

Jobs SpA

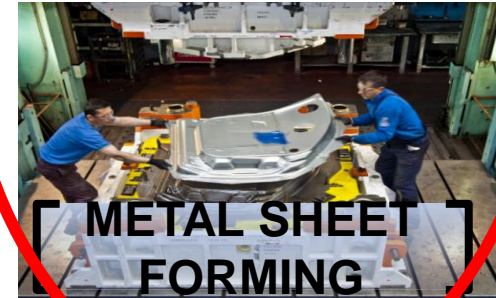
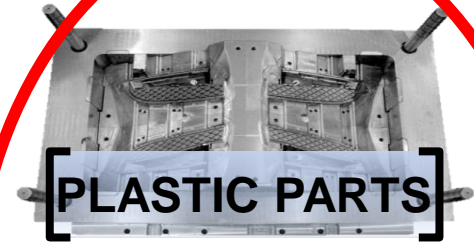
Focus on Mould&Die Solutions

Mario Orlandi

Head of Technology Sales

Aerospace Cluster







GOLDEN DRAGON



BAJAJ
Distinctly Ahead

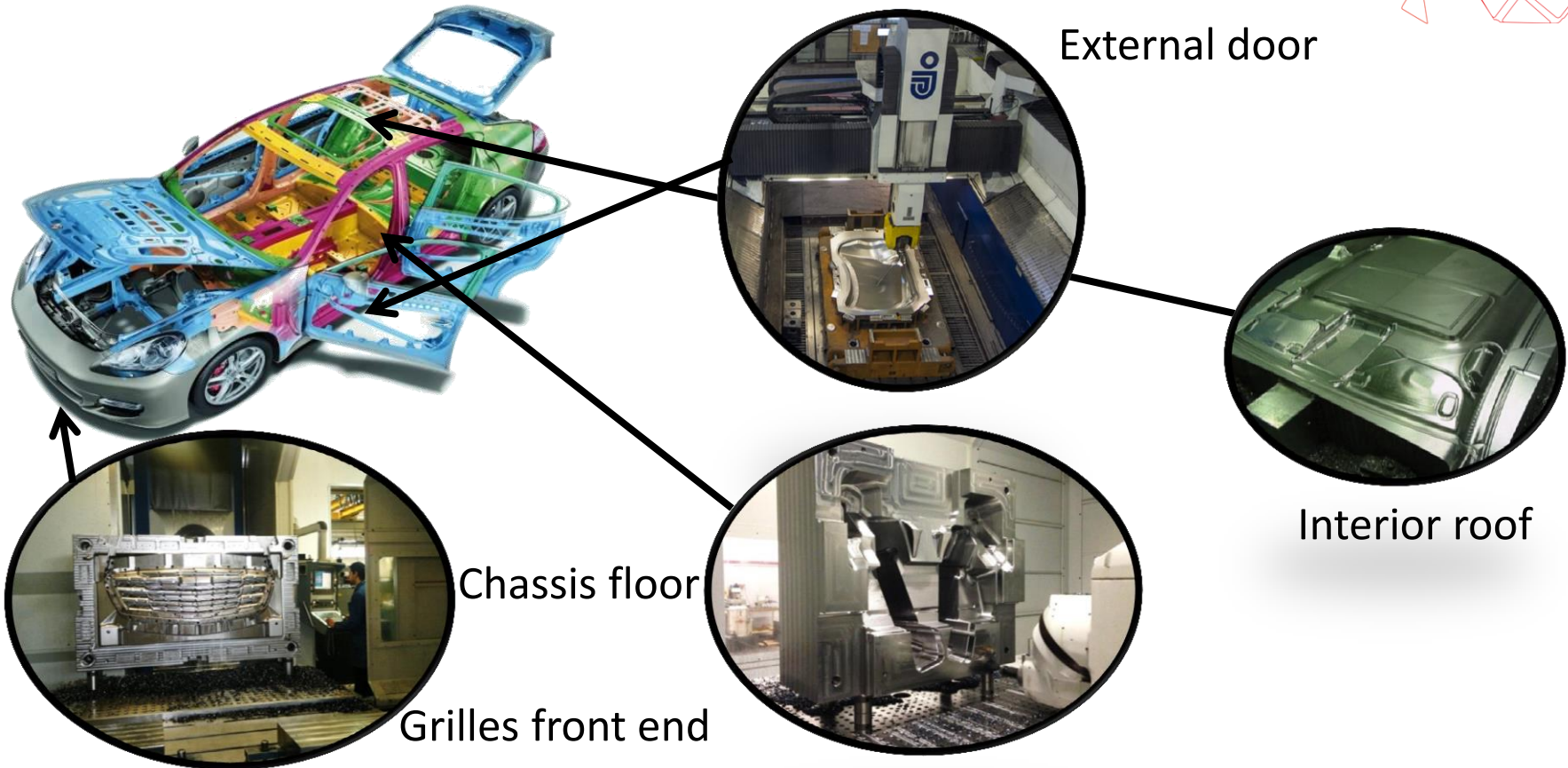


TOYOTA

Mubea



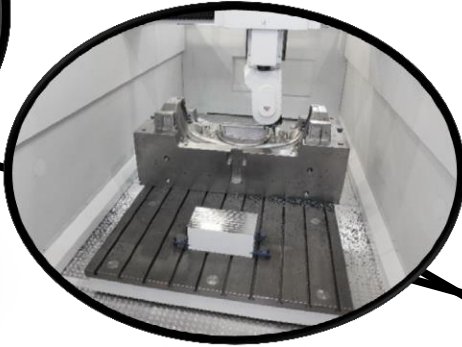
