RebarCAD

Standard Bend Shapes - Measuring Points

CADS
GLOBAL CONSTRUCTION
SOFTWARE AND SERVICES

AUTODESK
Authorised Developer

Microsoft
Partner

Contents

1 Introduction

This document explains how dimensions are measured for each of the bend types supplied with RebarCAD. RebarCAD uses two different BDF (Bar Definition File) files as the bend type database:

1. USASTD2018.BDF
2. USASTD2009.BDF

Both of these bar definition files follow the measuring points, conforming with the CRSI® guidelines, to define each of the dimensions for the respective shapes.

2 Configuration of production software and bending machines

Users of RebarCAD should configure their production software and bending machines to calculate the respective dimensions using these measuring points.

However, if the rebar to be fabricated does not conform to the typical measuring points suggested in the CRSI® Manual of Standard Practice, detailers can use their own custom bend types with convenient measuring points as required. In such cases, if you want the BDF file to be customized based on your company practice you should contact CADS Support for more information.

3 Bar Definition Files (BDF)

There are a number of BDF files included in the RebarCAD installation based on standard codes of practice; or commonly used regional bar shapes. BDF files form the basic building block for RebarCAD where all the information about the bar shape geometry is stored in the file. The data in the BDF File is very complex and editing should be avoided.

4 Typical/Standard Bend Shapes

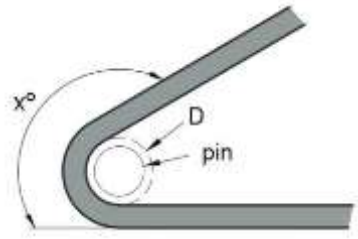
RebarCAD installation includes two different BDF files for the Typical/Standard Bend Shapes.

- USASTD2018.BDF contains the typical bend types as listed in the 29th edition (2018) of CRSI® Manual of Standard Practice and conforms to the new bend type nomenclature;
- USASTD2009.BDF contains all the typical bend types as listed in the 28th edition (2009) of CRSI® Manual of Standard Practice and conforms to the old bend type nomenclature.

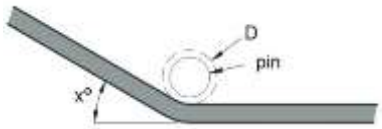
5 Typical Measuring Points

RebarCAD Standard Bend Shapes follow the established typical measuring points conforming to the CRSI® Manual of Standard Practice. According to the manual, these measuring points are not described for individual bend shapes, but rather described for bending conditions.

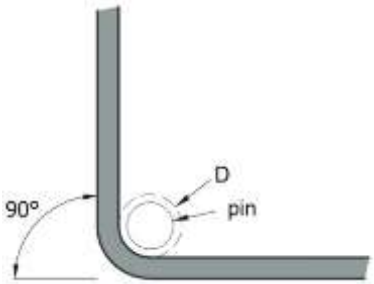
Typical measuring points, as described by CRSI® Manual of Standard Practice for each of the bending conditions are explained in the below figures:



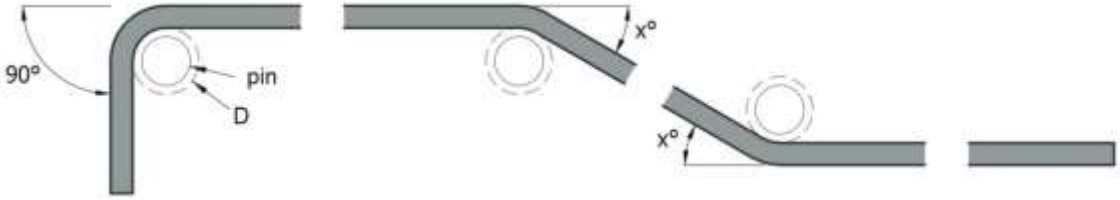
1. Angle measurement for an acute angle bend



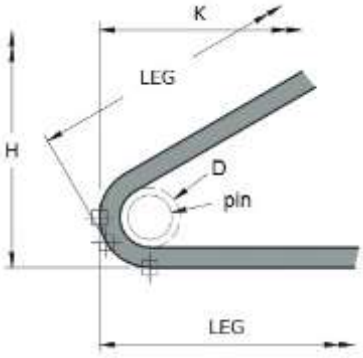
2. Angle measurement for an obtuse angle bend



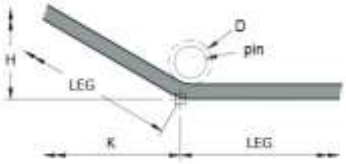
3. Angle measurement for orthogonal bend



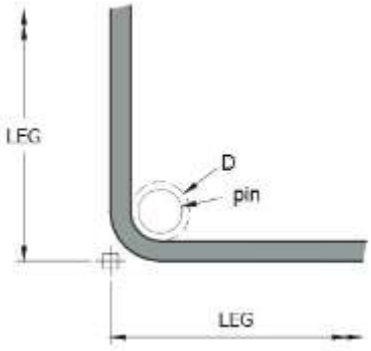
Example of multiple angles and their measurement points



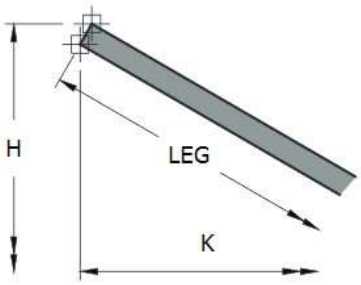
4. Straight leg with an acute angle bend



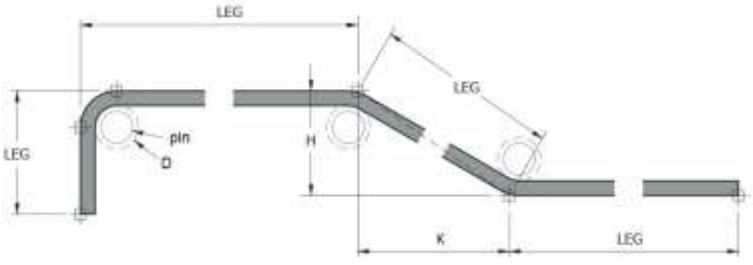
5. Straight leg with an obtuse angle bend



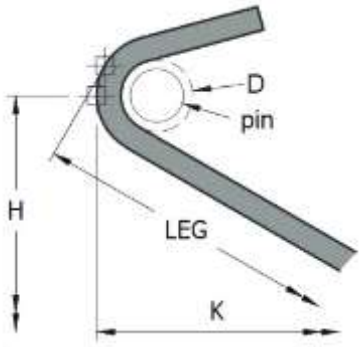
6. Straight leg with an orthogonal bend



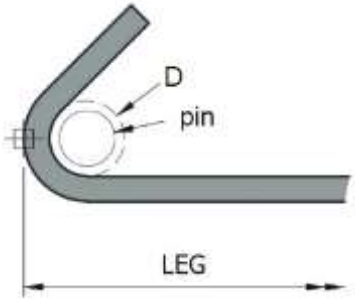
7. Sloping leg without a bend or hook



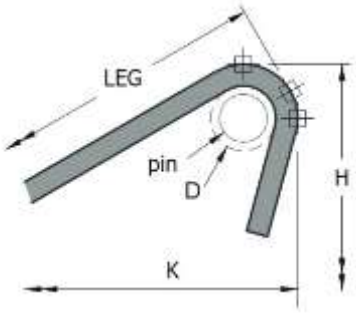
Examples of multiple bends and their measuring points



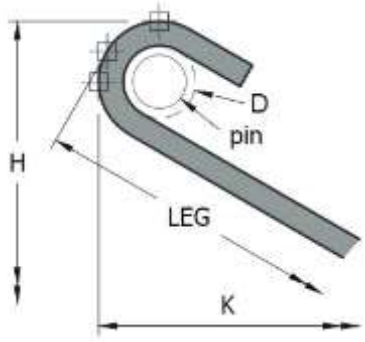
8. Sloped leg ending in a 135° hook up



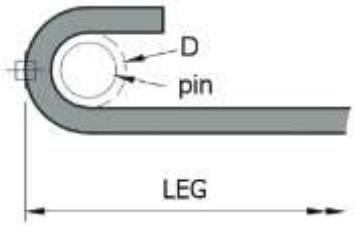
9. Straight leg ending in a 135° hook



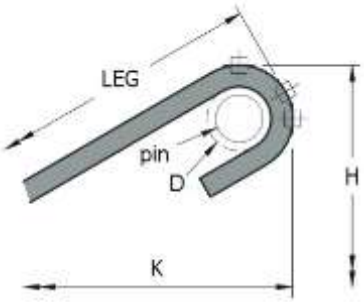
10. Sloped leg ending in a 135° hook down



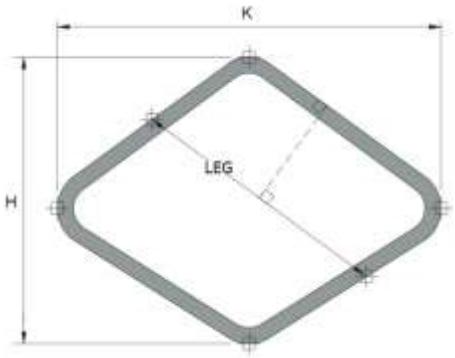
11. Sloped leg ending in a 180° hook up



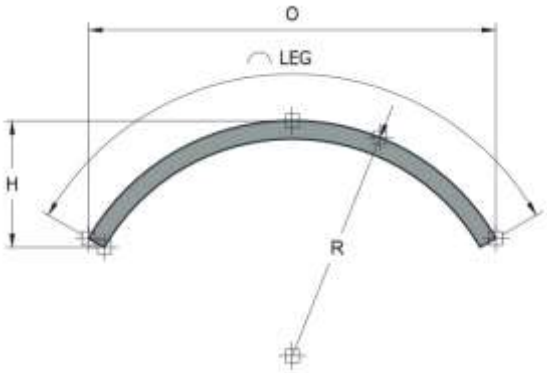
12. Straight leg ending in a 180° hook



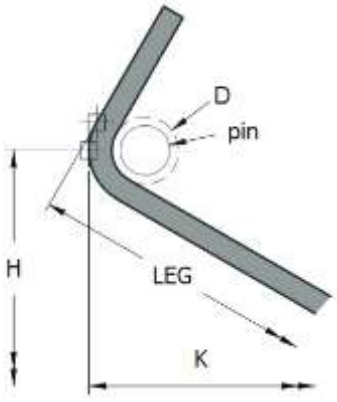
13. Sloped leg ending in a 180° hook down

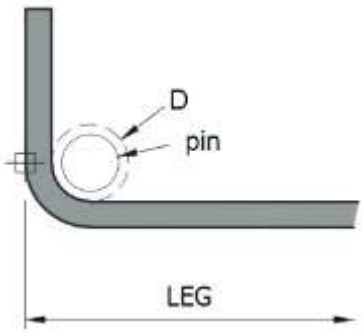


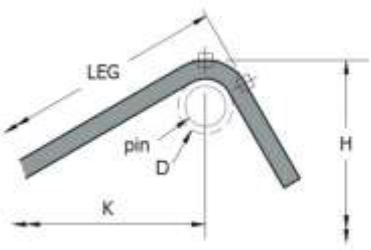
14. H and K are the control dimension. LEG covers B,C, D, and E legs



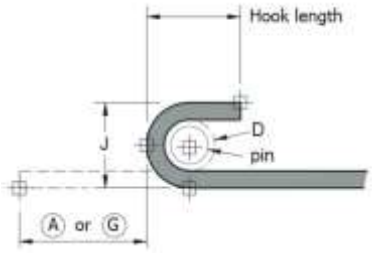
15. Radial dimension



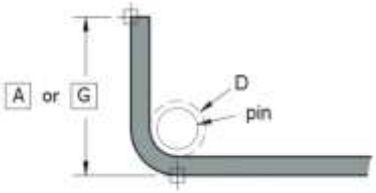




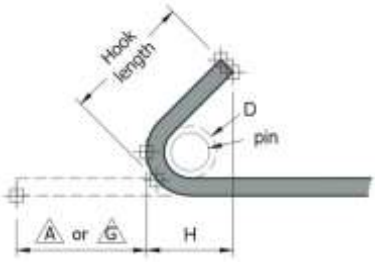
16. Sloped leg ending in a 90° hook up



17. Straight leg ending in a 90° hook



18. Sloped leg ending in a 90° hook down



19. 180° hook

20. 90° hook

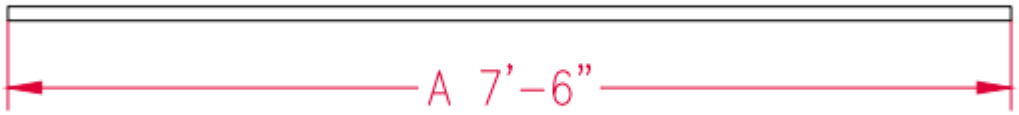
21. 135° hook

6 Measuring Points for Individual Bend Shapes

The measuring points applied to each individual bend shape are graphically described in the following pages.

