

- > **Modular design - Maxseal valves**
- > **Bypass function enables valve removal online**
- > **Stainless steel visual status indicators and exhaust guards as standard**
- > **Cable terminations inside coil housing**
- > **SIL certified components and system**
- > **International approvals**
- > **Stainless steel construction**
- > **Utilizing industry proven technology**



Technical features

Medium:

Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:

3/2 Direct solenoid operated poppet valves

Bypass:

5/2 Manual operated spool valve (lockable)

Mounting position:

Valves vertical only

Operating pressure:

1 ... 10 bar (14 ... 145 psi)

Flow:

Standard valves 320 ... 490 l/min
High flow valves 720 ... 810 l/min
details see page 2

Port size:

G 1/4, 1/4 NPT, G 1/2, 1/2 NPT

Additional filter:

Installation of an in-line filter is recommended (in the direction of flow from the actuator to the RVM).

Temperature range:

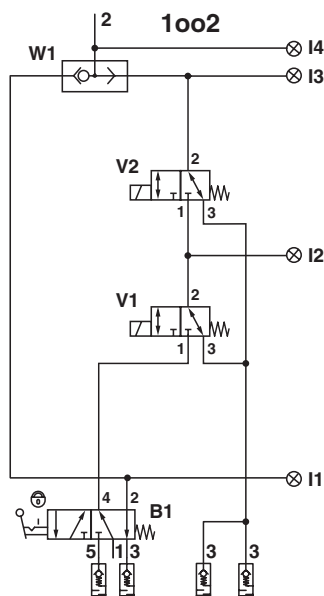
Up to -40 ... +80°C (-40 ... +176°F), see option selector page 2
Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

Temperature solenoid: See option selector and corresponding valve data sheets

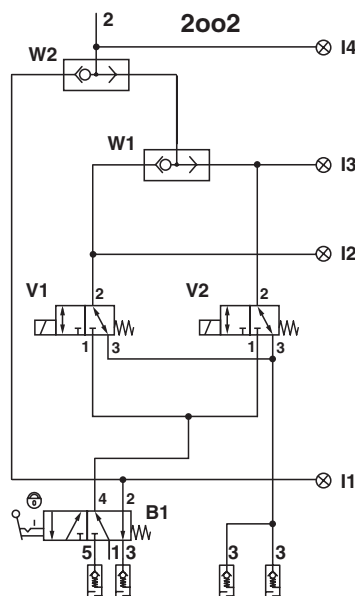
Materials:

Manifold and valve: stainless steel 1.4404 (316 L)
Seals: NBR
Internal parts: stainless steel 1.4404 (316 L)

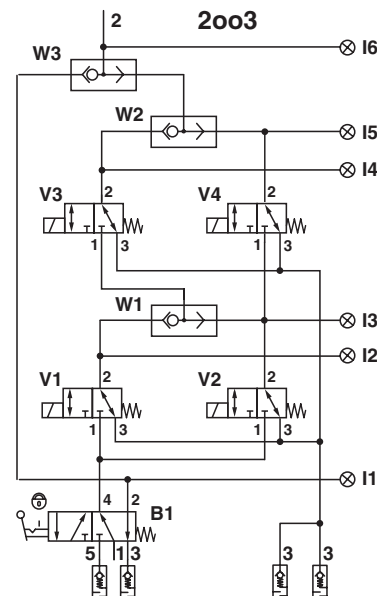
1oo2 with bypass valve exhaust guards and indicators



2oo2 with bypass valve exhaust guards and indicators



2oo3 with bypass valve *1) exhaust guards and indicators



B Bypass valve
I Indicators
V Solenoid actuated valves
W Shuttle valves ('OR' function)

*1) for 2oo3
V1 & V4 = channel 1
V2 = channel 2
V3 = channel 3

*1) for 3oo4
V1 = channel 1
V2 = channel 2
V3 = channel 3
V4 = channel 4

Please have a look to instructions

Option selector

V83★★★★★000000

Valve function					Substitute	Country of manufacture				
1oo2 normally closed					1	Norgren internal use				
2oo2 normally closed					3					
2oo3 normally closed					5					
Port sizes					Substitute	Indicators*1) Temperature / Pressure range				
G1/4 (Standard flow)					11	Visual valve status indicators in stainless steel - included in the scope of supply				
1/4 NPT (Standard flow)					12	-40°C ... +80°C 2,5 ... 10 bar				
G1/2 (High flow)					23					
1/2 NPT (High flow)					24					
Valve type	Solenoid Protection	Voltage	Cable Entry	Substitute		Silencers*2) Temperature				
Standard flow						Exhaust guard (standard) -55°C ... +80°C				
YX13ANPH1BS	Exia	24 V d.c.	M 20 x 1,5	01		Manifold material Substitute				
Y013ANPH1BS	Exd	24 V d.c.	M 20 x 1,5	02		Stainless steel 2				
YZ13ANPH1BS	Exmbe	24 V d.c.	M 20 x 1,5	03		Aluminium 4				
Y013ANPH1MS	Exd	230 V a.c.	M 20 x 1,5	04		Bypass valve Temperature Substitute				
YZ13ANPH1MS	Exmbe	230 V a.c.	M 20 x 1,5	05		Stainless steel -40°C ... +60°C 2				
YX13ANPH2BS	Exia	24 V d.c.	1/2 NPT	06		Stainless steel -25°C ... +80°C 4				
Y013ANPH2BS	Exd	24 V d.c.	1/2 NPT	07						
YZ13ANPH2BS	Exmbe	24 V d.c.	1/2 NPT	08						
Y013ANPH2MS	Exd	230 V a.c.	1/2 NPT	09						
YZ13ANPH2MS	Exmbe	230 V a.c.	1/2 NPT	10						
Y013ANPH1BS-2W	Exd	24V d.c.	M20x1,5	22						
Y013ANPV1BS-2W	Exd	24V d.c.	M20x1,5	24						
Y013ANPH2BS-2W	Exd	24V d.c.	1/2 NPT	28						
Y013ANPH2ES	Exd	125V d.c.	1/2 NPT	30						
Y013ANPH2JS	Exd	110V a.c.	1/2 NPT	31						
Y013ANPH2JS	Exd	110V a.c.	M20x1,5	32						
YZ13ANPH2ES	Exmbe	125V d.c.	1/2 NPT	42						
YZ13ANPH2JS	Exmbe	110V a.c.	1/2 NPT	43						
YZ13ANPH2TS	Exmbe	120V a.c.	1/2 NPT	44						
Standard flow (PBMR)										
Y013PNPH1BS	Exd	24V d.c.	M20x1,5	21						
Y013PNPH2BS	Exd	24V d.c.	1/2 NPT	25						
Y013PNPH2JS	Exd	110V a.c.	1/2 NPT	26						
Y013PNPH2BS-2W	Exd	24V d.c.	1/2 NPT	29						
Y013PNPH1BS-2W	Exd	24V a.c.	M20x1,5	33						
Y013PNPH2ES	Exd	125V d.c.	1/2 NPT	45						
High flow										
Y013AMMH1BS	Exd	24 V d.c.	M 20 x 1,5	12						
YZ13AMMH1BS	Exmbe	24 V d.c.	M 20 x 1,5	13						
Y013AMMH1MS	Exd	230 V a.c.	M 20 x 1,5	14						
YZ13AMMH1MS	Exmbe	230 V a.c.	M 20 x 1,5	15						
Y013AMMH2BS	Exd	24 V d.c.	1/2 NPT	17						
YZ13AMMH2BS	Exmbe	24 V d.c.	1/2 NPT	18						
Y013AMMH2MS	Exd	230 V a.c.	1/2 NPT	19						
YZ13AMMH2MS	Exmbe	230 V a.c.	1/2 NPT	20						
Y013AMMH1JS	Exd	110V a.c.	M20x1,5	39						
Y013AMMH2ES	Exd	125V d.c.	1/2 NPT	41						
High flow (PBMR)										
Y013PMMH2JS	Exd	110V a.c.	1/2 NPT	27						
Y013PMMH1BS	Exd	24V d.c.	M20x1,5	46						

