

SAMSON ROTACTOR® RP 3171

Pneumatic rack and pinion actuators
SS AT054U → SS AT654 models

Application

Rotary pneumatic actuators for remote operation (on/off or modulating duties) of industrial valves such as ball valves, butterfly valves and plug valves as used in process industries like chemical, petrochemical, pharmaceutical, oil & gas.

The Samson ROTACTOR RP 3171 stainless steel actuators are available in two configurations: double acting and single acting.

Mechanical Spring Return is for fail-safe applications and can be assembled for "Fail Close" or "Fail Open" safety function.

Double acting actuators can be used for a "Fail Last" Position safety function.

Special features

- 316 stainless steel bodies and end caps, available with or without ENP coating. Polished external surface is an option.
- Dual piston rack and pinion design for compact construction and symmetric mounting.
- Fully machined teeth on piston racks and pinion shaft for accurate positioning, low backlash and maximum engagement.
- Two independent external travel stop adjustments.
- Universal and anti-blowout drive shaft with multiple valve connection options.
- Identical body and end caps for double acting and spring return configuration to allow field conversion.
- Stainless steel fasteners for high corrosion resistance.
- Multiple bearings and guides for high cycles and low friction.
- Modular preloaded springs.
- Extended working temperature range as standard.

Versions

- Spring return: 90° rotation,
- Double acting: 90° rotation.



Fig. 1: ROTACTOR RP 3171 actuators

Further versions

- 100% travel stop limitation in opening direction,
- Fast acting,

Principle of operation

1. DOUBLE ACTING

Refer to Fig.2.

In case of the double acting configuration air pressure is necessary for both strokes (A and B).

2. SINGLE ACTING

Refer to Fig. 3.

When air pressure is supplied through port "2" (A') into the actuator body, the linear force applied on the piston surface generates the pinion rotation, driving the valve to a defined position. At the same time the actuator springs are compressed.

When air pressure is discharged (B'), the springs are automatically released, driving the rack and pistons back to the original position and thus the valve to the fail-safe position.

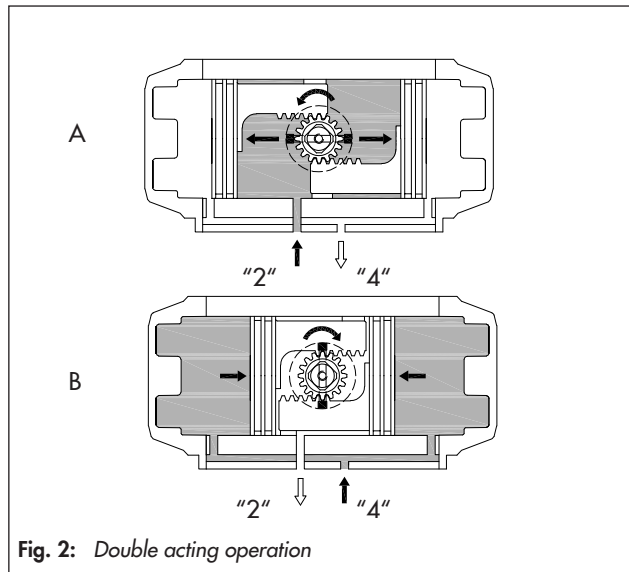


Fig. 2: Double acting operation

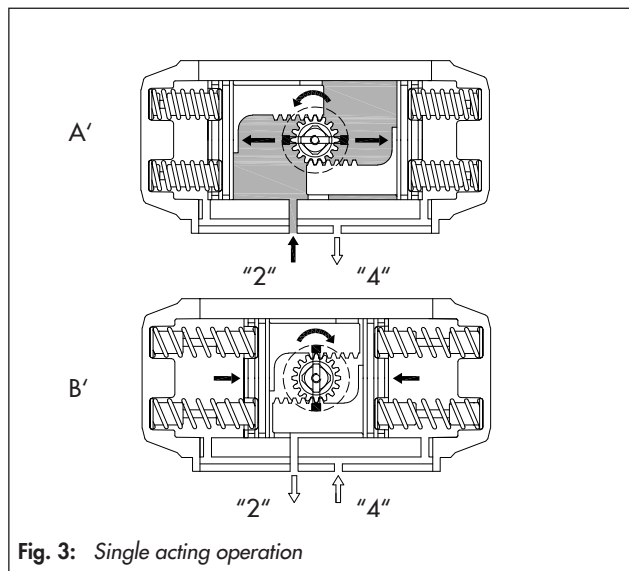


Fig. 3: Single acting operation

Direction of action and stroke adjustment

The standard rotating direction for the Rotactor RP 3171 actuators is clockwise to close. Standard Rotactor RP 3171 actuators are designed for 90° rotating angle, with travel stop

allowing adjustment for -5° up to +5° on the close and open position as per Fig. 4.

For spring return actuator in case of pressure, power or signal failure the springs drive the actuator in the fail position that can be FAIL OPEN or FAIL CLOSE.

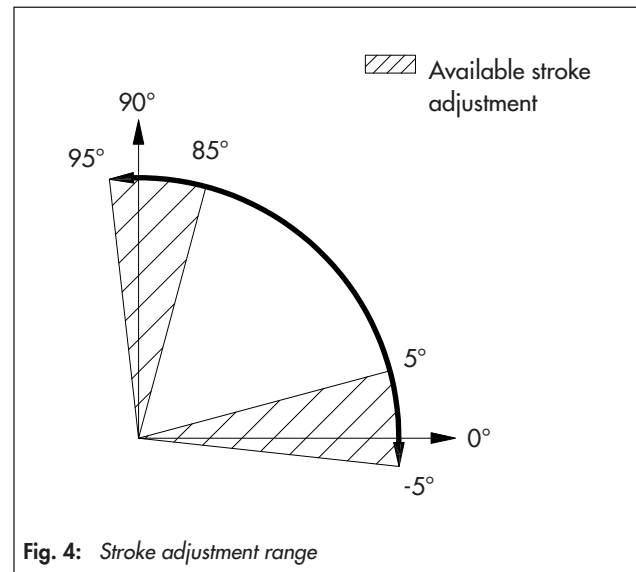


Fig. 4: Stroke adjustment range

Actuators assembly type

- ST: clockwise to close (spring to close) and close indication at air failure condition (or with pressurized port 4 for double acting) for in line mounting. Refer to Fig. 5.
- STR: Clockwise to close (spring to close) and close indication at air failure condition (or with pressurized port 4 for double acting) for across line mounting. Refer to Fig. 5.

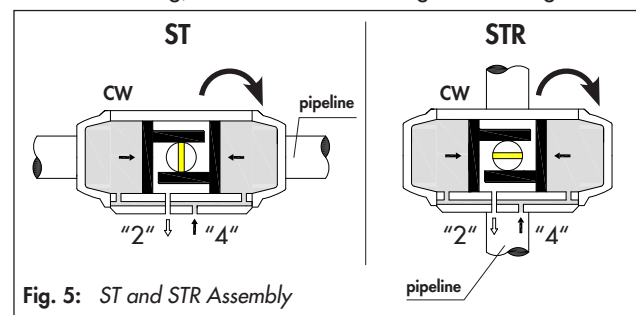


Fig. 5: ST and STR Assembly

- LF: Counterclockwise to close (spring to open) and open indication at air failure condition (or with pressurized port 4 for double acting) for across line mounting. Refer to Fig. 6.
- LFR: Counterclockwise to close (spring to open) and open indication at air failure condition (or with pressurized port 4 for double acting) for in line mounting. Refer to Fig. 6.

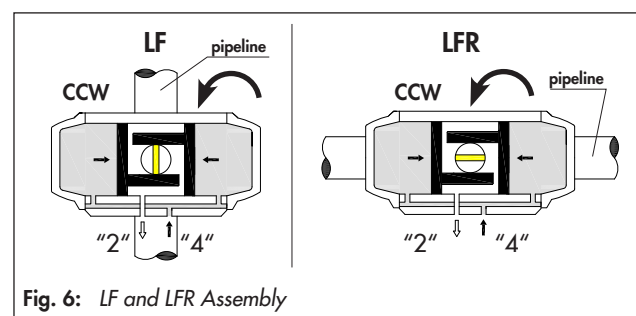


Fig. 6: LF and LFR Assembly

Power operating media

Use dry or lubricated air or inert gas.

- Make sure the operating media is compatible with the actuator internal parts and lubricant.
- In case of pressure medium different than Group 2 fluids according to the PED 2014/68/EU, contact Samson.
- The operating media must have a dew point equal to 20°C (-4°F) or at least 10°C (18°F) below the ambient temperature.
- The maximum particle size contained into the operating media must not exceed 30 µm.

Further information

The actuators can be operated in different ways:

- direct mounting of control devices (for example a solenoid valve or a manifold) with NAMUR interface,
- threaded connections (to pressurize port "2" and "4") with air lines from separate electro-pneumatic control system.

