

ASCO™ Solenoid Valve

Integrated pilot operated spool type, single/dual solenoid
aluminium & brass body, 1/8", 1/4", 3/8" & 1/2", NAMUR & Threaded type

3/2, 5/2
5/3, Dual 3/2
Series

521 Process

Features

- Compact size with high flow
- Environment protected construction to protect against the ingress of liquid, dust or any other foreign matter
- Multiple functions available with Threaded and NAMUR options
- The same spool valve can be adapted for 3/2 * or 5/2 functions for controlling double-acting and single-acting actuators
- 8-shaped seal technology - Low friction design minimizes spool stiction "valve stuck"
- Internal breathing feature where the return-spring chambers of the single-acting actuator "breath" through the spool valve
- NAMUR design (LH Orientation & RH Orientation) ensures supply and exhaust ports of the solenoid valve are facing down to prevent water and debris ingress
- Robust and long lasting 316 Stainless Steel Manual Operator (flush locking override)
- Epoxy coil with excellent moisture and high ambient temperature resistance
- LED Electrical Connector: Light Emitting Diode. A solid state diode that emits light to indicate power to the connector.
- VDR Electrical Connector: Varistor Dependent Resistor. Varistor absorbing the self-inductance of the coil.

* For NAMUR type, 5/2 can be converted to 3/2 NC by rotating NAMUR plate

General Specifications

Differential pressure

2 - 10 bar (1 bar = 100 kPa)

Flow (Qv at 6 bar, ANR)

1020 l/min (Threaded 3/2, 5/2, 2x3/2)

920 l/min (Threaded 5/3)

820 l/min (NAMUR 3/2NC-5/2)

750 l/min (NAMUR 5/3)

Fluids (**)	Temperature Range (TS)	Seal Material
Air, inert gas, filtered	-10°C to +60°C	NBR (nitrile)

Materials in Contact with Fluid

(**) Ensure that the compatibility of the fluids in contact with the materials is verified

Body	Anodized Aluminium / Brass
Internal parts	POM (Polyacetal), Stainless steel, Aluminium
Seals	NBR
Core tube	Brass
Plugnut	Stainless steel
Shading coil	Copper

Electrical Characteristics

Coil insulation class

Class F & H

Coil material

Epoxy

Electrical safety

IEC 335

Standard voltages

DC (=) : 12V - 24V - 48V

(Other voltage and 60Hz available on request) AC (-) : 24V - 48V - 110V - 230V/50-60Hz;

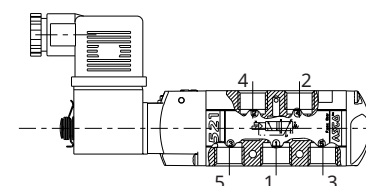
AC 115V/50Hz, 120V/60Hz

Solenoid Type ⁽¹⁾	Nominal Power Ratings				Operator Ambient Temperature Range (TS) (°C)	Safety Code	Electrical Enclosure Protection (EN 60529)	Replacement Coil	
	Inrush ~ (VA)	Holding ~ (VA) (W)		Hot/Cold = (W)				~	=
		230 V / 50 Hz						24 V DC	
Reduced Power (RP)									
B	6	3.5	2.5	2.5/3	-10 to +60	EN 60529	Moulded IP65	43004886	43004869

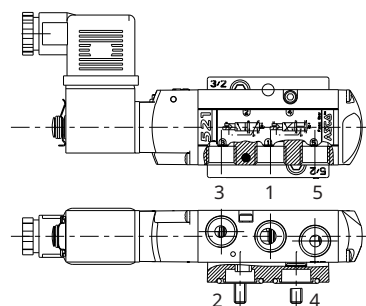
(1) Refer to the dimensional drawings

Electrical Connections

Solenoid Type	Connection
Type B	Spade plug connector (standard) with cable gland DIN 43650, 11mm, industry standard B, for cables with an outer diameter from 6 to 8mm



Cross Sectional View Threaded Type



Cross Sectional View NAMUR Type

Specifications

Pipe size 1/8" & 1/4"
Main valve orifice size 6.8mm
Operating pressure differential Min. 2 bar
Max. 10 bar

Function	Construction	Symbols	Flow Coefficient Kv	
			(m ³ /h)	(l/min)
3/2 Way	Single Solenoid, Spring Return		0.9	15
	Dual Solenoid		0.9	15
5/2 Way	Single Solenoid, Spring Return		0.9	15
	Dual Solenoid		0.9	15
5/3 Way	W1, Closed Center		0.83	14
	W3, Open Center to Exhaust		0.83	14
Dual 3/2 Way	Normally Closed - Normally Closed		0.9	15
NAMUR 3/2 NC - 5/2*	LH Orientation with Standard TYPE 1 NAMUR (Single Solenoid, Spring Return)		0.75	12.5
	LH Orientation with Standard TYPE 1 NAMUR (Dual Solenoid)		0.75	12.5
	RH Orientation with Reverse TYPE 2 NAMUR (Single Solenoid, Spring Return)		0.75	12.5
	RH Orientation with Reverse TYPE 2 NAMUR (Dual Solenoid)		0.75	12.5
NAMUR 5/3	LH Orientation with Standard TYPE 1 NAMUR (W1, Closed Center)		0.68	11.3
	LH Orientation with Standard TYPE 1 NAMUR (W3, Open Center to Exhaust)		0.68	11.3

