

Masoneilan®

8013 Series

Electropneumatic Positioner

Specification Data

BS 5050 E

07/03

Accurate, simple and rugged



8013 Series Electropneumatic Positioner

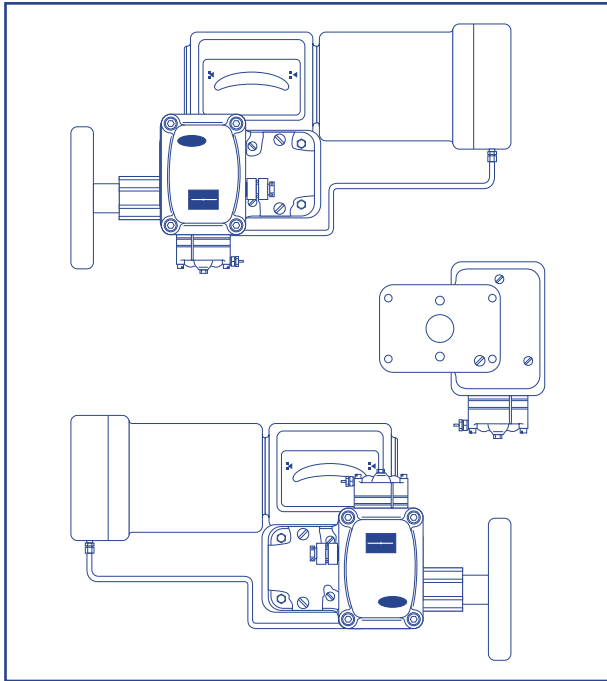


Fig. 1 : Series 8013 cam positioner mounted on Camflex II (similar on Varimax, Minitork II and 31000 Series)

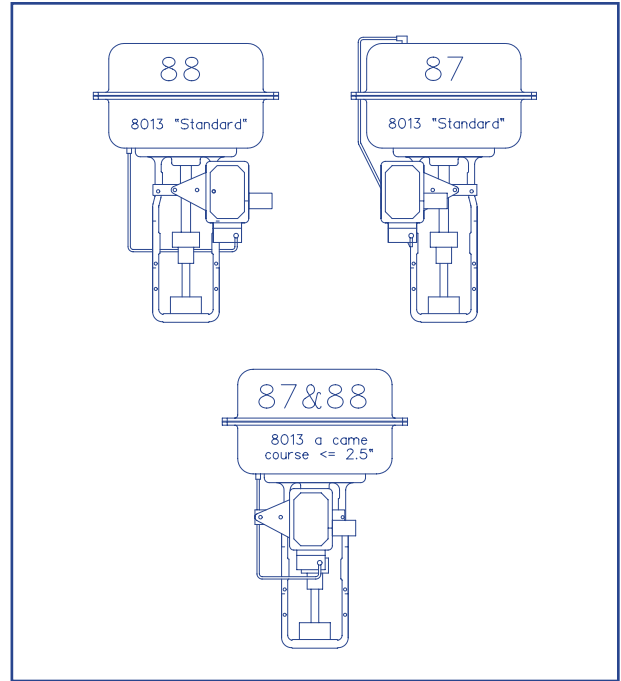


Fig. 2 : Series 8013 positioner mounted on 87/88 multispring actuator

Accurate, simple and rugged

The primary function of a valve positioner is to ensure that the control valve plug position is always proportional to the value of the controller output signal regardless of packing box friction, diaphragm actuator hysteresis, or out of balance forces on the valve plug. The controller output signal may be pneumatic or electric, depending on the type of the positioner.

The **Masoneilan** 8013 cam positioner is a force-balance electropneumatic device which, by directly comparing valve position with a controlled d.c. output signal, provides excellent dynamic response and positioning accuracy. One multi-lobe cam provides field changeable linear or percentage control characteristics without additional parts.

The series 8013 electropneumatic cam positioner is able :

- to change the valve action (increase in electrical signal opens or closes the valve),
- to change control characteristics (linear or equal percentage),
- to operate each of two control valves (split-range).

