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# SERIES 33

180° ACTUATOR

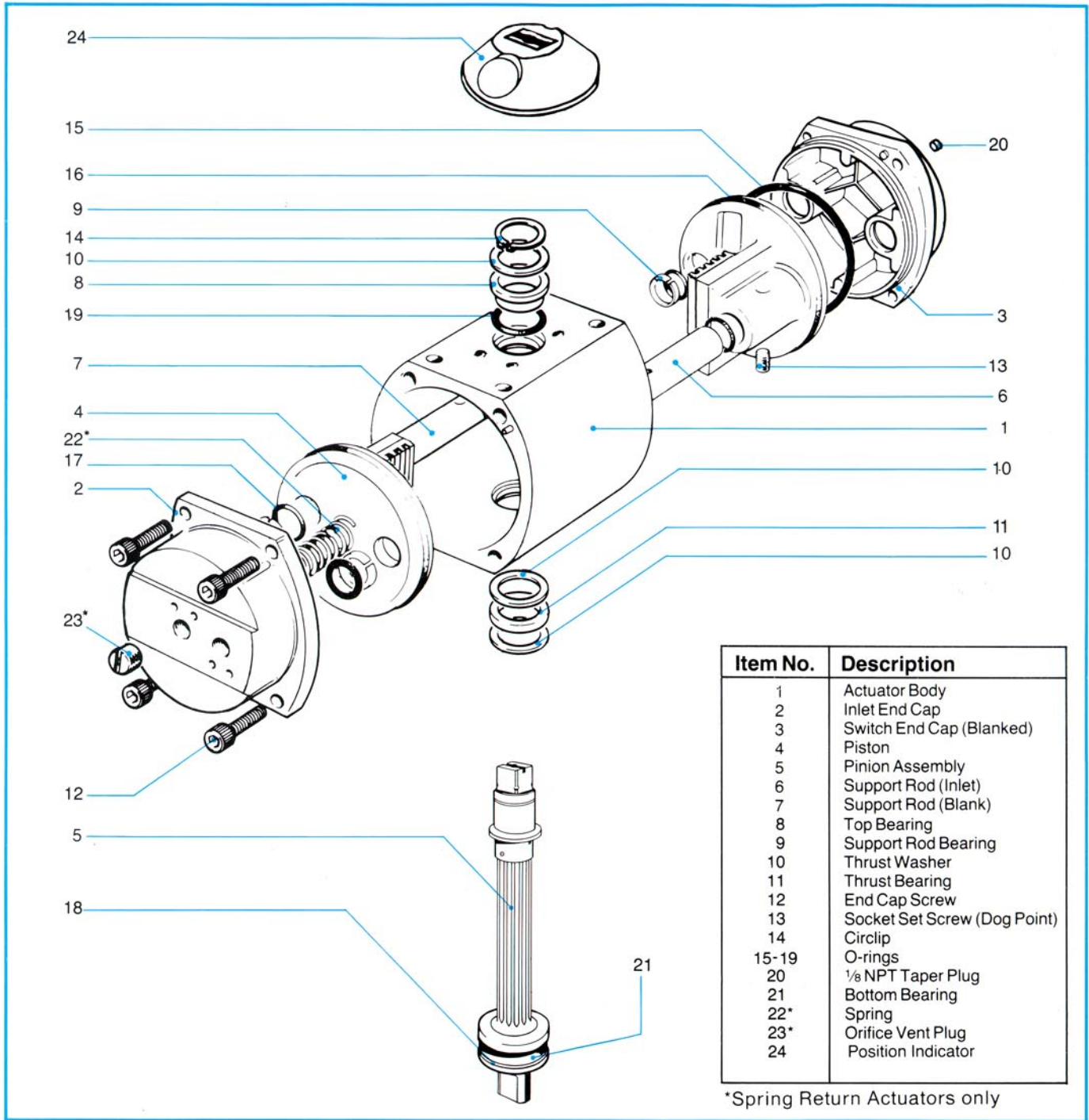
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**norbro**  
ACTUATOR DIVISION

