

# Nickel-Plated Brass Pilot-Operated Check Valve/ **Blocking Valve** BSP/Metric or NPT/Inch Series VBU VBO

Swivel Design: 4mm / 5/32" OD Push-In Fitting Pilot

Thread Type: BSP (G1/8, G1/4, G3/8, G1/2) with Sprint Reusable PTFE/Teflon Thread Seal

NPT (1/8, 1/4, 3/8)





- » Series VBU: unidirectional valves with operating pressure from 0.3 to 10 bar
- » Series VBO: bidirectional valves with operating pressure from 0 to 10 bar
- » Direct mounting on cylinders or on distribution and fluid control blocks

These unidirectional and bidirectional blocking valves have been realised in order to enable mounting directly on

The inner design of the blocking valves Series VBO and VBU allows a very high flow rate and reliable operation.

These valves can be mounted directly also on distribution and fluid control blocks.

GENERAL DATA	
Construction	poppet type
Valve group	unidirectional and bidirectional blocking valve (pilot-operated check and blocking valves, pilot connection 5/32" OD)
Materials	OT58 Nickel-Plated Brass Body, Buna-N seals, Teflon seal ring, internals brass
Mounting	by male thread
Ports	G1/8, G1/4, G3/8, G1/2, 1/8 NPT, 1/4 NPT, 3/8 NPT
Position	in any position
Operating temperature	$0^{\circ}\text{C}$ - $80^{\circ}\text{C}$ (with dry air -20°C), $32^{\circ}\text{F}$ - $175^{\circ}\text{F}$ (dry air necessary down to $-4^{\circ}\text{F}$ )
Operating pressure	VBU: 0.3 - 10 bar (4.35 - 145 psi), VBO: 0 - 10 bar (0 - 145 psi)
Nominal pressure	6 bar (87 psi)
Nominal flow	see graph
Nominal diam. (flow orifice)	1/8 ø 5.5 mm - 1/4 ø 8 mm - 3/8 ø 11 mm - 1/2 ø 15 mm
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied, the lubrication should never be interrupted.

### **CODING EXAMPLE**

VB U 1/8
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VB SERIES: VB

VERSIONS: II = unidire

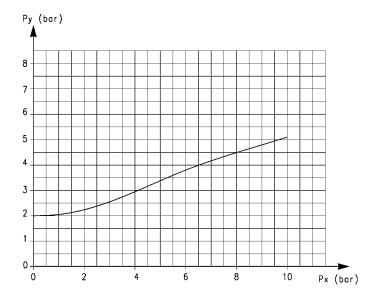
U = unidirectional, pilot-operated check valve

0 = bidirectional, blocking valve

1/8 PORTS:

1/8 = G1/8 or NPT 1/8 1/4 = G1/4 or NPT 1/4 3/8 = G3/8 1/2 = G1/2

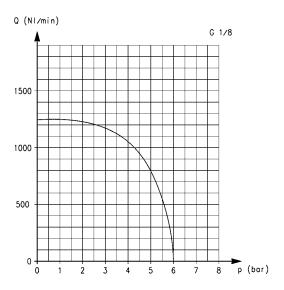
# DIAGRAM OF THE PILOT PRESSURE (Pilot Connection 4mm / 5/32" Tube OD)



This diagram shows the relation between working pressure (Px) and pilot pressure required in order to operate the valve (Py). The opening pressure of the unidirectional valve is 0.3 bar.

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#### FLOW DIAGRAMS OF UNIDIRECTIONAL AND BIDIRECTIONAL VALVES



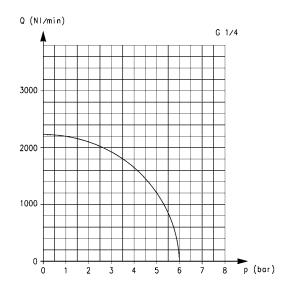


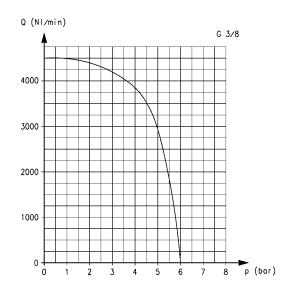
Diagram for valves VBU and VBO with G1/8 or 1/8 NPT ports.

 ${\bf Q}$  is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

Diagram for valves VBU and VBO with G1/4 or 1/4 NPT ports.

