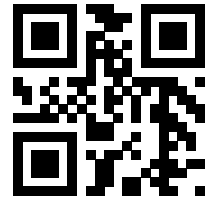


Technical Specification

90016201\_1.0



# Flygt 3085

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	3085.183	3085.092	<ul style="list-style-type: none"> <li>• MT – Medium head</li> <li>• HT – High head</li> </ul>	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 <sup>3</sup>

### Motor data

Feature	Description
Motor type	Squirrel-cage induction motor
Frequency	50 Hz

Feature	Description
Power supply	1-phase or 3-phase
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Soft starter</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> <li>• Continuously running: Maximum <math>\pm 5\%</math></li> <li>• Intermittent running: Maximum <math>\pm 10\%</math></li> </ul>
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 <sup>2</sup> 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 <sup>2</sup> 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, alternative 1	Cast iron, gray	35B	GJL-250
Pump housing, alternative 2	Cast iron, gray, 45 HRC	35B	GJL-250

Denomination	Material	ASTM	EN
Impeller, alternative 1	Cast iron, gray	35B	GJL-250
Impeller, alternative 2	Cast iron, gray	30B	GJL-200
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 2: Mechanical seals

Alternative	Inner seal	Outer seal
1	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
2	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Silicon carbide (RSiC)/ Silicon carbide (RSiC)
3	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
4	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)
- Other cables
- Zinc anodes

### 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

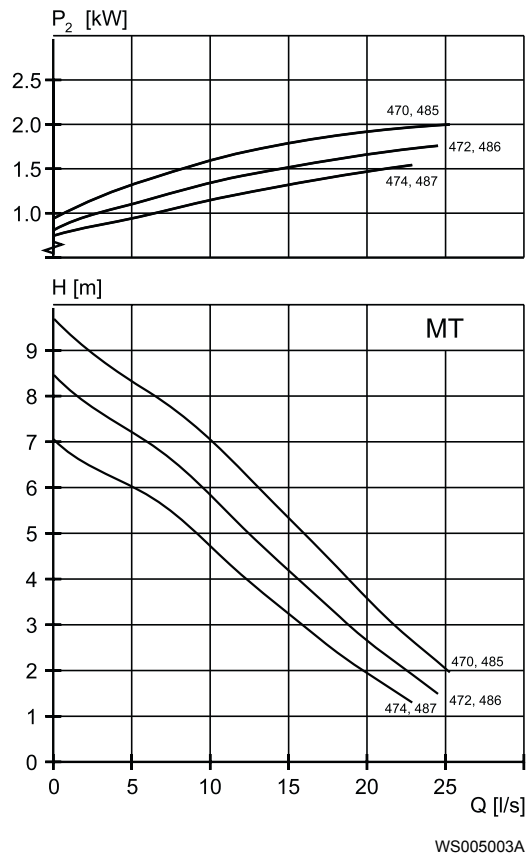


Table 3: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
2	2.7	470	1400	4.8	23	0.8	P,S
2	2.7	470	1415	5.2	27	0.73	P,S
2	2.7	472	1400	4.8	23	0.8	P,S
2	2.7	472	1415	5.2	27	0.73	P,S
2	2.7	474	1400	4.8	23	0.8	P,S
2	2.7	474	1415	5.2	27	0.73	P,S
2	2.7	485	1400	4.8	23	0.8	P,S
2	2.7	485	1415	5.2	27	0.73	P,S
2	2.7	486	1400	4.8	23	0.8	P,S
2	2.7	486	1415	5.2	27	0.73	P,S
2	2.7	487	1400	4.8	23	0.8	P,S
2	2.7	487	1415	5.2	27	0.73	P,S

Table 4: 230 V, 50 Hz, 1-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
1.5	2	472	1425	9.4	43	0.9	P,S
1.5	2	474	1425	9.4	43	0.9	P,S
1.5	2	486	1425	9.4	43	0.9	P,S

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
1.5	2	487	1425	9.4	43	0.9	P,S

