

Special constructions for wastewater treatment plants



Scraper tracks for trouble-free
all-year operation

over
30 years

on duty through-
out Europe



Photo: Kläranlage Wolfratshausen/Isar-Loisachgruppe

concrete refurbishment · metalworking · electrical engineering

Your one-stop solution provider.



Best practice demonstrated

Over 30 years technological leadership in the field of scraper tank tracks. Operational reliability during wintertime.

Our electrical trace heating system combined with an intelligent climate control ensures reliable and economic operations during the cold season.

Our intelligent climate control system using among others the parameters building temperature and the ambient relative humidity in the area of the tank enables an efficient and cost-effective operation of the electrical trace heating.



Cesena – Italy

EU-PATENT



**EUROPÄISCHES PATENT | EUROPEAN PATENT
BREVET EUROPÉEN**

Hiermit wird bescheinigt, dass für die in der Patentschrift beschriebene Erfindung ein europäisches Patent für die in der Patentschrift bezeichneten Vertragsstaaten erteilt worden ist.

It is hereby certified that a European patent has been granted in respect of the invention described in the patent specification for the Contracting States designated in the specification.

Il est certifié par la présente qu'un brevet européen a été délivré pour l'invention décrite dans le fascicule de brevet, pour les Etats contractants désignés dans le fascicule.

Europäisches Patent No.
European patent No.
Brevet européen n°

EP3915661

Tag der Bekanntmachung des Hinweisens auf die Erteilung des europäischen Patents
Date of publication of the mention of the grant of the European patent
Date de la publication de la mention de la délivrance du brevet européen

14.12.2022

**FLÜSSIGKEITSBEHANDLUNGSEINRICHTUNG, VORZUGSWEISE
FÜR EINE KLÄRANLAGE**

Patentinhaber | Proprietor(s) of the patent | Titulaire(s) du brevet

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António Campinos

Präsident des Europäischen Patentamts | President of the European Patent Office | Président de l'Office européen des brevets
München, den | Munich, | Munich, le **14.12.2022**

URKUNDE | CERTIFICATE | CERTIFICAT



The advantage of our system: it can be used to retrofit existing tanks while in service. The downtime of the scraper is reduced to an absolute minimum. We are pleased to introduce you on-site to the unique advantages of our scraper track system.

**Our quality commitment –
permanent trouble-free continuing operation**

The combination of rugged concrete substrate and the original Krumme scraper track results in:

- maximum operational reliability and trouble-free operation during cold season
- extension of the useful life of the tank
- low maintenance
- maximum warranty

**Your one-stop solution provider –
on duty throughout Europe.**



Concrete analysis

detailed & precise
for focused action



On-site concrete analysis process:

- damage assessment
- component documentation
- exposure of reinforcement and scan of reinforcement
- determination of the degree of carbonation
- adhesion testing
- drill core removal



the tripod-guided core drilling machine using a wet drilling process



meaningful drilling cores for external laboratory testing



testing the tensile strength of the concrete



Additional analysis by specialized laboratory:

- pressure strength testing
- chloride and sulfate analysis
- microscopy and electron microscopy as required to determine sulfate and alkali reactions
- analysis regarding harmful substances like polychlorinated biphenyl and polycyclic aromatic hydrocarbons
- adhesion testing with the samples
- additional carbonation measurements
- assessment of the reinforcement
- mineralogical analysis of the drill cores



determination of adhesive tensile values



testing the compressive strength



scan of reinforcement to determine the reinforcement positions and concrete covering

Substrate pre-treatment

Refurbishment during ongoing operation
in accordance with the regulatory
framework of ZTV-ING



We are capable to remove damaged concrete and coating material with our self-developed machines to prepare the optimal and leveled substrate for the new scraper track.



modern milling machine



result



concrete structure / refurbishment



completed scraper track



Circular tanks

complete refurbishment:

- concrete analysis
- concrete refurbishment
- stainless steel metalwork
- electrical engineering





before



after



We deliver precision and quality by using only high grade materials in our In-house production facility with the latest state-of-the-art equipment.

Our special formulated FKS-line of concrete ensures a high initial strength within 24 hours in order to reduce the downtime to the absolute minimum.



Longitudinal tanks

before & after



before



after



before

after



Drain channel covers

functional and safe



hinged drain channel cover



Reduction of operating costs and accident prevention

Algae formation in the drain channel is a pervasive problem. The undisturbed water discharge can usually only be accomplished by steady automated or even elaborate manual cleaning. Our light-excluding drain channel covers prevent the formation of algae efficiently. The covers can be opened easily and grant

access to the entire drain channel without interfering retaining fixtures within the drain channel. The unique design of the cover is sturdy second to none and durable. Accidents can be effectively prevented. Usually mandated additional railing for low rising tanks are often legally superfluous.



