Ugima – improved machining bar

Atlas Steels distributes Ugima and Valima brands of improved machining stainless steel bar. Ugima and Valima are trade names for improved machinability stainless steel developed by Ugine-Savoie of France. Improved machining bar results from a controlled melting process, giving high chip-breaking properties and providing a self-lubricating quality through the processing of machining.

Stock ranges

- Ugima 303, 304/304L and 316/316L round bar, 4.76 to 101.6mm.
- Ugima 316/316L round bar, 101.6 to 304.8mm.
- Ugima 303 and 316/316L hex bar, 13.34 to 57.15mm.
- Valima 316L – hollow bar.

The benefits

- Improved machinability.
- Increased cutting speeds.
- Lower unit cost of production.
- Increased tool life.
- Lower production power requirements.
- Consistent machinability.
- Improved product surface finish.
- Chemical composition within ASTM standards.
- Properties the same as commercial grades of stainless steel
  – corrosion resistance
  – mechanical properties
  – weldability
  – formability.
- Improved drilling and tapping characteristics.

Ugima will reduce wear on tools and extend tool life

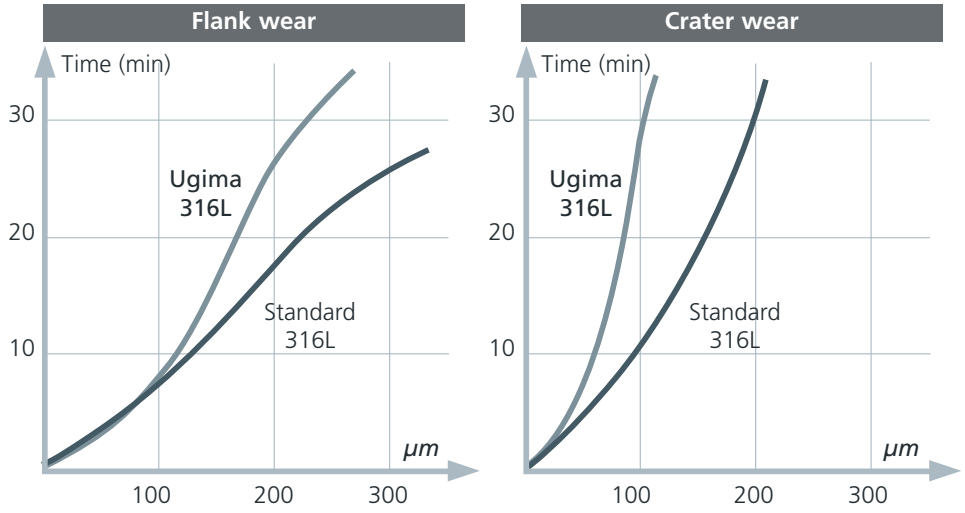
Impure abrasive inclusions which damage tools are excluded in the Ugima manufacturing steel melt process.

There is a decrease in flank wear and crater wear of carbide tooling which results in:

- less dismounting and reassembling of tools;
- less adjustment time; and
- a noticeable improvement in the life of cutting tools.

Printed November 2000

Turning
Tool: ISO P20 Carbide
Speed: 180 m/min
Feed: 0.25 mm/rev.
Depth of cut: 1.5mm



Ugima will enable higher cutting speeds

Ugima belongs to a new generation of steels and to benefit fully from its unique characteristics a minor modification is required to cutting conditions. In particular, it is necessary to increase cutting speeds.

The tables below are typical comparisons of cutting parameters which have been achieved in Ugine-Savoie's laboratories and tested in industrial conditions.

Cutting process	Stainless steel grade	Feedstock condition	Cutting speed (m/min)			Depth of cut (mm)	Feed (mm/rev)	Carbide insert (ISO)
			Brazed carbide	Plain carbide	Coated carbide			
CNC turning (rough machining)	Ugima 303	annealed	172	192	250	3	0.40	P10 - P20
		cold drawn	150	169	220	3	0.40	P20
	*AISI 303	annealed	130	145	185	3	0.40	–
		cold drawn	110	125	160	3	0.40	–
CNC turning (finish machining)	Ugima 303	annealed	220	280	350	1	0.20	P10 - P20
		cold drawn	200	240	300	1	0.20	P20
	*AISI 303	annealed	150	170	215	1	0.20	–
		cold drawn	120	145	185	1	0.20	–
CNC turning (rough machining)	Ugima 304L	annealed	125	138	180	3	0.40	P10 - P20
		cold drawn	113	126	161	3	0.40	P20
	*AISI 304L	annealed	103	115	149	3	0.40	–
		cold drawn	94	100	128	3	0.40	–
	Ugima 316L	annealed	96	114	149	3	0.40	P10 - P20
		cold drawn	84	96	128	3	0.40	P20
	*AISI 316L	annealed	76	90	123	3	0.40	–
		cold drawn	65	75	102	3	0.40	–

* Machining Data Handbook, 3rd Edition Vol.1 (1980) Metcut Research Ass. Inc.

Printed November 2000