



DURAN® Tubular Gage Glasses

Red Line, Standard, Heavy Wall, High Pressure and Heavy Wall Red Line

SCHOTT
glass made of ideas

Tubular Gage Glasses DURAN®

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Tubular Gage Glasses DURAN®

Product Information ◀

Many years of experience allow SCHOTT to provide Duran 8330 tubular gage glasses that are preferred in a wide variety of industrial and commercial applications.

Duran tubular gage glass is offered as Red Line, Standard, Heavy Wall, High Pressure, and Heavy Wall Red Line.

Diameters range from 1/2" OD to 1 1/2" OD. End finishes may be cut, ground, or fire polished depending on application. Pressure ratings range from 90 psi to 600 psi depending on end finish, diameter, and length required.

In all cases, before placing a SCHOTT Duran product into your process, read the "Use and Care" section of this product catalog and the "Use and Care" sheet provided with the product. Pay strict attention to installation and maintenance instructions, maximum use criteria, cautionary messages, and WARNINGS.

To ensure the quality and performance of SCHOTT's tubular gage glasses, look for the DURAN® symbol.

The borosilicate glass used to manufacture these products is outstanding for chemical services. Certain limitations, however, must be recognized.

Corrosives ◀

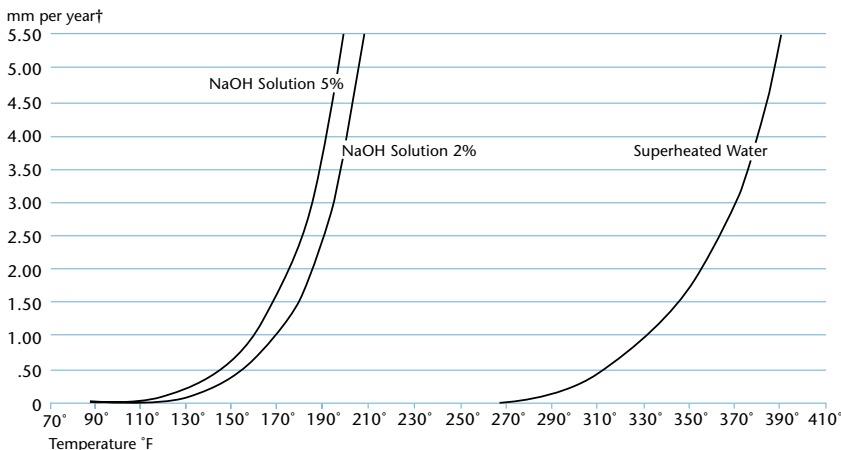
Some materials reduce the useful life of the gage glass by chemical action: e.g. hydrofluoric acid (HF); hot concentrated phosphoric acid; sodium and potassium hydroxides above 125°F; steam or superheated water above 250°F (see graph below).

Alkaline solutions attack glass very slowly at room temperatures, but as temperature is increased over 100°F, the corrosion rate rises rapidly.

Effects of Water and Alkaline Solutions, With Temperature Increase ◀

The accompanying graph illustrates how the rate of attack increases with temperature and concentration.

Depth of Attack vs. Solution Temperature ◀



† Calculated from weight loss over a 24 hour period

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Tubular Gage Glasses

DURAN®

► Red Line

Applications: Tanks, reservoirs, low pressure boilers
 Benefits: The red line shaded with white lines make it easier to read the liquid level
 End Finish: Fire polish

