

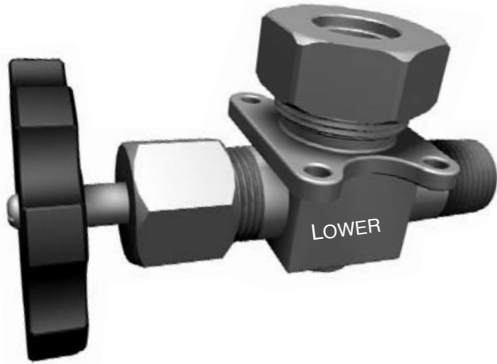
# MODEL 12T

## GAGE VALVE

valves for  
tubular glass

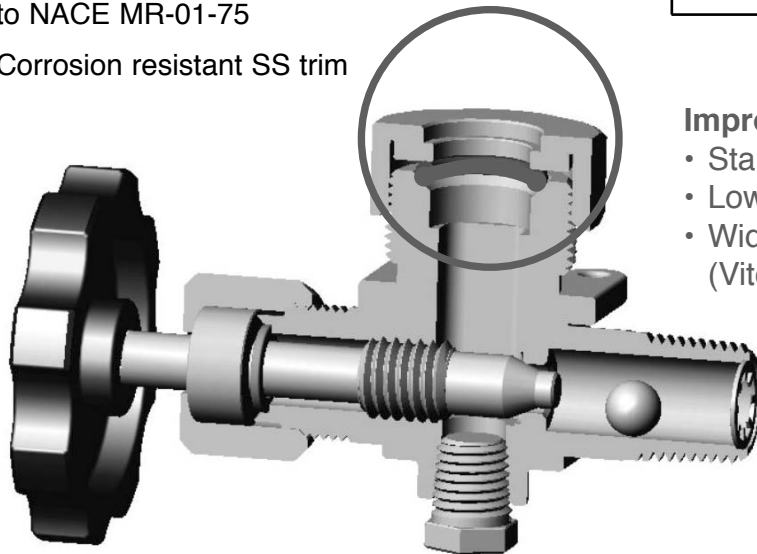
Bulletin 12T  
Issued 8/05  
Replaces 10/04

Pressures to 500 PSI  
Temperatures from -20°F to 500°F  
Steel or Stainless Construction



### STANDARD FEATURES

- Glass seal is a standard O-ring & not a custom seal
- “UPPER” and “LOWER” markings help insure correct installation
- TFE Stem Packing standard—low friction turning
- All materials conform to NACE MR-01-75
- Corrosion resistant SS trim



STRAIGHT PATTERN INTEGRAL BONNET INTEGRAL SEAT		OPTIONAL	
		STANDARD	
VESSEL CONNECTION			
Solid Shank	1/2" NPTM	X	
GAGE CONNECTION			
Glass Stuffingbox	5/8" Diameter	X	
VENT / DRAIN CONNECTION			
Rigid	1/4" NPTF	X	
GLASS SEAL			
	Viton™	X	
	Buna		X
	EPDM		X
	TFE		X
STEM PACKING			
	TFE (up to 400°F) GRAFOIL™	X	X
TRIM			
	T304 SS	X	
	T316 SS		X
BALL CHECK SHUT-OFF			
	Horizontal Lower & Upper	X	
	Vertical rising ball check in lower valve (ASME)		X
	Omitted (acceptable for ASME service)		X
	Vacuum Service		X

### Improved Sealing on Glass with O-ring—

- Standard Parker size 2-208
- Lower torque requirement
- Wide choice of elastomers (Viton™ is standard)

Safety ball check provides automatic shut-off in case of glass breakage

### PRESSURE/TEMPERATURE RANGES

Maximum working pressure, PSI

	-300°F -184°C	-50°F -46°C	-20°F -29°C	100°F 38°C	200°F 93°C	300°F 149°C	400°F 204°C	500°F 260°C
Cast Steel (WCC)			500	500	500	500	500	500
Cast SS (T316)	500	500	500	500	500	500	500	500

