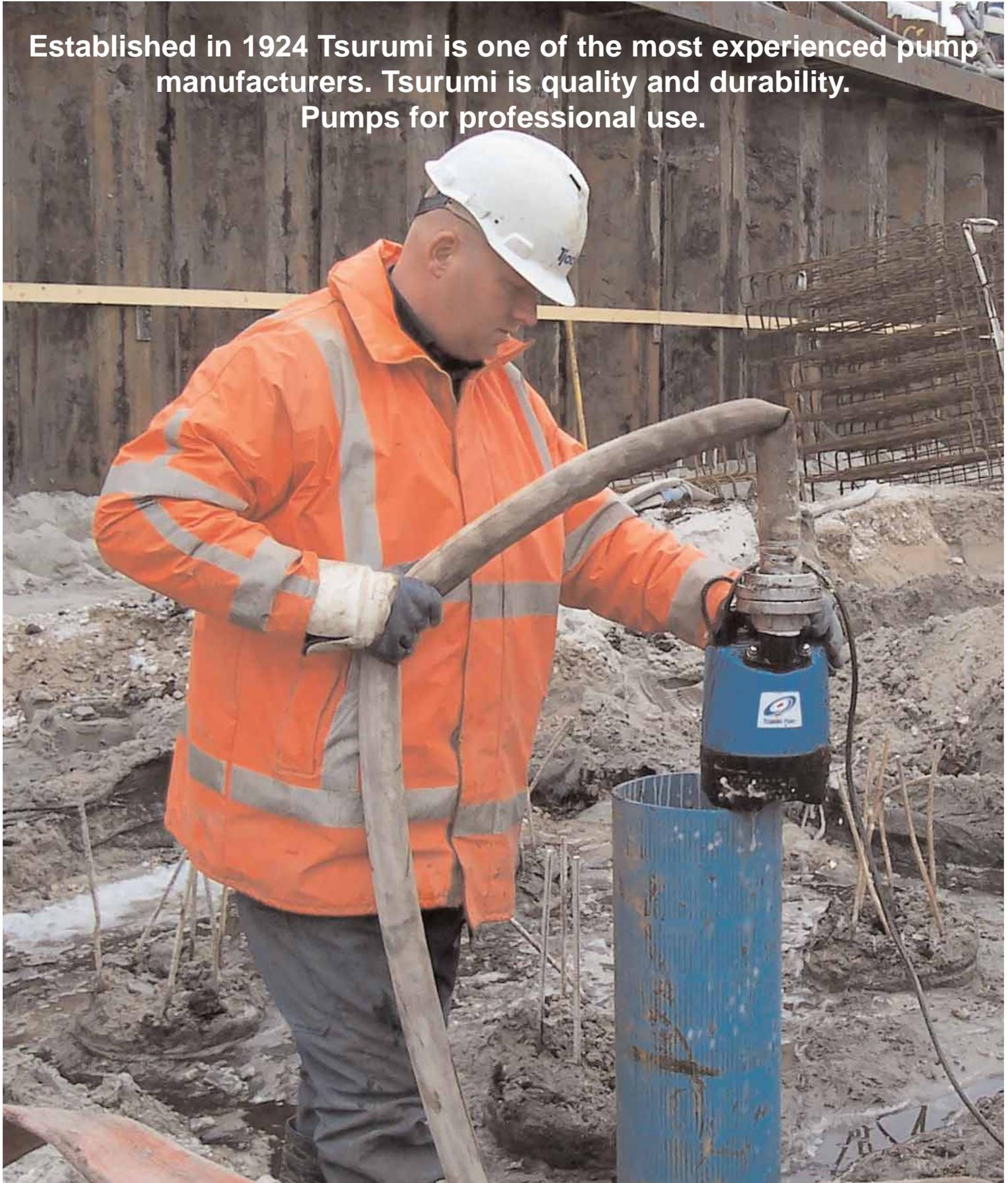




TSURUMI PUMP

Application Reports in 2006

Established in 1924 Tsurumi is one of the most experienced pump manufacturers. Tsurumi is quality and durability. Pumps for professional use.



