



Flygt 3202, 50Hz

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F-pump

Product description

Usage

Submersible chopper pump with excellent performance in heavy duty wastewater applications. It is designed to perform under extreme conditions, such as cutting solids or fibres down to size and still perform reliably and energy efficiently. The N-impeller is fitted with a cutting Hard-Iron™ insert ring.

Denomination

Type	Non explosion proof version	Explosion proof version	Pressure class	Installation types
Chopper	3202.350	3202.390	MT – Medium head	P, S, T, Z
			HT – High head	
			SH – Super head	P, S

The pump can be used in the following installations:

- P** Semi permanent, wet well arrangement with pump installed on two guide bars with automatic connection to discharge.
- S** Portable semi permanent, wet well arrangement with hose coupling or flange for connection to discharge pipeline.
- T** Vertical permanent, dry well arrangement with flange connection to suction and discharge piping.
- Z** Horizontal permanent, dry well arrangement with flange connection to suction and discharge piping.

Application Limits

Feature	Description
Liquid temperature	Maximum 40°C, (104°F)
Liquid temperature, warm water version	Maximum 70°C, (158°F)
Depth of immersion	Maximum 20 m (65 ft)
pH of the pumped liquid	5.5 - 14
Liquid density	Maximum 1100 kg/m ³

Motor data

Feature	Description
Motor type	Squirrel-cage induction motor
Frequency	50 Hz
Power supply	3-phase
Starting method	<ul style="list-style-type: none"> • Direct on-line • Star-delta • Variable Frequency Drive (VFD)
Number of starts per hour	Maximum 30

Feature	Description
Code compliance	IEC 60034-1
Rated output variation	±10%
Voltage variation	<ul style="list-style-type: none"> Continuously running: Maximum ±5% Intermittent running: Maximum ±10%
Voltage imbalance between phases	Maximum 2%
Insulation class	H (180°C, 356°F)

Cables

Application	Type	Denomination
Direct-on-line start	SUBCAB® heavy-duty submersible cable	4G6+2×1.5 mm ² 4G10+2×1.5 mm ² 4G16+2×1.5 mm ² 4G25+2×1.5 mm ² 4G35+2×1.5 mm ² 1AWG/3-2-1-GC
Y/D start	SUBCAB® heavy-duty submersible cable	7G4+2×1.5 mm ² 7G6+2×1.5 mm ²
VFD application	Screened SUBCAB® heavy-duty submersible cable	S3×6+3×6/3+4×1.5 mm ² S3×10+3×10/3+4×1.5 mm ² S3×16+3×16/3+4×1.5 mm ² S3×25+3×16/3+4×1.5 mm ² S3×35+3×16/3+4×1.5 mm ²

Monitoring Equipment

- Thermal contacts opening temperature 140° C (284° F)
- Leakage sensor in the inspection chamber (FLS)

Materials

Denomination	Material	ASTM	EN
Major castings	Cast iron, gray	35B	GJL-250
Pump housing	Cast iron, gray	35B	GJL-250
Impeller	Cast iron, Hard-Iron™	A 532 IIIA	GJN-HB555(XCR23)
Insert ring	Cast iron, Hard-Iron™	A 532 IIIA	GJN-HB555(XCR23)
Cooling jacket, inner	Aluminum	AA 1050A	AW-1050A
Cooling jacket, outer, alternative 1	Steel	GR65	S235JRG2
Cooling jacket, outer, alternative 2	Stainless steel	AISI 316L	1.4404, 1.4432, ...
Lifting handle	Stainless steel	AISI 316L	1.4404, 1.4432, ...
Shaft	Stainless steel	AISI 431	1.4057+QT800
Screws and nuts	Stainless steel, A4	AISI 316L, 316, 316Ti	1.4401, 1.4404, ...
O-rings, alternative 1	Nitrile rubber (NBR) 70° IRH	-	-

Denomination	Material	ASTM	EN
O-rings, alternative 2	Fluorinated rubber (FPM) 70° IRH	-	-
Glycol, part no 903708	Heat transfer fluid based on monopropylene glycol. Fulfills FDA 184.1666/182.6285.	-	-

Table 1: Mechanical face seals

Alternative	Inner seal	Outer seal
1	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide
2	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide	Silicon carbide/ Silicon carbide

Surface Treatment

Priming	Finish
Painted with a primer, see internal standard M 0700.00.0002	Navy gray color NCS 5804-B07G. Two-component high-solid top coating, see internal standard M 0700.00.0004 for standard painting and M 0700.00.0008 for special painting.

Options

- Warm liquid version (non-explosion proof versions)
- Sensors: Thermistor, FLS, Pt 100, VIS 10
- Pump memory
- Other cables

Accessories

Discharge connections, adapters, hose connections, and other mechanical accessories. Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables.

Motor rating and performance curves

MT

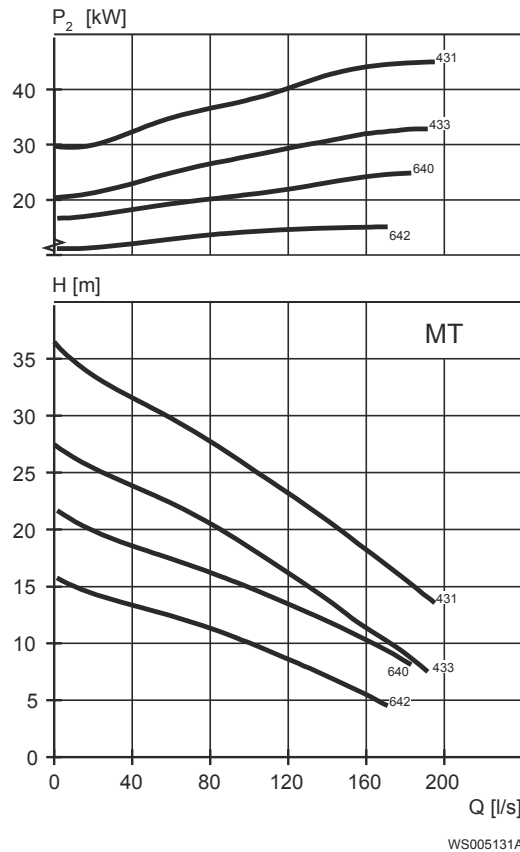


Table 2: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
22	30	641	970	43	238	0.84	P,S,T,Z
22	30	642	970	43	238	0.84	P,S,T,Z
22	30	643	970	43	238	0.84	P,S,T,Z
30	40	434	1475	54	360	0.88	P,S,T,Z
30	40	435	1475	54	360	0.88	P,S,T,Z
30	40	640	970	59	320	0.83	P,S,T,Z
30	40	641	970	59	320	0.83	P,S,T,Z
30	40	642	970	59	320	0.83	P,S,T,Z
30	40	643	970	59	320	0.83	P,S,T,Z
37	50	433	1475	65	420	0.89	P,S,T,Z
37	50	434	1475	65	420	0.89	P,S,T,Z
37	50	435	1475	65	420	0.89	P,S,T,Z
37	50	640	970	71	405	0.83	P,S,T,Z
37	50	641	970	71	405	0.83	P,S,T,Z
37	50	642	970	71	405	0.83	P,S,T,Z

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
37	50	643	970	71	405	0.83	P,S,T,Z
45	60	431	1475	79	540	0.9	P,S,T,Z
45	60	432	1475	79	540	0.9	P,S,T,Z
45	60	433	1475	79	540	0.9	P,S,T,Z
45	60	434	1475	79	540	0.9	P,S,T,Z
45	60	435	1475	79	540	0.9	P,S,T,Z