* For NAMUR type, 5/2 can be converted to 3/2NC by rotating NAMUR plate

Specifications

Pipe size 1/2" & 3/8"
Main valve orifice size 9mm
Operating pressure differential Min. 2 bar
Max. 10 bar

Function	Construction	Symbols	Flow Coefficient Kv	
			(m ³ /h)	(l/min)
5/2 Way	Single Solenoid, Spring Return		1.1	18.3
	Dual Solenoid		1.1	18.3

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ASCO™ Solenoid Valve

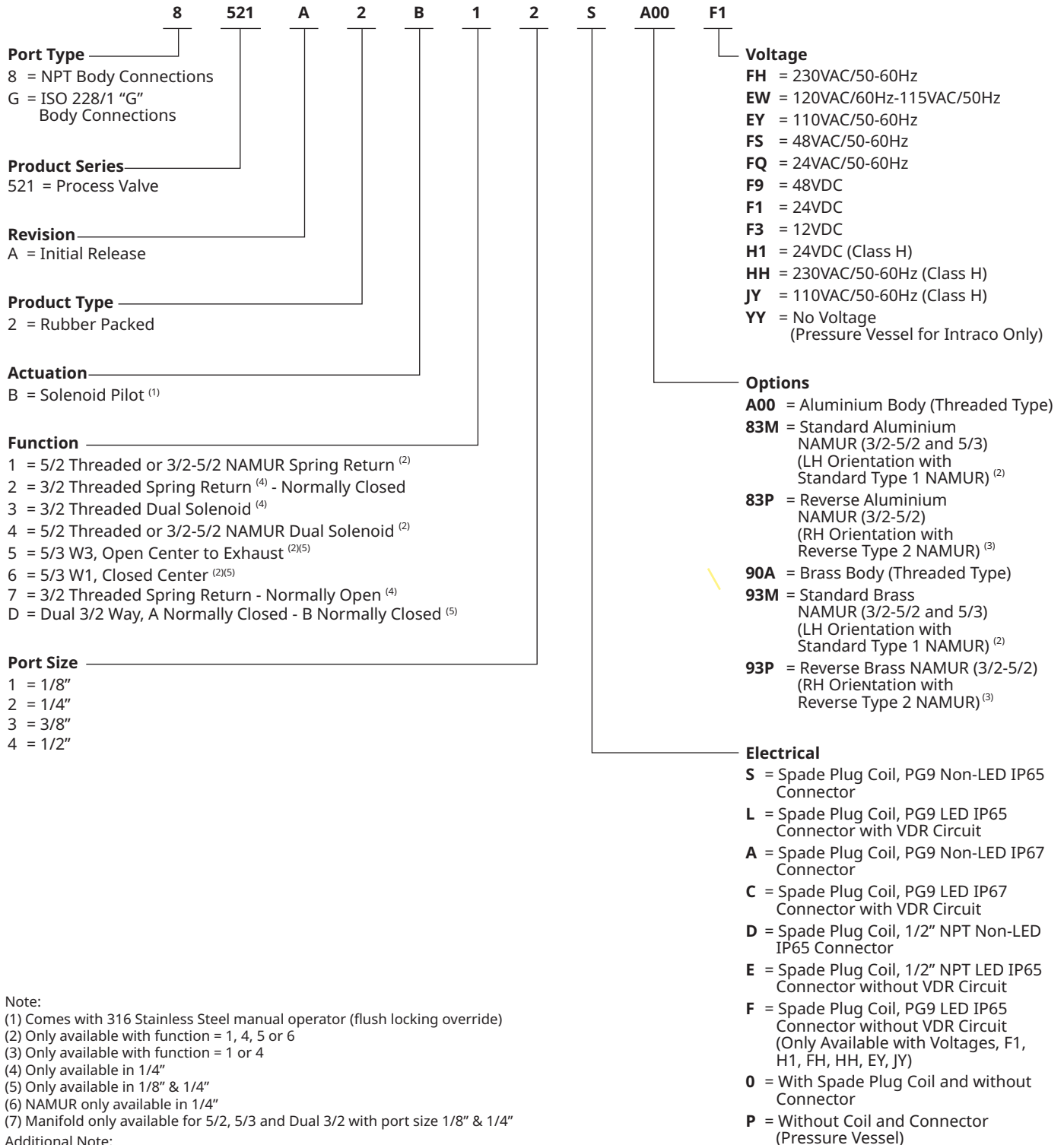
Integrated pilot operated spool type, single/dual solenoid
aluminium & brass body, 1/8", 1/4", 3/8" & 1/2", NAMUR & Threaded type

