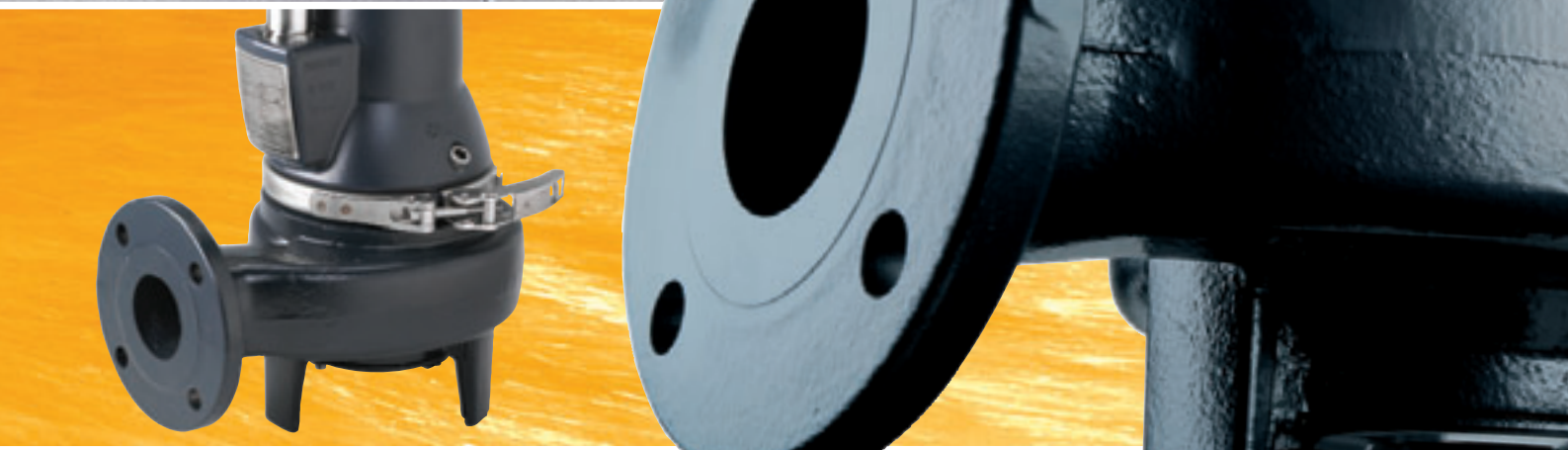
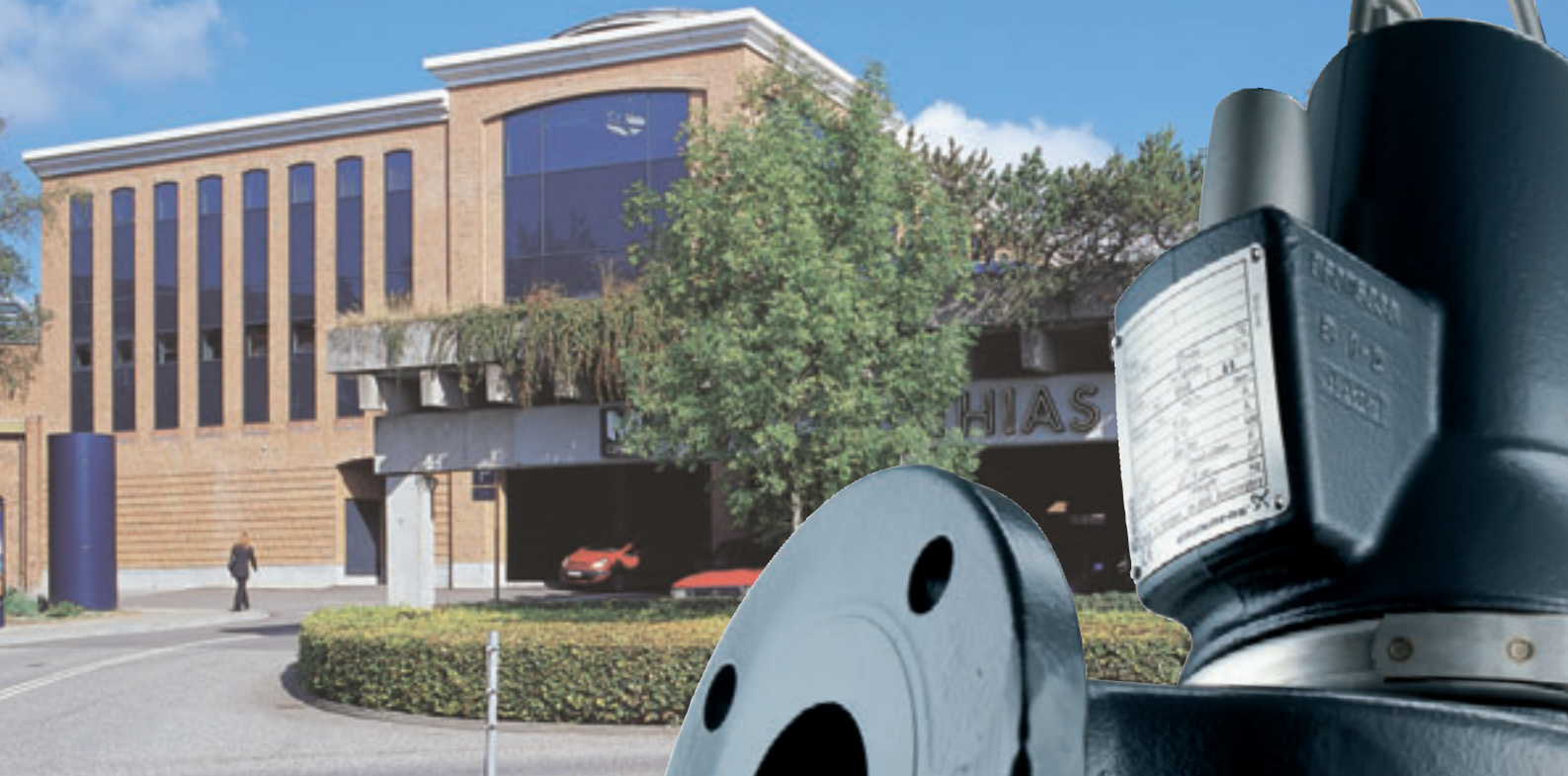


# DP, EF, SE1 and SEV ranges 0.6 – 2.6 kW



## Powerful pumps for drainage, effluent and raw sewage

Grundfos offers a full range of powerful wastewater pumps and pumping systems. This brochure presents the pumps in the 0.6 - 2.6 kW range.

Designed for handling drainage, effluent and sewage from private dwellings, farm areas, and small industry, these pumps represent the essence of the know-how that Grundfos has built up through more than 20 years in the wastewater business.

The Grundfos wastewater pumps offer unique user benefits, which make these pumps the natural choice for a variety of applications in small wastewater systems.

### ➤ Wide range of applications

State-of-the-art technology make the Grundfos pumps extremely efficient and highly dependable regardless of the application. These pumps are built to last even under the toughest working conditions.

### ➤ Less down time

The non-clogging design of the vortex impeller pumps and the solids handling capability of our channel impeller pumps guarantee maximum operating time and, consequently, less down time and reduced maintenance costs.

### ➤ Life long reliability

A newly developed cartridge shaft seal system, together with the polyurethane-sealed cable plug system, prevents liquid from penetrating into the motor.

### ➤ Easy to handle

The Grundfos pumps are easy to install and easy to dismantle for service or inspection. The pumps can be installed on an auto-coupling system, or they can be used as free-standing, portable pumps.



The Grundfos range of wastewater pumps can be permanently installed with a pipe connection or by means of an auto-coupling system. The auto-coupling system enables automatic connection or disconnection of the pump from outside the pumping pit.

Alternatively the pumps can be used as free-standing, portable pumps.

## Submerged installation on auto-coupling with guide rails

When the pump is installed on an auto-coupling system, where the base is fixed to the bottom of the pump pit, the pump is lowered into the pit on a dual guide rail system. The pump automatically connects to the base unit where the Grundfos SmartSeal, mounted on the pump discharge flange, provides a completely leak-proof connection between the pump and the base unit of the auto-coupling system. This optimises the efficiency of the entire pumping system and keeps the running cost at a minimum.



## Submerged installation, free standing

The pumps may alternatively be installed free standing connected either with a rigid discharge pipe or a flexible hose as required.



## Portable use

The Grundfos submersible wastewater pumps are fitted with a specially designed easy-lift handle. This makes the pumps suitable for portable use in a non-permanent installation or as a utility pump.



# Tough and reliable pumps...

The Grundfos range of small wastewater pumps is built for tough environments. Once installed these robust pumps will provide years of trouble-free operation with very little service required. State-of-the-art technology ensures high efficiency and low long-term operation costs.



### Watertight cable connection

Polyurethane filled, stainless steel cable plug connection, hermetically sealed, secure that no liquid will penetrate through the cable into the motor.



### Short rotor shaft

Compact construction with short rotor shaft and outside bearings, which ensure less stress on the bearings and, consequently, longer lifetime.