The 8013 positioner is available for either direct action (increase in electrical signal increases output pressure) or reverse action (increase in electrical signal decreases output pressure). In addition, the positioner provides an accurate means of split-ranging controller output signal for sequential operation of two control valves by a single controller.

Description

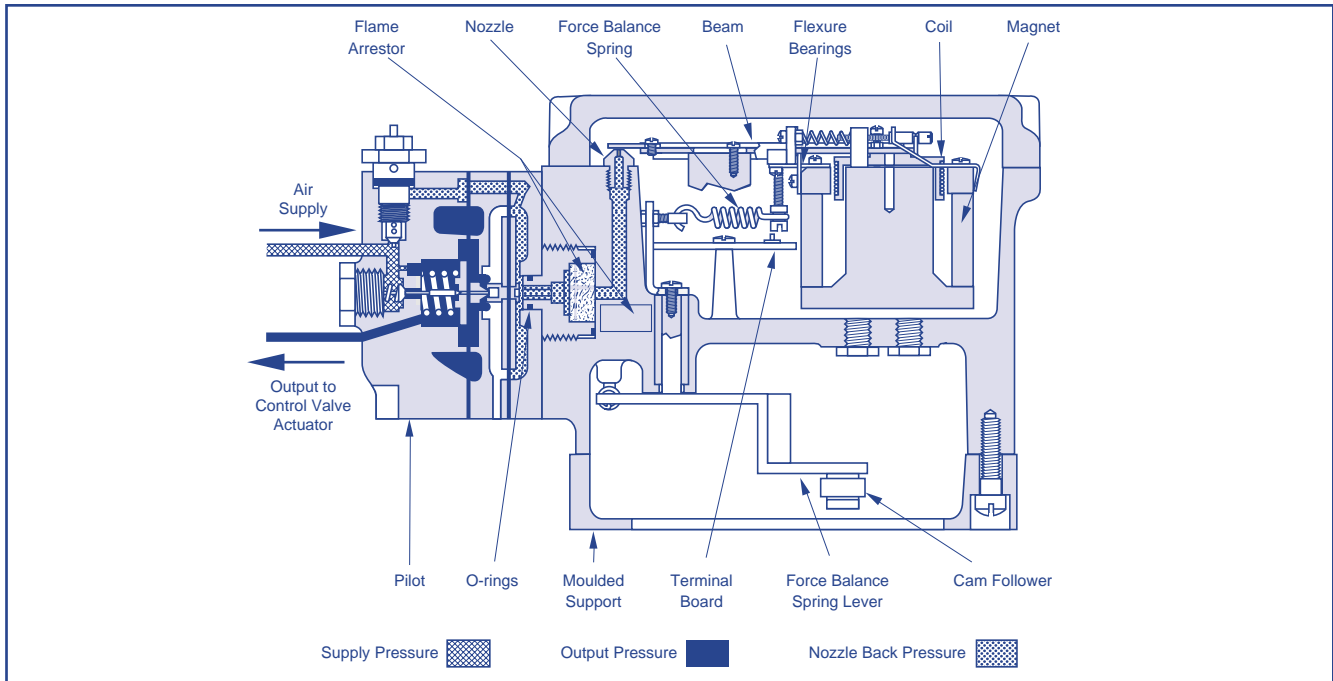


Fig. 3 : Sectional view of positioner

The installation in hazardous area locations must be in accordance with the safety standards.

Housing : the cast aluminium case is mounted at the front of the device by means of a mounting plate and a moulded support.

Beam and flexure bearings : beryllium copper flexure bearings provide friction-free fulcrum points for the beam.

Pilot : it is high capacity type for fast stroking speeds. The metering tube for the nozzle air supply is equipped with a clean-out plunger.

Cam : only one came is required to provide, depending on the selected lobe, equal percentage or linear (and linear split-range) control characteristics.

Linkage and associated backlash problems are eliminated by mounting the cam directly to the end of the plug shaft (rotary valves) or the actuator stem (reciprocating valves).

Electrical circuit : the series 8013 electropneumatic positioner can be supplied or easily adapted to accommodate the d.c. output signals of nearly all the electric controllers presently on the market. The coil is impregnated with an insulating material.

