**DISTRIBUTOR VALVES**

**FOR GLOBAL APPLICATIONS**

Valve technology that can address the needs of the world’s trains. Being able to serve a global market means delivering products to meet very specific and often demanding requirements – for example a valve with the ability to operate in extreme environmental and climatic conditions such as temperatures down to -60 °C!

At the heart of pneumatic brakes is the distributor valve. This react precisely to changes in brake pipe pressure and provide the corresponding brake cylinder pressure. Modern valves are sophisticated pieces of technology, providing load-dependent braking for various specific brake types. Many of these valves are in daily use all over the world. However, they are not a “universal” product, various regions have different standards that have been established over the years and are not compatible with one another.

**LEADERS IN DISTRIBUTOR VALVE TECHNOLOGY**

Many years of operational experience combined with continuous development and research and a recognition that lifecycle costs need to be reduced have helped establish Knorr-Bremse as a leader in distributor valve technology. The Knorr-Bremse KE distributor valve, for example, is extremely popular in the core European UIC market, and having proved itself in operation the valve has now become synonymous with absolute reliability. In American and African markets the D620 distributor valve is the standard valve which uses AAR technology, and in Australia the AAR system is employed for trains carrying heavy coal. The Australian railway system uses AAR systems with Knorr-Bremse UB-series valves. In close collaboration with the Russian State railway company, Knorr-Bremse has developed valves for use on 1520 mm gauge tracks. Specially designed to fit vehicles in markets with 1520 mm gauge, the units are compatible with older valve types and offer clear advantages for the operator. While valves are designed to operate down to -40 °C, temperatures in Russia can fall as low as -60 °C! Due to the same construction principles, all distributor valves have in common long maintenance intervals and low lifecycle costs and are characterized by their robust, reliable and weight-saving design.

**APPLICATIONS**

Freight Cars | Locomotives | Passenger Coaches
NEW GENERATION DISTRIBUTOR VALVE KEf FOR UIC MARKET

Aimed at reducing in emissions, the KEf distributor valve was engineered from the ground up when the KE distributor valve entered service in 1953. Its engineers had written a new chapter in rail brake history. The KEf was the first distributor valve capable of adapting the brake cylinder volume to the prescribed time, regardless of size and piston stroke. It replaced high-maintenance mechanical slide valves with reliable rubber membranes and seat valves. Furthermore extensive endurance testing was conducted – TSI and UIC certifications have successfully been conducted – TSI and UIC certifications have been obtained.

As a result of a continuous development – and new technical standards – there are now approximately 500 versions of KEf valve existing, plus countless components. As a result, the decision was taken to develop the KEf – a completely new 4 Q distributor valve generation – it will be complemented by a newly developed featuring onаге, two-stage and load-dependent relay valves.

Solid cast design has been replaced by a new lightweight, modular approach. Whereas formerly the piston volumes of the distributor and relay valves were built of a lot of space and material, now the introduction of the installation space now elegantly disappears in the block. This makes the valve possible to adapt as freely as possible to potential requirements.

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MAIN FEATURES:
- Low oil pick-up (4.2% distributor valve variants)
- Improved space-particulate management (standard distributor valve)
- Reduced installation space and weight
- Standardized (4 Q valve)

KEf – FOR UIC MARKET

- Distributor valve KEf in conjunction with relay valve family KEf covers all market requirements
- Graduated application and direct release
- Proven in service around the world
- Seamless integration into existing car types due to flange design
- Interchangeable with all UIC approved distributor valves
- Valves EP brake possible
- Working temperature -40 °C to +66 °C
- Four-stage version for 50 t available

DB60 – FOR AAR FREIGHT MARKET

- Graduated application and direct release
- Designed for accelerated service brake signal transmission
- Improved control of long and heavy trains
- Separation of service and emergency brake portions
- Interchangeable with all AAR approved distributor valves
- Working temperature -40 °C to +66 °C
- (For 80 t available)

WF5 – FOR AAR FREIGHT MARKET

- Graduated application and direct release
- Designed for operation on longer freight trains
- High brake signal and response rates resulting in reduced stopping distances and saving energy
- On-line diagnostics on each wagon

KEf – FOR UIC MARKET

- Engineered specifically for propulsion / direct release and for load settings
- Designed for accelerated service signal transmission
- Improved control of long and heavy trains
- Meets the requirements of Russian standards
- Interchangeable with other 1520 mm gauge freight / distributor valves
- Interchangeable with automatic load brake valves
- Working temperature -60 °C to +60 °C
- (60 t for DC braking)

KBA60 – FOR 1520 MM GAUGE FREIGHT MARKET

- Engineered specifically for propulsion / direct release and for load settings
- Designed for accelerated service signal transmission
- Improved control of long and heavy trains
- Meets the requirements of Russian standards
- Interchangeable with other 1520 mm gauge freight / distributor valves
- Interchangeable with automatic load brake valves
- Working temperature -60 °C to +60 °C
- (60 t for DC braking)

LIFE-CYCLE ASSESSMENT – FOCUS PRODUCT CARBON FOOTPRINT

Distributor valves, Type KEf saves 52% CO₂-emissions during its lifetime compared to the distributor valve, Type KE0dvKSL

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<th>Distributor valves, Type KEf</th>
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<td>Integrated changeover for graduated / direct release and for load settings</td>
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<td>Working temperature -4 °C to +66 °C</td>
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<td>Improved handling of long, heavy trains, providing shorter stopping distances and saving energy</td>
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WF5 value | DB60 value | KEf value | KE0dvKSL value |
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