ARGO HYTOS

Overcentre Valve

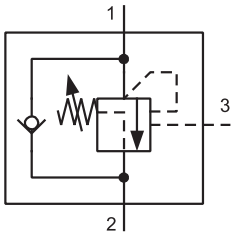
SO5A-Q3/I

M20 x 1,5 • p_{max} 350 bar • Q_{max} 30 L/min

HA 5200
12/2014

Replaces
HA 5200 7/2008

- **The valve prevents runaway in the event of a negative load**
- **Load-holding without leakage**
- **Pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When used as pressure relief the check valve will act as an anti-cavitation valve**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the Q3 check valve**



Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load.

If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.

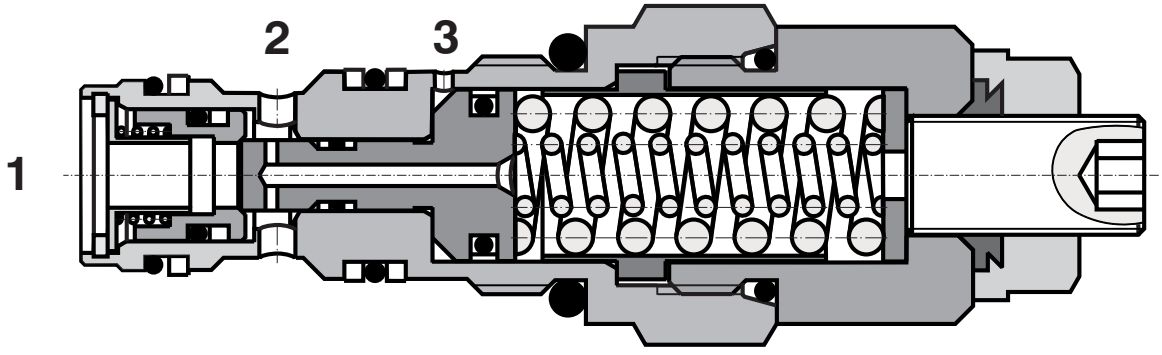
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.

As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured aconstant inlet pressure by means of which the movement of the load can be controlled.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SO5A-Q3/I □ □

Overcentre Valve

NBR — **No designation**

Pilot ratio

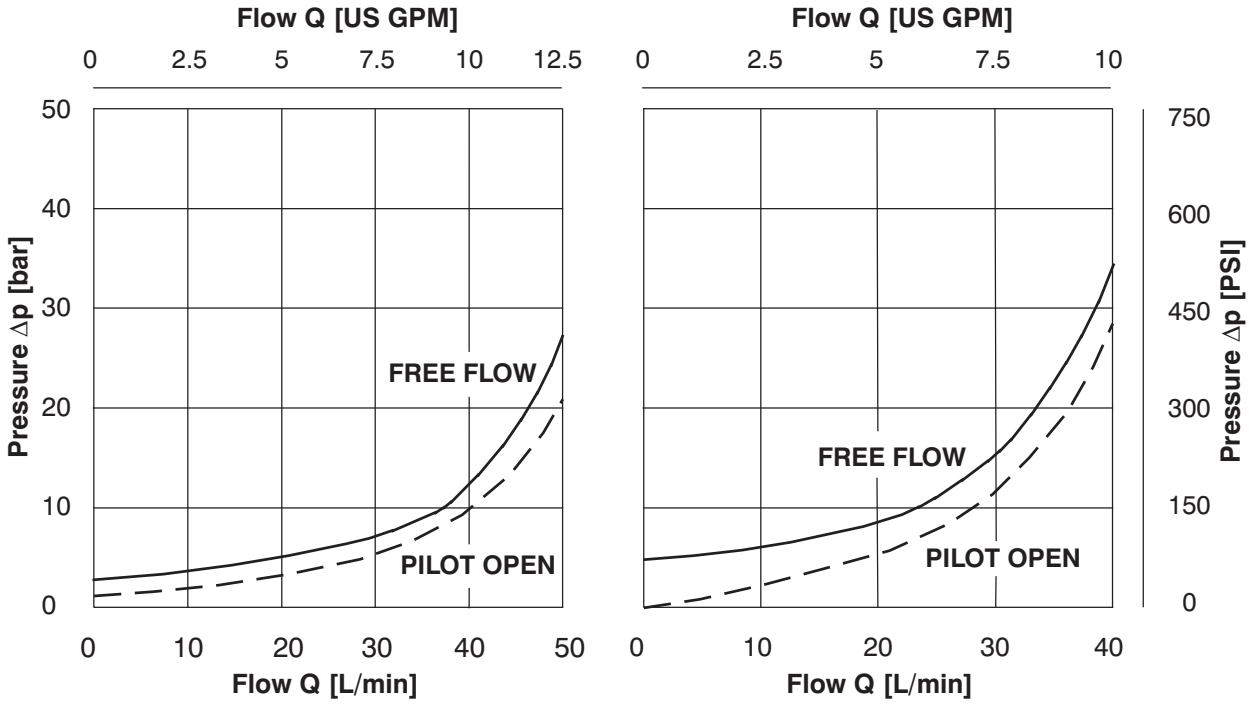
For applications with varying load	2,5:1	**2**
Standard	5:1	**5**
For applications with a constant load	10:1	**10**

Technical Data

Cavity		M20 x 1,5
Maximum flow	L/min	30
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HL, HLP) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0,15
Maximum valve tightening torque in valve body or in control block	Nm	45^{+2}
Mounting position		Unrestricted

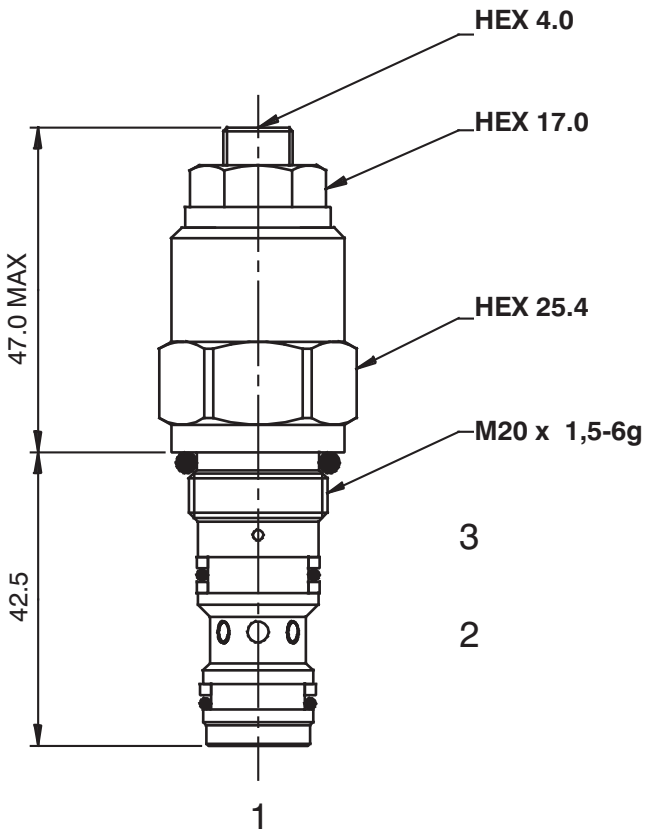
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



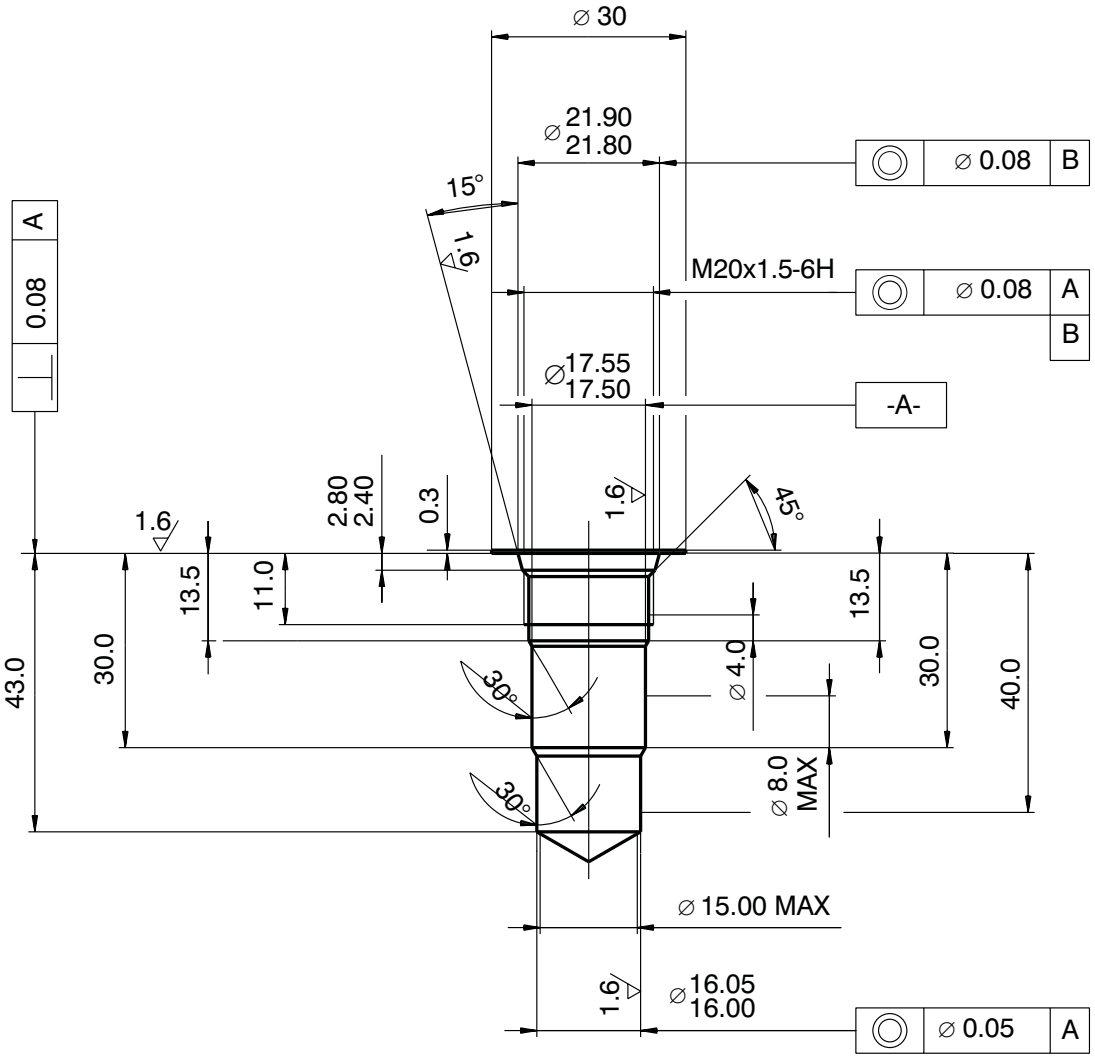
Dimensions

Measurements in millimeters



Cavity

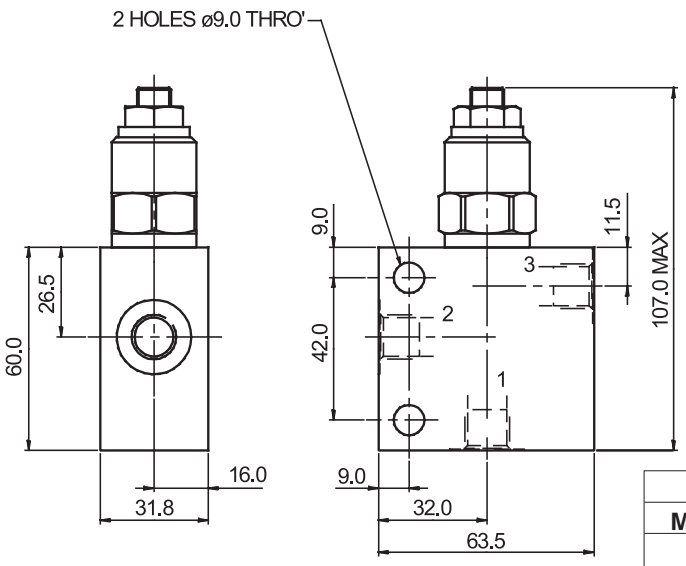
Measurements in millimeters



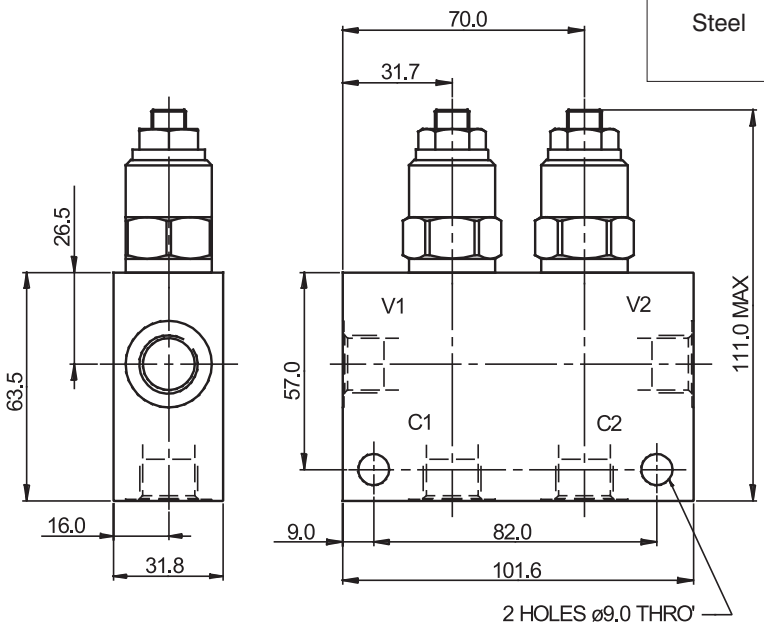
Valve Bodies

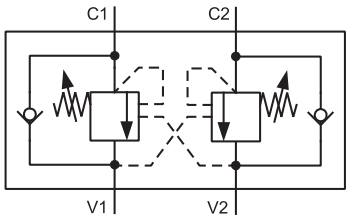
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G3/8	SB-Q3-0103AL
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G3/8	SB-Q3-0103ST
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G3/8	SB-Q3-0203AL
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204AL
Steel	C1, C2, V1, V2	G3/8	SB-Q3-0203ST
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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ARGO HYTOS

Overcentre Valve

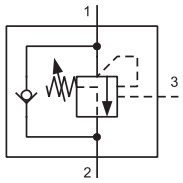
SO5A-R3/I

M27 x 1,5 • p_{max} 350 bar • Q_{max} 90 L/min

HA 5205
12/2014

Replaces
HA 5205 7/2008

- **The valve prevents runaway in the event of a negative load**
- **Load-holding with minimal leakage**
- **Pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the R3 check valve**

