

S pumps, ranges 50, 54, 58

13.5 to 42 HP
60 Hz ANSI



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1. Introduction

Introduction

This data booklet deals with Grundfos heavy-duty sewage pumps, type S, ranges 50, 54 and 58.



TM07 0217 - 0216 - 0219 4517

Fig. 1 S pumps, ranges 50, 54 and 58

S pumps, ranges 50, 54 and 58, are a range of SuperVortex and channel impeller pumps specifically designed for pumping sewage and wastewater in a wide range of municipal, private and industrial applications.

The pumps are made of resistant materials, such as cast iron and stainless steel. These materials ensure good durability in wastewater applications.

The pumps are fitted with motors from 13.5 to 42 HP (10 to 32 kW). The motors are 2-, 4- or 6-pole motors, depending on the motor size.

The free passage in the pumps is 3, 4 or 4.5 inches (80, 100 or 115 mm).

The pumps are available for:

- submersible installation on auto-coupling system
- submersible installation, free-standing
- dry-pit installation, vertical
- dry-pit installation, horizontal

Applications

S pumps are designed for applications such as:

- raw-water intake
- wastewater treatment plants
- municipal pumping stations
- public buildings
- residential housing
- blocks of apartments
- industries
- garages
- underground car parks
- car-wash areas
- restaurants and hotels.

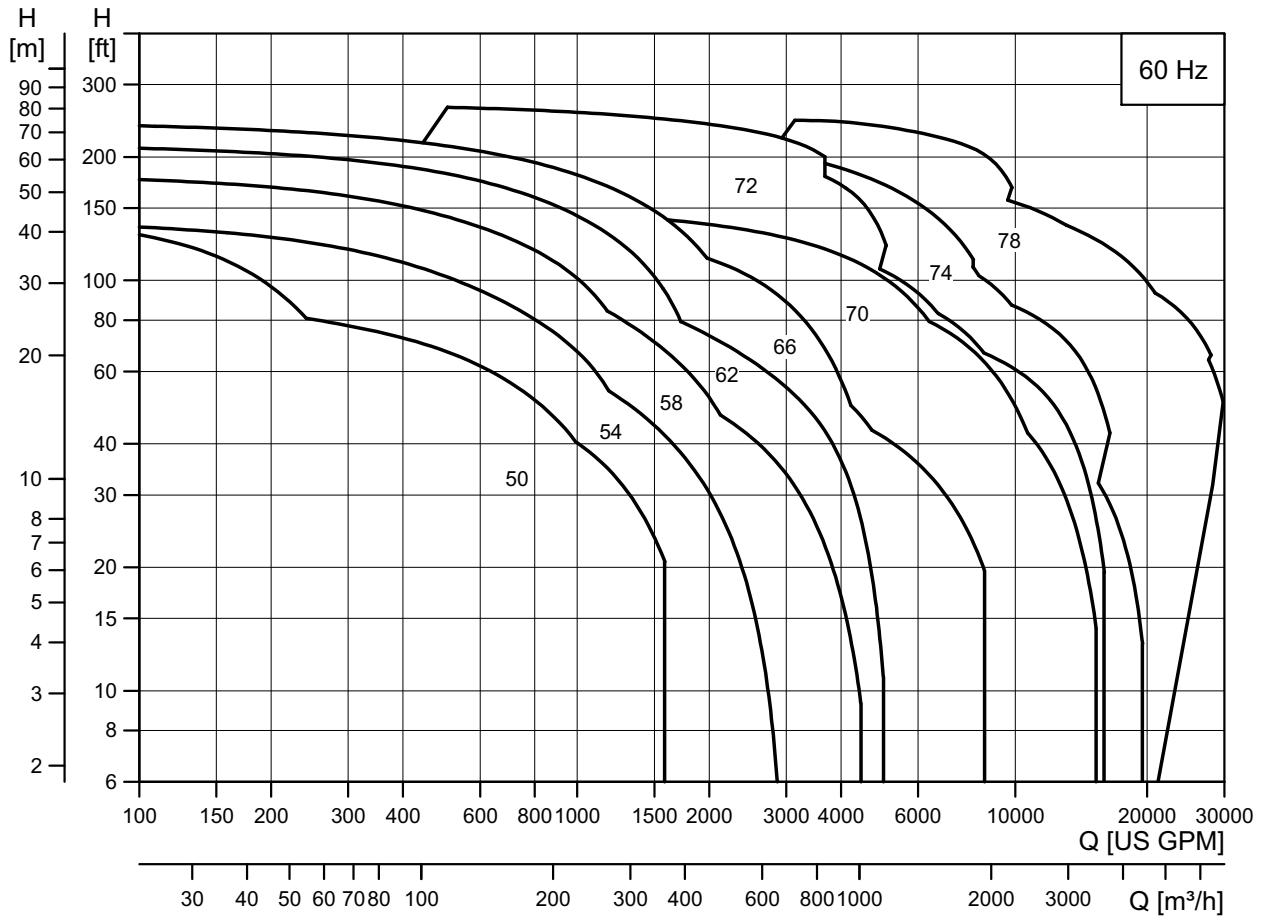
The pumps are suitable for both temporary and permanent installation. The lifting bracket fitted on the pumps facilitates easy transportation as well as installation at the installation site

Main constructional features

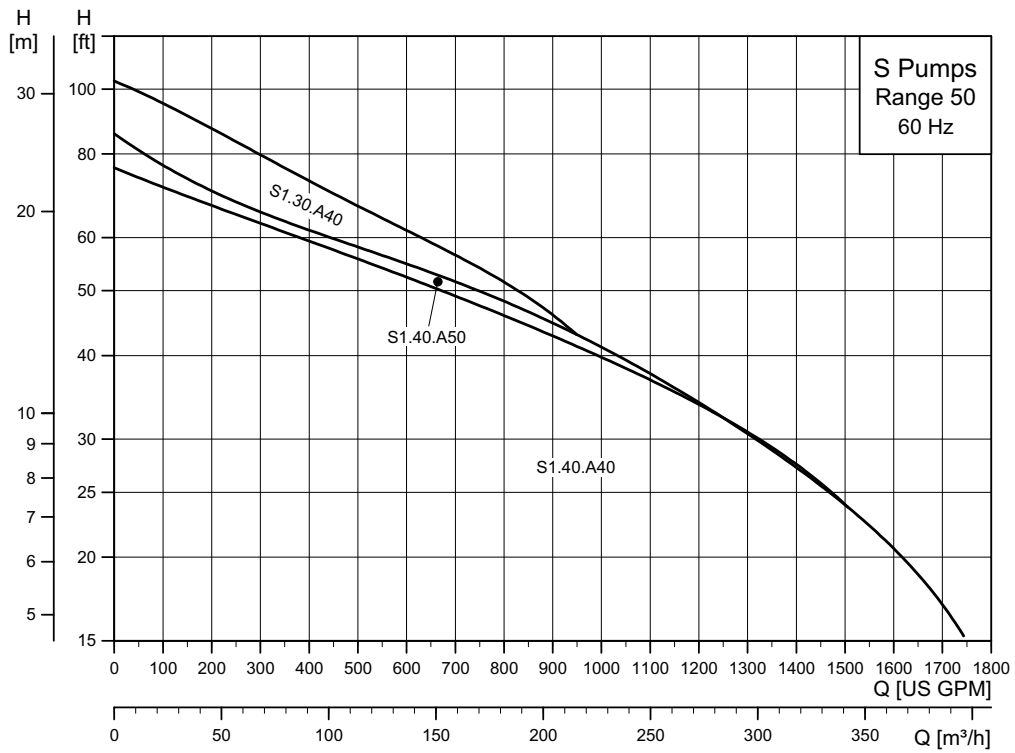
- Leak-proof connections via the Grundfos SmartSeal sealing system
- double mechanical shaft seal system for reliable sealing between pumped liquid and motor
- watertight cable entry
- moisture switch for continuous monitoring of motor housing and terminal box ensuring automatic cut-off of power in case of ingress of liquid
- self-cleaning channel impeller with long vanes reducing the risk of jamming or clogging
- SmartTrim system allowing easy adjustment of impeller clearance and maintaining maximum pump efficiency over pump lifetime
- motor in insulation class H [356 °F (180 °C)] with class F [311 °F (155 °C)] temperature increase, enclosure class IP68 with three thermal sensors in stator windings
- shaft seal condition monitoring via water-in-oil sensor (optional)
- explosion-proof motors for applications involving potential risk of explosion
- three stainless steel versions for use in corrosive or aggressive liquids:
 - stainless steel impeller, cast iron pump and motor housing
 - stainless steel pump housing, flange and impeller, cast iron motor housing made entirely of corrosion-resistant stainless steel.

2. Performance range

Performance range overview, S pumps

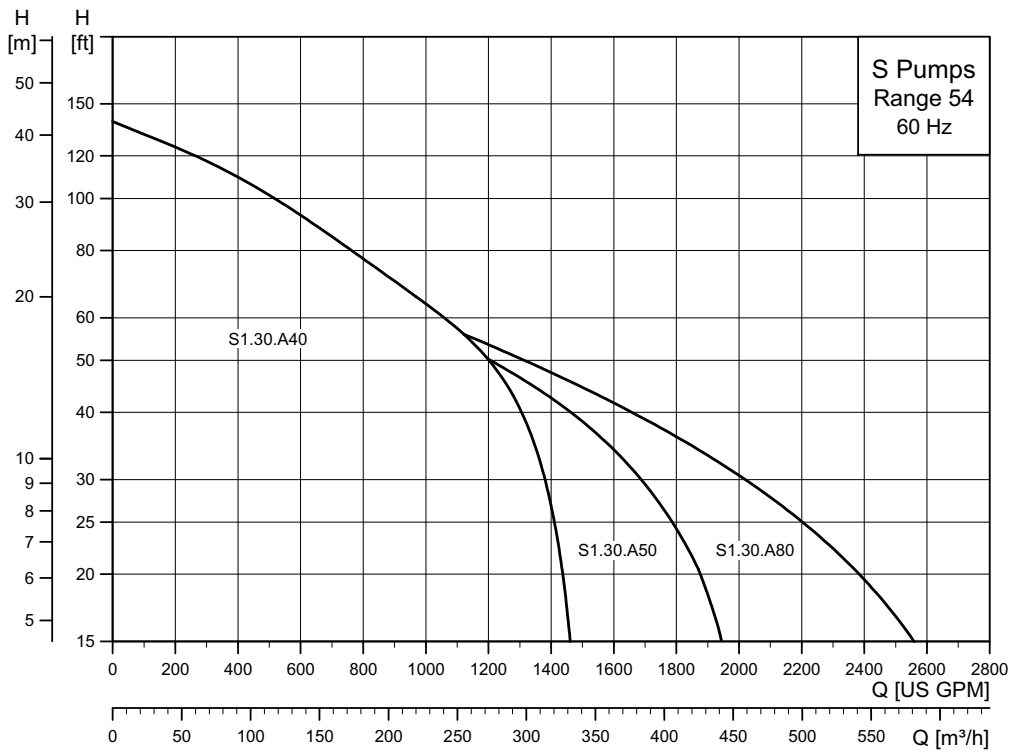


Performance range, S pumps, range 50



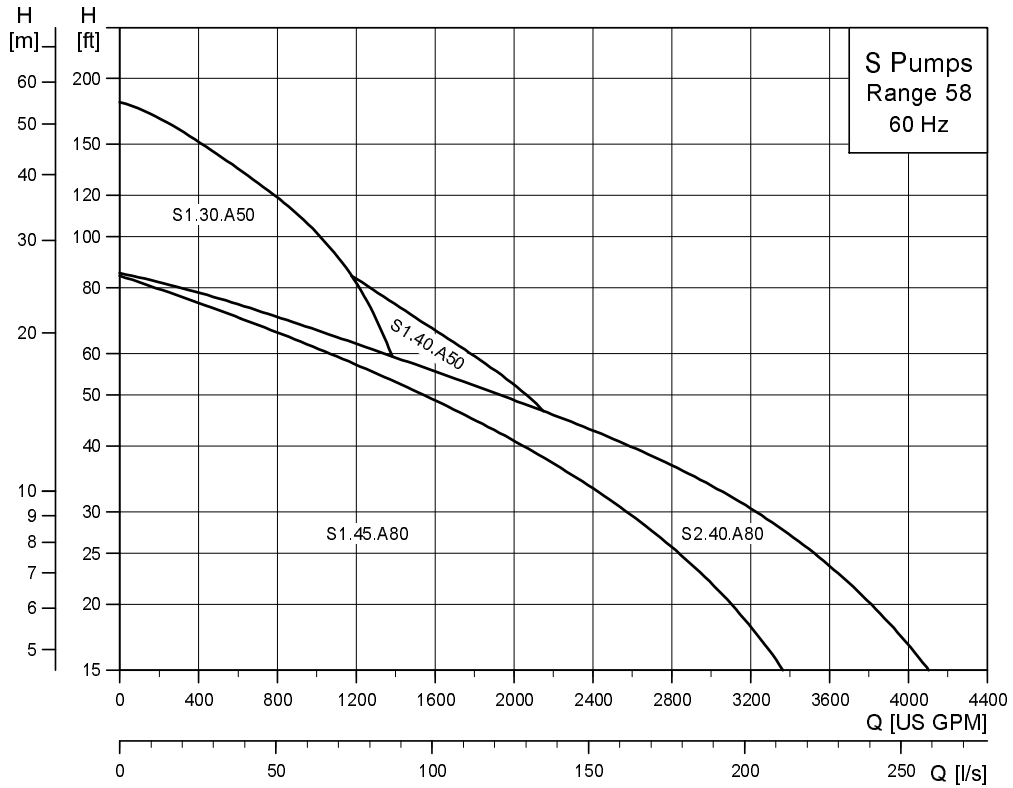
TM06 4933 3215

Performance range, S pumps, range 54



TM06 4935 3215

Performance range, S pumps, range 58



TM04 6607 0610

List of pump curves

3 x 230/460 V

Range	Pump type	Pressure range	Curve chart on page
50	S1.40.A50.xxx.4	Low	48
	S1.40.A40.xxx.4	Medium	50
	S1.30.A40.xxx.4	High	52
	SV.30.A30.xxx.2		54
54	S1.40.A80.xxx.4	Low	55
	S1.40.A50.xxx.4	Medium	57
	S1.30.A40.xxx.4	High	59

3 x 460 V

Range	Pump type	Pressure range	Curve chart on page
58	S2.40.A120.340.6	Extra-low	61
	S1.45.A80.420.4	Low	63
	S2.40.A80.420.4		65
	S1.40.A50.420.4	Medium	67
	S1.30.A50.340.4	High	69
	S1.30.A50.420.4		71

3. Identification

Type key

Please note that the pump type described in this booklet is not necessarily available in all variants.

Example **S1.40.A80.980.4.66H.S.358.G.Ex.D.611.Z**

Code	Explanation	Designation
S	Grundfos sewage and wastewater pump	Pump type
ST	Multi-channel impeller pump installed in a column pipe	
1	Single-channel impeller	Impeller type
2	Two-channel impeller	
3	Three-channel impeller	
V	SuperVortex impeller	
40	Maximum solids size = code number from type designation / 10 [in]	Pump passage
A80	Nominal diameter of pump outlet port = code number from type designation / 10 [inch]	Pump outlet, S-type
	Nominal diameter of column pipe = code number from type designation / 10 [in]	Pump outlet, ST-type
980	P2 = code number from type designation / 10 [HP]	Power output [HP] ¹
2	2-pole motor	Number of poles
4	4-pole motor	
6	6-pole motor	
8	8-pole motor	
10	10-pole motor	
12	12-pole motor	
50	Range 50	Pump range
54	Range 54	
58	Range 58	
62	Range 62	
66	Range 66	
70	Range 70	
S	Super-high	Pressure version
H	High	
M	Medium	
L	Low	
E	Extra-low	
F	Super-low	
S	Submersible installation without cooling jacket	Installation type
C	Submersible installation with cooling jacket	
D	Dry installation, vertical	
H	Dry installation, horizontal	
358	Impeller diameter	Impeller diameter [mm]
G	Cast iron impeller, pump housing and stator housing	Material code for impeller, pump housing and stator housing
Q	Stainless steel impeller, DIN W.-Nr. 1.4408	
N	Non-explosion-proof pump	Pump version
Ex	Pump with explosion-proof motor	
B	Pump with built-in SM 113 ²	Sensor version
C	Not in use	
D	Pump without built-in SM 113.	
6	60 Hz	Frequency [Hz]

Code	Explanation	Designation
11	3 x 460 V, Y/D	Voltage code and connection
Z	Custom-built products	Customization

- ¹ The power output (P2) indicated in the type key, which is used to indicate the motor size, can deviate from the actual power output. Please refer to the nameplate or the chapter *Performance curves and technical data* for the exact power output.
- ² PTC sensors are connected directly to IO 113 or other PTC relay.

Pump nameplate

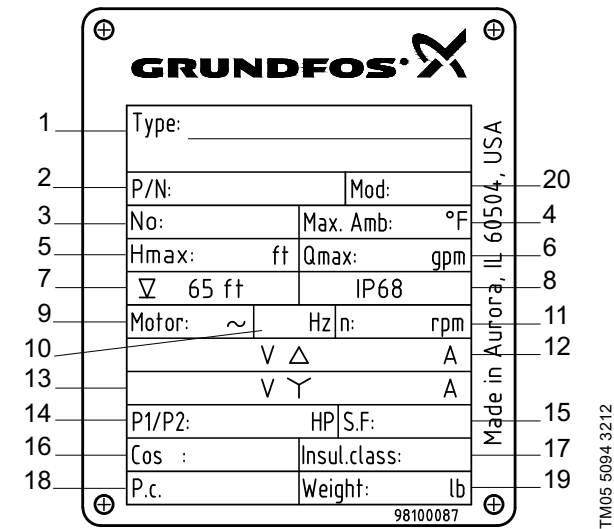


Fig. 2 Pump nameplate

Pos.	Description
1	Type designation
2	Product number
3	Serial number
4	Maximum liquid temperature
5	Maximum head
6	Maximum flow rate
7	Maximum installation depth
8	Enclosure class
9	Number of phases
10	Frequency
11	Rated speed
12	Voltage/current, delta connection
13	Voltage/current, star connection
14	Power input/output (P1/P2)
15	Motor service factor
16	Cos φ, 1/1 load
17	Insulation class
18	Production code, year and week
19	Weight
20	Generation code

TM05 5094 3212

FM approval plate

The certified pumps (FM pumps) are supplied with an approval plate fixed on the motor top cover.

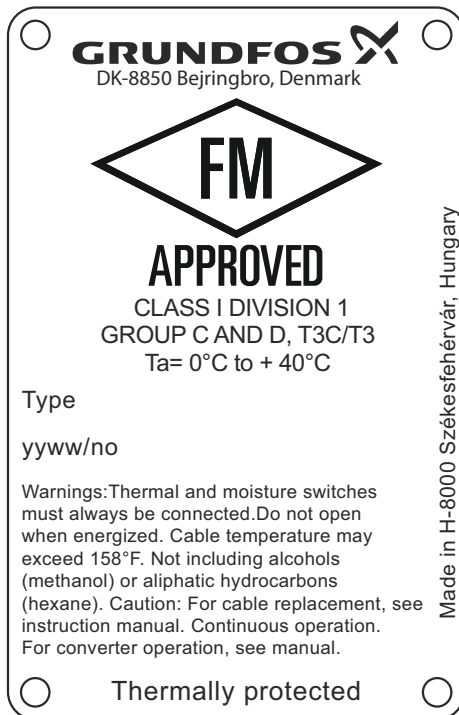


Fig. 3 FM approval plate

The approval plates give the following details:

	FM approval symbol
Class I	Permitted for locations where flammable gases or vapors may be present
Division 1	Permitted for locations where flammable or combustible gases can exist under normal operating conditions or because of repair, breakdown or faulty operation of equipment.
Group C and D	Permitted for specific gases or vapors of Group C and D that will be present.
T3C	Temperature class (T code) Surface temperature max. 320 °F (160 °C)
Type	FM listing code (e.g. S50X13.5/4.60)
yyww/no	Production year, week and serial number (e.g. 1052/123456)

FM certification and classification

Pump	Approval
50-70	Class I Division 1 Group C and D Hazardous (Classified) Locations. Temperature class T3C.

4. Selection of product

Ordering the product

When ordering the product, you need to take the following four aspects into consideration:

1. pump
2. custom-built variation (option)
3. accessories
4. controller.

Pump

Use *Product range* starting on page 10 and *Type key*, page 7 to identify the pump that best fulfils your needs. The list below is a detailed description of the product you get if you order the following pump:

Pump	Product No
S1.30.A50.420.4.58H.C.307.G.Ex.D	97660677

- Pump as specified in the type key
- 50 ft (15 m) cable
- Paint: Black, NCS S9000-N/RAL 9005, gloss 30, thickness 150 µm
- Three thermal switches (Klixon), one in each phase, or three thermal sensors (PTC)
- One moisture switch below the motor top cover and one in the stator housing at the bottom of the dry end of the motor.
- ANSI-HI centrifugal pump, test 11.6:2012 grade 3B.

See *Performance curves and technical data*, page 48 for selection of a standard pump.

Note: Product-specific data for the pump can also be found online in Grundfos Product Center using the product number 97660677.

Custom-built variants

The S pumps can be customized to meet individual requirements. Many pump features and options are available for customization, e.g. versions, various cable lengths or special materials.

Variants can be seen in *List of variants*, page 15. For requirements or designs not included in the list, contact Grundfos.

Accessories

Depending on the installation type, you may need to order accessories. See section *Accessories*, page 73 for selection of the correct accessories.

Note: Ordered accessories are not fitted from factory.

Controller

Grundfos Dedicated Controls (DC) is available.



TM06 6501 1515

Fig. 4 Grundfos Dedicated Controls

Grundfos Dedicated Controls is a control system designed for installation in either commercial buildings or network pumping stations with one to six pumps. As standard, the system is supplied with application optimized software and can be configured to meet your specific pumping needs. For more information about Grundfos Dedicated Controls, see *Level controllers*, page 35.

5. Product range

Explosion-proof pumps

Cast iron, 3 x 230/460 V

All pumps given here can be delivered as non-explosion-proof pumps, if required.

Range 50

Pump type	Cable length [ft (m)]	Pump			Accessories		
		3 x 460 V	3 x 230 V	Horizontal base stand ¹	To be ordered separately		
					Vertical base stand	Auto-coupling system	Ring stand for portable use
S1.30.A40.134.4.50H.S.200.G.Ex.D	50 (15)	97660637	97660638	-	-	97626238	96846769
S1.30.A40.134.4.50H.C.200.G.Ex.D	50 (15)	97660639	97660640	-	96845469	97626238	96846769
S1.30.A40.134.4.50H.H.200.G.Ex.D	50 (15)	97660641	97660642	96844857	-	-	-
S1.30.A40.134.4.50H.S.212.G.Ex.D	50 (15)	97660599	97660600	-	-	97626238	96846769
S1.30.A40.134.4.50H.C.212.G.Ex.D	50 (15)	97660621	97660622	-	96845469	97626238	96846769
S1.30.A40.134.4.50H.H.212.G.Ex.D	50 (15)	97660623	97660624	96844857	-	-	-
S1.30.A40.147.4.50H.S.222.G.Ex.D	50 (15)	97660643	97660644	-	-	97626238	96846769
S1.30.A40.147.4.50H.C.222.G.Ex.D	50 (15)	97660645	97660646	-	96845469	97626238	96846769
S1.30.A40.147.4.50H.H.222.G.Ex.D	50 (15)	97660647	97660648	96844857	-	-	-
S1.30.A40.181.4.50H.S.239.G.Ex.D	50 (15)	97660649	97660650	-	-	97626238	96846769
S1.30.A40.181.4.50H.C.239.G.Ex.D	50 (15)	97660651	97660652	-	96845469	97626238	96846769
S1.30.A40.181.4.50H.H.239.G.Ex.D	50 (15)	97660653	97660654	96844857	-	-	-
S1.40.A40.134.4.50M.S.205.G.Ex.D	50 (15)	97660631	97660632	-	-	97626238	96848863
S1.40.A40.134.4.50M.C.205.G.Ex.D	50 (15)	97660633	97660634	-	96308238	97626238	96848863
S1.40.A40.134.4.50M.H.205.G.Ex.D	50 (15)	97660635	97660636	96776517	-	-	-
S1.40.A40.181.4.50M.S.221.G.Ex.D	50 (15)	97660661	97660662	-	-	97626238	96848863
S1.40.A40.181.4.50M.C.221.G.Ex.D	50 (15)	97660663	97660664	-	96308238	97626238	96848863
S1.40.A40.181.4.50M.H.221.G.Ex.D	50 (15)	97660665	97660666	96776517	-	-	-
S1.40.A50.134.4.50L.S.204.G.Ex.D	50 (15)	97660625	97660626	-	-	97626242	96848864
S1.40.A50.134.4.50L.C.204.G.Ex.D	50 (15)	97660627	97660628	-	96308238	97626242	96848864
S1.40.A50.134.4.50L.H.204.G.Ex.D	50 (15)	97660629	97660630	96776517	-	-	-
S1.40.A50.181.4.50L.S.224.G.Ex.D	50 (15)	97660655	97660656	-	-	97626242	96848864
S1.40.A50.181.4.50L.C.224.G.Ex.D	50 (15)	97660657	97660658	-	96308238	97626242	96848864
S1.40.A50.181.4.50L.H.224.G.Ex.D	50 (15)	97660659	97660660	96776517	-	-	-
SV.30.A30.139.2.50H.S.159.G.Ex.D	50 (15)	97660667	97660668	-	-	97626239	96844859
SV.30.A30.168.2.50H.S.159.G.Ex.D	50 (15)	97660669	97660670	-	-	97626239	96844859

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

Range 54

Pump type	Cable length [ft (m)]	Pump			Accessories		
		3 x 460 V	3 x 230 V	Horizontal base stand ¹	To be ordered separately		
					Vertical base stand	Auto-coupling system	Ring stand for portable use
S1.30.A40.210.4.54H.S.256.G.Ex.D	50 (15)	97660602	97660603	-	-	97626238	96848863
S1.30.A40.210.4.54H.C.256.G.Ex.D	50 (15)	97660604	97660605	-	96308238	97626238	96848863
S1.30.A40.210.4.54H.H.256.G.Ex.D	50 (15)	97660606	97660607	96776519	-	-	-
S1.30.A40.270.4.54H.S.271.G.Ex.D	50 (15)	97660690	97660691	-	-	97626238	96848863
S1.30.A40.270.4.54H.C.271.G.Ex.D	50 (15)	97660692	97660693	-	96308238	97626238	96848863
S1.30.A40.270.4.54H.H.271.G.Ex.D	50 (15)	97660694	97660695	96776519	-	-	-
S1.40.A50.210.4.54M.S.237.G.Ex.D	50 (15)	97660684	97660685	-	-	97626242	96848864
S1.40.A50.210.4.54M.C.237.G.Ex.D	50 (15)	97660686	97660687	-	96308238	97626242	96848864
S1.40.A50.210.4.54M.H.237.G.Ex.D	50 (15)	97660688	97660689	96776519	-	-	-
S1.40.A50.270.4.54M.S.249.G.Ex.D	50 (15)	97660702	97660703	-	-	97626242	96848864
S1.40.A50.270.4.54M.C.249.G.Ex.D	50 (15)	97660704	97660705	-	96308238	97626242	96848864
S1.40.A50.270.4.54M.H.249.G.Ex.D	50 (15)	97660706	97660707	96776519	-	-	-
S1.40.A80.210.4.54L.S.222.G.Ex.D	50 (15)	97660608	97660609	-	-	97506541	96789480
S1.40.A80.210.4.54L.C.222.G.Ex.D	50 (15)	97660610	97660681	-	96094523	97506541	96789480
S1.40.A80.210.4.54L.H.222.G.Ex.D	50 (15)	97660682	97660683	96801089	-	-	-
S1.40.A80.270.4.54L.S.245.G.Ex.D	50 (15)	97660696	97660697	-	-	97506541	96789480
S1.40.A80.270.4.54L.C.245.G.Ex.D	50 (15)	97660698	97660699	-	96094523	97506541	96789480
S1.40.A80.270.4.54L.H.245.G.Ex.D	50 (15)	97660700	97660701	96801089	-	-	-

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

Cast iron, 3 x 460 V

Range 58

Note: WIO sensor is standard in range 58 pumps.

Pump type	Cable length [ft (m)]	Pump	Accessories			
			Horizontal base stand ¹	To be ordered separately		
				Vertical base stand	Auto-coupling system ²	Ring stand for portable use
S1.30.A50.340.4.58H.S.290.G.Ex.D	50 (15)	97660672	-	-	97626242	96856262
S1.30.A50.340.4.58H.C.290.G.Ex.D	50 (15)	97660673	-	-	97626242	96856262
S1.30.A50.340.4.58H.D.290.G.Ex.D	50 (15)	97660674	-	96308238	-	-
S1.30.A50.340.4.58H.H.290.G.Ex.D	50 (15)	97660675	96782930	-	-	-
S1.30.A50.420.4.58H.S.307.G.Ex.D	50 (15)	97660676	-	-	97626242	96856262
S1.30.A50.420.4.58H.C.307.G.Ex.D	50 (15)	97660677	-	-	97626242	96856262
S1.30.A50.420.4.58H.D.307.G.Ex.D	50 (15)	97660678	-	96308238	-	-
S1.30.A50.420.4.58H.H.307.G.Ex.D	50 (15)	97660679	96782930	-	-	-
S1.40.A50.420.4.58M.S.278.G.Ex.D	50 (15)	97660714	-	-	97626242	96856262
S1.40.A50.420.4.58M.C.278.G.Ex.D	50 (15)	97660715	-	-	97626242	96856262
S1.40.A50.420.4.58M.D.278.G.Ex.D	50 (15)	97660716	-	96094523	-	-
S1.40.A50.420.4.58M.H.278.G.Ex.D	50 (15)	97660717	96784437	-	-	-
S1.45.A80.420.4.58L.S.264.G.Ex.D	50 (15)	97660680	-	-	97506541	96790704
S1.45.A80.420.4.58L.C.264.G.Ex.D	50 (15)	97660711	-	-	97506541	96790704
S1.45.A80.420.4.58L.D.264.G.Ex.D	50 (15)	97660712	-	96856263	-	-
S1.45.A80.420.4.58L.H.264.G.Ex.D	50 (15)	97660713	96856265	-	-	-
S2.40.A80.420.4.58L.S.227.G.Ex.D	50 (15)	97660718	-	-	97506541	96790704
S2.40.A80.420.4.58L.C.227.G.Ex.D	50 (15)	97660719	-	-	97506541	96790704
S2.40.A80.420.4.58L.D.227.G.Ex.D	50 (15)	97660720	-	96856263	-	-
S2.40.A80.420.4.58L.H.227.G.Ex.D	50 (15)	97660721	96856265	-	-	-
S2.40.A120.340.6.58E.S.295.G.Ex.D	50 (15)	97660722	-	-	97510049	96856259
S2.40.A120.340.6.58E.C.295.G.Ex.D	50 (15)	97660723	-	-	97510049	96856259
S2.40.A120.340.6.58E.D.295.G.Ex.D	50 (15)	97660724	-	96856263	-	-
S2.40.A120.340.6.58E.H.295.G.Ex.D	50 (15)	97660725	96856265	-	-	-

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

² Installation type S and C pumps with outlet flange size ANSI 10" (DN 250) and higher are supplied with guide claw mounted on the flange.

Stainless steel, 3 x 230/460

Range 50

Pump type	Cable length [ft (m)]	Pump			Accessories		
		3 x 460 V	3 x 230 V	Horizontal base stand ¹	To be ordered separately		
					Vertical base stand	Auto-coupling system	Ring stand for portable use
S1.30.A40.134.4.50H.S.200.Q.Ex.D	50 (15)	97663608	97663609	-	-	97626238	96846769
S1.30.A40.134.4.50H.C.200.Q.Ex.D	50 (15)	97663610	97663611	-	96845469	97626238	96846769
S1.30.A40.134.4.50H.H.200.Q.Ex.D	50 (15)	97663612	97663613	96844857	-	-	-
S1.30.A40.134.4.50H.S.212.Q.Ex.D	50 (15)	97663570	97663591	-	-	97626238	96846769
S1.30.A40.134.4.50H.C.212.Q.Ex.D	50 (15)	97663592	97663593	-	96845469	97626238	96846769
S1.30.A40.134.4.50H.H.212.Q.Ex.D	50 (15)	97663594	97663595	96844857	-	-	-
S1.30.A40.147.4.50H.S.222.Q.Ex.D	50 (15)	97663614	97663615	-	-	97626238	96846769
S1.30.A40.147.4.50H.C.222.Q.Ex.D	50 (15)	97663616	97663617	-	96845469	97626238	96846769
S1.30.A40.147.4.50H.H.222.Q.Ex.D	50 (15)	97663618	97663619	96844857	-	-	-
S1.30.A40.181.4.50H.S.239.Q.Ex.D	50 (15)	97663620	97663621	-	-	97626238	96846769
S1.30.A40.181.4.50H.C.239.Q.Ex.D	50 (15)	97663622	97663623	-	96845469	97626238	96846769
S1.30.A40.181.4.50H.H.239.Q.Ex.D	50 (15)	97663624	97663625	96844857	-	-	-
S1.40.A40.134.4.50M.S.205.Q.Ex.D	50 (15)	97663602	97663603	-	-	97626238	96848863
S1.40.A40.134.4.50M.C.205.Q.Ex.D	50 (15)	97663604	97663605	-	96308238	97626238	96848863
S1.40.A40.134.4.50M.H.205.Q.Ex.D	50 (15)	97663606	97663607	96776517	-	-	-
S1.40.A40.181.4.50M.S.221.Q.Ex.D	50 (15)	97663632	97663633	-	-	97626238	96848863
S1.40.A40.181.4.50M.C.221.Q.Ex.D	50 (15)	97663634	97663635	-	96308238	97626238	96848863
S1.40.A40.181.4.50M.H.221.Q.Ex.D	50 (15)	97663636	97663637	96776517	-	-	-
S1.40.A50.134.4.50L.S.204.Q.Ex.D	50 (15)	97663596	97663597	-	-	97626242	96848864
S1.40.A50.134.4.50L.C.204.Q.Ex.D	50 (15)	97663598	97663599	-	96308238	97626242	96848864
S1.40.A50.134.4.50L.H.204.Q.Ex.D	50 (15)	97663600	97663601	96776517	-	-	-
S1.40.A50.181.4.50L.S.224.Q.Ex.D	50 (15)	97663626	97663627	-	-	97626242	96848864
S1.40.A50.181.4.50L.C.224.Q.Ex.D	50 (15)	97663628	97663629	-	96308238	97626242	96848864
S1.40.A50.181.4.50L.H.224.Q.Ex.D	50 (15)	97663630	97663631	96776517	-	-	-
SV.30.A30.139.2.50H.S.159.Q.Ex.D	50 (15)	97663638	97663639	-	-	97626239	96844859
SV.30.A30.168.2.50H.S.172.Q.Ex.D	50 (15)	97663640	97663641	-	-	97626239	96844859

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

Range 54

Pump type	Cable length [ft (m)]	Pump			Accessories		
		3 x 460 V	3 x 230 V	Horizontal base stand ¹	To be ordered separately		
					Vertical base stand	Auto-coupling system	Ring stand for portable use
S1.30.A40.210.4.54H.S.256.Q.Ex.D	50 (15)	97663584	97663585	-	-	97626238	96848863
S1.30.A40.210.4.54H.C.256.Q.Ex.D	50 (15)	97663586	97663587	-	96308238	97626238	96848863
S1.30.A40.210.4.54H.H.256.Q.Ex.D	50 (15)	97663588	97663589	96776519	-	-	-
S1.30.A40.270.4.54H.S.271.Q.Ex.D	50 (15)	97663662	97663663	-	-	97626238	96848863
S1.30.A40.270.4.54H.C.271.Q.Ex.D	50 (15)	97663664	97663665	-	96308238	97626238	96848863
S1.30.A40.270.4.54H.H.271.Q.Ex.D	50 (15)	97663666	97663667	96776519	-	-	-
S1.40.A50.210.4.54M.S.237.Q.Ex.D	50 (15)	97663656	97663657	-	-	97626242	96848864
S1.40.A50.210.4.54M.C.237.Q.Ex.D	50 (15)	97663658	97663659	-	96308238	97626242	96848864
S1.40.A50.210.4.54M.H.237.Q.Ex.D	50 (15)	97663660	97663661	96776519	-	-	-
S1.40.A50.270.4.54M.S.249.Q.Ex.D	50 (15)	97663674	97663675	-	-	97626242	96848864
S1.40.A50.270.4.54M.C.249.Q.Ex.D	50 (15)	97663676	97663677	-	96308238	97626242	96848864
S1.40.A50.270.4.54M.H.249.Q.Ex.D	50 (15)	97663678	97663679	96776519	-	-	-
S1.40.A80.210.4.54L.S.222.Q.Ex.D	50 (15)	97663590	97663651	-	-	97506541	96789480
S1.40.A80.210.4.54L.C.222.Q.Ex.D	50 (15)	97663652	97663653	-	96094523	97506541	96789480
S1.40.A80.210.4.54L.H.222.Q.Ex.D	50 (15)	97663654	97663655	96801089	-	-	-
S1.40.A80.270.4.54L.S.245.Q.Ex.D	50 (15)	97663668	97663669	-	-	97506541	96789480
S1.40.A80.270.4.54L.C.245.Q.Ex.D	50 (15)	97663670	97663671	-	96094523	97506541	96789480
S1.40.A80.270.4.54L.H.245.Q.Ex.D	50 (15)	97663672	97663673	96801089	-	-	-

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

Stainless steel, 3 x 460

Range 58

Note: WIO sensor is standard in range 58 pumps.

Pump type	Cable length [ft (m)]	Pump		Accessories		
		3 x 460 V	Horizontal base stand ¹	To be ordered separately		
				Vertical base stand	Auto-coupling system ²	Ring stand for portable use
S1.30.A50.340.4.58H.S.290.Q.Ex.D	50 (15)	97663643	-	-	97626242	96856262
S1.30.A50.340.4.58H.C.290.Q.Ex.D	50 (15)	97663644	-	-	97626242	96856262
S1.30.A50.340.4.58H.D.290.Q.Ex.D	50 (15)	97663645	-	96308238	-	-
S1.30.A50.340.4.58H.H.290.Q.Ex.D	50 (15)	97663646	96782930	-	-	-
S1.30.A50.420.4.58H.S.307.Q.Ex.D	50 (15)	97663647	-	-	97626242	96856262
S1.30.A50.420.4.58H.C.307.Q.Ex.D	50 (15)	97663648	-	-	97626242	96856262
S1.30.A50.420.4.58H.D.307.Q.Ex.D	50 (15)	97663649	-	96308238	-	-
S1.30.A50.420.4.58H.H.307.Q.Ex.D	50 (15)	97663650	96782930	-	-	-
S1.40.A50.420.4.58M.S.278.Q.Ex.D	50 (15)	97663695	-	-	97626242	96856262
S1.40.A50.420.4.58M.C.278.Q.Ex.D	50 (15)	97663696	-	-	97626242	96856262
S1.40.A50.420.4.58M.D.278.Q.Ex.D	50 (15)	97663697	-	96094523	-	-
S1.40.A50.420.4.58M.H.278.Q.Ex.D	50 (15)	97663698	96784437	-	-	-
S1.45.A80.420.4.58L.S.264.Q.Ex.D	50 (15)	97663691	-	-	97506541	96790704
S1.45.A80.420.4.58L.C.264.Q.Ex.D	50 (15)	97663692	-	-	97506541	96790704
S1.45.A80.420.4.58L.D.264.Q.Ex.D	50 (15)	97663693	-	96856263	-	-
S1.45.A80.420.4.58L.H.264.Q.Ex.D	50 (15)	97663694	96856265	-	-	-
S2.40.A80.420.4.58L.S.227.Q.Ex.D	50 (15)	97663699	-	-	97506541	96790704
S2.40.A80.420.4.58L.C.227.Q.Ex.D	50 (15)	97663700	-	-	97506541	96790704
S2.40.A80.420.4.58L.D.227.Q.Ex.D	50 (15)	97663701	-	96856263	-	-
S2.40.A80.420.4.58L.H.227.Q.Ex.D	50 (15)	97663702	96856265	-	-	-
S2.40.A120.340.6.58E.S.295.Q.Ex.D	50 (15)	97663703	-	-	97510049	96856259
S2.40.A120.340.6.58E.C.295.Q.Ex.D	50 (15)	97663704	-	-	97510049	96856259
S2.40.A120.340.6.58E.D.295.Q.Ex.D	50 (15)	97663705	-	96856263	-	-
S2.40.A120.340.6.58E.H.295.Q.Ex.D	50 (15)	97663706	96856265	-	-	-

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

² Installation type S and C pumps with outlet flange size 10" (DN 250) and higher are supplied with guide claw mounted on the flange.

6. Variants

List of variants

Motor		
Various cable lengths		82 ft (25 m)
		165 ft (50 m)
EMC power cables	Screened power cables for variable-speed drives in combination with analog sensors	33 ft (10 m)
		50 ft (15 m)
		82 ft (25 m)
		165 ft (50 m)
Special motor		Special voltage
PTC thermistors in windings		
Special oil	Non-toxic Shell Ondina X420 ¹	
Motor protection		
PTC + moisture switch		FPV1
Klixon + moisture switch + WIO ²		FPV2a
PTC + moisture switch + WIO ²		FPV2b
Klixon + moisture switch + WIO ² + Pt100 at lower and upper bearing		FPV4a
PTC + moisture switch + WIO ² + Pt100 at lower and upper bearing		FPV4b
Materials		
Stainless steel lifting bracket	AISI 316	
Stainless steel impeller	Duplex and 316 stainless steel	Variant Q
Ceramic coatings for volute and impellers	Belzona 1321	
Tests		
Test at specified duty on standard impeller curve		
Trimmed impeller for specified duty test		
Additional test of entire QH curve (including report)	5-10 points on the pump performance curve	
Different test standard	Efficiency guaranteed by Grundfos	ISO 9906:2012 grade 1B/1U tolerances
		ISO 9906:2012 grade 2B/2U tolerances
Vibration test (including report)	According to Grundfos factory quality standard	
Performance test on dry test stand	Not yet available	
ANSI Hr test	Not yet available	
String test	Contact Grundfos	
Witness test	Contact Grundfos	
Miscellaneous		
Special packaging	Contact Grundfos	
Special nameplate	Contact Grundfos	
Other variants	Contact Grundfos	

¹ Shell Ondina must not be used for pumps with WIO sensor.

² WIO sensor is standard in range 58 pumps.

