



**Putzmeister**



# Stationary concrete pumps

Pent-up power – incredible stamina

Higher, further, faster ...



### World record holder that proves its capabilities all over again every single day

No matter what you have in mind, our stationary concrete pumps are more than equal to the task. After all, back in 1977 during the construction of the Frankfurt telecoms tower, it was a Putzmeister concrete pump that pumped to a height of 310 metres - the first of its world records! As early as the following year, we outperformed ourselves during the construction of the Gotthard road tunnel, when we pumped concrete up a height difference of 340 metres over the impressive distance of 600 metres. Then, during construction of the Burj Khalifa, the highest building in the world, concrete pumps from Putzmeister were once again involved. The height difference for pumping operations there was 606 metres, meaning that we set yet another record in 2008. Why are we telling you all this? So that you can know that (almost) nothing is impossible, providing that you want to create something genuinely remarkable.



### Good for more than pumping high and pumping far – these pumps are good for almost anything

The construction of a high-rise building in Dubai presents different requirements than work on the Yeywa hydro-electric power station in Myanmar (Burma). Construction of a rail link in Tibet at an altitude of 5,000 metres is a significantly different proposition to working on the Sutong Bridge in China where Putzmeister pumps had to contend with an extremely inhomogeneous and coarse-grained material. How much concrete needs to be transported, how far in terms of height, distance or both in such cases? What are the ambient conditions and what is the quality of the concrete? Questions that you have to ask yourself prior to every practical application.

However, regardless of the task for which you wish to employ our pumps, machinery has to withstand everyday working conditions. That explains why we only provide products that are extremely robust, reliable, user friendly, fuel efficient and have a long life.

This in turn means that you will quickly establish, as you will continue to do for many a long year, that your decision in favour of Putzmeister was the right one – because you are able to work very productively with our pumps, because they are very easy to handle, because their operating costs are very reasonable, and because you seldom need to give any thought to service and maintenance.

# Expertise gives you a leading edge – not all concrete is equally good

## Consistent planning for extensive projects

For large projects in which heavy concrete needs to be moved very high or very far, you need more than the required delivery performance, you also need an appropriate total solution. Machines, concrete spreaders, accessories and service should all be carefully matched to achieve a good ratio of productivity to cost-effectiveness.

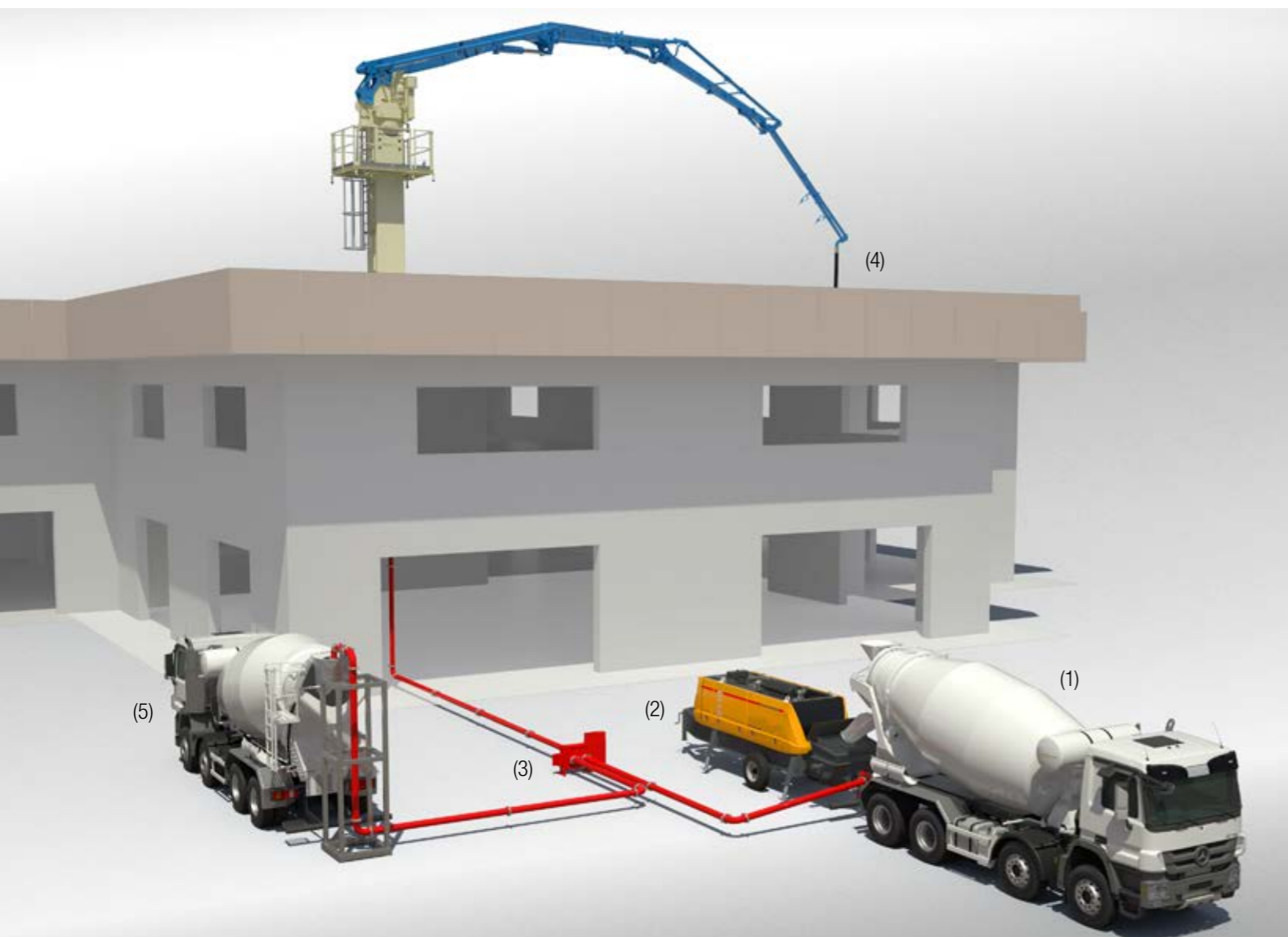
For process-optimized planning of your delivery tasks, you can rely upon our engineers to give you professional advice. Not only when you are involved in construction sequence planning and set-up at the building site, but well beforehand. For example when computing the delivery pressure or testing the 'pumpability' of the material you will be using. This makes it possible, where necessary, to have some influence on the concrete recipe at an early stage in proceedings. Which in turn assures an optimum match between concrete and pump, and a very efficient delivery processes as an outcome.