VERCARMODEL SARO



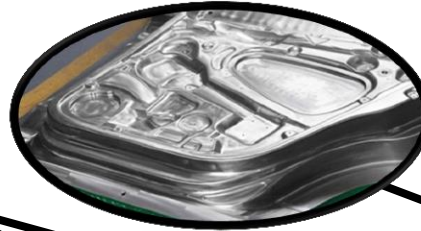


Front hood cover

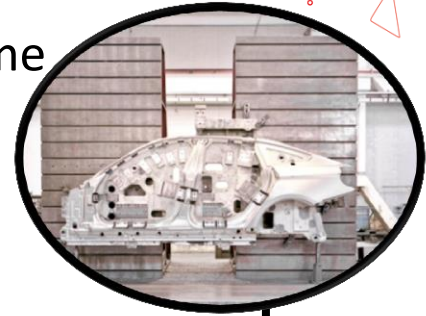
Bumper



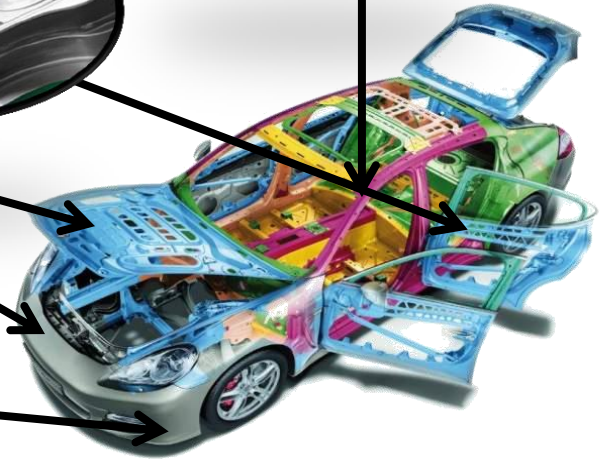
Interior door



Lateral frame



Fenders



- > High performance Milling
- > Cladding
- > Hardening
- > Micro cold forging
- > 3D digitalization



