DURABILITY AND DEPENDABILITY

FLAT GLASS GAUGES & VALVES FOR PROCESS LEVEL MEASUREMENT BY KENCO
FLAT GLASS GAUGES

KENCO Flat Glass Gauges are used where direct visual observation of process fluids is required. These gauges are suitable for a wide range of applications with pressures up to 4000 psig @ 100°F, and temperatures up to @750 F to 2050 psig. KENCO gauges are available in either carbon steel or 316 stainless steel construction materials to meet most specifications. Other materials available upon request. Consult factory for details.

There are five main components common to all flat glass gauges:

1. **CHAMBER**
   Center of the gauge, and is the part that primarily contains the process fluid. It is machined from bar stock. The gasket seat is recessed for lateral support, and easy positioning.

2. **COVER**
   Protects the glass, and provides the compression surface for sealing the gauge. The cushion seat is a machined pocket for lateral support and easy positioning.

3. **GLASS**
   Provides the visual interface between the process fluid and the outside.

4. **GASKET/CUSHION**
   Provides for a seal between the chamber and glass (gasket), and protects the glass from mechanical stresses from the cover (cushion). For a given gauge, the gasket and cushion are normally the same material.

5. **BOLTS/STUDS/NUTS**
   Provides a uniform compression load to the gauge for pressure sealing.

REFLEX & TRANSPARENT STYLES

Reflex gauges have a single piece of glass, mounted on one side of the chamber. This piece of glass is flat on the outside, and has a series of prisms on the inside, facing the process fluid. When light strikes the portion of the glass covered by a liquid, the light is reflected from the back of the chamber. This area appears “black”. When light strikes the glass where no liquid is present, the prisms reflect the light directly out of the gauge. This area appears “silvery”. Reflex gauges provide an excellent way to measure clear, or difficult to see fluids. The “silvery” / “black” interface is easy to see from several feet away.

Transparent gauges have two pieces of glass on opposite sides of the chamber. Light enters the gauge from one side, and the level is viewed from the other. Transparent gauges are useful when the actual liquid characteristics need to be seen. They are also commonly used for liquid-liquid interfaces. Mica shields can be used in transparent gauges to protect the glass in steam environments. Kel-F shields should be used in corrosive environments.

WHY USE FLAT GLASS GAUGES

Flat Glass Gauges have been in use for over 100 years. They give you the ability to directly view the process fluid under temperature/pressure conditions that would render most other level technologies useless. Their construction is very robust, and reliable. They define the term “simple to use”. . . after installation, the only tool you will need is your eyes. Flat Glass Gauges are relatively inexpensive as compared to most other level technologies.

Other features:

- They do not need electrical power to operate. This can be a great advantage in the case of a power outage.
- Simple to install...no calibration is necessary.
- Can be used as a reference to check, or calibrate, other level technologies.
- Pressure rating from vacuum to 4000 psig.
- Temperature rating from -50°F–750°F (Carbon Steel) / -150°F–750°F 316 (Stainless Steel)
- Not affected by the chemical or electrical properties of the process liquid. Specific gravity, dielectric, conductivity, surface turbulence, vapor, foam, etc. no longer needs to be considered.

FLAT GLASS GAUGES vs. TUBULAR GLASS GAUGES

KENCO offers a wide range of Flat Glass and Tubular Glass Gauges. With all of those choices, one of the basic questions is: Should I use Flat Glass or Tubular Glass Gauges? The answer is fairly simple. If the process pressure is under 500psig and the process temperature is under 400°F, tubular style gauges should be considered. KENCO tubular gauges shield the glass on all four sides to virtually eliminate glass breakage, and tubular gauges are even more cost effective than flat glass gauges. Regardless of the style chosen, KENCO’s high quality gauges will provide you with many years of reliable service.
KENCO Medium Pressure Flat Glass Gauges are versatile enough for most common process conditions. Standard carbon steel gauges meet the requirements of NACE MR0175. Unlike other manufacturers, there is no additional charge for NACE.

All materials meet or exceed ASTM specifications. Model KMR Reflex Gauges can reach process pressures up to 3000psig. Model KMT Transparent Gauges can handle pressures up to 2000psig. See the Ratings’ tables below for specific information about a particular gauge size.

