

# ***VISIBILITY & RELIABILITY***

*SIGHT FLOW INDICATORS & SIGHT WINDOWS*



***FEATURING KSF SIGHT FLOW INDICATORS***

***ENGINEERED LIQUID FLOW SOLUTIONS***



[www.kenco-eng.com](http://www.kenco-eng.com)

# SIGHT FLOW INDICATORS

KENCO Engineering Company offers a variety of Standard KSF (cast body), Full-view, and Armored Sight Flow Indicators, as well as, a line of Sight Windows. All products are hydrostatically tested to ensure reliability in harsh operating conditions. KENCO Sight Flow Indicators provide a window into piping. They are a cost effective and efficient way to visually monitor the flow of fluids, and to determine if any problems exist along the process pipeline. These inexpensive, simple devices, allow operators to observe flow rate, direction, color and clarity. These indicators can be deployed in one of two ways: (1) individually at critical points along fluid lines where changes, interruptions or contamination is likely to occur, or (2) in groups where simultaneous monitoring of multiple fluid lines is necessary.

## APPLICATIONS

One of the advantages of sight flow indicators is their application versatility. Common applications involve monitoring fluid flow through filter, cooling, and intake / outlet pumping lines, as well as numerous other industrial processes. In addition, sight flow indicators are useful as backups for meters, switches and other control devices.

## INDUSTRIES SERVED

### CHEMICAL / PETROCHEMICAL

- Filter Line Monitoring
- Distilling Operations
- Dye / Ink Color
- Paint / Varnish Consistency
- Chemical Conversion Processes
- General Refinery Piping

### PETROLEUM

- Drilling Pump Operations
- Oil / Water Separation
- Loading Terminals

### POWER

- Turbine Lubricant Flow
- Cooling Line Water Flow

### OEM

- Compressor Water Flow
- Solvent Recirculation
- Pre- and Post-Filter Trap Monitoring

### WASTEWATER TREATMENT

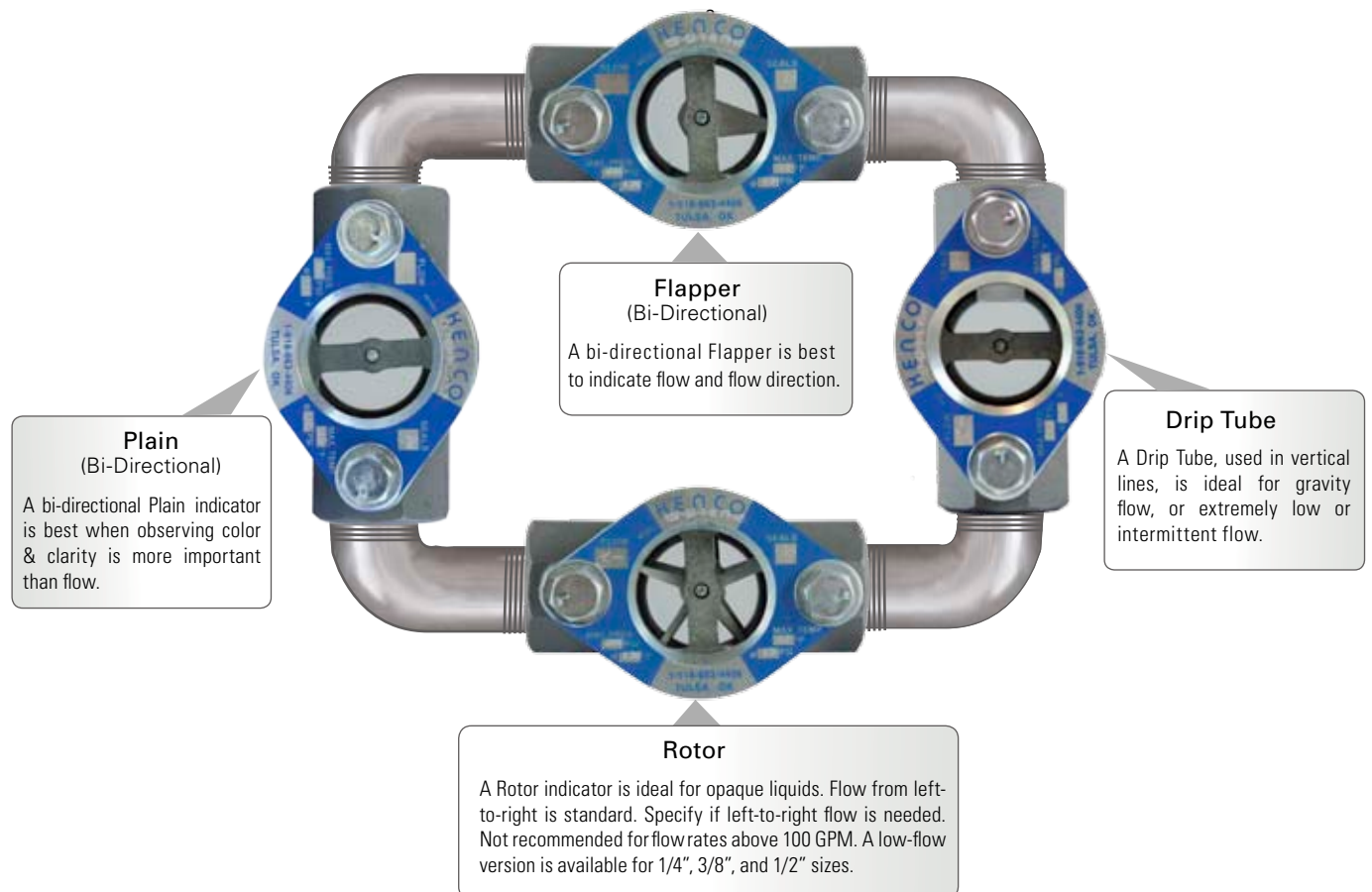
- Second Stage Aeration Tank Pumping Lines