DURAN® Red Line					Maximum Recommended Working Pressure, psi	
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
1/2" OD +0,-1/32"	8	624010	1084399	12	390	300
	10	624030	1098222	12	370	295
	12	624050	1084432	12	360	295
	14	624070	1084400	12	345	290
	16	624090	1098247	12	335	285
	18	624110	1084401	12	325	280
	20	624130	1084402	12	310	280
5/64" Wall ±1/64"	24	624170	1084434	12	280	270
	30	624180	1084403	12	250	NOT RECOMMENDED
	36	624190	1084435	12	215	NOT RECOMMENDED
	48	624210	1084436	12	175	NOT RECOMMENDED
	60	624211	1084437	12	135	NOT RECOMMENDED
	72 (Max.)	624212	1084438	12	100	NOT RECOMMENDED
5/8" OD +0,-1/32"	8	624310	1084441	12	370	285
	10	624330	1084443	12	345	280
	12	624350	1084448	12	335	280
	14	624370	1084449	12	325	275
	16	624390	1084450	12	315	270
	18	624410	1084453	12	305	265
	20	624430	1084455	12	290	265
3/32" Wall ±1/64"	24	624470	1084457	12	265	255
	30	624480	1084458	12	235	NOT RECOMMENDED
	36	624490	1084459	12	205	NOT RECOMMENDED
	48	624510	1084462	12	165	NOT RECOMMENDED
	60	624220	1084439	12	125	NOT RECOMMENDED
	72 (Max.)	624221	1084440	12	90	NOT RECOMMENDED

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

Red Line ◀

DURAN® Red Line				Maximum Recommended Working Pressure, psi		
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
3/4" OD	8	624610	1084468	12	360	280
+0,-1/32"	10	624630	1084469	12	340	275
	12	624650	1084471	12	330	275
	14	624670	1084473	12	320	270
	16	624690	1084475	12	310	265
	18	624710	1084476	12	300	260
	20	624730	1084479	12	285	260
	22	624750	1084480	12	270	250
7/64" Wall	24	624770	1084481	12	260	250
± 1/64"	30	624780	1084482	12	230	NOT RECOMMENDED
	36	624790	1084483	12	200	NOT RECOMMENDED
	48	624810	1084484	12	160	NOT RECOMMENDED
	60	624600	1084466	12	125	NOT RECOMMENDED
	72 (Max.)	624601	1084467	12	90	NOT RECOMMENDED
7/8" OD	30	620559	1098248	12	240	This size not recommended in this service
+0,-1/32"	36	620344	1086334	12	225	
1/8" Wall	48	620343	1086333	12	185	
± 1/32"	72 (Max.)	624915	1084485	12	100	
1" OD	24	620231	1098249	12	230	This size not recommended in this service
+0,-1/32"	30	620515	1086335	12	210	
1/8" Wall	36	624960	1098260	12	195	
± 1/32"	48	624961	1086336	12	160	
	60	620224	1098261	12	125	
	72 (Max.)	624962	1086337	12	90	

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses

DURAN®

► Standard

Applications: Low pressure boilers, restaurant equipment, closed tanks, liquid level gages, sight flow, film rolls hydraulic equipment
 Benefits: Economical, low pressure applications, long service life
 End Finish: Saw cut, no firepolish

DURAN® Standard					Maximum Recommended Working Pressure, psi	
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
5/8" OD +0,-3/64"	8	620310	1084497	12	210	100
	10	620330	1084498	12	210	100
	12	620350	1084500	12	205	100
	14	620370	1084502	12	200	100
	16	620390	1084503	12	195	100
	18	620410	1084316	12	190	100
	20	620430	1086339	12	185	100
5/64" Wall ±1/64"	24	620470	1084321	12	180	100
	30	620480	1084322	12	175	NOT RECOMMENDED
	36	620490	1084507	12	165	NOT RECOMMENDED
	48	620510	1084508	12	140	NOT RECOMMENDED
	60	620530	1084511	12	120	NOT RECOMMENDED
	72 (Max.)	620550	1084512	12	100	NOT RECOMMENDED
3/4" OD +0,-3/64"	8	620610	1098082	12	210	100
	10	620630	1098099	12	210	100
	12	620650	1084513	12	205	100
	14	620670	1084328	12	200	100
	16	620690	1084514	12	195	100
	17	620700	1084515	12	190	100
	18	620710	1090037	12	190	100
	20	620730	1098120	12	185	100
3/32" Wall ±1/64"	24	620770	1084330	12	180	NOT RECOMMENDED
	30	620780	1098122	12	175	NOT RECOMMENDED
	36	620790	1084516	12	165	NOT RECOMMENDED
	48	620810	1084331	12	140	NOT RECOMMENDED
	60	620830	1084517	12	120	NOT RECOMMENDED
	72 (Max.)	620850	1084518	12	100	NOT RECOMMENDED

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

Heavy Wall ◀

Applications: Crude oil, water or gas flowmeter
 Benefits: Permit stable and reliable operation while viewing oil, water or gas flow rates
 End Finish: Carborundum saw cut.

