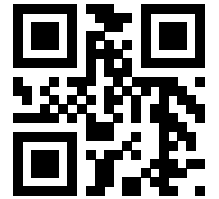


Technical Specification

90016401_1.0



Flygt 3102

50 Hz

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1 D-pump

1.1 Product description



Usage

A submersible pump, with vortex hydraulic, for liquids containing solids and abrasive media, or light wastewater.

Denomination

| Type | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|-----------|-----------------------------|-------------------------|--|--------------------|
| Gray iron | 3102.181 | 3102.090 | <ul style="list-style-type: none"> • MT – Medium head • HT – High head | P, X |

The pump can be used in the following installations:

- P Semipermanent, wet well arrangement with the pump installed on two guide bars. The connection to the discharge is automatic.
- X Optional installation, wet or dry well arrangement without predetermined mechanical connection and with drilled flanges. Dry well arrangement requires cooling system or de-rated motor.

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 |

| Feature | Description |
|----------------------------------|---|
| Starting method | <ul style="list-style-type: none"> • Direct on-line • Star-delta • Soft starter • 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) |

Motor encapsulation

Motor encapsulation is in accordance with IP68.

Cables

| Application | Type |
|--------------------------|--|
| Direct-on-line start | 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 125°C (257°F)

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, gray | 35B | GJL-250 |
| 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, ... |

| Denomination | Material | ASTM | EN |
|------------------------|--|------|----|
| O-rings, alternative 1 | Nitrile rubber (NBR) 70° IRH | - | - |
| O-rings, alternative 2 | Fluorinated rubber (FPM) 70° IRH | - | - |
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 2: Mechanical seals

| Alternative | Inner seal | Outer seal |
|-------------|---|---|
| 1 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 2 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 3 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 4 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 5 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Silicon carbide (RSiC)/ Silicon carbide (RSiC) |

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)
- Leakage sensor in the stator housing (FLS)
- Leakage sensor in the oil housing (CLS)
- 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

1.2 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

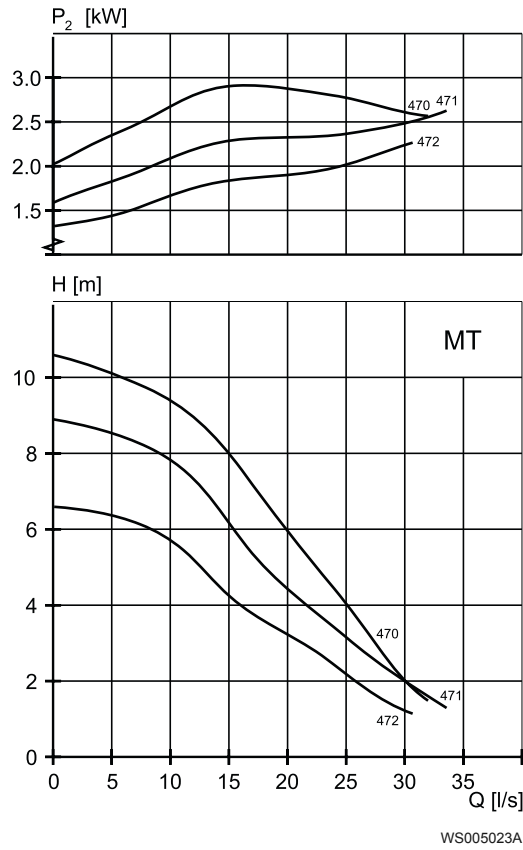


Table 3: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 3.1 | 4.2 | 470 | 1450 | 6.8 | 40 | 40 | P,X |
| 3.1 | 4.2 | 471 | 1450 | 6.8 | 40 | 40 | P,X |
| 3.1 | 4.2 | 472 | 1450 | 6.8 | 40 | 40 | P,X |

