

UBPS WITH INTEGRATED VALVE FASTER CLOSING TIMES IN EMERGENCY STOP SITUATIONS

INTEGRATED VALVE MAKES BRAKING AND CLAMPING ELEMENTS FASTER

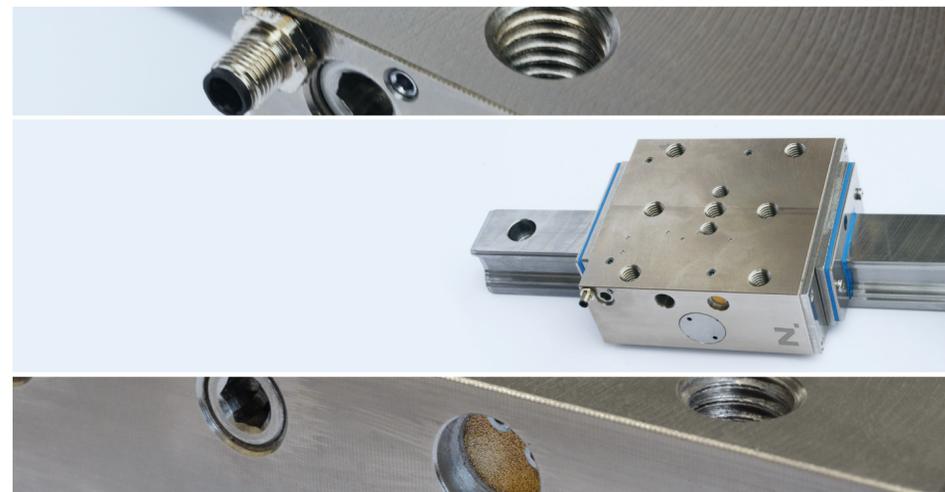
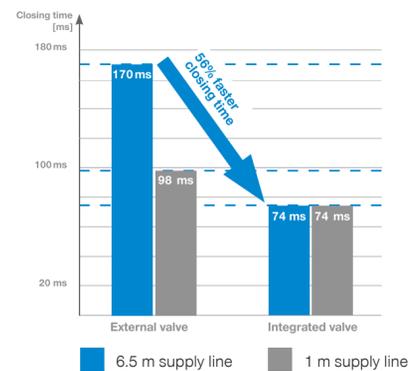
Zimmer Group uses valves in the braking elements for its UBPS series that shorten response times and braking distances and improve safety.

In machining and handling systems, braking elements handle a core safety function since they ensure that machines and systems come to a stop as quickly as possible in an emergency. The response time of the braking element is of key importance here, because the faster the system comes to a stop, the less damage there will be—or damage can be avoided entirely.

