

# Pressure Relief Valve

For mounting on hydraulic pumps and motors  
Series ASDA and AGDA



- Solenoid operated
- Cartridge is thick-film passivated, Cr(VI)-free
- High levels of functionality and stability
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope.

## 1 Product description

### 1.1 General

Series ASDA and AGDA pressure-relief valves are solenoid operated flange-mounting valves with an interface to SAE J518 code 61 and ISO 6162-1. The main components of the valve are a body and a solenoid operated pressure-relief cartridge. The pressure-relief valve is a cartridge unit with a seated pilot stage and a spool-type main stage.

Using the external pressure adjustment, the higher pressure p1 (relief setting) and the lower pressure p2 (a second relief setting, or the off-load pressure) can be varied smoothly and independently of one another without open-

ing the hydraulic envelope, and either pressure can be selected.

When de-energised, P is open to T. The control spool is operated by a 12 or 24 V DC solenoid. The opening pressure can be set with an adjusting screw, which is secured by a lock nut. The slip-on coils can be replaced without opening the hydraulic envelope and can be positioned at any angle through 360°. These valves are used to limit the pump pressure. The valve is mounted directly on the pump's flange interface.

### 1.2 Other applicable documentation

Description	Fitted in nominal sizes	Data sheet
Cartridge valve WUVPB-2.DO	SAE 1/2", SAE 3/4" and SAE 1"	400-P-290111

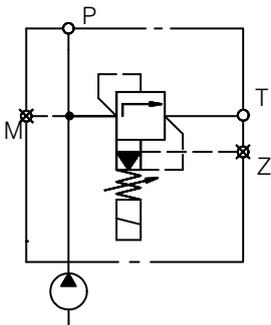
## 2 Technical data

General characteristics	Description, value, unit
Design	flange-mounting, seated pilot stage, spool-type main stage
Type of operation	solenoid operated, de-energised open
Mounting method (standard)	interface to SAE J518 code 61 and ISO 6162-1 (mounting bolts are not included in the delivery)
Installation attitude	unrestricted
Flow rate $Q_{max}$	120 l/min (see Performance graph)
Operating pressure	max. 315 bar
Opening pressure for the check valve (type "R" only)	0.3 bar
Switching time - sizes 1/2", 3/4" and 1"	measured with 24 V DC (influenced by flow rate, pressure, supply voltage, coil temperature, and oil viscosity) - ON: 120 - 500 ms, OFF: < 20 ms
Adjustment range for the pressure-relief function	SAE 1/2", SAE 3/4" und SAE 1": 1 = 20 - 65 bar 2 = 20 - 210 bar 3 = 20 - 315 bar

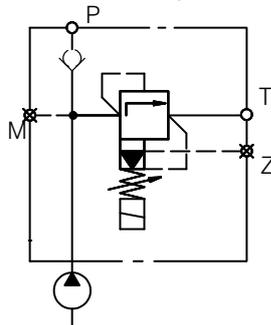
General characteristics	Description, value, unit
Maximal permissible pressure at port T	20 bar (the pressure at port T is additive to the setting at the pressure-relief adjustment)
Min. fluid cleanliness level	NAS 1638, class 9 or ISO 4406, code 20/18/15
Hydraulic fluid	Mineral oil to DIN 51524 and 51525 (other fluids by consultation)
Viscosity range	10 to 500 mm <sup>2</sup> /s. Recommended: 15 to 250 mm <sup>2</sup> /s
Fluid temperature range	-25 ... +80°C
Ambient temperature	-25 ... +50°C
Supply voltage	12 or 24 V DC
Nominal voltage tolerance	± 10%
Nominal power consumption	27 Watt
Relative duty cycle	100%
Protection class	IP 65 to DIN 40050
Electrical connection	3-pin square plug to ISO 4400 / DIN 43650
Body material	GGG40