## KSF CAST BODY SIGHT FLOW INDICATORS

KENCO offers a wide variety of Standard KSF (cast body) Sight Flow Indicators. They are available in a complete range of sizes and styles to meet your application needs.

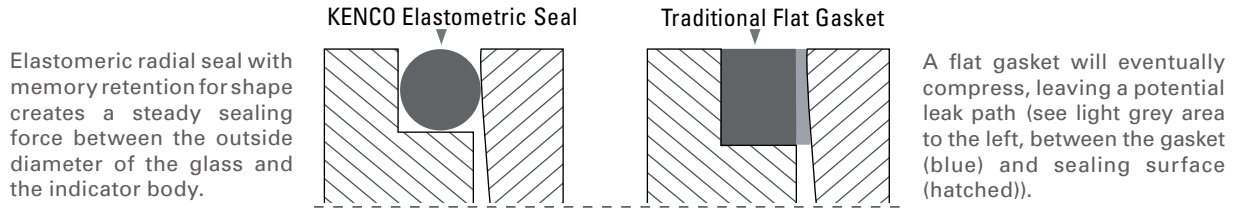
### Selecting The Best Style

Sight flow indicators are an inexpensive way to identify and repair process line problem areas reliably and efficiently. Selecting the best type of sight flow indicator for a given application is crucial to getting the best performance possible.



## LEAK-PROOF GUARANTEE

The most common complaint against sight flow indicators is that they leak. This is primarily caused by the failure of conventional flat seals. KENCO Standard KSF (cast body) Sight Flow Indicators are guaranteed not to leak for three full years under normal use. The reason we are sure that these indicators won't leak is the innovative radial sealing design:



## MODULAR DESIGN

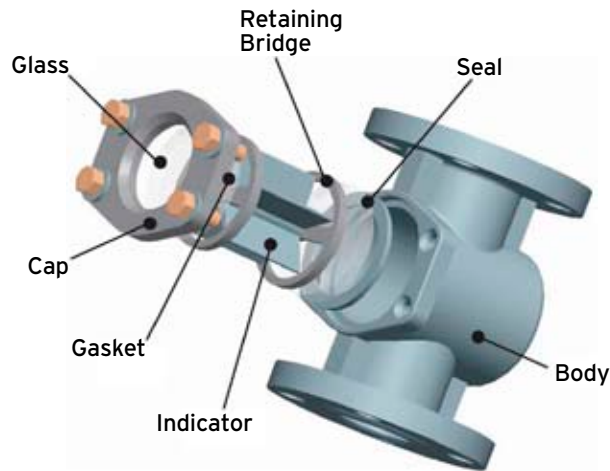


KENCO Modular Design



Competitor Tie-Rod Design

KENCO's unique modular design fastens the flow assembly directly to the body with no special torquing sequence. This provides easy access to the unit from the front side, which eliminates clearance problems caused by the Tie-Rod design. The Tie-Rod design also presents challenges fastening the glass and seal to the body.



The KENCO modular design allows for maintenance to the internal parts of the indicator without removing the indicator from the pipeline. This optimizes uptime and reduces replacement costs.

