

## PAB, PNB Atex-certified centrifugal pumps



### Technical data

- Delivery rate  
 $Q_{\max} = 830 \text{ l/min}$
- Delivery head  
 $H_{\max} = 20 \text{ m}$
- Temperature range  
 $0^{\circ}\text{C to } +60^{\circ}\text{C}$



### Main areas of use

- Printing machines
- Packaging machines
- Surface coating
- Washing/degreasing installations
- Impregnation
- Electroplating baths

Their uniform, pulsation-free delivery of fluid makes Spandau centrifugal pumps especially well suited to pumping ink. Their open impeller design allows for small particles in the return flow. Adjustable drive power also makes them suitable for high viscosities.

### Fluids delivered

- Inks containing solvents
- Varnishes and oil-based paints
- Water-based paints
- Cleaning fluids
- etc.

### Viscosities

1 to 20 mm<sup>2</sup>/s (more than 20 mm<sup>2</sup>/s on request)

### Temperature range

0 °C to 60 °C

### Design features

- Centrifugal pump, pulsation-free
- Wear-resistant design
- 1- to 2-stage versions
- Open impellers
- Connector dimensions as per DIN EN 12157
- Variable immersion depths

### Groups

#### PAB group

Design with detachable aluminum motor with protection class EExd – “explosion-proof enclosure” (PAB-XD group)

#### Ratings:

Delivery rate  $Q_{\max}$  = 300 l/min  
 Delivery head  $H_{\max}$  = 20 m

#### PNB group

Design with permanently mounted motor with protection class EExd – “explosion-proof enclosure” (PNB-XD group)

#### Ratings:

Delivery rate  $Q_{\max}$  = 830 l/min  
 Delivery head  $H_{\max}$  = 8 m

### Special design features of the PAB group

The pump section – consisting of the pump housing and flange-type end shield – is connected to the drive only by quick-release locks. This allows the drive to be removed from the pump component without having to disconnect the electrical leads. Cleaning is simpler and faster as a result. All hydraulic parts of the PAB group are compatible with most cleaning methods.

### Mechanical design

Component	PAB	PNB
Motor housing	AL	AL
Pump port	GCI with chemical surface sealing	GCI
Flange-type end shield	AL	–
Pump bottom	GCI with chemical surface sealing	GCI
Intermediate chamber	GCI with chemical surface sealing	–
Impeller	Bronze	Bronze
Shaft	Stainless steel 1.4122	ETG
Rotary shaft seal	PTFE in the - Pump flange - Flange-type end shield under the lower ball bearing - Flange-type end shield over the upper ball bearing	PTFE in the pump flange

### Installation and operation

The unit is installed upright. The maximum level for fluid is 20 mm below the mounting flange. Before startup, fill the pump with fluid for pumping. When pumping, the unit can operate without fluid only for short periods and under certain circumstances. Operation against dead head is possible.

### Direction of rotation

Counterclockwise – as viewed looking down on the motor's ventilation side.

## Explosion-proofing as per ATEX 95

Since July 1, 2003, the EC directive 94/9/EC (ATEX) has applied to equipment and protective systems intended for use in potentially explosive atmospheres.

The **ATEX (ATmosphère EXplosible** – potentially explosive atmosphere) applies to all “equipment” (e.g. machines, apparatus, ...) which, “separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy for the processing of material and which are capable of causing an explosion through their own potential sources of ignition.”

**The pump groups PAB and PNB are ATEX approved** – they are certified and marked accordingly. The corresponding certificates of conformity as well as type approval certificates and/or certificates of deposit are available for both groups of pumps and can be obtained on request.

## Technical explanation of electrical versions of drive motors

### “Explosion-proof enclosure” protection, EExd

The performance ratings of our pump motors refer to the motor version for explosion group IIC. The stated performance ratings and operating values are valid for ignition class T4. These ratings and values encompass all lower explosion groups and temperature classes.

The motors have the following coding according to EN 60079-1: II 2 G EExd II C T4

The stated performance ratings and operating values are valid for mode S1, the rated frequency and voltage, a maximum coolant temperature (ambient temperature) of 40 °C, and a site altitude of up to 1000 m above sea level.

The pumps normally come with a 6-pole terminal board for 230/400 V, delta/star. Upon delivery we switch the motors to the higher star-connected voltage of 400 V.

The voltage tolerance permissible in operation is  $\pm 5\%$  at the rated power and frequency, in compliance with EN 60034.

## Hazardous areas

The user has sole responsibility for deciding which explosion group is to be applied. In case of doubt, the relevant supervisory body may decide which protective measures are required to prevent harm. DIN 57165 and VDE 0165 classify hazardous areas into zones.