While these gauges are not specifically designed for steam service, the Model KMR gauges will perform at saturated steam pressures up to 300WSP. The Model KMT will perform at saturated steam pressures up to 450WSP, depending upon gauge size. Mica shields are required for model KMT when used in steam applications above 300 WSP. Shields cannot be used with Reflex Gauges.

**REFLEX GAUGE (MODEL KMR)**

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SATURATED STEAM RATING: 300 WSP

*Temperatures above 470° F require Aluminosilicate glass. Aluminosilicate glass is not recommended for steam applications

**TRANSPARENT GAUGE (MODEL KMT)**

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SATURATED STEAM USING MICA SHIELDS

*Mica shields must be used in KMT gauges with Borosilicate glass at temperatures above 570°F.*
HIGH PRESSURE FLAT GLASS GAUGES

KENCO High Pressure Flat Glass Gauges have a superior rugged design for the most demanding process conditions. Standard carbon steel gauges meet the requirements of NACE MR0175. Unlike other manufacturers, there is no additional charge for NACE.

All materials meet or exceed ASTM specifications. Model KHR Reflex Gauges can reach process pressures up to 4000psig. Model KHT Transparent Gauges can handle pressures up to 3000psig. See the Ratings’ tables below for specific information about a particular gauge size.

While these gauges are not specifically designed for steam service, the Model KHR gauges will perform at saturated steam pressures up to 300WSP. The Model KHT will perform at saturated steam pressures up to 450WSP. Mica shields are required for Model KHT when used in steam applications above 300WSP. Shields cannot be used with Reflex Gauges.

REFLEX GAUGE (MODEL KHR)

Pressures / Temperature Ratings

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SATURATED STEAM RATING: 300 WSP

*Temperatures above 470° F require Alumino-silicate glass. Alumino-silicate glass is not recommended for steam applications.

TRANSPARENT GAUGE (MODEL KHT)

Pressures / Temperature Ratings

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SATURATED STEAM USING MICA SHIELDS

| 450 | 450 | 450 | 450 | 450 | 450 | 450 | 450 | 450 |

* Temperatures above 570° F require Alumino-silicate glass.
** Do not exceed 680° F with Mica shields.
# GAUGE INFORMATION

## GAUGE LENGTHS (Inches)

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<thead>
<tr>
<th># OF GAUGE SECTIONS</th>
<th>NUMBER OF SECTIONS / GLASS SIZE DESIGNATOR</th>
<th>VISIBLE GLASS LENGTH</th>
<th>OVERALL LENGTH OF END CONNECTED GAUGES</th>
<th>MINIMUM SIDE CONNECTED GAUGE C-C LENGTH (NO VALVES)</th>
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## MINIMUM C-C DIMENSIONS FOR END CONNECTED GAUGES WITH KMVR/KHVR VALVES (Inches)

Note: The minimum center to center dimensions in this chart are based on 1/2” FNPT gauge connections. To find the minimum center to center dimension with 3/4” FNPT gauge connections, add 1/2” to the minimum dimensions shown in the chart.

### MINIMUM C TO C VISIBLE GLASS

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<td>33-3/8</td>
<td>28-3/4</td>
</tr>
<tr>
<td>KMR(T)/KHR(T)37</td>
<td>34-7/8</td>
<td>29-3/4</td>
</tr>
<tr>
<td>KMR(T)/KHR(T)38</td>
<td>35-1/4</td>
<td>30-3/4</td>
</tr>
<tr>
<td>KMR(T)/KHR(T)39</td>
<td>36-1/2</td>
<td>31-3/4</td>
</tr>
<tr>
<td>KMR(T)/KHR(T)40</td>
<td>37-3/4</td>
<td>32-3/4</td>
</tr>
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<td>KMR(T)/KHR(T)41</td>
<td>38-1/4</td>
<td>33-3/4</td>
</tr>
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<td>KMR(T)/KHR(T)42</td>
<td>39-1/2</td>
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<td>KMR(T)/KHR(T)43</td>
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<td>35-3/4</td>
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<td>KMR(T)/KHR(T)44</td>
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<td>KMR(T)/KHR(T)45</td>
<td>42-1/2</td>
<td>37-3/4</td>
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<tr>
<td>KMR(T)/KHR(T)46</td>
<td>43-3/4</td>
<td>38-3/4</td>
</tr>
</tbody>
</table>

