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Drainage and Sewage Disposal



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Submersible Motor Pumps

Pump type	Ball passage [mm]	Macerator	Above floor	Under-floor	Main field of application					Page
Wastewater/Drainage										
Wilo-Drain TM/TMW 32	10				S			C	S	1)
Wilo-Drain TS 40	10				S/M/C			C	M	1)
Wilo-Drain TS 50	10				M/C			C	M	1)
Wilo-Drain TS 65	10				M/C			C	C	1)
Wilo-Drain TS 40/12, 40/16	10				S/M/C			C	M	1)
Wilo-Drain CP	5 to 10				S/M					1)
Wilo-Drain LP 40	5				S/M/C			C		1)
Wilo-Drain TC 40	35				S/M/C	M/C			M/C	1)
Wilo-Drain TP 50	44				M/C	M/C		C	M/C	1)
Wilo-Drain TP 65	44				M/C	M/C	S/M/C ²	C	C	1)
Hot Water										
Wilo-Drain TMT/TMC	10				C			C	C	1)
Wilo-Drain VC	5 to 7				S/M/C			C	M/C	1)
Sewage/Faeces										
Wilo-Drain MTS 40		•				S/M/C	S/M/C			8
Wilo-Drain STC 80/100	50 to 80				M/C	M/C	M/C	C		1)
Wilo-Drain STS 80/100	78 to 95				M/C	M/C	M/C	C		1)
Wilo-Drain TP 80	78				M/C	M/C	M/C	C	M/C	1)
Wilo-Drain TP 100	78 to 95				M/C	M/C	M/C	C	M/C	1)
Wilo-Drain TP 150	125				C	C	C	C	C	1)

New in the programme or range extension!

1) please refer to General Catalogue Building Service 2004/2005

2) only TP 65 F

Legend:

- S:** Single/two-family house
- M:** Multifamily house
- C:** Commercial
- applicable

Fields of application:



Wastewater/Drainage



Wastewater/Coarse contaminants



Sewage/Faeces



Manufacturing sewage



Condensate, condensing-boiler/
Air-conditioning equipment

Drainage and Sewage Disposal

Sewage Disposal



Lifting Units

Pump type	Dry-sump installation	Macerator	Above floor	Under-floor	Main field of application					Page
Condensate/Wastewater/Drainage										
Wilo-DrainLift Con			•						S/M/C	1)
Wilo-DrainLift TMP			•		S				S	1)
Wilo-DrainLift Box				•	S/M	S/M			S/M	1)
Wilo-DrainLift FH			•		S/M/C	S/M/C		C	S/M/C	1)
Wilo-DrainLift D-FH			•		S/M/C	S/M/C		C	S/M/C	1)
Sewage/Faeces										
Wilo-DrainLift KH			•		S	S	S		S	1)
Wilo-DrainLift S			•		S	S	S		S	1)
Wilo-DrainLift M			•		S/M	S/M	S/M	C	S/M	1)
Wilo-DrainLift L			•		M/C	M/C	M/C	C	M/C	1)
Wilo-DrainLift XL			•		M/C	M/C	M/C	C	M/C	1)
Wilo-DrainLift XXL			•		C	C	C	C	C	1)
Wet Sump Pumping Stations										
Wilo-DrainLift WS				•	S/M/C	S/M/C	S/M/C	C	C	1)
Wilo-DrainLift WB				•	S/M/C	S/M/C	S/M/C	C	C	1)

