



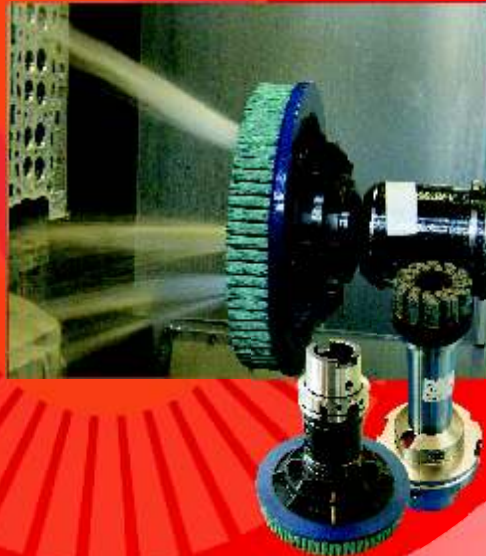
IMEXSU[®]
(INDIA)

MID[®]

Machine Inline DeBurring Solutions

"Exceed Expectation through Innovation"

Ceramic Brushes • Flow Through Holders & Brushes





IMEXSU[®] (INDIA)

“Exceed Expectation through Innovation”



**Your search for superior high aggressive brush ends here.
Presenting the ultimate brush range for all DeBurring needs
in ceramic material**



DeBurring Solutions

IMEXSU (INDIA), a renowned name in Soft Abrasive since last three decades. Providing customized solutions for DeBurring & Surface Preparation to various Industries is the objective of the company since its inception.

Presently more focused on catering solutions to every DeBurring problem, faced during the machining. In today's very fast, most modern and intelligent machines the productivity has increased in multiplications beyond limits, and the result is Free Availability of Burr on most operations. To overcome the problem in shortest possible time is the need of the hour as TIME IS MONEY. Always MUCH MORE & LONGER is not better, at end of the day if you see the

- Cycle Time
- Consistency in DeBurring / Finishing
- Improving Surface Finish (bring down RA)
- No back log, rejection due to manual DeBurring
- A perfect brush which you should dare to put in your costly machine
- Number of components' gone out from factory / assembly

Our R & D department has introduced few brushes which are unique and will offer significant advantage over all available similar and competing products. Application of these brushes would not disturb the present working cycle and would be adaptable in the present with minimum changes. We have complete DeBurring Solution on VMC / HMC / FMC / CNC / SPM / Robots & automation and various other machines for different component made from materials like steel, Inconel, Titanium, Alloy steel, cast iron, cast steel, stainless steel, aluminum, non-ferrous material, composite, Plastics and others.

MID[®]

Machine Inline DeBurring

We have a complete range of holders, tools and other accessories needed for your M.I.D. (Machine Inline DeBurring), right from holders for your ISO / BT / HSK & other make to suit your machine, with flow through coolant and other accessories required for various types of brushes holding according to your job, machine and process.

Problems pertaining to burrs are different and typical in every case and hence readily available standard solutions are not always compatible. They are invariably time consuming, cumbersome and are generally not cost effective both in the initial stages as well as in the long run. Temporary solutions, found within the existing infrastructure and material, may appear less cumbersome and may even see unnecessary activity, but eventually will not be cost effective and proper, particularly if they have to be repetitively done. The initiative effort and time spent to find a solution for such a typical problem, may apparently incur additional cost initially, but it definitely proves its worth in the long run.

We offer complete consultancy for all your DeBurring problems, including machines, holders & tools with related accessories including consumables like brushes and wheels. In the complete process of DeBurring, we recommend to use biggest size of brush so it takes minimum time of your cycle, which your machine and present situation on your ATC permits. Using same size or one size bigger brush of that of the cutter size will do a fairly good job, but will take more time & leave some burn.

Heavy DeBurring



DeBurring & Radiusing



Micro DeBurring & Surface Finishing





Brush Construction & Selection

Disc Brush

- High safety due to moulded and CNC machined body from Strong Engineering Plastic
- Faster cycle time (less height)
- Available with range of filament material, grit size, and Types
- Easy to mount, reduced set up cost and downtime
- Adaptable to all machinery centers viz. CNC, VMC, HMC, FMC, Robots & Automations
- These brushes are particularly suitable for DeBurring of any flat and sizable recessed components made from any metals, non-metals and composite

End Brush

- Light DeBurring and finishing in confined areas and small grooves especially internal areas and recessed surfaces
- Blending surface junctures
- Spot facing of counter, bore, holes, etc.
- Ideal for blind holes & conical end

ID DeBurring Brush

- Used for DeBurring of surfaces which are hard to reach with small diameters and internal thread surfaces with cross holes and opening
- They are majorly used in CNC machines and hand tools



Miniature Brush

- Made of NonWoven, Natural, Brass, Carbon Steel, Felt, Artificial chamois, Nylon Filament, Abrasive Filament, Cotton Thread and composite
- As the name suggests, these are mini brushes used mostly in polishing and the few micro DeBurring delicate parts
- Mounted as well as un-mounted are available
- Pre-polishing, polishing, finishing, Edge radiusing and Micro DeBurring

Circular Brush / Wheels

- These brushes are unidirectional & wheels are directional on thread bore & cutout.
- They are the perfect brush for DeBurring on a open, wider & specific area to obtain a finished product
- They are available in different diameter size and edge widths and Bore.



