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**1320, 50Hz**

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# Table of Contents

1 Vortex.....	2
1.1 Product description.....	2
1.2 Motor rating and performance curves.....	4
2 Non-clog.....	6
2.1 Product description.....	6
2.2 Motor rating and performance curves.....	8

# 1 Vortex

## 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	Model variant	Installation types
Vortex	1320.181	1320.090	<ul style="list-style-type: none"> <li>• H - High head</li> <li>• M - Medium head</li> </ul>	<ul style="list-style-type: none"> <li>• Free-standing</li> <li>• Wet-well</li> </ul>

The pump can be used in the following installations:

**Free-standing** Portable semipermanent, wet well arrangement with hose coupling or flange for connection to the discharge pipeline.

**Wet-well** 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

Feature	Description
Power supply	3-phase
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 15
Code compliance	IEC 60034-1
Voltage variation without overheating	±10%, if it does not run continuously at full load
Voltage imbalance between phases	Maximum 2%
Stator insulation class	F (155°C [311°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 <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

Motor	Thermal contacts opening temperature
18-15-2Z, 18-15-4Z	140°C (284°C)

## Materials

Table 1: Major parts except mechanical seals

Denomination	Material	ASTM	EN
Major castings	Cast iron, gray	30B	GJL-200
Pump housing	Cast iron, gray	30B	GJL-200
Impeller, alternative 1	Cast iron, gray	35B	GJL-250
Impeller, alternative 2	Cast iron, gray	30B	GJL-200
Lifting eye bolt	Steel electro zinc coated	-	EN 10084 - C15E
Lifting handle	Stainless steel	AISI 304	1,4301
Shaft	Stainless steel	AISI 431	1.4057+QT800
Screws and nuts	Stainless steel, A2	AISI 304	1.4301, 1.4306, 1.4307, 1.4311
O-rings	Nitrile rubber (NBR) 70° IRH	-	-
Oil, part no 901752	Medical white oil of paraffin type. Fulfills FDA 172.878 (a)	-	-

Table 2: Mechanical seals

Inner seal	Outer seal
Carbon (CSb)/ Corrosion resistant cemented carbide (WCCR)	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)

Surface treatment

Finish
Black or blue two-component high-solid top coating. See internal standard M 0700.00.0004 for standard painting.

Options

- Leakage sensor in the stator housing (FLS)

Accessories

- Installation equipment  
Sold in kits
- Mechanical accessories such as discharge connections, adapters, and hose connections
- Electrical accessories such as pump controller, control panels, starters, monitoring relays, and 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.

H

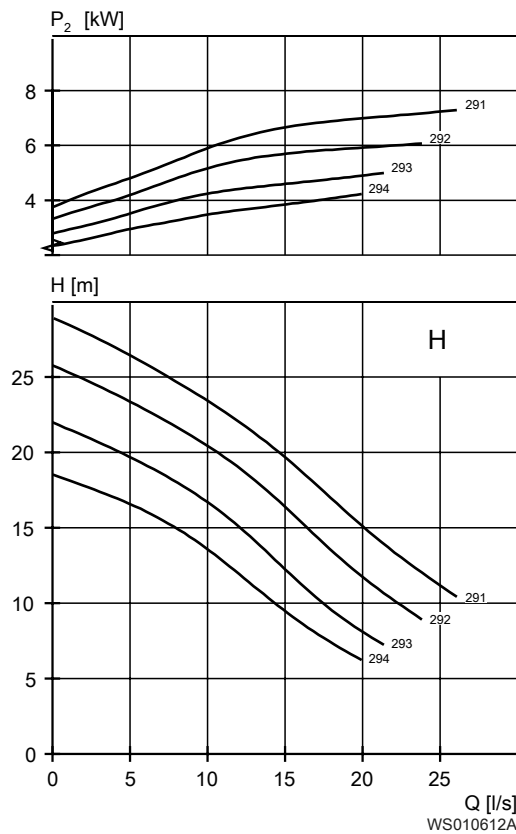


Table 3: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated Current, A	Start current, A	Power Factor, cos φ	Installation
7.5	10.1	291	2895	14	107	0.88	FS, WW
6.2	8.3	292	2915	12	107	0.85	FS, WW
6.2	8.3	293	2915	12	107	0.85	FS, WW
4.8	6.4	294	2935	9.8	107	0.8	FS, WW