Richmann-Muller, Belgium



The project:

Replacement of a defective wastewater pump station in a residential house.

Executing company:

Marine Motors & Pumps NV (Tsurumi partner)

The problem:

Pumping out wastewater from a collector shaft of the building. The shaft covers have a max. diameter of just 347mm.

The solution:

Installation of two type 80U2.75 sewage pumps with an open type impeller.

A stationary installation with guide pipes was chosen.

The regulation of the pumps is carried out with a low-maintenance and low-wear pneumatic level control system.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Best Carwash, Germany



The project:

Industrial car wash in the city of Kreuztal handling up to nine hundred vehicles per day.

Executing company:

Hoffmann GmbH u. Co. KG

Steuber Elektromaschinenbau GmbH
(Tsurumi partner)

The problem:

Pumping off the accumulating process water with a high sediment content into the recycling plant.

The solution:

Implementation of a pump with agitator, type HS2.4.

To ensure a long service life, the pump is equipped with an open type impeller as well as a spiral pump casing with side discharge. The shaft-mounted agitator ensures blockage-free operation.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Intermediate access gallery, Stelzen, Germany



The project:

Construction of the Stelzen intermediate access gallery during the building of the Blessberg railway tunnel.

Executing company:

Alfred Kunz Untertagebau GmbH

The problem:

Tunnel drainage under difficult conditions: long adits with a minimum of available space.

The solution:

Type KTZ35.5 pumps were installed in the pipeline as booster pumps. This special solution can be easily implemented with any of our standard contractors' pumps.

Thanks to the simple construction and the patented oil lifter, Tsurumi contractors' pumps can run dry absolutely trouble-free. The minimal cooling due to the flowing medium is sufficient.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Katzenberg Tunnel, Germany



The project:

Treatment and desludging of the process water from the tunnel advance.

Executing company:

Ed. Züblin Umwelttechnik GmbH

The problem:

The fluctuating accumulation of the sludge water from the Katzenberg Tunnel advance is collected in intermediate tanks. The accumulating process water should be pumped into the water treatment plant using submersible pumps.



The solution:

Tsurumi series KTZ contractors' pumps were chosen due to their reliability. Continuous, non-stop operation with high concentrations of sediment is possible with Tsurumi contractors' pumps, securing the operation of the water treatment plant.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Schmücketunnel, Germany



The project:

Schmücketunnel, Heldrungen, Thuringia
Section of the A71, two pipes with a length of 1720m (east pipe) and 1,729m (west pipe) respectively.

Executing company:

Baresel GmbH

Alfred Kunz Untertagebau GmbH

Kirchner Hoch- u. Ingenieurbau GmbH



The problem:

Execution of open dewatering under consideration of unexpected water inrush due to changing building ground.

The solution:

Implementation of multiple KTZ and KTV series submersible pumps. Maximum reliability, 24h-operation possible thanks to their suitability for dry running.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Training at construction sites, Germany



The project:

On customer request, employees are trained by us on-site in the use, maintenance and repair of our pumps.

Example:

Rescue gallery, Stelzen, Blessberg

Alfred Kunz Untertagebau GmbH

The problem:

Often the construction site personnel is not familiar with the pump technology and must

therefore rely on expensive, external assistance.

The solution:

The simple construction of our pumps enables quick, on-site repairs on the part of the construction site personnel.

Our practical training, e.g. in the form of simulated repairs, efficiently provides the required knowledge for maintenance and repair.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

La Praz, France



The problem:

Dewatering in the access gallery at La Praz. This has a length of 2,572m at a 12% incline.

The solution:

Implementation of type LH622 high-pressure pumps as a booster pump. Dewatering at the heading face is carried out using series KRS and KTZ pumps.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

The project:

LTF Lyon Turin Ferroviaria SAS
Railway tunnel underneath the Alps between France and Italy with a length of 52km.

