

## DESIGN ENVELOPE 4302 DUALARM | 0811-040.0 | SUBMITTAL

File No: 104.5087  
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: 8" (200mm) Discharge: 8" (200mm)

**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.

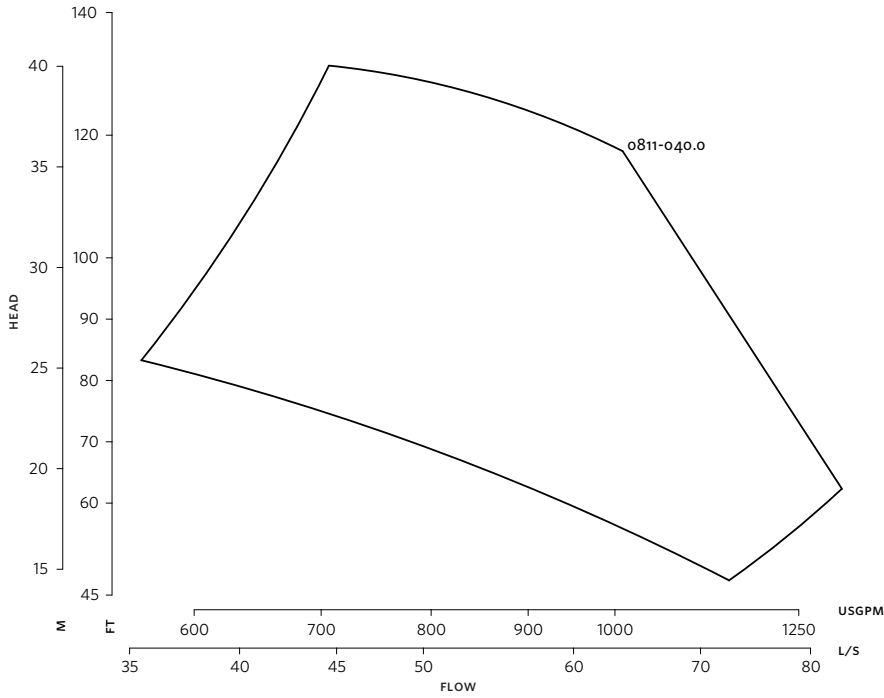
Available in 3 or 5 year terms

\* Requires an internet connection to be provided by building

\* Includes an extended warranty for parts and labour

(wearable parts excluded)

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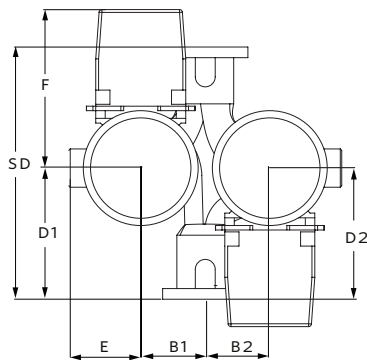
**DIMENSION DATA**

	INDOOR (UL TYPE 12/ODP)	OUTDOOR (UL TYPE 4X/TEFC)
<b>Frame size:</b>	324	324
<b>Size:</b>	8×8×11.5	8×8×11.5
<b>HP:</b>	40	40
<b>RPM:</b>	1800	1800
<b>AB:</b>	43.68(1110)	49.08(1247)
<b>B1:</b>	11.00(279)	11.00(279)
<b>B2:</b>	10.50(267)	10.50(267)
<b>C1:</b>	20.20(513)	20.20(513)
<b>C2:</b>	20.10(511)	20.10(511)
<b>D1:</b>	20.65(524)	20.65(524)
<b>D2:</b>	25.48(647)	25.48(647)
<b>E:</b>	12.69(322)	13.91(353)
<b>P:</b>	14.13(359)	17.00(432)
<b>F:</b>	21.69(551)	25.68(652)
<b>SD:</b>	46.94(1192)	46.94(1192)
<b>T:</b>	8.80(224)	8.80(224)
<b>XY:</b>	38.66(982)	44.47(1130)
<b>Weight:</b>	2320(1052.3)	2450(1111.3)

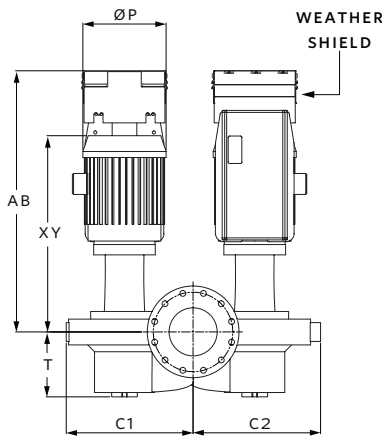
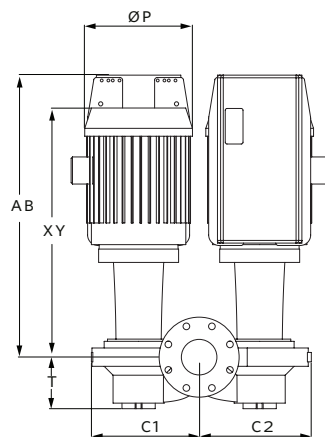
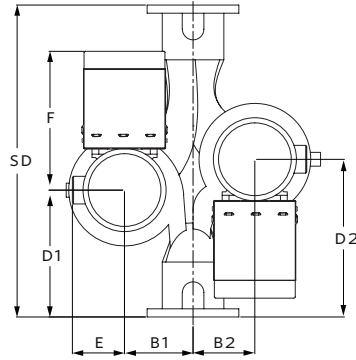
Performance curves are for reference only.  
Confirm current performance data with Armstrong ACE Online selection software.

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

**INDOOR**



**OUTDOOR**



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

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