

## DESIGN ENVELOPE 4302 DUALARM | 0408-020.0 | SUBMITTAL

File No: 104.5017  
Date: DECEMBER 16, 2020  
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Date: JULY 8, 2019

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

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

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

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

### PUMP DESIGN DATA

No. of pumps: \_\_\_\_\_ Tag: \_\_\_\_\_  
Total system design flow: \_\_\_\_\_ USgpm(L/s)  
Head: \_\_\_\_\_ ft(m) Capacity split \_\_\_\_\_ %  
Flow per pump head: \_\_\_\_\_ USgpm(L/s)  
Parallel flow: \_\_\_\_\_ USgpm(L/s)  
Liquid: \_\_\_\_\_ Viscosity: \_\_\_\_\_  
Temperature: \_\_\_\_\_ °F (°C) Specific gravity: \_\_\_\_\_  
Suction: 4" (100mm) Discharge: 4" (100mm)

**OSHPD Seismic Certification OSP-0422-10  
UL STD 778 & CSA STD C22.2 NO.108 certified  
Test report is supplied with each pump**

### MOTOR DESIGN DATA

HP: \_\_\_\_\_ RPM: \_\_\_\_\_ Frame size: \_\_\_\_\_  
Enclosure: \_\_\_\_\_ Volts: \_\_\_\_\_ Hertz: 60 Hz  
Phase: 3 Efficiency: NEMA premium 12.12

### MAXIMUM PUMP OPERATING CONDITIONS

#### ANSI 125 - (CONSTRUCTION: BF)

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

### MECHANICAL SEAL DESIGN DATA

See file no. 43.50 for standard mechanical seal details as indicated below

Armstrong seal reference number

c1 (a)  Others: \_\_\_\_\_

### CONTROLS DATA

**Protocol (standard):**  BACnet™ MS/TP

BACnet™ TCP/IP

Modbus RTU

**Enclosure:**  Indoor - UL TYPE 12

Outdoor - UL TYPE 4X with Weather Shield

Outdoor - UL TYPE 4X less Weather Shield

**Fused disconnect switch:**

**EMI/RFI control:** Integrated filter designed to meet EN61800-3

**Harmonic suppression:** Dual DC-link reactors (Equivalent: 5% AC line reactor) Supporting IEEE 519-1992 requirements\*\*

**Cooling:** Fan-cooled through back channel

**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 current or voltage inputs, one speed output

**Digital I/O:** Two inputs, two outputs

**Pulse inputs:** Two programmable

**Relay outputs:** Two programmable

**Communication port:** 1-RS485

\*\* The IVS drive is a low harmonic drive via built-in DC line reactors. This does not guaranty performance to any system wide harmonic specification or the costs to meet a system wide specification. 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.

