

## GREATER SAFETY THROUGH SHORTER CLOSING TIME

This saves an enormous amount of time because pneumatic lines with typical hose lengths have more air in their pneumatic lines than in the air ducts of the braking element itself.

This has considerable effects on the braking distance. For a vertical axis with an initial velocity of 0.5 m/s, the overall braking distance increases considerably compared to a solution with an integrated valve. The braking distance is almost 50% longer for a hose length of one meter; it is nearly 250% longer for a hose length of 6.5 m. As a result, the integrated valve creates a lot of space for preventing expensive crashes and loss of production. Since the compressed air in the supply line does not have to be vented continuously, air consumption also drops considerably: For a hose length starting as low as 4 meters you achieve savings of more than 90% per cycle.

## SMART DESIGN

To accelerate the venting process as much as possible, there are also two quick exhaust valves integrated into the braking element that open as soon as the pressure in the system drops. As a result, the majority of the compressed air flows out via the two quick exhaust valves. Thus the integrated valve acts as an accelerated triggering for the two quick exhaust valves. This means the air can flow out very quickly and the response time of the entire braking element is substantially reduced.

## RELIABILITY AND QUALITY

The high clamping force plus the high rigidity due to brake pads that are integrated with a positive fit and adapted to the profile also ensure the entire system can absorb high axial forces after clamping. In addition, the positioning accuracy to within two hundredths of a millimeter is exceptionally high.

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## Linear technology

- + Braking- and clamping element UBPS with integrated valve
- + Faster closing time in emergency stop situations

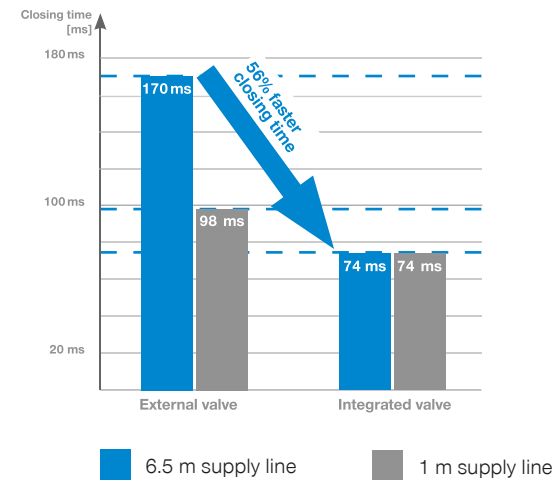
THE KNOW-HOW FACTORY



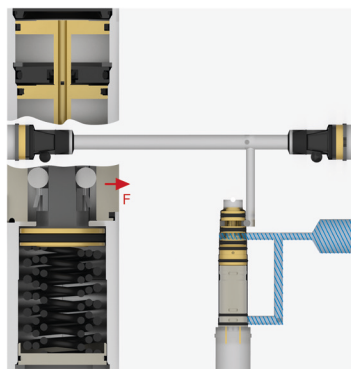
# INTEGRATED VALVE PROVIDES FASTER CLOSING TIMES IN EMERGENCY STOP SITUATIONS

## PRODUCT ADVANTAGES

- ▶ 56 % faster closing time of the braking element compared to external valve (depends on hose length)
- ▶ Direct ventilation at element
- ▶ Closing time is independent of 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

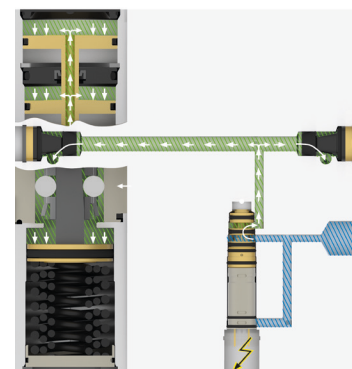


### 1 STARTING POSITION



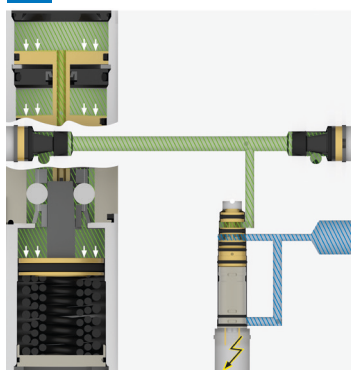
- ▶ Closed element is under pressure
- ▶ Valve is normally closed (NC)
- ▶ Braking/holding force secured by spring energy accumulator

### 2 AERATION



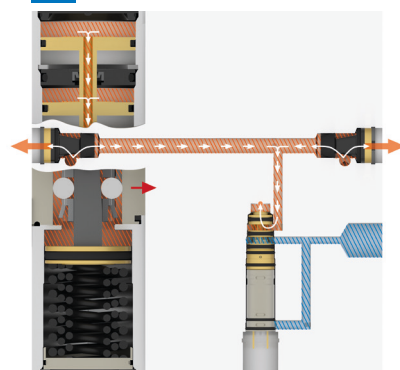
- ▶ Valve is opened
- ▶ Piston chamber is aerated
- ▶ Element opens

### 3 OPENED POSITION



- ▶ Valve and braking element are open

### 4 VENTILATION



- ▶ Valve is normally closed (emergency stop function)
- ▶ Ventilation occurs directly at the element
- ▶ Spring energy accumulator becomes active
- ▶ Emergency stop function during power failure

■ Compressed air ■ Aeration ■ Ventilation

## INTEGRATED VALVE MAKES BRAKING AND CLAMPING ELEMENTS FASTER

The Zimmer Group is using valves in the braking elements for its UBPS series that shorten response times and braking distance and enhance safety.

Braking and clamping elements handle a core safety function in machining and handling systems 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 integrated into the braking element.

