

AVENTICS™ Spool Valves

ISO 15407-1 (26 mm) - pad mounting body - M12 connection

Series
503

Features and Benefits

- M12 connection on top of valve: reduces installation time, wiring costs and prevents wiring errors
- Modular assembly with joinable subbases
- Spool and Sleeve or rubber packed technology in the same dimension body
- Flow rate up to 1200 l/min
- Internal or external pilot pressure supply capability
- Compliance with ISO standard 15407-1 26 mm
- Spool and sleeve technology for long service life, rubber-packed version for high flow combined with multi-functions

General

Operating pressure	See «SPECIFICATIONS» [1 bar =100 kPa]
Ambient temperature range (TS)	-10°C to +50°C
Rated flow	See «SPECIFICATIONS»
conforming to ISO 6358	C (5/2) = 5.21×10^{-8} (sonic conductance) b (5/2) = 0.34 (critical pressure ratio)
Pneumatic base	ISO 15407-1 26 mm (M12 on the top)
Connection	Single or manifold base
Response time	See «SPECIFICATIONS»

Fluids (*)	Temperature range (TS)	Technology	Seal materials (*)
air or inert gas ISO 8573 Level 7.4.4	-10°C to +50°C	rubber packed	NBR (nitrile) + PUR (polyurethane)
	-10°C to +50°C	spool & sleeve	metal-to-metal sealing

Materials in contact with fluid

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

Body	Aluminium, E-coating treatment
Spool	Aluminium or st. steel (spool & sleeve)
Piston	POM (rubber packed)
Spring	Steel
Other seals	NBR
Other materials	PARA (polyarylamide) GF 50% (glass fiber reinforced)
Subbases	Aluminium, E-coating treatment

Electrical characteristics

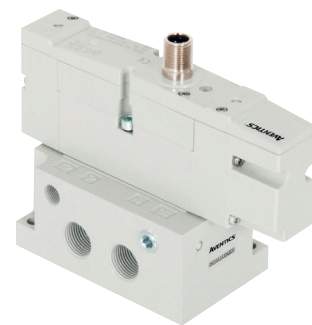
Coil insulation class	F
Round connector	1 x 4 pin M12 male, IEC 61076-2-101
PIN assignment	ISO 20401
Electrical safety	IEC-EN 60730-1 / IEC-EN 60730-2-8
Electrical enclosure protection	IP65 (EN 60529)
Standard voltages	DC (=) : 24V
Power ratings (hot / cold) (=)	1.4 W / 1.7 W

M12 (ISO 20401)	Diagram	Pin	Assignment
		1	not used
		2	not used
		3	common, 0 V
		4	supply, coil 14
	1	not used	
	2	supply, coil 12	
	3	common, 0 V	
	4	supply, coil 14	

Accessories

Straight M12 connector female	With 5 m cable length (5 pin): catalogue number 88130212
Sandwich kits	Shut off, pressure block, exhaust block, etc. (See following pages)
Pressure regulator	See following pages

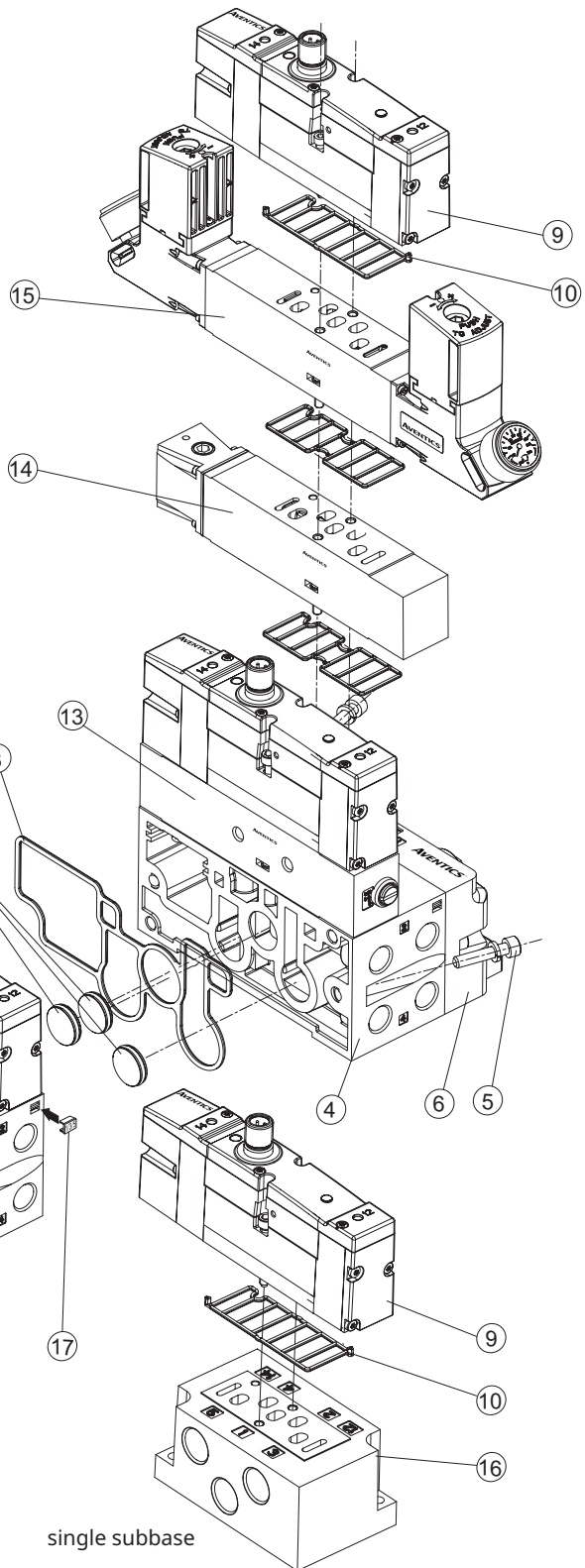
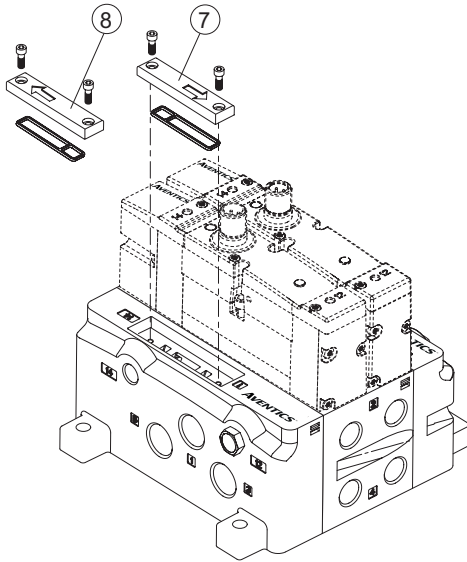
2x3/2 - 5/2 - 5/3