## Every country has its own specific concrete

Wherever concrete flows, the material that comes into contact with it becomes worn. Abrasion and other damage to components such as concrete hoppers, transfer tubes, agitators, pumps and delivery lines are unavoidable. The extent of the wear depends on the composition of the concrete. Concrete differs significantly from country to country and even within a country.

The ingenious geometry of Putzmeister concrete pumps was designed for all standard concretes. Delivery and drive cylinders operate in perfect harmony with one another to ensure the machine performs outstandingly in combination with all other components. As a result, our pumps can deliver even the heaviest grades of concrete at output rates of up to 200 m<sup>3</sup>/h without requiring the installation of additional equipment. Specific details such as durable delivery pistons, standard chrome-plated delivery cylinders and the S transfer tube system designed by Putzmeister ensure that all machines are able to withstand long periods of intensive use.



## Our pumps – exemplified in use

Using an example, we would like to show how concrete can be placed in high-rise applications: In the example a mixer (1) delivers the concrete to the pumping process. The stationary pump (2), in this example a BSA 2110 HP D, then pumps the concrete into the delivery line. Under high pressure, the concrete reaches the end hose of the stationary boom (4) and is introduced into the formwork. When the work is completed the equipment has to be cleaned, and for this purpose the transfer tube (3) is switched. The residual concrete is then drawn back down the delivery line, starting with the aid of compressed air from the stationary boom, and returned to a second mixer (5).

## Minimise wear – maximise service lives

Although unavoidable, wear can be minimised by taking a few effective measures. The following solutions are provided by Putzmeister:

- **A hard chrome layer on the delivery cylinders** assures long service life and protects against corrosion
- **Special protection of wear-intensive areas of the S transfer tube** through chrome plating, deposit welding or wear-resistant casting inserts
- **S transfer tube manufactured from thick-walled special castings** is designed to cope with problem grades of wear-intensive concrete
- **Piston wear sleeves** enable just the ring to be replaced rather than the entire component



# Above-ground civil engineering – where stationary can also be very flexible

## Working under high pressure

A concrete pump and its accessories are subjected to a very particular kind of stress loading when required to pump concrete upwards. For example, if required to pump concrete up to extreme heights the delivery pressure needs to be correspondingly high. This is needed in part to overcome the height differences and in part because the return flow of concrete develops a counteracting level of energy. This of course necessitates a correspondingly high level of motor or engine power. Moreover, the machine has to be built to withstand the enormous forces to which it is subjected in operations such as this.



## Burj Khalifa: world record for this gigantic skyscraper

Reliable advances in the construction of the Burj Dubai (Dubai Tower), which at over 828 m was the tallest building in the world on completion, were secured by several powerful BSA 14000 SHP D super-high-pressure pumps used in conjunction with MX 28-4 and MX 32-4 stationary placing booms. 165,000 m<sup>3</sup> of high-strength concrete was successfully pumped to heights in excess of 606 m (world record) and then placed.

Another storey could be concreted every three days – no problem for the potent BSA 14000 stationary pump and its powerful placing booms. These machines are being successfully used in Dubai, as in many other high-rise construction sites around the world.

Thanks to consultancy support from Putzmeister, the optimum solution was found here.

## Manhattan Hudson Yards – the new New Yorker Skyline

Between 10th Avenue and West 30th Street, to the west of Manhattan, a new district is being built, similar to the World Trade Center, with apartments and offices. One skyscraper after the other is being integrated into the New York High Line. Not only are architectural best performances required to drive the magnificent glass facades and steel structures into the sky. A sophisticated and well-conceived concrete pumping process optimally adapted to the local conditions and specifications of the construction process is also needed.

With the stationary Putzmeister BSA concrete pumps this is no problem at all, even under the most cramped conditions such as with the Extell skyscraper on 555 10th Avenue. This 53-storey project, which in addition to 598 apartments will also accommodate a student residence with 300 rooms, is being built directly next to the neo-gothic Church of Saints Cyril & Methodius and Saint Raphael. However, in contrast to the menacing brick facades of the older buildings, the new residential tower with its reflecting glass facade will bring light and splendour over the church.



## Building construction – deliberately beyond the ordinary

### Evolution Tower: Performance in extreme form

At 255 m high, the spectacular skyscraper dominates the skyline of Moscow's new international trade center "Moscow City". What is most striking is the spiral design of the building. To achieve this, each of the planned 54 floors are rotated by 3° to the one below, and the resulting effect is further enhanced by the pillars on the building corners. These are constructed to form a spiral, and thus they both tilt and twist.

The core walls and ceilings were concreted in three sections per floor, and were completed with a Putzmeister BSA 14000 HP D. It pumped 120,000 m<sup>3</sup> of concrete for a distance of up to 300 m; 200 m vertically and 100 m horizontally, in order to deliver the concrete to its required placement site. Because of the restricted space on site, the high-performance pump was placed in the basement of the building but still achieved the desired results with ease.

Source: PERI GmbH



Source: PERI GmbH

## Bridge construction – best performance for connecting elements

### Project successes can be planned

Bridge construction demands a great deal of know-how from everyone involved. Particularly as far as concreting is concerned, some factors are critical for the project success: such as the consistent high quality of the concrete and a high pumping capacity for the concretes, that are difficult to pump in most cases, as well as for large conveying distances or heights. Efficient solutions are needed that can also withstand extreme cost and deadline pressure.

Stationary Putzmeister concrete pumps are the first choice here. What type? That depends on the required pumping output, the length and diameter of the pipeline, the pumping height, the expected friction factor, and above all, the pumping behaviour of the concrete. This results in the required pumping pressure and driving power of the machine.

### Korabelniy most – with endurance towards the objective

The approx. 11 kilometre long construction section of the Western High Speed Diameter Project in St. Petersburg comprises, among other things, the construction of a cable-stayed bridge – the "Korabelniy most" (the Ship's Bridge).