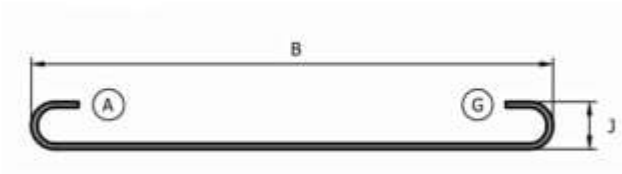
New Name : 100

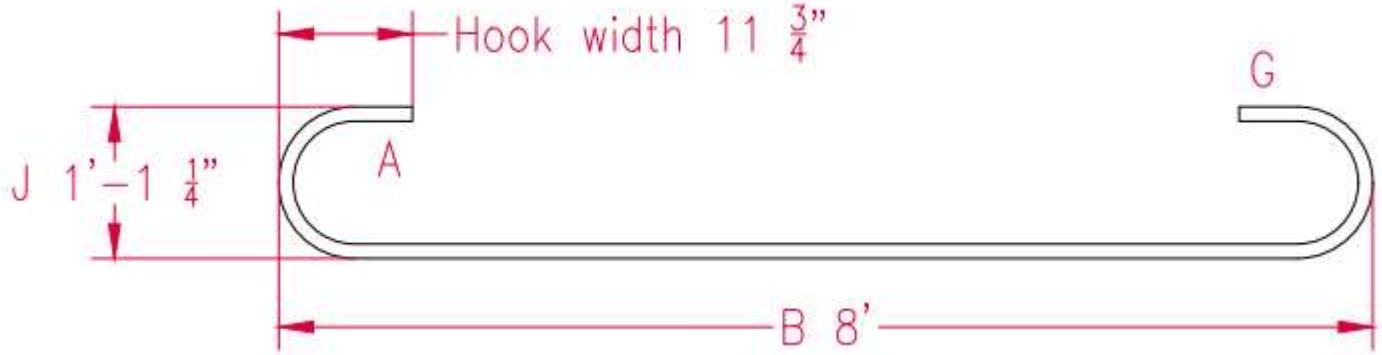
Old Name : 0



New Name : 101

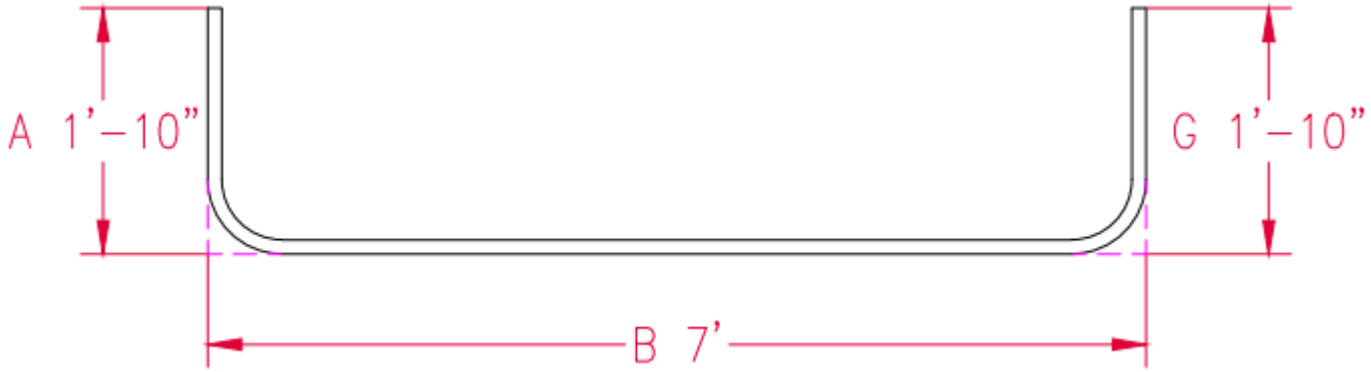
Old Name : 1





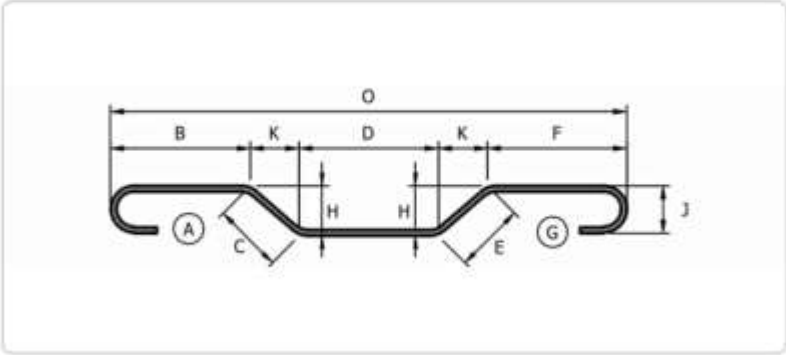
New Name : 102

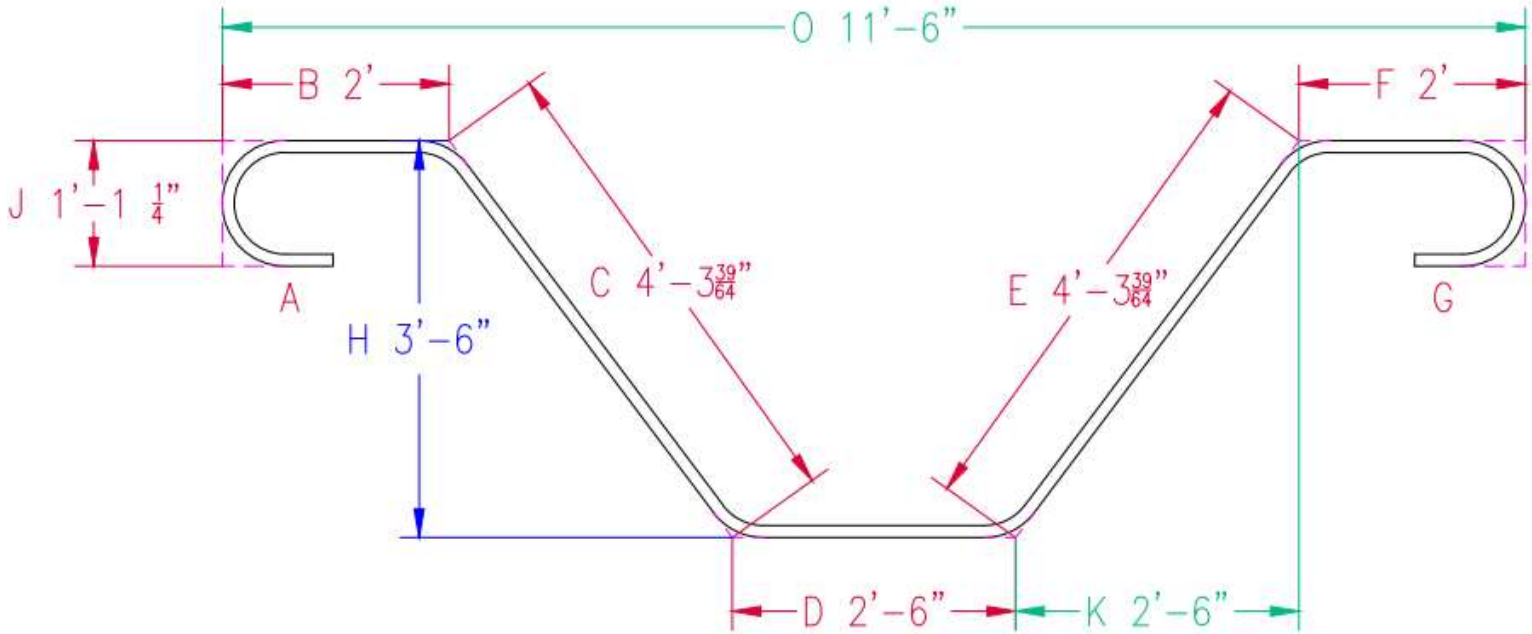
Old Name : 2



New Name : 103

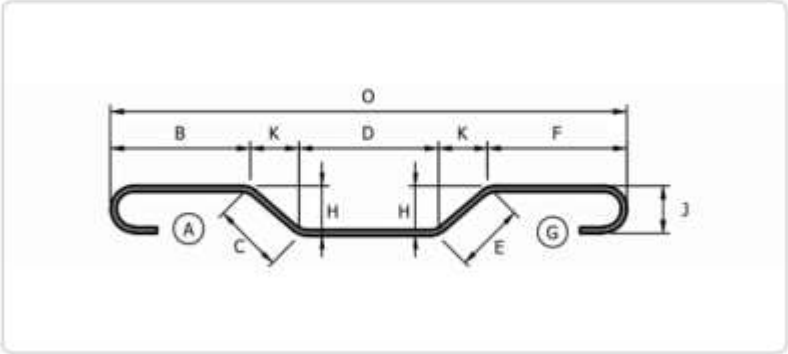
Old Name : 3

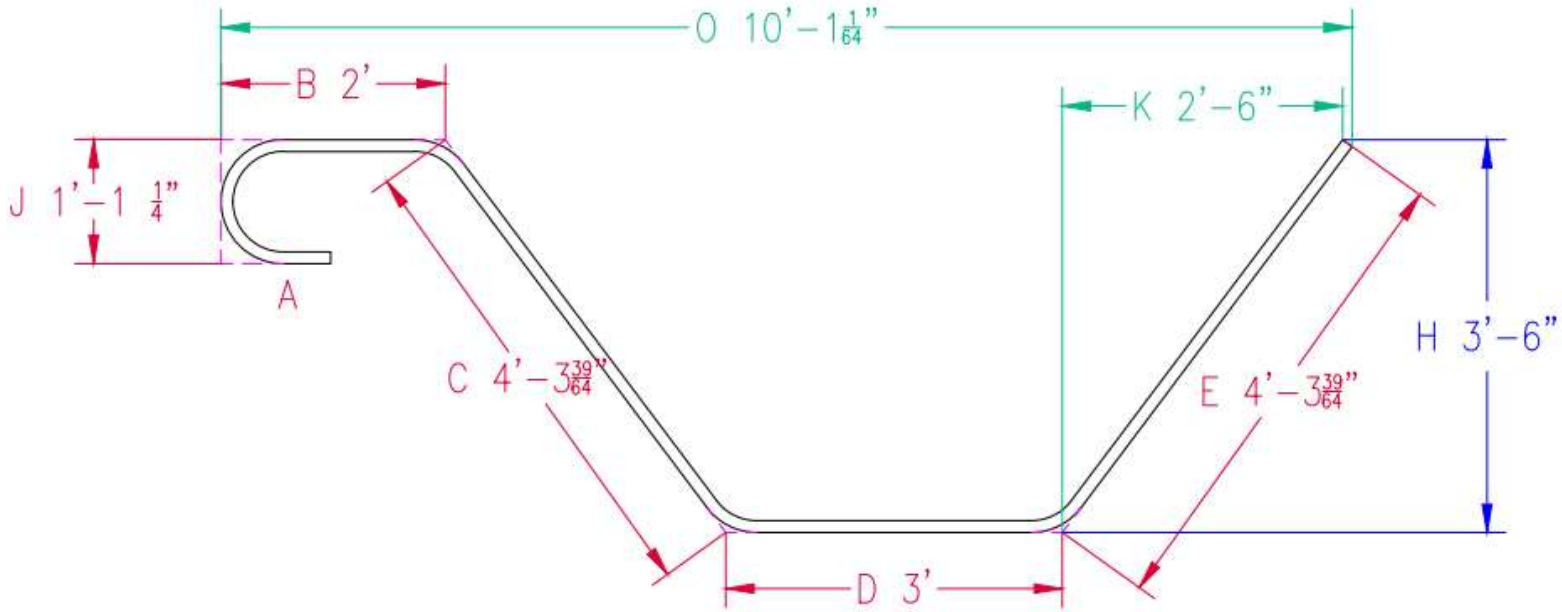




New Name : 103a

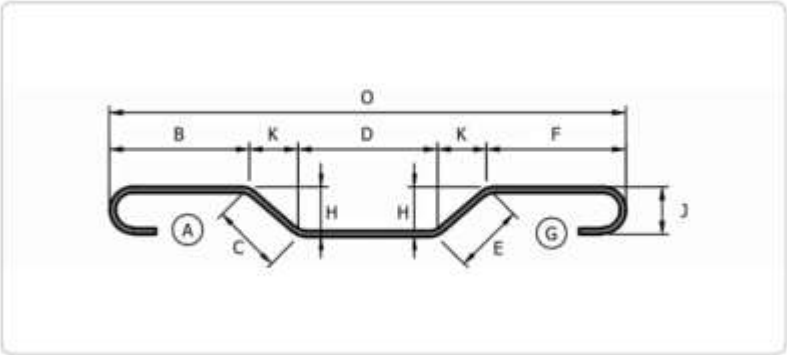
Old Name : 3a

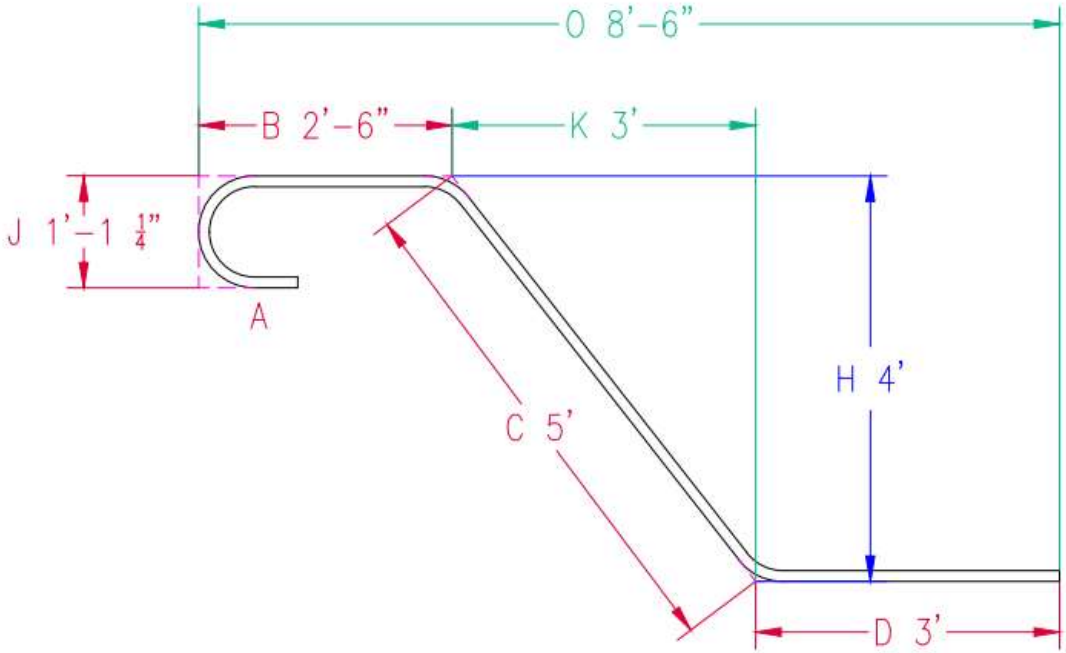




New Name : 103b

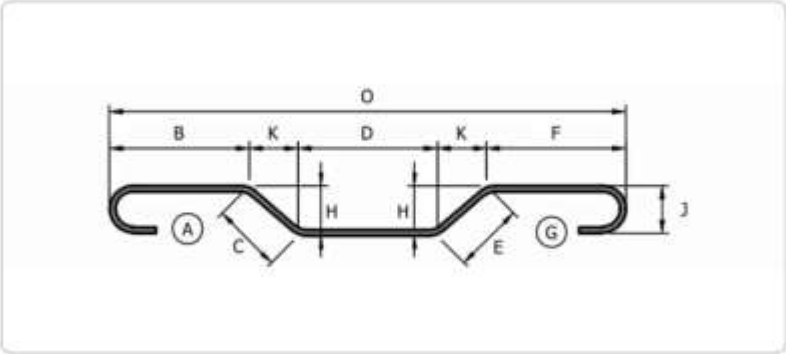
Old Name : 3b

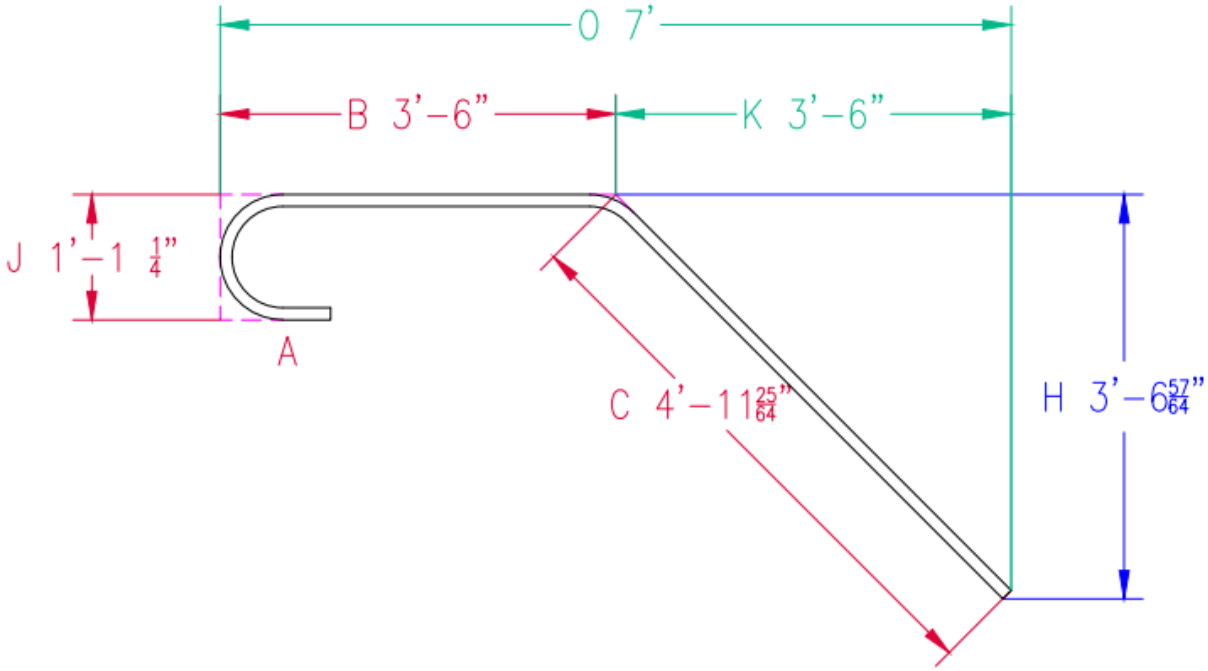




New Name : 103c

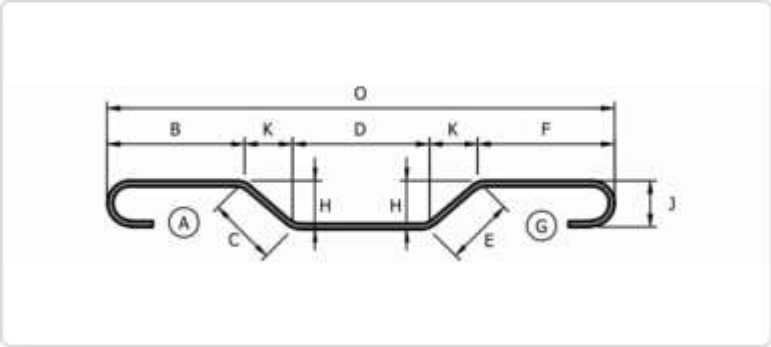
Old Name : 3c

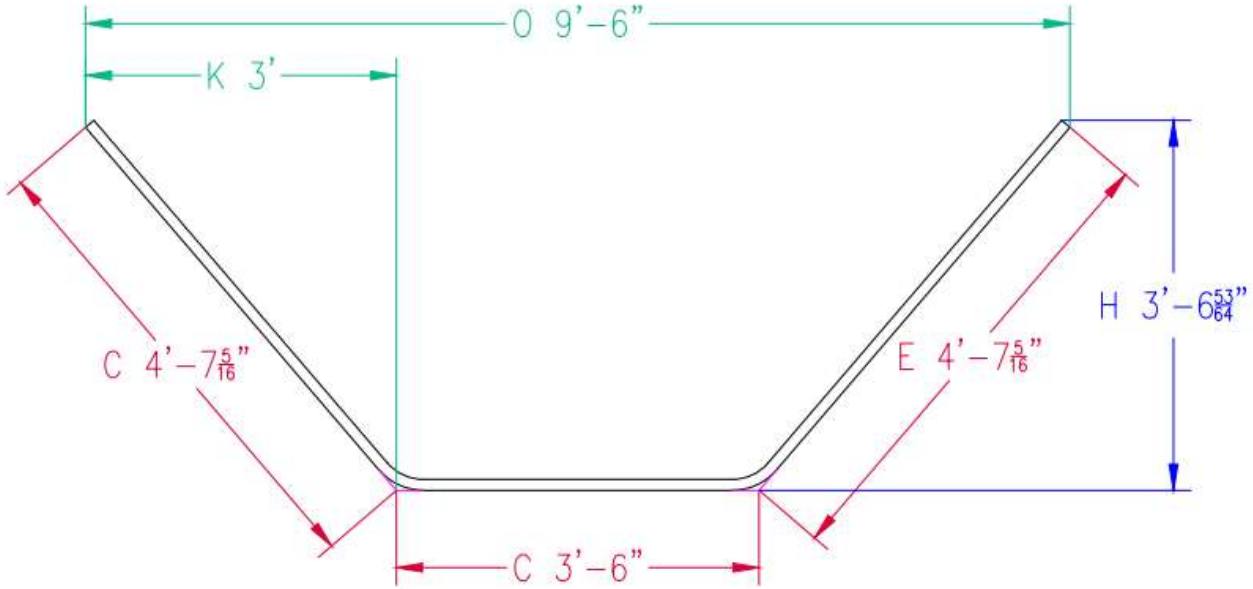




New Name : 103d

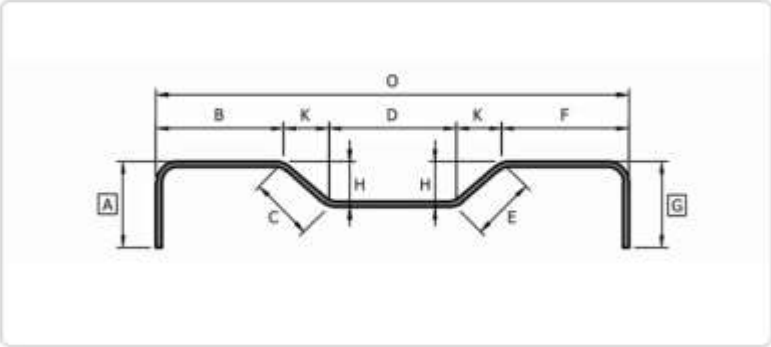
Old Name : 3d

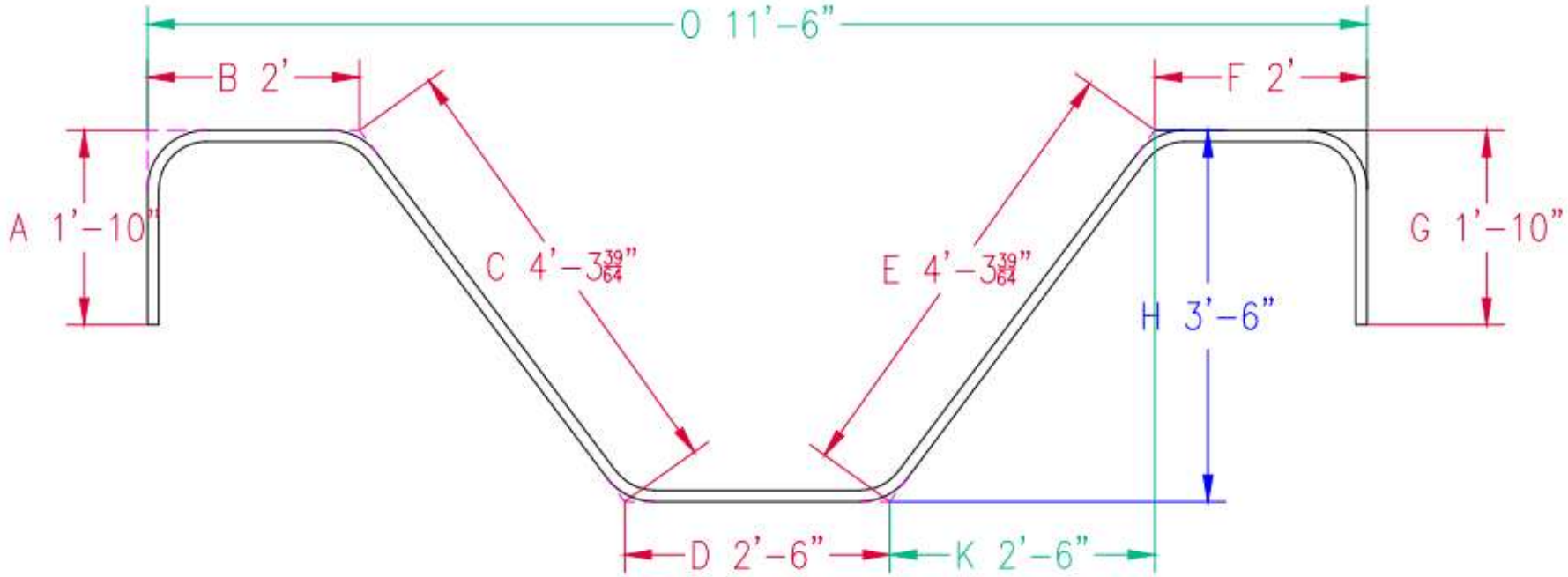




New Name : 104

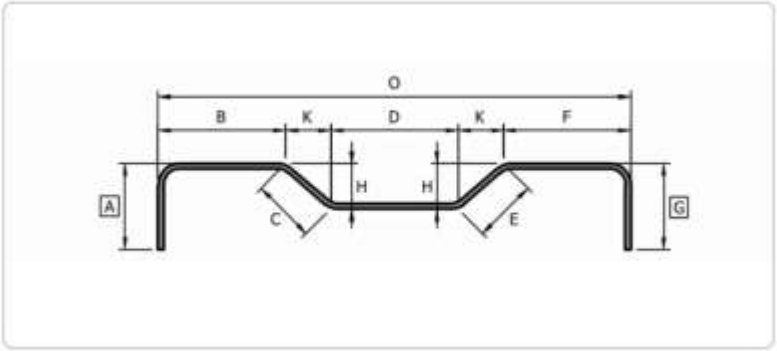
Old Name : 4

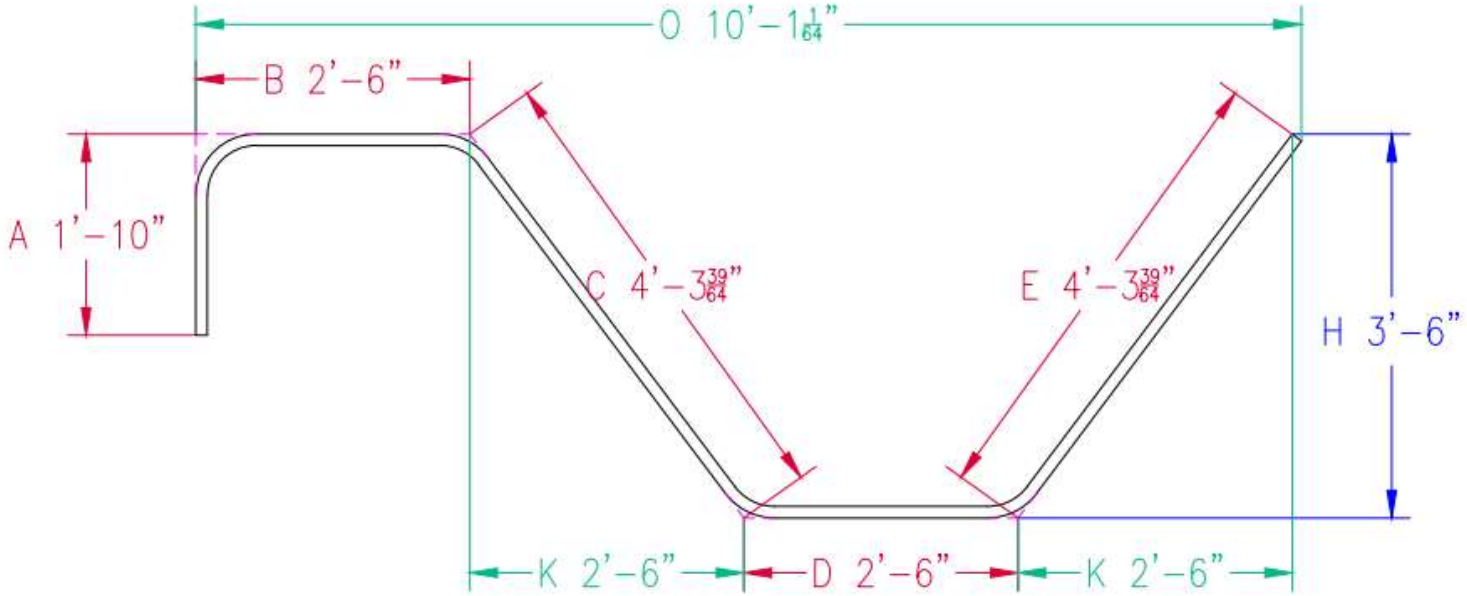




New Name : 104a

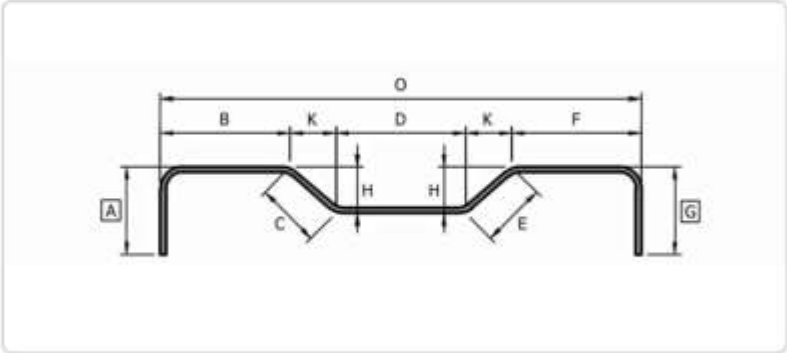
Old Name : 4a

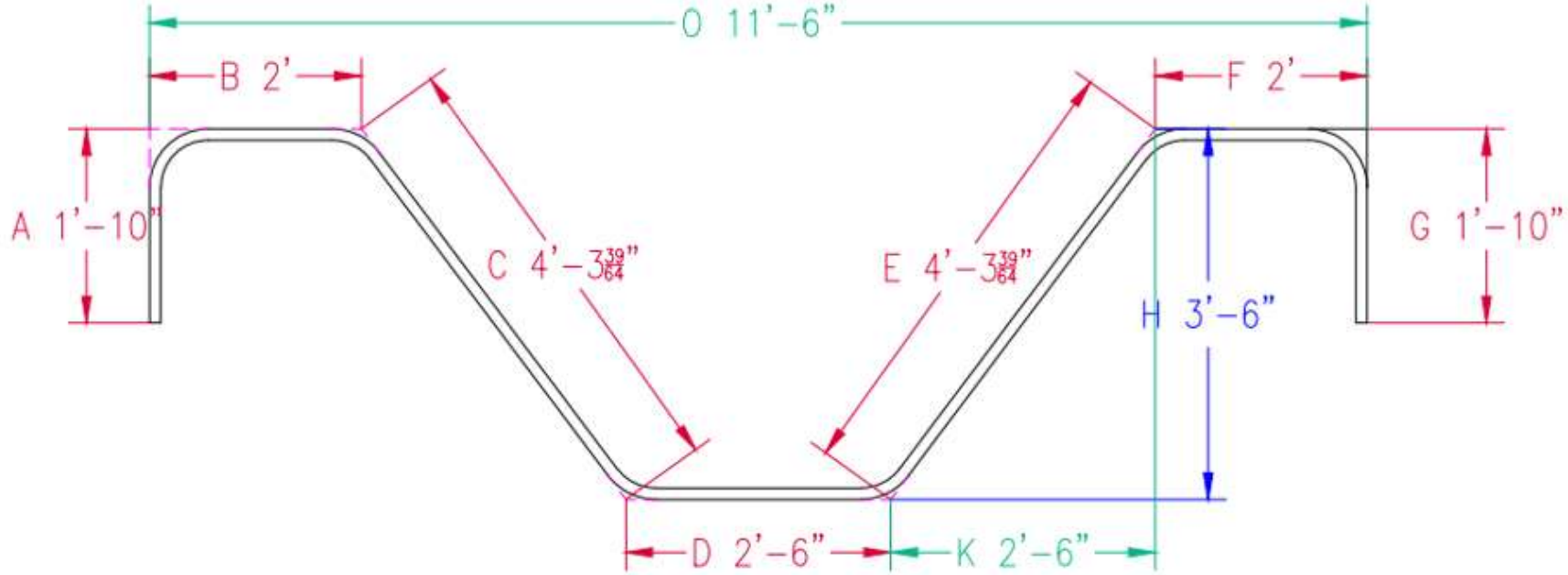




New Name : 104b

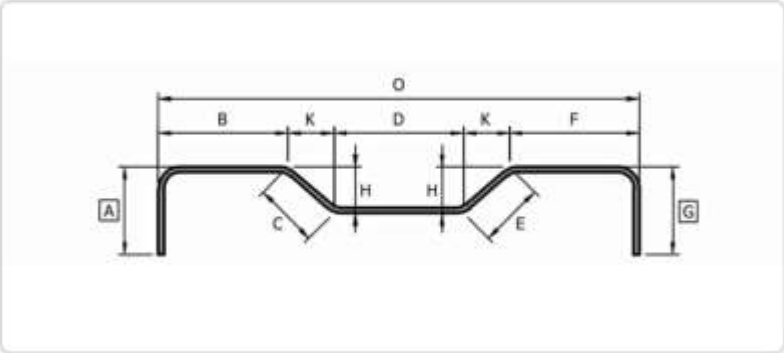
Old Name : 4b

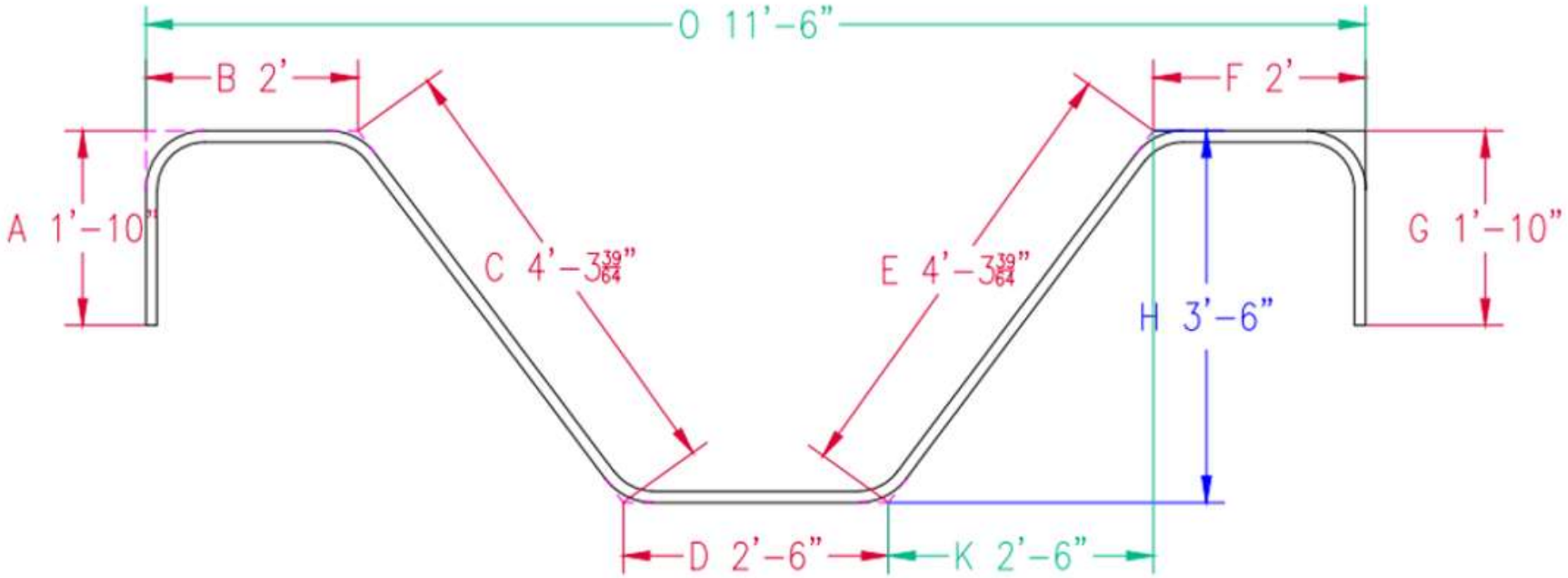




New Name : 104c

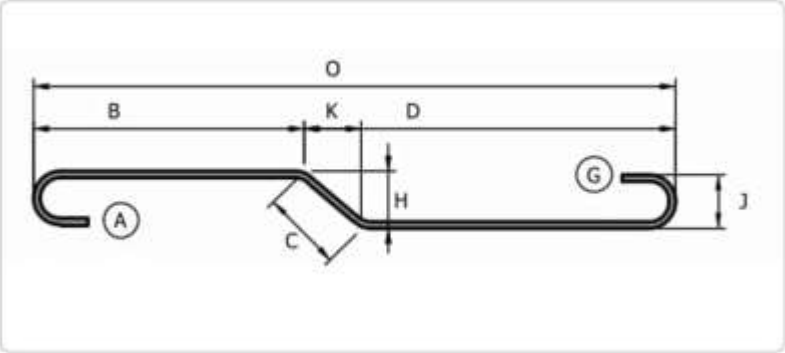
Old Name : 4c

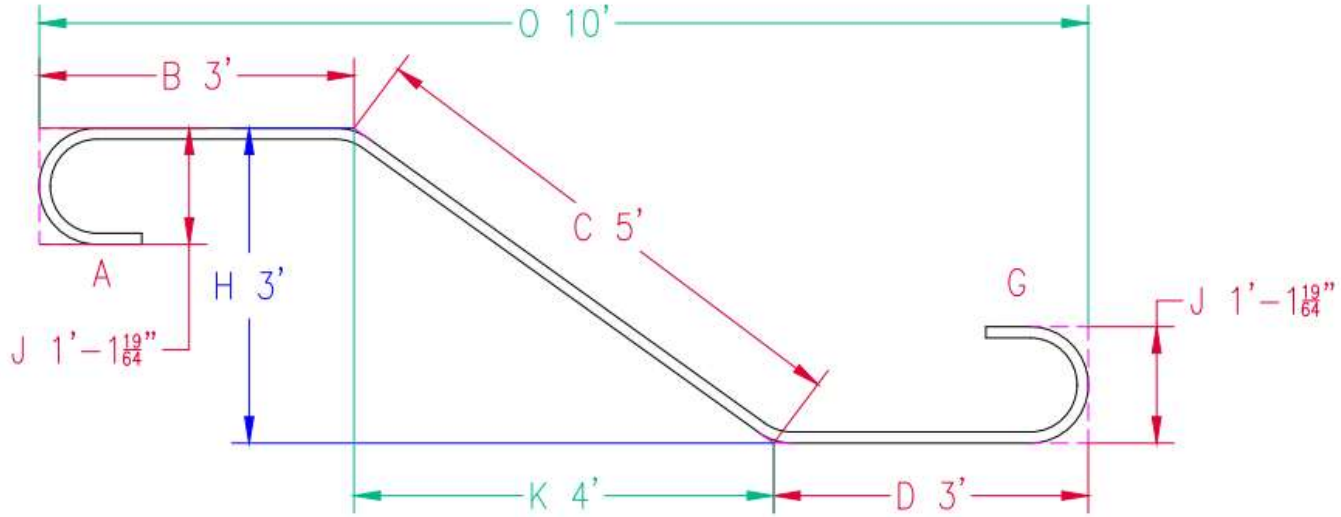




New Name : 105

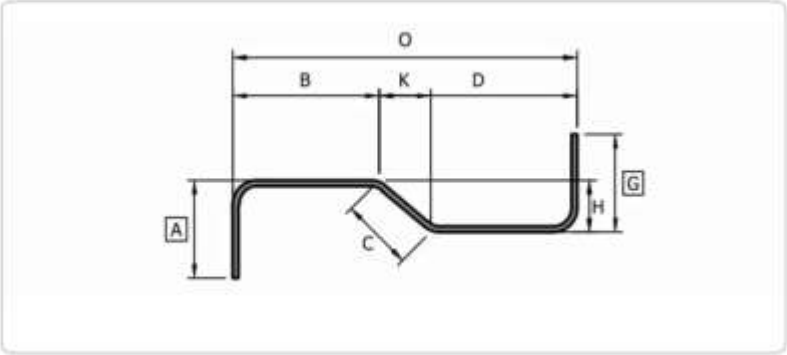
Old Name : 5

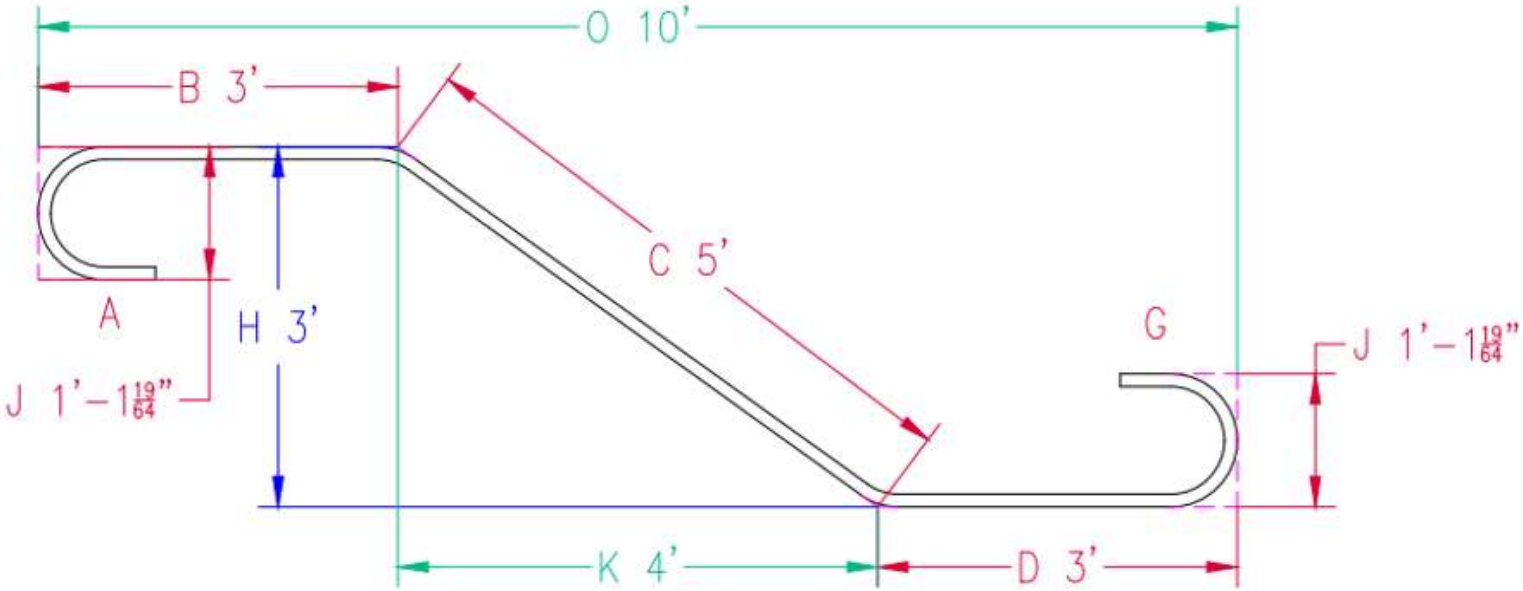




New Name : 106

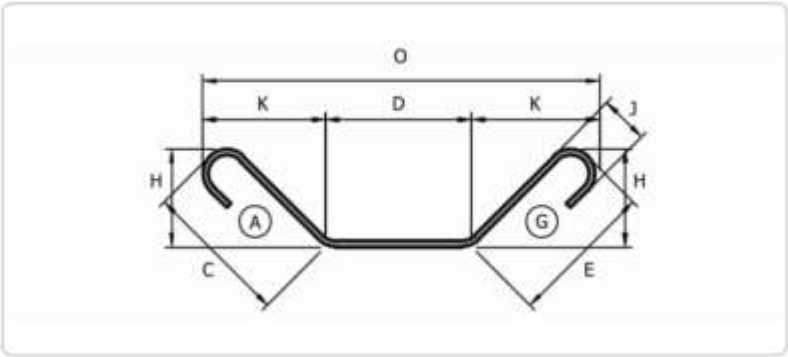
Old Name : 6

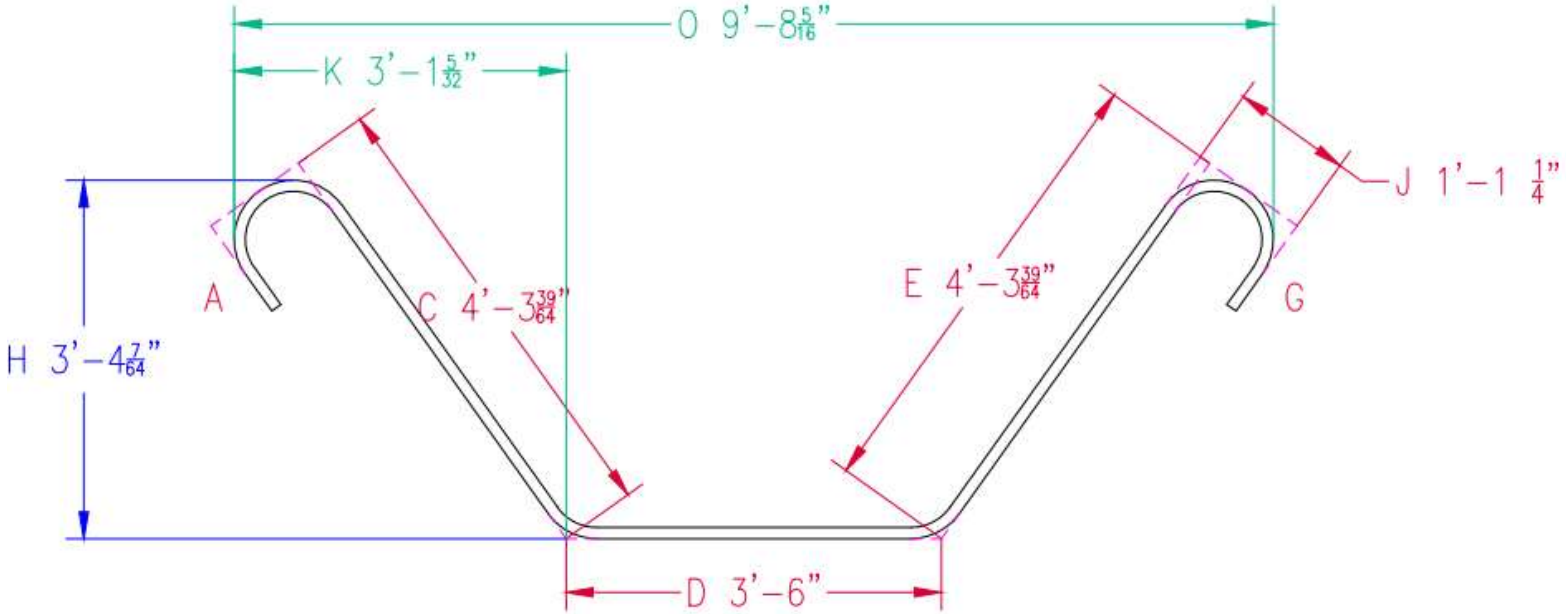




New Name : 107

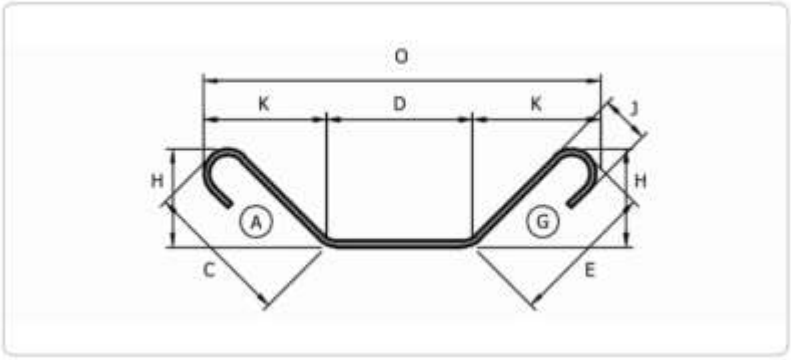
Old Name : 7

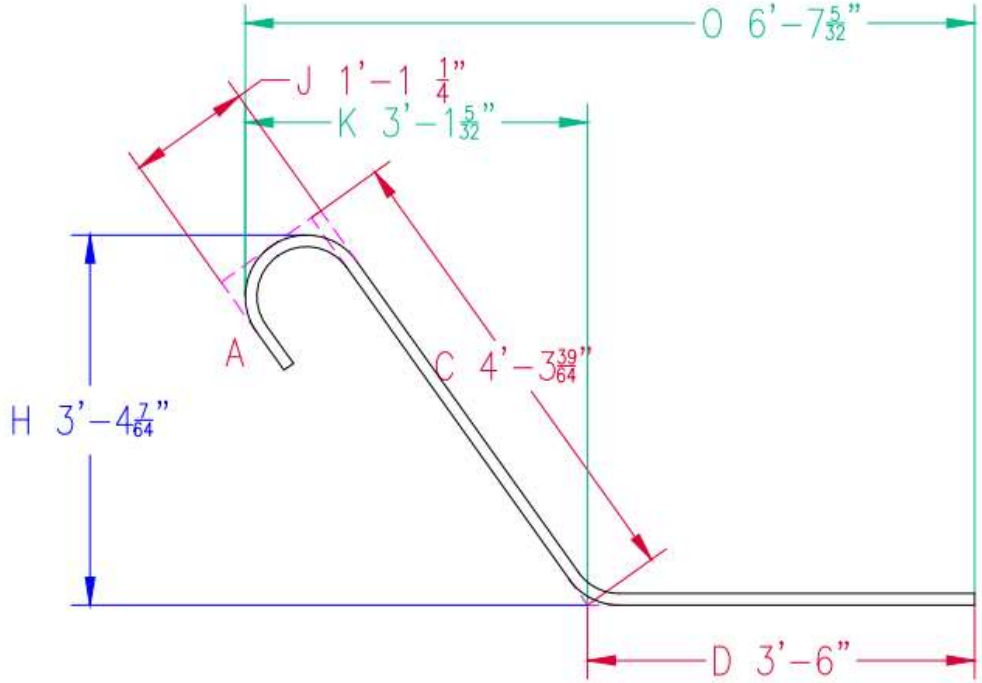




New Name : 107a

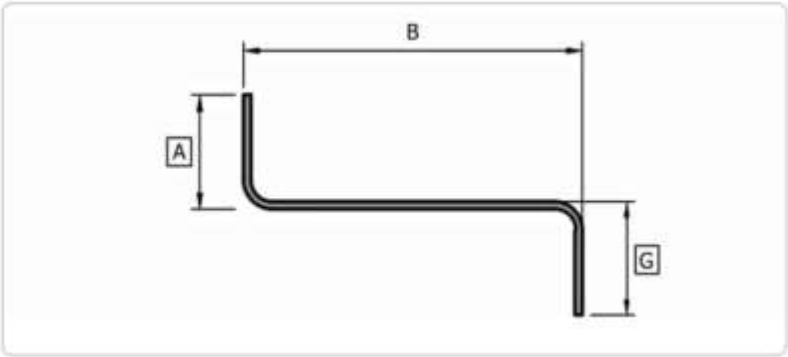
Old Name : 7a

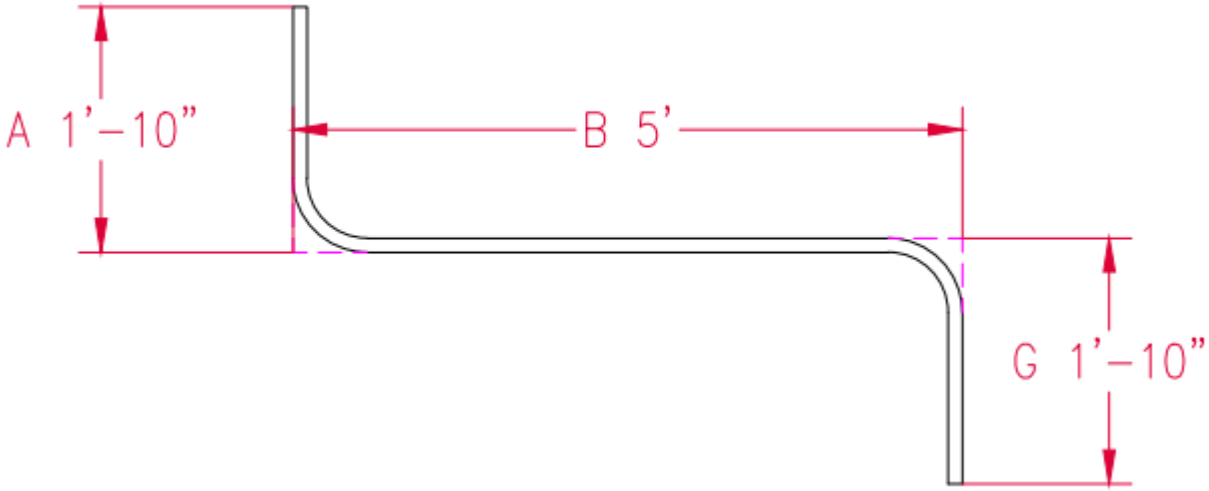




New Name : 108

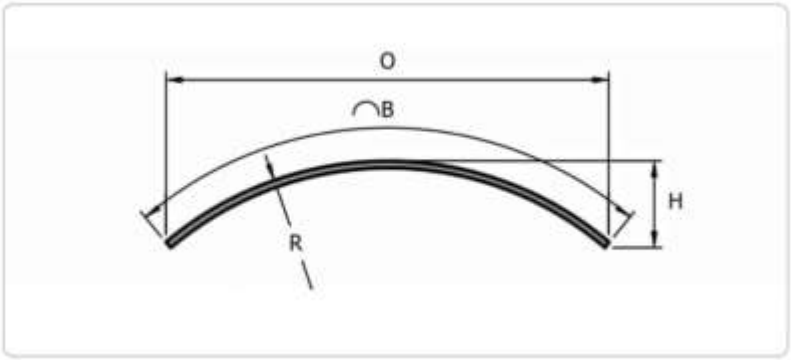
Old Name : 8

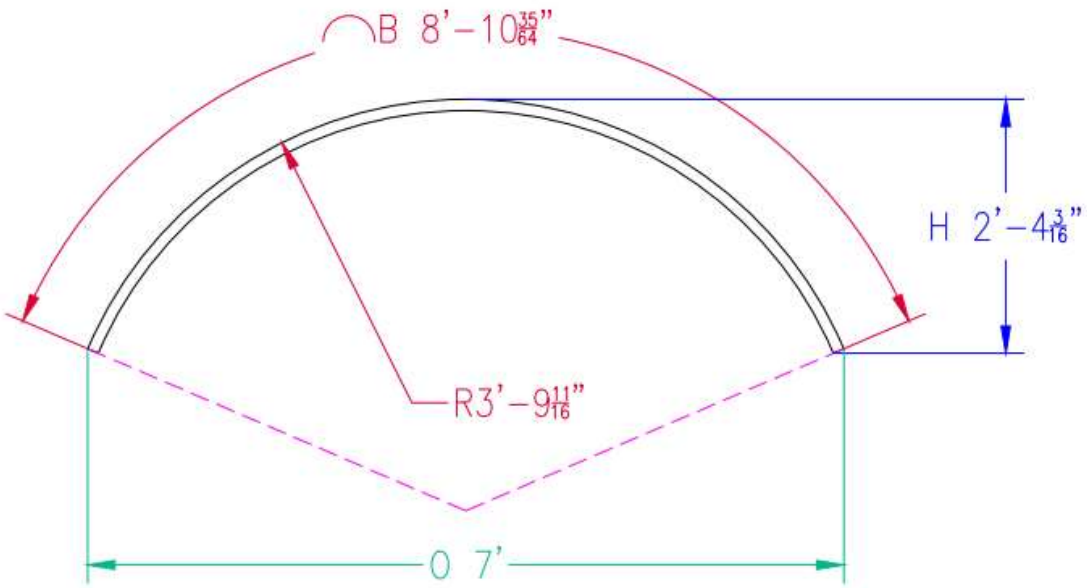




New Name : 109

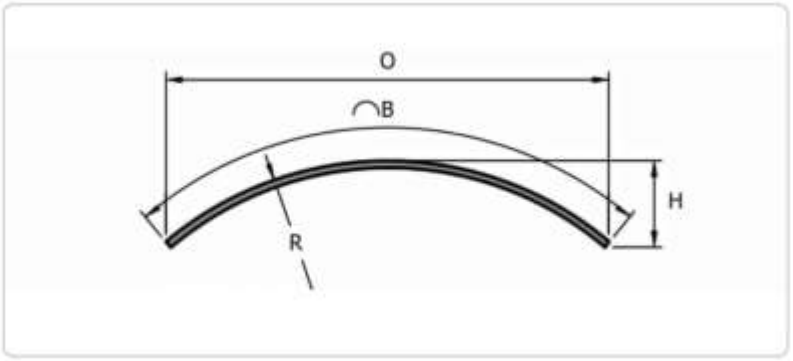
Old Name : 9

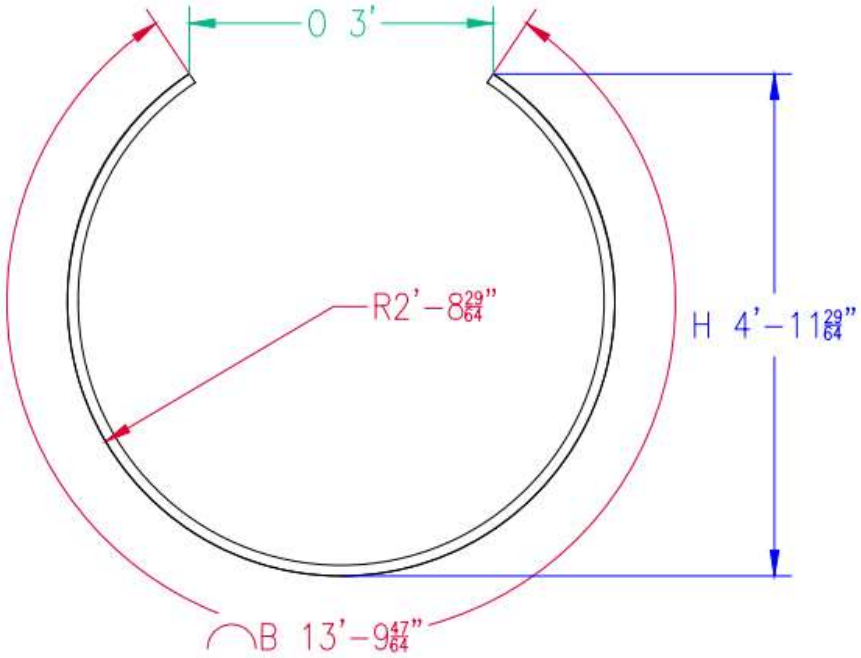




New Name : 109a

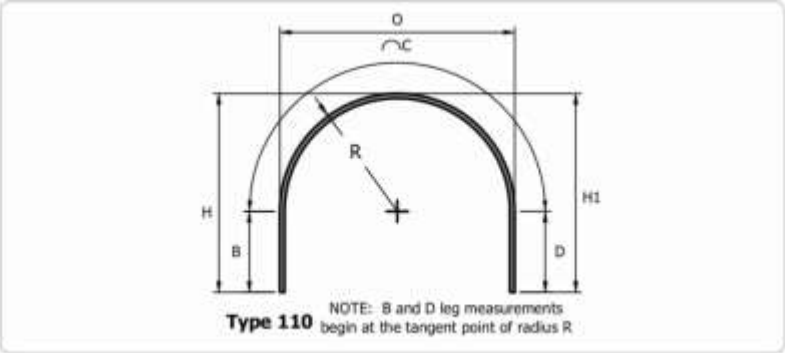
Old Name : 9a



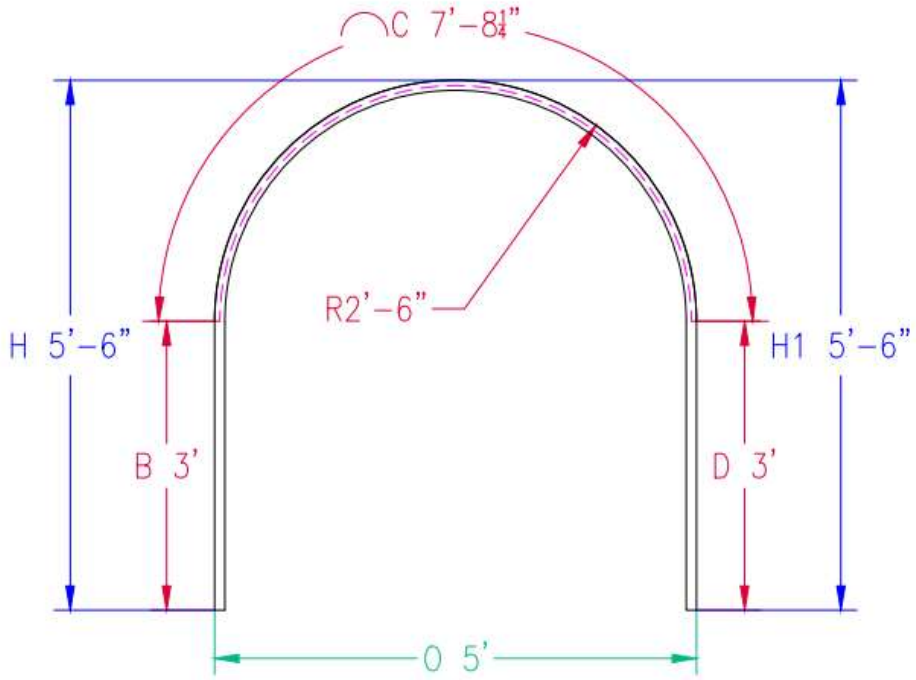


New Name : 110

Old Name : 10

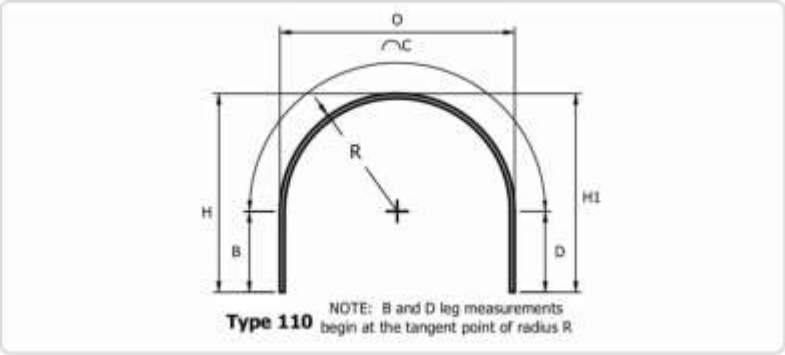


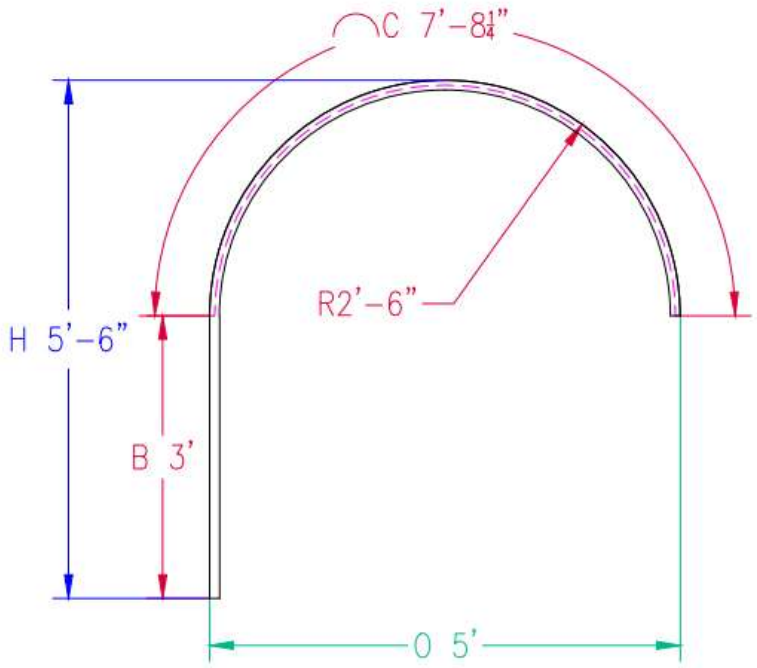
Type 110 NOTE: B and D leg measurements begin at the tangent point of radius R



New Name : 110a

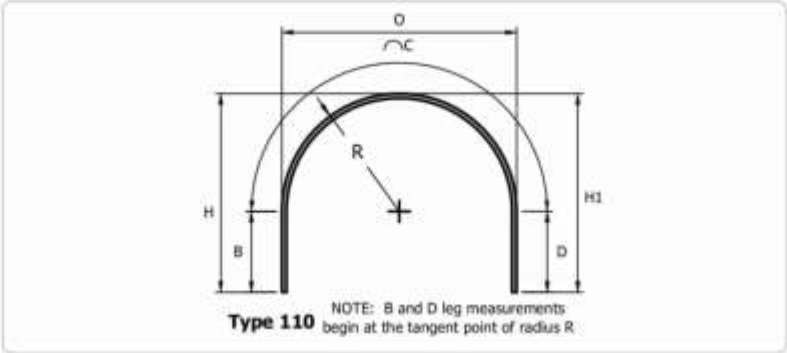
Old Name : 10a



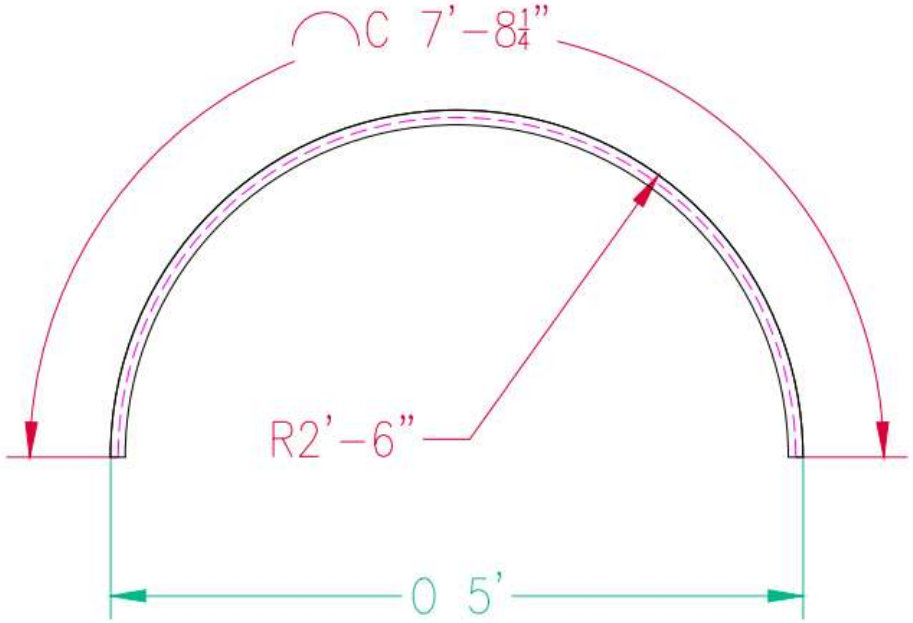


New Name : 110b

Old Name : 10b

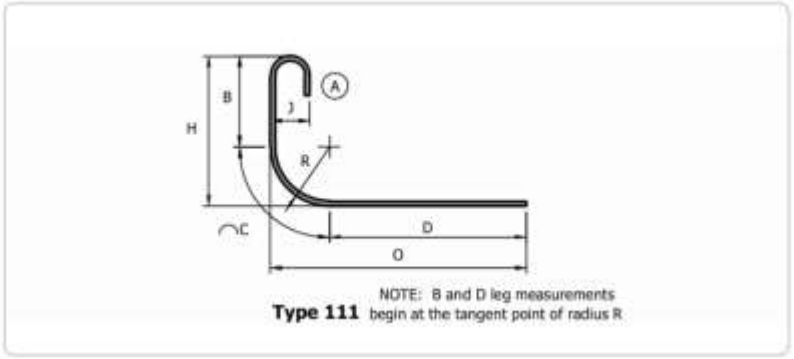


Type 110 NOTE: B and D leg measurements begin at the tangent point of radius R



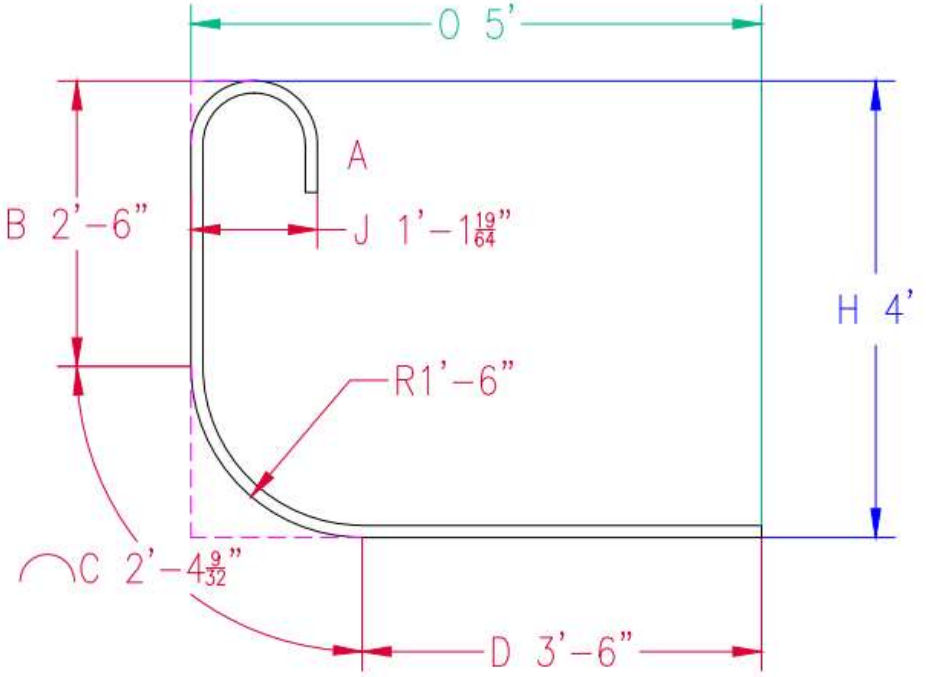
New Name : 111

Old Name : 11



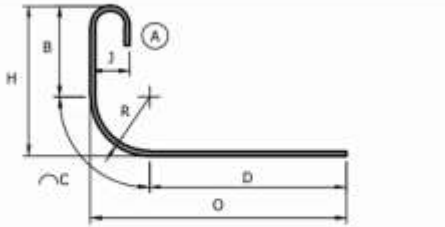
NOTE: B and D leg measurements begin at the tangent point of radius R

Type 111



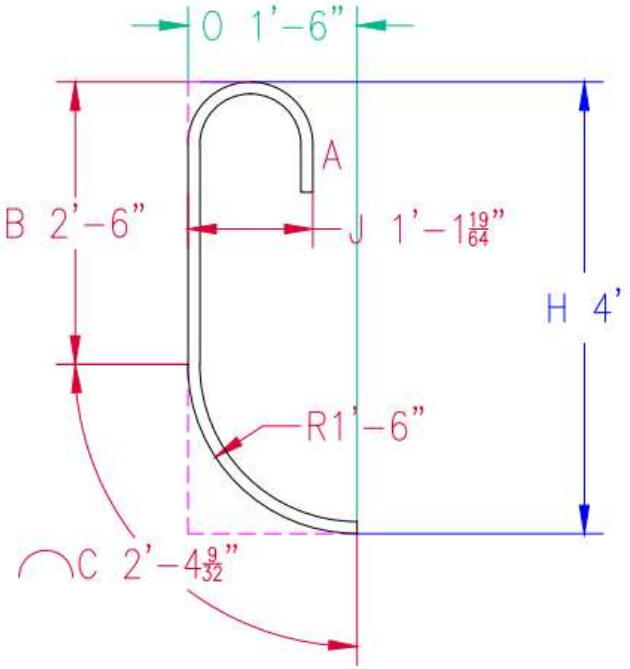
New Name : 111a

Old Name : 11a



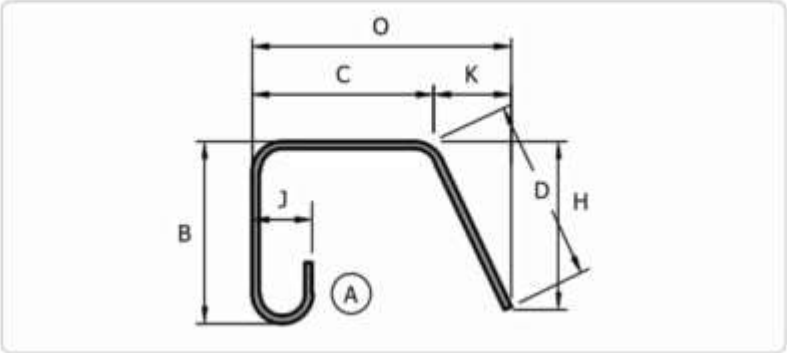
NOTE: B and D leg measurements begin at the tangent point of radius R

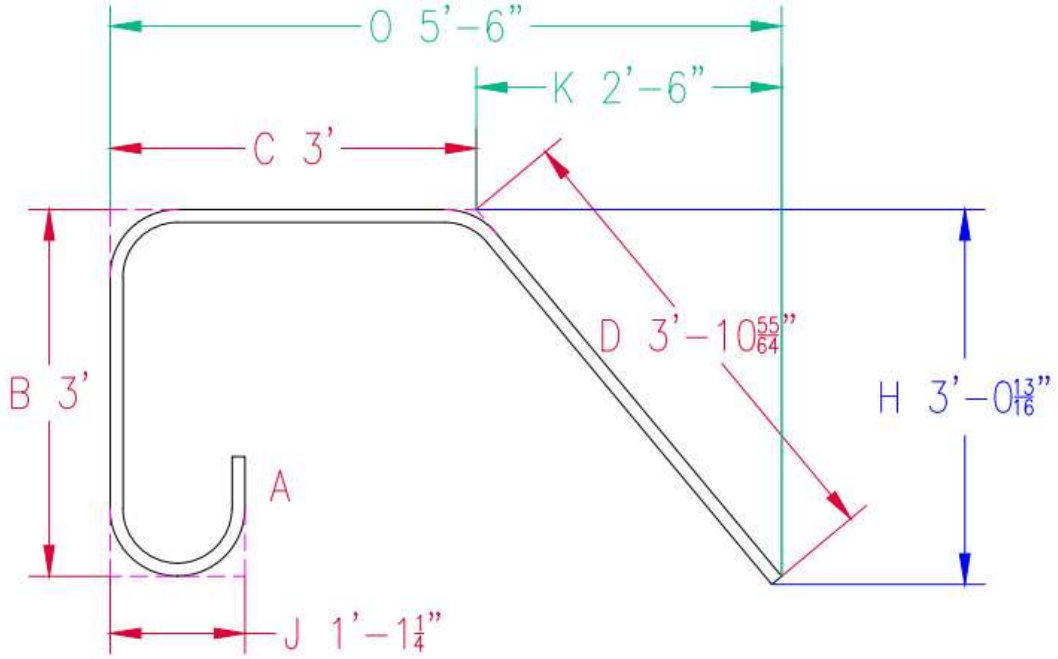
Type 111



New Name : 112

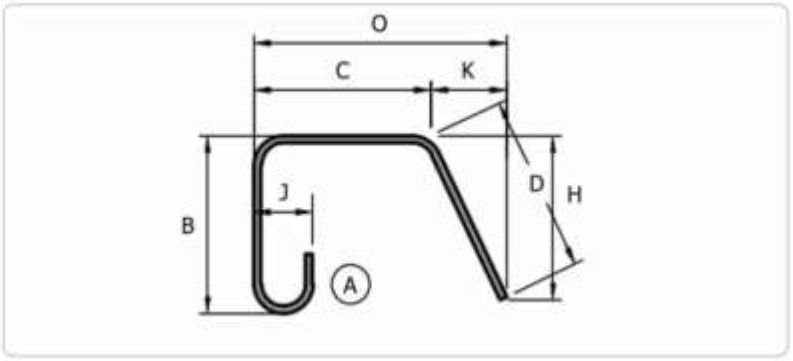
Old Name : 12

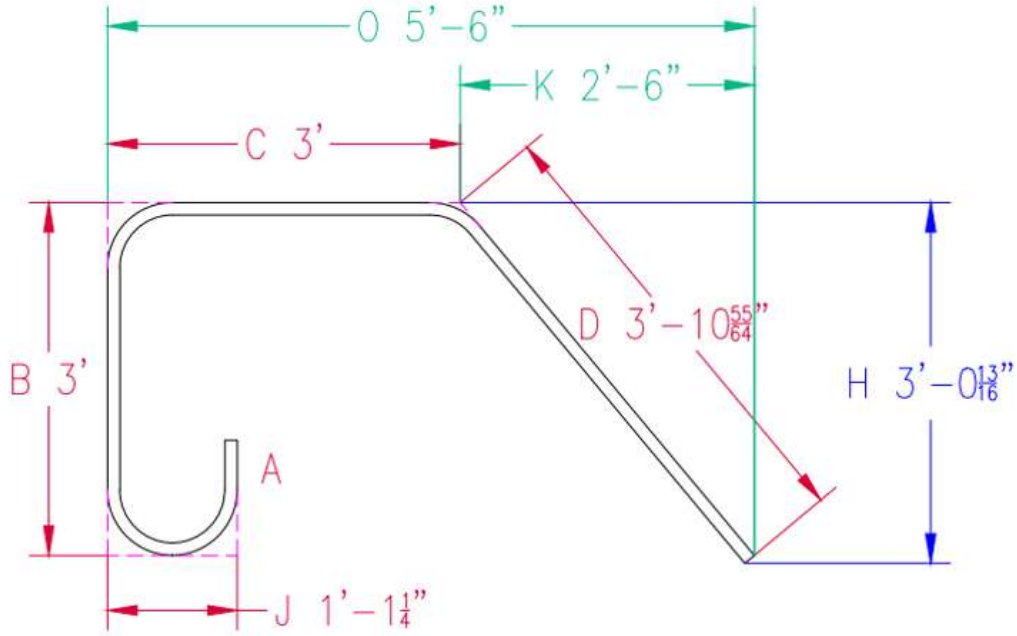




New Name : 112a

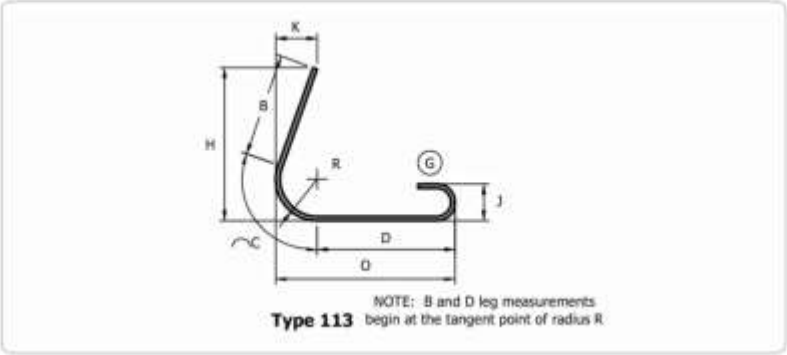
Old Name : 12a



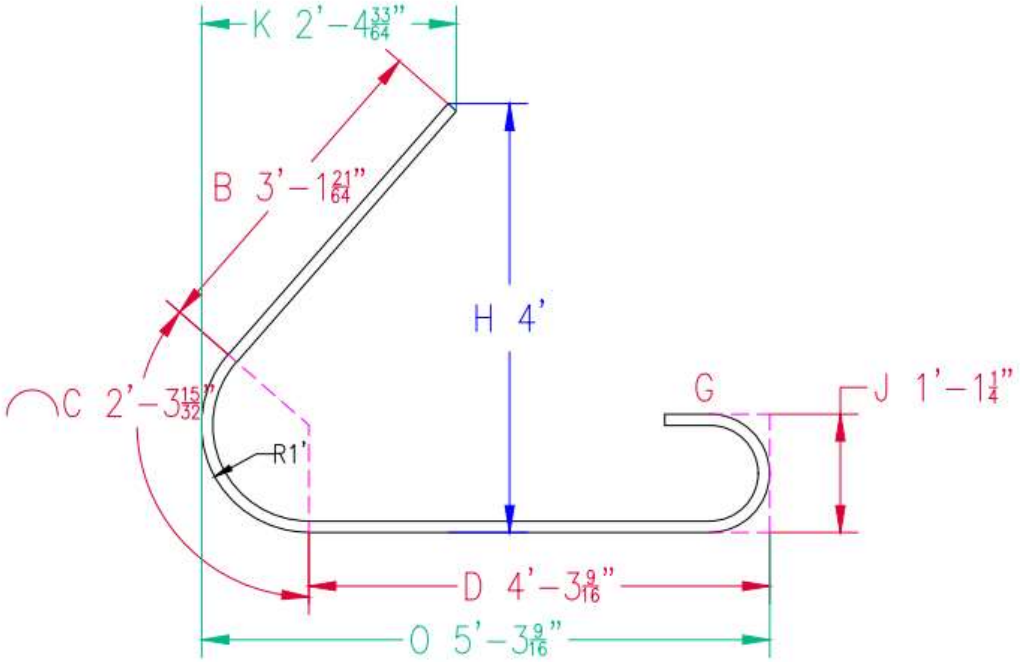


New Name : 113

Old Name : 13

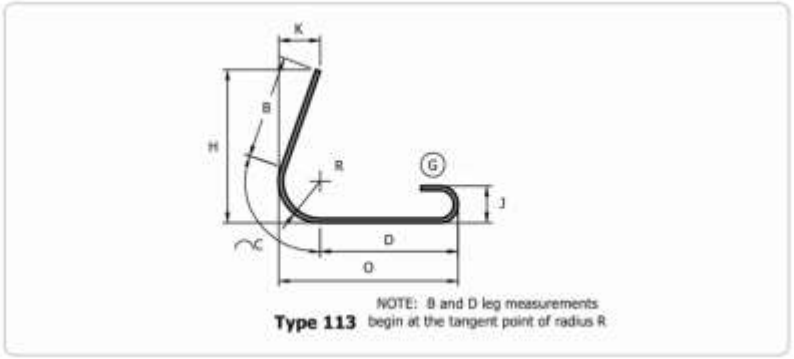


Type 113

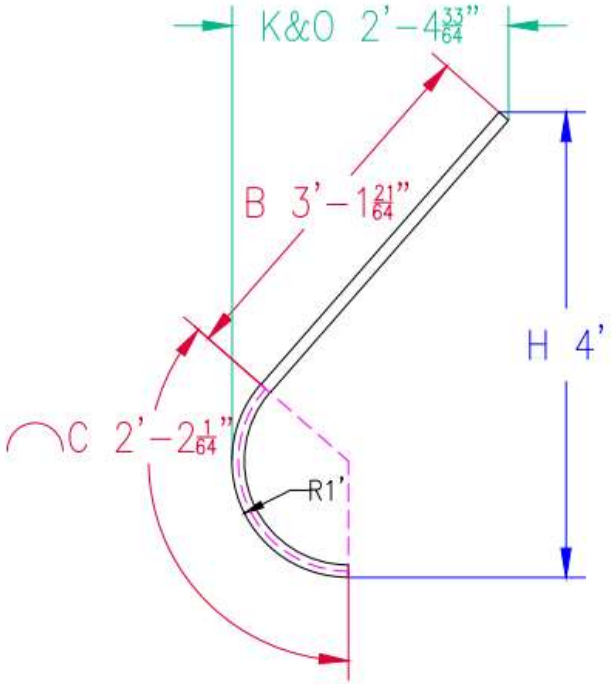


New Name : 113a

Old Name : 13a

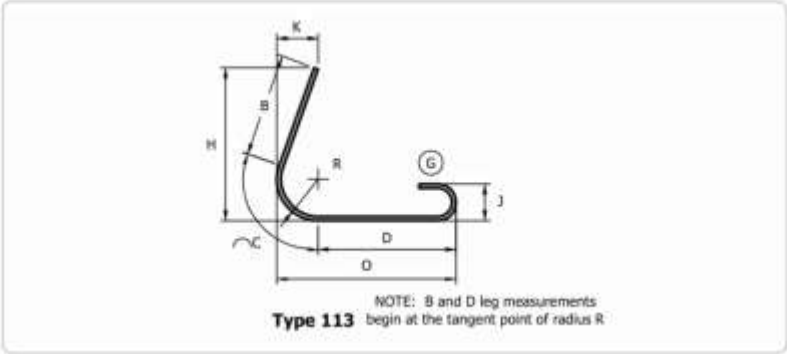


Type 113

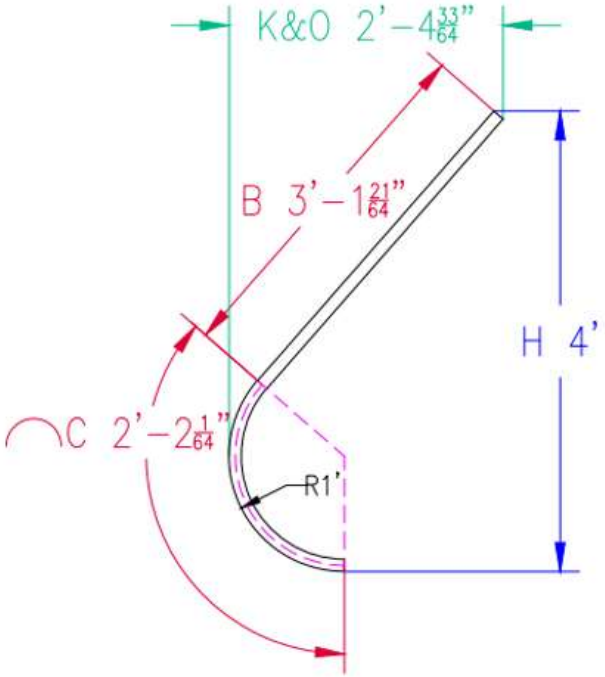


New Name : 113b

Old Name : 13b

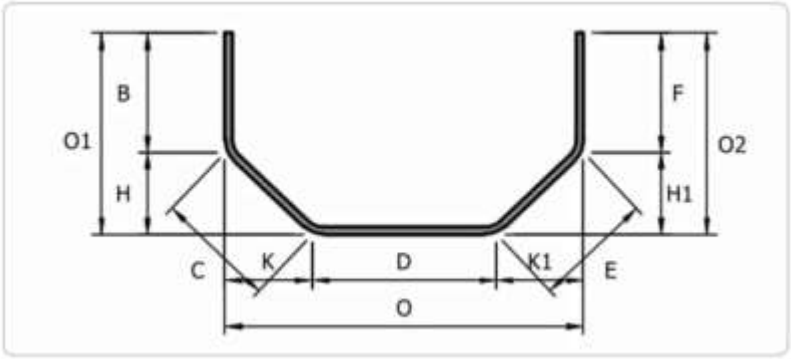


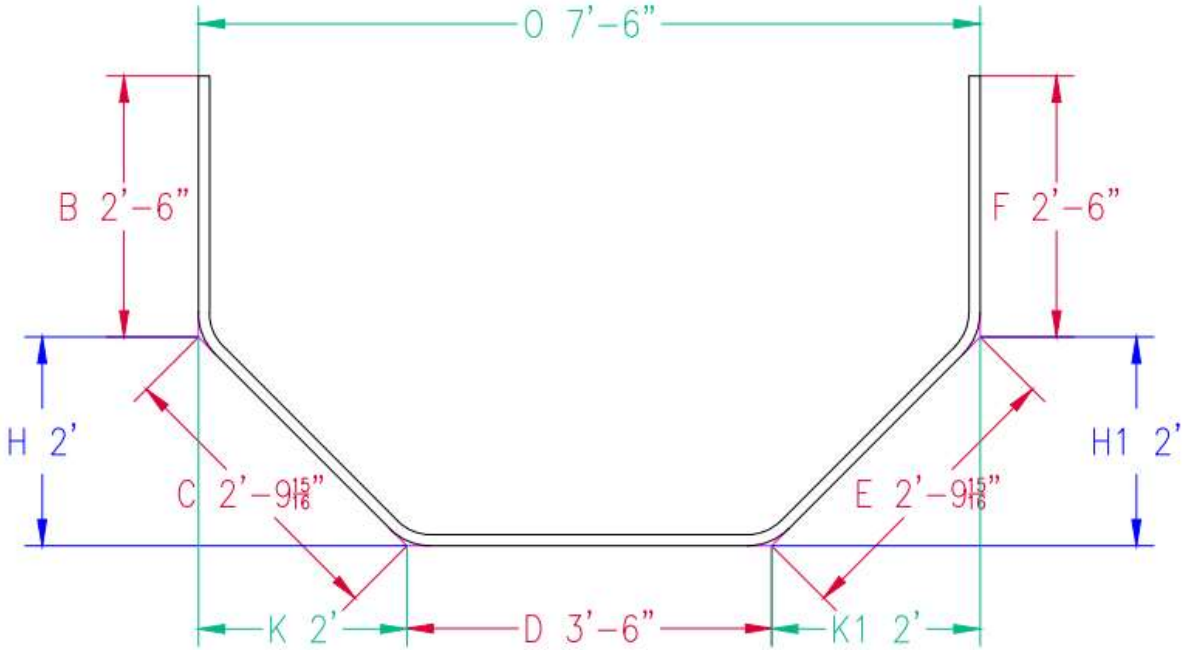
Type 113 NOTE: B and D leg measurements begin at the tangent point of radius R