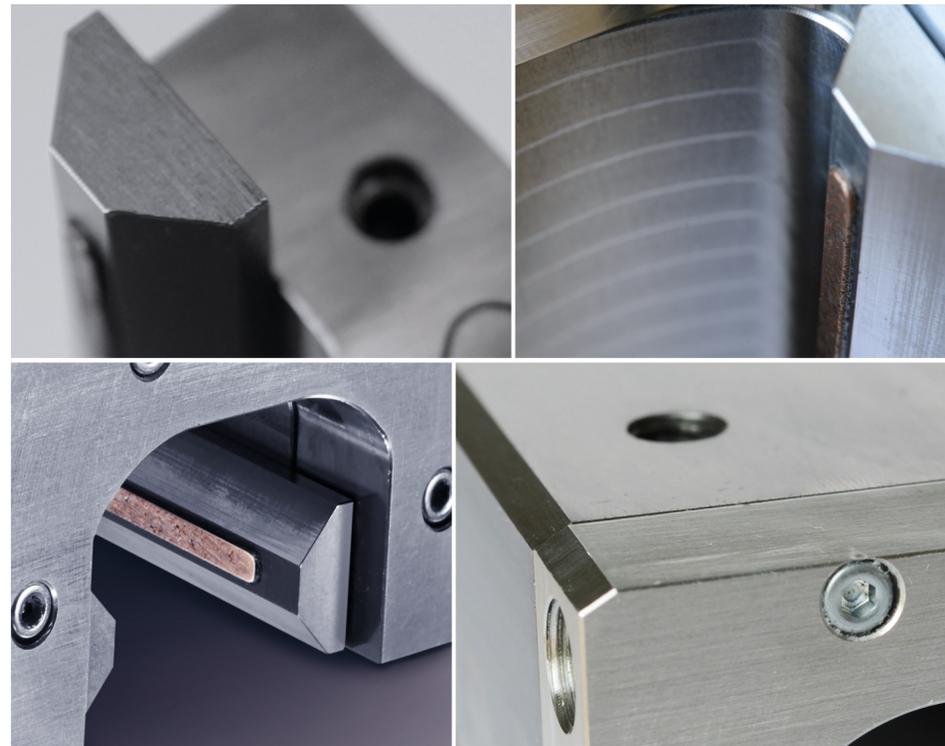
To shorten the response time of its braking elements, the Zimmer Group has integrated a globally unique feature into its braking elements for the UBPS series: Here, the electric valve for triggering the braking or clamping process is not a few meters away from the braking element, as was typical in the past, but instead it is directly in the braking element.

PRODUCT ADVANTAGES

- ▶ 56% faster closing time for the braking element compared to the external valve (depending on the hose length)
 - Direct venting at the element
 - Closing time is not dependent on the hose length
- ▶ Safety element: safe braking in case of energy failure
- ▶ Emergency stop function, valve normally closed
- ▶ Normally closed (NC) with spring energy accumulator
- ▶ Reduced air consumption



LBHS BRAKING ELEMENT USING RESIDUAL STRESS FOR BRAKING



ENLTF01-0915
Order no. MKT000044-02



Linear technology

- Clamping and braking elements
- + New LBHS product
- + UBPS with integrated valve
- + RBPS series expansion

THE KNOW-HOW FACTORY

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LBHS BRAKING ELEMENT USING RESIDUAL STRESS FOR BRAKING

A WORLD FIRST: THE LBHS SERIES CLAMPS AND BRAKES WITHOUT MOVING PARTS

Zimmer Group is the market and technology leader in clamping and braking elements and is now proving its technological expertise with an impressive innovation. Zimmer has developed a hydraulic braking element that consists, basically, of a single functional component, does not contain any moving parts and generates all braking and holding forces solely through the residual stress of the base body.



Image: Function view of the LBHS hydraulic series

PRODUCT ADVANTAGES

- ▶ 1 functional component
- ▶ Hydraulic braking element in a narrow and low design
- ▶ Can be used for all types of carriages
- ▶ Highest rigidity
- ▶ No moving parts
- ▶ Brakes in case of drop in pressure (NC)
- ▶ FEM-optimized
- ▶ Holding forces are generated through the residual stress of the base body
- ▶ Addition of the pneumatic LKP, LKPS, LBPS series to the hydraulic product range

FUNCTION

The new, extremely narrow LBHS series consists primarily of a patented unibody housing that does not contain any pistons, springs or other moving parts susceptible to wear. The housing block merely contains oil ducts and cut-outs created with precision through the use of wire-cut electrical discharge machining.

If this base body is pressurized with hydraulic fluid (S2), it opens slightly, releasing the slide on the linear axis (S3). If the hydraulic pressure drops, the element assumes its original shape again, which allows it to compress the two brake pads on the linear axis (S1).



- ▶ (S1) closed
- ▶ (S2) opening
- ▶ (S3) opened



LBHS/LBPS/LKP(S) CLAMPING AND BRAKING ELEMENT THE PRODUCT RANGE FOR SLENDER RAIL CARRIAGES

DIVERSE PRODUCT RANGE

In addition to the spectacular innovation of the LBHS series, Zimmer Group offers its customers various other products with respect to clamping and braking elements. The product range includes both hydraulic and pneumatic clamping and braking elements for all conventional linear rails and carriage widths. Some of these traditional clamping and braking elements have been on the market for many years and proven their worth in countless industrial applications.

