



MINUTES

MEETING	DAY and DATE	TIME
26th Meeting of Turbo Machinery Sectional Committee, MED 22	20 September 2024 (Friday)	BHEL Office, Ramachandrapuram, Hyderabad, Telangana-502032 (Physical) 10: 30 AM

CHAIRPERSON: Shri K. Ravi, Ex. CGM (Projects), Bharat Petroleum Corporation Ltd, Kochi.

MEMBER SECRETARY: Shri Lokraj Meena, Sc. 'C' & Deputy Director, MED, BIS HQ, New Delhi.

MEMBERS PRESENT: Please see [Annex A](#).

ITEM 0 GENERAL

0.1 Welcome by Head (MED)

Shri Venkateswara Rao, Head (MED) could not attend the meeting physically due to prior engagements. Hence, Member Secretary (MS) welcomed the members to the 26th meeting of the Committee on his behalf. He further also thanked Shri Madhusudan and Shri Sai Pratap, BHEL for agreeing to host the BIS meeting and making the necessary arrangements.

0.2 Opening remarks by Chairperson, MED 22

Shri K. Ravi, CGM (Projects), Chairperson MED 22 welcomed all the Members present in the meeting. He appreciated the good work done by the Committee so far and requested the privileged members to continue

doing so and actively contribute towards the revision and formulation of new Indian standards. He hoped for fruitful discussion during the meeting on various agenda items.

ITEM 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

There being no comments on the minutes of the last meeting, the Committee formally confirmed the minutes.

ITEM 2 SCOPE AND COMPOSITION OF COMMITTEE

2.1 Scope

The Committee noted the present scope of the Committee and deliberated on same. After the deliberations, it decided to make following changes in the scope:

- a) Formulation of standards for compressors, blowers, exhausters, turbines, and expanders, and their related accessories. It also covers methods of measuring various quantities parameters connected with the testing and code of practices.
- b) Preparation of technical supply conditions and acceptance tests for centrifugal, reciprocating, rotary, and dynamic compressors (centrifugal and axial), blowers, exhausters, turbines, and expanders.
- c) Co-ordination of work with ISO/TC 192 (Gas turbines) and ISO/TC 118 (Compressors, Pneumatic Tools and Pneumatic machines and its sub-Committees).
- d) Co-ordination of work with IEC/TC 4 (Hydraulic turbines) and IEC/TC 5 (Steam Turbines).

2.2 COMPOSITION OF THE COMMITTEE

2.2.1 The Committee noted the composition of the Committee and recommended for deletion/removal of the name of M/s TLT Engineering Pvt Ltd to MEDC due to non-active participation from last three meetings in the Committee.

2.2.2 Co-option of the new organizations and update of existing members:

- a) The Committee noted the information given and welcomed Shri Shankar B. from M/s Triveni Turbines in the meeting.
- b) The Committee noted the information given and decided to drop the name of M/s Baker Hughes from agenda due to their non-affirmative response.
- c) The Committee noted the information given and welcomed all the newly on-boarded members in the **Panel 4 on 'Hydraulic Turbines'**. Further, it also requested Member Secretary (MS) to again send a reminder to remaining organizations for seeking their co-option.

- d) The Committee noted the nomination request received from Dr G. R. Kannan, Prof. PSNA College of Engineering & Technology and discussed on the same. However, it didn't agree with the same due to lack of expertise in the field of turbo machinery.

2.2.3 The Committee noted the information given in the agenda.

2.2.4 Gender Responsive Standards Initiative

The Committee noted the information given in the agenda.

Item 3 ACTIONS ARISING OUT OF THE MINUTES OF THE 25th MEETING

3.1 The summary of actions taken on the minutes of 25th Meeting of Turbo Machinery Sectional Committee, MED 22 and present status are given below:

Sl No.	Item*	Actions taken on the decision of 24 th meeting	Committee decision during 25 th meeting	Actions taken on the decision of 25 th meeting	Committee decision during 26 th meeting
1.	3.1 (1)	As decided during the last meeting, the modified draft revision of IS 5456 (Doc MED/22/20005) has been sent into printing and is currently under print. The Committee may kindly note.	The Committee noted the information given in the agenda.	The draft document MED/22/20005 (Third Revision of IS 5456 - Positive Displacement Type Air Compressors and Exhausters — Testing and Acceptance) has been published in the month of September 2024. A complimentary copy of the standard has been also shared with all the members. The Committee may kindly note.	The Committee noted the information given.
2.	3.1 (3)	As decided during the last meeting, two panel meetings dated 01 March 2024 and 16 April 2024 were held for discussion on the comments received.	The Committee noted the information given in the agenda.	The draft document MED/22/24282 (First Revision of IS 11461 – Code of Practice for Compressor Safety) is currently under print.	The Committee noted the information given.

