

Scana RAP actuator series

Data Sheet

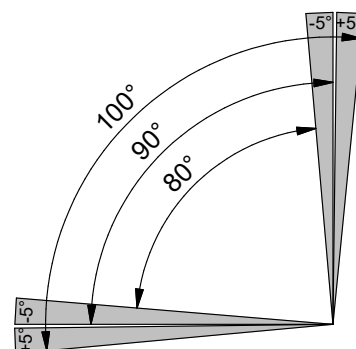
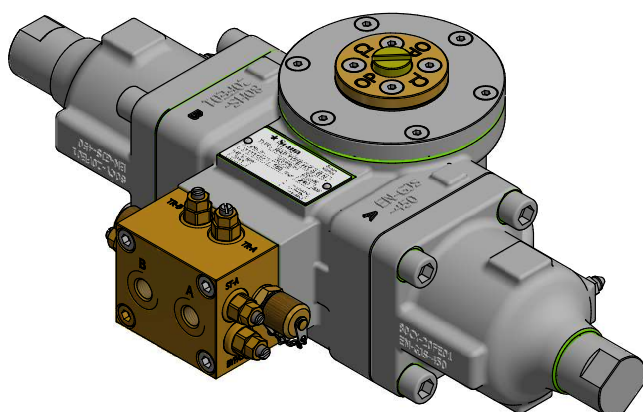
Hydraulic double acting actuator

Actuator RAP

Actuator type RAP is a double acting quarter turn and rack & pinion type actuators designed for all types of butterfly-, plug-, and ball valves.

A compact rack and pinion design provides simple construction and constant output torque throughout the stroke.

Full stroke adjustment screws are fitted to both end and turning in the stroke adjustment screws allow for precise angular stroke adjustment between 85° and 95°



Main Data

Working pressure	: 20-160 bar
Normal-working pressure	: 135 bar
Test pressure	: 1.5 x system max. working pressure
Rotation(Clockwise closing)	: 90° ± 5°
Desing temp.(min./max.)	S: -20°C / + 80°C PU/NBR H: -20°C / +120°C PTFE/Viton L: -45°C / + 80°C Low temp. PU/NBR (Low temperature: Consult)
Indication	: Visual on top
Viscosity of hydraulic oil	: 15 to 200 cSt, acid-free hydraulic oil.
Accessories	: Control blocks with Double pilot check valves Double release valve, Double throttle valve, Quick connection for em'cy operation

For further information, please see separate data sheets for other actuator mounted control components.

The Scana actuators are manufactured in accordance with the quality system stated in the ISO standard and each actuators, after assembly, is cleaned to NAS 1638/10 (ISO 4406 21/19/16) standard and plugged.
Other flushing grade available on request.

Material

Housing	: GCD 450 / GCD 350-22L-L VERSION
Cylinder	: GCD 450 / GCD 350-22L-L VERSION
Piston	: Hardened steel
Rack	: High tensile steel
Pinion	: Surface treatment high tensile steel
Seal	: NBR, VITON, PTFE

Classification

Meets all requirements to: ABS, BV, DNVGL, KR, LR, RS

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DIMENSIONS

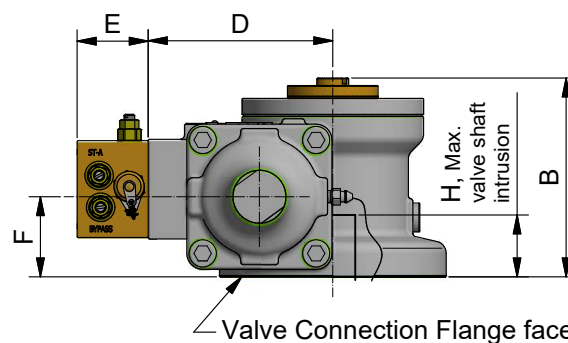
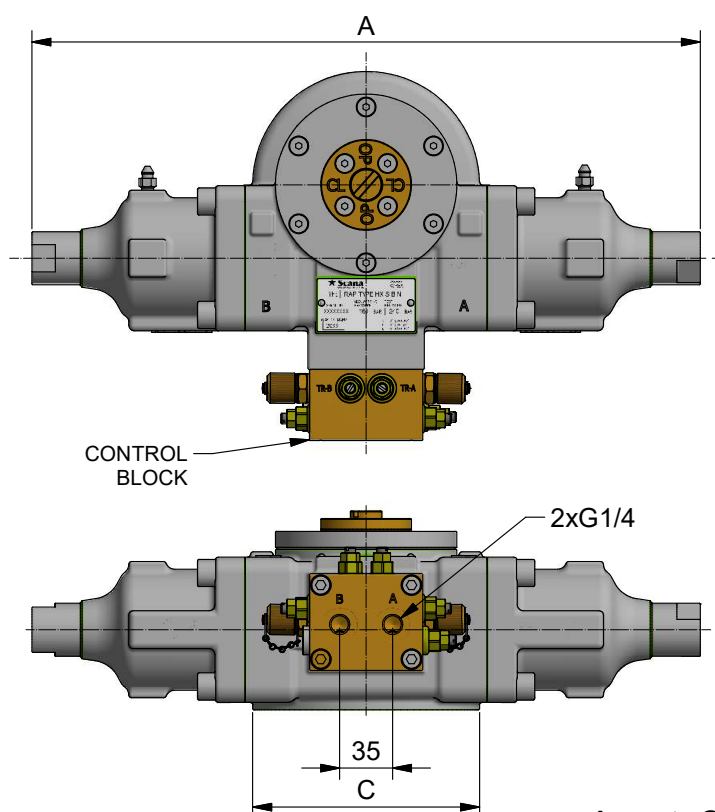
Dimensions in mm