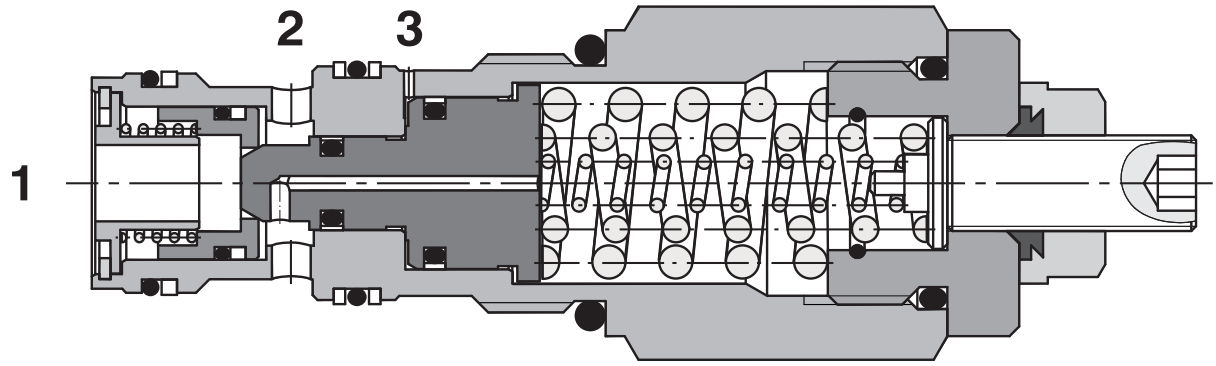


Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load. If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.
As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.
Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.
As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SO5A-R3/I □ □

Overcentre valve

Preassare range
Standard 4:1 **4**

No designation

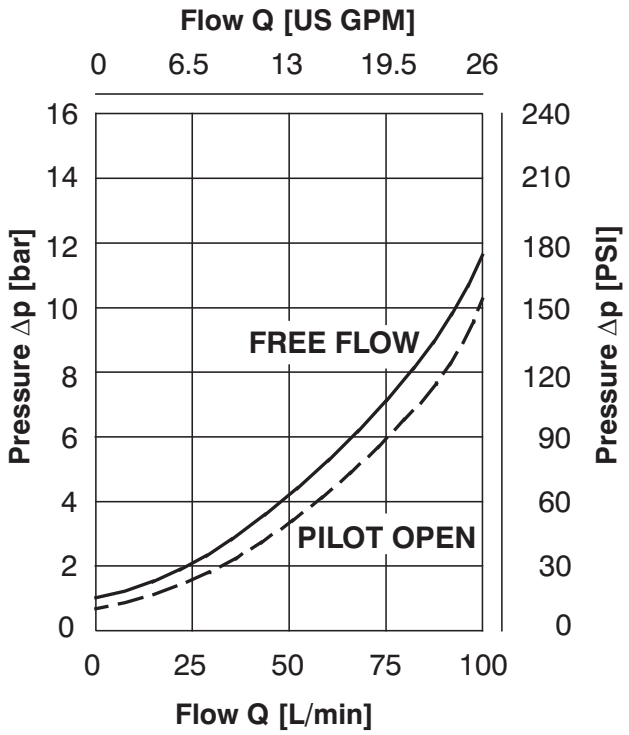
Seals
NBR

Technical Data

Cavity		M27 x 1,5
Maximum flow	L/min	90
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0,29
Maximum valve tightening torque in valve body or in control block	Nm	60^{+2}
Mounting position		Unrestricted

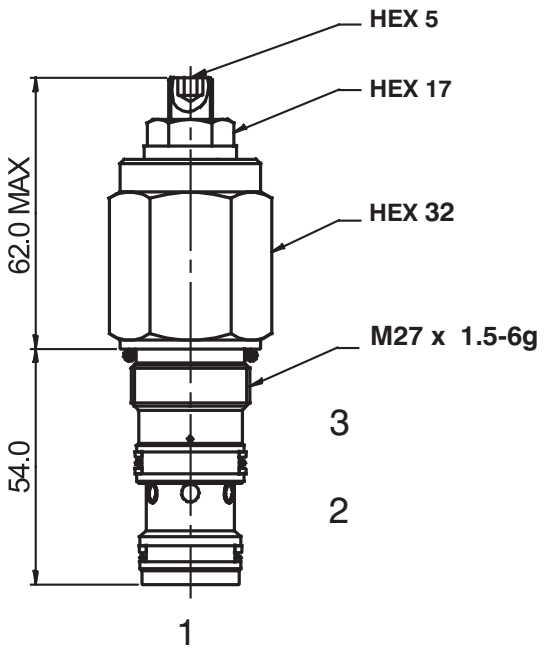
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



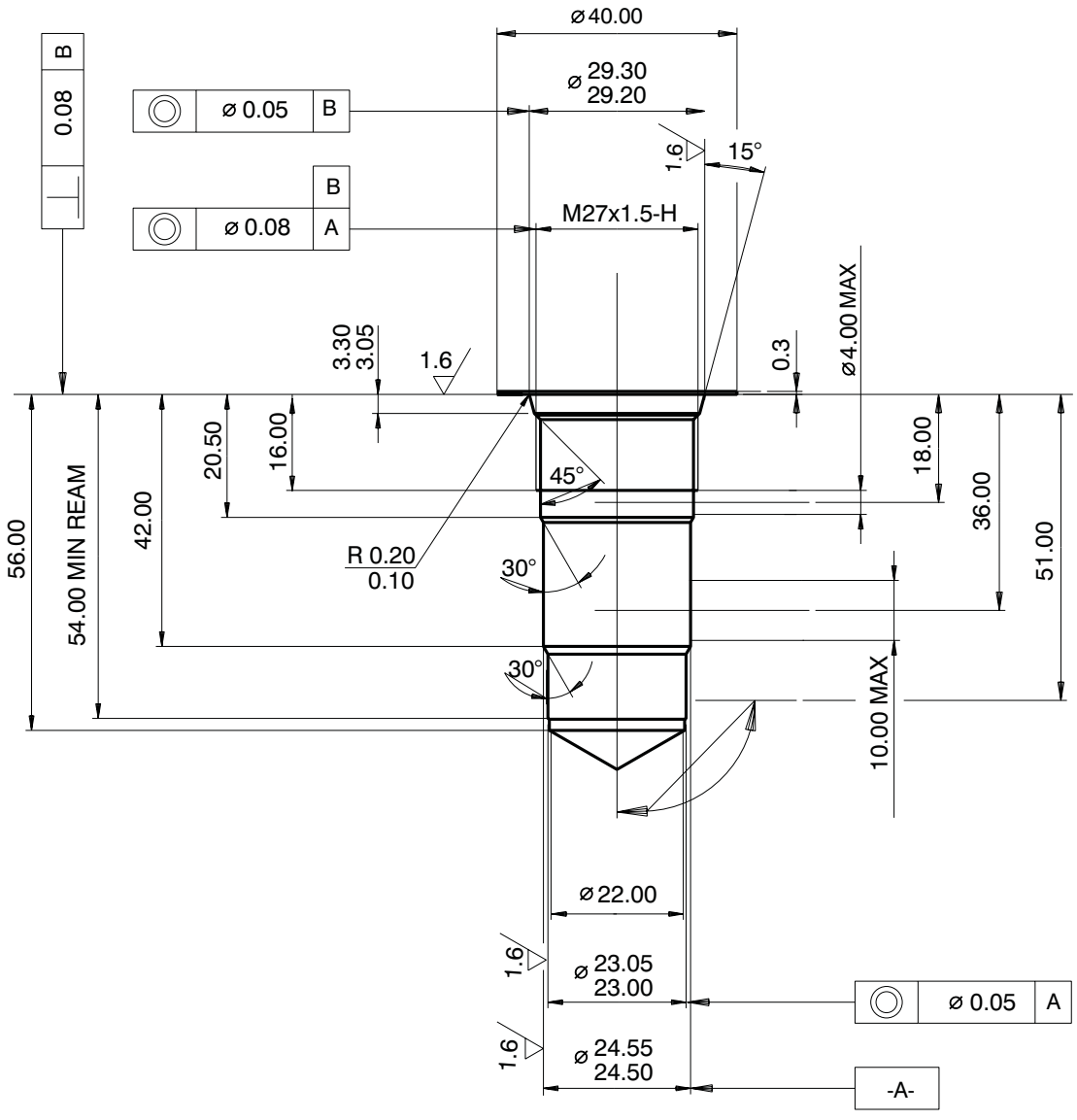
Dimensions

Measurements in millimeters



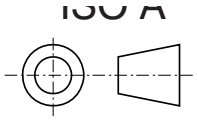
Cavity

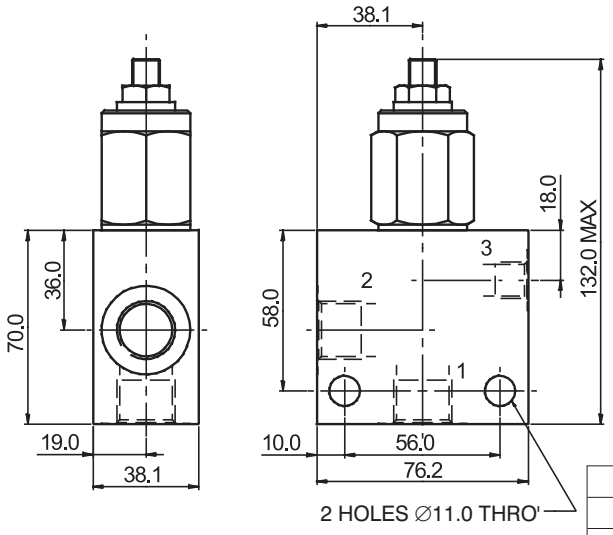
Measurements in millimeters



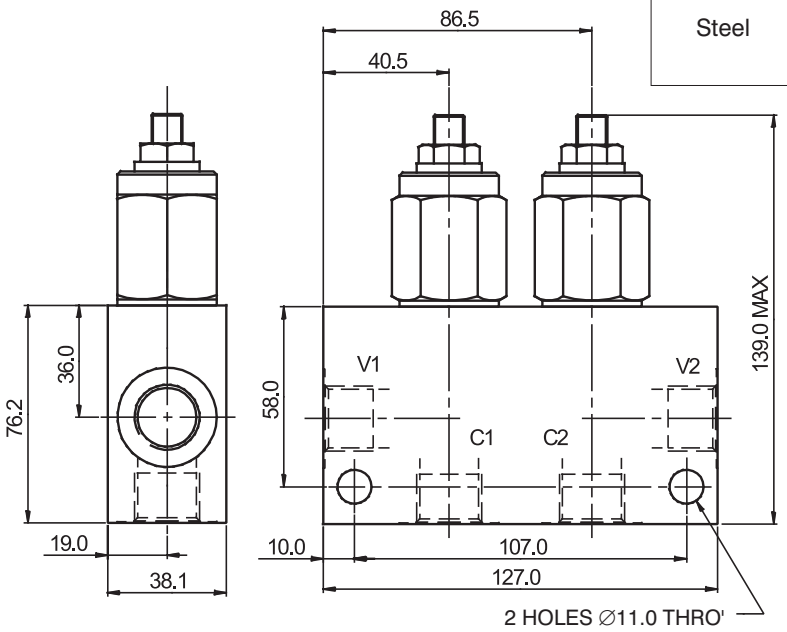
Valve Bodies

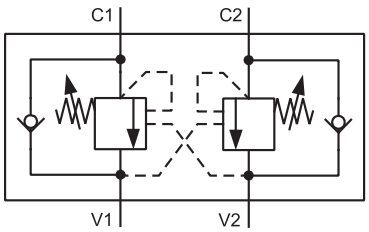
Measurements in millimeters





Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G1/2	SB-R3-0105AL
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G1/2	SB-R3-0105ST
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G1/2	SB-R3-0205AL
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R3-0206AL
Steel	C1, C2, V1, V2	G1/2	SB-R3-0205ST
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R3-0206ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

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ARGO HYTOS

Overcentre Valve

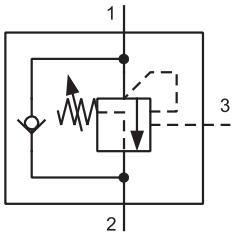
SO5A-T3/I

M38 x 2 • p_{max} 420 bar • Q 140 L/min

HA 5214
12/2014

Replaces
HA 5214 7/2008

- ❑ **The valve prevents runaway in the event of a negative load**
- ❑ **Load-holding without leakage**
- ❑ **Pressure relief function protecting the actuator against overload and pressure peaks**
- ❑ **When installed into the actuator the valve can be used as a hose burst valve**
- ❑ **When used as pressure relief the check valve will act as an anti-cavitation valve**
- ❑ **The valve should be mounted as close as possible to the actuator**



Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load.

If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.

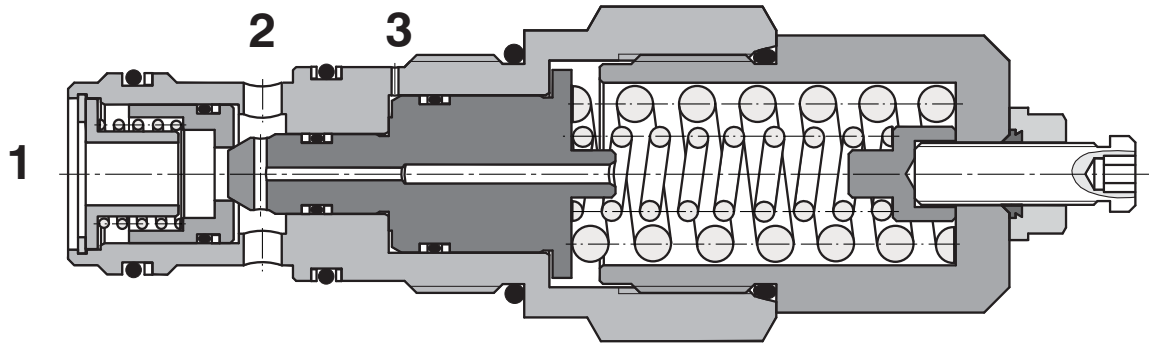
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it correspon ds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.