HT

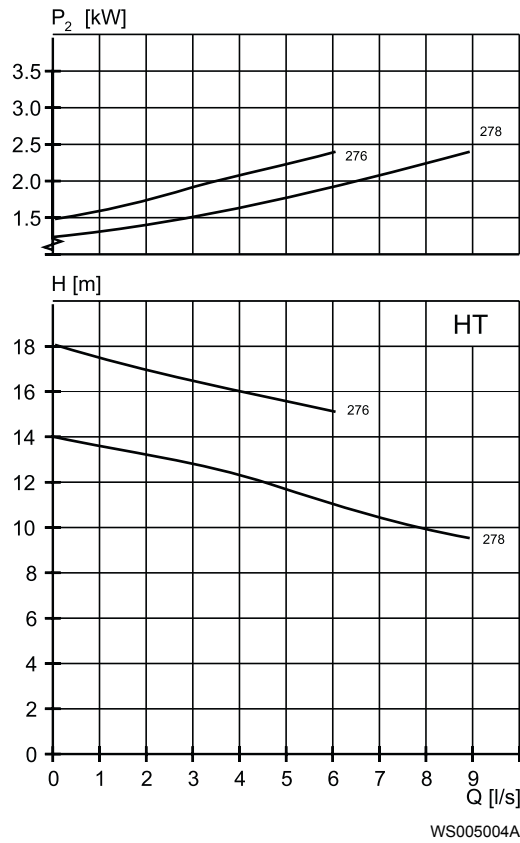


Table 5: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
2.4	3.2	276	2870	4.8	30	0.89	P,S
2.4	3.2	276	2870	4.9	34	0.87	P,S
2.4	3.2	278	2870	4.8	30	0.89	P,S
2.4	3.2	278	2870	4.9	34	0.87	P,S



# 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	3085.183	3085.092	<ul style="list-style-type: none"> <li>LT – Low head</li> </ul>	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 <sup>3</sup>

### Motor data

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

Feature	Description
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Soft starter</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> <li>• Continuously running: Maximum <math>\pm 5\%</math></li> <li>• Intermittent running: Maximum <math>\pm 10\%</math></li> </ul>
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 <sup>2</sup> 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 <sup>2</sup> 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 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, 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

Denomination	Material	ASTM	EN
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 7: Mechanical seals

Alternative	Inner seal	Outer seal
1	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
2	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Silicon carbide (RSiC)/ Silicon carbide (RSiC)
3	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
4	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

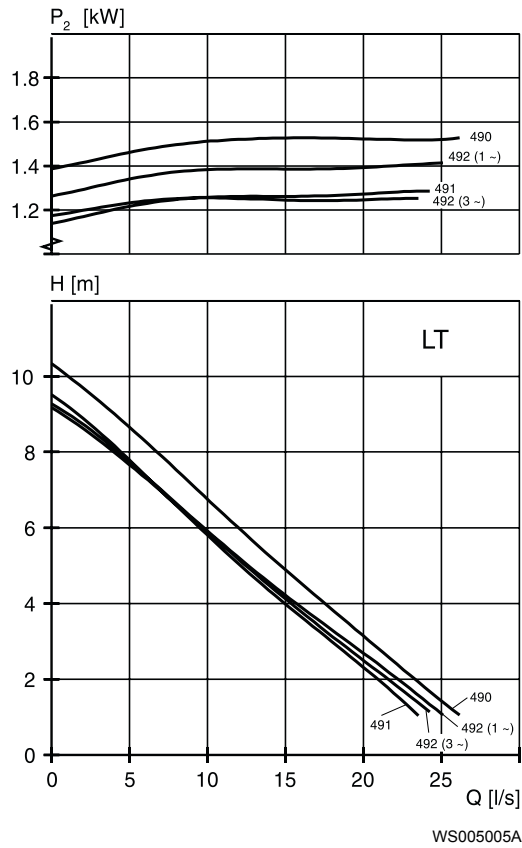


Table 8: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Power factor, cos φ
1.3	1.7	491	1440	3.6	23	0.68	P,S
1.3	1.7	491	1450	4.2	27	0.59	P,S
1.3	1.7	492	1440	3.6	23	0.68	P,S
1.3	1.7	492	1450	4.2	27	0.59	P,S
2	2.7	490	1400	4.8	23	0.8	P,S
2	2.7	490	1415	5.2	27	0.73	P,S
2	2.7	491	1400	4.8	23	0.8	P,S
2	2.7	491	1415	5.2	27	0.73	P,S
2	2.7	492	1400	4.8	23	0.8	P,S
2	2.7	492	1415	5.2	27	0.73	P,S

Table 9: 230 V, 50 Hz, 1-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Power factor, cos φ
1.5	2	492	1425	9.4	43	0.9	P,S

# 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	3085.172	3085.891	HT – High head	F, H, 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.
- H Semipermanent, wet well quick connection suspended arrangement, incorporating integral non-return valve.
- 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 <sup>3</sup>

### Motor data

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

Feature	Description
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Soft starter</li> </ul>
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> <li>• Continuously running: Maximum <math>\pm 5\%</math></li> <li>• Intermittent running: Maximum <math>\pm 10\%</math></li> </ul>
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 <sup>2</sup> 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 <sup>2</sup> with unscreened control cores.

