

# PENBERTHY

## application report

Section 2000  
 Application Report 2782.1  
 Issued 05/05  
 Replaces 11/00

For: **LENGTH DETERMINATION IN INCHES FOR  
 TUBULAR GLASS, GUARD RODS, PROTECTORS AND INTERNAL TUBES**

**Required Length**  
 or  
**Visible Glass Length** = **\*Center to Center**  
**Vessel Connections** ± **Chart Value below**

\*(when using a Hydraulic Adapter, substitute NPT end to end dimension)

REQUIRED LENGTH OF	VISION LENGTH OF
TUBULAR GLASS GUARD RODS PROTECTORS INTERNAL TUBES	PROTECTORS

GAGE COCK MODEL	REQUIRED LENGTH (INCHES)						VISIBLE GLASS LENGTH (INCHES)		
	**TUBULAR GLASS	GUARD RODS	PROTECTORS			INTERNAL TUBES	PROTECTORS		
			Plastic & Wire Glass	Sheet Metal	Refractive		Plastic & Wire Glass	Sheet Metal	Refractive
N2	-1.875	-2.375	-4.875	-4.750	-5.500	+12.500	-6.000	-6.000	-6.313
K2	-1.875	-2.375	-4.875	-4.750	-5.500	+12.500	-6.000	-6.000	-6.313
K3	-2.000	-2.125	-4.875	-4.750	-5.500	N/A	-6.000	-6.000	-6.313
N6	-1.625	+0.500	-3.375	-3.250	-4.000	N/A	-4.500	-4.500	-4.813
N7	-2.000	-0.750	-4.125	-4.000	-4.625	N/A	-5.250	-5.250	-5.438
300	N/A	N/A	N/A	N/A	N/A	+12.500	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A	+12.500	N/A	N/A	N/A
780	-2.625	-3.125	-5.625	-5.500	-6.250	+13.250	-6.750	-6.750	-7.063
TEE	N/A	N/A	N/A	N/A	N/A	+12.000	N/A	N/A	N/A
Hydraulic Adapter	-2.875	N/A	-4.875	-4.750	-5.375	N/A	-6.000	-6.000	-6.188
L100V	-3.250	N/A	N/A	N/A	-10.875	N/A	N/A	N/A	-11.688

N/A – Not Available

\*\* Applies only to gages using a single piece of glass. When utilizing a Glass Union and multiple pieces of glass, use the following formulas:

- 1 Union Individual Piece Length = Total Glass Length / 2 Pieces of Glass – 0.469 inches (as determined above)
- 2 Unions Individual Piece Length = Total Glass Length / 3 Pieces of Glass – 0.625 inches (as determined above)
- 3 Unions Individual Piece Length = Total Glass Length / 4 Pieces of Glass – 0.703 inches (as determined above)

# PENBERTHY

## application report

Section 2000  
 Application Report 2782.2  
 Issued 05/05  
 Replaces 11/00

**For: LENGTH DETERMINATION IN MILLIMETERS FOR  
 TUBULAR GLASS, GUARD RODS, PROTECTORS AND INTERNAL TUBES**

**Required Length  
 or  
 Visible Glass Length = \*Center to Center  
 Vessel Connections ± Chart Value below**

\*(when using a Hydraulic Adapter, substitute NPT end to end dimension)

REQUIRED LENGTH OF	VISION LENGTH OF
TUBULAR GLASS GUARD RODS PROTECTORS INTERNAL TUBES	PROTECTORS

GAGE COCK MODEL	REQUIRED LENGTH (MILLIMETERS)						VISIBLE GLASS LENGTH (MILLIMETERS)		
	**TUBULAR GLASS	GUARD RODS	PROTECTORS			INTERNAL TUBES	PROTECTORS		
			Plastic & Wire Glass	Sheet Metal	Refractive		Plastic & Wire Glass	Sheet Metal	Refractive
N2	-47.6	-60.3	-123.8	-120.7	-139.7	+317.5	-152.4	-152.4	-160.3
K2	-47.6	-60.3	-123.8	-120.7	-139.7	+317.5	-152.4	-152.4	-160.3
K3	-50.8	-54.0	-123.8	-120.7	-139.7	N/A	-152.4	-152.4	-160.3
N6	-41.3	+12.7	-85.7	-82.6	-101.6	N/A	-114.3	-114.3	-122.3
N7	-50.8	-19.1	-104.8	-101.6	-117.5	N/A	-133.4	-133.4	-138.1
300	N/A	N/A	N/A	N/A	N/A	+317.5	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A	+317.5	N/A	N/A	N/A
780	-66.7	-79.4	-142.9	-139.7	-158.8	+336.6	-171.5	-171.5	-179.4
TEE	N/A	N/A	N/A	N/A	N/A	+304.8	N/A	N/A	N/A
Hydraulic Adapter	-73.0	N/A	-123.8	-120.7	-136.5	N/A	-152.4	-152.4	-157.2
L100V	-82.6	N/A	N/A	N/A	-276.2	N/A	N/A	N/A	-296.9

N/A – Not Available

\*\* Applies only to gages using a single piece of glass. When utilizing a Glass Union and multiple pieces of glass, use the following formulas:

1 Union Individual Piece Length = Total Glass Length / 2 Pieces of Glass – 11.9 Millimeters (as determined above)

2 Unions Individual Piece Length = Total Glass Length / 3 Pieces of Glass – 15.9 Millimeters (as determined above)

3 Unions Individual Piece Length = Total Glass Length / 4 Pieces of Glass – 17.9 Millimeters (as determined above)