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BUREAU OF INDIAN STANDARDS

AGENDA

Name of the Committee	No of meeting	Date and Time	Day	Mode : Hybrid
Automotive Prime Movers, Transmission Systems and Internal Combustion Engine Sectional Committee, TED 2	21st Meeting	30th November 2023 10:30 AM onwards	Thursday	PHYSICAL VENUE Green Room, Manak Bhawan, Bureau of Indian Standards, 9, Bahadur Shah Zafar Marg, New Delhi - 110 002 VIRTUAL LINK **URL:** https://bismanak.webex.com/bismanak/j.php?MTID=md9f12011b86d1346e21e17f5e0e3bb24 **Meeting ID:** 2515 718 2432 **Password:** Wf4p8sH5Qm7

CHAIRMAN: Shri N.V. MARATHE **MEMBER SECRETARY:** Shri Gaurav Jayaswal

HEAD (TED): Shri P V Srikanth

ITEM 0 GENERAL

0.1 Welcome by Head (TED)

0.2 Opening remarks by the Chairman

ITEM 1 CONFIRMATION OF THE MINUTES OF LAST MEETING

1.1 The Minutes of 20th Meeting of 'Automotive Prime-movers, Transmission Systems and Internal Combustion Engine Sectional Committee, TED-2', held through WEBEX were circulated via email and BIS Portal. No comments on the recording of the Minutes have been received and hence the committee may formally confirm the minutes of the meeting.

ITEM 2 SCOPE AND COMPOSITION OF THE SECTIONAL COMMITTEE

2.0 Scope of Sectional Committee TED 02 is as follows:

a) Standardization relating to automotive engines and transmission, components, stationary internal combustion engines for agriculture.

b) Co-ordination of work with ISO/ TC 22, ISO/ TC 22/ SC 34, ISO/ TC 70, ISO/ TC 70/ SC 7 and ISO/ TC 70/ SC 8

The Committee may please note.

2.1 In line with decisions of the last meeting, following actions have been taken:

2.1.1 The committee noted that following organizations failed to attend last 3 consecutive meeting of SC TED 02 and decided accordingly:

Sl. No.	**Organization**	**REPRESENTED BY** Principal member (P) Alternate member (A) Young Professional (YP)	**Remarks/Discussion/Decision of SC TED 02 in 20th Meeting**	**Actions Taken**
1.	BEML Limited, Bengaluru	Shri M. Sasi Kumar (A) Shri Mahadev Nellur (P)	Dr. P G Bhatt, ARAI was requested to follow up with M/s BEML.	Email has been sent to Dr. Bhatt to provide contact details BEML Limited.
2.	Central Pollution Control Board, New Delhi	Shri Suneel Dave (A) Shri A Sudhakar (P)	BIS Secretariat was requested to follow up with these govt organizations for their participation in SC TED 02 Activities.	Email reminders along with copy of circular PNC09/18/2023-PNC-BIS dated 05/09/2023 has been sent to these organizations.
3.	Indian Institute of Technology Delhi, New Delhi	Dr Sudipto Mukherjee (A) Dr S. P. Singh (P)		
4.	Ministry of Road Transport & Highways, New Delhi	Shri K C Sharma (A)		
5.	Ordnance Factory Board, Kolata	S.K. Gund (P) Surender Pati (A)		
6.	Vehicle Research and Development Establishment, Ahmednagar	Shri Rupesh Kumar (P) Shri D.M. Vaidya (P)		
7.	National Small Industries	U Venkat chalapathi (P)	BIS Secretariat was requested to follow-up with its Rajkot Branch office (RJBO) in order	Email has been sent to RJBO for

Sl. No.	Organization	REPRESENTED BY Principal member (P) Alternate member (A) Young Professional (YP)	Remarks/Discussion/Decision of SC TED 02 in 20th Meeting	Actions Taken
	Corporation, Rajkot	Kamal Kant Sahu (A)	to get contact details of NSIC Rajkot and Rajkot Engineering Association.	following up with NSIC and REA.
8.	Rajkot Engineering Association, Rajkot	Mayur N Shah (P) Abhishek Gondaliya (A)		

