

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump with Parallel Sensorless Controller

Model: Series Design Envelope Sensorless 4300 0613H-050.0 with Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAC-1/2/3R	Piping configuration:	Parallel + Standby
Service:	Água de Condensação	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico	Fluid:	Non-Potable Fluid - Water
Qty:	3	Fluid operating temp.:	35 °C
Total system flow:	626 m³/hr	Duty flow per pump:	313 m³/hr
System head:	28 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	76.09 %	Safety factor % head:	0 %
NPSHR:	6.09 m	Total Absorbed Power:	84 hp
Min. maintained pressure*:	11.2 m	Impeller diameter:	12.03 in
PEIv:	0.48	ERv:	51.68
Standby qty:	1	Pump/motor run qty:	2
Outlet velocity:	15.3 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 6in, Outlet: 6in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)***:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	50 hp	Motor type:	Inverter Duty
Frame size:	326TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60
Operating speed @ 100% flow:	1679 rpm	Operating speed @ 50% flow***:	1121 rpm



***Based on minimum pressure setting of 40% of design head.

****Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

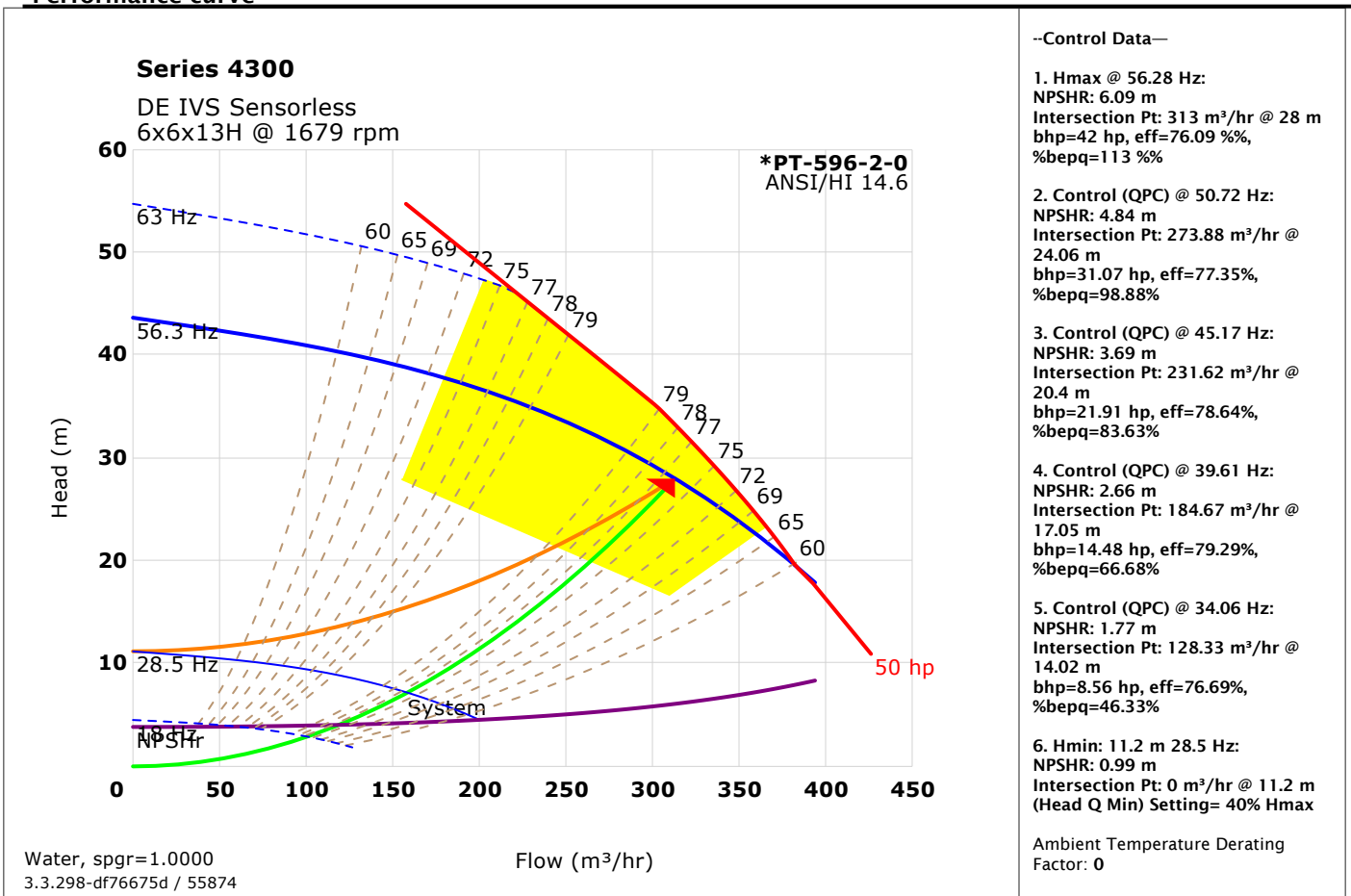
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	23.1 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve



Design envelope pumping unit capability

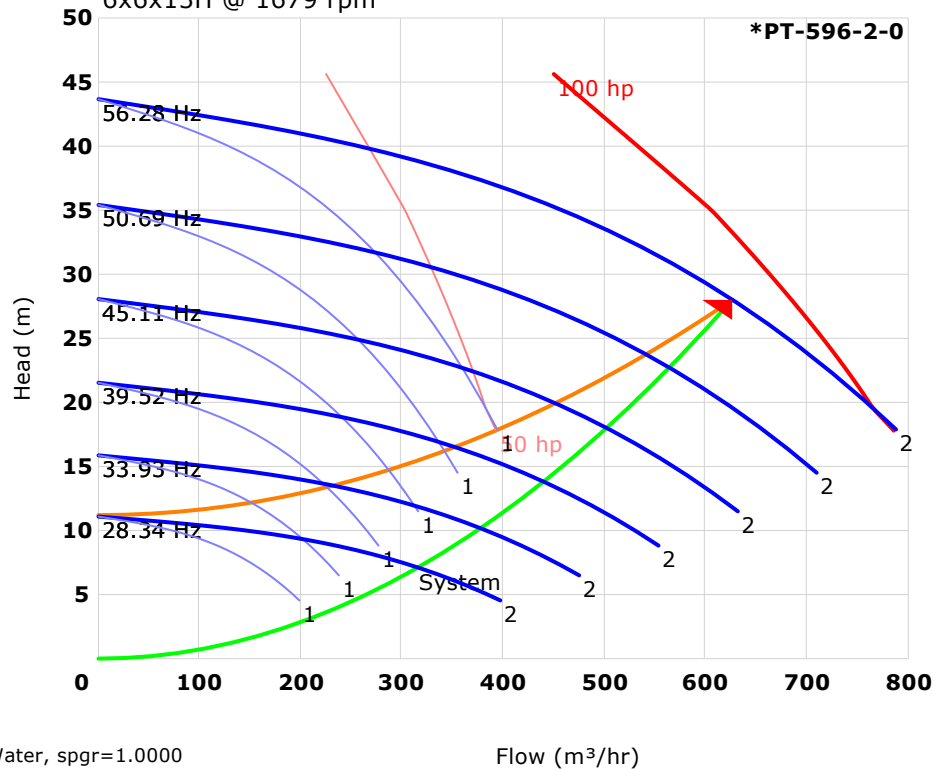
Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	313 m³/hr	34.21 m	78.35%
Design point	313 m³/hr	28 m	76.09 %
50% average flow (with default load profile)	156.5 m³/hr	15.4 m	78.71 %

Motor Capability @ Rated Speed

46.85 hp

Parallel Pump Curve-Series 4300

DE IVS Sensorless
6x6x13H @ 1679 rpm



---Admin Data---

Tag Num: BAC-1/2/3R
Service: Água de Condensação
Location: Pavimento Técnico

---Motor Data---

Motor Size: 50 hp

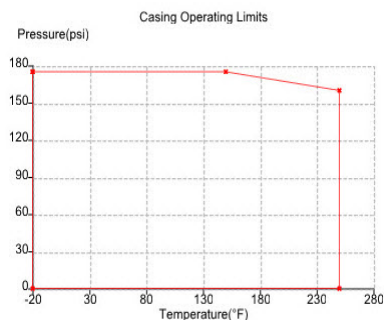
---System Design Data---

Piping: Parallel + Standby
Run Qty: 2
Fluid: Non-Potable Fluid
Sp.Gr: 1.0000, Vis= 31 SSU
Suction: 0 ft
Total Design Flow= 626 m³/hr
Total Design Head= 28 m

---Performance Data---

NPSHR : 6.09 m
Flow: 626 m³/hr
Head: 28 m
Eff: 76.09% ,BEP: 79.37%
%BEP (Flow): 113%
BHP = 84 hp
BHP/Pump= 42 hp
Total System Flow = 626 m³/hr

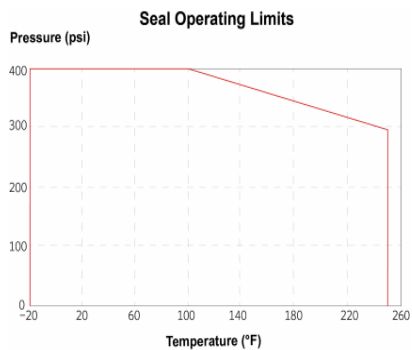
Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.



Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	Yes*
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

*This feature is embedded into the controls of up to 4 pumps.

Cooling

Q1:	N/A
H1:	N/A
H1 min:	N/A
Maximum Flow:	N/A

Heating

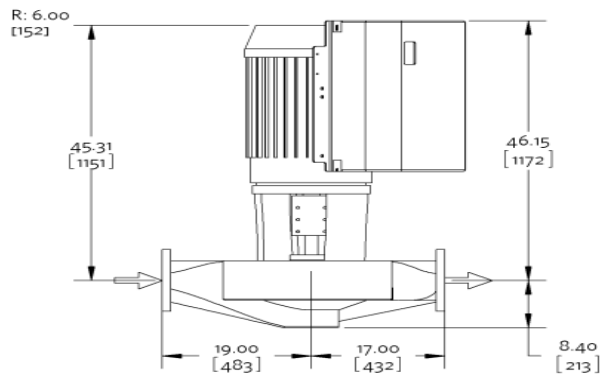
Q2:	N/A
H2:	N/A
H2min:	N/A
Minimum Flow:	N/A

Optional Services

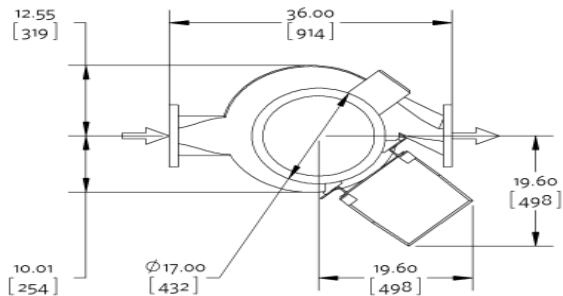
On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

Side view



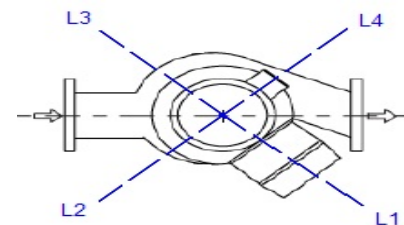
Top view



Inverter motor type: Inverter duty

Weight: 1189 lb [539.32 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	6	ANSI-125	11.00	8	9.50	0.75
Outlet	6	ANSI-125	11.00	8	9.50	0.75

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Parallel Sensorless : Yes

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-8FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAC-1/2/3R	3	FTV-8FA	8	Angle	Flanged	313 m ³ /hr	3.63 ft	Design Envelope Sensorless 4300 0613H-050.0

*at design flow

Materials of construction

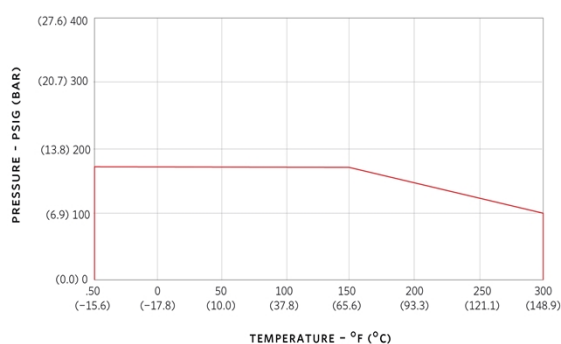
FTV-8FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-8FA-Flo-Trex Valve-ANSI-125-Angle

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

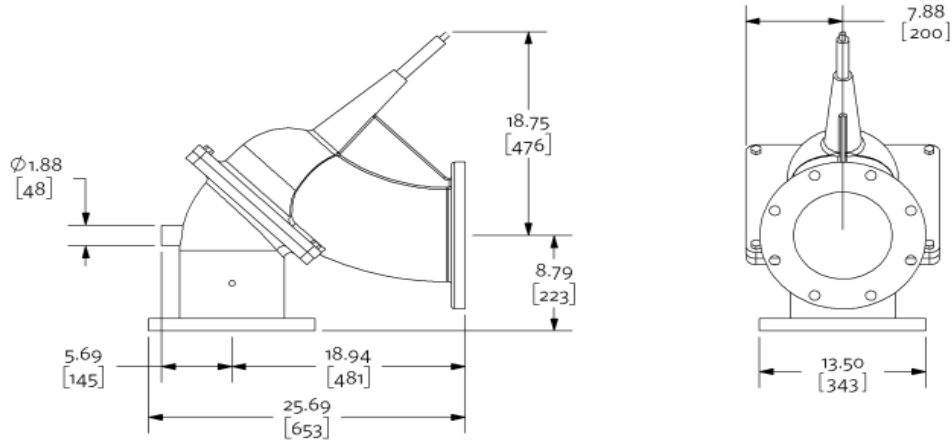
Dimensional data (not for construction)

Model: FTV-8FA-Flo-Trex Valve-ANSI-125-Angle

Side view

Weight: 344 lb [156.04 kg]

Front view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-85

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAC-1/2/3R	3	SG-85	8 in	5 in	313 m ³ /hr	1.84 ft	N/A

*at design flow

Materials of construction

SG-85

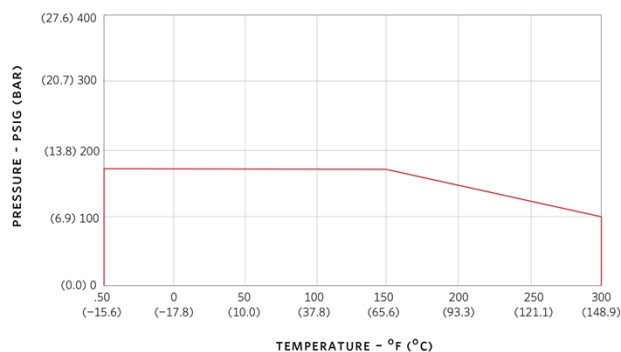
Body:	Cast iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast iron	Strainer:	Stainless Steel,0.125"(3mm)Perf..
Cover plate:	Cast iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-85-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

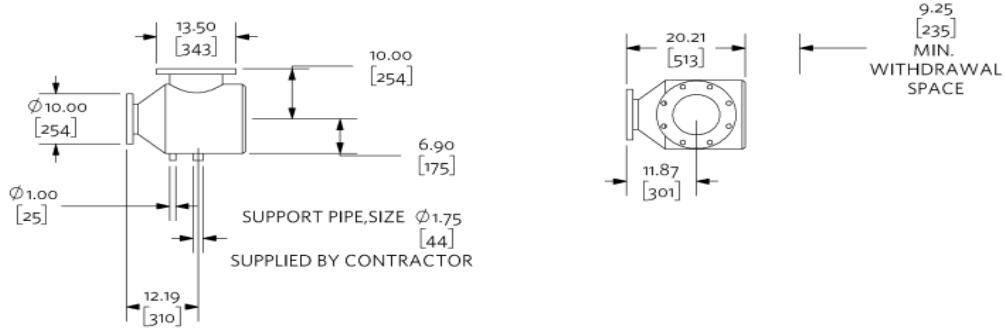
Dimensional data (not for construction)

SG-85

Weight: 213 lb [96.62 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump with Parallel Sensorless Controller

