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PRODUCT OVERVIEW

Innovative pump technology for
mechanical engineering, process engineering,
environmental technology and pool technology

DECADES OF EXPERIENCE

Tailor made innovative centrifugal pumps

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COMMITTED TO THE NEEDS OF OUR CUSTOMERS: INNOVATIVE PUMP TECHNOLOGY SINCE 1954

We, the family business Schmalenberger Strömungstechnologie founded in 1954, are one of the leading manufacturers of centrifugal pumps for use in mechanical engineering, process engineering, environmental technology and pool technology. Since 1970 we have been pioneering in the development and production of innovative swimming pool water features and pumps for private pools, hotels and public spas. More than 65 years of experience in development and manufacturing of centrifugal pumps for various requirements have made us a valued partner. From idea to production, everything happens at our company location in Tübingen. "Made in Germany" in accordance with our certified quality management system. For us reliability is of the utmost importance, as well as sustainability and above all the best possible service.

The innovative strength of our employees and suppliers enables us to develop individual customised solutions that are unique in the market and convey product benefits to our customers.

Complex processes, various media and constantly rising demands on quality, efficiency and digitisation are our everyday requirements.

With a wide range of model series and designs of our product program, we cover a wide range of applications of centrifugal pumps. On request, optional features can be added to the standard products in order to enhance their possible uses. Low energy motors of well-known Western European suppliers, specially hardened impellers to increase wear resistance to abrasive materials and electronic function monitoring modules can be offered and retrofitted to existing systems.

We satisfy extraordinary requirements with customised solutions which are specially designed for the respective application and tailored down to the final detail. Experience has shown that this enhances the function, performance, efficiency and availability of your systems.

OUR SELF-IMAGE AND OUR CORPORATE PRINCIPLES

As a family business with tradition, we and our employees are enthusiastic about the development and production of innovative centrifugal pumps. We see the highest demands on the quality and innovative strength of our products as the most important task for our customers. The success of our company is based on the values of our corporate principles, which are the basis for our decisions and their implementation.

- Customer focus: The partnership-based cooperation with our customers is at the center of our activities. A long-term partnership that benefits both sides is key to us. We measure our success with the satisfaction and enthusiasm of our customers.
- Employees: Our employees are the pillars of our company. Our cooperation is characterised by honesty, fairness, reliability, understanding and appreciation.
- Innovation, Technology & Quality: Outstanding results in the development and manufacturing of our products are achieved through a high degree of professional competence, commitment, flexibility and innovative strength. This is shown by various patents and awards.
- Responsibility for society and the environment: Out of responsibility to the environment, we value a sustainable economy for the protection of the environment and natural resources.

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SUSTAINABILITY: WE ARE CONSTANTLY WORKING ON IT

The increasing global demand for raw materials and energy requires a more efficient use of resources. Resource efficiency measures help us to strengthen our competitiveness while relieving the burden on the environment. An opportunity that we like to take. Not only individual savings potential but also the total need of all resources is in focus.

Our products are designed for efficiency, reliability, longevity and are resource-saving. The cooperation with regional suppliers has priority for us. We do not support solely energy-saving drives, which result in high consumption of rare raw materials.

Our internal material flow is permanently monitored and evaluated in order to reduce material, wastewater and energy costs. We constantly increase the efficiency of our machinery and consistently reduce the use of lubricants and packaging materials in our production and assembly.

The fact that we have been producing the majority of our electricity ourselves for many years with a combined heat and power unit and that we have our own charging stations for employee and company vehicles shows that CO_2 reduction is not a foreign word to us.

PRODUCT PHILOSOPHY: MORE THAN 65 YEARS OF EXPERIENCE AND KNOW-HOW

The market and the application areas of pump technology are constantly changing. Here we set trends with new developments. We are well-known on the market as a trend setter with numerous patents and creative innovations. CAD design and our own prototype construction are as much a part of our company as the use of new technologies and materials. A qualified team of engineers and specialists for sales and design work closely with our customers and scientific research institutes. We strive to achieve the following goals:

- Highest efficiency with highest reliability during the lifetime of the pumps
- Protection of highly stressed pump components from wear by testing new materials
- Simplification of manufacturing and assembly by optimising the geometry of individual components

With our employees and our flat hierarchy we react very successfully, quickly and flexibly to the constantly changing market requirements.

With our standardised series, we offer fast availability especially in case of replacement. We keep many components in stock for you. With our individual solutions, we design and manufacture tailor-made pumps precisely to your requirements, thus ensuring you competitive advantages, optimized efficiency and the possibility to build your systems very compactly.

Our products and services are designed for long-term use with maximum reliability. Decisive are therefore not only the acquisition costs, but the current operating costs such as electrical power, maintenance and repair costs in case of failure.

FLEXIBLE REALISATION OF YOUR DEMANDS

Achieve maximum output with our pump know-how

FUTURE INCLUDED

Our products are elementary building blocks for an efficient process chain

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PRODUCT DEVELOPMENT: RESEARCH AND NEW MATERIALS

Pump components like housings, impellers and shafts are subject to a high degree of complex thermal, mechanical and corrosive stress. We therefore not only continuously strive to utilise only the best materials in our pumps, but also achieve maximum efficiency for specific installation situations.

Many of our pump series are available in a wide variety of materials and selection of sealings. This enables precise adaptation to the transported media and ensures reliable and efficient operation. In cooperation with customers and research institutes, our engineers develop coatings with high tribological and anti-corrosive protection on the basis of cost-effective and easy-to-process base materials. Impellers and other pump components are manufactured with the support of the latest software, which optimise impeller geometries and flow characteristics in pumps, in combination with our own rapid prototyping machines. These are subject to comprehensive performance tests on our computer aided test station and prepared for serial production approval.

All of our centrifugal pumps can be equipped with variable speed drives and the corresponding sensors. The electronic fault and condition monitoring protects pump systems against dry running and monitors smooth operation in your process chain.

For the selection of our pumps, we provide you with PSpro+, a user-friendly and self-explanatory pump selection program. This tool enables you to select the individual pump based on duty point best suited to your needs and to create the corresponding documentation.

PRODUCT PROGRAM: DURABLE AND VERSATILE

Our modular system enables us to manufacture a wide range of dry-installed and immersion pumps, in single-stage and multistage designs covering a large number of applications. In addition to the installation options, this includes the most diverse pump designs for clean, abrasive or aggressive media and media with high air inclusion or high solids loading. For this purpose, pumps with free-flow, semi-open, open and closed impellers are used.

The application fields of our centrifugal pumps include:

- Coolant transportation and return on machine tools
- Coolant treatment / filtration
- Parts cleaning and general cleaning applications
- Cooling / temperature control
- Surface technology
- Exhaust gas cleaning and air treatment

Important for you is: simple handling, time savings, low consumption costs and a high level of reliability. Many models can be equipped with one or more options to match the specific application requirements. These include variable speed drives, motor mounted up to 22 kW, coated impellers for abrasive media, dry run protection option or sealing chamber system and the installation of standard motors. By the way: all our impellers are trimmed to the specified duty point. This helps to size the right motor to minimise space and costs.

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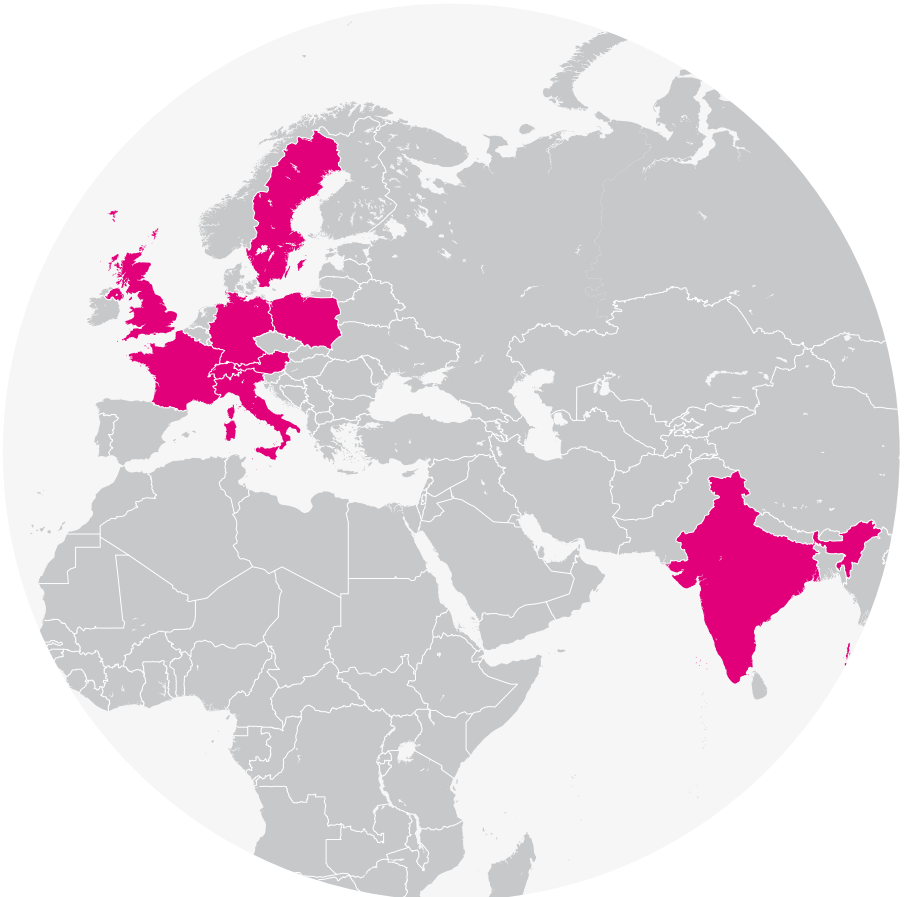
INDIVIDUAL SOLUTIONS: A CHALLENGE FOR TOP EXPERTS