- FS= Free-standing
- WW=Wet-well

M

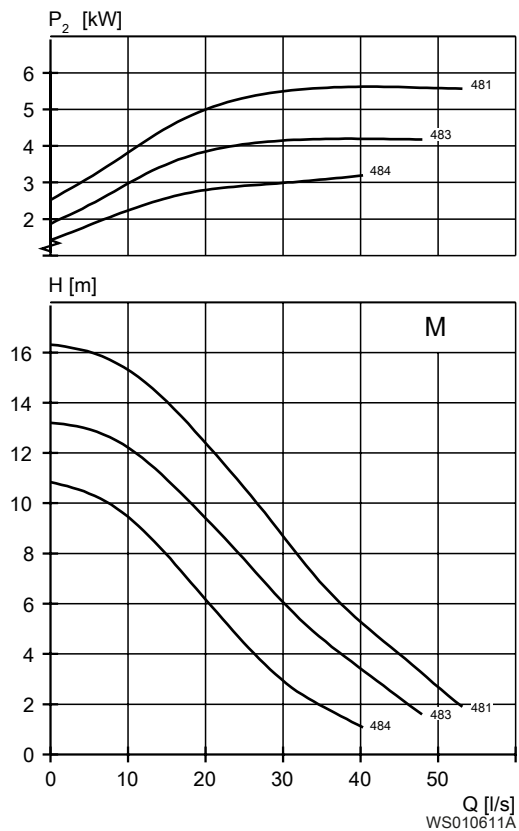


Table 4: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated Current, A	Start current, A	Power Factor, cos φ	Installation
5.9	7.9	481	1435	13	60	0.81	FS, WW
4.5	6	483	1455	10	60	0.75	FS, WW
3.5	4.7	484	1465	8.8	60	0.68	FS, WW

- FS= Free-standing
- WW=Wet-well

# 2 Non-clog

## 2.1 Product description



### Usage

A submersible pump for efficient pumping of clean water, surface water, and wastewater containing solids. The pump is designed for sustained efficiency over time.

### Denomination

Type	Non-explosion proof version	Explosion proof version	Model variant	Installation types
Non-clog	1320.181	1320.090	<ul style="list-style-type: none"> <li>• H - High head</li> <li>• M - Medium head</li> <li>• S - Super high head</li> </ul>	<ul style="list-style-type: none"> <li>• Free-standing</li> <li>• Wet-well</li> </ul>

The pump can be used in the following installations:

- Free-standing Portable semipermanent, wet well arrangement with hose coupling or flange for connection to the discharge pipeline.
- Wet-well 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

Feature	Description
Frequency	50 Hz
Power supply	3-phase
Starting method	<ul style="list-style-type: none"> <li>• Direct on-line</li> <li>• Star-delta</li> <li>• Variable Frequency Drive (VFD)</li> </ul>
Number of starts per hour	Maximum 15
Code compliance	IEC 60034-1
Voltage variation without overheating	±10%, if it does not run continuously at full load
Voltage imbalance between phases	Maximum 2%
Stator insulation class	F (155°C [311°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 <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

Motor	Thermal contacts opening temperature
18-15-2Z, 18-15-4Z	140°C (284°C)

## Materials

Table 5: Major parts except mechanical seals

Denomination	Material	ASTM	EN
Major castings	Cast iron, gray	30B	GJL-200
Pump housing	Cast iron, gray	30B	GJL-200
Impeller	Cast iron, gray	30B	GJL-200
Lifting eye bolt	Steel electro zinc coated	-	EN 10084 - C15E
Lifting handle	Stainless steel	AISI 304	1,4301
Shaft	Stainless steel	AISI 431	1.4057+QT800
Screws and nuts	Stainless steel, A2	AISI 304	1.4301, 1.4306, 1.4307, 1.4311
O-rings	Nitrile rubber (NBR) 70° IRH	-	-
Oil, part no 901752	Medical white oil of paraffin type. Fulfills FDA 172.878 (a)	-	-

Table 6: Mechanical seals

Inner seal	Outer seal
Carbon (CSb)/ Corrosion resistant cemented carbide (WCCR)	Corrosion resistant cemented carbide (WCCR)/ Corrosion resistant cemented carbide (WCCR)

Surface treatment

Finish
Black or blue two-component high-solid top coating. See internal standard M 0700.00.0004 for standard painting.

Options

- Leakage sensor in the stator housing (FLS)

Accessories

- Installation equipment  
Sold in kits
- Mechanical accessories such as discharge connections, adapters, and hose connections
- Electrical accessories such as pump controller, control panels, starters, monitoring relays, and 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.

