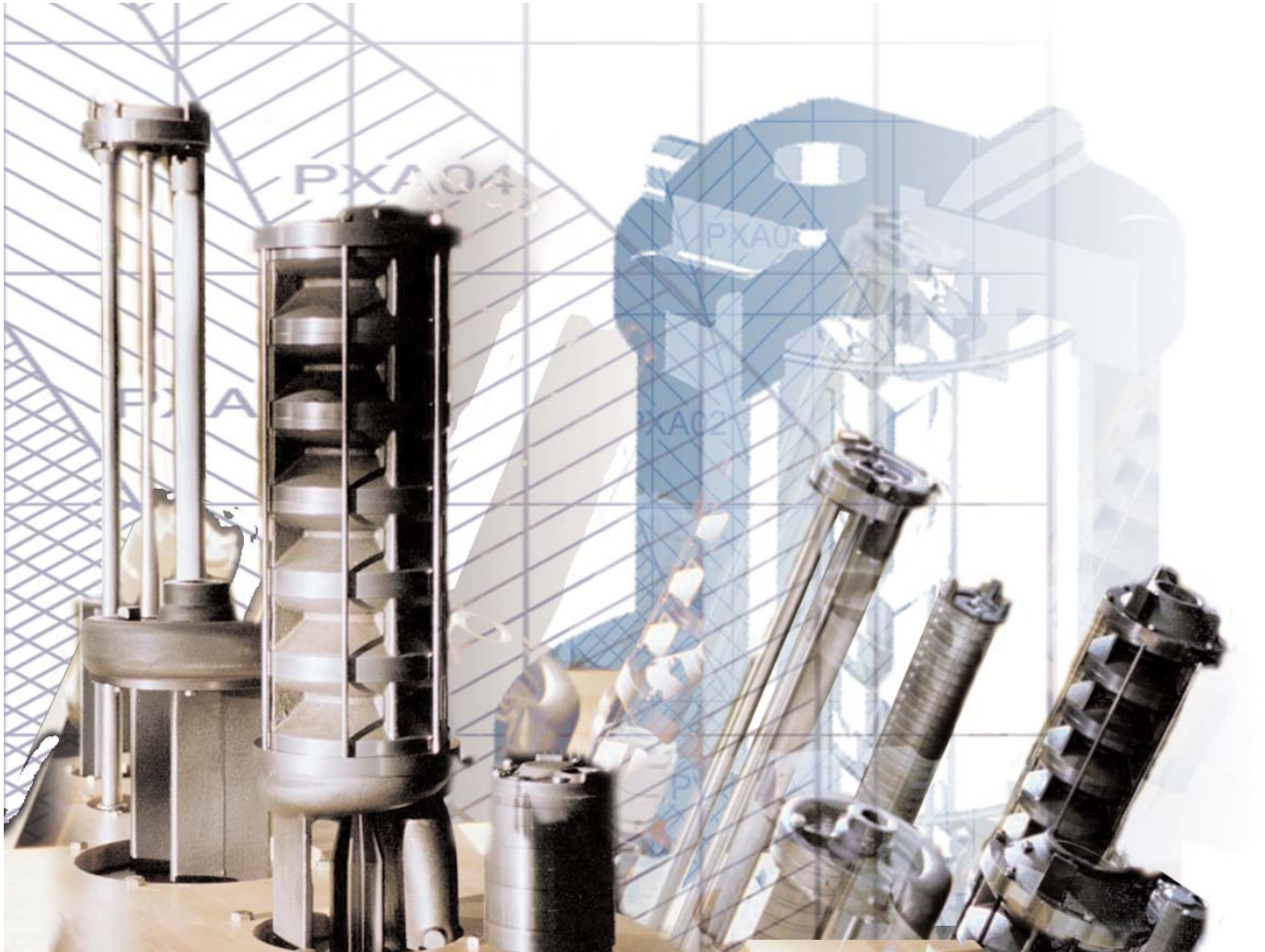


Sealless Immersion Pumps for Industrial Applications

Centrifugal and screw pumps
for low-, medium- and high-pressure applications



Machine tools, Filter systems	Printing machines	Optical devices	Humidifiers and Air-conditioning units	Welding and Laser technology	Surface and Process Engineering
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Centrifugal pumps
of high-tech plastic