		<p>As per the recommendations arising out from the panel meetings, the draft document no. MED/22/24282 'Code of Practice for Compressor Safety' was modified and circulated among the members via email dated 09 May 2024 seeking their views/comments. The last date for the comments was 16 May 2024</p> <p>No comments were received.</p> <p>Hence, the document has been sent into printing in consultation with the Chaiperson.</p> <p>The document is currently under print.</p> <p>The Committee may kindly note.</p>		<p>The Committee may kindly note.</p>	
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3.	3.1(5)	<p>Both documents MED/22/23718 ‘Compressed Air Energy Efficiency Assessment (Adoption of ISO 11011)’ and MED/22/23719 ‘Turbocompressors Performance Test Code Simplified Acceptance Test (Adoption of ISO 18740)’ are still under print.</p> <p>The Committee may kindly note.</p>	<p>The Committee noted the information given in the agenda.</p>	<p>Draft documents MED/22/23718 ‘Compressed Air Energy Efficiency Assessment (Adoption of ISO 11011)’ and MED/22/23719 ‘Turbocompressors Performance Test Code Simplified Acceptance Test (Adoption of ISO 18740)’ have been published in the month of August 2024.</p> <p>Complimentary copies of both the standards have also been shared with the Committee members.</p> <p>The Committee may kindly note.</p>	<p>The Committee noted the information given.</p>
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ITEM 4 DRAFT INDIAN STANDARDS FOR FINALIZATION


The Committee noted the information given in the agenda.


ITEM 5 INDIAN STANDARDS TAKEN FOR REVIEW

The Committee noted the information given in the agenda and decided as follows:

SI No .	Category	IS/ISO/IEC No.	Title	Panel/ Experts	Current Status of work	Committee Decision during 26 th meeting
1.	Working Panel 1 on ‘Compressor s’	(a) IS 17093 : 2019	(a) Technical supply conditions for reciprocating air compresso	a) Shri Dileep Patil, M/s Ingersoll Rand (Convenor); b) Shri Jayesh	As decided during the last meeting, a series of Panel meetings have been	Ms Lakshmi Shree Nair, M/s Ingersoll Rand briefed the Committee about the work

