

Submersible motor pumps DN 32 50 Hz



Applications

Amarex N S 32-160 submersible motor pumps are used for pumping waste water in intermittent operation, e.g.

- Domestic waste water
- Raw water
- Waste water containing faeces

Operating data

Capacity	Q up to 16 m ³ /h, 4.4 l/s
Head	H up to 29 m
Motor rating	P ₂ 1.5 kW
Fluid temperature	t up to 40 °C
Enclosure IP 68 to EN 60 529 / IEC 529	

Design

Wet-installed in stationary and transportable design.
Submersible, single-stage, single-entry, non-self-priming close-coupled unit.
Hydraulic system: with cutter (S).

Designation

	Amarex N S 32-160 / 0 2 YL G-160
Type series	N S 32-160
Impeller type (S)	0
Hydraulics size	2
Motor designation	YL
Number of poles	G-160
Motor version (YLG only)	
Material variant	
G only	
Impeller diameter	

Drive

Asynchronous motor, 400 V, 50 Hz, direct starting,
Max. switching frequency: 30 starts per hour
YLG version in accordance with ATEX 100a,
motor Ex d IIB T4, LCIE 07 ATEX 6016 X.

Shaft seal

- motor end: 1 shaft seal ring
- pump end: 1 bi-rotational mechanical seal with oil reservoir filled with environmentally-friendly oil

Bearings

Grease-packed rolling element bearings sealed for life.

Motor variants

No variants available

Please note: Variable-speed operation of this pump is not allowed.

YL ⇒ motor only with explosion protection T4 (40 °C)

Operating mode S1 – submerged (max. 25 m)

Operating mode S3 – not submerged (see dimension table)

CE – EN 12 050

LGA approval No.: 7381257-01z

Product Advantages at the Example of Amarex N S 32-160 YLG

to Our Customers' Benefit

Absolutely watertight cable entry.
Multiple safety due to:

Individual conductors stripped, tinned
and sealed in resin.

Your benefit:

The pump can be operated safely
even in the event of damage to the
cable sheath and core insulation.

Bearings sealed on both sides
and lubricated for life to give
long service life

Your benefit:

Maintenance-free, ideal for
continuous-duty pumps

Motor for operating mode S1,
thermal class F,
explosion-proof in T4.

Your benefit:

Maximum operating reliability
thanks to optimum motor
selection

Double winding temperature
monitoring enables automa-
tic operation, even where
explosion protection require-
ments have to be met.

Your benefit:

Motor protected from
overheating

New kind of cable entry

Your benefit:

Easy-to-connect polarised
cable entry enables fast
cable installation / removal

Shaft made of
corrosion-resistant
stainless steel

Your benefit:

No corrosion prob-
lems, therefore
long service lives.

Shaft sealed by 1 shaft
seal ring (motor-end) and
1 bi-rotational mechanical
seal with SiC/SiC contact
faces (pump-end).

Your benefit:

A solution ensuring long
service life. Perfect motor
protection.

Oil reservoir filled with
environmentally-friendly,
non-toxic oil;
food-approved

Your benefit:

Our contribution to
environmental
protection

Automatic, bolt-free
connection for stationary
installation; leakage
prevented by elastic sealing.

Your benefit:

The most simple and at the
same time most
operator-friendly solution:
Easy installation and
removal of the pump.

Optimum hydraulic
design

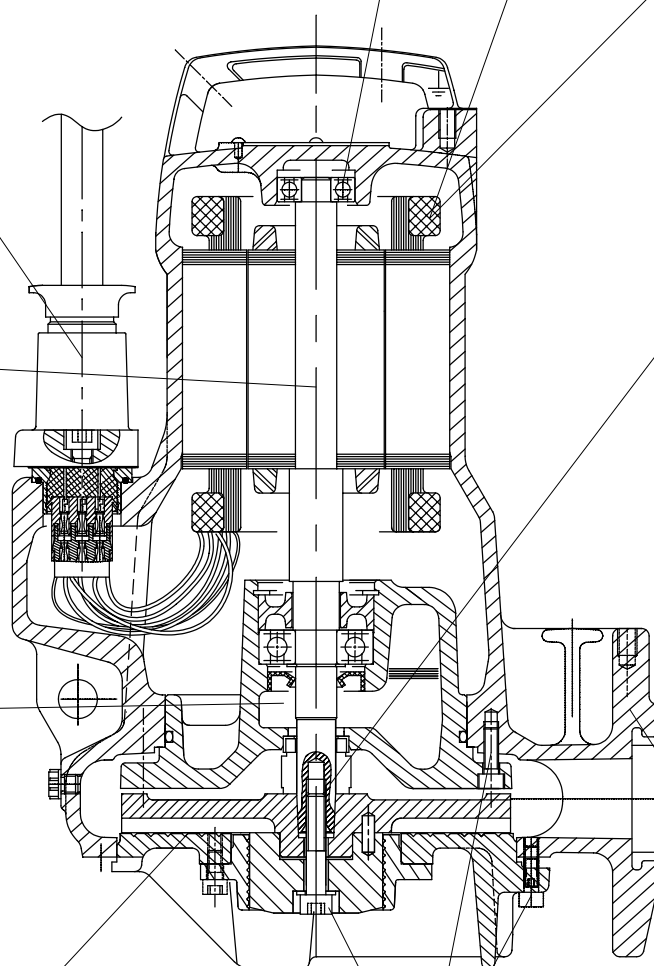
Your benefit:

Optimal hydraulic
performance and
efficiency with
contaminated fluids

All screwed connections made of
stainless steel, M6 hex. socket head
cap screws

Your benefits:

A single tool will dismantle the entire
pump, which makes servicing so
much easier. Easy to dismantle even
after years of operation.



Materials

Variant	G
Pump casing	JL 1040
Intermediate casing	JL 1040
Impeller	JL 1040
Cutter	1.2842 (90Mn V8G)
Shaft	1.4021
Shaft seal ring (motor-end)	NBR
Mechanical seal (pump-end)	SiC / SiC
Screws/bolts	A2
Sealing elements	NBR

Scope of supply

Pump (Ident. No. 39) and accessories in separate packages, available ex stock.

● Pump unit (P1):

- Material variant: Grey cast iron
- Motor design: Explosion-proof (YL)
- Cable gland: Totally watertight, resin-mounted
- Complete pump, ready for installation, with 10 m power supply cable 7 x 1.5 mm²
- Standard finish: Surface treatment SA2 1/2 SIS 055900
Primer: Iron oxide (dipped), 35 – 40 µm
Top coat: Environmentally-friendly KSB standard coating, approx. 40 µm, RAL 5002 (ultramarine blue)

● Installation parts for stationary installation

P2 Guide hoop installation parts for
ET = 1.5 m / 1.8 m / 2.1 m only

- + P5 (Claw)
- P7 (Chain and shackle) ET = 2 m

or P4 (guide wire arrangement) ET = 4.5 m

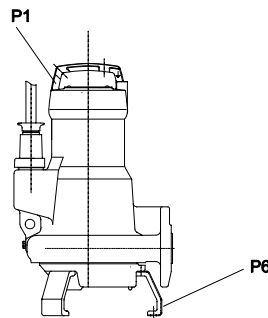
- + P5 (Claw)
- P7 (Chain and shackle) ET = 4.5 m

(see chapter on suggested installation layouts)

ET = Installation depth from the lower edge of the access opening to the bottom of the pump sump.

● Installation parts, transportable design

P6 (Foot)



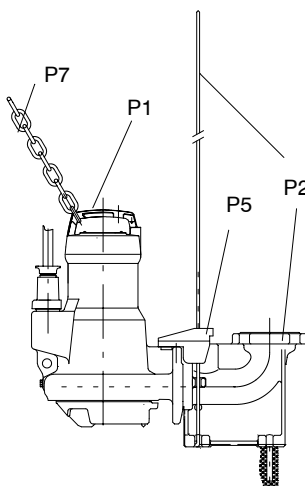
● Installation parts, single guide rail arrangement

P4 + P5 (Guide rail arrangement)
P5 Claw
P7 Chain and shackle, ET = 4.5 m

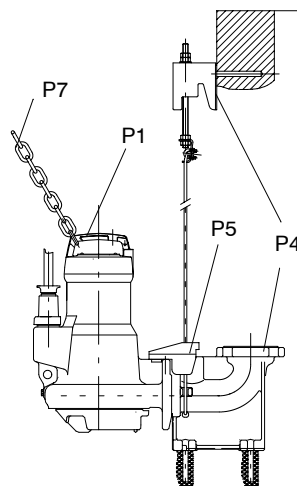
● Installation parts, twin guide rail arrangement

P4 + P5 (Twin guide rail arrangement)
P5 (Claw + adapter)

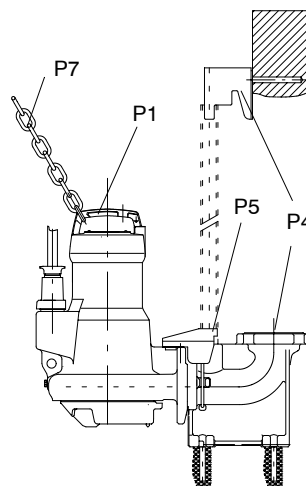
Guide hoop



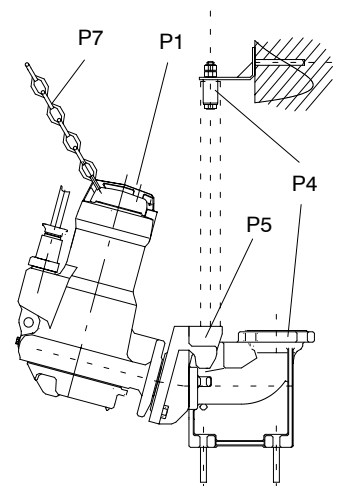
Guide wire



Single guide rail



Twin guide rail



Thermal motor monitoring

Explosion-proof design

The motor is protected by two independent monitoring circuits to prevent overheating.

