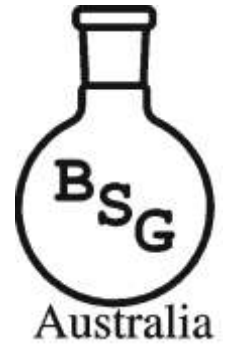


Brandon Scientific Glassblowing

www.bsgglass.com.au



Specialists in the production of

High Vacuum glass valve stopcocks

O-ring vacuum components

Glass tooling of custom components



Brandon Scientific Glassblowing
c/o Mike Brandon
9 Derwent Avenue
Margate
Tasmania 7054
Australia

Phone (03) 62671963
Fax (03)62671954
International Phone (613) 62671963
Fax (613)62671954
Mobile 0419-554293

E-Mail sales@bsgglass.com.au
WEB www.bsgglass.com.au
Sales: sales@bsgglass.com.au
ABN 87916940790

In 2003 BSG began the manufacture of “**EMBELL Scientific**” High Vacuum stopcocks/Valves and components. Embell has been producing high quality stopcocks at an economic price for the last 30 yrs within Australia; for numerous Australian and overseas customers. BSG will continue this tradition.

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Custom Glassware

BSG can help design and fabricate you custom requirements. With the use of modern technology we can visualise your ideas before putting flame to glass to insure you get what you want.

BSG are willing to custom tool glassware and components for individual customers for their own particular needs

BSG High Vacuum Stopcock/Valves



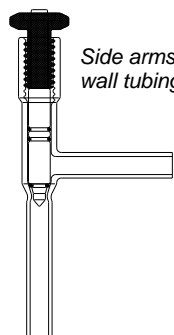
Greaseless high vacuum stopcocks for vacuum pressures of 10^{-7} Torr or better
With viton o-rings baking can achieve lower pressures.

- A semi-needle valve assures a fine adjustment
 - Smooth control of thread.
 - Choice of 3 plug types (see below)
- These valves are manufactured to a fine tolerance assuring interchange ability.
If baking of whole stopcock is required please contact BSG for more information

Viton O-Ring care

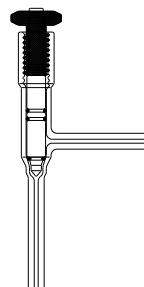
These valves are greaseless valves in that they do not require grease to hold a vacuum, unlike a traditional glass stopcock. However the o-ring should have a **very fine** smear of Hi Vac silicone grease to lubricate the o-ring. This protects the o-ring and allows for smooth movement in the barrel. This is required by any valve that uses viton o-rings against glass surface and is not unique to BSG stopcocks.

Teflon skirted plugs do not require any lubrication



Side arm sizes

Size mm	OD mm	ID mm
2.5	8	5
4	8	5
6	9	6
8	11	9
10	14	11
12	20	16



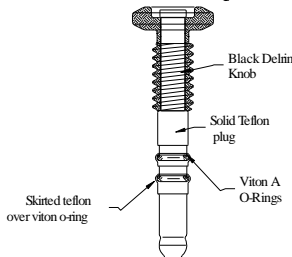
Capillary side arms are available upon request.

Add suffix to item code for required size.
C/1—1mm bore
C/2—2mm bore
C/3—3mm bore

Eg. ERATF4 C/1 — 4mm size stopcock with teflon skirted plug and 1mm capillary side arms

Stopcock plug options

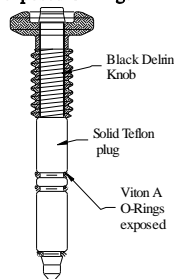
Teflon Plug With Skirted O-Rings



Full teflon plug with skirted viton o-rings

- Ideal for corrosive environments.
- Organic solvents are present
- Schlenk lines etc

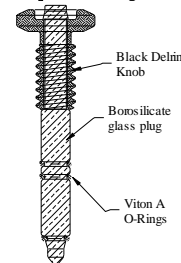
Teflon Plug With exposed O-Rings



Full teflon plug with exposed viton o-rings.

