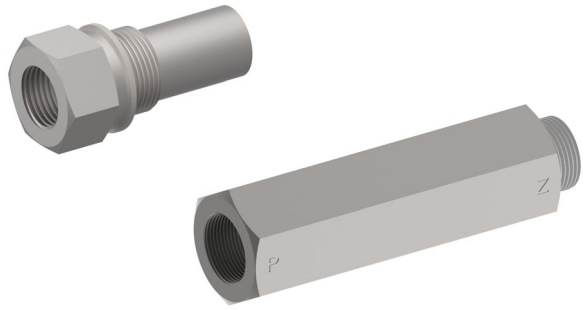
Pipe Rupture Valves

Q_{max} = 400 l/min [105 gpm], p_{max} = 480 bar [6950 psi]
Leak-free ball/seat valve as screw-in cartridge or pipe line mounting valve
Series RS…

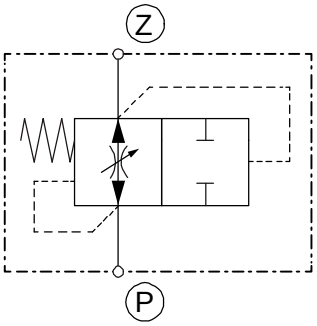


- Virtually leak-free closing
- Prevents uncontrolled cylinder movements in the event that a pipe or hose bursts
- Closing flow rate is adjustable
- Compact design means small space requirements
- Available as a screw-in cartridge or pipe line mounting valve
- All external parts are zinc-nickel plated according to DIN EN ISO 19598

1 Description

Series RS… pipe rupture valves, which belong to the safety valves group, are available as screw-in cartridges or as pipe line mounting valves. Pipe-rupture valves are used wherever a load must not be allowed to drop rapidly and without control if a pipe or hose bursts (ex. uncontrolled movement of the cylinder).
In its normal position the pipe rupture valve is open and allows the flow in both directions. When the actuating flow rate is exceeded – by a hose burst, for example – the pipe rupture valve closes suddenly and blocks flow form Z to P without leakage. The pipe rupture valve opens again automatically when the pressure at port P is higher than the pressure at port Z.

2 Symbol



3 Technical data

General characteristics	Description, value, unit
Designation	Pipe rupture valve
Design	Leak-free, poppet type valve, direct acting
Mounting method	Screw-in cartridge or pipe line mounting valve
Tightening torque	See section 6, dimensions & sectional view
Size	16 and 32
Weight	See section 6, dimensions & sectional view

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General characteristics	Description, value, unit
Mounting attitude	unrestricted
	-25 °C … +100 °C [-13 °F … +212 °F] (others on request)
Surface corrosion protection	All external parts are zinc-nickel plated according to DIN EN ISO 19598

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	480 bar [6950 psi]
Minimum adjustable closing volume flow size 16 size 32	 10 l/min [2.5 gpm] 100 l/min [26 gpm]
Maximum adjustable closing volume flow size 16 size 32	 130 l/min [34 gpm] 400 l/min [105 gpm]
Flow direction	P → Z, free flow Z → P, no-flow direction
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Viscosity range	2.8 … 380 mm^2/s (cSt), recommended 10 … 380 mm^2/s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

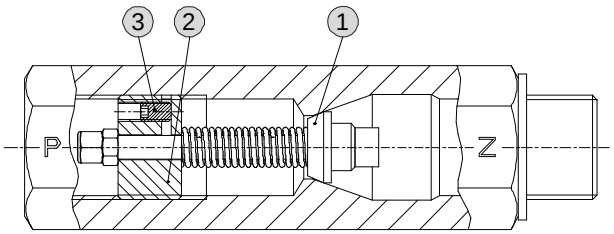
IMPORTANT!: The set of closing volume flow must be at least 40 % above the maximum operating flow rate.

4 Construction and function

3. When oil flows through from Z → P, if the pressure difference in the valve rises above the preload value (approx. 1 bar), then the ball is pressed against the valve seat and shuts off the flow cross section without leakage.
4. The pipe rupture valve opens again automatically when the pressure at port P is higher than the pressure at port Z.

