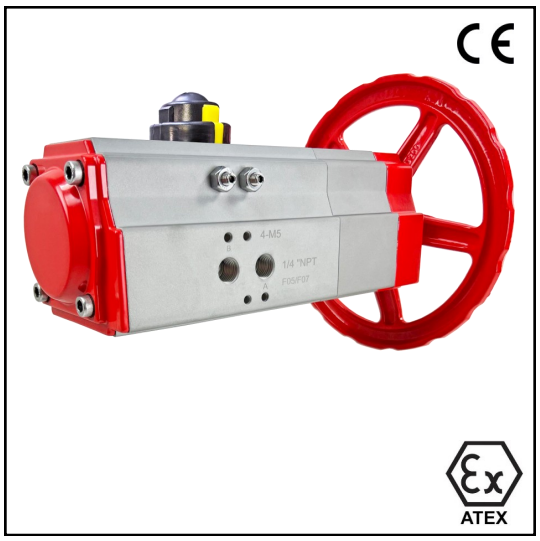
Pneumatic/Manual Actuators

Quarter Turn Rack and Pinion/ Manual Double Acting and Spring Return

SERIES
5310
5311

Features

- Pneumatic actuator with integral manual override
- Double acting and spring return models
- Direct valve mounting per ISO5211
- Visual valve position indicator
- Extruded aluminum body with 35 micron hard anodizing
- IP67 weatherproof enclosure
- Spring return models use pre-compressed spring cartridges
- Female double square output drive
- Namur mounting pad for direct mount solenoid valves
- Standard VDI/VDE 3845 mounting for top mount accessories
- Variable open/close stroke setting
- ATEX approved



Applications

Valworx pneumatic/manual combination actuators are typically used to operate quarter turn ball valves, butterfly valves and plug valves. They can also be applied virtually anywhere a 90° rotation is required such as dampers. The de-clutch option can be used to set an intermediate stop for opening or closing. Quick and easy to install with standard ISO5211/ DIN 3337 mounting dimensions and a double square female output drive.

Operation

Double acting actuators require air pressure to open and air pressure to close. Spring return actuators require air pressure to open and utilize springs to close for failsafe operation. Pulling the handwheel détente pin allows manual operation of the valve via the handwheel. Re-engaging the détente pin mid-stroke creates a partial stroke position, i.e. the automatic stroke begins/ends at the locked handwheel position. Pilot Air should be filtered, dry or lubricated. Rotating the handwheel counterclockwise rotates the output drive counterclockwise when viewed from the top.

Construction

Body	ASTM 6005 T5 extruded aluminium, 35 micron anodizing
End Covers	ASTM B179 die-cast aluminium, 5 micron anodized, 40 micron polyester coating
Drive Shaft	Nickel plated steel alloy
Handwheel	Casting Steel
Seals	NBR
Springs (spring return model)	Pre-compressed cartridges, polyester powder coating
Pistons	Left Piston– die-cast aluminium / Right Piston– casting steel
Pilot Air Connection	1/4" NPT plus standard Namur solenoid mounting pad
Fasteners	304 stainless steel

Description

Valworx heavy duty pneumatic/manual combination actuator features hard anodized aluminum enclosure, type IP67. Actuators are available in double acting and spring return models. International ISO 5211 standards for easy valve mounting and replacement. Position confirmation switches can be easily mounted to the actuator with the standard VDI/VDE-3845 top mounting pad. Rotation adjustment +5° at the 0° and 90° positions. The integral handwheel is used for manual operation and setting a limit stop.

