



Sample gas pumps P2.x AMEX

Even in explosive systems in the chemical industry, petrochemistry or biochemistry, gas analysis is key for safe operation. Many of the analysis processes used in these fields require extracting and special conditioning of the sample gas.

Sample gas pumps convey the sample gas from the sampling point to the conditioning system. The main item in these specially designed pumps is the PTFE single-piece bellows. Combined with the pump head, also single-piece, this solution provides high resistance against particularly aggressive sample gas. Turning the pump head allows gas with condensate to be conveyed without a problem.

There are several different models with separate drive, depending on the requirements. These versions allow the installation of a coupling flange to install the pump heads inside heated housings away from the motor whilst the motor remains outside the housing.

The series are available for various EX hazard and classification zones with flow rates up to 800 L/h (13.3 lpm).

Simple, sturdy construction

Easy-to-replace valves

Single-piece bellows

For aggressive sample gases

Conveys sample gas with condensate

Long life

Pump head with optional adjustable bypass valve

Bypass valve for PTFE and VA pump body

Low noise emission

With mounting bracket

FM C-US - approval for Class I Div. 2



Pump overview

	Direct-drive pumps		Pumps with intermediate flange	
Flow rate (see flow curve)	6.7 lpm	13.3 lpm	6.7 lpm	13.3 lpm
AMEX models (America) NI / 1 / 2 / BCD / T3, T3C CL.I Div.2 Gr BCD T3, T3C FM C-US approval no.: 3038101 / 3038101C	P 2.2 AMEX	P 2.82 AMEX	P 2.4 AMEX	P 2.84 AMEX

Technical data P2.x AMEX

Nominal voltage:	see ordering information
Marking:	NI / 1 / 2 / BCD / T3, T3C CL.I Div.2 Gr BCD T3, T3C
IP rating:	electrical IP44 mechanical IP 20
Dead volume:	0.5 cu.in.
Weight:	approx. 16.5 lb (P 2.2 / P 2.82 AMEX) approx. 18.7 lb (P 2.4 / P 2.84 AMEX)
Materials in contact with media varies by configuration:	PTFE, PVDF (standard pump with 212 °F valves) + PEEK (standard pump with 284 °F valves) + FKM (standard pump with 212 °F valves and bypass valve) + PCTFE, FKM (standard pump with 284 °F valves and bypass valve) + 1.4571 (VA pump body) + 1.4401, FKM (VA pipe fittings) + FKM (VA pump body with bypass valve)

The following tables describe the temperature characteristics and the resulting limits for the permissible operation of the sample gas pumps. The temperature classes apply both to the gas in the installation area (zone) and to the explosive pumped medium in the gas path:

		P2.2			P2.4	
Temperature class	Motor ambient temperature	Pump head ambient temperature	Medium temperature ¹⁾		Pump head ambient temperature ¹⁾	Medium temperature ¹⁾
			without bypass valve	with bypass valve		
T3	-4 °F...104 °F	max. 104 °F	max. 284 °F	max. 275 °F ²⁾	max. 212 °F	max. 284 °F
T3C			max. 194 °F	max. 185 °F	max. 194 °F	max. 194 °F

¹⁾ Particularly in applications with increased ambient or medium temperatures, the corresponding thermal endurance properties of these components must be taken into account when using plastic screw-in fittings. The compression processes inside the pump cause additional temperature increases. The plastic screw-in fittings (PVDF) installed at the factory have a maximum continuous operating temperature of 284 °F.

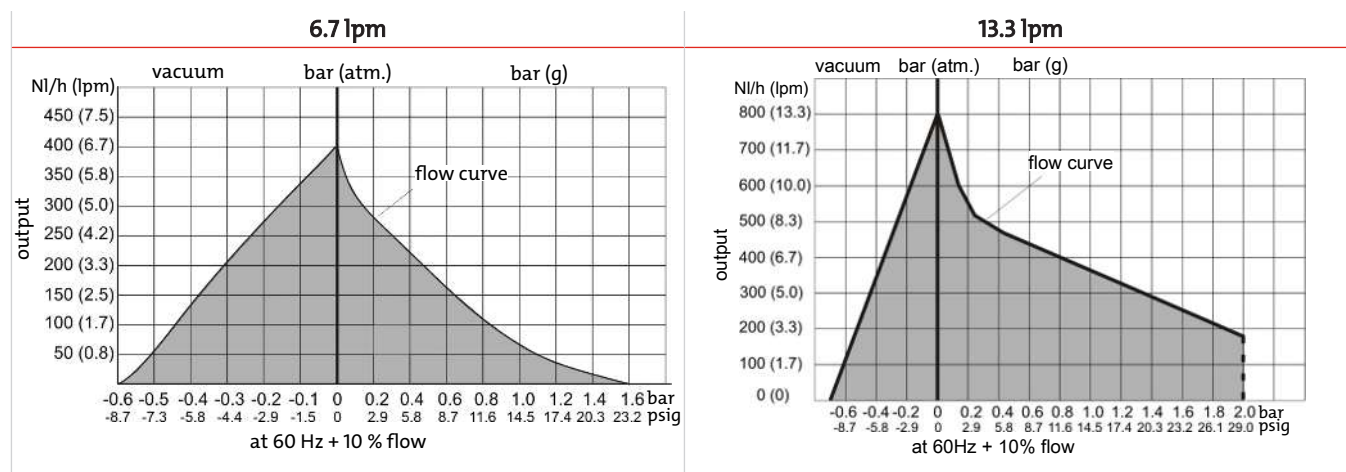
²⁾ At a medium temperature of > 185 °F, operation with a bypass valve is only permitted in the stainless steel version.