Zone	Motor with protection class EExd – “explosion-proof enclosure”
0	Not permitted
1	Permitted
2	Permitted

## Order information, PAB

<b>Type code (pump component)</b>	<b>P</b>	<b>A</b>	<b>B</b>					<b>C</b>								
Group																
Size																
	<b>05, 07, 08, 11, 20</b>															
Number of stages																
	<b>01 = 1-stage</b>															
	<b>02 = 2-stage</b>															
Material																
	<b>C = GCI with chemical surface sealing</b>															
Pump design																
	<b>AA = Standard design</b>															
Immersion depth in mm																
	<b>170, 220, 250, 270, 350, 440</b>															
For motor																
	<b>E = 0.37 kW    F = 0.55 kW    G = 0.75 kW    H = 1.1 kW</b>															
Impeller																
	<b>50 = 50 Hz impeller    60 = 60 Hz impeller</b>															
<b>Important</b>																
For spare parts or spare parts inquiries, quote the 10 digit serial number (see the pump's rating plate)																

<b>Type code (motor)</b>	<b>P</b>	<b>A</b>	<b>B</b>	<b>-</b>					
Group									
Motor index									
	<b>E = 0.37 kW    F = 0.55 kW</b>								
	<b>G = 0.75 kW    H = 1.1 kW</b>								
Power supply									
	<b>30 = 220–240 V, 50 Hz (delta)</b>								
	380–415 V, 50 Hz Y								
	254–280 V, 60 Hz (delta)								
	440–480 V, 60 Hz Y								
	<b>31 = 200 V, 50 Hz (delta)</b>								
	345 V, 50 Hz Y								
	220–230 V, 60 Hz (delta)								
	380–400 V, 60 Hz Y								
Motor design *									
	<b>XD = Motor protected by explosion-proof enclosure EExd</b>								
* Other designs on request									

## Order information

The pumps in the PAB group are supplied in two components, a pump component and a motor component. The type codes for the pump component and motor component therefore need to be configured separately.



## Order information, PNB

<b>Type code</b>	<b>P</b>	<b>N</b>	<b>B</b>			<b>0</b>	<b>1</b>	<b>G</b>	<b>A</b>	<b>A</b>					<b>0</b>	<b>5</b>	<b>X</b>	<b>D</b>
Group	PNB					01		GA		A				05		XD		
Size	05, 07, 34																	
Number of stages	01 = 1-stage																	
Material	G = GCI (gray cast iron) (Standard)																	
Pump design *	AA = Standard design																	
Immersion depth in mm	220, 250, 350, 445, 620																	
Motor index	E = 0.37 kW    K = 2.2 kW																	
Power supply *	05 = 230/400 V, 50 Hz																	
Motor design	XD = Motor protected by explosion-proof enclosure EExd																	
* Other designs on request																		
<b>Important</b>																		
For spare parts or spare parts inquiries, quote the 10 digit serial number (see the pump's rating plate):																		

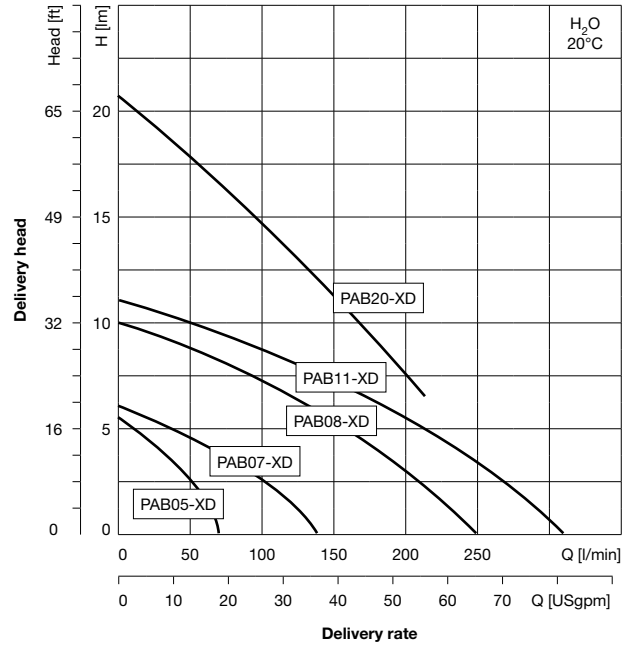
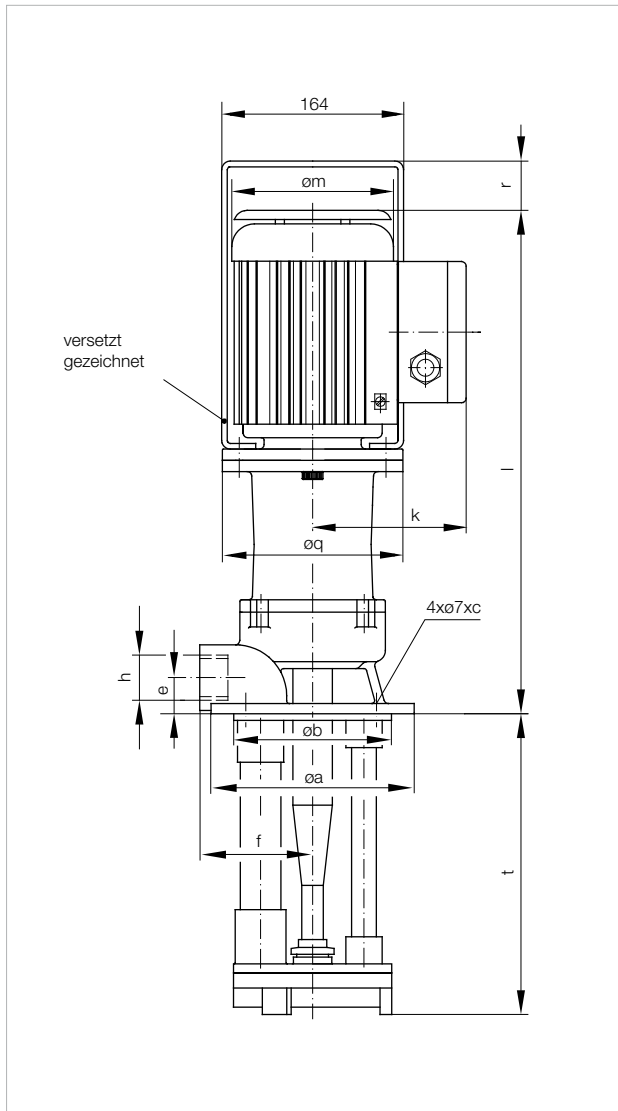
### How to order

