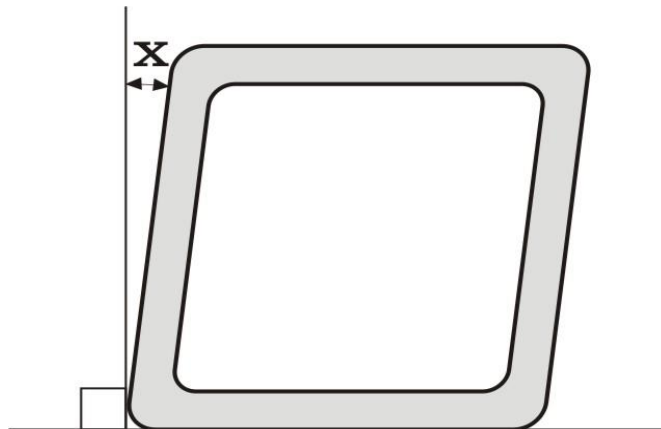


SUMMARY OF SANS 657-1 Def 3.1 FOR COLD DRAWN TUBES/PIPES

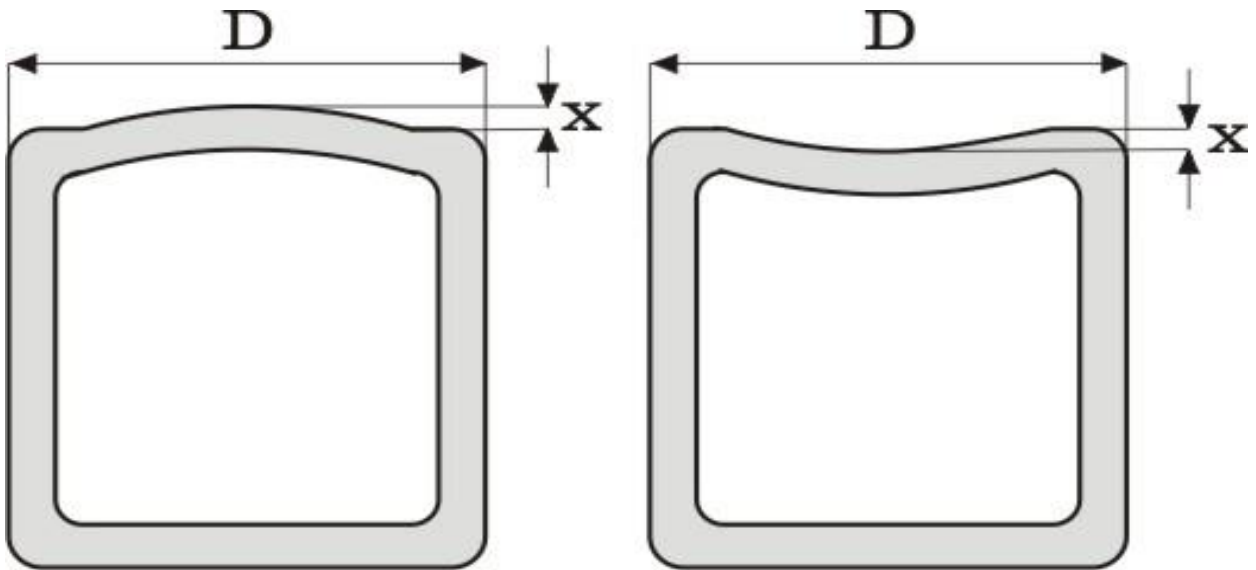
SQUARENESS OF SIDES



COLD DRAWN

X SHOULD EQUAL $90^{\circ} \pm 2^{\circ}$

CONVEXITY / CONCAVITY



COLD DRAWN

IF $D \leq 150$ THEN x MUST BE $0.008 \times D$

EXAMPLE

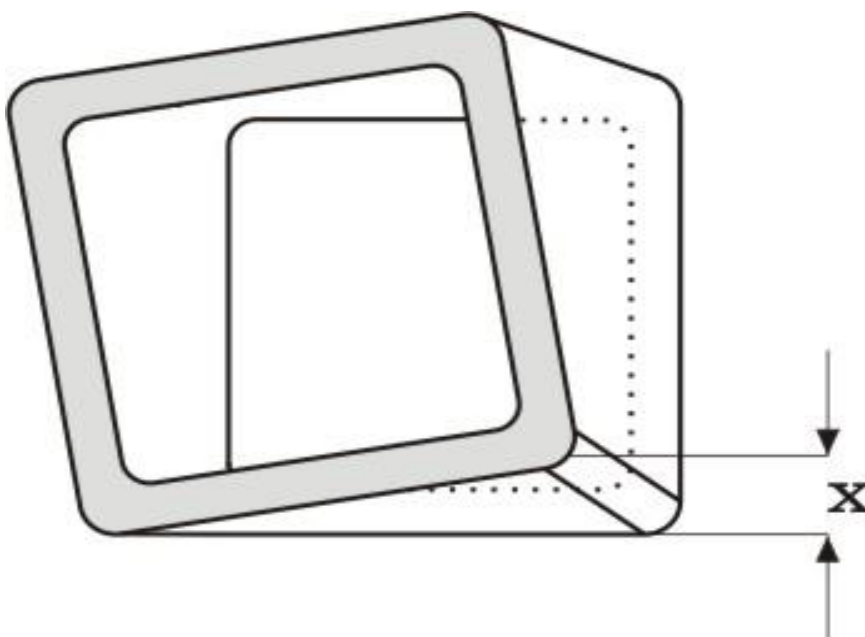
IF $D = 120$ THEN x MUST BE LESS THAN 0.96mm

