

DP, EF, SL1, SLV, standard and AUTO_{ADAPT} pumps

0.6 to 2.6 kW

50 Hz



| | |
|-------------------------------------------------------------------|-----------|
| 1. Introduction | 4 |
| Introduction | 4 |
| Applications | 4 |
| Design features | 4 |
| 2. Identification | 6 |
| Type keys | 6 |
| Nameplate | 7 |
| 3. Selection of product | 8 |
| Ordering a pump | 8 |
| Explosion-proof version | 8 |
| Selection of AUTO _{ADAPT} applications | 9 |
| 4. Performance range | 10 |
| Performance overview | 10 |
| 5. Product range | 11 |
| Standard pumps | 11 |
| Explosion-proof pumps | 14 |
| 6. Variants | 18 |
| List of variants | 18 |
| 7. Construction | 19 |
| Material specification, DP and EF, standard pumps | 19 |
| Material specification, DP 10 and EF, AUTO _{ADAPT} pumps | 26 |
| Material specification, SL1 and SLV, standard pumps | 33 |
| Material specification, SL1 and SLV, AUTO _{ADAPT} pumps | 38 |
| 8. Product description | 43 |
| Features | 43 |
| Operating conditions | 44 |
| Pumped liquids | 44 |
| Motor range | 44 |
| Frequency converter operation | 44 |
| Approvals | 45 |
| Wiring diagrams | 46 |
| 9. Curve charts | 47 |
| Curve conditions | 48 |
| Performance tests | 48 |
| Certificates | 48 |
| Witness test | 48 |
| 10. Performance curves and technical data | 49 |
| DP 10.50.09.(A)/(E).(Ex).2.1.502 | 49 |
| DP 10.50.09.(A)/(E).(Ex).2.50B | 50 |
| DP 10.50.15.(A)/(E).(Ex).2.50B | 51 |
| DP 10.65.26.(A)/(E).(Ex).2.50B | 52 |
| EF 30.50.06.(A)/(E).(Ex).2.1.502 | 53 |
| EF 30.50.06.(A)/(E).(Ex).2.50B | 54 |
| EF 30.50.09.(A)/(E).(Ex).2.1.502 | 55 |
| EF 30.50.09.(A)/(E).(Ex).2.50B | 56 |
| EF 30.50.11.(A)/(E).(Ex).2.1.502 | 57 |
| EF 30.50.11.(A)/(E).(Ex).2.50B | 58 |
| EF 30.50.15.(A)/(E).(Ex).2.50B | 59 |
| SL1.50.65.09.(A)/(E).(Ex).2.1.502 | 60 |
| SL1.50.65.09.(A)/(E).(Ex).2.50B/C | 61 |
| SL1.50.65.11.(A)/(E).(Ex).2.1.502 | 62 |
| SL1.50.65.11.(A)/(E).(Ex).2.50B/C | 63 |
| SL1.50.65.15.(A)/(E).(Ex).2.50B/C | 64 |
| SLV.65.65.09.(A)/(E).(Ex).2.1.502 | 65 |
| SLV.65.65.09.(A)/(E).(Ex).2.50B | 66 |
| SLV.65.65.11.(A)/(E).(Ex).2.1.502 | 67 |

| | |
|------------------------------------------|-----------|
| SLV.65.65.11.(A)/(E).(Ex).2.50B | 68 |
| SLV.65.65.15.(A)/(E).(Ex).2.50B | 69 |
| 11. Dimensions | 70 |
| DP and EF | 70 |
| SL1 and SLV | 74 |
| 12. Accessories | 77 |
| 13. Grundfos Product Center | 85 |

1. Introduction

Introduction

This data booklet describes the small Grundfos DP, EF, SL1 and SLV wastewater pumps, both standard and AUTO_{ADAPT} versions.

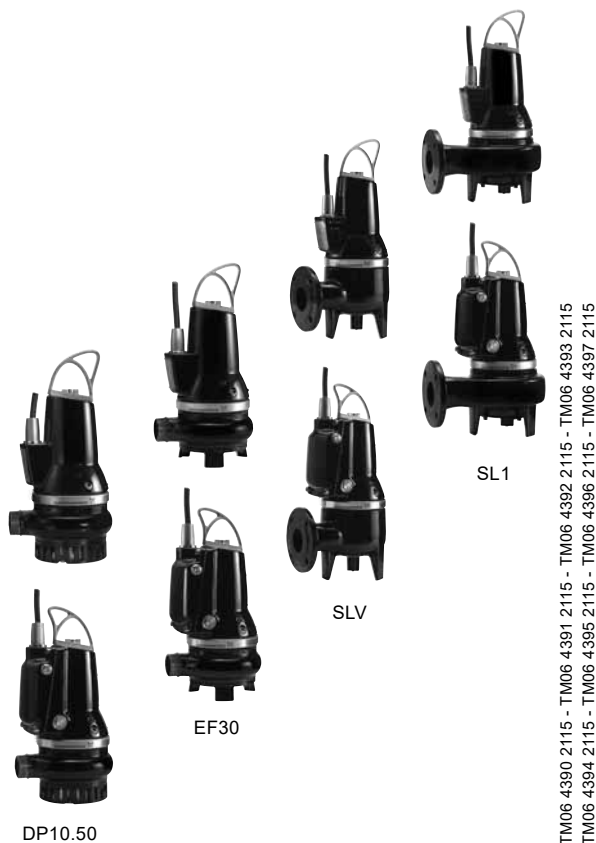


Fig. 1 DP, EF, SL1, SLV standard and AUTO_{ADAPT} pumps

The pumps with SuperVortex (free-flow) and single-channel impeller are specifically designed for pumping sewage and wastewater in a wide range of municipal, private and industrial applications.

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

The pumps are available with motors between 0.6 - 2.6 kW.

The nominal diameter of the pump outlet is 50 mm (Rp 2) or DN 65 for DP.10.65.26.

The pumps are available for:

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

Applications

Typical liquids transferred:

- municipal wastewater
- wastewater with high content of fibres (SuperVortex impeller)
- drainage water and groundwater
- domestic wastewater
- industrial wastewater
- process and cooling water.

The pumps are ideal for the pumping of the above liquids from:

- municipal network pumping stations
- public buildings
- blocks of flats
- factories
- industry.

Design features

All pumps have the following features:

- cable connection to motor by stainless steel cable plug
- watertight cable entry of corrosion-resistant barrier from polyamide cast inside the cable plug housing
- power supply cable incorporating wires for thermal sensors in the motor windings
- no additional cable required for sensors
- heavy-duty bearings are lubricated in the factory, no further lubrication needed.
- built for frequency converter operation
- smooth pump surface preventing dirt and impurities from sticking
- self-cleaning channel impeller with long vanes reducing the risk of jamming or clogging
- SuperVortex impeller with high pumping efficiency and less downtime
- explosion-proof motors for potentially explosive environments
- motor insulation class F (155 °C).
- enclosure class IP68 with thermal sensor in each phase

Service-friendly design:

- clamp connection between motor and pump
- cartridge shaft seal.

Additional DP, EF, SL1, SLV AUTO_{ADAPT} features

The AUTO_{ADAPT} pumps incorporate control functions, level sensors and electro-mechanical motor protection that are traditionally separated from the pump. This allows the AUTO_{ADAPT} pumps to operate entirely on their own, even if there are several AUTO_{ADAPT} pumps in the same pit. The pumps need to be connected to the main power supply through a switch.

The AUTO_{ADAPT} pumps offer the following benefits:

- built-in level and dry-running sensors
- built-in motor protection
- pump alternation.
If several AUTO_{ADAPT} pumps are installed in the same pit, the control logic incorporated in the pump ensures that the load is distributed evenly among the pumps over time.
- alarm relay output.
The pump incorporates an alarm relay output. NC and NO are available and can be used as required, for example for acoustic or visual alarms.

| Alarm | Alarm log | Signal relay |
|----------------------------------|-----------|--------------|
| Overvoltage | • | • |
| Undervoltage | • | • |
| Overload | • | • |
| Blocked motor/pump | • | • |
| Dry running | • | |
| Motor temperature | • | • |
| Electronics temperature (Pt1000) | • | • |
| Thermal switch 1 in motor | • | • |
| Thermal switch 2 in motor | • | • |
| Phase sequence reversed | • | • |
| High-level alarm | • | • |
| Sensor fault | • | • |

- the pump does not start unless the phase sequence is correct
- self-calibration after each pump cycle
- anti-seizing function.
The anti-seizing function starts the pump at programmed intervals to prevent the impeller from seizing up. This function overrules the dry-running sensor of non-Ex versions.
- random start delay.
This function ensures an even mains load when several pumps are started at the same time after an unintentional power cut.
- automatic phase sequence detection (three-phase)
- starting torque boost for additional starting torque (single-phase)
- after-run function (foam draining).
The after-run function can be used at programmed intervals if there is a risk of a floating layer.

The Grundfos Communication Interface Unit (CIU) enables data communication by open and interoperable networks such as Profibus, DP, Modbus RTU, LONWorks, BACnet MS/TP®, PROFINET IO, Modbus TCP, GSM/GPRS (wireless), or using Grundfos Remote Management (GRM). CIU can be permanently or temporarily connected to change the default settings, make further settings or read the alarm log and operating parameters.

2. Identification

Type keys

The type keys cover the entire ranges of Grundfos DP, EF, SL1, SLV standard and AUTO_{ADAPT} wastewater pumps. Each pump can be identified by the type key.

DP and EF, standard

Example: **DP10.50.09.Ex.2.1.502**

| Code | Explanation | Designation |
|------|---------------------------------------------|------------------------------------|
| DP | Grundfos drainage pump | Pump type |
| EF | Grundfos effluent pump | |
| 10 | Maximum spherical impeller clearance [mm] | Impeller clearance |
| 50 | Nominal diameter of outlet port [mm] | Pump outlet |
| 09 | Code number from type designation / 10 [kW] | Outlet power |
| [] | Standard | |
| A | Connected to a CU 100 control box | Control box |
| [] | Standard pump | |
| Ex | Explosion-proof pump | Pump version |
| 2 | 2-pole | Number of poles |
| 1 | Single-phase motor | Number of phases |
| [] | Three-phase motor | |
| 5 | 50 Hz | Frequency |
| 02 | 230 V, direct-on-line starting | Supply voltage and starting method |
| 0B | 400-415 V, direct-on-line starting | |
| 0C | 230-240 V, direct-on-line starting | |
| Z | Custom-built pump | Customisation |

DP and EF, AUTO_{ADAPT}

Example: **DP10.50.15.E.Ex.2.1.502**

| Code | Explanation | Designation |
|------|---------------------------------------------------------|------------------------------------|
| DP | Grundfos drainage pump | Pump type |
| EF | Grundfos effluent pump | |
| 10 | Maximum spherical impeller clearance [mm] | Impeller clearance |
| 50 | Nominal diameter of outlet port [mm] | Pump outlet |
| 15 | Code number from type designation / 10 [kW] | Outlet power |
| [] | Standard | |
| E | Electronic version with AUTO _{ADAPT} functions | Sensor version |
| [] | Standard pump | Pump version |
| Ex | Explosion-proof pump | |
| 2 | 2-pole | Number of poles |
| 1 | Single-phase motor | Number of phases |
| [] | Three-phase motor | |
| 5 | 50 Hz | Frequency |
| 02 | 230 V, direct-on-line starting | Supply voltage and starting method |
| 0B | 400-415 V, direct-on-line starting | |
| 0C | 230-240 V, direct-on-line starting | |
| Z | Custom-built pump | Customisation |

SL1 and SLV, standard

Example: **SLV.65.65.15.Ex.2.50B**

| Code | Explanation | Designation |
|------|---------------------------------------------|------------------------------------|
| SL | Grundfos sewage and wastewater pump | Pump type |
| 1 | Single-channel impeller | Impeller type |
| V | SuperVortex (free-flow) impeller | |
| 65 | Maximum solid size [mm] | Pump passage |
| 65 | Nominal diameter of outlet port [mm] | Pump outlet |
| 15 | Code number from type designation / 10 [kW] | Outlet power |
| [] | Standard | |
| A | Connected to a CU 100 control box | Control box |
| [] | Standard pump | |
| Ex | Explosion-proof pump | Pump version |
| 2 | 2-pole | Number of poles |
| 1 | Single-phase motor | Number of phases |
| [] | Three-phase motor | |
| 5 | 50 Hz | Frequency |
| 02 | 230 V, direct-on-line starting | Supply voltage and starting method |
| 0B | 400-415 V, direct-on-line starting | |
| 0C | 230-240 V, direct-on-line starting | |
| Z | Custom-built pump | Customisation |

Note: The pump types are not available in all variants.

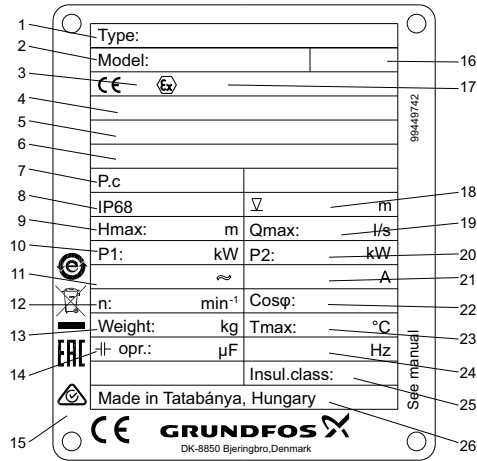
SL1 and SLV, AUTO_{ADAPT}

Example: **SL1.50.65.11.E.Ex.2.1.502**

| Code | Explanation | Designation |
|------|---------------------------------------------------------|------------------------------------|
| SL | Grundfos sewage and wastewater pump | Pump type |
| 1 | Single-channel impeller | Impeller type |
| V | SuperVortex (free-flow) impeller | |
| 50 | Maximum spherical impeller clearance [mm] | Impeller clearance |
| 65 | Nominal diameter of outlet port [mm] | Pump outlet |
| 11 | Code number from type designation / 10 [kW] | Outlet power |
| [] | Standard | |
| E | Electronic version with AUTO _{ADAPT} functions | Sensor version |
| [] | Standard pump | Pump version |
| Ex | Explosion-proof pump | |
| 2 | 2-pole | Number of poles |
| 1 | Single-phase motor | Number of phases |
| [] | Three-phase motor | |
| 5 | 50 Hz | Frequency |
| 02 | 230 V, direct-on-line starting | Supply voltage and starting method |
| 0B | 400-415 V, direct-on-line starting | |
| Z | Custom-built pump | |
| Z | Custom-built pump | Customisation |

Note: The pump types are not available in all variants.

Nameplate



TMO5 8872 28 13

Fig. 2 DP, EF, SL1 and SLV pumps

| Pos. | Description |
|------|-------------------------------------|
| 1 | Type designation |
| 2 | Product number |
| 3 | Approval |
| 4 | ATEX certificate no* |
| 5 | IEC Ex description* |
| 6 | IEC Ex certificate no* |
| 7 | Production code (year and week) |
| 8 | Enclosure class to IEC |
| 9 | Maximum head [m] |
| 10 | Rated input power [kW] |
| 11 | Rated voltage |
| 12 | Speed [min ⁻¹] |
| 13 | Net weight [kg] |
| 14 | EAC approval** |
| 15 | Run capacitor [μF] |
| 16 | RCM logo*** |
| 17 | CE mark |
| 18 | Declaration of performance |
| 19 | Ex description |
| 20 | Maximum installation depth [m] |
| 21 | Maximum flow [l/s] |
| 22 | Rated power output [kW] |
| 23 | Rated current [A] |
| 24 | Cos φ, 1/1 load |
| 25 | Maximum liquid temperature [°C] |
| 26 | Frequency [Hz] |
| 27 | Insulation class / temperature rise |
| 28 | Production country |

* Only explosion-proof pumps.

** For Russia only.

*** For Australia only.

3. Selection of product

Ordering a pump

Prior ordering a pump, take the following into consideration:

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

Pump

Use the table below to identify the pump type that best meets your needs.

| Pumped liquid | DP | EF | SL1 | SLV |
|---------------------------------------------------------------------|----|----|-----|-----|
| Storm water | | | • | • |
| Groundwater | • | • | • | • |
| Drainage and surface water | • | • | • | • |
| Drainage and surface water with small impurities | • | • | • | • |
| Abrasive surface water | • | • | • | • |
| Wastewater with long fibres, e.g. from laundries | | • | • | • |
| Wastewater from commercial buildings without discharge from toilets | | • | • | • |
| Domestic wastewater with discharge from toilets | | | • | • |
| Industrial process water with solids or fibres | | | | • |
| Industrial process water with solids | | • | • | • |
| Industrial process water without solids and fibres | • | • | • | |

Once the pump type is selected, the most suitable pump can be identified. See sections [Product range](#), pages 11 to 17, and [Type keys](#), pages 6 to 7.

The list below shows a detailed description of an ordered product:

| Pump | Product number |
|-----------------------|----------------|
| SLV.65.65.15.Ex.2.50B | 96104193 |

- Pump as specified in the type key.
- 10 metres of cable.
- Paint: NCS 9000N (black), gloss code 30, thickness 100 µm.
- Three thermal switches, one in each phase, or three thermal sensors (PTC).
- Tested according to DIN 9906:2012, grade 3B.

See section [Performance curves and technical data](#), pages 49 to 69 for selection of a pump.

Note: Pump-specific data can also be found on www.grundfos.com (Grundfos Product Center) by entering the product number 96104193.

For further information about Grundfos Product Center, see page 85.

Custom-built variants

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

Note: Make sure to have at least 3 metres of cable above the maximum liquid level. If this is not possible with the standard cable, Grundfos offers variants with longer cables. Using cable extensions is not recommended..

Accessories

Depending on installation type and pump variant, accessories may be required. See section [Accessories](#), page 77.

Note: Ordered accessories are not fitted from factory.

Controller

The following controllers are available:

DP, EF, SL1 and SLV, standard

- Dedicated Controls. See page 80.
- LC and LCD 107 operated by air bells. See page 81.
- LC and LCD 108 operated by float switches. See page 81.
- LC and LCD 110 operated by electrodes. See page 81.
- CU 100. See page 82.

DP, EF, SL1 and SLV, AUTO_{ADAPT}

- Built-in controller. See page 5.
- Grundfos CIU unit. See page 83.
- Grundfos GO remote control. See page 83.

Explosion-proof version

All pump ranges are available in explosion-proof versions. See section [Approvals](#) on page 45.

Selection of AUTO_{ADAPT} applications

Pump(s) without communication unit and external sensor

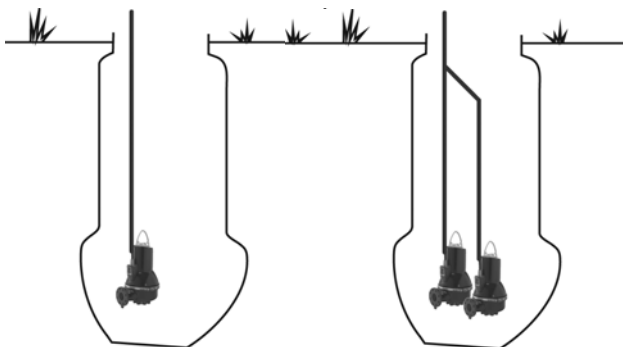


Fig. 3 Application with one or two AUTO_{ADAPT} pumps

Application with one or two AUTO_{ADAPT} pumps without communication unit and external sensor:

- integrated alarm relay
- no need for change in settings or data communication.

TM06 4350 2015 - TM06 4354 2015

Pump(s) with CIU unit and level switch - Case 1

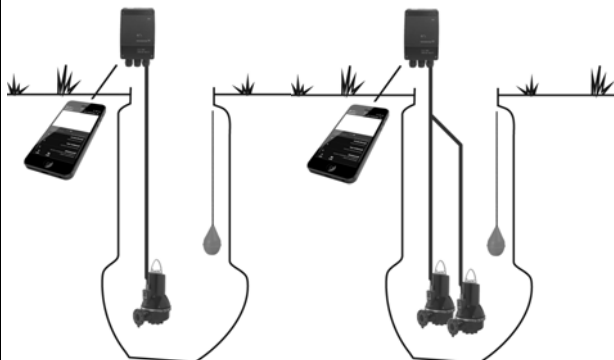


Fig. 4 Application with one or two AUTO_{ADAPT} pumps with CIU unit and level switch - Case 1

Application with one or two AUTO_{ADAPT} pumps with one level switch and one CIU for data communication:

- for high level alarm indication only
- CIU units:
 - CIU 902 or
 - CIU 902 + CIM 060.

Note: Changes in settings are implemented by infra red- or radio communication via Grundfos GO.

TM06 4352 2015 - TM06 4356 2015

Pump(s) with CIU unit

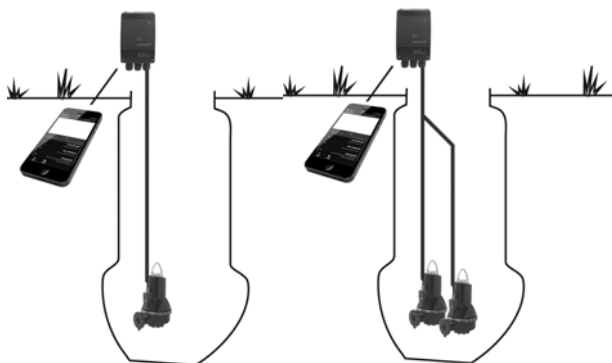


Fig. 5 Application with one or two AUTO_{ADAPT} pumps with CIU unit

Application with one or two AUTO_{ADAPT} pumps with 1 CIU unit for data communication:

- if data change in settings is needed
- CIU units:
 - CIU 902 or
 - CIU 902 + CIM 060.

Note: Changes in settings are implemented by infra red- or radio communication via Grundfos GO.

TM06 4351 2015 - TM06 4355 2015

Pump(s) with CIU unit and level switch - Case 2

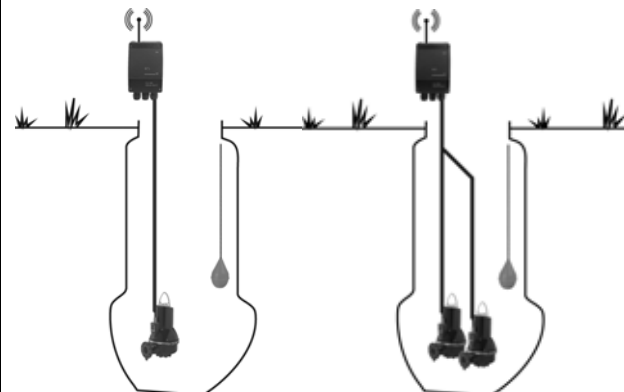


Fig. 6 Application with one or two AUTO_{ADAPT} pumps with CIU unit and level switch - Case 2

Application with one or two AUTO_{ADAPT} pump with one level switch and one CIU for data communication:

- if high level alarm indication and/or data communication is needed
- CIU units:
 - CIU 209 + CIM 200 for wired Modbus RTU
 - CIU 902 + CIM 150 PROFIBUS D
 - CIU 902 + CIM 260 for 3G/4G
 - CIU 902 + CIM 280 for GIC/GRM and 3G/4G.

TM06 4353 2015 - TM06 4357 2015

4. Performance range

Performance overview

Figure 7 shows the performance range of DP, EF, SL1 and SLV standard and AUTO_{ADAPT} pumps, including explosion-proof versions.

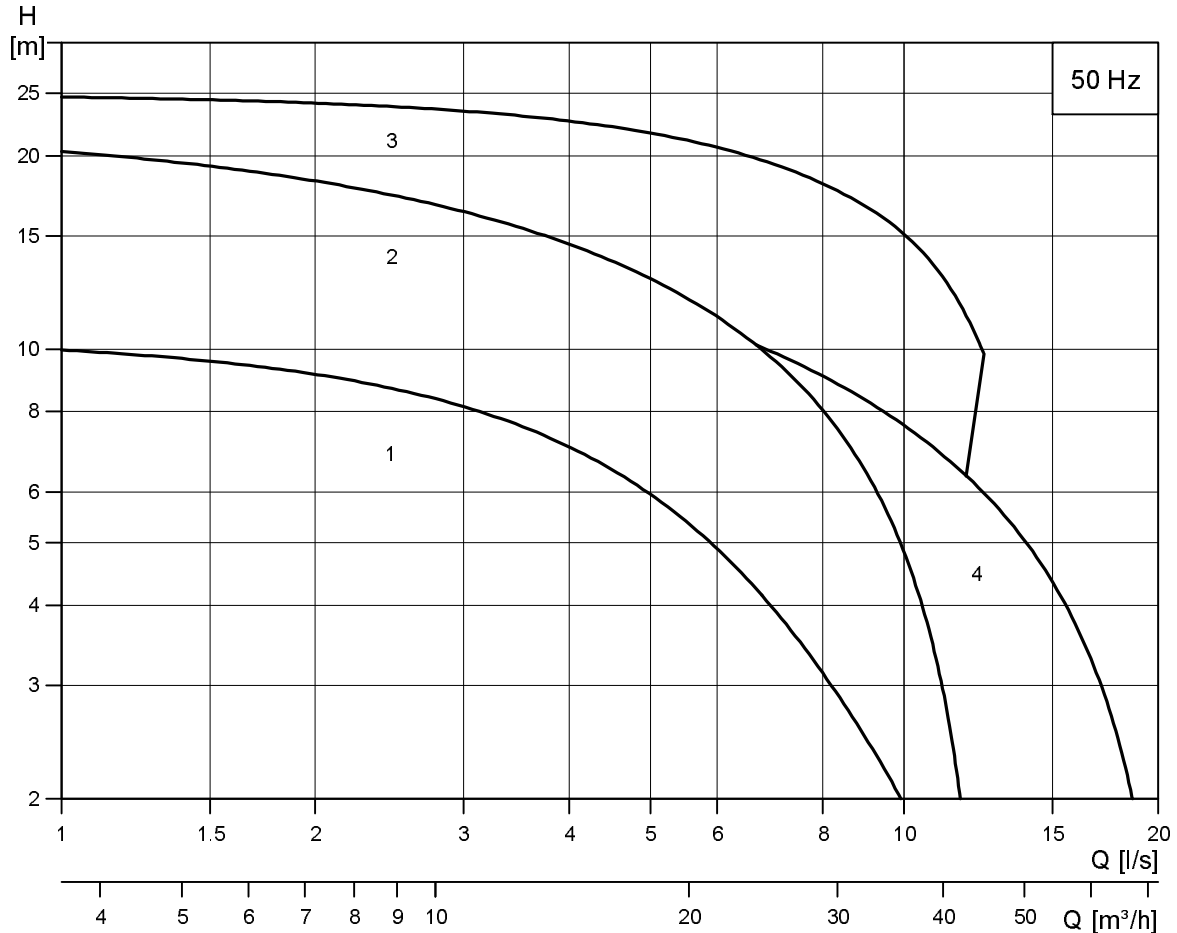


Fig. 7 Performance range

| Pump type | Curve chart on page |
|-------------------------------------|---------------------|
| DP10.50.09.(A)/(E).(Ex).2.1.502 | 49 |
| 3 DP10.50.09.(A)/(E).(Ex).2.50B | 50 |
| DP10.50.15.(A)/(E).(Ex).2.50B | 51 |
| DP10.65.26.(A)/(E).(Ex).2.50B | 52 |
| EF30.50.06.(A)/(E).(Ex).2.1.502 | 53 |
| EF30.50.06.(A)/(E).(Ex).2.50B | 54 |
| EF30.50.09.(A)/(E).(Ex).2.1.502 | 55 |
| 2 EF30.50.09.(A)/(E).(Ex).2.50B | 56 |
| EF30.50.11.(A)/(E).(Ex).2.1.502 | 57 |
| EF30.50.11.(A)/(E).(Ex).2.50B | 58 |
| EF30.50.15.(A)/(E).(Ex).2.50B | 59 |
| SL1.50.65.09.(A)/(E).(Ex).2.1.502 | 60 |
| SL1.50.65.09.(A)/(E).(Ex).2.50B/C | 61 |
| 4 SL1.50.65.11.(A)/(E).(Ex).2.1.502 | 62 |
| SL1.50.65.11.(A)/(E).(Ex).2.50B/C | 63 |
| SL1.50.65.15.(A)/(E).(Ex).2.50B/C | 64 |
| SLV.65.65.09.(A)/(E).(Ex).2.1.502 | 65 |
| SLV.65.65.09.(A)/(E).(Ex).2.502B | 66 |
| 1 SLV.65.65.11.(A)/(E).(Ex).2.1.502 | 67 |
| SLV.65.65.11.(A)/(E).(Ex).2.50B | 68 |
| SLV.65.65.15.(A)/(E).(Ex).2.50B | 69 |

5. Product range

Standard pumps

DP10, standard

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|----------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.2.1.502 | 96104200 | 1 × 230 V D | 10 | Thermal switch |
| DP10.50.09.A.2.1.502 | 96104202 | 1 × 230 V D | 10 | Thermal switch |
| DP10.50.09.2.50B | 96104204 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.09.A.2.50B | 96104206 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.2.50B | 96104208 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.A.2.50B | 96104210 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.2.50B | 96106542 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.A.2.50B | 96106544 | 3 × 400-415 V Y | 10 | Thermal switch |

DP10, AUTO_{ADAPT}

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|----------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.E.2.1.502 | 96877476 | 1 × 230 V | 10 | Thermal switch |
| DP10.50.09.E.2.50B | 96877478 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.E.2.50B | 96877503 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.E.2.50B | 96877506 | 3 × 400-415 V Y | 10 | Thermal switch |

DP10, standard, Norway

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|--------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.2.50C | 96566074 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.50.09.A.2.50C | 96566075 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.50.15.2.50C | 96566078 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.50.15.A.2.50C | 96566079 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.65.26.2.50C | 96566081 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.65.26.A.2.50C | 96566082 | 3 × 230-240 V D | 10 | Thermal switch |

EF30, standard

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|----------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| EF30.50.06.2.1.502 | 96106546 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.06.A.2.1.502 | 96106548 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.06.2.50B | 96106550 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.06.A.2.50B | 96106552 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.09.2.1.502 | 96115111 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.09.A.2.1.502 | 96115113 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.09.2.50B | 96115115 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.09.A.2.50B | 96115117 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.11.2.1.502 | 96106554 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.11.A.2.1.502 | 96106556 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.11.2.50B | 96106558 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.11.A.2.50B | 96106560 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.15.2.50B | 96104196 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.15.A.2.50B | 96104198 | 3 × 400-415 V Y | 10 | Thermal switch |

EF30, AUTO_{ADAPT}

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|----------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| EF30.50.06.E.2.1.502 | 96877508 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.06.E.2.50B | 96877510 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.09.E.2.1.502 | 96877515 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.09.E.2.50B | 96877516 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.11.E.2.1.502 | 96875101 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.11.E.2.50B | 96878445 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.15.E.2.50B | 96878448 | 3 × 400-415 V Y | 10 | Thermal switch |

EF30, standard, Norway

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|--------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| EF30.50.06.2.50C | 96566084 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.06.A.2.50C | 96566086 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.09.2.50C | 96566088 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.11.2.50C | 96566091 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.11.A.2.50C | 96566092 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.15.2.50C | 96566094 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.15.A.2.50C | 96566095 | 3 × 230-240 V D | 10 | Thermal switch |

SL1, standard

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|------------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SL1.50.65.09.2.1.502 | 96106562 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.09.2.50C | 96106567 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.09.2.50B | 96106566 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.09.A.2.1.502 | 96106564 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.09.A.2.50C | 96106571 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.09.A.2.50B | 96106570 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.2.1.502 | 96104125 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.11.2.50C | 96104130 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.2.50B | 96104129 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.A.2.1.502 | 96104127 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.11.A.2.50C | 96104134 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.A.2.50B | 96104133 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.2.50C | 96104119 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.2.50B | 96104118 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.A.2.50C | 96104123 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.A.2.50B | 96104122 | 3 × 400-415 V Y | 10 | Thermal switch |

SL1, AUTO_{ADAPT}

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|------------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SL1.50.65.09.E.2.1.502 | 96878450 | 1 × 230 V | 10 | Thermal switch |
| SL1.50.65.09.E.2.50B | 96878451 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.E.2.1.502 | 96878454 | 1 × 230 V | 10 | Thermal switch |
| SL1.50.65.11.E.2.50B | 96878455 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.E.2.50B | 96878458 | 3 × 400-415 V Y | 10 | Thermal switch |

SL1, standard, Norway

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|----------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SL1.50.65.09.2.50C | 96106567 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.09.A.2.50C | 96106571 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.2.50C | 96104130 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.A.2.50C | 96104134 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.2.50C | 96104119 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.A.2.50C | 96104123 | 3 × 230-240 V D | 10 | Thermal switch |

SLV, standard

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|-----------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SLV65.65.09.2.1.502 | 96115119 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.09.2.50B | 96115123 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.09.A.2.1.502 | 96115121 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.09.A.2.50B | 96115125 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.11.2.1.502 | 96106573 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.11.2.50B | 96106577 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.11.A.2.1.502 | 96106575 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.11.A.2.50B | 96106579 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.15.2.50B | 96104192 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.15.A.2.50B | 96104194 | 3 × 400-415 V Y | 10 | Thermal switch |

SLV, AUTO_{ADAPT}

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|-----------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SLV65.65.09.E.2.1.502 | 96878474 | 1 × 230 V | 10 | Thermal switch |
| SLV65.65.09.E.2.50B | 96878475 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.11.E.2.1.502 | 96882685 | 1 × 230 V | 10 | Thermal switch |
| SLV65.65.11.E.2.50B | 96882686 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.15.E.2.50B | 96878503 | 3 × 400-415 V Y | 10 | Thermal switch |

Explosion-proof pumps

DP10, Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-----------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.Ex.2.1.502 | 96104201 | 1 × 230 V D | 10 | Thermal switch |
| DP10.50.09.Ex.2.50B | 96104205 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.Ex.2.50B | 96104209 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.Ex.2.50B | 96106543 | 3 × 400-415 V Y | 10 | Thermal switch |

DP10, AUTO_{ADAPT} Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-------------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.E.Ex.2.1.502 | 96877479 | 1 × 230 V | 10 | Thermal switch |
| DP10.50.09.E.Ex.2.50B | 96877502 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.E.Ex.2.50B | 96877504 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.E.Ex.2.50B | 96877507 | 3 × 400-415 V Y | 10 | Thermal switch |

DP10, Ex, Norway

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|---------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.Ex.2.50C | 96566076 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.50.15.Ex.2.50C | 96566080 | 3 × 230-240 V D | 10 | Thermal switch |
| DP10.65.26.Ex.2.50C | 96566083 | 3 × 230-240 V D | 10 | Thermal switch |

