



Summary brochure

**SOLUTIONS FOR
WASTE WATER TRANSPORT**



WE ARE JUNG

We are JUNG (pronounced “young”) ... is our corporate philosophy, and we look back over a long and proud tradition. A great deal has happened since Heinrich Christian Jung developed the “Jauchepumpe” (slurry pump) in 1924 and marketed it at the so-called “Kirchturm” tower. Today, Jung Pumpen belongs to the Pentair group and thus to one of the ten largest companies in the field of water supply and disposal.

Pentair Jung Pumpen is the market leader in Germany in many areas of domestic and municipal drainage technology.

Pentair Jung Pumpen products are marketed on all continents, and a tight network of our own marketing companies and partners worldwide ensures that the quantity sold increases every day.

Through our close customer relations, we constantly strive to react quickly to market requirements to provide practice-oriented solutions. The traditional promise that - Pentair Jung Pumpen products equal “reliable waste water disposal” - and adhering faithfully to this promise will remain our top priorities throughout the next decades.



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PRESSURE DRAINAGE

THE ECONOMIC AND EFFICIENT SOLUTION

In sparsely populated residential areas with flat or hilly terrain, high groundwater, or adverse soil characteristics, a special disposal method has continued to prove itself over many years: pressure drainage.

The waste water is first collected in a compact pumping station – such as a plastic sump – and is then pumped by a waste water pump to a gravity sewer or to another pumping station. Waste water pumps with the MultiCut cutting system have gained widespread acceptance as a

particularly reliable solution for this type of requirement profile: The solids in the waste water are broken down so small that pressure pipes with diameters as small as DN 32 are perfectly adequate. Enormous savings in infrastructure investments can thus be made in comparison to conventional gravity sewers, which have a minimum diameter of DN 150.

Furthermore, these pumps generate a high pumping pressure, which enables very long distances to be

bridged. This makes significant increases in the efficiency of waste water disposal systems possible.





MUNICIPAL PUMPING STATIONS

PUMPS AND CONTROL UNITS FOR OPTIMUM RESULTS

Wherever water cannot be drained via gravity sewers, it must be “lifted” with the aid of pumps. These pumping stations collect the waste water from residential, industrial or municipal sewage

collection systems and pump it to the next transfer station or to the treatment works. Pumping stations are also employed in gravity sewer systems to overcome differences in level.

Jung Pumpen offers you support during the entire design phase, free of charge.



THE COMPONENTS OF A PUMPING STATION:

- ▶ SUMP
 - . PKS
- ▶ PUMP(S)
 - . MultiCut: pumps with cutting system
 - . MultiStream: pumps with single-channel impeller
 - . MultiFree: pumps with vortex impeller
- ▶ CONTROLL UNIT
 - . BasicLogo: printed circuit board controls
 - . HighLogo: microprocessor controls
- ▶ PRESSURE PIPE CLEANING SYSTEMS BREEZE (optional)



Unpleasant odours can be reduced by:

- . fewer deposits in the sumps
- . short retention periods in the pressure pipes
- . adequate flow velocities in the pressure pipes
- . sufficient oxygen added to the waste water
- . a turbulence-free transition at the end of the pressure pipe

ODOUR PREVENTION

DESIGNING FOR GOOD AIR QUALITY IS POSSIBLE

Organic constituents in the waste water are broken down over time due to natural decay processes, producing hydrogen sulphide (H₂S) as a result. Long pipelines and long retention periods can result in the decay process commencing in the pressure pipe. This leads to unpleasant odours and corrosion problems, and sometimes even to problems in treating the waste water. In addition to preventative measures incorporated into the design of the waste water disposal system, the use of various devices can reduce the decay process considerably.

TECHNICAL OPTIONS FOR ODOUR REDUCTION:

► Flushing pipe

A stainless steel pipe fitted to the pump generates a powerful jet of water that bypasses the pressure pipe and hits the water surface to prevent a floating layer of solids from forming.

► Compressors

Compressors are used to supply oxygen to the waste water. Adequate flow velocities prevent the formation of deposits and the waste water takes less time to reach the treatment works.

- . Pump sump ventilation
- . Pressure pipe cleaning system, to flush and aerate

► Pressure pipe end sump

The pressure pipe end sump is where the pressure pipe discharges and the waste water continues on its way via a gravity sewer. The inflowing waste water is fed in below the water level in the sump, without causing turbulence. This prevents the formation of H₂S gas.