- Suited to high vacuum use.
- Glass not suitable

Glass Plug With exposed O-Rings

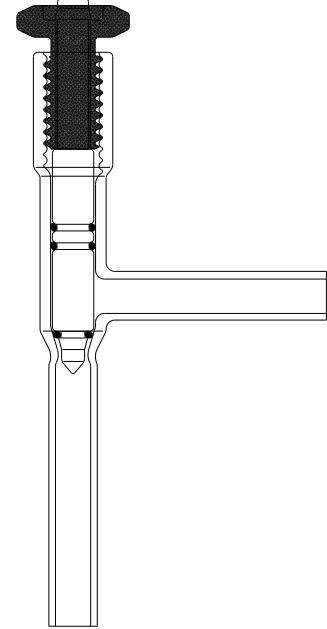


Full glass plug with viton o-rings.

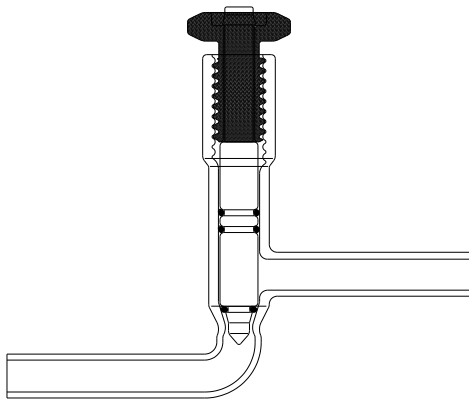
- Suited to high vacuum use.
- Degassing advantages.
- Other o-ring types available on request.

High Vacuum Stopcock at right angle construction.

Item	Description
ERAGO2.5	HVStopcock Glass plug with O-rings 90deg 2.5mm
ERAGO4	HVStopcock Glass plug with O-rings 90deg 4mm
ERAGO6	HVStopcock Glass plug with O-rings 90deg 6mm
ERAGO8	HVStopcock Glass plug with O-rings 90deg 8mm
ERAGO10	HVStopcock Glass plug with O-rings 90deg 10mm
ERAGO12	HVStopcock Glass plug with O-rings 90deg 12mm
ERATF2.5	HVStopcock Full teflon plug (skirted) 90deg 2.5mm
ERATF4	HVStopcock Full teflon plug (skirted) 90deg 4mm
ERATF6	HVStopcock Full teflon plug (skirted) 90deg 6mm
ERATF8	HVStopcock Full teflon plug (skirted) 90deg 8mm
ERATF10	HVStopcock Full teflon plug (skirted) 90deg 10mm
ERATF12	HVStopcock Full teflon plug (skirted) 90deg 12mm
ERATO2.5	HVStopcock teflon plug with O-rings 90deg 2.5mm
ERATO4	HVStopcock teflon plug with O-rings 90deg 4mm
ERATO6	HVStopcock teflon plug with O-rings 90deg 6mm
ERATO8	HVStopcock teflon plug with O-rings 90deg 8mm
ERATO10	HVStopcock teflon plug with O-rings 90deg 10mm
ERATO12	HVStopcock teflon plug with O-rings 90deg 12mm
ERA2.5b	RA glass barrel 2.5mm
ERA4b	RA glass barrel 4mm
ERA6b	RA glass barrel 6mm
ERA8b	RA glass barrel 8mm
ERA10b	RA glass barrel 10mm
ERA12b	RA glass barrel 12mm



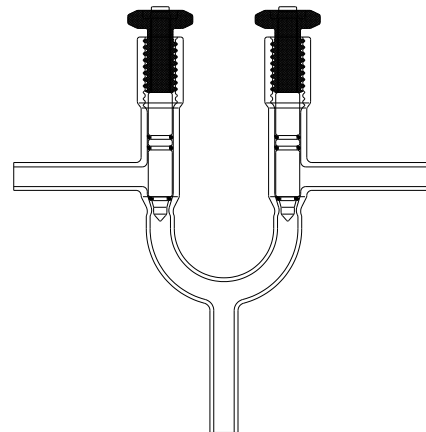
High Vacuum Stopcock at 180deg angle construction.