Approvals

- CE Declaration of conformity
- EN ISO 12100:2010
- EN ISO 4414:2010
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting
- ATEX

Options

- Direct mount solenoid valves
- Monitor/Position confirmation limit switches
- Digital smart positioner
- Lockout/tag out device

Construction Features

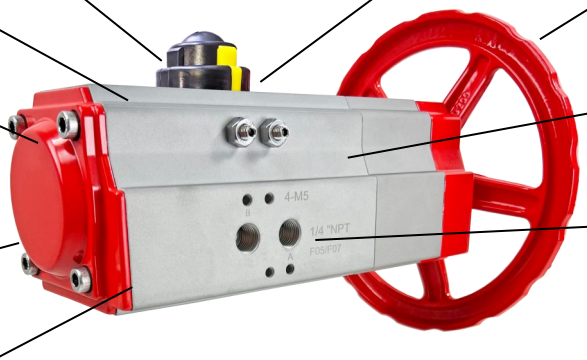
Visual valve position indicator

Heavy duty rugged pneumatic/manual combination design

Anodized aluminum alloy covers with 40 micron polyester powder coating

Spring return models use multiple pre-compressed spring cartridges with polyester coating

Rack and pinion actuation



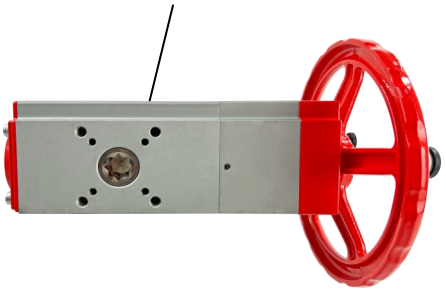
Standard Namur top mounting for optional switches

Integral handwheel for manual operation

Hard anodized aluminum body, Type IP67

NPT pilot air ports and additional Namur VDI/VDE-3845 solenoid mounting pad

International standard ISO5211 valve mounting pad



Pressure Rating

Pilot Media: Filtered, dry or lubricated compressed air

Pilot Air Pressure– Double Acting: 29-120 PSI (2-8 Bar)

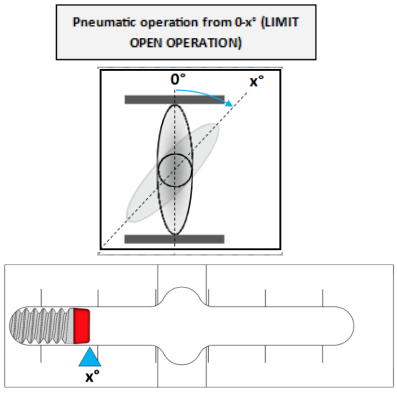
Pilot Air Pressure– Spring Return: 87-120 PSI (6-8 Bar)

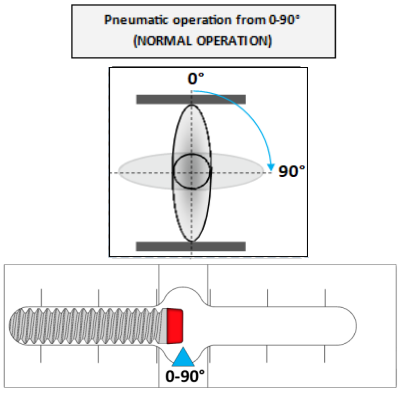
Temperature Rating

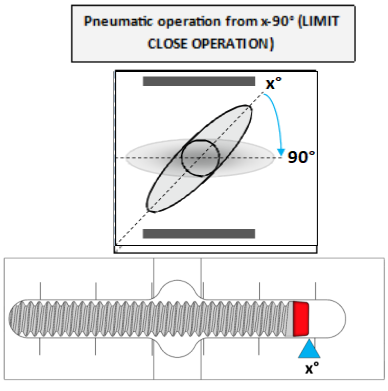
Temperature Rating: -4 to 176°F (-20 to 80°C)

Limit Open/ Limit Close Operation

In addition to manual operation, the 5310/5311 combination actuator has three selectable working strokes: standard stroke (0°– 90°), limit OPEN (0°– limit) and limit CLOSE (limit- 90°). The manual feature is used to set stroke limit by locking the handwheel in the desired position. Both OPEN and CLOSE limit settings are possible with double acting actuators. Spring return is CLOSE limit only.







