GB52SC - GB53SC Series

Dimensional Data – Advertising Drawings:
GB52SC - GB53SC: A7-111
Piping: A50-48

Pneumatic Lever Actuators

Conoflow's Pneumatic Lever Actuators are rugged and powerful units used to automatically position dampers, louvers, variable pitch fans and to make various mechanical adjustments to process machinery. Low profile (only 18" high) requires less headroom. A sturdy ductile iron yoke with large mounting base provides rigid mounting. The steel lever arm has eight take-off positions for stroke flexibility.

The Lever Actuator is a combination piston actuator and lever mechanism. These actuators are available in piston diameters of 6" and 8" with a maximum lever travel of 12". Force produced is a function of the supply pressure which may be varied from 20 to 100 PSI (137 to 690 kPa) and the lever take-off position.

The actuator assembly is completely enclosed to protect all moving parts from corrosive atmospheres and adverse weather conditions. All exterior parts are coated with a corrosion-resistant paint.

Optional Accessories:

1. Model FR95 Airpak® (Filter Regulator) with gauge, specify 0-60 or 0-125 PSI (0-414 or 0-861 kPa) range. (Bracket mounting is standard).

2. I/P or E/P Transducer. Specify range. (See Transducer Data Sheets).

3. Airlock Feature, Solenoid Valve, Limit Switch and other accessories are available, consult the factory.

Specifications

Operating Characteristics

	GB52SC (1)	GB53SC (1)
Piston Diameter	6″	8″
Effective Area	28.5 in² (183.37 cm²)	50 in² (322.58 cm²)
Air Consumption with Positioner	**Static:** 0.30 SCFM (0.008 m³/min) at 40 PSI (275 kPa) supply **Dynamic:** 5.0 SCFM (0.142 m³/min) at 100 PSI (690 kPa) supply	
Positioner	Suitable for all standard instrument air signals; direct or reverse acting, top or bottom loading (2)	
Standard Accessories (For units with Positioners only)	Integrally piped cushion-loading regulator and gauge (for units with positioners only)	
Materials of Construction	Cylinder: Aluminum Piston: Aluminum Stem: 303 Stainless Steel	Lipseals: Buna "N" Yoke and Base: One Piece Ductile Iron Lever: Steel	Fulcrum Arm: Steel Lever and Fulcrum Pins: Steel
Approximate Shipping Weight	30 lbs. (14 Kg)	40 lbs. (18 Kg)

Notes: 1. For catalog number make-up, refer to Control Engineering Data Sheets.
A. Lever type actuators utilize clevis and fulcrum with 8 take-off positions. Lower stem guide on base assures constant alignment.
B. Lever Actuator mounting is base type with four ½″ holes on a 3¾″ bolt circle.
C. Maximum lever travel is 12″.
2. For proper positioner selection, refer to positioner data sheets.

Travel and Forces Developed

Lever Holes (⅜″ Dia.)	Lever Travel	Available Force (lbs.) Differential Pressure Across Piston			
		GB52SC		GB53SC	
		50 PSI (345 kPa)	70 PSI (483 kPa)	50 PSI (345 kPa)	70 PSI (483 kPa)
G	5″	315	445	755	1,060
H	6″	265	375	630	880
J	7″	225	320	540	755
K	8″	200	280	475	660
L	9″	175	250	420	590
M	10″	160	225	375	530
N	11″	150	200	345	480
P	12″	135	185	315	440

Formula For Forces Not Shown In Chart

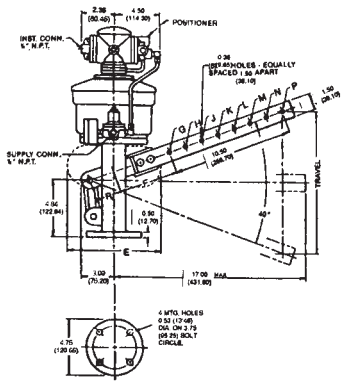
F1 = Force as shown in chart (at known ΔP1)
F2 = Force to be determined
ΔP1 = ΔP as shown in chart
ΔP2 = Known ΔP (not shown in chart)

F2 = F1(ΔP1/ΔP2)

e.g., Forces available at 5″ (127 mm) travel with 60 PSI (414 kPa) differential across GB53SC Actuator:

F2 = 1060 x 60/70
F2 = 908.5 lbs. of thrust

DIMENSIONS



Positioner Type	Normal Lever Position	As Instrument Signal Increases Lever Moves	On Air Failure (With Airlock) Lever Moves
GJ1103 GC31 GJ2103	Up	Down	Up
GJ1215 GJ1230 GC32 GC3230 GJ1315 GJ1330	Down	Up	Up
GC33 GC3330 GJ2215 GJ2230	Down	Up	Down
GJ14 GC34	Up	Down	Down

