

SEG

0.9 to 4.0 kW

DIN, 60 Hz



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1. Introduction

Introduction

This data booklet deals with Grundfos SEG sewage grinder pumps.



TMO6 0439 0214

Fig. 1 SEG and SEG AUTO_{ADAPT} pumps

The SEG pumps are designed with a grinder system which grinds solids into small pieces so that they can be led away through discharge pipes of a relatively small diameter.

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

The pumps are available with motors of 0.9 kW and up to 4.0 kW. All the motors are 2-pole motors.

The nominal diameter of the pump discharge port is 40 mm or 50 mm.

The pumps are available for

- submerged installation on auto-coupling systems
- submerged installation, free-standing.

Applications

The SEG pumps are ideal for use in sparsely populated areas where gravity sewage systems are not available. Examples include small villages, farm areas, and areas with difficult topography, such as rocky terrains with large differences in levels, or any other area where a pressurised system offers advantages.

Construction features

All pumps have the following features:

- Cable connection to motor via plug.
- Watertight cable entry of corrosion-resistant polyamide.
- Clamp connection between motor and pump.
- Cartridge shaft seal.
- Heavy-duty bearings greased for life.
- Patented grinder system ensures extremely high efficiency and reliable operation.
- SmartTrim system enables quick and easy impeller clearance adjustment in order to maintain peak performance.
- Thermal switches built into the motor windings provide protection against overheating.

2. Identification

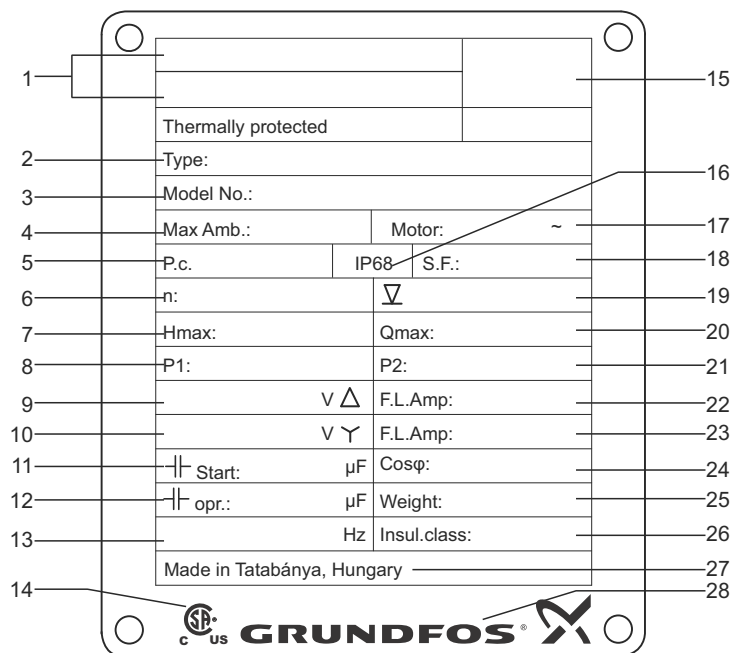
Type key

The type key covers the entire range of Grundfos SEG sewage grinder pumps. Each SEG pump can be identified by means of the type key.

Code	Example	SE	G	.40	.09	.2	.1	.6	03
Type range									
SE	Grundfos sewage pumps								
Impeller type									
G	Grinder system in the pump inlet								
Material									
[]	Standard, cast iron								
Maximum spherical impeller clearance [mm]									
[]	Not relevant for SEG pumps								
Pump discharge									
40	Nominal diameter of pump discharge port [mm], DIN PN10 flange								
50									
K40	Nominal diameter of pump discharge port [mm], JIS B 2239 10K / KS B 2332 10K / KS								
K50	B 1511 10K flange								
Output power, P2									
	P2 [100 W]								
Equipment in pump									
[]	Standard								
Installation type									
[]	Submerged without cooling jacket								
Pump version									
[]	Non-explosion-proof, CSA-approved								
Number of poles									
2	2-pole motor								
Number of phases									
1	Single-phase motor								
[]	Three-phase motor								
Frequency									
6	60 Hz								
Voltage									
03	208-230 V								
0G	380 V								
0H	460 V								
0M	200-230 V								

Nameplate

The nameplate states the operating data and approvals applying to the pump.



TM05 7714 1513

Fig. 2 SEG nameplate

Pos.	Description	Pos.	Description
1	Ex description	15	Approval
2	Type designation	16	Enclosure class
3	Product number + serial number	17	Phases
4	Max. liquid temperature	18	Motor safety factor
5	Production code (YYWW)	19	Max. installation depth (m)
6	Speed (rpm)	20	Max. flow rate (m ³ /h)
7	Max head (m)	21	Nominal power output P2
8	Nominal power input (kW)	22	Combined amp. expression 1
9	Combined voltage expression 1	23	Combined amp. expression 2
10	Combined voltage expression 2	24	Cos φ, 1/1 load
11	Starting capacitor (μF)	25	Net weight (kg)
12	Run capacitor (μF)	26	Insulation class/temperature rise
13	Frequency (Hz)	27	Grundfos logo
14	Electrical safety*	28	Production country

* For USA and Canada

3. Selection of product

Ordering a pump

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

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

Pump type

When you have selected the pump type, you can identify the specific pump that best meets your needs in sections [5. Product range](#), page 9, and [Type key](#), page 4.

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

Pump	Product number
SEG.40.09.2.1.603	98280831

- Pump as specified in the type key.
- 10 metres of cable.
- Paint: NSC 9000 N/RAL 9005 (black), gloss code 30 ± 10 (according ISO 2813), thickness min. 100 µm and max. 200 µm.
- Thermal switches built into the motor windings.
- Tested according to DIN 9906, Annex A.

See section [9. Performance curves and technical data](#), page 22, for selection of a pump.

Note

Pump-specific data for the pump can also be seen in WebCAPS using the product number 98280831.

Custom-built variants

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

Accessories

Depending on installation type and pump variant, accessories may be required.

See section [11. Accessories](#), page 36, for selection of the correct accessories.

Note

Ordered accessories are not factory-fitted.

Controller

The following controllers are available:

SEG

- Dedicated Controls. See also page 37.
- LC and LCD 107 operated by air bells. See also page 38.
- LC and LCD 108 operated by float switches. See also page 38.
- LC and LCD 110 operated by electrodes. See also page 38.
- CU 100. See also page 38.

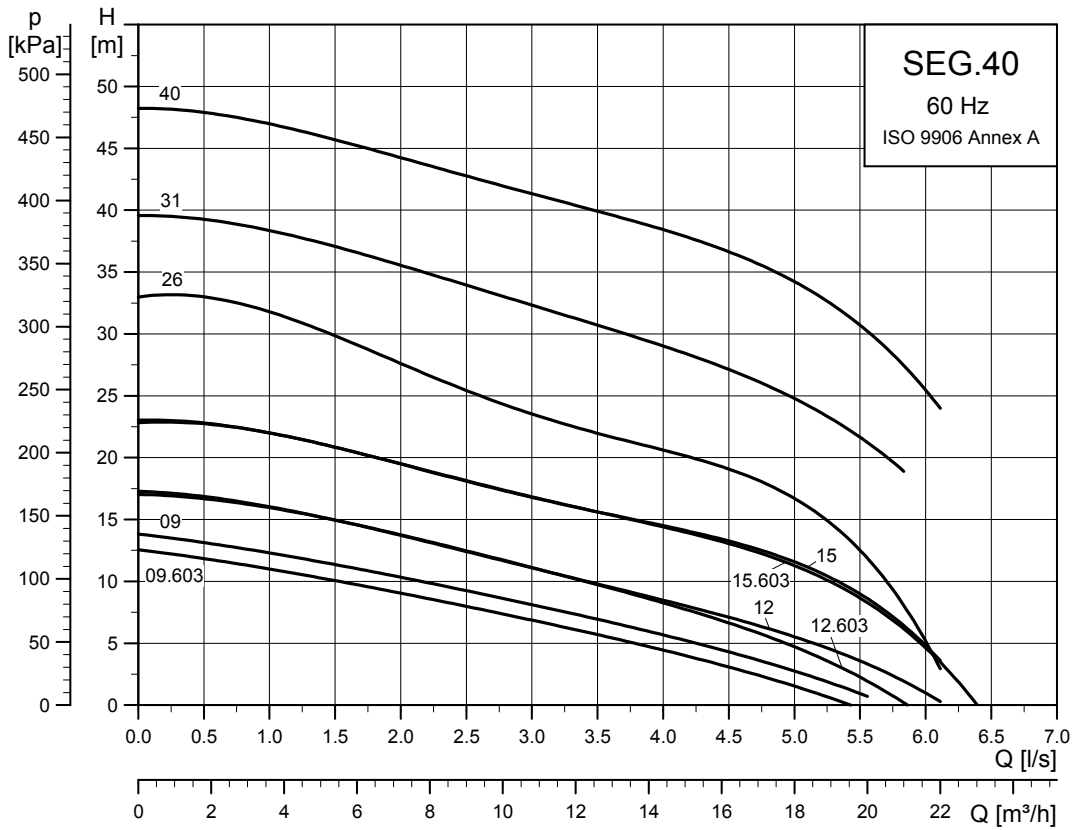
SEG approvals

The standard versions of SEG 60 Hz pump have been approved by CSA.

4. Performance range

Performance overviews

Figures 3 and 4 show the performance ranges of SEG pumps. They give an overview of the various sizes.



TM05 8134 1913

Fig. 3 Performance range for pumps with DN 40/50 mm outlet flange

Channel-impeller pumps	Curve number
SEG.40.09.2.1.603	09.603
SEG.40.09.2.60G/H/M	09
SEG.40.12.2.1.603	12.603
SEG.40.12.2.60G/H/M	12
SEG.40.15.2.1.603	15.603
SEG.40.15.2.60G/H/M	15
SEG.40.26.2.60G/H/M	26
SEG.40.31.2.60G/H/M	31
SEG.40.40.2.60G/H/M	40

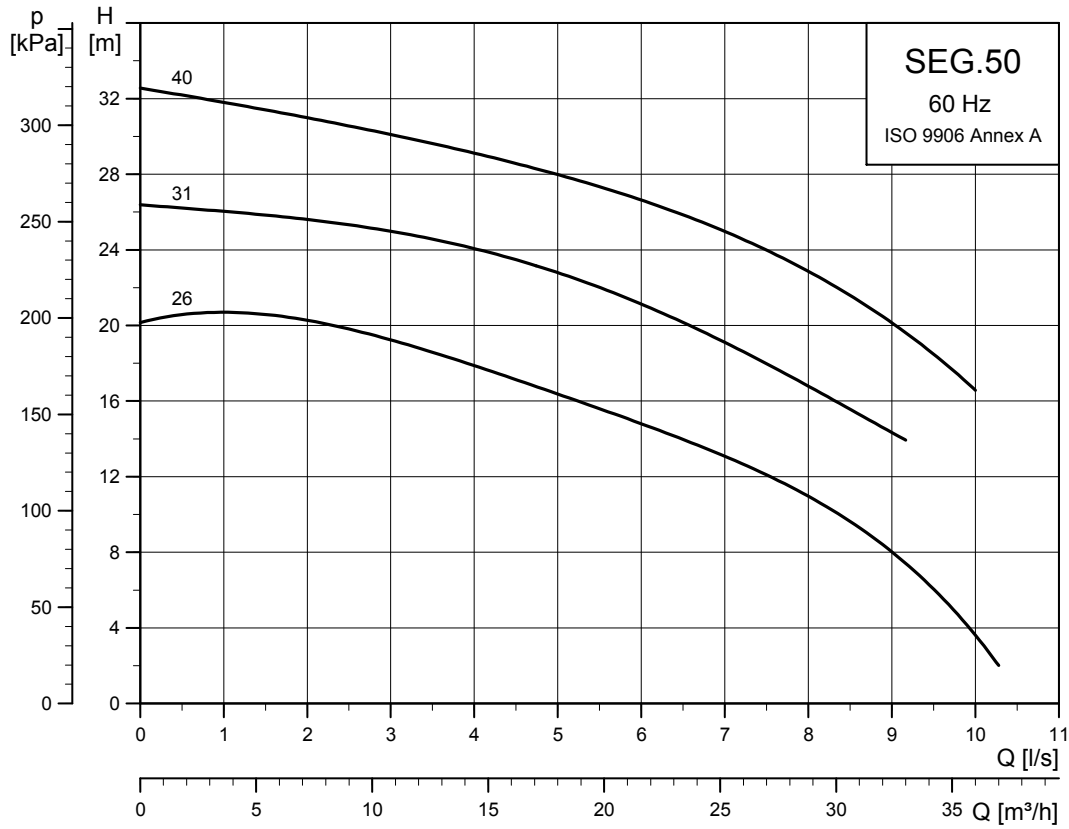


Fig. 4 Performance range for pumps with DN 50 mm outlet flange

Channel-impeller pumps	Curve number
SEG.50.26.2.60G/H/M	26
SEG.50.31.2.60G/H/M	31
SEG.50.40.2.60G/H/M	40