# SERIES 33



## Materials of Construction

Part	Material	Specification	Finish
Body	Aluminium 6082 TF	B.S.1474	Anodised gold B.S. 1615
Pinion	Mild steel 080M40	B.S.970	Electro-less Nickel Plated
Piston	Aluminium LM 24/LM 27 TF	B.S.1490	Natural
Support Rod	Mild Steel insert 080M40	B.S.970	
End Cap	Stainless Steel 304 S12	B.S.970	Ground
Bearing	Aluminium LM 24/LM 27 TF	B.S.1490	Anodised black
'O' Rings	Acetal Resin		Yellow and blue
Springs	Medium Nitrile Rubber		60/70 IRHD
Endcap Screw	Chrome Silicon Steel	ASTM 401	Corrosion resistant coated
	Stainless Steel	ISO 3506 A2-80	Natural and oiled



Norbro's new Series 33 180° actuator is derived from the world-renowned 40R pneumatic actuator and has been designed to complement the Worcester Series 18/19 multi-way ball valve.

At the heart of the Series 33's design is a special pinion with all-round gear teeth. The pinion is rotated by steel racks on pistons supported by support rods.

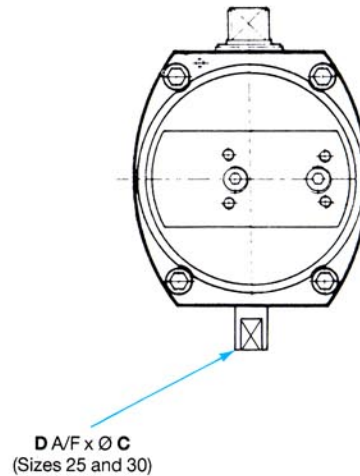
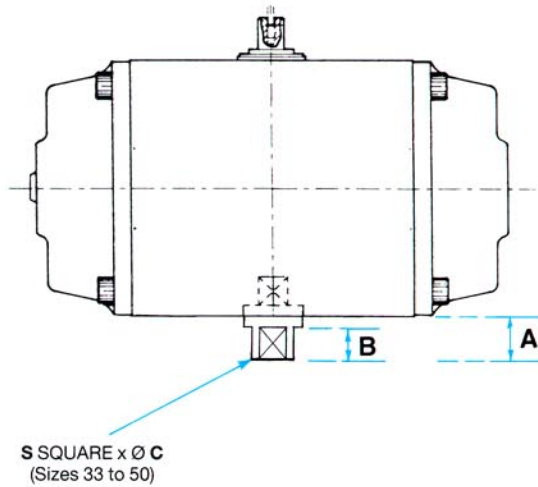
0 to 90° to 180° positional control is achieved via conventional top-mounted switchbox and 3-positional solenoid.

Torque output is 50% that of corresponding sizes of Norbro actuators.

Mounting format is consistent with equivalent actuator sizes. Note however that the male output drive shaft is standard and is related to torque capability.

The spring return option is available – failsafe position is at end of clockwise stroke.

The Series 33 range comprises of 8 sizes from size 25 to 50. Double acting operating pressure is limited to 5.5 bar.