As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SO5A-T3/I □ □

Overcentre valve

Pilot ratio

Standard	4:1	**4**
for relatively constant	6:1	**6**

Seals

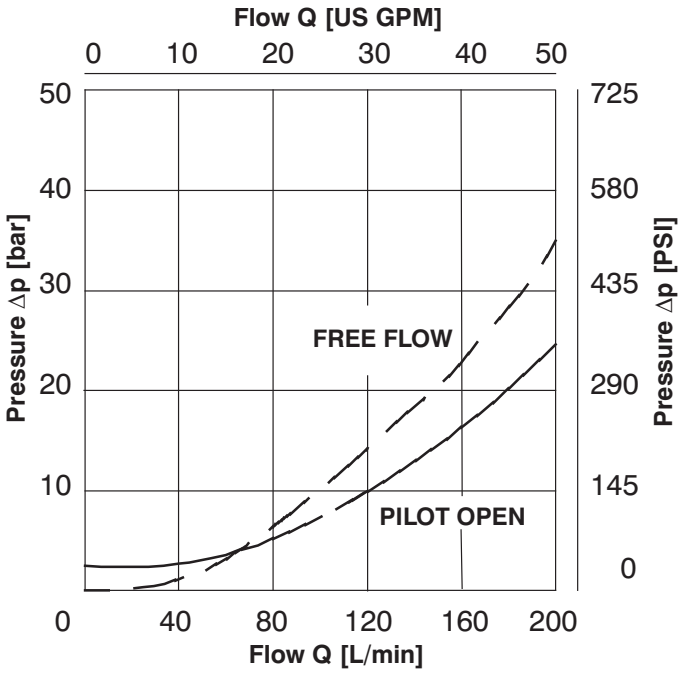
No designation NBR

Technical Data

Cavity		M38 x 2
Maximum flow	L/min	140
Max. pressure	bar	340
Max. input pressure	bar	420
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	1.20
Maximum valve tightening torque in valve body or in control block	Nm	150^{+2}
Mounting position		Unrestricted

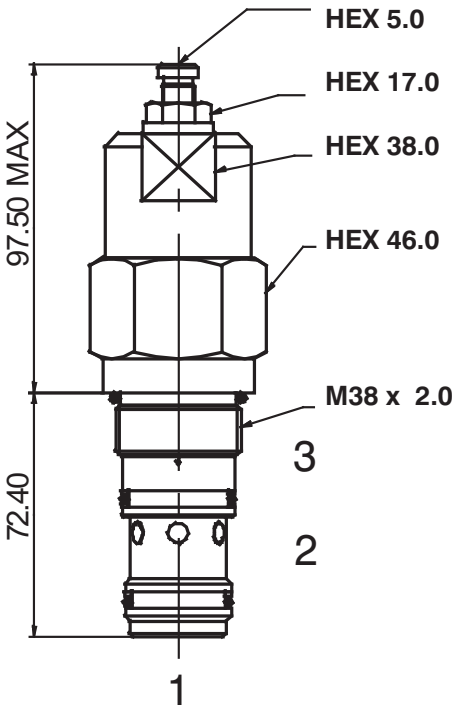
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



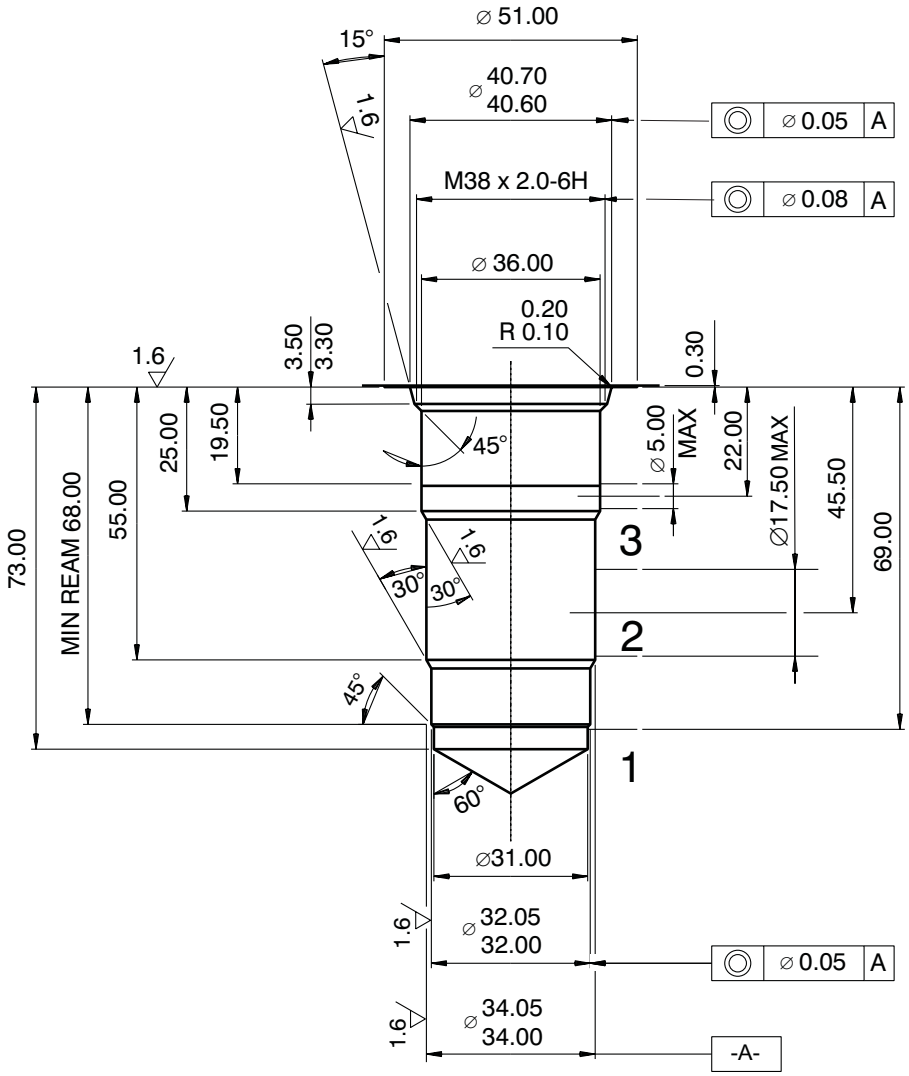
Dimensions

Measurements in millimeters



Cavity

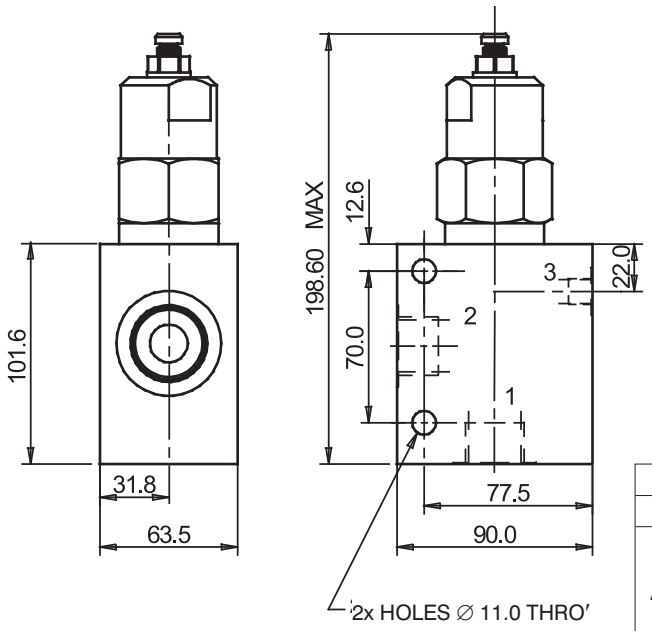
Measurements in millimeters



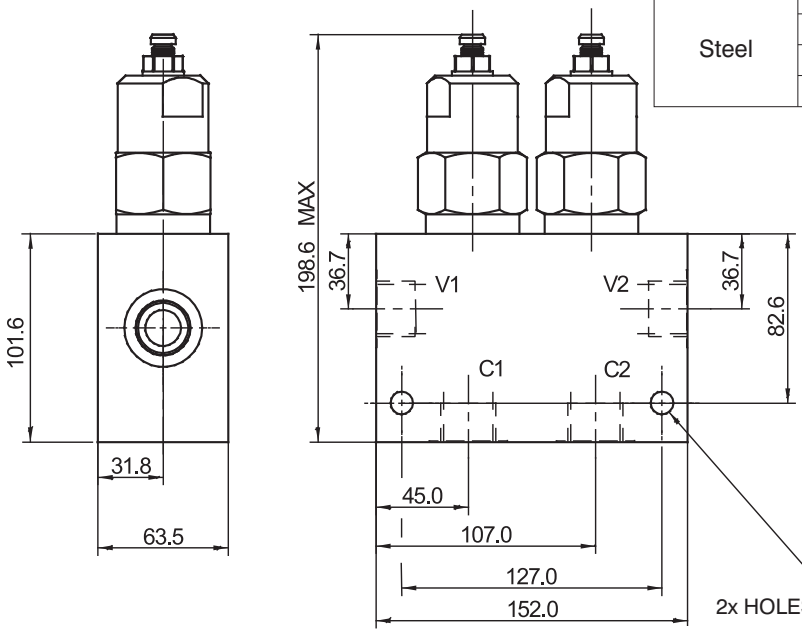
Valve Bodies

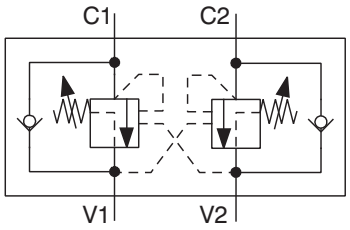
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G1"	SB-T3-0109AL
	3	G1/4	
	1, 2	SAE 16, 1-5/16-12	SB-T3-0110AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G1"	SB-T3-0109ST
	3	G1/4	
	1, 2	SAE 16, 1-5/16-12	SB-T3-0110ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G1"	SB-T3-0209AL
	C1, C2, V1, V2	SAE 16, 1-5/16-12	SB-T3-0210AL
Steel	C1, C2, V1, V2	G1"	SB-T3-0209ST
	C1, C2, V1, V2	SAE 16, 1-5/16-12	SB-T3-0210ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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ARGO HYTOS

Overcentre Valve

Fully Balanced

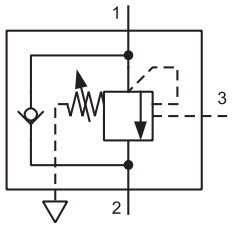
M20 x 1,5 • p_{max} 350 bar • Q_{max} 30 L/min

SOB5A-Q3/I

HA 5202
12/2014

Replaces
HA 5202 7/2008

- **The valve prevents runaway in the event of a negative load**
- **Load-holding without leakage**
- **Pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When used as pressure relief the check valve will act as an anti-cavitation valve**
- **Relief setting is unaffected by back pressure**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the Q3 check valve**



Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load.

If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.

The control pressure is calculated in the following way:

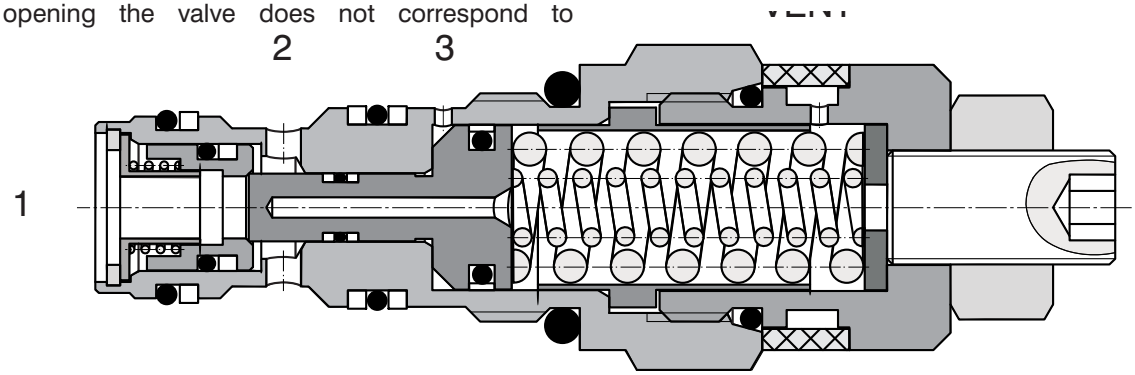
$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.

As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.

Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOB5A-Q3/I □ □

Overcentre valve
Fully Balanced

Pilot ratio
Standard 5:1 **5**

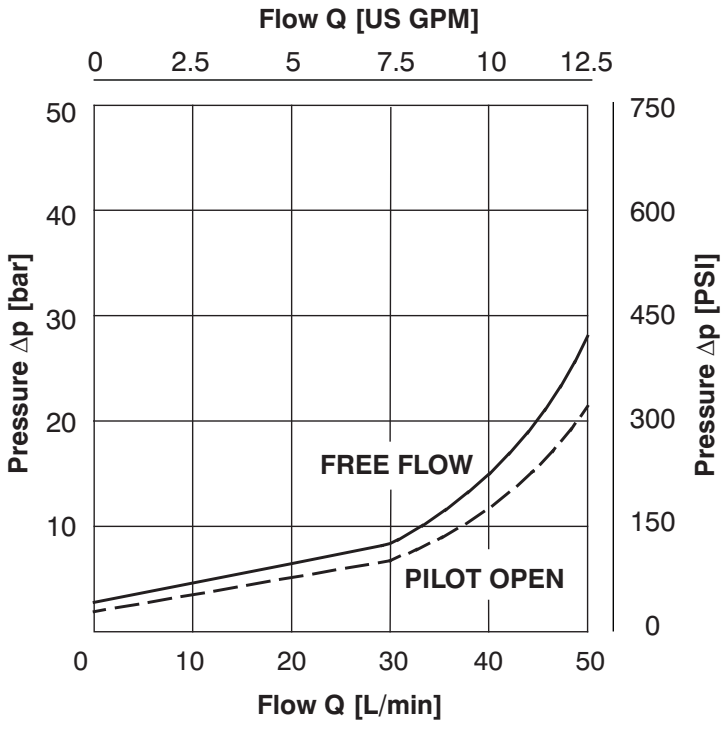
Seals
No designation NBR

Technical Data

Cavity		M20 x 1,5
Maximum flow	L/min	30
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	--20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0,14
Maximum valve tightening torque in valve body or in control block	Nm	45^{+2}
Mounting position		Unrestricted

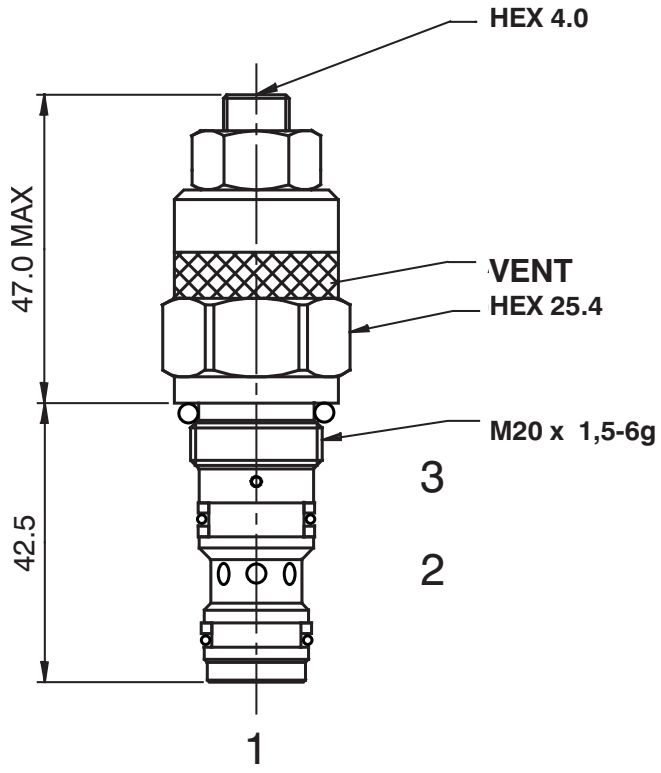
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