2.1.2 Email reminders have also been sent to the organizations which failed to attend last TED 02 Meeting.

2.1.3 It was also noted by the committee that as per the Minutes of 15th SC TED 02 Meeting held on 29th January 2021, Membership of following organizations were withdrawn:

1. M/s Cummins India Pvt. Ltd.
2. M/s Greaves Cotton Ltd.
3. M/s Shriram Pistons

It was however noted by the committee that Membership of M/s Greaves Cotton Ltd. was retained by the committee in its 16th Meeting held on 21st May 2021.It was also noted by the SC that membership of M/s Concert Trust was also withdrawn as per the minutes if 16th Meeting held on 21st May 2021.

The committee requested member secretary to update the BIS Portal accordingly. BIS Portal has been updated. The committee may please note.

2.1.4 IDEMA was requested to assist in identifying expert organizations in the field of gensets with a specific focus on the electrical aspect. The response is awaited.

2.2 The committee may review the present composition of the Committee given in Annex 1. The committee may deliberate and decide on further continuation/ deletion of organizationsfrom the committee composition and co-option of new organizations in the committee composition.

2.3 An Email has been received from Dr. Ashok Kumar Vaikuntam regarding change in his organization. The Copy of the email has been attached at Annexure 2. The committee may deliberate and decide.

ITEM 3 PROCESS REFORMS AT BIS

3.1 Discussion of process reforms as indicated in Circular P&C/09/18/2023-PNC-BIS.

ITEM 4 ACTIONS ARISING OUT OF THE PREVIOUS MEETING(S)

A brief summary of actions arising out of minutes of last meeting(s) is given below in Table 1.

Table – 1

Sr. No.	Subject	Decision in Previous Meeting(s)	Present status
1.	**Third revision of IS 11509 (Part 5)** {Doc no **TED 2 (17750)}** **'**Method of test for full-flow lubricating oil filters for internal combustion engines - Part 5 **Test for cold start simulation and hydraulic pulse durability**' (*Identical adoption of ISO 4548-5:2020*)	**Status in 18th Meeting:** ISO 4548-5:2013 has been revised to ISO 4548-5:2020. Doc no. TED 2 (17750) was wide circulated vide mail dated 28 July 2021 for comments. Last date to send comments was 13th Sept 2021. No comments have been received. **Decision in 18th Meeting:** The committee finalized the document for printing. The committee advised member secretary to process the document for printing on priority.	The document has been published. The committee may please note.

		Status in 19th Meeting: The Document has been sent to publication and is expected to be published soon. The committee may please note. **Decision in 19th Meeting:** The committee noted. **Status in 20th Meeting:** The stage shown at BIS Portal is "Ready for Gazette" . The committee may please note. **Decision in 20th Meeting:** The committee noted.	
2.	**Draft Amendment no 4 to IS 7347** 'Specification for performance of small size Spark ignition engines for agricultural water Pumps sprayers, tillers, reapers and other similar applications' Doc no TED 2 (16665) P	**Status in 18th Meeting:** Doc no TED 2 (16665) was circulated as wide circulation draft vide mail dated 05 11 2021. Last date to send comments was 05 12 2021. No comments have been received. **Decision in 18th Meeting:** The committee finalized the	The document is still under publication stage. The committee may please note.

		amendment for printing. **Status in 19th Meeting:** The document is being prepared as per IS 12 for sending it for printing.The committee may please note. **Decision in 19th Meeting:** The committee discussed the document in the meeting and decided to incorporate some editorial changes. The final copy of the draft amendment which the committee decided to send for printing had been attached as Annexure – 1 of the minutes of 19th Meeting. **Status in 20th Meeting:** The document has been sent for printing. **Decision in 20th Meeting:** The committee noted.	

