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 reacts precisely to changes in brake pipe pressure and provides the corresponding brake cylinder pressure. Modern valves are sophisticated pieces of technology, providing load-dependent braking for various specific brake types. Millions of these valves are daily used all over the world, but they are not a “universal” product as 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 new, 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 DB60 distributor valve is the standard valve which uses AAR technology, and in Australia the AAR system is employed for trains carrying heavy ore. The Australian railway system AAR operates with Knorr-Bremse KE series valves. In close collaboration with the Russian State Railway Company Knorr-Bremse has developed KE 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 or even lower in Europe and North America, temperatures in Russia can fall to as low as -60°C! Due to the same construction principles, all distributor valves have in common an extended maintenance intervals and low life-cycle costs and are characterized by their robust, reliable and lightweight design.

DISTRIBUTOR VALVES FOR GLOBAL APPLICATIONS

AAR

UIC

AAR

GOST

Other / no significant freight

APPLICATIONS

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

After more than sixty years in operation, the KE distributor valve was re-engineered from the ground up. When the first KE valve entered service in 1945, its engineers had written a new chapter in railroad history. The KE was the first distributor valve capable of coping with the brake cylinder flow within the prescribed time, regardless of size and piston stroke. It replaced high-maintenance, mechanical slide valves with reliable rubber membranes and seat valves. Furthermore, the entire design was based on a modular principle. The idea was to make the valve capable of adapting as flexibly as possible to potential requirements.

As a result of continuous development – and new technical standards – there are now approximately 500 versions of KE valves existing, plus countless components. As a result, the decision was taken to develop the KEf, a new chapter in railroad history. The KEa was the first distributor valve capable of always filling the brake cylinder within the prescribed time, regardless of size and piston stroke. It preserves at least the same high mission reliability and durability. When a valve needs to be overhauled, the parts of the new KEf have been designed for best-in-class maintenance are easy detachable from the bracket and the bracket simply remains on the car. All modules requiring maintenance are lightweight.

Furthermore extensive endurance testing was conducted to prove at least the same high mission reliability and long useful life as the existing generation. KE valve variants have been designed for best-in-class availability: When a valve needs to be exchanged, the bracket simply remains on the car. All modules requiring maintenance are easy detachable from the bracket and are lightweight.

MAIN FEATURES:
- Lower silencing 60% distributor valve variants
- Improved space parts in link management – standard distributor valve
- Reduced installation space and weight – Standardized外形

KEY FOR UIC MARKET

Distributor valve KEf in conjunction with relay valve family KRf covers all market requirements.
- Guaranteed applicable and direct release
- Proven in service around the world
- Seamless integration into various car types due to kit design
- Interchangeable with all UIC approved distributor valves
- Valves EP brake possible
- Working temperature -40 °C to +78 °C
- Interchangeable with all AAR approved distributor valves
- Seamless integration into various car types due to kit design
- Interchangeable with UIC approved distributor valves
- Valves EP brake possible
- Working temperature -40 °C to +78 °C (lower temperature version for 60°C available)

KB60 – FOR 1520 MM GAUGE FREIGHT MARKET

- Improved performance for graduated / direct release and for load settings
- Designed for automatic brake signal transmission
- Improved control of long and heavy trains
- Meets the requirements of Russian standards
- Interchangeable with other 1520 mm gauge freight distributor valves
- Interoperable with automatic load valve systems
- Working temperature -60 °C to +60 °C (+80 °C for de-icing)

EP60 – FOR AAR FREIGHT MARKET

- Directly controlled pneumatic (ECP) brake system
- Simultaneous signal transmission through the train
- Local compensated baking at each wagon
- Graduated application and release
- Meets AAR performance and interoperability specifications per S-4200
- Improved handling of long, heavy trains, providing shorter stopping distances and saving energy
- On-line diagnostics at each wagon

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

<table>
<thead>
<tr>
<th>Component Production</th>
<th>Use Phase</th>
<th>Recycling and End of Life</th>
<th>Manufacturing and Component Production</th>
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<td>Distributor valves, Type KEf</td>
<td></td>
<td></td>
<td>Distributor valves, Type KE0dvKSL</td>
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**DISTRIBUTOR VALVES**