### Pressure / Temperature Ratings (Standard Seals)

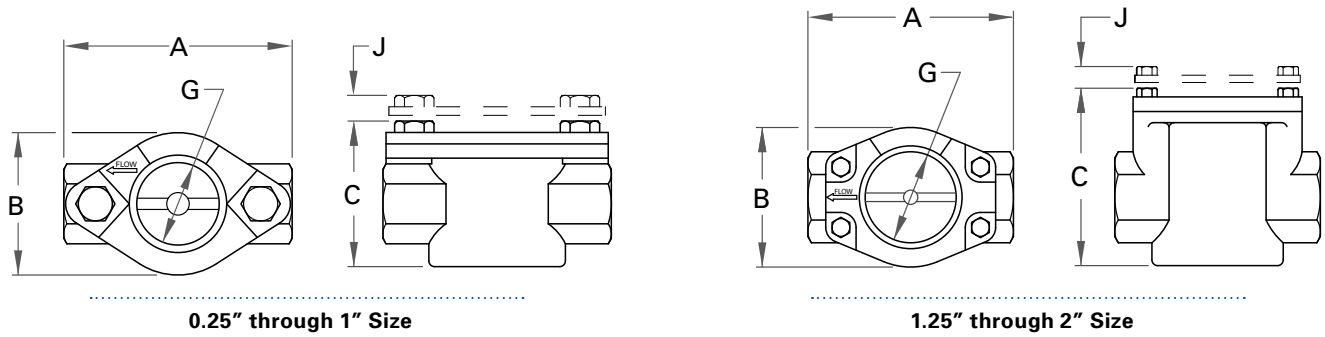
KSF	Max. Pressure	Max Temperature
ST Series (1/4" – 4")	150psig @ 150°F	150°F @ 150psig
ST Series (6" – 12")	200psig @ 150°F	250°F @ 135psig
HT Series (Threaded)	400psig @ 150°F	350°F @ 200psig
HT Series (Flanged) Carbon Steel	285psig @ 100°F	350°F @ 215psig
HT Series (Flanged) 316SS	275psig @ 100°F	350°F @ 205psig
HT Series (Flanged) Ductile Iron	245psig @ 100°F	350°F @ 165psig

### Seal/Indicator Material Temperature Ratings

Seal Material	Temperature
Neoprene (ST Series Std.)	-20° to 250°F
Viton® (HT Series Std.)	0° to 350°F
Buna-N	-30° to 250°F
EPT	-20° to 250°F
Teflon®	-40° to 450°F
Kalrez®	0° to 500°F
High Temperature (PTFE)	0° to 500°F
Indicator Material	Temperature
Delrin®	-40° to 250°F
Ryton®	-40° to 450°F
Teflon®	-40° to 450°F

