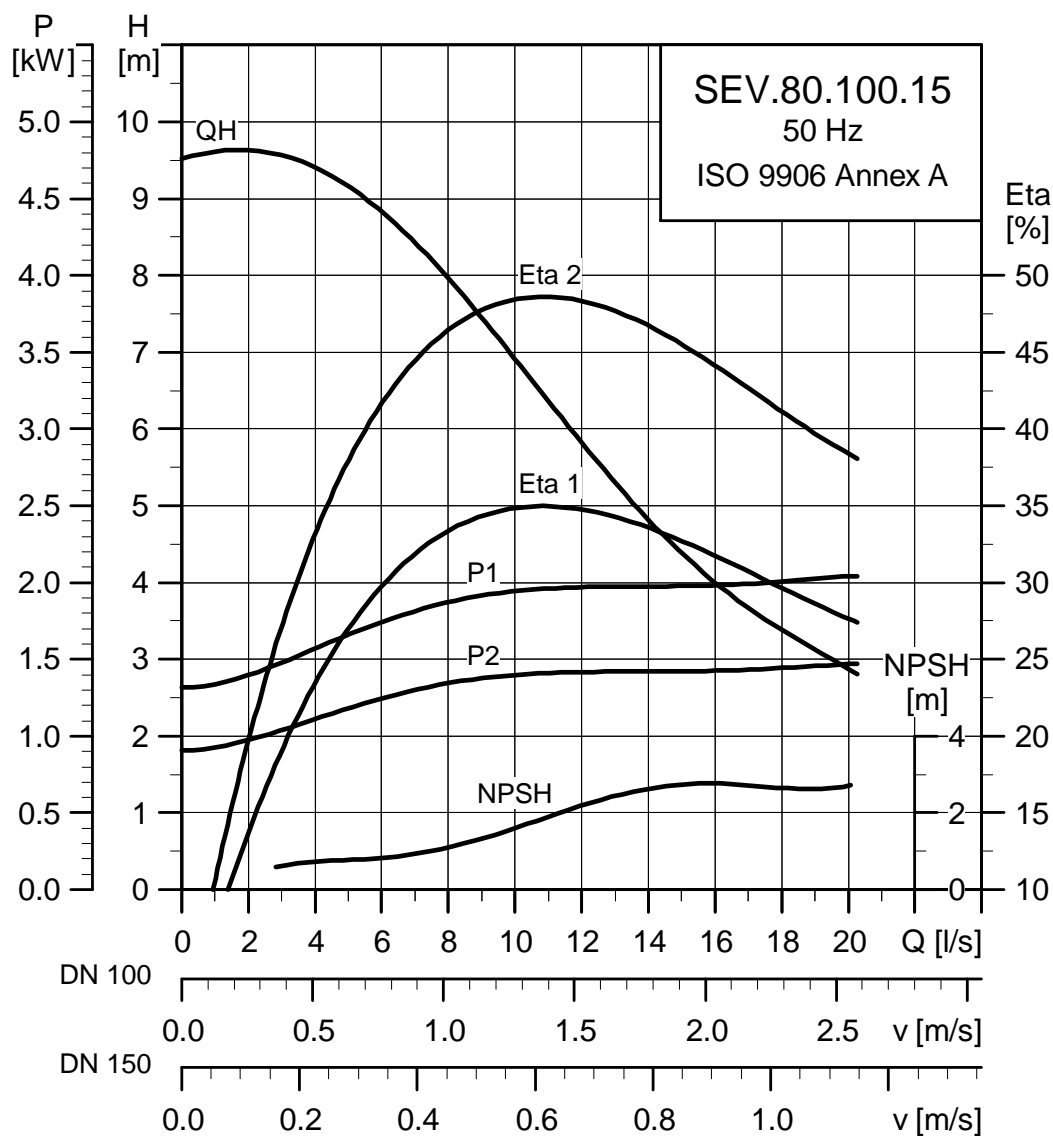
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	1.8	1.3	4	1440	DOL	3.8	21	63.9	69.6	71.7	0.51	0.63	0.72	0.0165	28				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.15.(Ex).4



TM04 3465 4508

Electrical data

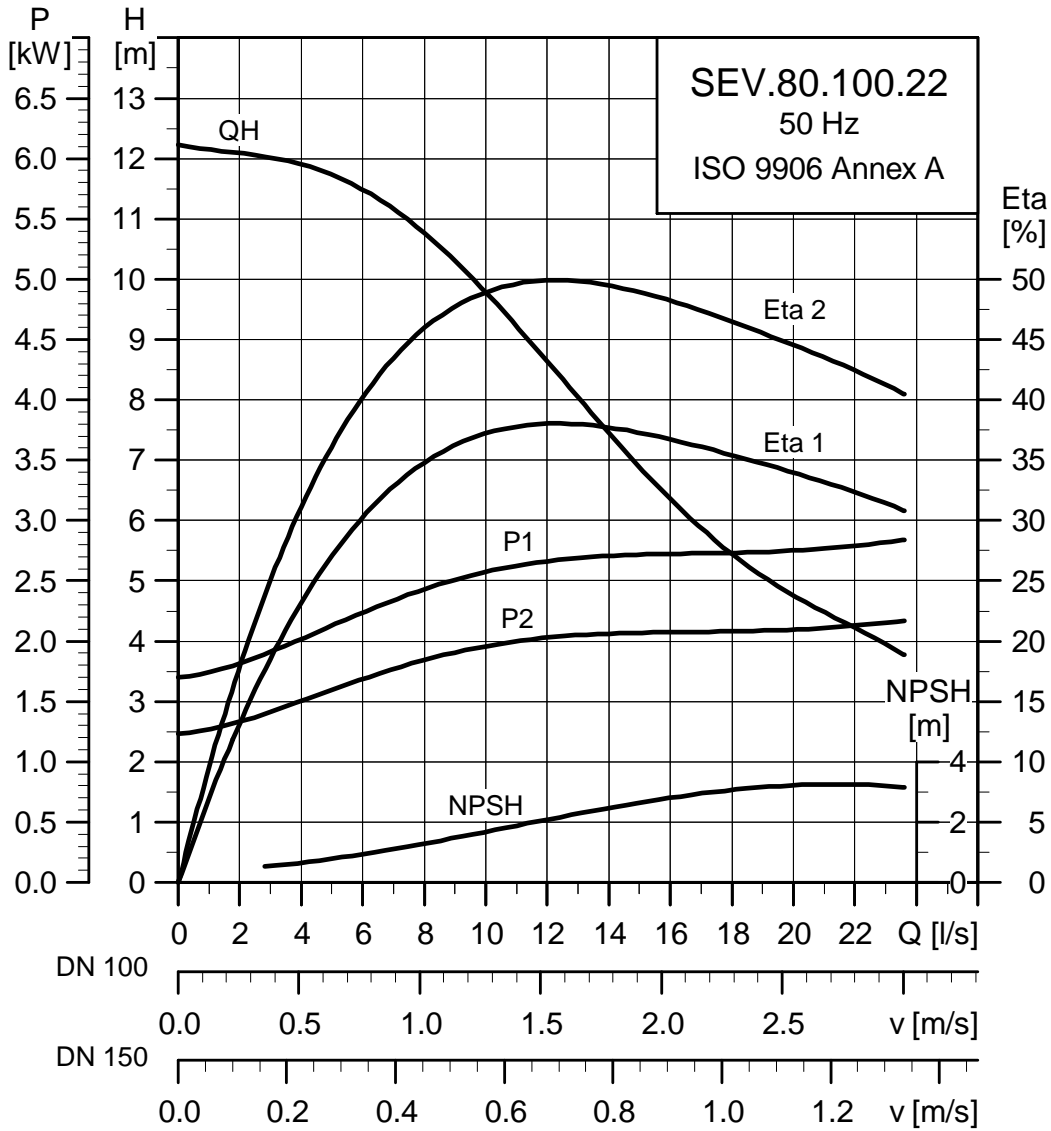
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.1	1.5	4	1435	DOL	4.0	21	67	71	72	0.56	0.68	0.76	0.0185	28				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.22.(Ex).4



TM04 3467 4508

Electrical data

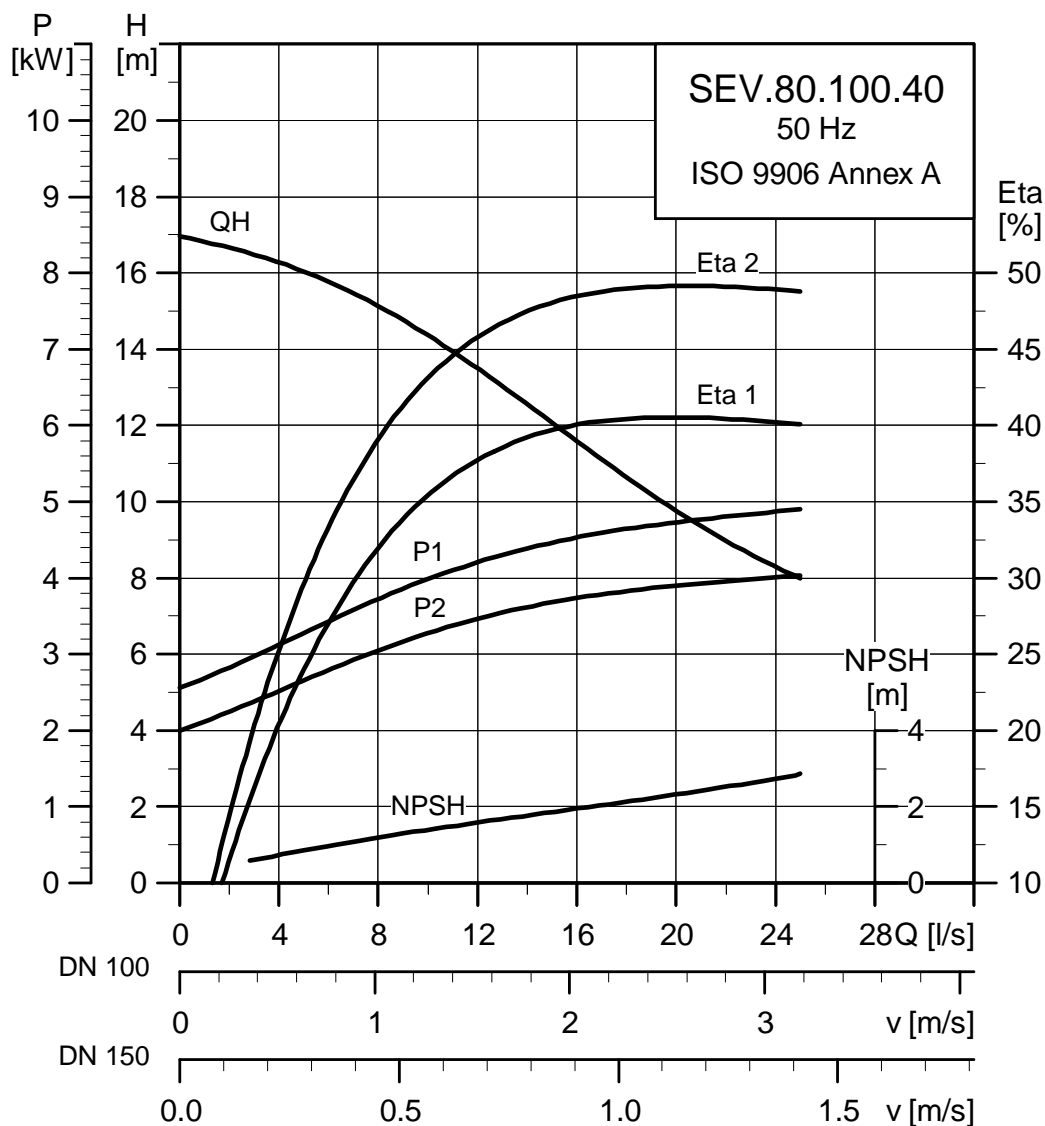
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	2.9	2.2	4	1445	DOL	6.0	32	70.9	75.2	76.3	0.53	0.66	0.74	0.024	45				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.40.(Ex).4



