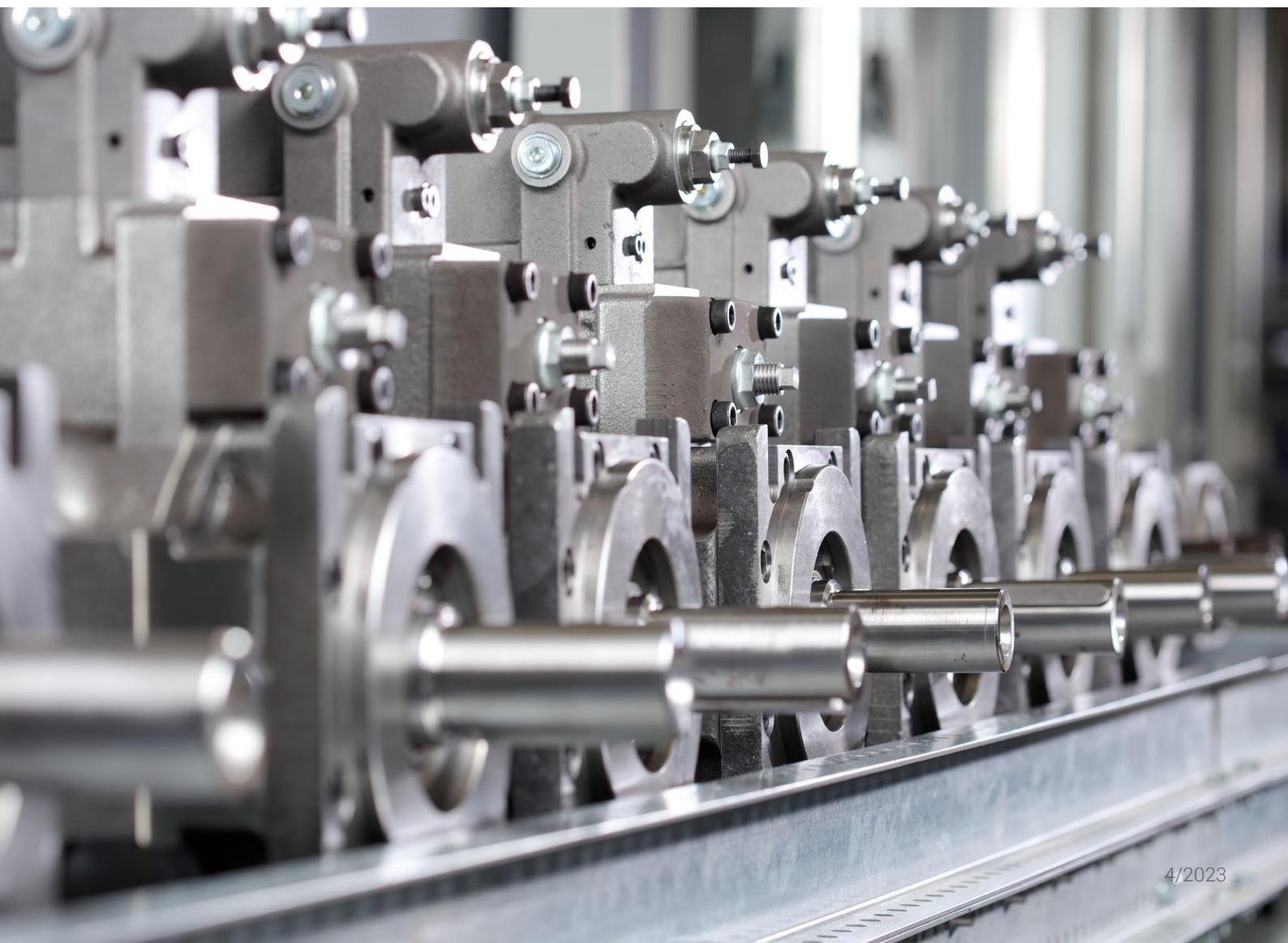


Tradition – Quality – Future

HIGH-PERFORMANCE PUMPS – MADE IN GERMANY



Tracing a line through the decades: **Quality**

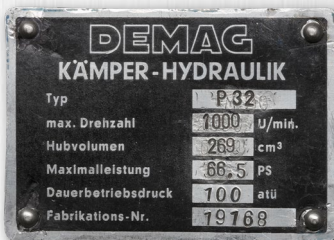
Our company **InLine Hydraulik** can look back on a very long tradition, as the foundation stone for our work today was laid as long ago as 1901, when Heinrich Kämper founded his engine factory in Marienfelde in Berlin, just a few kilometers from the site today. Honing cylinder bores was and remains the core competence when it comes to designing and manufacturing diesel engines. Axial piston pumps from InLine Hydraulik are still characterized by the compact design of their piston barrels, which is made possible by an extremely precise honing process.

Over the following years, the Berlin-based company developed pioneering inventions for axial piston pumps. These included the patents relating to the first power controllers: all reputable hydraulics manufacturers now work with our idea of using the law of levers to map the precise power hyperbola, thereby opening up new applications for axial piston pumps. We still feel bound to that tradition today, as we demonstrate in **the largest range of controllers for goods vehicle pumps in the world.**

Working under the Swedish ownership of **VOLVO** from 1974 brought access to better production and management processes, which were very important for our series production and design work on the V30B and V30D variable displacement pump ranges. VOLVO also used the pump expertise in Berlin to develop its Swedish range of fixed displacement pumps in Trollhättan.

In/line The company **InLine Hydraulik** was founded as a management buy-out in 1993 and concentrated in its work on extending the V30D series, for which various new sizes have since been developed. **HAWE** bought the Berlin-based company in 1999. In the following years, new designs specially tailored for the mobile market were developed: **V60N pumps**, which can be fitted directly to goods vehicle gearboxes, and the **V30E pumps**. They have established themselves on the market for high-performance applications and are continually being developed further.