TM05 8135 1913

5. Product range

Product range

SEG pumps - 40 mm outlet flange

Pump type	Supply voltage [V]	Starting method	Cable length [m]	Thermal protection	Product number
SEG.40.09.2.1.603	1 x 230	DOL	10	Thermal switch	98580831
SEG.40.09.2.60G	3 x 380	DOL	10	Thermal switch	98280814
SEG.40.09.2.60H	3 x 460	DOL	10	Thermal switch	98280837
SEG.40.09.2.60M	3 x 200-230	DOL	10	Thermal switch	98280729
SEG.40.12.2.1.603	1 x 230	DOL	10	Thermal switch	98280833
SEG.40.12.2.60G	3 x 380	DOL	10	Thermal switch	98280816
SEG.40.12.2.60H	3 x 460	DOL	10	Thermal switch	98280839
SEG.40.12.2.60M	3 x 200-230	DOL	10	Thermal switch	98280748
SEG.40.15.2.1.603	1 x 230	DOL	10	Thermal switch	98280835
SEG.40.15.2.60G	3 x 380	DOL	10	Thermal switch	98280819
SEG.40.15.2.60H	3 x 460	DOL	10	Thermal switch	98280841
SEG.40.15.2.60M	3 x 200-230	DOL	10	Thermal switch	98280750
SEG.40.26.2.60G	3 x 380	DOL	10	Thermal switch	98280821
SEG.40.26.2.60H	3 x 460	DOL	10	Thermal switch	98280843
SEG.40.26.2.60M	3 x 200-230	DOL	10	Thermal switch	98280803
SEG.40.31.2.60G	3 x 380	DOL	10	Thermal switch	98280823
SEG.40.31.2.60H	3 x 460	DOL	10	Thermal switch	98280845
SEG.40.31.2.60M	3 x 200-230	DOL	10	Thermal switch	98280805
SEG.40.40.2.60G	3 x 380	DOL	10	Thermal switch	98280825
SEG.40.40.2.60H	3 x 460	DOL	10	Thermal switch	98280847
SEG.40.40.2.60M	3 x 200-230	DOL	10	Thermal switch	98280808

SEG pumps - 50 mm outlet flange

Pump type	Supply voltage [V]	Starting method	Cable length [m]	Thermal protection	Product number
SEG.50.26.2.60G	3 x 380	DOL	10	Thermal switch	98367001
SEG.50.26.2.60H	3 x 460	DOL	10	Thermal switch	98367006
SEG.50.26.2.60M	3 x 200-230	DOL	10	Thermal switch	98366986
SEG.50.31.2.60G	3 x 380	DOL	10	Thermal switch	98367011
SEG.50.31.2.60H	3 x 460	DOL	10	Thermal switch	98367014
SEG.50.31.2.60M	3 x 200-230	DOL	10	Thermal switch	98367009
SEG.50.40.2.60G	3 x 380	DOL	10	Thermal switch	98367250
SEG.50.40.2.60H	3 x 460	DOL	10	Thermal switch	98367248
SEG.50.40.2.60M	3 x 200-230	DOL	10	Thermal switch	98367245

For accessories, see [Accessories](#) section, page 36.

SEG pumps - JIS and KS flange standard*

Pump type	Supply voltage [V]	Starting method	Cable length [m]	Thermal protection	Product number
SEG.K40.09.2.1.603	1 x 230	DOL	10	Thermal switch	98281469
SEG.K40.09.2.60G	3 x 380	DOL	10	Thermal switch	98281166
SEG.K40.09.2.60H	3 x 460	DOL	10	Thermal switch	98281485
SEG.K40.09.2.60M	3 x 200-230	DOL	10	Thermal switch	98280949
SEG.K40.12.2.1.603	1 x 230	DOL	10	Thermal switch	98281477
SEG.K40.12.2.60G	3 x 380	DOL	10	Thermal switch	98281170
SEG.K40.12.2.60H	3 x 460	DOL	10	Thermal switch	98281487
SEG.K40.12.2.60M	3 x 200-230	DOL	10	Thermal switch	98281155
SEG.K40.15.2.1.603	1 x 230	DOL	10	Thermal switch	98281481
SEG.K40.15.2.60G	3 x 380	DOL	10	Thermal switch	98281182
SEG.K40.15.2.60H	3 x 460	DOL	10	Thermal switch	98281489
SEG.K40.15.2.60M	3 x 200-230	DOL	10	Thermal switch	98281158
SEG.K40.26.2.60G	3 x 380	DOL	10	Thermal switch	98281186
SEG.K40.26.2.60H	3 x 460	DOL	10	Thermal switch	98281492
SEG.K40.26.2.60M	3 x 200-230	DOL	10	Thermal switch	98281160
SEG.K40.31.2.60G	3 x 380	DOL	10	Thermal switch	98281188
SEG.K40.31.2.60H	3 x 460	DOL	10	Thermal switch	98281495
SEG.K40.31.2.60M	3 x 200-230	DOL	10	Thermal switch	98281162
SEG.K40.40.2.60G	3 x 380	DOL	10	Thermal switch	98281336
SEG.K40.40.2.60H	3 x 460	DOL	10	Thermal switch	98281499
SEG.K40.40.2.60M	3 x 200-230	DOL	10	Thermal switch	98281164

* Only for Korea and Japan.

SEG pumps - JIS and KS flange standard*

Pump type	Supply voltage [V]	Starting method	Cable length [m]	Thermal protection	Product number
SEG.K50.26.2.60G	3 x 380	DOL	10	Thermal switch	98367265
SEG.K50.26.2.60M	3 x 200-230	DOL	10	Thermal switch	98367263
SEG.K50.31.2.60G	3 x 380	DOL	10	Thermal switch	98367294
SEG.K50.31.2.60H	3 x 460	DOL	10	Thermal switch	98367297
SEG.K50.31.2.60M	3 x 200-230	DOL	10	Thermal switch	98367292
SEG.K50.40.2.60G	3 x 380	DOL	10	Thermal switch	98367330
SEG.K50.40.2.60H	3 x 460	DOL	10	Thermal switch	98367344
SEG.K50.40.2.60M	3 x 200-230	DOL	10	Thermal switch	98367299

* Only for Korea and Japan.

For accessories, see [Accessories](#) section, page 36.

6. Variants

List of variants

Motor

		15 m
		20 m
Standard cables	Cable B, B 7G AWG16	25 m
		30 m
		40 m
		50 m
		10 m
		15 m
Screened power cables for frequency converters	Screened cable B	20 m
		25 m
		30 m
		40 m
Cable protection	For 7-core cable	
Special motor	Special voltage, with or without PTC, etc. Contact Grundfos.	

Tests

Test at specified duty on standard impeller curve		
Additional test of entire QH curve (including report)	5 to 10 flows from pump performance curve.	
Different test standard	Efficiency guaranteed by Grundfos.	ISO 9906 grade 2 tolerances.
Witness test	Contact Grundfos.	

Certificates

CSA-approved pump report	Special Grundfos report. Contact Grundfos.	
Certificate of compliance with order	According to EN 10204 2.1.	According to Annex A grades 1 and 2.
Pump certificate	According to EN 10204 2.2.	According to Annex A grades 1 and 2.
Inspection certificate	According to EN 10204 3.1.	According to Annex A grades 1 and 2.
Material specification report	According to EN 10204 3.1B.	
Material report with certificate	According to EN 10204 3.2.	Material supplier information.
Inspection certificate, Lloyds Register	According to EN 10204 3.2.	
Inspection certificate, DNV (Det Norske Veritas)	According to EN 10204 3.2.	
Inspection certificate, Germanischer Lloyd	According to EN 10204 3.2.	
Inspection certificate, American Bureau of Shipping	According to EN 10204 3.2.	
Inspection certificate, Bureau Veritas	According to EN 10204 3.2.	
Registro Italiano Navale Argenteure	According to EN 10204 3.2.	
Other third-party test certificate	Contact Grundfos.	

Miscellaneous

Special packaging	Contact Grundfos.	
Special nameplate	Contact Grundfos.	
Other variants	Contact Grundfos.	
Chemical-resistant shaft seal	FKM, standard (NBR).	
Chemical-resistant pump	FKM, standard (NBR).	
Internal surface treatment	Ceramic coating (impeller and pump housing).	
	Extra epoxy (CED) coating.	
Top coating	Black (RAL 9005).	
	Other colour.	

7. Construction

Material specification, SEG pumps

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

Pos.	Description	Material	EN standard	AISI/ASTM
6a	Pin	Stainless steel	-	-
7a	Rivet	Stainless steel	-	-
9a	Key	Stainless steel	-	-
26a	O-rings	NBR	-	-
37	O-ring	NBR	-	-
37a	O-rings	NBR	-	-
44	Grinder ring	Stainless steel	1.4542	630
45	Grinder head	Stainless steel	1.4542	630
48	Stator	-	-	-
49	Impeller	Cast iron	EN-GJL-200	-
50	Pump housing	Cast iron	EN-GJL-200	-
55	Stator housing	Cast iron	EN-GJL-200	-
58	Shaft seal carrier	Cast iron	EN-GJL-200	-
66	Locking ring	Stainless steel	-	-
68	Adjusting nut	Stainless steel	1.4057	431
76	Nameplate	Stainless steel	1.4301	304
92	Clamp	Stainless steel	1.4301	304
102	O-ring	NBR	-	-
103	Bush	Stainless steel	1.4057	431
104	Seal ring	NBR	-	-
105	Shaft seal	Primary seal (0.9 to 1.5 kW): SiC/SiC Secondary seal (0.9 to 1.5 kW): lip seal, NBR Primary seal (2.6 to 4.0 kW): SiC/SiC Secondary seal (2.6 to 4.0 kW): carbon/aluminium oxide Other components: NBR, stainless steel	-	-
107	O-rings	NBR	-	-
112a	Retaining ring	Stainless steel	-	-
150a	Stator in housing, complete	-	-	-
153	Bearing	Up to and including 1.5 kW: 6303 2.6 kW and up: 3205	-	-
153a	Spacer ring	Stainless steel	-	-
153b	Spacer ring	Stainless steel	-	-
154	Bearing	Up to and including 1.5 kW: 6201 2.6 kW and up: 6205	-	-
155	Oil chamber	Cast iron	EN-GJL-200	-
158	Corrugated spring	Steel	-	-
159	O-ring	NBR	-	-
172	Rotor/shaft	Shaft part at rotor: steel Shaft end at hydraulics: stainless steel	1.0533 1.4301	304 -
173	Screw	Steel	-	-
173a	Washer	Steel	-	-
176	Inner plug part	PET	-	-
181	Outer plug part	CR rubber, cable H07RN-F	1.4308	CF-8
188a	Screw	Stainless steel	-	-
190	Lifting bracket	Stainless steel	1.4308	CF-8
193	Oil screw	Stainless steel	-	-
193a	Oil	Shell Ondina 919	-	-
194	Gasket	Nylon	-	-
195	Lock washer	Stainless steel	-	-
198	O-ring	NBR	-	-
	Paint	Two-component epoxy	-	-