ATEX Approvals (94/9/EC Directive)

Explosionproof :

II 2 G/D EEx d IIB + H₂
 T6 (Tamb. = -20°C to +68°C)
 T5 (Tamb. = -20°C to +80°C)
 IP 6X T100 (Ta +80°C)
 N° LCIE 02 ATEX 6088

Intrinsic safety :

II 1 G/D EEx ia IIC
 T6 (Tamb. = -55°C to +40°C)
 T4 (Tamb. = -55°C to +80°C)
 IP 6X T125 (Ta +80°C)
 N° LCIE 02 ATEX 6058 X

Operation

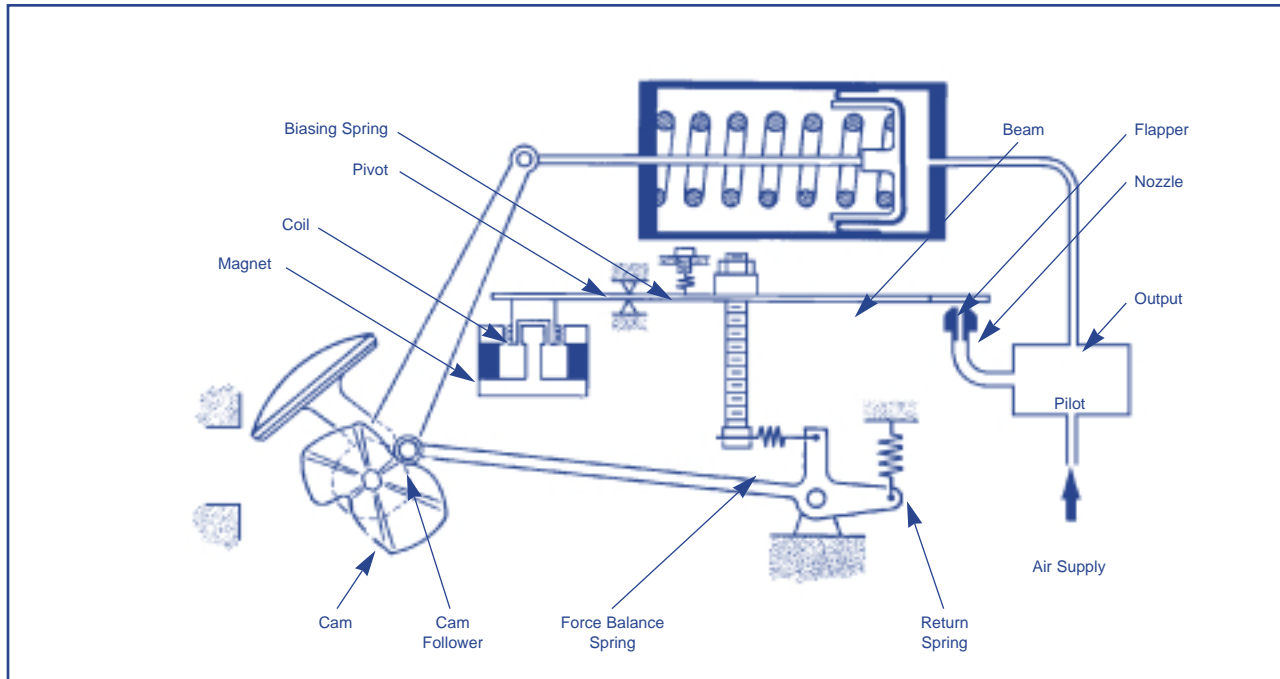


Fig. 4 : Operation on Camflex II (similar on Varimax, Minitork II and 31000 Series)

Any variation in the output signal of an electro-pneumatic controller causes the coil to produce a force on the beam, moving the flapper to cover or uncover the nozzle. The modification in nozzle back pressure causes, through the pilot, a variation of output pressure to the control valve actuator (increase in electrical signal increases output pressure in direct action and decreases output pressure in reverse action).

