



Flygt 3171, 50Hz

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FLYGT
a xylem brand

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F-pump, Standard Motor

Product description



Usage

A submersible chopper pump for liquid manure, fish waste, or heavily contaminated sewage and sludge. The N-hydraulic is fitted with a cutting insert ring. Both impeller and insert ring are manufactured in Hard-Iron™.

Denomination

| Type | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|-----------------------|-----------------------------|-------------------------|---|--------------------|
| Hard-Iron™ Chopper | 3171.350 | 3171.390 | MT – Medium head HT – High head SH – Super head | P, S, T, Z |

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 |
| 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 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 | Cast iron, Hard-Iron™ | A 532 IIIA | GJN-HB555(XCR23) |

| Denomination | Material | ASTM | EN |
|--------------------------------------|--|-----------------------|--------------------|
| 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 | - | - |
| 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
- Surface treatment (Epoxy)
- Zinc anodes
- Other cables

Accessories

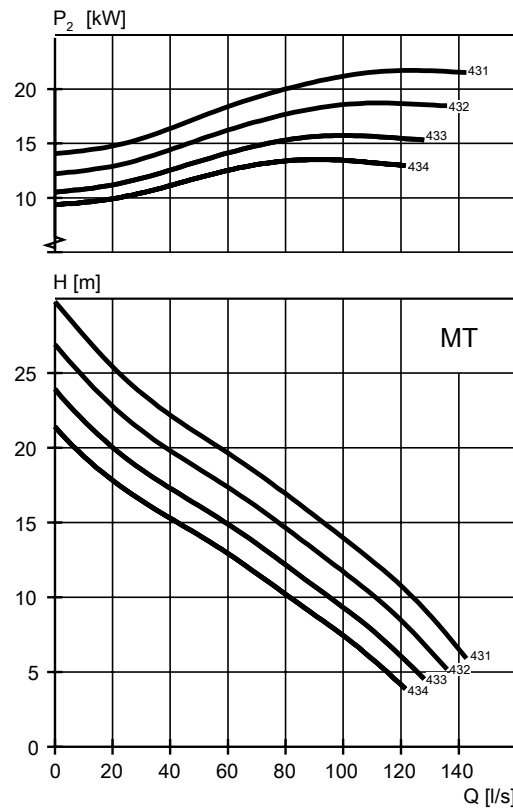
Discharge connections, adapters, hose connections, and other mechanical accessories. Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables.

Motor rating and performance curves

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.

MT



WS005115C

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 |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 15 | 20 | 434 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 18.5 | 25 | 433 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 434 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 22 | 30 | 431 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 432 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 433 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 434 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |

HT

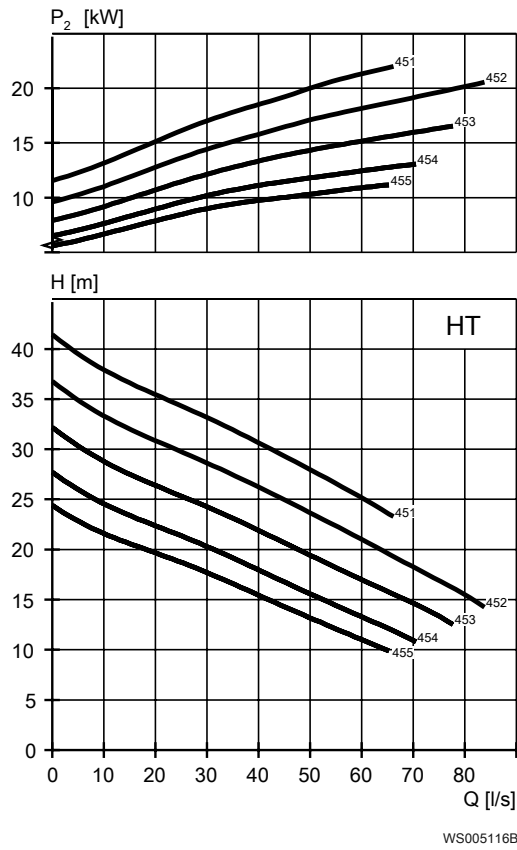


Table 4: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 454 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 455 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 18.5 | 25 | 453 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 454 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 455 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 22 | 30 | 451 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 452 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 453 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 454 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 455 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |

SH

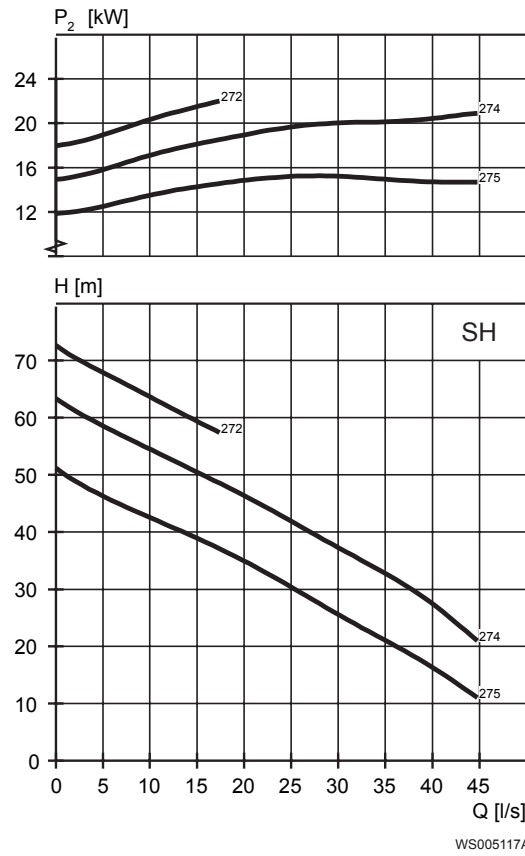


Table 5: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 22 | 30 | 272 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |
| 22 | 30 | 274 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |
| 22 | 30 | 275 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |

F-pump, Premium Efficiency Motor (IE3)

Product description



Usage

A submersible chopper pump for liquid manure, fish waste, or heavily contaminated sewage and sludge. The N-hydraulic is fitted with a cutting insert ring. Both impeller and insert ring are manufactured in Hard-Iron™.

Denomination

| Type | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|-----------------------|-----------------------------|-------------------------|---|--------------------|
| Hard-Iron™ Chopper | 3171.840 | 3171.850 | MT – Medium head HT – High head SH – Super head | P, S, T, Z |

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 6: 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 | Cast iron, Hard-Iron™ | A 532 IIIA | GJN-HB555(XCR23) |

| Denomination | Material | ASTM | EN |
|------------------------|--|-----------------------|--------------------|
| Insert ring | Cast iron, Hard-Iron™ | A 532 IIIA | GJN-HB555(XCR23) |
| Cooling jacket, inner | Aluminum | AA 1050A | AW-1050A |
| Cooling jacket, outer | 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 7: 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
- 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

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.

MT

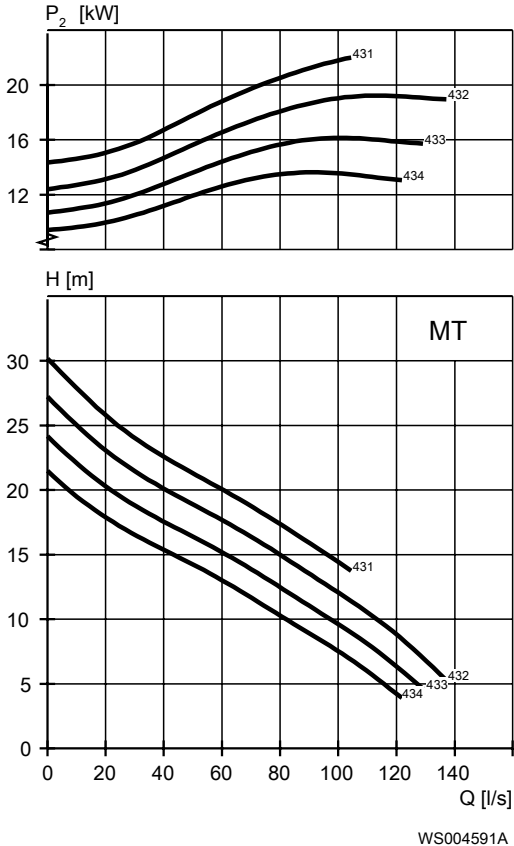


Table 8: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 433 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 434 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 18.5 | 25 | 432 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 433 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 434 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 22 | 30 | 431 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 432 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 433 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 434 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |

HT

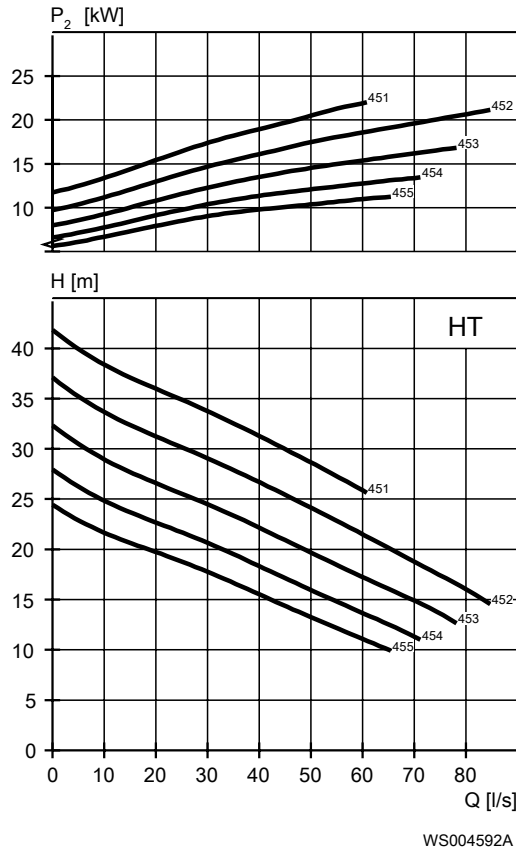


Table 9: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 453 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 454 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 455 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 18.5 | 25 | 452 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 453 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 454 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 455 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 22 | 30 | 451 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 452 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 453 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 454 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 455 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |

SH

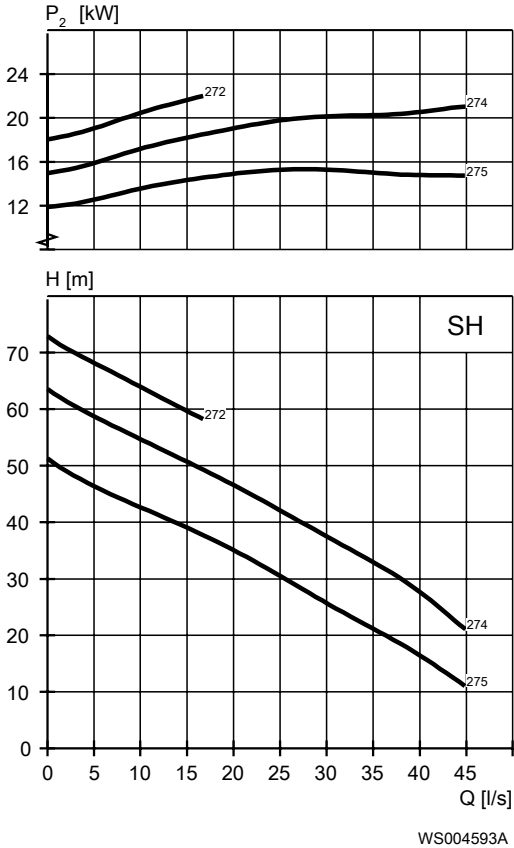


Table 10: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 22 | 30 | 272 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |
| 22 | 30 | 274 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |
| 22 | 30 | 275 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |

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 | 3171.181 | 3171.091 | LT – Low head MT – Medium head HT – High head SH – Super head | P, S, T, Z |
| Hard-Iron™ | 3171.185 | 3171.095 | LT – Low head MT – Medium head HT – High head SH – Super head | P, S, T, Z |
| Stainless steel | 3171.660 | 3171.670 | MT – Medium 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 $\pm 5\%$ • 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 11: 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 12: 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
- 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 3171.181/.091/.185/.095

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.

LT

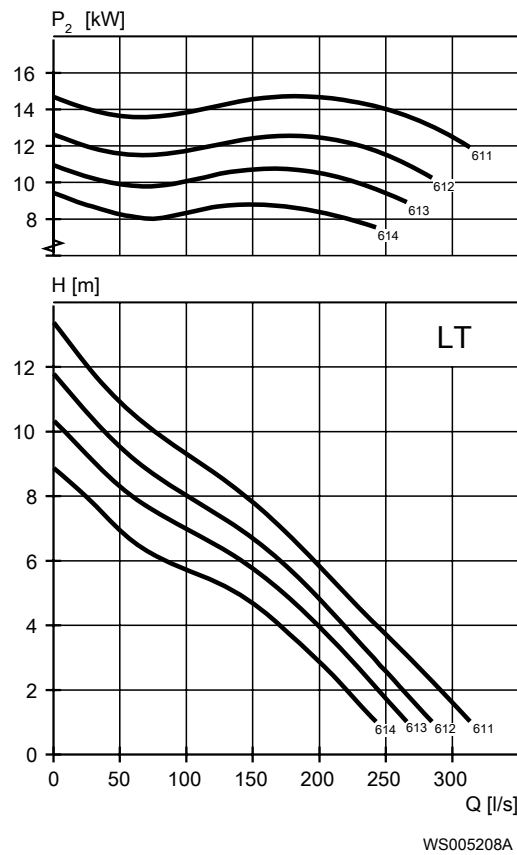


Table 13: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 15 | 20 | 611 | 965 | 30 | 167 | 0.84 | P,S,T,Z |
| 15 | 20 | 612 | 965 | 30 | 167 | 0.84 | P,S,T,Z |
| 15 | 20 | 613 | 965 | 30 | 167 | 0.84 | P,S,T,Z |
| 15 | 20 | 614 | 965 | 30 | 167 | 0.84 | P,S,T,Z |

MT

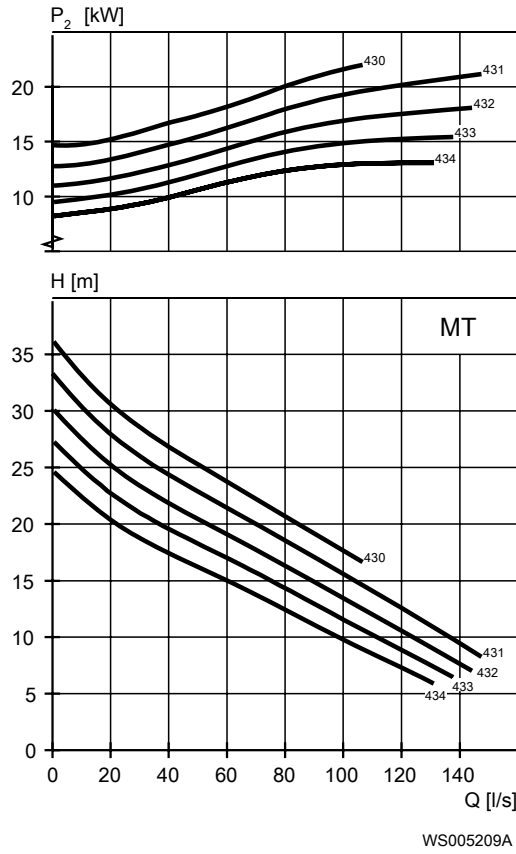


Table 14: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 433 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 434 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 18.5 | 25 | 432 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 433 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 434 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 22 | 30 | 430 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 431 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 432 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 433 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 434 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |

¹ Only applicable for 3171.181 and 3171.091

HT

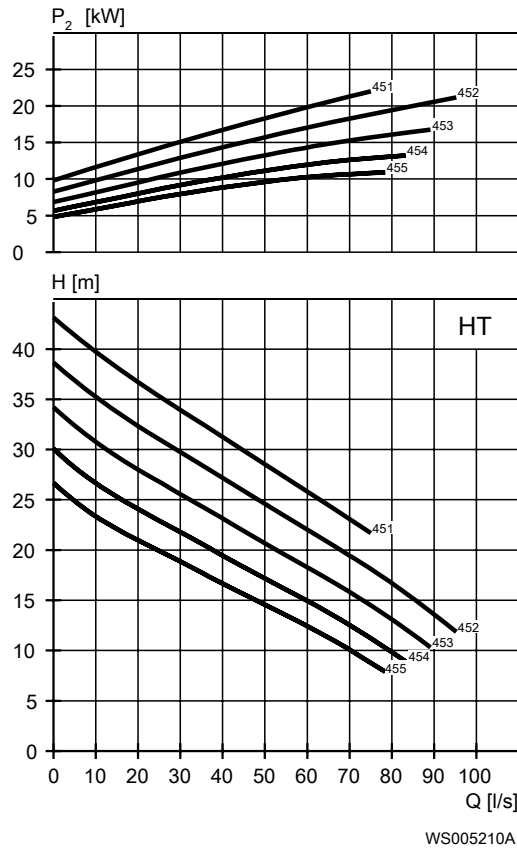


Table 15: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 451 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 452 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 453 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 454 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 15 | 20 | 455 | 1460 | 29 | 177 | 0.87 | P,S,T,Z |
| 18.5 | 25 | 451 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 452 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 453 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 454 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 18.5 | 25 | 455 | 1460 | 36 | 223 | 0.84 | P,S,T,Z |
| 22 | 30 | 451 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 452 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 453 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 454 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |
| 22 | 30 | 455 | 1460 | 41 | 248 | 0.88 | P,S,T,Z |