3/2, 5/2
5/3, Dual 3/2
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521 Process

Product Selection Guide

Valve Selection 15-DIGIT Product Code



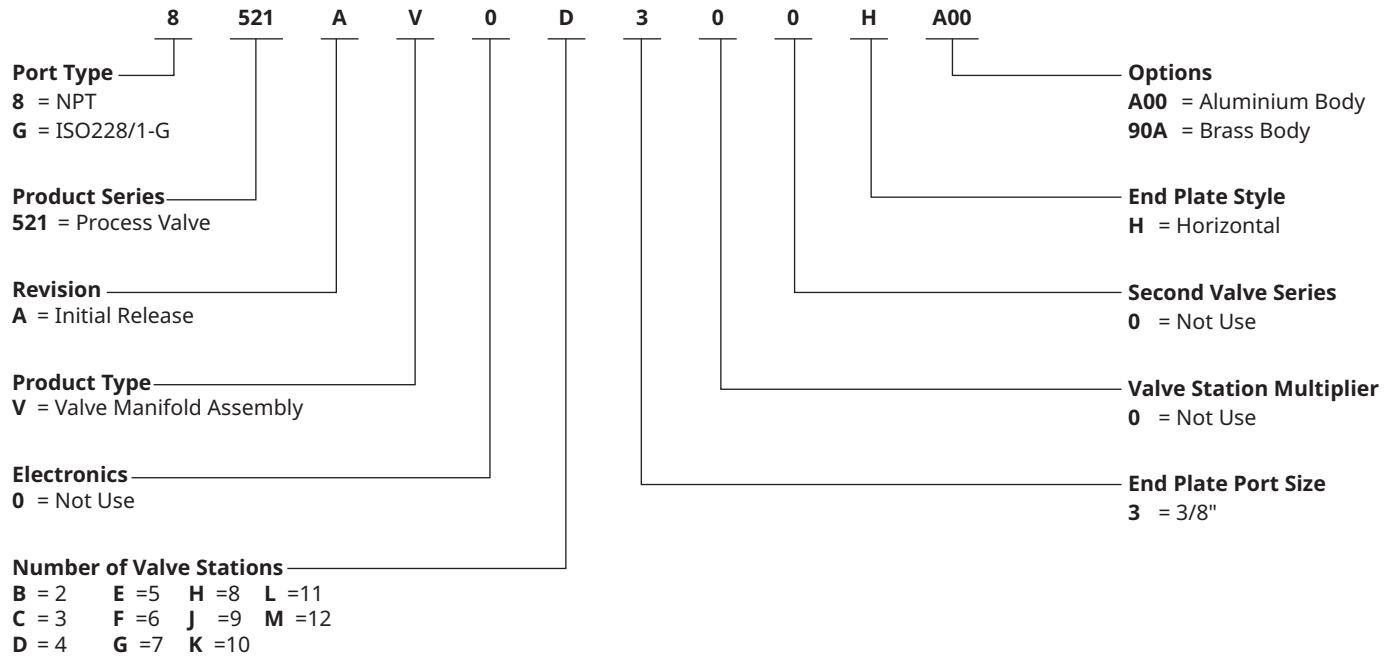
Note:
 (1) Comes with 316 Stainless Steel manual operator (flush locking override)
 (2) Only available with function = 1, 4, 5 or 6
 (3) Only available with function = 1 or 4
 (4) Only available in 1/4"
 (5) Only available in 1/8" & 1/4"
 (6) NAMUR only available in 1/4"
 (7) Manifold only available for 5/2, 5/3 and Dual 3/2 with port size 1/8" & 1/4"

Additional Note:
 5/2 way can be converted to 3/2 way by plugging one port for port size 3/8" & 1/2":
 For NC function plug port (2)
 For NO function plug port (4)
 Function 2,3 & 7, applicable for dedicated 3/2 way function (Only 3 ports are available)

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How to Order

Manifold Assembly



Ordering Example

Manifold Assembly	8521AV0D300HA00	Valve Station 3	8521A2B12SA00F1
Valve Station 1	8521A2B12SA00F1	Valve Station 4	8521A2B12SA00F1
Valve Station 2	8521A2B12SA00F1		ASSEMBLED