DURAN® Heavy Wall	Maximum Recommended Working Pressure, psi					
	Size	Length* In.	Old Code	New Code	Pcs. Per Case	Temperatures Up to 150°F No Corrosion**
F5/8" OD	10	620174	1084405	12	600	345
+ 1/64", -3/64"	12	621243	1084410	12	600	340
	14	621245	1098263	12	600	335
	16	623320	1098267	12	600	325
	18	623330	1086330	12	600	320
	20	620537	1084325	12	600	315
3/16" Wall	24	620212	1084407	12	580	300
+3/64", -0	30	620232	1084408	12	550	NOT RECOMMENDED
	36	623240'	1084411	12	500	NOT RECOMMENDED
	48 (Max.)	623260'	1084412	12	340	NOT RECOMMENDED
3/4" OD	10	620175	1084406	12	600	345
+ 1/64", -3/64"	12	623340	1084416	12	600	340
	14	620000	1086326	12	600	335
	16	623360	1086331	12	600	325
	18	623380	1086332	12	600	320
	20	620549	1086329	12	600	315
7/32" Wall	24	620304	1098270	12	580	300
+1/16", -0	30	623270	1084413	12	550	NOT RECOMMENDED
	36	623280'	1084414	12	500	NOT RECOMMENDED
	48 (Max.)	623290'	1084415	12	340	NOT RECOMMENDED
7/8" OD	36	620303	1086328	12	500	NOT RECOMMENDED
+ 1/64", -3/64"	48 (Max.)	620246	1086327	12	340	NOT RECOMMENDED
1/4" Wall						
+ 1/16", -0						
1" OD	36	620377	1098271	12	500	NOT RECOMMENDED
+ 1/64", -3/64"	48 (Max.)	620281	1084409	12	340	NOT RECOMMENDED
5/16" Wall						
+ 1/16", -0						

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses

DURAN®

► High Pressure

Applications: Sight & flow indicators
 Benefits: Visual indication of liquid flow, contamination or discoloration of liquid, metering a constant rate of flow through a fixed port
 End Finish: Saw cut and fire-polished

DURAN® High Pressure					Maximum Recommended Working Pressure, psi	
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
1/2" OD +0, - 1/32"	8	622010	1084333	12	460	340
	10	622030	1084335	12	445	335
	12	622050	1084337	12	435	325
	14	622070	1084338	12	415	315
	16	622090	1086313	12	400	300
	18	622110	1084339	12	385	295
	20	622130	1086314	12	375	285
5/64" Wall ± 1/64"	24	622170	1084340	12	340	270
	30	622180	1086315	12	295	NOT RECOMMENDED
	36	622190	1084341	12	260	NOT RECOMMENDED
	48	622210	1084342	12	205	NOT RECOMMENDED
	60	622230	1084343	12	155	NOT RECOMMENDED
	72	622250	1084344	12	110	NOT RECOMMENDED
5/8" OD ± 0,-1/32"	8	622310	1084347	12	435	320
	10	622330	1084351	12	420	315
	12	622350	1084356	12	410	305
	14	622370	1084358	12	390	295
	16	622390	1084362	12	375	285
	18	622410	1084363	12	360	280
	20	622430	1084364	12	350	270
3/32" Wall ± 1/64"	24	622470	1084366	12	320	255
	30	622480	1084367	12	280	NOT RECOMMENDED
	36	622490	1084369	12	245	NOT RECOMMENDED
	48	622510	1084371	12	195	NOT RECOMMENDED
	60	622530	1084372	12	150	NOT RECOMMENDED
	72	622550	1084373	12	100	NOT RECOMMENDED

