

## DESIGN ENVELOPE 4372 TANGO | 50-125 (2x2x5) | 5012-003.0 | SUBMITTAL

**File No:** 102.5111EC  
**Date:** APRIL 18, 2018  
**Supersedes:** 102.5111EC  
**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: 50 mm (2") Discharge: 50 mm (2")  
 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)  
10 bar at 121°C (145 psig at 250°F)
- PN 25**  
20 bar at 65°C (290 psig at 149°F)  
17 bar at 121°C (247 psig at 250°F)

### 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.

### MECHANICAL SEAL DESIGN DATA

**Seal type:** 2A **Stationary seat:** Silicone carbide **Secondary seal:** EPDM **Spring:** Stainless steel **Rotating hardware:** Stainless steel

| FLUID TYPE     | ALL GLYCOLS > 30% WT CONC |                   | ALL OTHER NON-POTABLE FLUIDS |                        | POTABLE (DRINKING) WATER |                   |
|----------------|---------------------------|-------------------|------------------------------|------------------------|--------------------------|-------------------|
| Temperature    | up to 93°C / 200°F        | over 93°C / 200°F | up to 93°C / 200°F           | over 93°C / 200°F      | up to 93°C / 200°F       | over 93°C / 200°F |
| Rotating face  | Silicone carbide          |                   | Resin bonded carbon          | Antimony loaded carbon | Resin bonded carbon      |                   |
| Seat elastomer | EPDM (L-cup)              | EPDM (O-ring)     | EPDM (L-cup)                 | EPDM (O-ring)          | EPDM (L-cup)             | EPDM (O-ring)     |
| Material code  | SCSc L EPSS 2A            | SCSc O EPSS 2A    | C-SC L EPSS 2A               | ACSc O EPSS 2A         | C-SC L EPSS 2A           | C-SC O EPSS 2A    |

### IECM MOTOR AND CONTROL DATA

**kW:** 3.0  
**RPM:** 3600  
**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

Minimum 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



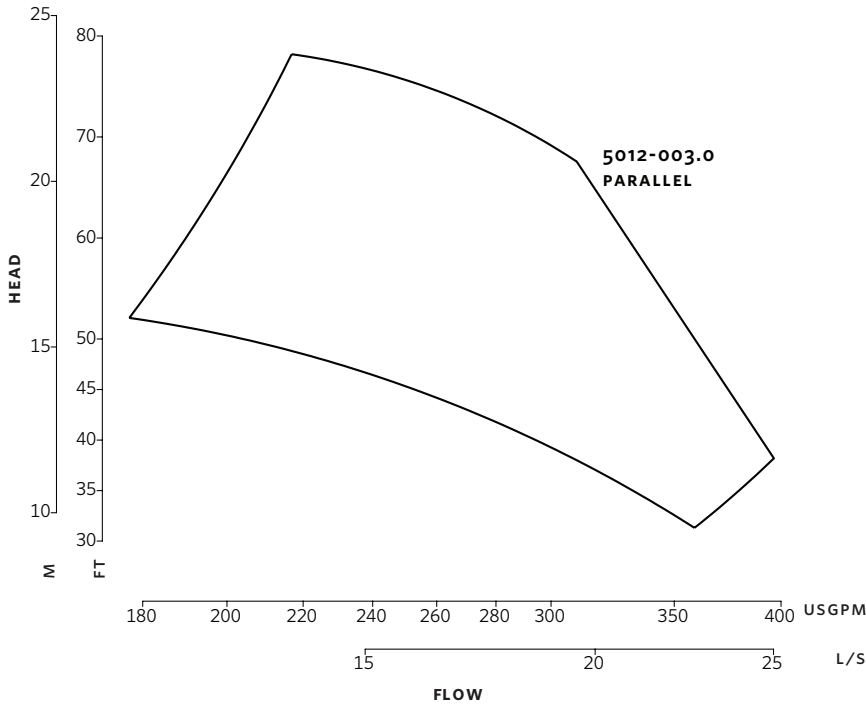
Online service for sustained pump performance and enhanced reliability.

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)

3



**DIMENSION DATA**

INDOOR (IP 55/TEFC)

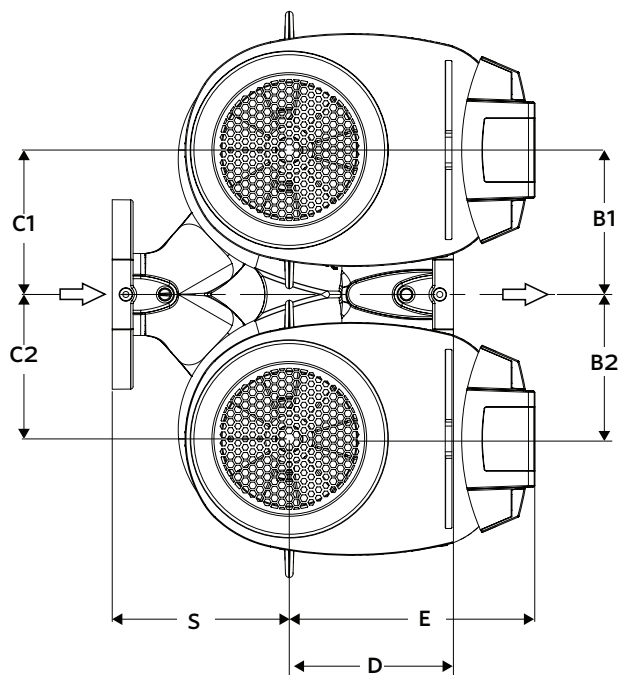
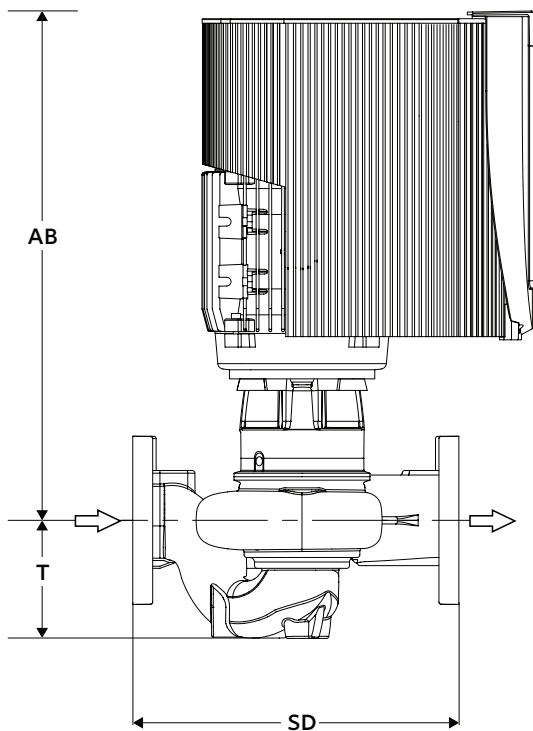
**Size:** 50-125  
**kW:** 3.0  
**RPM:** 3600  
**AB:** 460 (18.13)  
**B1:** 140 (5.50)  
**B2:** 140 (5.50)  
**C1:** 235 (9.26)  
**C2:** 236 (9.28)  
**D:** 199 (7.83)  
**E:** 191 (7.54)  
**S:** 132 (5.19)  
**SD:** 331 (13.02)  
**T:** 108 (4.27)  
**Weight:** 59.0 (130)

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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