HT

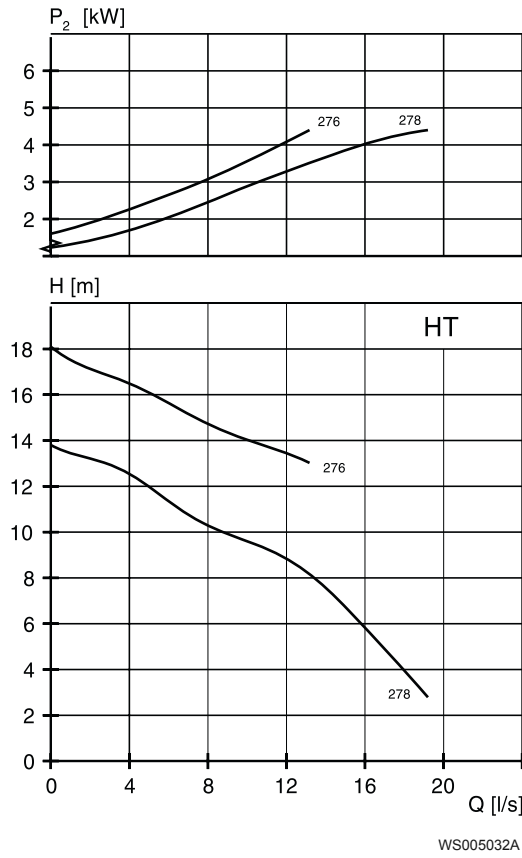


Table 4: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 4.2 | 5.6 | 276 | 2900 | 8.2 | 74 | 0.87 | P,X |
| 4.2 | 5.6 | 276 | 2860 | 7.8 | 53 | 0.93 | P,X |
| 4.2 | 5.6 | 278 | 2900 | 8.2 | 74 | 0.87 | P,X |
| 4.2 | 5.6 | 278 | 2860 | 7.8 | 53 | 0.93 | P,X |

2 F-pump

2.1 Product description



Usage

A submersible pump for liquid manure, or heavily contaminated sewage and sludge. The impeller is S-shaped and has a cutting function.

Denomination

| Type | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|----------------------|-----------------------------|-------------------------|----------------|--------------------|
| Chopper Gray iron | 3102.181 | 3102.090 | LT – Low head | P, S, X |

The pump can be used in the following installations:

- P Semipermanent, wet well arrangement with the pump installed on two guide bars. The connection to the discharge is automatic.
- S Portable semipermanent, wet well arrangement with hose coupling or flange for connection to the discharge pipeline.
- X Optional installation, wet or dry well arrangement without predetermined mechanical connection and with drilled flanges. Dry well arrangement requires cooling system or de-rated motor.

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 |

| Feature | Description |
|----------------------------------|---|
| Starting method | <ul style="list-style-type: none"> • Direct on-line • Star-delta • Soft starter • 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 | 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 125°C (257°F)

Materials

Table 5: 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, nodular | - | GJS-400-18-LT |
| Suction cover | Cast iron, Hard-Iron™ | A 532 IIIA | GJN-HB555(XCR23) |
| 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 | - | - |
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 6: Mechanical seals

| Alternative | Inner seal | Outer seal |
|-------------|---|---|
| 1 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 2 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 3 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 4 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 5 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Silicon carbide (RSiC)/ Silicon carbide (RSiC) |

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)
- Leakage sensor in the stator housing (FLS)
- Leakage sensor in the oil housing (CLS)
- 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

2.2 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.

LT

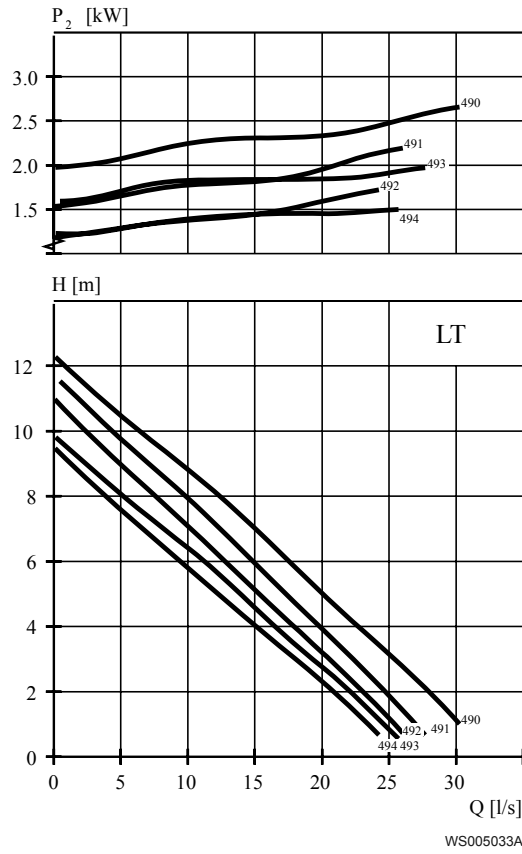


Table 7: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 3.1 | 4.2 | 490 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 491 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 492 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 493 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 494 | 1450 | 6.8 | 40 | 0.78 | P,S,X |

3 M-pump

3.1 Product description



Usage

A submersible pump for wastewater containing solids that need to be macerated. The impeller is equipped with a grinder device.