Actuator Type	A	B	C	D	E	F	Oil Volume (cm ³)	Output TORQUE Nm@135 bar	Maintenance space	Weight (kg)
RAP 18 HX XXX	270	100	120	88	50	38	30	220	~100	11
RAP 45 HX XXX	390	110	150	105	50	44	65	490	~100	16.5
RAP 80 HX XXX	450	140	150	122	50	53	117	880	~130	25
RAP 160 HX XXX	520	160	195	142	50	67	235	1760	~170	41
RAP 320 HX XXX	650	180	210	171	50	77	474	3590	~200	58
RAP 640 HX XXX	800	250	295	230	50	111	952	7200	~200	143
RAP 1200 HX XXX	950	310	340	270	50	141	1799	13600	~250	253

ACTUATOR TYPE DESCRIPTION

Example: **RAP 160 H1 S B N**

Rotating actuator	RAP (Rack & Pinion type)
Cylinder type	H = Hydraulic (standard)
Cylinder size	1 = standard cyl for W.P 135 bar
Material and sealing combination	S = STANDARD: -20 to + 80 degr. H = HIGH TEMP: -20 to +130 degr. L = LOW TEMP: -45 to + 80 degr.
Hydraulic connection	B = BSP N = NPT
Operating conditions	N = Normal



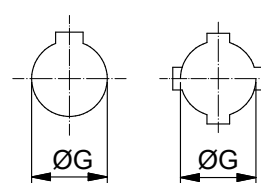
A port: Close (clockwise seen from above)

B port: Open

VALVE INTERFACE

Actuator Type	Valve Connection flange	Max. Valve Shaft Bore G	Max. Valve Shaft Intrusion H	Ref. Valve Shaft Key
RAP 18	F07(70) / K82.6 / F10(102)	20	60	6X6
RAP 45	K82.6 / F10 / F12(125) / K127	35	70	10X8
RAP 80	F12 / K127	40	75	12X8
RAP 160	K127 / F14(140) / F16(165)	50	95	14X9
RAP 320	F14 / F16	70	115	20X12
RAP 640	F16 / K210 / K248 / F25(254)	80	185	22X14
RAP1200	F16 / K210 / K248 / F25 / F30(298) / K317.5	90	240	25X14

Limits for the Machining



Actuator Control Block

ACTUATOR CONTROL BLOCK

The function of the double pilot operated check valve is to hydraulically lock the piston on the actuator and prevent the actuator from moving when it is required to be held stationary.

It contains;

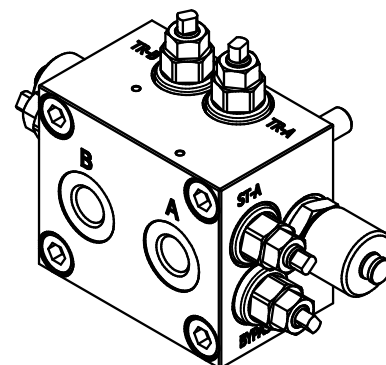
- Hydraulic line of "A", "B" connections
- Pilot check valve with hydro-lock function for loss of pressure.
- Pressure Relief valve in A and B to prevent over-pressurizing the actuators
- Stop / Throttle valve for speed adjustment to minimize water hammering effect
- Quick connections for Em'cy operation
- Bypass valve

Qmax. = 5 l/min, Pmax. = 160 bar, Weight = 2 kg

When pressure is applied to the "A" port the check valve in the "A" port opens and allows free flow A1 to A2. Simultaneously the pilot piston moves across and pushed the "B" port check valve open and allows the oil to flow freely to tank through the actuator "B" line.

The valve operates in a similar manner when the "B" port is pressurized.

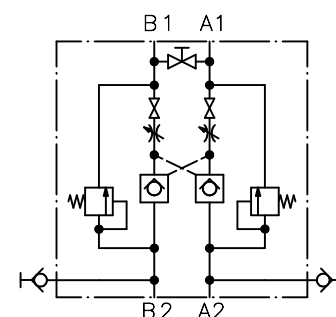
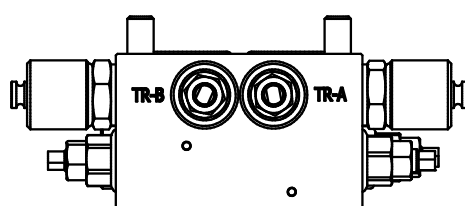
In order to enable the safe lock of the both check valves, solenoid valve "A" and "B" ports must be connected to tank when in center position.



MAIN DATA

Hydraulic media	Acid-free hydraulic oil, other fluid on request
Contamination efficiency	ISO 4406: 1999, class 18/16/13 (Required filtration grade $\beta_{10} \dots 16 \geq 75$)
Viscosity range	15 -200 cSt
Fluid temperature	-20 ... +70°C
Leakage A2 → A1 and B2 → B1	No leakage
A1 and B1	Max. 10 cm ³ /min at 130 bar and 30 cSt
Pilot to open ration	1:3
Relief valve	Fixed setting at 160 bar ± 10 bar
Materials	Block and Valve: Brass / SS316 on request Seals: NBR/PTFE Screws: Acid proof steel

DIMENSION



SYMBOL