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# INFERNO

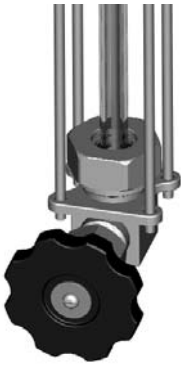
MANUFACTURING CORPORATION

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12T1

# MODEL 12T PARTS LIST

WEIGHT: 3.3 lbs (1.5 kg) per set



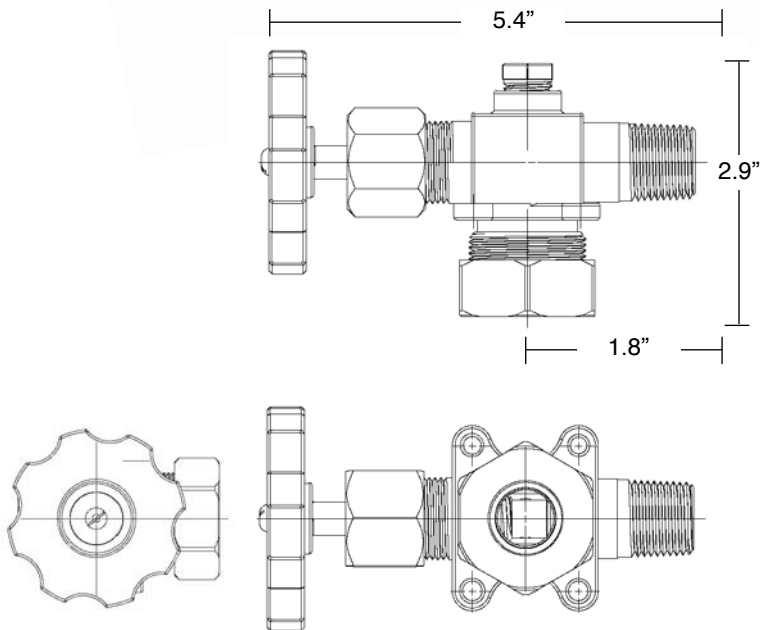
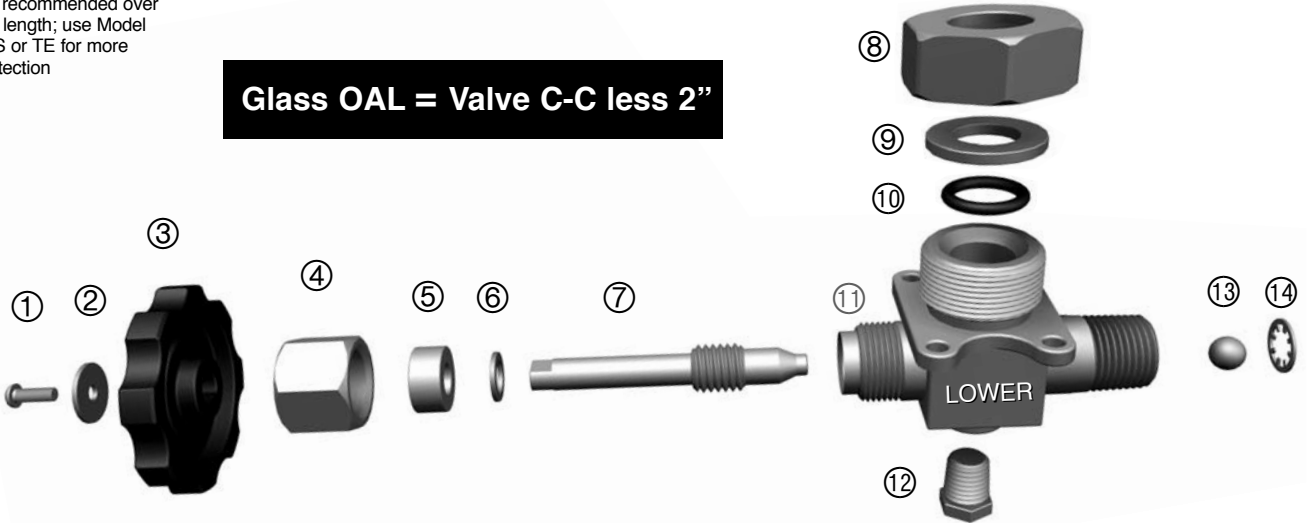
## BARE GLASS & GUARD RODS

Guard Rods: 3/16" Ø  
Guard Rod Length = Valve C-C + 1/2"

WARNING: Guard rods not recommended over 12" length; use Model ATS or TE for more protection

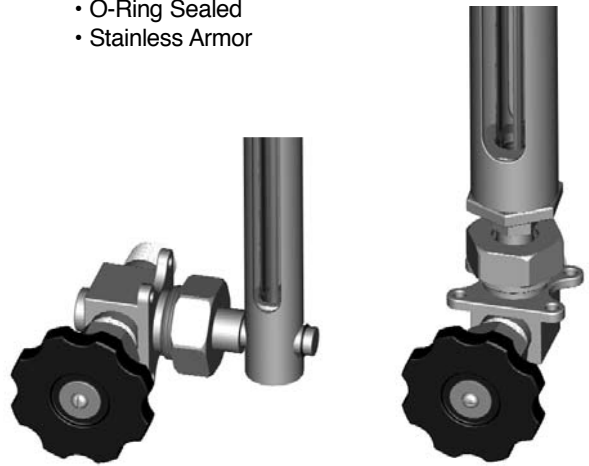
ITEM	DESCRIPTION	MATERIAL—Standard	MATERIAL—Optional
1	Screw	Stainless Steel	n/a
2	Washer	Stainless Steel	n/a
3	Hand Wheel	Painted Aluminum	n/a
4	Packing Nut	Steel	Stainless Steel
5	Packing	TFE	Grafoil™
6	Stem Washer	T304 SS	T316 SS
7	Stem	T304 SS	T316 SS
8	Stuffingbox Nut	Steel	Stainless Steel
9	Washer	Steel	Stainless Steel
10	O-Ring, Size 2-208	Viton™	Various
11	Body	Cast Steel (WCC)	T316 SS
12	Pipe Plug	Steel	T316 SS
13	Ball	T304 SS	T316 SS
14	Star Washer	Stainless Steel	T316 SS