Denomination

| Type | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|----------------------|-----------------------------|-------------------------|---|--------------------|
| Gray iron Grinder | 3102.170 | 3102.890 | <ul style="list-style-type: none"> • LT – Low head • HT – High head | F, P |

The pump can be used in the following installations:

- F Free standing semipermanent, wet well arrangement where the pump is placed on a firm surface.
- P Semipermanent, wet well arrangement with the pump installed on two guide bars. The connection to the discharge is automatic.

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 • Soft starter |
| Number of starts per hour | Maximum 30 |

| Feature | Description |
|----------------------------------|---|
| 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 | 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. |

Monitoring equipment

Thermal contacts opening temperature 125°C (257°F)

Materials

Table 8: 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, gray | 30B | GJL-200 |
| Cutter wheel | Cast iron, Hard-Iron™ | A 532 IIIA | GJN-HB555(XCR23) |
| Cutter plate | Stainless steel | - | - |
| 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 | Nitrile rubber (NBR) 70° IRH | - | - |
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 9: Mechanical seals

| Alternative | Inner seal | Outer seal |
|-------------|---|---|
| 1 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 2 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |

| Alternative | Inner seal | Outer seal |
|-------------|--|---|
| 3 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 4 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |

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

- Leakage sensor in the stator housing (FLS)
- Leakage sensor in the oil housing (CLS)
- Surface treatment (Epoxy)
- Zinc anodes
- Other cables

Accessories

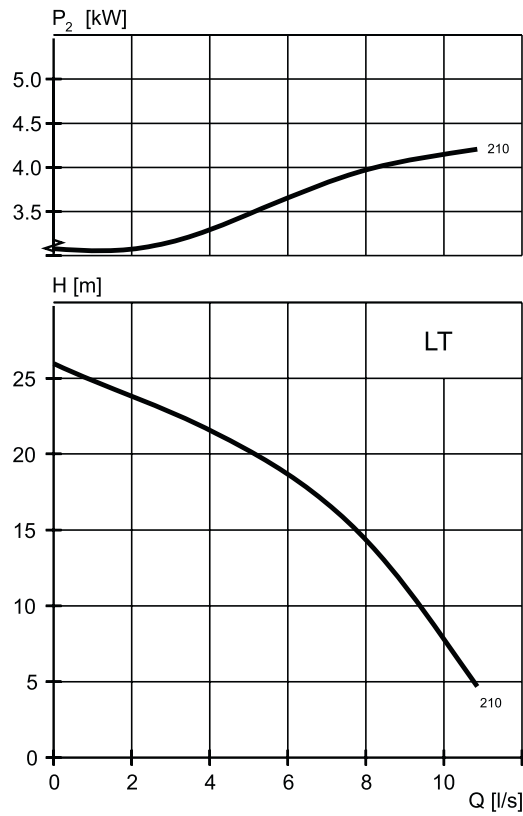
Discharge connections, adapters, hose connections, and other mechanical accessories
 Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables

3.2 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.

LT



WS005036A

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 |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 4.4 | 5.9 | 210 | 2895 | 8.6 | 74 | 0.87 | F,P |
| 4.4 | 5.9 | 210 | 2855 | 8.2 | 53 | 0.93 | F,P |

HT

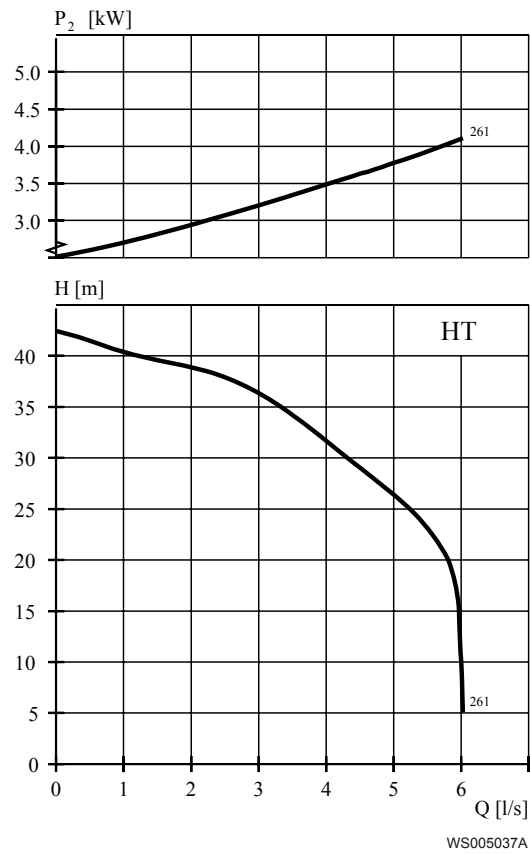


Table 11: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 4.4 | 5.9 | 261 | 2895 | 8.6 | 74 | 0.87 | F,P |
| 4.4 | 5.9 | 261 | 2855 | 8.2 | 53 | 0.93 | F,P |

