

**J3CS Smart Electric Actuator Function: MODULATING CONTROL , STAYS PUT ON POWER FAILURE**



**E6105S-WRAS**

Actuator direct mounted. Max +70C



**Main J3/ J3C Smart electric actuator features:**

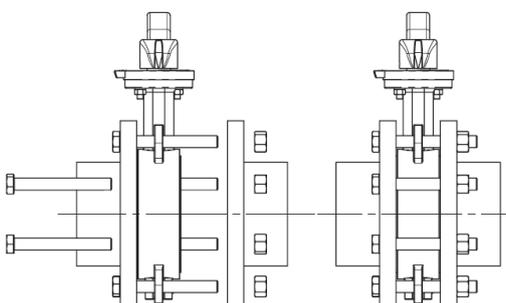
- LED light for continual visual actuator status feedback.
- Fully weatherproof smart industrial actuator.
- Multi-voltage 24-240V capable actuator.
- All external electrical connections, no need to remove cover .
- Selectable manual override facility.
- Thermostatic anti-condensation heater.
- Electronic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

**Wafer pattern butterfly valve installation information:**

Wafer pattern butterfly valves sandwich between two mating flanges, secured by through bolts that pass all the way from one flange to the other, and a corresponding nut. See diagram to the right.

The correct alignment of wafer pattern valve so that the butterfly valve’s resilient liner seals against the raised faces of the flanges is aided by through-bolt lugs cast into the wafer valve’s body, although as these lugs are oval in shape to allow alignment with several different flange standards (ANSI, BS, DIN), care must be taken to ensure correct alignment when tightening the through bolts.

Wafer butterfly valves are not suitable for end of line service.



<b>Specifications:</b>	
Actuator housing	UV Protected Polyamide
Supply voltage rating	24-240V AC or DC
IP Rating	IP67
Actuator temp limits	-20 to +70°C
Assembly temp limits	E6105S +70°C Direct mounted E6115S +120°C Mounted via kit
Valve body	Cast Iron, epoxy coated
Valve disc	Stainless steel
Valve liner	EPDM - WRAS approved
Valve Pressure rating	16 Bar
Valve temp limits	-10 to +120°C
Size range	2” to 12”

**Applications:**

Water, and most non-corrosive media, subject to compatibility with wetted parts in contact with media. These valves use EPDM that is approved in the UK by WRAS for use with drinking water (potable water)

Electrical actuators sized on a maximum differential pressure of 10 bar wet service, operated at least once per day. If the intended duty differs from these parameters or is dry (air or gas), call to check JJ actuator sizing as a larger output valve actuator may be required.

Maximum working temperature of a direct mounted assembly is +70C. For higher working temperatures , consider models that have a mounting kit between the valve and actuator which uses air cooling to dissipate the rising heat from the valve away from the actuator. Should the J3CS smart actuator see more than +70C it will malfunction.

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**J3CS MODULATING ELECTRIC ACTUATOR**

The J3CS Modulating is used where the position of the actuator is required to be set by a control input signal. Unlike an on-off electric actuator, a modulating actuator will rarely travel from open to closed in one movement, it may only be required to alter its position by a few degrees. This is achieved by installing our DPS (Digital Positioning System) - installed by J+J when ordered as a modulating electric actuator.

**How this electric 1/4 turn valve works (Modulating):**

Power permanently connected, movement of the J3CS actuator is then proportional to an input signal, typically 4-20mA or 0-10V. The DPS processor continually compares the physical position of the J3CS output shaft to the input signal, and if a difference exists, controls the motor to eliminate the difference. An output signal is provided as standard. The reaction from the J3CS actuator to a loss of control signal can be set as below, but it will stay put on loss of external power.

Configuration options:

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

The DPS in the J3CS uses the latest magnetic position sensing technology which, when combined with digital processing, produces very accurate modulating control. This is a very Smart Red Box.