### 3 Symbols

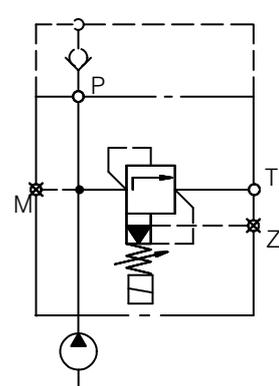
Standard



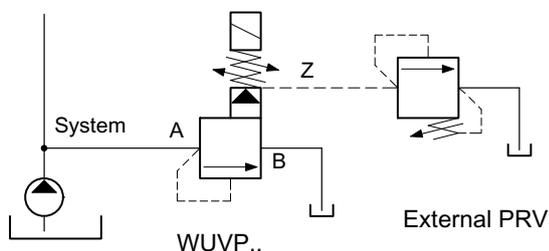
Option with integral check valve  
Model AGDA only



Option with external check valve  
Model ASDA only



### 4 Application example for remote control via port Z



Setting:

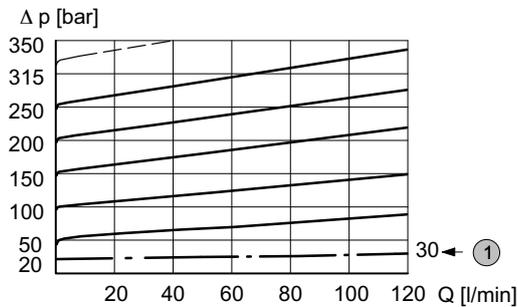
- maximum system pressure via external PRV (as safety measure)
- higher pressure p1 via WUVP
- off-load pressure p2 via WUVP

## 5 Performance graphs

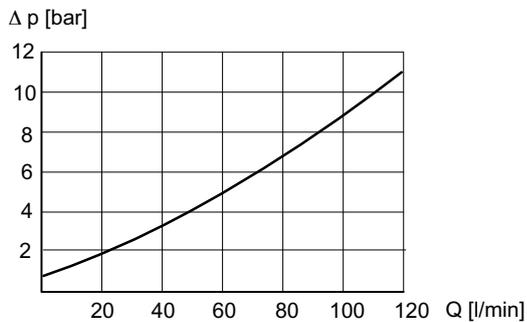
Measured at 33 mm<sup>2</sup>/s (cSt)

