ARMSTRONG

DESIGN ENVELOPE 4380 VIL

50–125 (2×2×5) | 5012–001.1 | SUBMITTAL

File No: 101.5505IEC
Date: APRIL 18, 2018
Supersedes: 101.5505IEC
Date: FEBRUARY 13, 2018

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: 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

CONSTRUCTION: SS

Cast Stainless Steel ASTM A743 CF8M Type 316

☐ **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.

iECM MOTOR AND CONTROL DATA

kW: 1.1
RPM: 3000
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.

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

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

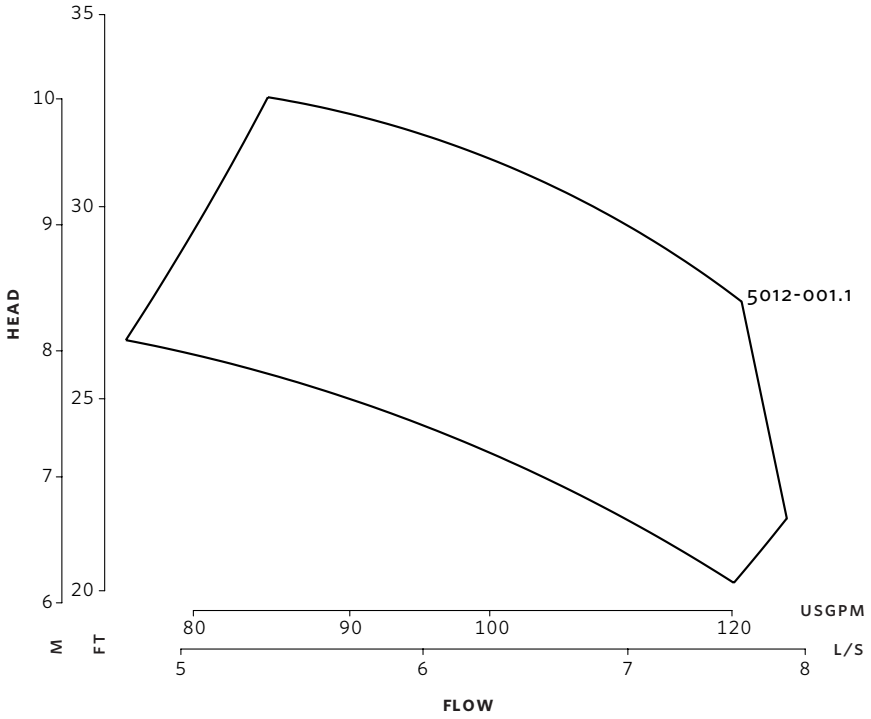
PUMP MANAGER

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)



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

DIMENSION DATA

INDOOR (IP 55/TEFC)

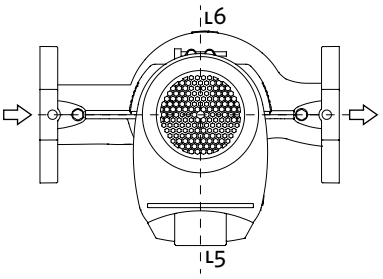
Size:	50–125
kW:	1.1
RPM:	3000
AB:	460 (18.11)
B:	109 (4.31)
C:	89 (3.49)
D:	154 (6.07)
E:	191 (7.54)
S:	180 (7.07)
SD:	334 (13.14)
T:	79 (3.12)
Weight:	31.3 (69)

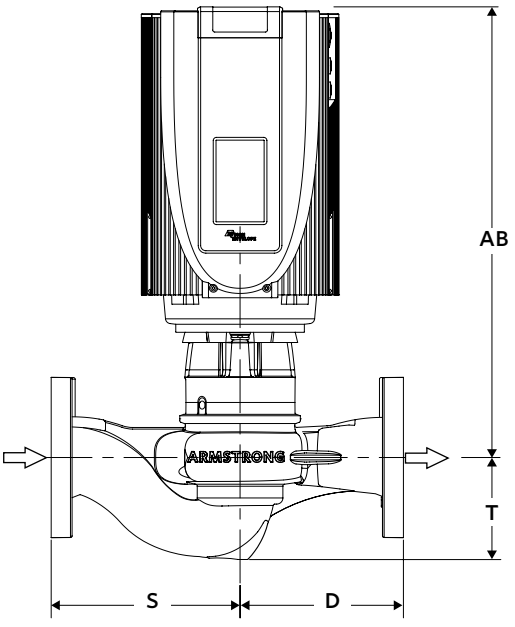
Consult factory for **OUTDOOR** (IP 66/TEFC) dimensions

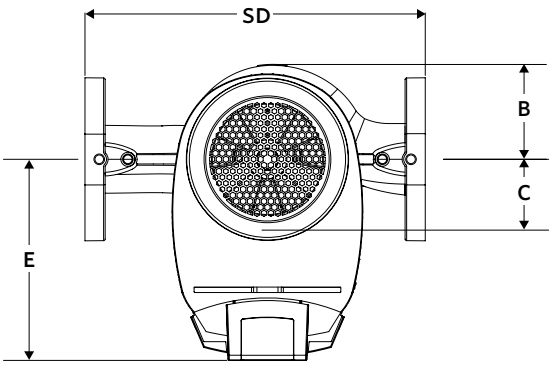
Dimensions – mm (inch)
Weight – kg (lbs)

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

CONTROL ORIENTATIONS







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