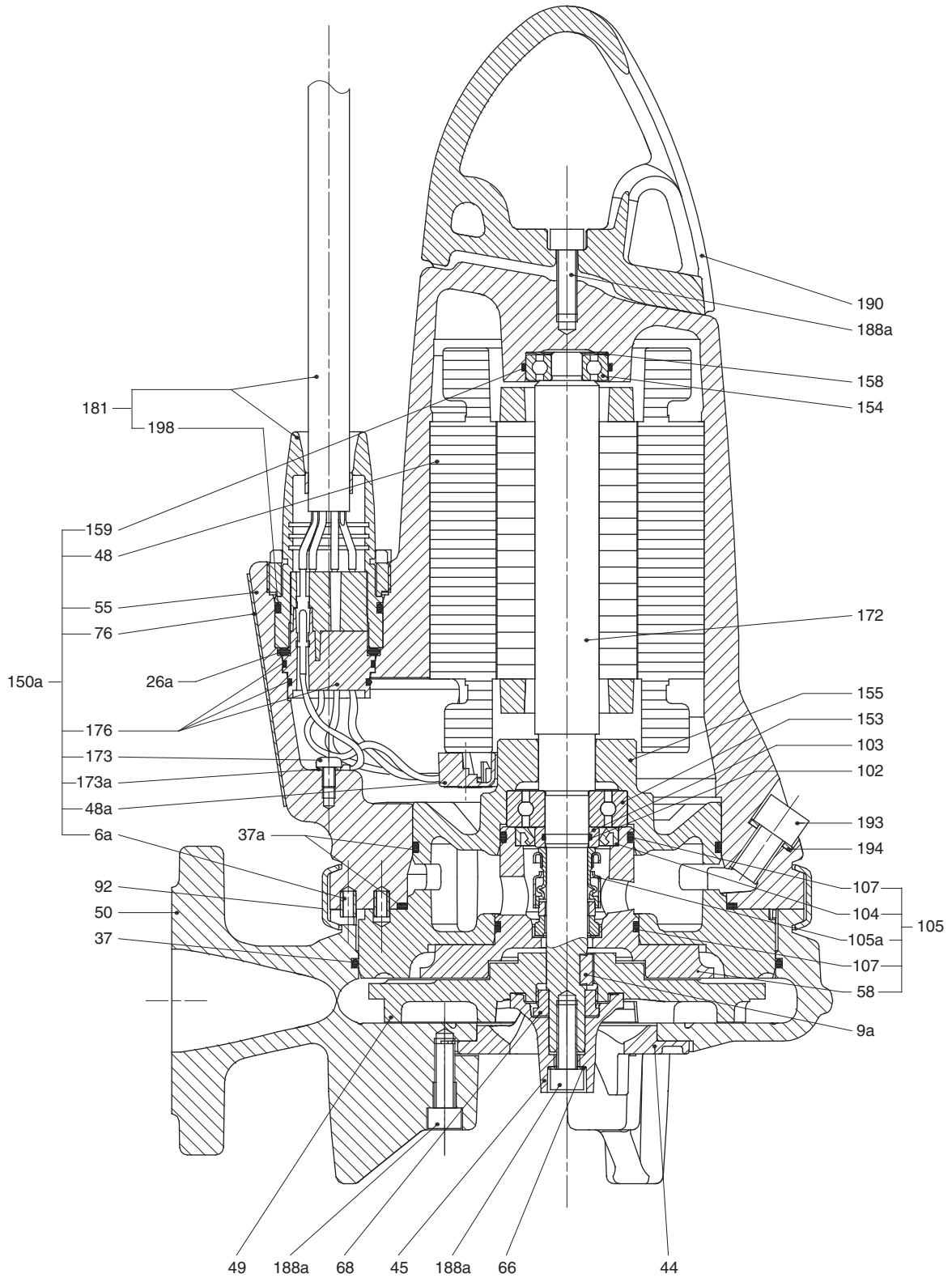


Fig. 5 Sectional drawing of SEG pumps, 0.9, 1.2 and 1.5 kW

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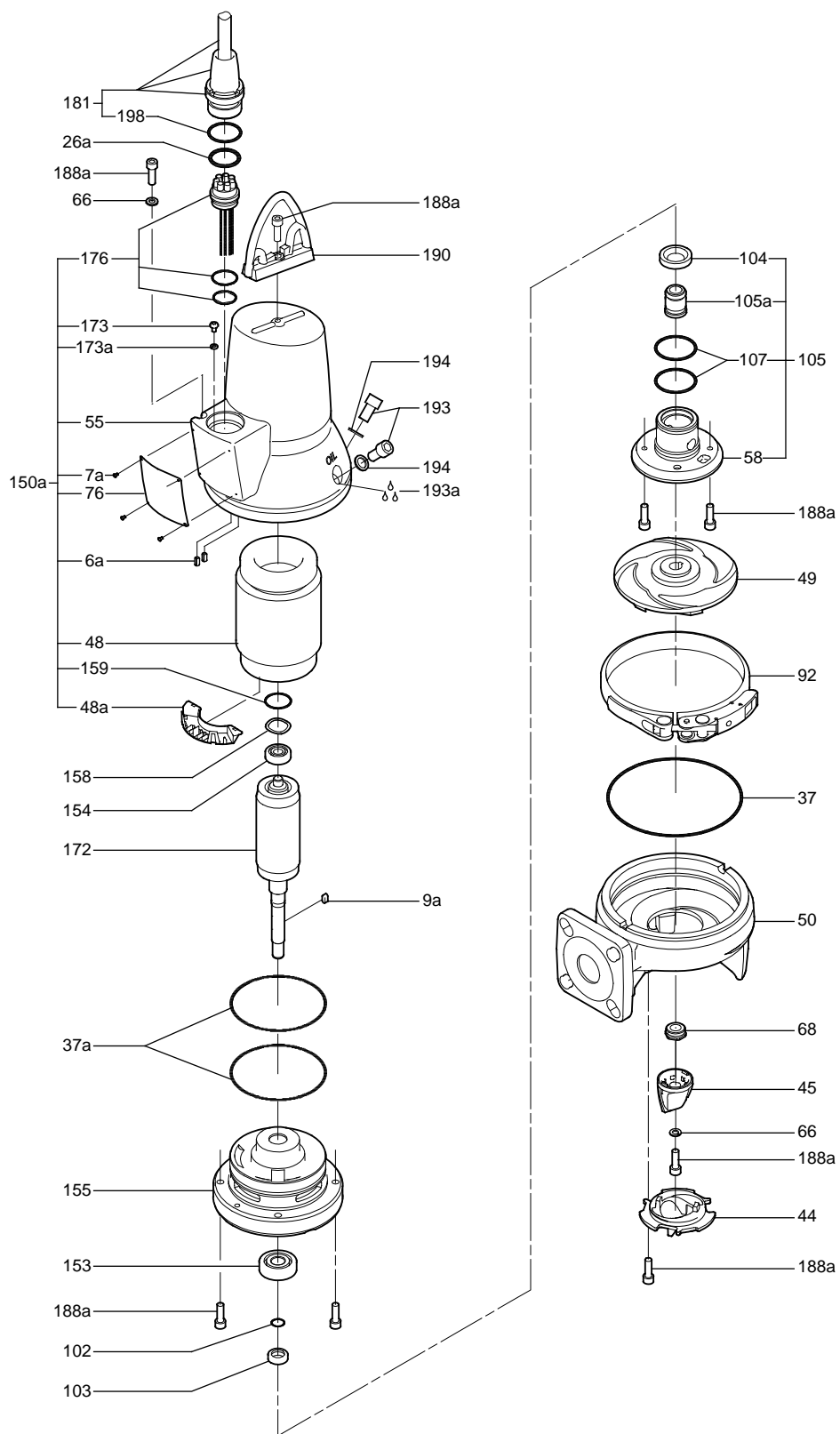
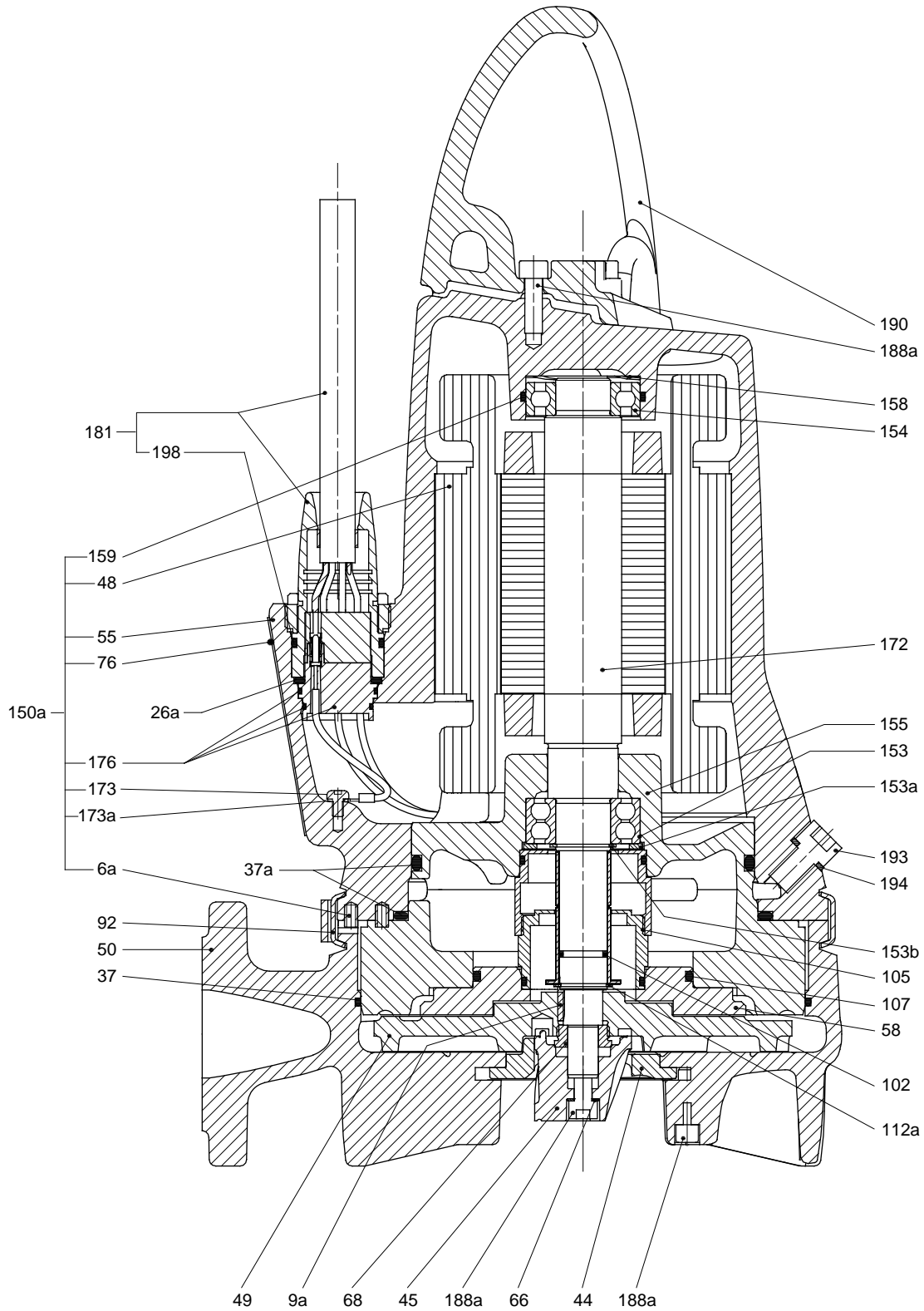


Fig. 6 Exploded view of SEG pumps, 0.9, 1.2 and 1.5 kW

TM02 5377 2802



TM02 5408 2804

Fig. 7 Sectional drawing of SEG pumps, 2.6, 3.1 and 4.0 kW

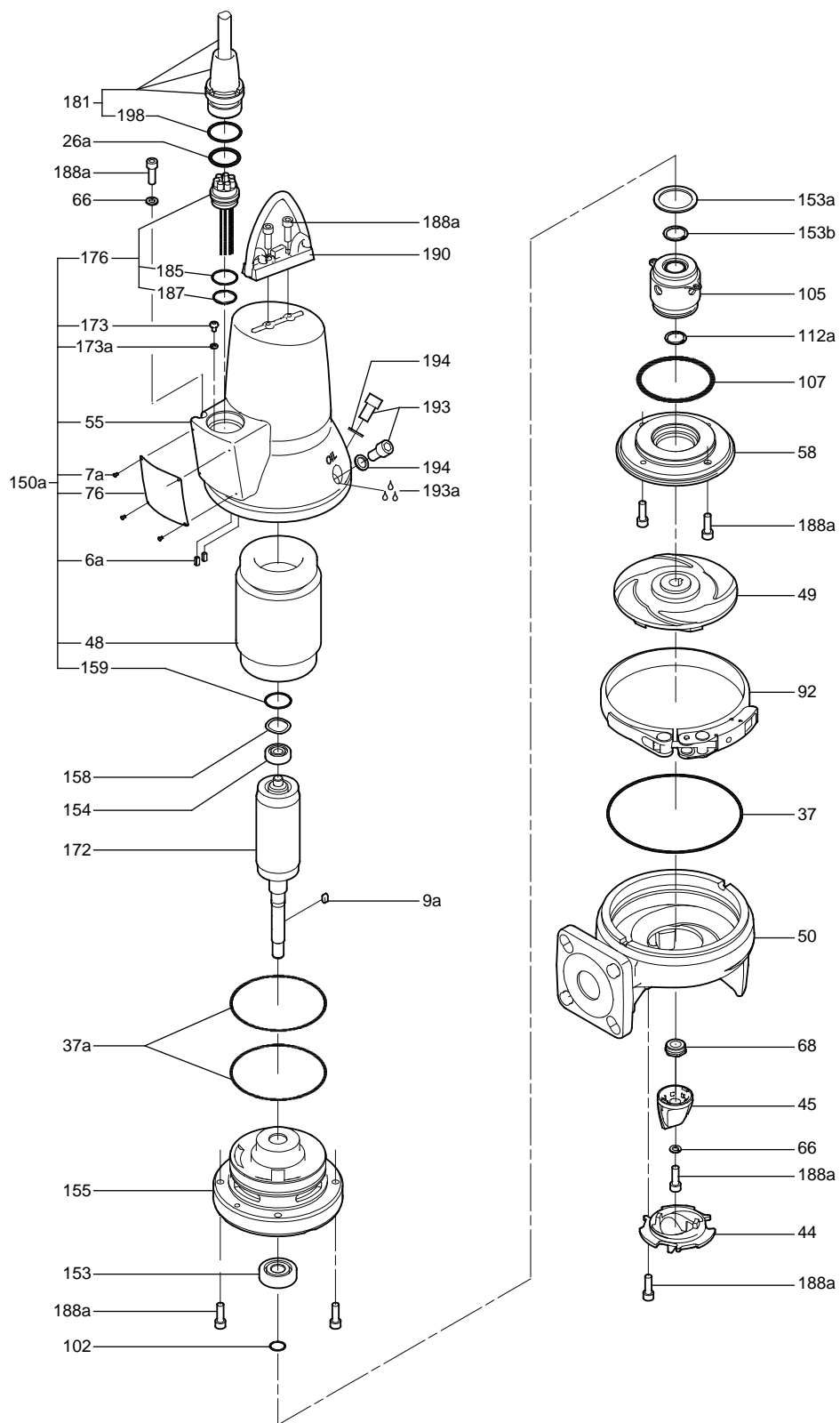


Fig. 8 Exploded view of SEG pumps, 2.6, 3.1 and 4.0 kW

TM02 5407 2804

Features

Ball bearings

The ball bearings are greased for life.

Top bearings:

- Up to and including 1.5 kW:
Single-row ball bearing 6201.
- 2.6 kW and up:
Single-row ball bearing 6205.

Bottom bearings:

- Up to and including 1.5 kW:
Single-row ball bearing 6303.
- 2.6 kW and up:
Angular-contact ball bearing 3205.

