Introduction:On few heavy-duty grinders, especially centerless grinders, often the demands are high both on quality and productivity with the following essential characteristics of wheel dressing; (1) Uniform dressing over the full length of wheel. (2) Proper abrasive glaze-free surface on the wheel. (3) Wheel edges free of broken edges.

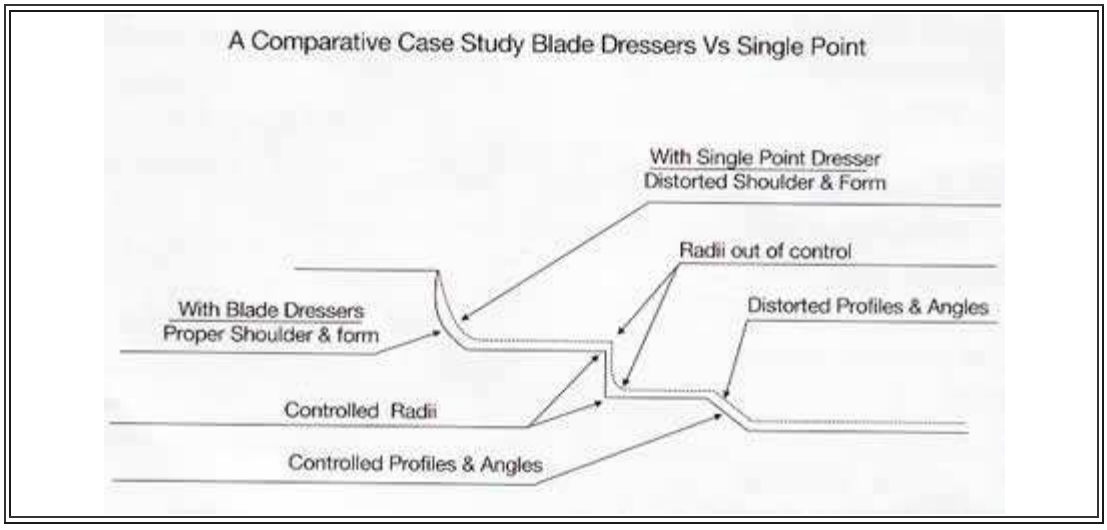
At the same time, from the economic point of view, the dresser becomes expensive when properly designed to meet all the three requirements. However, a combination dresser has been conceived to combine quality with economy.

Brief description : The dresser consists of three dressing blades set in a bronze shank (like any other blade dresser) in the form of a sandwich. The blades are set with gaps to ensure a proper follow up action during dressing. The middle blade serves as the main load carrying member. The other two blades serve a leading and lagging cutting point to ensure a glaze free dressings.

Cost comparison / economy: This dresser is supposed to give nearly three to four time than the life span with a normal blade dressers, and can be expected to result in a net cost saving of around 40% on tooling cost.

Common applications:

- Centreless grinding (plain)
- Cylindrical grinding with wheels (500 mm, and above in dia.)
- Surface grinding (TOS, BLOHM and Other heavy duty large machines.)



Introduction : Blade dressers are basically conceived from the multi - point wheel dressing concept -as an extension to the areas with a stringent control demand on quality & economy. The basic advantages which have lead to the extensive used of blade dressers are :

1. They are very economical in comparison with single-point dressers.
2. Higher form retention capability compared to single point dressers.
3. Minimum in-process service attention compared to any other dressers due to their self-wearing property.
4. They are ideally suited for optimum dressing condition and in turn for optimum grinding conditions.
5. Greater flexibility in selection from a wide range of varities of dressers to suit different grinding wheel specifications and grinding conditions.

The following paragraphs offer in-depth study and detailed analysis of the above attributes.

Economic considerations:
Blade diamonds are composed of thin natural diamond needles which are much cheaper than larger single point diamonds in direct consideration of weight basis. The impact of this economy will be felt to a greater extend when we try to replace the costlier chisel points, precisions single point and indexable crowns and blade dressers.

Form retention capability : A single point or a chisel point has a limitation that in certain special applications like dressing of wheels, within 15 to 20 hours of running. The condition of the dresser tips deteriorate to such a degree that the repeatability of form & related tolerances on the components are adversely affected. This results in the necessity to reset the dressers with fresh cutting points.
Blade dressers are designed to utilize their full life span with minimum deterioration of form and tolerances. It gives certain typical examples or areas where certain steep angles and sharp internal corners are effectively traced with precision blades in comparison to ordinary single point dressers and ordinary blade dressers.

