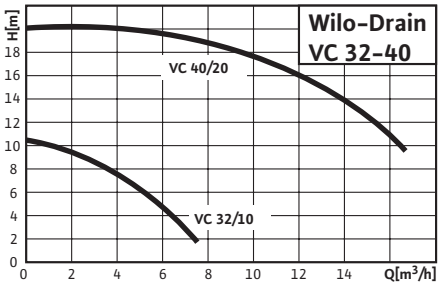
Wilo-Drain Submersible Pumps

Wilo-Drain VC

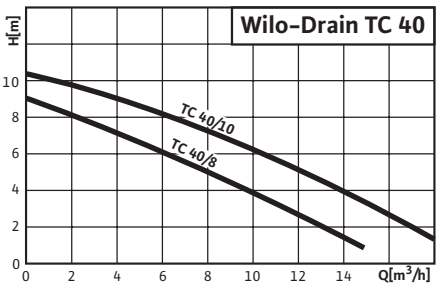
Duty chart (2-pole, 50 Hz)



- Vertical wastewater pump
- Applications:
  Pumping wastewater
  – Containing solids with a maximum diameter of 5 mm or 7 mm (VC 40)
  – Substances with temperatures up to 100 °C
  – from pump sumps
  – containing condensate
  – from basements at risk of flooding

Wilo-Drain TC 40

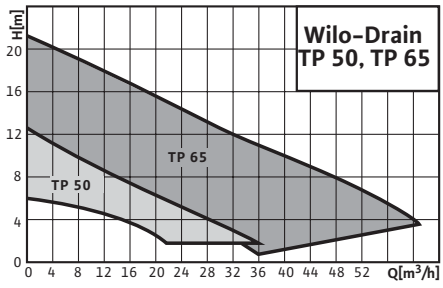
Duty chart (2-pole, 50 Hz)



- Submersible wastewater pump
- Applications:
  Pumping heavily contaminated fluids in
  – Building and surface drainage
  – Sewage disposal and conservation
  – Environmental protection and sewage farm technology
  – Industrial and process engineering

Wilo-Drain TP 50/65

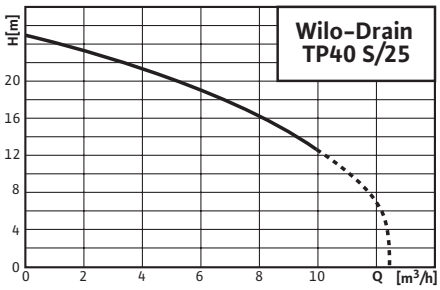
Duty chart (2-pole, 50 Hz)



- Submersible wastewater pump
- Applications:
  Pumping heavily contaminated fluids in
  – Building and surface drainage
  – Sewage disposal and conservation
  – Environmental protection and sewage farm technology
  – Industrial and process engineering

Wilo-Drain TP 40 S/25

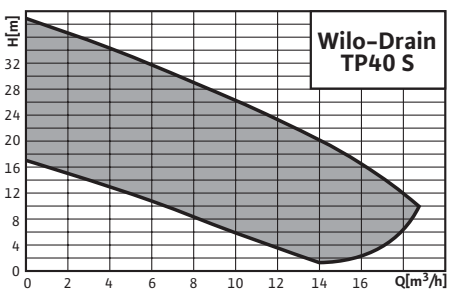
Duty chart (2-pole, 50 Hz)



- Submersible sewage pump with macerator
- Applications:
  Pumping domestic sewage containing faeces from individual fixtures. The patented macerator reduces the solid contents of the sewage flow into a medium containing smaller particles which can be more easily conveyed.

Wilo-Drain TP 40 S

Duty chart (2-pole, 50 Hz)



- Submersible sewage pump with macerator
- Applications:
  Pumping domestic sewage containing faeces. The patented macerator reduces the solid contents of sewage flow to a medium containing smaller particles which can be more easily conveyed.

