



Flygt 3301, 50Hz



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N-pump, Standard Motor

Product description



Usage

A submersible pump for efficient pumping of clean water, surface water, and wastewater containing solids or long-fibered material. The pump is designed for sustained high efficiency. For abrasive media, Hard-Iron™ is required. Stainless steel N-impeller is available as an option.

Denomination

Type	Non-explosion proof version	Explosion proof version	Pressure class	Installation types
Cast iron	3301.180	3301.090	LT – Low head MT – Medium head HT – High head	P, S, T, Z
Hard-Iron™	3301.185	3301.095	LT – Low head MT – Medium head HT – High head	P, S, T, Z
Stainless steel	3301.660	3301.670	LT – Low head MT – Medium head HT – High 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)

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

Cables

Application	Type
Direct-on-line start or Y/D start with two cables	Flygt SUBCAB® - a heavy duty 4 cores motor power cable with two twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature. Cables < 10 mm ² with unscreened control cores.
Y/D start	Flygt SUBCAB® - a heavy duty 7 cores motor power cable with two twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature. Cables < 7G6 mm ² with unscreened control cores.
Variable Frequency drive	Screened Flygt SUBCAB® - a heavy duty 4 screened cores motor power cable with four twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature.

Monitoring equipment

- Thermal contacts opening temperature 140° C (284° F)
- Leakage sensor in the inspection chamber (FLS 10)

Materials

Table 1: Major parts except mechanical seals

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)
Impeller, alternative 3	Stainless steel, Duplex	CD-4MCuN	10283:2010 -1.4474
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
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	Heat transfer fluid based on monopropylene glycol.	-	-

Table 2: Mechanical 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 M0700.00.0002	Navy gray color NCS 5804-B07G. Two-component high-solid top coating, see internal standard M0700.00.0004 for standard painting and M0700.00.0008 for special painting.

Options

- Warm liquid version (non-explosion proof versions)
- Sensors: Thermistor, FLS, PT 100, VIS 10
- Pump memory
- Surface treatment (Epoxy)
- Zinc anodes
- Other cables

Accessories

Discharge connections, adapters, hose connections, and other mechanical accessories.

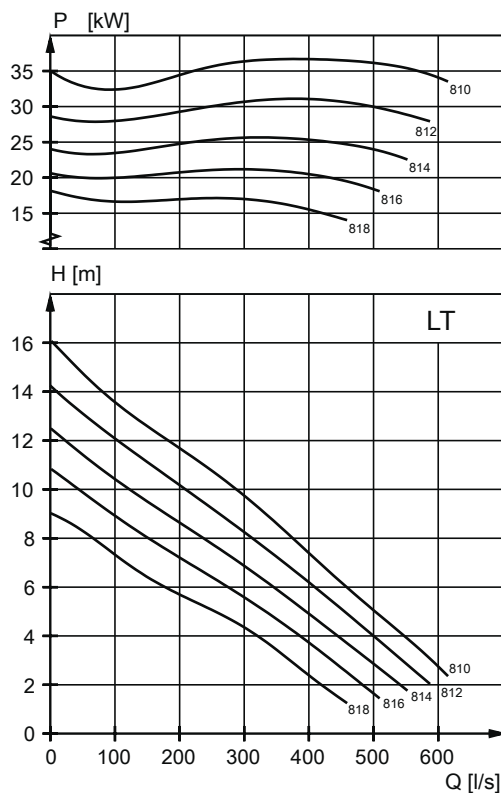
Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables.

Motor rating and performance curves 3301.090/.095/.180/.185

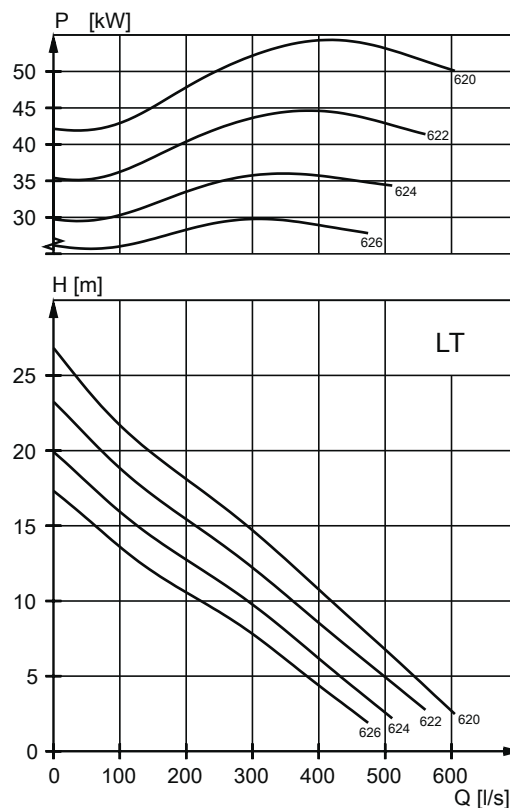
These are examples of motor rating and curves. For more information, please contact your local sales and service representative.

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

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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 φ	Installation
37	50	810	735	80	425	0.74	P,T,Z
37	50	812	735	80	425	0.74	P,T,Z
37	50	814	735	80	425	0.74	P,T,Z
37	50	816	735	80	425	0.74	P,T,Z
37	50	818	735	80	425	0.74	P,T,Z
45	60	622	985	93	545	0.78	P,S,T,Z
45	60	624	985	93	545	0.78	P,S,T,Z
45	60	626	985	93	545	0.78	P,S,T,Z
55	74	620	985	113	660	0.78	P,S,T,Z
55	74	622	985	113	660	0.78	P,S,T,Z
55	74	624	985	113	660	0.78	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
55	74	626	985	113	660	0.78	P,S,T,Z

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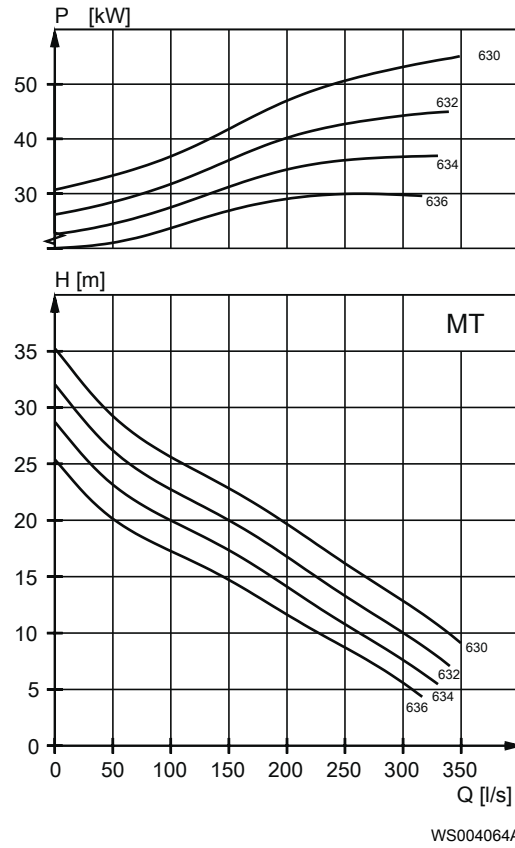
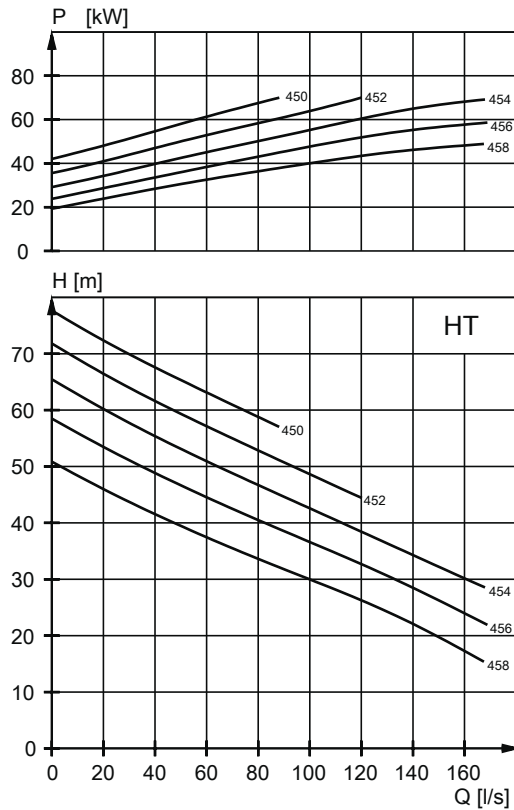


