



*ALTERNATE MATERIAL: 835M15 (En-39B) TO BS:970-83, BHN 207-269
 AUTHORITY: CQA(HV) LETTER NO. 091/IFD/IND-V/MTPF/OE
 DATED : 29-09-2004.

TECHNICAL REQUIREMENTS.:

- HEAT TREAT. DIA. OF IND = 3.7 TO 4.2, BHN 207-269
- DESCALE.
- DEPTH OF SURFACE DEFECTS AND SCALE PITS UPTO 0.5 OF ACTUAL ALLOWANCE ARE ACCEPTABLE.
- ELLIPTICITY OF HEAD SHOULD NOT EXCEED TOLERANCE LIMITS.
- TRACES OF GRIP MARKS ELLIPTICITY AND FOLDING OF FINS ALLOWED.
- ALONG CIRCUMFERENCE "A" FIN SHOULD NOT EXCEED 3.5 mm.
- MISMATCH SHOULD NOT EXCEED 1.0 mm
- CHAMFER OF 6°, NICKS FROM SHEARS UPTO 4 mm OVER A LENGTH OF 30 mm FROM FACE IS ALLOWED.
- BUCKLING SHOULD NOT EXCEED 2 mm.
- INCREASE UPTO Ø48 mm OVER A LENGTH OF 100 mm FROM THE HEAD IS ALLOWED.
- UNSPECIFIED RADII = R 3.0 mm.
- MACHINING DIMENSIONS ARE SHOWN IN BRACKETS.

VETTED
 18 DEC 2007
 JWM/STD-CELL

VETTED
 25 11/2005
 JWM/QC

@4.13. PILOT SAMPLE SHOULD BE APPROVED BEFORE BULK SUPPLY.

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION

EST. WT. TO BE STAMPED OR MARKED WHERE INDICATED THUS # (LETTERS)
 3.02 kg

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

इन आरेखणों तथा इसके साथ की सम्पूर्ण सामग्री का स्वत्वाधिकार भारत सरकार रक्षा मंत्रालय की भारतीय आयुध निर्माणियों के पास है। भारतीय आयुध निर्माणियों के महानिदेशक की लिखित अनुमति के बिना इनकी नकल या किसी भी रूप में इनके उद्धरण या इनमें समाहित सूचना किसी अनधिकृत व्यक्ति को उपलब्ध नहीं कराई जानी चाहिए।

THE COPYRIGHT OF THESE DRAWINGS AND ALL ATTACHMENTS THERE TO BELONGS TO THE INDIAN ORDNANCE FACTORIES, MINISTRY OF DEFENCE, GOVT. OF INDIA THEY SHOULD NOT BE COPIED, REPRODUCED IN ANY WAY OR THE INFORMATION CONTAINED THEREIN MADE AVAILABLE TO UNAUTHORISED PERSONS WITHOUT THE WRITTEN PERMISSION OF THE DIRECTOR OF ORDNANCE FACTORIES.

मूलमाप व अन्वयोजन
 NOMINAL SIZE & FIT

विचलन
 DEVIATION

CHEMICAL COMPOSITION

MATERIAL DESIGNATION	% C	% Mn	% Si	% Ni	% Cr	% Mo	% Cu	% S	% P
20X2H4A GOST 4543-71	0.16 - 0.22	0.30 - 0.60	0.17 - 0.37	3.25 3.65	1.25 - 1.65	--	0.03 MAX	0.025 MAX.	0.025 MAX.
835M15 (En 39B) BS:970-83	0.12 - 0.8	0.25 - 0.50	--	3.90 - 4.30	1.0 - 1.40	0.15 - 0.30	--	0.04 MAX.	0.035 MAX.

MECHANICAL PROPERTIES:

MATERIAL DESIGNATION	YIELD POINT kgf/mm ²	ULTIMATE STRENGTH kgf/mm ²	RELATIVE ELONGATION, %	IMPACT STRENGTH gH kgf.m/cm ²	RELATIVE REDUCTION IN CROSS-SECTION %	HARDNESS HB
20X2H4A GOST 4543-71	110	130	9	8	45	
835M15 (En 39B) BS:970-83	TENSILE STRENGTH N/mm ²	YIELD STRENGTH N/mm ²	0.2% PROOF STRESS (MIN) N/mm ²	ELONGATION % (MIN)	IZOD IMPACT (MIN) ft lb	KCV IMPACT (MIN) Joules
	---	1310	---	8	25	28

SHAFT (FORGING)		20X2H4A	GOST 4543-71	MASS = 3.02 kg		
संख्या NO OFF	विवरण DESCRIPTION	पुर्जा क्र. PART NO.	पदार्थ MATERIAL	मानक STANDARD	परिमाण DIMENSIONS	अभ्यक्ति REMARKS
	सामान्य सहिष्णुता GENERAL TOLERANCE					
	रेखिक परिमाण LINEAR DIMENSION					
	0-6	±0.1				@4 NOTE NO. 13 ADDED
	6-30	±0.2				@3 Y.S WAS 0.05, Y.P WAS 0.35
	30-120	±0.3				@2 Y.S 0.025 WAS 0.25, Y.P WAS 0.25
	120-315	±0.5				@1 HARDNESS WAS 321-388
	315-1000	±0.8				
	1000-2000	±1.2				
	कोणिक परिमाण ANGULAR DIMENSION	संख्या NO OFF	संबंधित पुर्जा का आरेखण क्र. DRG. NO. OF ASSOCIATED PART	सूचक INDEX	संशोधन ALTERATION	2005 दिनांक DATE
	1-10	±1°				
	10-50	±30'				
	50-100	±20'				
	> 100	±10'				
	मापोंक 'म्यू एम' में VALUE IN 'μm'					
	-	>25				
	▽	6-25				
	▽▽	1.6-8				
	▽▽▽	0.025-1.6				
	▽▽▽▽	<0.025				
SHAFT (FORGING) TRANSMISSION GEAR UNIT CODE-45/T-72 & T-90				मापमान SCALE	आरेखित DRAWN	19-08 DHR
				1:1	जाँचा CHECKED	22/8
					अनुमोदित APPROVED	20/8
				द्वारा बदला REPLACED BY	हेतु बदला REPLACED FOR	
मशीनी औजार आदिरूप फैक्टरी, अम्बरनाथ MACHINE TOOL PROTOTYPE FACTORY, AMBERNATH				कार्यालय OFFICE	DO	आरेखण क्र. DRAWING NO.
						175-45-026/F

TRACED FROM EXISTING DRAWING