Note; Please advise when ordering if CSA certification is required

Flow rates and valve combinations

Flow direction (port to port)	Standard flow systems Bypass mode	Operation mode	High flow systems Bypass mode	Operation mode
1oo2	97109	2 x Y*13ANPH*BS	97109	2 x Y*13AMMH*BS
1 » 2 *1) [l/min]	950	330	1450	740
2 » 3 *2) [l/min]	—	1740 ... 2200	—	3200 ... 4600
2oo2	97109	2 x Y*13ANPH*BS	97109	2 x Y*13AMMH*BS
1 » 2 *1) [l/min]	950	490	1450	810
2 » 3 *2) [l/min]	—	1640 ... 2200	—	2500 ... 4600
2oo3	97109	4 x Y*13ANPH*BS	97109	4 x Y*13AMMH*BS
1 » 2 *1) [l/min]	950	320	1450	720
2 » 3 *2) [l/min]	—	1640 ... 2200	—	2500 ... 4600

*1) Flow characteristics conforms to ISO6358 from port 1 (bypass valve) to port 2 (sub-base) [6 » 5 bar], see page 1

*2) Flow characteristics conforms to ISO6358 from port 2 (sub-base) to port 3 (sub-base or bypass valve) [10 » 0 bar], see page 1

Standard and optional accessories



Accessories - Standard (Included in the scope of supply)

Exhaust guard *2)

1



Page 14

0613422 (G 1/4, 1/4 NPT)

—

0613423 (G 1/2, 1/2 NPT)

Visual indicators
(stainless steel)

8



Page 14

74749-61 (G 1/4)

74749-60 (1/4 NPT)

*1) For indoors use

*2) For outdoors use

Accessories - can be ordered separately Other silencers, plastic indicator and plugs

Silencer
(stainless steel) *1)

2



Page 14

0014613 (G 1/4)

0613678 (1/4 NPT)

0014813 (G 1/2)

0613679 (1/2 NPT)

Silencer
(plastic) *1)

4



Page 14

M/S2 (G 1/4)

C/S2 (1/4 NPT)

M/S4 (G 1/2)

C/S4 (1/2 NPT)

Visual indicators (plastic)
Adaptor

9 10



Page 14

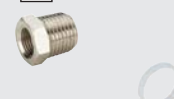
5VS-212-000 (1/8 NPT)

Adapter (1/8 NPT to 1/4 NPT) *3)

0613659 (stainless steel)

Plug plus
Sealing washer

11



Page 14

0663943 (G 1/4, stainless steel)

0682082 (1/4 NPT, stainless steel)

Sealing washer *4)

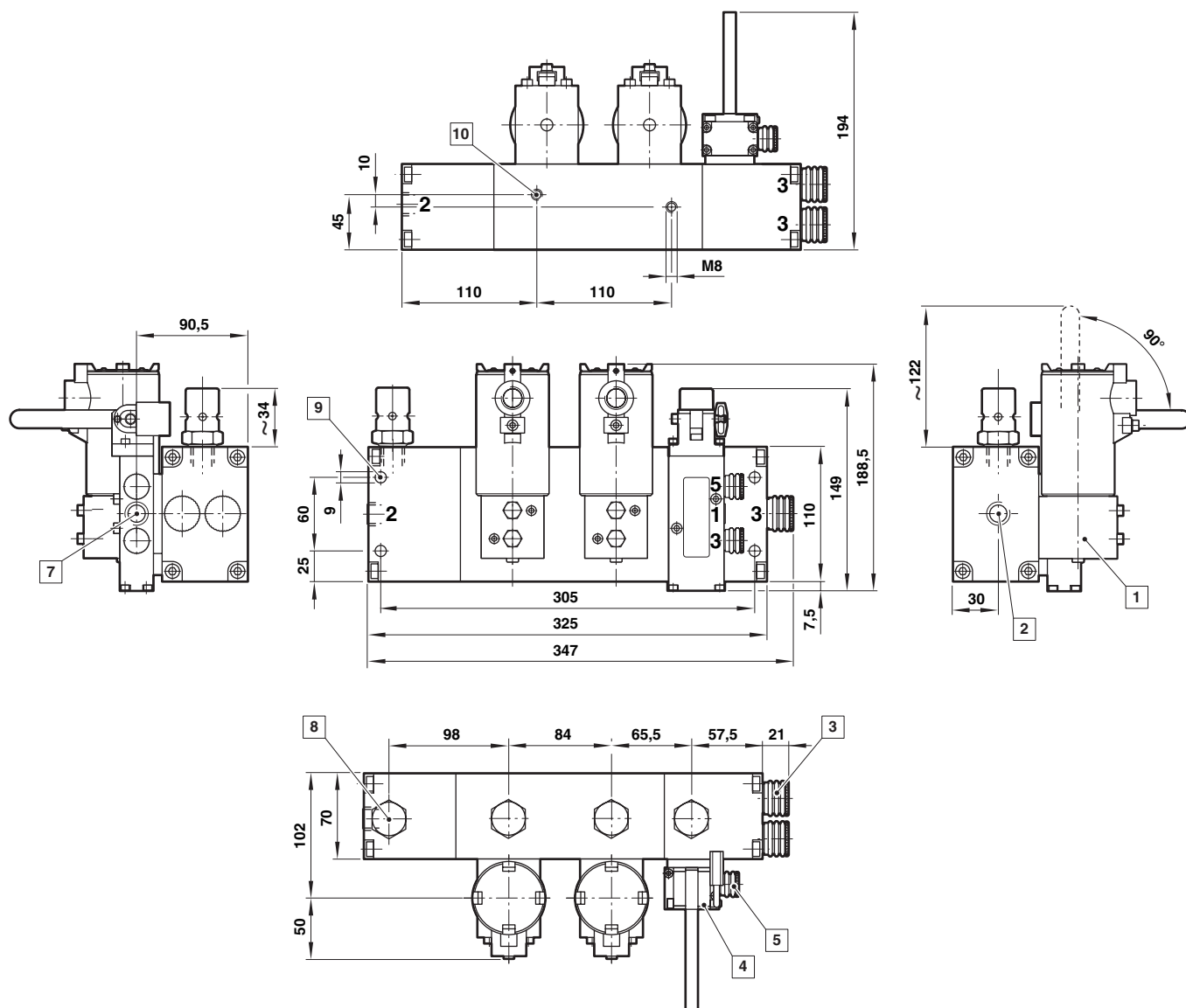
0660835 (plastic)