MODEL	A	B	C	D	E	F	R
GB52SC	18.38 (466.85)	7.25 (184.15)	6.13 (155.70)	6.75 (171.45)	8.13 (206.50)	5.75 (146.05)	1.64 (41.66)
GB53SC	19.25 (488.95)	9.38 (238.25)	7.25 (184.15)	6.75 (171.45)	8.13 (206.50)	5.19 (131.83)	2.19 (55.63)

TRAVEL AND FORCES DEVELOPED

LEVER HOLES (3/8" Dia.)	LEVER TRAVEL In. (mm)	AVAILABLE FORCE (lbs.) DIFFERENTIAL PRESSURE ACROSS PISTON GB52SC 50 PSI (345 kPa)	GB52SC 70 PSI (483 kPa)	GB53SC 50 PSI (345 kPa)	GB53SC 70 PSI (483 kPa)
G	5 (127)	315	448	756	1,060
H	6 (152)	265	375	630	880
J	7 (178)	225	320	540	775
K	8 (203)	200	280	475	660
L	9 (229)	175	250	420	590
M	10 (254)	160	225	375	530
N	11 (279)	150	200	345	480
P	12 (305)	135	185	315	440

Control Engineering Data

Control Engineering Data is intended to provide a single source from which one can determine, in detail, the full scope of the product line. In addition to materials of construction and diaphragm selection, it also provides all necessary data, regarding adjustment options and range selections. Control Engineering Data also provides a means of communicating, by way of a code number, which is fully descriptive of the product selection.

Notes: I. GB50X_ - GB55X_ Series Actuator will be supplied with spacer bars and lower flange. Specify stroke after catalog number (See position 11 for standard strokes - special strokes are available, consult the factory).
2. Stroke lengths must be specified after all catalog numbers.
3. Catalog numbers as received must contain fifteen (15) characters.

1-4 Models

GB50 = 3.0"	Piston Diameter	7.0	sq. in. Effective Area
GB51 = 4.0"	Piston Diameter	12.0	sq. in. Effective Area
GB52 = 6.0"	Piston Diameter	28.5	sq. in. Effective Area
GB53 = 8.0"	Piston Diameter	50.0	sq. in. Effective Area

5 Standard Options

A = Yoke Type - Drilled for Isolating and Lubricator Valve (GB52-GB53 only)
N = Airlock on Yoke (GB52-GB53 only)
P = Airpak® Mounted to Positioner (GB52-GB53 only - Yoke Style)
R = Airpak® Mounted to Positioner, Airlock on Yoke (GB52-GB53 only - Yoke Style)
S = Lever Operation (GB52 and GB53 only)
T = Airpak® Mounted to Positioner (GB5_XX_ and GB5_XXA_Series)
U = Yoke Type - GB52 1¼" Yoke Mount
- GB53 1 11/16" Yoke Mount
— The same yoke mount dimensions apply to Options N, P, and R

W = Airpak® Mounted to Positioner (GB52S_ and GB53S_ Lever Style)
X = Standard (If none of the above are selected)

6 Positioner Selections (Continued on next page)

Commandaire® "C" Series Positioners

C =	GC31 Positioner	:	3-9, 3-15, 3-27, 6-30 PSI
H =	GC32 Positioner	:	3-9, 3-15 PSI
7 =	GC3230 Positioner	:	3-27, 6-30 PSI
K =	GC33 Positioner	:	3-9, 3-15 PSI
8 =	GC3330 Positioner	:	3-27, 6-30 PSI
V =	GC34 Positioner	:	3-9, 3-15, 3-27, 6-30 PSI

Notes: 1. When ordering specify model number and range required.
2. For positioner action, refer to chart below.

Model		GC31	GC32 GC3230	GC33 GC3330	GC34
As Instrument Signal Increases	Positioner Output	Increases	Decreases	Increases	Decreases
	Actuator Stem	Extends	Retracts	Retracts	Extends
Positioner Output Loading to Actuator		Top	Top	Bottom	Bottom
On Air Supply Failure (w/ Airlock) Actuator Stem		Retracts	Retracts	Extends	Extends
Letter Designation in Actuator Model No.		C & R	H, S & 9	K, 8, T & I	V & U

Notes: 3. Refer to Drawing A50-48 for piping schematic for GC_Series Positioners.