PRESSURE PIPE CLEANING SYSTEM

MORE THAN JUST GOOD QUALITY AIR

If waste water remains in the pressure pipes for longer than two hours without the supply of additional oxygen, a decay process begins which can produce unpleasant odours due to the formation of hydrogen sulphide. This fact should always be taken into account when designing a waste water disposal system! With the aid of pressure pipe cleaning systems, waste water pipes can be cleaned and decay processes can be prevented before odours have a chance to develop.

► Pump sump ventilation

A compressor feeds oxygen into the waste water at regular intervals through a ventilation hose in order to prevent anaerobic degradation in the pump sump.

► Aeration of pressure pipe

Where pressure pipes are laid with only positive gradients, the waste water is enriched with oxygen via a compressor system. The increased oxygen content stems the decay process.

► Pressure pipe cleaning

This process ensures that the pipes are cleaned at regular intervals with compressed air generated by a compressor. The introduction of compressed air results in:

- . The waste water spending less time in the pressure pipe
- . Oxygen being introduced into the waste water
- . High flow velocities and therefore a reduction in deposits in the pressure pipe

► intelligent control unit

A microprocessor control unit calculates and controls the optimal oxygen supply and cleaning of the pressure pipe.

- . Automatic and energy-efficient adjustment of the cleaning times
- . Fluctuations in the waste water quantities are taken into account
- . Cleaning times are adjusted automatically to suit the waste-water quantities



PKS-B 800

SUMP SYSTEMS

ADAPTABLE, RELIABLE, ECONOMIC AND ENVIRONMENTALLY FRIENDLY

Whether for pumping stations in pressure drainage systems or municipal pumping stations. Whether for waste water, drainage, or surface water - Jung Pumpen offers complete solutions for economic and environmentally friendly waste water conveyance.

We provide support for our customers right from the beginning, above and beyond the actual product. In this way, mistakes can be avoided and important questions regarding chamber size for emergency storage or the load capacity for vehicle overrun can be answered professionally in advance.

The result is a solution that meets the highest of requirements. Prefabricated poly sumps are the key to the solution. The light weight and high chemical resistance of the material make the sumps ...

- ... extremely adaptable
- ... absolutely safe
- ... and particularly economically efficient.



► Small residual volume reduced the odour problem from the start



► Different loading classes possible



PKS-B 800-D 32

PREFABRICATED SUMPS FOR EVERY APPLICATION, EVERY REQUIREMENT AND EVERY TASK

► Adaptability

The PKS plastic sumps offer a broad spectrum of diameters, depths and loading classes. The standard diameters are 800 mm until 3000 mm, and chamber depths range from 1.60 m.

► Safety

The loading capacity of the sumps is impressive - whether for pedestrian (cl. A), for car traffic loading (cl. B), for lorries (cl. D) or for use in areas with high groundwater levels. Our monolithically produced sumps guarantee the greatest pos-

sible safety, even when used for special applications, such as in water protection areas, for example. The impermeability of the chambers is checked by independent testing institutes and certified by means of a building control authority approval

► Economic efficiency

The excellent economic efficiency of our poly sumps is based on three deciding factors:

. Low weight

Poly is e. g. 90 percent lighter than concrete. This results in lucrative savings in transport and installation costs. These savings are especially high where the installation sites have restricted access.

. Durability

Pumping stations that collect and convey waste water containing sewage are particularly exposed to chemical attack. Poly precludes the hazards that this type of exposure could cause. It guarantees high durability and corrosion resistance.

. Minimum maintenance

The smooth surfaces allow little opportunity for the formation of deposits. The sump bases are designed to prevent deposits forming. Two aspects that increase the time between services and reduce costly maintenance work.



REPAIR SET

FLEXIBLE, ECONOMICAL AND ECO-FRIENDLY

The first generation of pressure drainage systems is already older than 30 years. The previously used materials like grey cast iron or galvanized steel cannot hide their age. Because of aggressive preconditions within the sumps (especially by inadequate aeration and ventilation) the material is affected that much, that an exchange is absolutely essential.

► Durability

- Tie-bar made of stainless steel (1.4571) or fibre-glass reinforced plastic
- Coupling system made of high-quality plastic
- Ball reflux valve removable for maintenance

► Flexible

- Guide rail extension
- For nearly every plastic sump
- Even for third-party sumps





► Messen Druckabgang



► Verrohrung trennen



► Kürzen des Druckabgangs im Schacht



YouTube installation
video repair set



► Traverse mit Schieber



► Anpassung elast.Verbindung



► Installation Kugelhahngriff



► Herablassen der Pumpe





PKS 1200-3000

PKS 1000



SUMP SYSTEMS

The biggest plastic sumps are used primarily in industrial and municipal areas. Due to their low weight they ensure an easy transport and relocation.