M12 on the top

Product Overview

Internal/external pilot supply



- ① Exhaust protector
- ② Left end plate
- ③ Base manifold gasket
- ④ Joinable subbase (Manifold base)
(one manifold base for 2 stations valve)
- ⑤ Screw with washer
- ⑥ Right end plate
- ⑦ Internal supply configuration (standard supply)
- ⑧ End plate modification for external supply
- ⑨ Valve with M12 connection on the top
- ⑩ Valve gasket
- ⑪ Blank station plate kit
- ⑫ Blocking disc kit

single subbase

- ⑬ Speed control kit
- ⑭ Sandwich shut off (sandwich pressure block or sandwich exhaust block available)
- ⑮ Double regulator
- ⑯ Single subbase
- ⑰ Label (see page 319)

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Specifications

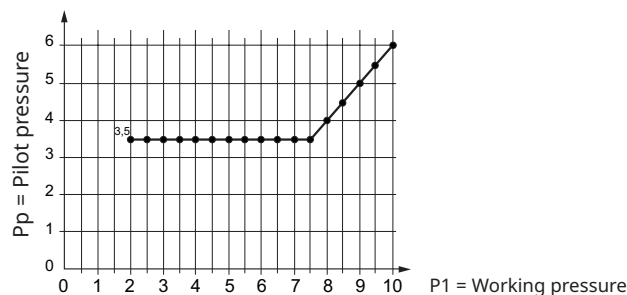
Function	Symbol	Rated Flow at 6.3 bar ΔP 1 bar		Response Time Open / Closed (ms)	Pilot Pressure at 23°C (bar)		Operating Pressure Port 1 (bar)		Dimensions / Type ⁽¹⁾	Catalog Number	
		l/min (ANR)			min.	max.	Max. (PS)	Air (*)		=	ISO 15407-1
		1 → 2 1 → 4	2 → 3 4 → 5								
SPOOL VALVE, RUBBER PACKED TECHNOLOGY, WITH IMPULSE MANUAL OPERATOR (EXTERNAL SUPPLY)											
2 x 3/2 NC		850	750	15 / 20	3.5 ^(a)	10	2	10	01	R503A2BD0N83BF1 (R503A2BD0N82PF1) ^(b)	
2 x 3/2 NO		850	850	15 / 20	3.5 ^(a)	10	2	10	01	R503A2BA0N83BF1	
5/2		1150	1100	20 / 60	3	10	-0.95	10	01	R503A2B10N83BF1 (R503A2B10N82PF1) ^(b)	
		1150	1100	28 / 40	3	10	-0.95	10	01	R503A2BN0N83BF1	
		1150	1100	20	2	10	-0.95	10	01	R503A2B40N83BF1 (R503A2B40N82PF1) ^(b)	
5/3		1200	1100	15 / 20	3	10	-0.95	10	01	R503A2B60N83BF1 (R503A2B60N82PF1) ^(b)	
		1100	550	18 / 45	3	10	-0.95	10	01	R503A2B70N83BF1 (R503A2B70N82PF1) ^(b)	
		550	1000	18 / 45	3	10	-0.95	10	01	R503A2B50N83BF1 (R503A2B50N82PF1) ^(b)	

⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).


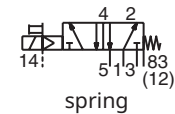
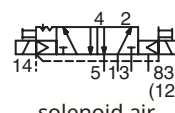
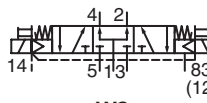
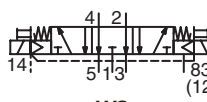
^(b) Internal piloting (internal supply).

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

(a) NC - NC
NO - NO



Specifications

Function	Symbol	Rated Flow at 6.3 bar ΔP 1 bar l/min (ANR)		Response Time Open / Closed (ms)	Pilot Pressure at 23°C (bar)		Operating Pressure Port 1 (bar)		Dimensions / Type ⁽¹⁾	 Catalog Number ISO 15407-1
		1 → 2 1 → 4	2 → 3 4 → 5		min.	max.	Max. (PS)			
							Air (*) =			
SPOOL VALVE, SPOOL AND SLEEVE TECHNOLOGY, WITH IMPULSE MANUAL OPERATOR										
5/2	 spring	1000	950	20 / 60	2	10	-0.95	10	01	R503A1B10N83BF1 (R503A1B10N82PF1) ^(a)
	 solenoid air	1000	950	15	2	10	-0.95	10	01	R503A1B40N83BF1 (R503A1B40N82PF1) ^(a)
5/3	 W2 centre open to pressure	700	750	20 / 60	2	10	-0.95	10	01	R503A1B70N83BF1 (R503A1B70N82PF1) ^(a)
	 W3 centre open to exhaust	750	700	20 / 60	2	10	-0.95	10	01	R503A1B50N83BF1 (R503A1B50N82PF1) ^(a)

