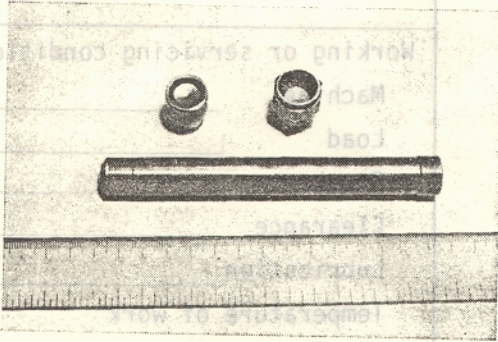


APPLICATION DATA

Name of part Piercing punch	Source K. Iwai, et al (Nippon Denso Co., Ltd.) Press Gijyutsu Vol.16, No.7 (1978) p.30	Name of part Piercing punch
Mode of servicing Cold forging		Mode of servicing Cold forging
Work material Material Size Hardness Remark	Work material Material AISI 1010 Size Hardness Remark	
TD treated part Carbide Base metal Hardness of substrate Remark	TD treated part Carbide VC Base metal Cemented carbide Hardness of substrate Remark	
	Working or servicing condition Machine Load > 150 kg/mm ² Stroke Clearance Lubrication Temperature of work	
Punch, blank and product		

Result	Base metal, treatment and hardness of the part to be compared M2, Cemented carbide	Result
	Life and other evidences TD part 461,000 shots/life The part to be compared M2: 25,000 shots/life by scoring Carbide: 25,000 shots/life by scoring	
	Profit obtained through application of TD Process In the case of VC coated carbide punches, 2 times of polishing and 2 times of VC coating were applied.	