Table 4: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
45	60	632	985	93	545	0.78	P,S,T,Z
45	60	634	985	93	545	0.78	P,S,T,Z
45	60	636	985	93	545	0.78	P,S,T,Z
55	74	630	985	113	660	0.78	P,S,T,Z
55	74	632	985	113	660	0.78	P,S,T,Z
55	74	634	985	113	660	0.78	P,S,T,Z
55	74	636	985	113	660	0.78	P,S,T,Z

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Table 5: 400 V, 50 Hz, 3-phase

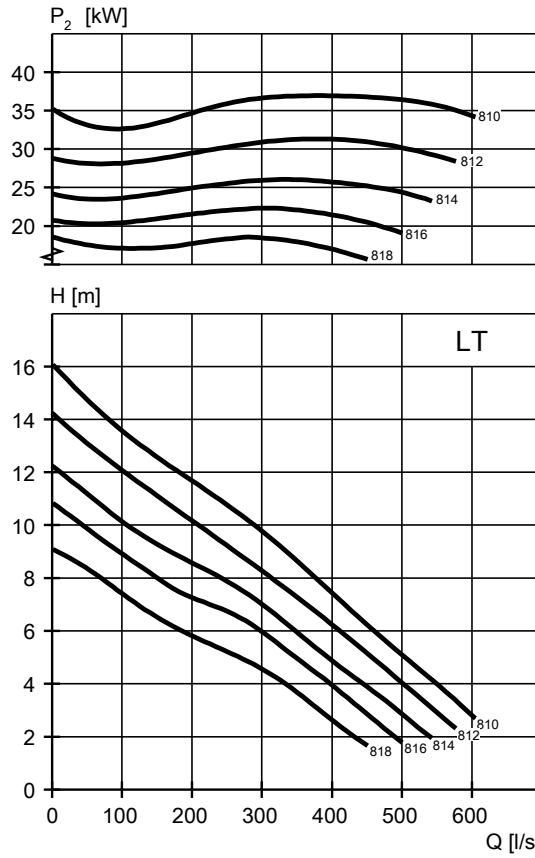
Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
55	74	452	1475	103	490	0.84	P,S,T,Z
55	74	454	1475	103	490	0.84	P,S,T,Z
55	74	456	1475	103	490	0.84	P,S,T,Z
55	74	458	1475	103	490	0.84	P,S,T,Z
70	94	450	1475	132	565	0.83	P,S,T,Z
70	94	452	1475	132	565	0.83	P,S,T,Z
70	94	454	1475	132	565	0.83	P,S,T,Z
70	94	456	1475	132	565	0.83	P,S,T,Z
70	94	458	1475	132	565	0.83	P,S,T,Z

Motor rating and performance curves 3301.660/.670

These are examples of motor rating and curves. For more information, please contact your local sales and service representative.

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

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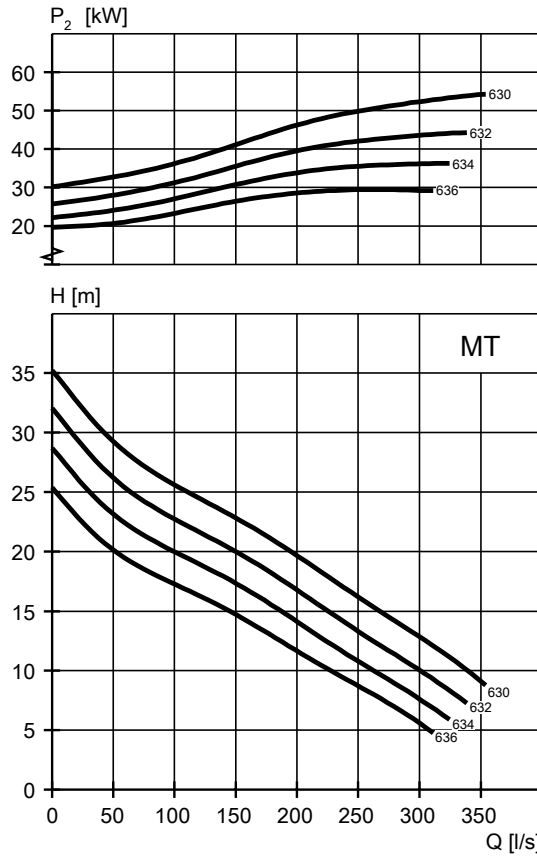


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Table 6: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
37	50	810	735	80	425	0.74	P,S,T,Z
37	50	812	735	80	425	0.74	P,S,T,Z
37	50	814	735	80	425	0.74	P,S,T,Z
37	50	816	735	80	425	0.74	P,S,T,Z
37	50	818	735	80	425	0.74	P,S,T,Z

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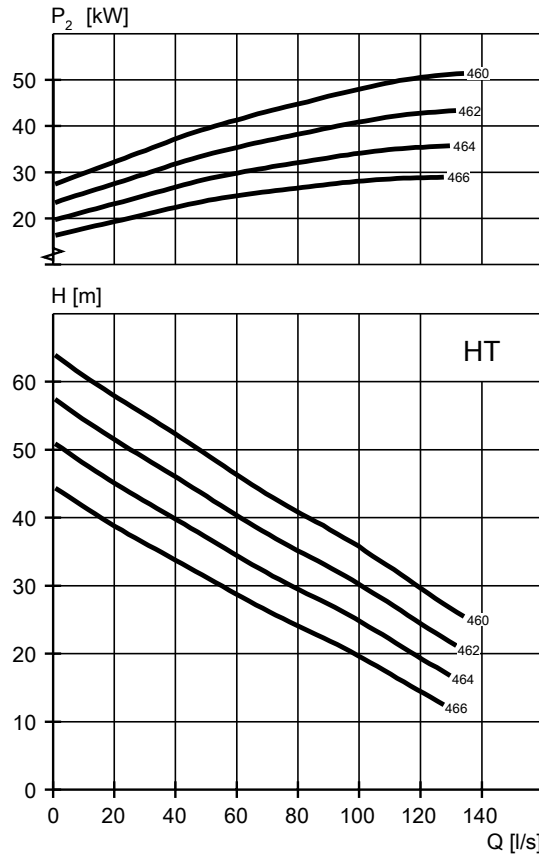


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Table 7: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos ϕ	Installation
45	60	632	985	93	545	0.78	P,S,T,Z
45	60	634	985	93	545	0.78	P,S,T,Z
45	60	636	985	93	545	0.78	P,S,T,Z
55	74	630	985	113	660	0.78	P,S,T,Z
55	74	632	985	113	660	0.78	P,S,T,Z
55	74	634	985	113	660	0.78	P,S,T,Z
55	74	636	985	113	660	0.78	P,S,T,Z

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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
55	74	460	1475	98	520	0.88	P,S,T,Z
55	74	462	1475	98	520	0.88	P,S,T,Z
55	74	464	1475	98	520	0.88	P,S,T,Z
55	74	466	1475	98	520	0.88	P,S,T,Z
70	94	460	1475	132	565	0.83	P,S,T,Z
70	94	462	1475	132	565	0.83	P,S,T,Z
70	94	464	1475	132	565	0.83	P,S,T,Z
70	94	466	1475	132	565	0.83	P,S,T,Z

N-pump, Premium Efficiency Motor (IE3)

Product description



Usage

A submersible pump for efficient pumping of clean water, surface water, and wastewater containing solids or long-fibered material. The pump is designed for sustained high efficiency. For abrasive media, Hard-Iron™ is required. Stainless steel N-impeller is available as an option.