DP10, Ex, Australia

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-----------------------|----------------|-----------------|---------------------|--------------------|
| DP10.50.09.Ex.2.1.502 | 96104203 | 1 × 230 V D | 10 | Thermal switch |
| DP10.50.09.Ex.2.50B | 96104207 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.50.15.Ex.2.50B | 96104211 | 3 × 400-415 V Y | 10 | Thermal switch |
| DP10.65.26.Ex.2.50B | 96106545 | 3 × 400-415 V Y | 10 | Thermal switch |

EF30, Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-----------------------|----------------|-----------------|---------------------|--------------------|
| EF30.50.06.Ex.2.1.502 | 96106547 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.06.Ex.2.50B | 96106551 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.09.Ex.2.1.502 | 96115112 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.09.Ex.2.50B | 96115116 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.11.Ex.2.1.502 | 96106555 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.11.Ex.2.50B | 96106559 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.15.Ex.2.50B | 96104197 | 3 × 400-415 V Y | 10 | Thermal switch |

EF30, AUTO_{ADAPT} Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-------------------------|----------------|-----------------|---------------------|--------------------|
| EF30.50.06.E.Ex.2.1.502 | 96877512 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.06.E.Ex.2.50B | 96877514 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.09.E.Ex.2.1.502 | 96877518 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.09.E.Ex.2.50B | 96877532 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.11.E.Ex.2.1.502 | 96878446 | 1 × 230 V | 10 | Thermal switch |
| EF30.50.11.E.Ex.2.50B | 96878447 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.15.E.Ex.2.50B | 96878449 | 3 × 400-415 V Y | 10 | Thermal switch |

EF30, Ex, Norway

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|---------------------|----------------|-----------------|---------------------|--------------------|
| EF30.50.06.Ex.2.50C | 96566087 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.09.Ex.2.50C | 96566090 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.11.Ex.2.50C | 96566093 | 3 × 230-240 V D | 10 | Thermal switch |
| EF30.50.15.Ex.2.50C | 96566096 | 3 × 230-240 V D | 10 | Thermal switch |

EF30, Ex, Australia

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-----------------------|----------------|-----------------|---------------------|--------------------|
| EF30.50.Ex.06.2.1.502 | 96106549 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.Ex.06.2.50B | 96106553 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.Ex.09.2.1.502 | 96115114 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.Ex.09.2.50B | 96115118 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.Ex.11.2.1.502 | 96106557 | 1 × 230 V D | 10 | Thermal switch |
| EF30.50.Ex.11.2.50B | 96106561 | 3 × 400-415 V Y | 10 | Thermal switch |
| EF30.50.Ex.15.2.50B | 96104199 | 3 × 400-415 V Y | 10 | Thermal switch |

SL1, Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-------------------------|----------------|-----------------|---------------------|--------------------|
| SL1.50.65.09.Ex.2.1.502 | 96106563 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.09.Ex.2.50C | 96106569 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.09.Ex.2.50B | 96106568 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.1.502 | 96104126 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.50C | 96104132 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.50B | 96104131 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.Ex.2.50C | 96104121 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.Ex.2.50B | 96104120 | 3 × 400-415 V Y | 10 | Thermal switch |

SL1, AUTO_{ADAPT} Ex

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|---------------------------|----------------|-----------------|---------------------|--------------------|
| SL1.50.65.09.E.Ex.2.1.502 | 96878452 | 1 × 230 V | 10 | Thermal switch |
| SL1.50.65.09.E.Ex.2.50B | 96878453 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.E.Ex.2.1.502 | 96878456 | 1 × 230 V | 10 | Thermal switch |
| SL1.50.65.11.E.Ex.2.50B | 96878457 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.E.Ex.2.50B | 96878472 | 3 × 400-415 V Y | 10 | Thermal switch |

SL1, Ex, Norway

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-----------------------|----------------|-----------------|---------------------|--------------------|
| SL1.50.65.09.Ex.2.50C | 96106569 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.50C | 96104132 | 3 × 230-240 V D | 10 | Thermal switch |
| SL1.50.65.15.Ex.2.50C | 96104121 | 3 × 230-240 V D | 10 | Thermal switch |

SL1, Ex, Australia

| Pump type | Product number | Voltage [V] | Cable length [m] | Thermal protection |
|-------------------------|----------------|-----------------|---------------------|--------------------|
| SL1.50.65.09.Ex.2.1.502 | 96106565 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.09.Ex.2.50B | 96106572 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.1.502 | 96104128 | 1 × 230 V D | 10 | Thermal switch |
| SL1.50.65.11.Ex.2.50B | 96104135 | 3 × 400-415 V Y | 10 | Thermal switch |
| SL1.50.65.15.Ex.2.50B | 96104124 | 3 × 400-415 V Y | 10 | Thermal switch |

SLV, Ex

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|------------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SLV65.65.09.Ex.2.1.502 | 96115120 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.09.Ex.2.50B | 96115124 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.11.Ex.2.1.502 | 96106574 | 1 × 230 V D | 10 | Thermal switch |
| SLV65.65.11.Ex.2.50B | 96106578 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV.65.65.15.Ex.2.50B | 96104193 | 3 × 400-415 V Y | 10 | Thermal switch |

SLV, AUTO_{ADAPT} Ex

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|--------------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SLV65.65.09.E.Ex.2.1.502 | 96878476 | 1 × 230 V | 10 | Thermal switch |
| SLV65.65.09.E.Ex.2.50B | 96878477 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.11.E.Ex.2.1.502 | 96878480 | 1 × 230 V | 10 | Thermal switch |
| SLV65.65.11.E.Ex.2.50B | 96878481 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV65.65.15.E.Ex.2.50B | 96878504 | 3 × 400-415 V Y | 10 | Thermal switch |

SLV, Ex, Australia

| Pump type | Product number | Voltage | Cable length | Thermal protection |
|-------------------------|----------------|-----------------|--------------|--------------------|
| | | [V] | [m] | |
| SLV.65.65.Ex.09.2.1.502 | 96115122 | 1 × 230 V D | 10 | Thermal switch |
| SLV.65.65.Ex.09.2.50B | 96115126 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV.65.65.Ex.11.2.1.502 | 96106576 | 1 × 230 V D | 10 | Thermal switch |
| SLV.65.65.Ex.11.2.50B | 96106580 | 3 × 400-415 V Y | 10 | Thermal switch |
| SLV.65.65.Ex.15.2.50B | 96104195 | 3 × 400-415 V Y | 10 | Thermal switch |

6. Variants

List of variants

Motor

| | | |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------|
| | | 15 m |
| | | 20 m |
| Standard cables | Cable B, 4 G 1.5 mm ² + 3 × 1 mm ² | 25 m |
| | | 30 m |
| | | 40 m |
| | | 50 m |
| | | 15 m |
| | | 20 m |
| Ex cables | Cable B, 4 G 1.5 mm ² + 3 × 1 mm ² , Ex | 25 m |
| | | 30 m |
| | | 40 m |
| | | 50 m |
| | | 10 m |
| | | 15 m |
| Screened power cables for frequency converters Note: only for standard pumps, not for AUTO _{ADAPT} pumps | Screened cable B, Ex | 20 m |
| | | 25 m |
| | | 30 m |
| | | 40 m |
| | | 40 m |
| Cable protection hose | For 7-core cable | |
| Special motor | Special voltage With or without PTC, etc. | |

Tests

| | | |
|-------------------------------------------------------|-------------------------------------------------|------------------------------------|
| Test at specified duty on standard impeller curve | | |
| Trimmed impeller for specified duty test | | |
| Additional test of entire QH curve (including report) | 5 to 10 flows from pump performance curve. | |
| Different test standard | Efficiency guaranteed by Grundfos. | ISO 9906:2012 grade 2B tolerances. |
| Vibration test (including report) | According to Grundfos factory quality standard. | |
| NPSHr test | Not yet available. | |
| String test | Contact Grundfos. | |
| Witness test | Contact Grundfos. | |

Certificates

| | | |
|----------------------------------------------------|--------------------------------------------|--------------------------------|
| ATEX-approved pump report | Special Grundfos report. Contact Grundfos. | |
| Certificate of compliance with order | According to EN 10204 2.1. | According to Annex A grade 2. |
| Pump certificate | According to EN 10204 2.2. | According to Annex A grade 2. |
| Inspection certificate | According to EN 10204 3.1. | According to Annex A grade 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 3rd 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, DP and EF, standard pumps

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

| Position | Description | Material | EN standard | AISI/ASTM |
|----------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|
| 6a | Pin | Stainless steel | | |
| 7a | Rivet | Stainless steel | 1.4301 | 304 |
| 9a | Key | Stainless steel | | |
| 26a | O-ring | NBR | | |
| 37 | O-ring | NBR | | |
| 37a | O-rings | NBR | | |
| 37b | O-rings | NBR | | |
| 48 | Stator | | | |
| 48a | Cover | | | |
| 49 | Impeller | Cast iron | EN-GJS-500-7 | |
| 50 | Pump housing | Cast iron | EN-GJL-250 | |
| 55 | Stator housing | Cast iron | EN-JL-1030 | |
| 58 | Shaft seal carrier | Cast iron | EN-JL-1030 | |
| 66 | Locking ring | Stainless steel | | |
| 76 | Nameplate | Stainless steel | 1.4301 | 304 |
| 84 | Strainer* | Cast iron | | |
| 92 | Clamp | Stainless steel | 1.4301 | 304 |
| 102 | O-ring | NBR | | |
| 103 | Bush | Stainless steel | 1.4057 | 431 |
| 104 | Seal ring | NBR | | |
| 105/105a | Shaft seal | Primary seal (0.6 to 1.5 kW): SiC/SiC Secondary seal (0.6 to 1.5 kW): lip seal, NBR Primary seal (2.6 kW): SiC/SiC Secondary seal (2.6 kW): carbon/aluminium oxide Other components: NBR, stainless steel | | |
| 107 | O-rings | NBR | | |
| 150a | Stator housing complete | | | |
| 153 | Bearing (lower) | Up to and including 1.5 kW: 6204 2.6 kW: 3205 | | |
| 153a | Washer | | | |
| 153b | Washer | | | |
| 154 | Bearing (upper) | Up to 1.5 kW: Single-row ball bearing 6301 2.6 kW: Single-row ball bearing 6205 | | |
| 155 | Oil chamber | Cast iron | | |
| 157 | Washer | | | |
| 158 | Corrugated spring | Steel | | |
| 159 | O-ring | NBR | | |
| 162 | Wear plate | Cast iron | | |
| 172 | Rotor Shaft | | 1.1181 1.4301 | 304 |
| 173 | Screw | Steel | | |
| 173a | Washer | Steel | | |
| 176 | Inner plug part | PET | | |
| 181 | Outer plug part | CR rubber, cable LYNIFLEX | 1.4308 | CF-8 |
| 188a | Screw | Stainless steel | | |
| 188b | Locking screw | | | |
| 188c | Locking screw | | | |
| 189 | Adjusting screw | | | |
| 190 | Lifting bracket | Stainless steel | 1.4308 | CF-8 |
| 193 | Oil screw | Stainless steel | | |
| 193a | Oil | Shell Ondina X420 | | |
| 194 | Gasket | Nylon | | |
| 198 | O-ring | NBR | | |
| | Paint | Two-component epoxy | | |

* Only DP pumps

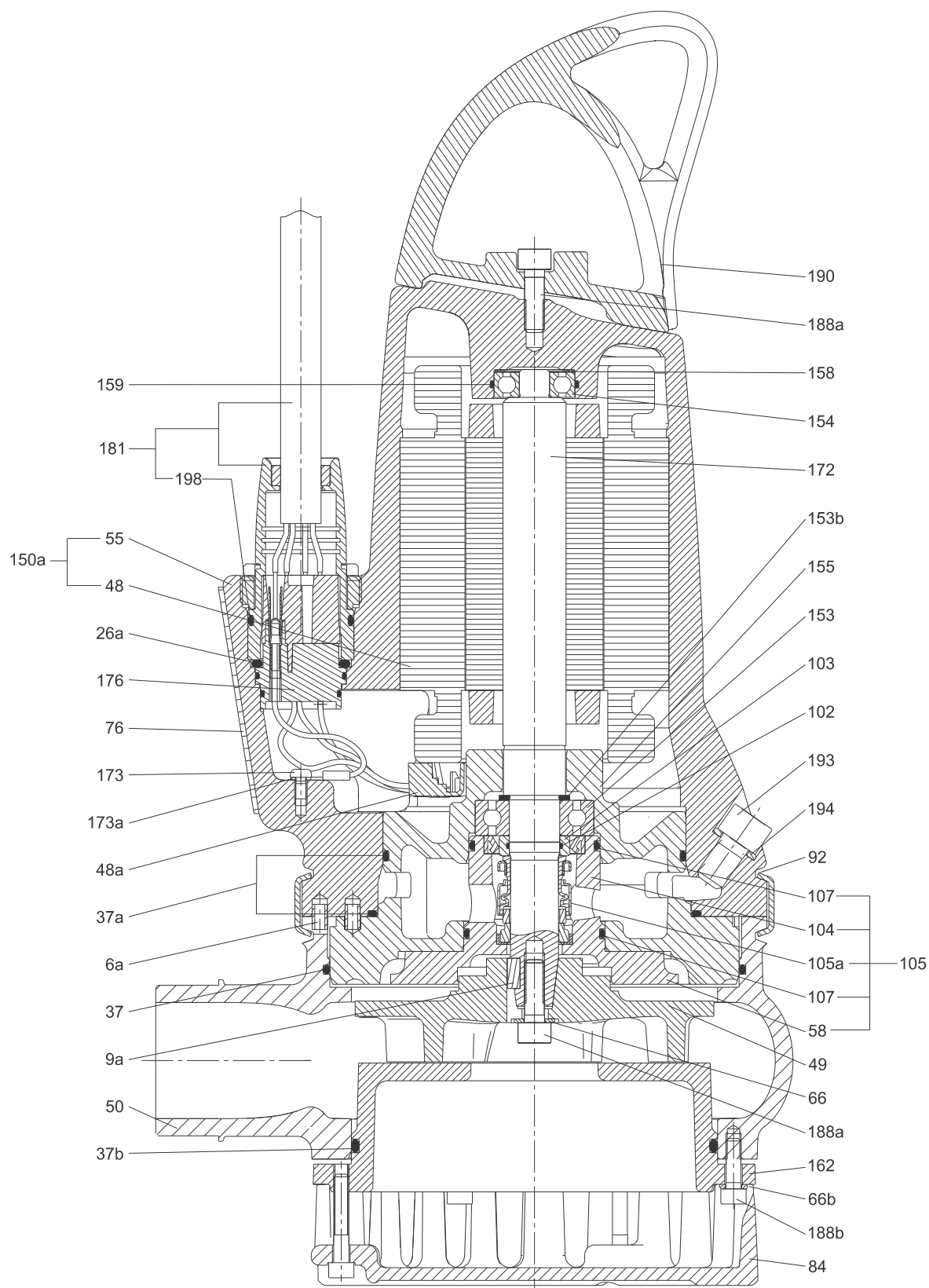


Fig. 8 Sectional drawing, DP10.50.09/15

TM06 6113 0716

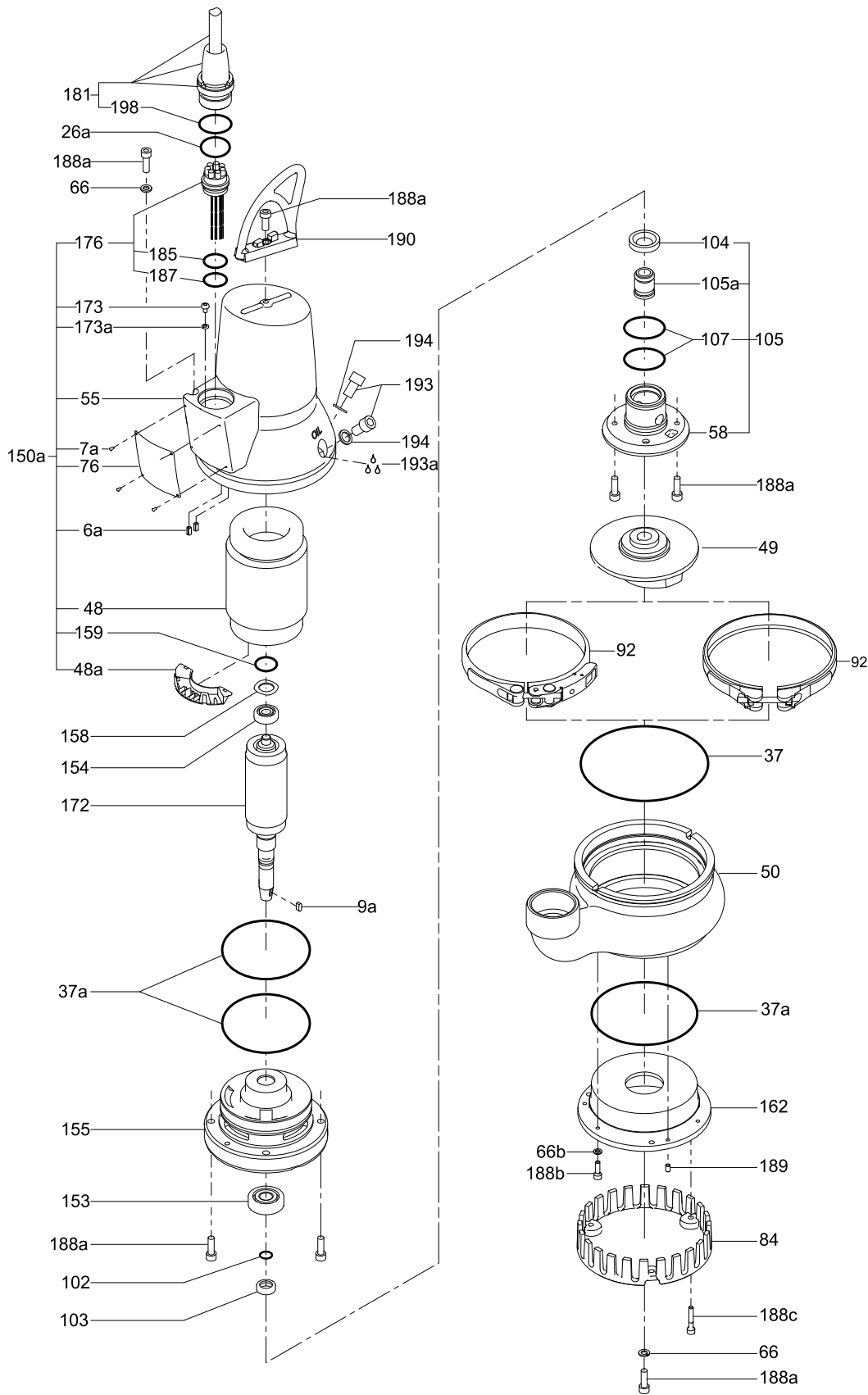
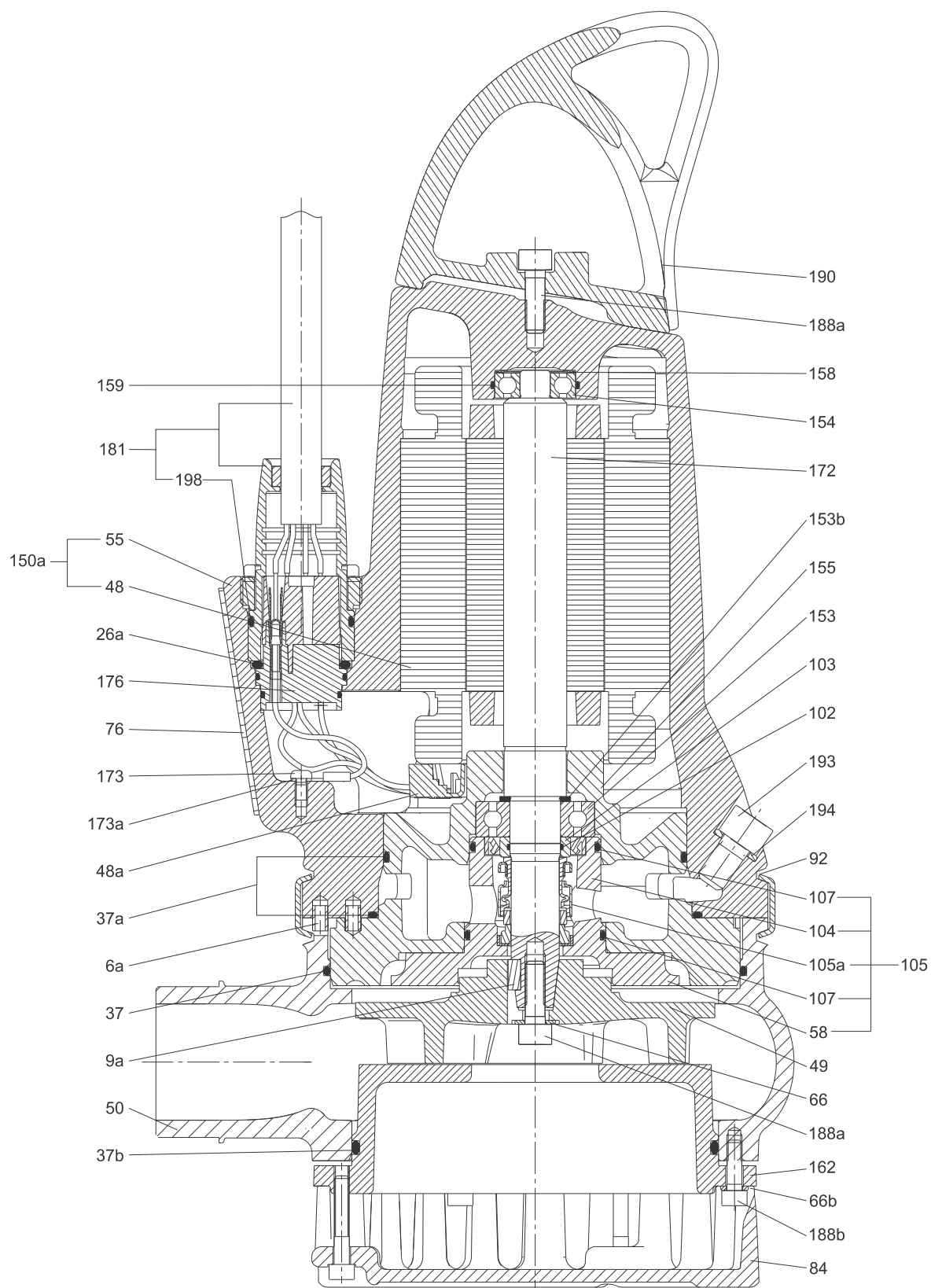


Fig. 9 Exploded view, DP10.50.09/15

TM06 5868 0316



TM06 6113 0716

Fig. 10 Sectional drawing, DP10.65.26

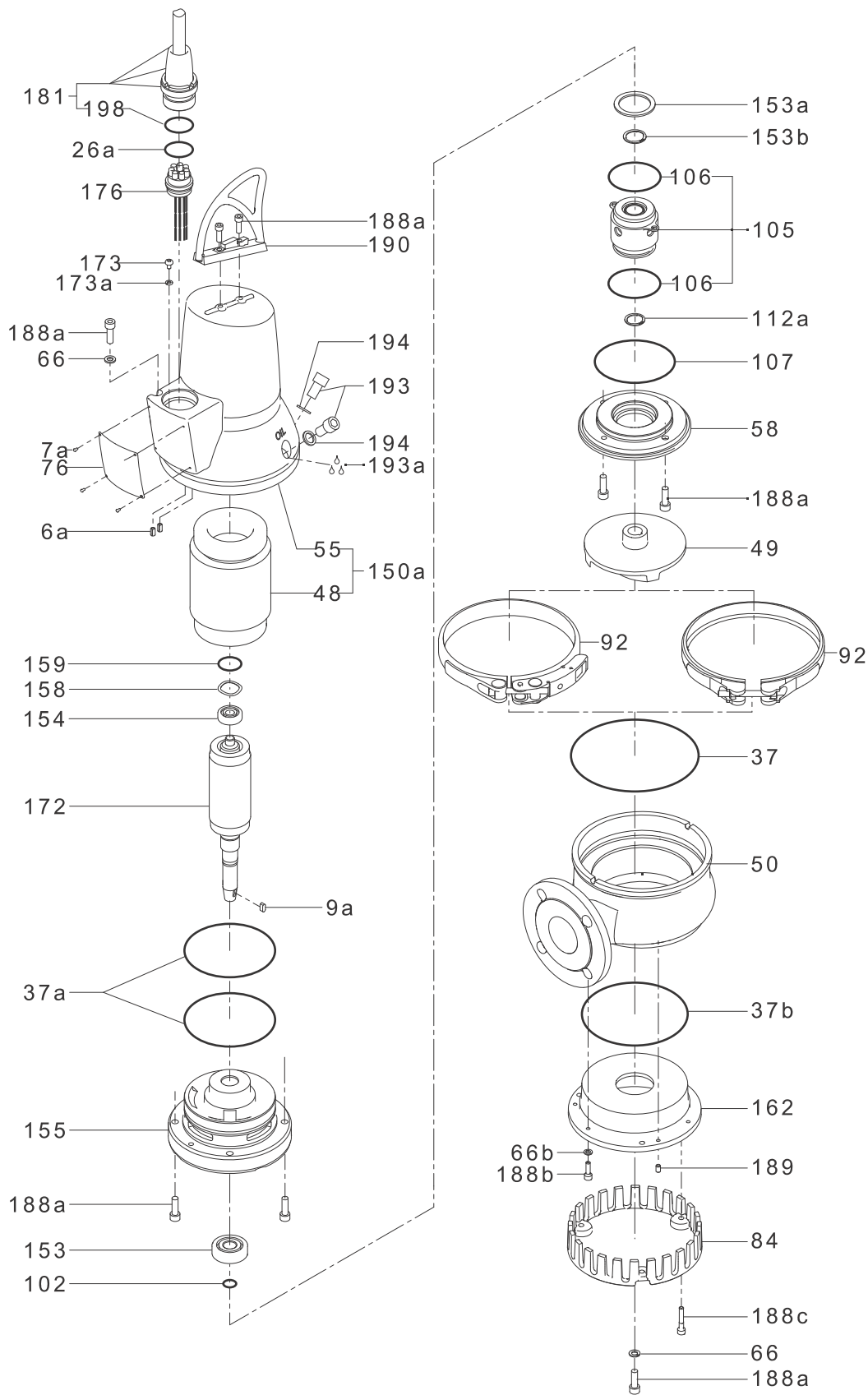


Fig. 11 Exploded view, DP10.65.26

TM06 5884 0316

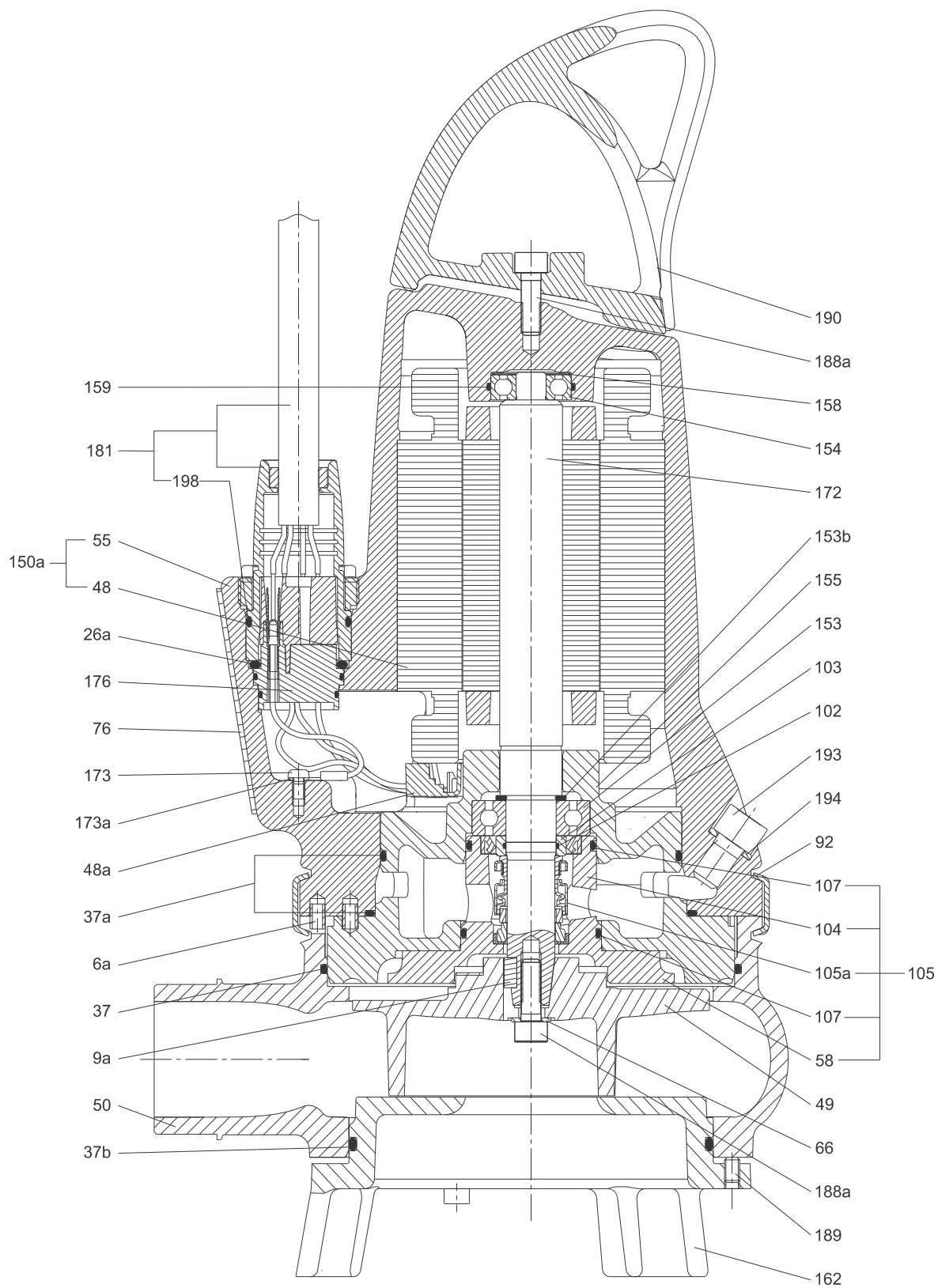


Fig. 12 Sectional drawing, EF

TM06 6121 0716

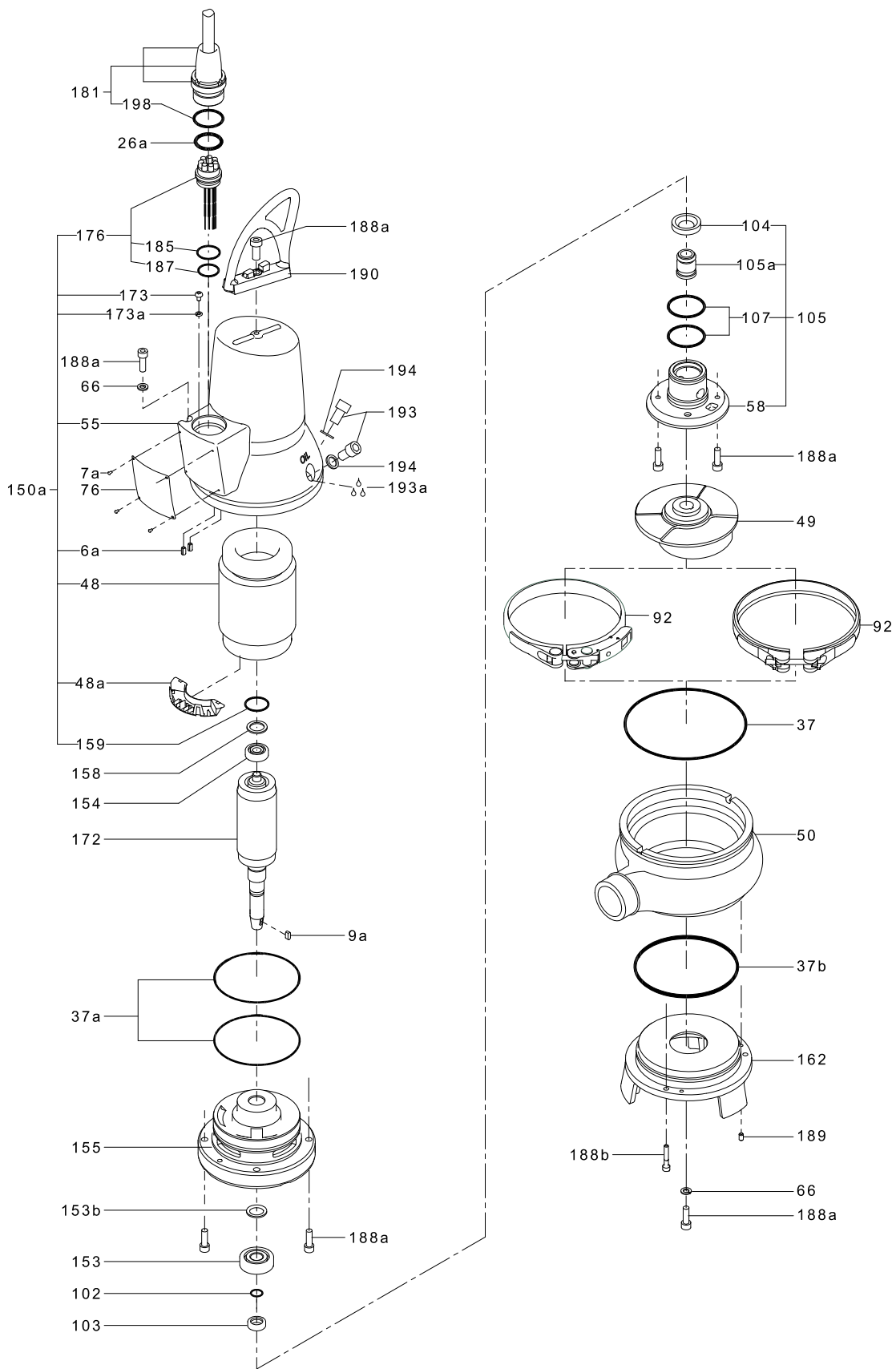


Fig. 13 Exploded view, EF

TM06 5905 0316

Material specification, DP 10 and EF, AUTO_{ADAPT} pumps

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

| Position | Description | Material | EN standard | AISI/ASTM |
|----------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|
| 6a | Pin | Stainless steel | | |
| 7a | Rivet | Stainless steel | | |
| 9a | Key | Stainless steel | | |
| 26a | O-ring | | | |
| 37 | O-ring | | | |
| 37a | O-rings | NBR | | |
| 37b | O-ring | | | |
| 48 | Stator | | | |
| 48a | Terminal board | | | |
| 49 | Impeller | Cast iron | EN-GJS-500-7 | |
| 50 | Pump housing | Cast iron | EN-JL-1030 | |
| 55 | Stator housing | Cast iron | EN-JL-1030 | |
| 58 | Shaft seal carrier | Cast iron | EN-JL-1030 | |
| 66 | Locking ring | Stainless steel | | |
| 76 | Nameplate | Stainless steel | 1.4301 | 304 |
| 84 | Inlet strainer*** | Cast iron | | |
| 90a | Electronic unit | | | |
| 90b | O-ring | | | |
| 92 | Clamp | Stainless steel | 1.4301 | 304 |
| 102 | O-ring | NBR | | |
| 103 | Bush | Stainless steel | 1.4057 | 431 |
| 104 | Seal ring | NBR | | |
| 105/105a | Shaft seal | Primary seal (0.6 to 1.5 kW): SiC/SiC Secondary seal (0.6 to 1.5 kW): lip seal, NBR Primary seal (2.6 kW): SiC/SiC Secondary seal (2.6 kW): carbon/aluminium oxide Other components: NBR, stainless steel | | |
| 107 | O-rings | NBR | | |
| 153 | Bearing (lower) | Up to and including 1.5 kW: 6204 2.6 kW and up: 3205 | | |
| 154 | Bearing (upper) | Up to and including 1.5 kW: 6201 2.6 kW: 6205 | | |
| 155 | Oil chamber | | | |
| 158 | Corrugated spring | Steel | | |
| 159 | O-ring | NBR | | |
| 161b | Pt1000 sensor, with bracket | | | |
| 161c | Run capacitor and Pt1000 sensor, with bracket* | | | |
| 172 | Rotor/shaft | Shaft part at rotor: steel Shaft end at hydraulics: stainless steel | 1.1181 1.4301 | 304 |
| 173 | Screw | Steel | | |
| 173a | Washer | Steel | | |
| 174 | Earth screw | | | |
| 174a | Washer | | | |
| 176 | Inner plug part | PET | | |
| 181 | Outer plug part | CR rubber, cable LYINFLEX | 1.4308 | CF-8 |
| 188a | Screw | Stainless steel | | |
| 188b | Locking screw | Steel | | |
| 188c | Screw | Steel | | |
| 189 | Adjusting screw | Steel | | |
| 190 | Lifting bracket | Stainless steel | 1.4308 | CF-8 |
| 193 | Oil screw | Stainless steel | | |
| 193a | Oil | Shell Ondina X420 | | |
| 194 | Gasket | Nylon | | |
| 198 | O-ring | NBR | | |
| 199 | Union nut | | | |
| 285 | Dry-running sensors** | | | |
| 285a | O-ring | NBR | 1.4308 | CF-8 |
| 285b | Set screw | | | |
| 287 | Level sensor | | | |
| 287b | O-ring | | | |
| 287c | Set screw | | | |
| 532 | Drying bag | | | |
| | Paint | Two-component epoxy | | |

* Single-phase pumps only.

