



Minimum Radius Guide on Mild Steel Material

Profile Type	CE40			CE50		
	Profile Dimensions	Min. CLR Inches	Wall	Profile Dimensions	Min. CLR Inches	Wall
Pipe	1/2"	6	.109	3/4"	8	.113
	1"	10	.133	2"	12	.154
	2"	18	.154	2 1/2"	16	.203
Tube	1"	6	.120	1"	6	.120
	1 1/2"	12	.120	2 1/2"	18	.120
	2 1/2"	25	.083	3"	24	.120
Square Tube	3/4" x 3/4"	6	.083	3/4" x 3/4"	6	.083
	1 1/2" x 1 1/2"	16	.083	2" x 2"	20	.120
	2" x 2"	24	.120	2 1/2" x 2 1/2"	30	.120
Rectangular Tube Hard way	1/2" x 1 1/4"	10	.083	1/2" x 1"	8	.083
	1" x 1 1/2"	12	.120	1 1/2" x 2 1/2"	18	.120
	1" x 2"	24	.120	1 1/2" x 3"	34	.120
Rectangular Tube Easy way	1 1/4" x 1/2"	10	.083	1 1/4" x 1/2"	10	.083
	2" x 1"	20	.120	2 1/2" x 1 1/2"	24	.120
				3" x 1 1/2"	32	.120
Round Solid	3/4"	4 *	NA	3/4"	4 *	NA
	1 1/4"	12	NA	1 1/2"	14	NA
Square Solid	3/4"	4 *	NA	3/4"	4 *	NA
	1"	8	NA	1 1/4"	10	NA
	1 1/4"	10	NA	1 1/2"	10	NA
Rectangular Solid Hard way	1/2" x 1 1/2"	12	NA	3/8" x 3/4"	6 *	NA
	1/4" x 2"	16	NA	1/2" x 2"	10	NA
	1/2" x 2"	18	NA	1/2" x 2 1/2"	18	NA
Rectangular Solid Easy way	1 1/4" x 3/8"	6 *	NA	2" x 1/2"	8	NA
	2 1/2" x 1/2"	8	NA	4" x 1/2"	12	NA
	3" x 1/2"	16	NA			
Angle "Leg Out"	1" x 1"	8	.120	1" x 1"	8	.120
	1 1/2" x 1 1/2"	12	.120	2" x 2"	16	.187
	2" x 2"	16	.187	2 1/2" x 2 1/2"	20	.187
Angle "Leg In"	1" x 1"	10	.120	1" x 1"	10	.120
	1 1/2" x 1 1/2"	16	.120	2" x 2"	18	.236
	2" x 2"	28	.187	2 1/2" x 2 1/2"	22	.236
C "Leg Out"	1 1/2" x 1/2"	10	.120	1 1/4" x 1/2"	10	.120
	2" x 1 1/4"	14	.187	3" x 1 1/2"	15	.187
C "Leg In"	1 1/2" x 3/4"	10	.187	1 1/2" x 3/4"	10	.187
	2 1/2" x 1 1/4"	14	.187	3" x 1 1/2"	16	.187

1. Capacities based on mild grade material, number of bending passes may vary.
2. Tie Bar accessory required for bending large profiles.
3. Two roll drive machines increase minimum CLR.