Two stationary concrete pumps of type BSA 1409 D are in operation there in order to concrete four 96 m high bridge pylons. The extremely dense reinforcement and high-strength concrete represent a huge challenge. A task that the BSA 1409 D overcomes with flying colours. With a pumping output of 25–40 m<sup>3</sup>/h, it yields a total volume of approx. 11,000 m<sup>3</sup> of concrete.



# Underground civil engineering – far-reaching challenge, maximum delivery performance levels

# Specialist underground civil engineering – intelligent technology for specific tasks

## Adaptability for tunnel construction

One of the difficulties of tunnel construction is the task of incorporating concrete in the cladding or ‘shuttering’ in tunnel walls. This is where Stationary Concrete Pumps from Putzmeister come into their own when used in conjunction with rail-guided, hydraulic shuttering placement equipment. This presupposes that these units can be integrated seamlessly within the tunnel diameter, and also calls for flexible tube shears that can cut concreting sections into lengths of up to 12 metres without the need to open up the line or to relocate the placing equipment.

This wet spray concreting process is a very cost-effective technology in modern tunnel construction, and the fast-acting S transfer tube technology enables concrete to be sprayed very uniformly and smoothly by Putzmeister pumps.



## Tunnel walls and slopes secured using the wet-spraying concreting process

The wet spraying concreting process is a very cost-effective technology for securing inclined slopes.

Here, small machines have their place even on large construction sites. For they are mobile, quickly ready for use and can be deployed easily even on the most difficult terrain. When building dams, for example, loose stones on the relatively steep mountainsides have to be secured against slipping before flooding. This is often done with shotcrete.



## Nant de Drance – Outstanding performance through experience

In the Valais Alps between Martigny (CH) and Chamonix (F) the Nant de Drance power plant currently under construction is expected to be completed by 2018. The pumped-storage power plant with a turbine output of 900 MW will produce around 2,500 million kWh of electricity annually.

Apart from more than 400 workers, numerous Putzmeister engineers and machinery were also deployed for a total of 17 km of tunnels with 1.7 million m<sup>3</sup> of rubble during the underground construction work in the mountain region.

Altogether, five stationary concrete pumps of type BSA 2107 HP E (2 x), BSA 2109 H E (1 x) and BSA 1408 E (2 x) with the help of

two Putzmeister stationary booms MX 32-4 Multi including accessories pumped approximately 360,000 m<sup>3</sup> of concrete. Both the high-quality equipment as well as the good preparation contributed to the great success of the work. The Putzmeister engineers had developed the concept for the concreting as well as for the cleaning, particularly for handling the water necessary for this. Thanks to the already proven sliper tests that had been carried out in advance for determining the concrete characteristics, the concrete formulas could be adapted optimally to the subsequent pumping capacity.



## Kárahnjúkar – strong in combination

During the construction of the Kárahnjúkar hydroelectric power plant in Iceland, Putzmeister supplied the entire machinery for the shotcrete contract. Thus, for the wet spraying work in the different tunnels as well as in the turbine station and transformer hall deep in the mountain, several large shotcrete manipulators were used. Each of the wet-spraying machines are fitted with a smooth-running piston pump of type BSA 1005 and a spray arm.

# Massive force and very well-behaved

## Practical details that almost turn work into a fun activity

Working with our pumps not only needs to be productive and economical, it also needs to be as pleasant and convenient as possible. After all, a day on a building site is hard enough work and sufficiently taxing on the nerves as it is – so the equipment involved should alleviate that as much as possible. Consequently in the design of our concrete pump, we have focused consistently on the need for good access to all machine components, ease of handling and straightforward cleaning and maintenance. The result is noticeable on a daily basis and in the long run and in overall terms it's indispensable.

GRP hood: robust, weather-resistant and easy to remove



## Maximum transparency and clear layout

At the EGD (Ergonic® Graphic Display) the driver can view all relevant machine data and set or adjust individual parameters. Thanks to a reliable fault management system, the machine can be fully operational in the event of a fault, and even in emergency operation. If non safety-relevant components such as sensors fail, they can be switched off allowing you to continue working undisturbed. Up-to-date feedback and system information for the machine appear in real time on the display.



## Hot air with good ducting

Thanks to extremely good air flow the doors can always remain closed during operation. The hot exhaust air escapes to the front, and not into the operating area. That improves the workplace conditions of the pump operator and also cuts the ambient noise levels on the construction site.

## Just work more comfortably

The operating controls of the cable remote control and radio remote control have been reduced to their essentials. After all, anything unnecessary distracts from the actual work and costs time. All functions are neatly arranged and can be quickly understood at a glance. This is what we call user-friendly.



The radio remote control (optional) allows the machine to be controlled over long distances

Cable remote control easy to connect



# Easily accessible so that everything runs smoothly

## Well thought-out in every detail

During the construction of our cement pumps, we have paid strict attention to good accessibility of all machine components, simple handling as well as uncomplicated cleaning and maintenance. The result can be noticed daily in every detail and in sum total is indispensable over the long term

## Other advantages in terms of operation, cleaning and maintenance

- **The position of hydraulics and changeover cylinder outside the concreting area prevents pollution**
- **External non-return slide valve connection** (standard from 1,400 mm stroke)
- **Easy to change** all components on the S tube
- **Fast piston change** using water boxes that open at top, readily accessible water drain cock and automatic Piston Pull System on all HP machines
- **Rapid supply of all the main lube points** in the hopper area by the central lubrication unit
- **Optimised hopper shape** simplifies the job of cleaning, reduces interruptions in the supply of concrete and cuts down on concrete residue
- **Smooth outer surface** simplifies the job of cleaning
- **Enlarged support area** and longer service life through angled support legs
- **Practical hand winch** for set-up work, with a lifting force of 3 tons (standard from 2,100 mm stroke)
- **Additional lashing fasteners** on the machine, e.g. using clamping locks (from 2,100 mm stroke)



Swing doors, for example, ensure easy access, and protect the machine operator from rain and sun while working inside the machine