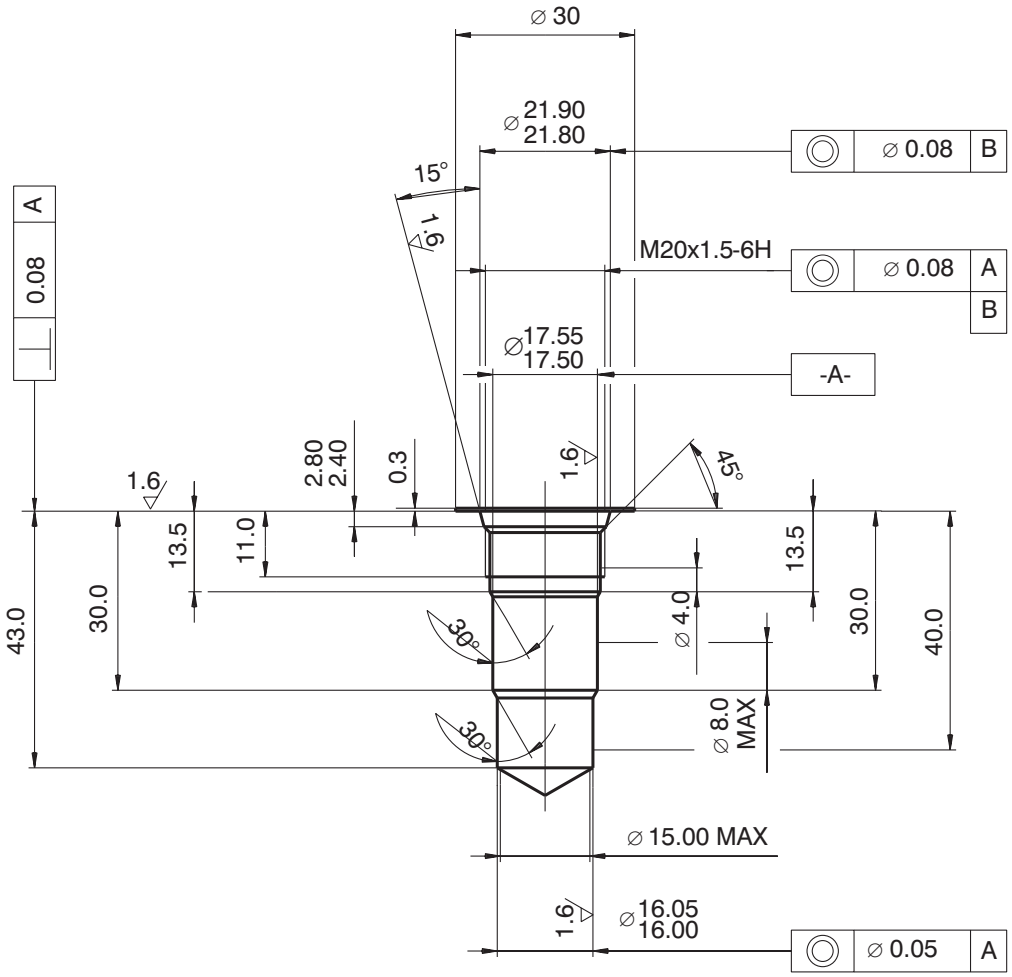
Dimensions

Measurements in millimeters



Cavity

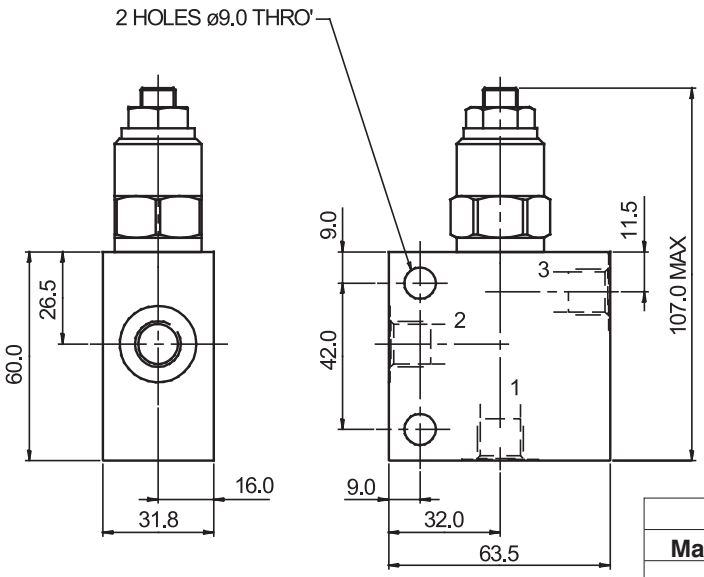
Measurements in millimeters



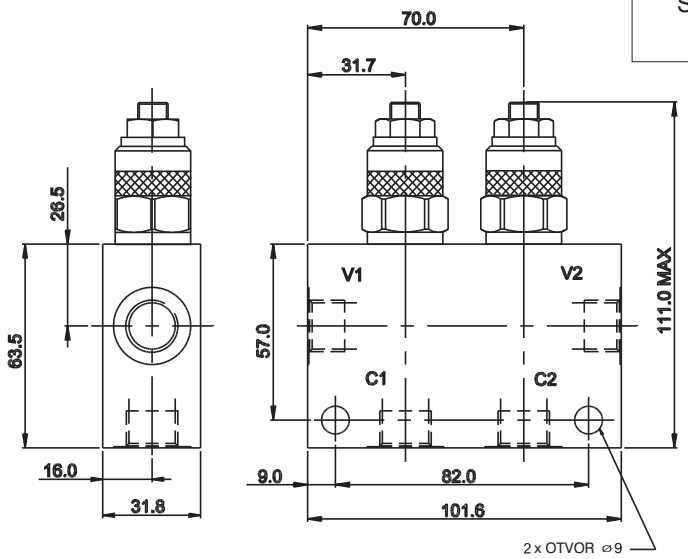
Valve Bodies

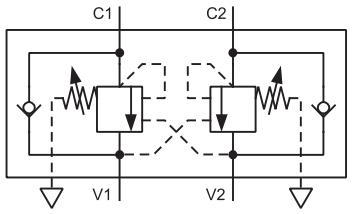
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G3/8	SB-Q3-0103AL
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G3/8	SB-Q3-0103ST
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G3/8	SB-Q3-0203AL
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204AL
Steel	C1, C2, V1, V2	G3/8	SB-Q3-0203ST
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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Overcentre Valve
Fully Balanced

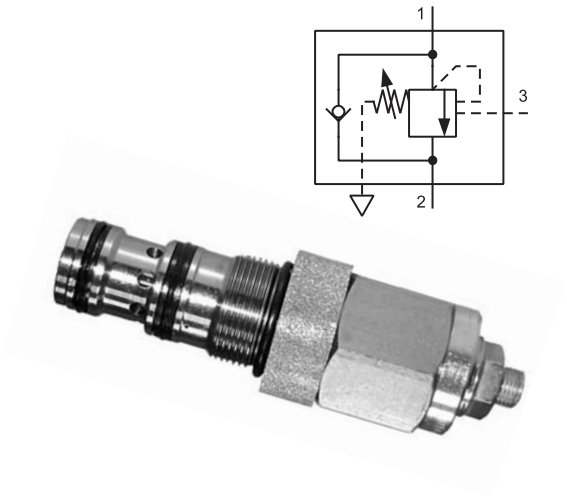
SOB5A-R3/I

M27 x 1,5 • p_{max} 350 bar • Q_{max} 90 L/min

HA 5207
12/2014

Replaces
HA 5207 7/2008

- ❑ **The valve prevents runaway in the event of a negative load**
- ❑ **Load-holding with minimal leakage**
- ❑ **Pressure relief function protecting the actuator against overload and pressure peaks**
- ❑ **When installed into the actuator the valve can be used as a hose burst valve**
- ❑ **When used as pressure relief the check valve will act as an anti-cavitation valve**
- ❑ **The valve should be mounted as close as possible to the actuator**
- ❑ **Fits the same cavity as the R3 check valve**



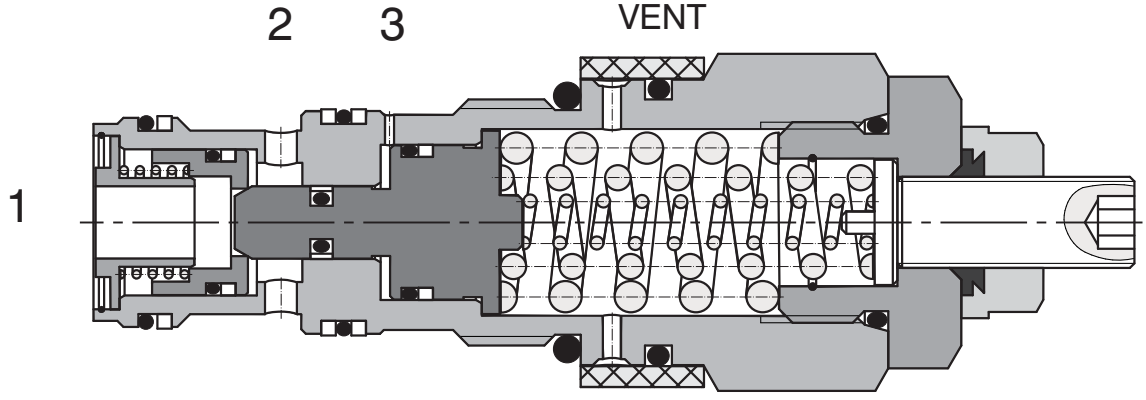
Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load. If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.
As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.
Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOB5A-R3/I [ ] [ ]

Overcentre valve
Fully Balanced

Preassare range
Standard 4:1 **4**

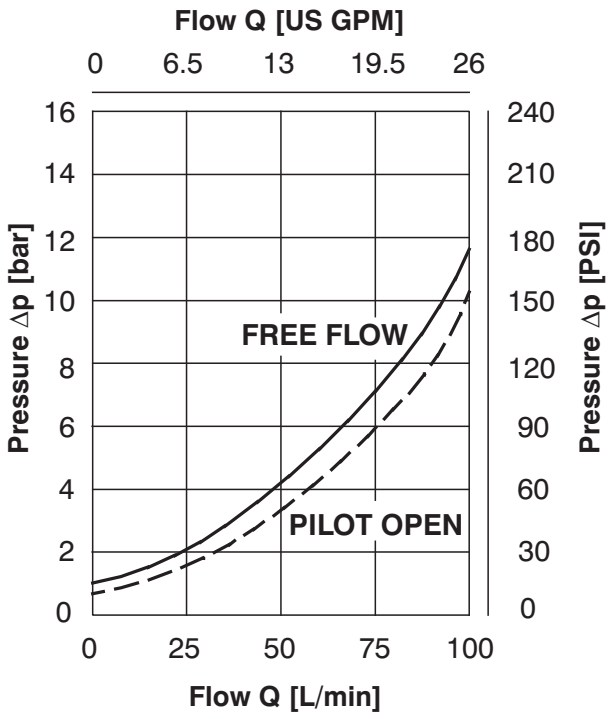
Seals
No designation NBR

Technical Data

Cavity		M27 x 1,5
Maximum flow	L/min	90
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0.29
Maximum valve tightening torque in valve body or in control block	Nm	60^{+2}
Mounting position		Unrestricted

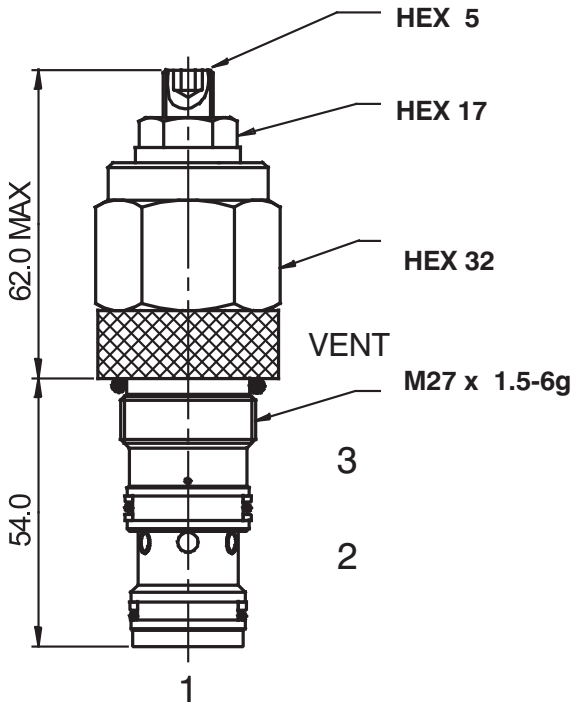
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