Are you looking for the decisive product advantage? Are you not able to find the right product in the various pump catalogues? Did you have bad experience with standard pumps? Are you dissatisfied with the service life or the spare parts prices of your previously used pumps? Then you are in good hands with our specialists in sales and engineering. We know the challenges of different markets. These include, in particular, demanding installation conditions, media with high air inclusion, aggressive and abrasive media or above-average availability requirements. Our credo is: Where others stop developing and manufacturing, we use our know-how and our production for you. Together with you, we design a pump system customised to your specific needs, which is optimised down to the last detail. In addition to the pump performance the reliability and energy efficiency of your system is significantly improved and operating costs are reduced. As a result breakdown and shutdown periods are reduced to a minimum.

OUR SERVICE FOR YOU

We have a successful service and sales network in many countries. This enables us to effectively serve the increasing demand for our products worldwide. Our partners offer you qualified and fast support with all matters relating to pump technology. For us, service does not just mean replacing individual components, but working together with you to make an exact failure analysis in order to initiate the most optimal measures. Our partners are trained on a regular basis and kept up to date on the latest developments and changes, so we are sure that they can do the best for you, too. By the way, we do not just do this for our partners and employees. In coordinated educational sessions and hands-on trainings, our experts are happy to pass on their knowledge and think outside the “pump box”.



HIGH FLEXIBILITY FOR YOUR DESIGNS

Individual solutions are more effective and more efficient

Centrifugal pumps program

Product features ▸ Applications

Dry installation

Type	NB	S	ZHB	ZHR	ZHS	SM	KSP	FB
Max. delivery head	100 m	26 m	280 m	20 m	280 m	58 m	100 m	60 m
Max. flow rate	450 m³/h	60 m³/h	42 m³/h	10 m³/h	42 m³/h	120 m³/h	10 m³/h	138 m³/h

Media								
Clean media	●	●	●	●	●	●	●	●
Abrasive media	●	●				●	●	●
Aggressive media	●	●	●		●	●	●	●
High solids loading						●		●
High air content						●	●	●
High temperatures	●	●				●		●

Special executions								
Self-priming						✓	✓	
Stainless steel version	✓	✓	✓			✓		✓
Dry run protection	✓					✓		✓
Sealing chamber	✓					✓		✓
Special coatings	✓					✓		✓
Chip cutter								
Multiple pressure outlets			✓		✓			

Detailed information see page...								
	12	13	14	15	16	17	18	19

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Tank installation








Type	FZ	SZ	T	Z	NZ	ZHT	DUO	TH
Max. delivery head	60 m	50 m	13 m	57 m	100 m	280 m	400 m	170 m
Max. flow rate	138 m³/h	108 m³/h	29 m³/h	120 m³/h	450 m³/h	42 m³/h	24 m³/h	12 m³/h
Immersion depth	250-1000 mm	250-980 mm	90-550 mm	250-1000 mm	450-1050 mm	350-805 mm	570-890 mm	200-720 mm
Media								
Clean media	●	●	●	●	●	●	●	●
Abrasive media	●	●	●	●	●			
Aggressive media	●			●	●			
High solids loading	●	●	●					
High air content	●	●						
High temperatures	●	●		●	●			
Special executions								
Self-priming								
Stainless steel version	✓			✓	✓	✓	✓	✓
Dry run protection								
Sealing chamber								
Special coatings	✓	✓		✓	✓			
Chip cutter		✓						
Multiple pressure outlets						✓	✓	✓
Immersion depths up to 2800 mm (V-series)	✓	✓		✓	✓	✓		
Detailed information see page...								
	21	22	24	25	26	27	28	29

Standardised centrifugal pumps type NB

Dry installation

Features

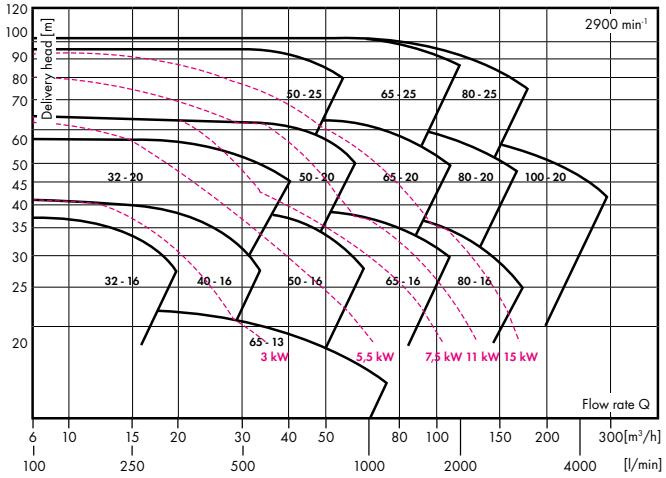
- Robust design
- Minimal space requirements
- Individually configurable
- Maintenance-friendly design
- High reliability
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 22 mm
- Also available with 4-pole motor

Technical data

- For clean media or media with slight solids loading
- Flow rate up to 450 m³/h
- Delivery head up to 100 m
- Material options: cast iron / stainless steel (316L)
- Various sealing options
- Connection dimensions according to DIN EN 22858
- Block design or with bearing carrier for standard motors
- Optional dry run protection or sealing chamber
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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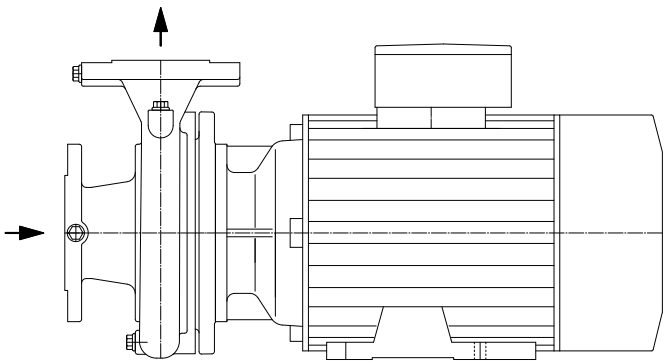

Fig.: Pump type NB 50-16

Standardized centrifugal pumps type NB are single-stage horizontally mounted pumps. They are characterized by a maintenance-friendly design and can be used in a wide variety of applications. 18 sizes are available to make your design as efficient as possible. Chemically neutral as well as aggressive media, e.g. alkaline solutions, acids, solvents and lubricants can be pumped easily.

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Inline centrifugal pumps type S

Dry installation

Features

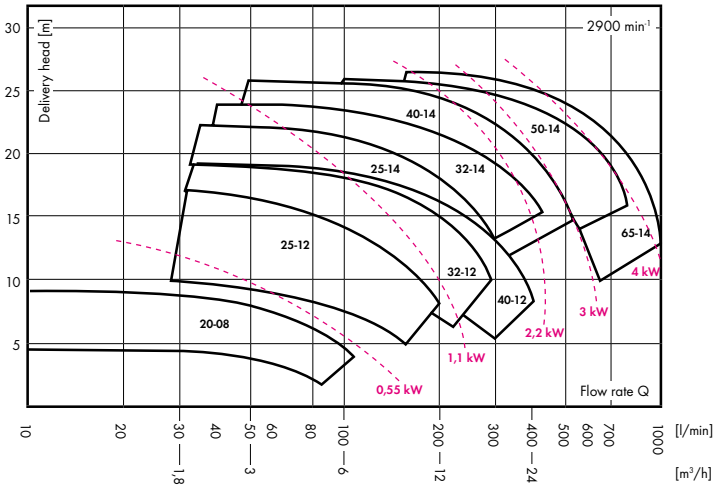
- Compact design
- 9 different sizes
- Free ball passage up to 9 mm
- Suitable for vacuum operation
- Maintenance-free mechanical seal arrangement on the suction side
- Optional: intake strain
- Optional: lantern for hot media up to 230 °C

Technical data

- Inline block pump
- For clean media or media with solids loading
- Flow rate up to 60 m³/h
- Delivery head up to 26 m
- Material: cast iron / stainless steel
- Various sealing options
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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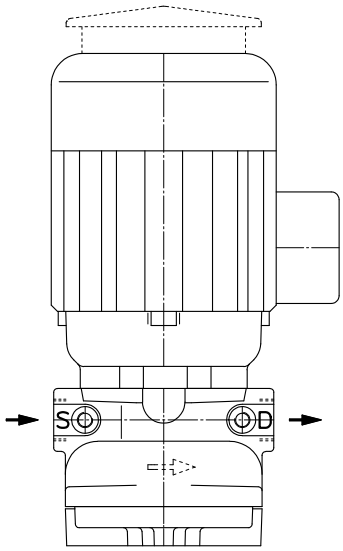


Fig.: Pump type S 20-08

The Schmalenberger centrifugal pumps type S are single-stage inline block pumps without shaft bearing on the pump side. Important features are the maintenance-free mechanical seal arrangement on the suction side and the generously dimensioned shaft.