Control Engineering Data

6
Positioner Selections
(Continued from
previous page)

Full Reversal Positioners
F = GC313182 Positioner : 3-9, 3-15, 3-27 PSI
G = GC333183 Positioner : 3-9, 3-15 PSI

Operational Characteristics		GC313182	GC333183
As Instrument Signal Increases	Positioner Output	Increases Pressure in Top Chamber	Decreases Pressure in Top Chamber
		Decreases Pressure in Bottom Chamber	Increases Pressure in Bottom Chamber
	Actuator Stem	Extends	Retracts
On Air Supply Failure (w/ Airlock) Actuator Stem		Retracts or Extends. Specify when ordering	

On/Off Series
W = On/Off : Full extend or full retract operation
6 = On/Off : Throttling Type Headplate without Positioner
Note: 1. When specifying Option 6, note the Range Spring Ass'y and Cushion-Loading Regulator will not be supplied.

7
Mounting Options

A = No Spacer Bars or Lower Flange
X = Absence of Specification (If characters in position 5 or "A" in position 7 are not specified, spacer bars will be provided.

8
Range Selections

A = 3-7 PSI (21-48 kPa)
B = 3-9 PSI (21-62 kPa)
C = 3-15 PSI (21-103 kPa)
D = 3-27 PSI (21-186 kPa)
F = 6-18 PSI (41-124 kPa)
G = 6-30 PSI (41-207 kPa)
H = 7-11 PSI (48-76 kPa)
J = 9-15 PSI (62-103 kPa)
K = 14-22 PSI (97-152 kPa)
L = 18-30 PSI (124-207 kPa)
M = 22-30 PSI (152-207 kPa)
K = Standard for On/Off Operation

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Airlock Selections
(Continued on next page)

Airlock - Extend or Retract or Air Failure
Airlock - Lock in Last Positioner

For GC31/34 and On/Off Only (See Note 1)
A = 57 cu. in. system
C = 180 cu. in. system
E = 400 cu. in. system
G = 1000 cu. in. system
J = 2100 cu. in. system

Full Reversal Series Only (Extended Stem) (See Note 2)
B = 57 cu. in. system
D = 180 cu. in. system
F = 400 cu. in. system
H = 1000 cu. in. system
K = 2100 cu. in. system

Full Reversal Series Only (Retract Stem) (See Note 2)
T = 57 cu. in. system
M = 180 cu. in. system
N = 400 cu. in. system
P = 1000 cu. in. system
R = 2100 cu. in. system

L = Airlock - Lock in Last Position (See Note 3)

X = Absence of Specification

Tank Size	Cylinder Bore Diameter	Stroke
57 Cu. In.	GB50 - 3"	2" + 5"
	GB51 - 4"	3" + 4"
	GB52 - 6"	1 1/8"
180 Cu. In.	GB50 - 3"	8"
	GB52 - 6"	4" + 6"
	GB53 - 8"	1 1/2"
400 Cu. In.	GB53 - 8"	4" + 6"
	GB54 - 10"	2 1/2" + 4"
1000 Cu. In.	GB53 - 8"	8" + 10"
	GB54 - 10"	10"
	GB55 - 12.5"	4"

9
Airlock Selections
(Continued from
previous page)

Notes:
1. Airlock Assembly includes Capacity Tank, Check Valve and Regulator. Refer to Drawing A50-4 and A50-48 for Piping Schematic.
2. Airlock Assembly includes Tank Capacity, Check Valve, Regulator and GVB12 Relay.
3. Airlock Assembly consists of GVB12 Relay.

10
Optional Accessories

X = Absence of Specification

11
Stroke Lengths

Standard Stroke Lengths

GB50	2", 5", 8"
GB51	3", 4"
GB52	1 1/8", 4", 6"
GB53	1½", 4", 6", 8", 10" (3)

Notes:
1. For stroke lengths longer than listed, consult the factory.
3. Maximum Piston Travel without Collars is:
   - 4" Stroke = 4.125"
   - 6" Stroke = 6.750"
   - 8" Stroke = 8.750"
   - 10" Stroke = 10.750"

Actuators with Yokes for Valve Mounting

GB52	Maximum Stroke 1 1/8"
GB53	Maximum Stroke 1½"

Lever Actuators

GB52	Maximum Lever Travel 12"
GB53	Maximum Lever Travel 12"

For Dimensional Data, refer to Drawing:

A6-15	GB2700/2800
A6-41	GB51/55 On/Off
A6-113	GB50 On/Off
A7-100	GB50 with Yoke - GC31
A7-101	GB50 with Yoke - GC32
A7-102	GB50 with Yoke - GC33
A7-103	GB50 with Yoke - GC34
A7-107	GB50 Series - with GC31
A7-108	GB50 Series - with GC32
A7-109	GB50 Series - with GC33
A7-110	GB50 Series - with GC34
A7-111	Lever Actuator
A7-114	GB51-55 with GC31
A7-115	GB51-55 with GC32
A7-116	GB51-55 with GC33
A7-117	GB51-55 with GC34