Installation

Refer to the EB 8326 EN mounting and operating instructions.

Further versions

- **Extra travel stop limitations (R100/R50)**

R50/R100

Actuator travel stop limitations are available in opening directions for standard assembly (clockwise to close) in order to provide maximum flexibility.

The R50 and R100 allows to limit the actuator stroke in opening direction (from 90° to 0°).

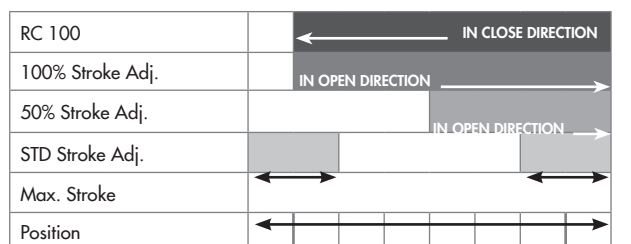
The R50 allow to limit the 45% of the stroke (from 90° to 45° stroke range).

The R100 allow to limit the 100% of the stroke (from 90° to 0° stroke range).

Both R50 and R100 extra travel stop adjustments are equipped with protective plugs at the two adjustment screws ends in order to protect the two ends and to avoid potential cut due to screws sharp edges.

The R50 and R100 can be directly supplied mounted on the actuators or supplied as kits to retrofit sold actuators.

TYPICAL APPLICATION: any application where an extra travel stop opening or closing position is required.



-5° 0° 5° 30° 45° 60° 85° 90° 95°

• Fast acting

The Fast Acting (FA) actuators are special actuators able to stroke faster respect the standard actuators. They are available both in double acting and in spring return configurations.

This type of actuators has enlarged ports and internal canalization which allows an higher flow rate of the the actuator and so a quicker operation in closing and/or opening direction.

TYPICAL APPLICATION: any application where actuator quick action is required

• Low and high working temperature configurations

In case minimum working temperature up to -60°C or maximum working temperature up to +150°C are required, the following special product configuration are available:

- LLT2 version for extreme low operating temperature range:
-60° C (-76° F) → +80° C (+176° F);
- HT version for high operating temperature range:
-15° C (+5° F) → +150° C (+302° F).

TYPICAL APPLICATION: where the required working temperature exceeds the actuator standard working temperature range (-40°C / +80°C)

• External surface finishing

Unless defined, the housing in stainless steel is further covered with ENP in order to have minimized friction level. These actuators are also available with polished external surface particularly suitable for Pharma and Food & Beverage applications where a particular surface cleanliness is required. The surface roughness is up to Ra 0,2 micron.

• Water operated actuator

The Rotactor RP 3171 actuators are operated with dry air or inert gas. Special actuator configurations are available to operate with water as supply media.

Contact Samson for further detailed information.

• Natural gas operated actuator

The Rotactor RP 3171 actuators are operated with dry air or inert gas. Special actuator configurations are available to operate with natural gas (sweet and dry or sour) as supply media.

Contact Samson for further detailed information.

Table 1: SAMSON ROTACTOR RP 3171 - SS AT054U

Table 1.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
						Double acting		Spring return				
8 bar	0° - 90°	For 1° adj. 1/6 Turn needed	50	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				0,09	0,15	0,20	0,25	0,25	0,30	-40 to +80	-15 to +150	-60 to +80

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 1.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	8,3		10		11,6		13,3		14		15		16,6		18,3		19,9		23,3		26,6	2,74	

Table 1.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke	Approx weight (kg)		
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°				
S 01	5,0	3,0	7	4,7	8	6,3	10,0	8	10,7	8,7	11,7	9,6	13,3	11,3									5,3	3,3	2,79	
S 02	4	1,9	6,0	3,6	7,7	5,3	9,3	6,9	10,0	7,6	11,0	8,6	12,7	10,2	14,3	11,9							6,4	4,0		
S 03			5,3	2,5	7,0	4,2	8,7	5,8	9,4	6,6	10,3	7,5	12,0	9,2	13,7	10,8	15,3	12,5					7,4	4,6	2,81	
S 04					6,3	3	8,0	5	8,7	5,5	9,7	6,4	11,3	8,1	13,0	9,8	14,7	11,4	18,0	14,7			8,5	5,3		
S 05							7,3	3,7	8,1	4,4	9,0	5,4	10,7	7,0	12,3	8,7	14,0	10	17,3	13,7	20,6	17,0	9,6	5,9	2,83	
S 06											8,4	4,3	10,0	6,0	11,7	7,6	13,3	9,3	16,7	12,6	20,0	16	10,6	6,6		
S 07														9,4	4,9	11	6,6	13	8,2	16,0	11,6	19,3	14,9	11,7	7,3	2,85
S 08																10,4	6	12,0	7,2	15,3	10,5	18,7	13,8	12,8	7,9	

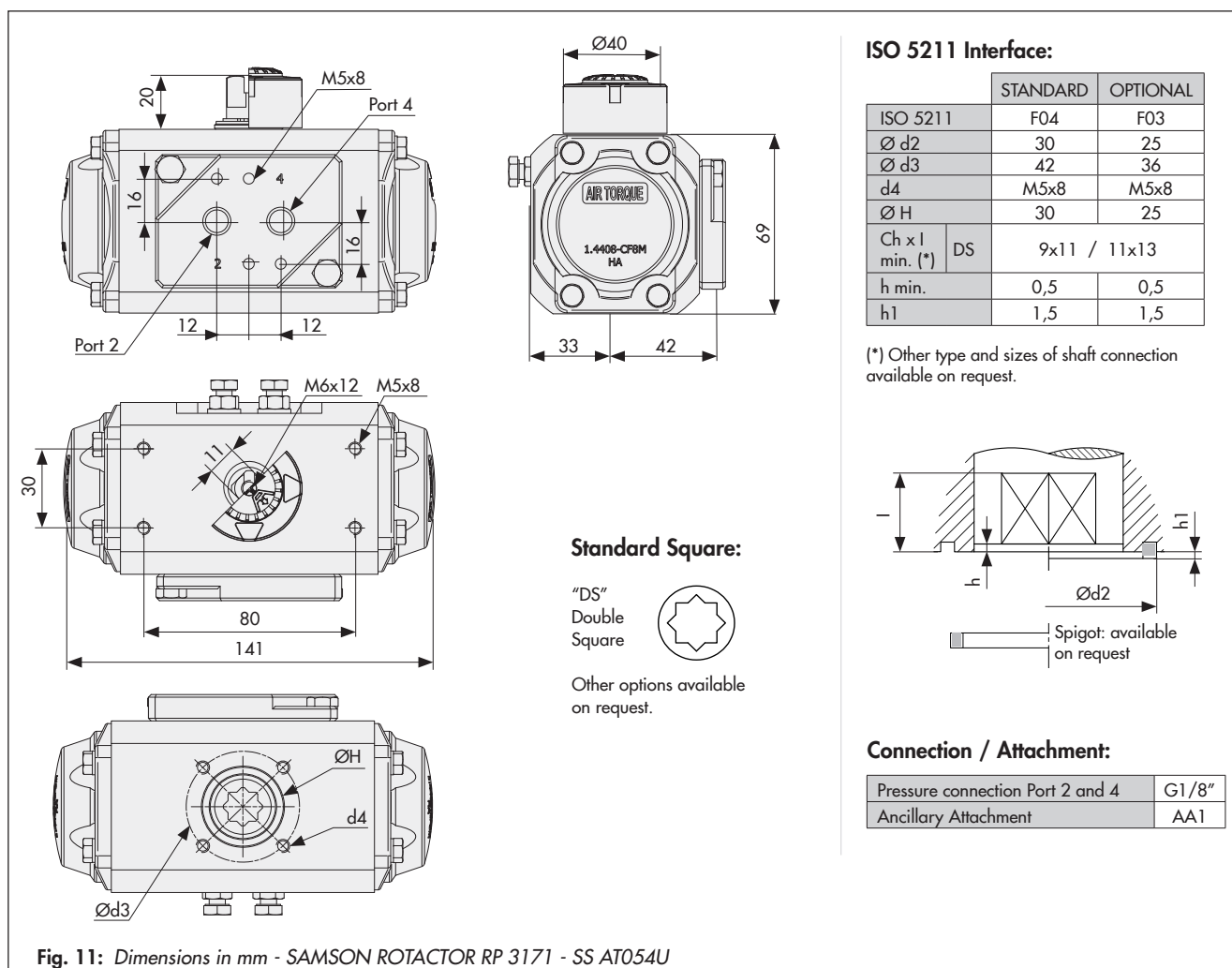


Fig. 11: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT054U

Table 2: SAMSON ROTACTOR RP 3171 - SS AT104

Table 2.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
				opening	closing	Double acting		Spring return		ST	HT	LLT2
8 bar	0° - 90°	For 1° adj. 1/6 Turn needed	63	opening	closing	opening	closing	opening	closing	-40 to +80	-15 to +150	-60 to +80
				0,16	0,26	0,25	0,30	0,30	0,35			

