



Linear Electro
Hydraulic Actuators



ADVANCED
ACTUATORS

TECHNICAL SPECIFICATION

PRINCIPLES OF OPERATION

Most hydraulic systems comprise of a pumping unit/hydraulic controls/actuator and interconnecting pipework to connect the system together.

The ZBG Range of Electro-Hydraulic Actuators from Advanced Actuator combine all these sections into one self-contained unit.

For simple open/close applications the ZBG Range of Electro-Hydraulic Actuators offers benefits that make it a cost effective, reliable, easy to install solution.

ADVANTAGES

- Self-contained – no hydraulic pipework to install
- Completely sealed – does not ‘breathe’
- Adjustable thrust and speed
- No filtration required
- No solenoid valves required
- Ultra low maintenance
- Compact
- Numerous optional features
- Very easy to install and commission



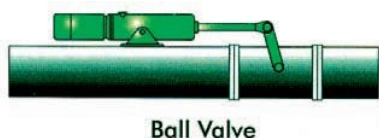
HOW IT WORKS

THE ZBG ACTUATOR IS A VERY SIMPLE ROBUST UNIT

The electric motor is close coupled to a gear pump which in turn is connected to a hydraulic control block. This block has two pressure and two flow control valves all of which are adjustable and independent of each other thus allowing flexibility in terms of thrust and speed settings. From the control block pipework connects through to a hydraulic cylinder. With the exception of the electric motor, all the above items are then encased in a carbon steel tube which acts as the oil reservoir.

By spinning the electric motor in one direction oil is taken in from the reservoir by the pump and fed through to the cylinder via the control block and the cylinder extends. As the cylinder extends the motor can be stopped and the cylinder will hydraulically lock at that position.

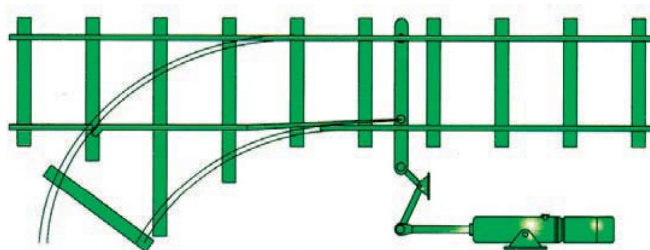
To retract the cylinder spin the motor in the opposite direction. The unit is completely sealed from the outside by a series of 'O' rings which prevents the ingress of contamination.



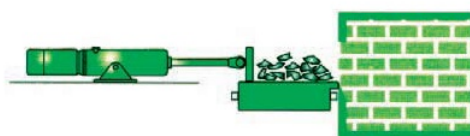
Ball Valve



Bunker Doors



Railway Points



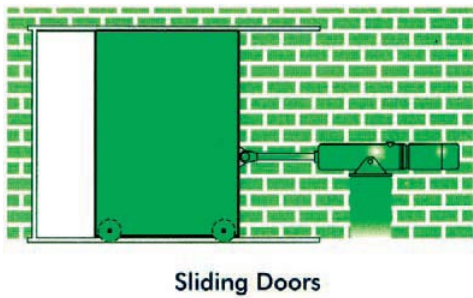
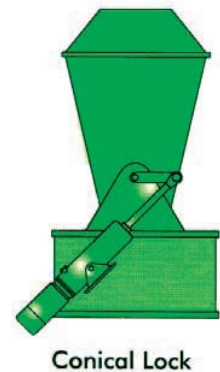
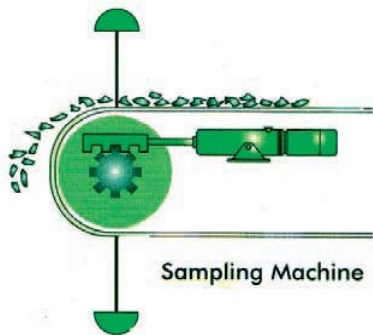
Furnace Charging



RANGE PERFORMANCE TABLE

Type	Size	Max extend Thrust kgf	Max retract Thrust kgf	Max stroke mm*	Max speed mm/sec	Motor range kw
ZBG	139	500	250	650	0-290	0.55
ZBG	159	1250	850	800	0-250	0.25 - 1.5
ZBG	193	2500	1600	1200	0-250	0.25 - 3.0
ZBG	219	4000	2750	1600	0-200	0.25 - 3.0
ZBG	245	6000	4500	2500	0-200	0.55 - 5.5
ZBG	273	8000	6000	3500	0-160	0.75 - 7.5
ZBG	298	10000	7500	4000	0-140	0.75 - 7.5
ZBG	368	13000	10000	5000	0-120	0.75 - 15
ZBG	419	22500	16500	5000	0-120	2.2 - 18.5
ZBG	508	40000	30000	5000	0-100	2.2 - 22
ZBG	610	80000	60000	5000	0-50	2.2 - 30

*Actual maximum stroke will depend upon the thrust required.

