



BLZ THD



BLZ F

Wilo BLZ
Base-Mounted Close-Coupled End-Suction Pumps

Engineering Specification

PART 1 - GENERAL

1.1 SUMMARY

- A. Pump shall be Series BLZ, close-coupled (i.e. not frame or long-coupled), base-mounted, end-suction centrifugal pump as manufactured by Wilo USA, LLC.
- B. Furnish and install extended life, low maintenance pumps with capacities as shown on plans/submittals.

1.2 REFERENCES

- A. ANSI/HI - American National Standards Institute/Hydraulic Institute
- B. E I S A 2007 - Energy Independence and Security Act of 2007
- C. NSF International – National Sanitation Foundation
- D. NEMA - National Electrical Manufacturers Association
- E. ISO - International Standards Organization

1.3 QUALITY ASSURANCE

- A. The pump manufacturer shall be fully certified by the International Standards Organization per ISO 9001:2008.

1.4 DELIVERY AND HANDLING

- A. In preparation for shipping, the pump shall have clean threads or flanges.
- B. Pumps are shipped in boxes and are to remain in factory shipping condition until immediately prior to installation.
- C. Pumps are to be stored indoors in a conditioned space, protected from exposure to the elements, and from exposure to other potential contaminants.
- D. Factory applied labels are to remain in place and unobscured. These identification tags are to display model numbers, serial numbers, and evidence of certifications/listings.

1.5 WARRANTY

- A. The Manufacturer shall warrant the circulating pumps for a period of 2 years from date of purchase, subject to the Terms and Conditions of said Warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the specifications, the following manufacturers shall be acceptable:

(1) Wilo USA, LLC

(2) Pre-approved equal

2.2 SERIES BLZ BASE-MOUNTED, CLOSE-COUPLED, END-SUCTION CENTRIFUGAL PUMPS

A. Product Description:

Factory assembled and tested, centrifugal, overhung impeller, close-coupled, end-suction pump as defined in HI 1.1-1.2 and 1.3; designed for base mounting, with pump and motor shafts horizontal. Base-mounted, single-stage, end-suction design which facilitates the removal of the impeller and seal for servicing without disturbing the piping connections or pump volute.

Maximum Operating Pressure:

<i>Pump Casing</i>	<i>Pressure Rating</i>
Maximum Operating Pressure – BLZ THD	125-psig (9 Bar), NPT thread
Maximum Operating Pressure – BLZ F	230-psig (15 Bar), ANSI 150# Flanged

Operating Temperatures:

Maximum Liquid (Water) Temperatures	212°F (100°C) – standard construction
	250°F (121°C) – optional high temperature seal

B. Pump Construction:

1. *Pump Casing*: Radially-split, 304L Stainless Steel, drain plug at bottom and air vent at top of volute, and NPT (BLZ THD) or flanged connections (BLZ F). Allows removal and replacement of impeller and seal without disconnecting piping or requiring the realignment of motor shaft.

2. *Impeller*:

- a. BLZ THD: 304L Stainless Steel, single-suction type and threaded to shaft.
- b. BLZ F: 304L Stainless Steel, single-suction type and keyed to shaft.

3. *Pump shaft/coupling*:

a. BLZ THD: Motor shaft is Stainless Steel and directly coupled to impeller

b. BLZ F sizes, see below: Motor shaft is directly coupled to impeller

BLZ 1.25X2X5.19 F
BLZ 1.25X2X5.94 F
BLZ 1.25X2X6.56 F
BLZ 1.25X2X7.31 F
BLZ 1.25X2X7.88 F
BLZ 1.5X2.5X4.94 F
BLZ 1.5X2.5X5.50 F
BLZ 1.5X2.5X5.94 F
BLZ 1.5X2.5X6.56 F
BLZ 1.5X2.5X7.19 F
BLZ 1.5X2.5X7.88 F
BLZ 2X2.5X5.19 F
BLZ 2X2.5X5.50 F
BLZ 2X2.5X6.19 F
BLZ 2X2.5X6.56 F
BLZ 2.5x3x4.88 FI
BLZ 2.5X3X5.31 FI
BLZ 2.5X3X5.38 F
BLZ 2.5X3X5.88 FI

c. BLZ F sizes, see below: Pump/Shaft Coupling is 304L Stainless Steel

BLZ 2.5X3X6.31 FI
BLZ 2.5X3X6.88 FI
BLZ 2.5X3X6.75 FI
BLZ 2.5X3X7.06 FI
BLZ 2.5x3x7.50 FI

4. *Mechanical Seal*: Type 21, internally flushed mechanical seal.

<i>Mechanical Seal Type 21</i>
Carbon/Ceramic/Viton – Standard and use for NSF-61, Annex G listed pumps
Carbon/Ceramic/Buna – Optional
Carbon/Ni-Resist/Viton – Optional, for use up to 250°F (121°C) max.

5. *A replaceable stainless steel shaft sleeve*: Shall completely cover the wetted area of the shaft under the seal.

a. BLZ THD: none used

b. BLZ F: 304L Stainless Steel

6. *Bearings*: Double-shielded (ZZ), “Greased for Life”, deep-groove ball bearings assembled within the motor.