PNB0601GAA220E05XD

- Group: PNB
- 1-stage design
- Material: GCI (gray cast iron)
- Pump design: Standard
- Immersion depth: 220 mm
- Motor index: 0.37 kW
- Power supply: 230/400 V, 50 Hz
- Motor protected by explosion-proof enclosure, EExd



**PAB – Dimensioned drawing and characteristics**

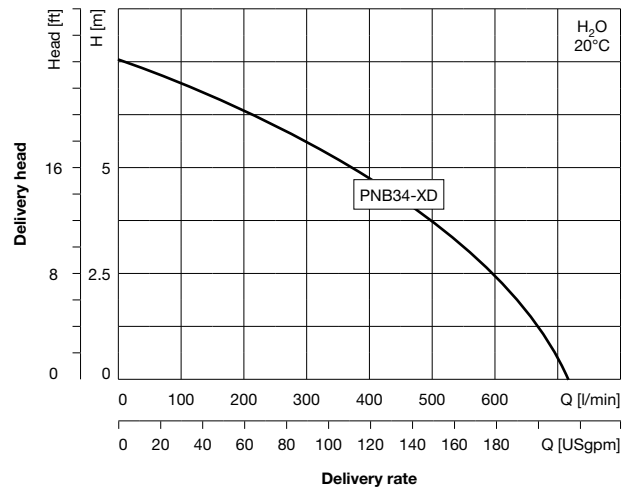
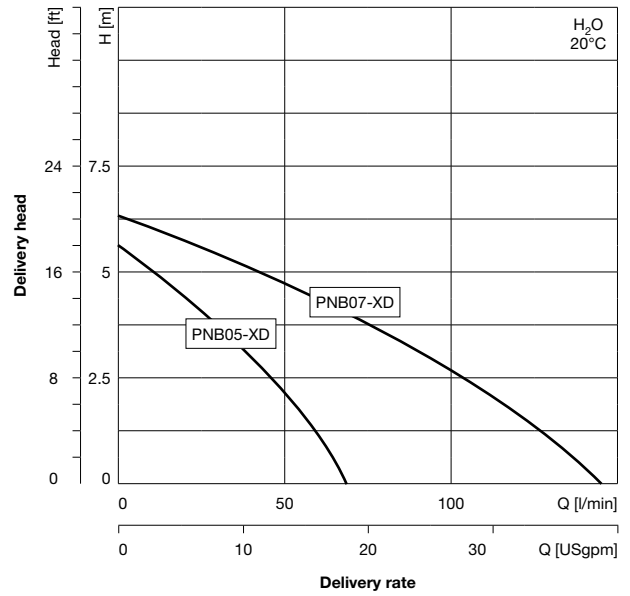
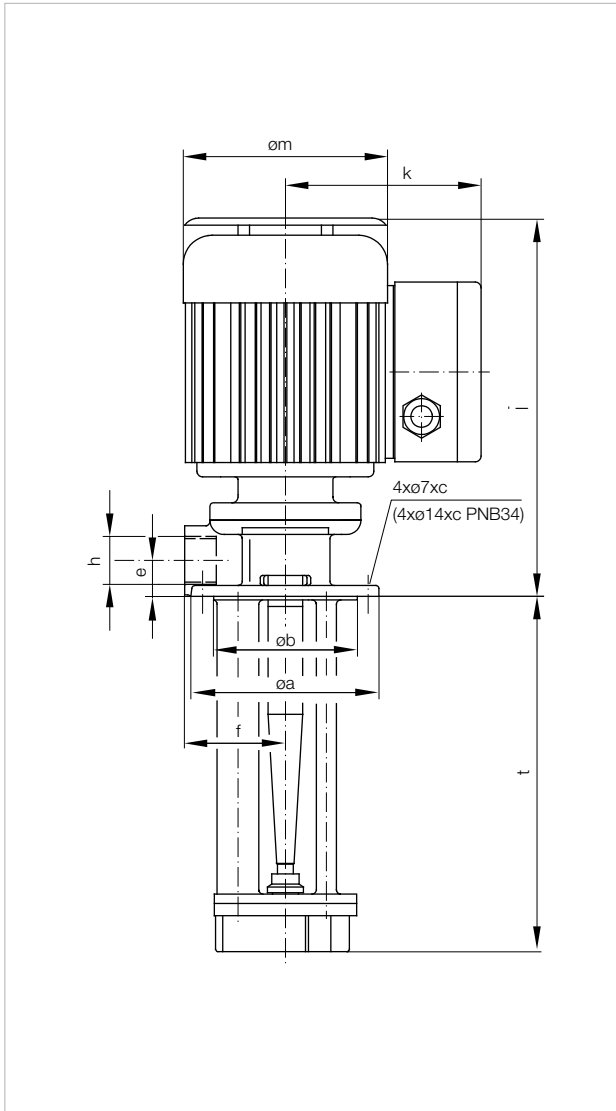