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

High Pressure ◀

DURAN® High Pressure

Maximum Recommended
Working Pressure, psi

Size	Length* In.	Old Code	New Code	Pcs. Per Case	Temperatures Up to 150°F No Corrosion**	Steam Boiler Service Up To 425°F
3/4" OD ± 0, -1/32"	8	622610	1084376	12	425	315
	10	622630	1086316	12	410	310
	12	622650	1084377	12	400	300
	14	622670	1084379	12	385	290
	16	622690	1084381	12	370	280
	18	622710	1084382	12	355	275
	20	622730	1084383	12	345	265
7/64" Wall ± 1/64"	24	622770	1084385	12	315	250
	30	622780	1084386	12	275	NOT RECOMMENDED
	36	622790	1084387	12	240	NOT RECOMMENDED
	48	622810	1084388	12	190	NOT RECOMMENDED
	60	622830	1084389	12	145	NOT RECOMMENDED
	72	622850	1084390	12	100	NOT RECOMMENDED
7/8" OD +0, - 1/32"	30	620173	1098161	12	285	This size is not recommended in this service
	48	622980	1086317	12	210	
	1/8" Wall 60	620349	1086312	12	160	
	± 1/32" 72	623090	1086319	12	110	
1" OD +0, - 1/32"	8	620268	1098162	12	345	This size is not recommended in this service
	10	620130	1098164	12	335	
	1/8" Wall 12	623200	1098167	12	325	
	± 1/32" 24	623300	1084393	12	285	
	36	624250	1098168	12	240	
	48	623160	1084391	12	190	
	60	623180	1086320	12	145	
72	623220	1084392	12	100		

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

► High Pressure

DURAN® High Pressure					Maximum Recommended Working Pressure, psi	
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
1 1/8" OD	24	620289	1098170	12	235	This size is not recommended in this service
+0, -3/64"	36	623002	1098176	12	200	
1/8" Wall	48	620256	1098177	12	180	
± 1/32"	60	623003	1086318	12	150	
	72	620245	1086311	12	130	
1 1/4" OD	8	623400	1086321	12	240	This size is not recommended in this service
+0, -3/64"	10	620014	1086308	12	235	
1/8" Wall	24	620165	1098178	12	210	
± 1/32"	30	623520	1084397	12	200	
	36	620156	1084305	12	180	
	48	623450	1086322	12	160	
	60	623550	1086324	12	135	
	72	623500	1086323	12	115	
1 1/2" OD	8	623600	1084398	12	210	This size is not recommended in this service
+0, -3/64"	12	623700	1098198	12	200	
1/8" Wall	24	620237	1098199	12	185	
± 1/32"	36	623770	1098220	12	160	
	48	623650	1086325	12	140	
	60	620028	1086309	12	120	
	72	620029	1086310	12	100	

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

Heavy Wall Red Line ◀

Applications: Crude oil, water or gas flowmeter
 Benefits: Permit stable and reliable operation with better viewing of oil, water or gas flow rates. The red line shaded with white lines make it easier to read the liquid level.
 End Finish: Carborundum saw cut

DURAN® Heavy Wall Red Line				Maximum Recommended Working Pressure, psi		
<i>Size</i>	<i>Length* In.</i>	<i>Old Code</i>	<i>New Code</i>	<i>Pcs. Per Case</i>	<i>Temperatures Up to 150°F No Corrosion**</i>	<i>Steam Boiler Service Up To 425°F</i>
5/8" OD	12	620079	1084529	12	600	340
+ 1/64", - 3/64"	16	620011	1084521	12	600	325
	20	620446	1084318	12	600	315
	24	620447	1084428	12	580	300
	30	620448	1084544	12	550	NOT RECOMMENDED
3/16" Wall	36	620354	1084536	12	500	NOT RECOMMENDED
+ 3/64", - 0	48	620428	1084542	12	340	NOT RECOMMENDED
3/4" OD	12	620449	1084319	12	600	340
+ 1/64", - 3/64"	16	620451	1084545	12	600	325
	20	620013	1084523	12	600	315
	24	620024	1084525	12	580	300
	30	620453	1084320	12	550	NOT RECOMMENDED
7/32" Wall	36	620211	1084530	12	500	NOT RECOMMENDED
+ 1/16", - 0	48	620373	1084537	12	340	NOT RECOMMENDED

* Intermediate lengths are available upon request.

** See Corrosives, page 3

Tubular Gage Glasses DURAN®

► Warnings / Do's and Do Not's / Use and Care

NOTICE: Read these warnings & instructions before installing or replacing gage glass.