Wilo-Drain Submersible Pumps

Wilo-Drain VC

- Built-in motor protection
- Extended periods of use
- Simple start up procedure
- Pump connection outside pumping medium area
- Extended standstill periods possible

Wilo-Drain TC 40

- Simple operation thanks to the built-in float switch
- Straightforward installation with built-in mounting foot
- Stainless steel mounting foot
- Large free ball passage

Wilo-Drain TP 50/65

- INOX & Composite
- Detachable power cable
- Design variant with explosion protection
- Wide range of pump curves

Wilo-Drain TP 40S/25

- Non-clogging
- High level of operating safety
- Stainless steel motor
- Internal cutter allows drawing cutting action
- Patented macerator

Wilo-Drain TP 40S

- Non-clogging
- Internal cutter allows drawing cutting action
- High level of operating safety
- Patented macerator

Wilo-Drain TC 40
Submersible wastewater pump, 2-pole

Type key
Example:	**Wilo-Drain TC 40/8**
TC	Submersible pump
40	Nominal diameter [mm]
/8	Max. delivery head [m]

Applications
Wilo-Drain TC 40 submersible pumps are ideal for pumping heavily contaminated fluids for:
- Building and surface drainage
- Sewage disposal and conservation
- Environmental protection and sewage farm technology
- Industrial and process engineering

Design
Monobloc submersible wastewater pump for vertical wet sump installation.

Motor

AC motor 1~230 V, 50 Hz

Motor Protection

Thermal winding contacts (WSK)

Scope of delivery
Fully assembled pump with 5 m power cable, plug (Schuko), float switch and installation and operating manual.

Pump Equipment/Function

		Wilo-Drain TC 40	Wilo-Drain TP 50	Wilo-Drain TP 65
Operating mode: Intermittent service S3				
Frequency switching/h [%]		25	25	25
Max. frequency switching/h		30	70	40
Recommended frequency switching/h		20	20	20
Operating mode: Continuous service S1				
Motor below water		•	•	•
Pump/motor seals				
In pumping medium area:	Mechanical seal	•	•	•
On the motor compartment side:	Shaft seal	•	•	•
Oil seal chamber		•	•	•
Design				
Wet sump installation	Stationary	•	•	•
	Portable	•	•	•
Submersible		•	•	•
Open single-vane impeller		–	•	•
Free-flow impeller		•	•	•
Materials				
Motor	Stainless steel	•	•	•
Pump	Plastic	–	•	•
	Cast iron	•	–	–
Equipment				
Motor monitor (temperature)		–	• (1~230 V model only)	•
Explosion protection		–	–	• (3~400 V model only)
Pre-assembled		•	• (A model only)	• (A model only)
Power cable [m]		5	10	10
Attached float switch		•	• (A model only)	–
Capacitor box		–	• (A model only)	–