¹⁾ please refer to General Catalogue Building Service 2004/2005

Abbreviations used and what they mean

Abbreviation	Meaning
1~	1-phase alternating current
3~	3-phase alternating current
Autopilot	Automatic adjustment of pump output during setback phases, e.g. boiler setback operation overnight
rbc	Blocking-current-proof, no motor protection necessary
DM	3-phase motor
$\Delta p-c$	Control mode for constant differential pressure
$\Delta p-cv$	Combined control mode of constant and variable differential pressures
$\Delta p-T$	Control mode for differential-pressure control as a function of medium temperature
$\Delta p-v$	Control mode for variable differential pressure
ΔT	Control mode for differential temperature
EM	1-phase AC motor
ECM technology	Electronically commutated motor with new damp-room enclosure, newly developed drive concept for high-efficiency pumps
Ext. Off	Control input "Overriding Off"
Ext. Min	Control input "Overriding Min", e.g. for setback operation without autopilot
RCD	Residual-current device
BA	Building automation
GRD	Mechanical seal
GTW	Special cast iron: white malleable cast iron
$^{\circ}d$	Degree of German water hardness, unit for assessing water hardness
H	Delivery head
IF	Interface
Int. MS	Internal motor protection Pumps with internal protection against unacceptably high winding temperatures
Integr.	Integrated full motor protection, including triggering electronics
IR	Infrared interface
Cap	Capacitor
TRS	PTC thermistor detector
KTL-coating / Cataphoresis coating	Cathodic Cataphoresis Dip Painting; Painting with high adhesive strength for long-lasting corrosion protection
KTW	Authorisation for products with plastics, for use in drinking-water applications
LON	Local operating network (open, non-manufacturer-dependent, standardised databus system in LONWORKS networks)
MOT	Motor module (drive motor + impeller + terminal box/ electronics module) for exchange in the TOP-... series
PLR	Pump master computer, Wilo-specific data bus
Pt 1000	Platinum temperature sensor with a resistance value of 1000 Ohm at 0 °C
Q (= \dot{V})	Delivery rate

Abbreviation	Meaning
SBM	Run signal or collective run signal
SSM	Fault signal or collective fault signal
Control input "0...10 V"	Analog input for external activation of functions
TOP-Control	Building-automation management with pumps and accessories
TrinkwV 2001	German drinking-water ordinance from 2001 (valid from 01.01.2003)
VDI 2035	VDI guideline for preventing damage in hot water heating installations
Thermal winding contacts (WSK)	Thermal winding contacts (in motor for monitoring winding temperature, full motor protection by additional tripping unit)

Wear

Pumps or parts of pumps are subject to wear in accordance with state-of-the-art technology (DIN 31051/DIN-EN 13306). This wear may vary depending on operating parameters (temperature, pressure, water condition) and the installation/usage situation and may result in the malfunction or failure at different times of the above-mentioned products/components including their electrical/electronic circuitry.

Wear parts are all components subject to rotatory or dynamic strain including electronic components under tension, in particular:

- seals / gaskets (incl. mechanical seals), seal washers
- bearings and shafts
- stuffing boxes
- capacitors
- relays / contactors / switches
- electronic circuits, semiconductor components, etc.
- impellers
- wearing rings / wearing plates

We do not accept liability for faults or defects arising from natural wear and tear.

WILO – General terms of delivery and service

The latest version of our General Terms of Delivery and Service can be found on the Internet at

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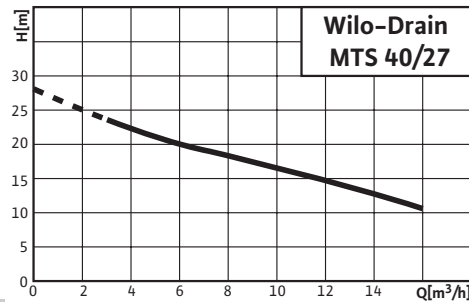
Wilo-Drain Submersible Motor Pumps

Wilo-Drain MTS 40/27

New in the programme!



Duty chart (2-pole, 50 Hz)



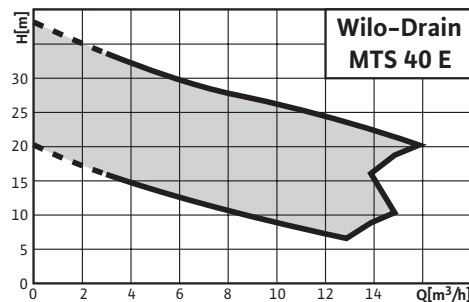
- Sewage submersible motor pump with macerator
- Application: Pumping domestic sewage containing faeces from individual buildings. The patented macerator reduces the solid contents of the sewage into a medium which can be more easily pumped.

Wilo-Drain MTS 40 E

New in the programme!



Duty chart (2-pole, 50 Hz)



- Sewage submersible motor pump with macerator
- Application: Pumping domestic sewage with faeces from individual buildings and for commercial use. The patented macerator reduces the solid contents of the sewage into a medium which can be more easily pumped.