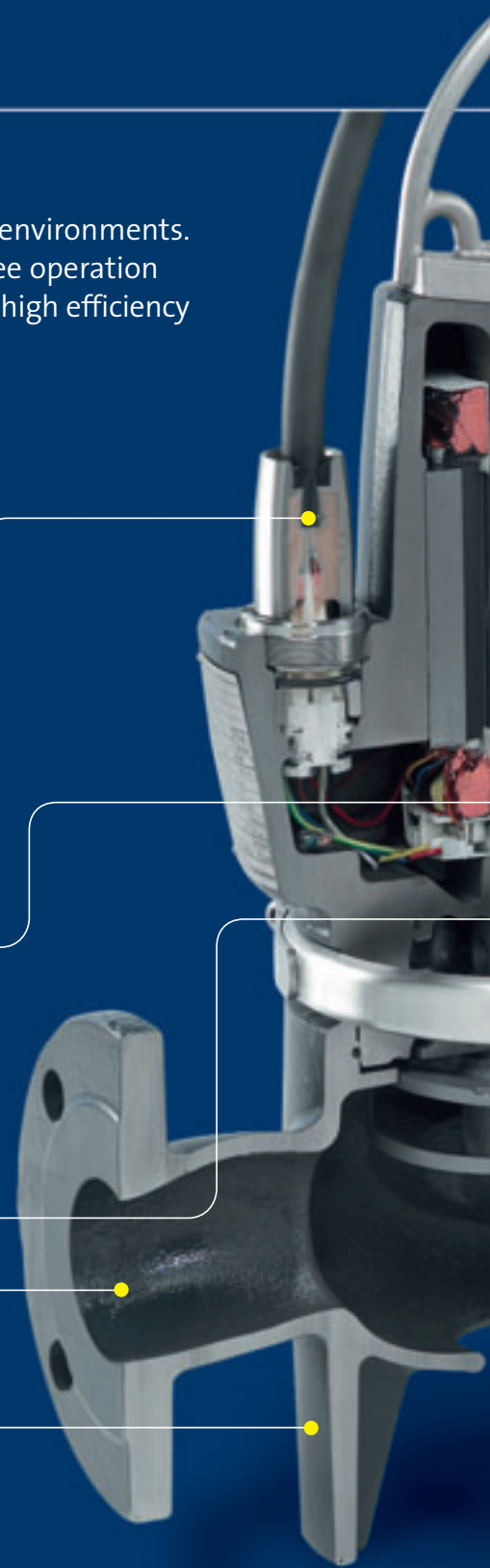
### Shaft seal

Cartridge shaft seal system provides longer operation time and less down-time. Easy to replace in the field without use of special tools.



### Hose connection or flange

Depending on model, the Grundfos wastewater pumps are fitted either with a 2" inside thread or a DN 65, PN 10 discharge flange. Legs on the pump housing provide optimum non-clogging suction.



## Grundfos DP range



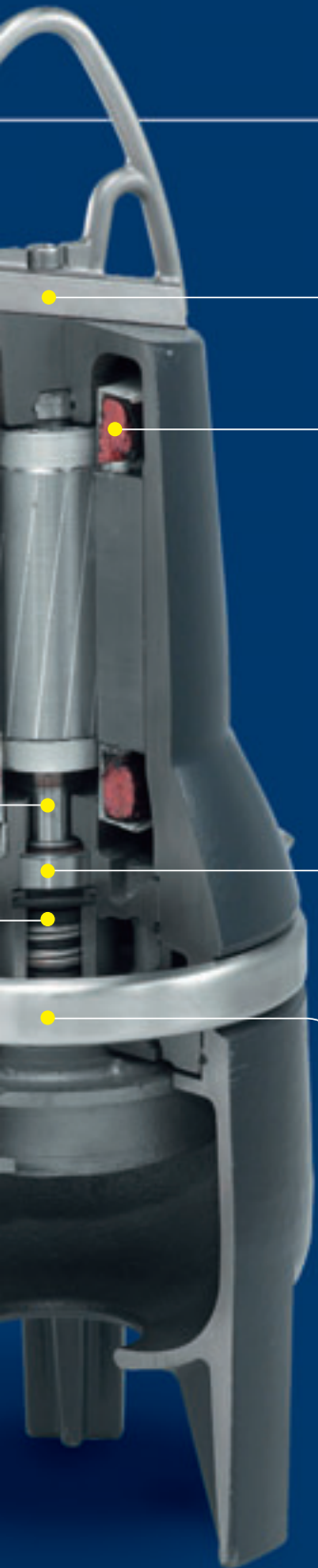
The DP range is fitted with a semi-open multi-vane impeller capable of handling solids up to 10 mm size. The heavy-duty suction strainer is easy to dismantle for cleaning.

## Grundfos EF range



The EF range is fitted with an open single-vane impeller capable of handling solids up to 30 mm size.

# – with many unique features



## Explosion proof motors

The motors can be provided in explosion proof versions: II 2 G EEx d IIB T4 according to EN 50014 (1997) + A1 & A2, and EN 50018 (2000) + A1, or an explosion proof Ex nC II T3 version according to IEC 60079-15.

## Specially designed lifting handle

Ensures correct lifting regardless of installation or motor positioning.



## Motor protection

Built-in thermal sensors in the motor windings provide failsafe protection against overheating. Ensures long lifetime.



## Heavy-duty ball bearings

Heavy-duty, maintenance-free ball bearings. Greased for life. Single row ball bearings in pumps with 0.6 kW to 1.5 kW motors. Pumps with 2.6 kW motors feature double row, angular contact ball bearings as lower bearing.



## Stainless steel clamp

Unique clamp system provides quick and easy dismantling of pump and motor unit. No tools required. Enables 180° rotation of the motor housing.



## Grundfos SE1 range



The SE1 range is fitted with a closed single-channel impeller capable of handling solids up to 50 mm size.

## Grundfos SEV range



The SEV range is fitted with Grundfos' unique SuperVortex impeller capable of handling solids up to 65 mm size.

# Type key and material specification

## Type key

Example DP 10.50 .11 .EX .2 .1 .5 02 DP	10	.50	.11	.EX	.2	.1	.5	02
Type range Grundfos DP range Grundfos EF range Grundfos SE range								
Material (standard, cast iron)								
Impeller type 1-channel impeller V-SuperVortex impeller []-Semiopen impeller								
Max. spherical impeller clearance [mm]								
Nominal discharge diameter [mm]								
Power Motor power output P <sub>2</sub> / 100 [W]								
Equipment (supplied with pump) []-Standard without equipment A-The pump is equipped with a control box CU 100								
Ex version []-Standard version of submersible wastewater pumps Ex-The pump is approved after the Ex standard indicated								
Number of poles 2-pole, 3000 min <sup>-1</sup> , 50 Hz								
Number of phases 1-Single-phase motor []-Three-phase motor								
Mains frequency 5-[50Hz]								
Voltage and starting method 02 230 V, direct-on-line starting 0B 400-415 V, direct-on-line starting 0C 230-240 V, direct-on-line starting								

## Material specification

Description	Material	DIN W. -Nr / EN standard	AISI / ASTM
O-rings	NBR		
Impeller	Cast iron	EN-GJS-500-7	
Pump housing	Cast iron	EN-GJL-250	
Stator housing	Cast iron	EN-JL-1030	
Nameplate	Stainless steel	1.4301	304
Strainer (only for the DP range)	Cast iron	EN-GJL-250	
Clamp	Stainless steel	1.4301	304
Seal ring	NBR		
Shaft seal	Primary seal (0.6 - 1.5 kW): SIC/SIC Secondary seal (0.6 - 1.5 kW): lip seal, NBR Primary seal (2.6 kW): SIC/SIC Secondary seal (2.6 kW): carbon/aluminium oxide Other components: NBR rubber, stainless steel		
Oil chamber	Cast iron		
Wear plate	Cast iron	EN-GJL-250	
Rotor / Shaft	Part at rotor: steel Shaft end at hydraulics: stainless steel	1.0533 1.4301	304
Cable	CR rubber, cable H07RN-F		
Outer plug part	Stainless steel	1.4308	CF-8
Screw	Stainless steel		
Lifting bracket	Stainless steel	1.4308	CF-8
Oil	Shell Ondina 917		
Paint (NCS S 8005-R80B, gloss 35)	Two component epoxy		

# Grundfos DP range

The Grundfos DP pumps are designed for pumping drain water and groundwater from installations in or around private housing, farms, small industry, etc.



The portable Grundfos DP pumps are also ideal for flood-relief applications and as utility pumps in farming, industry, etc.

The DP pumps are fitted with a suction strainer on which the pump stands. The suction strainer allows for the passage of solid particles of up to 10 mm size - the maximum free passage through the DP pumps. The strainer is easy to dismantle for cleaning or inspection of the pump hydraulics.

## Easy-adjustable impeller

The impeller of the DP range is of a semi-open multivane design. The impeller clearance can easily be adjusted simply by tightening or loosening the adjustment screws at the bottom of the suction cover.



## Installation

The Grundfos DP pumps with motors up to and including 1.5 kW are fitted with a 90°-angled discharge port with a 2" inside tread for mounting of a rigid or flexible discharge pipe. These models are for free-standing or portable use only.

