

# ACCIAIERIE VALBRUNA



the solution for improving  
machinability to stainless steel  
bar type 304 & 316



Austenitic stainless steel is one of the most outstanding alloys of our time, with a worldwide distribution restricted by one problem: high costs due to difficulties in machining.

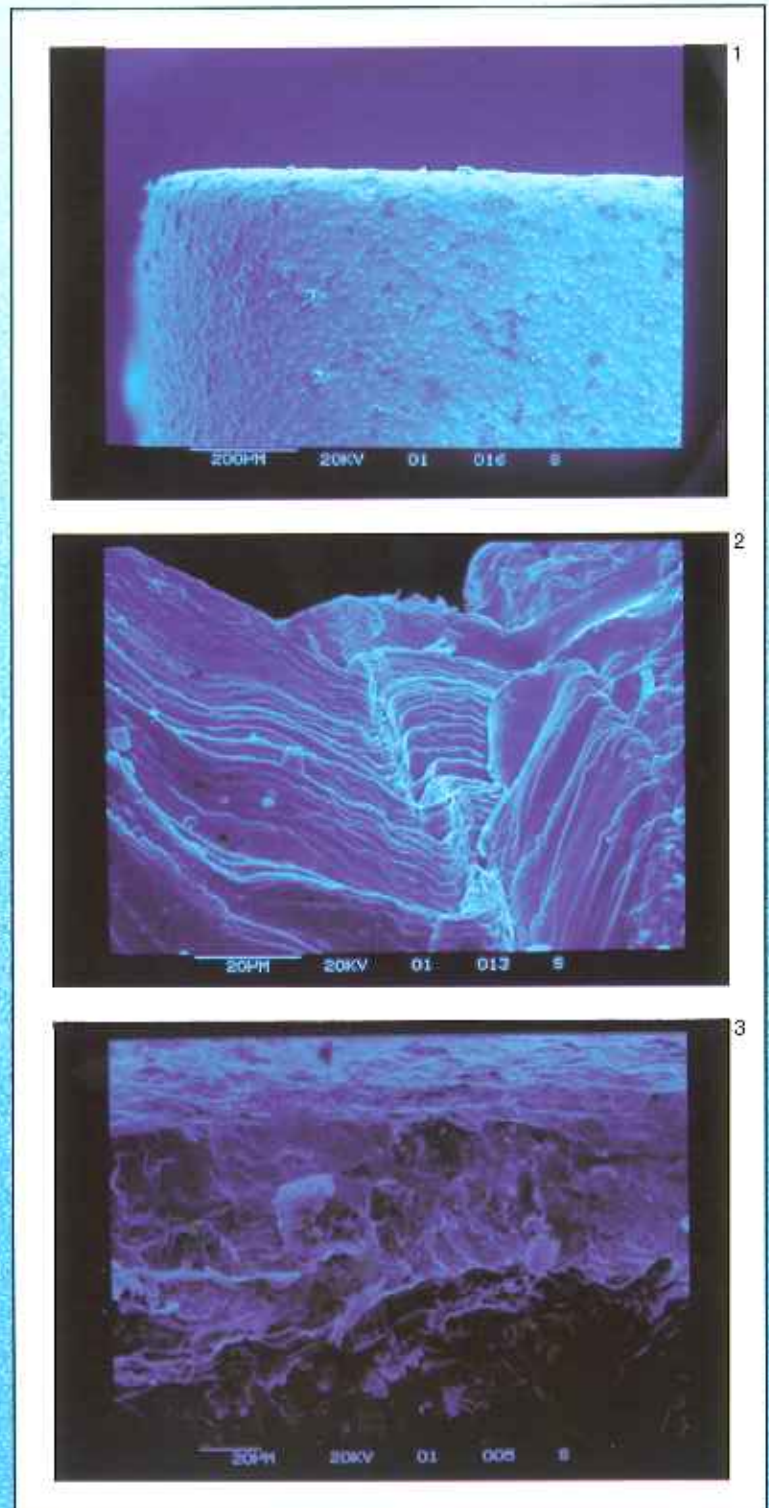
To offer an acceptable solution the metallurgist has studied the problem and the producer has marketed Type 303, a Type 304 (18/8 stainless alloy) with a content of sulphur ten times greater.

The solution with Type 303 however has two aspects:

- 1) A greatly increased machinability.
- 2) A reduced resistance to corrosion and fatigue due to the higher content of sulphides present in the structure.

The research departments of ACCIAIERIE VALBRUNA have created a new product which offers the right solution to the problem of corrosion and fatigue whilst still maintaining a high degree of machinability. The result is MAXIVAL®.

MAXIVAL® is a technologically advanced product which offers a high machinability standard without penalizing mechanical properties and the resistance to corrosion.



1 - New insert.  
 2 - New insert after machining for 30 minutes AISI 304.  
 3 - New insert after machining for 30 minutes MAXIVAL® 304.