### Monitoring equipment

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

### Materials

Table 10: 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	Steel, 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 11: Mechanical seals

Alternative	Inner seal	Outer seal
1	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
2	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Silicon carbide (RSiC)/ Silicon carbide (RSiC)
3	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.

HT

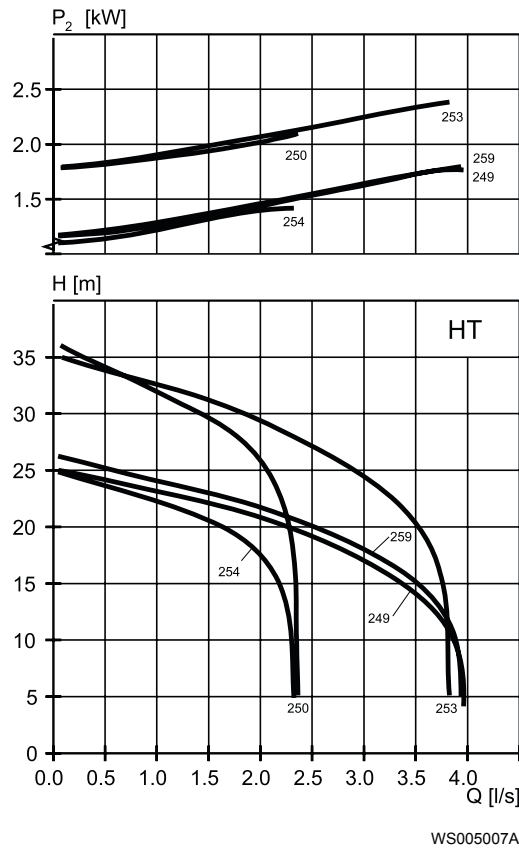


Table 12: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, cos φ	Installation
1.8	2.4	254	2905	3.7	30	0.84	F,H,P
1.8	2.4	259	2905	3.7	30	0.84	F,H,P
2.4	3.2	250	2870	4.8	30	0.89	F,H,P
2.4	3.2	253	2870	4.8	30	0.89	F,H,P
2.4	3.2	254	2870	4.8	30	0.89	F,H,P
2.4	3.2	259	2870	4.8	30	0.89	F,H,P

Table 13: 230 V, 50 Hz, 1-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
1.9	2.5	249	2915	12	61	0.87	F,H,P
1.9	2.5	254	2915	12	61	0.87	F,H,P



# 4 N-pump, Standard Motor

## 4.1 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 14: Adaptive N-hydraulic

Impeller material	Non-explosion proof version	Explosion proof version	Pressure class	Installation types
Hard-Iron™	3085.060	3085.070	MT – Medium head SH – Super head	F, P, S, T, Z, X
Cast iron, gray	3085.160	3085.190	MT – Medium head SH – Super head	F, P, S, T, Z, X
Stainless steel	3085.760	3085.770	MT – Medium head SH – Super head	F, P, S, T, Z, X

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.
- 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 <sup>3</sup>

## Motor data

Feature	Description
Motor type	Squirrel-cage induction motor
Frequency	50 Hz
Power supply	1-phase or 3-phase
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Soft starter</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> <li>• Continuously running: Maximum <math>\pm 5\%</math></li> <li>• Intermittent running: Maximum <math>\pm 10\%</math></li> </ul>
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 <sup>2</sup> 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 <sup>2</sup> 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 15: 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)
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 16: Mechanical seals

Alternative	Inner seal	Outer seal
1	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
2	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Silicon carbide (RSiC)/ Silicon carbide (RSiC)
3	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
4	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