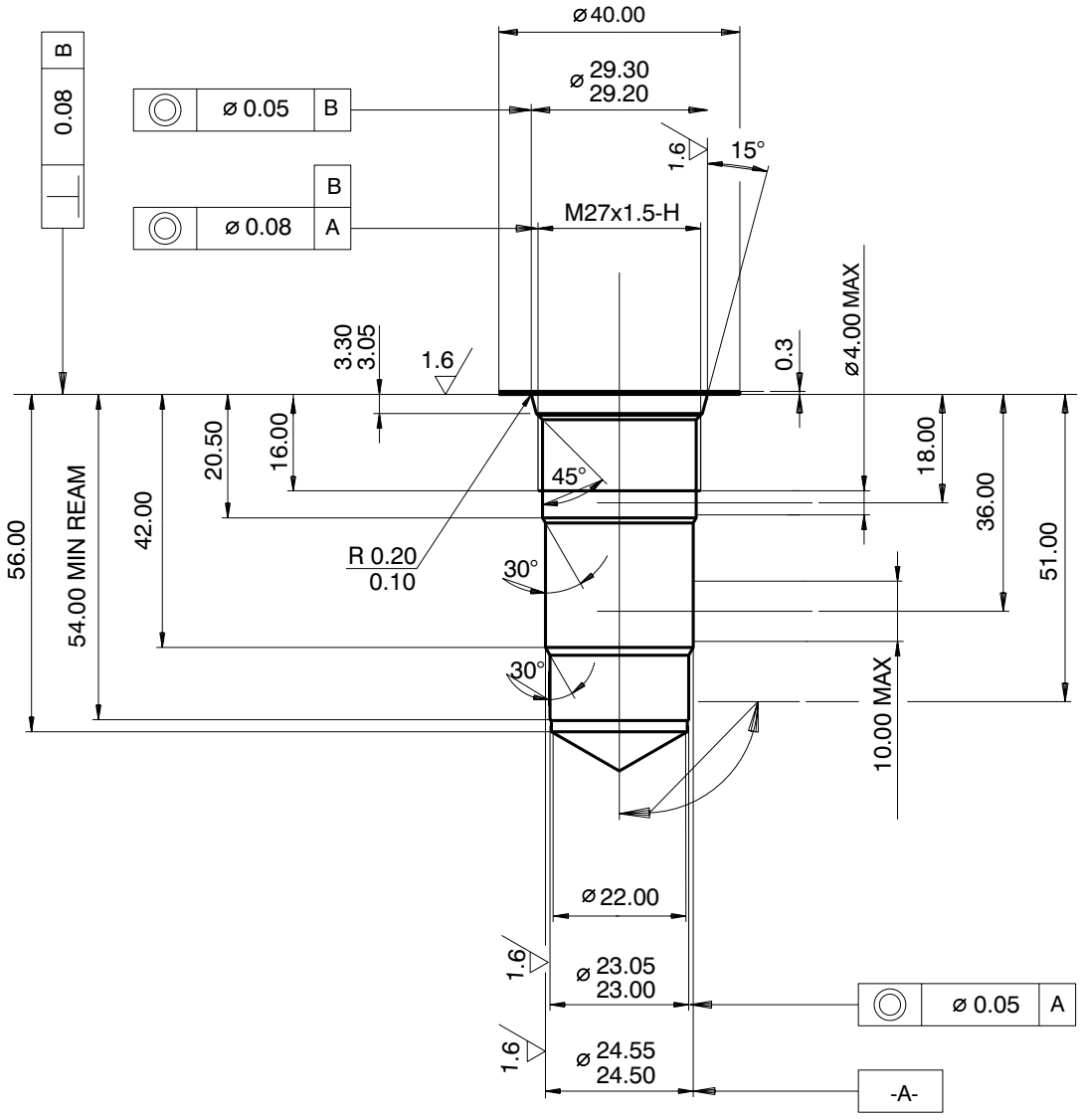
Dimensions

Measurements in millimeters



Cavity

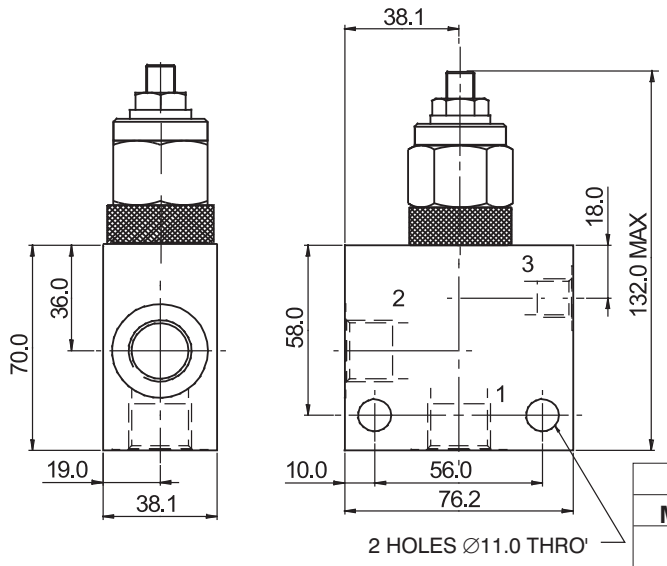
Measurements in millimeters



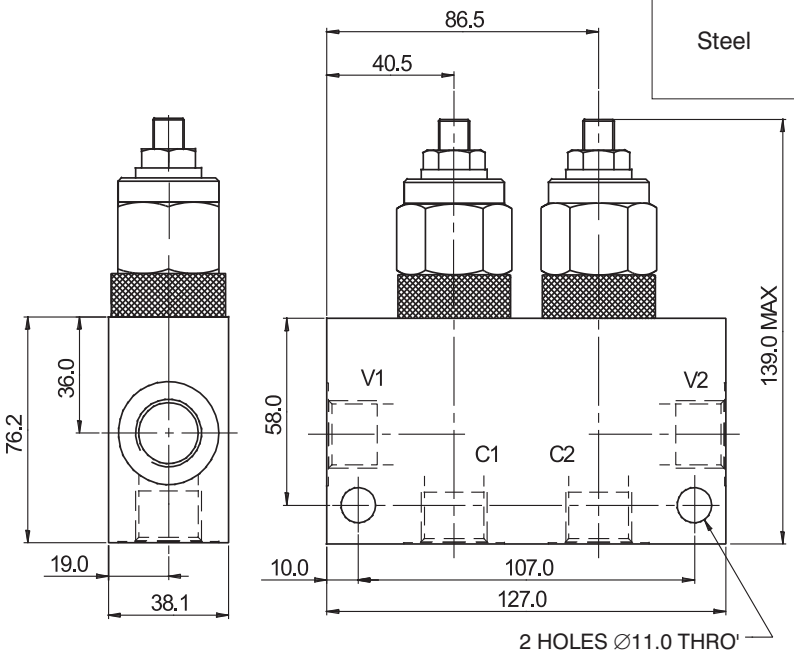
Valve Bodies

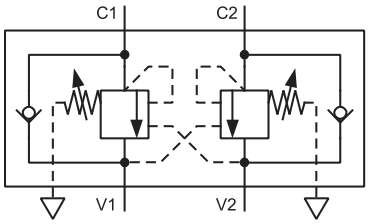
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G1/2	SB-R3-0105AL
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G1/2	SB-R3-0105ST
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G1/2	SB-R3-0205AL
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R3-0206AL
Steel	C1, C2, V1, V2	G1/2	SB-R3-0205ST
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R3-0206ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
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www.argo-hytos.com

Overcentre Valve
Fully Balanced

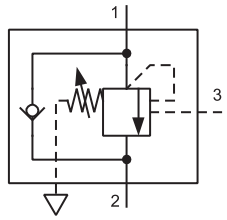
SOB5A-S3/I

1-5/16-12 UN-2A • p_{max} 350 bar • Q_{max} 120 L/min

HA 5211
12/2014

Replaces
HA 5211 7/2008

- **The valve prevents runaway in the event of a negative load**
- **Load-holding without leakage**
- **With pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When used as pressure relief the check valve will act as an anti-cavitation valve**
- **Relief setting is unaffected by back pressure**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the S3 check valve**



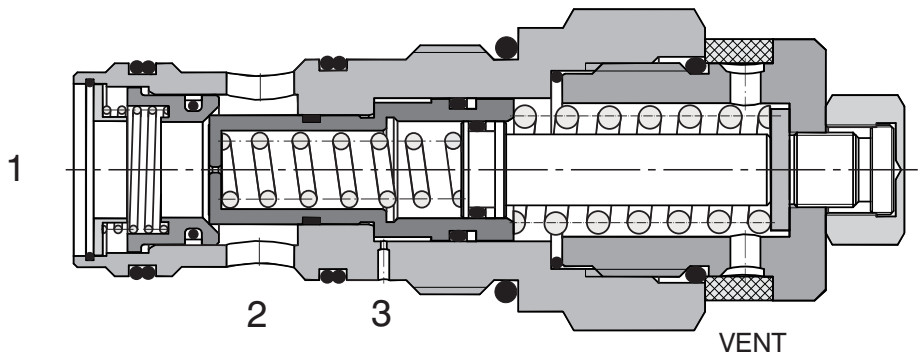
Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load. If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.
As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.
Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOB5A-S3/I [ ] [ ]

Overcentre valve
Fully Balanced

Preassare range
Standard 3:1 — **3**

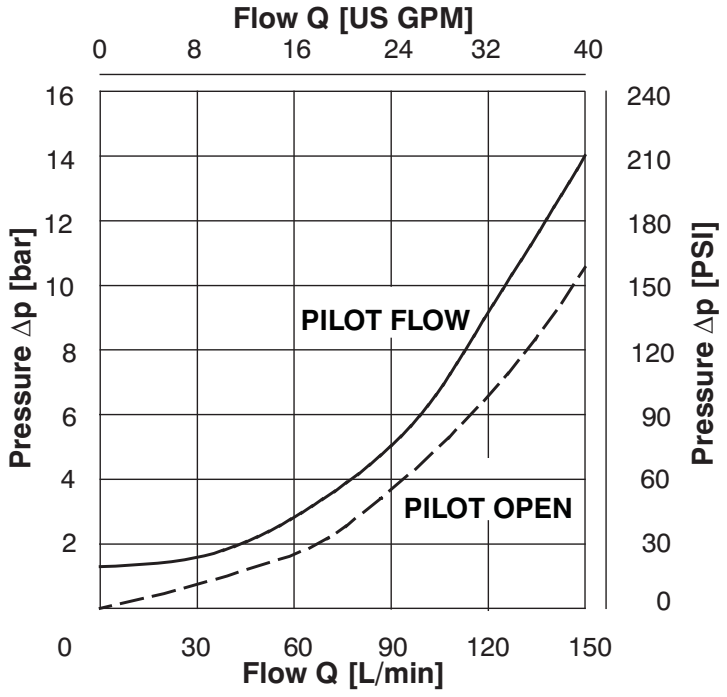
Seals
No designation NBR

Technical Data

Cavity		1-5/16-12 UN-2A
Maximum flow	L/min	120
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0,59
Maximum valve tightening torque in valve body or in control block	Nm	100^{+2}
Mounting position		unrestricted

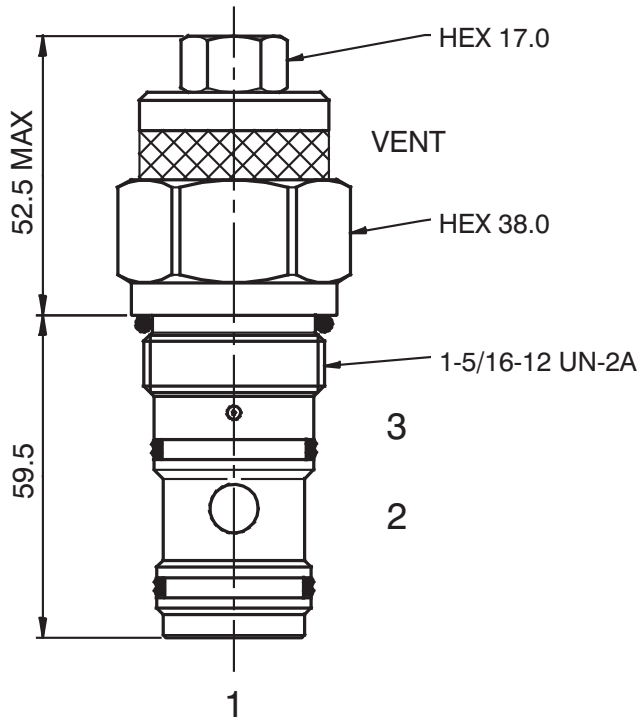
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