	Q _{max} [l/min]	H _{max} [m]							Page
PR	30	4	■		■	■	■	■	4
PRG	60	32	■		■	■	■	■	4
PRT	120	32	■						4
PRA	120	32		■	■	■	■	■	4
HCT	120	32				■		■	4
PT	23	35	■		■	■	■	■	4



Centrifugal pumps
of metal

	Q _{max} [l/min]	H _{max} [m]							Page
ES	70	6		■	■	■	■	■	5
PMS	400	48	■					■	5
PSH	800	55	■						5
PS	1250	105	■						5
PSL	1250	105	■						5



Centrifugal pumps,
the PX modular system

	Q _{max} [l/min]	H _{max} [m]							Page
PXA	500	250	■		■	■	■	■	6
PXK	170	70	■		■	■	■	■	6



Screw pumps,
the HP modular system

	Q _{max} [l/min]	H _{max} [m]							Page
HPL	275	1200	■						7
HPS	650	800	■						7



Flameproof
centrifugal pumps

	Q _{max} [l/min]	H _{max} [m]							Page
PAB	305	20	■					■	8
PNB	810	7	■					■	8



Block pumps

	Q _{max} [l/min]	H _{max} [m]							Page
PVBC	12	26				■	■		9
PVBS	30	45				■	■		9

Build on experience

Spandau Pumps have been amongst the driving forces in mechanical engineering for over 70 years. They don't prove their high reliability merely by delivering cooling agents. Thanks to their many good characteristics, they are furthermore the best solution for numerous other applications

Flexibility and reliability

Versatility is the strength of the Spandau Pumps range. Whatever the application a wide range of models and materials is available to choose from. Alongside their work on cooling lubricant circulation for machine tools they undertake work in printing machines, optical devices, or humidifiers and air-conditioning units. Here they supply everything, from severely contaminated to clouded liquids right up to clean media for the high pressure domain.

In addition they are used in laser technology and in the surface- and process-engineering industries. They are extremely robust and long-lived, offer the highest performance in both cryogenic and extremely hot liquids, and can be used both for aggressive as well as abrasive media.

Multiple benefits

Tuned to the particular purpose of the application, the pumps are constructed in such a way that maximal efficiency is achieved. Particularly striking is the economy effect in pumps with rotational-speed control, which adapt their performance and thereby their power consumption to the actual demand.

Spandau pumps require less space, are easy to install and quick to service. This means your costs are lower and the profitability of the unit increases.

There are resulting advantages also for the environment: For instance, their extraordinary durability against cooling lubricant additives ensures that the lifetime of the coolants is extended and there are less waste liquids which have to be disposed of.