4 N-pump, Standard Motor

4.1 Product description



Usage

- Installation type P, S, T, Z 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.
- Installation type L A submersible pump for a mixed flow of clean water, surface water, or storm water. Intended for high flow and low head applications, in column installation. The pump is designed for sustained high efficiency.

Denomination

Table 12: Adaptive N-hydraulic

| Impeller material | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|-------------------|-----------------------------|-------------------------|--|--------------------|
| Hard-Iron™ | 3102.060 | 3102.070 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |
| Cast iron, gray | 3102.160 | 3102.190 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |
| Stainless steel | 3102.760 | 3102.770 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |

The pump can be used in the following installations:

- L Vertical semipermanent, wet well column pipe arrangement where the well is divided into a suction part and a discharge part. Pump end equipped with guide vanes.
- P Semipermanent, wet well arrangement with the pump installed on two guide bars. The connection to the discharge is automatic.
- S Portable semipermanent, wet well arrangement with hose coupling or flange for connection to the discharge pipeline.

- T Vertical permanent, dry well arrangement with flange connection to the suction and discharge piping.
- Z Horizontal permanent, dry well arrangement with flange connection to the suction and discharge piping.
- X Optional installation, wet or dry well arrangement without predetermined mechanical connection and with drilled flanges. Dry well arrangement requires cooling system or de-rated motor.

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 • Soft starter • 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) |

Motor encapsulation

Motor encapsulation is in accordance with IP68.

Cables

| Application | Type |
|----------------------|---|
| Direct-on-line start | 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. |

| Application | Type |
|--------------------------|--|
| 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 125°C (257°F)

Materials

Table 13: Major parts except mechanical seals

| Denomination | Material | ASTM | EN |
|-----------------------------|--|-----------------------|---------------------|
| Major castings | Cast iron, gray | 35B | GJL-250 |
| Pump housing, alternative 1 | Cast iron, gray | 35B | GJL-250 |
| Pump housing, alternative 2 | Cast iron, gray | ASTM A 48 NO 30B | GJL-200 |
| 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) |
| 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 | - | - |
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 14: Mechanical seals

| Alternative | Inner seal | Outer seal |
|-------------------------|---|---|
| 1: 3102.060/070/170/190 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 2: 3102.060/070/170/190 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 3: 3102.060/070/170/190 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |

| Alternative | Inner seal | Outer seal |
|-------------------------|--|--|
| 4 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 5 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Silicon carbide (RSiC)/ Silicon carbide (RSiC) |
| 6: 3102.060/070/170/190 | Carbon (CSb)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 7: 3102.0760/770 | Carbon (CSb)/ Aluminum oxide (Al ₂ O ₃) | Silicon carbide (RSiC)/ Silicon carbide (RSiC) |

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)
- Leakage sensor in the stator housing (FLS)
- Leakage sensor in the oil housing (CLS)
- 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

4.2 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.