HT

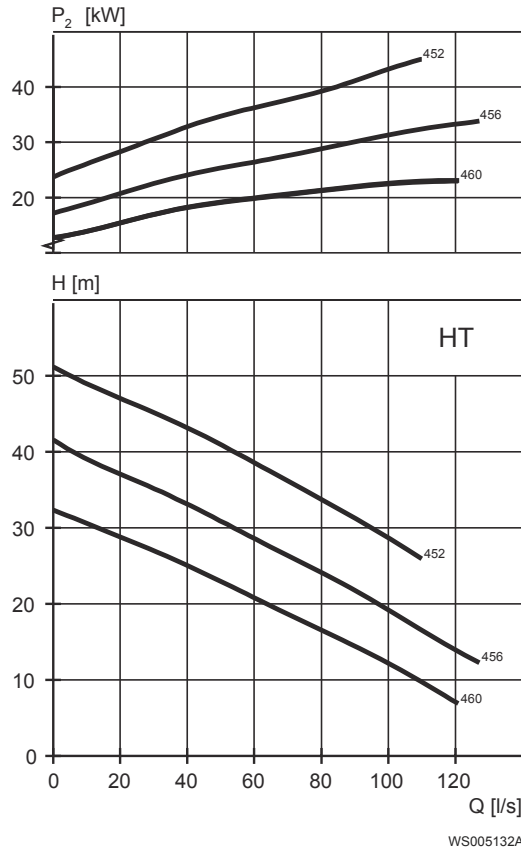
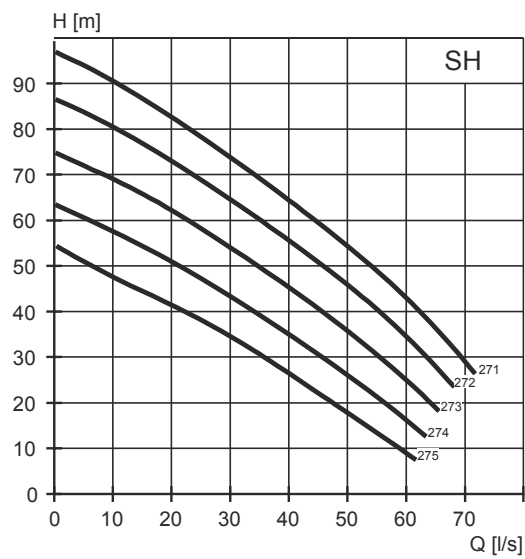
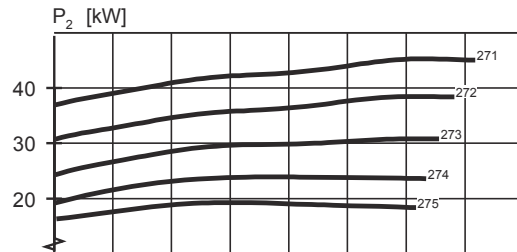


Table 3: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
30	40	456	1475	54	360	0.88	P,S,T,Z
30	40	458	1475	54	360	0.88	P,S,T,Z
30	40	460	1475	54	360	0.88	P,S,T,Z
37	50	456	1475	65	420	0.89	P,S,T,Z
37	50	458	1475	65	420	0.89	P,S,T,Z
37	50	460	1475	65	420	0.89	P,S,T,Z
45	60	450	1475	79	540	0.9	P,S,T,Z
45	60	452	1475	79	540	0.9	P,S,T,Z
45	60	454	1475	79	540	0.9	P,S,T,Z

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
45	60	456	1475	79	540	0.9	P,S,T,Z
45	60	458	1475	79	540	0.9	P,S,T,Z
45	60	460	1475	79	540	0.9	P,S,T,Z

SH



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Table 4: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
47	63	271	2950	79	555	0.92	P,S
47	63	272	2950	79	555	0.92	P,S
47	63	273	2950	79	555	0.92	P,S
47	63	274	2950	79	555	0.92	P,S
47	63	275	2950	79	555	0.92	P,S

N-pump

Product description

Usage

The submersible pump is designed for pumping clean water, surface water, and wastewater containing solids or long-fibred material.

Denomination

Type	Non explosion proof version	Explosion proof version	Pressure class	Installation types
Cast iron	3202.180	3202.090	LT – Low head MT – Medium head HT – High head	P, S, T, Z
Hard-Iron™	3202.185	3202.095	LT – Low head MT – Medium head HT – High head SH – Super head	

The pump can be used in the following installations:

- P** Semi permanent, wet well arrangement with pump installed on two guide bars with automatic connection to discharge.
- S** Portable semi permanent, wet well arrangement with hose coupling or flange for connection to discharge pipeline.
- T** Vertical permanent, dry well arrangement with flange connection to suction and discharge piping.
- Z** Horizontal permanent, dry well arrangement with flange connection to suction and discharge piping.

Application Limits

Feature	Description
Liquid temperature	Maximum 40°C, (104°F)
Liquid temperature, warm water version	Maximum 70°C, (158°F)
Depth of immersion	Maximum 20 m (65 ft)
pH of the pumped liquid	5.5 - 14
Liquid density	Maximum 1100 kg/m ³

Motor data

Feature	Description
Motor type	Squirrel-cage induction motor
Frequency	50 Hz
Power supply	1-phase 3-phase

Feature	Description
Starting method	<ul style="list-style-type: none"> • Direct on-line • Star-delta • Variable Frequency Drive (VFD)
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Rated output variation	±10%
Voltage variation	<ul style="list-style-type: none"> • Continuously running: Maximum ±5% • Intermittent running: Maximum ±10%
Voltage imbalance between phases	Maximum 2%
Insulation class	H (180°C, 356°F)

Cables

Application	Type	Denomination
Direct-on-line start	SUBCAB® heavy-duty submersible cable	4G4+2×1.5 mm ² 4G6+2×1.5 mm ² 4G10+2×1.5 mm ² 4G16+2×1.5 mm ² 4G25+2×1.5 mm ² 4G35+2×1.5 mm ² 1AWG/3-2-1-GC
Y/D start	SUBCAB® heavy-duty submersible cable	7G2.5+2×1.5 mm ² 7G4+2×1.5 mm ² 7G6+2×1.5 mm ²
VFD application	Screened SUBCAB® heavy-duty submersible cable	S3×6+3×6/3+4×1.5 mm ² S3×10+3×10/3+4×1.5 mm ² S3×16+3×16/3+4×1.5 mm ² S3×25+3×16/3+4×1.5 mm ² S3×35+3×16/3+4×1.5 mm ²

Monitoring Equipment

- Thermal contacts opening temperature 140° C (284° F)
- Leakage sensor in the inspection chamber (FLS)

Materials

Denomination	Material	ASTM	EN
Major castings	Cast iron, gray	35B	GJL-250
Pump housing	Cast iron, gray	35B	GJL-250
Impeller, alternative 1	Cast iron, gray	35B	GJL-250
Impeller, alternative 2	Cast iron, Hard-Iron™	A 532 IIIA	GJN-HB555(XCR23)
Insert ring, alternative 1	Cast iron, gray	35B	GJL-250
Insert ring, alternative 2	Cast iron, Hard-Iron™	A 532 IIIA	GJN-HB555(XCR23)
Cooling jacket, inner	Aluminum	AA 1050A	AW-1050A

Denomination	Material	ASTM	EN
Cooling jacket, outer, alternative 1	Steel	GR65	S235JRG2
Cooling jacket, outer, alternative 2	Stainless steel	AISI 316L	1.4404,1.4432, ...
Lifting handle	Stainless steel	AISI 316L	1.4404,1.4432, ...
Shaft	Stainless steel	AISI 431	1.4057+QT800
Screws and nuts	Stainless steel, A4	AISI 316L, 316, 316Ti	1.4401,1.4404, ...
O-rings, alternative 1	Nitrile rubber (NBR) 70° IRH	-	-
O-rings, alternative 2	Fluorinated rubber (FPM) 70° IRH	-	-
Glycol, part no 903708	Heat transfer fluid based on monopropylene glycol. Fulfills FDA 184.1666/182.6285.	-	-

Table 5: Mechanical face seals

Alternative	Inner seal	Outer seal
1	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide
2	Corrosion resistant cemented carbide/ Corrosion resistant cemented carbide	Silicon carbide/ Silicon carbide

Surface Treatment

All cast parts are primed with a water-borne primer. The finishing coat is a high-solid two pack paint.