Denomination

Type	Non-explosion proof version	Explosion proof version	Pressure class	Installation types
Cast iron	3301.800	3301.810	LT – Low head MT – Medium head HT – High head	P, S, T, Z
Hard-Iron™	3301.820	3301.830	LT – Low head MT – Medium head HT – High head	P, S, T, Z
Stainless steel	3301.860	3301.870	MT – Medium head HT – High 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)
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
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> • Continuously running: Maximum $\pm 5\%$ • Intermittent running: Maximum $\pm 10\%$
Voltage imbalance between phases	Maximum 2%
Stator insulation class	H (180°C, 356°F)

Cables

Application	Type
Direct-on-line start or Y/D start with two cables	Flygt SUBCAB® - a heavy duty 4 cores motor power cable with two twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature. Cables < 10 mm ² with unscreened control cores.
Y/D start	Flygt SUBCAB® - a heavy duty 7 cores motor power cable with two twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature. Cables < 7G6 mm ² with unscreened control cores.
Variable Frequency drive	Screened Flygt SUBCAB® - a heavy duty 4 screened cores motor power cable with four twisted pair screened control cores. Conductor insulation rating of 90°C, which allows for increased current. Superior mechanical strength and high abrasion and tear resistant. Chemical resistant within pH 3-10 and ozone, oil, and flame resistant. Used up to 70°C water temperature.

Monitoring equipment

- Thermal contacts opening temperature 140° C (284° F)
- Leakage sensor in the inspection chamber (FLS 10)

Materials

Table 9: Major parts except mechanical seals

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)
Impeller, alternative 3	Stainless steel, Duplex	CD-4MCuN	10283:2010 -1.4474
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
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	Heat transfer fluid based on monopropylene glycol.	-	-

Table 10: Mechanical 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 M0700.00.0002	Navy gray color NCS 5804-B07G. Two-component high-solid top coating, see internal standard M0700.00.0004 for standard painting and M0700.00.0008 for special painting.

Options

- Sensors: Thermistor, FLS, PT 100, VIS 10
- Pump memory
- Surface treatment (Epoxy)
- Zinc anodes
- Other cables

Accessories

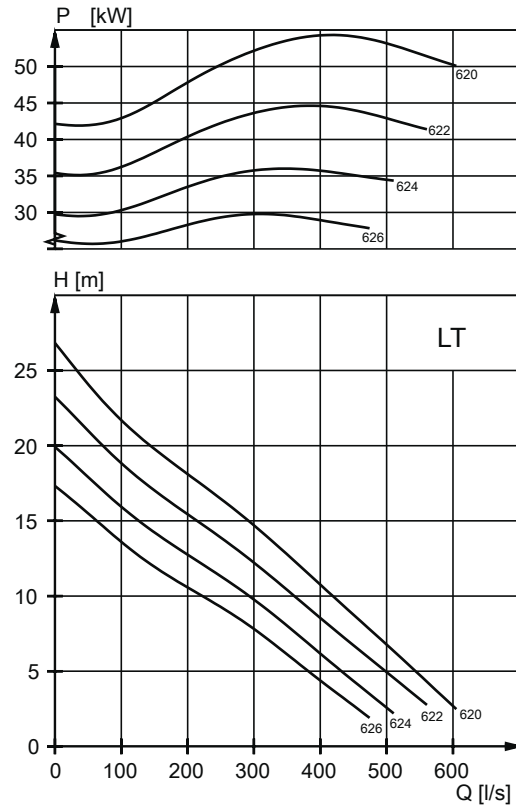
Discharge connections, adapters, hose connections, and other mechanical accessories.
 Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables.

Motor rating and performance curves 3301.800/.810/.820/.830

These are examples of motor rating and curves. For more information, please contact your local sales and service representative.

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

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Table 11: 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
45	60	622	985	83	600	0.84	P,S,T,Z
45	60	624	985	83	600	0.84	P,S,T,Z
45	60	626	985	83	600	0.84	P,S,T,Z
55	74	620	990	100	735	0.79	P,S,T,Z
55	74	622	990	100	735	0.79	P,S,T,Z
55	74	624	990	100	735	0.79	P,S,T,Z
55	74	626	990	100	735	0.79	P,S,T,Z

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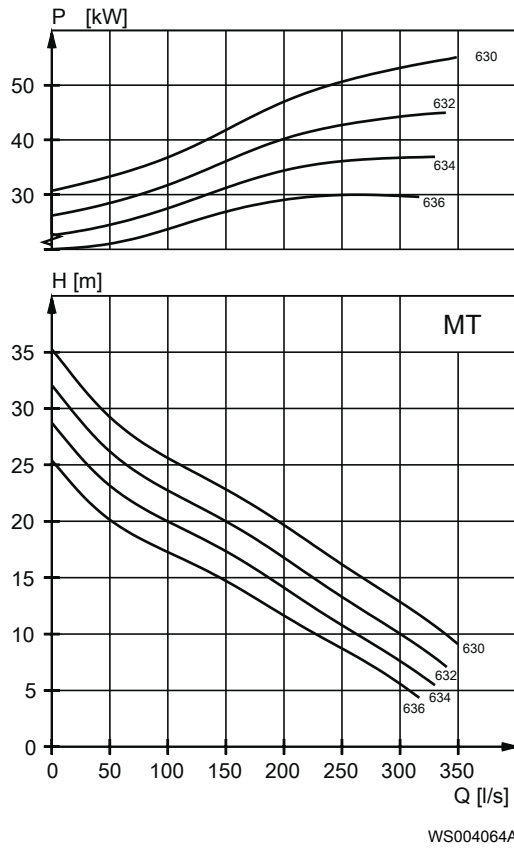
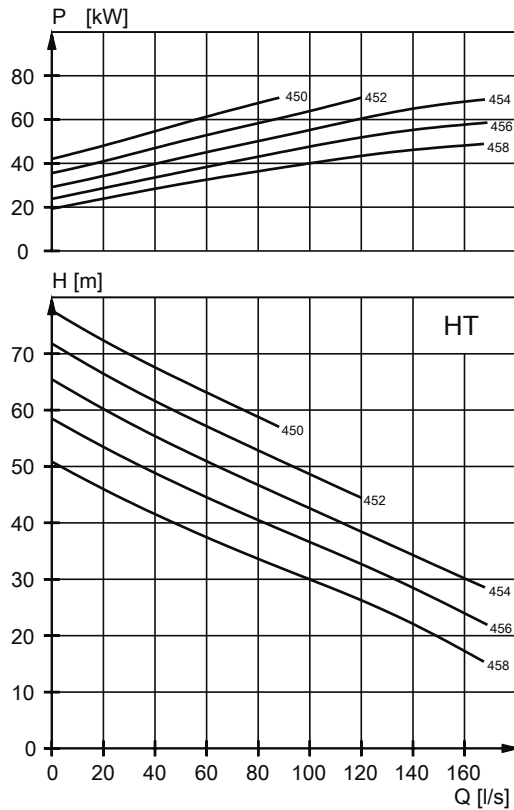


Table 12: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
45	60	632	985	83	600	0.84	P,S,T,Z
45	60	634	985	83	600	0.84	P,S,T,Z
45	60	636	985	83	600	0.84	P,S,T,Z
55	74	630	990	100	735	0.79	P,S,T,Z
55	74	632	990	100	735	0.79	P,S,T,Z
55	74	634	990	100	735	0.79	P,S,T,Z
55	74	636	990	100	735	0.79	P,S,T,Z

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Table 13: 400 V, 50 Hz, 3-phase

