



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

K-Factor is the ratio of the *distance from the inside surface to the neutral axis* to the *material thickness*. In bending the material at the bend is compressed on the inside and stretched on the outside. It is neither stretched nor compressed at the neutral axis.

To determine K-factors for combinations of material thicknesses (t) and inside bend radius (IBR) simply measure the thickness (t) and flat length (Flat) of a suitable piece of material prior to bending and then the two lengths L1 and L2 after bending the part 90°. Calculate K-factor as below. Populate a table for the combinations of thicknesses and bend radii and publish it to the sheet metal designers and fabricators.

Equation Development (Note: L1', L2' and S are along neutral axis)  
Flat = L1' +S +L2'  
L1' = L1 - (IBR + t)  
L2' = L2 - (IBR + t)  
 $S = \pi/2 * (IBR + K*t)$

Solving for K in terms of measured values Flat, t, L1, L2 and known IBR:  
 $K = 2/\pi/t * (Flat - L1 - L2 + 2*(IBR + t)) - IBR/t$

Example shown:  
 $K = 2/\pi/.094 * (4.817 - 3.0 - 2.0 + 2*(.125 + .094)) - .125/.094$   
Therefore K=.40

The vendor is encouraged to contact iL7!, LLC Engineering at Dennis.ilseven@gmail.com with questions or suggestions concerning the manufacturability of this part.

<div>UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [mm] TOLERANCES: X/X : ±0.03125 X.XX : ±0.015 X.XXX : ±0.005 X.XXXX : ±0.0005 ANGULAR : ±0.5°</div> <div><div>64/</div><div>SURFACE FINISH : ✓ BREAK CORNERS TO R.01</div></div>		<div>PROPRIETARY AND CONFIDENTIAL</div> <div>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF iL7!, LLC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF iL7!, LLC IS PROHIBITED.</div> <div>iL7!, LLC MAY REQUEST THE RETURN OF THIS DOCUMENT AT ANY TIME.</div>		<div><div><div><div>i</div><div>L</div><div>!</div></div></div><div><div>iL7!®, LLC</div><div>Taking your company to Innovation Level 7</div><div>112 Mahogany Bay Dr. Saint Johns, Florida 32259</div></div></div> <div>TITLE:</div> <div><div>K-Factor Development</div></div>																			
<div>MATERIAL</div> <div>--</div> <div>MADE FROM STOCK</div> <div>--</div> <div>FINISH</div> <div>--</div> <div>HEAT TREAT</div> <div>--</div> <div>WEIGHT: --</div>		<div>Configuration: <u>Default</u></div> <table><tr><td>DRAWN</td><td>D. Dohogne</td><td>2/12/2018</td></tr><tr><td>CHECKED</td><td>D. Dohogne</td><td>2/12/2018</td></tr><tr><td>ENG APPR.</td><td>D. Dohogne</td><td>2/12/2018</td></tr><tr><td>MODELED</td><td>D. Dohogne</td><td>12/3/2010</td></tr></table>		DRAWN	D. Dohogne	2/12/2018	CHECKED	D. Dohogne	2/12/2018	ENG APPR.	D. Dohogne	2/12/2018	MODELED	D. Dohogne	12/3/2010	<table><tr><td>SIZE</td><td>DWG. NO.</td><td>REV</td></tr><tr><td>B</td><td>K-Factor Development</td><td></td></tr></table> <div>SCALE: 1:1    DO NOT SCALE DRAWING    SHEET 1 OF 1</div>		SIZE	DWG. NO.	REV	B	K-Factor Development	
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