

1310, 50Hz

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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 | 1310.181 | 1310.090 | <ul style="list-style-type: none"> • H - High head • L - Low head • M - Medium head | <ul style="list-style-type: none"> • Free-standing • Wet-well |

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 ³ |

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"> • Direct on-line • Variable Frequency Drive (VFD) |
| 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 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

| Motor | Thermal contacts opening temperature |
|------------------------------|--------------------------------------|
| 13-10-2B, 13-13-2B, 13-10-4B | 125°C (257°F) |
| 13-10-4B | 140°C (284°F) |

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 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 |

| Denomination | Material | ASTM | EN |
|---------------------|--|------|----|
| 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)/ Aluminum oxide (Al ₂ O ₃) | Corrosion resistant cemented carbide (WCCR)/ Aluminum oxide (Al ₂ O ₃) |

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

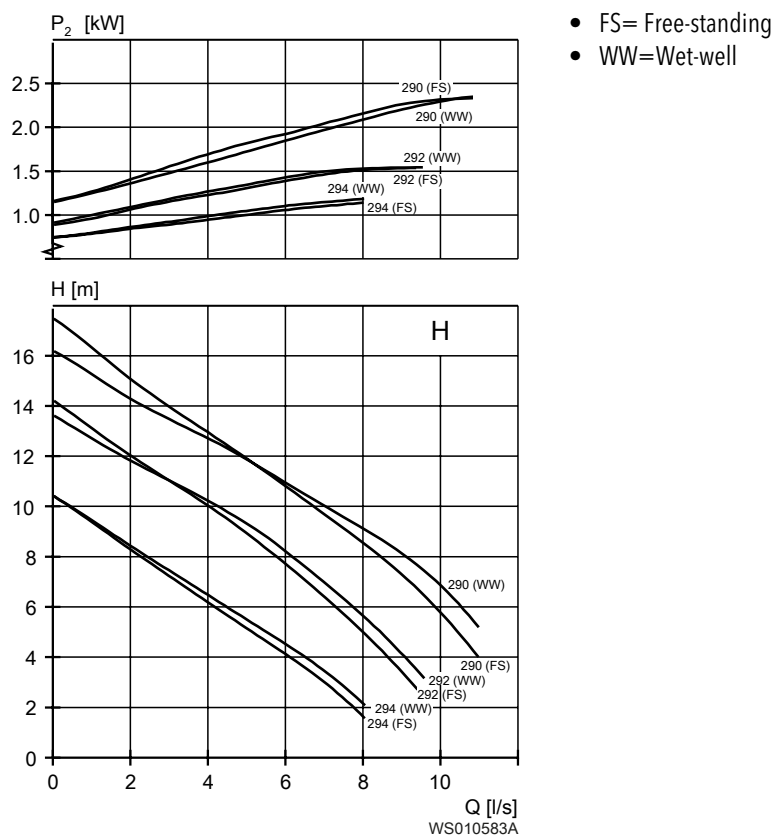
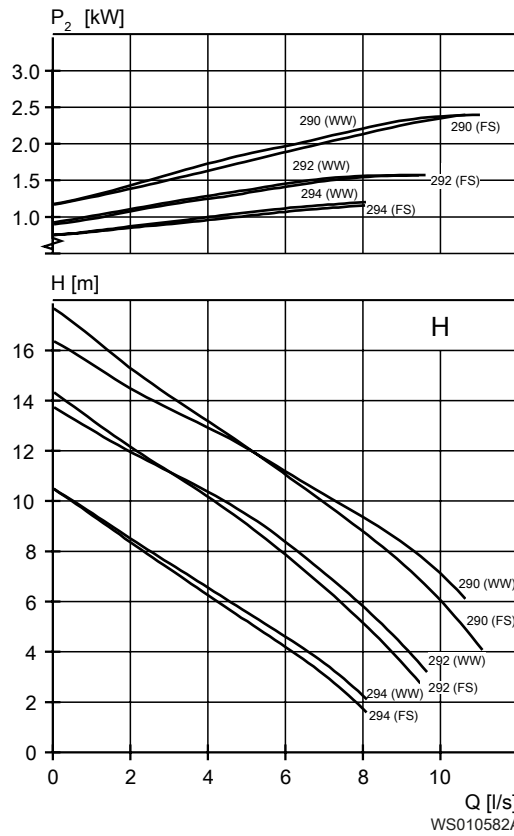