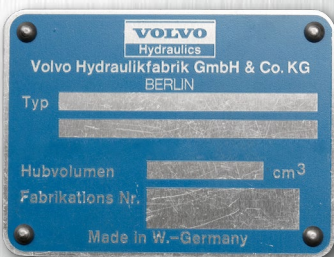
In 2015, HAWE Hydraulik SE and **Jiangsu Hengli Hydraulics Co., Ltd** agreed their strategic partnership in the areas of development, purchasing, production and sales. Since then, InLine Hydraulik GmbH has been owned by Hengli. The Berlin-based company can therefore continue to rely on HAWE's strong sales organization for mobile applications and simultaneously participate in a wide range of high-power industrial applications through Hengli. For the customers of InLine Hydraulik, this means excellent advice and service, with greater expertise and a wider product range at the same time.



Kämper Demag – in the 1950s, Kämper began working with the German company DEMAG to manufacture hydraulic products, pumps and valves.



Bellows Valvair – in the 1960s, the American company Bellows Valvair extended its production to focus on successful and innovative axial piston pumps.



VOLVO – in 1973 the Swedish company VOLVO took over the company and with the V30B and V30D set new standards for reliability and service life.



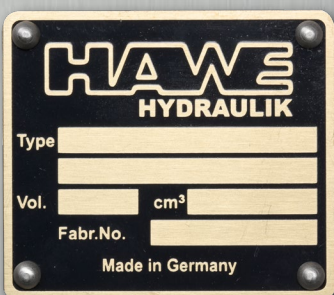
VOAC – in the context of the merger between VOLVO and Atlas Copco, the Berlin company also began supplying its products under the new label VOAC.



InLine – founded in 1993 by MbO, InLine continues with the product range on its own from this point and still uses the existing sales channels.



Parker – following the takeover of VOAC by Parker, axial piston pumps made in Berlin under the new label also become an important part in the product range of the new partner.



HAWE – in 1999, HAWE Hydraulik from Munich takes over the company and immediately begins to expand the product range to include the typical V60N and V30E mobile pumps.