7. Construction

Sectional drawings - motors

Ranges 50 and 54

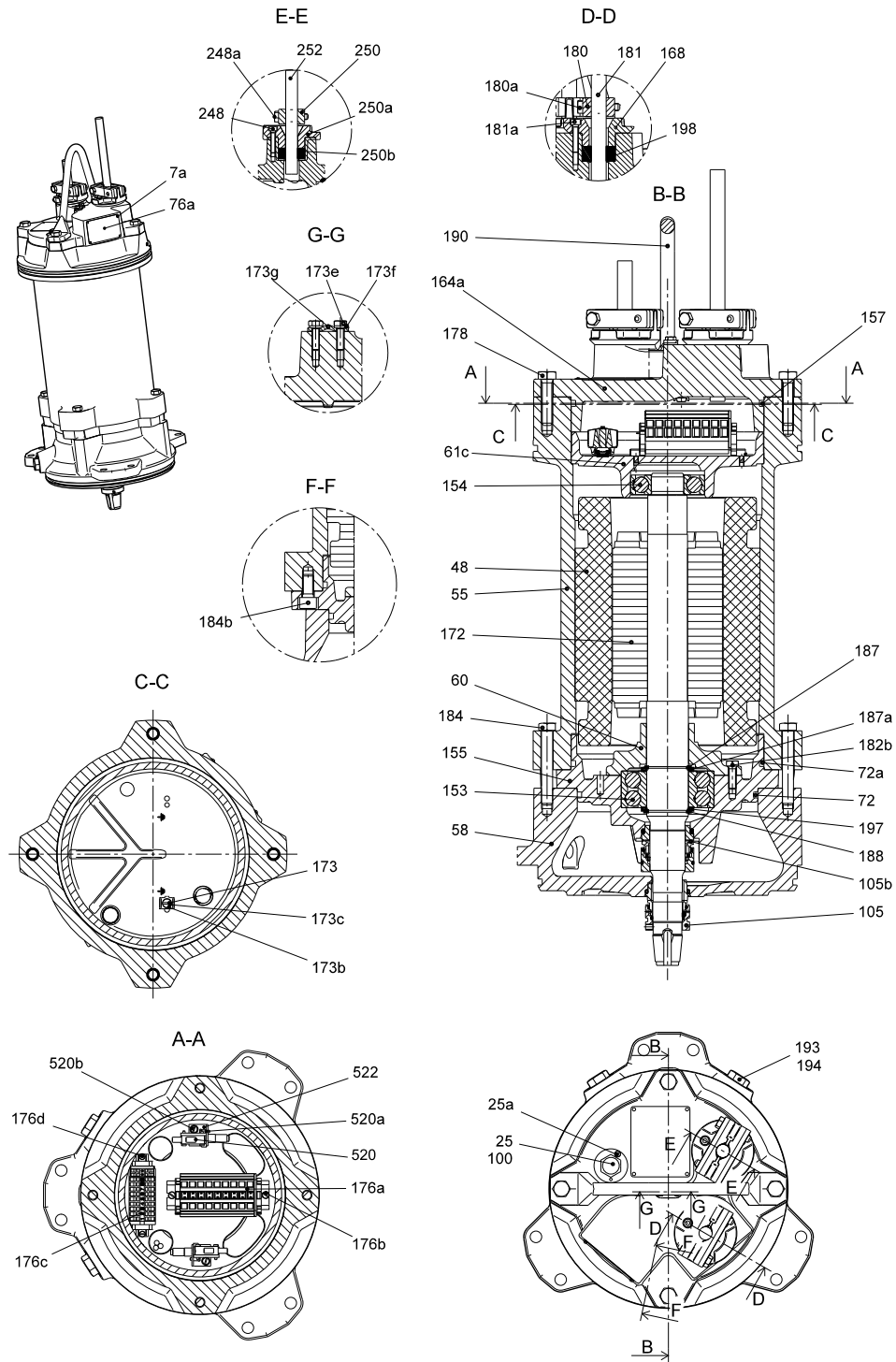


Fig. 5 Explosion-proof motor without cooling jacket (installation type S)

TM04 1721 1008

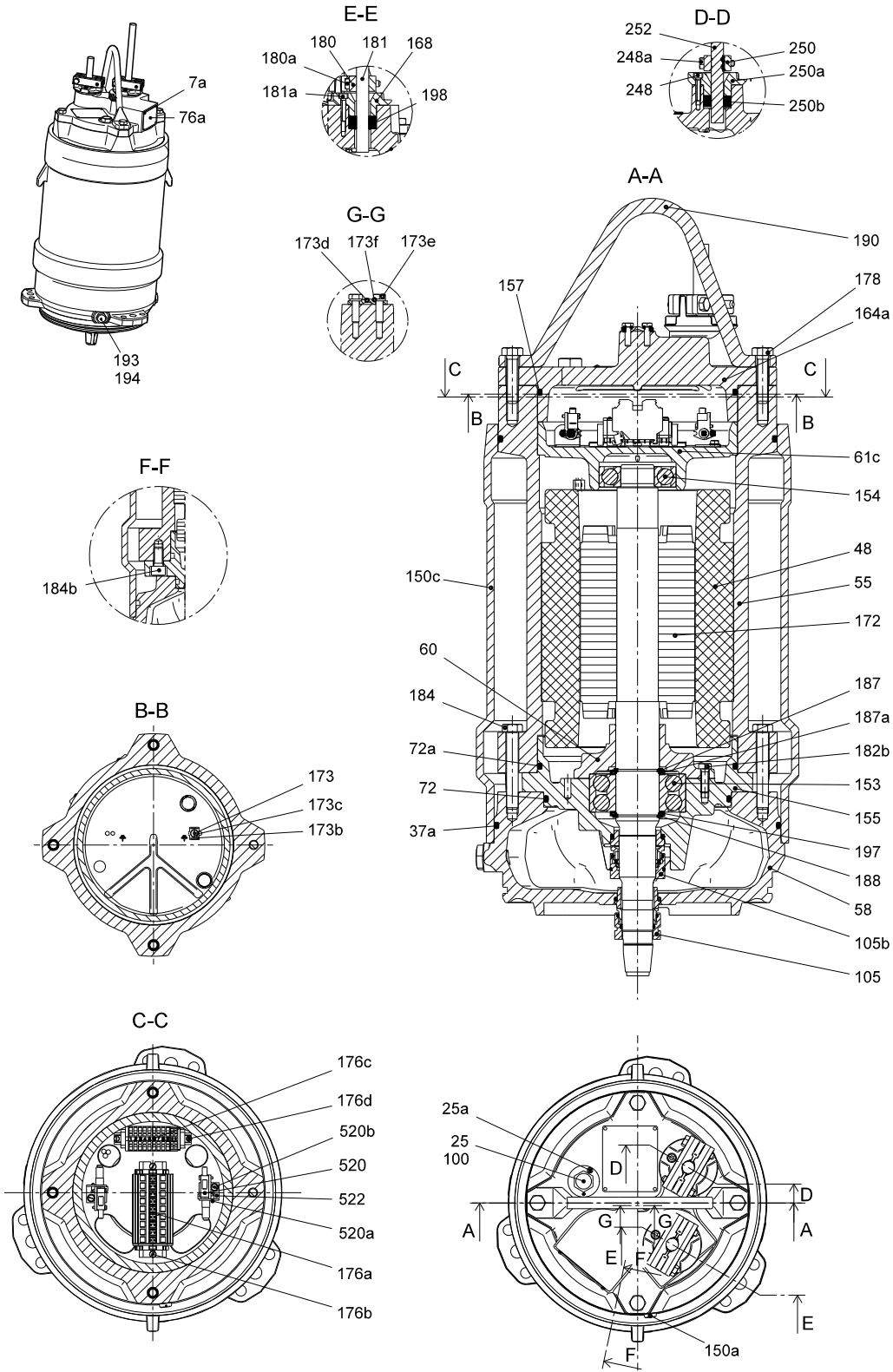


Fig. 6 Explosion-proof motor with cooling jacket (installation types C, D and H)

TM04 1722 1008

Motors - range 58

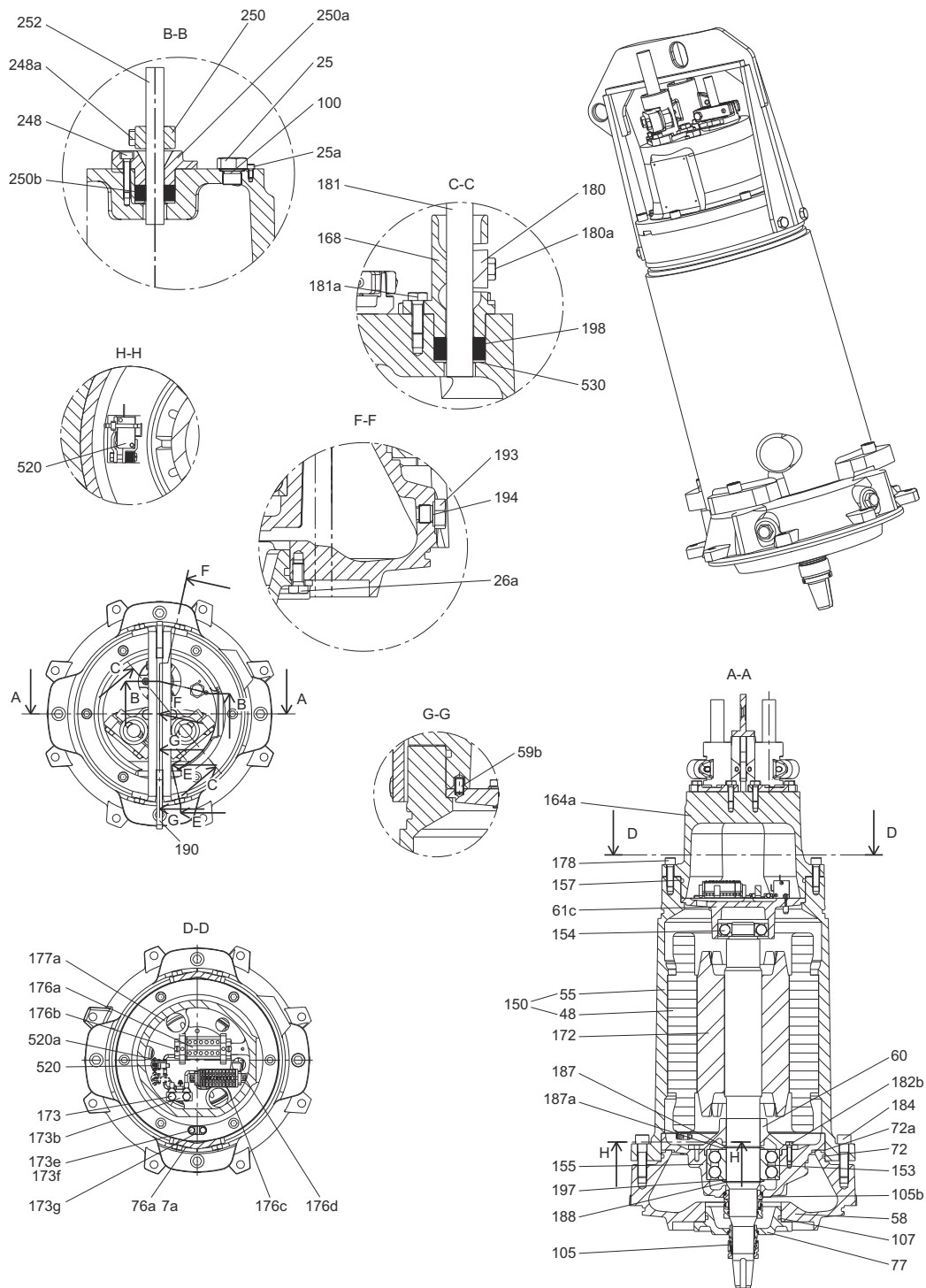


Fig. 7 Explosion-proof motor without cooling jacket (installation type S)

TM06 8634 0917

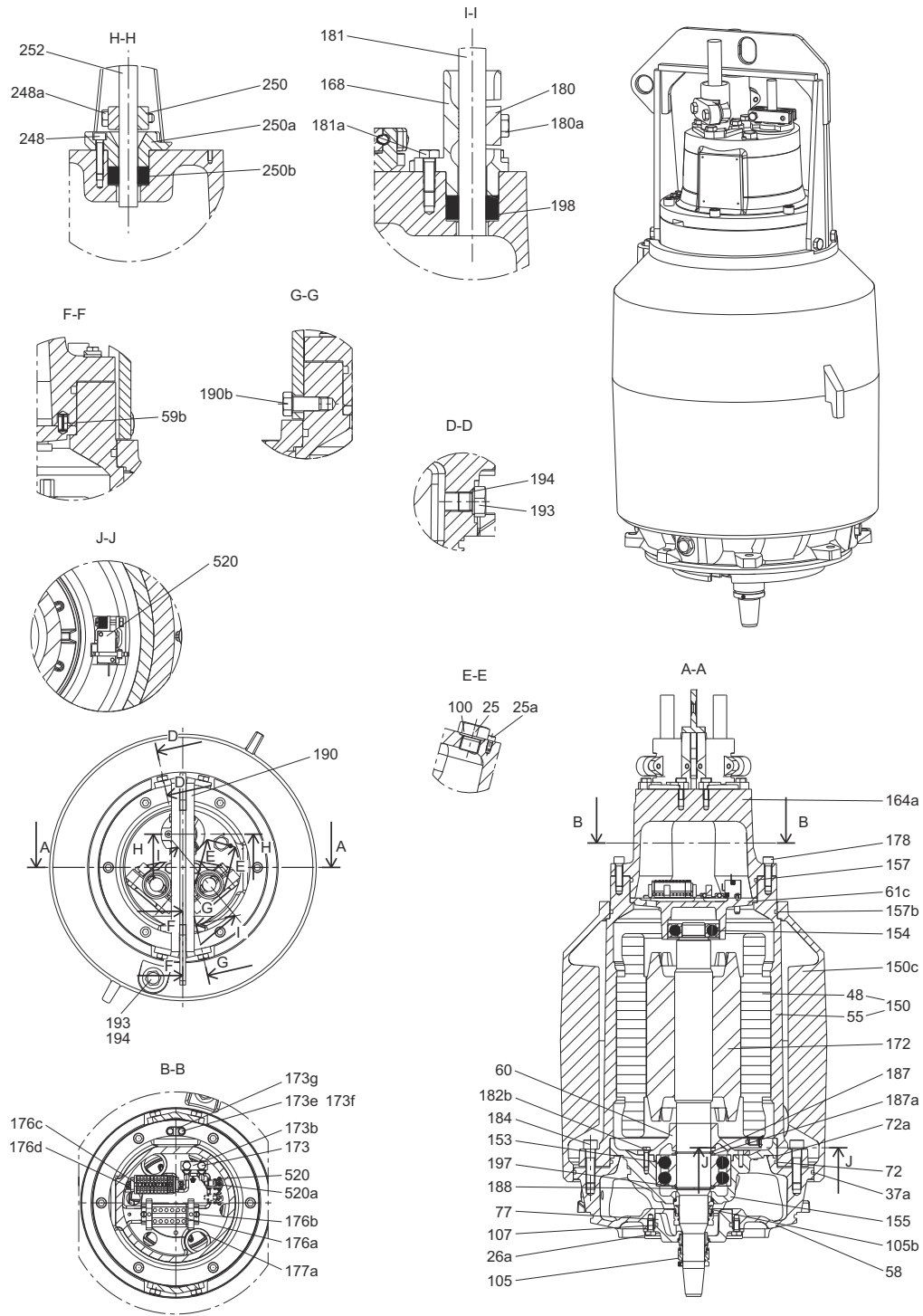


Fig. 8 Explosion-proof motor with cooling jacket (installation types C, D and H)

TM06 8633 0917

Pumps - ranges 50 and 54

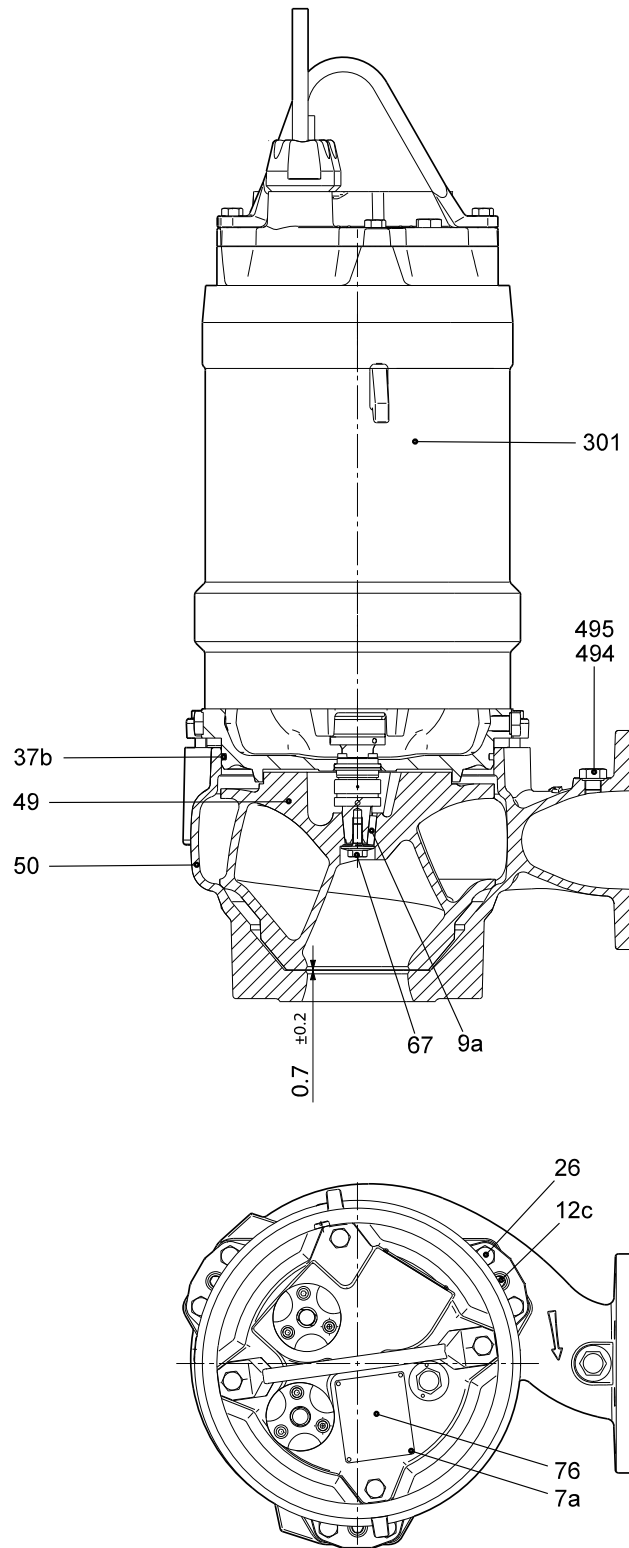
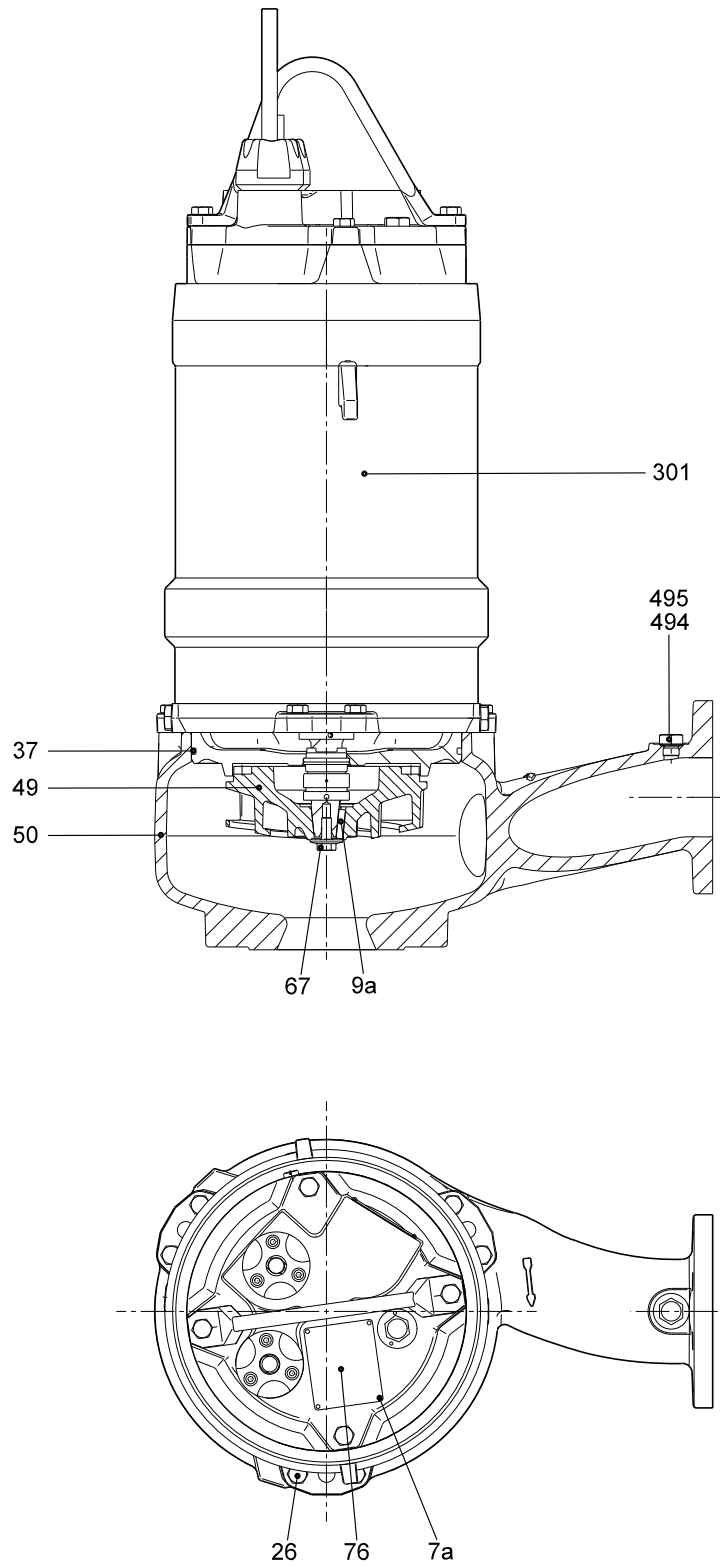


Fig. 9 Basic pump - S-tube impeller

TM04 1715 1008



TM04 1716 1008

Fig. 10 Basic pump - SuperVortex impeller

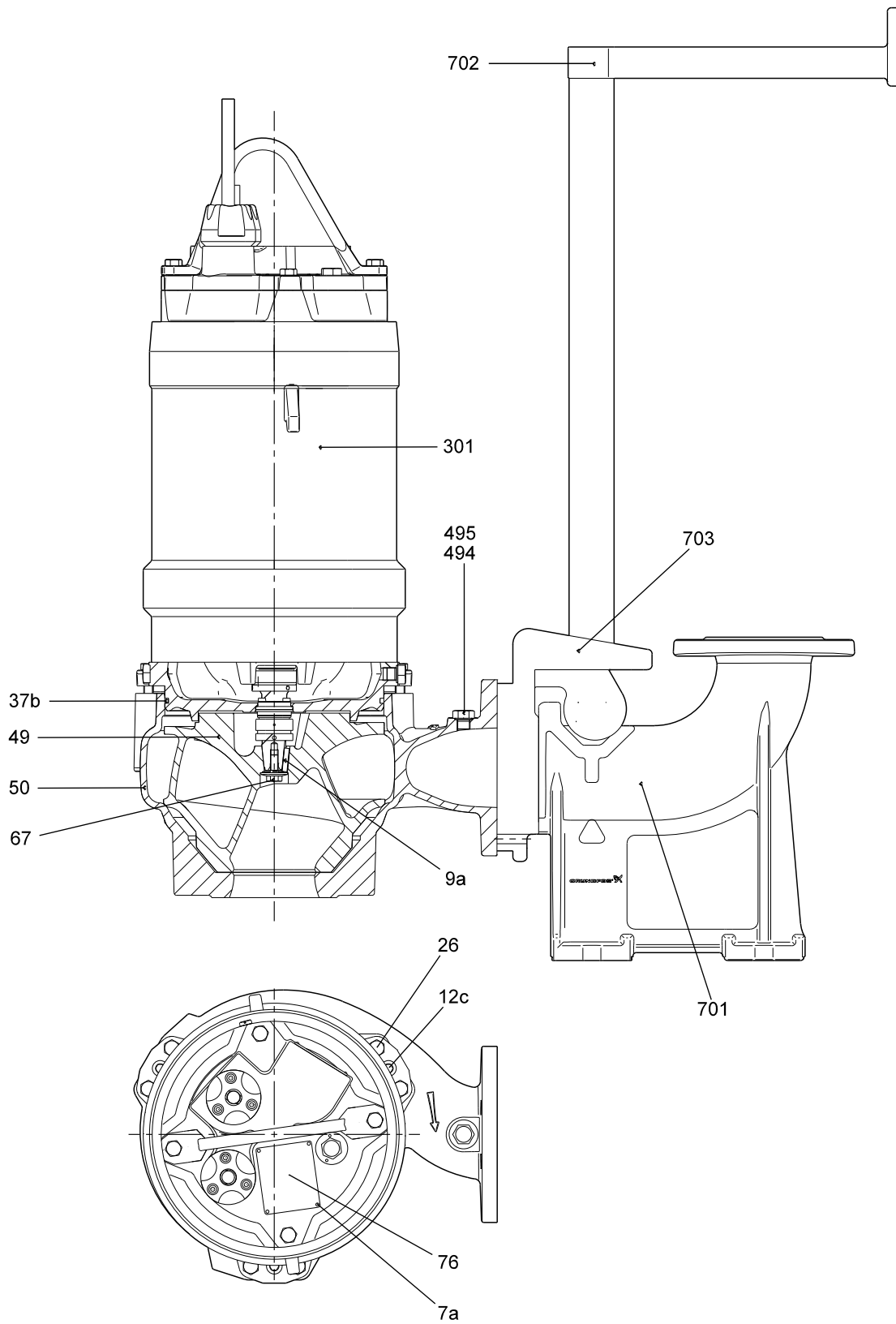


Fig. 11 Installation types S and C pump on auto coupling

TM04 1940 0417

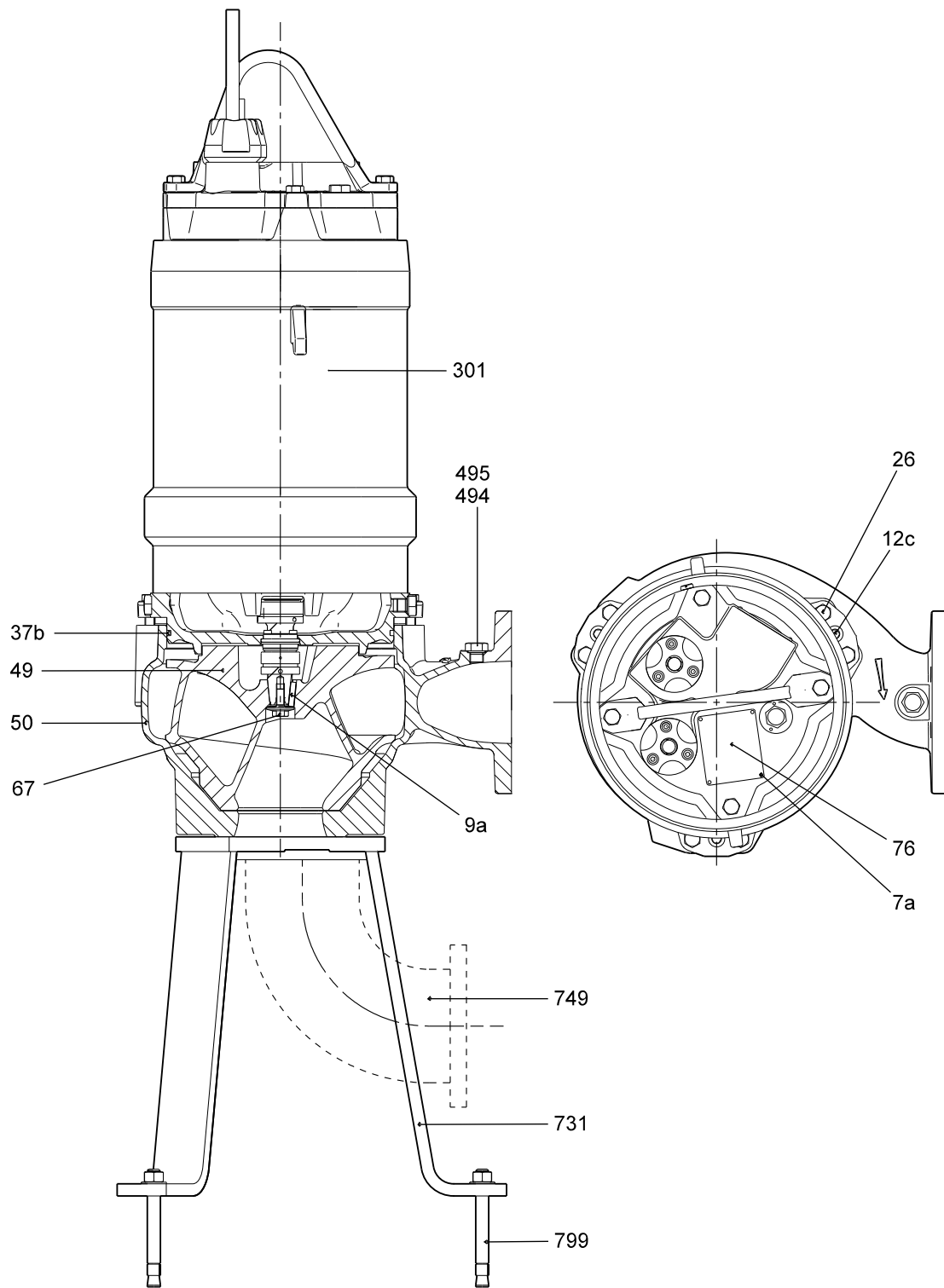


Fig. 12 Installation type D, dry, vertical pump on base stand

TM04 1941 1408

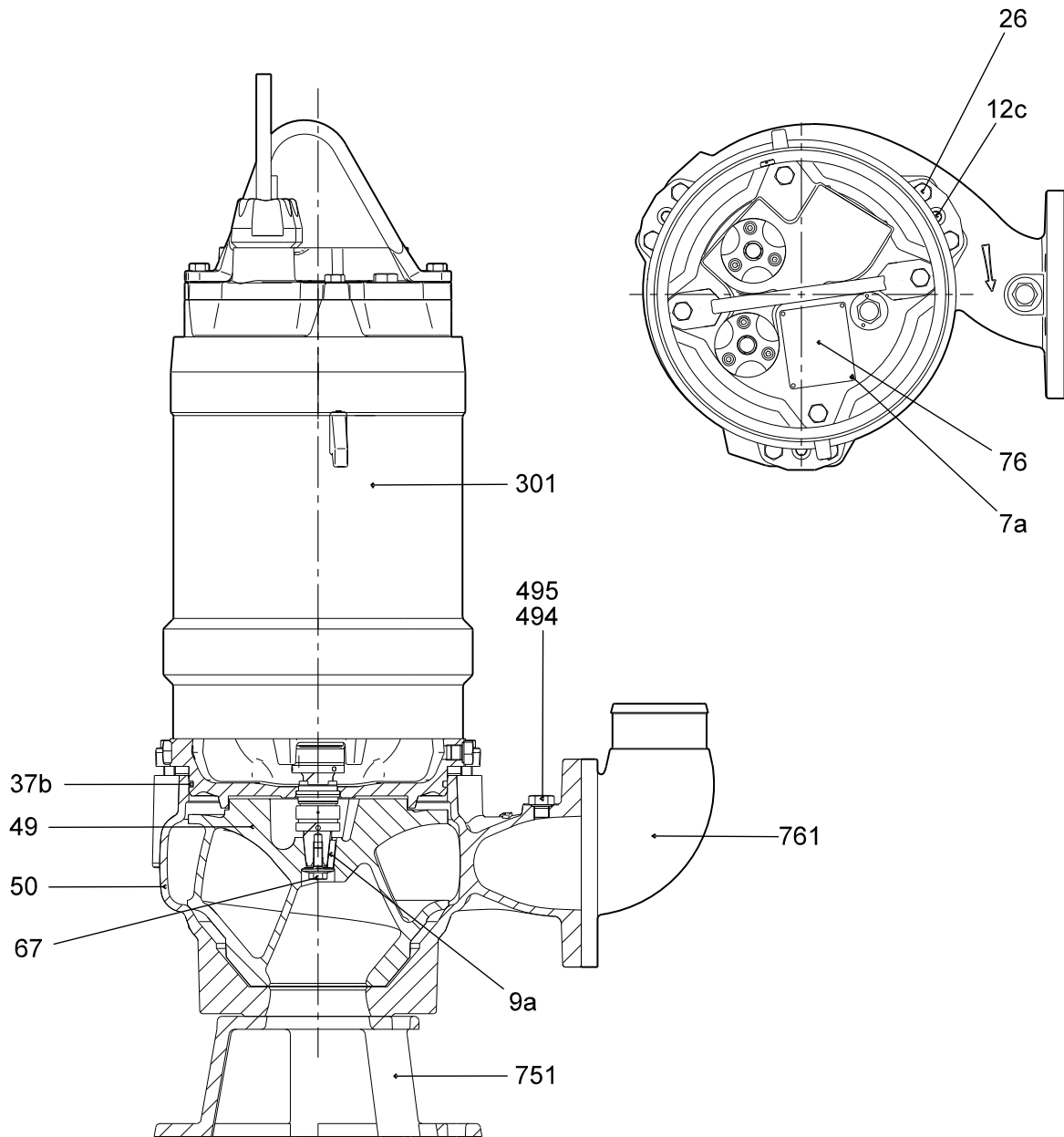


Fig. 13 Installation type S and C pump, free-standing installation

TM04 1942 1408

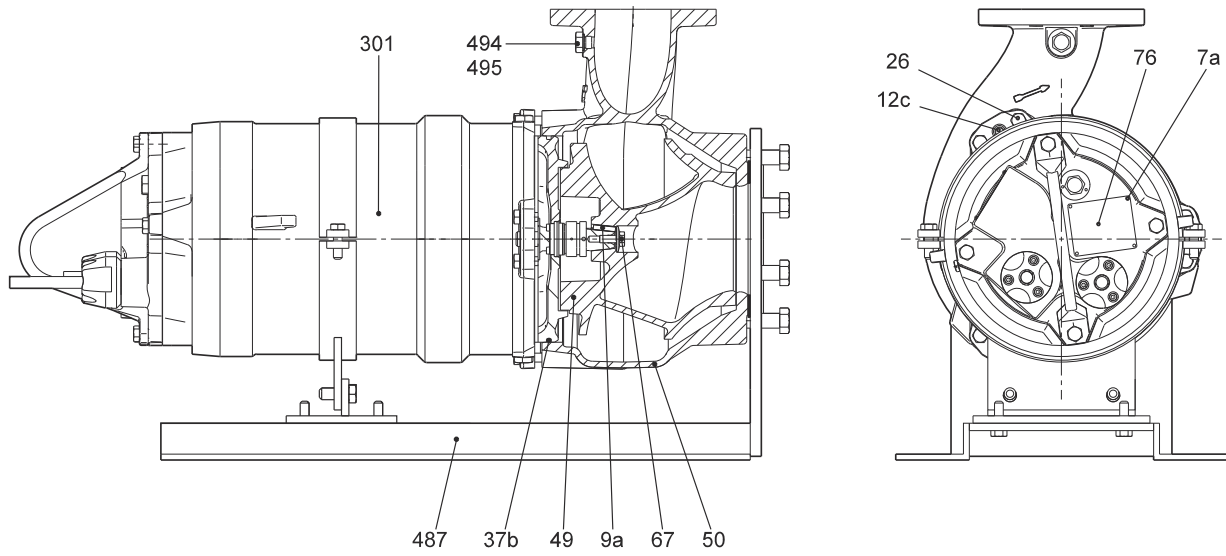


Fig. 14 Installation type H, dry, horizontal pump on base stand - S-tube impeller

TM04 1714 1008

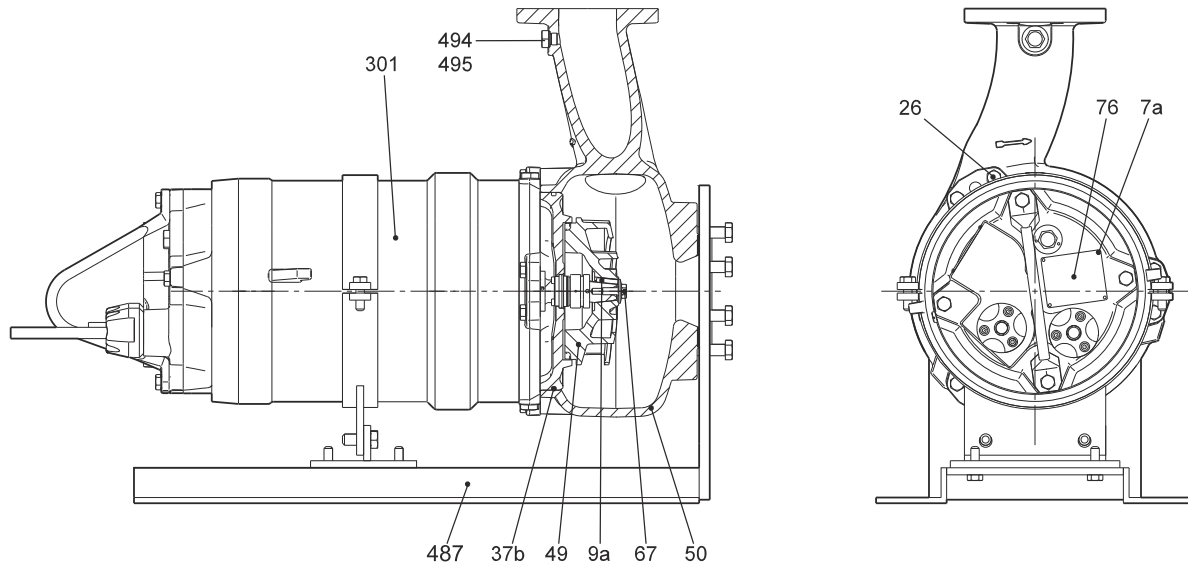


Fig. 15 Installation type H, dry, horizontal pump on base stand - SuperVortex impeller

TM04 1718 1008

Pumps - range 58

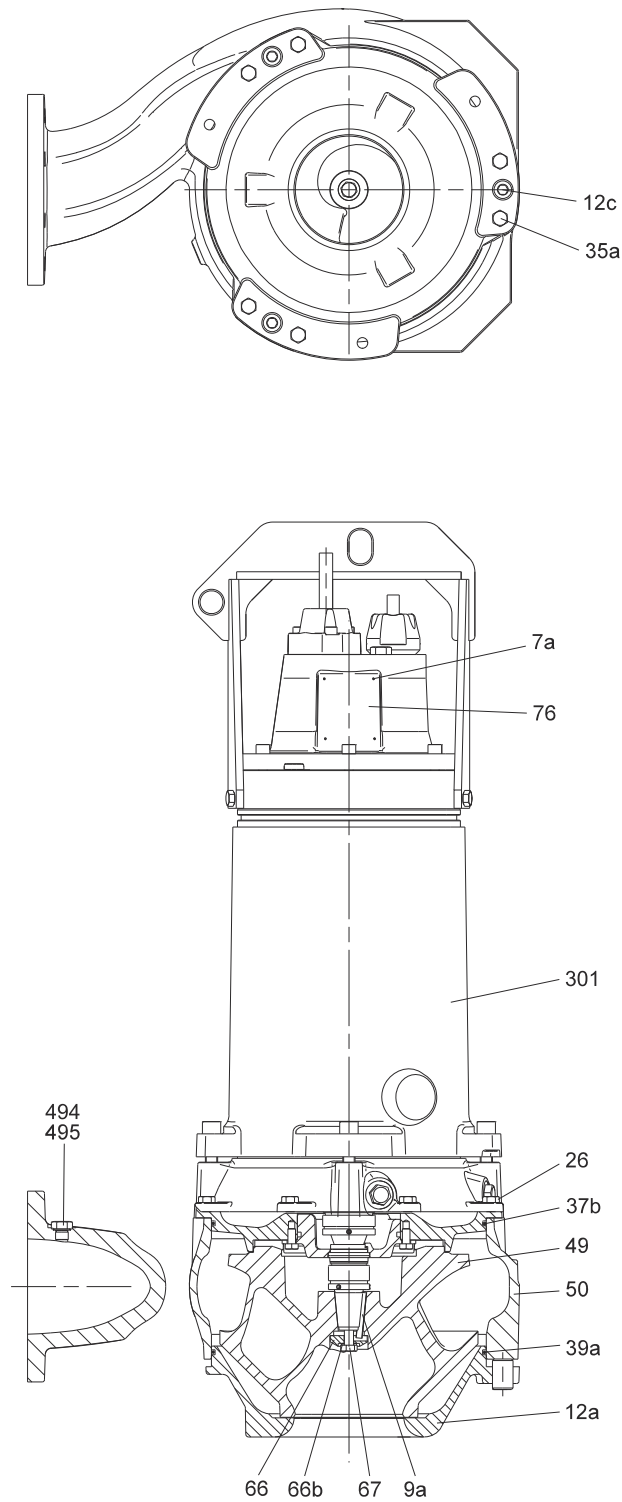


Fig. 16 Basic pump - S-tube impeller

TM04 2310 2308

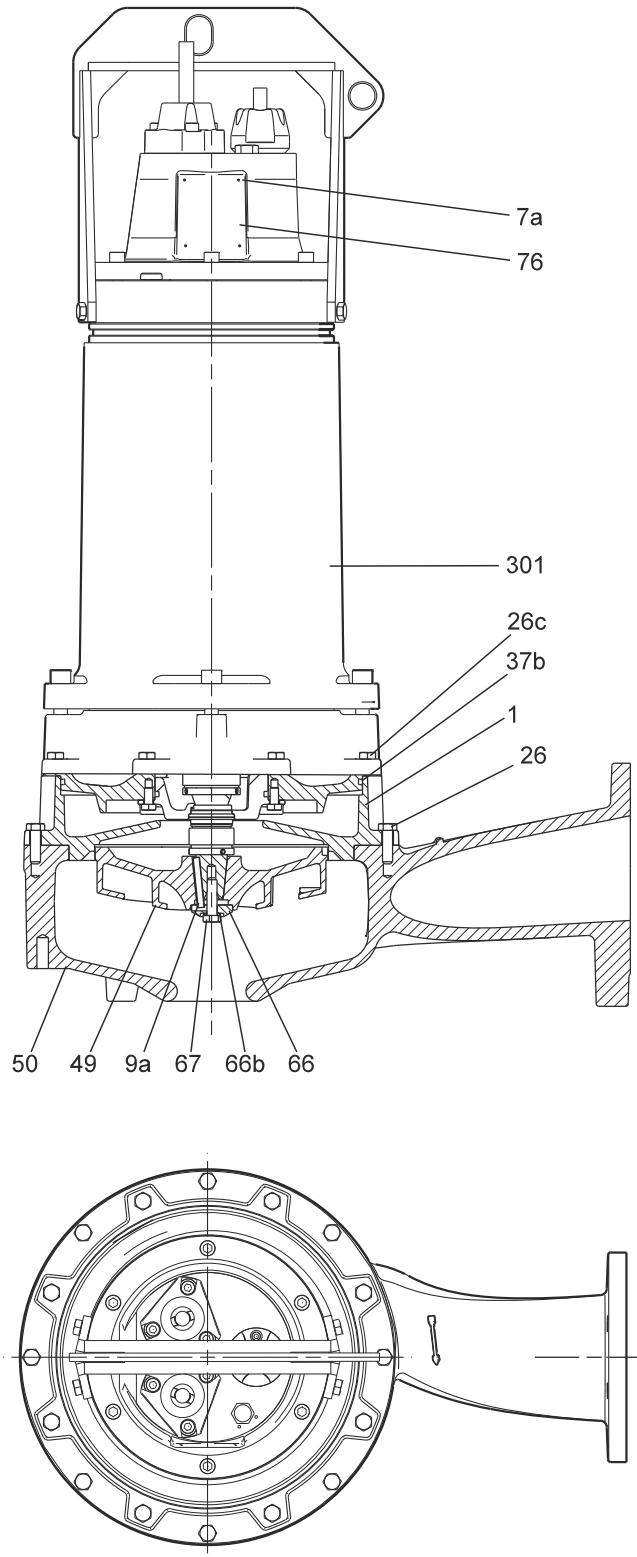


Fig. 17 Basic pump - SuperVortex impeller

TM04 2311 2308

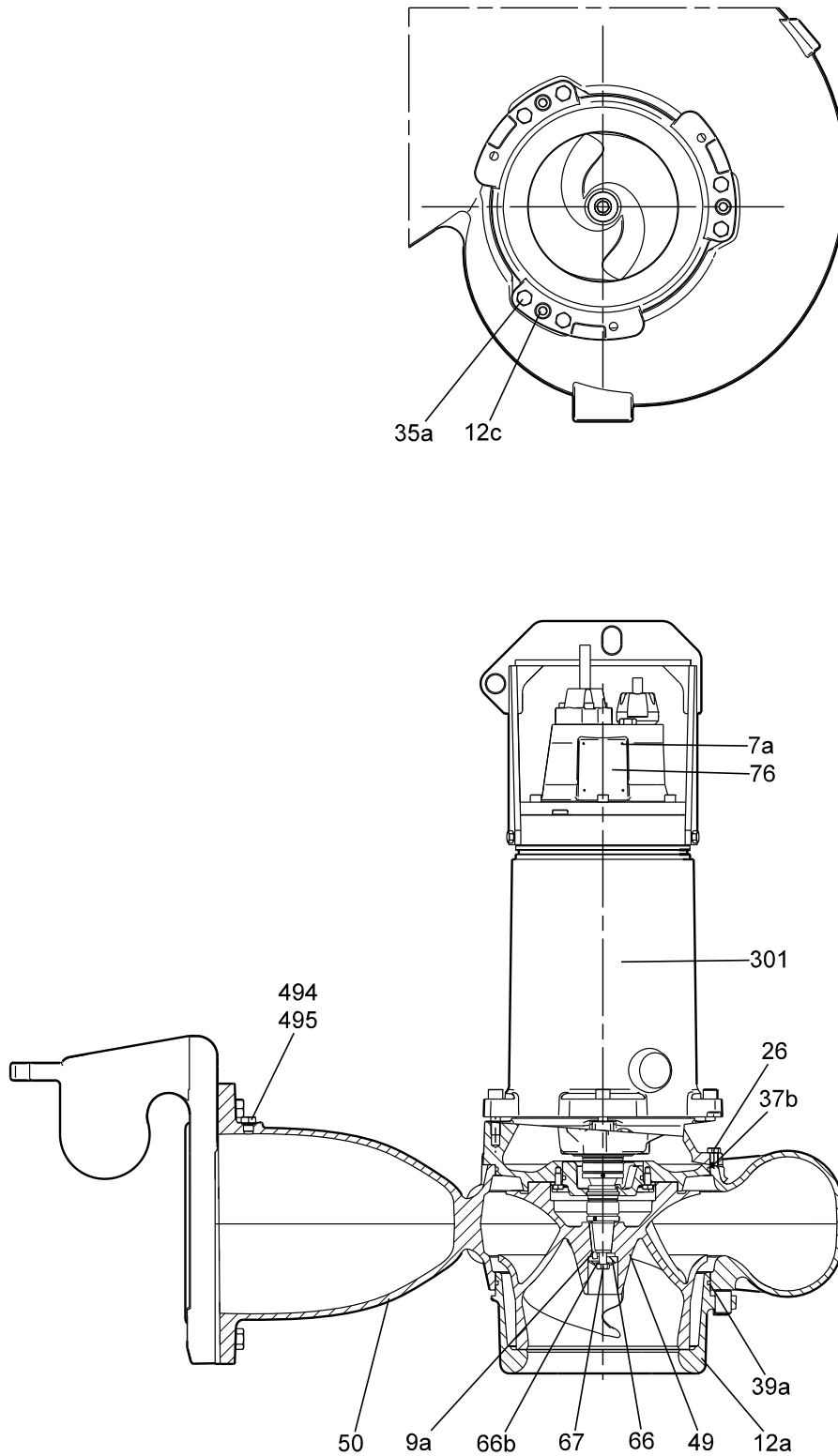


Fig. 18 Basic pump with factory-fitted guide claw [ANSI 10" (DN 250) and larger]