Wilo-Drain Submersible Motor Pumps

Wilo-Drain MTS 40/27

- Patented macerator
- High efficiency
- Low operating costs
- Clogging and blockage resistant
- High operational reliability
- Corrosion-proof stainless steel motor in 1.4404 (316 L)

Wilo-Drain MTS 40 E

- Patented macerator
- High efficiency
- Low operating costs
- Clogging and blockage resistant
- High operational reliability
- Double mechanical seal and oil chamber
- Corrosion-proof stainless steel motor in 1.4404 (316 L)
- Longitudinal watertight cable infeed as standard
- Extra robust motor cable (NSS Hõu)

**Wilo-Drain MTS 40/27, MTS 40 E**

Sewage submersible motor pump with macerator, 2-pole

Type code

Example: **Wilo-Drain MTS 40/27-1-230-50-2**

MT	Macerator technology (Macerator pump series)
S	Stainless steel motor
40	Nominal diameter of discharge port [mm]
/27	Max. delivery head [m]
1-230	AC motor
50	Mains frequency 50 Hz
2	No. of poles

Example: **Wilo-Drain MTS 40 E 23.14/12**

MT	Macerator technology (Macerator pump series)
S	Stainless steel motor
40	Nominal diameter of discharge port [mm]
E	Single-vane hydraulics
23.	Max. delivery head [m]
14	Max. volume flow [m ³ /h]
/12	Rated motor power [¹ / ₁₀ kW]

Application

Wilo-Drain MTS 40 sewage submersible motor pumps with macerator are ideal for pumping domestic sewage containing faeces. The Wilo macerator reduces the solid contents into a fluid that can be more easily pumped. Preferred application is the pressurised water disposal. The pressurised water disposal is applied in such cases where costs for the conventional gravity sewage displacement become unjustifiably high, such as the following situations:

- high ground water level
- insufficient ground gradients
- intermittent generation of sewage
- holiday home, camping grounds etc.

Because of the low line diameter, e.g. DN 40, the installation costs are reduced dramatically.

Suitable for installation:

- Stationary wet sump installation
- Portable

Construction

Fully submersible monobloc sewage pump with macerator for vertical wet sump installation

- Novel patented macerator
- Free flow to the impeller
- Inside rotating cutter
- Spherical macerator
- Disintegrates particles
- Drawing cutting action

Motor

Three-phase asynchronous motor in stainless steel 3~400 V, 50 Hz or AC motor in stainless steel 1~230 V, 50 Hz each with protection class IP 68, protected by thermal winding contacts, insulation class F.

Bearings

The motor shaft is bedded in permanently lubricated roller bearings.

Shaft seal

MTS 40/27:

Direction-of-rotation-independent mechanical seal on motor side, shaft seal on pump side. Oil-filled intermediate chamber for cooling and lubrication.

MTS 40 E:

Direction-of-rotation-independent mechanical seal on the pump side and motor side. Oil-filled intermediate chamber for cooling and lubrication.

Hydraulic data

Closed single-vane impeller (with free ball passage of 10 mm) in conjunction with patented macerator ensures non-clogging pumping and maximum efficiency.

Scope of delivery

Factory-assembled pump with 10 m connection cable and bare cable end on 3~400 V; 10 m connection cable and switchbox (terminal strip) on 1~230 V.

Equipment/Function

	Wilo-Drain MTS 40/27	Wilo-Drain MTS 40 E
Operating mode S3 (intermittent service)		
Switching frequency/h [%]	25	25
Max. switching frequency/h	50	50
Recommended switching frequency/h	20	20
Operating mode S1 (continuous service)		
Motor below water	•	•
Pump/motor seals		
In pumping medium area: Mechanical seal	•	•
On the motor compartment side: Mechanical seal	–	•
Shaft seal	•	–
Oil seal chamber	•	•
Construction		
Wet sump installation		
Stationary	•	•
Portable	•	•
Submersible	•	•
Dry sump installation	–	–
Closed single-vane impeller	•	•
Macerator	•	•
Materials		
Motor		
Stainless steel	•	•
Cast iron	–	–
Pump		
Cast iron	•	•
Equipment		
Motor monitoring (temperature)	•	•
Scope of delivery		
Connection cable [m]	10	10
Detachable connection cable	•	•
Capacitor box	• (only 1~230 V)	•