InLine Hengli – in 2015, HAWE and Hengli establish worldwide cooperation, under which Hengli takes over management of production in Berlin.

Axial piston pumps from InLine stand out for their high reliability. But that's not all, as Zehong Shi, CEO of InLine Hydraulik, explains in an interview.

“We focus on one thing above all: the requirements of our customers.”

Mr. Shi, InLine Hydraulik has an extremely long history behind it. Does that still play a part today or is it just the requirements of the globalized market that shape the company?

» Of course, the challenges are different today from those that we faced last century. But our long history and varied experience help us to manage changes and even allow us to draw new strength from them.

Our tradition is also an obligation for us. Remember that the first power controllers in the world came from our company. Only with these products was it possible to use adjustable pumps for mobile applications. Our aim remains to be a driver of innovation and to take the possible applications for axial piston pumps forward. «

Where do you see the comparative strengths of products from InLine Hydraulik?

» On the one hand, they are in the breadth of our range. We don't just have one series for a specific application, but offer several series with a wide range of options and models for all applications in open circuits. What this combination of options actually means in practice can best be illustrated by two examples. With our V30D series, we can deal with any control tasks, whether actuation is mechanical, hydraulic or electrical. We have also applied the same principle to our V60N goods-vehicle pumps. We are therefore the only provider who can offer this wide range of auxiliary drives for trucks. Or to look at it a different way: with the V60N series, we have learned to accommodate the greatest possible hydraulic power in the smallest space, because there is no room for any other sort of pump under a trucks. Thanks to this design, our latest heavy-duty pump, the V80M, also has the highest power density.

In addition, all of our series are characterized by their outstanding efficiency and robust, reliable configuration. Our V30E, V80M and V60N mobile pumps are also capable of high speeds, whereas with the V30D industrial pumps greater emphasis is placed on versatility.

And last but not least, it has been shown that our efficiency is five percent higher by comparison. Or to put it another way: that means not only five percent lower diesel consumption, but also a similarly high saving of losses in cooling performance. We have observed and confirmed this degree of efficiency in cycle times, too, showing that our pumps are simply faster because they deliver more power. «



Your sales partners are HAWE and Hengli, Mr. Shi.

How does that collaboration work and how does it benefit your customers?

» The benefits to our customers become apparent if you take a look at a map of the world: with the two strong sales organizations of HAWE and Hengli, we have almost every corner of the world covered. HAWE is our worldwide sales partner and it allows us to provide our customers with international expertise in axial piston pumps. Our owner Hengli takes care of China and of certain large original equipment manufacturers – here, too, extensive support and advice is thus guaranteed on the ground.

But the global strategic partnership between Hengli and HAWE goes further than that: we provide our customers with access to the product range of the other respective partner, in other words to valves and cylinders, which allows us to cover the whole hydraulic system: from power generation with pumps, through to power distribution with valves, through to power transmission with cylinders. «



For the range of axial piston pumps in particular, the strategic cooperation between Hengli and HAWE provides the perfect basis for further growth.

Made in Germany Made in Berlin.

With our range of products in the high-pressure sector, we are one of the few manufacturers of axial piston pumps who can cover almost any application in open circuits.

The basis for our design is the superior efficiency of our pumps. High power density and wide variety are also integral features of our products.

With our value creation depth of about 70 percent, we are also able to deliver this variety in terms of production – and to do so quickly.