Priming	Finish
Painted with a primer, see internal standard M 0700.00.0002	Navy gray color NCS 5804-B07G. Two-component high-solid top coating, see internal standard M 0700.00.0004 for standard painting and M 0700.00.0008 for special painting.

Options

- Warm liquid version (non-explosion proof versions)
- Sensors: Thermistor, FLS, Pt 100, VIS 10
- Pump memory
- Other cables

Accessories

Discharge connections, adapters, hose connections, and other mechanical accessories. Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables.

Motor rating and performance curves

Star-delta starting current is 1/3 of Direct on-line starting current.

LT

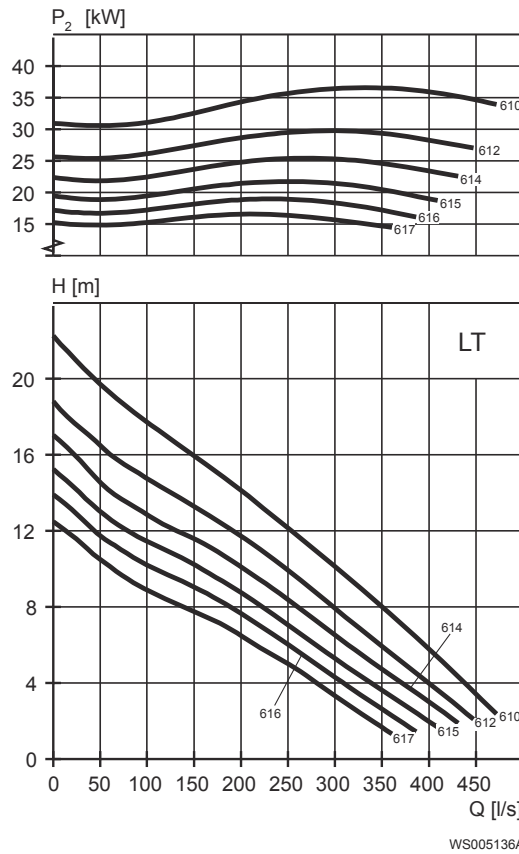
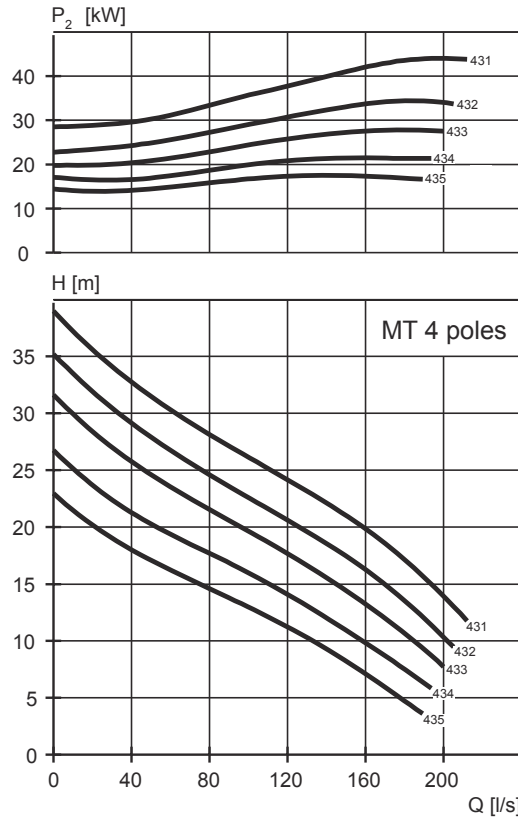


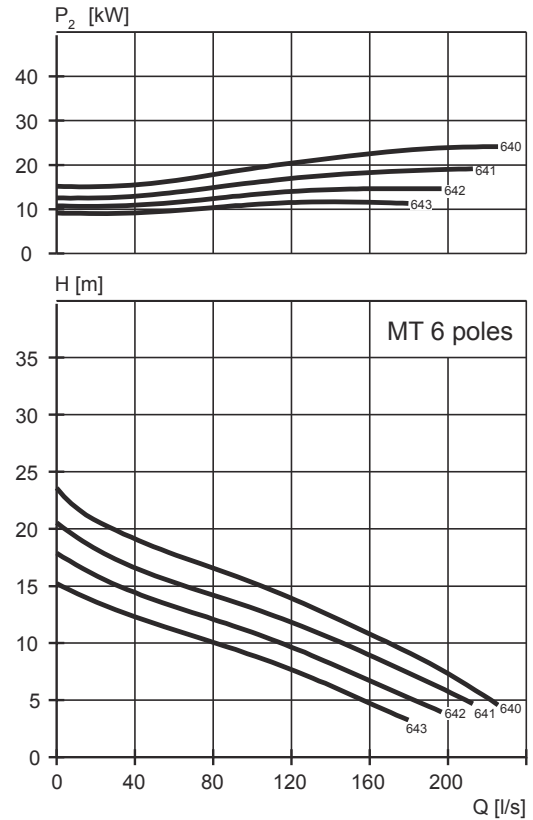
Table 6: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
22	30	615	970	43	238	0.84	P,S,T,Z
22	30	616	970	43	238	0.84	P,S,T,Z
22	30	617	970	43	238	0.84	P,S,T,Z
30	40	612	970	59	320	0.83	P,S,T,Z
30	40	614	970	59	320	0.83	P,S,T,Z
30	40	615	970	59	320	0.83	P,S,T,Z
30	40	616	970	59	320	0.83	P,S,T,Z
30	40	617	970	59	320	0.83	P,S,T,Z
37	50	610	970	71	405	0.83	P,S,T,Z
37	50	612	970	71	405	0.83	P,S,T,Z
37	50	614	970	71	405	0.83	P,S,T,Z
37	50	615	970	71	405	0.83	P,S,T,Z
37	50	616	970	71	405	0.83	P,S,T,Z
37	50	617	970	71	405	0.83	P,S,T,Z

MT



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Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
22	30	640	970	43	238	0.84	P,S,T,Z
22	30	641	970	43	238	0.84	P,S,T,Z
22	30	642	970	43	238	0.84	P,S,T,Z
22	30	643	970	43	238	0.84	P,S,T,Z
30	40	433	1475	54	360	0.88	P,S,T,Z
30	40	434	1475	54	360	0.88	P,S,T,Z
30	40	435	1475	54	360	0.88	P,S,T,Z
30	40	640	970	59	320	0.83	P,S,T,Z
30	40	641	970	59	320	0.83	P,S,T,Z
30	40	642	970	59	320	0.83	P,S,T,Z
30	40	643	970	59	320	0.83	P,S,T,Z
37	50	432	1475	65	420	0.89	P,S,T,Z
37	50	433	1475	65	420	0.89	P,S,T,Z
37	50	434	1475	65	420	0.89	P,S,T,Z
37	50	435	1475	65	420	0.89	P,S,T,Z
37	50	640	970	71	405	0.83	P,S,T,Z
37	50	641	970	71	405	0.83	P,S,T,Z

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
37	50	642	970	71	405	0.83	P,S,T,Z
37	50	643	970	71	405	0.83	P,S,T,Z
45	60	431	1475	79	540	0.9	P,S,T,Z
45	60	432	1475	79	540	0.9	P,S,T,Z
45	60	433	1475	79	540	0.9	P,S,T,Z
45	60	434	1475	79	540	0.9	P,S,T,Z
45	60	435	1475	79	540	0.9	P,S,T,Z