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 2.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar	3 bar	3,5 bar	4 bar	4,2 bar	4,5 bar	5 bar	5,5 bar	6 bar	7 bar	8 bar	Approx weight (kg)
	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	
D	14,7	17,6	20,5	23,5	24,6	26,4	29,3	32	35,2	41	46,9	

Table 2.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke 90° 0°	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°					
S 05	9,1	6,2	12	9,2	15	12,1	17,9	15	19,1	16,2	20,8	17,9	23,8	20,9									8,4	5,5	3,84
S 06	8	4,5	10,9	7,5	13,9	10,4	16,8	13,3	18	14,5	19,7	16,3	22,7	19,2	25,6	22,1							10,1	6,7	
S 07			9,8	5,8	12,8	8,7	15,7	11,6	16,9	12,8	18,6	14,6	21,5	17,5	24,5	20,4	27,4	23,4					11,8	7,8	3,87
S 08					11,6	7	14,6	10	15,7	11,1	17,5	12,9	20,4	15,8	23,4	18,7	26,3	21,7	32,2	27,5			13,5	8,9	
S 09							13,5	8,3	14,6	9,4	16,4	11,2	19,3	14,1	22,3	17,1	25,2	20	31,1	25,9	36,9	31,7	15,2	10	3,9
S 10											15,3	9,5	18,2	12,4	21,1	15,4	24,1	18,3	29,9	24,2	35,8	30	16,9	11,1	
S 11													17,1	10,8	20	13,7	23	16,6	28,8	22,5	34,7	28,3	18,6	12,2	3,93
S 12															18,9	12	21,9	14,9	27,7	20,8	33,6	26,7	20,2	13,3	

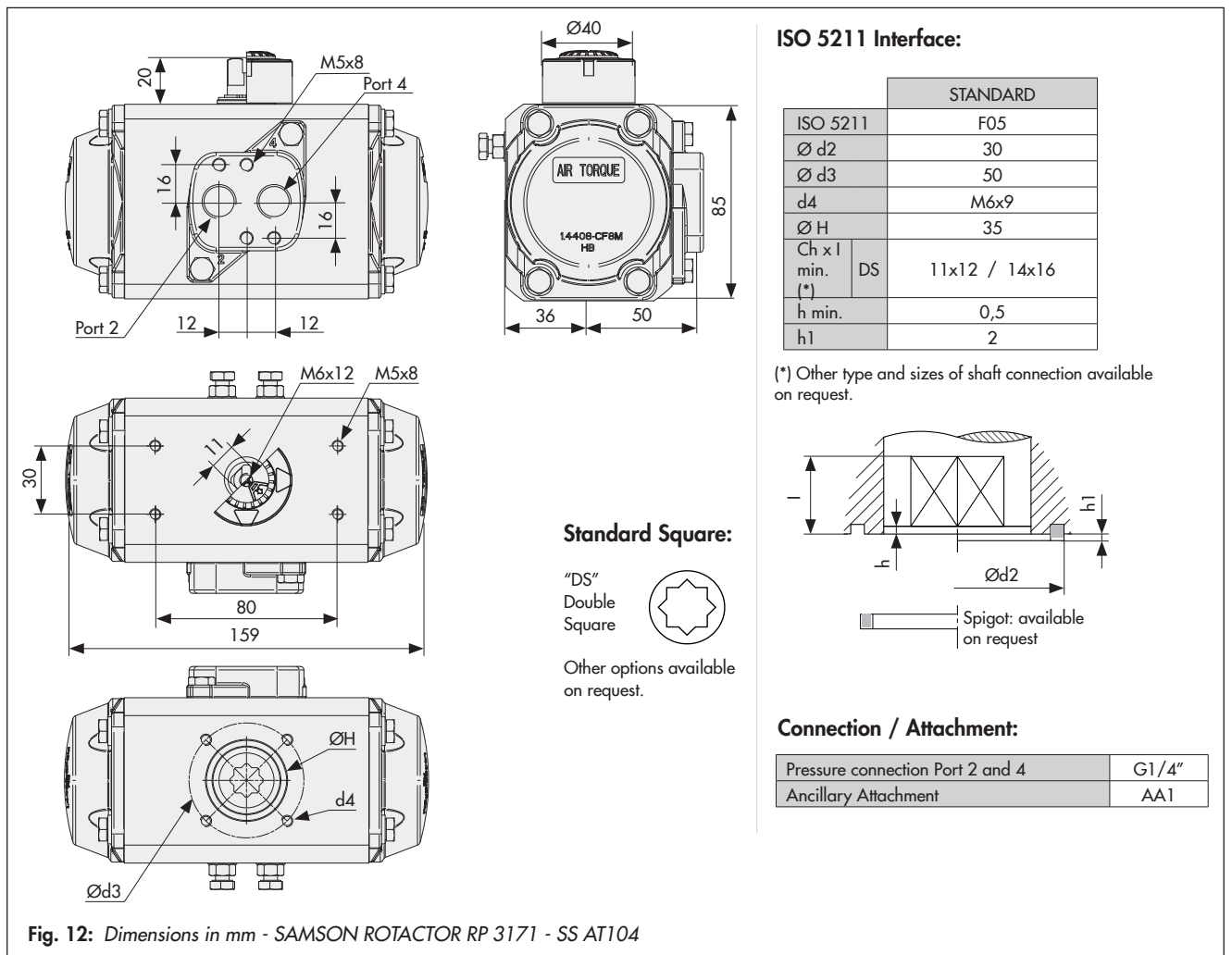


Fig. 12: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT104

Table 3: SAMSON ROTACTOR RP 3171 - SS AT204

Table 3.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
						Double acting		Spring return				
8 bar	0° - 90°	For 1° adj. 1/6 Turn needed	75	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				0,31	0,49	0,30	0,35	0,40	0,50	-40 to +80	-15 to +150	-60 to +80

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 3.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	29,1	34,9	40,7	46,5	48,9	52,4	58,2	64	69,8	81,4	93,1	6,04											

Table 3.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°			
S 05	18	11,8	23,8	17,6	29,7	23,4	35,5	29,2	37,8	31,6	41,3	35	47,1	40,9									17,3	11,1	6,23
S 06	15,8	8,3	21,6	14,1	27,5	19,9	33,3	25,8	35,6	28,1	39,1	31,6	44,9	37,4	50,7	43,2							21	13,3	
S 07			19,4	10,7	25,2	16,5	31,1	22,3	33,4	24,6	36,9	28,1	42,7	33,9	48,5	39,8	54,3	45,6					24,2	15,5	6,3
S 08					23	13	28,8	18,8	31,2	21,2	34,7	24,7	40,5	30,5	46,3	36,3	52,1	42,1	63,7	53,7			27,7	17,7	
S 09							26,6	15,4	29	17,7	32,5	21,2	38,3	27	44,1	32,8	49,9	38,6	61,5	50,3	73,2	61,9	31	19,9	6,37
S 10											30,2	17,7	36,1	23,6	41,9	29,4	47,7	35,2	59,3	46,8	71	58,5	34,6	22,1	
S 11													33,8	20,1	39,7	25,9	45,5	31,7	57,1	43,4	68,7	55	38,1	24,3	6,43
S 12															37,5	22,4	43,3	28,3	54,9	39,9	66,5	51,5	41,5	26,5	