Table 3: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 2.4 | 3.2 | 290 | 2780 | 5.1 | 27 | 0.86 | FS, WW |
| 1.7 | 2.3 | 292 | 2855 | 3.8 | 27 | 0.79 | FS, WW |
| 1.4 | 1.9 | 294 | 2885 | 3.3 | 27 | 0.73 | FS, WW |

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



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

Table 4: 230 V, 50 Hz, 1-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 |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 2.4 | 3.2 | 290 | 2810 | 14 | 48 | 0.96 | FS, WW |
| 1.7 | 2.3 | 292 | 2880 | 10 | 48 | 0.95 | FS, WW |
| 1.4 | 1.9 | 294 | 2905 | 8.4 | 48 | 0.94 | FS, WW |

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

L

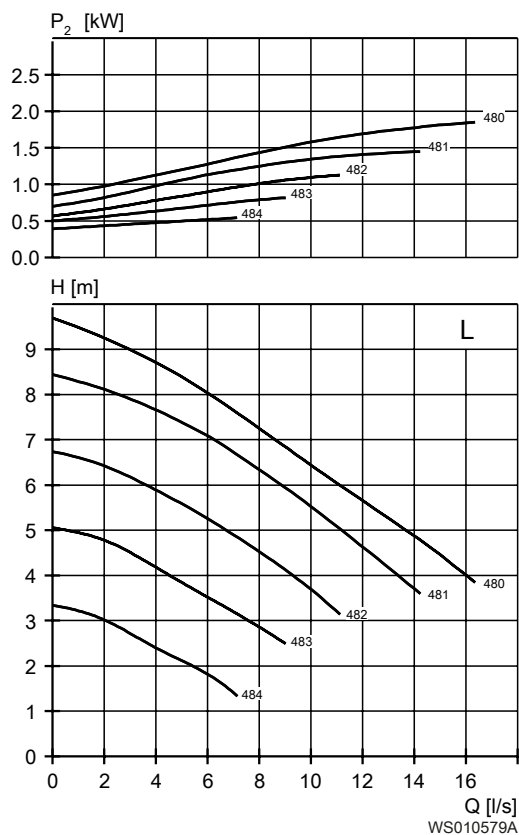


Table 5: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 1.5 | 2 | 481 | 1405 | 3.9 | 19 | 0.77 | FS, WW |
| 1.2 | 1.6 | 482 | 1425 | 3.4 | 19 | 0.7 | FS, WW |
| 1.2 | 1.6 | 483 | 1425 | 3.4 | 19 | 0.7 | FS, WW |
| 1.2 | 1.6 | 484 | 1425 | 3.4 | 19 | 0.7 | FS, WW |
| 2 | 2.7 | 480 | 1355 | 4.9 | 19 | 0.85 | FS, WW |

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

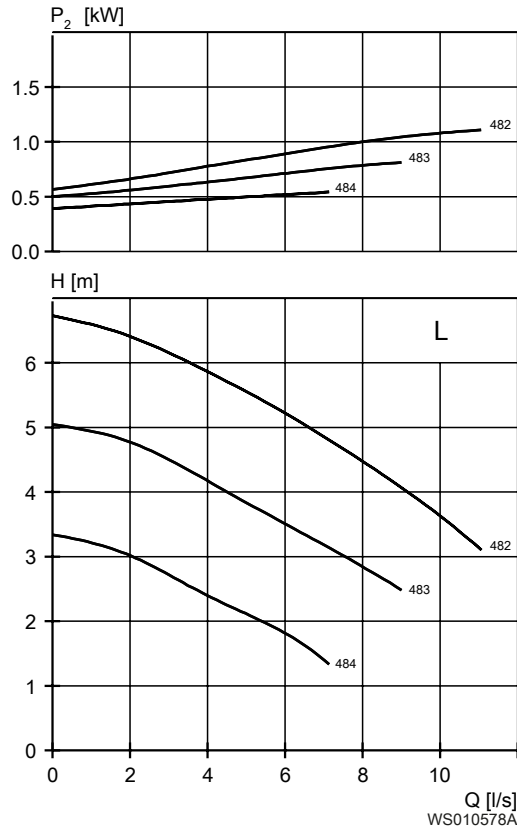


Table 6: 230 V, 50 Hz, 1-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 1.3 | 1.7 | 482 | 1400 | 8.4 | 28 | 1 | FS, WW |
| 1 | 1.3 | 483 | 1435 | 6.6 | 28 | 1 | FS, WW |
| 1 | 1.3 | 484 | 1435 | 6.6 | 28 | 1 | FS, WW |