• = available, – = not available

Technical Data

	Wilo Drain TC ...		Wilo-Drain TP ...				Wilo-Drain TP ...					
	TC 40/8	TC 40/10	TP 50 ... E 101/5.5	TP 50 ... E 107/7.5	TP 50 ... F 82/5.5	TP 50 ... F 90/7.5	TP 65 ... E 114/11	TP 65 ... E 122/15	TP 65 ... E 132/22	TP 65 ... F 91/11	TP 65 ... F 98/15	TP 65 ... F 109/22
Approved fluids												
Washing machine soap and water mixture (without long-fibre particles)	•		•				•					
Water from car wash facilities	–		•				•					
Pool water	•		•				•					
Water from firefighting systems	•		•				•					
Heating water	T_{max} < 40 °C		T_{max} < 35 °C									
Boiler feed water	T_{max} < 40 °C		T_{max} < 40 °C									
Condensate	–		•				•					
Cooling (condenser) water	•		•				•					
Drainage water	•		•				•					
Rainwater	•		•				•					
Wastewater, flood and river water	•		•				•					
Faeces (free-flow impeller)	–		–				•					
Performance												
Power consumption P_1 1~230 V [kW]	0.66	0.94	1.0	1.3	1.0	1.3	1.5	–	–	1.5	–	–
Power consumption P_1 3~400 V [kW]	–	–	1.0	1.1	1.0	1.1	1.5	2.0	2.9	1.5	1.8	2.7
Rated motor power P_2 [kW]	0.5	0.6	0.55	0.75	0.55	0.75	1.1	1.5	2.2	1.1	1.5	2.2
Rated current for 1~230 V [A]	3.2	4.4	4.0	5.5	4.0	5.5	7.2	–	–	6.9	–	–
Rated current for 3~400 V [A]	–	–	2.0	2.0	2.0	2.0	3.2	3.8	5.2	3.2	3.6	5.1
Speed [rpm]	2,850											
Motor												
Protection class for max. submersion depth	IP 68											
Insulation class	F											
Frequency switching [per hour]	30		70				40					
Pump												
Submersion depth, max. [m]	5		10				10					
Fluid temperature, max. [°C]	40		35				35					
Cable type	H07 RN-F		OZOFLEX (PLUS) H07 RN-F – oil-resistant									
Cable length [m]	5		10				10					
Cable cross-section 1~230 V [mm^2]	3x1		4x1				4x1	–	–	4x1	–	–
Cable cross-section 3~400 V [mm^2]	–		4x1				6x1	6x1	6x 1.5	6x1	6x1	6x 1.5
Plug	Schuko		Schuko/CE				–					
Type of power cable	longitudinal watertight		longitudinal watertight/plug				longitudinal watertight/plug					
Activation type	direct		direct				direct					
Explosion protection	–		–				EEx d II B T4 (except 1~230 V and A models)					
Free ball passage [mm]	35		44				44					
Dimensions												
Discharge port [DN/Rp]	1 1/2	1 1/2	50	50	50	50	65	65	65	65	65	65
Weight [kg]	9.5	12	14.5	16	14.5	16	21	22	24.5	22	24.5	24.5

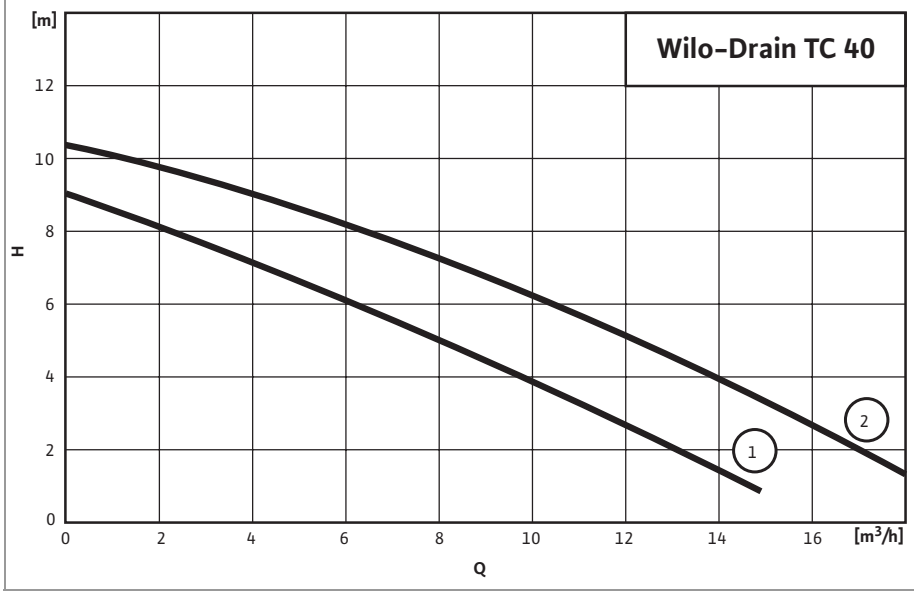
		Wilo Drain TC ...		Wilo-Drain TP ...				Wilo-Drain TP ...					
		TC 40/8	TC 40/10	TP 50 ... E 101/5.5	TP 50 ... E 107/7.5	TP 50 ... F 82/5.5	TP 50 ... F 90/7.5	TP 65 ... E 114/11	TP 65 ... E 122/15	TP 65 ... E 132/22	TP 65 ... F 91/11	TP 65 ... F 98/15	TP 65 ... F 109/22
Materials													
Pump housing		EN-GJL-200		Polypropylene				Polyurethane					
Impeller		Plastic		Polypropylene				Polyurethane			Polypropylene		
Shaft		1.4005		1.4435				1.4435					
Pump side:	Mechanical seal (bidirectional)	Carbon/ ceramic		SiC-SiC				SiC-SiC					
Motor side:	Mechanical seal	Carbon/ ceramic		–				–					
	Shaft seal	–		NBR				NBR					
Static seals		NBR		NBR				NBR					
Motor housing		1.4308		1.4301 (1.4435 steel upon request)				1.4301 (1.4435 steel upon request)					