Model: Series Design Envelope Sensorless 4300 0610-025.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAGP-PT-01	Piping configuration:	Parallel + Standby
Service:	Primário Água Gelada	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico	Fluid:	Non-Potable Fluid - Water
Qty:	3	Fluid operating temp.:	14 °C
Total system flow:	430 m³/hr	Duty flow per pump:	215 m³/hr
System head:	20 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	67.22 %	Safety factor % head:	0 %
NPSHR:	6.87 m	Total Absorbed Power:	46.66 hp
Min. maintained pressure*:	8 m	Impeller diameter:	10.19 in
PEIvl:	0.48	ERvl:	52.14
Standby qty:	1	Pump/motor run qty:	2
Outlet velocity:	10.51 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 6in, Outlet: 6in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)****:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	25 hp	Motor type:	Inverter Duty
Frame size:	284TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% 1807 rpm
flow:

Operating speed @ 50% 1151 rpm
flow***:

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

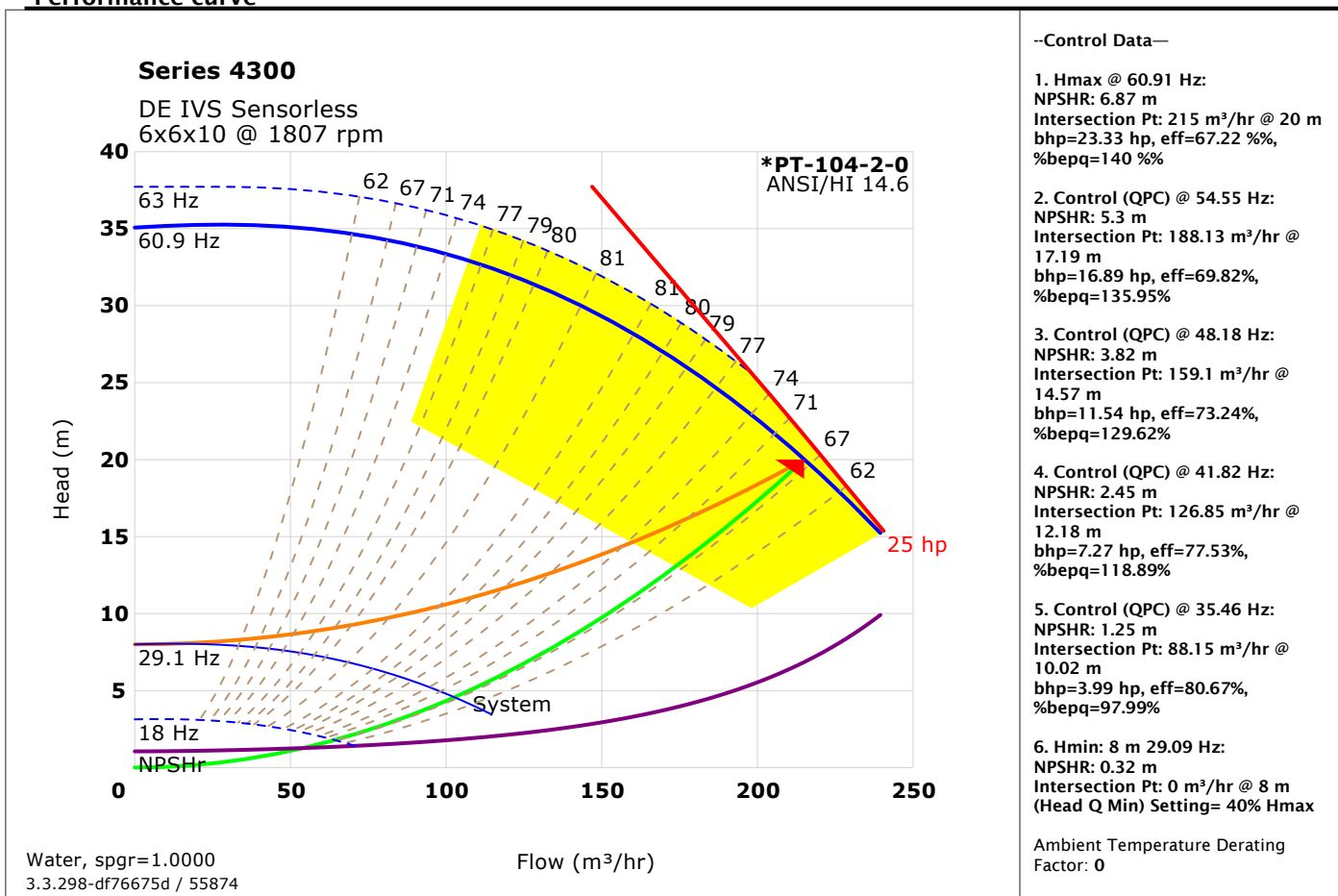
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	12.83 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

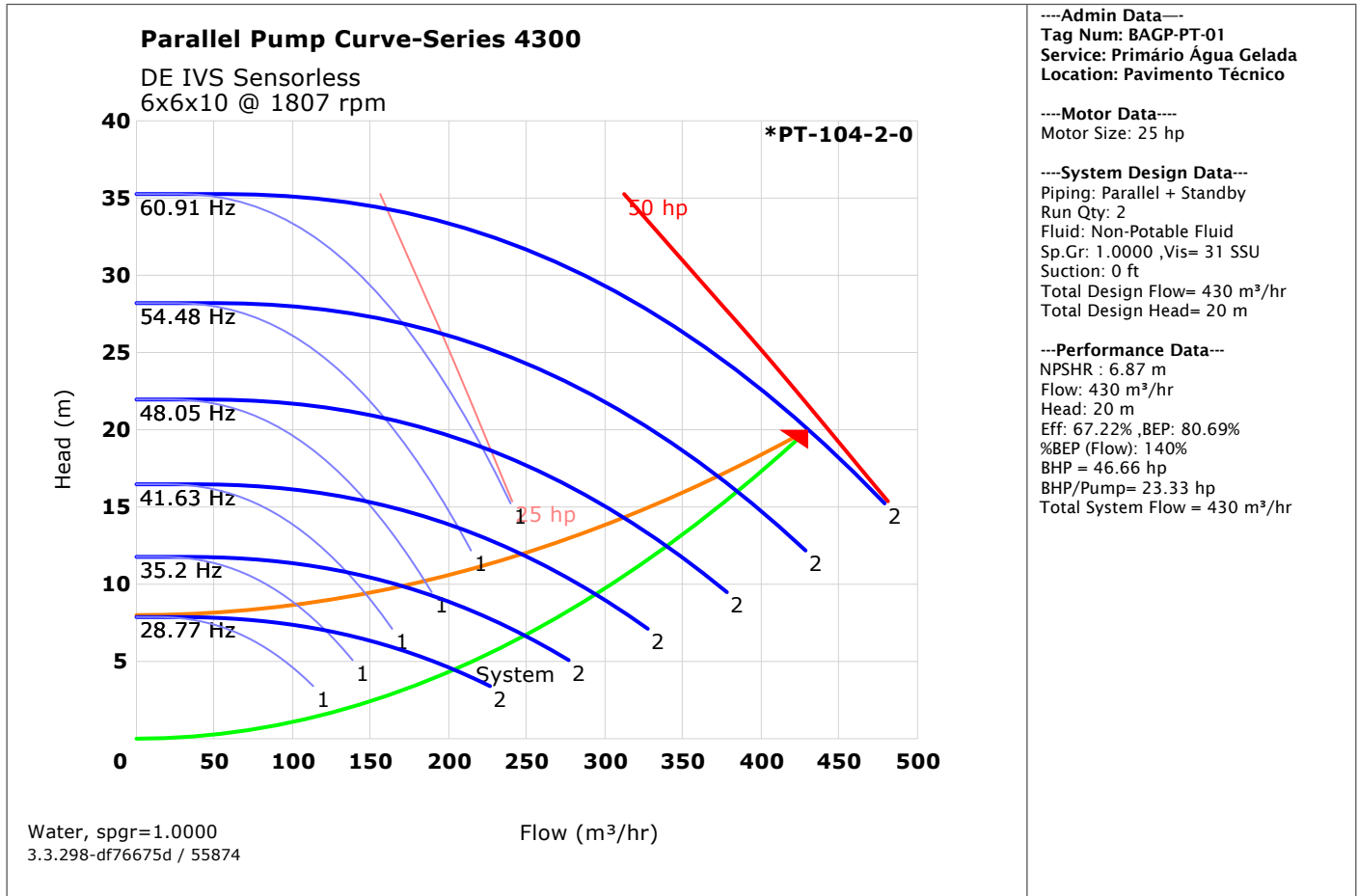
Performance curve



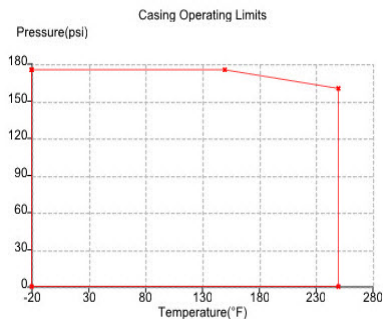
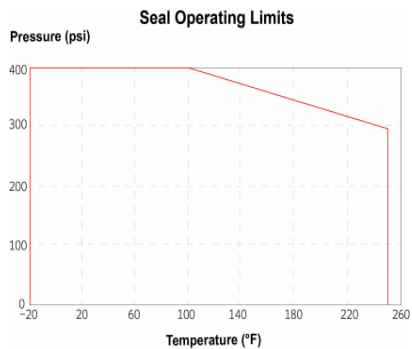
Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	215 m³/hr	21.58 m	68.96%
Design point	215 m³/hr	20 m	67.22 %

50% average flow (with default load profile) Motor Capability @ Rated Speed	107.5 m ³ /hr 24.52 hp	11 m	79.78 %
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Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	Yes*
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

*This feature is embedded into the controls of up to 4 pumps.

Cooling

Q1:	N/A
H1:	N/A
H1 min:	N/A
Maximum Flow:	N/A

Heating

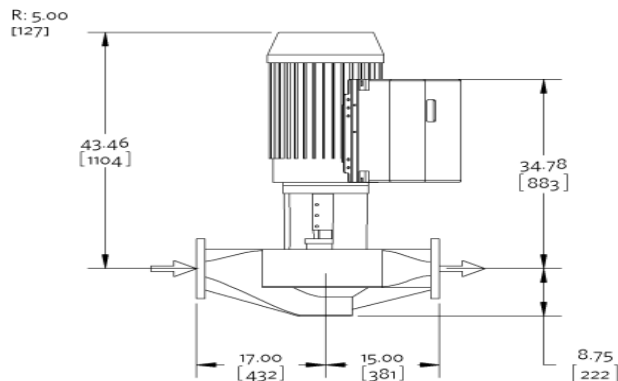
Q2:	N/A
H2:	N/A
H2min:	N/A
Minimum Flow:	N/A

Optional Services

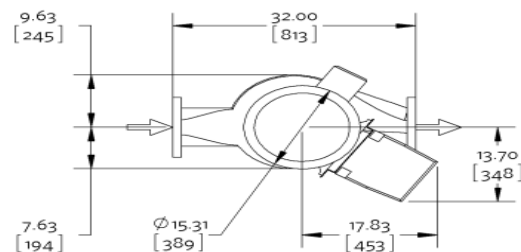
On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

Side view



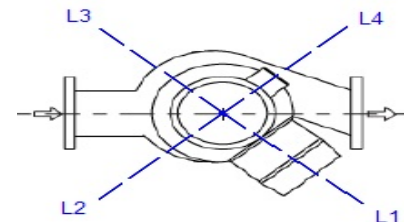
Top view



Inverter motor type: Inverter duty

Weight: 858 lb [389.18 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	6	ANSI-125	11.00	8	9.50	0.75
Outlet	6	ANSI-125	11.00	8	9.50	0.75

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Parallel Sensorless : Yes

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-86

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAGP-PT-01	3	SG-86	8 in	6 in	215 m ³ /hr	2.67 ft	Design Envelope Sensorless 4300 0610-025.0

*at design flow

Materials of construction

SG-86

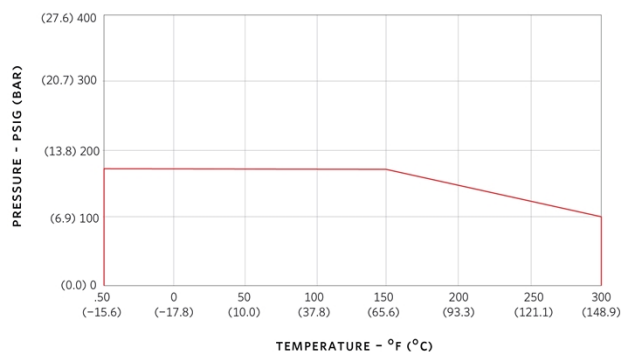
Body:	Cast iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast iron	Strainer:	Stainless Steel,0.125"(3mm)Perf..
Cover plate:	Cast iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-86-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

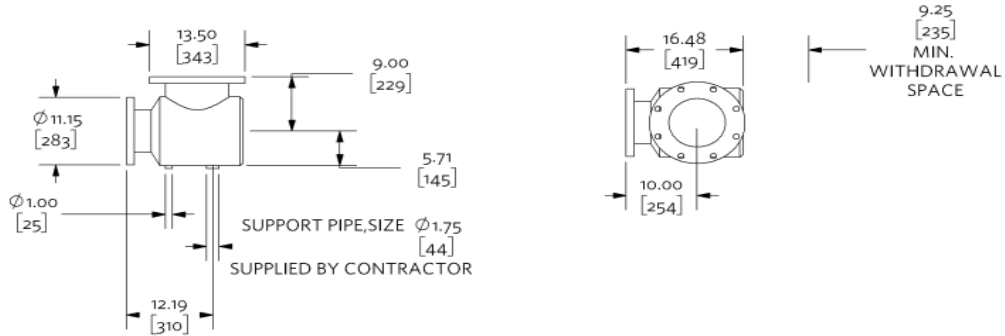
Dimensional data (not for construction)

SG-86

Weight: 180 lb [81.65 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAGP-PT-01	3	FTV-6FA	6	Angle	Flanged	215 m ³ /hr	3.9 ft	Design Envelope Sensorless 4300 0610-025.0

*at design flow

Materials of construction

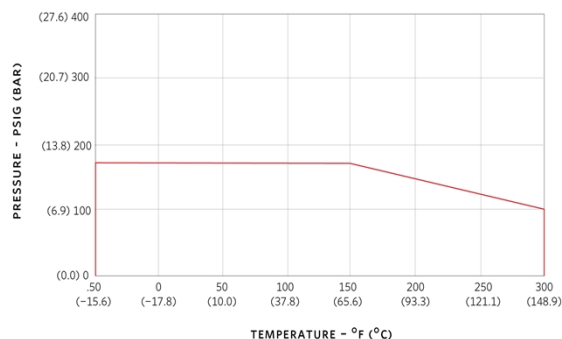
FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

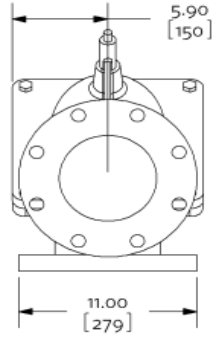
PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Weight: 167 lb [75.75 kg]

Front view



For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump with Parallel Sensorless Controller

Model: Series Design Envelope Sensorless 4300 0611-040.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAGS-PT-01	Piping configuration:	Parallel + Standby
Service:	Secundário Água Gelada	Suction pressure:	0 ft
Equipment Location:	Pavimento técnico (Hospital)	Fluid:	Non-Potable Fluid - Water
Qty:	3	Fluid operating temp.:	7 °C
Total system flow:	344 m³/hr	Duty flow per pump:	172 m³/hr
System head:	40 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	81.46 %	Safety factor % head:	0 %
NPSHR:	2.26 m	Total Absorbed Power:	61.6 hp
Min. maintained pressure*:	16 m	Impeller diameter:	11.5 in
PEIv:	0.47	ERv:	53.42
Standby qty:	1	Pump/motor run qty:	2
Outlet velocity:	8.41 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	80.15 %		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 6in, Outlet: 6in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)****:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	40 hp	Motor type:	Inverter Duty
Frame size:	324TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% 1847 rpm
flow:

Operating speed @ 50% 1338 rpm
flow***:

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

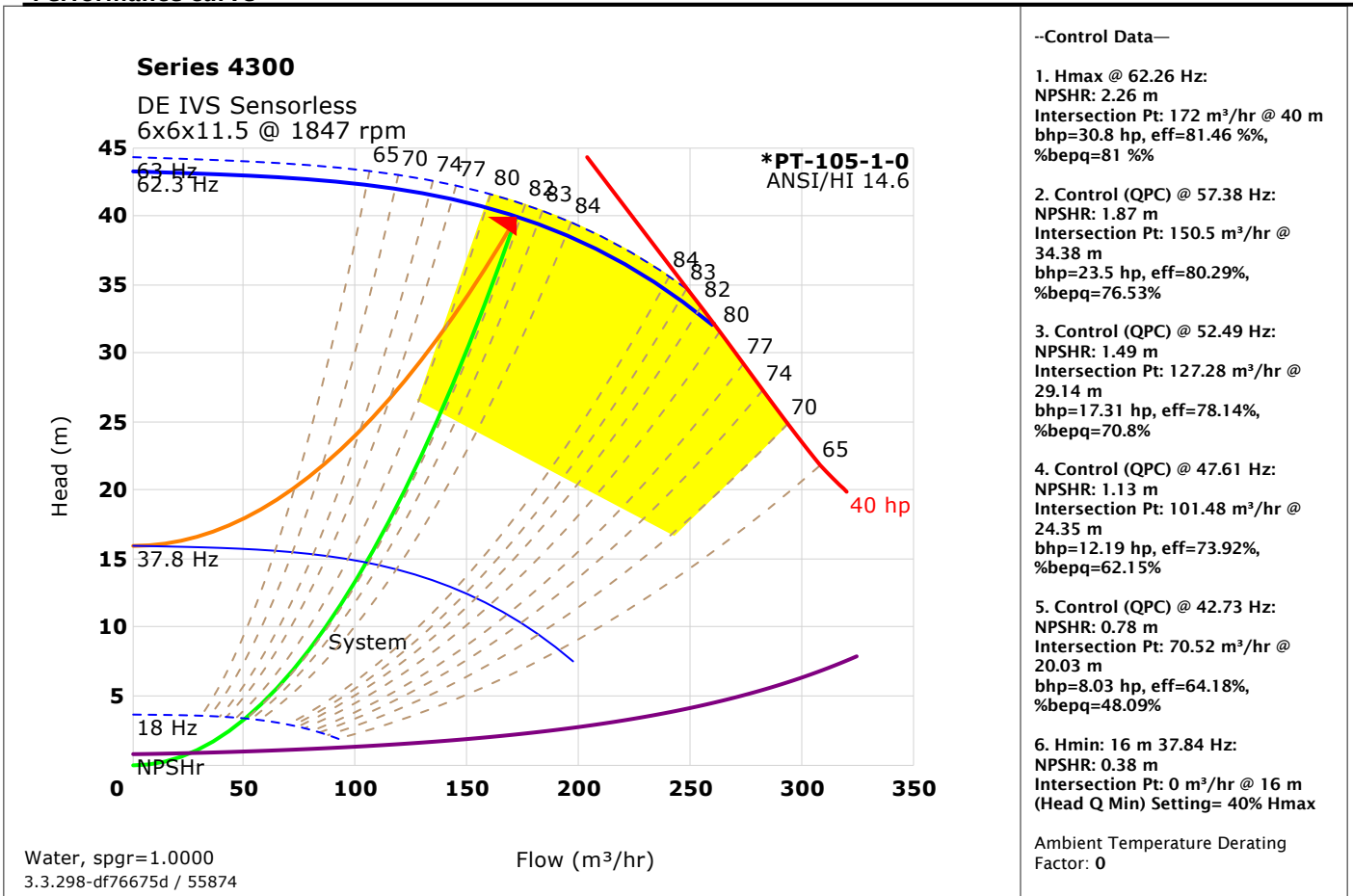
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	16.94 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	No	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

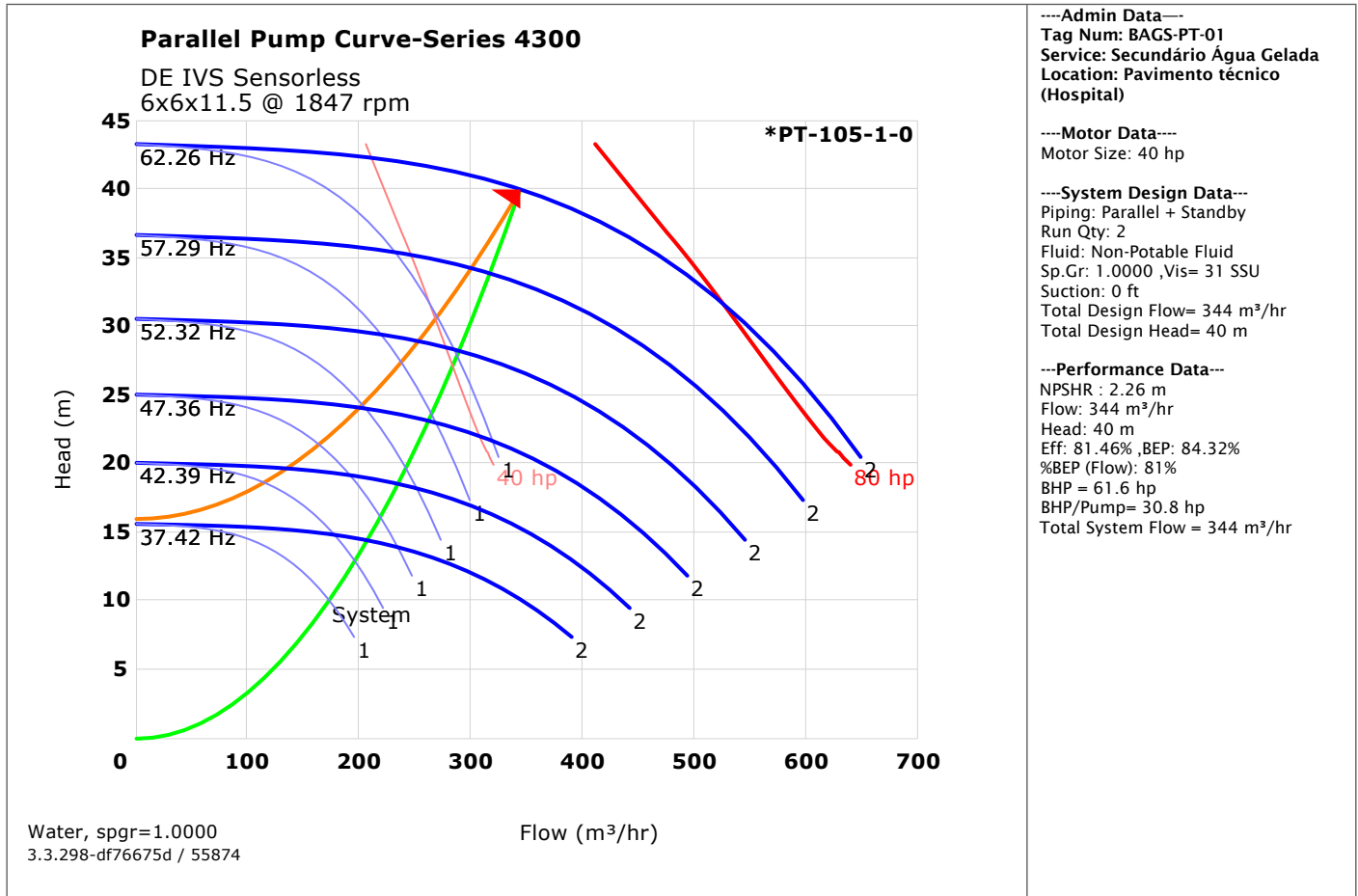
Performance curve



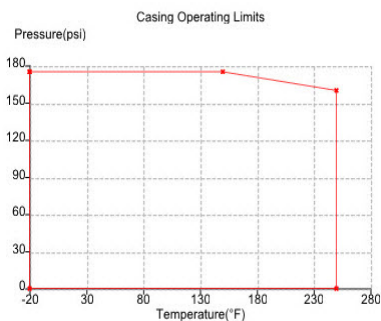
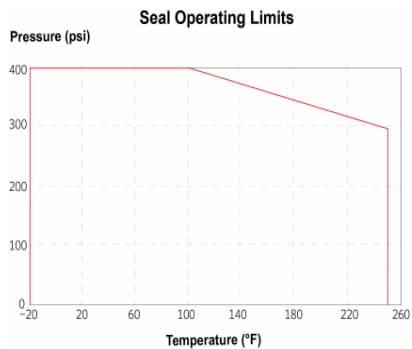
Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	172 m³/hr	42.11 m	81.32%
Design point	172 m³/hr	40 m	81.46 %

50% average flow (with default load profile)	86 m ³ /hr	22 m	69.89 %
Motor Capability @ Rated Speed	38.02 hp		



Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	Yes*
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

*This feature is embedded into the controls of up to 4 pumps.

Cooling

Q1:	N/A
H1:	N/A
H1 min:	N/A
Maximum Flow:	N/A

Heating

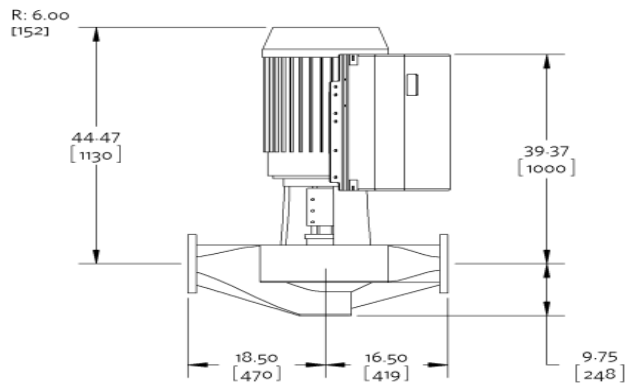
Q2:	N/A
H2:	N/A
H2min:	N/A
Minimum Flow:	N/A

Optional Services

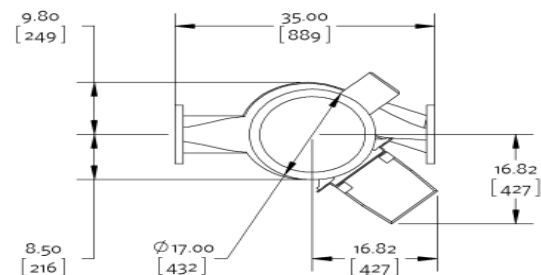
On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

Side view



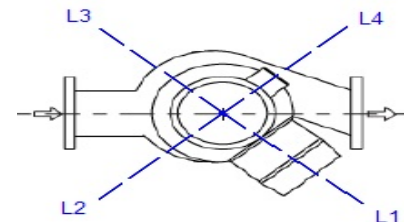
Top view



Inverter motor type: Inverter duty

Weight: 1112 lb [504.39 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	6	ANSI-125	11.00	8	9.50	0.75
Outlet	6	ANSI-125	11.00	8	9.50	0.75

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHDP Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Parallel Sensorless : Yes

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-66

Project name: Hospital Saquarema

Representative: Luis Henrique Dias

Location:

Phone number:

Date submitted: 11/7/2025 2:11 PM

e-mail: ldias@armstrongfluidtechnology.com

Engineer:

Submitted by: Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-01	3	SG-66	6 in	6 in	172 m ³ /hr	1.72 ft	Design Envelope Sensorless 4300 0611-040.0

*at design flow

Materials of construction

SG-66

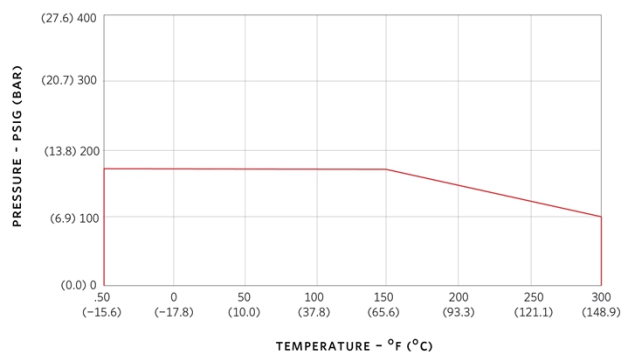
Body:	Cast iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast iron	Strainer:	Stainless Steel,0.125"(3mm)Perf..
Cover plate:	Cast iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-66-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

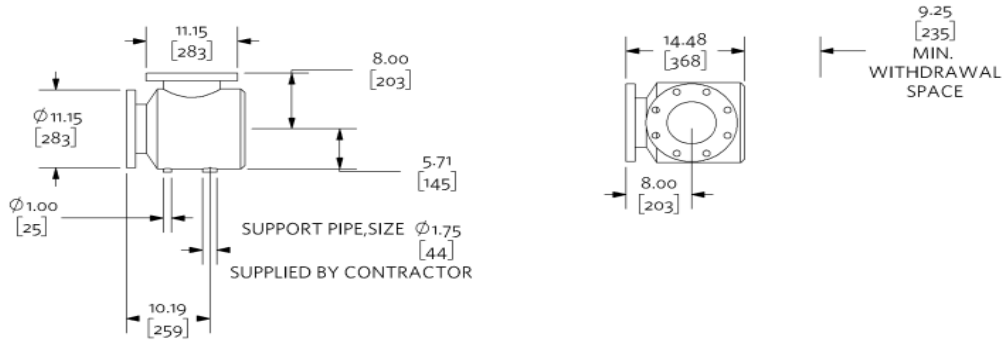
Dimensional data (not for construction)

SG-66

Weight: 141 lb [63.96 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-01	3	FTV-6FA	6	Angle	Flanged	172 m ³ /hr	3.49 ft	Design Envelope Sensorless 4300 0611-040.0

*at design flow

Materials of construction

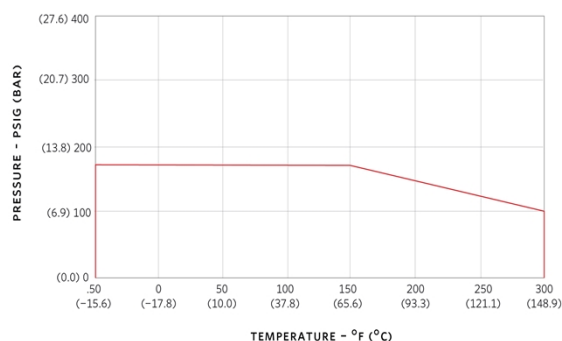
FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

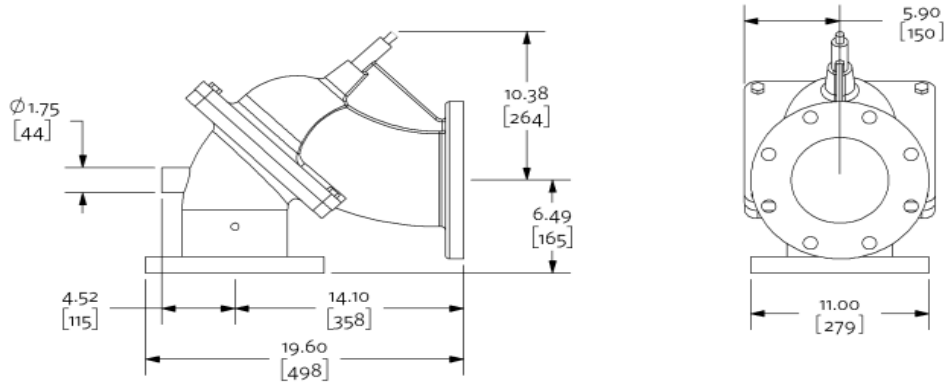
Dimensional data (not for construction)

Model: FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Weight: 167 lb [75.75 kg]

Side view

Front view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump

Model: Series Design Envelope Sensorless 4300 0306-015.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAGS-PT-02	Piping configuration:	Single + Standby
Service:	Secundário 2 - Água Gelada	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico (Internação)	Fluid:	Non-Potable Fluid - Water
Qty:	2	Fluid operating temp.:	7 °C
Total system flow:	85 m³/hr	Duty flow per pump:	85 m³/hr
System head:	30 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	75.81 %	Safety factor % head:	0 %
NPSHR:	6.05 m	Total Absorbed Power:	12.27 hp
Min. maintained pressure*:	12 m	Impeller diameter:	6.19 in
PEIvL:	0.48	ERvL:	52.47
Standby qty:	1	Pump/motor run qty:	1
Outlet velocity:	16.24 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 3in, Outlet: 3in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)***:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	15 hp	Motor type:	Inverter Duty
Frame size:	215TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% 3390 rpm
flow:

Operating speed @ 50% 2299 rpm
flow***:

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

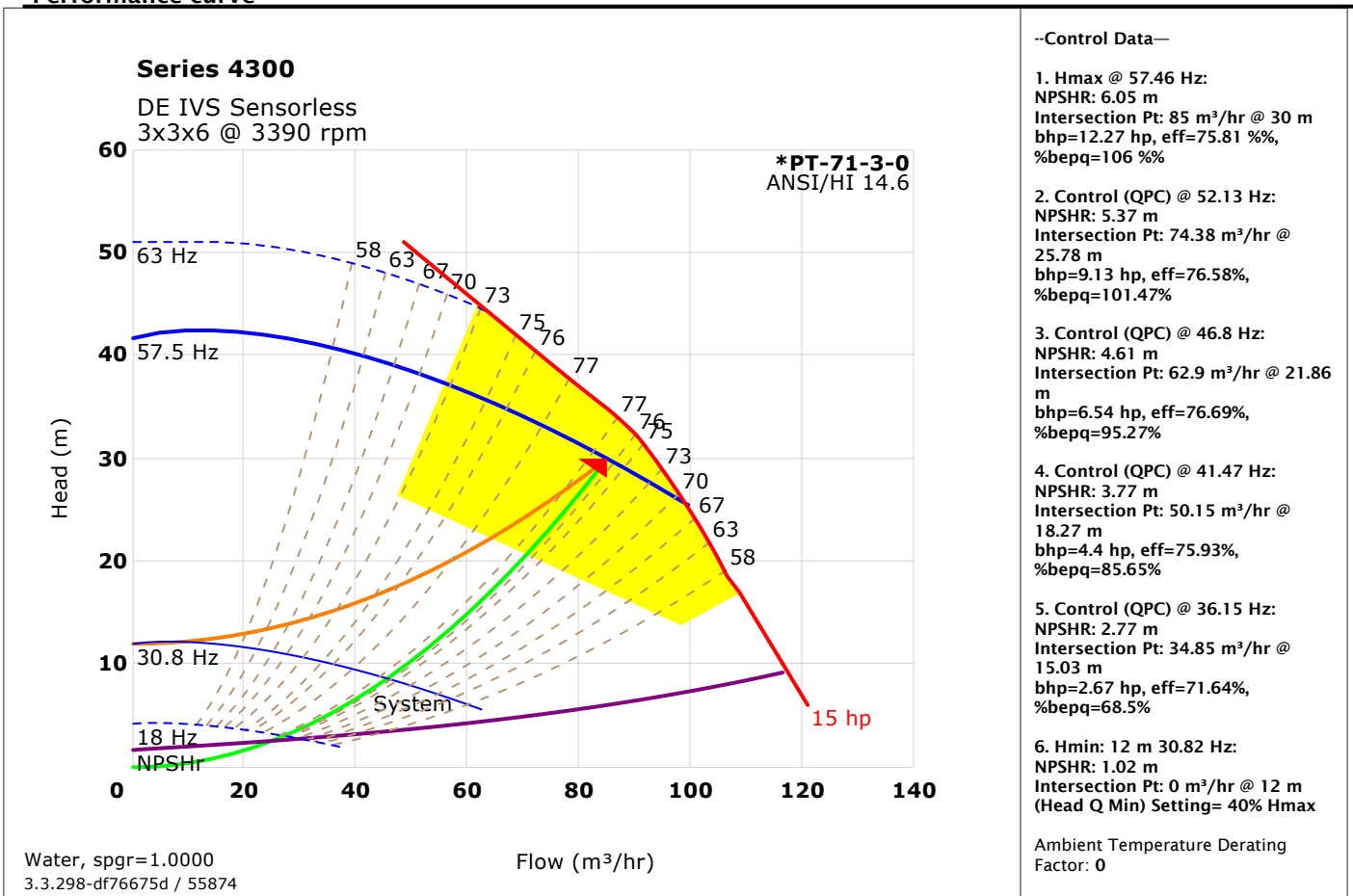
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	6.75 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve

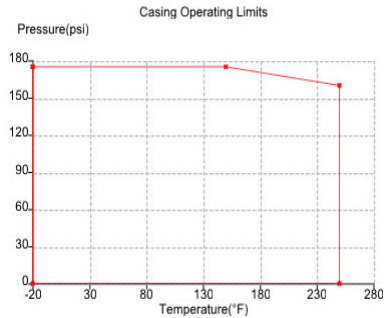
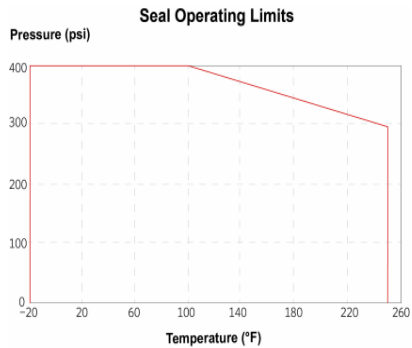


Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	85 m³/hr	35.32 m	76.77%
Design point	85 m³/hr	30 m	75.81 %

50% average flow (with default load profile) Motor Capability @ Rated Speed	42.5 m ³ /hr 13.65 hp	16.5 m	74.54 %
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Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	No
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

Cooling

Q1:	N/A	Q2:	N/A
H1:	N/A	H2:	N/A
H1 min:	N/A	H2 min:	N/A
Maximum Flow:	N/A	Minimum Flow:	N/A

Heating

Optional Services

On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

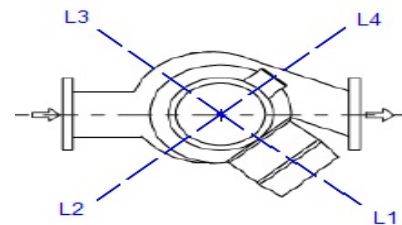
Side view	Top view
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The drawing and dimensions you are looking for are not available at this time.

Inverter motor type: Inverter duty

Weight: 411 lb [186.43 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	3	ANSI-125	7.50	4	6.00	0.625
Outlet	3	ANSI-125	7.50	4	6.00	0.625

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-63

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-02	2	SG-63	6 in	3 in	85 m ³ /hr	0.58 ft	Design Envelope Sensorless 4300 0306-015.0

*at design flow

Materials of construction

SG-63

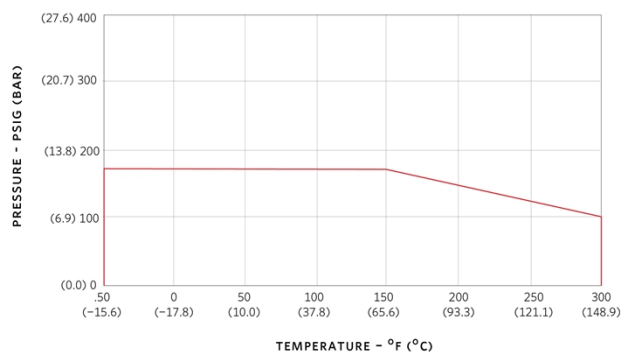
Body:	Cast Iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast Iron	Strainer:	Stainless Steel,0.188"(5mm)Perf..
Cover plate:	Cast Iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-63-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

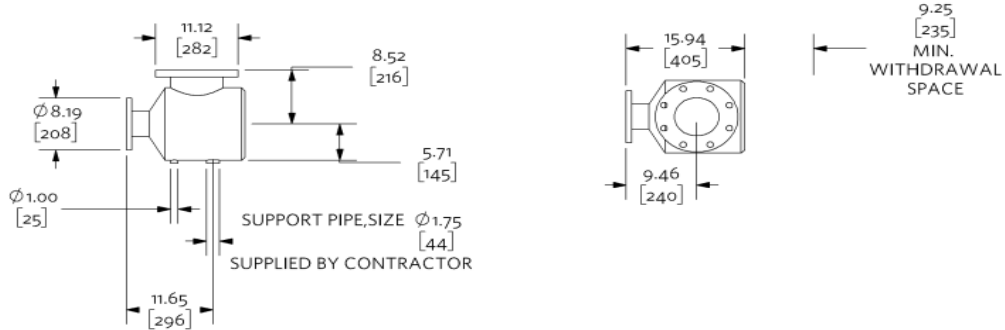
Dimensional data (not for construction)

SG-63

Weight: 107.45 lb [48.74 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of ± 0.125 inch (± 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-02	2	FTV-5FA	5	Angle	Flanged	85 m³/hr	2.85 ft	Design Envelope Sensorless 4300 0306-015.0

*at design flow

Materials of construction

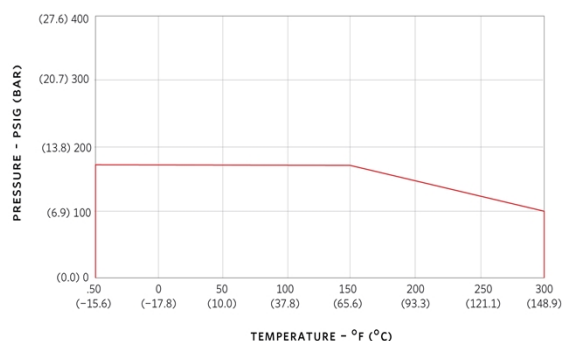
FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

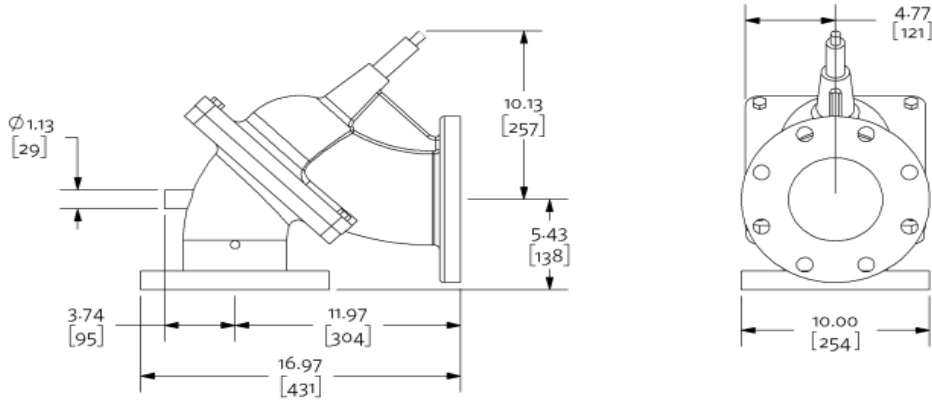
Dimensional data (not for construction)

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Weight: 108 lb [48.99 kg]

Side view

Front view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump

Model: Series Design Envelope 4300 0306-015.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAGS-PT-03	Piping configuration:	Single + Standby
Service:	Secundário 3 - Água Gelada	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico (Serviços)	Fluid:	Non-Potable Fluid - Water
Qty:	2	Fluid operating temp.:	7 °C
Total system flow:	89 m³/hr	Duty flow per pump:	89 m³/hr
System head:	30 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	74.94 %	Safety factor % head:	0 %
NPSHR:	6.35 m	Total Absorbed Power:	12.99 hp
Min. maintained pressure*:	12 m	Impeller diameter:	6.19 in
PEIv:	0.48	ERv:	52.47
Standby qty:	1	Pump/motor run qty:	1
Outlet velocity:	17 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 3in, Outlet: 3in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)***:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	15 hp	Motor type:	Inverter Duty
Frame size:	215TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60
Operating speed @ 100% flow:	3437 rpm	Operating speed @ 50% flow***:	2318 rpm



***Based on minimum pressure setting of 40% of design head.

****Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

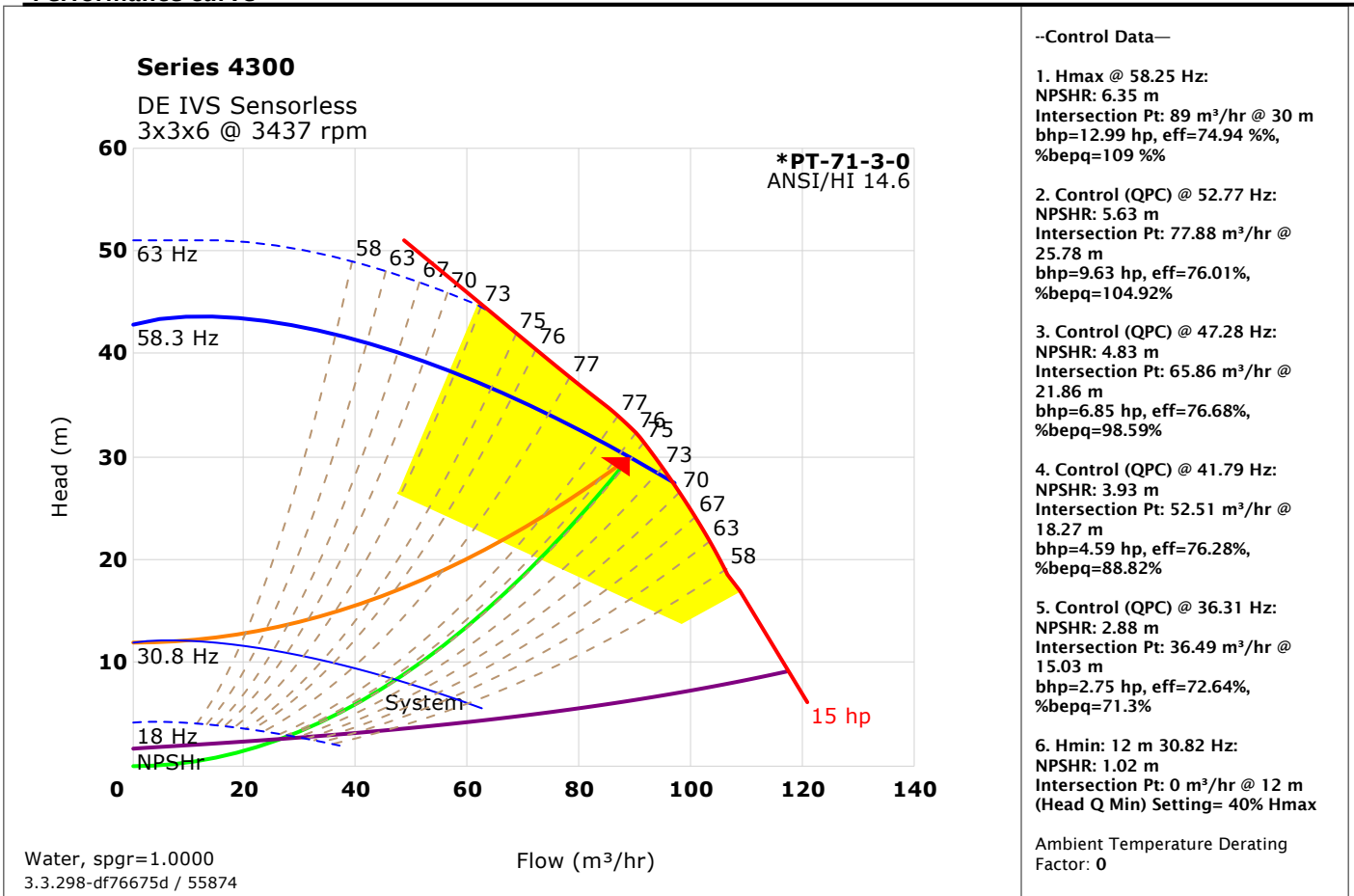
IVS controller data

Sensorless control:	Not at design point - Map for future changes	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	7.15 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve



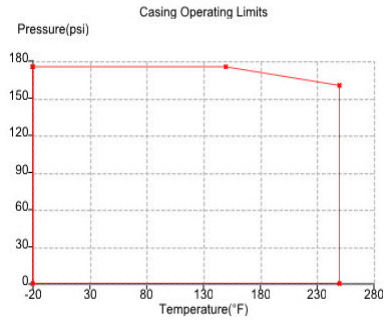
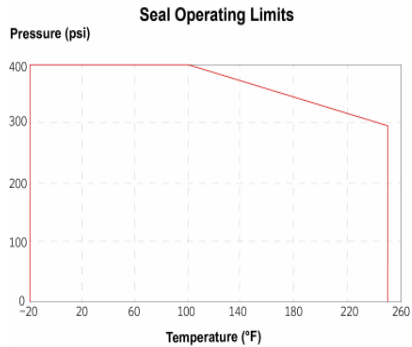
Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	89 m³/hr	33.27 m	76.05%
Design point	89 m³/hr	30 m	74.94 %
50% average flow (with default load profile)	44.5 m³/hr	16.5 m	75.14 %

Motor Capability @ Rated Speed

13.79 hp

Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	No	DEPC Parallel Sensorless:	No
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

Cooling

Q1:	N/A	Q2:	N/A
H1:	N/A	H2:	N/A
H1min:	N/A	H2min:	N/A
Maximum Flow:	N/A	Minimum Flow:	N/A

Heating

Optional Services

On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

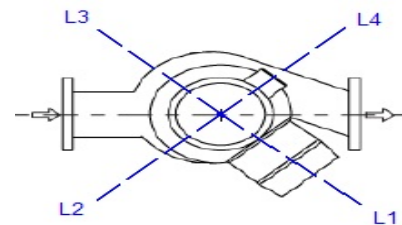
Side view	Top view
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The drawing and dimensions you are looking for are not available at this time.