Pump size	Temperature monitoring circuit (with automatic reset and start-up)	Limiting circuit (cuts out the pump when the temperature limit is reached; automatic reset and re-start is not permitted)
Amarex N S 32	Bimetal switch to be connected directly with the control circuit of the motor contactor	Bimetal switch to be connected via a tripping unit with manual reset

Variants

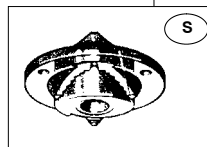
No design variants available
(pump BT1)

Impeller type

Impeller with cutter

Impeller with cutting device for handling domestic waste water containing fibres

- Domestic waste water
- Raw water
- Faeces



Amarex N S 32-160

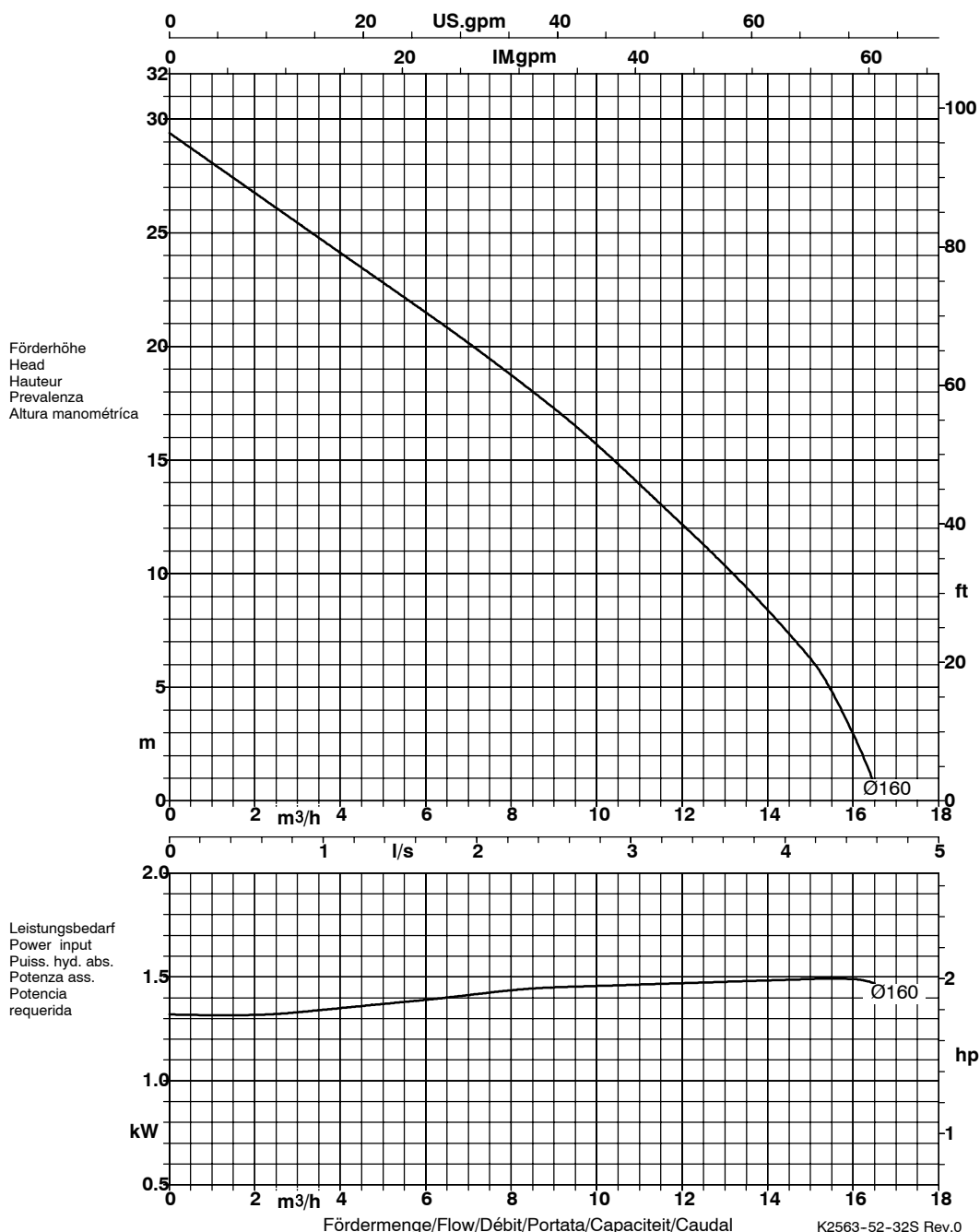
2900 1/min

Lauftradform
Impeller type
Forme de roue
Tipo girante
Tipo de rodete



freier Durchgang
free passage
section de passage
passaggio libero
paso libre

6 mm



Kugeldurchgang/Free passage/Passage intégral 6 mm
Passaggio libero/Kogeldoorgang/Paso libre

Characteristic curves to ISO 9906-2A. They correspond to the effective motor speed.

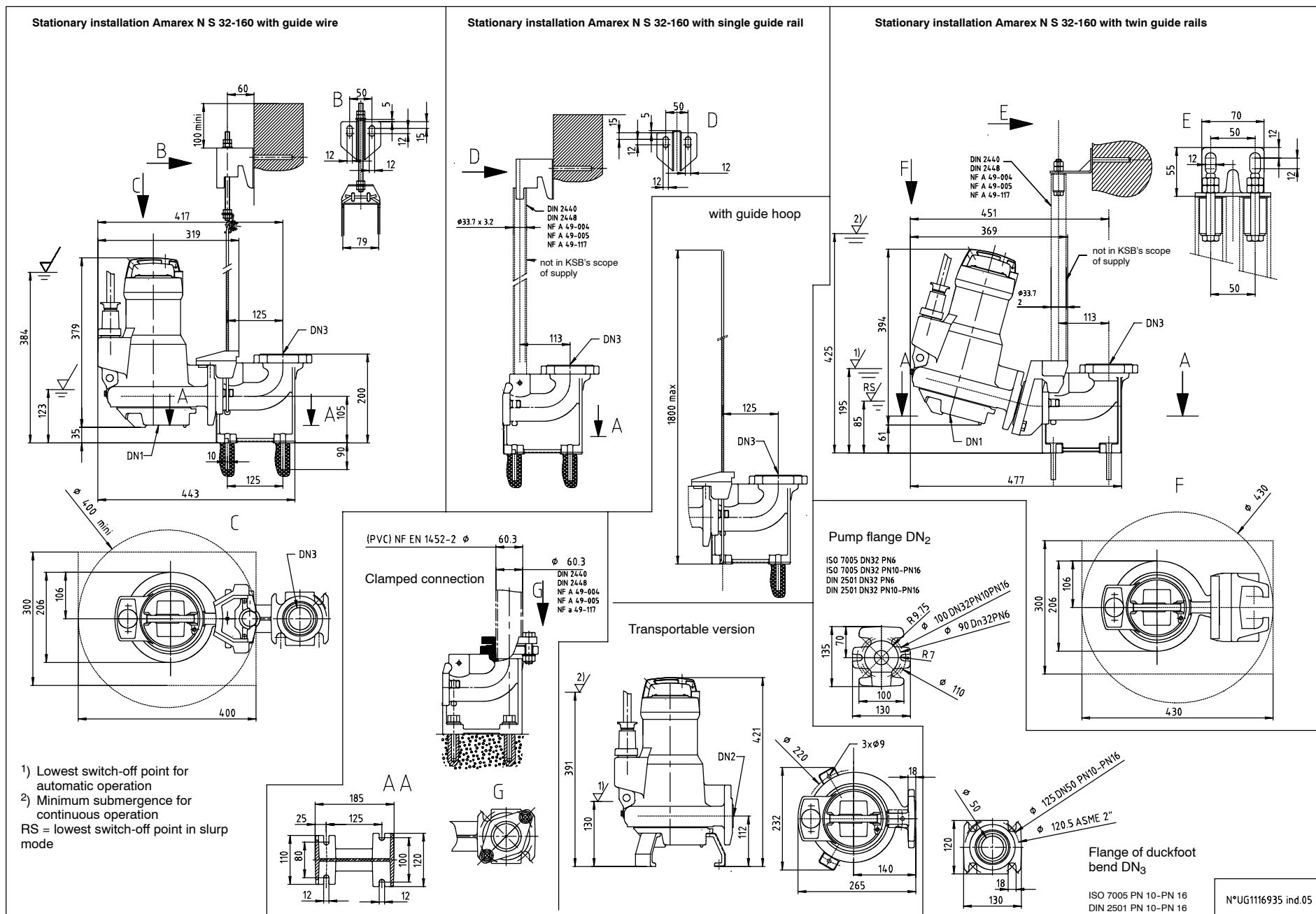
Amarex N S 32-160/ ...

