

BRACER® BRACING WASHER

BRACER® HILLSIDE STYLE WASHER

The first hillside washer that eliminated back-up plates!

The BRACER® with slip resistant knurls was designed to increase the load capacity of your bracing system by over three times more than a standard hillside washer.

Our patented slip resistance knurls minimizes slippage of the rod, keeping the bracing tight. It has been tested by an independent laboratory confirming that BRACER® achieves complete loading of the web and rod, eliminating backup plates and welding! This research provides the only certified load data by any supplier of hillside style washers.

US Patent # 6,217,270

The elliptical Shape of the #1 BRACER® distributes stress into web for better load distribution!



Statement of certification by Dr. Ralph Sinno Ph.D. Professor of Civil Engineering Mississippi State University.

"The #1 BRACER® ductile iron oval hillside washers for 1/2" - 5/8" rods surpass the design capacity of the rods and beam / column sections."

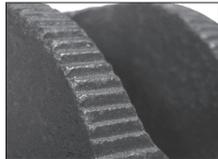
"Procedures and calculations in the literature for the design of x-bracing anchorage can be used with confidence when specifying and selecting ductile iron oval BRACER® hillside washers."

"The oval shape is better than rectangular mainly because of two reasons: The base area is almost the same and the oval shape eliminated stress concentrations at the 90-degree corners and reduces the cantilever distance (from the corner of the base to the center of the rod). In addition, your oval shape is properly stiffened on it's back. This latest oval shape is a winner with STRESS-LOK!"

WHY BRACER® ?

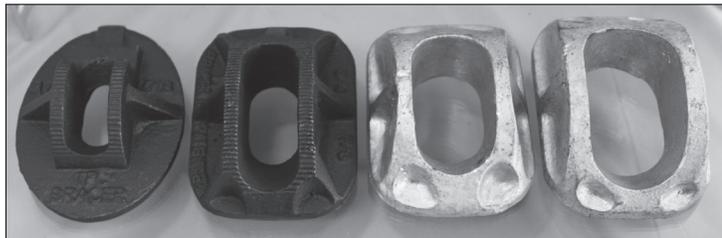
Patented design provides optimal load transfer and easy installation.

- Patented knurls on the surface minimizes slippage of the rod.
- Eliminates back-up plates and welding.
- Special nipple is design to engage the web slot deeper, producing higher load capacity and easy installation!
- Made from high strength ductile iron to assure quality performance.
- Certified independent test data confirms load capacities.



MADE IN USA AVAILABLE

SIZES AND ROD CAPABILITY



#1 BRACER® Oval With Knurls (1/2" - 5/8" Rod)
#2 BRACER® With Knurls (3/4" - 7/8" Rod)
#3 BRACER® (1" - 1-1/4" Rod)
#4 BRACER® (1-3/8" - 1-1/2" Rod)

Shown in standard red paint and optional HDG finish.

MATERIAL PROPERTIES

STANDARD MATERIAL (Import & Domestic)
Ductile Iron
ASTM 536-84 Grade 65-45-12
Ultimate Tensile Strength: 65,000 PSI

For load data,
please refer to
page 208.

FINISH

Red Enamel: BRACER #1,2,3
Gray Enamel: BRACER #4
Type: gloss enamel, 85 units minimum at 60°.
Thickness: 1.6-2.0 mils
Adhesion: ASTM 2794 Excellent. No Peeling or removal
Impact Resistance: ASTM D 2794 Good > 10 in. lbs.
Abrasion Resistance: ASTM D 4060 Good
Corrosion Resistance: Salt Spray: 250 hrs. (<5% red rust)
Kesternich: 5 cycles (<10% red rust)

OPTIONAL FINISH

Hot Dip Galvanized Per ASTM 153 Class A

BRACER® Base Dimensions

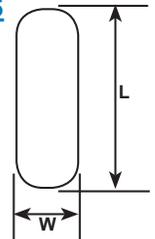
BRACER®	Rod	Base Dimension	
		Length	Width
#1 (Oval)	1/2" & 5/8"	4.000"	3.000"
#2	3/4" & 7/8"	4.000"	3.000"
#3	1" & 1-1/4"	4.000"	3.000"
#4	1-3/8" & 1-1/2"	4.250"	3.000"

Need a standard hillside?
Call about information on our BRACER LITE!

SLOT SIZES AND ROD ANGLES

SLOT REQUIREMENTS - MINIMUM
Slots in the web must be sized to allow a rod angle of up to 52° and to allow the tab on the bottom of the BRACER® to engage the web.

*Static load tests were conducted using the these dimensions.



ROD AND (BRACER SIZE)	ROD ANGLE (MAX)	FROM MSU TEST		SLOT WIDTH (W) MINIMUM DUCTILE IRON
		*SLOT LENGTH (L)	*SLOT WIDTH (W)	
1/2" Rod (#1 BRACER)	55°	2.125"	1.062"	.750"
5/8" Rod (#1 BRACER)	52°	2.125"	1.062"	.750"
3/4" Rod (#2 BRACER)	55°	2.125"	1.062"	1.000"
7/8" Rod (#2 BRACER)	52°	2.125"	1.062"	1.000"
1" Rod (#3 BRACER)	58°	2.625"	1.312"	1.250"
1-1/4" Rod (#3 BRACER)	56°	2.625"	1.312"	1.312"
1-3/8" Rod (#4 BRACER)	55°	3.500"	1.625"	1.425"
1-1/2" Rod (#4 BRACER)	52°	3.500"	1.625"	1.600"