Inverter motor type: Inverter duty

Weight: 411 lb [186.43 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	3	ANSI-125	7.50	4	6.00	0.625
Outlet	3	ANSI-125	7.50	4	6.00	0.625

*Equally spaced straddling centreline

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

This selection is non-compliant with sensorless quadratic curve control, but will indicate flow and pressure, and can operate in constant pressure and constant flow modes when flow is less than best efficiency point flow at that speed.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-63

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-03	2	SG-63	6 in	3 in	89 m ³ /hr	0.58 ft	Design Envelope 4300 0306-015.0

*at design flow

Materials of construction

SG-63

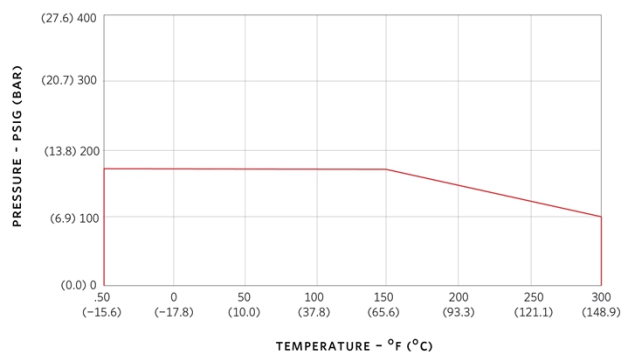
Body:	Cast Iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast Iron	Strainer:	Stainless Steel,0.188"(5mm)Perf..
Cover plate:	Cast Iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-63-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

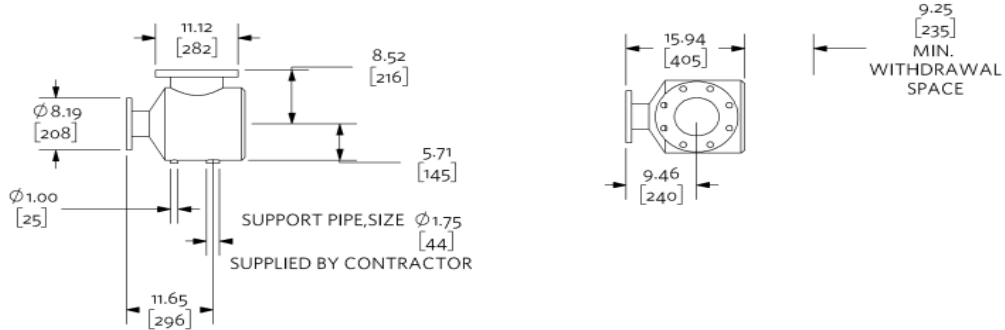
Dimensional data (not for construction)

SG-63

Weight: 107.45 lb [48.74 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of ± 0.125 inch (± 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAGS-PT-03	2	FTV-5FA	5	Angle	Flanged	89 m³/hr	2.85 ft	Design Envelope 4300 0306-015.0

*at design flow

Materials of construction

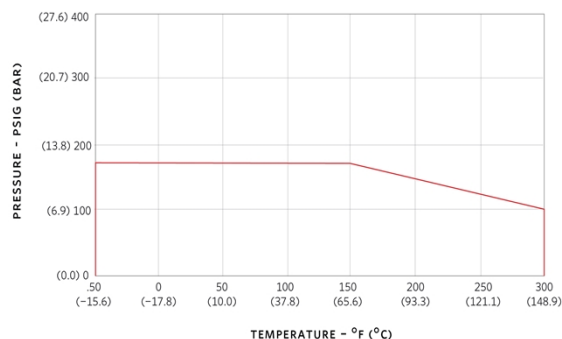
FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

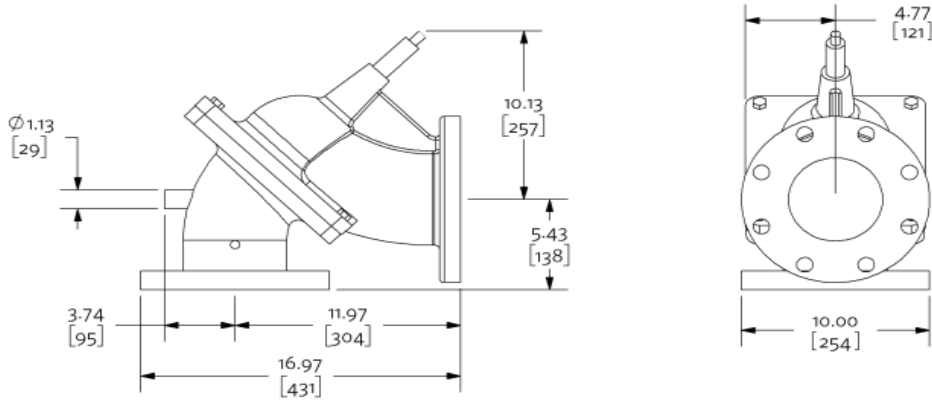
Dimensional data (not for construction)

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Weight: 108 lb [48.99 kg]

Side view

Front view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump

Model: Series Design Envelope Sensorless 4300 0408-010.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAQP-PT-01	Piping configuration:	Single + Standby
Service:	Primário 1 - Água Quente	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico	Fluid:	Non-Potable Fluid - Water
Qty:	2	Fluid operating temp.:	40 °C
Total system flow:	90 m³/hr	Duty flow per pump:	90 m³/hr
System head:	20 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	75.15 %	Safety factor % head:	0 %
NPSHR:	3.87 m	Total Absorbed Power:	8.74 hp
Min. maintained pressure*:	8 m	Impeller diameter:	8.19 in
PEIv:	0.49	ERv:	50.76
Standby qty:	1	Pump/motor run qty:	1
Outlet velocity:	9.98 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 4in, Outlet: 4in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)****:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	10 hp	Motor type:	Inverter Duty
Frame size:	215TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% 1801 rpm
flow:

Operating speed @ 50% 1296 rpm
flow***:

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

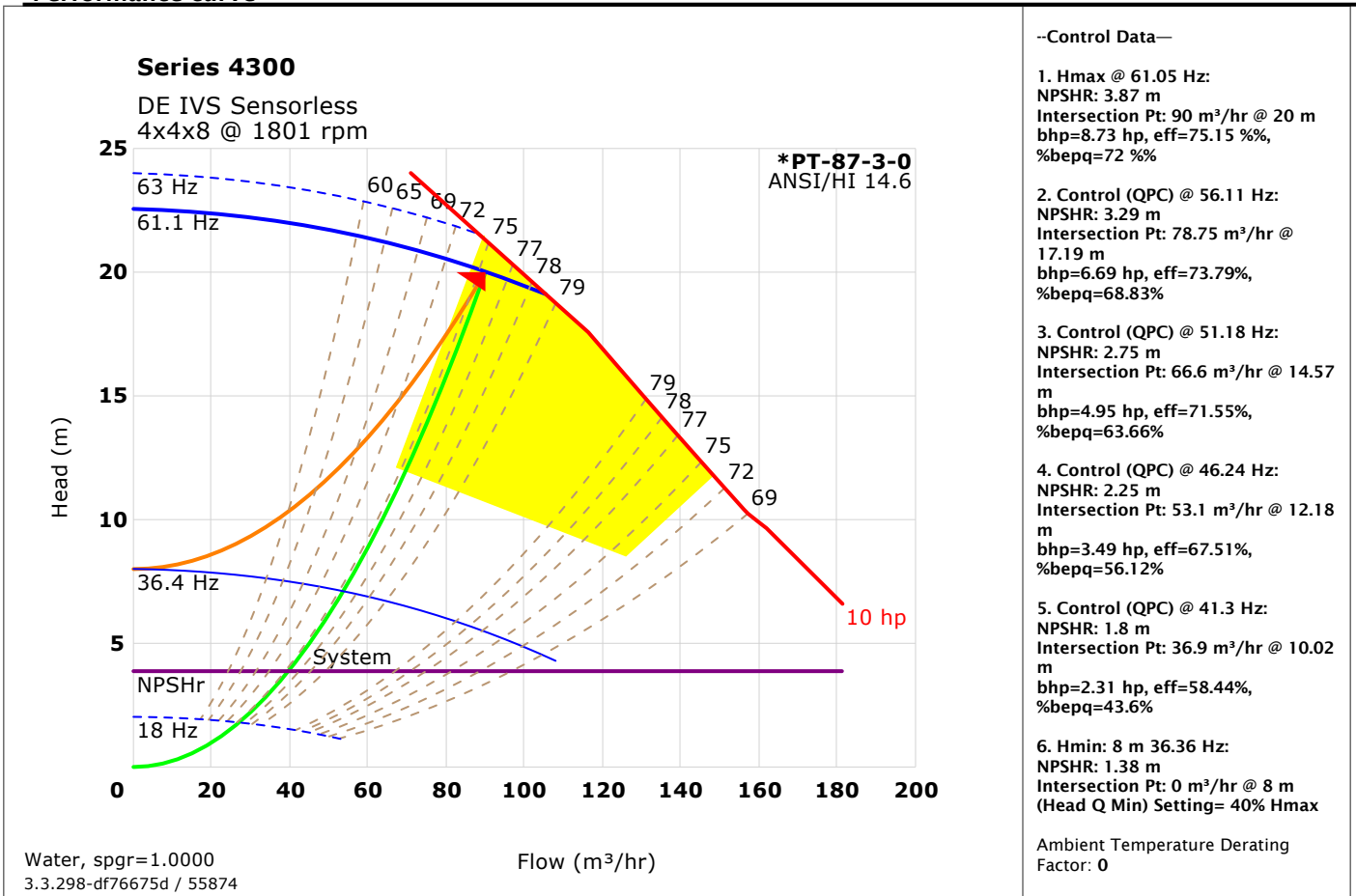
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	4.8 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	No	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve

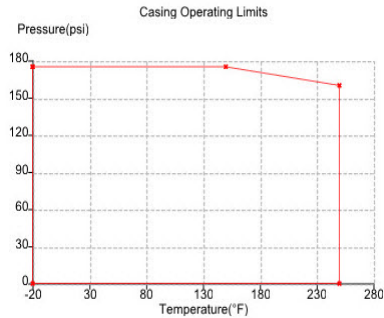
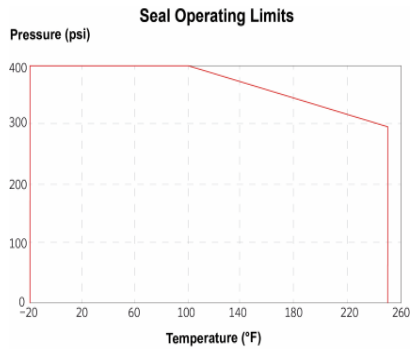


Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	90 m³/hr	21.3 m	74.86%
Design point	90 m³/hr	20 m	75.15 %

50% average flow (with default load profile)	45 m ³ /hr	11 m	63.69 %
Motor Capability @ Rated Speed	9.39 hp		

Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	No
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

Cooling

Q1:	N/A	Q2:	N/A
H1:	N/A	H2:	N/A
H1 min:	N/A	H2 min:	N/A
Maximum Flow:	N/A	Minimum Flow:	N/A

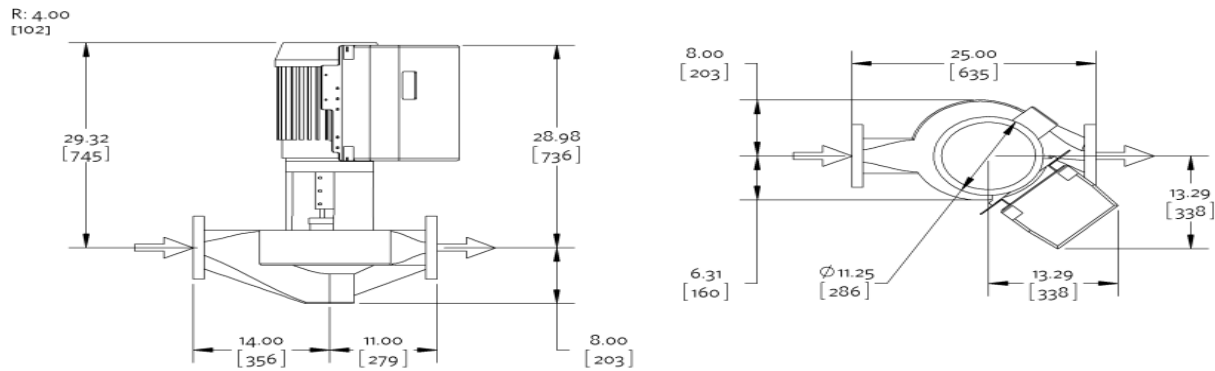
Heating

Optional Services

On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

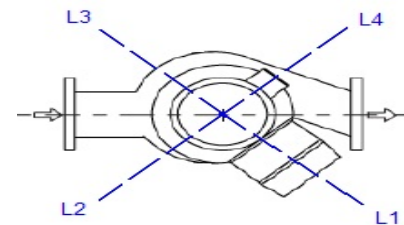
Side view	Top view
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Inverter motor type: Inverter duty

Weight: 484 lb [219.54 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	4	ANSI-125	9.00	8	7.50	0.625
Outlet	4	ANSI-125	9.00	8	7.50	0.625

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-64

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	SG-64	6 in	4 in	90 m ³ /hr	1.9 ft	Design Envelope Sensorless 4300 0408-010.0

*at design flow

Materials of construction

SG-64

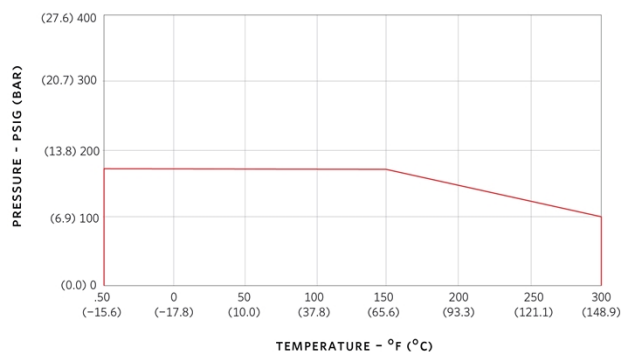
Body:	Cast iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast iron	Strainer:	Stainless Steel,0.125"(3mm)Perf..
Cover plate:	Cast iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-64-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

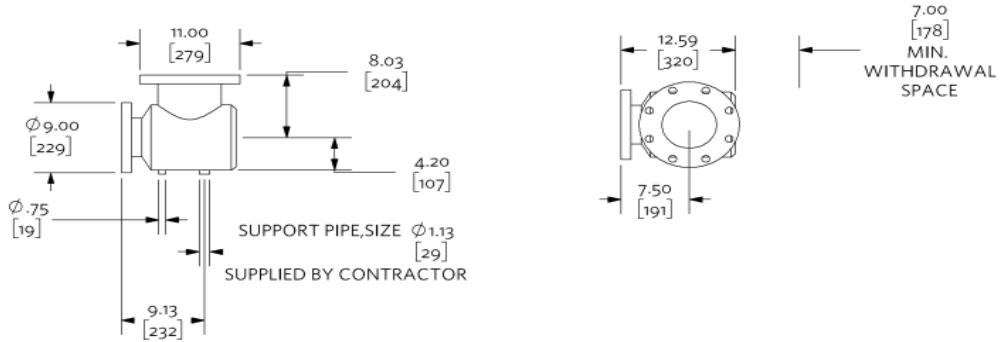
Dimensional data (not for construction)

SG-64

Weight: 87 lb [39.46 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of ± 0.125 inch (± 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	FTV-5FA	5	Angle	Flanged	90 m ³ /hr	2.93 ft	Design Envelope Sensorless 4300 0408-010.0

