



**Government of India  
Ministry of Railways**

**QMS-26:2017  
(Revision 0)**

***Schedule of Technical Requirements  
For Infrastructural, Manufacturing & Testing facilities  
and Quality Control  
For  
Class 'E' & Class 'K' Adapters***

**Items undertaken approval under the STR**

S. No.	Assly./Item Name	Assly./Item	Drg. No.	Spec. No.	Remarks
1.	ADAPTER (Narrow Jaw) Class 'E' 6" X11"	Item	WD-89067-S/09	AB/RB-39-2002 (Rev.3) with 3 Amendment- Amendment No. 3 issued on October-2016	
2.	ADAPTER A.A.R. Std. Wide Jaw Class 'E'	Item	SK-78527	-DO-	
3.	MODIFIED ADAPTER	Item	WD-85053/S-1	-DO-	
4.	Adapter (Narrow jaw with Lug) Class 'k' "6 1/2X9"	Item	WD-15020-S-3	AB/RB-41-2016	

\*Note: - New Vendors shall be approved for all the above four items at a time. No approval would be given for individual type of adapters

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## 1.0 **SCOPE**

1.1 This schedule covers technical requirement for manufacture, testing and supply of Narrow Jaw, wide jaw, modified adapters to be fitted in BG wagon

## 2.0 **REQUIREMENT**

The vendor seeking approval shall have the required facilities as mentioned below:

2.1 General infrastructure and manufacturing facilities

2.2 Manufacturer should have adequate covered accommodation for storing raw material & other activities such as testing & inspection, storage of finished items awaiting dispatch

## 2.3 **M&P**

The following machinery and plants with adequate capacity should be available.

2.3.1 Ensure that covered shed with sufficient height and space provided with EOT Crane / Tram Beam Crane / Jib Crane facilities for the following is available:

- (i) melting, moulding, fetling
- (ii) shot blasting
- (iii) grinding, gauging
- (iv) machining

2.3.2 Medium frequency induction furnace of 1t capacity shall be available

2.3.3 Atleast one no. each Immersion and optical pyrometer / Infrared Pyrometer with digital display for measuring liquid metal temp shall be available.

2.3.4 Separate ladle for magnesium treatment should be available

2.3.5 Ladle with bottom pouring / Kettle ladle pouring arrangement should be available

## 3.0 **SAND TESTING**

3.1 All incoming sand must be tested before acceptance as per frequency set by quality control department.

The following must be checked :

- (i) AFS grain size
- (ii) Clay content
- (iii) LOI
- (iv) Moisture content

3.2 Ensure that a record is maintained regarding the sand testing.

3.3 For testing incoming virgin sand, moulding, sand, the following equipment should be available.

The calibration of such equipment must be done once in a year.

- (i) Permeability tester
- (ii) Quick moisture teller
- (iii) Dry compression strength tester
- (iv) Chemical balance
- (v) Sand sieve shaker

#### 4.0 **SAND PREPARATION**

4.1 Sand drier with cooling arrangement provided with intermediate hopper must be available.

4.2 Automatic sand continuous mixture machine for making mould shall be available

4.3 Prepared sand must be tested as per the following frequency.

- (i) Facing sand 1 in every 5 batch
  - (ii) Backing sand 1 in every 20 batch.
- Also the record of testing shall be maintained.

4.4 Whenever the sand is tested the following properties of prepared sands checked:-  
Moisture, permeability, GCS, GSS. Ensure that a system exists specifying the acceptance values for each test and any sand not meeting the above parameters is not used for mould making.

4.5 Jolting machine with squeezing facilities for Mould preparation should be available

#### 5.0 **CHEMICAL LABORATORY**

Ensure that a system exists for

5.1 Chemical analysis of steel by wet method using check up apparatus

5.2 Metallographic polishing equipment, belt polisher should be available

#### 6.0 **PHYSICAL LABORATORY**

6.1 Universal testing machine of 40t capacity with graphical /computerised recording for tensile test sample from each heat should be available. The machine is to be calibrated once in a year

6.2 One number fixed bench type heavy duty hardness testing equipment of 500 BHN capacity with optical / digital display arrangement for giving direct reading should be available.

6.3 Metallurgical microscope with 1000X magnification should be available.

## 7.0 MACHINING FACILITIES

- 7.1 There should be a machine shop equipped with the following machines
- (i) CNC Machine with facility for precision machining of adapters is required for proper matching of adapter with bearing.
  - (ii) Heavy duty swing frame grinder
  - (iii) Pedestal grinder

## 8.0 SHOT BLASTING

- 8.1 Suitable shot blasting machine conveyer or monorail type or twin table type should be available

## 9.0 TESTING FACILITIES

- 9.1 One number Hardness testing machine of 500 BHN capacity shall be available on shop floor in addition to facility as per clause 6.2 of this STR.

- 9.2 All gauges for checking dimensional accuracy of the product shall be available

## 10.0 QUALITY CONTROL REQUIREMENT

- 10.1 Quality manual of the firm for ISO 9000 should clearly indicate at any stage the control, over the manufacturing and testing of the said railway product.

- 10.2 There exists system of easy traceability of the product from casting stage to finished product.

- 10.3 Quality assurance plan for the product detailing various aspects like

- (a) Organisation chart
- (b) Flow process chart
- (c) Stage inspection details
- (d) Various parameters to be maintained to ensure control
- (e) Policy of disposal of rejected casting should be implemented and record is maintained for documentary evidence. The QAP shall be available as per the requirements detailed in “Vendor approval guidelines & application form” issued by QA(Mech) Directorate, RDSO

- 10.4 Diploma holder must be head of the inspection/final control section having 5 years experience in the relevant field.

- 10.5 Ensure that there exists a quality manual of the firm indicating the extent of control over production and testing

- 10.6 Ensure that there exists a system of documentation in respect of rejection at customer end, warranty replacement.

- 10.7 System should exist for documentation of the following:

- (i) Incoming raw material with TC ref. of supplier as well as internal test result.
- (ii) Stage inspection and test results.
- (iii) Calibration records.