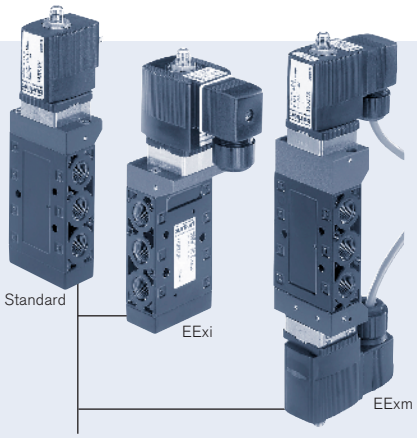
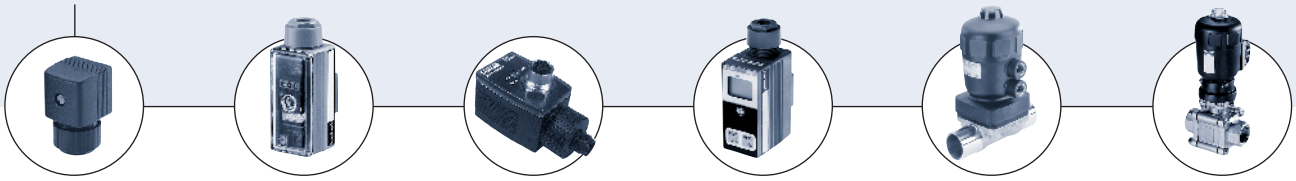
3/2, 5/2 or 5/3-way Solenoid Valve for pneumatic systems



- Standard, EExm, EExi versions
- NAMUR flange interface
- High flow-rate capacity
- Reduced power consumption
- Extended temperature range
- Suitable for outdoor use

Type 0590 can be combined with...



Type 2508
Cable plug

Type 1078
Timer unit

Type 2512/2511
ASI cable plug

Type 8600
Dosing control

Type 2031
Diaphragm valve

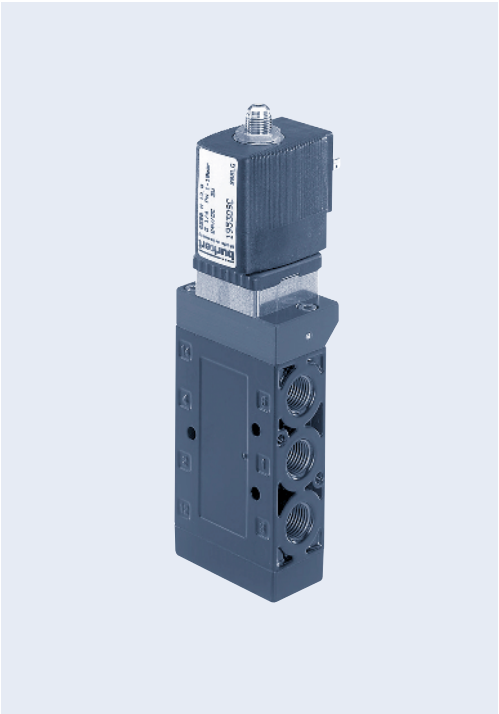
Type 2655
Ball valve

Type 0590 consists of a pilot and an aluminium valve body with combination of piston and glide casing that seals metal-to-metal. This eliminates problems experienced with dynamically loaded elastomer seals, such as functional failure due to swelling seals, embrittlement, etc. The knife-edges of the piston sleeve and the special design of the glide casing "free" themselves from small to medium size contamination.