**Options:**

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

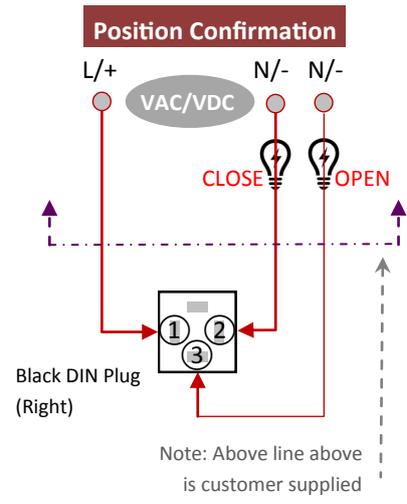
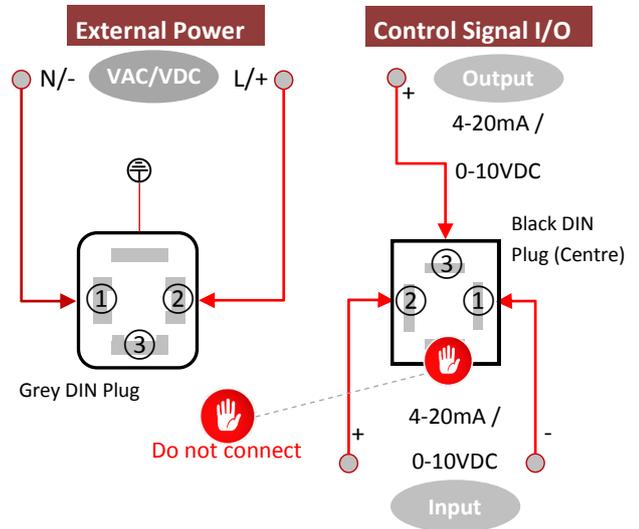
**Failsafe Modulating J3CS Actuator**

Adding the BSR (Battery 'Spring Return') plug and play function conversion kit to the J3CS modulating actuator, it becomes a J3CS failsafe modulating electric actuator.

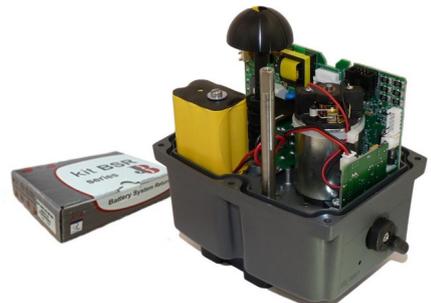
The advantage this gives is that the actuator will fail to either the open or closed position, depending on how the DPS positioner is configured, in the event of an external power failure.

The BSR failsafe system comprises of an industrial rechargeable NiCad battery and a PCB containing a trickle charger and control circuitry. It can either be installed by J+J on original supply, or retro-fitted.

**J3CS MODULATING WIRING**

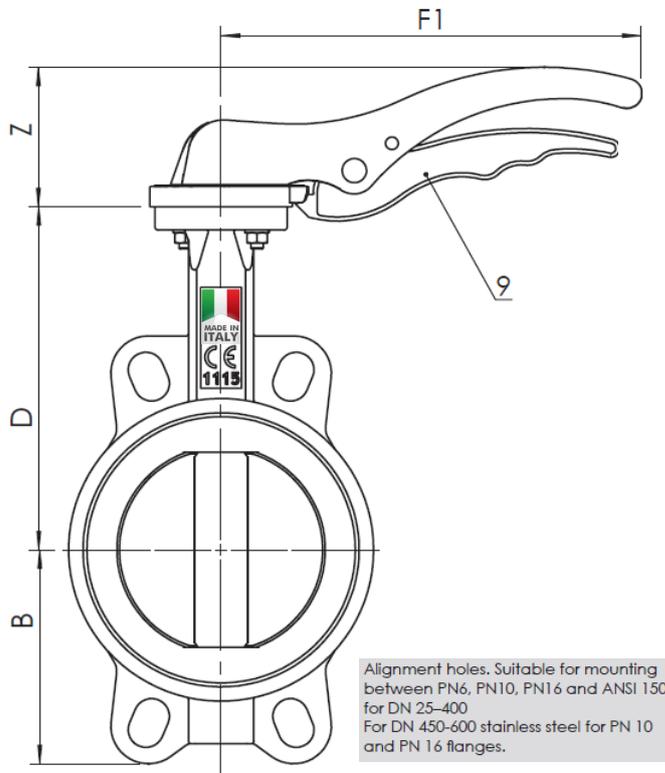


In J+J electric actuators all electrical connections are made externally using the external DIN plugs supplied with the actuator. There is no need to remove the valve actuator's cover to connect electrically. There are no terminals internally to connect to.