TM04 3467 4508

Electrical data

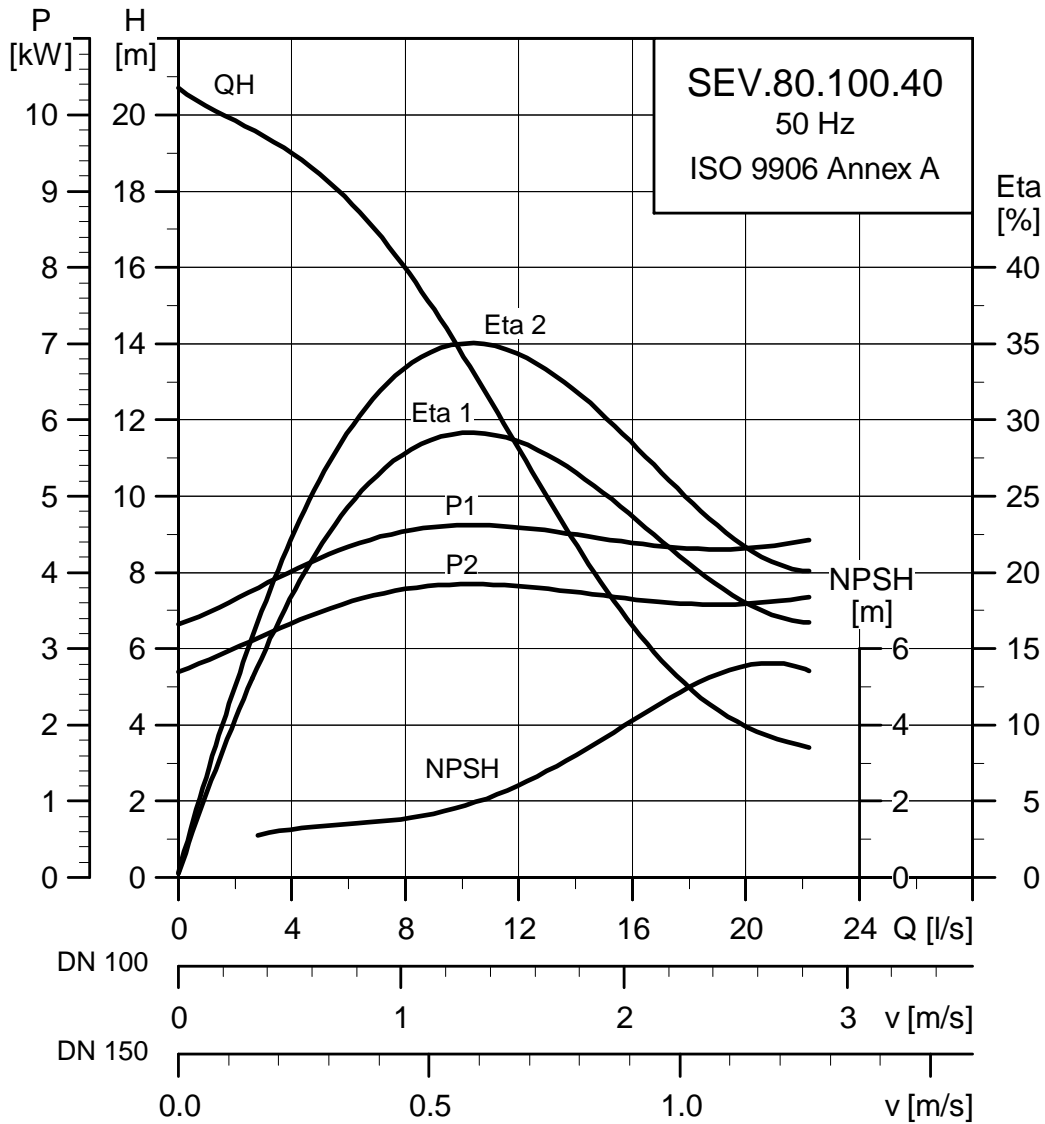
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4	4	1460	DOL	9.8	64	78.2	81.7	82.2	0.52	0.65	0.73	0.0479	100				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.40.(Ex).2



TM04 3468 4508

Electrical data

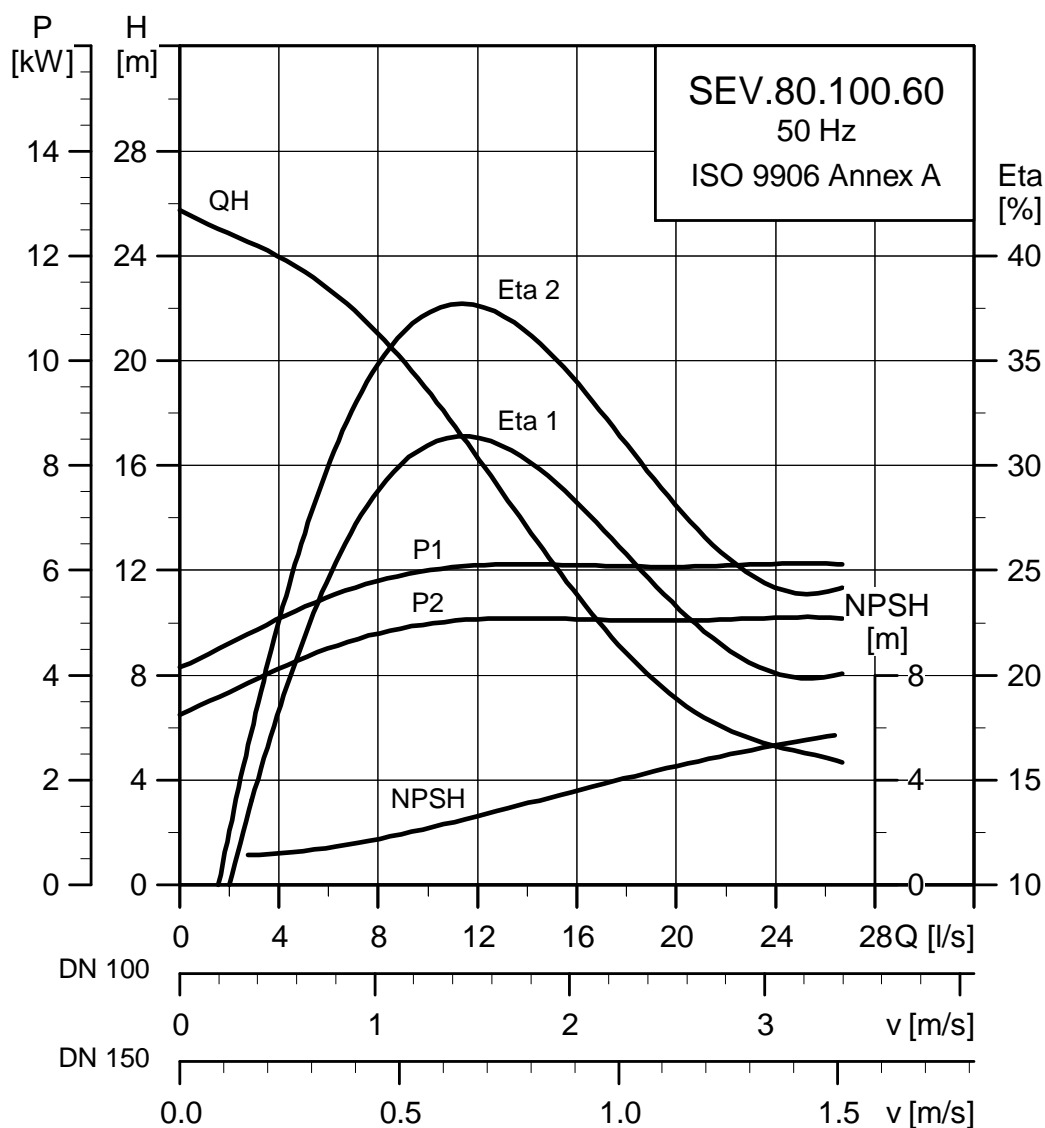
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4	2	2925	DOL	8.3	68	79.2	82.4	83.3	0.68	0.78	0.84	0.0127	54				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.60.(Ex).2



TM04 3469 4508

Electrical data

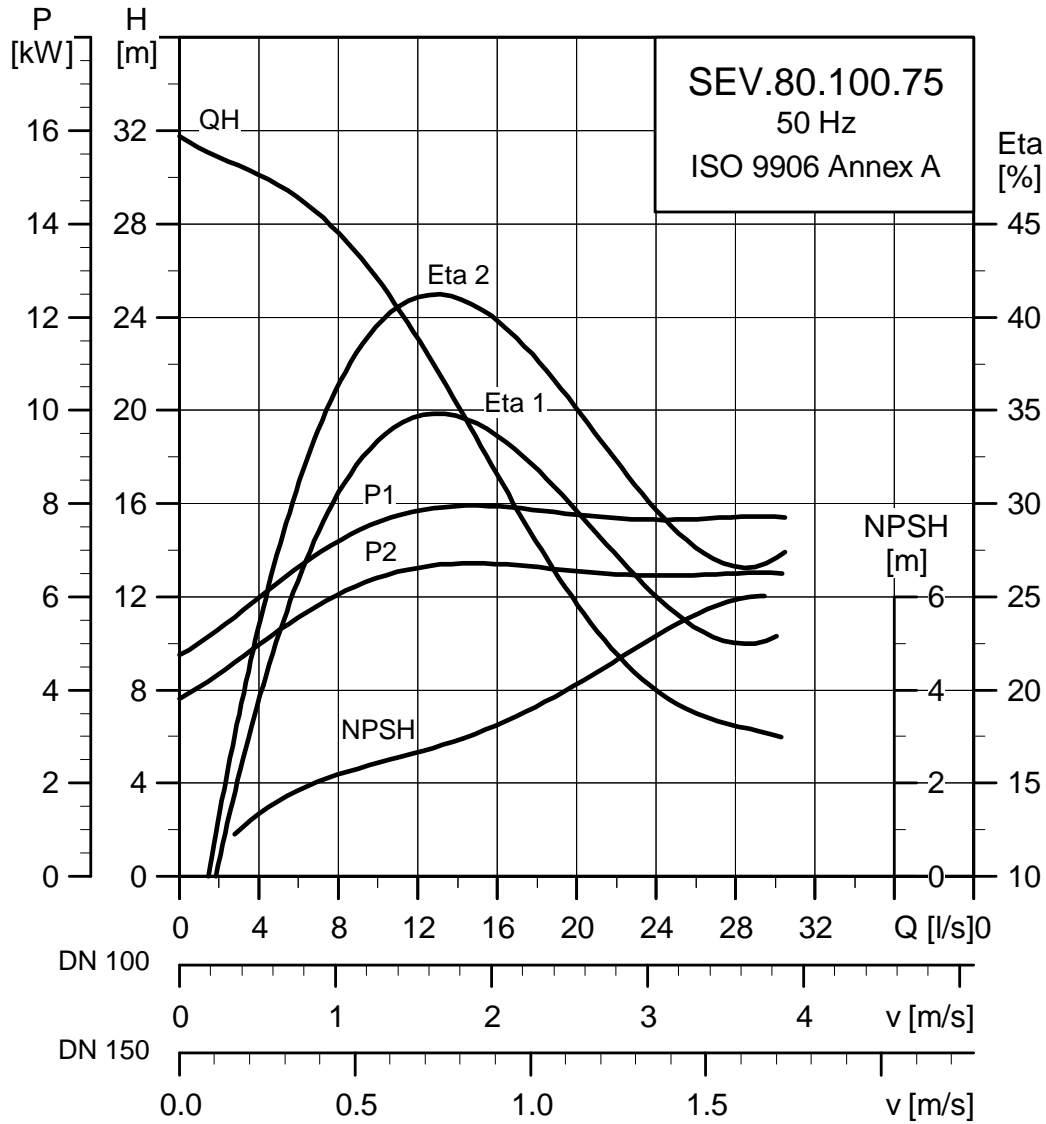
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	7.1	6	2	2945	DOL	13.7	143		77.5	82.2	84.1	0.58	0.7	0.78	0.019	112			

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.75.(Ex).2



TM04 3470 4508

Electrical data

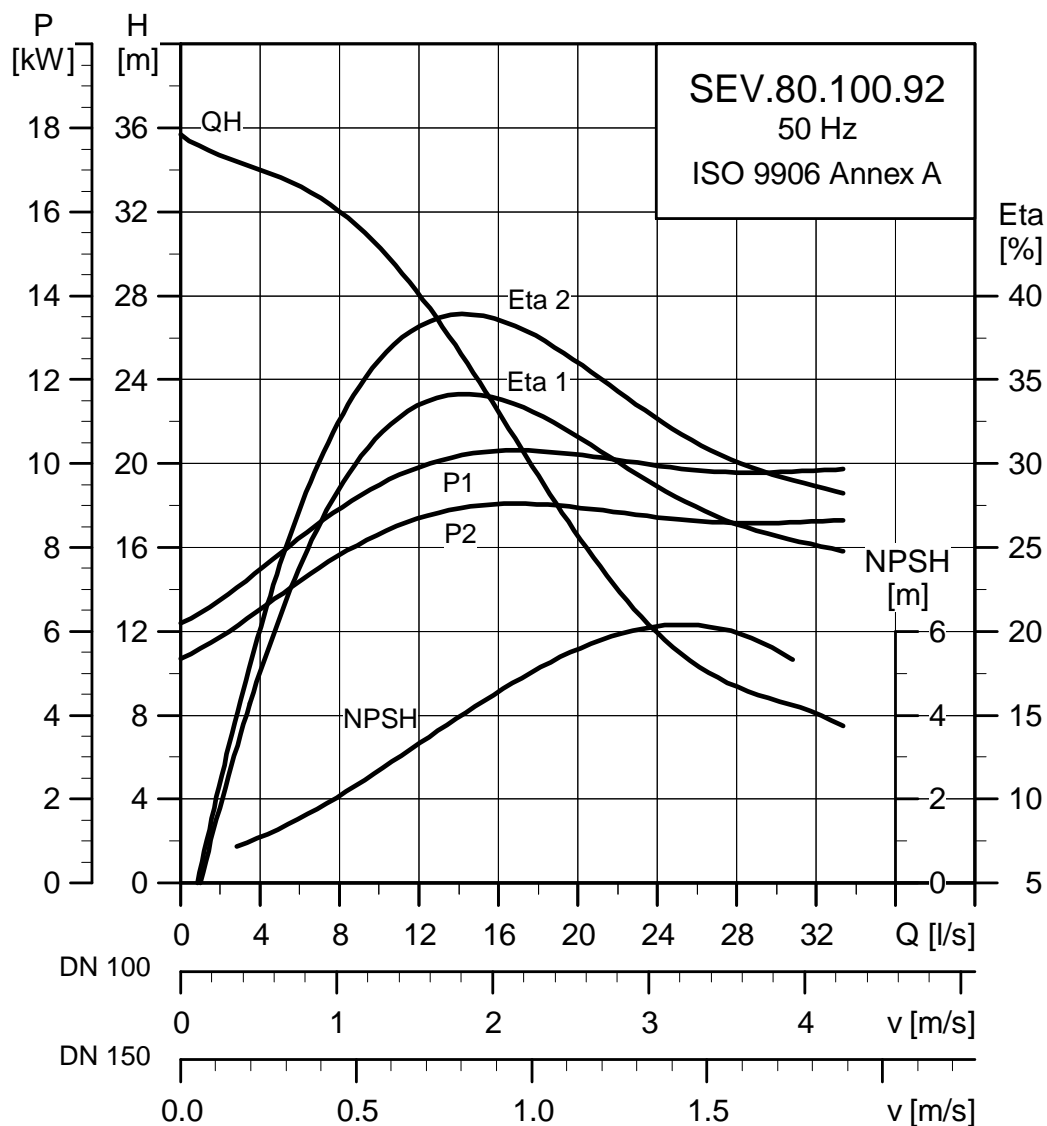
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	8.9	7.5	2	2940	DOL	15.9	146		80.1	83.8	84.8	0.65	0.76	0.83	0.0215	112			

