

**DESIGN ENVELOPE 4322 TANGO |**  
**80-125 (3x3x5) | 8012-004.0 | SUBMITTAL**

**File No:** 102.50311EC  
**Date:** APRIL 18, 2018  
**Supersedes:** 102.50311EC  
**Date:** FEBRUARY 13, 2018

Job: \_\_\_\_\_ Representative: \_\_\_\_\_  
\_\_\_\_\_  
Order No: \_\_\_\_\_ Date: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**PUMP DESIGN DATA**

No. of pumps: \_\_\_\_\_ Tag: \_\_\_\_\_  
Total system design flow: \_\_\_\_\_ L/s (USgpm)  
Head: \_\_\_\_\_ m (ft) Capacity split \_\_\_\_\_ %  
Flow per pump head: \_\_\_\_\_ L/s (USgpm)  
Parallel flow: \_\_\_\_\_ L/s (USgpm)  
Liquid: \_\_\_\_\_ Viscosity: \_\_\_\_\_  
Temperature: \_\_\_\_\_ °C (°F) Specific gravity: \_\_\_\_\_  
Suction: 80 mm (3") Discharge: 80 mm (3")  
MEI ≥ 0.70

**MATERIALS OF CONSTRUCTION**

**PN 16**  
CONSTRUCTION: LPDESF  
E-coated ductile iron A536 Gr 65-45-12, stainless fitted  
 **PN 25**  
CONSTRUCTION: HPDESF  
E-coated ductile iron A536 Gr 120-90-2, stainless fitted

**MAXIMUM PUMP OPERATING CONDITIONS**

**PN 16**  
16 bar at 49°C (232 psig at 120°F)  
7 bar at 150°C (100 psig at 300°F)  
 **PN 25**  
25 bar at 65°C (362 psig at 149°F)  
21 bar at 150°C (304 psig at 300°F)

**MECHANICAL SEAL DESIGN DATA**

See file no. 43.50 for standard mechanical seal details as indicated below  
Armstrong seal reference number  
 c1 (a)  Others: \_\_\_\_\_

**FLOW READOUT ACCURACY**

The Design Envelope model selected will provide flow reading on the controls local keypad & digitally for the BMS. The model readout will be factory tested to ensure ±5% accuracy.

**IECM MOTOR AND CONTROL DATA**

**kW:** 4.0  
**RPM:** 3000  
**Motor enclosure:** TEFC  
**Volts:** \_\_\_\_\_  
**Phase:** 3  
**Efficiency:** IE5  
**Orientation:** Standard  
**Protocol (standard):**  BACnet™ MS/TP  
 BACnet™ TCP/IP  
 Modbus RTU  
**Control enclosure:**  Indoor - IP 55  
 Outdoor - IP 66  
**Fused disconnect switch:** Consult factory  
**EMI/RFI control:** Integrated filter designed to meet EN61800-3  
**Harmonic suppression:** Equivalent: 5% AC line reactor - Supporting IEEE 519-1992 requirements\*\*  
**Cooling:** Fan-cooled, surface cooling  
**Ambient temperature:** -10°C to +45°C up to 1000 meters above sea level (+14°F to +113°F, 3300 ft)  
**Analog I/O:** Two inputs, one output. Output can be configured for voltage or current  
**Digital I/O:** Two inputs, two outputs. Outputs can be configured as inputs  
**Relay outputs:** Two programmable  
**Communication port:** 1-RS485

\*\* If supplied with the system electrical details, Armstrong will run a computer simulation of the system wide harmonics. If system harmonic levels are exceeded Armstrong can also recommend additional harmonic mitigation and the costs for such mitigation.