50 Hz - 3~ 400 V

2900 1/min

Impeller No.	Amarex N S 32-160/...	Power input P ₁ [kW]	Rated power P ₂ [kW]	Rated current I _N [A]	Starting current I _D [A]	Fluid temperature t [°C]	Weight [kg]	Ident. No.
160	... / 02 YLG	2,05	1,5	3,4	18,2	40	29	39 100 380

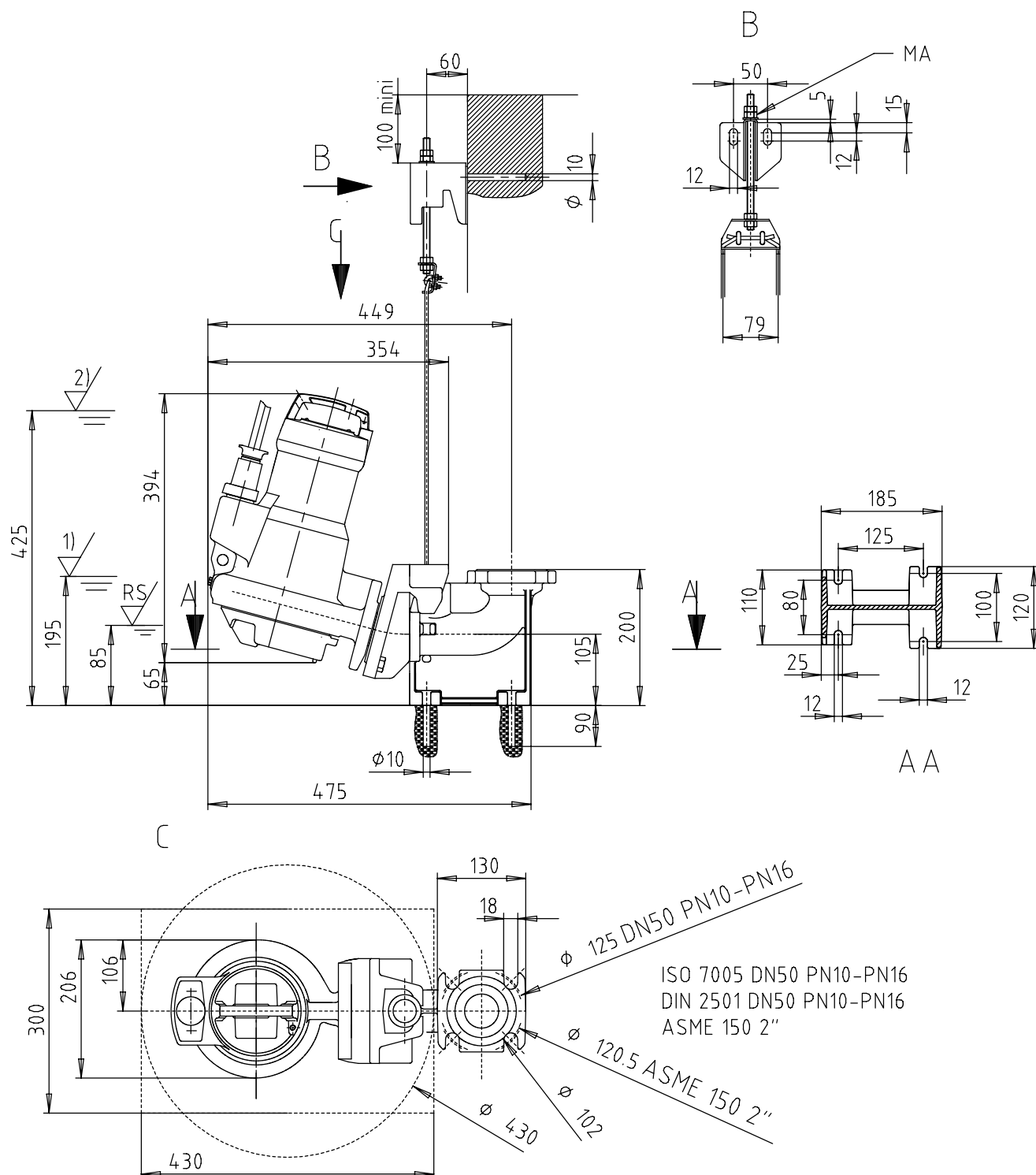
Outline drawing – stationary and transportable model



Outline drawing – Stationary installation with guide wire

Stationary installation Amarex N S 32-160 with guide wire

MA = 14 Nm
P = 6000 N



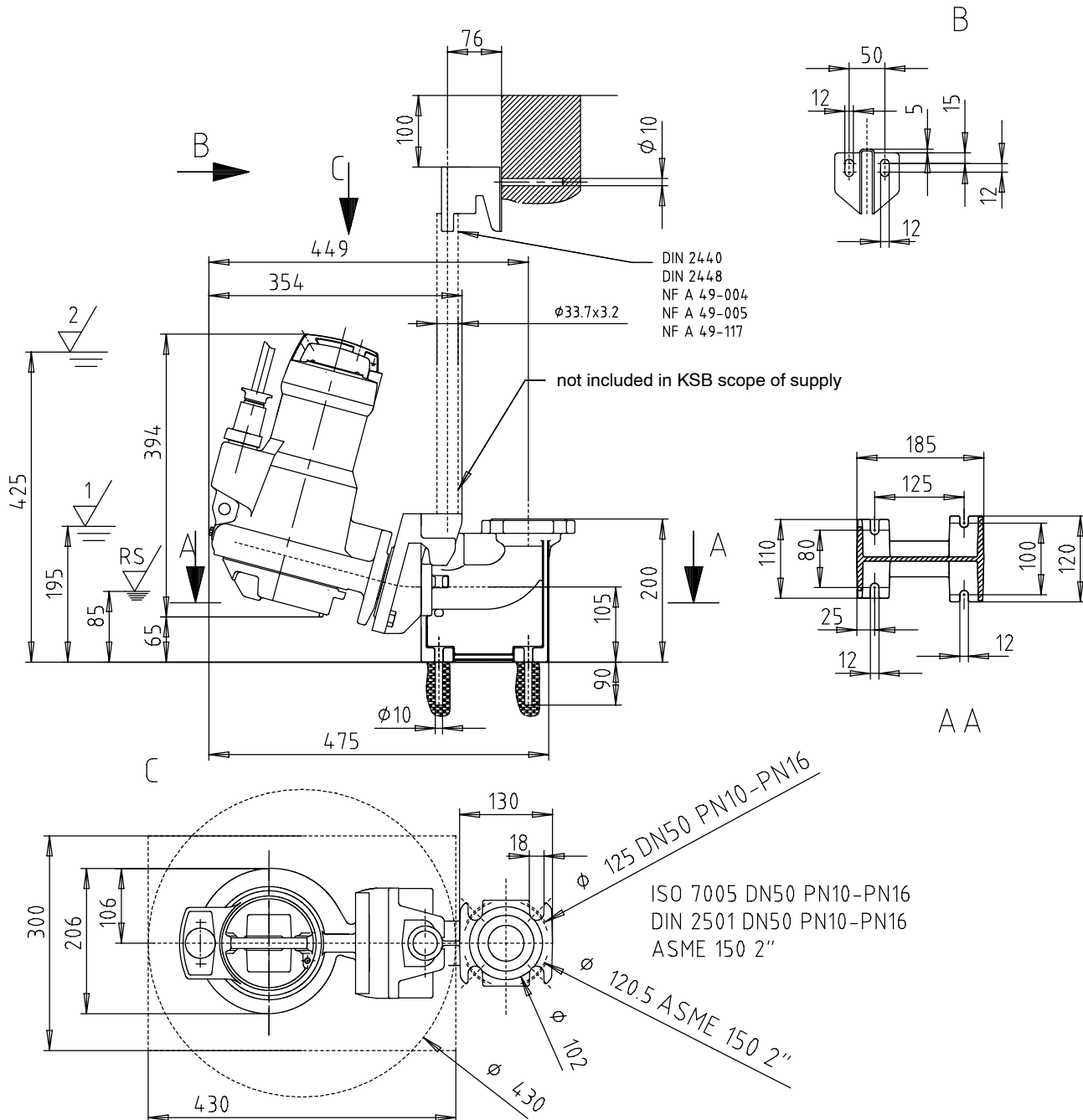
- 1) Lowest switch-off point for automatic operation
- 2) Minimum submergence for continuous operation
- RS = lowest switch-off point in slurp mode