Technical data	
Orifice	DN 13
Material	
Pilot valve	Stainless steel
Body material	Aluminium, plastic coated
Adapter material	Aluminium, hard anodized
Seal material	FPM, hardened metal piston glide casing (in the valve)
Pneumatic Connection	
Port connection 1, 3 and 5	G 1/4 thread
Port connection 2 and 3	NAMUR Flange acc. to VDI/VDE 3845 or G 1/4 thread
Electrical Connection	
Standard and EExi version	Tag connector sidewards acc. to DIN 43650 Form A for cable plug Type 2508 (see accessories), with EExi version ensure correct polarity.
EExm version	3m cable, moulded-in
Type of protection	
Standard version	without
EExi version	II 2G EEx ia IIC T6, T5 II 2D Ex iaD T80°C PTB 01 ATEX 2101
EExm version	II 2G EEx m II T5, II 2D IP65 100°C PTB 00 ATEX 2129 X
Operating voltage	24 V/DC, 24 V/AC, 24 V/UC, more on request
Voltage tolerance	±10%
Ambient temperature	
Standard version	-35 to +80°C
EExi version	-35 to +60°C (T6) -35 to +75°C (T5)
EExm version	-30 to +60°C
Media	Compressed air, oiled and unoiled, instrument air, nitrogen
Ambient conditions	Open air, chemical atmosphere
Options	Approval Ex n Ex-approvals also for Japan, Australia, Russia

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

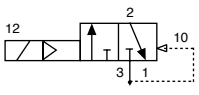
Standard version (with tag connector acc. to DIN 43650 Form A, supplied without connector)



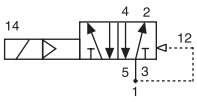
Technical data	
Orifice	DN 13
Material Pilot valve Body material Adapter material	 Stainless steel Aluminium, plastic coated Aluminium, hard anodized
Seal material	FPM, hardened metal piston glide casing (in the valve)
Pneumatic connection Supply port 1, 3 and 5 Service port 2 and 3	 G 1/4 thread NAMUR Flange acc. to VDI/VDE 3845 or G 1/4 thread
Electrical connection	Tag connector sidewards acc. to DIN 43650 Form A for cable plug Type 2508 (see accessories),
Degree of protection	IP65 with connector
Operating voltage	24 V/DC, other voltages on request
Voltage tolerance	±10%
Elec. power consumption coil	2 W (100% continuous rating)
Ambient Temperature	-35 to +80°C
Media	Compressed air, oiled and unoiled, instrument air, nitrogen
Ambient conditions	Open air, chemical atmosphere

Circuit function	Orifice [mm]	Port connection 2 and 4	Port connection 1, 3 and 5	QNn -value air [l/min]	Seal material [bar]	Nominal pressure [bar]	Response time Opening [ms]	Response time Closing [ms]	Weight [g]	Voltage/ frequency [V/Hz]	Item No.
C (3/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 306
H (5/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 303
H Impulse	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 312
H (5/2-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 309
H Impulse	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 315
N (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 318
L (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/DC	195 321

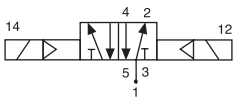
Circuit function



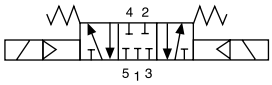
C 3/2-way valve NC



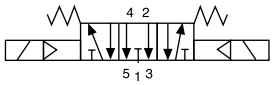
H 5/2-way valve



H 5/2-way impulse valve



L 5/3-way valve
Blocking middle position



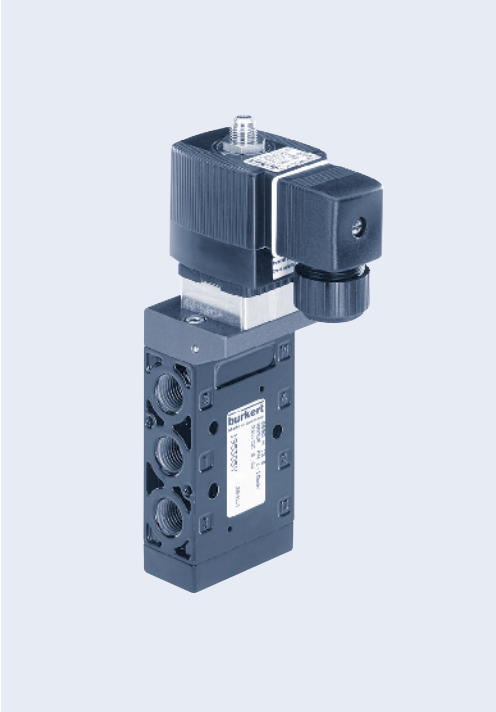
N 5/3-way valve
Middle position vented

Flow rate: QNn-Value air [l/min]: Measured at +20°C, 6 bar pressure at valve inlet, 1 bar pressure difference
Pressure ranges [bar]: Measured as over-pressure to the atmospheric pressure
Response times [ms]: Measured according to ISO 12238

