

.075 thick build-up for repair of this O.D.

**TM 109-H** is a nickel alloy that deposits at a high rate of speed. It exhibits good corrosion resistance & good ductility on all ferrous & non-ferrous metals. TM 109-H is used when a harder deposit is desired. It is deposited with compressive stress which will not reduce fatigue strength of high strength steels.

## USER BENEFITS

**GOOD DUCTILITY**

**GOOD CORROSION RESISTANCE**

**EASILY GROUND (SEE REVERSE SIDE)**

**MAGNETIC COATING**

**MACHINEABILITY**

**HIGH RATE OF DEPOSIT (0.006 PER HOUR)**

**RELATIVE UNIFORM COVERAGE**

**DOES NOT REQUIRE HEAT LIKE A WELD OR SPRAY METAL**

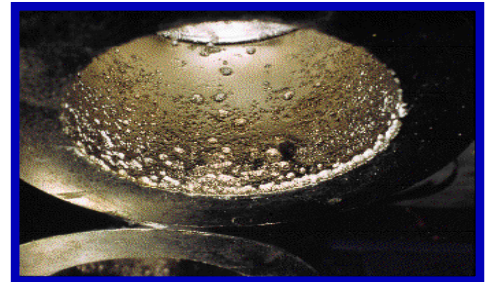
## SUMMARY

TM 109-H is primarily used in salvage of worn or mis-machined diameters. It is especially useful on parts requiring heavy build-up of material. Up to .100 may be deposited in a single day. TM 109-H is a process in which a metallic alloy is deposited on the base material. The structure of the deposit is crystalline in formation, which creates a high coefficient of friction. This material should not be used on wear applications as a substitute for chrome or electroless nickel.

TM 109-H, as deposited, has a hardness of approximately 35-40 Rockwell C. As such, it is very useful for repair of worn or mis-machined parts in low-wear applications. At this hardness, the material can be machined with most cutting tools; however, grinding is recommended for optimum results. In salvage operations, where fatigue values are critical & a hard case is required, TM 109-H has been found to be very useful.

TM 109-H can be selectively plated easily & quickly on almost any area, section or surface. The deposit will cover the area to be coated more evenly than other types of electrolytic plating, allowing the quick & easy repair of slots, keyways and splines. Unlike spray metal, TM 109-H has excellent adhesion & can be plated with electroless nickel or hard chrome for optimum wear ability.

TM 109-H has varied applications & uses. TM 109-H is used in the nuclear industry because of its high purity. It is adaptable to almost any salvage application requiring a machinable coating.



Salvage application requiring .80 build-up on 3" I.D.



# Grinding Recommendations for TM 109-H

Suggestions for grinding Techmetal 109-H are given in Table I.

The grinding wheels in each instance were diamond dressed. The grinding fluid was proprietary, water-soluble oil comprising emulsifiers of natural and synthetic origin, animal and mineral oil, germicides and inorganic salts. One part of the soluble oil and 40 parts water were used to make the emulsion for grinding.

**Table I**

Item	Surface Grinding	Cylindrical Grinding	Internal Grinding
<b>Grinding Wheel</b>			
Designation	57A46H12VBEP <sup>a</sup>	57A80-L5VBE	57A60-J5VBE
Size, inch	8 x ½ x 1¼	20 x 2 x 5	1 x 7/8 x 3/8
<b>Speed</b>			
Wheel, surface ft. / min.	5000	6000	4800
Table traverse, in. / min.	400	-----	-----
Work, surface ft. / min.	-----	80	90 to 120 <sup>c</sup>
Traverse, in. / min.	-----	30 to 90 <sup>b</sup>	20 to 60 <sup>c</sup>
<b>Wheel Feed</b>			
Roughing, inch			
Wheel	.003	-----	.0005
Cross	.010 - .015	-----	-----
Roughing & Semi-finishing, inch	-----	.001	-----
<b>Finishing, inch</b>			
Wheel	.0005	.00025	.00025
Cross	.030 - .035	-----	-----

- a For dry grinding use wheel designated 57A46F12VBEP.
- b A speed of 30 inches per minute, or somewhat less, produces the best finish.
- c The minimum speeds, and somewhat lower, produce the best finish