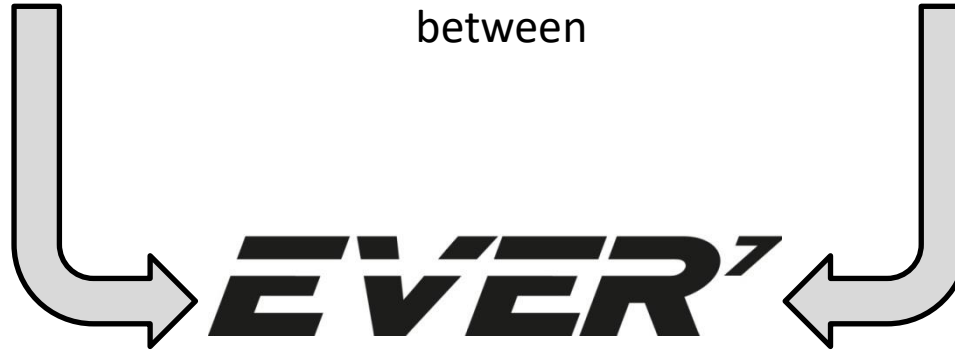


roughing




mold & die makers
request for the best
combination
between



finishing

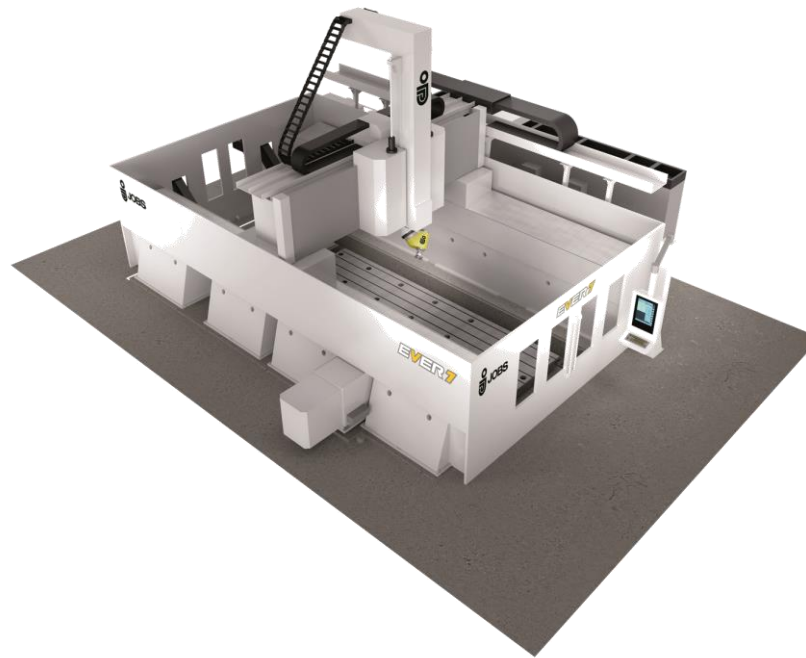


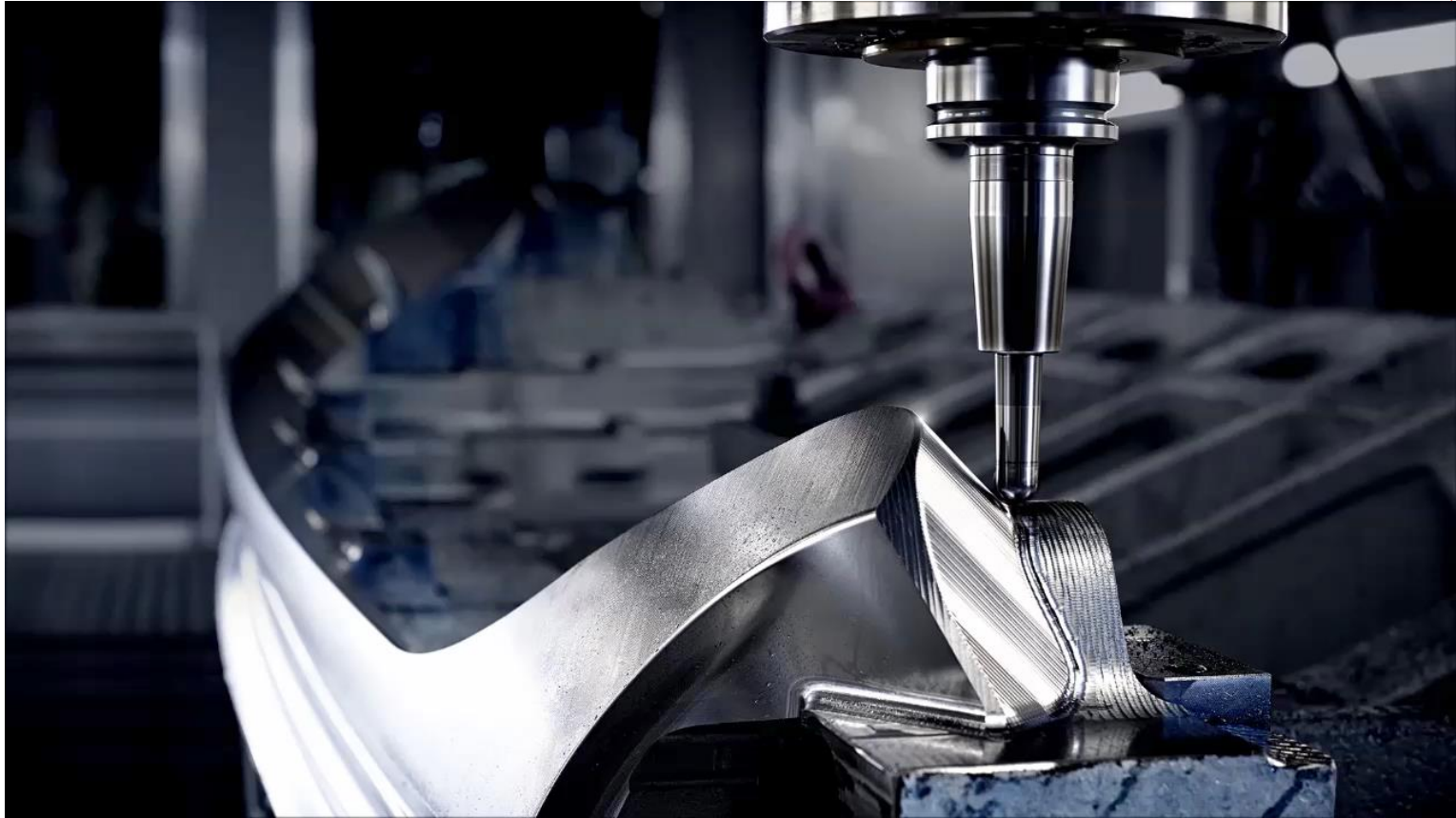
In this table we have analysed the typical machining operations for mould & die and put in relation with the most appropriate accessories