Executing company:

Spie Batignolles TPCI;
Ghella; Cogeis
CE2A (Tsurumi partner)



Kepag Longford, Ireland



The solution:

A Tsurumi type 80C21.5 wastewater pump with cutting unit was flange-mounted "dry" on the pipeline.

The medium to be pumped itself provides sufficient cooling of the pump.

The project:

Draining a wastewater tank in a meat processing facility.

Executing company:

Kepag Group, Longford
Consolidated Pumps (Tsurumi partner)

The problem:

To achieve a longer service life, an eccentric screw pump was to be replaced with a dry positioned submersible pump.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Whelans Quarry, Ireland



The project:

Dewatering in a quarry.

Executing company:

**Whelans Limestone Quarries;
Consolidated Pumps (Tsurumi partner)**

The problem:

Dewatering while overcoming great differences in height of up to 60m.

The solution:

Installation of three type LH645 high-pressure pumps (45kW). Implementation of dimensionally stable hoses with added protection against rockfall.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Truck wash, Luxembourg



The project:

Operation of a truck wash facility.

Executing company:

**Feidt Carrieres s.a., Luxembourg
Comat s.a. (Tsurumi partner)**

The problem:

High volumes of up to 100 trucks per day require a high-performance and dependable pump for the operation of the facility.



The solution:

Dewatering of the facility with a KTZ411. Thanks to their quality characteristics, Tsurumi contractors' pumps can be implemented and operated in nearly all environments involving continuous use with high concentrations of sediment. High-quality ball bearings, internal silicon carbide mechanical seals in oil bath with additional shaft protection guarantee dependability.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Corus Tubes, Netherlands

The project:

Circulation of cooling water with abrasive content for the fabrication of pipes.

Executing company:

Corus Tubes Automotives, Arnheim

Distrimex Pompen&Service BV (Tsurumi partner)

The problem:

The previous pumps were subject to frequent downtime due to extreme wear.

The solution:

Implementation of a KTZ47.5. The pump was installed “dry”, i.e. it is flange-mounted directly on the pipeline without being submerged. The medium is conveyed in the pump past the motor casing and provides sufficient cooling.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period. In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Hubertustunnel, Netherlands



The project:

Construction of a city tunnel in The Hague with a diameter of 9.6m and a length of 1,490m.

Executing company:

Wayss & Freytag Ingenieurbau AG

BAM Civiel BV

Van Hattum en Blankevoort BV

Distrimex Pompen&Service BV (Tsurumi partner)

The problem:

Drainage via open dewatering during tunnelling operations.

The solution:

Implementation of multiple KTZ and KTV series submersible pumps which can be operated in 24-hour snore mode.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period. In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Concrete factories of the Mebin Co., Netherlands



The project:

Operation of 24 concrete recycling plants.

Executing company:

Mebin BV
Distrimex Pompen&Service BV (Tsurumi partner)

The problem:

Implementation of an abrasion-resistant pump suitable for continuous operation.



The solution:

Installation of multiple KTZ pumps in the recycling tanks. The rugged construction of the pumps combined with the special Tsurumi characteristics such as dual internal mechanical seals in oil bath with shaft protection sleeve ensure trouble-free continuous operation.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Haugesund, Norway



The project:

Construction of a residential building in Haugesund.

Executing company:

Intec Pumper AS (Tsurumi partner)

The problem:

Large amounts of ground water must be pumped out to keep the construction site dry.



The solution:

Our partner Intec Pumper AS developed a dewatering concept as well as supplied and installed the required pumps.

A total of eleven type KRS815, KTZ67.5, KTZ43.7, KTZ45.5 and KTV3-55 pumps were implemented.

In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Danube power plant, Asten, Austria



The project:

Installation of a drain pump for the turbine inspection chamber.