The resultant plug motion is transmitted through the positioner lever to the force-balance spring, extending or compressing the spring until the force exerted by it on the beam balances the opposing force of the coil. The system is then in equilibrium and positioner output is stabilized at the necessary level to maintain the desired valve plug position. When the forces on the beam are in equilibrium, there is theoretically no flow of air into or out from the pilot. Actually, a small bleed is provided between supply and output to increase pilot responsiveness when at equilibrium.

General Data

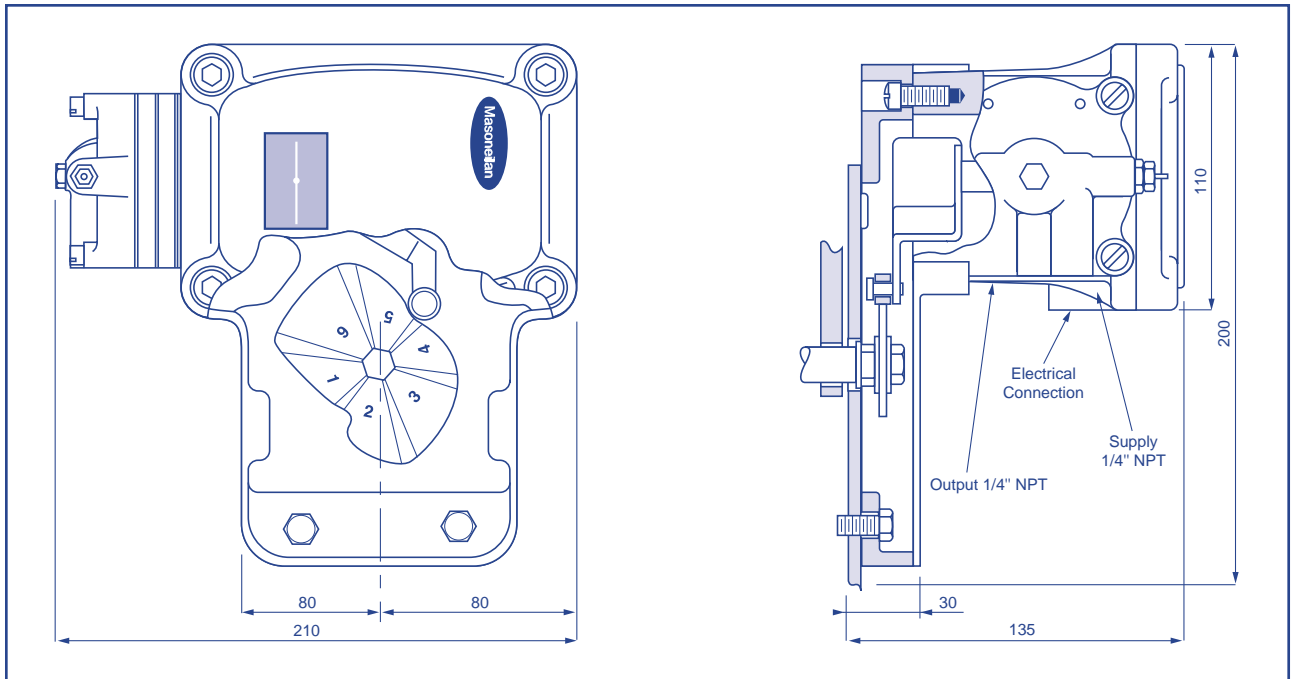


Fig. 5 : Cam position and positioner dimensions

Electrical circuit :

Typical circuit resistance is 216 ohm for an input d.c. signal of 4 to 20 mA.

The circuit is available for most current signals such as :

Input d.c. signal	Positioner input resistance
mA	ohms
1-5	2753
4-20	216
10-50	105
Other signals	On request

Note : for intrinsically safe apparatus, 4-20 mA & 216 ohms only.

Air supply :

From 1.4 to 5.2 bars (20 to 75 psi) depending on the valve size and actuator action.