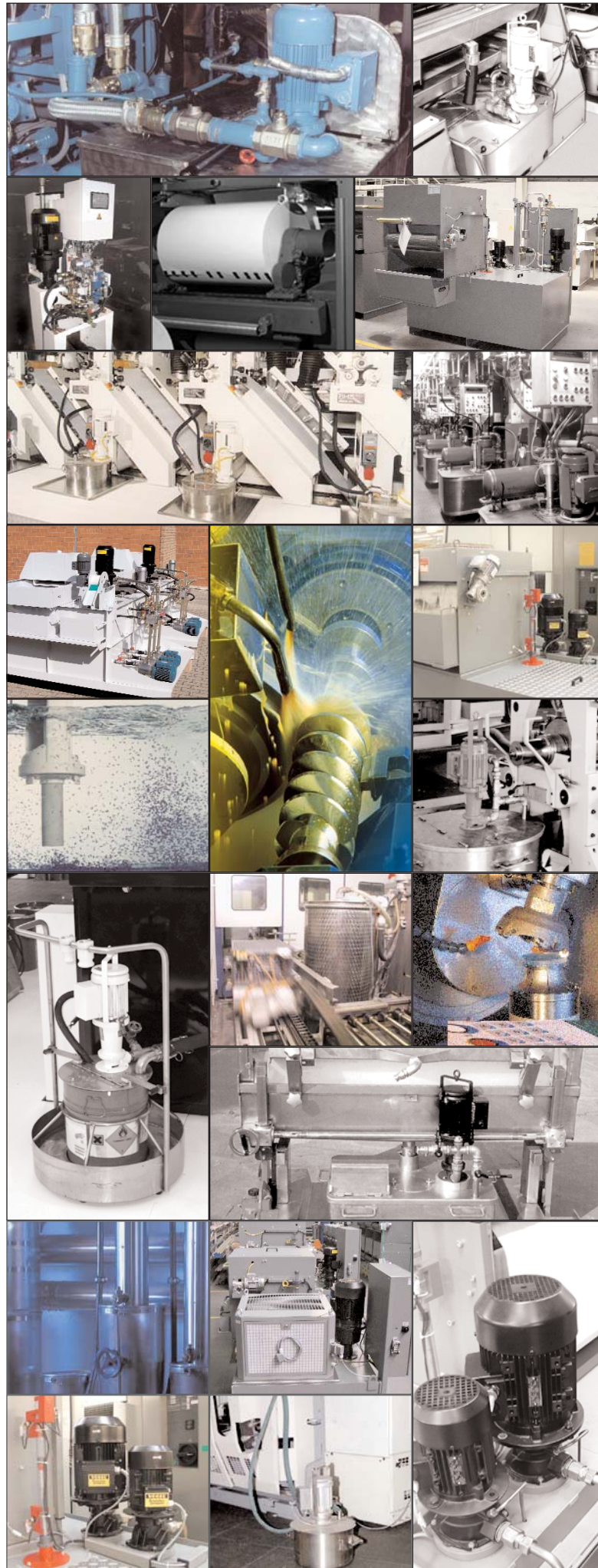
Standard or made to measure?

Spandau pumps are reliable, repeatedly proven serially-produced items such as for example the PX centrifugal pumps, which are mainly used in machine tools and are available in numerous sizes and immersion depths. Alongside these we develop tailor-made individual pumps for your special requirements. This makes it simple for you to implement the perfect solution for your machine.

In the following we give you an overview of our range of sealless immersion pumps for industrial applications.

You can request further information and detailed brochures via our Sales and Service Center in Germany, our international branches and representatives, or directly from our Head Office in Berlin.

Our staff will be pleased to advise you.



Centrifugal pumps of high-tech plastic for low- and medium-pressure applications

Main applications

- Machine tools / Filter systems
- Printing machines
- Optical devices
- Humidifiers and Air-conditioning units
- Welding and Laser technology
- Surface and Process Engineering

Delivered media

- Wide range of liquids for industrial use
- Clean, clouded or contaminated liquids such as water-based emulsions (synthetic / mineral-oil based), also with chemical additives
- Oils
- Lyes and acids
- other

Features

- Sealless
- Single- or multi-grade
- Pump shaft with motor-side bearing
- Connection dimensions according to DIN 12157

Advantages

- High operational safety
- Low maintenance requirements
- Quiet-running
- Insensitivity to running dry
- Flexible immersion depths, also with pipe extension

Type	Q _{max} [l/m]	H _{max} [m]	Immersion depth [mm]	Temperature [°C]	Material	Product features	Leaflet
PR	30	4	to 120	0 to +60	PPN	Open impellers	1-6011-US
PRG	60	32	to 320	-20 to +60	POM / GF	Closed impellers	1-6007-US
PRT / PRA	120	32	to 350	-30 to +60	PPU	Open impellers	1-6001-US
HCT	120	32	to 350	-100 to +150	LCP	Open impellers	1-6004-US
PT	23	35	to 270	-60 to +120	PEI / GF	Peripheral impellers	1-6017-US



PR



PRG



PRT / PRA



HCT



PT

Centrifugal pumps of metal for low- and medium-pressure applications

Main applications

- Machine tools / Filter systems
- Printing machines
- Optical devices
- Humidifiers and Air-conditioning units
- Welding and Laser technology
- Surface and Process Engineering

Delivered media

- Wide range of liquids for industrial use
- Clean, clouded or contaminated liquids
- Printing inks, solvent-resistant
- Varnishes
- Water, including de-ionized
- Emulsions, also with chemical additives
- Oils
- other