TM04 2312 2308

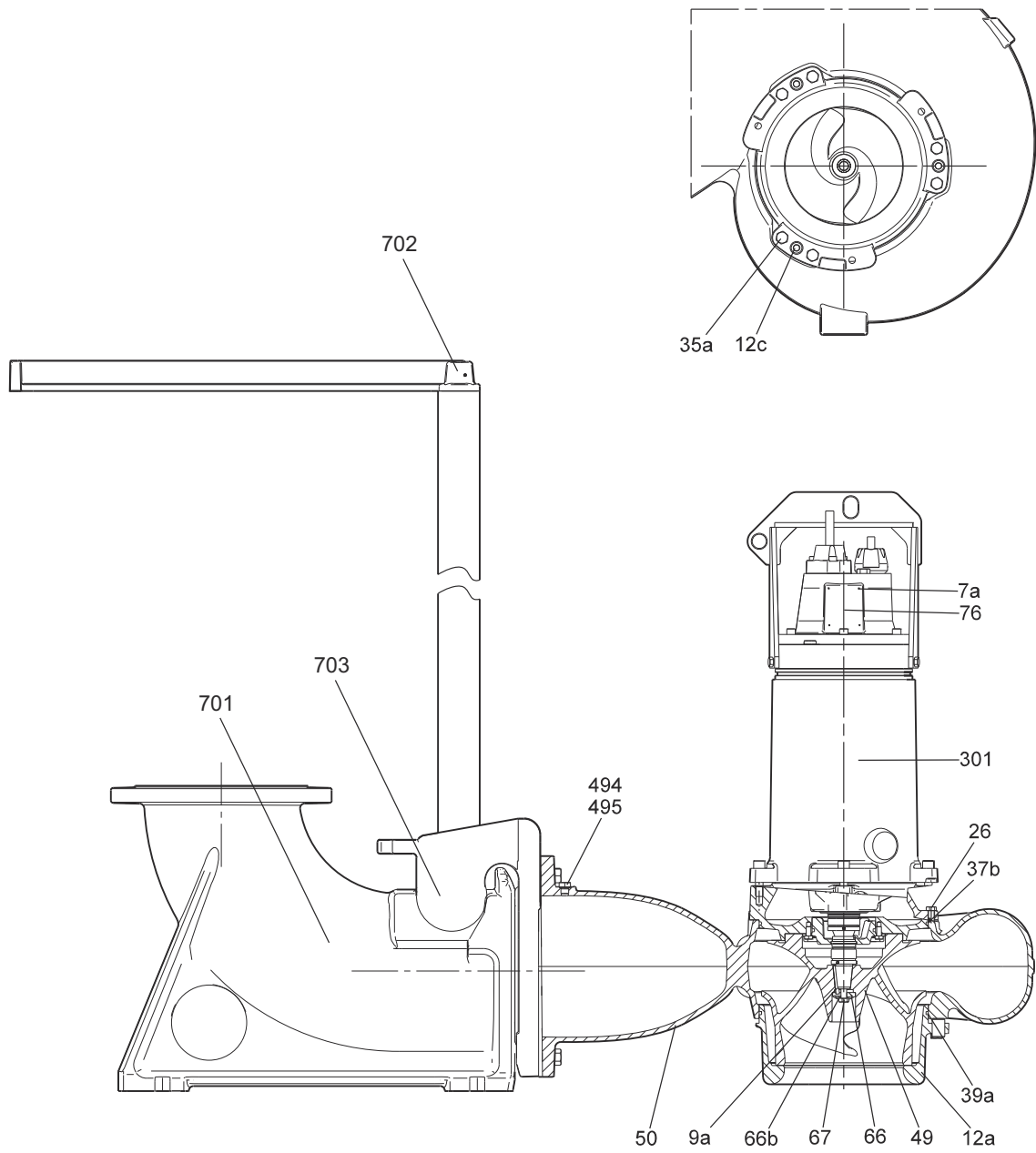


Fig. 19 Installation types S and C pump on auto coupling

TM04 2315 3916

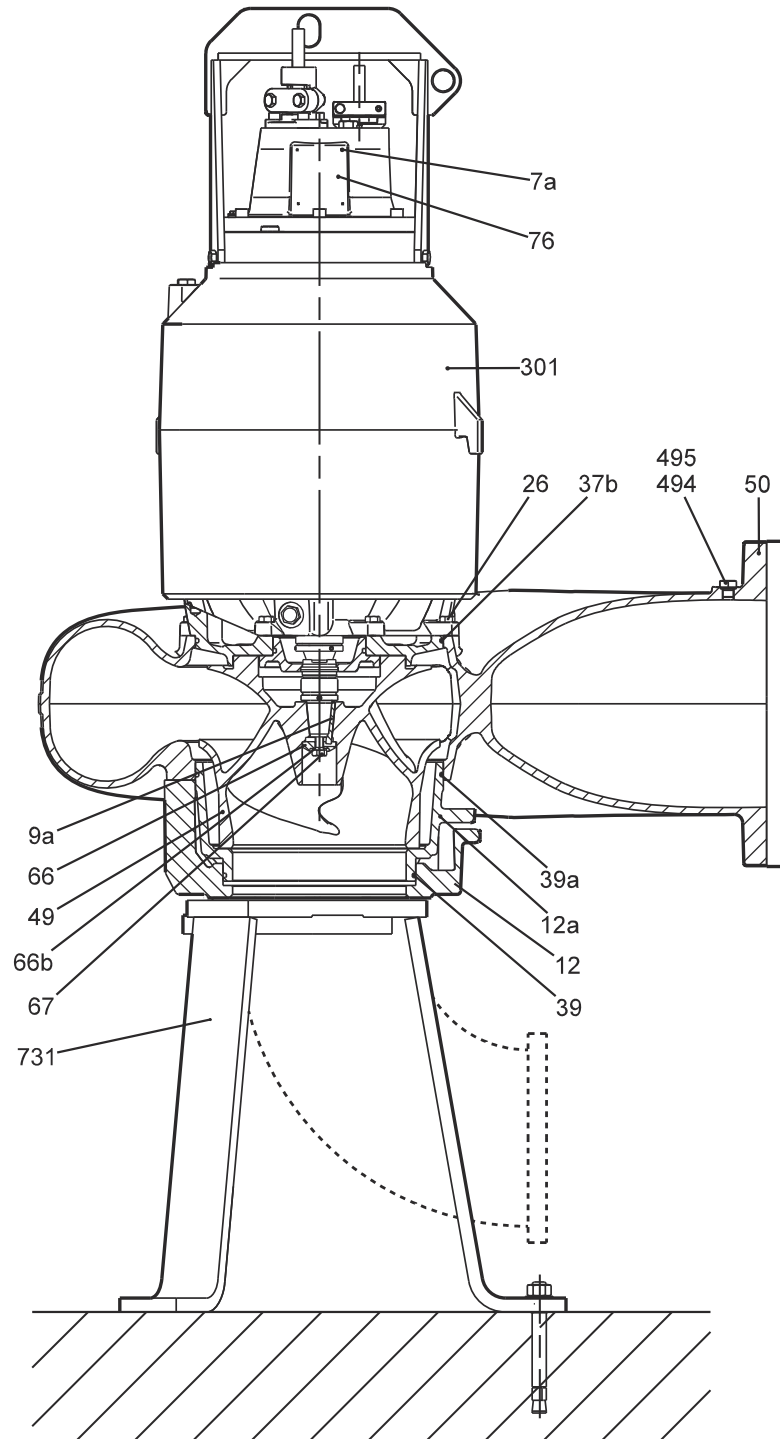


Fig. 20 Installation type D, dry, vertical pump on base stand

TM04 2316 2308

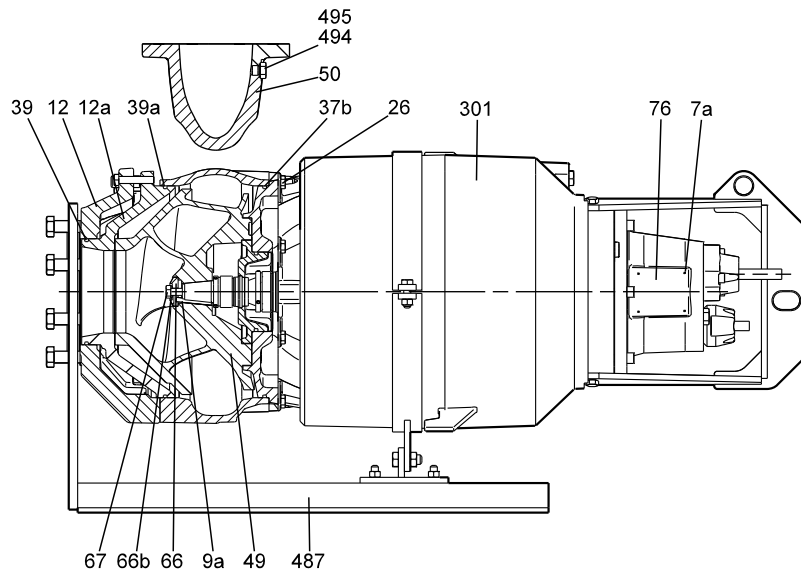


Fig. 21 Installation type H, dry, horizontal pump on base stand - S-tube impeller

TM04 2313 2308

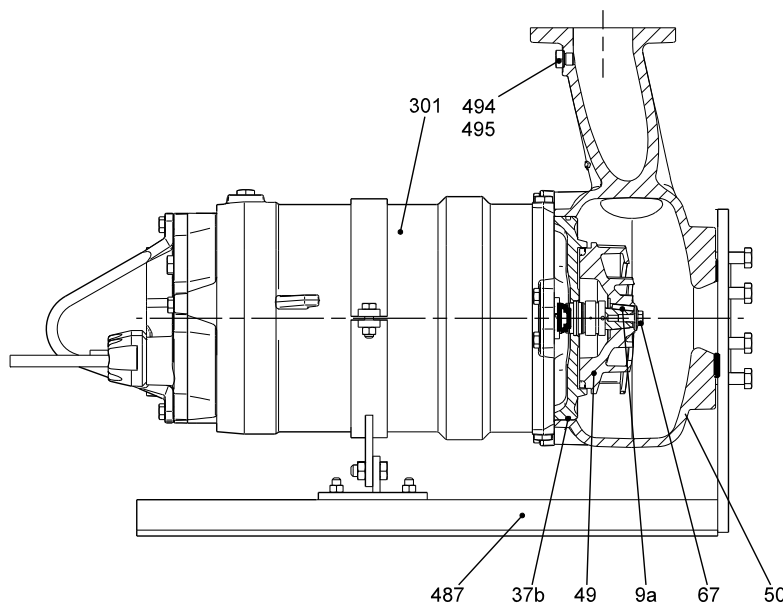


Fig. 22 Installation type H, dry, horizontal pump on base stand - SuperVortex impeller

TM04 2314 2308

Components and material specification

Motor

Pos.	Component	Material	DIN W.Nr./ EN standard	AISI/ ASTM
7a	Rivet	Stainless steel	1.4436	316
25	Pressure test plug	Stainless steel	1.4436	316
25a	Screw	Stainless steel	1.4436	316
26a	Screw	Stainless steel	1.4436	316
37a	O-ring	NBR rubber		
48	Stator lamination			
55	Stator housing	Cast iron ¹	EN-GJL-250	A48 30
58	Seal housing	Cast iron		
59b	Pin	Steel		
60	Bearing bracket cover	Cast iron		
61	Bearing housing	Cast iron		
61c	Upper bearing bracket	Cast iron		
72	O-ring	NBR rubber		
72a	O-ring	NBR rubber		
77	Seal housing cover	Cast iron		
100	O-ring	NBR rubber		
105	Mechanical seal	SiC/SiC or SiC/ carbon		
105b	Mechanical seal	SiC/SiC or SiC/ carbon		
107	O-ring	NBR rubber		
150	Stator complete			
150a	Screw	Stainless steel		
150c	Cooling jacket	Galvanized steel ²		
153	Ball bearing	Stainless steel		
154	Ball bearing	Stainless steel		
155	Lower bearing bracket	Cast iron ¹		
157	O-ring	NBR rubber		
157b	O-ring	NBR rubber		
164a	Motor top cover	Cast iron ²		
168	Cable entry	Cast iron		
172	Shaft with rotor	Stainless steel	1.4462	329
173	Screw	Stainless steel	1.4436	316
173b	Earth terminal			
173c	Ground washer	Stainless steel	1.4436	316
173d	Washer	Stainless steel	1.4436	316
173e	Screw	Stainless steel	1.4436	316
173f	Spring washer	Stainless steel	1.4436	316
173g	Earth connector			
176a	Terminal block			
176b	Screw	Stainless steel	1.4436	316
176c	Terminal block			
176d	Terminal block			
177a	Protection sleeve	Rubber or plastic		
178	Screw	Stainless steel	1.4436	316
180	Cable clamp	PA or cast iron		
180a	Screw	Stainless steel	1.4436	316
181	Power cable	ATON		
181a	Screw	Stainless steel	1.4436	316
182b	Hexagon socket head cap screw	Stainless steel	1.4436	316
184	Screw	Stainless steel	1.4436	316
184b	Screw	Stainless steel	1.4436	316
187	Circlip			
187a	Washer	Stainless steel	1.4436	316
188	Circlip			
190	Lifting bracket	Stainless steel	1.4436	316
190b	Screw			
193	Plug	Stainless steel	1.4436	316
194	O-ring	NBR rubber		
197	Washer	Stainless steel	1.4436	316
198	Rubber seal			

Pos.	Component	Material	DIN W.Nr./ EN standard	AISI/ ASTM
248	Screw	Stainless steel	1.4436	316
248a	Screw			
250	Cable clamp	PA or cast iron		
250a	Cable entry	PA or cast iron		
250b	Rubber seal			
520	Moisture switch ³			
520a	Screw	Stainless steel	1.4436	316
520b	Nut	Stainless steel	1.4436	316
522	Holder			
252	Control cable	ATON		

¹ Available in stainless steel (custom-built option).

² Available in stainless steel (custom-built option) for ranges 50 and 54.

³ Ex versions have two moisture switches.

Pump

Pos.	Component	Material	DIN W.Nr./ EN standard	AISI/ ASTM
7a	Rivet			
7b	O-ring			
9a	Key (for keyway)	Stainless steel	1.4436	316
12	Flange	Cast iron		
12a	Inlet cover	Cast iron		
12c	Adjusting screw	Stainless steel	1.4436	316
26	Screw	Stainless steel	1.4436	316
26c	Screw	Stainless steel	1.4436	316
35	Screw	Stainless steel	1.4436	316
35a	Screw	Stainless steel	1.4436	316
37	O-ring	NBR rubber		
37b	O-ring	NBR rubber		
39	O-ring	NBR rubber		
39a	O-ring	NBR rubber		
49	Impeller	Cast iron ¹	EN-GJL-300	A48 40/45
50	Pump housing	Cast iron ¹	EN-GJL-300	A48 40/45
66	Cap	Cast iron or stainless steel		
66b	Washer	Stainless steel	1.4436	316
67	Impeller screw	Stainless steel	1.4436	316
76	Nameplate			
76a	Approval plate			
301	Motor housing	Cast iron ²		
487	Base stand, horizontal	Cast iron or steel		
494	Plug	Stainless steel	1.4436	316
495	O-ring	NBR rubber		

¹ Available in stainless steel (custom-built option).

² Available in stainless steel (custom-built option) for ranges 50 and 54.

Accessories

Pos.	Component	Material
487	Base stand, horizontal ¹	Cast iron or steel
701	Auto-coupling base unit	Cast iron ²
702	Guide rail bracket	Cast iron ²
703	Guide claw ³	Cast iron ²
751	Ring stand	Galvanized steel
762	Base stand, vertical	Cast iron or steel

¹ Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

² Available in stainless steel (custom-built option).

³ Guide claws for DN 250 outlets or bigger are factory-fitted.

8. Product description

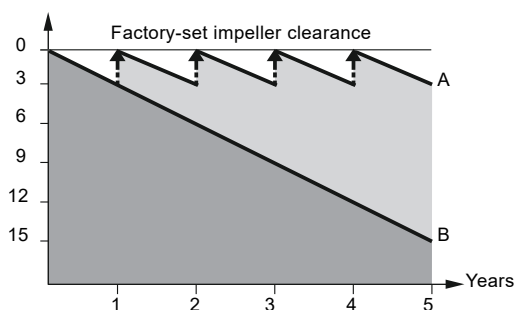
Features

SmartTrim

On conventional pumps, maintaining factory-set impeller clearance is a time-consuming and costly task. The pumps need to be disconnected from the pipes and to be totally dismantled, and new parts need to be mounted in order to maintain full pumping efficiency. Not so with Grundfos SmartTrim!

All Grundfos heavy-duty channel-impeller pumps, whether for submerged or dry installation, are equipped with the unique SmartTrim impeller clearance adjustment system. This enables you to easily restore factory-set impeller clearance and maintain peak pumping efficiency. All you need to do is to tighten the adjustment screws on the exterior of the impeller housing. This can be done on site, quickly and easily, without dismantling the pump and without using special tools.

Efficiency drop in %



TM04 2391 2508

A: With Grundfos SmartTrim impeller clearance adjustment system

B: Without impeller clearance adjustment system

SmartSeal

For pumps with ANSI 10" (DN 250) outlet and larger the Grundfos SmartSeal auto-coupling sealing mounted on the pump outlet flange provides a completely leak-proof connection between the pump and the base unit of the auto-coupling system. This optimizes the efficiency of the entire pumping system and keeps operating costs at a minimum.

Bearings

The bearings are greased for life.

Main bearings: Double-row angular contact ball bearing. Single or pair-mounted angular contact ball bearings for axial forces and cylindrical roller bearings for radial forces.

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

Shaft seal

The pumps have a primary and a secondary shaft seal. The material combination of the primary shaft seal of all pump types is silicon carbide/silicon carbide. For the secondary shaft seal, the material combination is silicon carbide/carbon.

The shaft seals are placed in the oil chamber of the pump. The oil chamber provides reliable sealing between the pumped liquid and the motor.

The shaft seals have no springs or other parts in direct contact with the pumped liquid. This prevents rags and fibres from getting caught. The shaft seals are bidirectional, meaning that they can operate in either direction, thus allowing for opposite rotation caused by back-flow of liquid through the pump.

Motor

The motor is a watertight, totally encapsulated motor.

- Insulation class H [356 °F (180 °C)].
- Temperature rise class F [189 °F (105 K)].
- Enclosure class IP68.

For motor protection and sensors, see *Sensors*, page 34.

Cables

The pumps have H07RN-F AT power cables as standard or screened ATON EMC VSCCB power cables on request.

The pumps have H07RN-F 450/750 V control cables as standard or screened ATON VSCB 450/750 V control cables on request.

The cables are 50 ft (15 m) long as standard. Other cable lengths are available on request. See *List of variants*, page 15.

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

Range 50

Motor power [HP (kW)]	Voltage	Cable size (power x control)
13.4 (10.0)	3 x 230/460 V	1 x 4 x 6 mm ² + 1 x 7 x 1.5 mm ²
13.9 (10.4)		
14.7 (11.0)		
16.8 (12.5)		
18.1 (13.5)		

Range 54

Motor power [HP (kW)]	Voltage	Cable size (power x control)
21 (16)	3 x 230/460 V	2 x 4 x 10 mm ² + 1 x 7 x 1.5 mm ²
27 (20)		

Range 58

Motor power [HP (kW)]	Voltage	Cable size (power x control)
34 (25)	3 x 460 V	2 x 4 x 6 mm ² + 1 x 7 x 1.5 mm ²
42 (31)		2 x 4 x 6 mm ² + 1 x 10 x 1.5 mm ²

Power cable

Cable type [mm ²]	Outer cable diameter [inch (mm)]	Weight [lb/ft (kg/m)]	Bending radius [inch (cm)]
4 x 6	0.62 - 0.68 (15.7 - 17.2)	0.30 (0.44)	4.3 (11)
4 x 10	0.82 - 0.92 (20.9 - 23.4)	0.26 (0.38)	5.5 (14)

Control cable

Cable type [mm ²]	Outer cable diameter [inch (mm)]	Weight [lb/ft (kg/m)]	Bending radius [inch (cm)]
7 x 1.5	0.57 - 0.65 (14.4 - 16.4)	0.24 (0.36)	4.0 (10)
10 x 1.5	0.71 - 0.79 (18.0 - 20.0)	0.41 (0.61)	4.7 (12)

Cable entry

Watertight cast iron cable entry with soft shape and sealing rings to prevent damage of the cable or leaks.

Sensors

An explosion-proof pump is equipped with these switches and sensors:

- Three thermal switches (Klixon), or three thermal protectors in the stator windings.
- One moisture switch under the motor top cover and one in stator housing.

Customized sensor options

1. WIO (water-in-oil) sensor.

The WIO sensor measures the water content in the oil and converts the value into an analog current signal. The two sensor conductors are for power supply as well as for carrying the signal to the measuring device or controller. The sensor measures the water content from 0 to 20 %. 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.

The sensor is either built-in with the motor (FM) or installed as an accessory. If the sensor is installed externally, it is fitted in a plastic hose for mechanical protection. The WIO sensor is connected to Grundfos IO 113.

2. PVS3 (pump vibration sensor)

The vibration sensor monitors the vibration level of the pump by using measurements of three axes and combining them into a single measurement outputted in an analog current signal. The sensor acts only as a general indicator of changes in the vibration levels. PVS3 is to be connected to the Grundfos IO 113 and SM 113 modules. A substantial increase in vibrations will trigger a warning or an alarm.

An increase in vibrations can be caused by a clogged impeller, worn bearings, closed force main valves etc. indicating that service inspection must be carried out quickly in order to protect the pump or the pipes from being damaged. Bearing temperature sensor

Pt100 bearing temperature sensor installed within the motor housing. Sensors are connected using an SM 113 and IO 113.

Testing

All pumps are tested before leaving the factory. The factory test report is based on ANSI-HI centrifugal pump test 11.6:2012, acceptance level 3B. Test reports can be ordered directly with the pump or can be ordered separately based on the pump serial number. Other tests or third-party inspection certificates are available on request. See *List of variants*, page 15.

Operating conditions**Pumps without cooling jacket in submerged installation (type S):**

- Continuous operation when the pump is fully submerged to the top of the motor.
- Intermittent operation with maximum 20 starts per hour when the pump is submerged to the middle of the motor and with short periods of operation down to the top of the pump housing.

Warning: A motor protection device must be used to cut off power supply in case of overheating.

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

Pumps with cooling jacket in submerged and dry installation (types C, D and H):

- Continuous and intermittent operation with maximum 20 starts per hour with water level down to the top of the pump housing.

Note: Explosion-proof pumps must be fully submerged.

Pumped liquids

pH value: 4-10

Liquid temperature: 32-104 °F (0-40 °C)

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

Sound pressure

The sound pressure level of the pump is lower than the limiting values stated in EC Council Directive 2006/42/EC relating to machinery (the EC Machinery Directive).

Motor range

Range 50	
Motor power [HP (kW)]	Poles
13.4 (10.0)	4
13.9 (10.4)	2
14.7 (11.0)	4
16.8 (12.5)	2
18.1 (13.5)	4
Range 54	
Motor power [HP (kW)]	Poles
21 (16)	4
27 (20)	
Range 58	
Motor power [HP (kW)]	Poles
34 (25)	4
42 (31)	6

Explosion-proof pumps

Use explosion-proof pumps in potentially explosive environments.

Note: All installations must be approved by the local authorities.

Relevant standards/regulations

- FM 3600
- FM 3615
- FM 3615.80
- ANSI/UL 1004-1
- ANSI/UL 1004-3

Explosion protection classification (FMus)

Class I, Division 1, Groups C and D, T3 or T3C

Operation with frequency converter:

Only temperature class T3

Notified body

FM Approvals

Level controllers

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

Grundfos pump controllers are ideally suited to Grundfos S pumps, and include:

- Grundfos Dedicated Controls (DC)
- Grundfos LC controllers

Grundfos DC Controllers



GI-1016086

Fig. 23 Grundfos Dedicated Controls control cabinet

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

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

Features and benefits:

- Advanced Flow Calculation
- Automatic energy optimization
- Easy installation and configuration
- Configuration wizard
- Electrical overview
- Advanced data communication
- Advanced alarm and warning priority
- Supports several languages
- Daily emptying
- Mixer control or flush valve
- User-defined functions
- Anti-blocking
- Start level variation
- Advanced pump alternation with pump groups
- SMS scheduling

- Communication to SCADA, BMS, GRM or cell phone.

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

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

For further information about Grundfos Dedicated Controls, please see Grundfos Product Center:

- Grundfos Dedicated Controls, brochure <http://net.grundfos.com/qr/i/96925597>
- Grundfos iSolutions, brochure <http://net.grundfos.com/qr/i/99249771>
- Grundfos Controls Guide, product guide <http://net.grundfos.com/qr/i/97954965>

Additional features, CUE or VFD

The CUE/VFD (optional), which is either a Grundfos variable frequency drive or a general variable frequency drive, offers better pump protection and a more steady flow through the pipe system.

In addition, Grundfos CUE,VFD offers these features and benefits:

- Anti-blocking
 - Automatic energy optimization
 - 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.
- ** We do not recommend reversing at full speed at any time. When reduced reverse operation settings are set, make sure constant torque is enabled in Variable Frequency Drive (VFD) (i.e. Grundfos CUE, Siemens Simatic, ABB, Schneider Electric etc.) to have maximum torque available when reversing.

Grundfos LC controllers

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

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

It is designed for level control, monitoring and protection of Grundfos pumping stations featuring one pump or two pumps, starting direct-on-line with 0-23 A, star-delta with 0-59 A or soft starter with 0-72 A.

IO 113

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

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

IO 113 can be connected to the Grundfos Dedicated Controls system and allows advanced monitoring functions:

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

SM 113

The SM 113 module is used for collection and transfer of sensor data in pumps and includes large numbers of sensors.

SM 113 can be placed either inside the pump (allowing fewer sensor conductors out of the pump) or in the control cabinet next to the pump installation.

SM 113 works together with IO 113 through a power-line communication using the Grundfos GENIbus protocol.

SM 113 can collect data from:

- 3 current sensors, 4-20 mA
- 3 Pt100 thermal sensors or 3 Pt1000 thermal sensors
- 1 PTC thermal sensor
- 1 digital input.

MP 204

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

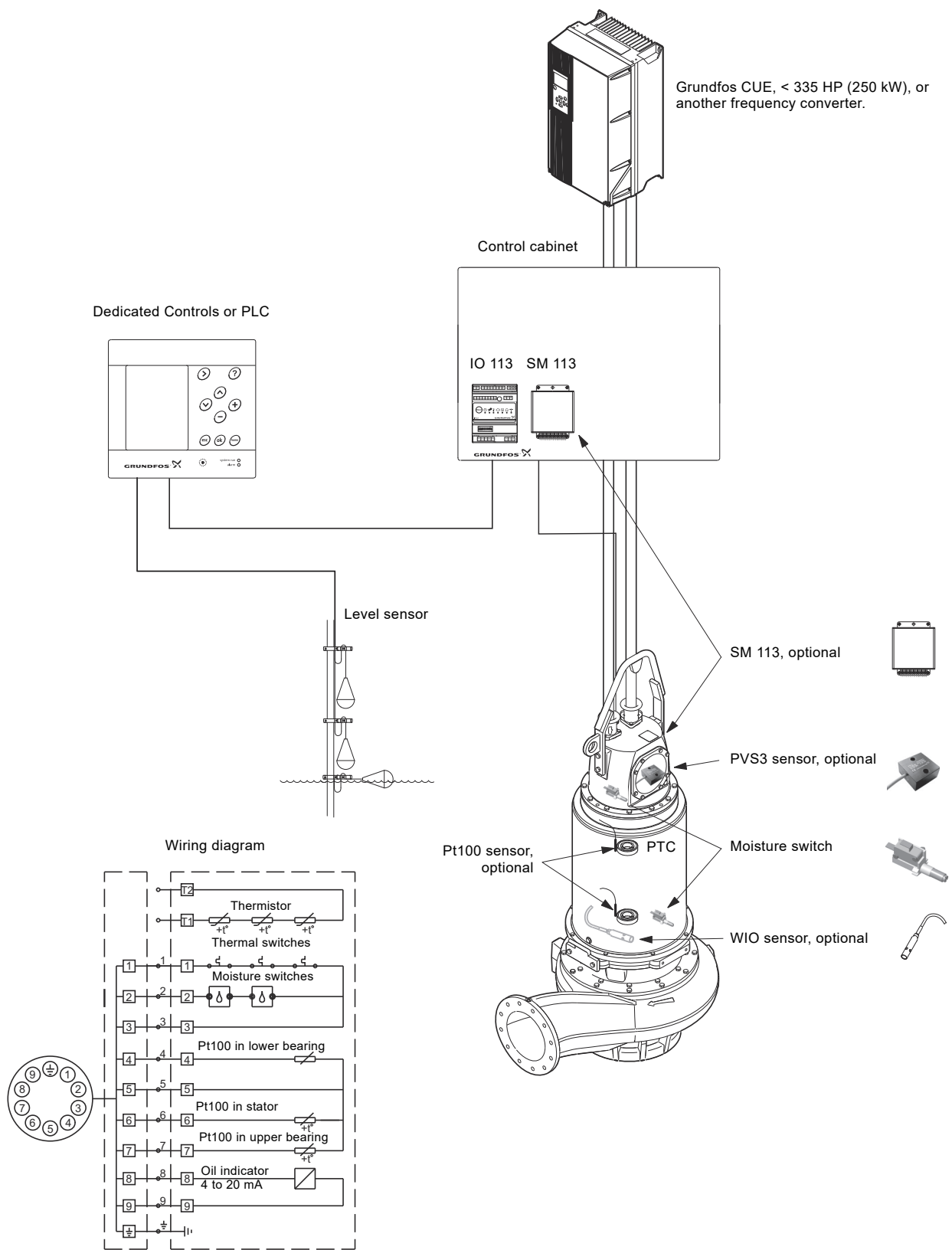


Fig. 24 Pump with frequency converter operation

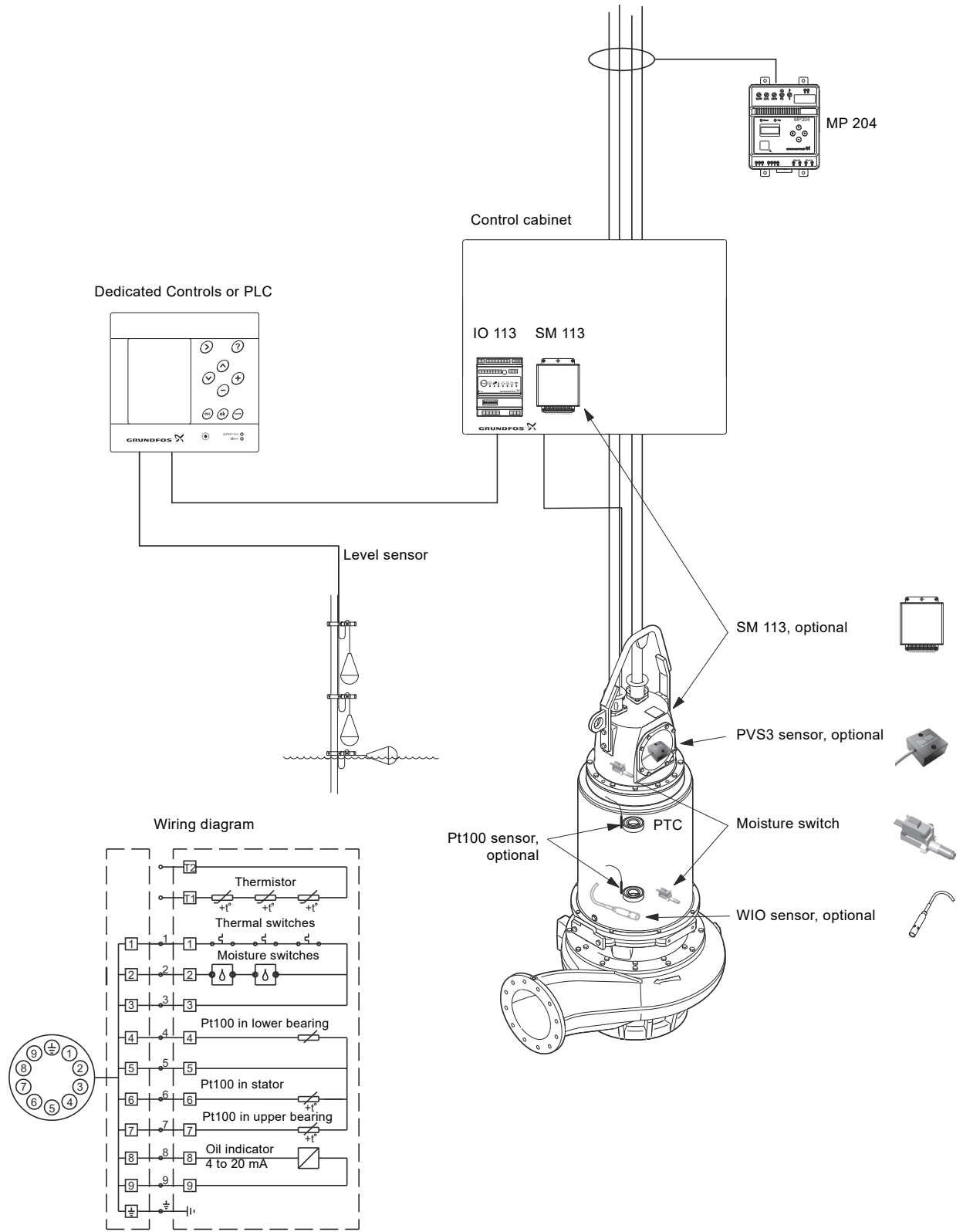
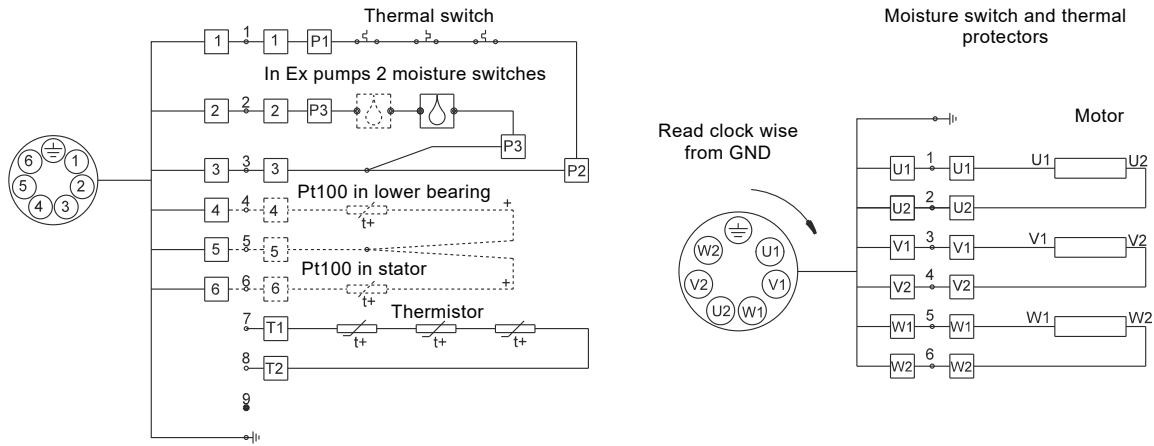


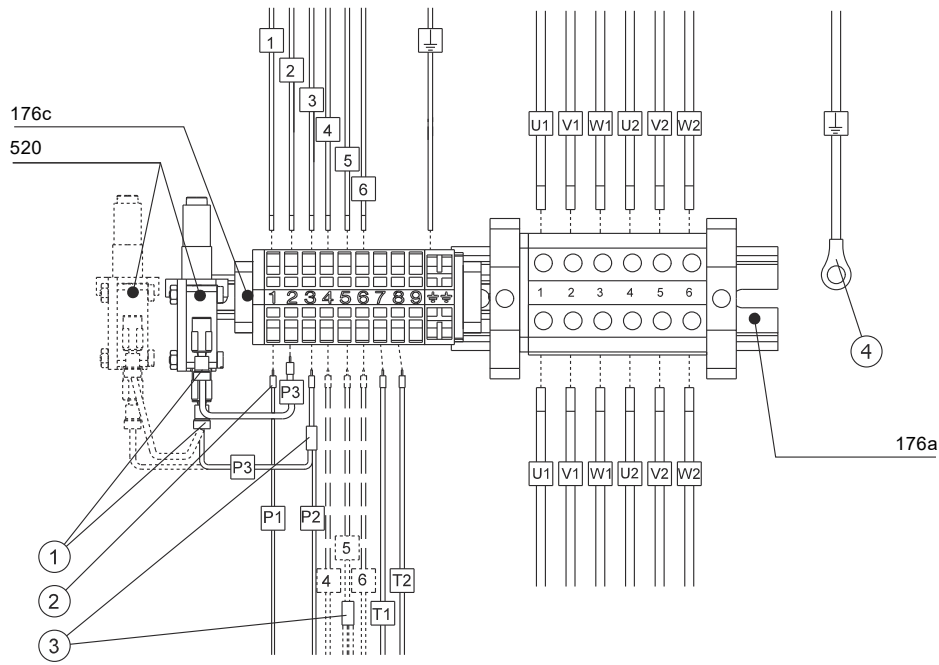
Fig. 25 Pump with MP 204 motor protector

TM06 8754 1117

Wiring diagrams



Supply cable conductors



Stator conductors

Item	Description
1	Female push-on connector
2	Wire pin
3	Butt splice
4	Ring connector
176a	Terminal block (power cable connections)
176c	Terminal block (sensor connections)
520	Moisture sensor

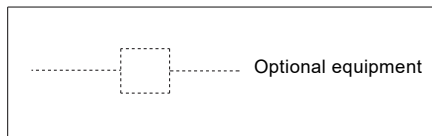


Fig. 26 Wiring diagrams, pumps with one power cable

TM04 3729 5008

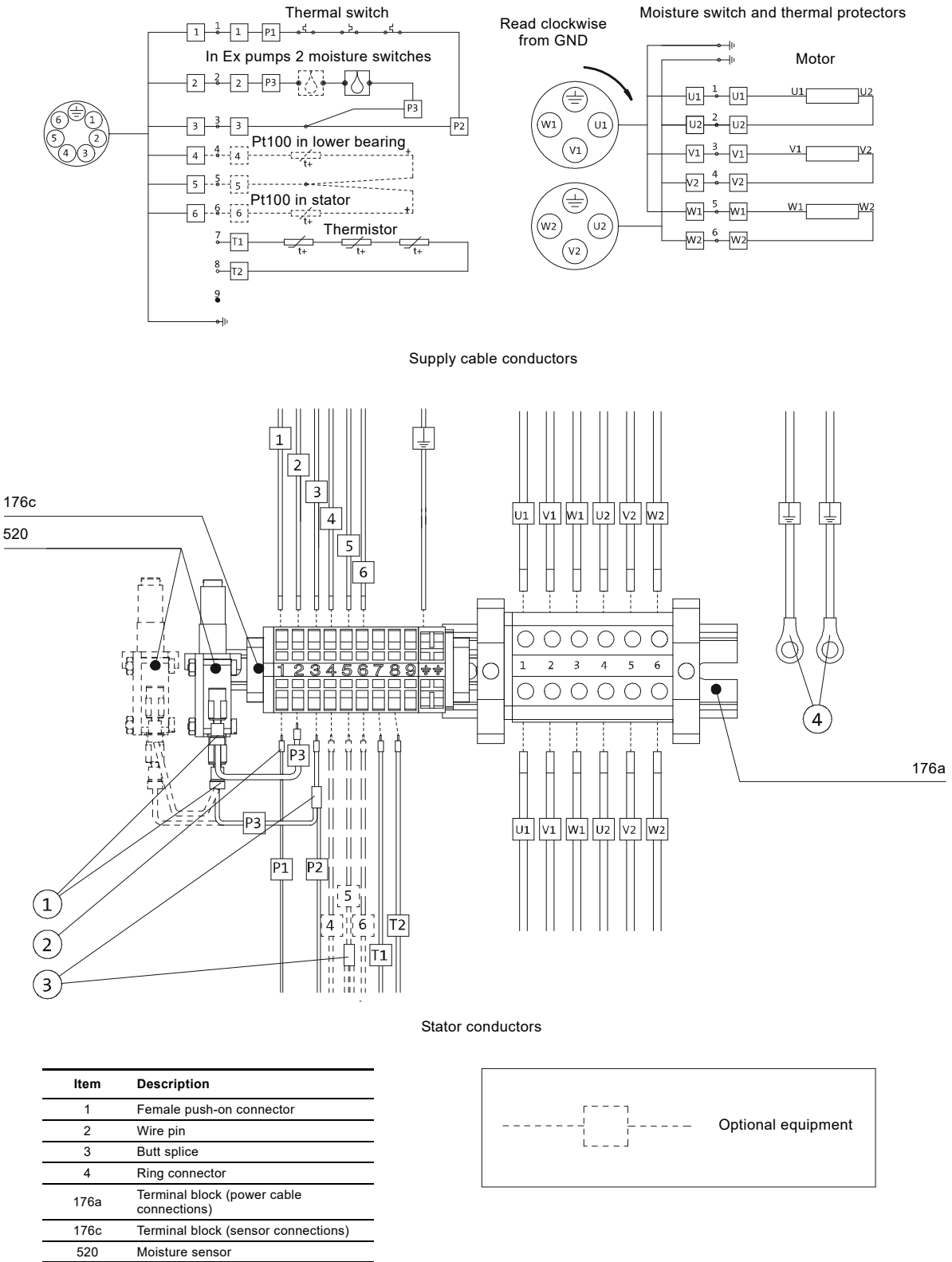


Fig. 27 Wiring diagrams, pumps with two power cables

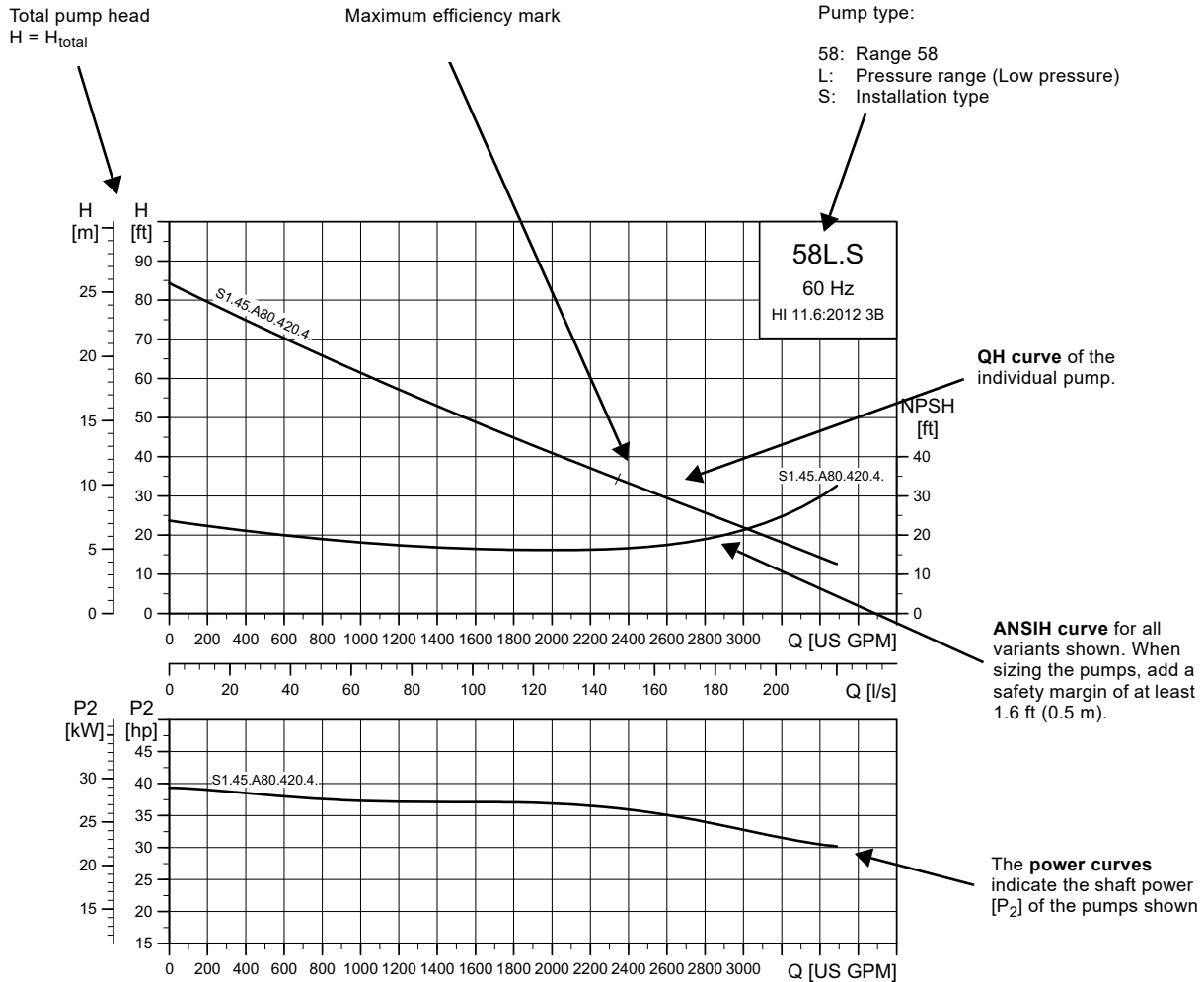
TM04 3274 4008

9. Curve charts and technical data

The following many pages are divided into sections.