** Explosion-proof pumps have two dry-running sensors.

*** DP pumps only.

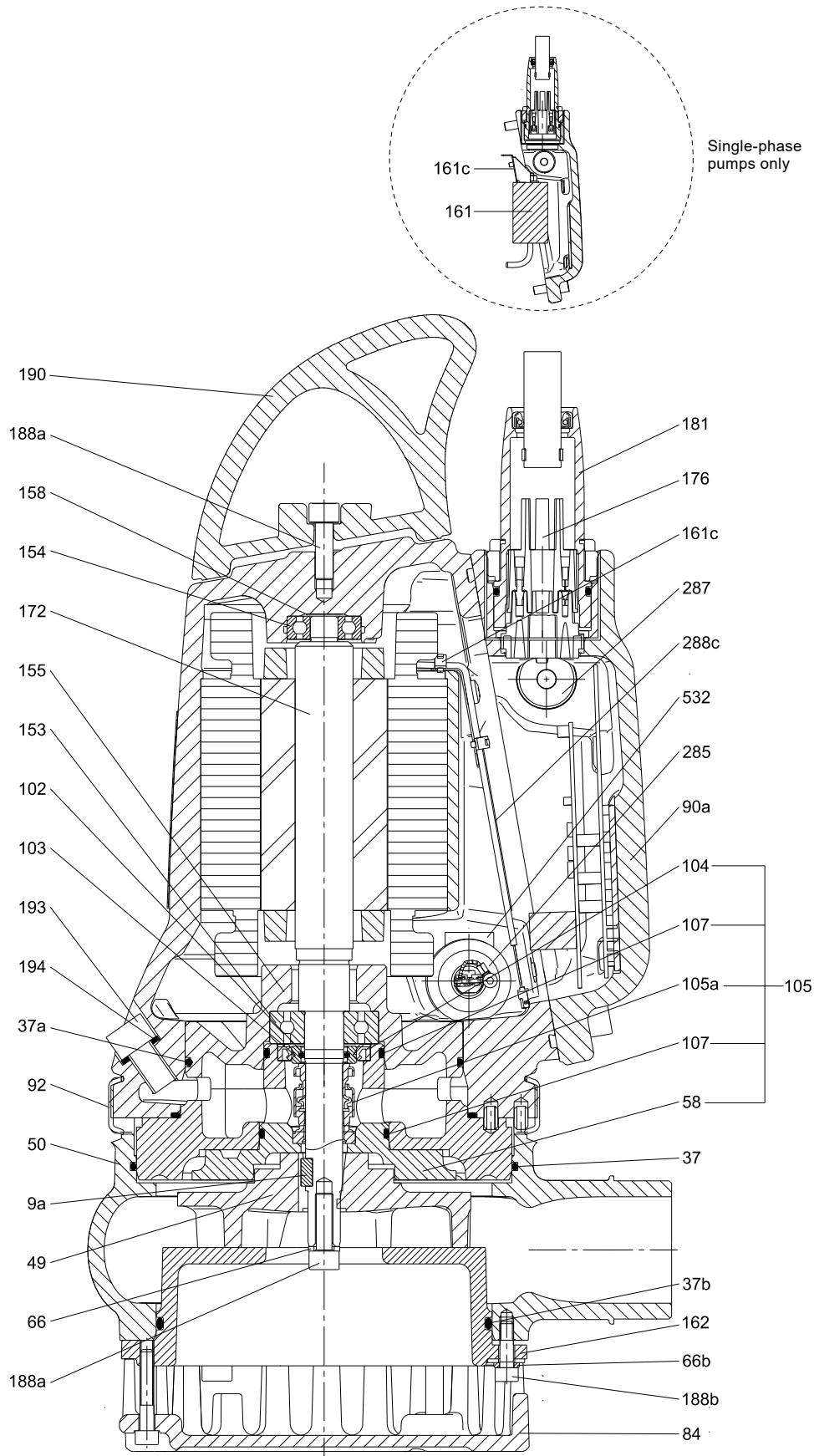


Fig. 14 Sectional drawing, DP10.50.09/15 AUTO_{ADAPT}

TM06 6114 0716

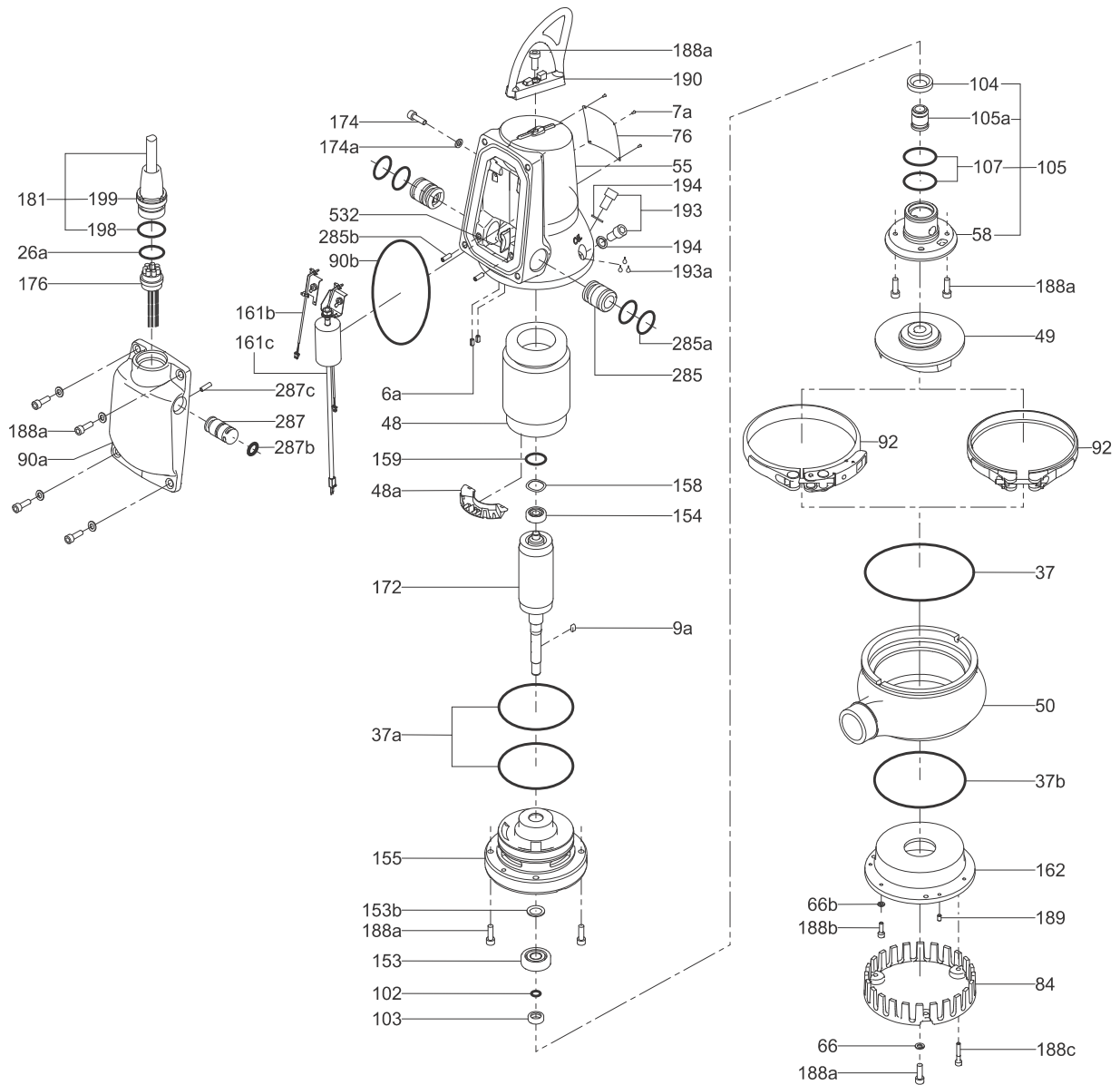
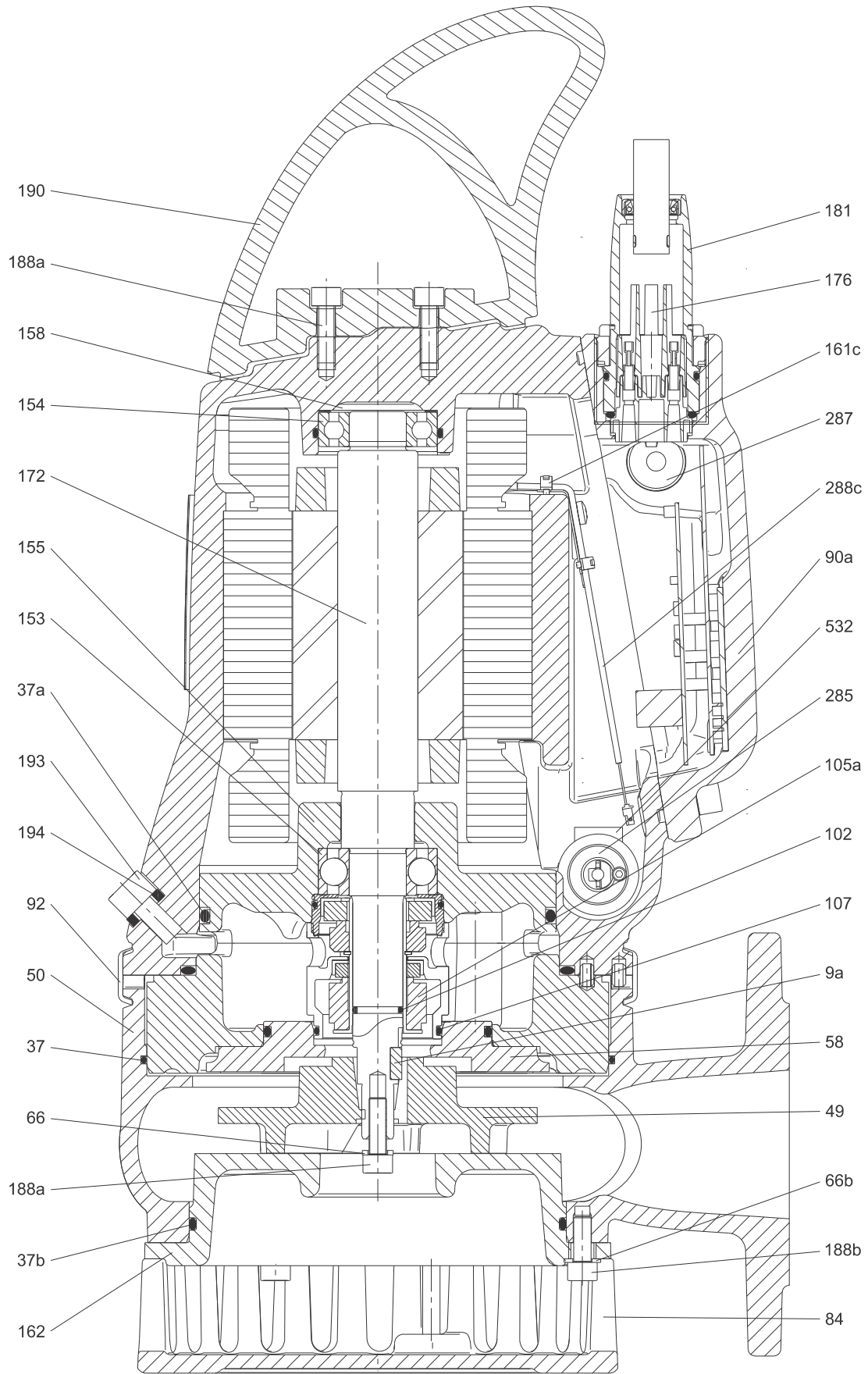


Fig. 15 Exploded view, DP10.50.09/15 AUTO_{ADAPT}

TM06 5879 0316



TM06 6115 0716

Fig. 16 Sectional drawing, DP10.65.26 AUTO_{ADAPT}

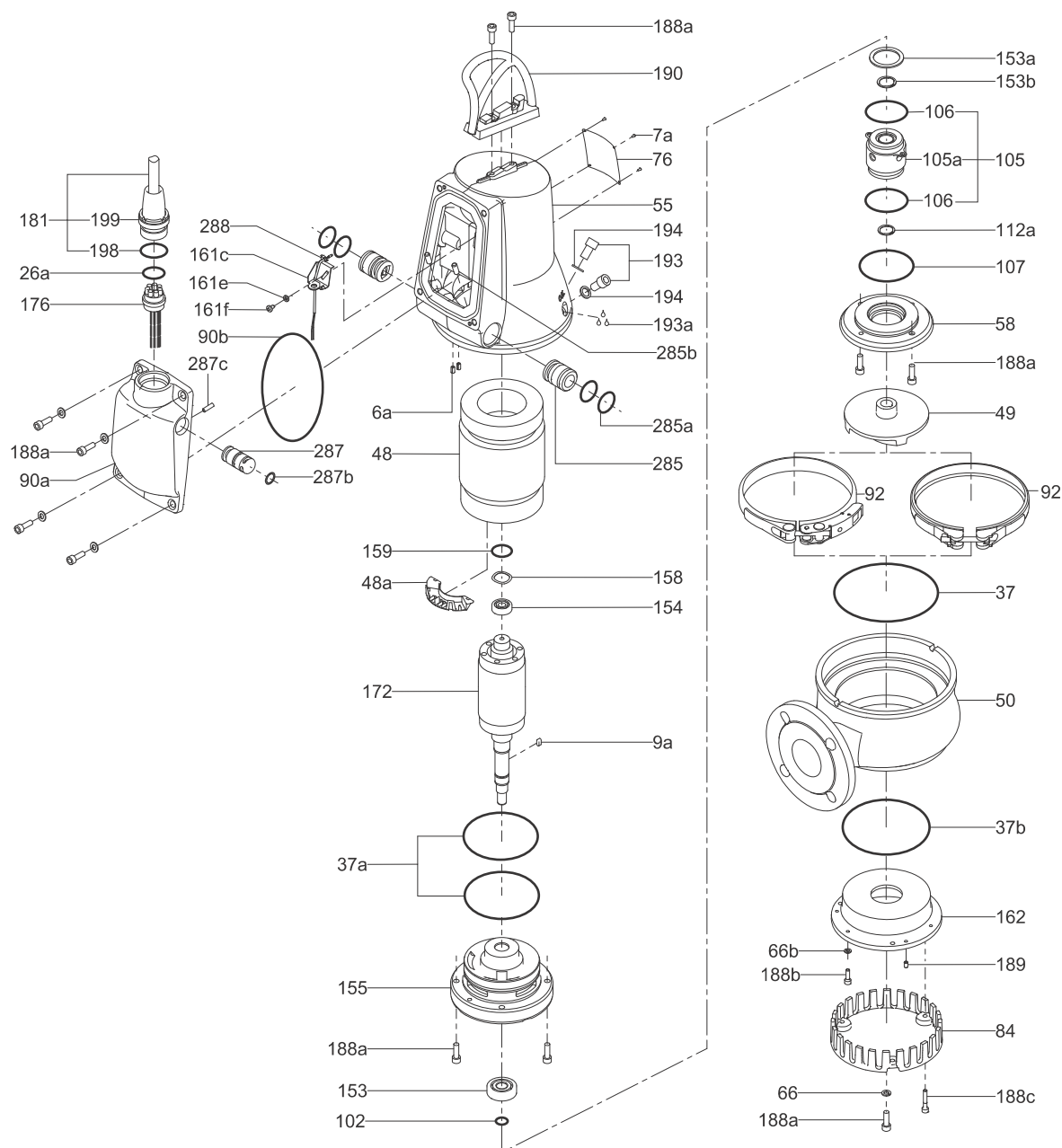


Fig. 17 Exploded view, DP10.65.26 AUTO_{ADAPT}

TM06 5900 0316

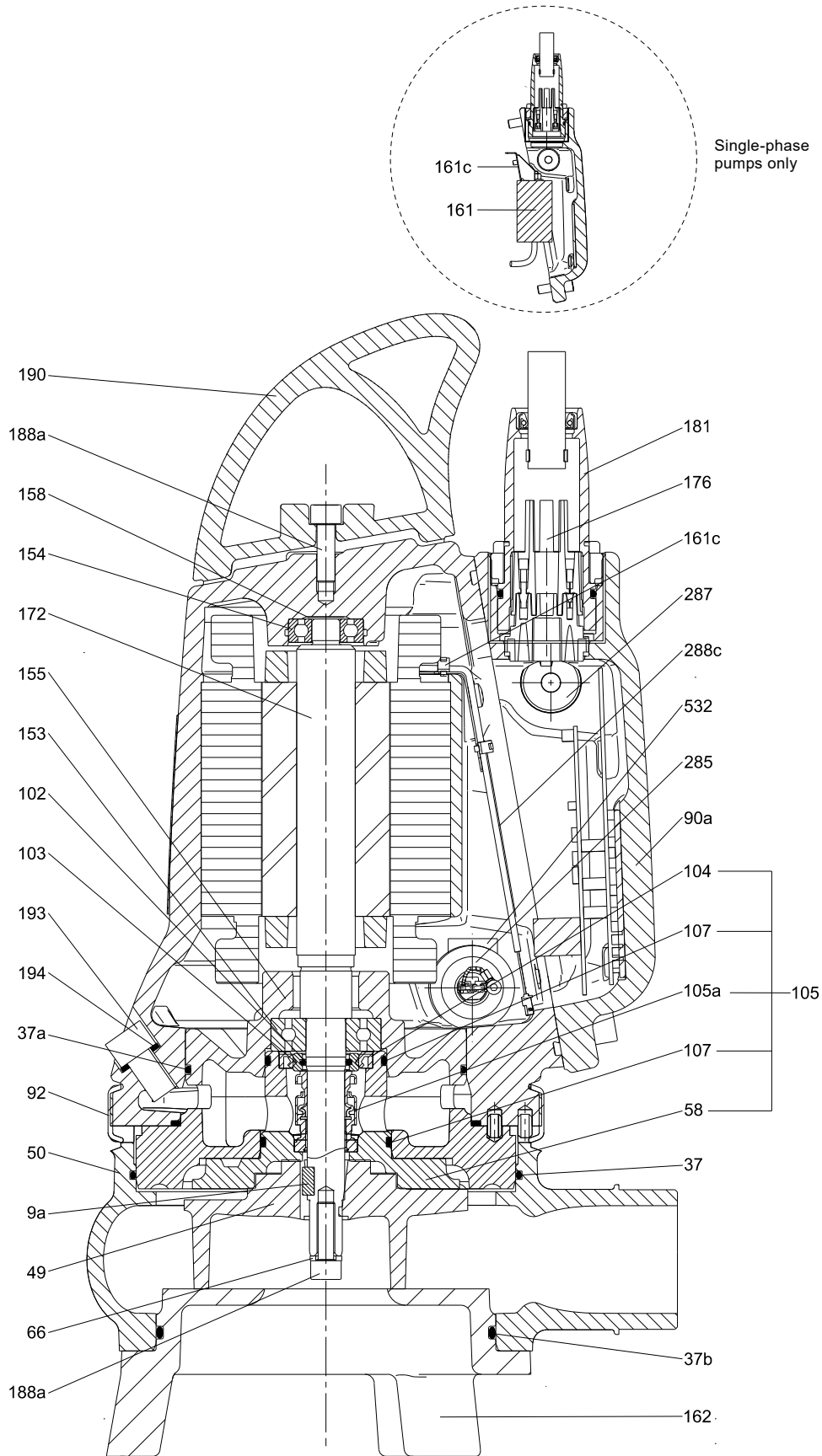


Fig. 18 Sectional drawing, EF AUTO_{ADAPT}

TM06 6116 0716

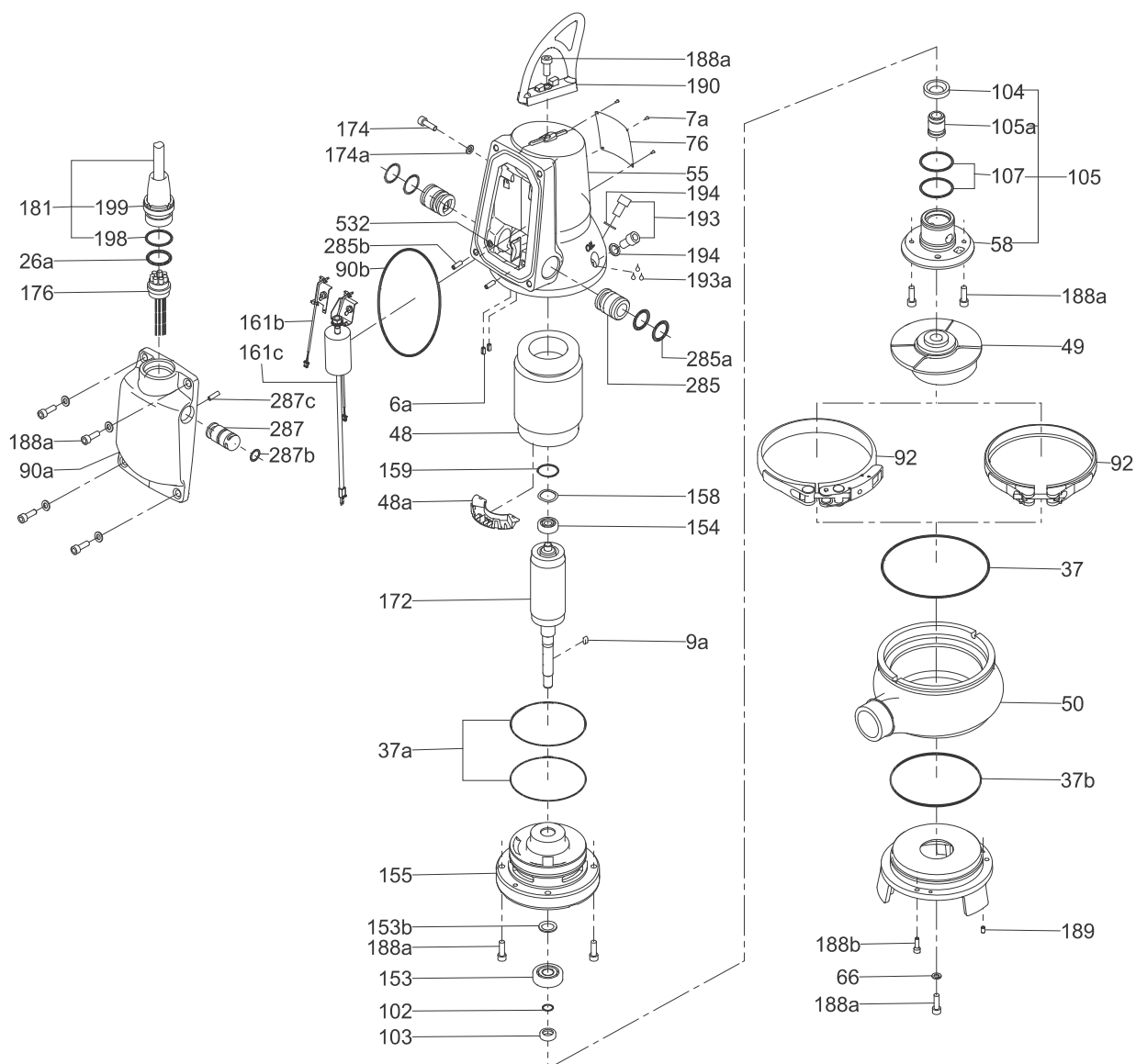


Fig. 19 Exploded view, EF AUTO_{ADAPT}

TM06 5913 0316

Material specification, SL1 and SLV, standard pumps

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

| Position | Description | Material | EN standard | AISI/ASTM |
|----------|----------------------------|----------------------------------------------------------------------------------------|------------------------------------------|-----------|
| 6a | Pin | Stainless steel | | |
| 7a | Rivet | Stainless steel | 1.4301 | 304 |
| 9a | Key | Stainless steel | | |
| 26a | O-ring | NBR | | |
| 37 | O-ring | NBR | | |
| 37a | O-rings | NBR | | |
| 37b | O-rings | NBR | | |
| 48 | Stator | | | |
| 48a | Terminal board | | | |
| 49 | Impeller | Cast iron | SL1 = EN-GJS-500-7 SLV = EN-GJS-500-7 | |
| 50 | Pump housing | Cast iron | EN-GJL-250 | |
| 55 | Stator housing | Cast iron | EN-JL-1030 | |
| 58 | Shaft seal carrier | Cast iron | EN-JL-1030 | |
| 66 | Locking ring | Stainless steel | | |
| 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 | Primary seal (0.9 to 1.5 kW): SiC/SiC Secondary seal (0.9 to 1.5 kW): lip seal, NBR | | |
| 105/105a | Shaft seal | | | |
| 107 | O-rings | NBR | | |
| 150a | Stator in housing complete | | | |
| 153 | Bearing (lower) | 6204 | | |
| 153b | Washer | Steel | | |
| 154 | Bearing (upper) | 6301 | | |
| 155 | Oil chamber | Cast iron | | |
| 158 | Corrugated spring | Steel | | |
| 159 | O-ring | NBR | | |
| 162 | Wear plate* | Cast iron | | |
| 172 | Rotor Shaft | Stainless steel | 1.1181 1.4301 | 304 |
| 173 | Screw | Steel | | |
| 173a | Washer | Steel | | |
| 176 | Inner plug part | PET | | |
| 181 | Outer plug part | CR rubber, cable LYNIFLEX | 1.4308 | |
| 185 | O-ring | NBR | | |
| 187 | Screw | Steel | | |
| 188a | Screw | Stainless steel | | CF-8 |
| 188b | Locking screw | | | |
| 189 | Adjusting screw | | | |
| 190 | Lifting bracket | Stainless steel | 1.4308 | |
| 193 | Oil screw | Stainless steel | | CF-8 |
| 193a | Oil | Shell Ondina X420 | | |
| 194 | Gasket | Nylon | | |
| 198 | O-ring | NBR | | |

* SL1 pumps only.