The S series can be mounted on consoles or built in directly into the pipeline. Proven design ensures maintenance-free operation, perfect functionality and long endurance – even under most difficult operating conditions.

Multistage high pressure centrifugal pumps type ZHB

Dry installation

Features

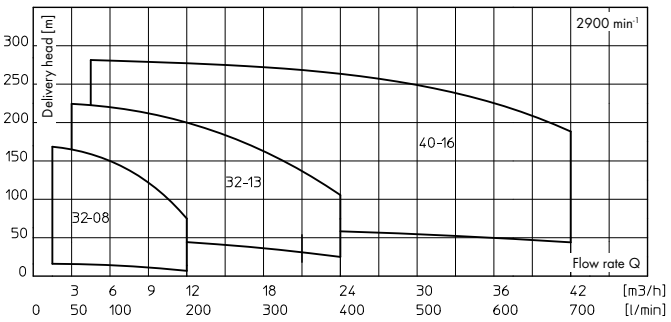
- Minimum space requirement
- Individually configurable
- Maintenance-free design
- High reliability
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 5 mm

Technical data

- For clean media or media with slight solids loading
- Multistage pumps in block design
- Flow rate up to 42 m³/h
- Delivery head up to 280 m
- Material options: PPS / POM / cast iron / stainless steel (316L)
- Various sealing options
- Optional with a second or third pressure outlet
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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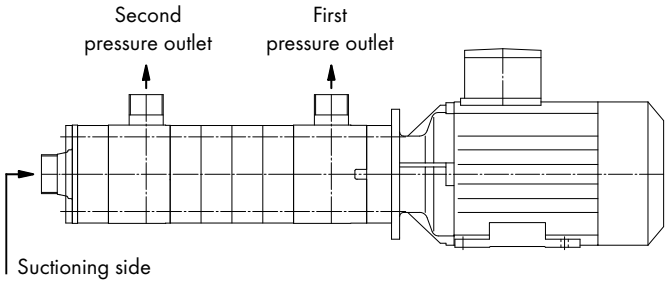

Fig.: Pump type ZHB 32-08

Multistage high pressure centrifugal pumps type ZHB are horizontally mounted pumps. They are characterized by a minimum space requirement. Optionally, this series can be equipped with two or three pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements compared to the use of multiple pumps. Chemically neutral as well as aggressive media, e.g. alkaline solutions, acids, solvents and lubricants can be pumped easily.

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Multistage centrifugal pumps type ZHR

Dry installation

Features

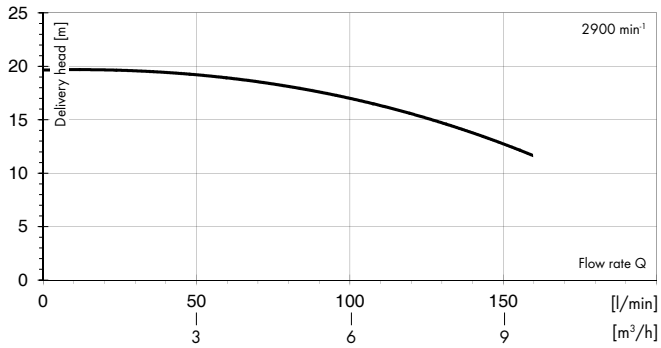
- Extremely compact design
- Bearing flange is also pressure housing
- Multiple applications
- Maintenance-free design
- 0.6 kW motor (Excluded from IEC 60034-30 + (EC) 640/2009 Directive)

Technical data

- Multistage centrifugal pump
- For clean media or media with slight solids loading without air inclusion
- Flow rate up to 10 m³/h
- Delivery head up to 20 m
- Material design: POM / cast iron
- Various sealing options
- Motor voltage: 50/60 Hz 400 V

Performance curve

All values for water at 20 °C



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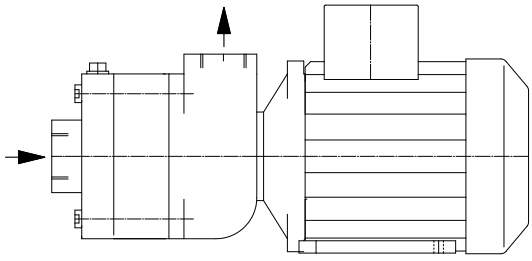


Fig.: Pump type ZHR 32-08

The multistage centrifugal pump series ZHR has been developed for pumping clean media and media with slight solids loading such as emulsions and water-glycol mixtures. Flow rates of 20 to 160 l/min and a delivery head up to 20 m is possible. This results in a wide range of possibilities in industrial applications, such as in cooling and temperature control technology. The high efficiency of these series of pumps guarantees optimum cost and energy efficiency. The compact design makes it possible to install virtually everywhere. A variety of sealing options is available, too. The robust and maintenance-free design distinguishes this pump. The pump is powered by a 0.6 kW 50/60 Hz block motor which is excluded from the IEC 60034-30 as well as the (EC) 640/2009 Directive.

Multistage high pressure centrifugal pumps type ZHS

Dry installation

Also available with multiple PRESSURE OUTLETS More info see page 30

Features

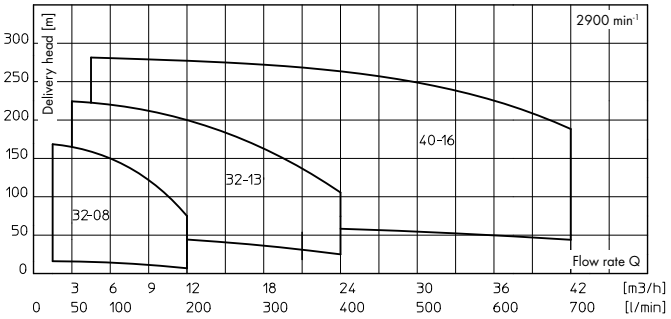
- Minimum space requirement
- Individually configurable
- Maintenance-free design
- High reliability
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 5 mm

Technical data

- For clean media or media with slight solids loading
- Multistage pumps in block design
- Flow rate up to 42 m³/h
- Delivery head up to 280 m
- Material options: PPS / POM / cast iron
- Various sealing options
- Optional with a second or third pressure outlet
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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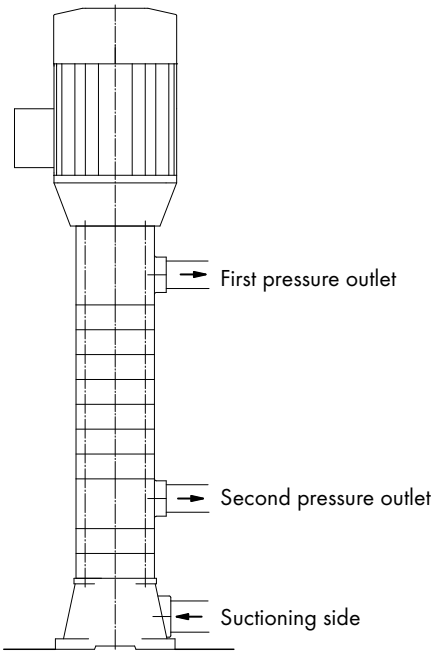

Fig.: Pump type ZHS

Multistage high pressure centrifugal pumps type ZHS are vertically mounted pumps. They are characterized by a minimum space requirement. Optionally, this series can be equipped with two or three pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements compared to the use of multiple pumps. Chemically neutral as well as aggressive media, e.g. alkaline solutions, solvents and lubricants can be pumped easily.