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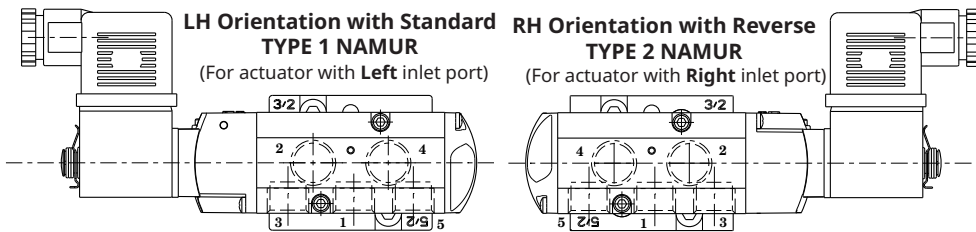
Additional Options

- Plug with visual indication (with and without electrical protection) or with cable length of 2m, solenoid type B only (Consult ASCO Office)

Installation

- Installation/maintenance instructions are included with each valve
- The solenoid valves can be mounted in any orientation without affecting performance
- For 3/2 NC conversion, insert plug into port (2) on 5/2 body and for 3/2 NO conversion, insert plug into port (4) on 5/2 body
- Spool valve is supplied with one NAMUR adaptor plate. Adapter plate can be rotated 180° to convert the spool valve to 3/2 NC or 5/2 function
- For 5/3 NAMUR plate mounting position, it should be mounted with 5/3, 5/2 marking on the the top
- It is strongly recommended to connect pipes or fittings to the exhaust ports to protect the internal parts of the spool valve and its pneumatic operator if used in outdoor or harsh environments (dust, liquids, etc.)
- NAMUR accessories (Bolts, Gaskets, Nuts & Plate) are standard supplied for NAMUR version
- Threaded pipe connection identifier is with punch marking on the body: 8 = NPT (ANSI 1.20.3); without punch marking G = G (ISO 228/1). Refer to page 4 (Marking for NPT)
- Ports suitable for push in fittings with flexible tube of 6 mm O.D

Actuator Mounting Position



Depending on the actuator's port orientation, the ASCO 521 NAMUR Design (LH Orientation with Standard TYPE 1 NAMUR & RH Orientation with Reverse TYPE 2 NAMUR) is to ensure that the supply port (1) and exhaust ports (3 & 5) are always facing down to prevent water & debris ingress.

NOTE: Selection of LH Orientation with Standard TYPE 1 NAMUR or RH Orientation with Reverse TYPE 2 NAMUR is in accordance with the type of actuator inlet position used for mounting position

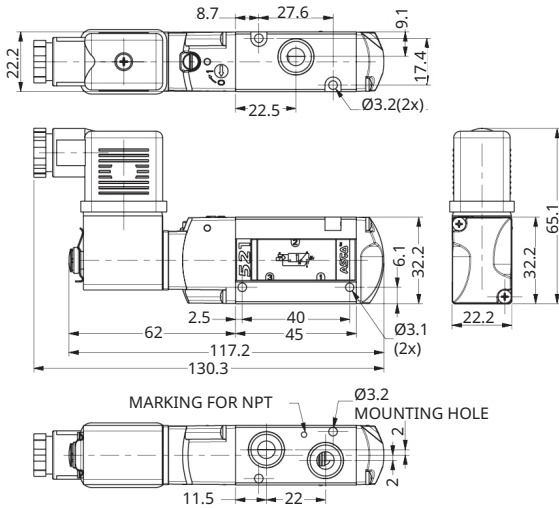
Port No.	NAMUR 3/2 NC	NAMUR 5/2
1	Supply port	Supply port
2	Actuator's inlet port	Outlet port
3	Exhaust port	Exhaust port
4	Actuator's breather port	Outlet port
5	Actuator's breather exhaust port	Exhaust port

Dimensions (mm), Weight (kg)

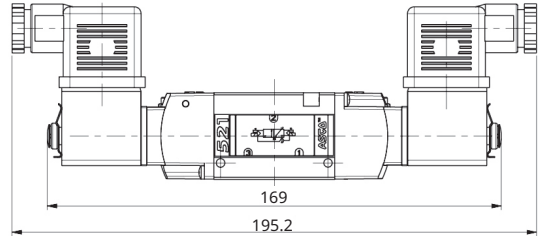


SOLENOID TYPE B
Solenoid with DIN spade plug connector (standard)
Moulded IP65
Reduced power
IEC 335 / DIN 43650

SERIES 521 THREADED 3/2 WAY
(Single Solenoid, Spring Return, NO/NC)



SERIES 521 THREADED 3/2 WAY
(Dual Solenoid)



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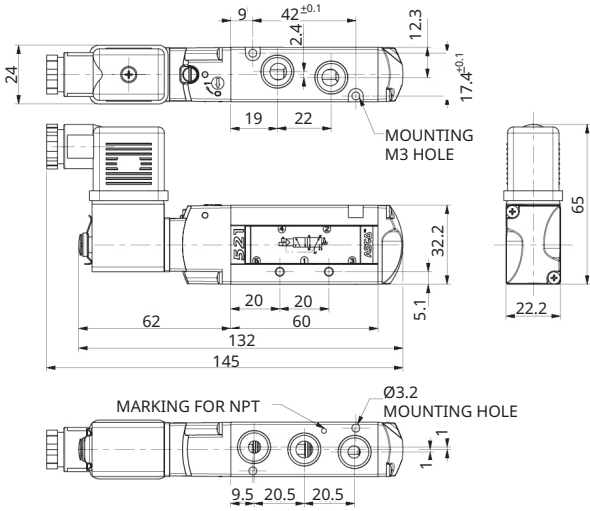
3/2, 5/2
5/3, Dual 3/2
Series