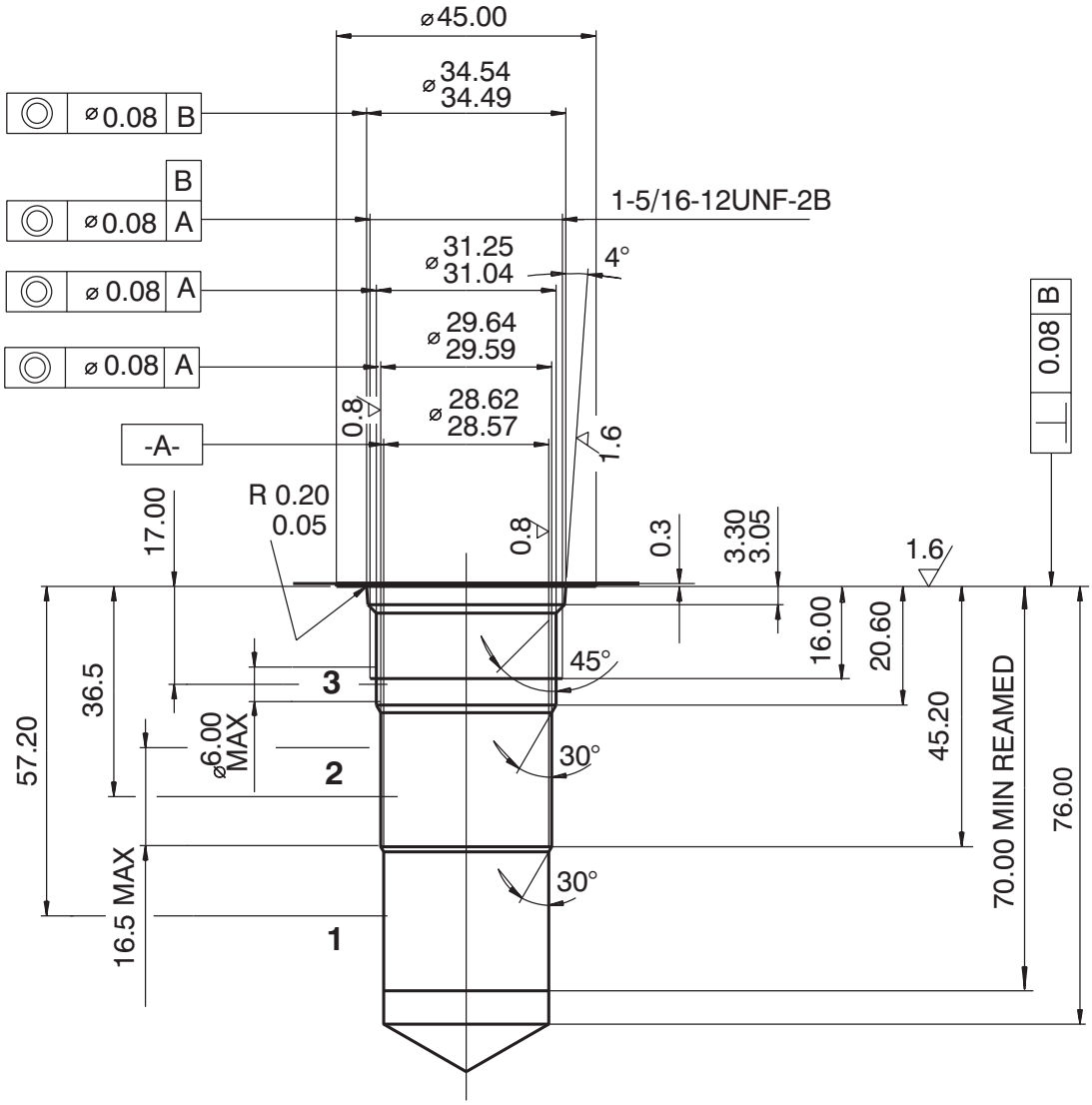
Dimensions

Measurements in millimeters



Cavity

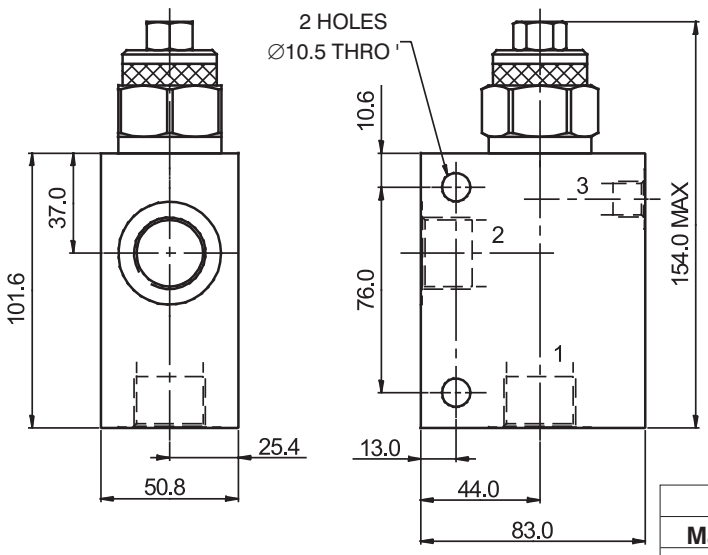
Measurements in millimeters



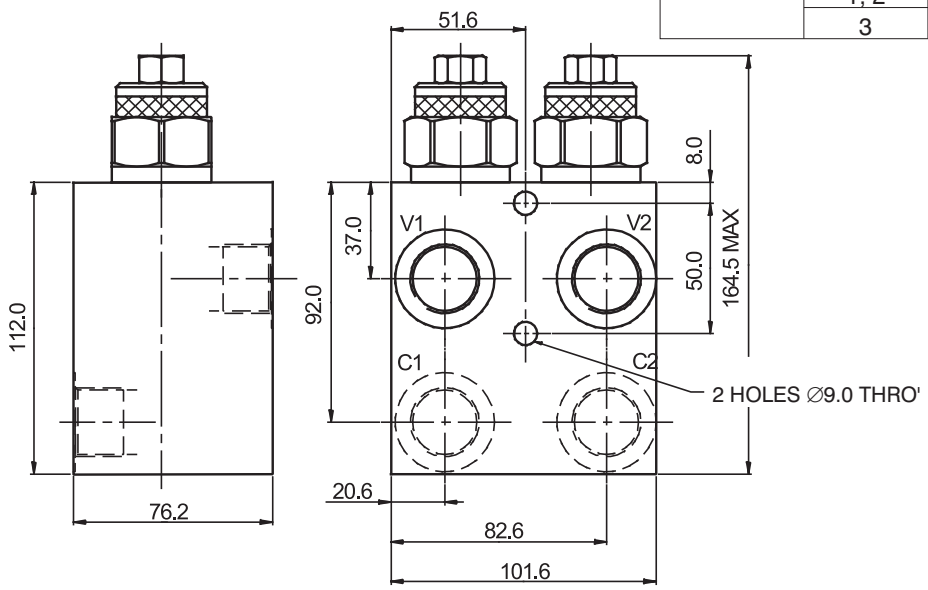
Valve Bodies

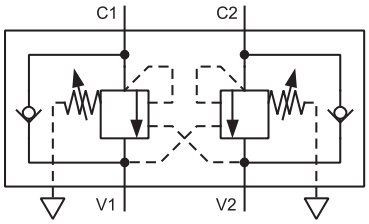
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G3/4	SB-S3-0107AL
	3	G1/4	
	1, 2	SAE 12,1-1/16-12	SB-S3-0108AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G3/4	SB-S3-0107ST
	3	G1/4	
	1, 2	SAE 12,1-1/16-12	SB-S3-0108ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G3/4	SB-S3-0207AL
	C1, C2, V1, V2	SAE 12,1-1/16-12	SB-S3-0208AL
Steel	C1, C2, V1, V2	G3/4	SB-S3-0207ST
	C1, C2, V1, V2	SAE 12,1-1/16-12	SB-S3-0208ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

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Overcentre Valve
Part Balanced

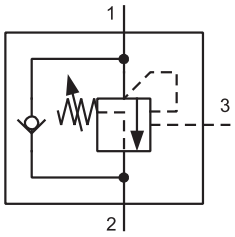
SOP5A-Q3/I

M20 x 1,5 • p_{max} 350 bar • Q_{max} 30 L/min

HA 5201
12/2014

Replaces
HA 5201 7/2008

- **The valve prevents runaway in the event of a negative load**
- **Load-holding without leakage**
- **Pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When used as pressure relief the check valve will act as an anti-cavitation valve**
- **Relief setting is unaffected by back pressure**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the Q3 check valve**

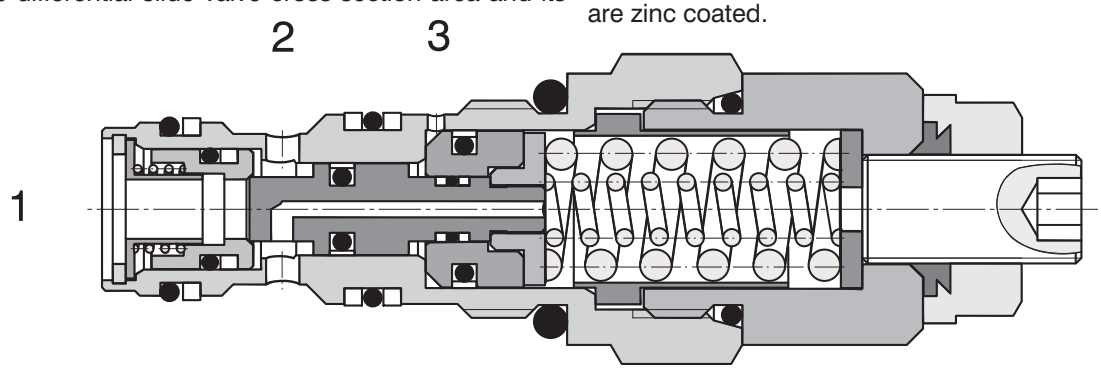


Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load. If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.
As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.
Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.
As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOP5A-Q3/I □ □

Overcentre valve
part balanced

Pilot ratio
Standard 4:1 **4**

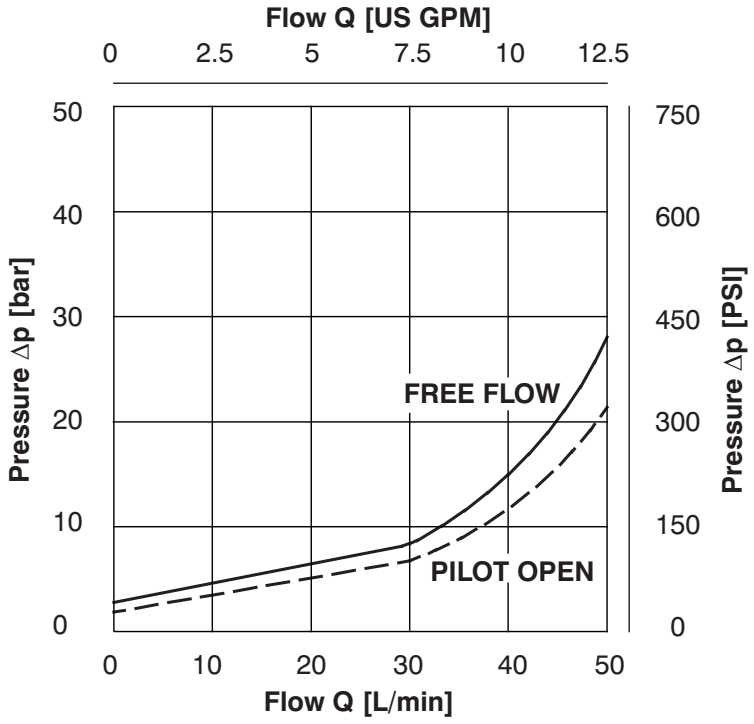
Seals
No designation NBR

Technical Data

Cavity		M20 x 1,5
Maximum flow	L/min	30
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	0,15
Maximum valve tightening torque in valve body or in control block	Nm	45^{+2}
Mounting position		Unrestricted

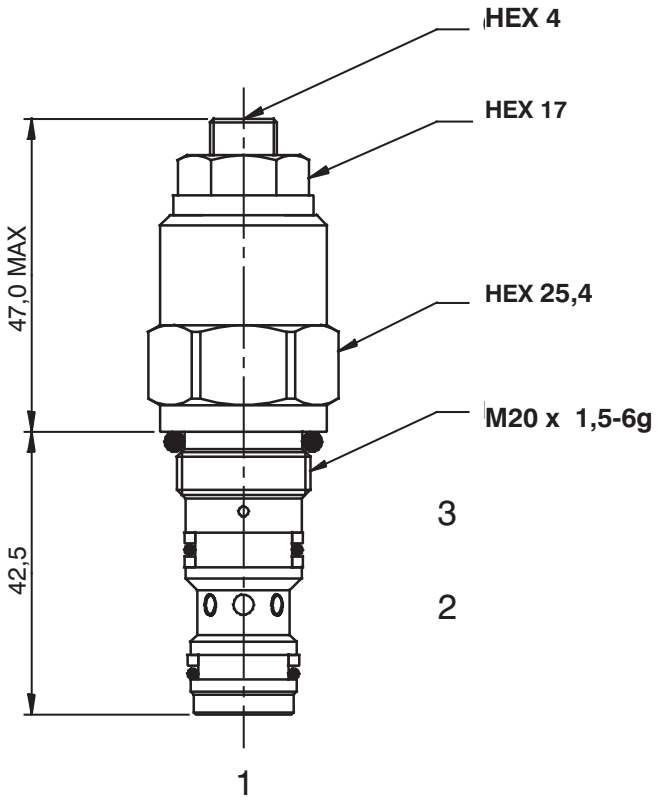
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



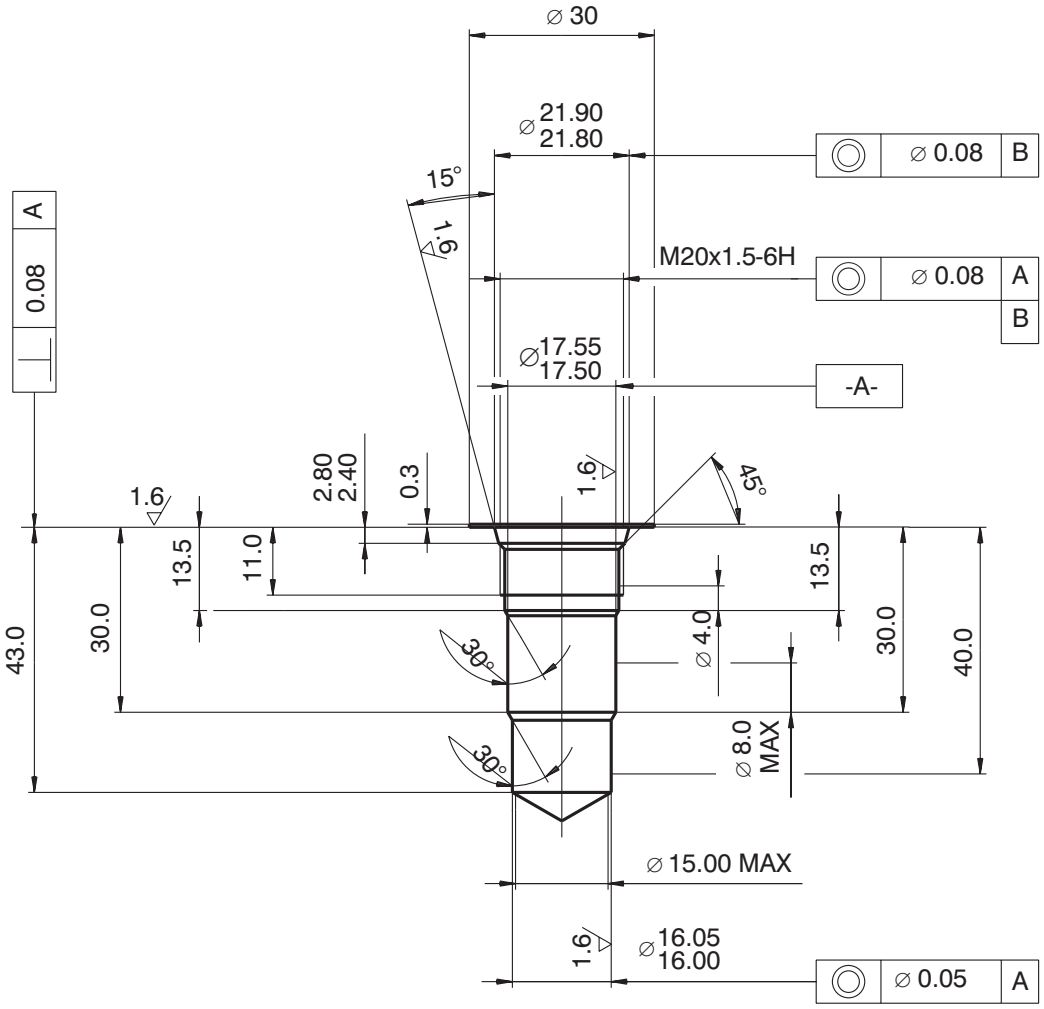
Dimensions

Measurements in millimeters



Cavity

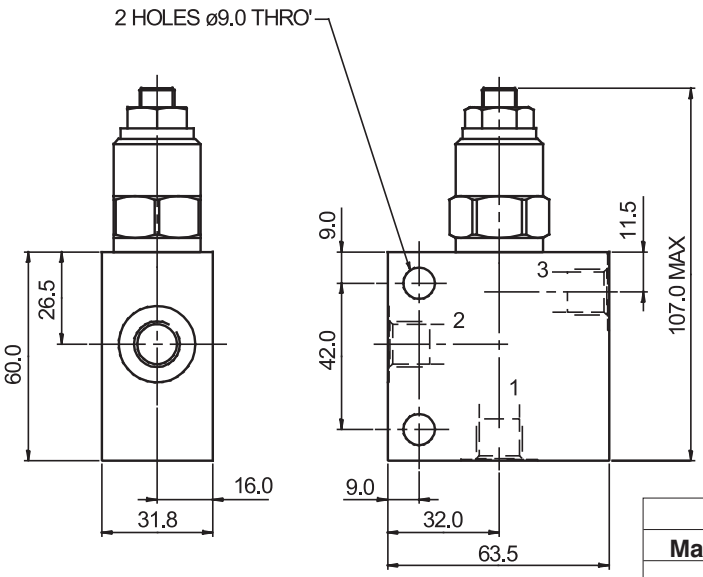
Measurements in millimeters



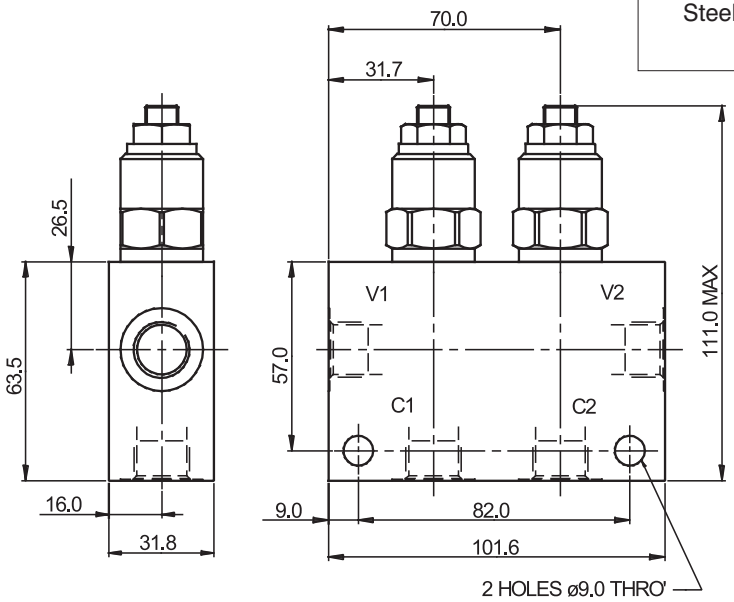
Valve Bodies

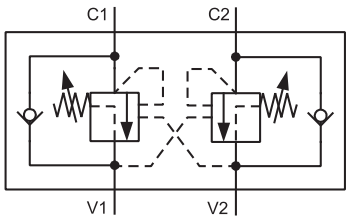
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G3/8	SB-Q3-0103AL
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G3/8	SB-Q3-0103ST
	3	G1/4	
	1, 2	SAE 8, 3/4-16	SB-Q3-0104ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G3/8	SB-Q3-0203AL
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204AL
Steel	C1, C2, V1, V2	G3/8	SB-Q3-0203ST
	C1, C2, V1, V2	SAE 8, 3/4-16	SB-Q3-0204ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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ARGO HYTOS