HT

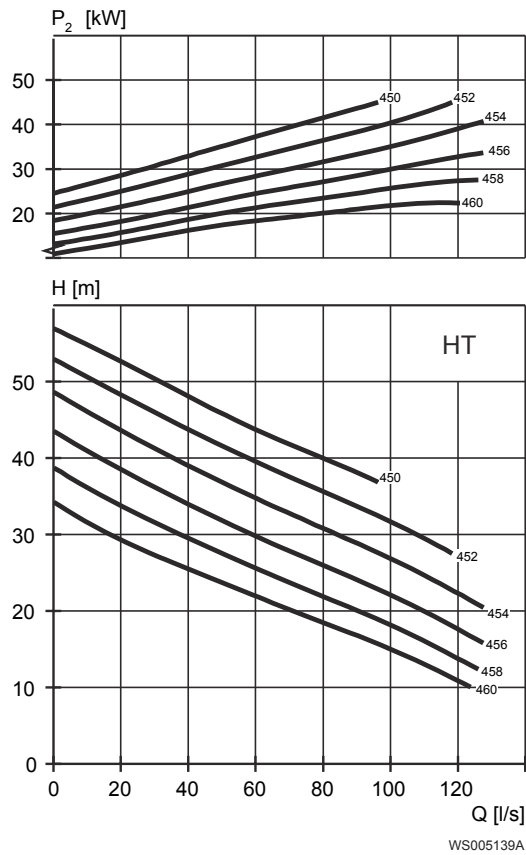


Table 7: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
30	40	454	1475	54	360	0.88	P,S,T,Z
30	40	456	1475	54	360	0.88	P,S,T,Z
30	40	458	1475	54	360	0.88	P,S,T,Z
30	40	460	1475	54	360	0.88	P,S,T,Z
37	50	450	1475	65	420	0.89	P,S,T,Z
37	50	452	1475	65	420	0.89	P,S,T,Z
37	50	454	1475	65	420	0.89	P,S,T,Z

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
37	50	456	1475	65	420	0.89	P,S,T,Z
37	50	458	1475	65	420	0.89	P,S,T,Z
37	50	460	1475	65	420	0.89	P,S,T,Z
45	60	450	1475	79	540	0.9	P,S,T,Z
45	60	452	1475	79	540	0.9	P,S,T,Z
45	60	454	1475	79	540	0.9	P,S,T,Z
45	60	456	1475	79	540	0.9	P,S,T,Z
45	60	458	1475	79	540	0.9	P,S,T,Z
45	60	460	1475	79	540	0.9	P,S,T,Z

SH

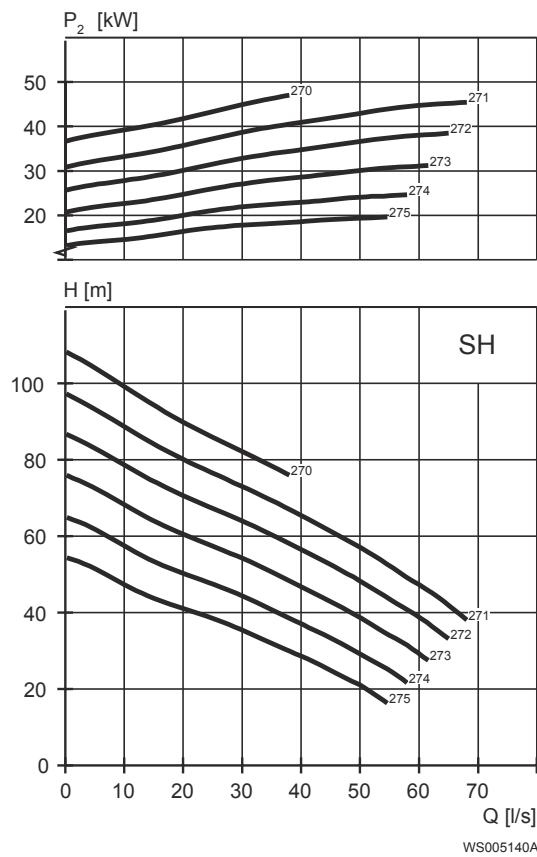


Table 8: 400 V, 50 Hz, 3-phase

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
47	63	270	2950	79	555	0.92	P,S,T,Z
47	63	271	2950	79	555	0.92	P,S,T,Z
47	63	272	2950	79	555	0.92	P,S,T,Z
47	63	273	2950	79	555	0.92	P,S,T,Z
47	63	274	2950	79	555	0.92	P,S,T,Z

Rated power kW	Rated power hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
47	63	275	2950	79	555	0.92	P,S,T,Z

Dimensions and Weight

Drawings

All drawings are available as Acrobat documents (.pdf) and AutoCad drawings (.dwg). Contact your sales representative for more information.

All dimensions are in mm.