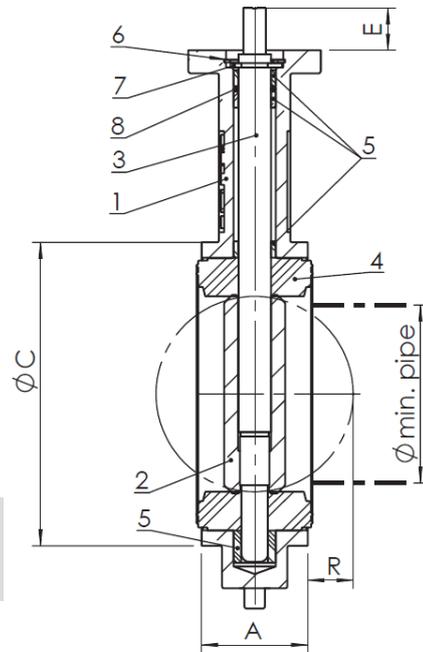
BSR Failsafe plug & play kit can be added to create failsafe modulating function.

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Alignment holes. Suitable for mounting between PN6, PN10, PN16 and ANSI 150 for DN 25-400  
For DN 450-600 stainless steel for PN 10 and PN 16 flanges.

**Typical Dimensions & Materials of Construction**



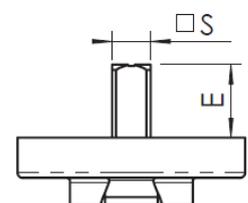
**Materials of Construction**

Component	Material
1 Body	EN GJS 400 - 15
2 Disco	EN GJS 400 - 15 nickel plated / ASTM A351 gr. CF8-M / CuAl11Fe4 ASTM B148 C94500
3 Stem DN25-400	AISI 420
3 Stem DN450-600	AISI 416
4 Liner	EPDM / NBR / FKM (Viton®) / PTFE
5 Bushing	PTFE
6 Washer	Galvanized carbon steel
7 Circlip ISO3075	Spring steel
8 O-ring	FKM (Viton®)
9 Lever	DN25-150 aluminium / DN 200-250 EN GJS 400-15
10 Bolts	Galvanized carbon steel

**Typical Dimensions**

DN	25	32	40	50	65	80	100	125	150	200	250	300
A	33	33	33	43	46	46	52	56	56	60	68	78
ØC	65	73	82	89	102	118	150	174	205	260	318	376
D	104	110	116	126	136	150	170	180	200	230	266	292
B	51	56	63	62	69	90	106	119	131	166	202	235
F1	192	192	170	170	170	206	206	285	285	400	530	-
Z	68	68	50	50	50	69	69	90	90	72	72	-
F2	170	170	170	170	170	170	170	170	170	235	226	226
L	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	190	190	190
T	65	65	65	65	65	65	65	65	65	78	80	80
L1	110	110	110	110	110	110	110	110	110	155	170	170
L2	130	130	130	130	130	130	130	130	130	176	195	195
W	45	45	45	45	45	45	45	45	45	63	81	81
O	150	150	150	150	150	150	150	150	150	300	300	300
R	-	1	5	5	9	17	26	34	50	71	91	112
D min pipe	-	12	27	31	45	65	90	110	146	194	241	291
S	7	7	9	9	9	11	11	14	14	17	27	27
E	32	32	21	21	21	21	21	27	27	27	27	27

Stem details:



DN25-400

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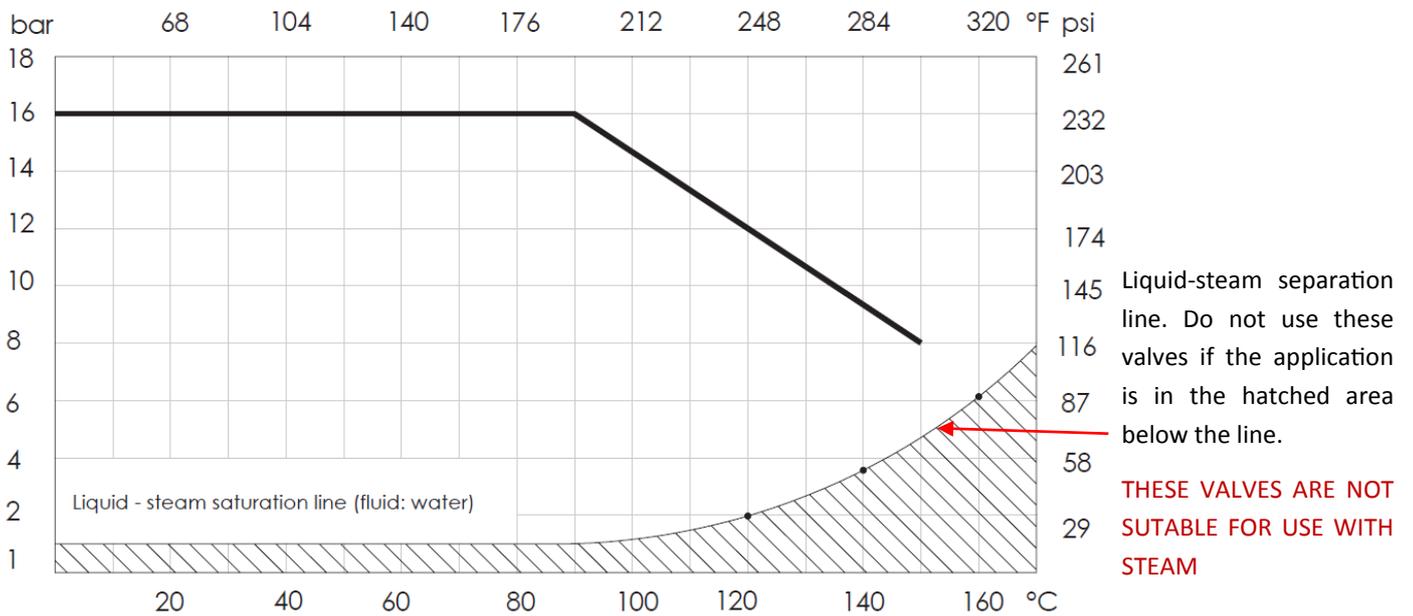
**Torque Nm**

DN	25	32	40	50	65	80	100	125	150	200	250	300
DP bar												
3	2,9	4,7	7,8	11,3	17	23	33	48	68	120	189	290
6	3,1	5,1	8,4	12	18	25	36	54	78	134	212	316
10	3,3	5,4	8,8	13	20	26	40	61	88	148	234	342
16	3,4	5,7	9,2	13	21	28	44	68	99	162	257	367

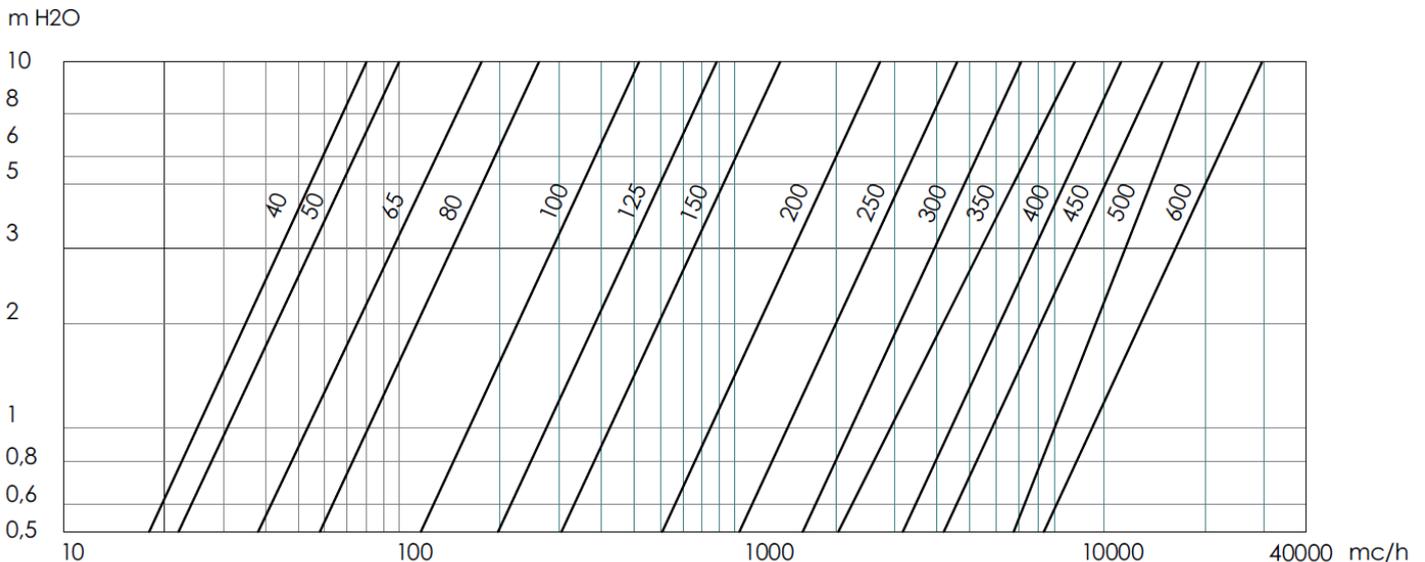
Note: For sizing of actuators, multiply the above 16 bar torques by 1.5 for wet service, and by 2 for dry service (air or gas).

