

## DESIGN ENVELOPE 4380 VIL | 40-125 (1.5x1.5x5) | 4012-004.0 | SUBMITTAL

File No: 101.5727IEC  
Date: FEBRUARY 14, 2019  
Supersedes: NEW  
Date: NEW

Job: \_\_\_\_\_ Representative: \_\_\_\_\_

Order No: \_\_\_\_\_ Date: \_\_\_\_\_

Engineer: \_\_\_\_\_ Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

Contractor: \_\_\_\_\_ Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

### PUMP DESIGN DATA

No. of pumps: \_\_\_\_\_ Tag: \_\_\_\_\_  
Capacity: \_\_\_\_\_ L/s (USgpm) Head: \_\_\_\_\_ m (ft)  
Liquid: \_\_\_\_\_ Viscosity: \_\_\_\_\_  
Temperature: \_\_\_\_\_ °C (°F) Specific gravity: \_\_\_\_\_  
Suction: 40 mm (1.5") Discharge: 40 mm (1.5")  
MEI ≥ 0.70

### MATERIALS OF CONSTRUCTION

- PN 16**  
CONSTRUCTION: LPDEF  
E-coated ductile iron A536 Gr 65-45-12, stainless fitted  
CONSTRUCTION: SS  
Cast Stainless Steel ASTM A743 CF8M Type 316
- PN 25**  
CONSTRUCTION: HPDEF  
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

### DEPM MOTOR AND CONTROL DATA

**kW:** 4.0  
**RPM:** 3600  
**Motor enclosure:** TEFC  
**Volts:** \_\_\_\_\_  
**Phase:** 3  
**Efficiency:** IE5  
**Orientation:**  L5 (default)  L6  
**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



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



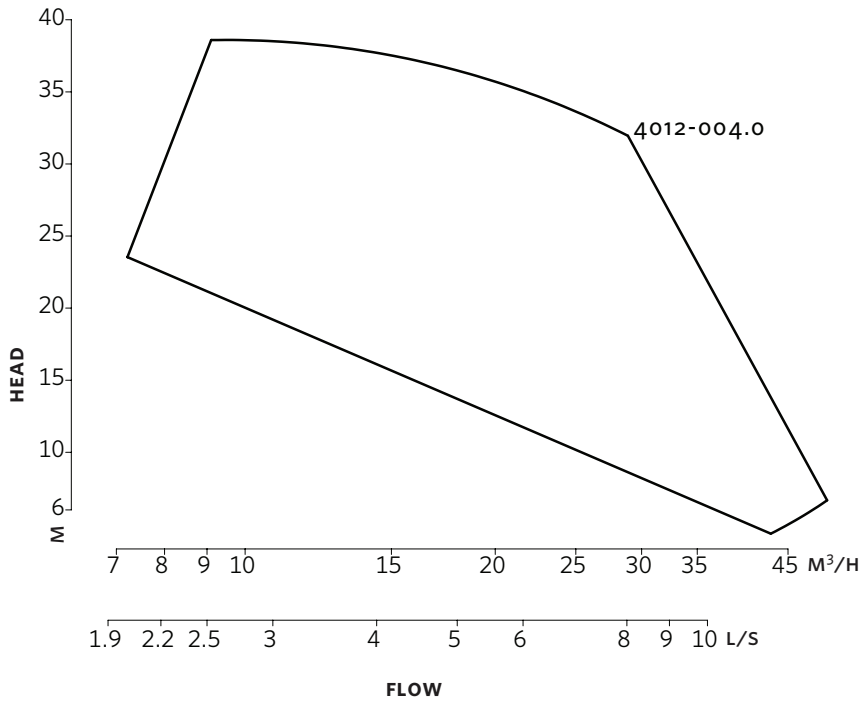
Online service for sustained pump performance and enhanced reliability.

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)

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**DIMENSION DATA**

INDOOR (IP 55/TEFC)

- Size:** 40-125
- kW:** 4.0
- RPM:** 3600
- Frame:** 90
- AB:** 464 (18.27)
- B:** 99 (3.91)
- C:** 89 (3.50)
- D:** 140 (5.53)
- E:** 205 (8.08)
- S:** 159 (6.27)
- SD:** 300 (11.81)
- T:** 91 (3.59)
- Weight:** 43.6 (96)

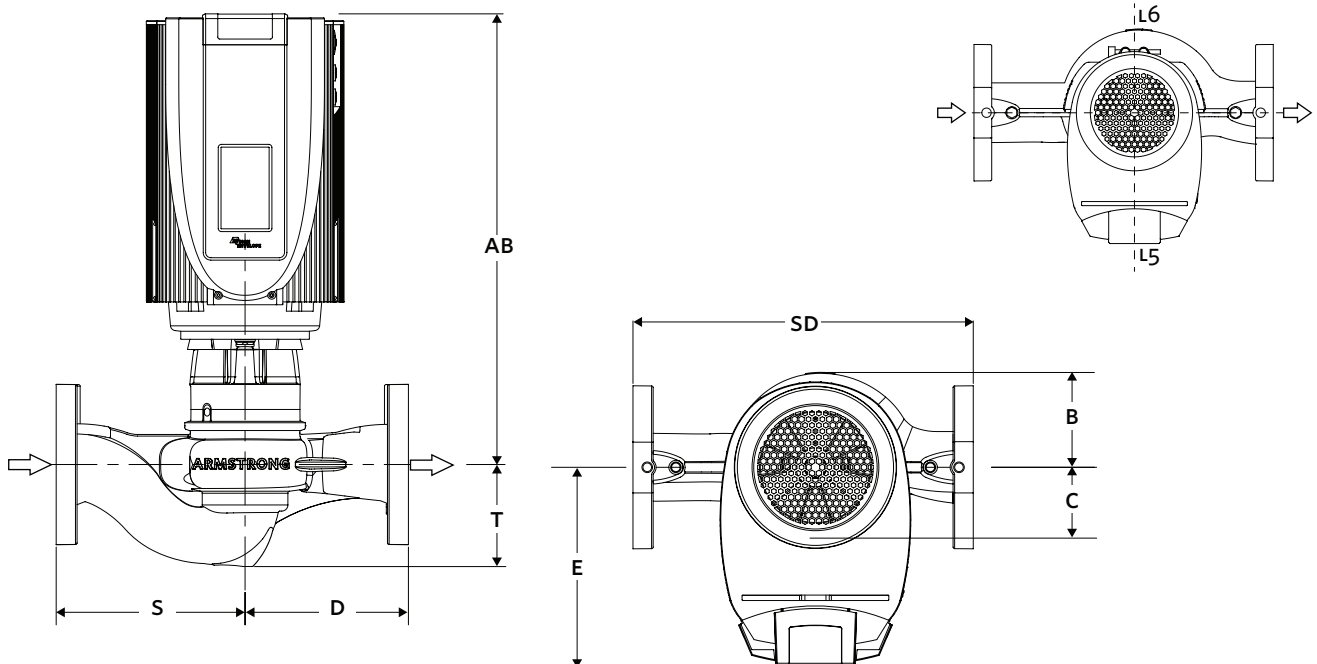
Consult factory for **OUTDOOR**  
(IP 66/TEFC) dimensions

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 ADEPT Quote or ADEPT Select selection software.

**CONTROL ORIENTATIONS**



**TORONTO**

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