

03 May, 2019

**Mandatory Pre Qualification Requirements for
EMPTY SEAMLESS H2, CO2 & N2 CYLINDER**

- 1.0 Gas cylinders are required for supplying gas to Generator and its auxiliaries for thermal power plant applications. The working pressure of cylinder in BHEL application is around 150 kg/cm².
- For supplying the Gas Cylinders vendor should meet the requirements mentioned at sl no. 2, 3 and 5.
- 2.0 Vendors should be a manufacturer or authorized supplier of OEM for the supply of gas cylinders and should have supplied gas cylinders with min capacity of 46.7 L and working pressure of 150 kg/cm² (Min).
- 3.0 Vendor should have valid BIS license conforming to IS:7285 in the name of manufacturer/OEM for manufacturing of gas cylinders. The copy of valid BIS License shall be furnished along with other documents of PQR.
- 4.0 In support of above, vendor shall furnish their credential list, as per the following format

S. No.	Application (i.e. type of gas)	Name & address of customer	Contact Details of the customer (email & phone number etc.)	Purchase order reference no.	Purchase order issue date	Material of Construction	Size/ Capacity of cylinder	Test performed & testing parameters

- 5.0 In support of details furnished at point no. 4 above, vendor shall furnish copy of Purchase Orders. Also for one no. PO all the test certificates and customer acceptance of test certificates shall be furnished.
- 6.0 BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.
- 7.0 Vendors to confirm specific compliance of all the above mentioned points else offers will not be considered.

Prepared By:

Kunal Mishra
03/05/19

KUNAL MISHRA
(Dy.Mgr.-EME)

Checked by:

Manju
03/05/19

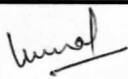
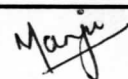
Manju Azad
(Sr.Mgr.-EME)

Approved by:

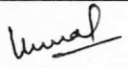
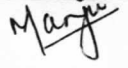
R.L. Vyas
03/05/19

R.L. Vyas
(AGM/EME)

दिनांक एवं हस्ताक्षर SIGN & DATE	SUPERSEDES INVENTORY NO.	सापेक्षी सूची संख्या को अधिकारित करना है	COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं प्रसारण के बिना की जायेगी अन्यथा कानून के अन्तर्गत दण्डनीय होगा।	दिनांक एवं हस्ताक्षर SIGN & DATE	सापेक्षी सूची संख्या INVENTORY NO.	उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION TG60456	पृष्ठ 2 का 1 Page 1 of 2				
EMPTY HYDROGEN CYLINDER												
1.0 SCOPE This specification covers the design, manufacture, testing and supply of EMPTY HYDROGEN CYLINDER As per the requirements specified here in.												
2.0 STANDARD APPLICABLE Latest addition of IS: 3224, IS:7285 & IS: 11117												
3.0 DIMENSIONS <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">a. Outside diameter</td> <td style="width: 50%;">: 232mm.</td> </tr> <tr> <td>b. Cylinder wall thickness</td> <td>: 5.4 mm.(Min)</td> </tr> <tr> <td>c. Overall length</td> <td>: 1445mm</td> </tr> </table>							a. Outside diameter	: 232mm.	b. Cylinder wall thickness	: 5.4 mm.(Min)	c. Overall length	: 1445mm
a. Outside diameter	: 232mm.											
b. Cylinder wall thickness	: 5.4 mm.(Min)											
c. Overall length	: 1445mm											
4.0 DESIGN The top end should be necked down to 2"dia. And screwed internally to dia 1"standard taper 1 in 8, 14 TPI to IS: 3224. The bottom of cylinder shall be concave.												
5.0 FITTINGS The Gas cylinder should be complete with the following fittings/accessories. <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">a. neck collar (Neck Ring)</td> <td style="width: 50%;"></td> </tr> <tr> <td>b. Valve guard as per ISO: 11117.</td> <td></td> </tr> <tr> <td>c. outlet valve to IS:3224</td> <td></td> </tr> </table>							a. neck collar (Neck Ring)		b. Valve guard as per ISO: 11117.		c. outlet valve to IS:3224	
a. neck collar (Neck Ring)												
b. Valve guard as per ISO: 11117.												
c. outlet valve to IS:3224												
6.0 CAPACITY <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">a. Water capacity 46.7 Liters</td> <td style="width: 50%;"></td> </tr> <tr> <td>b. Volume of Gas 7M³ (app)</td> <td></td> </tr> </table>							a. Water capacity 46.7 Liters		b. Volume of Gas 7M ³ (app)			
a. Water capacity 46.7 Liters												
b. Volume of Gas 7M ³ (app)												
7.0 WORKING PRESSURE: 150kg/cm²												
				नाम NAME		दिनांक एवं हस्ताक्षर SIGNATURE & DATE						
TSX	DEEPAK	DEEPAK	अनुवादक	TRANSLATED BY								
PSC Member	R. KUMAR	R. KUMAR	निर्माणकर्ता	WORKED BY	Kunal Mishra	05/02/16						
QAX	MALHOTRA	MALHOTRA	जांचकर्ता	CHECKED BY	Manju Azad	06/02/16						
सहमत विभाग AGREED DEPT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता	SUPERVISED BY	Roshanlal Vyas	11/2/16						
			स्वीकृति	Gr. NO.								
			APPROVED : A. K. MALHOTRA (AGM / EME)									
REV.NO.	02	SUPERSEDES	निर्माण	PREPARED : TGE	ज्ञापक	ISSUED : TSX						
Dt.	01.02.2016				दिनांक	DATE : 01.11.1993						
CHANGE ADVICE NO.	TGE-16-09	17/02/16										