3.	**Revision of IS 17458 : 2018** {Adoption of ISO 6826 : 2022}	In 19th Meeting of SC TED 02 it was decided to revise IS 17458 : 2018 to align it with latest version of ISO 6826. **Status in 20th Meeting:** National foreword for adoption of ISO 6826 : 2022 has been sent for WC as TED 02 (22709)W. **Decision in 20th Meeting:** The committee noted.	The draft has completed its wide circulation period. No Comments have been received. The committee may decide to send the document for printing.
4.	**Revision of IS 14599:1999** 'Automotive vehicles - Performance requirements (Measurement Of Power, SFC, Opacity) of positive and compression ignition engines - Method of test'	Doc no TED 2 (16879) P circulated as preliminary draft vide mail dated 26 01 2021 for comments among committee members. **Status in 18th Meeting:** Wide circulation draft is underpreparation as per BIS drafting guidelines. **Decision in 18th Meeting:** The committee noted the information. The committee advised member secretary to wide circulate the draft document for	The was reverted back for editorial corrections. It will be sent for WC after said corrections. The committee may please note.

		comments for60 days at the earliest. **Status in 19th Meeting:** Wide circulation draft was prepared and circulated dt. 21/03/2022 for 60 days through BIS Portal. No Comments have been received in this regard on BIS Portal. The committee may deliberate and decide. **Decision in 19th Meeting:** The committee decided to send the document again for 30 days on request of members for comments. **Status in 20th Meeting:** The Document has been uploaded on BIS Portal and will be circulated after HoD approval. The committee may please note. **Decision in 20th Meeting:** The committee noted.	

5.	**Revision of IS/ISO 8528-5 : 2018** **TED 02 (23613)**	In the 20th Meeting The committee decided to adopt the latest ISO Standard i.e., ISO 8528-5:2022. Member secretary was requested to circulate National Foreword corresponding to ISO 8528-5:2022 as Wide circulation draft for 60 days to revise IS/ISO 8528-5:2018.	National Foreword corresponding to ISO 8528-5:2022 has been Sent for Wide circulation of 60 days. The circulation period has been completed and No comments have been received. The committee may decide to send the document for printing.
6.	**Revision of IS 8422 (Part 1 to 8)**	In 20th Meeting of SC TED 02, Member secretary was requested to prepare an observation table for tracking the status of Base standards from which assistance was derived while preparing the IS 8422 Series of standards along with latest version of ISO Standards which covers the scope of IS 8422, if any and circulate it along with the minutes.	The observation table has been prepared and is attached at Annexure-3. The table was also circulated with Minutes of the last meeting. ACMA was requested to circulate the Table to its Piston Ring Manufacturer Members for study and further recommendations. Response from ACMA is awaited. The committee may deliberate and decided.

ITEM 5 RESEARCH PROJECTS TO BE TAKEN UP

Guideline for R&D project has been circulated with committee members vide mail dated 17.11.2023.

Following Standards have been identified for R&D Purposes :

1. Revision of Test Methods Standards for IC Engines i.e. IS 10000 (Part 1 to 13)
2. Revision of Performance Requirements Standard for IC Engines i.e. IS 10001 and IS 10002.

Draft Terms of Reference for above identified subjects have been attached at Annexure- 4 and Annexure- 5.The committee may please deliberate and finalize the TOR.

ITEM 6 INTERNATIONAL ACTIVITIES

BIS membership in various ISO Committees related to scope of SC TED 02 is indicated below:

ISO Committee	Title	Membership Status
ISO TC 22	Road Vehicles	Principle (P)
ISO TC 22 / SC 34	Propulsion, Power-train and Power-train Fluids	Principle (P)
ISO TC 70	Internal Combustion Engines-	Principle (P)
ISO TC 70 / SC 7	Tests for Lubricating Oil Filters	Principle (P)
ISO TC 70 / SC 8	Exhaust Gas Emission Measurement	Principle (P)

India is a 'Participating' member on various documents generated by these Sub-committees. Being 'P' member, it is obligatory for India to vote on all the documents. The documents are received from ISO Secretariat time to time are being circulated to members for comments. Accordingly, voting is being done.

