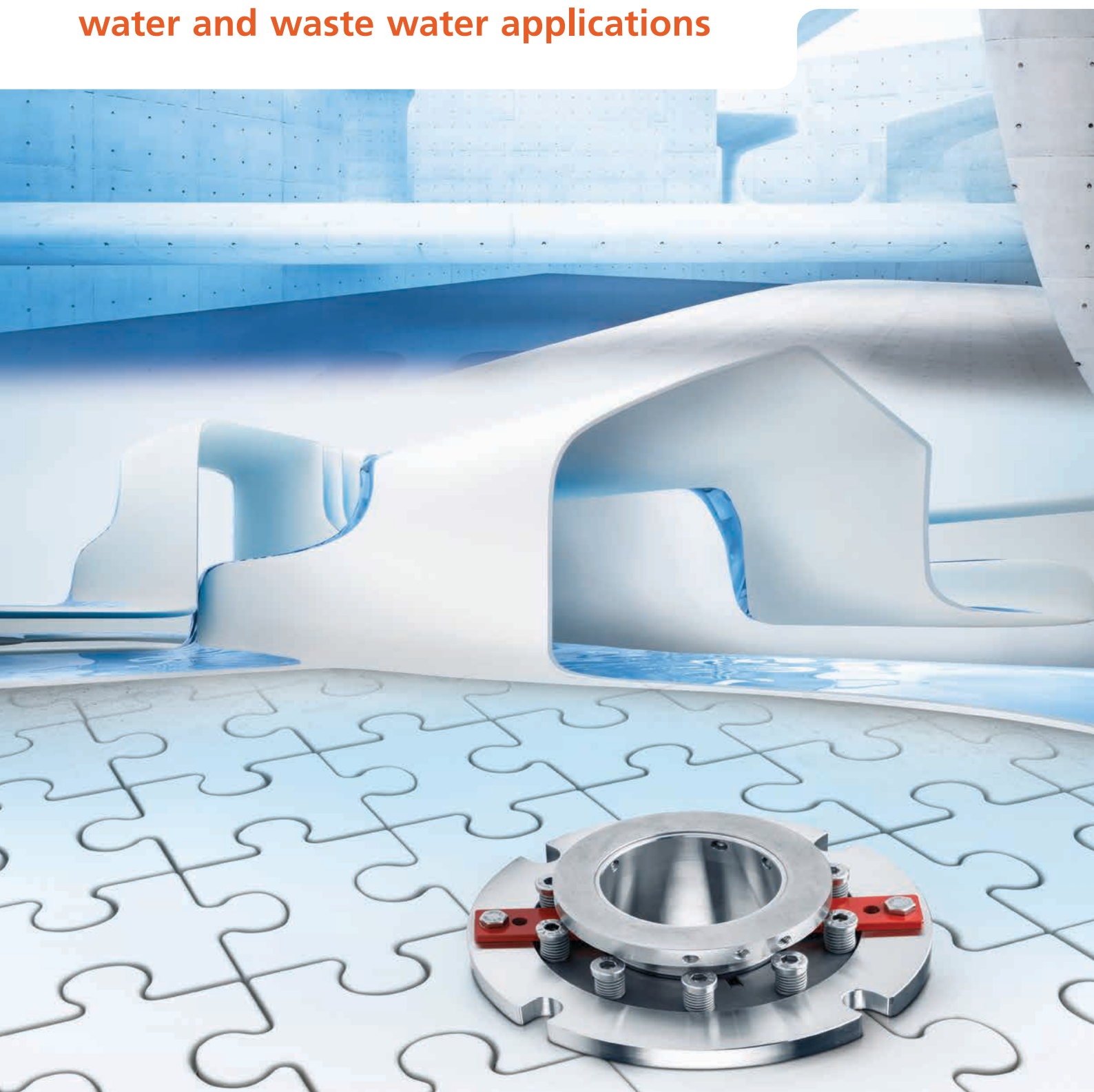


**KSB mechanical seals for
water and waste water applications**



Single-source supplier: your partner for pumps, valves and service

We are your partner for the entire product life cycle. Customised service solutions, short response times and an extensive product portfolio – no other competitor offers a comparable range of products and services.