On pages 41 to 47, you will find a brief explanation of how to read the curve charts, the curve conditions etc.

How to read the curve charts



Note: The pumps are tested according to ANSI HI 11.6:2012 grade 3B tolerance. Testing equipment and measuring instruments are designed and calibrated according to the standard mentioned. The pumps are approved according to tolerances for entire curves, specified in grade 3B.

Curve conditions

The guidelines below apply to the curves shown in the performance charts on pages 48-72.

- ANSI-HI centrifugal pump test 11.6:2012, acceptance level 3B.
- The curves show pump performance with different impeller diameters at rated speed.
- The **bold** part of the curves show the **recommended** operating range.
- The curves apply to the pumping of airless water at a temperature of 68 °F (20 °C) and a kinematic viscosity of 1 cSt (1 mm²/s).
- **ANSIH:** The curves show average values measured under the same conditions as the performance curves.
When dimensioning the pump, add a safety margin of at least 1.6 ft (0.5 m).
- In case of densities other than 133.5 ounces/gallon (1000 kg/m³), the outlet pressure is proportional to the density.
- When pumping liquids with a density higher than 133.5 ounces/gallon (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 between the inlet and outlet side of the pump.

H_{dyn} : Calculated values based on the velocity of the pumped liquid on the inlet and outlet side of the pump.

Pump performance tests

S pump testers are all capable of performing hydraulic performance tests according to ANSI HI 11.6:2012 requirements.

ANSI HI 11.6:2012 sets standards for "rotodynamic pumps, Hydraulic performance acceptance tests, Grades 1, 2 and 3".

Performance acceptance grades

Six-pump-performance-test acceptance grades, 3B, 2B, 2U, 1B and 1U are defined in ANSI HI 11.6:2012.

Acceptance grade	Mandatory measurements		Optional measurements	
	Q	H	P1	Eta-tot
3B	± 9 %	± 7 %	+ 9 %	- 7 %
2B	± 8 %	± 5 %	+ 8 %	- 5 %
2U	+ 16 %	+ 10 %	+ 16 %	
1B	± 5 %	± 3 %	+ 4 %	- 3 %
1U	+ 10 %	+ 6 %	+ 10 %	≥ 0 %

Q: Flow rate

H: Head

P1: Total consumed power

Eta-tot: Total efficiency

These tolerance grades can be used in the contract between the pump manufacturer and the customer, or they can be used as part of a default tolerance factor for cases in which no specific tolerance grade has been agreed between the manufacturer and the customer.

The performance acceptance grades are explained in *Specifying acceptance grades*, page 47, showing the performance grades related to an ordinary pump curve.

The guarantee point

According to ANSI HI 11.6:2012 the acceptance-grade tolerance applies to one guarantee point.

A guarantee point is defined by a guaranteed flow rate and a guaranteed head.

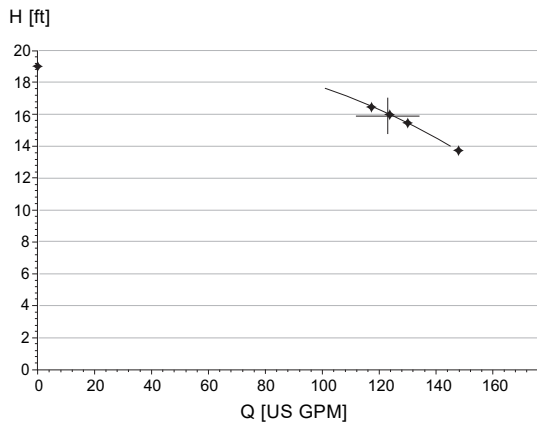
In addition, either minimum total efficiency or maximum total input power may be guaranteed at the specified conditions.

This means that the standard sets guidelines for a duty point guaranteed for the following:

- Q and H, or
- Q, H and total efficiency (Eta-total), or
- Q, H and total consumed power (P1).

The guarantee point is defined by a minimum of five measured test points.

Example of a duty point test living up to ANSI HI 11.6:2012 requirements



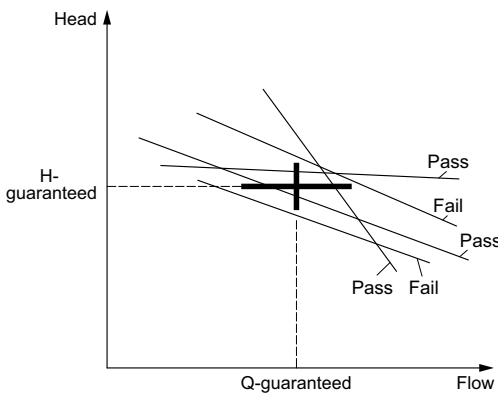
TM07 0448 5117

Fig. 28 Five measured test points are used to verify one guarantee point

Evaluation of performance

The test must show that the measured pump curve touches or passes through a tolerance surrounding the guarantee point, as defined by the selected acceptance grade.

Guarantee-point evaluation must be made at the rated speed, which for S pumps means 50 Hz or 60 Hz.



TM07 1544 1818

Fig. 29 Pump curves that either pass or fail to cross the tolerance cross of the guarantee point

Performance-test types for end-suction pumps

Two types of performance tests are available for S pumps:

- duty-point-verification test
- curve test.

Tests carried out on S pumps

- Tests are saved for at least five years and can be traced using the pump’s unique serial number.
- It is not possible to change acceptance grade on an already tested and supplied pump; if required, a re-test of the pump is made.
- Witness testing can be arranged.

Duty-point-verification test, Grades 3B, 2B, 2U, 1B and 1U

This test method offers the possibility to perform a duty-point verification of the following:

- Q and H, or
- Q, H and total efficiency (Eta-tot), or
- Q, H and total consumed power (P1).

Acceptance grade	Mandatory measurements		Optional measurements	
	Q	H	P1	Eta-tot
3B	Standard		On request	
2B	On request		On request	
2U	On request		On request	
1B	On request		On request	
1U	On request		On request	

What Grundfos is able to guarantee for the different acceptance grades will be evaluated on a case-by-case basis. Contact your local sales company on this. Grundfos performs duty-point verification according to ANSI HI 11.6:2012 for one guarantee point at full speed, 50 or 60 Hz. The customer must tell Grundfos which duty point to verify.

The requested duty point is verified by five measured points.

Grade 1U duty-point verification

The following example illustrates performance testing according to Grade 1U.

Flow rate and head are mandatory, and efficiency or power consumption, P1, is optional.

Tolerances for a Grade 1U test are as follows:

- Flow rate: 10 %
- Head: 6 %
- Efficiency: 0 %, only equal to or better than the guaranteed value
- P1: 10 %

1. Q, H and Eta-tot are tested and verified

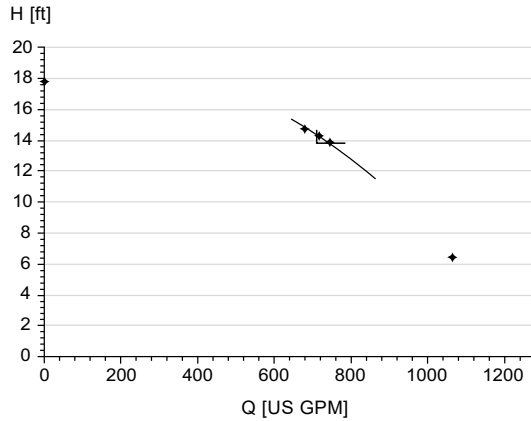


Fig. 30 Measured values for flow rate and head

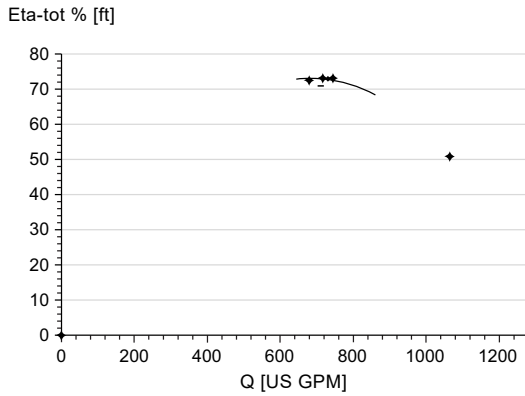


Fig. 31 Measured values for total efficiency

2. Q, H and P1 tested and verified

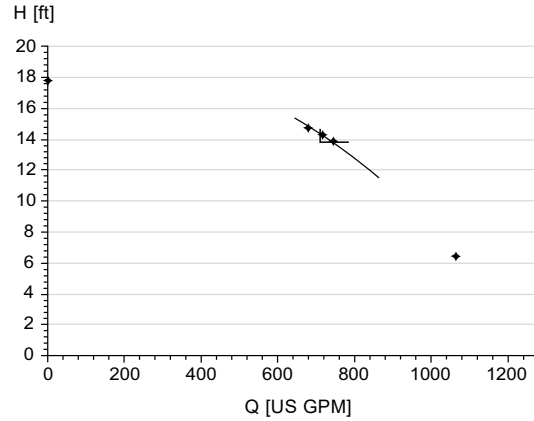


Fig. 32 Measured values for flow rate and head

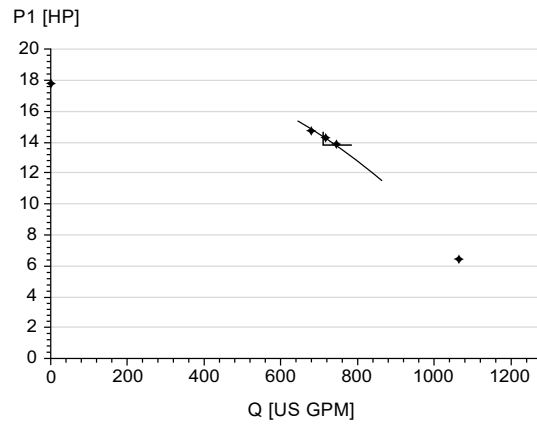


Fig. 33 Measured values for consumed power

Note that other points than the guarantee point can be measured and displayed in a curve test report according to Grade 3B tolerances.

TM07 1542 1618

TM07 1542 1618

TM07 1543 1618

TM07 1545 1618

Curve test, Grade 3B

This test method is developed by Grundfos and is based on ANSI HI 11.6:2012 performance acceptance grade 3B tolerances: $Q = \pm 9\%$, $H = \pm 7\%$.

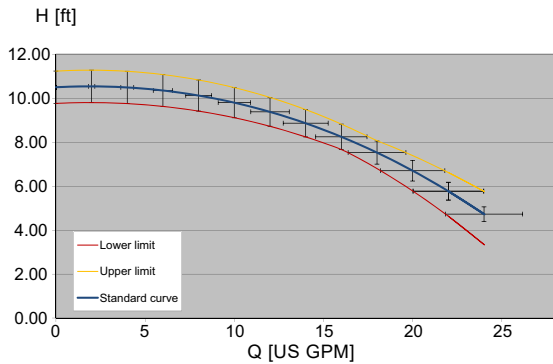


Fig. 34 Q-H curve with tolerance crosses on complete performance range

In fig. 34, tolerance crosses according to Grade 3B have been distributed across the complete performance range of a pump. We generate the upper and lower limit of the performance curve by drawing two curves at the outlines of these crosses.

When the pump is tested, and the measured point is located within the range between the upper and lower limit, it meets the ANSI HI 11.6:2012 Grade 3B tolerances. This way of qualifying the pump performance is stricter than a duty-point-verification test for Grade 3B.

How does Grundfos perform curve testing for S pumps?

Grundfos applies two types of curve tests:

- a reference curve test
- a performance curve test.

Reference curve test, Grade 3B

A reference curve test is made when no curve-test report is specified with the order. Three or four test points are measured depending on production site, and no curve-test report is supplied with the pump. Measurements are made to maintain and observe continuous quality and to ensure that the supplied pump is within test grade tolerances. Test grade tolerances are set as for Grade 3B but without certification.

Example of a reference curve test

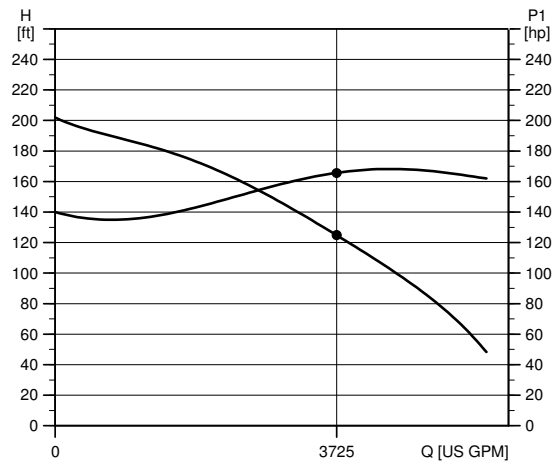


Fig. 35 Measured values for tested pump

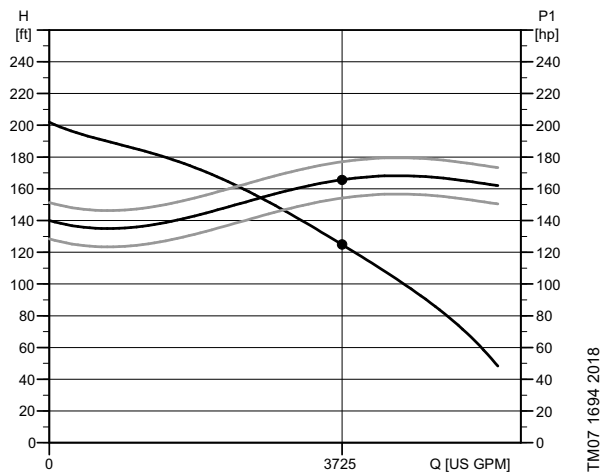


Fig. 36 The values in fig. 35 calculated to reference speed for comparison to a reference performance curve

If a pump performance report is requested at a later stage, only reference test data are available.

Performance curve test, grade 3B

A performance curve test is carried out when a curve test report is specified with the order.

The pump is tested at pre-specified flow rates and test grade tolerances are set as for Grade 3B but without certification.

Example of an S pump curve test

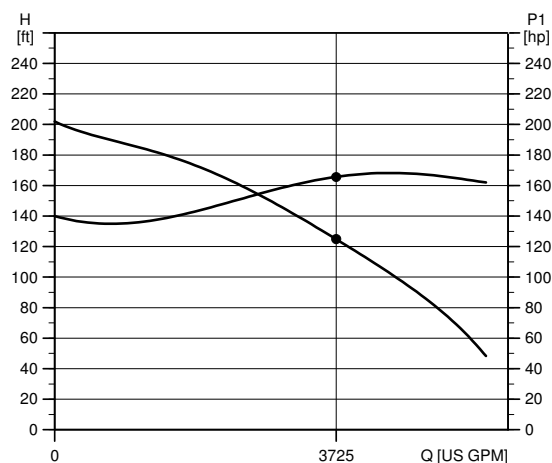


Fig. 37 Measured values for tested pump

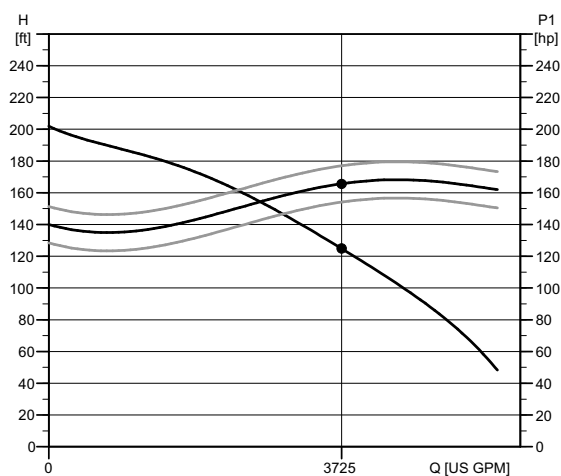


Fig. 38 The values in fig. 37 calculated to a reference speed for comparison to a reference performance

If the customer requires more points on the curve to be checked, individual measurements must be made, which is not part of the performance curve test.

Static high pressure test

All produced pumps undergo a static high pressure test of $1.5 \times PN$ (nominal pressure of the pump).

Specifying acceptance grades

The graphs in the table on page 47 show the tolerances as stated in the standard, related to an ordinary pump curve. The graphs also show which pump performance to expect if the customer, having the same pump to start with, orders a pump with the same guarantee point for different tolerances (B or U) within the acceptance grades.

In some cases, it will not be possible to fulfil the same guarantee point for a unilateral tolerance as it will for a bilateral tolerance. This is indicated by the lower curve for "U" grades.

If the requested guarantee point is the same for a Grade U pump as for a Grade B pump, the consequence of the production tolerances could be that a larger pump is required to obtain the requested duty point.

What Grundfos is able to guarantee for the different acceptance grades will be evaluated on a case-by-case basis. Contact your local sales company on this.

Acceptance grades and tolerances

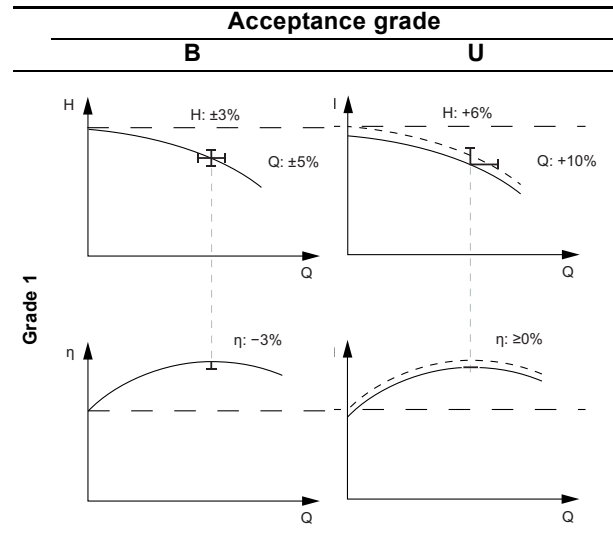
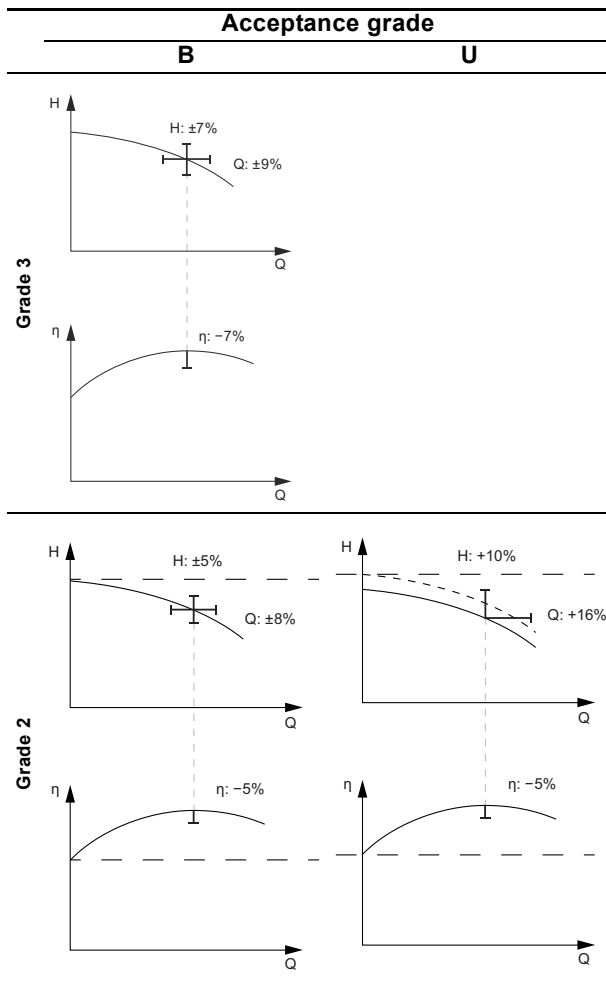
Acceptance grade B

This acceptance grade refers to grades with a bilateral tolerance on flow rate and head and with a tolerance on efficiency.

Acceptance grade U

This acceptance grade refers to a grade with a unilateral tolerance on flow rate and head. For the 2U grade there is a tolerance on efficiency. For the 1U grade there is no tolerance on efficiency.

Note that if the acceptance grade changes from Grade 1B to 1U, the customer does not necessarily get a better pump with a higher efficiency. More likely, he gets a pump where the performance is always to the positive side of the guarantee point.



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

When the pumps are being tested or are tested with a certification, it is possible for the customer to witness the testing procedure according to HI 11.6:2012.

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

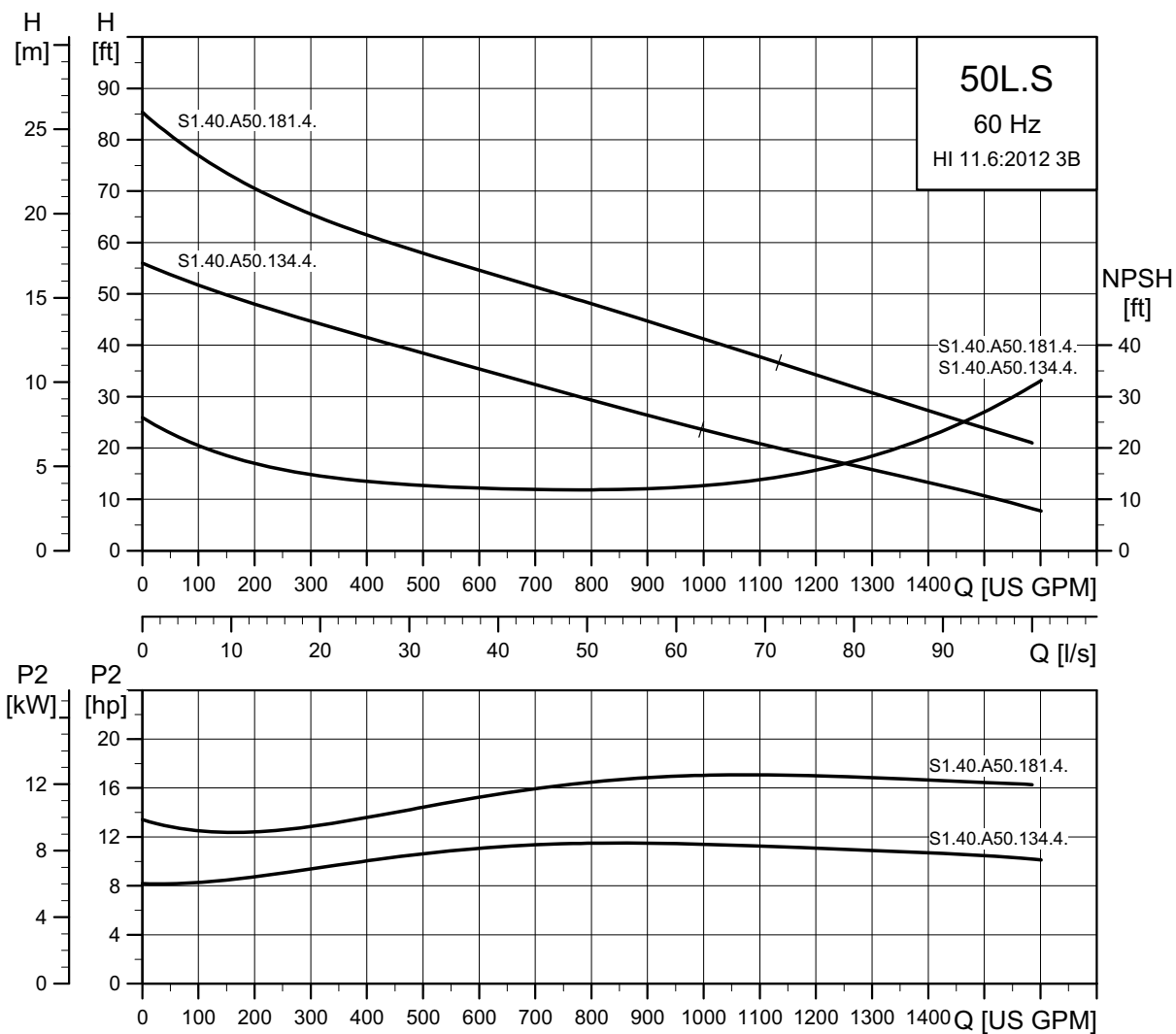
If the customer wants to witness the test, place this request on the order.

10. Performance curves and technical data

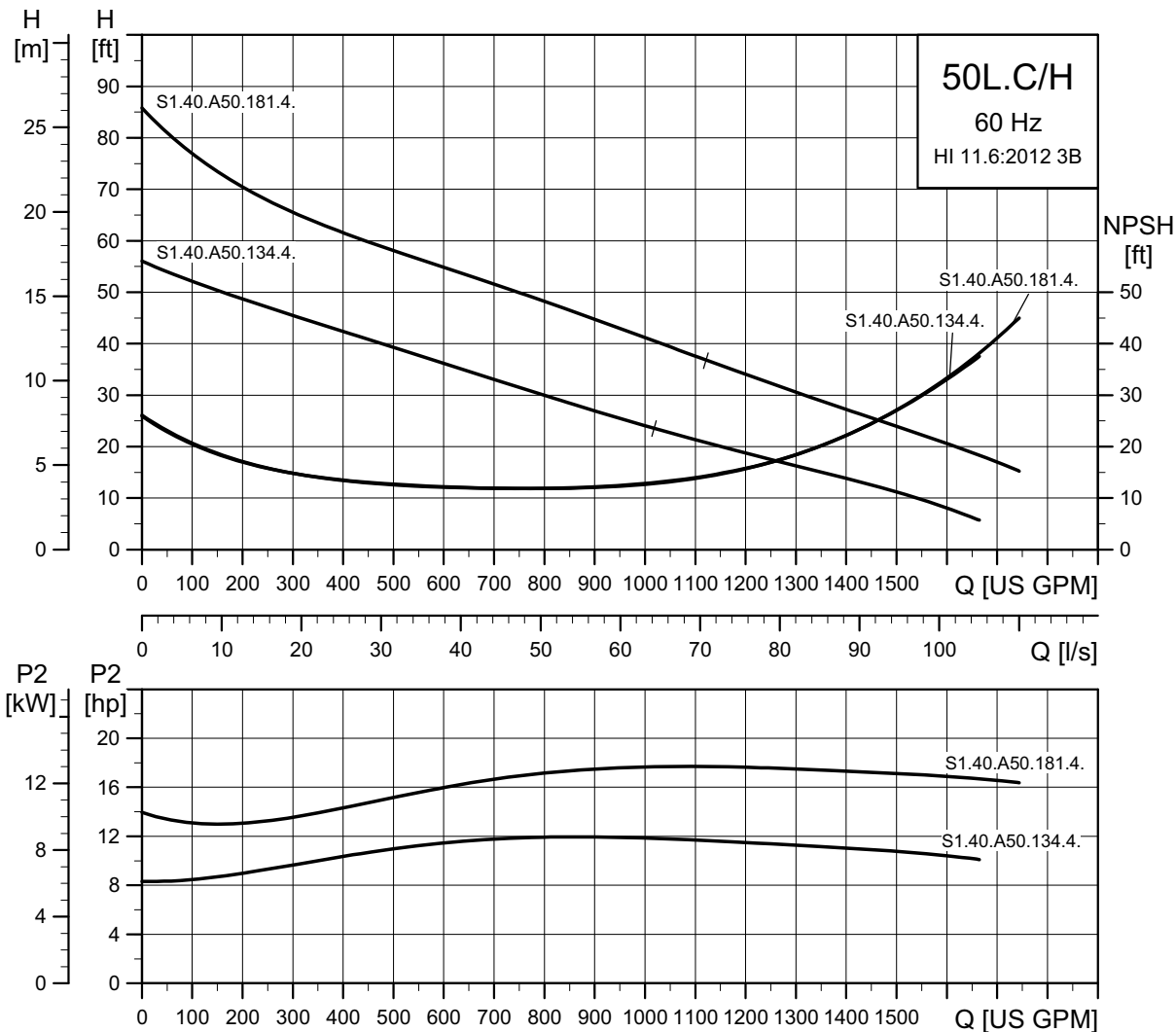
Range 50

Low pressure - 3 x 230/460 V

S1.40.A50.134.4 and S1.40.A50.181.4



TM04 6561 1914



TM04 6562 1914

Motor data

Pump type	P1 P2		Poles	RPM	Connection	I_N^1			η_{motor} [%]			Cos ϕ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² ft (Nm)]
	[HP (kW)]					[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.40.A50.134.4.50L...	16.1 (12)	13.4 (10)	4	1728	DOL	36/18	113	78	81	80	0.72	0.82	0.88	0.55 (0.023)	99.6 (135)	
S1.40.A50.181.4.50L...	21.4 (16)	18.1 (13.5)	4	1747	DOL	46/23	125	82	85	85	0.69	0.81	0.87	0.95 (0.04)	154.1 (209)	

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

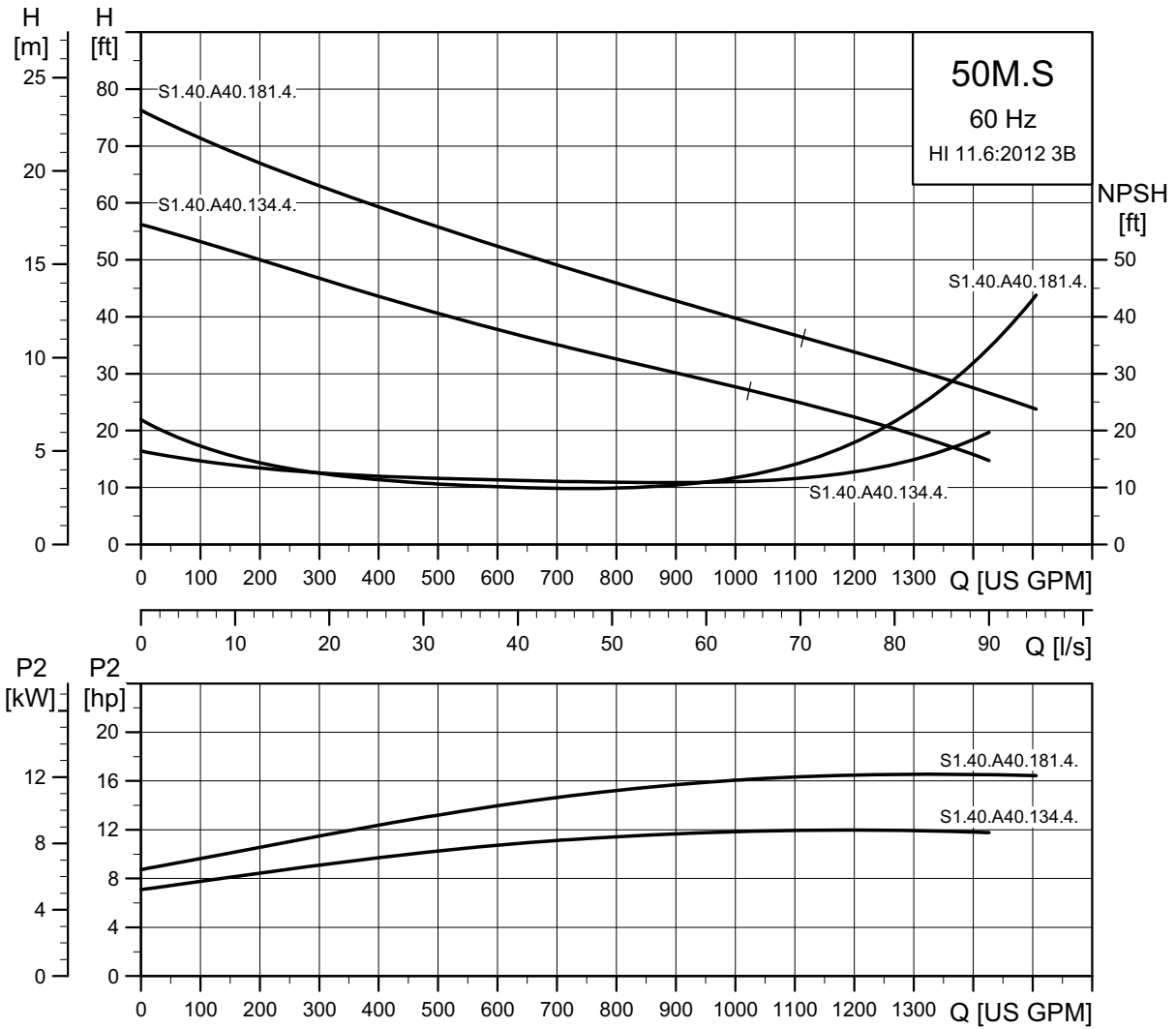
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.40.A50.134.4.50L.S/C/H.204	8.0 (204)				3.75 (0.158)
S1.40.A50.181.4.50L.S/C/H.224	8.8 (224)	4 (100)	145 (10)	66 (20)	3.24 (0.137)

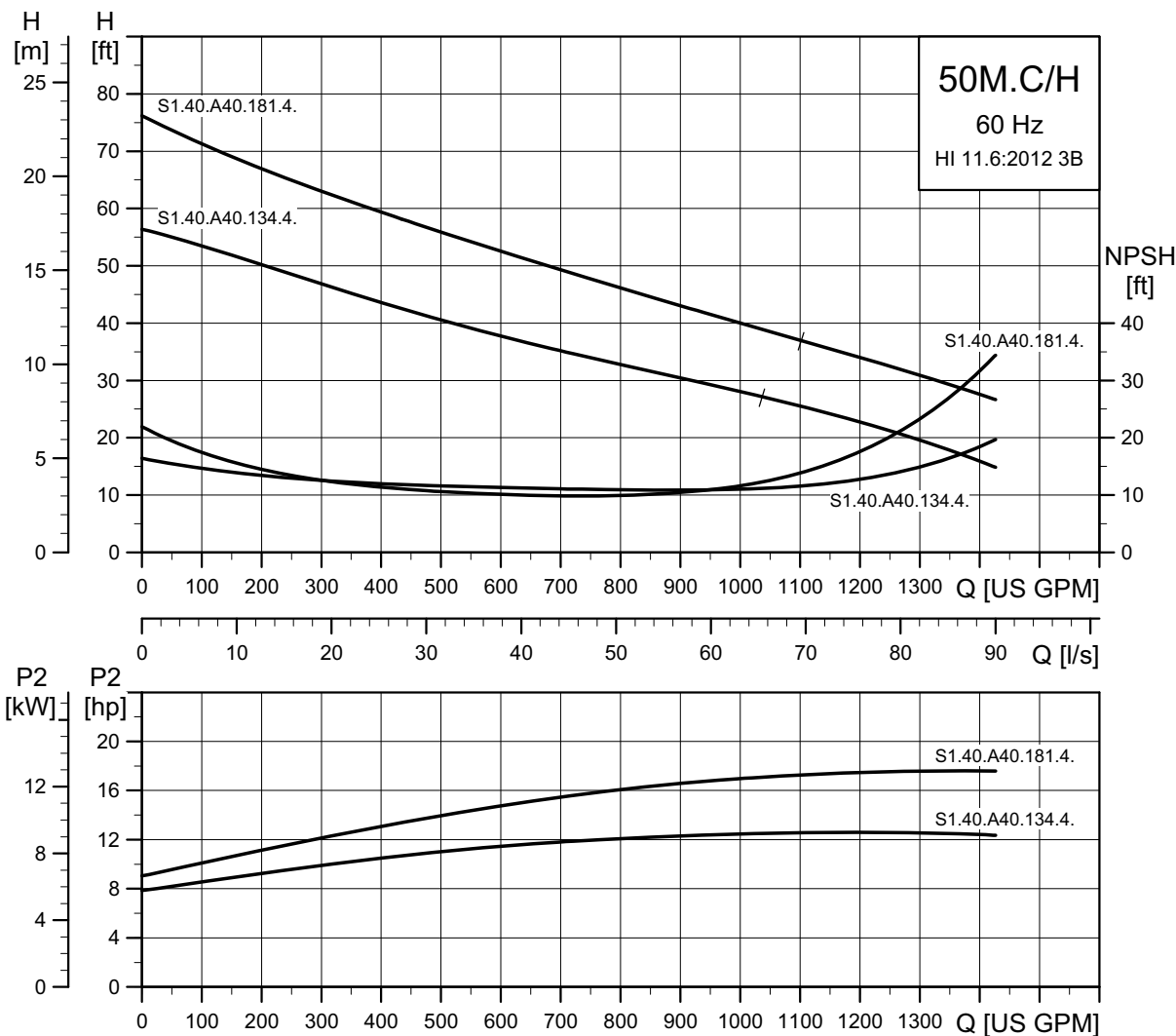
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

Medium pressure - 3 x 230/460 V

S1.40.A40.134.4 and S1.40.A40.181.4



TM04 6563 4717



TM04 6564 4717

Motor data

Pump type	P1 P2		Poles	RPM	Connection	I_N^1	I_{start}	η_{motor} [%]			Cos ϕ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² ft (Nm)]
	[HP (kW)]							1/2	3/4	1/1	1/2	3/4	1/1		
S1.40.A40.134.4.50M...	16.1 (12)	13.4 (10)	4	1728	DOL	36/18	113	78	81	80	0.72	0.82	0.88	0.55 (0.023)	99.6 (135)
S1.40.A40.181.4.50M...	21.4 (16)	18.1 (13.5)	4	1747	DOL	46/23	125	82	85	85	0.69	0.81	0.87	0.95 (0.04)	154.1 (209)

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

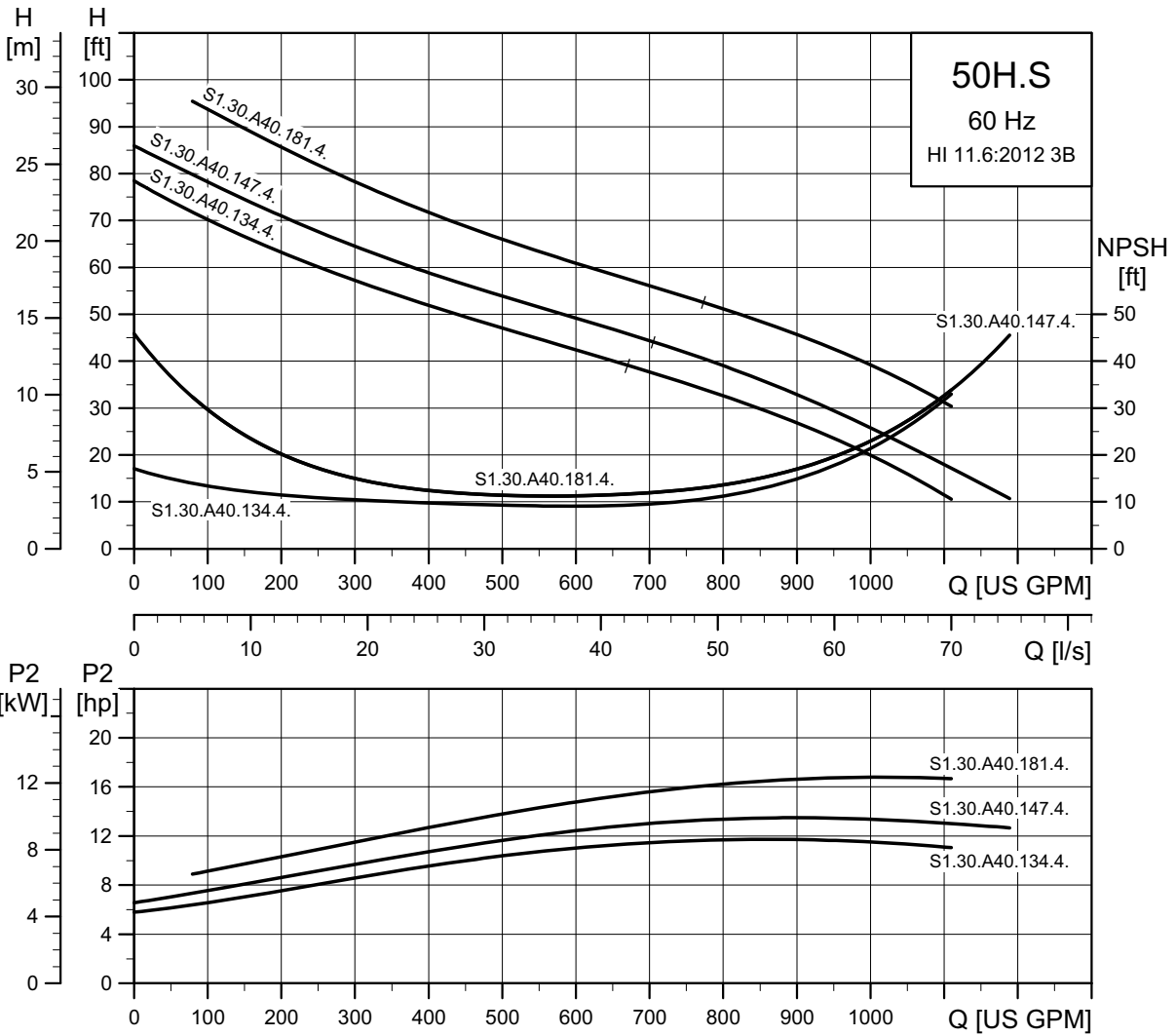
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.40.A40.134.4.50M.S/C/H.205	8.0 (205)	4 (100)	145 (10)	66 (20)	2.59 (0.109)
S1.40.A40.181.4.50M.S/C/H.221	8.7 (221)				4.09 (0.172)

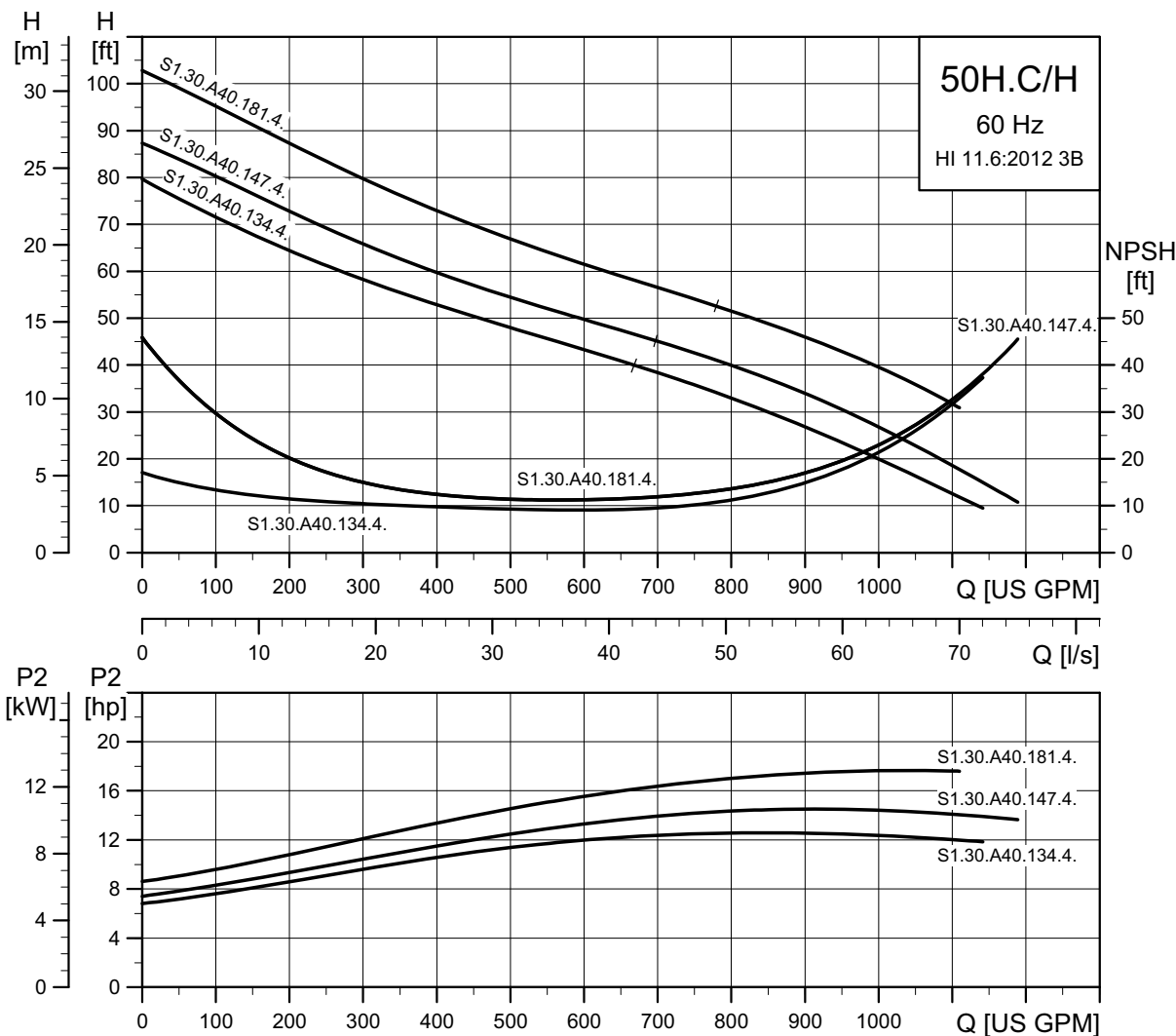
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