Amarex N S 32-160

Guide wire arrangement with inclined claw

Outline drawing – Stationary installation with single guide rail

Stationary installation Amarex N S 32-160 with single guide rail



1) Lowest switch-off point for automatic operation

2) Minimum submergence for continuous operation

RS = lowest switch-off point in slurp mode

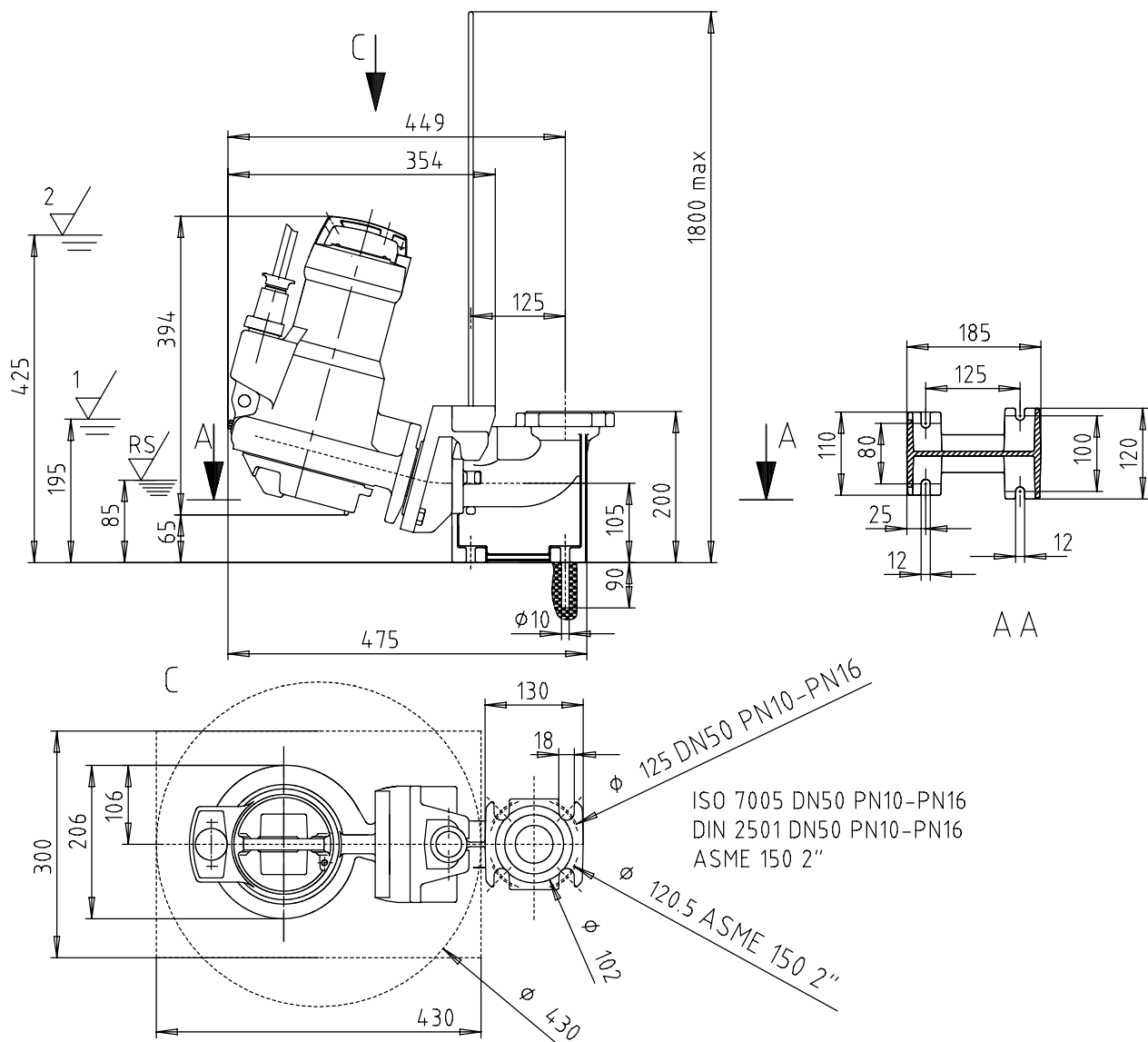
Amarex N S 32-160

Single guide rail arrangement with inclined claw

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Outline drawing – Stationary installation with guide hoop

Stationary installation Amarex N S 32-160 with guide hoop



Amarex N S 32-160

Guide hoop arrangement with inclined claw

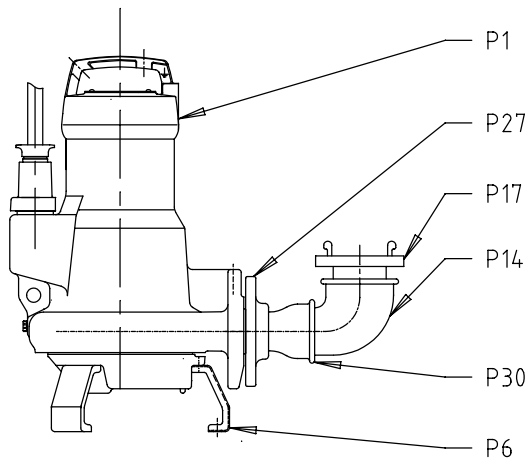
1) Lowest switch-off point for automatic operation

2) Minimum submergence for continuous operation

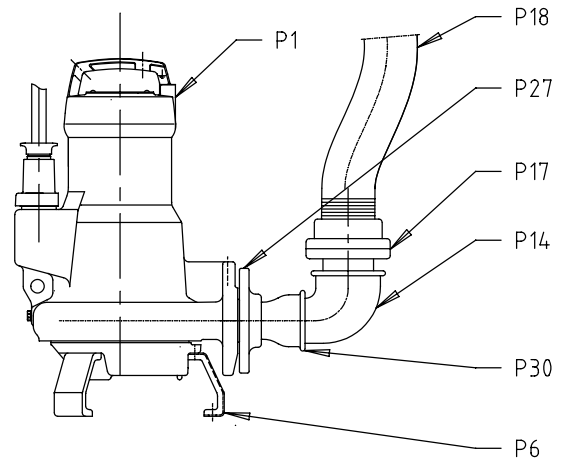
RS = lowest switch-off point in slurp mode

UG1132062 ind.03

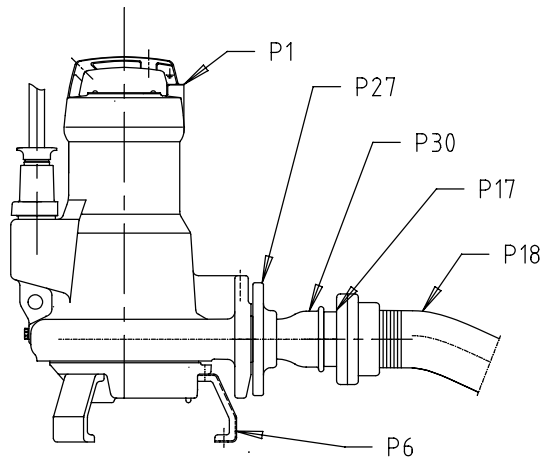
Portable version



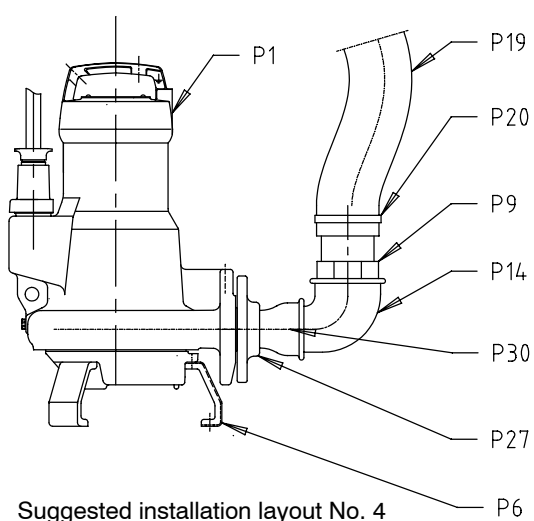
Suggested installation layout No. 1
Vertical hose connection