*at design flow

Materials of construction

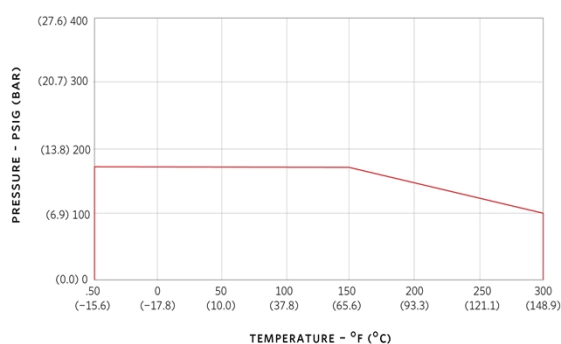
FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

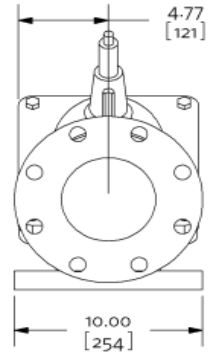
PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Weight: 108 lb [48.99 kg]

Front view



For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump

Model: Series Design Envelope Sensorless 4300 0308-025.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAQP-PT-01	Piping configuration:	Single + Standby
Service:	Secundário 1 - Água Quente	Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico	Fluid:	Non-Potable Fluid - Water
Qty:	2	Fluid operating temp.:	40 °C
Total system flow:	90 m³/hr	Duty flow per pump:	90 m³/hr
System head:	40 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	68.11 %	Safety factor % head:	0 %
NPSHR:	5.27 m	Total Absorbed Power:	19.27 hp
Min. maintained pressure*:	16 m	Impeller diameter:	6.66 in
PELvl:	0.46	ERvl:	53.54
Standby qty:	1	Pump/motor run qty:	1
Outlet velocity:	17.19 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 3in, Outlet: 3in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)****:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	25 hp	Motor type:	Inverter Duty
Frame size:	284TSC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% 3361 rpm
flow:

Operating speed @ 50% 2365 rpm
flow***:

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

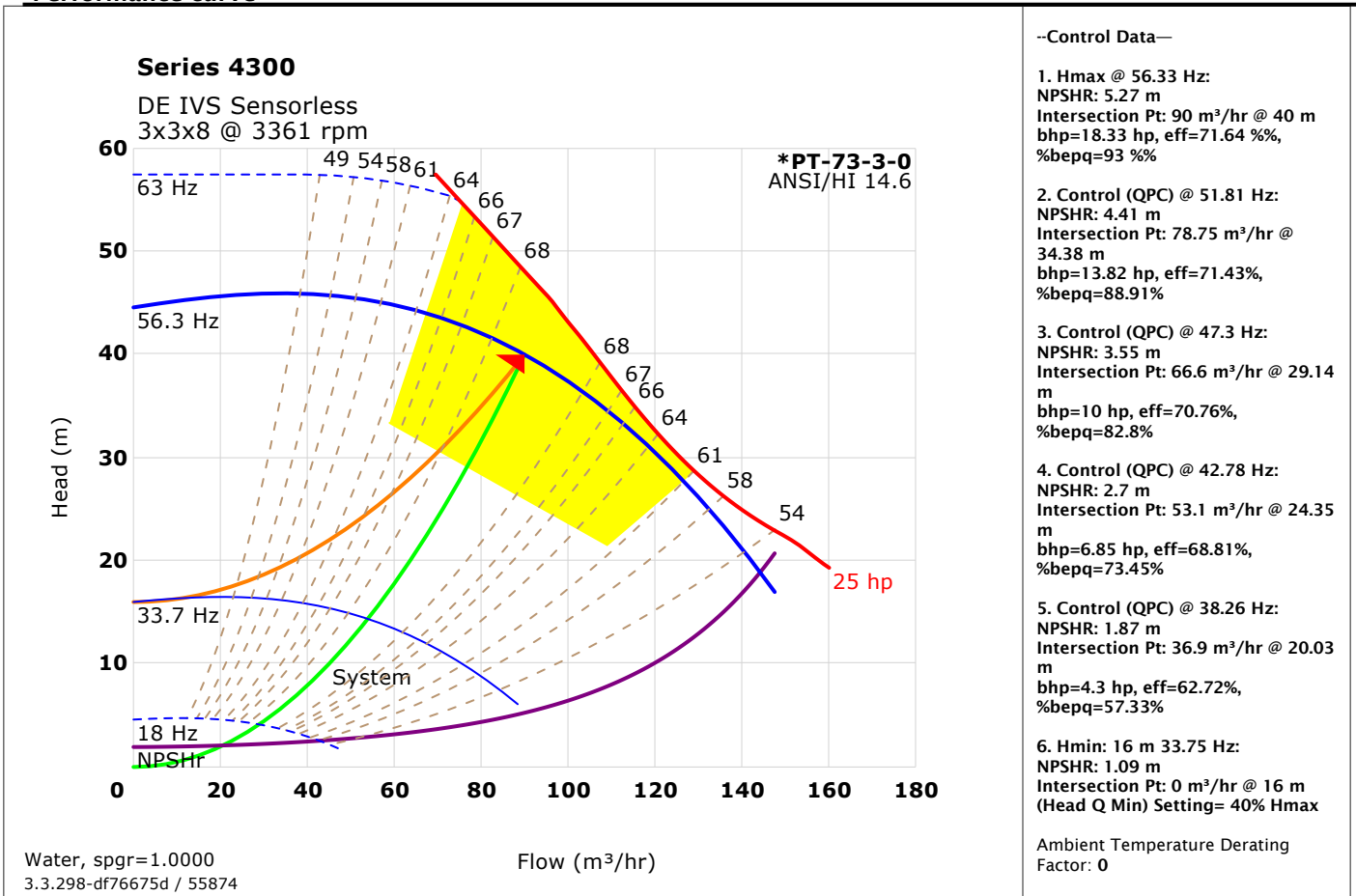
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	10.6 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve

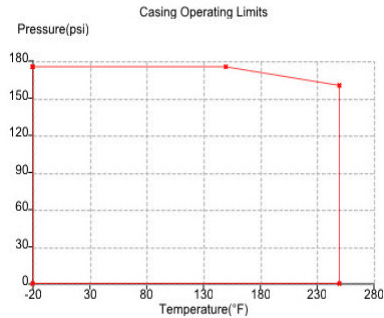
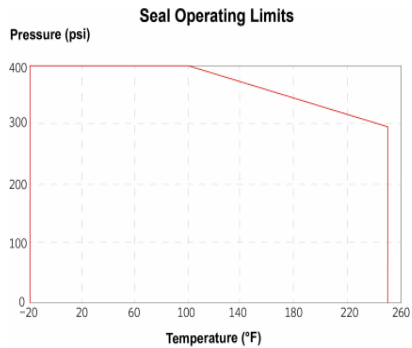


Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	90 m³/hr	48.9 m	67.6 %
Design point	90 m³/hr	40 m	68.11 %

50% average flow (with default load profile)	45 m ³ /hr	22 m	63.38 %
Motor Capability @ Rated Speed	22.26 hp		

Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	No
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

Cooling

Q1:	N/A
H1:	N/A
H1 min:	N/A
Maximum Flow:	N/A

Heating

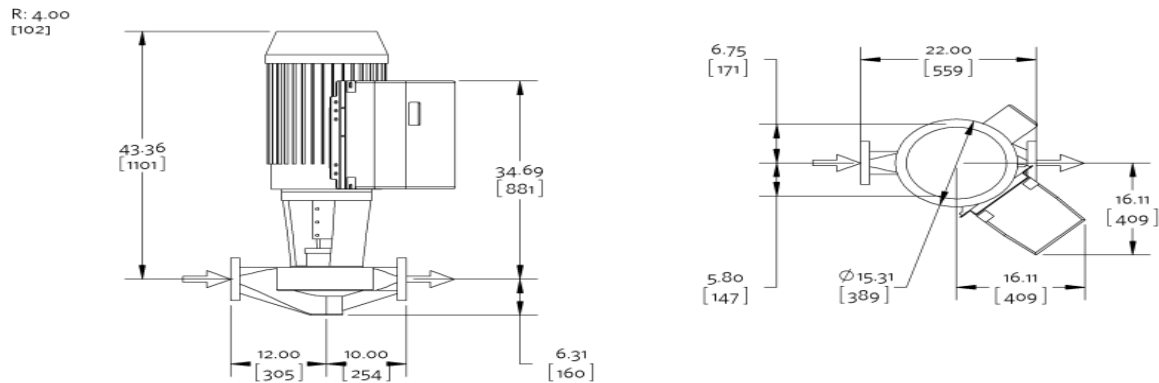
Q2:	N/A
H2:	N/A
H2 min:	N/A
Minimum Flow:	N/A

Optional Services

On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

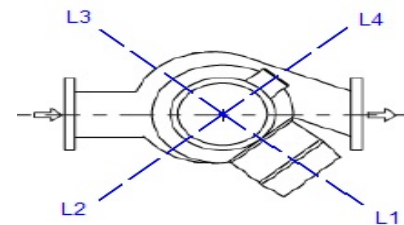
Side view	Top view
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Inverter motor type: Inverter duty

Weight: 627 lb [284.4 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	3	ANSI-125	7.50	4	6.00	0.625
Outlet	3	ANSI-125	7.50	4	6.00	0.625

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-63

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	SG-63	6 in	3 in	90 m ³ /hr	0.62 ft	Design Envelope Sensorless 4300 0308-025.0

*at design flow

Materials of construction

SG-63

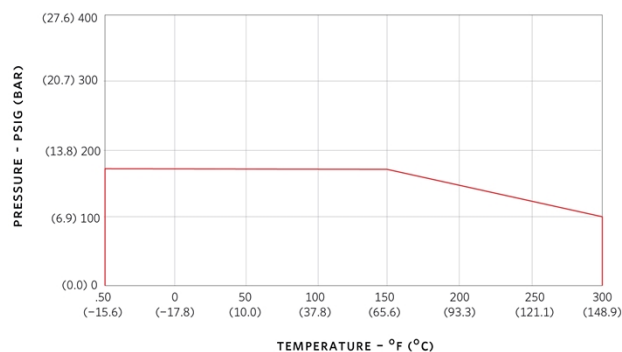
Body:	Cast Iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast Iron	Strainer:	Stainless Steel,0.188"(5mm)Perf..
Cover plate:	Cast Iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-63-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

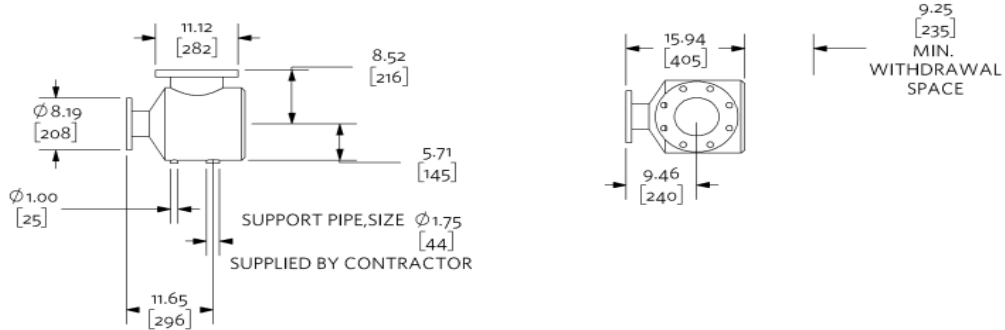
Dimensional data (not for construction)

SG-63

Weight: 107.45 lb [48.74 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of ± 0.125 inch (± 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	FTV-5FA	4	Angle	Flanged	90 m³/hr	2.93 ft	Design Envelope Sensorless 4300 0308-025.0

*at design flow

Materials of construction

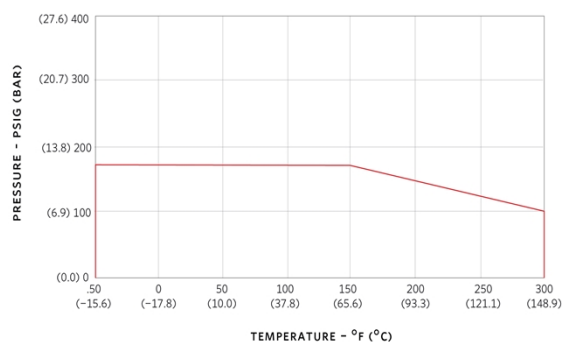
FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

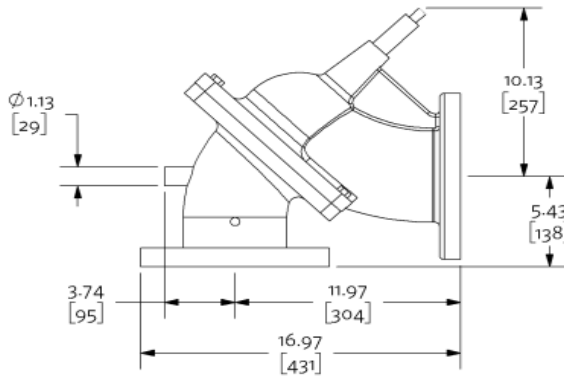
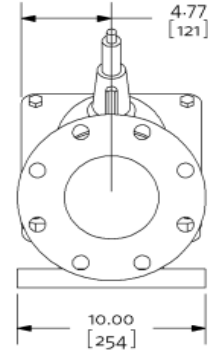
Dimensional data (not for construction)

Model: FTV-5FA-Flo-Trex Valve-ANSI-125-Angle

Weight: 108 lb [48.99 kg]

Side view

Front view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Design Envelope Split-Coupled Vertical In-Line Pump

Model: Series Design Envelope Sensorless 4300 0610-015.0 with Suction Guide and Flo-Trex Valve , Services

Project name:	Hospital Saquarema	Representative:	
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag number:	BAQP-PT-01	Piping configuration:	Single + Standby
Service:		Suction pressure:	0 ft
Equipment Location:	Pavimento Técnico	Fluid:	Non-Potable Fluid - Water
Qty:	2	Fluid operating temp.:	40 °C
Total system flow:	150 m³/hr	Duty flow per pump:	150 m³/hr
System head:	20 m	Viscosity:	31 SSU
Environment:	Indoors	Specific gravity:	1.0000
Total dissolved solids:	0 ppm	Safety factor % flow:	0 %
Efficiency at Design:	78.08 %	Safety factor % head:	0 %
NPSHR:	3.58 m	Total Absorbed Power:	14.01 hp
Min. maintained pressure*:	8 m	Impeller diameter:	9.4 in
PEIv:	0.48	ERv:	52.14
Standby qty:	1	Pump/motor run qty:	1
Outlet velocity:	7.33 ft/s	Load Profile Location:	Saquarema, State of Rio de Janeiro, 28990-000, Brazil
Climate Zone Type:	1A	Building Type:	Hospital
Time Period:	8760 (1 Year)		
Redundancy %:	N/A		
Ambient Temperature Range:	14 °F to 113 °F		

*If minimum maintained system pressure is not known, default is 40% of design head.