Shaft seal

The SEG range is available with two shaft seal variants. Both variants are fitted as cartridge seal units. The shaft seal separates the motor from the pumped liquid.

Pumps up to and including 1.5 kW have a silicon carbide/silicon carbide (SiC/SiC) mechanical shaft seal as primary seal and a lip seal as secondary seal. In connection with service, the mechanical shaft seal and the lip seal are supplied as one unit ready for fitting.

Pumps of 2.6 kW and up have a double seal consisting of a SiC/SiC mechanical shaft seal as primary seal and a carbon/aluminium oxide mechanical shaft seal as secondary seal.

Motor

The motor is a watertight, totally encapsulated motor.

Insulation class: F (155 °C).

Supply voltage tolerance: - 10 %/+ 6 %.

Temperature class: F (105 °C).

Enclosure class: IP68.

For motor protection and sensors, see the [Sensors](#) section.

Power supply cables

Standard cable

Cable type	Outer cable diameter [mm]	Bending radius	
		Fixed	Free
7G AWG16	15.5 ± 0.5	60	90

As standard, the cables are 10 metres long.

Other cable lengths are available on request. See [List of variants](#) section, page 11.

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

Cable entry

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

The plug is filled with a special material that is cast into the plug around the leads of the cable. This prevents the ingress of water into the motor through the cable in case of cable breakage or adverse handling in connection with installation or service.

Sensors

SEG

As standard, the pump has two thermal switches incorporated in the motor windings to protect the motor against overheating.

Operating conditions

The pumps are designed for intermittent operation (S3). When completely submerged, the pumps can also operate continuously (S1).

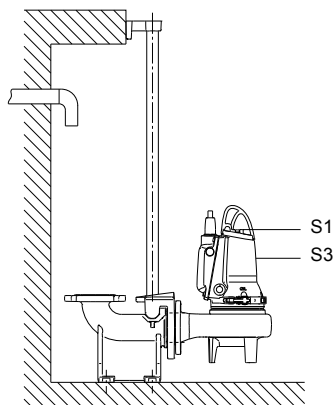


Fig. 9 Operation levels

- **S3, intermittent operation:**

The S3 is series of identical duty cycles TC, each a constant load for a period, followed by a rest period. Thermal equilibrium is not reached during the cycle. See fig. 10.

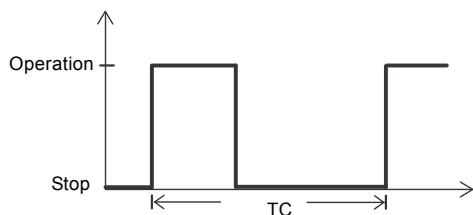


Fig. 10 S3 operation

- **S1, continuous operation:**

In this operating mode, the pump can operate continuously without having to be stopped for cooling. See fig. 11. Being completely submerged, the pump is sufficiently cooled by the surrounding liquid. See fig. 9.

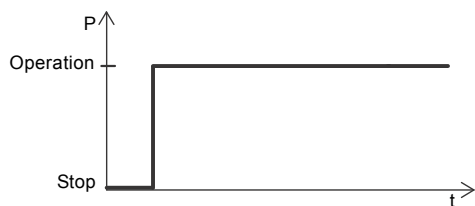


Fig. 11 S1 operation

Pumped liquids

pH value: 4-10.

Liquid temperature: 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.

For short periods (max. 3 minutes), temperatures up to 60 °C are permissible.

Sound pressure level

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

Motor range

Output power [kW]	Number of poles
0.9	2
1.2	2
1.5	2
2.6	2
3.1	2
4.0	2

Frequency converter operation

In principle, all three-phase pumps can be connected to a frequency converter.

However, frequency converter operation will often expose the motor insulation system to a heavier load and cause the motor to be more noisy than usual due to eddy currents caused by voltage peaks.

In addition, large motors driven via a frequency converter will be loaded by bearing currents.

Frequency converter operation will also influence the efficiency of the cutter system.

For more information, see the installation and operating instructions for the relevant frequency converter at www.grundfos.com (WebCAPS).

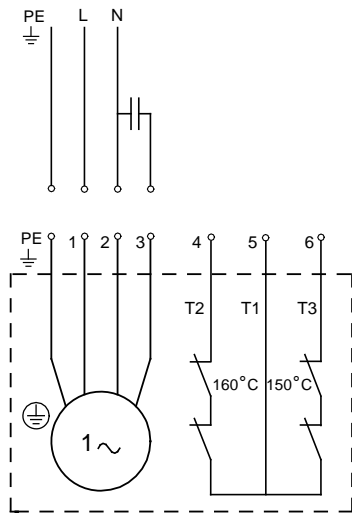
Approvals

The standard versions of SEG 60 Hz pumps have been approved by SCA.

Approval standards

These pumps are CSA-approved according to UL778 and C22.2 no. 108, no. 0.4, no. 30, no. 145 and no. 60529.

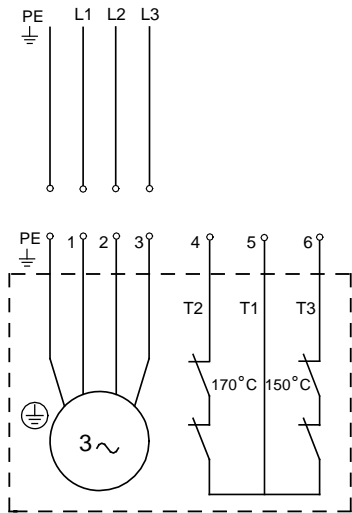
Wiring diagrams



TM02 5587 4302

Fig. 12 Wiring diagram for single-phase SEG pumps.
See table below.

Pump type	Cs starting capacitor		Cd run capacitor	
	[μF]	[V]	[μF]	[V]
SEG	150	230	30	450



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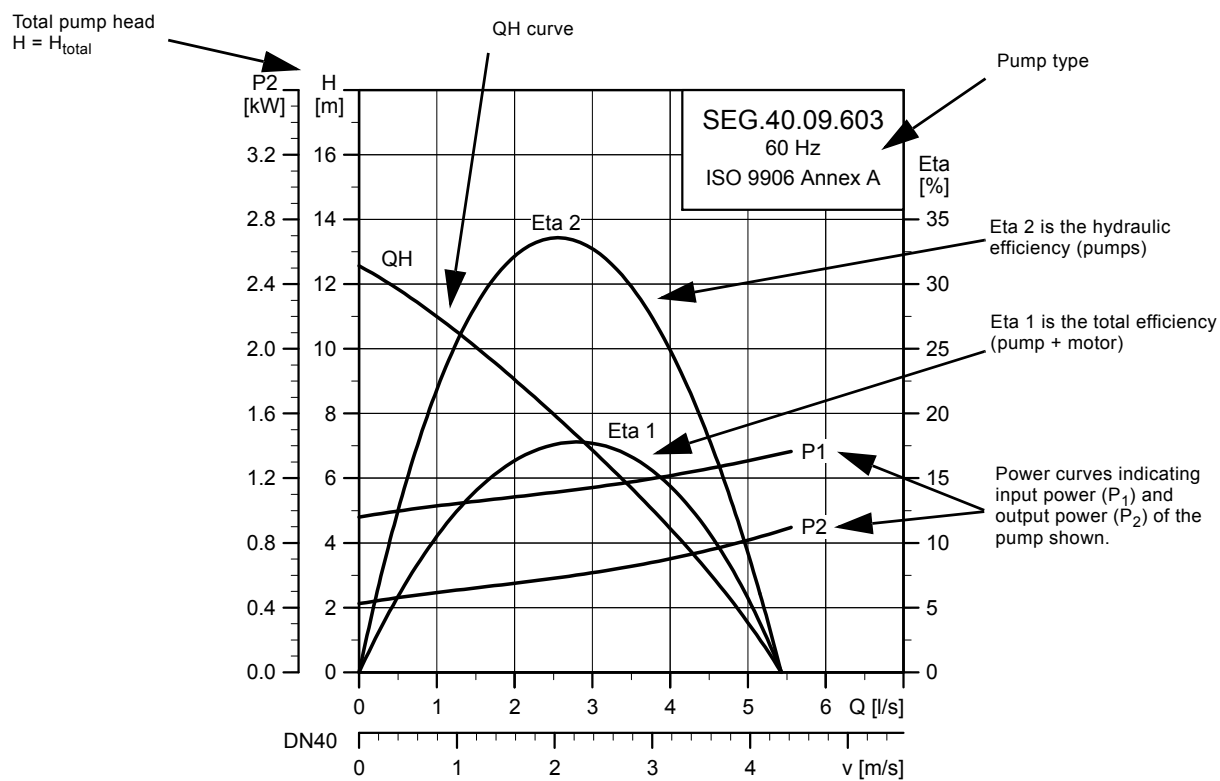
Fig. 13 Wiring diagram for three-phase SEG pumps

8. Curve charts

How to read the performance curves

The curves on the following pages apply to SEG pumps.

SEG	Page
SEG.(K)40.09.2.1.603	22
SEG.(K)40.09.2.60G/H/M	23
SEG.(K)40.12.2.1.603	24
SEG.(K)40.12.2.60G/H/M	25
SEG.(K)40.15.2.1.603	26
SEG.(K)40.15.2.60G/H/M	27
SEG.(K)40/50.26.2.60G/H/M	28
SEG.(K)40/50.31.2.60G/H/M	29
SEG.(K)40/50.40.2.60G/H/M	30



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Curve conditions

The guidelines below apply to the curves on pages 22 to 33.

- Tolerances according to ISO 9906, Annex A.
- The curves show the pump performance with different impeller diameters at the rated speed.
- The curves apply to the pumping of airless water at a temperature of 20 °C and a kinematic viscosity of 1 mm²/s (1 cSt).
- The eta curves show the efficiency of the pump for the different impeller diameters.
- The NPSH curves show average values measured under the same conditions as the performance curves.
When sizing the pump, add a safety margin of at least 0.5 m.
- In the case of other densities than 1000 kg/m³, the discharge pressure is proportional to the density.
- When pumping liquids with a density higher than 1000 kg/m³, motors with correspondingly higher outputs must be used.

Calculation of total head

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

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

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

Performance tests

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

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

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

Certificates

Certificates must be confirmed for every order and are available on request. See [List of variants](#) section, page 11.

Witness test

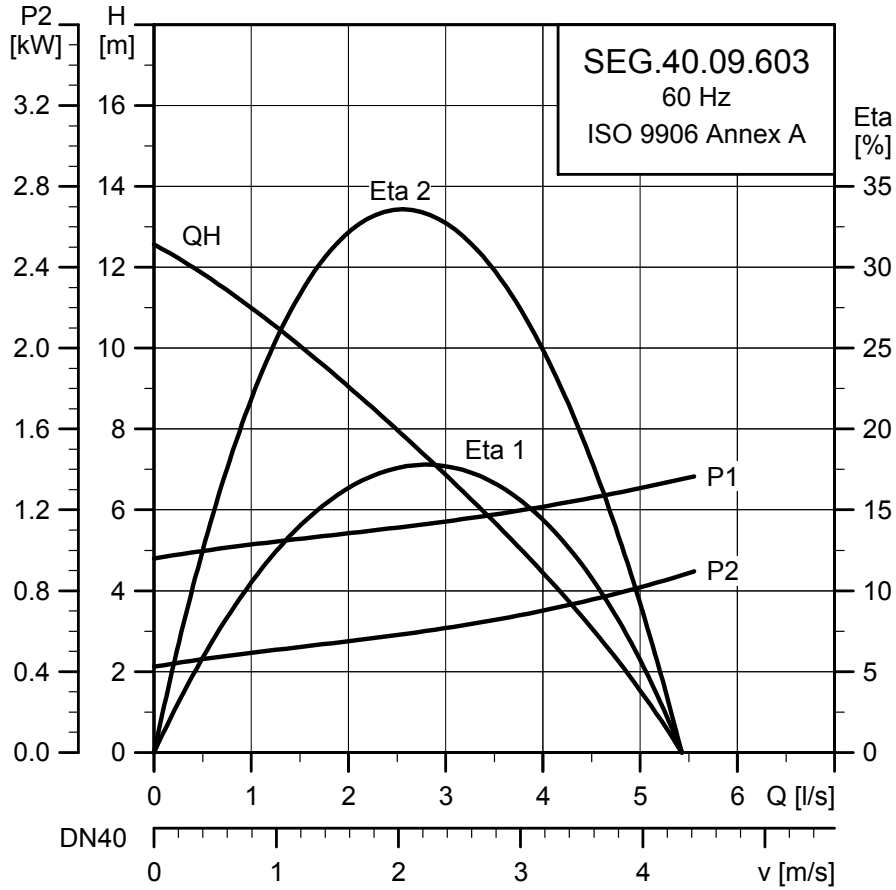
It is possible for the customer to witness the testing procedure according to ISO 9906.

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

If the customer wants to witness the test of the pump performance, this request must be stated on the order.