• = available, – = not available

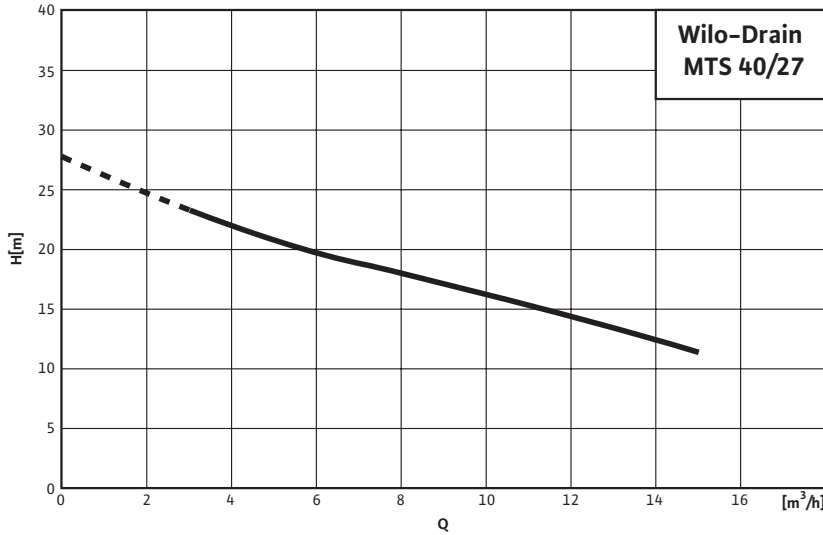
	Wilco-Drain MTS 40...						
	.../27	.../E 20.13/11	.../E 23.14/12	.../E 26.15/15	.../31.14/21	.../E 35.15/23	.../E 39.16/25
Approved fluids							
Domestic wastewater and sewage including faeces	•	•	•	•	•	•	•
Performance							
Power consumption P ₁ 1~230 V [kW]	2.1	–	–	–	–	–	–
Power consumption P ₁ 3~400 V [kW]	1.7	1.3	1.5	1.7	2.6	2.8	3.0
Rated motor power P ₂ [kW]	1.5	1.1	1.2	1.5	2.1	2.3	2.5
Nominal current on 1~230 V [A]	9.5	–	–	–	–	–	–
Nominal current on 3~400 V [A]	3.2	2.5	2.8	3.2	5.3	5.8	6.0
Motor							
Protection class for max. submersion depth	IP 68	IP 68	IP 68	IP 68	IP 68	IP 68	IP 68
Insulation class	F	F	F	F	F	F	F
Pump							
Fluid temperature, min. – max. [°C]	3–35	3–35	3–35	3–35	3–35	3–35	3–35
Cable type	H07 RN-F	NSS Höu					
Cable length [m]	10	10	10	10	10	10	10
Cable cross-section 1~230 V [mm ²]	4 x 1.5	–	–	–	–	–	–
Cable cross-section 3~400 V [mm ²]	6 x 1.0	7 x 1.5 (Strand 7 not occupied)					
Type of power cable	Plug	longitudinal watertight/plug					
Activation type	direct						
Explosion protection	EEx d II B T4 (only 3~400 V)						
Dimensions							
Weight [kg]	30.0	34.1	34.1	34.1	39.4	39.4	39.4
Materials							
Pump housing	EN-GJL-250						
Impeller	EN-GJL-200						
Shaft	1.0570	1.4404					
Pump side: Mechanical seal (bidirectional)	SiC/SiC						
Motor side: Mechanical seal	–	Carbon/ceramic					
Shaft seal	NBR	–	–	–	–	–	–
Static seals	NBR	NBR	NBR	NBR	NBR	NBR	NBR
Motor housing	1.4404 (AISI 316L)						
Macerator	1.4528						