New Name : 114

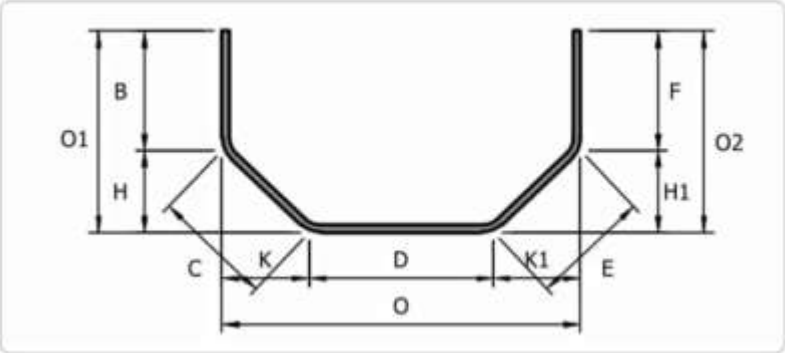
Old Name : 14

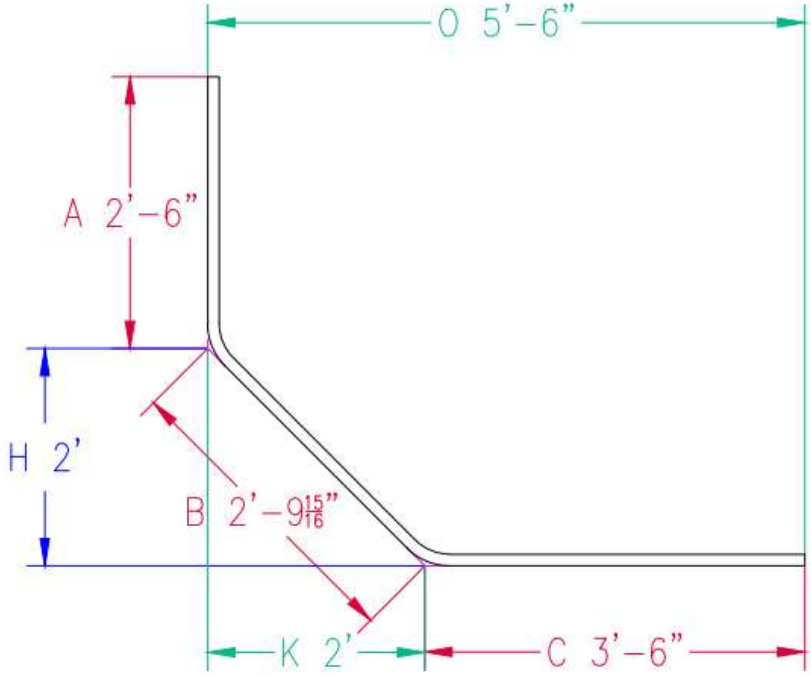




New Name : 114a

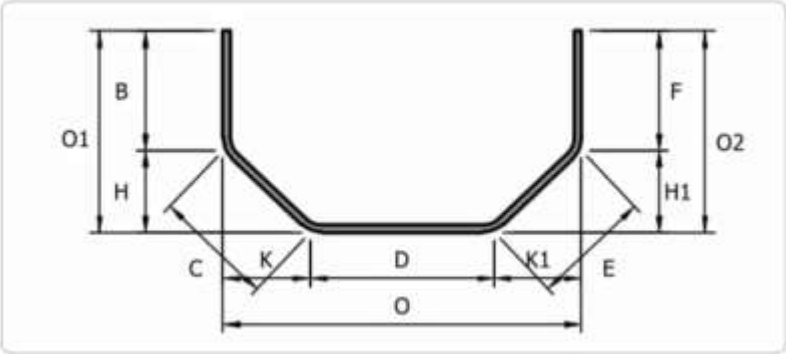
Old Name : 14a

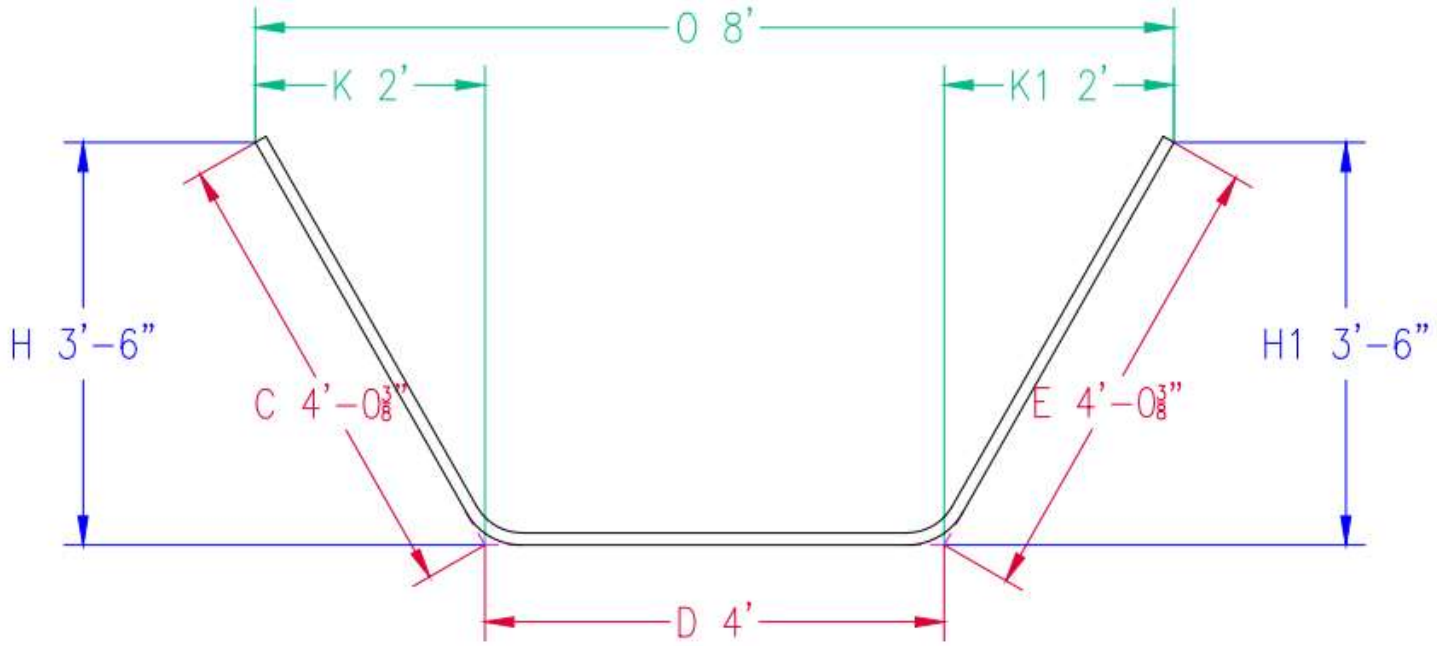




New Name : 114b

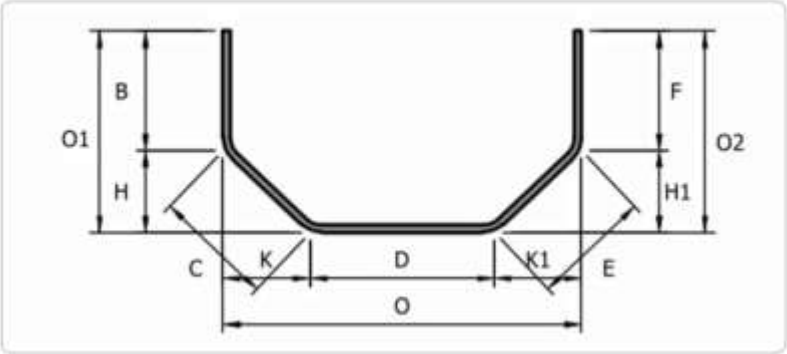
Old Name : 14b

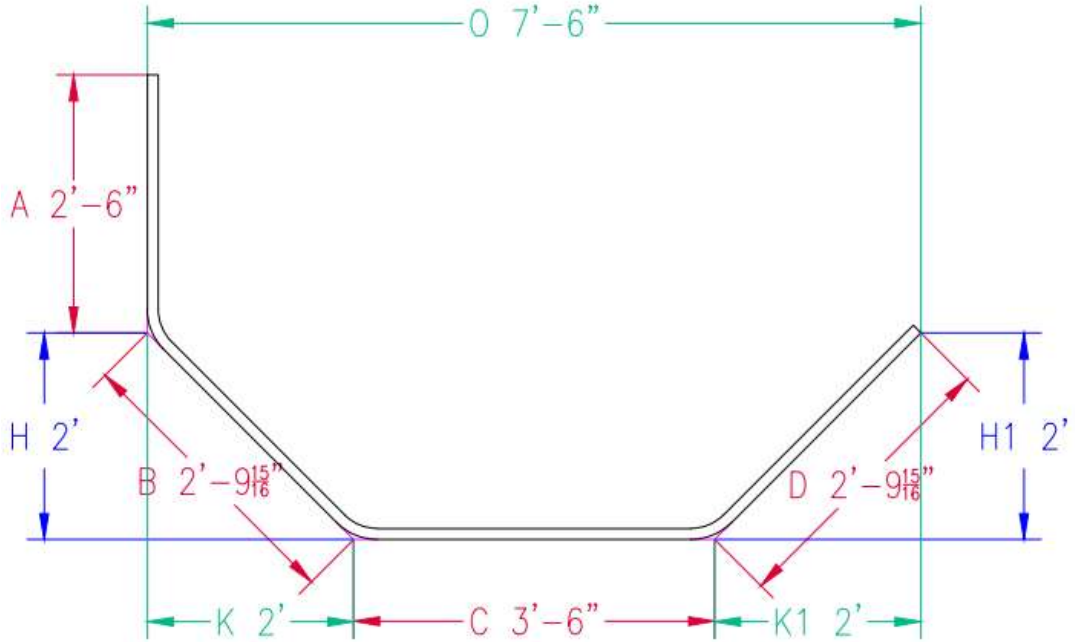




New Name : 114c

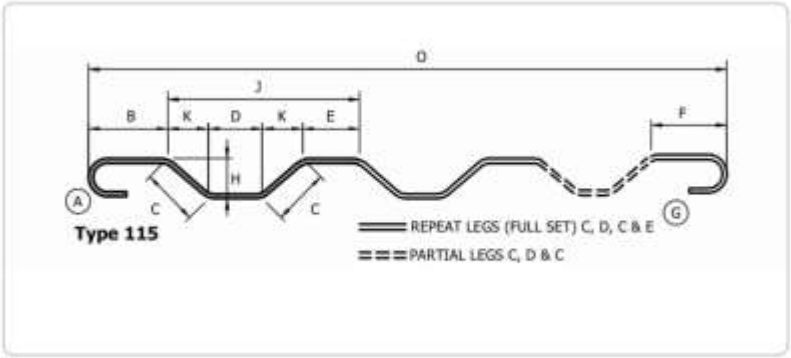
Old Name : 14c

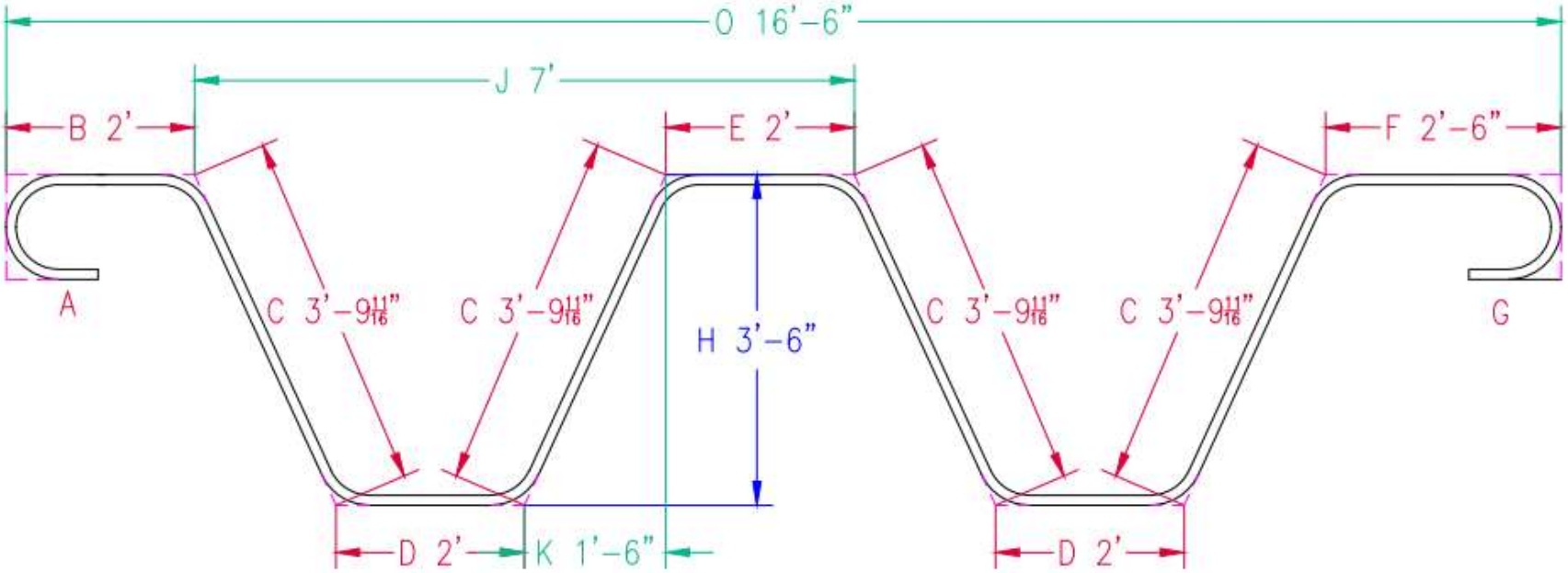




New Name : 115

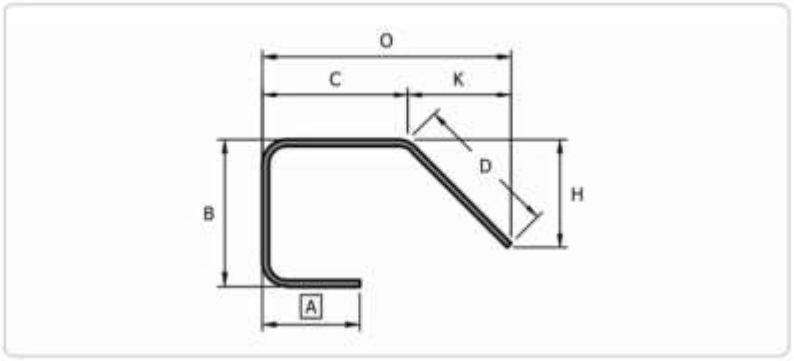
Old Name : 15

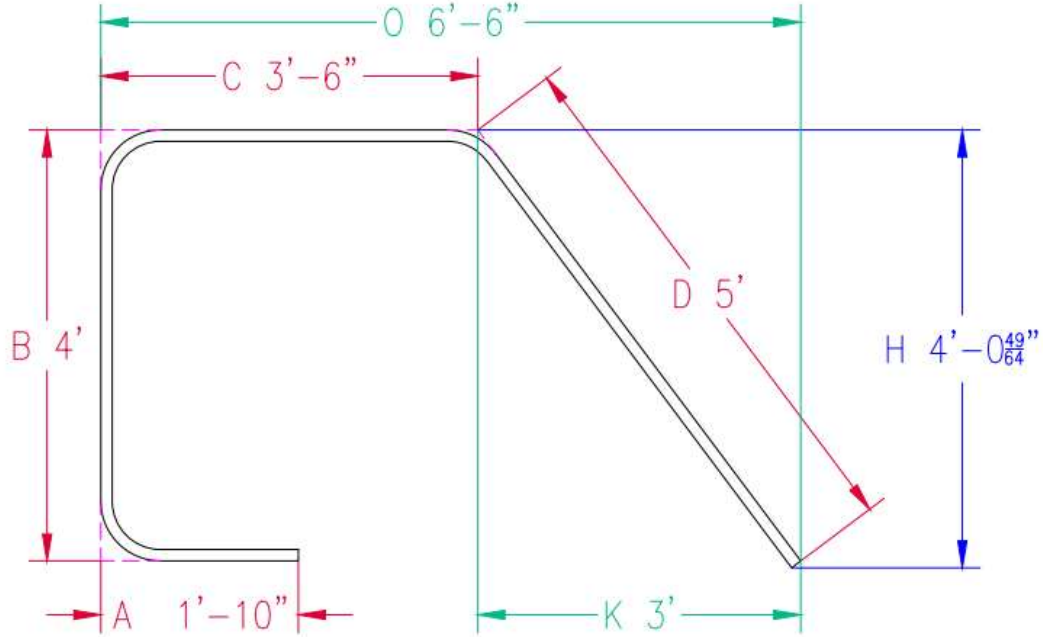




New Name : 116

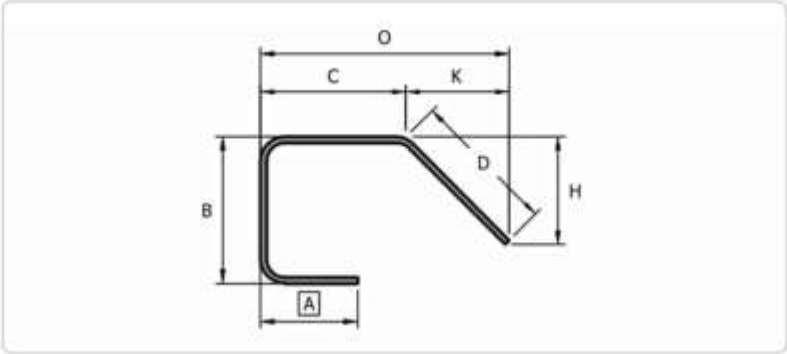
Old Name : 16

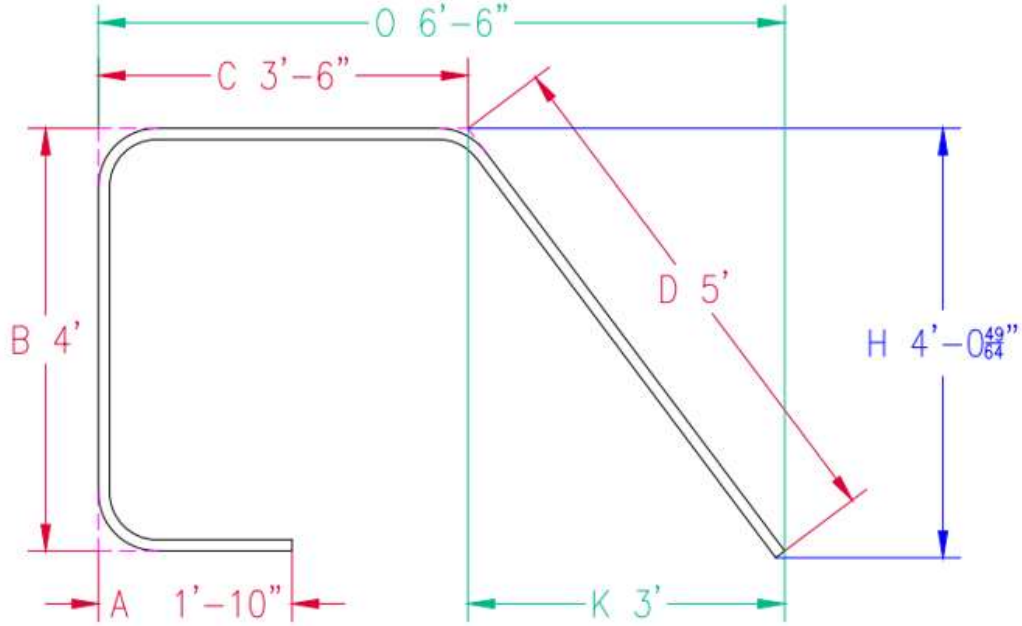




New Name : 116a

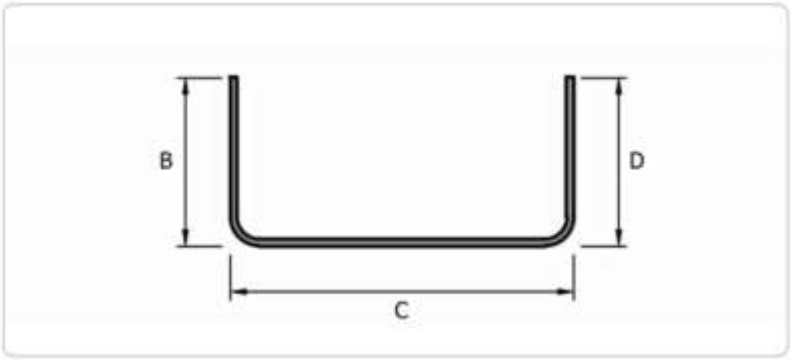
Old Name : 16a

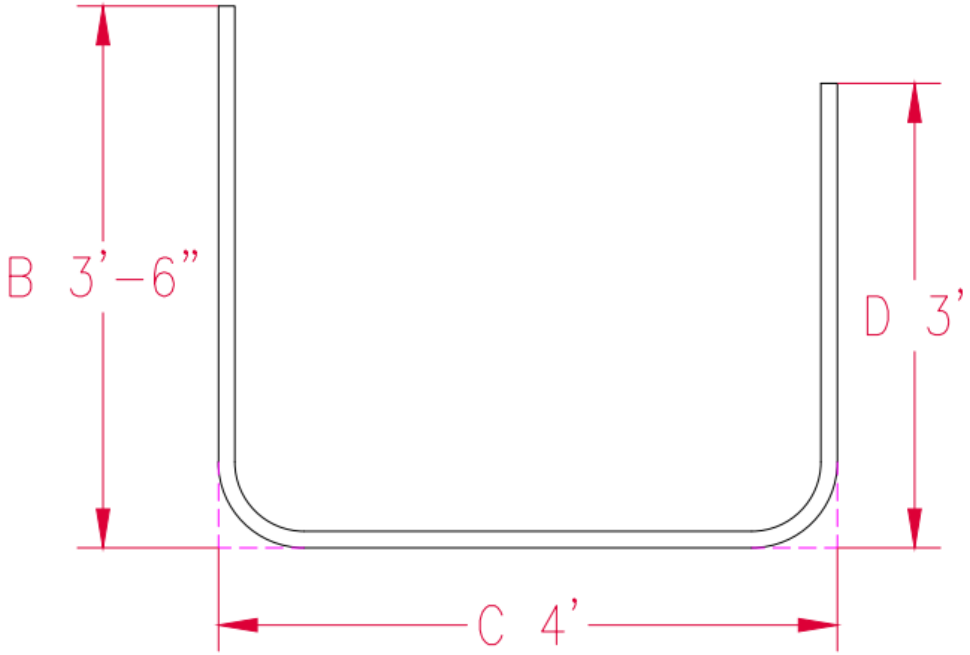




New Name : 117

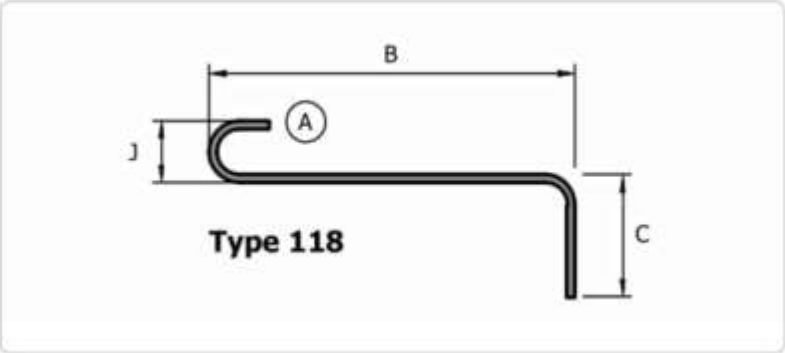
Old Name : 17

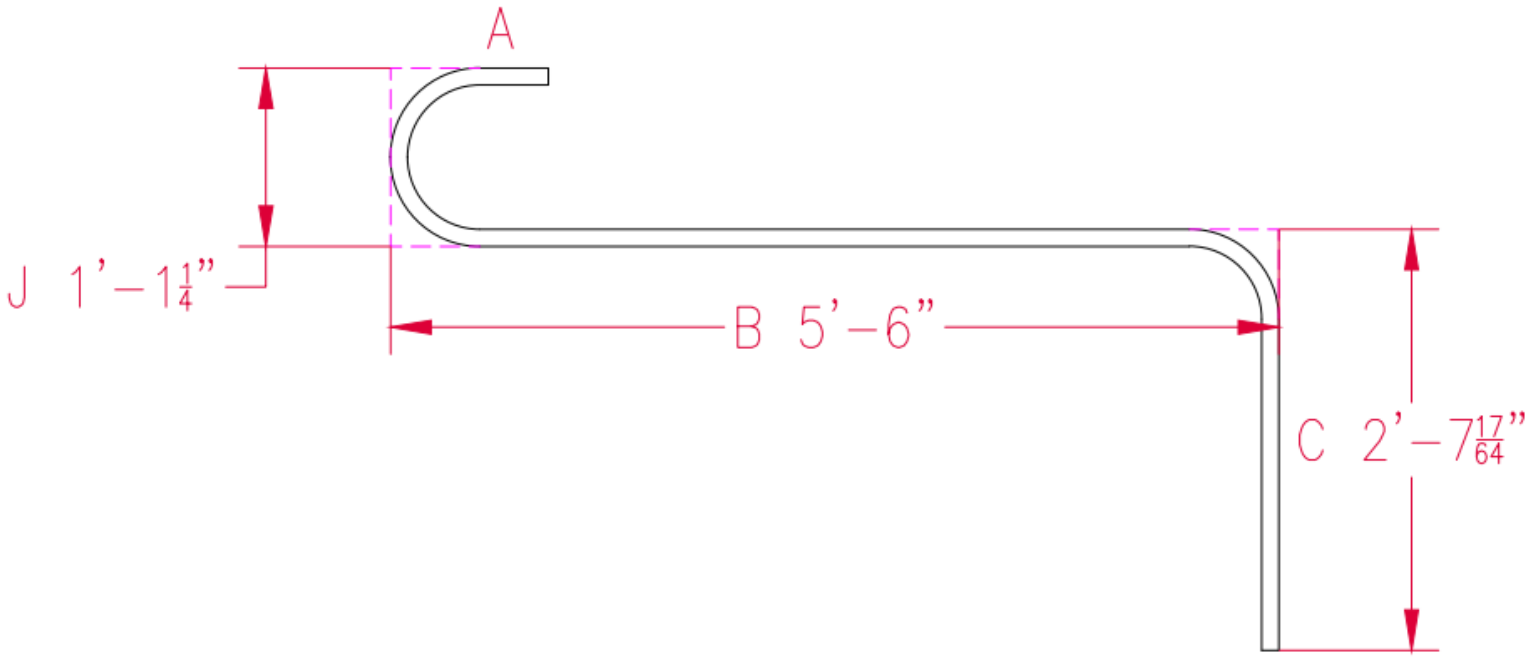




New Name : 118

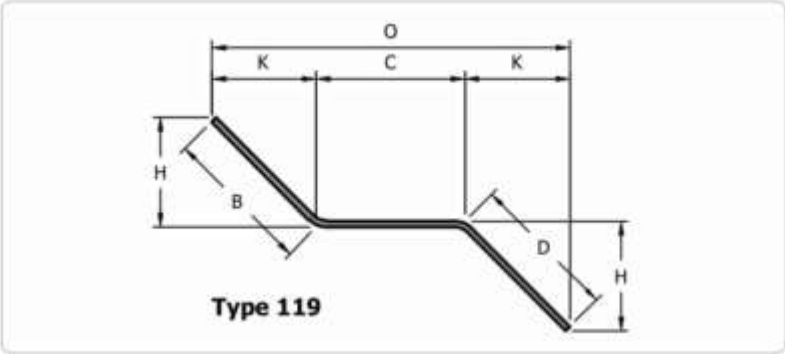
Old Name : 18

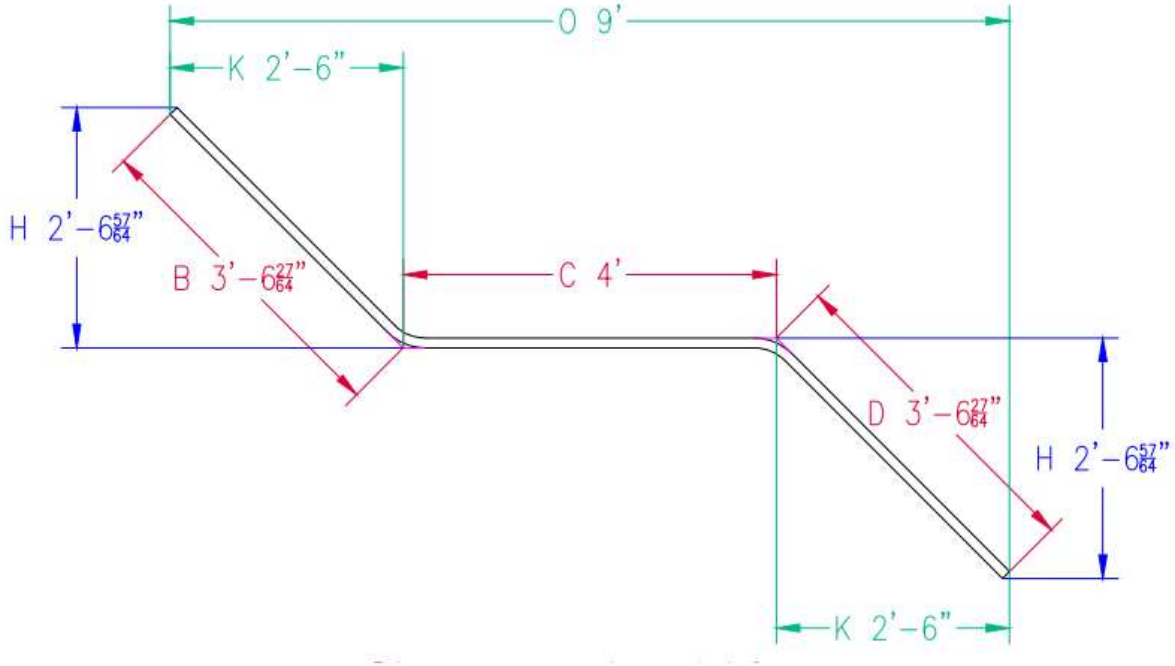




New Name : 119

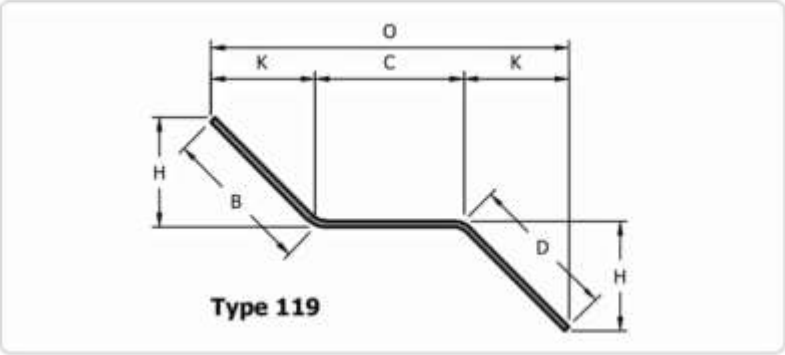
Old Name : 19

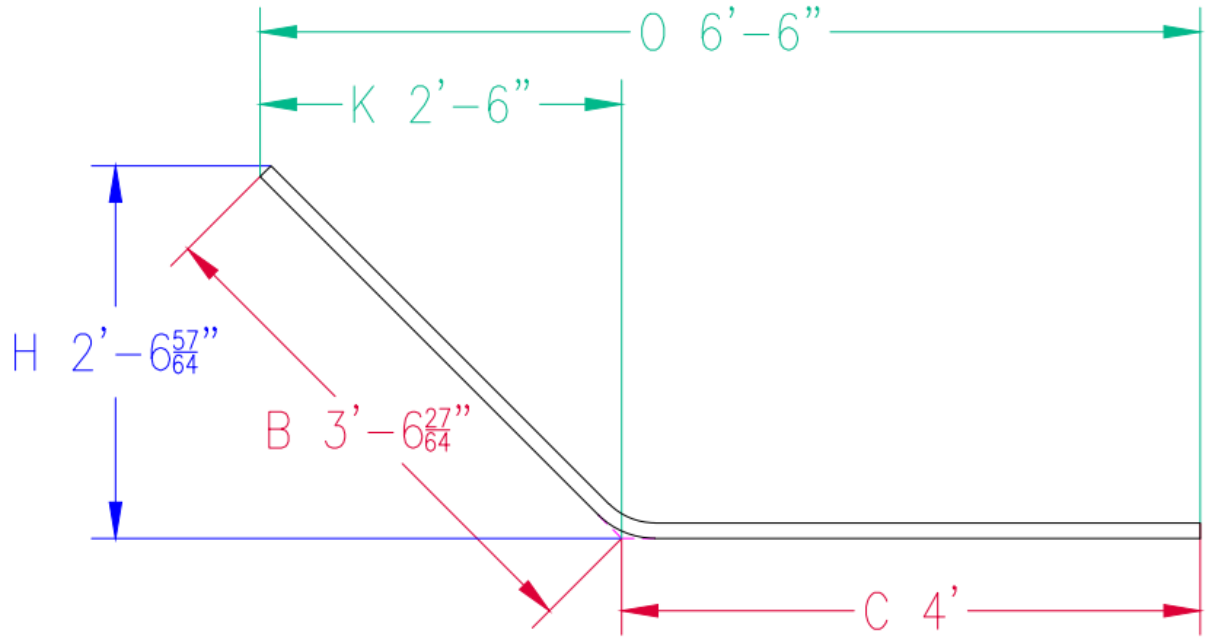




New Name : 119a

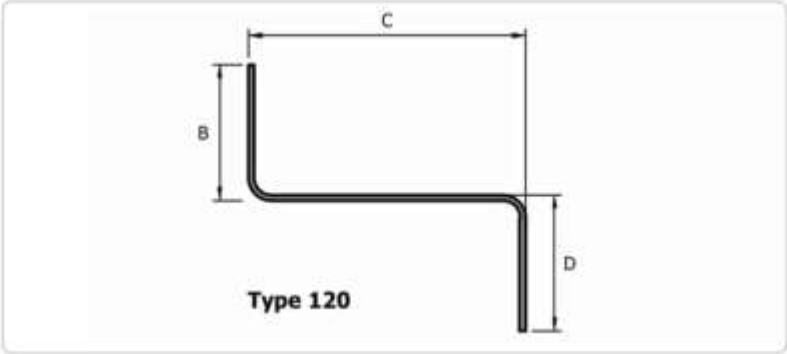
Old Name : 19a

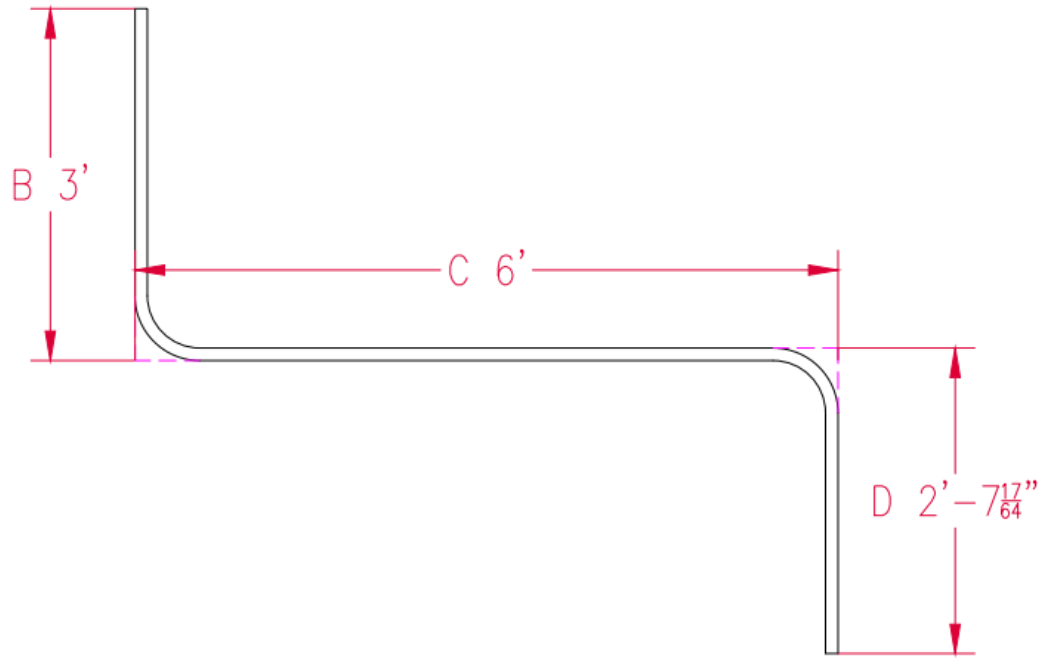




New Name : 120

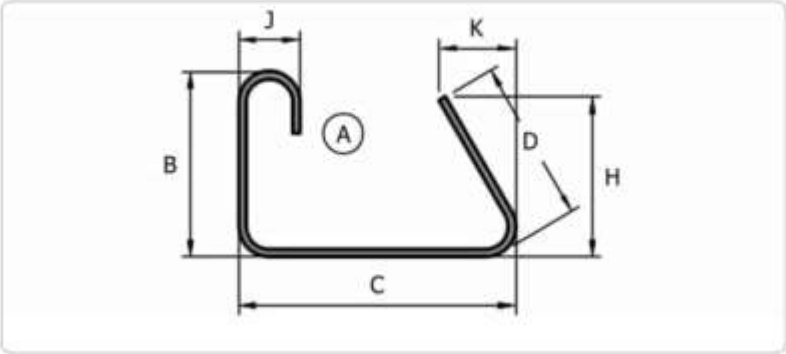
Old Name : 20

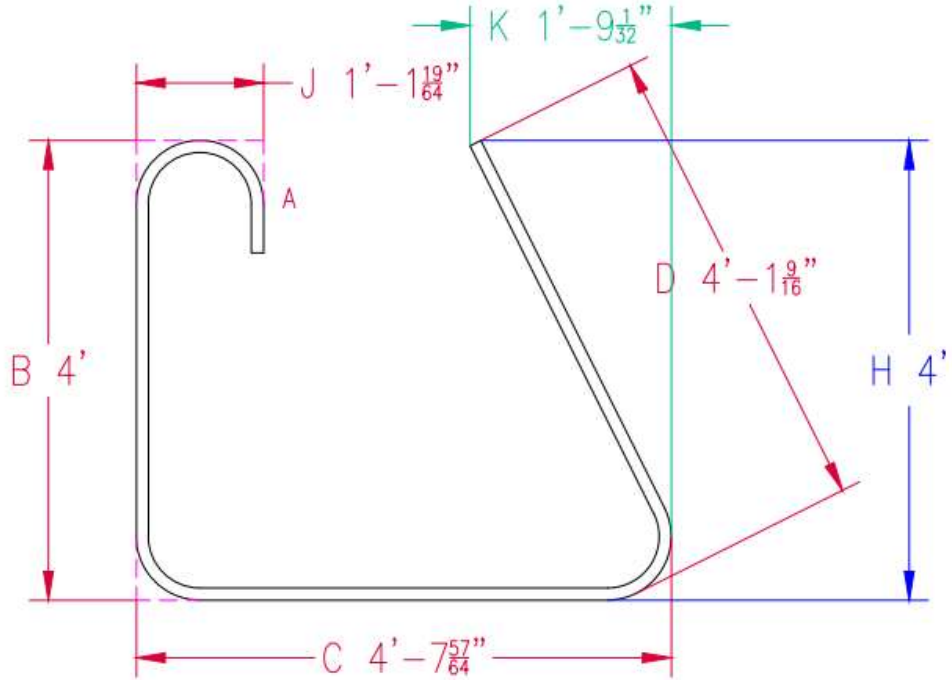




New Name : 121

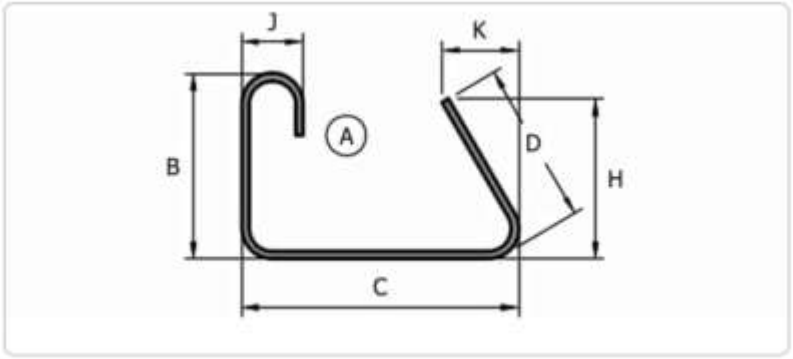
Old Name : 21

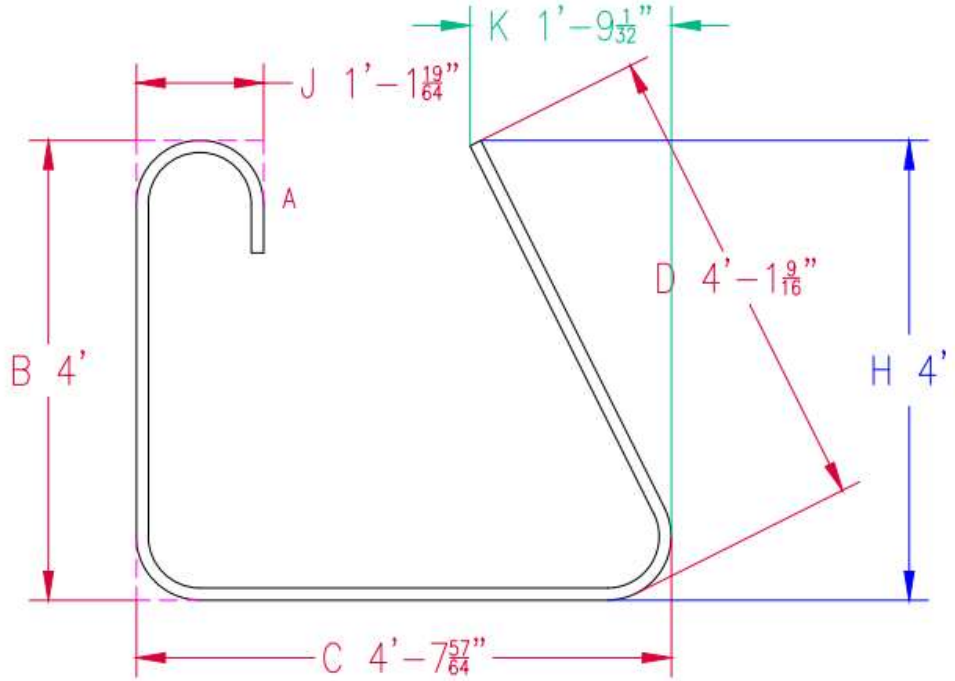




New Name : 121a

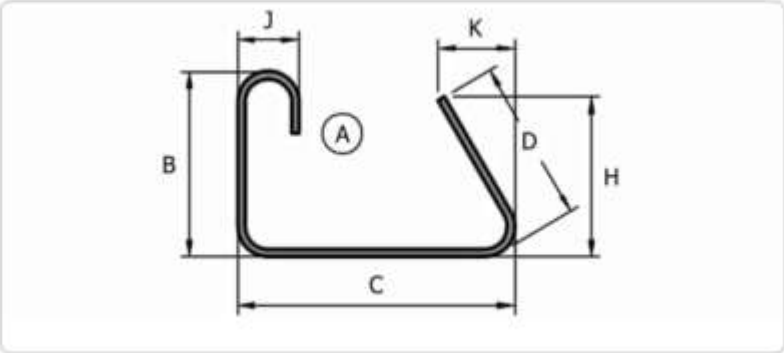
Old Name : 21a

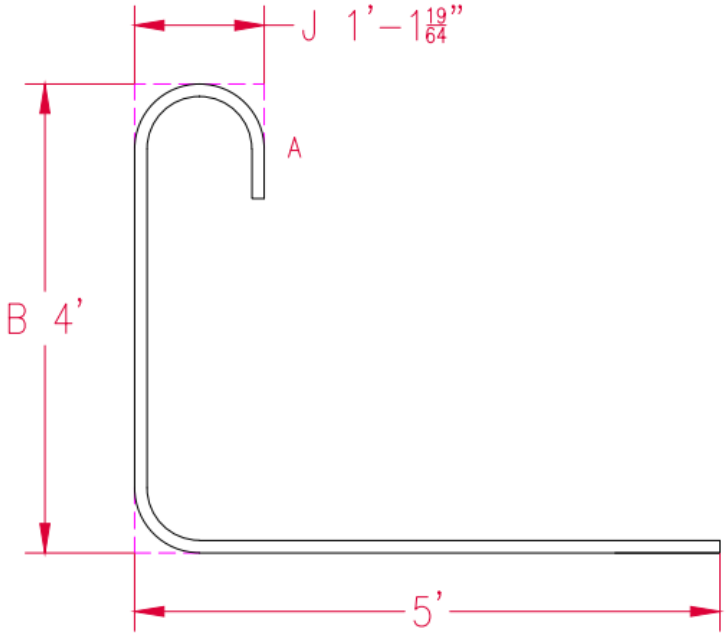




New Name : 121b

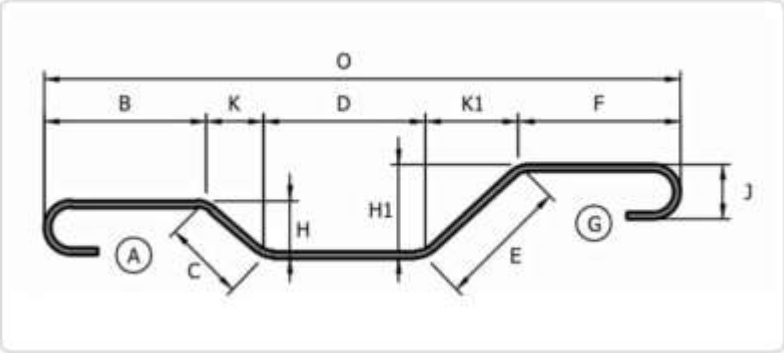
Old Name : 21b

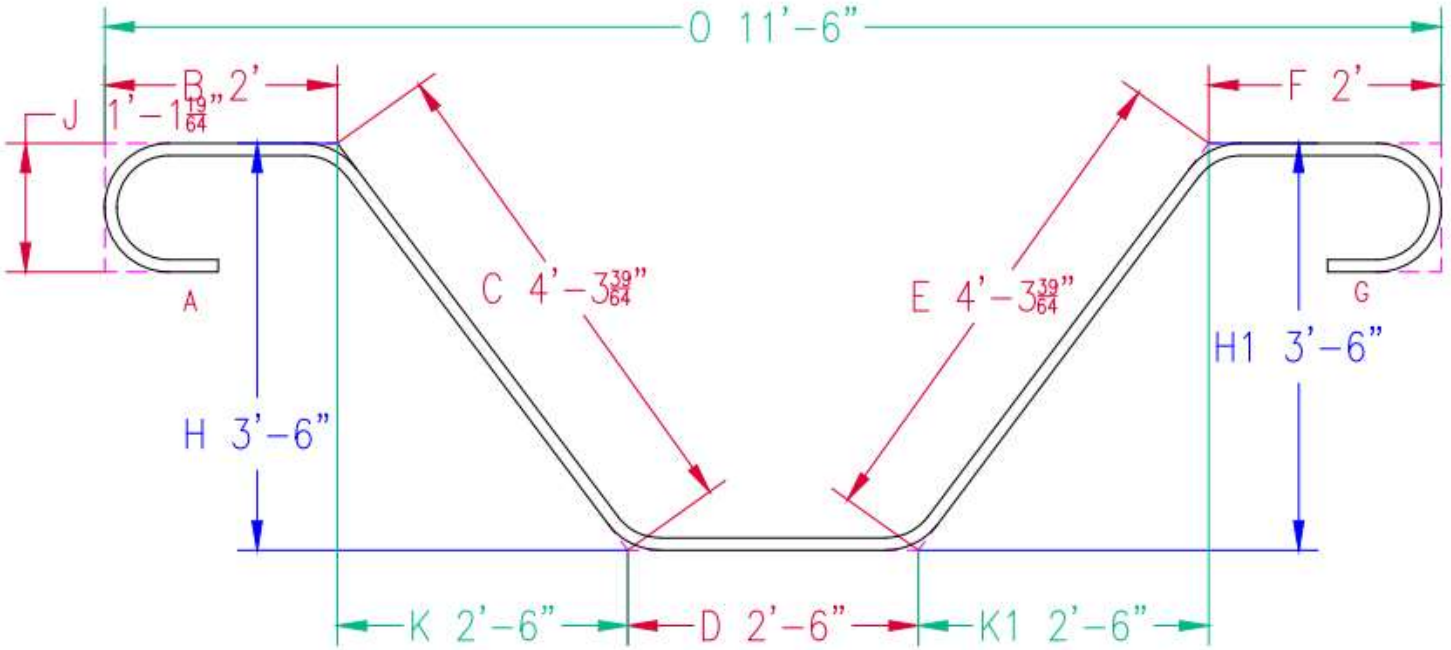




New Name : 122

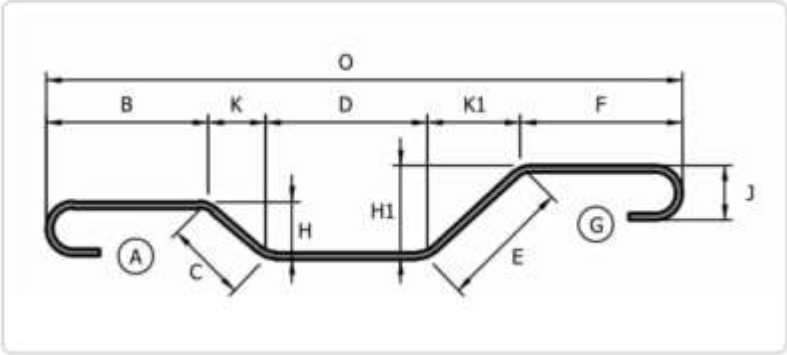
Old Name : 22

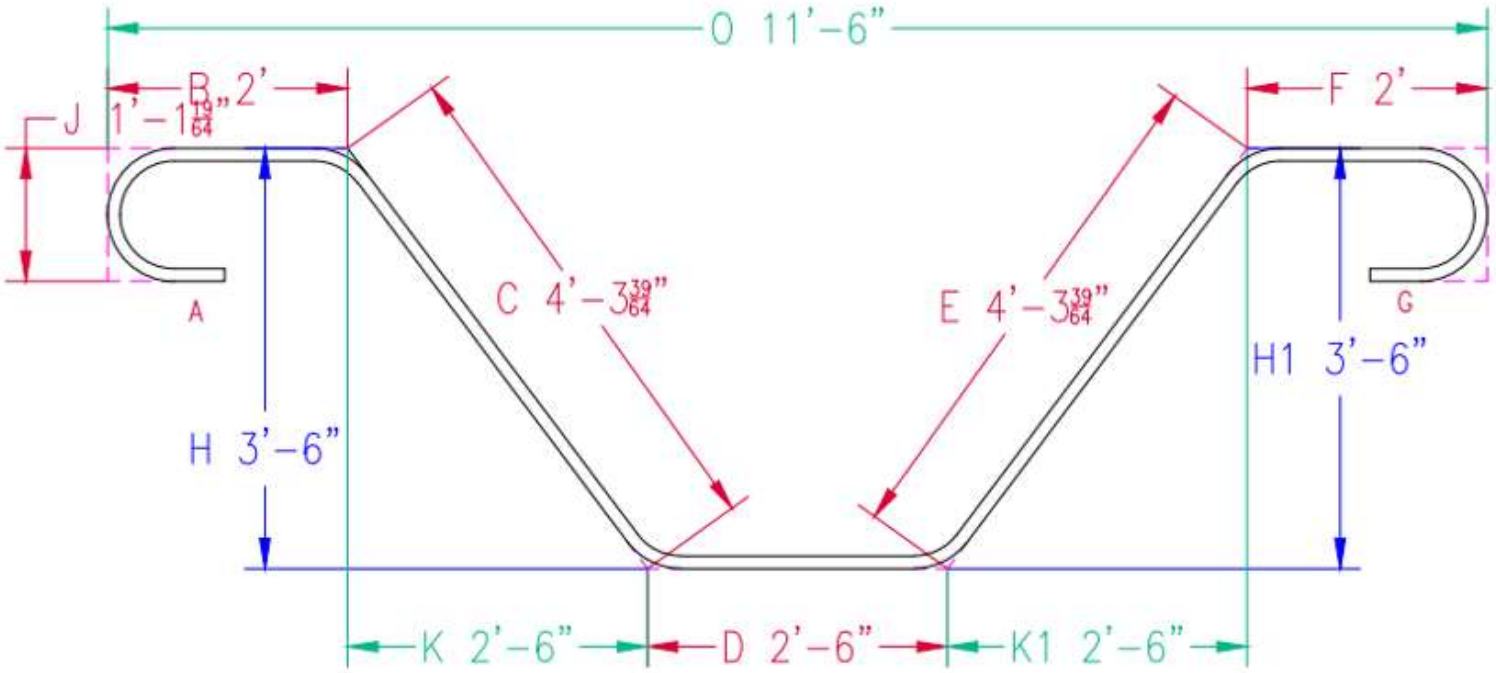




New Name : 122a

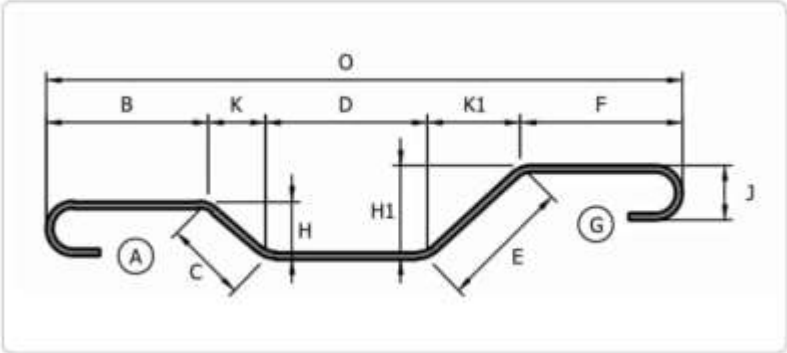
Old Name : 22a

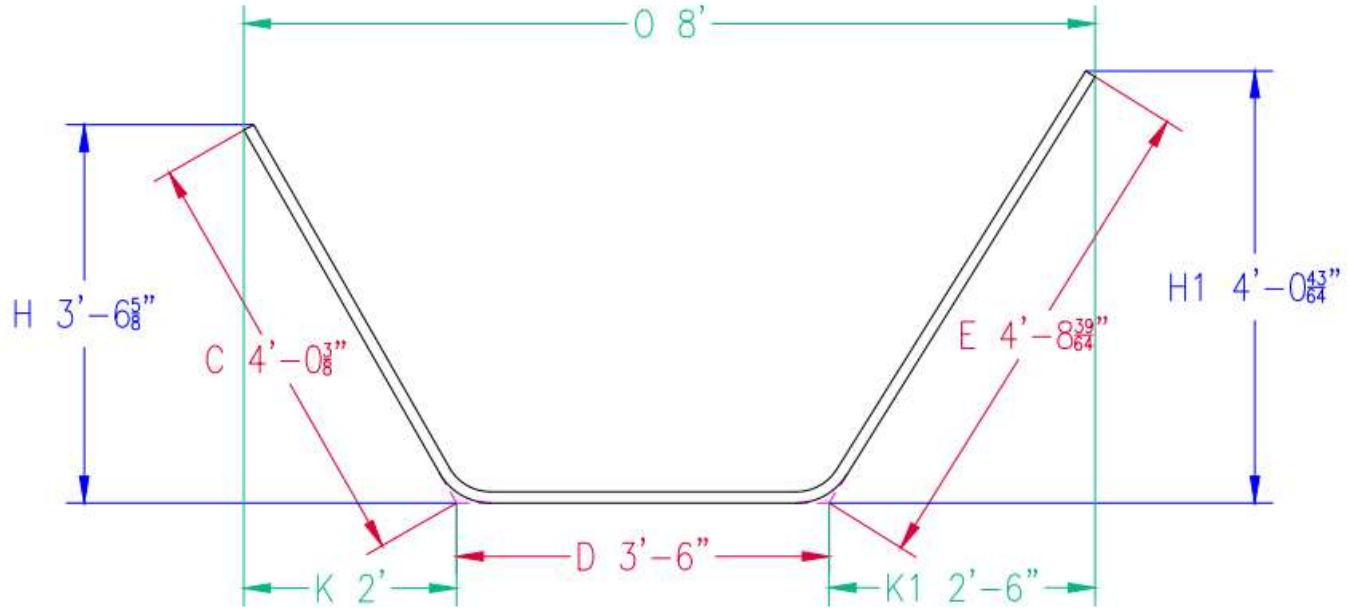




New Name : 122b

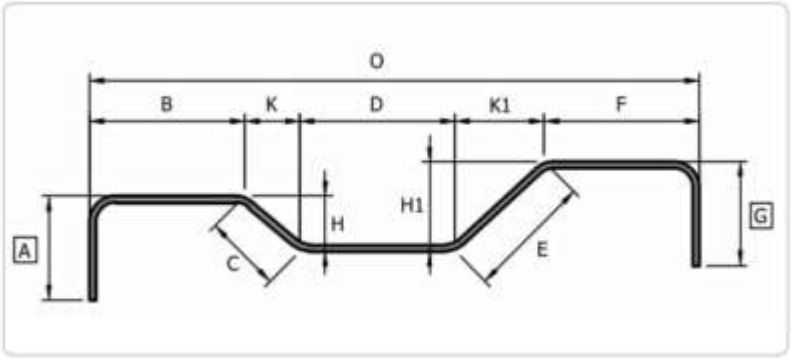
Old Name : 22b

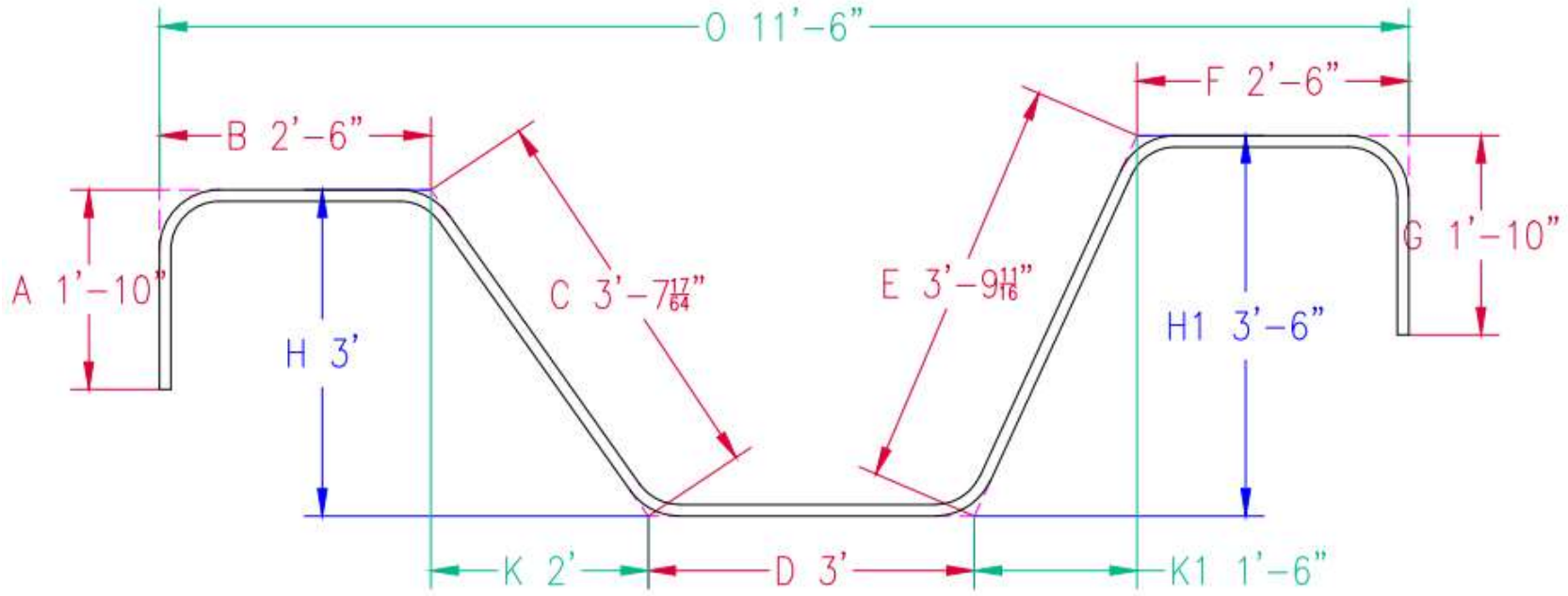




New Name : 123