SH

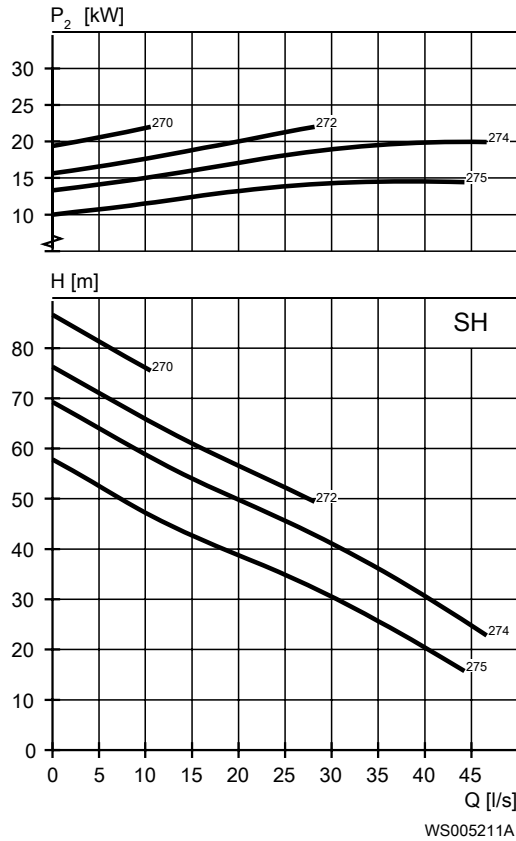


Table 16: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 22 | 30 | 270 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |
| 22 | 30 | 272 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |
| 22 | 30 | 274 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |
| 22 | 30 | 275 | 2925 | 38 | 269 | 0.93 | P,S,T,Z |

Motor rating and performance curves 3171.660/.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.

MT

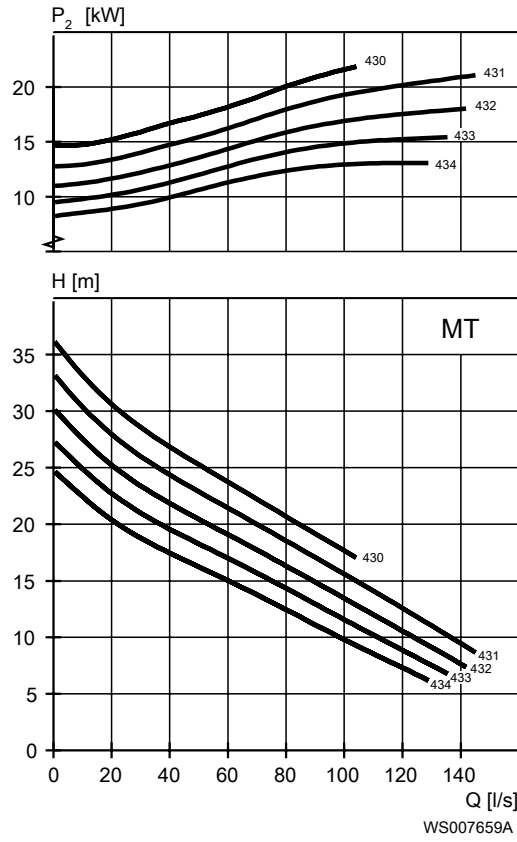


Table 17: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 15 | 20 | 434 | 1460 | 29 | 177 | 0.87 | P,S |
| 18.5 | 25 | 432 | 1460 | 36 | 223 | 0.86 | P,S |
| 18.5 | 25 | 433 | 1460 | 36 | 223 | 0.86 | P,S |
| 18.5 | 25 | 434 | 1460 | 36 | 223 | 0.86 | P,S |
| 22 | 30 | 430 | 1460 | 41 | 251 | 0.87 | P,S |
| 22 | 30 | 431 | 1460 | 41 | 251 | 0.87 | P,S |
| 22 | 30 | 432 | 1460 | 41 | 251 | 0.87 | P,S |
| 22 | 30 | 433 | 1460 | 41 | 251 | 0.87 | P,S |
| 22 | 30 | 434 | 1460 | 41 | 251 | 0.87 | P,S |

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 | 3171.800 | 3171.810 | LT – Low head MT – Medium head HT – High head SH – Super head | P, S, T, Z |
| Hard-Iron™ | 3171.820 | 3171.830 | LT – Low head MT – Medium head HT – High head SH – Super head | P, S, T, Z |
| Stainless steel | 3171.860 | 3171.870 | MT – Medium 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 18: 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 | 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 19: 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
- 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 3171.800/.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.

LT

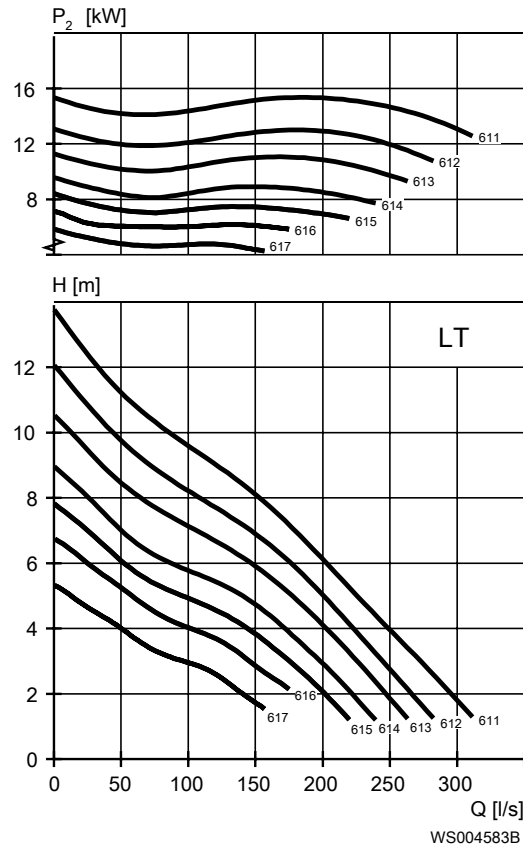


Table 20: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, $\cos \phi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------------|--------------|
| 10 | 13.4 | 614 | 985 | 19 | 151 | 0.83 | P,S,T,Z |
| 10 | 13.4 | 615 | 985 | 19 | 151 | 0.83 | P,S,T,Z |
| 10 | 13.4 | 616 | 985 | 19 | 151 | 0.83 | P,S,T,Z |
| 10 | 13.4 | 617 | 985 | 19 | 151 | 0.83 | P,S,T,Z |
| 15.5 | 21 | 611 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 612 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 613 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 614 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 615 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 616 | 980 | 30 | 201 | 0.81 | P,S,T,Z |
| 15.5 | 21 | 617 | 980 | 30 | 201 | 0.81 | P,S,T,Z |

MT

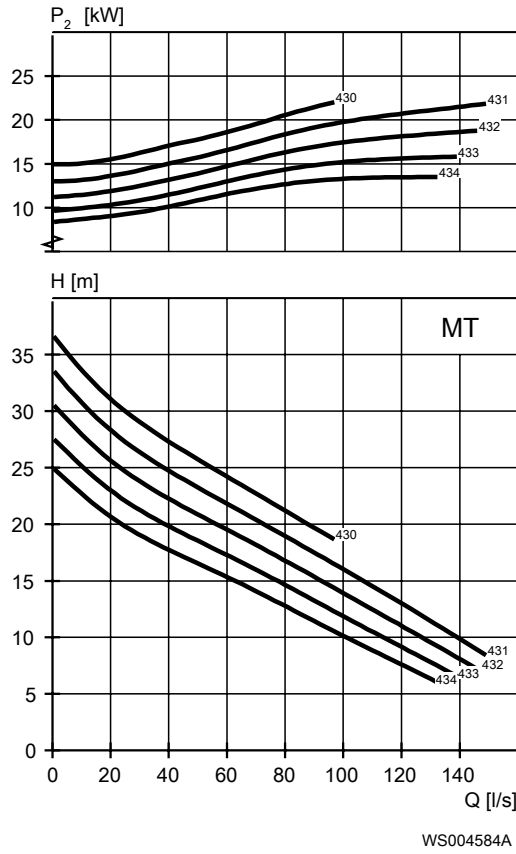


Table 21: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 432 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 433 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 434 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 18.5 | 25 | 431 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 432 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 433 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 434 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 22 | 30 | 430 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 431 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 432 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 433 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 434 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |

² Only applicable for 3171.800 and 3171.810

HT

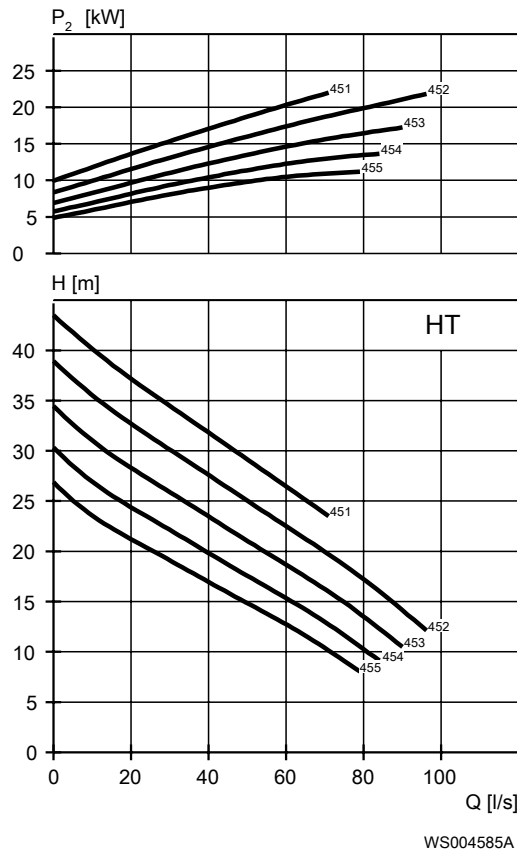


Table 22: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 15 | 20 | 451 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 452 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 453 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 454 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 15 | 20 | 455 | 1475 | 26 | 214 | 0.89 | P,S,T,Z |
| 18.5 | 25 | 451 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 452 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 453 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 454 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 18.5 | 25 | 455 | 1475 | 32 | 246 | 0.9 | P,S,T,Z |
| 22 | 30 | 451 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 452 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 453 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 454 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |
| 22 | 30 | 455 | 1475 | 40 | 295 | 0.86 | P,S,T,Z |

SH

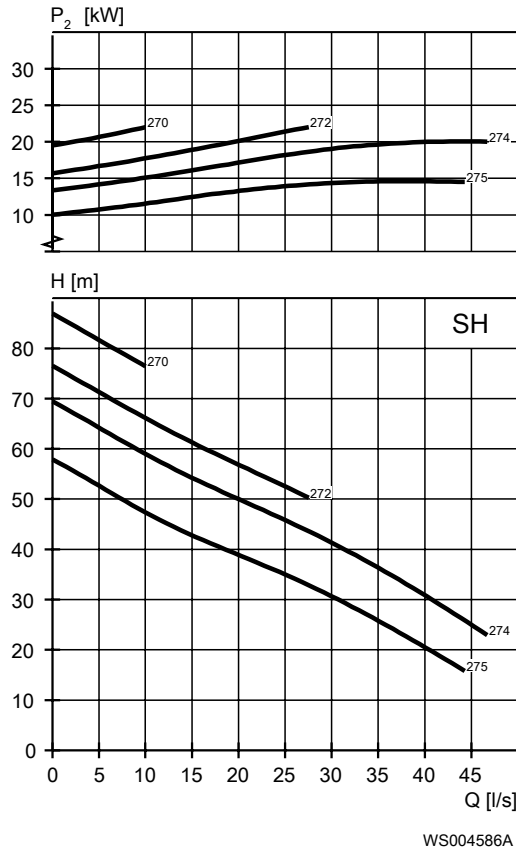


Table 23: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 22 | 30 | 270 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |
| 22 | 30 | 272 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |
| 22 | 30 | 274 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |
| 22 | 30 | 275 | 2935 | 37 | 297 | 0.93 | P,S,T,Z |

Motor rating and performance curves 3171.860/.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.

MT

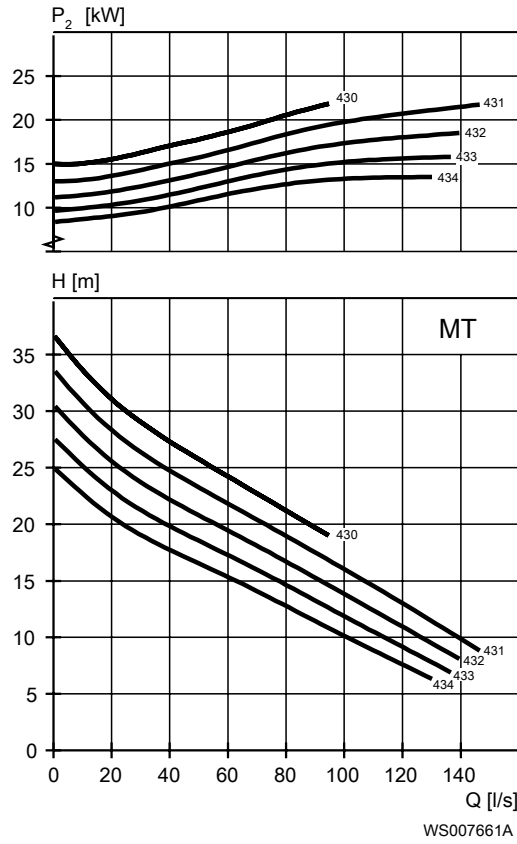


Table 24: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos ϕ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|--------------------------|--------------|
| 15 | 20 | 434 | 1475 | 26 | 214 | 0.89 | P,S |
| 18.5 | 25 | 432 | 1475 | 32 | 246 | 0.9 | P,S |
| 18.5 | 25 | 433 | 1475 | 32 | 246 | 0.9 | P,S |
| 18.5 | 25 | 434 | 1475 | 32 | 246 | 0.9 | P,S |
| 22 | 30 | 430 | 1475 | 40 | 295 | 0.86 | P,S |
| 22 | 30 | 431 | 1475 | 40 | 295 | 0.86 | P,S |
| 22 | 30 | 434 | 1475 | 40 | 295 | 0.86 | P,S |