Drain channel covers

individual solutions

We are using exclusively high-end stainless steel in AISI 304/316 specification or equivalent based on the technical requirements of the tank and customer's demand.





Drain channels, drain channels inner linings, pronged sills, scrum boards

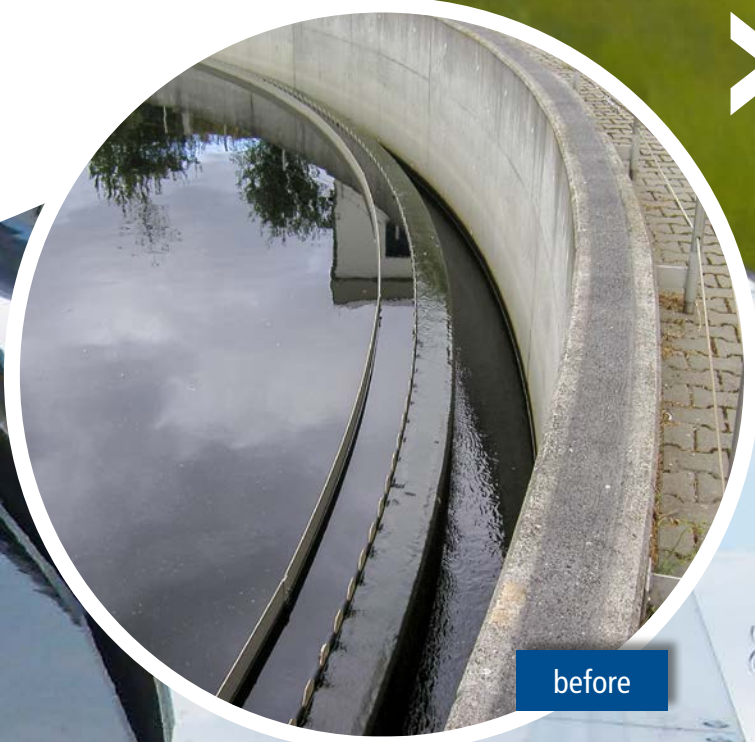
high-end and durable



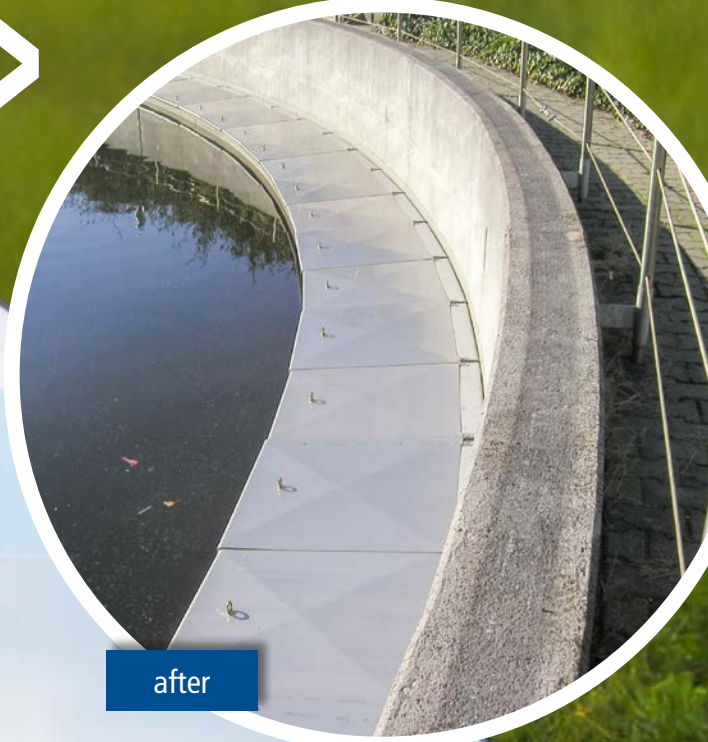
pronged sill



scrum boards



before



after





Bruck an der Muhr, Austria / concrete refurbishment



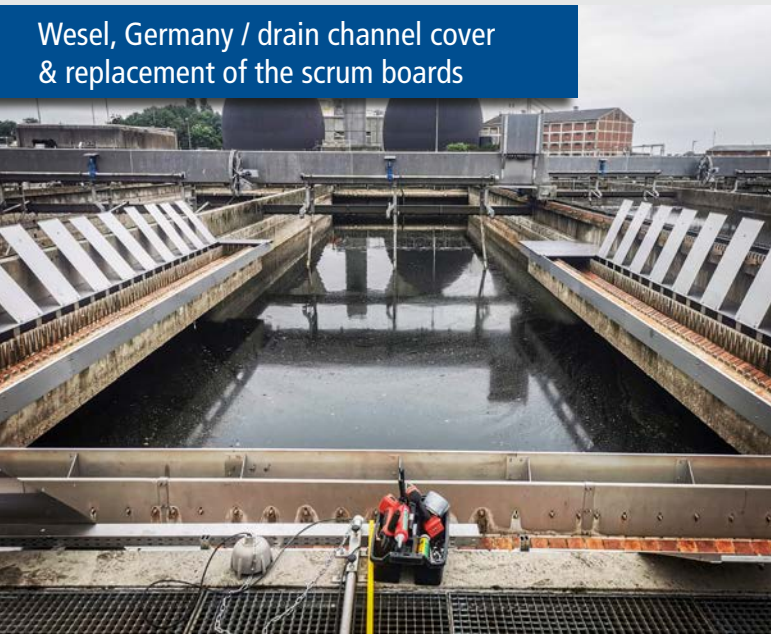
Reggio Emilia, Italy / extensive concrete refurbishment and scraper tank track



Wolfratshausen, Germany / primary settlement tank before – after

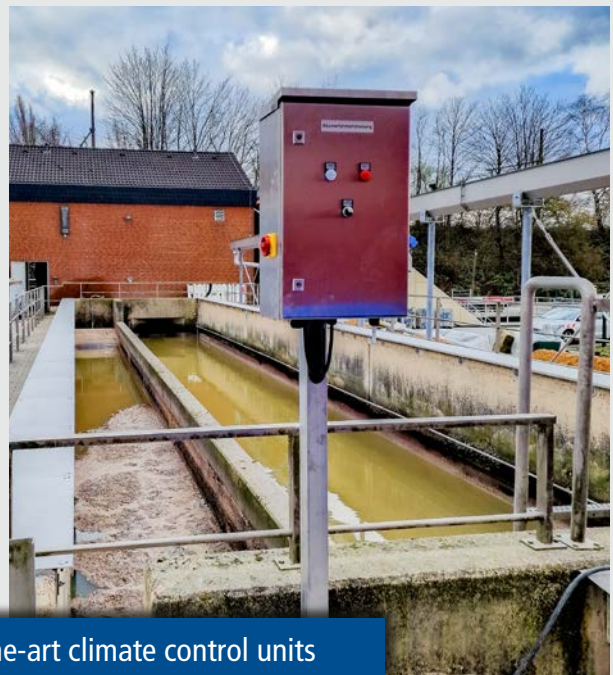


Wesel, Germany / drain channel cover
& replacement of the scum boards





Cremona, Italy / corrosion treatment by mediablasting



circular and longitudinal tanks with state-of-the-art climate control units



Customer satisfaction

- individual consulting on-site
- in-house manufacturing in our modern production facility
- installation by our own highly skilled trained staff
- quality and reliability



Professionalism, precision and the speed of implementation are three characteristics of Friedrich Krumme GmbH. The quality of their craftsmanship shown at our primary settlement tanks at ASET wastewater treatment plant was really outstanding.



Francesco Tadei,
Chief engineer of ASET – Fano



**Your one-stop solution provider –
on duty throughout Europe**