Controller
the entire range for all hydraulic functions

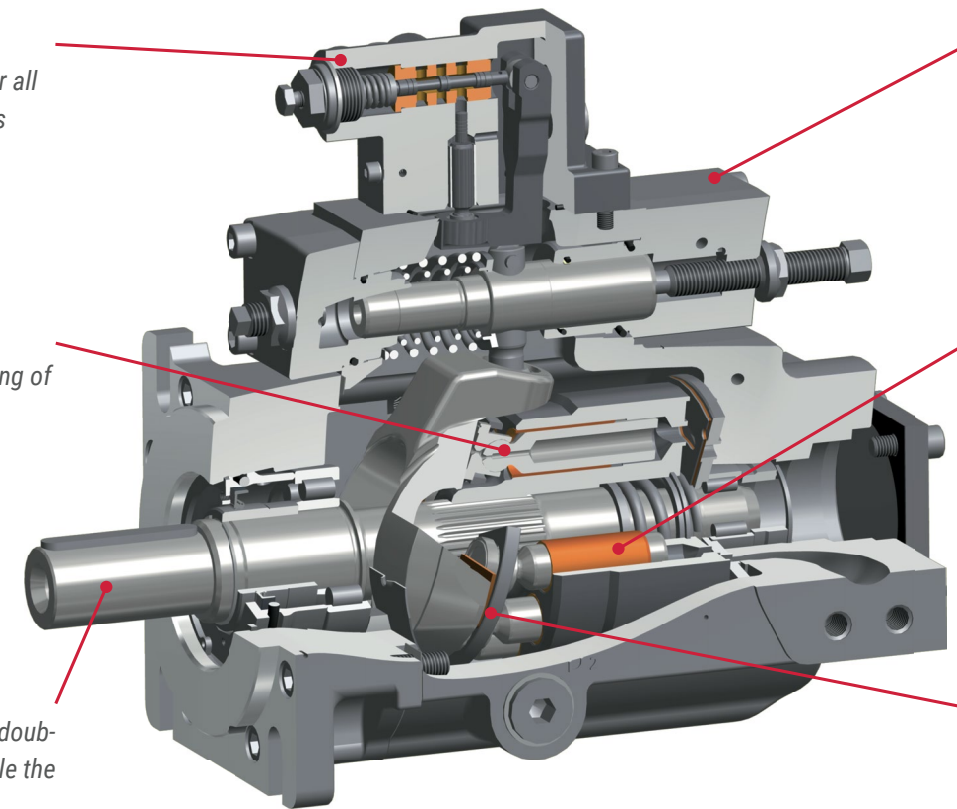
Low noise housing
thanks to solid design

Piston + shoe
typical InLine pairing of steel with steel

Bronze bushings
are dirt resistant for operation under difficult conditions

Shaft
for operation as a double pump with double the hydraulic power

18° swash angle
for optimal efficiency



V30D: our workhorse

Designed for heavy continuous use under difficult conditions. The design of this heavy-duty pump is extremely robust and it is made for safety and stability. Reliable at sea, on land or underground. The dynamic features of the V30D pump emerge through the wide range of controllers.

