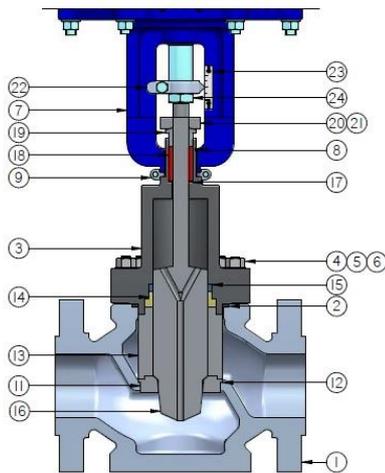


Installation, Operation, Maintenance Instructions for Severn Glocon Control & Choke Valves



Typical Balanced Valve – Parts

1	Valve Body
2	Body Gasket / Metal Seal
3	Valve Bonnet
4	Body Stud
5	Body Nut
6	Body Washer
7	Actuator Yoke
8	Yoke Retaining Half Rings
9	Yoke Clamp
10	Yoke Clamping Screws (Not Shown)
11	Valve Seat
12	Seat Gasket
13	Seat Retainer/Cage/MLT/ICCD (as fitted)
14	Balanced Seal Guide Bush
15	Balance Seal
16	Valve Plug
17	Guide
18	Gland Packing
19	Gland Follower
20	Gland Flange
21	Gland Bolts / Nuts
22	Stem Travel Indicator / Anti-Rotation Clamp
23	Stem Travel Plate
24	Plug Lock Nut



General maintenance item is the gland packing, 18

General Inspection of parts

GLAND PACKING (ITEM 18) – Not re-useable

Advanced maintenance items are:

Items 2, 11, 12, 16 & 17 for balanced valves

Items 2, 11, 12, 16 & 17(may be x2) for unbalanced valves

Advanced Seal Inspection – (to be carried out by trained / experienced personnel only)

SOFT SEATS - Not re-useable

GASKETS (Body / Seat & Cage) - Not re-useable

BALANCE SEAL - Not re-useable

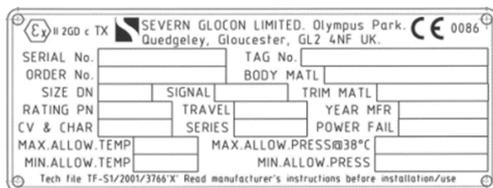
PLUG / SEAT – If damaged contact Severn Glocon for advice on repair or whether replacement is needed.

STEM GUIDES - Examine for general condition and renew if necessary

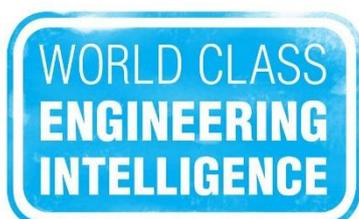
CAGE - Examine for general condition and renew if necessary.

INTENDED USE

Reference is to be made to the Control Valve Specification Sheet, Installation and Operation Instructions, nameplate to check the product is suitable for the intended use/application.

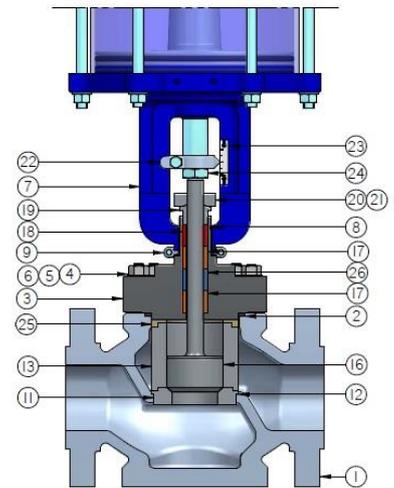


A sample CE nameplate is shown above, showing maximum and minimum pressure/temperature. Notified body number is applicable for PED only