*1) For indoors use; *2) For outdoors use; *3) Must be ordered separately;

*4) Must be ordered separately for G thread only

1oo2 and 2oo2 with bypass (standard flow)

Weight: 6,8 kg aluminium (18,4 kg stainless steel) sub-base only, valves and accessories see refer page 8 & 12

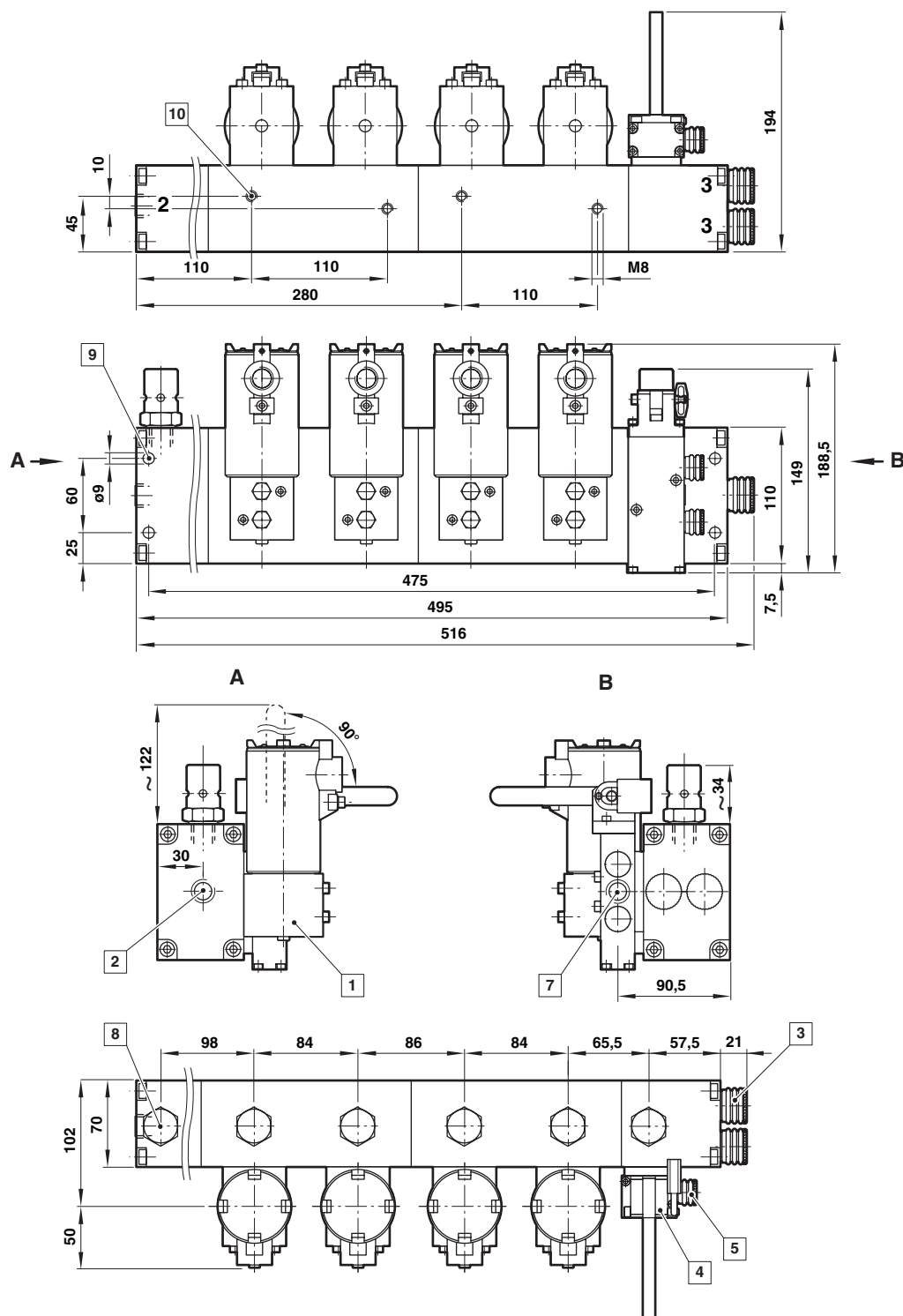


- 1 Valve Y*13ANPH1BS and Y*13ANPH2BS series
- 2 Outlet port G 1/4 or 1/4 NPT
- 3 Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- 4 Bypass valve 97109 series
- 5 Exhaust guard (bypass valve), ports G 1/4 or 1/4 NPT
- 7 Inlet port G 1/4 or 1/4 NPT
- 8 Visual indicator, stainless steel as standard
- 9 Mounting holes
- 10 Mounting threads