Specifications (English Units)

Stock Number	Size	Nominal Torque @ 87 PSI *(inch lbs)	Spring Torque	Rotation	Maximum Pressure (PSI)	Cycle Time /90° (seconds) Open	Close	Ports (NPT)	Air Volume per Cycle (standard cubic inches)**	Valve Mounting ISO5211	Output Drive (mm)
PNEUMATIC ACTUATORS: SPRING RETURN											
531152	SR52	76.1	136.3	90°	120	0.5	0.2	1/4	18.3	F03/F05	11
531163	SR63	133.6	219.0	90°	120	0.6	0.3	1/4	24.4	F05/F07	14
531175	SR75	206.2	337.9	90°	120	0.6	0.3	1/4	42.7	F05/F07	14
531183	SR83	309.8	507.6	90°	120	0.9	0.4	1/4	54.9	F05/F07	17
531192	SR92	445.2	746.9	90°	120	1.0	0.5	1/4	91.5	F05/F07	17
531195	SR105	617.8	1012.4	90°	120	2.2	0.9	1/4	128.1	F07/F10	22
531196	SR125	1017.8	1667.9	90°	120	2.6	1.1	1/4	201.4	F07/F10	22
531197	SR145	1850.7	2748.5	90°	120	4.5	1.5	1/4	341.7	F10/F12	27
PNEUMATIC ACTUATORS: DOUBLE ACTING											
531052	DA52	189.4	NA	90°	120	0.2	0.2	1/4	18.3	F03/F05	11
531063	DA63	346.1	NA	90°	120	0.2	0.2	1/4	24.4	F05/F07	14
531075	DA75	475.3	NA	90°	120	0.3	0.3	1/4	42.7	F05/F07	14
531083	DA83	742.6	NA	90°	120	0.4	0.4	1/4	54.9	F05/F07	17
531092	DA92	1069.2	NA	90°	120	0.6	0.6	1/4	91.5	F05/F07	17
531095	DA105	1565.7	NA	90°	120	0.8	0.8	1/4	128.1	F07/F10	22
531096	DA125	2376.4	NA	90°	120	1.2	1.2	1/4	201.4	F07/F10	22
531097	DA145	4050.1	NA	90°	120	1.6	1.6	1/4	341.7	F10/F12	27

*Reference torque charts for detailed specifications

**Standard cubic inches at 72 PSI supply pressure. Cycle = open + close

Specifications (Metric Units)

Stock Number	Size	Nominal Torque @ 6 Bar * (NM)	Spring Torque	Rotation	Maximum Pressure (BAR)	Cycle Time /90° (seconds) Open	Close	Ports (NPT)	Air Volume per Cycle (standard liters)**	Valve Mounting ISO5211	Output Drive (mm)
PNEUMATIC ACTUATORS: SPRING RETURN											
531152	SR52	8.6	9.4	90°	8	0.5	0.2	1/4	0.3	F03/F05	11
531163	SR63	17.9	15.1	90°	8	0.6	0.3	1/4	0.4	F05/F07	14
531175	SR75	24.2	23.3	90°	8	0.6	0.3	1/4	0.7	F05/F07	14
531183	SR83	37.0	35.0	90°	8	0.9	0.4	1/4	0.9	F05/F07	17
531192	SR92	50.3	51.5	90°	8	1.0	0.5	1/4	1.5	F05/F07	17
531195	SR105	76.3	69.8	90°	8	2.2	0.9	1/4	2.1	F07/F10	22
531196	SR125	107.4	115.0	90°	8	2.6	1.1	1/4	3.3	F07/F10	22
531197	SR145	192.9	189.5	90°	8	4.5	1.5	1/4	5.6	F10/F12	27
PNEUMATIC ACTUATORS: DOUBLE ACTING											
531052	DA52	21.4	NA	90°	8	0.2	0.2	1/4	0.3	F03/F05	11
531063	DA63	39.1	NA	90°	8	0.2	0.2	1/4	0.4	F05/F07	14
531075	DA75	53.7	NA	90°	8	0.3	0.3	1/4	0.7	F05/F07	14
531083	DA83	83.9	NA	90°	8	0.4	0.4	1/4	0.9	F05/F07	17
531092	DA92	120.8	NA	90°	8	0.6	0.6	1/4	1.5	F05/F07	17
531095	DA105	176.9	NA	90°	8	0.8	0.8	1/4	2.1	F07/F10	22
531096	DA125	268.5	NA	90°	8	1.2	1.2	1/4	3.3	F07/F10	22
531097	DA145	457.6	NA	90°	8	1.6	1.6	1/4	5.6	F10/F12	27