ATTENTION!:
Due to their very high closing speed, these products are not suitable for applications that include the transportation of people. The activation of the pipe rupture valve produces very large decelerations that can have adverse health effects.

Notes on setting the closing flow rate



1. loosen the locking pin (3)
2. screw out the adjusting ring (2) until the ball (1) is resting on the seat
3. adjust volume flow according to the setup diagram
4. tighten the locking pin (3)
   RS 16… = SW 2.5 (MA = 2.5 Nm [1.8 ft-lbs])
   RS 32… = SW 4 (MA = 10 Nm [7.4 ft-lbs])

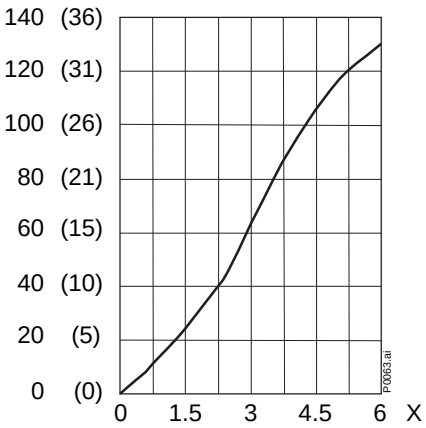
(Diagram shows: basic position, 0 turns)

5 Performance graphs

measured with oil viscosity 33 mm^2/s (cSt)

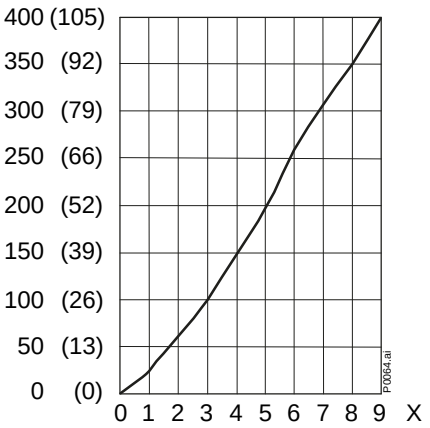
Q = f (X; no of turns)
Closing flow rate adjustment characteristic

Grösse / size
16



Q = f (X; no of turns)
Closing flow rate adjustment characteristic

Grösse / size
32



X = no. of turns of adjusting ring back from the basic position.

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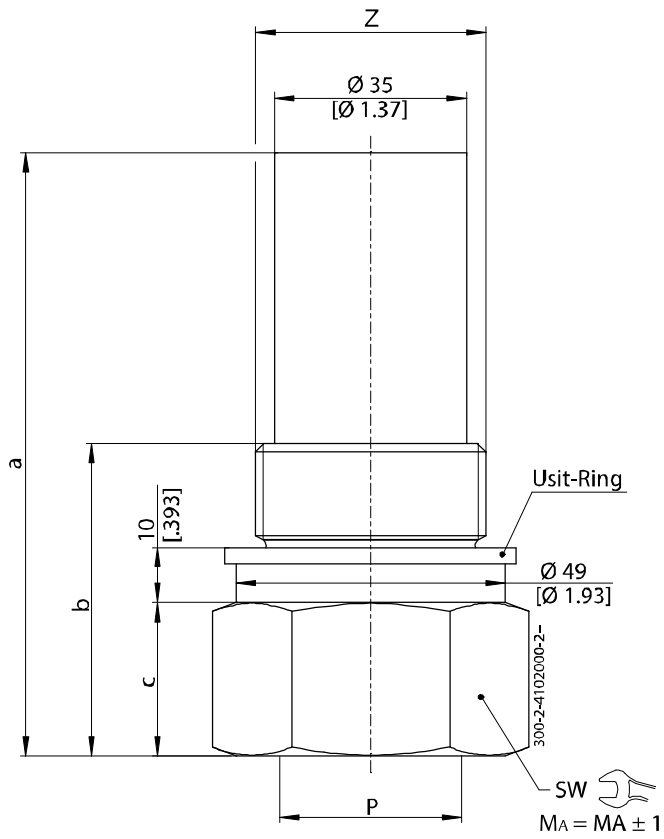
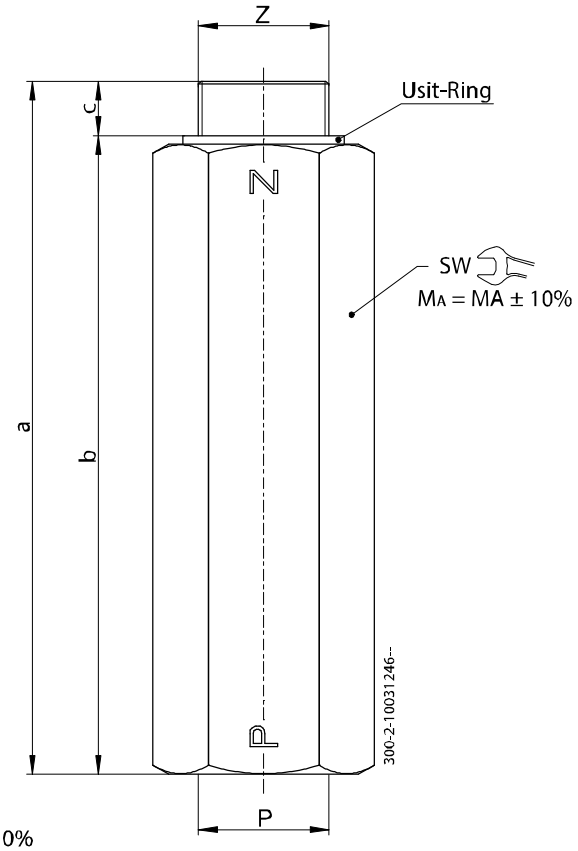
6 Dimensions & sectional view