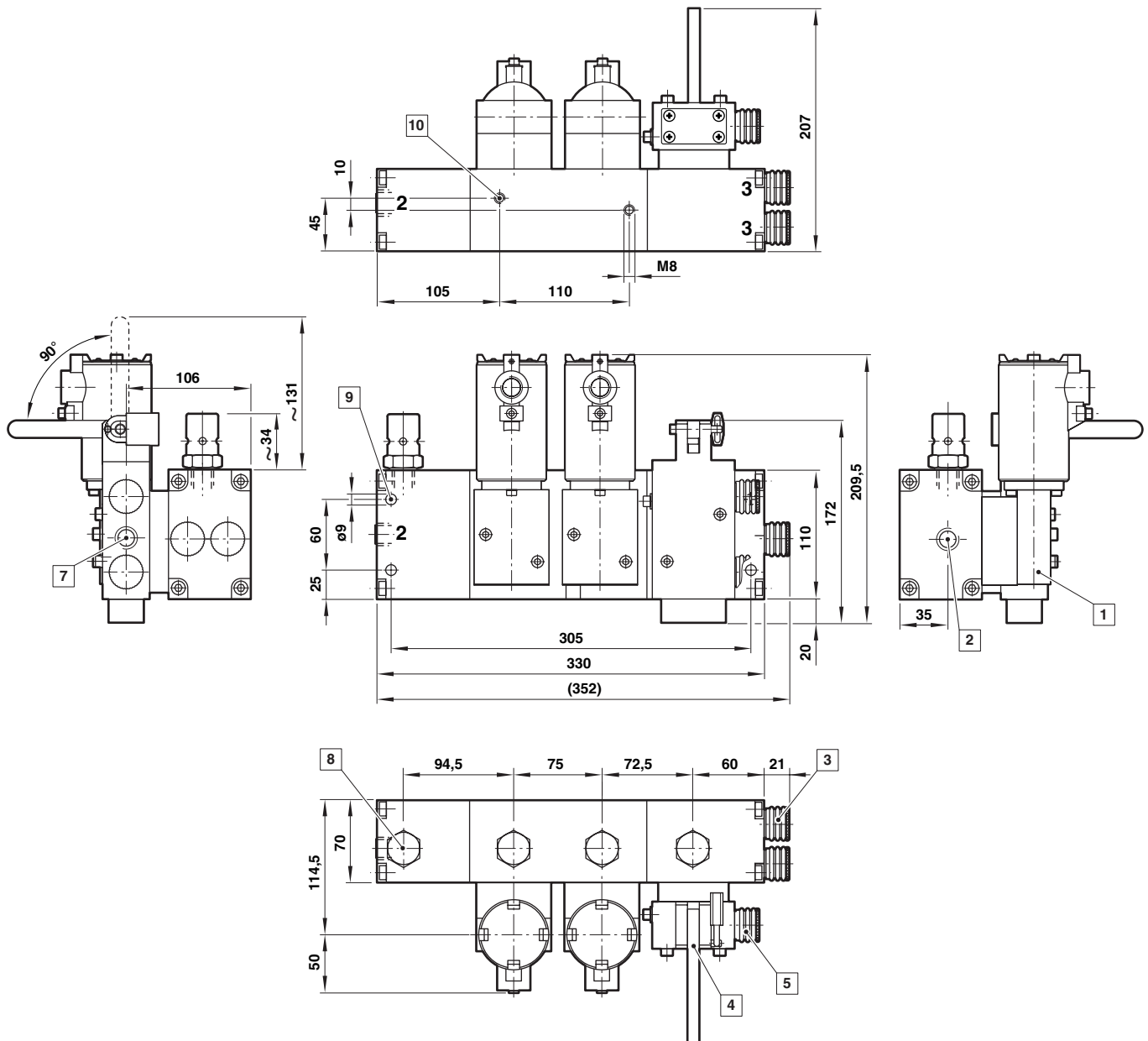
2oo3 with bypass (standard flow)

Weight: 10,3 kg aluminium (27,5 kg stainless steel) sub-base only, valves and accessories see refer page 8 & 12