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

M

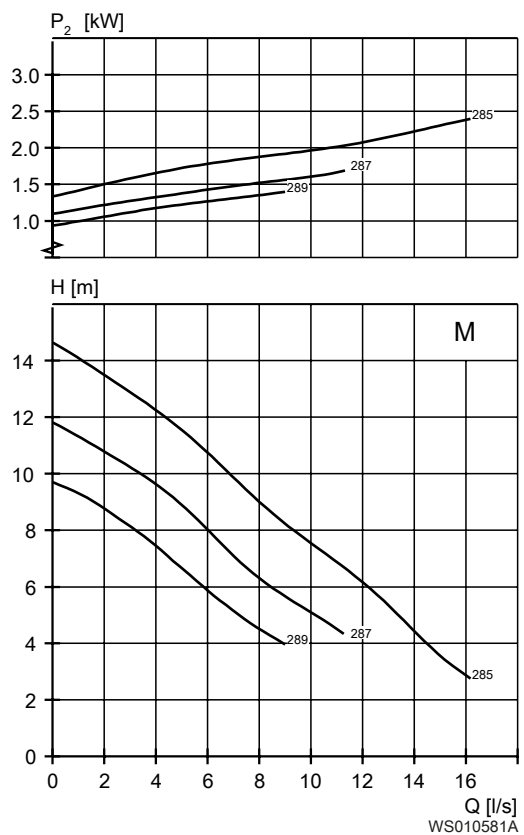


Table 7: 400 V, 50 Hz, 3-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos φ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|---------------------|--------------|
| 2.4 | 3.2 | 285 | 2780 | 5.1 | 27 | 0.86 | FS, WW |
| 1.7 | 2.3 | 287 | 2855 | 3.8 | 27 | 0.79 | FS, WW |
| 1.4 | 1.9 | 289 | 2885 | 3.3 | 27 | 0.73 | FS, WW |

- FS= Free-standing
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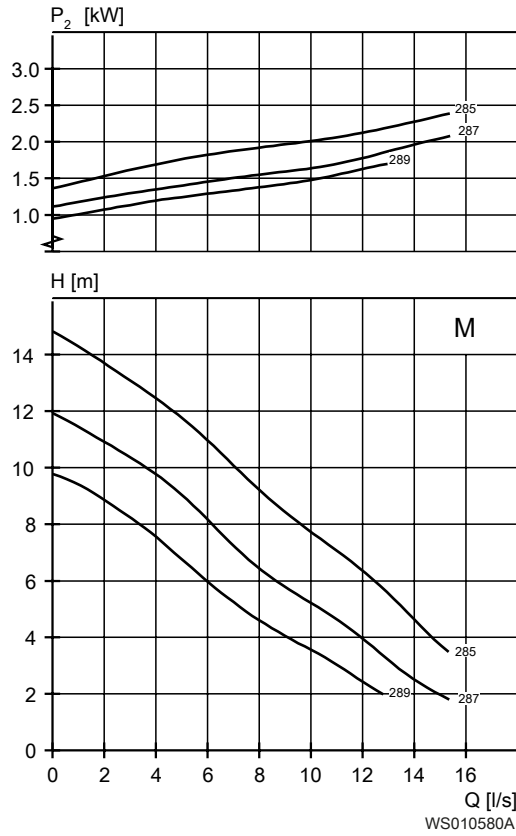


Table 8: 230 V, 50 Hz, 1-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, cos ϕ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|--------------------------|--------------|
| 2.4 | 3.2 | 285 | 2810 | 14 | 48 | 0.96 | FS, WW |
| 2.4 | 3.2 | 287 | 2810 | 14 | 48 | 0.96 | FS, WW |
| 1.7 | 2.3 | 289 | 2880 | 10 | 48 | 0.95 | 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 | 1310.181 | 1310.090 | S - Super high head | <ul style="list-style-type: none"> • Free-standing • Wet-well |

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 ³ |

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"> • Direct on-line • Variable Frequency Drive (VFD) |
| 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 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. |

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Materials

Table 9: 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 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 | - | - |

| Denomination | Material | ASTM | EN |
|---------------------|--|------|----|
| Oil, part no 901752 | Medical white oil of paraffin type. Fulfills FDA 172.878 (a) | - | - |