*Reference torque charts for detailed specifications

**Standard liters at 5.5 Bar supply pressure. Cycle = open + close

Double Acting Torque Charts

Double Acting (DA) Torque Ratings (inch lbs) English Units

STOCK NUMBER	SIZE	AIR SUPPLY (PSI)						
		29	43	58	72	87	101	116
531052	DA52	69.0	102.7	137.2	171.7	205.3	239.8	273.5
531063	DA63	125.7	187.6	250.5	313.3	376.1	439.0	500.9
531075	DA75	172.6	258.4	344.3	431.0	516.8	602.7	689.4
531083	DA83	269.9	403.6	538.1	672.6	808.0	941.6	1076.2
531092	DA92	386.7	581.4	775.3	969.1	1162.	1356.7	1550.5
531095	DA105	567.3	851.4	1134.6	1418.7	1702.7	1986.8	2270.9
531096	DA125	861.1	1292.1	1722.2	2153.2	2584.2	3014.3	3445.3
531097	DA145	1460.3	2201.9	2935.5	3670.1	4403.8	5137.4	5872.4

Double Acting (DA) Torque Ratings (Nm) Metric Units

STOCK NUMBER	SIZE	AIR SUPPLY (BAR)						
		2	3	4	5	6	7	8
531052	DA52	7.8	11.6	15.5	19.4	23.2	27.1	30.9
531063	DA63	14.2	21.2	28.3	35.4	42.5	49.6	56.6
531075	DA75	19.5	29.2	38.9	48.7	58.4	68.1	77.9
531083	DA83	30.5	45.6	60.8	76.0	91.3	106.4	121.6
531092	DA92	43.7	65.7	87.6	109.5	131.3	153.3	175.2
531095	DA105	64.1	96.2	128.2	160.3	192.4	224.5	256.6
531096	DA125	97.3	146.0	194.6	243.3	292.0	340.6	389.3
531097	DA145	165.9	248.8	331.7	414.7	497.6	580.5	663.5

Double Acting Actuator Weights

	DA Actuator Weights							
Size	**52**	**63**	**75**	**83**	**92**	**95**	**96**	**97**
Lbs.	6.4	9.5	11.7	14.1	18.9	23.3	36.1	52.8
Kg.	2.9	4.3	5.3	6.4	8.6	10.6	16.4	24.0

Spring Return Torque Charts

****VALWORX DOES NOT RECOMMEND LOWER THAN 87 PSI/6 BAR****

Spring Return (SR) Torque Ratings (inch lbs) English Units

STOCK NUMBER	SIZE	AIR SUPPLY (PSI)						SPRINGS TORQUE	
		87		100		116			
		0°	90°	0°	90°	0°	90°	90°	0°
531152	SR52	117.7	76.1	151.3	106.2	185.0	143.4	124.8	83.2
531163	SR63	234.5	158.4	296.5	219.5	354.0	280.6	210.6	133.6
531175	SR75	300.0	214.2	384.1	298.3	469.1	383.2	292.1	206.2
531183	SR83	481.5	327.5	613.4	458.5	745.2	590.3	463.8	309.8
531192	SR92	682.4	445.2	872.7	634.6	1063.0	824.9	693.9	455.8
531195	SR105	1050.6	675.3	1327.6	952.3	1605.5	1231.1	993.0	617.8
531196	SR125	1513.5	950.6	1933.9	1371.0	2356.1	1793.2	1580.7	1017.8
531197	SR145	2635.7	1707.3	3355.3	2426.0	4074.0	3144.6	2606.5	1677.2
0° = closed position, extended springs				90° = open position, compressed springs					