Air consumption and output :

Supply	bar	1.4	2.4	5.2
	psi	20	35	75
Maximum consumption (steady state)	st.m ³ /h	0.40	0.55	0.85
	Scfm	0.24	0.33	0.51
Maximum air output (steady state)	st.m ³ /h	4.5	8.0	18
	Scfm	2.7	4.8	10.8

Air connections : 1/4" NPT

Supply pressure influence :

0.3 to 0.7% of output pressure for 100 mbar supply pressure change (0.2 to 0.5% per psi) depending on supply pressure.

Ambient temperature operating range :

- Standard instrument :
-20°C to +80°C (-5°F to +175°F)
- "Low temperature" instrument :
-50°C to +60°C (-60°F to +140°F)

Note : refer also to the marking of the apparatus.

Performance data :

The performance of a complete valve (i.e. the valve and its packing, actuator, positioner and accessories) depends upon the specific performance of each component. The performance data given below in average value in percentage of the input span, concerns Camflex II, Varimax, Minitork II and 87/88 multispring actuators equipped with a standard 8013 positioner.

- Hysteresis at mid stroke : 0.8% maxi
- Sensitivity : 0.3% maxi

Dimensions : See figure 5

Weight : 3.5 kg (7.5 lbs)

Masoneilan Direct Sales Offices

BELGIUM

Dresser Valves Europe
281-283 Chaussée de Bruxelles, 1190 Brussels
Telephone + 32.2.3440970
Fax + 32.2.3441123

BRAZIL

Dresser Industria e Comercio Ltda.
Rua Senador Vergueiro, 433
09521-320 Sao Caetano Do Sul, Sao Paulo
Telephone + 55.11.453.5511
Fax + 55.11.453.5565

CANADA

Ontario
Dresser - Masoneilan - DI Canada Inc.
5010 North Service Road, Burlington, Ontario L7L 5R5
Telephone + 1.905.335.3529
Fax + 1.905.336.7628

Alberta

Dresser - Masoneilan - DI Canada Inc.
Suite 1300, 311-6th Ave., S.W., Calgary, Alberta T2P 3H2
Telephone + 1.403.290.0001
Fax + 1.403.290.1526

CHINA

Dresser
Suite 2403, Capital Mansion, 6 Xinyuannan Rd.
Chao Yang District, Beijing 100040
Telephone + 86.10.64661164
Fax + 86.10.64660195

FRANCE

Dresser Produits Industriels S.A.S.
4, Place de Saverne, 92971 Paris la Défense Cedex
Telephone + 33.1.49.04.90.00
Fax + 33.1.49.04.90.10

Dresser Produits Industriels S.A.S.
55, rue de la Mouche, 69540 Irigny (Lyon)
Telephone + 33.4.72.39.06.29
Fax + 33.4.72.39.21.93

GERMANY

Dresser Valves Europe GmbH
Heiligenstrasse 75, 41751 Viersen (Dülken)
Telephone + 49.2162.81.700
Fax + 49.2162.81.70.200

Dresser Valves Europe GmbH
Uhlandstrasse 58, 60314 Frankfurt
Telephone + 49.69.439350
Fax + 49.69.4970802

INDIA

Dresser Valve India Pvt. Ltd.
305/306 "Midas" Sahar Plaza, Mathurdas Vasani Road
J.B. Nagar, Andheri East, Mumbai - 400059
Telephone + 91.22.28351134
Fax + 91.22.28354791

Dresser Valve India Pvt. Ltd.
205, Mohta Building, 4, Bhikaiji Cama Place
New Delhi - 110066
Telephone + 91.11.26164175
Fax + 91.11.26165618

ITALY

Dresser Italia S.r.l. - Masoneilan Division
Via Cassano, 77 - 80020 Casavatore, Naples
Telephone + 39.081.7892111
Fax + 39.081.7892208

JAPAN

Niigata Masoneilan CO. Ltd.
20th Floor, Marive East Tower, WBG 2-6 Nakase,
Mihama-Ku, Chiba-shi, Chiba 261-7120
Telephone + 81.43.2979222
Fax + 81.43.2991115

KOREA

Dresser Korea Inc.
2107 Kuk Dong Building
60-1, 3Ka, Choongmu-ro Chung-Ku,
Seoul, 100705
Telephone + 82.2.274.0792
Fax + 82.2.274.0794