• = available or authorised, – = not available or not authorised

Pump Curves, Dimension Drawing, Dimensions, Weights

TC 40

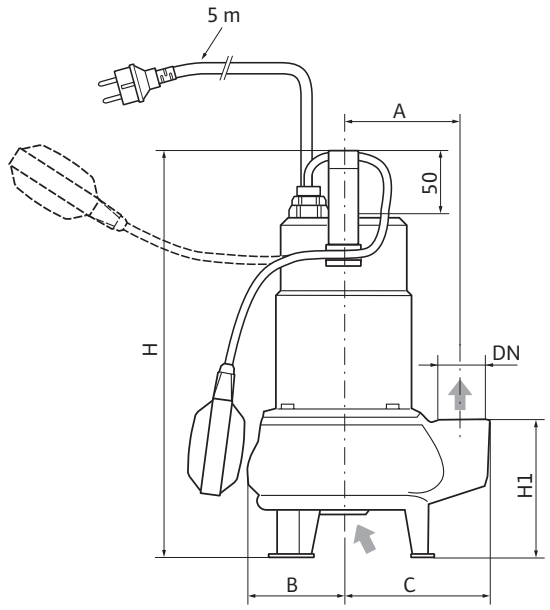
2-pole, 50 Hz



1 = TC 40/8

2 = TC 40/10

Dimension drawing



Dimensions, weights

	Discharge port	Dimensions					Weight
	–	A	B	C	H	H1	–
	Rp	[mm]					[kg]
Wilo Drain TC 40/8	1 1/2	105	86	138	352	120	9.5
Wilo Drain TC 40/10	1 1/2	105	86	138	367	120	12.0

Pump Equipment/Function

		ER1-A	SK 530	Drain Control PL1	Drain Control PL2	Drain Control 1	Drain Control 2	KAS
Applications								
Switchgear for controlling pumps		•	•	•	•	•	•	–
Alarm switchgear		–	–	–	–	–	–	•
Number of pumps to be controlled		1	2	1	2	1	2	–
Electrical connection								
Direct activation [A]		max.10 [1]	max. 2x8	Max.12	max. 2x12	Max.10	max. 2x10	–
Star/delta connection		optional [1]	–	–	–	> 10 A	> 10 A	–
Design								
Microprocessor-controlled		–	–	•	•	•	•	–
Electronic		•	•	–	–	–	–	•
Housing material								
Plastic		•	•	•	•	•	•	•
Metal		optional	–	–	–	–	–	–
Equipment								
Test run		•	–	•	•	–	–	–
Pump start counter/impulse counter		–	–	•	•	–	–	–
LCD display		–	–	•	•	•	•	–
LED/indicator lamp		•	•	•	•	•	•	–
Main switch		•	–	optional	optional	•	•	–
Ampere meter		optional upon requ.	–	•	•	• [2]	• [2]	–
Volt meter		optional upon requ.	–	–	–	–	–	–
Adjustable delay time		•	–	•	•	•	•	–
Operating hours counter		optional upon requ.	–	•	•	•	•	–
Level detection	Float switch	• [3]	• [3]	• [3]	• [3]	• [3]	• [3]	–
	Pneumatic pressure sensor	–	–	•	•	–	–	–
	Level sensor (4-20 mA)	–	–	• [4]	• [4]	• [4]	• [4]	–
	Electrodes	–	–	–	–	–	–	•
Alarm	Mains-operated	•	•	•	•	•	•	–
	Built-in (buzzer)	–	–	•	•	–	–	•
Pump Duty Cycling		–	•	–	•	–	•	–
Message/display function								
Collective run signal		•	•	–	–	–	–	–
Collective fault signal		•	•	•	•	•	•	–
Individual run signal		–	optional	–	–	•	•	–
Individual fault signal		–	optional	–	•	–	–	–
Control functions (motor monitor)								
Thermal winding contacts (WSK)		•	•	•	•	•	•	–
PTC		•	–	–	–	•	•	–
Leakage (DI)		–	–	–	–	•	•	–
Electronic		•	•	•	•	• (up to 10 A)	• (up to 10 A)	–
Protective motor switch		–	–	optional	optional	• (>10 A)	• (>10 A)	–
Scope of delivery								
Float switch		•	•	–	–	–	–	–
Signal horn		•	•	–	–	–	–	–