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Self-priming centrifugal pumps type SM

Dry installation

Features

- Extremely robust
- 7 different sizes
- Free ball passage up to 19 mm
- Dry run protection or sealing chamber possible
- Twin connection: threaded or flanged connection

Options

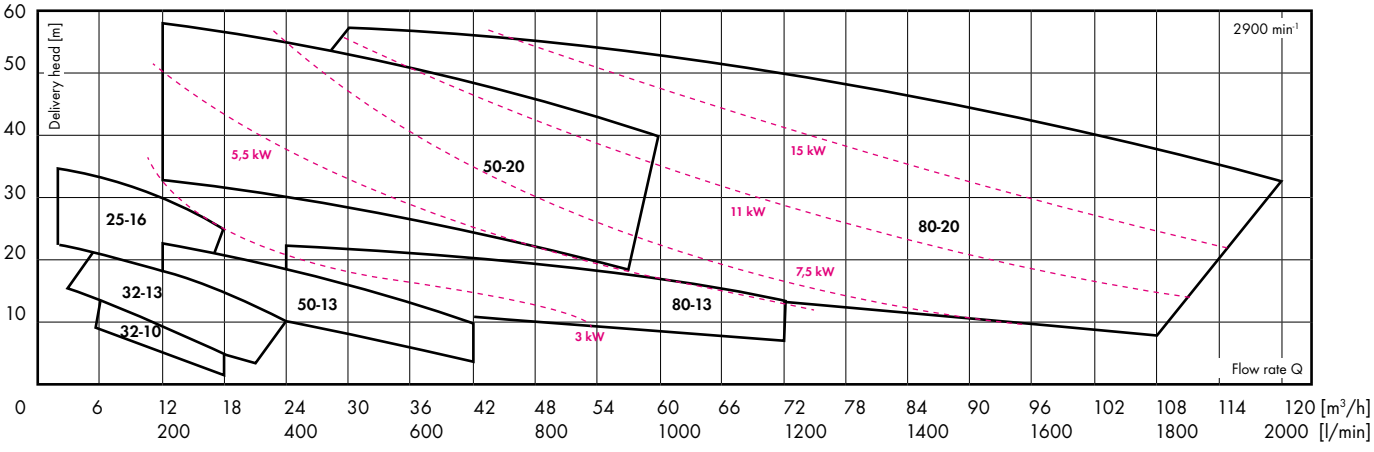
- Venting valve for a rapid delivery start
- Pump control for automatic monitoring and diagnostics
- ATEX version (on request)
- Mobile version with alternating current motor
- Version with combustion motor

Technical data

- Self-priming up to 6 m
- For media with solids loading and high air inclusion
- Flow rate up to 120 m³/h
- Delivery head up to 58 m
- Material: cast iron / stainless steel
- Various sealing options
- Block design with bearing carrier for standard motors
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



Self-priming centrifugal pumps of the series SM are single-stage horizontally mounted pumps. Because of their robust and durable design the SM pumps can be used in a wide variety of applications. With the numerous variations and options available the pumps fulfill efficiently different flow rates and pressure requirements. While pumping media with high solids loading, a suction height of up to 6 m can be reached effortlessly.

Multistage self-priming centrifugal pumps type KSP

Dry installation

Features

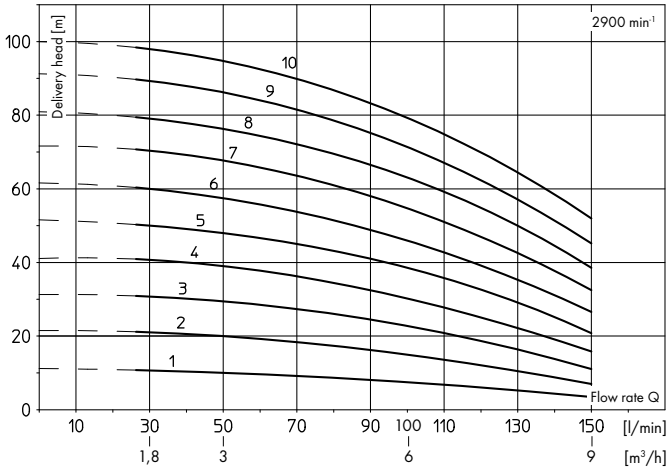
- Compact design
- Multiple applications
- Maintenance-free mechanical seal arrangement
- Individually configurable
- Simple control
- Characteristic field extendable with the use of a variable speed drive

Technical data

- Self-priming
- Multistage pumps in block design
- For clean media or media with slight solids loading without air inclusion
- Flow rate up to 10 m³/h
- Delivery head up to 100 m
- Max. suction height 2 m
- Material: PPS / POM / cast iron
- Various sealing options
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance curves

All values for water at 20 °C



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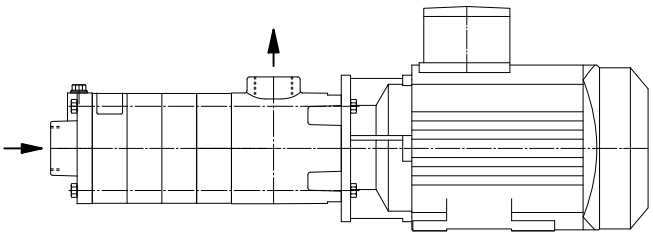

Fig.: Pump type KSP 32-08

The multistage centrifugal pump series KSP has been developed for pumping clean media and media with slight solids loading such as water, emulsions and oils. Schmalenberger offers these pump types for flow rates of 25 to 150 l/min and delivery heads up to 100 m. This results in an extended application range in industrial installations and is ideally suited for use as a feed pump for filter systems, for pumping coolants and in cooling/temperature systems within the machining industry. Due to a wide variety of materials, KSP pumps can also be used in water treatment. The integrated suction stage achieves a suction height of 2 m within 6 s and thus ensures a short-term provision of the media to be pumped. KSP pumps are characterized by their compact design and modular design. With its wide variety of possibilities, customer-specific solutions can be implemented quickly and easily. A maintenance-free mechanical sealing provides for the necessary sealing and can also be supplied in a large variety of materials for specific applications. The optimised hydraulic of the pump and efficient motors ensure low operating costs.

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Torque flow centrifugal pumps type FB

Dry installation

Features

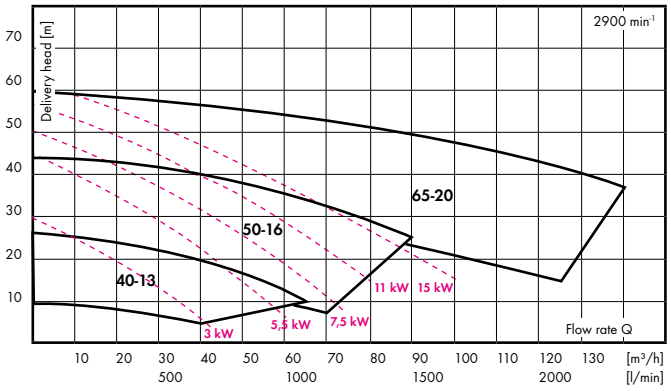
- Robust design
- Minimal space requirements
- Individually configurable
- Maintenance-friendly design
- High reliability
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 50 mm
- Also available with 4-pole motor

Technical data

- For media with long fibres solids and high solids loading up to 6 percent by weight
- Flow rate up to 138 m³/h
- Delivery head up to 60 m
- Material options: cast iron and stainless steel (316L)
- Various sealing options
- Block design or with bearing carrier for standard motors
- Optional dry run protection or sealing chamber
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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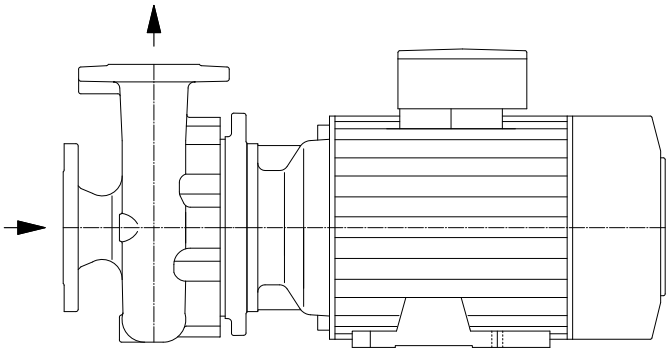


Fig.: Pump type FB 50-16

Torque flow centrifugal pumps series FB are single-stage horizontally mounted pumps. Because of their robust and service-friendly design the FB pumps can be used in a wide variety of applications. With the numerous variations the pumps are available for a broad range of flow rates and delivery heads. Due to the hydraulic design, pumps type FB are resistant to media with long fibres solids and high solids loading. Type FB pumps are suitable for chemically neutral and aggressive media such as alkaline solutions, solvents and lubricants used in surface technology, washing, cleaning, degreasing, pickling and phosphating as well as returning chip-containing coolants.

Small centrifugal pumps type BSZ

- Dry installation

Standard pump sizes

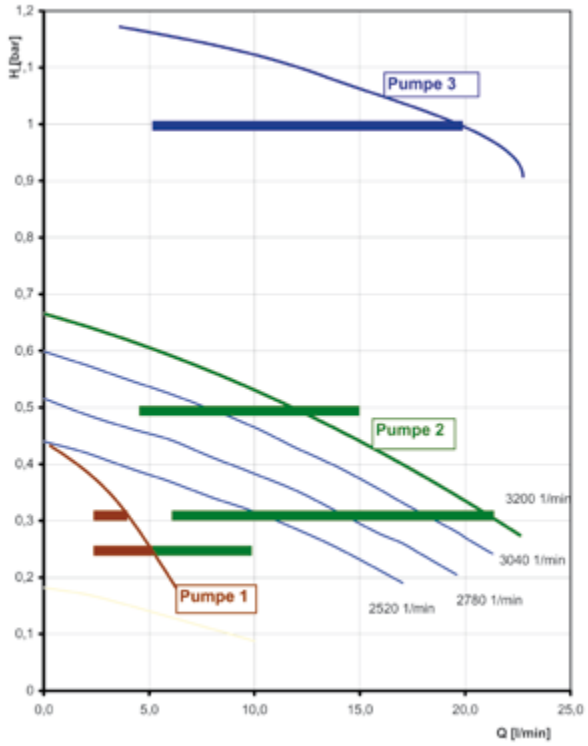
Delivery head	Flow rate	Electrical power
0,3 bar	3,35 l/min	10 W
0,3 bar	10 l/min	20 W
0,5 bar	10 l/min	40 W
1,0 bar	20 l/min	200 W