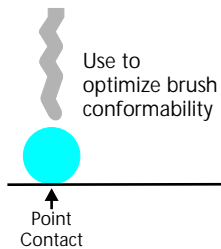
Filament Characteristics

The major constituent of IMEXSU Brushes is Nylon; the brush filaments material has excellent toughness and fatigue properties along with moisture, abrasion and chemical resistance. They have ability to return back their original form / position after they deform under pressure in action, which is the main requirement of DeBurring operation.

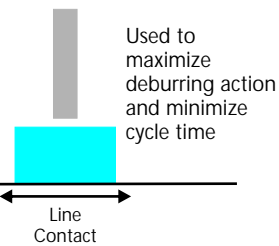
Filament Size, Grit and Shape - Disc Brush

| | |
|-------------|---|
| Shapes | Dot, Turbine, Heavy, Hollow, Angular, Vertical, Circular, Combination & many more |
| Sizes (mm) | Ø60, Ø80, Ø100, Ø115, Ø125, Ø150, Ø165, Ø180, Ø200, Ø225, Ø250, Ø296 and above |
| Height (mm) | 12, 18, 25, 30, 38, 50, 60, 80, 100 and above |
| Type | Silicon Carbide, Aluminum Oxide, Ceramic, Diamond, Non-Woven, Coated, Combination of Non-woven and Coated and other abrasive filament combination |
| Grit | 24, 36, 46, 60, 80, 120, 180, 240, 320, 500, 600, 800, 1000 & above |

Round Crimped Filament



Rectangular Filament



Filament Size and its effect

Thinner filaments = better conformability

Thicker filaments = higher aggression

Color Code

| | | Rough | | | | | |
|------|-----|-------|-----|-----|-----|------|--|
| Code | SI | SK | WH | RE | YE | GR | |
| Grit | 36 | 46 | 60 | 80 | 120 | 180 | |
| | | Fine | | | | | |
| Code | BR | BL | OR | BK | GY | PL | |
| Grit | 240 | 320 | 500 | 600 | 800 | 1000 | |

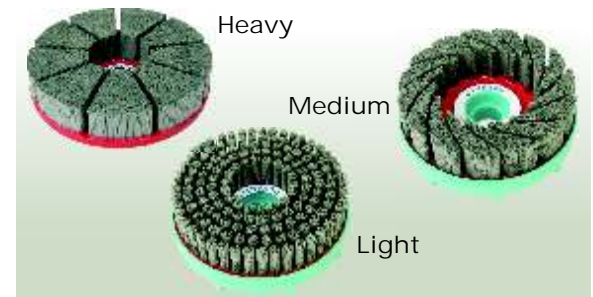
Filament Length & Density

Filament Length

Using a short length will result in rigid, stiff brush, while if the filament length is long the brush will be more flexible and reachable to the irregular surfaces.

Density

This is the number of filaments in the brush. If the density is more, the surface finishing will be rough and can be used for fast cutting. If the density is less, it will create more flexibility and can DeBurr the irregular surfaces.



Application Guidelines

For Aggression

- Reduce trim length
- Use larger diameter brush
- Increase grit size
- Use heavy density bristle brush
- Use rectangular bristle brush
- Increase spindle RPM
- Increase depth

For Lesser Aggression

- Increase trim length
- Use smaller diameter brush
- Use finer grit size
- Use medium less density bristle brush
- Use round bristle brush
- Reduce pressure

For Contouring

- Increase trim length
- Use fine grit bristle
- Use light density bristle brushes
- Use round crimped bristle brushes
- Increase pressure

For Fine Finishing

- Use brush with a coolant
- Use long bristle brush
- Increase spindle RPM

For Coarse Finishing

- Use brush without coolant
- Increase Grit size
- Use smaller diameter brush
- Reduce spindle RPM

For Smear Free Work piece

- Use brush with a coolant
- Use smaller diameter brush
- Reduce spindle RPM

• *The permutation combination of the job and the desired results are unnumerable. Please feel free to contact us for help in selecting proper combination for desired result in the most economical way*

Coolant

Brushes can be run dry or wet. But in most CNC applications the brushes use the same coolant as conventional machining. Use of coolant allows:

- Brush to run at higher speeds
- Enhance the surface finishing capability than dry brushing
- Helps in washing away oxides and other debris/particles released during the brushing process



Patent Applied

In application where the brushes are used for a long period of time at high speeds and relatively high pressures, may start to degrade. Coolant must be used if the operating speed and pressure cannot be lowered.