		<p>(b) IS 15879 : 2009</p> <p>(c) IS/ISO 3857-1: 1977</p> <p>(d) IS/ISO 3857-2: 1977</p>	<p>rs for general purpose and industrial applications</p> <p>(b) Breathing air compressor package – Specification</p> <p>(c) Compressors, pneumatic tools and machines - Vocabulary: Part 1 general</p> <p>(d) Compressors, pneumatic tools and machines - Vocabulary: Part 2 compressors</p>	<p>Raval, M/s Dresser India Pvt. Ltd;</p> <p>c) Shri Harendra Singh, M/s Reliance Industries;</p> <p>d) Shri A. Bhaskar Prabhune, M/s Burckhardt Compression India;</p> <p>e) Shri Chirag Prajapati, M/s Nayara Energy Ltd.;</p> <p>f) Chairperson ; and</p> <p>g) Member Secretary.</p>	<p>conducted under the convenorship of Shri Dileep Patil. The Convener may kindly present the recommendations of the Panel before the Committee.</p>	<p>of the Panel. The Committee appreciated the same and requested her to submit the consolidated comments to the Member Secretary, so it may be circulated among all the members for their views/suggestions. On the basis of the comments received from the members, further decision will be taken by the Committee.</p>
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<p>2.</p>	<p>Working Panel 2 on 'Steam Turbines'</p>	<p>(a) IS 14198 (Part 1) : 1994/IEC Pub 953-1(1990)</p> <p>(b) IS 14198 (Part 2) : 1994/IEC Pub 953-2(1990)</p> <p>(c) IS 14205 (Part 1) : 1994/IEC Pub 45-1:1991</p>	<p>(a) Rules for steam turbine thermal acceptance tests: Part 1 method A - High accuracy for large condensing steam turbines</p> <p>(b) Rules for steam turbines thermal acceptance tests</p> <p>(c) Steam turbine: Part 1 specification</p>	<p>a) Shri M. N. Goyal, NFL, Noida (Convenor) ;</p> <p>b) Shri Sankar B., M/s Triveni Turbines;</p> <p>c) Shri Kandarp Brahmhatt, M/s Siemenes;</p> <p>d) Shri Nokesh Aggarwal, M/s Boldrocchi India Pvt. Ltd. ;</p> <p>e) Shri Jatinder Singh Duggal, EIL;</p> <p>f) Representative from BHEL</p> <p>g) Chairperson ; and</p> <p>h) Member Secretary.</p>	<p>Some Comments have been received from Shri Sankar B., M/s Triveni Turbines on IS 14205 (Part 1).</p>  <p>No Panel meeting have been conducted till date.</p> <p>The Committee may kindly discuss and decide.</p>	<p>The Committee discussed on the comments received from the Panel and requested the Conevenor to hold a meeting in the month of October to finalize them.</p> <p>Further, it also assigned the conevnorship of the Panel to Shri Sankar B and also agreed to add Shri Harendra Singh, M/s Reliance Industries in the Panel.</p>
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<p>3</p>	<p>Working Panel 3 on 'Gas Turbines'</p>	<p>(a) IS 15664 : 2006 /ISO 2314:1989 (b) IS 15665 : 2006/ISO 11086:1996 (c) IS 15667 : 2006/ISO 19860:2005</p>	<p>(a) Gas turbines - Acceptance tests (b) Gas turbines – Vocabulary (c) Gas turbines - Data acquisition and trend monitoring system requirements for gas turbine installations</p>	<p>a) Shri B.K. Rai, M/s ONGC (Convenor) b) Representative from M/s Bharat Heavy Electrical Limited; c) Shri H V Ramana Murthy, BHEL GE Gas Turbine Service; d) Shri Kandarp Brahmbhatt, M/s Siemenes e) Shri Thenavranajan, CSIR-NAL f) Chairperson ; and g) Member Secretary.</p>	<p>A Panel meeting was conducted on 27 August 2024 under the convenorship of Shri B.K. Rai. Comments have been submitted by the Panel on ISO 2314:1998.</p>  <p>ISO_commenting_template_ISO_2314</p> <p>The Committee may kindly discuss and decide.</p>	<p>The Committee deliberated on the comments received from the Panel at length. After the discussion, it was of the view that some comments need further deliberation in the Panel. So, it requested the Shri B.K. Rai, Convenor to hold a meeting in the month of October 2024 for discussion among the members.</p>
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4.	Working Panel 4 on 'Hydraulic Turbines'	IS/IEC 41 :1991	Field acceptance tests to determine the hydraulic performance of hydraulic turbines, storage pumps and pump - Turbines	<p>(a) Dr. Arun Kumar, IIT Roorkee (Convenor)</p> <p>(b) Shri Vikas Kumar, NHPC</p> <p>(c) Representative from BHEL</p> <p>(d) Flovel Energy Pvt Ltd, Faridabad</p> <p>(e) Prof. Dhiman Chatterjee, IIT Madras</p> <p>(f) Representative from BBVN (Nomination Awaited)</p> <p>(g) Representative from SJVN (Nomination Awaited)</p>	<p>No Panel meetings have been conducted till date.</p> <p>The Commitete may kindly note and decide.</p>	<p>The Committee noted the information given and requested Convenor to hold a meeting in the Month of October 2024.</p> <p>Further, it requestd Ms Y.V. Rama Lakshmi to provide the names of experts from BHEL in the panel.</p>
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ITEM 6 STATUS OF INDIAN STANDARDS UNDER BIS CERTIFICATION

The Committee noted the information given in the agenda.