ITEM 7 DATE AND PLACE FOR THE NEXT MEETING

ITEM 8 ANY OTHER BUSINESS

ANNEXURE - 1

(Item 2.3)

COMPOSITION OF AUTOMOTIVE PRIMEMOVERS, TRANSMISSION SYSTEM ANDINTERNAL COMBUSTION ENGINES SECTIONAL COMMITTEE, TED 2

18th Meeting	20th December 2021	Virtual (Webex)
19th Meeting	22nd November 2022	Virtual (Webex)
20th Meeting	26th June 2023	Virtual (Webex)

Sl. No.	Organization	REPRESENTED BY Principal member (P) Alternate member (A) Young Professional (YP)	Attendance			Total	Status
			18th	19th	20th		
1)	In Personal Capacity	Shri N.V. Marathe **(Chairperson)**	Y	Y	Y	3/3	E
2)	Automotive Research Association of India, Pune	Dr. Prasanna G Bhat (P) Dr. S S Ramdasi (A) Shri N V Pawar (YP)	Y	Y	Y	3/3	E
3)	Ashok Leyland Limited, Chennai	Shri Muthukumar N (A) SHRI FAUSTINO V (P) Shri Harish V (YP)	Y	Y	Y	3/3	I
4)	Association of State Road Transport Undertakings, New Delhi	Shri R R K Kishore (P) Shri Praful Math (A) Shri Sachin Motiram Chachare (YP)	Y	N	Y	2/3	G
5)	Automotive Components Manufacturers Association,	Ms. Seema Babal (A) Shri Sanjay Tank (P)	Y	Y	Y	3/3	I
6)	Bajaj Auto Ltd,Pune	Shri Arvind V. Kumbhar (P) Shri Adish Aggarwal (A)	Y	Y	Y	3/3	I
7)	BEML Limited, Bengaluru	Shri M. Sasi Kumar (A) Shri Mahadev Nellur (P)	N	N	N	0/3	I
8)	Bosch Limited, Bangalore	Shri K U Ravindra (P) Shri H Shivaprakash (A)	Y	Y	N	2/3	I
9)	Central Institute of Road Transport, Pune	Shri Mangesh M. Pathak (P) Shri Nilesh Tagad (A) Shri Shivraj Dudhe (YP)	Y	Y	Y	3/3	T
10)	Central Pollution Control Board, New Delhi	Shri Suneel Dave (A) Shri A Sudhakar (P)	N	N	N	0/3	G

Sl. No.	Organization	REPRESENTED BY Principal member (P) Alternate member (A) Young Professional (YP)	Attendance			Total	Status
			18th	19th	20th		
11)	Directorate General of Quality Assurance, Ministry of Defence, New Delhi	Brig BK Pokhriyal (P) Col. OP Bharati (A)	N	Y	N	1/3	G
12)	Denso International India Private Limited, Gurugram	Shri Alok Kumar (A) Shri Noel Alexander Peters (P) Ms. Alka Sharma (YP)	Y	N	N	1/3	I
13)	Eaton Industrial System Private Limited, Pune	Shri Hemang Raval (P) Shri K V Rao (A)	Y	N	N	1/3	I
14)	Fleetguard Filters Private Limited, Pune	Dr Ashok Kumar Vaikuntam(P) Shri Vikas Salunke (A)	Y	N	N	1/3	I
15)	Greaves Cotton Limited (Diesel Engines Unit), Pune	Dr Kaleemuddin Syed (P) Shri Kedar A Kanase (A)	Y	Y	Y	3/3	I
16)	Hero Motocorp Limited, New Delhi	Shri Feroz Ali Khan (A) Shri Rakesh Sharma (P)	Y	N	N	1/3	I
17)	Honda India Power Products Limited, UP	Shri Tariq Mahmood (P) Shri Rajinder Khurana (A) Shri Dharmendra Kumar (YP)	Y	N	N	1/3	I
18)	India Pistons Limited Perambur, Chennai	Shri Balasubramani K (A)	Y	N	N	1/3	I
19)	Indian Diesel Engine Manufacturers Association, New Delhi	Shri Prashanth Ravi (A) Shri Arvind Ranganathan (P)	Y	N	Y	2/3	I
20)	Indian Institute of Petroleum, Dehradun	Dr Sunil Kumar Pathak (A) Dr. Devendra Singh (P)	Y	Y	Y	3/3	T
21)	Indian Institute of Technology Delhi, New Delhi	Dr Sudipto Mukherjee (A) Dr S. P. Singh (P)	N	N	N	0/3	T
22)	International Centre for Automotive Technology, Manesar	Shri Vaibhav Prashant Yadav(P) Shri Vijayanta Ahuja (A) Shri Deepanshu Dwivedi (A)	Y	Y	N	2/3	L
23)	Mahindra and Mahindra Limited, Mumbai	Shri Shashikant Nikam (P) Shri S Sakthivelan (A) Shri Sekar Ganesh (YP)	Y	Y	Y	3/3	I
24)	Maruti Suzuki India Limited, Gurugram	Shri Gururaj Ravi (P) Shri Rajesh Kumar (YP) Shri Arun Kumar (A)	Y	Y	Y	3/3	I
25)	Ministry of Heavy Industries & Public Enterprises, New Delhi	Shri R K Jaiswal (P)	Y	N	Y	2/3	G
26)	Ministry of Road Transport & Highways, New Delhi	Shri K C Sharma (A)	N	N	N	0/3	G
27)	MG India Motor (P) Ltd	Shri Vaibhav Utpat (P)	N	N	Y	1/3	I
28)	National Small Industries Corporation, Rajkot	Shri U Venkatchalapathi (P) Shri Kamal Kant Sahu (A)	N	N	Y	1/3	L