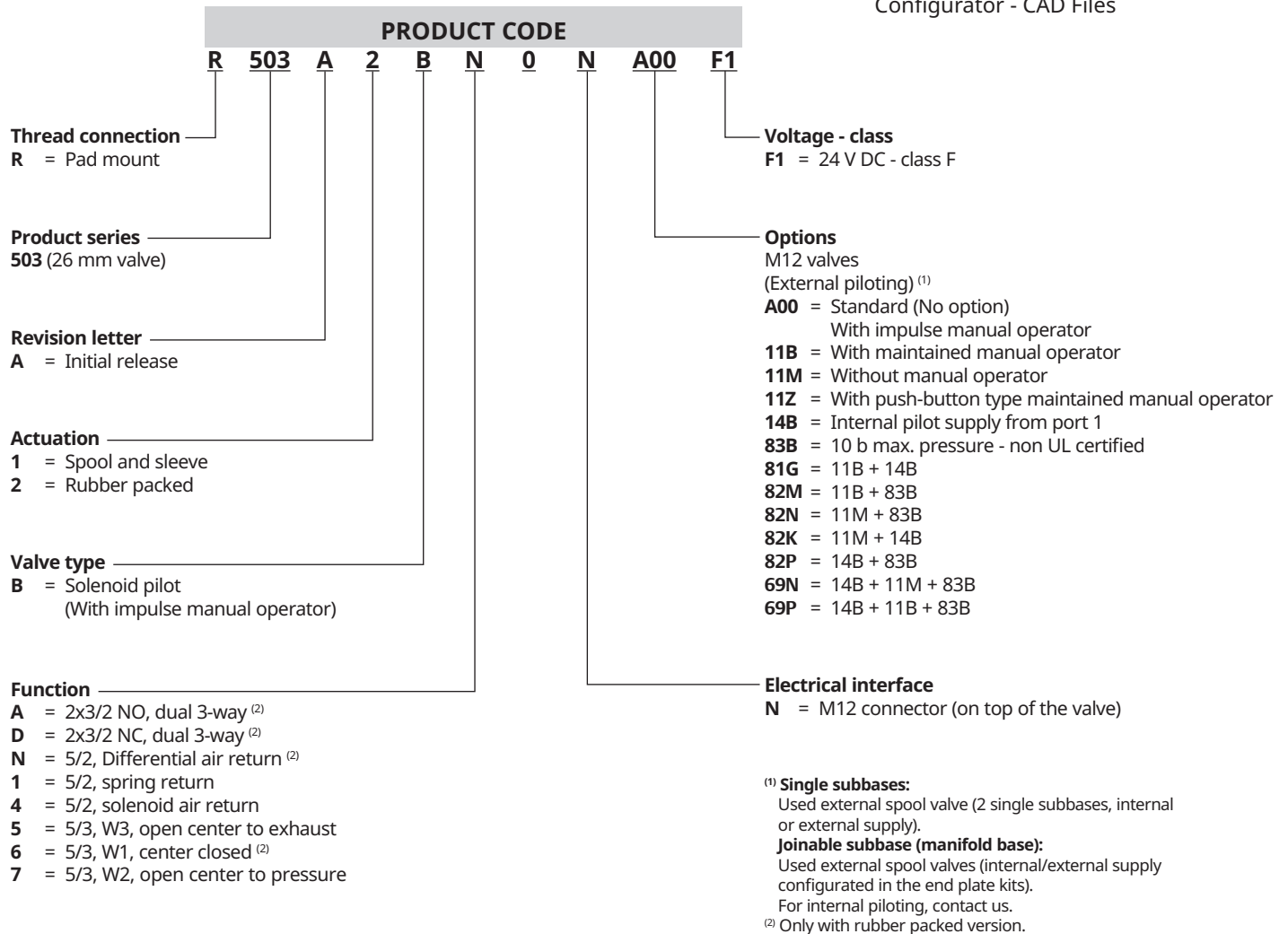
⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

^(a) Internal piloting (internal supply).

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


How to Order - Valves

Configurator - CAD Files



Installation

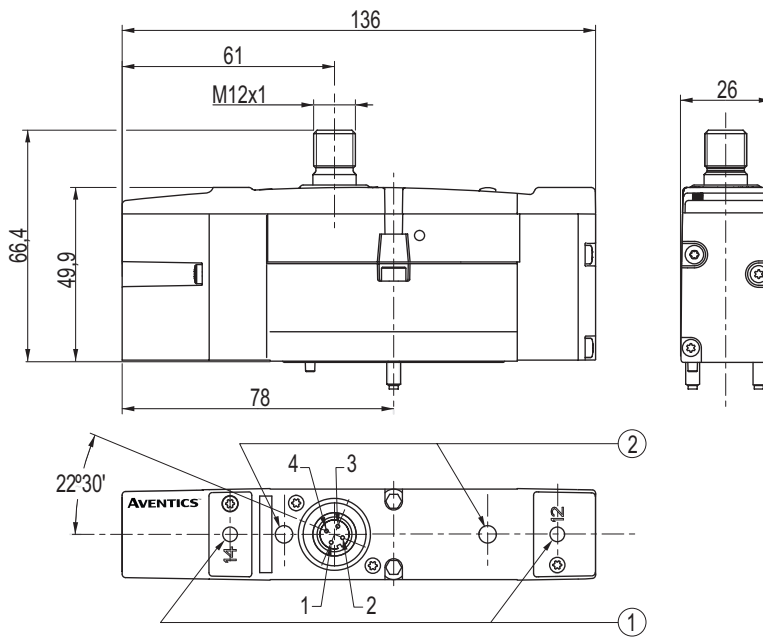
- The spool valves can be mounted in any position without affecting operation
- Spool valve supplied with mounting screws and mounting pad gasket
- ISO 15407-1 pneumatic pad mounting body

Dimensions (mm), Weight (kg) 