Warnings

- Improper installation or maintenance of tubular glass can cause immediate or delayed glass breakage resulting in bodily injury. To avoid breakage observe the following Do's and Do Not's and Use and Care Instructions, as well as tubular gage manufacturer's instructions.
- If a gage glass breaks, contained substances can be released and glass can be blown out of the unit with great force. Always wear safety glasses when looking towards a gage or working on a gage glass assembly. Guard against the possibility of fire and explosion.
- Protect glass from impact, scratches, other surface damage and sudden temperature changes. These can weaken or stress the glass and lead to breakage.

Do's and Don'ts

FAILURE TO OBSERVE THE FOLLOWING DO'S and DO NOT'S CAN RESULT IN GLASS BREAKAGE AND ITS EXPLOSIVE RELEASE OF PRESSURIZED SYSTEM CONTENTS AND FLYING GLASS PARTICLES.

DO NOT work on any gage until you have carefully read these warnings & instructions.

DO NOT reuse any tubular glass, packing, or seals.

DO NOT use glass that is scratched, chipped, or otherwise damaged. Used glasses may contain damage and are poor safety risks.

DO NOT exceed the glass or gage manufacturer's recommended working pressures or maximum recommended gage glass length.

DO NOT bump, impact, or scratch the glass.

DO NOT tighten gland nut and packing beyond gage manufacturer's recommendations.

Use and Care

DO NOT operate gages unless gage valve sets are equipped with drain vent and safety ball check.

DO NOT attempt to clean glass while the unit is in operation. Cleaning should be done without removing the gage glass.

DO NOT attempt to inspect the glass, to adjust tie rods, packing nuts or glands, to inspect or tighten other fittings without isolating the gage from the pressure vessel and opening the drain vent.

DO NOT weld, impact, or sandblast in the gage glass area without protecting the glass.

DO NOT have glass-to-metal contact.

DO NOT subject gage glass to bending or twisting stress.

DO NOT allow the gage glass to contact the bottom of the packing gland.

DO inspect the gage glass daily, keeping maintenance records, and conduct routine replacements.

DO install protective guards where necessary to protect personnel.

DO protect the outside of the gage glass from sudden temperature changes, such as drafts, water spray, etc.

DO remove all deposits from the seal areas, the glands nuts, glands (where used) and use new packing before installing a tubular gage glass.

DO examine gage glass for damage and seals for hard deposits and tears.

DO verify that the tubular gage glass, gland, nuts, packing, etc. are the correct size and type before installing.

DO ensure that system is protected by safety shut-off system (e.g. safety ball, check).

Tubular Gage Glasses DURAN®

Use and Care ◀

Maintenance

Examine the gage glass regularly for any signs of clouding, scratching, erosion, or corrosion. In new processes, the glass should be inspected daily until the need for replacement becomes apparent. This will help establish the routine inspection and routine replacement cycles.

Keep gage glass clean using non-abrasive commercial glass cleaners. Where regular cleaners do not seem to work, use dilute acids such as Hydrochloric (muriatic) acid. Always observe the safety rules when handling hazardous cleaning solutions. Never use wire brushes, metal scrapers, or harsh abrasives, which could scratch the glass.

Cleaning

Scratches, corrosion, chips, surface flaws, or nicks on the surface or edges weaken the gage glass. To examine for these, shine a very bright concentrated light ("Burton Lite" or powerful flashlight) at about 45° angle. Anything which glistens and catches the fingernail or any star-shaped or crescent-shaped mark which glistens, is cause for replacement. Any gage glass which appears cloudy or roughened and will not respond to cleaning procedures should be replaced.

Inspection

Keep gage glasses in original packaging until ready to install.

Storing

Avoid bumping, chipping, or scratching gage glass. Any glass-to-glass contact can cause scratches and must be avoided.

Handling

Always follow tubular gage manufacturer's recommended procedures for glass replacement.