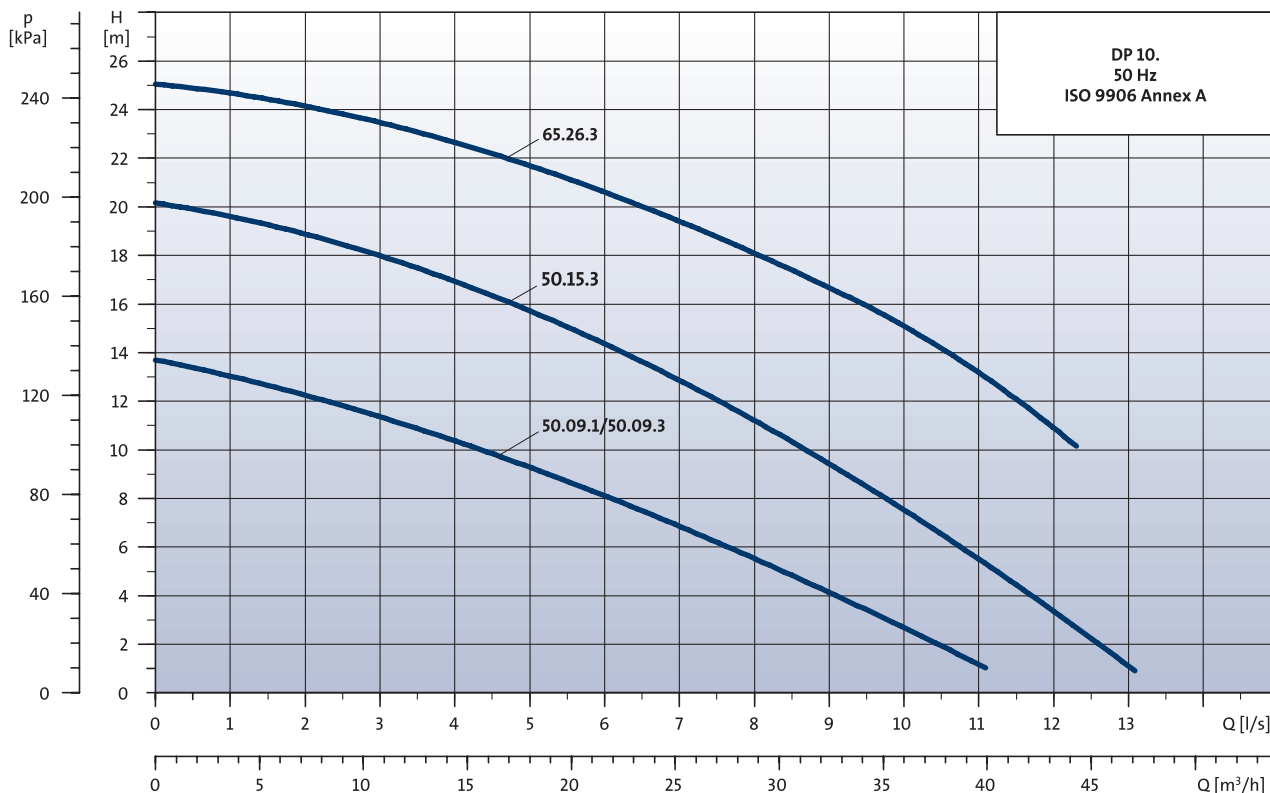


Grundfos DP pumps with 2.6 kW motors are fitted with a standard DN 65 flange. Flanged models can be mounted free standing or on an auto-coupling system.



# Grundfos DP range

## Performance overview



### Pumped liquids

The Grundfos DP pumps are suitable for pumping drainage and other liquids, with a pH value of 4 to 10, in permanent installations.

The Grundfos DP pumps are suitable for the following applications:

- Drainage and surface water
- Ground water
- Industrial process water without solids and fibres

### Liquid temperature

0°C to +40°C. For short periods, maximum one hour, up to +60°C is permissible (non-Ex versions only).

### Variants

The DP range comprises models for single-phase or three-phase voltage supply. See table on page 9. All types are designed for voltage tolerances of -10%/+6%.

The single-phase versions require a control box with built-in operating capacitor of 30 uF.

### Approvals

All 50 Hz DP pumps have been approved according to DIN EN 12050-2 for use in building services.

### Explosion-proof versions

For applications involving a risk of explosion, or where otherwise required, explosion-proof versions of the DP pumps are available. These models are provided with an II 2 G EEx d IIB T4 explosion-protection classification according to EN 50 014 (1997) + A1 & A2, and EN 50 018 (2000) + A1.

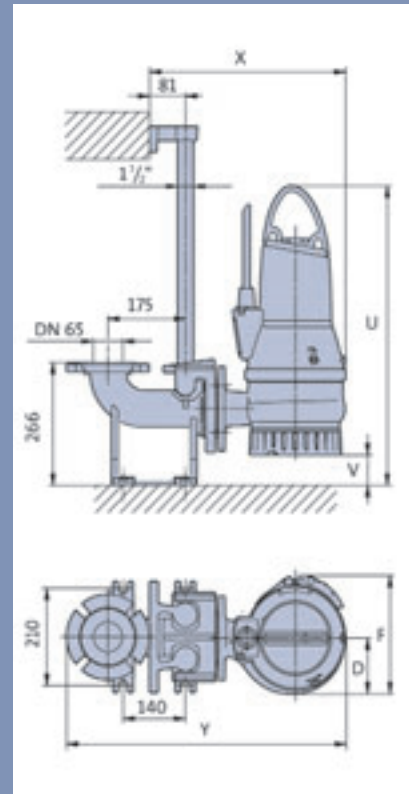
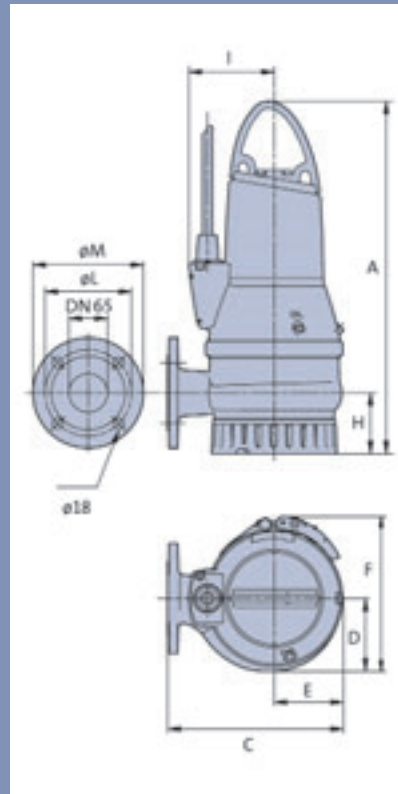
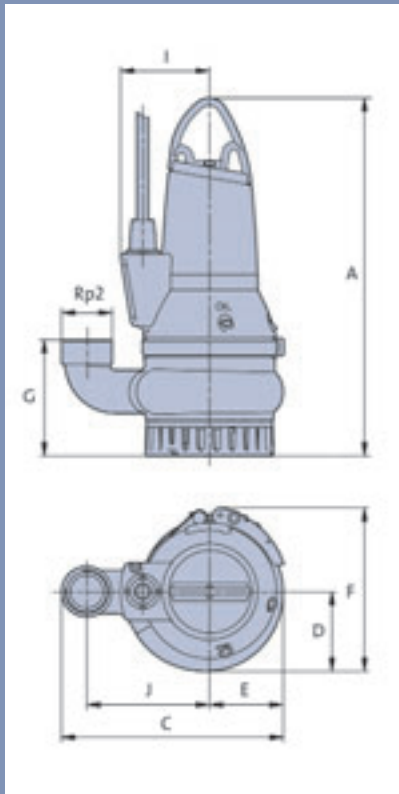
The DP pumps are also available with an Ex nC II T3 classification in accordance with IEC 60079-15;1987.

### Starts and stops

The Grundfos DP pumps are suitable for fully submerged continuous operation, or partly submerged intermittent S3-40%-10min. operation with a maximum of 20 starts per hour.



## Dimensions, free standing and on auto-coupling system



Motor size [kW]	A	C	D	E	F	G	H	I	J	$\phi L$	$\phi M$	U	V	X	Y
0.9 - 1.5	497	307	110	102	227	161	-	123	170	-	-	-	-	-	-
2.6	591	294	115	116	252	-	102	143	-	143	185	655	64	443	630

## Electrical data, pump type and product numbers

Pump type	Product number	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	n min <sup>-2</sup>	Voltage [V]	I <sub>1/2</sub> [A]	I <sub>start</sub> [A]	Cos $\phi$	Ex-classification	Weight [kg]
DP10.50.09.2.1.502	96104200	1.3	0.9	2870	1x230	6.1	38.0	0.96		39.0
DP10.50.09.2.50B	96104204	1.4	0.9	2870	3x400-415	2.8	21.0	0.76		39.0
DP10.50.09.A.2.1.502*	96104202	1.3	0.9	2870	1x230	6.1	38.0	0.96		39.0
DP10.50.09.A.2.50B*	96104206	1.4	0.9	2870	3x400-415	2.8	21.0	0.76		39.0
DP10.50.09.EX.2.1.502	96104201	1.3	0.9	2870	1x230	6.1	38.0	0.96	EEx d IIB T4	39.0
DP10.50.09.EX.2.50B	96104205	1.4	0.9	2870	3x400-415	2.8	21.0	0.76	EEx d IIB T4	39.0
DP10.50.09.EX.2.1.502	96104203	1.3	0.9	2870	1x230	6.1	38.0	0.96	Ex n IIB T4	39.0
DP10.50.09.EX.2.50B	96104207	1.4	0.9	2870	3x400-415	2.8	21.0	0.76	Ex n IIB T4	39.0
DP10.50.15.2.50B	96104208	2.2	1.5	2720	3x400-415	3.8	21.0	0.88		39.0
DP10.50.15.A.2.50B*	96104210	2.2	1.5	2720	3x400-415	3.8	21.0	0.88		39.0
DP10.50.15.EX.2.50B	96104209	2.2	1.5	2720	3x400-415	3.8	21.0	0.88	EEx d IIB T4	39.0
DP10.50.15.EX.2.50B	96104211	2.2	1.5	2720	3x400-415	3.8	21.0	0.88	Ex n IIB T4	39.0
DP10.65.26.2.50B	96106542	3.5	2.6	2870	3x400-415	5.8	33.0	0.87		61.0
DP10.65.26.A.2.50B*	96106544	3.5	2.6	2870	3x400-415	5.8	33.0	0.87		61.0
DP10.65.26.EX.2.50B	96106543	3.5	2.6	2870	3x400-415	5.8	33.0	0.87	EEx d IIB T4	61.0
DP10.65.26.EX.2.50B	96106545	3.5	2.6	2870	3x400-415	5.8	33.0	0.87	Ex n IIB T4	61.0

\*The pump is equipped with a CU 100 control box for automatic operation.

