

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

Low noise emission

With mounting bracket

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



Pump overview

	Direct-drive pumps (see drawing 1)		Pumps with intermediate flange (see drawing 2)	
Flow rate (see flow curve)	400 L/h	800 L/h	400 L/h	800 L/h
AMEX models (US) NI / 1 / 2 / BCD / T3, T4 CL.I Div.2 Gr BCD T3/T4 FM C-US approval no.: 3038101 / 3038101C	P 2.2 AMEX	P 2.82 AMEX	P 2.4 AMEX	P 2.84 AMEX
Weight	7.5 kg		8.5 kg	

Technical data

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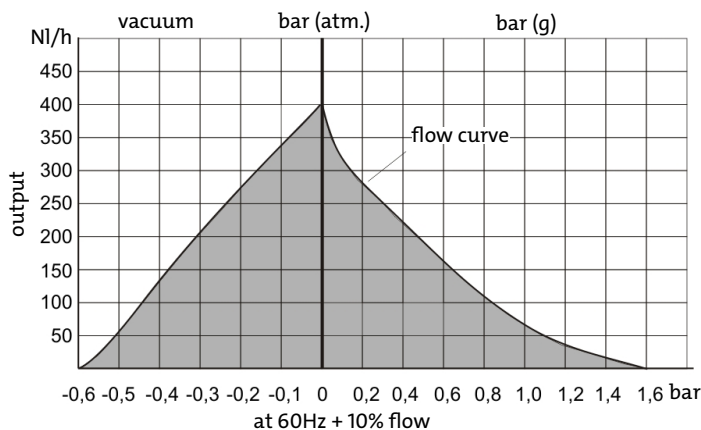
Nominal voltage:	see ordering information
Marking:	NI / 1 / 2 / BCD / T3, T4 CL.I Div.2 Gr BCD T3/T4
Protection class:	electric IP 54 mechanical IP 20
Dead volume:	8.5 ml
Weight:	7.5 kg (P 2.2 / P 2.82 AMEX) 8.5 kg (P 2.4 / P 2.84 AMEX)
Materials in contact with media vary by configuration:	PTFE, PVDF (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)

Pumps 400 L/h

Ambient temperature	
Motor 115 V / 230 V:	-20 °C to 50 °C
Motor 380 - 420 V	-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 115 V / 230 V: -20 °C to 50 °C

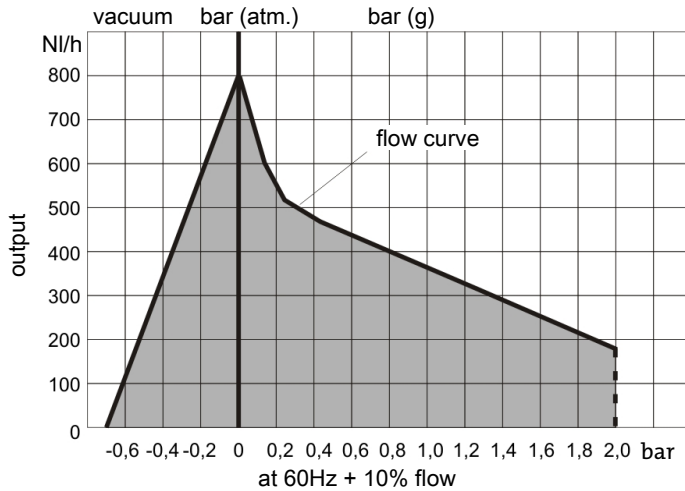
Motor 380 - 420 V: -20 °C to 40 °C

Pump head: see temperature classes

Valve medium temperature*: PTFE/PEEK max. 120 °C

*see temperature classes

Flow curve 800 L/h



Temperature classes

P 2.2 AMEX

		Medium temperature	Pump head temperature *
no flammable gasses in the gas circuit	T3	140 °C	50 °C
	T4	120 °C	50 °C
Flammable gasses in the gas circuit above the LEL	T3	120 °C	50 °C
	T4	50 °C	50 °C

P 2.82 AMEX

		Medium temperature	Pump head temperature *
no flammable gasses in the gas circuit	T3	120 °C	50 °C
	T4	80 °C	50 °C
Flammable gasses in the gas circuit above the LEL	T3	100 °C	50 °C
	T4	50 °C	50 °C

P 2.4 AMEX

		Medium temperature	Pump head temperature
no flammable gasses in the gas circuit	T3	120 °C	100 °C
	T4	80 °C	80 °C
Flammable gasses in the gas circuit above the LEL	T3	100 °C	80 °C
	T4	50 °C	50 °C

P 2.84 AMEX

		Medium temperature	Pump head temperature
no flammable gasses in the gas circuit	T3	120 °C	100 °C
	T4	80 °C	80 °C
Flammable gasses in the gas circuit above the LEL	T3	100 °C	80 °C
	T4	50 °C	50 °C

* resulting from the pump's maximum ambient temperature.