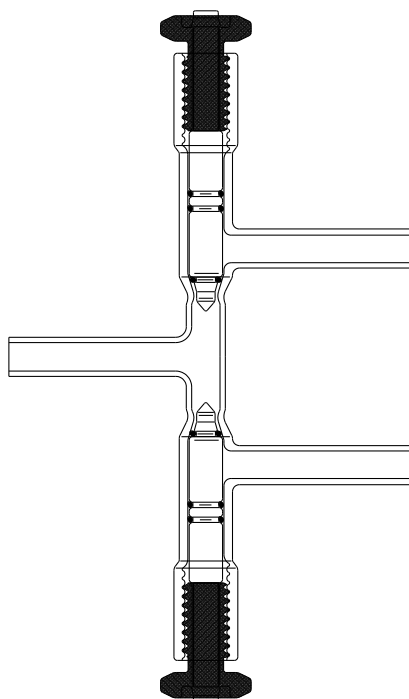
Item	Description
ESTGO2.5	HVStopcock Glass plug with O-rings 180deg 2.5mm
ESTGO4	HVStopcock Glass plug with O-rings 180deg 4mm
ESTGO6	HVStopcock Glass plug with O-rings 180deg 6mm
ESTGO8	HVStopcock Glass plug with O-rings 180deg 8mm
ESTGO10	HVStopcock Glass plug with O-rings 180deg 10mm
ESTGO12	HVStopcock Glass plug with O-rings 180deg 12mm
ESTTO2.5	HVStopcock teflon plug with O-rings 180deg 2.5mm
ESTTO4	HVStopcock teflon plug with O-rings 180deg 4mm
ESTTO6	HVStopcock teflon plug with O-rings 180deg 6mm
ESTTO8	HVStopcock teflon plug with O-rings 180deg 8mm
ESTTO10	HVStopcock teflon plug with O-rings 180deg 10mm
ESTTO12	HVStopcock teflon plug with O-rings 180deg 12mm
ESTTF2.5	HVStopcock Full teflon plug (skirted) 180deg 2.5mm
ESTTF4	HVStopcock Full teflon plug (skirted) 180deg 4mm
ESTTF6	HVStopcock Full teflon plug (skirted) 180deg 6mm
ESTTF8	HVStopcock Full teflon plug (skirted) 180deg 8mm
ESTTF10	HVStopcock Full teflon plug (skirted) 180deg 10mm
ESTTF12	HVStopcock Full teflon plug (skirted) 180deg 12mm
EST2.5b	ST glass barrel 2.5mm
EST4b	ST glass barrel 4mm
EST6b	ST glass barrel 6mm
EST8b	ST glass barrel 8mm
EST10b	ST glass barrel 10mm
EST12b	ST glass barrel 12mm

High Vacuum Stopcocks with U-bend construction.

Item	Description
EUBTO2.5	HVStopcock teflon plug with O-rings Double Ubend 2.5mm
EUBTO4	HVStopcock teflon plug with O-rings Double Ubend 4mm
EUBTO6	HVStopcock teflon plug with O-rings Double Ubend 6mm
EUBTO8	HVStopcock teflon plug with O-rings Double Ubend 8mm
EUBTO10	HVStopcock teflon plug with O-rings Double Ubend 10mm
EUBTO12	HVStopcock teflon plug with O-rings Double Ubend 12mm
EUBTF2.5	HVStopcock Full teflon plug (skirted) Double Ubend 2.5mm
EUBTF4	HVStopcock Full teflon plug (skirted) Double Ubend 4mm
EUBTF6	HVStopcock Full teflon plug (skirted) Double Ubend 6mm
EUBTF8	HVStopcock Full teflon plug (skirted) Double Ubend 8mm
EUBTF10	HVStopcock Full teflon plug (skirted) Double Ubend 10mm
EUBTF12	HVStopcock Full teflon plug (skirted) Double Ubend 12mm
EUBGO2.5	HVStopcock Glass plug with O-rings Double Ubend 2.5mm
EUBGO4	HVStopcock Glass plug with O-rings Double Ubend 4mm
EUBGO6	HVStopcock Glass plug with O-rings Double Ubend 6mm
EUBGO8	HVStopcock Glass plug with O-rings Double Ubend 8mm
EUBGO10	HVStopcock Glass plug with O-rings Double Ubend 10mm
EUBGO12	HVStopcock Glass plug with O-rings Double Ubend 12mm
EUB2.5b	UB Glass barrel Double Ubend 2.5mm
EUB4b	UB Glass barrel Double Ubend 4mm
EUB6b	UB Glass barrel Double Ubend 6mm
EUB8b	UB Glass barrel Double Ubend 8mm
EUB10b	UB Glass barrel Double Ubend 10mm
EUB12b	UB Glass barrel Double Ubend 12mm