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

Pump Curves, Terminal Diagram

MTS 40/27

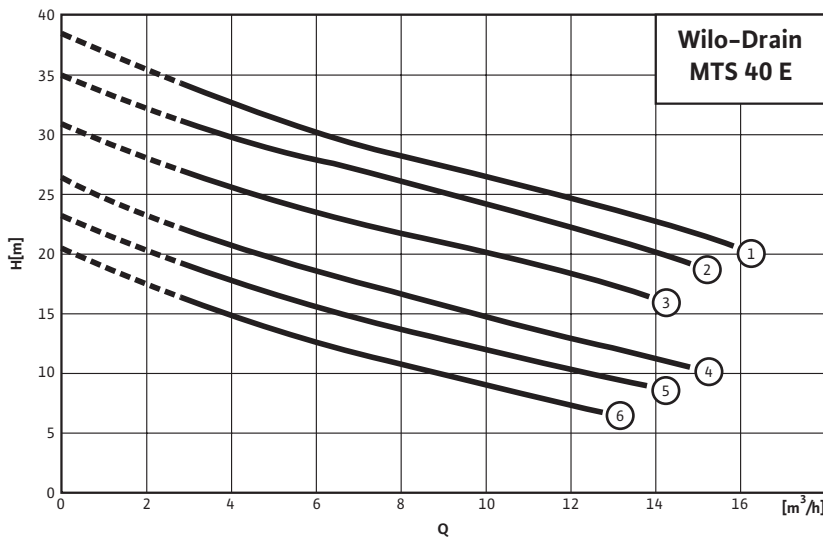
2-pole, 50 Hz



All pump curves shown are based on a density of $\rho = 1 \text{ kg/dm}^3$

MTS 40 E

2-pole, 50 Hz



- 1 = MTS 40 E 39.16/25
- 2 = MTS 40 E 35.15/23
- 3 = MTS 40 E 31.14/21
- 4 = MTS 40 E 26.15/15
- 5 = MTS 40 E 23.14/12
- 6 = MTS 40 E 20.13/11

All pump curves shown are based on a density of $\rho = 1 \text{ kg/dm}^3$

Terminal diagram

	Connection	Terminal connections						
	–	Cable type	U	V	W	PE	T1	T2
MTS 40/27 1~	1~230 V	4 x 1.5 mm ²	1 (L1)	2 (N)	–	green/yellow	4	5
MTS 40/27 3~	3~400 V	6 x 1.0 mm ²	1	2	3	green/yellow	4	5
MTS 40 E ... 3~	3~400 V	7 x 1.5 mm ² ¹⁾	1	2	3	green/yellow	4	5

¹⁾ Strand 7 not occupied

Dimensions, Weights

Dimensions, Weights

	Dimensions											
	A	B	C	D	E	F	G	H	H ₁	I	J	K
	[mm]											
MTS 40/27-1-230	130	110/125	18	110	73	160	491	467	462	71	98	202
MTS 40/27-3-400	130	110/125	18	110	73	160	491	467	462	71	98	202
MTS 40 E 20.13/11	130	110/125	18	110	73	160	525	501	497	71	98	202
MTS 40 E 23.14/12	130	110/125	18	110	73	160	525	501	497	71	98	202
MTS 40 E 26.15/15	130	110/125	18	110	73	160	525	501	497	71	98	202
MTS 40 E 31.14/21	130	110/125	18	110	73	170	526	503	511	71	111	225
MTS 40 E 35.15/23	130	110/125	18	110	73	170	526	503	511	71	111	225
MTS 40 E 39.16/25	130	110/125	18	110	73	170	526	503	511	71	111	225

Dimensions, Weights (continuation)

	Dimensions													Weight approx.
	L	M	N	O	P	T	DN ₂	a	b	c	d	e	k	-
	[mm]													[kg]
MTS 40/27-1-230	105	265	65	121	270	315	40	140	110	110	155	15	14	30.0
MTS 40/27-3-400	105	265	65	121	270	315	40	140	110	110	155	15	14	30.0
MTS 40 E 20.13/11	105	265	65	121	270	315	40	140	110	110	155	15	14	34.1
MTS 40 E 23.14/13	105	265	65	121	270	315	40	140	110	110	155	15	14	34.1
MTS 40 E 26.15/15	105	265	65	121	270	315	40	140	110	110	155	15	14	34.1
MTS 40 E 31.14/21	105	265	77	133	270	315	40	140	110	110	155	15	14	39.4
MTS 40 E 35.15/23	105	265	77	133	270	315	40	140	110	110	155	15	14	39.4
MTS 40 E 39.16/25	105	265	77	133	270	315	40	140	110	110	155	15	14	39.4

Connections on pressure side:

