



दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक	TG60456
		PRODUCT STANDARD	पृष्ठ 2 का 1
		TURBOGENERATOR ENGINEERING	Page 1 of 2

सामग्री सूची संख्या INVENTORY NO.	SUPERSEDES INVENTORY NO.	<u>EMPTY HYDROGEN CYLINDER</u>									
		1.0 <u>SCOPE</u>	This specification covers the design, manufacture, testing and supply of EMPTY HYDROGEN CYLINDER As per the requirements specified herein.								
सामग्री सूची संख्या को अधिकारिता करता है। COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	2.0 <u>STANDERD APPLICABLE</u>	Latest addition of IS: 3224 and IS:7285.									
	3.0 <u>DIMENSIONS</u>	<table border="0"> <tr> <td>a.</td> <td>Outside diameter</td> <td>=232 mm.</td> </tr> <tr> <td>b.</td> <td>Cylinder wall thickness</td> <td>=5.4 mm.(Min)</td> </tr> <tr> <td>c.</td> <td>Overall length</td> <td>=1445 mm</td> </tr> </table>		a.	Outside diameter	=232 mm.	b.	Cylinder wall thickness	=5.4 mm.(Min)	c.	Overall length
a.	Outside diameter	=232 mm.									
b.	Cylinder wall thickness	=5.4 mm.(Min)									
c.	Overall length	=1445 mm									
स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रसार एवं प्रकाशन बिना लिखित अनुमति के किये जाने से कम्पनी के हित में हानिकारक हो सकता है।	4.0 <u>DESIGN</u>	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 <u>FITTINGS</u>	The Gas cylinder should be complete with the following fittings/accessories.									
स्वत्वधिकार एवं गोपनीय	6.0 <u>CAPACITY</u>	<table border="0"> <tr> <td>a.</td> <td>Water capacity</td> <td>=46.7 Liters</td> </tr> <tr> <td>b.</td> <td>Volume of Gas</td> <td>=7 M³ (app)</td> </tr> </table>		a.	Water capacity	=46.7 Liters	b.	Volume of Gas	=7 M ³ (app)		
	a.	Water capacity	=46.7 Liters								
b.	Volume of Gas	=7 M ³ (app)									

हस्ताक्षर एवं दिनांक SIGN & DATE	नाम NAME	दिनांक एवं हस्ताक्षर SIGN. & DATE
TSX	KISHAN LAL	12.8.04
PSC Member	L. CHAND	29/6/04
QAX	D. KUMAR	29/6/04
सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE
		पर्यवेक्षणकर्ता SUPERVISED BY
		K.R.GUPTA
		29/6/04

सामग्री सूची संख्या INVENTORY NO.	P-5972	स्वीकृति : APPROVED :	DEVRAJ (AGM/TGE)
REV. NO. 01		निर्माण PREPARED	जारी ISSUED
DATED: 12.8.04		TGE, HEPP, HWR	TGE, HEPP, HWR
		दिनांक : DATE	01-11-93