From initial consultancy to planning, installation, operation, maintenance and comprehensive service concepts, we are on hand as your reliable partner to provide solutions for every situation and requirement – over the entire product life cycle. We offer service and spare parts solutions as part of our comprehensive customer care – not only for KSB pumps and valves but also for all sorts of rotating equipment of all makes.

KSB mechanical seals

KSB's range of tailored spare parts services plays a major role in the service portfolio. This includes KSB mechanical seals. As well as impressing with a robust design, they offer service-friendly installation and optimal integration in the seal chamber. Tried and tested quality.



Seawater applications: pump-optimised KSB engineered seals for a long service life

Seawater places exacting demands on all pump components, including the mechanical seal

The two cartridge seals 4Spider and 4UM are used for KSB's UMA submersible motor. Even in tough external conditions these seals are easy to install and remove as no adjusting dimension is necessary for the installation. The spring travel accommodates for the technical requirements of the motor shaft and thrust bearing. Depending on the size, the sleeve of the mechanical seal also houses the connection between coupling and pump, thus keeping the shaft dry. Seawater

desalination applications are covered by KSB's pump series HGM-RO and RPH-RO. The 4HG mechanical seal matches the HGM-RO pump type series. It includes the shaft protecting sleeve of the pump and is easy to install thanks to its modular design. For the RPH-RO pump KSB offers its 4RPS single cartridge seal. The seal's materials and design ensure a long service life and are perfectly matched to the pump application

4Spider for UMA/UPA



Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 20 bar dynamic Up to 30 bar static
Temperature	-15 °C to 110 °C

4HG for HGM-RO



Design	Single mechanical seal
Type	Dynamic, balanced
Operating pressure	Up to 6 bar dynamic Up to 25 bar static
Temperature	-40 °C to 220 °C

4UM for UMA/UPA

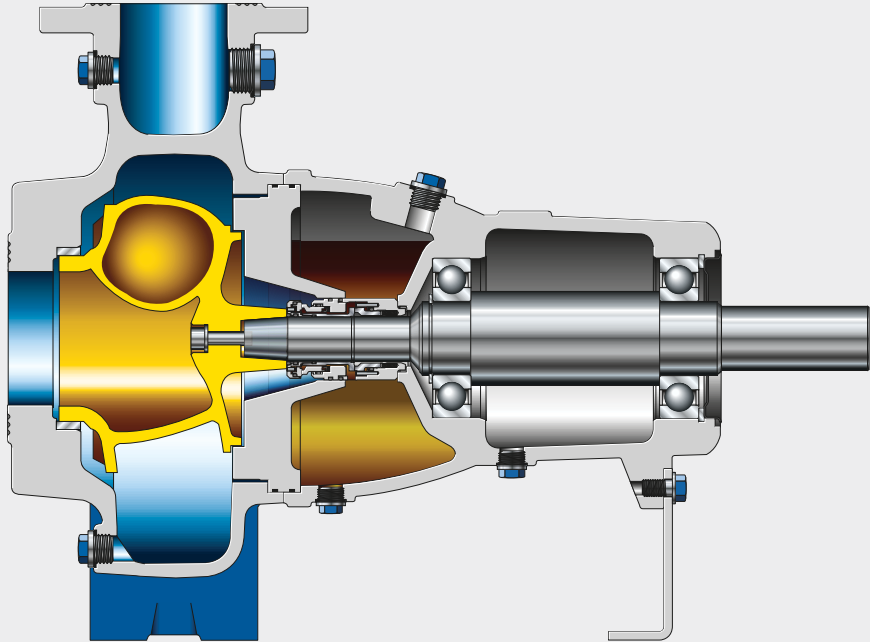


Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 20 bar dynamic Up to 30 bar static
Temperature	-15 °C to 110 °C

4RPS for RPH-RO



Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 70 bar dynamic Up to 100 bar static
Temperature	-15 °C to 100 °C



4STQ mechanical seal for Sewatec/Sewabloc and Amarex KRT

The Sewatec and Amarex KRT pump type series for waste water transport and sludge treatment are optimally sealed by KSB's 4STQ mechanical seal. With its pump-optimised design this seal has been approved for all of the pump's applications. Its springs, located in an oil reservoir outside the fluid handled, are insensitive to contamination; they provide uniform surface pressure across the contact faces, thus ensuring a long service

life. The balanced double KSB mechanical seal in tandem arrangement brings the additional benefit of a modular design. Optimum pre-loading of the mechanical seal is taken care of as the seal is easy to install without adjusting dimensions and assembly fixtures.