Accessories see page 5
Dimensions see page 6-7

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

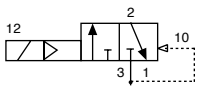
EExi version (with tag connectors acc. to DIN 43650 Form A, supplied without connector)



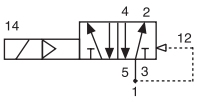
Technical data	
Orifice	DN 13
Material	
Pilot valve	Stainless steel
Body material	Aluminium, plastic coated
Adapter material	Aluminium, hard anodised
Seal material	FPM, hardened metal piston glide casing (in the valve)
Pneumatic connection	
Supply port 1, 3 and 5	G 1/4 thread
Service port 2 and 3	NAMUR Flange acc. to VDI/VDE 3845 or G 1/4 thread
Electrical connection	Tag connectors acc. to DIN 43650 Form A for connector Type 2508 (see accessories), -ensure correct polarity!
Degree of protection	IP65 with connector 2508
Type of protection	II 2G EEx ia IIC T6, T5 II 2D Ex iaD T80°C PTB 01 ATEX 2101
Operating voltage	Supply via corresponding intrinsically-safe operating resource (isolating module or barrier)
Elec. power consumption coil	min. 0.26W max 1.1W
Ambient temperature	-35 to +60°C (T6) -35 to +75°C (T5)
Media	Compressed air, oiled and unoiled, instrument air, nitrogen
Ambient conditions	Open air, chemical atmosphere

Circuit function	Orifice [mm]	Port connections 2 and 4	Port connections 1, 3 and 5	QNn -value air [l/min]	Seal material [bar]	Nominal pressure [bar]	Response times Opening [ms]	Response times Closing [ms]	Weight [g]	Coil standard/ high-impedance	Item No.
C (3/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 308
H (5/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 305
H Impulse	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 314
H (5/2-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 311
H Impulse	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 317
N (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 320
L (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	Standard	195 323

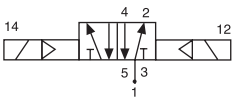
Circuit function



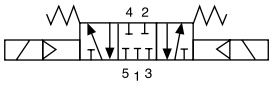
C 3/2-way NC



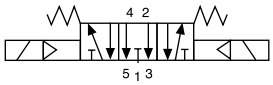
H 5/2-way



H 5/2-way Impulse



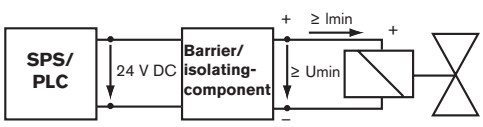
L 5/3-way
Blocking middle position



N 5/3-way
Middle position vented

Flow rate: QNn-Value air [l/min]: Measured at +20°C, 6 bar pressure at valve inlet, 1 bar pressure difference
Pressure ranges [bar]: Measured as over-pressure to the atmospheric pressure
Response times [ms]: Measured according to ISO 12238