# PRODUCT DIMENSIONS - INCHES

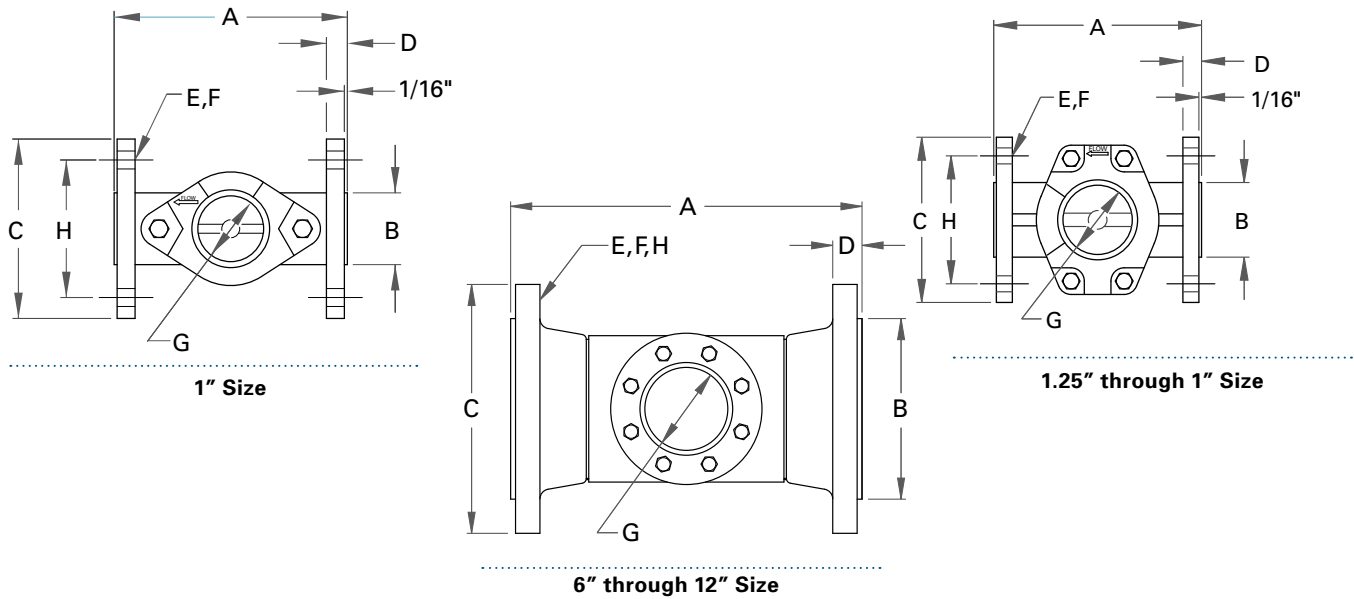
## Threaded KSF Sight Flow Indicators



Indicator Size (Inches)	0.25"	0.375"	0.5"	0.75"	1"	1.25"	1.5"	2"
A Overall Length	3.25 <sup>1</sup>	3.25 <sup>1</sup>	3.25 <sup>1</sup>	4.25 <sup>2</sup>	4.25	5.25 <sup>3</sup>	5.25 <sup>3</sup>	5.50 <sup>3</sup>
B Overall Width	2.00	2.00	2.00	2.56	2.56	3.31	3.31	3.31
C Overall Height (ST Series)	2.38	2.38	2.38	3.25	3.25	4.31	4.31	4.31
Overall Height (HT Series)	2.56	2.56	2.56	3.44	3.44	4.50	4.50	4.50
G Sight Opening Diameter	1.13	1.13	1.13	1.50	1.50	2.00	2.00	2.00
J Added Height Due to Shield	0.44	0.44	0.44	0.50	0.50	0.50	0.50	0.50
Weight (pounds)	1.60	1.60	1.40	3.00	2.70	8.40	7.90	6.60

1 316 SS Units are 3.63"; 2 Bronze Units are 4.13"; 3 316 SS Units are 5.63"

## 150# Flanged KSF Sight Flow Indicators



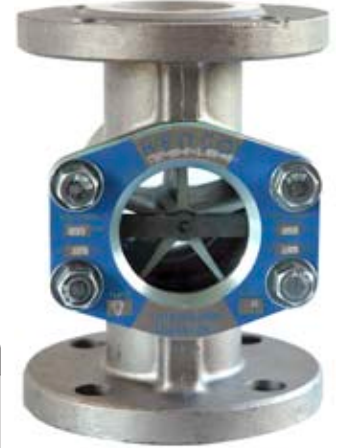
Indicator Size (Inches)	1"	1.5"	2"	3"	4"	6"	8"	10"	12"
A Overall Length	5.00	6.50	7.00	8.00	9.00	14.25	16.13	16.13	17.13
B Raised Face Diameter	2.00	2.88	3.63	5.00	6.19	8.50	10.63	12.75	15.00
C Flange Diameter	4.25	5.00	6.00	7.50	9.00	11.00	13.50	16.00	19.00
D Flange Thickness	0.47	0.59	0.69	0.81	1.00	1.00	1.13	1.19	1.25
E Number of Bolt Holes	4.00	4.00	4.00	4.00	8.00	8.00	8.00	12.00	12.00
F Bolt Hole Diameter	0.63	0.63	0.75	0.75	0.75	0.75	0.75	0.88	0.88
G Sight Opening Diameter	1.50	2.00	2.00	3.00	3.00	4.00	4.00	4.00	4.0
H Bolt Circle Diameter	3.13	3.88	4.75	6.00	7.50	9.50	11.75	14.25	17.00
Weight (pounds)	5.40	11.10	15.00	29.30	35.00	85.00	125.00	165.00	250.00

## DIMENSION MATCHING

KENCO Flanged Sight Flow Indicators are available in a version that matches the end-to-end dimension of sight flow indicators from Penberthy and Jacoby-Tarbox. The Model KPJ indicators are available in either Carbon Steel or 316SS materials, and Standard and High Pressure / High Temperature styles. All sizes are dimensionally interchangeable with these manufacturers' indicators, except 3/4", 2", 3", and 4" sizes, as noted in the table below.