High Vacuum Stopcocks with opposing stopcock construction.

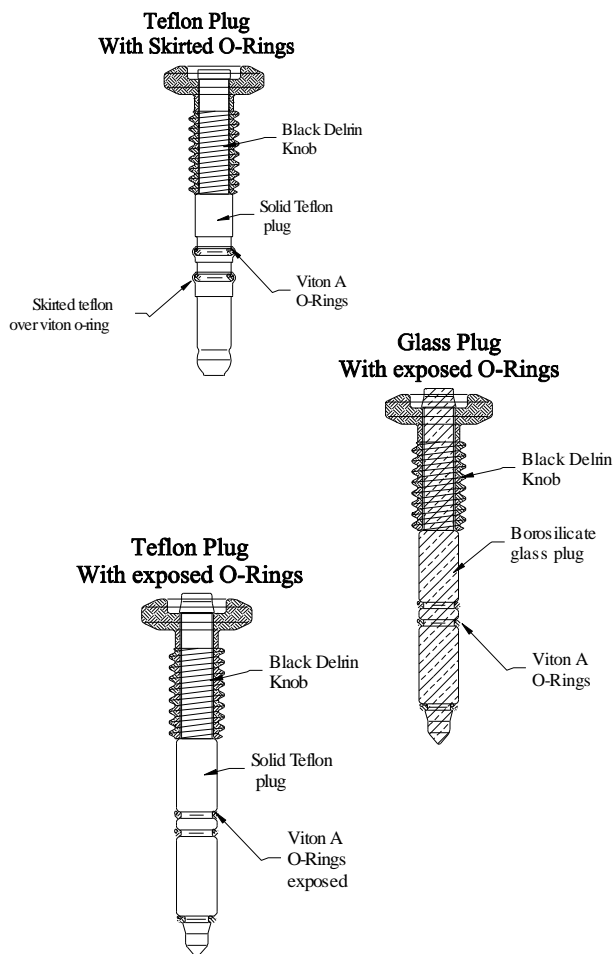


Item	Description
EDBGO2.5	HVStopcock Glass plug with O-Rings Double 2.5mm
EDBGO4	HVStopcock Glass plug with O-Rings Double 4mm
EDBGO6	HVStopcock Glass plug with O-Rings Double 6mm
EDBGO8	HVStopcock Glass plug with O-Rings Double 8mm
EDBGO10	HVStopcock Glass plug with O-Rings Double 10mm
EDBGO12	HVStopcock Glass plug with O-Rings Double 12mm
EDBTO2.5	HVStopcock teflon plug with O-Rings Double 2.5mm
EDBTO4	HVStopcock teflon plug with O-Rings Double 4mm
EDBTO6	HVStopcock teflon plug with O-Rings Double 6mm
EDBTO8	HVStopcock teflon plug with O-Rings Double 8mm
EDBTO10	HVStopcock teflon plug with O-Rings Double 10mm
EDBTO12	HVStopcock teflon plug with O-Rings Double 12mm
EDBTF2.5	HVStopcock Full teflon plug (skirted) Double 2.5mm
EDBTF4	HVStopcock Full teflon plug (skirted) Double 4mm
EDBTF6	HVStopcock Full teflon plug (skirted) Double 6mm
EDBTF8	HVStopcock Full teflon plug (skirted) Double 8mm
EDBTF10	HVStopcock Full teflon plug (skirted) Double 10mm
EDBTF12	HVStopcock Full teflon plug (skirted) Double 12mm
EDB2.5b	DB Glass barrel Double 2.5mm
EDB4b	DB Glass barrel Double 4mm
EDB6b	DB Glass barrel Double 6mm
EDB8b	DB Glass barrel Double 8mm
EDB10b	DB Glass barrel Double 10mm
EDB12b	DB Glass barrel Double 12mm