## OPTIONS

### SENSORLESS BUNDLE (STANDARD)



Operation of pump without a remote sensor. Includes:

- Sensorless control
- Flow readout
- Constant flow
- Constant pressure

Minimum system pressure to be maintained \_\_\_\_\_ m (ft)

\* If minimum maintained system pressure is not known:  
Default to 40% of design head

### PARALLEL SENSORLESS (STANDARD)



Operation of multiple pumps without a remote sensor

Minimum system pressure to be maintained \_\_\_\_\_ m (ft)

\* If minimum maintained system pressure is not known:  
Default to 40% of design head

### ENERGY PERFORMANCE BUNDLE



Provides energy savings on oversized systems by adjusting pump parameters to on-site conditions. Includes:

- **Auto-flow balancing** - Automatically determines control curve between design flow at on-site system head, and minimum (zero-head) flow for energy savings
- **Maximum flow control** - Limits flow rate to pre-set maximum for potential energy savings

Maximum flow rate \_\_\_\_\_ L/s (gpm)

\*Only available if sensorless bundle is enabled

### PROTECTION BUNDLE



Protects other flow sensitive equipment by setting limits of pump operation. Includes:

- **Minimum flow control** - Attempts to maintain flow rate to pre-set minimum to protect equipment in system
- **Bypass valve control** - Actuates a bypass valve to protect flow sensitive equipment if pre-set minimum flow rate is reached

Maximum flow rate \_\_\_\_\_ L/s (gpm)

\*Only available if sensorless bundle is enabled

### ZONE OPTIMIZATION BUNDLE



Controls pumps to ensure multiple zones are satisfied for heating or cooling

- **2 sensor control** - Controls pumps in a 2-zone application to ensure both zones are always satisfied for heating or cooling

### DUAL SEASON SETUP



Pre-sets heating and cooling parameters for pumps in 2-pipe systems

#### Cooling

Duty point \_\_\_\_\_ L/s (gpm)

at \_\_\_\_\_ m (ft)

Minimum system pressure to be maintained \_\_\_\_\_ m (ft)

#### Heating

Duty point \_\_\_\_\_ L/s (gpm)

at \_\_\_\_\_ m (ft)

Minimum system pressure to be maintained \_\_\_\_\_ m (ft)

## OPTIONAL SERVICES

### ON-SITE PUMP COMMISSIONING



### PUMP MANAGER



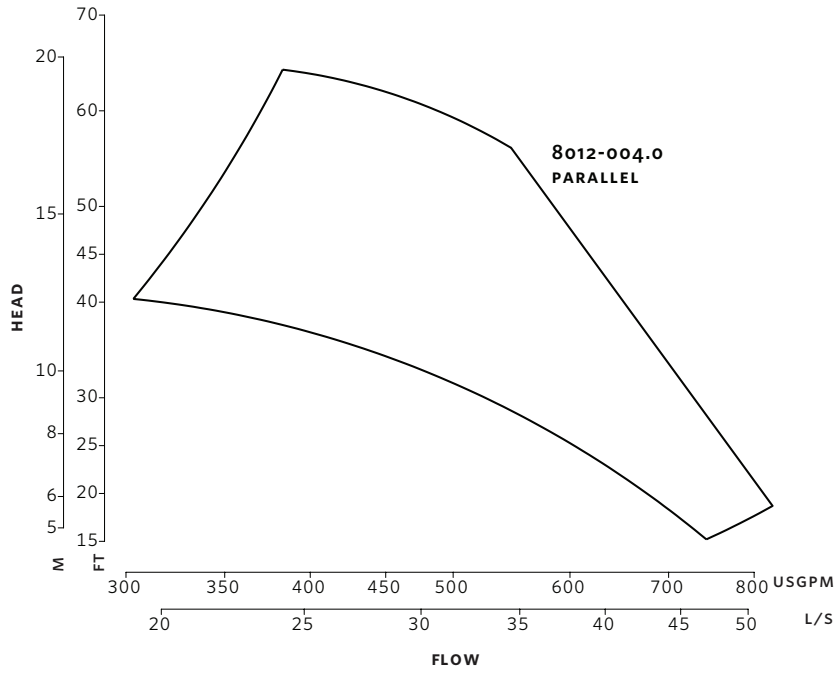
Online service for sustained pump performance and enhanced reliability.