### DIMENSIONS FOR MODEL KPJ SIGHT FLOW INDICATORS

Indicator Size (Inches)	3/4"	2"	3"	4"
A Overall Length	4.63	7.88	9.38	11.00
B Raised Face Diameter	1.69	3.63	5.00	6.19
C Flange Diameter	3.88	6.00	7.50	9.00
D Flange Thickness	0.50	0.69	0.81	1.00
E Number of Bolt Holes	4.00	4.00	4.00	8.00
F Bolt Hole Diameter	0.63	0.75	0.75	0.75
G Sight Opening Diameter	1.50	2.00	3.00	3.00
H Bolt Circle Diameter	2.75	4.75	6.00	7.50
Weight	5.20	15.00	29.03	35.00



### CONSTRUCTION MATERIALS

Part	Style	Material
Body	All	Carbon Steel
		316 SS (1/4" to 4")
		316L SS (6" to 12")
		Ductile Iron
		Bronze (Threaded Only)
Window	Standard (ST) – 1/4" to 2"	Tempered Soda Lime Glass
	Standard (ST) – 3" to 12"	Tempered Borosilicate Glass
	High Press./Temp. (HT)	
Indicator	Standard (ST)	Delrin®
	High Press./Temp. (HT)	Ryton®
	Optional	Teflon®
Seals	Standard (ST)	Neoprene
	High Press./Temp. (HT)	Viton®
	Optional	Buna-N, EPT, Kalrez®
		Teflon®, High Temp. PTFE

## ORDERING SYSTEM KSF Sight Flow Indicators

REQUESTED BY: \_\_\_\_\_ COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Sight Flow Style</b> KSF=Cast Body Sight Flow Indicator KPJ=Competitor Dimension Matched Cast Body Sight Flow Indicator</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Design Rating</b> ST=Standard HT=High Temp./High Pressure</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Connection Type</b> F=Flanged (150#) F3=Flanged (300#) T=Threaded</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Connection Size</b></p> <table border="0"> <tr> <td>Threaded</td> <td>Flanged</td> </tr> <tr> <td>0.25=1/4"</td> <td>0.75=3/4" (KPJ only)</td> </tr> <tr> <td>0.375=3/8"</td> <td>1.0=1"</td> </tr> <tr> <td>0.5=1/2"</td> <td>1.5=1-1/2"</td> </tr> <tr> <td>0.75=3/4"</td> <td>2.0=2"</td> </tr> <tr> <td>1.0=1"</td> <td>3.0=3"</td> </tr> <tr> <td>1.5=1-1/2"</td> <td>4.0=4"</td> </tr> <tr> <td>2.0=2"</td> <td>6.0=6"</td> </tr> <tr> <td></td> <td>8.0=8"</td> </tr> <tr> <td></td> <td>10.0=10"</td> </tr> <tr> <td></td> <td>12.0=12"</td> </tr> </table>	Threaded	Flanged	0.25=1/4"	0.75=3/4" (KPJ only)	0.375=3/8"	1.0=1"	0.5=1/2"	1.5=1-1/2"	0.75=3/4"	2.0=2"	1.0=1"	3.0=3"	1.5=1-1/2"	4.0=4"	2.0=2"	6.0=6"		8.0=8"		10.0=10"		12.0=12"
Threaded	Flanged																								
0.25=1/4"	0.75=3/4" (KPJ only)																								
0.375=3/8"	1.0=1"																								
0.5=1/2"	1.5=1-1/2"																								
0.75=3/4"	2.0=2"																								
1.0=1"	3.0=3"																								
1.5=1-1/2"	4.0=4"																								
2.0=2"	6.0=6"																								
	8.0=8"																								
	10.0=10"																								
	12.0=12"																								
<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Seal Material</b> B=Buna-N N=Neoprene E=Ethylene Propylene V=Viton® T=Teflon® K=Kalrez® P=High Temp. PTFE</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Material of Construction (Body)</b> C=Carbon Steel B=Bronze (Threaded Connections only) S=316 Stainless Steel I=Ductile Iron (3" &amp; 4" Sizes Only)</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p><b>Indicator Style</b> P=Plain R=Rotor (1/4" to 4" Sizes Only) F=Flapper D=Drip Tube LR=Low Flow Rotor (1/4", 3/8" &amp; 1/2" Sizes Only) T=Glass Reinforced PTFE</p>																							

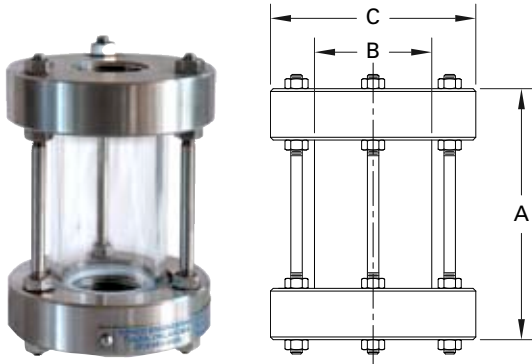
• Example Order Number: KSF-HT-F-1.0-T-S-R

# FULL VIEW & ARMORED SIGHT FLOW INDICATORS

KENCO Full View Sight Flow Indicators provide for the maximum viewing area of all types of flow indicators. The open design allows 360° inspection of the fluid being observed. Available in NPT Threaded and Flanged models, these sight flow indicators are designed to enhance the visibility of the media as it passes through the glass cylinder. Full View Indicators are recommended for low pressure applications where maximum visibility is needed. They are best suited for vertically mounted applications.