High pressure - 3 x 230/460 V

S1.30.A40.134.4, S1.30.A40.147.4 and S1.30.A40.181.4



TM04 6558 1914



TM04 6559 19/14

Motor data

Pump type	P1	P2	Poles	RPM	Connection	I_N^1		η_{motor} [%]			Cos ϕ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² (Nm)]
	[HP (kW)]	[HP (kW)]				[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.30.A40.134.4.50H	16 (12)	13.4 (10)	4	1728	DOL	36/18	113	78	81	80	0.72	0.82	0.88	0.55 (0.023)	99.6 (135)
S1.30.A40.147.4.50H	17.4 (13)	14.7 (11)	4	1761	DOL	39/20	125	80	84	86	0.63	0.76	0.84	0.95 (0.04)	154.1 (209)
S1.30.A40.181.4.50H	21.4 (16)	18.1 (13.5)	4	1747	DOL	46/23	125	82	85	85	0.69	0.81	0.87	0.95 (0.04)	154.1 (209)

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

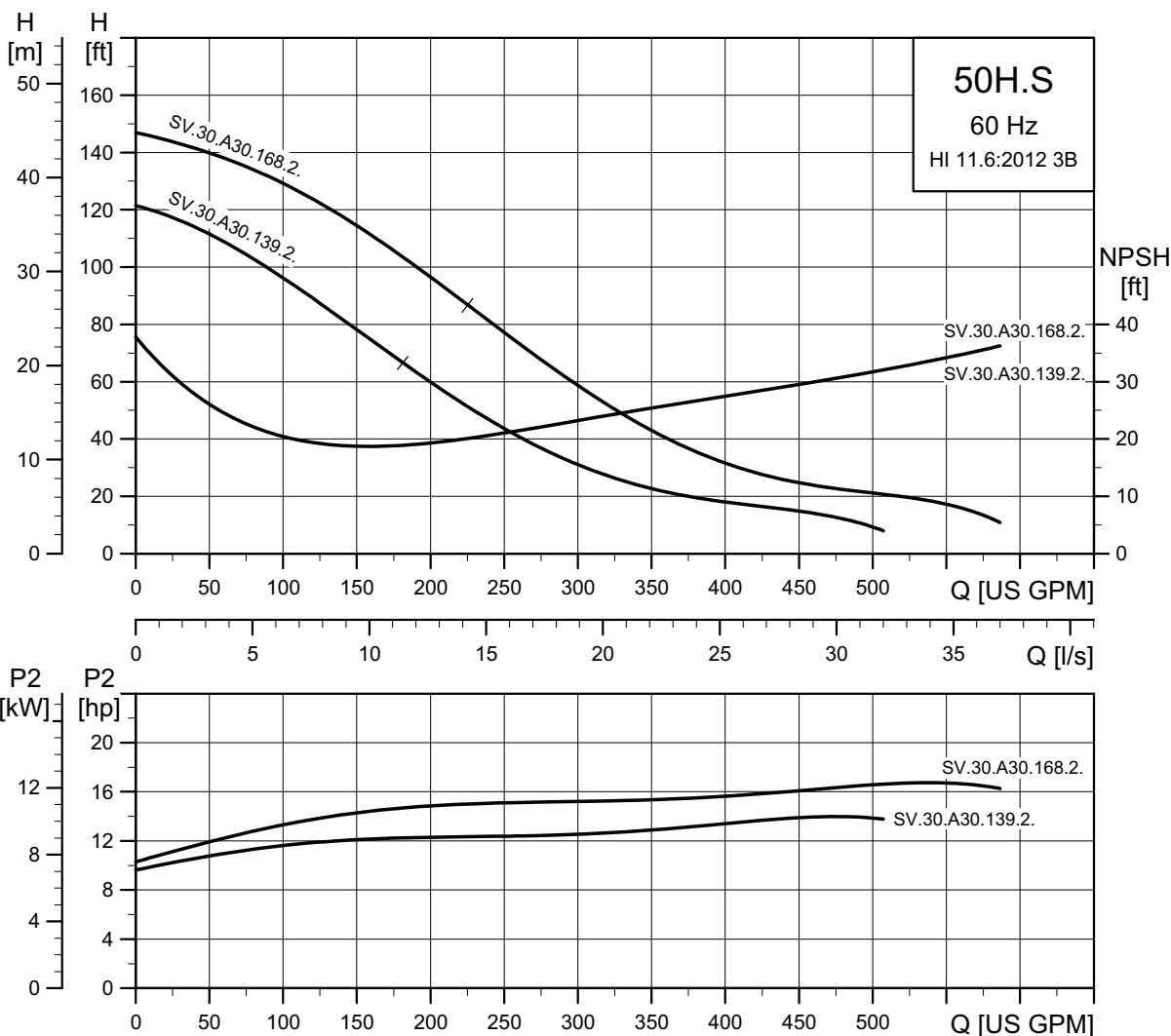
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.30.A40.134.4.50H.S/C/H.212	8.3 (212)				3.49 (0.147)
S1.30.A40.134.4.50H.S/C/H.200	7.9 (200)				2.28 (0.096)
S1.30.A40.147.4.50H.S/C/H.222	8.7 (222)	3 (80)	145 (10)	66 (20)	2.71 (0.114)
S1.30.A40.181.4.50H.S/C/H.239	9.4 (239)				3.85 (0.162)

* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

High pressure - 3 x 230/460 V

SV.30.A30.139.2 and SV.30.A30.168.2



TM04 6560 4717

Motor data

Pump type	P1 P2		Poles	RPM	Connection	I_N^1			η_{motor} [%]			Cos ϕ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² ft (Nm)]
	[HP (kW)]	[HP (kW)]				[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
SV.30.A30.139.2.50H...	17.4 (13)	13.9 (10.4)	2	3537	DOL	38/19	185	70	76	79	0.74	0.83	0.88	0.71 (0.04)	104.7 (142)	
SV.30.A30.168.2.50H...	21.4 (16)	16.8 (12.5)	2	3515	DOL	45/23	185	73	78	79	0.68	0.86	0.89	0.71 (0.04)	104.7 (142)	

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

Pump data

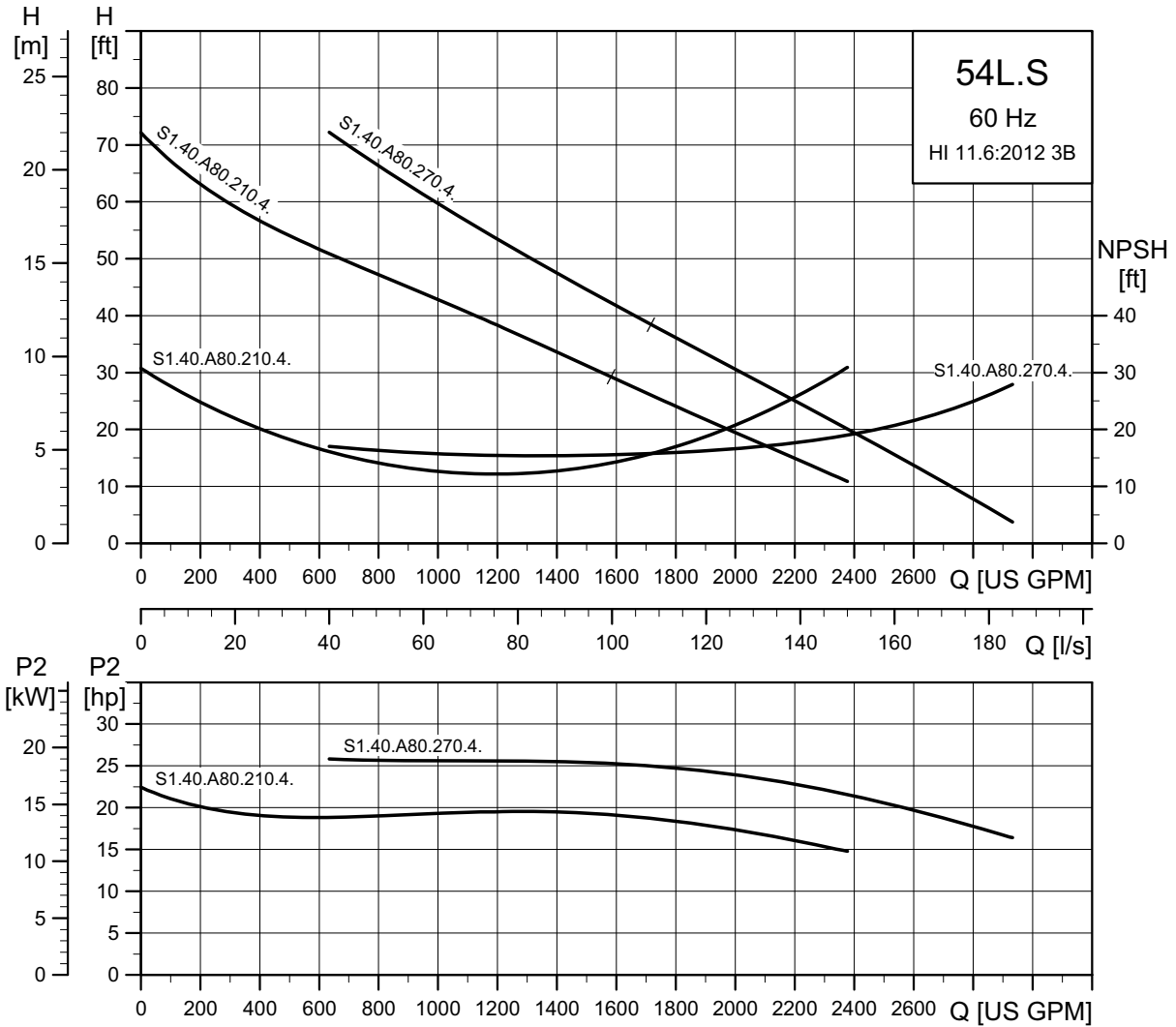
Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
SV.30.A30.139.2.50H.S.159	6.25 (159)	3 (80)	145 (10)	66 (20)	0.68 (0.029)
SV.30.A30.168.2.50H.S.172	6.77 (221)	3 (80)	145 (10)	66 (20)	0.74 (0.031)

* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

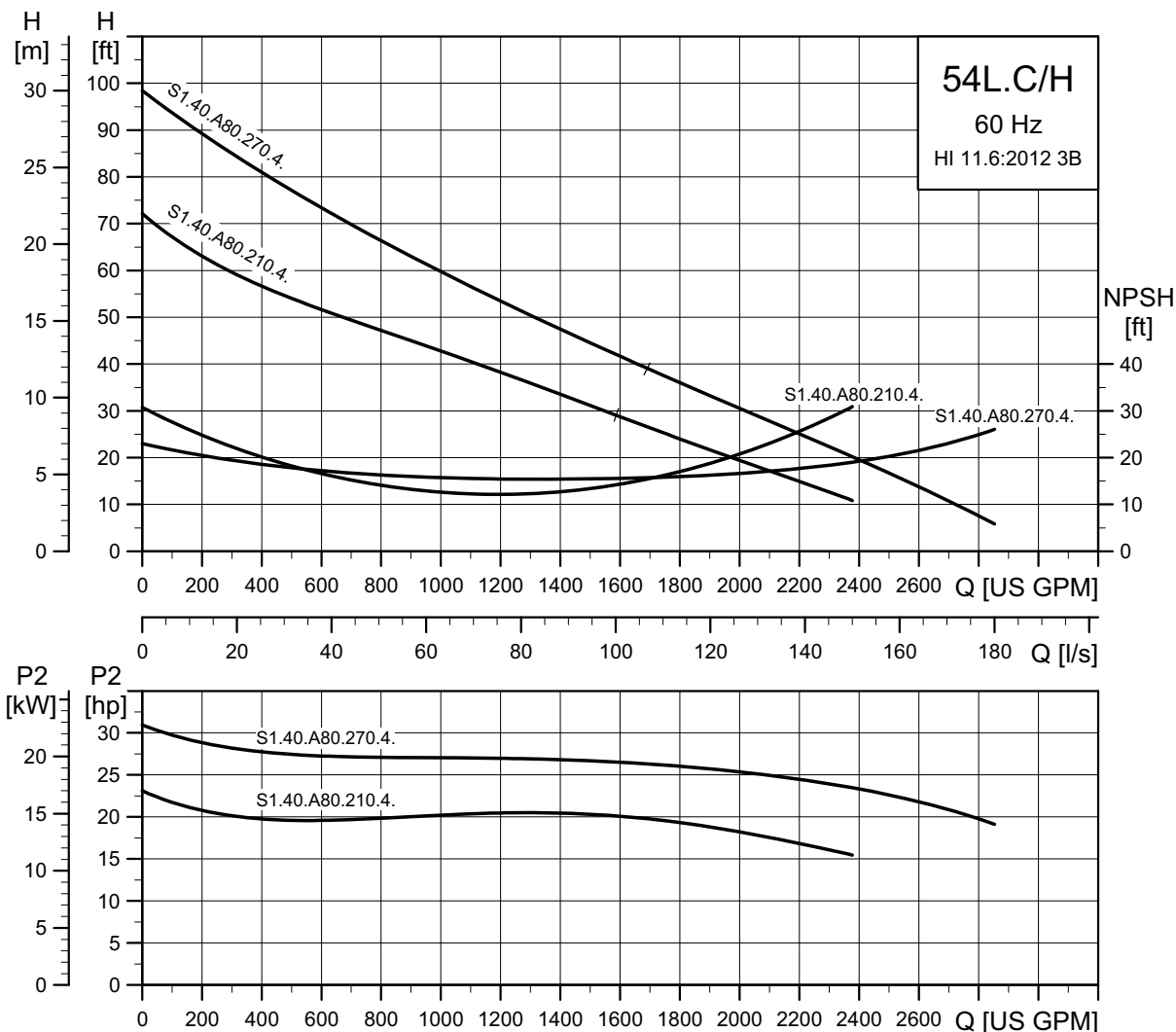
Range 54

Low pressure - 3 x 230/460 V

S1.40.A80.210.4 and S1.40.A80.270.4



TM04 6567 1914



TM04 6568 1914

Motor data

Pump type	P1	P2	Poles	RPM	Connection	I_N^1		I_{start}			Cos ϕ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² (Nm)]
	[HP (kW)]	[HP (kW)]				[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.40.A80.210.4.54L.S...	37.5 (18)	21 (15.5)	4	1749	DOL	64/32	155	76	82	84	0.52	0.64	0.73	1.19 (0.05)	176.3 (239)
S1.40.A80.210.4.54L.C/H...	28.2 (21)	23 (17.5)	4	1739	DOL	69/35	155	78	83	83	0.55	0.68	0.76	1.19 (0.05)	176.3 (239)
S1.40.A80.270.4.54L.S...	30.8 (23)	27 (20)	4	1746	DOL	81/41	199	85	87	87	0.64	0.70	0.72	1.42 (0.06)	230.1 (312)
S1.40.A80.270.4.54L.C/H...	34.9 (26)	30 (22.5)	4	1735	DOL	92/46	199	86	87	86	0.66	0.71	0.72	1.42 (0.06)	230.1 (312)

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

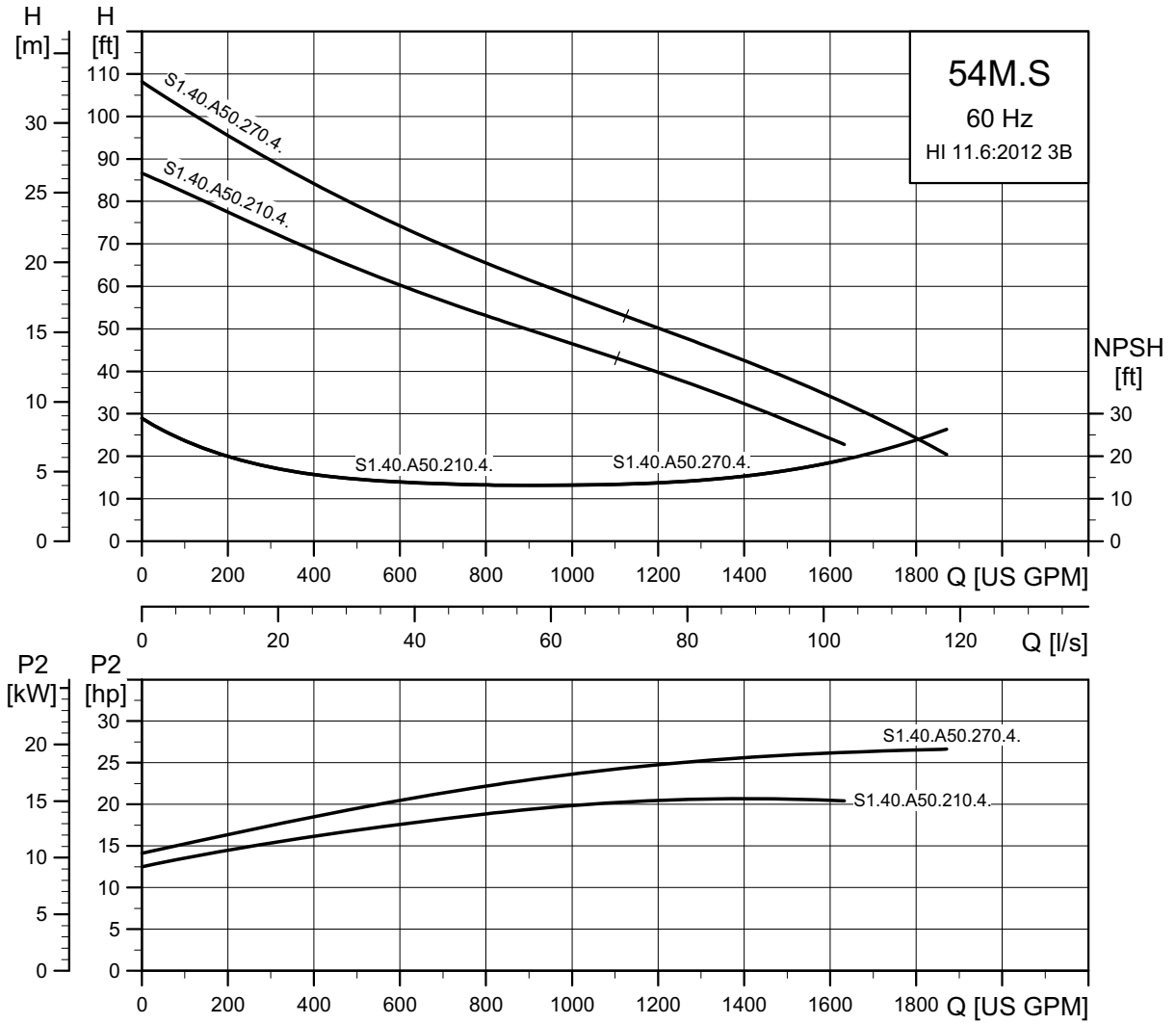
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.40.A80.210.4.54L.S/C/H.222	8.7 (222)	4 (100)	145 (10)	66 (20)	4.58 (0.193)
S1.40.A80.270.4.54L.S/C/H.245	9.6 (245)				5.51 (0.232)

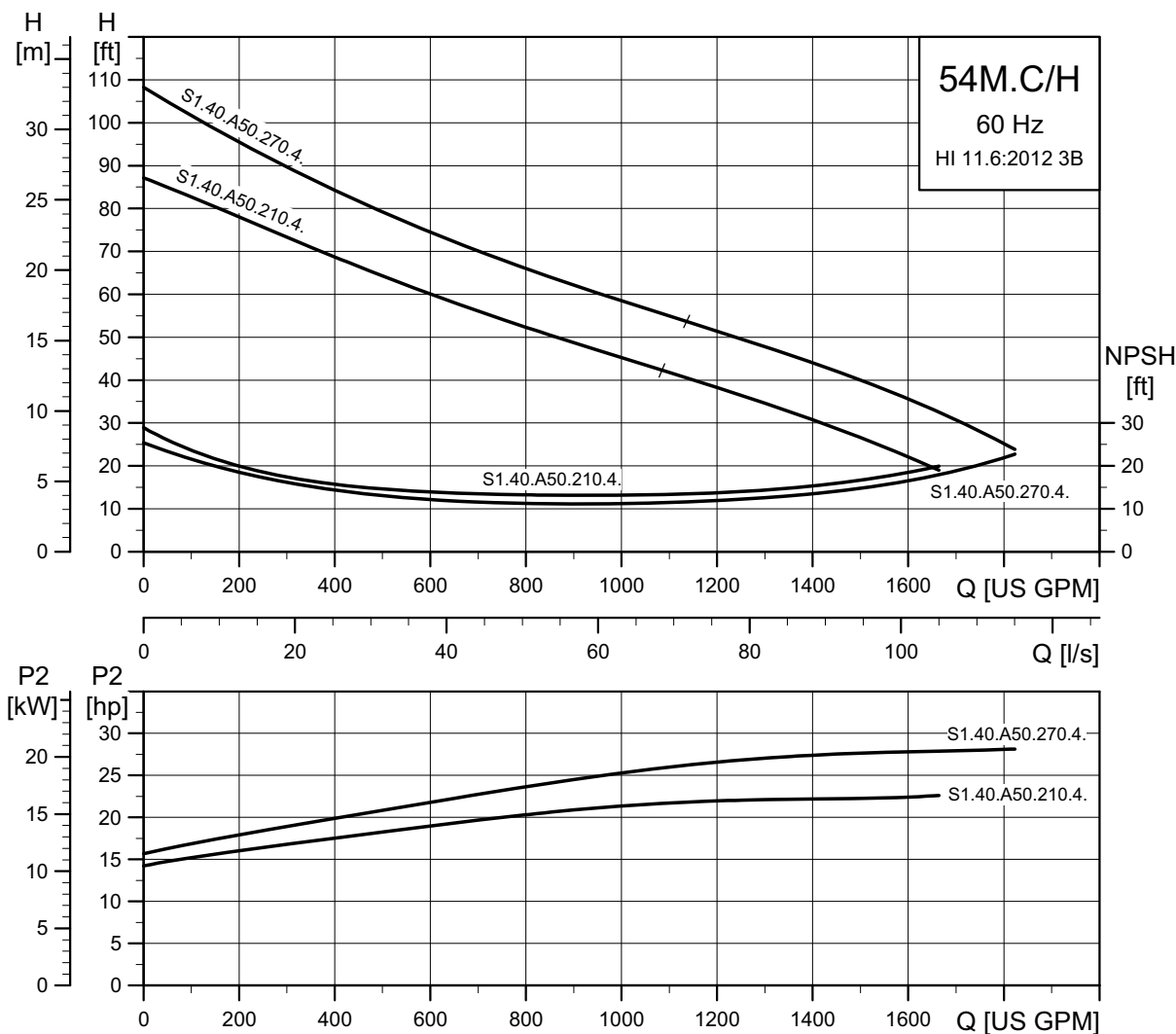
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

Medium pressure - 3 x 230/460 V

S1.40.A50.210.4 and S1.40.A50.270.4



TM04 6569 4717



TM04 6570 4717

Motor data

Pump type	P1	P2	Poles	RPM	Connection	I_N^1	I_{start}	η_{motor} [%]			$\cos \phi$			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M_{max} [lbf ² ft (Nm)]
	[HP (kW)]	[HP (kW)]						1/2	3/4	1/1	1/2	3/4	1/1		
S1.40.A50.210.4.54M.S...	24.1 (18)	21 (16)	4	1749	DOL	64/32	155	76	82	84	0.52	0.64	0.73	1.19 (0.05)	176.3 (239)
S1.40.A50.210.4.54M.C/H...	28.2 (21)	23 (17.5)	4	1739	DOL	69/35	155	78	83	83	0.55	0.68	0.76	1.19 (0.05)	176.3 (239)
S1.40.A50.270.4.54M.S...	30.8 (23)	27 (20)	4	1746	DOL	81/41	199	85	87	87	0.64	0.70	0.72	1.42 (0.06)	230.1 (312)
S1.40.A50.270.4.54M.C/H...	34.9 (26)	30 (22.5)	4	1735	DOL	92/46	199	86	87	86	0.66	0.71	0.72	1.42 (0.06)	230.1 (312)

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

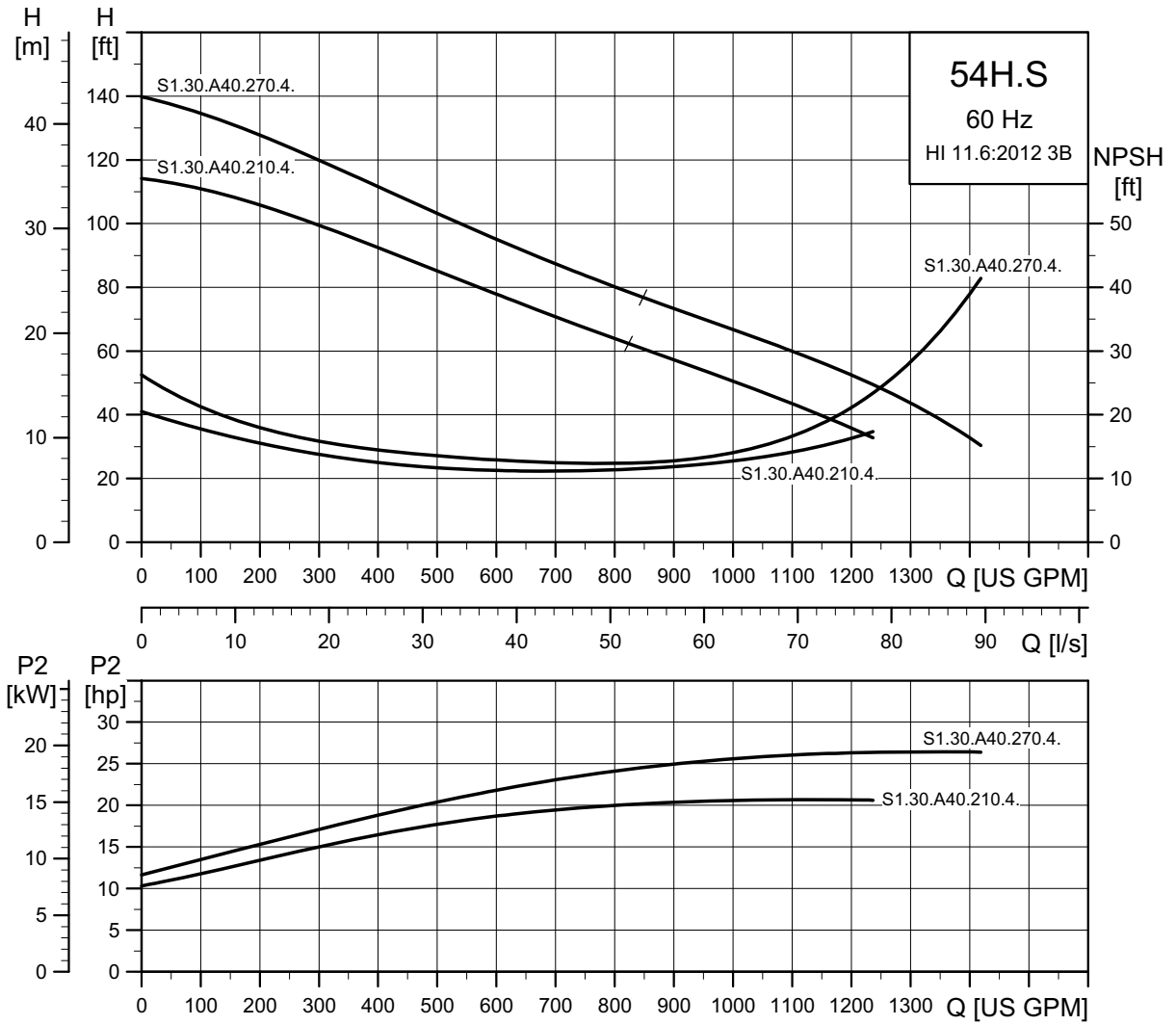
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.40.A50.210.4.54M.S/C/H.237	9.3 (237)	4 (100)	145 (10)	66 (20)	4.32 (0.182)
S1.40.A50.270.4.54M.S/C/H.249	9.8 (249)				4.89 (0.206)

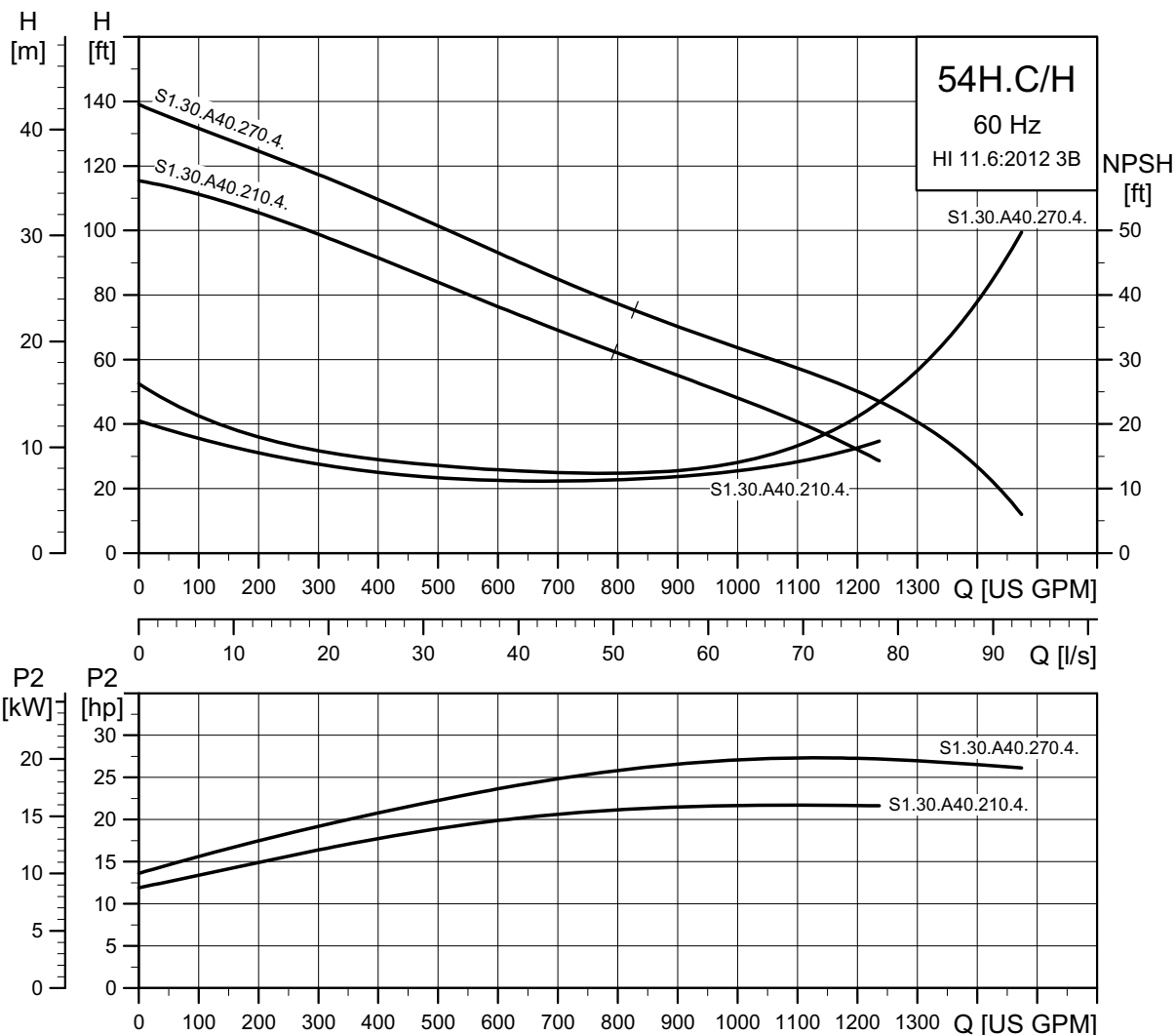
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

High pressure - 3 x 230/460 V

S1.30.A40.210.4 and S1.30.A40.270.4



TM04 6565 4717



TM04 6566 4717

Motor data

Pump type	P1 P2		Poles	RPM	Connection	I_N^1	I_{start}	η_{motor} [%]			$\cos \phi$			Moment of inertia [lbft ² (kgm ²)]	Breakdown torque M_{max} [lb*ft (Nm)]
	[HP (kW)]							1/2	3/4	1/1	1/2	3/4	1/1		
S1.30.A40.210.4.54H.S...	24.1 (18)	21 (16)	4	1749	DOL	64/32	155	76	82	84	0.52	0.64	0.73	1.19 (0.05)	176.3 (239)
S1.30.A40.210.4.54H.C/H...	28.1 (21)	23 (17.5)	4	1739	DOL	69/35	155	78	83	83	0.55	0.68	0.76	1.19 (0.05)	176.3 (239)
S1.30.A40.270.4.54H.S...	30.8 (23)	27 (20)	4	1746	DOL	81/41	199	85	87	87	0.64	0.70	0.72	1.42 (0.06)	230.1 (312)
S1.30.A40.270.4.54H.C/H...	34.9 (26)	30 (22.5)	4	1735	DOL	92/46	199	86	87	86	0.66	0.71	0.72	1.42 (0.06)	230.1 (312)

¹ Low/high voltage (230/460 V)

Note: Enclosure class: IP68

Pump data

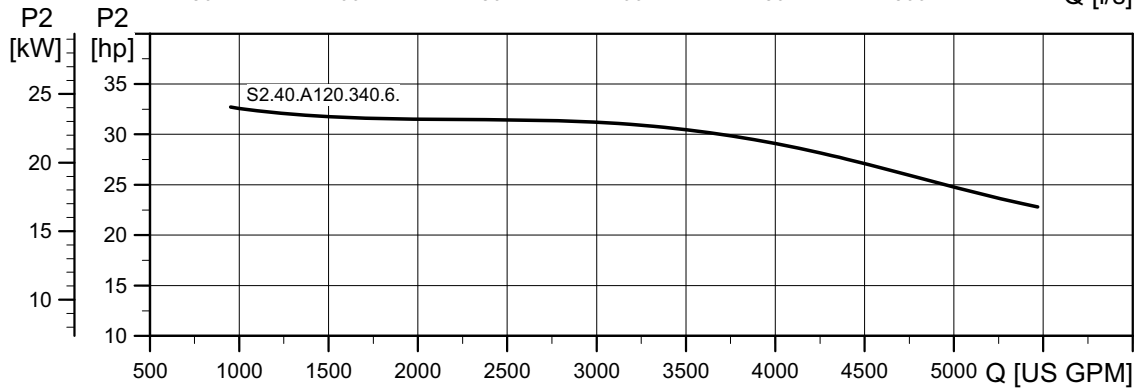
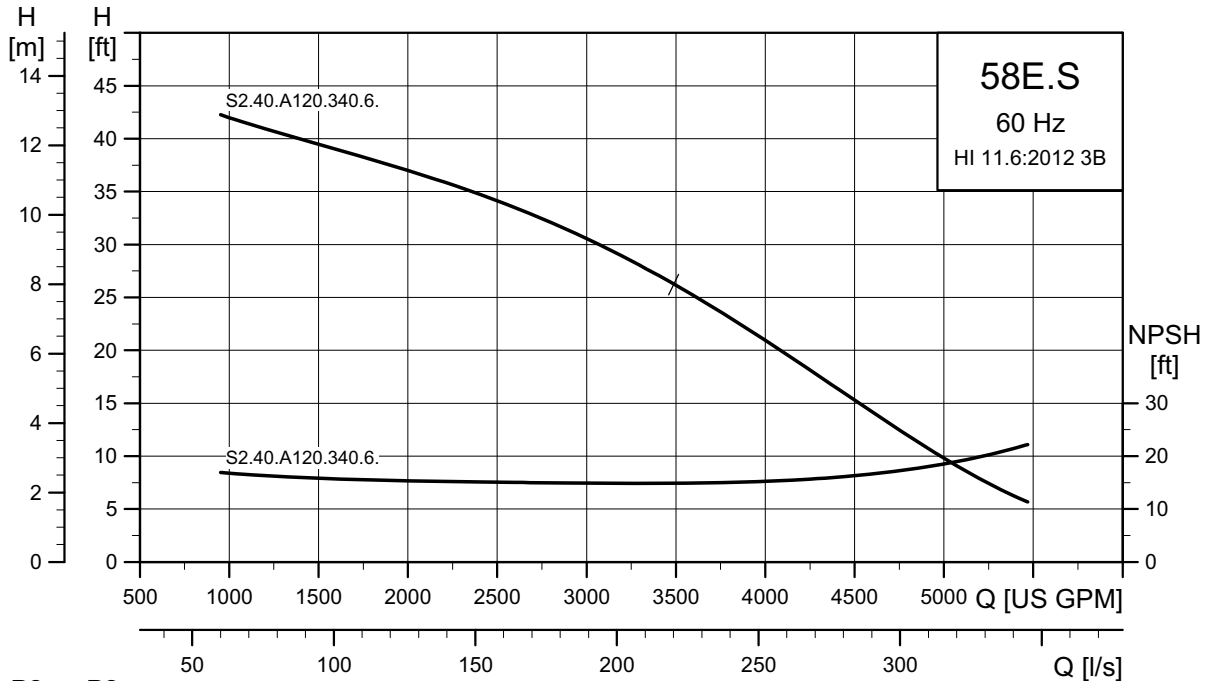
Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbft ² (kgm ²)]
S1.30.A40.210.4.54H.S/C/H.256	10.1 (256)	3 (80)	145 (10)	66 (20)	4.65 (0.196)
S1.30.A40.270.4.54H.S/C/H.271	10.7 (271)				5.49 (0.231)

* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

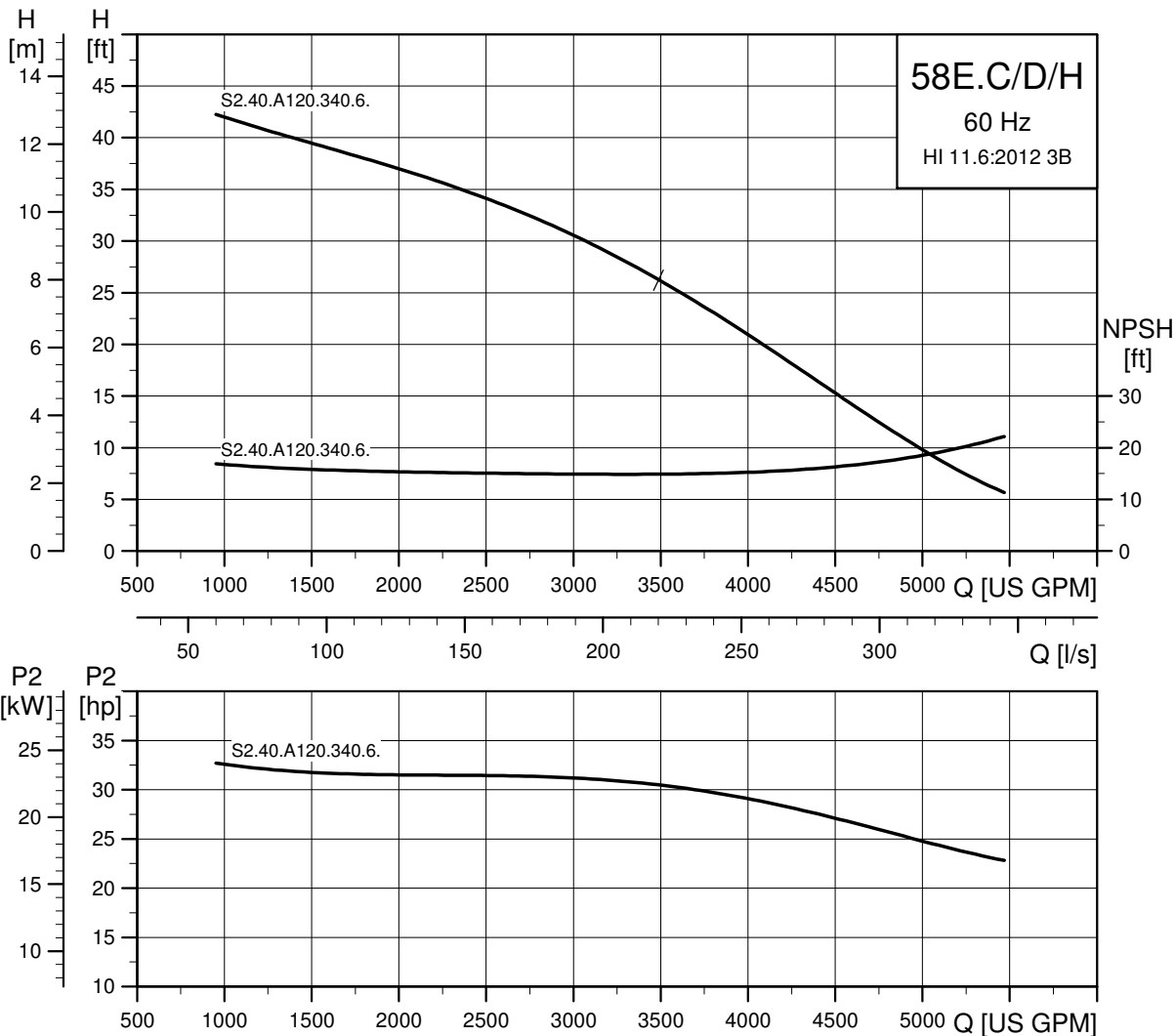
Range 58

Extra-low pressure - 3 x 460 V

S2.40.A120.340.6



TM04 6836 4717



TM07 0274 4717

Motor data

Pump type	P1 P2		Poles	RPM	Connection	I _N	I _{start}	η _{motor} [%]			Cos φ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M _{max} [lbf ² (Nm)]
	[HP (kW)]	[HP (kW)]						1/2	3/4	1/1	1/2	3/4	1/1		
S2.40.A120.340.6.58E...	38.9 (29)	34 (25)	6	1160	Y/D	45	210	88	88	86	0.64	0.74	0.82	3.56 (0.15)	205 (278)

Note: Enclosure class: IP68

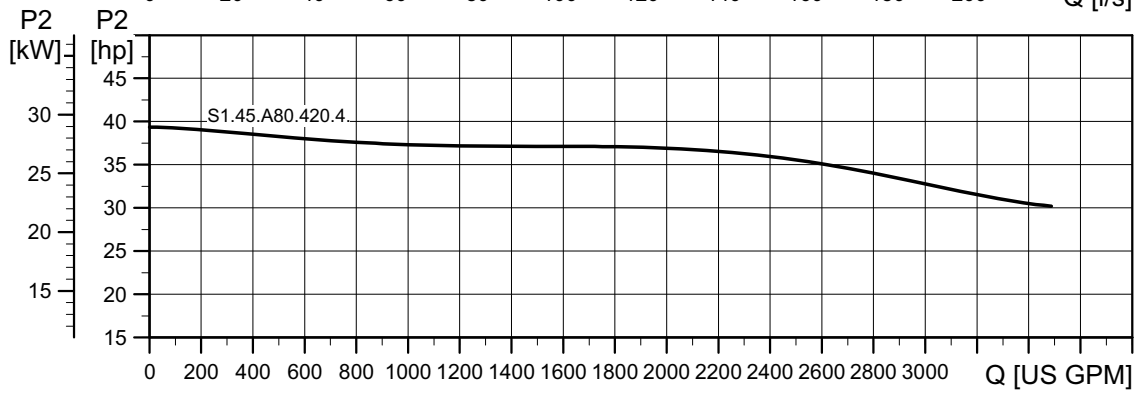
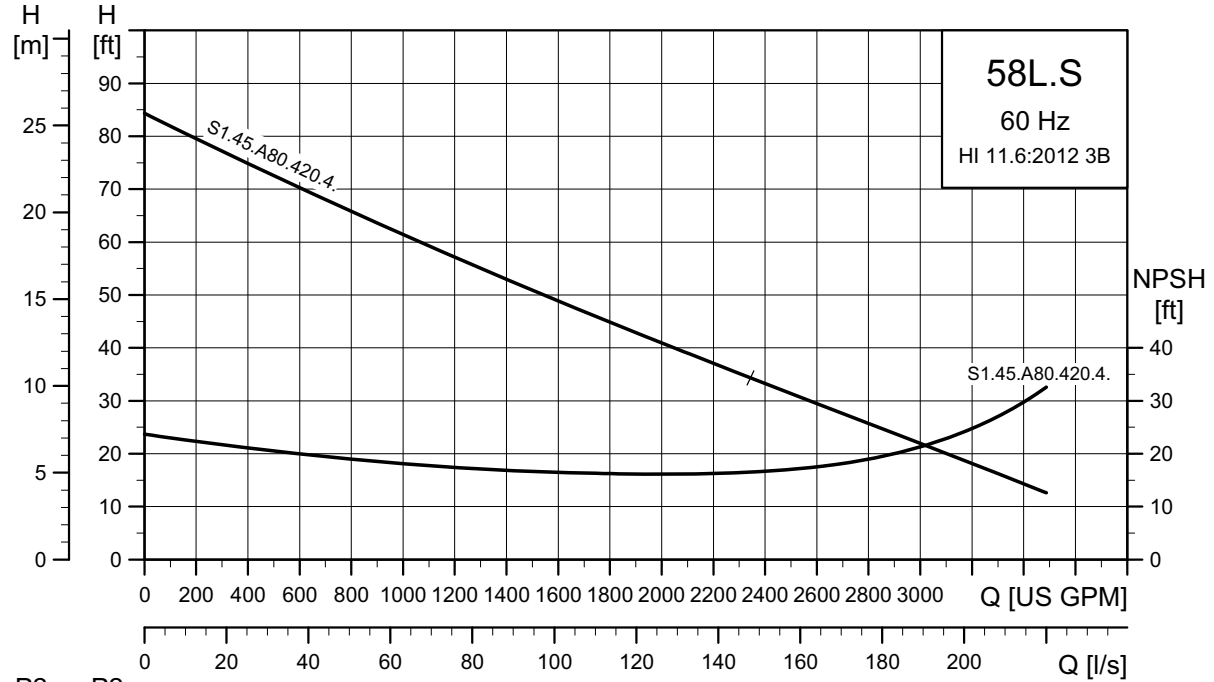
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S2.40.A120.340.6.58E.S/C/D/H.295	11.6 (295)	4 (100)	145 (10)	66 (20)	5.93 (0.25)