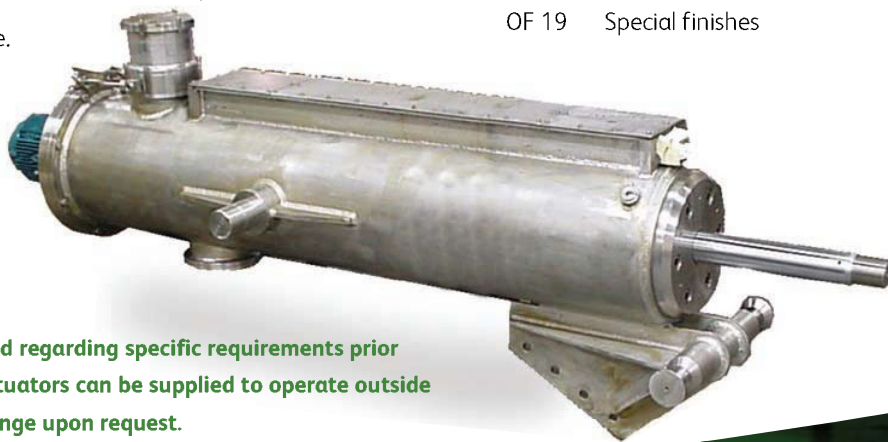


MAIN FEATURES

- Thrust range 25kgf – 80,000kgf (55lbf – 176,000lbf)
- Speed range: 0 – 290 mm / sec. (0 – 11.4 ins / sec.)
- Stroke length: 0 – 5000 mm (0 – 16.4ft.)
- Temperature range: min. -20°C, max. +70°C
- Various mounting arrangements – trunnion (standard) – flange – foot – end swing pin.
- All steel case construction – no breakage due to shock: resistant to erosion by chemical fumes or sinter.
- Any non-corrosive fluid except water.*
- All static seals are standard 'O'-rings.
- Piston rod – 080M40 steel ground and hard chromed with a surface layer of 40 – 50 µm and polished to give a finish of 0.2 – 0.3 µm Ra tolerance f7.
- N.B. Although this specification gives a high degree of protection against wear and corrosion, serious consideration should be given to the Optional Features (see Of15 a/b) when operating in either hostile environment (chemical salt water – sinter etc), or if piston rod is extended for prolonged periods.
- Cylinder body – cold drawn, stress relieved, seamless mild steel honed tube. Surface finish of 0.2 – 0.25 µm Ra tolerance H8.
- All parts replaceable.

● OPTIONAL FEATURES

- OF 1 Mounting brackets
- OF 2 Manual operation
- OF 3 Limit switches
- OF 4 Pressure switches
- OF 5 Potentiometers
- OF 6 Starter a) integral b) remote
- OF 7 Position control amplifier a) integral b) remote
- OF 8 Starter/position control amplifier a) integral b) remote
- OF 9 Remote position indicator
- OF 10 Local mechanical position indicator
- OF 11 Anti-condensation heaters
- OF 12 Fluid heaters
- OF 13 Piston rod: a) BS970. Grade 080M40 steel ground, 25 µm nickel, 50 – 75 µm chrome, polish 0.2 – 0.3 µm Ra.
b) BS970. Grade 316S31 stainless steel ground, 75 – 100 µm chrome, polish 0.2 – 0.3 µm Ra.
- OF 14 Cushioning
- OF 15 Shock relief valves
- OF 16 Viton seals
- OF 17 Emergency power operation
- OF 18 Pressure gauge test points
- OF 19 Special finishes



***We must be advised regarding specific requirements prior to manufacture. Actuators can be supplied to operate outside this temperature range upon request.**

ADVANCED ACTUATORS

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OTHER PRODUCTS

● EK AND EKR ACTUATORS

Linear or 0 – 90 degree electro-hydraulic actuators for modulating or isolating duty. Thrusts up to 80,000kg and torques up to 135,000NM within the standard range. Optional features make these units adaptable for most applications.

● STEPPING ACTUATORS

Primarily for choke valve control, the Advanced Actuator stepping actuator range come in either pneumatic or hydraulic formats. As with all Advanced Actuators they come with a number of optional features.

● ELECTRIC ACTUATORS

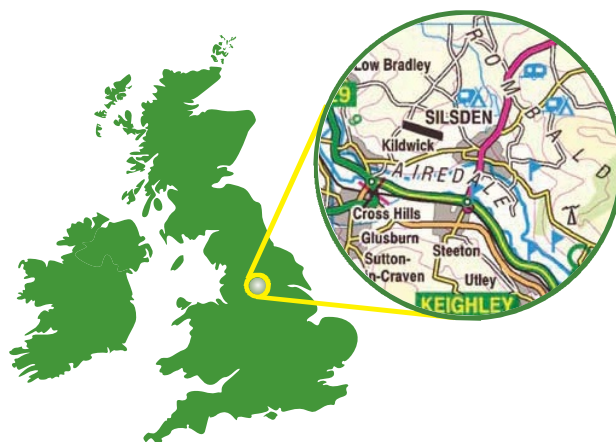
Modular in design, both multi and 1/4 turn available offering compact solutions. For modulating or isolating duty with options of foundation field bus and HART. Other features include double sealing of the enclosure, standard ISD05211 mounting, local or remote control and manual operation are a few of the options with these actuators.

● PNEUMATIC ACTUATORS

Quarter turn scotch yoke design in both single and double acting formats. Anodised outer surface with double coating on the cylinder bore. Mountings for both ISO 5211 and DIN3337. Optional features include limit switches, position controllers, integrally mounted solenoid controls and valve/actuator mounting brackets.

● HYDRAULIC CYLINDERS

Complete range of heavy-duty high quality fully serviceable (i.e. can be rebuilt) metric hydraulic cylinders to CETOP/R10H.



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