LT

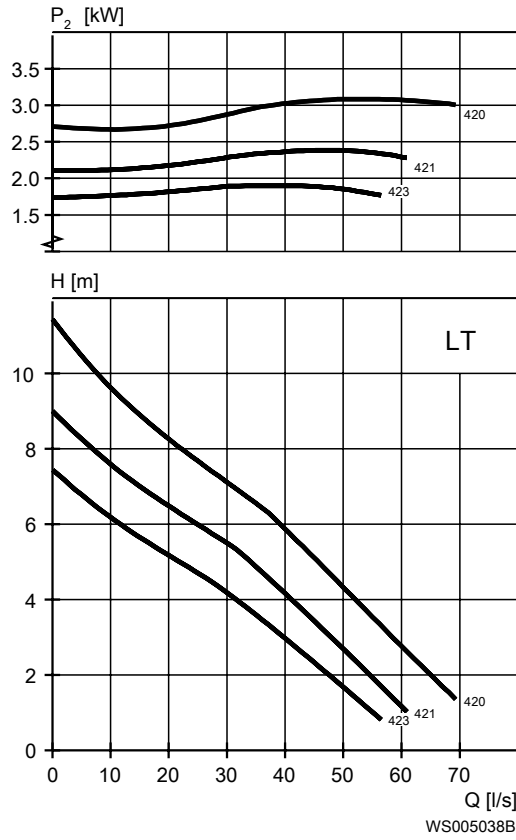


Table 15: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 2.4 | 3.2 | 421 | 1460 | 5.7 | 40 | 0.71 | T,Z |
| 2.4 | 3.2 | 423 | 1460 | 5.7 | 40 | 0.71 | T,Z |
| 3.1 | 4.2 | 420 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 420 | 1450 | 6.8 | 40 | 0.78 | T,Z |
| 3.1 | 4.2 | 421 | 1450 | 6.8 | 40 | 0.78 | L |
| 3.1 | 4.2 | 421 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 423 | 1450 | 6.8 | 40 | 0.78 | L |
| 3.1 | 4.2 | 423 | 1450 | 6.8 | 40 | 0.78 | P,S,X |

MT

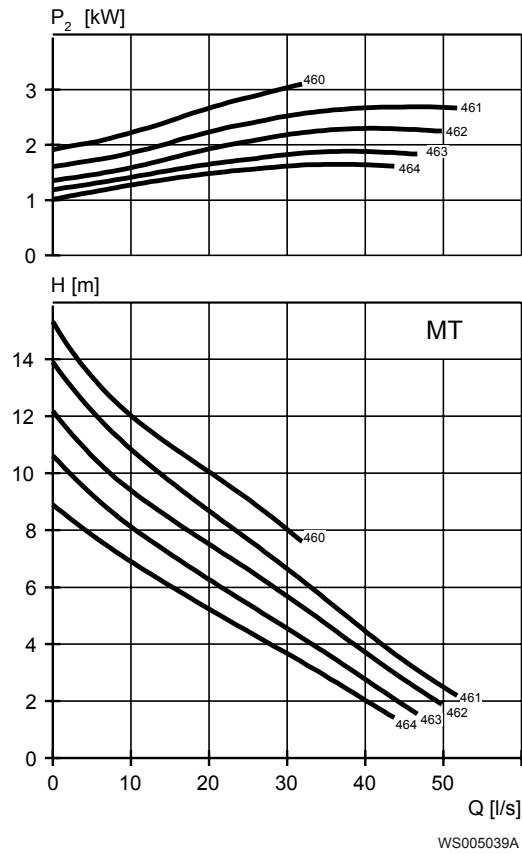


Table 16: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|------------------------------|--------------|
| 2.4 | 3.2 | 463 | 1460 | 5.7 | 40 | 0.71 | T,Z |
| 2.4 | 3.2 | 464 | 1460 | 5.7 | 40 | 0.71 | T,Z |
| 3.1 | 4.2 | 460 | 1450 | 6.8 | 40 | 0.78 | T,Z |
| 3.1 | 4.2 | 460 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 461 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 461 | 1450 | 6.8 | 40 | 0.78 | T,Z |
| 3.1 | 4.2 | 462 | 1450 | 6.8 | 40 | 0.78 | T,Z |
| 3.1 | 4.2 | 462 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 463 | 1450 | 6.8 | 40 | 0.78 | P,S,X |
| 3.1 | 4.2 | 464 | 1450 | 6.8 | 40 | 0.78 | P,S,X |