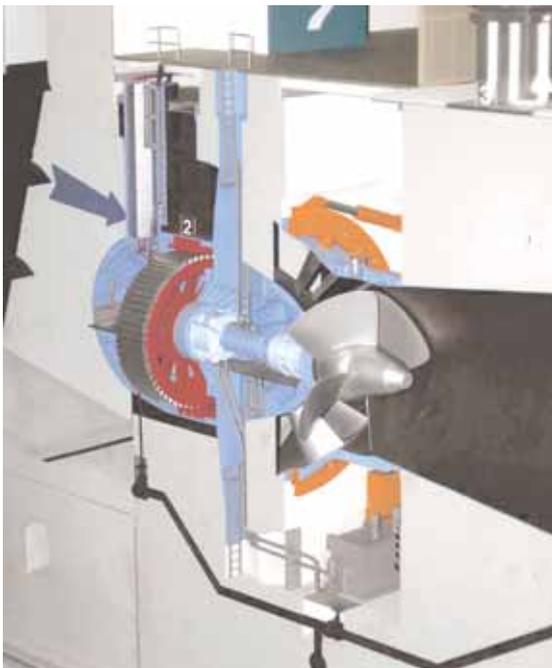
Executing company:

Verbund Austrian Hydro Power AG
Sonnek Engineering GmbH (Tsurumi partner)



The problem:

For inspection work the turbine must be completely drained at the intake and discharge including the headrace tunnel. New turbines are integrated in the collector shaft. Depending on the inspection cycle, the unfiltered water from the Danube must be pumped away there. Pump requirement: 300m³/h at 3bar. Until now clean water submersible pumps were implemented which were always at risk of silting.



The solution:

Implementation of a type LH845 high-pressure pump with a 45kW rating. This conveys the existing pressure line at a pressure of 2.8bar 5m³/min.

Tsurumi contractors' pumps are perfectly suited for dirty media which means that they can also be operated after flooding (extreme silting).

Henndorf Tunnel, Austria



The project:

Construction of a road tunnel for by-passing Henndorf.

Executing company:

Wayss&Freytag Ing. Bau AG

Held&Francke Baugesellschaft mbH&Co.KG

Habau Hoch- u. Tiefbaugesellschaft mbH

Sonnek Engineering GmbH (Tsurumi partner)

The problem:

Drainage via open dewatering during tunnelling operations.

The solution:

Implementation of multiple KTZ and KTV series submersible pumps which can be operated in 24-hour snore mode due to their construction type.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Port promenade in Zurich, Switzerland



The project:

Reconstruction and expansion of Hotel "al porto's" port promenade on Lake Zurich.

Executing company:

Föllmi Bauunternehmung AG

RL Pumpenanlagen GmbH (Tsurumi partner)

The solution:

Implementation of KRS series pumps. These are characterised by their extreme durability and are particularly suitable for continuous use in snore mode.

The pumps were regulated via a frequency converter depending on the water level.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period.

In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Safety gallery, Lugano Tunnel, Switzerland

The project:

Construction of 2,400m long escape gallery to the Lugano road tunnel. The tunnel connects the northern districts of the city to the motorway exit Lugano Nord.

Executing company:

Hochtief Construction AG

Muttoni Bellinzona Co.

RL Pumpenanlagen GmbH (Tsurumi partner)

Commissioned by: Canton Ticino

The problem:

Drainage via open dewatering during tunnelling operations.

The solution:

Implementation of several KTZ and KTV series submersible pumps which can be operated in 24-hour snore mode due to their construction type.



In the event of abrasive and corrosive utilization, stronger wear and tear will take place naturally in certain components. With regards to the above application wear and tear can take place mainly in impeller, agitator, suction plate, shaft sleeve, oil ring, mechanical seal, pump casing, strainer, motor casing and discharge coupling. Depending on the working conditions the lifetime of those parts might vary significantly and can be shorter than the legal warranty period. In this regard, please pay attention to our general conditions of sales (www.tsurumi-europe.com/english/GCS.htm) that we also send to you by mail on request.