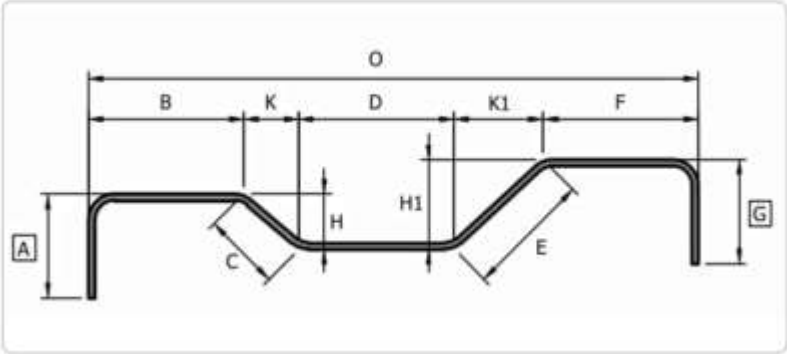
Old Name : 23

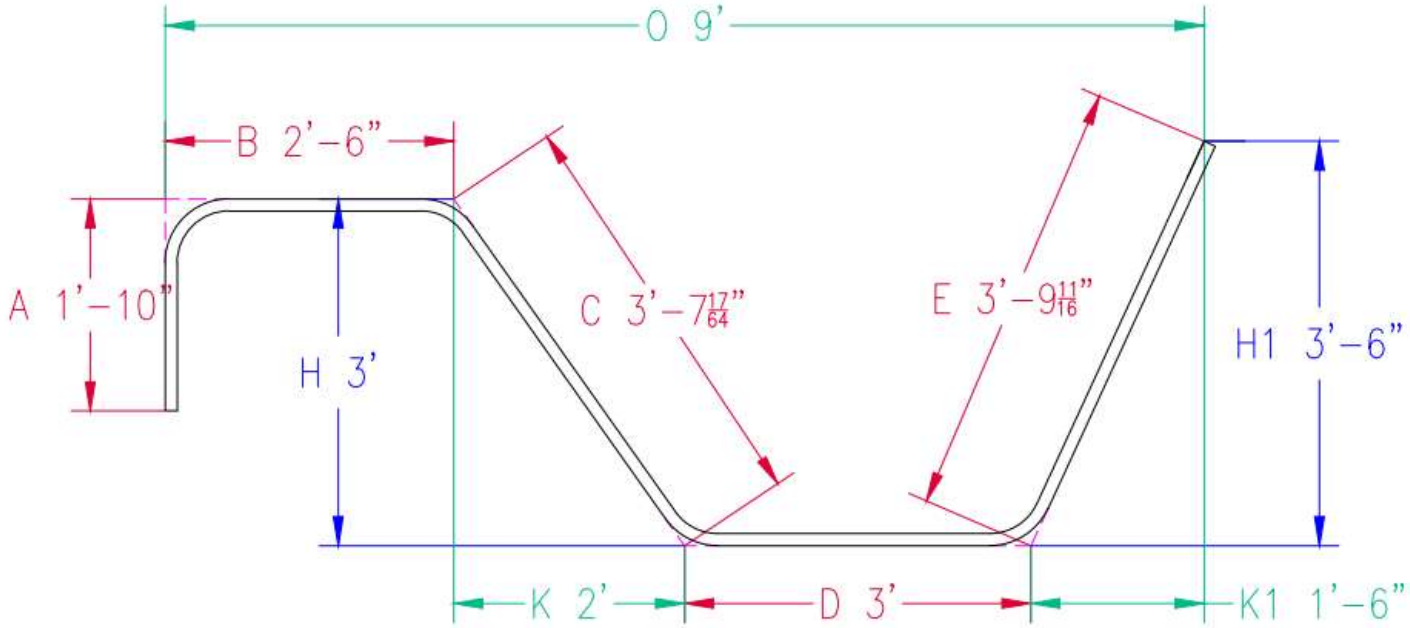




New Name : 123a

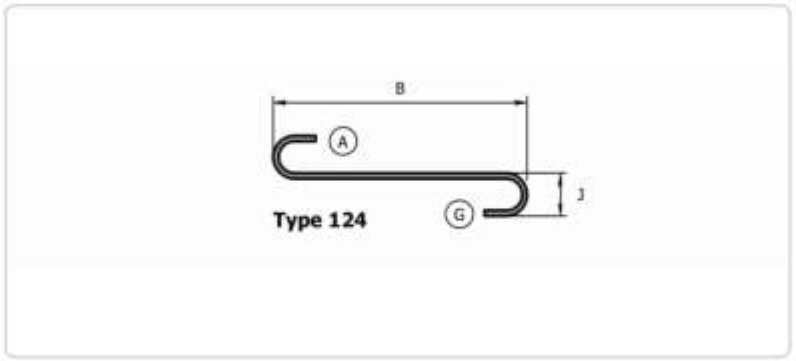
Old Name : 23a

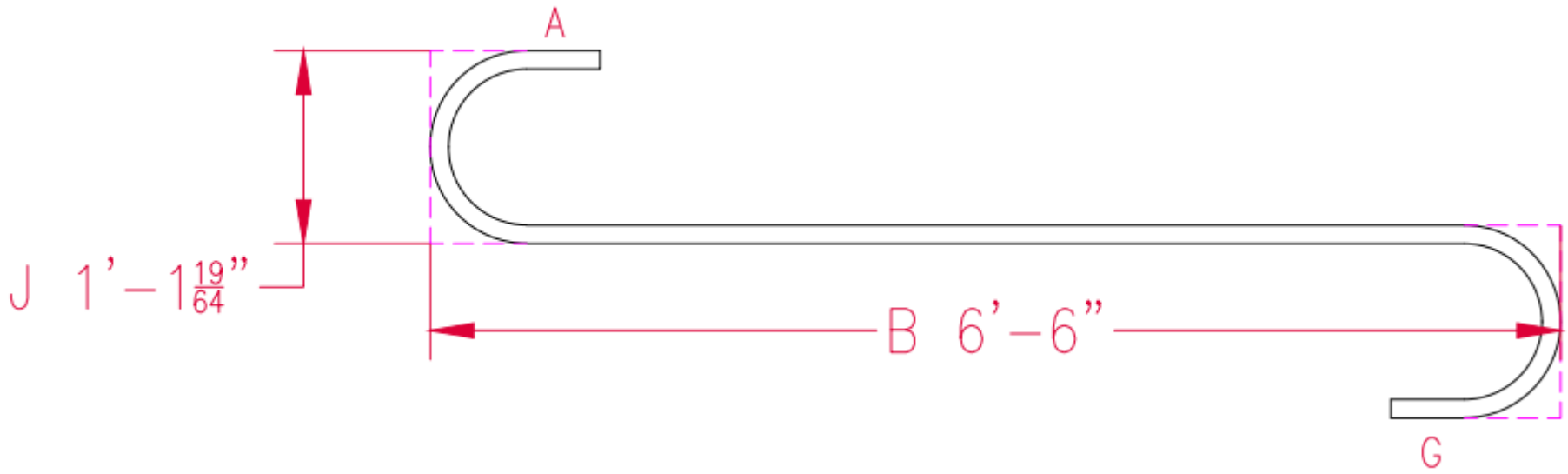




New Name : 124

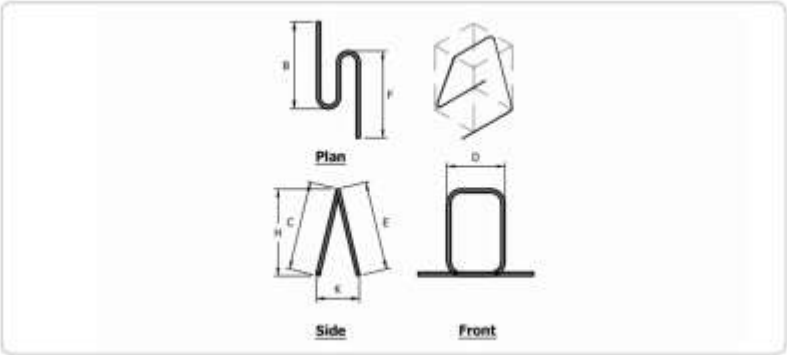
Old Name : 23a

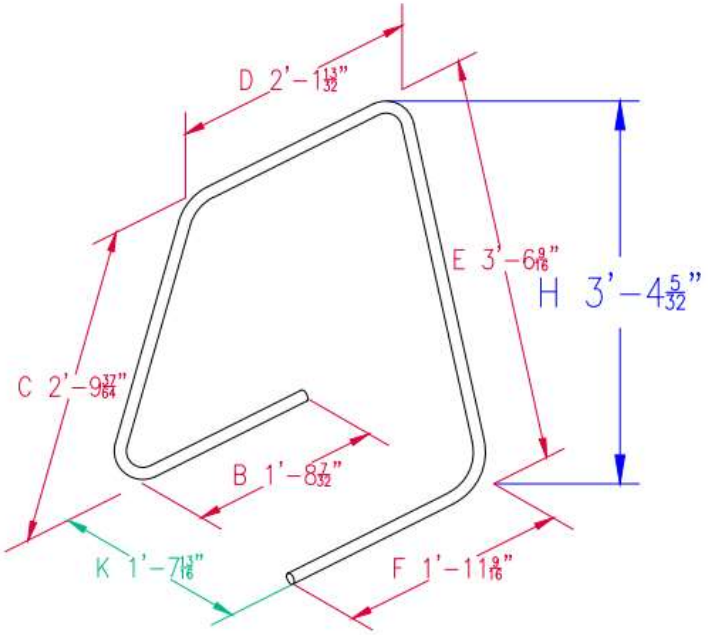




New Name : 125

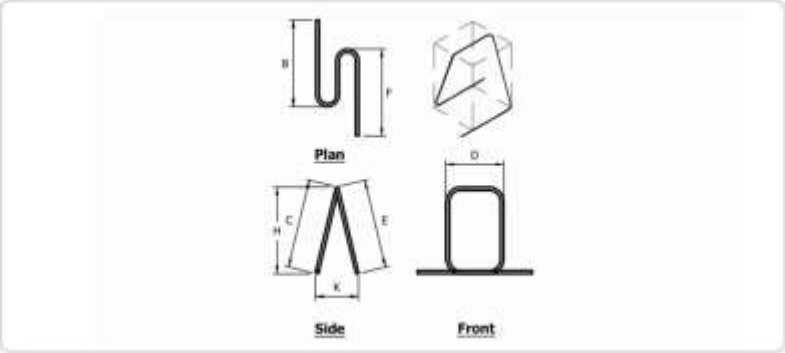
Old Name : 25

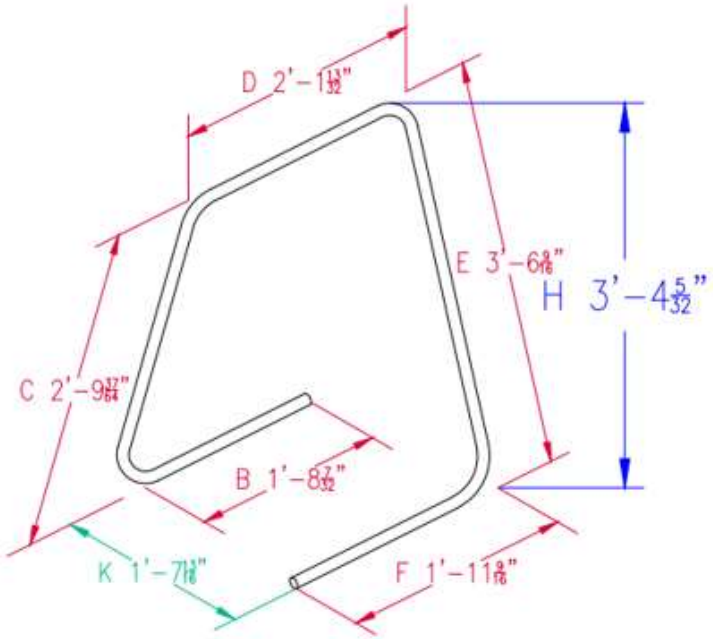




New Name : 125a

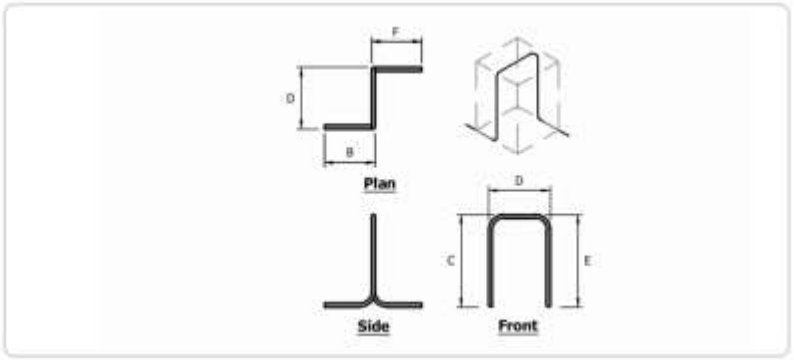
Old Name : 25a

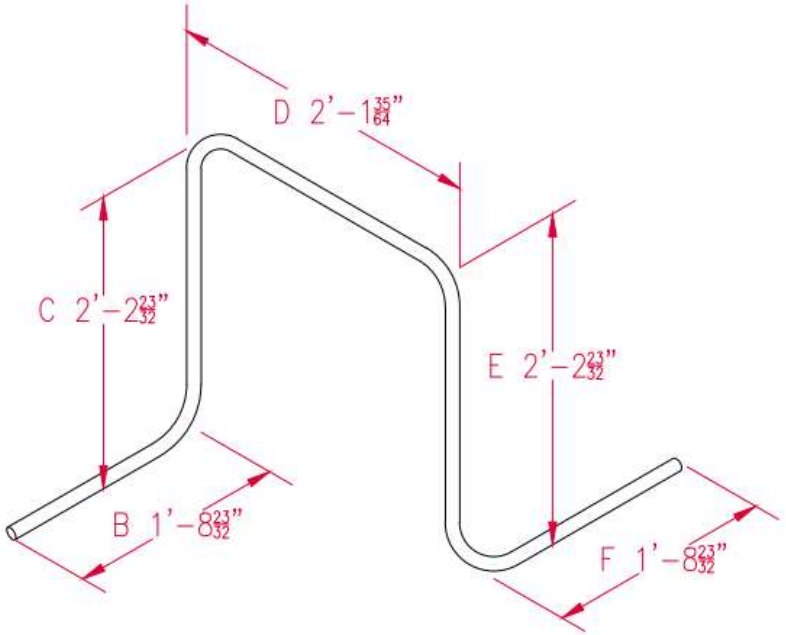




New Name : 126

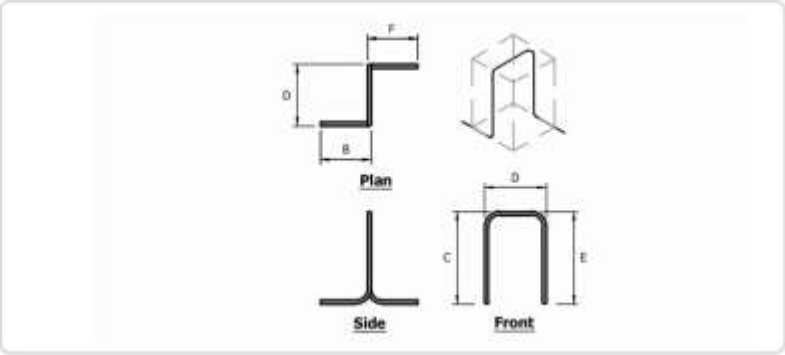
Old Name : 26

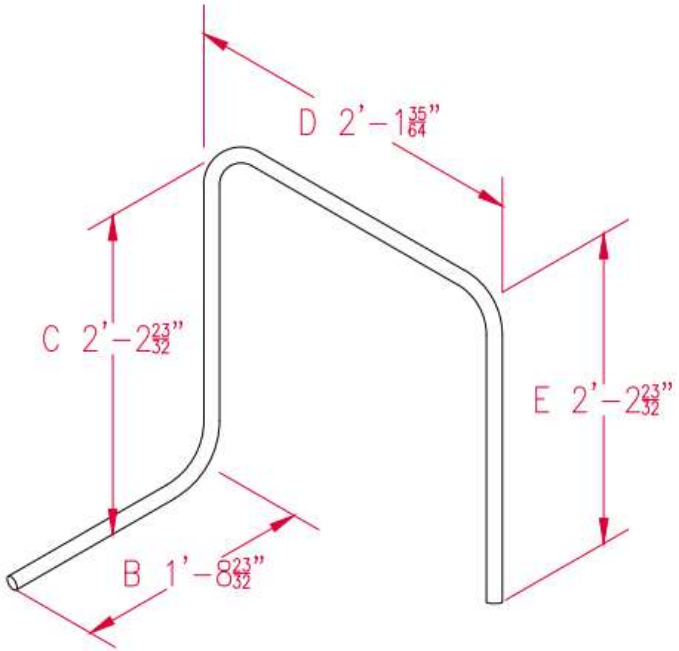




New Name : 126a

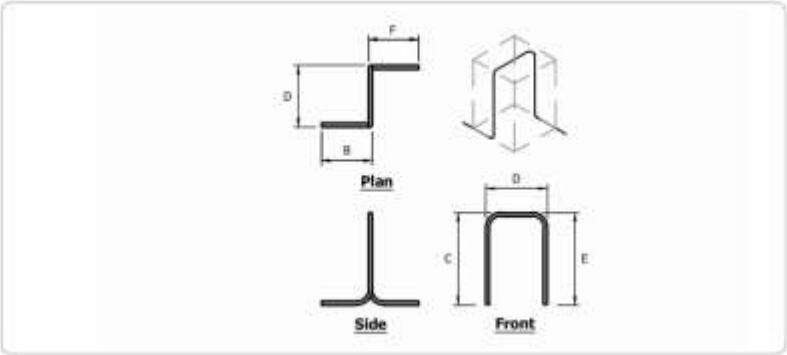
Old Name : 26a

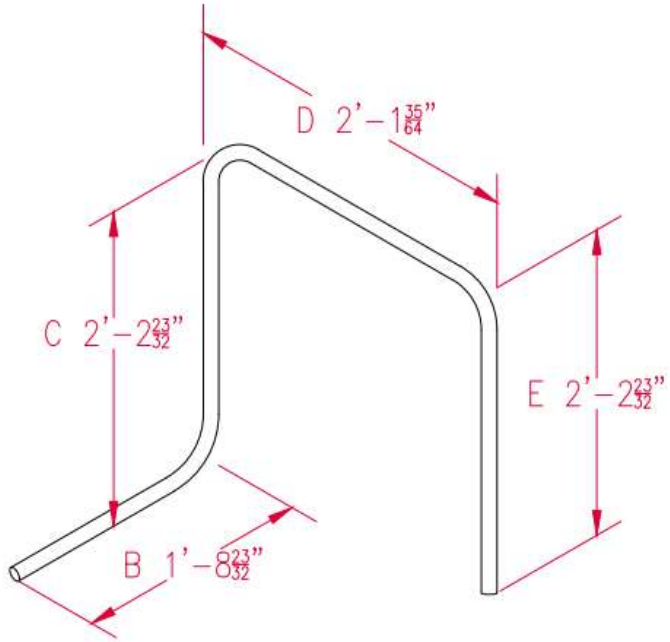




New Name : 126b

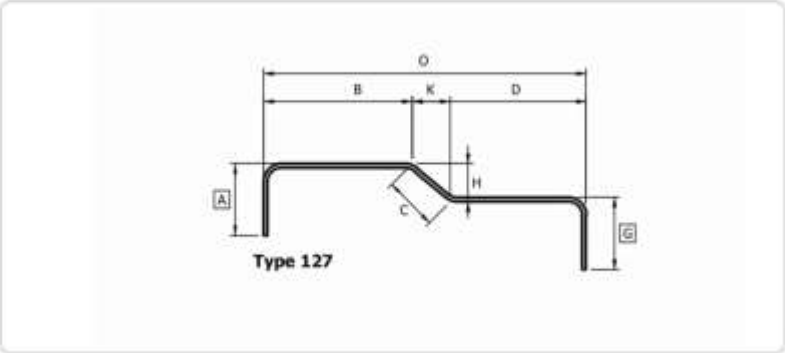
Old Name : 26b

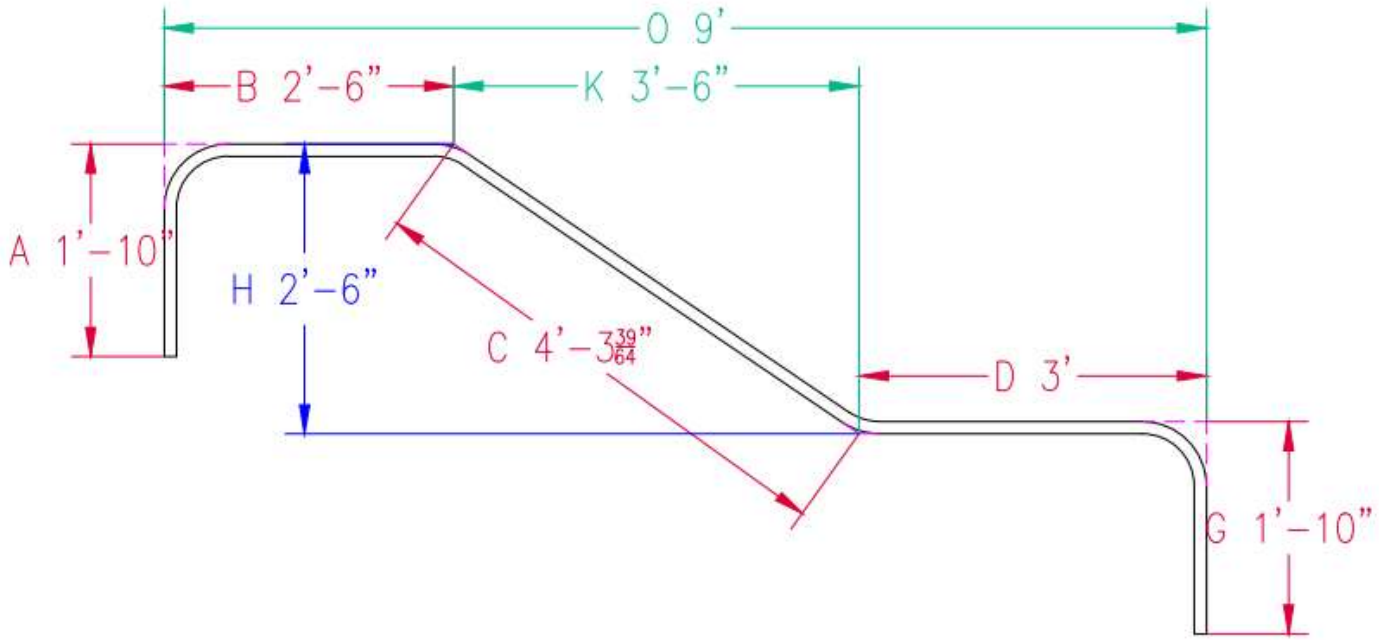




New Name : 127

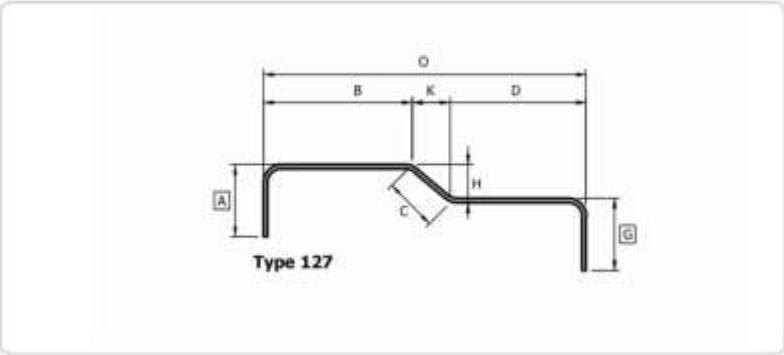
Old Name : 27

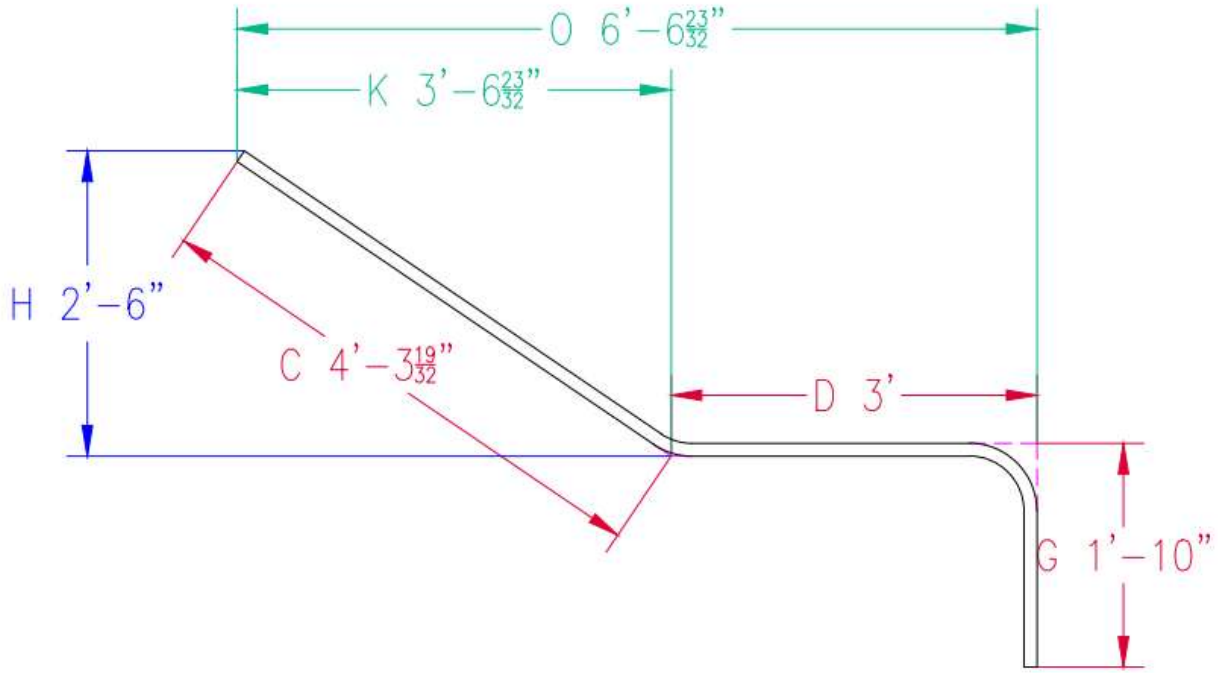




New Name : 127a

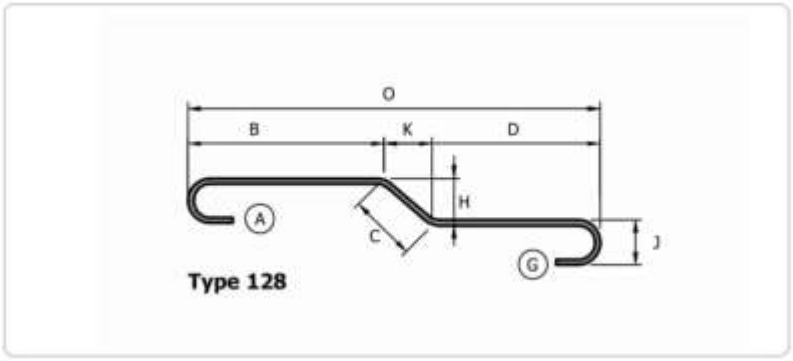
Old Name : 27a

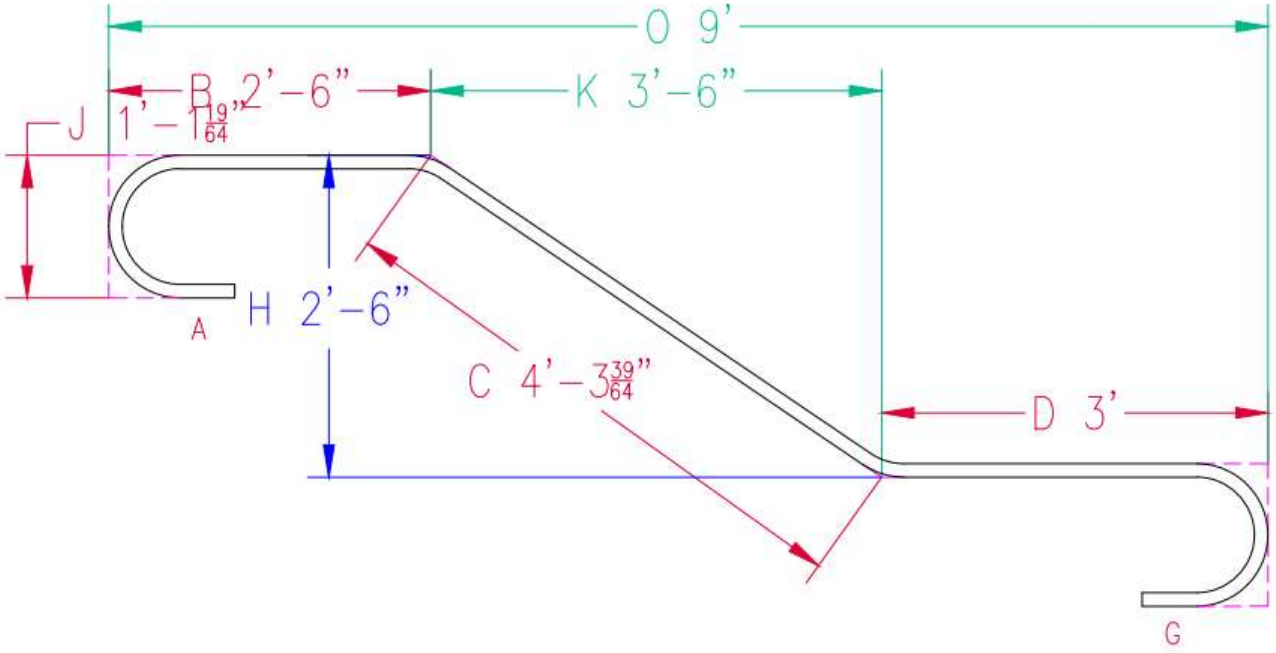




New Name : 128

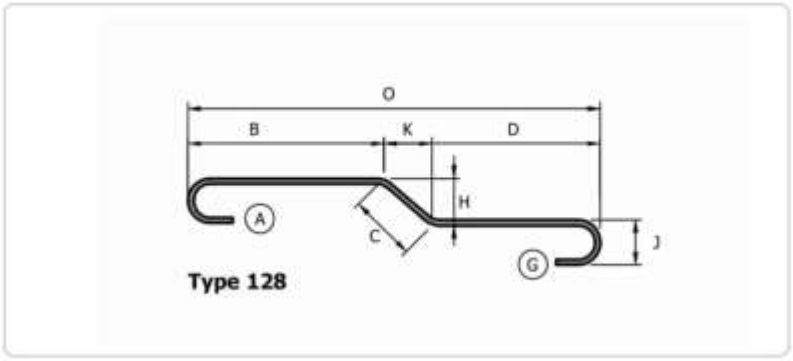
Old Name : 28

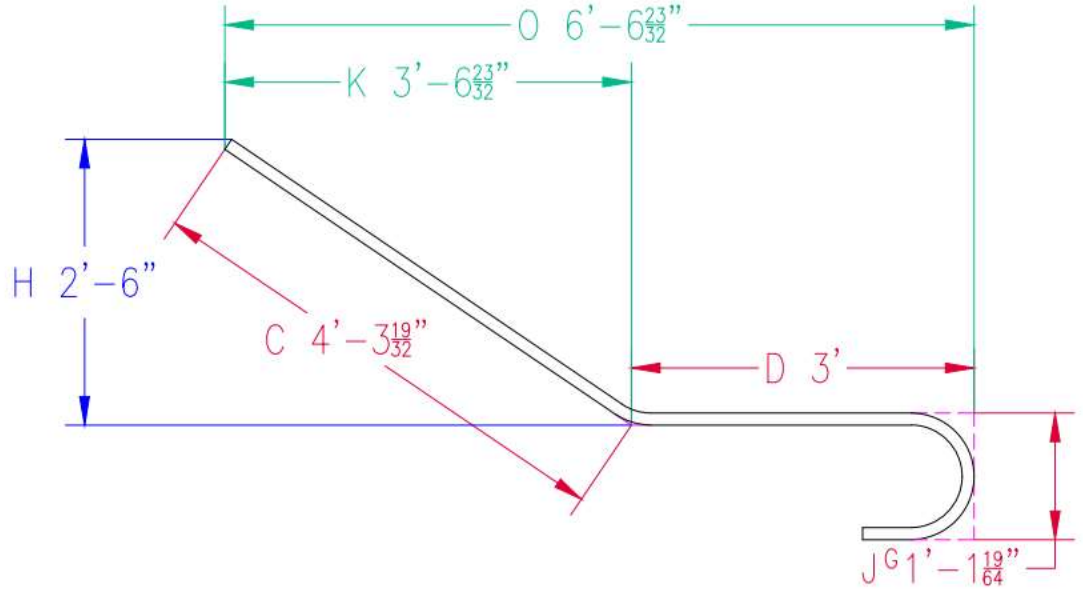




New Name : 128a

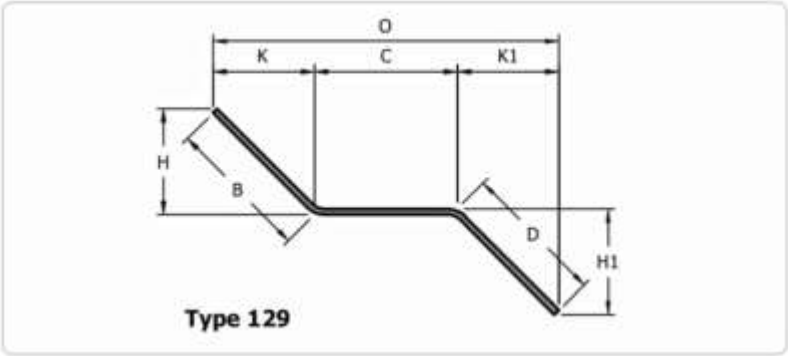
Old Name : 28a

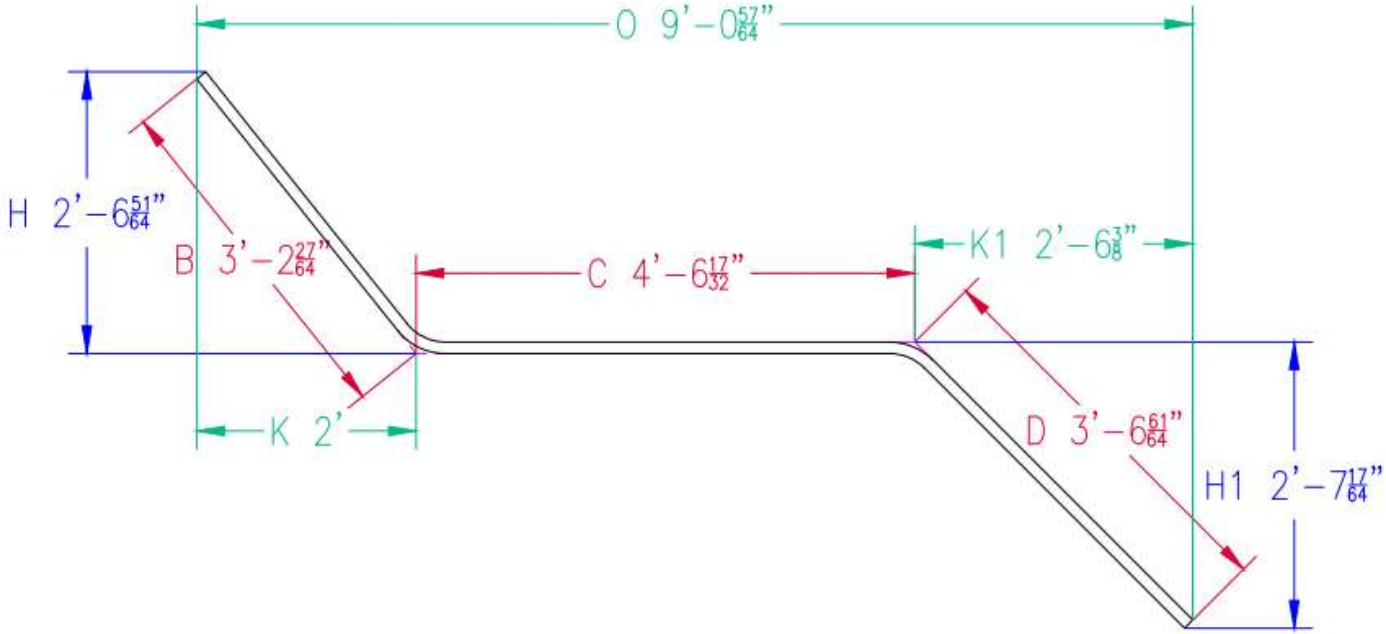




New Name : 129

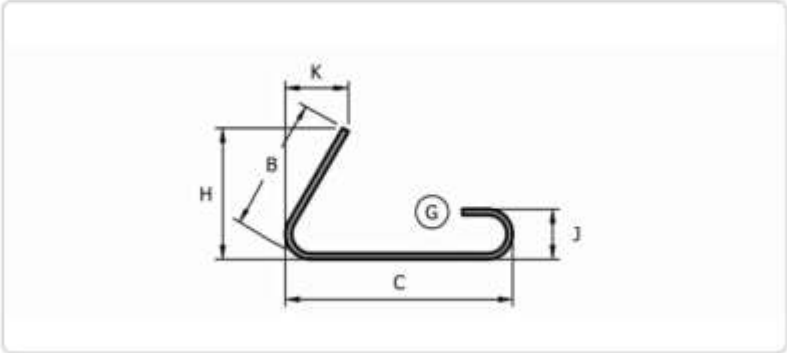
Old Name : 29

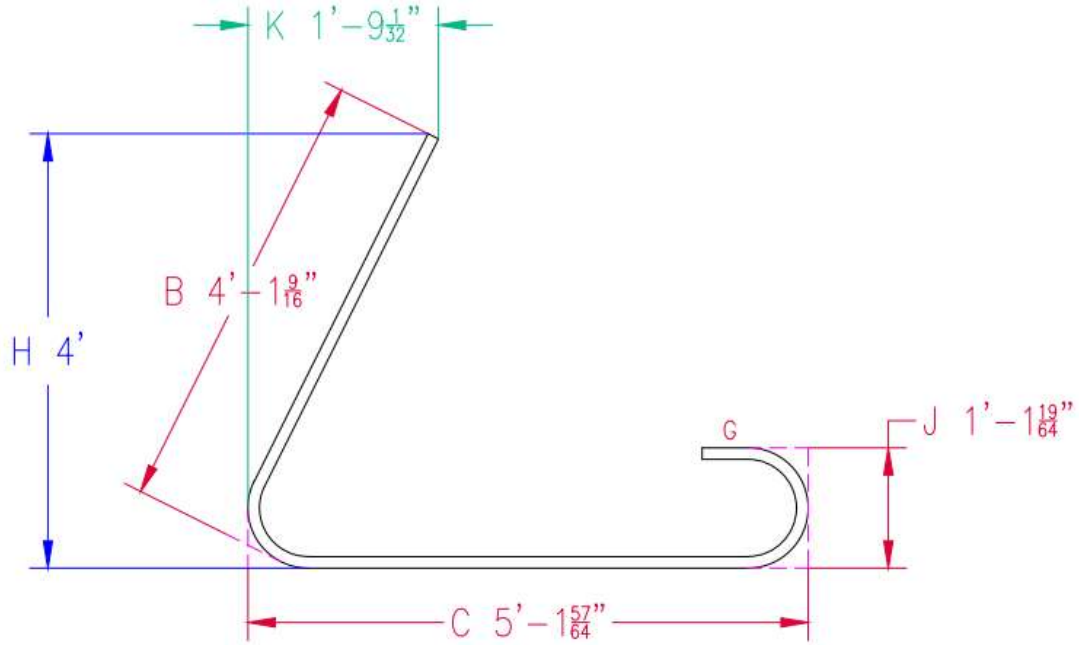




New Name : 130

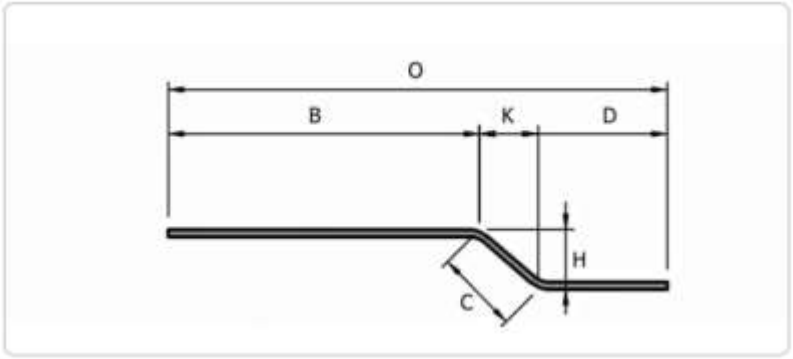
Old Name : 30

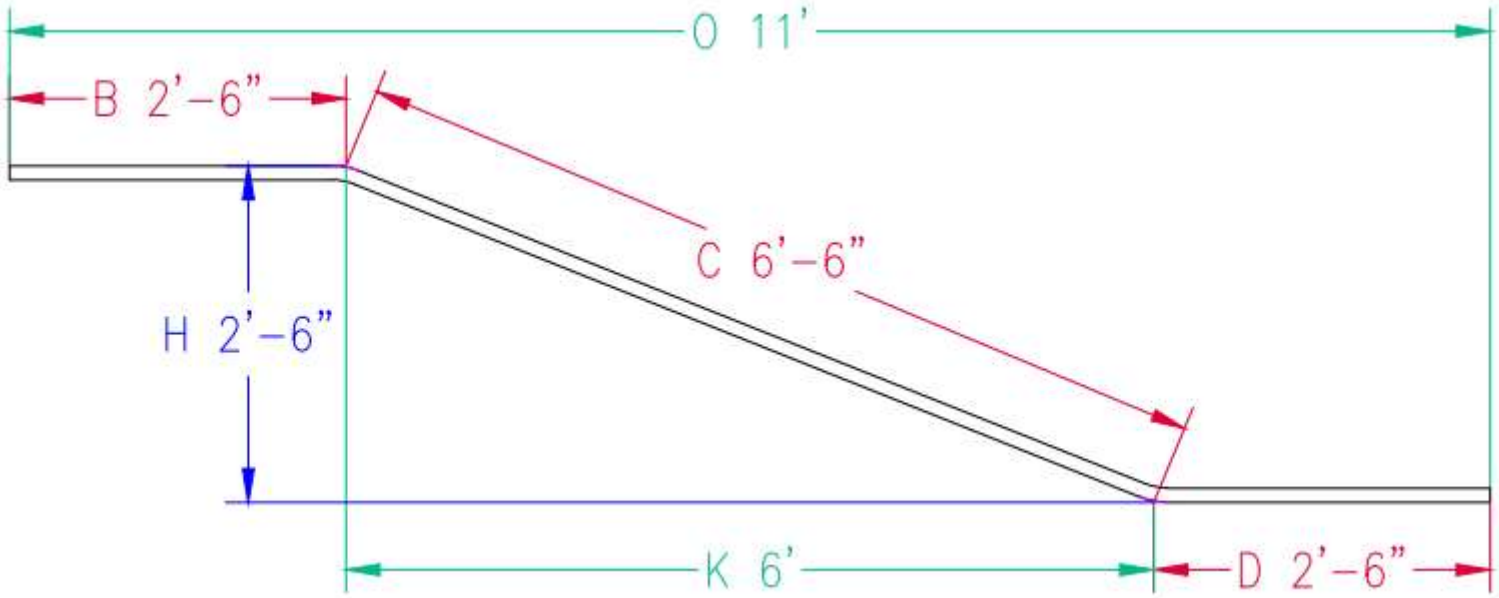




New Name : 131

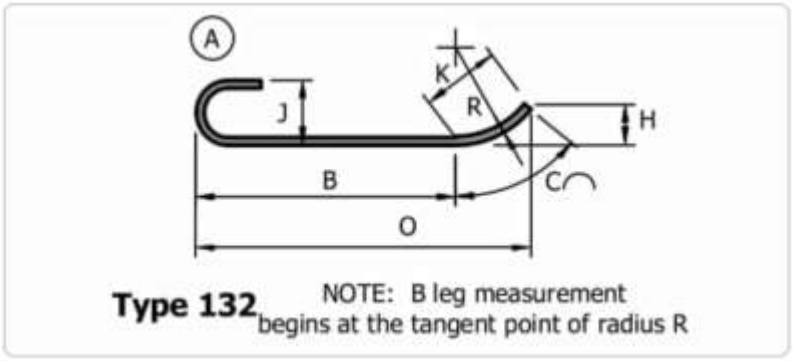
Old Name : 31



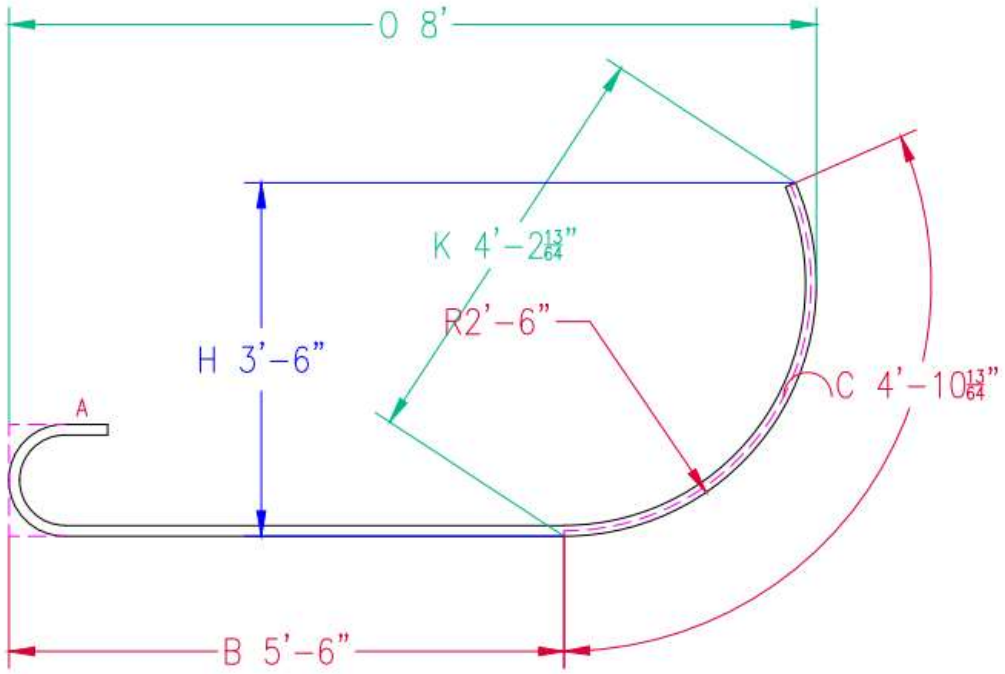


New Name : 132

Old Name : 32

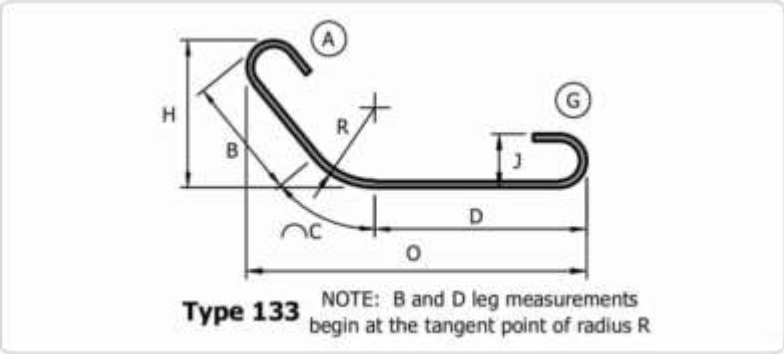


Type 132 NOTE: B leg measurement begins at the tangent point of radius R

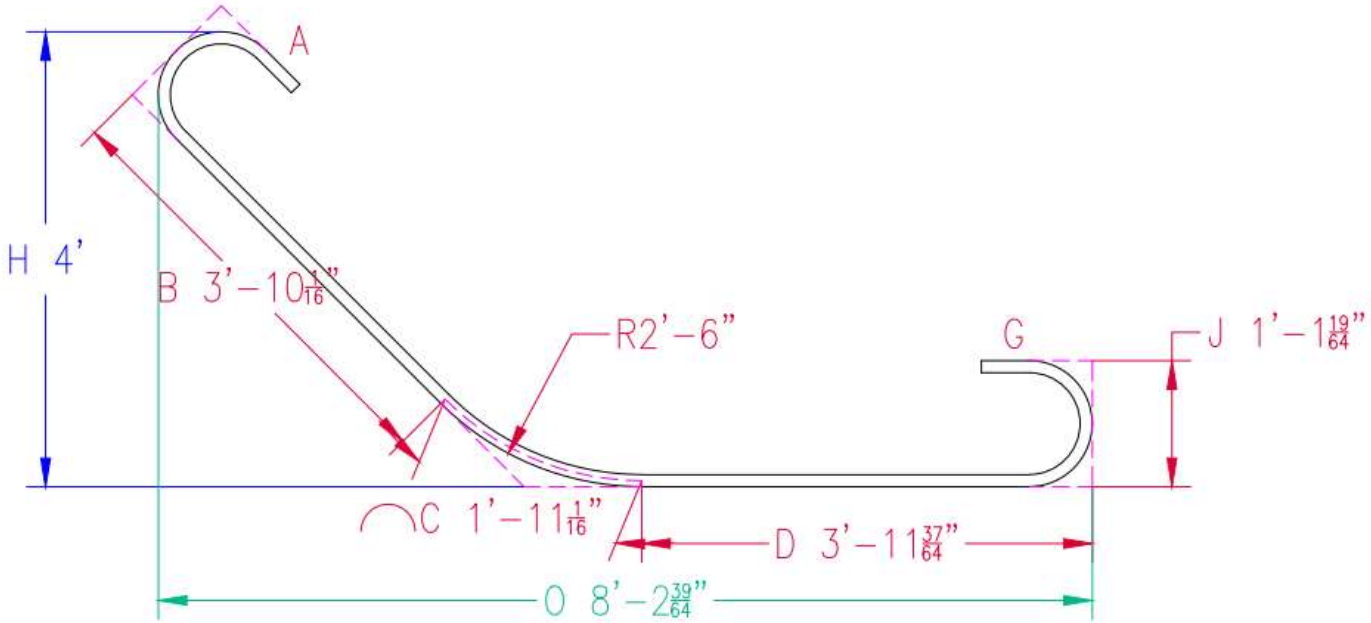


New Name : 133

Old Name : 33

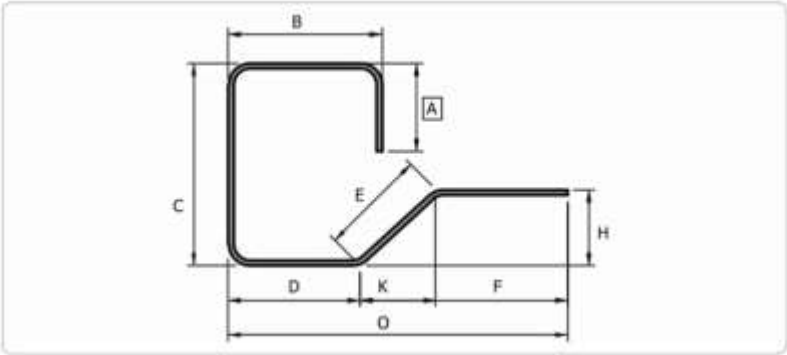


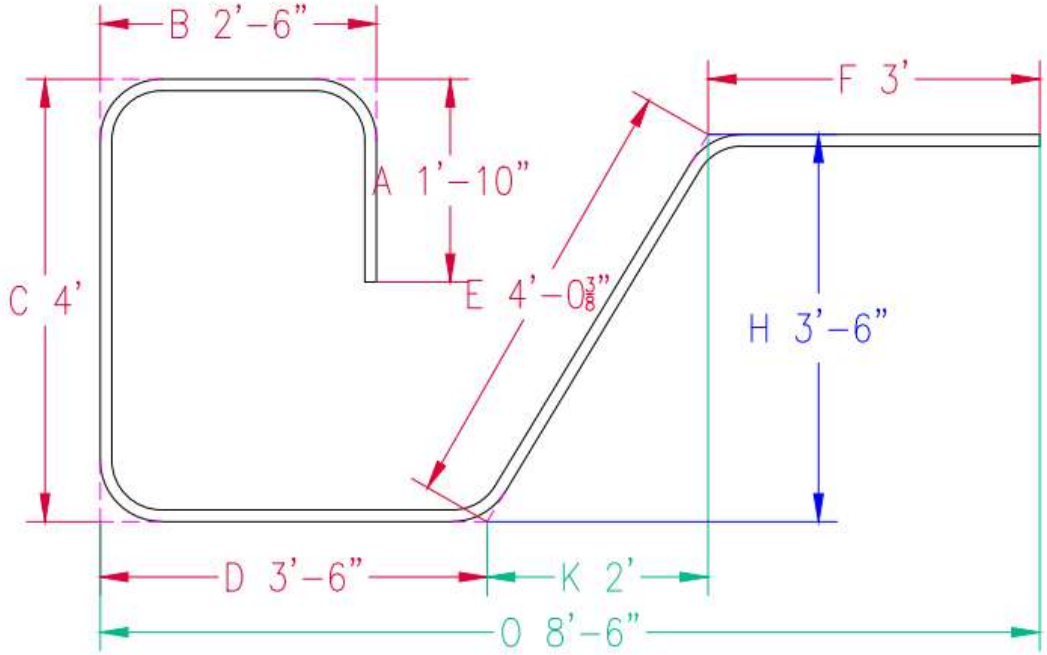
Type 133 NOTE: B and D leg measurements begin at the tangent point of radius R



