

**J3CS Smart Electric Actuator Function: POWER OPEN - POWER CLOSE , FAILS 'SAFE' ON POWER FAILURE**

Note: J3 Actuator  
(superseded by J3CS)



Type: **E3014GS (GF546)**

Electric actuator fitted via EasyFit-G kit

**+GF+**

DN15-50 1/2" - 2"

### Main J3CS Smart electric actuator features:

- LED light for continual visual actuator status feedback.
- Fully weatherproof smart industrial actuator.
- Multi-voltage 24-240V capable actuator.
- All external electrical connections, no need to remove cover .
- Selectable manual override facility.
- Thermostatic anti-condensation heater.
- Electronic torque limiter.
- End of travel switches for remote open/ closed indication.
- CE marked.
- EU manufactured by J+J.

### Applications:

PVC is odourless and tasteless and is used in many applications such as potable water and many food processing. PVC has good chemical resistance and resists most solutions of acids, alkalis and salts, and solvents that can be diluted with water acids. It is not resistant to aromatic and chlorinated carbons.

Actuators sized on a maximum differential pressure of 10 bar wet service, operated at least once per day. If the intended duty is above this differential, or dry (eg: some solvents) call to check actuator sizing as a larger output actuator may be required.

### Typical Kv Values

	1/2"	3/4"	1"	1 1/4"	1 1/2"
Kv	165	350	700	1000	1600
	2"	2 1/2"	3"	4"	
Kv	3100	500	7000	11000	

Specifications:	
Actuator housing	UV Protected Polyamide
Supply voltage range	24-240V AC or DC
IP Rating	IP67
Actuator temp limits	-20 to +70°C
Assembly temp limits	E3014GS +60°C
Valve body	uPVC
Valve ball	uPVC
Valve seats	PTFE with EPDM seals
Valve Pressure rating	16 bar at +20C
Valve temp limits	0 to +60°C
Size range	1/2" to 4"

### Ball valve information:

The GF546 is a true union ball valve particularly suited to industrial applications where high performance and reliability in service are primary considerations.

The result of over 40 years experience in manufacturing and undoubtedly one of the world's most specified ball valves, the GF546 ball valve offers quality, flexibility and reliability. It is particularly suited as an on-off ball valve but can be used in applications where an element of control is desired.

The double O ring sealed stem has a break point designed into it preventing catastrophic failure due to wear or over-torque.

Automation is made quick and easy when using the J+J manufactured 'EasyFit-G' mounting kit.

Kv = m<sup>3</sup> per hour with a 1 bar pressure drop across the valve

CV = US gallons per hour with a 1psi pressure drop across the valve

Cv = Kv / 0.86

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**J3CS FAILSAFE ELECTRIC ACTUATOR**

Power open, power close, fails to pre-set position on loss of external power. Typically fails closed, but can be set to fail open. The BSR Failsafe conversion kit is pre-installed by J+J.

**How this electric 1/4 turn valve works (on-off):**

Electrically operated valves are driven by a motor and gearbox. On receipt of a continuous voltage signal the motor runs and, via a gearbox in the J+J smart electric actuator, rotates the valve stem. The motor stops at the desired position (usually 0° or 90°) by internal cams striking micro-switches. The smart valve actuator remains in this position, with the voltage still applied continuously, until switched and a continuous voltage reversing signal is applied, which runs the motor in the opposite direction, reversing the rotation until separate set of internal cams strike separate set of micro-switches.

**Options:**

It is possible to change the J3CS actuator's function by installing user friendly plug and play function conversion kits. These will provide the following alternative functions:

**Failsafe Modulating J3CS Actuator**

Movement of the J3CS actuator is proportional to an input control signal, typically 4-20mA or 0-10V, but by installing our DPS (Digital Positioning System) user friendly plug and play kit, it will fail to the desired pre-set position on loss of external power. There are also options for how the J3CS modulating reacts to loss of the control signal as follows:

Configuration options:

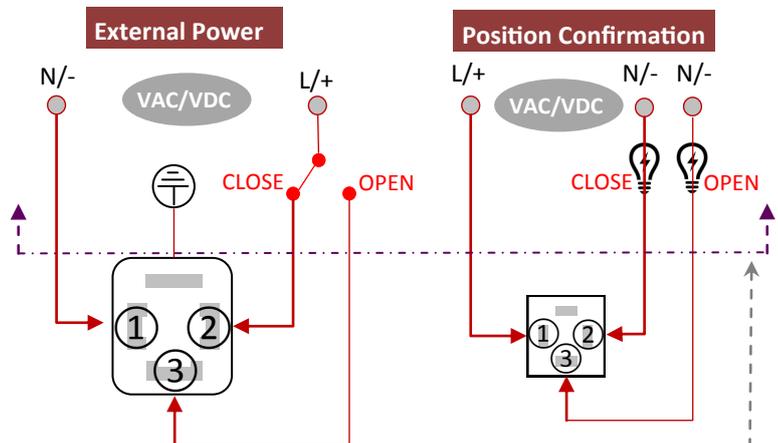
- 1) Closes on loss of control signal, or on loss of power
- 2) Opens on loss of control signal, or on loss of power
- 3) Stays put on loss of control signal



**DPS** Modulating plug & play kit can be installed with the BSR failsafe kit to create failsafe modulating function.

**Electrical Connection - Wiring of DIN Plugs**

**J3CS FAILSAFE WIRING**



Note: Above line above is customer supplied

In J+J electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.

**Pre-installed Plug & Play Function Conversion Kit:**



**BSR** Failsafe plug & play kit (already installed by J+J in the failsafe version)

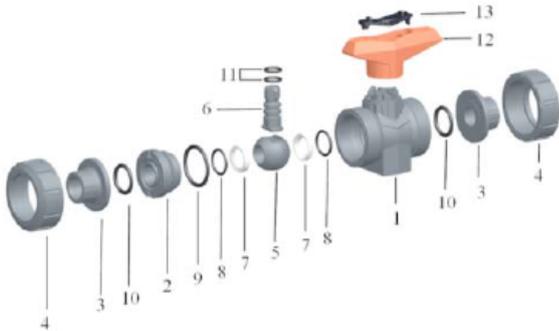
**How the BSR (Battery 'Spring Return') system works:**

The user friendly BSR failsafe function plug and play conversion kit adds an industrial NiCad rechargeable battery and PCB to the standard power open, power close J3CS actuator. The electric actuator continues to operate power open, power close, and whilst doing so, the battery is constantly trickle charged to keep it fully charged.

When external power is lost, a switch in the BSR PCB draws internal power from the battery to send the J3CS to the desired pre-set 'safe' position, if not already in that position.

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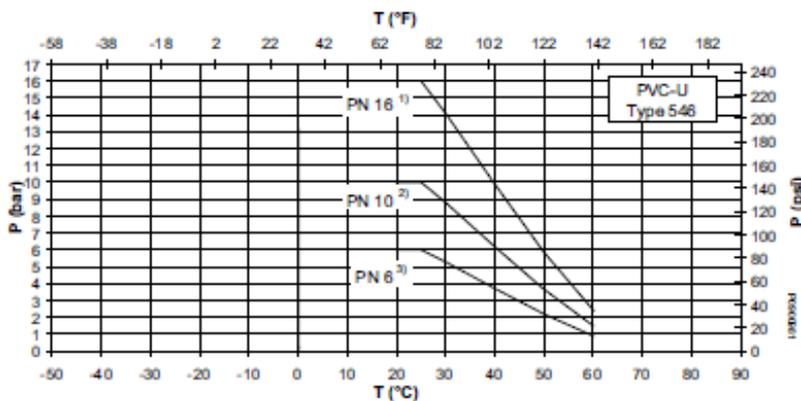
### Design



1. Body	8. Backing seal
2. Union Bush	9. Body seal
3. Connection part	10. Union seal
4. Union nut	11. 2x Stem seals
5. Ball	12. Standard handle
6. Stem	13. Handle clip
7. Ball seal	

