ANVILOY® 1150 Machining Guide

Turning	Speed (sfpm)	Roughing		Finishing	
		Feed (ipr)	Depth of cut (in)	Feed (ipr)	Depth of cut (in)
	250 - 300	0.008 - 0.010	0.050 – 0.200	0.010 - 0.030	0.003 - 0.005
	All turning and boring can be accomplished with common tungsten carbide tools listed in the ISO groups of machine cuttings K 05 to K 20. Tungsten carbide turning tools without chamfer with a rake angle of 6° and a leading of 6° - 12° should be selected. For cutting, positive plates are preferred with chip breaker and without chamfers. Also High speed turning is possible. Cooling agents are not necessary.				

Milling	Speed (sfpm)	Roughing		Finishing	
		Feed (ipr)	Depth of cut (in)	Feed (ipr)	Depth of cut (in)
	250 - 300	0.004 - 0.010	0.040 - 0.120	0.002 - 0.003	0.000 - 0.005
	Positive indexable tungsten carbide milling head inserts from the ISO groups of machine cuttings K10 K20 and/or P20 to P30 proved to be very suitable. With an angle of the major cutting edge of 80° the face angle of the indexable insert should be 6° - 10°. Likewise the angles of inclination should be 6° and the setting angle 6°. High speed Milling is possible. No cooling agent should be used.				

Drilling	Speed (sfpm)	Feed (ipr)	High-speed steel drills (preferably material NR. 1.3342 or 1.3343) or tungsten carbide from the ISO group of machine cuttings K10 are suitable. The tip angle of the drill should be 120°. Depending on the choice of the tool material, cutting speeds from 20 to 80 m/min are possible. Since no cooling agent should be used. Drill must be raised and vented often in order to keep the cutting edge of the drill below 1000°F (550°C).
	150 - 250	0.002 - 0.005	

Tapping	Use a slightly larger tap drill size in order to reduce thread minor diameter by 50% to 60%. even though thread surface is reduced by half, full thread strength is achieved due to Anviloy's very high density. To bottom it is suggested that a spiral point tap be used instead of a plug or bottoming tap. After threading grind off the tip of the tap, even after grinding the tip off, the flutes of a spiral point tap are more suitable than those of a plug or bottoming tap. For best results use a fresh tap for each hole.

Grinding	For grinding Anviloy®, ceramically bound silicon carbide grinding wheels can be used. With a granulation of 50 - 120 and with a hardness of H to K. For cooling of the disk and clearing of ground material the grinding area must be rinsed with a strong cooling agent jet. The cooling agent can be a mixture of water and a commercial additive.

EDM

Electrical discharge machining of Anviloy® 1150 can be accomplished using available materials. Anviloy cannot be EDM'd as readily as H-13 tool Steel. For some jobs end-milling followed by EDM finishing may be more desirable. When using graphite or carbon electrodes a final polish is required to remove damaged surface material.

Electrode	Face Wear Ratio			Metal Removal Rate		
	Tool Steel	Tungsten Carbide	Anviloy 1150	Tool Steel	Tungsten Carbide	Anviloy 1150
Graphite	3.70	0.989	0.857	16.1	9.8	11.7
Copper Tungsten	8.60	3.83	2.75	16.8	5.4	6.5
Silver Tungsten	5.80	5.00	3.26	13.8	10.8	6.9

Notes

- Lubrication and coolants are optional with Anviloy® 1150 (if used degrease parts prior to use).
- TiN (Titanium nitride) coated drills and taps improve performance with Anviloy® 1150.
- Check with each manufacturer for other information.
- Anviloy® is a registered trademark of Astaras, Inc.

This information provided by IBG Group of Companies. It should be used as a guide only and adjusted to suit your individual machining capabilities.

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