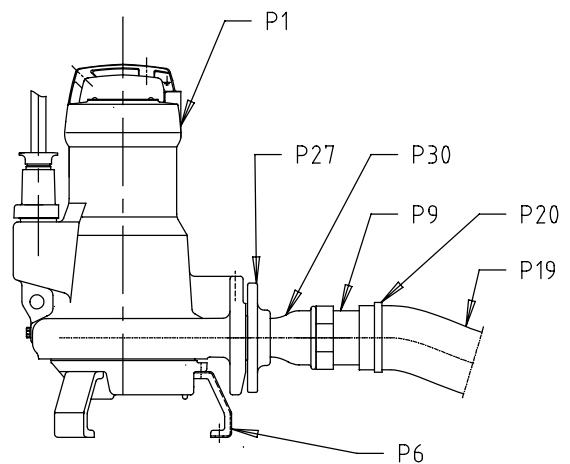
Suggested installation layout No. 2
Vertical hose connection



Suggested installation layout No. 3
Horizontal hose connection



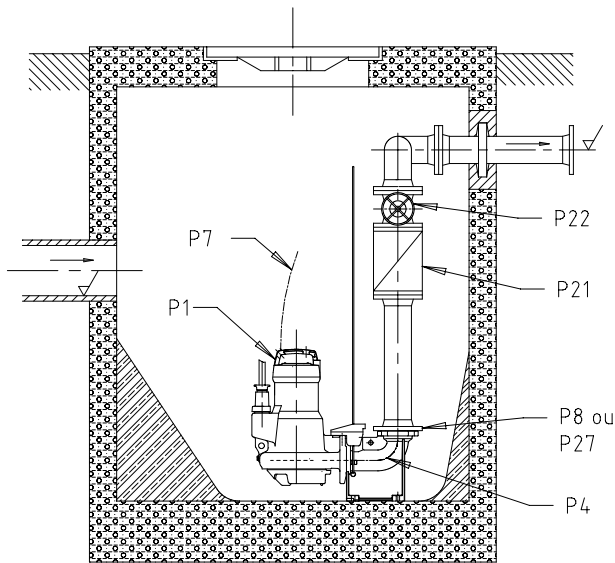
Suggested installation layout No. 4
Vertical hose connection



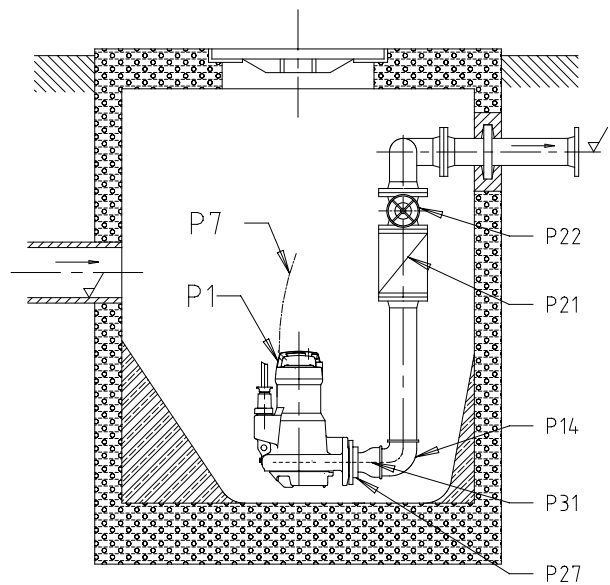
Suggested installation layout No. 5
Horizontal hose connection

P1 to P27 see accessories

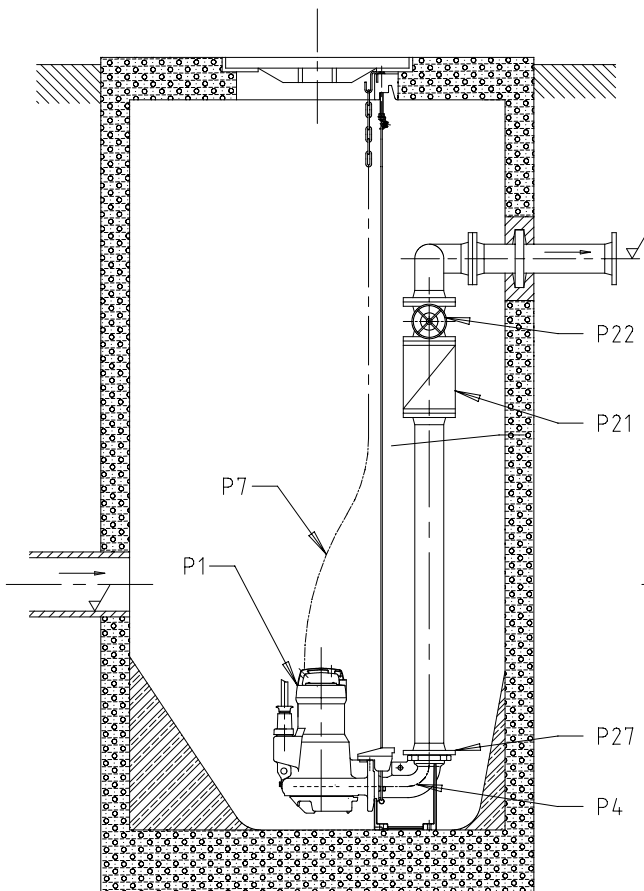
Suggested layouts for stationary installation



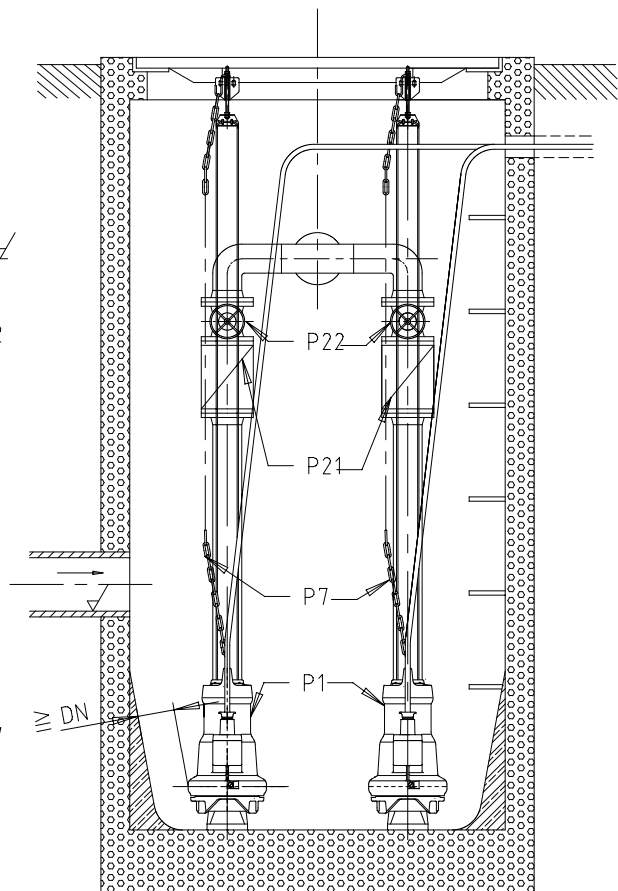
Layout No. 1
Guide hoop arrangement
Single-pump station for 1.5 - 1.8 m installation depth
Duckfoot bend



Layout No. 2
Direct connection to discharge pipe
Single-pump station
Suspended installation



Layout No. 3
Single-pump station for 4.5 m installation depth
Optionally with guide wire
single guide rail
or twin guide rails
Duckfoot bend

