

# Counterbalance, relief compensated poppet type differential area Common cavity, Size 16

VBSP-16A

04.54.10 - X - 27 - Z

**RE 18320-09**

Edition: 01.2021

Replaces: 02.2019



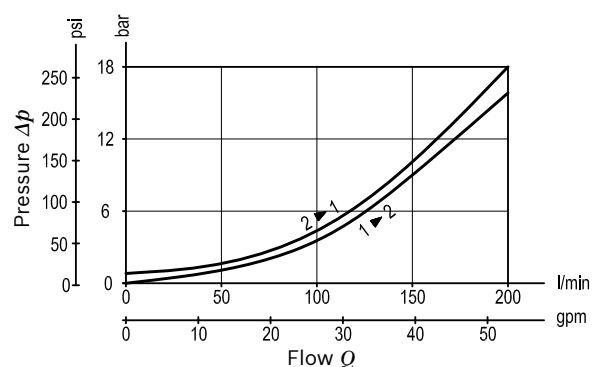
### Technical data

Max. operating pressure	350 bar (5000 psi)
Max. flow	200 l/min (53 gpm)
Max. internal leakage <sup>1)</sup>	15 drops/min.
Fluid temperature range	-30 to 100 °C (-22 to 212 °F)
Installation torque	108 - 122 Nm (80 - 90 ft-lbs)
Weight	0.82 kg (1.81 lbs)
MTTFD	150 years see RE 18350-51
Cavity	CA-16A-3C (see data sheet 18325-70)
Adjustment	according to ISO 4413 with sealed adjustment screw to prevent oil leakage during adjustment
Salt spray test	500h according to DIN EN ISO 9227:2017-07
Lines bodies and standard assemblies	Please refer to section "Hydraulic integrated circuit" or consult factory
Seal kit <sup>2)</sup>	Code: RG16A9010530100 material no: R930001200
Fluids	Mineral-based or synthetics with lubricating properties at viscosities of 10 to 500 mm <sup>2</sup> /s (cSt)
Recommended degree of fluid contamination	Nominal value max. 10µm (NAS 8) / ISO 4406 19/17/14
Installation position	No restrictions
Other Technical Data	See data sheet 18350-50

Pressure setting: at least 1.3 times the load induced pressure and maximum 1.5 times catalogue max nominal setting.

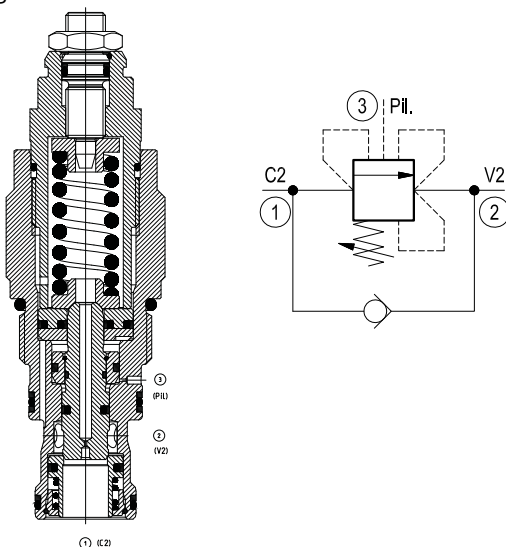
- 1) At 70% of pressure setting
- 2) Only external seals for 10 valves

### Characteristic curve



### Description

When pressure at 2 rises above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from 2 to 1. When load pressure at 1 rises above the pressure setting, the direct-acting, differential area relief function is activated and flow is relieved from 1 to 2. With pilot pressure at 3, the pressure setting is reduced in proportion to the stated ratio of the valve, until fully open with free-flow from 1 to 2. The spring chamber is drained to 2. The valve applies a balanced piston design allowing relief operation at the valve setting independent of back-pressure at 2. However, the piloted opening of the valve remains subject to additive pressure at port 2. Valve design prevents spring going solid and complete unscrewing during adjusting.



**Ordering code**

<b>04.54.10</b>	<b>X</b>	<b>27</b>	<b>Z</b>	<b>*</b>	<b>*</b>
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Counterbalance, relief compensated, poppet type differential area

Pilot ratio

**03** 4:1 Without sealed pilot piston

**27** Common cavity, Size 16

Series M to Z  
unchanged performances and dimensions

**00** Standard (Buna)  
**VO** Viton (FKM)

	SPRINGS		
	Adj. press. range bar (psi)	Pressure increase bar/turn (psi/turn)	Std. setting bar (psi) Q=5 l/min
<b>20</b>	70-210 (1000-3000)	70 (1015)	200 (2900)
<b>35</b>	140-350 (2000-5000)	108 (1566)	350 (5000)

Note: Special settings available with optional tamperproof cap. Contact factory authorized representative for ordering code.

**Preferred types**

Type	Material number
04541003272000M	R930081441
04541003273500M	R930081375

Type	Material number

**Dimensions**

Technical drawing of the VBSP-16A counterbalance valve. The drawing shows a vertical view of the valve with various dimensions and hex specifications. Key dimensions include: total height 73.1 (2.877 in), height to top hex 72.2 (2.803 in), and height to bottom hex 65.0 (2.559 in). Hex specifications include: Hex 5 (0.21), Hex 16 15 Nm (Hex 0.631 (111) ft-lb), Hex 24 (0.94), Hex 36 (1.42), and Hex 40 (1.58). Other dimensions include: diameter 40 (1.58), diameter 38 (1.5), thread 1 1/2"-12 UNF-2A, diameter 28.6 (1.13), and diameter 25.4 (1).

**OPTION 1**  
Protection cap orange  
Mat. no. R900168151

**OPTION 2**  
Tamperproof cap red (without Rexroth logo)  
Mat. no. R93xxxxxx

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