## PRODUCT DIMENSIONS - INCHES

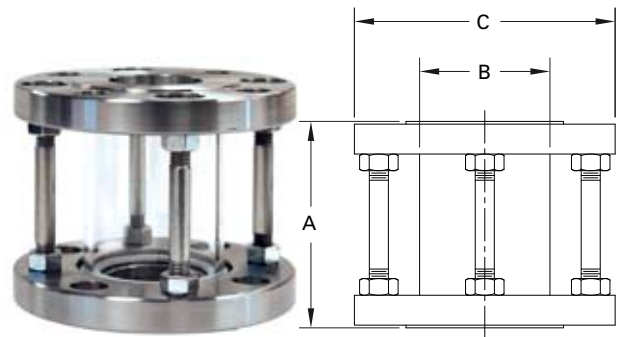
**Full View: Threaded End Plates**



Size (Inches)	Dimensions			Pressure Rating (psig)
	*A	B (I.D.)	C	
0.50	4.50	1.44	3.50	150
0.75	4.50	1.44	3.50	150
1.00	4.50	1.63	3.50	150
1.25	4.75	2.13	4.00	150
1.50	4.75	2.13	4.00	120
2.00	5.50	2.63	4.50	100

\* Dimension "A" is ±0.13"

**Full View: Flanged End Plates**

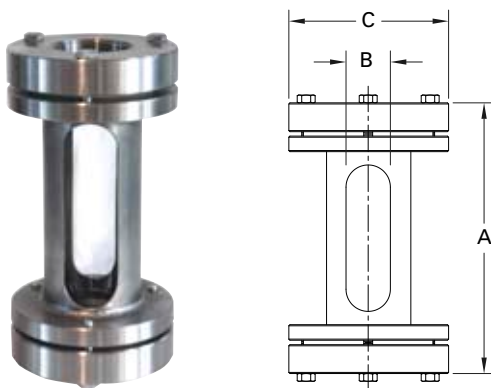


Size (Inches)	Dimensions			Pressure Rating (psig)
	A	B (I.D.)	C	
0.50	3.88	0.94	3.50	150
0.75	3.88	1.19	3.88	150
1.00	4.00	1.44	4.25	150
1.50	4.00	2.13	5.00	120
2.00	4.75	2.63	6.00	100
2.50	5.38	3.13	7.00	85
3.00	5.38	3.50	7.50	100
4.00	7.50	4.50	9.00	70
6.00	10.38	6.25	11.00	45

\* Dimension "A" is ± 0.13"

KENCO Armored Sight Flow Indicators provide the best mix between visibility and protection. The additional shielding provides protection, while still maintaining maximum visibility. These units can be mounted either vertically or horizontally. The body of the Flanged Armored Indicator is not a wetted part. Only the glass and the Teflon® flange facing are in contact with the process media.

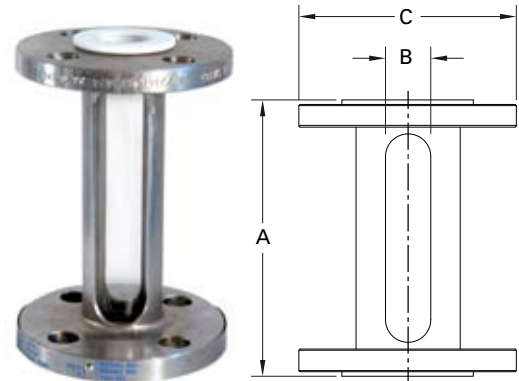
**Armored: Threaded End Plates**



Size (Inches)	Dimensions			Pressure Rating (psig)
	A	B	C	
0.50	7.00	0.63	2.50	150
0.75	7.00	0.88	3.00	150
1.00	7.00	1.00	3.00	150
1.25	7.63	1.38	4.00	150
1.50	7.63	1.63	4.00	150
2.00	7.63	2.06	4.50	120

\* Dimension "A" is ±0.13"