The basic idea behind MAXIVAL® is the substitution of the high sulphur content, producing a steel with well distributed inclusions which:

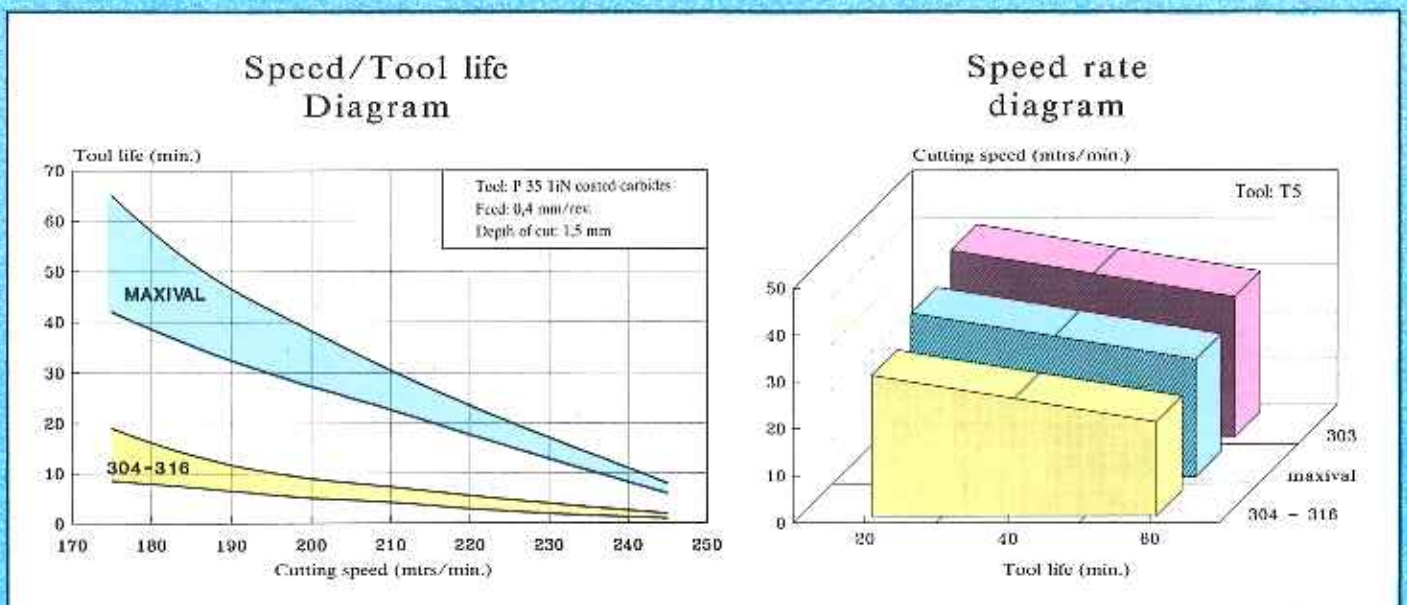
- 1) Break the “chips” on machining;
- 2) Do not wear nor overheat the tools;
- 3) Do not weaken the metallic matrix;
- 4) Do not create corrosion points.

MAXIVAL® is a stainless steel resistant to corrosion, weldable and mechanically as strong as Type 304 and 316.

The advantages offered to a machine shop when working with MAXIVAL® are:

- a) A greater number of machined pieces.
- b) Less tool wear;
- c) A reduction of down times for tool replacement.

(See the following tables).





### COMPARATIVE TABLE

Grade	Condition	Hardness HB	Depth of cut (mm)	Speed of cut (mm/rev)	Tool insert (ISO)	Cutting speed up to collapse of tool	
						with TiN mtrs/min.	without TiN mtrs/min.
MAXIVAL® 304	annealed	160	1.5	0.4	P 35	175	135
» »	hardened	200	1.5	0.4	P 35	150	115
» »	hardened	240	1.5	0.4	P 35	130	100
AISI 304	annealed	160	1.5	0.4	P 35	140	110
» »	hardened	200	1.5	0.4	P 35	120	95
» »	hardened	240	1.5	0.4	P 35	105	80
MAXIVAL® 316	annealed	160	1.5	0.4	P 35	145	110
» »	hardened	200	1.5	0.4	P 35	125	95
» »	hardened	240	1.5	0.4	P 35	108	82
AISI 316	annealed	160	1.5	0.4	P 35	115	90
» »	hardened	200	1.5	0.4	P 35	100	80
» »	hardened	240	1.5	0.4	P 35	88	68







Target: — more production  
— less tool wear  
— reduction of down times

Solution: **MAXIVAL**<sup>®</sup>  
maxi productivity  
maxi tool life  
maxi machine utilisation  
maxi saving on tool replacement  
maxi saving on tool cost





Aerial view of Vicenza plant.



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