Minimum Radius Guide on Mild Steel Material

CE60			CE70			CE100		
Profile Dimensions	Min. CLR Inches	Wall	Profile Dimensions	Min. CLR Inches	Wall	Profile Dimensions	Min. CLR Inches	Wall
3/4"	6	.113	1 1/2"	16	.145	2"	16	.154
2"	12	.154	3"	24	.216	4"	36	.237
3"	30	.216						
1"	6	.120	1 1/2"	16	.120	2"	12	.120
2 1/2"	20	.203	4"	30	.187	4"	32	.187
3 1/2"	30	.187				6"	76	.187
3/4" x 3/4"	6	.083	1 1/2" x 1 1/2"	12	.120	2" x 2"	14	.120
2" x 2"	20	.120	3" x 3"	48	.187	4" x 4"	72	.187
2 1/2" x 2 1/2"	30	.216						
1/2" x 1"	6	.083	1/2" x 1 1/2"	10	.120	1" x 2 1/2"	16	.187
1 1/2" x 2 1/2"	18	.120	2" x 4"	48	.187	2" x 4"	48	.187
1 1/2" x 4"	36	.187						
1 1/4" x 1/2"	6	.083	1 1/2" x 1/2"	10	.120	2 1/2" x 1"	14	.187
2 1/2" x 1 1/2"	24	.120	4" x 2"	72	.187	4" x 2"	72	.187
4" x 1 1/2"	60	.187						
1"	8 *	NA	1 1/4"	6 *	NA	1 1/2"	8 *	NA
1 3/4"	16	NA	2"	16	NA	2 1/2"	24	NA
5/8"	4 *	NA	1 1/2"	10 *	NA	1 1/2"	14	NA
1 1/4"	8	NA	2"	16	NA	2"	18	NA
1 3/4"	20	NA						
3/8" x 3/4"	6 *	NA	1/2" x 1 1/2"	14	NA	1/2" x 1 1/2"	16	NA
1/2" x 2"	8	NA	1/2" x 3"	32	NA	3/4" x 4"	42	NA
3/4" x 3"	40	NA						
2" x 1/2"	6	NA	1 1/2" x 1/2"	12	NA	2" x 1/2"	14	NA
4" x 3/4"	8	NA	4" x 1"	16	NA	6" x 1"	32	NA
1" x 1"	10	.156	1 1/2" x 1 1/2"	14	.187	2" x 2"	16	.187
2" x 2"	18	.236	3" x 3"	28	.375	3" x 3"	28	.375
2 1/2" x 2 1/2"	26	.236				4" x 4"	36	.500
1" x 1"	14	.156	1 1/2" x 1 1/2"	16	.187	2" x 2"	20	.187
2" x 2"	28	.236	3" x 3"	32	.375	3" x 3"	32	.375
2 1/2" x 2 1/2"	36	.236				4" x 4"	40	.500
1 1/2" x 3/4"	10	.156	2" x 1"	14	.187	2" x 1"	14	.187
3 1/8" x 1"	12	.236	4" x 1 1/2"	24	.187	6" x 2"	60	.375
1 1/2" x 3/4"	10	.203	2" x 1"	14	.125	2" x 1"	14	.187
4" x 1 1/2"	18	.236	4" x 1 1/2"	24	.187	6" x 2"	60	.375

*Special tooling required

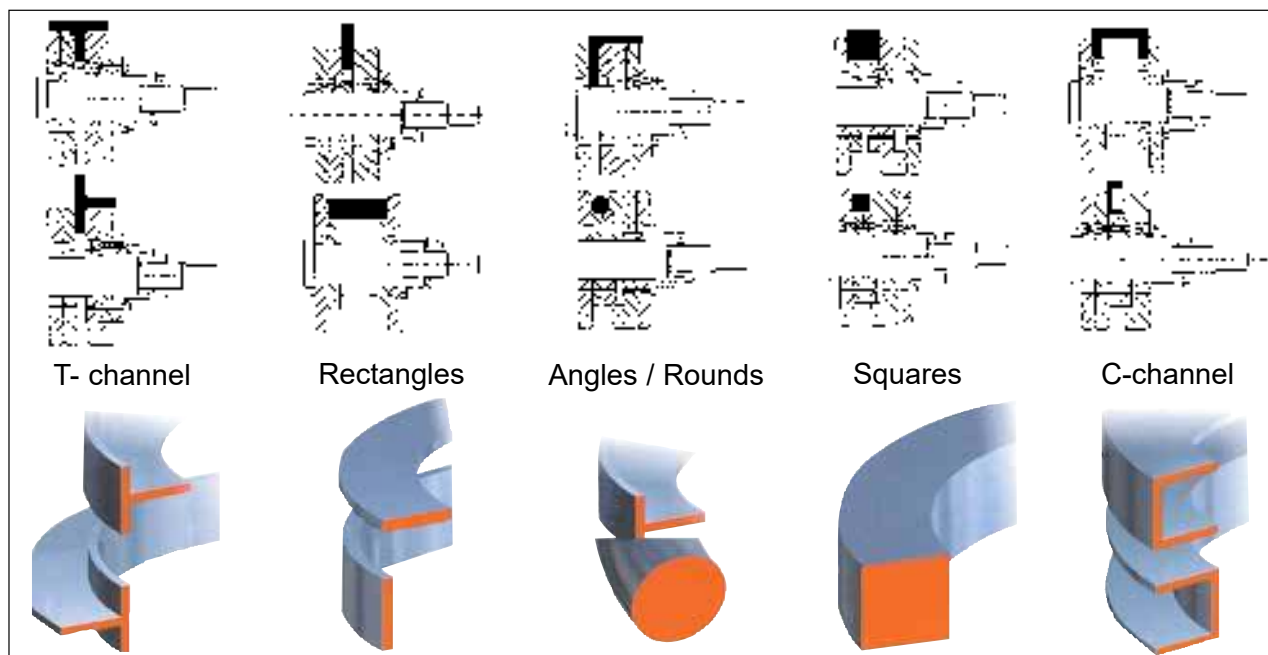
Consult CML USA, Inc. Ercolina® with application questions.

