![NTMA PRECISION]

**M3 MITTLER BROS.
MACHINE & TOOL**

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CORRECTED MATHEMATICAL FORMULA
FOR HYDRAULIC TUBING BENDER
WHEN USING INSTRUCTION VIDEO

The following formula should be used to determine the start point for each required bend.

The example will be for a Double Bevel Bend

L1 = 26	25 degree angle
L2 = 15	65 degree angle
L3 = 39	65 degree angle
L4 = 15	25 degree angle
L5 = 26	

Bend #1 Start Point:

L1 – ½ developed length (DL25) – ½ (Gain)
26" – ½ (3.064") – ½ (.050)
26" – 1.532" - .025" = 24.448

Bend #2 Start Point:

L1 + L2 – Gain 1 – ½ (DL65) – ½ (Gain 2)
26 + 15 - .050 –1/2 (7.941) – ½ (.973")
26 + 15 - .050 – 3.9705 - .48895 = 36.491

Bend #3 Start Point:

L1 + L2 + L3 – Gain 1 – Gain 2 – ½ (DL65) – ½ (Gain 3)
26 + 15 + 39 - .050" - .978 – ½(7.941) – ½ (.972")
26 + 15 + 39 - .050" -.978 – 3.9705 - 0.486 = 74.515

Bend #4 Start Point:

L1 + L2 + L3 + L4 – Gain 1 – Gain 2 – Gain 3 – ½ (DL25) – ½ (Gain 4)
26 + 15 + 39 + 15 -.050 - .978 - .978 –1/2 (3.054) – ½ (0.497)
26 + 15 + 39 + 15 - .050 - .978 - .978 – 1.527 – 0.025 = 91.442