Materials of construction

Construction:	Bronze Fitted	Impeller:	Bronze
Rating:	ANSI-125	Pump shaft:	416 Stainless Steel
Connections:	Inlet: 6in, Outlet: 6in	Flush line:	Braided Stainless Steel
Casing (volute):	Cast Iron, E-coated	Casing gasket:	Confined Non-Asbestos Fiber

Mechanical seal data

Seal type:	Outside Balanced	Rotating face:	Resin Bonded Carbon
Manufacturer code:	C-SSC AB2	Stationary seat:	Sintered Silicon Carbide
Springs:	Stainless Steel	Secondary seal:	Viton
Rotating hardware:	Stainless Steel	Maximum total dissolved solids (TDS)****:	2000 PPM

Electrical data

Supplier:	Factory Choice	Insulation class:	Class F Insulation
Size:	15 hp	Motor type:	Inverter Duty
Frame size:	254TC	Efficiency:	NEMA Premium 12.12
Enclosure:	TEFC	Power supply:	380/3/60

Operating speed @ 100% flow: 1747 rpm

Operating speed @ 50% flow***: 1179 rpm

***Based on minimum pressure setting of 40% of design head.

***Note: Please ensure proper seal is selected by inputting Total Dissolved Solids (TDS) in PPM in ADEPT if water quality is poor at site. Also select Flush Line Filter or Cyclone Separator if there are other contaminants in the fluid

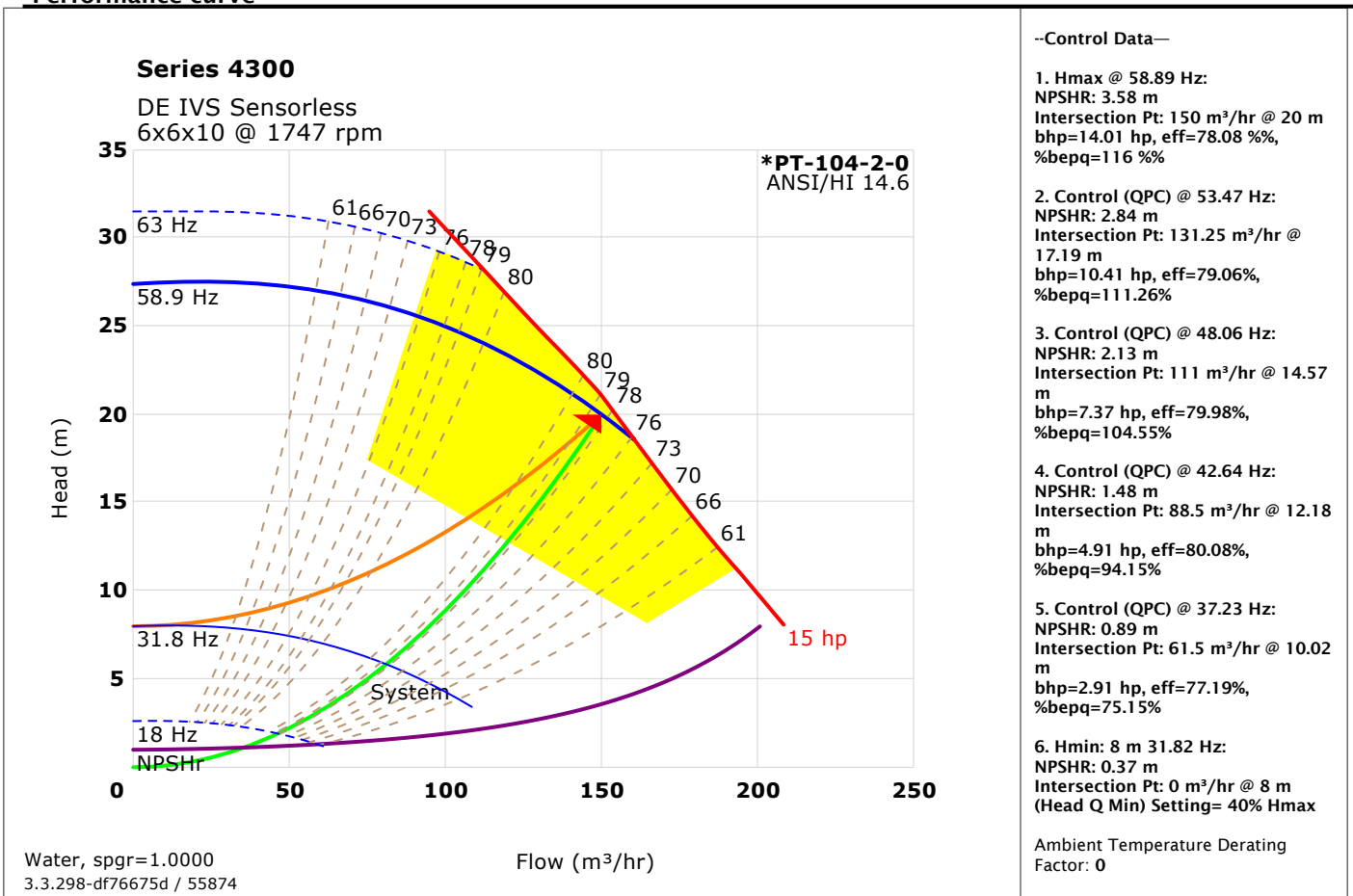
IVS controller data

Sensorless control:	Yes - Quadratic press control	Communication port:	RS 485
Communication protocol (*):	Default Field Reconfigurable	Analog inputs:	2 (current or voltage)
Enclosure:	UL Type 12/IP55	Analog outputs:	1 (current)
Fused disconnect switch:	None	Digital inputs:	4 (programmable)
Control orientation:	L1	Digital outputs:	2 (programmable)
Expansion card:	None	Cooling:	Fan cooled through back channel
Absorbed Power/BHP at 50% load/flow and 55% of design head:	7.71 hp	EMI/RFI control:	Integrated filter to meet EN61800-3
Meets ASHRAE 90.1:	Yes	Harmonic suppression:	Integrated DC link reactor**

(*): If Default - Field reconfigurable is selected, Default from factory will be BACnet MS/TP and can be reconfigured in the field.

** The IVS control is a low harmonic control with a built-in DC link reactor equivalent in performance to a 5% AC line reactor. This does not guarantee 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 cost for such mitigation.

Performance curve

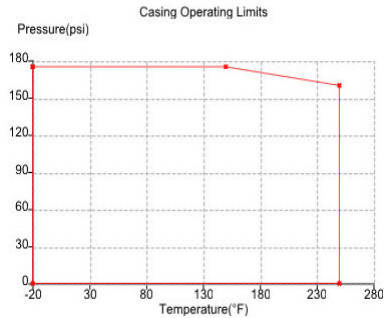
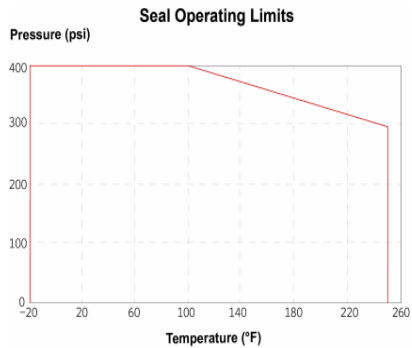


Design envelope pumping unit capability

Operating point	Flow	Head	Efficiency
Full capability at 100% design flow	150 m³/hr	21.24 m	78.62%
Design point	150 m³/hr	20 m	78.08 %

50% average flow (with default load profile) Motor Capability @ Rated Speed	75 m ³ /hr 14.5 hp	11 m	79.37 %
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Operating limits (fluid temperature - pressure)



Maximum pressure: 175 psi

Maximum fluid temperature: 250 °F

All Pump casings are hydrostatically tested to requirements of ANSI/HI 14.6 standard.

Options

Sensorless Bundle:	Yes	DEPC Parallel Sensorless:	No
Energy Performance Bundle:	No	Protection Bundle:	No
Dual Season Setup:	No	Zone Optimization Bundle:	No

Cooling

Q1:	N/A
H1:	N/A
H1 min:	N/A
Maximum Flow:	N/A

Heating

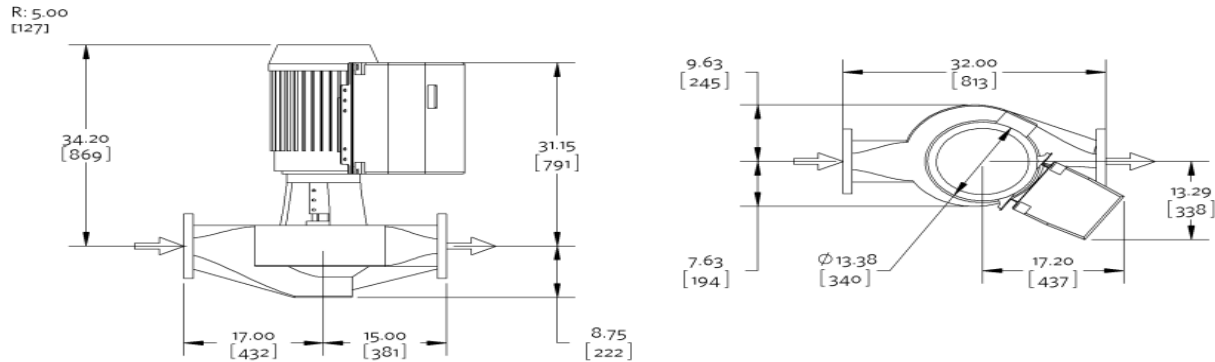
Q2:	N/A
H2:	N/A
H2 min:	N/A
Minimum Flow:	N/A

Optional Services

On-Site Pump Commissioning:	Cost not Included	Extended Warranty:	No
Pump Manager:	Yes-Configured Pump Manager	Include Spare Parts Qty:	0

Dimensional data (not for construction)

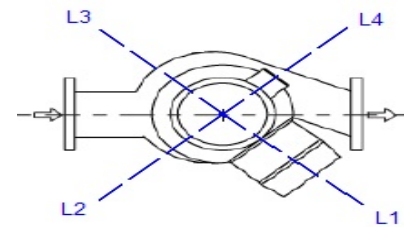
Side view	Top view
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Inverter motor type: Inverter duty

Weight: 776 lb [351.99 kg], Units of measure: inches [millimeters]

- R = minimum lifting clearance required above motor
- Coupling guard and flush line (not shown) are supplied
- Tolerance of ± 0.125 inch (± 3 mm) should be used
- For certified dimensions, please contact your Armstrong representative
- Pump equipped with casing drain plug and $\frac{1}{4}$ inch NPT suction and discharge gauge ports



Connection details

Connection	Size	Rating	OD	Bolt quantity*	BCD	Bolt size
Inlet	6	ANSI-125	11.00	8	9.50	0.75
Outlet	6	ANSI-125	11.00	8	9.50	0.75

*Equally spaced straddling centreline

Flow Readout Accuracy

The Design Envelope model selected will provide flow reading on the pump touchscreen & digitally for the BMS. The flow readout will be factory tested to ensure $\pm 5\%$ accuracy.

Special instructions

***The selected models are Transition Models and are at the end of life with Limited Availability and Service.

Reference Motor Specification AES 05007.

The program has defaulted to a NEMA Premium Efficiency motor supplied with NEMA MG-1 Part 31.4.4.2 insulation standards for inverter-fed polyphase motors.

OSHPD Seismic Certification OSP-0422-10

UL STD 778 & CSA STD C22.2 no.108 certified

Impeller Balancing: Standard (Grade G6.3)

Pump Primer: Armstrong Standard Primer

Note:

Selected options

Testing: No Test Certification Required

Seal Environment Accessories: None

Pre-Wired Control Bridge: No

Sensorless Bundle: Sensorless control

Constant flow control

Constant pressure control

Flow readout

Submittal

Ref. #: SQJYE000057_1

Suction guide

Model: SG-66

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Pipe Conn.size	Pump Conn.size	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	SG-66	6 in	6 in	150 m³/hr	1.31 ft	Design Envelope Sensorless 4300 0610-015.0

*at design flow

Materials of construction

SG-66

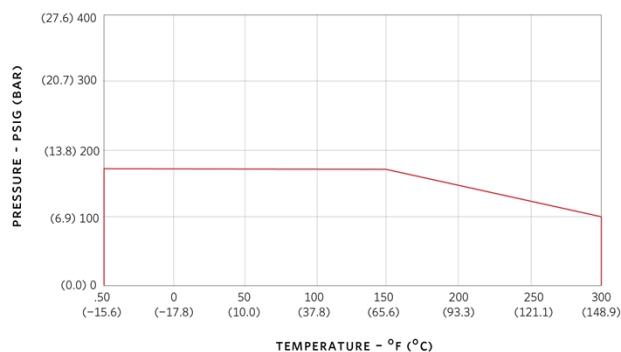
Body:	Cast iron	Cover gasket:	Synthetic fiber
Guide vanes:	Cast iron	Strainer:	Stainless Steel,0.125"(3mm)Perf..
Cover plate:	Cast iron	Start-up strainer*:	Fine Mesh Galvanized Steel

*Remove start up strainer after 24 hours of pump operation

Operating limits (temperature - pressure)

SG-66-Suction Guide-ANSI-125

PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Units are hydrostatically tested to 150% of maximum working pressure

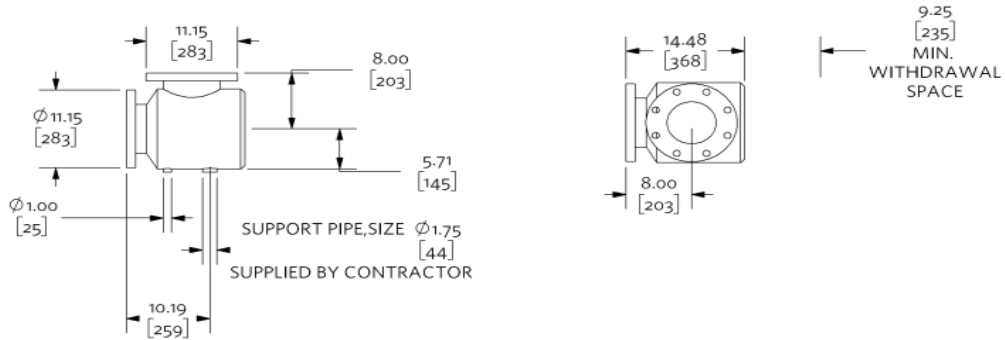
Dimensional data (not for construction)

SG-66

Weight: 141 lb [63.96 kg]

Side view

Top view



Not to scale

Units of measure: inches [millimeters]

Tolerance of +/- 0.125 inch (+/- 3 mm) should be used

For certified dimensions, please contact your Armstrong representative

Submittal

Ref. #: SQJYE000057_1

Flo-trex valve

Model: FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Project name:	Hospital Saquarema	Representative:	Luis Henrique Dias
Location:		Phone number:	
Date submitted:	11/7/2025 2:11 PM	e-mail:	ldias@armstrongfluidtechnology.com
Engineer:		Submitted by:	Dias, Luis Henrique

Application design data

Tag	Qty	Model	Size Inlet/Outlet	Config	Pipe Type	Design flowrate	Pressure Drop*	Associated pump
BAQP-PT-01	2	FTV-6FA	6	Angle	Flanged	150 m ³ /hr	3.25 ft	Design Envelope Sensorless 4300 0610-015.0

*at design flow

Materials of construction

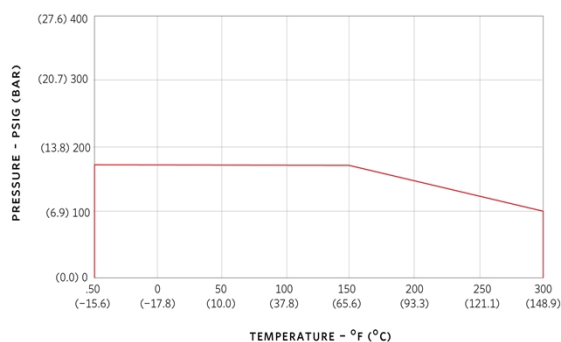
FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

Body:	Cast Iron	Spring:	302 Stainless Steel
Disc:	Brass	O rings:	BUNA N
Seat:	EPDM	2 metering ports:	NPT Brass Body with EPT Check and Gasketed Cap
Stem:	416 Stainless Steel	2 drain tappings:	1/4in with Brass Plug

Operating limits (temperature - pressure)

FTV-6FA-Flo-Trex Valve-ANSI-125-Angle

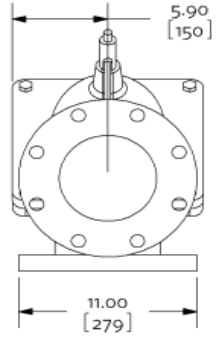
PRESSURE TEMPERATURE LIMITS



Maximum pressure: 175 psi
Maximum temperature: 300 F

Weight: 167 lb [75.75 kg]

Front view



For certified dimensions, please contact your Armstrong representative

Submittal

Pump Manager

Pump Manager is a cloud-based Active Performance Management service for Armstrong's latest Design Envelope pumps. This service:

- helps manage the energy performance of the equipment and provides system level insights as a baseline for future commissioning
- comes with built-in asset management capabilities to enable complete asset life cycle management from day 1
- identifies and connects issues with experts who have the right skills and the right parts to ensure maximum asset availability

Pump Manager (Professional)

Cloud Notifications			
Alerts:	Pump in Hand Deadhead Broken Coupling Time Mismatch	Pump Comms. Loss Excessive Vibration Cavitation	Warnings: VSD/Motor Overheating VSD Overcurrent Ext VSD Voltage Int VSD Voltage out of range Int VSD Error VSD Parameter VSD/Motor Startup VSD Warning VSD Comms. VSD Speed
Alarms:	VSD/Motor Overheating VSD Overcurrent Ext VSD Volt. Int. VSD Volt. out range Int VSD Error VSD Parameter	VSD/Motor Startup VSD Alarm VSD Comms. VSD Speed VSD Initial. Cavitation	VSD Wiring Sys. Over. Temp. Low Battery Voltage BMS Comms. Loss Invalid VSD Parameter VSD Initial. VSD Speed VSD Start Set Failure Sensorless Err. Hand Mode Timeout
Online Trends			
	The average flow profile over time		3dimensional pump vibration
	The average energy consumption profile over time		Historical Alarms, Performance and Energy consumption tracking, Alerts, Warnings
	Flow and head relationships		Current operation conditions relative to design conditions
Performance Reporting			
	Monthly report that summarizes the performance of the equipment highlighting flow & head output, energy consumption behavior, and relative performance of each unit in the pumping station, relative to the other units in the station.		Annual report that summarizes the performance of the equipment highlighting flow & head output, energy consumption behavior, and relative performance of each unit in the pumping station, relative to the other units in the station.
Asset Management			
	Comes with built-in asset management capabilities to enable complete life cycle management of the equipment to improve speed of response & expedite return to service.		Easy access to: <ul style="list-style-type: none"> ▪ Asset Specifications ▪ Configuration files ▪ Change Management Capability ▪ Services, Start-up & Commissioning Reports ▪ *Activated Advanced Control Features ▪ I/O manuals, Submittals, Firmware downloads ▪ Notification History
Value-Chain Integration			
	Identifies issues, connects issues with experts with the right skills and the right parts to ensure maximum uptime		<ul style="list-style-type: none"> ▪ Finding and *buying parts specific to the asset ▪ Access to live digital support ▪ Ability to find and engage the right resources to solve a problem

Submittal

SMART Start-up

Start-up is defined by ASHRAE as “a set of procedures to be followed in the systematic initial sequencing or energizing of components, devices, equipment, and systems”.