Configurator - CAD Files



TYPE 01
Electrical interface "N"
ISO 20401 / ISO 15407-1
IP65

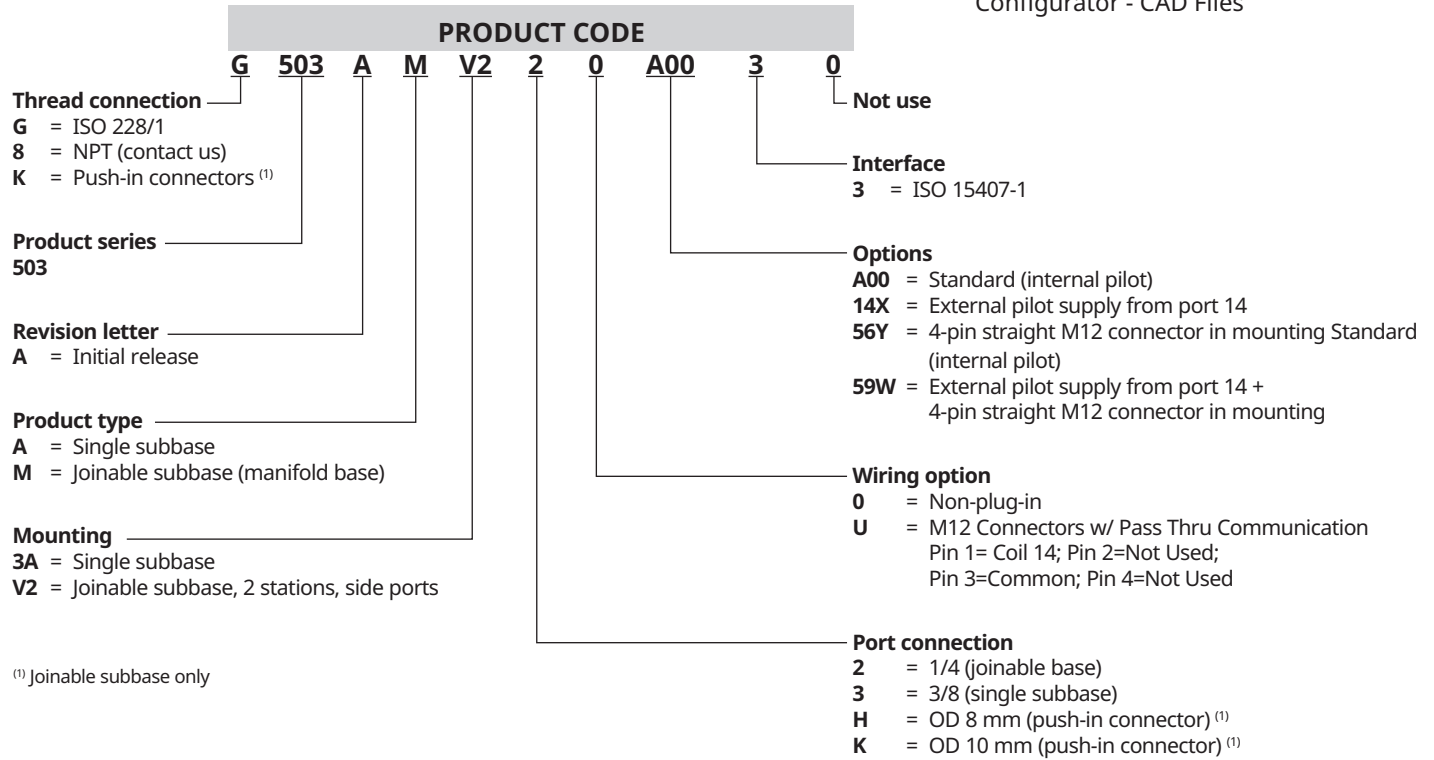


Type	Weight
01	0.232

- ① Manual operator location
- ② LED indicator

How to Order - Single and Joinable Subbases

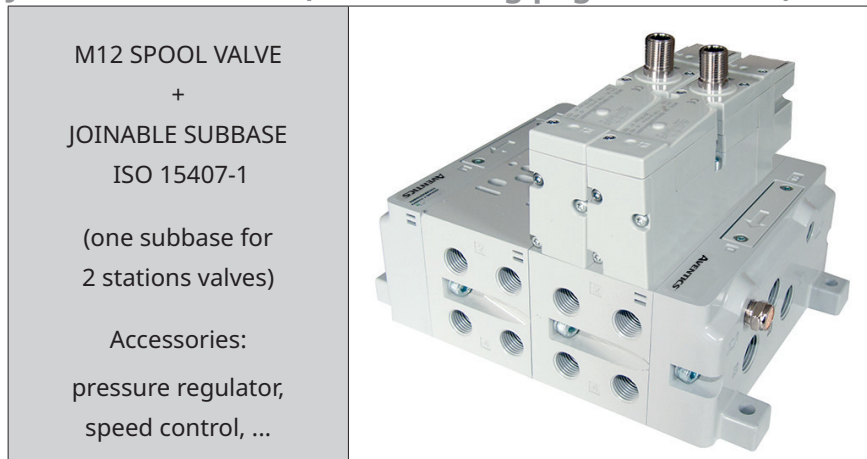
Configurator - CAD Files




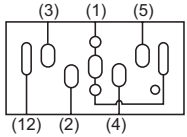

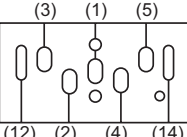
Single subbases (see following page for details)



Joinable subbases (see following page for details)

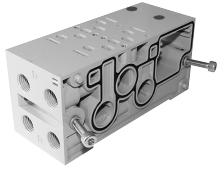
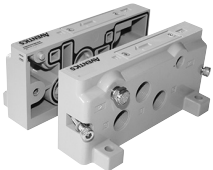