Portable wet sump installation MTS 40/27 : DN 32

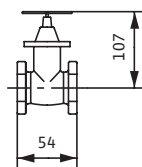
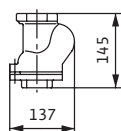
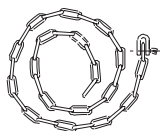
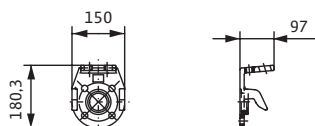
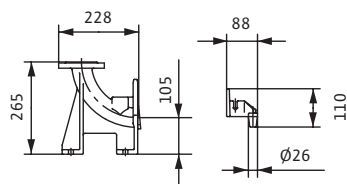
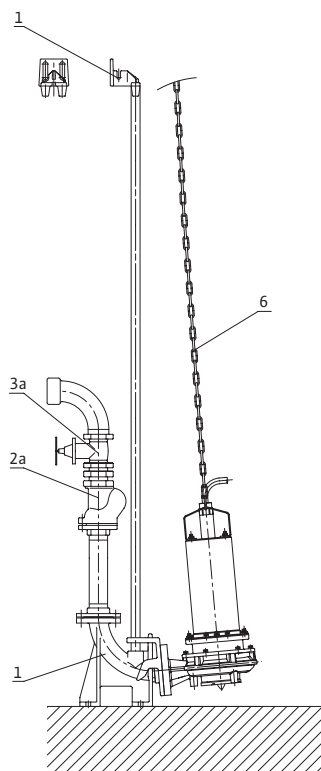
Portable wet sump installation MTS 40 E 20... to MTS 40 E 26 : DN 32

Portable wet sump installation MTS 40 E 31... to MTS 40 E 39 : DN 40

Stationary wet sump installation (all pump versions) : DN 40/DN 50

Stationary wet sump installation DN 40

MTS 40



Base elbow (Item 1)

In GG 25 (EN-GJL-250), including pump support, profile seal, accessories for installation and fastening to the ground and guide pipe bracket, connection on discharge side DN 50.

The double pipe guide R ¾ is to be provided on-site.

Chain (Item 6)

Made of stainless steel, including shackles.

Length: 5 and 10 m

Lifting capacity 400 kg

Non-return device (Item 2a)

In GG 25 (EN-GJL-250)

Female/Female thread R1½ PN 16 RG.

Connection DN 40.

Valve (Item 3a)

Designed as gate valve

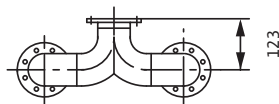
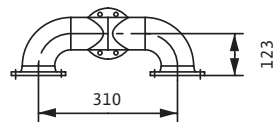
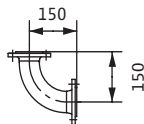
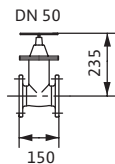
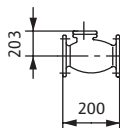
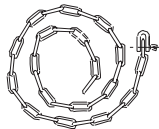
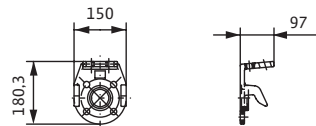
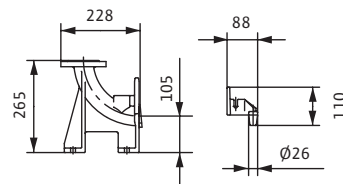
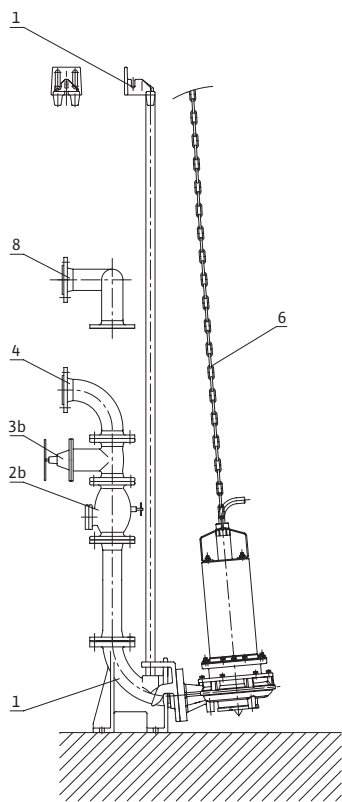
Female/Female thread R1½ PN 16 RG.

Connection DN 40.

Mechanical Accessories

Stationary wet sump installation DN 50

MTS 40



Base elbow (Item 1)

In GG 25 (EN-GJL-250), including pump support, profile seal, accessories for installation and fastening to the ground and guide pipe bracket, connection on discharge side DN 50.

The double pipe guide R ¾ is to be provided on-site.