Consult factory for the minimum center to center of an End Connected Gauge when using KMVU/KHVU valves.
**ORDERING GUIDE**

Flat Glass Level Gauge

REQUESTED BY: __________________________ COMPANY: __________________________

ADDRESS: __________________________ CITY: __________________________ STATE: __________________________ ZIP: __________________________

PHONE: __________________________ FAX: __________________________ EMAIL: __________________________

---

**GAUGE CONSTRUCTION MATERIALS**

Flat Glass Level Gauge

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Cover</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>316/316L SS</td>
<td>Consult Factory</td>
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<tr>
<td>Chamber</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>316/316L SS</td>
<td>316/316L SS</td>
<td>Duplex SS, Alloy 20; Hastelloy-C</td>
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<tr>
<td>Glass</td>
<td>Borosilicate</td>
<td>Borosilicate</td>
<td>Aluminosilicate</td>
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<tr>
<td>Gasket</td>
<td>Graphoil w/316 SS Insert</td>
<td>Graphoil w/316 SS Insert</td>
<td>Non-Asbestos; Teflon® (25% Glass Filled)</td>
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</tr>
<tr>
<td>Cushion</td>
<td>Graphoil w/316 SS Insert</td>
<td>Graphoil w/316 SS Insert</td>
<td>Non-Asbestos; Teflon® (25% Glass Filled)</td>
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<td>U-Bolt/Stud</td>
<td>ASTM A193 B7</td>
<td>ASTM A193 B7</td>
<td>Consult Factory</td>
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<td>Nut</td>
<td>ASTM A194 2H</td>
<td>ASTM A194 2H</td>
<td>Consult Factory</td>
<td></td>
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</tbody>
</table>

---

**Material**

- A = 316 S.S. W/O Shield
- C = Carbon Steel W/O Shield
- W = 316 S.S. (Wetted) W/O Shield
- K = 316 S.S. W/ Mica Shield
- L = Carbon Steel W/ Mica Shield
- M = 316 S.S. (Wetted) W/ Mica Shield
- G = 316 S.S. W/ KEL-F Shield
- H = Carbon Steel W/ KEL-F Shield
- J = 316 S.S. (Wetted) W/ KEL-F Shield

---

**Connection Location**

- B = Back
- E = End
- L = Left
- R = Right

**Connection Size**

- 50 = 1/2”
- 75 = 3/4”
- 10 = 1” Flange Only
- 15 = 1-1/2” Flange Only
- 20 = 2” Flange Only
- 30 = 3” Flange Only
- 40 = 4” Flange Only
- 60 = 6” Flange Only
- 80 = 8” Flange Only

**Connection Type**

- N = FNPT
- S = Socket Weld (Female)
- A = 150 LB. R.F. Flange
- B = 300 LB. R.F. Flange
- C = 600 LB. R.F. Flange
- D = 900 LB. R.F. Flange
- E = 1500 LB. R.F. Flange
- F = 2500 LB. R.F. Flange
- G = 150 LB. R.T.J. Flange
- H = 300 LB. R.T.J. Flange
- I = 600 LB. R.T.J. Flange
- J = 900 LB. R.T.J. Flange
- K = 1500 LB. R.T.J. Flange
- L = 2500 LB. R.T.J. Flange

**Center to Center Gauge Distance**

(Leave blank for end connections) (Three place decimal rounded to the nearest 1/32”)
GAUGE ILLUMINATORS

To improve the visibility of fluid contained in a KENCO Transparent Level Gauge, a specially sized illuminator can be used. The illumination is provided by extra bright Green LED’s (Light Emitting Diodes). This light is brighter than ordinary incandescent light bulbs, consume less power, and can last 200 times longer, with an estimated life of 100,000 hours. The Illuminator mounts directly onto the transparent gauge without the need for loosening the bolts on the gauge. The power supply is contained inside a NEMA 4X enclosure. The unit is 115Vac/230Vac powered and draws less than 150mA of current.

The Model KLI Illuminator is UL Listed and CSA Certified for Class I, Division 1, Group B, C & D defined hazardous areas.