Sl. No.	Organization	REPRESENTED BY Principal member (P) Alternate member (A) Young Professional (YP)	Attendance			Total	Status
			18th	19th	20th		
29)	Ordnance Factory Board, Kolata	Shri S.K. Gund (P) Shri Surender Pati (A)	N	N	N	0/3	G
30)	Rajkot Engineering Association, Rajkot	Shri Mayur N Shah (P) Shri Abhishek Gondaliya (A)	N	N	N	0/3	I
31)	Society of Indian Automobile Manufacturers (SIAM), Delhi	Shri Prashant Kumar Banerjee(P) Dr. Sandeep Garg (A)	Y	N	N	1/3	I
32)	Tata Motors Limited, Pune	Shri Gowrishankar P. S. (P) Shri Milind J Pagare (P)	Y	Y	N	2/3	I
33)	Tenneco, Bengaluru	Shri Visesh C Challa (P)	Y	N	N	1/3	I
34)	Tractor Manufacturers Association, New Delhi	Shri Philip Koshi (P)	N	Y	N	1/3	I
35)	U.P. Diesel Engine Manufacturers Association, Agra	Shri Rajesh Garg (P) Shri Manish Doneria (A)	Y	N	N	1/3	I
36)	Vehicle Research and Development Establishment, Ahmednagar	Shri Rupesh Kumar (P) Shri D.M. Vaidya (P)	N	N	N	0/3	G

Consumer (C)	Govt / Regulator (G)	Industry (I)	Technical / Scientific bodies (T)	Testing Lab (L)	Expert (E)
1	7	24	3	2	1

Technical Committee Composition

1) The composition shall be categorized into Consumer(C), Govt/ Regulator (G), Industry (I), Tech/Scientific bodies (T), Testing Lab (L) and fixed number of members in eachcategory shall be assigned.
2) The balance of representation shall be maintained such that consumer interest shall prevail.
3) Definition of categories of members to be considered for classifying members are as given below:

i) CONSUMERS

Organized Buyers (OB) – Includes government organizations, PSUs andother large industries who buy the product for their use as raw material.
Consumer Organizations (CO) – Includes consumer bodies predominantly composed of citizens.
Individual Consumers (IC) – Includes consumers not included in above categories of consumers.

ii) **GOVERNMENT & REGULATORY BODIES (G)-** To include Govt departments/Ministries/Regulators/Local bodies

iii) **INDUSTRY(I)-**Includes manufacturers (including Government organizations andPSUs into manufacturing business), relevant raw material manufacturers and industry/manufacturer associations, service industry, consultancy firms, etc.

iv) **TECHNICAL/SCIENTIFIC BODIES(T)** – Includes Scientist, technologists, R&D organizations, academic & technical institutions, concerned officer of the Bureau.

v) **TESTING LABORATORIES(L)** – Testing Laboratories/ Organizations.

vi) **EXPERTS (E)**– All persons not included in any of the other categories.

The above defines PSUs and other industries as user in a Technical Committee wherethey are represented as consumer of a particular raw material/intermediate product. Manufacturer of the raw material has been included as industry.