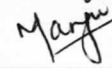
मंजूर SIGN & DATE		उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION		TG60456 पृष्ठ 2 का 2 Page 2 of 2	
SUPERSEDES INVENTORY सामग्री सूची संख्या को अतिरिक्तित्व करता है	8.0 MATERIAL The cylinders shall conform to IS: 7285 and shall be made of seamless steel tubes high carbon manganese steel. The valve body shall be made of brass and internals of stainless steel.				
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	9.0 TEST REQUIREMENTS OF CYLINDERS: As per IS: 7285 10.0 PAINTING AND MARKING ON CYLINDERS To be as per IS: 7285 11.0 INFORMATION REQUIRED WITH THE OFFER Cylinder drawing indicating the following details: a. The standard to which cylinder and fitting conform. b. Capacity, size and wall thickness of cylinder. c. Details and arrangement of fittings. d. Minimum wall thickness of cylinder. e. Working pressure, pneumatic test pressure, hydraulic test pressure and hydraulic stretch test pressure and hydraulic stretch test pressure.				
स्वत्वधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं प्रसारण के बिना भारत हेवी एलेक्ट्रिकल्स की लिखित अनुमति के बिना नहीं किया जा सकता है।	12.0 TEST CERTIFICATES a. Test certificates for all tests indicate in clauses 9.0 of this specification. b. Manufacturer shall be furnish inspection certificates from BIS and approval certificates form from Dept. of Explosives, Nagpur. 13.0 GENERAL a. The offers submitted shall be strictly in line with the requirements specified in this specification. b. All the documents as required in clause 11 and 12 shall be submitted in 5 copies.				
दिनांक एवं प्रमाण SIGN & DATE	14.0 BASED ON: BHEL Experience 15.0 CROSS REFERRED STANDARD: IS: 3224, IS: 7285 & ISO: 11117				
सामग्री सूची संख्या INVENTORY NO. 1-5932	REV. NO. 02		निर्माणकर्ता WORKED BY	Kunal Mishra	 05/02/16
			जांचकर्ता CHECKED BY	Manju Azad	 05/02/16