New Name : 134

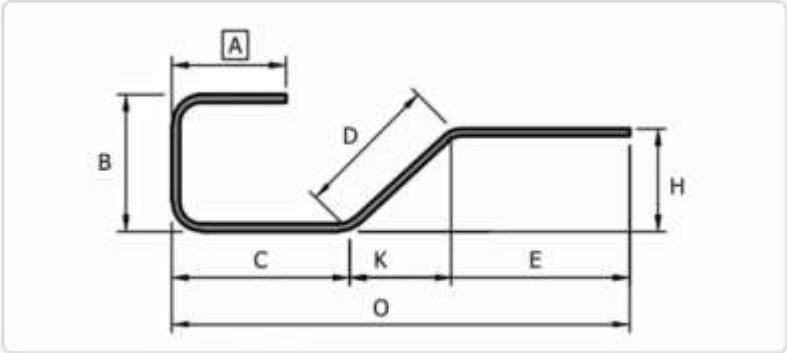
Old Name : 34

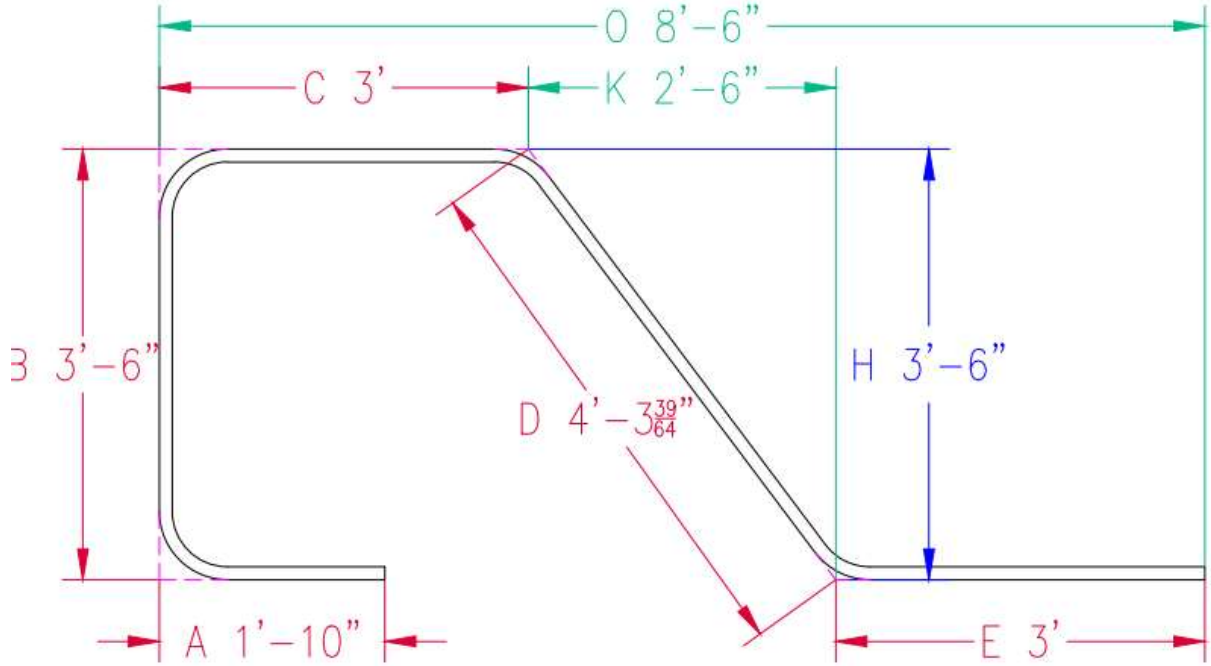




New Name : 135

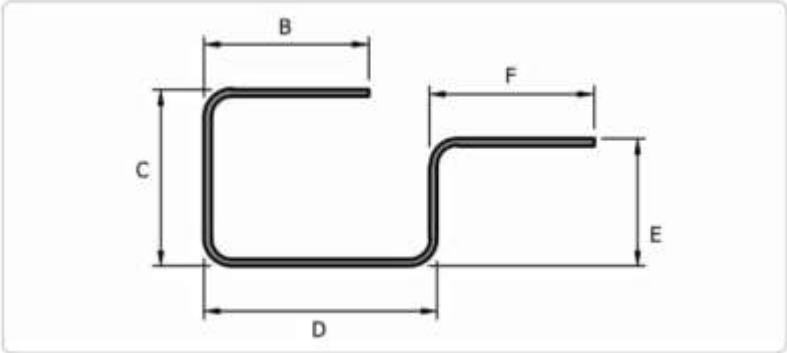
Old Name : 35

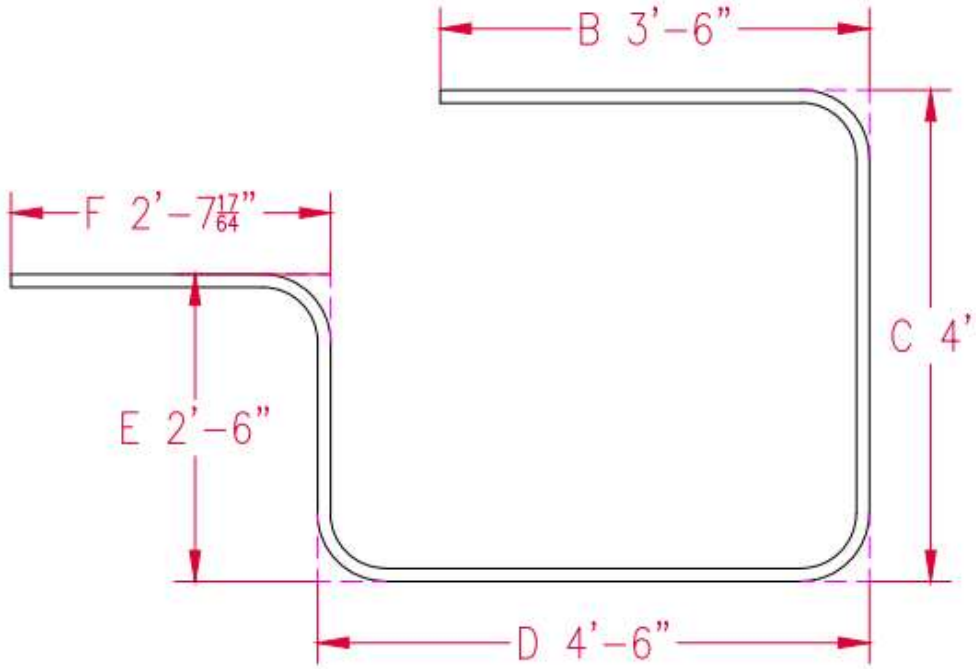




New Name : 136

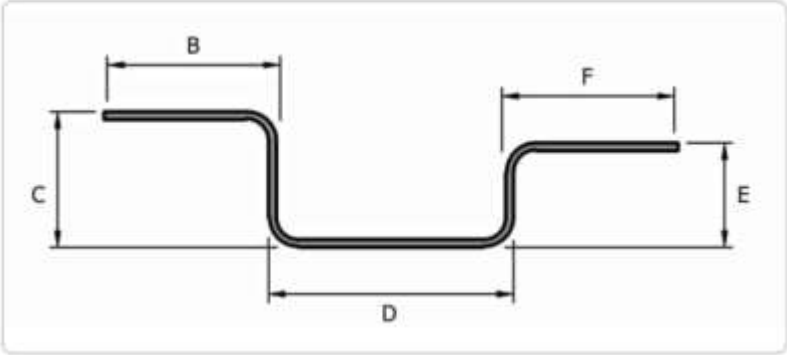
Old Name : 36

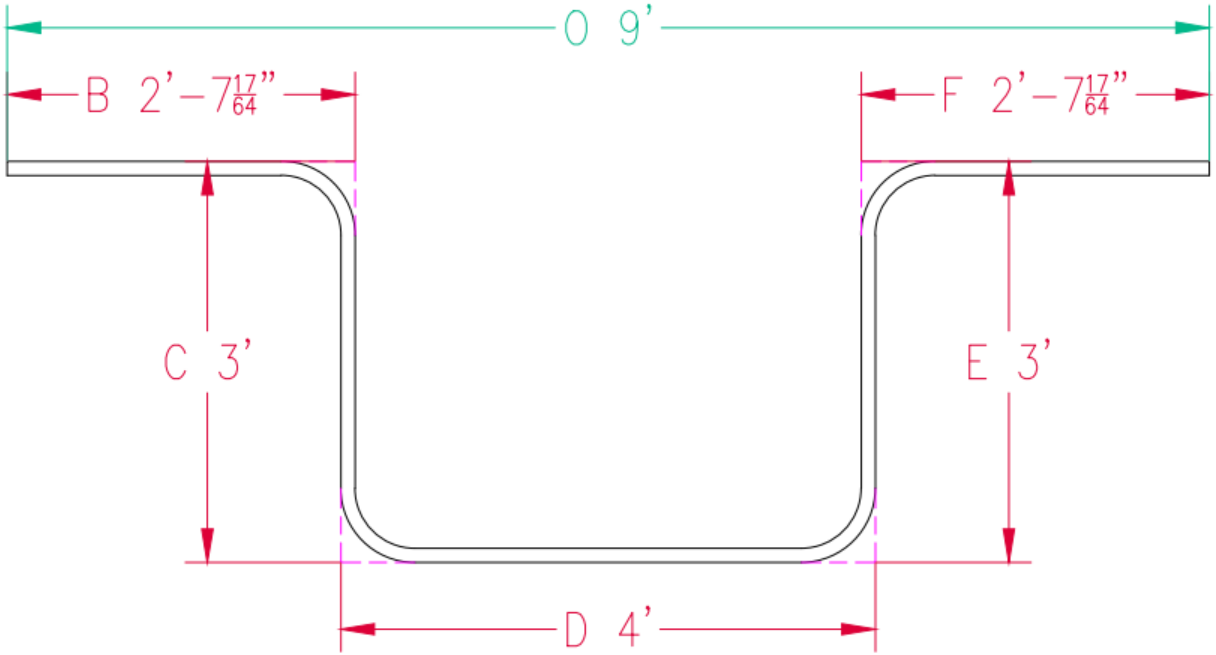




New Name : 137

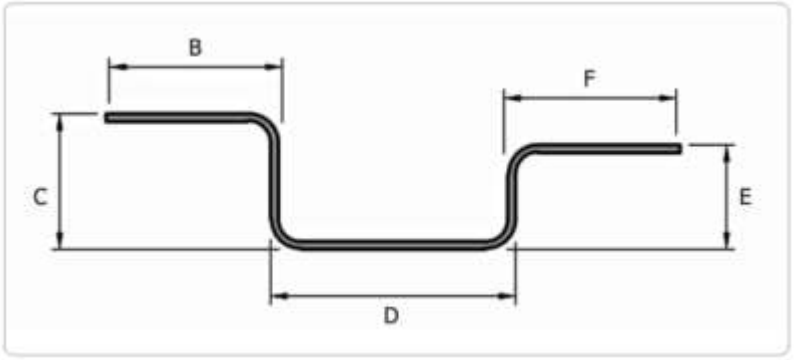
Old Name : 37

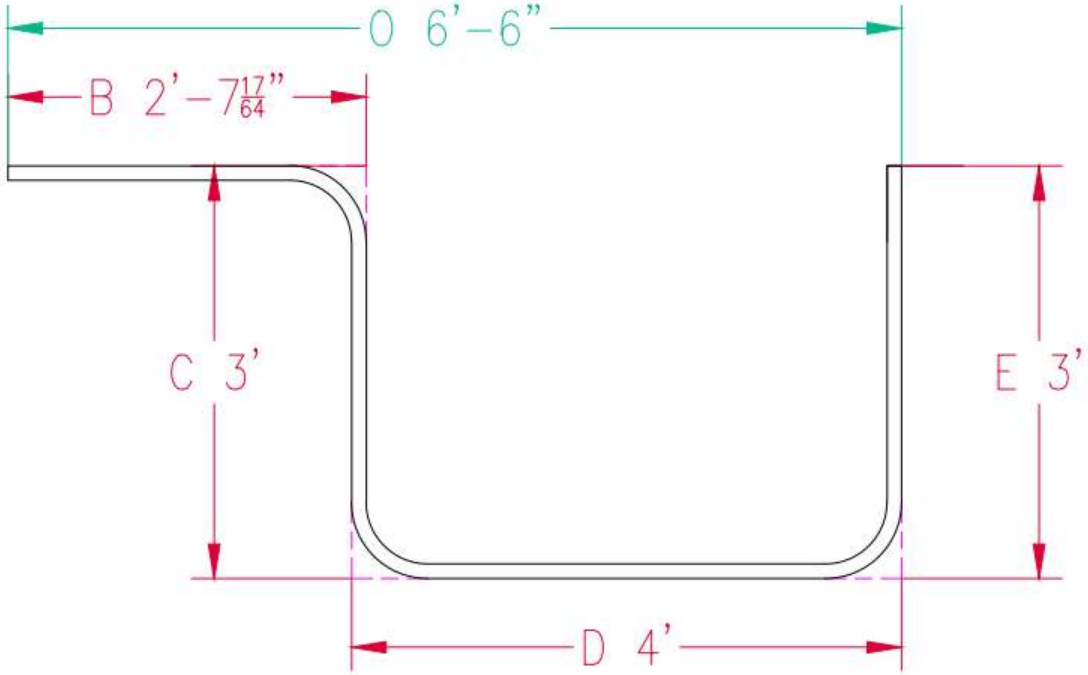




New Name : 137a

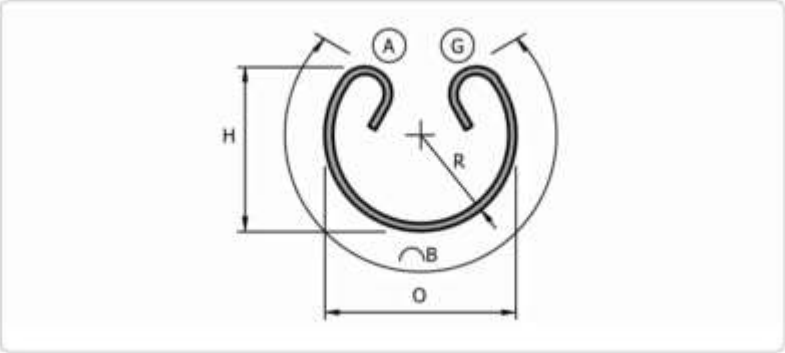
Old Name : 37a

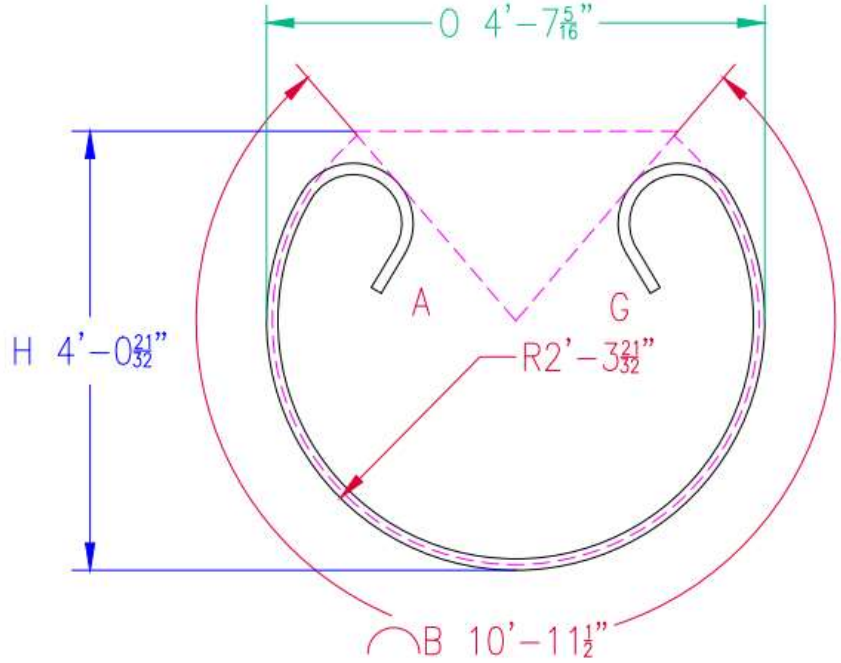




New Name : 138

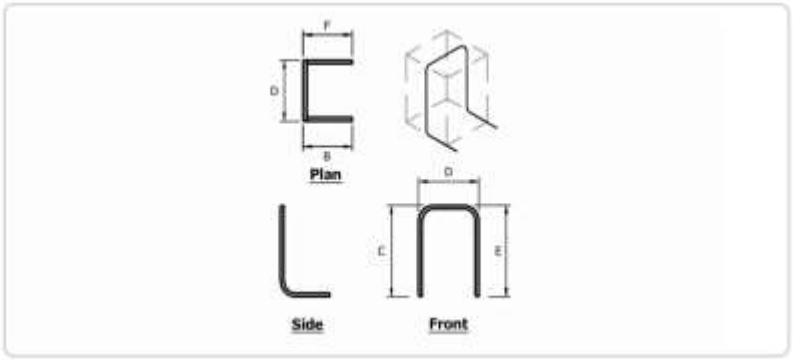
Old Name : 38

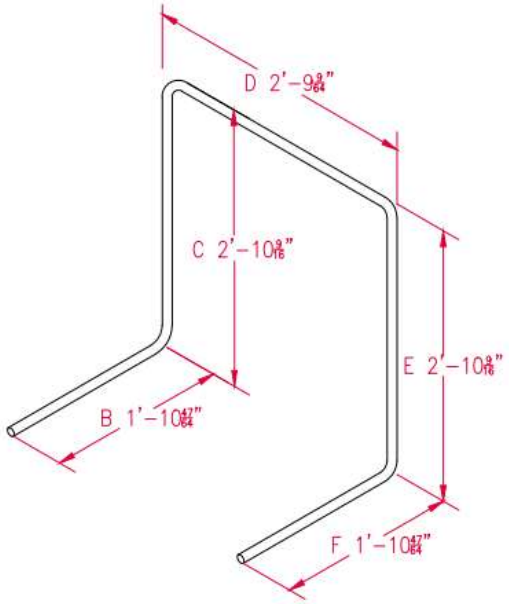




New Name : 139

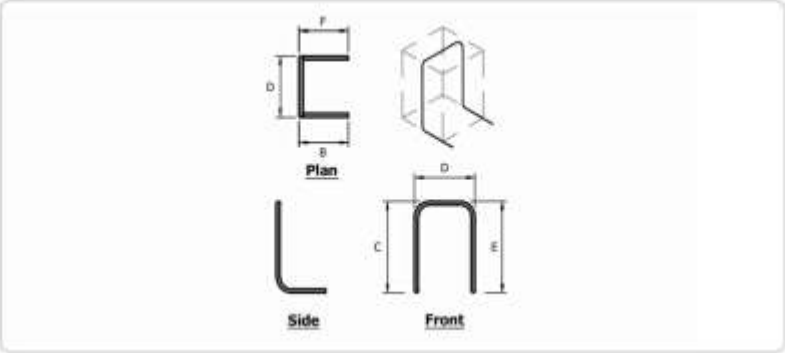
Old Name : 39

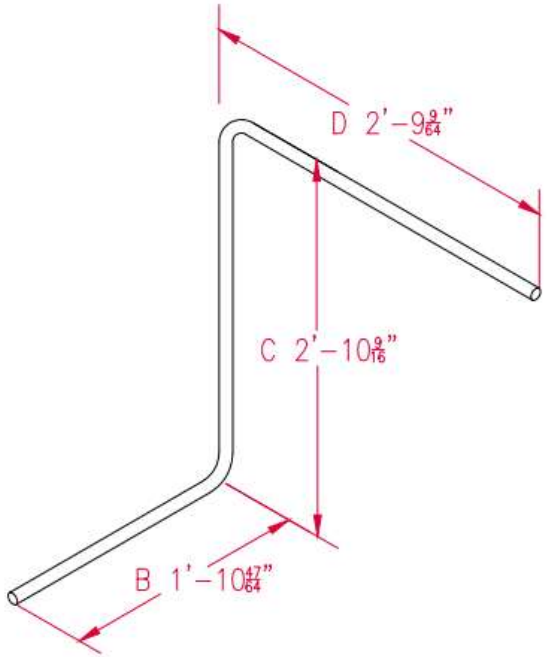




New Name : 139a

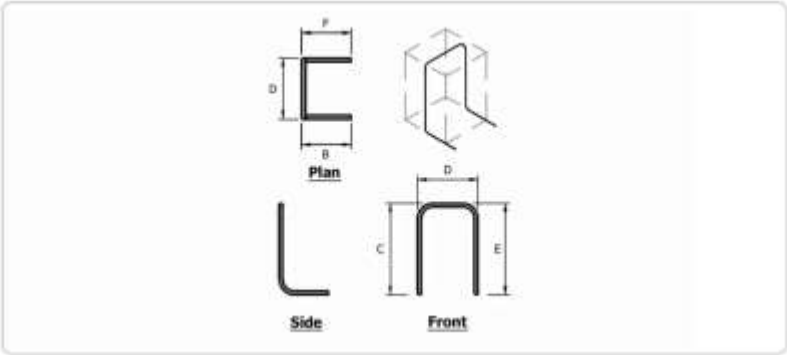
Old Name : 39a

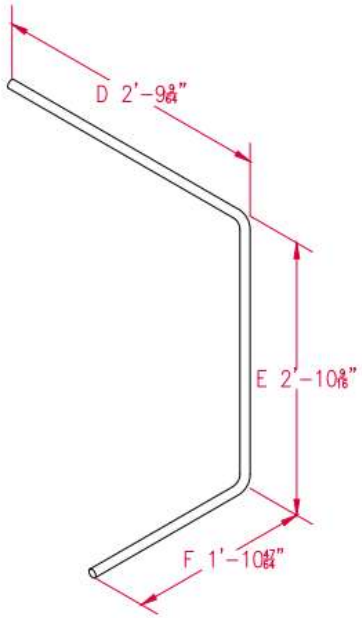




New Name : 139b

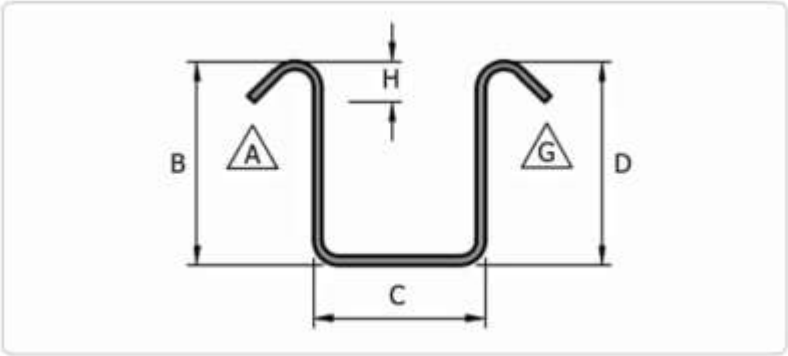
Old Name : 39b

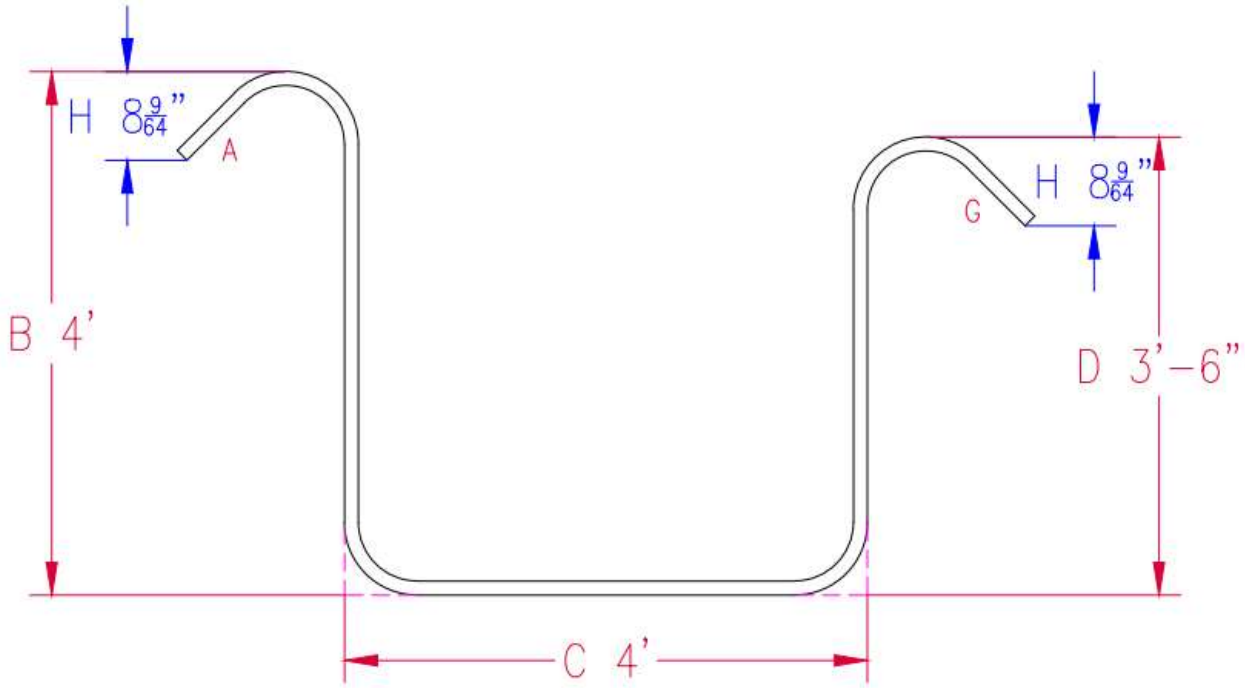




New Name : 201

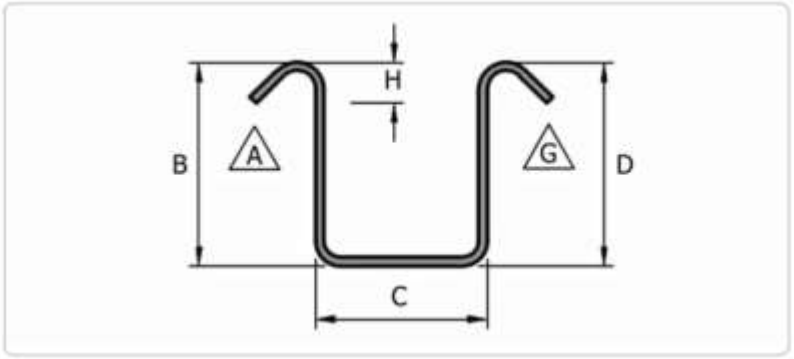
Old Name : S1

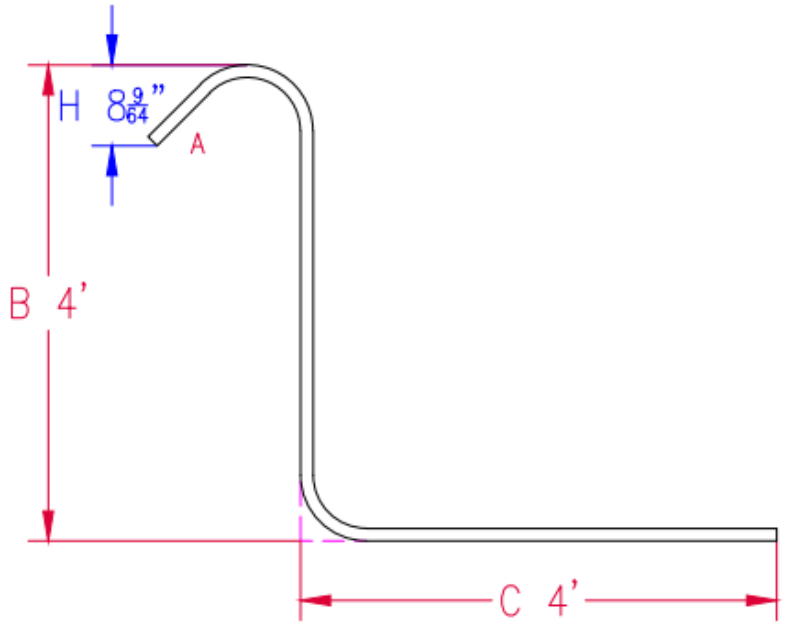




New Name : 201a

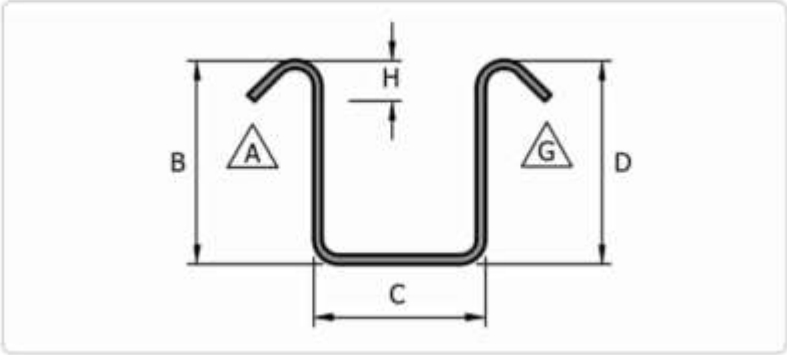
Old Name : S1a

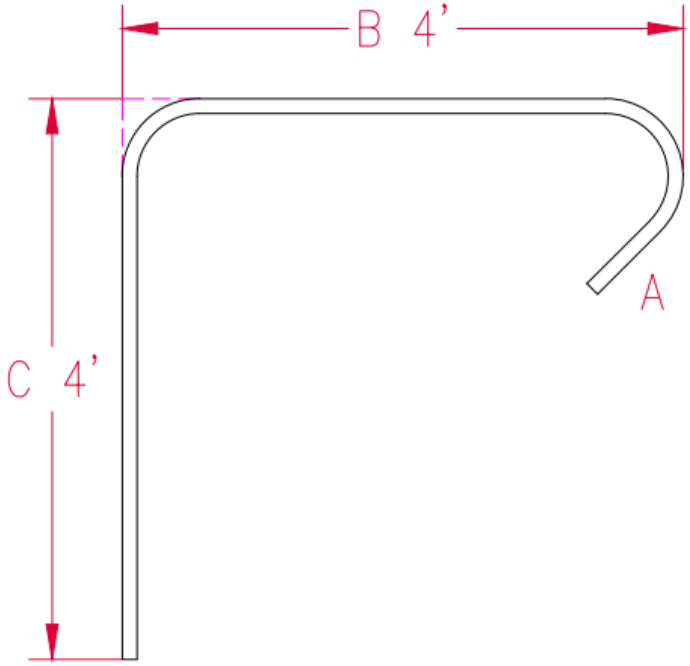




New Name : 201b

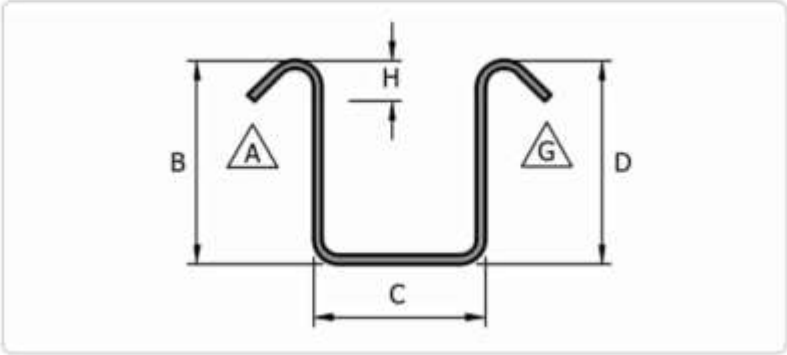
Old Name : S1b

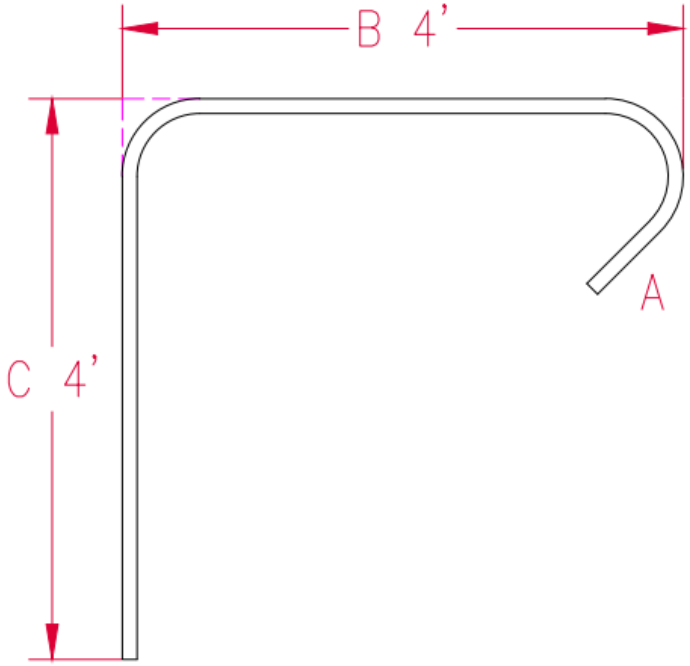




New Name : 201b

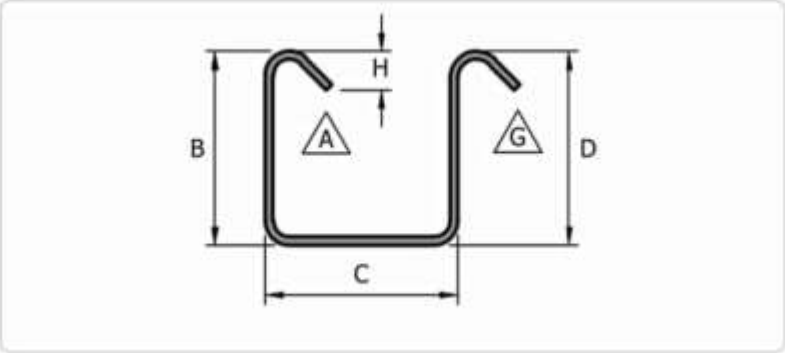
Old Name : S1b

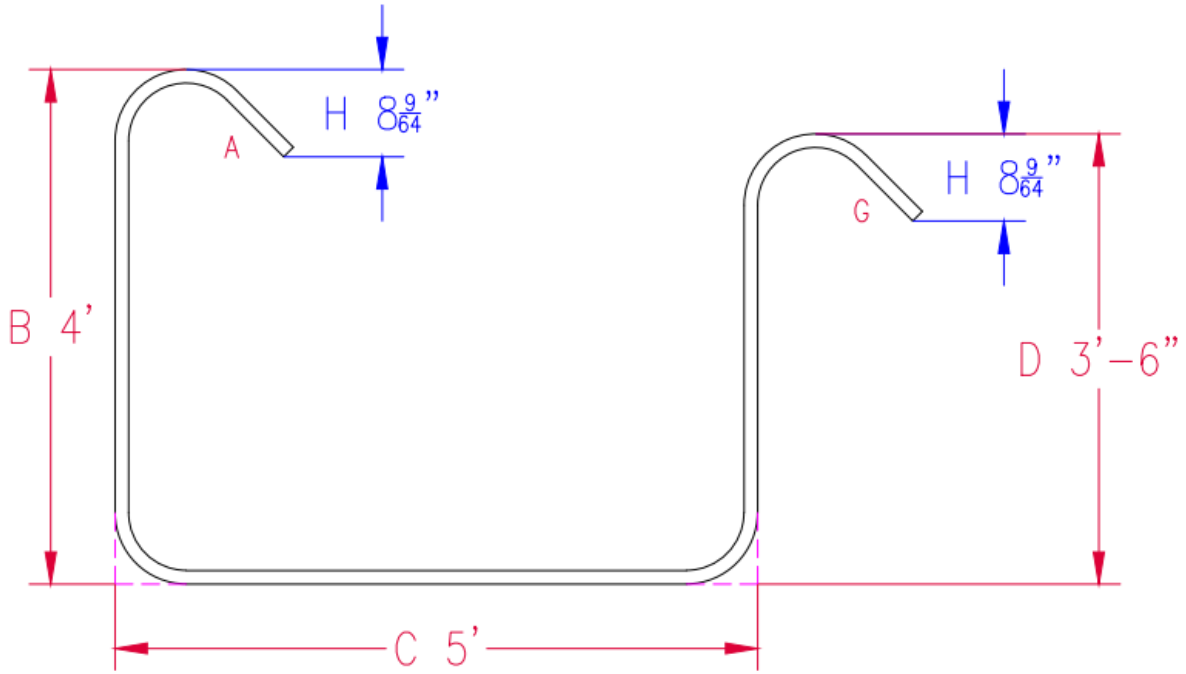




New Name : 202

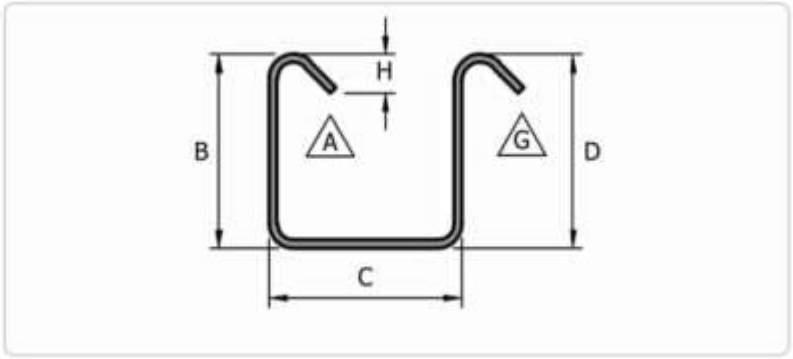
Old Name : S2

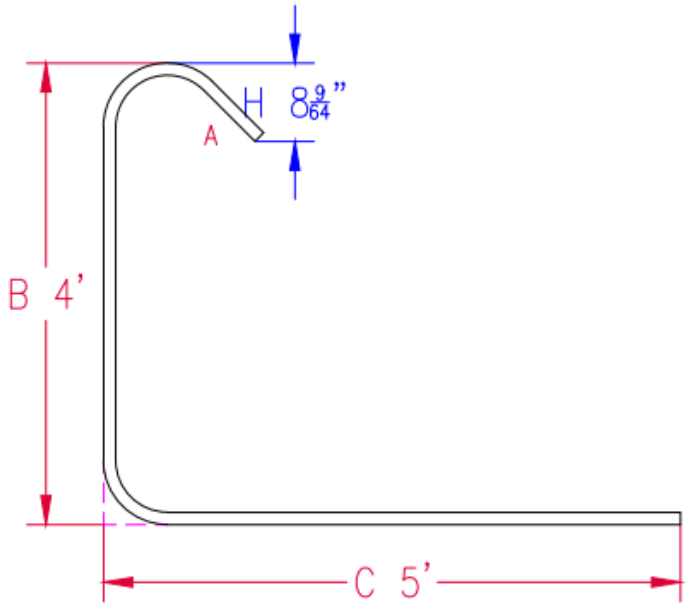




New Name : 202a

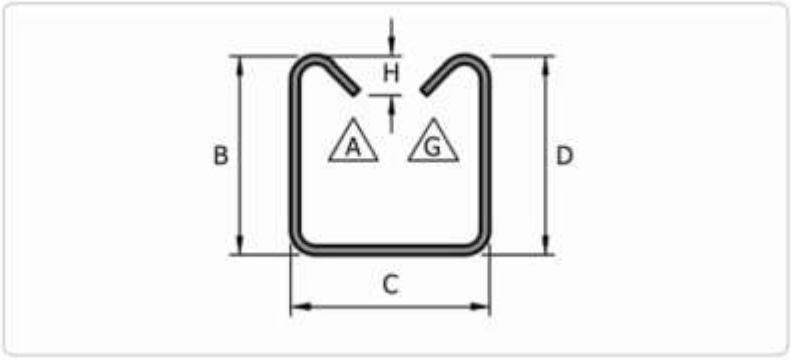
Old Name : S2a

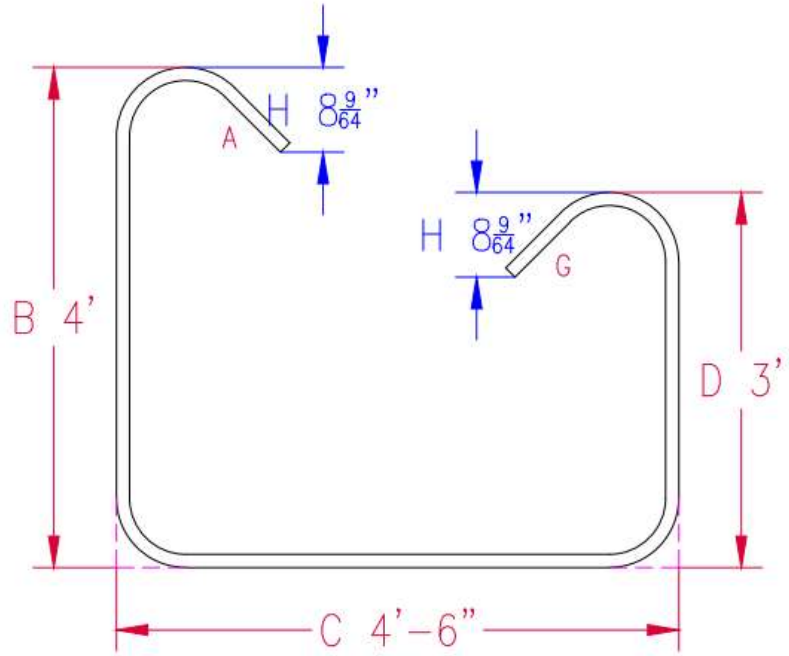




New Name : 203

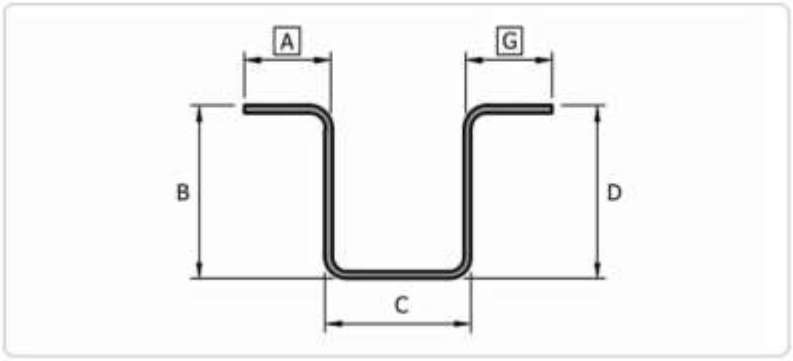
Old Name : S3

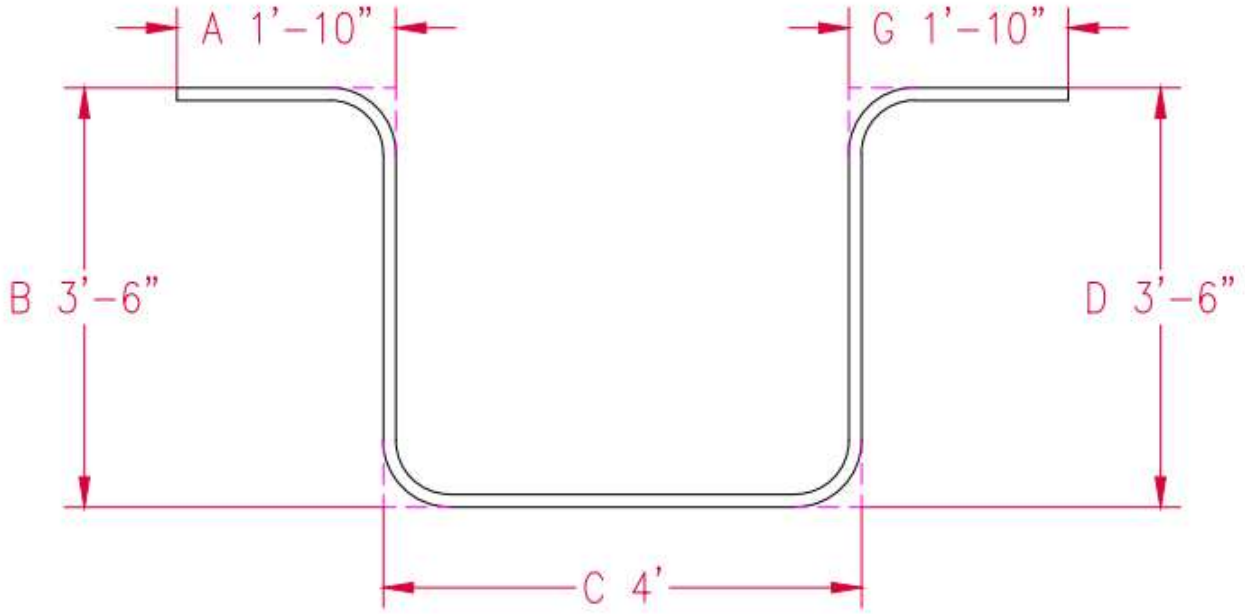




New Name : 204

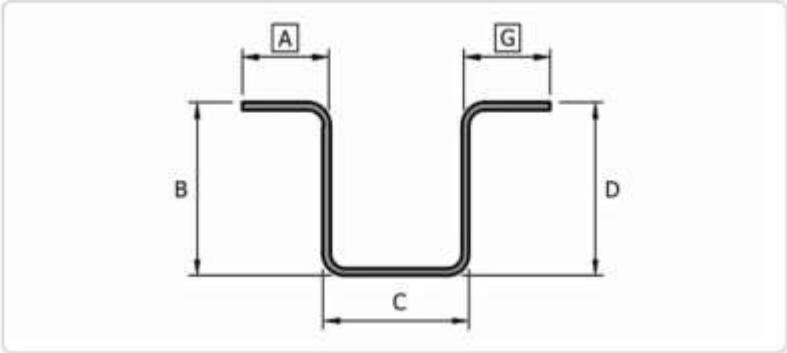
Old Name : S4

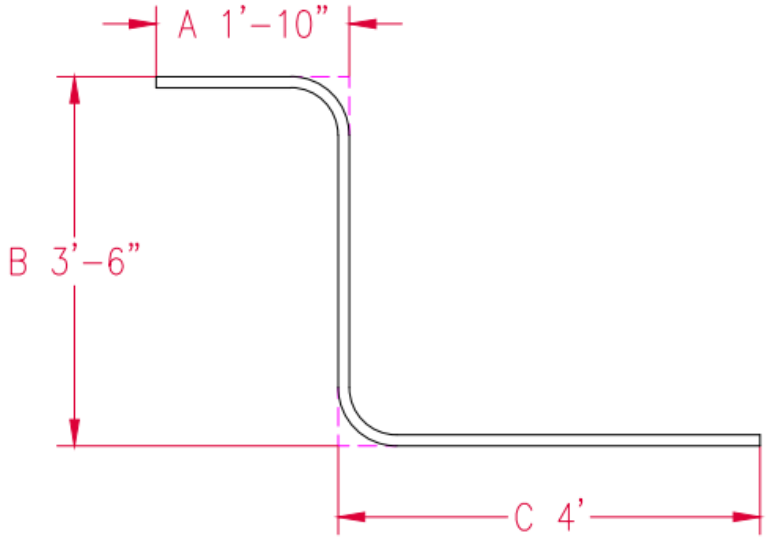




New Name : 204a

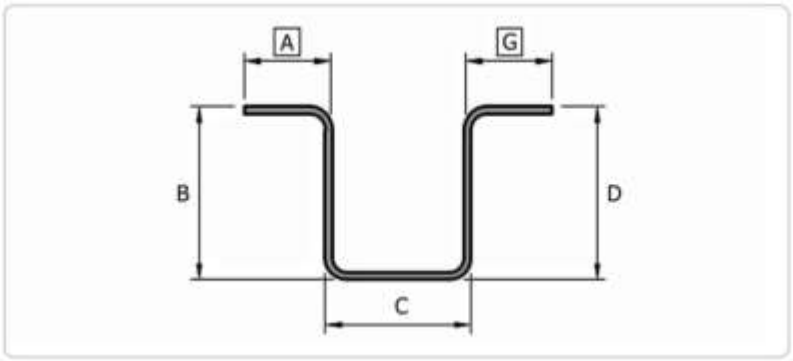
Old Name : S4a

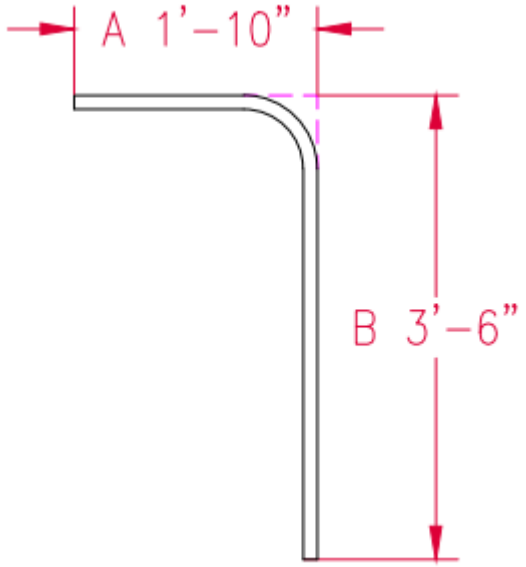




New Name : 204b

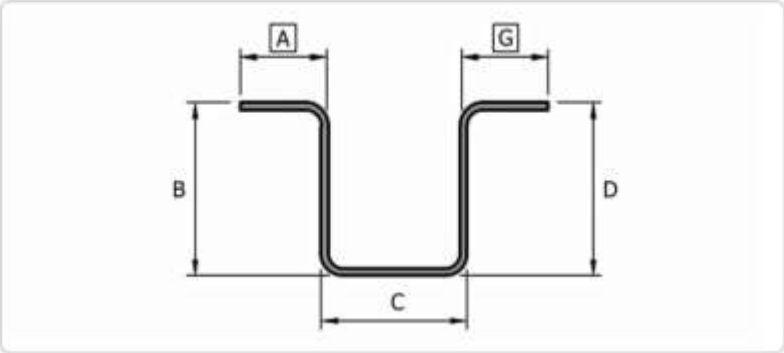
Old Name : S4b