# Grundfos EF range

The Grundfos EF pumps are designed for pumping wastewater without toilet waste from private dwellings. These pumps are also suitable for pumping liquid manure from farms, and for a variety of industrial applications.



The EF pumps are designed for free-standing installation. The pumps are fitted with an integrated three-leg stand that keeps the suction inlet well clear of the pit bottom. The EF pumps are capable of handling solids of up to 30 mm size.



## Efficient channel impeller

The Grundfos EF pumps are fitted with an open single-vane impeller with excellent solids handling capabilities.

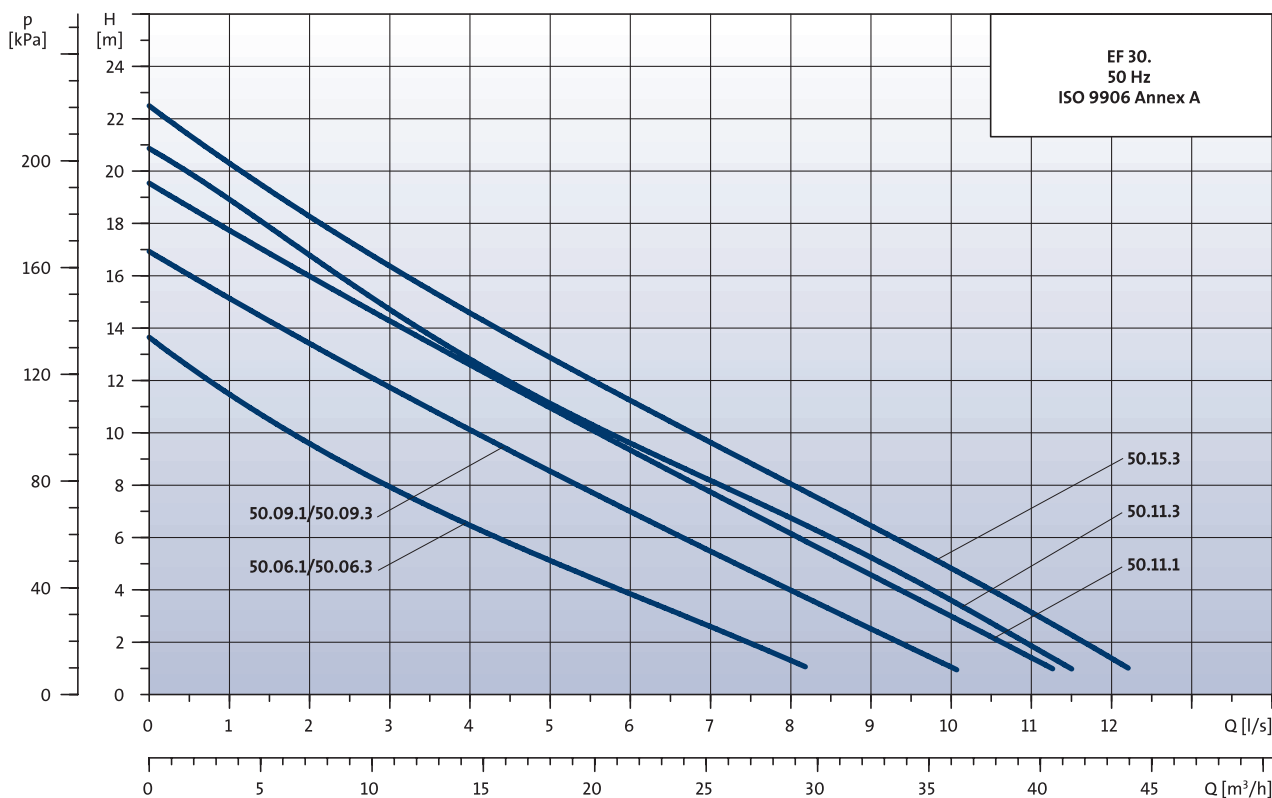
Impeller clearance can be adjusted by tightening or loosening the adjustment screws at the bottom of the suction cover. Adjustment can be carried out without dismantling the pump.

## Installation

The Grundfos EF pumps are fitted with a 90°-angled discharge port with a 2" inside tread for mounting of a rigid or flexible discharge pipe. The EF models are designed for free-standing installation or portable use only.



## Performance overview



### Pumped liquids

The Grundfos EF pumps are suitable for pumping effluent and other liquids with a pH value of 4 to 10. The EF pump range is able to handle liquids with solids up to 30 mm.

The Grundfos EF pumps are suitable for the following applications:

- Drainage and surface water with small impurities
- Wastewater with fibres, e.g. from laundries
- Wastewater, without discharge from toilets
- Wastewater from commercial buildings, without discharge from toilets

### Liquid temperature

0°C to +40°C. For short periods, maximum one hour, up to +60°C is permissible (non-Ex versions only).

### Variants

The EF range comprises models for single-phase or three-phase voltage supply, see page 12. All types are designed for voltage tolerances of -10%/+6%.

The single-phase versions require a control box with built-in operating capacitor of 30 µF.

### Approvals

All 50 Hz EF pumps have been approved according to DIN EN 12050-2 for use in building services.

### Explosion-proof versions

For applications involving a risk of explosion, or where otherwise required, explosion-proof versions of the EF pumps are available. These models are provided with an II 2 G EEx d IIB T4 explosion-protection classification according to EN 50 014 (1997) + A1 & A2, and EN 50 018 (2000) + A1.

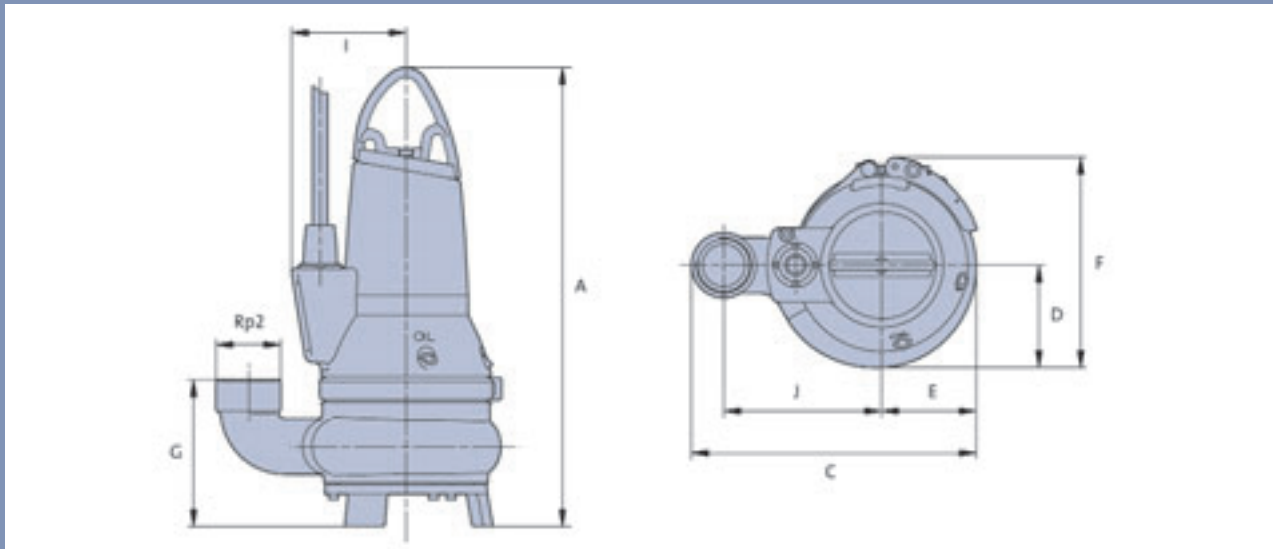
The EF pumps are also available with an Ex nC II T3 classification in accordance with IEC 60079-15;1987.

### Starts and stops

The Grundfos EF pumps are suitable for fully submerged continuous operation, or partly submerged intermittent S3-40%-10 min. operation with a maximum of 20 starts per hour.

# Grundfos EF range

## Dimensions, free standing



Motor size [kW]	A	C	D	E	F	G	I	J
0.6, 0.9, 1.1 and 1.5	497	307	110	102	227	161	123	170