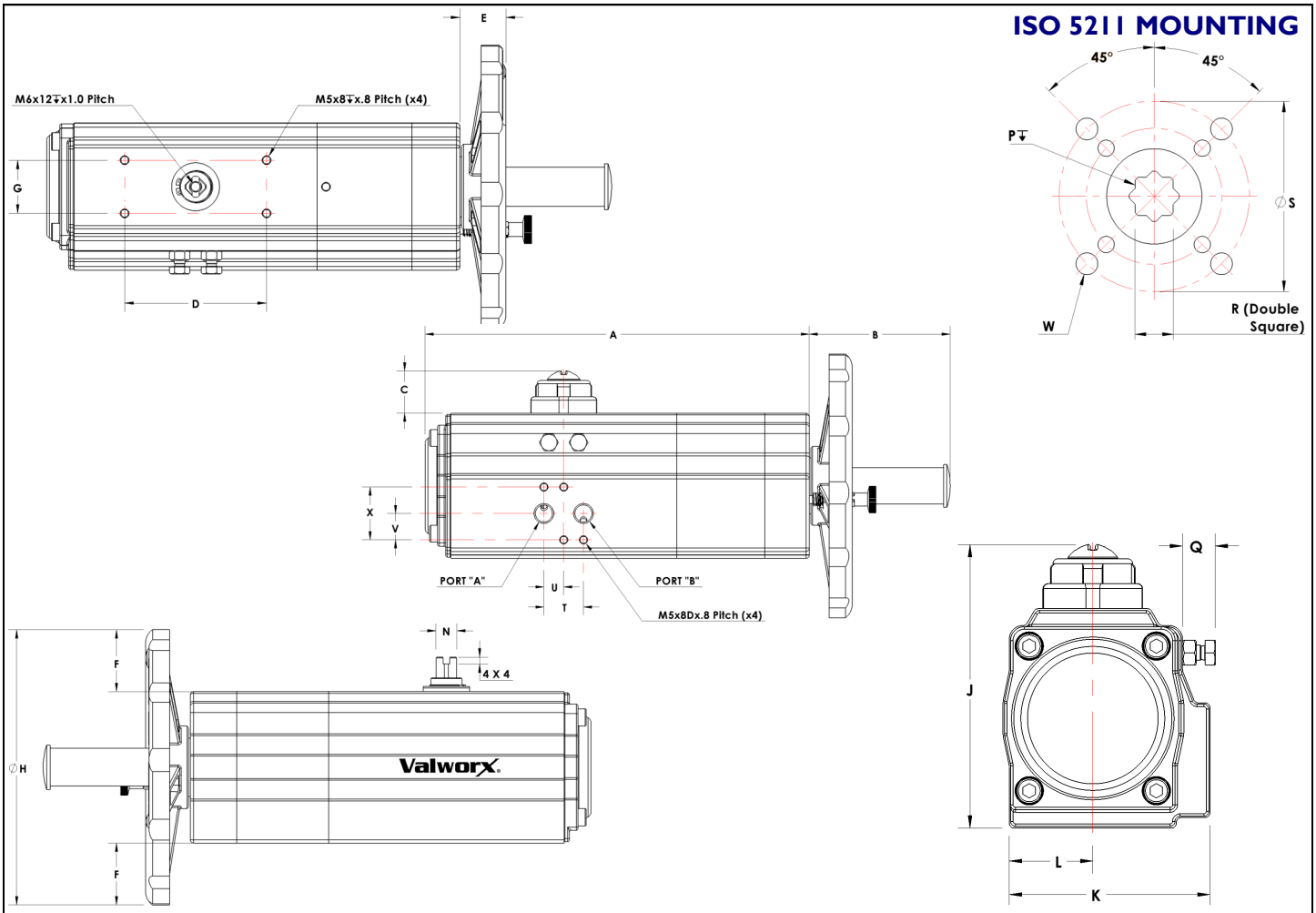
Spring Return (SR) Torque Ratings (Nm) Metric Units

