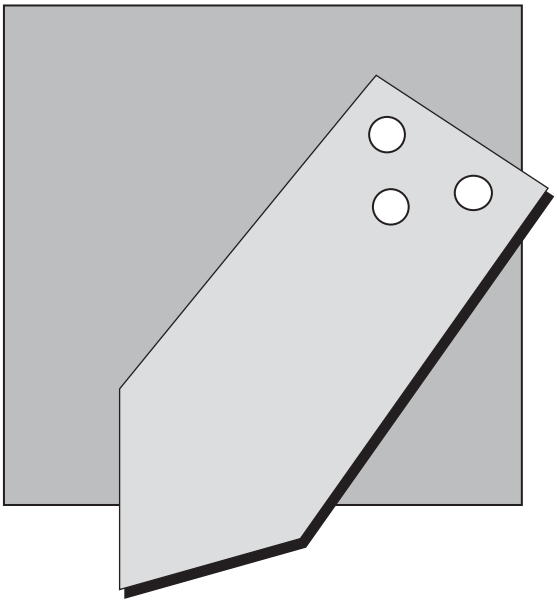
NEWS VIEWS

No. 14 (d) w.e.f.: 01/09/2012

Determination to Establish Excellence
Through Efficiency and Expertise

Tube Cut–Off Knives

The most common method of cutting welded steel tubes on tube mill has been by Friction Saw and next by COC Cutters. But these methods are not fast enough and can be used only upto Mill Speed of 75 mts./min. This limits the speed of Tube Mill & hence the capacity.



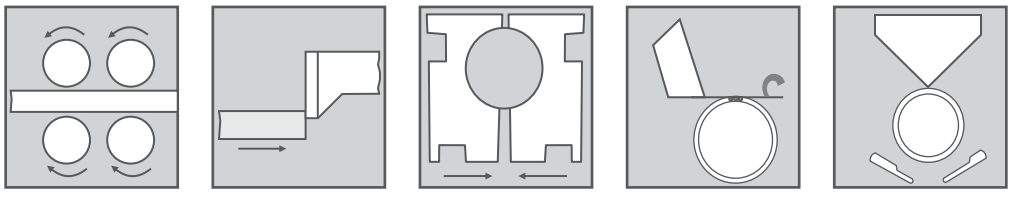
Next came the faster method of cutting tubes on Tube Mill. i.e. Punch Type Tube Cut-Off. This can accommodate tube speed upto 200 mts./min. The cutting principle employed is shearing force applied by a mechanical / hydraulic / pneumatic device.

Other advantages of using Punch Type Tube Cut-Off System are -

(a) High length accuracy, i.e. +/-1 mm on 3 mts. length at a Mill Speed of 150 mts./min.
(b) Suitable for round and section tubes.
(c) Cutting is burr free.

Tube Cut-Off Knife plays an important role in Punch Type Tube Cut-Off system. Dee Tee Tube Cut-Off Knife is made from High Speed Steel (AISI-M2) and moves up and down at high speed. While cutting tube, it passes through a set of dies and clearance between knife and dies is very fine which asks for closer thickness tolerance on knife. Apart from thickness tolerance, warpage should be well controlled to avoid breakage while moving through dies.

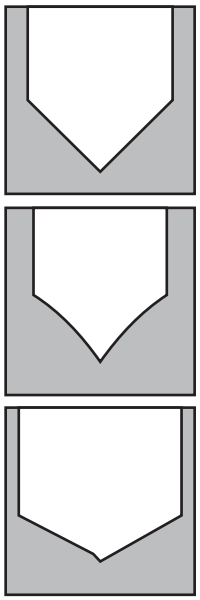
A typical representation of the system is reproduced below :



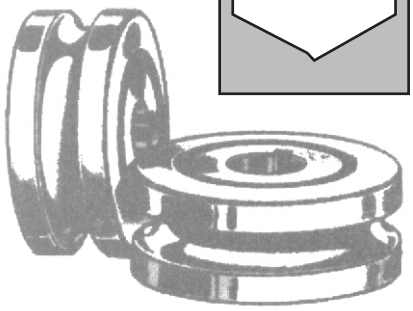
Punch Type Tube Cut-Off System (burr free, double blade type)

DeeTee Industries Limited, Unit-1 (Tooling Division)
28/33, Pologround Industrial Estate, Indore-452 015 (INDIA) Ph. : (0091-731) 4296777 Fax : (0091-731) 4296766
e-mail: deetee@deeteegroup.com web site : www.deeteegroup.com

(A) Recommended Tolerances on Dee Tee Tube Cut-Off Knives :



1. **Hardness** -
   61 HRC-base hardness, +/-1 HRC (If not specified in drawing)
2. **Thickness Tolerance** -
   - .025/-0.00 mm, length of knife 0 to150 mm.
   - .035/-0.00 mm, length of knife above 150 upto 300 mm.
   - .045/-0.00 mm, length of knife above 300 mm.
3. **Warpage** -
   - 0.02 mm per 100 mm length.
   - 0.015 mm within 75 mm depth from hole side (mounting side)
4. **Perpendicularity, side to bottom** -
   within 0.020 mm per 100 mm.
5. **Center distance of holes** -
   within +/-0.25 mm.
6. **Width Tolerance** -
   within -0.05/+0.00 mm.
7. **Surface Finish** -
   0.2 Ra or better



(B) Parameters of Prime Importance for Tube Cut-Off Knives :

1. Hardness.
2. Wear resistance.
3. Toughness.
4. Edge retention.
5. Impact resistance.

AISI-M2 is the best raw material for Tube Cut-Off Knives considering above requirements. Knives are also available TIN-COATED. These TIN-COATED knives give better life. Ion Bond Tin Coating, 2/3 microns gives good hardness, low coefficient of friction, corrosion resistance- which increases tool life 2 to 3 times.

(C) Chemical Composition of Raw Material :

	C	Mn	Cr	Mo	V	W
AISI-M2 :	0.85/0.95	0.15/0.40	4.0/4.5	4.8/5.2	1.7/1.9	6.2/6.6