Single subbases

Function	Designation	Thread Type	Dimensions / Type ⁽¹⁾	Catalog Number
SINGLE SUBBASE (ISO 15407-1) FOR M12 ON THE TOP VALVE				
 	<p>internal supply</p> <p>1-2-3-4-5 = 3/8 12 = 1/8 (pilot exhaust)</p>	G	02	G503AA3A30A0030
 	<p>external supply</p> <p>1-2-3-4-5 = 3/8 12 = 1/8 (pilot exhaust) 14 = 1/8 (pilot external supply)</p>	G	02	G503AA3A3014X30


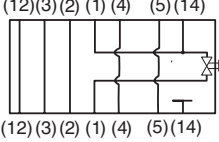

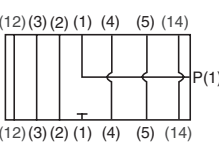

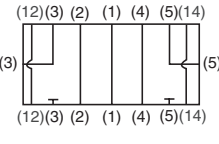

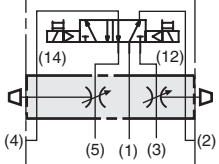
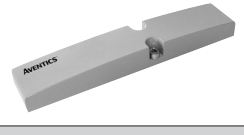
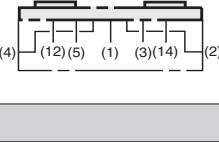










⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

Joinable subbase (Manifold base)


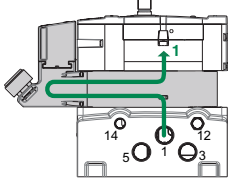
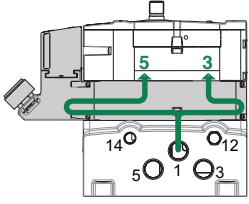
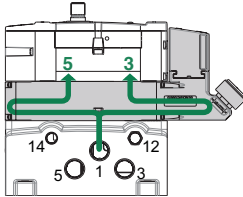
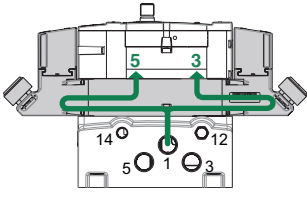
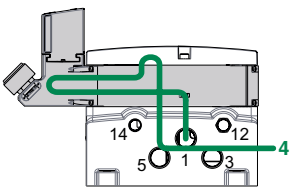
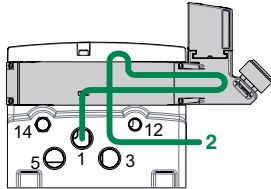
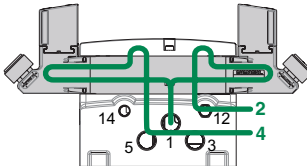
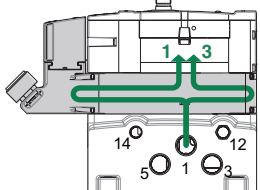
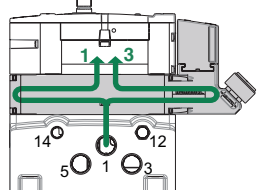
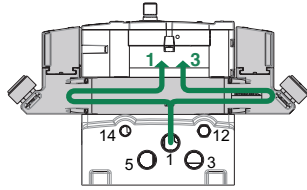
Function	Designation	Thread Type	Dimensions / Type ⁽¹⁾	Catalog Number
DOUBLE JOINABLE SUBBASE (ISO 15407-1) FOR M12 ON THE TOP VALVE				
	<p>one manifold base for 2 stations valve</p> <p>side ports, 4 x 1/4</p>	G	03	G503AMV220A0030
END PLATE KITS				
	<p>horizontal supply</p> <p>3 x 3/8 (1/3/5 ports) 2 x 1/8 (12/14 ports)</p>	G	03	G503AK428304004

⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

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			Thread Type	Dimensions / Type ⁽¹⁾	Catalog Number
SANDWICH SHUT OFF KIT					
		<ul style="list-style-type: none"> Used to shut-off pressure to the valve which is mounted above it Allows easy maintenance without the need to shut-off pressure to the whole manifold (specified for 2x3/2 NC-NC valve) ⚠ Pay attention to residual pressures ⚠ The valve should not be energised during disassembly Always internal piloting 	-	04	R503AY432939001
SANDWICH PRESSURE BLOCK KIT					
		<ul style="list-style-type: none"> Used to supply a separate pressure to a single valve station without needing blocking disc 	G	05	G503AW432938002
SANDWICH EXHAUST BLOCK KIT					
		<ul style="list-style-type: none"> Used to isolate the exhaust of the single valve station from the manifold base Allows faster exhaust response by re-routing 	G	06	G503AX432938001
SANDWICH SPEED CONTROL KIT					
		<ul style="list-style-type: none"> Used to control double acting cylinder speed by restricting exhaust flow (3 & 5) 	-	08	R503AS432940001
BLANK STATION PLATE KIT					
		<ul style="list-style-type: none"> Used to block off a manifold station block for future use 	-	07	P503AB428359001
BLOCKING DISCS KIT					
	+ 	• Port 1	-	-	P503AD431191001
	+ 	• Port 3			P503AD431191002
	+ 	• Port 5			P503AD431191003
	+ 	• Ports 1 and 3			P503AD431191004
	+ 	• Ports 1 and 5			P503AD431191005
	+ 	• Ports 3 and 5			P503AD431191006
	+ 	• Ports 1, 3 and 5			P503AD431191007

⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

Type	PRESSURE REGULATOR			Dimensions / Type ⁽¹⁾	Catalog Number (Pressure Range 0.7 to 10 bar)
RS				09	R503ARS120A0030
RD				10	R503ARD12016P30
	.....RD...16P..	.....RD...16N..	.....RD...A00..	11	R503ARD12016N30
				12	R503ARD120A0030
RE				13	R503ARE12016P00
	.....RE...16P..	.....RE...16N..	.....RE...A00..	14	R503ARE12016N00
				15	R503ARE120A0000
RT				10	R503ART12016P30
	.....RT...16P..	.....RT...16N..	.....RT...A00..	11	R503ART12016N30
				12	R503ART120A0030

⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

How to Order - Pressure Regulator

[Configurator - CAD Files](#)

PRODUCT CODE

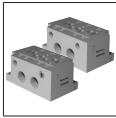
R 503 A R S 1 2 0 A00 3 0

<p>Thread connection R = Pad mount</p> <p>Product series 503</p> <p>Revision letter A = Initial release</p> <p>Product type R = Pressure regulator</p> <p>Regulator type S = Single regulator - Pressure to port 1 D = Single or double regulator - Pressure to ports 5 & 3 E = Single or double regulator - External outlet regulator T = Single or double regulator - Two-pressure selector used for multi-pressure applications</p>	<p>Interface 3 = ISO 15407-1 0 = No interface</p> <p>Options A00 = Standard (no options) 16N = Jumper on 14 end 16P = Jumper on 12 end</p> <p>Wiring option 0 = Non-plug-in</p> <p>Gauge type 2 = bar (standard)</p> <p>Pressure range 1 = 0.7 to 10 bar 3 = 0.2 to 2 bar 4 = 0.3 to 4 bar</p>	<p>Not use</p>
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Dimensions (mm), Weight (kg)

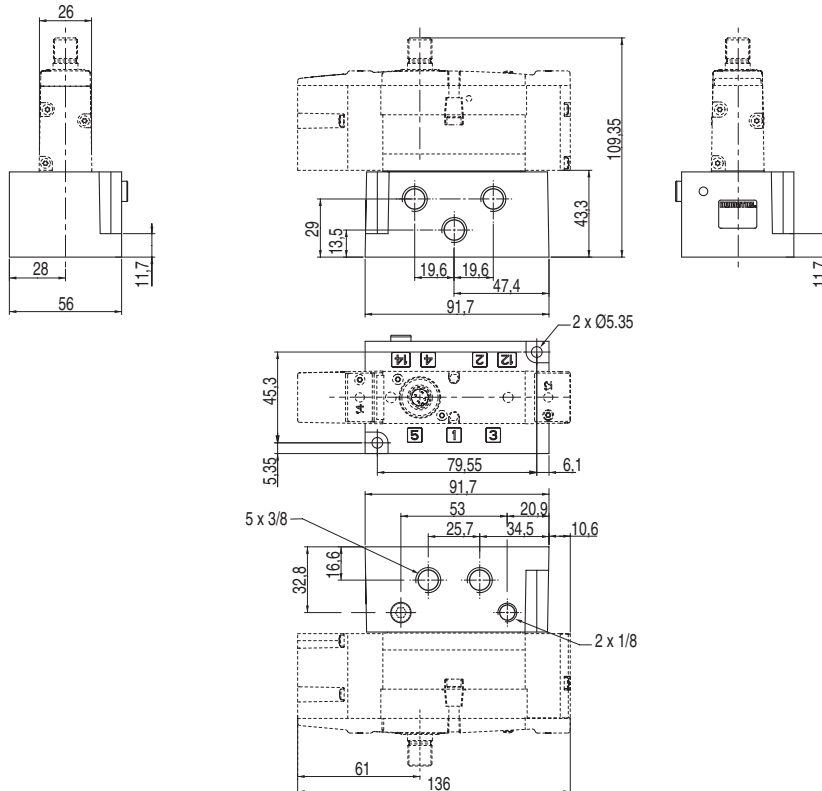
Configurator - CAD Files



TYPE 02

Single subbases
ISO 15407-1 (M12 on the top)
3/8 = 1, 2, 3, 4, 5 ports
1/8 = 12, 14 ports

G503AA3A30A0030 - G503AA3A3014X30



Type	Catalog Number	Weight
02	G503AA3A30A0030	0.310
	G503AA3A3014X30	0.307

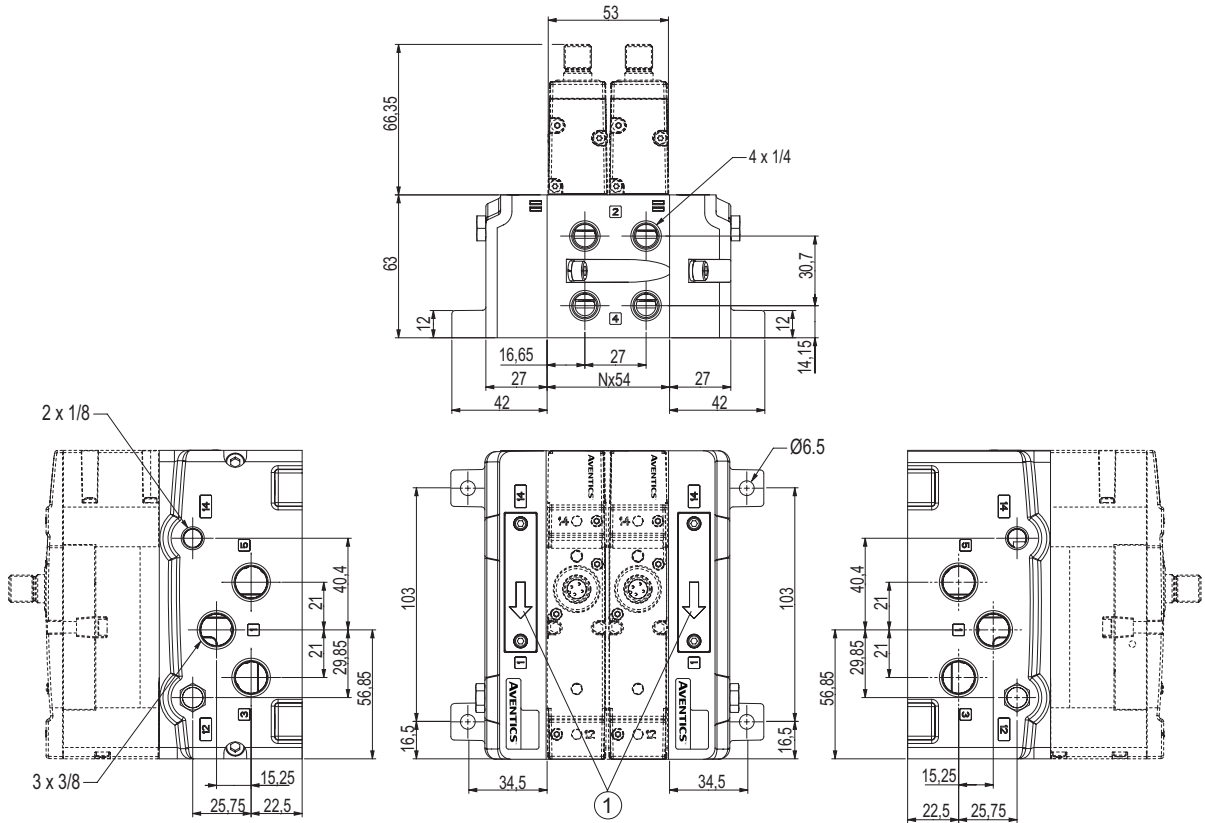
Dimensions (mm), Weight (kg)