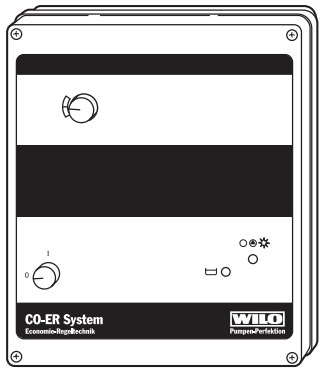
• = available, – = not available
[1] For other motor power ratings upon request
[2] For direct activation units only (up to 4 kW)
[3] In potentially explosive areas only with Ex isolating relay
[4] In potentially explosive areas only with Zener barrier

Pump Equipment/Function

		Drain-Alarm2	Motor protection plug CEE	Isolation relay for explosion protection	Zener barrier	Flashing light	Signal horn	SK 545
Applications								
Switchgear for controlling pumps		–	•	–	–	–	–	–
Alarm switchgear		•	–	–	–	–	–	–
Number of pumps to be controlled		–	1	–	–	–	–	2
Electrical connection								
Direct activation		–	•	–	–	–	–	– External power pack
Star/delta connection		–	–	–	–	–	–	– External power pack
Design								
Electronic		•	–	•	•	•	–	•
Electromechanical		–	•	–	–	–	•	–
Housing material								
Plastic		•	•	•	•	•	•	•
Equipment								
LED/indicator lamp		•	•	•	–	–	–	•
Level detection	Float switch	•	•	•	–	–	–	–
	Level sensor (4–20 mA)	–	–	–	•	–	–	–
Alarm	Battery-operated	•	–	–	–	–	–	–
	Mains-operated	•	–	–	–	–	–	–
	Built-in (buzzer)	•	–	–	–	–	–	–
Message/display function								
Individual fault signal		•	–	–	–	–	–	–
Control functions (motor monitor)								
Thermal winding contacts (WSK)		–	•	–	–	–	–	•
Leakage (DI)		–	–	–	–	–	–	•
Protective motor switch		–	•	–	–	–	–	–

• = available, – = not available

Description of Accessories



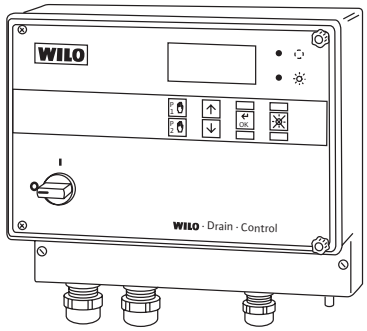
Wilo ER 1-A and Wilo SK 530 switchgears

For automatic transmitter control of 1 or 2 Wilo-Drain series submersible wastewater/sewage pumps.

- W=228 mm, H=265 mm, D=74 mm
- Protection class IP 42
- Switchover from pump 1 – pump 2 (SK 530)
- Motor protection by WSK or electronic motor switch
- Transmitter connection for float switch, Type WA 95
- Automatic pump duty cycling (SK 530)
- Selector switches:
  "Hand-2-Hand-1-0-Automatic" system (SK 530)
  "Hand-0-Automatic" system (ER 1-A)
- Connection for high water alarm
- Volt-free fault signal (changeover contact) and volt-free run signal (changeover contact),
- Phase failure monitor (can be switched off)
- Includes float switch WA 65, cable length 5 m (2x for ER 1-A, 3x for SK 530) and 230 V signal horn (requires external power supply), included separately in delivery

For control of pumps in potentially explosive areas, Ex isolating relays must be used.