H

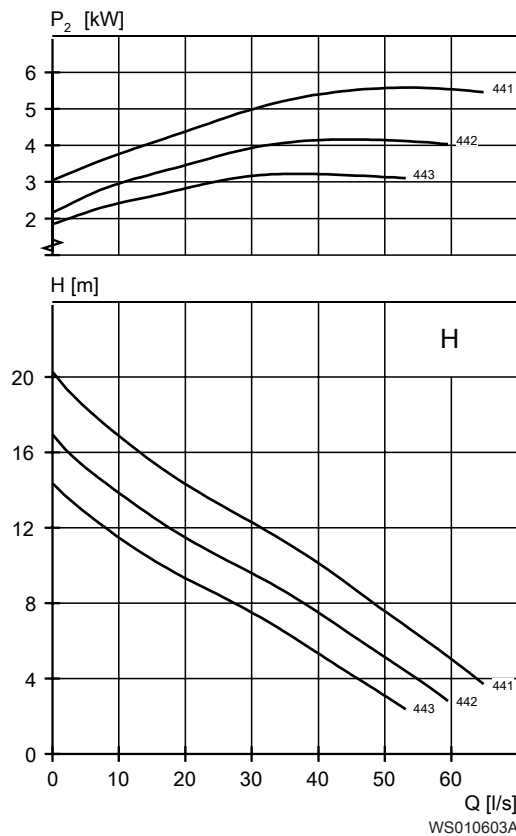


Table 7: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated Current, A	Start current, A	Power Factor, cos $\phi$	Installation
5.9	7.9	441	1435	13	60	0.81	FS, WW
4.5	6	442	1455	10	60	0.75	FS, WW
3.5	4.7	443	1465	8.8	60	0.68	FS, WW

- FS= Free-standing
- WW=Wet-well

M

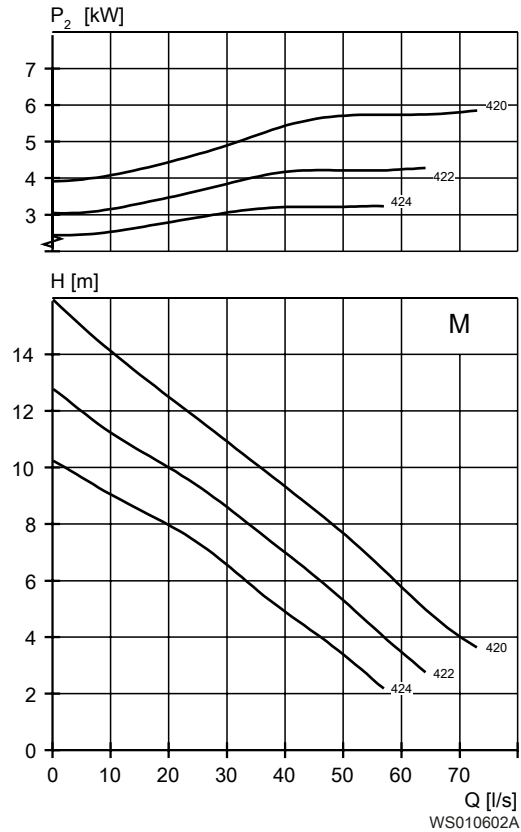


Table 8: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated Current, A	Start current, A	Power Factor, cos $\phi$	Installation
5.9	7.9	420	1435	13	60	0.81	FS, WW
4.5	6	422	1455	10	60	0.75	FS, WW
3.5	4.7	424	1465	8.8	60	0.68	FS, WW

- FS= Free-standing
- WW=Wet-well

S

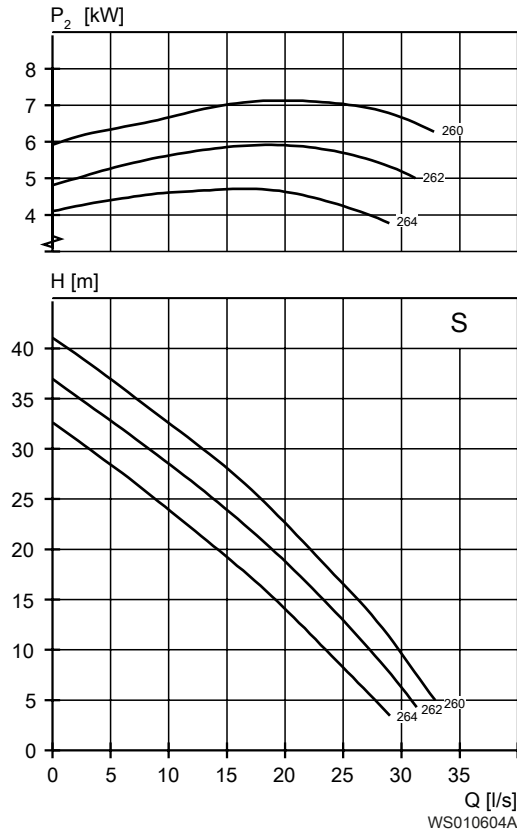


Table 9: 400 V, 50 Hz, 3-phase

Rated power, kW	Rated power, hp	Curve/ Impeller No	Revolutions per minute, rpm	Rated Current, A	Start current, A	Power Factor, cos φ	Installation
7.5	10.1	260	2895	14	107	0.88	FS, WW
6.2	8.3	262	2915	12	107	0.85	FS, WW
4.8	6.4	264	2935	9.8	107	0.8	FS, WW

- FS= Free-standing
- WW=Wet-well







# Xylem |'zīləm|

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

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