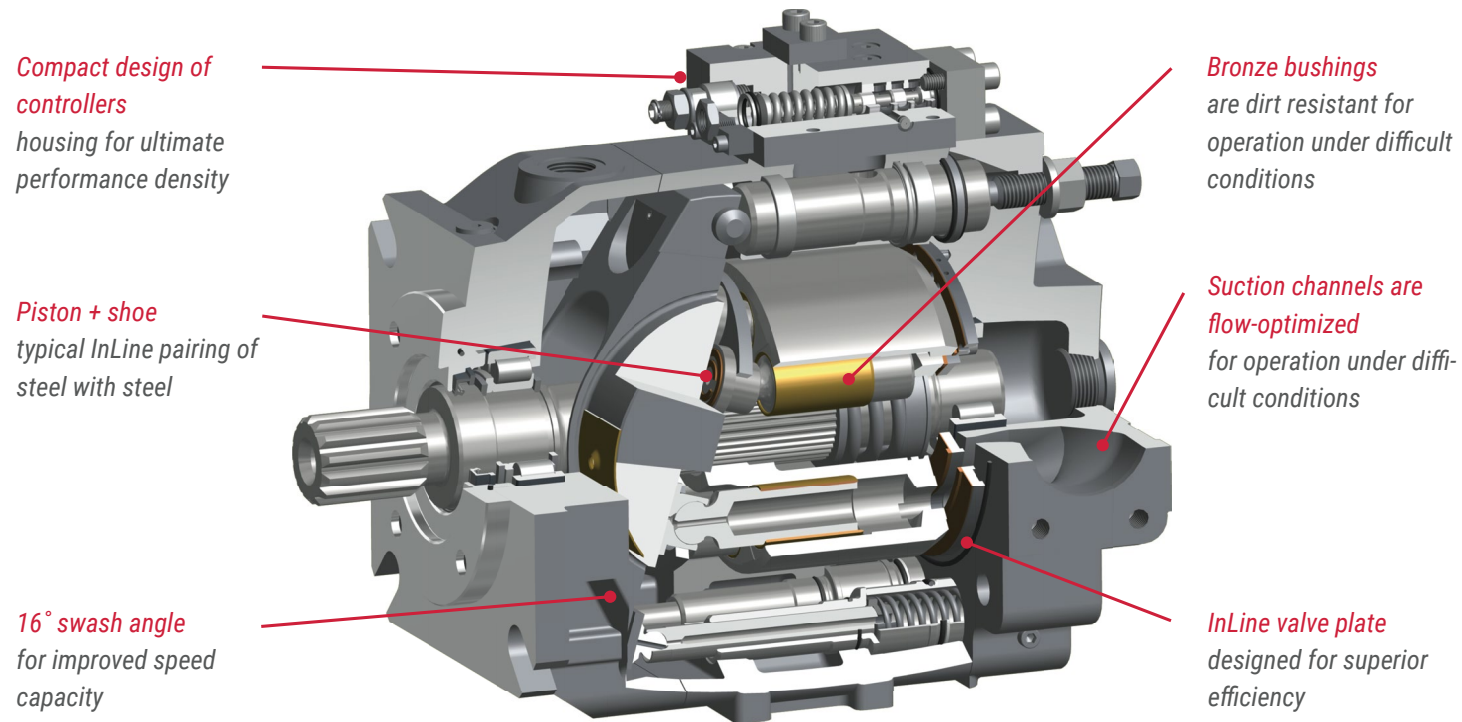
We offer a full range with a large variety of sizes, from 45cc/rev. to 250cc/rev., and a selection of controller types. Based on our actual serial design we do have V33D-250 available now – our new pump for closed loop.

If our customers have additional special requirements, we can always meet them with our variants. Our design principle is conceived for wide variability and our company philosophy sees such customer requirements as an incentive: we can only improve by overcoming new challenges.

Basic type	Displacement cm ³ /rev	Nominal pressure bar	Peak pressure bar	Maximum self-priming speed r/min
V30D-45	45	350	420	2600
V30D-75	75	350	420	2400
V30D-95	95	350	420	2200
V30D-115	115	250*	300*	2000
V30D-140	140	350	420	2200
V30D-160	160	250*	300*	1900
V30D-250	250	350	420	1800
V30D-520	520	400	420	1500

