TECHNICAL SPECIFICATION Nut and Bolts of assorted sizes

* 1. SCOPE:

**Annexure – ‘B’**

(a.) Manufacturing Testing and supply of M.S. Bolts 5.6-Class Hexagonal Head Round Neck with Hexagonal Nuts (class-5) with one spring washers and one flat washer confirming to IS: 1363/84,IS:3063/94,IS:2016/67 with latest amendments if any. The bolts shall be full threated if length is less than 100mm and half threaded for greater than 100mm. ISI marked and Washers shall conform to IS: 2016/1967 with latest amendments if any.

(b.) Manufacturing Testing and supply of Eye Bolt with two bolts along with Spring and Plain Washer conforming to IS: 2062, Grade-‘A’.

Note: - All the Nut and Bolts and Eye Bolt shall be Hot Dip Galvanized as per slandered and Technical IS.

* 1. PACKING:

The Nuts with one spring washer and one flat washer duly assembled shall be packed in new double jute / woven polythene bags and each pack shall contain maximum 50 Kgs. Net weight.

* 1. ISILICENSE:

Notarized Xerox copy of valid ISI marking license shall be submitted with the tender. If ISI License is not submitted, the offer of the tenderer will be ignored. If validity of license has expired and if tenderer has applied for extension in validity, the Xerox copy duly attested by Govt. Gazette Officer of acknowledgement of Bureau of Indian Standards for application in validity shall be submitted with the tender.

5. Test Certificates:

Successful tenderers should agree to give test certificates in triplicate as per ISS: 1363/84 with latest amendments if any.

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| **SL No.** | Particulars | Guaranteed value |
| **1** | Specification & standards for Galvanized Bolts & Nuts(Black) | As per IS 1363(part 1 & 3) IS: 1367( part 3 & 6)  IS: 1367 (part 17) & other  Relevant standards with latest amendments. |
| **2** | Property class: |  |
|  | 1. For Bolts 2. For Nuts | 4.6  5 |
| **3** | Tolerance | As per ISS |
| **4** | Raw material |  |
|  | 1. Grade 2. Type of steel used | As per IS :2062  Low Carbon Steel(Grade C) as per IS : 2062 |

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| **5** | Chemical composition (%) |  |
|  | a) For Hexagonal bolts: |  |
|  | i) Carbon (Max.) | 0.55% |
|  | ii) Phosphorous (Maxm.) | 0.05% |
|  | iii) Sulphur (Maxm.) | 0.06% |
|  | b) For Hexagonal nuts: |  |
|  | i) Carbon (Maxm.) | 0.50% |
|  | ii) Phosphorous(Maxm.) | 0.06% |
|  | iii) Sulphur (Maxm.) | 0.15% |
| **6** | Mechanical properties: |  |
|  | i) For Hexagonal bolts: | As per IS: 1367( Pt. 3) |
|  | a) Tensile strength N/mm Sq. Minm. | 400 |
|  | b) Stress under proof load N/mm Sq.Minm. | 225 |
|  | c) Brinell Hardness HB | 114 Min. to 258 Maxm. |
|  | d) Rockwell Hard HRB | 67 Min. to 99.5 Max. |
|  | e) Vickers Hardness HV | 120 Min. to 250 Maxm. |
|  | f) Elongation after fracture | 22% |
|  | g) Strength under wedg. Loading N/mm  Sq.Minm. | 400 |
|  | h) Head soundness | No Fracture |