

ISO 9001:2015	Document No: TM/HM/6/513	Version No:0.0	Date effective
Specification of Pin for hydraulic cylinder of Unimat (Part no WN102-30h8.99.8.1)			



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SPECIFICATION NO. TM/HM/6/513
SPECIFICATION OF PIN FOR HYDRAULIC CYLINDER OF UNIMAT
(Part no. WN102.30h8.99.8.1)

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- 1.0 Scope:** This specification covers the dimensional, functional and material requirements with testing criteria of Pin, Distance Piece & Machined Washer for Hydraulic Cylinder. This specification may be treated as provisional subject to modifications based on service performance.
- 2.0 Reference Documents:** Following Specifications have been referred to in this specification. Full sets of relevant drawings and the referred codes/specifications, duly incorporating the up-dated corrections/amendments, shall be available for reference at manufacturer's works.
- i) BS: 970 - Part II - Direct hardening alloy steel - Specification.
 - ii) IS: 2062 -1992 -Steel for general engineering purpose–Specification.
 - iii) IS: 77-1976 - Linseed oil for paints - Specification.
 - iv) RDSO Drg. No. RDSO/TM/02/22 Pin, Distance Piece & Machined Washer for Hydraulic Cylinder.
- 3.0 Functional Requirement:** The Pin is used to provide connection between machine and hydraulic cylinder through rocker bearing assembly. All surfaces meant for machining shall be finished as mentioned in the drawing no. RDSO/TM/02/22.
- 4.0 Dimension & Tolerance:** Dimensions and tolerances of Pin, Distance Piece & Machined Washer shall be as mentioned in RDSO drawing no. RDSO/TM/02/22
- 5.0 Material:** The Pin shall be made from Steel of Grade 709 M 40 (EN-19) conforming to BS: 970 Part-II Specification of direct hardening alloy steel. Distance Piece & Machined Washer shall be made from steel grade A or B (mild Steel) conforming to IS: 2062-1992.
- 6.0 Manufacturing Process:** Pin shall be made by closed die forging only under belt drop forged hammer of adequate capacity capable of delivering minimum energy or force required for deformation during closed die-forging. Forging shall be machined to get final shape.
- 7.0 Heat Treatment:** Heat treatment of each component shall be done by induction hardening process to achieve case hardening of 32-38 HRC upto 1.25 mm depth.
- 8.0 Marking:** Month and year of manufacture and manufacturer's code / identification shall be engraved / embossed on the non-functional surface of Pin for hydraulic cylinder.

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9.0 Inspection And Acceptance Criteria:

- i) Each components offered by manufacturer shall be checked visually for their surface finish, freedom from defects like porosity, cracks, improper edges etc. Machined surface shall be checked by any suitable pneumatic or electronic equipment.
- ii) The component found suitable after visual inspection, shall be checked for their dimensions as per relevant drawing.
- iii) Minimum one or 2% of sample randomly picked up from each lot of consignment shall be checked for their hardness as per para no.7.0.
- iv) Supplier shall produce the certificate that the raw material used for manufacturing of Pin conforms to the Grade 709 M 40 (EN-19) of BS: 970 Part-II. Distance Piece & Machined Washer shall be conforming to steel grade A or B (mild steel) of IS: 2062-1992.
- v) Minimum one no or 2 % sample of the component of each lot of consignment and shall be subjected to chemical composition test. The consignee shall test the material for chemical composition at his laboratory or get the material tested in a reputed (NABL accredited or accredited by other international body like APLAC, MRA, ILAC etc) laboratory having proper facilities for testing. Before sending the samples for testing, the same shall be duly sealed and secret coding shall be done.
- vi) Any deviations in the test result from the requirement of the specification and drawing shall be the cause of rejection.

10.0 Packing and Protection: Each component shall be protected with one coat of boiled linseed oil conforming to IS: 77-1976 (linseed oil for paint) and shall be packed in cardboard case.

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