Chain (Item 6)

Made of stainless steel, including shackles.

Length: 5 and 10 m

Lifting capacity 400 kg

Non-return device (Item 2b)

In GG 25 (EN-GJL-250)

Female/Female thread R1½ PN 16 RG.

Connection DN 50.

Valve (Item 3b)

Designed as gate valve

Female/Female thread R1½ PN 16 RG.

Connection DN 50.

Pipe bend (Item 4)

In GGG (EN-GJS-400-15),

incl. 1 set installation accessories.

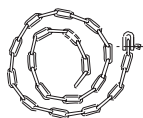
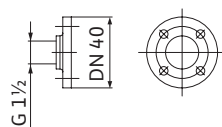
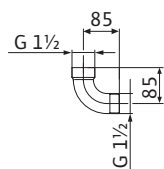
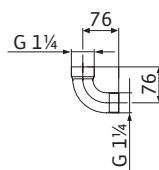
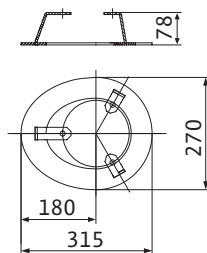
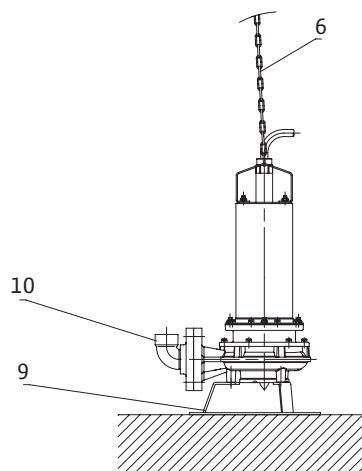
Connection DN 50.

Y-piece (Item 8)

In St 37, galvanised with 2 sets installation accessories, Connection DN 50/50/50.

Portable wet sump installation

MTS 40



Ground support foot MTS (Item 9)

In painted steel (S235JR).

Pipe bend (Item 10a)

(Only for MTS 40/27 & MTS 40 E 20... E 26)

In ENGJMW-400-5 (malleable cast iron) with installation accessories.

Female/male thread G 1 1/4" (DN32) / G 1 1/4" (DN32)

Pipe bend (Item 10b)

In GG, DN 40.

In ENGJMW-400-5 (malleable cast iron) with flange with thread (DN40 PN40 EN1092) and installation accessories (for MTS 40 E 31... E 39)

Female/male thread G 1 1/2" (DN40) / G 1 1/2" (DN40)

Chain (Item 6)

including stainless steel shackles.

Length: 5 m and 10 m, lifting capacity: 400kg

Equipment/Function

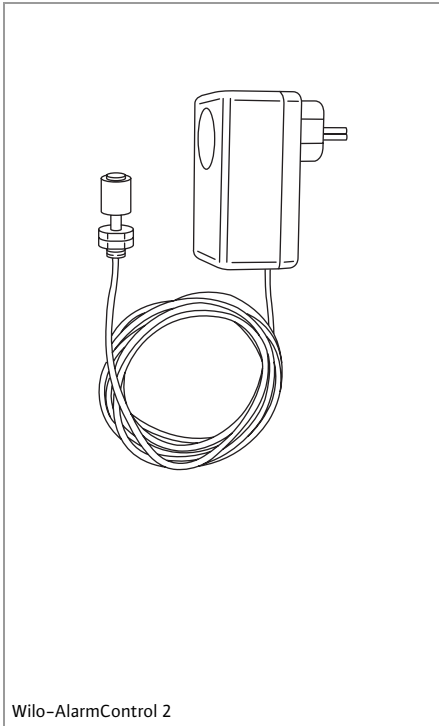
	Wilo-AlarmControl 1	Wilo-AlarmControl 2
Application		
Switchgear for controlling pumps	–	–
Alarm switchgear	•	•
Number of pumps to be controlled	1	1
Electrical connection		
Direct activation [A]	16	16
Star/delta activation	–	–
Construction		
Electronic	•	•
Electromechanical	–	–
Housing material		
Plastic	•	•
Equipment		
LED/indicator lamp	–	–
Level detection	Float switch	•
	Pneumatic pressure sensor	–
	Level sensor (4–20 mA)	–
	Electrodes	–
Alarm	Mains-operated	•
	Mains-independent	•
	Built-in (buzzer)	•
Socket 1~ 230 V	–	•
Message/display function		
Individual fault signal (ESM)	•	–
Control functions (motor monitor)		
Thermal winding contacts (WSK)	–	–
Tightness (DI)	–	–
Motor protection switch	–	–