Features

- Sealless
- Single- or multi-grade
- Pump shaft with motor-side bearing
- Connection dimensions according to DIN 12157

Advantages

- High operational safety
- Low maintenance requirements
- Quiet-running
- Insensitivity to running dry
- Flexible immersion depths, also with pipe extension

Type	Q _{max} [l/m]	H _{max} [m]	Immersion depth [mm]	Temperature [°C]	Material	Product features	Leaflet
ES	70	6	to 270	0 to +80	Stainless steel 1.4301	Open impellers Corrosion-proof Chemical-resistant	1-6018-US
PMS	400	48	to 560	PMS: 0 to +80 PMS-T: -70 to +170	Gray cast iron/steel	Open impellers <i>Types of "slurp design" for media exposed to air</i>	1-6033-US
PSH	800	55	to 550	-30 to +80	Gray cast iron/steel	Open impellers Large gap in the pump chamber <i>Special types for hydrocyclones</i>	1-6005-US
PS / PSL	1250	105	to 670	0 to +80	Gray cast iron/steel	Closed impellers <i>Types of "slurp design" for media exposed to air</i>	1-6014-US



ES



PMS



PSH



PSL

Centrifugal pumps: PX modular system for medium- and high pressure applications

Main applications

- Machine tools / Filter systems
- Optical devices
- Humidifiers and Air-conditioning units
- Welding and Laser technology
- Surface and Process Engineering

Delivered media

- Clean and clouded liquids without long-fibered or abrasive components
- Low-viscosity cooling and cutting oils, mineral-based and synthetic
- Water-based emulsions
- Water, including de-ionized
- Cleaning fluids
- Lyes and acids

Features

- Sealless or with mechanical seal
- Single- or multi-grade
- Closed impellers
- Connection dimensions according to DIN 12157

Advantages

- Modular construction principle:
 - Variable delivery rates and pressures
 - Flexible drive design, also frequency-controlled (up to 7.5 kW)
 - Wide range of materials
 - Appropriate accessories
- Simple, quick installation and commissioning
- High operational safety
- Long lifetimes
- Flexible immersion depths, also with pipe extension

Type	Q_{\max} [l/m]	H_{\max} [m]	Immersion depth [mm]	Temperature [°C]	Material	Product features	Leaflet
PXA	500	250	to 692	-10 to +90	Gray cast iron / stainless steel	<ul style="list-style-type: none"> – Shaft seal with gap bush or mechanical seal – Model with removable motor 	1-6062-US
PXK	170	87	to 248	-10 to +90	Gray cast iron / stainless steel	<ul style="list-style-type: none"> – Model with non-removable Motor – Compact version with small motor mounting dimensions 	1-6062-US



Screw pumps: HP modular system for high-pressure applications

Main applications

- Machine tools / Filter systems

Delivered media

- Liquids with lubricating properties such as
 - Oil in water emulsions with min. 3% oil content,
 - Cooling and cutting oils
- For clean liquids without abrasive or long-fibered components

Models for the HP assembly kit	HPL	HPS
Screws with high-strength coating, > 3000 HV	●	○
Axial thrust balance	●	—
Mechanical seal in pump body	●	○
Coating of screw housing	●	●
Pressure connector above the tank lid	●	●
Installation outside the reservoir with foot flange	○	○
Motor 4-pole, frequency-controlled	○	○

● Standard ○ Optional — not available

Features

- Screw pump: triple-screw, self-priming
- Drive and pump connected using standard pump mounts
- 14 sizes for demand-based type model selection

Advantages

- Modular construction principle:
 - Variable delivery rates and pressures
 - Flexible drive design, also frequency-controlled (up to 7.5 kW)
 - Wide range of materials
 - Appropriate accessories
- High-durability materials
- Simple, quick installation and commissioning
- High operational safety
- Long lifetimes

Type	Q _{max} [l/m]	P _{max} [bar]	Immersion depth [mm]	Temperature [°C]	Material	Leaflet
HPL	265	120	to 368	0 to +70	Gray cast iron	1-6063-US
HPS	650	80	to 394	0 to +70	Gray cast iron	1-6063-US