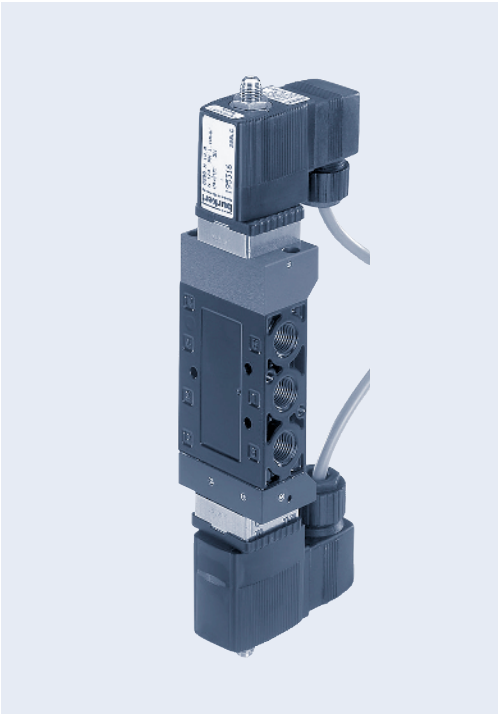
Electrical data



Functional values for the switching function of the valve (Standard coil)	at +20°C	at +55°C	Permissible maximal values acc. certificate of conformity	
Minimum switching range	29 mA	29 mA	Ui	35 V
Nominal resistant of coil	310 Ω	360 Ω	Ii	0.9 A
Minimum terminal voltage	9.0 V	10.4 V	Pi	1.1 W
Functional values for the switching function of the valve (high impedance coil)				
Minimum switching range	23 mA	23 mA		
Nominal resistant of coil	481 Ω	550 Ω		
Nominal resistant of coil	11.1 V	12.7 V		

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

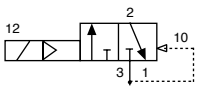
EExm version (3m cable, moulded-in)



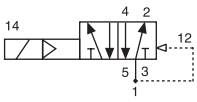
Technical data	
Orifice	DN 13
Material Pilot valve Body material Adapter material	 Stainless steel Aluminium, plastic coated Aluminium, hard anodised
Seal material	FPM, hardened metal piston glide casing (in the valve)
Pneumatic connection Port connection 1, 3 and 5 Port connection 2 and 3	 G 1/4 thread NAMUR Flange acc. to VDI/VDE 3845 or G 1/4 thread
Electric connection	3m cable, moulded-in
Degree of protection	IP65
Type of protection	II 2G EEx m II T5, II 2D IP65 100°C PTB 00 ATEX 2129 X
Operating voltage	24 V/UC
Voltage tolerance	±10%
Elec. power consumption coil	3 W (100% continuous rating)
Ambient temperature	-30 to +60°C
Media	Compressed air, oiled and unoiled, instrument air, nitrogen
Ambient conditions	Open air, chemical atmosphere

Circuit function	Orifice [mm]	Port connections 2 and 4	Port connections 1, 3 and 5	QNn -Value air [l/min]	Seal material [bar]	Nominal pressure [bar]	Response times Opening [ms]	Response times Closing [ms]	Weight [g]	Voltage/ Frequency [V/Hz]	Item No.
C (3/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 307
H (5/2-way)	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 304
H Impulse	13	NAMUR	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 313
H (5/2-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 310
H Impulse	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 316
N (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 319
L (5/3-way)	13	G 1/4	G 1/4	1600	FPM	1-10	38	70	600	024/UC	195 322

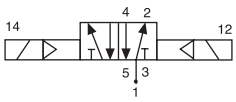
Circuit function



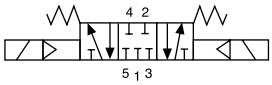
C 3/2-way NC



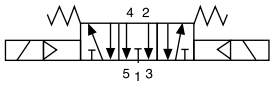
H 5/2-way



H 5/2-way Impulse



L 5/3-way
Blocking middle position



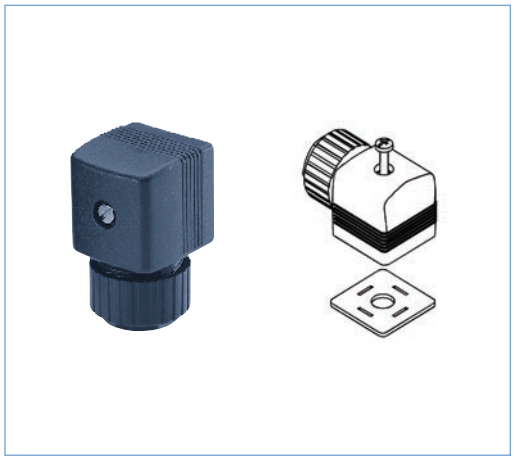
N 5/3-way
Middle position vented

Flow rate: QNn-Value air [l/min]: Measured at +20°C, 6 bar pressure at valve inlet, 1 bar pressure difference
Pressure ranges [bar]: Measured as over-pressure to the atmospheric pressure
Response times [ms]: Measured according to ISO 12238