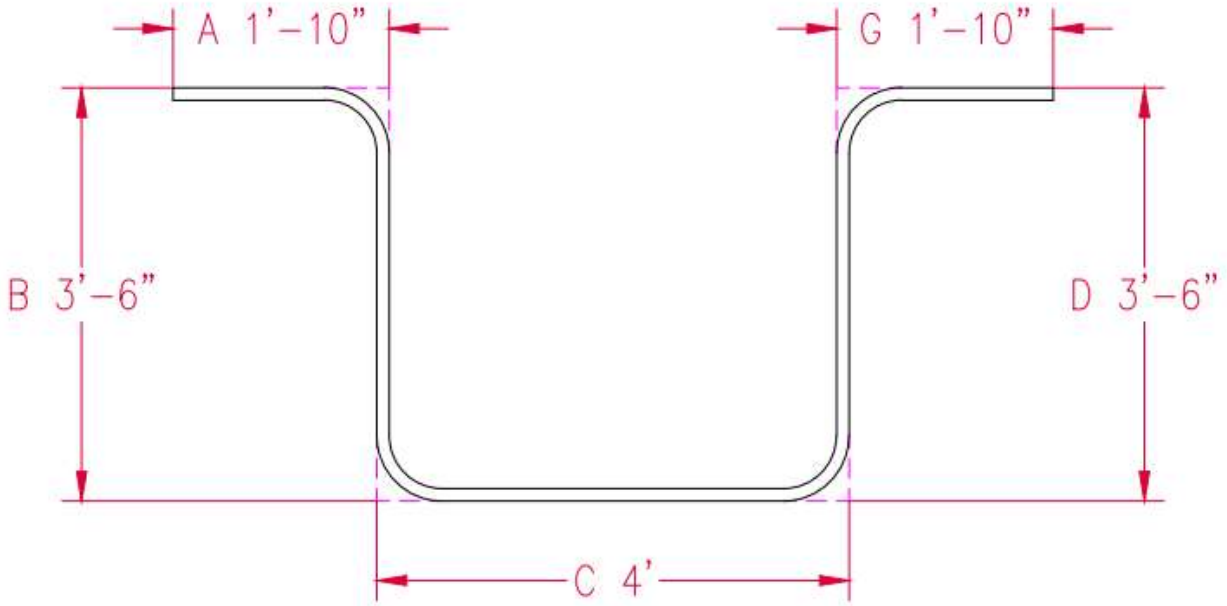




New Name : 204x

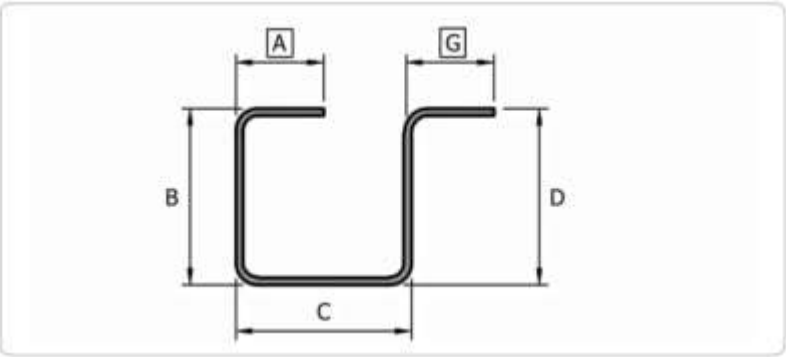
Old Name : S4x

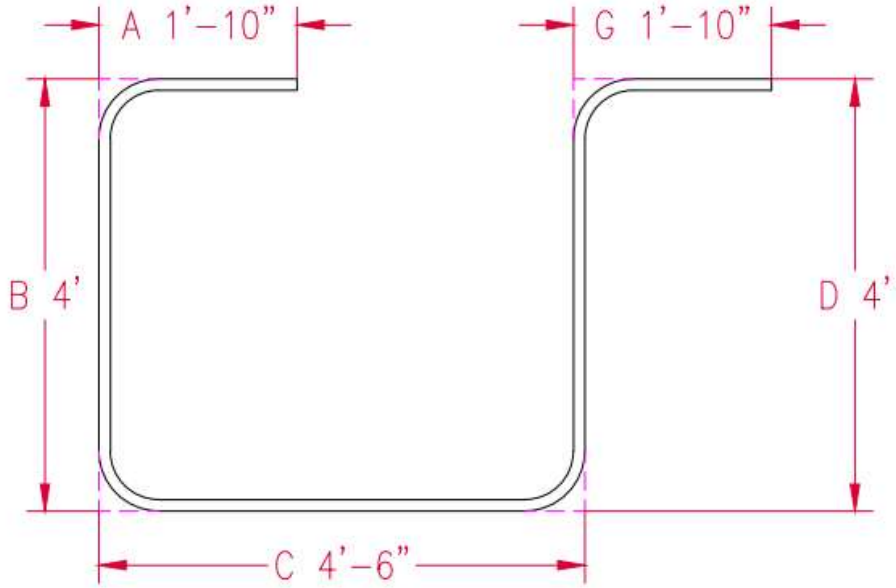




New Name : 205

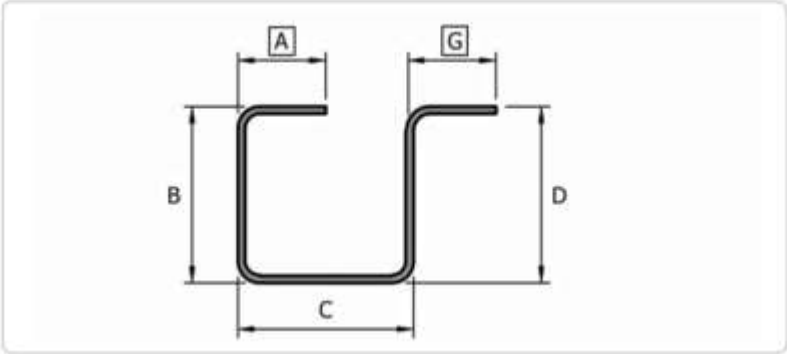
Old Name : S5

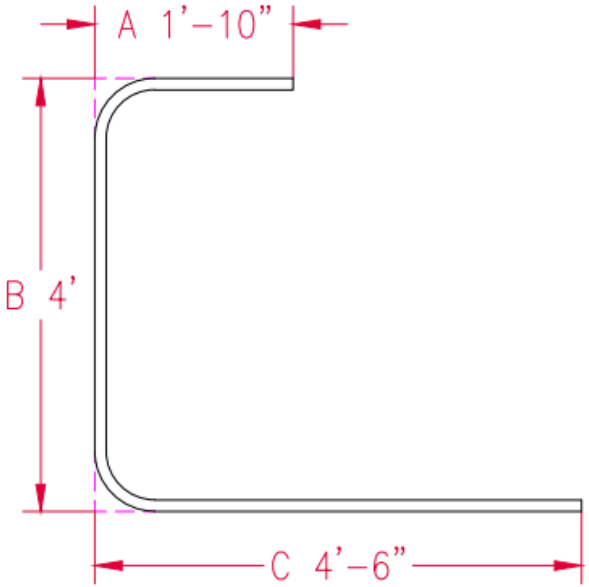




New Name : 205a

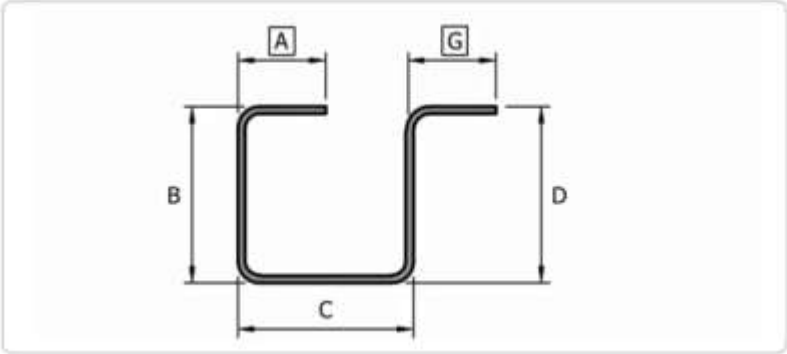
Old Name : S5a

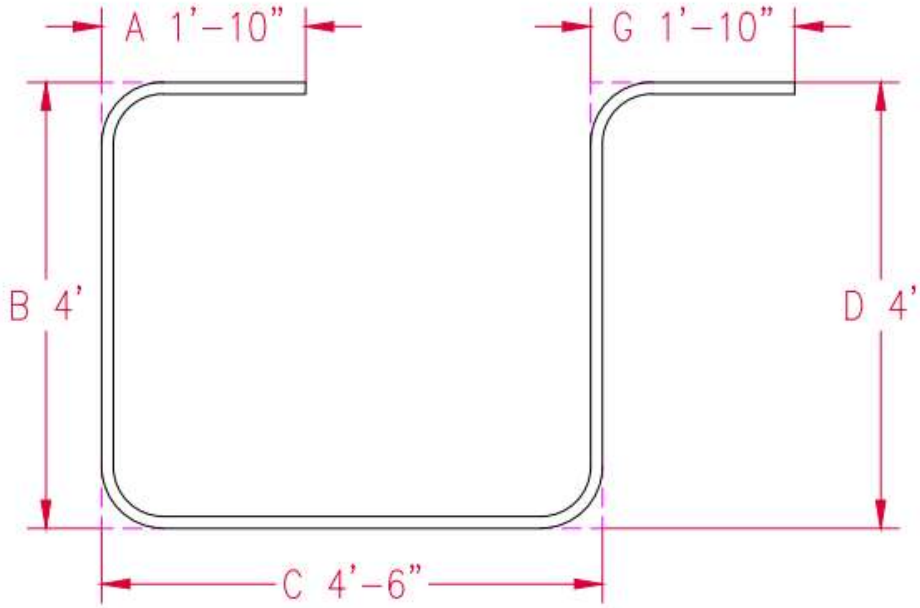




New Name : 205x

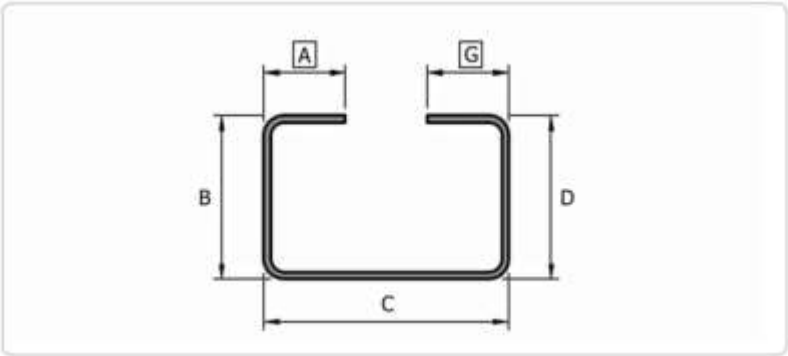
Old Name : S5x

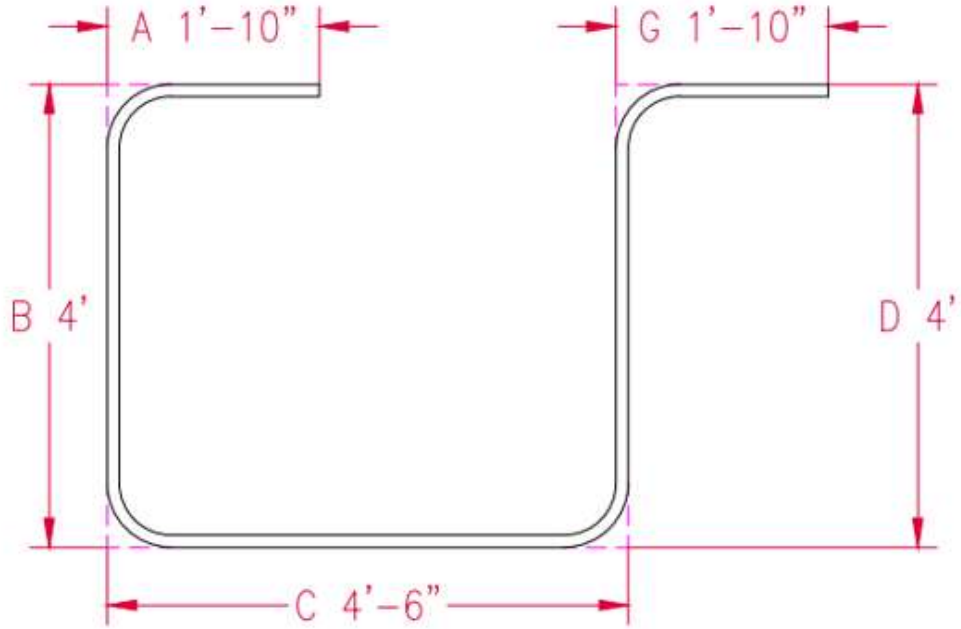




New Name : 206

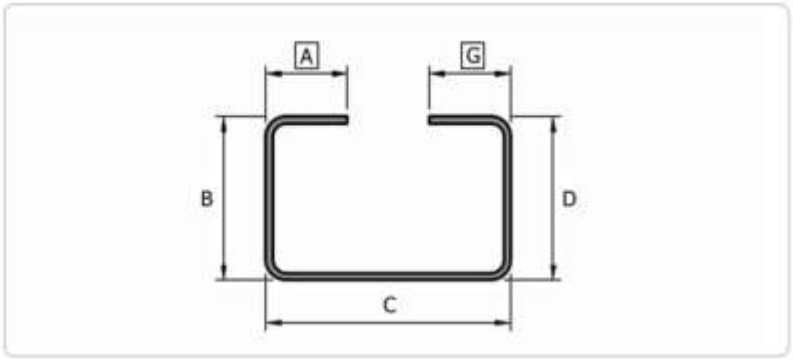
Old Name : S6

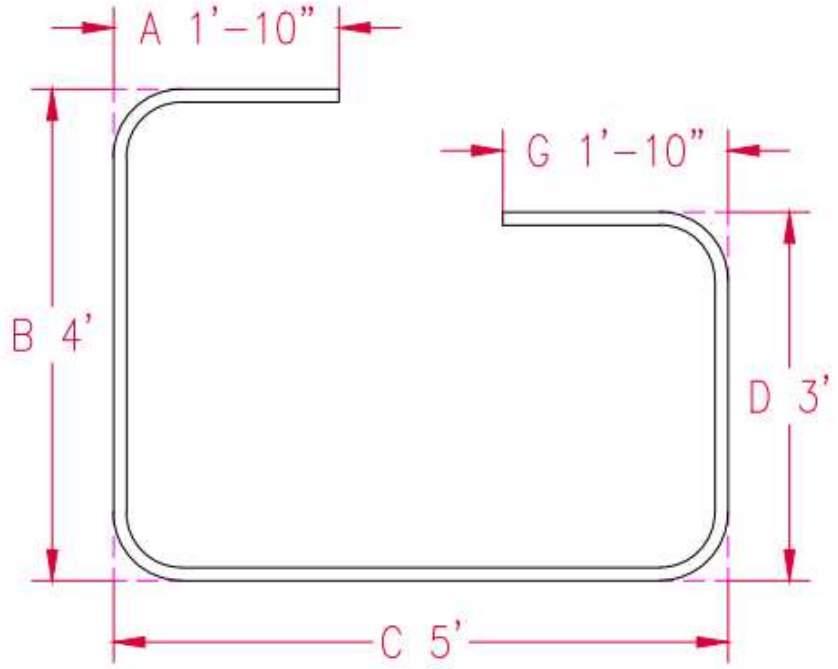




New Name : 206x

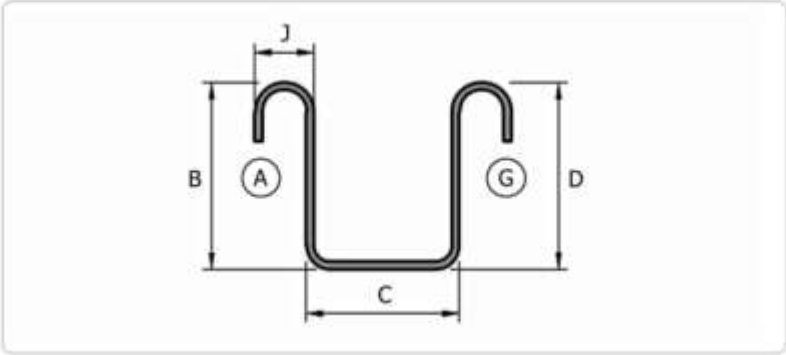
Old Name : S6x

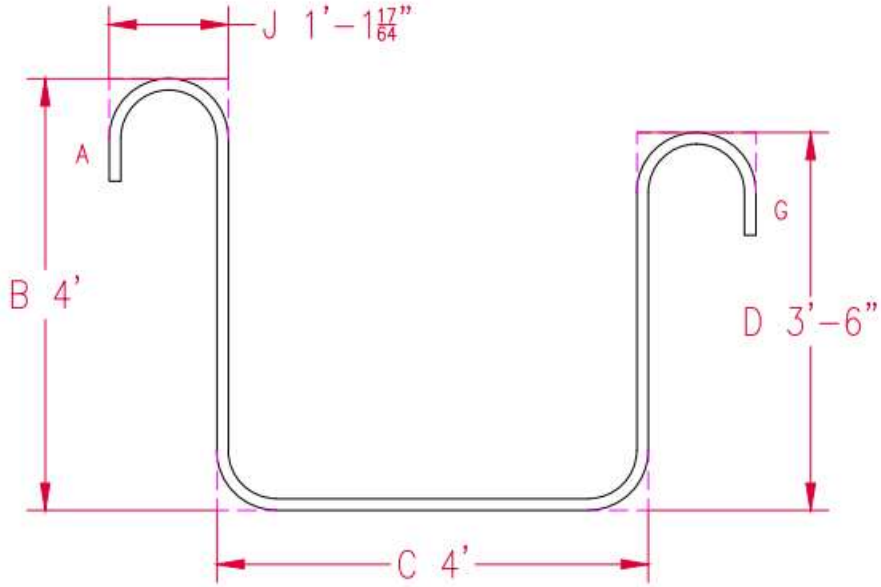




New Name : 207

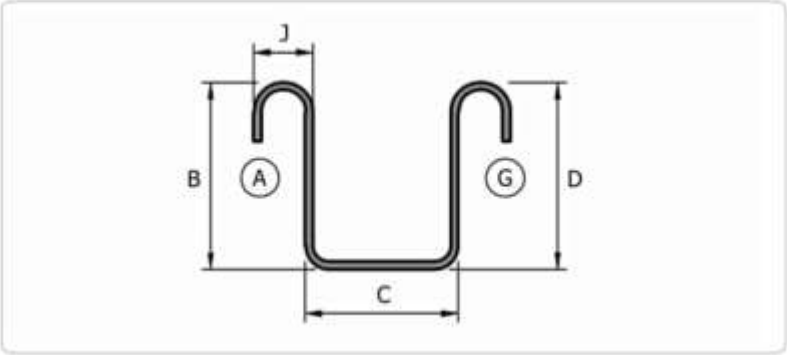
Old Name : S7

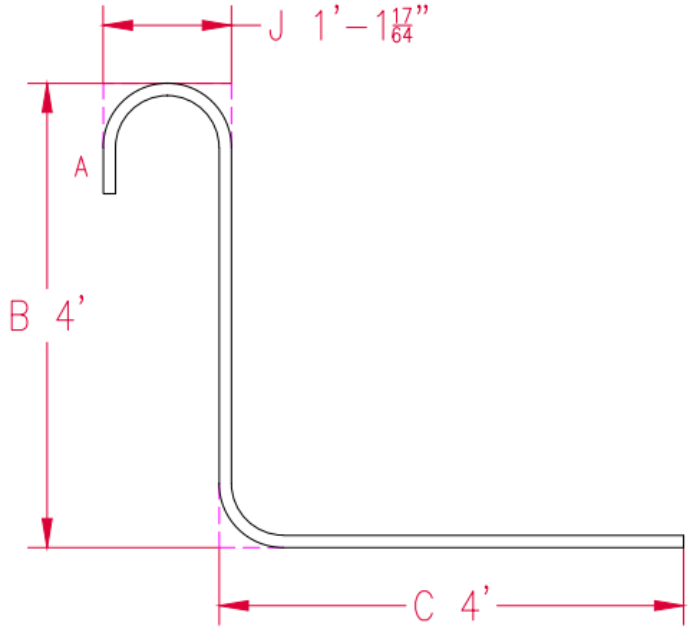




New Name : 207a

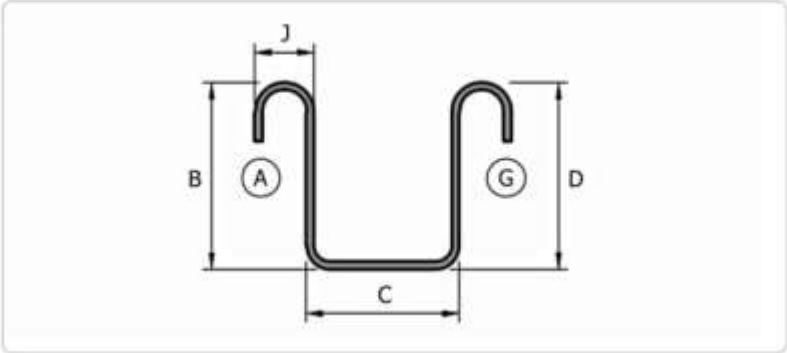
Old Name : S7a

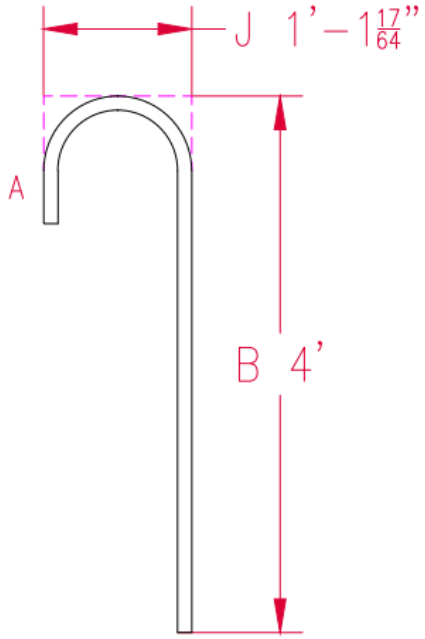




New Name : 207b

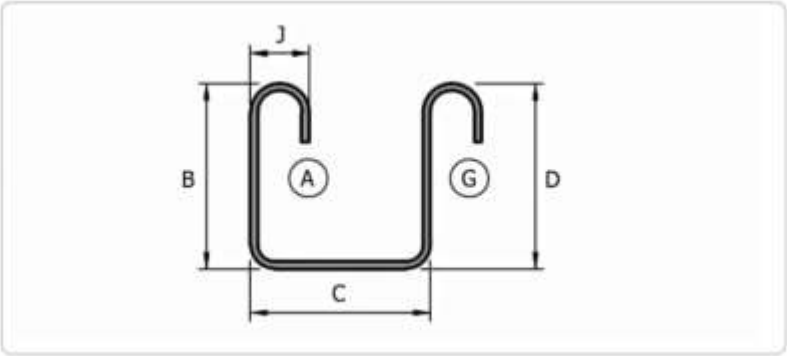
Old Name : S7b

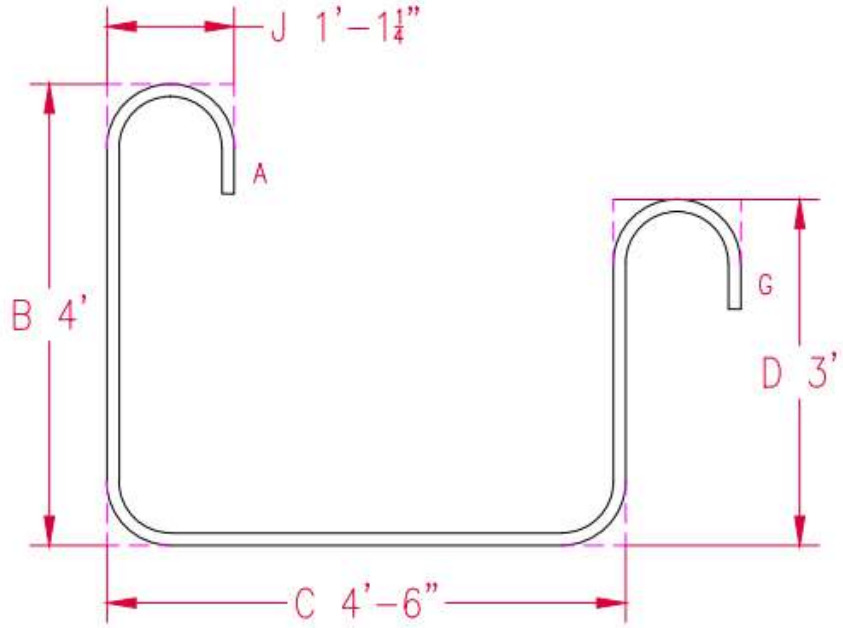




New Name : 208

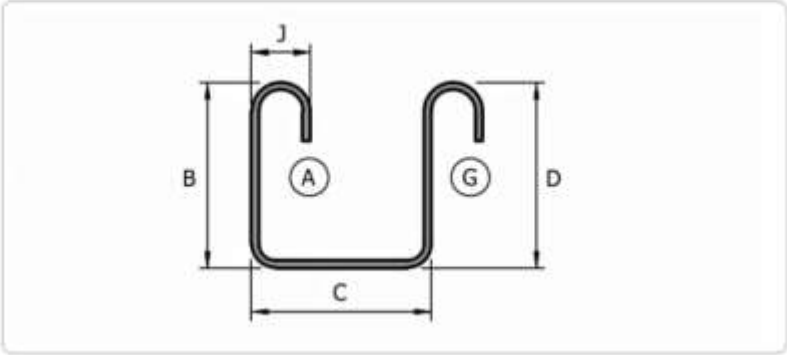
Old Name : S8

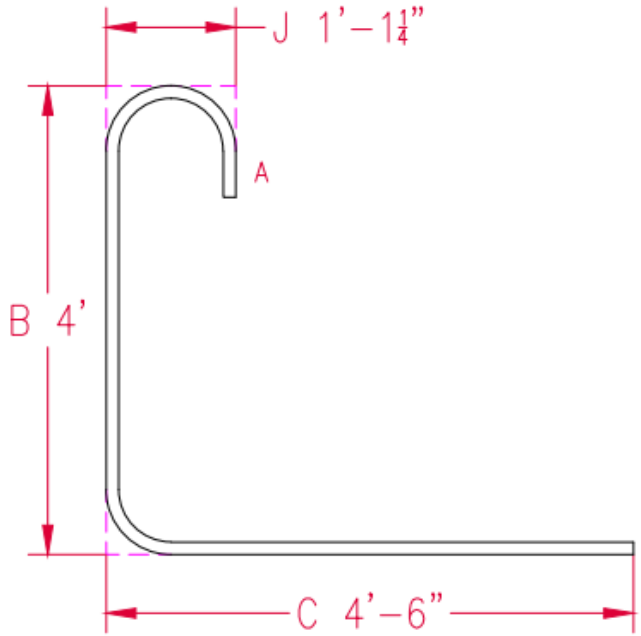




New Name : 208a

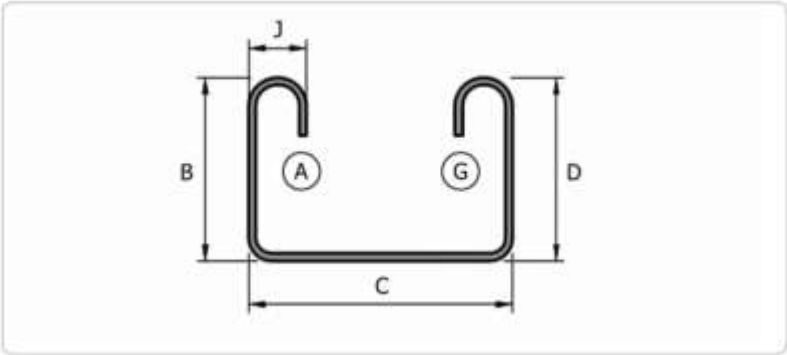
Old Name : S8a

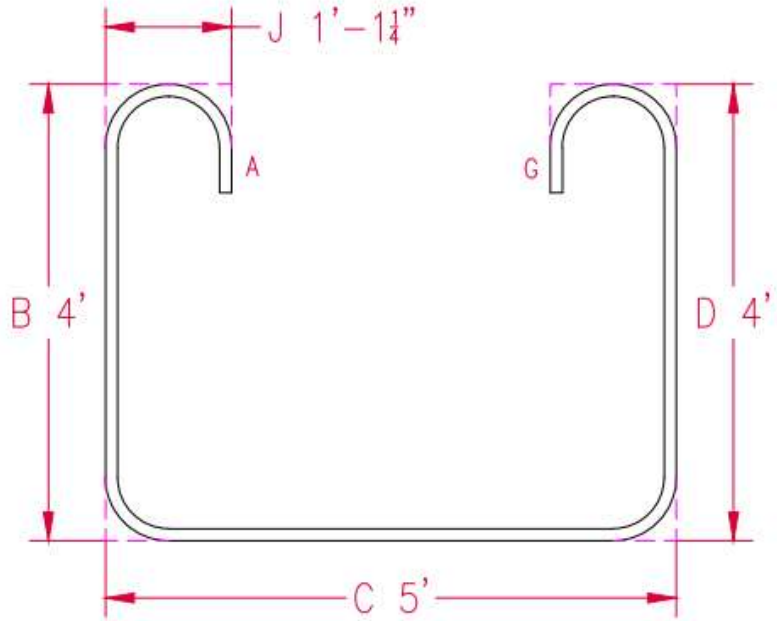




New Name : 209

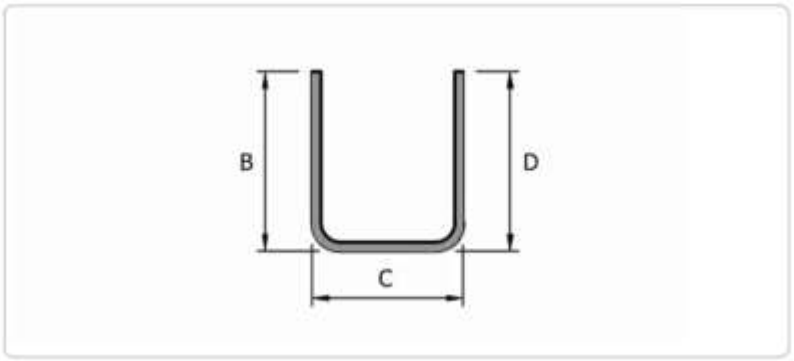
Old Name : S9

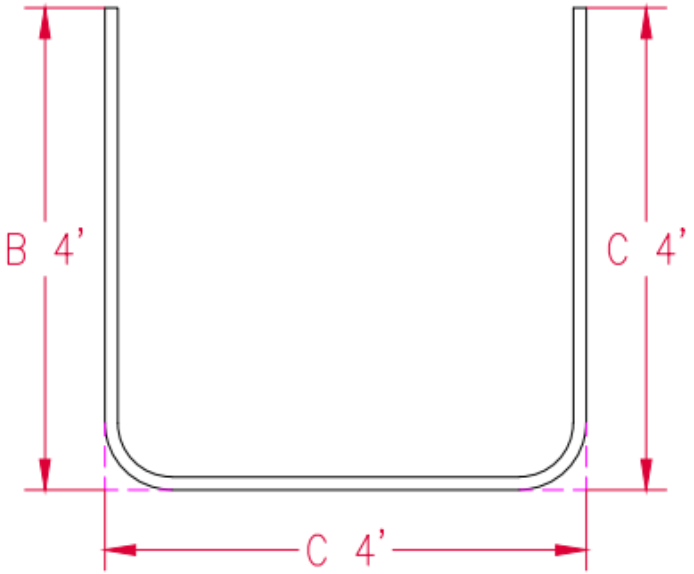




New Name : 210

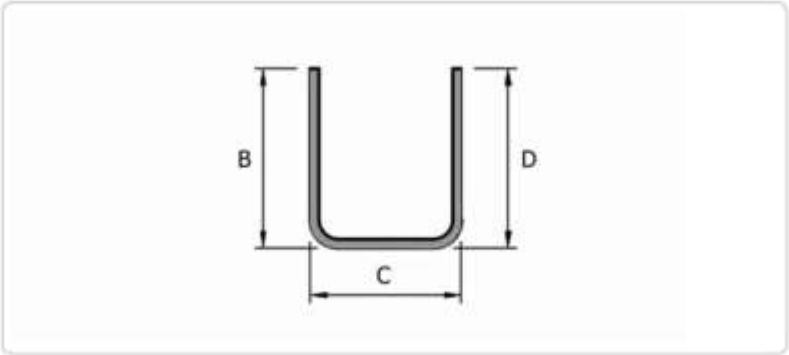
Old Name : S10

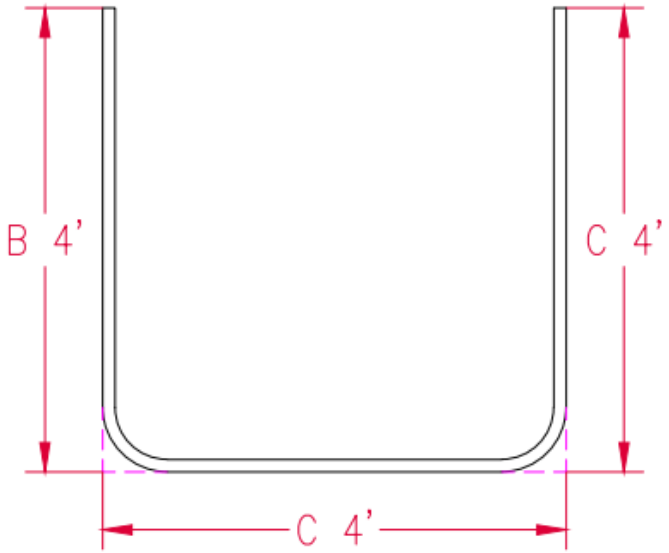




New Name : 210x

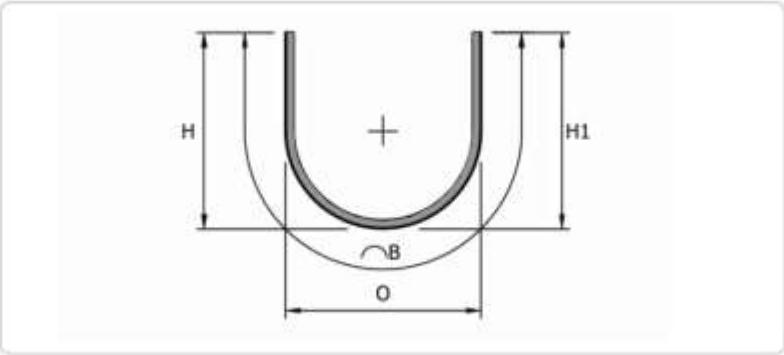
Old Name : S10x

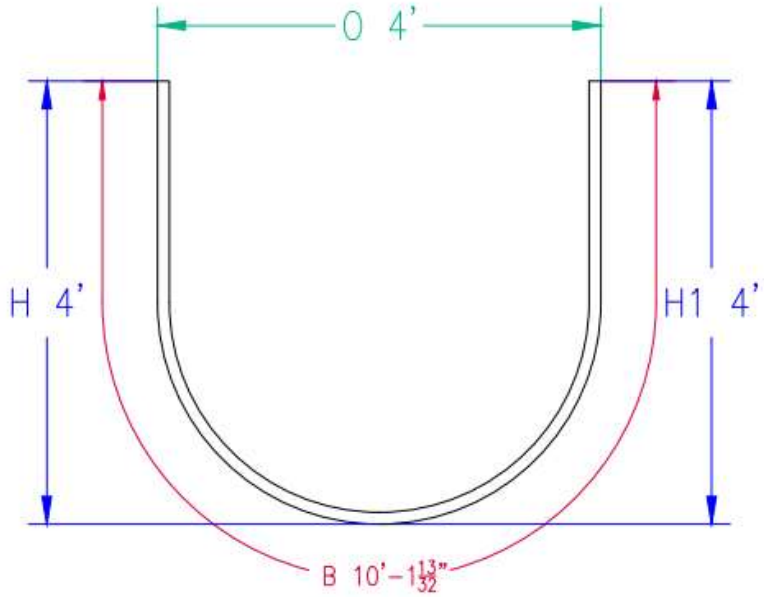




New Name : 211

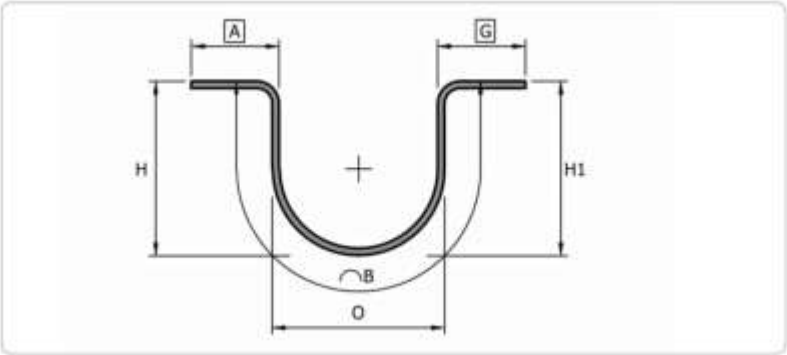
Old Name : S11

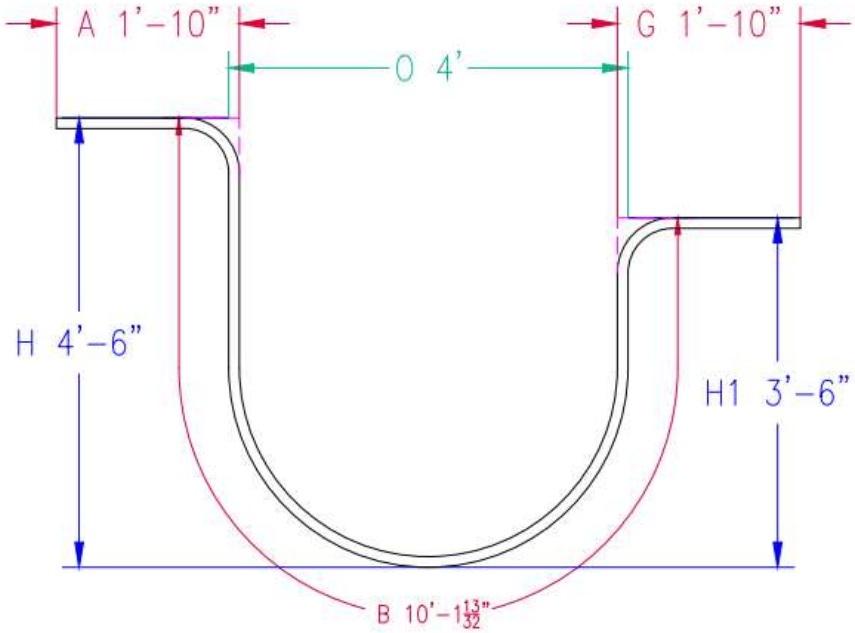




New Name : 212

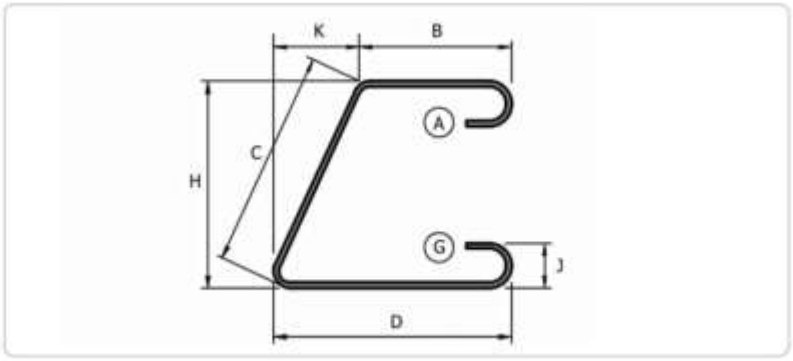
Old Name : S12

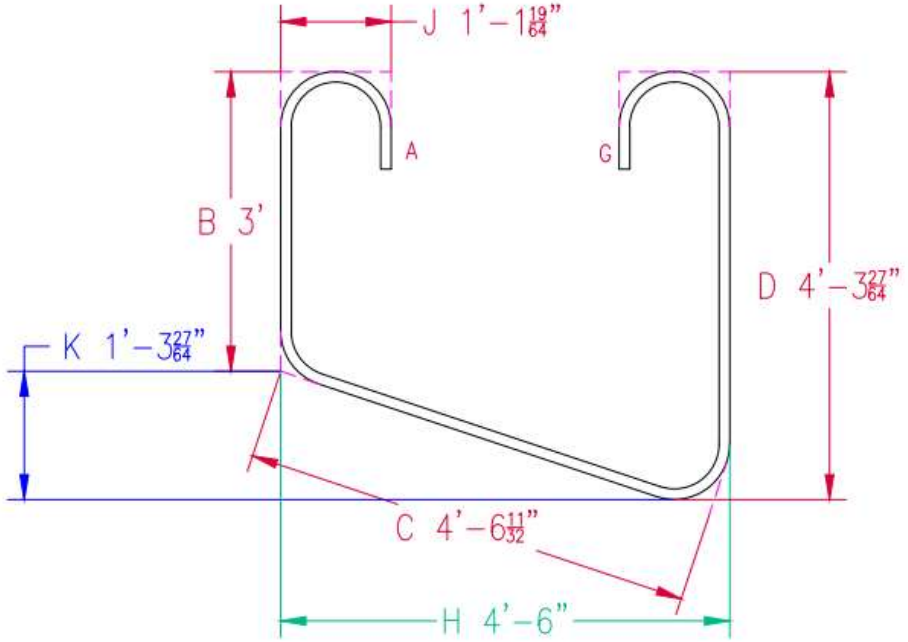




New Name : 213

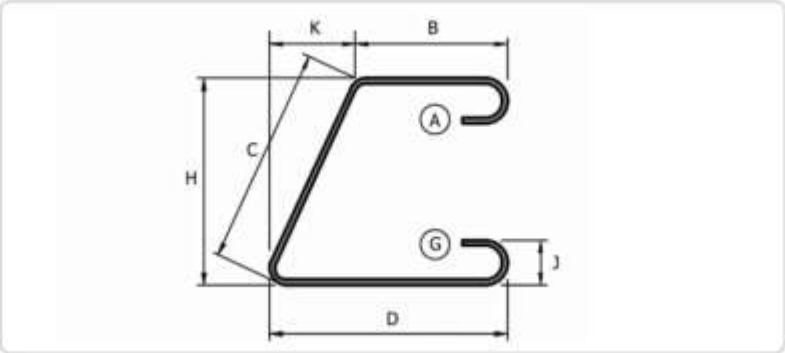
Old Name : S13

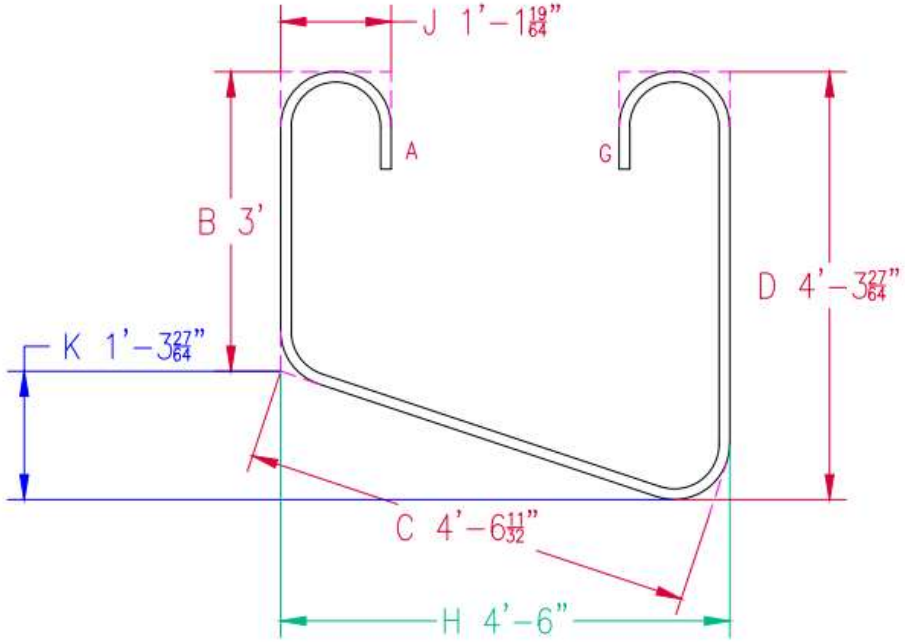




New Name : 213

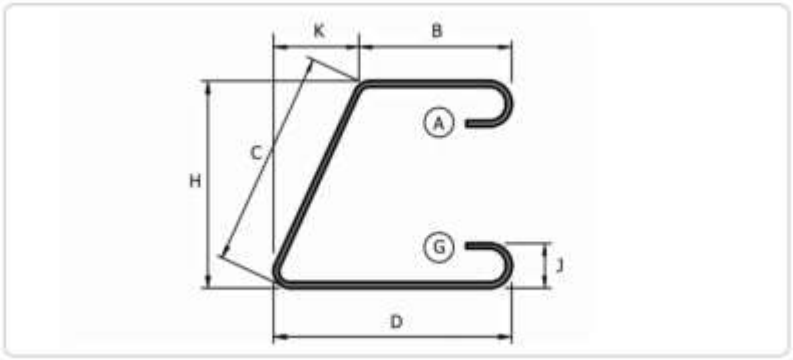
Old Name : S13

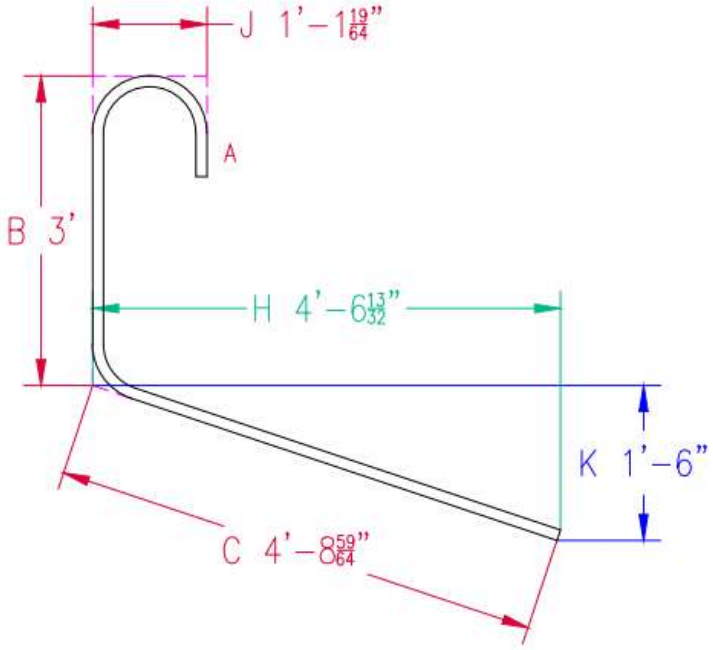




New Name : 213a

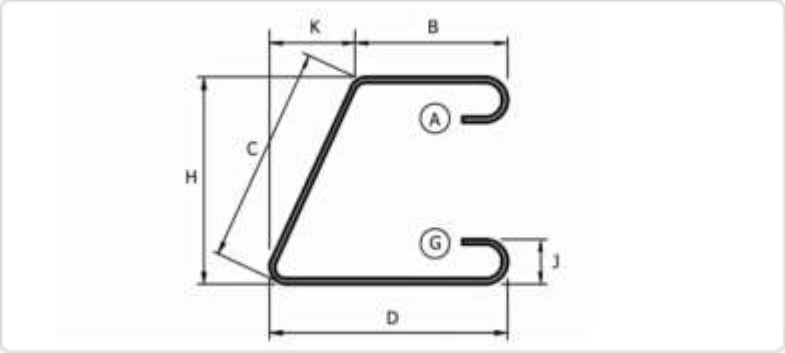