सामग्री सूची संख्या INVENTORY NO. A-5972	दिनांक एवं हस्ताक्षर SIGN & DATE 	 <p style="text-align: center;">उत्पाद मानक</p> <p style="text-align: center;">PRODUCT STANDARD</p> <p style="text-align: center;">TURBOGENERATOR ENGINEERING</p>	<p style="text-align: right;">TG60456</p> <p style="text-align: right;">पृष्ठ 2 का 2 Page 2 of 2</p>								
सामग्री सूची संख्या को अधिकृतित करता है INVENTORY NO.		<p>7.0 <u>WORKING PRESSURE:</u> 150kg/cm²</p> <p>8.0 <u>MATERIAL</u></p> <p>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.</p>									
<p style="text-align: center;">स्वत्वाधिकार एवं गोपनीय</p> <p style="text-align: center;">इस दस्तावेज में की गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं आरक्षण के बिना किसी भी तरह से किया जाये, जो कि कंपनी के हित में हानिकारक हो न किया जाए।</p> <p style="text-align: center;">स्वत्वाधिकार एवं गोपनीय</p> <p style="text-align: center;">The information on this documents is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.</p>		<p>9.0 <u>TEST REQUIREMENTS OF CYLINDERS:</u> As per IS: 7285</p> <p>10.0 <u>PAINTING AND MARKING ON CYLINDERS</u></p> <p>To be as per IS: 7285</p> <p>11.0 <u>INFORMATION REQUIRED WITH THE OFFER</u></p> <p>Cylinder drawing indicating the following details:</p> <ol style="list-style-type: none"> 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. <p>12.0 <u>TEST CERTIFICATES</u></p> <ol style="list-style-type: none"> Test certificates for all tests indicate in clauses 9.0 of this specification. Manufacturer shall be furnish inspection certificates from BIS and approval certificates from from Dept. of Explosives, Nagpur. <p>13.0 <u>GENERAL</u></p> <ol style="list-style-type: none"> 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. <p>14.0 <u>BASED ON:</u> BHEL Experience</p> <p>15.0 <u>CROSS REFERRED STANDARD:</u> IS: 3224, IS: 7285,</p>									
दिनांक एवं हस्ताक्षर SIGN & DATE 	दिनांक एवं हस्ताक्षर SIGN & DATE 										
सामग्री सूची संख्या INVENTORY NO. A-5972	दिनांक एवं हस्ताक्षर SIGN & DATE 	01 REV.	<table border="1"> <tr> <td>निर्माणकर्ता Worked by</td> <td>KN</td> <td><i>Kapil K</i></td> <td>29/6/04</td> </tr> <tr> <td>जांचकर्ता Checked by</td> <td>KRG</td> <td><i>KRG</i></td> <td>29/6/04</td> </tr> </table>	निर्माणकर्ता Worked by	KN	<i>Kapil K</i>	29/6/04	जांचकर्ता Checked by	KRG	<i>KRG</i>	29/6/04
निर्माणकर्ता Worked by	KN	<i>Kapil K</i>	29/6/04								
जांचकर्ता Checked by	KRG	<i>KRG</i>	29/6/04								

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG60462
			पृष्ठ 2 का 1 Page 1 of 2


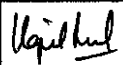

सामग्री सूची संख्या को अधिकृत करता है । INVENTORY NO.	SUPERSEDES	EMPTY NITROGEN CYLINDER	
		1.0	SCOPE This specification covers the design, manufacture, testing and supply of EMPTY SEAMLESS NITROGEN CYLINDER As per the requirements specified herein.
स्वत्वाधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	सामग्री सूची संख्या को अधिकृत करता है । INVENTORY NO.	2.0	STANDARD APPLICABLE Latest addition of IS: 3224 and IS: 7285.
		3.0	DIMENSIONS a. Outside diameter =232 mm. b. Cylinder wall thickness =5.4 mm.(Min) c. Overall length =1445 mm
स्वत्वाधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	सामग्री सूची संख्या को अधिकृत करता है । INVENTORY NO.	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. a. neck collar b. protection cap. c. outlet valve to IS: 3224
स्वत्वाधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	सामग्री सूची संख्या को अधिकृत करता है । INVENTORY NO.	6.0	CAPACITY a. Water capacity =46.7 Liters b. Volume of Gas =7 M ³ (app)

हस्ताक्षर एवं दिनांक SIGN & DATE	14.8.04	TSX	KISHAN LAL	WHL 12/8/04	अनुवादक TRANSLATED BY	नाम NAME	दिनांक एवं हस्ताक्षर SIGN. & DATE
		PSC Member	L. CHAND	12/8/04	निर्माणकर्ता WORKED BY	KN	29/6/04
सहमत विभाग AGREED DEPTT.	नाम NAME	QAX	D. KUMAR	D. K. 11/7/04	जांचकर्ता CHECKED BY	K.R.G.	29/6/04
		पर्यवेक्षणकर्ता SUPERVISED BY	K.R.GUPTA	29/6/04			