Accessories see page 5
Dimensions see page 6-7

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

Accessories (must be ordered separately)



Cable Plug acc. to DIN 43650, Form A

The delivery of a cable plug includes the flat seal and the fixing screw.
For other cable plug versions acc. to DIN 43650 A with circuitry, see datasheet Type 2508.

Type 2508, cable plug for standard version Type 0590:
Type 2508, 0-220 V AC/DC, without circuitry, with fixing screw in steel (galvanised and chrome-plated).

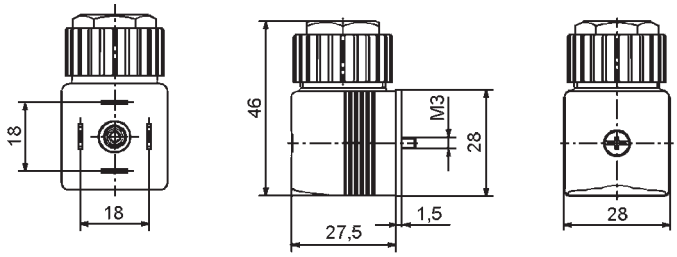
Item No. 008 376

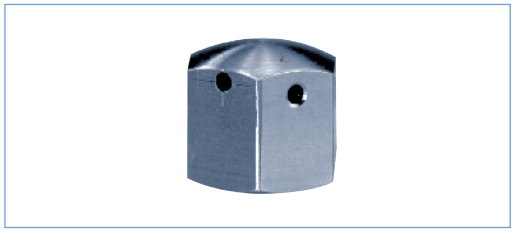
Type 2508, cable plug for EExi version Type 0590:
Type 2508, 0-220 V AC/DC, with blue compression gland nut, without circuitry, with fixing screw in stainless steel 1.4404

Item No. 438 574

Attention: Ensure correct polarity!

Dimensions [mm]





Cap nut

Cap nut in stainless steel 1.4305 for additional protection of the exhaust air channel from the penetration of damp.