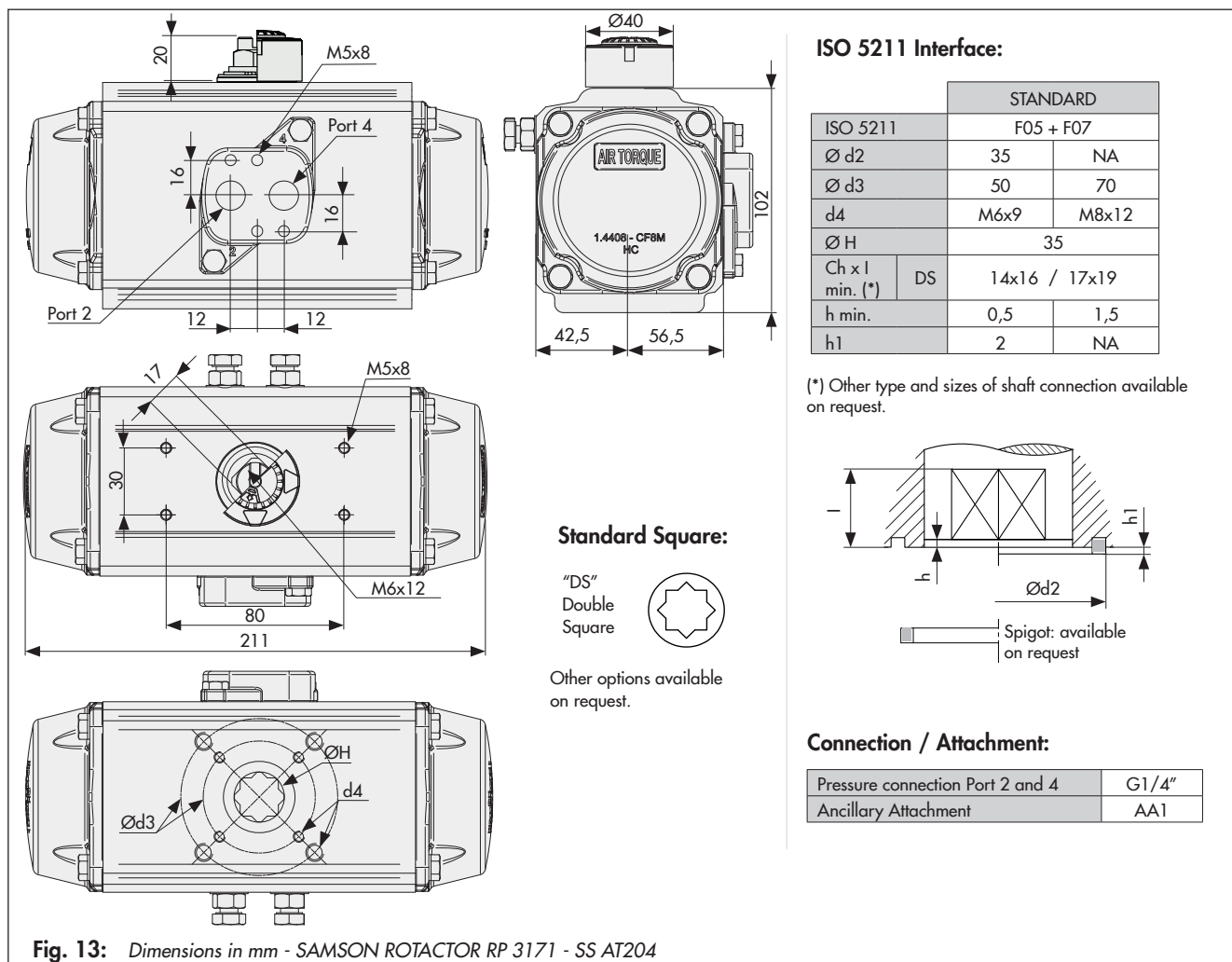


Fig. 13: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT204

Table 4: SAMSON ROTACTOR RP 3171 - SS AT254

Table 4.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾				
				opening	closing	Double acting		Spring return		ST	HT	LLT2		
8 bar	0° - 90°	For 1° adj. 1/5 Turn needed	88	opening	closing	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				0,51	0,78	0,40	0,50	0,50	0,60	-40 to +80	-15 to +150	-60 to +80		

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 4.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	45,8		54,9		64,1		73,2		76,9		82,4		91,5		101		110		128		146		8,76

Table 4.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke 90° 0°	Approx weight (kg)			
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°					
S 05	27,4	16,9	36,6	26	45,7	35,2	54,9	44,3	58,5	48	64	53,5	73,2	62,6									28,9	18,3	9,05		
S 06	23,8	11,1	32,9	20,3	42,1	29,4	51,2	38,6	54,9	42,2	60,4	47,7	69,5	56,9	78,7	66										34,7	22
S 07			29,2	14,5	38,4	23,6	47,5	32,8	51,2	36,4	56,7	41,9	65,8	51,1	75	60,2	84,2	69,4							40,4	25,7	9,15
S 08					34,7	17,9	43,9	27	47,5	30,7	53	36,2	62,2	45,3	71,3	54,5	80,5	63,6	98,8	81,9					46,2	29,3	
S 09							40,2	21,2	43,9	24,9	49,4	30,4	58,5	39,5	67,7	49	76,8	57,8	95,1	76,1	113	94,5	52	33	49,3	33	9,25
S 10											45,7	24,6	54,8	33,8	64	42,9	73,1	52,1	91,5	70,4	110	88,7	57,8	36,7	49,3	36,7	
S 11														51,2	28	60,3	37,1	69,5	46,3	87,8	64,6	106	82,9	63,5	40,3	9,35	
S 12																56,7	31,4	65,8	40,5	84,1	58,8	102	77,1	69,3	44		

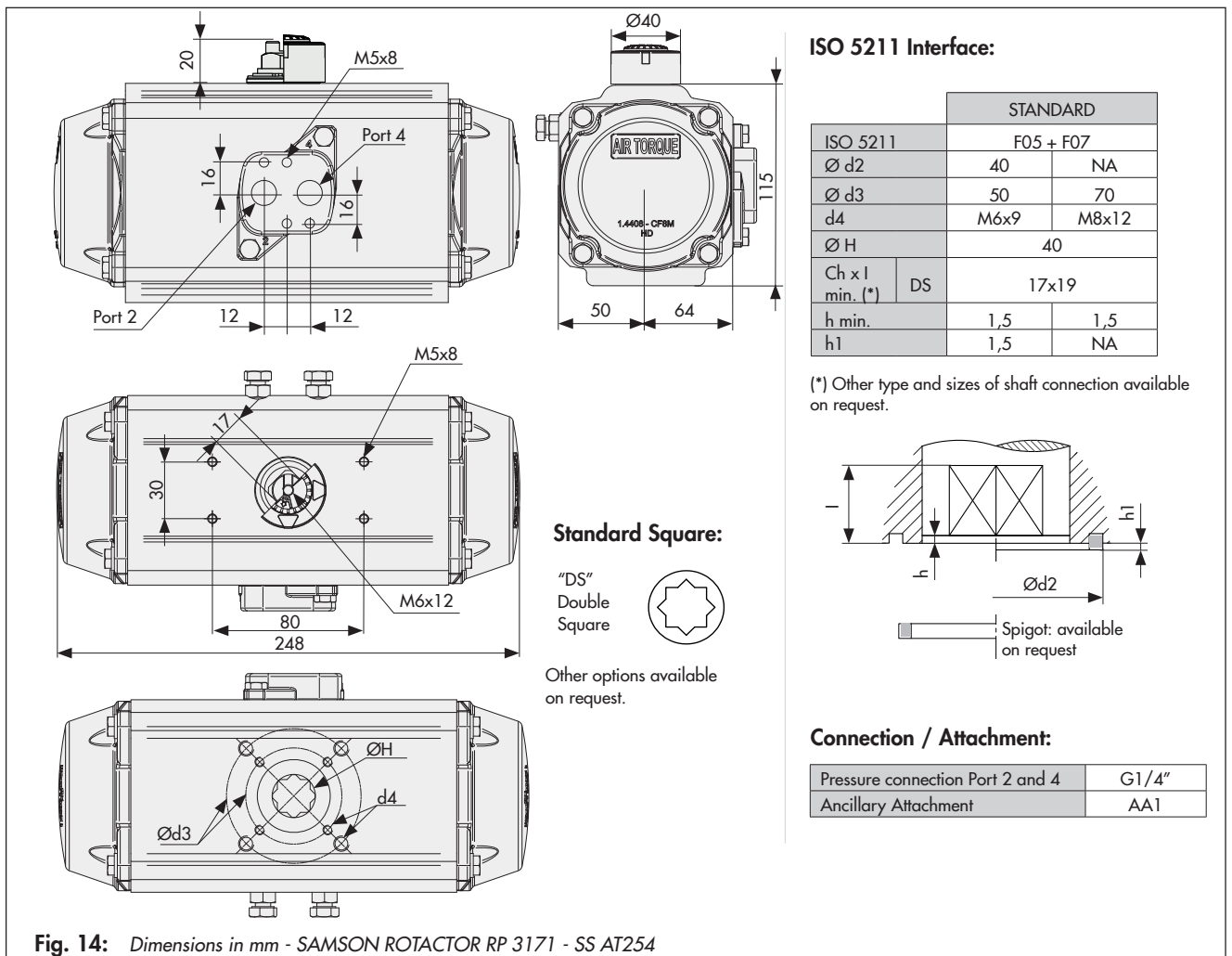


Fig. 14: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT254

Table 5: SAMSON ROTACTOR RP 3171 - SS AT304

Table 5.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
						Double acting		Spring return				
8 bar	0° - 90°	For 1° adj. 1/5 Turn needed	100	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				0,71	1,11	0,50	0,60	0,70	0,90	-40 to +80	-15 to +150	-60 to +80

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 5.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	66,5		79,8		93,1		106		112		120		133		146		160		186		213		12,34