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION	TG60457 पृष्ठ 2 का 1 Page 1 of 2																																													
SUPERSEDES INVENTORY NO. सामग्री सूची संख्या को अधिनिर्देशित करना है	EMPTY CARBONDIOXIDE CYLINDER																																															
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	1.0 SCOPE This specification covers the design, manufacture, testing and supply of EMPTY SEAMLESS CARBONDIOXIDE CYLINDER As per the requirements specified here in.																																															
	2.0 STANDARD APPLICABLE Latest addition of IS: 3224, IS:7285 & ISO: 11117																																															
	3.0 DIMENSIONS a. Outside diameter : 232mm. b. Cylinder wall thickness : 5.4 mm.(Min) c. Overall length : 1450mm																																															
	4.0 DESIGN The top end should be necked down to 2"dia. And screwed internally to dia 1"standard taper 1 in 8, 14 TPI to IS: 3224. The bottom of cylinder shall be concave.																																															
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स की संपत्ति है। इसका उपयोग एवं प्रसारण के बिना इस दस्तावेज के बिना किसी भी तरह से किया जाना नहीं है।	5.0 FITTINGS The Gas cylinder should be complete with the following fittings/accessories. a. Neck collar (Neck Ring) b. Valve guard as per ISO: 11117. c. Outlet valve to IS:3224 d. Syphon tube e. Safety valve/ bursting disc																																															
	6.0 CAPACITY a. Water capacity : 46.7 Liters b. Volume of Gas at NTP : 17.4M ³ (app.)																																															
दिनांक एवं हस्ताक्षर SIGN & DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;"></td> <td style="width:20%;"></td> <td style="width:20%;"></td> <td style="width:20%; text-align: center;">नाम NAME</td> <td style="width:20%; text-align: center;">दिनांक एवं हस्ताक्षर SIGNATURE & DATE</td> </tr> <tr> <td>TSX</td> <td>DEEPAK</td> <td>TRANSLATED BY</td> <td></td> <td></td> </tr> <tr> <td>PSC Member</td> <td>R. KUMAR</td> <td>WORKED BY</td> <td>Kunal Mishra</td> <td>05/02/16</td> </tr> <tr> <td>QAX</td> <td>MANJULI</td> <td>CHECKED BY</td> <td>Manju Azad</td> <td>05/02/16</td> </tr> <tr> <td>सहमत विभाग AGREED DEPTT.</td> <td>नाम NAME</td> <td>दिनांक एवं हस्ताक्षर DATE & SIGNATURE</td> <td>पर्यवेक्षणकर्ता SUPERVISED BY</td> <td>Roshanlal Vyas</td> </tr> <tr> <td colspan="3"></td> <td>स्वीकृति APPROVED : A. K. MALHOTRA (AGM / EME)</td> <td>Gr. NO.</td> </tr> <tr> <td>REV.NO.</td> <td>02</td> <td>SUPERSEDES</td> <td>निर्माण PREPARED : TGE</td> <td>जारी ISSUED : TSX</td> </tr> <tr> <td>Date</td> <td>05.02.2016</td> <td></td> <td colspan="2">दिनांक DATE : 01.11.1993</td> </tr> <tr> <td>CHANGE ADVICE NO.</td> <td>TGE-16-10</td> <td>17/02/16</td> <td colspan="2"></td> </tr> </table>						नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE	TSX	DEEPAK	TRANSLATED BY			PSC Member	R. KUMAR	WORKED BY	Kunal Mishra	05/02/16	QAX	MANJULI	CHECKED BY	Manju Azad	05/02/16	सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	Roshanlal Vyas				स्वीकृति APPROVED : A. K. MALHOTRA (AGM / EME)	Gr. NO.	REV.NO.	02	SUPERSEDES	निर्माण PREPARED : TGE	जारी ISSUED : TSX	Date	05.02.2016		दिनांक DATE : 01.11.1993		CHANGE ADVICE NO.	TGE-16-10	17/02/16		
			नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE																																												
TSX	DEEPAK	TRANSLATED BY																																														
PSC Member	R. KUMAR	WORKED BY	Kunal Mishra	05/02/16																																												
QAX	MANJULI	CHECKED BY	Manju Azad	05/02/16																																												
सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	Roshanlal Vyas																																												
			स्वीकृति APPROVED : A. K. MALHOTRA (AGM / EME)	Gr. NO.																																												
REV.NO.	02	SUPERSEDES	निर्माण PREPARED : TGE	जारी ISSUED : TSX																																												
Date	05.02.2016		दिनांक DATE : 01.11.1993																																													
CHANGE ADVICE NO.	TGE-16-10	17/02/16																																														
सामग्री सूची संख्या INVENTORY NO.	P-5971																																															

३ हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION		TG60457	
				पृष्ठ 2 का 2	Page 2 of 2
SUPERSEDES INVENTORY	7.0 WORKING PRESSURE: Filling Pressure : 150kg/cm ² (g) at 15°C (max.)				
सामग्री सूची संख्या को अतिरिक्तित करता है	8.0 MATERIAL The cylinders shall conform to IS: 7285 and shall be made of seamless steel tubes high carbon manganese steel. The valve body shall be made of brass and internals of stainless steel.				
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	9.0 TEST REQUIREMENTS OF CYLINDERS: As per IS: 7285				
	10.0 PAINTING AND MARKING ON CYLINDERS To be as per IS: 7285				
	11.0 INFORMATION REQUIRED WITH THE OFFER Cylinder drawing indicating the following details: a. The standard to which cylinder and fitting conform. b. Capacity, size and wall thickness of cylinder. c. Details and arrangement of fittings. d. Minimum wall thickness of cylinder. e. Working pressure, pneumatic test pressure, hydraulic test pressure and hydraulic stretch test pressure and hydraulic stretch test pressure. f. Filling ratio of cylinder				
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती प्रौद्योगिकीय की सम्पत्ति है, इसका प्रकाश एवं प्रचलन के बिना किसी भी रूप में प्रयोग नहीं किया जा सकता है।	12.0 TEST CERTIFICATES a. Test certificates for all tests indicate in clauses 9.0 of this specification. b. Manufacturer shall be furnish inspection certificates from BIS and approval certificates form from Dept. of Explosives, Nagpur.				
निष्कासक एवं हस्ताक्षर SIGN & DATE	13.0 GENERAL a. The offers submitted shall be strictly in line with the requirements specified in this specification. b. All the documents as required in clause 11 and 12 shall be submitted in 5 copies.				
सामग्री सूची संख्या INVENTORY	14.0 BASED ON: BHEL Experience				
१६५७	15.0 CROSS REFERRED STANDARD: IS: 3224, IS: 7285 & ISO: 11117				
REV. NO. 02		निर्माणकर्ता WORKED BY	Kunal Mishra		05/02/16
		जांचकर्ता CHECKED BY	Manju Azad		05/02/16

दिनांक एवं हस्ताक्षर SIGN & DATE	SUPERSEDES INVENTORY NO.	सामग्री सूची संख्या को अपडेट करने हेतु	COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं प्रसारण के बिना की जाये नहीं। जो कि कम्पनी के हित में होनेका आवश्यक है।	दिनांक एवं हस्ताक्षर SIGN & DATE	सामग्री सूची संख्या INVENTORY NO.	उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION TG60462 पृष्ठ 2 का 1 Page 1 of 2 EMPTY NITROGEN CYLINDER 1.0 SCOPE This specification covers the design, manufacture, testing and supply of EMPTY SEAMLESS NITROGEN CYLINDER As per the requirements specified here in. 2.0 STANDARD APPLICABLE Latest addition of IS: 3224, IS:7285 & ISO: 11117 3.0 DIMENSIONS <table style="width:100%; margin-top: 5px;"> <tr> <td style="width:50%;">a. Outside diameter</td> <td style="width:50%;">: 232mm.</td> </tr> <tr> <td>b. Cylinder wall thickness</td> <td>: 5.4 mm.(Min)</td> </tr> <tr> <td>c. Overall length</td> <td>: 1445mm</td> </tr> </table> 4.0 DESIGN The top end should be necked down to 2"dia and screwed internally to dia 1"standard taper 1 in 8, 14 TPI to IS: 3224. The bottom of cylinder shall be concave. 5.0 FITTINGS The Gas cylinder should be complete with the following fittings/accessories. <table style="width:100%; margin-top: 5px;"> <tr> <td style="width:50%;">a. Neck collar (Neck Ring)</td> <td style="width:50%;"></td> </tr> <tr> <td>b. Valve guard as per ISO: 11117.</td> <td></td> </tr> <tr> <td>c. Outlet valve to IS:3224</td> <td></td> </tr> </table> 6.0 CAPACITY <table style="width:100%; margin-top: 5px;"> <tr> <td style="width:50%;">a. Water capacity</td> <td style="width:50%;">: 46.7 Liters</td> </tr> <tr> <td>b. Volume of Gas</td> <td>: 7 M³ (app.)</td> </tr> </table> 7.0 WORKING PRESSURE: 150kg/cm²	a. Outside diameter	: 232mm.	b. Cylinder wall thickness	: 5.4 mm.(Min)	c. Overall length	: 1445mm	a. Neck collar (Neck Ring)		b. Valve guard as per ISO: 11117.		c. Outlet valve to IS:3224		a. Water capacity	: 46.7 Liters	b. Volume of Gas	: 7 M ³ (app.)
a. Outside diameter	: 232mm.																						
b. Cylinder wall thickness	: 5.4 mm.(Min)																						
c. Overall length	: 1445mm																						
a. Neck collar (Neck Ring)																							
b. Valve guard as per ISO: 11117.																							
c. Outlet valve to IS:3224																							
a. Water capacity	: 46.7 Liters																						
b. Volume of Gas	: 7 M ³ (app.)																						

				नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE
TSX	DEEPAK	DEEPAK	अनुवादक	TRANSLATED BY	
PSC Member	R KUMAR	R KUMAR	निर्माणकर्ता	WORKED BY	Kunal Mishra 05/02/16
QAX	NISHU	NISHU	जांचकर्ता	CHECKED BY	Mnaju Azad 06/02/16
सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता	SUPERVISED BY	Roshanlal Vyas 11/2/16
			स्वीकृति		
			APPROVED : A. K. MALHOTRA (AGM / EME)		
REV. NO.	02	SUPERSEDES	निर्माण	ज़ारी	दिनांक
Dt.	05.02.2016		PREPARED : TGE	ISSUED : TSX	DATE : 01.11.1993
CHANGE ADVICE NO.	TGE-16-11	17/02/16			

न हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश PRODUCT PURCHASE SPECIFICATION		TG60462	
				पृष्ठ 2 का 2 Page 2 of 2	
SUPERSEDES INVENTORY मासिक सूची संख्या को अपडेट किया जाता है	8.0 MATERIAL The cylinders shall conform to IS: 7285 and shall be made of seamless steel tubes high carbon manganese steel. The valve body shall be made of brass and internals of stainless steel. 9.0 TEST REQUIREMENTS OF CYLINDERS: As per IS: 7285 10.0 PAINTING AND MARKING ON CYLINDERS To be as per IS: 7285 11.0 INFORMATION REQUIRED WITH THE OFFER Cylinder drawing indicating the following details: - The standard to which cylinder and fitting conform. - Capacity, size and wall thickness of cylinder. - Details and arrangement of fittings. - Minimum wall thickness of cylinder. - Working pressure, pneumatic test pressure, hydraulic test pressure and hydraulic stretch test pressure and hydraulic stretch test pressure. - Filling ratio of cylinder 12.0 TEST CERTIFICATES - Test certificates for all tests indicate in clauses 9.0 of this specification. - Manufacturer shall be furnish inspection certificates from BIS and approval certificates form from Dept. of Explosives, Nagpur. 13.0 GENERAL - The offers submitted shall be strictly in line with the requirements specified in this specification. - All the documents as required in clause 11 and 12 shall be submitted in 5 copies. 14.0 BASED ON: BHEL Experience 15.0 CROSS REFERRED STANDARD: IS: 3224, IS: 7285 & ISO: 11117				
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती एलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं अनावश्यक रूप से किसी भी तरह प्रसारित, जो कि कंपनी के हित में हानिकारक हो न किया जाए।					
मासिक सूची संख्या INVENTORY NO.	REV. NO. 02	निर्माणकर्ता WORKED BY	Kunal Mishra		05/02/16
P-5970		जांचकर्ता CHECKED BY	Manju Azad		05/02/16