Good access for service work



Freely accessible water connection



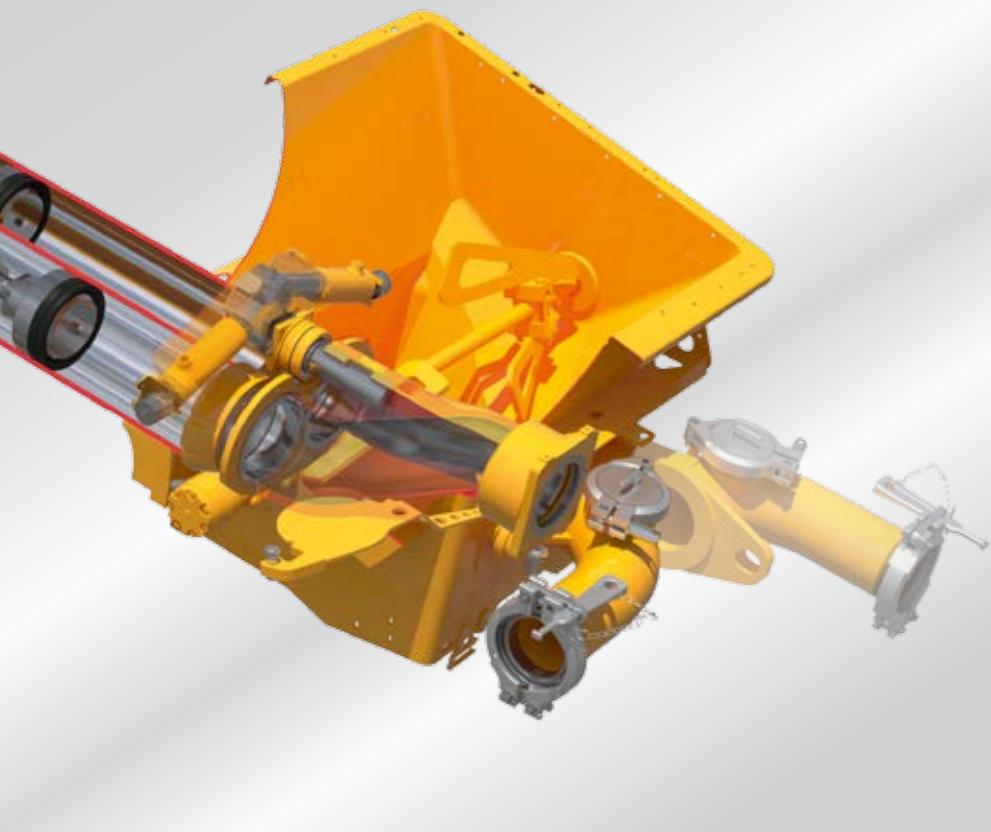
Mini-measuring strip: All hydraulic measuring points at a central location (BSA latest generation)



# Its greatest strength is its great strength!

## The very finest of power transmission and technology, especially when the going gets tough

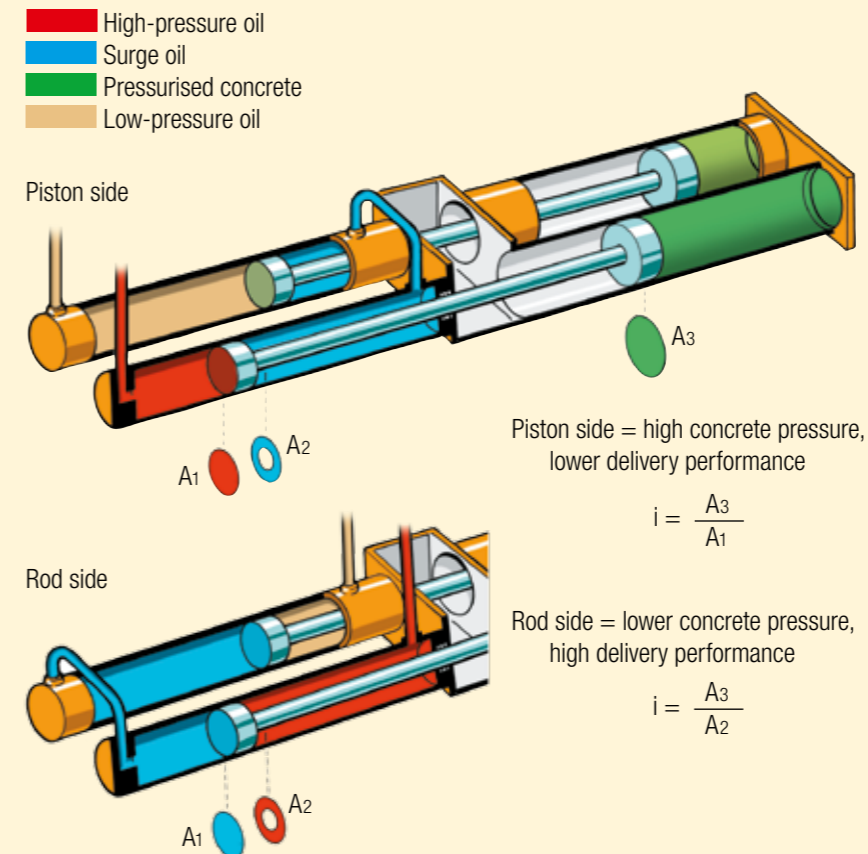
What is it that makes Stationary Concrete Pumps from Putzmeister so very special – so extremely capable? As always, the answer lies in their internal core values. The individual components, i.e. motor or engine, piston pump with free-flow hydraulics and S transfer tube interact perfectly to deliver optimum pump power and ultimately quiet operation. Even when delivery lines with large diameters are connected up, concrete flows almost continuously and so evenly that the end hose is easy to direct.



### The S transfer tube

The impressive tube is highly versatile in delivering difficult concrete mixes such as hydro concrete or mixes consisting of broken quartz, granite or basalt.

In order to handle such wear-intensive materials particular emphasis was placed on a long service life. The S transfer tube has therefore been reinforced with hard layer welding. The service intervals are considerably longer and the availability of the machine is greater than other systems. One other advantage is the quick, smooth switchover process which ensures a virtually continuous flow of concrete and minimises vibrations on the machine.



### The long-stroke piston pump

Our high-performance pumps employ a piston stroke of up to 2,100 mm, delivering volumes of up to 200 m³/h with unrivalled low levels of operating noise. Another advantage is the minimal amount of wear in spite of the large number of strokes. Greater volumes mean fewer strokes and therefore less wear. A hard chrome layer on the delivery cylinders and the central lubrication system extends the service life of the pistons and cylinders.