Configurator - CAD Files

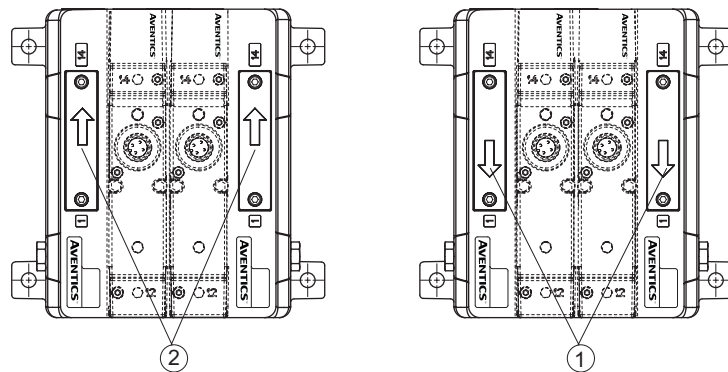


TYPE 03

Joinable subbase (manifold base), horizontal supply
ISO 15407-1
4 x 1/4 = 2 and 4 ports (dual subbase)
3 x 3/8 = 1, 3, 5 ports; 2 x 1/8 = 12 and 14 ports (end plate kits)



End plates adaptation for internal/external supply (piloting)



Type	Catalog Number	Weight
03	G503AMV220A0030 ⁽¹⁾	0.564
	G503AK428304004	0.727

- ① Internal supply (factory setting)
- ② External supply configuration

⁽¹⁾ For 2 stations.

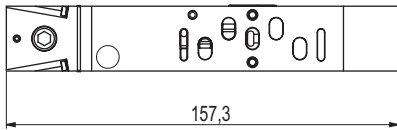
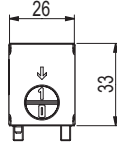
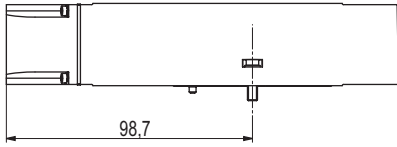
AVENTICS™ Spool Valves

Dimensions (mm), Weight (kg)



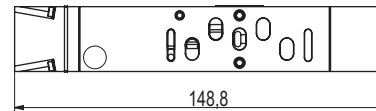
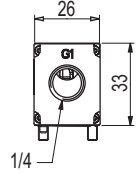
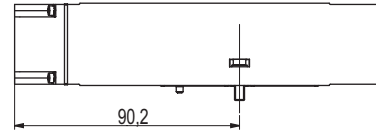
TYPE 04
Sandwich shut off
ISO 15407-1

R503AY432939001



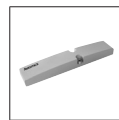
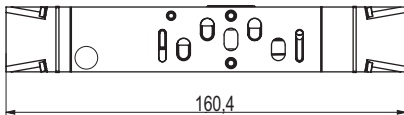
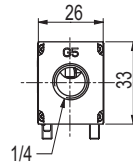
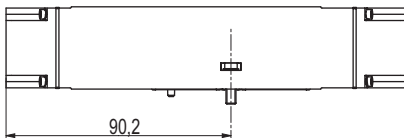
TYPE 05
Sandwich pressure block
ISO 15407-1

G503AW432938002



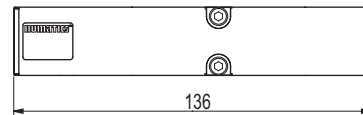
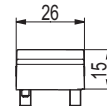
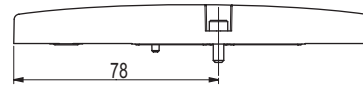
TYPE 06
Sandwich exhaust block
ISO 15407-1

G503AX432938001



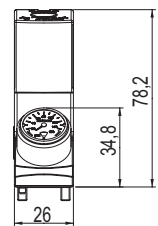
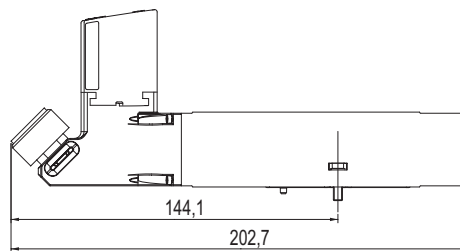
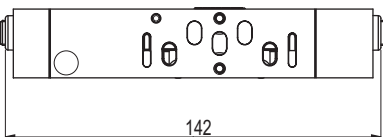
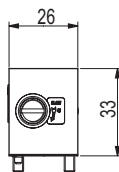
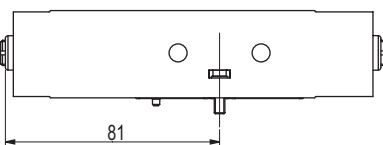
TYPE 07
Blank station plate kit
ISO 15407-1

P503AB428359001




TYPE 08
Speed control
ISO 15407-1

R503AS432940001



Type	Weight
04	0.237
05	0.208
06	0.241
07	0.084
08	0.248
09	0.428 ⁽¹⁾

⁽¹⁾ Incl. gauge(s).