Table 5.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°			
S 05	41,1	27,1	54,4	40,4	67,7	53,7	81	67	86,3	72,3	94,3	80,3	108	93,6									39,4	25,3	12,75
S 06	36,1	19,2	49,4	32,5	62,7	45,8	76	59,1	81,3	64,4	89,3	72,4	103	85,7	116	99							47,3	30,4	
S 07			44,3	24,6	57,6	37,9	70,9	51,2	76,2	56,5	84,2	64,5	97	77,8	111	91,1	124	104					55,1	35,5	12,9
S 08					52,5	30	65,8	43,3	71,1	48,7	79,1	56,6	92,4	69,9	106	83,2	119,0	96,5	146	123			63	40,5	
S 09							60,8	35,5	66,1	40,8	74,0	48,8	87,3	62,1	101	75,3	113,9	88,6	141	115	167	142	70,9	45,6	13,05
S 10											69	40,9	82,3	54,2	95,6	67,5	109	80,8	135	107	162	134	78,8	50,7	
S 11													77,2	46,3	90,5	59,6	104	72,9	130	99	157	126	86,7	55,7	13,2
S 12															85,4	51,7	99	65	125	92	152	118	94,5	60,8	

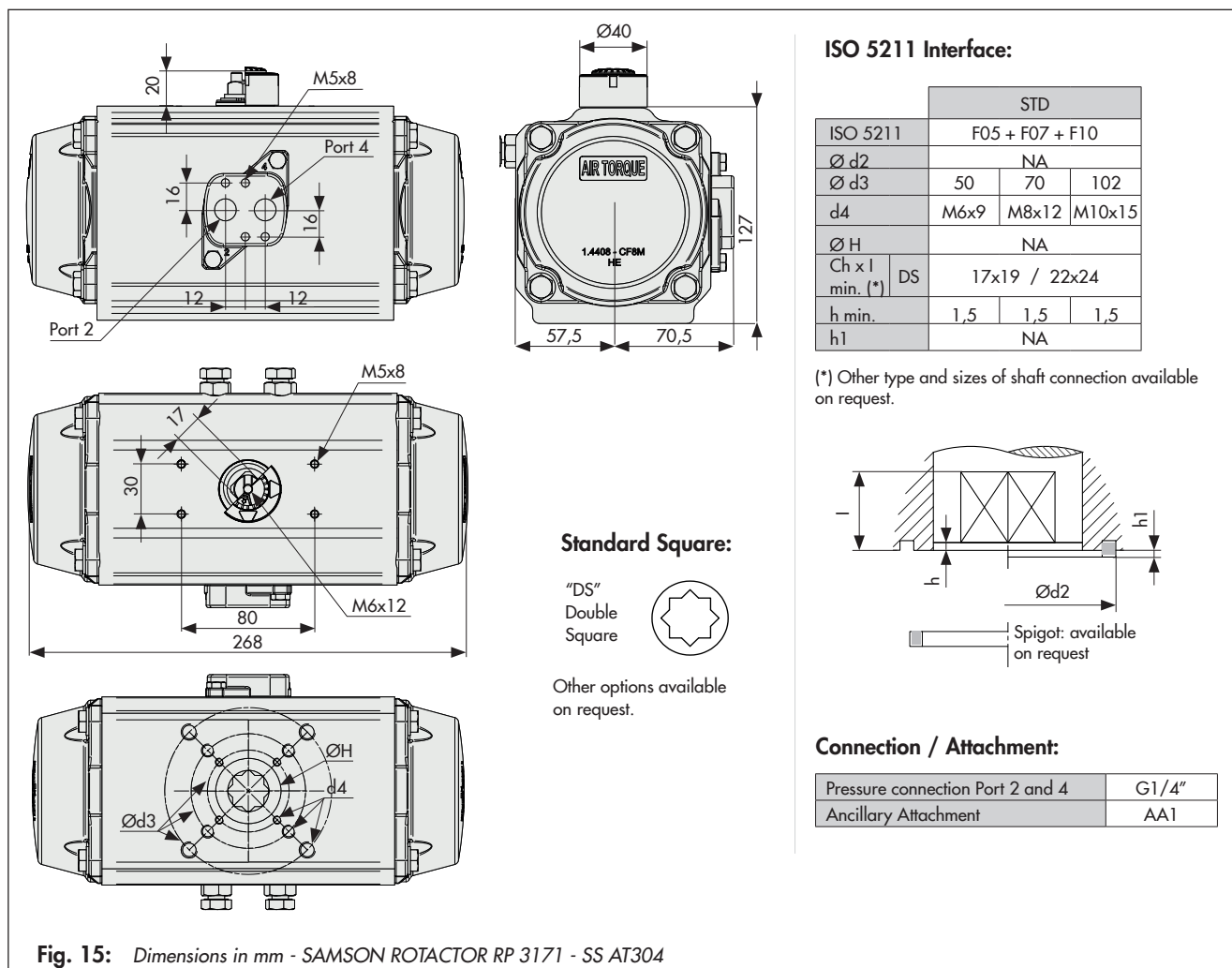


Fig. 15: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT304

Table 6: SAMSON ROTACTOR RP 3171 - SS AT404

Table 6.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
				opening	closing	Double acting		Spring return		ST	HT	LLT2
8 bar	0° - 90°	For 1° adj. 1/4 Turn needed	125	opening	closing	opening	closing	opening	closing	-40 to +80	-15 to +150	-60 to +80
				1,54	2,34	0,90	1,10	1,20	1,40			

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.
²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 6.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	138		166		194		222		233		249		277		305		332		388		443		22,6

Table 6.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°			
S 05	86	56,1	114	83,8	141	111	169	139	180	150	197	167	224	195									82,4	52,5	23,5
S 06	75,5	39,6	103	67,3	131	95,0	159	123	170	134	186	150	214	178	242	206							98,9	63	
S 07			92,7	50,8	120	78,5	148	106	159	117	176	134	203	162	231	189	259	217					115	73,5	23,8
S 08					110	62	138	89,7	149	101	165	117	193	145	221	173	248	201	304	256			132	84	
S 09							127	73,3	138	84,3	155	101	182	129	210	156	238	184	293	239	349	295	148	94,5	24,1
S 10											144	84,5	172	112	200	140	227	168	283	223	338	278	165	105	
S 11													161	95,7	189	123	217	151	272	206	328	262	181	116	24,4
S 12															179	107	206	135	262	190	317	245	198	126	

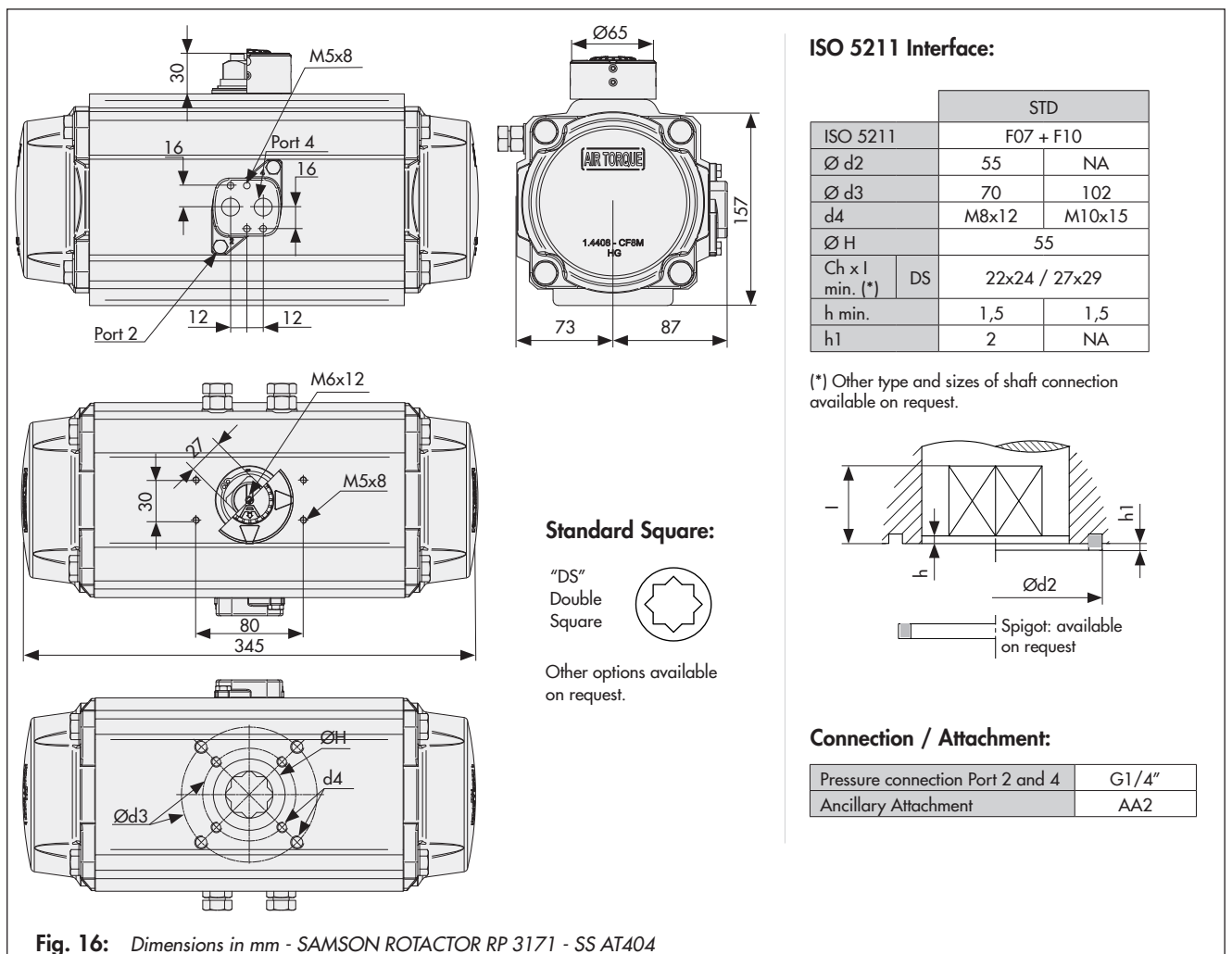


Fig. 16: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT404

Table 7: SAMSON ROTACTOR RP 3171 - SS AT454

Table 7.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
						Double acting		Spring return				
8 bar	0° - 90°	For 1° adj. 1/5 Turn needed	145	opening	closing	opening	closing	opening	closing	ST -40 to +80	HT -15 to +150	LLT2 -60 to +80
				0,51	0,78	0,40	0,50	0,50	0,60			