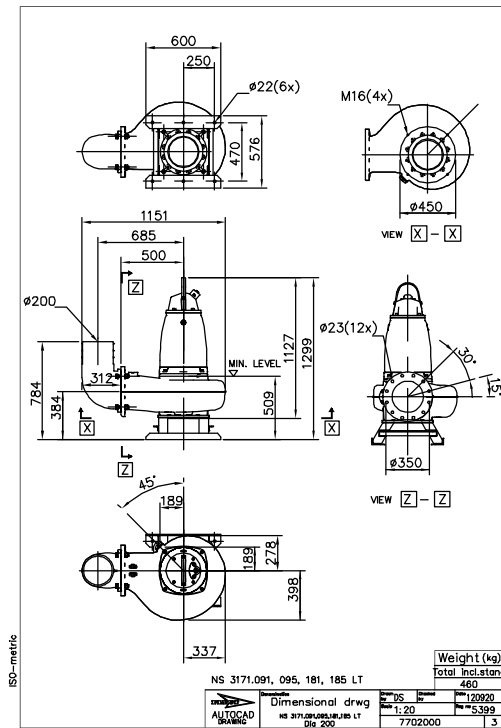


Figure 3: LT, S-installation

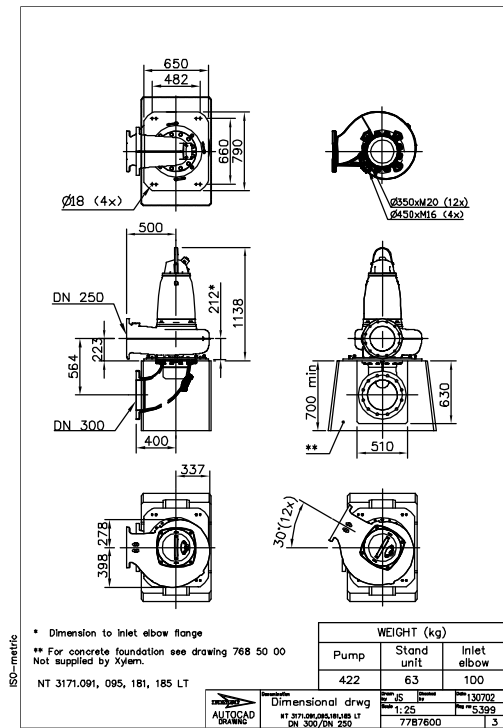


Figure 4: LT, T-installation

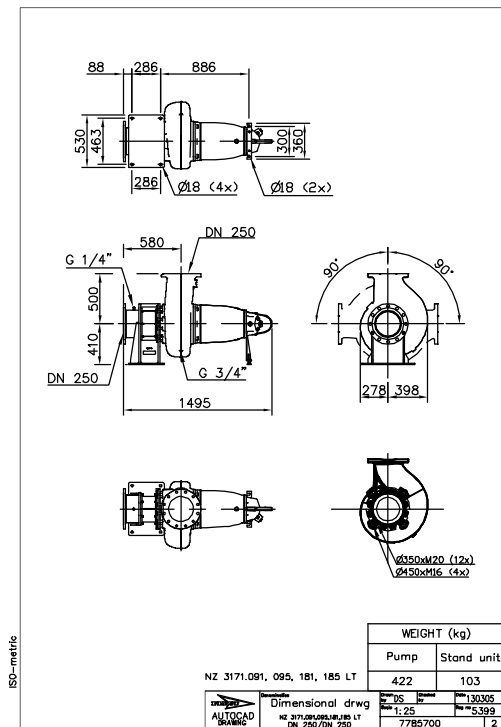


Figure 5: LT, Z-installation

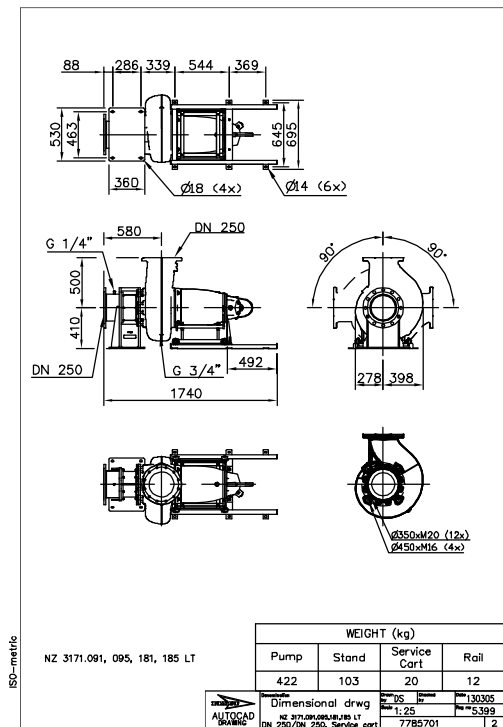


Figure 6: LT, Z-installation

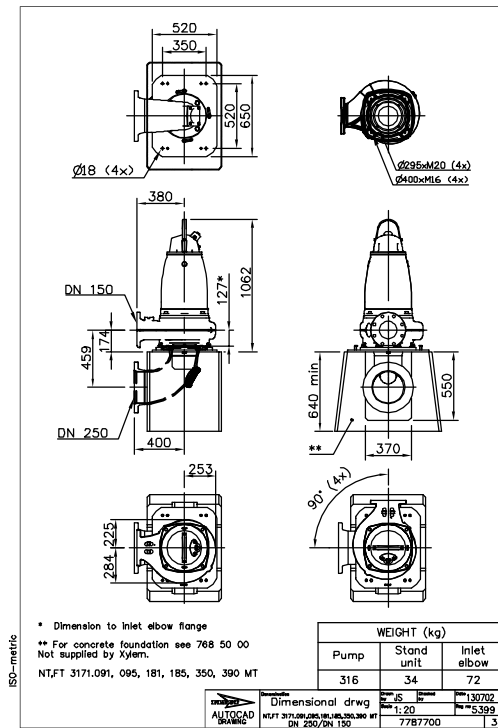


Figure 11: MT, T-installation

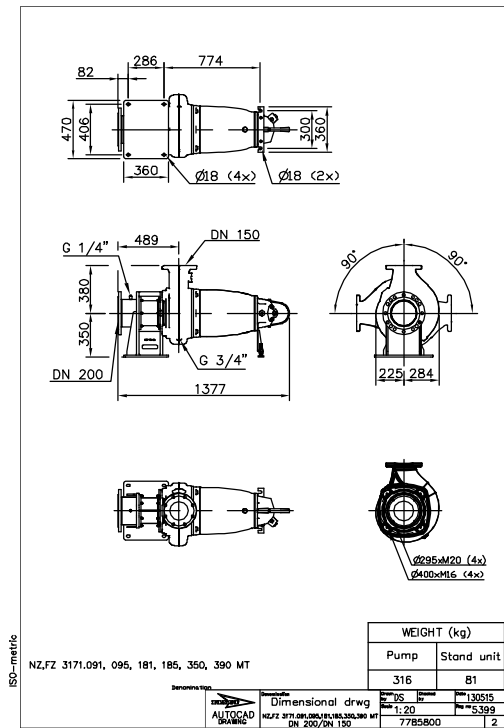


Figure 12: MT, Z-installation

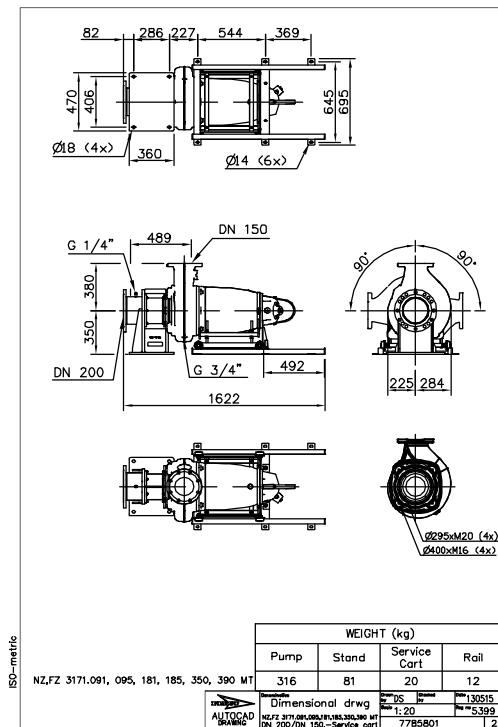


Figure 13: MT, Z-installation

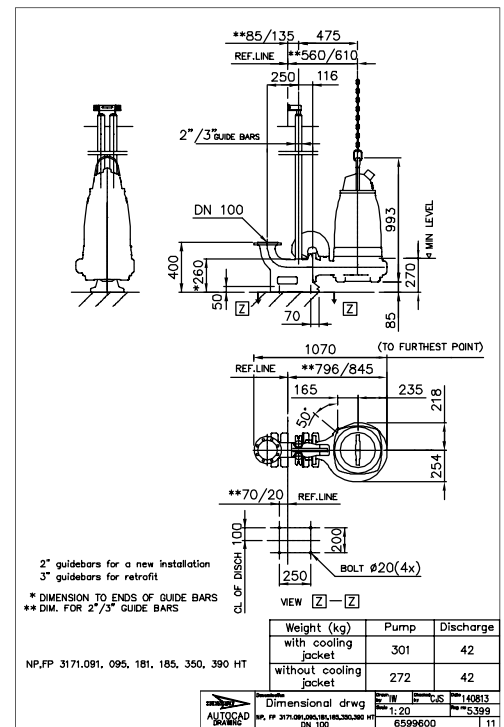