### 5.1 Sizes 1/2", 3/4" and 1"

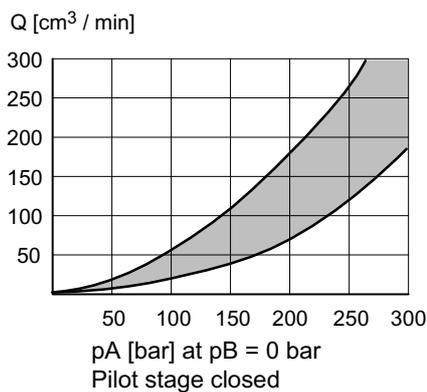
#### 5.1.1 Δp - Q



#### 5.1.2 Minimum off-load pressure (de-energised)



#### 5.1.3 Leakage from A to B

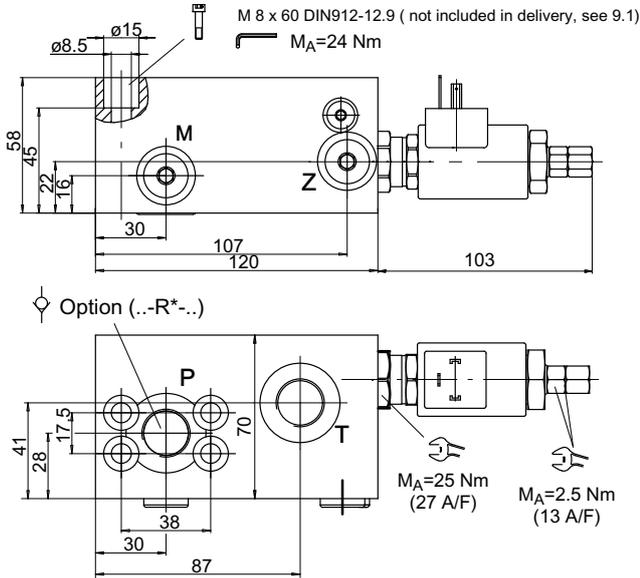


1 Application limit (energised)

## 6 Dimensions

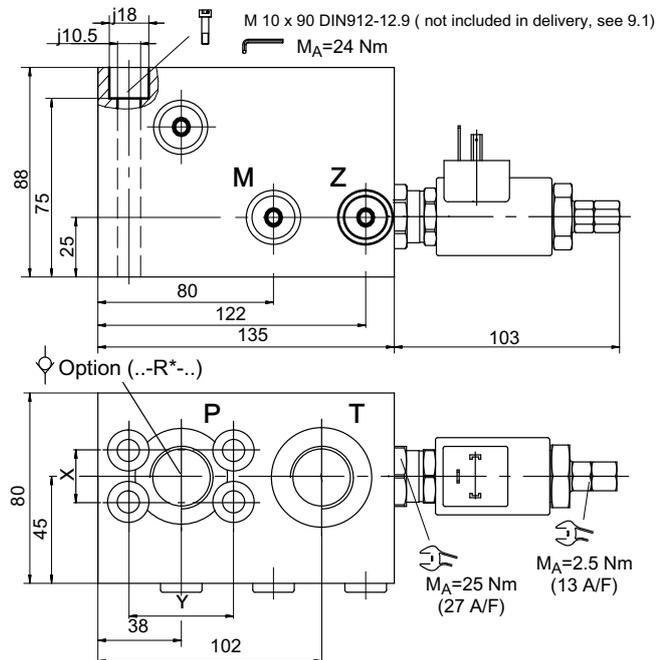
### 6.1 With threaded ports (series AGDA)

#### 6.1.1 Size 1/2"



P, T = G 1/2" M, Z = G 1/4"