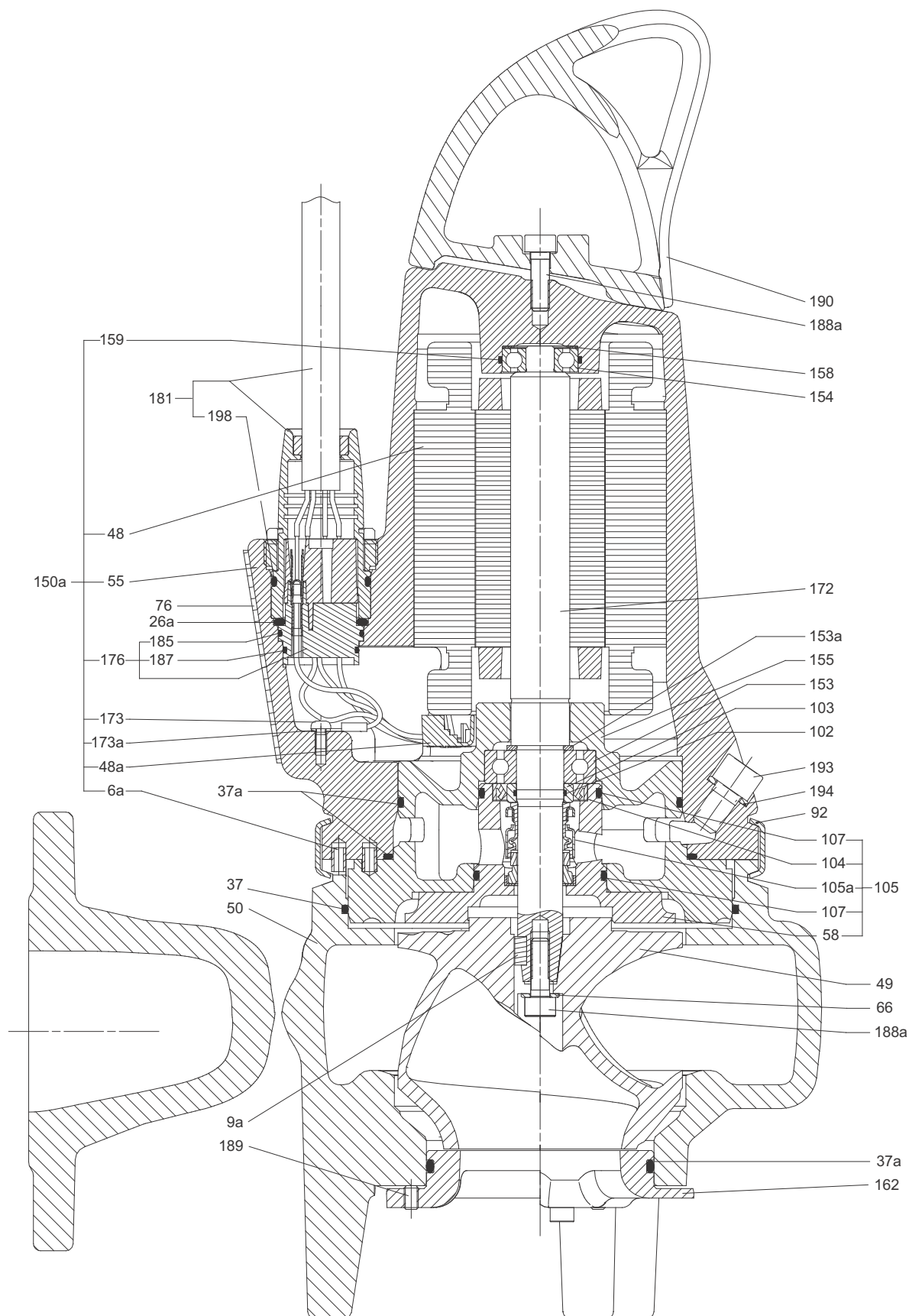


Fig. 20 Sectional drawing, SL1.50.65.09/11/15

TM06 6117 0716

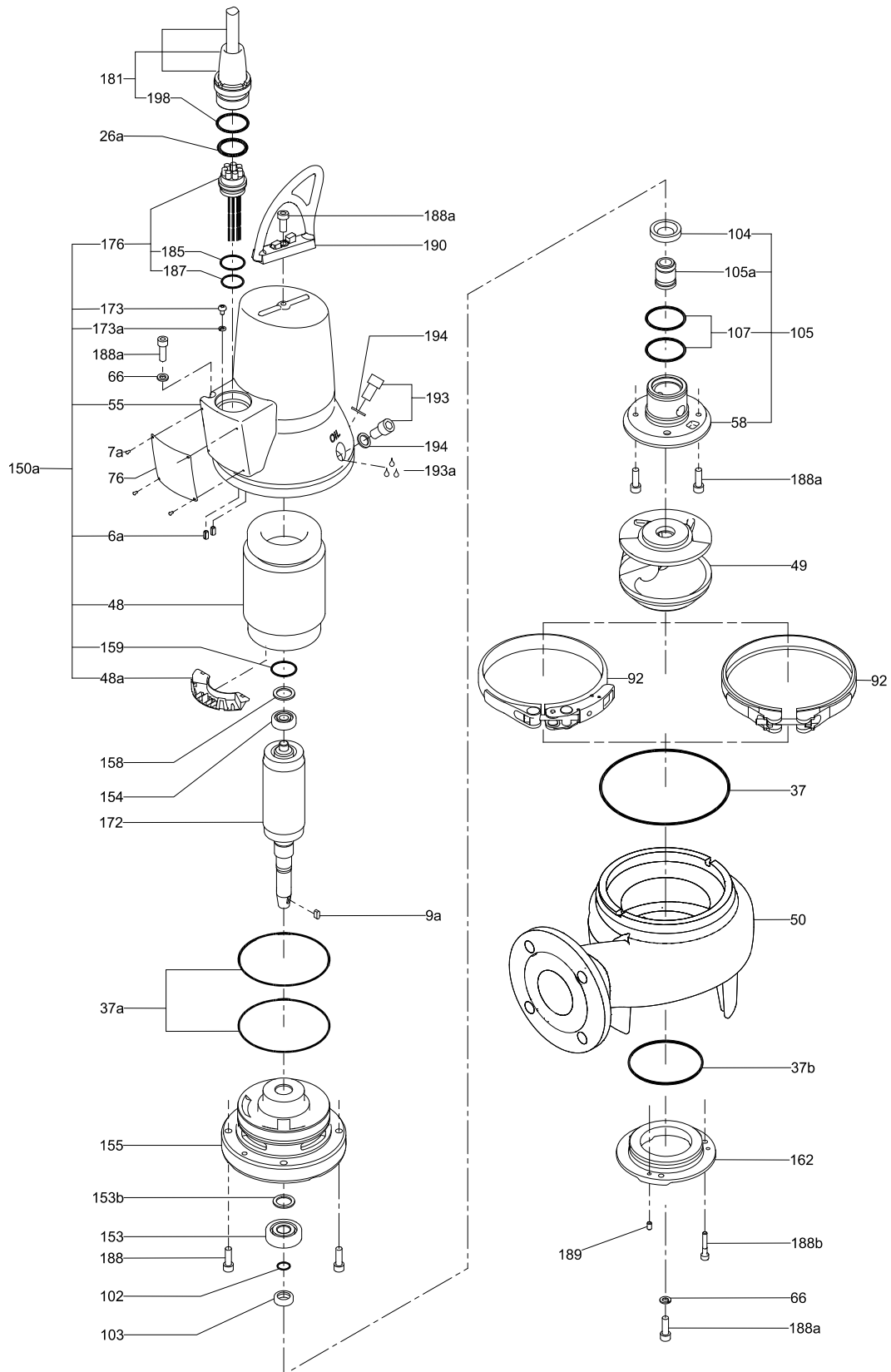


Fig. 21 Exploded view, SL1.50.65.09/11/15

TM06 5917 03 16

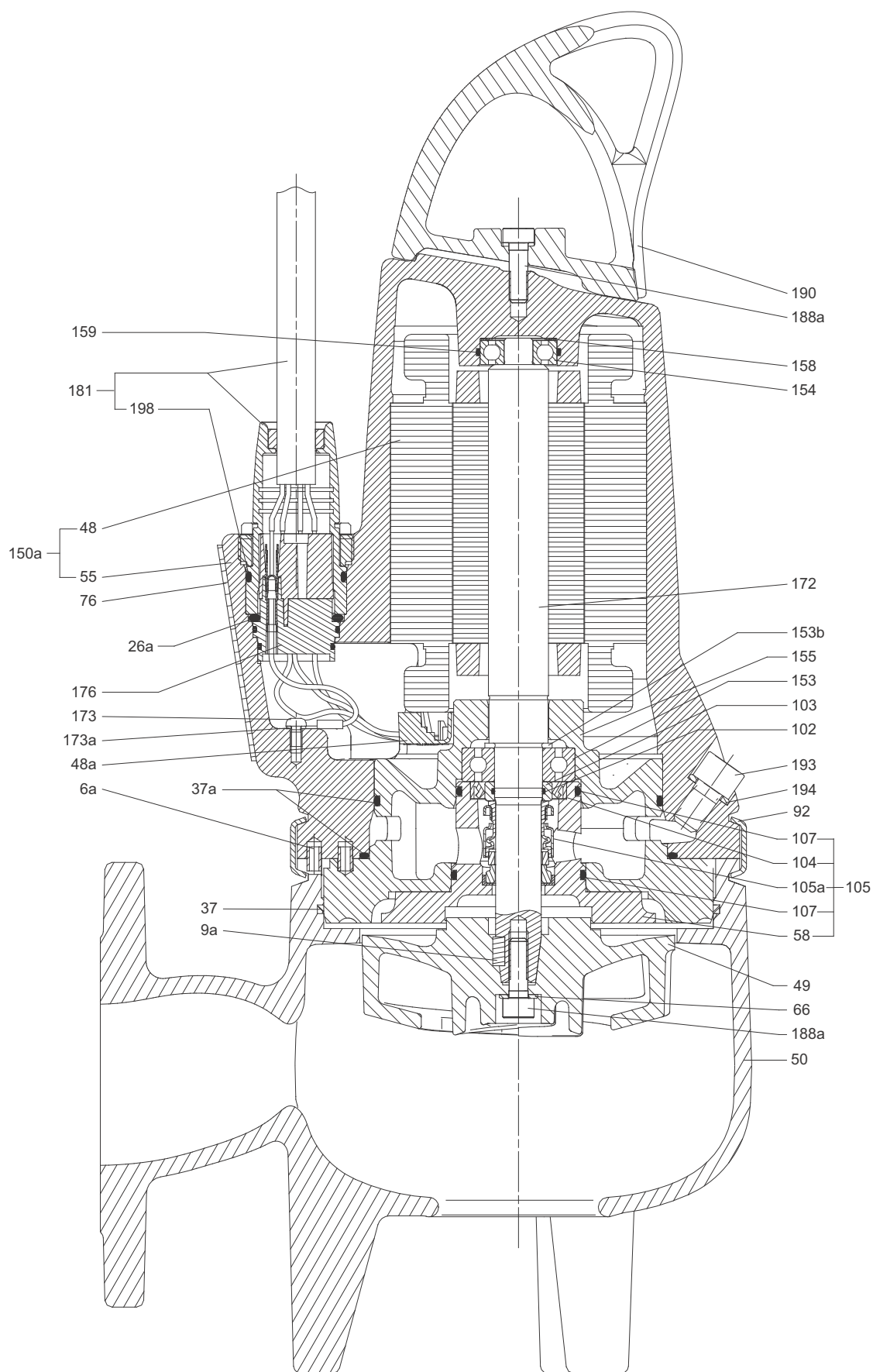


Fig. 22 Sectional drawing, SLV.65.65.09/11/15

TM06 6118 0716

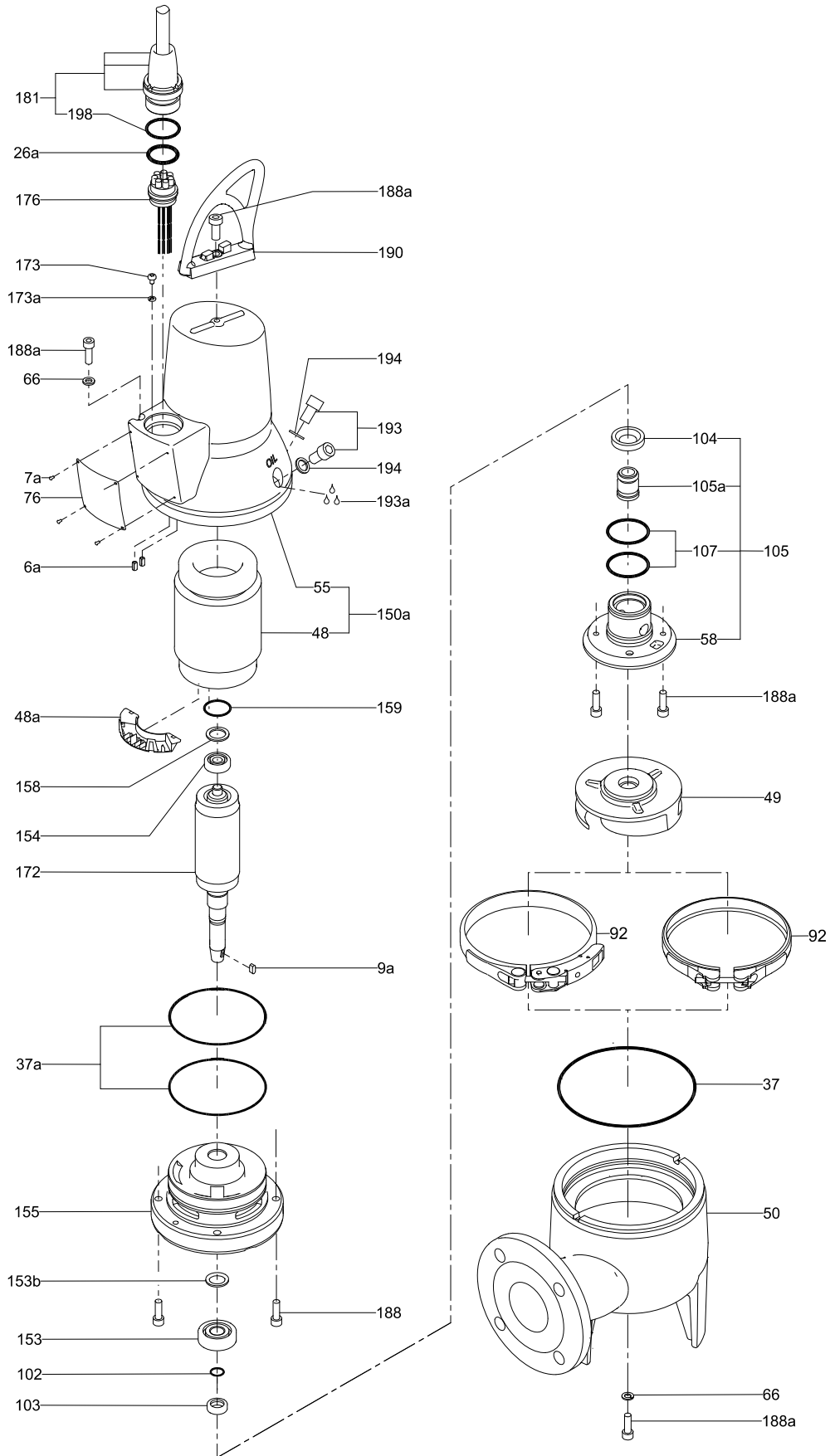


Fig. 23 Exploded view, SLV.65.65.09/11/15

TM06 5936 0316

Material specification, SL1 and SLV, AUTO_{ADAPT} pumps

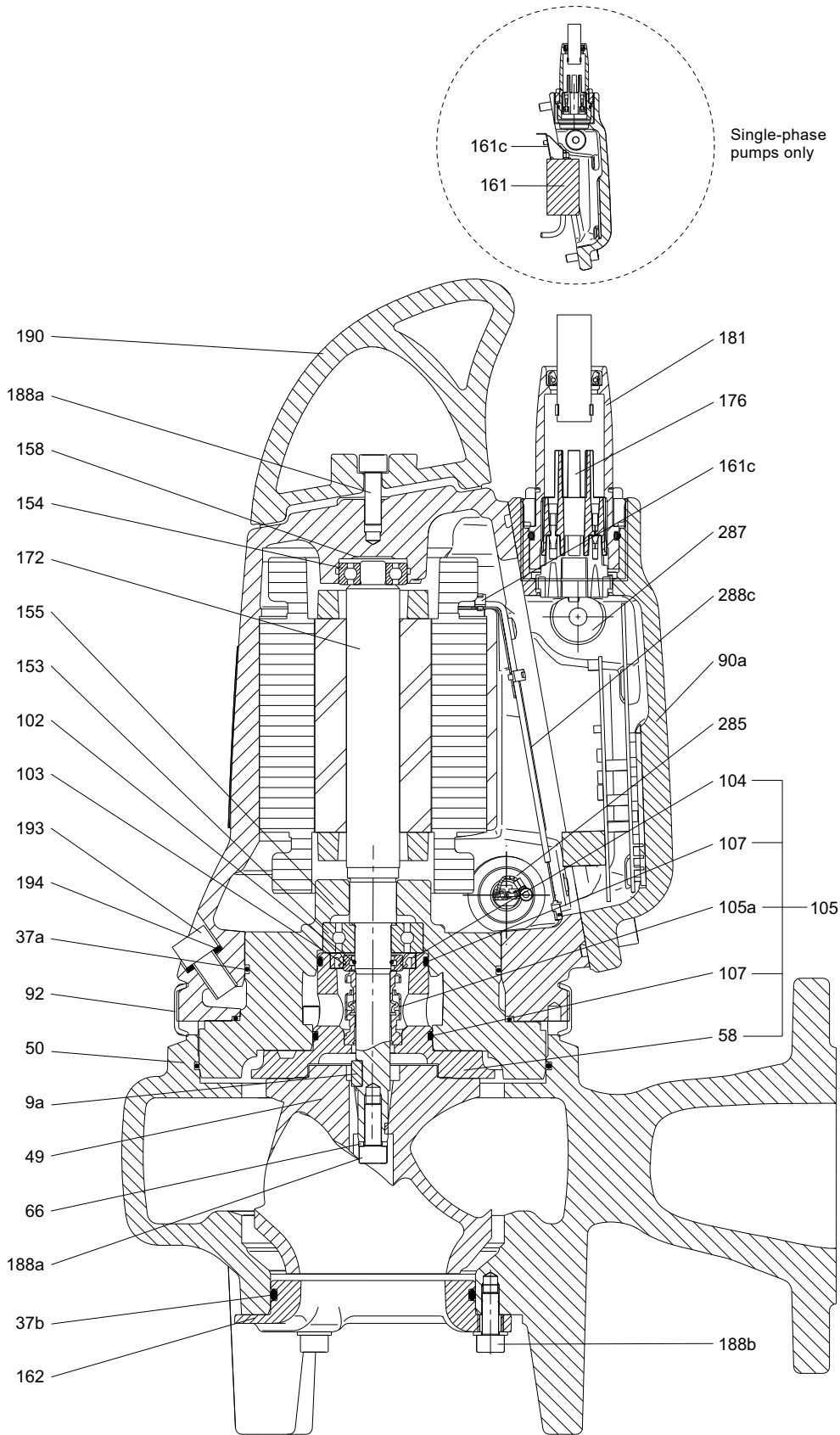
The position numbers in the table below refer to the sectional drawings and exploded views on the following pages.

| Position | Description | Material | EN standard | AISI/ASTM |
|----------|------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------|-----------|
| 6a | Pin | Stainless steel | | |
| 7a | Rivet | Stainless steel | | |
| 9a | Key | Stainless steel | | |
| 26a | O-ring | | | |
| 37 | O-ring | | | |
| 37a | O-rings | NBR | | |
| 37b | O-ring | | | |
| 48 | Stator | | | |
| 48a | Terminal board | | | |
| 49 | Impeller | Cast iron | SL1 = EN-GJS-500-7 SLV = EN-GJS-400-15 | |
| 50 | Pump housing | Cast iron | EN-JL-1030 | |
| 55 | Stator housing | Cast iron | EN-JL-1030 | |
| 58 | Shaft seal carrier | Cast iron | EN-JL-1030 | |
| 66 | Locking ring | Stainless steel | | |
| 76 | Nameplate | Stainless steel | 1.4301 | 304 |
| 90a | Electronic unit | | | |
| 90b | O-ring | | | |
| 92 | Clamp | Stainless steel | 1.4301 | 304 |
| 102 | O-ring | NBR | | |
| 103 | Bush | Stainless steel | 1.4057 | 431 |
| 104 | Seal ring | NBR | | |
| 105/105a | Shaft seal | Primary seal (0.9 to 1.5 kW): SiC/SiC Secondary seal (0.9 to 1.5 kW): lip seal, NBR | | |
| 107 | O-rings | NBR | | |
| 153 | Bearing (lower) | Up to and including 1.5 kW: 6204 | | |
| 154 | Bearing (upper) | Up to and including 1.5 kW: 6201 | | |
| 155 | Oil chamber | | | |
| 158 | Corrugated spring | Steel | | |
| 159 | O-ring | NBR | | |
| 161b | Pt1000 sensor, with bracket | | | |
| 161c | Run capacitor and Pt1000 sensor, with bracket* | | | |
| 162 | Wear plate*** | Cast iron | | |
| 172 | Rotor/shaft | Shaft part at rotor: steel Shaft end at hydraulics: stainless steel | 1.1181 1.4301 | 304 |
| 173 | Screw | Steel | | |
| 173a | Washer | Steel | | |
| 174 | Earth screw | | | |
| 174a | Washer | | | |
| 176 | Inner plug part | PET | | |
| 181 | Outer plug part | CR rubber, cable LYNIFLEX | 1.4308 | CF-8 |
| 188a | Screw | Stainless steel | | |
| 188b | Locking screw | Steel | | |
| 190 | Lifting bracket | Stainless steel | 1.4308 | CF-8 |
| 193 | Oil screw | Stainless steel | | |
| 193a | Oil | Shell Ondina X420 | | |
| 194 | Gasket | Nylon | | |
| 198 | O-ring | NBR | | |
| 199 | Union nut | | | |
| 285 | Dry-running sensors** | | | |
| 285a | O-ring | NBR | 1.4308 | CF-8 |
| 285b | Set screw | | | |
| 287 | Level sensor | | | |
| 287a | Protection cap | | | |
| 287b | O-ring | | | |
| 287c | Set screw | | | |
| 532 | Drying bag | | | |
| | Paint | Two-component epoxy | | |

* Single-phase pumps only.

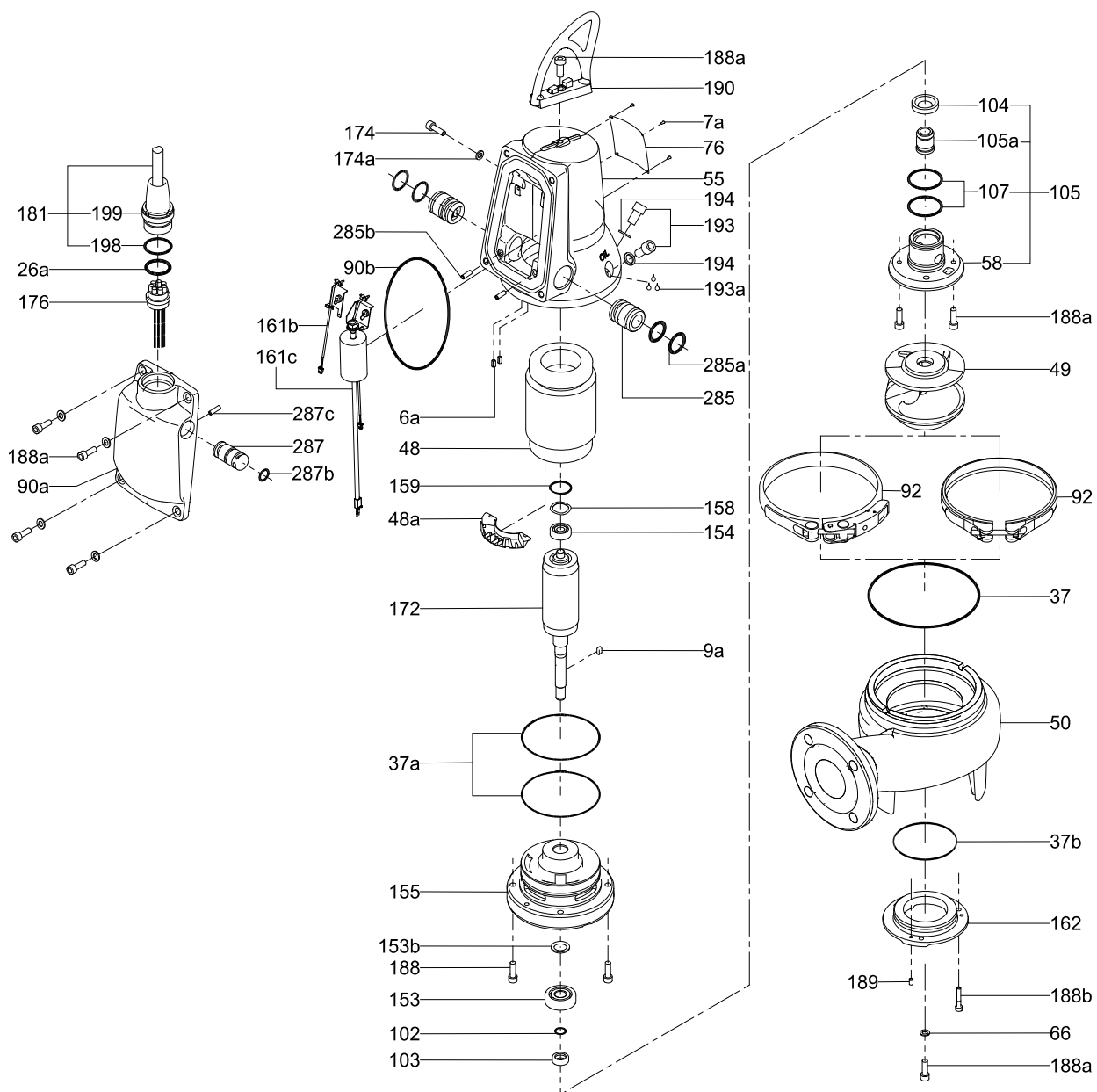
** Explosion-proof pumps have two dry-running sensors.

*** SL1 pumps only.



TM06 6119 2417

Fig. 24 Sectional drawing, SL1.50.65.09/11/15 AUTO_{ADAPT}



TM06 5931 0316

Fig. 25 Exploded view, SL1.50.65.09/11/15 AUTO_{ADAPT}

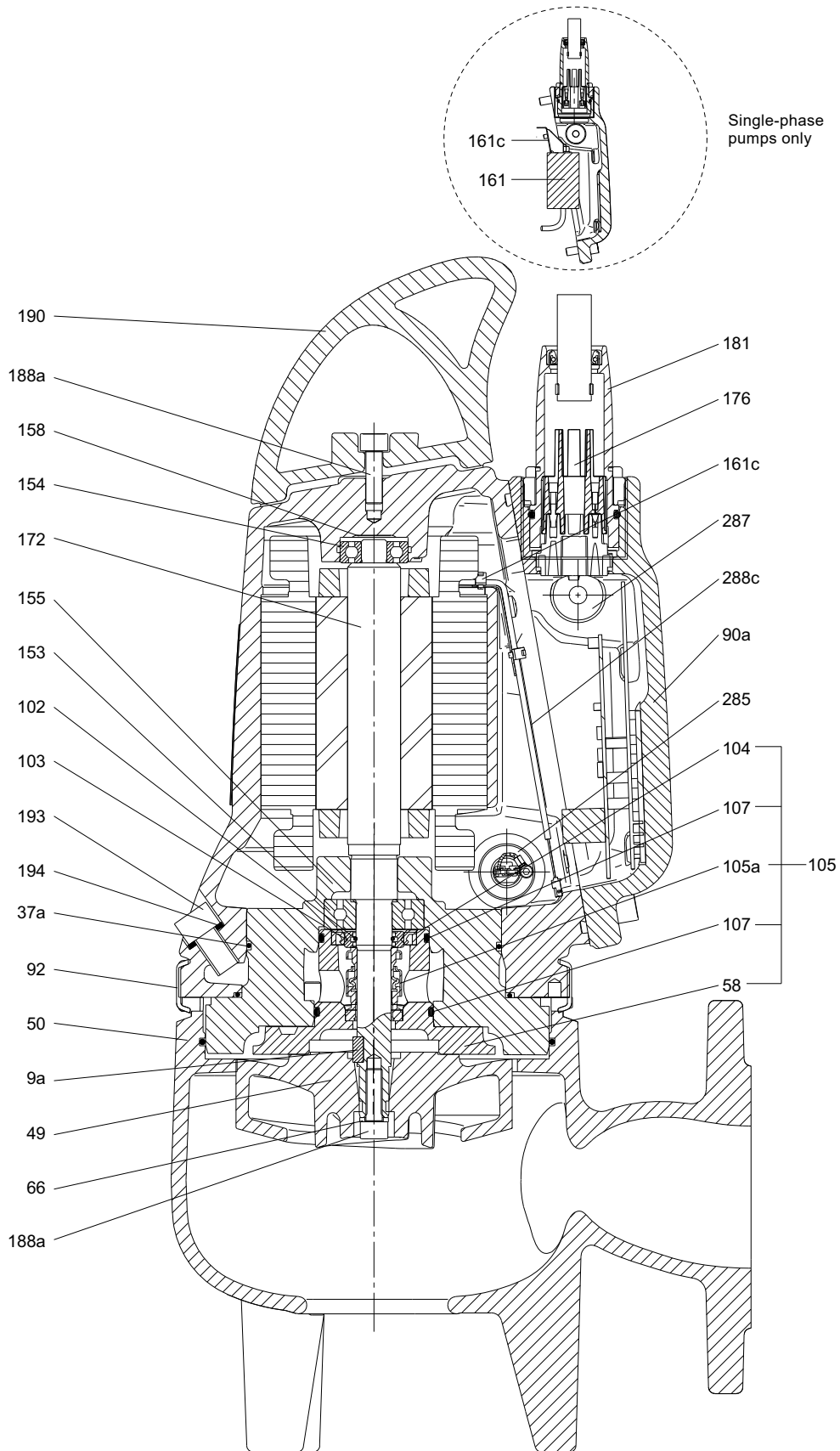


Fig. 26 Sectional drawing, SLV.65.65.09/11/15 AUTO_{ADAPT}

TM06 6120 2417

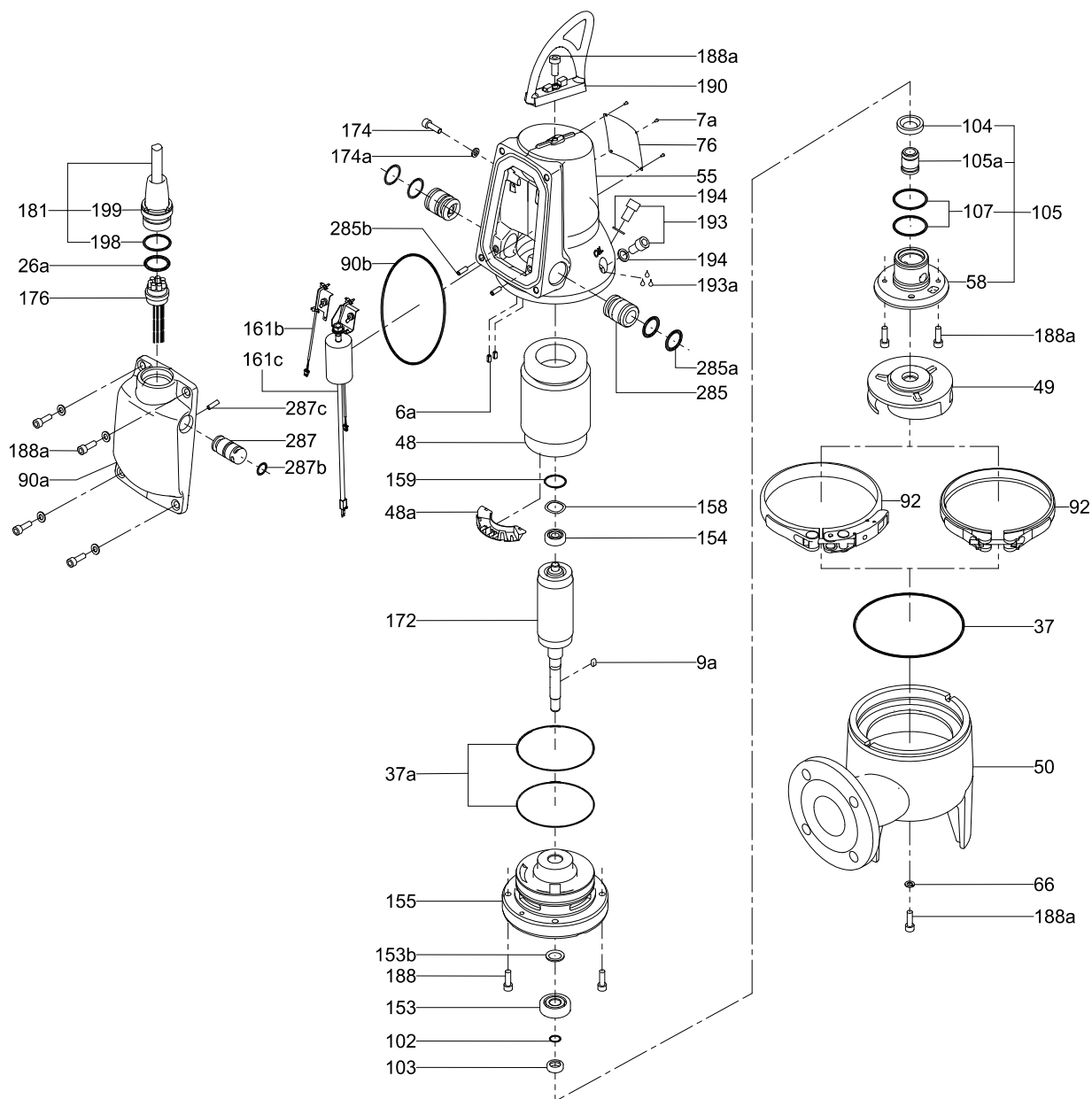


Fig. 27 Exploded view, SLV.65.65.09/11/15 AUTO_{ADAPT}

TM06 5939 0316

8. Product description

Features

Ball bearings

The ball bearings are lubricated for life.

Top bearings:

- Up to and including 1.5 kW:
Single-row ball bearing 6301.
AUTO_{ADAPT} pumps 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 6.
- 2.6 kW and up:
Angular-contact ball bearing 3205.

Shaft seal

The DP, EF, SL1 and SLV pump ranges are 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, 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, and a carbon/aluminium oxide mechanical shaft seal as secondary seal.

Motor

The motor is watertight and totally encapsulated.

Insulation class: F (155 °C).

Temperature class: F (105 K).

Enclosure class: IP68.

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

Built-in protection, AUTO_{ADAPT} pumps

The motor incorporates an electronic unit which protects the motor in various situations.

In case of overload, the built-in overload protection stops the pump for five minutes. Once the pump is cooled down, it is ready to be restarted.

To reset the pump, switch off the power supply for a minute.

The motor is protected in the following situations:

- dry running
- voltage surges, up to 6000 V, in areas with high lightning intensity. External lightning protection is required.
- overvoltage
- undervoltage
- overload
- overtemperature.

Power supply cables

Standard cable

| Cable type | Outer cable diameter [mm] | Bending radius | |
|----------------------------------------------------------|---------------------------|----------------|------|
| | | Fixed | Free |
| Lyniflex 4 G 1.5 mm ² + 3 × 1 mm ² | 15.5 ± 0.5 | 60 | 90 |

Screened cable

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

As standard, the cables are 10 metres long. Other cable lengths are available on request. See section [Variants](#), page 18.

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 watertight material to prevent the ingress of water into the motor in case of break in the cable or adverse handling during installation or service.

Sensors

DP, EF, SL1 and SLV, standard pumps

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

DP, EF, SL1 and SLV, AUTO_{ADAPT} pumps

As standard, the pumps incorporate the following:

- one analog absolute-pressure transmitter
- one dry-running sensor.
Explosion-proof versions have two dry-running sensors.
The dry-running sensor(s) are used for indicating the stop level in the first pump cycle and to prevent dry running.
In standard versions, the dry-running sensor can be overruled by an optional CIU unit if there is a risk of a floating layer.
- all pumps have two sets of thermal switches incorporated in the stator windings to protect the motor against overheating.
- two Pt1000 sensors for analog measurement
- built-in motor protection I²(t) as extra safety.

Operating conditions

The pumps are designed for intermittent operation (S3). When completely submerged in the pumped liquid, the pumps can also operate continuously (S1). Being completely submerged, the pump is sufficiently cooled by the surrounding liquid.

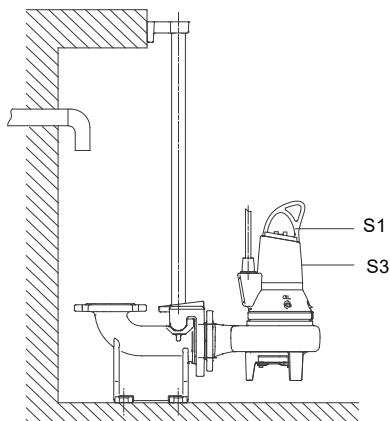


Fig. 28 Operation levels

- **S3, intermittent operation:**

S3 operating mode is a series of duty cycles, each with a constant load for a period followed by a rest period. Thermal equilibrium is not reached during the cycle. Intermittent operation, S3, with maximum 20 starts per hour when the pump is submerged to the bottom of the cable plug. The pump must run for maximum 4 minutes and stop for minimum 6 minutes.

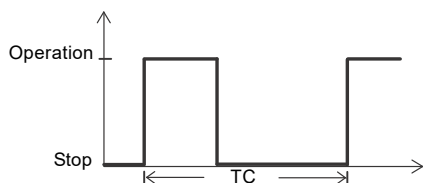


Fig. 29 S3 operation

- **S1, continuous operation:**

In this operating mode, the pump can operate continuously without being stopped for cooling. Being completely submerged, the pump is sufficiently cooled by the surrounding liquid.

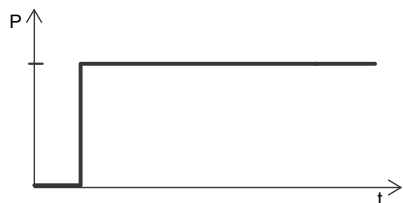


Fig. 30 S1 operation

Pumped liquids

pH value: 4 to 10.

Liquid temperature: 0-40 °C.

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

For non-Ex versions only, the temperature up to 60 °C is permissible for max. 3 minutes.

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 |
|-------------------|-----------------|
| 0.6 | 2 |
| 0.9 | 2 |
| 1.1 | 2 |
| 1.5 | 2 |
| 2.6 | 2 |

Frequency converter operation

This section applies to DP, EF, SL1 and SLV, standard pumps only.

Pumps with AUTO_{ADAPT} features must not be used with a frequency converter.

Frequency converter operation exposes the motor insulation system to a heavier load and may cause the motor to be more noisy due to eddy currents caused by voltage peaks.

In addition, large motors are loaded by bearing currents caused by the frequency converter.

For more information, see the installation and operating instructions for the relevant frequency converter on www.grundfos.com (Grundfos Product Center).

TM06 5919 0316

TM04 4527 1509

TM04 5228 1509

Approvals

Approval standards

The standard and AUTO_{ADAPT} version of DP and EF pumps are tested by VDE and approved by TÜV Rheinland LGA (notified body under the Construction Products Directive) according to EN 12050-2 as specified on the nameplate.

The standard and AUTO_{ADAPT} versions of SL1 and SLV pumps are tested by VDE and approved by TÜV Rheinland LGA (notified body under the Construction Products Directive) according to EN 12050-1 and EN 12050-2 as specified on the nameplate.

Explanation to Ex approval

The explosion-proof versions are approved by DEKRA according to the ATEX directive.

The explosion protection classification of the DP/EF and SL1/SLV pump is CE 0344 Ⓜ Ex II 2 G Ex db h IIB T4/T3 Gb.