► Quality

The used material meet the highest requirements e. g. corrosion resist-

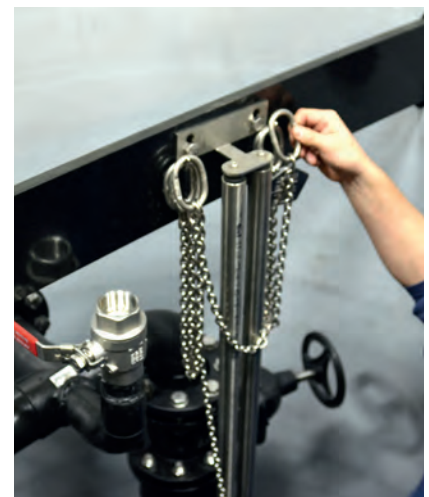
ance. Materials like stainless steel, PE und grey cast iron ensure a long durability.

► Easy installation

Preformed transport eyelets / transport handles allow the installation in lean concrete or directly into the ground.



► Pumps with flushing tube



► Audited and certified stainless steel chains



INSTALLATION KITS

FLEXIBLY ADAPTABLE IN NEARLY EVERY (CONCRETE) SUMP

When building pumping stations, installation kits make installation much easier, as the required components are matched to each other and can be flexibly adapted. They are used when refitting older and corroded manhole installations or for new installations.

► The materials

By using stainless steel, PE and PP, they are largely corrosion-resistant and thus offer a long-term solution for manhole installations.

► The pumps

They are suitable for pumps of the US, Multidrain, MultiCut, Multistream and Multifree series with pressure outlets from DN 32 to DN 150 and thus cover a wide range of applications.