KUWAIT

Dresser
Middle East Operations,
10th Floor, Al-Rashed Complex,
Fahad Salem Street,
P.O. Box 242, Safat, 13003
Telephone + 965.9061157
Fax + 965.3718590

MALAYSIA

Dresser Flow Solutions
Business Suite, 19A-9-1, Level 9,
UOA Centre, n° 19, Jalan Pinang,
50450 Kuala Lumpur, West Malaysia
Telephone + 60.3.2163.2322
Fax + 60.3.2163.6312

MEXICO

Dresser Valve de Mexico, S.A. de C.V.
Henry Ford n° 114, Esq. Fulton,
Fracc. Industrial San Nicolas, 54030 Tlalnepantla,
Estado de Mexico
Telephone + 52.5.310.9863
Fax + 52.5.310.5584

THE NETHERLANDS

Dresser Valves Europe
Steenhouwerstraat 11, 3194 AG, Hoogvliet
Mailing address : P.O. Box 640,
NL3190 AN Hoogvliet RT
Telephone + 31.10.438.4122
Fax + 31.10.438.4443

NIGERIA

Dresser Flow Solutions
Plot 293, Akin Olugbade Street
Victoria Island, Lagos, Nigeria
Telephone + 234.1.555.4229
Fax + 234.1.555.7969

RUSSIA

DS Controls
61, Nekhinskaya Street,
Veliky Novgorod 173021
Telephone + 7.8162.157898
Fax + 7.8162.157921

SAUDI ARABIA

Dresser Al Rushaid Valve & Instrument CO.
P.O. Box 10145 - Jubail Industrial City 31961
Telephone + 966.3.341.0278
Fax + 966.3.341.0696

SINGAPORE

Dresser Singapore Pte Ltd.
16, Tuas Avenue 8 - Singapore 639231
Telephone + 65.6.861.6100
Fax + 65.6.861.7172

SOUTH AFRICA

Dresser Ltd., South Africa Branch
P.O. Box 2234, 16 Edendale Road Eastleigh,
Edenvale 1610
Telephone + 27.11.452.1550
Fax + 27.11.452.6542

SPAIN

Masoneilan S.A.
C/Murcia 39 C, 08030 Sant Boi de Llobregat,
Barcelona
Telephone + 34.93.652.6430
Fax + 34.93.661.6444

UNITED ARAB EMIRATES

Dresser - Middle East Operations
P.O. Box 61302, Roundabout 8,
Units JAO1 & JAO2
Jebel Ali Free Zone, Dubai
Telephone + 971.4.8838.752
Fax + 971.4.8838.038

UNITED KINGDOM

DI UK Ltd.
Trevithick Works Gillibrands Estate,
Skelmersdale, Lancashire WN8 9TU
Telephone + 44.1695.52600
Fax + 44.1695.52662

DI UK Ltd.
Unit 4, Suite 1.1, Nobel House,
Grand Union Office Park, Packet Boat Lane,
Uxbridge, Middlesex UB8 2GH
Telephone + 44.1895.454900
Fax + 44.1895.454919

UNITED STATES

Northern Region
Dresser - Masoneilan
85 Bodwell Street
Avon, MA 02322-1190
Telephone + 1.508.586.4600
Fax + 1.508.427.8971

Southern Region
Dresser - Masoneilan
2135 Highway 6 South
Houston, TX 77077
Telephone + 1.281.496.8100
Toll Free + 1.800.847.1099
Fax + 1.281.596.4222

South Texas Operations
Dresser - Masoneilan
4841 Leopard Street
Corpus Christi, TX 78408-2621
Telephone + 1.361.877.2414
Fax + 1.361.584.1196

Masoneilan Aftermarket
Sales & Service Center
16030 Bear Bayou Drive
Channelview, TX 77530
Telephone + 1.281.862.1500
Fax + 1.281.862.1550

Western Region
Dresser - Masoneilan
2950 East Birch Street
Brea, CA 92821
Telephone + 1.714.572.1528
Fax + 1.714.572.1463