9. Performance curves and technical data

SEG.(K)40.09.2.1.603



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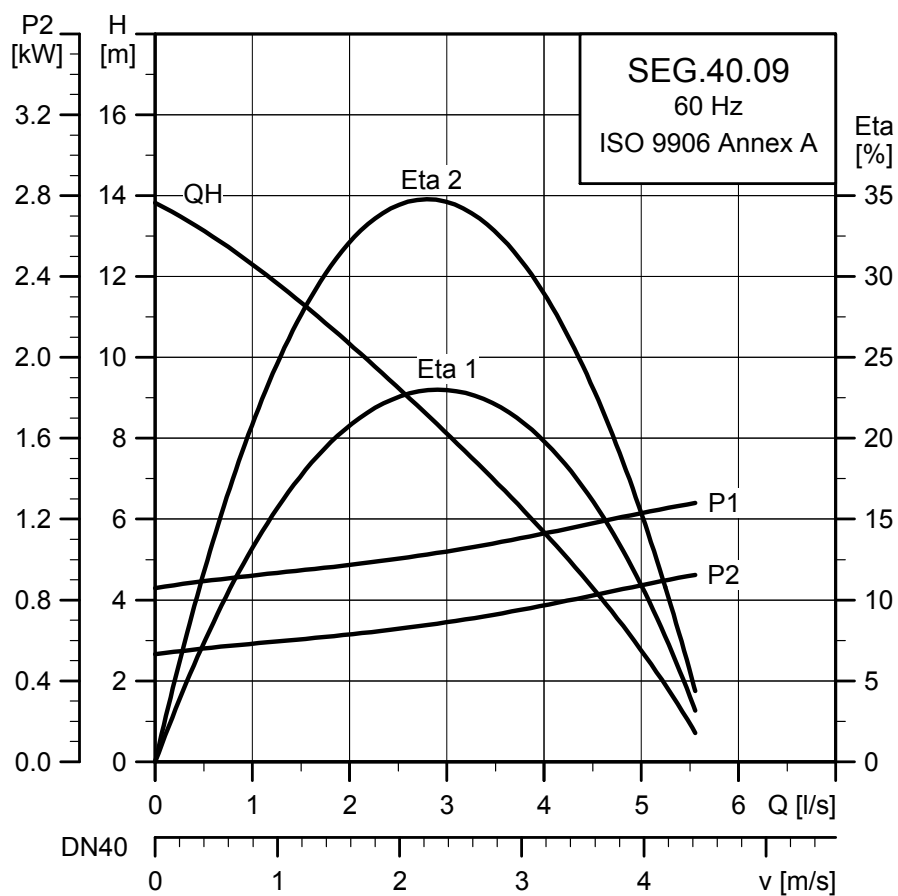
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	[A]	[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4		
1 x 208-230	1.4	0.9	2	3490	DOL	10	48		0.42	0.56	0.65	0.06	0.23	0.38	0.0020	8.2			

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]						
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.09.2.60G/H/M



TM05 8018 1813

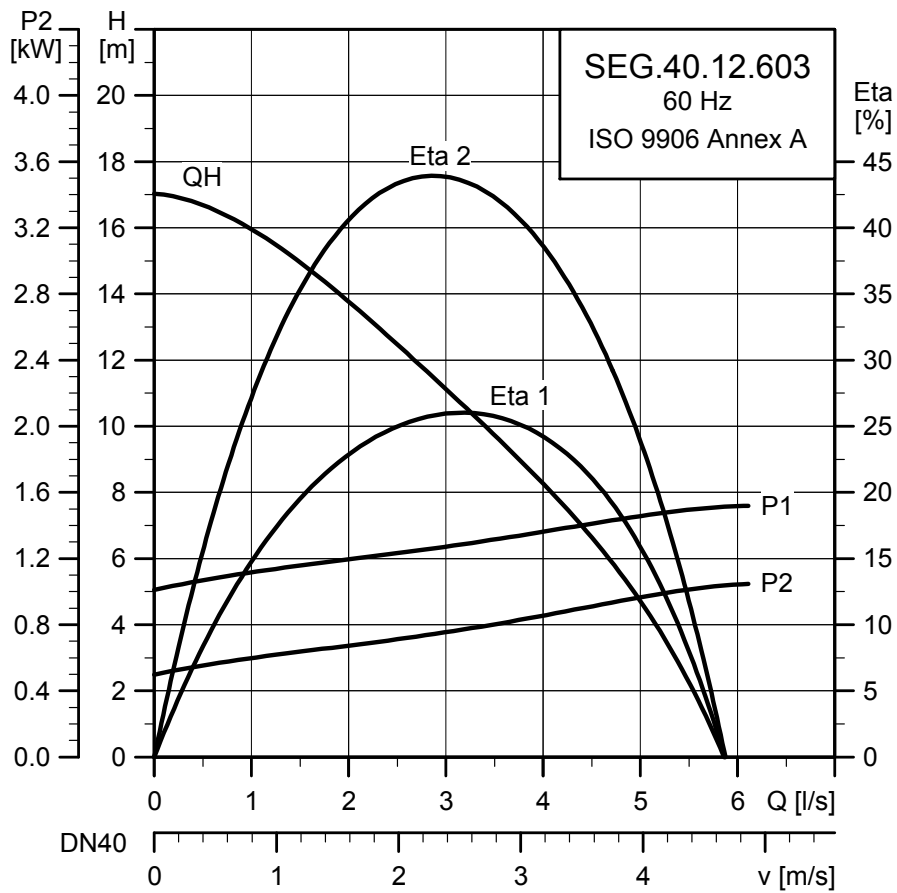
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]		
3 x 380	1.2	0.9	2	3490	DOL	3.0	22	0.63	0.7	0.74	0.46	0.57	0.67	0.0020	15.0				
3 x 460	1.2	0.9	2	3490	DOL	3.0	20	0.61	0.67	0.74	0.42	0.52	0.61	0.0020	15.0				
3 x 200-230	1.2	0.9	2	3497	DOL	6.0	40	0.61	0.67	0.73	0.42	0.52	0.61	0.0020	16.4				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]		[m]			[°C]	
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.12.2.1.603



TM05 8028 1813

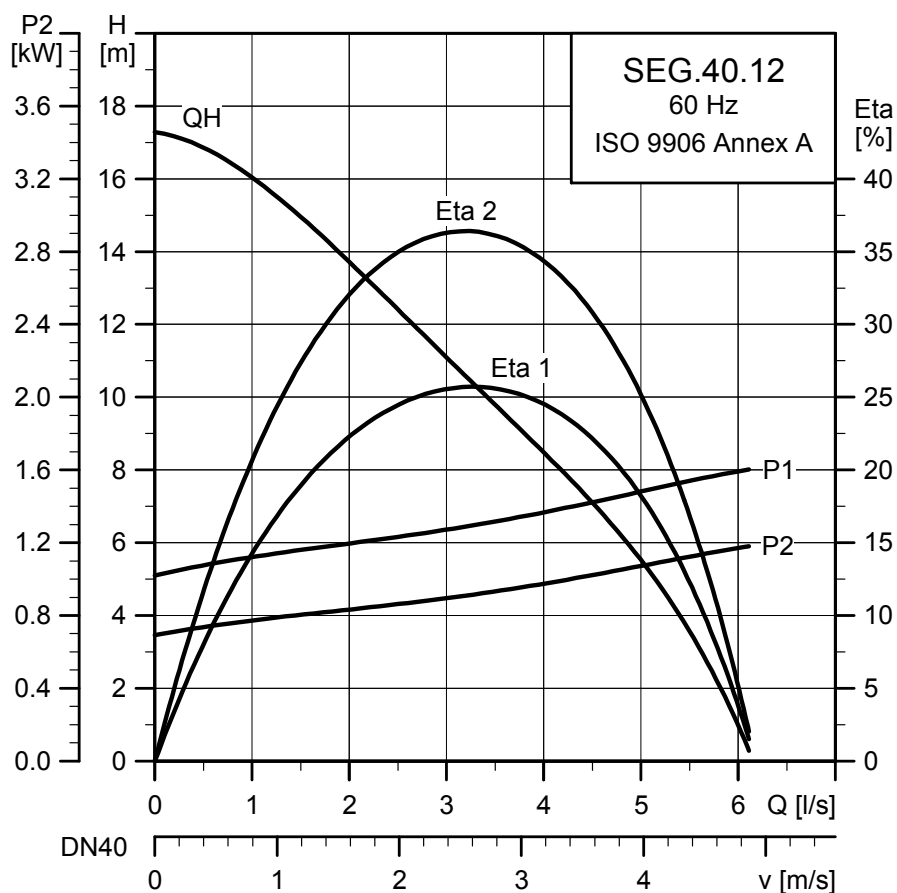
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ		Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
1 x 230	1.6	1.2	2	3450	DOL	8.0	48	0.52	0.66	0.73	0.17	0.38	0.58	0.0020	8.2			

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]		[m]			[°C]	
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.12.2.60G/H/M



TM05 8019 1813

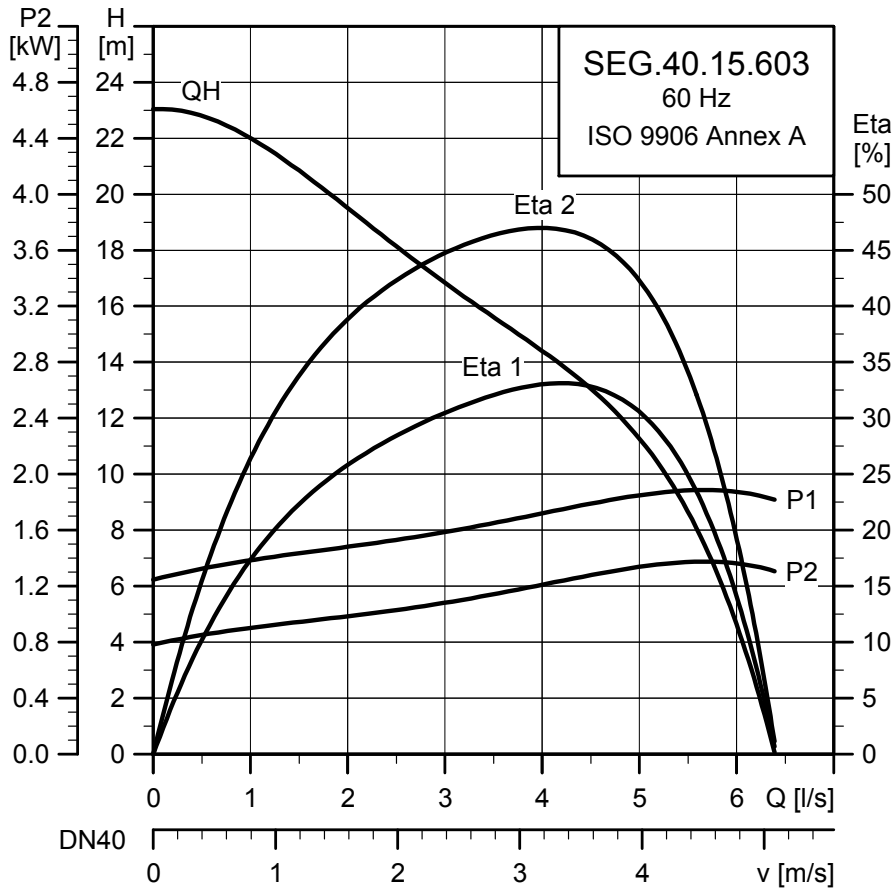
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380	1.5	1.2	2	3450	DOL	4.0	22	0.68	0.74	0.78	0.54	0.67	0.77	0.0020	15.0				
3 x 460	1.5	1.2	2	3450	DOL	3.0	20	0.65	0.73	0.78	0.48	0.61	0.72	0.0020	15.0				
3 x 200-230	1.6	1.2	2	3460	DOL	6.0	40	0.65	0.73	0.77	0.48	0.61	0.72	0.0020	16.4				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]	[m]	[°C]				
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.15.2.1.603



TM05 8029 1813

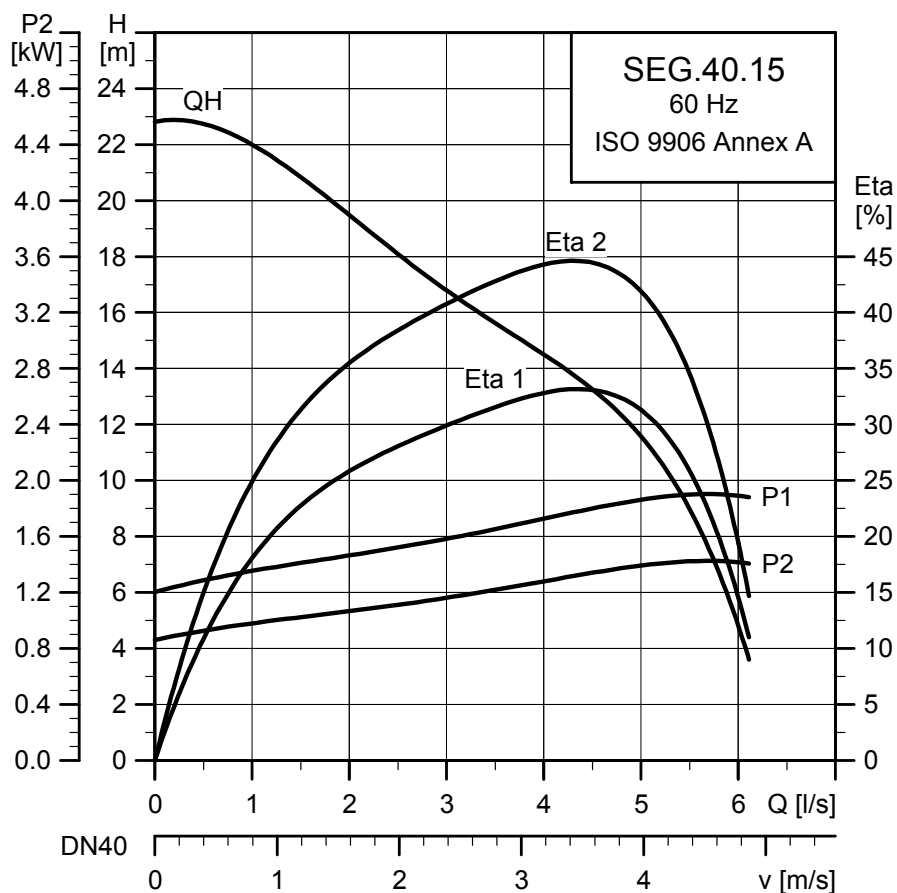
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	[A]	[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4		
1 x 230	2.0	1.5	2	3400	DOL	7.0	48	0.6	0.72	0.74	0.28	0.53	0.76	0.0020	8.2				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]		[m]			[°C]	
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.15.2.60G/H/M