By way of example, here is the 2110 HP D:

Pressurisation	rode side	piston side
<b>Output</b>	102 m³/h	70 m³/h
<b>Pressure</b>	150 bar	220 bar
<b>Ratio i=1:</b>	2.3	1.6
<b>Strokes/min</b>	26	18

### The free-flow hydraulics

Putzmeister places its trust in the benefits of free-flow hydraulics because the most important performance factors are all in place: Concrete delivery pressure, machine weight and costs. When large quantities of concrete are pumped, large quantities of oil also flow inside the hydraulic system. More power is transferred inside a closed free-flow hydraulic circuit because all of the oil is conveyed from the pump to the drive cylinders without loss. That means that less oil is required in overall terms. This reduces costs as well as weight.

Another advantage is that there is just one intelligent block instead of elaborate control blocks, which in turn means that the oil does not get too heated.

### The main advantages at a glance

- **Electric motors and diesel engines** – a choice of different performance ratings
- **Long-stroke piston pumps** for maximum performance and ultra-quiet operation combined with minimal wear
- **More power transmission** provided by the closed circuit, free-flow hydraulics
- **S-transfer tube** can even cope supremely well with materials that are difficult to pump, and assures a uniform flow of concrete

# Nothing can make these pumps 'lose their cool'

## EPS – Ergonic® Pump System – user-friendly, economical and extremely productive

Ergonic® inside – synonymous with optimised fully-electronic control and regulation of the concrete pump. How do you benefit? Your machines are ready to use more quickly, achieve a higher placement speed, operate extremely economically and are resistant to wear.

EPS – (Ergonic® Pump System) regulates operation of the concrete pump and the engine or motor. A computer-assisted control is installed in place of the hydraulic control. The effect: Fewer hydraulic components,

less wear, less energy consumption and the pumping process is quieter and more balanced. Vibrations from the machine are reduced, which not only protects the concrete pump but also soothes the nerves of local residents and construction site workers. EPS ensures the pump operates more quietly, even if the delivery rate is high.



## An important component of EPS: EOC (Ergonic® Output Control)

EOC is fundamentally important for efficient operation and cost savings, because EOC controls the (diesel) engine speed with lower fuel consumption, wear and noise. Unfavourable areas are automatically avoided. The machine operator adjusts the delivery rate of the pump directly using a rotary knob on the radio remote control and the EOC selects the perfect speed. It is not possible to set the minimum delivery rate and the engine speed to full throttle at the same time with EOC. Whenever the concrete pump is shut down, the engine returns to idle speed, which can save up to 10 per cent fuel consumption.



## The advantages of EPS at a glance

- **Low wear**
- **Vibrations in the machine and boom are reduced**
- **Minimal noise during the optimised pumping process**
- **Includes EOC (Ergonic® Output Control)**; regulates the engine to the perfect speed to minimise fuel consumption, wear and noise
- **Fault management** via EGD (Ergonic® Graphic Display)
- **Less heat generated**
- **Fewer components** and therefore lower service costs
- **Comfortable cable remote control** (optional wireless control)
- **High machine availability** thanks to high-quality components and rapid (remote) diagnostics



# With everything that goes along with it

## Mobility and rugged durability are not mutual exclusives

Various robust, hard-wearing chassis units, all manufactured to superlative quality standards are available for all Putzmeister pumps. Depending on the intended application, you can choose between sled chassis or chassis units licensed for on-highway operation. They are all wear-resistant and low-maintenance units, and guarantee you long service life and reliable operation.



Special shape slide frame

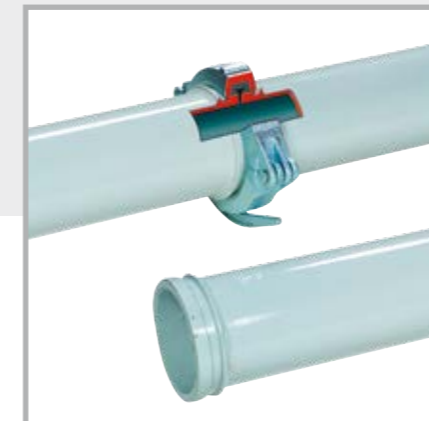
F80 road running gear

## The only obstacles are on paper

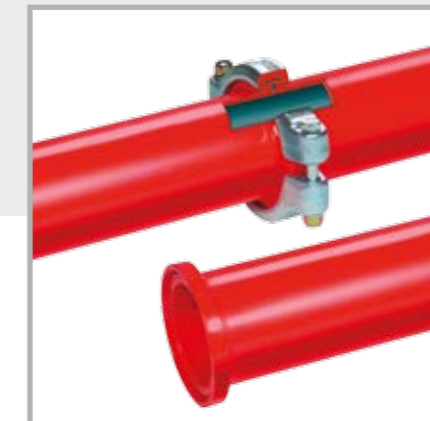
To ensure that concrete gets to where it is needed, delivery line systems are there to bridge distances. That might involve a height difference, a long distance, the negotiation of bends, travelling below ground or through water – there are virtually no obstacles that cannot be overcome using the right delivery lines and the corresponding range of accessories. Putzmeister therefore has the right system and optimum quality standards for every task. For smaller volumes of concrete

at lower pressures, the SK system is ideally suited, and is also used in conjunction with auto concrete pumps. Extension lines, particularly with hoses, are best combined with the exceptionally flexible Ultraflex® System PX. When it comes to long delivery distances (of more than 100 m approx.) or height differences in excess of about 100 metres, the Zentrifix® System ZX is the ideal choice. It can withstand extreme pressures, it is absolutely leak-proof and is particularly

wear-resistant at the connections. The combinability of these individual systems and their appropriate accessories e. g. couplings, adapters, reducers and auxiliaries for cleaning, help to further extend the range of applications.



SK standard coupling system



ZX delivery line system



PX hose system

## Practical accessories – Original Putzmeister

Sophisticated and practical – for your stationary concrete pump you have a comprehensive range of machine-type-dependent equipment (standard or optional) in good Putzmeister quality.