4STQ for Sewatec/Sewabloc

Design	Double cartridge seal
Type	Stationary, balanced
Springs	Multi-spring arrangement
Operating pressure	Up to 10 bar dynamic, up to 16 bar static
Temperature	-15 °C to 100 °C
Bearing bracket (seal size)	S01 (022/025), S02 (033/033), S03 (033/055), S05 (065/065), S08 (120/120), S09 (150/150),
Business type	Engineered

4STQ for Amarex KRT

Design	Double cartridge seal
Type	Stationary, balanced
Springs	Multi-spring arrangement
Operating pressure	Up to 16 bar dynamic, up to 20 bar static
Temperature	-40 °C to 100 °C
Bearing bracket (seal size)	S01 (022/025), S02 (033/033), S03 (033/055)
Business type	Standard (KSB EasySelect)

4STC for Amarex KRT and Sewatec/Sewabloc



4STC is a stationary component seal for the Amarex KRT, Sewatec and Amacan pump type series. The springs are located outside the fluid handled, protected from contamination. The primary ring of the seal has been secured against falling out, making it a safer fit for vertically installed pumps.

Design	Single component seal
Type	Stationary, balanced
Operating pressure	Up to 14 bar dynamic Up to 16 bar static
Temperature	-40 °C to 200 °C

4STK for Amarex KRT and Sewatec/Sewabloc



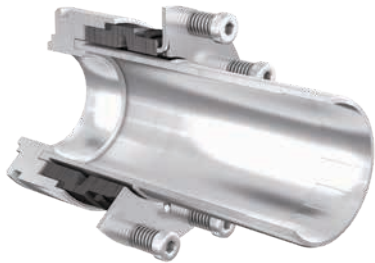
The 4STK seal type series has been developed for dry-installed pumps of the KRT and Sewatec series that are fitted with a cooling jacket. An impeller integrated between the seal at the impeller end and the seal at the motor end ensures the best possible circulation of the cooling liquid. To achieve optimum cooling rates the impellers have been designed for different speeds and the inner profile has been hydraulically optimised. The double cartridge seal is fitted by simply sliding it onto the shaft. It is fitted with positive-locking torque transmission elements. Removal is just as time-saving. The seal can be dismantled without removing the discharge cover.

Design	Double cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 16 bar dynamic Up to 20 bar static
Temperature	-40 °C to 100 °C

Tailored sealing solutions for the KWP pump type series

All applications of KSB's KWP pump type series can be matched with a KSB mechanical seal. The 4K single and 4KD double KSB engineered seals and the 4KDC double cartridge seal have a stationary design with the springs arranged outside the fluid handled. They are thus ideal for waste water applications with high solids contents. The 4KBL direct retrofit seal is the match for KWP-Bloc pumps. For sealing waste water with a very high solids content, such as in flue gas desulphurisation, KWP (FGD) pumps are combined with a 4K cartridge seal.

4K for KWP



This single mechanical seal is tailored to the seal installation space of the pump. Its large external springs are insensitive to contamination and provide uniform surface pressure across the contact faces, thus ensuring a long service life. Optionally, this seal is available as a 4KD double seal.

Design	Single* mechanical seal
Type	Stationary, balanced
Operating pressure	Up to 25 bar dynamic Up to 37.5 bar static
Temperature	-15 °C to 150 °C

* Also available as a double mechanical seal

4K Cartridge for KWP (REA)



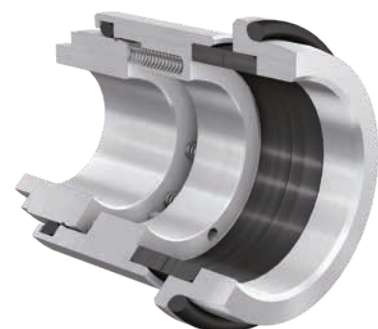
This single cartridge seal is designed specially for applications with high solids contents. Optionally, a system for periodic flushing can be connected to flush away leakage products and significantly extend the seal life.

Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 10 bar dynamic Up to 15 bar static
Temperature	-15 °C to 110 °C

4KBL for KWP-Bloc

This single mechanical seal includes the shaft protecting sleeve for the pump to facilitate installation. This means no axial adjusting dimension is required, and the mechanical seal is always perfectly positioned on the shaft.

Design	Single cartridge seal
Type	Dynamic, balanced
Operating pressure	Up to 25 bar dynamic Up to 37.5 bar static
Temperature	-15 °C to 100 °C





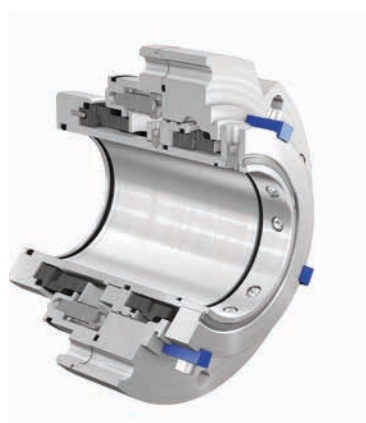
4KC and 4KDC for KWP

The 4KC single cartridge seal and the 4KDC double cartridge seal include the shaft protecting sleeve for the pump and can be used to replace competitor seals without any modifications. Given the stationary design, the springs are located outside the fluid handled and thus protected from contamination. The 4KDC double mechanical seal is designed with optimum heat dissipation in the seal area provided by the pumping screw. The circulation system circulates the buffer/barrier fluid effectively and, consequently, increases the seal life. The double mechanical seal's cartridge can be operated with either unpressurised buffer fluid or pressurised barrier fluid.



4KC

Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 16 bar dynamic Up to 24 bar static
Temperature	-40 °C to 200 °C



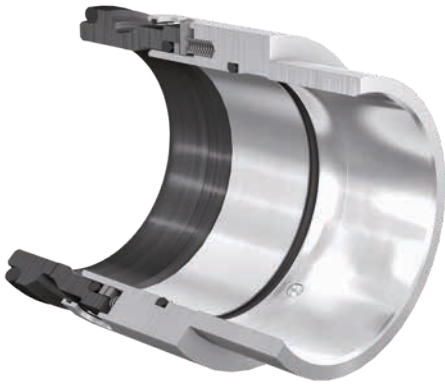
4KDC

Design	Double cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 16 bar dynamic Up to 24 bar static
Temperature	-40 °C to 200 °C

KSB direct retrofit seals and standardised seals for clean, raw and service water applications

For sealing KSB's RDLO and Omega pump type series, KSB offers the pump-specific direct retrofit seals 4RD and 4OM. The range is complemented by the 4OMQ and 4RDQ double cartridge seals for applications with negative suction pressure. The Multitec pump type series is covered by KSB's 5B standardised seal, which can be installed in all pumps with standardised installation spaces to EN 12756. Also, all seals are WRAS-approved for drinking water.

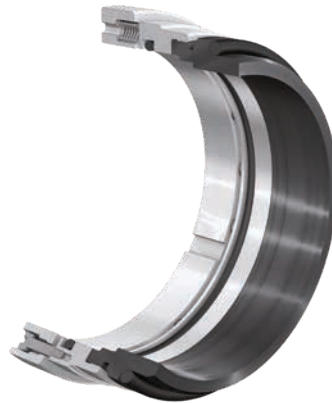
4OM for Omega



This robust and practical seal covers all applications of the Omega pump. The single mechanical seal includes the spacer sleeve for the pump, so it can be fitted without requiring an adjusting dimension.

Design	Single mechanical seal
Type	Dynamic, balanced
Operating pressure	Up to 25 bar dynamisch Up to 37,5 bar statisch
Temperature	-40 °C to 150 °C

4RD for RDLO



Together with the shaft protecting sleeve of the pump, the 4RD seal can be installed like a cartridge. The primary ring is shrink-fitted into the metal primary ring carrier. This ensures even contact, also under fluctuating pressure and temperature conditions.