Consult factory for material and radii not shown.



Universal Tooling Sets

All Ercolina angle roll-section bending machines **include** universal tooling sets.
Universal tooling adjusts easily to bend the following profiles:



Part#	Description
C4ST	CE35 - CE40 – Universal tooling set
C5ST	CE50 - CE60 – Universal tooling set
C7ST	CE70 – Universal tooling set
C100ST	CE100 – Universal tooling set



Universal tooling set in Polymer available:
CE35 - CE40 (C4STPOLY)
and CE50 - CE60 (C5STPOLY)

Modular Tooling Sets

Modular tooling sets support profiles,
maintain smooth radius edges and
reduce sharp knife-like edges.



Part#	Description
C4RC	CE35 - CE40 – 6 flanges and 6 spacers
C4RCPOLY	CE35 - CE40 – Poly modular tooling set
C5RC	CE50 - CE60 – 6 flanges and 9 spacers
C5RCPOLY	CE50 - CE60 – Poly modular tooling set
C70RC	CE70 – 6 flanges and 15 spacers
C100RC	CE100 – 6 flanges and 12 spacers

Angle Roll-Section Bender Pipe Tooling Sets



Size	O.D.	CE35 - CE40	CE50 - CE60	CE70	CE100
1/4"	.540	C401P0250	C501P0250	NA	NA
3/8"	.675	C401P0375	C501P0375	*	*
1/2"	.840	C4SPD2**	C5SPD2**	*	*
3/4"	1.050	C4SPD1**	C5SPD1**	*	*
1"	1.315	C4SPD1**	C5SPD1**	C70P1000	C100P1000
1 1/4"	1.660	C4SPD2**	C5SPD2**	C70P1250	C100P1250
1 1/2"	1.900	C401P1500	C501P1500	C70P1500	C100P1500
2"	2.375	C401P2000 (CE40 only)	C501P2000	C70P2000	C100P2000
2 1/2"	2.875	NA	C501P2500	C70P2500	C100P2500
3"	3.500	NA	C501P3000†	C70P3000	C100P3000
4"	4.500	NA	NA	NA	C100P4000

* Special order - consult factory for delivery

** Combination Twin Tool Sets

† Only available for CE60 model

Consult factory for tooling sizes not shown.

Angle Roll-Section Bender Tube Tooling Sets

Size	O.D.	CE35 - CE40	CE50 - CE60	CE70	CE100
1/4"	.250	C401T0250	C501T0250	NA	NA
3/8"	.375	C401T0375	C501T0375	NA	NA
1/2"	.500	C401T0500	C501T0500	NA	NA
5/8"	.625	C401T0625	C501T0625	NA	NA
3/4"	.750	C401T0750	C501T0750	NA	NA
7/8"	.875	C401T0875	C501T0875	NA	NA
1"	1.000	C401T1000	C501T1000	NS*	NS*
1 1/8"	1.125	C401T1125	C501T1125	NS*	NS*
1 1/4"	1.250	C401T1250	C501T1250	NS*	NS*
1 3/8"	1.375	C401T1375	C501T1375	NS*	NS*
1 1/2"	1.500	C401T1500	C501T1500	NS*	NS*
1 5/8"	1.625	C401T1625	C501T1625	NS*	NS*
1 3/4"	1.750	C401T1750	C501T1750	NS*	NS*
1 7/8"	1.875	C401T1875	C501T1875	NS*	NS*
2"	2.000	C401T2000	C501T2000	C70T2000	C100T2000
2 1/8"	2.125	C401T2125 (CE40 only)	C501T2125	NS*	NS*
2 1/4"	2.250	C401T2250 (CE40 only)	C501T2250	NS*	NS*
2 1/2"	2.500	C401T2500 (CE40 only)	C501T2500	C70T2500	C100T2500
2 3/4"	2.750	NA	C501T2750	NS*	NS*
3"	3.000	NA	C501T3000	C70T3000	C100T3000
4"	4.000	NA	NA	NA	C100T4000

* Not stocked. Special order - consult factory for delivery.



Polymer Roll Tooling Sets



Polymer tooling maintains material appearance reducing scratching and blemishes.



Polymer Pipe Tooling

Size	O.D.	CE35 - CE40	CE50 - CE60
1"	1.315	C401NP1000	C501NP1000
1¼"	1.660	C401NP1250	C501NP1250
1½"	1.900	C401NP1500	C501NP1500
2"	2.375	C401NP2000 (CE40 only)	C501NP2000
2½"	2.875	NA	C501NP2500

Polymer Tube Tooling

Size	O.D.	CE35 - CE40	CE50 - CE60
1"	1.000	C401NT1000	C501NT1000
1¼"	1.250	C401NT1250	C501NT1250
1½"	1.500	C401NT1500	C501NT1500
1¾"	1.750	C401NT1750	C501NT1750
2"	2.000	C401NT2000	C501NT2000
2½"	2.500	C401NT2500 (CE40 only)	C501NT2500

Small Radius Tooling

Small Radius Tooling

Adjustable tooling set for small radius bending applications.