Beispiel für die Masseinheit:
Example for the dimensional units:
0.79 = 0.79 mm millimeter
[.031] = 0.031" inch

RS 16 E3/4
RS 16 E1



RS 16
RS 32



Type	Actuating flow rate range l/min [gpm]	P	Z	SW mm [“AF]	MA Nm [lbf-ft]	a mm [inch]	b mm [inch]	c mm [inch]	Usit-Ring mm	Weight kg [lbs]
RS 16 E3/4/…	10…130 [2.5…34]	G ¾“	G 1¼“	50 [1]	400 [295]	110 [3.93]	57 [2.24]	28 [1.10]	42.7 x 53.0 x 3.0	0.80 [1.76]
RS 16 E1/…	10…130 [2.5…34]	G 1“	G 1¼“	50 [1]	400 [295]	110 [3.93]	57 [2.24]	28 [1.10]	42.7 x 53.0 x 3.0	0.80 [1.76]
RS 16/…	10…130 [2.5…34]	G ¾“	G ¾“	36 [25/32]	200 [150]	141 [5.55]	127 [5.00]	14 [0.55]	28.7 x 37.0 x 2.0	0.80 [1.76]
RS 32/…	100…400 [26…105]	G 1½“	G 1½“	70 [1 3/16]	600 [440]	253 [9.96]	233 [9.17]	20 [0.78]	48.7 x 59.0 x 3.0	5.50 [12.1]

7 Installation and commissioning

ATTENTION!:
Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the external seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

ATTENTION!:
The cartridge / valve must not be opened without the manufacturer's express permission; otherwise, the warranty will be voided!

IMPORTANT!:
The valve may only be used for its intended purpose within its nominal rating! If you plan to use it outside the nominal rating, you must contact the valve manufacturer.

IMPORTANT!:
Release all hydraulic pressure from the system before any disassembly work.

IMPORTANT!:
Protect seals and flange faces from damage. Pay attention to the port designations.

8 Ordering code

e.g. RS | 16 / … / __

RS	=	Pipe Rupture Valve
16 E3/4	=	Size 16, connection thread G ¾“
16 E1	=	Size 16, connection thread G 1“
16	=	Size 16
32	=	Size 32
…	=	Setting for closing volume flow [1)]
(blank)	=	Without optional lowering bore
DB	=	With optional lowering bore on the poppet (available on request)

IMPORTANT!:
[1)] must be min. 40% above max. operating flow rate!

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Classification: 430.325.355