Important motor notices

Motors used in EX areas require a protection device!

Protective motor switch	Motor voltage	Item no.
Installation outside the EX area	230 V; 380-400 V, 0-1 A	9132020021
	115 V, 1.6-2.5 A	9132020030
Installation in EX area Zone 1 or 2 (Atex only)	230 V; 380-400 V, 0-1 A	9132020036
	115 V, 1.6-2.5 A	9132020033

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 (not combined with a bypass valve).

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).

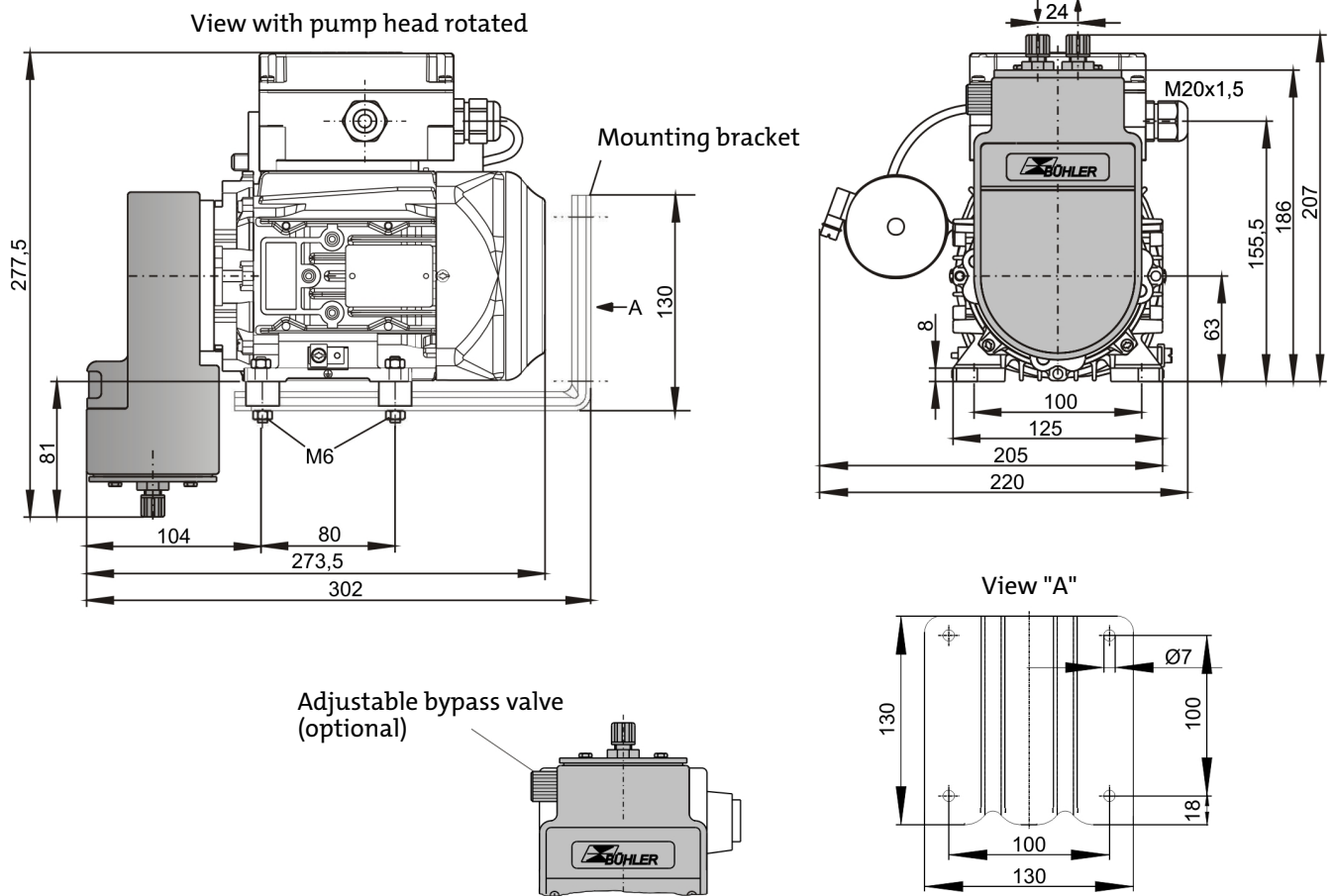
Ordering instructions

42	xx	x	x	x	x	x	9	0	00	Product characteristic
Base model										
71										P2.2 Amex 400 L/h
72										P2.4 Amex 400 L/h
73										P2.82 Amex 800 L/h
74										P2.84 Amex 800 L/h
Motor voltage										
1										230 V 50 Hz 0.88 A
2										230 V 60 Hz 0.89 A
3										115 V 50 Hz 1.76 A
4										115 V 60 Hz 1.78 A
Pump head position										
1										Normal position vertical
2										turned by 180° *
Pump head material										
1										PTFE
2										Stainless steel 1.4571
3										PTFE with bypass valve *
Valve material										
1										up to 100°C; PTFE / PVDF **
2										up to 140 °C; PTFE / PEEK
Screw-in connections (depending on pump body)										
					PTFE Pump body			Stainless steel pump body		
9					1/4"-1/6" (Standard)			1/4" (Standard)		
1					DN 6/8			8 mm		
2					3/8"-1/4"			3/8"		
3					1/4"-1/8"					
5					DN 4/6			6 mm		
Mounting accessories										
9					incl. mounting bracket and bumper *					