**Glass OAL = Valve C-C less 2"**



## ARMORED TUBULAR GAGES

- Rigid Shielding of tubular glass
- O-Ring Sealed
- Stainless Armor

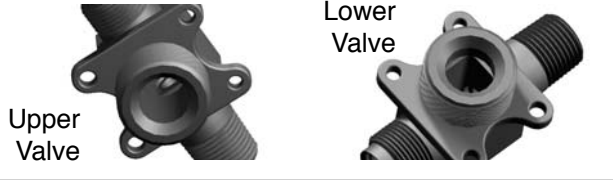


MODEL ATS

MODEL TE

## INSTALLATION

1. Mount valves to tank. Be sure to mount upper valve at top & lower valve at bottom.

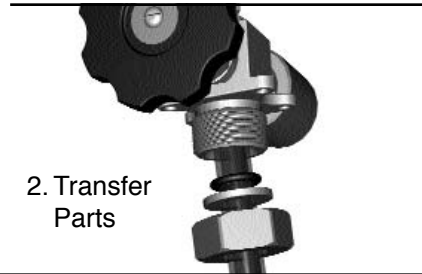


2. Transfer nut, washer and seal from valve to end of glass tube as shown. If using Inferno TE gage instead of bare glass tube, then transfer these three items to tubular end fittings of gage.

**WARNING:** If nut, washer and seal are left assembled on valve and if glass end is stabbed through the nut and washer and into valve, it is possible for O-ring seal to sit off center and be sheared. Avoid damage to glass seal by first transferring these three items to glass tube (or end fittings when using a series TE).

3. Insert glass deeply into upper valve at an angle as shown. Insert until bottom of glass clears lower valve and can swing into place. For short C-C distances (under 12") it may be necessary to angle upper valve body slightly (less than 1/8 turn) in the vessel coupling.

4. Lower glass into resting position in lower valve.



## RATING

Pressure rating of glass will always limit the rating of the valve. Do not operate valve at pressures higher than the rating of the glass.

## BALL CHECKS

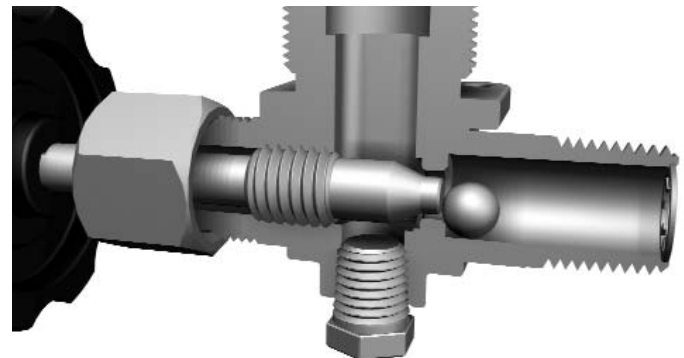
This valve contains a safety ball check which is designed to automatically close in case of glass or seal failure. Pressure acts on the ball and forces it against the upstream side of the seat. It takes approximately 6" head pressure (water) to move ball into check position. Lower head pressure is not enough to check the ball. Also a low volume leak will not provide adequate force to move the ball closed. The safety ball is designed to prevent a large leak such as might occur when a glass blows out under pressure. It is not designed to completely contain a leak. Corrosion or trash between the ball and the seat will interfere with seating to some degree. However ball checks are a good safety device. In high pressure operation they can greatly limit the explosive force of a glass failure.

## NUISANCE CHECKING

Balls will check when sight glass is "blown down" using a drain valve attached to bottom of lower valve. When this happens both gage valves must be closed and then slowly reopened until fluid has a chance to equalize between vessel and glass. After a liquid level is re-established in the sight glass, valves should be opened all the way. This withdraws the "pusher" extension of the valve stem from the

## STEAM WARNING

Because of rapid corrosion of tubular glass by hot water, we recommend reflex glass or see-thru glass with mica protection in steam service over 50 WSP or 300°F.



*Ball Denied Seating by Stem in Closed or "Cracked" Position*

## GLASS CLEANING

With valve stem(s) in full open position and drain plug(s) removed, a cleaning brush may be inserted through valve body and into glass.

ball cavity. With valves opened in this way, the ball is set up again to close automatically in case of a pressure differential. **WARNING:** Valves should be opened 2 full turns minimum to enable automatic safety closing. For this reason it is best to operate the valves FULL OPEN as a standard practice so that ball checks are always enabled and the safety feature is maintained.