		P2.82			P2.84	
Temperature class	Motor ambient temperature	Pump head ambient temperature	Medium temperature ¹⁾		Pump head ambient temperature ¹⁾	Medium temperature ¹⁾
			without bypass valve	with bypass valve		
T3	-4 °F...104 °F	max. 104 °F	max. 194 °F	max. 158 °F ²⁾	max. 194 °F	max. 194 °F

¹⁾ Particularly in applications with increased ambient or medium temperatures, the corresponding thermal endurance properties of these components must be taken into account when using plastic screw-in fittings. The compression processes inside the pump cause additional temperature increases. The plastic screw-in fittings (PVDF) installed at the factory have a maximum continuous operating temperature of 284 °F.

²⁾ At a media temperature of > 68 °F, operation with a bypass valve is only permitted in the stainless steel version.

Feed curves



Important motor notices

Motors used in EX areas require a protection device!

Installing the motor protection switch outside the EX area

Motor voltage		Item no.
7 = 230 V 50/60 Hz	0.7 - 1 A	9132020041
8 = 115 V 50/60 Hz	1.4 - 2 A	9132020057

Installing the motor protection switch inside the EX area Zone 1 or 2 (ATEX only)

Motor voltage		Item no.
7 = 230 V 50/60 Hz	0.63 - 1 A	9132020036
8 = 115 V 50/60 Hz	1 - 1.6 A	9132020032

Information about the various designs

Pump head position (P2.2 AMEX and P2.82 AMEX only):

If the gas contains condensate, the pump head must be installed rotated by 180°. In this case, turn the pump head as described in the operating instructions. Please note the correct pump head position for your application when placing your order to avoid conversion.

Pump head material:

The standard material is PTFE.

The pump head may be fitted with a bypass valve (P 2.2 AMEX and P2.82 AMEX only) to reach all the values in the grey area of the flow curve. Depending on the inlet and outlet pipe style, a stainless steel pump body may be ordered.

Valve material (models P2.2 AMEX and P2.82 AMEX only):

PTFE/PVDF valves must be used for unheated applications with a media temperature up to 212 °F. For higher temperatures up to 284 °F, use the respective PTFE/PEEK valves. Please note, the max. temperatures are limited by the temperature classes (see Technical Data).

Ordering instructions

42	xx	x	x	x	x	x	9	0	0	0	Product characteristics
											Base model
71											P2.2 AMEX 6.7 lpm (direct operation without intermediate flange)
72											P2.4 AMEX 6.7 lpm (with intermediate flange)
73											P2.82 AMEX 13.3 lpm (direct operation without intermediate flange)
74											P2.84 AMEX 13.3 lpm (with intermediate flange)
											Motor voltage
7											230 V 50/60 Hz 0.8/0.7 A
8											115 V 50/60 Hz 1.6/1.5 A
											Pump head position
1											Normal position vertical
2											turned by 180° ¹⁾
											Pump head material
1											PTFE
2											Stainless steel 1.4571
3											PTFE with bypass valve ¹⁾
4											Stainless steel 1.4571 with bypass valve ¹⁾
											Valve material
1											up to 212 °F; PTFE/PVDF ²⁾
2											up to 284 °F; PTFE/PEEK
											Screw-in connections (depending on pump body)
											PTFE pump body
											Stainless steel pump body
9											1/4"–1/6" (standard)
1											1/4" (standard)
1											DN 6/8
2											8 mm
2											3/8"–1/4"
3											3/8"
3											1/4"–1/8"
5											6 mm
5											DN 4/6
											Mounting accessories
9											incl. mounting bracket and bumpers ¹⁾