ITEM 7 POSITION OF WORK

The Committee noted the information given in the agenda.

ITEM 8 SELECTIONS OF SUBJECTS

The Committee noted the information given in the agenda.

ITEM 9 INTERNATIONAL ACTIVITY

9.1 The Committee noted the information given in the agenda.

9.2 The Committee noted the information given in the agenda.

9.3 The Committee noted the information given in the agenda.

9.4 The Committee noted the information given in the agenda.

9.5 The Committee noted the information given and deliberated on same. After deliberations, it decided to modify the designated experts from India as follows:

Sl. No.	Expert Name	Organization Name	Concerned ISO/IEC/ TC & WG	Role
1.	Shri M.N. Goyal	National Fertilizers Ltd.	ISO/TC 118/SC 6/WG 2 'Safety'	Member
2.	Shri Dileep Patil	Ingersoll Rand India Pvt Ltd,	ISO/TC 118/SC 6/WG 2 'Safety'	Member
3.	Shri Jayesh Raval	Dresser Rand India	ISO/TC 118/SC 6/WG 2 'Safety'	Member
4.	Shri Vijay Sharma	Atlas Copco	ISO/TC 118/SC 6/WG 2 'Safety'	Member
5.	Shri Dinesh Venugopal Shetty	GE Vernova – Gas Power	ISO/TC 192/WG 4 'Gas Turbine'	Member
6.	Shri H V Ramana Murthy	BHEL-GE Gas Turbine Services Pvt. Ltd (BGGTS)	ISO/TC 192/WG 4 'Gas Turbine'	Member
7.	Shri S. Venkadesh	BHEL-GE Gas Turbine Services Pvt. Ltd (BGGTS)	ISO/TC 192/WG 10 'Gas Turbine Safety'	Member
8.	Shri Madhusudan	Bharat Heavy Electricals Ltd	ISO/TC 192/WG 11 'Acceptance Tests'	Member
9.	Shri Kandarp Brahambhatt	Siemens Ltd.	IEC/TC 5/ PT 60953-4 'Rules for steam turbine thermal acceptance tests - Part 4: Routine testing'	Member
10.	Dr. Arun Kumar	IIT Roorkee	IEC/TC 4/MT 32 'Hydraulic turbines, storage pumps and pump-turbines - Model acceptance tests' and IEC/TC 4/WG 14 'Hydroelectric Power Plant Automation and Turbine Governing Systems'	Member
11.	Shri Lokraj	BIS	ISO/TC 118/SC 6/WG	Member

	Meena		2 'Safety', IEC/TC 4/MT 32 'Hydraulic turbines, storage pumps and pump-turbines - Model acceptance tests' and IEC/TC 4/WG 14 'Hydroelectric Power Plant Automation and Turbine Governing Systems'	
12	Shri Deepak Raj Pokharna	Flovel Energy Pvt Ltd	IECs/TC 4/MT 32 'Hydraulic turbines, storage pumps and pump-turbines - Model acceptance tests'	Member
13	Shri Harendra Singh	Reliance India Pvt Ltd	ISO/TC 118/SC 6/WG 2 'Safety'	Member

ITEM 10 RECENT INITIATIVES IN THE STANDARD DEVELOPMENT PROCESS OF BIS

The Committee noted the information given in the agenda.

10.1 Green Initiative by BIS

The Committee noted the information given in the agenda.

10.2 Interaction with SDO

The Committee noted the information given in the agenda.

10.3 Training of Committee Members

The Committee noted the information given in the agenda.

ITEM 11 LETTER OF APPRECIATION TO COMMITTEE MEMBERS

The Committee noted the information given in the agenda.

Item 12 NATIONAL AND INTERNATIONAL LEVEL EVENTS TO BE PARTICIPATED IN

The Committee noted the information given in the agenda.

Item 13 SCIENTIFIC JOURNALS AND PERIODICALS TO BE SUBSCRIBED

The Committee noted the information given in the agenda.

Item 14 CREATION OF POOL OF EXPERTS

The Committee noted the information given in the agenda.

Item 15 RESEARCH PROJECT TO BE TAKEN UP FOR INCLUSION OF EMPIRICAL DATA AND INSIGHTS

The Committee noted the information given in the agenda.