Annexure – 2

Extract of Email Received from Dr. Ashok Kumar Vaikuntam dt. 23/11/2023

“

Dear Sir,
Many thanks for answering my call. I have been a member of the TED2 committee for the past 7 years representing Fleetguard Filters Pvt. Ltd. Now I have left the organization July 2022 and I am a Consultant to various filtration industries. I have been offered a position Professor of Practice at IIT and NIT, which I will be taking this opportunity from January 2024. I would like to continue my contribution to the filtration committee bothi within the BIS and ISO level In this regard, I request you to consider my continuation as a member of this committee. Also, I would appreciate it if you may send the link for the committee meeting for 30th November as I would like to attend the same

thank you

with warm regards
Dr. Ashok Kumar Vaikuntam (9881093323)

“

Annexure – 3

Status of Base Documents for IS 8422 Series of Standards along with Corresponding ISO Documents

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
IS 8422 (Part 1) : 1977	Specification for piston rings for IC engines: Part 1 - plain compression rings from 30 up to 200 mm nominal diameter **R - Rings**	**DIN 70910** 'Piston rings for automotive engineering, R-rings, plain compression rings from 30 up to 200 mm nominal diameter'	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70910 has been withdrawn and has been replaced by adopting **ISO 6622-1** as DIN Standard. { https://www.beuth.de/en/standard/din-70910/1970320 }	Latest version of ISO 6622-1 is ISO 6622-1:2021 - "*Internal combustion engines — Piston rings — Part 1: Rectangular rings made of cast iron*". **Scope of ISO 6622-1 : 2021** *"This part of ISO 6622 specifies the essential dimensional features of rectangular rings made of **cast iron**, Types **R, B, BA and M**, having diameters up to and including 200 mm, used in reciprocating internal combustion piston engines. It is also applicable to piston rings of compressors working under similar conditions."* Apart from this For Rectangular Rings Made of **Steel,** Part 2 of ISO 6622 exists. Latest version of ISO 6622-2 is ISO 6622-2:2013 - "*Internal combustion engines — Piston rings — Part 2: Rectangular rings made of steel".* **Scope of ISO 6622-2:2013** *"This part of ISO 6622 specifies the essential dimensional features of **rectangular rings** made of **steel**, types **R, B, BA, and M** having nominal diameters from 30 mm up to and*	**As Scope of ISO 6622-1 and ISO 6622-2 includes R Rings along with B, BA and M Types of Rings, IS 8422-1 may be superseded by adopting ISO 6622-1 and ISO 6622-2.**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
				including 160 mm, used in reciprocating internal combustion piston engines for road vehicles and other applications."	
IS 8422 (Part 2) : 1977	Specification for piston rings for IC engines: Part 2 taper faced compression rings from 30 up to 200 mm nominal diameter **M - Rings**	**DIN 70911** 'Piston rings for automotive engineering, M-rings, taper faced compression rings from 30 up to 200 mm nominal diameter'	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70911 has been withdrawn and has been replaced with **ISO 6622-1**. {https://www.beuth.de/en/standard/din-70911/1970377}	Latest version of ISO 6622-1 is ISO 6622-1:2021 - "*Internal combustion engines — Piston rings — Part 1: Rectangular rings made of cast iron*". **Scope of ISO 6622-1 : 2021** *"This part of ISO 6622 specifies the essential dimensional features of rectangular rings made of **cast iron**, Types **R, B, BA and M**, having diameters up to and including 200 mm, used in reciprocating internal combustion piston engines. It is also applicable to piston rings of compressors working under similar conditions."* Apart from this For Rectangular Rings Made of **Steel,** Part 2 of ISO 6622 exists. Latest version of ISO 6622-2 is ISO 6622-2:2013 - "*Internal combustion engines — Piston rings — Part 2: Rectangular rings made of steel".* **Scope of ISO 6622-2:2013** *"This part of ISO 6622 specifies the essential dimensional features of **rectangular rings** made of **steel**, types **R, B, BA, and M** having nominal diameters from 30 mm up to and including 160 mm, used in reciprocating internal combustion piston engines*	**As Scope of ISO 6622-1 and ISO 6622-2 includes M Rings along with R, B and BA Types of Rings, IS 8422-2 may be superseded by adopting ISO 6622-1 and ISO 6622-2.**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