Figure 14: HT, P-installation

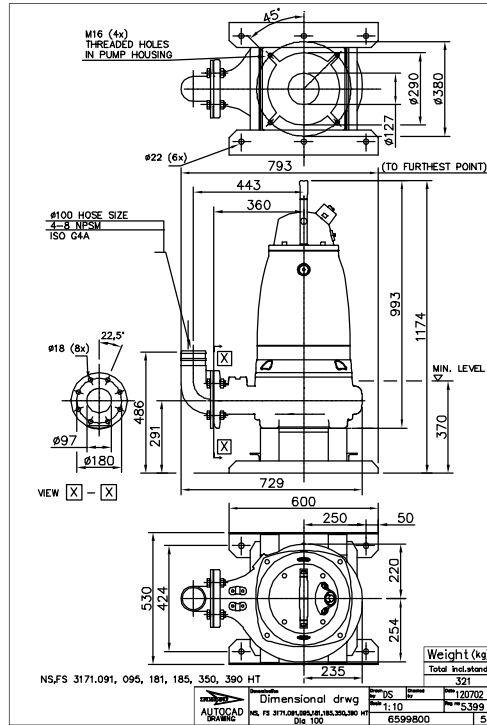


Figure 15: HT, S-installation

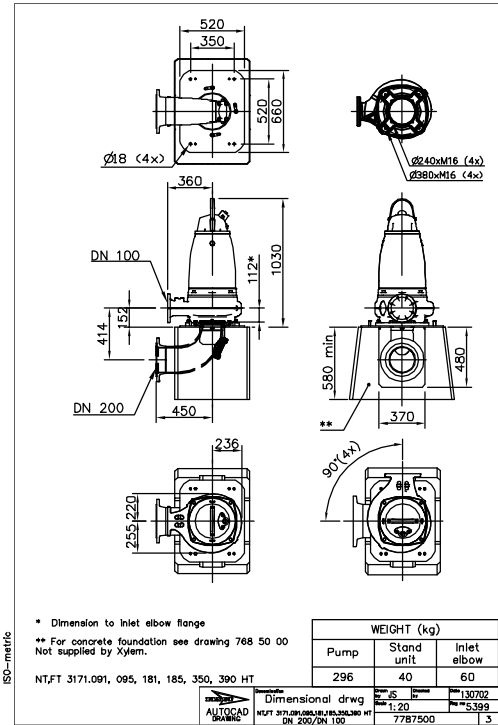


Figure 16: HT, T-installation

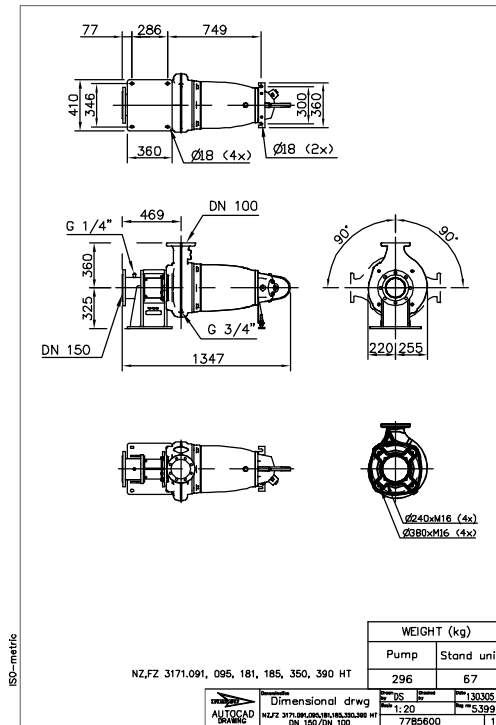


Figure 17: HT, Z-installation

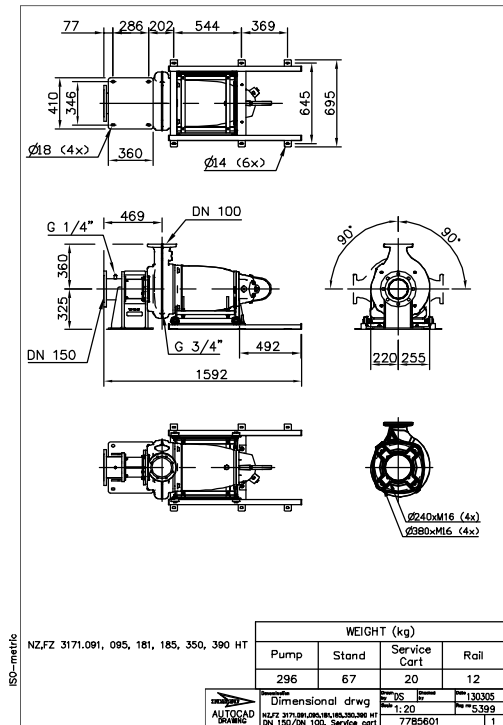


Figure 18: HT, Z-installation

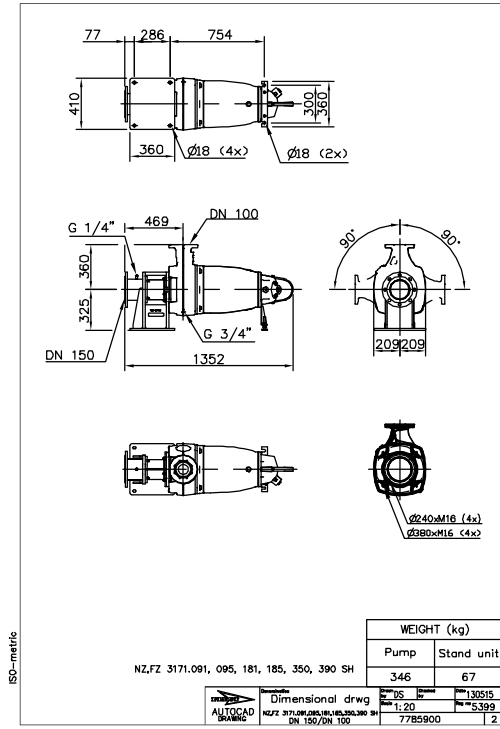


Figure 23: SH, Z-installation

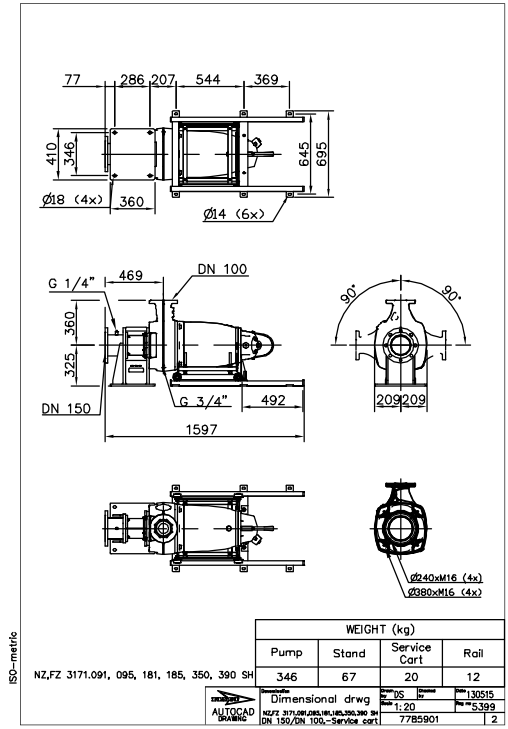


Figure 24: SH, Z-installation

Dimensions and Weight, Premium Efficiency Motor (IE3)

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.