*Higher pressure is only possible with reduce displacement





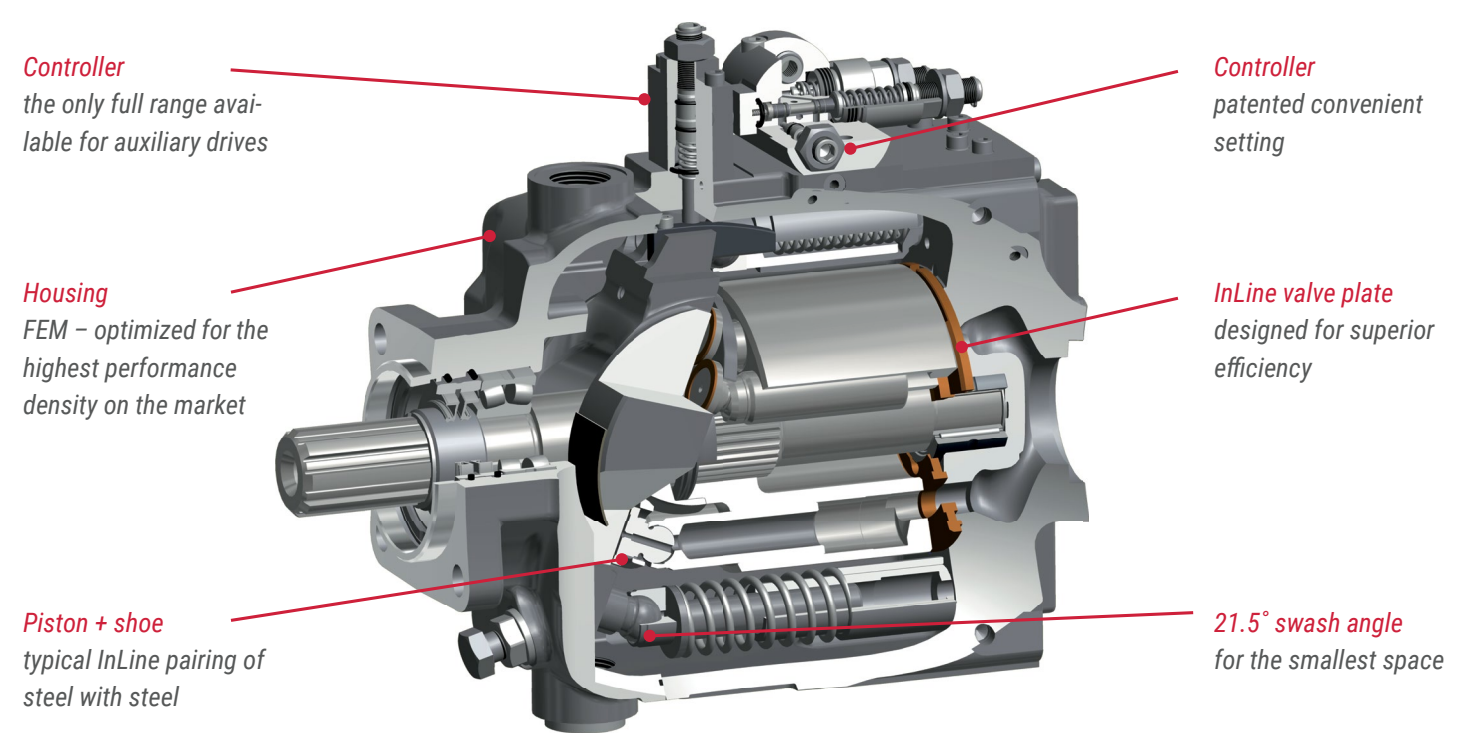
V30E, V80M: off-road mobility

Designed for heavy continuous use in mobile working machines. This heavy-duty pump also impresses with its long service life and high efficiency. The protected design principle of the pump and controller facilitates maximum power density in the smallest space.

The axial piston pump type V80ML-200 by InLine Hydraulik GmbH guarantees a new power density in its class. Working pressures up to 400 bar and peak pressures up to 450 bar are possible. The integrated impeller pump leads to a speed up to 2500 revolutions per min. So this pump performs up to 500 l/min and achieves a motor capacity of 370 kW.

Ideal coordination with the valve technology of HAWE Hydraulik is clear: the valve expertise of HAWE Hydraulik is evident in our pump controllers – even down to the same components – and our customers can see how harmoniously a hydraulic system from a single source works.

Basic type	Displacement cm ³ /rev	Nominal pressure bar	Peak pressure bar	Maximum self-priming speed r/min
V30E-75	75	400	450	2600
V30E-95	98	350	420	2500
V30E-160	160	350	420	2100
V80M-200	202	400	450	2150
V80ML-200	202	400	450	2500
V30E-270	270	350	420	1800
V30EL-280	280	350	420	2300



V60N: always delivering on-road

Generates hydraulic power on the auxiliary drive of a goods vehicle almost as a side-effect – with no separate auxiliary assembly. In contrast to previous auxiliary drive pumps, the V60N has all the controller variants that are usually only available in the large series of industrial and mobile pumps.