Belgium	Richmann-Muller Marine Motors & Pumps NV Replacement of a defective wastewater pump station in a residential house	Page 2
Germany	Best Carwash Hoffmann GmbH & Co. KG Pumping off process water from an industrial car wash	Page 2
Germany	Intermediate access gallery, Stelzen Alfred Kunz Untertagebau GmbH Tunnel drainage under difficult conditions	Page 3
Germany	Katzenberg Tunnel Ed. Züblin Umwelttechnik GmbH Treatment and desludging of the process water from the tunnel advance	Page 3
Germany	Schmücketunnel Baresel AG; Alfred Kunz Untertagebau GmbH; Kirchner Hoch- u. Ingenieurbau GmbH Section of the A71 with two pipes each 1720m and 1729m respectively	Page 4
Germany	Training at construction sites Kunz Untertagebau GmbH Training courses for independent repair and maintenance of pumps	Page 4
France	La Praz Tunnel Spie Batignolles TPCI; Ghella; Cogeis Construction of a 52km long railway tunnel between France and Italy	Page 5
Ireland	Kepag Longford Kepag Group, Longford Pumping off wastewater in a meat processing facility	Page 5
Ireland	Whelans Quarry Whelans Limestone Quarries Dewatering in a quarry with differences in height of up to 60m	Page 6
Luxemburg	Truck wash Feidt Carrieres s.a. Operation of a high-volume truck wash	Page 6
Netherlands	Corus Tubes Corus Tubes Automotives, Arnheim Circulation of cooling water with abrasive content for the fabrication of pipes	Page 7
Netherlands	Hubertustunnel Wayss&Freytag Ingenieurbau AB; BAM Civiel BV; Van Hattum en Blankevoort BV Construction of a city tunnel in The Hague with a diameter of 9.6m and a length of 1,490m	Page 7
Netherlands	Concrete factories of the Mebin Co. Mebin BV Operation of contractors' pumps in recycling tanks in continuous use	Page 8
Norway	Residential building in Haugesund Intec Pumper AS Dewatering during the construction of a residential building	Page 8
Austria	Danube power plant at Asten Verbund Austrian Hydro Power AG Installation of a drain pump for the turbine inspection chamber	Page 9
Austria	Henndorf Tunnel Wayss&Freytag Ing. Bau; Held&Francke; Habau Hoch u. Tiefbau Construction of a road tunnel for by-passing Henndorf	Page 10
Switzerland	Port promenade in Zurich Föllmi Bauunternehmung AG Reconstruction and expansion of the port promenade on Lake Zurich	Page 10
Switzerland	Safety gallery, Lugano Tunnel Hochtief Construction AG; Muttoni Bellinzona Co. Construction of an escape gallery to the Lugano road tunnel	Page 11

We reserve the right to change specifications and designs herein for improvement without prior notice. Our pumps are for professional use only. In the event that Tsurumi (Europe) GmbH have, in exceptional cases taken over, a manufacturer's warranty, this entitles the end-user to assert remedy free of charge against Tsurumi (Europe) GmbH due to any defect to the product occurring during the guarantee period (see below), also then when the warranty claims against the seller do not or no longer exist. In the event of malfunction, which is attributable to the improper handling by the enduser, no guarantee claim shall arise. Further claims shall not result from the warranty, unless if something to the contrary has explicitly been determined. The decision as to whether remedy is effected by way of replacement or repair shall be at the choice of Tsurumi (Europe) GmbH. The claims shall be time barred after a period of three months after expiry of the guarantee period, however, not before expiry of the warranty period which is valid towards the seller. In the event of doubt, the warranty period shall correspond with the warranty period which is valid between the end-user and his seller.

Tsurumi (Europe) GmbH

Heltorfer Straße 14
D-40472 Düsseldorf

Tel.: +49-211-4179373
Fax: +49-211-4791429

sales@tsurumi-europe.com
www.tsurumi-europe.com