				for road vehicles and other applications."	
IS 8422 (Part 3) : 1977	Specification for piston rings for IC engines: Part 3 keystone rings from 82 up to 200 mm nominal diameter **T - Rings 15°**	**DIN 70914** ' Piston rings for automotive engineering, T-rings 15", keystone rings 15" from 82 up to 200 mm nominal diameter '	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70914 has been withdrawn and has been replaced by adopting **ISO 6624-1**. {https://www.beuth.de/en/standard/din-70914/1970420}	Latest version of ISO 6624-1 is ISO 6624-1:2017 - "*Internal combustion engines — Piston rings — Part 1: Keystone rings made of **Cast iron***". **Scope of ISO 6624-1 : 2017** *"This part of ISO 6624 specifies the essential dimensional features of **keystone rings** made of **cast iron**, types **T, TB, TBA, TM, K, KB, KBA and KM,** having diameters from 70 mm up to and including 200 mm, used in reciprocating internal combustion piston engines."* Apart from this For *Keystone rings made of **Steel,*** Part 3 of ISO 6624 exists. Latest version of **ISO 6624-3** is ISO 6624-3:2017 – "*Internal combustion engines — Piston rings — Part 3: Keystone rings made of **steel** "* **Scope of ISO 6624-3:2017** *"This part of ISO 6624 specifies the essential dimensional features of **keystone rings** made of **steel**, types **T, TB, TBA, TM, K, KB, KBA and KM,** having diameters from 70 mm up to and including 160 mm, used in reciprocating internal combustion piston engines."* Along with this, Part 2 and Part 4 of ISO 6624 also exists for **Half keystone rings made**	**As Scope of ISO 6624-1 and ISO 6624-3 includes T Rings along with TB, TBA, TM, K, KB, KBA and KM Types of Rings, IS 8422-3 may be superseded by adopting ISO 6624-1 and ISO 6624-3.** **ISO 6624-2 and ISO 6624-3 may also be considered for adoption for Half Keystone Rings.**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
				of cast iron and Steel respectively. **<u>Scope of ISO 6624-2 : 2016</u>** *"This part of ISO 6624 specifies the essential dimensional features of **half keystone rings** made of **cast iron**, types **HK, HKB and HKBA**, having nominal diameters from 38 mm up to, and including, 160 mm, used in reciprocating internal combustion piston engines for road vehicles and other applications."* **<u>Scope of ISO 6624-4 : 2016</u>** *"This part of ISO 6624 specifies the essential dimensional features of **half keystone rings** made of **steel**, types **HK, HKB and HKBA**, having nominal diameters from 50 mm up to, and including, 160 mm, used in reciprocating internal combustion piston engines for road vehicles and other applications."*	
IS 8422 (Part 4) : 1977	Napier Oil Scraper Rings From 30 Up To 200 mm Nominal Diameter **N-Rings**	**DIN 70930** 'Piston rings for automotive engineering, N-rings, oil-scraper rings from 30 up to 200 mm nominal diameter',	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70930 has been withdrawn and has been replaced by	Latest version of ISO 6623 is ISO 6623 : 2013 - "*Internal combustion engines — Piston rings — Scraper rings made of cast iron'* **<u>Scope of ISO 6623 : 2013</u>** This International Standard specifies the essential dimensional features of **scraper rings** made of **cast iron**, types **N, NM, E, and EM**, having diameters from 30 mm up to and including 200 mm, used in reciprocating internal	**As Scope of ISO 6623 includes N Rings along with NM, E and EM Types of Rings, IS 8422-4 may be superseded by adopting ISO 6623.**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
			adopting **ISO 6623**. {https://www.beuth.de/en/standard/din-70930/1970585}	combustion engines for road vehicles and other applications.	
IS 8422 (Part 5) : 1977	Specification for piston rings for IC engines: Part 5 stepped oil scraper rings from 30 up to 200 mm nominal diameter **Z - Rings**	Draft British Standard Specification of piston rings up to 200 mm diameter for internal combustion engines : Part I Single piece designs, dimensions, materials and designations ',	Status of Base Standard could not be traced due to unavailability of Document Number of Draft British Standard.	-	**Inputs are requested from Committee members for Revision of this standard.**