## Electrical data, pump type and product numbers

Pump type	Product number	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	n min <sup>-2</sup>	Voltage [V]	I <sub>1/2</sub> [A]	I <sub>start</sub> [A]	Cos φ	Ex-classification	Weight [kg]
EF30.50.06.2.1.502	96106546	1.0	0.6	2920	1x230	4.8	38.0	0.90		38.0
EF30.50.06.2.50B	96106550	1.0	0.6	2920	3x400-415	2.3	21.0	0.65		38.0
EF30.50.06.A.2.1.502*	96106548	1.0	0.6	2920	1x230	4.8	38.0	0.90		38.0
EF30.50.06.A.2.50B*	96106552	1.0	0.6	2920	3x400-415	2.3	21.0	0.65		38.0
EF30.50.06.EX.2.1.502	96106547	1.0	0.6	2920	1x230	4.8	38.0	0.90	EEx d IIB T4	38.0
EF30.50.06.EX.2.50B	96106551	1.0	0.6	2920	3x400-415	2.3	21.0	0.65	EEx d IIB T4	38.0
EF30.50.06.EX.2.1.502	96106549	1.0	0.6	2920	1x230	4.8	38.0	0.90	Ex n IIB T4	38.0
EF30.50.06.EX.2.50B	96106553	1.0	0.6	2920	3x400-415	2.3	21.0	0.65	Ex n IIB T4	38.0
EF30.50.09.2.1.502	96115111	1.3	0.9	2870	1x230	6.1	38.0	0.96		38.0
EF30.50.09.2.50B	96115115	1.4	0.9	2870	3x400-415	2.8	21.0	0.76		38.0
EF30.50.09.A.2.1.502*	96115113	1.3	0.9	2870	1x230	6.1	38.0	0.96		38.0
EF30.50.09.A.2.50B*	96115117	1.4	0.9	2870	3x400-415	2.8	21.0	0.76		38.0
EF30.50.09.EX.2.1.502	96115112	1.3	0.9	2870	1x230	6.1	38.0	0.96	EEx d IIB T4	38.0
EF30.50.09.EX.2.50B	96115116	1.4	0.9	2870	3x400-415	2.8	21.0	0.76	EEx d IIB T4	38.0
EF30.50.09.EX.2.1.502	96115114	1.3	0.9	2870	1x230	6.1	38.0	0.96	Ex n IIB T4	38.0
EF30.50.09.EX.2.50B	96115118	1.4	0.9	2870	3x400-415	2.8	21.0	0.76	Ex n IIB T4	38.0
EF30.50.11.2.1.502	96106554	1.6	1.1	2830	1x230	7.4	38	0.97		38.0
EF30.50.11.2.50B	96106558	1.6	1.1	2830	3x400-415	3.1	21	0.81		38.0
EF30.50.11.A.2.1.502*	96106556	1.6	1.1	2830	1x230	7.4	38	0.97		38.0
EF30.50.11.A.2.50B*	96106560	1.6	1.1	2830	3x400-415	3.1	21	0.81		38.0
EF30.50.11.EX.2.1.502	96106555	1.6	1.1	2830	1x230	7.4	38	0.97	EEx d IIB T4	38.0
EF30.50.11.EX.2.50B	96106559	1.6	1.1	2830	3x400-415	3.1	21	0.81	EEx d IIB T4	38.0
EF30.50.11.EX.2.1.502	96106557	1.6	1.1	2830	1x230	7.4	38	0.97	Ex n IIB T4	38.0
EF30.50.11.EX.2.50B	96106561	1.6	1.1	2830	3x400-415	3.1	21	0.81	Ex n IIB T4	38.0
EF30.50.15.2.50B	96104196	2.2	1.5	2720	3x400-415	3.8	21	0.88		38.0
EF30.50.15.A.2.50B*	96104198	2.2	1.5	2720	3x400-415	3.8	21	0.88		38.0
EF30.50.15.EX.2.50B	96104197	2.2	1.5	2720	3x400-415	3.8	21	0.88	EEx d IIB T4	38.0
EF30.50.15.EX.2.50B	96104199	2.2	1.5	2720	3x400-415	3.8	21	0.88	Ex n IIB T4	38.0

\*The pump is equipped with a CU 100 control box for automatic operation.

# Grundfos SE1 range

The Grundfos SE1 pumps are designed for pumping surface water, wastewater, and sludge, containing industrial wastewater.



The Grundfos SE1 pumps are also ideal for installation in underground parking areas, car wash plants, and similar situations where a robust, dependable pump capable of dealing with large quantities of wastewater is required.

## Self-cleaning channel impeller

The Grundfos SE1 pumps are fitted with a closed single-channel impeller capable of handling moderate amounts of fibres and solids of up to 50 mm size.



The Grundfos channel impeller pumps provide high efficiency and excellent non-clogging capabilities. The channel impeller of the SE1 range has a free passage of 50 mm. Channel impeller pumps are ideal for heavy-duty operation and for pumping large quantities.

The impeller clearance can be adjusted by tightening or loosening the adjustment screws at the bottom of the suction cover. Adjustment can be carried out without dismantling the pump.

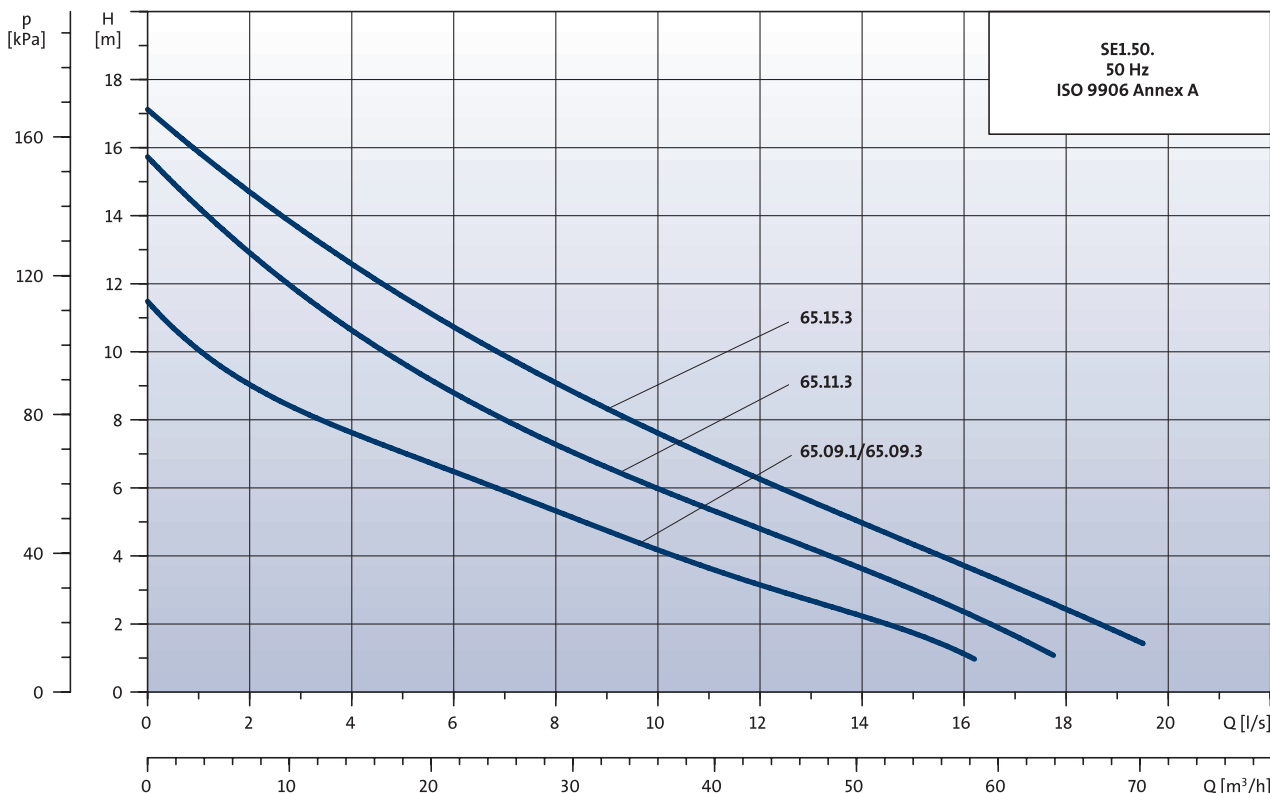
## Installation

The Grundfos SE1 pumps are fitted with a standard DN 65 discharge flange. The pumps can be installed free standing or on an auto-coupling guide-rail system in a pump pit.



# Grundfos SE1 range

## Performance overview



### Pumped liquids

The Grundfos SE1 pumps are suitable for pumping sewage and other liquids with a pH value of 4 to 10. The SE1 pump range is able to handle liquids with solids up to 50 mm.

The Grundfos SE1 pumps are suitable for the following applications:

- Large quantities of drainage and surface water
- Wastewater from private dwellings with discharge from toilets
- Wastewater from commercial buildings, without discharge from toilets
- Sludge containing industrial wastewater
- Industrial process water

### Liquid temperature

0°C to +40°C. For short periods, maximum one hour, up to +60°C is permissible (non-Ex versions only).

### Variants

The SE1 range comprises models for single-phase or three-phase voltage supply, see table on page 15. All types are designed for voltage tolerances of -10%/+6%.

The single-phase versions require a control box with built-in operating capacitor of 30 lF.

### Approvals

All 50 Hz SE1 pumps have been approved according to DIN EN 12050-2 for use in building services.

### Explosion-proof versions

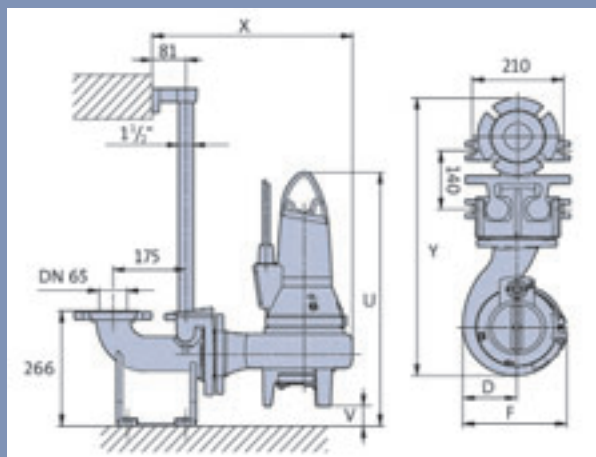
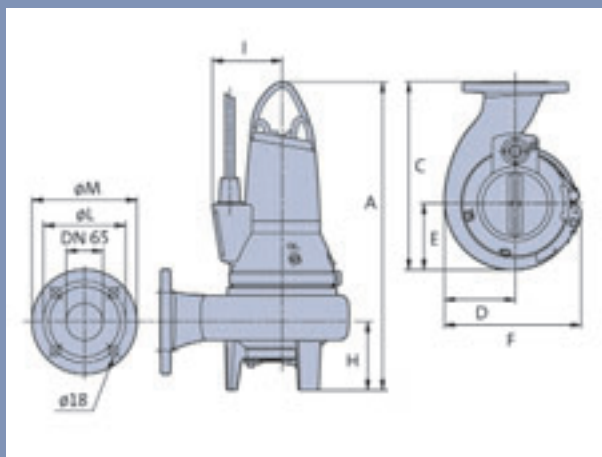
For applications involving a risk of explosion, or where otherwise required, explosion-proof versions of the SE1 pumps are available. These models are provided with an II 2 G EEx d IIB T4 explosion-protection classification according to EN 50 014 (1997) + A1 & A2, and EN 50 018 (2000) + A1.