SMART Start-up is performed by an Armstrong Design Envelope certified technician. It builds on start-up by connecting the pump-to-Pump Manager for Active Performance Management™. This:

- 1) Helps manage the energy performance of the pump and provides system level insights as a baseline for future commissioning
- 2) Comes with built-in asset management capabilities to enable complete asset life cycle management from day 1
- 3) Identifies and connects issues with experts who have the right skills and the right parts to ensure maximum asset availability

This OEM-certified single site-visit includes:

- ****Comprehensive Additional Warranty with parts and labor coverage for 12 months.**
- **Setup and activation of Performance Management Service with 1-year Pump Manager Essentials subscription and Connectivity kit with data plan to get real-time insights:**
 - On pump performance and diagnostics
 - Alerts when pump(s) are running in manual mode- Pump in Hand.
 - Flow and Load profiles
 - Performance reports on average flow and load profile, energy consumption over time, operation conditions relative to design conditions, flow, and head relationships and 3-dimension pump vibration
- **Setup and activation of built-in performance optimization software controls (as required)**
 - Setting duty point and control signals, as required
 - Control strategy (i.e., Parallel Sensorless, analog or digital I/O)
 - Feature bundle (Dual Season, Protection bundle) set up as per requirements.
 - Set-up of Energy Performance bundle (Auto-flow balancing, Maximum flow control).
 - Establishing local (BACNET, Modbus) integration with the existing Building Automation System, if available
- **Multi-point pump check:**
 - starts up and runs in correct working conditions.
 - alignment, pump rotation, suction, and discharge pressure
 - bleed air from the pump
 - condition of the seal, strainer, drive and impeller
 - vibration metering is within specification.
 - motor or bearing are greased and are within specification.
 - for abnormal noises
 - flash line filters (if applicable) is within specification
 - for voltage and amperage are within specification
 - leaks, abnormal noise, abnormal vibration, and alarms
 - verify that the data trends (Power, Flow, Head, and vibration) are within specification.
- **Firmware upgrade or update as specified.**
- **Comprehensive SMART Start-up report provided upon completion.**

Benefits of SMART Start-up:

- 1 Year of Pump Manager Essentials subscription. All benefits of Pump Manager to the End User apply for SMART Start-up.
- **12-months backed OEM additional warranty on the equipment includes expert support to facilitate faster return of equipment to service. This mitigates operation risk and maximizes equipment and system uptime. 1-Year additional warranty is only applicable if pumps are connected to the Pump Manager service and Armstrong labour has been opted in for the SMART Start-up.
- Failure due to improper installation and operation are not covered under warranty. This OEM start-up of the equipment ensures that it has been started up correctly. It reduces the risk of equipment failure due to improper installation and operation.
- The Comprehensive start-up service report including complete asset information can all be accessed digitally from one place. This information integrates seamlessly with existing Building Automation System, Computerized Maintenance Management Systems, Energy Management Systems. Easy access to this information facilitates faster equipment return to service

Other details from Selection:

- No. of Pumps: XX
- {Serial Number of Pump 1 : xxxx , Pump2: xxxxx}
- No. of Connectivity Kits in Order: {xx}
- Installation region {US/LATAM/MEA – only applicable for US market}
- Connectivity Kits Part Number: {880001-005}
- Number of rooms Pumps distributed in: {1}
- Armstrong Labour included: {Yes}
- Additional Expenses: {0}
- Additional Expenses Comment: {Value by user}

Notes:

- i. Price is based on labour commitment for the day's work (if labour included). It assumes devices are within the same location and site locations are within 2 hours drive away. Hotel, travel or additional site visits can lead to additional charges, in which case shall be mentioned above as Additional Expenses.
- ii. Pump Manager / Online Warranty registration of product comes with 6 months additional warranty entitlement on equipment over and above the standard equipment warranty. (Opting for SMART Commissioning adds another 6 months comprehensive warranty).
- iii. 12 months Additional Warranty from SMART Startup and Pump Manager is applicable only if pumps are connected to Pump Manager and Armstrong Labour was included in SMART Start-up.

**Valid for:

HP/kW
0.33-7.5 HP (0.25-5.5 kW)
10-15 HP (7.5-11 kW)
20-40 HP (15-30 kW)
50-75 HP (37-55 kW)

Submittal

Connectivity Kit

4G LTE router / Cellular modem	SIM card and data plan included	Accessibility	Multi-platform (web/mobile)
Installation	By a certified Armstrong tech	Security	Secure connection to Armstrong's cloud analytics engine

*Connectivity package includes one Prepaid cellular data plan with nation-wide coverage. Router installation and connection to pumps by certified Armstrong service tech.

**Maximum 8 pumps per router.

Each router requires an active cloud service subscription to continue data transfer.

Router coverage range is 30m (100') to a maximum 100m (300') radius unobstructed. Pumps serving a system are within the router coverage perimeter.

Submittal

SMART Commissioning

Commissioning is defined by ASHRAE as “functional testing period AFTER startup to ensure that all components work both individually, and together to meet the design intent and sequences”.

Designed for new construction sites, **SMART Commissioning** is a factory-approved procedure performed by a certified technician.

SMART Commissioning includes 2x Armstrong certified technician site visits. The First visit – to connect pumps to the cloud for APM service activation with other startup tasks and Second visit to ensure system and asset performance optimization as per existing site requirements. This service requires and leverages the analytics from SMART Start-up.

SMART Commissioning ensures that the Design Envelope system and asset condition are optimized for Present building load, controls strategies and BAS integration. It places greater emphasis on building readiness pre-handover, an integral part of Soft-landing procedures to eliminate the gap between the designed/desired vs. achieved performance.

SMART Commissioning can only be performed by an Armstrong Design Envelope certified technician.

The first OEM-certified site-visit (SMART Startup) includes:

- ****Comprehensive Additional Warranty with parts and labor coverage for 12 months.**
- **Setup and activation of Performance Management Service with 1-year Pump Manager Essentials subscription and Connectivity kit with data plan to get real-time insights:**
 - On pump performance and diagnostics
 - Alerts when pump(s) are running in manual mode- Pump in Hand.
 - Flow and Load profiles
 - Performance reports on average flow and load profile, energy consumption over time, operation conditions relative to design conditions, flow, and head relationships and 3-dimension pump vibration
- **Setup and activation of built-in performance optimization software controls (as required)**
 - Setting duty point and control signals, as required
 - Control strategy (i.e., Parallel Sensorless, analog or digital I/O)
 - Feature bundle (Dual Season, Protection bundle) set up as per requirements.
 - Set-up of Energy Performance bundle (Auto-flow balancing, Maximum flow control).
 - Establishing local (BACNET, Modbus) integration with the existing Building Automation System, if available
- **Multi-point pump check:**
 - starts up and runs in correct working conditions.
 - alignment, pump rotation, suction, and discharge pressure
 - bleed air from the pump
 - condition of the seal, strainer, drive and impeller
 - vibration metering is within specification.
 - motor or bearing are greased and are within specification.
 - for abnormal noises
 - flash line filters (if applicable) is within specification
 - for voltage and amperage are within specification
 - leaks, abnormal noise, abnormal vibration, and alarms
 - verify that the data trends (Power, Flow, Head, and vibration) are within specification.
- **Firmware upgrade or update as specified.**
- **Comprehensive SMART Start-up report provided upon completion.**

The second OEM-certified SMART Commissioning site-visit includes:

- Equipment commissioning with the use of factory-developed procedure, which considers the unique features available within Design Envelope pump
- Re-check that the equipment is still connected to Pump Manager
- Any issues identified through Pump Manager connection (i.e. excessive vibration, alarms) are checked and addressed
- Loading of Latest firmware and software updates, if applicable
- Re-check for alignment, pump rotation, suction and discharge pressures
- Re-check for Leaks, abnormal noises, abnormal vibration
- Voltage, FLA checked
- Flush line filter checked, air bled from the pump and/or flush line
- VFD alarm history (if applicable) checked
- Control strategy (i.e. Sensorless QPC, Parallel Sensorless, analog or digital I/O) and feature bundle (Dual Season, Auto-flow balancing from Energy Performance bundle, Protection bundle) set up as per requirements
- Operating duty point/s set to provide optimal operation
- Connection with Building Automation or Management System set up and communication checked with controls contractor (if required)
- Operator handover training, including Pump Manager training refresher
- Comprehensive SMART Commissioning report provided upon completion

Benefits of SMART Commissioning:

- All benefits of SMART Startup apply.
- This ensures that pump settings (load profile data, pump flow, head etc.) are tuned more accurately to align with the real-time system load, leading to better overall system operation. When the pump flow is adequate, other equipment (e.g. Boilers and Chillers) are protected from damage. Tenants are less likely to complain about noise or any flow imbalance in the system; This leads to tenant comfort
- **18-months backed OEM additional warranty on the equipment includes expert support to facilitate faster return of equipment to service. This mitigates operation risk and maximizes equipment and system uptime. 18 months additional warranty is only applicable if pumps are connected to the Pump Manager service and Armstrong labour has been opted in for the SMART Start-up.
- OEM-verified multi-point tune-up ensure the integrity of the pump's mechanical components and settings for optimal operation, prolonging the pump life and minimizing its life-time cost
- Energy savings from day 1! Flow informed commissioning helps eliminate energy drift. This is a major reason from performance gap and missed sustainability target
 - For new buildings, potential Energy savings of 13 percent with a typical payback of 4.2 years
 - For existing buildings, potential Energy savings of 16 percent with a typical payback of just over one year
- Get peace of mind from day 1 knowing that the pump has been commissioned, operating efficiently and reliably based on factory-approved procedures

Other details from Selection:

- No. of Pumps: XX
- {Serial Number of Pump 1 : xxxx , Pump2: xxxxx}
- Connectivity Kit Part Number: 880001-xxx
- Number of rooms Pumps distributed in: 1
- Armstrong Labour included in SMART Startup: Yes
- Additional Expenses in SMART Startup: 0
- Additional Expenses SMART Startup Comment: {Value by user}

Notes:

- i. Price is based on labour commitment for the day's work (if labour included). It assumes devices are within the same location and site locations are within 2 hours drive away. Hotel, travel or additional site visits can lead to additional charges, in which case shall be mentioned above as Additional Expenses.
- ii. SMART Commissioning service applies to equipment assumes SMART Startup is part of selection for DE pumps OR SMART Startup has already been executed on the pumps.
- iii. The SMART Commissioning Service for Design Envelope Commercial Pumps include 2 x Armstrong/ Armstrong authorised technician site visits. In the first visit (SMART Startup), the DE pump(s) is connected to Armstrong cloud for Active Performance Management activation, in addition to the conventional startup tasks. The second visit part of SMART Commissioning is a technician site visit to ensure pumps are optimised to perform for existing requirements at the site.
- iv. Pump Manager / Online Warranty registration of product comes with 6 months additional warranty entitlement on equipment over and above the standard equipment warranty. (Opting for SMART Startup lone adds another 6 months comprehensive warranty).
- v. **Total 18 months of Additional Warranty from Pump Manager, SMART Startup and SMART Commissioning is applicable only if pumps are connected to Pump Manager and Armstrong Labour was included in SMART Start-up.

**Valid for:

HP/kW
0.33-7.5 HP (0.25-5.5 kW)
10-15 HP (7.5-11 kW)
20-40 HP (15-30 kW)
50-75 HP (37-55 kW)

Quote Reference: SQJYE000057_1
 Quote Name: Hospital Saquarema
 Project Name: Hospital Saquarema
 Date: 2025-11-07



Recommended Spare Parts and Kits

Item No.	Description																							
1.0	Design Envelope and Commercial Pumps Available spare parts and kits for Design Envelope Sensorless 4300 0613H-050.0 with Flo-Trex Valve																							
	Part/Kit	Armstrong Part number	Includes	Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam	Pump Casing Gasket Parts	8426401-005	Gasket	Pump Split Coupling Parts Kits	8427738-000K	Split Coupling, Collar, Capscrew & Washer	Pump Braided Hose Parts	8939031-725	Braided Hose	Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple	Pump Mechanical Seal Parts	8975002-334	Mechanical Seal	Spare Filter	8975000-303	filter-cartridge
	Part/Kit	Armstrong Part number	Includes																					
	Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam																					
	Pump Casing Gasket Parts	8426401-005	Gasket																					
	Pump Split Coupling Parts Kits	8427738-000K	Split Coupling, Collar, Capscrew & Washer																					
	Pump Braided Hose Parts	8939031-725	Braided Hose																					
	Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple																					
	Pump Mechanical Seal Parts	8975002-334	Mechanical Seal																					
	Spare Filter	8975000-303	filter-cartridge																					
Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope. Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).																								
2.0	Suction Guides																							
	Recommended Spare Parts and Kits not available for this Product.																							

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0610-025.0 with Suction Guide and Flo-Trex Valve

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-004	Gasket
Pump Split Coupling Parts Kits	8427736-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-720	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-334	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope.

Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0611-040.0 with Suction Guide and Flo-Trex Valve

4.0

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-006	Gasket
Pump Split Coupling Parts Kits	8427738-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-725	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-334	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope.

Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0306-015.0 with Suction Guide and Flo-Trex Valve

5.0

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-002	Gasket
Pump Split Coupling Parts Kits	8427733-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-715	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-304	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope. Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope 4300 0306-015.0 with Suction Guide and Flo-Trex Valve

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-002	Gasket
Pump Split Coupling Parts Kits	8427733-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-715	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-304	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope.
Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0408-010.0 with Suction Guide and Flo-Trex Valve

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-003	Gasket
Pump Split Coupling Parts Kits	8427733-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-715	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-304	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope.

Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0308-025.0 with Suction Guide and Flo-Trex Valve

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-003	Gasket
Pump Split Coupling Parts Kits	8427735-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-715	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-334	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope.

Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

Quote Reference: SQJYE000057_1
Quote Name: Hospital Saquarema
Project Name: Hospital Saquarema
Date: 2025-11-07



Recommended Spare Parts and Kits

Design Envelope and Commercial Pumps

Available spare parts and kits for Design Envelope Sensorless 4300 0610-015.0 with Suction Guide and Flo-Trex Valve

Part/Kit	Armstrong Part number	Includes
Design Envelope Pump Controller Parts Kit	880100-006	LCD resistive Touch Screen, IVS102 LCD-PCBholder, PCB board w/o firmware, DEPC LCD support foam
Pump Casing Gasket Parts	8426401-004	Gasket
Pump Split Coupling Parts Kits	8427734-000K	Split Coupling, Collar, Capscrew & Washer
Pump Braided Hose Parts	8939031-720	Braided Hose
Pump Hardware Parts Kits	89981000-078K	Air Vent, Tee, Adapter & Nipple
Pump Mechanical Seal Parts	8975002-304	Mechanical Seal
Spare Filter	8975000-303	filter-cartridge

Note: List above is the complete list of all available spare parts or kits for the pump size mentioned and not a commitment of inclusion in project supply scope. Ensure required spare parts and kits are configured with pump separately. More details of those selected parts/kits (if any) shall be included in earlier page(s).

9.0

10.0

11.0

12.0

13.0

14.0