

# DESIGN ENVELOPE 4380 VIL

40-125 (1.5×1.5×5) | 4012-003.0 | SUBMITTAL

File No: 101.5725IEC

Date: FEBRUARY 14, 2019

Supersedes: NEW

Date: NEW

Engineer: Submitted by: Date:    Contractor: Approved by: Date:	Job:	Represent	tative:		
PUMP DESIGN DATA  No. of pumps: Tag:		Order No:	:	Date:	
PUMP DESIGN DATA  No. of pumps: Tag:	Engineer: Subm		d by:	Date:	
No. of pumps: Tag:	Contractor: Appro		l by:	Date:	
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	PUMP DESIGN DATA	:	DEPM MOTOR AND CO	ONTROL DATA	
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	No of numps: Tag:	:	kW·	2.0	
Liquid:	. ,	:			
Temperature:		:			
Suction: 40 mm (1.5")  Discharge: 40 mm (1.5")  MEI ≥ 0.70  MATERIALS OF CONSTRUCTION  PN 16  CONSTRUCTION: LPDESF E-coated ductile iron A536 Gr 65-45-12, stainless fitted  CONSTRUCTION: HPDESF E-coated ductile iron A536 Gr 120-90-2, stainless fitted  PN 25  CONSTRUCTION: HPDESF E-coated ductile iron A536 Gr 120-90-2, stainless fitted  PN 16  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  PN 26  Communication 1.5")  Phase: 3  Efficiency: 1E5  Orientation: □ 15 (default) □ 16  Protocol (standard): □ 8Acnet™ Ms/TP  MAXIMUM □ BACnet™ Ms/TP  Modbus RTU  Control enclosure: □ Indoor - 1P 55 □ Outdoor - 1P 66  Fused disconnect switch: Consult factory  EMI/RFI control: Integrated filter designed to meet Enfol800-3  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 1/0: Two inputs, one output. Output can be configured for voltage or current  Digital 1/0: Two inputs, two outputs. Outputs can be configured as input  Relay outputs: Two programmable		•			
Efficiency: IE5 Orientation: □ L5 (default) □ L6 Protocol (standard): □ BACNET™ MSYTP □ 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) □ 17 bar at 121°C (247 psig at 250°F)  FLOW READOUT ACCURACY  Efficiency: IE5 Orientation: □ L5 (default) □ L6 Protocol (standard): □ BACNET™ MSYTP □ MACNITY □ MACNIT		•			
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Cast Stainless Steel ASTM A743 CF8M Type 316  □ PN 25     CONSTRUCTION: HPDESF     E-coated ductile iron A536 Gr 120-90-2, stainless fitted  □ PN 16     □ 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    Maximum Pump Operating Conditions   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 1/0: Two inputs, one output. Output     can be configured for voltage     or current     Digital 1/0: Two inputs, two outputs. Output     puts can be configured as input     Communication post 1 ps 4°F     Cooling: Equivalent: 5% Ac line reactor     Cooling: Fan-cooled, surface cooling     Ambient temperature: -10°C to +45°C up to 1000 meters     Above 5 ps 4°F     Cooling: Fan-cooled, surface cooling     Ambient temperature: -10°C to +45°C up to 1000 meters     Above 5 ps 4°F     Cooling: Fan-cooled, surface cooling     Ambient temperature: -10°C to +45°C up to 1000 meters     Above 5 ps 4°F     Cooling: Fan-cooled, surface cooling     Ambient temperature: -10°C to +45°C up to 1000 meters     Above 5 ps 4°F     Cooling: Fan-cooled, surface cooling     Ambient temperature: -10°C to +45°C up to 1000 meters     Cooling: Fan-cooled, surface cooling     Ambient te	E-coated ductile iron A536 Gr 65-45-12, s	stainless fitted			
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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 17 bar at 121°c (247 psig at 250°F)  FLOW READOUT ACCURACY  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 input Relay outputs: Two programmable	E-coated ductile iron A536 Gr 120 - 90 - 2	2, stainless fitted :			
Ambient temperature: -10°C to +45°C up to 1000 meters above sea level (+14°F to +113°F, 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)  PLOW READOUT ACCURACY  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 input  Relay outputs: Two programmable			Cooling:	•	
above sea level (*14 F to *113 F, 3300 ft)  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)  PLOW READOUT ACCURACY  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 input  Relay outputs: Two programmable		DITIONS	Ambient temperature:	-10°C to +45°C up to 1000 meters	
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□ PN 25 20 bar at 65°C (290 psig at 149°F) 17 bar at 121°C (247 psig at 250°F)  □ Digital I/O: Two inputs, two outputs. Outputs can be configured as input.  ■ PN 25 20 bar at 65°C (290 psig at 149°F) 17 bar at 121°C (247 psig at 250°F)  □ Digital I/O: Two inputs, two outputs. Outputs can be configured as input.  ■ PN 25 20 bar at 65°C (290 psig at 149°F) 21 bar at 121°C (247 psig at 250°F)  ■ Digital I/O: Two inputs, two outputs. Outputs can be configured for voltage or current.					
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17 bar at 121°C (247 psig at 250°F)  Digital I/O: Two inputs, two outputs. Outputs can be configured as input  FLOW READOUT ACCURACY  Relay outputs: Two programmable  Communication ports 1, p. 6.4°5		:			
puts can be configured as input  Relay outputs: Two programmable  Communication part 1 85485		:	Digital you		
FLOW READOUT ACCURACY  Relay outputs: Two programmable		:	Digital 1/0:		
Communication mosts 1 DC 405	FLOW READOUT ACCURACY	:	Relay outputs:		
	The Design Envelope model selected will prov	ide flow reading			

