

INSPECTION CHECK SHEET
OF
HTS HEX Bolts & Nuts

SPECIFICATION: IS: 1367 & 1363 and IRS/T-28

QUALITY ASSURANCE/CIVIL DIRECTORATE
RDSO, LUCKNOW

Inspection Check Sheet for HTS HEX Bolts & Nuts

Specification: IS: 1367 & IS: 1363 and IRS/T-28-1973 with latest amendments.
Drawing No. RDSO/T-671.

STR : Document No. TDG 0013 Rev. '0'

P. O. No.:	Date of inspection:	
Quantity in Order:	Offered Quantity:	Quantity inspected:
Quantity Passed:	Consignee/Purchaser:	

S.N	Reference	Description of Item	Observation/Remarks (Yes/No)																																
Quality Assurance Programme:																																			
1		i) Approved copy of Quality Assurance Programme (QAP) is available. ii) Internal testing record is available as per QAP.																																	
Measuring Instruments;																																			
2		Measuring & testing instruments/machines have valid calibration.																																	
3		i) Accuracy of hardness testing machine cross checked with standard test piece. ii) Any GO-NOGO gauges used by the firm for dimensional measurement cross checked with calibrated vernier & scale.																																	
4		Temperature indicator for heat treatment and quenching facilities is in working condition and satisfactory.																																	
DIMENSIONS:																																			
5	Dimensional Checking as per IS: 1363	Internal record of dimension checking maintained by the manufacturer.																																	
6		All required dimensions of bolts & nuts measured & recorded and are within specified limit. Specified dimensions are: <table style="width: 100%; border: none;"> <tr> <td>Bolt:</td> <td>Max.</td> <td>Min.</td> </tr> <tr> <td>Across flat</td> <td>36.0mm</td> <td>35.0mm</td> </tr> <tr> <td>Head Thickness</td> <td>15.90mm</td> <td>14.10mm</td> </tr> <tr> <td>Across corner</td> <td>---</td> <td>39.55mm</td> </tr> <tr> <td>Shank Dia.</td> <td>24.84mm</td> <td>23.16mm</td> </tr> <tr> <td>Thread length</td> <td>67.5mm</td> <td>60.0mm</td> </tr> <tr> <td>Length</td> <td>142mm</td> <td>138mm</td> </tr> <tr> <td>NUT:</td> <td>Max.</td> <td>Min.</td> </tr> <tr> <td>Across flat</td> <td>36.0mm</td> <td>35.0mm</td> </tr> <tr> <td>Thickness</td> <td>22.30mm</td> <td>20.20mm</td> </tr> <tr> <td>Across corner</td> <td>---</td> <td>39.55mm</td> </tr> </table>	Bolt:	Max.	Min.	Across flat	36.0mm	35.0mm	Head Thickness	15.90mm	14.10mm	Across corner	---	39.55mm	Shank Dia.	24.84mm	23.16mm	Thread length	67.5mm	60.0mm	Length	142mm	138mm	NUT:	Max.	Min.	Across flat	36.0mm	35.0mm	Thickness	22.30mm	20.20mm	Across corner	---	39.55mm
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Tests for Bolts & Nuts:			
7	Chemical Analysis IS: 1367 part-III & part-VI	i) Record of test results/certificate of raw material for chemical analysis available with the firm. ii) Internal record of chemical testing maintained by the manufacturer	
8		Results of chemical analysis of samples of Bolt & Nuts are within specified limit. Specified limits are: Bolt: Carbon (%) 0.25 – 0.55 Manganese (%) ----- Sulphur (%) 0.035 max. Phosphorous (%) 0.035 max. NUT: Carbon (%) 0.58 max. Manganese (%) 0.45 min. Sulphur (%) 0.058 max. Phosphorous (%) 0.048 max.	
Tests for Mechanical Properties:			
BOLTS:			
9	Physical Tests: IS: 1367 part-III	Wedge test/Tensile test results of bolts are as per specified limit of minimum 367 KN.	
10		Proof Load test results of bolts are as per specified limit of minimum 293 KN.	
11		Hardness test results of bolts are as per specified range of 32-39 HRC.	
12		Surface integrity of bolts is satisfactory.	
NUTS:			
13	Physical Tests: IS: 1367 part - VI	Proof Load test results of bolts are as per specified limit of minimum 423.6 KN.	
14		Hardness test results of bolts are as per specified range of 29 - 36 HRC.	
15		Surface integrity of bolts is satisfactory.	
16		Whether all the testing has been performed as mentioned in the specification.	
Marking:			
17	IRS/T-28-1973	Specified marking at various locations has been done.	
18		Quality of marking is satisfactory.	
19	Protection IRS/T-28-1973	Whether all the nut & bolts have been protected with approved rust preventive compounds and dried completely.	
20	Packing IRS/T-28-1973	Bolt & Nuts packed in double bags of specified quality and weight of each bag is less than 50 Kg.	