Overcentre Valve
Part Balanced

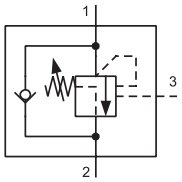
SOP5A-R3/I

M27 x 1,5 • p_{max} 350 bar • Q_{max} 90 L/min

HA 5206
7/2008

Replaces
HA 5206 9/2006

- **The valve prevents runaway in the event of a negative load**
- **Load-holding with minimal leakage**
- **Pressure relief function protecting the actuator against overload and pressure peaks**
- **When installed into the actuator the valve can be used as a hose burst valve**
- **When used as pressure relief the check valve will act as an anti-cavitation valve**
- **Relief setting is unaffected by back pressure**
- **The valve should be mounted as close as possible to the actuator**
- **Fits the same cavity as the R3 check valve**



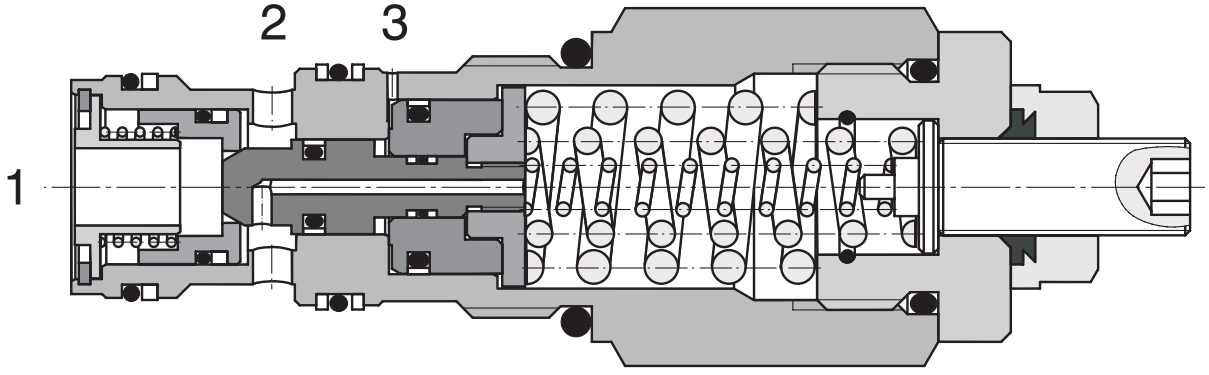
Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load. If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it corresponds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.
As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.
Dynamic pressures in the outlet do not influence the set up value thanks to a special arrangement of the slide valve. However, it is necessary to take care of the fact the control channel is independent on the dynamic pressure.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOP5A-R3/I [ ] [ ]

Overcentre valve
Part Balanced

Preassare range
Standard 4:1 **4**

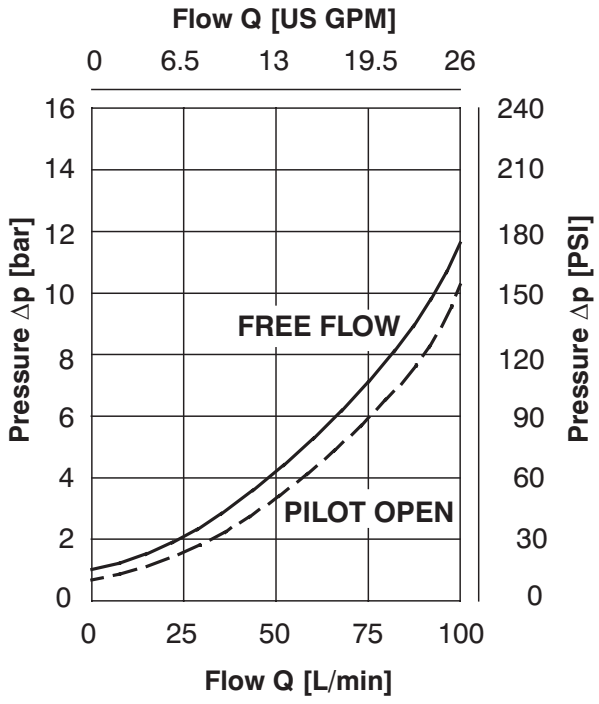
Seals
No designation NBR

Technical Data

Cavity		M27 x 1,5
Maximum flow	L/min	90
Max. pressure	bar	270
Max. input pressure	bar	350
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 400
Maximum degree of fluid contamination		according to ISO 4406 (1999), Class 21/18/15
Weight	kg	0,29
Maximum valve tightening torque in valve body or in control block	Nm	60^{+2}
Mounting position		any

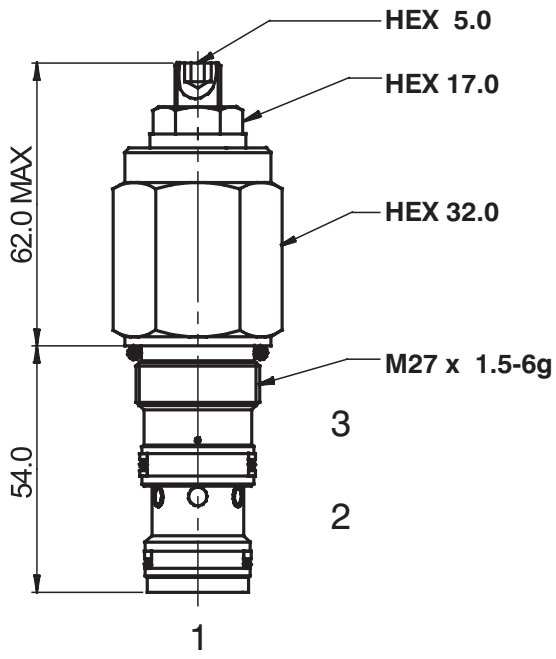
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



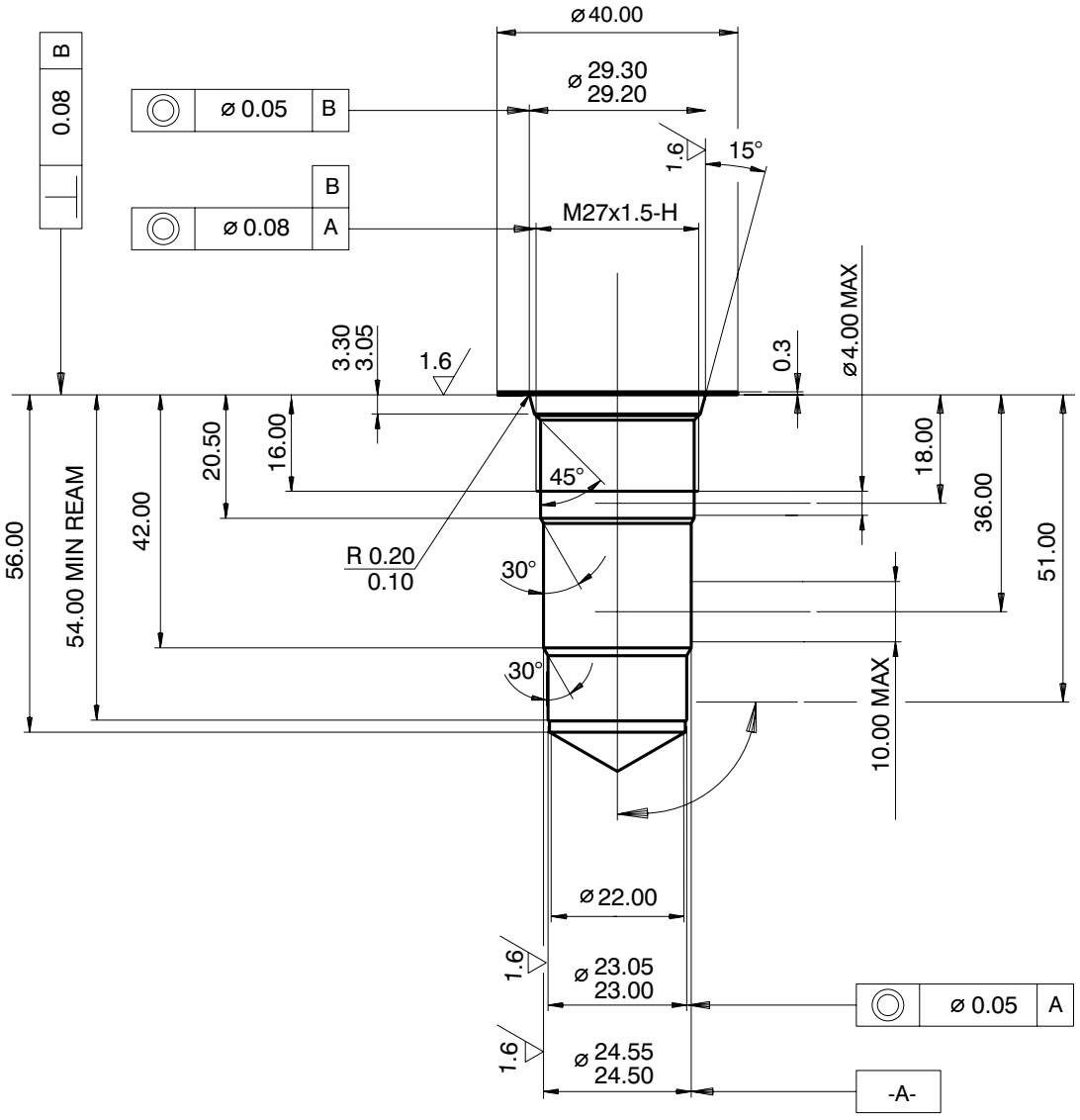
Dimensions

Measurements in millimeters



Cavity

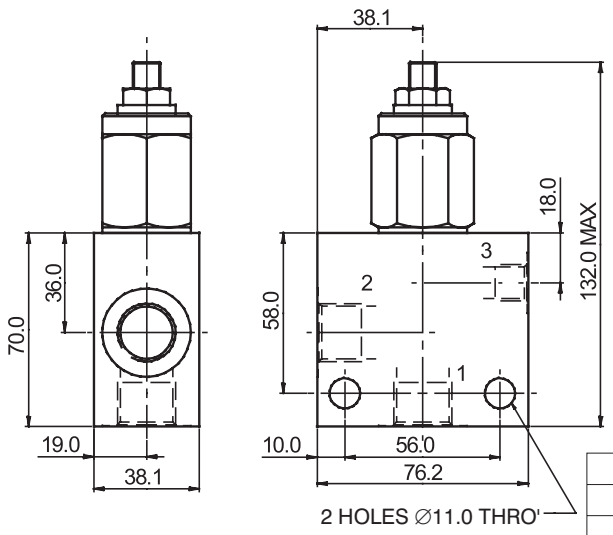
Measurements in millimeters



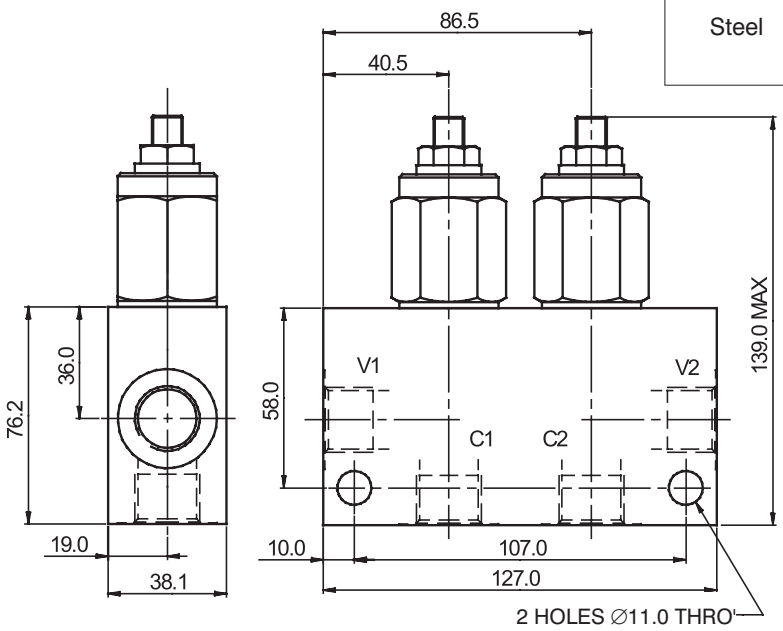
Valve Bodies

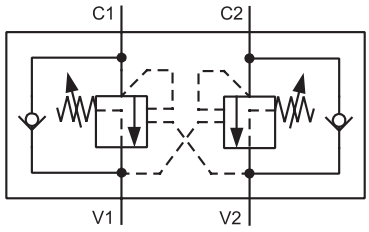
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G1/2	SB-R3-0105AL
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G1/2	SB-R3-0105ST
	3	G1/4	
	1, 2	SAE 10, 7/8-14	SB-R3-0106ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G1/2	SB-R4-0205AL
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R4-0206AL
Steel	C1, C2, V1, V2	G1/2	SB-R4-0205ST
	C1, C2, V1, V2	SAE 10, 7/8-14	SB-R4-0206ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

Caution!