Table 10: Mechanical seals

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

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

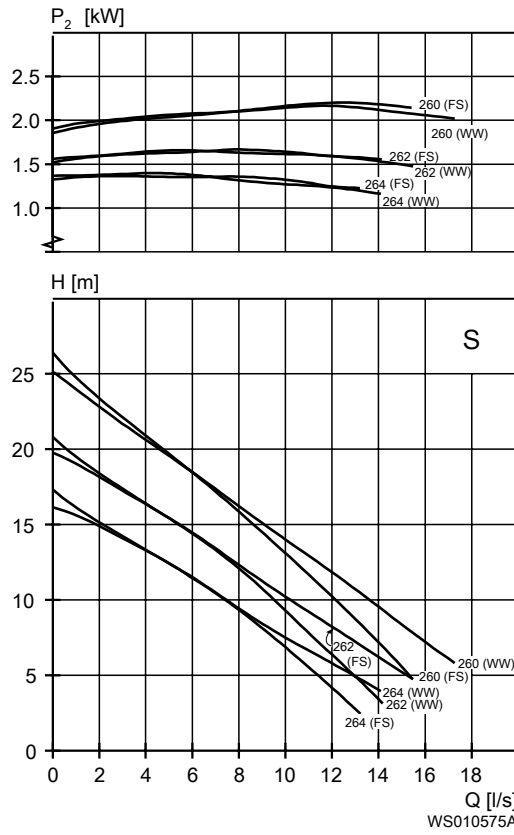
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Sold in kits
- Mechanical accessories such as discharge connections, adapters, and hose connections
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2.2 Motor rating and performance curves

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S



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

Table 11: 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 |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|--------------------------|--------------|
| 2.4 | 3.2 | 260 | 2780 | 5.1 | 27 | 0.86 | FS, WW |
| 1.7 | 2.3 | 262 | 2855 | 3.8 | 27 | 0.79 | FS, WW |
| 1.4 | 1.9 | 264 | 2885 | 3.3 | 27 | 0.73 | FS, WW |

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

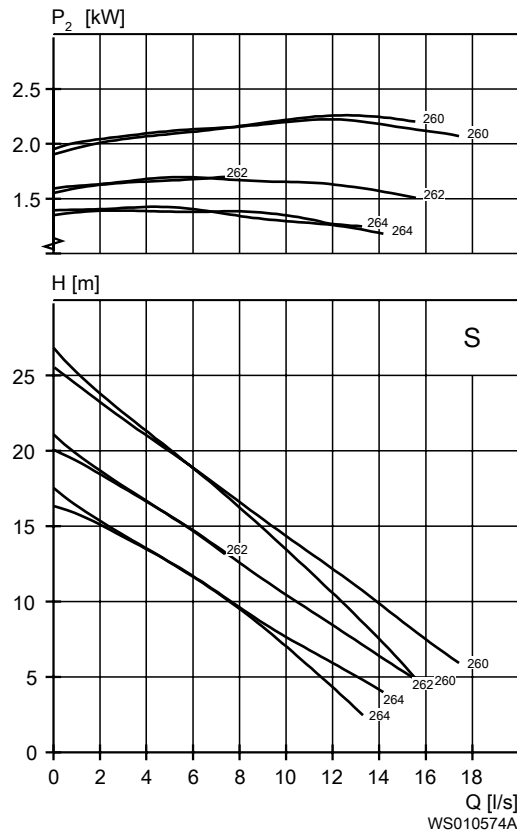


Table 12: 230 V, 50 Hz, 1-phase

| Rated power, kW | Rated power, hp | Curve/ Impeller No | Revolutions per minute, rpm | Rated Current, A | Start current, A | Power Factor, $\cos \varphi$ | Installation |
|-----------------|-----------------|--------------------|-----------------------------|------------------|------------------|------------------------------|--------------|
| 2.4 | 3.2 | 260 | 2810 | 14 | 48 | 0.96 | FS, WW |
| 1.7 | 2.3 | 262 | 2880 | 10 | 48 | 0.95 | FS, WW |
| 1.5 | 2 | 264 | 2900 | 8.9 | 48 | 0.95 | FS, WW |
| 1.4 | 1.9 | 264 | 2905 | 8.4 | 48 | 0.94 | FS |

- 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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