#### 6.1.2 Size 3/4" and 1"

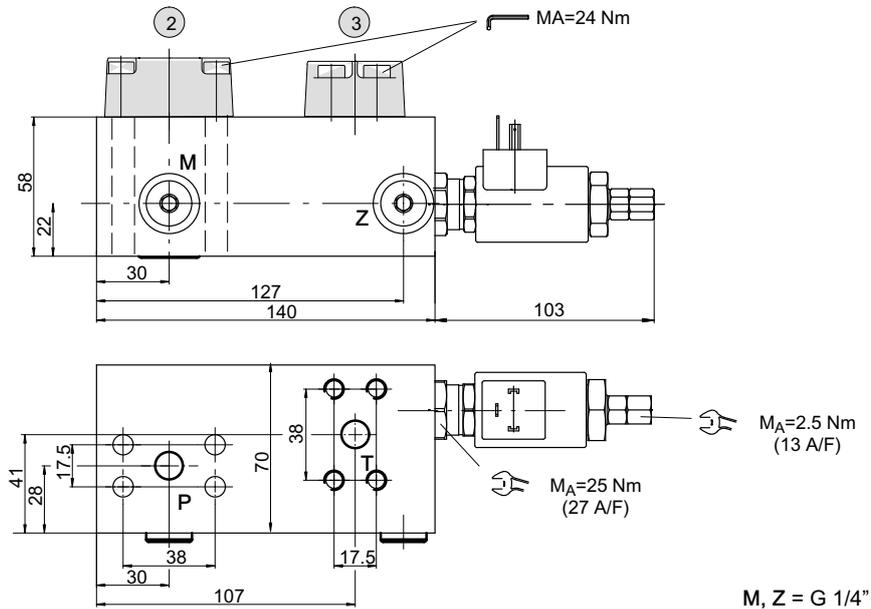


Dimension

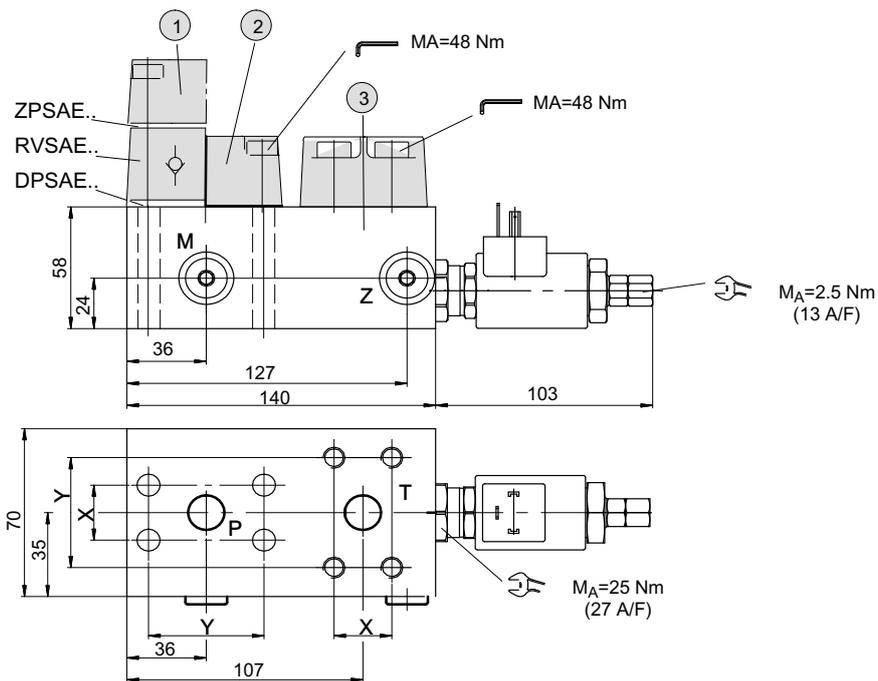
P + T	M + Z	X	Y
3/4"	1/4"	22,2	47,6
1"	1/4"	26,2	52,4

## 6.2 With ports for SAE pipe flanges (series ASDA)

### 6.2.1 Size SAE 1/2"



### 6.2.2 Size SAE 3/4" and 1"



Dimension

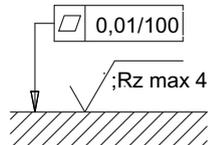
M, Z = G 1/4"

	X	Y
SAE 3/4"	22,2	47,6
SAE 1"	26,2	52,4

1	Version with check valve and SAE pipe flang at port P ( see 9.3)
2	Version with SAE pipe flang at port P (see 9.2.2)
3	Version with SAE pipe flang at port T (see 9.2.1)

### 7 Installation information

- Mounting bolts for fitting the valve on the pump are not included in the delivery
- Sealing ring for the flange side (pump) is included in the delivery
- Required surface finish of flange pad for mounting the valve



#### IMPORTANT!

When fitting the valves, use the specified tightening torque for the mounting bolts. The pressure-relief function is factory-set. The setting must be checked.



#### 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 seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

### 8 Ordering code

		A	G	D	A	2	-	1	/	2	-	R	*	-	0	G	1	2	P= 1)
SAE bolt-on valve																			
With ports for SAE J518 code 61 (ISO 6162-1) flanges		= S																	
With threaded ports		= G																	
Pressure-relief function fixed setting, electrically switchable		= DA																	
Adjustment range for PR function:																			
20...65 bar		= 1																	
20...210 bar		= 2																	
20...315 bar		= 3																	
Nominal size																			
threaded ports in P and T		G or S (SAE) 1/2" = 1/2																	
or SAE flange		G or S (SAE) 3/4" = 3/4																	
		G or S (SAE) 1" = 1/1																	
Check valve integrated in threaded-port P (only in models with threaded ports)		= R																	
Without check valve		= *																	
Remote control port Z		= Z																	
Without port Z		= *																	
Design stage		(to be inserted by the factory)																	
Nominal voltage																			
DC 12 Volt		= G12																	
DC 24 Volt		= G24																	

1) Specify the required pressure setting (P max) in plain text.



#### IMPORTANT!

- Mounting bolts for fitting the valve are not included in the delivery
- Sealing ring for the flange side (pump) is included in the delivery
- SAE pipe flanges and check valves for SAE flange ports must be ordered separately.