Model Configuration

Size (See Table Below)  
Power Supply  
Options

Input Power

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
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<tr>
<td>115Vac</td>
<td>115AC</td>
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<tr>
<td>230Vac</td>
<td>230AC</td>
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</table>

Options

<table>
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<tr>
<th>Description</th>
<th>Code</th>
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<tr>
<td>None</td>
<td>0</td>
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<tr>
<td>Remote P.S.</td>
<td>1</td>
</tr>
<tr>
<td>Provide Cable length for Option #1</td>
<td></td>
</tr>
</tbody>
</table>
**FROST PROOF EXTENSION**

The KENCO Frost-proof Extension is used in low temperature applications where frost has a tendency to build up on the gauge. This extension prevents frost from covering the window, maintaining visibility at all times.

The Frost-proof Extension consists of a clear, plastic block that is in direct contact with the glass, and extends beyond the cover so that frost build-up does not block the glass.

Mounting is easy, and can be added to any Reflex or Transparent gauge in the field. The extension can be installed or removed for cleaning while the gauge is in service.

**GAUGE GLASS OPTIONS**

KENCO supplies tempered borosilicate glass as standard in all Flat Glass Gauges. Borosilicate glass is suitable for most chemicals, and is good for temperatures up to 470°F for Reflex glass and 570°F for transparent glass. The tempering process improves the thermal shock resistance of the glass.

Alumino-silicate glass is offered as an option in Transparent gauges for higher temperature applications. It offers less thermal expansion, as compared to borosilicate glass. Alumino-silicate glass is good for temperatures up to 750°F. However, due to the added cost, it is only recommended for temperatures between 470°F to 750°F.

**GLASS SHIELDS**

For corrosive or steam applications, KENCO offers shields to extend the life of the glass in Transparent gauges. The shields are made from either PCTFE (Kel-F) or Mica. Mica shields are recommended for steam service. Kel-F shields should be used in corrosive fluid applications. The shield is placed on the process side of the glass. Since this would interfere with the optical effect of reflex glass, shields can only be used with transparent glass.

**SCALE OPTIONS**

Gauge scales can be supplied to provide a numerical reference to the level being measured. Contact KENCO for more information.
FLAT GLASS GAUGE VALVES (GAUGE COCKS)

KENCO Gauge Cocks are designed for use with KENCO Flat Glass Gauges, or gauges from any other manufacturer. All valves are “Offset Pattern” design. This provides for gauge connections that are offset 0.750” from the centerline of the vessel connections. This allows the gauge to be cleaned by removing vent/drain plugs from the valve. All materials meet or exceed ASTM specifications.

PRESSURE/TEMPERATURE RATINGS:

- Model KMVx Valves are rated to 2500psig @ 100°F; 1400psig @ 750°F.
- Model KHVx Valves are rated to 4000psig @ 100°F; 1500psig @ 750°F; KHVx valves also carry a steam rating of 450 WSP.

Series KMV Valve Standard Features:

- Safety Shut-off Ballchecks (Horizontal)
- Integral Bonnet
- Gauge Connection
  - Model KMVR – Rigid
  - Model KMVU – Union
- Union Vessel Connection
- Integral Seat

Series KHV Valve Standard Features:

- Safety Shut-off Ballchecks (Horizontal)
- Union Bonnet
- Gauge Connection
  - Model KHV R– Rigid
  - Model KHVU – Union
- Union Vessel Connection
- Threaded Renewable Seat
## VALVE ORDERING GUIDE

**Flat Glass Level Gauge**

### Requested By:

**Company:**

**Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Fax:**

**Email:**

### Valve Type

- KHV = High Pressure Valve
- KMV = Medium Pressure Valve

### Gauge Type

- R = Rigid
- U = Union

### Material

- A = 316 S.S.
- C = Carbon Steel
- W = 316 S.S. (Wetted)
- N = Carbon Steel (Nace)
- T = Carbon Steel (Low Temp)

### Gauge Connection Size

- 50 = 1/2"
- 75 = 3/4"

### Vessel Connection Size

- 50 = 1/2"
- 75 = 3/4"
- 10 = 1"
- 15 = 1-1/2"
- 20 = 2"
- 30 = 3"
- 40 = 4"
- 60 = 6"
- 80 = 8"

### Gauge Connection Type

- N = FNPT
- S = Socket Weld (Female)