IF $D > 150$ THEN x MUST BE $0.01 \times D$

EXAMPLE

IF $D = 300$ THEN x MUST BE LESS THAN 3.0mm

TWIST



TWIST TO BE A MAXIMUM OF 2mm + 0.5mm PER METRE LENGTH

STRAIGHTNESS



0.20% OF TOTAL LENGTH

0.002 X TUBE LENGTH (mm)

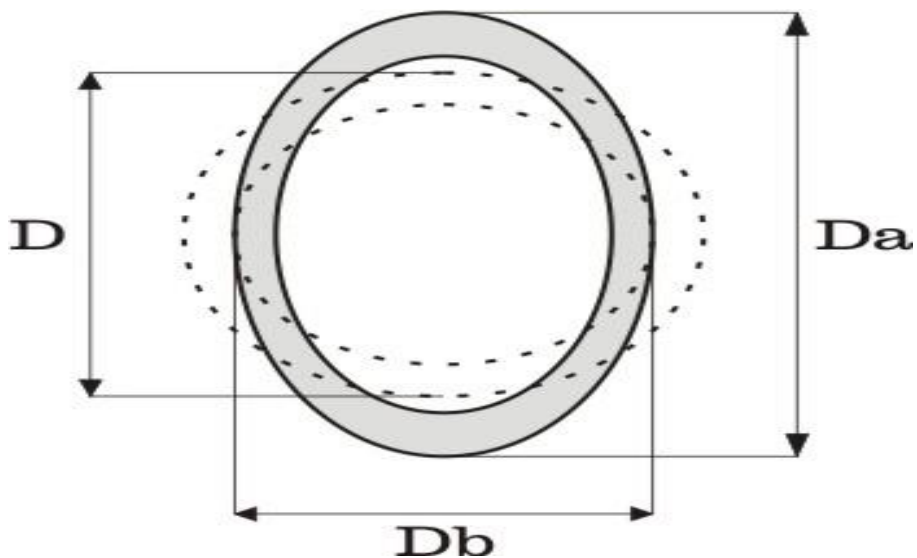
EXAMPLE

0.002 X 6100 LENGTH = 12.2mm

0.002 X 9144 LENGTH = 18.288mm

0.002 X 12200 LENGTH = 24.4mm

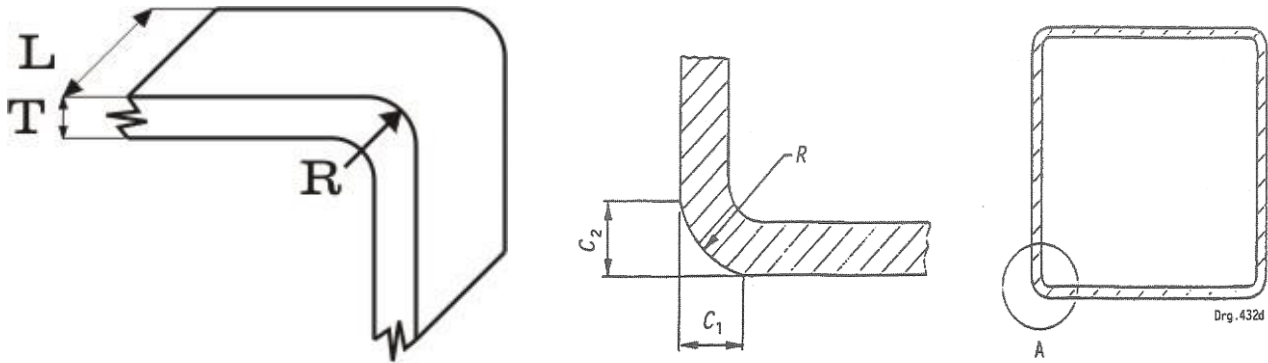
OUT OF ROUNDNESS



OUT OF ROUNDNESS SHOULD BE $D_a - D_b \leq 0.02 \times D$

eg. $0.02 \times (D)100\text{mm} = 2\text{mm}$

EXTERNAL CORNER PROFILE



<u>GENERAL PROFILE TOLERANCES AS PER STANDARD OFF-MILL TUBE TOLERANCES</u>	<u>COLD DRAWN</u>
<p>$T \leq 6 : 1.5T \text{ to } 2.5T$</p> <p>$6 < T \leq 10 : 2T \text{ to } 3T$</p> <p>$T > 10 : 2.4T \text{ to } 3.6T$</p>	<p><u>IF IDEAL INPUT TUBE IS NOT AVAILABLE:</u></p> <p>Specific OD rounds tubes are required to make certain square and rectangular tubes, therefore when the round tube does not match the correct size OD required the next closest smaller round tube will be used, this will result in a larger corner profile, In such cases the large corner profile must be agreed with the supplier</p>

OUTSIDE DIMENSIONS ROUND, SQUARE, RECTANGULAR

THE GREATER OF $\pm 0.5\text{mm}$ AND $\pm 1\%$

