



संदर्भ सं /Ref. No.: RCMA (NSK)/LoA- 126

दिनांक / Date: 24th Jun 2025

सेवा में / To

Executive Director
AURDC, HAL-Nasik
Ojhar: 422 207

**LETTER OF APPROVAL FOR INDIENOUS STAINLESS STEEL LOCKING WIRES
GRADE AISI-321, DTD 189A AGAINST RUSSIAN STAINLESS STEEL GRADE
12KH18N10T AS PER GOST 18143-72 OF DIA 0.5 MM TO 3.0 MM.**

References:

- a. HAL letter No. HAL-NK/AURDC/DI/4510/04/01A/2025/160, dated 26th Apr 2025.
- b. Type Approval -1494
- c. Form 29A, dated 26th Apr 2025

1. Introduction:

Indigenous Stainless steel Locking wires, Grade AISI 321, DTD 189A against Russian Stainless Steel Locking Wires Grade 12KH18N10T as per GOST 18143-72 of Dia 0.50 mm to 3.00 mm is used for locking of airborne components such as ejection seat gun locking, ejection canopy handle, pneumatic emergency brake handle in cockpit, emergency switches in the central control panel, emergency oxygen and fire extinguisher operation, seat parachute opening, brake parachute door opening etc.

2. Integration and Configuration:

- a. Form 29A
- b. Form 29B Type Approval Data Sheet (TADS).
- c. Form 29C Type Record of Airborne Stores.
- d. Form 12 Design Certificate

3. Acceptance:

Indigenous Stainless Steel Locking wires, Grade AISI 321, DTD 189A against Russian Stainless Steel Locking Wires Grade 12KH18N10T as per GOST 18143-72 of Dia 0.50 mm to 3.00 mm has been developed & manufactured by **M/s Bharat Wires Ropes, Mumbai** is hereby approved for use on Su-30MKI aircraft.

3.1 Basis of Acceptance:

- a. Technical Specification No. MDN-321, DTD 189A, AISI -321 and GOST 18143-72
- b. Test report co-ordinated by DGAQA (N) vide No. BWR/011/23, dated 04th Feb 2023 for dia 0.9 & 0.7 mm
- c. Test report co-ordinated by DGAQA (N) vide No. BWR/124/21, dated 18th Oct 2021 for dia 0.5 mm
- d. Test report co-ordinated by DGAQA (N) vide No. BWR/026C/22, dated 24th Mar 2022 for dia 0.5 mm
- e. Test report co-ordinated by DGAQA (N) vide No. BWR/026B/22, dated 24th Mar 2022 for dia 0.9 mm
- f. Test report co-ordinated by DGAQA (N) vide No. BWR/126/21, dated 18th Oct 2021 for dia 1.0 mm
- g. Test report co-ordinated by DGAQA (N) vide No. BWR/26A/22, dated 24th Mar 2022 for dia 1.0 mm
- h. Test report co-ordinated by DGAQA (N) vide No. BWR/25A/22, dated 24th Mar 2022 for dia 0.80 mm
- i. Test report co-ordinated by DGAQA (N) vide No. BWR/003/22, dated 11th Jan 2022 for dia 0.80 mm
- j. Test report co-ordinated by DGAQA (N) vide No. BWR/25B/22, dated 24th Mar 2022 for dia 1.20 mm
- k. Test report co-ordinated by DGAQA (N) vide No. BWR/002/22, dated 11th Jan 2022 for dia 0.70 mm
- l. Test report vide No. BWR/086/23, dated 27th Dec 2023 for dia 0.5 mm
- m. Test report vide No. BWR/087/23, dated 27th Dec 2023 for dia 0.8 mm
- n. Test report vide No. BWR/088/23, dated 27th Dec 2023 for dia 1.0 mm
- o. Test report vide No. BWR/089/23, dated 27th Dec 2023 for dia 1.25 mm

- p. Compliance statement by AURDC, HAL (ND).
- q. Type Approval No. TA-1494.
- r. Form 29A Application for Issue of LoA.
- s. Form 29B Type Approval Data Sheet (TADS).
- t. Form 29C Type Record of Airborne Stores.
- u. ACBS vide No. ACBS/12KH18N10T/CEMILAC/5070/TA-1494, dated 29th Apr 2025.

4. Limitation/Condition of Usage:

- a. Heat Treatment : As per OEM specification/standards
- b. Fabrication of components & Plating : As per OEM technology
- c. Storage condition : Same as OEM or recommended by developer / manufacturer
- d. Life of components : Same as OEM
- e. Stainless Steel Locking wires, Grade AISI 321, DTD 189A against Russian Stainless Steel Locking Wires Grade 12KH18N10T as per GOST 18143-72 of Dia 0.50 mm to 3.00 mm shall be suitably identified by colour coding mentioned in the Purchase order.
- f. Stainless Steel Locking wires, Grade AISI 321, DTD 189A against Russian Stainless Steel Locking Wires Grade 12KH18N10T as per GOST 18143-72 of Dia 0.50 mm to 3.00 mm with grease and packed in accordance with stipulations in purchase order.