### Vessel Connection Type

- M = Union (MNPT)
- N = Union (FNPT)
- S = Socket Weld (Female)
- A = 150 LB. R.F. flange
- B = 300 LB. R.F. flange
- C = 600 LB. R.F. flange
- D = 900 LB. R.F. flange
- E = 1500 LB. R.F. flange
- F = 2500 LB. R.F. flange
- G = 150 LB. R.T.J. flange
- H = 300 LB. R.T.J. flange
- J = 600 LB. R.T.J. flange
- K = 900 LB. R.T.J. flange
- L = 1500 LB. R.T.J. flange
- P = 2500 LB. R.T.J. flange

### Valve Construction Materials

**Flat Glass Level Gauge**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Valve Stem (Wetted)</td>
<td>416 HT SS</td>
<td>N50 SS</td>
<td>416 HT SS</td>
<td>316 SS</td>
<td>316 SS</td>
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<tr>
<td>Union Bonnet (K HVx only) (Wetted)</td>
<td>1018 Carbon Steel</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>316 SS</td>
<td>316 SS</td>
</tr>
<tr>
<td>Renewable Seat (K HVx only) (Wetted)</td>
<td>316 SS</td>
<td>N50 SS</td>
<td>316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
</tr>
<tr>
<td>Gauge/Vessel Connections (Wetted)</td>
<td>1018 Carbon Steel</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>ASTM A350 LF2 Carbon Steel</td>
<td>316 SS</td>
<td>316 SS</td>
</tr>
<tr>
<td>Packing Gland (Wetted)</td>
<td>SS-316N2-33 316SS (Sintered)</td>
<td>SS-316N2-33 316SS (Sintered)</td>
<td>SS-316N2-33 316SS (Sintered)</td>
<td>SS-316N2-33 316SS (Sintered)</td>
<td>SS-316N2-33 316SS (Sintered)</td>
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<tr>
<td>Packing (Wetted)</td>
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<td>Flexible Graphite</td>
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<td>Check Ball (Wetted)</td>
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<td>316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
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<tr>
<td>Union/Packing Nuts (Non-Wetted)</td>
<td>1018 Carbon Steel</td>
<td>1018 Carbon Steel</td>
<td>316 SS</td>
<td>1018 Carbon Steel</td>
<td>316 SS</td>
</tr>
<tr>
<td>Handle (Non-Wetted)</td>
<td>ASTM A216 Carbon Steel</td>
<td>ASTM A216 Carbon Steel</td>
<td>ASTM A351 316 SS</td>
<td>ASTM A216 Carbon Steel</td>
<td>ASTM A351 316 SS</td>
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</tbody>
</table>
MAXIMUM GAUGE LENGTH POSSIBLE FOR A KNOWN VESSEL CENTER-TO-CENTER (C-C):

End Connected Gauges

Max. End Connected Gauge Length = \[ \text{Vessel C-C Dimension} \over (2x \text{Valve Subtractor} + \text{Visible Nipple Length}) \]

Instructions to determine the Maximum End Connected Gauge Length for known Vessel C-C:

1. Insert the desired Vessel C-C Length Valve Subtractor and Minimum Visible Nipple Length into the Maximum End Connected Gauge Length formula above.

2. The proper Gauge Size will be the closest End Connected Overall Gauge Length from the Gauge Lengths chart on page 5 that is less than or equal to the number derived from the formula above.

Example: The Maximum End Connected Overall Gauge Length for a Kenro KMR Medium Pressure Reflex Gauge with 1/2”-14 NPT End Connections, KMVR Medium Pressure Rigid Valves and a Vessel C-C length of 13.875" is calculated as follows: 13.875" - (2x (1.65" + 0.16")) = 10.255". The longest End Connected Gauge Size from the Gauge lengths chart on page 5 that is less than or equal to 10.255" is a Gauge Size 15 with an overall length of 9.375". In this case, Gauge Size 15 would be the longest Gauge that can be used in this application.

Side/Back Connected Gauges

Instructions to determine the Minimum Side Connected Gauge C-C Length for known Vessel C-C:

1. Determine which valve orientation is best for your application.

2. Figure 1 Gauge Size is determined by adding 1 1/2" to the Vessel C-C Length and comparing that value to the Minimum Side Connected Gauge C-C Length column on the Gauge Lengths chart on page 5. The proper Gauge Size will be the closest Minimum Side Connected Gauge C-C Length that is less than or equal to the calculated value.