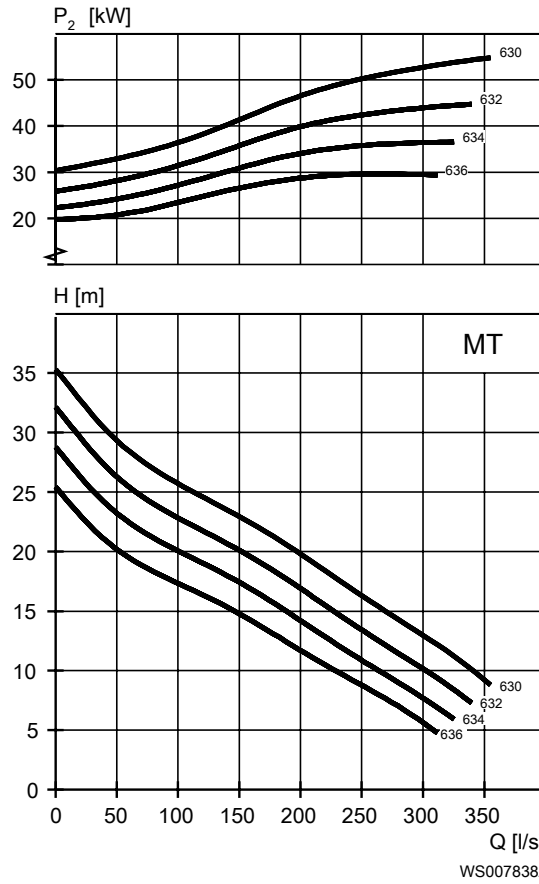
Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
55	74	452	1485	97	640	0.86	P,S,T,Z
55	74	454	1485	97	640	0.86	P,S,T,Z
55	74	456	1485	97	640	0.86	P,S,T,Z
55	74	458	1485	97	640	0.86	P,S,T,Z
70	94	450	1485	123	900	0.86	P,S,T,Z
70	94	452	1485	123	900	0.86	P,S,T,Z
70	94	454	1485	123	900	0.86	P,S,T,Z
70	94	456	1485	123	900	0.86	P,S,T,Z
70	94	458	1485	123	900	0.86	P,S,T,Z

Motor rating and performance curves 3301.860/.870

These are examples of motor rating and curves. For more information, please contact your local sales and service representative.

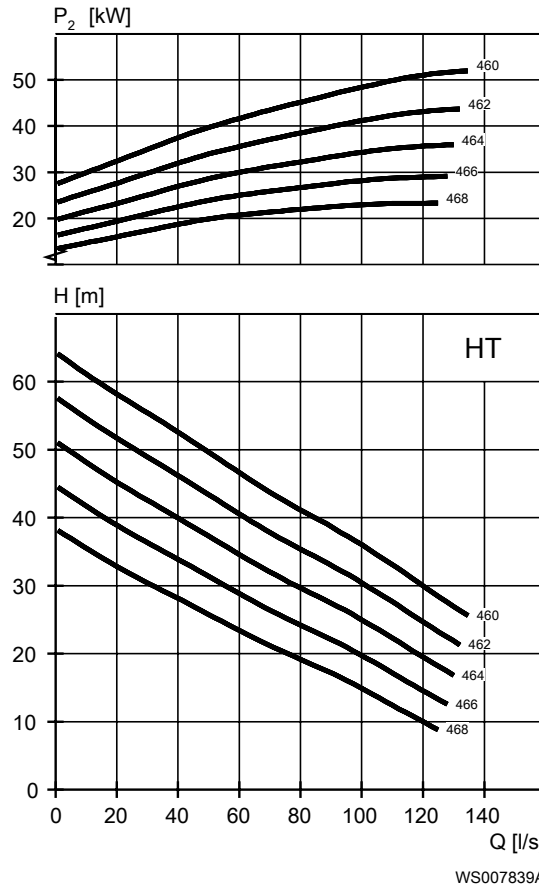
Star-delta starting current is 1/3 of Direct on-line starting current.

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Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Start current, A	Power factor, $\cos \varphi$	Installation
45	60	632	985	83	600	0.84	P,S
45	60	634	985	83	600	0.84	P,S
45	60	636	985	83	600	0.84	P,S
55	74	630	985	100	735	0.85	P,S
55	74	632	985	100	735	0.85	P,S
55	74	634	985	100	735	0.85	P,S
55	74	636	985	100	735	0.85	P,S

HT



Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Start current, A	Power factor, cos φ	Installation
55	74	460	1485	97	675	0.87	P,S
55	74	462	1485	97	675	0.87	P,S
55	74	464	1485	97	675	0.87	P,S
55	74	466	1485	97	675	0.87	P,S
55	74	468	1485	97	675	0.87	P,S
70	94	460	1485	132	905	0.8	P,S
70	94	462	1485	132	905	0.8	P,S
70	94	464	1485	132	905	0.8	P,S
70	94	466	1485	132	905	0.8	P,S
70	94	468	1485	132	905	0.8	P,S

Dimensions and Weight, Standard Motor

Drawings

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

All dimensions are in mm.