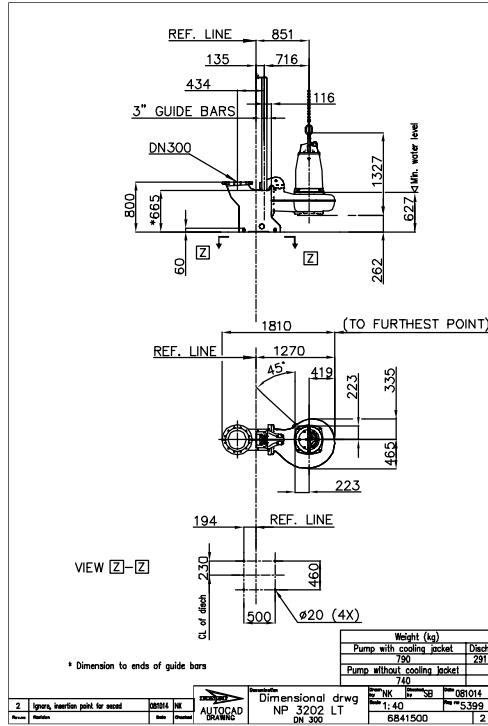


Figure 1: LT, P-installation

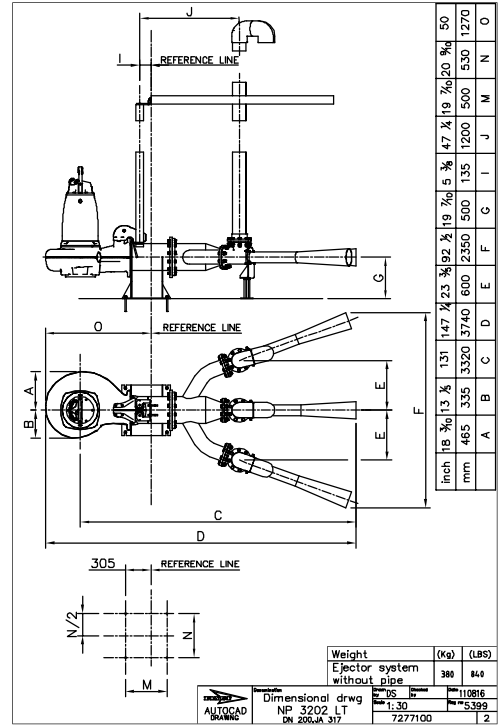


Figure 2: LT, P-installation

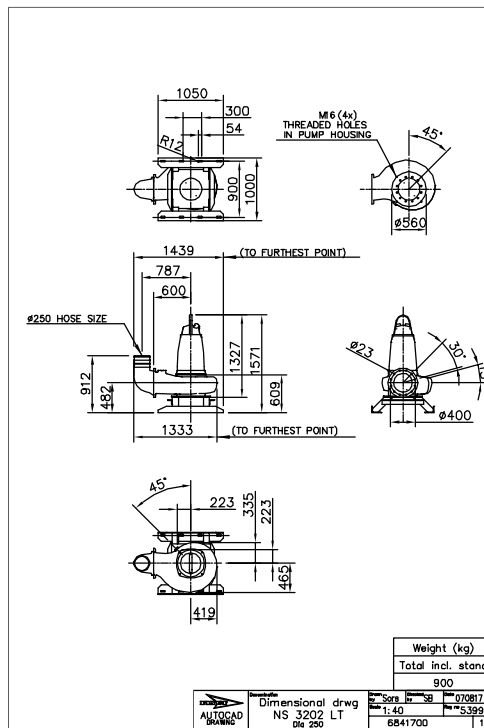


Figure 3: LT, S-installation

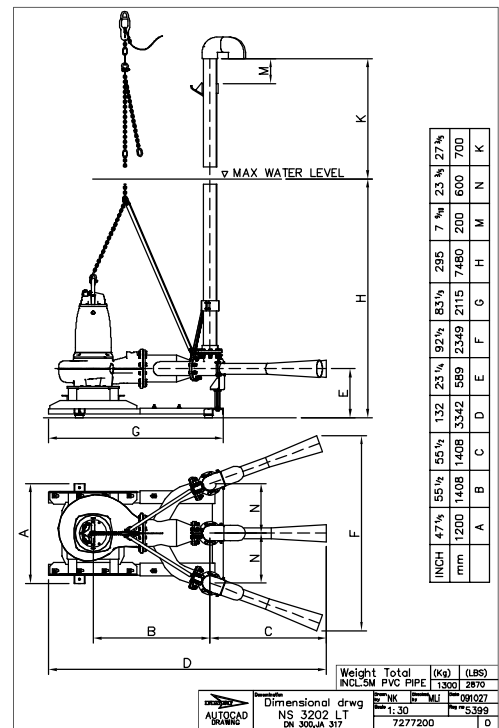


Figure 4: LT, S-installation

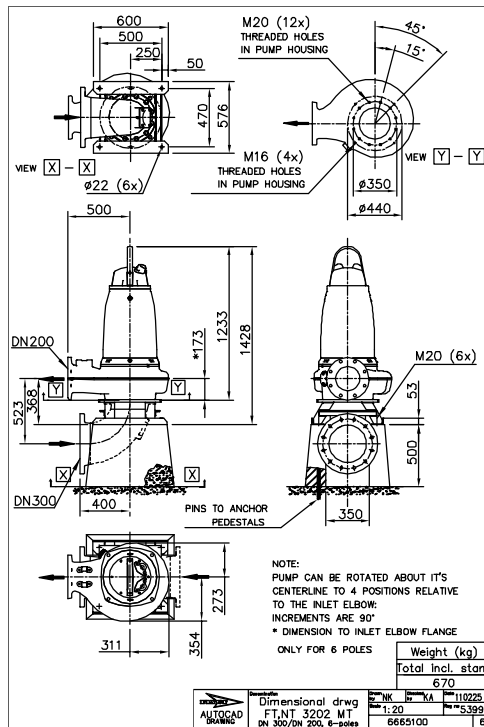


Figure 5: LT, T-installation

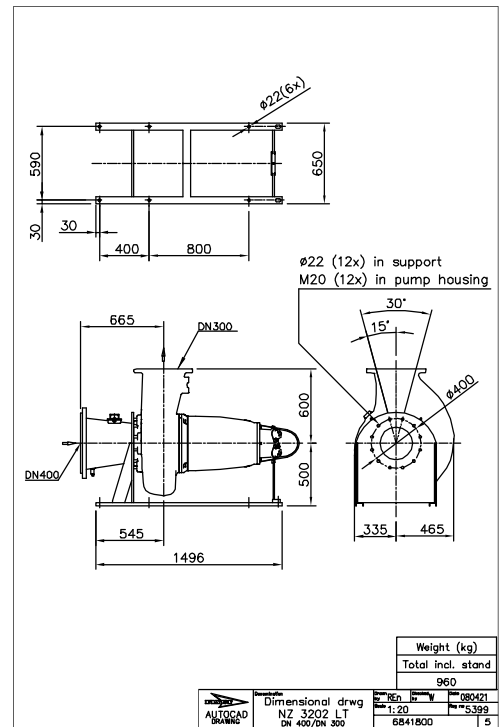


Figure 6: LT, Z-installation

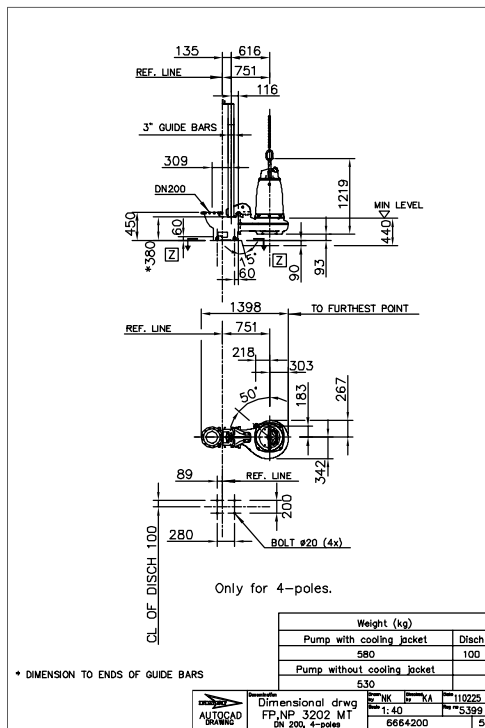


Figure 7: MT, P-installation

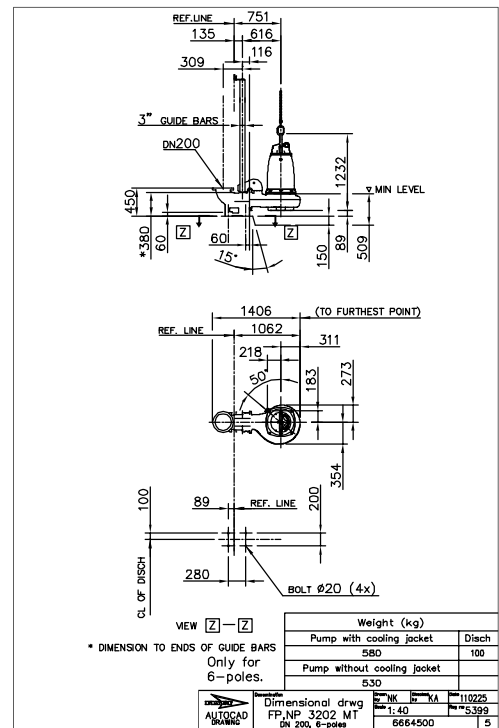


Figure 8: MT, P-installation