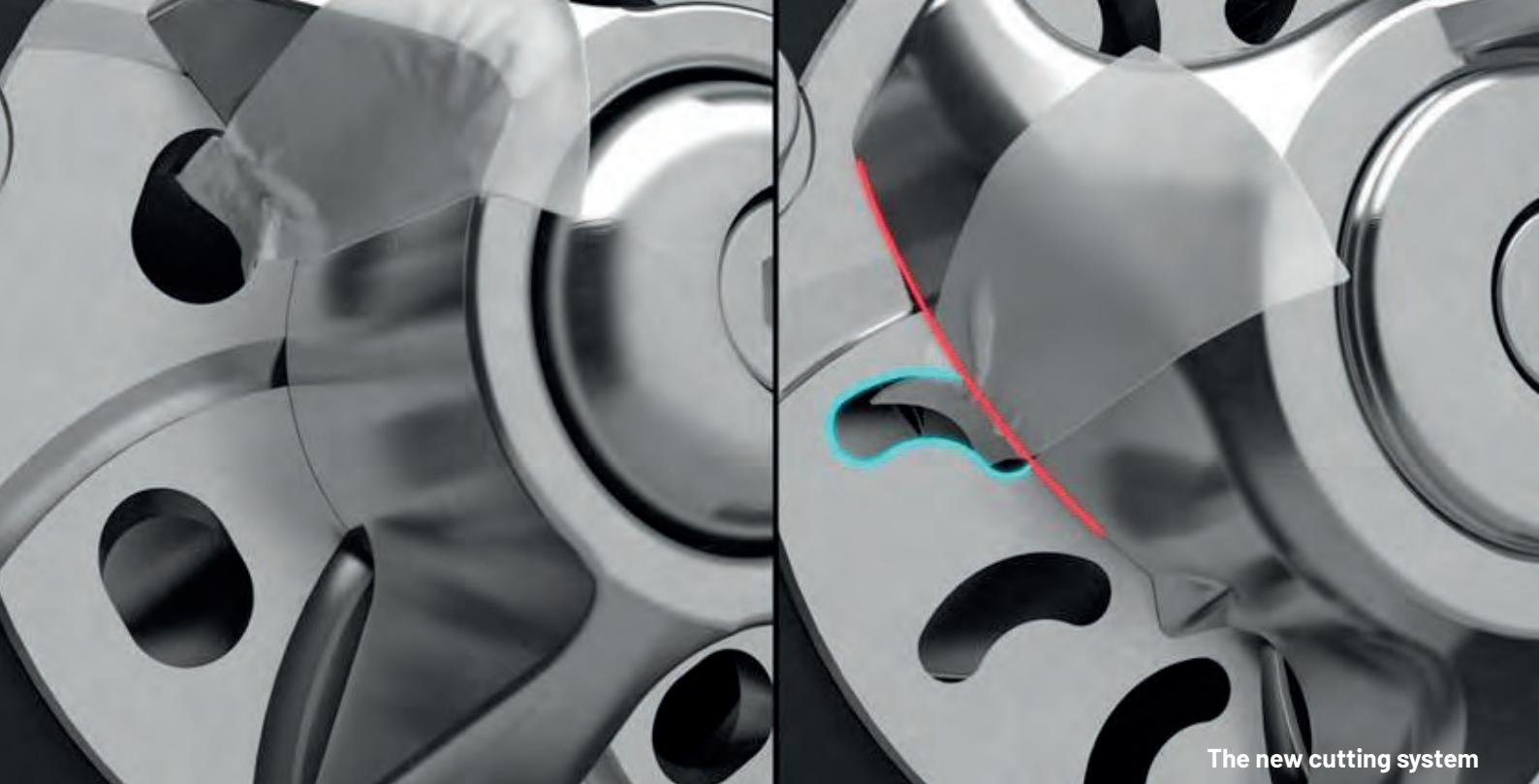
► Flexible

Almost any manhole with a diameter of 1 m or more can be equipped with an installation kit, from small private pressure drainage manholes to industrial rainwater pumping stations and municipal intermediate and main pumping stations

Especially the flexible on-site adjustment of the installation height in the manhole makes these installation kits so interesting and thus also enables stockpiling.

Installation kits DN 40 - DN 50

Installation kits DN 80 - DN 150



The new cutting system

MULTICUT

PUMPS WITH CUTTING SYSTEM

For more than a 30 years the MultiCut submersible sewage pump has been a success with its approved cutting system.

High-quality pumps that always guarantee a clean solution:

► High operational reliability

Unsusceptible to blockages, since the cutting takes place upstream of the pump's hydraulic system.

► High performance

Excellent cutting performance due to improved cutting technology. Two cutting types are combined with each other and enable around 200,000 cuts per minute.

► Low maintenance costs

The cutting system and impeller can be adjusted without the need for replacement parts.

► Lower costs for material and pipe laying

Small diameter pressure pipes, starting from DN 32, can be used.

► Types of media that can be pumped

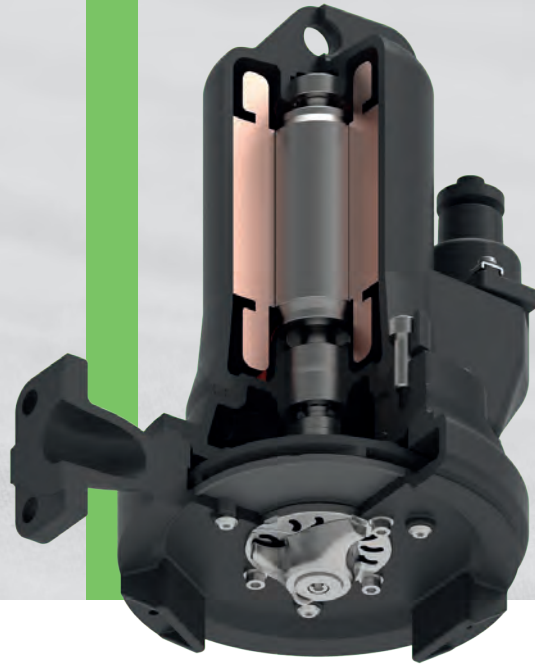
- Waste water containing solids and fibrous matter
- Waste water containing sewage
- Domestic waste water with no sewage content
- Mechanically cleaned waste water

All good reasons to choose a MultiCut pump for your pressure drainage systems.

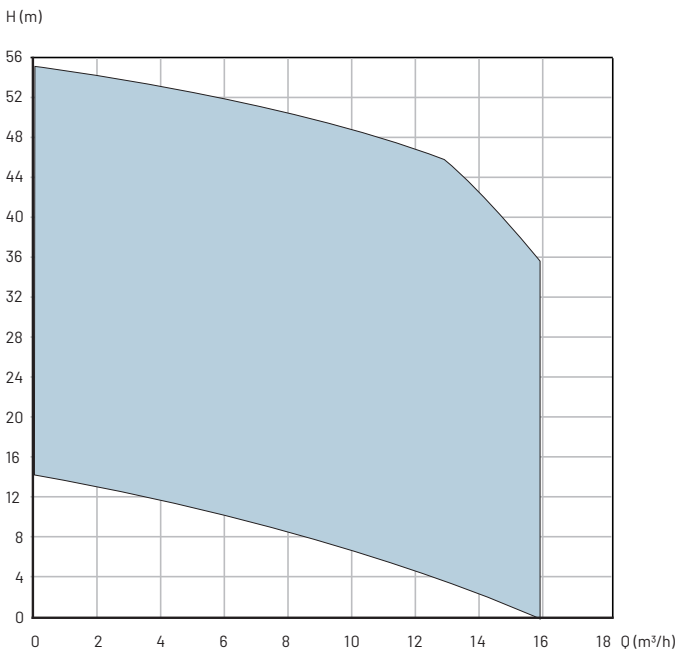
MultiCut tandem

In the MultiCut tandem systems (TAN), two MultiCut pumps are connected to one unit in order to achieve a higher delivery head.