TM05 8020 1813

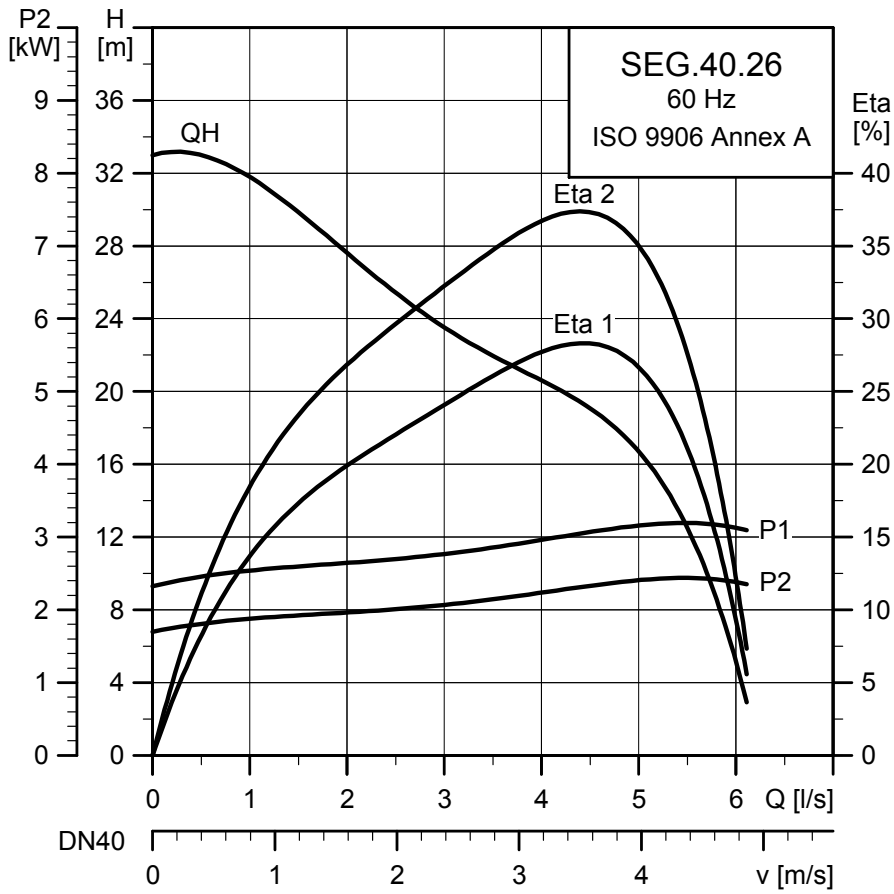
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max} [Nm]
						[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]		
3 x 380	1.9	1.5	2	3405	DOL	4.0	22	0.72	0.77	0.78	0.61	0.75	0.84	0.0020	15.0				
3 x 380	1.9	1.5	2	3405	DOL	4.0	20	0.70	0.76	0.78	0.70	0.75	0.80	0.0020	15.0				
3 x 200-230	1.9	1.5	2	3422	DOL	7.0	40	0.69	0.76	0.78	0.55	0.69	0.79	0.0020	16.4				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]		[m]			[°C]	
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.26.2.60G/H/M



TM05 8021 1813

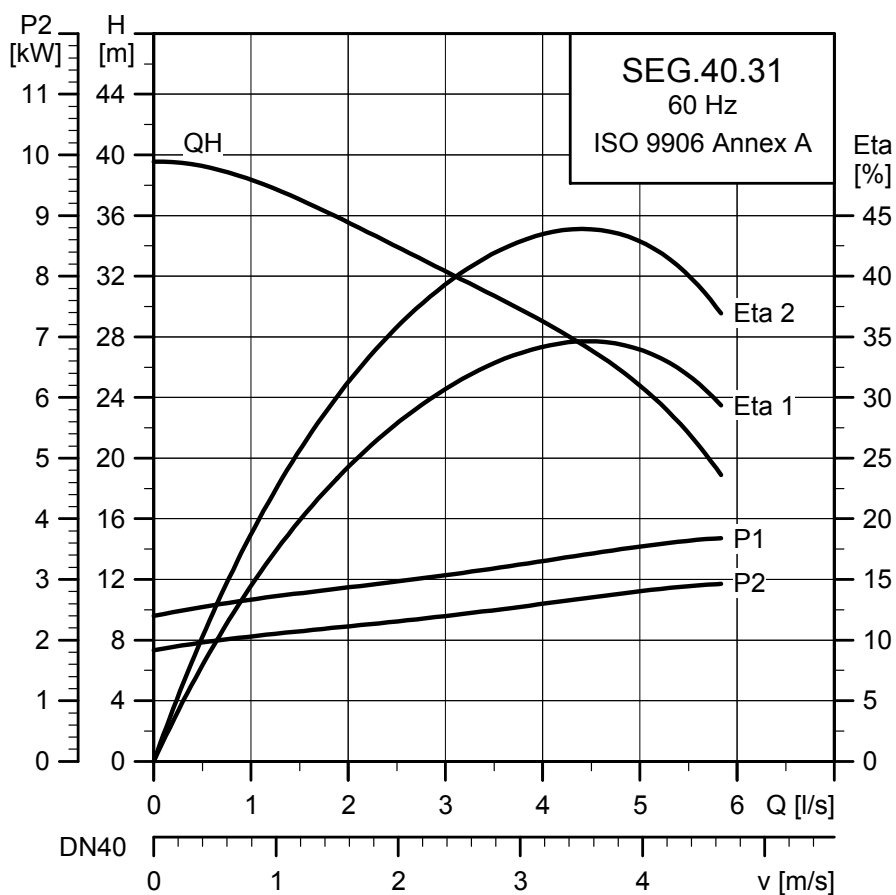
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N		η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380	3.4	2.6	2	3455	DOL	6.0	39	0.72	0.75	0.76	0.759	0.834	0.875	0.0160	18.2
3 x 460	3.4	2.6	2	3475	DOL	5.0	34	0.70	0.74	0.76	0.88	0.88	0.90	0.0160	18.2
3 x 200-230	3.4	2.6	2	3475	DOL	11.0	65	0.69	0.74	0.76	0.70	0.79	0.847	0.0160	18.2

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]						
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.31.2.60G/H/M



TM05 8022 1813

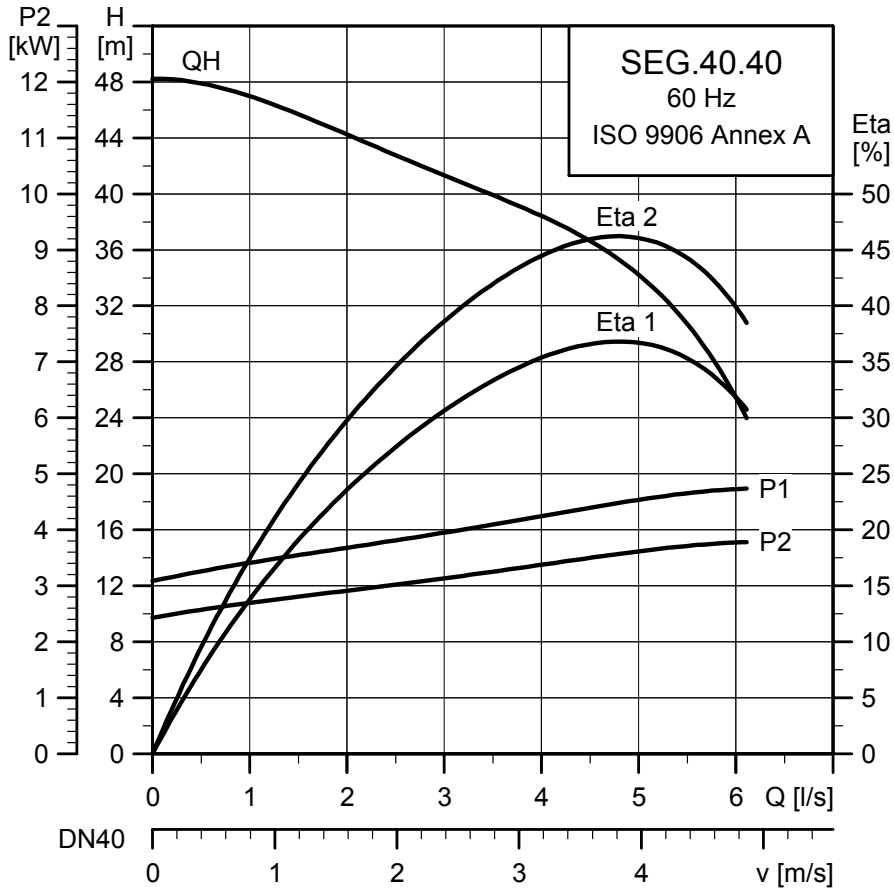
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ		Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1	1/2	3/4		
3 x 380	4.0	3.1	2	3482	DOL	7.0	49.6	0.72	0.76	0.78	0.77	0.85	0.88	0.0258	22.3			
3 x 460	3.9	3.1	2	3490	DOL	6.0	43.0	0.75	0.78	0.80	0.75	0.83	0.88	0.0258	22.3			
3 x 200-230	3.9	3.1	2	3498	DOL	12.0	89.5	0.72	0.77	0.80	0.70	0.80	0.85	0.0258	24.4			

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]	[m]	[°C]				
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)40.40.2.60G/H/M



TM05 8023 1813

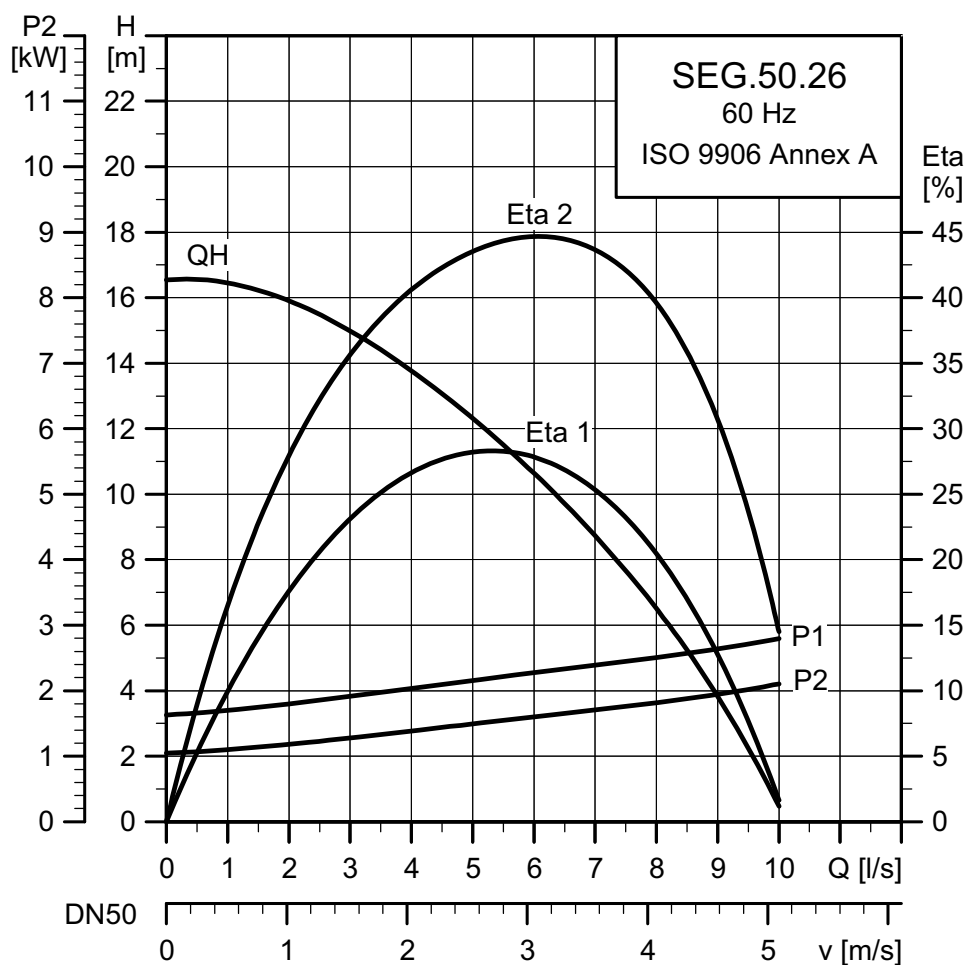
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N			I _{start}			η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]		
3 x 380	5.1	4.0	2	3440	DOL	9.0	49.6	0.75	0.78	0.78	0.82	0.88	0.89	0.0262	22.3				
3 x 460	5.1	4.0	2	3452	DOL	8.0	43.0	0.77	0.80	0.79	0.80	0.88	0.90	0.0262	22.3				
3 x 200-230	5.0	4.0	2	3463	DOL	14.0	89.5	0.76	0.80	0.80	0.66	0.79	0.91	0.0262	22.4				