The EF pumps are also available with an Ex nC II T3 classification in accordance with IEC 60079-15:1987

### Starts and stops

The Grundfos SE1 pumps are suitable for fully submerged continuous operation, or partly submerged intermittent S3-40%-10 min. operation with a maximum of 20 starts per hour.

## Dimensions, free standing and on auto-coupling system



Motor size [kW]	A	C	D	E	F	H	φL	φM
0.9, 1.1, and 1.5	544	333	126	118	242	121	143	185

Motor size [kW]	F	D	U	V	X	Y
0.9, 1.1 and 1.5	242	118	589	45	485	671

## Electrical data, pump type and product numbers

Pump type	Product number	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	n min <sup>-2</sup>	Voltage [V]	I <sub>1/1</sub> [A]	I <sub>start</sub> [A]	Cos φ	Ex-classification	Weight [kg]
SE1.50.65.09.2.1.502	96106562	1.3	0.9	2870	1x230	6.1	38	0.96		48
SE1.50.65.09.2.50C	96106567	1.4	0.9	2870	3x230-240	4.9	36	0.76		48
SE1.50.65.09.2.50B	96106566	1.4	0.9	2870	3x400-415	2.8	21	0.76		48
SE1.50.65.09.A.2.1.502*	96106564	1.3	0.9	2870	1x230	6.1	38	0.96		48
SE1.50.65.09.A.2.50C*	96106571	1.4	0.9	2870	3x230-240	4.9	36	0.76		48
SE1.50.65.09.A.2.50B*	96106570	1.4	0.9	2870	3x400-415	2.8	21	0.76		48
SE1.50.65.09.EX.2.1.502	96106563	1.3	0.9	2870	1x230	6.1	38	0.96	EEx d IIB T4	48
SE1.50.65.09.EX.2.50C	96106569	1.4	0.9	2870	3x230-240	4.9	36	0.76	EEx d IIB T4	48
SE1.50.65.09.EX.2.50B	96106568	1.4	0.9	2870	3x400-415	2.8	21	0.76	EEx d IIB T4	48
SE1.50.65.09.EX.2.1.502	96106565	1.3	0.9	2870	1x230	6.1	38	0.96	Ex n IIB T4	48
SE1.50.65.09.EX.2.50B	96106572	1.4	0.9	2870	3x400-415	2.8	21	0.76	Ex n IIB T4	48
SE1.50.65.11.2.1.502	96104125	1.6	1.1	2830	1x230	7.4	38	0.97		48
SE1.50.65.11.2.50C	96104130	1.6	1.1	2830	3x230-240	5.2	36	0.81		48
SE1.50.65.11.2.50B	96104129	1.6	1.1	2830	3x400-415	3.1	21	0.81		48
SE1.50.65.11.A.2.1.502*	96104127	1.6	1.1	2830	1x230	7.4	38	0.97		48
SE1.50.65.11.A.2.50C*	96104134	1.6	1.1	2830	3x230-240	5.2	36	0.81		48
SE1.50.65.11.A.2.50B*	96104133	1.6	1.1	2830	3x400-415	3.1	21	0.81		48
SE1.50.65.11.EX.2.1.502	96104126	1.6	1.1	2830	1x230	7.4	38	0.97	EEx d IIB T4	48
SE1.50.65.11.EX.2.50C	96104132	1.6	1.1	2830	3x230-240	5.2	36	0.81	EEx d IIB T4	48
SE1.50.65.11.EX.2.50B	96104131	1.6	1.1	2830	3x400-415	3.1	21	0.81	EEx d IIB T4	48
SE1.50.65.11.EX.2.1.502	96104128	1.6	1.1	2830	1x230	7.4	38	0.97	Ex n IIB T4	48
SE1.50.65.11.EX.2.50C	96104135	1.6	1.1	2830	3x400-415	3.0	21	0.81	Ex n IIB T4	48
SE1.50.65.15.2.50C	96104119	2.2	1.5	2720	3x230-240	6.6	36	0.88		48
SE1.50.65.15.2.50B	96104118	2.2	1.5	2720	3x400-415	3.8	21	0.88		48
SE1.50.65.15.A.2.50C*	96104123	2.2	1.5	2720	3x230-240	6.6	36	0.88		48
SE1.50.65.15.A.2.50B*	96104122	2.2	1.5	2720	3x400-415	3.8	21	0.88		48
SE1.50.65.15.EX.2.50C	96104121	2.2	1.5	2720	3x230-240	6.6	36	0.88	EEx d IIB T4	48
SE1.50.65.15.EX.2.50B	96104120	2.2	1.5	2720	3x400-415	3.8	21	0.88	EEx d IIB T4	48
SE1.50.65.15.EX.2.50B	96104124	2.2	1.5	2720	3x400-415	3.8	21	0.88	Ex n IIB T4	48

\*The pump is equipped with a CU 100 control box for automatic operation.

# Grundfos SEV range

The powerful Grundfos SEV pumps are designed for pumping wastewater with a high content of solids and fibres, including toilet waste, from pump pits in connection with private dwellings or other small building complexes.



## Highly efficient SuperVortex impeller

The SEV pumps are fitted with a patented Grundfos SuperVortex impeller, which is extremely efficient in handling solids and fibres. The SEV pumps have a free passage of 65 mm.



## No clogging or jamming

In a pump fitted with a Grundfos SuperVortex impeller, the flow takes place entirely outside the impeller.

The design of the impeller ensures that long fibres pass freely through the pump without getting caught and without causing clogging or jamming. This means less downtime and overall higher pumping efficiency.

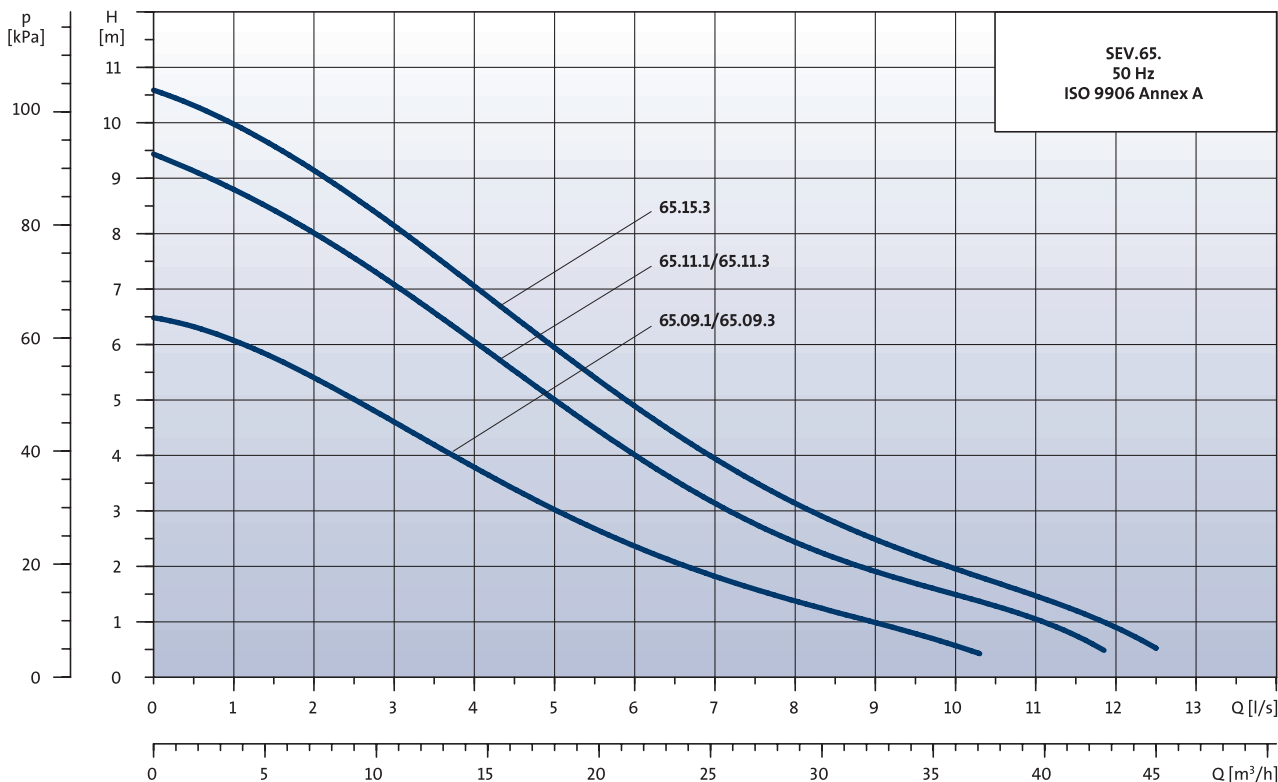
## Installation

The Grundfos SEV pumps are fitted with a standard DIN 65 discharge flange. The pumps can be installed free standing or on an auto-coupling guide-rail system in a pump pit.





## Performance overview



### Pumped liquids

The Grundfos SEV pumps are suitable for pumping sewage and other liquids with a pH value of 4 to 10. The SEV pump range is able to handle liquids with solids up to 65 mm.

The Grundfos SEV pumps are suitable for the following applications:

- Surface water containing abrasives
- Municipal sewage
- Sewage from commercial buildings
- Sludge and fibre-containing industrial wastewater

### Liquid temperature

0°C to +40°C. For short periods, maximum one hour, up to +60°C is permissible (non-Ex versions only).