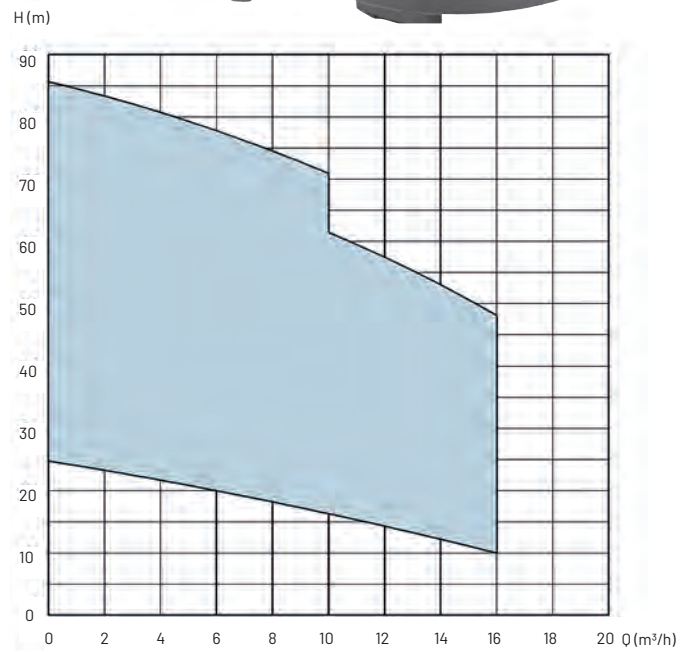




PERFORMANCE RANGE



(The pumps are supplied with and without explosion protection.)



(The Tandem pumps are supplied with explosion protection.)

	DN 32 (2-pole)
PUMP RATING (P1)	1.37 - 7.7 kW
ROTATIONAL SPEED	2900 min ⁻¹
H MAX.	55 m
Q MAX.	18 m ³ /h
FREE PASSAGE	7 mm

	MultiCut TAN	DN 32 (2-pole)
PUMP RATING (P1)	3.70 - 4.84 kW (value per 1 pump)	
ROTATIONAL SPEED	2900 min ⁻¹	
H MAX.	84 m	
Q MAX.	16 m ³ /h	
FREE PASSAGE	7 mm	



MULTISTREAM

PUMPS WITH SINGLE-CHANNEL IMPELLER

Our MultiStream pumps show their strength in pumping various types of waste water in municipal and industrial pumping stations, rainwater retention basins and in disaster control applications. The single-channel impeller pump is unbeatable when it comes to pumping large quantities and bridging large differences in height.

▶ **Energy-efficient pumping**

The high efficiency of the pumps makes this possible.

▶ **Long service life**

Optional wear coating on the impeller – also ideal when pumping abrasive waste water.

▶ **Maximum operational reliability**

Hydraulics optimised to prevent entwining.

▶ **Low maintenance costs**

The adjustable axial gap allows the efficiency of the pump to be maintained even if there are signs of wear.

▶ **Low life cycle costs**

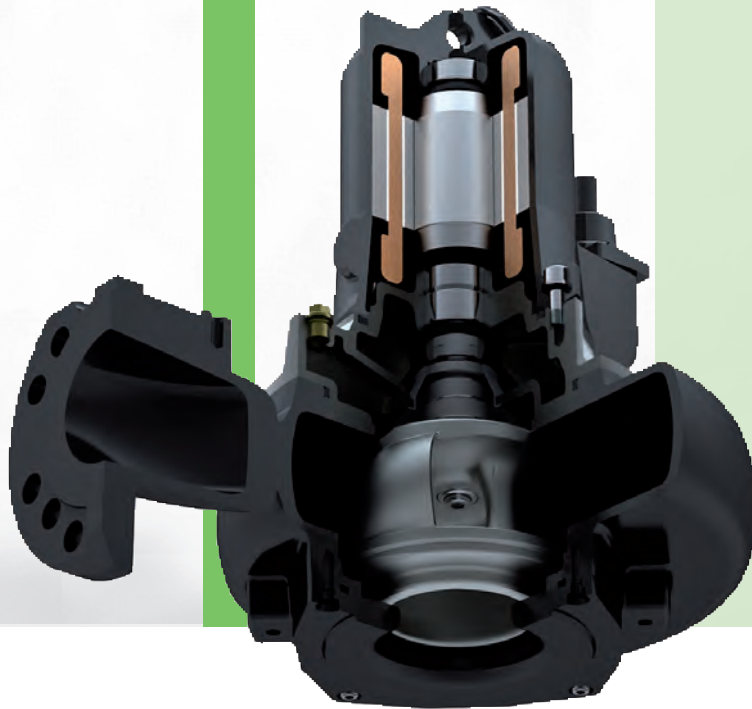
Thanks to easily exchangeable components, such as the wear plate and the adjustable axial gap.