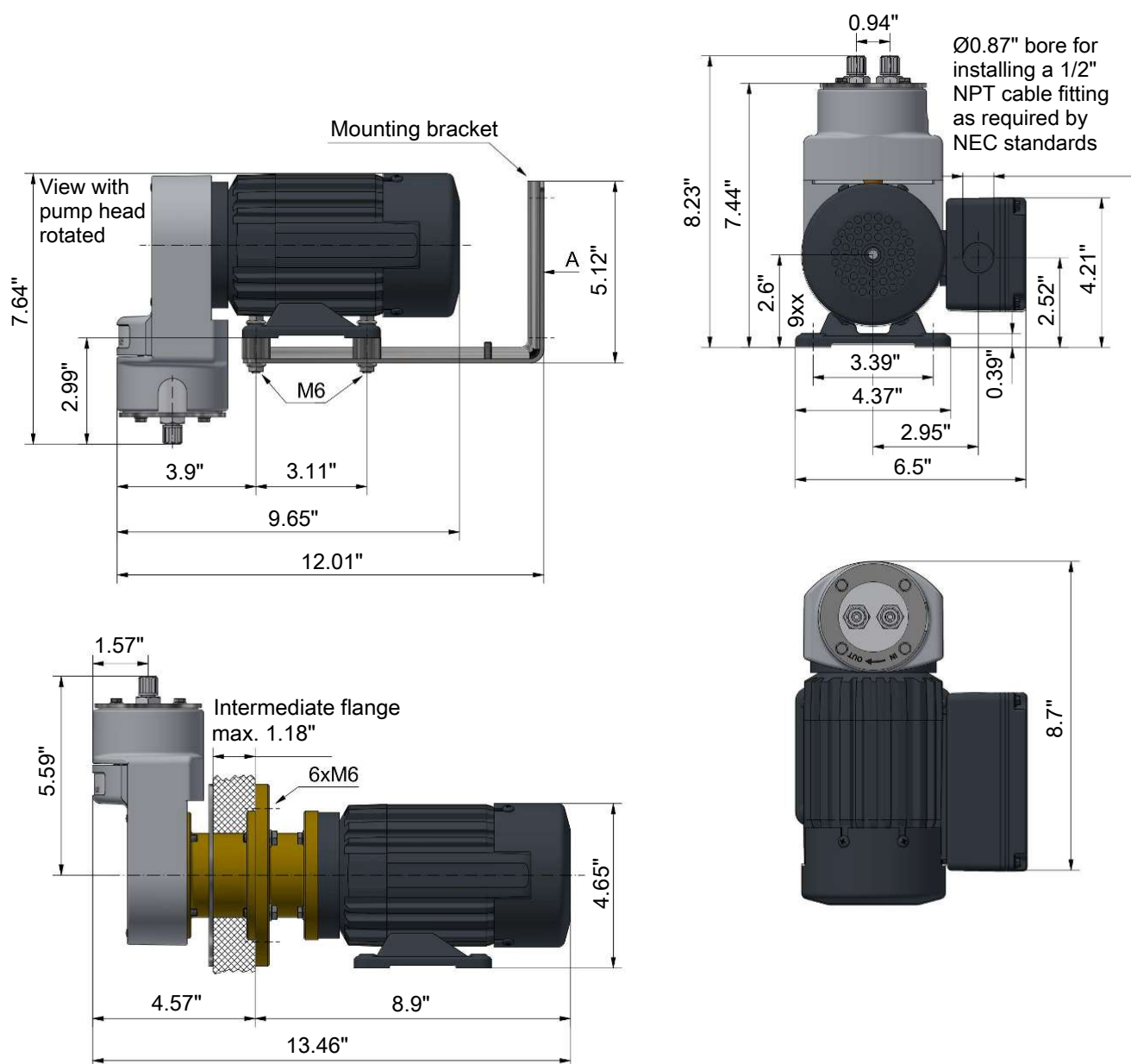
¹⁾ not possible with P2.4 AMEX or P2.84 AMEX.

²⁾ not possible with P2.4 AMEX, P2.82 AMEX, or P2.84 AMEX.

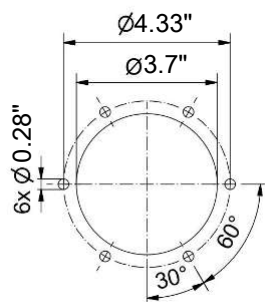
Dimensions

P2.2 AMEX, P2.82 AMEX – standard versions

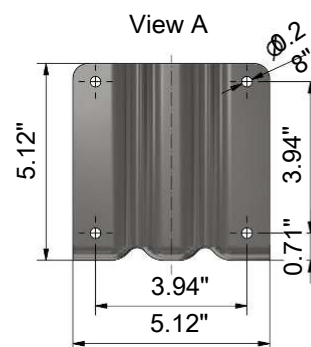
P2.4 AMEX, P2.84 AMEX – versions with intermediate flange



Cabinet cut-out for pumps with intermediate flange



Adjustable bypass valve (optional)



Installation notices:

- 1) This pump should be installed horizontally
- 2) If necessary, rotate the pump head during installation. When conveying gasses with condensate content it must be installed valves down.