- The packing foil is recyclable.
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ARGO HYTOS

Overcentre Valve

Part Balanced

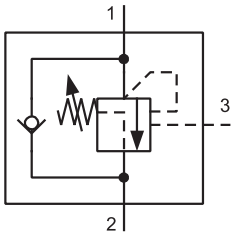
M38 x 2 • p_{max} 420 bar • Q_{max} 140 L/min

SOP5A-T3/I

HA 5215
12/2014

Replaces
HA 5215 7/2008

- ❑ **The valve prevents runaway in the event of a negative load**
- ❑ **Load-holding without leakage**
- ❑ **Pressure relief function protecting the actuator against overload and pressure peaks**
- ❑ **When installed into the actuator the valve can be used as a hose burst valve**
- ❑ **When used as pressure relief the check valve will act as an anti-cavitation valve**
- ❑ **Relief setting is unaffected by back pressure**
- ❑ **The valve should be mounted as close as possible to the actuator**



Functional Description

The valve consists of a seat by-pass, relief valve fitted with an auxiliary control with a differential piston and by-pass single-way valve serving for reverse direction of flow. The liquid is flowing through the single-way valve from the channel (2) to the channel (1) with a small pressure drop. In the opposite direction the single-way valve on the rear side of which a gate valve seat is fitted is pressed through the action of a spring and the load pressure against the spring-loaded valve gate valve. In this way the valve is nearly closed hermetically. If the pressure in the channel (1) exceeds a set up value of the spring force the gate valve is pressed out of the seat and the overpressure in that case is relieved into channel (2). For ensuring the function of holding the load the spring force should be set up to a value by 30 % higher when compared to an expected pressure exerted by the load.

If the load has to be moved it is possible to ensure it with the help of so called auxiliary control from the channel (3) by introducing already certain control pressure.

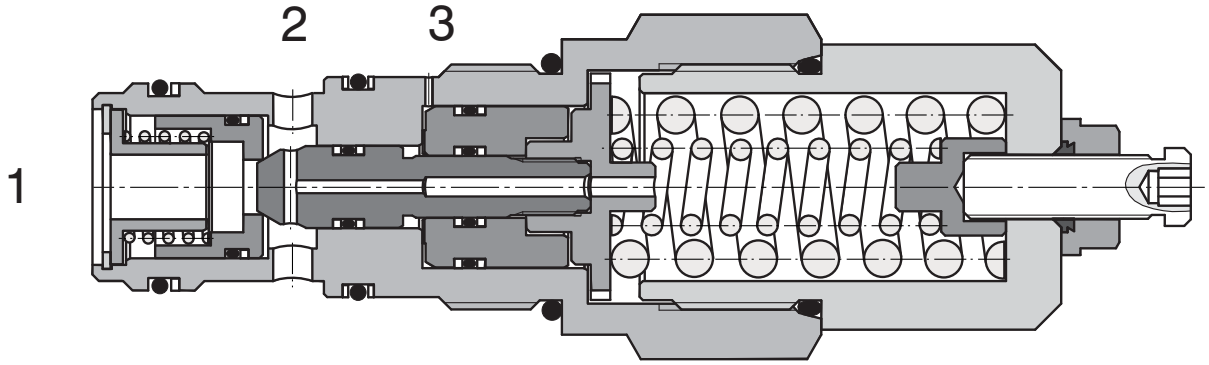
The control pressure is calculated in the following way:

$$\text{Control pressure} = \frac{\text{set up pressure} - \text{load pressure}}{\text{ratio of control}}$$

The ratio of control designates a ratio of surfaces of the differential slide valve cross-section area and its seat. Therefore, the necessary control pressure for opening the valve does not correspond to the difference between the set up pressure and load pressure however; it correspon ds to the ratio of this difference and the control ratio. In the formula as mentioned above it is necessary to take into consideration that in differential cylinders it is necessary to add to the control ratio also the appropriate ratio of piston surfaces in the direction of movement.

As soon as the control pressure attains a necessary value the differential gate valve is moved out from the seat and then the way from the channel (1) to the channel (2) is released. If now the load tries to accelerate and be fast as for the oil supply the supply pressure decreases, therefore, also the control pressure in the channel (3) is decreased. The spring force tries to shut off the valve again, therefore, in consequence of which the flow from the consumer decreases and the inlet pressure to the consumer increases again. In this way it is ensured a constant inlet pressure by means of which the movement of the load can be controlled.

As for appropriate basic surface finish the external parts are zinc coated.



Ordering Code

SOP5A-T3/I □ □

Overcentre valve

Pilot ratio

Standard	4:1	**4**
for relatively constant	6:1	**6**

Seals

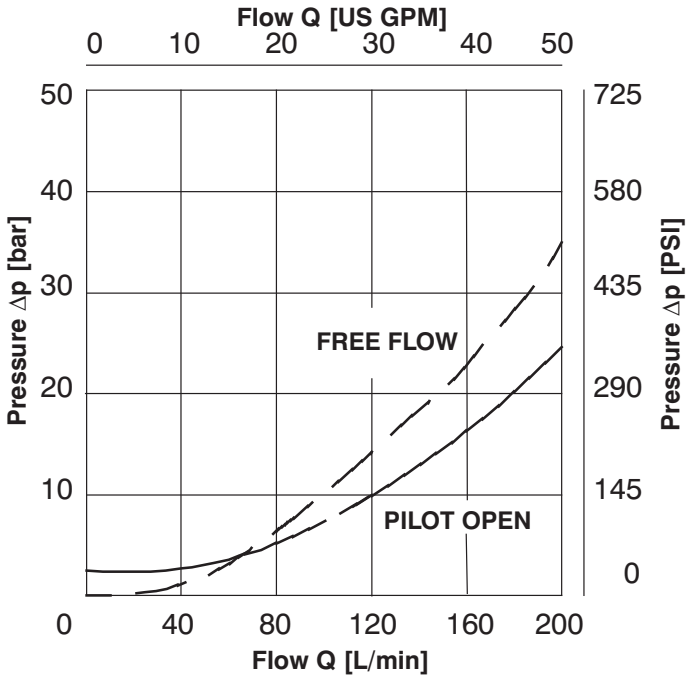
No designation NBR

Technical Data

Cavity		M38 x 2
Maximum flow	L/min	140
Max. pressure	bar	340
Max. input pressure	bar	420
Pressure drops	bar	see Δp - Q characteristics
Hydraulic fluid		Hydraulic oil (HM, HV) according to DIN 51524
Fluid temperature range	°C	-20 ... +90
Viscosity	mm^2/s	20 ... 400
Maximum degree of fluid contamination		according to ISO 4406, Class 21/18/15
Weight	kg	1.2
Maximum valve tightening torque in valve body or in control block	Nm	150^{+2}
Mounting position		Unrestricted

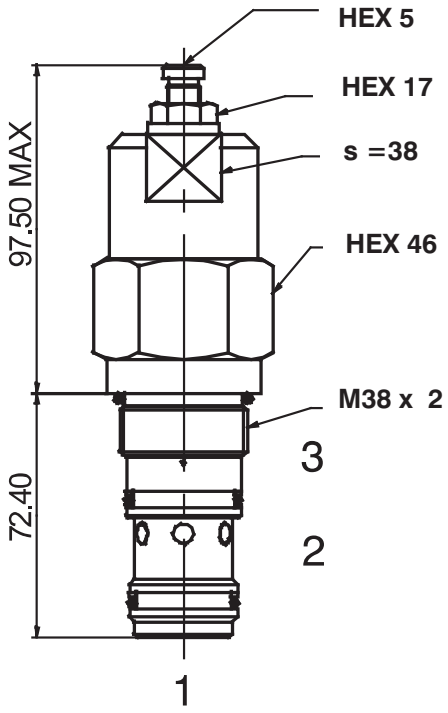
Δp-Q Characteristics

Measured at $\nu = 40\ mm^2/s$



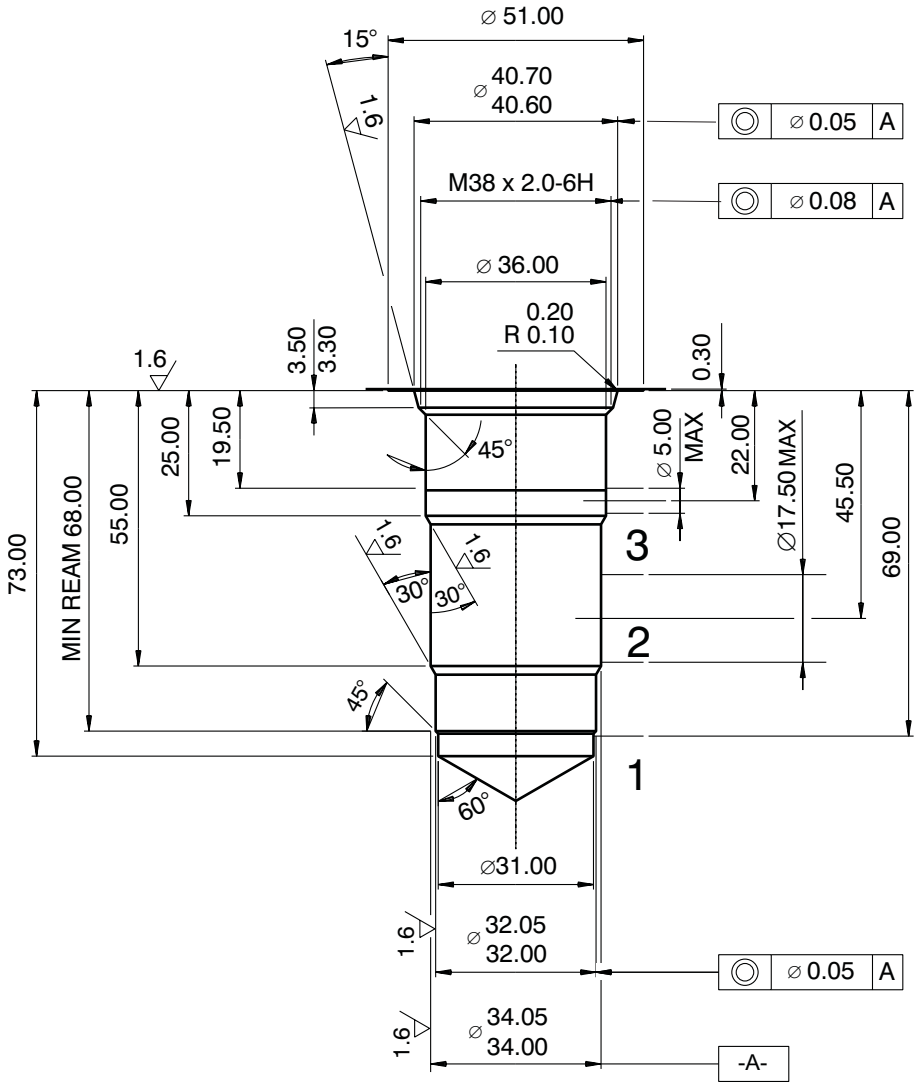
Dimensions

Measurements in millimeters



Cavity

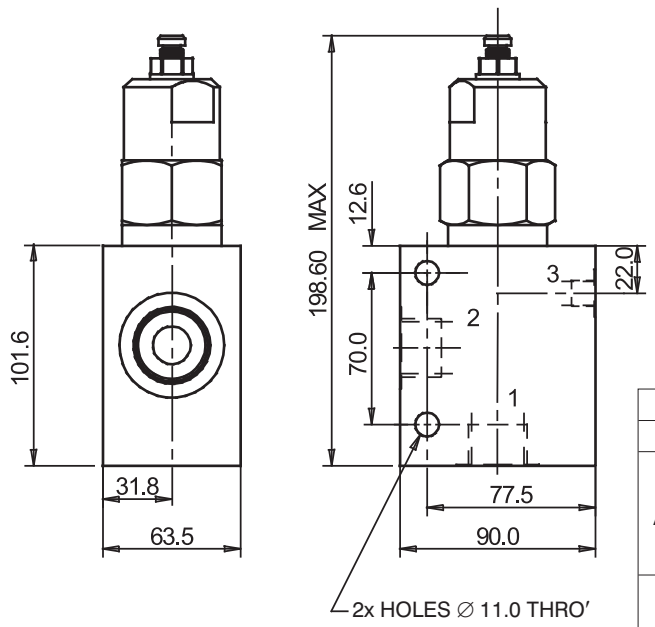
Measurements in millimeters



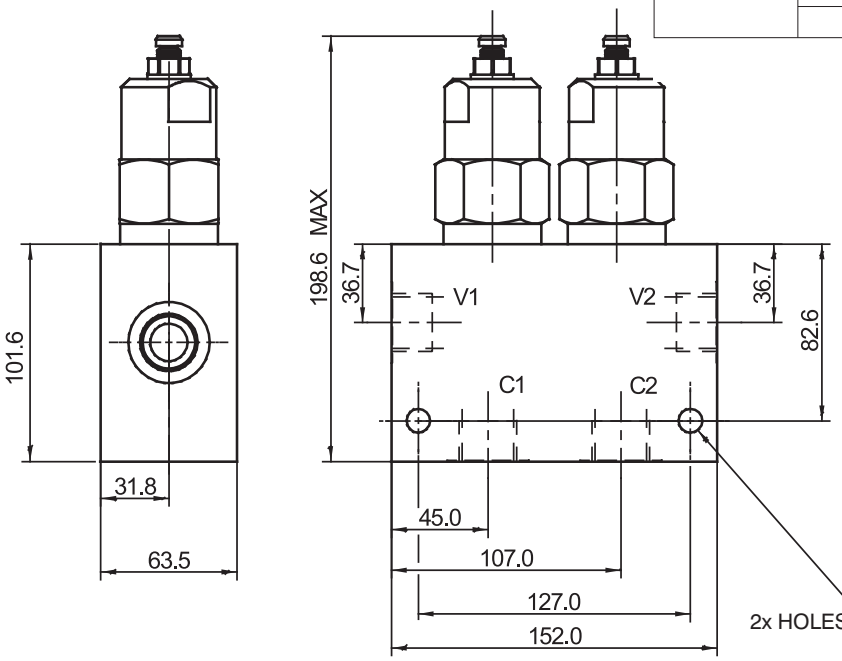
Valve Bodies

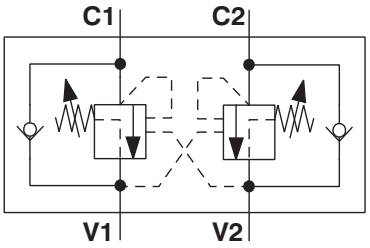
Measurements in millimeters

ISO A



Body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	1, 2	G1"	SB-T3-0109AL
	3	G1/4	
	1, 2	SAE 16, 1-5/16-12	SB-T3-0110AL
	3	SAE 6, 9/16-18	
Steel	1, 2	G1"	SB-T3-0109ST
	3	G1/4	
	1, 2	SAE 16, 1-5/16-12	SB-T3-0110ST
	3	SAE 6, 9/16-18	





Dual body without valve			
Material	**Ports**	**Port size**	**Type code**
Aluminium	C1, C2, V1, V2	G1"	SB-T3-0209AL
	C1, C2, V1, V2	SAE 16, 1-5/16-12	SB-T3-0210AL
Steel	C1, C2, V1, V2	G1"	SB-T3-0209ST
	C1, C2, V1, V2	SAE 16, 1-5/16-12	SB-T3-0210ST

The use of aluminium bodies is limited to a maximum operating pressure of 210 bar.

Spare Parts

Seal kits on request.

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