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.92.(Ex).2



TM04 3471 4508

Electrical data

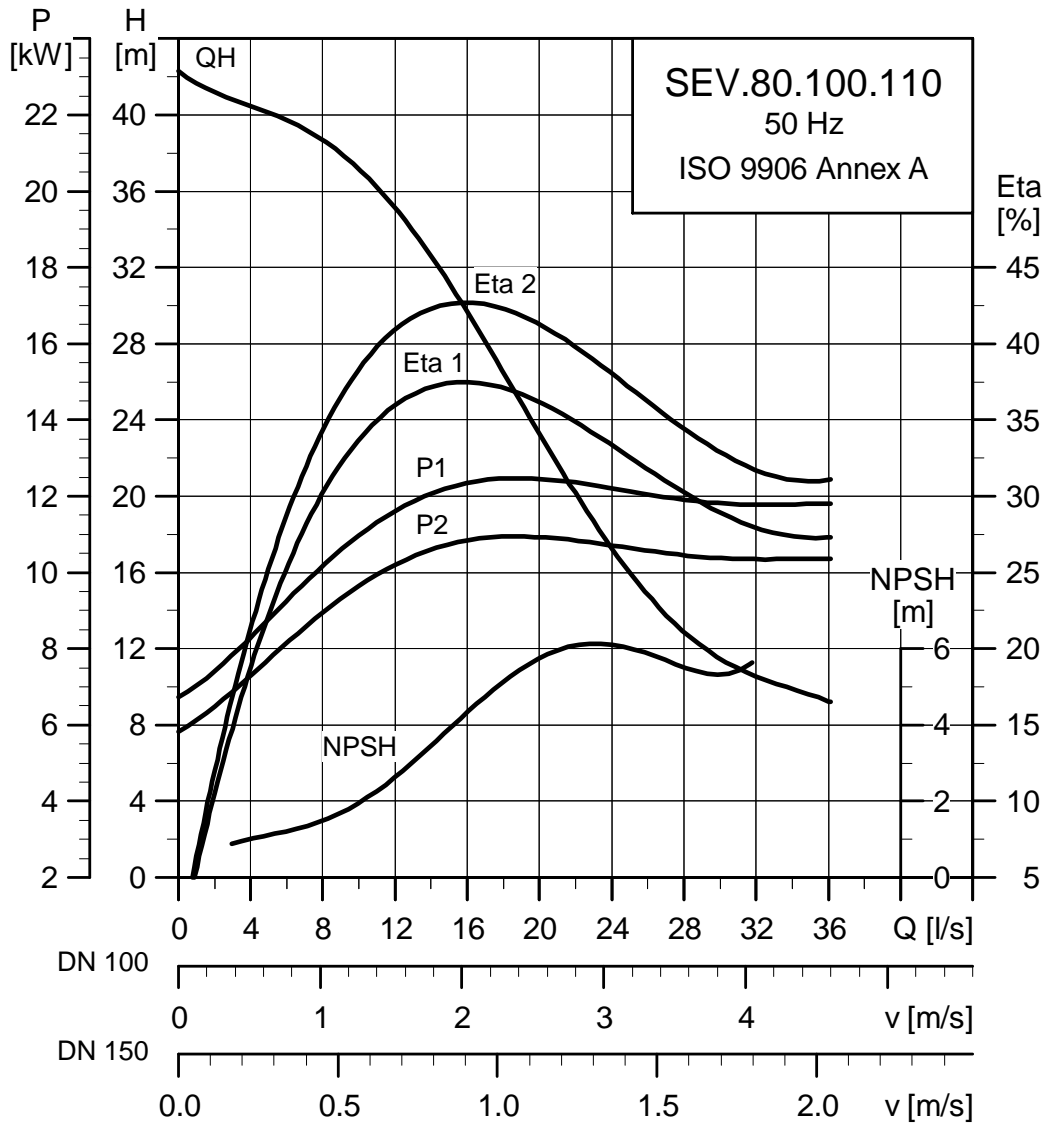
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	10.5	9.2	2	2935	DOL	18.1	156	85.4	87.4	87.6	0.78	0.85	0.89	0.0334	99				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.80.100.110.(Ex).2



TM04 3472 4508

Electrical data

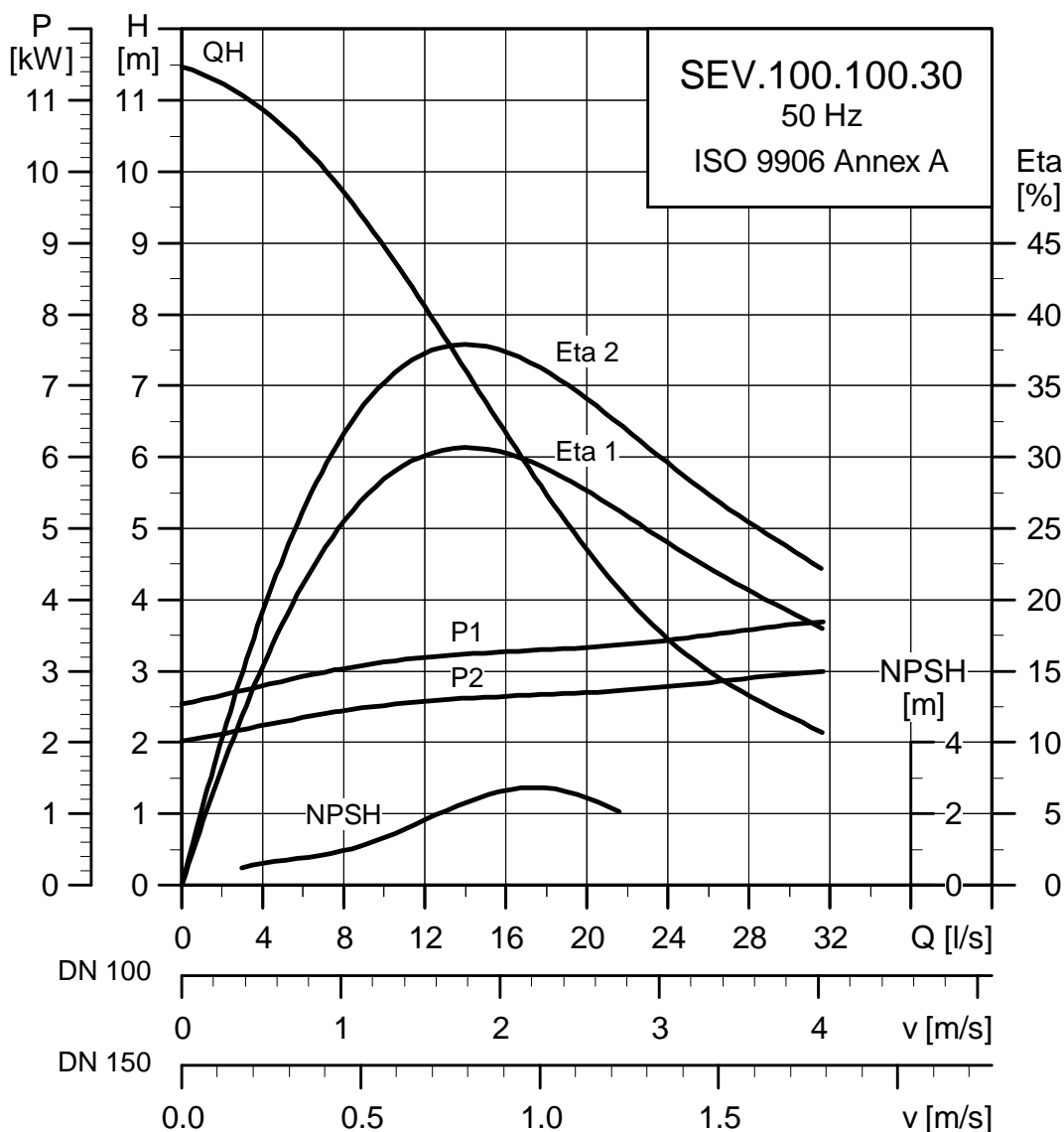
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	12.6	11	2	2935	DOL	21.8	155	86.4	88.1	87.7	0.75	0.84	0.88	0.0368	118				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	80	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.100.100.30.(Ex).4



TM02 7988 4503

Electrical data

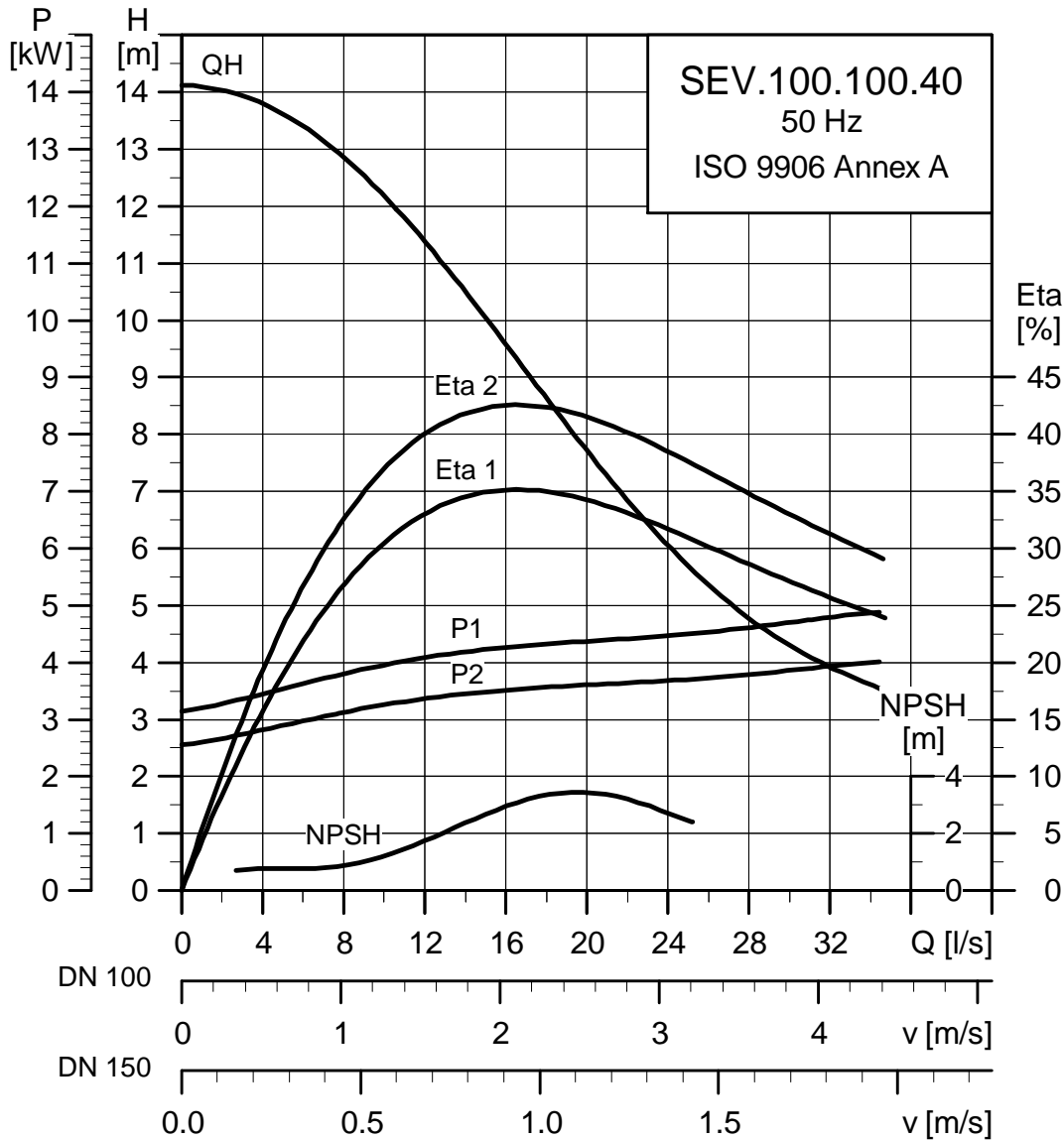
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	3.7	3.0	4	1455	DOL	13.4	74	76.4	79.9	81.2	0.5	0.64	0.73	0.0450	71				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	100	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.100.100.40.(Ex).4