### Variants

The SEV range comprises models for single-phase or three-phase voltage supply, see table on page 18. All types are designed for voltage tolerances of -10%/+6%.

The single-phase versions require a control box with built-in operating capacitor of 30 uF.

### Approvals

All 50 Hz SEV pumps have been approved according to DIN EN 12050-1 for use in building services.

### Explosion-proof versions

For applications involving a risk of explosion, or where otherwise required, explosion-proof versions of the SEV pumps are available. These models are provided with an II 2 G EEx d IIB T4 explosion-protection classification according to EN 50 014 (1997) + A1 & A2, and EN 50 018 (2000) + A1.

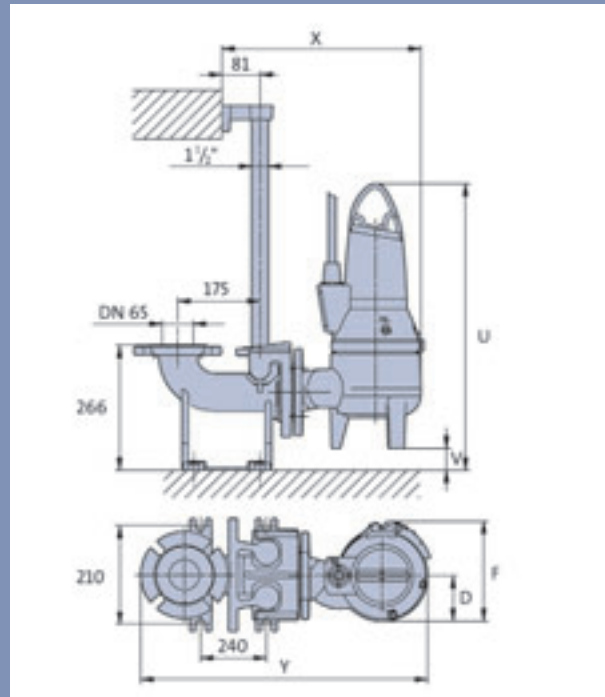
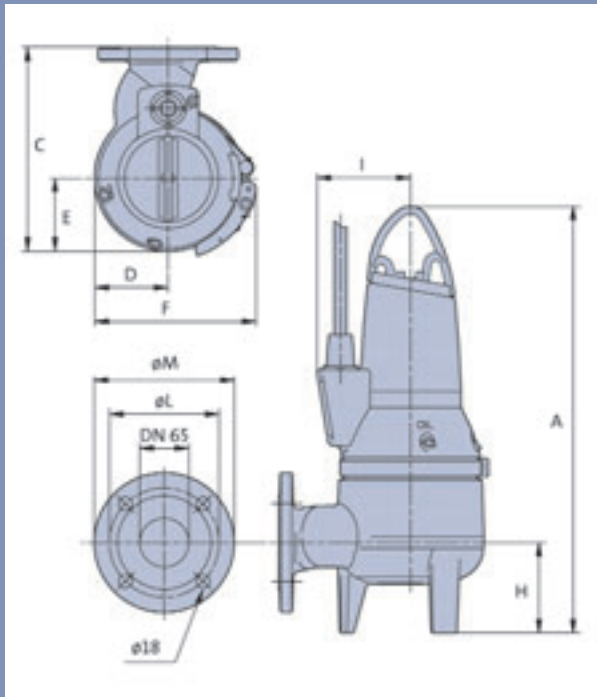
The EF pumps are also available with an Ex nC II T3 classification in accordance with IEC 60079-15:1987.

### Starts and stops

The Grundfos SEV pumps are suitable for fully submerged continuous operation, or partly submerged intermittent S3-40%-10 min. operation with a maximum of 20 starts per hour.

# Grundfos SEV range

## Dimensions, free standing and on auto-coupling system



Motor size [kW]	A	C	D	E	F	H	I	øL	øM
0.9, 1.1, and 1.5	544	333	126	118	242	121	123	143	185

Motor size [kW]	D	F	U	V	X	Y
0.9, 1.1 and 1.5	115	252	655	64	443	630

















## Electrical data, pump type and product numbers

Pump type	Product number	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	n min <sup>-2</sup>	Voltage [V]	I <sub>1/1</sub> [A]	I <sub>start</sub> [A]	Cos φ	Ex-classification	Weight [kg]
SEV65.65.09.2.1.502	96115119	1.3	0.9	2870	1x230	6.1	38	0.96		41
SEV65.65.09.2.50B	96115123	1.4	0.9	2870	3x400-415	2.8	21	0.76		41
SEV65.65.09.A.2.1.502*	96115121	1.3	0.9	2870	1x230	6.1	38	0.96		41
SEV65.65.09.A.2.50B*	96115125	1.4	0.9	2870	3x400-415	2.8	21	0.76		41
SEV65.65.09.EX.2.1.502	96115120	1.3	0.9	2870	1x230	6.1	38	0.96	EEx d IIB T4	41
SEV65.65.09.EX.2.50B	96115124	1.4	0.9	2870	3x400-415	2.8	21	0.76	EEx d IIB T4	41
SEV65.65.09.EX.2.1.502	96115122	1.3	0.9	2870	1x230	6.1	38	0.96	Ex n IIB T4	41
SEV65.65.09.EX.2.50B	96115126	1.4	0.9	2870	3x400-415	2.8	21	0.76	Ex n IIB T4	41
SEV65.65.11.2.1.502	96106573	1.6	1.1	2830	1x230	7.4	38	0.97		41
SEV65.65.11.2.50B	96106577	1.6	1.1	2830	3x400-415	3.1	21	0.81		41
SEV65.65.11.A.2.1.502*	96106575	1.6	1.1	2830	1x230	7.4	38	0.97		41
SEV65.65.11.A.2.50B*	96106579	1.6	1.1	2830	3x400-415	3.1	21	0.81		41
SEV65.65.11.EX.2.1.502	96106574	1.6	1.1	2830	1x230	7.4	38	0.97	EEx d IIB T4	41
SEV65.65.11.EX.2.50B	96106578	1.6	1.1	2830	3x400-415	3.1	21	0.81	EEx d IIB T4	41
SEV65.65.11.EX.2.1.502	96106576	1.6	1.1	2830	1x230	7.4	38	0.97	Ex n IIB T4	41
SEV65.65.11.EX.2.50B	96106580	1.6	1.1	2830	3x400-415	3.1	21	0.81	Ex n IIB T4	41
SEV65.65.15.2.50B	96104192	2.2	1.5	2720	3x400-415	3.8	21	0.88		41
SEV65.65.15.A.2.50B*	96104194	2.2	1.5	2720	3x400-415	3.8	21	0.88		41
SEV65.65.15.EX.2.50B	96104193	2.2	1.5	2720	3x400-415	3.8	21	0.88	EEx d IIB T4	41
SEV65.65.15.EX.2.50B	96104195	2.2	1.5	2720	3x400-415	3.8	21	0.88	Ex n IIB T4	41

\*The pump is equipped with a CU 100 control box for automatic operation.

## Complete range of accessories




The following table shows the complete range of accessories for the Grundfos DP, EF, SE1, and SEV ranges.

No.	Picture	Description	Dimensions	Product number
1		90° elbow	R/Rp 2	96 00 19 80
			R/Rp 2½	96 00 19 81
2		Coupling half Storz coupling	Rp 2 for 2" hose	96 00 19 82
			Rp 2½ for 2" hose	96 00 19 83
3		10 m rubber hose incl. Storz couplings	2"	96 00 19 87
4		90° elbow	R/Rp 2	96 00 19 90
			R/Rp 2½	96 00 19 91
5		90° elbow with flange	DN 65, PN 10	96 00 36 16
			DN 80, PN 10	96 00 36 17
6		Hexagon nipple	R/Rp 2	96 00 19 93
			R/Rp 2½	96 00 19 94
7		Threaded flange	DN 50, Rp 2	96 00 44 51
			DN 65, Rp 2½	96 00 19 96
			DN 80, Rp 3	96 00 19 97
8		Bolts, nuts and gaskets	4 of each M16 x 65 mm, DN 50	96 00 44 52
			4 of each M16 x 65 mm, DN 65	96 00 19 98
			4 of each M16 x 65 mm, DN 80	96 00 19 99
9		Non-return valve Cast iron ball-type valve	Rp/Rp 2	96 00 20 02
10		Isolating valve Brass	R/Rp 2	96 00 20 05
			R/Rp 2½	96 00 20 06
11		Isolating valve Cast iron	Rp/Rp 2	96 48 99 76
12		Non-return valve Cast iron ball-type valve	DN 50	96 48 99 74
			DN 65	96 00 20 08
			DN 80	96 00 20 09
13		Isolating valve Cast iron	DN 50	96 48 99 75
			DN 65	96 00 20 10
			DN 80	96 00 20 11
14		Lifting chain with shackle, galvanized with certificates	10 m	96 49 74 64
			6 m	96 49 74 65
			3 m	96 49 74 66
15		Auto-coupling system complete – upper guiderail holder, nuts, bolts, gaskets, guide claw and base, cast iron	DN 65/DN 65	96 09 09 92
			DN 80/DN 65	96 10 22 38
16		Hookup auto-coupling – base stand, counterpart, bolts, nuts and gaskets, cast iron	Rp/Rp 2	96 00 44 45




## Type Key for LC and LCD controllers

		Example:	LC	107	230	1	12	30/150	DOL
Controller type	LC =	One-pump controller							
	LCD =	Two-pump controller							
Type of level sensors	107 =	Control of 1 or 2 pumps based on signals from bell shaped level pickups (pneumatic) Max. 11 kW shaft power DOL							
	108 =	Control of 1 or 2 pumps based on signals from float switches or electrodes Max. 11 kW shaft power DOL Max. 30 kW shaft power SD							
	110 =	Control of 1 or 2 pumps based on signals from electrodes Max. 11 kW shaft power DOL							
Voltage [V]									
Number of phases	1 =	1 phase							
	3 =	3 phase							
Maximum operating current per pump [A]									
Operating / starting capacitor [ $\mu$ F]									
[ ] = without capacitor									
30 = operating capacitor									
30/150 = 30 $\mu$ F operating and 150 $\mu$ F starting capacitor									
Starting methode	DOL =	Direct on-line starting							
	SD =	star-delta starting (only LC 108 and LCD 108)							

Note: Controllers with capacitor are for 12 A operating current.