ITEM 16 GUIDELINES FOR MEMBERS OF TECHNICAL COMMITTEES

The Committee noted the information given in the agenda.

Item 17 TRANSLATION OF INDIAN STANDARDS FROM ENGLISH TO HINDI

The Committee noted the information given in the agenda.

Item 18 DATE AND PLACE FOR THE NEXT MEETING

The next date and place of meeting will be decided in consultation with the chairperson.

Item 19 ANY OTHER BUSINESS

MS informed the members that recently, Ministry of Heavy Industries has issued Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order, 2024 dated 28 August 2024. As per the order, all the machines and electrical equipment and their assemblies, sub-assemblies and components mentioned in the first Schedule of the order will need to have standard mark under a license from the Bureau; or issued with a certificate of conformity in case of machine, or as the case may be, electrical equipment, is not desired to be manufactured on a continuous basis as provided in the Scheme X of the Conformity Assessment Regulations. The detailed order along with the schemed X of BIS is enclosed below for kind reference of all:

<https://drive.google.com/file/d/1Ne8XTDWfnOuFAgqcWJbMnMXFzEEZSSHG/view?usp=sharing>

<https://drive.google.com/file/d/1z-wN14Mjugv5oKbWUczNy38-0B4IkZyx/view?usp=sharing>

There being no other comments, the meeting ended with a hearty vote of thanks to the Chair and members present.

ANNEX A

Sl No.	Organization	Name	Email
1	Bharat Petroleum Corporation Limited, Kochi	Shri K. Ravi (Chairperson)	ravik001@bharatpetroleum.in
2	Boldrocchi Indian Private Limited, Gurugram	Shri Piyush Goel (Alt)	piyush@boldrocchi.in
3	Bharat Heavy Electrical Limited, Hyderabad	Shri Madhusudan Ms. Y. V. Rama Lakshmi (Alt) Shri Sai Pratap Kuv (Alt) Shri N Suguna (Alt)	madhusudan@bhel.in yvrlakshmi@bhel.in saipratapbec@bhel.in suguna@bhel.in
4	BHEL-GE Gas Turbines Services Pvt Ltd.	Shri H.V Ramana Murthy Shri S. Venkadesh (Alt)	hvramana.murthy@ge.com venkadesh.s@ge.com
5	Dresser-Rand India Pvt. Ltd, Pune	J.B. RAVAL (Alt)	jayesh.raval@siemens-energy.com
6	ELGI Equipment Limited, Coimbatore	Shri S. Senthil Kumar (Alt)	senthils@elgi.com
7	GAIL (India) Limited, New Delhi	Shri Upal Sengupta Shri Praseed Sahu (Alt)	upal@gail.co.in p.sahu@gail.co.in
8	Hindustan Petroleum Corporation Limited, Mumbai	Shri Munesh Kumar(Alt)	muneshkumar@hpcl.in
9	Indian Register of Shipping, Mumbai	Shri Suneet Digikar	suneet.digikar@irclass.org
10	Ingersoll Rand India Limited, Ahmedabad	Ms. Lakshmishree Nair (Alt)	lakshmishree.nair@irco.com
11	NTPC Limited, New Delhi	Shri Doondeshwar V(Alt)	vdoondeshwar@ntpc.co.in
12	Nayara Energy Limited, Mumbai	Shri Chirag Prajapati	chirag.prajapati@nayaraenergy.com
13	Oil and Natural Gas Corporation Limited, New Delhi	Shri Braj Kishor Rai	rai_bk5@ongc.co.in

14	Reliance Industries Limited, Mumbai	Shri Harendra Singh (<i>Alt</i>)	harendra1.singh@ril.com
15	Siemens Limited, Mumbai	Dr Giridhar Kumar Dhinne (<i>Alt</i>)	giridhar.d@siemens-energy.com
16	Triveni Turbines Limited, Bangalore	Shri Sankar B	sankarb@triveniturbines.com
17	Flovel Energy Pvt. Ltd. (Invitee)	Shri Deepak Raj Pokharna	Deepak.pokharna@flovel.net

BIS Directorate: Shri Lokraj Meena, Sc. C & Deputy Director, BIS