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]	[m]	[°C]				
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)50.26.2.60G/M



TM05 9623 4213

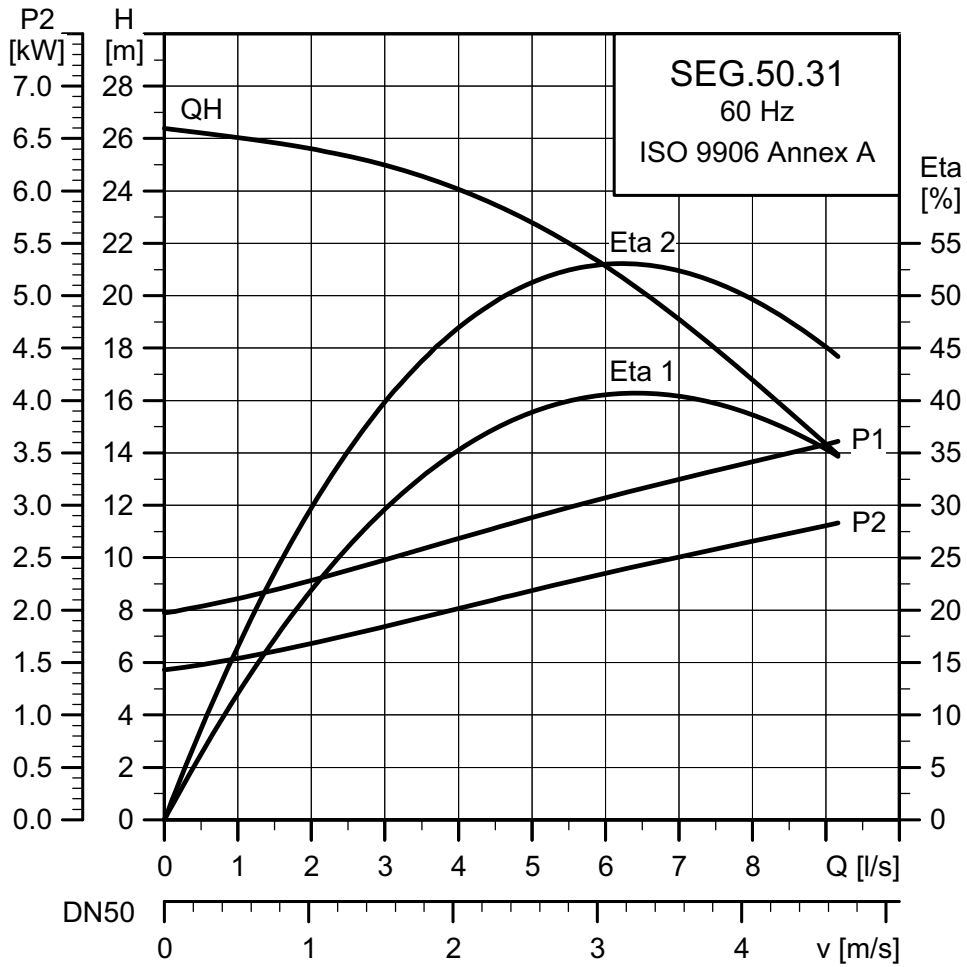
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N		η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
						[A]	[A]	1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380	3.4	2.6	2	3455	DOL	6.0	39	0.72	0.75	0.76	0.759	0.834	0.875	0.0160	18.2
3 x 200-230	3.4	2.6	2	3475	DOL	11.0	65	0.69	0.74	0.76	0.70	0.79	0.847	0.0160	18.2

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]	[m]	[°C]				
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)50.31.2.60G/H/M



TM05 9621 4213

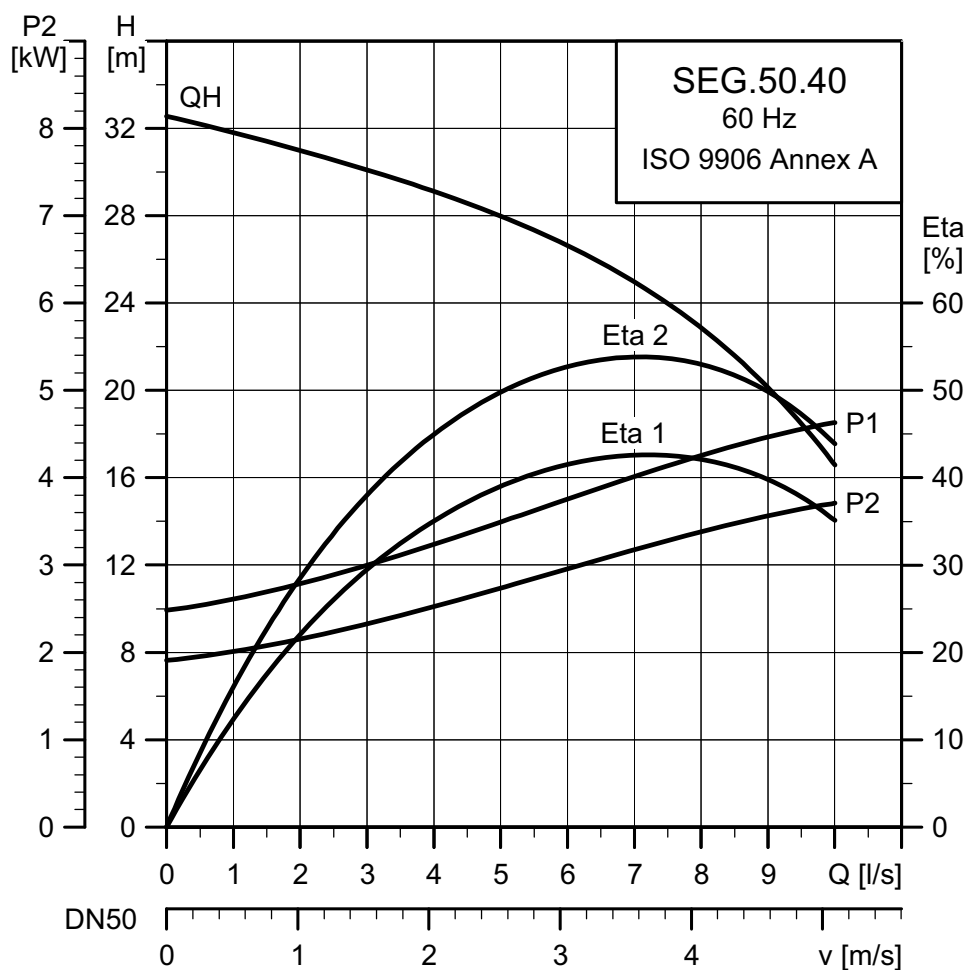
Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N [A]	I _{start} [A]	η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
								1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380	4.0	3.1	2	3482	DOL	7.0	49.6	0.72	0.76	0.78	0.77	0.85	0.88	0.0258	22.3
3 x 460	3.9	3.1	2	3490	DOL	6.0	43.0	0.75	0.78	0.80	0.75	0.83	0.88	0.0258	22.3
3 x 200-230	3.9	3.1	2	3498	DOL	12.0	89.5	0.72	0.77	0.80	0.70	0.80	0.85	0.0258	24.4

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]						
Semi-open	Grinder system	30	10	IP68	F	40	4-10

SEG.(K)50.40.2.60G/H/M



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Electrical data

Voltage [V]	P1 [kW]	P2 [kW]	Number of poles	min ⁻¹	Starting method	I _N [A]	I _{start} [A]	η _{motor} [%]			Cos φ			Moment of inertia [kg·m ²]	Breakdown torque M _{max.} [Nm]
								1/2	3/4	1/1	1/2	3/4	1/1		
3 x 380	5.1	4.0	2	3440	DOL	9.0	49.6	0.75	0.78	0.78	0.82	0.88	0.89	0.0262	22.3
3 x 460	5.1	4.0	2	3452	DOL	8.0	43.0	0.77	0.80	0.79	0.80	0.88	0.90	0.0262	22.3
3 x 200-230	5.0	4.0	2	3463	DOL	14.0	89.5	0.76	0.80	0.80	0.66	0.79	0.91	0.0262	22.4

Pump data

Impeller type	Max. solids size	Max. number of starts per hour	Max. installation depth	Enclosure class	Insulation class	Max. liquid temperature	pH
	[mm]		[m]			[°C]	
Semi-open	Grinder system	30	10	IP68	F	40	4-10

10. Dimensions and weights

SEG pumps

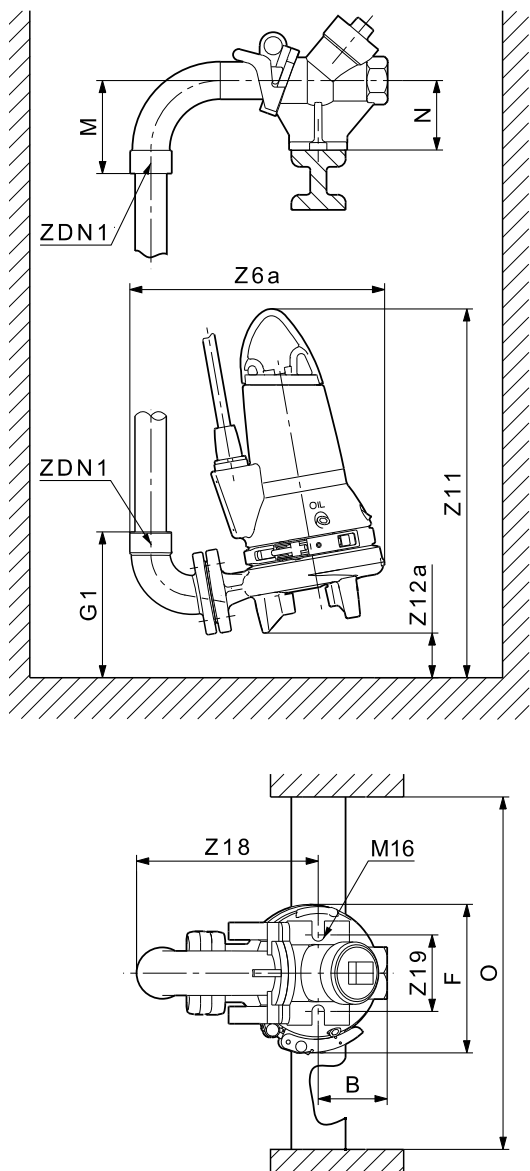


Fig. 14 Installation on hook-up auto-coupling

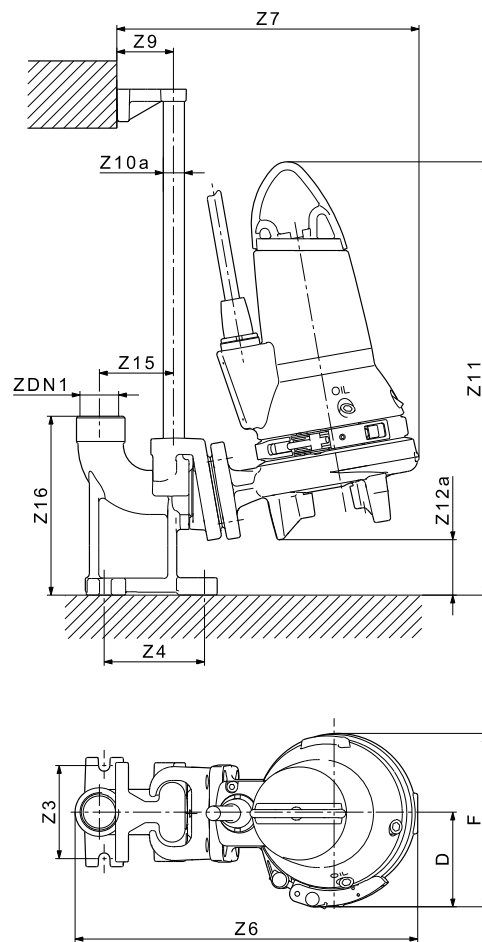


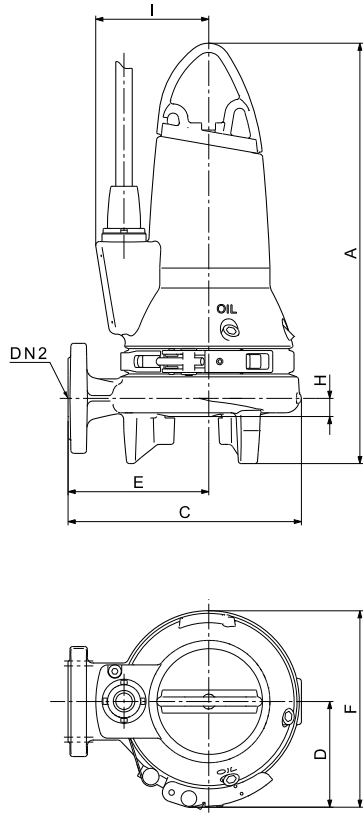
Fig. 15 Installation on auto-coupling

TM02 5386 1310

TM02 5388 1310

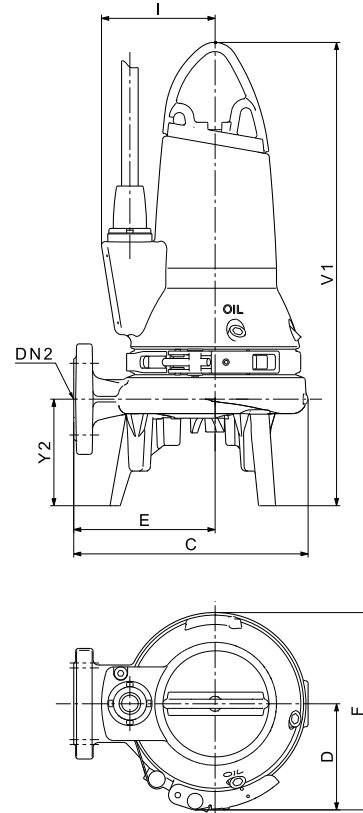
Power [kW]	A	B	D	F	G1	M	N	O	Z4	Z6
0.9 and 1.2	457	100	99	216	214	134	100		118	421
1.5 (1-phase)	472	100	99	216	214	134	100		118	421
1.5 (3-phase)	457	100	99	216	214	134	100	min. 600	118	421
2.6	526	100	119	256	215	134	100		118	462
3.1 and 4.0	566	100	119	256	215	134	100		118	462