Small and very slim, the pump fits into the smallest spaces and yet works with top pressures of up to 450 bar. The V60N can easily cope with the highest truck speeds.

Basic type	Displacement cm ³ /rev	Nominal pressure bar	Peak pressure bar	Maximum self-priming speed r/min
V60N-60	60	350	400	2500
V60N-90	90	350	400	2300
V60N-110	110	350	400	2200
V60N-130	130	400	450	2100

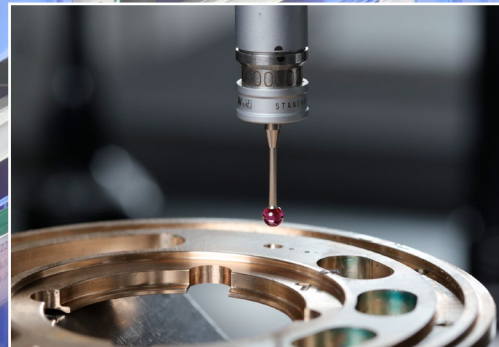
→ Production → Installation → Testing → Service
 Dependable throughout the world



Production
 flexibility through
 high value creation
 (70 %) and
 intelligent
 automation



Production
 The high level of
 technology and the
 experience of our
 staff lay the basis
 for our production



Installation
 of intelligent
 logistics concepts
 and standardized
 installation
 processes
 guarantee our
 quality level



Testing
 Following a
 running-in pro-
 cess, every pump
 undergoes an
 automatic test run
 with subsequent
 archiving of all
 measured data

Reliability and safety – the two leading features of our pumps. We complement these characteristics with our range of services: as we are integrated into the worldwide service network of HAWE and Hengli, we can provide support for our pumps throughout their service life.

of spares even at the end of a product's service life: we even supply replacement units for VOLVO pumps that are 30 years old and save our customers the cost of expensive conversions of their systems. Marine customers, in particular, appreciate this service.

As part of our reliability, we guarantee availability

WORLDWIDE SERVICE FROM HAWE AND HENGLI

HAWE and Hengli service technicians will support you wherever you are: whether on land or on water. The range of services includes:

- ▶ Expert commissioning and start-up (setting up, installing, connecting and adjusting the hydraulic system, instruction on the system, documentation, training)
- ▶ Inspection to establish and assess the current condition (recording of the current condition, recommendation of action to be taken, documentation)
- ▶ Servicing to maintain the intended condition (replacement of wear parts, cleaning, parameter adjustment, functional testing)
- ▶ Maintenance to restore the intended condition (cleaning of components, replacement of parts, functional testing)
- ▶ Troubleshooting (location, diagnostics, analysis of faults, restoration of function, detailed report of findings)
- ▶ Conversions



InLine is available to you worldwide via HAWE (H) and its partners (P) or via Hengli (H)

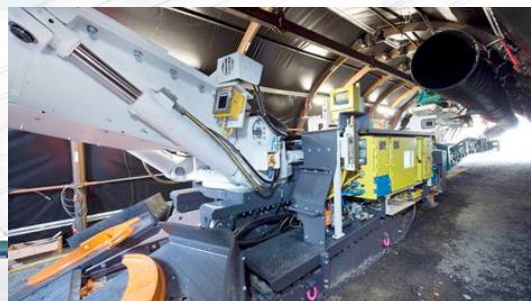
International customers

From Berlin to the rest of the world! Or to put it another way, most of our pumps are used outside Germany. Their types of use could not be more varied: in large series on ships and in goods vehicles or as individual pumps in special machines and assemblies.

