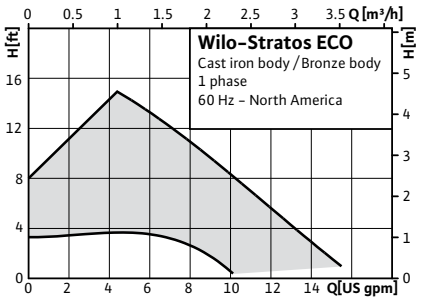
# High Efficiency Circulating Pumps

**Product review: Wilo-Stratos ECO**

## Range: Wilo-Stratos ECO








**>Single head pumps:**

- Electronically controlled circulating pumps with flanged connection

**>Applications:**

- Residential closed loop hot water heating systems, water and water glycol solutions up to 50% concentration (cast iron version) and domestic hot water recirculation systems (bronze version)

**>Special features:**

- Maintenance free single-head circulator

**>Product advantages:**

- ECM-Technology for outstanding efficiency
- Energy savings up to 80% over standard pumps
- For all heating, air-conditioning and cooling systems in the temperature range of 60 °F (+15 °C) up to 230 °F (+110 °C)
- For domestic hot water systems in the temperature range of 60 °F (+15 °C) up to 150 °F (+66 °C)
- Automatic setback mode (Autopilot)
- Minimum electrical power consumption: 5.8 W
- Very high starting torque insures positive start-ups



As at: 12/2007 - Subject to change without prior notice

## Equipment / function Wilo-Stratos ECO

| | Wilo-Stratos ECO... | | |
|---|---|---|---|
| | **16 F** | **16 FX** | **16 BFX** |
| **Operating modes** | | | |
| Δp-v for variable differential pressure | • | • | • |
| **Manual functions** | | | |
| Setting the differential-pressure setpoint | • | • | • |
| Setting to “Autopilot” (automatic setback mode) | • | • | • |
| **Automatic functions** | | | |
| Stepless power adjustment depending on the operating mode | • | • | • |
| “Autopilot” automatic setback mode | • | • | • |
| Anti-seizing function | • | • | • |
| Soft start | • | • | • |
| Full motor protection with integrated trip electronics | • | • | • |
| **Equipment / Scope of delivery** | | | |
| Circulator | • | • | • |
| Flange gaskets (2) | • | • | • |
| Installation and Instruction Manual | • | • | • |

• = available, — = not available

# High Efficiency Circulating Pumps

**Product review: Wilo-Stratos ECO**

## Technical data Wilo-Stratos ECO

| | Wilo-Stratos ECO... | | |
|---|---|---|---|
| | **16 F** | **16 FX** | **16 BFX** |
| **Approved fluids (other fluids on request)** | | | |
| Heating water | • | • | – |
| Water/glycol mixtures (max. 1:1; mixtures with more than 20 % glycol require reassessment of the hydraulic criteria) | • | • | – |
| Domestic hot water | – | – | • |
| **Performance** | | | |
| Max. head [ft] | 16 | 16 | 16 |
| Max. head [m] | 4.9 | 4.9 | 4.9 |
| Max. rate of flow [USGPM] | 15.5 | 15.5 | 15.5 |
| Max. rate of flow [$m^3/h$] | 3.5 | 3.5 | 3.5 |
| **Acceptable field of application** | | | |
| Temperature range for application in heating and cooling installations | 60 °F (+15 °C) up to 230 °F (+110 °C) | 60 °F (+15 °C) up to 230 °F (+110 °C) | 60 °F (+15 °C) up to 230 °F (+110 °C) |
| Temperature range for open circulating systems [°F] | – | – | – |
| Temperature range in domestic hot water systems [°F] | – | – | 60 °F (+15 °C) up to 150 °F (+66 °C) |
| Ambient temperature range | 14 °F (-10 °C) up to 104 °F (+40 °C) | 14 °F (-10 °C) up to 104 °F (+40 °C) | 14 °F (-10 °C) up to 104 °F (+40 °C) |
| Max. working pressure $p_{max}$ | 145 psi (10 bar) | 145 psi (10 bar) | 145 psi (10 bar) |
| **Pipe connections** | | | |
| Residential 2 bolt flanged | • | – | – |
| Residential 2 bolt flanged rotated 90° | – | • | • |
| Union connection | – | – | – |
| Internal sweat | – | – | – |
| **Electrical connections** | | | |
| Power supply 1~ [V] | 115 | 115 | 115 |
| | 230 | 230 | 230 |
| Power supply 3~ [V] | – | – | – |
| Frequency [Hz] | 60 | 60 | 60 |

