ARMSTRONG

# DESIGN ENVELOPE 4380 VIL | 2×2×5 (50–125) | 0205H–003.0 | SUBMITTAL

**File No:** 101.5510
**Date:** MARCH 25, 2021
**Supersedes:** 101.5510
**Date:** APRIL 18, 2018

Job: _____ Representative: _____

_____ Order No: _____ Date: _____

Engineer: _____ Submitted by: _____ Date: _____

Contractor: _____ Approved by: _____ Date: _____

## PUMP DESIGN DATA

No. of pumps: _____ Tag: _____

Capacity: _____USgpm (L/s) Head: _____ft (m)

Liquid: _____ Viscosity: _____

Temperature: _____ °F (°C) Specific gravity: _____

Suction: 2" (50 mm) Discharge: 2" (50 mm)

**UL STD 778 & CSA STD C22.2 NO.108 certified**

**Test report is supplied with each pump**

## MATERIALS OF CONSTRUCTION

☐ **ANSI 125**
**CONSTRUCTION: LPDESF**
E-coated ductile iron A536 Gr 65-45-12, stainless fitted

☐ **ANSI 250**
**CONSTRUCTION: HPDESF**
E-coated ductile iron A536 Gr 120-90-2, stainless fitted

## MAXIMUM PUMP OPERATING CONDITIONS

☐ **ANSI 125**
175 psig at 150°F (12 bar at 65°C)
140 psig at 250°F (10 bar at 121°C)

☐ **ANSI 250**
300 psig at 150°F (20 bar at 65°C)
250 psig at 250°F (17 bar at 121°C)

## MECHANICAL SEAL DESIGN DATA

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

## DEPM MOTOR AND CONTROL DATA

**HP:** 3
**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 – UL TYPE 12 ☐ Outdoor – UL TYPE 4X
**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.

## 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.

| FLUID TYPE | ALL GLYCOLS > 30% WT CONC | | ALL OTHER NON-POTABLE FLUIDS | | POTABLE (DRINKING) WATER | |
|---|---|---|---|---|---|---|
| **Temperature** | up to 200°F / 93°C | over 200°F / 93°C | up to 200°F / 93°C | over 200°F / 93°C | up to 200°F / 93°C | over 200°F / 93°C |
| **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 _____ ft (m)

* 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 _____ ft (m)

* 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 _____ gpm (L/s)

*Only available if sensorless bundle is enabled
*Available in single pump operation only

### ☐ 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 _____ gpm (L/s)

*Only available if sensorless bundle is enabled

### ☐ DUAL SEASON SETUP

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

**Cooling**

Duty point _____ gpm (L/s) at _____ ft (m)

Minimum system pressure to be maintained _____ ft (m)

**Heating**

Duty point _____ gpm (L/s) at _____ ft (m)

Minimum system pressure to be maintained _____ ft (m)