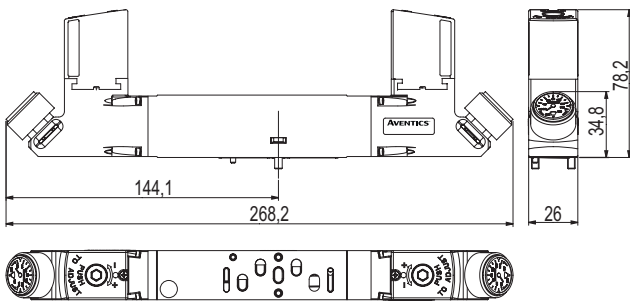
Dimensions (mm), Weight (kg) 

Configurator - CAD Files

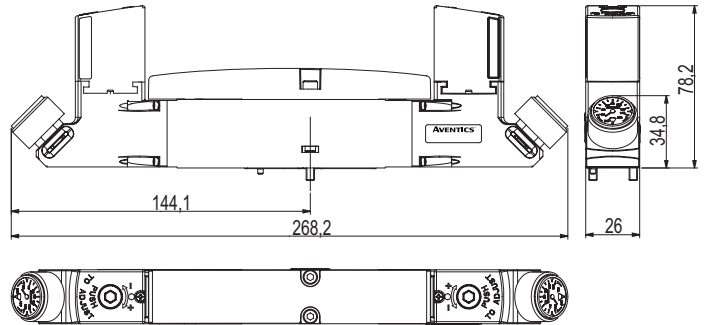


TYPE 12 - 15
Double regulator
ISO 15407-1

R503ARD120A0030 / R503ARD120A0030

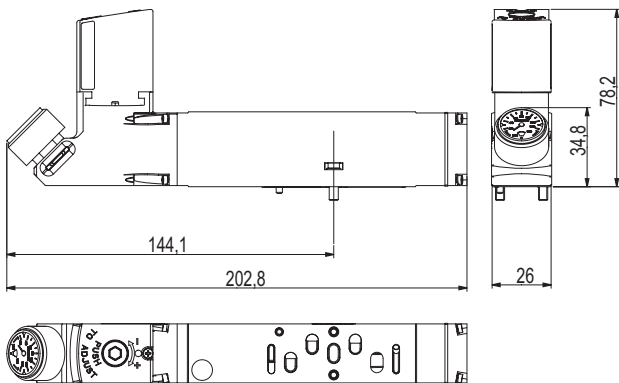


R503ARE120A0000

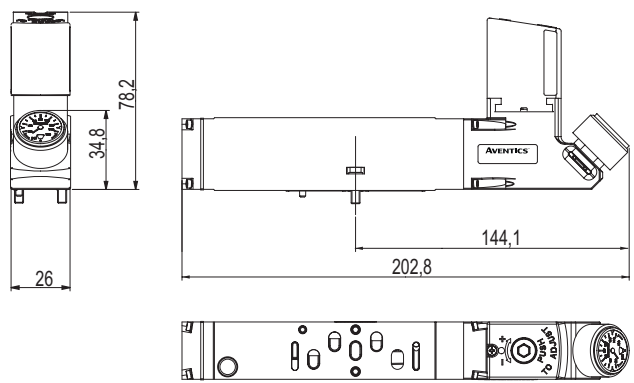


TYPE 10 - 11 - 13 - 14
Single regulator
ISO 15407-1

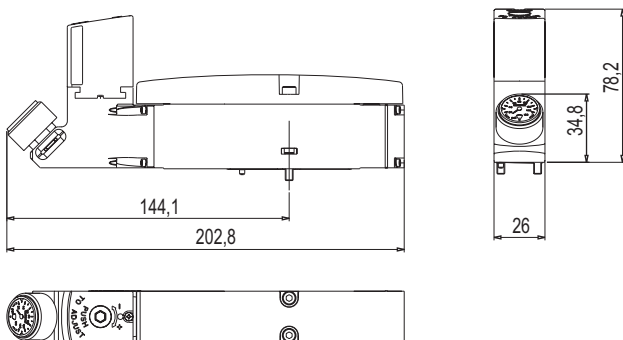
R503ARD12016P30 / R503ART12016P30



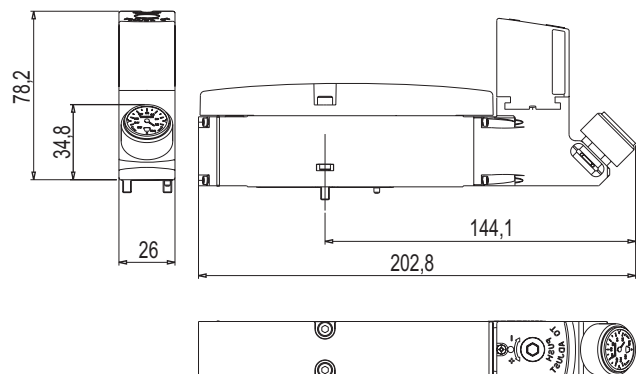
R503ARD12016N30 / R503ART12016N30



R503ARE12016P00



R503ARE12016N00



Type	Weight
10 - 11	0.429 ⁽¹⁾
12	0.667 ⁽¹⁾
13 - 14	0.515 ⁽¹⁾
15	0.760 ⁽¹⁾

⁽¹⁾ Incl. gauge(s).