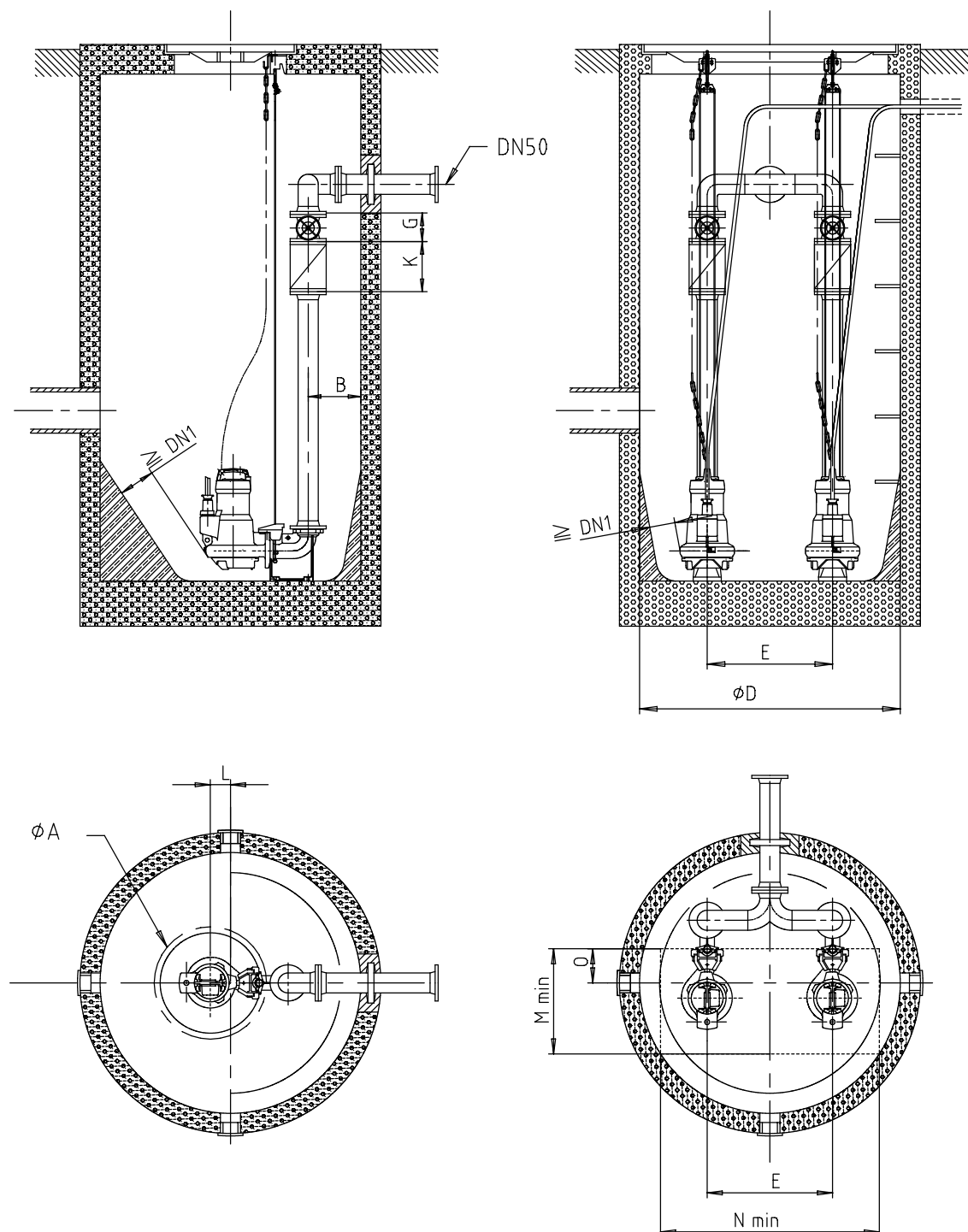


Layout No. 4
Duplex-pump station for 4.5 m installation depth
Optionally with guide wire
single guide rail
or twin guide rails
Duckfoot bend

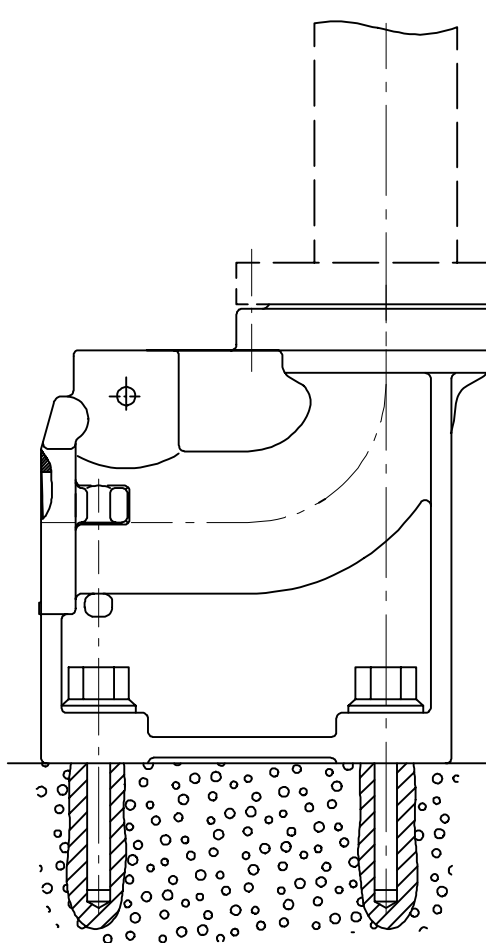
Suggested installation layouts Amarex N in stationary installation

Amarex N S 32	ϕA	B	ϕD	E	G	K	L	M	N	O	DN ₁
1 pump	430	165	800	-	75	150	57	-	-	-	32
2 pumps	-	165	800	300	75	150	57	400	600	151	32

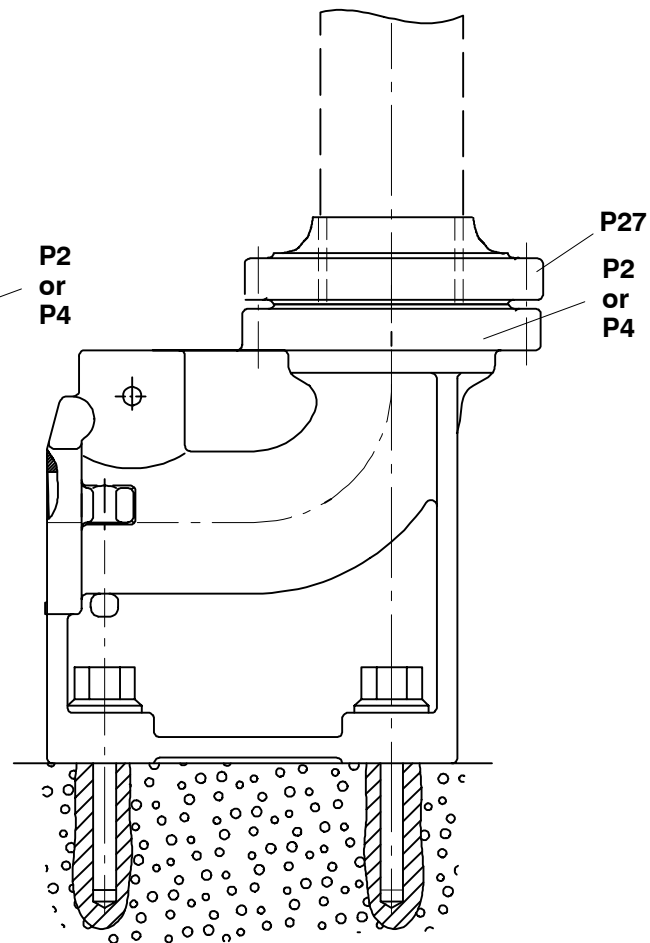
The dimensions given are minimum dimensions in mm.
Pump dimensions see dimensions table



Discharge connection options on same duckfoot bend as Amarex N DN 50

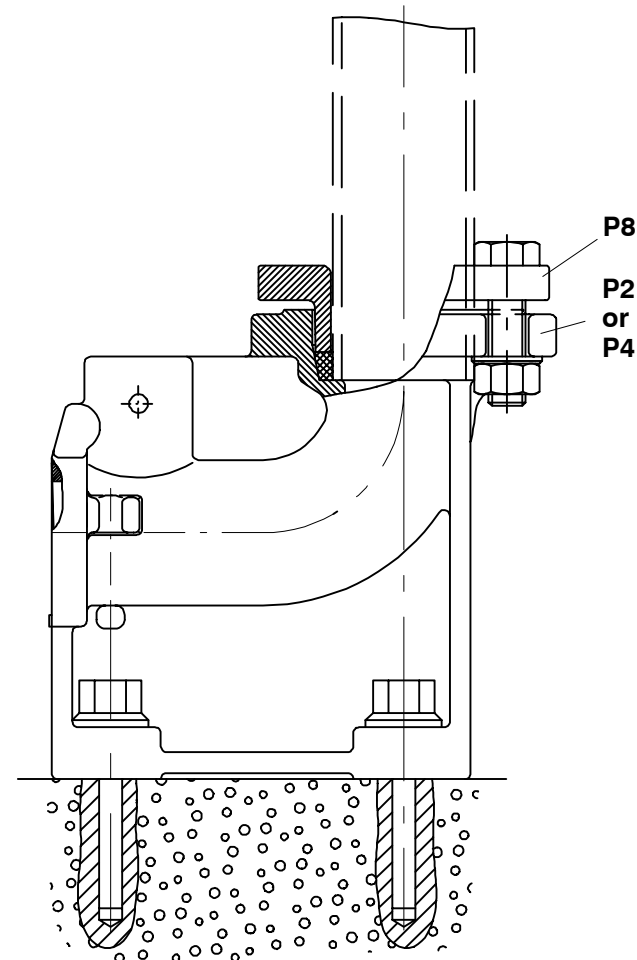


Flanged connection



2-inch threaded connection in the flange (DN 50)

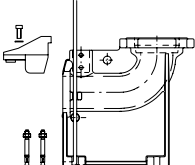
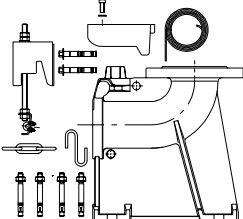
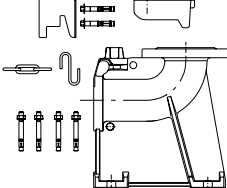
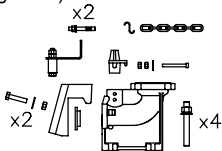



for standard pipes to
DIN 2440 / DIN 2441
with pipe OD **60.3 mm** for DN 50
Dia. 63 mm – PVC (ISO 3606) for DN 50