No.	Picture	Description	Dimensions	Product number
17		LC 107 controller, pneumatic version with bell-shaped level-pickups and tube for 1 pump 1 x 230 V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 $\mu$ F	96 12 55 95
		LC 107 controller, pneumatic version with bell-shaped level-pickups and tube for 1 pump 3 x 400 V, direct-on-line-starting	1 - 2.9 A	96 00 24 67
			1.6 - 5.0 A	96 00 24 68
			3.7 - 12.0 A	96 00 24 69
18		LCD 107 controller, pneumatic version with bell-shaped level-pickups and tube for 2 pumps 1 x 230 V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 $\mu$ F	96 12 55 96
		LCD 107 controller, pneumatic version with bell-shaped level-pickups and tube for 2 pumps 3 x 400 V, direct-on-line-starting	1 - 2.9 A	96 00 24 74
			1.6 - 5.0 A	96 00 24 75
			3.7 - 12.0 A	96 00 24 76
19		LC 108 controller for level switches for 1 pump 1 x 230V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 $\mu$ F	96 12 55 97
		LC 108 controller for level switches for 1 pump 3 x 230 V, direct-on-line-starting	1 - 2.9 A	+96 43 39 75
			1.6 - 5.0 A	+96 43 39 79
			3.7 - 12.0 A	+96 43 39 83
		LC 108 controller for level switches for 1 pump 3 x 400 V, direct-on-line-starting	12.0 - 23.0 A	+96 43 39 87
			1 - 2.9 A	+96 43 39 91
			1.6 - 5.0 A	+96 43 39 95
	3.7 - 12.0 A	+96 43 39 99		
	12.0 - 23.0 A	+96 43 40 03		


Product numbers marked with • are English versions. Other languages are available on request.

No.	Picture	Description	Dimensions	Product number
20		LCD 108 controller for level switches for 2 pumps 1 x 230V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 µF	96 12 55 98
		LCD 108 controller for level switches for 2 pumps 3 x 230 V, direct-on-line-starting	1 - 2.9 A	•96 43 40 23
			1.6 - 5.0 A	•96 43 40 27
			3.7 - 12.0 A	•96 43 40 31
			12.0 - 23.0 A	•96 43 40 35
		LCD 108 controller for level switches for 2 pumps 3 x 400 V, direct-on-line-starting	1 - 2.9 A	•96 43 40 39
			1.6 - 5.0 A	•96 43 40 43
3.7 - 12.0 A	•96 43 40 47			
		12.0 - 23.0 A	•96 43 40 51	
21		LC 110 controller for electrodes for 1 pump 1 x 230 V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 µF	96 12 55 99
		LC 110 controller for electrodes for 1 pump 3 x 400 V, direct-on-line-starting	1 - 2.9 A	96 48 40 85
			1.6 - 5.0 A	96 48 40 86
			3.7 - 12.0 A	96 48 40 87
			12.0 - 23.0 A	96 48 40 88
22		LCD 110 controller for electrodes for 2 pumps 1 x 230 V, direct-on-line-starting. With built-in operating capacitors	3.7 -12.0 A 30 µF	96 12 56 00
		LCD 110 controller for electrodes for 2 pumps 3 x 400 V, direct-on-line-starting	1 - 2.9 A	96 48 40 93
			1.6 - 5.0 A	96 48 40 94
			3.7 - 12.0 A	96 48 40 95
			12.0 - 23.0 A	96 48 40 96







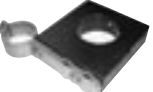


Product numbers marked with • are English versions. Other languages are available on request.

## Type Key for CU100 Control box

		<b>Example:</b>						
		CU	100	230	1	9	30/150	A
Type range								
Type designation								
Voltage [V]								
Number of phases	1 =	1 phase						
	3 =	3 phase						
Maximum amp. consumption for the pump [A]								
Operating / starting capacitor [µF]								
A = with float switch								
[ ] = without float switch								

No.	Picture	Description	Accessories	
			Dimensions	Product number
23		CU 100 control box for one pump A model include float switch for automatic operation	CU 100.230.1.9.30/150	96 07 62 09
			CU 100.230.1.9.30/150.A	96 07 61 97
			CU 100.230.3.5.A	96 07 61 98
			CU 100.230.3.12.A	96 07 61 99
			CU 100.400.3.2,9.A	96 07 62 00
			CU 100.400.3.5.A	96 07 62 01

# Accessories

No.	Picture	Description	Dimensions	Product number
24		Float switch with 10 m cable	For LC 108 and LCD 108 controllers	96 00 33 32
		Float switch with 20 m cable		96 00 36 95
		Float switch for use in potentially explosive environments, with 10 m cable	For LC 108 and LCD 108 controllers connected to LC-Ex4	96 00 34 21
		Float switch for use in potentially explosive environments, with 20 m cable		96 00 35 36
25		Bracket for two float switches		96 00 33 38
26		Standard float switches with 10 m cable, counter weight and bracket	1 pump without alarm (2 switches)	62 50 00 13
			1 pump with alarm (3 switches)	62 50 00 14
			2 pumps without alarm (3 switches)	62 50 00 14
			2 pumps with alarm (4 switches)	62 50 00 15
27		Float switches for use in potentially explosive environments, with 10 m cable counter weight and bracket	1 pump without alarm (3 switches)	62 50 00 16
			1 pump with alarm (4 switches)	62 50 00 17
			2 pumps without alarm (4 switches)	62 50 00 17
28		LC-Ex4 intrinsically safe barrier, for use in potentially explosive environments, for float switch applications.  The LC-Ex4 can be mounted in ambient temperatures ranging from -25°C to +50°C. Safety class: II (1) G [EEx ia] II °C.		96 44 03 00
29		Electrodes for LC 110 and LCD 110	1 electrode with 10 m cable	96 07 62 89
			3 electrodes with 10 m cable	96 07 61 89
			4 electrodes with 10 m cable	91 71 34 37
30		Bracket for electrodes	For mounting on a 38 mm pipe	91 71 31 96
31		Signal lamp, 1 x 230 V	Outdoor mounting	62 50 00 20
32		Acoustic signal (horn), 1 x 230 V	Outdoor mounting	62 50 00 21
			Indoor mounting	62 50 00 22

# The Grundfos wastewater range

## S range 5 – 29 kW

Brochure covers the Grundfos range of submersible channel-impeller pumps from 5 kW up to 21 kW and Super-Vortex pumps up to 29 kW. All designed for handling unscreened raw sewage. Available in 50 Hz and 60 Hz versions.



## S range 15 – 155 kW

Brochure covers the Grundfos range of sewage pumps from 15 kW up to 155 kW for handling of raw sewage in heavy-duty applications. Available in 50 Hz and 60 Hz versions.



## S/SA ranges Up to 520 kW

Brochure covers the Grundfos range of super-heavy-duty channel pumps, axial flow pumps, and propeller pumps from 7.5 kW up to 520 kW.



## DW range 0.7 – 20 kW

Brochure covers the Grundfos range of portable dewatering pumps (DW) from 0.8 kW to 20 kW for pumping raw water with abrasives.

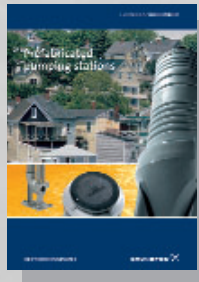
## S range pumps 1.65 – 5.0 kW

The brochure covers the Grundfos range of heavy-duty submersible SuperVortex and channel-impeller pumps from 1.65 to 5.0 kW. All suitable for unscreened sewage.



## Multilift M, MD, MDV, and MD1 ranges

Brochure covers Grundfos lifting stations for individual as well as multi-user applications.



## Prefabricated pumping stations

Brochure covers the Grundfos range of prefabricated pumping stations for collecting and removing drainwater, surface water, domestic and industrial wastewater and sewage.



## SEG range 0.9 – 4.0 kW

Brochure covers the Grundfos range of sewage grinder pumps (SEG) for pumping of wastewater with toilet discharge.



## LC/LCD Ranges – level controllers

Brochure covers the Grundfos range of controls for the wastewater pumping systems.



## SEN range 1.0 – 21 kW

Brochure covers the Grundfos range of heavy-duty stainless steel pumps (SEN) for aggressive and corrosive environments.

## AMD, AMG, and AFG ranges

Brochure covers the new range of mixers and flowmakers for optimal control of liquids and solids throughout the wastewater treatment process.



## SE1 and SEV ranges 1.1 – 11 kW

This brochure describes the innovative SEV/SE1 pump lines. Fitted with Super-Vortex or single-channel impellers, these pumps can meet approximately 80% of all wastewater pumping needs.



## SRP range 3.0 – 24 kW

Brochure covers the Grundfos range of SRP submersible recirculation pumps for wastewater treatment plants and flood control. Available in 50 Hz and 60 Hz versions.



## Business with an attitude

**Knowledge** The sharing of knowledge, experience and expertise across our global network will always lead our business forward.

**Innovation** Combining the best technology with fresh ways of thinking, we will continue to develop even better pumps, systems, services and standards.

**Solution** With a complete product range, capable of providing every conceivable water solution, we are the most complete player on the market.