Typical Unbalanced Valve – List of Parts

1	Valve Body
2	Body Gasket / Metal Seal
3	Valve Bonnet
4	Body Stud
5	Body Nut
6	Body Washer
7	Actuator Yoke
8	Yoke Retaining Half Rings
9	Yoke Clamp
10	Yoke Clamping Screws (Not Shown)
11	Valve Seat
12	Seat Gasket
13	Seat Retainer/Cage/MLT/ICCD (as fitted)
16	Valve Plug
17	Guide
18	Gland Packing
19	Gland Follower
20	Gland Flange
21	Gland Bolts / Nuts
22	Stem Travel Indicator / Anti-Rotation Clamp
23	Stem Travel Plate
24	Plug Lock nut
25	Cage Location Ring (when fitted)
26	Packing Spacer



Safety: Always ensure safe working practices are followed:



Always wear appropriate PPE and ensure that the local lifting plan is followed



Always ensure a safe working environment when lifting



Always isolate valve before maintenance.
Always use lockout methods to ensure safety



Caution: Valve may be extremely hot or cold.
Caution: Do not put hands inside valve



Always use correct tools. Do not over tighten.
Do not use extension bars to force movement



Poison risk: Do not incinerate PTFE. Do not smoke whilst handling PTFE.



Always read the manual. If any doubts exist, contact SEVERN GLOCON LTD quoting the valve serial number.

WARNING: When ordered, the control valve configuration and materials of construction are selected to meet particular pressure, temperature, pressure drop and controlled fluid conditions. Personal injury, property damage, equipment damage, or leakage due to escaping gas or bursting of pressure containing parts may result if the control valve or its ancillaries are over pressured or installed where service conditions exceed the valve design limits. To avoid such injury or damage, provide a relief valve for overpressure protection as required by accepted industry or local codes and good engineering practice. Do not apply other conditions to the valve without written approval from Severn Glocon.

WARNING: Before performing any maintenance operation: Isolate the control valve from process pressure. Relieve process pressure from both sides of the control valve. Drain the process media from both sides of the valve. If the control valve is to be removed from the line decontaminate any process fluid remaining in the valve to make safe. Disconnect and isolate any operating lines providing air pressure, electric power, or a control signal to the actuator. Vent the air pressure from the actuator. Be sure that the actuator cannot suddenly open or close the valve (Note by disconnecting the air and or power lines the actuator will move the valve to its power failure position). Ensure persons are a suitable distance from moving parts.

Use lock out procedures to be certain that the above measures stay in effect whilst work is carried out on the control valve.

MACHINERY DIRECTIVE 2006/42/EC INCORPORATED INTO A MACHINE

Severn Glocon control valves must not be put into service until the machinery into which they are to be incorporated has been declared in conformity with the provisions of the Machinery Directive. Severn Glocon valves must not be used as Safety Components (Emergency Shutdown Valves) within the meaning of the Machinery Directive without prior notification to Severn Glocon.

ATEX DIRECTIVE 2014/34/EU

Under the ATEX Directive a risk assessment is necessary by the end user to justify the basis of safety.

PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU

It is a requirement of the PED that both the maximum and minimum working pressures and temperatures of the valve are recorded on the nameplate. Refer to the actual nameplate attached to the valve and the Severn Glocon Control Valve Specification Sheet (CVSS) issued with the valve to check the valve is suitable for its intended use. Attention must be paid to the combined pressure and temperature characteristics of the appropriate valve material group as stated in ASME B16.34, API 6A or relevant international standard.

Reference is to be made to the Control Valve Specification Sheet, Installation and Operation Instructions and nameplate to confirm product suitability for the application.

BALANCED TRIM VALVES (see HSE safety notice 11/2005 Potential catastrophic failure of pressure balanced cage guided control valves and chokes)

Balanced trim valves are dependent upon the pressure balance ports within the valve. It is essential that there is no possibility of these ports becoming blocked. (See HSE notice available from HSE web site).

The user must be aware that for valves having a pressure balanced design, the operating media must not be of itself capable of blocking the pressure balance ports or be capable of producing scale on metallic components that would eventually block the pressure balance ports. Also during the installation and any line cleaning, these ports must not become blocked. If in doubt remove the valve trim before cleaning.