- Particle filter
- The electronic central lubrication system
- Partial flow filter (from 1400er class)
- Vibrator
- Rubber collar
- Hopper extension
- Second gate valve connection (from 2100er class)
- Remote control cable 20m and 50m



Particle filter for environmentally friendly operation



The vibrator assists with optimal filling of the concrete pump



The electronic central lubrication system saves time and minimizes wear



The mobile partial flow filter extends life and reduces oil changes

# Greater efficiency and fewer emissions with the new BSA D4

Directive 97/68/EC aims to reduce nitrogen oxides and particle emissions by 90%, and the reduction in these values will make a valuable contribution to improving air quality.

## The main advantages of the new BSA D4

- Compliance with Directive 97/68/EC, Stage IV or Tier 4 final
- Smoother running performance that protects the machine
- Reduction in noise development
- Reduction in average fuel consumption of up to 10%, resulting in lower operating costs
- CE mark

### The aim: cleaner air – the approach: reduction in harmful emissions

Regulations designed to gradually reduce the concentration of pollutants in exhaust gases from diesel engines were introduced in Europe and the USA in 1996. Stage IV or Tier 4 final for mobile construction machinery, including stationary concrete pumps, **came into force in Europe and the USA on 1st January 2014**. New mobile construction machinery operated in the corresponding countries must now meet the new restrictions specified for Stage IV, so that it will be possible to operate these machines in sensitive areas such as inner cities or conservation zones in the future.

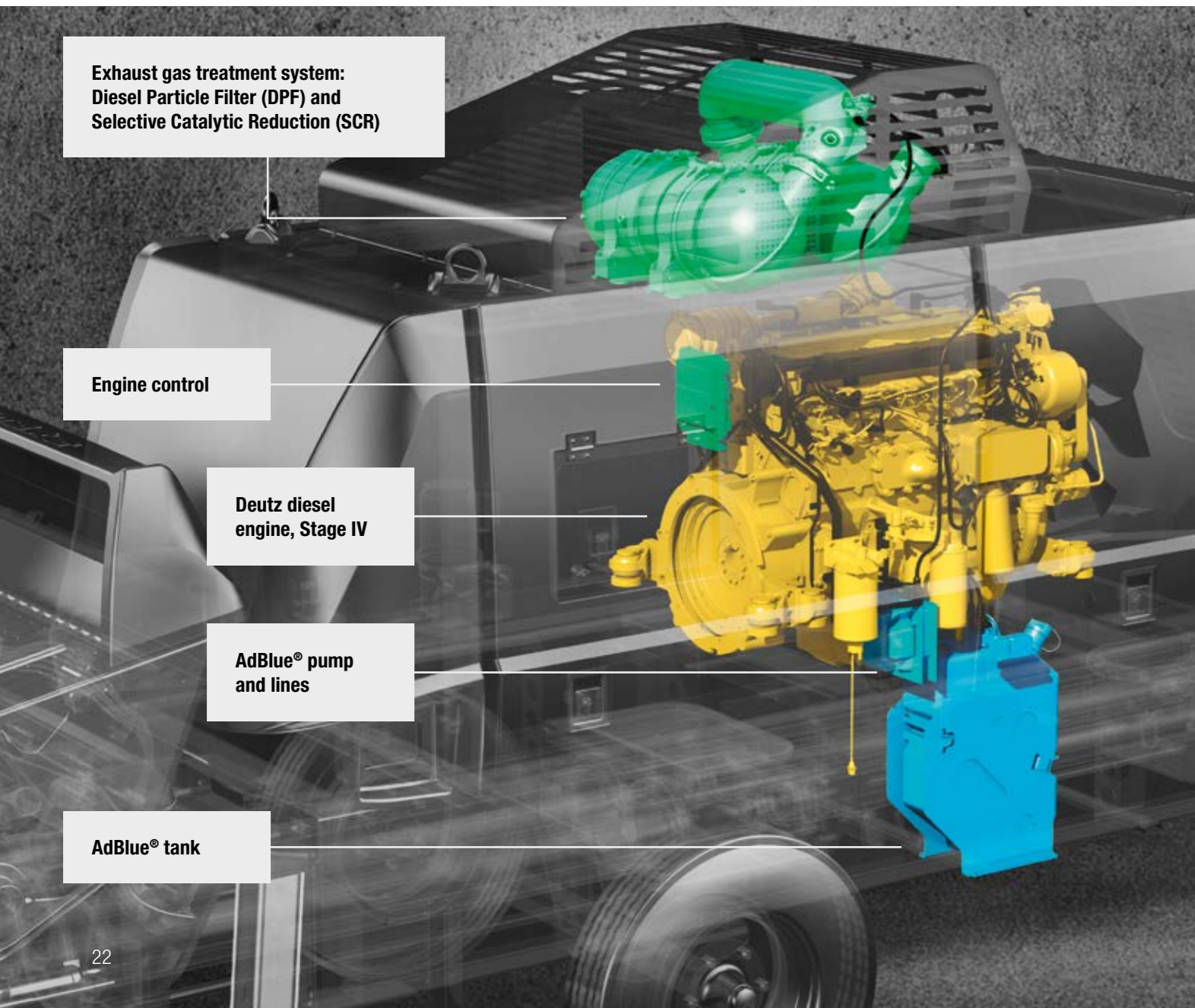
### Potential savings: lower fuel consumption

We had one rather ambitious objective during the further development of our BSA diesel models: to harmonize the emission directives in line with our customers' needs. The aim was to increase the future competitiveness of the pumps by ensuring the new BSA range was producing more power and giving reduced fuel consumption in compliance with the new emission standards.

