Proudly Made in the USA
from local and imported materials

Technical Data

Mateenbar™ GFRP Rebar Bends

Mateenbar™ Bends (ASTM D8505, CSA-S807)

	Units	#3 (10mm)	#4 (13mm)	#5 (15/16mm)	#6 (19/20mm)	#7 (22mm)	#8 (25mm)
Tensile Force: Straight Section	kN	71	129	199	182	241	297
	kip	16.0	29.0	44.7	57.5	73.9	97.5
Tensile Force: Bent Section	kN	35	58	90	116	145	178
	kip	7.9	13.0	20.1	26.2	33.9	44.7
Elastic Modulus	GPa	50					
	ksi	7250					
Transverse Shear Capacity	MPa	180	180	180	180	170	160
	ksi	26.1	26.1	26.1	26.1	24.6	23.2
Weight	g/m	185	305	415	640	800	1050
	lb/ft	0.124	0.205	0.279	0.430	0.538	0.706
Nominal Cross-Sectional Area	mm^2	71	129	199	284	387	510
	in^2	0.110	0.200	0.310	0.440	0.600	0.790
Outer Diameter (including ribs)	mm	11.5	15.5	18.0	22.0	24.0	27.0
	in	0.453	0.610	0.709	0.866	0.945	1.063
Primary Materials	Epoxy Backboned Vinylester and Corrosion Resistant E-CR Glass						

The data herein applies to bent bars only. For data on Mateenbar™ straight bars, please refer to Greenbar2X and Mateenbar™ 60 data sheets

Code-Approved and Proven Performance

MATERIAL STANDARDS
Mateenbar™ Bends comply with ASTM D7957 and CSA-S807 material standards.

RESIDENTIAL CONCRETE
Mateenbar™ Bends can be used in residential concrete, including footings and foundation walls, as prescribed in ICC-EER 5548, or as designed using ACI 332 and ACI 440 design methodology.

COMMERCIAL CONCRETE
Mateenbar™ Bends can be used in commercial concrete design using concrete code ACI 440.11-22, ICC-ESR 5548 and AASHTO LRFD Bridge Design Guide Specifications for GFRP-Reinforced Concrete.

MASONRY
Mateenbar™ Bends can be used with TMS 402/602-22 Appendix D as reinforcing for masonry walls.

USA Revised: 18 September 2024

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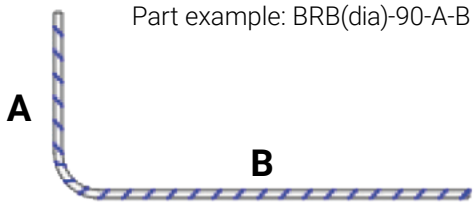
LEADING THE WORLD IN DURABLE REBAR

BENT BAR DETAILING GUIDE

STANDARD STOCK BENDS

G1 90° Bent (Steel 2, 17)

Part example: BRB(dia)-90-A-B



General Max Dimensions:
If A ≤ 24", B may be up to 110"
If A ≤ 55", B may be up to 95"
If A ≤ 80", B may be up to 80"

OR
Sqrt(A^2+B^2) shall be ≤ 110"
Min Legs: ≥ 10*Dia

G1 available in custom lengths — see Custom bends below for limitations.

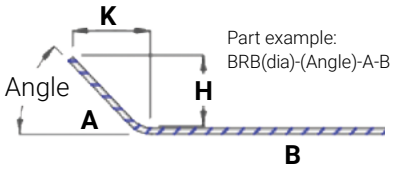
Bar Size	Description	Item #	Weight per bend (lb)
#3	.375 in diameter; 90 degree bend; 24x24	BRB3-90-24-24	0.50
#3	.375 in diameter; 90 degree bend; 36x36	BRB3-90-36-36	0.75
#4	.500 in diameter; 90 degree bend; 24x24	BRB4-90-24-24	0.82
#4	.500 in diameter; 90 degree bend; 36x36	BRB4-90-36-36	1.23
#5	.625 in diameter; 90 degree bend; 36x36	BRB5-90-36-36	1.67

Bends must be ordered in 500 piece increments — minimum of 500 bends per order.

CUSTOM BENDS

- Lead time for custom bends will be determined once the final bar is approved.
- Minimum quantities may apply for custom bends production.

G2 <90° Bent (Steel 3)

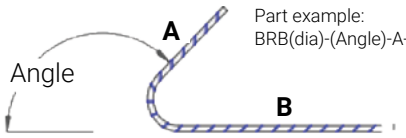


Part example:
BRB(dia)-(Angle)-A-B

General Max Dimensions:
Combined A+B of 110" available regardless of Angle Max A+B may increase as angle increases

OR
Sqrt(A^2+B^2) shall be ≤ 110" regardless of Angle
Min Legs: ≥ 10*Dia

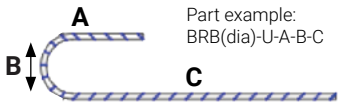
G3 >90° Bent (Steel 13, 21, 30)



Part example:
BRB(dia)-(Angle)-A-B

General Max Dimensions:
Combined A+B of 130" available regardless of Angle.
Max A+B may increase as angle increases
Min Legs: ≥ 10*Dia

G4 Hooked Bar (Steel 1)