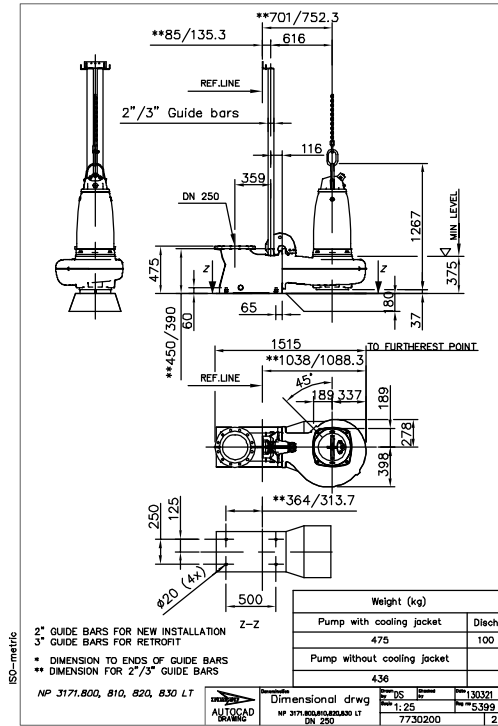


Figure 25: LT, P-installation

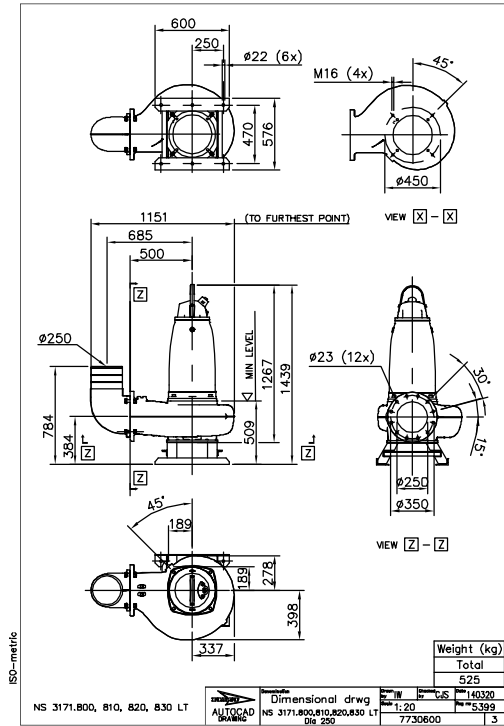


Figure 26: LT, S-installation

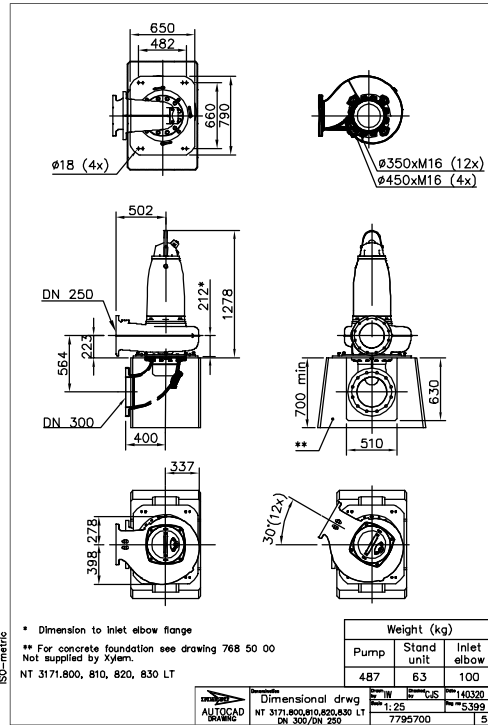


Figure 27: LT, T-installation

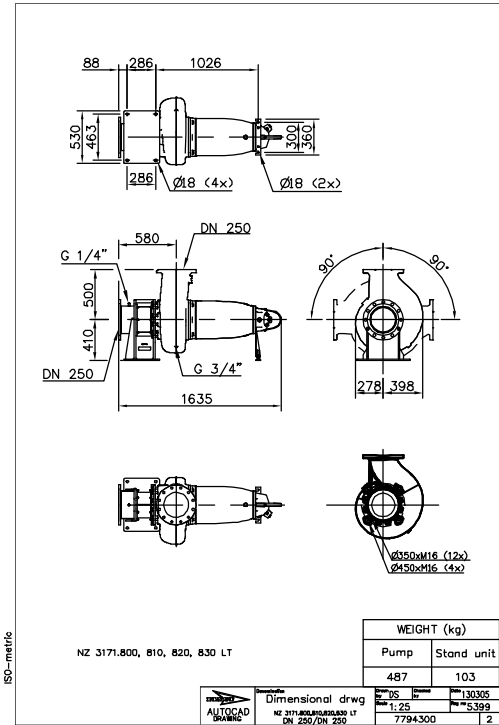


Figure 28: LT, Z-installation

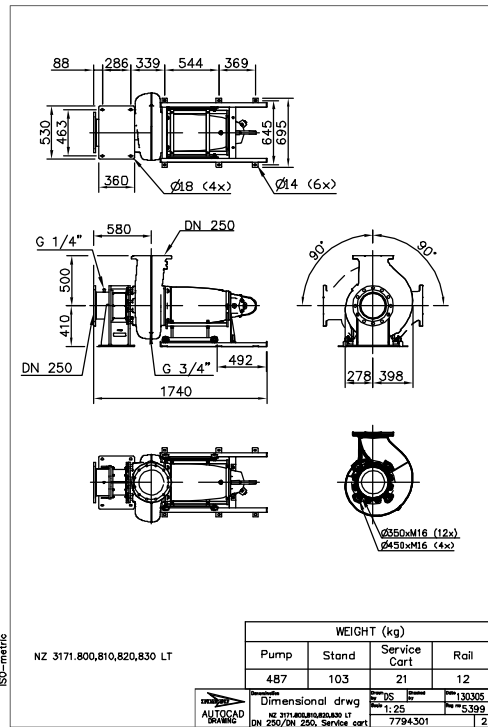


Figure 29: LT, Z-installation

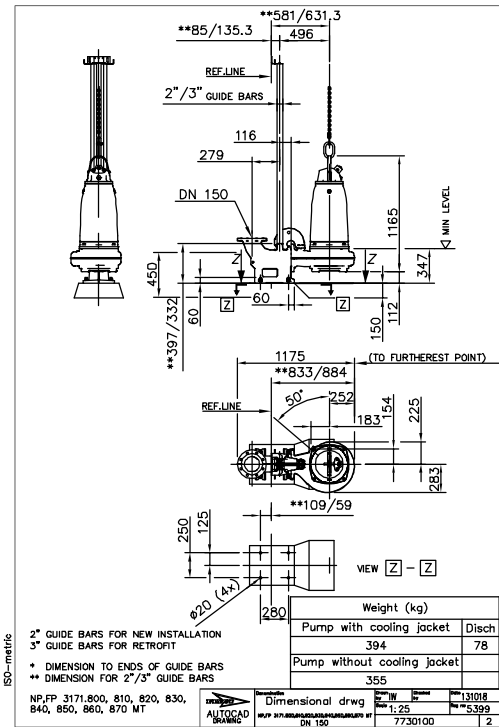


Figure 30: MT, P-installation

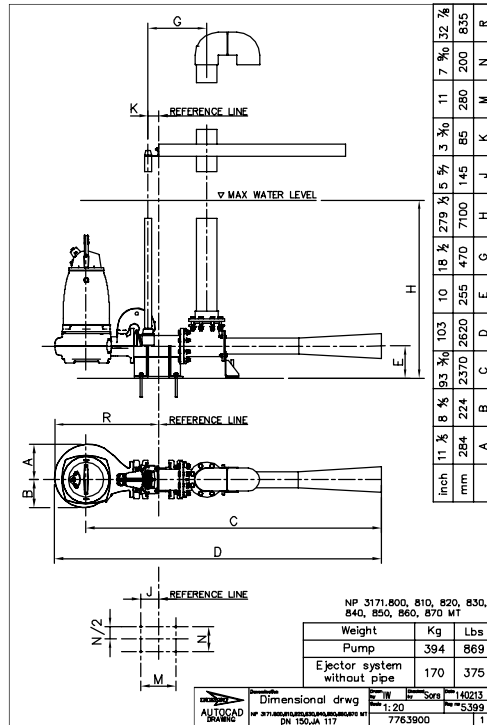


Figure 31: MT, P-installation

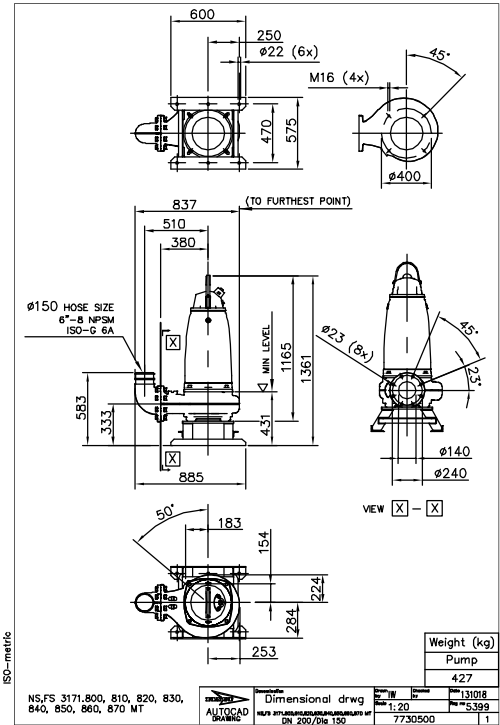


Figure 32: MT, S-installation

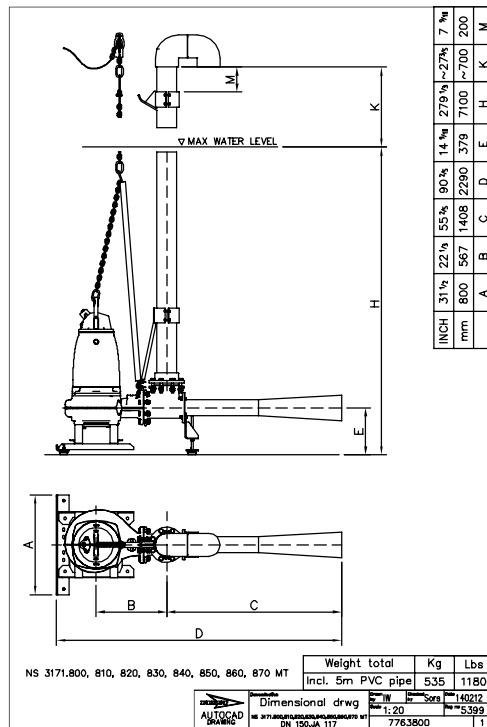


Figure 33: MT, S-installation

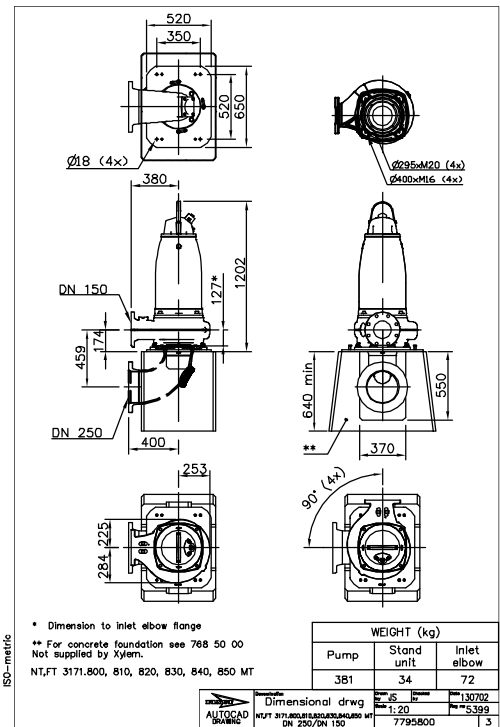


Figure 34: MT, T-installation

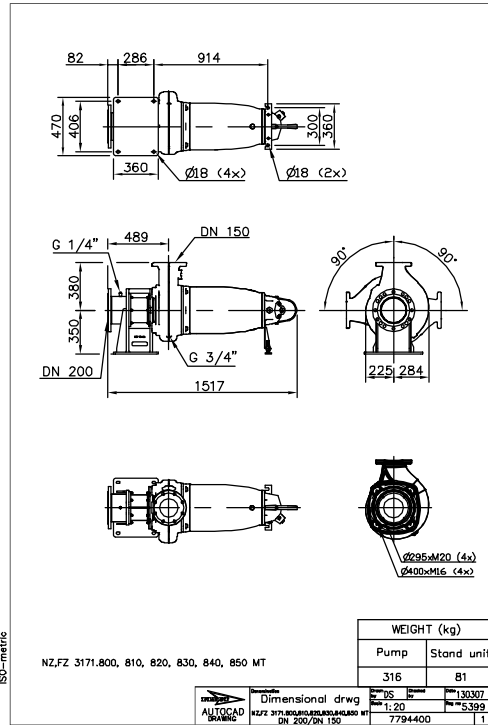