*Available in single pump operation only

## OPTIONAL SERVICES

### ON-SITE PUMP COMMISSIONING

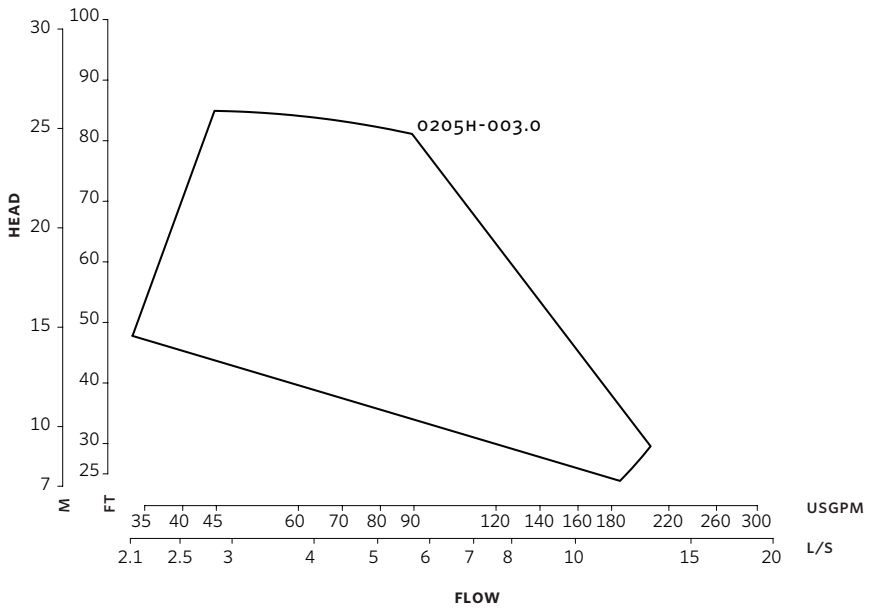
### PUMP MANAGER

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**




Performance curves are for reference only.
Confirm current performance data with Armstrong ADEPT Quote or ADEPT Select selection software.

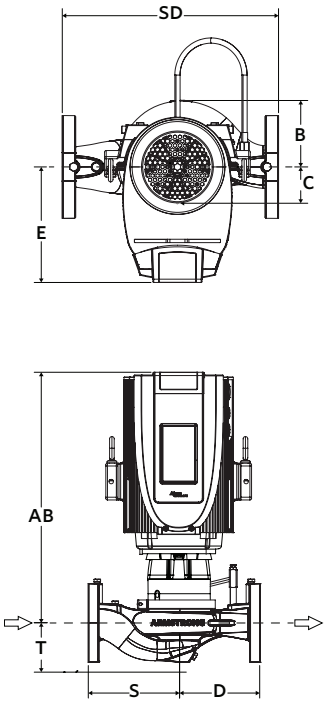
## DIMENSION DATA

| | INDOOR (UL TYPE 12/TEFC) | OUTDOOR (UL TYPE 4X/TEFC) |
|---|---|---|
| **Size:** | 2×2×5 | 2×2×5 |
| **HP:** | 3 | 3 |
| **RPM:** | 3000 | 3000 |
| **AB:** | 18.11 (460) | 20.32 (516) |
| **B:** | 4.31 (109) | 4.31 (109) |
| **C:** | 3.49 (89) | 3.49 (89) |
| **CI:** | – | 5.00 (127) |
| **D:** | 6.01 (153) | 6.01 (153) |
| **E:** | 8.20 (208) | 8.62 (219) |
| **S:** | 7.01 (178) | 7.01 (178) |
| **SD:** | 13.02 (331) | 13.02 (331) |
| **T:** | 3.12 (79) | 3.12 (79) |
| **Weight:** | 92 (41.7) | 92 (41.7) |

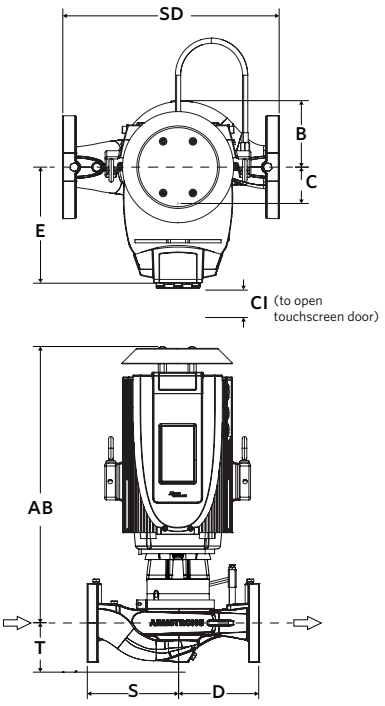
Dimensions – inch (mm)
Weight – lbs (kg)

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

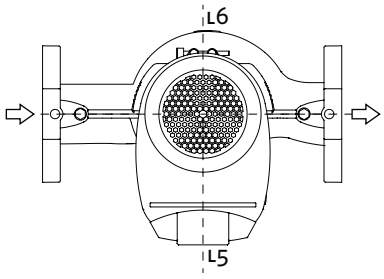
## INDOOR




## OUTDOOR




## CONTROL ORIENTATIONS



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**ARMSTRONG FLUID TECHNOLOGY**
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