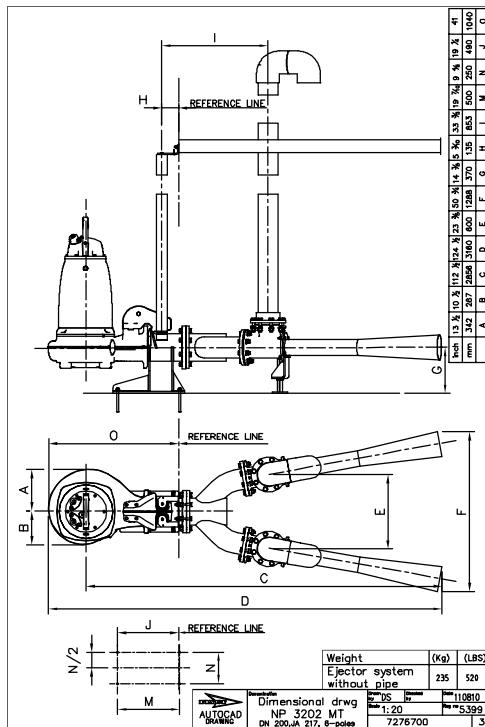


Figure 9: MT, P-installation

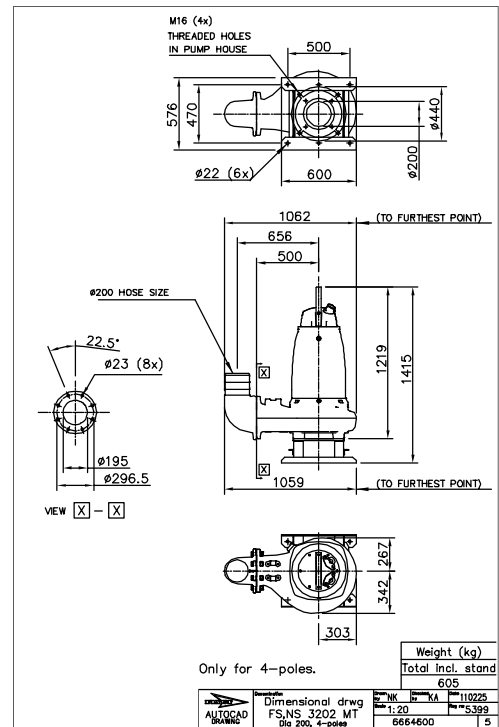


Figure 10: MT, S-installation

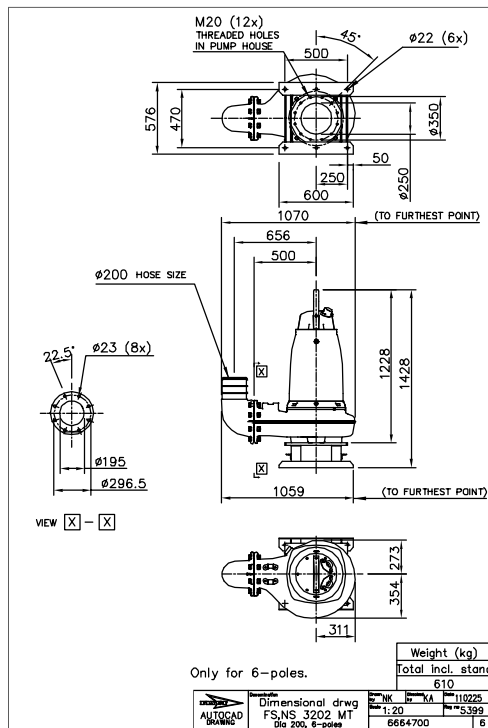


Figure 11: MT, S-installation

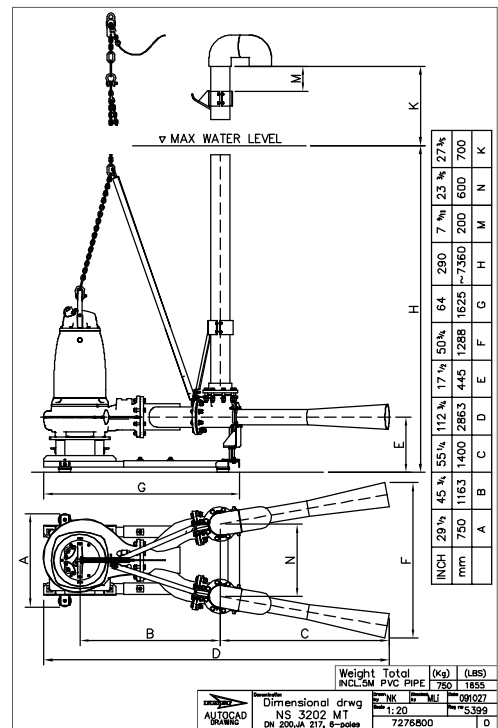


Figure 12: MT, S-installation

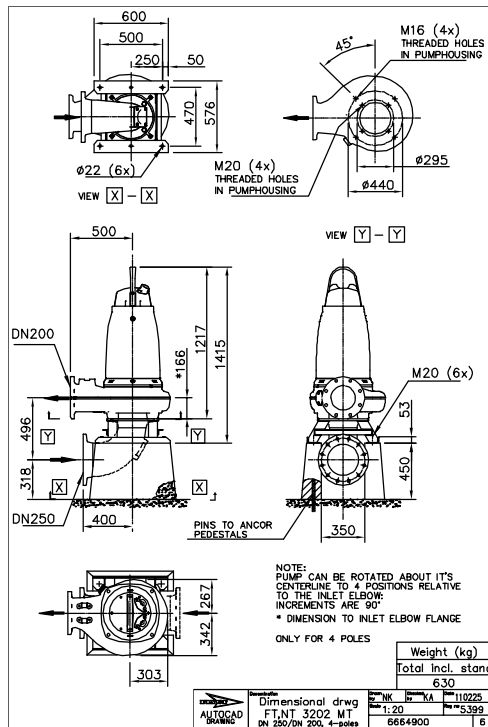


Figure 13: MT, T-installation

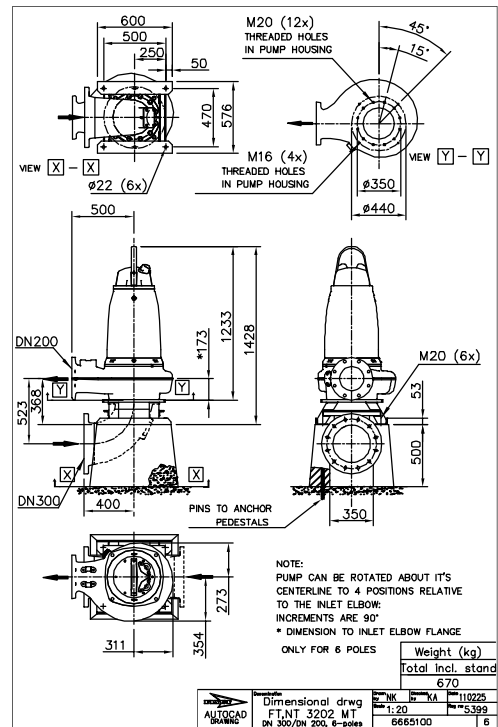


Figure 14: MT, T-installation

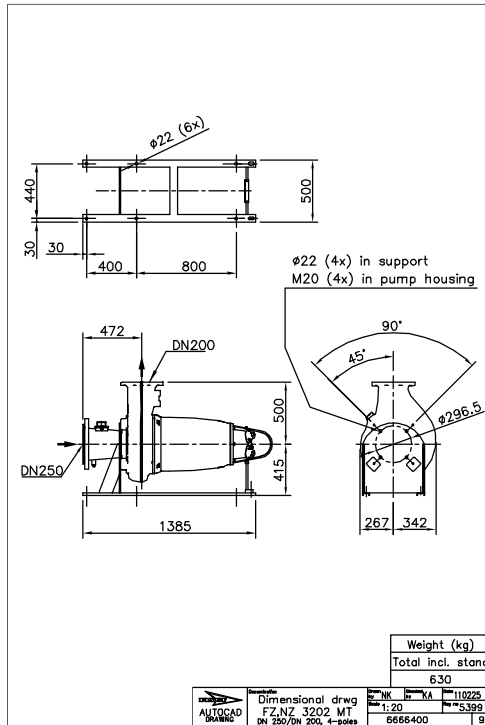


Figure 15: MT, Z-installation

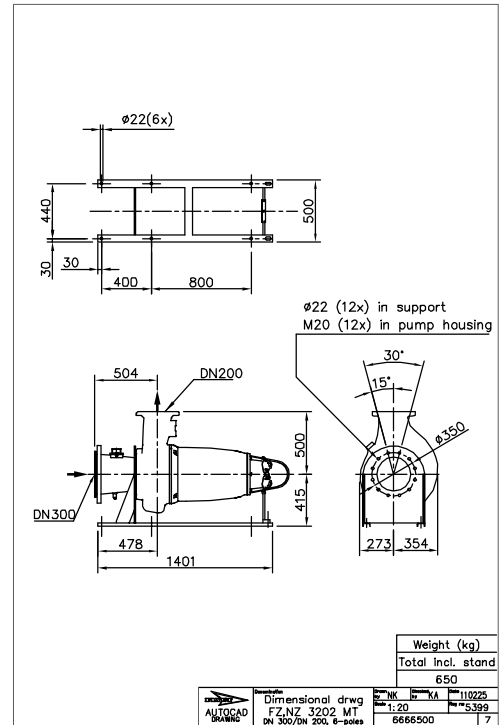