Technical data

- Operating voltage: 24 V DC (230 V AC)
- Performance ranges: from 10 W
- Speed regulation from 0 till 100%
- Integrated speed control in the motor
- Digital and analog control
- Integrated mounting foot
- Protection class IP 44 (IE54)

Performance curves

All values for water at 20 °C



Illustration

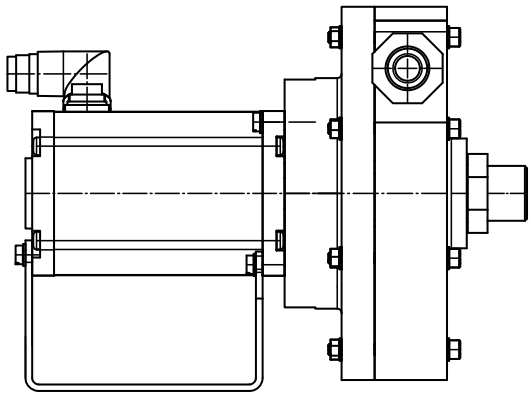


Fig.: Pump type BSZ 15-10

With the new small centrifugal pumps series type BSZ we offer an optimal module for various pump solutions for continuous operation! The BSZ is a cost effective, energy efficient centrifugal pump that can be built into every system due to its compact design. Through minimal energy consumption and high pump efficiency the BSZ reaches an excellent energy balance and supports the energy efficiency of your system. For your application, we supply a tailor made pump, optimised for your specific requirements. In a nutshell, the delivery head, the flow rate as well as other parameters are combined with our technology.

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Free-flow immersion pumps type FZ

Tank installation

Features

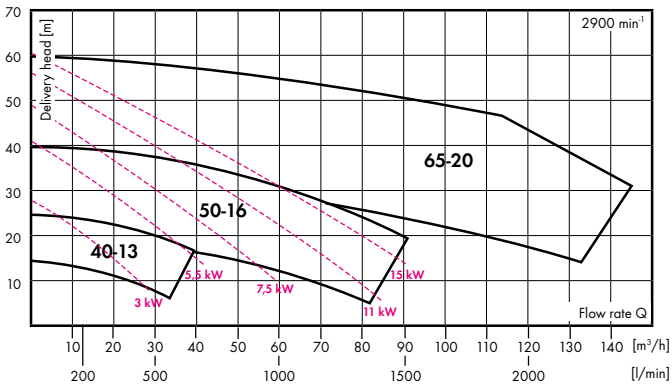
- Robust design
- High reliability
- Individually configurable
- Recessed impeller for media with high solids loading
- Variable immersion depths (250, 320, 450, 550, 750 or 1,000 mm)
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 50 mm
- Also available with 4-pole motor

Technical data

- Free-flow immersion pump in block design or with bearing carrier for standard motors
- For media with high solids loading or abrasive media up to 6 percent by weight
- Flow rate up to 138 m³/h
- Delivery head up to 60 m
- Material: cast iron / stainless steel (316L)
- Various throttling bushings
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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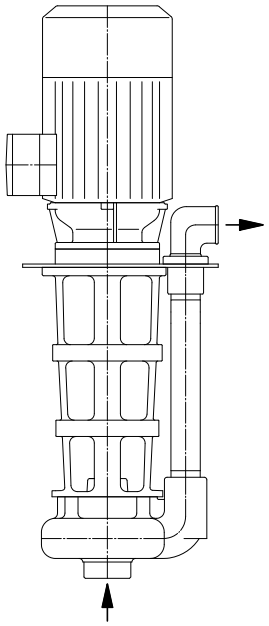


Fig.:Pump type FZ 40-13

The free-flow immersion pumps type FZ are equipped with a recessed impeller that makes this model ideal for pumping media with high solids loading or abrasive media such as lubricants and waste water. These pumps are particularly suitable for the use in systems in which centrifugal pumps with closed or semi-open impellers would not be acceptable.

Quick suctioning immersion pumps type SZ

Tank installation

Also available with EXT. IMMERSION DEPTH

More info see page 31

Features

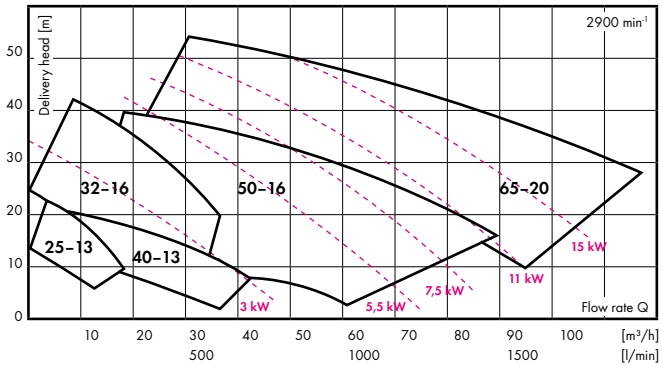
- Robust design
- Energy-efficient, cost-effective, maintenance-free
- High reliability
- Open impellers
- Individually configurable
- Various immersion depths (250, 320, 450, 550, 750 or 980 mm)
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 20 mm
- Also available with 4-pole motors

Technical data

- For media with solids loading and high air inclusion up to 15 percent by volume
- Flow rate up to 108 m³/h
- Delivery head up to 50 m
- Material: cast iron
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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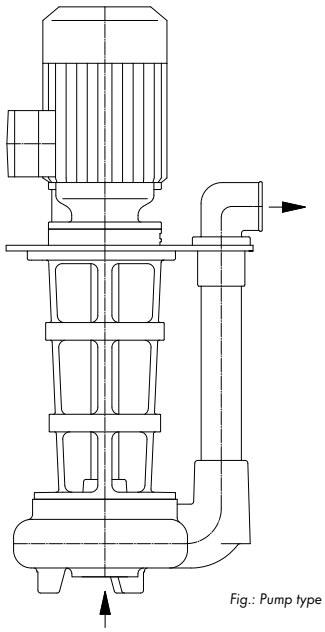

Fig.: Pump type SZ 50-16

The quick suctioning immersion pumps type SZ are ideal for pumping media with high air inclusion such as emulsions, grinding and cutting oils. The impeller of the SZ is a combination of an open impeller and a compressor impeller, which allows the simultaneous transport of air and media with solids loading. This makes the SZ pump the ideal quick suctioning immersion pump for almost all processes in grinding technology and heavy machining. Due to the open impeller design, foreign particles up to a diameter of 20 mm can be pumped easily. Schmalenberger offers these pump series for flow rates of 50 to 1,800 l/min and for delivery heads up to 50 m. A maintenance-free silicon carbide throttling bush sealing provides the necessary shaft sealing and guiding.

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Centrifugal pumps with integrated chip cutter type SZ_{CUT}

Tank installation

Features

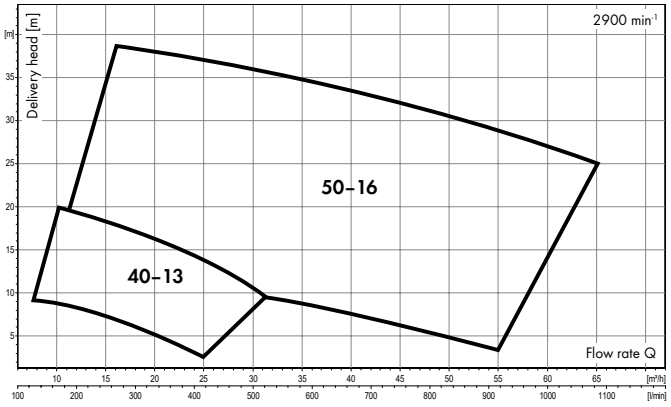
- Pumping and cutting in one operation
- Space-saving, compact design
- Energy-efficient, cost-effective and maintenance-free
- Short amortization period
- Easily cuts aluminum (other materials on request)
- Free ball passage up to 20 mm
- Individual adaptation to the system curve
- Various immersion depths
- Long service life thanks to maintenance-free bush bearings
- Sealed shaft passage
- Also available with 4-pole motors
- Retrofit possible (on request)

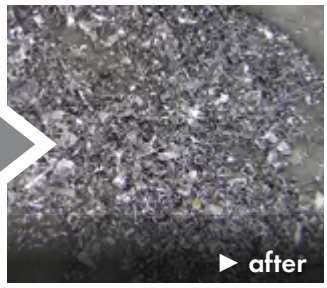
Technical data

- Quick suctioning pump in block construction
- For media with solids loading and high air inclusion up to 15 percent by volume
- Flow rate up to 60 m^3/h
- Delivery head up to 38 m
- Material design: cast iron with wear-resistant cutting element
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C





Turning – milling – drilling - is machining aluminum your profession? Then you can do without costly and time-consuming chip crushers in conjunction with lifting systems. The SZ_{CUT} combines a proven centrifugal pump design with a cutting element and optimises the difficult transport of aluminum chips in the coolant cycle. At the suction opening a wear-resistant cutting element cuts the aluminum chips suspended in the coolant. This prevents clogging of the pipeline by unbroken knotted chips and improves the transport of coolant with chips. The simultaneous suction, cutting and the joint transport of coolant and chips minimises the space requirements and lowers energy and investment costs.