To use 3, 6 or 10 bar differential pressure torques, and factory option undercut disc is required. Contact us for details for further details.

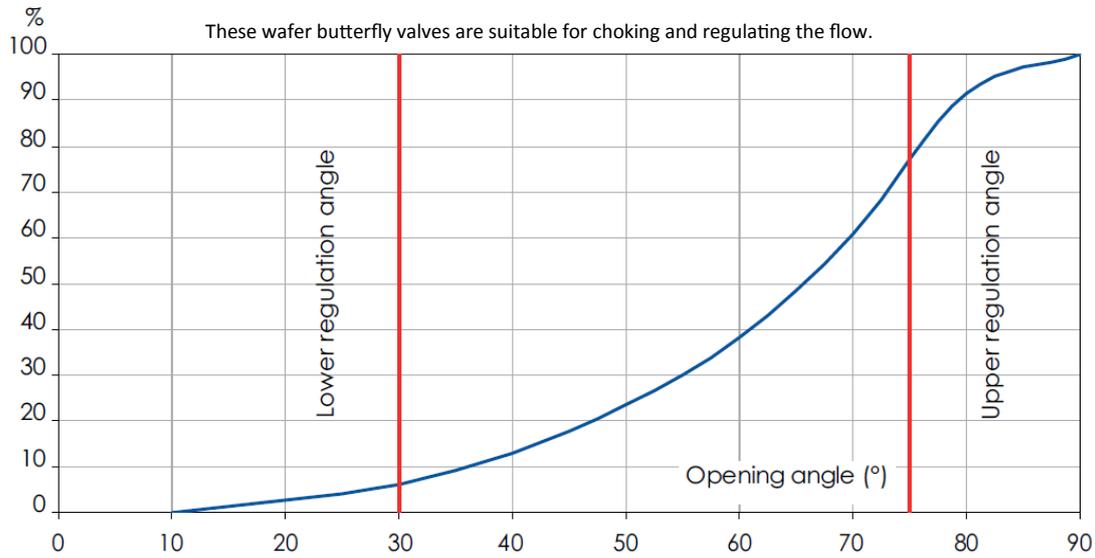
**Pressure x Temperature Chart**



**Head Loss Diagram (with disc fully open) Fluid: Water . NB: 1m of water = 0.098bar**



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**Flow Chart (Kv in m<sup>3</sup>/hr at 1 bar pressure drop)**

DN	mm	40	50	65	80	100	125	150	200	250	300
	ins	1" 1/2	2"	2" 1/2	3"	4"	5"	6"	8"	10"	12"
OPENING ANGLE	10°	0,04	0,05	0,09	0,17	0,26	0,43	0,69	1,73	2,6	3,5
	20°	2,1	2,6	5,2	7,8	15	25	39	77	130	202
	30°	4,8	6	10	16	31	53	82	162	276	427
	40°	10	13	22	34	67	115	177	352	599	926
	50°	19	23	39	60	120	205	316	628	1068	1650
	60°	30	38	65	100	199	339	522	1038	1768	2730
	70°	48	60	103	158	314	535	827	1643	2798	4322
	80°	73	91	161	237	471	803	1241	2465	4196	6483
	90°	79	99	169	261	518	883	1364	2708	4611	7124

**Applicable Standards**

**CE** In conformity with directive 97/23/CE PED  
In conformity with D.M. 174 (directive 97/83/CE)

**Construction and testing norms (correspondences):**

Face-to-face: EN558/1-20 (ISO 5752-20, DIN 3202K1)  
Flanges: EN1092, ANSI B16.5 #150  
Design: EN593, EN13445, ISO 5211, EN12570  
Marking: EN19  
Testing: 100% testing in accordance with EN 12266 cat. A (ISO 5208 cat. A)

**Application Areas**



WATER



CONDITIONING



GAS



HEATING  
BUT NOT  
STEAM



DRINKING WATER



INDUSTRY



MARINE



FIRE FIGHTING