Figure 16: MT, Z-installation

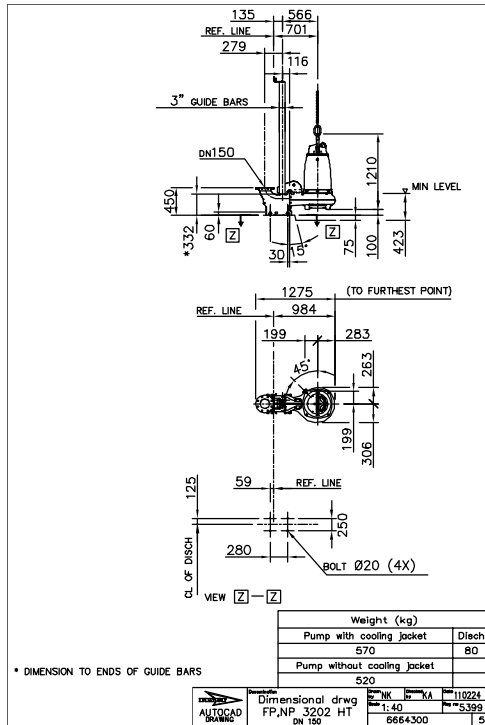


Figure 17: HT, P-installation

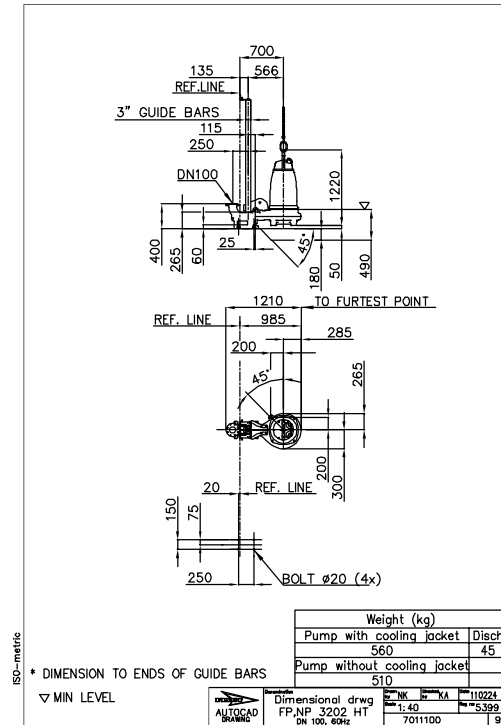


Figure 18: HT, P-installation

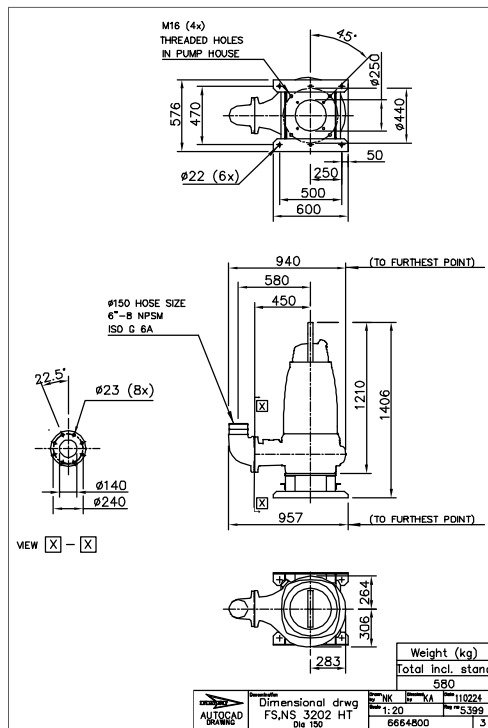


Figure 19: HT, S-installation

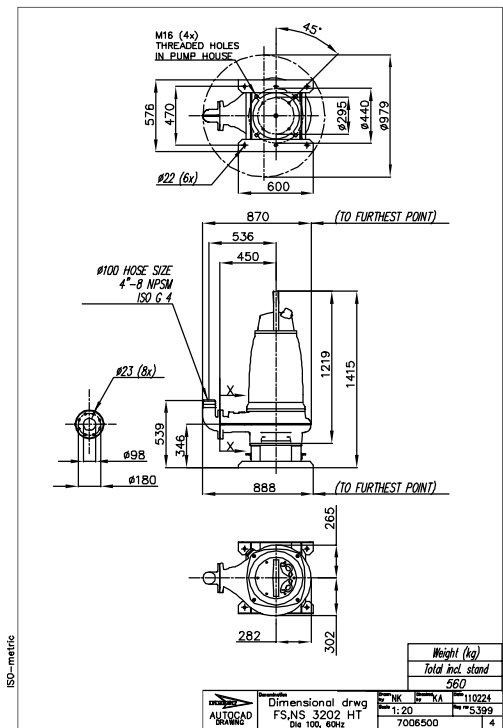


Figure 20: HT, S-installation

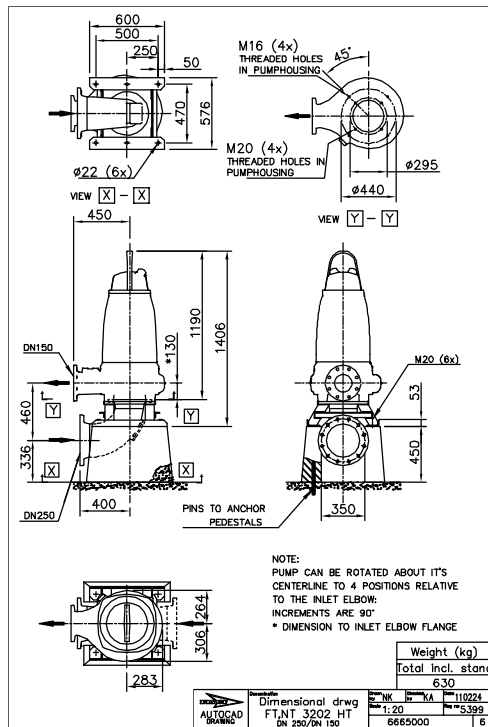


Figure 21: HT, T-installation

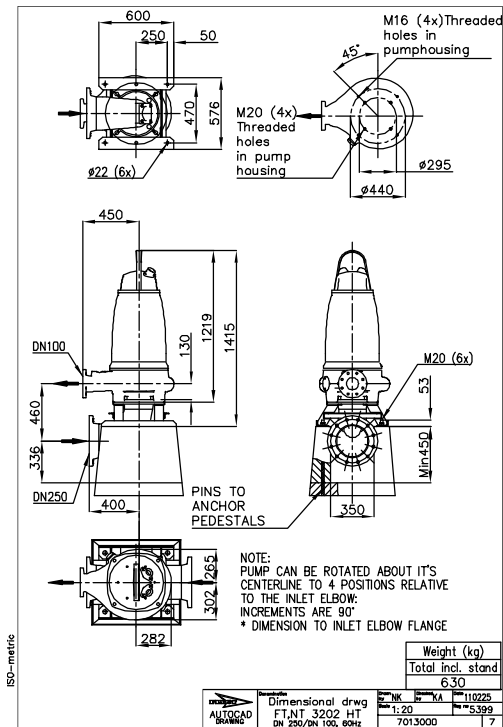


Figure 22: HT, T-installation

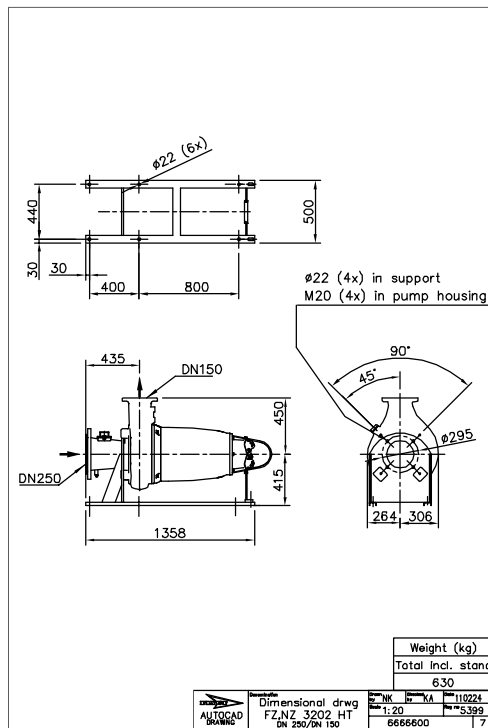


Figure 23: HT, Z-installation