Switchgears are not explosion-protected and may be used outside of potentially explosive areas only.



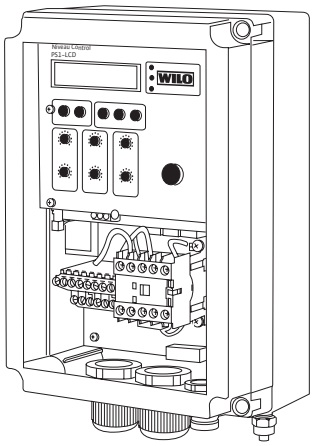
Wilo-DrainControl

Microprocessor-controlled switch unit for the fully automatic control of 1 or 2 Wilo-Drain submersible wastewater/sewage pumps.

- Hand-0-Automatic switch above membrane keyboard
- Two-line LCD display with 2 x 16 characters, multi-lingual, menu-controlled operation possible using membrane keyboard
- Input terminals for connecting a level probe
- Automatic phase failure and phase sequence control
- Operating hours counter
- Automatic pump duty cycling (Control 2) after each operation sequence
- Volt-free contacts for:
  – Collective fault signal
  – Signal horn (make contact)
  – Pump 1 operation (make contact)
  – Pump 2 operation (make contact) Control 2 only
  – Main switch
  – Built-in electronic motor current monitoring
- max. ambient temperature 40 °C
- Housing: Plastic for wall installation
- Type of start-up: Direct or star-delta

For control of pumps in potentially explosive areas, a level probe (with Zener barrier!) or float switch in conjunction with Ex isolating relays must be used.

Switchgears are not explosion-protected and may be used outside of potentially explosive areas only.

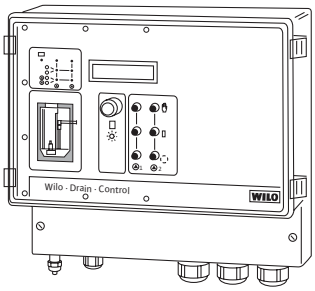


Wilo-DrainControl PL 1

Switchgear for level control of 1 submersible pump using the bubbling-through or dynamic pressure method.

- LCD display
- LEDs for alarm, operation/delay time, manual/automatic operation
- Volt-free contacts for collective fault signal and high water alarm
- Forced switch-on of the pump
- Time-delayed pump stop
- Built-in buzzer
- Operating hours counter

Switchgears are not explosion-protected and may be used outside of potentially explosive areas only.



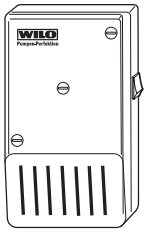
Wilo-DrainControl PL 2

Switchgear for level control of 2 submersible pumps. The level can be detected using the bubbling-through or dynamic pressure method or using an electronic level sensor (4 - 20 mA) or float switch.

- LCD display, multi-lingual, adjustable
- LEDs for alarm, operation/delay time, manual/automatic operation
- Volt-free contacts for collective fault signal and high water alarm, pump 1 fault, pump 2 fault
- Forced switch-on of the pump
- Time-delayed pump stop
- Automatic pump duty cycling after each operation sequence
- Automatic fault switchover
- Built-in buzzer
- Operating hours, pump start counters

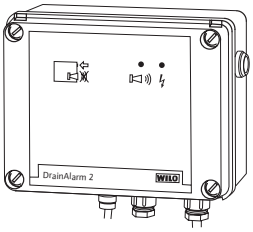
For control of pumps in potentially explosive areas, a level probe with Zener barrier or float switch in conjunction with Ex isolating relays must be used.

Switchgears are not explosion-protected and may be used outside of potentially explosive areas only.