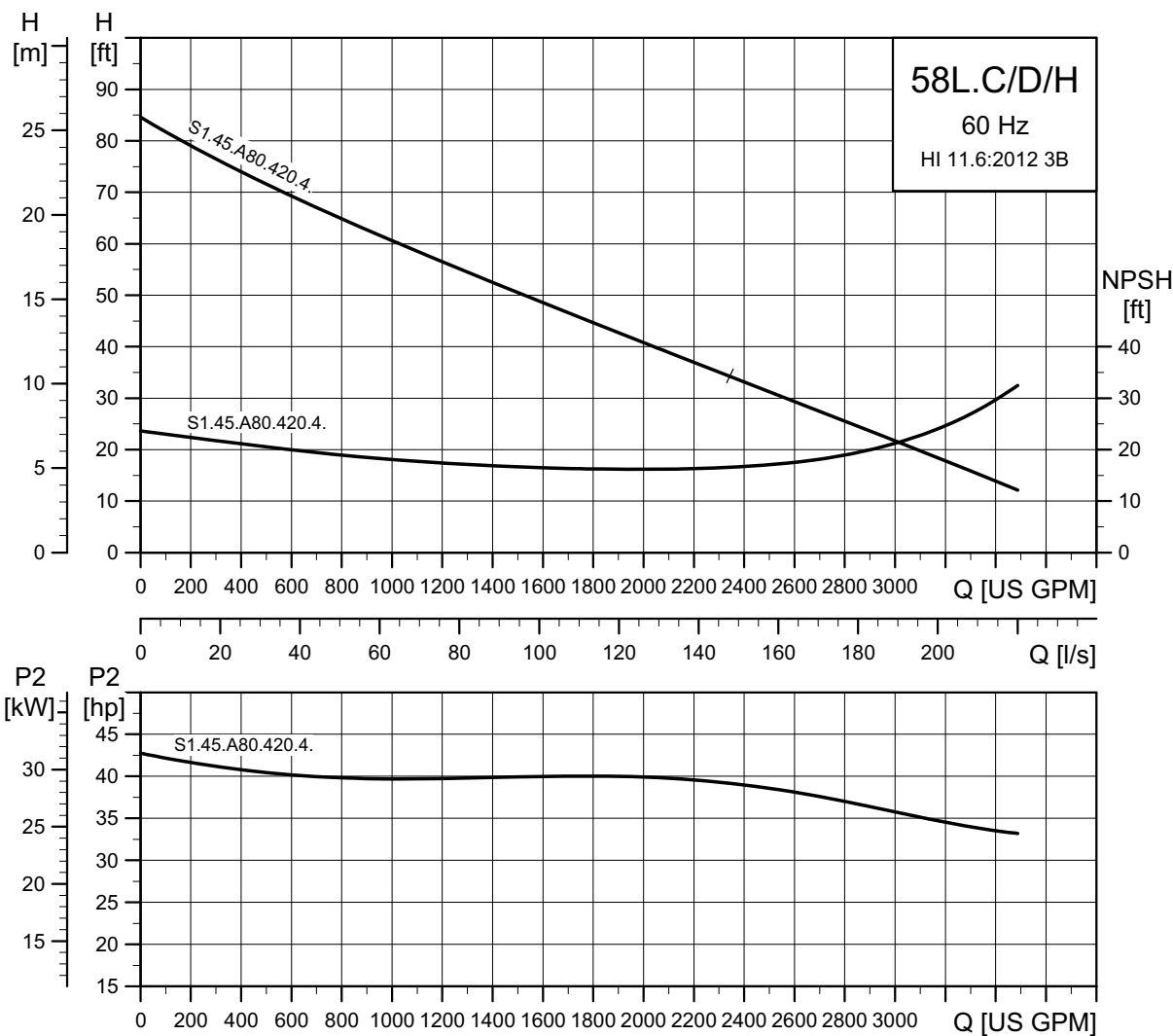
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

Low pressure - 3 x 460 V

S1.45.A80.420.4



TM04 6573 1914



TM04 6574 1914

Motor data

Pump type	P1	P2	Poles	RPM	Starting method	I _N [A]	I _{start} [A]	η _{motor} [%]			Cos φ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M _{max} [lbf ² ft (Nm)]
	[HP (kW)]	[hp]						1/2	3/4	1/1	1/2	3/4	1/1		
S1.45.A80.420.4.58L.S...	47 (35)	42 (31)	4	1749	Y/D	52	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)
S1.45.A80.420.4.58L.C/D/H...	48 (36)	43 (32)	4	1746	Y/D	54	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)

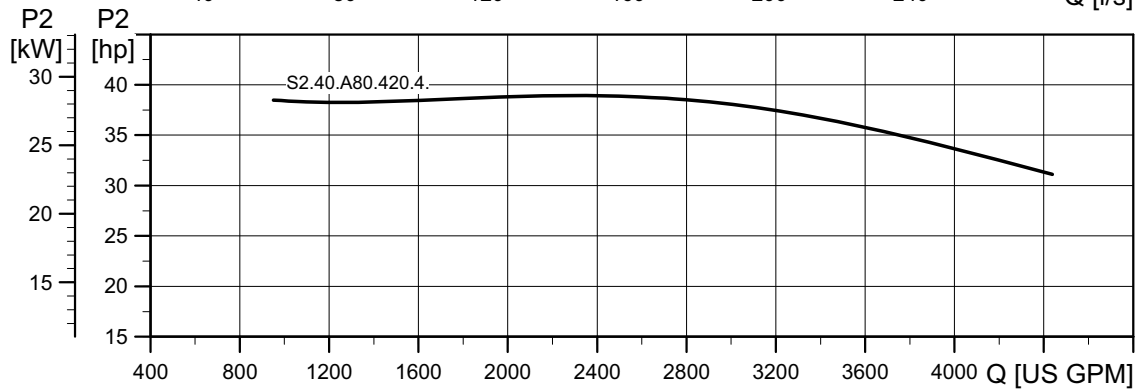
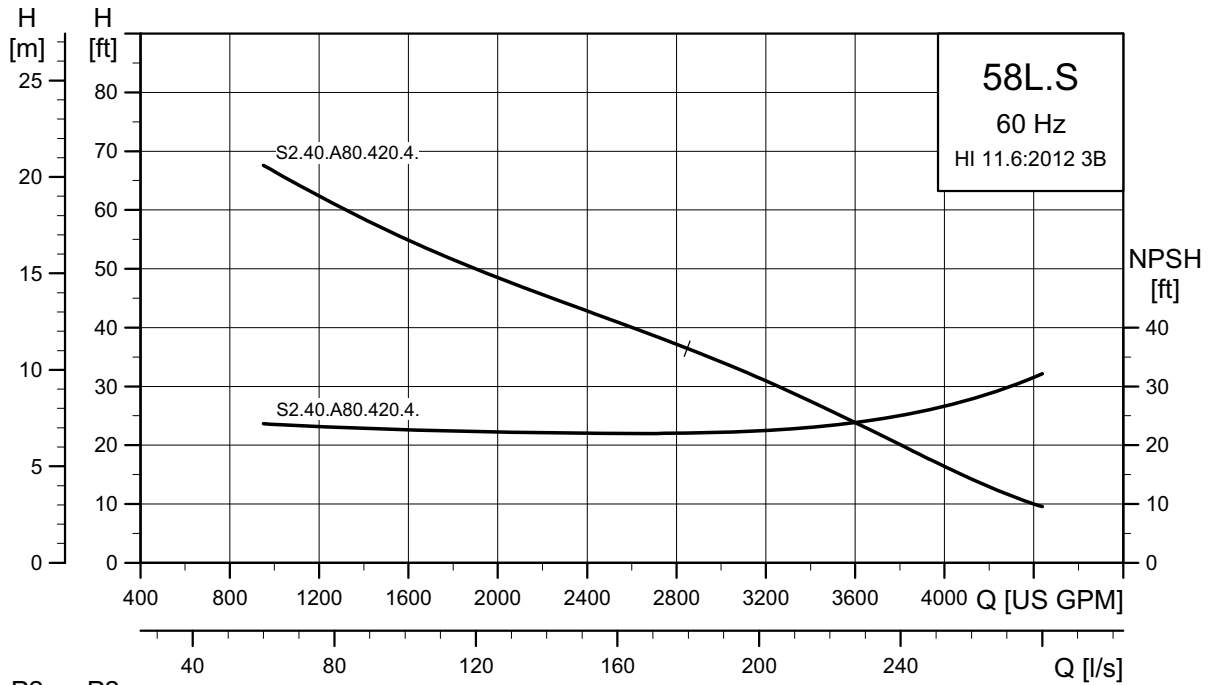
Note: Enclosure class: IP68

Pump data

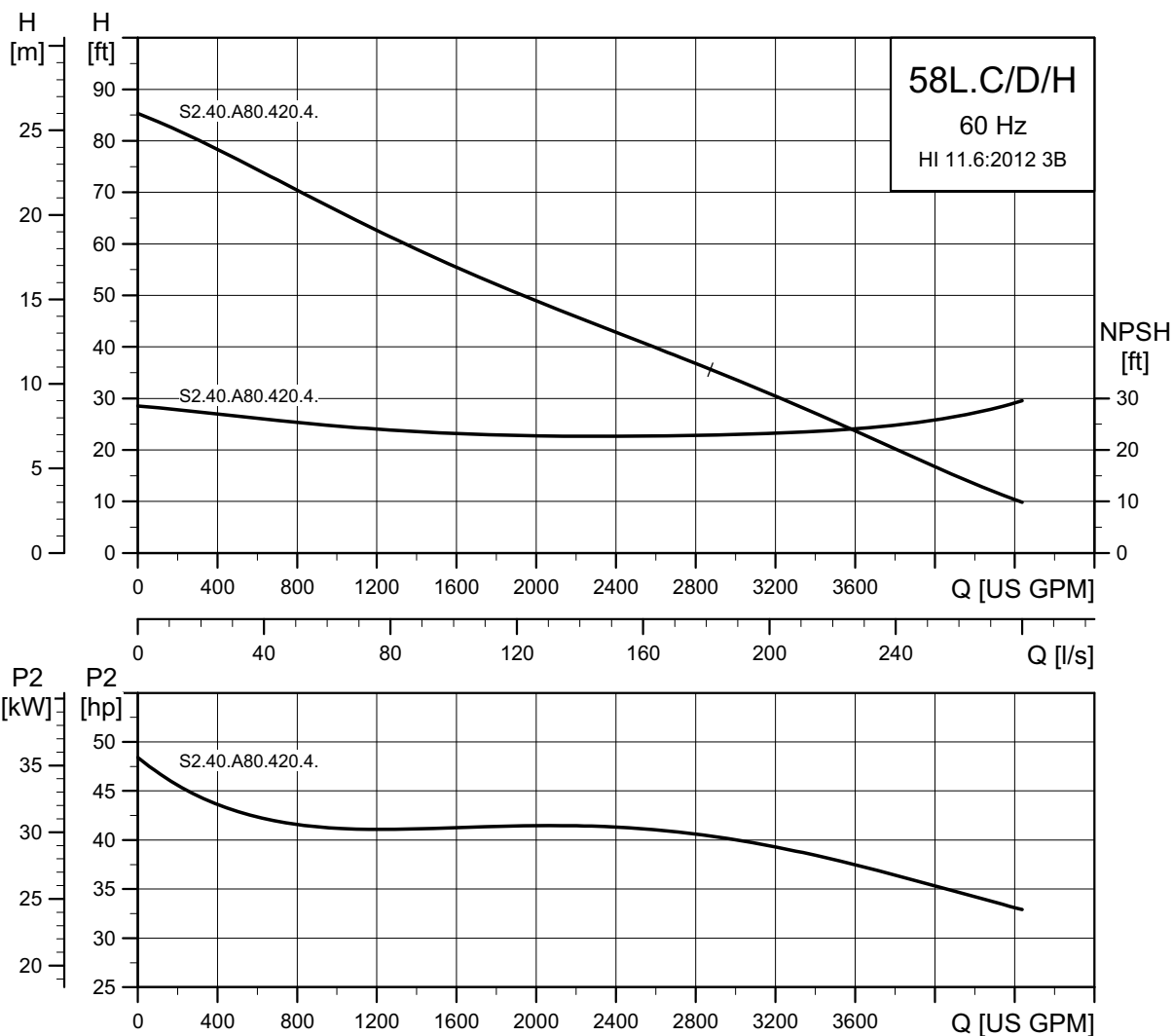
Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.45.A80.420.4.58L.S/C/D/H.264	10.4 (264)	4.5 (115)	145 (10)	66 (20)	9.44 (0.398)

* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

S2.40.A80.420.4



TM04 6575 1914



TM04 6576 1914

Motor data

Pump type	P1	P2	Poles	RPM	Starting method	I _N	I _{start}	η _{motor} [%]			Cos φ			Moment of inertia [lbf·ft ² (kgm ²)]	Breakdown torque M _{max} [lbf·ft (Nm)]
	[HP (kW)]	[HP (kW)]						1/2	3/4	1/1	1/2	3/4	1/1		
S2.40.A80.420.4.58L.S...	47 (35)	42 (31)	4	1749	Y/D	52	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)
S2.40.A80.420.4.58L.C/D/H...	48 (36)	43 (32)	4	1746	Y/D	54	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)

Note: Enclosure class: IP68

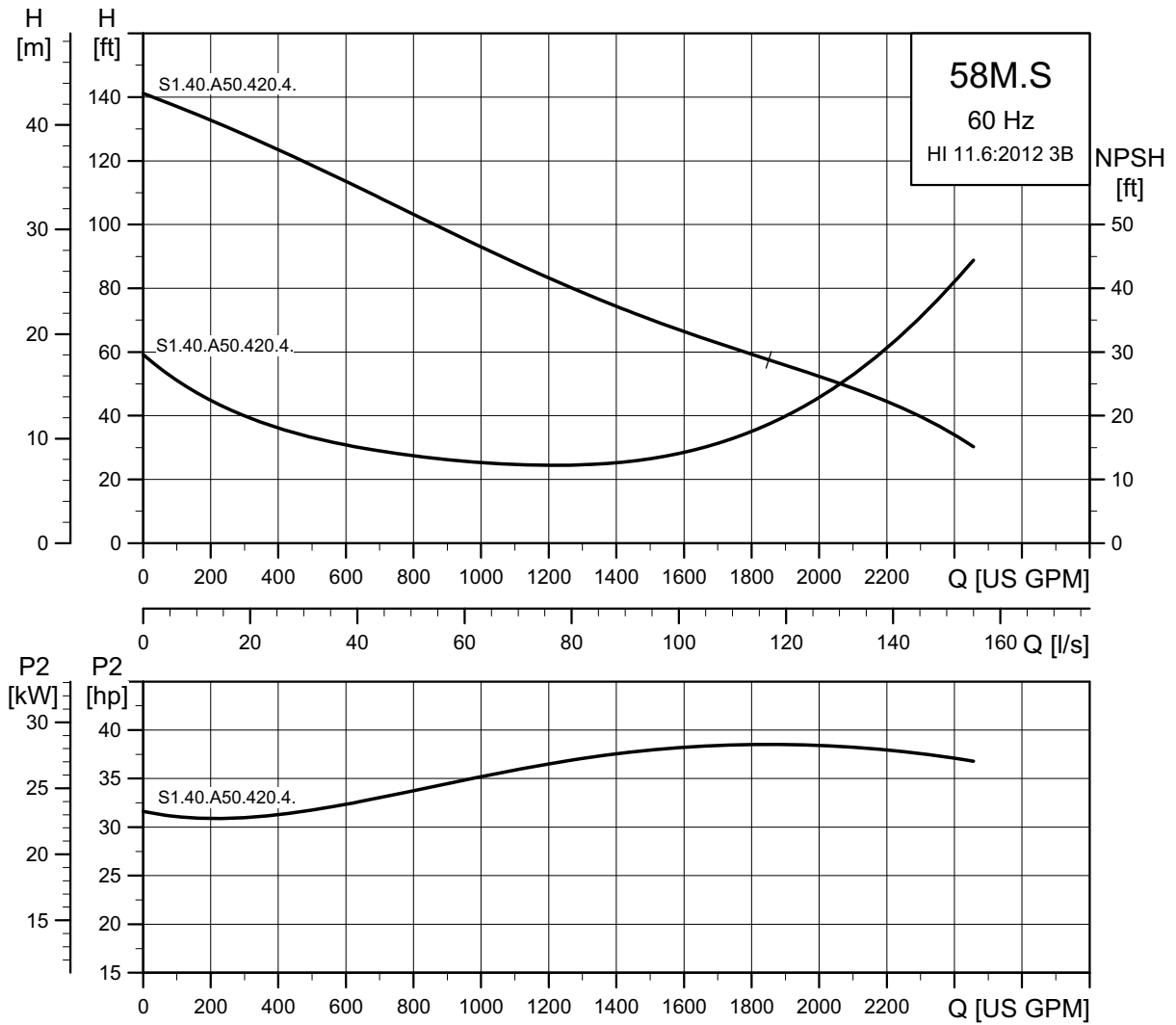
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf·ft ² (kgm ²)]
S2.40.A80.420.4.58L.S/C/D/H.227	8.9 (227)	4 (100)	145 (10)	66 (20)	6.92 (0.292)

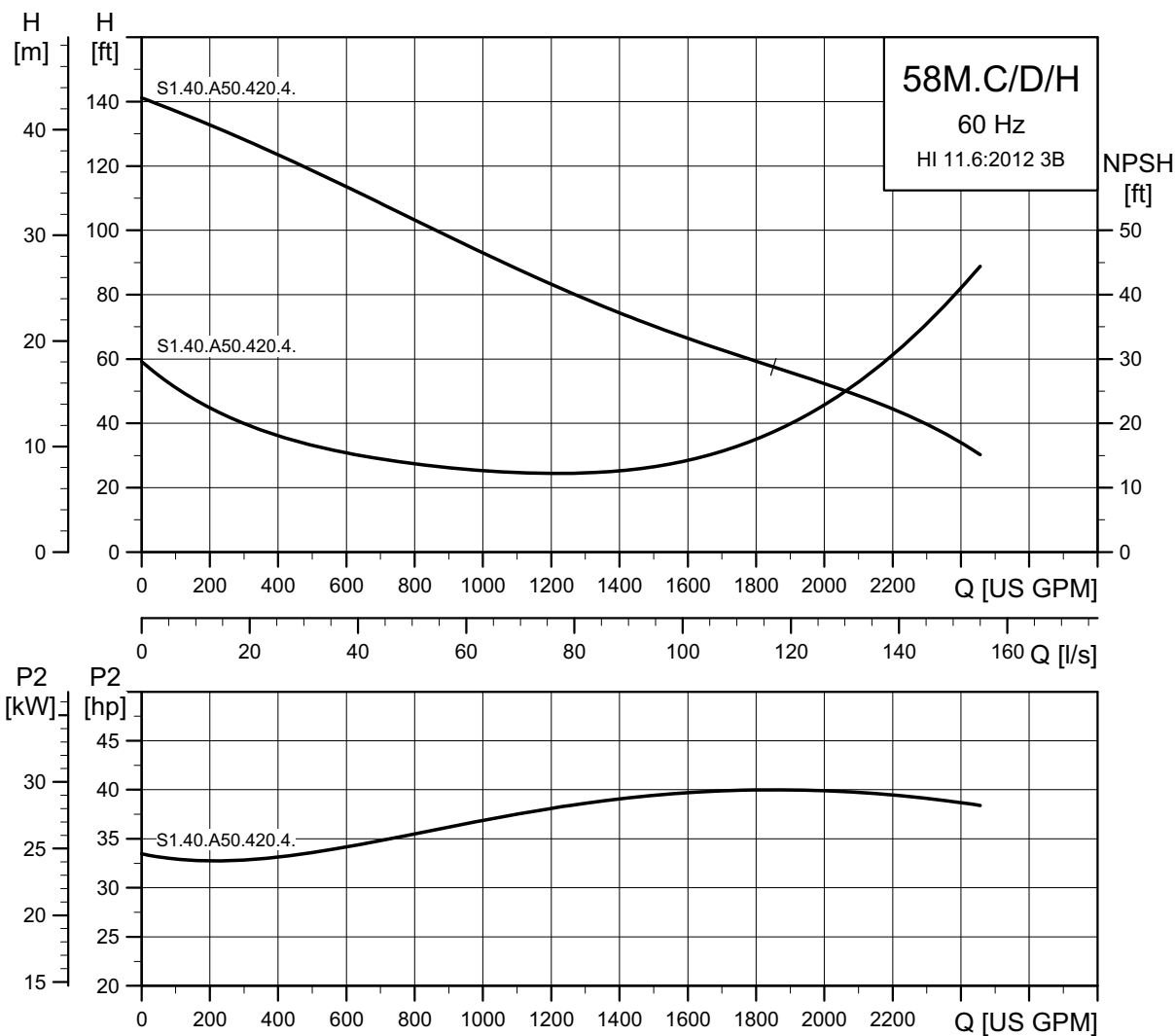
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

Medium pressure - 3 x 460 V

S1.40.A50.420.4



TM04 6577 4717



TM04 6578 4717

Motor data

Pump type	P1	P2	Poles	RPM	Connection	I _N		η _{motor} [%]			Cos φ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M _{max} [lbf ² (Nm)]
	[HP (kW)]	[HP (kW)]				I _N [A]	I _{start} [A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.40.A50.420.4.58M.S...	47 (35)	42 (31)	4	1749	Y/D	52	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)
S1.40.A50.420.4.58M.C/D.H...	48 (36)	43 (32)	4	1746	Y/D	54	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)

Note: Enclosure class: IP68

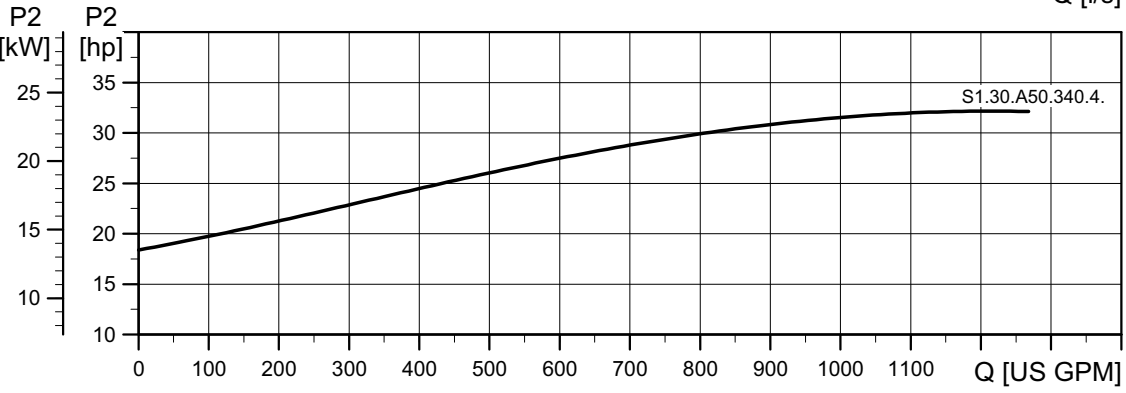
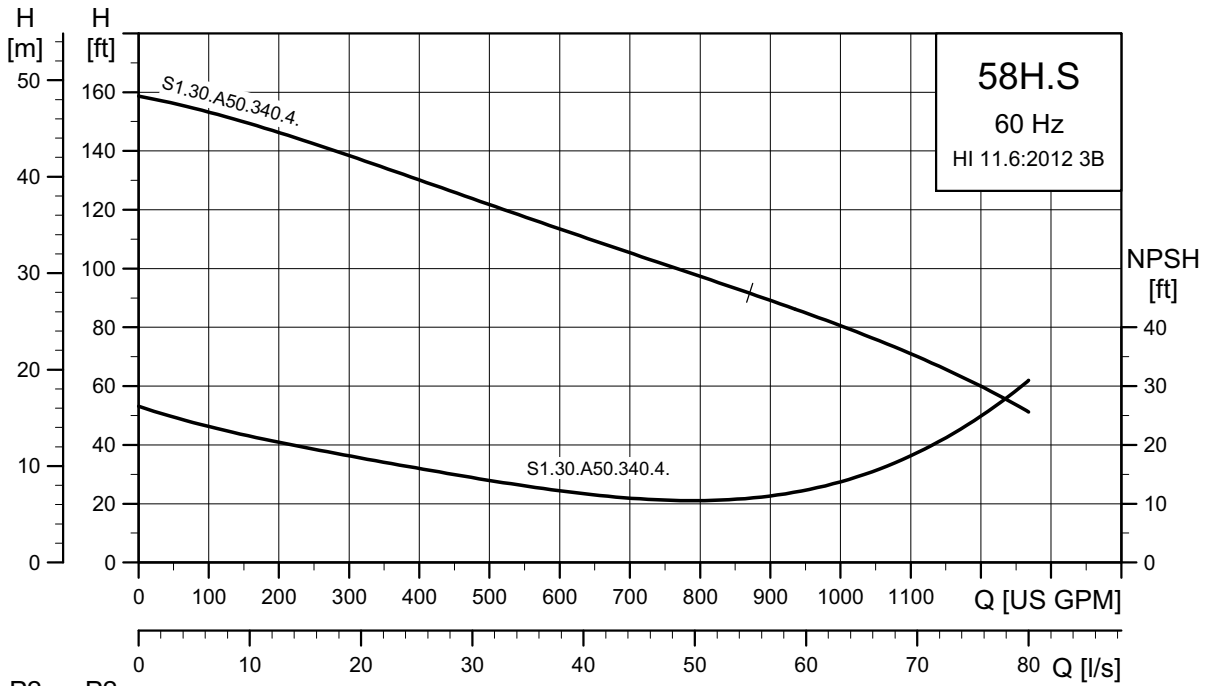
Pump data

Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.40.A50.420.4.58M.S/C/D/H.278	10.9 (278)	4 (100)	145 (10)	66 (20)	7.28 (0.307)

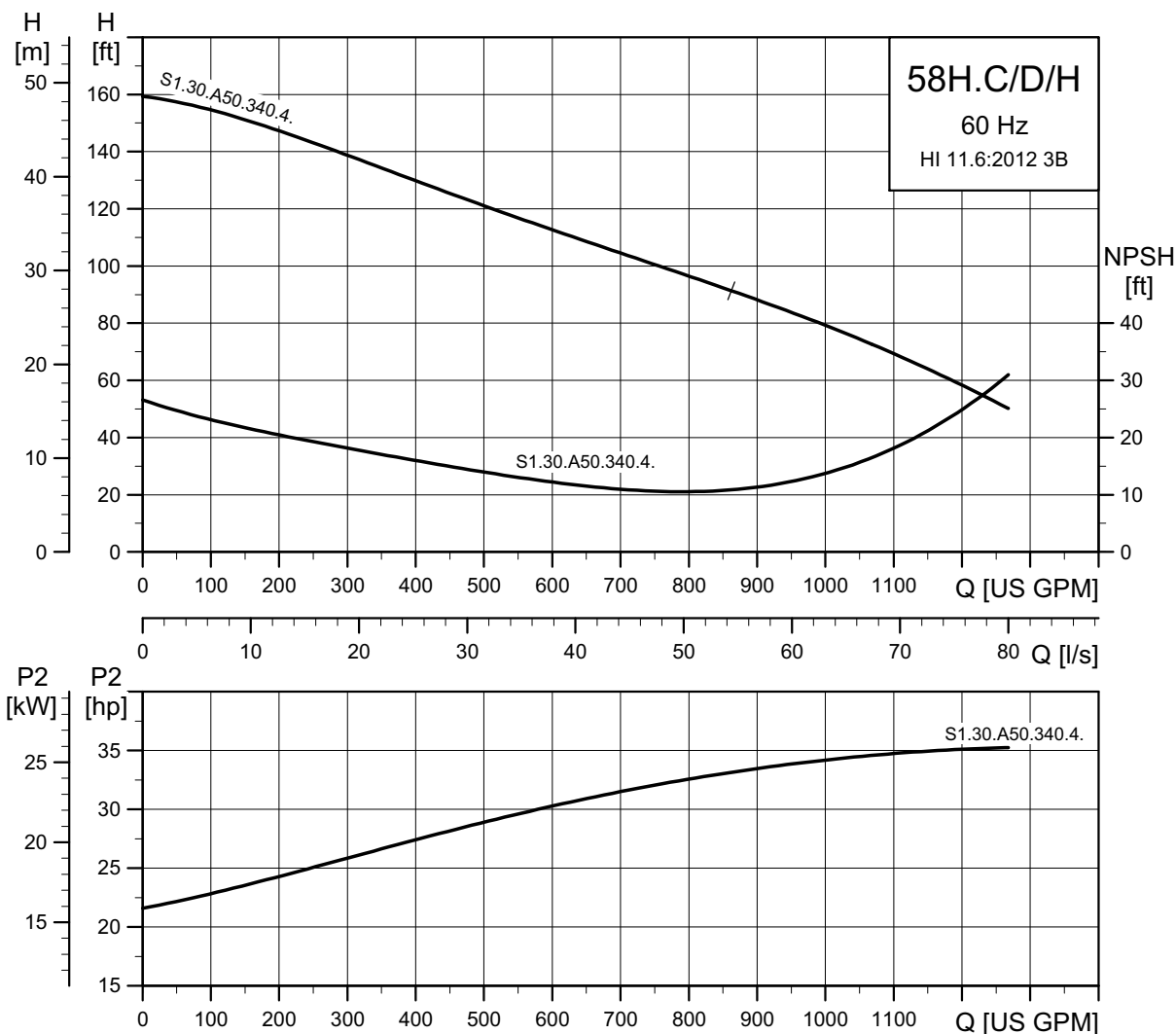
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

High pressure - 3 x 460 V

S1.30.A50.340



TM06 5111 3815



TM06 5112 3815

Motor data

Pump type	P1	P2	Poles	RPM	Starting method	I _N	I _{start}	η _{motor} [%]			Cos φ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M _{max} [lbf ² ft (Nm)]
	[HP (kW)]	[HP (kW)]				[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.30.A50.340.4.58H.S	38 (28)	34 (25)	4	1758	Y/D	43	284	87	90	90	0.71	0.78	0.83	3.56 (0.15)	286.9 (389)
S1.30.A50.340.4.58H.C/D/H	42 (31)	38 (28)	4	1752	Y/D	47	284	88	90	89	0.73	0.80	0.84	3.56 (0.15)	286.9 (389)

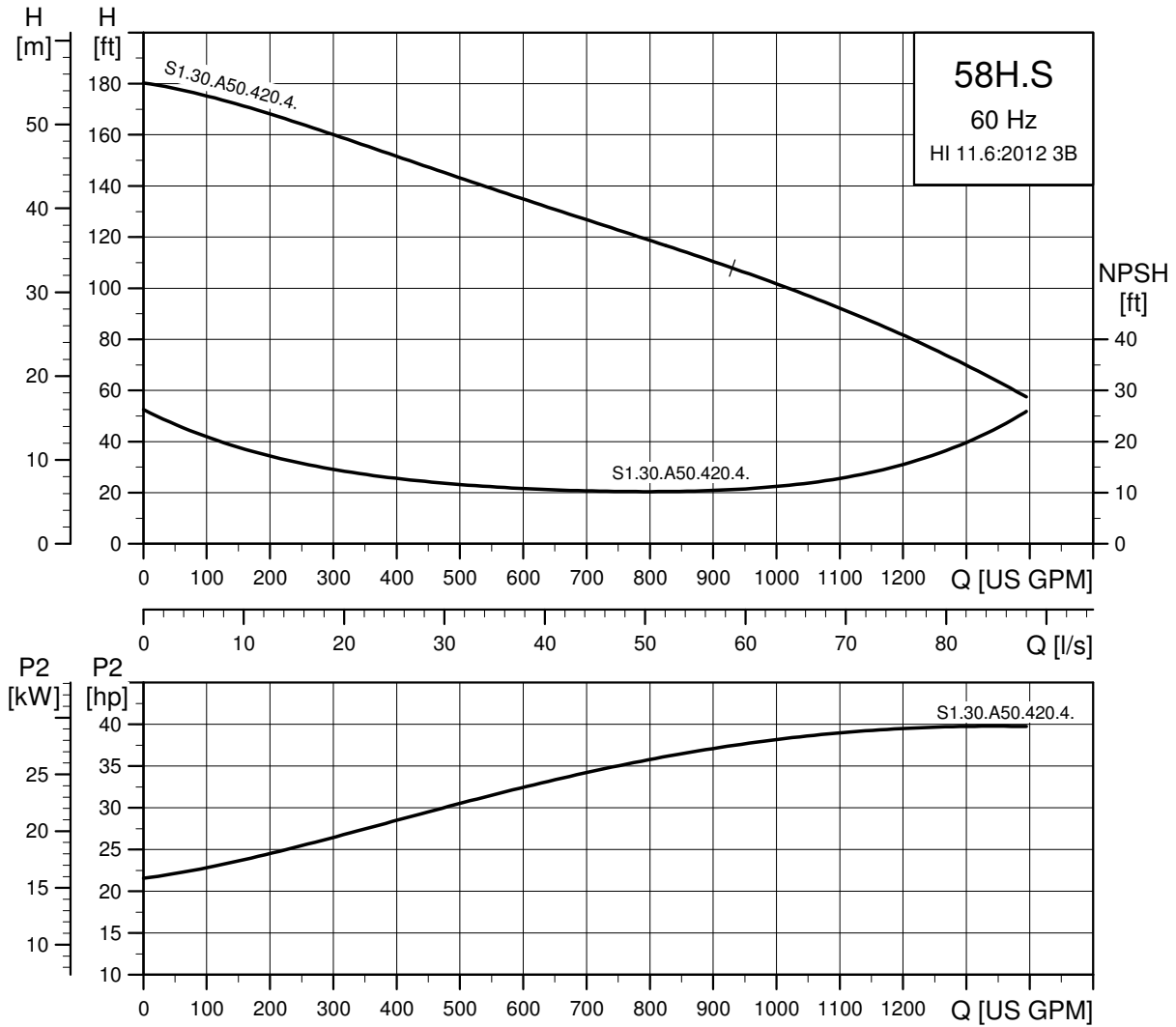
Note: Enclosure class: IP68

Pump data

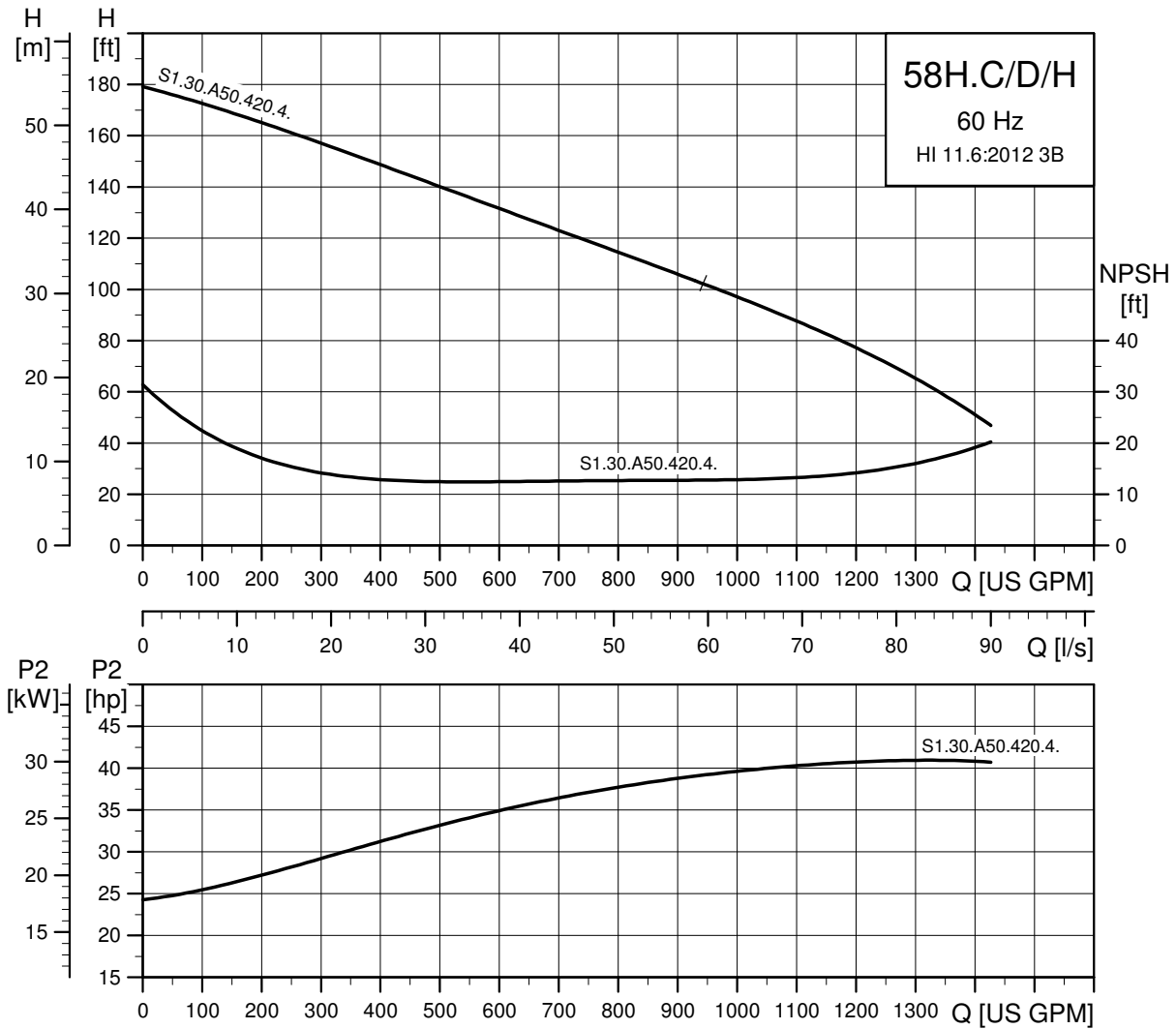
Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.30.A50.340.4.58H.S/C/D/H.290	11.4 (290)	3 (80)	145 (10)	66 (20)	9.81 (0.413)

* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

S1.30.A50.420.4



TM07 0275 4717



TM07 0276 4717

Motor data

Pump type	P1	P2	Poles	RPM	Starting method	I _N	I _{start}	η _{motor} [%]			Cos φ			Moment of inertia [lbf ² (kgm ²)]	Breakdown torque M _{max} [lbf ² ft (Nm)]
	[HP (kW)]	[HP (kW)]				[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
S1.30.A50.420.4.58H.S	47 (35)	42 (31)	4	1749	Y/D	52	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)
S1.30.A50.420.4.58H.C/D/H	48 (36)	43 (32)	4	1746	Y/D	54	284	89	90	88	0.75	0.82	0.85	3.56 (0.15)	286.9 (389)

Note: Enclosure class: IP68

Pump data



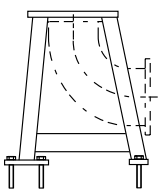
Pump type	Impeller diameter	Maximum solids size	Pump housing pressure	Maximum installation depth	Moment of inertia*
	[inch (mm)]	[inch (mm)]	[PSI (PN)]	[ft (m)]	[lbf ² (kgm ²)]
S1.30.A50.420.4.58H.S/C/D/H.307	12.0 (307)	3 (80)	145 (10)	66 (20)	11.83 (0.499)

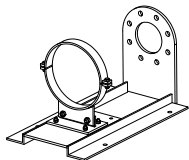
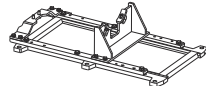
* Applies to material code G (see Type key). For other material codes, please contact Grundfos.

11. Accessories


Accessories (for installation)

Pump type	Installation accessories
Range 50-70 S and C	ANSI 3"-8" (DN 80-DN 200) without guide claw (guide claw included in auto-coupling kit)
Range 50-70 S and C	ANSI 10"-24" (DN 250-DN 600) with guide claw mounted on the pump
Range 50-70 D	Pump without installation accessories (available as separate kit)
Range 50-70 H	Base stand for horizontal, dry installation supplied with the pump. Pumps of installation type H include the standard horizontal stand. Pumps with material code G or Q include a painted-steel stand. If another horizontal stand is required, order a pump of installation type D together with the required stand.

Pictures	Description	Size	Weight [lb (kg)]	NPS (PN)	Range			Product number	
					50	54	58		
 <p>TM06 9668 3417</p>	Cast-iron, epoxy-coated auto-coupling system complete with: • guide claw ¹ • base unit • upper guide rail bracket • rubber seal • screws, washers, nuts, gaskets and bolts	ANSI 3"/ANSI 4" (DN 80/DN 100)	127.0 (57.5)	145 (10)	•			97626239	
		ANSI 4" (DN 100)	120.0 (54.4)		•	•		97626238	
		ANSI 5"/ANSI 6" (DN 125/DN 150)	229.3 (104)		•	•	•	97626242	
		ANSI 8" (DN 200)	617.3 (280)			•	•	97506541	
		ANSI 12" (DN 300)	738.5 (335)				•	97510049	
¹ Installation type S and C pumps with outlet flange size ANSI 10" (DN 250) and higher are supplied with guide claw mounted on the flange.									
Intermediate guide rail bracket	For guide rails longer than 19.5 ft (6 m)	ANSI 4" (DN 100)	6.6 (3)		•	•		96825161	
		ANSI 5"/ANSI 6" (DN 125/DN 150)	6.6 (3)		•	•	•	96829331	
		ANSI 8"/ANSI 24" (DN 200/DN 600)	17.6 (8)			•	•	96255842	
Guide rails	Standard pipes. Not supplied by Grundfos								
 <p>TM02 8856 0904 - TM02 8857 0904</p>	Cast iron, epoxy-coated ring stand with: • bolts • nuts • gaskets • anchor bolts	Pump outlet/hose							
		ANSI 3"/3" (DN 80/80)	55.1 (25)	10	•			96844859	
		ANSI 4"/4" (DN 100/100)	59.5 (27)		•			96846769	
		ANSI 5"/6" (DN 125/150)	103.6 (47)				•	96856262	
		ANSI 4"/4" (DN 100/100)	92.6 (42)		•	•		96848863	
		ANSI 5"/6" (DN 125/150)	83.8 (38)		•	•		96848864	
		ANSI 8"/8" (DN 200/200)	99.2 (45)				•	96789480	
		ANSI 8"/8" (DN 200/200)	99.2 (45)					•	96790704
 <p>TM04 4035 0509</p>	Vertical base stand (without bend)	ANSI 4" (DN 100)	92.6 (42)		10	•			96845469
		ANSI 6" (DN 150)	211.0 (96)	•		•	•	96308238	
		ANSI 8" (DN 200)	222.6 (101)				•	•	96094523
		ANSI 10" (DN 250)	154.3 (70)					•	96856263

Pictures	Description	Size	Weight [lb (kg)]	NPS (PN)	Range			Product number	
					50	54	58		
 <p>Steel base stand for horizontal, dry installation with:</p> <ul style="list-style-type: none"> • screws • nuts <p style="writing-mode: vertical-rl; transform: rotate(180deg);">TM04 4156 0909</p>		ANSI 4" (DN 100)	79.3 (36)	•			96844857		
			99.2 (45)				96776517		
		ANSI 6" (DN 150)	112.4 (51)	•			96776519		
			253.5 (115)				96782930		
		ANSI 8" (DN 200)	110.2 (50)	•			96801089		
			110.2 (50)				96784437		
		ANSI 10" (DN 250)	94.8 (43)	•			96856265		
			121.3 (55)				97709616		
		 <p>Special base stand for horizontal, dry installation with customized height.</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">TM06 4971 3415</p>				•	•	•	Contact Grundfos

Other accessories

Picture	Description	Size	Product number	
 <p style="writing-mode: vertical-rl; transform: rotate(180deg);">TM02 6126 5102</p>	Galvanized lifting chain with lifting link and safety hook. Certified. Maximum lifting capacity 1764 lb (800 kg).	13 ft (4 m)	98425759	
		20 ft (6 m)	98425760	
		26 ft (8 m)	98425782	
		33 ft (10 m)	98425783	
		Stainless steel lifting chain with lifting link and safety hook. Certified. Maximum lifting capacity 1764 lb (800 kg).	13 ft (4 m)	98425796
			20 ft (6 m)	98425797
			26 ft (8 m)	98425799
			33 ft (10 m)	98425800

12. Dimensions

Recommendation for pump foundations

Note: This applies only to pumps above 20 HP (15 kW).