सामग्री सूची संख्या INVENTORY NO.	P-5970	स्वीकृति : APPROVED :	DEVRAJ (AGM/TGE) 7/8/04	
		REV. NO. 01	निर्माण PREPARED	जारी ISSUED
DATED: 12.8.04		TGE, HEEP, HWR	TGE, HEEP, HWR	01-11-93

सामग्री सूची संख्या INVENTORY NO. P-5970	दिनांक एवं हस्ताक्षर SIGN & DATE 14.8.04	 <p style="text-align: center;">उत्पाद मानक</p> <p style="text-align: center;">PRODUCT STANDARD</p> <p style="text-align: center;">TURBOGENERATOR ENGINEERING</p>	<p style="text-align: right;">TG60462</p> <p style="text-align: right;">पृष्ठ 2 का 2 Page 2 of 2</p>
SUPERSEDES INVENTORY NO.		7.0 <u>WORKING PRESSURE</u> : 150 Kg/cm ²	
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	8.0 <u>MATERIAL</u> 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 <u>TEST REQUIREMENTS OF CYLINDERS</u> : As per IS: 7285. 10.0 <u>PAINTING AND MARKING ON CYLINDERS</u> To be as per IS: 7285 11.0 <u>INFORMATION REQUIRED WITH THE OFFER</u> 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 12.0 <u>TEST CERTIFICATES</u> 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 from from Dept. of Explosives Nagpur. 13.0 <u>GENERAL</u> a. The offers submitted shall be strictly in line with the requirements specified in this specification. c. All the documents as required in clause 11 and 12 shall be submitted in 5 copies. 14.0 <u>BASED ON</u> : BHEL Experience. 15.0 <u>CROSS REFERRED STANDARD</u> : IS: 3224, IS: 7285	
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग अथवा इस से किसी भी तरह संबंध, जो कि कंपनी को हित में दक्षिणपक्ष में न किया जाए।			
सामग्री सूची संख्या INVENTORY NO. P-5970	दिनांक एवं हस्ताक्षर SIGN & DATE 14.8.04	निर्माणकर्ता Worked by KN जांचकर्ता Checked by KRG	29/6/04 29/6/04

REV. 01

सामग्री सूची संख्या INVENTORY NO. P-5971	दिनांक एवं हस्ताक्षर SIGN & DATE 14.6.04	स्वत्वधिकार एवं गोपनीय The information on this document 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. इस दस्तावेज में दी गई सूचना भारत भारी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं आरक्षण अन्य से किसी भी तरह से किया जाना नहीं चाहिए।	सामग्री सूची संख्या SUPERSEDES INVENTORY NO.	दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG60457
					पृष्ठ 2 का 2 Page 2 of 2		
7.0 <u>WORKING PRESSURE</u> Filling pressure = 150 kg/cm ² (g) at 15°C (max.)							
8.0 <u>MATERIAL</u> The cylinder 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 <u>TEST REQUIREMENTS OF CYLINDERS:</u> As per IS: 7285.							
10.0 <u>PAINTING AND MARKING ON CYLINDERS</u> To be as per IS: 7285							
11.0 <u>INFORMATION REQUIRED WITH THE OFFER</u> Cylinder drawing indicating the following details: <ul style="list-style-type: none"> 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 							
12.0 <u>TEST CERTIFICATES</u> <ul style="list-style-type: none"> 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 from from Dept. Of explosives Nagpur. 							
13.0 <u>GENERAL</u> <ul style="list-style-type: none"> a. The offers submitted shall be strictly in line with the requirements specified in this specification. c. All the documents as required in clause 11 and 12 shall be submitted in 5 copies 							
14.0 <u>BASED ON :</u> BHEL Experience.							
15.0 <u>CROSS REFERRED STANDARDS:</u> IS: 7285, IS: 3224							
REV. 01			निर्माणकर्ता Worked by जांचकर्ता Checked by	KN KRG	 	29/6/04 29/6/04	