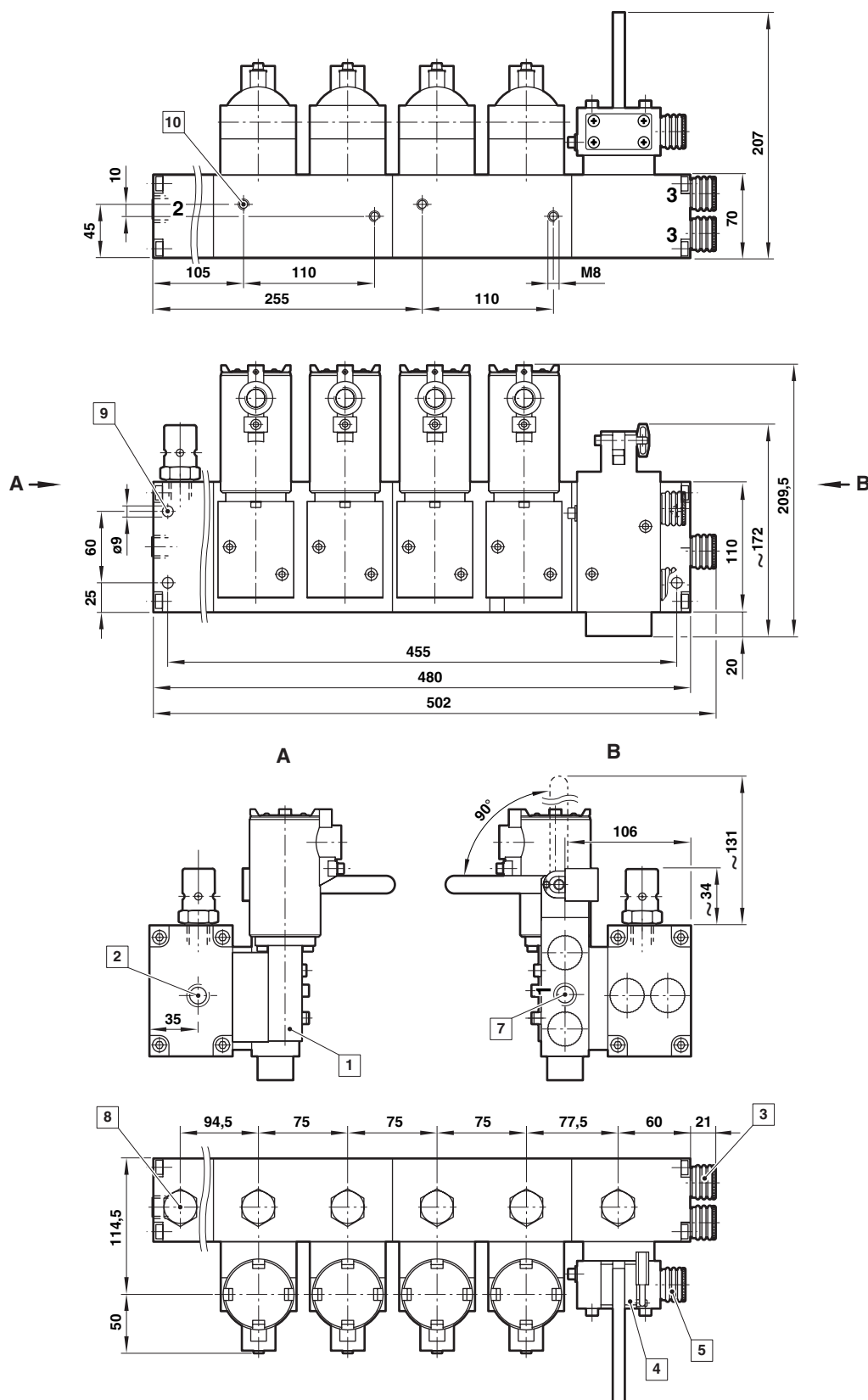


- 1 Valve Y*13ANPH1BS and Y*13ANPH2BS series
- 2 Outlet port G 1/4 or 1/4 NPT
- 3 Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- 4 Bypass valve 97109 series
- 5 Exhaust guard (bypass valve), ports G 1/4 or 1/4 NPT
- 7 Inlet port G 1/4 or 1/4 NPT
- 8 Visual indicator, stainless steel as standard
- 9 Mounting holes
- 10 Mounting threads

Weight: 6,8 kg aluminium (18,5 kg stainless steel) sub-base only, valves and accessories see refer page 10 & 12



- 1** Valve Y*13AMMH1BS and Y*13AMMH2BS series
- 2** Outlet port G 1/2 or 1/2 NPT
- 3** Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- 4** Bypass valve 97109 series
- 5** Exhaust guard (bypass valve), ports G 1/2 or 1/2 NPT
- 7** Inlet port G 1/2 or 1/2 NPT
- 8** Visual indicator, stainless steel as standard
- 9** Mounting holes
- 10** Additional mounting threads

2oo3 with bypass (high flow)
Weight: 9,9 kg aluminium (26,6 kg stainless steel) sub-base only, valves and accessories see refer page 10 & 12


- 1 Valve Y*13AMMH1BS and Y*13AMMH2BS series
- 2 Outlet port G 1/2 or 1/2 NPT
- 3 Exhaust guard (sub-base), ports G 1/2 or 1/2 NPT
- 4 Bypass valve 97109 series
- 5 Exhaust guard (bypass valve), ports G 1/2 or 1/2 NPT

- 7 Inlet port G 1/2 or 1/2 NPT
- 8 Visual indicator, stainless steel as standard
- 9 Mounting holes
- 10 Mounting threads

- > **Standard flow range**
(600 l/min)
- > **Direct acting**
3/2 spring return to
safe condition
- > **Suited for outdoor**
use under critical
environment
conditions
(see solenoid list)
- > **Certifications:**
IECEX, ATEX, FM,
CSA, GOST-R,
GOST-K, CCOE,
IN-METRO, KOSHA



Technical features

Medium:

Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:

3/2 Direct solenoid operated poppet valves

Port size:

Flanged

Orifice:

5 mm

Operating pressure:

0 ... 12 bar (0 ... 174 psi)
(0 ... 10 bar (0 ... 145 psi) with CSA certification)

Fluid/Ambient Temperature:

See table below

Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

For outdoor installation please protect all connections against moisture ingress!

Materials:

Body: stainless steel 1.4404

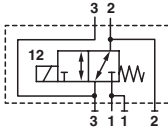
(316 L)

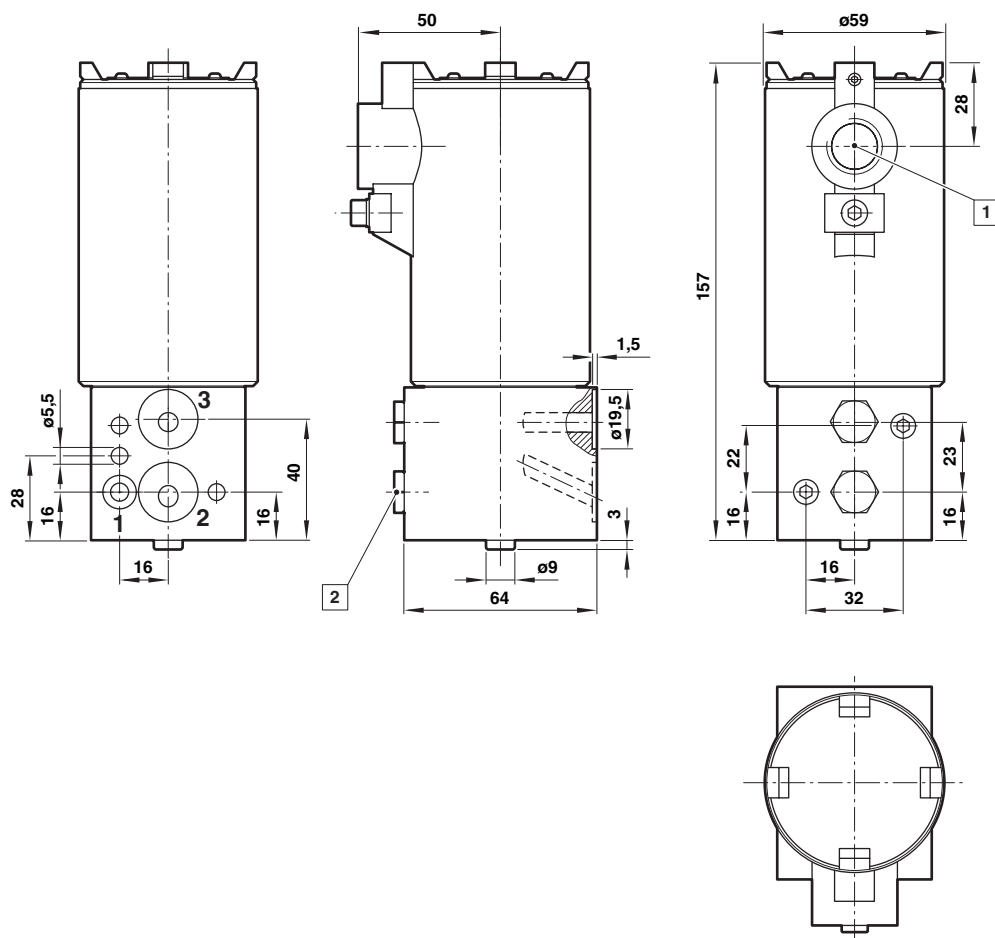
Coil housing: stainless steel 1.4404 (316 L)