Immersion pumps type T according to DIN EN 12157

Tank installation

Features

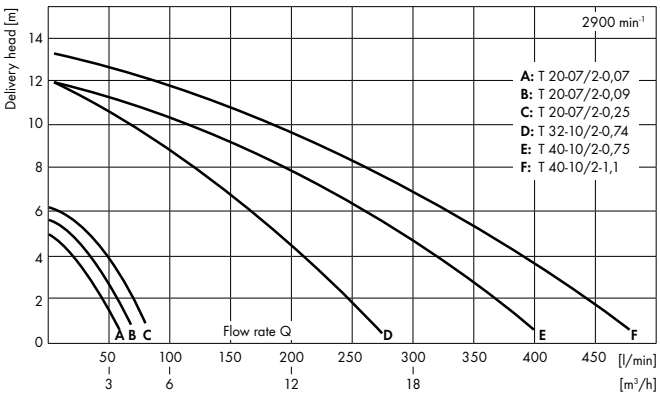
- Compact design
- Low weight
- Various applications
- Easy installation
- Media temperature 0 – 70° C
- Dry-run capable

Technical data

- Semi open impellers
- For clean media or media with slight solids loading without air inclusion
- Flow rate up to 29 m³/h
- Delivery head up to 13 m
- Material: cast iron / PBT
- Connection dimensions according to DIN EN 12157
- Motor voltage at 50 Hz: 230/400 V
- Immersion depths 90 to 550 mm

Performance curves

All values for water at 20 °C



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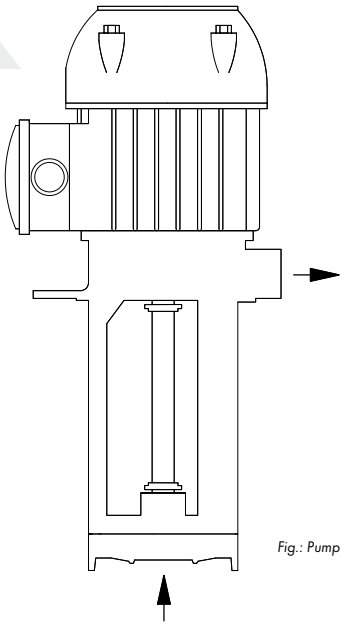

Fig.: Pump type T 20-07/2-0,07

The immersion pumps type T have been developed for clean media and media with slight solids loading such as water, emulsions and oils. Flow rates of up to 470 l/min and delivery heads of up to 13 m are possible. This results in a wide range of possibilities such as in pumping of coolants. The compact design makes it possible to install virtually everywhere. With immersion depths of 90 to 550 mm the pumps can be easily installed in various tank heights. The standardized pressure connection of G ¾" or G 1 ¼" makes installation even easier. The high hydraulic efficiency of this pump series guarantees low operating costs.

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Immersion pumps type Z

Tank installation

Also available with EXT. IMMERSION DEPTH More info see page 31

Features

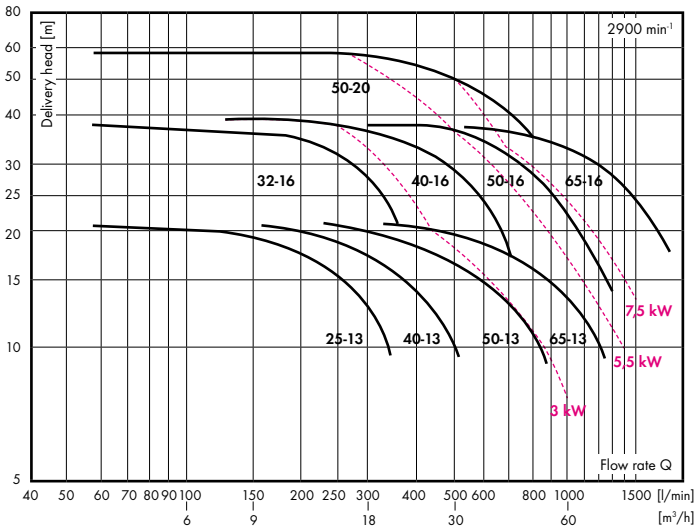
- Proven design
- Energy-efficient, maintenance-free
- Individually configurable
- Various immersion depths (250, 320, 450, 550, 750 or 1,000 mm)
- Closed impeller for high efficiency
- With cover plate for the tank
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 10 mm
- Also available with 4-pole motor

Technical data

- Immersion pump in block design or with bearing carrier for standard motors
- For clean media or media with slight solids loading
- Flow rate up to 120 m³/h
- Delivery head up to 57 m
- Material options: cast iron / stainless steel (316L)
- Various sealing options
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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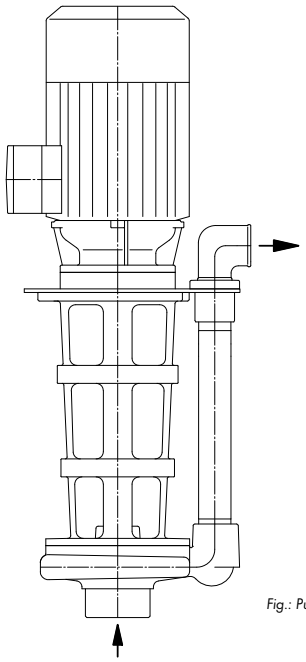


Fig.: Pump type Z 40-16

Immersion pumps type Z are characterized by a high reliability and a verified design. The proven design ensures maintenance-free operation, perfect functionality and a long service life under most difficult operating conditions. Chemically neutral as well as aggressive media, e.g. alkaline solutions, acids, solvents and lubricants can be pumped easily. This makes this series particularly suitable for use in machine tools, filter systems and environmental technology.

Low pressure immersion pumps type NZ

Tank installation

Also available with EXT. IMMERSION DEPTH More info see page 31

Features

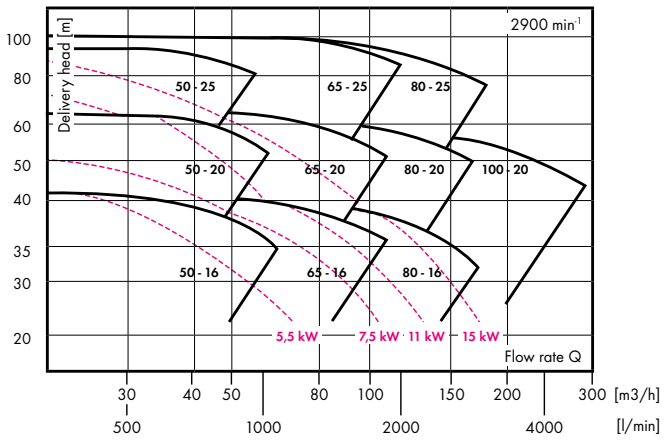
- Robust design
- Individually configurable
- Maintenance-friendly design
- High reliability
- Various immersion depths (450, 550, 800 or 1,050 mm)
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 22 mm
- Also available with 4-pole motor

Technical data

- Immersion pump in block design or with bearing carrier for standard motors
- For clean media or media with slight solids loading
- Flow rate up to 450 m³/h
- Delivery head up to 100 m
- Material options: cast iron / stainless steel (316L)
- Various sealing options
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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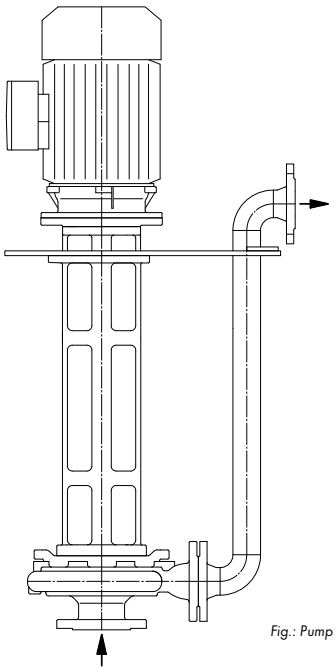

Fig.: Pump type NZ 50-20

Low pressure immersion pumps type NZ are characterized by a maintenance-friendly design and can be used in a wide variety of applications. 15 sizes are available to make your design as efficient as possible. Chemically neutral as well as aggressive media, e.g. alkaline solutions, acids, solvents and lubricants can be pumped easily.