521 Process

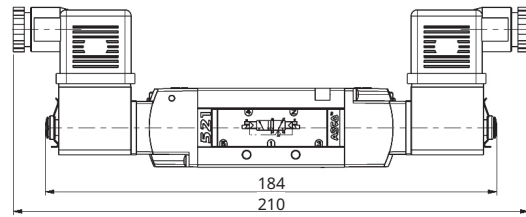
Dimensions (mm), Weight (kg)



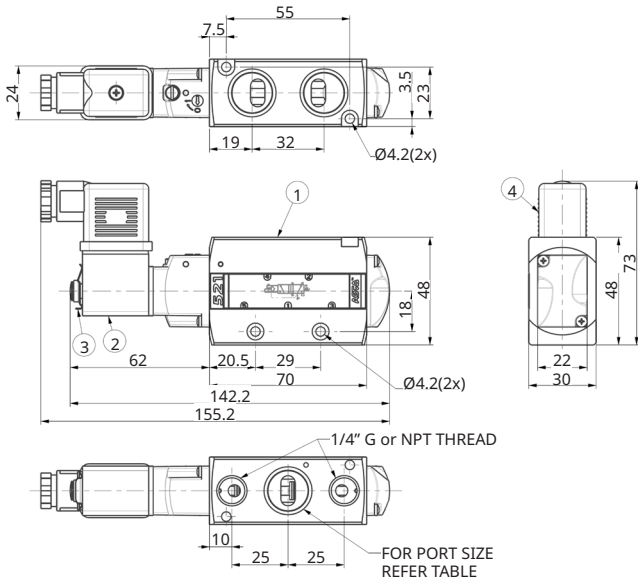
SERIES 521 THREADED 5/2 WAY (Single Solenoid, Spring Return)



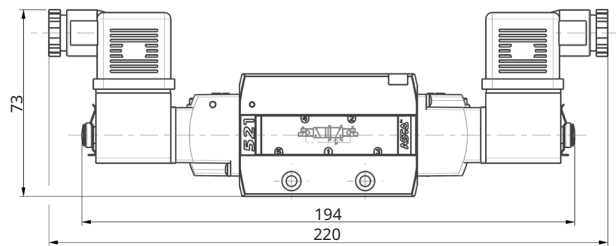
SERIES 521 THREADED 5/2 WAY (Dual Solenoid)



SERIES 521 THREADED 5/2 WAY, 3/8" & 1/2" Inch (Single Solenoid, Spring Return)



SERIES 521 THREADED 5/2 WAY, 3/8" & 1/2" Inch (Dual Solenoid)

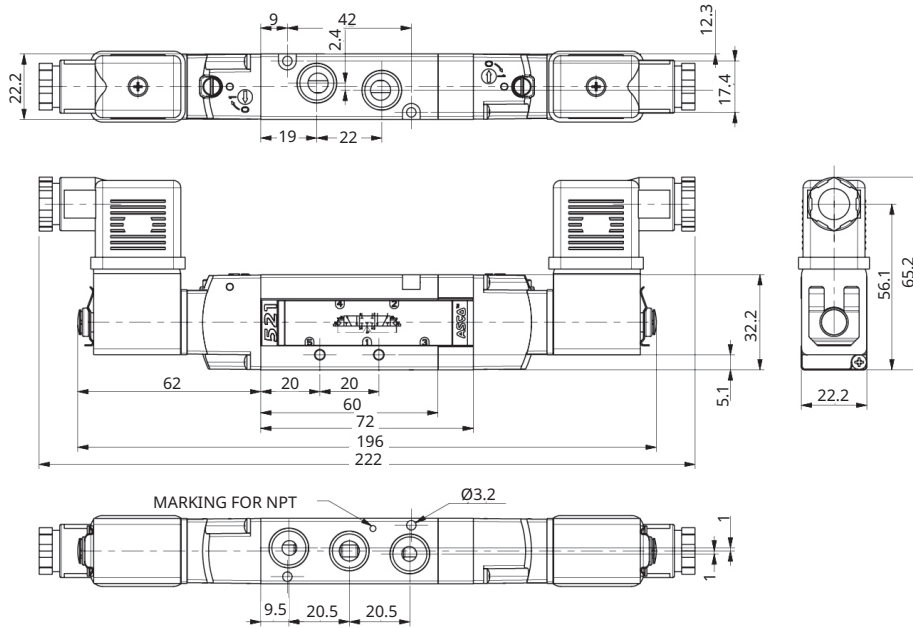


Note:
Inlet and Outlet port 3/8" or 1/2",
Exhaust Port 1/4"