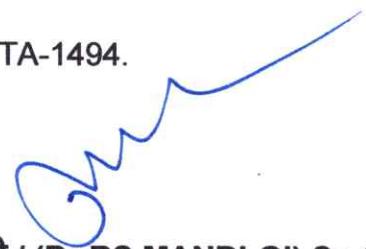
5. Conditions for Approval:

- a. The parts manufactured indigenously should be suitably identified and life assigned may be endorsed accordingly in certificates.
- b. Quality checks in respect of the indigenously developed items are to be carried out as per Inspection standard defined by Quality control department in consultation with DGAQA (N), C/o HAL-Nasik Division, Ojhar Township.
- c. This approval is Non Transferable and valid for item developed and manufactured by ***M/s Bharat Wires Ropes, Mumbai***.
- d. LoA is valid for a period of 'Ten Years' from the date of issue of this letter. However, validity of approval will be further extended based on satisfactory feedback.

- e. This letter of Technical approval is issued as per guidelines issued vide DDPMAS IMTAR-21.
- d. No change in manufacturing/process/materials is allowed at any stage, without prior permission of this establishment.
- e. This clearance supersedes the clearance issued vide TA-1494.

Encl: Form 29C Type record

(डॉ बी एस मण्डलोई) वै-जी / (Dr BS MANDLOI) Sc-G
क्षेत्रीय निर्देशक / REGIONAL DIRECTOR



Distributions:

1. M/s Bharat Wires Ropes, Mumbai
2. ADG, DGAQA(N), Nashik
3. AOC, 11BRD, Nashik
4. CE(A), CEMILAC, Bangalore, (KAO: Director(Aircraft) and Director(Mat & PI))

**TYPE RECORD COMPLIANCE STATEMENT FOR INDIGENOUS STAINLESS STEEL
LOCKING WIRES GRADE AISI-321, DTD 189A AGAINST RUSSIAN STAINLESS-STEEL
GRADE 12KH18N10T AS PER GOST 18143-72 OF DIA 0.5 MM TO 3.0 MM.**

Subject of Nomenclature	Stainless Steel Locking Wires grade AISI-321, DTD189A against Russian grade GOST 18143-72, (12KH18N10T) for Dia 0.50 mm to 3.00 mm
Manufactured by	M/s. Bharat wire Ropes Ltd. 524/525, The Corporate Centre, Nirmal Lifestyle Mall, L.B.S. Marg, Mulund (West), Mumbai 400 080
Testing Agency	M/s. Bharat wire ropes Ltd. Mumbai M/s. Mukand Ltd, Thane
End Use of the item	MiG series and SU-30 A/c for locking certain constituents of aircraft e.g. Central and RH & LH Handle for Ejection Seat Gun Locking , Canopy Ejection Handle, Emergency Pneumatic Brake Handle in the cockpit, Emergency Switches in the Central Control panel, Emergency Oxygen and for Extinguisher Operation, Seat Parachute Opening , Brake Parachute Opening, Brake Parachute Door Opening etc.
Governing specification/Test Schedule No.	GOST 18143-72 & RTO/ENG/33-1 (Link-2), Alloy: MDN 321A(Wires), Issue -1, dated 17.09.1981
Provisional Clearance No.	RCMA(N)/1629/25/2001/1313, Dt:23 rd Oct 2001

SL No.	Name of the Test	Test Clause No.		Requirement	Compliance status
		As per GOST 18143-72	DTD 189A		
1	Diameter (Sizes and Tolerance)	1.2 (table 1)	-	As per relevant clause	Complied
2	Surface Condition	2.5	5.2	As per relevant clause	Complied
3	Chemical Composition	2.2	1.1	As per relevant clause	Complied
4	Sizes and Tolerance	1.2	----	As per relevant clause	Complied
5	Ultrasonic Test	7 of Test Schedule	----	As per relevant clause	Complied
6	Tensile and Elongation	Table 2	7.1 (a)	As per relevant clause	Complied
7	Hardness (VPN)	For record	----	Refer RCMA(N)/1640/25/200	complied

				1/1313, dated 23 Oct 2001	
8	Reverse Torsion Test	9.3 of Test Schedule	----	As per relevant clause	Complied
9	Wrapping Test	9.4 of Test Schedule	----	As per relevant clause	Complied
10	Reverse Bend Test	9.5 of Test schedule	----	As per relevant clause	Complied
11	Special Bend Test	9.6 & 10 of Test	7.1 (c)	As per relevant clause	Complied
12	Metallographic Test	11 of Test Schedule	----	As per relevant clause	Complied
13	Inter crystalline Corrosion Test	GOST 6032-58	----	As per relevant clause	Complied
14	Micro-structure	For record	----	Refer RCMA(N)/1640/25/200 1/1313, dated 23 Oct 2001	Complied
15	Non-Metallic inclusion rod of dia 5.50 mm AISI-321	For record	----	Refer RCMA(N)/1640/25/200 1/1313, dated 23 Oct 2001	Complied
16	Single Bend Test	For Record	----	Refer RCMA(N)/1640/25/200 1/1313, dated 23 Oct 2001	Complied

Rajeev Kumar
CM (D-Indg)
HAL (ND)

Amit Raut
Scientist-E
RCMA (Nasik)