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

The rotating mass of the entire pump, together with the forces from the motor and hydraulics, will generate disturbances related to the speed of the motor. Unbalance and blade pass in hydraulics are the two most important frequencies affecting vibration.

When these frequencies coincide with the natural frequency of the entire mechanical system, the vibration level will increase substantially.

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

The likelihood of high vibration levels occurring is increased in variable-speed applications where the pump is operated over a range of speeds rather than at a single constant speed. Most variable-speed drives provide the possibility to exclude certain frequency ranges to avoid operating areas with high vibration levels.

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

- The foundation and concrete must be of adequate strength to support the weight of the pump including accessories, the weight of the liquid passing through the pump and the forces generated by the pump.
- As a rule of thumb, the mass of the concrete foundation must be a minimum of three to five times the mass of the supported equipment and must have sufficient rigidity to withstand the axial, transverse and torsional loadings generated by the equipment.

- The foundation must be 6 in (15 cm) wider than the base plate for pumps up to 617 HP (460 kW) and 10 in (25 cm) wider for larger pumps.
- The concrete used in the foundation must have a minimum tensile strength of 362.6 PSI (250 N/cm²). Epoxy grout must always be used to secure the pump base plate to the foundation.

Pull-out strengths for anchor bolts

Submerged installation on auto coupling (types S and C):

Auto-coupling base unit	Anchor bolts	Pull-out strength [kip (kN)]
ANSI 4" (DN 100)	4 x 5/8" (4 x M16)	1.1 (5)
ANSI 5"/NPS 6" (DN 125/DN 150) ¹		1.8 (8)
ANSI 8" (DN 200)	4 x 1" (4 x M24)	3.6 (16)
ANSI 10" (DN 250)		6.8 (30)
ANSI 12" (DN 300)		
ANSI 20" (DN 500)	6 x 1 1/4" (6 x M30)	9.0 (40)
ANSI 24" (DN 600)		
ANSI 32" (DN 800)		4.5 (20)

¹ Pump outlet ANSI 5" (DN 125) and base plate outlet ANSI 6" (DN 150).

Dry installation (type H and D):

Dry installation	Anchor bolts	Pull-out strength [kip (kN)]
ANSI 4" (DN 100)	3 x 3/4" (3 x M20)	4.0 (18)
ANSI 6" (DN 150)		
ANSI 8" (DN 200)	6 x 3/4" (6 x M20)	
ANSI 10" (DN 250)		
ANSI 12" (DN 300)		
ANSI 16" (DN 400)	6 x 1" (6 x M24)	5.6 (25)
ANSI 20"/ANSI 16" (DN500/DN400) ¹		
ANSI 20" (DN 500)		
ANSI 24" (DN 600)		
ANSI 32" (DN 800)		

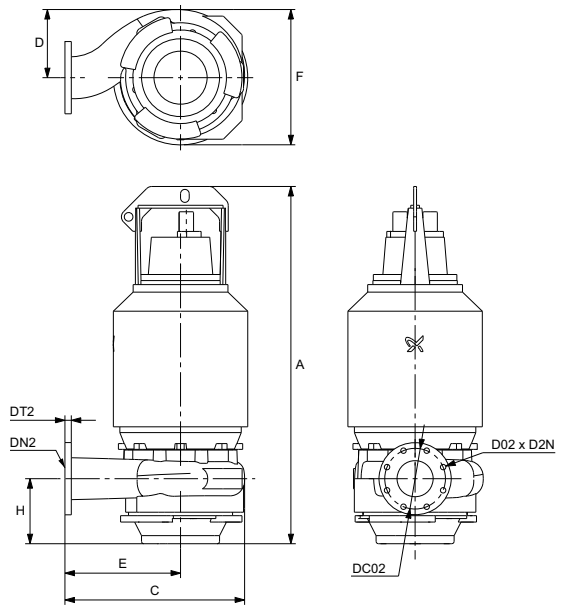
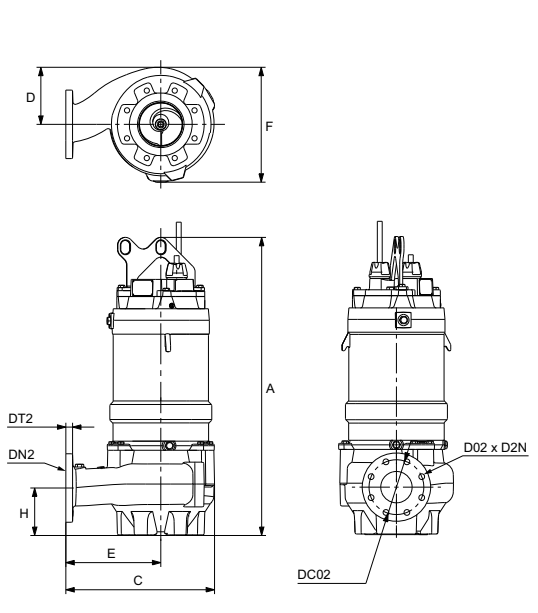
¹ Base plate inlet ANSI 20" (DN 500) and pump inlet ANSI 16" (DN 400).

Basic pump

Installation types S and C

Ranges 50 and 54

Range 58



Installation types D and H

Ranges 50 and 54

Range 58

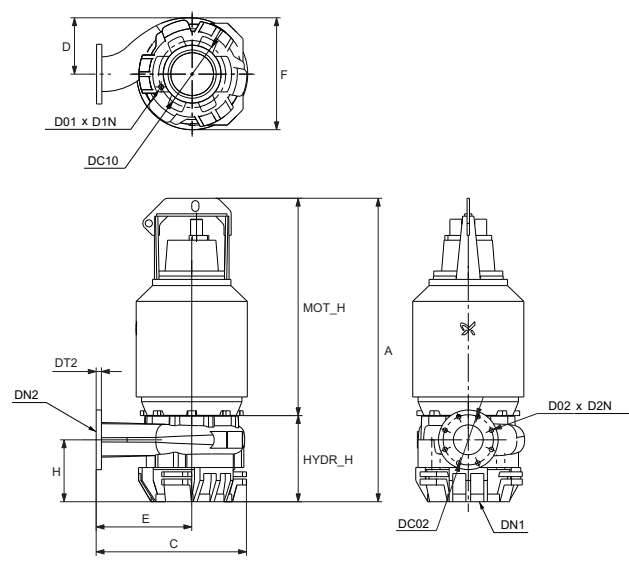
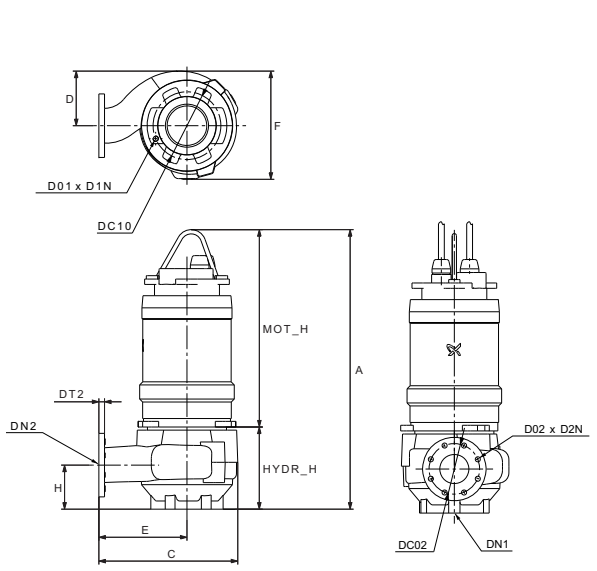


Fig. 39 Basic pumps

TM07 1721 2118 - TM04 6238 2018 - TM04 6161 2118 - TM04 6266 2118

Range 50

Pump type	[inch (mm)]			Pc.						[inch (mm)]							
	A	C	D	D01	D02	D1N	D2N	DC02	DC10	DN1	DN2	DT2	E	F	H	HYDR H	MOT H
SV.30.A30.139.2.50H.S	36.8 (935)	22.8 (578)	9.5 (241)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	6.0 (152)	7.5 (191)	ANSI 4" (DN 100)	ANSI 3" (DN 80)	0.8 (20)	15.8 (400)	14.0 (356)	6.2 (158)	8.9 (225)	28.0 (710)
SV.30.A30.168.2.50H.S	36.8 (935)	22.8 (578)	9.5 (241)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	6.0 (152)	7.5 (191)	ANSI 4" (DN 100)	ANSI 3" (DN 80)	0.8 (20)	15.8 (400)	14.0 (356)	6.2 (158)	8.9 (225)	28.0 (710)
S1.30.A40.134.4.50H...	38.2 (971)	18.3 (464)	7.3 (185)	5/8" (M16)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (191)	7.5 (191)	ANSI 4" (DN 100)	ANSI 4" (DN 100)	0.8 (20)	11.2 (285)	14.6 (371)	6.5 (166)	10.3 (261)	28.0 (710)
S1.30.A40.147.4.50H...	38.2 (971)	18.3 (464)	7.3 (185)	5/8" (M16)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (191)	7.5 (191)	ANSI 4" (DN 100)	ANSI 4" (DN 100)	0.8 (20)	11.2 (285)	14.6 (371)	6.5 (166)	10.3 (261)	28.0 (710)
S1.30.A40.181.4.50H...	38.2 (971)	18.3 (464)	7.3 (185)	5/8" (M16)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (191)	7.5 (191)	ANSI 4" (DN 100)	ANSI 4" (DN 100)	0.8 (20)	11.2 (285)	14.6 (371)	6.5 (166)	10.3 (261)	28.0 (710)
S1.40.A40.134.4.50M...	39.0 (990)	19.3 (489)	7.3 (186)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (191)	9.5 (240)	ANSI 6" (DN 150)	ANSI 4" (DN 100)	0.9 (22)	12.3 (312)	14.7 (373)	6.1 (156)	11.0 (280)	28.0 (710)
S1.40.A40.181.4.50M...	39.0 (990)	19.3 (489)	7.3 (186)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (191)	9.5 (240)	ANSI 6" (DN 150)	ANSI 4" (DN 100)	0.9 (22)	12.3 (312)	14.7 (373)	6.1 (156)	11.0 (280)	28.0 (710)
S1.40.A50.134.4.50L...	38.6 (981)	23.2 (588)	9.5 (241)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (240)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	1.0 (25)	15.0 (380)	16.9 (430)	6.5 (164)	10.7 (271)	28.0 (710)
S1.40.A50.181.4.50L...	38.6 (981)	23.2 (588)	9.5 (241)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (240)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	1.0 (25)	15.0 (380)	16.9 (430)	6.5 (164)	10.7 (271)	28.0 (710)

Range 54

Pump type	[inch (mm)]			Pc.						[inch (mm)]							
	A	C	D	D01	D02	D1N	D2N	DC02	DC10	DN1	DN2	DT2	E	F	H	HYDR H	MOT H
S1.30.A40.210.4.54H...	39.5 (1003)	22.5 (572)	8.9 (227)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (190)	9.5 (241)	ANSI 6" (DN 150)	ANSI 4" (DN 100)	0.8 (20)	13.2 (335)	17.2 (437)	6.7 (171)	10.2 (258)	29.3 (745)
S1.30.A40.270.4.54H...	39.5 (1003)	22.5 (572)	8.9 (227)	3/4" (M20)	0.7 (19)	0.3 (8)	0.3 (8)	7.5 (190)	9.5 (241)	ANSI 6" (DN 150)	ANSI 4" (DN 100)	0.8 (20)	13.2 (335)	17.2 (437)	6.7 (171)	10.2 (258)	29.3 (745)
S1.30.A50.210.4.54M...	41.4 (1051)	22.7 (577)	9.2 (233)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (241)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	0.9 (22)	14.2 (360)	17.6 (446)	8.3 (211)	12.1 (306)	29.3 (745)
S1.30.A60.270.4.54M...	41.4 (1051)	22.7 (577)	9.2 (233)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (241)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	0.9 (22)	14.2 (360)	17.6 (446)	8.3 (211)	12.1 (306)	29.3 (745)
S1.30.A50.210.4.54M...	41.6 (1049)	30.0 (762)	12.8 (325)	3/4" (M20)	0.9 (24)	0.3 (8)	0.3 (8)	11.7 (298)	11.7 (298)	ANSI 8" (DN 200)	ANSI 8" (DN 200)	1.0 (26)	19.7 (500)	23.1 (587)	7.8 (199)	12.0 (304)	29.3 (745)
S1.30.A60.270.4.54M...	41.6 (1049)	30.0 (762)	12.8 (325)	3/4" (M20)	0.9 (24)	0.3 (8)	0.3 (8)	11.7 (298)	11.7 (298)	ANSI 8" (DN 200)	ANSI 8" (DN 200)	1.0 (26)	19.7 (500)	23.1 (587)	7.8 (199)	12.0 (304)	29.3 (745)

Range 58

Note: Dimensions D01, D1N, DC10 and DN1 are equal to zero for installation types C and S because of the type of inlet flange.

Pump type	[inch (mm)]			Pc.						[inch (mm)]							
	A	C	D	D01	D02	D1N	D2N	DC02	DC10	DN1	DN2	DT2	E	F	H	HYDR H	MOT H
S1.30.A50.340.4.58H.C/S	47.3 (1202)	23.4 (645)	9.3 (237)	-	0.9 (22)	-	0.3 (8)	8.5 (216)	-	-	ANSI 5" (DN 125)	0.9 (22)	16.6 (421)	17.7 (450)	7.9 (200)	11.4 (290)	38.9 (987)
S1.30.A50.340.4.58H.D/H	48.6 (1234)	23.4 (645)	9.3 (237)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (240)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	0.9 (22)	16.6 (421)	17.7 (450)	9.1 (232)	12.7 (322)	38.9 (987)
S1.30.A50.420.4.58H.C/S	47.3 (1202)	23.4 (645)	9.3 (237)	-	0.9 (22)	-	0.3 (8)	8.5 (216)	-	-	ANSI 5" (DN 125)	0.9 (22)	16.6 (421)	17.7 (450)	7.9 (200)	11.4 (290)	38.9 (987)
S1.30.A50.420.4.58H.D/H	48.6 (1234)	23.4 (645)	9.3 (237)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	9.5 (240)	ANSI 6" (DN 150)	ANSI 5" (DN 125)	0.9 (22)	16.6 (421)	17.7 (450)	9.1 (232)	12.7 (322)	38.9 (987)
S1.40.A50.420.4.58M.C/S	48.7 (1236)	24.6 (625)	9.3 (237)	-	0.9 (22)	-	0.3 (8)	8.5 (216)	-	-	ANSI 5" (DN 125)	0.9 (22)	15.7 (400)	18.2 (462)	8.6 (225)	12.8 (324)	38.9 (987)
S1.40.A50.420.4.58M.D/H	50.1 (1273)	24.6 (625)	9.3 (237)	3/4" (M20)	0.9 (22)	0.3 (8)	0.3 (8)	8.5 (216)	11.7 (298)	ANSI 8" (DN 200)	ANSI 5" (DN 125)	0.9 (22)	15.7 (400)	18.2 (462)	10.3 (262)	14.2 (361)	38.9 (987)
S1.45.A80.420.4.58L.C/S	49.2 (1250)	38.9 (835)	15.0 (380)	-	0.9 (24)	-	0.3 (8)	11.7 (298)	-	-	ANSI 8" (DN 200)	1.0 (26)	21.7 (550)	26.8 (680)	8.5 (215)	13.3 (338)	38.9 (987)
S1.45.A80.420.4.58L.D/H	50.6 (1284)	38.9 (835)	15.0 (380)	3/4" (M20)	0.9 (24)	0.5 (12)	0.3 (8)	11.7 (298)	14.3 (362)	ANSI 10" (DN 250)	ANSI 8" (DN 200)	1.0 (26)	21.7 (550)	26.8 (680)	9.8 (249)	14.6 (372)	38.9 (987)
S2.40.A80.420.4.58L.C/S	49.2 (1250)	38.9 (835)	15.0 (380)	-	0.9 (24)	-	0.3 (8)	11.7 (298)	-	-	ANSI 8" (DN 200)	1.0 (26)	21.7 (550)	26.8 (680)	8.5 (215)	13.3 (338)	38.9 (987)
S2.40.A80.420.4.58L.D/H	50.6 (1284)	38.9 (835)	15.0 (380)	3/4" (M20)	0.9 (24)	0.5 (12)	0.3 (8)	11.7 (298)	14.3 (362)	ANSI 10" (DN 250)	ANSI 8" (DN 200)	1.0 (26)	21.7 (550)	26.8 (680)	9.8 (249)	14.6 (372)	38.9 (987)
S2.40.A120.340.6.58E.C/S	49.7 (1262)	41.7 (1058)	18.2 (468)	-	0.9 (24)	-	0.5 (12)	17.0 (432)	-	-	ANSI 12" (DN 300)	1.3 (33)	25.6 (650)	32.6 (828)	9.8 (250)	13.8 (350)	38.9 (987)
S2.40.A120.340.6.58E.D/H	50.9 (1293)	41.7 (1058)	18.2 (468)	3/4" (M20)	0.9 (24)	0.5 (12)	0.5 (12)	17.0 (432)	14.3 (362)	ANSI 10" (DN 250)	ANSI 12" (DN 300)	1.3 (33)	25.6 (650)	32.6 (828)	11.1 (282)	15.0 (381)	38.9 (987)

Installation on auto-coupling system

Upper guide rail bracket dimensions

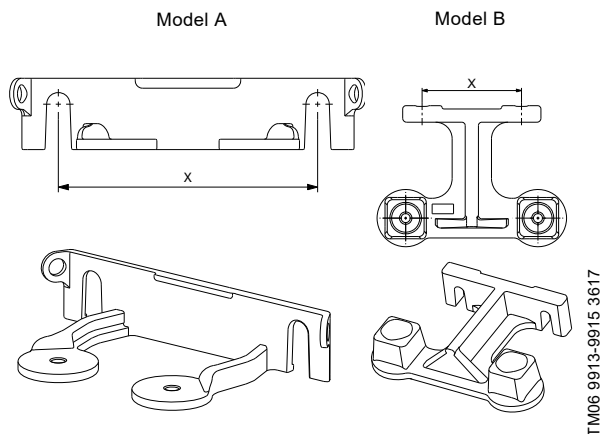


Fig. 40 Installation dimensions for upper guide rail bracket

Auto-coupling			X [in (mm)]
Product number	Model	Size	
97626239	A	ANSI 3"/ANSI 4" (DN 80/DN 100)	7.87 (200)
97626238		ANSI 4" (DN 100)	
97626242		ANSI 5"/ANSI 6" (DN 125/DN 150)	
97506541	B	ANSI 8" (DN 200)	5.90 (150)
97510049		ANSI 12" (DN 300)	

Auto-coupling dimensions

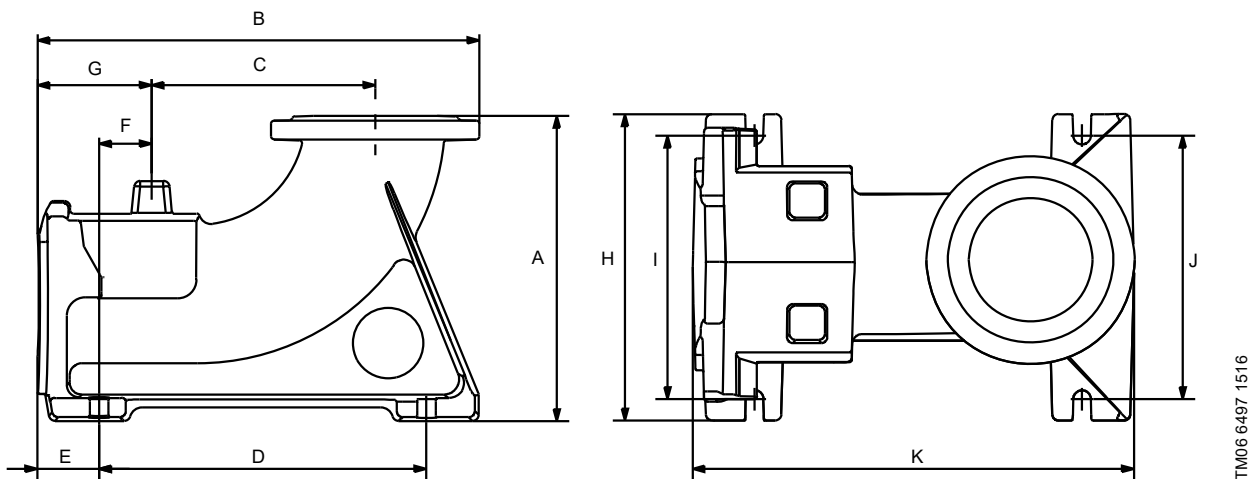


Fig. 41 Dimensions for base unit

Product number	Size	Dimensions [inch (mm)]										
		A	B	C	D	E	F	G	H	I	J	K
97626239	ANSI 3"/ANSI 4" (DN 80/DN 100)	16.2 (413)	16.0 (404)	8.7 (220)	8.7 (220)	2.7 (68)	0	2.7 (68)	11.8 (300)	10.2 (260)	9.0 (230)	13.4 (340)
97626238	ANSI 4" (DN 100)	16.2 (413)	16.0 (404)	8.7 (220)	8.7 (220)	2.7 (68)	0	2.7 (68)	11.8 (300)	10.2 (260)	9.0 (230)	13.4 (340)
97626242	ANSI 5"/ANSI 6" (DN 125/DN 150)	17.7 (450)	19.8 (502)	11.0 (280)	11.0 (280)	3.1 (78)	0	3.1 (78)	13.4 (340)	11.8 (300)	11.8 (300)	16.5 (420)
97506541	ANSI 8" (DN 200)	19.0 (485)	28.0 (710)	14.4 (365)	21.0 (535)	3.5 (89)	3.4 (86)	6.9 (175)	19.7 (500)	16.9 (430)	16.9 (430)	28.0 (710)
97510049	ANSI 12" (DN 300)	25.6 (650)	33.9 (860)	17.7 (450)	26.4 (670)	3.1 (80)	3.7 (95)	6.9 (175)	24.5 (620)	21.6 (550)	21.6 (550)	33.2 (845)

Range 54

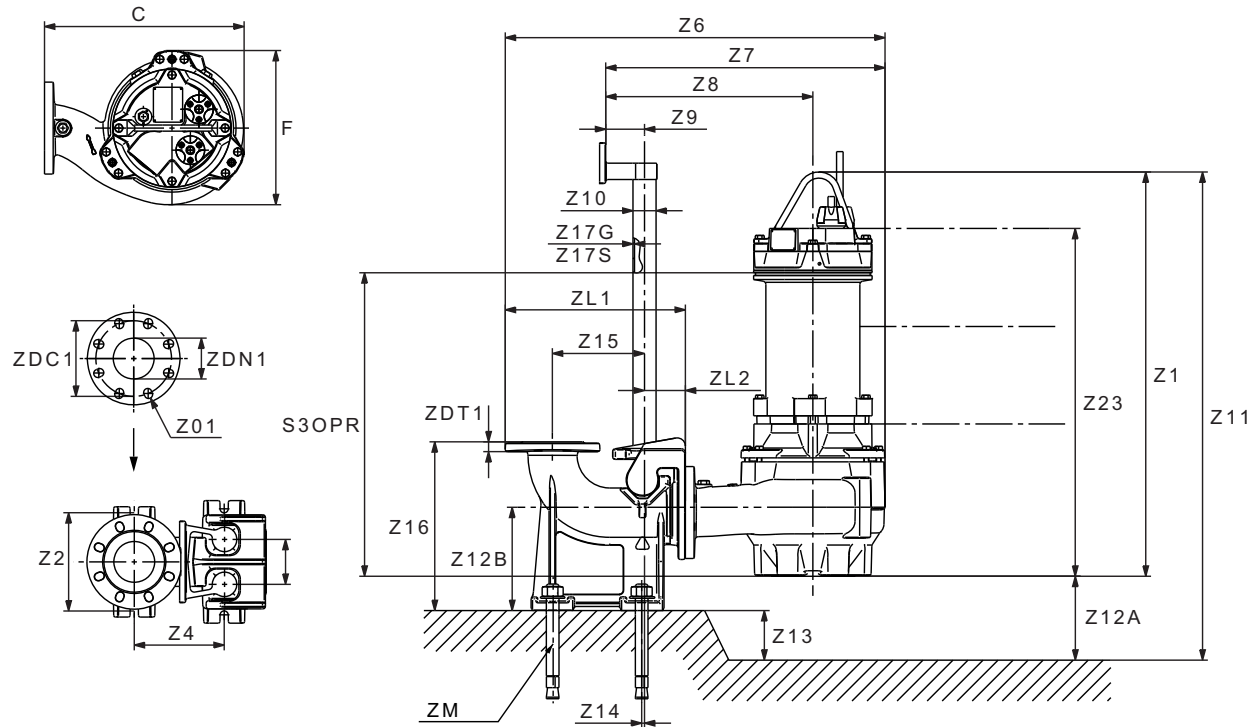
Pump type	[inch (mm)]													
	C	F	Z01	Z1	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12A
S1.40.A50.210.4.54M.C...	22.7 (577)	17.6 (446)	8 x 0.9 (8 x 23)	41.4 (1051)	11.8 (300)	4.8 (123)	11.0 (280)	45.2 (1148)	32.8 (834)	24.3 (617)	4.3 (110)	3.5 (88)	48.8 (1240)	5.5 (139)
S1.40.A50.210.4.54M.S...	22.7 (577)	17.6 (446)	8 x 0.9 (8 x 23)	41.4 (1051)	11.8 (300)	4.8 (123)	11.0 (280)	45.2 (1148)	32.8 (834)	24.3 (617)	4.3 (110)	3.5 (88)	48.8 (1240)	5.5 (139)
S1.40.A50.270.4.54M.C...	22.7 (577)	17.6 (446)	8 x 0.9 (8 x 23)	41.4 (1051)	11.8 (300)	4.8 (123)	11.0 (280)	45.2 (1148)	32.8 (834)	24.3 (617)	4.3 (110)	3.5 (88)	48.8 (1240)	5.5 (139)
S1.40.A50.270.4.54M.S...	22.7 (577)	17.6 (446)	8 x 0.9 (8 x 23)	41.4 (1051)	11.8 (300)	4.8 (123)	11.0 (280)	45.2 (1148)	32.8 (834)	24.3 (617)	4.3 (110)	3.5 (88)	48.8 (1240)	5.5 (139)

Pump type	[inch (mm)]												
	Z12B	Z15	Z16	Z17		Z23	S3OPR	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
				G	S								
S1.40.A50.210.4.54M.C...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	14.9 (379)	22.4 (568)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.40.A50.210.4.54M.S...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	34.6 (879)	42 (1068)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.40.A50.270.4.54M.C...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	14.9 (379)	22.4 (568)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.40.A50.270.4.54M.S...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	34.6 (879)	42 (1068)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)

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Pump type	[inch (mm)]													
	C	F	Z01	Z1	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12A
S1.30.A50.340.4.58H.C...	25.4 (645)	17.7 (450)	8 x 0.9 (8 x 23)	47.3 (1202)	11.8 (300)	4.8 (123)	11.0 (280)	47.9 (1216)	35.5 (902)	26.7 (678)	4.3 (110)	3.5 (88)	55.2 (1402)	3.1 (80)
S1.30.A50.340.4.58H.S...	25.4 (645)	17.7 (450)	8 x 0.9 (8 x 23)	47.3 (1202)	11.8 (300)	4.8 (123)	11.0 (280)	47.9 (1216)	35.5 (902)	26.7 (678)	4.3 (110)	3.5 (88)	55.2 (1402)	3.1 (80)
S1.30.A50.420.4.58H.C...	25.4 (645)	17.7 (450)	8 x 0.9 (8 x 23)	47.3 (1202)	11.8 (300)	4.8 (123)	11.0 (280)	47.9 (1216)	35.5 (902)	26.7 (678)	4.3 (110)	3.5 (88)	55.2 (1402)	3.1 (80)
S1.30.A50.420.4.58H.S...	25.4 (645)	17.7 (450)	8 x 0.9 (8 x 23)	47.3 (1202)	11.8 (300)	4.8 (123)	11.0 (280)	47.9 (1216)	35.5 (902)	26.7 (678)	4.3 (110)	3.5 (88)	55.2 (1402)	3.1 (80)
S1.40.A50.420.4.58H.C...	24.6 (625)	18.2 (462)	8 x 0.9 (8 x 23)	48.7 (1236)	11.8 (300)	4.8 (123)	11.0 (280)	47.1 (1196)	34.7 (882)	25.9 (657)	4.3 (110)	3.5 (88)	55.6 (1411)	3.9 (100)
S1.40.A50.420.4.58H.S...	25.4 (645)	17.7 (450)	8 x 0.9 (8 x 23)	48.7 (1236)	11.8 (300)	4.8 (123)	11.0 (280)	47.1 (1196)	34.7 (882)	25.9 (657)	4.3 (110)	3.5 (88)	55.6 (1411)	3.9 (100)

Pump type	[inch (mm)]												
	Z12B	Z15	Z16	Z17		Z23	S3OPR	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
				G	S								
S1.30.A50.340.4.58H.C...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	14.5 (368)	22.4 (568)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.30.A50.340.4.58H.S...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	40.7 (1033)	48.5 (1233)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.30.A50.420.4.58H.C...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	14.5 (368)	22.4 (568)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.30.A50.420.4.58H.S...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	40.7 (1033)	48.5 (1233)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.40.A50.420.4.58H.C...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	15.8 (402)	22.7 (577)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)
S1.40.A50.420.4.58H.S...	15.7 (400)	11.0 (280)	22.6 (575)	0.1 (3.0)	0.1 (3.0)	42 (1067)	48.9 (1242)	9.4 (240)	ANSI 6" (DN 150)	1.0 (25)	22.5 (571)	5.8 (147)	4 x 5/8" (4 x M16)



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Fig. 43 Installation on auto-coupling system - version 2 (without support block)

Note: Z12A is the minimum recommended distance from pit bottom to bottom of pump inlet side.

Note: Z11 is the total height of pump installed on Grundfos installation accessory in the pit.

Note: The pump in this figure might not be equal to Z12A + Z1.

Note: When Z13 = 0, the auto-coupling unit is high enough to ensure the required minimum space below the pump.

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Pump type	[inch (mm)]													
	C	F	Z01	Z1	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12A
S1.30.A40.134.4.50H.C...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.30.A40.134.4.50H.S...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.30.A40.147.4.50H.C...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.30.A40.147.4.50H.S...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.30.A40.181.4.50H.C...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.30.A40.181.4.50H.S...	18.3 (464)	14.6 (371)	8 x 0.8 (8 x 20)	38.3 (971)	10.2 (260)	4.4 (110)	8.7 (220)	35.9 (910)	27.0 (684)	19.9 (505)	4.4 (110)	2.4 (60.3)	43.1 (1095)	4.9 (124)
S1.40.A40.134.4.50M.C...	19.3 (489)	14.7 (373)	8 x 0.8 (8 x 20)	39.0 (990)	10.2 (260)	4.4 (110)	8.7 (220)	36.9 (935)	28.0 (709)	21.0 (532)	4.4 (110)	2.4 (60.3)	44.3 (1124)	5.3 (134)
S1.40.A40.134.4.50M.S...	19.3 (489)	14.7 (373)	8 x 0.8 (8 x 20)	39.0 (990)	10.2 (260)	4.4 (110)	8.7 (220)	36.9 (935)	28.0 (709)	21.0 (532)	4.4 (110)	2.4 (60.3)	44.3 (1124)	5.3 (134)
S1.40.A40.181.4.50M.C...	19.3 (489)	14.7 (373)	8 x 0.8 (8 x 20)	39.0 (990)	10.2 (260)	4.4 (110)	8.7 (220)	36.9 (935)	28.0 (709)	21.0 (532)	4.4 (110)	2.4 (60.3)	44.3 (1124)	5.3 (134)
S1.40.A40.181.4.50M.S...	19.3 (489)	14.7 (373)	8 x 0.8 (8 x 20)	39.0 (990)	10.2 (260)	4.4 (110)	8.7 (220)	36.9 (935)	28.0 (709)	21.0 (532)	4.4 (110)	2.4 (60.3)	44.3 (1124)	5.3 (134)
SV.30.A30.139.2.50H.S...	22.7 (578)	14.0 (356)	8 x 0.8 (8 x 20)	36.8 (935)	10.2 (260)	4.4 (110)	8.7 (220)	41.0 (1041)	32.0 (815)	25.0 (637)	4.4 (110)	2.4 (60.3)	40.0 (1017)	3.2 (82)
SV.30.A30.168.2.50H.S...	22.7 (578)	14.0 (356)	8 x 0.8 (8 x 20)	36.8 (935)	10.2 (260)	4.4 (110)	8.7 (220)	41.0 (1041)	32.0 (815)	25.0 (637)	4.4 (110)	2.4 (60.3)	40.0 (1017)	3.2 (82)

Pump type	[inch (mm)]														
	Z12B	Z13	Z14	Z15	Z16	Z17		Z23	S3OPR	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
						G	S								
S1.30.A40.134.4.50H.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	11.4 (291)	14.4 (365)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.30.A40.134.4.50H.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	29.8 (757)	32.7 (831)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.30.A40.147.4.50H.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	11.4 (291)	14.4 (365)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.30.A40.147.4.50H.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	29.8 (757)	32.7 (831)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.30.A40.181.4.50H.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	11.4 (291)	14.4 (365)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.30.A40.181.4.50H.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	29.8 (757)	32.7 (831)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.40.A40.134.4.50M.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	12.2 (310)	15.5 (394)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.40.A40.134.4.50M.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	30.5 (776)	33.8 (860)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.40.A40.181.4.50M.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	12.2 (310)	15.5 (394)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
S1.40.A40.181.4.50M.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	30.5 (776)	33.8 (860)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.6 (446)	4.4 (110)	4 x 5/8" (4 x M16)
SV.30.A30.139.2.50H.S...	9.4 (240)	0	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	28.4 (721)	31.6 (803)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	18.2 (463)	5.0 (127)	4 x 5/8" (4 x M16)
SV.30.A30.168.2.50H.S...	9.4 (240)	0	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	28.4 (721)	31.6 (803)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	18.2 (463)	5.0 (127)	4 x 5/8" (4 x M16)

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Pump type	[inch (mm)]													
	C	F	Z01	Z1	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12A
S1.30.A40.210.4.54H.C...	22.5 (572)	17.2 (437)	8 x 0.8 (8 x 20)	39.5 (1003)	10.2 (260)	4.3 (110)	8.7 (220)	40.0 (1018)	30.9 (792)	22.6 (575)	4.3 (110)	2.4 (60.3)	44.1 (1122)	4.7 (119)
S1.30.A40.210.4.54H.S...	22.5 (572)	17.2 (437)	8 x 0.8 (8 x 20)	39.5 (1003)	10.2 (260)	4.3 (110)	8.7 (220)	40.0 (1018)	30.9 (792)	22.6 (575)	4.3 (110)	2.4 (60.3)	44.1 (1122)	4.7 (119)
S1.30.A40.270.4.54H.C...	22.5 (572)	17.2 (437)	8 x 0.8 (8 x 20)	39.5 (1003)	10.2 (260)	4.3 (110)	8.7 (220)	40.0 (1018)	30.9 (792)	22.6 (575)	4.3 (110)	2.4 (60.3)	44.1 (1122)	4.7 (119)
S1.30.A40.270.4.54H.S...	22.5 (572)	17.2 (437)	8 x 0.8 (8 x 20)	39.5 (1003)	10.2 (260)	4.3 (110)	8.7 (220)	40.0 (1018)	30.9 (792)	22.6 (575)	4.3 (110)	2.4 (60.3)	44.1 (1122)	4.7 (119)
S1.40.A80.210.4.54L.C...	30 (762)	23.2 (587)	8 x 0.9 (8 x 23)	41.3 (1049)	17.0 (430)	7.9 (200)	13.9 (355)	60.0 (1523)	45.5 (1154)	35.2 (892)	6.7 (170)	3.5 (88)	45.1 (1146)	3.8 (97)
S1.40.A80.210.4.54L.S...	30 (762)	23.2 (587)	8 x 0.9 (8 x 23)	41.3 (1049)	17.0 (430)	7.9 (200)	13.9 (355)	60.0 (1523)	45.5 (1154)	35.2 (892)	6.7 (170)	3.5 (88)	45.1 (1146)	3.8 (97)
S1.40.A80.270.4.54L.C...	30 (762)	23.2 (587)	8 x 0.9 (8 x 23)	41.3 (1049)	17.0 (430)	7.9 (200)	13.9 (355)	60.0 (1523)	45.5 (1154)	35.2 (892)	6.7 (170)	3.5 (88)	45.1 (1146)	3.8 (97)
S1.40.A80.270.4.54L.S...	30 (762)	23.2 (587)	8 x 0.9 (8 x 23)	41.3 (1049)	17.0 (430)	7.9 (200)	13.9 (355)	60.0 (1523)	45.5 (1154)	35.2 (892)	6.7 (170)	3.5 (88)	45.1 (1146)	3.8 (97)

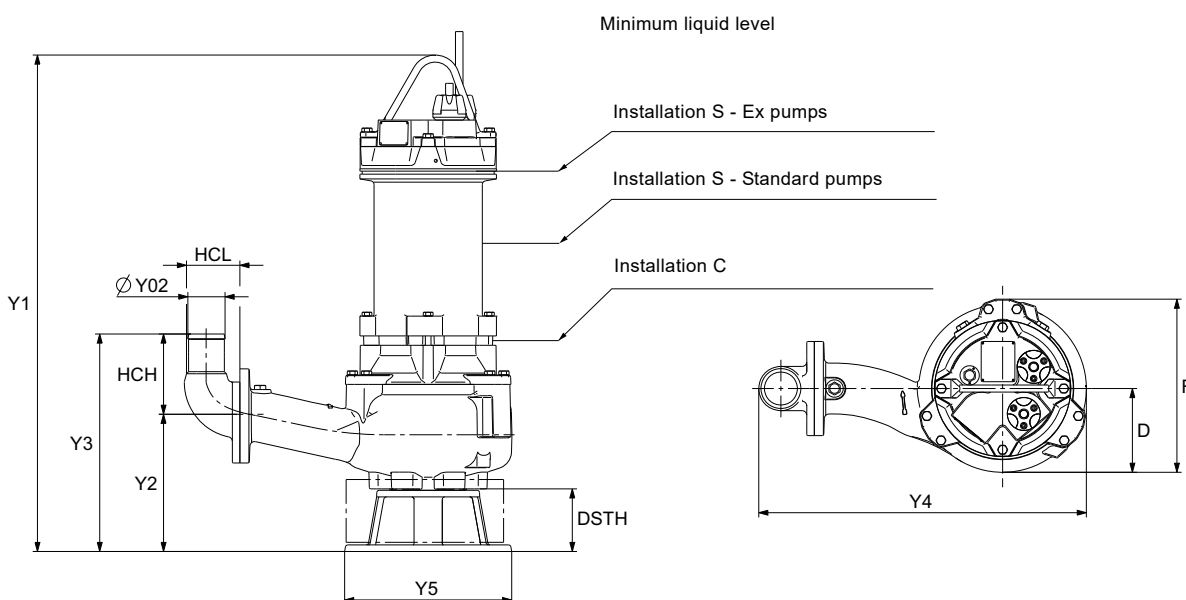
Pump type	[inch (mm)]														
	Z12B	Z13	Z14	Z15	Z16	Z17		Z23	S3OPR	ZDC1	ZDN1	ZDT1	ZL1	ZL2	ZM
						G	S								
S1.30.A40.210.4.54H.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	13.0 (331)	15.7 (400)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.5 (446)	4.3 (110)	4 x 5/8" (4 x M16)
S1.30.A40.210.4.54H.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	32.7 (831)	35.4 (900)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.5 (446)	4.3 (110)	4 x 5/8" (4 x M16)
S1.30.A40.270.4.54H.C...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	13.0 (331)	15.7 (400)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.5 (446)	4.3 (110)	4 x 5/8" (4 x M16)
S1.30.A40.270.4.54H.S...	9.4 (240)	2.0 (50)	0	8.7 (220)	16.3 (413)	0.1 (3.0)	0.1 (3.0)	32.7 (831)	35.4 (900)	7.1 (180)	ANSI 4" (DN 100)	0.9 (22)	17.5 (446)	4.3 (110)	4 x 5/8" (4 x M16)
S1.40.A80.210.4.54L.C...	7.8 (196)	3.9 (100)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	14.8 (377)	14.7 (374)	11.7 (295)	ANSI 8" (DN 200)	1.3 (31)	30.0 (761)	8.8 (222)	4 x 5/8" (4 x M16)
S1.40.A80.210.4.54L.S...	7.8 (196)	3.9 (100)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	34.5 (877)	34.4 (874)	11.7 (295)	ANSI 8" (DN 200)	1.3 (31)	30.0 (761)	8.8 (222)	4 x 5/8" (4 x M16)
S1.40.A80.270.4.54L.C...	7.8 (196)	3.9 (100)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	14.8 (377)	14.7 (374)	11.7 (295)	ANSI 8" (DN 200)	1.3 (31)	30.0 (761)	8.8 (222)	4 x 5/8" (4 x M16)
S1.40.A80.270.4.54L.S...	7.8 (196)	3.9 (100)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	34.5 (877)	34.4 (874)	11.7 (295)	ANSI 8" (DN 200)	1.3 (31)	30.0 (761)	8.8 (222)	4 x 5/8" (4 x M16)

Range 58

Pump type	[inch (mm)]													
	C	F	Z01	Z1	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12A
S1.45.A80.420.4.58L.C...	32.9 (835)	26.8 (680)	8 x 0.9 (8 x 23)	49.2 (1250)	16.9 (430)	7.9 (200)	21.1 (535)	62.8 (1596)	48.3 (1227)	37.1 (942)	6.7 (170)	3.5 (88)	54.4 (1381)	7.7 (131)
S1.45.A80.420.4.58L.S...	32.9 (835)	26.8 (680)	8 x 0.9 (8 x 23)	49.2 (1250)	16.9 (430)	7.9 (200)	21.1 (535)	62.8 (1596)	48.3 (1227)	37.1 (942)	6.7 (170)	3.5 (88)	54.4 (1381)	7.7 (131)
S2.40.A80.420.4.58L.C...	32.9 (835)	26.8 (680)	8 x 0.9 (8 x 23)	49.2 (1250)	16.9 (430)	7.9 (200)	21.1 (535)	62.8 (1596)	48.3 (1227)	37.1 (942)	6.7 (170)	3.5 (88)	54.4 (1381)	7.7 (131)
S2.40.A80.420.4.58L.S...	32.9 (835)	26.8 (680)	8 x 0.9 (8 x 23)	49.2 (1250)	16.9 (430)	7.9 (200)	21.1 (535)	62.8 (1596)	48.3 (1227)	37.1 (942)	6.7 (170)	3.5 (88)	54.4 (1381)	7.7 (131)
S2.40.A120.340.4.58E.C...	41.7 (1058)	32.6 (828)	12 x 0.9 (12 x 23)	49.7 (1262)	21.7 (551)	7.9 (200)	26.4 (670)	77.1 (1959)	41.0 (1450)	41.0 (1042)	6.7 (170)	3.5 (88)	55.8 (1418)	6.1 (156)
S2.40.A120.340.4.58E.S...	41.7 (1058)	32.6 (828)	12 x 0.9 (12 x 23)	49.7 (1262)	21.7 (551)	7.9 (200)	26.4 (670)	77.1 (1959)	41.0 (1450)	41.0 (1042)	6.7 (170)	3.5 (88)	55.8 (1418)	6.1 (156)

Pump type	[inch (mm)]														
	Z12B	Z13	Z14	Z15	Z16	Z17		Z23	S3OPR	ZDc1	ZDN1	ZDT1	ZL1	ZL2	ZM
						G	S								
S1.45.A80.420.4.58L.C...	7.7 (196)	5.9 (150)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	16.4 (416)	15.6 (397)	11.6 (295)	ANSI 8" (DN 200)	1.2 (31)	30.0 (761)	8.7 (222)	4 x 1" (4 x M24)
S1.45.A80.420.4.58L.S...	7.7 (196)	5.9 (150)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	42.5 (1081)	41.8 (1062)	11.6 (295)	ANSI 8" (DN 200)	1.2 (31)	30.0 (761)	8.7 (222)	4 x 1" (4 x M24)
S2.40.A80.420.4.58L.C...	7.7 (196)	5.9 (150)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	16.4 (416)	15.6 (397)	11.6 (295)	ANSI 8" (DN 200)	1.2 (31)	30.0 (761)	8.7 (222)	4 x 1" (4 x M24)
S2.40.A80.420.4.58L.S...	7.7 (196)	5.9 (150)	3.4 (86)	14.4 (365)	19.1 (485)	0.1 (3.0)	0.1 (3.0)	42.5 (1081)	41.8 (1062)	11.6 (295)	ANSI 8" (DN 200)	1.2 (31)	30.0 (761)	8.7 (222)	4 x 1" (4 x M24)
S2.40.A120.340.4.58E.C...	10.1 (256)	5.9 (150)	3.7 (95)	17.7 (450)	25.6 (650)	0.1 (3.0)	0.1 (3.0)	16.8 (428)	17.0 (434)	15.7 (400)	ANSI 12" (DN 300)	1.3 (32)	35.5 (901)	8.7 (222)	4 x 1" (4 x M24)
S2.40.A120.340.4.58E.S...	10.1 (256)	5.9 (150)	3.7 (95)	17.7 (450)	25.6 (650)	0.1 (3.0)	0.1 (3.0)	43.0 (1093)	43.3 (1099)	15.7 (400)	ANSI 12" (DN 300)	1.3 (32)	35.5 (901)	8.7 (222)	4 x 1" (4 x M24)