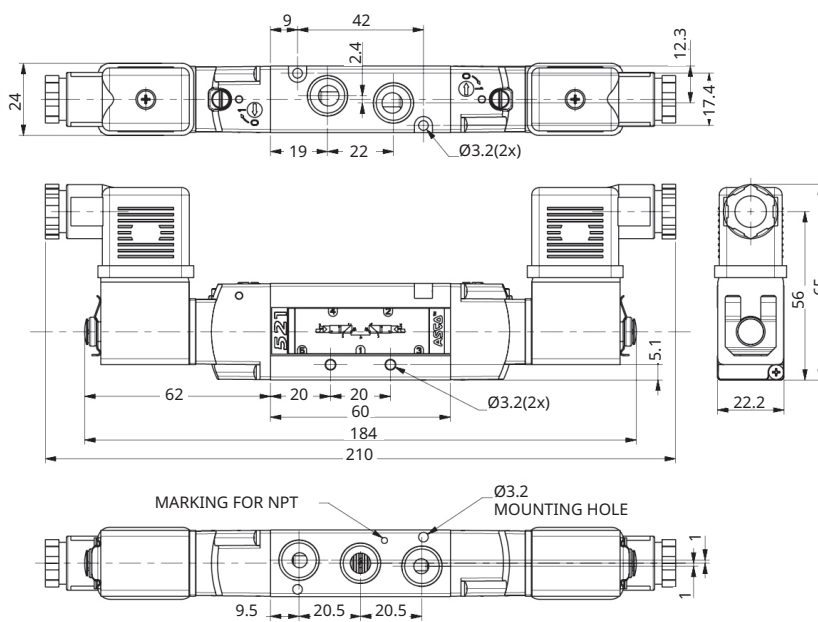
Dimensions (mm), Weight (kg)



SERIES 521 THREADED 5/3 WAY
(W1, Closed Center and W3, Open Center to Exhaust)



SERIES 521 THREADED DUAL 3/2 WAY
(Normally Closed - Normally Closed)



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5/3, Dual 3/2
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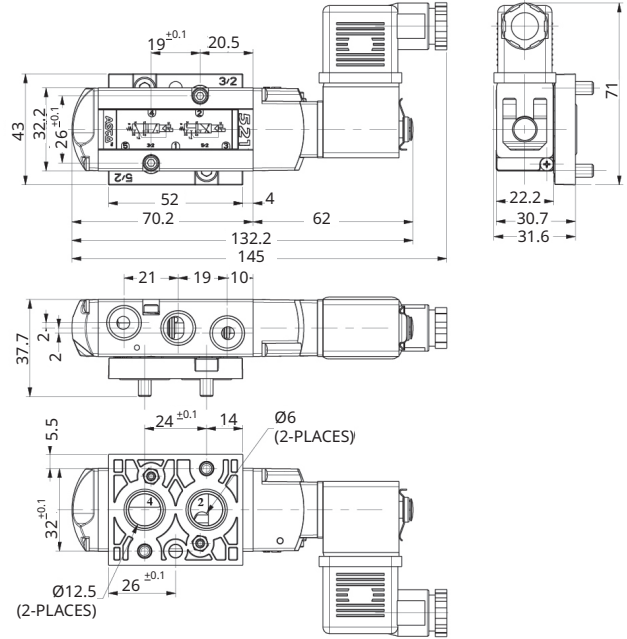
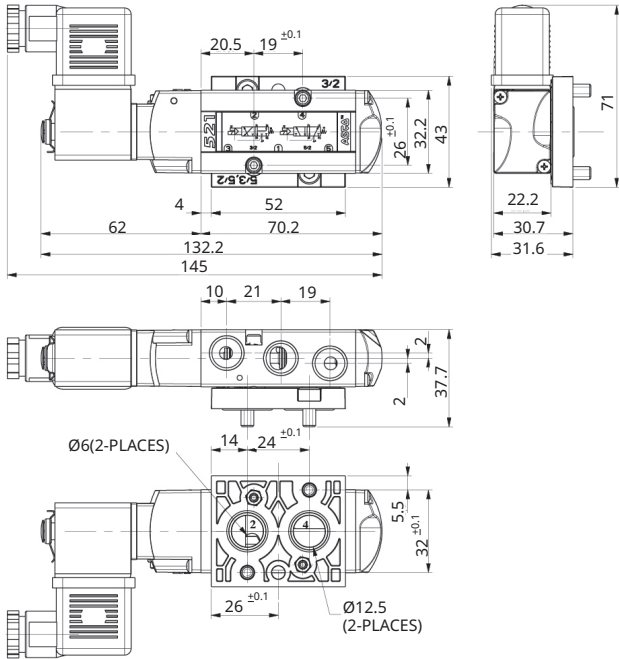
521 Process