### The right method: exhaust gas treatment

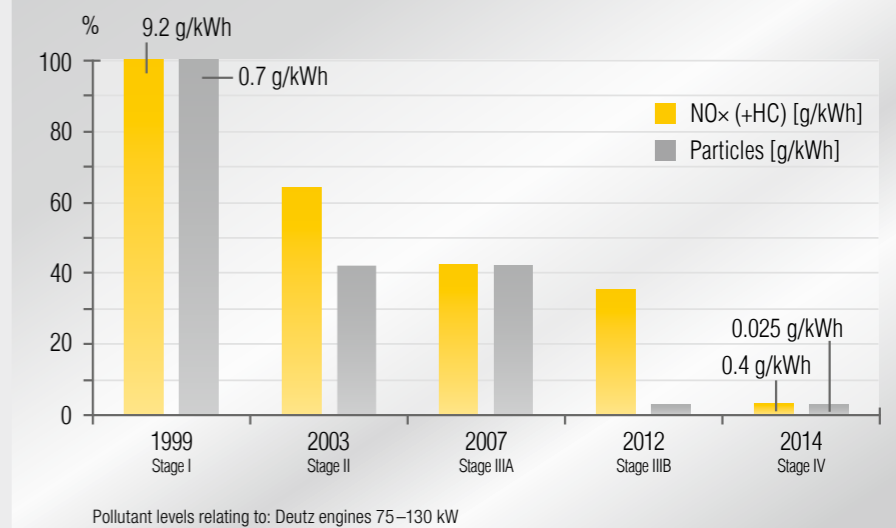
The new BSA D4 models feature efficient exhaust gas treatment systems that incorporate a Diesel Particle Filter (DPF) which reduces soluble particles and diesel soot, and at the same time Selective Catalytic Reduction (SCR) to reduce nitrogen oxides.

New machines can only be refueled with diesel fuel that does not contain sulphur, and the addition of a urea-based exhaust gas purification fluid called AdBlue® is also essential.



### Air purification with Stage IV or US EPA Tier 4 final

You can be sure that our new stationary concrete pumps meet all the requirements outlined in exhaust emission legislation without the economic efficiency and user friendliness of our machines suffering in any way. In fact, quite the contrary because our new BSA models offer many advantages that help reduce operating costs.



### The most important aspects of Stage IV and Tier 4 final:

- **Stage IV or Tier 4 final for mobile construction machinery**, including stationary concrete pumps, came into force in Europe and the USA on 1st January 2014
- **All new machines brought into circulation** must meet Stage IV specifications
- It will be possible to operate these machines in sensitive areas such as **inner cities or conservation zones**
- The new **Putzmeister BSA models** BSA 1407 D4\* and BSA 1409 D4\* already conform to Directive 97/68/EC or emission Stage IV/Tier 4 final, other models will follow suit
- **These machines also offer:**
  - Smoother running performance that protects the machine
  - Reduction in noise development
  - Up to 10% reduction in average fuel consumption
  - CE mark

\* You can tell which of the stationary concrete pumps from Putzmeister meet the standard on the "D4" in the product description

# Pumps that grow alongside their appointed tasks...

## BSA 1000

The compact multi-purpose concrete pump, fitted with a Deutz diesel motor of emissions level 3B or an electric motor is suitable for flexible use on small construction sites and for concrete wet spraying – anywhere where space is limited. Normal concrete of up to 32 mm grain can be pumped with no problem at all.



	1005 E C	1005 D3B C
<b>Output up to</b>	47 m³/h	52 m³/h
<b>Concrete pressure up to</b>	70 bar	70 bar
<b>Engine</b>	45 kW (electric)	55.4 kW (diesel)
<b>Delivery cylinder</b>	180 mm	180 mm
<b>Piston stroke</b>	1,000 mm	1,000 mm
<b>Weight</b>	2,700 kg	2,700 kg

\* highest, legal, required emissions level up to 55 kW in the EU

Stage 3B\* or US EPA tier 4i

## BSA 2100

The long stroke concrete pumps with high performance and high pump pressures are ideally suitable for use that involves long pumping distances. With 220 bar maximum pump pressure and an output of up to 102 m³/h you are on the safe side even in building construction. Diesel motors of level 3 or 4 are also available in the BSA 2100 class.



	2108 HP E	2109 H E	2109 H D	2110 HP D	2109 H D4	2110 HP D4
<b>Output up to</b>	79 m³/h	85 m³/h	95 m³/h	102 m³/h	95 m³/h	102 m³/h
<b>Concrete pressure up to</b>	220 bar	152 bar	152 bar	220 bar	152 bar	220 bar
<b>Engine</b>	250 kW (electric)	160 kW (electric)	200 kW (diesel)	330 kW (diesel)	225 kW (diesel)	330 kW (diesel)
<b>Delivery cylinder</b>	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
<b>Piston stroke</b>	2,100 mm	2,100 mm	2,100 mm	2,100 mm	2,100 mm	2,100 mm
<b>Weight</b>	8,600 kg	6,600 kg	6,300 kg	8,800 kg	6,800 kg	9,300 kg

Stage IV or US EPA tier 4 final

## BSA 1400

Reliable all-round concrete pumps for medium performance ranges. The models with electric motors are well suited for tunnel concreting. The models with diesel drive are optionally available with emissions level 3 motors or with emissions level 4 motors for EU countries.



	1405 E	1408 E	1407 D	1409 D	1407 D4	1409 D4
<b>Output up to</b>	55 m³/h	79 m³/h	71 m³/h	97 m³/h	71 m³/h	97 m³/h
<b>Concrete pressure up to</b>	106 bar	106 bar	106 bar	106 bar	106 bar	106 bar
<b>Engine</b>	75 kW (electric)	110 kW (electric)	115 kW (diesel)	140 kW (diesel)	105 kW (diesel)	150 kW (diesel)
<b>Delivery cylinder</b>	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
<b>Piston stroke</b>	1,400 mm	1,400 mm	1,400 mm	1,400 mm	1,400 mm	1,400 mm
<b>Weight</b>	4,600 kg	4,600 kg	4,300 kg	4,500 kg	4,500 kg	4,900 kg

Stage IV or US EPA tier 4 final

## BSA 14000

Everything is possible with these pumps – Pressure and pumping output are almost endless here. 250 bar concrete pressure of the BSA 14000 SHP contributed to the success when building the Burj Khalifa (Dubai), the tallest building in the world. Thanks to the emissions level 4 motor it can also be used in Europe and the USA.



	14000 HP D	14000 HP D	14000 SHP D	14000 HP D4
<b>Output up to</b>	82 m³/h	102 m³/h	71 m³/h	102 m³/h
<b>Concrete pressure up to</b>	231 bar	220 bar	250 bar	220 bar
<b>Engine</b>	470 kW (diesel)	470 kW (diesel)	470 kW (diesel)	470 kW (diesel)
<b>Delivery cylinder</b>	180 mm	200 mm	180 mm	200 mm
<b>Piston stroke</b>	2,100 mm	2,100 mm	2,100 mm	2,100 mm
<b>Weight</b>	10,500 kg	10,500 kg	11,000 kg	10,800 kg

Stage IV or US EPA tier 4 final

# Build on Putzmeister – in service, parts, training

## Everything that sets service apart

Swift assistance, meaningful advice and a reliable supply of genuine Putzmeister accessories and parts – in over 120 countries worldwide. This is what we at Putzmeister understand as first-class service.