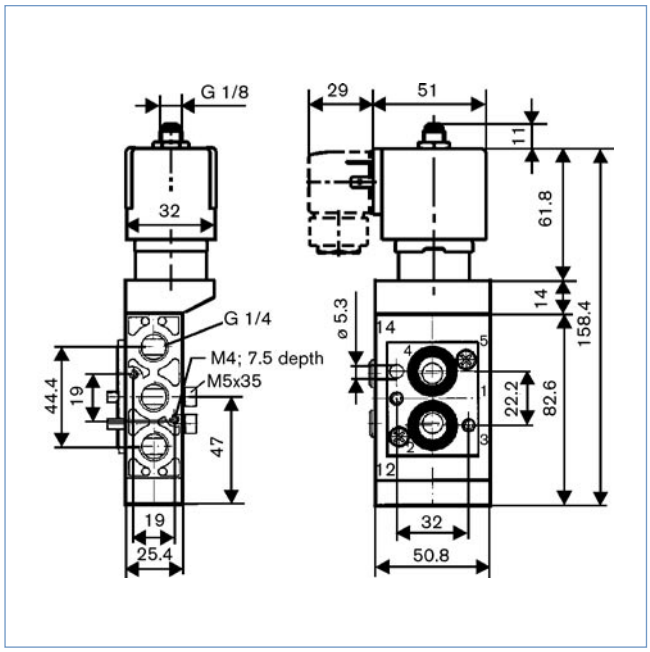
Item No. 649 554

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

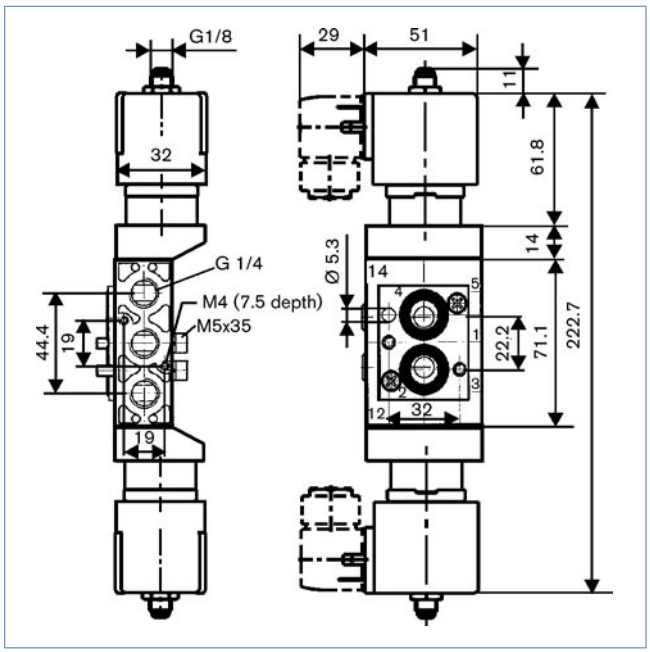
Dimensions [mm]

Standard- and EExm version

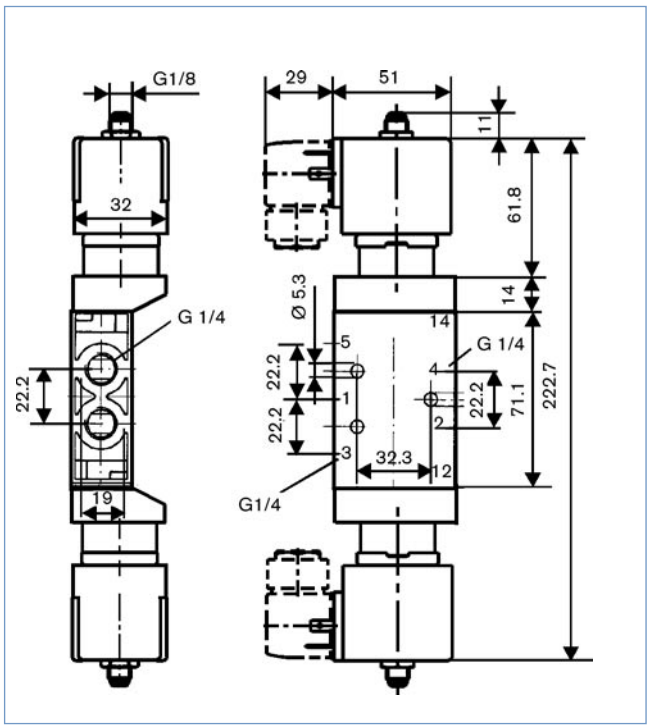
3/2- and 5/2-way valve with NAMUR flange



5/2-way impulse valve with NAMUR flange



5/2-way impulse and 5/3-way valves with G 1/4 threaded port connection



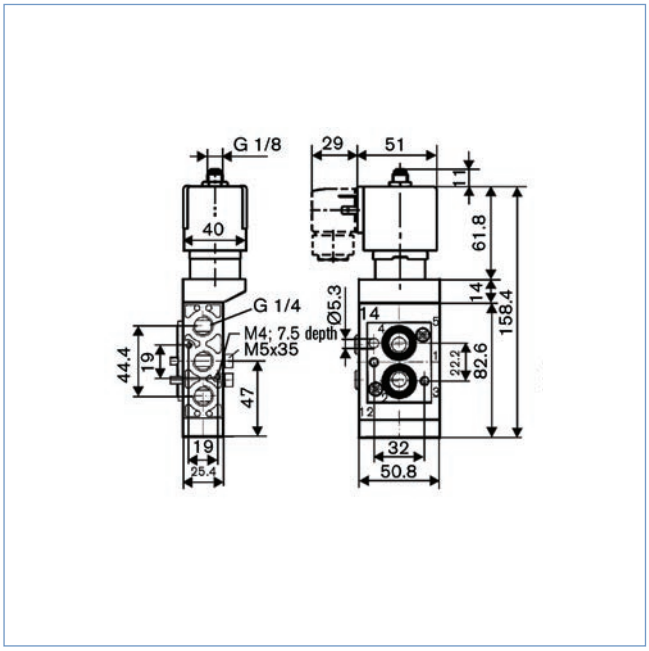
(Main dimensions of the 5/2-way model with threaded port connection and with 1 coil, see 5/2-way model with NAMUR flange)