### Output drive dimensions (mm)

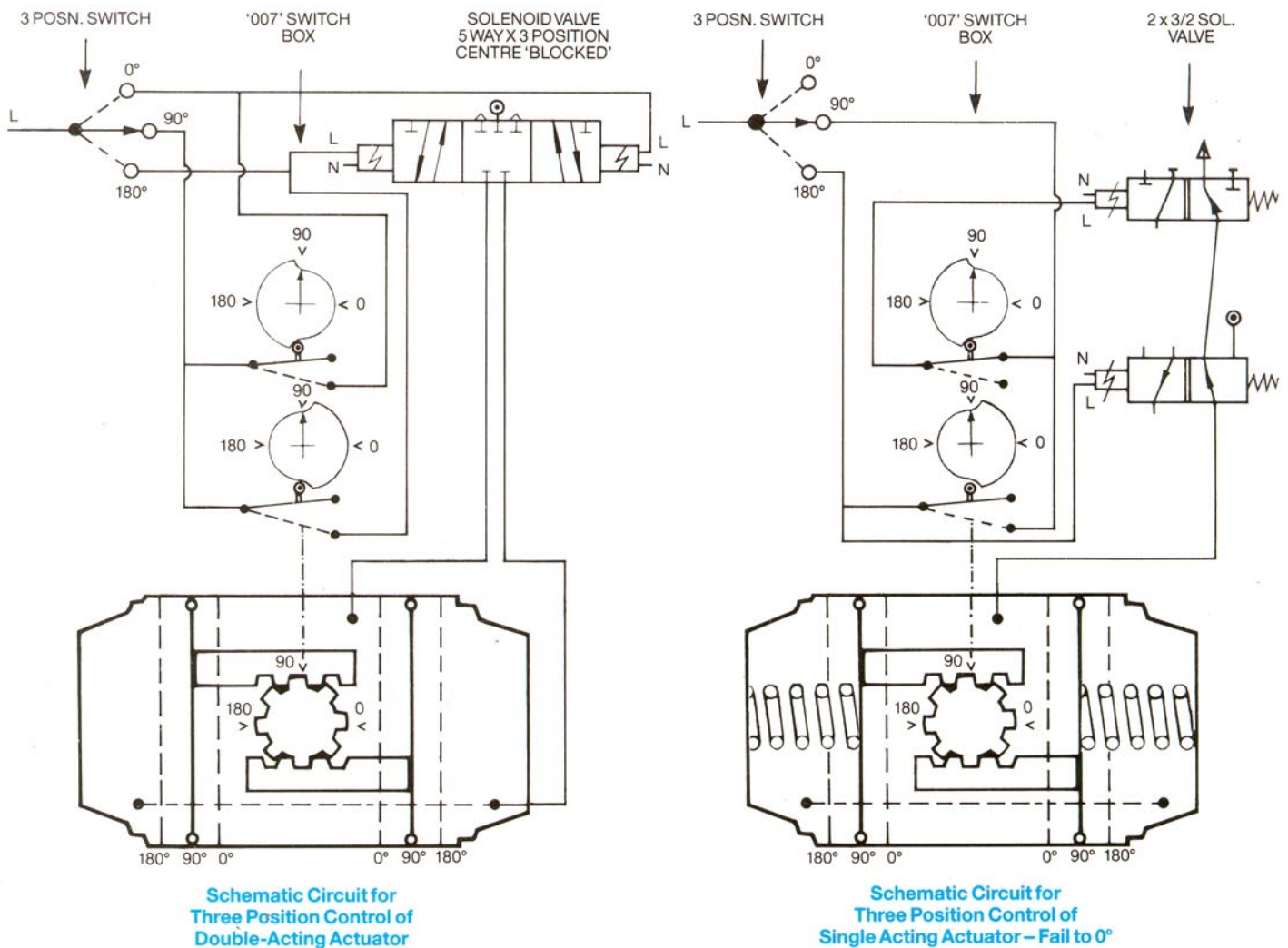
For all other dimensions, please refer to Norbro Actuator Catalogue.

Actuator Size	A	B	C	D	S
25	22.2	15.7	16.0	12.70 12.57	–
30	22.6	15.6	20.3	12.70 12.57	–
33	30.4	19.6	25.3	–	19.05 18.95
35	30.1	22.1	28.6	–	22.22 22.10
40	39.4	29.2	36.5	–	28.58 28.45
42	39.4	29.2	36.5	–	28.58 28.45
45	49.8	31.8	45.7	–	34.92 34.80
50	58.4	38.1	66.7	–	50.80 50.67

## Torque Output (Nm) at 5.5 bar operating pressure

Actuator Size	Double Acting	Spring Return					
		Start Air 0°	90°	End Air 180°	Start Spring 180°	90°	End Spring 0°
25	96	60	48	36	56	45	34
30	150	95	77	58	86	69	53
33	313	187	149	111	190	155	121
35	373	231	188	146	213	174	136
40	602	370	291	211	368	294	221
42	997	614	476	339	620	493	366
45	1492	931	669	407	1035	785	536
50	2309	1441	1019	598	1635	1231	872

## Circuit Diagram



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