One of these traditional elements is the LKP series, a pneumatic clamping element for narrow linear axes. The NC version (LKPS) features a flange-mounted spring load accumulator that stores power in case of an energy failure.



Images (from left to right): LKP, LKPS clamping elements and LBPS clamping / braking element

In contrast, the LBPS series includes pneumatic braking elements with integrated spring load accumulators that brake in the case of a drop in pressure. Thanks to their superior design, the pneumatic elements can withstand up to 5 million static clamping cycles.

RBPS60 BRAKING ELEMENT POWERFUL FALL PROTECTION FOR HEAVY LOADS

EXPANSION OF THE RBPS SERIES

The braking elements of the RBPS series have also been successful on the market for a long time and have proven themselves particularly effective as fall protection for round guides many times over. In the case of a drop in pressure, spring force closes the braking elements, which are also equipped with one of our tried-and-tested wedge-type gears. These gears feature several rollers, allowing them to apply extremely high holding forces.

The RBPS series is designed for use on round guide rails and is used primarily in gates to prevent tools and gripping equipment from falling if the drives fail, if the brakes fail, or if there is a tear in the belt or an axis breaks.



Images: The inner workings of the traditional RBPS, which now comes in three new sizes.

To increase the range of applications in the heavy load range, Zimmer Group has now expanded its series. The design size range for RBPS elements with shaft diameters of up to 45 mm has now been increased by adding three new sizes for round shafts, with diameters of 50, 55 and 60 mm. The new sizes feature a uniform outer diameter and can achieve considerable holding forces of 48 kN via a smooth-working wedge-type gear, thanks to double pistons and force transmission.

PRODUCT OVERVIEW CLAMPING AND BRAKING ELEMENTS

PROFILE RAIL GUIDES			
MANUAL	PNEUMATIC		
Clamping	Clamping	Clamping and braking	Clamping and braking
N	NO	NC	NC
HK Holding force up to 2,000 N Standard	MK Holding force up to 2,250 N Standard	MKS Holding force up to 1,450 N Standard	MBPS Holding force up to 4,700 N Standard
			UBPS Holding force up to 7,700 N Standard
	LKP Holding force up to 5,400 N Narrow	LKPS Holding force up to 3,600 N Narrow	LBPS Holding force up to 750 N Narrow
	miniHK Holding force up to 300 N Miniature	MCP Holding force up to 550 N Miniature	MCPS Holding force up to 400 N Miniature

Holding force
The holding force is the maximum force that can be generated in the axial direction. The specified holding forces are tested on every clamping and braking unit before delivery using a slightly lubricated rail (ISO VG 68). In some cases, using other oil or lubricating substances can greatly influence the coefficient of friction, which can cause a crucial loss of holding force in individual cases.

PROFILE RAIL GUIDES			
MANUAL	HYDRAULIC		ELECTRIC
Clamping	Clamping and braking	Clamping and braking	Clamping
NO	NO	NC	N
KWH Holding force up to 46,000 N Standard	KBH Holding force up to 46,000 N Standard	LBHS Holding force up to 16,900 N Narrow	LCE Holding force up to 2,000 N Standard

CIRCULAR AND SHAFT GUIDES			
MANUAL	PNEUMATIC		
Clamping	Clamping	Clamping and braking	Clamping and braking
N	NO	NC	NC
HKR Holding force up to 2,000 N standard	MKR Holding force up to 1,850 N standard	MKRS Holding force up to 1,650 N standard	RBPS Holding force up to 35,000 N standard
			TPS Holding torque up to 1,000 Nm Rotary

N (bistable):	NO (normally open):	NC (normally closed):
Remains fixed in the current position	Open at loss of pressure	Closed at loss of pressure