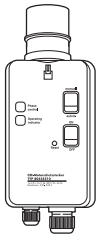
Wilo KAS

Mini alarm switchgear with 70 dBA signal bell, signal transmitter (electrode) with 3 m cable, self-recharging power supply pack (power reserve approx. 5 hrs.) in ISO plug housing (Schuko), protection class IP 30, 230 V~ / 9V=; 1.5 VA.



Wilo Drain-Alarm 2

Alarm switchgear for wall installation with visual and acoustic alarm signal (85 dBA buzzer, self-recharging power supply pack, volt-free contact, ISO housing, protective class IP 54, 1~230 V. As the transmitter, a WA type float switch is required.



Protective motor switch CEE

(Up to rated motor power P2 < 4 kW) with phase inverter and rotation direction indicator, thermal motor protection of the motor. Current ranges:

- 2.6 – 3.7 A
- 3.7 – 5.5 A
- 5.5 – 8 A
- 8 – 11.5 A

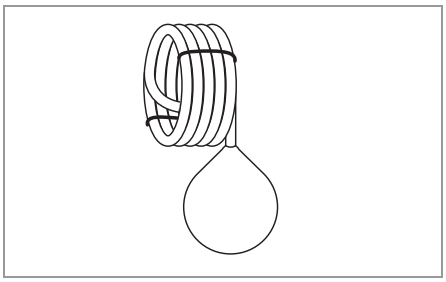
For TP 80/TP 100, evaluation of the thermal motor protection and leak monitoring.

Level probe

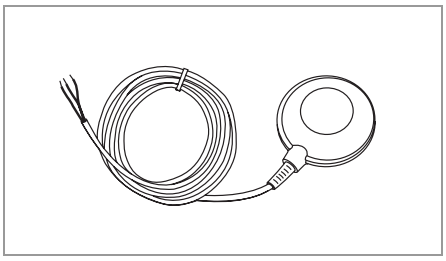
For level detection.

- Protection class IP 68
- Measurement range 0 - 1 m WS; 0 - 2.5 m WS
- Cable lengths 10, 30 or 50 m
- Output signal 4 - 20 mA

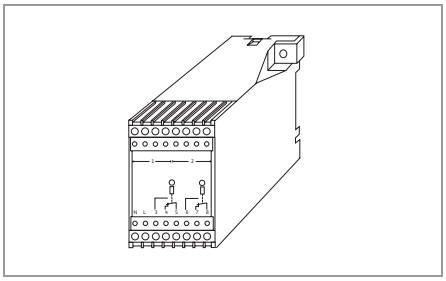
Description of Accessories



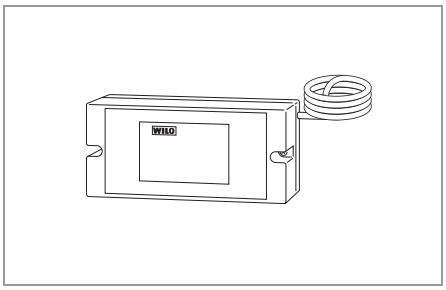
Float switch MS1
Cable length 10 m, for sewage containing faeces,
for connection to a Wilo-DrainControl 1 or 2.



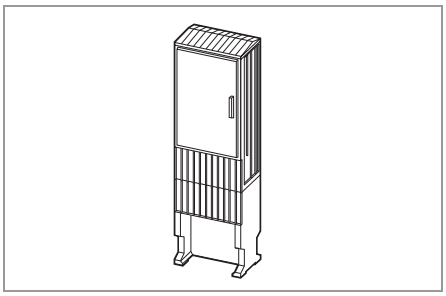
Type WA Float Switch
Cable length 5 m, switch setting: high ON/low OFF
WA 65 for media up to 65 °C
WA 95 for media up to 95 °C



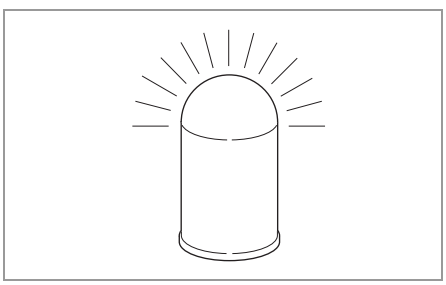
Ex isolating relay
For installation of float switches in potentially explosive areas.
Suitable for connection of 3 – 5 float switches. Built into an
ISO housing, protection class IP 54, with transparent cover, for wall mounting
(W = 182 mm, H = 180 mm, D = 165 mm).
- 3-circuit (3 float switches can be connected)
- 4-circuit (4 float switches can be connected)
- 5-circuit (5 float switches can be connected)