Design	Single mechanical seal
Type	Dynamic, balanced
Operating pressure	Up to 25 bar dynamisch Up to 37,5 bar statisch
Temperature	-40 °C to 130 °C

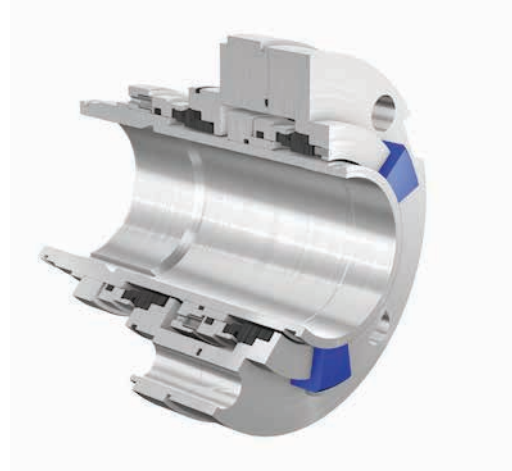
4OMQ for Omega



Double cartridge seal especially designed for applications with negative suction pressure. The optimised flushing channel ensures that any solids are flushed away from the inboard side of the mechanical seal.

Design	Double cartridge seal
Type	Dynamic, unbalanced
Operating pressure	Up to 25 bar dynamic Up to 37.5 bar static
Temperature	-40 °C to 150 °C

4RDQ for RDLO



Double cartridge seal especially designed for applications with negative suction pressure. The primary ring is shrink-fitted into the metal primary ring carrier. This ensures even contact, also under fluctuating pressure and temperature conditions.

Design	Double cartridge seal
Type	Dynamic, balanced
Operating pressure	Up to 16 bar dynamic Up to 24 bar static
Temperature	-15 °C to 130 °C

5B for all KSB pump type series with a standardised seal to EN 12756*

Installing this standardised seal to EN 12756 is greatly facilitated by a circlip holding together the dynamic unit. The seal can be used for a large variety of applications, also with a quench system or as a double seal in back-to-back arrangement.

Design	Single mechanical seal
Type	Dynamic, balanced
Operating pressure	Up to 40 bar dynamic Up to 60 bar static
Temperature	-50 °C to 220 °C

*e.g.: Multitec



UNITAS S – The cartridge solution for Omega pumps

UNITAS S is a mechanical seal type series of single cartridge seals in stationary design. Variants with lip seal (UNITAS Q) and throttling bush (UNITAS T) for connecting a liquid, steam or gas quench are also available. The sealing elements are designed for universal use and fit into the seal installation spaces of various pump manufacturers. UNITAS for Omega features a centring diameter at the seal cover that ensures an optimum radial installation position of the mechanical seal in KSB's Omega pump type series. The multi-spring arrangement of UNITAS is located outside the fluid handled, protected against contamination.