STOCK NUMBER	SIZE	AIR SUPPLY (BAR)						SPRINGS TORQUE	
		6		7		8			
		0°	90°	0°	90°	0°	90°	90°	0°
531152	SR52	13.3	8.6	17.1	12.4	20.9	16.2	14.1	9.4
531163	SR63	26.5	17.9	33.5	24.8	40.4	31.7	23.8	15.1
531175	SR75	33.9	24.2	43.4	33.7	53.0	43.3	33.0	23.3
531183	SR83	54.4	37.0	69.3	51.8	84.2	66.7	52.4	35.0
531192	SR92	77.1	50.3	98.6	71.7	120.1	93.2	78.4	51.5
531195	SR105	118.7	76.3	150.0	107.6	181.4	139.1	112.2	69.8
531196	SR125	171.0	107.4	218.5	154.9	266.2	202.6	178.6	115.0
531197	SR145	297.8	192.9	379.1	274.1	460.3	355.3	294.5	189.5
0° = closed position, extended springs				90° = open position, compressed springs					

Spring Return Actuator Weights

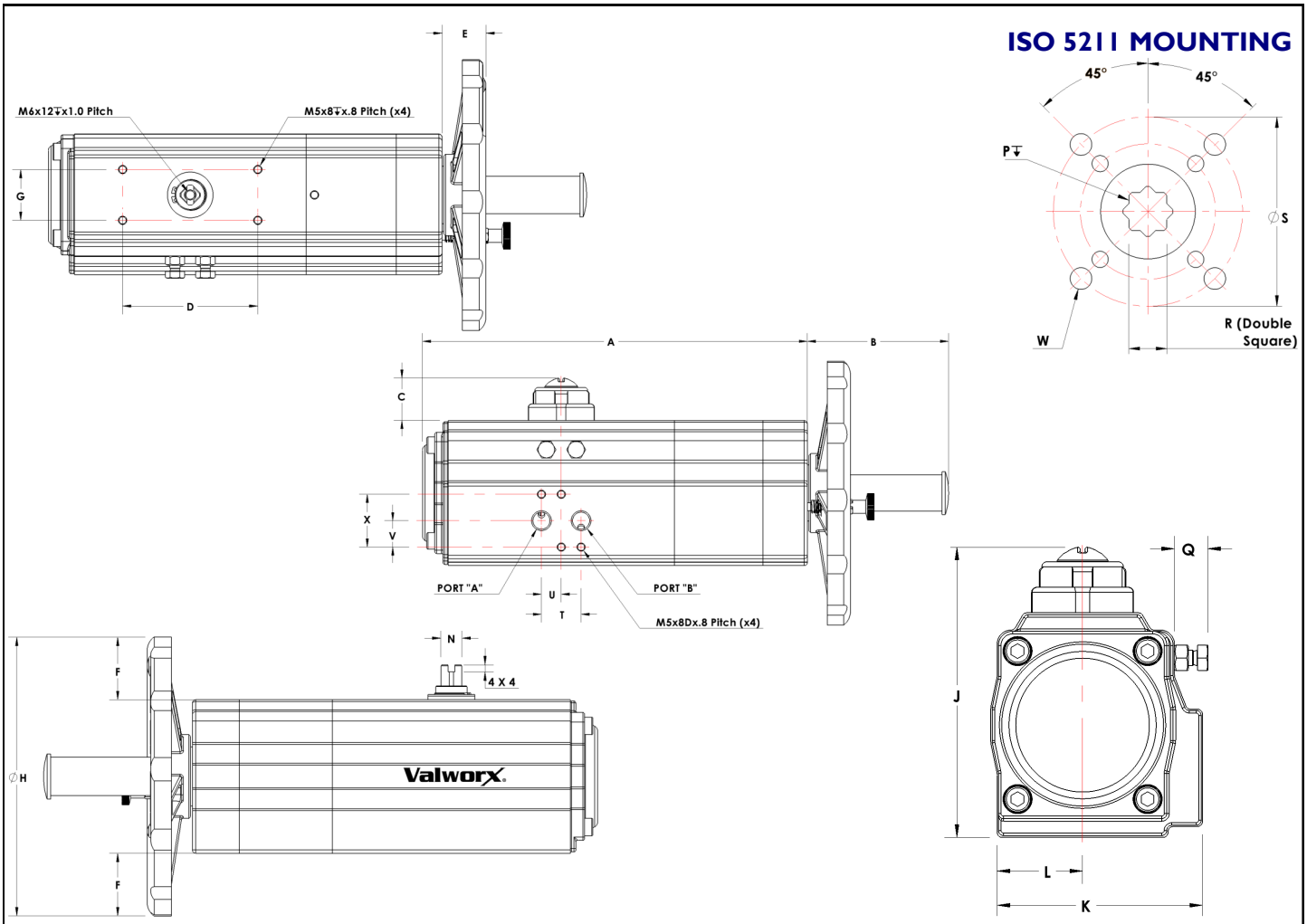
	SR Actuator Weights							
Size	52	63	75	83	92	95	96	97
Lbs.	6.8	9.7	12.3	14.9	20.7	25.3	39.2	58.3
Kg.	3.1	4.4	5.6	6.8	9.4	11.5	17.8	26.5