Clamped connection

for standard pipes to
DIN 2440 / DIN 2441 / DIN 2448
with pipe OD **60.3 mm – steel** for DN 50
Dia. 63 mm – PVC (ISO 3606) for DN 50



Installation parts for stationary installation

Item	Illustration	Description	Connection	Ident. No.	Net weight approx. kg/unit
P2+P5+P7 (guide hoop arrangement)		Installation parts for stationary wet-well installation , consisting of: duckfoot bend DN 50, guide hoop, bolts, anchor bolts, claw with stainless steel bolts, 2 m chain (galvanised steel) and shackle 1.4401	DN 50 – DN 3: DIN ISO ASME - straight claw Installation depth 1.5 m 1.8 m 2.1 m - inclined claw Installation depth 1.5 m 1.8 m 2.1 m	39 022 210 39 022 211 39 022 212 39 023 102 39 023 103 39 023 104	11.0 12.0 13.0 16.0 17.0 18.0
P4 + P5 + P7 (guide wire arrangement)		Installation parts for stationary wet-well installation, installation depth 4.5 m consisting of: duckfoot bend, suspension bracket, mounting bracket, 10 m guide wire, bolts, anchor bolts, claw with stainless steel bolts, 5 m chain (galvanised steel) and shackle 1.4401	DN 50 – DN 3 : DIN ISO ASME - straight claw - inclined claw	39 022 196 39 023 105	14.5 19.5
P4 + P5 + P7 (single guide rail arrangement)		Installation parts for stationary wet-well installation consisting of: duckfoot bend, mounting bracket, bolts, anchor bolts, claw with stainless steel bolts, 5 m chain (galvanised steel) and shackle 1.4401	DN 50 – DN 3 : DIN ISO ASME - straight claw - inclined claw	39 022 204 39 023 107	14.0 19.0
P4 + P5 + P7 (double guide rail arrangement) DN 50		Installation parts for stationary wet-well installation , consisting of: duckfoot bend, mounting bracket, stainless steel bolts, adapter, anchor bolts, 5 m chain (galvanised steel) and shackle 1.4401	DN 50 – DN 3 : DIN ISO ASME - inclined claw	39 023 002	14.0
P5 Claw for Amarex N S 32		claw JL 1040 with stainless steel bolts, - for guide wire - for guide hoop - for single guide rail	DN 32/50 - straight claw - inclined claw	39 022 248 39 023 108	1.0 5.0
P5 (twin guide rail arrangement) Claw		Claw, JL 1040 , with stainless steel bolts	DN 32/50 - inclined claw	39 022 990	6.5
		Conversion kit , consisting of: mounting bracket, stainless steel bolts, adapter, anchor bolts Please note: required for converting a system with guide wire, single guide rail or guide hoop into a system with twin guide rails Caution: Supply of an appropriate claw designed for twin guide rails is mandatory!	DN 50	39 022 984	1.6

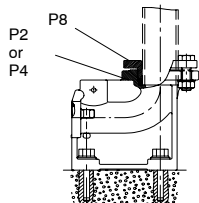

Installation parts for transportable model

Item	Illustration	Description	Connection	Ident. No.	Net weight approx. kg/unit
P6		Feet (3)	Amarex N DN 32	39 023 085	0.25
		(for uneven mounting surfaces only) Pump foot pad including screws (can be used in combination with feet only!)	Amarex N DN 32 to 100	39 022 262	0.6

Chain for stationary and transportable models

Item	Illustration	Description	Sizes	Safe working load kg	Ident. No.	Net weight approx. kg/unit
P7		Chain (galvanised steel), shackle 1.4401 and hook 1.4571 2 m B5 x 35		160	19 141 819	1.5
			5 m B5 / 6	160	19 141 820	2.7
		Chain, shackle 1.4401 and hook 1.4571 2 m D5		160	19 143 335	1.7
			5 m D5	160	19 143 336	2.7
		Polypropylene lifting rope 5 m, with shackle 1.4401 and hook 1.4571		180	39 021 975	2.5
		Shackle 1.4401, straight type, with stainless steel screw bolt		160	01 019 282	0.5










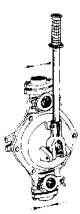
Accessories for stationary and transportable pump sets

Item	Illustration	Description	Connection	for pump size	Ident. No.	Net weight approx. kg/unit
P8 (Clamped connection)		Flange for pipe coupling PN 10 at the flange of the duckfoot bend Mating dimensions to PN 16	DN 50 / R 2 pipe	X	19 551 111	1.0
P9		PVC adapter for hose connection with 1 hose clip Plastic hose Inside diameter 63, item P19	R 2	X	11 191 498	1.0

Accessories for stationary and transportable pump sets

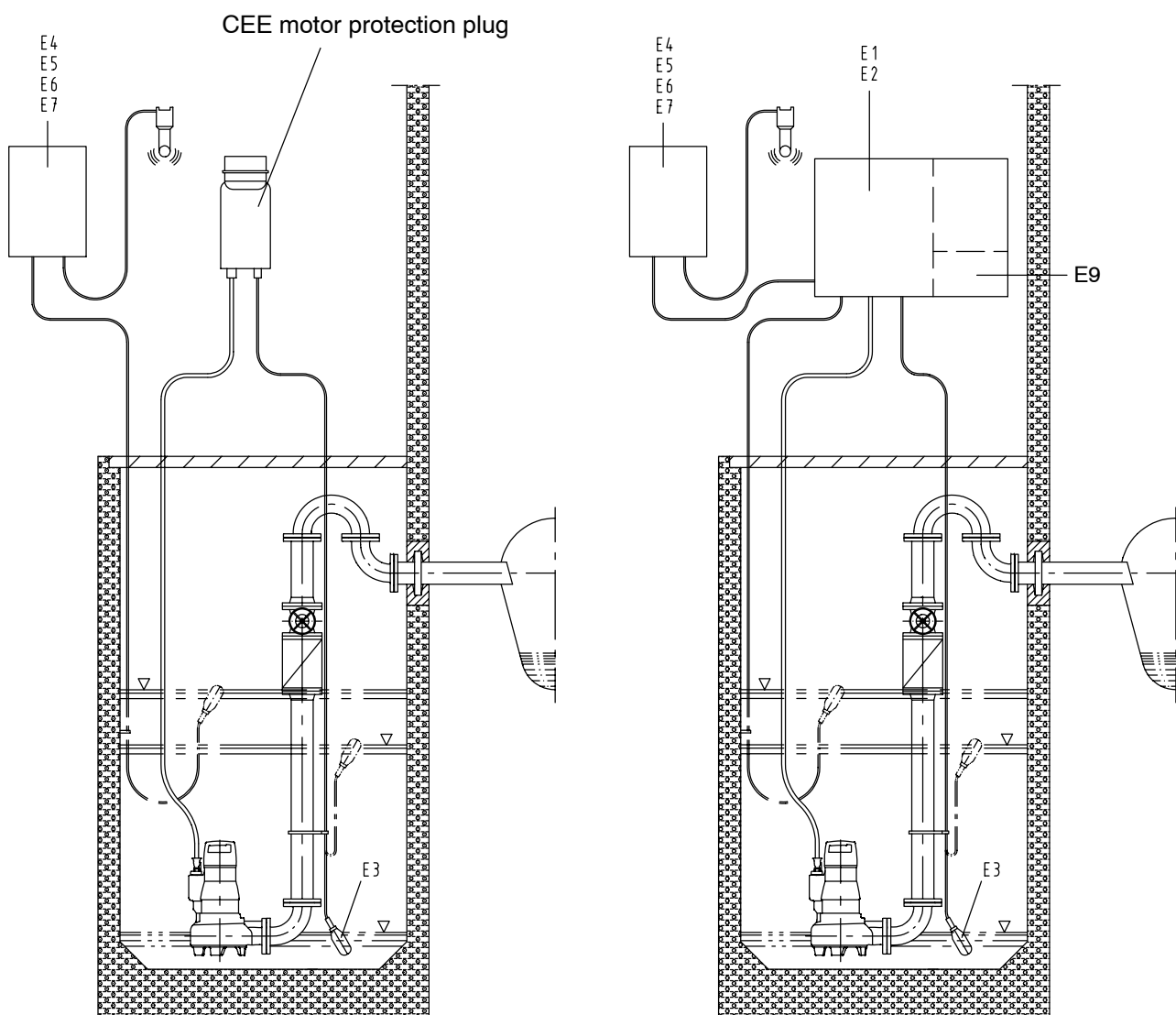
Please note:

For Amarex N S 32-160 accessories please refer to the suggested installation layouts on page 10.