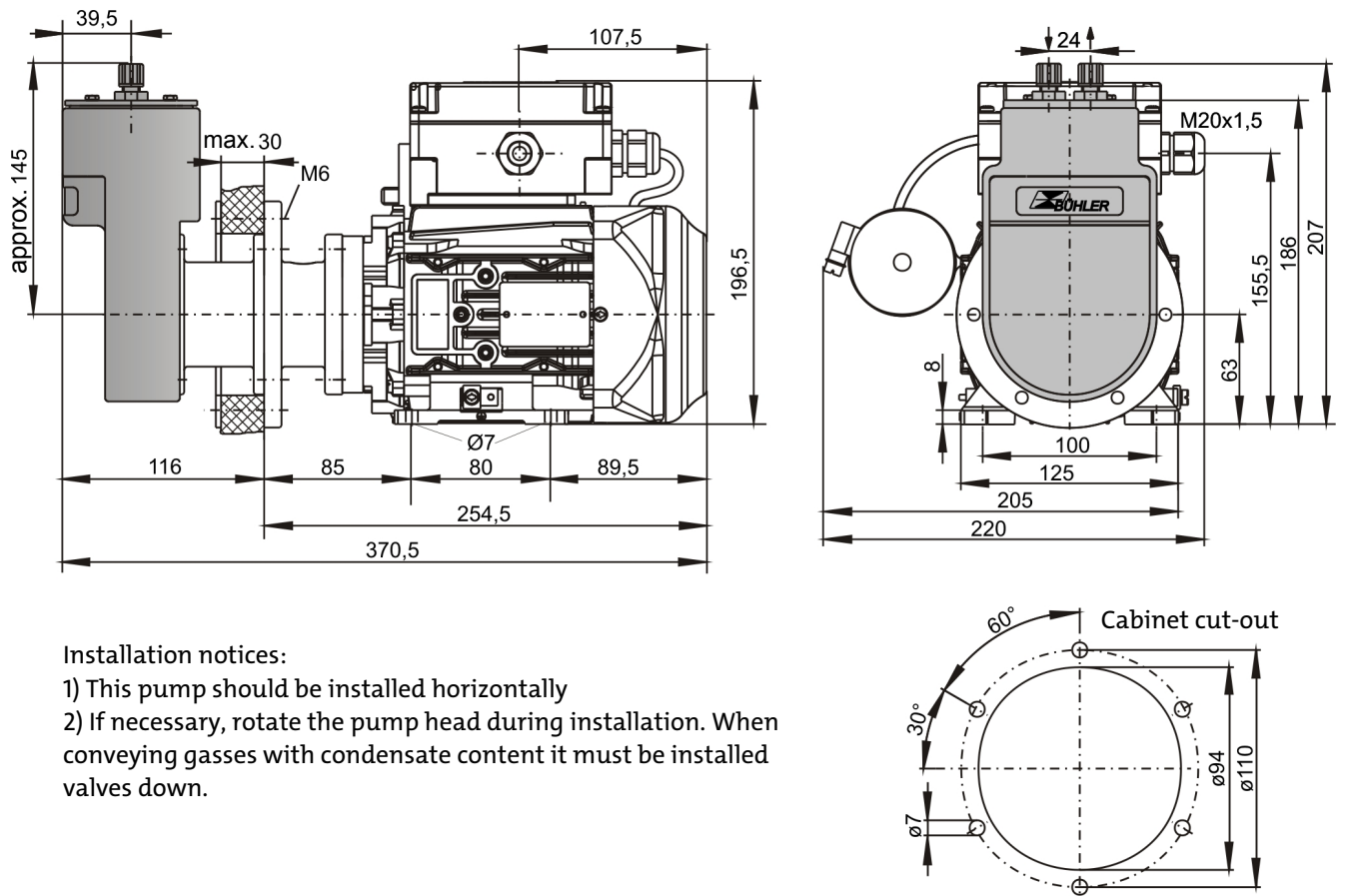
* not on P2.4 & P2.84

** not on P2.82 & P2.84

Dimensions P 2.2 AMEX, P 2.82 AMEX - Drawing 1



Dimensions P 2.4 AMEX, P 2.84 AMEX - Drawing 2



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.