**Armored: Flanged End Plates**



Size (Inches)	Dimensions			Pressure Rating (psig)
	A	B	C	
0.50	6.13	0.63	3.50	150
0.75	6.38	0.88	3.88	150
1.00	6.38	1.00	4.25	150
1.50	6.75	1.63	5.00	150
2.00	7.63	2.06	6.00	120
2.50	7.88	2.47	7.00	100
3.00	8.13	3.06	7.50	85
4.00	8.13	4.00	9.00	90

\* Dimension "A" is ±0.13"

## ORDERING SYSTEM Full View & Armored Sight Flow Indicators

REQUESTED BY: \_\_\_\_\_ COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

### Sight Flow Style

ASF=Armored  
FVSF=Full View

### Connection Type

F=Flanged  
T=Threaded

### Connection Size

#### Flanged

0.25=1/4"  
0.375=3/8"  
0.5=1/2"  
0.75=3/4"  
1.0=1"  
1.5=1-1/2"  
2.0=2"

#### Threaded

0.5=1/2"  
0.75=3/4"  
1.0=1"  
1.5=1-1/2"  
2.0=2"  
2.5=2-1/2"  
3.0=3"  
4.0=4"  
6.0=6" (FVSF Only)

### Seal Material

A=Aflas (ASF Only)  
B=Buna-N (ASF Only)  
N=Neoprene  
EP=Ethylene Propylene (ASF Only)  
TE=Teflon Encapsulated Silicone (ASF Only)  
V=Fluorocarbon (ASF Only)  
K=Kalrez (ASF Only)  
TN=PTFE Envelope - Neoprene Center (FVSF Only)

### Material of Construction (Body)

CS=Carbon Steel  
S4=304 Stainless Steel  
S6=316 Stainless Steel

### Material of Constructio (\*End Plate)

CS=Carbon Steel  
S4=304 Stainless Steel  
S6=316 Stainless Steel  
A20=Alloy 20  
P=PVC  
CP=CPVC  
T=Glass Reinforced PTFE

• Example Order Number: ASF-F-0.25-B-S4-S6

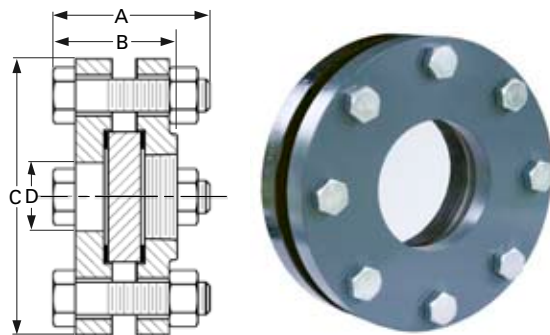
\* Does not apply to ASF models with flanged process connections

## SIGHT WINDOWS

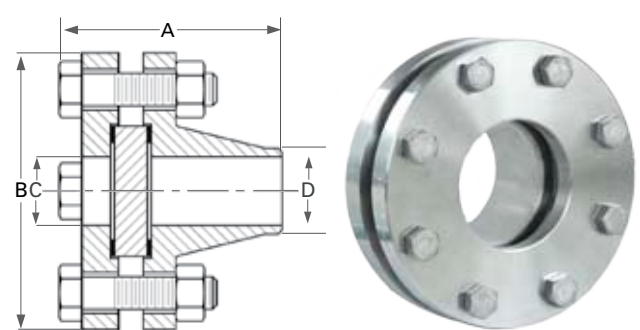
KENCO Sight Windows are used to provide direct reading of process liquids. They can be mounted directly to the vessel wall, or to pipe, in a variety of configurations.

## PRODUCT DIMENSIONS - INCHES

**Threaded Flange Window (TFW)**



**Weld Neck Window (WNW)**

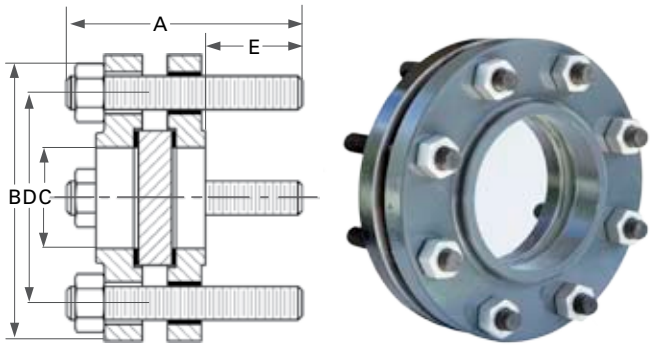


Size (Inches)	1"	1.5"	2"	3"	4"	6"	8"
A (STD)	2.61	2.86	3.19	3.94	3.94	4.27	4.52
A (ANSI)	2.61	2.86	3.44	3.94	3.94	4.77	5.02
B (STD)	1.80	2.24	2.51	3.10	3.19	3.59	4.09
B (ANSI)	1.80	2.24	2.63	3.10	3.19	4.09	4.59
C	4.25	5.00	6.00	7.50	9.00	11.00	13.50
D	1.05	1.61	2.07	3.07	4.03	6.07	7.98