▶ **Wide range of auxiliary equipment**

Enables optimum use of the pumps in each type of application.

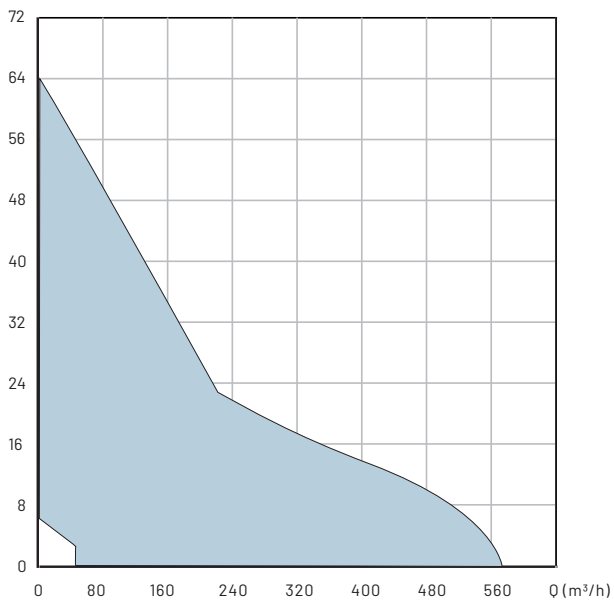
▶ **Types of media that can be pumped**

- Waste water containing fibrous and solid matter
- Raw waste water
- Raw sludge
- Rainwater and combined waste water



PERFORMANCE RANGE

H (m)



(The pumps are supplied with and without explosion protection.)

	DN 65 (2-pole)	DN 80 (2-pole)	DN 80 (4-pole)	DN 100 (2-pole)	DN 100 (4-pole)	DN 150 (4-pole)	DN 200 (4-pole)
PUMP RATING (P1)	1.3–3.7 kW	2.6–10.5 kW	0.95–3.5 kW	17.3–27.0 kW	0.95–25.5 kW	5.8–25.5 kW	19.3–25.5 kW
ROTATIONAL SPEED	2900 min ⁻¹	2900 min ⁻¹	1450/ min ⁻¹	2900 min ⁻¹	1450/ min ⁻¹	1450 min ⁻¹	1450 min ⁻¹
H MAX.	27 m	40 m	15 m	64 m	39 m	36 m	35 m
Q MAX.	70 m ³ /h	190 m ³ /h	140 m ³ /h	280 m ³ /h	420 m ³ /h	520 m ³ /h	540 m ³ /h
FREE PASSAGE	40 mm	70 mm	70 mm	70 mm	70 / 100 mm	100 mm	100 mm



MULTIFREE

PUMPS WITH VORTEX IMPELLER

These pumps are proficient in conveying many types of waste water in municipal and industrial pumping stations and in rainwater overflow basins.

► **Long service life**

The surface area of the impeller that comes into contact with the abrasive waste water is relatively small, keeping wear to a minimum.

► **High operational reliability**

The medium being pumped does not flow through the impeller, so the pumping process is assured, even if the waste water contains long fibres.

► **Low life cycle costs**

Reduced maintenance costs because the vortex impeller is insensitive against twining.