The DP/EF and SL1/SLV AUTO_{ADAPT} explosion-proof versions are approved by DEKRA according to the ATEX directive. The explosion protection classification of the pump is CE 0344 Ⓜ II 2 G Ex db h ib IIB T4 Gb.

| Directive/standard | Code | Description |
|------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATEX | CE 0344 | = CE mark of conformity according to the ATEX directive 2014/34/EU. 0344 is the number of the notified body which certifies the quality system for ATEX. |
| | Ⓜ | = The equipment conforms to harmonised European standard. |
| | II | = Equipment group according to the ATEX directive, defining the requirements applicable to the equipment in this group. |
| | 2 | = Equipment category according to the ATEX directive, defining the requirements applicable to the equipment in this category. |
| | G | = Explosive atmospheres caused by gases, vapours or mists. |
| | Ex | = Explosion protection marking. |
| Harmonised European standard | db | = Flameproof enclosure. |
| | h | = Non-electrical equipment for explosive atmosphere. |
| | ib | = Intrinsic safety. |
| | IIB | = Classification of gases. Gas group B includes gas group A. |
| | T4/T3 | = T3 = maximum surface temperature of the motor is 200 °C. T4 = maximum surface temperature of the motor is 135 °C. |
| | Gb | = Equipment for explosive gas atmospheres with "high" level of protection. |

For IEC countries (as Australia and others) the explosion-proof versions of DP/EF and SL1/SLV are approved by DEKRA (certificate nr.: IECEx DEK 18.0038X), as Ex db IIB T4/T3 Gb (T3, when used with frequency converter) according to IEC 60079-0:2017 and IEC 60079-1:2014 (certificate nr.: IECEx KEM 06.0028X), as Ex nC II T3 according to IEC 60079-15:1987 (corresponding to AS 2380.9).

| Standard | Code | Description |
|--------------|------|------------------------------------------------------------------------|
| IEC 60079-15 | Ex | = Area classification according to AS 2430.1. |
| | n | = Non-sparking according to AS 2380.9:1991, section 3 (IEC 60079-15). |
| | C | = The environment is adequately protected against sparking components. |
| | II | = Classification of gases. |
| | T3 | = Maximum surface temperature is 200 °C. |

For IEC countries, such as Australia and others, the DP/EF and SL1/SLV AUTO_{ADAPT} explosion-proof versions are approved by DEKRA (certificate nr.: IECEx DEK 11.0026X).

The explosion protection classification of the AUTO_{ADAPT} pumps is Ex db h ib IIB T4 Gb

| Standard | Code | Description |
|------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------|
| IEC 60079-0:2017, IEC 60079-1:2014, IEC 60079-11:2011, ISO 80079-36:2016 and ISO 80079-37:2016 | Ex | = The equipment conforms to the IECEx. |
| | db | = Flameproof enclosure. |
| | ib | = Intrinsic safety. |
| | h | = Non-electrical equipment for explosive atmosphere. |
| | IIB | = Classification of gases. Gas group B includes gas group A. |
| | T4 | = Maximum surface temperature is 135 °C. |
| Gb | = Equipment protection level. | |

Wiring diagrams

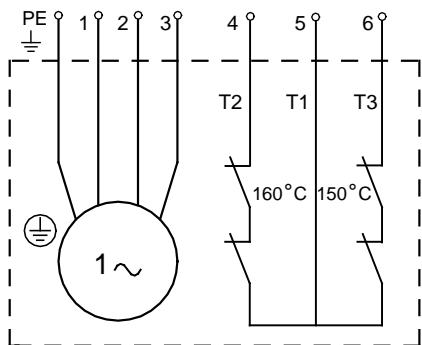
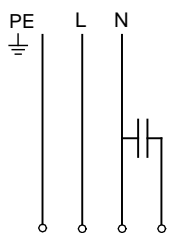


Fig. 31 Wiring diagram for single-phase pumps

TM02 5587 4302

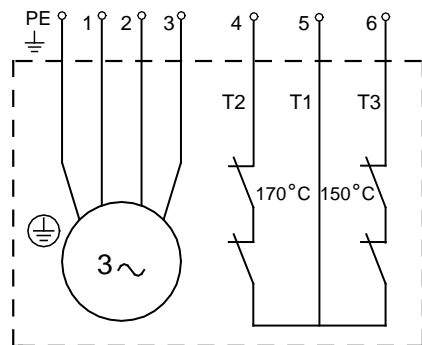
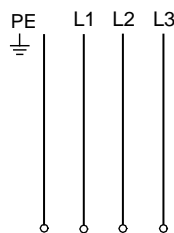


Fig. 33 Wiring diagram for three-phase pumps

TM02 5588 4302

| Cs, starting capacitor | | Cr, run capacitor | |
|------------------------|-----|-------------------|-----|
| [μF] | [V] | [μF] | [V] |
| 150 | 230 | 30 | 450 |

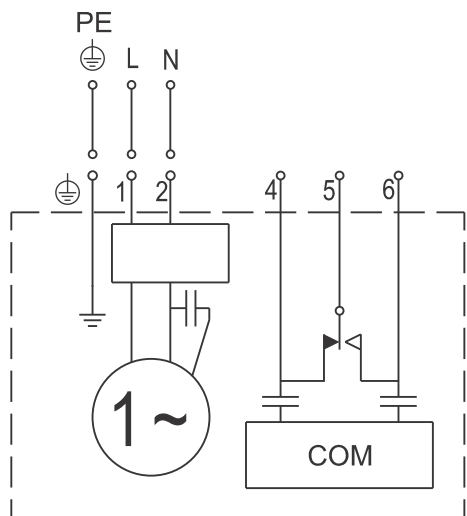


Fig. 32 Wiring diagram for single-phase AUTO_{ADAPT} pumps

TM04 4297 1209

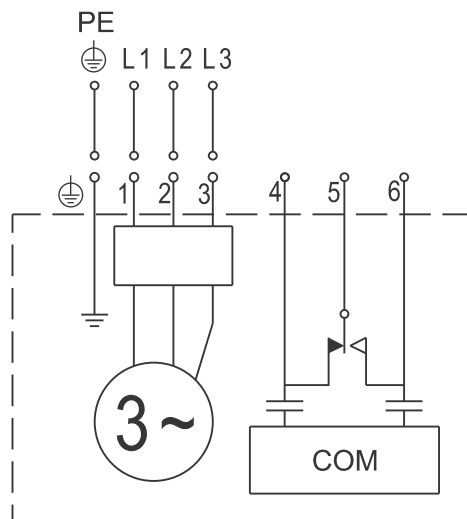
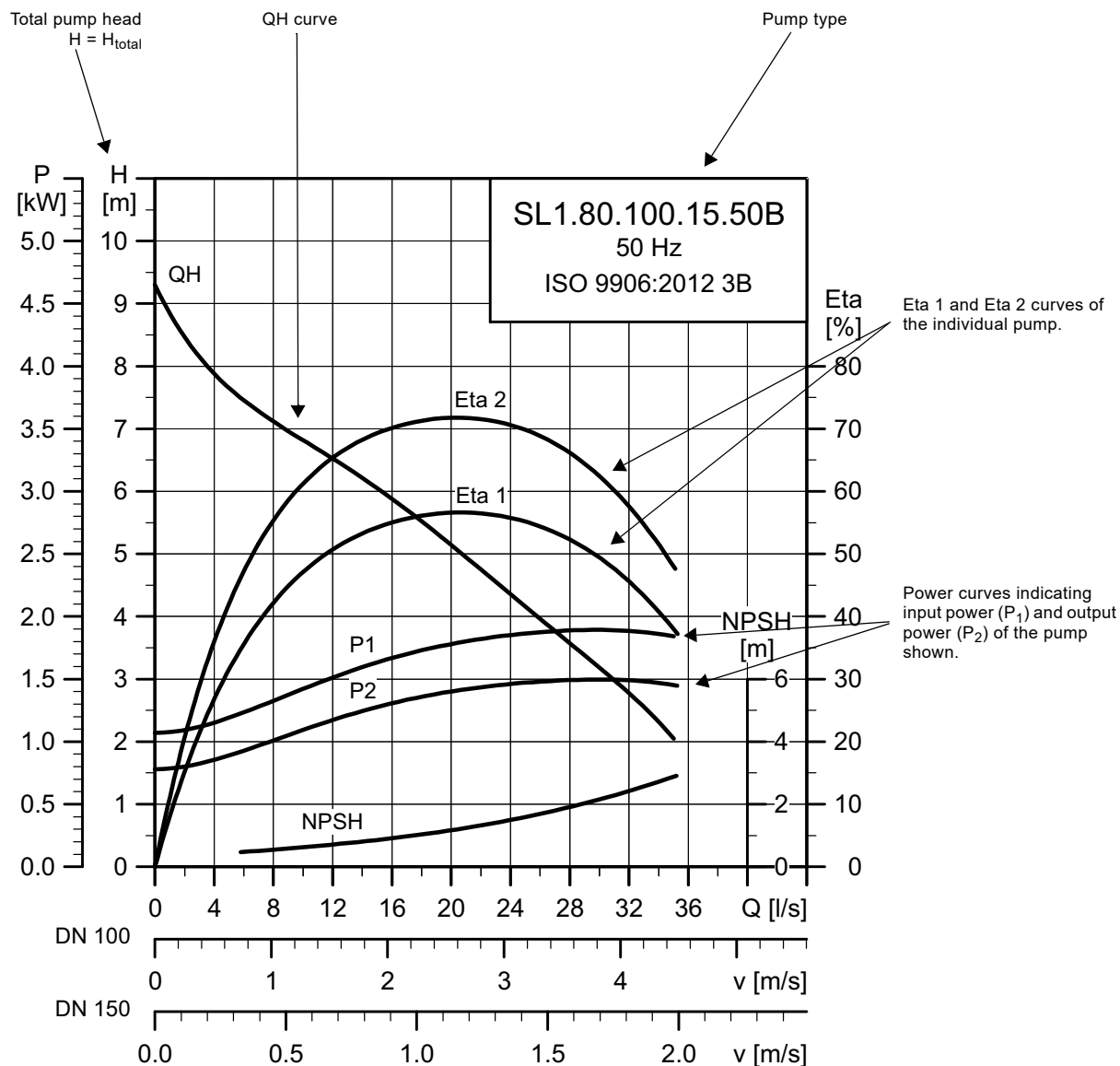


Fig. 34 Wiring diagram for three-phase AUTO_{ADAPT} pumps

TM04 4298 1209

9. Curve charts

The example below serves as a guidance on how to read the performance curves for DP, EF, SL1 and SLV, standard and AUTO_{ADAPT} pumps, including explosion-proof versions.



Note: The pumps are tested according to ISO 9906:2012 grade 3B tolerance. Testing equipment and measuring instruments are designed and calibrated according to the standards mentioned. The pumps are approved according to tolerances for entire curves, specified in grade 3B.

TM04 3460 4608

Curve conditions

The guidelines below apply to the curves on pages 49 to 69.

- Tolerances according to ISO 9906:2012, grade 3B.
- 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.
 - Eta 1 is the overall efficiency of the pump (P_{hyd}/P_1).
 - Eta 2 is the hydraulic efficiency of the pump (P_{hyd}/P_2).

P_2 : Pump input power.

P_1 : Motor input power.

P_{hyd} : Power applied to the liquid by the pump.

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

Calculation of total head

The total pump head can be calculated the following way: $H_{total} = H_{geo} + H_{stat} + H_{dyn}$

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 inlet and outlet sides of the pump.

Performance tests

The requested duty point of the pumps are tested according to ISO 9906:2012, grade 3B, and without certification.

In case of pumps ordered on the basis of impeller diameter only (no requested duty point), the pumps are 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 9906:2012, grade 3B).

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

Certificates

Certificates are available on request and have to be confirmed for each order. See section [List of variants](#), page 18.

Witness test

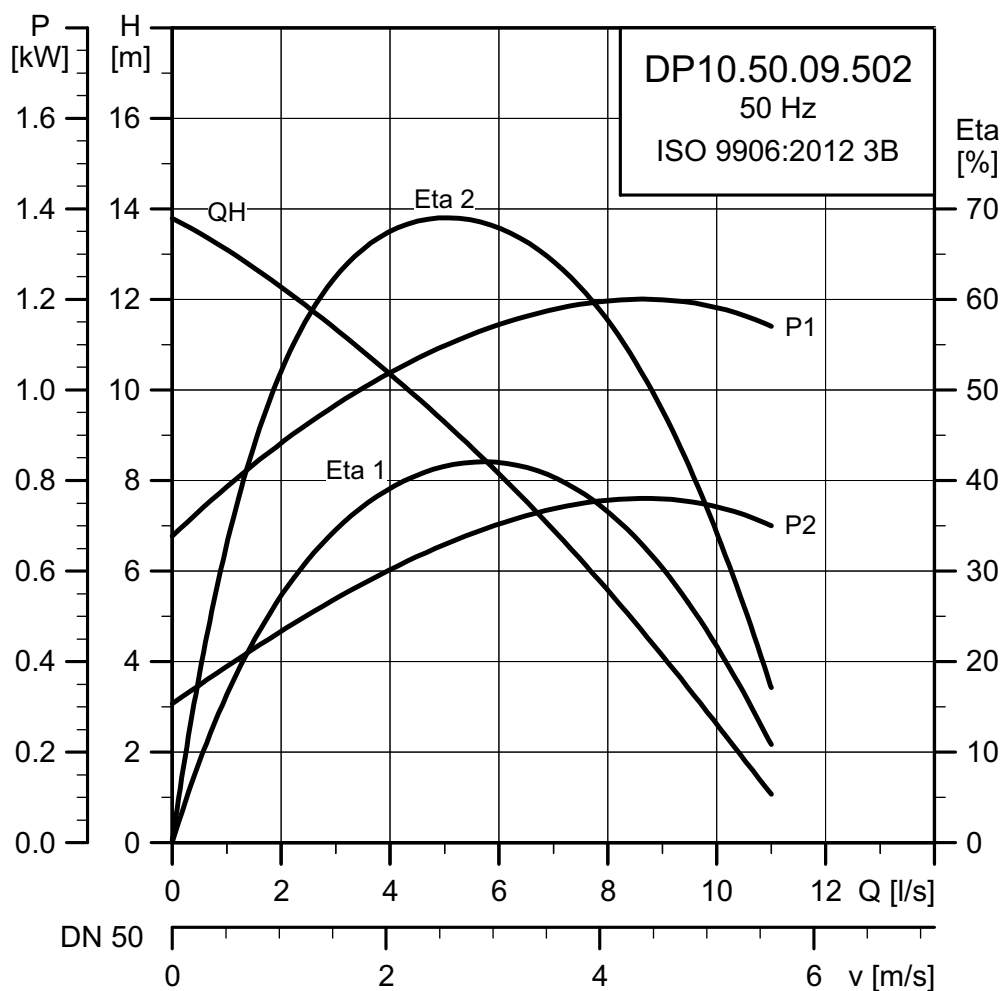
According to ISO 9906:2012, the customer can witness the testing procedure.

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

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

10. Performance curves and technical data

DP 10.50.09.(A)/(E).(Ex).2.1.502



TM02 7463 1810

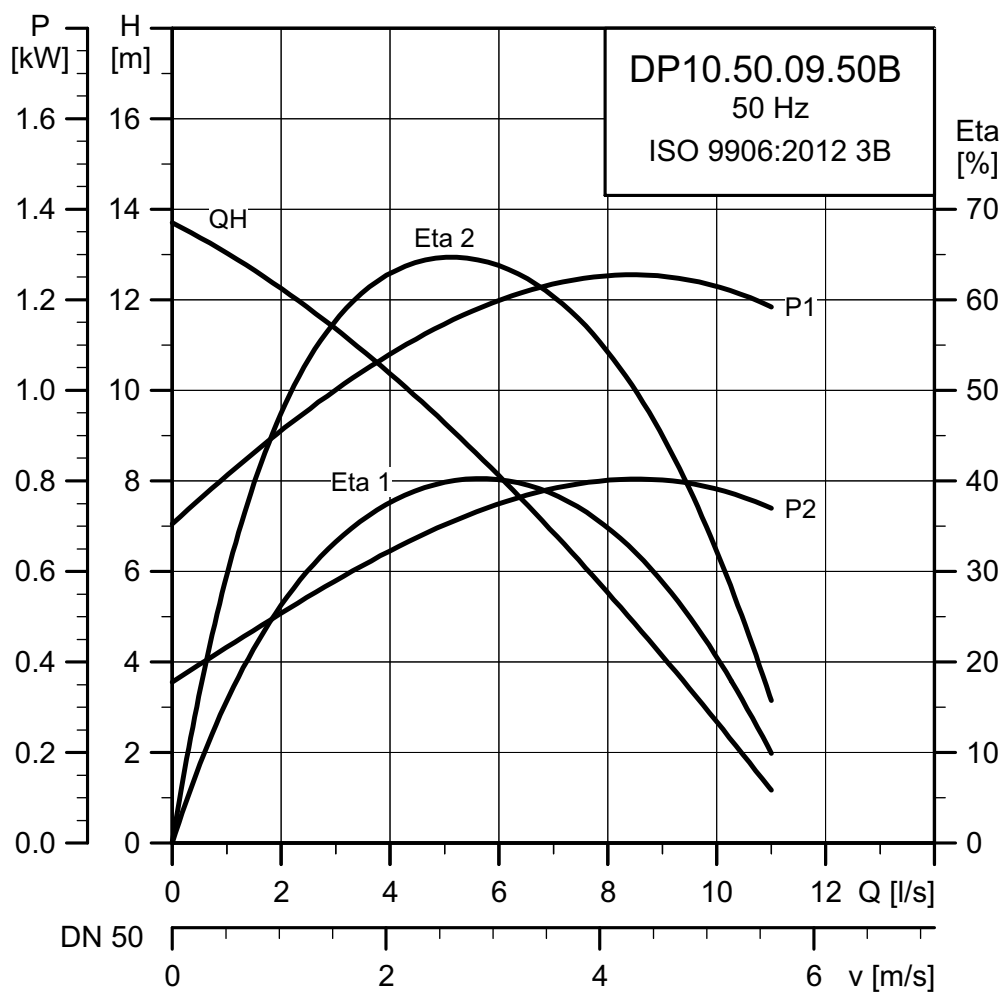
Electrical data

| Voltage | P1 | P2 | Number of poles | min ⁻¹ | Starting method | Run capacitor | | | I _N | I _{start} | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|---------|------|------|-----------------|-------------------|-----------------|---------------|-----|-----|----------------|--------------------|------------------------|------|------|-------|--------|-----|---------------------------------------|---------------------------------------|
| [V] | [kW] | [kW] | | | | [μF] | [A] | [A] | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.3 | 0.9 | 2 | 2870 | DOL | 30 | 6.1 | 38 | 0.55 | 0.63 | 0.67 | 0.86 | 0.92 | 0.96 | 0.0033 | 7 | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|-----------------------|--------------------------------|-----------------------------|-----------------|------------------|------------------------------|------|-----------------------------|
| Semi-open | 10 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

DP 10.50.09.(A)/(E).(Ex).2.50B



TM02 7462 1810

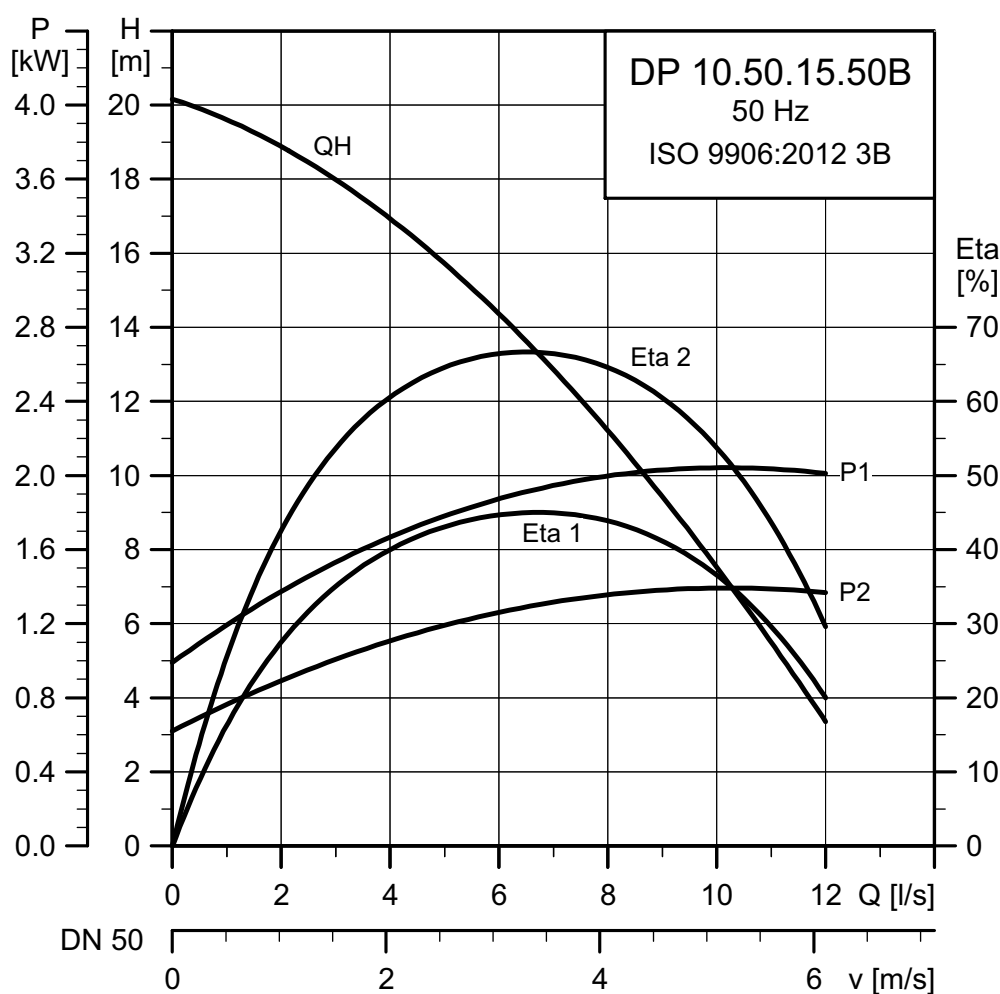
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | η _{motor} [%] | | | Cos φ | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] | |
|----------------|------------|------------|--------------------|-------------------|--------------------|----------------|-----|------------------------|-----|-----|-------|------|---------------------------------------------|---------------------------------------------|-----|
| | | | | | | [A] | [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | | | 1/1 |
| 3 × 400-415 | 1.38 | 0.9 | 2 | 2870 | DOL | 2.8 | 21 | 58 | 61 | 65 | 0.58 | 0.68 | 0.76 | 0.0033 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

DP 10.50.15.(A)/(E).(Ex).2.50B



TM02 7461 1810

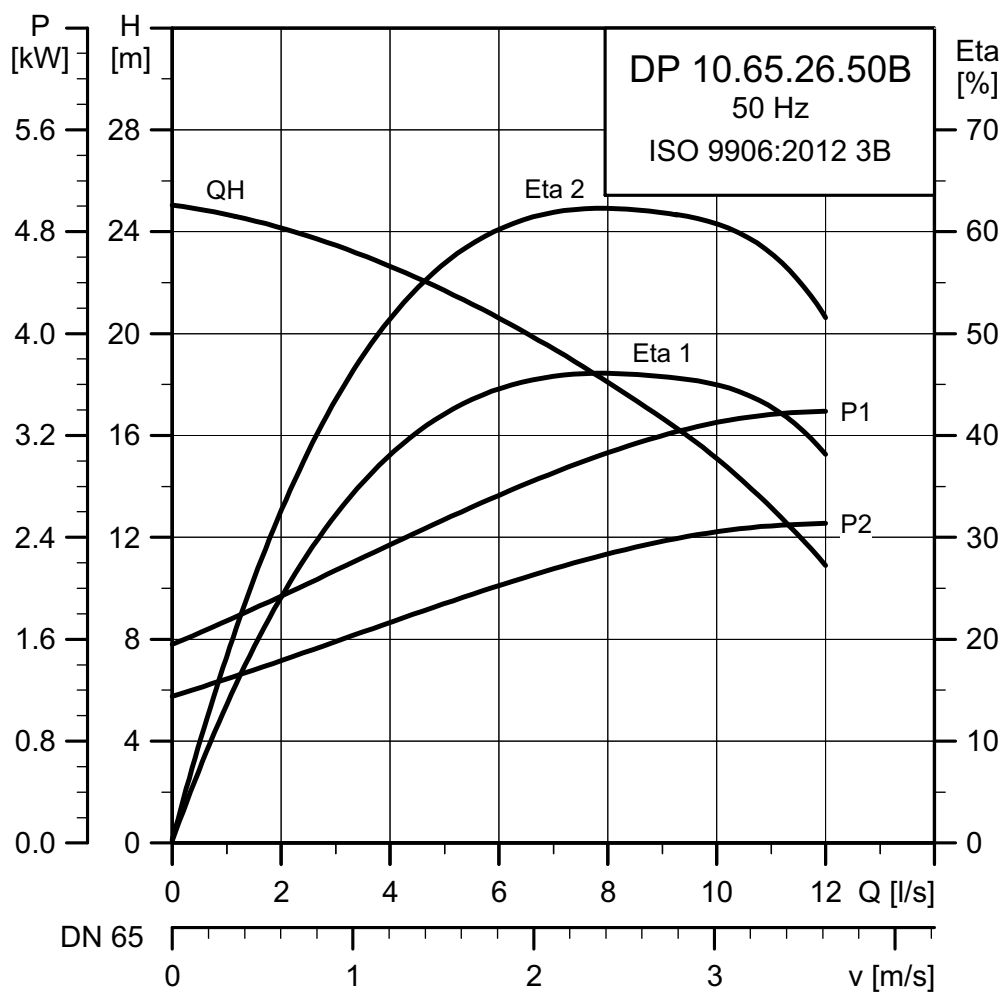
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min^{-1} | Starting method | I_N | | η_{motor} [%] | | | | Cos ϕ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|--------------|---------------------------|---------------------------|-----|-----|------|------------|------|--------|---------------------------------------------|---------------------------------------------|
| | | | | | | I_N [A] | I_{start} [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | | |
| 3 × 400-415 | 2.2 | 1.5 | 2 | 2720 | DOL | 3.8 | 21 | 63 | 68 | 67 | 0.71 | 0.81 | 0.88 | 0.0036 | 12 | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

DP 10.65.26.(A)/(E).(Ex).2.50B



TM02 7464 1810

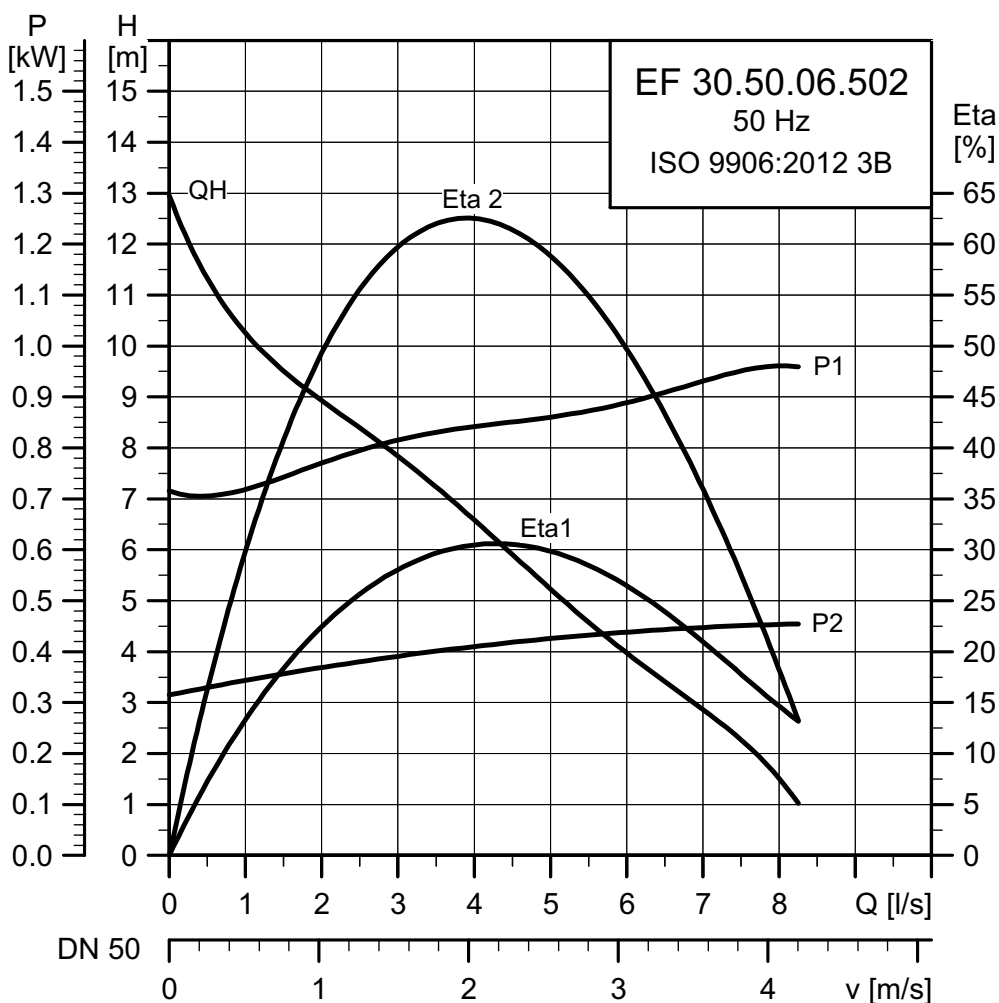
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | n min^{-1} | Starting method | I_N | | | I_{start} | | | $\eta_{\text{motor}} [\%]$ | | | $\text{Cos } \varphi$ | | | Moment of inertia [kgm^2] | Breakdown torque $_{\text{max}}$ [Nm] |
|--------------------|------------|------------|--------------------|--------------------------|--------------------|-------|-----|-----|--------------------|-----|------|----------------------------|------|-------|-----------------------|--|--|--------------------------------------------|---------------------------------------------|
| | | | | | | [A] | [A] | [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | | | | |
| $3 \times 400-415$ | 3.5 | 2.6 | 2 | 2870 | DOL | 5.8 | 33 | 74 | 75 | 74 | 0.68 | 0.81 | 0.87 | 0.007 | 24 | | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

EF 30.50.06.(A)/(E).(Ex).2.1.502



TM02 7469 1810

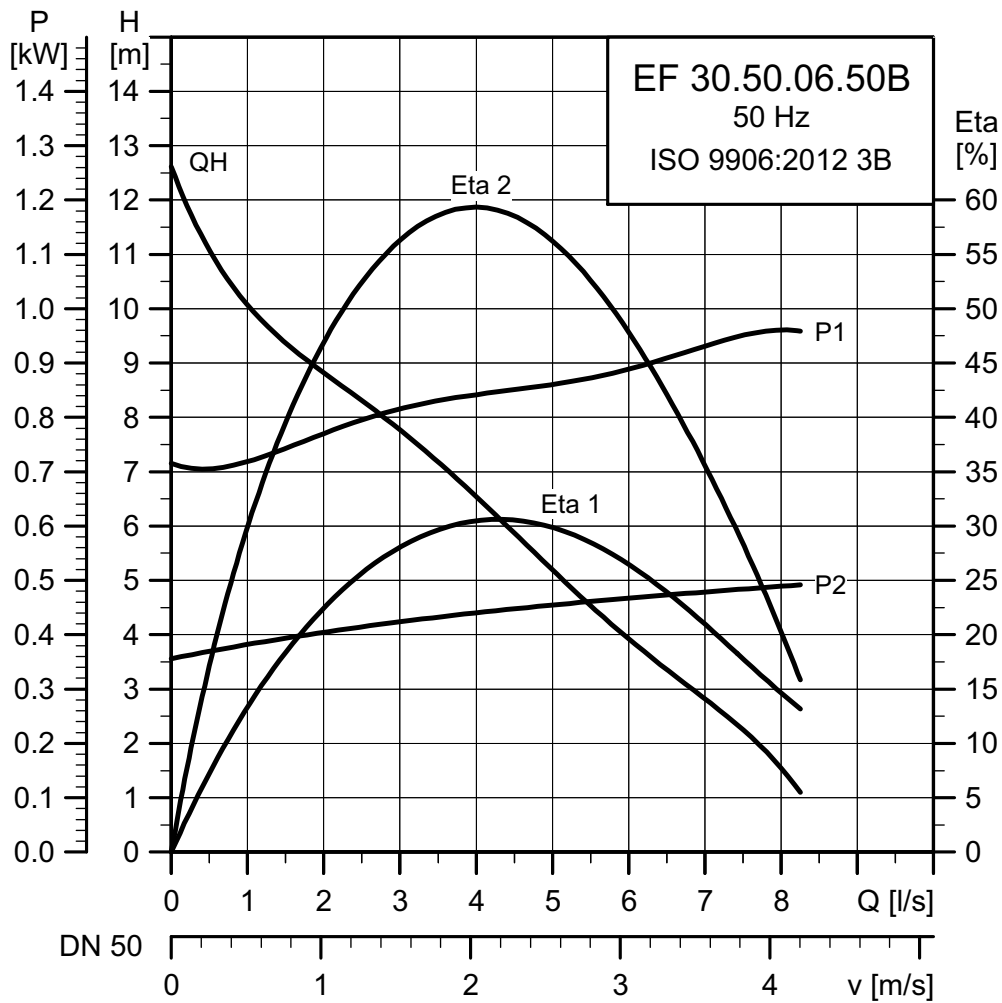
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|---------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|------------------------------------------|------------------------------------------|
| | | | | | | [μF] | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.0 | 0.6 | 2 | 2920 | DOL | 30 | 4.8 | 38 | 42 | 55 | 61 | 0.81 | 0.86 | 0.90 | 0.0035 | 7 |

Pump data

| Impeller type | Max. solids size | Max. number of starts per hour | Max. installation depth | Enclosure class | Insulation class | Max. liquid temperature | pH | Ex class |
|---------------|------------------|--------------------------------|-------------------------|-----------------|------------------|-------------------------|------|-----------------------------|
| | [mm] | | [m] | | | [°C] | | |
| Semi-open | 30 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