## 9 Accessories

### 9.1 Cap screws for Serie AGDA

Description	Ordering code for 1 piece	Data sheet
Cap screws M8 x 60 - DIN 912-12.9	100234776	100-D-404947
Cap screws M10 x 90 - DIN 912-12.9	100240420	100-D-404947

### 9.2 SAE pipe flanges

- max. working pressure 420 bar
- interface to SAE J518 code 61 / ISO 6162-1

Mounting bolts and O-ring are included with the delivery. Threaded pipe flanges are spot-faced for DIN 2353 pipe fittings. Material: ST37

#### 9.2.1 SAE pipe flanges for port „T“

Ordering code	Thread	Ordering number	O. Ring, 90 Shore A	Retaining screws DIN912-12.9 / Torque Nm	
RF01-R08	G 1/2"	100037000	20,24x2,62	M8x30	24
RF02-R10	G 3/4"	100037010	26,65x2,62	M10x30	48
RF03-R11	G 1"	100037020	32,99x2,62	M10x35	48



#### 9.2.2 SAE pipe flanges for port „P“

Ordering code	Thread	Ordering number	O. Ring, 90 Shore A	Retaining screws DIN912-12.9 / Torque Nm	
RF01-R08 1/2" ASD	G 1/2"	100036196	20,24x2,62	M8x30	24
RF02-R10 3/4" ASD	G 3/4"	100036198	26,65x2,62	M10x30	48
RF03-R11 1" ASD	G 1"	100036201	32,99x2,62	M10x35	48

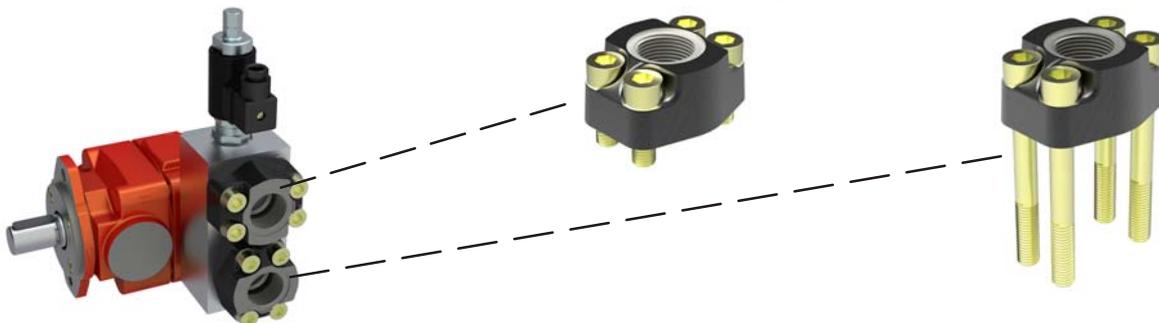


### 9.3 SAE pipe flanges and RVSAE check valves for port „P“

Ordering code	Thread	Ordering number	O. Ring, 90 Shore A	Retaining screws DIN912-12.9 / Torque Nm	
RF02-R10 3/4" + RVSAE ASD	G 3/4"	100036203	20,24x2,62	M10x125	48
RF03-R11 1" + RVSAE ASD	G 1"	100036205	26,65x2,62	M10x135	48



### 9.4 ASDA bolt-on assembly on series QX32 internal gear pump



## 10 Possible ordering variants

Connection type	Pump	Bolt-on valve	Functions						
			With integral check valve	With check valve for SAE port	Without check valve	With remote-control port	Without remote-control port	DC 12 Volt	DC 24 Volt
Thread	QX2.	AGDA_-1/2-	x		x	x	x	x	x
Thread	QX3.	AGDA_-3/4-	x		x	x	x	x	x
	QX4.	AGDA_-1/1-	x		x	x	x	x	x
SAE J518	QX2./117	ASDA_-1/2-			x	x	x	x	x
	QX3./117	ASDA_-3/4-		x	x	x	x	x	x
	QX4.	ASDA_-1/1-		x	x	x	x	x	x

[info.kl@bucherhydraulics.com](mailto:info.kl@bucherhydraulics.com)

[www.bucherhydraulics.com](http://www.bucherhydraulics.com)

© 2015 by Bucher Hydraulics GmbH, D-79771 Klettgau

All rights reserved.

Data is provided for the purpose of product description only, and must not be construed as warranted characteristics in the legal sense. The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

Classification: 430.310.