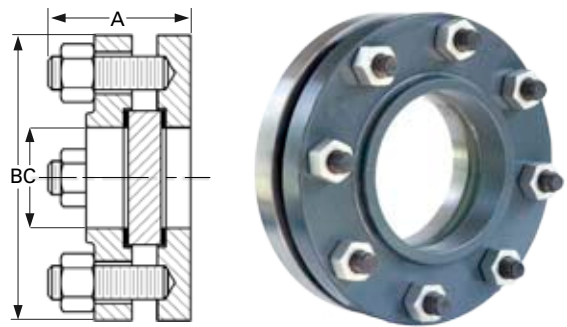
Size (Inches)	1"	1.5"	2"	3"	4"	6"	8"
A (STD)	3.31	3.81	4.06	4.69	4.94	5.56	6.44
A (ANSI)	3.31	3.81	4.19	4.69	4.94	6.06	6.94
B	4.25	5.00	6.00	7.50	9.00	11.00	13.50
C	1.05	1.61	2.07	3.07	4.03	6.07	7.98
D	1.32	1.90	2.38	3.50	4.50	6.63	8.63

# PRODUCT DIMENSIONS - INCHES

## Bolted Flange Window (BFW)



## Flat Plate Window (FPW)



Size (Inches)	1"	1.5"	2"	3"	4"	6"	8"
A (STD)	3.75	4.25	4.75	5.38	5.38	5.88	6.50
A (ANSI)	3.75	4.25	4.88	5.38	5.38	6.38	7.00
B	4.25	5.00	6.00	7.50	9.00	11.00	13.50
C	1.38	1.97	2.46	3.60	4.60	6.75	8.75
D	3.13	3.88	4.75	6.00	7.50	9.50	11.75
Stud Size	1/2-13	1/2-13	5/8-11	5/8-11	5/8-11	3/4-10	3/4-10
Stud Qty	4	4	4	4	8	8	8
E	1.50	1.63	1.81	1.94	1.94	2.19	2.31

Size (Inches)	1"	1.5"	2"	3"	4"	6"	8"
A (STD)	2.41	2.78	3.09	3.53	3.53	3.84	4.47
A (ANSI)	2.41	2.78	3.09	3.53	3.53	4.34	4.97
B	4.25	5.00	6.00	7.50	9.00	11.00	13.50
C	1.38	1.97	2.46	3.60	4.60	6.75	8.75

### Pressure Ratings

Pressure Style	Max Temp.	Max. Press.
Standard	300°F @ 150psig	150psig @ 100°F
ANSI	500°F @ 170psig	285psig @ 100°F

### Seal Temperature Ratings

Material	Temperature
Neoprene	-20°F to 200°F
Teflon Envelope – Neoprene Filler	-20°F to 300°F
Non-Asbestos (ANSI Only)	0°F to 500°F

## ORDERING SYSTEM Sight Windows

REQUESTED BY: \_\_\_\_\_ COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

#### Window Style

BFW=Bolted Flange  
FPW =Flat Plate  
TFW =Threaded Flange  
WNW=Weld Neck

#### Flange Size

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

#### Sight Window Material

C=Carbon Steel  
W=316 Stainless Steel  
Wetted w/Carbon  
Steel Body  
A=316 Stainless Steel  
w/Stainless Steel Body  
X=Other (Specify)

#### Gasket Material

N=Neoprene  
T=Teflon Envelope-  
Neoprene Filler  
A=Non-Asbestos

#### Pressure Classification

S=Standard  
A=ANSI

• Example Order Number: FPW-20-A-T-A

### Represented by:

### Kenco Sales Offices:

PO Box 470426  
Tulsa, OK 74147  
phone 918.663.4406  
fax 918.663.4480  
<http://www.kenco-eng.com>  
email: [info@kenco-eng.com](mailto:info@kenco-eng.com)

### Baton Rouge Office

11616 Industriplex, Suite 7  
Baton Rouge, LA 70809  
phone 225.755.1912  
fax 225.755.1913  
<http://www.kenco-eng.com>  
email: [kenco-la@kenco-eng.com](mailto:kenco-la@kenco-eng.com)