High Vacuum Stopcock Plugs 3 types available

NB: 2.5/4mm teflon skirted plug has only one o-ring not two

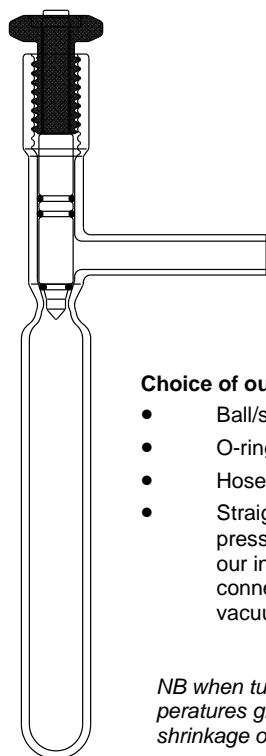
Item	Description
Plugto2.5	Replacement plug teflon with O-rings 2.5mm
Plugto4	Replacement plug teflon with O-rings 4mm
Plugto6	Replacement plug teflon with O-rings 6mm
Plugto8	Replacement plug teflon with O-rings 8mm
Plugto10	Replacement plug teflon with O-rings 10mm
Plugto12	Replacement plug teflon with O-rings 12mm
Plugtf2.5	Replacement plug teflon skirted 2.5mm
Plugtf4	Replacement plug teflon skirted 4mm
Plugtf6	Replacement plug teflon skirted 6mm
Plugtf8	Replacement plug teflon skirted 8mm
Plugtf10	Replacement plug teflon skirted 10mm
Plugtf12	Replacement plug teflon skirted 12mm
pluggo2.5	Replacement plug glass with O-rings 2.5mm
pluggo4	Replacement plug glass with O-rings 4mm
pluggo6	Replacement plug glass with O-rings 6mm
pluggo8	Replacement plug glass with O-rings 8mm
pluggo10	Replacement plug glass with O-rings 10mm
pluggo12	Replacement plug glass with O-rings 12mm



Replacement Viton o-rings for above plugs

Item	Description
ORS2.5	Viton O-ring HV stopcock 2.5mm seating
ORB2.5	Viton O-ring HV stopcock 2.5mm backing
ORS4	Viton O-ring HV stopcock 4 mm seating
ORB4	Viton O-ring HV stopcock 4mm backing
ORS6	Viton O-ring HV stopcock 6mm seating
ORB6	Viton O-ring HV stopcock 6mm backing
ORS8	Viton O-ring HV stopcock 8mm seating
ORB8	Viton O-ring HV stopcock 8mm backing
ORS10	Viton O-ring HV stopcock 10mm seating
ORB10	Viton O-ring HV stopcock 10mm backing
ORS12	Viton O-ring HV stopcock 12mm seating
ORB12	Viton O-ring HV stopcock 12mm backing

High Vacuum hydrolysis tubes and Gas sampling tubes



Choice of outlet connections

- Ball/socket joints
- O-ring flat flanges
- Hose barbs
- Straight tube for compression fitting (also see our internal threads for connection fittings to vacuum manifolds)

NB when tubes are stored at very low temperatures glass plugs are better suited due to shrinkage of teflon.