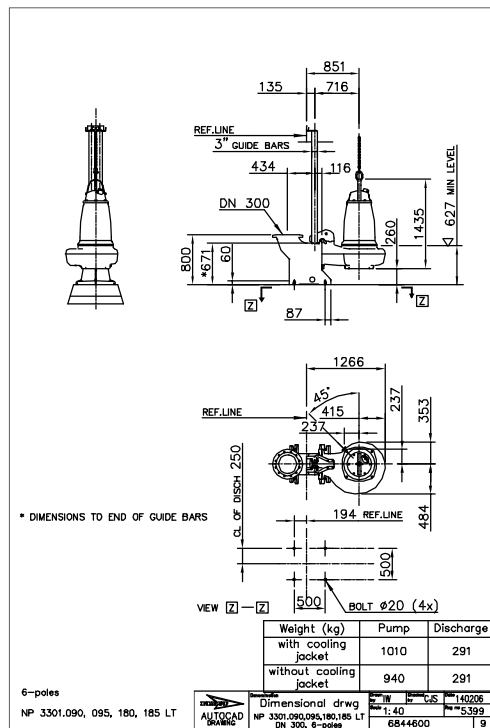


Figure 1: LT, P-installation

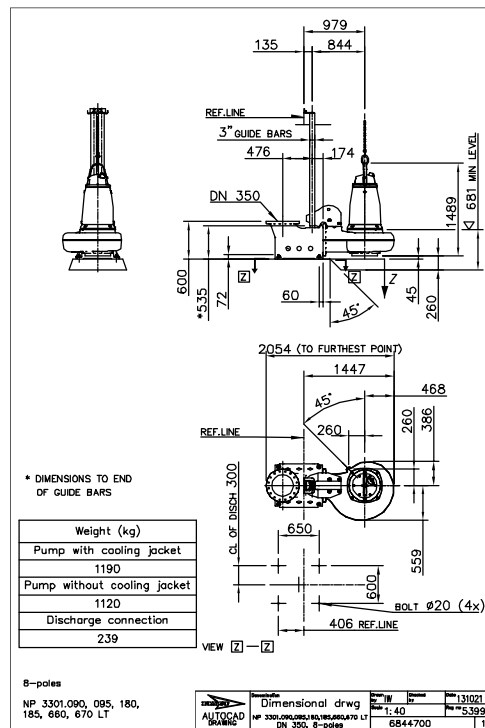


Figure 2: LT, P-installation

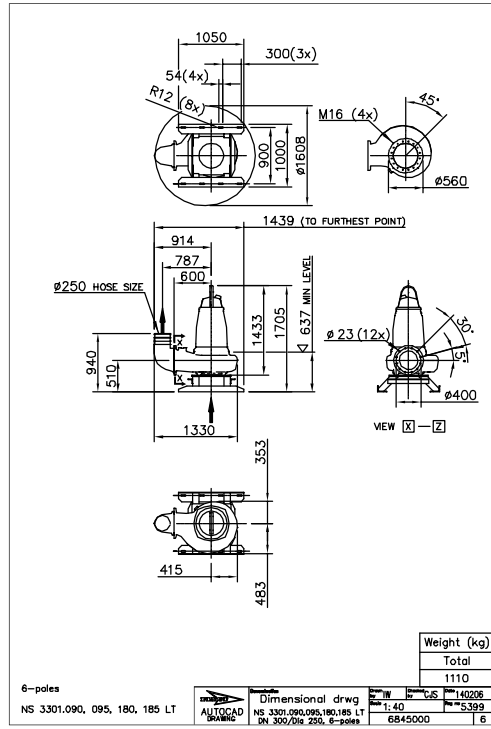


Figure 3: LT, S-installation

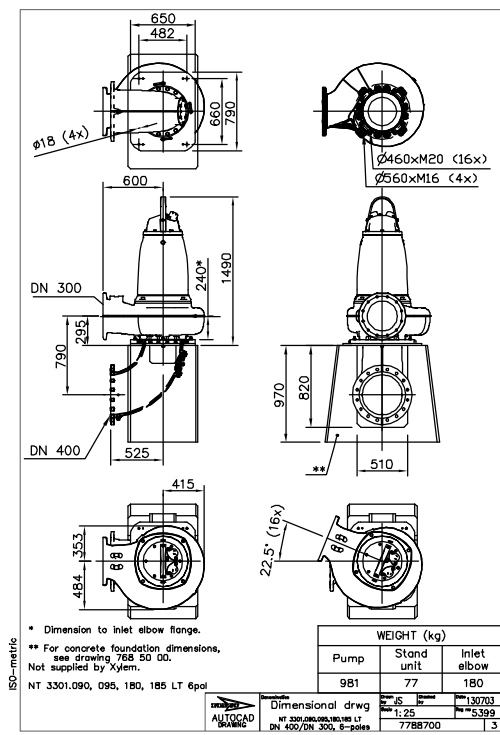


Figure 4: LT, T-installation

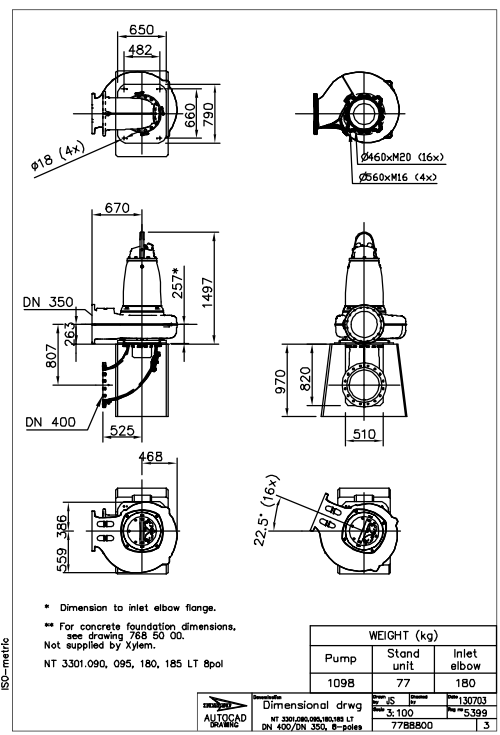


Figure 5: LT, T-installation

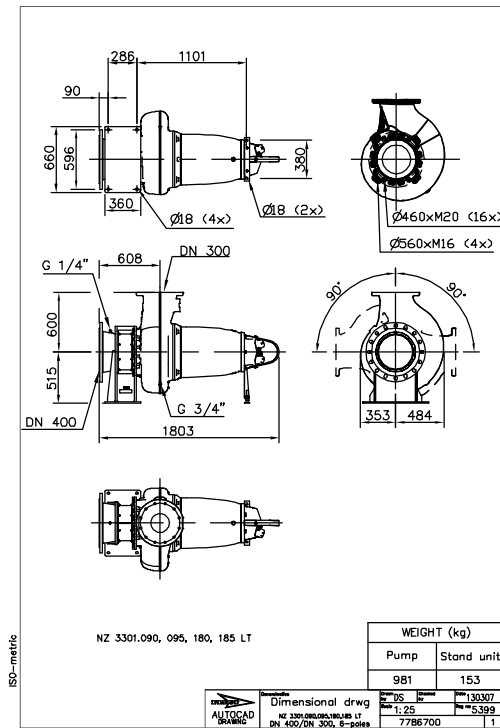


Figure 6: LT, Z-installation

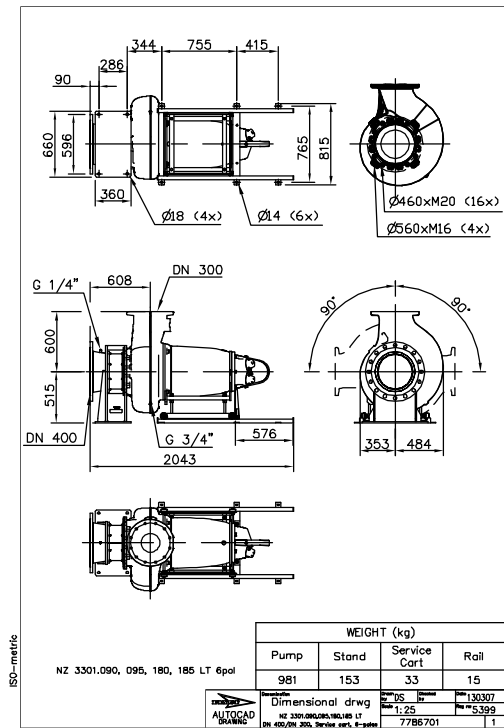


Figure 7: LT, Z-installation

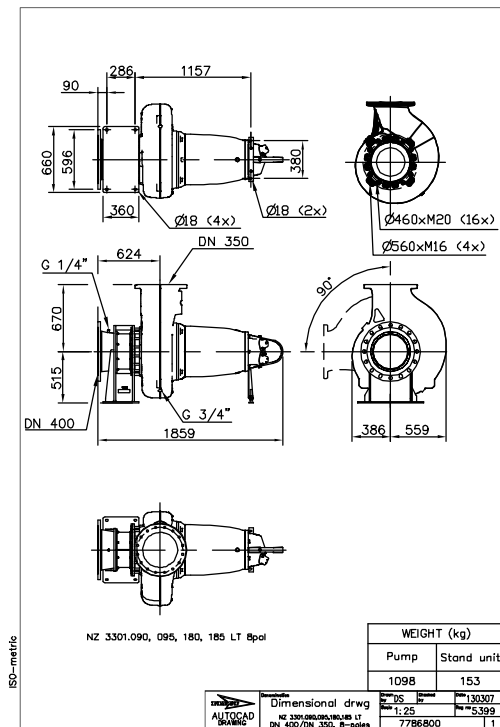