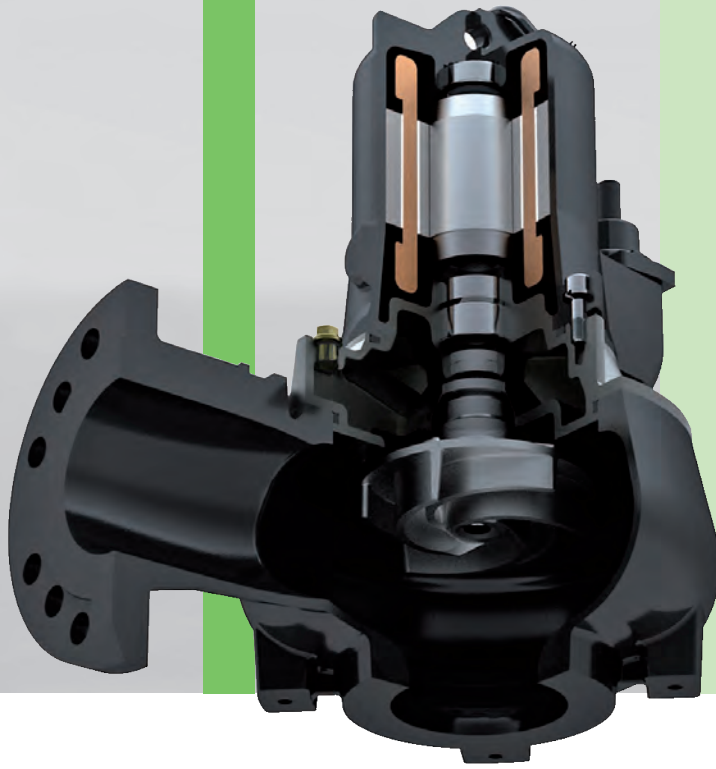
► **Extensive range of accessories**

The pumps for the various different applications are optimally equipped.

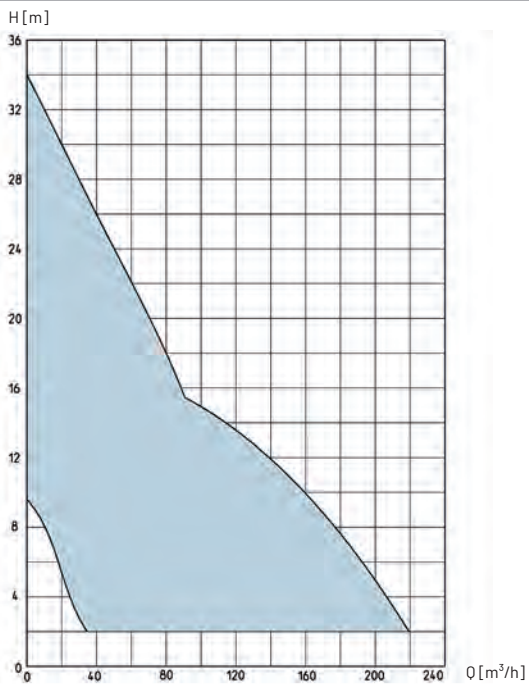
► **Types of media that can be pumped**

- Waste water containing abrasive, fibrous and solid matter
- Waste water containing air or gas
- Raw waste water
- Raw sludge
- Rainwater, surface water and combined waste water

The high technical standard of the MultiFree pumps raises the bar and enables you to achieve perfect results in waste water conveyance.



PERFORMANCE RANGE



(The pumps are supplied with and without explosion protection.)

	DN 65 (2-pole)	DN 65 (4-pole)	DN 80 (2-pole)	DN 80 (4-pole)	DN 100 (2-pole)	DN 100 (4-pole)
PUMP RATING (P1)	1.7 - 6.0 kW	1.8 - 5.6 kW	3.3 - 11 kW	2.2 - 10 kW	6.0 - 11 kW	1.8 - 13 kW
ROTATIONAL SPEED	2900 min ⁻¹	1450 min ⁻¹	2900 min ⁻¹	1450 min ⁻¹	2900 min ⁻¹	1450 min ⁻¹
H MAX.	26 m	14 m	34 m	20 m	32 m	19 m
Q MAX.	95 m ³ /h	110 m ³ /h	85 m ³ /h	190 m ³ /h	100 m ³ /h	230 m ³ /h
FREE PASSAGE	65 mm	65 mm	80 mm	80 mm	100 mm	100 mm

You would like to actuate pumping processes, transfer operation status messages, or control the coordination of several pumping stations?

Then our intelligent control systems are the first choice to ensure reliable and fault-free operation.

There are different series of control units available to suit the various particular requirements. This makes it possible to control one, two or several waste water pumps, with ratings from 0.5 kW to 30 kW.

CONTROL UNITS

THE OPTIMUM SYSTEM FOR EVERY REQUIREMENT

They work covertly in the background and receive the necessary impulses from the level detection in the sump. Jung Pumpen offers pump controls in two versions to ideally meet the different needs in operation and service.

BASICLOGO - The long-proven range with robust technology for the simple tasks.

- Robust control technology
- Standard functions optimised for requirements
- Expandable range of functions for safe operation

HIGHLOGO - The range for operators with a demand for comfort and communication.