EF 30.50.06.(A)/(E).(Ex).2.50B



TM02 7468 1810

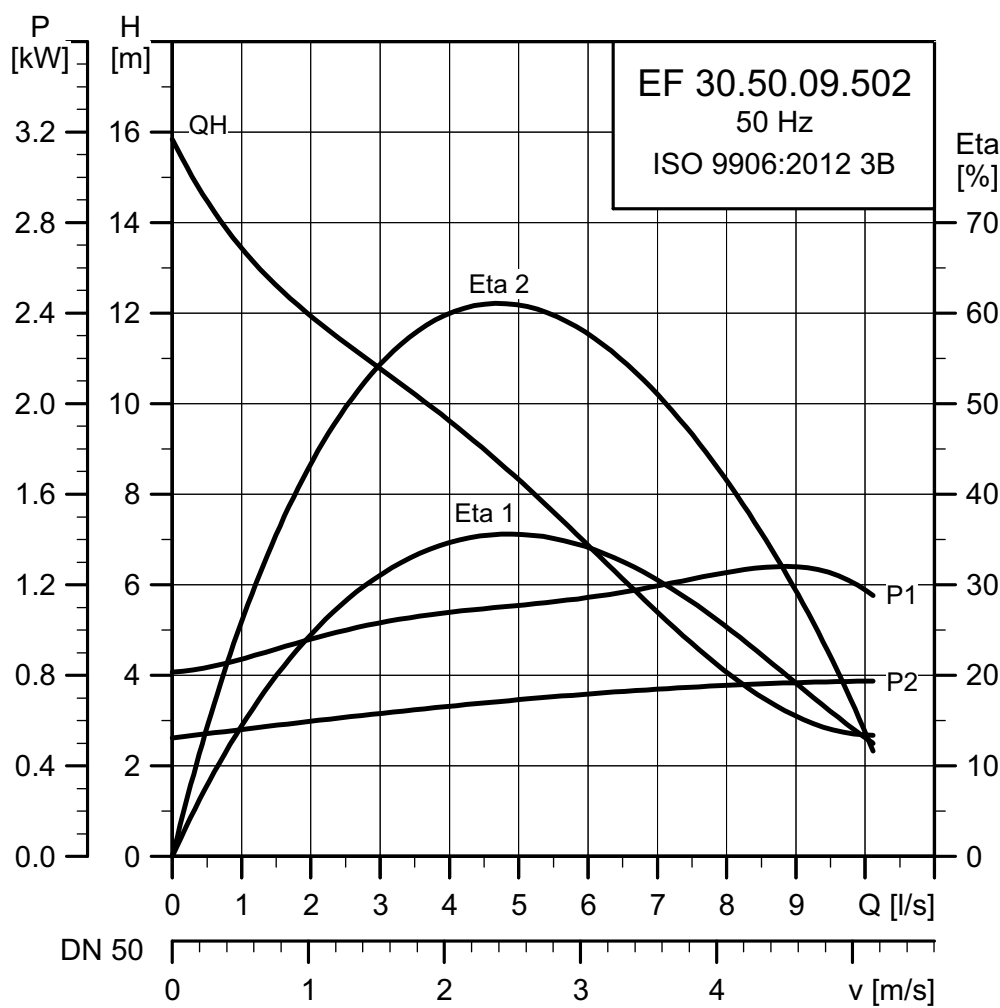
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | | I _{start} | | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|----------------|-----|-----|--------------------|-----|-----|------------------------|------|------|--------|-----|-----|------------------------------------------|------------------------------------------|
| | | | | | | [A] | [A] | [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 400-415 | 1.0 | 0.6 | 2 | 2920 | DOL | 2.3 | 21 | | 43 | 53 | 59 | 0.50 | 0.58 | 0.65 | 0.0035 | 12 | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|--------------------------|--------------------------------|--------------------------------|-----------------|------------------|---------------------------------|----|----------|
| | | | | | | | | |

EF 30.50.09.(A)/(E).(Ex).2.1.502



TM02 7481 1810

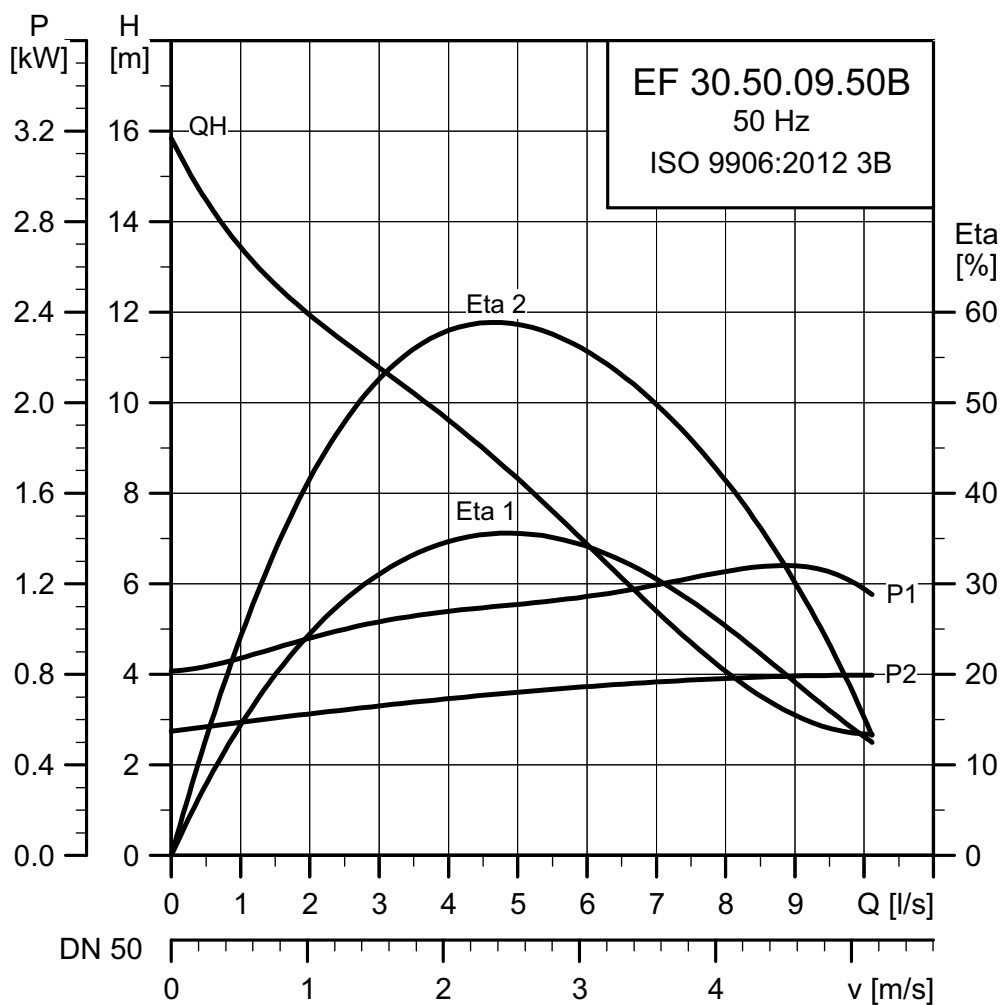
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor [μF] | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|-----------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|------------------------------------------|------------------------------------------|
| | | | | | | | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.3 | 0.9 | 2 | 2870 | DOL | 30 | 6.1 | 38 | 55 | 63 | 67 | 0.86 | 0.92 | 0.96 | 0.037 | 7 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|--------------------------|--------------------------------|--------------------------------|-----------------|------------------|---------------------------------|----|----------|
| | | | | | | | | |

EF 30.50.09.(A)/(E).(Ex).2.50B



TM02 7480 1810

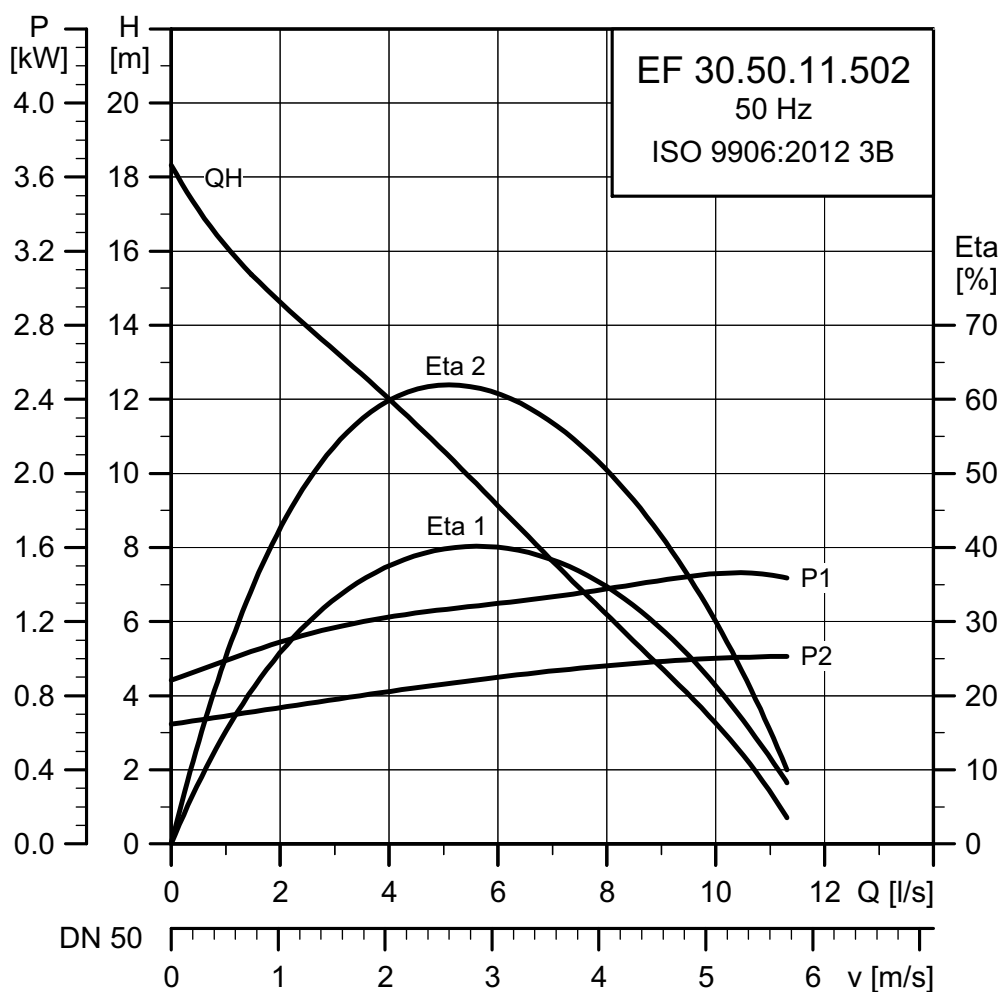
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | | I _{start} | | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|----------------|-----|-----|--------------------|-----|------|------------------------|------|--------|-------|-----|-----|---------------------------------------------|---------------------------------------------|
| | | | | | | [A] | [A] | [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 400-415 | 1.4 | 0.9 | 2 | 2870 | DOL | 2.8 | 21 | 58 | 61 | 65 | 0.58 | 0.68 | 0.76 | 0.0037 | 12 | | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

EF 30.50.11.(A)/(E).(Ex).2.1.502



TM02 7467 1810

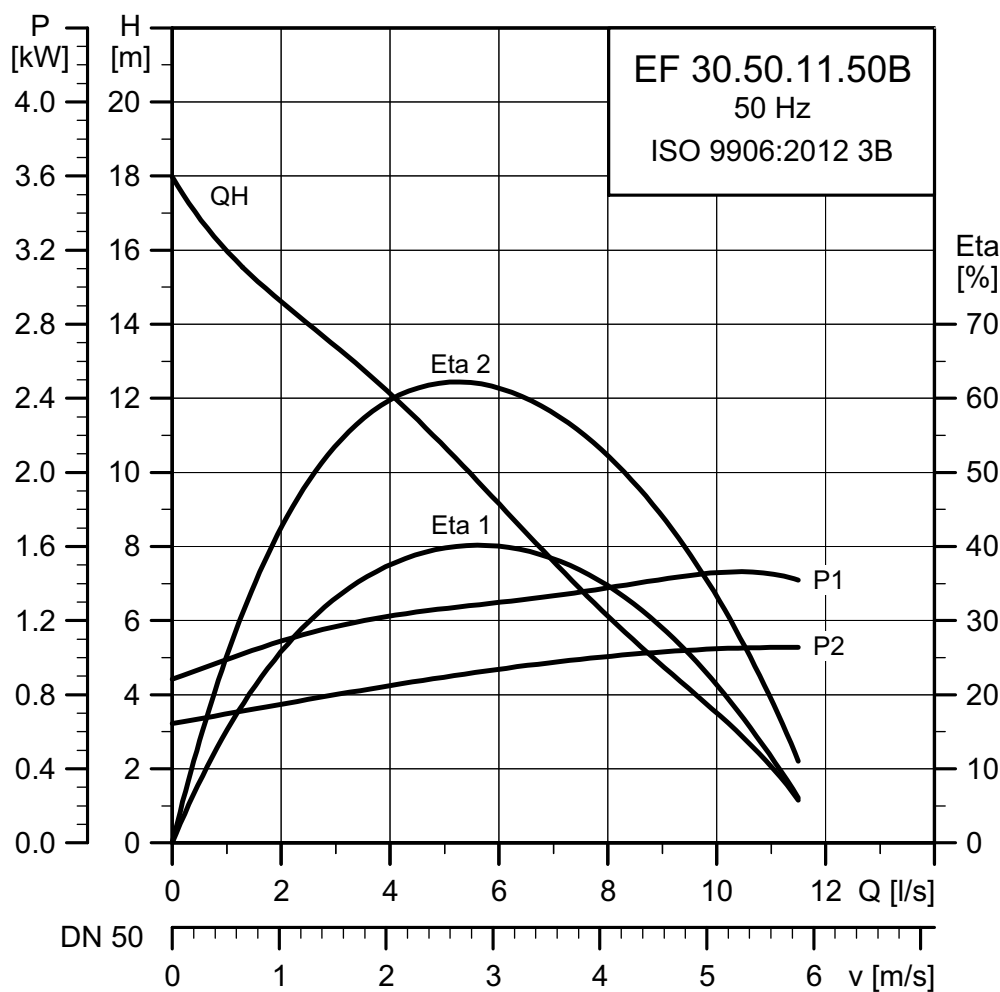
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min^{-1} | Starting method | Run capacitor | I_N [A] | I_{start} [A] | η_{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-------------------|--------------|---------------------------|---------------------------|-----|-----|---------------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | [μF] | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.6 | 1.1 | 2 | 2830 | DOL | 30 | 7.4 | 38 | 60 | 66 | 67 | 0.89 | 0.96 | 0.97 | 0.0037 | 7 |

Pump data

| Impeller type | Max. solids size | Max. number of starts per hour | Max. installation depth | Enclosure class | Insulation class | Max. liquid temperature | pH | Ex class |
|------------------|------------------|-----------------------------------|----------------------------|--------------------|---------------------|----------------------------|------|-----------------------------|
| | [mm] | | [m] | | | [°C] | | |
| Semi-open | 30 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

EF 30.50.11.(A)/(E).(Ex).2.50B



TM02 7466 1810

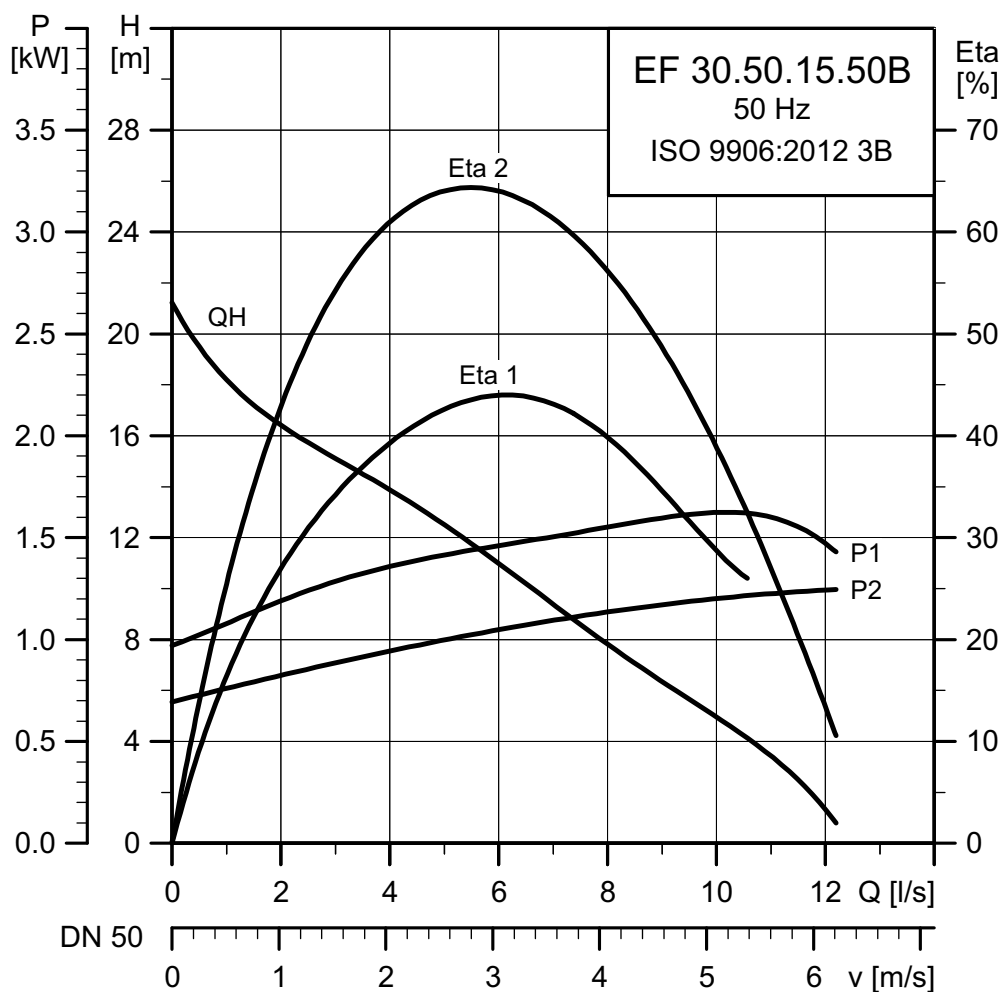
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | n min^{-1} | Starting method | I_N | | η_{motor} [%] | | | | $\text{Cos } \varphi$ | | Moment of inertia [kgm^2] | Breakdown torque $_{\text{max}}$ [Nm] |
|--------------------|------------|------------|--------------------|--------------------------|--------------------|--------------|---------------------------|---------------------------|-----|-----|------|-----------------------|------|--------------------------------------------|---------------------------------------------|
| | | | | | | I_N [A] | I_{start} [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| $3 \times 400-415$ | 1.6 | 1.1 | 2 | 2830 | DOL | 3.1 | 21 | 57 | 64 | 67 | 0.63 | 0.74 | 0.81 | 0.0037 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [$^{\circ}\text{C}$] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------------------------|----|----------|
| | | | | | | | | |

EF 30.50.15.(A)/(E).(Ex).2.50B



TM02 7465 1810

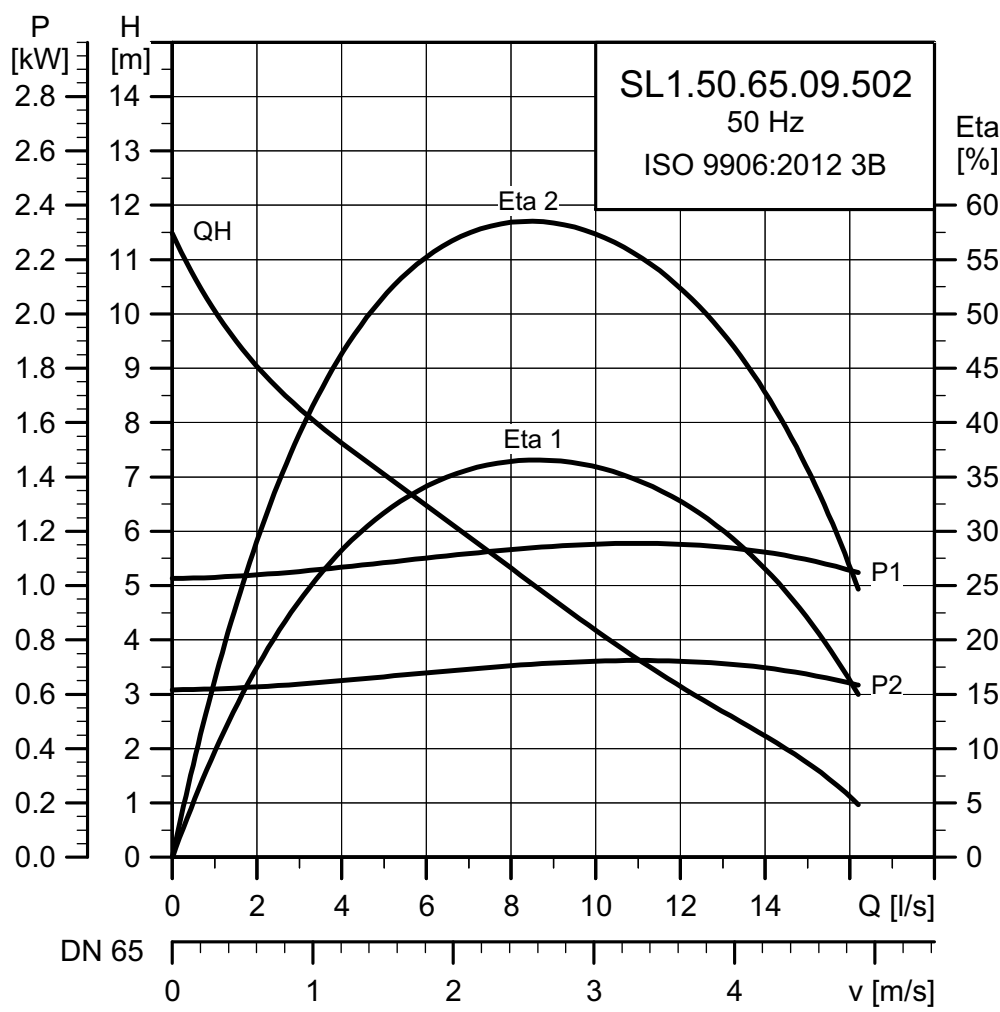
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min^{-1} | Starting method | I_N | | | η_{motor} [%] | | | Cos ϕ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-------|-----|--|---------------------------|-----|-----|------------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | [A] | [A] | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 400-415 | 2.2 | 1.5 | 2 | 2720 | DOL | 3.8 | 21 | | 63 | 68 | 67 | 0.71 | 0.81 | 0.88 | 0.0039 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

SL1.50.65.09.(A)/(E).(Ex).2.1.502



TM04 9100 3410

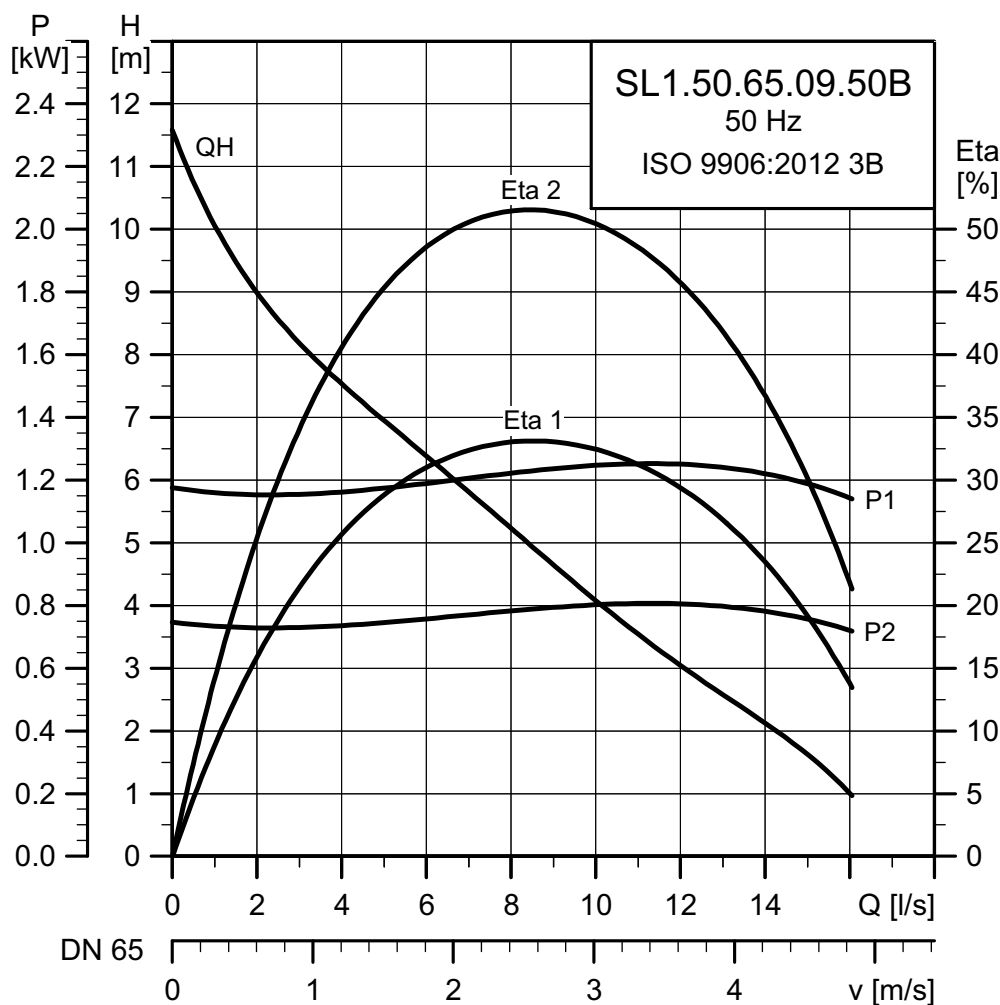
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor [μF] | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|-----------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|------------------------------------------|------------------------------------------|
| | | | | | | | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.3 | 0.9 | 2 | 2920 | DOL | 30 | 6.1 | 38 | 55 | 63 | 67 | 0.86 | 0.92 | 0.96 | 0.004 | 7 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|--------------------------|--------------------------------|--------------------------------|-----------------|------------------|---------------------------------|----|----------|
| | | | | | | | | |

SL1.50.65.09.(A)/(E).(Ex).2.50B/C



TM04 9101 3410

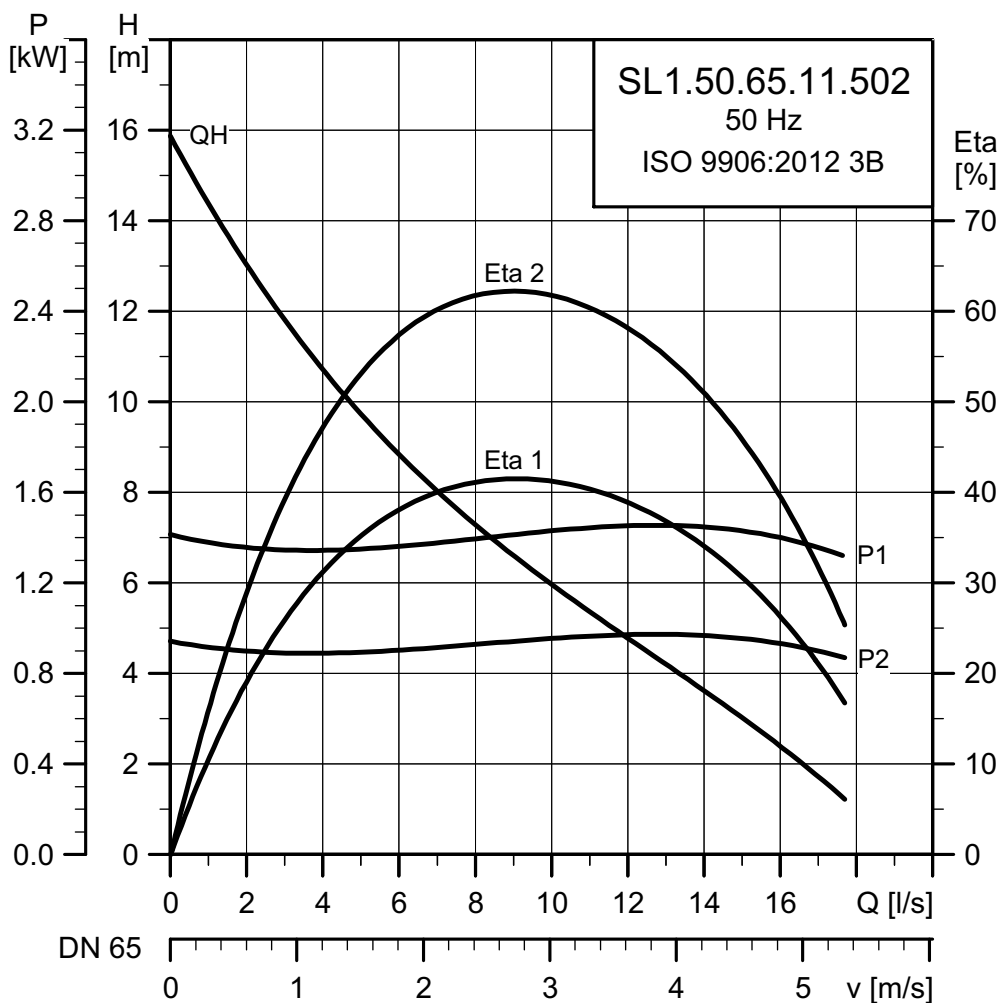
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | | I _{start} | | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-----------------------|---------------------------|--|--------------------|-----|-----|------------------------|------|------|-------|-----|-----|---------------------------------------------|---------------------------------------------|
| | | | | | | I _N [A] | I _{start} [A] | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 1.4 | 0.9 | 2 | 2920 | DOL | 4.9 | 36 | | 58 | 61 | 65 | 0.50 | 0.58 | 0.65 | 0.004 | 12 | | | |
| 3 × 400-415 | 1.4 | 0.9 | 2 | 2920 | DOL | 2.8 | 21 | | 58 | 61 | 65 | 0.58 | 0.68 | 0.76 | 0.004 | 12 | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature | | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|----------------------------|--|------|-----------------------------|
| | | | | | | [°C] | | | |
| Channel | 50 | 30 | 10 | IP68 | F | 40 | | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

SL1.50.65.11.(A)/(E).(Ex).2.1.502



TM04 9102 3410

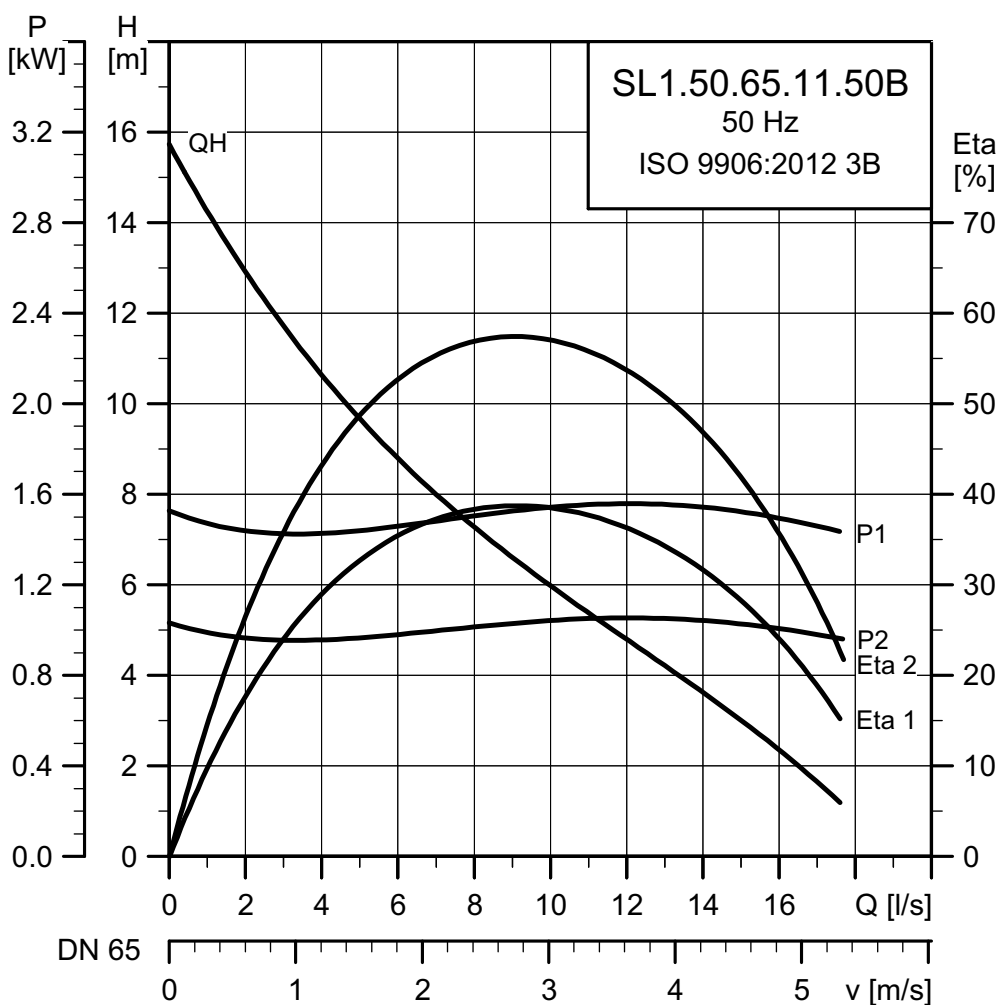
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor [μF] | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|-----------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|------------------------------------------|------------------------------------------|
| | | | | | | | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.6 | 1.1 | 2 | 2920 | DOL | 30 | 7.4 | 38 | 60 | 66 | 67 | 0.89 | 0.96 | 0.97 | 0.004 | 7 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|--------------------------|--------------------------------|--------------------------------|-----------------|------------------|---------------------------------|----|----------|
| | | | | | | | | |

SL1.50.65.11.(A)/(E).(Ex).2.50B/C



TM04 9103 3410

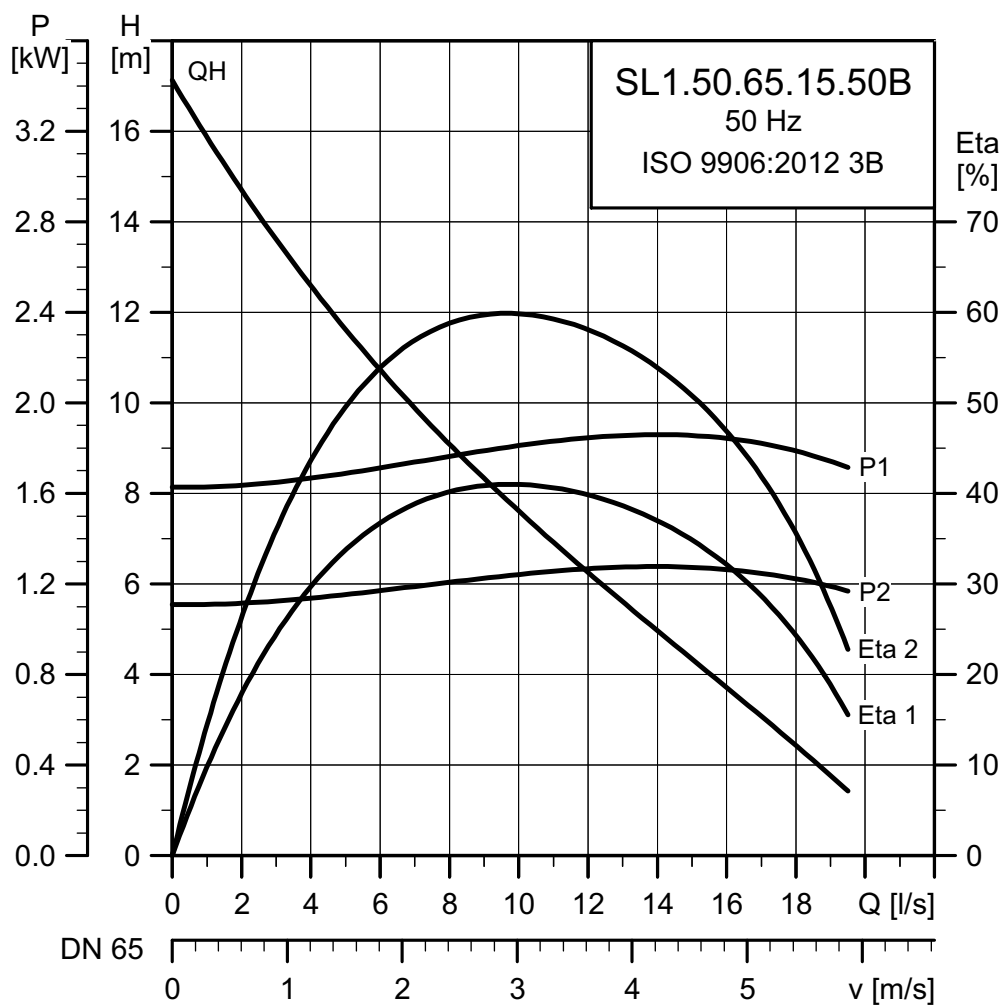
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | | I _{start} | | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-----------------------|---------------------------|--|--------------------|-----|-----|------------------------|------|------|--------|-----|-----|---------------------------------------------|---------------------------------------------|
| | | | | | | I _N [A] | I _{start} [A] | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 1.6 | 1.1 | 2 | 2830 | DOL | 5.2 | 36 | | 57 | 64 | 67 | 0.63 | 0.74 | 0.81 | 0.0043 | 12 | | | |
| 3 × 400-415 | 1.6 | 1.1 | 2 | 2830 | DOL | 3.1 | 21 | | 57 | 64 | 67 | 0.63 | 0.74 | 0.81 | 0.0043 | 12 | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