Seals: NBR

Internal parts: stainless steel 1.4404 (316 L)

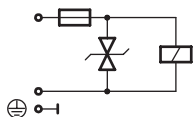
Technical data

Symbol	Power consumption		Rated current		Certifications		Temperature range		Electrical connection (conduit)	Model	Substitute
	24 V d.c. (W)	230 V a.c. (VA)	24 V d.c. (mA)	230 V a.c. (mA)	FM	ATEX	Media (°C)	Ambient (°C)			
	0,43	—	35	—	—	Ex II 1 GD, Ex Ia IIC	-55 ... +69°C	T6 (-55 ... +50°C), T4 (-55 ... +69°C)	M 20	YX13ANPH1BS	01
	3	—	125	—	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	M 20	Y013ANPH1BS	02
	3	—	125	—	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	M 20	YZ13ANPH1BS	03
	—	3,5	—	20	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	M 20	Y013ANPH1MS	04
	—	3,5	—	20	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	M 20	YZ13ANPH1MS	05
	0,43	—	35	—	—	Ex II 1 GD, Ex Ia IIC	-55 ... +69°C	T6 (-55 ... +50°C), T4 (-55 ... +69°C)	1/2 NPT	YX13ANPH2BS	06
	3	—	125	—	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	1/2 NPT	Y013ANPH2BS	07
	3	—	125	—	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	1/2 NPT	YZ13ANPH2BS	08
	—	3,5	—	20	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	1/2 NPT	Y013ANPH2MS	09
	—	3,5	—	20	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	1/2 NPT	YZ13ANPH2MS	10



- 1 Electrical connection M20 x 1,5 or 1/2 NPT
- 2 Ports plugged
- G 1/4: Hexagon head plug
- 1/4 NPT: Hexagon socket set plug

Circuit diagrams



- > High flow range (1500 l/min)
- > Direct acting 3/2 spring return to safe condition
- > Suited for outdoor use under critical environment conditions (see solenoid list)
- > Certifications: IECEx, ATEX, FM, CSA, GOST-R, GOST-K, CCOE, IN-METRO, KOSHA



Technical features

Medium:

Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:

3/2 Direct solenoid operated poppet valves

Port size:

Flanged

Orifice:

8 mm

Operating pressure:

0 ... 12 bar (0 ... 174 psi)
(0 ... 10 bar (0 ... 145 psi) CSA)

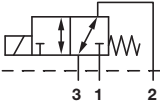
Fluid/Ambient temperature:

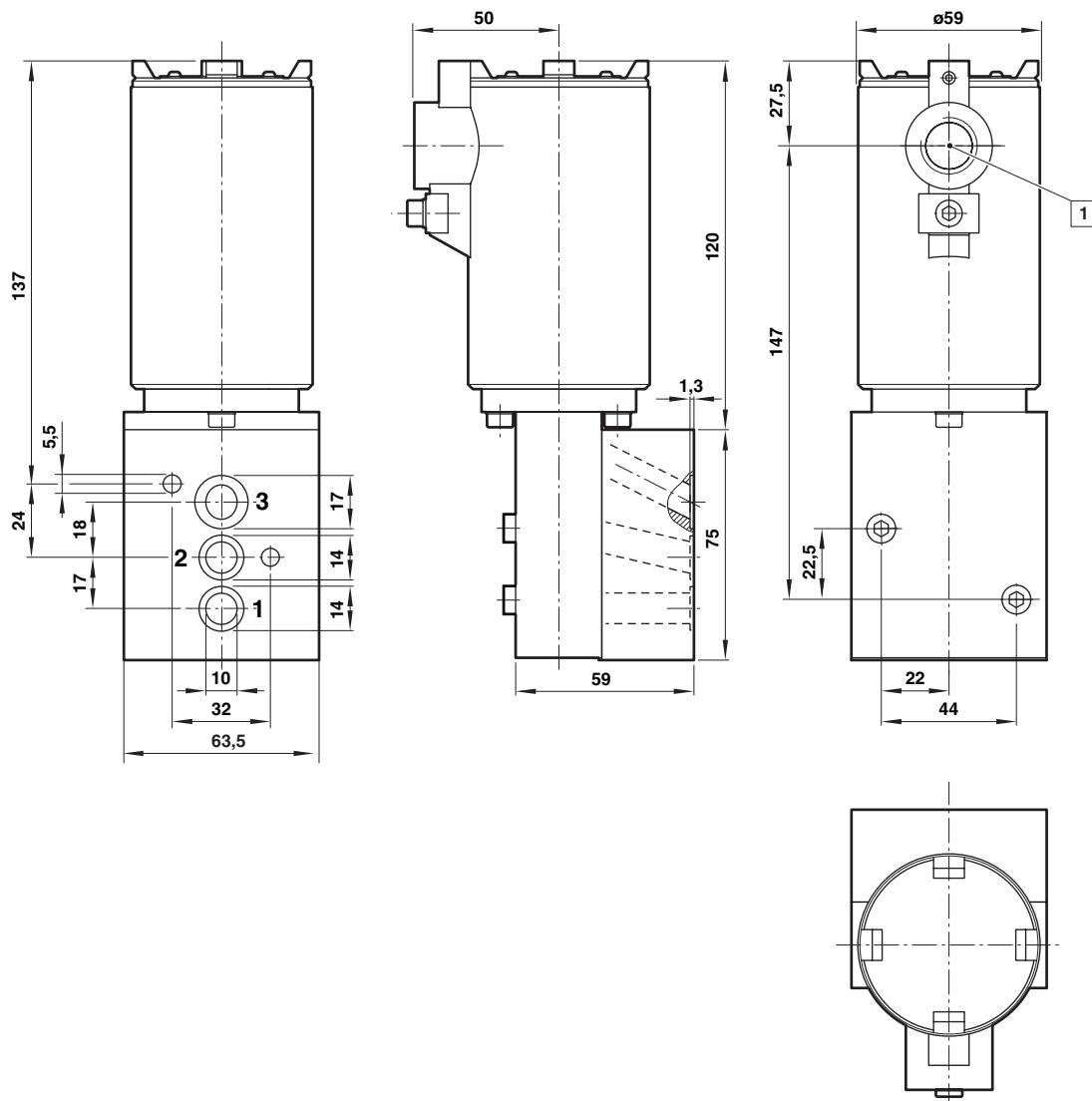
See table below
Depending on solenoid system
Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)
For outdoor installation please protect all connections against moisture ingress!

