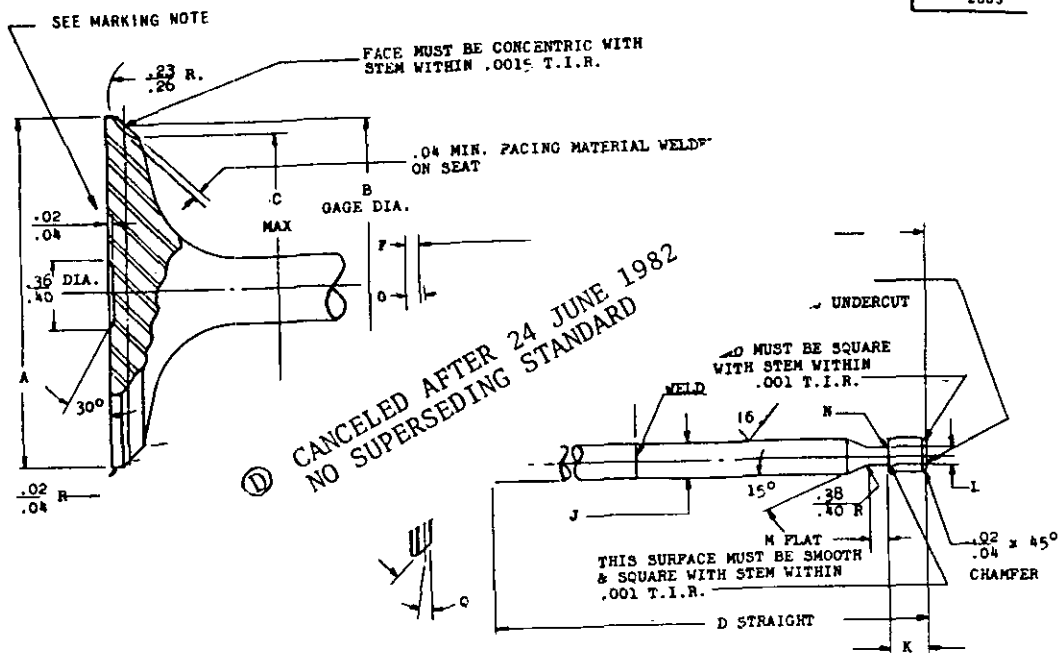


UP CLASS  
FED. 3  
2805

REVIEW INTEREST: ARMY - MU  
AIR FORCE - 69-  
NAVY INTEREST: NAVY - YD



MATERIAL : ANY COMBINATION OF VALVE HEAD AND SEAT MATERIAL SHOWN IN MATERIAL TABLE BELOW MAY BE SELECTED.

FINISH : SURFACE FINISHES TO BE IN ACCORDANCE WITH MIL-STD-10. SMOOTH GRIND JUNCTION OF STEM AND UNDER-HEAD RADIUS.

TOLERANCES: UNLESS OTHERWISE SPECIFIED, LINEAR MACHINED  $\pm .010$ ; ANGULAR MACHINED  $\pm 30'$ ; DO NOT SCALE DRAWING.

DIMENSIONS: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

MARKING : MS PART NUMBER AND MANUFACTURER'S IDENTIFICATION AND MATERIAL CODE TO BE MARKED AS INDICATED.

PART NUMBER: THE MS PART NUMBER CONSISTS OF THE MS NUMBER PLUS THE DASH NUMBER.  
EXAMPLE: MS 13999 1

TABLE I - MATERIAL BY PERCENTAGE

	STEM MATL I	HEAD MATL II	HEAD MATL III	HEAD MATL IV	FACING MATL V	SEAT MATL VI	SEAT MATL VII
CARRON	.79-.90	.15-.30	.45-.65	.15-.30	1.50-2.00	2.00-2.75	2.50-2.70
MANGANESE	.20-.60	.50-1.50	8.00-10.00	5.00-8.00	0.30 MAX.		1.00 MAX.
PHOSPHORUS	.04-MAX.	.04 MAX.	.04 MAX.	.04 MAX.			
SULPHUR	.04 MAX.	.04 MAX.	.05-.10	.04 MAX.			
SILICON	1.75-2.75	.50-1.50	.25 MAX.	.50-1.50	0.50-1.50	1.00 MAX.	1.5 MAX.
CHROMIUM	19.00-21.00	20.00-23.00	20.00-23.00	19.00-22.00	24.00-27.00	25.00-31.00	29.00-33.00
NICKEL	1.00-1.75	10.00-12.50	2.50-4.50	3.00-5.00	21.00-24.00	BALANCE	3.00 MAX.
NITROGEN		.30 MAX.	.25-.45	.20-.45			
TUNGSTEN					11.50-13.0	14.00-16.00	9.50-13.50
COBALT					BALANCE	9.00-11.00	BALANCE
IRON	BALANCE	BALANCE	BALANCE	BALANCE	2.00 MAX.	8.00 MAX.	3.00 MAX.
BORON							.05-.20
MOLYBDENUM					0.60 MAX.		

© ENTIRE STANDARD REVISED

P.A. Army - MO(ERIL) Other Cust Navy - YD Air Force - 69	TITLE VALVE, POPPET, ENGINE	MILITARY STANDARD MS 13999
PROCUREMENT SPECIFICATION MIL-E-11275	SUPERSEDES	SHEET 1 OF 2

STANDARD HAS BEEN APPROVED BY THE DEPARTMENT OF DEFENSE AND THIS MIL.

APPROVED	19 June 1952	REVISED	A	27 November 1953	'B	24 October 1955	'C	7 May 1965	(D)	24 JUNE 1982
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