

## 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.

**Easy, sturdy construction**

**Easy to replace valves**

**Single-piece bellows**

**For aggressive sample gas**

**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	
	400 L/h	800 L/h	400 L/h	800 L/h
Flow rate (see flow curve)				
<b>AMEX types (U.S.)</b> 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
Weight	approx. 7.5 kg		approx. 8.5 kg	

**Technical data**

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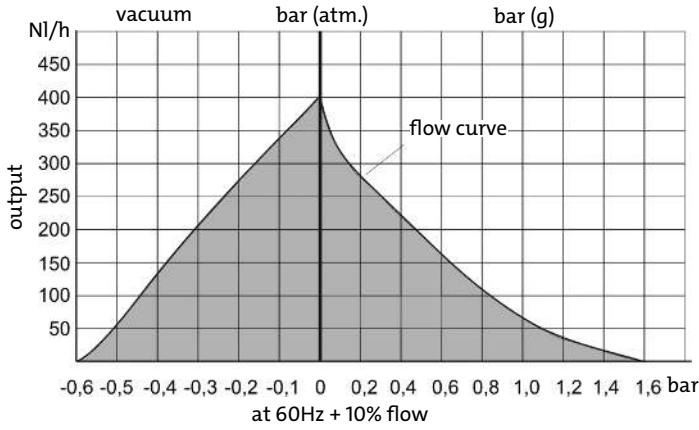
Nominal voltage:	see ordering information
Marking:	NI / 1 / 2 / BCD / T3, T3C CL.I Div.2 Gr BCD T3, T3C
IP rating:	electric IP44 mechanical IP 20
Dead volume:	8.5 ml
Weight:	approx. 7.5 kg (P 2.2 / P 2.82 AMEX) approx. 8.5 kg (P 2.4 / P 2.84 AMEX)
Materials in contact with media vary by configuration:	PTFE, PVDF (standard pump with 100 °C valves) + PEEK (standard pump with 140 °C valves) + Viton (standard pump with 100 °C valves and bypass valve) + PCTFE, Viton (standard pump with 140 °C valves and bypass valve) + 1.4571 (VA pump body) + 1.4401, Viton (VA pipe fittings) + Viton (VA pump body with bypass valve)

**Pumps 400 L/h**

Ambient temperature	
Motor:	-20 °C to 40 °C
Pump head:	see temperature classes
Valve medium temperature*:	PTFE/PVDF max. 100 °C PTFE/PEEK max. 140 °C

\*see temperature classes

**Feed curve 400 L/h**

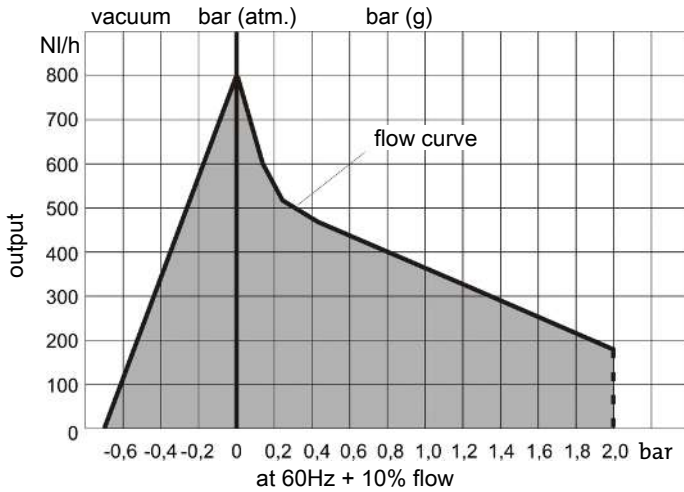


**Pumps 800 L/h**

Ambient temperature	
Motor:	-20 °C to 40 °C
Pump head:	see temperature classes
Valve medium temperature*:	PTFE/PEEK max. 120 °C

\*see temperature classes

**Flow curve 800 L/h**



**Temperature classes**

<b>P 2.2 AMEX</b>		<b>Medium temperature</b>	<b>Pump head temperature *</b>
no flammable gasses in the gas circuit	T3	140 °C	40 °C
	T3C	120 °C	40 °C
Flammable gasses in the gas circuit above the LEL	T3	120 °C	40 °C
	T3C	50 °C	40 °C

<b>P 2.82 AMEX</b>		<b>Medium temperature</b>	<b>Pump head temperature *</b>
no flammable gasses in the gas circuit	T3	120 °C	40 °C
	T3C	80 °C	40 °C

<b>P 2.4 AMEX</b>		<b>Medium temperature</b>	<b>Pump head temperature</b>
no flammable gasses in the gas circuit	T3	120 °C	100 °C
	T3C	80 °C	80 °C
Flammable gasses in the gas circuit above the LEL	T3	100 °C	80 °C
	T3C	50 °C	50 °C

<b>P 2.84 AMEX</b>		<b>Medium temperature</b>	<b>Pump head temperature</b>
no flammable gasses in the gas circuit	T3	120 °C	100 °C
	T3C	80 °C	80 °C

\* resulting from the pump's maximum ambient temperature.

**Important motor notices**

**Motors used in EX areas require a protection device!**

**Installing the motor protection switch outside the EX area**

<b>Motor voltage</b>		<b>Item no.</b>
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)**

<b>Motor voltage</b>		<b>Item no.</b>
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 and P2.82 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 and P 2.82 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 and P2.82 only):**

PTFE/PVDF valves must be used for unheated applications with a media temperature up to 100 °C. For higher temperatures up to 140 °C, use the respective PTFE/PEEK valves. Please note, the max. temperatures are limited by the temperature classes (see temperature class table).