TMO2 7989 4503

Electrical data

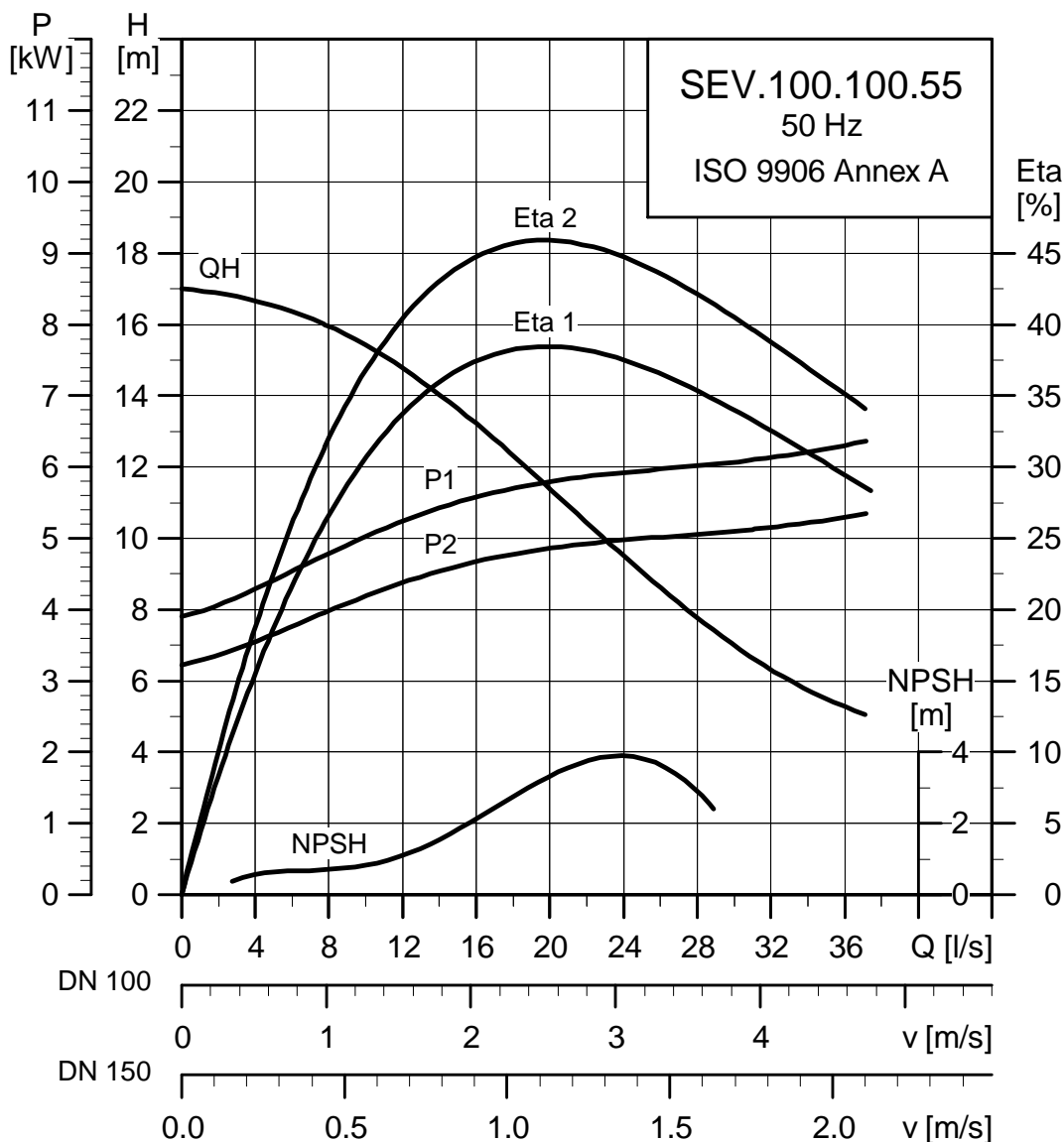
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]		1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	4.9	4.0	4	1460	Y/D	10	67		78.2	81.7	82.2	0.52	0.65	0.73	0.0501	100

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	100	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.100.100.55.(Ex).4



TMO2 7990 4503

Electrical data

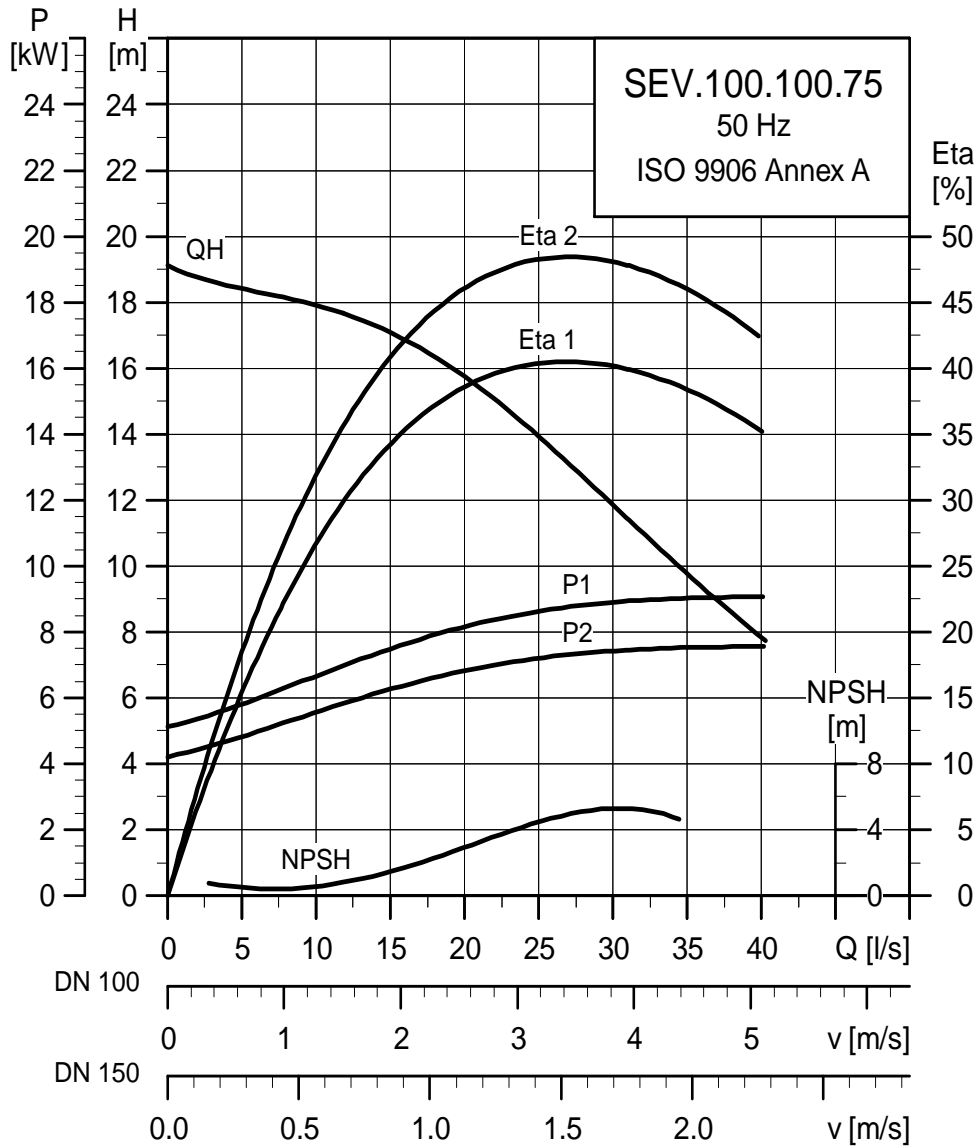
Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380-415	6.5	5.5	4	1455	Y/D	13.4	87	81	83.3	83.9	0.52	0.65	0.74	0.0552	122	

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	100	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

SEV.100.100.75.(Ex).4



TM02 7997 4503

Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kgm ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1					
3 x 380-415	9.0	7.5	4	1455	Y/D	17.3	107	81.3	83.5	83.4	0.61	0.72	0.79	0.0692	141				

Pump data

Impeller type	Max. solids size [mm]	Max. number of starts per hour	Max. installation depth [m]	Enclosure class	Insulation class	Max. liquid temperature [°C]	pH	Ex class
SuperVortex	100	20	20	IP68	F	40	See page 40	Ex cd IIB T4 T135 °C

For dimensions, see *Dimensions*, page 100.

11. Dimensions

Pumps without accessories

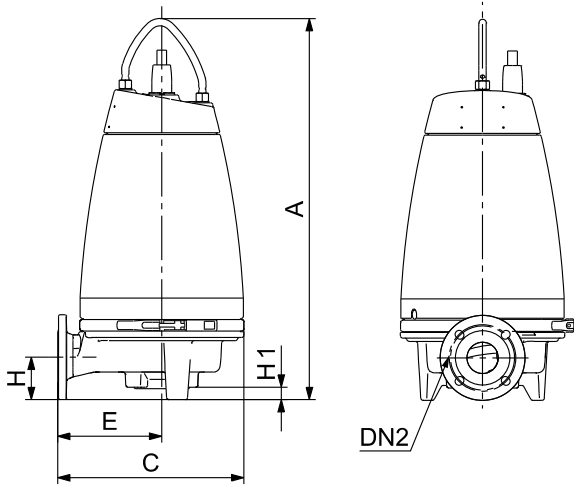
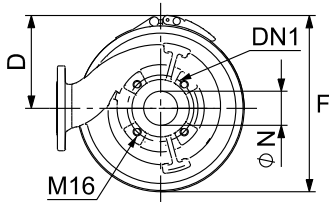


Fig. 23 SE1, pump without accessories

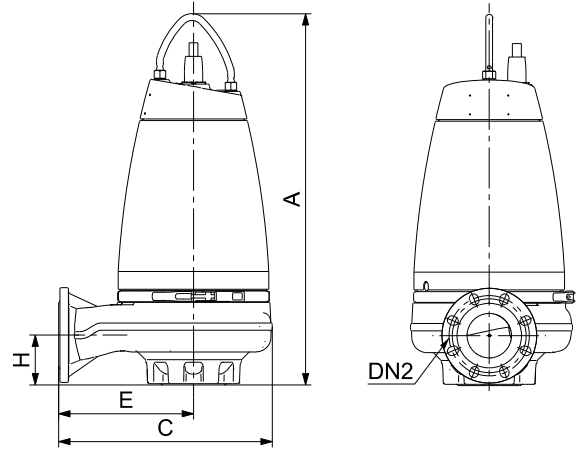
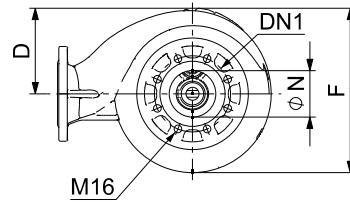


Fig. 24 SE1, pump without accessories

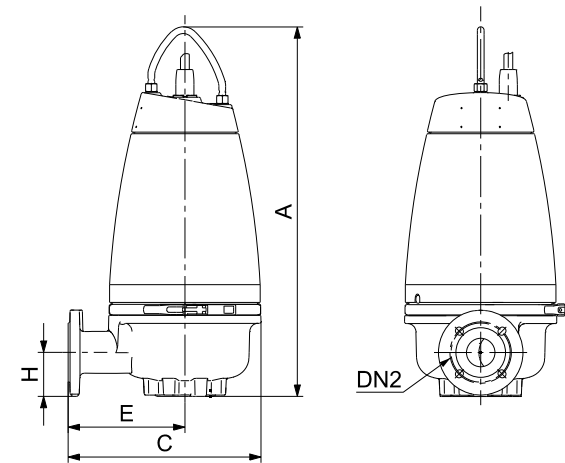
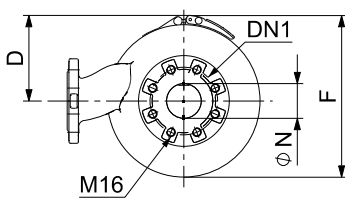


Fig. 25 SEV, pump without accessories

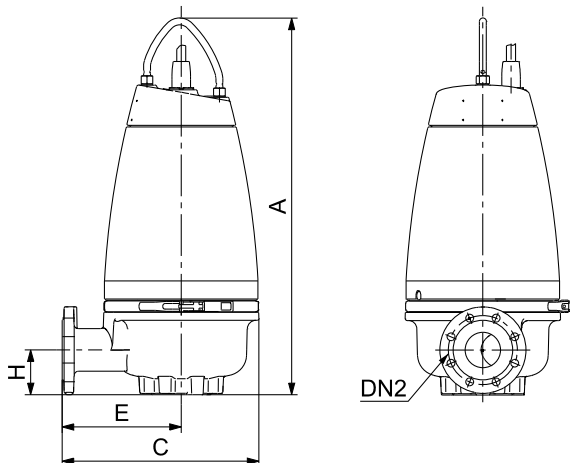
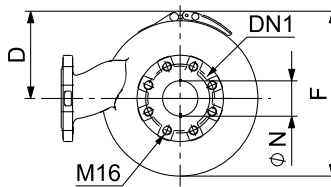


Fig. 26 SEV, pump without accessories

Pump dimensions

SE1.50, DN 65/DN 80 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SE1.50.65.22.2	753	366	171	216	321	93	26	50	65	65	86
SE1.50.65.30.2	753	366	171	216	321	93	26	50	65	65	90
SE1.50.65.40.2	831	407	200	227	379	93	24	50	65	65	122
SE1.50.80.22.2	760	366	171	216	321	100	33	50	65	80	87
SE1.50.80.30.2	760	366	171	216	321	100	33	50	65	80	91
SE1.50.80.40.2	838	407	200	227	379	100	31	50	65	80	123

SE1.80, DN 80 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SE1.80.80.15.4	776	435	171	272	347	100	8	80	100	80	100
SE1.80.80.22.4	776	435	171	272	347	100	8	80	100	80	102
SE1.80.80.30.4	878	505	200	319	397	118	0	80	100	80	143
SE1.80.80.40.4	878	505	200	319	397	118	0	80	100	80	152
SE1.80.80.55.4	878	505	200	319	397	118	0	80	100	80	157
SE1.80.80.75.4	924	530	217	328	423	118	0	80	100	80	205

SE1.80, DN 100 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SE1.80.100.15.4	788	435	171	272	347	112	20	80	100	100	101
SE1.80.100.22.4	788	435	171	272	347	112	20	80	100	100	103
SE1.80.100.30.4	878	505	200	319	397	118	0	80	100	100	145
SE1.80.100.40.4	878	505	200	319	397	118	0	80	100	100	153
SE1.80.100.55.4	878	505	200	319	397	118	0	80	100	100	158
SE1.80.100.75.4	924	530	217	328	423	118	0	80	100	100	207