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006

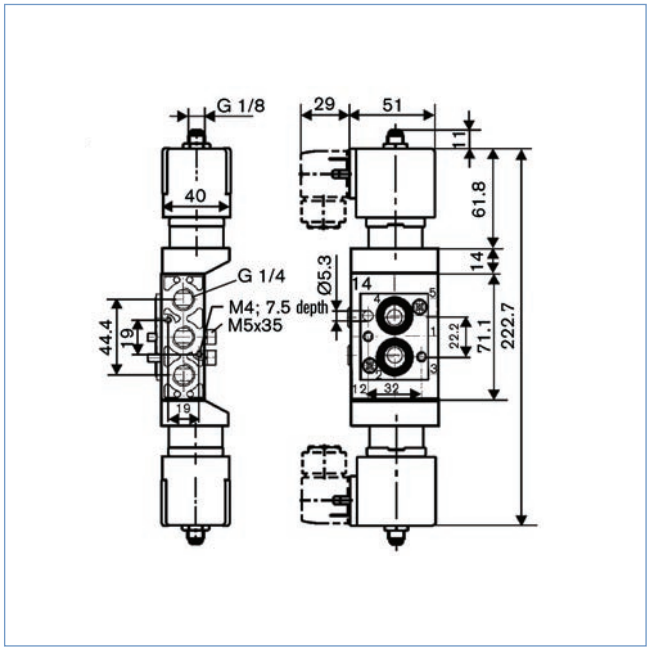
Dimensions [mm]

EExi version

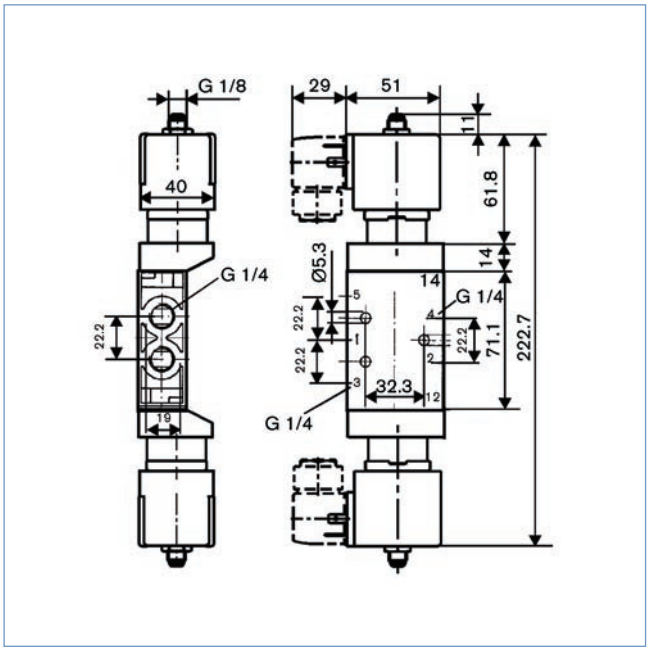
3/2- and 5/2-way valve with NAMUR flange



5/2-way impulse valve with NAMUR flange



5/2-way impulse and 5/3-way valves with G 1/4 threaded port connection



(Main dimensions of the 5/2-way model with threaded port connection and with 1 coil, see 5/2-way model with NAMUR flange)

DTS 1000010940 EN Version: C Status: RL (released I freigegeben I validé) printed: 30.06.2006