### Ideally placed to support you

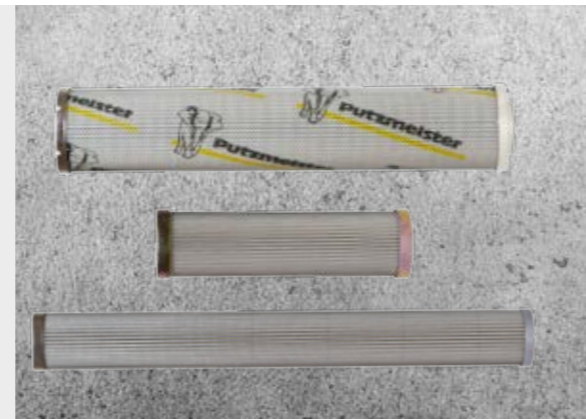
We train our service technicians continuously, provide a close-knit information network and the latest equipment and consistently strive to meet our customers' needs.

Thanks to state-of-the-art technology, our employees have all the relevant technical information about your machine at their fingertips, should the need arise. Allowing us to provide you with the best possible support for emergencies, repairs or preventive maintenance.



### Genuine parts for maximum availability

It goes without saying that we use only genuine Putzmeister parts in our workshops. This is the only way to guarantee consistent quality, checked for interoperability. And you can be absolutely sure that your machine meets the tough requirements with maximum performance and availability.



### Excellent in quality and customer proximity

In case of need, you have two options: Either the service team visits you or you take your machine to one of our service workshops. The latest tools, software analysis solutions and genuine parts ensure that your machine is operable again immediately.

All Putzmeister workshops and the workshops of our international Putzmeister partners meet our high-quality standard. Especially when it comes to manufacturer's inspections and acceptance procedures in accordance with specifications.



### Customer training – benefit from expert knowledge

Practice-oriented learning offers many benefits: Your staff master the machine with all its special features, use the machine to optimum effect, reduce operating costs and avoid operating errors.

### Induction at handover – everything correct from the outset

So you and your machinist can adapt perfectly to all special features and innovations

### 100 hours of customer service – avoid potential sources of error

With this customer service you receive a status report on your concrete pump as per the Putzmeister service plan.

## Our services for cost-effective work

The Putzmeister service support points offer you these services – all provided by our experienced service staff:

### Mandatory machine inspection – calculable costs instead of incalculable failures

Visual inspection and functional check of components for 100 % safety. The hydraulic system with cylinders, electrical system and core pump are also inspected.

### 500 hours of customer service – protect your investment, retain your value

Our technical customer service team is the number one choice for checking the safety and wear of your machine. You receive a status report for this, too.

## Our range of training courses and seminars:

### For concrete pump operators

- Training and development seminars on concrete pumps
- Training and development seminars on PUMI with piston and rotor pumps
- Regional / company seminars (in your region or on your premises)

### For concrete pump mechanics

- Training and development seminars on concrete pump

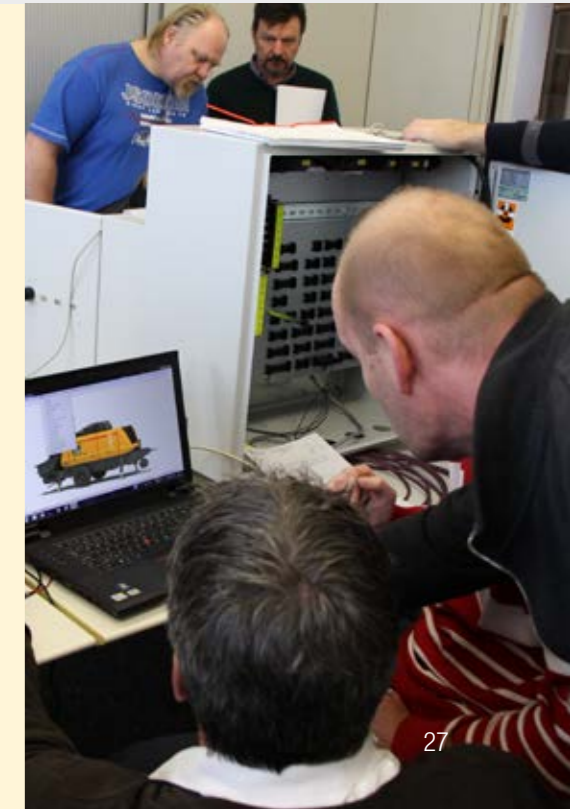
### For concrete pump machinists and mechanics

- Practical days in Aichtal
- Training: Handover and induction, on-the-job training

### For workshop managers and foremen

- Overview of current developments in Putzmeister concrete pumps
- Qualification at the customer workshops for requisite maintenance work

Further information can be found at: [www.pm-akademie.de](http://www.pm-akademie.de)



# Stationary concrete pumps at a glance

- **Very highly developed in all performance and price classes**, and tried and tested in many extreme applications
- **Remarkably robust and wear-resistant**, designed for a long service life
- **Broad performance range** makes the potential applications on construction sites and in industry very versatile indeed
- **Extremely powerful performance** in the transport of concrete, in terms of height and of distance
- **Many user-friendly details** ensure easy operation and maintenance
- **Available with diesel engine or electric motor**, to suit the intended application
- **Successful combination of all components** such as drive unit, long-stroke piston pump, free-flow hydraulics, S-transfer tube and EPS electronic control unit (Ergonic® Pump System) for exceptionally high performance and uniform concrete flow
- **Comprehensive, practical equipment configuration as standard**, and a functional range of accessories assure flexible application options and a high level of machine utilisation
- **Excellent service from Putzmeister** maximises the availability of your stationary concrete pump



Further brochures: Innovation for clean air BP 4614  
BSA 1409 BP 4548  
Ergonic® BP 3763  
Delivery line systems PM 2300



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