SL1.50.65.15.(A)/(E).(Ex).2.50B/C



TM04 9104 3410

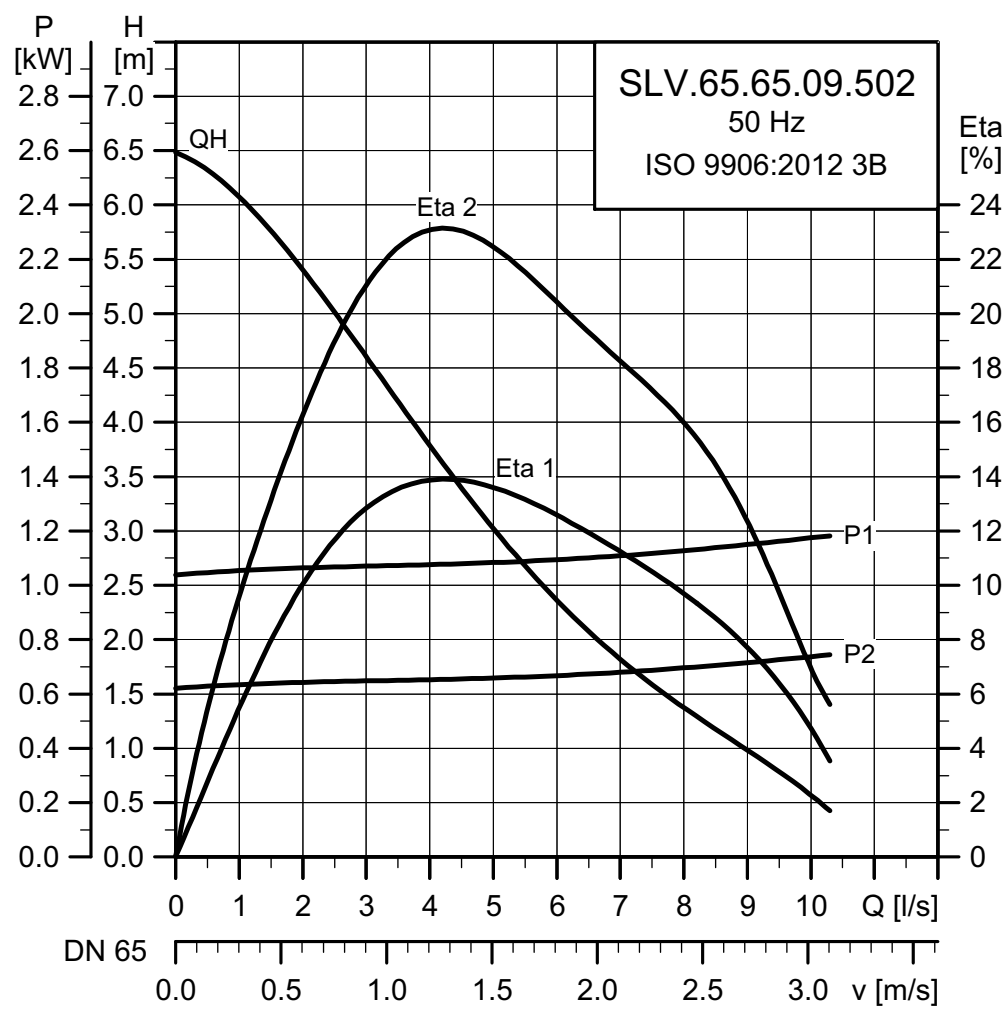
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | I _N [A] | I _{start} [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 2.2 | 1.5 | 2 | 2720 | DOL | 6.6 | 36 | 67 | 68 | 63 | 0.88 | 0.81 | 0.71 | 0.004 | 12 |
| 3 × 400-415 | 2.2 | 1.5 | 2 | 2720 | DOL | 3.8 | 21 | 67 | 68 | 63 | 0.88 | 0.81 | 0.71 | 0.004 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

SLV.65.65.09.(A)/(E).(Ex).2.1.502



TM04 9105 3410

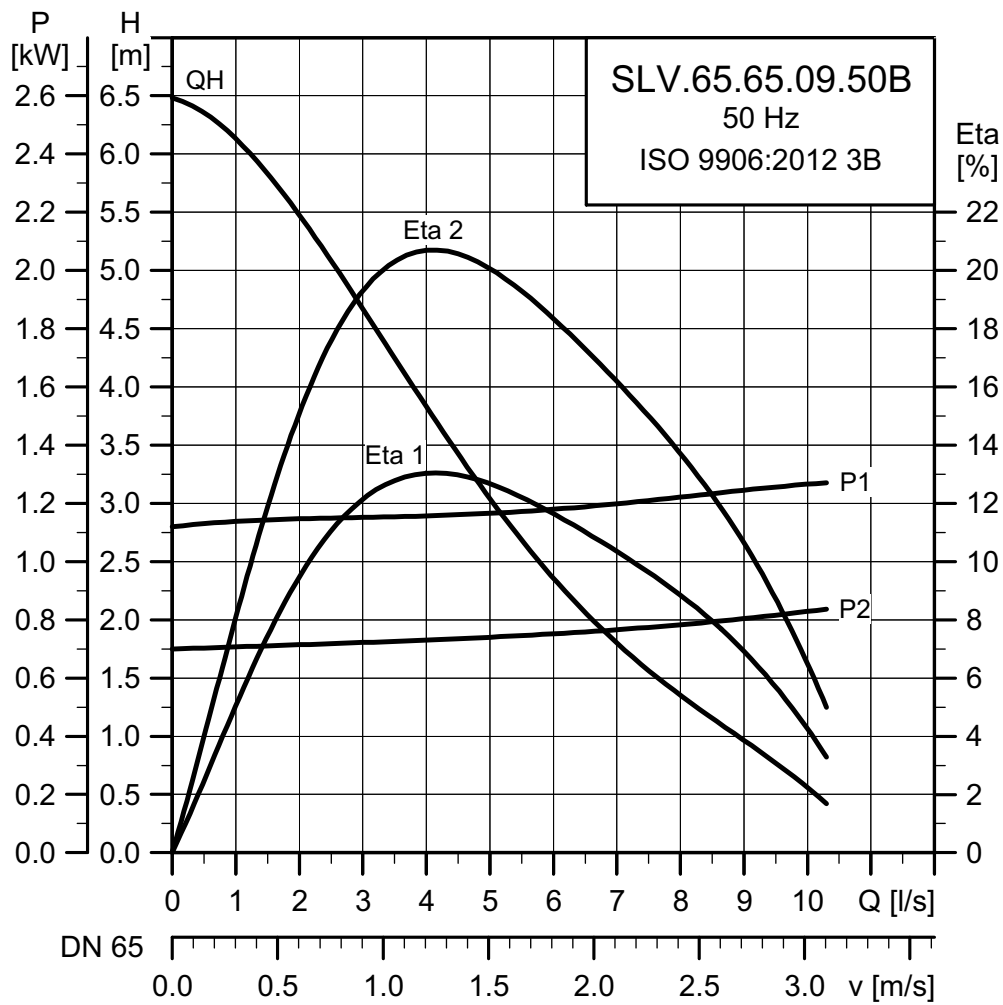
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor [μF] | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|-----------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|------------------------------------------|------------------------------------------|
| | | | | | | | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.3 | 0.9 | 2 | 2920 | DOL | 30 | 6.1 | 38 | 55 | 63 | 67 | 0.86 | 0.92 | 0.96 | 0.004 | 7 |

Pump data

| Impeller type | Max. solids size | Max. number of starts per hour | Max. installation depth | Enclosure class | Insulation class | Max. liquid temperature | pH | Ex class |
|---------------|------------------|--------------------------------|-------------------------|-----------------|------------------|-------------------------|------|-----------------------------|
| | [mm] | | [m] | | | [°C] | | |
| Channel | 65 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

SLV.65.65.09.(A)/(E).(Ex).2.50B



TM04 9106 3410

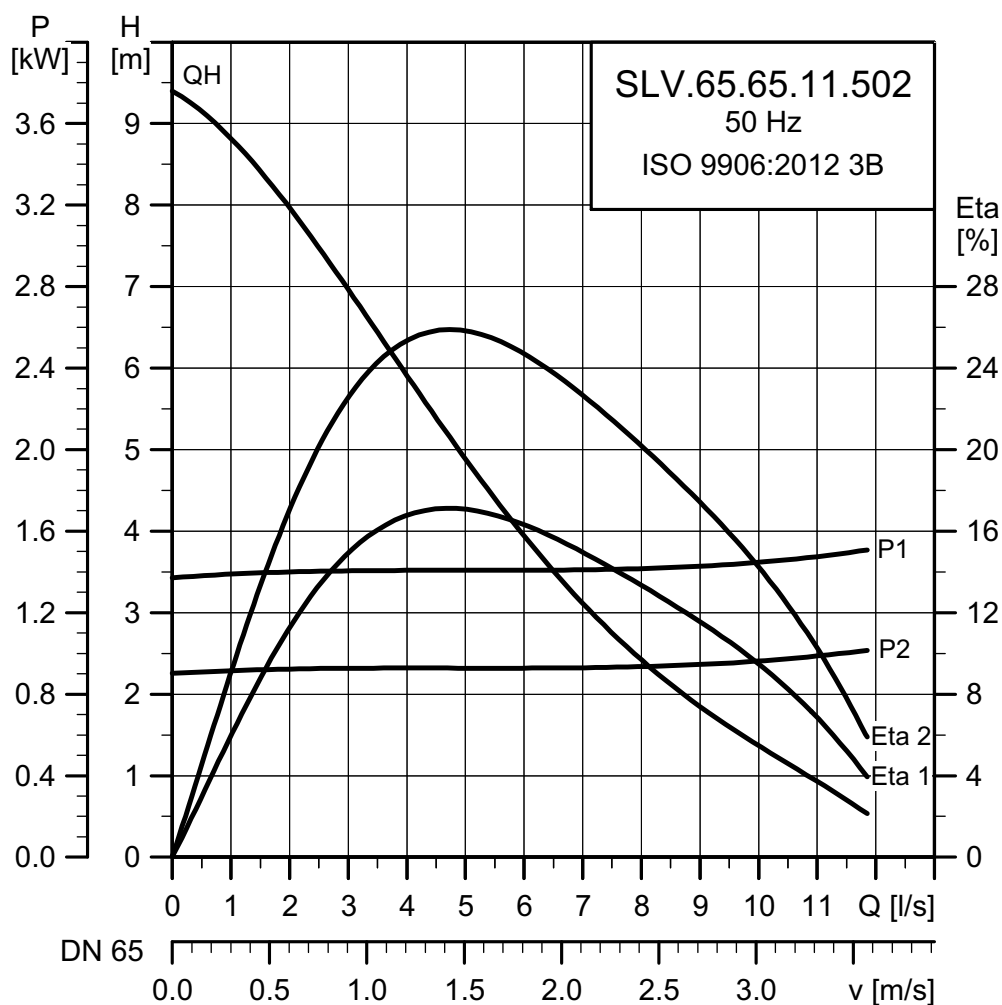
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | | I _{start} | | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|-----------------|-------------------|-----------------|----------------|-----|-----|--------------------|-----|------|------------------------|------|-------|-------|-----|-----|------------------------------------------|------------------------------------------|
| | | | | | | [A] | [A] | [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 1.4 | 0.9 | 2 | 2920 | DOL | 4.9 | 36 | 58 | 61 | 65 | 0.50 | 0.58 | 0.65 | 0.004 | 12 | | | | |
| 3 × 400-415 | 1.4 | 0.9 | 2 | 2920 | DOL | 2.8 | 21 | 58 | 61 | 65 | 0.58 | 0.68 | 0.76 | 0.004 | 12 | | | | |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|---------------|--------------------------|--------------------------------|--------------------------------|-----------------|------------------|---------------------------------|------|-----------------------------|
| Channel | 65 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

SLV.65.65.11.(A)/(E).(Ex).2.1.502



TM04 9107 3410

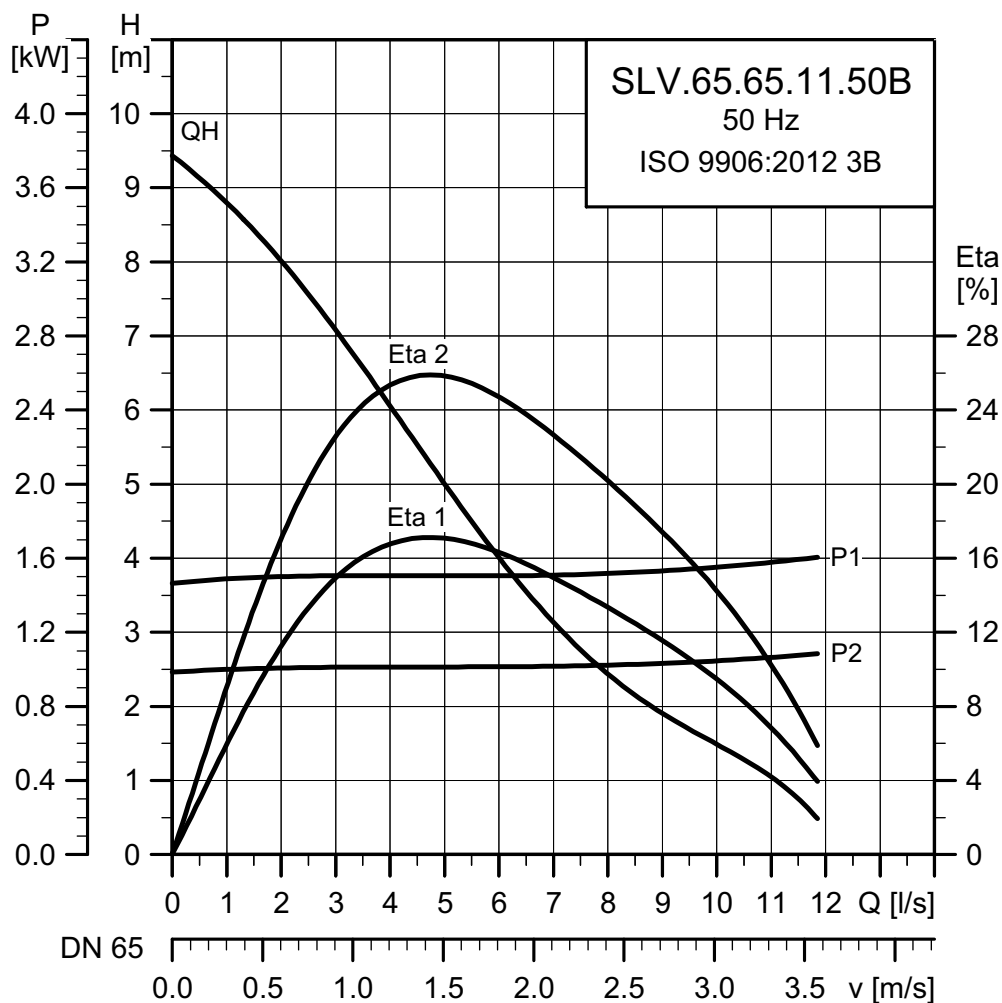
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | Run capacitor [μF] | I _N [A] | I _{start} [A] | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|--------------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | | | | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 1 × 230 | 1.6 | 1.1 | 2 | 2920 | DOL | 30 | 7.4 | 38 | 60 | 66 | 67 | 0.89 | 0.96 | 0.97 | 0.004 | 7 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|----|----------|
| | | | | | | | | |

SLV.65.65.11.(A)/(E).(Ex).2.50B



TM04 7192 1810

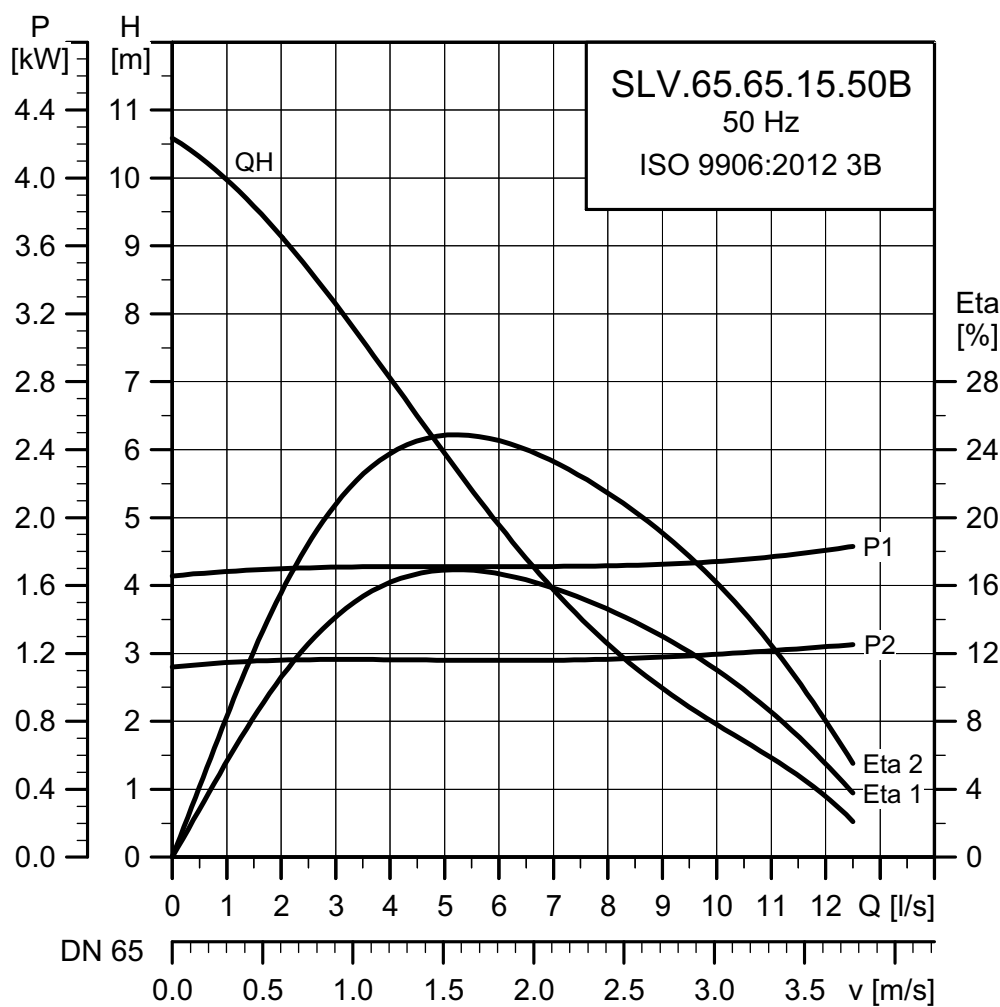
Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | I _N [A] | I _{start} [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 1.6 | 1.1 | 2 | 2830 | DOL | 5.2 | 36 | 57 | 64 | 67 | 0.63 | 0.74 | 0.81 | 0.0043 | 12 |
| 3 × 400-415 | 1.6 | 1.1 | 2 | 2830 | DOL | 3.1 | 21 | 57 | 64 | 67 | 0.63 | 0.74 | 0.81 | 0.0043 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|------|-----------------------------|
| Channel | 65 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

SLV.65.65.15.(A)/(E).(Ex).2.50B



TM04 7193 1810

Electrical data

| Voltage [V] | P1 [kW] | P2 [kW] | Number of poles | min ⁻¹ | Starting method | I _N | | η _{motor} [%] | | | Cos φ | | | Moment of inertia [kgm ²] | Breakdown torque _{max.} [Nm] |
|----------------|------------|------------|--------------------|-------------------|--------------------|-----------------------|---------------------------|------------------------|-----|-----|-------|------|------|---------------------------------------------|---------------------------------------------|
| | | | | | | I _N [A] | I _{start} [A] | 1/2 | 3/4 | 1/1 | 1/2 | 3/4 | 1/1 | | |
| 3 × 230-240 | 2.2 | 1.5 | 2 | 2720 | DOL | 6.6 | 36 | 67 | 68 | 63 | 0.88 | 0.81 | 0.71 | 0.004 | 12 |
| 3 × 400-415 | 2.2 | 1.5 | 2 | 2720 | DOL | 3.8 | 21 | 67 | 68 | 63 | 0.88 | 0.81 | 0.71 | 0.004 | 12 |

Pump data

| Impeller type | Max. solids size [mm] | Max. number of starts per hour | Max. installation depth [m] | Enclosure class | Insulation class | Max. liquid temperature [°C] | pH | Ex class |
|------------------|--------------------------|-----------------------------------|-----------------------------------|--------------------|---------------------|------------------------------------|------|-----------------------------|
| Channel | 65 | 30 | 10 | IP68 | F | 40 | 4-10 | Ex d IIB T4/ Ex n IIB T4 |

11. Dimensions

DP and EF

Auto-coupling installation

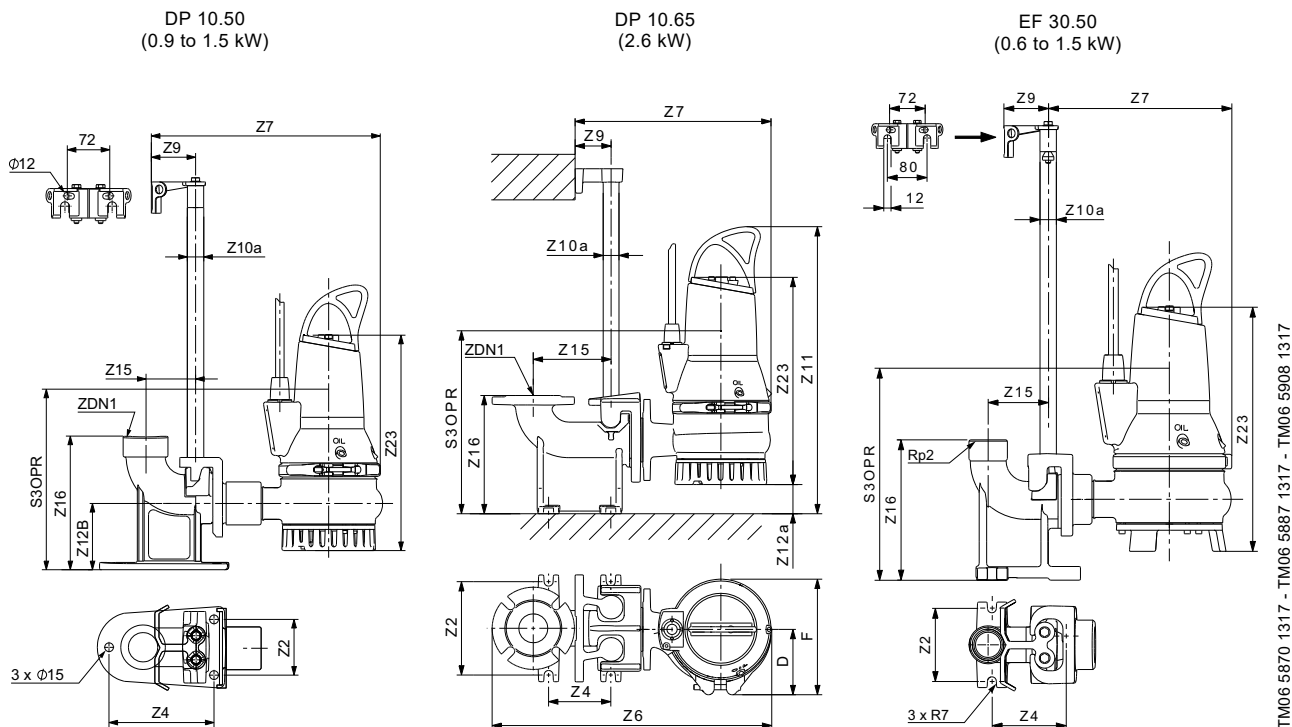
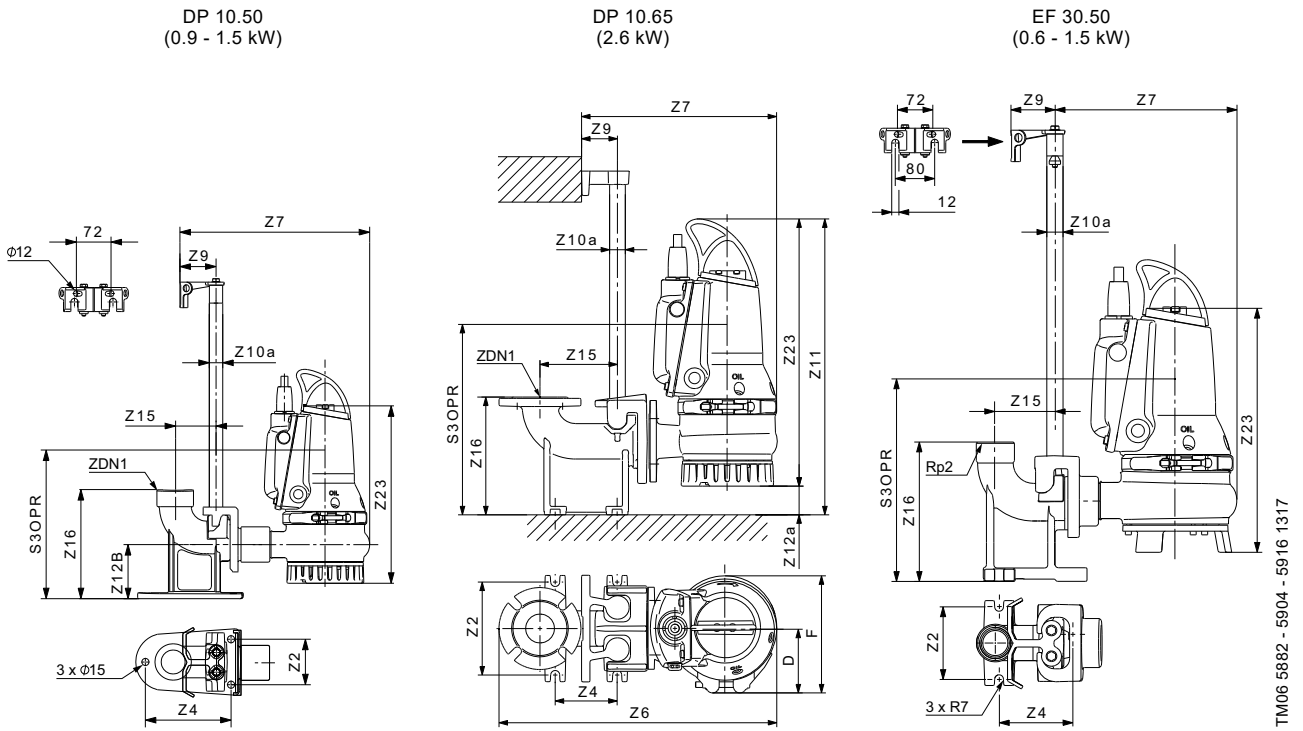


Fig. 35 Auto-coupling installation of standard pumps

| Power [kW] | D | F | Z2 | Z4 | Z6 | Z7 | Z9 | Z10a | Z11 | Z12a | Z12B | Z15 | Z16 | Z23 | ZDN1 | S3OPR | Weight [kg] |
|--------------------------|-----|-----|-----|-----|-----|-----|----|------|-----|------|------|-----|-----|-----|-------|-------|-------------|
| DP 0.9 and 1.5 | 117 | 218 | 115 | 118 | 325 | 370 | 70 | 33.7 | 533 | 30 | 128 | 90 | 226 | 388 | Rp 2 | 324 | 39 |
| DP 2.6 | 137 | 252 | 210 | 140 | 623 | 436 | 81 | 48.3 | 651 | 64 | - | 175 | 266 | 462 | DN 65 | 391 | 39 |
| EF 0.6, 0.9, 1.1 and 1.5 | 117 | 218 | 115 | 118 | - | 370 | 70 | 33.7 | 530 | 30 | - | 90 | 226 | 385 | Rp 2 | 323 | 36 |



TM06 5882 - 5904 - 5916 1317

Fig. 36 Auto-coupling installation of AUTO_{ADAPT} pumps

| Power [kW] | D | F | Z2 | Z4 | Z6 | Z7 | Z9 | Z10a | Z11 | Z12a | Z12B | Z15 | Z16 | Z23 | ZDN1 | S3OPR | Weight [kg] |
|--------------------------|-----|-----|-----|-----|-----|-----|----|------|-----|------|------|-----|-----|-----|-------|-------|-------------|
| DP 0.9 and 1.5 | 117 | 150 | 115 | 118 | 325 | 370 | 70 | 33.7 | 523 | 30 | 128 | 90 | 226 | 393 | Rp 2 | 324 | 39 |
| DP 2.6 | 137 | 252 | 210 | 140 | 623 | 436 | 81 | 48.3 | 671 | 64 | - | 175 | 266 | 472 | DN 65 | 391 | 68 |
| EF 0.6, 0.9, 1.1 and 1.5 | 117 | 150 | 115 | 118 | - | 370 | 70 | 33.7 | 520 | 30 | - | 90 | 226 | 390 | Rp 2 | 323 | 38 |

Hookup auto-coupling installation

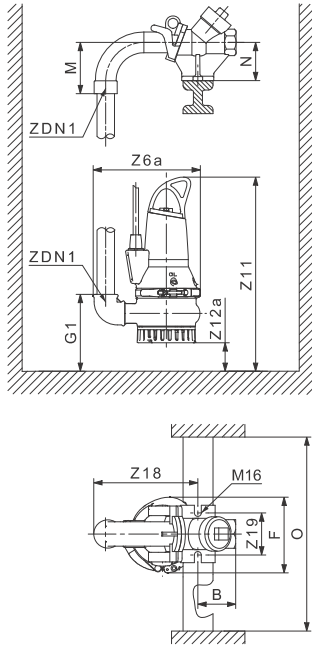


Fig. 37 DP 10.50, 0.9 - 1.5 kW

TM06 5871 0316

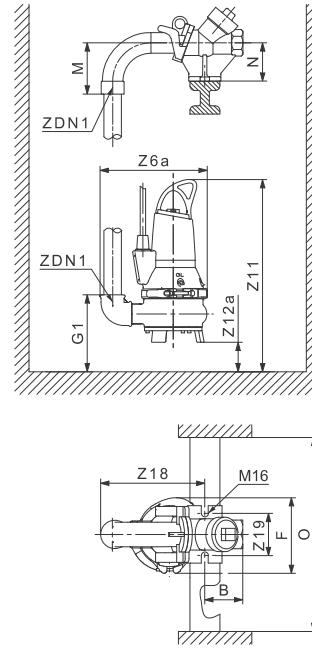


Fig. 38 EF 30.50, 0.6 - 1.5 kW

TM06 5909 0316

| Power [kW] | B | F | G1 | Z6a | M | N | O | Z11 | Z12a | Z18 | Z19 | ZDN1 | Weight [kg] |
|--------------------------|----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|------|-------------|
| DP 0.9 and 1.5 | 75 | 218 | 160 | 325 | 140 | 100 | 600 | 523 | 30 | 286 | 110 | R2 | 39 |
| EF 0.6, 0.9, 1.1 and 1.5 | 75 | 218 | 163 | 325 | 140 | 100 | 600 | 520 | 30 | 286 | 110 | R2 | 38 |

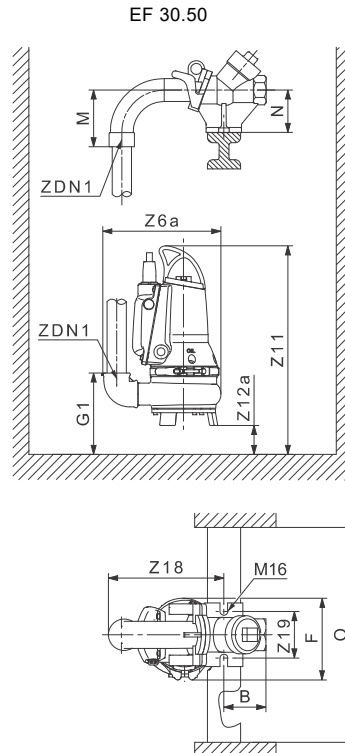
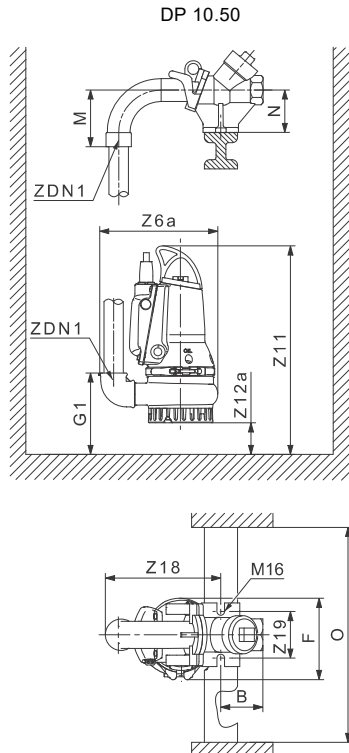
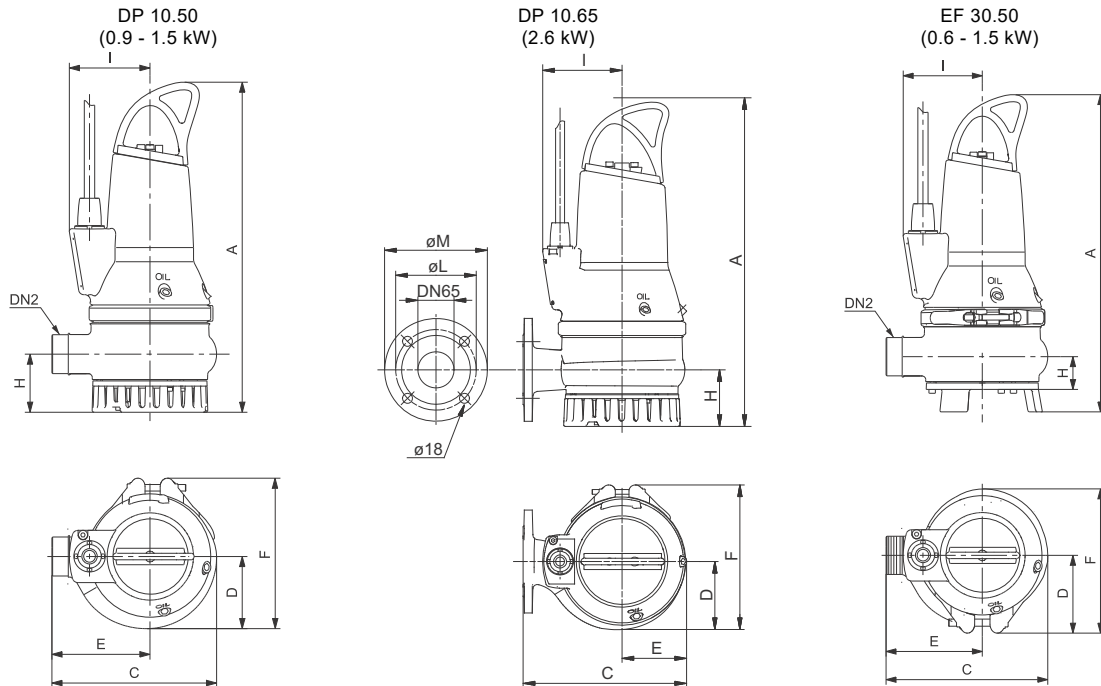