• = available, — = not available

## Technical data Wilo-Stratos ECO

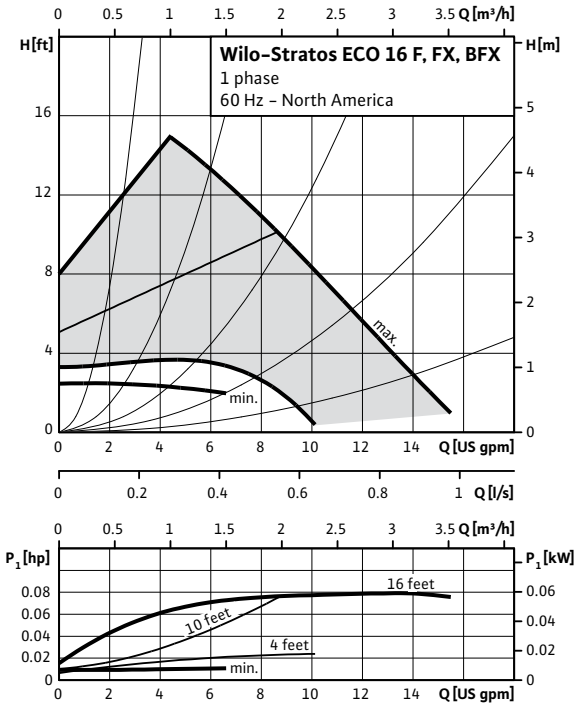
| | Wilo-Stratos ECO... | | |
|---|---|---|---|
| | **16 F** | **16 FX** | **16 BFX** |
| **Motor/Electronics** | | | |
| Power electronics | Frequency Converter | Frequency Converter | Frequency Converter |
| Degree of protection | Enclosure 2 | Enclosure 2 | Enclosure 2 |
| Insulation class | H | H | H |
| **Materials** | | | |
| Pump housing | Cast iron (EN-GJL 200) | Cast iron (EN-GJL 200) | Bronze (Cu Sn5 Pb5 Zn5) |
| Impeller | Plastics PP (40% Glass Filled) | Plastics PP (40% Glass Filled) | Plastics PP (40% Glass Filled) |
| Shaft | Stainless steel (X30 Cr13 or X46 Cr13) | Stainless steel (X30 Cr13 or X46 Cr13) | Stainless steel (X30 Cr13 or X46 Cr13) |
| Bearing | Carbon (metal impregnated) | Carbon (metal impregnated) | Carbon (metal impregnated) |
| **Minimal static inlet pressure at pump suction port [psi] to avoid cavitation at fluid temperatures** | | | |
| 122 °F (50 °C) | 1.0 | 1.0 | 1.0 |
| 203 °F (95 °C) | 4.3 | 4.3 | 4.3 |
| 230 °F (110 °C) | 14.0 | 14.0 | 14.0 |

• = available, — = not available

## Pump curves

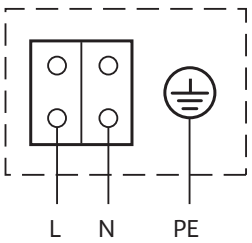
### Wilo-Stratos ECO 16 F, FX, BFX

**Δp-v (variable)**



## Wiring diagrams, motor data

### Wiring diagram

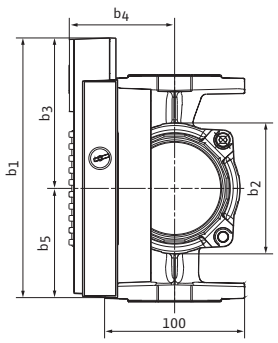


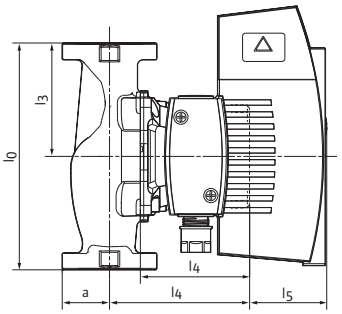

**Motor data**

| Wilo-Stratos ECO... | Rated Power | | Speed | Power consumption | | Current 1~115 V | Current 1~230 V | Motor protection | Screwed cable gland |
|---|---|---|---|---|---|---|---|---|---|
| | $P_2$ | | n | $P_1$ | | I | | – | – |
| | [hp] | [W] | [rpm] | [hp] | [W] | [A] | | – | [in] |
| **16 F** | 0.043 | 32 | 1500 - 3400 | 0.008 - 0.079 | 5.8 - 59.0 | 0.10 - 0.90 | 0.06 - 0.46 | integrated | 1 x 5⁄16 |
| **16 FX** | 0.043 | 32 | 1500 - 3400 | 0.008 - 0.079 | 5.8 - 59.0 | 0.10 - 0.90 | 0.06 - 0.46 | integrated | 1 x 5⁄16 |
| **16 BFX** | 0.043 | 32 | 1500 - 3400 | 0.008 - 0.079 | 5.8 - 59.0 | 0.10 - 0.90 | 0.06 - 0.46 | integrated | 1 x 5⁄16 |