SH

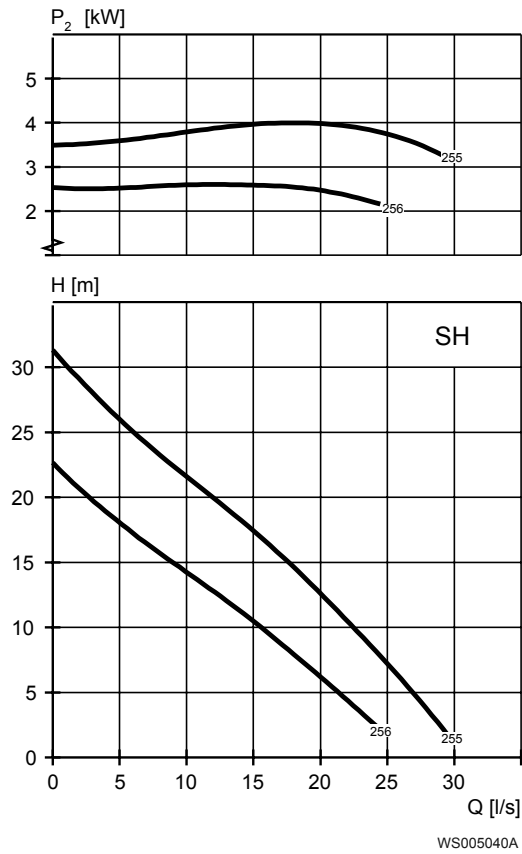


Table 17: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos ϕ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|--------------------------|--------------|
| 4.2 | 5.6 | 255 | 2900 | 8.2 | 74 | 0.87 | P,S,X |
| 4.2 | 5.6 | 255 | 2860 | 7.8 | 53 | 0.93 | P,S,X |
| 4.2 | 5.6 | 255 | 2900 | 8.2 | 74 | 0.87 | T,Z |
| 4.2 | 5.6 | 255 | 2860 | 7.8 | 53 | 0.93 | T,Z |
| 4.2 | 5.6 | 256 | 2900 | 8.2 | 74 | 0.87 | P,S,X |
| 4.2 | 5.6 | 256 | 2860 | 7.8 | 53 | 0.93 | P,S,X |
| 4.2 | 5.6 | 256 | 2900 | 8.2 | 74 | 0.87 | T,Z |
| 4.2 | 5.6 | 256 | 2860 | 7.8 | 53 | 0.93 | T,Z |

5 N-pump, Premium Efficiency Motor (IE3)

5.1 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

Table 18: Adaptive N-hydraulic

| Impeller material | Non-explosion proof version | Explosion proof version | Pressure class | Installation types |
|-------------------|-----------------------------|-------------------------|--|--------------------|
| Cast iron, gray | 3102.900 | 3102.910 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |
| Hard-Iron™ | 3102.920 | 3102.930 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |
| Stainless steel | 3102.960 | 3102.970 | LT – Low head MT – Medium head SH – Super head | L, P, S, T, Z, X |

The pump can be used in the following installations:

- L Vertical semipermanent, wet well column pipe arrangement where the well is divided into a suction part and a discharge part. Pump end equipped with guide vanes.
- P Semipermanent, wet well arrangement with the pump installed on two guide bars. The connection to the discharge is automatic.
- S Portable semipermanent, wet well arrangement with hose coupling or flange for connection to the discharge pipeline.
- T Vertical permanent, dry well arrangement with flange connection to the suction and discharge piping.

- Z Horizontal permanent, dry well arrangement with flange connection to the suction and discharge piping.
- X Optional installation, wet or dry well arrangement without predetermined mechanical connection and with drilled flanges. Dry well arrangement requires cooling system or de-rated motor.

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 | Line started permanent magnet motor (LSPM) |
| Frequency | 50 Hz |
| Power supply | 3-phase |
| Starting method | <ul style="list-style-type: none"> • Direct on-line • Star-delta • Soft starter • 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) |

Motor encapsulation

Motor encapsulation is in accordance with IP68.

Cables

| Application | Type |
|----------------------|--|
| Direct-on-line start | 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. |

| Application | Type |
|--------------------------|---|
| 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 125°C (257°F)

Materials

Table 19: Major parts except mechanical seals

| Denomination | Material | ASTM | EN |
|-----------------------------|--|-----------------------|---------------------|
| Major castings | Cast iron, gray | 35B | GJL-250 |
| Pump housing, alternative 1 | Cast iron, gray | 35B | GJL-250 |
| Pump housing, alternative 2 | Cast iron, gray | ASTM A 48 NO 30B | GJL-200 |
| 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) |
| 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 | - | - |
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 20: Mechanical seals

| Alternative | Inner seal | Outer seal |
|-------------|---|---|
| 1 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 2 | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |
| 3 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |
| 4 | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) | Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR) |

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

- Leakage sensor in the stator housing (FLS)
- Leakage sensor in the oil housing (CLS)
- 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

5.2 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.