Power [kW]	Z6a	Z7	Z9	Z10a	Z11	Z12a	Z15	Z16	Z18	Z19	ZDN1
0.9 and 1.2	362	371	70	3/4" - 1"	536	66	90	221	271	120	NPT 1 1/2
1.5 (1-phase)	362	371	70	3/4" - 1"	551	66	90	221	271	120	NPT 1 1/2
1.5 (3-phase)	362	371	70	3/4" - 1"	536	66	90	221	271	120	NPT 1 1/2
2.6	367	412	70	3/4" - 1"	619	80	90	221	271	120	NPT 1 1/2
3.1 and 4.0	367	412	70	3/4" - 1"	656	80	90	221	271	120	NPT 1 1/2



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Fig. 16 Free-standing installation



TM02 5974 1310

Fig. 17 Free-standing installation with foot extensions

Power [kW]	A	C	D	DN2	E	F	H	I	V1	Y2
0.9 and 1.2	457	252	99	DN 40	154	216	73	123	500	116
1.5 (1-phase)	472	252	99	DN 40	154	216	73	123	515	116
1.5 (3-phase)	457	252	99	DN 40	154	216	73	123	500	116
2.6	526	294	119	DN 40	173	256	60	143	582	115
3.1 and 4.0	566	294	119	DN 40	173	256	60	143	622	115

Weight tables

Pumps - DN 40 outlet flange	Weight [kg]
SEG.40.09.2.1.603	48.0
SEG.40.09.2.60G/H/M	46.0
SEG.40.12.2.1.603	48.0
SEG.40.12.2.60G/H/M	46.0
SEG.40.15.2.1.603	50.0
SEG.40.15.2.60G/H/M	48.0
SEG.40.26...	70.0
SEG.40.31...	81.0
SEG.40.40...	81.0

Pumps - DN 50 outlet flange	Weight [kg]
SEG.50.26...	70.0
SEG.50.31...	81.0
SEG.50.40...	81.0






Pumps - K40 outlet flange*	Weight [kg]
SEG.K40.09...	46.0
SEG.K40.12...	46.0
SEG.K40.15...	48.0
SEG.K40.26...	70.0
SEG.K40.31...	81.0
SEG.K40.40...	81.0

Pumps - K50 outlet flange*	Weight [kg]
SEG.K50.26...	70.0
SEG.K50.31...	81.0
SEG.K50.40...	81.0

* For USA and Canada.

11. Accessories

Installation systems for SEG pumps

No	Product	Description	Dimensions	Product number	SEG.40	SEG.50
					Standard	Standard
1		TM01 7173 1409 Lifting chain with shackle. With certificates. Galvanised steel.	3 m	96497466	•	•
			6 m	96497465	•	•
			10 m	96497464	•	
2		TM02 5980 4602 Auto-coupling system, complete, i.e. upper guide rail holder, bolts, nuts, gaskets, guide claw and base stand. Cast iron. Note! In installations with guide rails longer than 4 meters, we recommend using an intermediate guide rail bracket.	DN 40/ Rp 1 1/2	96076063	•	
			DN 50 well/PUST	97644490		•
			JIS/KS DN 50 well/PUST	98245794		•
3		TM05 5979 4602 Hookup auto-coupling, i.e. base stand, counterpart, bolts, nuts and gaskets. Cast iron. Hookup auto-coupling with extended bend, i.e. base stand, counterpart, bolts, nuts and gasket. Cast iron. Hookup auto-coupling, i.e. base stand. Cast iron.	DN 40/ Rp 1 1/2	96076089	•	
			DN 40/ Rp 1 1/2	97713859	•	
			Rp/Rp 2	96004442	•	
4		TM03 0716 0505 Three loose feet to be fitted to the pump housing of free-standing pumps.	-	96076196	•	•
5		TM05 7683 1513 Intermediate guide rail bracket (guide rails 4 metre and longer) Stainless steel.	-	96887609	•	•

SEG pumps

Level controllers

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

Controller ranges:

- Dedicated Controls, DC and DCD control cabinets
- LC and LCD level controllers
- CU 100 fusebox.

The DC, LC and CU 100 are designed for one-pump installations, and the DCD and LCD are designed for two-pump installations.

Dedicated Controls

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

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

Main components of the Dedicated Controls system:

- CU 362 control unit
- IO 351B module (general I/O module).

Dedicated Controls are available either as separate components or as control cabinets, i.e. DC and DCD.

The control system can be operated by the following:

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

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

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

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

The DC and DCD control cabinets can be fitted with various units:

- The CU 362 control unit, which is the "brain" of the Dedicated Controls system, is fitted in the cabinet front. The CU 362 can be fitted with one of the Grundfos CIM communication modules mentioned below, depending on the monitoring needs or the SCADA system:
 - The CIM 202 is a communication module used for the Modbus RTU fieldbus protocol.
 - The CIM 252 is a communication module used for GSM/GPRS communication. The CIM 252 establishes communication between the CU 362 and a SCADA system, thereby allowing the application to be monitored and controlled remotely. This module also offers SMS messaging, for example status and alarm messages.
 - The CIM 272 is a communication module for the Grundfos Remote Management system (GRM). The CIM 272 establishes communication between the CU 362 and the GRM, thereby allowing the application to be monitored and controlled remotely.
 - The CIM 050 GENIbus module is placed in a Grundfos product. The CIM 050 enables data transmission between a GENIbus network and a Grundfos product.
 - The CIM 500 is communication module between an industrial Ethernet network and a Grundfos product. The CIM 500 communicates with the CIU 902.
- The IO 351B module, which is a general I/O module. The IO 351B communicates with the CU 362 via GENIbus.
- The MP 204 motor protector (optional), which provides many electrical status values, for example voltage, current, power, insulation resistance and energy. The MP 204 offers better protection of the pumps than a conventional motor protection device.
- The CUE/VFD (optional), which is either a Grundfos variable-frequency converter or a general variable-frequency converter, also offers better pump protection and a more steady flow through the pit pipes, so the pumps are treated well and the energy consumption is kept at a minimum.

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



GrA6270

Fig. 18 Dedicated Controls control cabinet

LC and LCD

The Grundfos LC and LCD ranges of level controllers comprise three series with a total of six variants:

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

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

Features and benefits

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



Fig. 19 LCD 110 for two-pump installations

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

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

CU 100

The CU 100 fusebox is designed for the starting, operation and protection of small wastewater pumps.

The fusebox is available in several variants which can be used for the following:

- single-phase pumps (up to and including 9 A)
- three-phase pumps (up to and including 5 A).

The fusebox is also suitable for:

- start/stop by means of a float switch
- manual start/stop.

During manual operation, the pump is started and stopped with the on/off switch.

During automatic operation, the float switch will start and stop the pump.

For further information, see the installation and operating instructions for the CU 100 at www.Grundfos.com (WebCAPS).



Fig. 20 CU 100

TM04 2360 2408

TM02 6459 0703

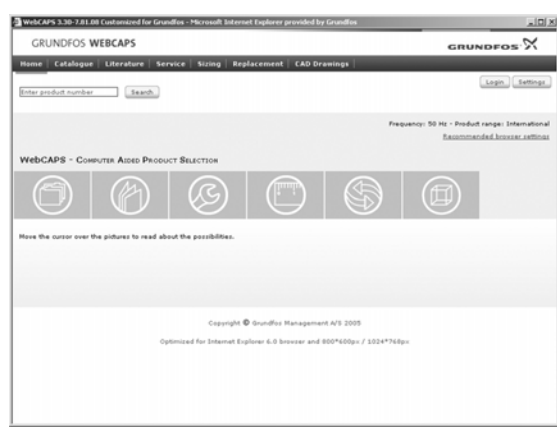
Name	DC	DCD	LC	LCD	CU 100
Application					
One pump	•	•	•	•	•
Two pumps		•		•	
Mixer	•	•			
Battery backup	•	•			
Level sensor					
Float switches	•	•	•	•	•
Electrodes			•	•	
Air bells			•	•	
Pressure sensor	•	•			
Ultrasonic sensor	•	•			
Analog level sensor with safety float switches	•	•			
Starting method					
Direct-on-line starting (DOL)	•	•	•	•	•
Star-delta starting	•	•	•	•	
Soft starter	•	•			
Basic functions					
Start and stop of pump(s)	•	•	•	•	•
Pump alternation		•		•	
High-level alarm	•	•	•	•	
Dry-running level alarm	•	•	•	•	
Flow measurement (calculated or via flow sensor)	•	•			
Pump statistics	•	•			
Conflicting levels alarm	•	•			
Advanced functions					
Start and stop delays	•	•	•	•	
Motor temperature sensor	•	•	•	•	
Test run/anti-seizing	•	•	•	•	
Daily emptying (emptying the pit once a day)	•	•			
Water-in-oil sensor input	•	•			
Communication					
SMS messaging	• ²⁾	• ²⁾	• ¹⁾	• ¹⁾	
SCADA communication (GSM/GPRS)	• ²⁾	• ²⁾			
User interface					
Level indication	•	•	•	•	
Graphic display	•	•			
PC Tool WW Controls	•	•			

¹⁾ If an SMS module is fitted.

²⁾ If a CIM 252 GSM/GPRS module is fitted in the CU 362.

12. Further product information

WebCAPS

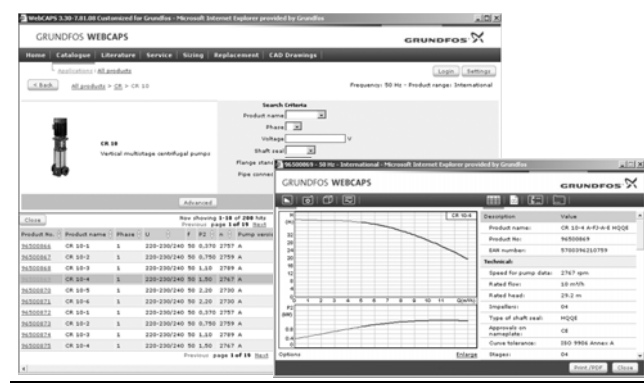


WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

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

Information in WebCAPS is divided into six sections:

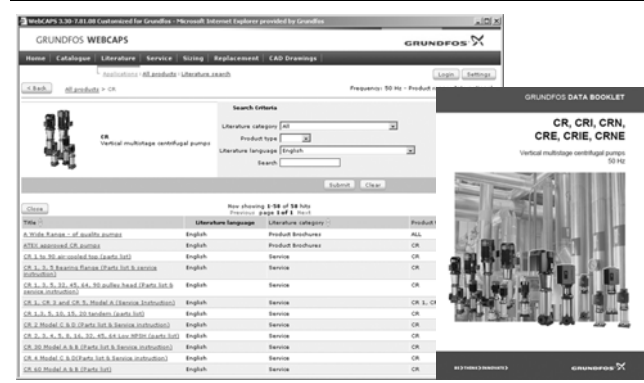
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

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

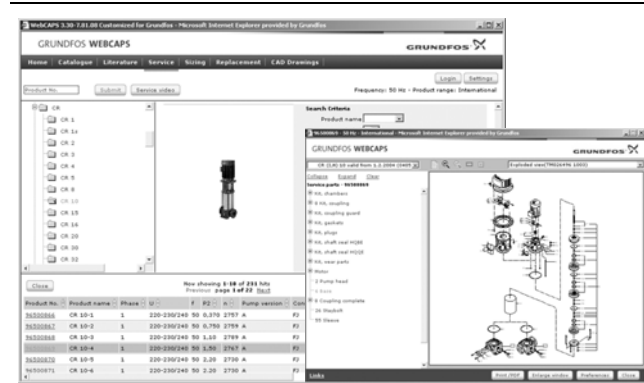
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

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

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



Service

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

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



Sizing

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

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



Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.

The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

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



CAD drawings

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

These formats are available in WebCAPS:

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



WinCAPS



Fig. 21 WinCAPS DVD

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

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

WinCAPS is available on DVD and updated once a year.

GO CAPS

Mobile solution for professionals on the GO!



CAPS functionality on the mobile workplace.



Subject to alterations.

be think innovate

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