SE1.100, DN 100/DN 150 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SE1.100.100.40.4	885	541	200	320	438	115	0	100	150	100	157
SE1.100.100.55.4	885	541	200	320	438	115	0	100	150	100	161
SE1.100.100.75.4	932	541	217	312	462	115	0	100	150	100	207
SE1.100.150.40.4	900	541	200	320	440	143	32	100	150	150	164
SE1.100.150.55.4	900	541	200	320	440	143	32	100	150	150	169
SE1.100.150.75.4	948	541	217	306	472	143	32	100	150	150	213

SEV.65, DN 65/DN 80 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SEV.65.65.22.2	771	396	171	246	321	102	0	65	80	65	89
SEV.65.65.30.2	771	396	171	246	321	102	0	65	80	65	92
SEV.65.65.40.2	848	456	200	276	380	106	0	65	80	65	128
SEV.65.80.22.2	771	397	171	247	321	103	0	65	80	80	90
SEV.65.80.30.2	771	397	171	247	321	103	0	65	80	80	94
SEV.65.80.40.2	848	455	200	276	379	106	0	65	80	80	126

SEV.80, DN 80 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SEV.80.80.11.4	798	409	171	241	339	109	0	80	80	80	95
SEV.80.80.13.4	798	409	171	241	339	109	0	80	80	80	103
SEV.80.80.15.4	798	409	171	241	339	109	0	80	80	80	103
SEV.80.80.22.4	798	409	171	241	339	109	0	80	80	80	106
SEV.80.80.40.2	874	456	200	276	380	104	0	80	80	80	131
SEV.80.80.60.2	874	456	200	276	380	104	0	80	80	80	141
SEV.80.80.75.2	874	456	200	276	380	104	0	80	80	80	142
SEV.80.80.92.2	922	489	217	293	413	123	0	80	80	80	190
SEV.80.80.110.2	922	489	217	293	413	123	0	80	80	80	195

SEV.80, DN 100 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SEV.80.100.11.4	798	409	171	241	339	109	0	80	80	100	94
SEV.80.100.13.4	798	409	171	241	339	109	0	80	80	100	102
SEV.80.100.15.4	798	409	171	241	339	109	0	80	80	100	102
SEV.80.100.22.4	798	409	171	241	339	109	0	80	80	100	105
SEV.80.100.40.2	874	466	200	286	380	104	0	80	80	100	133
SEV.80.100.60.2	874	466	200	286	380	104	0	80	80	100	143
SEV.80.100.75.2	874	466	200	286	380	104	0	80	80	100	144
SEV.80.100.92.2	922	499	217	303	413	123	0	80	80	100	191
SEV.80.100.110.2	922	499	217	303	413	123	0	80	80	100	196

SEV.100, DN 100 discharge

Pump type	A	C	D	E	F	H	H1	ØN	DN1	DN2	Weight [kg]
SEV.100.100.30.4	889	457	200	277	380	134	0	100	100	100	134
SEV.100.100.40.4	889	457	200	277	380	134	0	100	100	100	141
SEV.100.100.55.4	889	457	200	277	380	134	0	100	100	100	146
SEV.100.100.75.4	948	490	217	294	413	145	0	100	100	100	190

Free-standing submerged pump on ring stand

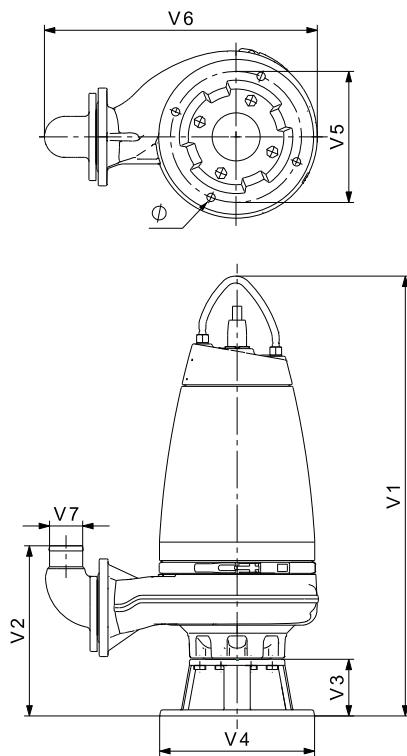


Fig. 27 SE1, free-standing submerged pump on ring stand

TM04 7928 2510

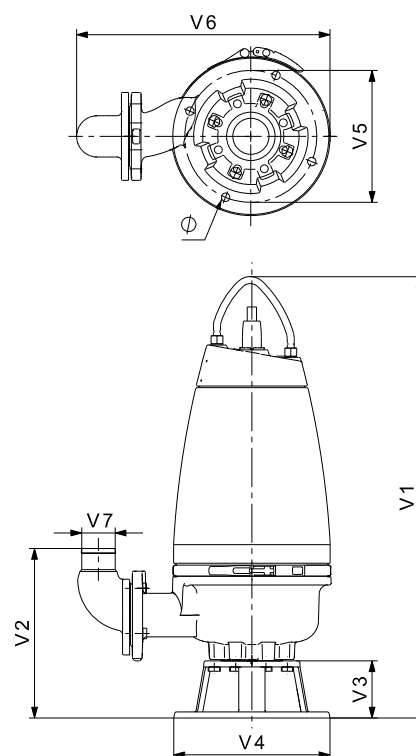


Fig. 28 SEV, free-standing submerged pump on ring stand

TM04 7932 2510

Pump dimensions

SE1.50, DN 65/DN 80 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	Ø	Weight [kg]
SE1.50.65.22.2	857	339	130	325	270	491	65	18	86
SE1.50.65.30.2	857	339	130	325	270	491	65	18	90
SE1.50.65.40.2	937	341	130	325	270	519	65	18	122
SE1.50.80.22.2	857	339	130	325	270	496	80	18	87
SE1.50.80.30.2	857	339	130	325	270	496	80	18	91
SE1.50.80.40.2	937	341	130	325	270	525	80	18	123

SE1.80, DN 80 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	Ø	Weight [kg]
SE1.80.80.15.4	898	364	130	355	300	567	80	19	100
SE1.80.80.22.4	898	364	130	355	300	567	80	19	102
SE1.80.80.30.4	1008	390	130	355	300	623	80	19	143
SE1.80.80.40.4	1008	390	130	355	300	623	80	19	152
SE1.80.80.55.4	1008	390	130	355	300	623	80	19	157
SE1.80.80.75.4	1054	390	130	355	300	648	80	19	205

SE1.80, DN 100 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SE1.80.100.15.4	898	369	130	355	300	591	100	19	101
SE1.80.100.22.4	898	369	130	355	300	591	100	19	103
SE1.80.100.30.4	1008	395	130	355	300	647	100	19	145
SE1.80.100.40.4	1008	395	130	355	300	647	100	19	153
SE1.80.100.55.4	1008	395	130	355	300	647	100	19	158
SE1.80.100.75.4	1054	395	130	355	300	672	100	19	207

SE1.100, DN 100/DN 150 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SE1.100.100.40.4	1071	445	186	450	400	711	100	22	157
SE1.100.100.55.4	1071	445	186	450	400	711	100	22	161
SE1.100.100.75.4	1118	445	186	450	400	706	100	22	207
SE1.100.150.40.4	1054	555	186	450	400	807	150	22	164
SE1.100.150.55.4	1054	555	186	450	400	807	150	22	169
SE1.100.150.75.4	1102	555	186	450	400	803	150	22	213

SEV.65, DN 65/DN 80 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SEV.65.65.22.2	899	372	128	330	280	524	65	18	89
SEV.65.65.30.2	899	372	128	330	280	524	65	18	92
SEV.65.65.40.2	976	376	128	330	280	568	65	18	128
SEV.65.80.22.2	899	373	128	330	280	530	80	18	90
SEV.65.80.30.2	899	373	128	330	280	530	80	18	94
SEV.65.80.40.2	976	376	128	330	280	573	80	18	126

SEV.80, DN 80 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SEV.80.80.11.4	926	379	128	330	280	527	80	18	95
SEV.80.80.13.4	926	379	128	330	280	527	80	18	103
SEV.80.80.15.4	926	379	128	330	280	527	80	18	103
SEV.80.80.22.4	926	379	128	330	280	527	80	18	106
SEV.80.80.40.2	1002	374	128	330	280	574	80	18	131
SEV.80.80.60.2	1002	374	128	330	280	574	80	18	141
SEV.80.80.75.2	1002	374	128	330	280	574	80	18	142
SEV.80.80.92.2	1050	393	128	330	280	607	80	18	190

SEV.80, DN 100 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SEV.80.100.11.4	926	379	128	330	280	551	100	19	94
SEV.80.100.13.4	926	379	128	330	280	551	100	19	102
SEV.80.100.15.4	926	379	128	330	280	551	100	19	102
SEV.80.100.22.4	926	379	128	330	280	551	100	19	105
SEV.80.100.40.2	1002	379	128	330	280	608	100	19	133
SEV.80.100.60.2	1002	379	128	330	280	608	100	19	143
SEV.80.100.75.2	1002	379	128	330	280	608	100	19	144
SEV.80.100.92.2	1050	398	128	330	280	641	100	19	191
SEV.80.100.110.2	1050	398	128	330	280	641	100	19	196
SEV.80.100.92.2	1050	398	128	330	280	641	100	19	191
SEV.80.100.110.2	1050	398	128	330	280	641	100	19	196

SEV.100, DN 100 discharge

Pump type	V1	V2	V3	V4	V5	V6	V7	∅	Weight [kg]
SEV.100.100.30.4	1019	411	130	355	300	599	100	19	134
SEV.100.100.40.4	1019	411	130	355	300	599	100	19	141
SEV.100.100.55.4	1019	411	130	355	300	599	100	19	146
SEV.100.100.75.4	1078	422	130	355	300	632	100	19	190

Submerged pump on auto coupling

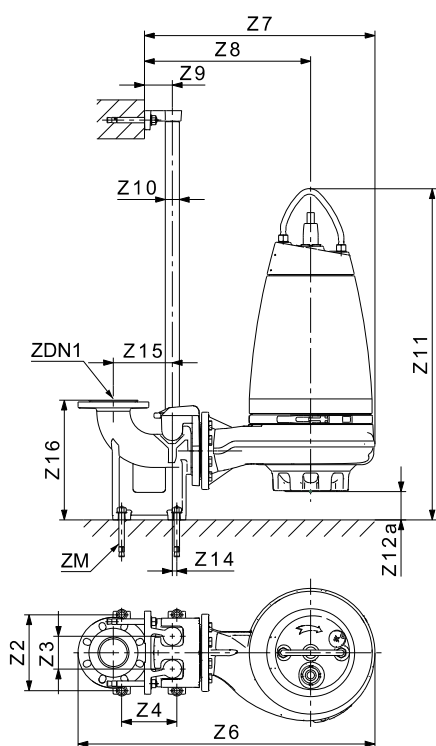


Fig. 29 SE1, submerged pump on auto coupling

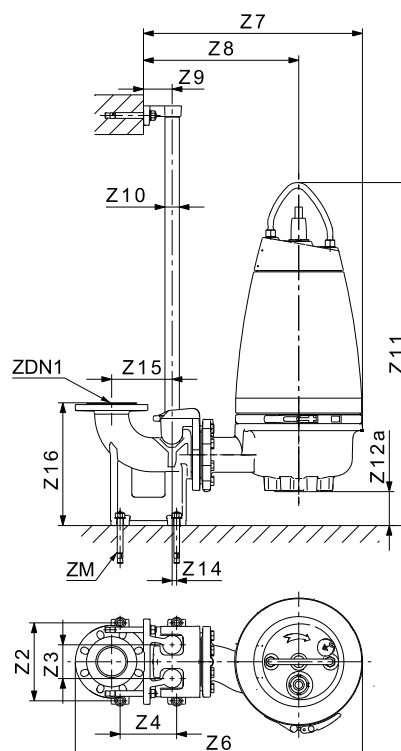


Fig. 30 SEV, submerged pump on auto coupling

Pump dimensions

SE1.50, DN 65/DN 80 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SE1.50.65.22.2	210	95	140	700	513	363	81	1 1/2"	826	99	1	175	266	M16	65	86
SE1.50.65.30.2	210	95	140	700	513	363	81	1 1/2"	826	99	1	175	266	M16	65	90
SE1.50.65.40.2	210	95	140	741	554	375	81	1 1/2"	904	97	1	175	266	M16	65	122
SE1.50.80.22.2	220	95	160	719	526	376	81	1 1/2"	860	133	13	171	345	M16	80	87
SE1.50.80.30.2	220	95	160	719	526	376	81	1 1/2"	860	133	13	171	345	M16	80	91
SE1.50.80.40.2	220	95	160	760	567	387	81	1 1/2"	938	132	13	171	345	M16	80	123

SE1.80, DN 80 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SE1.80.80.15.4	220	95	160	788	595	432	81	1 1/2"	876	108	13	171	345	M16	80	100
SE1.80.80.22.4	220	95	160	788	595	432	81	1 1/2"	876	108	13	171	345	M16	80	102
SE1.80.80.30.4	220	95	160	858	666	480	81	1 1/2"	960	82	13	171	345	M16	80	143
SE1.80.80.40.4	220	95	160	858	666	480	81	1 1/2"	960	82	13	171	345	M16	80	152
SE1.80.80.55.4	220	95	160	858	666	480	81	1 1/2"	960	82	13	171	345	M16	80	157
SE1.80.80.75.4	220	95	160	883	690	489	81	1 1/2"	1006	82	13	171	345	M16	80	205