LT

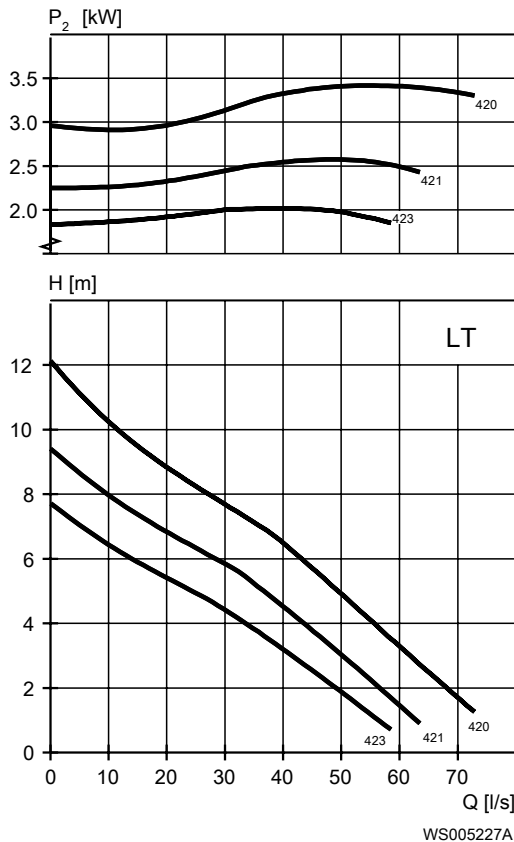


Table 21: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos ϕ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|--------------------------|--------------|
| 3.5 | 4.7 | 420 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 421 | 1500 | 6.3 | 40 | 0.88 | L |
| 3.5 | 4.7 | 421 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 423 | 1500 | 6.3 | 40 | 0.88 | L |
| 3.5 | 4.7 | 423 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |

MT

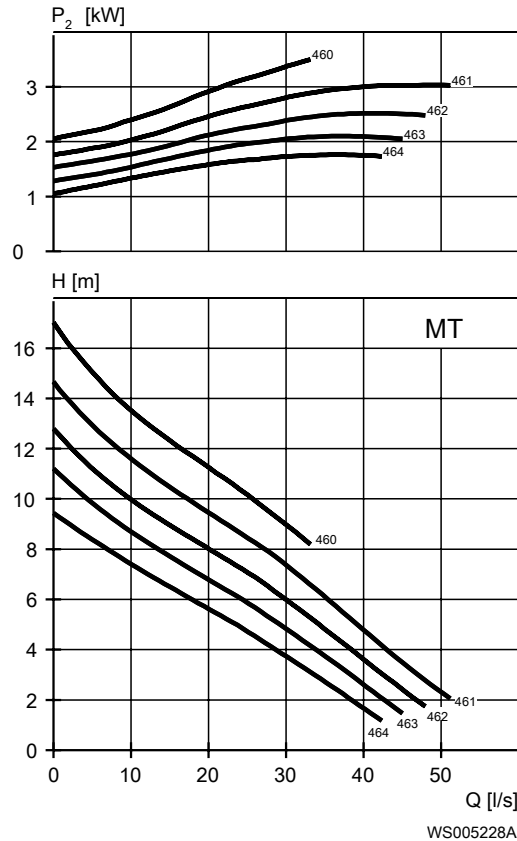


Table 22: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos ϕ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|--------------------------|--------------|
| 3.5 | 4.7 | 460 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 461 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 462 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 463 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |
| 3.5 | 4.7 | 464 | 1500 | 6.3 | 40 | 0.88 | P,S,T,X,Z |

SH

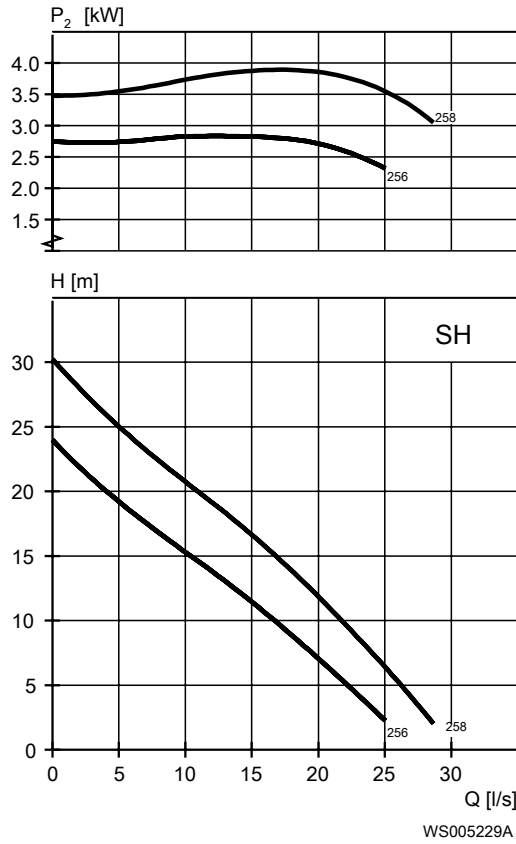


Table 23: 400 V, 50 Hz, 3-phase
IE3 compliance is based on Y-connected stator.