• = available, – = not available

		Wilo-EC Drain
Application		
Switchgear for controlling pumps		•
Alarm switchgear		–
Number of pumps to be controlled		1
Electrical connection		
Direct activation [A]		Max. 12
Star/delta activation		–
Construction		
Microprocessor-controlled		–
Electronic		•
Housing material		
Plastic		•
Metal		–
Equipment		
Test run		–
Pump start counter/impulse counter		–
LCD display		–
LED/indicator lamp		•
Main switch		•
Ampere meter		–
Volt meter		–
Adjustable delay time		–
Operating hours counter		–
Level detection	Float switch	•
	Pneumatic pressure sensor	–
	Level sensor (4–20 mA)	–
	Electrodes	–
Alarm	Mains-operated	•
	Built-in (buzzer)	•
Pump Duty Cycling		–
Message/display function		
Collective run signal (SBM)		•
Collective fault signal (SSM)		•
Individual run signal (EBM)		–
Individual fault signal (ESM)		–
Control functions (motor monitor)		
Thermal winding contacts (WSK)		•
PTC		–
Tightness (DI)		–
Electronic		•
Motor protection switch		–
Scope of delivery		
Float switch		–
Signal horn		–

• = available, – = not available

Product Description



Wilo-AlarmControl 2

Alarm switchgears Wilo-AlarmControl 1/2

Wilo-AlarmControl 1:

Mains-independent alarm system with grounding plug.
Storage battery, acoustic alarm signal (buzzer), mini float switch with 3 m cable integrated in the device.
With potential-free contact and Iso housing IPLO.

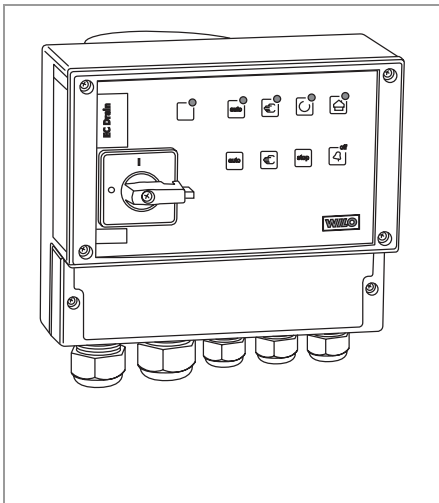
Wilo-AlarmControl 2:

Mains-independent alarm system with grounding plug and integrated socket for connection of a device, e.g. washing machine.
Storage battery, acoustic alarm signal (buzzer), mini float switch with 3 m cable integrated in the device.
With Iso housing IPLO.

Technical Data:

- Operating voltage: 1~230 V/50 Hz
- Control voltage: 12 V DC (unstabilised)
- Alarm contact on AlarmControl 1: potential-free NO contact, contact charge max. 16 A (230 V AC)
- Contact socket: contact charge max. 16 A (250 V AC)
- Protection class: IP 20
- Housing: ABS
- Cable length mini float switch: 3 m (2 x 0.75 mm²)
- Max. ambient temperature: + 60 °C
- Dimensions (L x W x H): 112 x 68 x 53 mm

Note: Switchgears are not explosion-protected and may only be used outside of explosive areas. For control of pumps in potentially explosive areas, Ex isolating relays must be used.



Wilo-EC-Drain switchgear

Switchgear for automatic, transmitter-actuated control of 1 wastewater/sewage submersible motor pump of the Wilo-Drain series.

- Motor protection by WSK and electronic motor protection switch
- Transmitter connection for float switch Type WA 65, WA 95 and MS1
- Push-button „Manual-0-Automatic“
- Connection for high water alarm
- Forced activation in the event of high water
- Potential-free fault signal (changeover contact) and potential-free run signal (changeover contact)

Technical Data:

- Operating voltage: 1~230 V/50 Hz
- Protection class: IP 65
- Dimensions (W x H x D): 215 x 220 x 125 mm

Note: Switchgears are not explosion-protected and may only be used outside of explosive areas. For control of pumps in potentially explosive areas, Ex isolating relays must be used.