Figure 35: MT, Z-installation

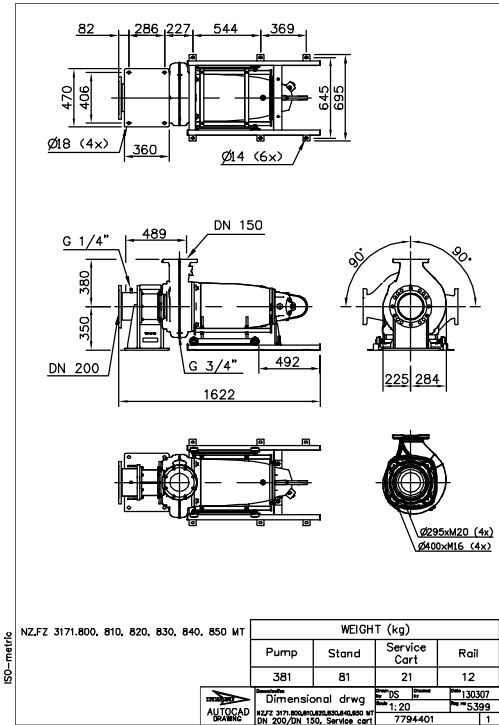


Figure 36: MT, Z-installation

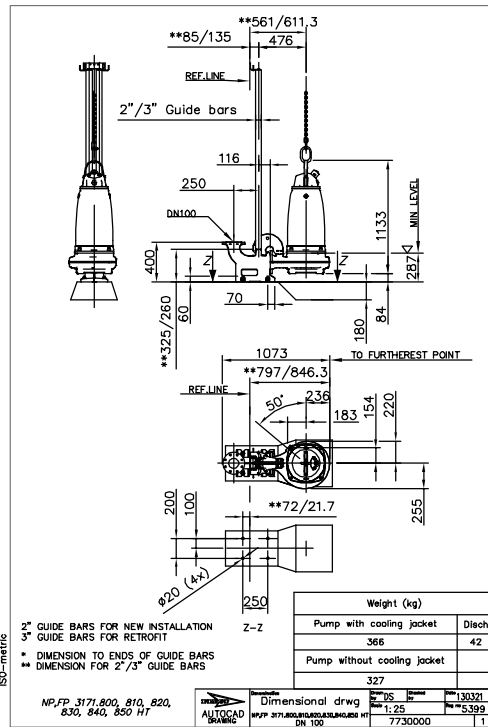


Figure 37: HT, P-installation

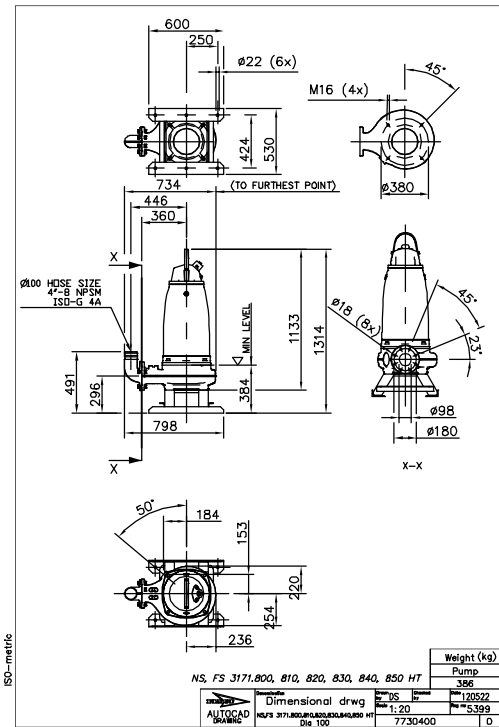


Figure 38: HT, S-installation

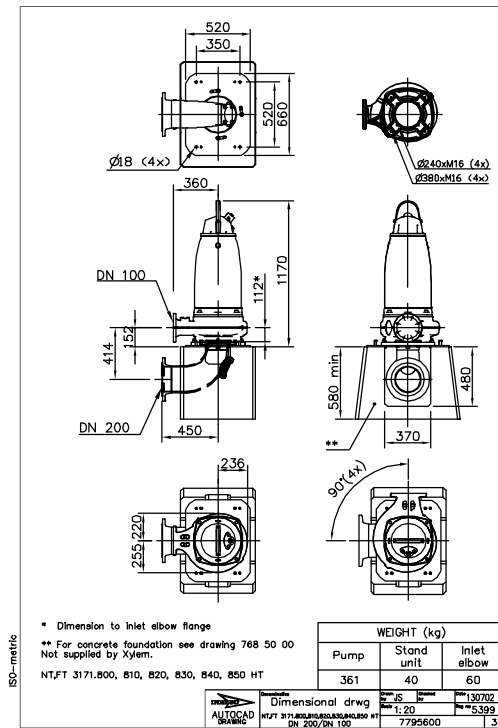


Figure 39: HT, T-installation

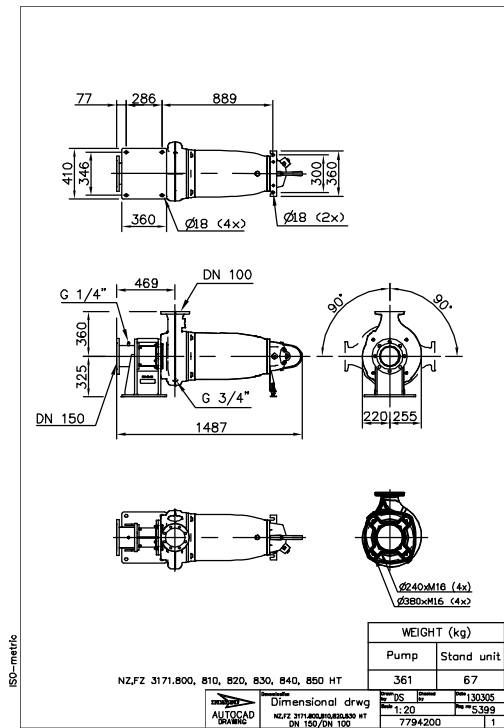


Figure 40: HT, Z-installation

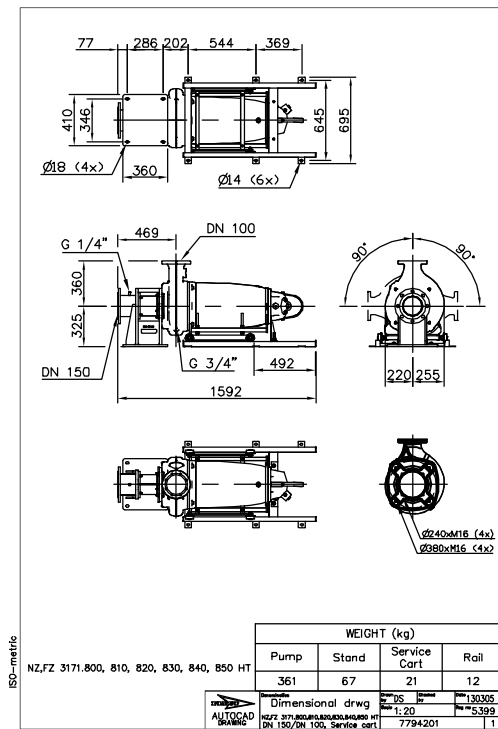


Figure 41: HT, Z-installation

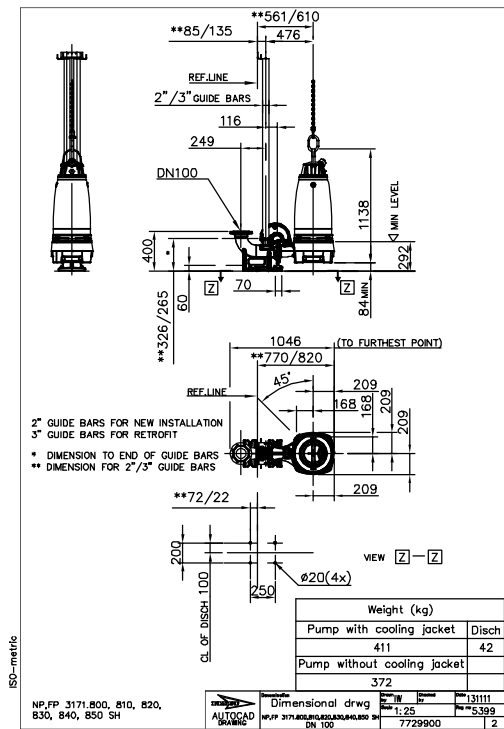


Figure 42: SH, P-installation

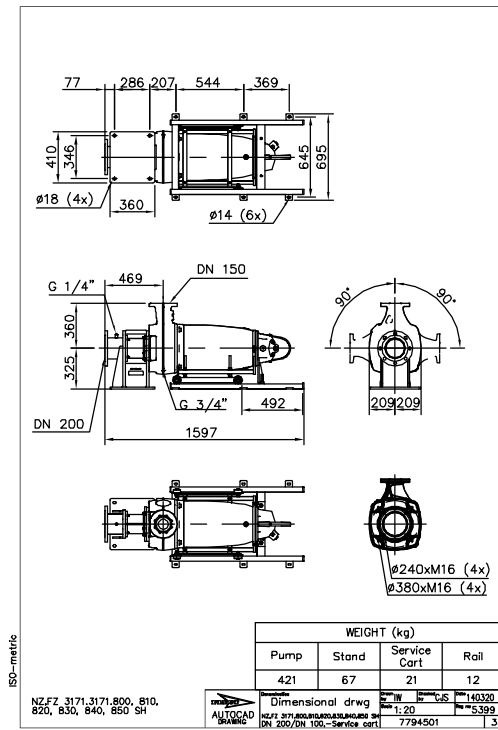


Figure 47: SH, Z-installation

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- 2) A leading global water technology company

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