**Ordering instructions**

42	xx	x	x	x	x	x	9	0	00	Product characteristic
										<b>Base model</b>
	71									P2.2 Amex 400 L/h (direct operation without intermediate flange)
	72									P2.4 Amex 400 L/h (with intermediate flange)
	73									P2.82 Amex 800 L/h (direct operation without intermediate flange)
	74									P2.84 Amex 800 L/h (with intermediate flange)
										<b>Motor voltage</b>
		7								230 V 50/60 Hz 0,8/0,7 A
		8								115 V 50/60 Hz 1,6/1,5 A
										<b>Pump head position</b>
			1							Normal position vertical
			2							turned by 180° *
										<b>Pump head material</b>
				1						PTFE
				2						Stainless steel 1.4571
				3						PTFE with bypass valve *
				4						Stainless steel 1.4571 with bypass valve *
										<b>Valve material</b>
					1					up to 100 °C; PTFE / PVDF **
					2					up to 140 °C; PTFE / PEEK
										<b>Screw-in connections (depending on pump body)</b>
										<b>PTFE Pump body</b>
										<b>Stainless steel pump body</b>
					9					1/4"-1/6" (Standard)
					1					DN 6/8
					2					3/8"-1/4"
					3					1/4"-1/8"
					5					DN 4/6
										<b>Mounting accessories</b>
						9				incl. mounting bracket and bumper *

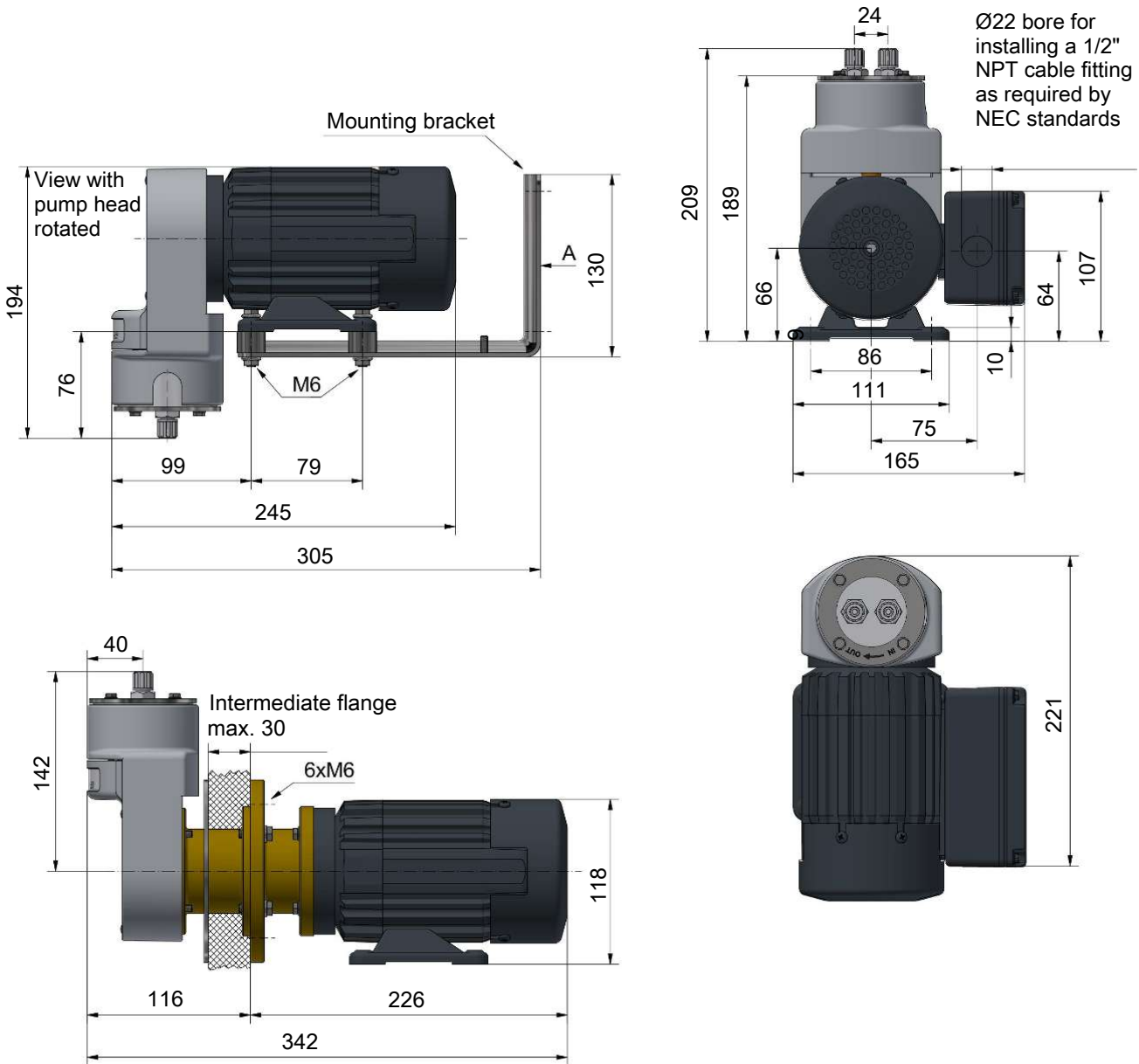
\* not on P2.4 & P2.84

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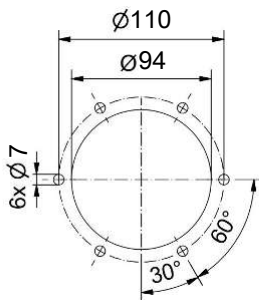
**Dimensions**

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



**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.