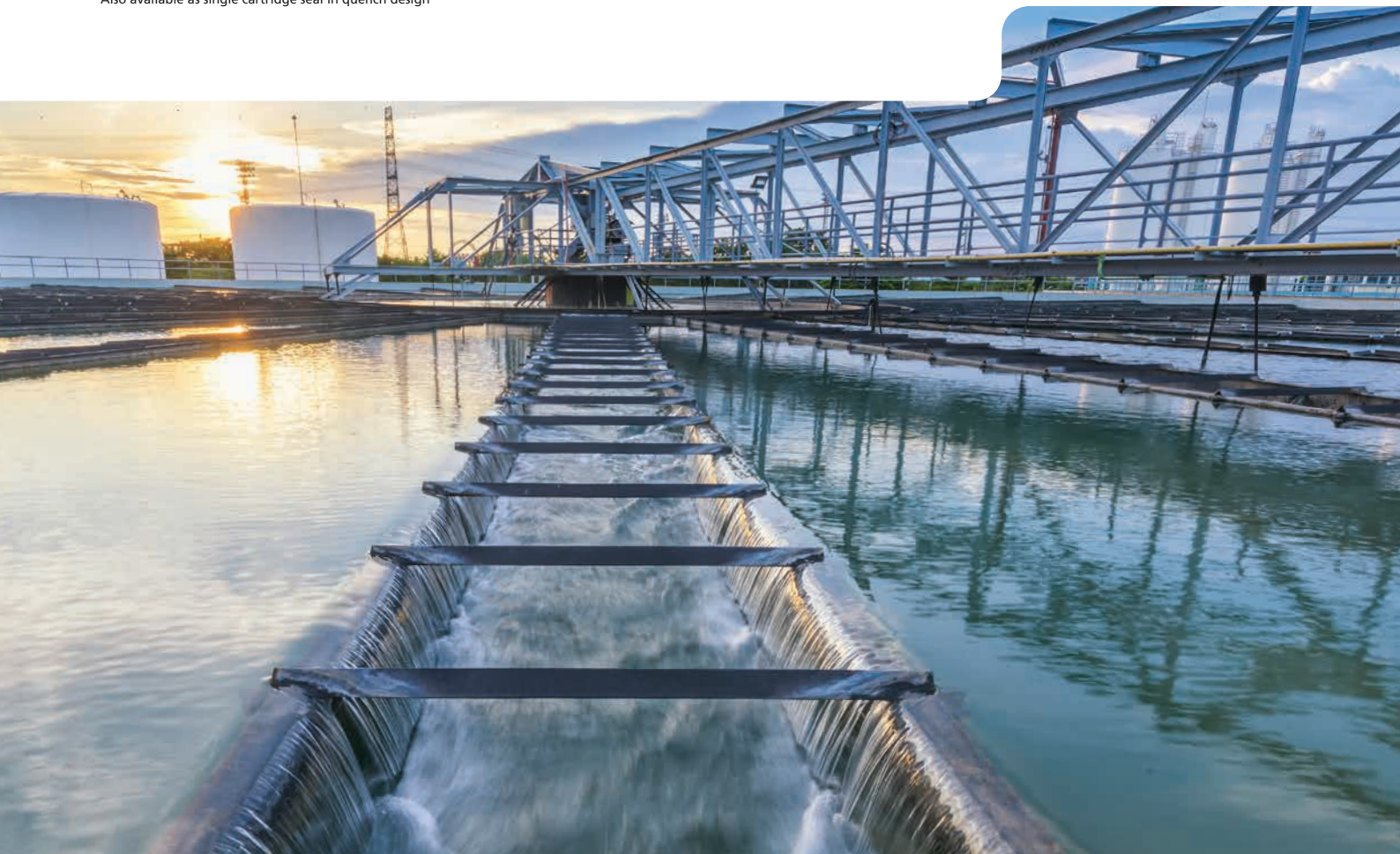


UNITAS S

for Omega

Design	Single cartridge seal
Type	Stationary, balanced
Operating pressure	Up to 25 bar dynamic Up to 37.5 bar static
Temperature	-40 °C to 220 °C

Also available as single cartridge seal in quench design



KSB auxiliary systems

KSB is able to provide the full range of seal auxiliary systems for all kinds of applications. KSB's thermosyphon systems, quench systems and cyclone separators supply the mechanical seals with clean and cool fluids in order to increase the seals' service life.



Thermosyphon system

The SDPN16 system supplies double mechanical seals with pressurised barrier fluid (Plan 53A) or unpressurised buffer fluid (Plan 52). It is used for applications where leakage to atmosphere must be minimised, collected or completely ruled out.

Quench system

The KWT51 system is used to provide an atmospheric quench to single mechanical seals. It is used for applications where leakage to atmosphere must be collected or diluted.

Cyclone separator

The HyCone cyclone separator is used with pumps handling suspensions or contaminated fluids. It ensures the mechanical seal is continually supplied with cleaned fluid handled. Solid particles are automatically returned to the suction nozzle of the pump.

HyCone

Max. static pressure	Up to 70 bar
Pressure difference	1.7 to 12 bar
Max. temperature	125 °C

Further versions (e.g. flanged) available on request.