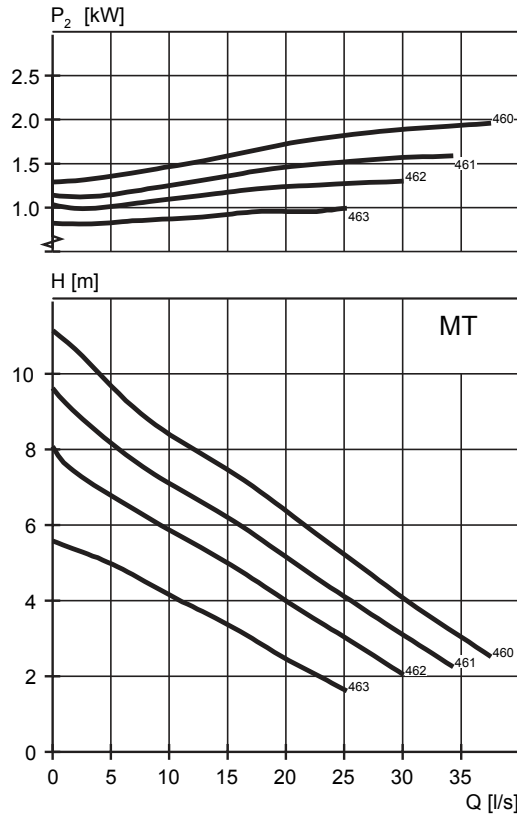
Discharge connections, adapters, hose connections, and other mechanical accessories  
 Electrical accessories such as pump controller, control panels, starters, monitoring relays, cables

## 4.2 Motor rating and performance curves 3085.060/.070/.160/.190/.760/.770

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

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

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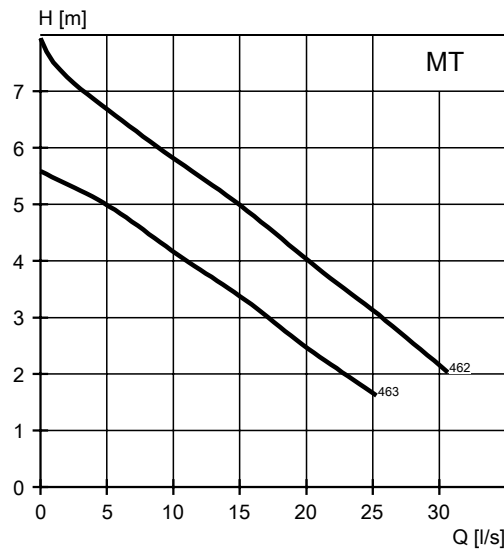
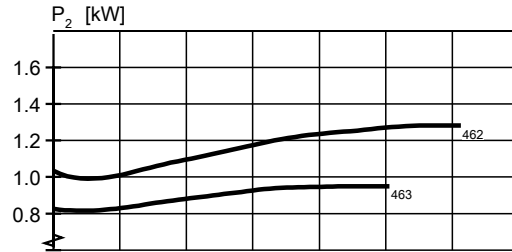


WS005022A

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
1	1.3	462	1455	3.2	23	0.6	T,Z
1	1.3	463	1455	3.2	23	0.6	T,Z
1.3	1.7	462	1440	3.6	23	0.68	F,P,S
1.3	1.7	463	1440	3.6	23	0.68	F,P,S
1.4	1.9	462	1435	3.7	23	0.7	T,Z
1.4	1.9	463	1435	3.7	23	0.7	T,Z
2	2.7	460	1400	4.8	23	0.8	F,P,S
2	2.7	460	1400	4.8	23	0.8	T,Z
2	2.7	461	1400	4.8	23	0.8	F,P,S

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	2.7	461	1400	4.8	23	0.8	T,Z
2	2.7	462	1400	4.8	23	0.8	F,P,S
2	2.7	463	1400	4.8	23	0.8	F,P,S



WS004116A

Table 18: 230 V, 50 Hz, 1-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
1.5	2.0	462	1425	9.4	43	0.9	F,P,S
1.5	2.0	463	1425	9.4	43	0.9	F,P,S