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 7.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	217		261		304		348		365		391		435		478		522		609		696		34,6

Table 7.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke 90° 0°	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
S 05	135	89	179	132	222	176	265	219	283	236	309	262	352	306									129	82,4	36,1
S 06	119	63	162	106	206	149,7	249	193	266	211	293	237	336	280	379	324							155	99	
S 07			146	80	189	124	233	167	250	185	276	211	320	254	363	298	406	341					180	115	36,6
S 08					173	98	216	142	233	159	260	185	303	229	347	272	390	316	477	403			206	132	
S 09							200	116	217	133	243	159	287	203	330	246	374	290	460	377	547	464	232	148	37,1
S 10											227	134	270	177	314	221	357	264	444	351	531	438	258	165	
S 11													254	151	297	195	341	238	428	325	515	412	283	181	37,6
S 12															281	169	324	213	411	299	498	386	309	198	

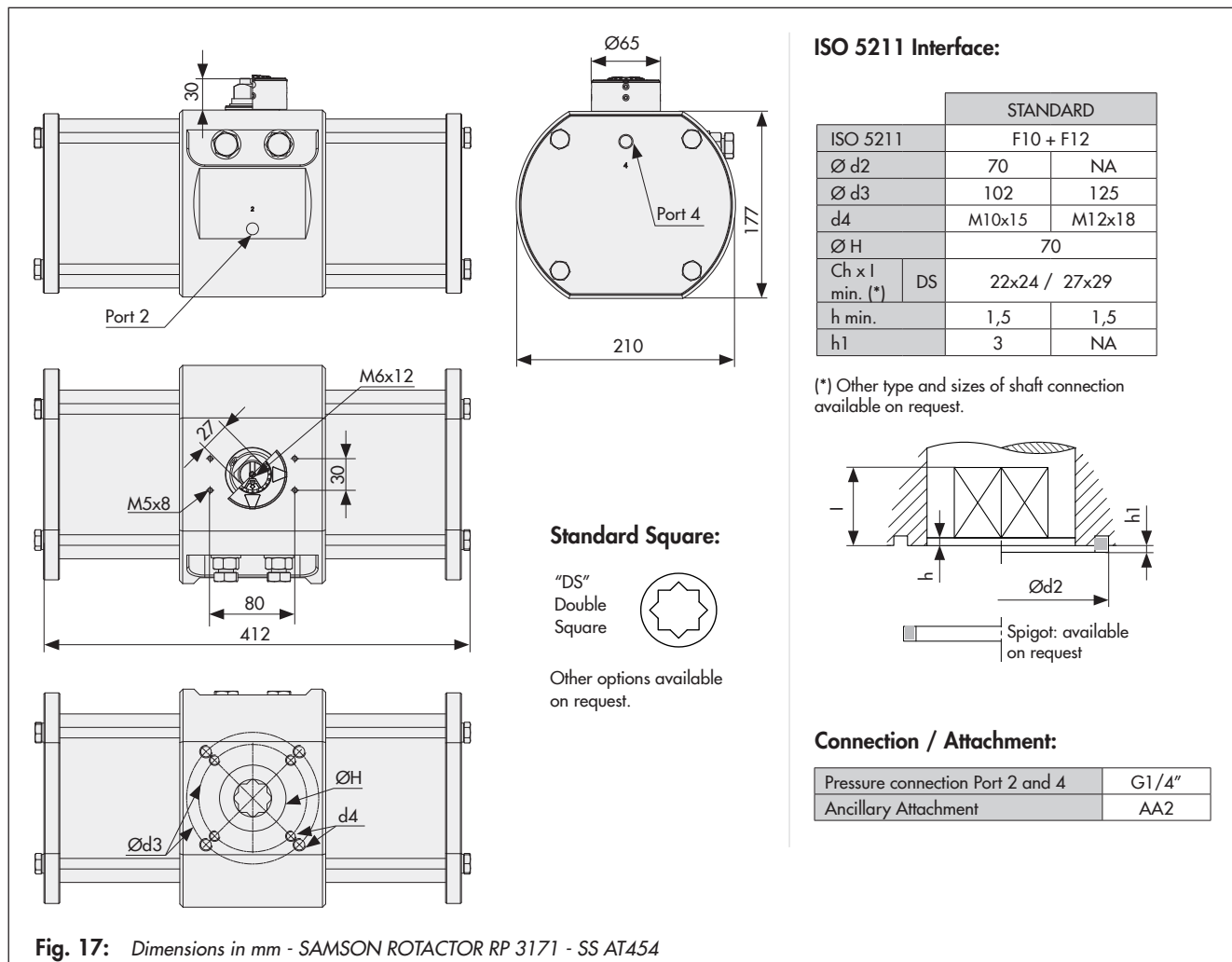


Fig. 17: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT454

Table 8: SAMSON ROTACTOR RP 3171 - SS AT554

Table 8.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
				opening	closing	Double acting		Spring return		ST	HT	LLT2
8 bar	0° - 90°	For 1° adj. 1/4 Turn needed	180	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				4,26	6,89	2,0	2,2	2,4	2,8	-40 to +80	-15 to +150	-60 to +80

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant; please contact SAMSON for detailed information.

Table 8.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Approx weight (kg)
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
D	383		459		536		613		643		689		766		842		919		1072		1225		58

Table 8.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke 90° 0°	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
S 05	225	146	301	223	378	299	455	376	485	406	531	452	608	529									237	158	61
S 06	193	99	270	175	346	252	423	329	454	359	500	405	576	482	653	558							284	190	
S 07			238	128	315	205	391	281	422	312	468	358	544	434	621	511	698	587					332	221	62
S 08					283	157	360	234	390	264	436	310	513	387	589	464	666	540	819	693			379	253	
S 09							328	186	359	217	405	263	481	340	558	416	634	493	788	646	941	799	426	285	63,2
S 10											373	216	450	292	526	369	603	445	756	599	909	752	474	316	
S 11													418	245	495	321	571	398	724	551	877	704	521	348	64,2
S 12															463	274	540	351	693	504	846	657	568	379	