Matrix OPERATION / KOPF	10	20	30	40	50	60	70	80	90
OP	10	20	30	40	50	60	70	80	90
	Schuppen der schraege Flaeche fuer die Befaertigung der Zubehoere des Werkzeuges. Dic mit Igalfrasen, Messerkopf bis 600mm	Schuppen der Fruehrungen mit Igalfrasen	Schuppen der Fruehren und zuehlich	Umtriebsfrasen des Koehrer mit Igalfrasen.	Schlichten der schraege Flaeche. Schlicht ist mehrfach Notwendig mit lange Halb-Fraser zu arbeiten. Bis 600mm	Schuppen der Oberflaeche mit diverse Strategien: Toren und Kugel-Fraser	Vorschlichten um das Material auf konstante Aefmass zu bringen	HSC Schlichten	Schlichten der Fruehrungen mit Halb-Fraser.
 Gerade-Kopf Mechanisch		*	*	***		*** Sehr gute Feur Koehrateten			*
 Universat-Kopf Mechanisch (Index 0,02)	***	***	***	***	*** mit diesem Kopf kann man auch die Halb-Frasen verwenden mit oder einseitige Drehstahl und links drehschneid.	*** mit diesem Kopf kann man auch die Kugel-Frasen fuer die Schuppen und zuehlich verwenden. Werkzeuggeschw auf ca 30° einstellen.	***	*	***
 Gabelkopf HSC Motorspindel	*				*		*** Kleiner als D20 mit Motorspindel optimale Bedingungen fuer HSC	*** MR Motorspindel optimale Bedingungen fuer HSC	
	mit dem induzierte A-Achse kann man die beste Steifigkeit auch zuehlich haben und die Stabilitaet des Kopfes ist sehr gering	Alternativ auf 30° mit diesem Kopf und hoerere Werkzeuge	mit diesem Kopf ist die zuehliche Stoerung geringer als der Gerade-Kopf	Auch moeglich				nicht Optimal aber moeglich	Alternativ auf 90° mit diesem Kopf und hoerere Fraser.
	moeglich mit gering Spannvolum (Aefmass auf Roherteile ist sehr schwierig unter Kontrolle zu haben).				nicht optimal aber moeglich				

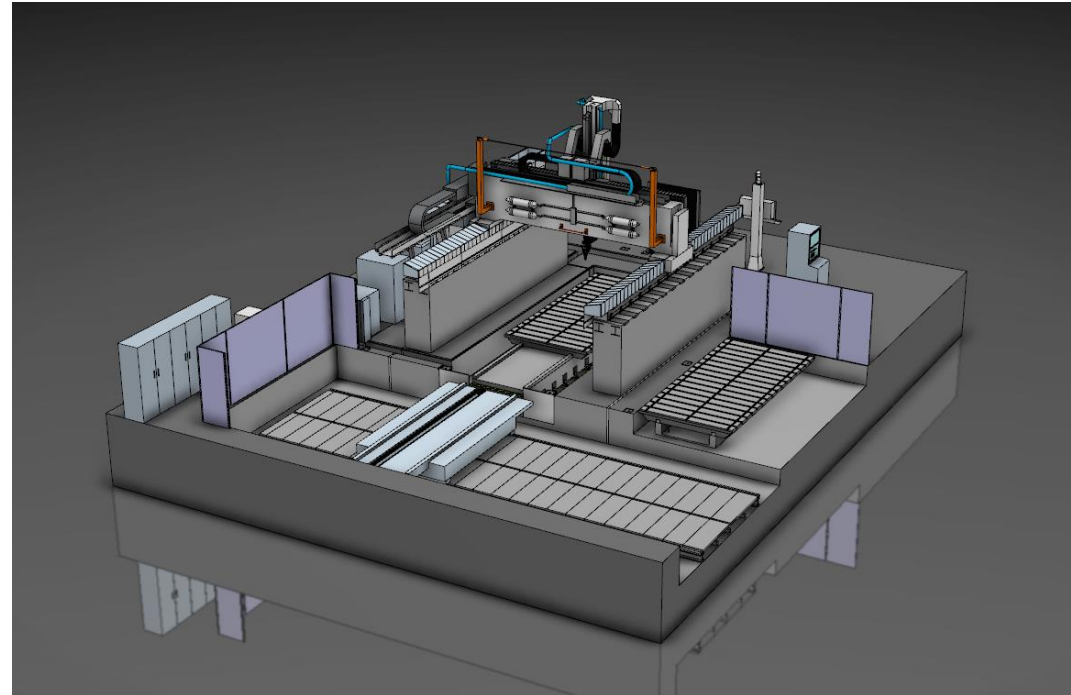
Development of a new overhead gantry machine for mold & die application