Example: The Minimum Side Connected Gauge C-C Length for a Kenro KMR Medium Pressure Reflex Gauge with 1/2”-14 NPT Gauge Connections, KMVR Medium Pressure Rigid Valves and a Vessel C-C Length of 13.875" is calculated as follows: 13.875" + 1.500" = 15.375". The closest Minimum Side Connected Gauge C-C Length from the Gauge Lengths chart on page 5 that is less than or equal to 15.375" is 14.500", which is equivalent to a Gauge Size 21. In this case, a Gauge Size 21 would be manufactured with a Gauge C-C length of 15.375".

3. Figure 2 Gauge Size is determined by subtracting 1/2" from the Vessel C-C Length and comparing that value to the Minimum Side Connected Gauge C-C Length column on the Gauge Lengths chart on page 5. The proper Gauge Size will be the closest Minimum Side Connected Gauge C-C Length that is less than or equal to the calculated value.

Example: The Minimum Side Connected Gauge C-C Length for a Kenro KMR Medium Pressure Reflex Gauge with 1/2”-14 NPT Gauge Connections, KMVR Medium Pressure Rigid Valves and a Vessel C-C Length of 13.875" is calculated as follows: 13.875" - 1.500" = 12.375". The closest Minimum Side Connected Gauge C-C Length from the Gauge Lengths chart on page 5 that is less than or equal to 12.375" is 11.750", which is equivalent to a Gauge Size 17. In this case, a Gauge Size 17 would be manufactured with a Gauge C-C Length of 12.375".
# FLAT GLASS GAUGE

**Pressure rating:**
- □ Medium Pressure
- □ High Pressure

**Gauge Style:**
- □ Reflex
- □ Transparent

**No. of Gauge Sections:**
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9

**Gauge Glass Size:**
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9

**Gauge Material:**
- □ Carbon Steel (Meets Nace; Low Temp Rating to -50° F)
- □ 316 SS
- □ Wetted 316 SS

**Glass Shield:**
- □ No Shield
- □ Mica Shield (Transparent gauge only)
- □ Kel-F Shield (Transparent gauge only)

**Connection Location:**
- □ End
- □ Side (Right)
- □ Side (Left)
- □ Back

**Connection Size:**
- □ ½”
- □ ¾”
- □ 1”
- □ 1-1/2”
- □ 2”
- □ 3”
- □ 4”
- □ 6”
- □ 8”

(Nota: 1” through 8” sizes available as flanged connections only)

**Connection Type:**
- □ NPT (Female)
- □ Socket Weld (Female)
- □ Flange

**Design Pressure Rating:**
- □ psig @ □ °F

Consult Factory for other requirements if needed.

---

# FLAT GLASS GAUGE VALVES

**Assemble Valves to Gauge:**
- □ Yes
- □ No

**Assembled Vessel Center to Center Distance:**
- □ inches
- □ millimeters

**Pressure Rating:**
- □ Medium Pressure (2500 psi @ 100°F)
- □ High Pressure (4000 psi @ 100°F)

**Material:**
- □ Carbon Steel
- □ Low Temp Carbon Steel (-50° F)
- □ Nace Carbon Steel
- □ 316 SS
- □ Wetted 316 SS

**Gauge Connection Style:**
- □ Rigid Connection
- □ Union Connection

**Gauge Connection Size:**
- □ ½”
- □ ¾”

**Gauge Connection Type:**
- □ NPT (Female)
- □ Socket Weld (Female)

**Vessel Connection Size:**
- □ ½”
- □ ¾”
- □ 1”
- □ 1-1/2”
- □ 2”
- □ 3”
- □ 4”
- □ 6”
- □ 8”

(Nota: 1” through 8” sizes available as flanged connections only)

**Vessel Connection Type:**
- □ NPT (Male Union)
- □ NPT (Female Union)
- □ Socket Weld (Female)
- □ Flange

**Vessel Connection Flange Type:**
- □ Threaded Raised Face
- □ Threaded R.T.J.

**Vessel Connection Flange Size:**
- □ 150 LB
- □ 300 LB
- □ 600 LB
- □ 900 LB
- □ 1500 LB
- □ 2500 LB

Consult factory for other requirements if needed.