If any doubts exist, contact SEVERN GLOCON LTD quoting the valve serial number.

Scope of this Manual - Installation - General

This manual includes installation, operating and maintenance information for Globe and Angle body valves. Please refer to separate manuals for instructions covering actuator, positioner and any accessories. Where the valve is operated by electric, hydraulic or electro hydraulic actuation, follow the IOM instructions provided with the actuator.

Only persons qualified through training and or experience should install, operate and maintain this product. In case of questions about these instructions or the valves please contact the nearest Severn Glocon office before proceeding.

Instructions in the following paragraphs describe the installation procedures for the control valve. Instructions not included are to be performed in accordance with standard industry acceptable practises as may be required by local codes, specifications and or regulations. Users should refer to BS 6683 "Guide to installation and use of valves".

Storage

Unless specifically specified by the contract, the valve will have been packed for indoor storage at job site.

For short term storage the valve should be installed in a fire resistant weather tight and well ventilated building. The valve should be kept at a temperature of -20F (-29deg.C) to +120F (48deg.C). The area should be constructed and situated so that it will not be subjected to flooding; the floor should be similarly level, firm, protected and well drained. Valves should be on pallets or shoring to permit air circulation.

For longer storage, a corrosion preventative should be considered that is compatible with the process fluids. Further advice should be sought from Severn Glocon.

Handling

Applicable codes regulations and industry practices must be followed when handling or lifting valves. Care should be exercised to protect instrumentation and ancillary equipment. Severn Glocon lifting guidelines are available on request.

Flushing

The control valve will have been cleaned at the factory and sealed for despatch with protective covers. However before installing the control valve inspect the control valve body cavity to ensure it is free of and foreign matter, dirt, grit etc.

When the valve is to be installed in a system suspected to be contaminated the system should be flushed to prevent damage to the control valve trim. It is recommended this be done before installation of the valve or if not possible; special flushing trims should be purchased from Severn Glocon.

Installation

The control valve should preferably be installed in a straight run of pipe away from bends or sections of abnormal velocity. The preferred orientation is with the actuator vertical above or below the valve body. Other orientations may be used but these may require supports to be provided. An unsupported control valve may have a plug stem misalignment resulting in unacceptable hysteresis, seat leakage and possible gland leakage. The weight of the control valve assembly should be taken into consideration when mounting in the pipe-work and pipe supports may be required either side of the control valve.

The flow through the control valve must be in the direction as indicated by the flow arrow plate on the valve (damage to the trim, actuator and sudden movement of the valve may result from flowing in the wrong direction.) Use accepted piping practises when installing the valve. Use a suitable gasket between the control valve and the pipeline flanges.

Pre-Operation

The valve gland was tightened before shipment; however, the packing may require some adjustment to meet specific service conditions before putting into service. It is normal to expect adjustments to be made prior to putting into service

Connect the correct utilities to the control valve and check that all accessories, positioner etc. are correctly adjusted. The control valve positioner must be set to correctly close and seat the valve so as to not give rise to premature trim degradation. If a manual hand-wheel override is provided in the actuation system, ensure this is in the disengaged or neutral position. Clean the actuator shaft of any foreign matter.

Check bonnet bolting in case of loosening. Re-check after first heat cycle. Tighten evenly by going from opposite bolt to opposite bolt using the torques given within this manual on page 4 and in line with the recommendations as laid out for tightening sequence patterns in ASME PCC-1-2010, appendix F. Caution: Do not over tighten bolting.

Always use correct tools for bolting including the use of torque wrenches to assure bolts are not over tightened during any checks carried out.

Operation

In operation, ensure that the valve operates smoothly and that there is no juddering or unusual motion. If the valve exhibits any strange behaviour, please contact your nearest Severn Glocon representative immediately.

IMPORTANT

For all actuator adjustments refer to relative IOM instructions. If any doubts exist, contact SEVERN GLOCON LTD quoting the valve serial number.