	EVER 7
X-axis	4000-6000-7000-+1500
Y-axis	3000-3500-4000-5000
Z-axis	1250-1500-1850
feedrate.	40.000 mm/min
acc.	4 m/s ²





The GrandSpeeder equipped with a laser head



LASERSPEEDER	
X-axis	6000
Y-axis	3500
Z-axis	1500
Feedrate	50.000 mm/min
Acc.	1,5 m/s ²



Laser Cladding is used to create a wear-resistant layer on mechanical components.

In this specific application it is used to repair and or add new complex geometries through 3D additive manufacturing on automotive tools and dies.

The selected technology is diode laser using a Fe-base alloy as filler material with a particle range of 45 – 150 μm .

The **coating-height** has a range of **0.2mm to 2mm**.

The nozzle is water-cooled and has a typical working distance of 12 mm.

Laser hardening is used to increase hardness on all commercial hardenable steels. Compared to other technologies like flame or inductor, this system only treats locally reducing the distortion.

The adjustable width is from 5 to 57mm and the depth between of 0.2 to 1.5 depending on the base material.

The achieved result is an Hardness **between 55 and 62 HRC**.

The temperature control ensures a high process reliability and excellent quality even at complex geometry and contours.





- > This technology has recently been integrated into the Jobs eVer 7 machine
- > Replacing of cost intensive manual polishing
- > Significant reduction of total cycle time
- > Surface roughness of less than 0,3 μm
- > Increasing of inherent compressive stress
- > Sure and repeatable CNC process

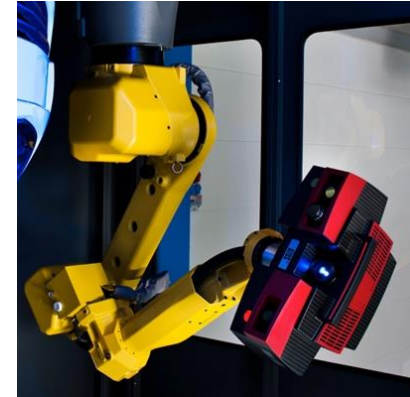
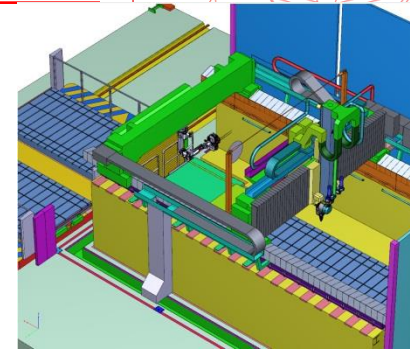
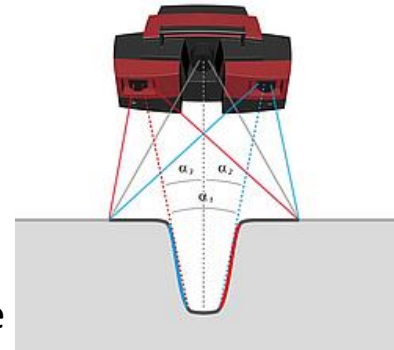


3D data collected can be further processed as follows:

- 1) Rough material definition in order to better define the roughing strategy
- 2) Reverse engineering
- 3) Final part inspection

Triple Scan Principle

Together with both cameras, the projection unit operates according to the triple scan principle. During the measurement, precise fringe patterns are projected onto the surface of the object and are recorded by two cameras, based on the stereo camera principle. This automatic principle offers advantages in measuring reflective surfaces or objects with complex indentations



THANK YOU FOR YOUR ATTENTION!