EXAMPLE

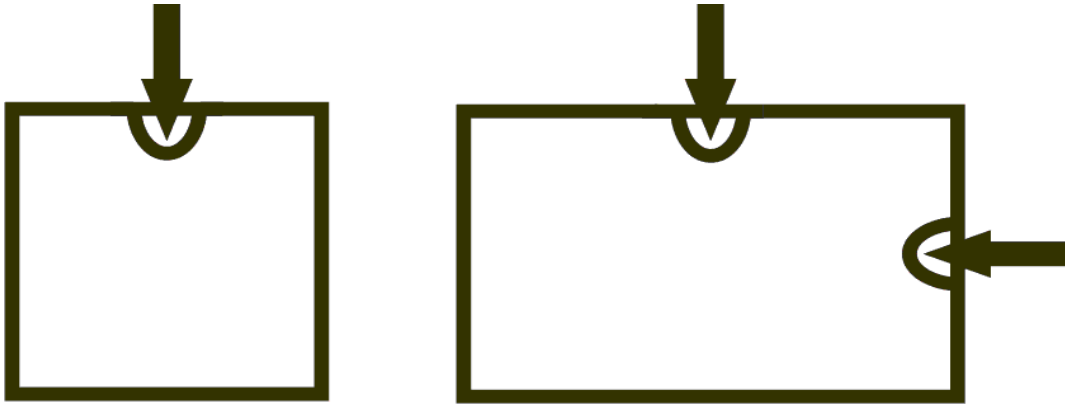
76.2mm OD +0.5mm = 76.7mm / 76.2mm OD -0.5mm = 75.7mm
76.2mm OD + 1% = 76.962mm / 76.2mm OD -1% = 75.438mm
IN THIS THIS CASE THE 1% IS GREATER 76.962mm & 75.438mm

REDUCED ROUND TUBE/PIPE TOLERANCE **$\pm 0.5\text{mm}$**

EXAMPLE

76.2mm OD REDUCED TO 73.0mm OD
+ 0.5mm = 73.5mm / -0.5mm = 72.5mm

POSITION OF WELD



Note: The weld shall be positioned at the centre of a side for a square section and the centre of the longer or shorter side for a rectangular section.

PLEASE NOTE: THIS DOES NOT APPLY TO COLD DRAWN TUBE - Whilst we always endeavour to attain the position of the weld as per off-mill tubes, unfortunately due to the different manufacturing process this cannot be guaranteed on a cold drawn section

THICKNESS (T)

FOR GENERAL ENGINEERING $\pm 10\%$ OF T WITH A MAXIMUM $\pm 2.0\text{MM}$

FOR STRUCTURAL APPLICATIONS:

$3.0 \leq T \leq 4.0\text{mm}$	$\pm 9.0\%$
$4.0 < T \leq 5.0\text{mm}$	$\pm 7.5\%$
$5.0 < T \leq 6.0\text{mm}$	$\pm 6.5\%$
$T > 6.0\text{mm}$	$\pm 6.0\%$

DISCLAIMER: While every effort is made to ensure accuracy, no representation is made as to the accuracy of, and no acceptance or legal responsibility is taken for any errors, omissions or mistakes.