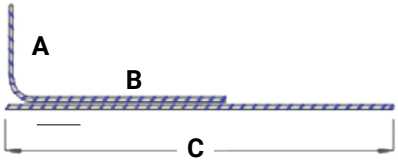


Part example:
BRB(dia)-U-A-B-C

B=8*(dia) out-to-out
Max Legs: ≤ 110" for A & C
Min Legs: ≥ 10*Dia for A & C

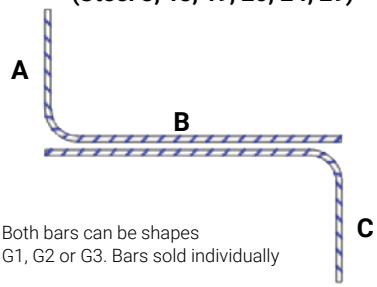
Note: A 90° bend with a 12 bar diameter tail is equally effective and more economical

G5 Long Leg Bent (Steel 2, 17)



Bar comprised of sides A & B can be shapes G1, G2, G3, or G4
Straight bar (C) can be produced up to 40' in length.
Bars sold individually

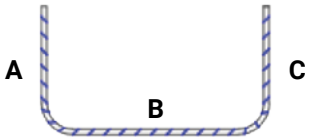
G6 Z Bar or Similar (Steel 8, 18, 19, 20, 24, 29)



Both bars can be shapes G1, G2 or G3. Bars sold individually

G7 U/C Shape Bar (Steel 2/17)

Part example: BRB(dia)-U-A-B-C

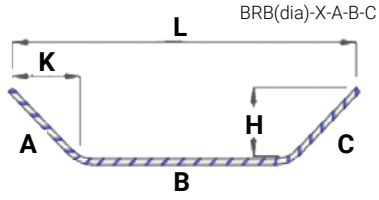


Dim B shall be ≥ 8*(dia)+2.5"

General Max Dimensions:
If B ≤ 36", A & C may be up to 110"
If 36"<B≤60", A & C may be up to 100"
If 60"<B≤80", A & C may be up to 80"
If 80"<B≤110", A & C may be up to 45"
Min A & C Legs: ≥ 10*Dia

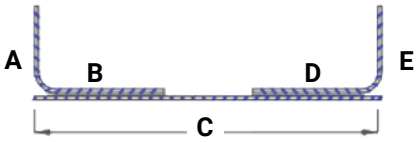
G8 Open U (Steel 3d, 4c, 14ab, 22B)

Part example:
BRB(dia)-X-A-B-C



Dim B shall be ≥ 8*(dia)+2.5"
Please enquire for max tolerances on Open U shapes
Min A & C Legs: ≥ 10*Dia

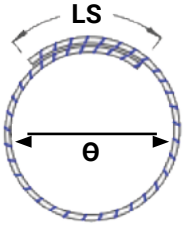
G9 Long Leg U (Steel 2/17)



Bars comprised of sides A & B and
D & E can be shapes shapes G1, G2, G3, or G4.
Straight bar (C) can be produced up to 40' in length.
Bars sold individually

G10 Hoop (Steel T3)

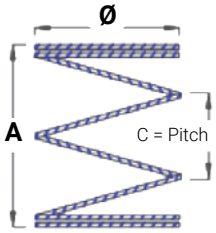
Part example: BRB(dia)-H-(Int. Ø)-(LS)



Max Size:
8 ≤ Θ ≤ 48"

Larger diameter available upon request.
Additional tooling charges may apply.

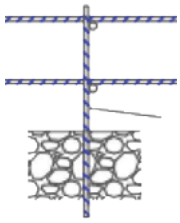
G11 Spiral (Steel SP1)



Part example:
BRB(dia)-S--(Int. Ø)-(Turns)

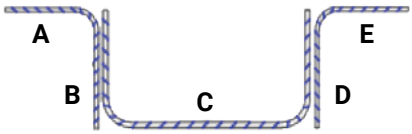
Max Size: Ø conforms to shape G10.
Max number of turns:
#3-#4: 22 Turns
#5-#6: 18 Turns
#7-#8: 15 Turns

G12 Standees/Stakes (Steel 25, 26 alternative)



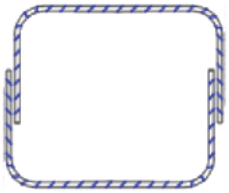
Standees available on request. An OCIS Fiberglas™ Rebar Stake is a more economical alternative for the Standee shape where possible and can be directly embedded into the ground without concerns of corrosion.

G13 Gull Wing (Steel 3, 4, 7, 22, 23)



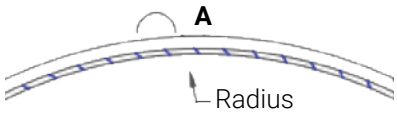
Bars comprised of sides A & B and D & E can be shapes G1, G2, G3, or G4. Bar comprised of sides B, C & D can be shapes G7 or G8. Bars sold individually.

G14 Closed Loop Stirrup- Two U Shapes with Overlap



Includes (2) bars in the shape of G7.

G15 Large Radius (Steel 9)



Straight bar can be produced up to 40' in length Refer to Field Forming section for Large Radius Curve allowances. Large Radius curves are field formed to shape. The table gives the minimum allowable radius for induced bending stresses without any consideration for additional sustained structural loads.

MODULUS OF ELASTICITY (KSI)	6800	8700
SIZE	RADIUS (IN)	RADIUS (IN)
#3	38	NA
#4	51	63
#5	NA	81
#6	NA	101
#8	NA	136

NOTES:

1. Please note that bends have a black resin, and the finished product is black.
2. This guide intends to capture the majority of our bent bar capabilities. Shapes and dimensions exceeding listed tolerances may be available. Please check with your Mateenbar™ representative for details or alternatives.
3. "dia" or "d" refer to bar diameter
4. Bent Bars available in sizes #3 - #8
5. Inner bend radii equal to 3x Bar Diameter
6. All dimensions are out-to-out.
7. Bent bar shape dimensions and tolerance details are specified in ASTM D7957, ACI 440, ACI 318, and ACI 117.

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