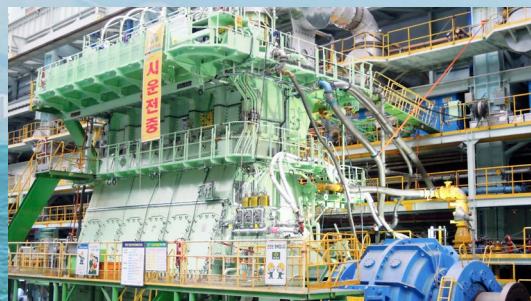
And each of our customers has its own requirements. The motivation for our work is to support you as effectively as possible with our expertise and experience, and thus to contribute to the success of our customers. So set us a challenge! We will be happy to show you what our pumps can do for your system.



OSMAG (D) - V30D: for reversing operation



IBS (D) - V30E: for operation with HFC



WÄRTSILÄ (CH) - V30D: for reversing operation



ZOELLER (D) - V60N: for transportation

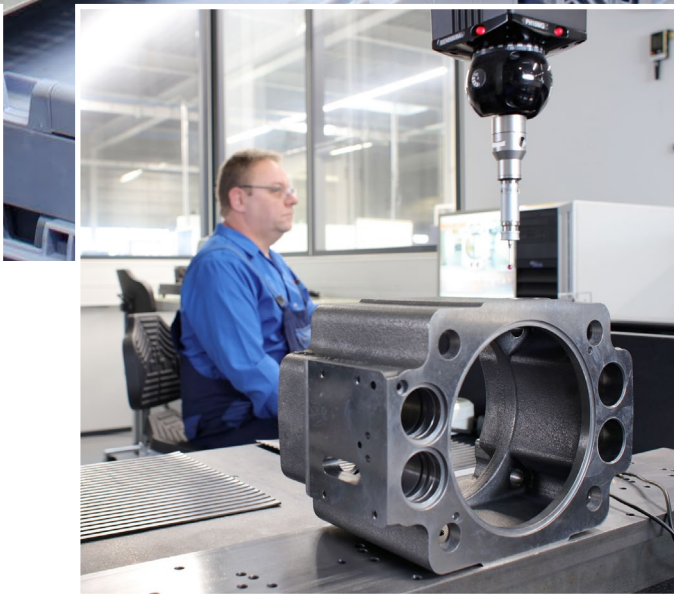
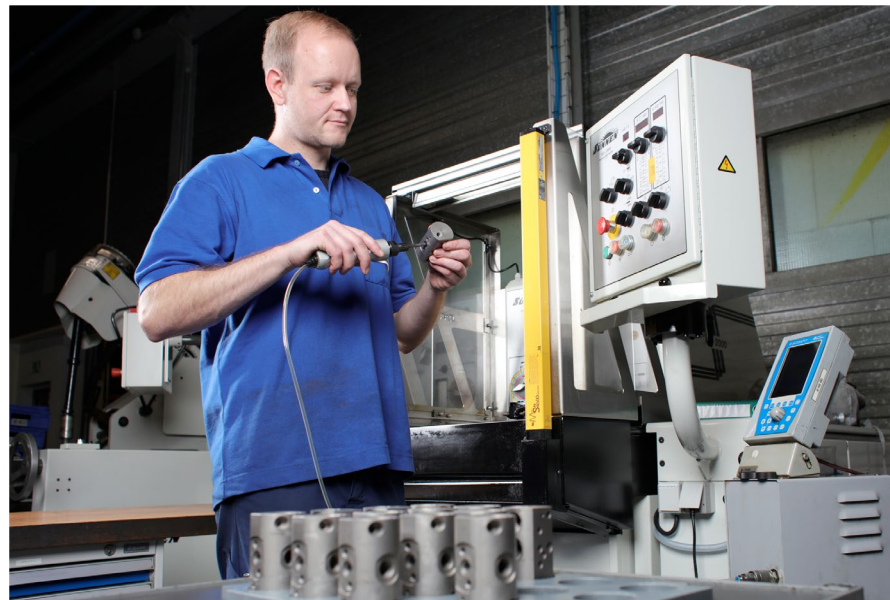


HEIL (USA) - V60N: for high speeds



SUNFAB (S) - V60N: for precise adjustment

The team – competent and reliable





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