 ${\tt Q}$  is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

#### FLOW DIAGRAMS OF UNIDIRECTIONAL AND BIDIRECTIONAL VALVES



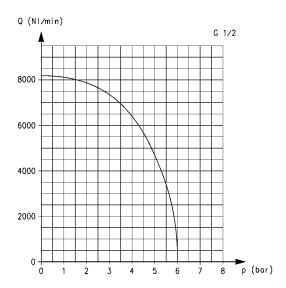


Diagram for valves VBU and VBO with G3/8 ports.

 ${\bf Q}$  is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

Diagram for valves VBU and VBO with G1/2 ports.

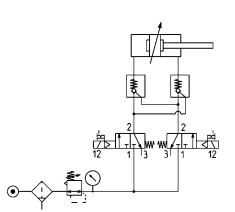
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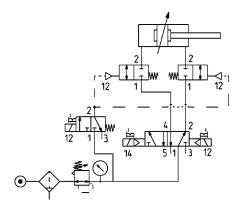


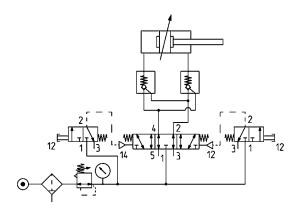


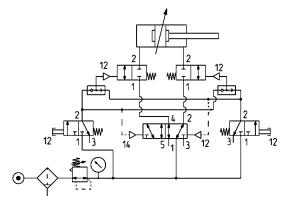
#### **APPLICATION SCHEMES**

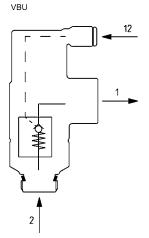
VBU = UNIDIRECTIONAL pilot-operated check valve VBO = BIDIRECTIONAL blocking valve

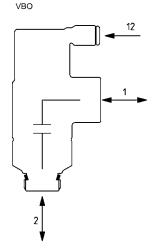








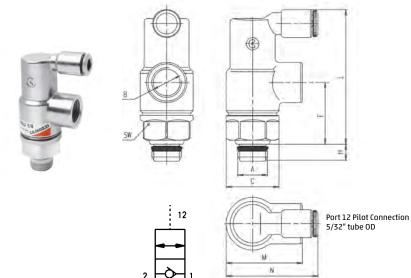




- 1 Inlet
- 2 Cylinder Port / Outlet
- 12 Pilot Connection (4mm 5/32" OD)

Unidirectional blocking valve NPT Thread

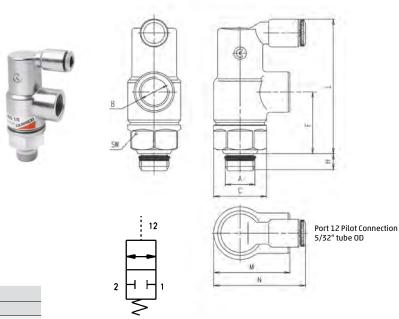
# NPT Threads



NPT THREADS											
DIMENSIONS (in inches)											
Model	A NPTF	B NPTF	С	F	Н	L	М	N	SW		
VBU 1/8	1/8"	1/8"	.665	.787	.216	1.692	.964	1.181	.590		
VBU 1/4	1/4"	1/4"	.807	.984	.275	1.968	1.267	1.318	.748		
VBU 06	3/8"	3/8"	1.055	1.299	.314	2.637	1.574	1.555	.944		

Bidirectional blocking valve NPT Thread

# NPT Threads



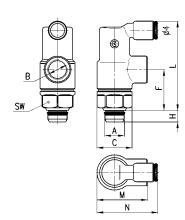
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# Unidirectional blocking valve BSP Valve

# **METRIC Tube**





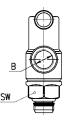


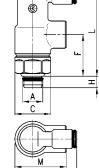
BSP THREADS										
DIMENSIONS (in mm)										
Model	A BSP	B BSP	С	F	Н	L	М	N	SW	
VBU 1/8	1/8	1/8	16.9	20	5.5	43	24.5	30	15	
VBU 1/4	1/4	1/4	20.5	25	7	50	32.2	33.5	19	
VBU 3/8	3/8	3/8	26.8	33	8	67	40	39.5	24	
VBU 1/2	1/2	1/2	30	45.5	9	85.7	52	48	27	

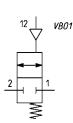
Bidirectional blocking valve BSP Valve

# **METRIC Tube**









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DIMENSIONS (in mm)											
Model	A BSP	B BSP	С	F	Н	L	М	N	SW		
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VBO 1/2	1/2	1/2	30	45.5	9	85.7	52	48	27		