Old Name : S13a

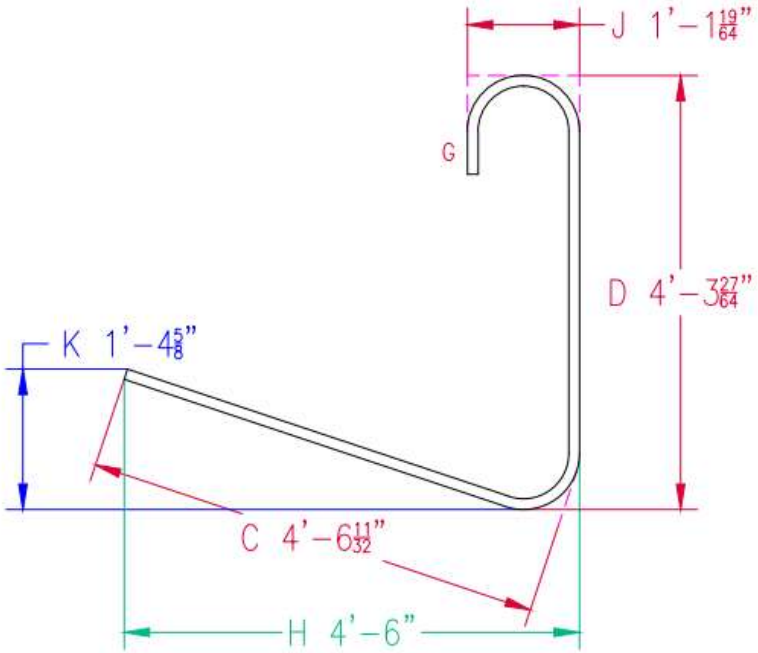




New Name : 213b

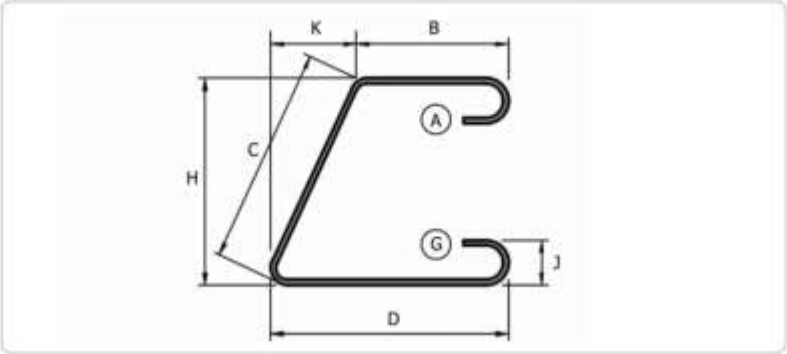
Old Name : S13b

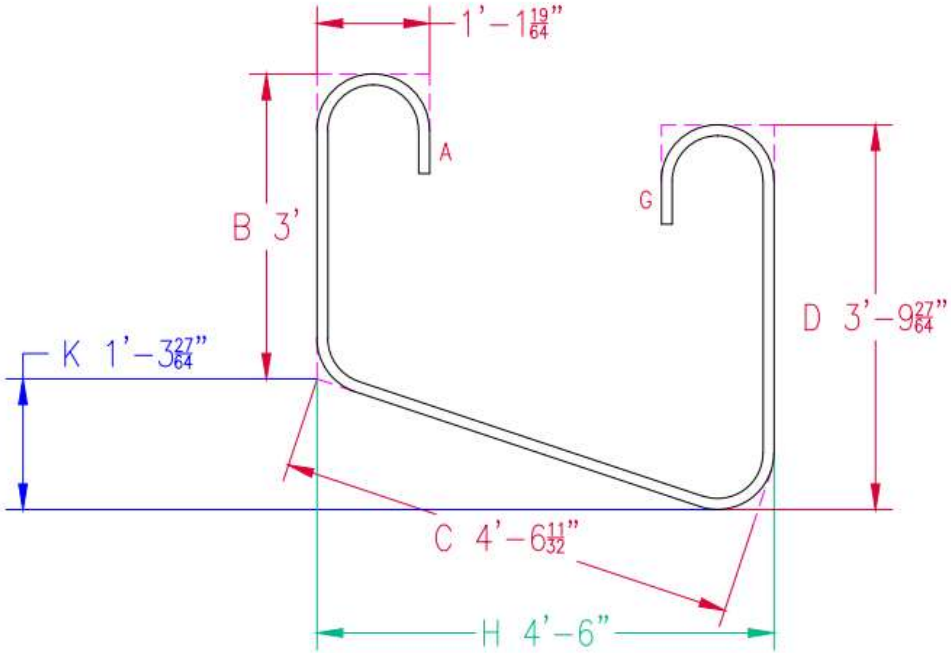




New Name : 213x

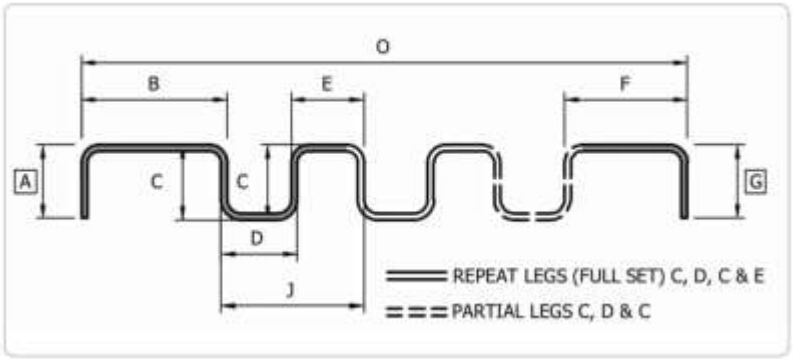
Old Name : S13x

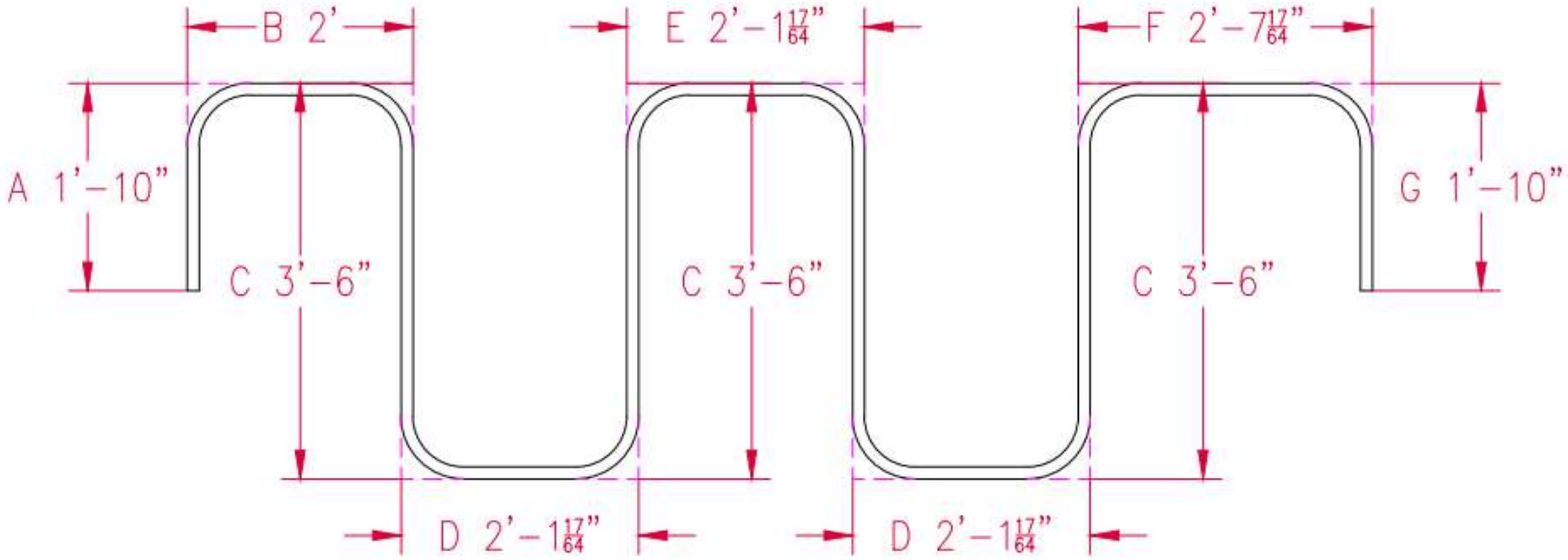




New Name : 214

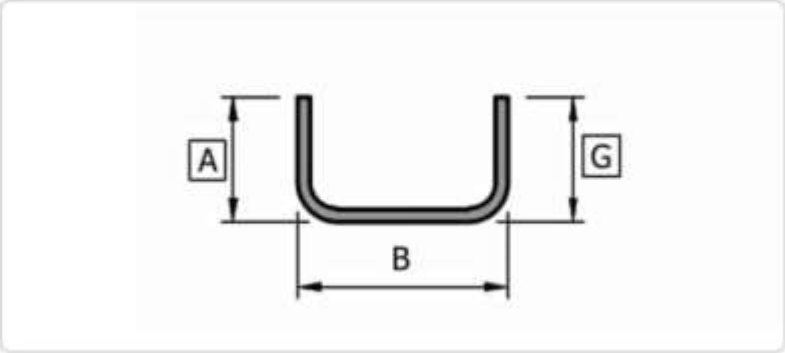
Old Name : S14





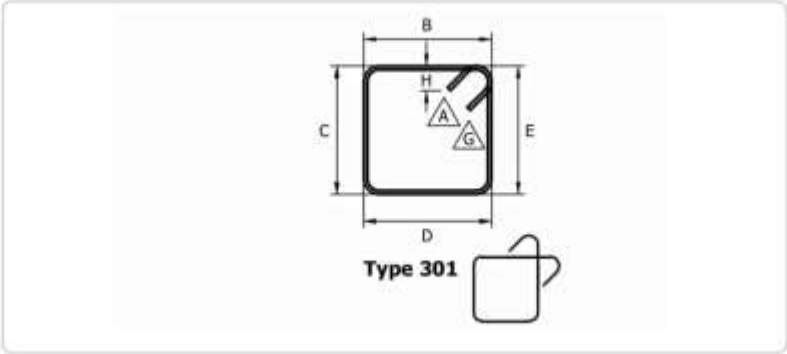
New Name : 215

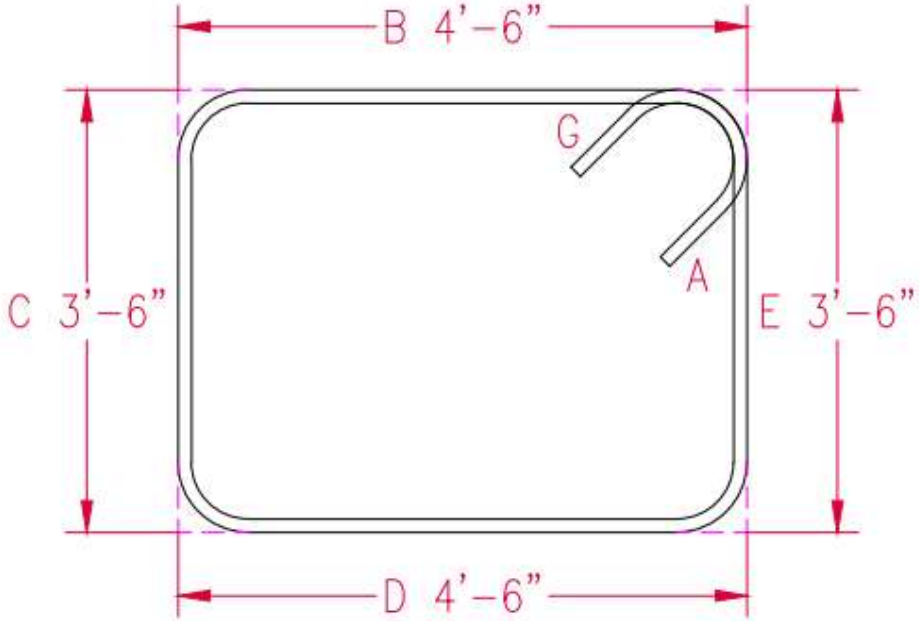
Old Name : S15



New Name : 301

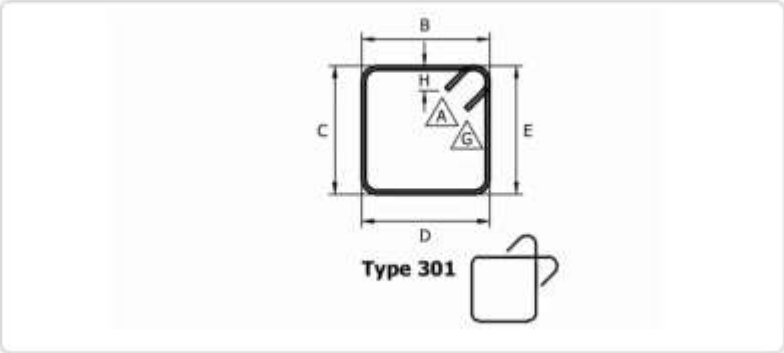
Old Name : T1

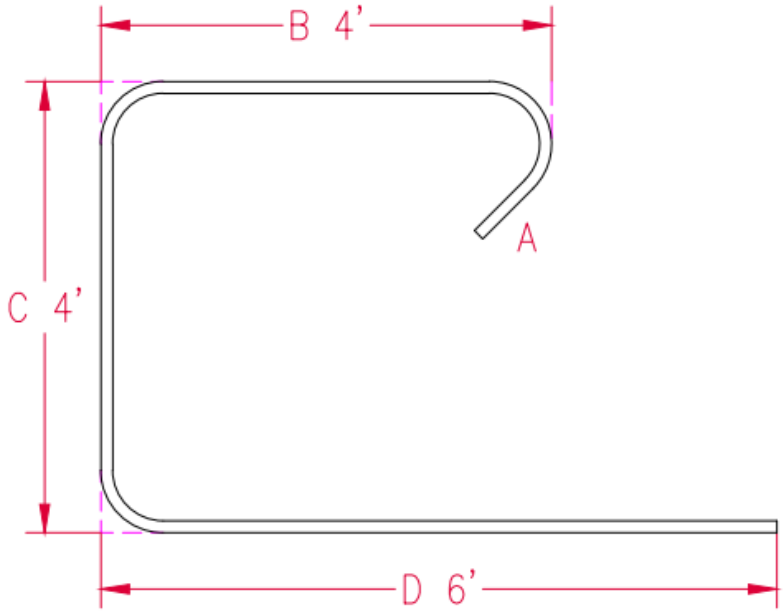




New Name : 301a

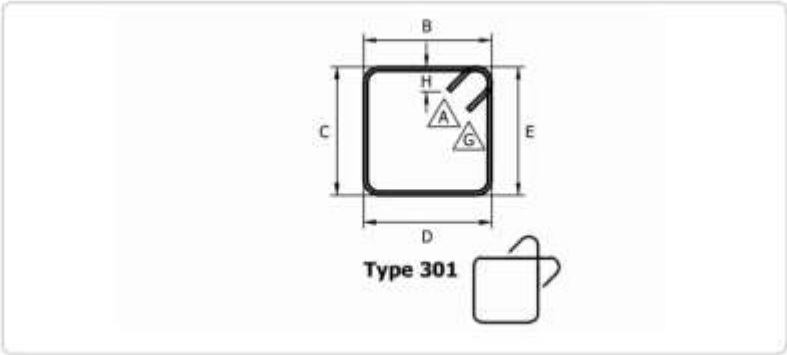
Old Name : T1a

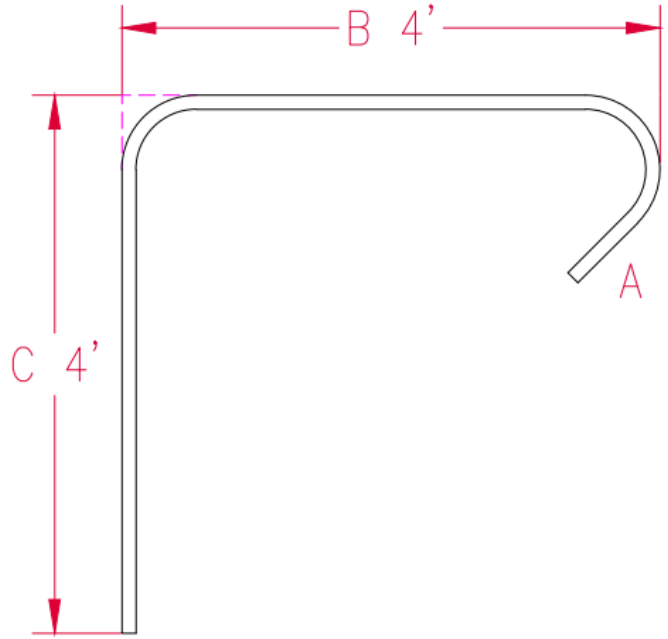




New Name : 301b

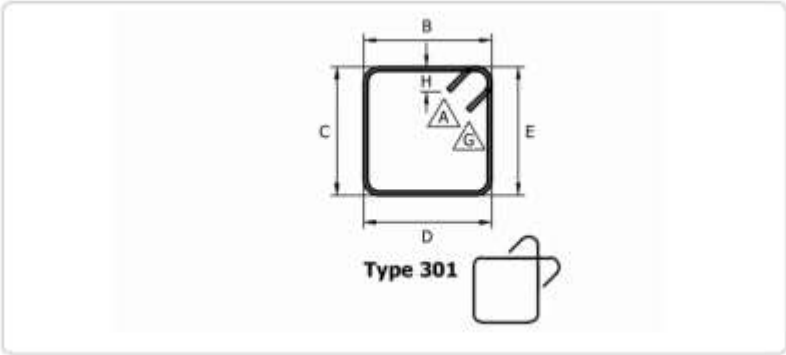
Old Name : T1b

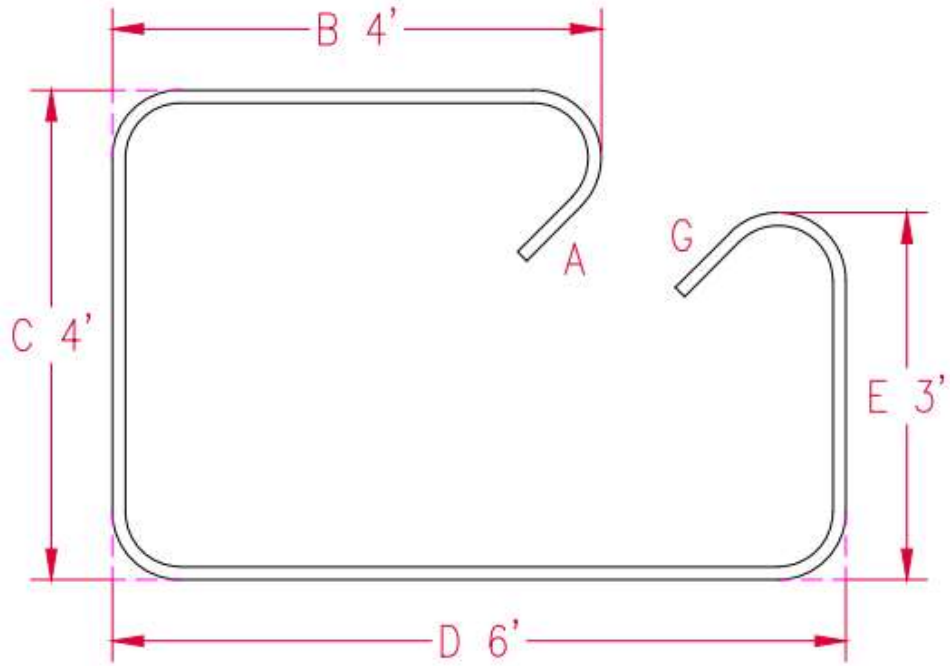




New Name : 301x

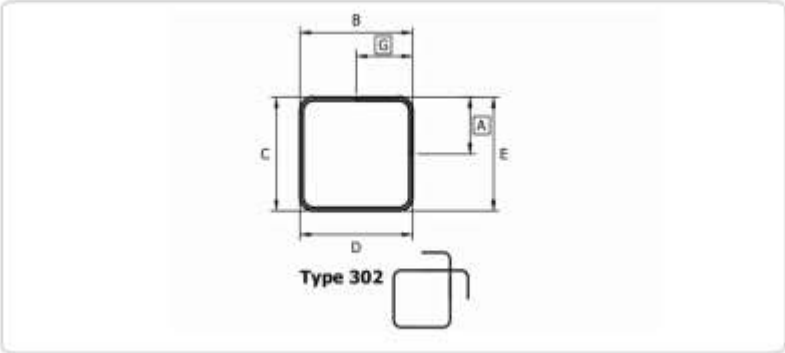
Old Name : T1x

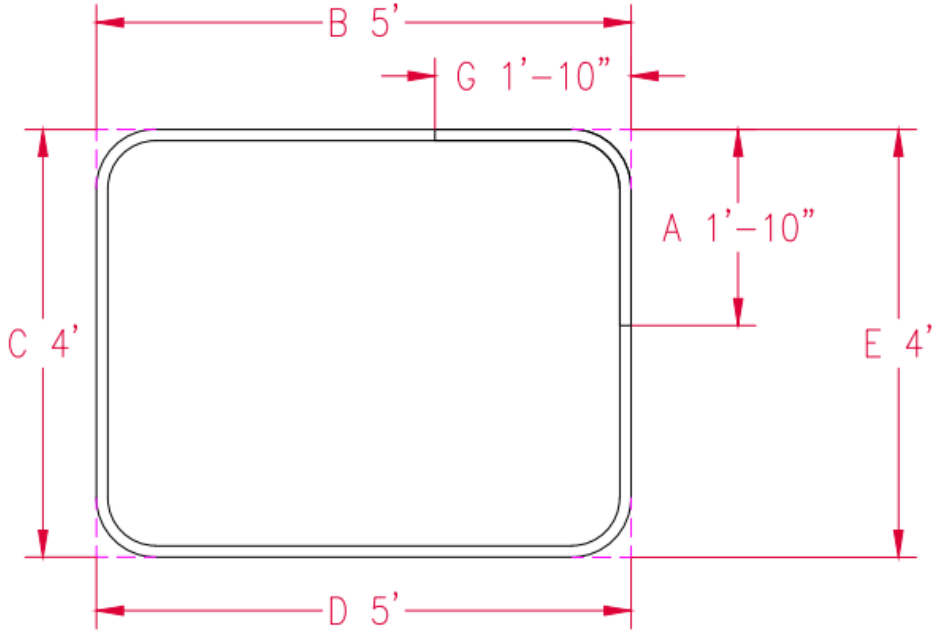




New Name : 302

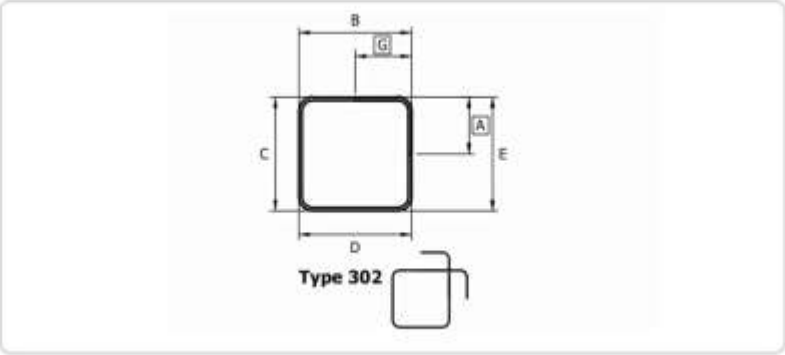
Old Name : T2

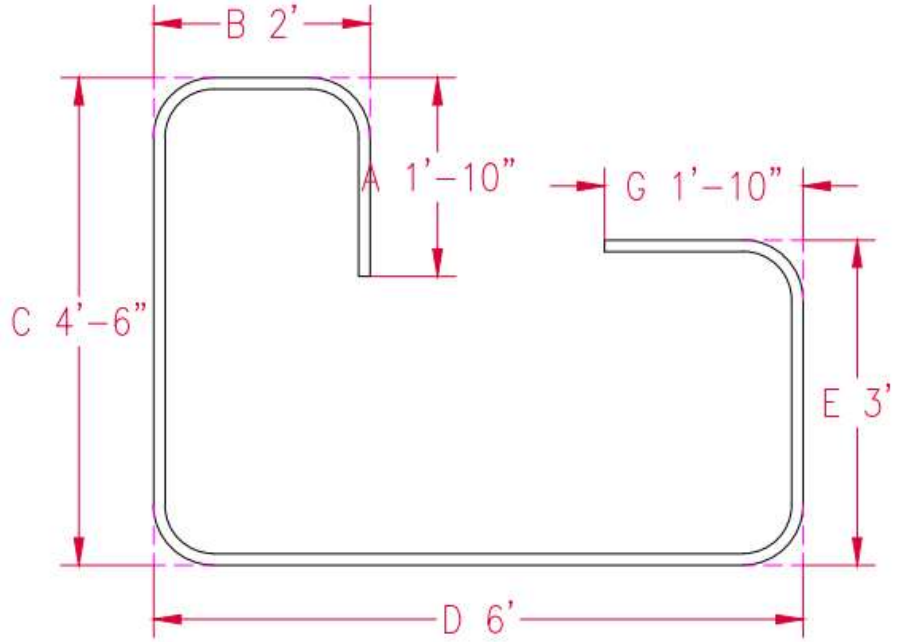




New Name : 302x

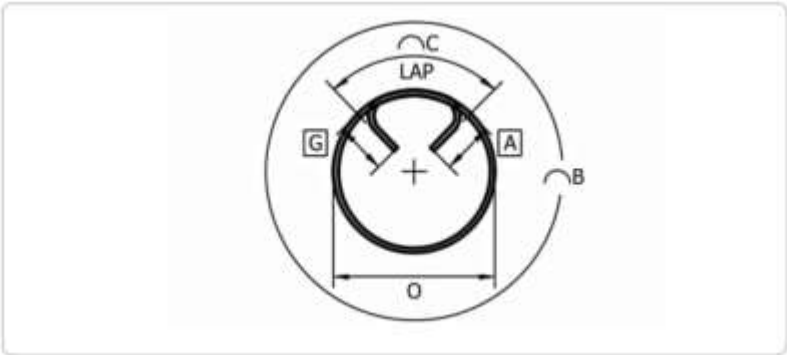
Old Name : T2x

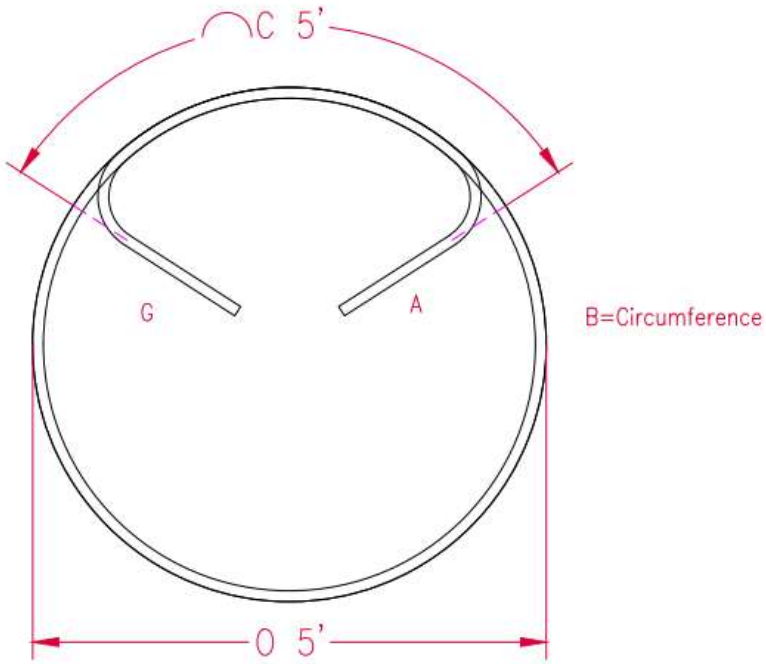




New Name : 303

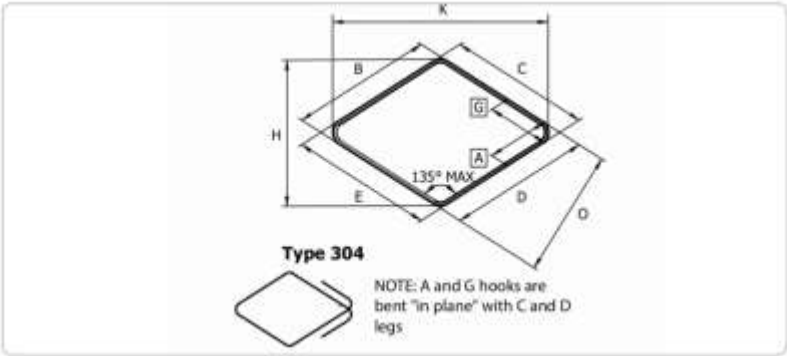
Old Name : T3

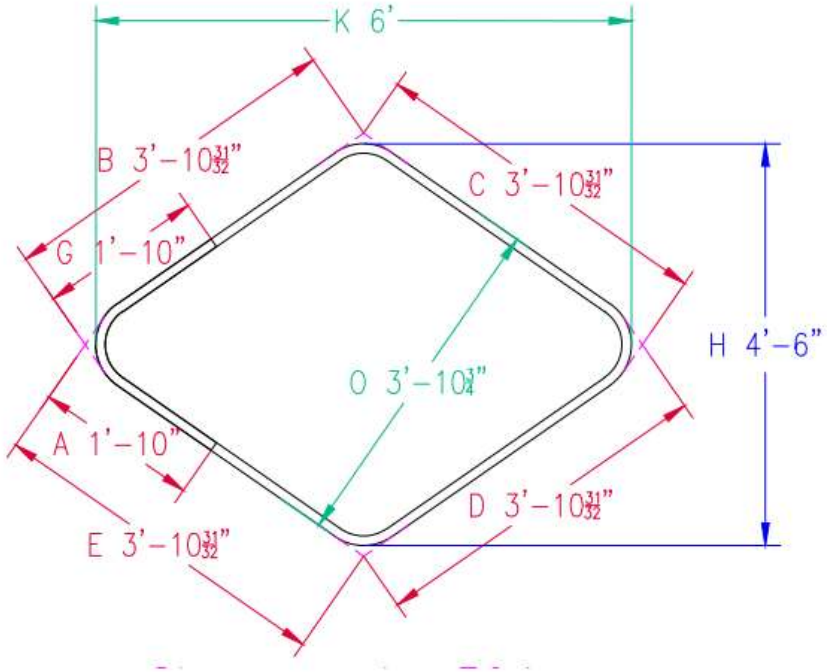




New Name : 304

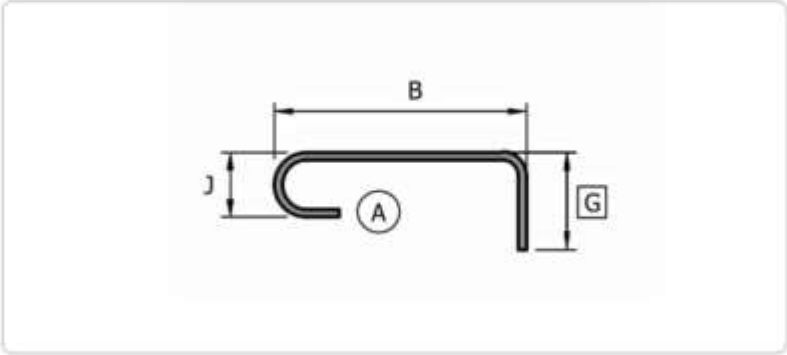
Old Name : T4





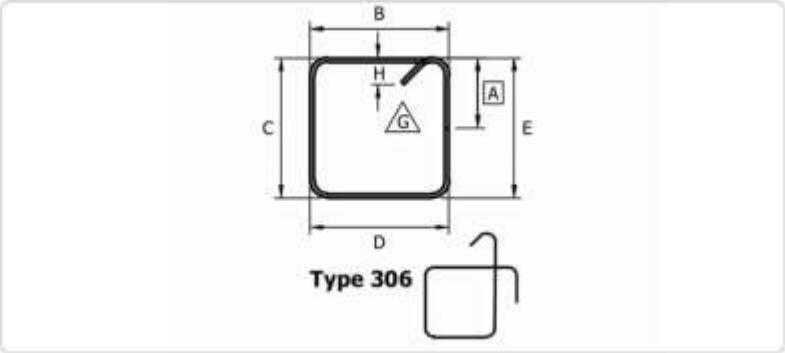
New Name : 305

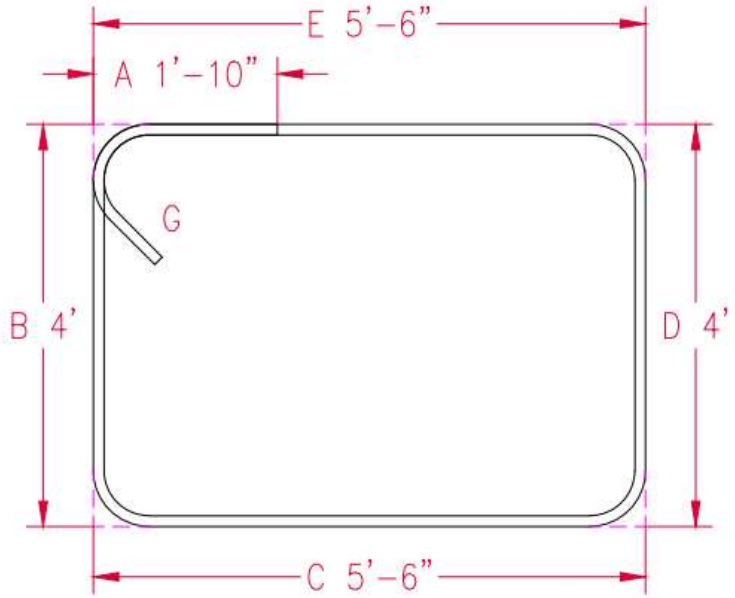
Old Name : T5



New Name : 306

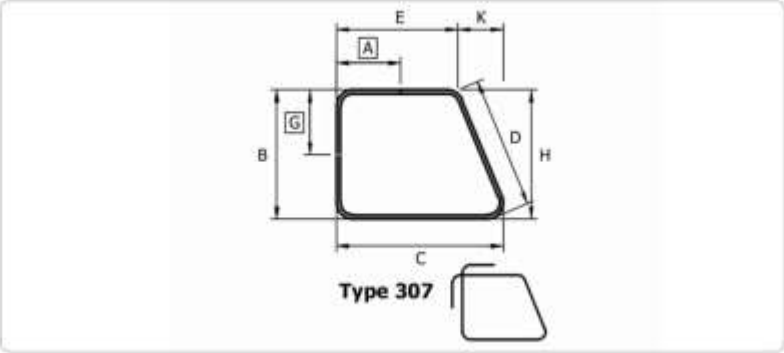
Old Name : T6

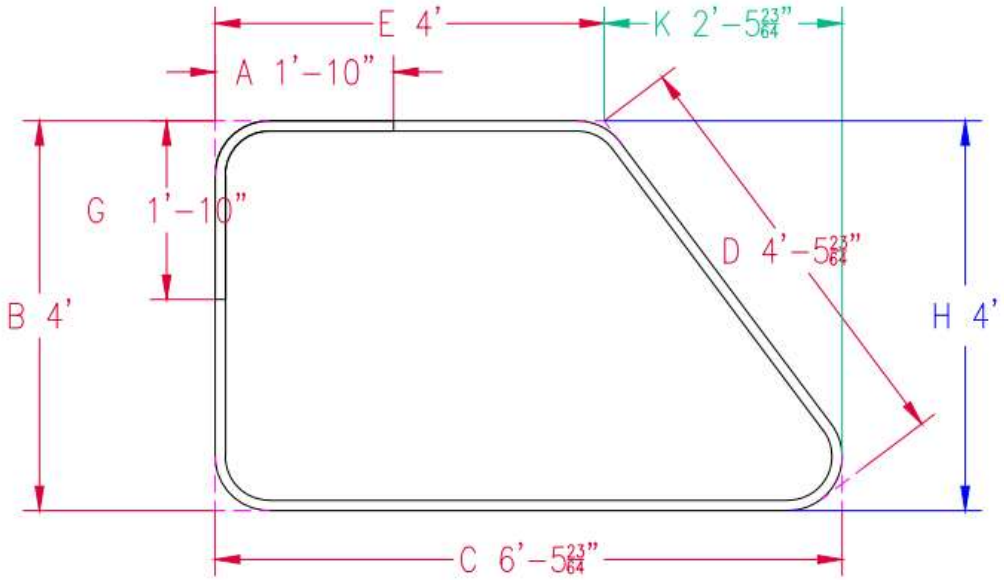




New Name : 307

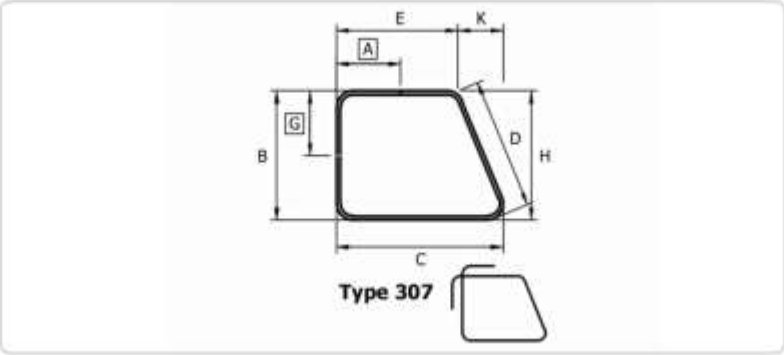
Old Name : T7

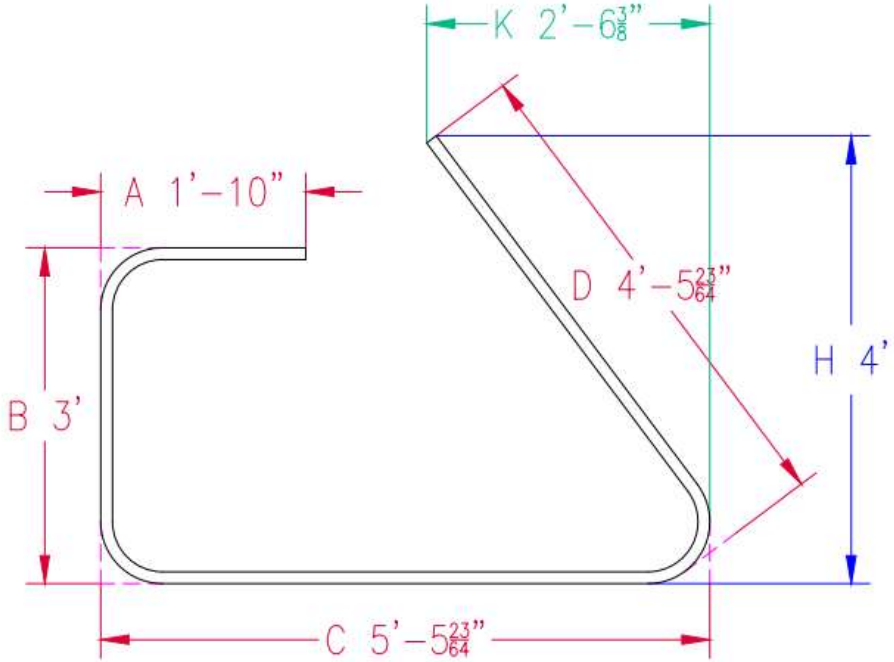




New Name : 307a

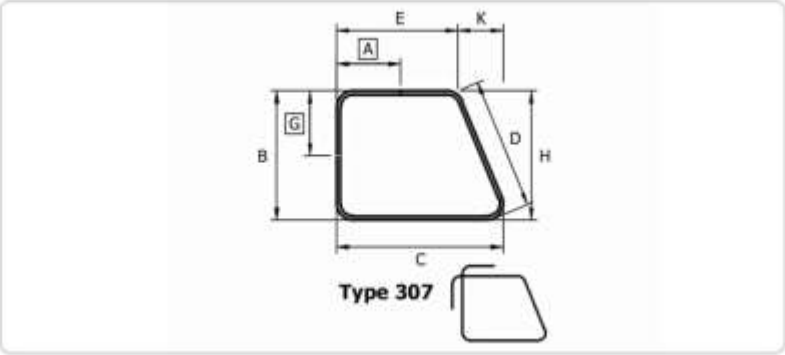
Old Name : T7a

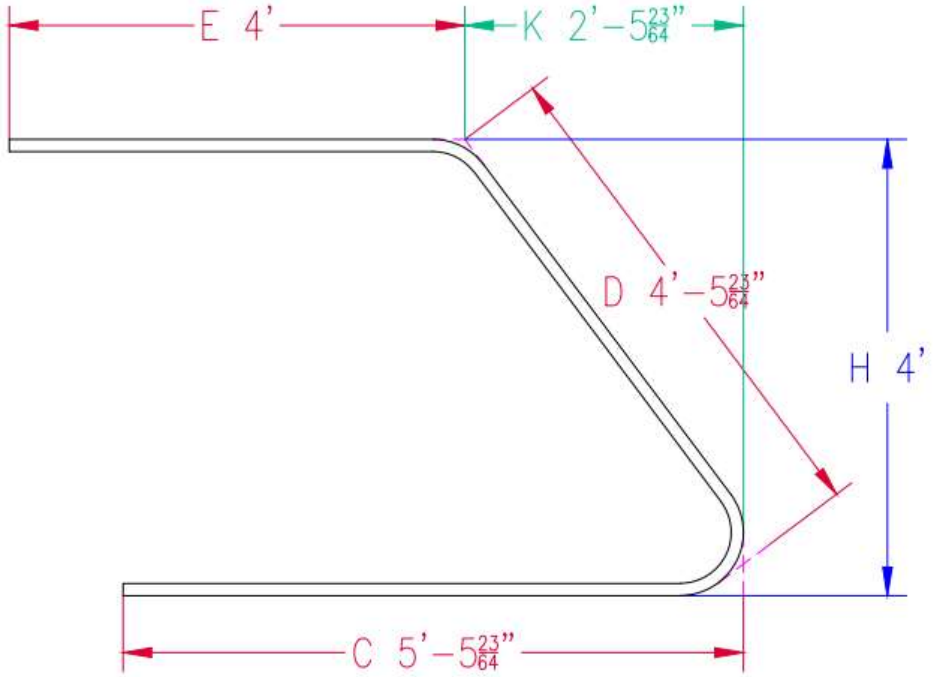




New Name : 307b

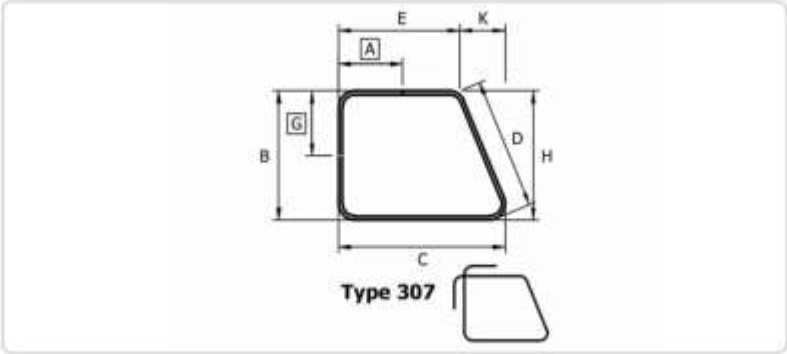
Old Name : T7b

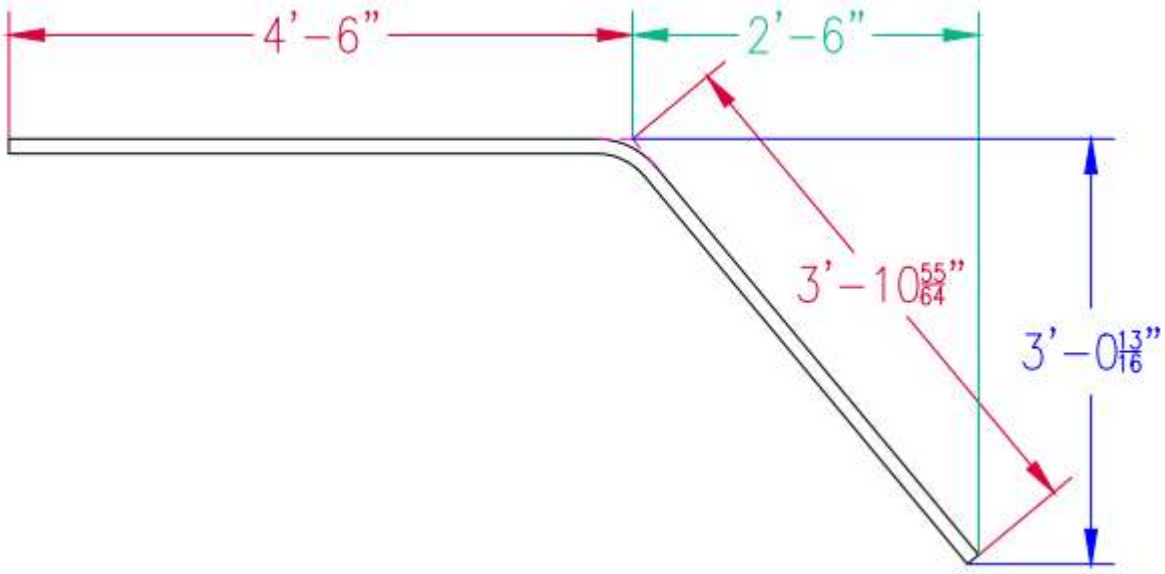




New Name : 307c

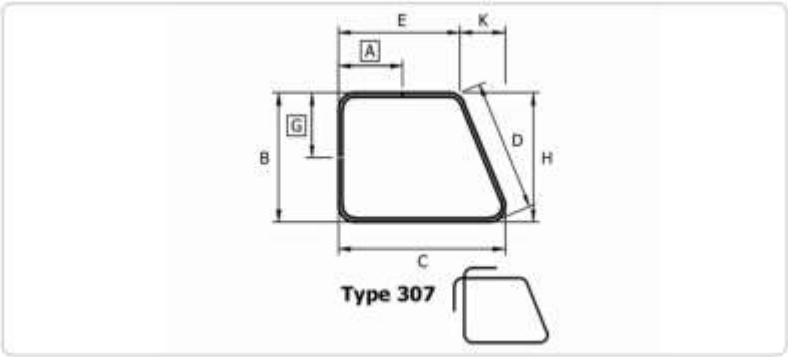
Old Name : T7c

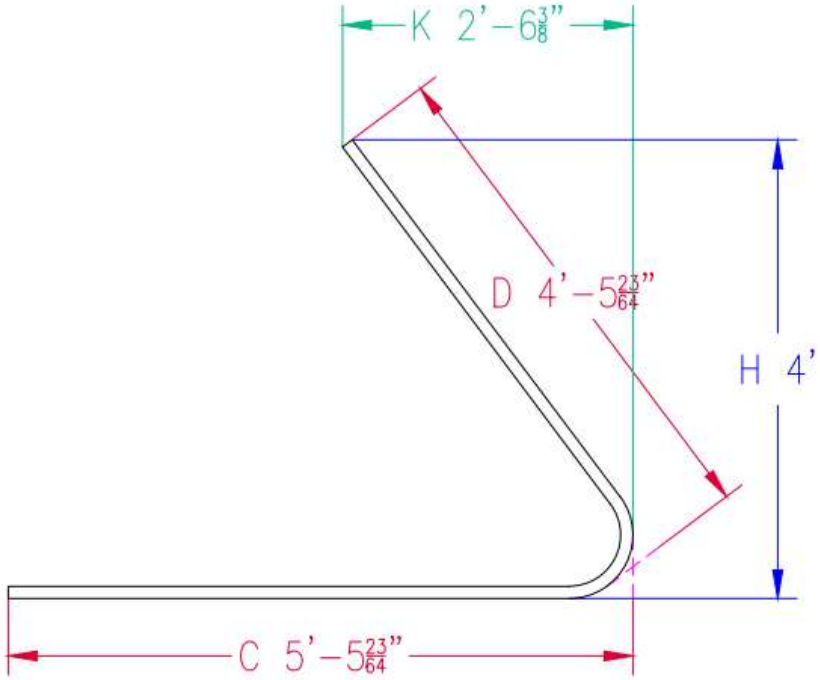




New Name : 307d

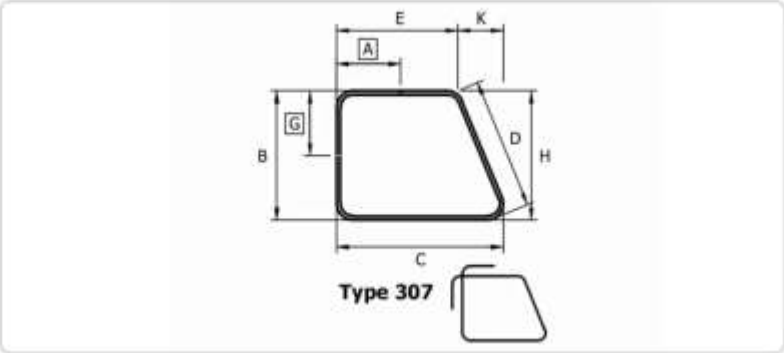
Old Name : T7d

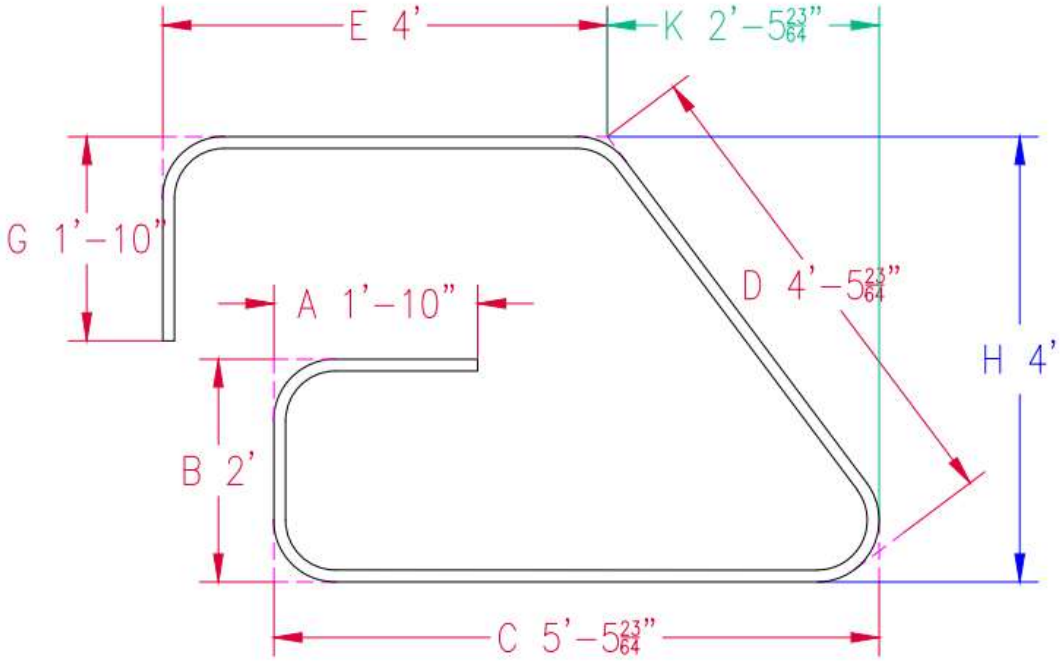