## 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.

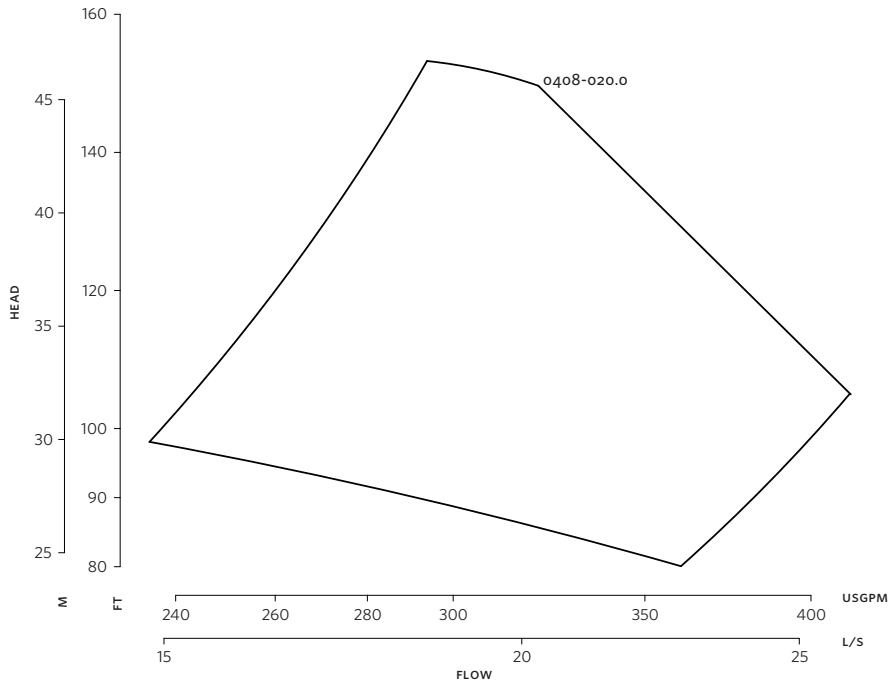
Available in 3 or 5 year terms

\* Requires an internet connection to be provided by building

\* Includes an extended warranty for parts and labour

(wearable parts excluded)

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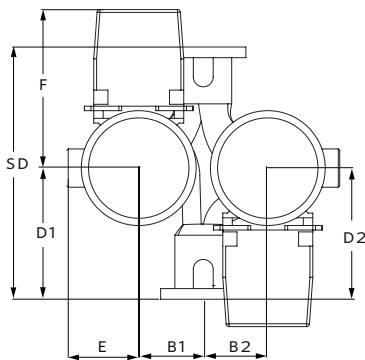
**DIMENSION DATA**

	INDOOR (UL TYPE 12/ODP)	OUTDOOR (UL TYPE 4X/TEFC)
<b>Frame size:</b>	254	256
<b>Size:</b>	4×4×8	4×4×8
<b>HP:</b>	20	20
<b>RPM:</b>	3600	3600
<b>AB:</b>	35.76(908)	41.54(1055)
<b>B1:</b>	8.75(222)	8.75(222)
<b>B2:</b>	8.75(222)	8.75(222)
<b>C1:</b>	15.09(383)	15.09(383)
<b>C2:</b>	15.63(397)	15.63(397)
<b>D1:</b>	14.84(377)	14.84(377)
<b>D2:</b>	14.84(377)	14.84(377)
<b>E:</b>	9.94(252)	8.90(226)
<b>P:</b>	13.38(340)	13.38(340)
<b>F:</b>	17.94(456)	21.44(545)
<b>SD:</b>	27.63(702)	27.63(702)
<b>T:</b>	6.28(160)	6.28(160)
<b>XY:</b>	34.04(865)	34.10(866)
<b>Weight:</b>	922(418.2)	1118(507.1)

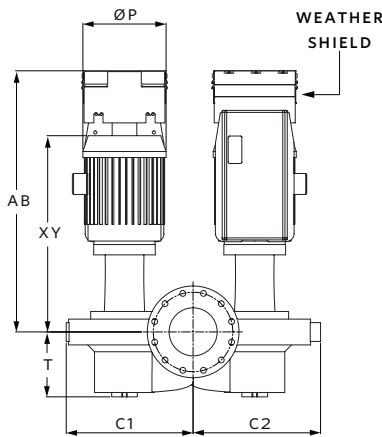
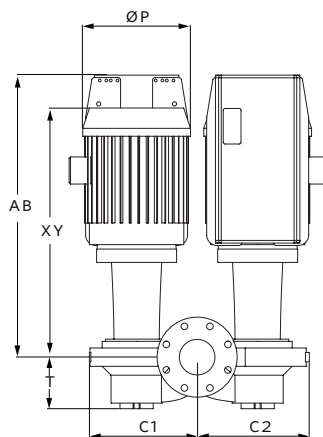
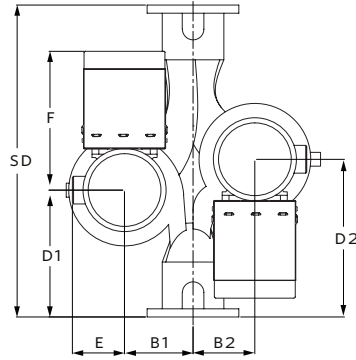
Performance curves are for reference only.  
Confirm current performance data with Armstrong ACE Online selection software.

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

**INDOOR**



**OUTDOOR**



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

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