Available in 3 or 5 year terms

\* Requires an internet connection to be provided by building

\* Includes an extended warranty for parts and labour (wearable parts excluded)

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**DIMENSION DATA**

INDOOR (IP 55/TEFC)

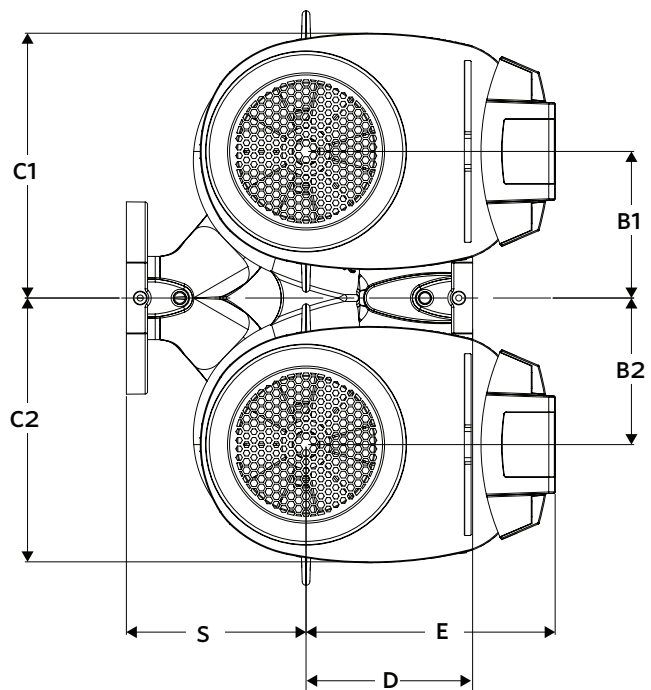
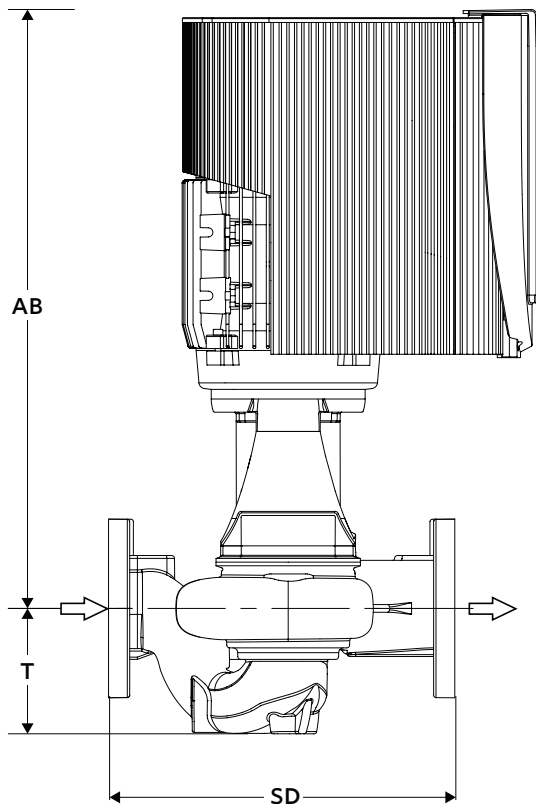
**Size:** 80-125  
**kW:** 4.0  
**RPM:** 3000  
**AB:** 532 (20.98)  
**B1:** 152 (6.00)  
**B2:** 152 (6.00)  
**C1:** 255 (10.05)  
**C2:** 255 (10.05)  
**D:** 187 (7.35)  
**E:** 191 (7.54)  
**S:** 173 (6.82)  
**SD:** 360 (14.17)  
**T:** 130 (5.13)  
**Weight:** 78.0 (172)

Consult factory for **OUTDOOR**  
(IP 66/TEFC) dimensions

Dimensions - mm (inch)  
Weight - kg (lbs)

- Tolerance of  $\pm 3$  mm ( $\pm 0.125$ " ) should be used
- For exact installation, data please write factory for certified dimensions

Performance curves are for reference only.  
Confirm current performance data with Armstrong ACE Online selection software.



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