Figure 8: LT, Z-installation

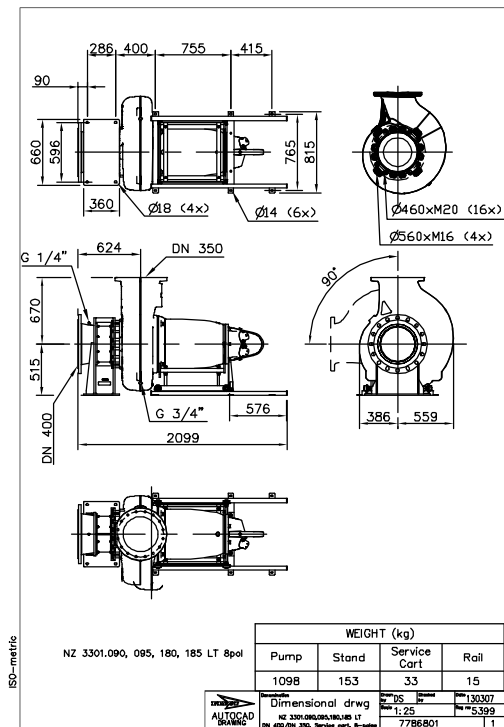


Figure 9: LT, Z-installation

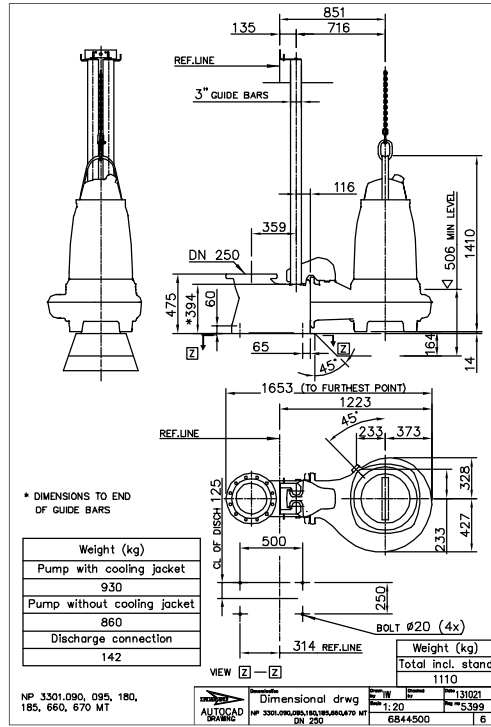


Figure 10: MT, P-installation

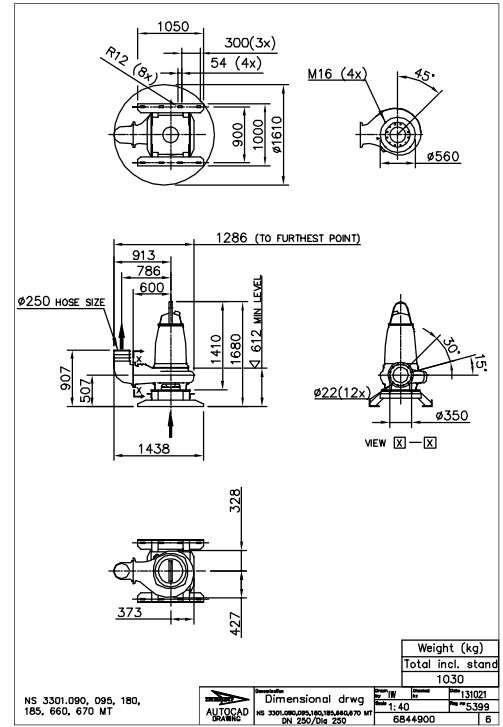


Figure 11: MT, S-installation

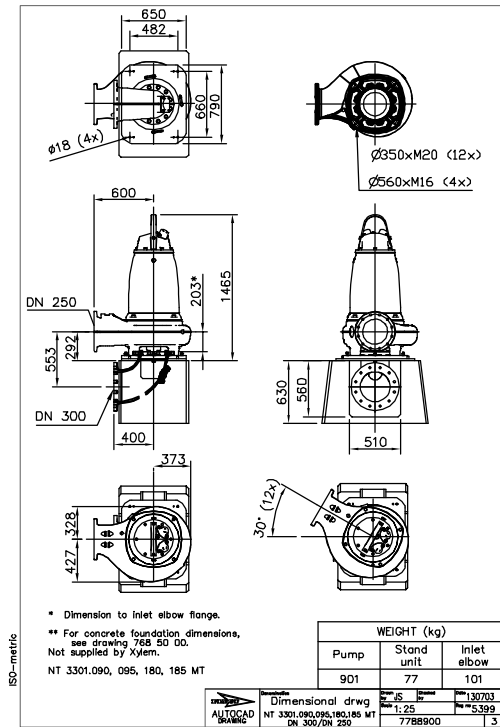


Figure 12: MT, T-installation

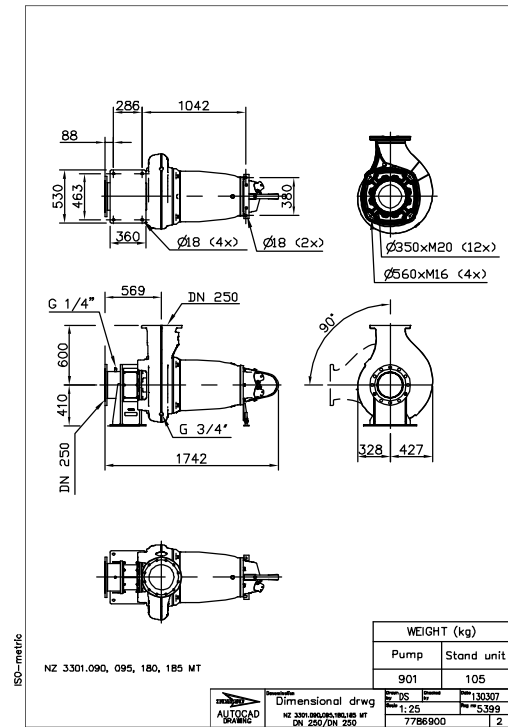


Figure 13: MT, Z-installation

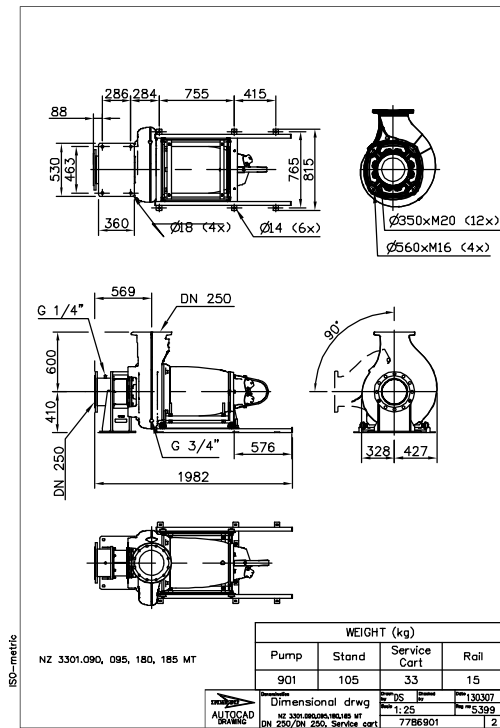


Figure 14: MT, Z-installation

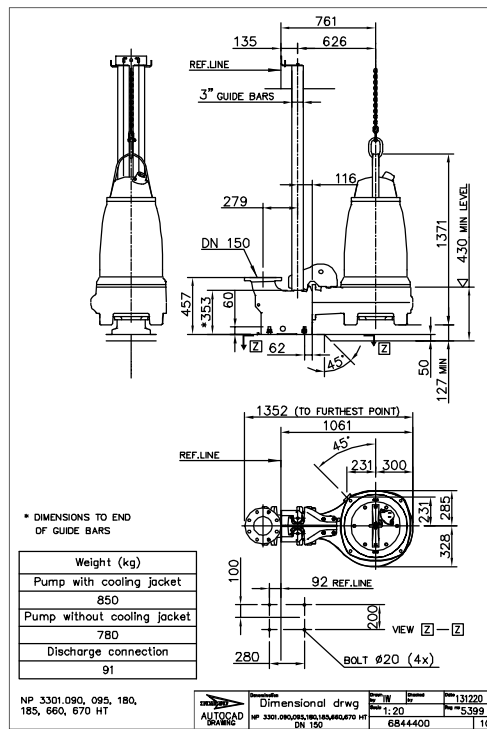