Minimum in-process service attention : Normally, when a single point or a chisel point dresser is mounted, the machinist has to "watch" for a number of defects on the component.

1. "Glazing" of the wheel due to "blunting" of diamonds.
2. Loss of form & profiles.
3. "Breaking of wheel corners:
4. Appearance of "unstraightness" due to varying load conditions on the dressers.

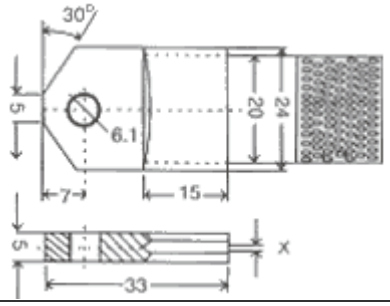
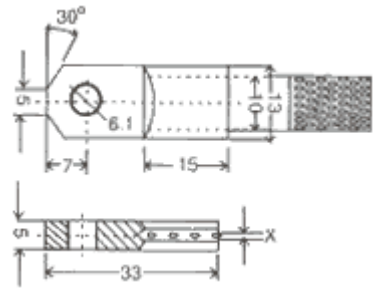
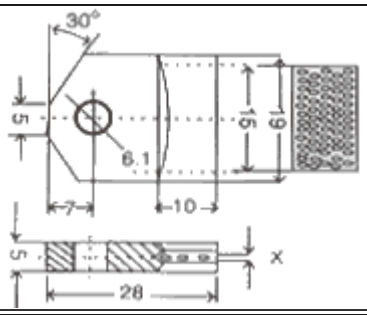
Blade dressers have been developed on the "fix and forget" principal -a concept of the right choice of dresser for an operation -when the next attention of the machines is warranted only when the dresser is fully used up.

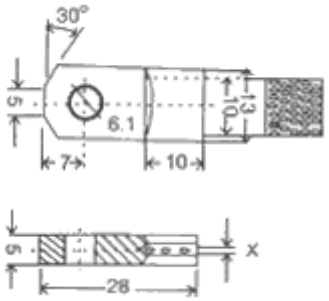
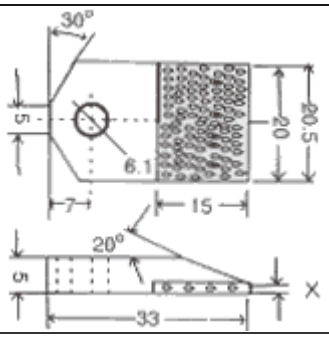
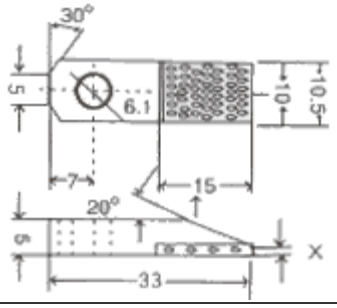
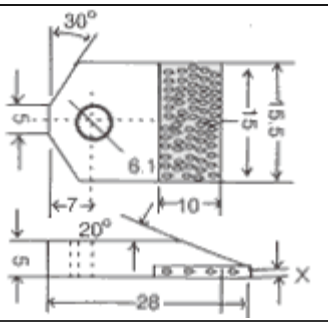
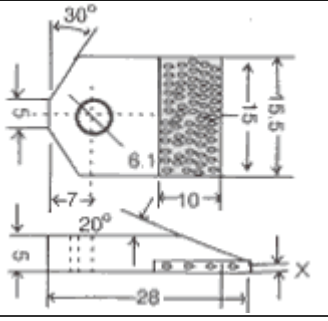
Optimised Conditions of the grinding wheel : Modern grinding technology has facilities to optimise a grinding process to the barest minimum operational cost- provided, the very starting point of the operation, namely dressing, is optimised. A

proper dressing demands the following conditions on the grinding wheel surface.
1. A pure abrasive action - no "rubbing" action.
2. Proper fracture of individual grains to expose maximum abrasive area for grinding.
3. Minimum "filling" of bonding cavities on the wheel surface to minimise friction during grinding operation.
4. Minimum "grain pullout"