Versatile reaction vessel utilising BSG range of High Vacuum Stopcocks

Some typical applications

- Protein Hydrolysis
- Amino Acid separations
- Sealed tube Reactions
- Concentration
- Freeze drying
- Gas sampling
- Schlenk solvent storage vessels

Examples of tube sizes.

Any size available upon request

Sample tube Diameter (mm)	Sample tube length (mm)	Volume (ml)
8	60	1
10	100	5
10	150	8
19	100	20

For more details or a quote please contact us

Reaction Vessels, Pressure tubes

Utilising the range of BSG internal thread joints which are of a heavy wall construction.

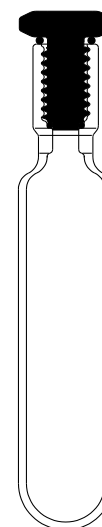
Pressure vessels all made from heavy wall borosilicate glass tubing.

Threaded double o-ring plugs made from Teflon with Viton o-rings

Common sizes supplied: 5 ml, 10 ml, 20 ml, 40 ml, 50 ml, 100 ml, 150 ml.

Other sizes can be made upon request. Please contact us for more details and prices

Correct safety guidelines should be used for glassware under pressure. Always shield glassware when under pressure. Replace or repair if scratched or chipped



Vacuum O-Ring Joints

BSG manufactures a range of o-ring joints that are suited to the construction of vacuum lines, schlenk lines and numerous other applications in the modern laboratory.

Some advantages of o-ring joints

- Viton™ O-rings suitable for high vacuums and raised temperatures.
- Pinch clamps allow for quick release and assembly of glassware
- No need for frequent greasing.
- No seizing up of joints.
- Ease of cleaning lines when made with o-ring joints.



Flat O-Ring flanges

Item	Description
ORJS	O-Ring Flat Joint Small
ORORJS	Viton O-ring ORJS
CL18A	Pinch clamp Stainless Steel S19 size
ORJM	O-Ring Flat Joint Medium
ORORJM	Viton O-ring ORJM
CL28	Pinch clamp Stainless Steel S29 size
ORJL	O-Ring Flat Joint Large
ORORJL	Viton O-ring ORJL
CL35	Pinch clamp Stainless Steel S35 size
ORJXL	O-Ring Flat Joint X-Large
ORORJXL	Viton O-ring ORJ XL
CL65	Pinch clamp Stainless Steel S65 size



Flat o-ring flanges

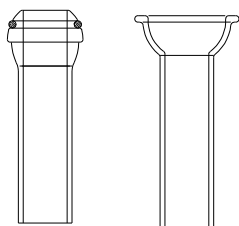
- Precision groove for o-ring
- Copes with shock and vibration
- Rigid coupling

Ball and sockets. (O-ring groove)

Item	Description
FS13	O-Ring Ball Joint Cup S13
MS13	O-Ring Ball Joint Ball S13
ORMS13	Viton O-ring MS13 ball joint
CL12	Pinch clamp Stainless Steel S13 size
FS19	O-Ring Ball Joint Cup S19
MS19	O-Ring Ball Joint Ball S19
ORMS19	Viton O-ring MS19 ball joint
CL18A	Pinch clamp Stainless Steel S19 size
FS29	O-Ring Ball Joint Cup S29
MS29	O-Ring Ball Joint Ball S29
ORMS29	Viton O-ring MS29 ball joint
CL28	Pinch clamp Stainless Steel S29 size
FS35	O-Ring Ball Joint Cup S35
MS35	O-Ring Ball Joint Ball S35
ORMS35	Viton O-ring MS35 ball joint
CL35	Pinch clamp Stainless Steel S35 size

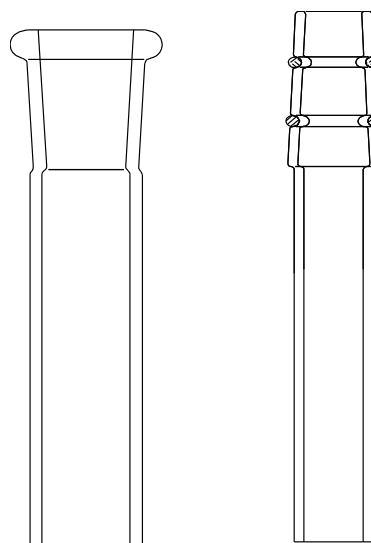
Ball & Socket o-ring Joints

- Flexible union without loss of vacuum
- Easy to align



Cones and Sockets(double o-ring groove)