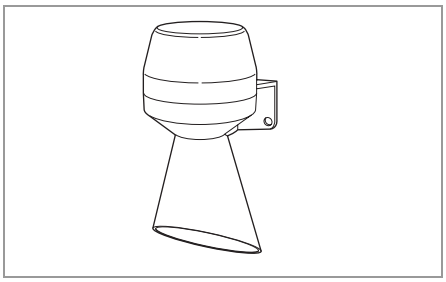
Zener barrier
For installation of a level probe in potentially explosive areas.
Suitable for connection of a level sensor.
Protection class IP40, housing for installation in non-potentially explosive areas
(W = 75 mm, H = 150 mm, D = 106 mm).
1 m pre-attached cable.



Switch cabinet - outdoor installation of Wilo-Drain-System
Empty cabinet for outdoor installation, with glass fibre-reinforced polyester, with lock, air supply and exhaust. For pedestal mounting. Additional options such as ammeter, volt meter, heating, etc. feasible on request and can, if required and in conjunction with a Wilo-Drain-Control, be supplied assembled in the switch board (at extra costs).
(W = 590 mm, D = 320 mm, H = 875 mm)

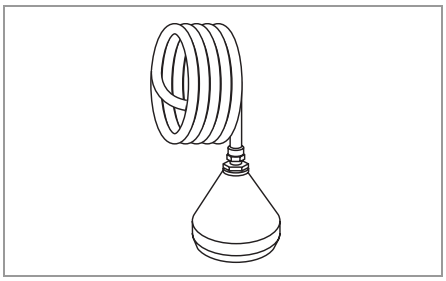


Flashing light
For installation on control cabinet, outdoor installation, 230 VAC



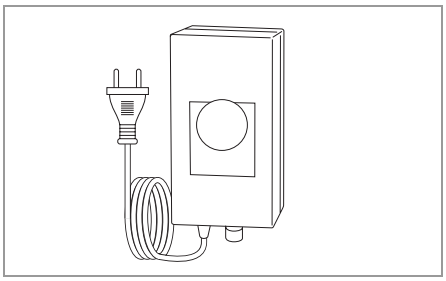
Signal horn

For connecting to a Wilo-DrainControl, 230 VAC



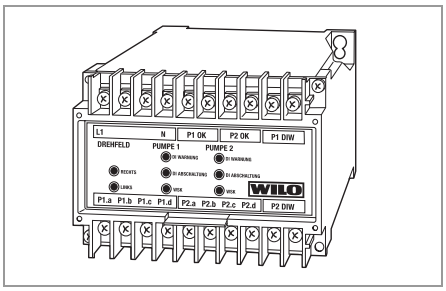
Dynamic pressure system

The pressure sensor (bell) senses changes of the fluid level in the shaft. The change of the pressure value in the bell is transmitted to the Wilo-DrainControl PL via a leak-proof hose, and evaluated by measuring elements in the switch box.
Scope of delivery: Submersible bell wit 10 m hose



Bubble-through system

Dynamic pressure principle with permanent compressed air supply from the mini air compressor. The bell (dynamic pressure system) must be ordered separately.
Scope of delivery: Mini air compressor, 3 m hose with T-piece and non-return valve



Wilo-SK 545

Trigger device for monitoring of up to 2 Wilo TP 80,100 or 150 submersible pumps

- For installation into existing switchgear or as a module for conventionally designed switchgears, installation on 35 mm top hat rail
- Phase sequence monitoring
- 2-stage leak monitoring
- Thermal winding monitoring (WSK)
- Operating voltage 3~400 V max. 6 A fuse protection
- Volt-free output contacts, max. load 250 V/1 A
- Dimensions : H = 72mm, W = 100mm, D = 113mm