Dimensions Sizes 52-140 (inches)



Size	A	B	C	D	E	F	G	H	J	K	L	N	P (mm)	Q	R	T	U	V	X	Ports (NPT)	F -ISO 5211	S	W
52	8.3	2.9	0.8	3.1	1.0	2.1	1.2	7.1	3.6	2.6	1.2	1.6	11	0.5	0.4	0.9	0.5	0.6	1.3	1/4	F03/F05	36 50	M6X10
63	9.2	3.3	0.8	3.1	1.1	2.1	1.2	7.7	4.3	2.8	1.4	1.6	14	0.5	0.6	0.9	0.5	0.6	1.3	1/4	F05/F07	50 70	M8X13
75	9.6	3.5	0.8	3.1	1.0	1.6	1.2	7.9	4.7	3.1	1.7	1.6	14	0.5	0.6	0.9	0.5	0.6	1.3	1/4	F05/F07	50 70	M8X13
83	10.7	4.0	0.8	3.1	1.1	1.7	1.2	7.7	5.1	3.6	1.8	1.6	17	0.5	0.7	0.9	0.5	0.6	1.3	1/4	F05/F07	50 70	M8X13
92	13.4	4.3	0.8	3.1	1.2	2.6	1.2	9.8	5.4	3.9	2.0	1.6	17	0.7	0.7	0.9	0.5	0.6	1.3	1/4	F05/F07	50 70	M8X13
105	13.6	4.9	0.8	3.1	1.2	2.3	1.2	9.8	6.0	4.3	2.3	1.6	22	0.7	0.9	0.9	0.5	0.6	1.3	1/4	F07/F10	70 102	M10X16
125	15.8	5.2	0.8	3.1	1.3	4.8	1.2	15.7	6.9	5.0	2.7	2.2	22	0.7	0.9	0.9	0.5	0.6	1.3	1/4	F07/F10	70 102	M10X16
145	20.1	6.3	0.8	3.1	1.7	6.5	1.2	20.0	7.6	5.4	3.0	2.2	27	1.1	1.1	0.9	0.5	0.6	1.3	1/4	F10/F12	102 125	M12X20

Dimensions Sizes 52-140 (mm)



Size	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	R	T	U	V	X	Ports (NPT)	F -ISO 5211	S	W
52	211	74	20	80	26	54	30	180	92	65	30	40	11	13	11	24	12	16	32	1/4	F03/F05	36 50	M6X10
63	233	85	20	80	28	54	30	195	108	72	36	40	14	13	14	24	12	16	32	1/4	F05/F07	50 70	M8X13
75	244	89	20	80	26	41	30	200	120	80	42	40	14	13	14	24	12	16	32	1/4	F05/F07	50 70	M8X13
83	272	101	20	80	28	43	30	195	129	92	46	40	17	13	17	24	12	16	32	1/4	F05/F07	50 70	M8X13
92	341	109	20	80	31	66	30	250	137	98	50	40	17	17	17	24	12	16	32	1/4	F05/F07	50 70	M8X13
105	346	124	20	80	31	59	30	250	153	110	58	40	22	19	22	24	12	16	32	1/4	F07/F10	70 102	M10X16
125	402	133	20	80	32	123	30	400	175	128	68	55	22	19	22	24	12	16	32	1/4	F07/F10	70 102	M10X16
145	511	161	20	80	44	164	30	500	192	138	75	55	27	28	27	24	12	16	32	1/4	F10/F12	102 125	M12X20