



## Wilo Helix V Vertical Multistage Pumps

### Engineering Specification

## **PART 1 GENERAL**

### **1.01 SECTION INCLUDES**

- A Non-self-priming, high efficiency, vertical multistage centrifugal pump shall be a Helix V as manufactured by Wilo USA.
- B Furnish and install a Vertical, multistage, centrifugal pump with a capacity as indicated in the plans.

### **1.02 RELATED SECTIONS**

- A 23 21 23 – Hydronic Pumps.
- B 23 22 23.13 – Electric-Driven Steam Condensate Pumps.
- C 23 53 13 – Boiler Feedwater Pumps.

### **1.03 REFERENCES**

- A NSF – NSF International
- B HI – Hydraulic Institute
- C UL – Underwriters Laboratories
- D NEC – National Electrical Code
- E ANSI – American National Standards Institute
- F AISI – American Iron and Steel Institute
- G ISO – International Standards Organization
- H NEMA – National Electrical Manufacturers Association
- I ODP – Open Drip Proof
- J TEFC – Totally Enclosed Fan Cooled

### **1.04 SUBMITTALS**

- A Submittal data sheet(s).
- B Dimensional print(s).
- C Wiring diagram(s).
- D Installation, operation, and maintenance manual.

### **1.05 QUALITY ASSURANCE**

- A The pump shall be NSF61 Annex G listed for drinking water and low lead requirements.
- B The pump manufacturer shall be ISO 9001 and ISO 14001 certified.
- C All wetted surfaces shall be made of corrosion resistant material.
- D Water temperature range for the Helix V pump shall be rated for -4°F to 248°F
- E Where antifreeze protection is required, the maximum concentration of heating system glycol is 50% by volume. High concentrations of glycol at lower system design temperatures may require increasing the design operating point. Use of leak sealant products or automotive antifreeze is not permitted.
- F Ambient temperature range for the model Helix V pump shall be rated for 5°F - 104°F.
- G Pump pressure rating shall either be 232 PSI or 363 PSI depending on the number of stages of the pump.
- H The pump shall be hydrostatically tested prior to shipment.
- I Inlet/suction pressure shall not exceed 145 psi (10 Bar). Minimum inlet pressure shall be 3 feet static water column height above the inlet of the pump.

### **1.06 WARRANTY**

- A Provide manufacturer's standard warranty against defects in materials and workmanship
  - 1. Warranty Period: Wilo Helix V vertical, multistage, centrifugal pump shall be free of defects in materials and workmanship for a period of two (2) years from date of installation; not to exceed 6 months from date of purchase.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A Subject to compliance with these specifications, the following manufacturers shall be acceptable:
  - 1. Wilo Helix V series vertical, multistage, centrifugal pump as manufactured by Wilo.
  - 2. Pre-approved equal.

## 2.02 COMPONENTS

### A Pump Housing

1. Shall be of vertical, In-Line, multistage design.
2. Shall be NSF 61 listed for potable water and low lead requirements.
3. Shall be constructed of AISI 304 stainless steel.
4. Shall be furnished with a carbon and polyphenylene sulfide (PPS) wear ring.
5. Shall be equipped with drain and vent ports with ability to accommodate a bypass.
6. Jacket pipe shall be made of stainless steel AISI 304.
7. Shall be equipped with an AISI304 or AISI318 LN stainless steel shaft for model Helix V10-V80 pumps depending on version or AISI 431 stainless steel shaft for model Helix V190-V270 pumps.
8. Shall be equipped with Impellers, stage housings and diffusers made of stainless steel AISI 304 for model Helix V10-V80 pumps and AISI 304L for models Helix V190-V270 pumps.
9. Flanges shall be AISI 304 stainless steel with 300 class ANSI flanges for model Helix V10-V80 pumps and 250# ANSI split flanges made of cataphoretic-coated grey cast iron ASTM A 48 Class 35/40 for models Helix V190-V270 pumps.
10. Shall have lifting lugs to facilitate pump installation or extraction from packaging.
11. Shall have a coupling guard in AISI316L stainless steel with Wilo design and shall allow for easy access to the coupler, spacer and seal cartridge assembly.
12. Shall allow for removal/replacement of seal cartridge without removing motor at any horse power.
13. Seal cartridge assemblies shall have the ability to be disassembled and replace the mechanical seal without having to replace the entire X-cartridge assembly.

### 14. Mechanical seal:

- a. Sleeve shall be AISI316L.
- b. Springs and clips shall be AISI304 stainless steel.
- c. Inserts shall be constructed of EPDM.

### 15. Impellers shall be constructed of AISI304L stainless steel and 100% laser-welded 2D/3D blades shall be sandblasted for smooth contours.

### B Motors

1. Shall be fixed speed, NEMA designed and covered at premium efficiency levels NEMA MG1, Table 12-12 or Part 20, Table B (IE3).
2. Shall have a NEMA C faced flange for vertical mounting.
3. Shall either be equipped a 208-230v/460v or 575v motor.
4. Shall be a 2 pole motor at 60 hz.
5. Shall be totally enclosed fan cooled.
6. Shall have a protection class of IP55 with Class F insulation.

## PART 3 PRODUCTS

### 3.01 INSTALLATION

- A Install equipment in accordance with manufacturer's instructions.
- B Pressure gauges are recommended at the suction and discharge of the pump.
- 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 Unit shall be a Wilo Helix V, non-self-priming, high efficiency, vertical multistage centrifugal pump as manufactured by Wilo USA.

**END OF SECTION**

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