Materials:

Body: stainless steel 1.4404 (316 L)
Coil housing: stainless steel 1.4404 (316 L)
Seals: NBR
Internal parts: stainless steel 1.4404 (316 L)

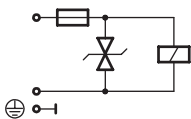
Technical data

Symbol	Power consumption		Rated current		Certifications		Temperature range		Electrical connection (conduit)	Model	Substitute
	24 V d.c. (W)	230 V a.c. (VA)	24 V d.c. (mA)	230 V a.c. (mA)	FM	ATEX	Media (°C)	Ambient (°C)			
	7,8	—	325	—	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	M 20	Y013AMMH1BS	12
	7,8	—	325	—	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	M 20	YZ13AMMH1BS	13
	—	8,5	—	79	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	M 20	Y013AMMH1MS	14
	—	8,5	—	79	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	M 20	YZ13AMMH1MS	15
	7,8	—	325	—	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	1/2 NPT	Y013AMMH2BS	17
	7,8	—	325	—	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	1/2 NPT	YZ13AMMH2BS	18
	—	8,5	—	79	Class 1, Division 1, Groups B, C and D	Ex II 2 GD, Ex d IIC	-55 ... +90°C	T6 (-55 ... +50°C), T4 (-55 ... +90°C)	1/2 NPT	Y013AMMH2MS	19
	—	8,5	—	79	—	Ex mbe II 2 GD, Ex mbe IIC	-55 ... +90°C	T4 (-55 ... +80°C)	1/2 NPT	YZ13AMMH2MS	20



1 Electrical connection M20 x 1,5 or 1/2 NPT

Circuit diagrams



- > No open port cross over position during lever movement
- > Simple design of soft seal spool system
- > Reliable operation even with minimal air flow
- > Padlock with two keys
- > Lockable manual operator with detent as standard



Technical features

Medium:

Filtered, non-lubricated or dry compressed air, instrument air nitrogen and other non-flammable neutral dry fluids

Operation:

Manual actuated spool valves

Port size:

see below, according to select system (standard flow or high flow)

Operating pressure:

0 ... 10 bar

Fluid/Ambient temperature:

-40 ... +80°C (-40 ... +176°F),

Air supply must be dry enough to avoid ice formation at temperatures below 2°C (+35°F)

For outdoor installation please protect all connections against moisture ingress!

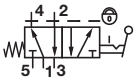
Materials:

Housing: stainless steel 1.4404 (316 L)

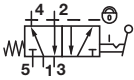
Seals: NBR (special perbunan) or HNBR

Technical data

Housing: Stainless steel, Seals: NBR -40 ... +65°C (-40 ... +149°F)

Symbol	Port size	Orifice (mm)	Actuation/return	Flow (l/min)	Operating pressure		Weight		Drawing No.	Model
					(bar)	(psi)	(kg)	(lbs)		
	NAMUR G1/4	6	Lever/spring	1300	0 ... 10	0 ... 145	1,40	3.08	5	9710907
	NAMUR 1/4 NPT	6	Lever/spring	1300	0 ... 10	0 ... 145	1,40	3.08	5	9710912
	NAMUR G1/2	8	Lever/spring	2600	0 ... 10	0 ... 145	3,20	7.05	6	9710909
	NAMUR 1/2 NPT	8	Lever/spring	2600	0 ... 10	0 ... 145	3,20	7.05	6	9710914

Housing: Stainless steel, Seals: HNBR -25 ... +80°C (-13 ... +176°F)

Symbol	Port size	Orifice (mm)	Actuation/return	Flow (l/min)	Operating pressure		Weight		Drawing No.	Model
					(bar)	(psi)	(kg)	(lbs)		
	NAMUR G1/4	6	Lever/spring	1300	0 ... 10	0 ... 145	1,40	3.08	5	9710916
	NAMUR 1/4 NPT	6	Lever/spring	1300	0 ... 10	0 ... 145	1,40	3.08	5	9710920
	NAMUR G1/2	8	Lever/spring	2600	0 ... 10	0 ... 145	3,20	7.05	6	9710918
	NAMUR 1/2 NPT	8	Lever/spring	2600	0 ... 10	0 ... 145	3,20	7.05	6	9710922

Accessories

U-lock with two keys (brass)

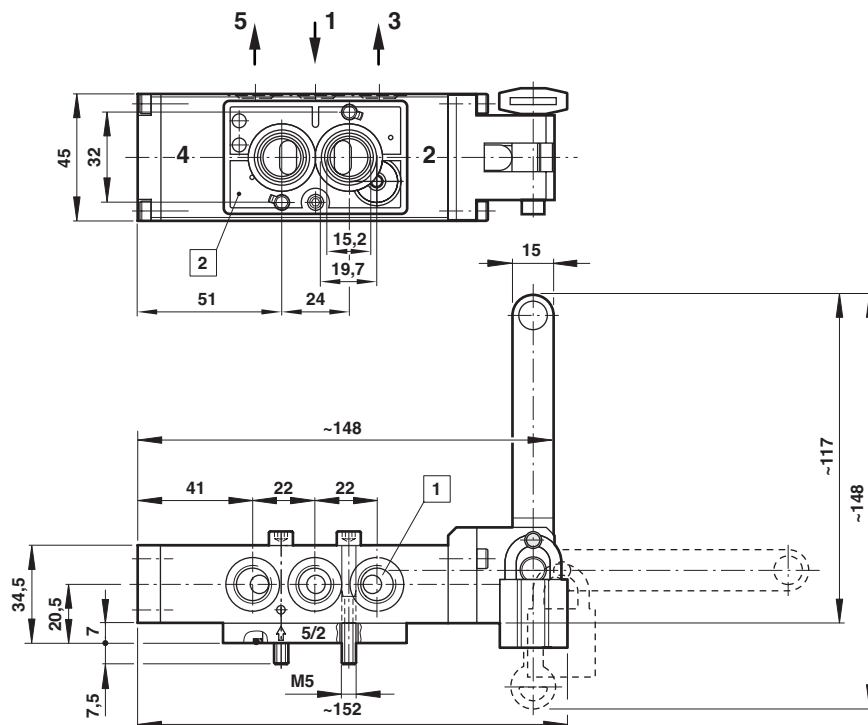
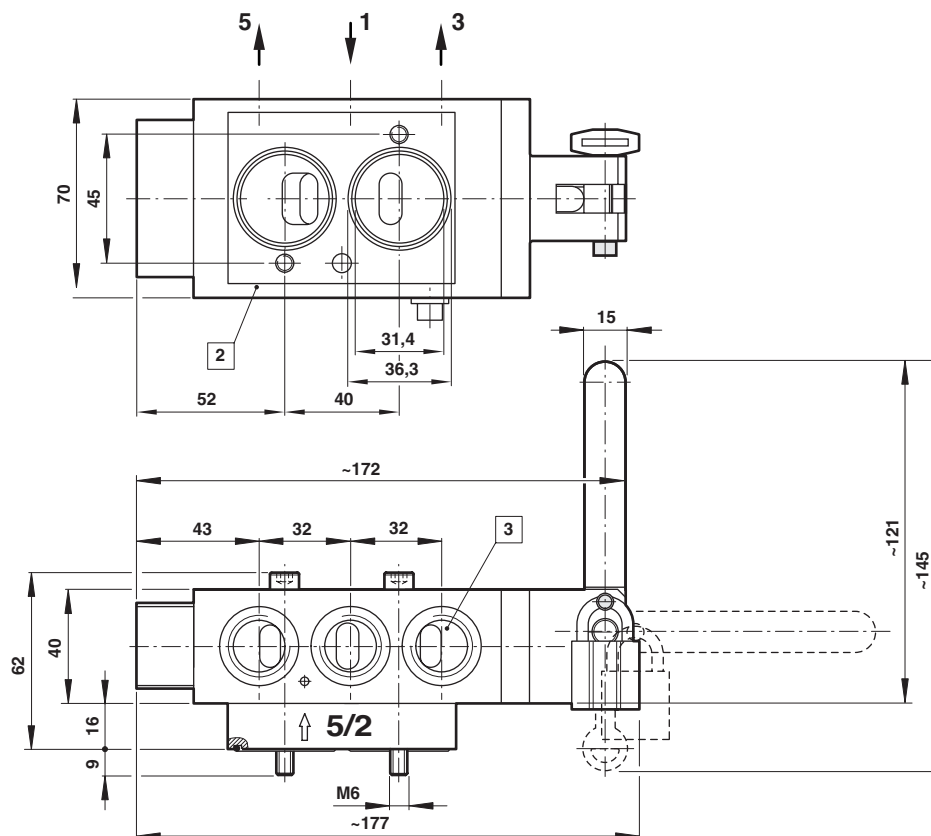