Dimensions (mm), Weight (kg)

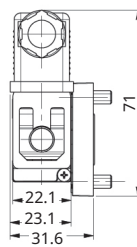
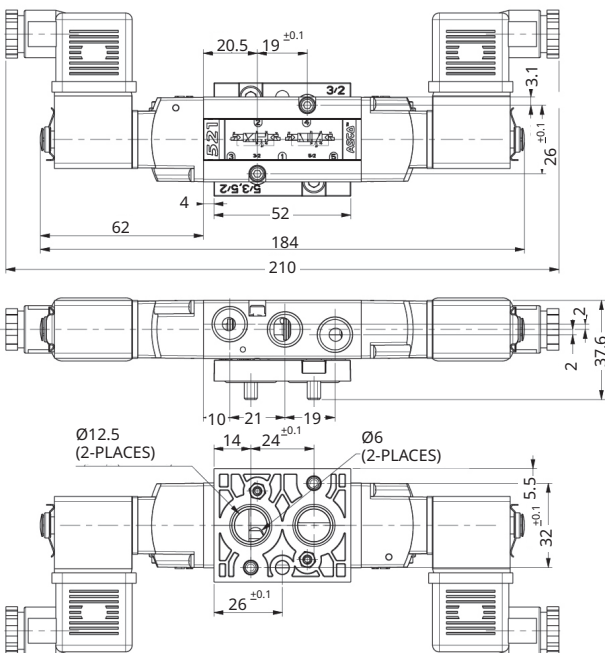


SERIES 521 NAMUR 3/2 - 5/2 WAY*
LH Orientation with Standard TYPE 1 NAMUR
(Single Solenoid, Spring Return)

RH Orientation with Reverse TYPE 2 NAMUR
(Single Solenoid, Spring Return)



NAMUR Dual Solenoid
(LH & RH Orientation)



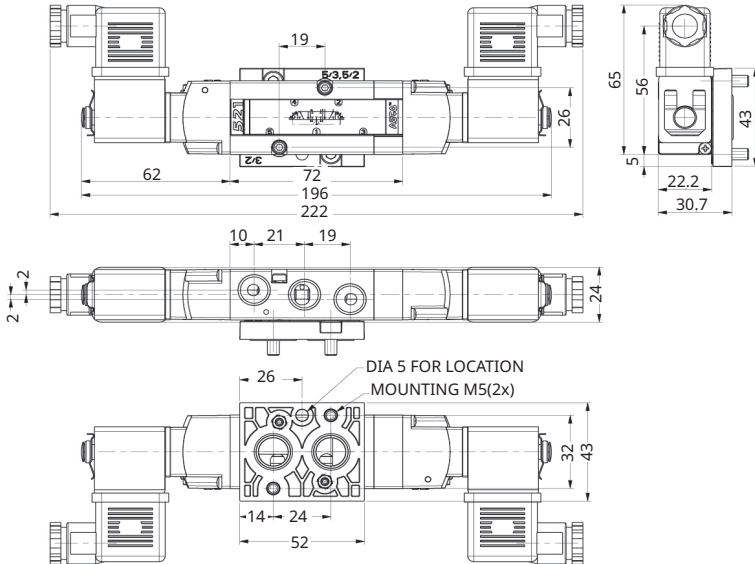
Function	Valve Type B (Weight, kg)			
	Aluminium		Brass	
	Single	Dual	Single	Dual
THREADED 5/2	0.23	0.35	0.39	0.51
NAMUR 3/2 - 5/2*	0.25	0.38	0.41	0.63
3/2 WAY	0.2	0.32	0.36	0.48
5/3 THREAD (W1&W3)	0.39		0.64	
5/3 NAMUR (W1&W3)	0.42		0.67	
2x3/2 NC	0.35		0.51	

* For NAMUR type, 5/2 can be converted to 3/2NC by rotating NAMUR plate

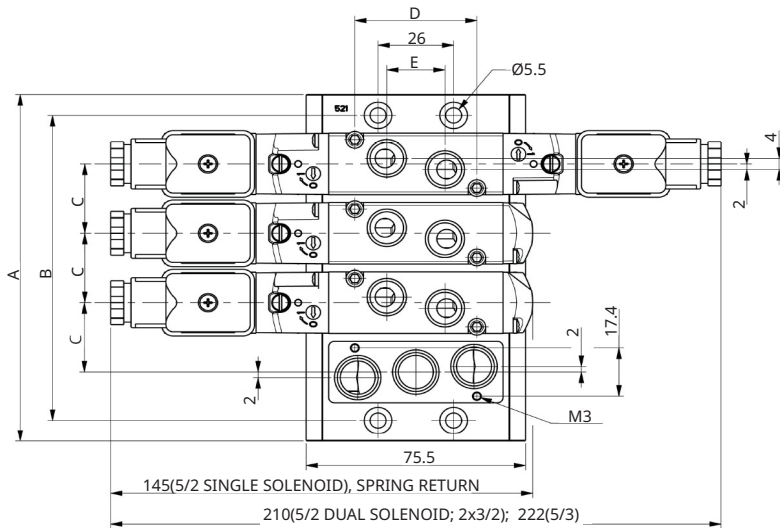
Dimensions (mm), Weight (kg)