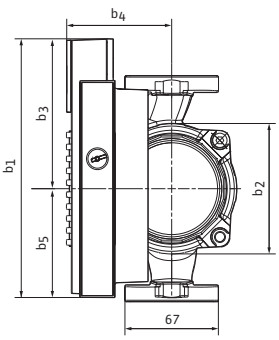
## Dimensions, weights

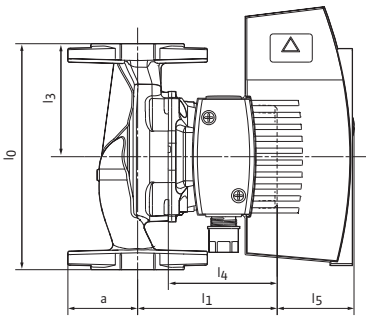
**Drawing no.: 1**



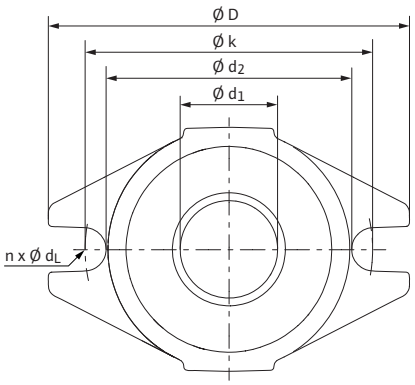




**Drawing no.: 2**




**Drawing no.: 3**



## Dimensions, weights

### Dimensions, weights

| Wilo-Stratos ECO... | Flange diameter | | Pump dimensions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DN | | $l_0$ | | a | | $b_1$ | | $b_2$ | | $b_3$ | | $b_4$ | |
| | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] |
| **16 F** | 3/4 | 20 | 6 1/2 | 162 | 1 5/16 | 34 | 7 5/16 | 185.5 | 3 11/16 | 93.5 | 4 1/4 | 107.5 | 2 15/16 | 75 |
| **16 FX** | 3/4 | 20 | 6 1/2 | 162 | 1 5/16 | 34 | 7 5/16 | 185.5 | 3 11/16 | 93.5 | 4 1/4 | 107.5 | 2 15/16 | 75 |
| **16 BFX** | 3/4 | 20 | 6 1/2 | 162 | 1 5/16 | 34 | 7 5/16 | 185.5 | 3 11/16 | 93.5 | 4 1/4 | 107.5 | 2 15/16 | 75 |

### Dimensions, weights (continuation)

| Wilo-Stratos ECO... | Pump dimension | | | | | | | | | | Weight approx. net | | Drawing No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $b_5$ | | $l_1$ | | $l_3$ | | $l_4$ | | $l_5$ | | - | | - |
| | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm] | [lbs] | [kg] | - |
| **16 F** | 3 1/16 | 78 | 3 15/16 | 100 | 3 3/16 | 81 | 3 1/16 | 78 | 2 3/16 | 55 | 6.74 | 3.06 | 1 |
| **16 FX** | 3 1/16 | 78 | 3 15/16 | 100 | 3 3/16 | 81 | 3 1/16 | 78 | 2 3/16 | 55 | 6.67 | 3.03 | 2 |
| **16 BFX** | 3 1/16 | 78 | 3 15/16 | 100 | 3 3/16 | 81 | 3 1/16 | 78 | 2 3/16 | 55 | 7.38 | 3.35 | 2 |

### Flange dimensions

| Wilo-Stratos ECO... | Flange | Nominal diameter | | Flange dimension pump | | | | | | | | | | Drawing No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DN | | Ø D | | Ø $d_1$ | | Ø $d_2$ | | Ø k | | n x $d_L$ | | - |
| | | [in] | [mm] | [in] | [mm] | [in] | [mm] | [in] | [mm | [in] | [mm | [units x in] | [units x mm] | - |
| **16 F** | Residential 2 bolt flanged | 3/4 | 20 | 3 15/16 | 100 | 1 1/16 | 27 | 2 7/16 | 62 | 3 1/8 | 80 | 2 x ø 1/2 | 2 x ø12 | 3 |
| **16 FX 16 BFX** | Residential 2 bolt flanged rotated 90° | 3/4 | 20 | 3 15/16 | 100 | 1 1/16 | 27 | 2 7/16 | 62 | 3 1/8 | 80 | 2 x ø 1/2 | 2 x ø12 | 3 |