## MECHANICAL SEAL DESIGN DATA

on the controls local keypad & digitally for the  ${\tt BMS}.$  The model

readout will be factory tested to ensure ±5% accuracy.

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

\*\* 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.

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 (0-ring)	EPDM (L-cup)	EPDM (0-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

2

## **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)

# □ 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)

## 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

5	
Duty point	L/s (gpm)
at	m (ft)
Minimum system pre	essure to be maintained m (ft)
Heating	
Duty point	L/s (gpm)
at	m (ft)
Minimum system pre	essure to be maintained m (ft)

# **OPTIONAL SERVICES**

# **ON-SITE PUMP COMMISSIONING**



# **PUMP MANAGER**



Online service for sustained pump performance and enhanced reliability.

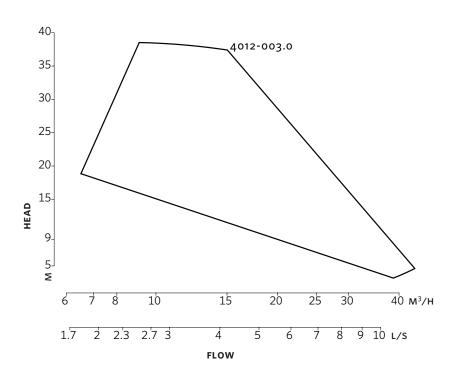
Available in 3 or 5 year terms

- \* Requires an internet connection to be provided by building
- \* Includes an extended warranty for parts and labour (wearable parts excluded)

<sup>\*</sup>Only available if sensorless bundle is enabled

<sup>\*</sup>Only available if sensorless bundle is enabled

3



Performance curves are for reference only.

Confirm current performance data with Armstrong ADEPT Quote or ADEPT Select selection software.

# **DIMENSION DATA**

# INDOOR (IP 55/TEFC)

Size: 40-125 kW: 3.0 RPM: 3600 Frame: 90

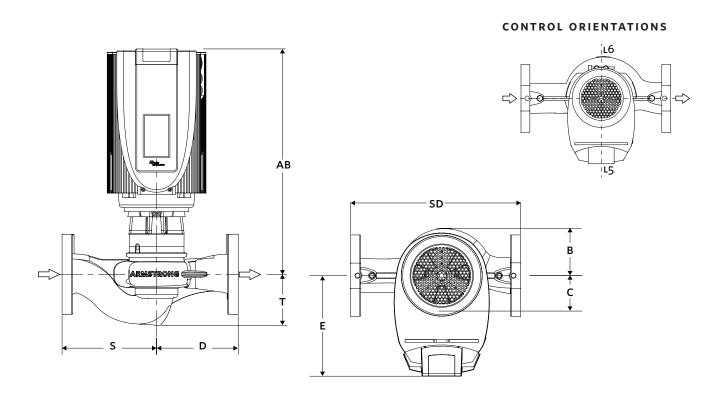
AB: 464 (18.27)
B: 99 (3.91)
C: 89 (3.50)
D: 140 (5.53)
E: 205 (8.08)
S: 159 (6.27)

sp: 300 (11.81) r: 91 (3.59) Weight: 40.3 (89)

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



#### TORONTO

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#### BUFFALO

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# SÃO PAULO

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