Explosion-protected centrifugal pumps

ATEX

Main applications

- Printing machines
- Surface and Process Engineering

Delivered media

- Paints containing solvents
- Varnishes and enamels
- Water-based paints
- Cleaning fluids

Features

- Sealless
- Single- and dual grade
- Open impellers
- **ATEX** approved
- Protection class **EExe** – “increased safety” or **EExd** – “flame-proof enclosure”
- Also for viscosities > 20 mm²/s
- Connection dimensions according to DIN 12157

Advantages

- High-strength and good chemical resistance for minimum weight
- High operational safety, low maintenance requirements
- PAB: Fast change of paint by simple separation of motor and pump part

Special features

The pump series PAB and PNB are ATEX approved – they are appropriately certified and labeled, and approved for use in the following hazard types:

Zone	Protection class EExe – “increased safety”	Protection class EExd – “flame-proof enclosure”
0	not allowed	not allowed
1	not allowed	allowed
2	allowed	allowed

Type	Q _{max} [l/m]	H _{max} [m]	Immersion depth [mm]	Temperature [°C]	Material	Product features	Leaflet
PAB	305	20	to 440	0 to +60	Gray cast iron/ Aluminum	Model with removable motor (aluminum-housing); pump part washing-machine proof	1-6036-US
PNB	830	8	to 620	0 to +60	Gray cast iron	Model with non-removable motor	1-6036-US



PAB



PNB

Block pumps

Main applications

- Humidifiers and Air-conditioning units
- Welding and Laser technology

Delivered media

- Only for clean, unclouded liquids:
Emulsions, also with chemical additives
- Water, including de-ionized
- Low-viscosity oils
- Organic and inorganic acids
- Photographic developers

Features

- Shaft seal ring or mechanical seal
- Pump shaft with motor-side bearing
- Impeller peripheral
- Single-grade
- Foot dimensions according to DIN 42673-1

Advantages

- Good chemical resistance
- Usage with de-ionized water
- Constant hydraulic power across the entire temperature range
- Compact construction using peripheral impeller
- Convenient handling through low weight
- Quiet running with low noise level (≤ 65 dB[A])

Type	Q _{max} [l/m]	H _{max} [m]	Temperature [°C]	Material	Product features	Leaflet
PVBC	12	26	-10 to +70	PPS	Flange construction; leakage recovery connection for higher operational safety	1-6009-US
PVBS	30	45	-20 to +110	PEI	Foot construction; position of suction and discharge stubs variable in 90° steps	1-6009-US



PVBC

1-6000-US



PVBS

+ 49 (0)30 72002-261
by fax for the right pump

Sender company, city, person to contact

Date:

Operating area: Quantity:

Working point

Delivery head [m]: Delivery rate [l/min]:

Delivery medium

Type Temperature range [°C]:

Density [kg/dm³]: Viscosity at operating temperature [mm²/s]:

pH value: Chemical analysis (separate page if necessary):

Solids content [ppm]: Grain size [µm]:

Special characteristics:

Immersion depth [mm]:

Material specifications/recommendations (if no delivery medium chem. specified)

Housing: Impeller:

Shaft: Seals:

Accessories:

Electrical parameters

Europa Δ/Y 230/400 V, 50 Hz ∟ 230 V, 50 Hz Δ 400 V, 50 Hz

USA Δ/Y 265/460 V, 60 Hz YY/Y 230/460 V, 60 Hz (Option)

Japan Δ 200 V, 50 Hz Δ 200-220 V, 60 Hz

Other Δ/Y 230/400 V, 50/60 Hz

Additional electrical parameters:

Insulation class: F.B Type of enclosure IEC 34: IP 55

Ambient temperature [°C] (if > 40 °C):

Options

Motor protection (thermistor in winding/PTC): Fan cowl, with canopy:

Industrial connectors (DESINA): Frequency converter operation:

Special operating conditions:

Additional information:

We would like to have brochures on:

- Centrifugal pumps of high-tech plastic
- Centrifugal pumps of metal
- Centrifugal pumps: PX modular system
- Screw pumps: HP modular system
- Flameproof centrifugal pumps
- Block pumps

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