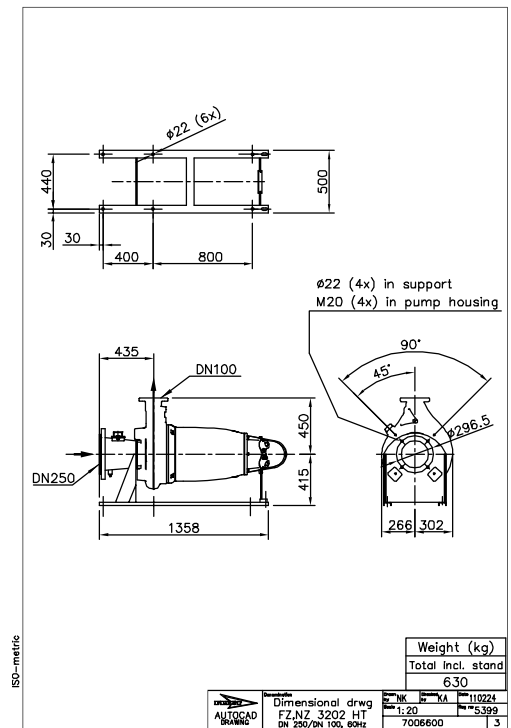


Figure 24: HT, Z-installation

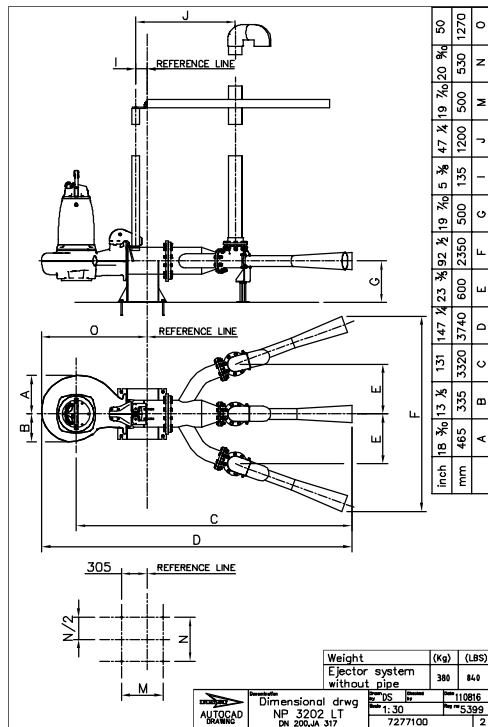


Figure 25: SH, P-installation

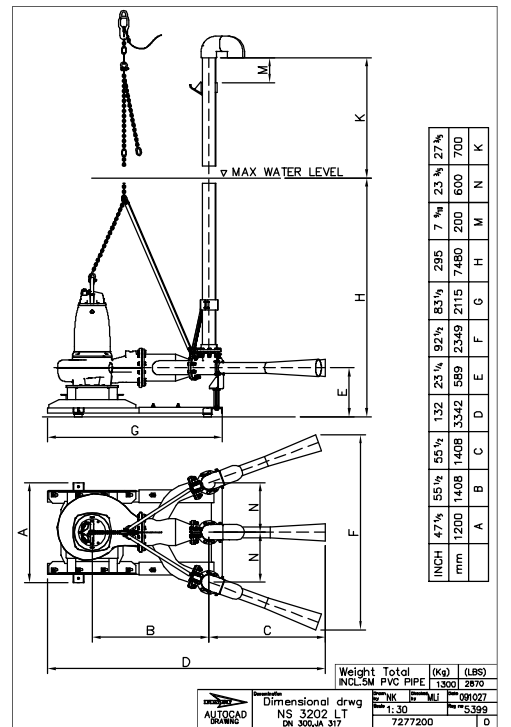


Figure 26: SH, S-installation

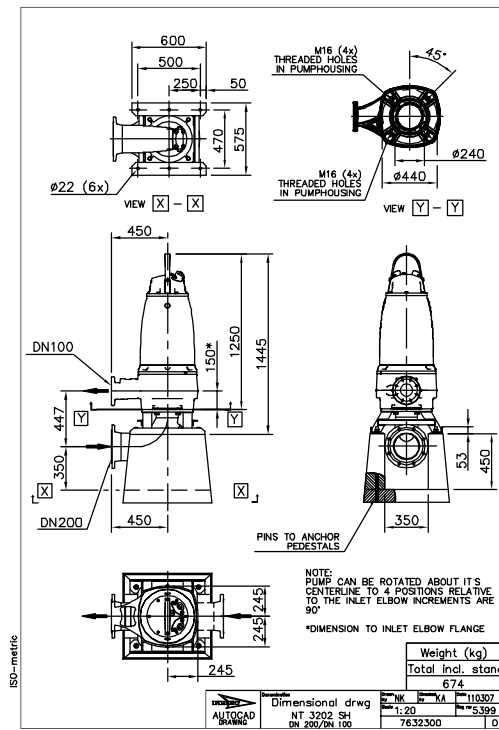


Figure 27: SH, T-installation

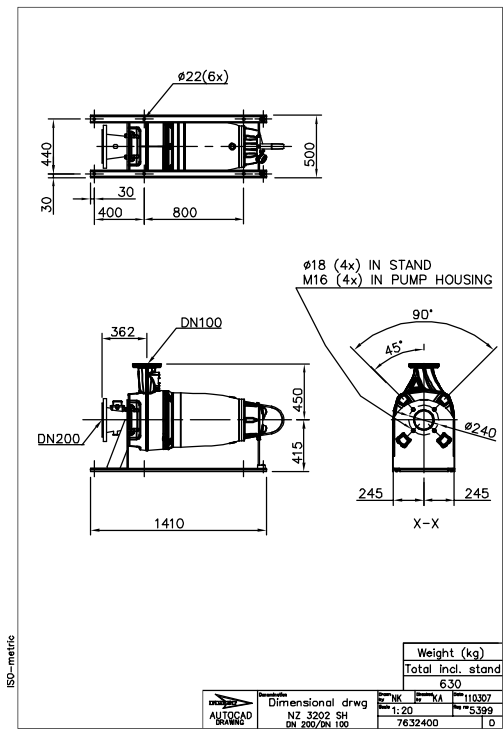


Figure 28: SH, Z-installation

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- 1) The tissue in plants that brings water upward from the roots
- 2) A leading global water technology company

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