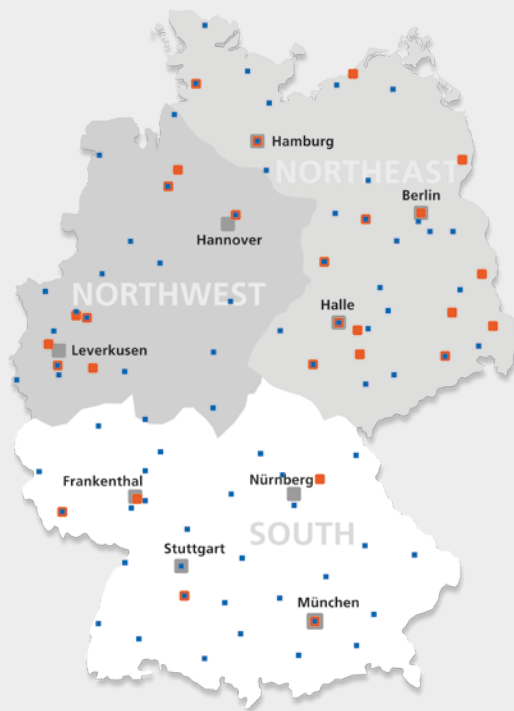
SDPN16

Pressure	Up to 16 bar
Temperature	-60 °C to 200 °C
Total volume	8 litres



KWT51

Pressure	Unpressurised
Temperature	-40 °C to 120 °C
Total volume	3 litres



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- KSB service centre
- Service partner

Talk to us – we are here to help, anywhere and at any time.

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Call your sales house from Germany at € 0.14/minute (mobile phone charges may be higher).

Tel. +49 1805 5724-80
Fax +49 1805 5724-89

KSB 24-hour service hotline

Tel. +49 6233 86-0
Fax +49 6233 86-3401

Region North-West

Industry, water/waste water engineering and energy

Hannover sales branch

Tel. +49 511 33805-0
Fax +49 511 33805-55
vertrieb-hannover@ksb.com

Leverkusen sales branch

Tel. +49 214 20694-10
Fax +49 214 20694-55
vertrieb-leverkusen@ksb.com

Building services

Leverkusen sales branch

Tel. +49 214 20694-10
Fax +49 214 20694-57
vertrieb-leverkusen@ksb.com

Region North-East

Industry, water/waste water engineering and energy

Berlin sales branch

Tel. +49 30 43578-5010
Fax +49 30 43578-5055
vertrieb-berlin@ksb.com

Halle sales branch

Tel. +49 345 4826-5300
Fax +49 345 4826-5355
vertrieb-halle@ksb.com

Hamburg sales branch

Tel. +49 40 69447-0
Fax +49 40 69447-255
vertrieb-hamburg@ksb.com

Building services

Berlin sales branch

Tel. +49 30 43578-5010
Fax +49 30 43578-5058
vertrieb-berlin@ksb.com

Halle sales branch

Tel. +49 345 4826-5300
Fax +49 345 4826-5358
vertrieb-halle@ksb.com

Hamburg sales branch

Tel. +49 40 69447-0
Fax +49 40 69447-255
vertrieb-hamburg@ksb.com

Region South

Industry, water/waste water engineering and energy

Frankenthal sales branch

Tel. +49 6233 8669-00
Fax +49 6233 8669-55
vertrieb-frankenthal@ksb.com

Stuttgart sales branch

Tel. +49 7152 33061-70
Fax +49 7152 33061-95
vertrieb-stuttgart@ksb.com

Nuremberg sales branch

Tel. +49 911 58608-70
Fax +49 911 58608-56
vertrieb-nuernberg@ksb.com

Munich sales branch

Tel. +49 89 72010-200
Fax +49 89 72010-275
vertrieb-muenchen@ksb.com

Building services

Frankenthal sales branch

Tel. +49 6233 8669-38
Fax +49 6233 8669-55
tga-frankenthal@ksb.com

Stuttgart sales branch

Tel. +49 7152 33061-10
Fax +49 7152 33061-96
tga-stuttgart@ksb.com

Nuremberg sales branch

Tel. +49 911 58608-80
Fax +49 911 58608-56
vertrieb-nuernberg@ksb.com

Austria

KSB Österreich GmbH

www.ksb.com/de-at
Tel. +43 5 91030-0

Spare parts

Tel. +43 5 91030-277
Fax +43 5 91030-200

Service centre

Tel. +43 5 91030-255
Fax +43 5 91030-200
info.austria@ksb.com

Switzerland

KSB (Switzerland) AG

www.ksb.swiss
Tel. +41 43 2109-933
Fax +41 43 2109-966
sales-ch@ksb.com



KSB SE & Co. KGaA
Johann-Klein-Strasse 9
67227 Frankenthal (Germany)
www.ksb.com