7. *Casing Cover*: 304L Stainless Steel.

8. *Motor Support Bracket*:

a. BLZ THD: Aluminum

b. BLZ F: Cast Iron

9. *Mounting/Base Frame*: Shall be of structural steel or fabricated steel channel with fully enclosed sides and ends, and securely welded cross members. Grouting area shall be fully open. The combined pump and motor baseplate shall be sufficiently stiff as to limit the susceptibility of vibration. The minimum baseplate stiffness shall conform to HI 1.3 for Horizontal Baseplate Design standards.

10. *Motor*: Single speed, with double-shielded, "Grease for Life", permanently lubricated ball bearings, unless otherwise indicated; secured mounting to base frame. Motor meets EISA 2007 requirements and NEMA specifications and shall be the size, voltage and enclosure called for on the plans.

C. Conditions:

1. *Potable Water Applications*: Pumps shall be NSF-61, Annex G certified and listed.

PART 3 EXECUTION

3.1 PUMP INSTALLATION

A. The close-coupled end-suction pumps must be installed and operated strictly in accordance with the terms set out in the Installation, Operation and Maintenance Manual supplied and enclosed with the attendant pumps.

B. Comply with Hydraulic Institute (HI) 1.4.

C. The pump and motor shall be mounted on a common base plate of heavy structural steel design and securely welded cross members and open grouting area.

D. The pump must be installed in a way that it is not stressed by the pipework. A minimum of five pipe diameters is recommended on the inlet of the pump. Pressure gauges are recommended and should be installed on the piping, as close to the inlet and discharge of the pump, in order to RECORD baseline performance.

3.2 STARTUP SERVICE

A. If possible, contract a Factory-Authorized service representative to perform the startup service. If one cannot engage a Factory-Authorized service representative to perform the startup service, please follow closely the steps outlined in the Installation and Operation Manual (IOM).

B. Complete installation and startup checks according to manufacturer's written instructions.

C. Check piping connections for tightness.

E. Clean strainers on suction piping.

F. Perform the following startup checks for each pump before starting:

1. Verify that the pump is free to rotate by hand. If the pump is going to be handling hot liquid, verify the free rotation when the pump is cold (prior to start) and hot (after the system fluid has brought the temperature of the pump to an equivalent temperature). If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
2. Verify that pump is rotating in the correct direction.

G. Prime pump by opening suction valves and closing drains, and prepare pump for operation.

H. Start motor.

I. Keep discharge valve closed for 2 to 5 minutes ("dead-head" the pump) and allow the shaft seal to properly "seat" itself. Then, open discharge valve slowly.

ISO 9001

ISO stands for the International Organization for Standardization. ISO 9000 is a series of standards that define the requirements for a quality management system. Companies are registered to these standards by an independent registration body. Registration means that an independent organization has evaluated and approved the quality system against the requirements of the appropriate ISO 9000 standard. These standards are:

- ISO 9001: Covers design, development, and after-sales servicing, final inspection and testing, production and installation.
- ISO 9002: Covers final inspection and testing, production and installation
- ISO 9003: Covers only final inspection and testing

ISO 9001 is the most comprehensive of the three standards.

EISA 2007

The Energy Independence and Security Act (EISA) was passed by Congress in 2007 and applies to motors manufactured after December 19, 2010. EISA establishes efficiency standards for general purpose, 3-phase AC industrial motors from 1-250 HP.

NEMA MG 1 Table 12-12 Full-Load Efficiencies for 60 Hz NEMA Premium[®] Efficient Electric Motors Rated 600 Volts or less (Random Wound)

HP	TEFC			ODP		
	3600	1800	1200	3600	1800	1200
1	77.0	85.5	82.5	77.0	85.5	82.5
1-1/2	84.0	86.5	87.5	84.0	86.5	86.5
2	85.5	86.5	88.5	85.5	86.5	87.5
3	86.5	89.5	89.5	85.5	89.5	88.5
5	88.5	89.5	89.5	86.5	89.5	89.5
7-1/2	89.5	91.7	91.0	88.5	91.0	90.2
10	90.2	91.7	91.0	89.5	91.7	91.7
15	91.0	92.4	91.7	90.2	93.0	91.7
20	91.0	93.0	91.7	91.0	93.0	92.4
25	91.7	93.6	93.0	91.7	93.6	93.0
30	91.7	93.6	93.0	91.7	94.1	93.6
40	92.4	94.1	94.1	92.4	94.1	94.1
50	93.0	94.5	94.1	93.0	94.5	94.1
60	93.6	95.0	94.5	93.6	95.0	94.5
75	93.6	95.4	94.5	93.6	95.0	94.5
100	94.1	95.4	95.0	93.6	95.4	95.0
125	95.0	95.4	95.0	94.1	95.4	95.0
150	95.0	95.8	95.8	94.1	95.8	95.4
200	95.4	96.2	95.8	95.0	95.8	95.4
250	95.8	96.2	95.8	95.0	95.8	95.4

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