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U-lock with two keys (stainless steel)

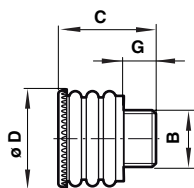


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Standard flow valves
1

High flow valves
2


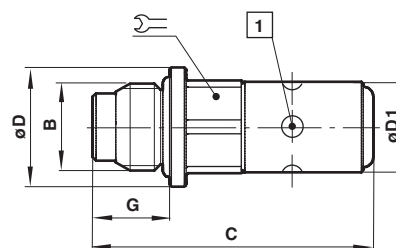
- 1** Inlet and exhaust ports G 1/4 or 1/4 NPT
- 2** Namur flange plate
- 3** Inlet and exhaust ports G 1/2 or 1/2 NPT

Exhaust guard (plastic) - standard option



B	Suitable for	G	C	Ø D	Weight (g)	Model
1/4"	G 1/4, 1/4 NPT	10	26,5	21	5	0613422
1/2"	G 1/2, 1/2 NPT	12	33,5	29	11	0613423

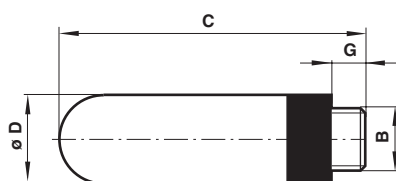
Visual indicator (stainless steel) - standard option



1 Visual colour
Red (unactuated)
Green (actuated)

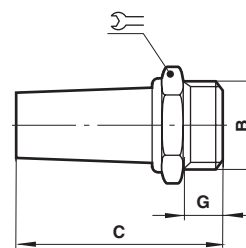
B	C	Ø D	Ø D1	G		Weight (g)	Model
G 1/4	42	18	14	11,5	14	35	74749-61
1/4 NPT	42	18	14	16	14	35	74749-60


Silencer (plastic)



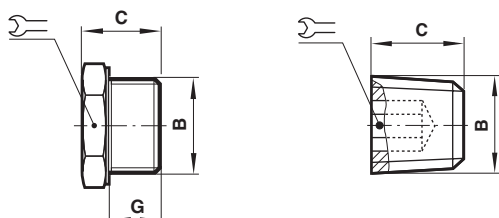
B	G	C	Ø D	Weight (g)	Model
G 1/4	7	35,5	15,5	2,9	M/S2
1/4 NPT	7	35,5	15,5	2,9	C/S2
G 1/2	12	67	23	11,5	M/S4
1/2 NPT	12	67	23	11,5	C/S4


Silencer (stainless steel)



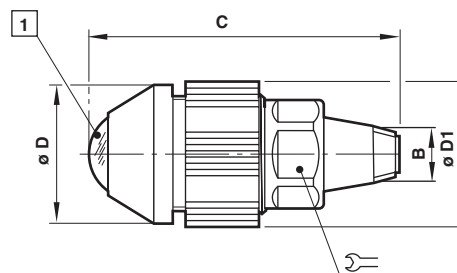
B	C	G		Weight (g)	Model
G 1/4	36	8	16	23	0014613
1/4 NPT	36	8	16	67	0613678
G 1/2	49	12	24	81	0014813
1/2 NPT	49	12	24	235	0613679

Plug (stainless steel)



B	C	G		Weight (g)	Model
G1/4	21	12	13	24	0663943
1/4 NPT	10	—	7	8	0682082

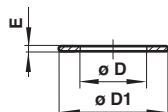
Visual indicator (plastic)



1 Visual colour
Red (unactuated)
Green (actuated)

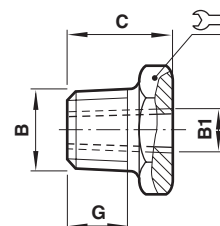
B	C	Ø D	Ø D1		Weight (g)	Model
1/8 NPTF	46	20	21	14	25	5VS-221-000

Sealing washer (plastic)



For plug	Ø D	Ø D1	E	Weight (g)	Model
G 1/4	13,5	17	1,5	2	0660835

Adapter (stainless steel)



B	B1	C	G		Weight (g)	Model
1/4 NPT	1/8 NPT	21,5	14	14	10	0613659

Warning

These products are intended for use in industrial compressed air and fluid systems only. Do not use these products where pressures and temperatures can exceed those listed under »**Technical features/data**«. Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult IMI NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the

event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

Functional safety (SIL):

Suitable for certain applications can only be evaluated through examination of each safety-related overall system with regard to the requirements of IEC 61508/61511.