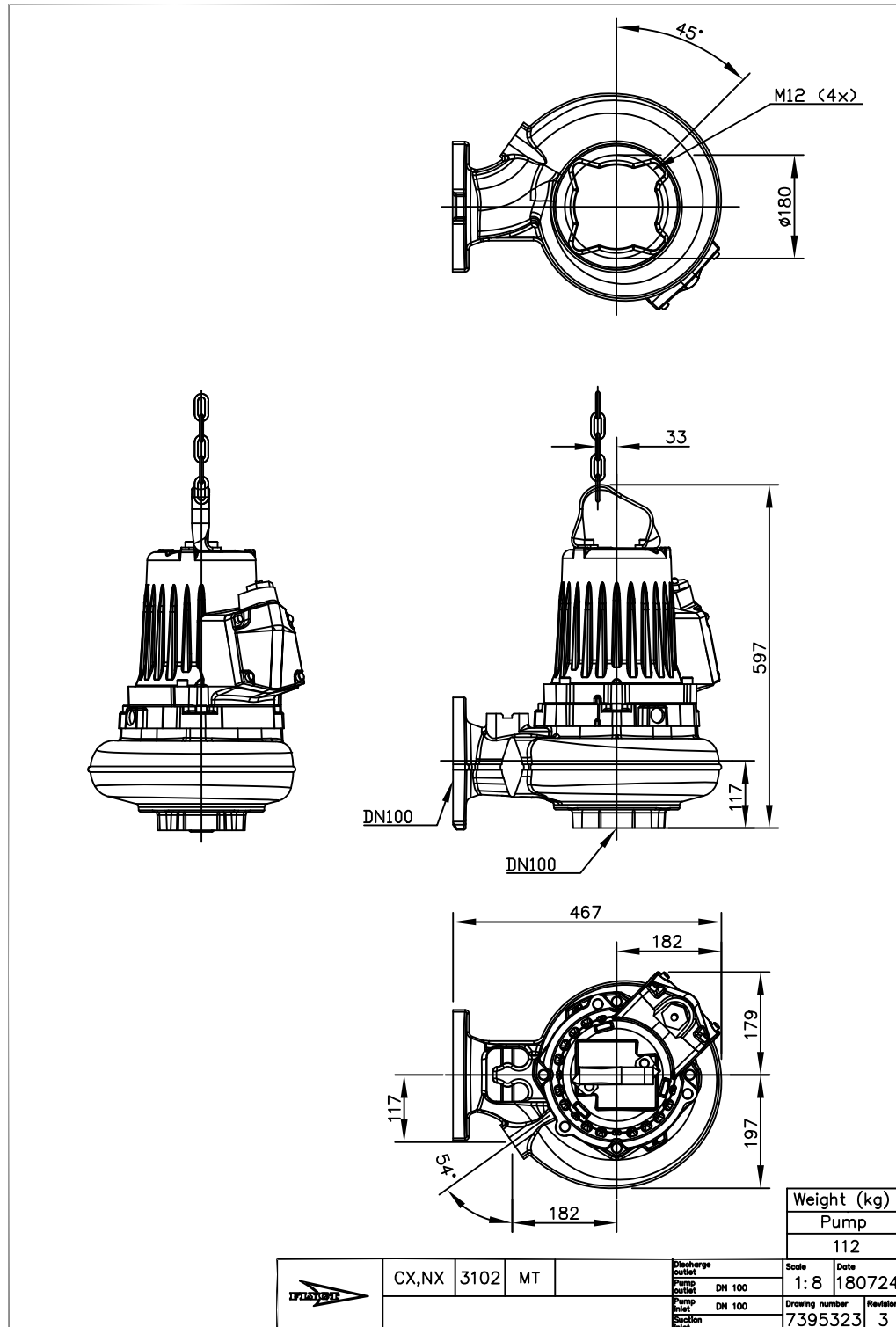
| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated current, A | Starting current, A | Power factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|---------------------|---------------------|--------------|
| 4.5 | 6 | 256 | 3000 | 8.5 | 64 | 0.86 | P,S,X |
| 4.5 | 6 | 256 | 3000 | 8.5 | 64 | 0.86 | T,Z |
| 4.5 | 6 | 258 | 3000 | 8.5 | 64 | 0.86 | T,Z |
| 4.5 | 6 | 258 | 3000 | 8.5 | 64 | 0.86 | P,S,X |

6 Dimensions and Weight

6.1 Drawings

These drawings are included as examples.

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



Xylem |'zīləm|

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

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

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