SE1.80, DN 100 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SE1.80.100.15.4	260	110	220	878	652	489	110	2"	916	148	0	220	413	M16	100	101
SE1.80.100.22.4	260	110	220	878	652	489	110	2"	916	148	0	220	413	M16	100	103
SE1.80.100.30.4	260	110	220	948	722	536	110	2"	1000	122	0	220	413	M16	100	145
SE1.80.100.40.4	260	110	220	948	722	536	110	2"	1000	122	0	220	413	M16	100	153
SE1.80.100.55.4	260	110	220	948	722	536	110	2"	1000	122	0	220	413	M16	100	158
SE1.80.100.75.4	260	110	220	972	747	545	110	2"	1046	122	0	220	413	M16	100	207

SE1.100, DN 100/DN 150 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SE1.100.100.40.4	260	110	220	983	758	537	110	2"	1009	125	0	220	413	M16	100	157
SE1.100.100.55.4	260	110	220	983	758	537	110	2"	1009	125	0	220	413	M16	100	161
SE1.100.100.75.4	260	110	220	983	758	529	110	2"	1057	125	0	220	413	M16	100	207
SE1.100.150.40.4	300	110	280	1093	780	559	110	2"	1033	164	0	280	450	M16	150	164
SE1.100.150.55.4	300	110	280	1093	780	559	110	2"	1033	164	0	280	450	M16	150	169
SE1.100.150.75.4	300	110	280	1093	780	545	110	2"	1081	164	0	280	450	M16	150	213

SEV.65, DN 65/DN 80 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SEV.65.65.22.2	210	95	140	730	543	394	81	1 1/2"	834	63	1	175	266	M16	65	89
SEV.65.65.30.2	210	95	140	730	543	394	81	1 1/2"	834	63	1	175	266	M16	65	92
SEV.65.65.40.2	210	95	140	790	604	424	81	1 1/2"	908	60	1	175	266	M16	65	128
SEV.65.80.22.2	220	95	160	750	557	408	81	1 1/2"	868	97	13	171	345	M16	80	90
SEV.65.80.30.2	220	95	160	750	557	408	81	1 1/2"	868	97	13	171	345	M16	80	94
SEV.65.80.40.2	220	95	160	808	616	437	81	1 1/2"	942	94	13	171	345	M16	80	126

SEV.80, DN 80 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SEV.80.80.11.4	220	95	160	762	569	402	81	1 1/2"	889	91	13	171	345	M16	80	95
SEV.80.80.13.4	220	95	160	762	569	402	81	1 1/2"	889	91	13	171	345	M16	80	103
SEV.80.80.15.4	220	95	160	762	569	402	81	1 1/2"	889	91	13	171	345	M16	80	103
SEV.80.80.22.4	220	95	160	762	569	402	81	1 1/2"	889	91	13	171	345	M16	80	106
SEV.80.80.40.2	220	95	160	809	617	437	81	1 1/2"	970	96	13	171	345	M16	80	131
SEV.80.80.60.2	220	95	160	809	617	437	81	1 1/2"	970	96	13	171	345	M16	80	141
SEV.80.80.75.2	220	95	160	809	617	437	81	1 1/2"	970	96	13	171	345	M16	80	142
SEV.80.80.92.2	220	95	160	842	650	454	81	1 1/2"	999	77	13	171	345	M16	80	190
SEV.80.80.110.2	220	95	160	842	650	454	81	15	999	77	13	171	345	M16	80	195

SEV.80, DN 100 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SEV.80.100.11.4	260	110	220	796	625	458	110	2"	929	131	0	220	413	M16	100	94
SEV.80.100.13.4	260	110	220	796	625	458	110	2"	929	131	0	220	413	M16	100	102
SEV.80.100.15.4	260	110	220	796	625	458	110	2"	929	131	0	220	413	M16	100	102
SEV.80.100.22.4	260	110	220	796	625	458	110	2"	929	131	0	220	413	M16	100	105
SEV.80.100.40.2	260	110	220	899	673	493	110	2"	1010	136	0	220	413	M16	100	133
SEV.80.100.60.2	260	110	220	899	673	493	110	2"	1010	136	0	220	413	M16	100	143
SEV.80.100.75.2	260	110	220	899	673	493	110	2"	1010	136	0	220	413	M16	100	144
SEV.80.100.92.2	260	110	220	943	706	510	110	2"	1039	117	0	220	413	M16	100	191
SEV.80.100.110.2	260	110	220	943	706	510	110	2"	1039	117	0	220	413	M16	100	196

SEV.100, DN 100 discharge

Pump type	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z14	Z15	Z16	ZM	ZDN1	Weight [kg]
SEV.100.100.30.4	260	110	220	900	674	494	110	2"	996	106	0	220	413	M16	100	134
SEV.100.100.40.4	260	110	220	900	674	494	110	2"	996	106	0	220	413	M16	100	141
SEV.100.100.55.4	260	110	220	900	674	494	110	2"	996	106	0	220	413	M16	100	146
SEV.100.100.75.4	260	110	220	933	707	511	110	2"	1043	95	0	220	413	M16	100	190

Horizontal dry installation with brackets

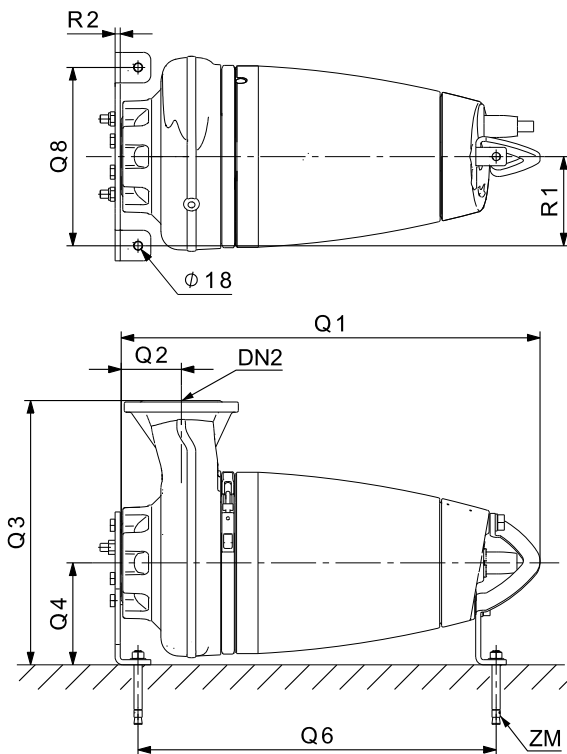


Fig. 31 SE1, horizontal dry installation

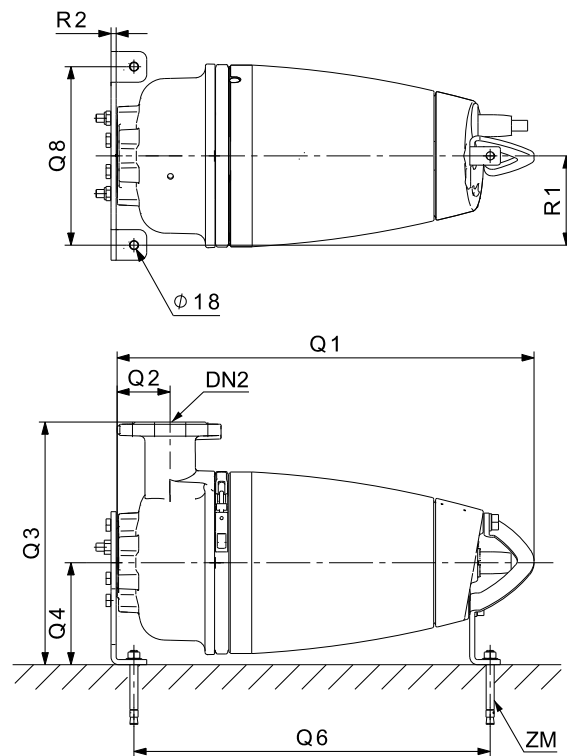


Fig. 32 SEV, horizontal dry installation

Pump dimensions

SE1.50, DN 65/DN 80 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SE1.50.65.22.2	175	10	682	93	416	200	579	350	M16	65	86
SE1.50.65.30.2	175	10	682	93	416	200	579	350	M16	65	90
SE1.50.65.40.2	175	10	749	93	427	200	659	350	M16	65	122
SE1.50.80.22.2	175	10	682	100	416	200	579	350	M16	80	87
SE1.50.80.30.2	175	10	682	100	416	200	579	350	M16	80	91
SE1.50.80.40.2	175	10	749	100	427	200	659	350	M16	80	123

SE1.80, DN 80 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SE1.80.80.15.4	175	10	723	100	472	200	620	350	M16	80	100
SE1.80.80.22.4	175	10	723	100	472	200	620	350	M16	80	102
SE1.80.80.30.4	175	10	820	118	519	200	699	350	M16	80	143
SE1.80.80.40.4	175	10	820	118	519	200	699	350	M16	80	152
SE1.80.80.55.4	175	10	820	118	519	200	699	350	M16	80	157
SE1.80.80.75.4	175	10	876	118	528	210	741	350	M16	80	205

SE1.80, DN 100 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SE1.80.100.15.4	175	10	723	112	472	200	620	350	M16	100	101
SE1.80.100.22.4	175	10	723	112	472	200	620	350	M16	100	103
SE1.80.100.30.4	175	10	820	118	519	200	699	350	M16	100	145
SE1.80.100.40.4	175	10	820	118	519	200	699	350	M16	100	153
SE1.80.100.55.4	175	10	820	118	519	200	699	350	M16	100	158
SE1.80.100.75.4	175	10	876	118	528	210	741	350	M16	100	207

SE1.100, DN 100/DN 150 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SE1.100.100.40.4	250	12	827	115	620	300	706	500	M16	100	157
SE1.100.100.55.4	250	12	827	115	620	300	706	500	M16	100	161
SE1.100.100.75.4	250	12	884	115	612	300	749	500	M16	100	207
SE1.100.150.40.4	250	12	811	143	620	300	690	500	M16	150	164
SE1.100.150.55.4	250	12	811	143	620	300	690	500	M16	150	169
SE1.100.150.75.4	250	12	868	143	606	300	733	500	M16	150	213

SEV.65, DN 65/DN 80 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SEV.65.65.22.2	175	10	725	102	446	200	623	350	M16	65	89
SEV.65.65.30.2	175	10	725	102	446	200	623	350	M16	65	92
SEV.65.65.40.2	175	10	790	106	476	200	700	350	M16	65	128
SEV.65.80.22.2	175	10	726	103	447	200	623	350	M16	80	90
SEV.65.80.30.2	175	10	726	103	447	200	623	350	M16	80	94
SEV.65.80.40.2	175	10	791	106	476	200	700	350	M16	80	126

SEV.80, DN 80 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SEV.80.80.11.4	175	10	752	109	441	200	650	350	M16	80	95
SEV.80.80.13.4	175	10	752	109	441	200	650	350	M16	80	103
SEV.80.80.15.4	175	10	752	109	441	200	650	350	M16	80	103
SEV.80.80.22.4	175	10	752	109	441	200	650	350	M16	80	106
SEV.80.80.40.2	175	10	816	104	476	200	726	350	M16	80	131
SEV.80.80.60.2	175	10	816	104	476	200	695	350	M16	80	141
SEV.80.80.75.2	175	10	816	104	476	200	695	350	M16	80	142
SEV.80.80.92.2	175	10	874	123	493	200	739	350	M16	80	190
SEV.80.80.110.2	175	10	874	123	493	200	739	350	M16	80	195

SEV.80, DN 100 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SEV.80.100.11.4	175	10	752	109	441	200	650	350	M16	100	94
SEV.80.100.13.4	175	10	752	109	441	200	650	350	M16	100	102
SEV.80.100.15.4	175	10	752	109	441	200	650	350	M16	100	102
SEV.80.100.22.4	175	10	752	109	441	200	650	350	M16	100	105
SEV.80.100.40.2	175	10	816	104	486	200	728	350	M16	100	133
SEV.80.100.60.2	175	10	816	104	486	200	728	350	M16	100	143
SEV.80.100.75.2	175	10	816	104	486	200	728	350	M16	100	144
SEV.80.100.92.2	175	10	874	123	503	200	739	350	M16	100	191
SEV.80.100.110.2	175	10	874	123	503	200	739	350	M16	100	196

SEV.100, DN 100 discharge

Pump type	R1	R2	Q1	Q2	Q3	Q4	Q6	Q8	ZM	DN2	Weight [kg]
SEV.100.100.30.4	175	10	832	134	477	200	711	350	M16	100	134
SEV.100.100.40.4	175	10	832	134	477	200	711	350	M16	100	141
SEV.100.100.55.4	175	10	832	134	477	200	711	350	M16	100	146
SEV.100.100.75.4	175	10	900	145	494	210	765	350	M16	100	190