- User-friendly handling
- Comprehensive functions for system tuning
- Very compact
- Overview of operating parameters
- Optional GSM modem for SMS and/or e-mail

No compromise on explosion protection

The operation of sewage pumps in Germany, connected to municipal sewers is subject to the European explosion protection

regulations. Our control units for explosion-proof sewage pumps are therefore equipped with all the necessary monitoring functions as a standard. All electrical components of the power unit are approved for explosion-proof operation. In addition to the thermal monitoring of the pump(s), the units offer dry-run protection, a watchdog timer and a thermal-mechanical motor protection for all three phases. Only this combination of safety measures fully meets the requirements of the current ATEX regulation.



BasicLogo control unit for one pump with back pressure set and dry run protection

HighLogo control unit for two pumps incl. main switch



EXAMPLE OF INSTALLATION



MADE IN GERMANY

QUALITY PAYS OFF

SINCE MORE THAN 95 YEARS

Jung Pumpen has been a reliable partner in the field of waste water disposal since 1924. High-quality pumps and pumping stations for large industrial and municipal projects as well as for individual houses and grounds are manufactured.

Today Jung Pumpen is part of the global Pentair Group and so belongs to one of the 10 largest water supply and disposal companies.

This high quality depends on many key factors:

► **Excellent vertical integration**

Waste water pumps comprise a large number of components that first constitute a quality product when combined as an entity. Throughout all the stages of the pro-

duction process, the high degree of vertical integration ensures that the exacting quality requirements of every Pentair Jung Pumpen product are met.

► **Quality control and environmental protection**

Before each component is fitted, comprehensive functional checks are carried out. This means that faults are immediately detected and rectified. The success of this rigorous checking mechanism is evident: Pentair Jung Pumpen is certified in accordance with DIN ISO 9001. Sustainability and environmental protection are documented in our environmental management system, according to EN ISO 14001.

► **The people**

The most important factor in the production of quality products is, of course, the people who manufacture them. Pentair Jung Pumpen is a traditional company that, for decades, has employed staff who identify with their work and are proud to play a large part in ensuring the quality of their products.



REFERENCES

► Holstentor Lübeck, Germany

The Holstentor gateway in Lübeck was built between 1464 and 1478. It is probably the most well-known medieval town gate in the world. Over the centuries, the building has been steadily sinking into the soft subsoil. It wasn't until the 1930s that extensive conservation measures finally brought this world cultural heritage building to a se-

cure standstill. Today, a duplex pumping station equipped with two MultiStream waste water pumps (type UAK 25/4 B4) helps to protect the Holstentor. The two main tasks of the pumps are: to hold pressing water back from the foundations of the gate when the water level of the nearby river Trave rises, and to drain the ground if the groundwater level rises.



► Madagascar

In terms of area, Madagascar is the second largest island state in the world. It lies in the Indian Ocean, off the coast of Africa. The largest company in Madagascar is the food concern TIKO, which was established by the former head of state, Marc Ravalomanana. Since the protection of the environment is laid down in the Madagascan constitution, Ravalomana-

na attached great importance not only to high quality products, but also to environmentally friendly waste water disposal. All the waste water is biologically treated before being allowed to infiltrate back into the subsoil. The waste water is pumped to the treatment works by duplex pumping stations fitted with MultiFree pumps.





► Shangri-La's Barr Al Jissah Resort

The now award-winning six-star luxury resort Shangri-La's Barr Al Jissah, set in an idyllic bay to the south of Muscat, the capital city of the Sultanate of Oman, was opened in the autumn of 2005. His Majesty the Sultan Qaboos called for typical Oman architecture, but also for high "made in Germany" quality.

The waste water from the hotel is col-

lected in PKS-A pumping stations. The buoyancy-proof plastic chambers serve as collection chambers and are equipped with either MultiCut or MultiStream pumps depending on the type of waste water. These pumps pump the waste water into the local sewer network.



► The Darß

The Darß is the middle section of the Fischland-Darß-Zingst peninsula on the Baltic coast of Mecklenburg-Western Pomerania in Germany. With its picturesque villages and expansive sandy beaches, the Darß is one of the most popular holiday destinations on the Baltic Coast. This popularity presents special technological challenges. The population fluctuates between 4,000 and

35,000. To cope with these extreme fluctuations in waste water quantities, the largest and most complex pressure drainage system in Europe was constructed. More than 1,500 pumping stations with MultiCut pumps pump the waste water through approximately 100 km of pressure pipe, ensuring reliable and environmentally friendly waste water disposal.





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