SH

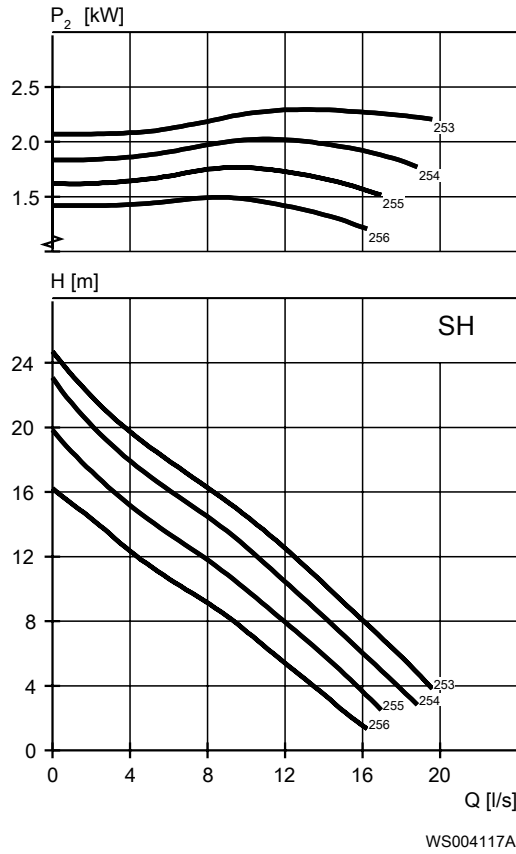


Table 19: 400 V, 50 Hz, 3-phase

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	253	2870	4.8	30	0.89	P,S
2.4	3.2	253	2870	4.8	30	0.89	T,Z
2.4	3.2	253	2870	4.9	34	0.87	P,S
2.4	3.2	253	2870	4.9	34	0.87	T,Z
2.4	3.2	254	2870	4.8	30	0.89	P,S
2.4	3.2	254	2870	4.8	30	0.89	T,Z
2.4	3.2	254	2870	4.9	34	0.87	P,S
2.4	3.2	254	2870	4.9	34	0.87	T,Z
2.4	3.2	255	2870	4.8	30	0.89	T,Z
2.4	3.2	255	2870	4.8	30	0.89	P,S
2.4	3.2	255	2870	4.9	34	0.87	P,S
2.4	3.2	255	2870	4.9	34	0.87	T,Z
2.4	3.2	256	2870	4.8	30	0.89	P,S
2.4	3.2	256	2870	4.8	30	0.89	T,Z
2.4	3.2	256	2870	4.9	34	0.87	P,S
2.4	3.2	256	2870	4.9	34	0.87	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 20: Adaptive N-hydraulic

Impeller material	Non-explosion proof version	Explosion proof version	Pressure class	Installation types
Cast iron, gray	3085.900	3085.910	MT – Medium head	F, P, S, T, Z, X
Hard-Iron™	3085.920	3085.930	MT – Medium head	F, P, S, T, Z, X
Stainless steel	3085.960	3085.970	MT – Medium head	F, P, S, T, Z, X

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.
- 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 <sup>3</sup>

## Motor data

Feature	Description
Motor type	Line started permanent magnet motor (LSPM)
Frequency	50 Hz
Power supply	1-phase or 3-phase
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Soft starter</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 30
Code compliance	IEC 60034-1
Voltage variation	<ul style="list-style-type: none"> <li>• Continuously running: Maximum <math>\pm 5\%</math></li> <li>• Intermittent running: Maximum <math>\pm 10\%</math></li> </ul>
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 <sup>2</sup> 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 <sup>2</sup> 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 21: 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)
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 22: Mechanical seals

Alternative	Inner seal	Outer seal
1	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)
2	Carbon (CSb)/ Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	Silicon carbide (RSiC)/ Silicon carbide (RSiC)
3	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 3085.900/.910/.920/.930/.960/.970