>> We are doing business with Friedrich Krumme GmbH for 5 years now. The grit trap, the primary and secondary settlement tanks and the Bio-P-Tank had been refurbished extensively. We are very pleased with the work of Friedrich Krumme GmbH and we are looking forward to continue this good relationship in the future.

<< Lorenz Demmel,
CEO Abwasserverband
Isar-Loisachgruppe

>> I am very satisfied with the work done by Friedrich Krumme GmbH. It is solid work that will manifest the primary settlement tank structure and is conferring prestige to the wastewater treatment plant of Eggio Emilia – IREN.

<< Flavio Poli,
Manager of MANCASAL wastewater
treatment plant centrale IRETI –
Reggio Emilia

>> Thanks to the reliability and the proposed solutions by Friedrich Krumme GmbH we have had no more outages of the scrapers since the installation of the new scraper tracks on the secondary settling tanks at the wastewater treatment plant at Mantua.

<< Michele Zaghini,
Head of operations
AqA, Gruppo Tea – Mantua

>> Based on extensive research we had energy technology-driven opted for the system proposed by Krumme. After the first onset of winter our decision proved to be the right one. Our expectations regarding the new track cover combined with the treaded wheel and the snow plow device have been fully met ...

The conversion by Krumme went smooth and as planned, too ...

Therefore we can recommend Krumme and their system without hesitation.

<< Mr. Linke,
Head of wastewater treatment plant
Rudolstadt





Friedrich Krumme GmbH

« UK
• King's Lyn

Russia »
• Kotelnikava
• Dobrun

References

over 1,500 satisfied customers
all over Europe

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