



**Wilo-ICL
Close-Coupled Inline Pumps**

Engineering Specification

Division 23 – Heating, Ventilation, and Air Conditioning
4", 6", 8"
23 21 23.13 In-Line Centrifugal Hydronic Pumps

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Pump shall be Series ICL, close-coupled, single stage vertical inline centrifugal pump as manufactured by WILO USA LLC.
- B. Furnish and install extended life, low-maintenance pumps with capacities as shown on plans/submittals.

1.02 REFERENCES

- A. EISA 2007 – Energy Independence and Security Act of 2007
- B. NEMA – National Electrical Manufacturers Association
- C. ISO – International Standards Organization
- D. HI – Hydraulic Institute

1.03 QUALITY ASSURANCE

- A. Shall conform to ANSI/HI 1.1–1.2, and 1.3 for recommended acceptable unfiltered field vibration limits.
- B. The pump assembly shall comply with NFPA 70, Article 100 and marked for intended use.
- C. Each pump assembly shall comply with UL 778 motor-operated water pumps.

1.04 DELIVERY AND HANDLING

- A. In preparation for shipping, any exposed machined metal surfaces will be treated with anticorrosion compound after machining and before assembly and testing.
- B. Protection of the pipe openings and nozzles shall be supplied with wooden or plastic covers or with screwed-in plugs.

PART 2 – PRODUCT

2.01 MANUFACTURERS

- A. Subject to compliance with these specifications, the following manufacturers shall be acceptable:
 - 1. Wilo USA, LLC.
 - 2. Pre-approved equal.

2.02 PRODUCT DESCRIPTION

- A. Shall be factory assembled and tested, centrifugal, impeller mounted on stub shaft, split-coupled, single-suction pump as defined in HI 1.1–1.2 and 1.3.
- B. Shall be designed for base mounting, with pump and motor shafts vertical.
- C. When using a 125# cast iron volute, shall be rated for 175-psi (12 bar) maximum working pressure and a water

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temperature of 248°F (121°C).

- D. When using a 250# ductile iron volute, shall be rated for 363-psi (25 bar) maximum working pressure and a water temperature of 248°F (121°C).

2.03 COMPONENTS

A. PUMP CASING

1. Shall be constructed of Cast Iron (Class 30 ASTM A48) or Ductile Iron (65-45-12 – ASTM 536).
2. Shall have 125# or 250# ANSI flange connection depending on material of construction.
3. Shall have threaded gauge tapings at inlet and outlet.
4. Shall be sealed via O-ring.
5. Cast pump feet shall be drilled and tapped for ease of installation onto base pad if necessary.
6. Cathaphoretic coating shall be applied electrostatically to prevent corrosion.

B. PUMP LANTERN (COVERPLATE/MOTOR STOOL)

1. Shall be constructed of Ductile Iron (65-45-12 – ASTM 536).
2. Shall be drilled, tapped and equipped with ventilation valve to bleed out air. Can also accommodate a mechanical seal flush line which can be connected to the corresponding discharge connection or via an external source to facilitate cooling and flushing of the mechanical seal.
3. Motor stool/pump cover interface shall be sealed by an O-ring and shall include extra tapings for removal from pump volute by using "jack screws".

C. IMPELLER

1. Shall be constructed of Bronze CC480K-GS.
2. Shall be statically and dynamically balanced.
3. 6" and 8" series shall be keyed to shaft.
4. The diameter shall be trimmed to match the specified performance.

D. MECHANICAL SEAL

1. For 125# Pumps
 - a. Shall be Unbalanced
 - b. Shall be an internally flushed mechanical seal with silicon carbide seal face and silicon carbide seat.
 - c. Seat shall be constructed of EPDM or Viton elastomer
 - d. Shall have 316SS springs
2. For 250# Pumps
 - a. Shall be balanced
 - b. Shall be an internally flushed mechanical seal with silicon carbide seal face and silicon carbide seat.
 - c. Seat shall be constructed of Viton elastomer
 - d. Shall have 316SS springs
 - e. Shall have three set screws to secure to shaft

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E. MOTORS BEARINGS

1. Shall consist of grease lubricated heavy-duty ball bearings housed within motor housing with provisions for the addition and relief of grease.

F. MOTOR

1. Shall be single speed.
2. Motors below 15 HP shall have permanently lubricated ball bearings. Motors above 15 HP shall be equipped with a grease port for periodic greasing.
3. Shall be a vertical C-faced motor with special shaft.
4. Shall meet NEMA MG1 Table 12-12 requirements and specifications.
5. Shall be the size, voltage, and enclosure called for on the plans.

G. 2 PART EPOXY PAINT

1. 350 hours in Neutral Salt Spray test without corrosion.

2.04 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Power wiring, as required, shall be the responsibility of the electrical contractor. All wiring shall be performed per manufacturer's instructions and applicable state, federal and local codes.
- D. Complete installation and startup checks according to manufacturer's written instructions.
- E. Check piping connections for tightness. Pipe connections to pumps shall be made in such a manner so as not to exert any stress on the pump housing.
- F. Clean strainers on suction piping.
- G. Perform the following startup checks for each pump before starting:
- H. Verify bearing lubrication.
- I. Verify that the pump is free to rotate by hand and that hot liquid pump is free to rotate both hot and cold. If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
- J. Verify that pump is rotating in the right direction. IMPORTANT never run pump dry.
- K. Prime pump by opening suction valves, closing drains, and preparing pump for operation
- L. Start motor.
- M. Open discharge valve slowly

END OF SECTION

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