**PAB – Electrical values, dimensions, and weights**

Model	Immers. depth t [mm]	Dimensions [mm]										Weight [kg]	Sound pressure [dBA]	Conn. thread h ["]	Frequency [Hz]	Motor ratings 230/400 V			
		Øa	Øb	Øc	e	f	k	l	Øm	Øq	r					Power P <sub>N</sub> [kW]	Current I <sub>N</sub> [A]	Current ΔY I <sub>N</sub> [A]	Speed n <sub>N</sub> [rpm]
PAB05-XD	170	130	100	115	25	70	136	397	143	140	28	13-14	62.5	G 1	50	0.37	1.70	0.98	2780
	220															0.44	1.60	0.95	3380
	250																		
	350																		
PAB07-XD	170	130	100	115	25	70	136	397	143	140	28	13-14	62.5	G 1	50	0.37	1.70	0.98	2780
	220															0.44	1.70	0.98	3360
	250																		
	350																		
PAB08-XD	230	180	140	160	32	100	136	448	143	160	48	21-23	63	G 1 1/4	50	0.55	2.35	1.36	2750
	270															0.66	2.35	1.36	3350
	350																		
	440																		
PAB11-XD	230	180	140	160	32	100	136	448	143	160	48	21-23	63.7	G 1 1/4	50	0.75	3.10	1.79	2730
	270															0.9	3.10	1.79	3330
	350																		
	440																		
PAB20-XD*	270	180	140	160	32	100	136	448	143	160	48	28	65	G 1 1/4	50	1.1	3.95	2.28	2840
															60	1.38	3.95	2.28	3440

\* 2-stage

**PNB – Dimensioned drawing and characteristics**



**PNB – Electrical values, dimensions, and weights**

Model	Immers. depth t [mm]	Dimensions [mm]								Weight [kg]	Sound pressure [dBA]	Conn. thread h ["]	Frequency [Hz]	Motor ratings 230/400 V			
		$\varnothing a$	$\varnothing b$	$\varnothing c$	e	f	k	l	$\varnothing m$					Power P <sub>N</sub> [kW]	Current I <sub>N</sub> [A]	Current $\frac{\Delta Y}{I_N}$ [A]	Speed n <sub>N</sub> [rpm]
PNB05-XD	220	130	100	115	25	70	136	245	142	10-12	61.7	G 1	50	0.37	1.70	0.98	2780
	250													0.44	1.70	0.98	3360
	350													0.44	1.70	0.98	3360
PNB07-XD	220	130	100	115	25	70	136	245	142	10-12	62.0	G 1	50	0.37	1.70	0.98	2780
	250													0.44	1.70	0.98	3360
	350													0.44	1.70	0.98	3360
PNB34-XD	445	300	240	270	42	152	206	446	198	83	68.2	G 2	50	2.2	8.75	5.05	1435
	620									88				2.2	1)	1)	1)

1) on request