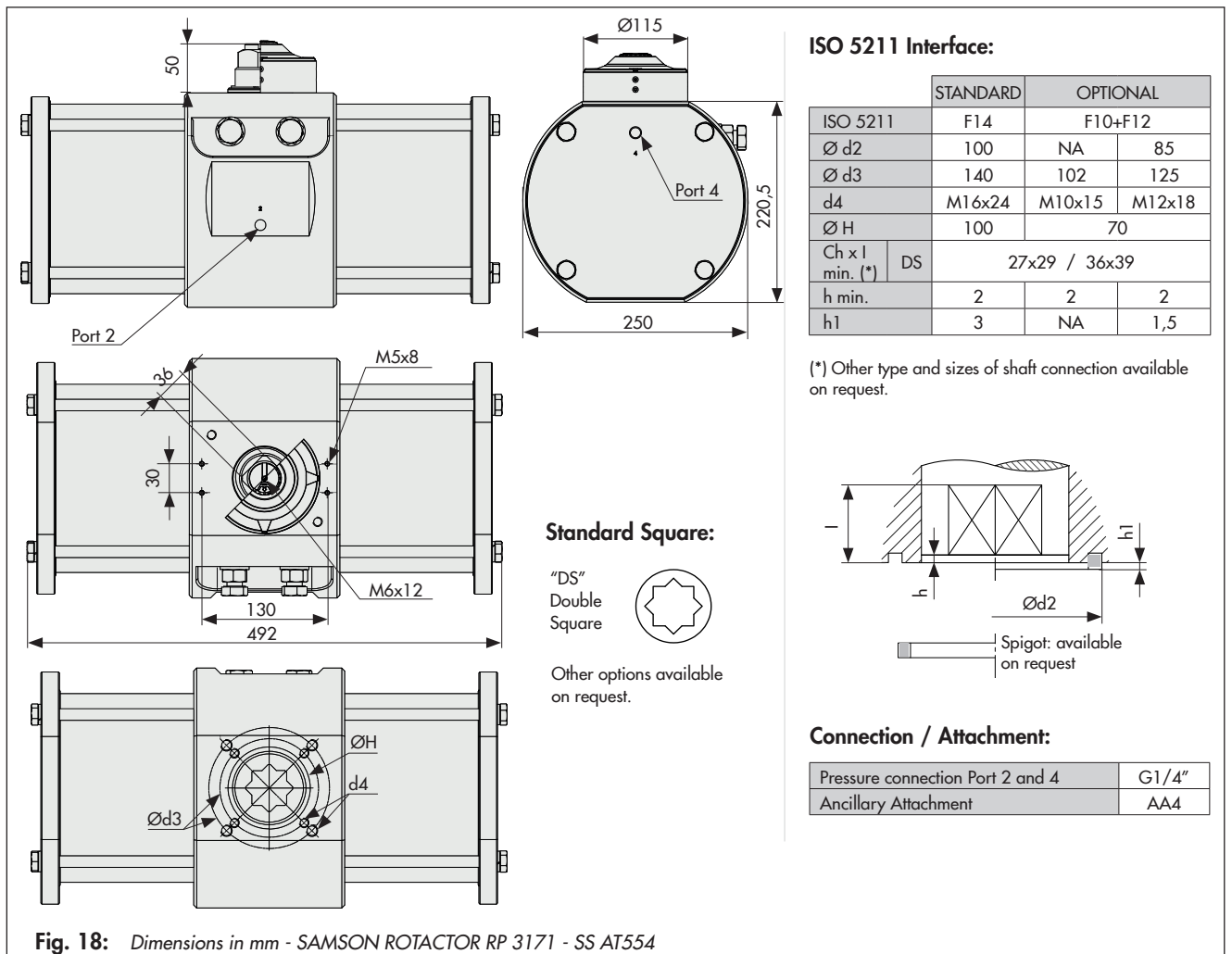


Fig. 18: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT554

Table 9: SAMSON ROTACTOR RP 3171 - SS AT654

Table 9.1: Technical data

Max. Pressure	Standard Rotation	Stroke Adjustment Screw	Ø Chamber (mm)	Air volume (l)		Approx. Stroking time (sec.) ¹⁾				Operating temperature range (°C) ²⁾		
						Double acting		Spring return				
8 bar	0° - 90°	For 1° adj. 1/4 Turn needed	240	opening	closing	opening	closing	opening	closing	ST	HT	LLT2
				10	15,2	3,5	4,0	4,1	4,6	-40 to +80	-15 to +150	-60 to +80

¹⁾ The values refer to specific test conditions; please contact SAMSON for detailed information.

²⁾ Every temperature range option requires proper components and lubricant. please contact SAMSON for detailed information.

Table 9.2: Nominal output torque for Double acting actuators (Nm)

Pressure	2,5 bar	3 bar	3,5 bar	4 bar	4,2 bar	4,5 bar	5 bar	5,5 bar	6 bar	7 bar	8 bar	Approx weight (kg)
0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	0° 90°	
D	893	1072	1251	1430	1501	1608	1787	1966	2144	2502	2859	

Table 9.3: Nominal output torque for Single acting actuators (Nm)

Pressure	2,5 bar		3 bar		3,5 bar		4 bar		4,2 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		Spring Stroke 90° 0°	Approx weight (kg)	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
S 05	533	372	712	551	890	730	1069	908	1141	980	1248	1087	1426	1266									521	360	132
S 06	461	268	640	447	818	625	997	804	1068	876	1176	983	1354	1162	1533	1340							625	433	
S 07			568	343	746	521	925	700	996	771	1104	879	1282	1057	1461	1236	1640	1415					730	505	134
S 08					674	417	853	596	924	667	1032	774	1210	953	1389	1132	1568	1310	1925	1668			834	577	
S 09							781	491	852	563	959	670	1138	849	1317	1028	1495	1206	1853	1564	2210	1921	938	649	136
S 10											887	566	1066	745	1245	923	1423	1102	1781	1459	2138	1817	1042	721	
S 11													994	640	1173	819	1351	998	1709	1355	2066	1713	1146	793	139
S 12															1101	715	1279	894	1637	1251	1994	1608	1251	865	