Vertical dry installation

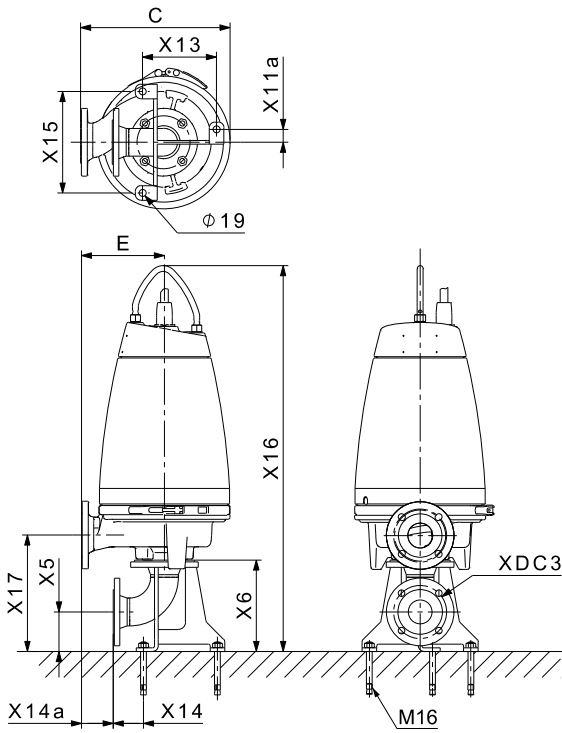


Fig. 33 SE1, vertical dry installation

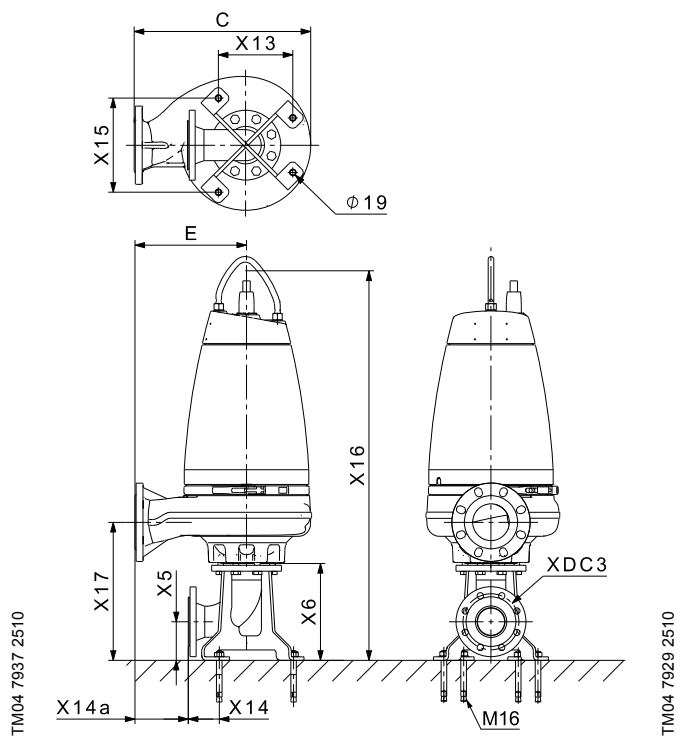


Fig. 34 SE1, vertical dry installation

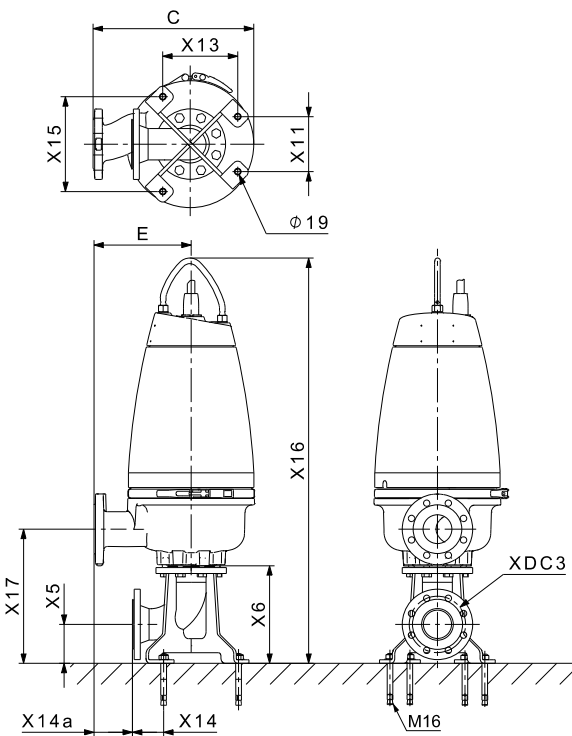


Fig. 35 SEV, vertical dry installation

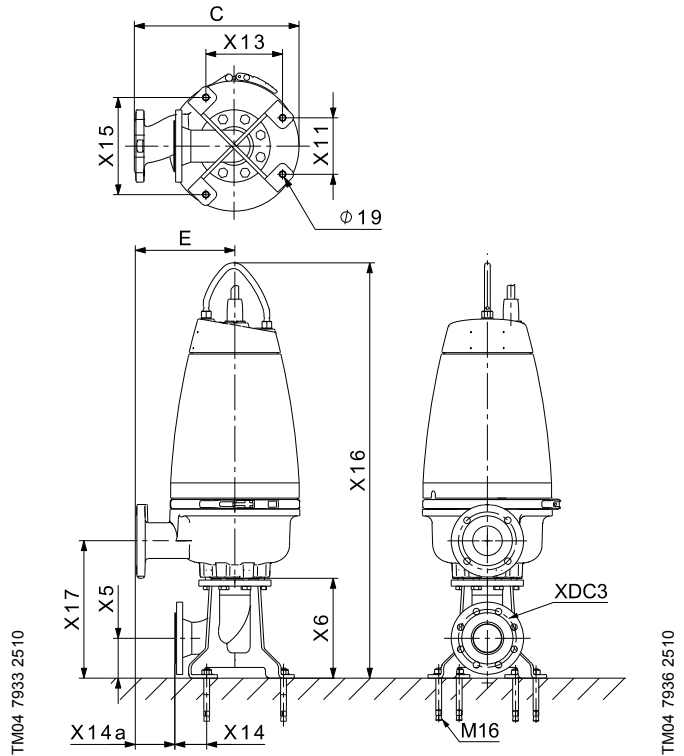


Fig. 36 SEV, vertical dry installation

Pump dimensions**SE1.50, DN 65/DN 80 discharge**

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SE1.50.65.22.2	366	216	108	248	-	35	202	62	76	975	315	65	86
SE1.50.65.30.2	366	216	108	248	-	35	202	62	76	975	315	65	90
SE1.50.65.40.2	407	227	108	248	-	35	202	62	87	1055	317	65	122
SE1.50.80.22.2	366	216	108	248	-	35	202	62	76	975	315	65	87
SE1.50.80.30.2	366	216	108	248	-	35	202	62	76	975	315	65	91
SE1.50.80.40.2	407	227	108	248	-	35	202	62	87	1055	317	65	123

SE1.80, DN 80 discharge

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SE1.80.80.15.4	435	272	136	341	198	-	255	106	67	1109	433	100	100
SE1.80.80.22.4	435	272	136	341	198	-	255	106	67	1109	433	100	102
SE1.80.80.30.4	505	319	136	341	198	-	255	106	115	1218	458	100	143
SE1.80.80.40.4	505	319	136	341	198	-	255	106	115	1218	458	100	152
SE1.80.80.55.4	505	319	136	341	198	-	255	106	115	1218	458	100	157
SE1.80.80.75.4	530	328	136	341	198	-	255	106	124	1265	459	100	205

SE1.80, DN 100 discharge

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SE1.80.100.15.4	435	272	136	341	198	-	255	106	67	1109	433	100	101
SE1.80.100.22.4	435	272	136	341	198	-	255	106	67	1109	433	100	103
SE1.80.100.30.4	505	319	136	341	198	-	255	106	115	1218	459	100	145
SE1.80.100.40.4	505	319	136	341	198	-	255	106	115	1218	459	100	153
SE1.80.100.55.4	505	319	136	341	198	-	255	106	115	1218	459	100	158
SE1.80.100.75.4	530	328	136	341	198	-	255	106	124	1265	459	100	207

SE1.100, DN 100/DN 150 discharge

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SE1.100.100.40.4	541	320	159	443	283	-	339	135	37	1327	558	150	157
SE1.100.100.55.4	541	320	159	443	283	-	339	135	37	1327	558	150	161
SE1.100.100.75.4	541	312	159	443	283	-	339	135	29	1375	558	150	207
SE1.100.150.40.4	541	320	159	443	283	-	339	135	37	1311	553	150	164
SE1.100.150.55.4	541	320	159	443	283	-	339	135	37	1311	553	150	169
SE1.100.150.75.4	541	306	159	443	283	-	339	135	23	1359	553	150	213

SEV.65, DN 65/DN 80 discharge

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SEV.65.65.22.2	396	246	111	276	156	-	213	76	82	1046	378	80	89
SEV.65.65.30.2	396	246	111	276	156	-	213	76	82	1046	378	80	92
SEV.65.65.40.2	456	276	111	276	156	-	213	76	112	1123	381	80	128
SEV.65.80.22.2	397	247	111	276	156	-	213	76	83	1047	379	80	90
SEV.65.80.30.2	397	247	111	276	156	-	213	76	83	1047	379	80	94
SEV.65.80.40.2	455	276	111	276	156	-	213	76	112	1124	382	80	126

SEV.80, DN 80 discharge

Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SEV.80.80.11.4	409	241	111	276	156	-	213	76	77	1073	385	80	95
SEV.80.80.13.4	409	241	111	276	156	-	213	76	77	1073	385	80	103
SEV.80.80.15.4	409	241	111	276	156	-	213	76	77	1073	385	80	103
SEV.80.80.22.4	409	241	111	276	156	-	213	76	77	1073	385	80	106
SEV.80.80.40.2	456	276	111	276	156	-	213	76	112	1149	380	80	131
SEV.80.80.60.2	456	276	111	276	156	-	213	76	112	1149	380	80	141
SEV.80.80.75.2	456	276	111	276	156	-	213	76	112	1149	380	80	142
SEV.80.80.92.2	489	293	111	276	156	-	213	76	129	1198	399	80	190
SEV.80.80.110.2	489	293	111	276	156	-	213	76	129	1198	399	80	195

SEV.80, DN 100 discharge





Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SEV.80.100.11.4	409	241	111	276	156	-	213	76	77	1073	385	100	94
SEV.80.100.13.4	409	241	111	276	156	-	213	76	77	1073	385	100	102
SEV.80.100.15.4	409	241	111	276	156	-	213	76	77	1073	385	100	102
SEV.80.100.22.4	409	241	111	276	156	-	213	76	77	1073	385	100	105
SEV.80.100.40.2	466	286	111	276	156	-	213	76	122	1149	385	100	133
SEV.80.100.60.2	466	286	111	276	156	-	213	76	122	1149	385	100	143
SEV.80.100.75.2	466	286	111	276	156	-	213	76	122	1149	385	100	144
SEV.80.100.92.2	499	303	111	276	156	-	213	76	139	1198	399	100	191
SEV.80.100.110.2	499	303	111	276	156	-	213	76	139	1198	399	100	196



SEV.100, DN 100 discharge


Pump type	C	E	X5	X6	X11	X11a	X13	X14	X14a	X16	X17	XDC3	Weight [kg]
SEV.100.100.30.4	457	277	136	341	198	-	255	106	73	1230	474	100	134
SEV.100.100.40.4	457	277	136	341	198	-	255	106	73	1230	474	100	141
SEV.100.100.55.4	457	277	136	341	198	-	255	106	73	1230	474	100	146
SEV.100.100.75.4	490	294	136	341	198	-	255	106	89	1288	485	100	190

12. Accessories

Installation systems

Product	Description	Dimensions	SE1.50.65	SE1.50.80	SE1.80.80	SE1.80.100	SE1.100.100	SE1.100.150	SEV.65.65	SEV.65.80	SEV.80.80	SEV.80.100	SEV.100.100	Product number		
															Cast iron	Stainless steel (EN 1.4408)
	Complete auto-coupling system, including guide claw, base plate and upper guide rail holder. Cast iron, epoxy-coated. With bolts, nuts, gaskets and anchor bolts. Note: If your guide rails exceed 4 metres, please consider to use intermediate guide rail holders to support your system.	DN 65	•						•					96090992	96825104	
		DN 80		•	•						•	•			96090993	96825106
		DN 80 / DN 65	•							•					96102238	-
		DN 100				•	•						•	•	96090994	96825108
		DN 100 / DN 80		•	•							•	•		96102240	-
		DN 150						•							96090995	96945381
		DN 150 / DN 100					•	•						•	•	96102241
	Intermediate guide rail holders in stainless steel.	DN 65 / 2 1/2"	•						•						96825119	
		DN 80 / 3"			•					•	•				96825142	
		DN 100 / 4"t				•	•						•	•	96825161	
		DN 150 / 6"						•							96887674	
	Ring stand with flanged 90° elbow and hose connection. Cast iron, epoxy-coated. With bolts, nuts, gaskets and anchor bolts.	DN 65 / DN 65 / 2 1/2"	•											96102253	-	
		DN 65 / DN 80 / 3"		•											96102378	-
		DN 80 / DN 65 / 2 1/2"							•						96102439	-
		DN 80 / DN 80 / 3"								•	•				96102254	-
		DN 100 / DN 80 / 3"				•									96102313	-
		DN 80 / DN 100 / 4"											•		96943236	-
		DN 100 / DN 100 / 4"					•							•	96102255	-
		DN 150 / DN 100 / 4" Galvanised steel.						•							96102314	-
		DN 150 / DN 150 / 6" Galvanised steel.							•						96102256	-
		DN 65 / DN 65 / R 2 1/2	•												96102379	-
DN 65 / DN 80 / R 3		•											96102380	-		
	Ring stand with flanged 90° elbow and outside thread connection. Cast iron, epoxy-coated. With bolts, nuts, gaskets and anchor bolts.	DN 80 / DN 65 / R 2 1/2							•					96102440	-	
		DN 80 / DN 80 / R 3								•	•				96102381	-
		DN 100 / DN 80 / R 3				•									96102382	-
		DN 80 / DN 100 / R 4											•		96943236	-
		DN 100 / DN 100 / R 4					•							•	96102383	-
		DN 150 / DN 100 / R 4 Galvanised steel.						•							96102384	-
		DN 150 / DN 150 / R 6 Galvanised steel.							•						96102385	-
		DN 65		•	•											96102257
	Base stand for vertical dry installation, including 90° elbow. Galvanised steel. With bolts, gaskets and anchor bolts.	DN 80							•	•	•	•		96102258	-	
		DN 100 / DN 80							•	•	•	•		96567174	-	
		DN 100				•	•						•		96102259	-
		DN 150 / DN 100				•	•								96567175	-
		DN 150					•	•							96102260	-
		DN 200 / DN 150					•	•							96567176	-