Maintenance

Control valve parts are subject to normal wear and tear and must be inspected and replaced as necessary. Inspection and maintenance frequency depends upon the severity and importance of the service. This section covers instructions for gland packing maintenance and valve trim maintenance. All these can be carried out with the control valve in the line.

Whenever a valve is disassembled, it is mandatory that all consumable parts are replaced before re-assembly. Consumable parts are considered as all soft parts with the addition of the metal seal if used in place of a body gasket.

Severn Glocon takes great care in its selection and quality control in meeting all manufacturing requirements (heat treatment, dimensional tolerances etc.). Use only genuine replacement parts supplied by Severn Glocon.

Gland Packing Maintenance (this section not applicable to FE type gland)

A minor leak in the gland packing (item 18) may be stopped by adjustment of the gland nuts (item 21). The gland bolting should be adjusted by tightening down each bolt evenly until the gland packing is firm, but take care to not over-tighten. Over-tightening may provide excess friction and could reduce valve performance.

If the gland packing is relatively new and tight on the valve stem and tightening the gland bolt nuts does not stop the leakage, the valve stem or the bonnet housing may be worn or scratched. Replacement packing should be considered with examination of the valve plug stem and bonnet bore.

Removing the gland packing and stem guides

Ensure the valve is not pressurised. Remove the gland flange (item 20) A groove is machined on the outside of the gland follower (item 19) to allow a screwdriver to be used to prise the gland follower loose. Remove gland packing (item 18). If the bonnet is not removed from the valve, a packing extractor tool may be required to dig out the packing. Moving the plug up and down may also loosen the packing rings. If a packing extractor tool is used take great care not to damage any surfaces on the valve plug or the valve bonnet bore.

Clean the gland packing bonnet bore and other metal parts. Scratches and burrs that could cause gland leakage or damage to new parts must be removed by light emery cloth or if this does not remove the defect replace the damaged parts. Inspect the parts for wear or any other damage that would prevent proper operation should these parts be reused. Gland packing and sealing gaskets should always be replaced with new, genuine Severn Glocon spare parts.

Standard Gland Packing Materials Assembly

Use the correct cross-section of gland packing or die formed gland packing rings to fit the assembly. Install one ring of gland packing at a time. Make sure it is clean and has not picked up any dirt in handling. Seat each gland packing ring firmly (except PTFE filament and graphite yarn packing, which should be snugged up very gently, then tightened gradually after the operating the valve a few full strokes). Joints of successive rings should be staggered and kept at least 90 degrees apart. Each ring should be seated with a tamping tool or suitable split bushing to the gland stuffing box. After the last gland packing ring is installed tighten the gland bolts finger tight.

Do not jam the packing into place by excessive gland bolt loading. Operate the valve a number of times to set the packing. Re tighten the gland a little after each full cycle until no noticeable drop of in bolt torque is noted. Ensure that the gland flange is central and at 90 degrees to the valve plug stem.

For Graphite yarn gland packing, tighten the gland flange nuts alternately in small equal increments until an initial compression of the gland height of 30% is reached. For a 6 ring 0.15-inch uncompressed square packing set this would equal $6 \times 0.15'' \times 0.3 = 0.27$ inch

Stroke the valve 3 to 5 full cycles and retighten as above. Ensure that the gland flange is central and at 90-degree the valve plug stem.

For Graphite Low Emission 7 ring gland packing set. Install the gland packing set one ring at a time. A braided ring is fitted first followed by the shaped rings. Fit these rings in the correct direction with the top braided ring last. Compress the gland packing set to a distance of 1 packing cross section. Check the torque on the gland nuts to establish a reference torque. Actuate the valve plug stem 3 or 4 full strokes. Check the gland nut torque and restore to the original reference value. Repeat the full stroke and re torque steps above at least 5 times until no significant amount of stud nut torque decay is noted after valve stem actuation. Ensure that the gland flange is central and at 90 degrees to the valve plug stem.