Installation on ring stand



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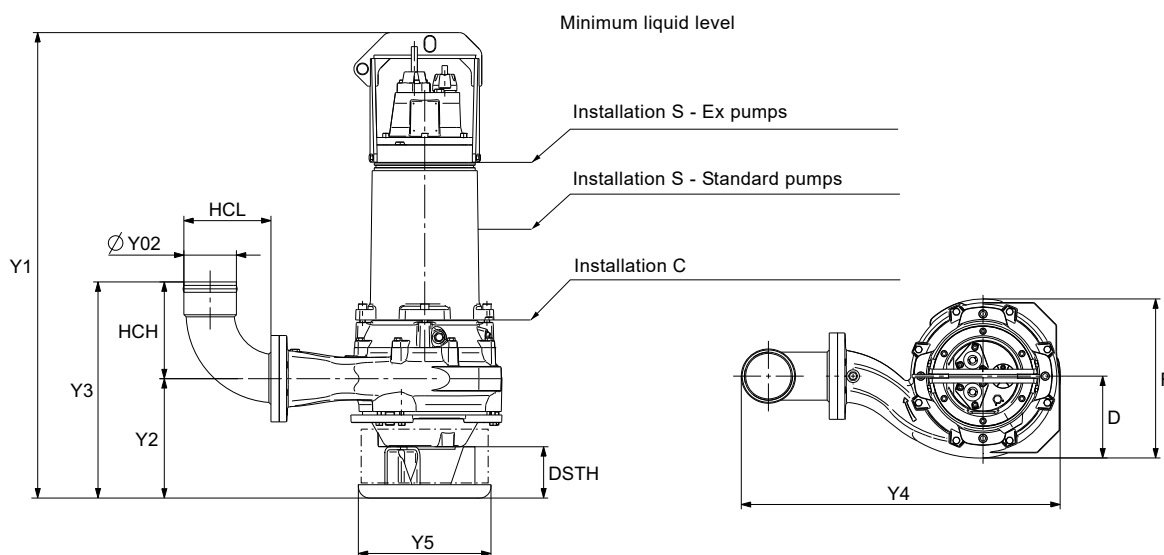
Fig. 44 Ranges 50 and 54, installation on ring stand

Range 50

Pump type	[inch (mm)]										
	Ø Y02	Y1	Y2	Y3	Y4	Y5	HCH	HCL	DSTH	D	F
S1.30.A40.134.4.50H...	4.1 (105)	42.0 (1067)	10.0 (262)	17.3 (439)	22.7 (576)	12.2 (310)	7.0 (177)	5.4 (136)	3.8 (96)	7.3 (185)	14.6 (371)
S1.30.A40.147.4.50H...	4.1 (105)	42.0 (1067)	10.0 (262)	17.3 (439)	22.7 (576)	12.2 (310)	7.0 (177)	5.4 (136)	3.8 (96)	7.3 (185)	14.6 (371)
S1.30.A40.181.4.50H...	4.1 (105)	42.0 (1067)	10.0 (262)	17.3 (439)	22.7 (576)	12.2 (310)	7.0 (177)	5.4 (136)	3.8 (96)	7.3 (185)	14.6 (371)
S1.40.A40.134.4.50M...	4.1 (105)	46.3 (1176)	13.5 (342)	19.2 (487)	26.7 (679)	17.7 (450)	5.7 (145)	5.6 (142)	7.3 (186)	7.3 (186)	14.7 (373)
S1.40.A40.181.4.50M...	4.1 (105)	46.3 (1176)	13.5 (342)	19.2 (487)	26.7 (679)	17.7 (450)	5.7 (145)	5.6 (142)	7.3 (186)	7.3 (186)	14.7 (373)
S1.40.A50.134.4.50L...	6.1 (157)	45.9 (1167)	13.8 (350)	24.8 (630)	35.2 (894)	17.7 (450)	11.2 (280)	11.4 (289)	7.3 (186)	9.5 (241)	16.9 (430)
S1.40.A50.181.4.50L...	6.1 (157)	45.9 (1167)	13.8 (350)	24.8 (630)	35.2 (894)	17.7 (450)	11.2 (280)	11.4 (289)	7.3 (186)	9.5 (241)	16.9 (430)
SV.30.A30.139.2.50H...	3.1 (79)	42.0 (1067)	11.3 (288)	16.9 (430)	26.5 (673)	12.2 (310)	5.6 (142)	4.6 (118)	5.1 (130)	7.0 (178)	14.0 (356)
SV.30.A30.168.2.50H...	3.1 (79)	42.0 (1067)	11.3 (288)	16.9 (430)	26.5 (673)	12.2 (310)	5.6 (142)	4.6 (118)	5.1 (130)	7.0 (178)	14.0 (356)

Range 54

Pump type	[inch (mm)]										
	Ø Y02	Y1	Y2	Y3	Y4	Y5	HCH	HCL	DSTH	D	F
S1.30.A40.210.4.54H...	4.1 (105)	46.8 (1189)	14.1 (357)	19.8 (502)	28.4 (722)	17.7 (450)	5.7 (145)	5.6 (142)	7.3 (186)	8.9 (227)	17.2 (437)
S1.30.A40.270.4.54H...	4.1 (105)	46.8 (1189)	14.1 (357)	19.8 (502)	28.4 (722)	17.7 (450)	5.7 (145)	5.6 (142)	7.3 (186)	8.9 (227)	17.2 (437)
S1.40.A50.210.4.54M...	6.2 (157)	48.7 (1237)	15.6 (397)	26.2 (677)	34.4 (874)	17.7 (450)	11.0 (280)	11.4 (289)	7.3 (186)	9.2 (233)	17.6 (446)
S1.40.A50.270.4.54M...	6.2 (157)	48.7 (1237)	15.6 (397)	26.2 (677)	34.4 (874)	17.7 (450)	11.0 (280)	11.4 (289)	7.3 (186)	9.2 (233)	17.6 (446)
S1.40.A80.210.4.54L...	8.1 (205)	47.6 (1209)	14.1 (359)	31.3 (794)	47.0 (1193)	21.7 (550)	17.1 (435)	16.5 (418)	6.3 (160)	12.8 (325)	23.1 (587)
S1.40.A80.270.4.54L...	8.1 (205)	47.6 (1209)	14.1 (359)	31.3 (794)	47.0 (1193)	21.7 (550)	17.1 (435)	16.5 (418)	6.3 (160)	12.8 (325)	23.1 (587)



TM04 2420 0417

Fig. 45 Range 58, installation on ring stand

Range 58

Pump type	[inch (mm)]										
	Ø Y02	Y1	Y2	Y3	Y4	Y5	HCH	HCL	DSTH	D	F
S1.30.A50.340.4.58H...	6.2 (157)	55.6 (1412)	16.1 (410)	27.2 (690)	38.8 (985)	21.7 (550)	11.0 (280)	11.4 (289)	8.3 (210)	9.3 (237)	17.7 (450)
S1.30.A50.420.4.58H...	6.2 (157)	55.6 (1412)	16.1 (410)	27.2 (690)	38.8 (985)	21.7 (550)	11.0 (280)	11.4 (289)	8.3 (210)	9.3 (237)	17.7 (450)
S1.40.A50.340.4.58M...	6.2 (157)	56.9 (1446)	16.1 (410)	28.1 (715)	38.0 (964)	21.7 (550)	11.0 (280)	11.4 (289)	8.3 (210)	9.3 (237)	18.2 (462)
S1.45.A80.340.4.58L...	8.1 (205)	57.5 (1460)	16.7 (425)	33.9 (860)	48.9 (1243)	21.7 (550)	17.1 (435)	16.5 (418)	8.3 (210)	15.0 (380)	26.8 (680)
S2.40.A80.340.4.58L...	8.1 (205)	57.5 (1460)	16.7 (425)	33.9 (860)	48.9 (1243)	21.7 (550)	17.1 (435)	16.5 (418)	8.3 (210)	15.0 (380)	26.8 (680)
S2.40.A120.340.4.58E...	11.9 (303)	58.6 (1488)	18.7 (476)	42.4 (1076)	63.9 (1622)	27.6 (700)	23.6 (600)	24.5 (622)	8.9 (226)	18.4 (468)	32.6 (828)

Dry, vertical installation on base stand

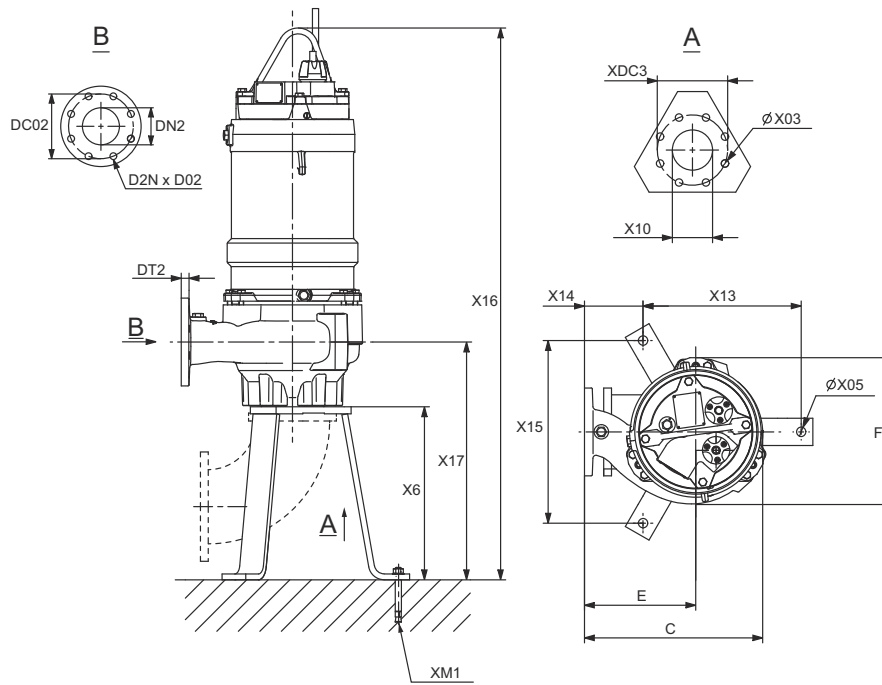


Fig. 46 Ranges 50 and 54, dry, vertical installation on base stand

TM04 2421 2508 - TM04 2422 4116

Range 50

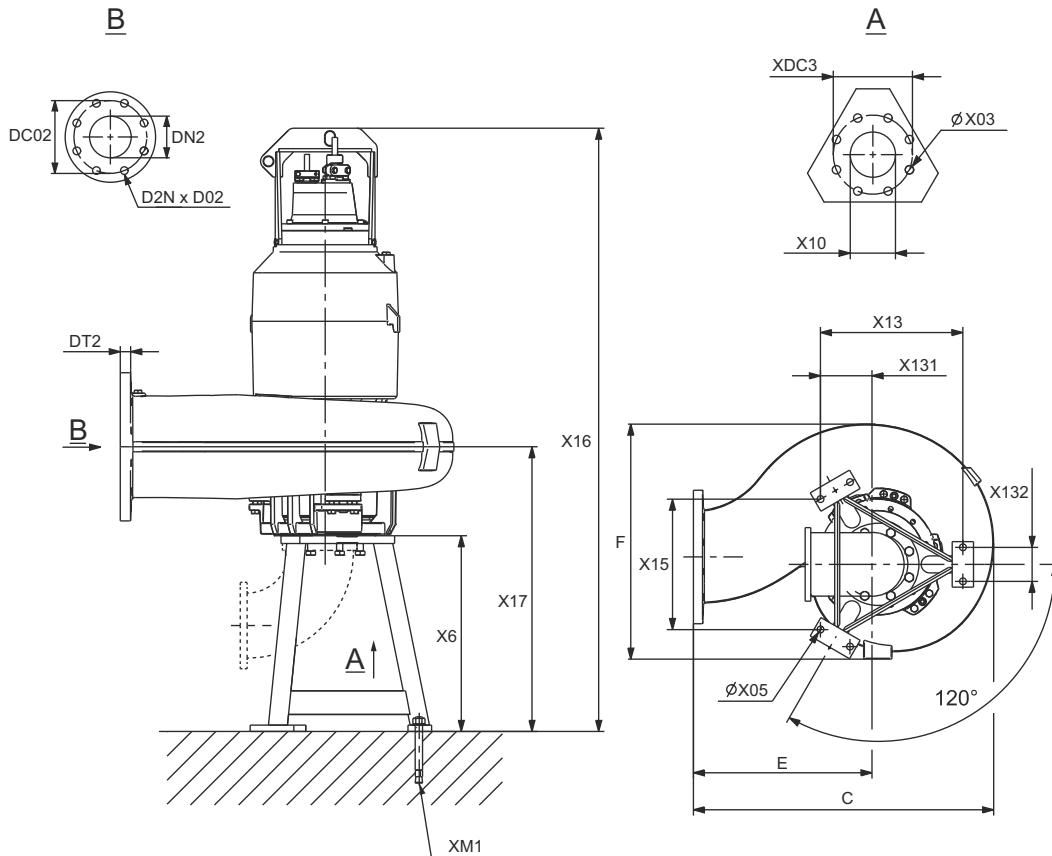
Pump type	[inch (mm)]									
	C	E	F	Ø X03	Ø X05	X6	X10	X13	X14	X15
S1.30.A40.134.4.50H.C...	18.3 (464)	11.2 (285)	14.6 (371)	0.7 (19)	0.9 (24)	17.4 (443)	ANSI 4" (DN 100)	15.9 (405)	5.9 (150)	18.4 (468)
S1.30.A40.147.4.50H.C...	18.3 (464)	11.2 (285)	14.6 (371)	0.7 (19)	0.9 (24)	17.4 (443)	ANSI 4" (DN 100)	15.9 (405)	5.9 (150)	18.4 (468)
S1.30.A40.181.4.50H.C...	18.3 (464)	11.2 (285)	14.6 (371)	0.7 (19)	0.9 (24)	17.4 (443)	ANSI 4" (DN 100)	15.9 (405)	5.9 (150)	18.4 (468)
S1.40.A40.137.4.50M.C...	19.3 (489)	12.3 (312)	14.7 (373)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	6.4 (162)	20.5 (520)
S1.40.A40.181.4.50M.C...	19.3 (489)	12.3 (312)	14.7 (373)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	6.4 (162)	20.5 (520)
S1.40.A50.134.4.50L.C...	23.1 (588)	15.0 (380)	16.9 (430)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	9.1 (230)	20.5 (520)
S1.40.A50.181.4.50L.C...	23.1 (588)	15.0 (380)	16.9 (430)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	9.1 (230)	20.5 (520)

Pump type	[inch (mm)]							Pc.	[inch (mm)]		
	X16	X17	XDC3	XDT1	DN2	DC02	D02		D2N	DT2	XM1
S1.30.A40.134.4.50H.C...	55.7 (1414)	24.0 (609)	7.5 (191)	0.9 (22)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	0.3 (8)	0.8 (20)	3 x 3/4" (3 x M20)	
S1.30.A40.147.4.50H.C...	55.7 (1414)	24.0 (609)	7.5 (191)	0.9 (22)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	0.3 (8)	0.8 (20)	3 x 3/4" (3 x M20)	
S1.30.A40.181.4.50H.C...	55.7 (1414)	24.0 (609)	7.5 (191)	0.9 (22)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	0.3 (8)	0.8 (20)	3 x 3/4" (3 x M20)	
S1.40.A40.137.4.50M.C...	63.4 (1611)	30.6 (777)	9.4 (240)	0.9 (24)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	0.3 (8)	0.9 (55)	6 x 3/4" (6 x M20)	
S1.40.A40.181.4.50M.C...	63.4 (1611)	30.6 (777)	9.4 (240)	0.9 (24)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	0.3 (8)	0.9 (55)	6 x 3/4" (6 x M20)	
S1.40.A50.134.4.50L.C...	63.1 (1602)	30.9 (785)	9.4 (240)	0.9 (24)	ANSI 5" (DN 125)	8.5 (216)	0.9 (22)	0.3 (8)	1.0 (25)	6 x 3/4" (6 x M20)	
S1.40.A50.181.4.50L.C...	63.1 (1602)	30.9 (785)	9.4 (240)	0.9 (24)	ANSI 5" (DN 125)	8.5 (216)	0.9 (22)	0.3 (8)	1.0 (25)	6 x 3/4" (6 x M20)	

Range 54

Pump type	[inch (mm)]									
	C	E	F	Ø X03	Ø X05	X6	X10	X13	X14	X15
S1.30.A40.210.4.54H.C...	22.5 (572)	14.0 (355)	17.2 (437)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	8.1 (205)	20.5 (520)
S1.30.A40.270.4.54H.C...	22.5 (572)	14.0 (355)	17.2 (437)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	8.1 (205)	20.5 (520)
S1.40.A50.210.4.54M.C...	22.7 (577)	14.2 (360)	17.6 (446)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	8.3 (210)	20.5 (520)
S1.40.A50.270.4.54M.C...	22.7 (577)	14.2 (360)	17.6 (446)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	8.3 (210)	20.5 (520)
S1.40.A80.210.4.54L.C...	30.0 (762)	19.7 (500)	23.1 (587)	0.9 (24)	0.9 (24)	28.3 (719)	ANSI 8" (DN 200)	20.7 (525)	12.8 (325)	23.9 (606)
S1.40.A80.270.4.54L.C...	30.0 (762)	19.7 (500)	23.1 (587)	0.9 (24)	0.9 (24)	28.3 (719)	ANSI 8" (DN 200)	20.7 (525)	12.8 (325)	23.9 (606)

Pump type	[inch (mm)]							Pc.	[inch (mm)]		
	X16	X17	XDC3	XDT1	DN2	DC02	D02		D2N	DT2	XM1
S1.30.A40.210.4.54H.C...	63.9 (1624)	31.2 (792)	9.4 (240)	0.9 (24)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.30.A40.270.4.54H.C...	63.9 (1624)	31.2 (792)	9.4 (240)	0.9 (24)	ANSI 4" (DN 100)	7.5 (191)	0.8 (19)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.40.A50.210.4.54M.C...	65.8 (1672)	32.8 (832)	9.4 (240)	0.9 (24)	ANSI 5" (DN 125)	8.5 (211)	0.9 (22)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.40.A50.270.4.54M.C...	65.8 (1672)	32.8 (832)	9.4 (240)	0.9 (24)	ANSI 5" (DN 125)	8.5 (211)	0.9 (22)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.40.A80.210.4.54L.C...	69.6 (1768)	36.1 (918)	11.6 (295)	1.0 (26)	ANSI 6" (DN 150)	11.7 (298)	0.9 (24)	8	1.0 (26)	6 x 3/4" (6 x M20)	
S1.40.A80.270.4.54L.C...	69.6 (1768)	36.1 (918)	11.6 (295)	1.0 (26)	ANSI 6" (DN 150)	11.7 (298)	0.9 (24)	8	1.0 (26)	6 x 3/4" (6 x M20)	



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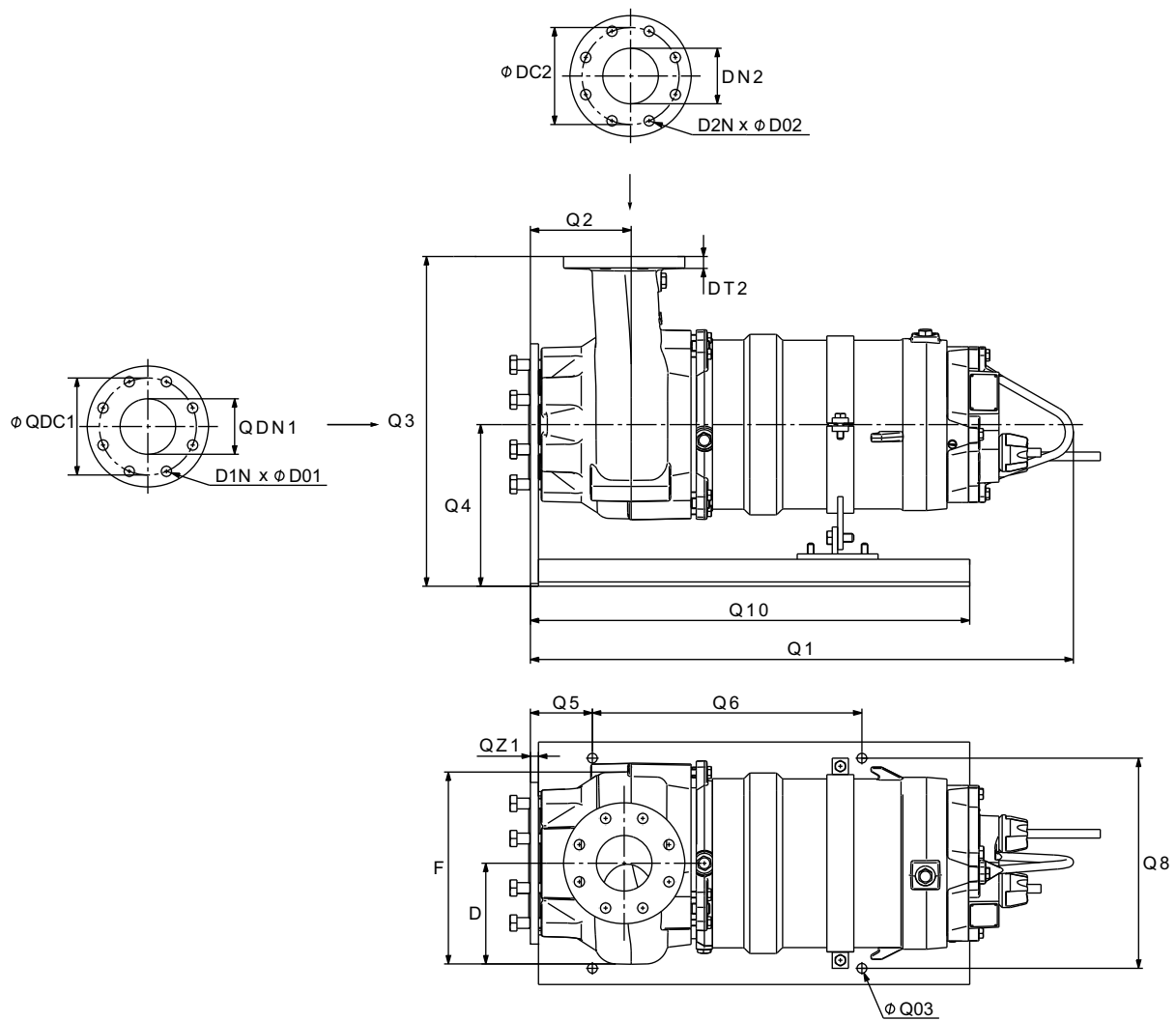
Fig. 47 Range 58, dry, vertical installation

Range 58

Pump type	[inch (mm)]									
	C	E	F	Ø X03	Ø X05	X6	X10	X13	X131	X132
S1.30.A50.340.4.58H.D...	25.4 (645)	16.6 (421)	17.7 (450)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	5.9 (150)	4.7 (120)
S1.30.A50.420.4.58H.D...	25.4 (645)	16.6 (421)	17.7 (450)	0.9 (24)	0.9 (24)	24.4 (621)	ANSI 6" (DN 150)	17.7 (450)	5.9 (150)	4.7 (120)
S1.40.A50.420.4.58M.D...	24.6 (625)	15.7 (400)	18.2 (462)	0.9 (24)	0.9 (24)	28.3 (719)	ANSI 8" (DN 200)	20.7 (525)	6.9 (175)	4.7 (120)
S1.45.A80.420.4.58L.D...	32.9 (835)	21.6 (550)	26.8 (680)	0.9 (24)	1.1 (28)	33.7 (857)	ANSI 10" (DN 250)	23.6 (600)	7.9 (200)	5.9 (150)
S2.40.A80.420.4.58L.D...	32.9 (835)	21.6 (550)	26.8 (680)	0.9 (24)	1.1 (28)	33.7 (857)	ANSI 10" (DN 250)	23.6 (600)	7.9 (200)	5.9 (150)
S2.40.A120.340.4.58E.D...	41.7 (1058)	25.6 (650)	32.6 (828)	0.9 (24)	1.1 (28)	33.7 (857)	ANSI 10" (DN 250)	23.6 (600)	7.9 (200)	5.9 (150)

Pump type	[inch (mm)]							Pc.	[inch (mm)]		
	X15	X16	X17	XDC3	DN2	DC02	D02		D2N	DT2	XM1
S1.30.A50.340.4.58H.D...	20.5 (520)	73.0 (1855)	33.6 (853)	9.4 (240)	ANSI 5" (DN 125)	8.5 (216)	0.86 (22)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.30.A50.420.4.58H.D...	20.5 (520)	73.0 (1855)	33.6 (853)	9.4 (240)	ANSI 5" (DN 125)	8.5 (216)	0.86 (22)	8	0.9 (24)	6 x 3/4" (6 x M20)	
S1.40.A50.420.4.58M.D...	23.9 (606)	78.4 (1992)	38.6 (981)	11.6 (295)	ANSI 5" (DN 125)	8.5 (216)	0.86 (22)	8	1.0 (26)	6 x 3/4" (6 x M20)	
S1.45.A80.420.4.58L.D...	27.2 (692)	84.3 (2141)	43.5 (1106)	14.3 (362)	ANSI 8" (DN 200)	11.7 (298)	0.94 (24)	8	1.1 (28)	6 x 3/4" (6 x M20)	
S2.40.A80.420.4.58L.D...	27.2 (692)	84.3 (2141)	43.5 (1106)	14.3 (362)	ANSI 8" (DN 200)	11.7 (298)	0.94 (24)	8	1.1 (28)	6 x 1" (6 x M24)	
S2.40.A120.340.4.58E.D...	27.2 (692)	84.6 (2150)	44.8 (1139)	14.3 (362)	ANSI 12" (DN 300)	17.0 (432)	0.94 (24)	12	1.1 (28)	6 x 1" (6 x M24)	

Dry, horizontal installation on base stand



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Fig. 48 Ranges 50 and 54, dry, horizontal installation on base stand

Range 50

Pump type	[inch (mm)]										
	D	F	Ø Q03	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q10
S1.30.A40.134.4.50H.H...	7.3 (185)	14.6 (371)	0.7 (18)	38.9 (989)	7.2 (184)	23.0 (585)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.30.A40.147.4.50H.H...	7.3 (185)	14.6 (371)	0.7 (18)	38.9 (989)	7.2 (184)	23.0 (585)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.30.A40.181.4.50H.H...	7.3 (185)	14.6 (371)	0.7 (18)	38.9 (989)	7.2 (184)	23.0 (585)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A40.134.4.50M.H...	7.3 (186)	14.7 (373)	0.7 (18)	39.7 (1008)	6.9 (174)	24.1 (612)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A40.181.4.50M.H...	7.3 (186)	14.7 (373)	0.7 (18)	39.7 (1008)	6.9 (174)	24.1 (612)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A50.134.4.50L.H...	9.5 (241)	16.9 (430)	0.7 (18)	39.3 (999)	7.2 (182)	26.8 (680)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A50.181.4.50L.H...	9.5 (241)	16.9 (430)	0.7 (18)	39.3 (999)	7.2 (182)	26.8 (680)	11.8 (300)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)

Pump type	[inch (mm)]		Pc.	[inch (mm)]			Pc.	[inch (mm)]		
	Ø QDc1	QDN1		D1N	Q01	QZ1		DN2	D2N	Ø D02
S1.30.A40.134.4.50H.H...	7.5 (191)	ANSI 4" (DN 100)	8	5/8" (M16)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (191)	0.8 (20)
S1.30.A40.147.4.50H.H...	7.5 (191)	ANSI 4" (DN 100)	8	5/8" (M16)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (191)	0.8 (20)
S1.30.A40.181.4.50H.H...	7.5 (191)	ANSI 4" (DN 100)	8	5/8" (M16)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (191)	0.8 (20)
S1.40.A40.134.4.50M.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (191)	0.9 (22)
S1.40.A40.181.4.50M.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (191)	0.9 (22)
S1.40.A50.134.4.50L.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 5" (DN 125)	8	0.9 (22)	8.5 (216)	1.0 (25)
S1.40.A50.181.4.50L.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 5" (DN 125)	8	0.9 (22)	8.5 (216)	1.0 (25)

Range 54

Pump type	[inch (mm)]										
	D	F	Q03	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q10
S1.30.A40.210.4.54H.H...	8.9 (227)	17.2 (437)	0.7 (18)	40.2 (1021)	7.4 (189)	28.7 (730)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.30.A40.270.4.54H.H...	8.9 (227)	17.2 (437)	0.7 (18)	40.2 (1021)	7.4 (189)	28.7 (730)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A50.210.4.54M.H...	9.2 (233)	17.6 (446)	0.7 (18)	42.1 (1069)	9.0 (229)	28.9 (735)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A50.270.4.54M.H...	9.2 (233)	17.6 (446)	0.7 (18)	42.1 (1069)	9.0 (229)	28.9 (735)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A80.210.4.54L.H...	12.8 (325)	23.1 (587)	0.7 (18)	42.0 (1067)	8.5 (217)	34.4 (875)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A80.270.4.54L.H...	12.8 (325)	23.1 (587)	0.7 (18)	42.0 (1067)	8.5 (217)	34.4 (875)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)

Pump type	[inch (mm)]		Pc.	[inch (mm)]			Pc.	[inch (mm)]		
	QDc1	QDN1		D1N	Q01	QZ1		DN2	D2N	D02
S1.30.A40.210.4.54H.H...	9.5 (241)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (190)	0.8 (20)
S1.30.A40.270.4.54H.H...	9.5 (241)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 4" (DN 100)	8	0.7 (19)	7.5 (190)	0.8 (20)
S1.40.A50.210.4.54M.H...	9.5 (241)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 5" (DN 125)	8	0.9 (22)	8.5 (216)	0.9 (22)
S1.40.A50.270.4.54M.H...	9.5 (241)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	ANSI 5" (DN 125)	8	0.9 (22)	8.5 (216)	0.9 (22)
S1.40.A80.210.4.54L.H...	11.7 (298)	ANSI 8" (DN 200)	8	3/4" (M20)	0.7 (18)	ANSI 8" (DN 200)	8	0.9 (22)	11.7 (298)	1.0 (26)
S1.40.A80.270.4.54L.H...	11.7 (298)	ANSI 8" (DN 200)	8	3/4" (M20)	0.7 (18)	ANSI 8" (DN 200)	8	0.9 (22)	11.7 (298)	1.0 (26)

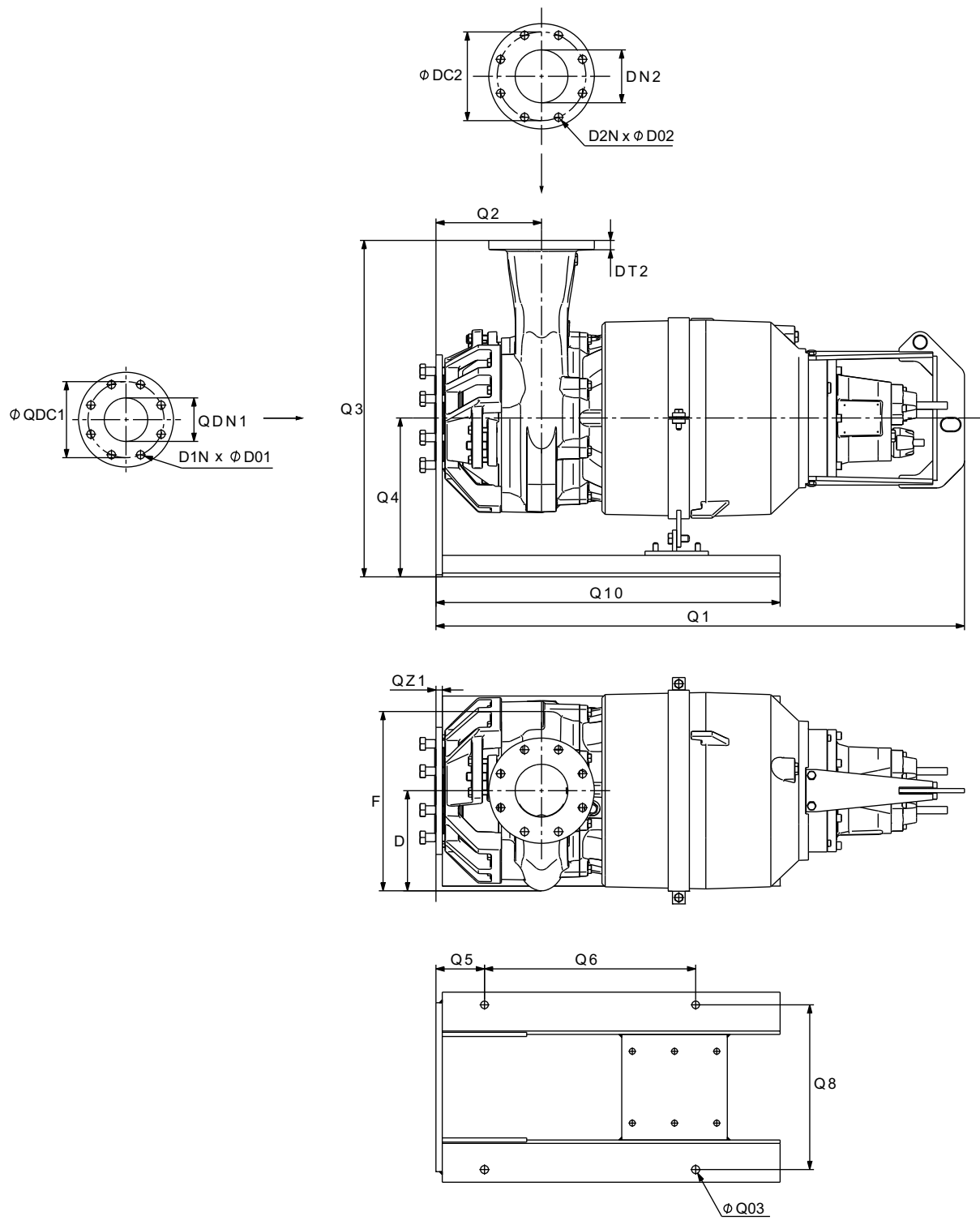


Fig. 49 Range 58, dry, horizontal installation on base stand

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Range 58

Pump type	[inch (mm)]										
	D	F	Ø Q03	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q10
S1.30.A50.340.4.58H.H...	9.3 (237)	17.7 (450)	0.7 (18)	49.3 (1252)	9.8 (250)	31.3 (796)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.30.A50.420.4.58H.H...	9.3 (237)	17.7 (450)	0.7 (18)	49.3 (1252)	9.8 (250)	31.3 (796)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.40.A50.420.4.58M.H...	9.3 (237)	18.2 (462)	0.7 (18)	50.8 (1291)	11.0 (280)	30.5 (775)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S1.45.A80.420.4.58L.H...	15.0 (380)	26.8 (680)	0.7 (18)	51.3 (1302)	10.5 (267)	36.4 (925)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S2.40.A80.420.4.58L.H...	15.0 (380)	26.8 (680)	0.7 (18)	51.3 (1302)	10.5 (267)	36.4 (925)	14.8 (375)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)
S2.40.A120.340.4.58E.H...	18.4 (468)	32.6 (828)	0.7 (18)	51.6 (1311)	11.8 (300)	47.2 (1200)	21.7 (550)	4.5 (115)	19.7 (500)	15.4 (390)	32.1 (815)

Pump type	[inch (mm)]		Pc.	[inch (mm)]			Pc.	[inch (mm)]		
	Ø QDc1	QDN1		D1N	Q01	QZ1		D2N	DN2	Ø D02
S1.30.A50.340.4.58H.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	8	ANSI 5" (DN 125)	0.9 (22)	8.5 (216)	0.9 (22)
S1.30.A50.420.4.58H.H...	9.4 (240)	ANSI 6" (DN 150)	8	3/4" (M20)	0.7 (18)	8	ANSI 5" (DN 125)	0.9 (22)	8.5 (216)	0.9 (22)
S1.40.A50.420.4.58M.H...	11.7 (298)	ANSI 8" (DN 200)	8	3/4" (M20)	0.7 (18)	8	ANSI 5" (DN 125)	0.9 (22)	8.5 (216)	0.9 (22)
S1.45.A80.420.4.58L.H...	14.6 (362)	ANSI 10" (DN 200)	12	3/4" (M20)	0.7 (18)	8	ANSI 8" (DN 200)	0.9 (24)	11.7 (298)	1.0 (26)
S2.40.A80.420.4.58L.H...	14.3 (362)	ANSI 10" (DN 200)	12	3/4" (M20)	0.7 (18)	8	ANSI 8" (DN 200)	0.9 (24)	11.7 (298)	1.0 (26)
S2.40.A120.340.4.58E.H...	14.3 (362)	ANSI 10" (DN 200)	12	3/4" (M20)	0.7 (18)	12	ANSI 12" (DN 300)	0.9 (24)	17.0 (432)	1.3 (33)

13. Weights

Weights include 50 ft (15 m) cable.

Range 50

Pump type	Weight [lbs (kg)]
S1.30.A40.134.4.50H.S.212...	441 (200)
S1.30.A40.134.4.50H.C.212...	485 (220)
S1.30.A40.134.4.50H.H.212...	551 (250)
S1.30.A40.134.4.50H.S.200...	397 (180)
S1.30.A40.134.4.50H.C.200...	419 (190)
S1.30.A40.134.4.50H.H.200...	507 (230)
S1.30.A40.147.4.50H.S.222...	441 (200)
S1.30.A40.147.4.50H.C.222...	485 (220)
S1.30.A40.147.4.50H.H.222...	573 (260)
S1.30.A40.181.4.50H.S.239...	441 (200)
S1.30.A40.181.4.50H.C.239...	485 (220)
S1.30.A40.181.4.50H.H.239...	573 (260)
S1.40.A40.134.4.50M.S.205...	419 (190)
S1.40.A40.134.4.50M.C.205...	463 (210)
S1.40.A40.134.4.50M.H.205...	562 (255)
S1.40.A40.181.4.50M.S.221...	419 (190)
S1.40.A40.181.4.50M.C.221...	463 (210)
S1.40.A40.181.4.50M.H.221...	573 (260)
S1.40.A50.134.4.50L.S.204...	551 (250)
S1.40.A50.134.4.50L.C.204...	595 (270)
S1.40.A50.134.4.50L.H.204...	694 (315)
S1.40.A50.181.4.50L.S.224...	551 (250)
S1.40.A50.181.4.50L.C.224...	595 (270)
S1.40.A50.181.4.50L.H.224...	694 (315)
SV.30.A30.139.2.50H.S.159...	375 (170)
SV.30.A30.168.2.50H.S.159...	419 (190)

Range 54

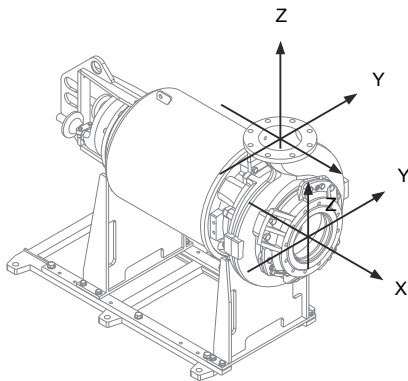
Pump type	Weight [lbs (kg)]
S1.30.A40.210.4.54H.S.256...	661 (300)
S1.30.A40.210.4.54H.C.256...	728 (330)
S1.30.A40.210.4.54H.H.256...	794 (360)
S1.30.A40.270.4.54H.S.271...	705 (320)
S1.30.A40.270.4.54H.C.271...	772 (350)
S1.30.A40.270.4.54H.H.271...	838 (380)
S1.40.A50.210.4.54M.S.237...	661 (300)
S1.40.A50.210.4.54M.C.237...	728 (330)
S1.40.A50.210.4.54M.H.237...	794 (360)
S1.40.A50.270.4.54M.S.249...	705 (320)
S1.40.A50.270.4.54M.C.249...	772 (350)
S1.40.A50.270.4.54M.H.249...	838 (380)
S1.40.A80.210.4.54L.S.222...	794 (360)
S1.40.A80.210.4.54L.C.222...	860 (390)
S1.40.A80.210.4.54L.H.222...	948 (430)
S1.40.A80.270.4.54L.S.270...	816 (370)
S1.40.A80.270.4.54L.C.270...	904 (410)
S1.40.A80.270.4.54L.H.270...	970 (440)

Range 58

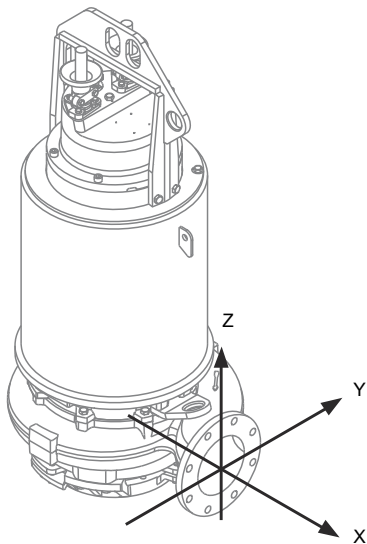
Pump type	Weight [lbs (kg)]
S1.30.A50.340.4.58H.S.290...	970 (440)
S1.30.A50.340.4.58H.C.290...	1058 (480)
S1.30.A50.340.4.58H.D.290...	1102 (500)
S1.30.A50.340.4.58H.H.290...	1146 (520)
S1.30.A50.420.4.58H.S.307...	970 (440)
S1.30.A50.420.4.58H.C.307...	1058 (480)
S1.30.A50.420.4.58H.D.307...	1080 (490)
S1.30.A50.420.4.58H.H.307...	1146 (520)
S1.40.A50.420.4.58M.S.278...	992 (450)
S1.40.A50.420.4.58M.C.278...	1102 (500)
S1.40.A50.420.4.58M.D.278...	1102 (500)
S1.40.A50.420.4.58M.H.278...	1190 (540)
S1.45.A80.420.4.58L.S.264...	1080 (490)
S1.45.A80.420.4.58L.C.264...	1190 (540)
S1.45.A80.420.4.58L.D.264...	1190 (540)
S1.45.A80.420.4.58L.H.264...	1301 (590)
S2.40.A80.420.4.58L.S.227...	1080 (490)
S2.40.A80.420.4.58L.C.227...	1190 (540)
S2.40.A80.420.4.58L.D.227...	1190 (540)
S2.40.A80.420.4.58L.H.227...	1301 (590)
S2.40.A120.340.6.58E.S.295...	1235 (560)
S2.40.A120.340.6.58E.C.295...	1367 (620)
S2.40.A120.340.6.58E.D.295...	1323 (600)
S2.40.A120.340.6.58E.H.295...	1455 (660)

14. Flange forces

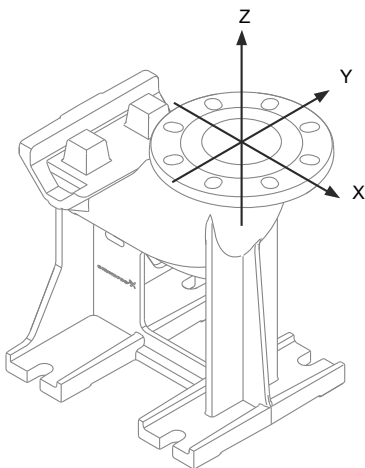
Horizontal installations



Vertical installations



Base unit



The flange forces and moments are according to EN ISO 5199.

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

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

Horizontally installed pumps

Pump family A4 = Coefficient 0.35

Vertically installed pumps

Pump family 10A = Coefficient 0.30

TM06 4901 3115 - TM06 4903 3115 - TM06 4902 3115

15. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

<http://product-selection.grundfos.com>

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.



TM07 2384

TM07 2383

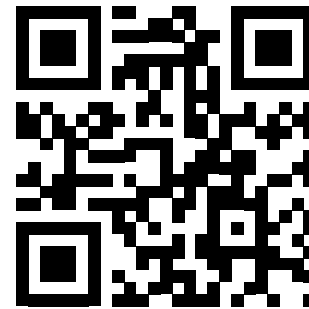
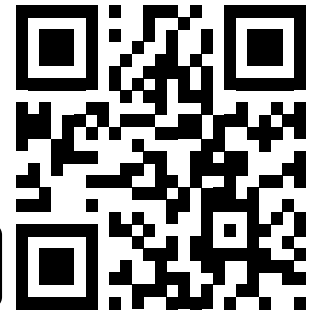
Pos. Description

- | | |
|---|---|
| 1 | This drop-down menu enables you to set the search function to "Products" or "Literature". |
| 2 | SIZING enables you to size a pump based on entered data and selection choices. |
| 3 | CATALOGUE gives you access to the Grundfos product catalogue.
REPLACEMENT enables you to find a replacement product.
Search results will include information on |
| 4 | <ul style="list-style-type: none"> the lowest purchase price the lowest energy consumption the lowest total life cycle cost. |
| 5 | LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids. |

Grundfos GO

Mobile solution for professionals on the GO!

Grundfos GO is the mobile tool box for professional users on the go. It is the most comprehensive platform for mobile pump control and pump selection including sizing, replacement and documentation. It offers intuitive, handheld assistance and access to Grundfos online tools, and it saves valuable time for reporting and data collection.



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