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Multistage high pressure immersion pumps type ZHT

Tank installation

Also available with EXT. IMMERSION DEPTH More info see page 31

Also available with multiple PRESSURE OUTLETS More info see page 30

Features

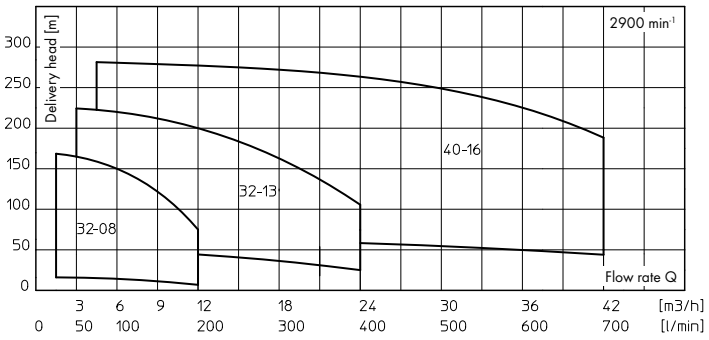
- Robust design
- Tank cover plate included
- Prolonged immersion depths possible
- Individually configurable
- Maintenance-free design
- Mechanical sealing below cover plate
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 5 mm
- Also available as a double pump unit with a delivery head up to 400 m

Technical data

- For clean media or media with slight solids loading
- Flow rate up to 42 m^3/h
- Delivery head up to 280 m
- Material options: PPS / POM / cast iron / stainless steel (316L)
- Various sealing options
- Multistage pumps in block design
- Optional with a second or third pressure outlet
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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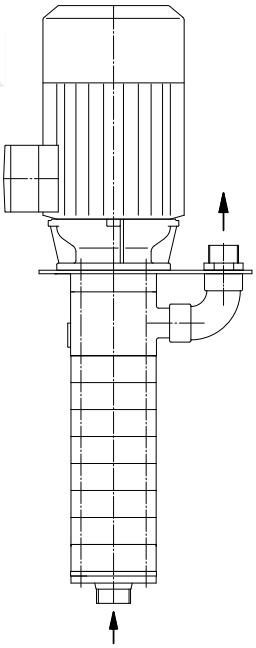


Fig.: Pump type ZHT 32-08

Multistage immersion pumps type ZHT are characterized by a robust and durable design and can be used in a wide variety of applications. They are ideal for pumping clean media or media with slight solids loading, such as lubricants, alkaline solutions and solvents used in washing, cleaning, degreasing, pickling and phosphating. Optionally, this series can be equipped with two or three pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements.

Multistage high pressure immersion pumps as a double pump unit type DUO

Tank installation

Features

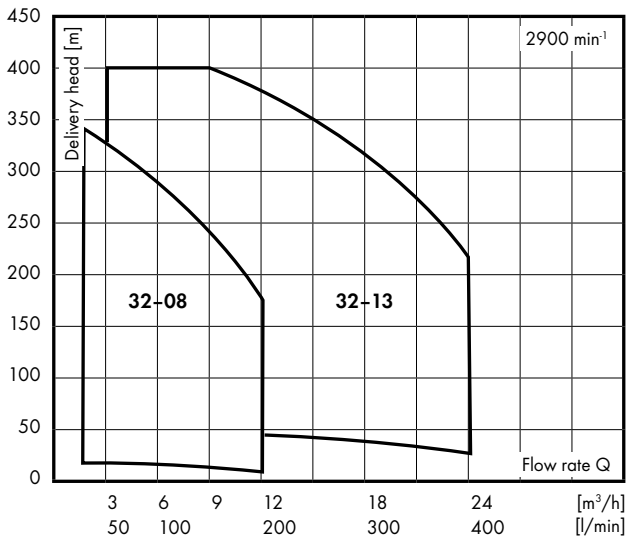
- Robust design
- Tank cover plate included
- Prolonged immersion depths possible
- Individually configurable
- Maintenance-free design
- Mechanical sealing below cover plate
- Characteristic field extendable with the use of a variable speed drive and additional pressure outlets
- Switching between one or two pump operation possible
- Free ball passage up to 5 mm

Technical data

- For clean media or media with slight solids loading
- Flow rate up to 24 m^3/h
- Delivery head up to 400 m
- Material options: PPS / POM / cast iron / stainless steel (316L)
- Various sealing options
- Multistage pumps in block design
- Optional with a second or third pressure outlet
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance characteristics

All values for water at 20 °C



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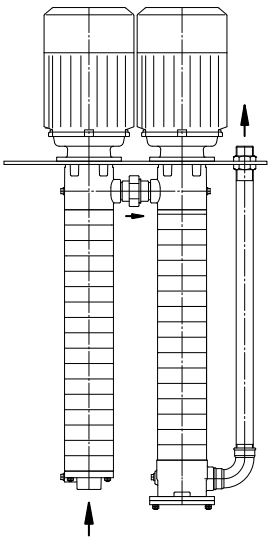

Fig.: Pump type DUO 32-08

Multistage immersion pumps type DUO are characterized by a robust and durable design and can be used in a wide variety of applications. They are ideal for pumping clean media or media with slight solids loading such as lubricants, alkaline solutions and solvents used in washing, cleaning, degreasing, pickling and phosphating. The pump series DUO can be operated with variable speed drives. Optionally, this series can be equipped with two or three pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements.

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Multistage immersion pumps type TH

Tank installation

Also available with multiple PRESSURE OUTLETS More info see page 30

Features

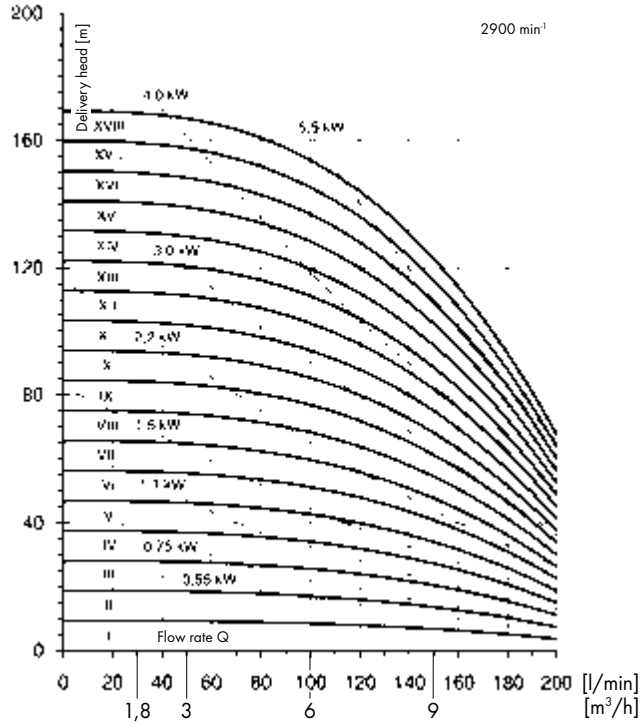
- Flange and pressure connection according to DIN EN 12157
- Variable immersion depths due to selectable flange position
- Minimum space requirement
- Individually configurable
- High reliability
- Characteristic field extendable with the use of a variable speed drive
- Free ball passage up to 3 mm
- Also available with 4-pole motors

Technical data

- For clean media or media with slight solids loading
- Flow rate up to 12 m^3/h
- Delivery head up to 170 m
- Material options: PPS / POM / cast iron / stainless steel (316L)
- Various sealing options
- Multistage pumps in block design
- Optional with a second or third pressure outlet
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Performance curves

All values for water at 20 °C



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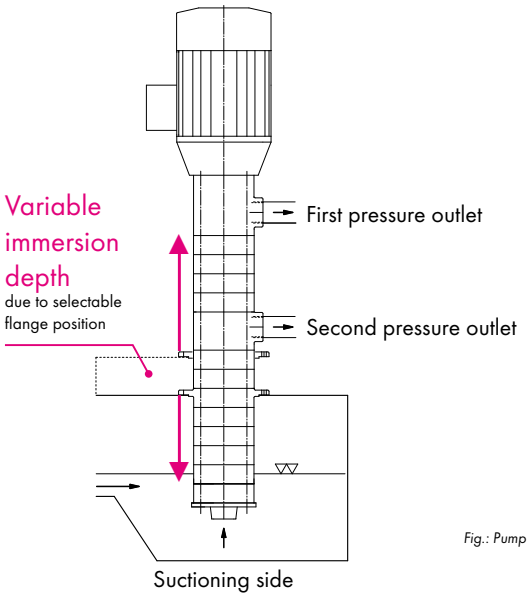


Fig.: Pump type TH

Multistage immersion pumps type TH are characterized by variable immersion depths due to selectable flange positions. They are ideal for pumping clean media or media with slight solids loading, such as lubricants, alkaline solutions, acids and solvents used in washing, cleaning, degreasing, pickling and phosphating. Optionally, this series can be equipped with two or three pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements compared to the use of multiple pumps.