Fig. 39 DP 10.50 AUTO_{ADAPT}, 0.9 - 1.5 kW and EF 30.50 AUTO_{ADAPT}, 0.6 - 1.5 kW

TM06 5883 0316

| Power [kW] | B | F | G1 | Z6a | M | N | O | Z11 | Z12a | Z18 | ZDN1 | Z19 | Weight [kg] |
|--------------------------|----|-----|-----|-----|-----|-----|-----|-----|------|-----|------|-----|-------------|
| DP 0.9 and 1.5 | 75 | 218 | 160 | 325 | 140 | 100 | 600 | 523 | 30 | 286 | R2 | 110 | 39 |
| EF 0.6, 0.9, 1.1 and 1.5 | 75 | 218 | 163 | 325 | 140 | 100 | 600 | 520 | 30 | 286 | R2 | 110 | 38 |

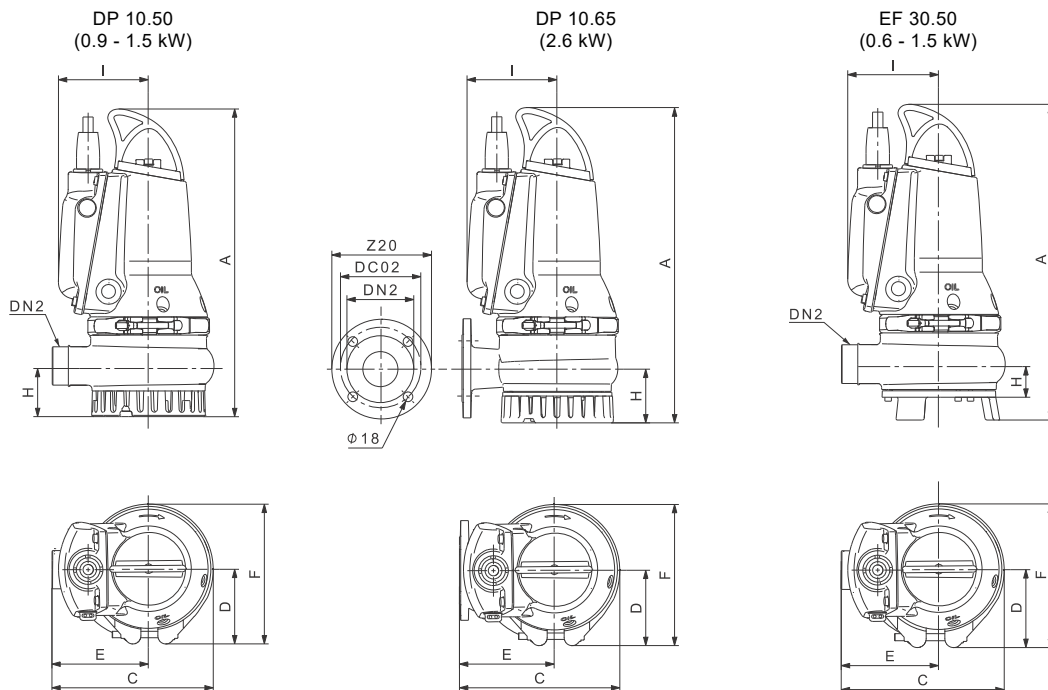
Free-standing installation



TM06 5869 0316 - TM06 5982 0316 - TM06 5907 0316

Fig. 40 Free-standing installation of standard pumps

| Power [kW] | A | C | D | E | F | H | DC02 | Z20 | DN2 | I | Weight [kg] |
|--------------------------|-----|-----|-----|-----|-----|-----|------|-----|-------|-----|-------------|
| DP 0.9 and 1.5 | 493 | 252 | 117 | 150 | 218 | 87 | - | - | R2 | 123 | 39 |
| DP 2.6 | 592 | 294 | 137 | 180 | 252 | 102 | 143 | 185 | DN 65 | 143 | 61 |
| EF 0.6, 0.9, 1.1 and 1.5 | 504 | 252 | 117 | 150 | 218 | 84 | - | - | R2 | 123 | 38 |



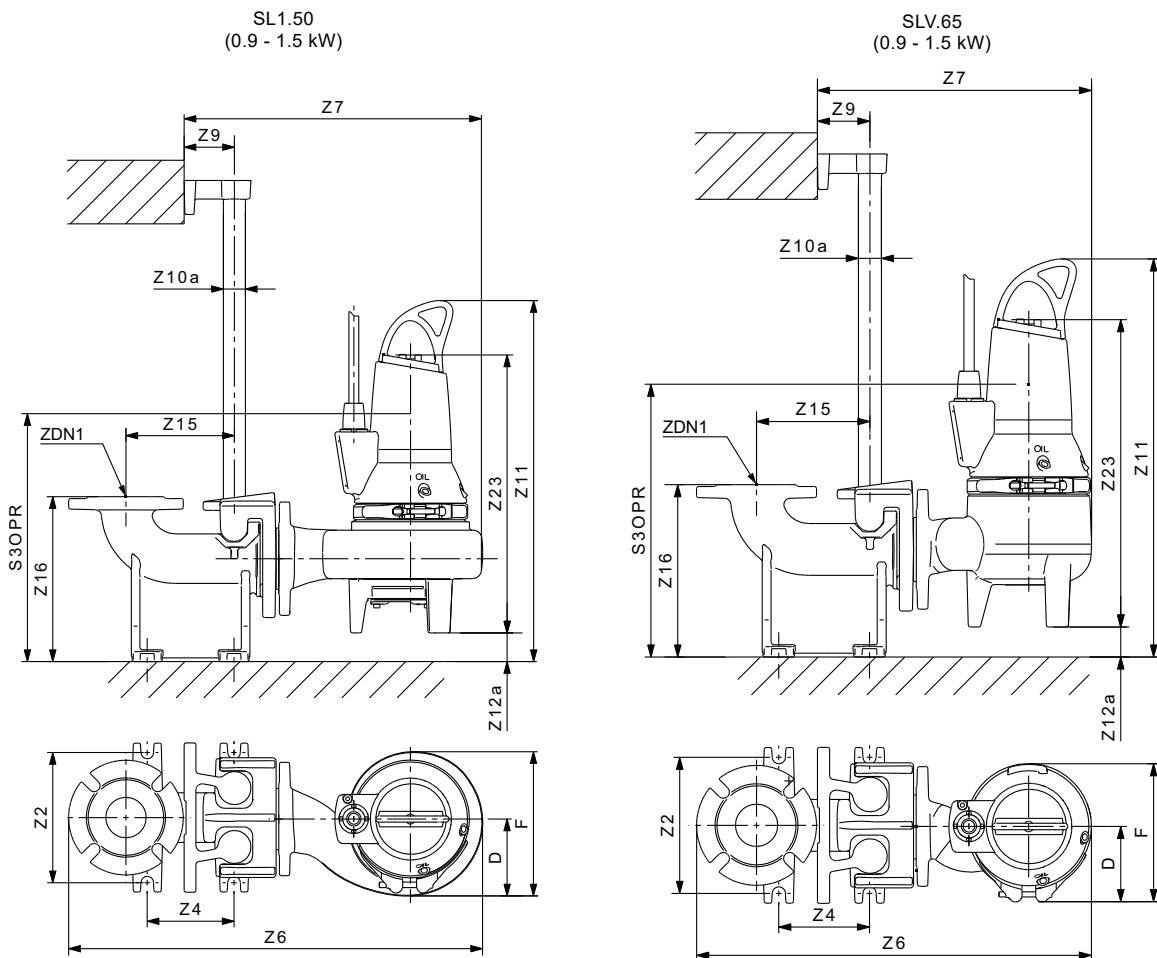
TM06 5881 0316 - TM06 5915 0316

Fig. 41 Free-standing installation of AUTO_{ADAPT} pumps

| Power [kW] | A | C | D | E | F | H | DC02 | Z20 | DN2 | I | Weight [kg] |
|--------------------------|-----|-----|-----|-----|-----|-----|------|-----|-------|-----|-------------|
| DP 0.9 and 1.5 | 503 | 252 | 117 | 150 | 218 | 87 | 145 | - | Rs 2 | 123 | 39 |
| DP 2.6 | 587 | 294 | 137 | 180 | 252 | 102 | 145 | 185 | DN 65 | 143 | 68 |
| EF 0.6, 0.9, 1.1 and 1.5 | 490 | 252 | 117 | 150 | 218 | 84 | 145 | - | Rs 2 | 141 | 38 |

SL1 and SLV

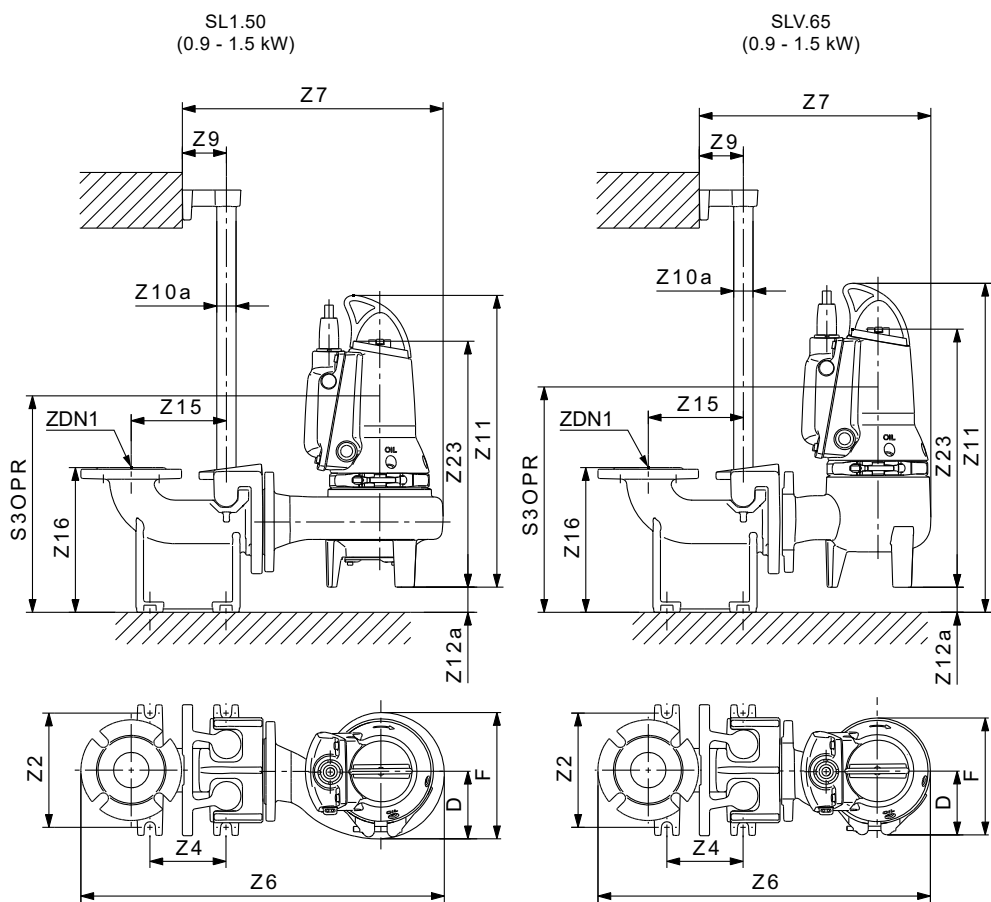
Auto-coupling installation



TM06 5930 - 5938 1317

Fig. 42 Auto-coupling installation of standard pumps

| Power [kW] | D | F | Z2 | Z4 | Z6 | Z7 | Z9 | Z10a | Z11 | Z12a | Z15 | Z16 | Z23 | ZDN1 | S3OPR | Weight [kg] |
|----------------------|-----|-----|-----|-----|-----|-----|----|------|-----|------|-----|-----|-----|-------|-------|-------------|
| SL1 0.9, 1.1 and 1.5 | 126 | 236 | 210 | 140 | 661 | 485 | 81 | 48.3 | 599 | 45 | 175 | 266 | 411 | DN 65 | 377 | 48 |
| SLV 0.9, 1.1 and 1.5 | 119 | 216 | 210 | 140 | 598 | 423 | 81 | 48.3 | 621 | 46 | 175 | 266 | 461 | DN 65 | 398 | 41 |



TM06 5935 1317

Fig. 43 Auto-coupling installation of AUTO_{ADAPT} pumps

| Power [kW] | D | F | Z2 | Z4 | Z6 | Z7 | Z9 | Z10a | Z11 | Z12a | Z15 | Z16 | Z23 | ZDN1 | S3OPR | Weight [kg] |
|-----------------|-----|-----|-----|-----|-----|-----|----|------|-----|------|-----|-----|-----|-------|-------|-------------|
| SL1 0.9 and 1.5 | 126 | 236 | 210 | 140 | 661 | 485 | 81 | 48.3 | 588 | 45 | 175 | 266 | 445 | DN 65 | 377 | 48 |
| SLV 0.9 and 1.5 | 119 | 216 | 210 | 140 | 598 | 423 | 81 | 48.3 | 610 | 46 | 175 | 266 | 465 | DN 65 | 398 | 41 |

Free-standing installation

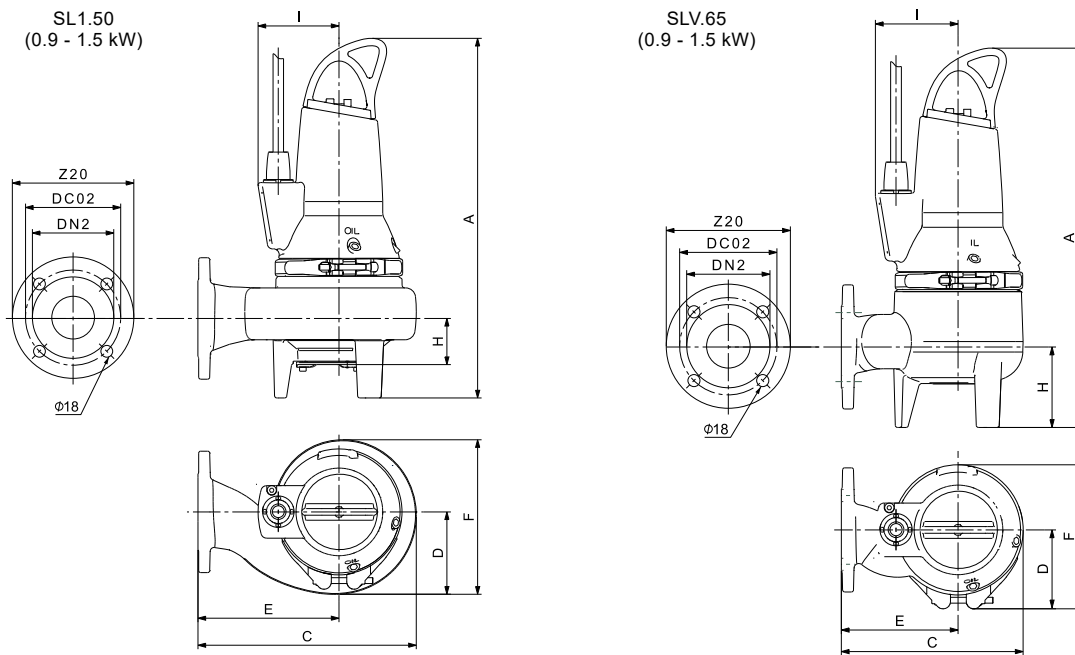


Fig. 44 Free-standing installation of standard pumps

| Power [kW] | A | C | D | E | F | H | I | DC02 | Z20 | DN2 | Weight [kg] |
|----------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|-------|-------------|
| SL1 0.9, 1.1 and 1.5 | 544 | 333 | 126 | 217 | 236 | 121 | 123 | 145 | 185 | DN 65 | 48 |
| SLV 0.9, 1.1 and 1.5 | 565 | 271 | 119 | 176 | 216 | 120 | 123 | 145 | 185 | DN 65 | 41 |

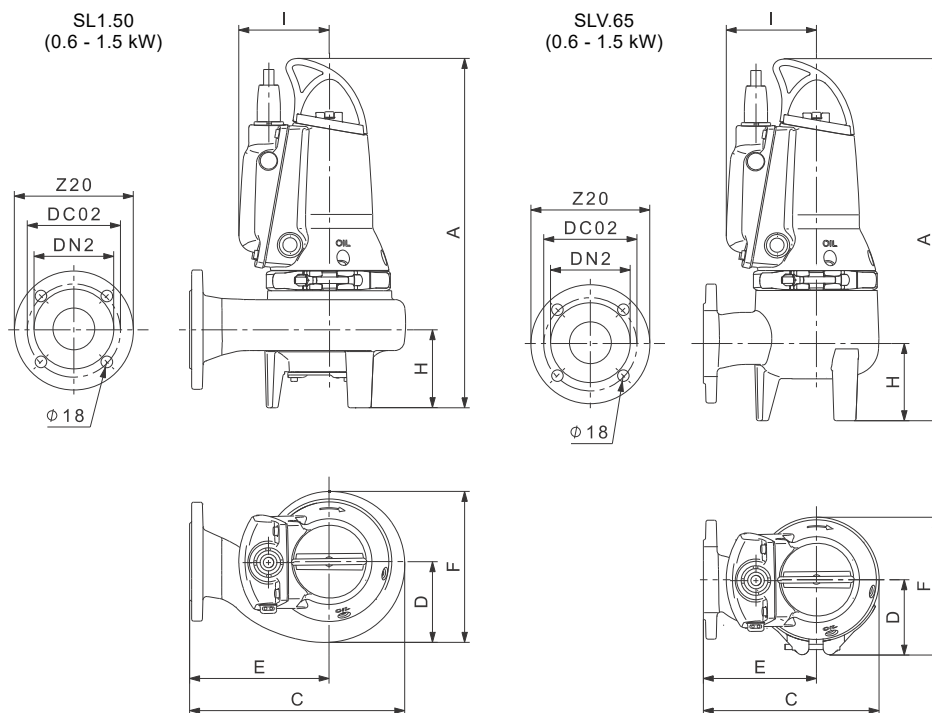







Fig. 45 Free-standing installation of AUTO_{ADAPT} pumps











| Power [kW] | A | C | D | E | F | H | I | DC02 | Z20 | DN2 | Weight [kg] |
|----------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|-------|-------------|
| SL1 0.9, 1.1 and 1.5 | 544 | 333 | 126 | 217 | 236 | 121 | 141 | 145 | 185 | DN 65 | 48 |
| SLV 0.9, 1.1 and 1.5 | 565 | 271 | 119 | 176 | 216 | 120 | 141 | 145 | 185 | DN 65 | 41 |


12. Accessories

Installation systems

| No | Product | Description | Dimensions | SL1.50.65 | SLV.65.65 | DP10.50 | DP10.65 | EF30.50 | Product number |
|----|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|-----------|---------|---------|----------|----------------|
| | | | | | | | | | |
| 1 |  | TM01 7173 1409 Lifting chain with shackle. With certificates Stainless steel (1.4571/A4) Up to 320 kg | 2 m | • | • | • | • | • | 98989662 |
| | | | 3 m | • | • | • | • | • | 98989664 |
| | | | 4 m | • | • | • | • | • | 98989666 |
| | | | 6 m | • | • | • | • | • | 98989668 |
| | | | 8 m | • | • | • | • | • | 98989670 |
| | | | 10 m | • | • | • | • | • | 98989672 |
| 2 |  | TM05 7684 1513 Complete auto-coupling system, including guide shoe, base plate and upper guide-rail bracket. Cast iron, epoxy-coated. | Rp 2 | | | • | • | 97644486 | |
| 3 |  | TM04 4490 1409 Complete auto-coupling system, including guide shoe, base plate and upper guide-rail bracket. Cast iron, epoxy-coated. | DN 65 | • | • | | • | 96090992 | |
| | | | DN 80 / DN 65 | • | • | | • | 96102238 | |
| 4 |  | TM04 6063 4809 Hook-up auto-coupling. | 2" | | | • | • | 96004445 | |
| 5 |  | TM05 7683 1513 Intermediate guide-rail bracket for guide-rail system In installations with guide rails longer than 4 m, it is recommended to use intermediate guide-rail bracket. | Kit, IGRH DN40, AISI304 | • | • | • | • | 96887609 | |

Other accessories

| No | Product | Description | DP / EF / SL1 / SLV | Product number |
|----|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------|
| 6 |  | TM04 7452 2010 Grundfos Powerline PC Tool Link USB communication unit. | - | All AUTO _{ADAPT} pumps 97655366 |
| 7 |  | TM05 3890 1612 For Grundfos GO: MI301 - module with built-in IR and radio communication. It must be used in conjunction with an Android or iOS-based Smartphone with Bluetooth connection. | - | All AUTO _{ADAPT} pumps 98046408 |
| |  | TM05 7471 1013 GENibus communication Grundfos GO | CIU 902 | All AUTO _{ADAPT} pumps 97644690 |
| |  | TM05 7471 1013 PROFIBUS communication PROFIBUS DP + Grundfos GO | CIU 902 + CIM 150 | All AUTO _{ADAPT} pumps 97644690 + 96824793 |
| |  | TM05 7471 1013 Modbus RTU + Grundfos GO | CIU 902 + CIM 200 | All AUTO _{ADAPT} pumps 97644690 + 96824796 |
| 8 |  | TM05 7471 1013 Cellular data connection + SMS (e.g. for SCADA) + Grundfos GO | CIU 902 + CIM 260 | All AUTO _{ADAPT} pumps 97644690 + 99439302 |
| |  | TM05 7471 1013 Grundfos Remote Management (GRM) + Grundfos GO | CIU 902 + CIM 280 | All AUTO _{ADAPT} pumps 97644690 + 99439724 |
| |  | TM05 7471 1013 PROFIBUS IO + Grundfos GO / MODBUS TCP + Grundfos GO / GRM IP + Grundfos GO | CIU 902 + CIM 500 | All AUTO _{ADAPT} pumps 97644690 + 98301408 |
| |  | TM05 7431 1013 Radio Communication + Grundfos GO | CIU 902 + CIM 060 | All AUTO _{ADAPT} pumps 97644690 + 98778356 |
| |  | TM06 2190 3714 External antenna for CIM 060 (optional) | - | 98778357 |

| No | Product | Description | DP / EF / SL1 / SLV | Product number |
|----------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------|----------------|
| 9 |  | AUTO _{ADAPT} fuse box, 1 pump without space for CIU | All AUTO _{ADAPT} pumps | 98491143 |
| | | AUTO _{ADAPT} fuse box, 1 pump with space for CIU | | 98491149 |
| | | AUTO _{ADAPT} fuse box, 2 pumps without space for CIU | | 98491153 |
| | | AUTO _{ADAPT} fuse box, 2 pumps with space for CIU | | 98491155 |
| | | Option AUTO _{ADAPT} CIU 902 + CIM 200 Modbus RTU** | | 98492189 |
| | | Option AUTO _{ADAPT} CIU 902 + CIM 280 GRM** | | 98492205 |
| | | Option AUTO _{ADAPT} CIU 902** | | 98492206 |
| | | Option AUTO _{ADAPT} CIU 902 + CIM 260 GSM complete** | | 98492207 |
| | | Option AUTO _{ADAPT} service plug 230 V* / 50 Hz** | | 98492208 |
| | | Option AUTO _{ADAPT} plug PCTool Linkbox** | | 98492209 |
| | | Option AUTO _{ADAPT} fault light mounted on top** | | 98492210 |
| Option AUTO _{ADAPT} audio alarm, 100 dB** | 98492211 | | | |

* The modules are delivered as two parts and need to be built together.
 ** Accessories for control box are to be ordered together.

DP, EF, SL1 and SLV pumps

Level controllers

Grundfos offers a wide range of pump controllers to monitor 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 level controllers
- CU 100 control box.

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 Control (DC) is a control system designed for installation in municipal wastewater transportation installations, 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 DC 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 optimisation
- Easy installation and configuration
- Configuration wizard
- Electrical overview
- Advanced data communication
- Advanced alarm and warning priority
- Available in multiple languages
- Emptied on a daily basis
- 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.

DC is ordered either with or without a built-in CIM communication interface module.

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 product information about Grundfos DC, see Grundfos Product Center:

- Grundfos Dedicated Controls, brochure (publication no. 96925597)
- Grundfos iSolutions, data booklet (publication no. 98390992)
- Grundfos Controls Guide (publication no. 97954965)
- Grundfos dedicated Controls, data booklet (publication no. 97722329).



Fig. 46 Dedicated Controls control cabinet

GR-1016086

Grundfos LC level controllers

Grundfos LC level controllers are available in two variants:

- LC 231 - a compact solution with certified motor protection
- LC 241 - a cabinet solution offering modularity and customisation

Designed for installations with one or two pumps. The Grundfos LC level controller is ideal for emptying and filling related to small wastewater transport, commercial buildings and tank-filling applications.

The controller can support up to five control levels for both analogue level transmitter or float switch operation.

For emptying applications, if the tank or pit is completely filled, the controller runs all pumps to empty.

The controller is equipped with Grundfos configurable input/output terminals, providing full flexibility for all applications. Daily control, supervision and commissioning is straightforward with the intuitive and user-friendly interface. The controller integrates smoothly into the Grundfos range of communication modules, ensuring an easy fit into any supervisory system such as SCADA or Grundfos CLOUD Solution.

For further information, see the data booklet or installation and operating instructions on www.grundfos.com (Grundfos Product Center)



Gr-1031087

Fig. 47 LC231 Controller - 2 Pump



Gr-1031129

Fig. 48 LC241 Controller - 2 Pump

CU 100

The CU 100 control box is designed for the startup, operation and protection of small wastewater pumps. The control box is available in several variants and can be used for:

- single-phase pumps (up to and including 9 A)
 - three-phase pumps (up to and including 5 A)
- and
- start/stop by float switch
 - manual start/stop.

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

During automatic operation, the pump is started and stopped by a float switch.

For further information, see the installation and operating instructions for the CU 100 on www.grundfos.com (Grundfos Product Center).



Fig. 49 CU 100

TM02 6459 0703

Grundfos Communication Interface Unit (CIU)

The Grundfos CIU is used as a communication interface between a Grundfos product and a main network.

The CIU is used for the following:

- Configuration of pump parameters required for water level control.
- Online monitoring of pit and pump values.
- Manual water level control (forced start/stop).
- Obtaining of measured and logged data that is valuable for pump service and pit optimisation.

The CIU is designed for use together with Grundfos DP, EF, SL1 and SLV AUTO_{ADAPT} pumps. Communication can be established with the Grundfos R100 remote control or by using the main network interface of the CIU.

Available CIUs:

- CIU 902 unit (with CIM 050 module)
- CIU 152 Profibus unit
- CIU 202 Modbus unit
- CIU 252 GSM/GPRS unit
- CIU 272 Grundfos Remote Management unit (GRM).

The CIU unit incorporates one or two modules:

- Multi-purpose IO module with I/O functionality, IR communication interface and powerline communication.
- CIM 500 module (optional for CIU 902 unit).

For further information about the CIM module, see installation and operating instructions for the relevant CIM module.

If a CIM module is fitted in the CIU, the sensors connected to the digital input of the IO module can be remotely monitored from a centrally located SCADA system.

Grundfos GO remote control

The Grundfos GO remote control is designed for wireless IR communication with Grundfos products. Grundfos GO can communicate with the DP, EF, SL1 and SLV AUTO_{ADAPT} pumps by/through a CIU. Grundfos GO is an ordinary service and measuring tool, designed to withstand wear and stress from everyday use.

Grundfos fuse box

The fuse box is designed to provide a safe power supply for up to two Grundfos AUTO_{ADAPT} pumps in the range of 0.9 to 4.0 kW.

Furthermore, the fuse box enables communication with the following devices:

- Grundfos Remote Management (GRM)
- Grundfos GO
- SCADA.



Fig. 50 Grundfos fuse box

TM04 4443 2215

| Name | DC | DCD | LC | CU 100 | AUTO _{ADAPT} | CIU |
|--------------------------------------------------|-----------------|-----------------|-----------------|--------|-----------------------|-----------------|
| Application | | | | | | |
| One pump | • | • | • | • | • | • |
| Two pumps | | • | • | | • | • |
| Mixer | • | • | | | | |
| Battery back-up | • | • | | | | |
| Level sensor | | | | | | |
| Float switches | • | • | • | • | | • ⁷⁾ |
| Electrodes | | | • | | | • ⁷⁾ |
| Air bells | | | • | | | • ⁷⁾ |
| Pressure sensor | • | • | | | • ³⁾ | • ⁷⁾ |
| Ultrasonic sensor | • | • | | | | • ⁷⁾ |
| Analog level sensor with safety float switches | • | • | | | | • ⁷⁾ |
| 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 | • | • | | | • ⁴⁾ | • |
| Conflicting levels alarm | • | • | | | | |
| Advanced functions | | | | | | |
| Start and stop delays | • | • | • | | • | • |
| Motor temperature sensor | • | • | • | | • ⁴⁾ | • |
| Test run/anti-seizing | • | • | • | | • | • |
| Daily emptying (emptying the pit once a day) | • | • | | | | • |
| Water-in-oil sensor input | • | • | | | | |
| Communication | | | | | | |
| SMS messaging | • ²⁾ | • ²⁾ | • ¹⁾ | | | • ²⁾ |
| SCADA communication (GSM/GPRS) | • ²⁾ | • ²⁾ | | | | • ⁵⁾ |
| User interface | | | | | | |
| Level indication | • | • | • | | | • ⁶⁾ |
| Graphical display | • | • | | | | • ⁶⁾ |
| PC Tool WW Controls | • | • | | | • | |

1) If an SMS module is fitted.

2) If a CIM 250 GSM/GPRS module is fitted in the CU 362.

3) Built-in pressure sensor and dry-running sensor.

4) Built-in, but a Grundfos CIU is required to get access to data or setting of parameters.

5) Modbus, GSM, GPRS, SMS and GRM options.

6) When using a Grundfos GO remote control.

7) Inputs for external sensors (NO or NC).

13. 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

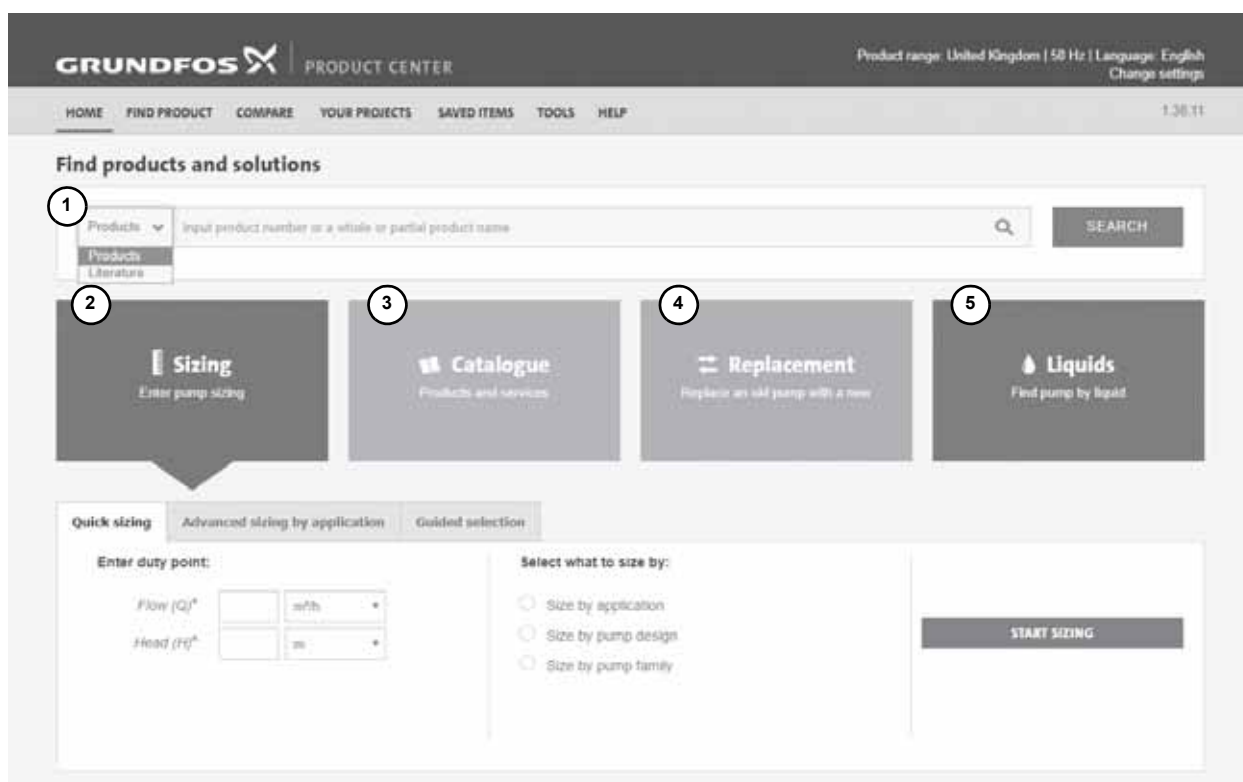
Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

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 | 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. |

97655139 05 2020

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