For PTFE based Low Emission Packing set. Install the packing set by fitting the lip seal carefully first and then installing the chevrons carefully afterwards. Note that the top of the lip seal section should be proud of the top of the bore to avoid air entrapment. No gland follower force needs to be applied to this packing other than to ensure that the gland follower is fitted correctly and that it is holding the packing in its proper position within the packing box bore.

NOTE: This information should be used as a guide only as each manufacturer of gland packing has their own specific installation instructions that should be followed. For other gland packing types see individual specialised packing instructions.



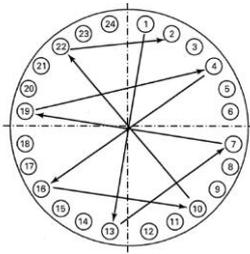
BODY TO BONNET BOLT TORQUE SETTING

STANDARD BOLTING

^{CS} Alloy Steel Bolting. (Torque to induce 37,500 psi)

^{SS} Aust. Stainless Bolting (Torque to induce 26,250 psi)

Alloy Steel Bolting ^{CS}			Aust Stainless Steel Bolting ^{SS}		
Stud size & TPI	Nut Torque		Stud size & TPI	Nut Torque	
	ft/lb	NM		ft/lb	NM
1/2-13	34	46	1/2-13	24	32
5/8-11	67	91	5/8-11	47	64
3/4-10	119	161	3/4-10	83	113
7/8-9	193	262	7/8-9	135	183
1-8	288	391	1-8	202	274
1 1/8-8	430	583	1 1/8-8	301	408
1 1/4-8	599	813	1 1/4-8	419	568
1 3/8-8	815	1105	1 3/8-8	571	774
1 1/2-8	1080	1465	1 1/2-8	756	1025
1 5/8-8	1394	1890	1 5/8-8	976	1323
1 3/4-8	1765	2393	1 3/4-8	1236	1676
1 7/8-8	2196	2978	1 7/8-8	1537	2083
2-8	2693	3651	2-8	1885	2556



24-bolt example of tightening sequence as per ASME PCC-1-2010, Appendix F

ENVIRONMENTAL LEGISLATION & IPPC DIRECTIVE 2008/1/EC

All companies have an impact on the environment and as such are morally and legally responsible for managing these effects. Environment legislation has been developed over the years to ensure that any impact stays within acceptable limits this legislation tends to be complex and constantly changing.

The European Union defines the obligations with which highly polluting industrial and agricultural activities must comply. There are now a number of EU Directives of direct relevance. The Integrated Pollution Prevention and Control (IPPC) Directive 2008/1/EC establishes a procedure for authorising these activities and sets minimum requirements to be included in all permits, it requires Best Available Techniques (BAT) for minimising pollution for various industries. Be also aware of the European Pollutant Emission Register (EPER) under the umbrella of the IPPC Directive that may also impact the operation of the product.

Control valves permanently installed by professionals in large scale stationary industrial machine or system consisting of a combination of equipment/or components, each of which manufactured to be used in industry only, are explicitly excluded from the scope (Article 2) of Directive 2012/19/EU (WEEE). They are consequently also excluded from the scope (Article 2) of Directive 2011/65/EU (RoHS).

WARNING: Health & Safety at Work Act

Gland packing and / or internal seals made of or containing PTFE (Polytetrafluoroethylene) should not be incinerated. Do not smoke whilst handling PTFE.

DISPOSAL

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken

RETURNING PRODUCTS

Customers are reminded that under EC Health, Safety and Environment Law, when returning products to Severn Glocon, they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

Note: This manual to be read in conjunction with Severn Glocon "Supplementary Installation, Erection, Maintenance and Operating Procedures" document number DS610 and any other related O & M instructions relating to any accessories fitted to the Control Valve.

If any other maintenance work is required, please contact an approved service centre for a quotation

Disclaimer: Neither Severn Glocon Ltd, or any of its affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and the end user.

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