Multistage centrifugal pumps with multiple pressure outlets

▸ For pump series TH, ZHB, ZHS, ZHT, DUO

Features

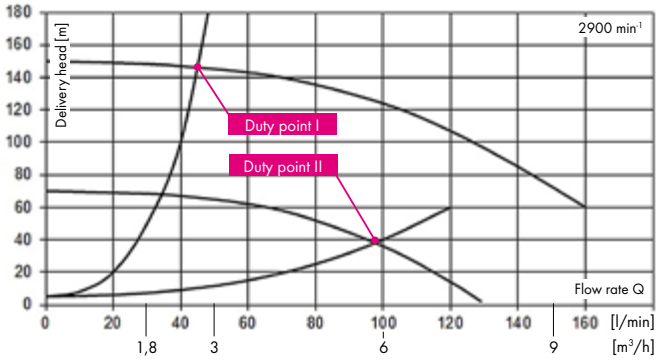
- Minimum space requirement by using one motor for multiple pressure outlets
- Parallel or alternative operation possible
- Individually configurable
- Variable immersion depths due to selectable flange position
- Simple control
- Characteristic field extendable with the use of a variable speed drive

Technical data

- Multistage pumps in block design
- Pump series TH, ZHB, ZHS, ZHT, DUO
- For clean media or media with slight solids loading without air inclusion
- Flow rate up to 36 m^3/h
- Delivery head up to 400 m
- Material options: POM / PPS / cast iron / stainless steel
- Various sealing options
- Motor voltages: 50 Hz up to 3 kW 230/400 V, from 4 kW 400/690 V, 60 Hz 460 V, other voltages on request

Example of alternative operation

All values for water at 20 °C



First pressure outlet (1)

Second pressure outlet (2)

Dry installation

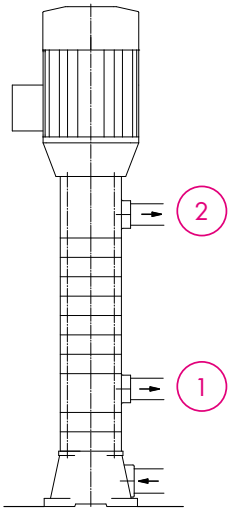


Fig.: Pump type ZHS

Tank installation

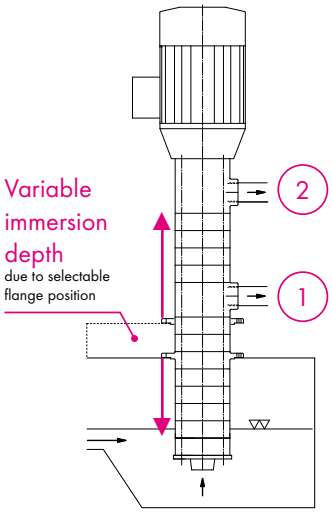


Fig.: Pump type TH

The application of our modular system enables us to equip our multistage centrifugal pump types ZHB, ZHS, ZHT, TH and DUO with multiple pressure outlets. The use of just one motor with multiple pressure outlets for different duty points results in minimal space requirements compared to the use of multiple pumps. Another advantage offered by our immersion pump types ZHT, TH and DUO is the ability to have a variable immersion depth due to customisable flange positions. The multistage centrifugal pumps have been developed for pumping clean media and media with slight solids loading, such as emulsions and oils. Flows of 20 to 600 l/min and a delivery head up to 400 m are possible. This results in a wide range of possibilities in industrial applications, e.g. in the transport of coolants. The high efficiency of these series of pumps guarantees optimum cost and energy efficiency. Of course, the pumps are available with special motors for your specific applications as well as with variable speed drives.

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Immersible pumps for extended immersion depths V-series

- For pump series FZ, NZ, SZ, Z, ZHT

Features

- Robust design
- Individually configurable
- Maintenance-friendly design
- High reliability
- Various immersion depths up to 2,800 mm
- Characteristic field extendable with the use of a variable speed drive
- Also available with 4-pole motor

Technical data

- Immersible pumps with bearing carrier for standard motors
- Oil-based lubricated ball bearing as intermediate bearing
- Type NV, ZV, ZHV: For clean media or media with slight solids loading
- Type FV, SV: For media with long fibres solids and high solids loading with up to 6 percent by weight
- Flow rate up to 450 m^3/h
- Delivery head up to 210 m
- Material options: cast iron / stainless steel (316L)
- Various sealing options
- Motors: up to 3 kW 230/400 V 50 Hz, from 4 kW 400/690 V 50 Hz, 460 V 60 Hz, other voltages on request

Illustration

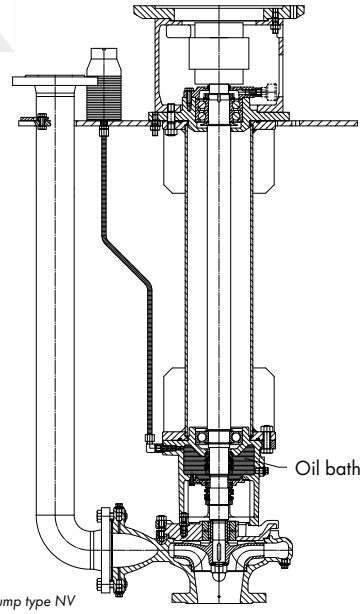


Fig.: Confining chamber system pump type NV

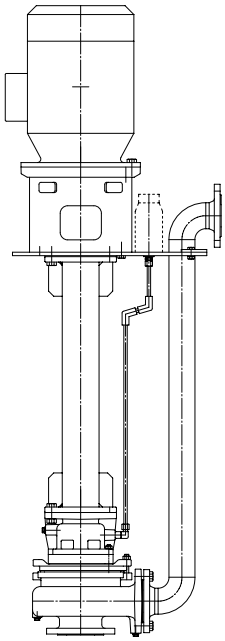
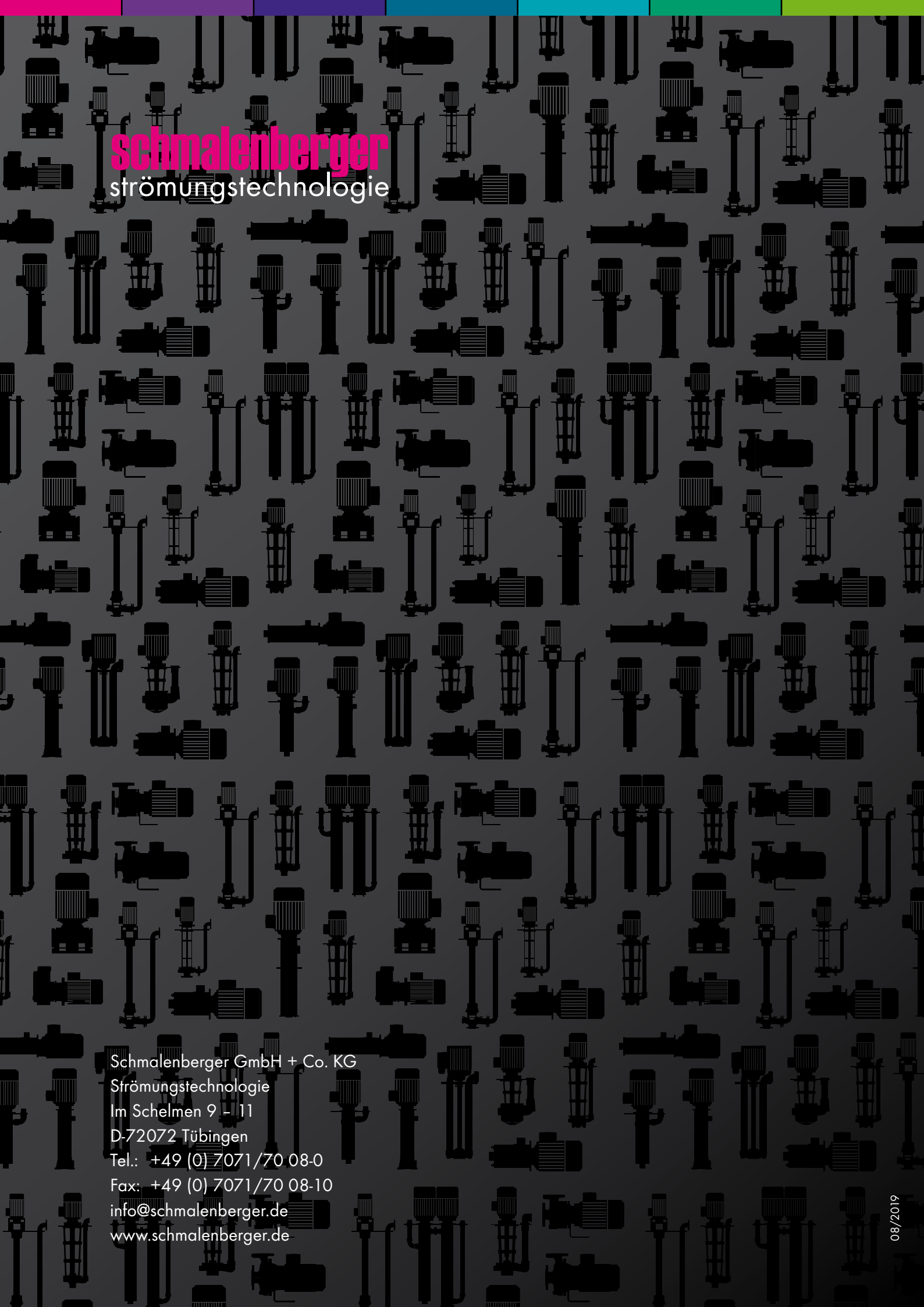


Fig.: Pump type FV

Low pressure immersion pumps with intermediate bearing and bearing carriers for standard motors are characterized by a maintenance-friendly design. Various immersion depths up to 2,800 mm are available. Therefore the V-series (FV, NV, SV, ZV, ZHV) can be used in a wide variety of tank installation applications. Several sizes are available to make your design as efficient as possible. Chemically neutral as well as aggressive and abrasive media, e.g. alkaline solutions, solvents and lubricants can be pumped easily.



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