New Name : 307x

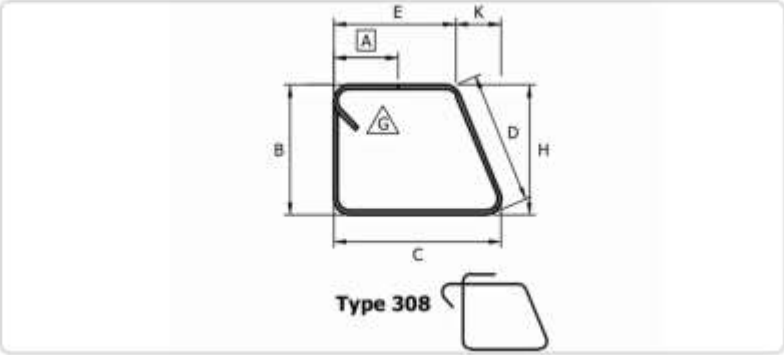
Old Name : T7x

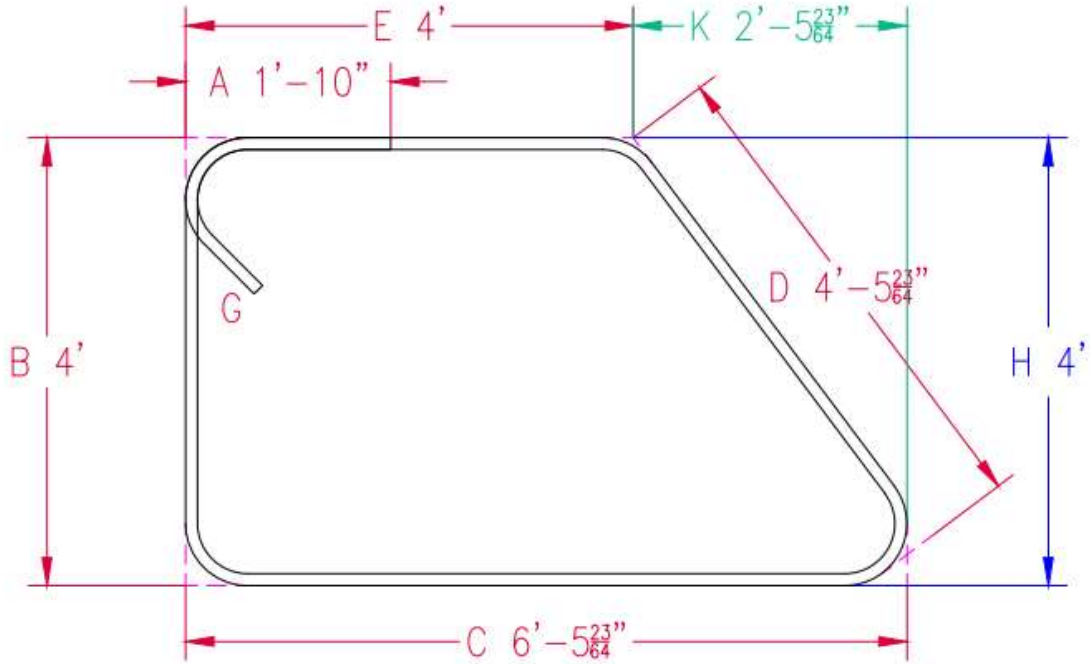




New Name : 308

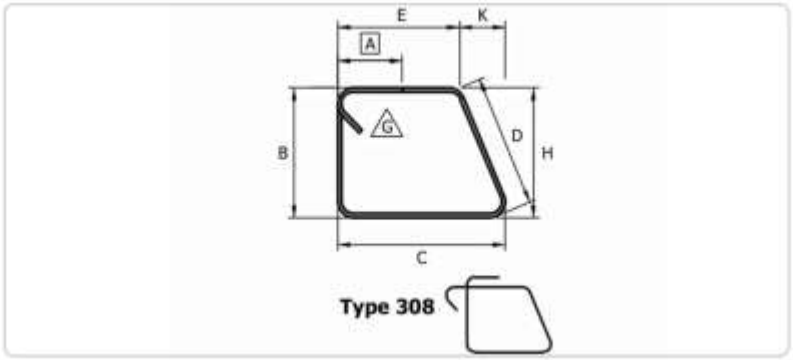
Old Name : T8

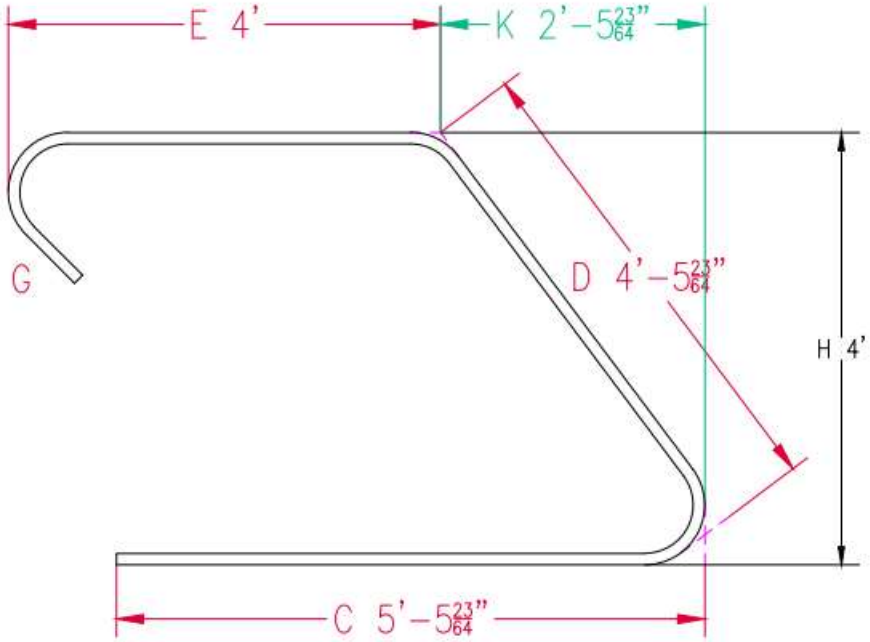




New Name : 308b

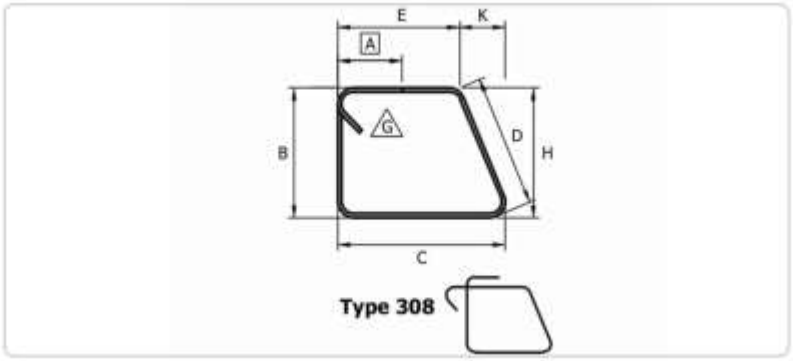
Old Name : T8b

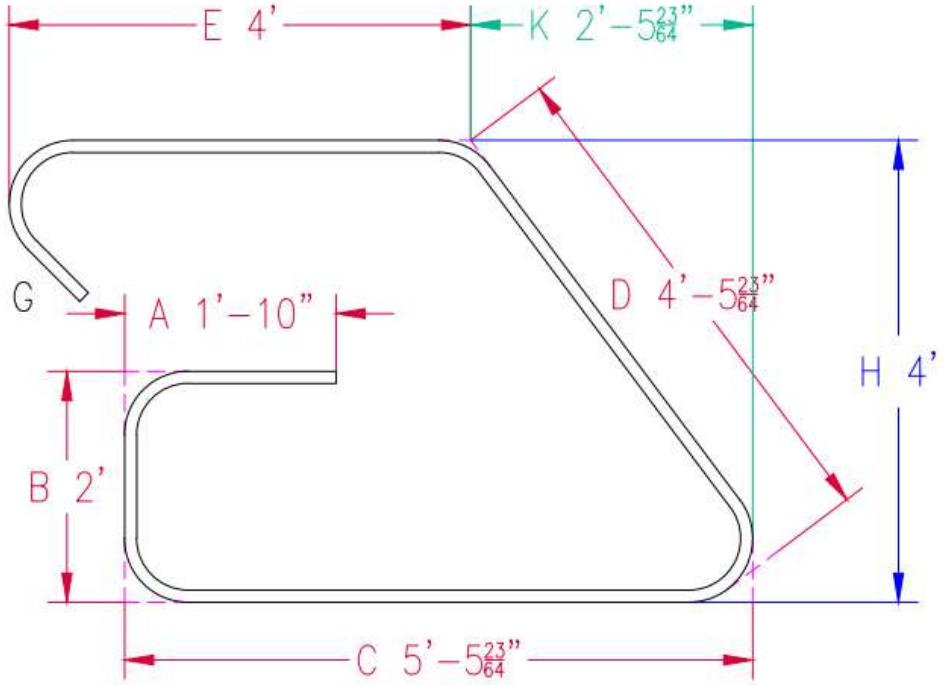




New Name : 308x

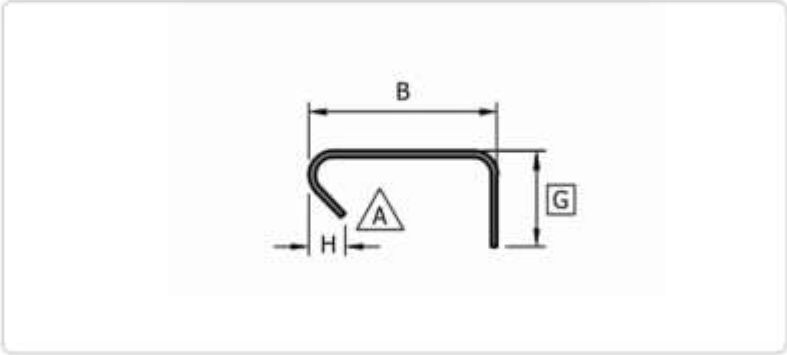
Old Name : T8x

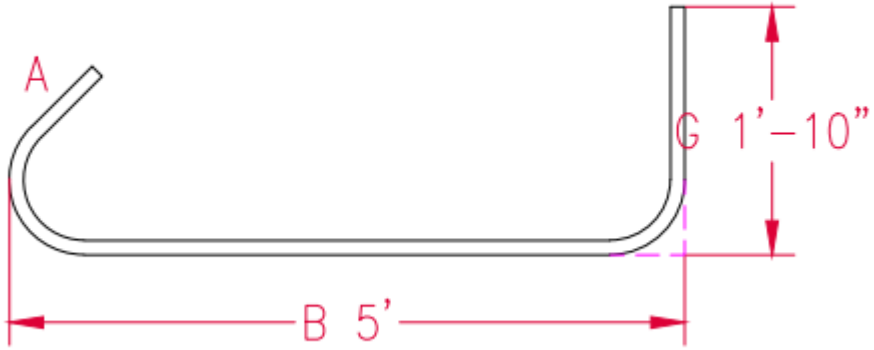




New Name : 309

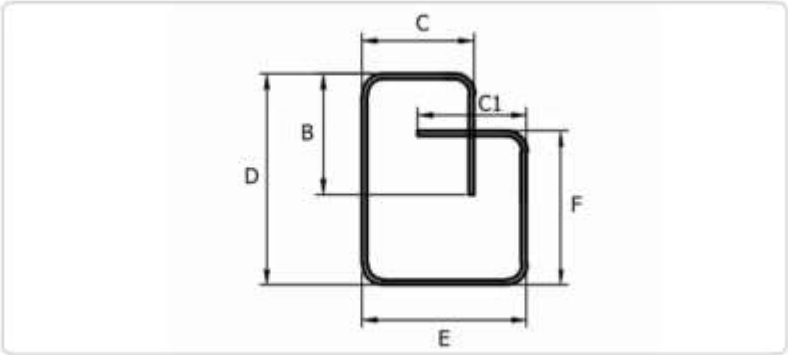
Old Name : T9

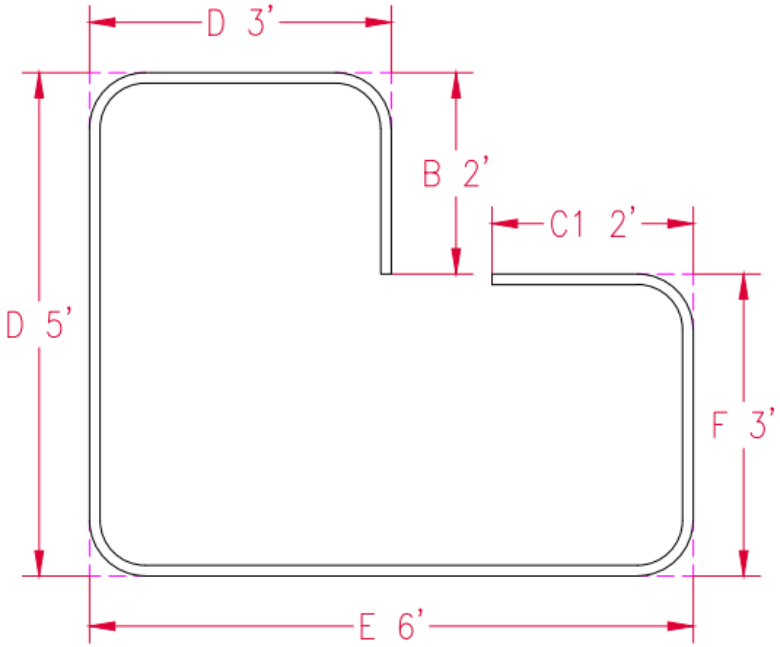




New Name : 310

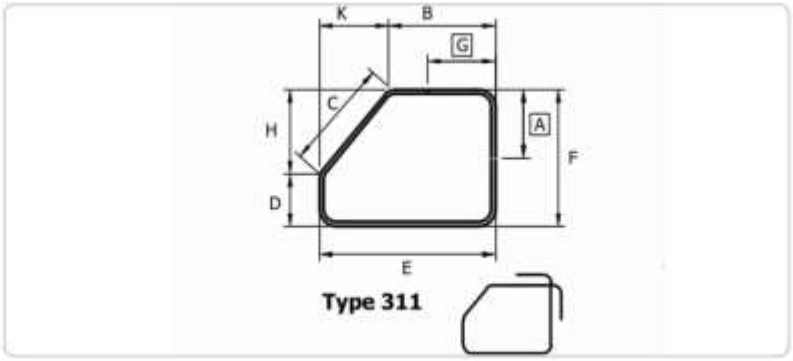
Old Name : T10

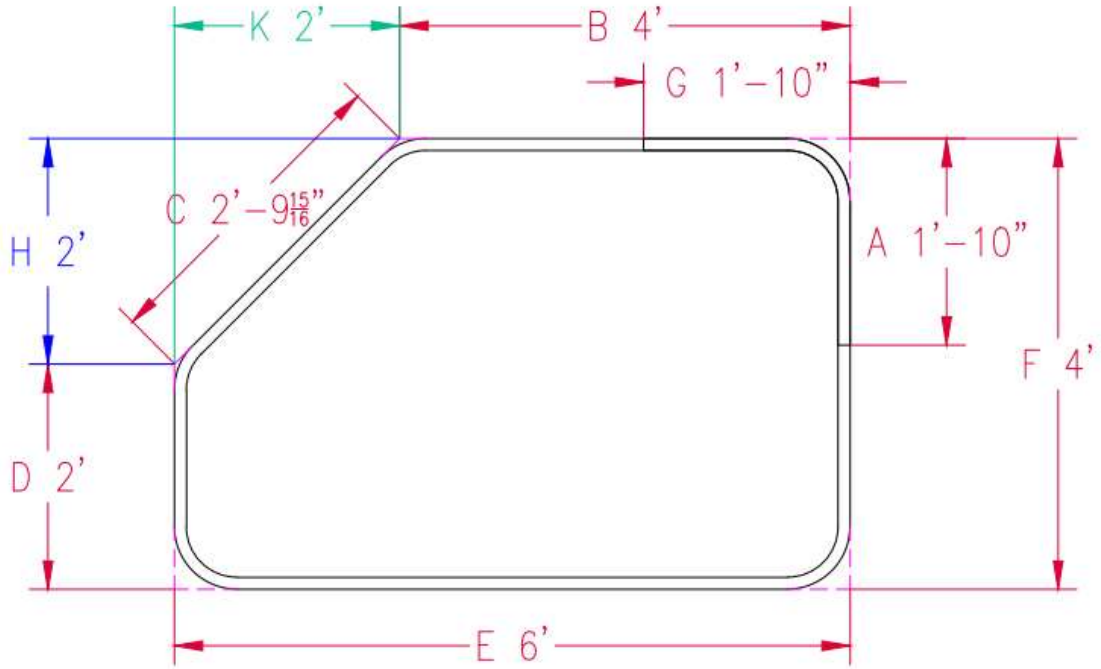




New Name : 311

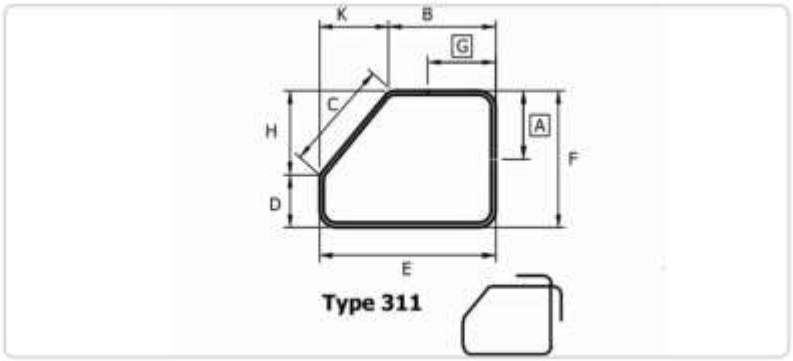
Old Name : T11

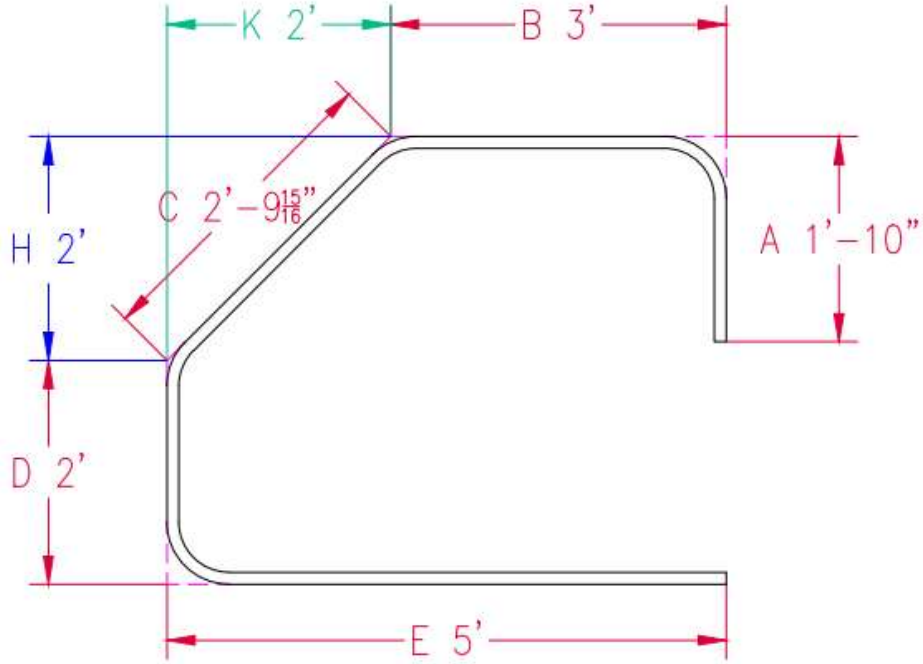




New Name : 311a

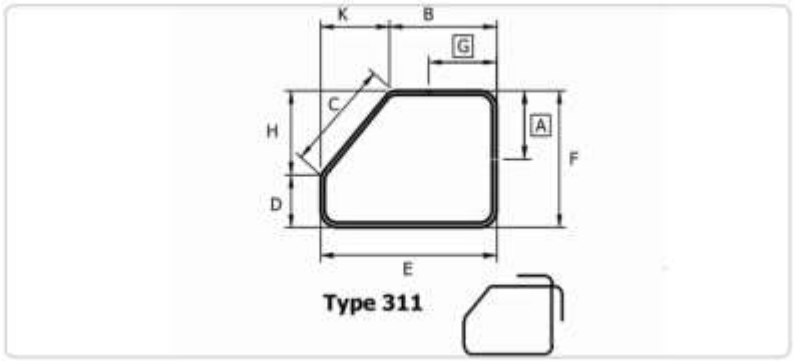
Old Name : T11a

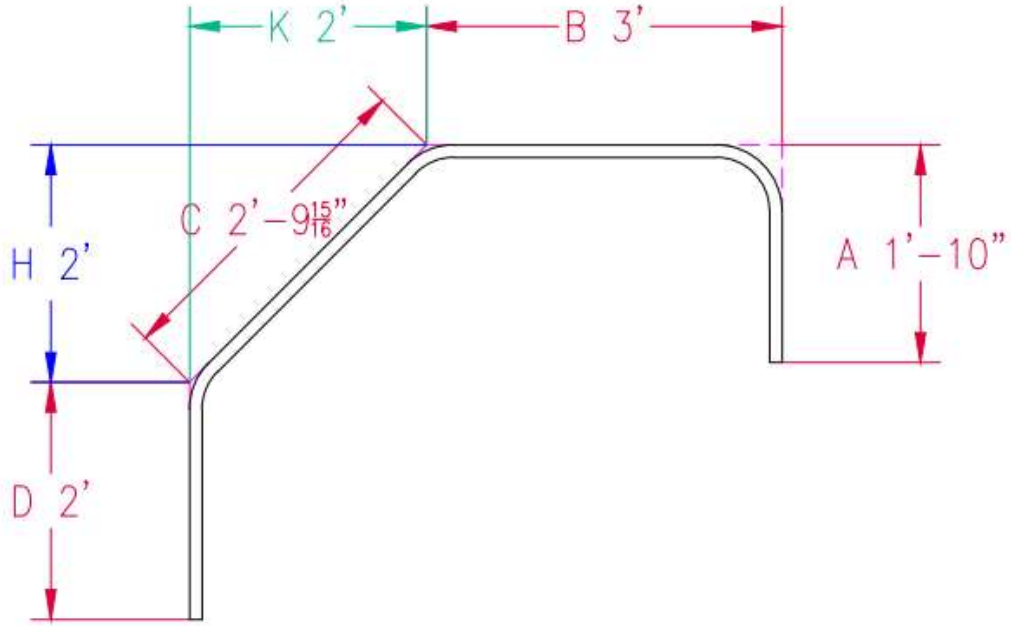




New Name : 311b

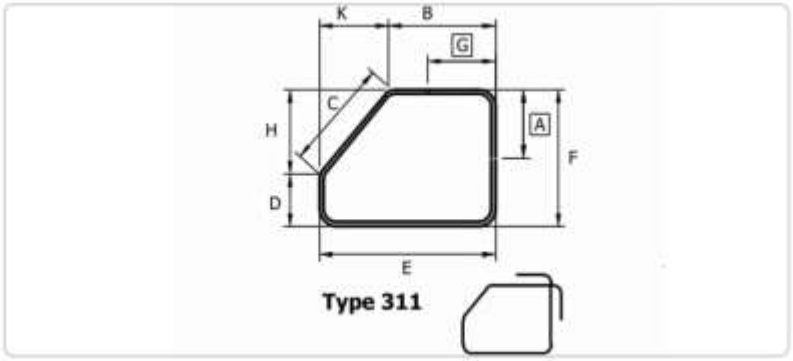
Old Name : T11b

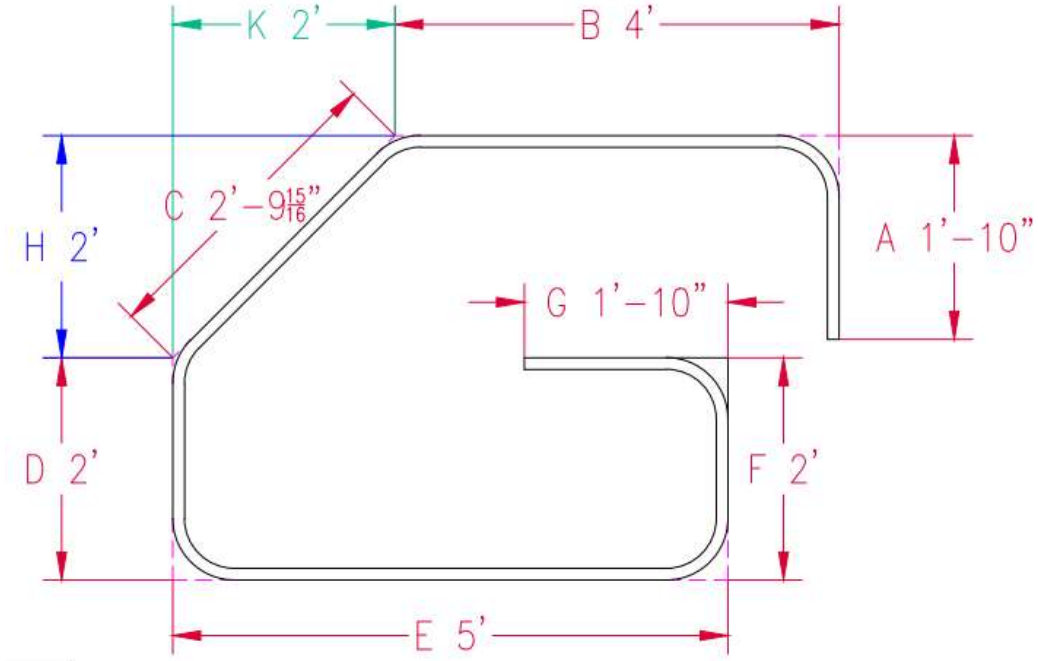




New Name : 311x

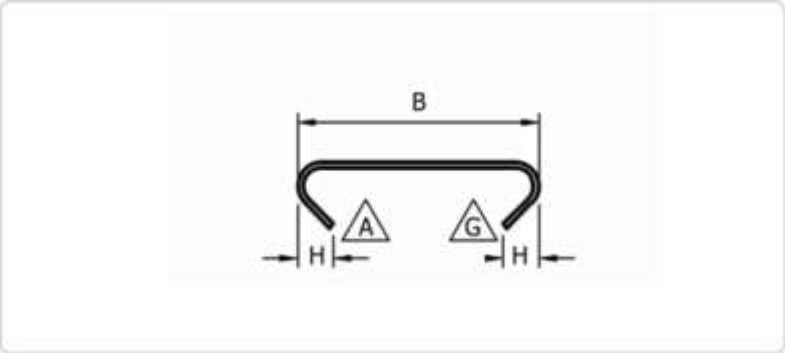
Old Name : T11x

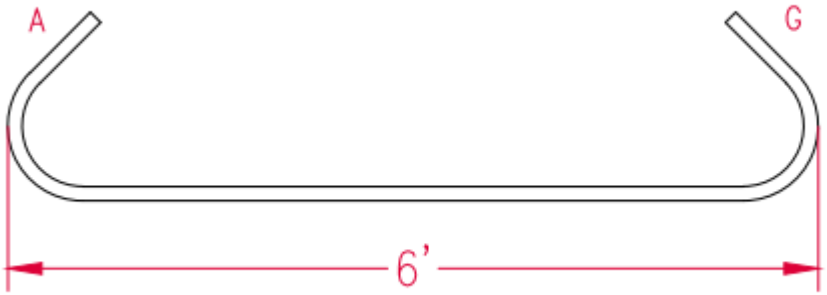




New Name : 312

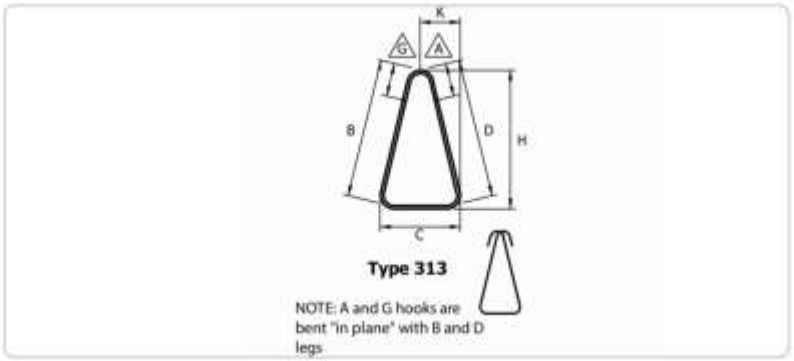
Old Name : T12

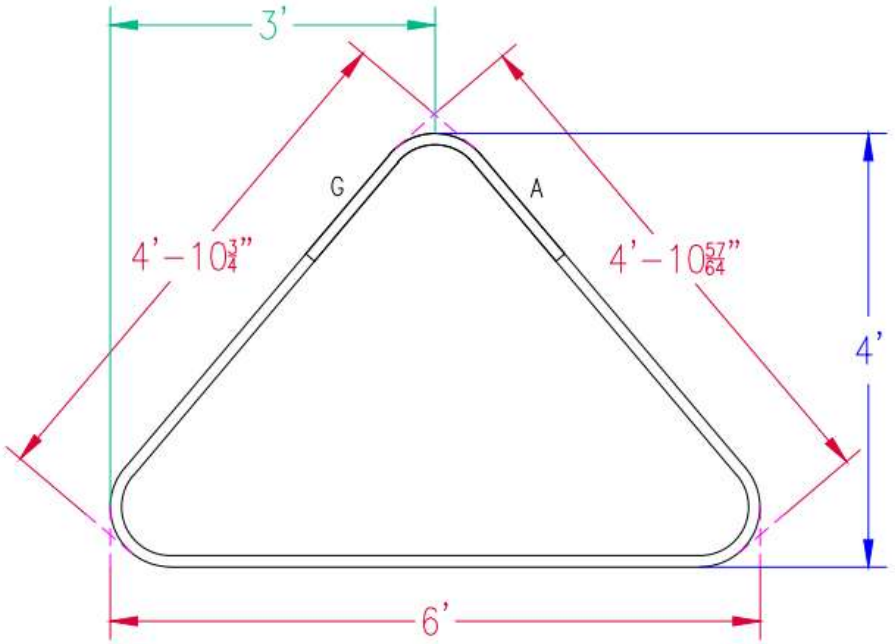




New Name : 313

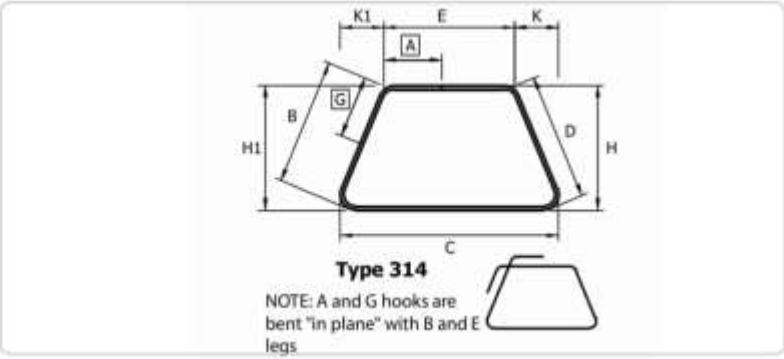
Old Name : T13

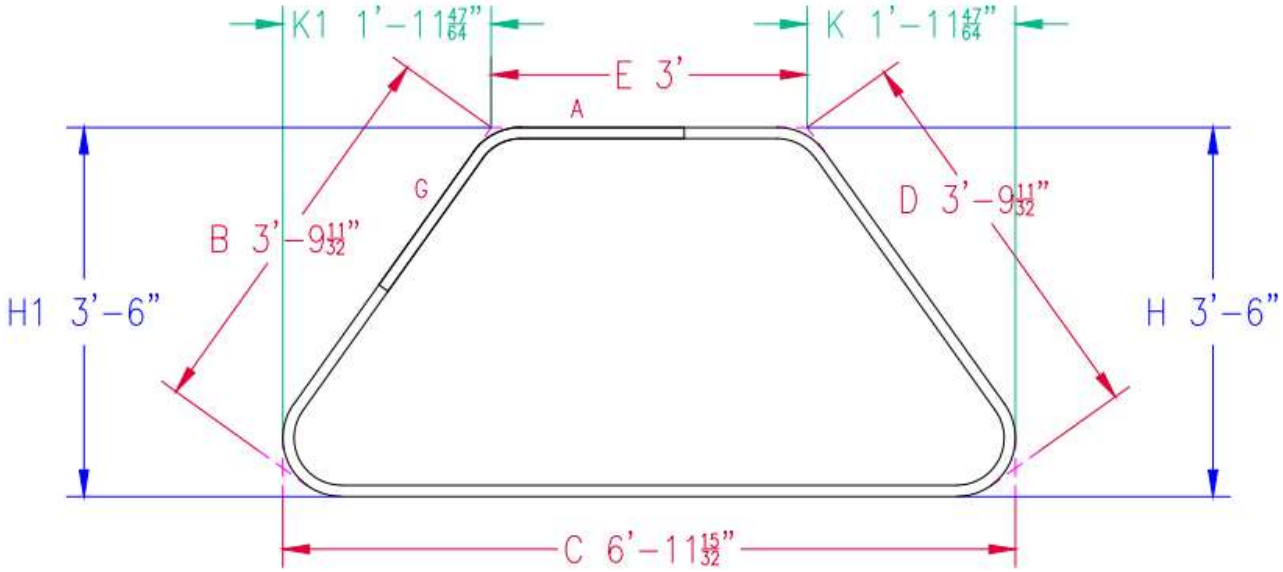




New Name : 314

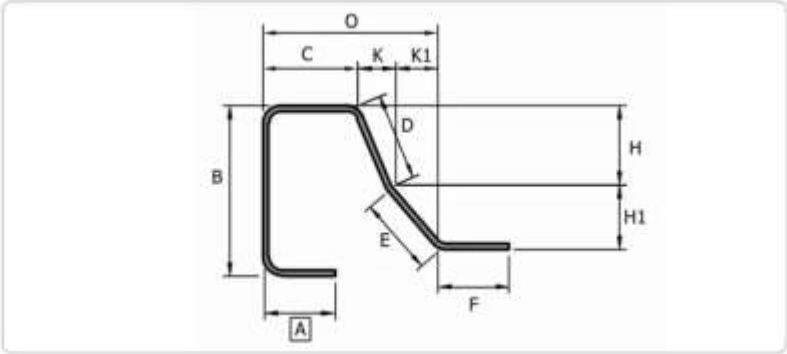
Old Name : T14

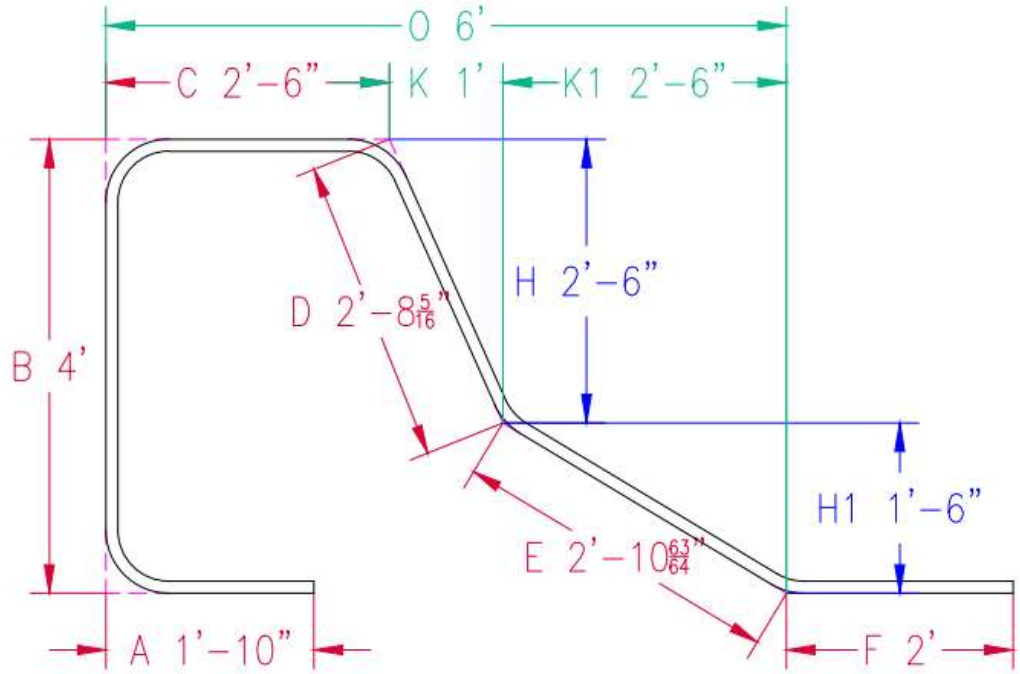




New Name : 315

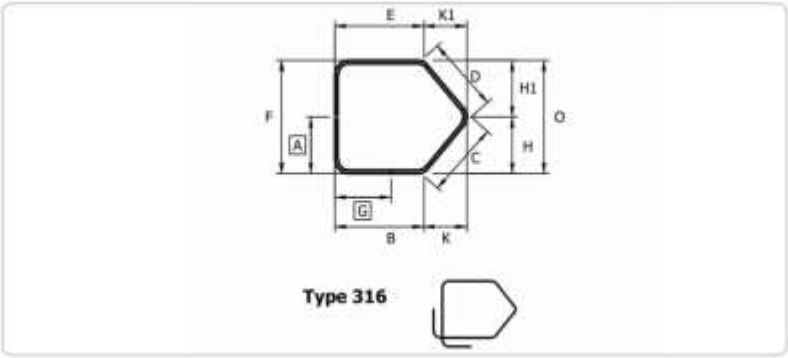
Old Name : T15

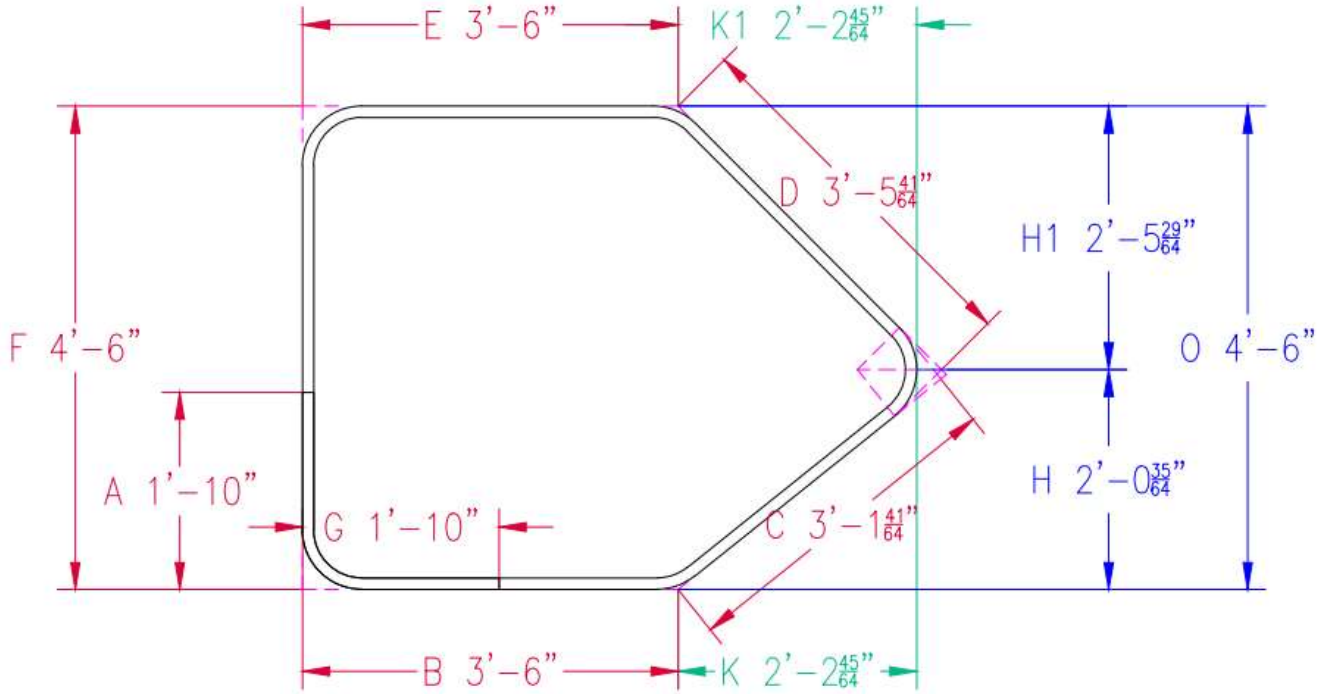




New Name : 316

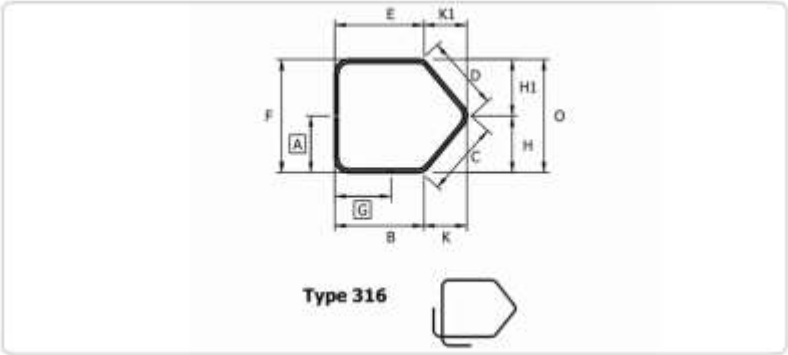
Old Name : T16

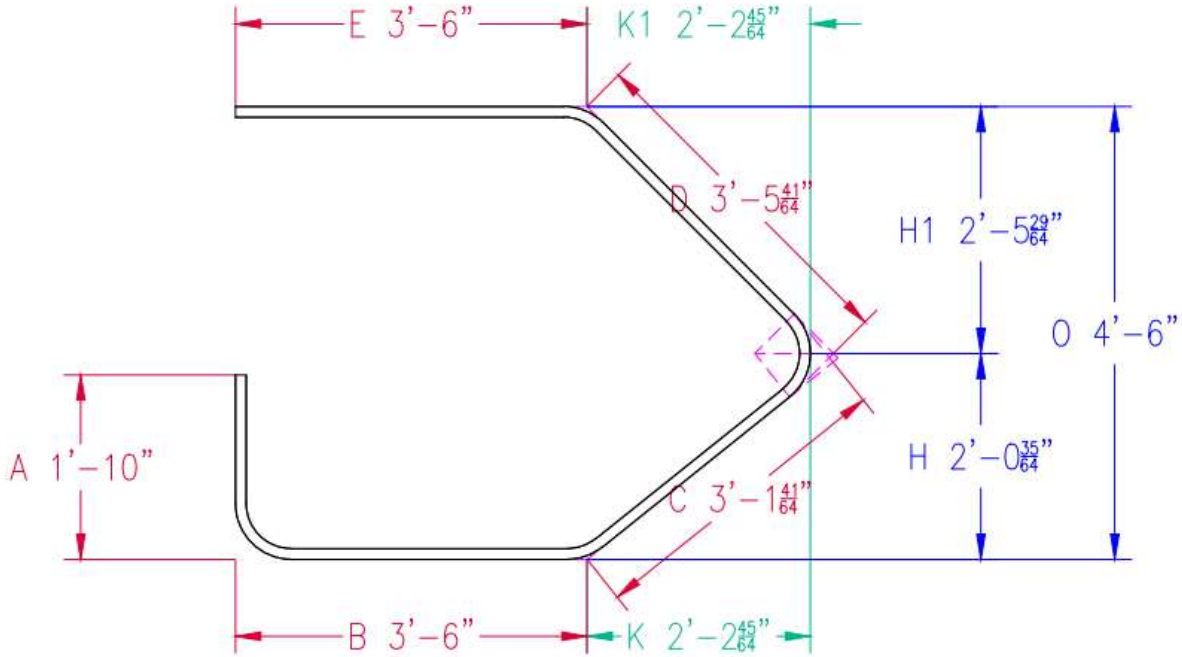




New Name : 316a

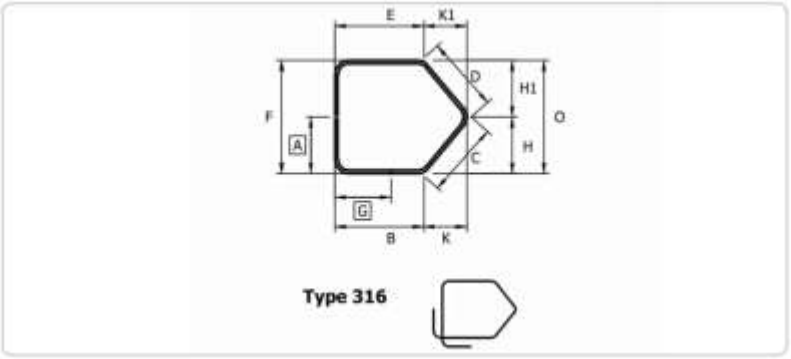
Old Name : T16a

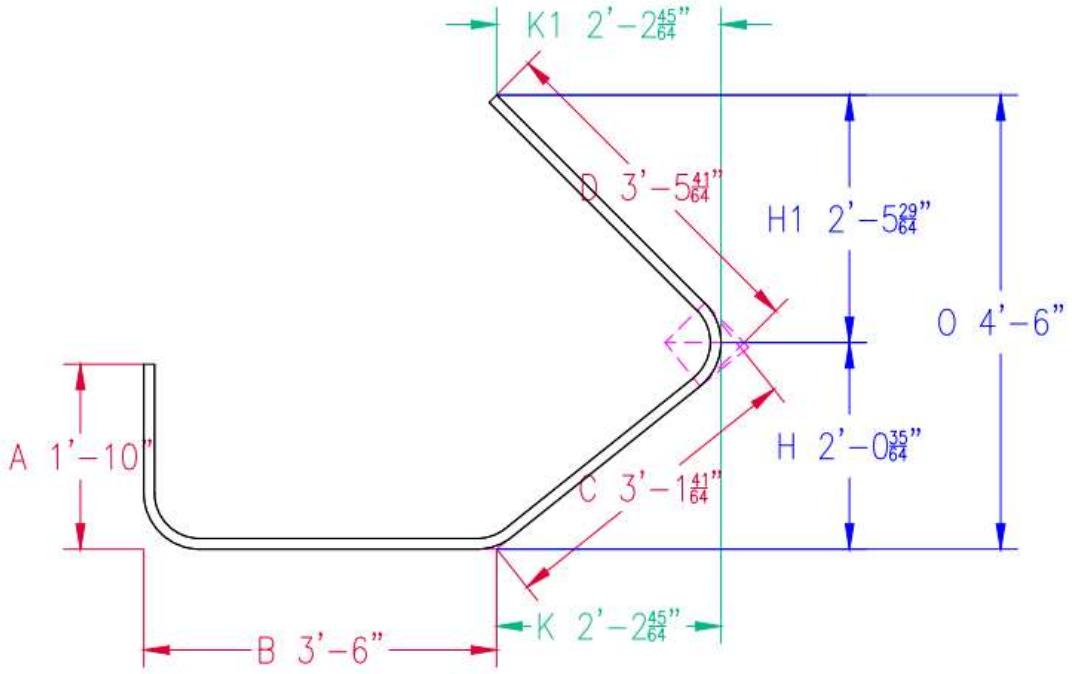




New Name : 316b

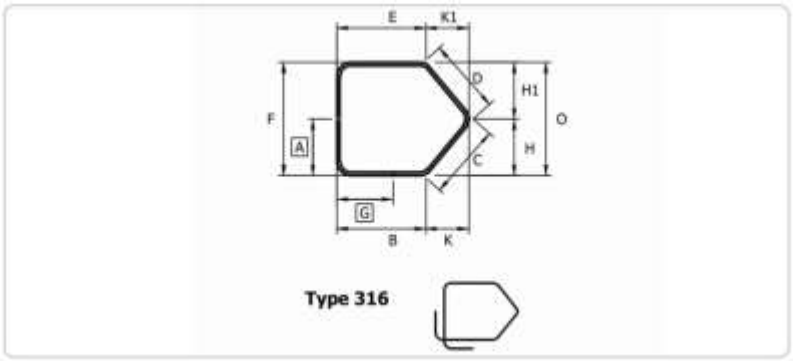
Old Name : T16b

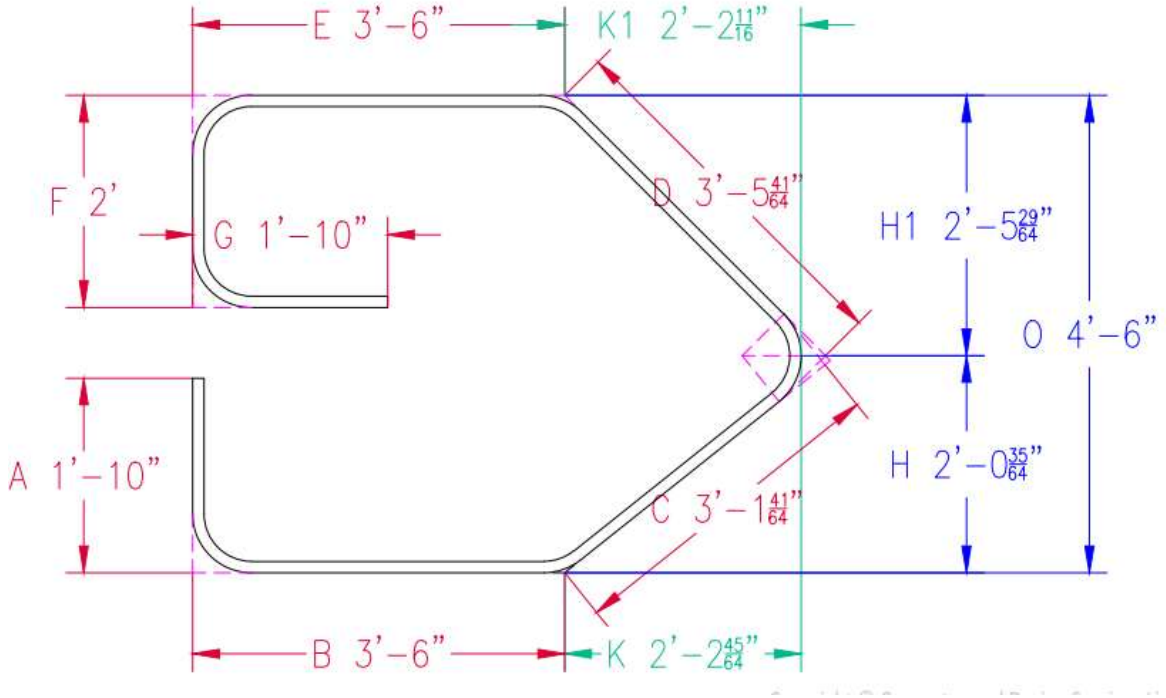




New Name : 316x

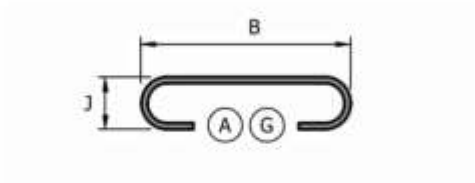
Old Name : T16x

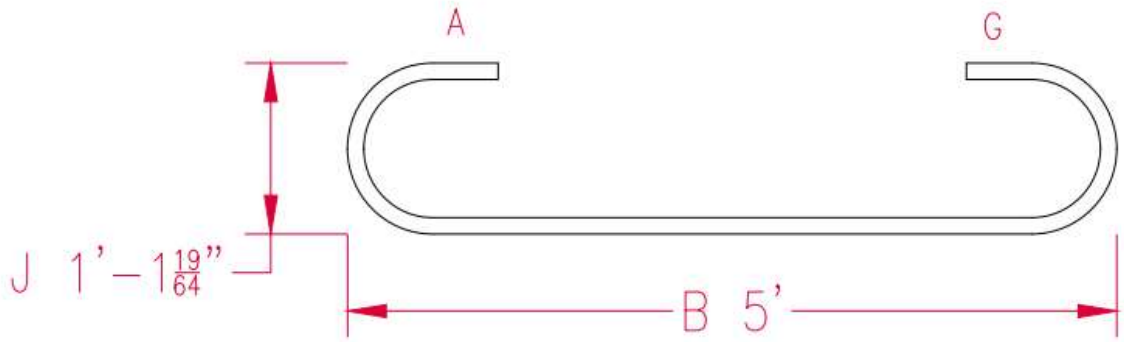




New Name : 317

Old Name : T17





New Name : 400

Old Name : X