Item	Description
CNB14	O-Ring Cone B14 size
SRB14	Socket Greaseless B14
ORC14L	Viton O-ring CNB14 lrg
ORC14S	Viton O-ring CNB14 sml
CNB19	O-Ring Cone B19 size
SRB19	Socket Greaseless B19
ORC19L	Viton O-ring CNB19 lrg
ORC19S	Viton O-ring CNB19 sml
CNB24	O-Ring Cone B24 size
SRB24	Socket Greaseless B24
ORC24L	Viton O-ring CNB24 lrg
ORC24S	Viton O-ring CNB24 sml
CNB29	O-Ring Cone B29 size
SRB29	Socket Greaseless B29
ORC29L	Viton O-ring CNB29 lrg
ORC29S	Viton O-ring CNB29 sml
CNB34	O-Ring Cone B34 size
SRB34	Socket Greaseless B34
ORC34L	Viton O-ring CNB34 lrg
ORC34S	Viton O-ring CNB34 sml

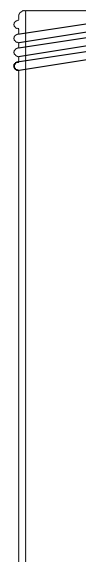


*Keck clips can be used for these joints.
Please enquire if required.*

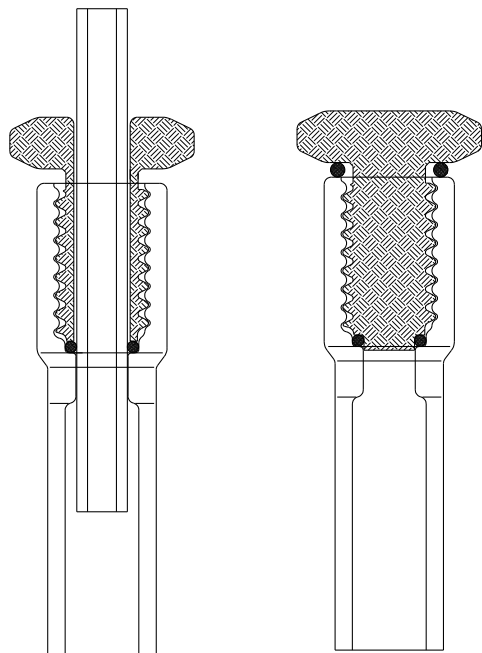
British and Metric glass threads

Item	Description
SQ13	Glass Thread SQ13
SQ18	Glass Thread SQ18
SQ24	Glass Thread SQ24
SQ28	Glass Thread SQ28
GL14	Glass Thread GL14
GL18	Glass Thread GL18
GL25	Glass Thread GL25
GL32	Glass Thread GL32
GL45	Glass Thread GL45

Caps and O-rings are available upon request.



High Vacuum Internal Screw Thread Joints



- Internal threads are suitable for high vacuum, as the knob compresses the viton o-ring onto the glass tube, giving a positive seal.
- These threads are made from heavy wall and are well suited to a wide range of uses
- With a solid teflon knob they can be used to construct pressure vessels, reaction vessels etc.
- Used for compression connectors to vacuum lines, eg to attach gas sample tubes to line.
- Liquid Chromatography
- Hose connections

Please contact for sizes and prices

Other items that are produced by BSG but not shown in this catalogue:

Full range of micro-scale glassware, kits, and joints

Wide range of schlenk glassware including manifolds traps and vessels utilising BSG stopcocks and components.

Peptide synthesis glassware, Ninhydrin Vacuum manifolds, Sintered filter crucibles.

Membrane Filtration units 25 mm, 47 mm & 90 mm

Custom built glassware.