Figure 15: HT, P-installation

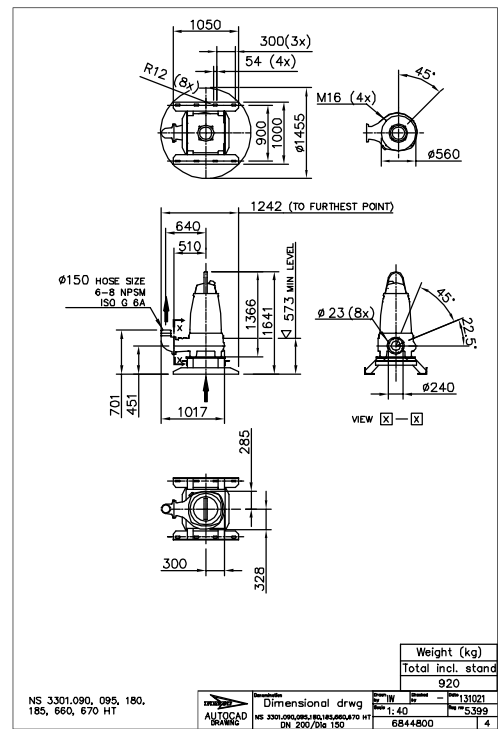


Figure 16: HT, S-installation

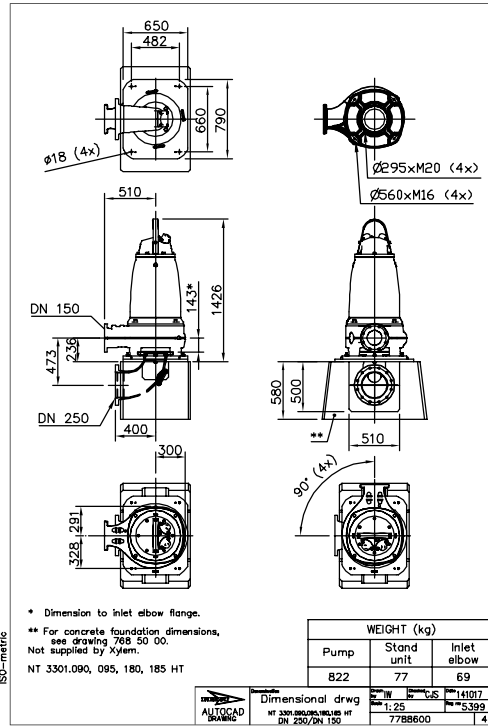


Figure 17: HT, T-installation

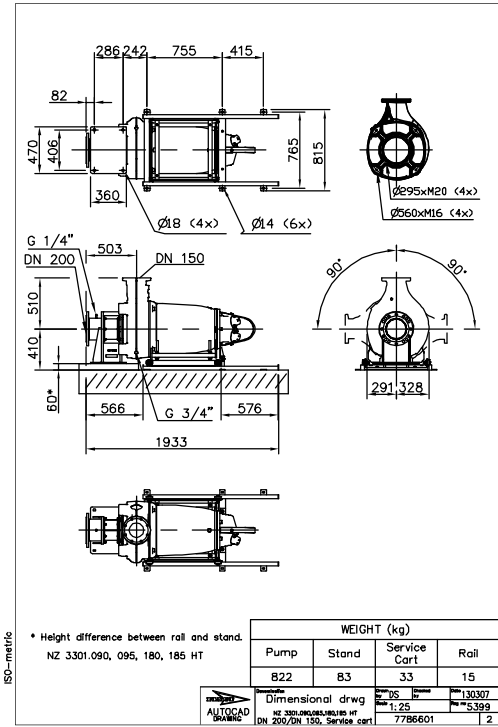


Figure 18: HT, Z-installation

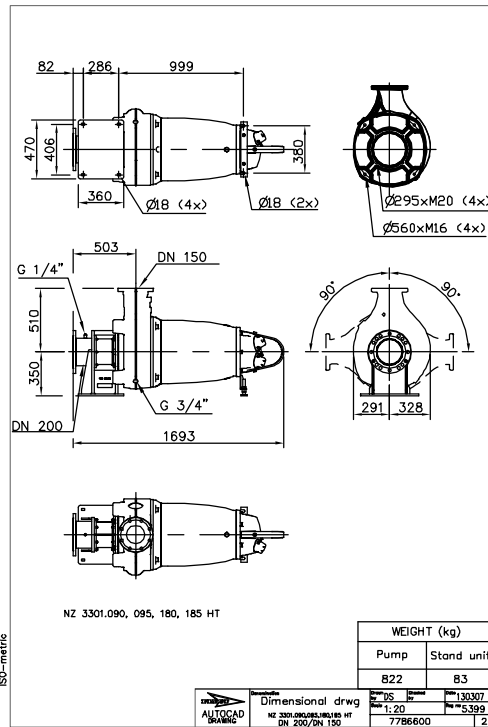


Figure 19: HT, Z-installation

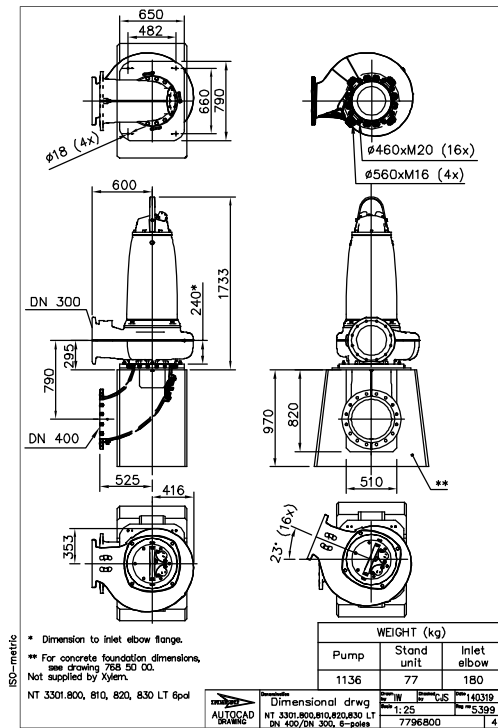


Figure 22: LT, T-installation

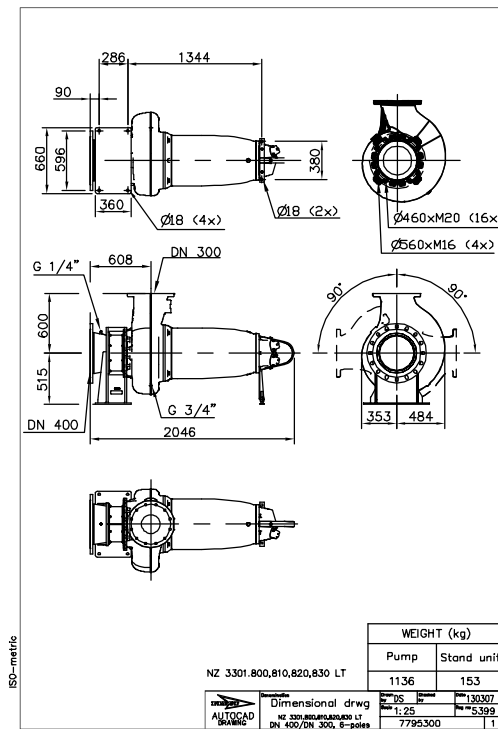


Figure 23: LT, Z-installation

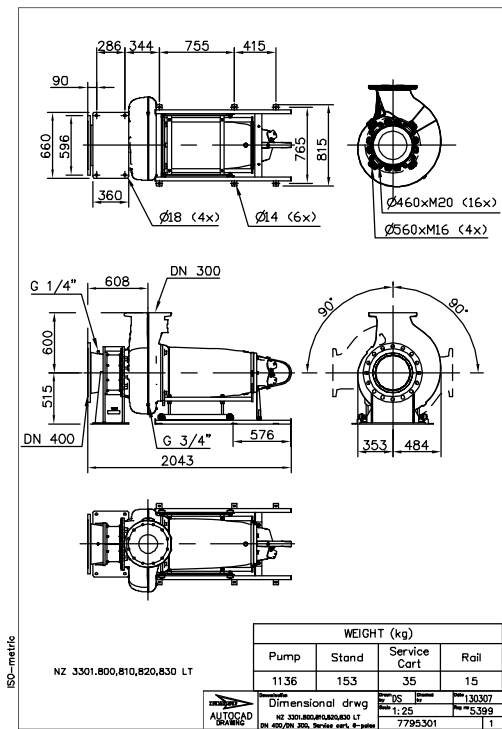


