



# Bray®

**SERIES 92/93**  
 Double Acting/Spring Return  
 316 Stainless Steel

## PNEUMATIC ACTUATOR

RACK & PINION.

Bray Control's innovative Stainless Steel Series 92/93 quarter turn pneumatic actuator. These rack and pinion, opposed-piston actuators have been designed to incorporate high performance features into a compact, rugged and reliable modular product line. All models are suitable for both on/off and throttling applications. The 316 Stainless Steel construction provides excellent internal and external corrosion resistance, making these actuators ideal for chemical, sanitary, food and beverage, marine, mining and pharmaceutical applications.

**FEATURES** Available in two versions: double acting and spring return, Series 92/93 actuators deliver high output torque in an efficient, space-saving housing. With a low coefficient of friction, the Series 92/93 provides superior high-cycle, long lasting service. All piston guides, piston rings and output shaft bearings are permanently lubricated, manufactured from acetal material, offering a very low coefficient of friction between the piston cylinder walls and actuator body. No field lubrication of the Series 92/93 is needed under normal operating conditions.

**POSITION INDICATOR** provides clearly visible indication of valve position through the full range of travel.

**ACTUATOR MOUNTING** Actuators comply with ISO 5211 standards for mounting of actuators to valves. A double D shaft is standard. A double square shaft (Star) on the output shaft is available. The Series 92/93 has been designed to mount directly to Bray valves without the need of brackets or adapters.

**ACCESSORY MOUNTING** Actuators meet NAMUR standards (VDI/VDE 3845) for accessory mounting.



# SERIES 92/93 SS

**SPRING RETURN** Bray's Series 93 spring return models employ a unique cartridge system. The spring cartridges offer our customers safety, simplicity and reduced space requirements. The actuator can be easily disassembled and assembled without cumbersome equipment or any danger to the installer. Converting from double acting to spring return actuation is simply a matter of removing the end caps and adding the unique spring cartridges. The housing length of the spring return model is the same as the double acting model.

**TRAVEL STOP** Two independent adjusting screws are located on the center of the output shaft to precisely limit the travel of the actuator to specific degrees of rotation. The travel stops permit bi-directional adjustment of actuator movement in both the open and closed positions.

## STANDARD MATERIALS

- Body:** 316 Stainless Steel (ASTM A351 CF8M)
- End Caps:** 316 Stainless Steel (ASTM A351 CF8M)
- Pistons:** • Die Cast Aluminum Alloy  
• 316 Stainless Steel (ASTM A351 CF8M) available as an option
- Output Shaft:** 316 Stainless Steel (ASTM A276)
- Shaft Bearings:** Acetal
- Piston Guides:** Acetal
- Fasteners:** 18-8 Stainless Steel
- Springs:** Spring Steel, protective coating
- O-ring Seals:** Buna-N

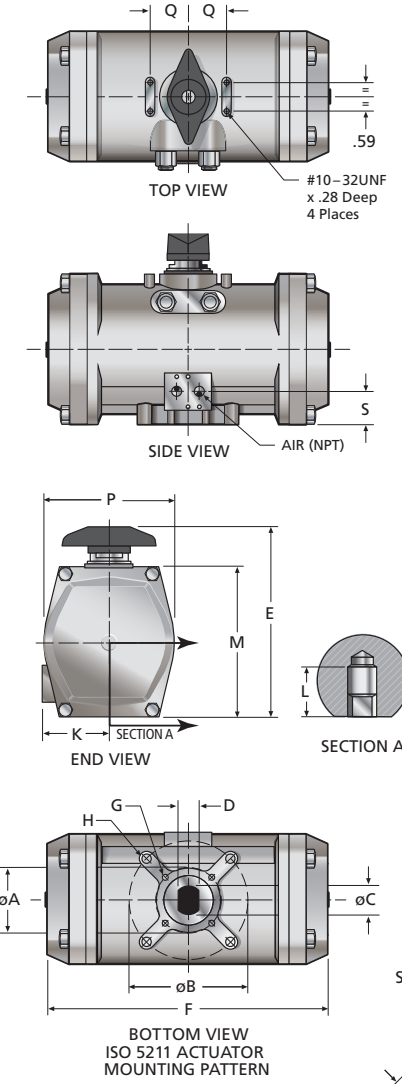
## SUPPLY PRESSURE

Maximum: 145 psi (10 Bar) Air. Actuators which can be actuated with hydraulic oil or water are also available. Consult the factory.

## TEMPERATURE RATINGS

-40°F (-40°C) to 200°F (95°C)

**TORQUE DATA** Please refer to Bray Brochure B-1032.



## ACTUATOR SPEEDS

SIZE	63	92	127	160
Open Stroke	1/4	1/4	1/2	1
Close Stroke	1/4	1/4	1/2	1

Times are in seconds, at 80 PSIG with 6ft. tubing, internal diameter approximately 1/4".

## ACTUATOR DIMENSIONS

SIZE	63	92	127	160
AIR NPT	1/4	1/4	1/4	1/4
A	1.97	1.97	2.76	—
ISO "F"†	F 05	F 05	F 07	—
B	2.76	2.76	4.92	4.92
ISO "F"†	F 07	F 07	F 12	F 12
C	.55	.75	1.18	1.18
C1	.71	.87	1.42	1.42
D	.40	.51	.87	.87
D1	.55	.67	1.06	1.06
E	4.61	5.77	7.33	9.20
F	5.46	8.15	9.94	14.76
G (UNC)	1/4-20 x 5/16	1/4-20 x 5/16	5/16-18 x 3/8	—
H (UNC)	5/16-18 x 3/8	5/16-18 x 3/8	1/2-13 x 11/16	1/2-13 x 3/4
J	.38	.50	1.12	1.12
K	1.86	2.25	2.82	3.27
L	1.38	1.46	2.20	2.20
M	3.46	4.61	6.32	7.79
P	3.24	4.22	5.52	6.77
Q	1.58	1.58	1.58	2.56
S	.89	.99	1.41	1.61
T	.787	.787	.787	1.181
U	.47	.47	.47	.75

**Note:** \*Double Acting (Series 92/93) and Spring Return (Series 92/93) actuators have the same overall dimensions. † ISO "F" means mounting flange-drilling pattern.



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United States patent number 5,152,501.

Other patents issued and applied for worldwide.

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# Bray CONTROLS

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