Product	Description	Dimensions	SE1.50.65	SE1.50.80	SE1.80.80	SE1.80.100	SE1.100.100	SE1.100.150	SEV.65.65	SEV.65.80	SEV.80.80	SEV.80.100	SEV.100.100	Product number	
															Cast iron
 TM04 4494 1409 Brackets for horizontal dry installation. Galvanised steel. With bolts, gaskets and anchor bolts.	DN 65 for 2.2 to 3 kW, 2-pole		•	•										96102261	-
	DN 65 for 4 kW, 2-pole		•	•										96102262	-
	DN 80 for 2.2 to 3 kW, 2-pole								•	•				96101912	-
	DN 80 for 1.1 to 2.2 kW, 4-pole										•	•		96101912	-
	DN 80 for 4 to 7.5 kW, 2-pole								•	•	•	•		96102200	-
	DN 80 for 4 kW, 4-pole										•	•		96102200	-
	DN 80 for 9.2 to 11 kW, 2-pole										•	•		96102386	-
	DN 100 for 1.5 to 2.2 kW, 4-pole				•	•								96102201	-
	DN 100 for 3 to 5.5 kW, 4-pole				•	•							•	96101917	-
	DN 100 for 7.5 kW, 4-pole				•	•							•	96102202	-
 TM04 4506 1409	DN 150 for 4 to 5.5 kW, 4-pole					•	•							96102263	-
	DN 150 for 7.5 kW, 4-pole					•	•							96102250	-

Pictures	Description	Dimensions	Product number
 TM02 6126 5102	4 m galvanised lifting chain with lifting link and safety hook. With certificates.		96735550
	6 m galvanised lifting chain with lifting link and safety hook. With certificates.		96735553
	8 m galvanised lifting chain with lifting link and safety hook. With certificates.	800	96735554
	10 m galvanised lifting chain with lifting link and safety hook. With certificates.		96735556
	12 m galvanised lifting chain with lifting link and safety hook. With certificates.		96735557
	4 m stainless steel lifting chain with lifting link and safety hook. With certificates.		96735559
	6 m stainless steel lifting chain with lifting link and safety hook. With certificates.		96735564
	8 m stainless steel lifting chain with lifting link and safety hook.	800	96735566
	10 m stainless steel lifting chain with lifting link and safety hook. With certificates.		96735567
	12 m stainless steel lifting chain with lifting link and safety hook. With certificates.		96735569
	Cable protection hose in polyolefin material	5 m x 1"	96002084

Level controllers

Grundfos offers a wide range of pump controllers to keep a watchful eye on liquid levels in the wastewater collecting tank, ensuring correct operation and protection of the pumps.

Controller ranges:

- Dedicated Controls, DC control cabinets
- LC and LCD level controllers.

Dedicated Controls



GrA6270

Fig. 37 Dedicated Controls control cabinet

Grundfos Dedicated Controls is a control system that can control and monitor one to six Grundfos wastewater pumps and a mixer or a flush valve.

Dedicated Controls is used in installations requiring advanced control and data communication.

Main components of the Dedicated Controls system:

- CU 361 control unit
- IO 351B module (general I/O module).

Dedicated Controls is available either as separate components or as control cabinets.

The control system can be operated by the following:

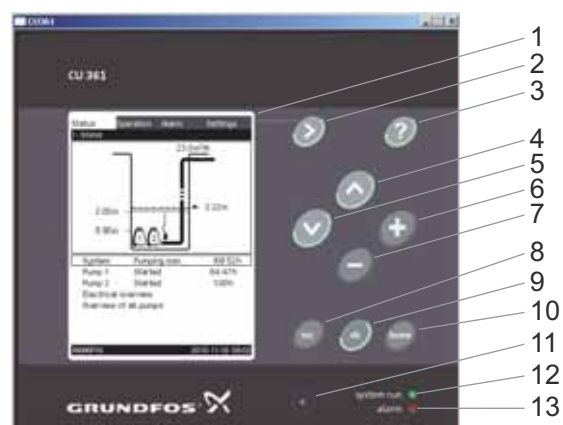
- float switches
- a level sensor
- a level sensor and safety float switches.

The control cabinet is available for the following pump sizes and starting methods:

- pumps up to and including 9 kW, direct-on-line starting
- pumps up to and including 30 kW, star-delta starting
- pumps up to and including 30 kW, soft starter.

The separate control unit and modules can be built for practically any size of system.

CU 361 control panel



TM04 9896 0212

Fig. 38 CU 361 control panel

Pos.	Description
1	Display
2	Arrow to the right
3	Help
4	Up
5	Down
6	Plus
7	Minus
8	Esc
9	OK (accept)
10	Home
11	Contrast
12	Indicator light, operation (green)
13	Indicator light, fault (red)

Features and benefits

The Grundfos Dedicated Controls system offers these features and benefits:

Basic features

- Pump start/stop
- alternating operation of pumps
- overflow detection
- overflow measurement
- alarms and warnings
- advanced alarm schedules
- start and stop delays
- free language selection.

Advanced features

- User-defined functions
- alternation between groups
- start level variation (reduced sedimentation)
- combi alarms
- daily emptying
- foam draining
- anti-seizing (limestone)
- safety after-run delay
- mixer or flush valve
- maximum number of started pumps
- pump flow measurement
- system flow measurement
- pump flow calculation
- system flow calculation.

Additional features, IO 111

- Monitoring of:
 - insulation resistance
 - moisture in motor
 - water in oil.

Additional features, MP 204

- Anti-blocking
- monitoring of:
 - voltage
 - current
 - current asymmetry
 - phase sequence
 - $\cos \varphi$ (power factor)
 - power
 - energy
 - insulation resistance
 - temperature, Pt100/Pt1000
 - temperature, PTC
 - temperature, Tempcon.

Additional features, CUE or VFD

- Anti-blocking
 - automatic energy optimisation
 - specific-energy test
 - output frequency
 - monitoring of:
 - voltage*
 - current*
 - phase sequence*
 - power*
 - energy*
 - torque*
 - reverse start
 - run flushing
 - stop flushing
 - PID control.
- * These functions are only available with a Grundfos CUE.

Communication features

- Complete overview of the pump installation
- setpoint change, resetting of system and start/stop of pumps
- access to complete alarm/warning log
- automatic redirection of alarms and warnings to the on-duty staff
- optimisation of your maintenance and service program
- reduction in energy consumption
- Modbus RTU communication via cable
- Modbus TCP communication via GSM/GPRS
- SMS commands (send/receive)
- SMS schedule
- VNC connection for migration of user interface to a web browser.

For further information, see the data booklet or installation and operating instructions for Dedicated Controls on www.grundfos.com (WebCAPS).

LC and LCD



TM04 2360 2408

Fig. 39 LCD 110 for two-pump installations

The Grundfos LC and LCD range of level controllers are designed for one- to two-pump installations. It comprises three series with a total of six variants:

- LC and LCD 107 operated by air bells
- LC and LCD 108 operated by float switches
- LC and LCD 110 operated by electrodes.

All controllers are ideally suited for applications requiring up to 11 kW motors for direct-on-line starting. The LC and LCD can also be supplied with an integrated star-delta starter for applications requiring larger motors up to and including 30 kW.

Features and benefits

- Control of one pump (LC) or two pumps (LCD).
- Automatic alternating operation of two pumps (LCD).
- Automatic test run (prevents shaft seals from becoming jammed in the event of long periods of inactivity).
- Water hammer protection.
- Starting delay after power supply failure.
- Automatic alarm resetting, if required.
- Automatic restarting, if required.
- Alarm output as NO and NC.

When an SMS module (optional) is fitted in an LC or LCD controller, it acts as a time recorder for the pumps, and when programmed (using an ordinary mobile phone with text messaging facility), it can send text messages containing "high-level alarm" and "general alarm" information about operation and the number of times the pump has started. The SMS module is also available with battery and can thus send text messages that will inform you of power failure and when the power has been restored.

For further information, see the data booklet or installation and operating instructions for the LC and LCD controllers on www.grundfos.com (WebCAPS).

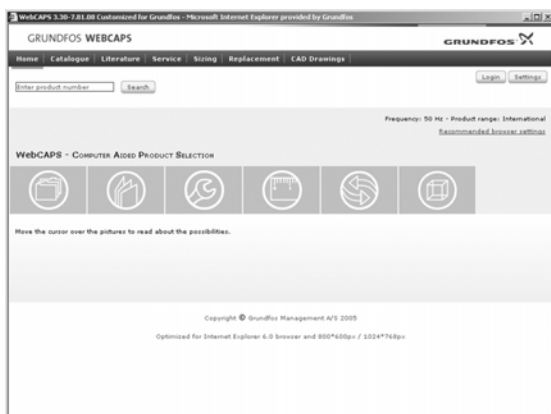
Name	DC	LC	LCD
Application			
One pump	•	•	•
Two pumps	•		•
Mixer	•		
Battery backup	•		
Level sensor			
Float switches	•	•	•
Electrodes		•	•
Air bells		•	•
Pressure sensor	•		
Ultrasonic sensor	•		
Analog level sensor with safety float switches	•		
Starting method			
Direct-on-line starting (DOL)	•	•	•
Star-delta starting	•	•	•
Soft starter	•		
Basic functions			
Start and stop of pump(s)	•	•	•
Pump alternation	•		•
High-level alarm	•	•	•
Dry-running-level alarm	•	•	•
Flow measurement (calculated or via flow sensor)	•		
Pump statistics	•		
Conflicting-levels alarm	•		
Advanced functions			
Start and stop delays (prevent water hammer)	•	•	•
Motor temperature sensor	•	•	•
Test run/anti-seizing	•	•	•
Daily emptying (emptying the pit once a day)	•		
Water-in-oil sensor input	•		
Communication			
SMS messaging	• ¹⁾	• ²⁾	• ²⁾
SCADA communication (GSM/GPRS)	• ¹⁾		
User interface			
Level indication	•	•	•
Graphical display	•		
PC Tool WW Controls	•		

¹⁾ If a CIM 250 GSM/GPRS module is fitted in the CU 361.

²⁾ If an SMS module is fitted.

13. Further product documentation

WebCAPS

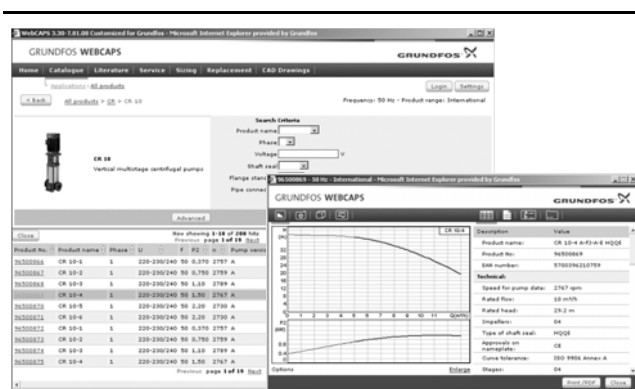


WebCAPS is a **Web**-based **Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 220,000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

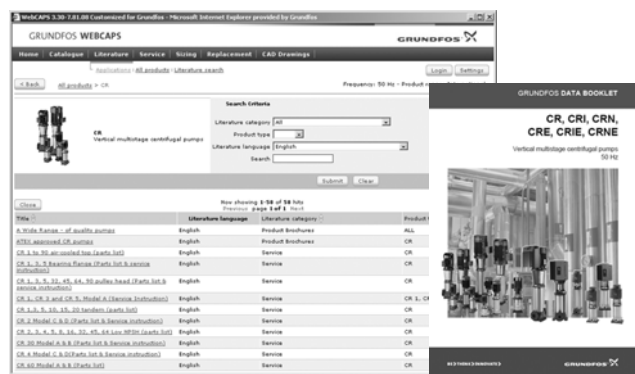
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

Based on fields of application and pump types, this section contains the following:

- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

This section contains all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.

Furthermore, the section contains service videos showing you how to replace service parts.



Sizing

This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

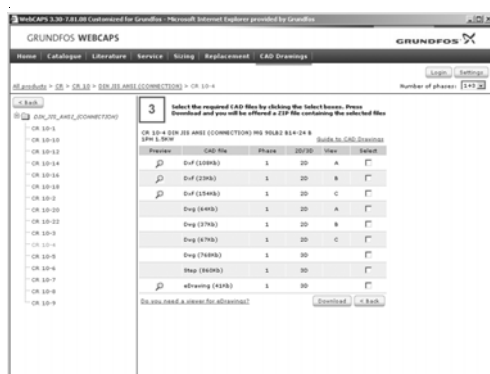
- Select the most suitable and efficient pump for your installation.
- Carry out advanced calculations based on energy, consumption, payback periods, load profiles, life cycle costs, etc.
- Analyse your selected pump via the built-in life cycle cost tool.
- Determine the flow velocity in wastewater applications, etc.



Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump. The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section, it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

- 2-dimensional drawings:
- .dxf, wireframe drawings
 - .dwg, wireframe drawings.
- 3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
 - .stp, solid drawings (with surfaces)
 - .eprt, E-drawings.



WinCAPS



Fig. 40 WinCAPS DVD

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 220,000 Grundfos products in more than 30 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no internet connection is available.

WinCAPS is available on DVD and updated once a year.

Subject to alterations.

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ECM: 1093652

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