Figure 24: LT, Z-installation

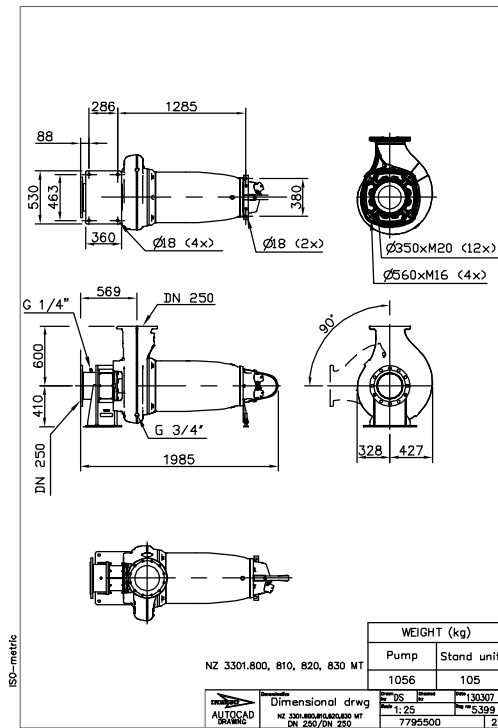


Figure 29: MT, Z-installation

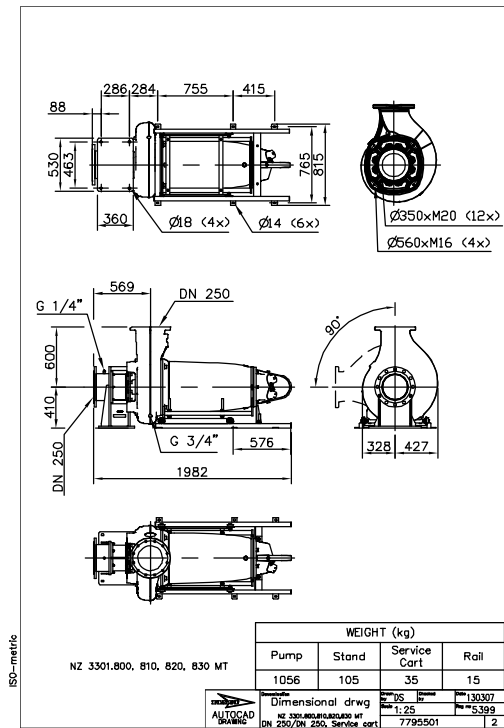


Figure 30: MT, Z-installation

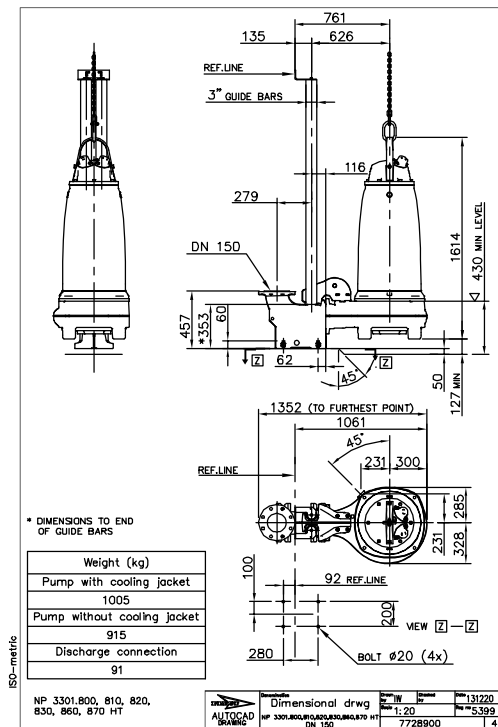


Figure 31: HT, P-installation

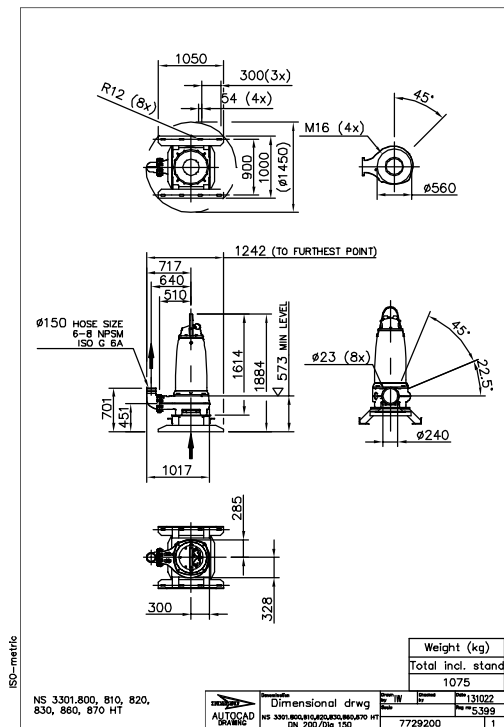


Figure 32: HT, S-installation

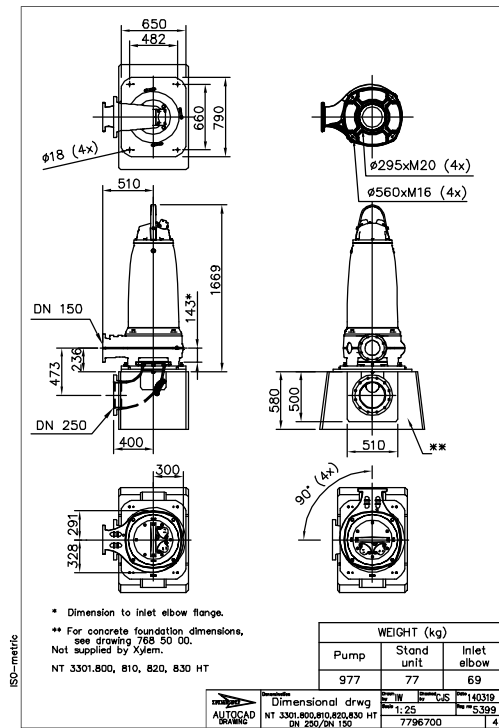


Figure 33: HT, T-installation

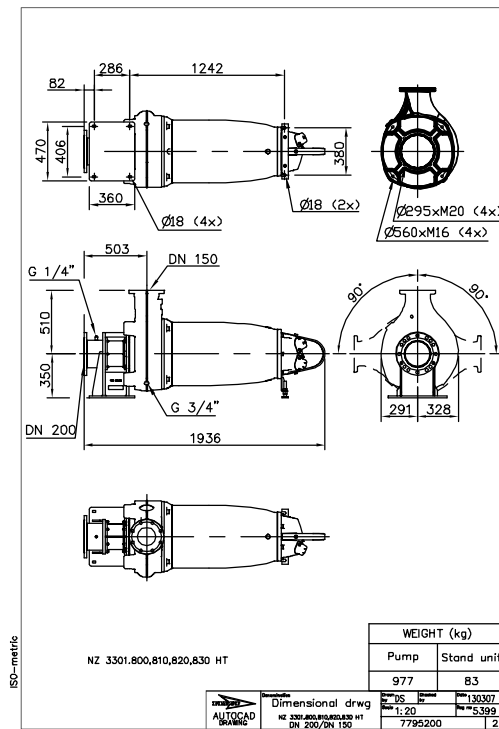


Figure 34: HT, Z-installation

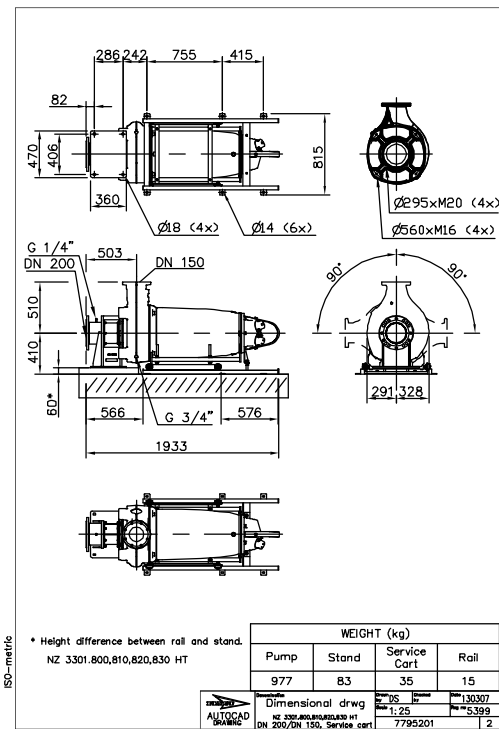


Figure 35: HT, Z-installation