Item	Illustration	Description	Connection	Size		Ident. No.	Net weight approx. kg/unit
				32	50		
P14		Elbow with male/female thread cast iron, galvanised Use items P27 and P30 for assembly with pump	R 2		X	00 241 966	0.3
P17		Storz rigid coupling with male thread Aluminium	C 52 / G 2 A		X	00 524 370	0.2
P18		Plastic hose DIN 14 811 with integrated C couplings	C 52 C 52 C 52	5 m 10 m 20 m	X X X	00 522 262 00 522 263 00 522 264	1.8 3.4 6.6
P19		Plastic hose without coupling (max. 30 m) DIN 14 811	Ø 63	5 m 10 m 20 m 30 m	X X X X	39 018 688 39 018 689 39 018 690 39 019 073	1.7 3.4 6.8 10.2
P20		Hose clip DIN 3017 Cr steel *) For plastic hose Ø63 item 19	B 50 *)		X	39 000 515	0.1 0.1 0.1
P21		RK swing check valve Plastic, ISO 7/l with full port and drain plug Not suitable for pumped drainage	Rp 2		X	01 009 773	0.6
P22		Socket gate valve PN 10 - 12 DIN 3352 CuZn	Rp 2		X	00 411 503	0.8
P23		Ball check valve with flange PN 10 Cast	Rp 2			39 000 510	3.6
P27		Screwed flange PN 16 for flanged elbow C50 with bolts, gasket and nuts	DN 50 / Rp 2		X	19 551 353	2.0
		Screwed flange PN 40 for pump including bolts	DN 32 / Rp 1 1/4	X		39 023 087	1.8
P30		Adapter with reduced male thread M4 EN 1042K	2 x 1 1/4	X		01 135 663	0.3
		Hand pump, wall mounting, cast iron, suction-side connection Rp 1 1/2		X	X	00 520 485	12.0

Suggested Electrical Installation Layouts

Note! Amarex N S 32-160 is available in **explosion-proof design only!**



Electrical accessories

Selection table for switchgear





(For further switchgear models for single / duplex pumps and Hyper motor protection switch please refer to catalogue booklet).

Explosion-proof

Switchgear for:			Rated current in A	
single pumping station (1 pump)	Duplex pumping station (2 pumps)	Sensors	from:	to:
EDE 40.1	DDE 40.1	Float	2.5	4.0
CU-1 10 H03	CU-2 10 H03	pneumatic (hydrost. press. meas. w/o compressor) 3 m	1.0	10.0
CU-1 10 H10	CU-2 10 H10	pneumatic (hydrost. press. meas. w/o compressor) 10 m	1.0	10.0
SU-1 10 A02	SU-2 10 A02	Bubbler system 2 m	1.0	10.0
SU-1 10 A03	SU-2 10 A03	Bubbler system 3 m	1.0	10.0





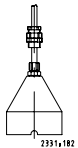
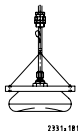
Important! The mini control systems are not explosion-proof and therefore must only be operated outside potentially explosive atmospheres.

Explosion-proof

Item	Illustration	Description	Size	Dimensions (W x H x D)	Ident. No.	Weight kg
E1		Switchgear for single pumping station with motor protection switch, manual-0-automatic selector switch and motor contactor (EDE ¹⁾). Indicator lamps and volt-free contacts for operation and fault indication. Terminals for float switch. Thermal monitoring circuit 2 with keys. Rated voltage 400 V , 50 Hz enclosure IP 54	EDE 40.1	300 x 400 x 150	29 128 015	9.3
E1		LevelControl Advanced Control unit for single pump, IP 54 Power range up to 10 A, 4 kW, 3-400 V PE+N, direct starting				
E13		H03 pneumatic sensor (hydrostatic pressure measurement without compressor): internal pressure sensor up to 3.5 m water column	CU-1 10 H03	255 x 216 x 100	01 118 726	3.0
		H10 pneumatic sensor (hydrostatic pressure measurement without compressor): internal pressure sensor up to 10.5 m water column	CU-1 10 H10	255 x 216 x 100	01 118 727	3.0
		A02 bubbler system: internal pressure sensor with compressor up to 2 m tank depth	SU-1 10 A02	300 x 400 x 155	01 119 203	10.0
		A03 bubbler system: internal pressure sensor with compressor up to 3 m tank depth	SU-1 10 A03	300 x 400 x 155	01 119 204	10.0
E2		Switchgear for duplex pumping stations ¹⁾ with automatic alternate, stand-by and peak-load operation function, with one motor protection switch each, manual-0-automatic selector switch and motor contactor (DDE), indicator lamps for manual operation, operation pump 1, operation pump 2 and fault indication. Volt-free contacts for operation and fault. Connections for float switch on terminal strip. Thermal monitoring circuit 2 with keys. Rated voltage 400 V , 50 Hz enclosure IP 54	DDE 40.1	400 x 600 x 200	29 128 060	18.0
E2		LevelControl Advanced Control unit for two pumps, IP 54 Power range up to 10 A, 4 kW, 3-400 V PE+N, direct starting				
E13		H03 pneumatic sensor (hydrostatic pressure measurement without compressor): internal pressure sensor up to 3.5 m water column	CU-2 10 H03	255 x 216 x 100	01 118 728	3.0
		H10 pneumatic sensor (hydrostatic pressure measurement without compressor): internal pressure sensor up to 10.5 m water column	CU-2 10 H10	255 x 216 x 100	01 118 729	3.0
		A02 bubbler system: internal pressure sensor with compressor up to 2 m tank depth	SU-2 10 A02	300 x 400 x 155	01 119 205	19.0
		A03 bubbler system: internal pressure sensor with compressor up to 3 m tank depth	SU-2 10 A03	300 x 400 x 155	01 119 206	19.0

¹⁾ Intrinsically safe relays for float switches must be ordered in addition (item E9)

Electrical accessories

Item	Illustration	Description	Ident. No.	Weight kg
E 7		AS5 alarm switchgear mains-independent, with self-charging power supply unit for 10 hours' operation in case of a mains failure, mains pilot LED, warning indicator light, horn-off push button, volt-free contact for hook-up to a control station, ready for connection with 1.8 m cable and plug. ISO housing IP 41. Dimensions: 190 x 165 x 75 mm Intrinsically safe relay for float switch must be ordered in addition!	230V~/ 12V = 5 VA 00 530 561	1.7
E 7		Internal horn, enclosure IP 32 Use float switch E3 as contactor.	12V = 105 dB(A), 1.2 W 01 086 547	0.3
E 9		Intrinsically safe relay KF A6- SR2-Ex1.W (intrinsic safety EEx ia II C X) for installation in switchgear items E1 or E2. Required for float switch E3 in potentially explosive atmospheres. Connection in acc. with wiring diagram of switchgear items E 1 or E 2.	01 066 347	0.5
E 10		Tripping unit with manual reset for thermal motor monitoring (essential for explosion-proof status if switchgear item E1 / E2 is not included in scope of supply). Special design for bimetal switches (not suitable for PTC) for mains operation	RSM ZKÜ/230V/50-60Hz Control voltage 200-250 V 01 040 217	0.15
E 11		CEE motor protection plug, DIN 49 462 3L + PE + N, 16 A, 400 V, - 6h with phase inverter, rotary field indication and final cut-out when the motor is overheated (as required by DIN 57 165 for pumps in potentially explosive atmospheres) Caution: The motor protection plug is not explosion-proof and therefore must only be operated outside potentially explosive atmospheres. (This motor protection plug <u>cannot</u> be used for automatic level control.) For cables with up to 8 cores (max.) only	for rated currents of: 2.6 - 3.7 A 11 190 764	0.9
E13.1		Pressure bell set (open system and bubbler system) with polyamide hose 8 x 1 Hose length 10 m Hose length 20 m	19 071 721 19 071 837	1.2 2.0
E13.2		Pressure bell set (closed system) with polyamide hose 8 x 3 Hose length 10 m Hose length >10 m on request	19 071 722	3.5

Options (control cabinet extension may be necessary)

Item	Description	Weight kg
O 1	Operating hours counter	0.1
O 2	Ammeter	0.1
O 3	Voltmeter with changeover switch	0.1
O 4	Master switch	0.2
O 6	Monitoring relay (phase failure/sequence, under/over-voltage)	0.4
O 7	Integrated, mains-independent alarm and charging unit PZ033 N for hook-up to alarm equipment, e.g. horn or flashlight (I_{\max} approx. 150 mA) and charging a rechargeable battery 12 V, 1.2 Ah, with rechargeable battery , lead- gel rechargeable battery 12 V, 1.2 Ah	1.0
O 7.1	Alarm equipment for PZ033 N Flashlight 12V IP 65 (for EDEL/DDEL FLS supplied in mounted condition). Horn 12 V, approx. 90 dB(A), IP 33 for indoor and outdoor installation, mount in a position where it is protected against direct rain.	0.2 0.2