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

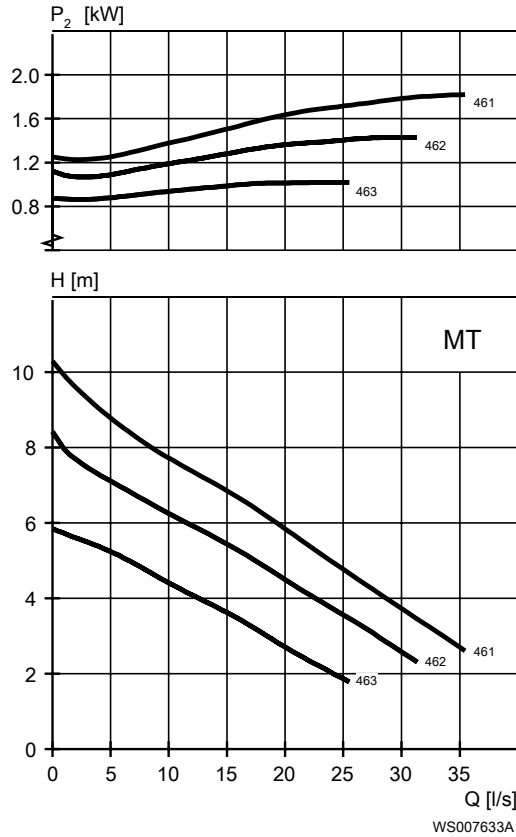


Table 23: 400 V, 50 Hz, 3-phase

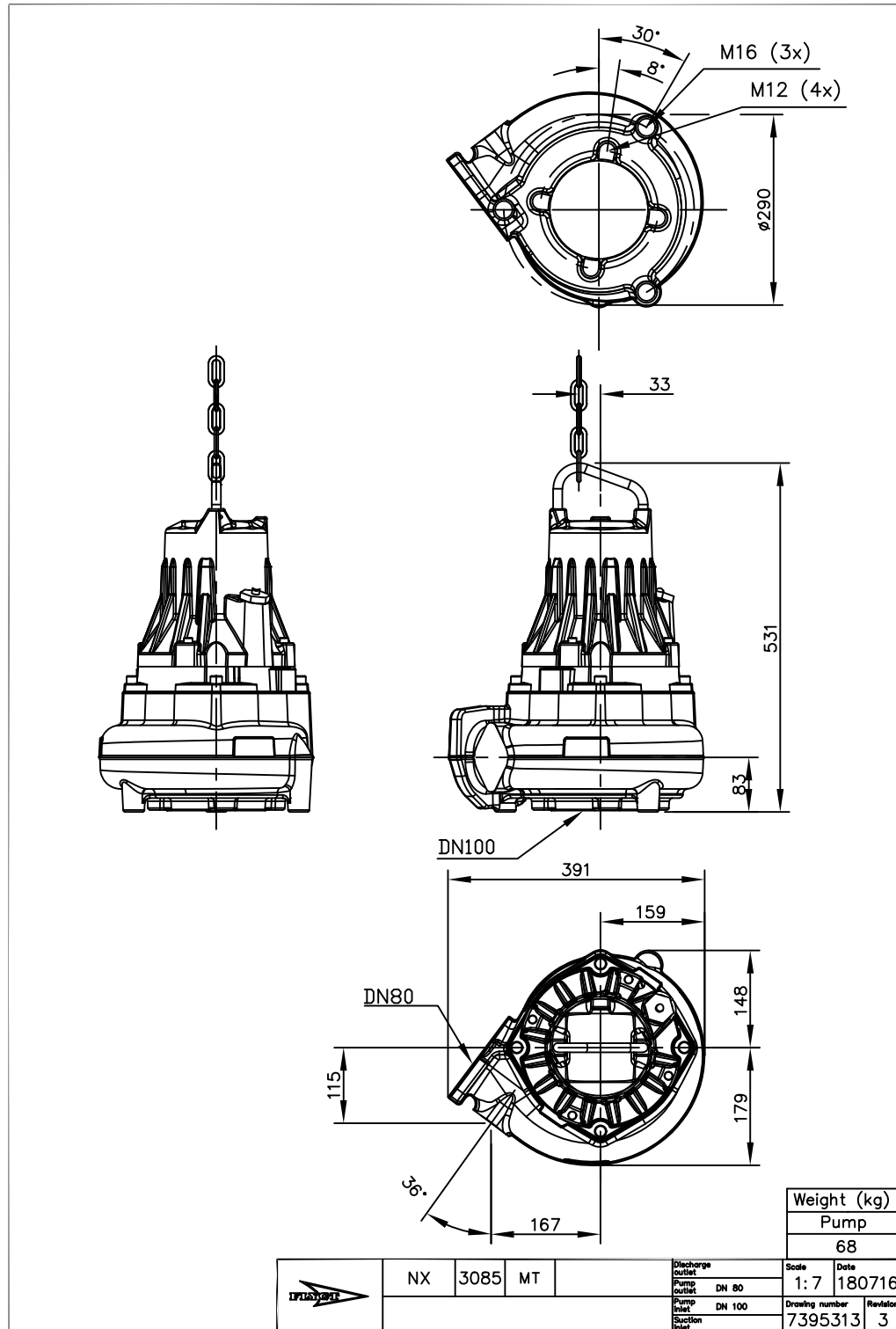
Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated current, A	Starting current, A	Power factor, $\cos \varphi$	Installation
1.6	2.1	462	1500	3.3	23	0.82	F,P,S,T,Z
1.6	2.1	463	1500	3.3	23	0.82	F,P,S,T,Z
2	2.7	461	1500	3.8	23	0.87	F,P,S,T,Z
2	2.7	462	1500	3.8	23	0.87	F,P,S,T,Z
2	2.7	463	1500	3.8	23	0.87	F,P,S,T,Z