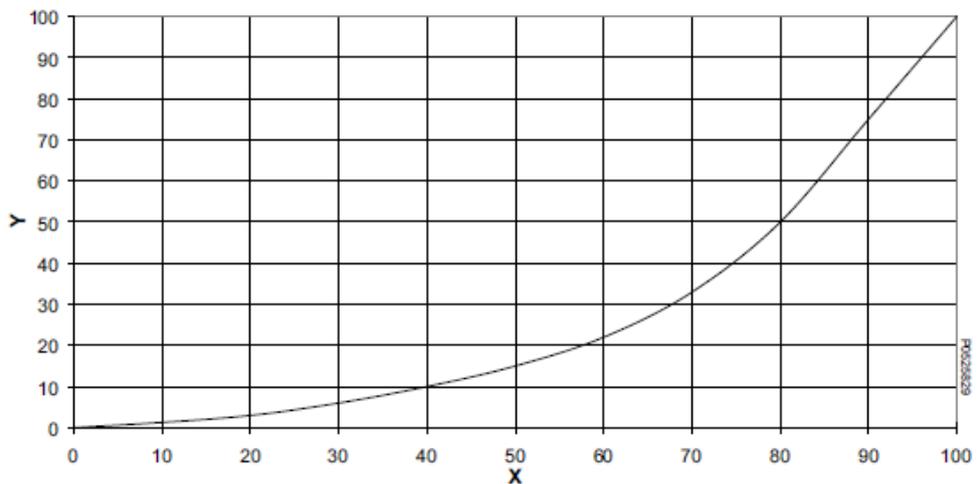
### P / T-Diagrams

PVC-U



P: Permissible pressure in bar, psi, T: Temperature in °C, °F  
 1) The central part of ball valve is designed for the nominal pressure PN 16  
 2) Depending on the valve end, the nominal pressure is reduced to PN 10  
 3) Depending on the valve end, the nominal pressure is reduced to PN 6

### Flow-characteristics

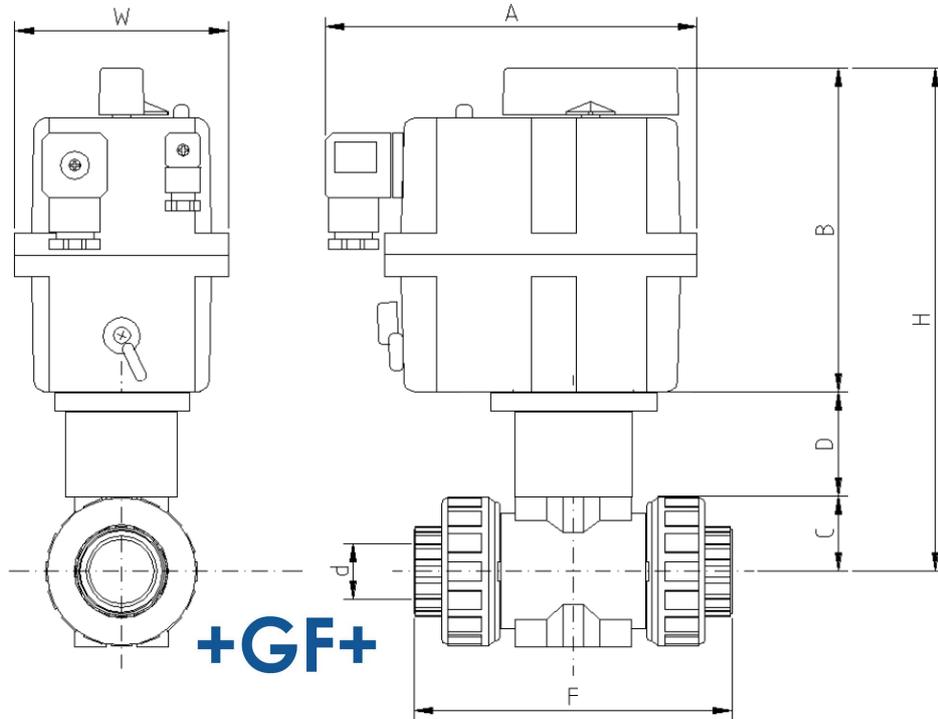


X: Open angle (%), Y: Flow factor kv, cv (%)

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**Typical Dimensions:**

Note: Drawing shows J3 actuator, awaiting updated drawing showing the J3CS, released in late 2016.



Type: **E3014GS** Actuator fitted to valve via the 'EasyFit-G' mounting kit manufactured by

E3014GS Dimensions remain unchanged for all versions						
- on-off, failsafe, modulating & failsafe modulating						
	Model	A	F	H*	W	Kilos
≤1/2"	20	177	124	203	110	
3/4"	20	177	144	207	110	
1"	20	177	154	212	110	
1 1/4"	20	177	174	220	110	
1 1/2"	20	177	194	227	110	
2"	20	177	224	240	110	
2 1/2"	55	177	284		110	
3"	55	177	300		110	
4"	55	177	340		110	

\* Estimated as information unavailable from +GF+