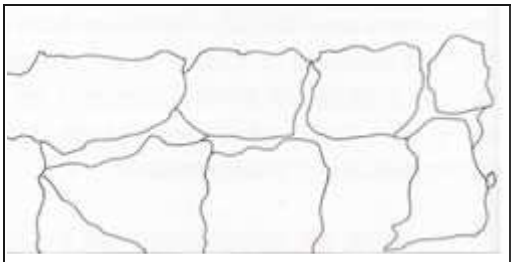
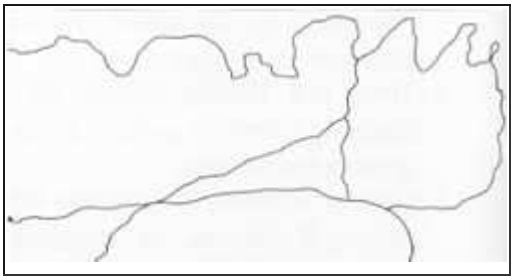
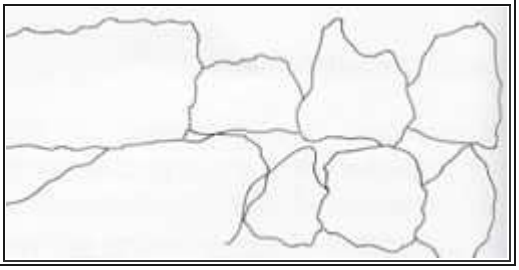
Flexibility in selection : Unlike single point dressers which are more or less independent of the grinding wheel specifications or conditions (except for the weight in carats), blade dressers need to be selected with due considerations to the grinding wheel specification and conditions of dressing.

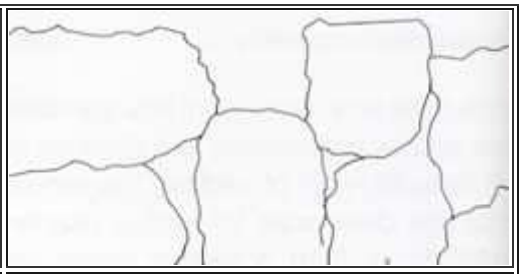
Conclusion : Blade dressers have been developed over the last decade through extensive field trials with renowed engineering industries. The benefits derived have been passed on to the several companies, through substantial reduction in their manufacturing costs.

Types	X MM	Catalogue No.	Blade Dimensions in MM
SA Dimensions of The Diamond Plate **20 x 15 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	SA - 075 SA - 090 SA - 110 SA - 140 SA - GRIT	
SB Dimensions of The Diamond Plate **10 x 15 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	SB - 075 SB - 090 SB - 110 SB - 140 SB - GRIT	
SC Dimensions of The Diamond Plate **15 x 10 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	SC - 075 SC - 090 SC - 110 SC - 140 SC - GRIT	

SD Dimensions of The Diamond Plate **10 x 10 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	SD - 075 SD - 090 SD - 110 SD - 140 SD - GRIT	
FA Dimensions of The Diamond Plate **20 x 15 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	FA - 075 FA - 090 FA - 110 FA - 140 FA - GRIT	
FB Dimensions of The Diamond Plate **10 x 15 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	FB - 075 FB - 090 FB - 110 FB - 140 FB - GRIT	
FC Dimensions of The Diamond Plate **15 x 10 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	FC - 075 FC - 090 FC - 110 FC - 140 FC - GRIT	
FD Dimensions of The Diamond Plate **10 x 10 x X**	0.75 mm 0.90 mm 1.10 mm 1.40 mm 18 to 20 Grit	FD - 075 FD - 090 FC - 110 FC - 140 FC - GRIT	

Dressing Conditions

What happens when we dress "Too Slow" **Grains Too Smooth** 1. Poor cutting action 2. Chatter Marks 3. Burning & Cracks	
What happens when we dress an "Idle Pass" **Sharp points on wheel grains are made blunt** 1. Poor cutting action 2. Unevenness (Waviness)	
When Dressed with a high depth of cut **Grains Broken & Pulled out** 1. Very rough finish 2. Wheel get loaded too soon	

What happens when we dress "Dry" **Grains pulled out Due to bond failure** 1. Very rough finish 2. Change in griund from & taper 3. Wheel will get loaded	
What happens when we dress correctly 1. Sharp edges on grains 2. No cavities