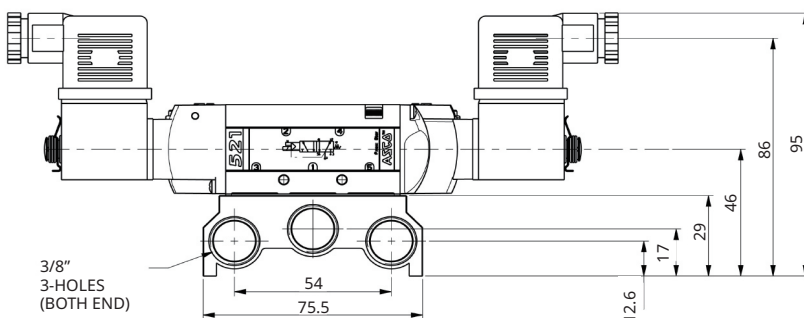
SERIES 521 NAMUR 5/3 WAY
LH Orientation with Standard TYPE 1 NAMUR
(W1, closed center and W3, open center to exhaust)



SERIES 521 THREADED 5/2 WAY (MANIFOLD ASSEMBLY)



Manifold for Solenoid Type B							
Threaded for 5/2, 5/3 and Dual 3/2 Only							
No. of Station	Dim A	Dim B	Dim C	Dim D	Dim E	Part No	
						For G Thread	For NPT Thread
02	75	60				G521AM514127002	8521AM514127002
03	100	85				G521AM514127003	8521AM514127003
04	125	110				G521AM514127004	8521AM514127004
05	150	135				G521AM514127005	8521AM514127005
06	175	160				G521AM514127006	8521AM514127006
07	200	185	25	42	20	G521AM514127007	8521AM514127007
08	225	210				G521AM514127008	8521AM514127008
09	250	235				G521AM514127009	8521AM514127009
10	275	260				G521AM514127010	8521AM514127010
11	300	285				G521AM514127011	8521AM514127011
12	325	310				G521AM514127012	8521AM514127012



Note:
Adaptable on light alloy multiple subbases
(fixing screws and seals are supplied with subbases)

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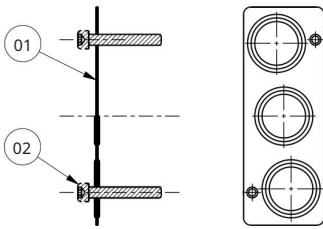
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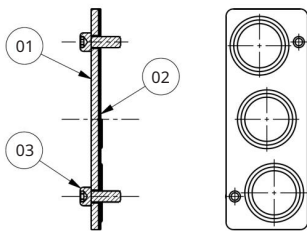
521 Process

MANIFOLD KIT



Manifold Kit Number			
Det. No.	Part Name	Qty	Threaded 5/2, 5/3 & Dual 3/2
01	Gasket	1	R521AC514631001
02	Mounting Screw	2	

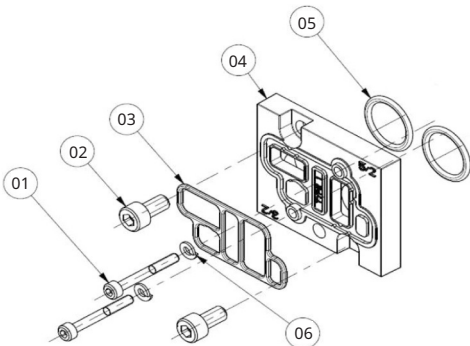
BLANK STATION PLATE KIT



Blank Station Kit Number			
Det. No.	Part Name	Qty	Threaded 5/2, 5/3 & Dual 3/2
01	Blank Plate	1	R521AB514632001
02	Gasket	1	
03	Mounting Screw	2	

NAMUR ADAPTOR KIT

(LH ORIENTATION WITH STANDARD TYPE 1 NAMUR & RH ORIENTATION WITH REVERSE TYPE 2 NAMUR)



NAMUR Adaptor Kit Number				
Det. No	Part Name	Qty	LH Orientation (Type 1)	RH Orientation (Type 2)
01	Mounting Screw M3	2	R521AT514630001	R521AT514630002
02	Adaptor Screw M5	2		
03	Profile Gasket	1		
04	NAMUR Plate	1		
05	O Ring	2		
06	Lock Washer	2		