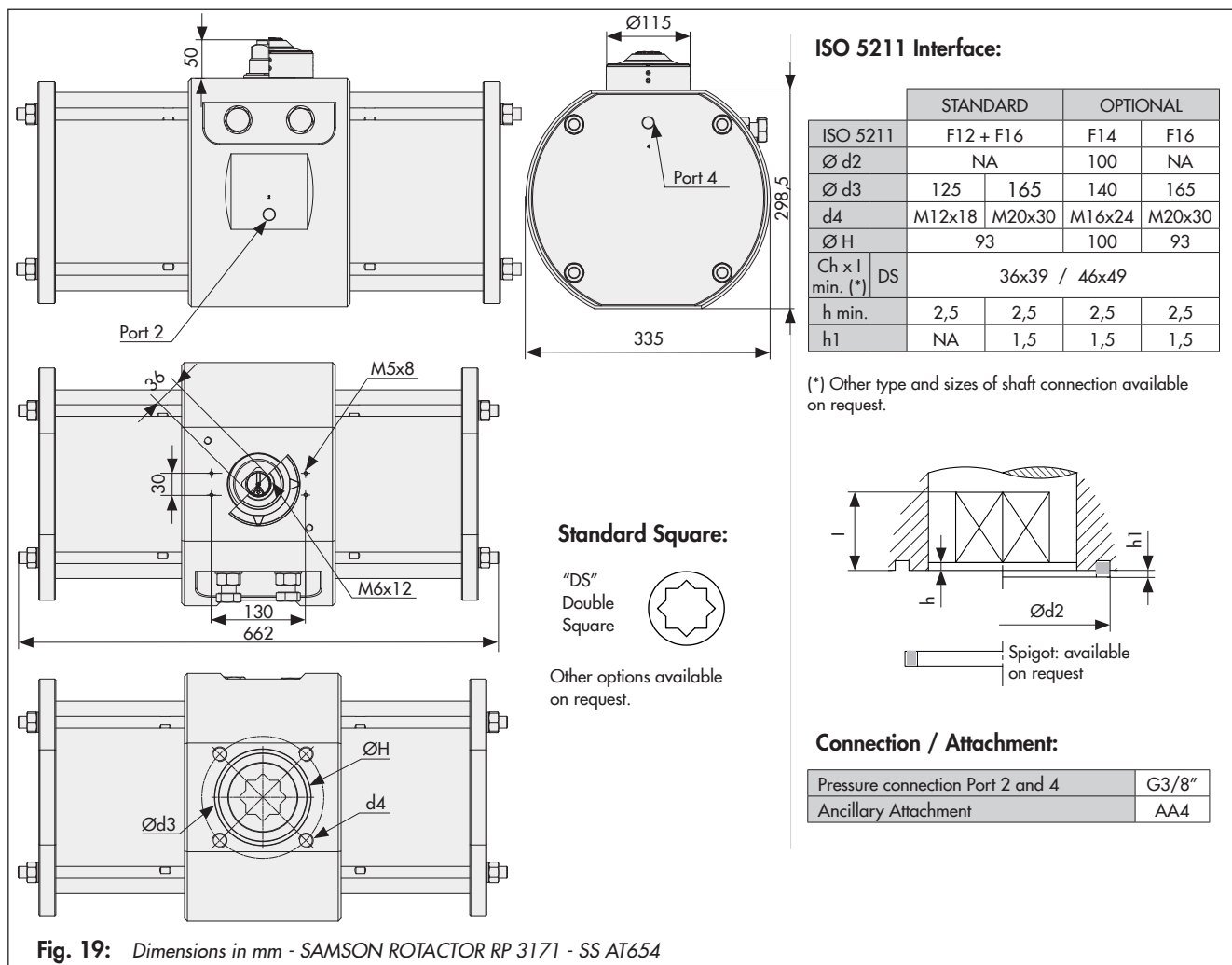


Fig. 19: Dimensions in mm - SAMSON ROTACTOR RP 3171 - SS AT654

Complete Spare parts

- Parts list and quantity

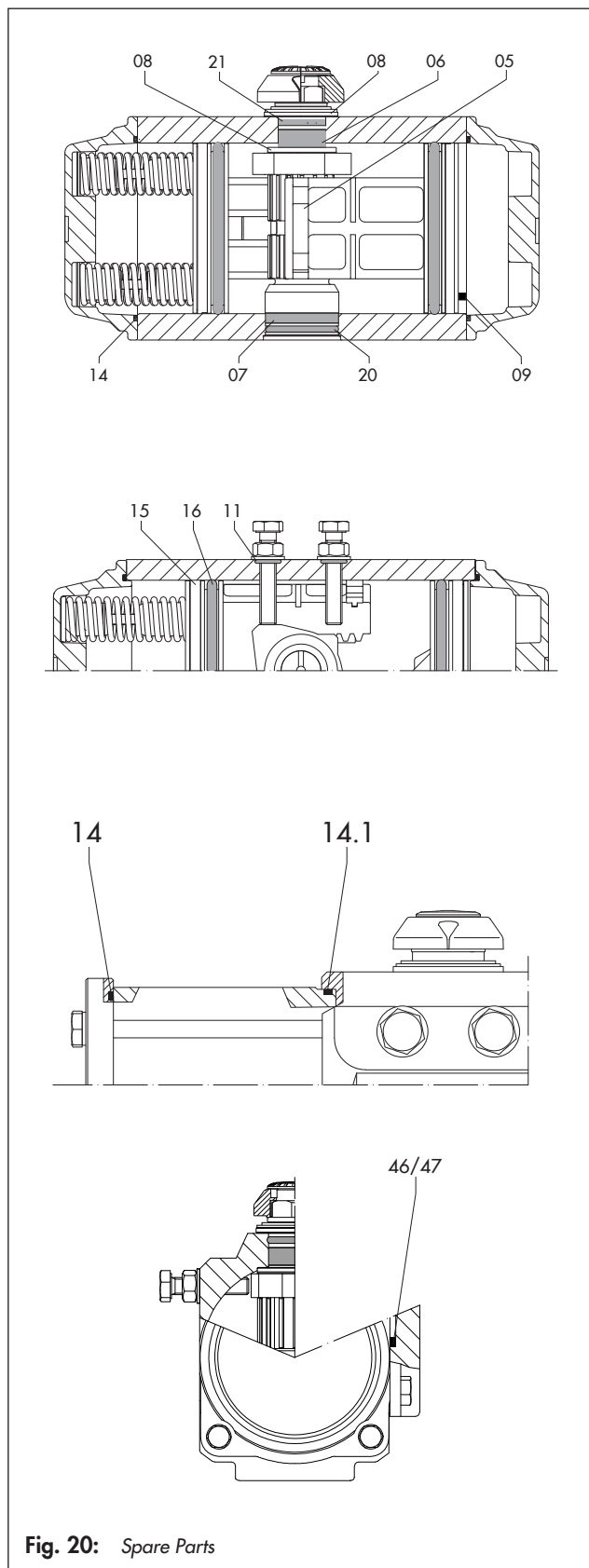


Fig. 20: Spare Parts

Complete Spare Parts		
Part n°	Q.ty	Description
05	2	BEARING (Piston back)
06	1	BEARING (Pinion top)
07	1	BEARING (Pinion bottom)
08	2	THRUST BEARING (Pinion)
09	2	PLUG for AT054U → AT404 models
11	2	"O" RING (Stop screw)
14	2	"O" RING (End cap)
14.1	2	"O" RING (Body extensions) for "S" AT454 → "S" AT654 models
15	2	BEARING (Piston head)
16	2	"O" RING (Piston)
20	1	"O" RING (Pinion bottom)
21	1	"O" RING (Pinion top)
46	1	"O" RING Port 2 (Connection plate) for "S" AT054U → "S" AT404 models
47	1	"O" RING Port 4 (Connection plate) for "S" AT054U → "S" AT404 models

SAMSON lubricant grease type			
Operating temperature	ST	LLT2	HT
Lubricant code	GSTD	GLLT2	GHT

- Spare Parts kits code

Operating Temperature Range Options			
Actuator model	STANDARD kits code from -40°C (-40°F) to +80°C (+176°F)	LLT2 kits code from -60°C (-76°F) to +80°C (+176°F)	HT kits code from -15°C (5°F) to +150°C (+302°F)
SS AT054U	CRK-SS050#SPN..C	CRK-SS050#LLSPSC	CRK-SS050#HSPFC
SS AT104	CRK-SS100#SPN..C	CRK-SS100#LLSPSC	CRK-SS100#HSPFC
SS AT204	CRK-SS200#SPN..C	CRK-SS200#LLSPSC	CRK-SS200#HSPFC
SS AT254	CRK-SS250#SPN..C	CRK-SS250#LLSPSC	CRK-SS250#HSPFC
SS AT304	CRK-SS300#SPN..C	CRK-SS300#LLSPSC	CRK-SS300#HSPFC
SS AT404	CRK-SS400#SPN..C	CRK-SS400#LLSPSC	CRK-SS400#HSPFC
SS AT454	CRK-SS450#SPN..C	CRK-SS450#LLSPSC	CRK-SS450#HSPFC
SS AT554	CRK-SS550#SPN..C	CRK-SS550#LLSPSC	CRK-SS550#HSPFC
SS AT654	CRK-SS650#SPN..C	CRK-SS650#LLSPSC	CRK-SS650#HSPFC

For maintenance and/or spare parts refer to applicable EB 8326 SAMSON manual instruction.

Ordering text

The product information in the How To Order are transferred in the product label and in other SAMSON documents (as order acknowledgment, packing list, invoice and certificates). The position of the information can change respect the How To Order. Contact SAMSON for further details.

1	SAMSON ROTACTOR RP 3171 actuator models:		SB AT054U to SB AT654: standard material and surface finishing, with ENP coating SBP AT054U to SBP AT654: standard material and polished surface with ENP coating SC AT054U to SC AT654: standard material and surface finishing, with NO ENP coating SCP AT054U to SCP AT654: standard material and polished surface, with NO ENP coating								
2	D: Double Acting					S: Single Acting					
3	Actuator model, series and rotation: 90° Rotation (Standard): SB AT054U to SB AT654					Other Rotation evaluated on request.					
4	(Blank): for Standard actuator					R50: 50% opening travel stop limitation (45° up to 90°) R100: 100% opening travel stop limitation (0° up to 90°)					
5	(Blank): for standard actuator					FA: fast acting					
6	(Blank): for standard lock-out capability version										
7	Double acting actuators					Spring return actuators					
	(Blank)					SB AT054U Spring Set configuration: S1 / S2 / S3 / S4 / S5 / S6 / S7 / S8					
8	ISO 5211 Flange										
	Model	SB AT054U	SB AT104	SB AT204	SB AT254	SB AT304	SB AT404	SB AT454	SB AT554	SB AT654	
	Standard	F04	F05	F05 + F07	F05 + F07	F05 + F07 + F10	F07 + F10	F10 + F12	F14	F12 + F16	
9	G: air connection threads according to ISO 228 (BSPP)					N: air connection threads according to ANSI B1.20.1 (NPT) <i>Note: For SB AT454 and bigger contact SAMSON AIR TORQUE</i>					
	(Blank): no spigot					Y: spigot					
11	(Blank) actuator with standard seals suitable for -40°C (-40°F) to +80°C (+176°C)			HT: actuator construction suitable for -15°C (+5°F) to +150°C (+302°F)			LLT 2: construction suitable for -60°C (-76°F) to +80°C (+176°F)				
12	Standard (DS): XXDS					Optional connections: (available on request) S x d (D) → flat head dimensions W x d → double keys dimensions XXD → diagonal single square XXL → parallel single square					
	Available square dimensions and type (according to ISO 5211)										
	Model	SB AT054U	SB AT104	SB AT204	SB AT254	SB AT304	SB AT404	SB AT454	SB AT554	SB AT654	
ISO Flange	9DS 11DS	11DS 14DS	14DS 17DS	17DS	17DS 22DS	22DS 27DS	22DS 27DS	27DS 36DS	36DS 46DS		
13	Position Indicator: MF (multifunction indicator)										
14	Actuator assembly type										
	(Blank): Standard assembly type ST , clockwise to close (spring to close) and close indication at air failure condition (or with pressurized port 4 for double acting) for in line mounting.			LF: Counterclockwise to close (spring to open) and open indication at air failure condition (or with pressurized port 4 for double acting) for across line mounting.			STR: Clockwise to close (spring to close) and close indication at air failure condition (or with pressurized port 4 for double acting) for across line mounting.			LFR: Counterclockwise to close (spring to open) and open indication at air failure condition (or with pressurized port 4 for double acting) for in line mounting.	

Examples of model designation

1	2	3	4	5	6	7	8	9	10	11	12	13	14
SB AT204	S	90°	R100	FA	-	12	F05+F07	G	-	LLT2	14DS	MF	-
PNEUMATIC ACTUATOR model SB AT204 , Spring Return S , rotation 90° , R100 travel stop adjustment, FA Fast Acting, - lockout capability version, number of spring 12 , ISO flange F05+F07 , GAS air connection G , without spigot, low operating temperature HT , Ch14 double square drive shaft 14DS , Black Multifunction indicator MF , Standard assembly type ST REFER TO TECHNICAL DATA SHEETS FOR UPDATED DIMENSIONS AND MATERIALS.													