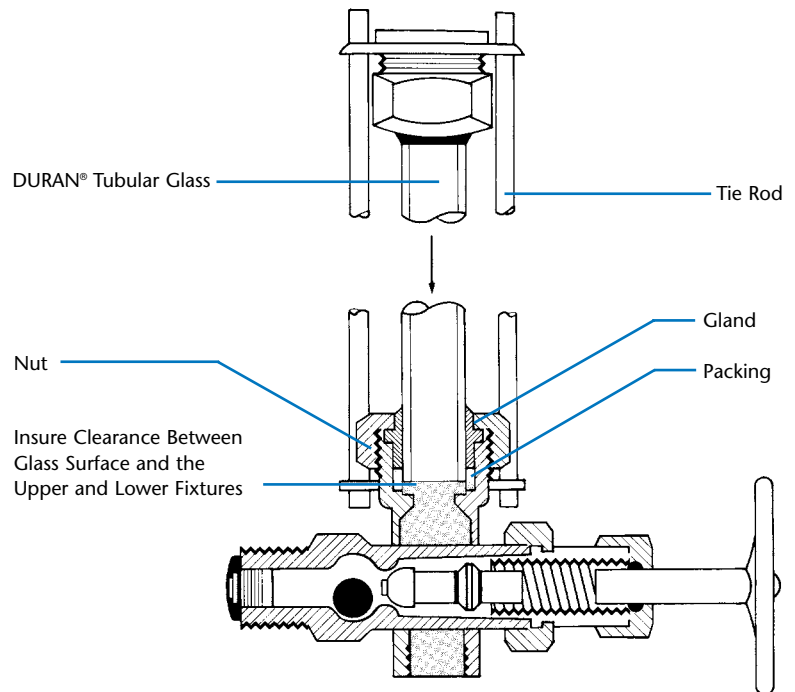
Installation

Before installing a gage glass, remove all deposits from the seal contact surfaces of the gland nut and the gland (where used). Check sealing surfaces for cleanliness and smoothness. Once a gage glass has been removed from its mounting, regardless of the reason for its removal, discard the glass and replace with a new piece.

Always use new packing, seals, and/or O-rings (if required) when replacing a tubular gage glass. Used packing, seals, and O-rings will not properly support the gage glass or provide the proper pressure seal without stressing the glass.

Tubular Gage Glasses DURAN®

► Installation View



1. Hold fittings rigidly to prevent misalignment, which can cause severe bending-stresses in the glass, when packing nuts are tightened.
2. Provide metal washers so nuts can be tightened without twisting packing or tube.
3. Provide positive, but not excessive, clearance between glass, packing nuts, and bearing washers.
4. Keep glass short enough to allow for expansion.
5. Provide positive clearance between the ends of the gage glass and the metal fittings. Glass-to-metal contact will keep the gage glass from expanding and cause breakage.
6. Tighten packing nuts enough to prevent leakage, but not so much that you hinder expansion and contraction. Follow gage manufacturer's recommendations.
7. Generally, you can use cylindrical or conical rubber packings for LOW and MEDIUM pressures. HIGHER pressures and HIGH temperatures may require specialized packings. In all cases you should follow the recommendations of the gage manufacturer.

Tubular Gage Glasses DURAN®

Warranty ◀

SCHOTT warrants that its Tubular Gage Glasses conform to its specifications and are free from defects in material and workmanship. This warranty does not apply to glass that has been annealed, tempered, cut, ground or altered by others.

This warranty is in lieu of all other warranties, and SCHOTT specifically excludes any implied warranty of merchantability of fitness for a particular purpose. SCHOTT's sole obligation under this warranty shall be to provide replacement glasses, and in no event shall SCHOTT be responsible for incidental or consequential damage.

At SCHOTT, skilled engineers and designers work with you to develop component parts or complete products from glass. As with all SCHOTT products, we offer the experience that comes with over a century of making glass more useful.

Services

To ensure the quality and performance of SCHOTT's tubular gage glasses, look for the DURAN® symbol.

Many of SCHOTT's Industrial Supplies Distributors are equipped to fabricate special shapes, drill holes, cut tubing, grind and polish, or finish glass to tolerances other than those shown in this catalog. For additional information and quotations on special requirements, contact your local SCHOTT Industrial Supplies Distributor or:

Special Finishing and Fabrication

SCHOTT North America, Inc.
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SCHOTT

Tubing

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