

## PROCEDURE OF SINGLE CYCLE STRESS RELIEVING OF STEEL WELDMENTS/ CASTINGS

**Scope:** This Procedure is applicable to relieve stresses generated due to welding or casting operation of steel.

**Cycle:**

1. The structure is introduced in the furnace, temperature of which should not exceed 300°C.
2. The furnace is heated to 600±10°C at rate of 75°C/hr max.
3. Soak the structure at 600±10°C for required duration based on max thickness
4. Cool the furnace to 300°C at the rate of 40°C/hr max
5. Cool the structure to ambient from 300°C

Sl. No.	Maximum Thickness in mm		Minimum soaking time in hrs.
	Above	Upto	
1		50	2
2	50	62	2.5
3	62	75	3
4	75	88	3.5
5	88	100	4
6	100	112	4.5
7	112	125	5
8	125	138	5.5
9	138	150	6
10	150	162	6.5
11	162	175	7
12	175	188	7.5
13	188	200	8
14	200	212	8.5
15	212	225	9
16	225	238	9.5
17	238	250	10
18	250		10

**Note:**

The heat-treater should record the time Vs temp plot

*[Signature]*  
16/11/2021

## Quality Plan for Manufacturing Cast and Forged Parts

**Doc. No. CMTI-QP-004-Rev-00**

Sl. No.	Process	Standard Specification	Acceptance Criteria	Responsibility	Vendor's Remark
1	Raw Material				
	a) Chemical Analysis		As per relevant material standard. Vendor should give Inspection Report	Random verification and approval by CMTI	
2	b) Mechanical Properties		As per relevant material standard. Vendor Inspection Report	Vendor certification and approval by CMTI. (Vendor to supply machined test specimens as per standard and samples are tested at CMTI approved lab)	
	Heat Treatment	Thermal Stress relieving	Vendor to provide time and temperature chart. Vendor Should follow Stress Relieving Cycle as per Doc No: CMTI QAP/CMTI/HT/1		
3	Dimensional Inspection after final machining	As per Drawing	Tolerance limits specified for identified critical dimensions	Vendor inspection report for all dimensions. Identified critical dimensions inspection and approval by CMTI	
4	Dye penetration test or magnetic particle test	IS: 3703 (DP) IS:3658(MPT)	No cracks	Vendor inspection report Random inspection and approval by CMTI	
5	Deburring	Visual	No burrs no sharp corners	Vendor inspection report Random inspection and approval by CMTI	

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## Acceptance Criteria

T Slot Bed (2000X1000X100mm)

Sl. No.	Parameter	Specification	Test Method	Remarks
1	Length, Width, Thickness	2000 ±0.3, 1000 ±0.3, 100±0.2mm	Scale & Vernier caliper	
2	Flatness	0.02mm/300mm square @ top face, 0.05mm/300mm square @ bottom face	Electrical comparator	
3	Parallelity	0.05mm With respect to top and bottom face	Dial Gauge	
4	Lifting pins	M20; 04Nos	Standard Thread Gauge	
5	T Slots	7 Nos ; 22H12	Vernier caliper & Standard T nut	
6	Surface Roughness	Ra <0.08µm@ Top Surface Ra <1.6µm@ Other Surface	Mitutoyo surface roughness tester	
7	Counter bore	8 Nos, Ø22mm Through All └┘ Ø34mm ↓ 22mm	Vernier caliper	

M. J. / 17/2021



## Technical Specification

### T Slot Bed (2000X1000X100mm)

Sl. No.	Parameter	Specification
1	Length, Width, Thickness	2000 ±0.3, 1000 ±0.3, 100±0.2mm
2	Flatness	0.02mm/300mm square @ top face, 0.05mm/300mm square @ bottom face
3	Parallelity	0.05mm With respect to top and bottom face
4	Lifting pins	M20; 04Nos
5	T Slots	7 Nos ; 22H12
6	Surface Roughness	Ra <0.08µm@ Top Surface Ra <1.6µm@ Other Surface
7	Counter bores	8 Nos, Ø22mm Through All □ Ø34mm ↓ 22mm
8	Quality Plan	As per the Doc. No. CMTI-QP-004- Rev-00
9	Procedure of single cycle stress relieving	As per the Doc No- CMTI QAP/ CMTI/HT/I

  
12/2/2021