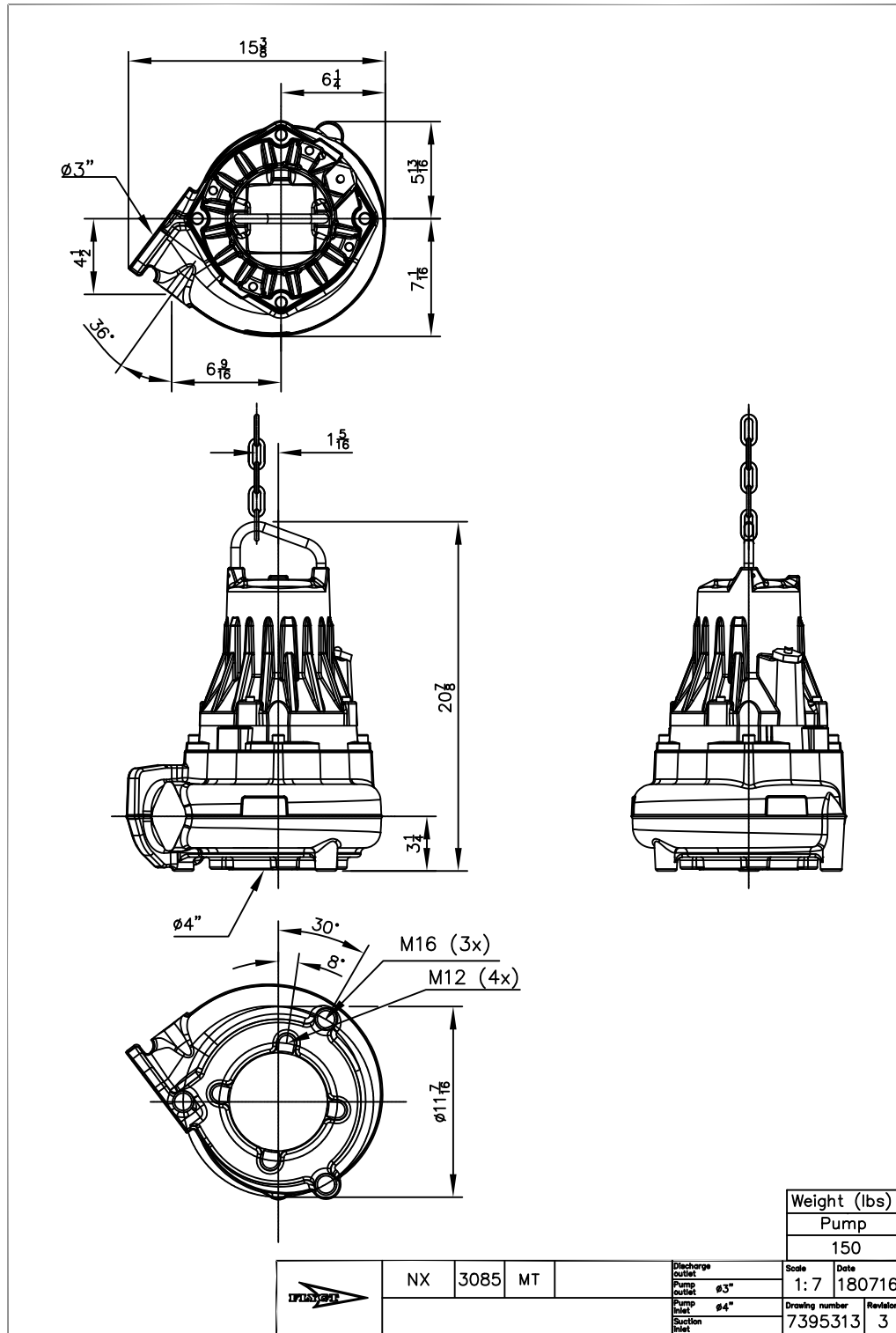
# 6 Dimensions and Weight

## 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.











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

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