As MID Brushes absorb less moisture than other types, it is ideal for using with coolant retaining its high degree to rigidity and elasticity.

The innovation of flow through holders and brushes have added new dimensions to working with coolants. This enables the coolant to reach all over and at the same time enables the removal of released oxide and maintaining the surface clean at all times.

Reduction of heat preventing nylon from smearing over the components.



Flow through holder and Flow through brushes Patent applied

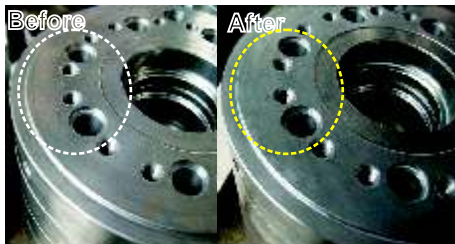
Operating Parameters:

Brushes should be operated at reasonable surface speed to prevent overheating and smearing of the nylon onto the work surface. A \varnothing 150mm brush running at 1400 RPM is much more effective than one running at 2800 RPM. Excessive speed & Longest Height causes the filament to bounce off the work piece instead of DeBurring & it start wiping and flying across the part surfaces and edges. Low surface speed is a requirement when the brush conformability is important. Generally higher spindle speeds improve the aggression and lower speeds enhance the conformability.

Spindle Speed for ID / Tube Brushes should not to exceed 2000 RPM. End Brush with shorter height can handle higher spindle speeds.

Spindle speed is generally decreased with increased Depth of Interference, so the filaments can conform smoothly to part contours. This combination ensures that filaments do not hit the part and bounce off its surfaces, but are DeBurring and filing across its surfaces and edges. This brushing action also contributes to longer brush life. Therefore, contoured surfaces are processed at slower speeds and greater depth of interference than flat surfaces.

Generally Burr sizes and work piece material dictates the amount of aggression. Burr conditions and the finished part specification will dictate the specific parameters required.

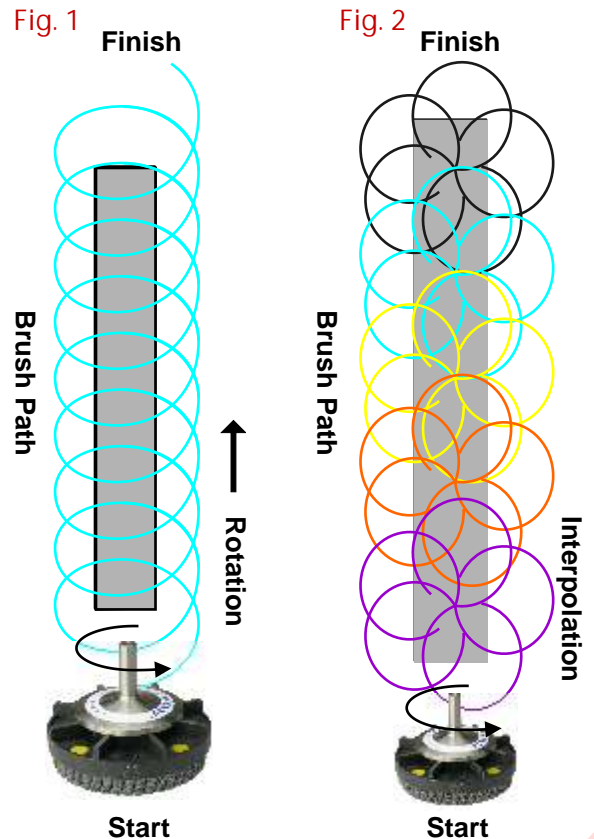


Tool Path

The brush should rotate in the direction opposite to that of the cutter which created the burr.

The ideal path for IMEXSU Brushes is as shown in the figure 1.

Brush should be ideally 80mm larger than the work piece. However figure 2 shows the use of a smaller brush which is required to move in Interpolation with minimum 40mm out from job on both side is always better.



Wear Compensation

It is possible to automate wear compensation on dedicated equipment, by using electronic controls to monitor the load on drive motors adjust the position of the brushing tool to maintain a relatively consistent amount of pressure. Standard CNC machines which do not have the possibility of adjustments need to try other methods like Automatic Indexing, Probe control or Manual setting from time to time.

In case of Indexing setting of tool position needs to be adjusted on the basis of the number of parts produced derived on the basis of brush life observation during the particular task.

Probe could help to gauge the true position of the tip of contact to set the pressure of the tool.

In the absence of such possibility the operators need to adjust brush position either visually or on the past results.

As a thumb rule no disc brush should be used after it has reached half the height of the original bristles.

HOLDERS

All types of holders are available to suit your requirement.

The shanks on the holder can be adapted with the help of your Shrink fit, Hydro lock, Side lock, ERW Collet or Precision drill chuck.

Holders are also available with circular brushes for interpolation.



Hydro-generator S. S. Distributor Ring 2.5mm thick,
ø 500mm grooved milled to depth 1.5mm,
O.D. & I.D. laser cut duly DeBurred on VMC.



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