Tooling Material Capacities

Profile	Maximum
Square solids	5/8" x 5/8"
Rectangular solids	3/4" x 1/4"
Rounds	5/8"
T Stock	3/4" x 3/4"

Part# **C4RR** fits CE35 - CE40
Part# **C5RR** fits CE50



Cap Rail & Profile Tooling

Available by special order for angle roll machines.
Consult CML USA with specific profile and dimensions.



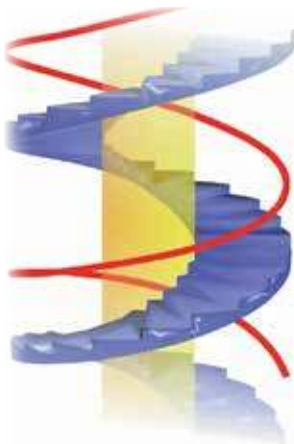
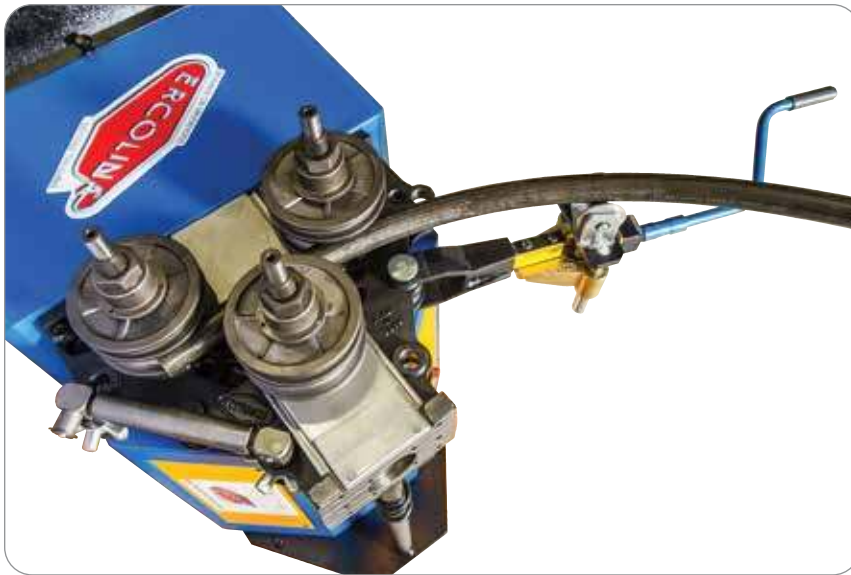
Angle Roll-Section Bender Accessories

Large Spiral Bending Accessory

Ideal for large pitch spiral bending applications. Material capacity 2" outside diameter.

Part# **CS5A11** fits CE40 - CE50 - CE60

Part# **CS7A11** fits CE70





Angle Roll-Section Bender Accessories



Tie Bar Accessory

Recommended when bending large profiles or heavy wall material. Increases roll shaft rigidity and radii accuracy.

Part# **C5A2** fits CE40 and CE50

Part# **CE70A2** fits CE70

Part# **CE100A2** fits CE100



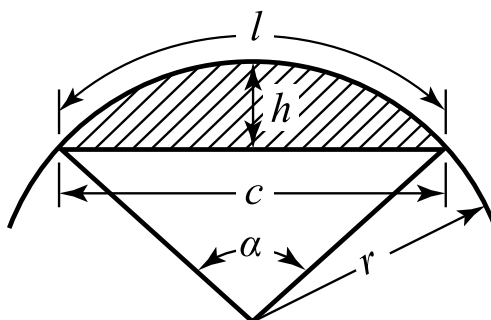
Anti-Twist Device

Required for Angle iron "Leg In" applications.

Part# **CEA4-ECO40** fits CE35

Part# **C5A4** fits CE40 - CE50 - CE60

Circular Segment



$$r = \frac{c^2 + 4h^2}{8h}$$

l = length of arc; h = height at midpoint of chord; c = chord length;
 α = angle, in degrees; r = radius.



Fabricator's Measuring Set

Radius & Degree Measuring Kit - Part# **KARC**

Part#	Description of Kit Contents
ARC-160	Chord Gauge 160 mm
ARC-350	Chord Gauge 350 mm
FWOC-001	Digital Radius Gauge
FXC-025	Digital Angle Degree Protractor