

PARDUS

Stream and Drag Finish System
for High Performance Cutting Tools

- Machines especially designed for cutting tools
- High productivity and low running cost
- Rapid tool exchange



HIGH PERFORMANCE CUTTING EDGE

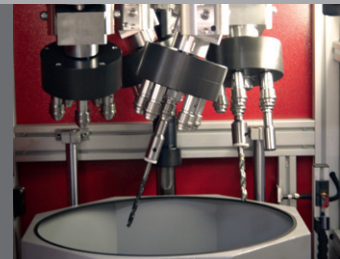
PARDUS Drag Finish

Increase the Performance of your Cutting Tools by EDGE PREPARATION and Improved Surface Roughness

Based on our long experience in PVD and validated by machining tests we have developed Drag Finish machines especially designed for cutting tools and tool holders.



- Robust and powerful machine for big hones
- High productivity
- Quick Tool Holders for rapid tool exchange
- Angle head for Drills and better flute polishing
- Various medias and processes
- Single or double container Drag Finish



Why Drag Finish improves the performance of your cutting tools?

The grinding process leaves a sharp, but brittle cutting edge, often with defects.

PVD coating on a sharp, brittle cutting edge leads to micro chipping, peel off or breaking during the initial phases of machining.

The Drag Finish purpose:

- Produce a reliable honed cutting edge. To create a well-defined radius, optimized to the related machining conditions.
- Improve surface roughness and remove droplets after coating to reduce the torque and achieve a better chip flow.
- Deburring HSS cutting tools
- Eliminate micro chipping on the cutting edge
- Remove Cobalt leaching

Double container Drag Finish

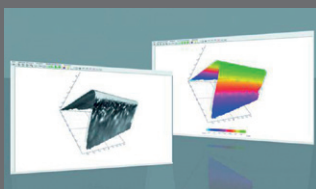
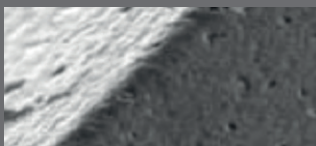
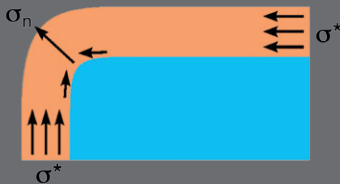
The machine is equipped with 2 media-containers:

- to avoid to change the media container for the different request of edge preparation and polishing
- tools can be operated in two different media e.g. roughing and fine polishing without media or tool change

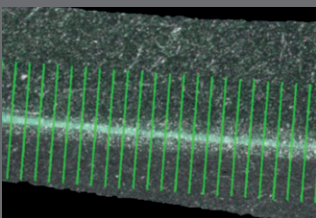
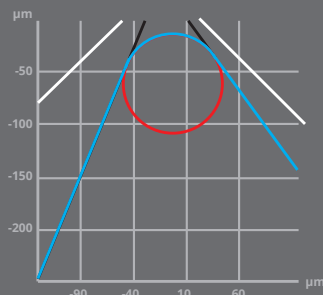
Benefits of Edge Preparation

Benefits:

- Maximum precision and stability
- Efficient chip evacuation
- Superior surface finish
- Increased cutting speed & feed
- Longer tool life - reduced chipping



Carbide Drill Honing



Stream Finishing System

During this process the clamped tools and the media container are turning; available for manual loading or with robot

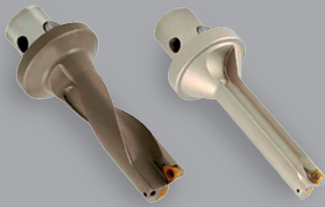


- High speed robotized loading and unloading
- Fast processes due to the high processing forces
- Deburring, polishing, honing in a single process operation
- Homogenous process on the full tool length
- High productivity: up to 144 tools/hour



	PARDUS 4H 12T DF	PARDUS 4H 20T SF/DF	PARDUS 6H 30T SF/DF	PARDUS 4H2C	PARDUS ROBOT
# of tools / cycle	12	20	30	20 - 30	100 - 144 pcs. / hr. (polishing & edge preparation)
Cycle time: polishing / edge prep / honing	3 - 8 min. / 6 - 20 min. / 45 min.	2 - 5 min. / 3 - 12 min. / 10 - 20 min.	2 - 5 min. / 3 - 12 min. / 10 - 20 min.	2 - 5 min. / 3 - 8 min. / 10 min.	
# of heads / automatic containers	3 / 1	4 / 1	6 / 1	4 to 6 / 2	
Option		Angle head			
Technology					
Dragfinish	✓	✓	✓	✓	✓
Streamfinish		✓	✓	✓	✓
Wet Dragfinish			✓	✓	

Polishing tool holders



Edge preparation for machining TiAlV6



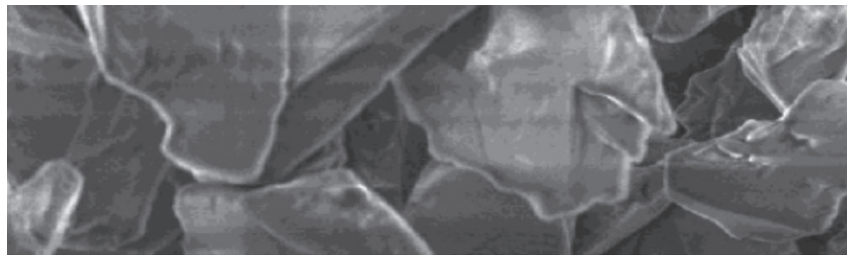
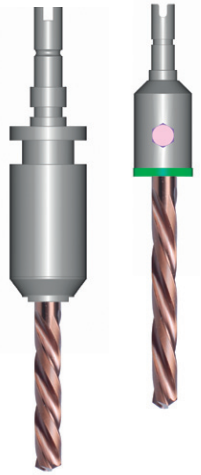
Deburring and polishing taps



Tool holder

All heads are equipped with a quick jig connect system to facilitate the loading of the tool holders.

- Quick Tool Holder - proprietary tool holders with collets for very fast tool change ; available for all shank diameters (metric and inch) 3 mm/1/8" to 25 mm/1"
- Screw Holder with bushings - the economic solution for odd sizes available for all shank diameters (metric and inch)
- Special holders for non standard tools (e.g. inserts, drill heads, stick blades, etc.) are available on request



Media mixes for Pardus drag finish units

LAPF 100	Media for Micro Tools and post coating polishing
LAPF46	Media for post coating polishing/small honing (upton 10 micron)
MAHst36	Media for standard honing (8-18 micron)
HAR24	Media for large honing (15-30 micron)
VA16	Media for very large honing (30-50 micron)
SCH16	Media for polishing and small honing of tools with cooling holes of 0,8mm and smaller

Polishing after coating