IS 8422 (Part 6) : 1977	Specification for piston rings for IC engines: Part 6 slotted oil control rings from 50 up to 200 mm nominal diameter **S - Rings**	**DIN 70946** 'Piston rings for automotive engineering, S-rings, slotted oil control rings from 50 up to 200 mm nominal diameter',	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70946 has been withdrawn and has been replaced by adopting **ISO 6625.** {https://www.beuth.de/en/standard/din-70946/1970633}	Latest version of ISO 6625 is ISO 6625 : 1986 - "*Internal combustion engines — Piston rings — Oil control rings"* **<u>Scope of ISO 6625 : 1986</u>** *"This International Standard specifies the essential dimensional features of **S-, G-, D- and DV-oil control piston ring types**. The normal range for the axial width of oil control rings (2,5 to 8 mm inclusive) is divided into 0,5 or 1,0 mm increments. In table 7, dimensions in inch units are given for oil control rings with axial width 4,75 mm (equal to 3/16 in) for existing applications. The requirements of this International Standard apply to oil control rings for reciprocating internal*	**The Scope of ISO 6625 includes S Rings along with G, D and DV types of oil control piston rings.** **Hence IS 8422-6 may be superseded by adopting ISO 6625.**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
				combustion piston engines, up to and including 200 mm diameter. It may also be used for piston rings of compressors working under similar conditions."	
IS 8422 (Part 7) : 1977	Specification for piston rings for IC engines: Part 7 double bevelled slotted oil control rings from 50 up to 200 mm nominal diameter **G - Rings**	**DIN 70948** 'Piston rings for automotive engineering, G-rings, double bevelled slotted oil control rings from 50 up to 200 mm nominal diameter'.	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70948 has been withdrawn and has been replaced by adopting **ISO 6625.** {https://www.beuth.de/en/standard/din-70948/1970748}	Latest version of ISO 6625 is ISO 6625 : 1986 - "*Internal combustion engines — Piston rings — Oil control rings"* **<u>Scope of ISO 6625 : 1986</u>** *"This International Standard specifies the essential dimensional features of **S-, G-, D- and DV-oil control piston ring types**. The normal range for the axial width of oil control rings (2,5 to 8 mm inclusive) is divided into 0,5 or 1,0 mm increments. In table 7, dimensions in inch units are given for oil control rings with axial width 4,75 mm (equal to 3/16 in) for existing applications. The requirements of this International Standard apply to oil control rings for reciprocating internal combustion piston engines, up to and including 200 mm diameter. It may also be used for piston rings of compressors working under similar conditions."*	**The Scope of ISO 6625 includes G Rings along with S, D and DV types of oil control piston rings.** **Hence IS 8422-7 may be superseded by adopting ISO 6625.**
IS 8422 (Part 8) : 1977	Specification for piston rings for IC engines: Part 8 narrow land slotted oil control rings	**DIN 70947** 'Piston rings for automotive engineering, D-rings, narrow land drain oil control rings, 50 up to 200 mm	As per the Information Available on the website of 'Beuth Verlag' which is a subsidiary of DIN, the German Institute for Standardization, DIN 70948 has been	Latest version of ISO 6625 is ISO 6625 : 1986 - "*Internal combustion engines — Piston rings — Oil control rings"* **<u>Scope of ISO 6625 : 1986</u>** *"This International Standard specifies the essential dimensional features of **S-, G-, D- and DV-oil control piston ring types**. The normal range for*	**The Scope of ISO 6625 includes D Rings along with S, G and DV types of oil control piston rings.** **Hence IS 8422-8 may be superseded by**

IS Number	Title	Base Document/ Assistance Taken	Status of Base document	Remarks	Recommendations
	from 50 up to 200 mm nominal diameter **D - Rings**	nominal diameter,	withdrawn and has been replaced by adopting **ISO 6625.** {https://www.beuth.de/en/standard/din-70947/1970671}	*the axial width of oil control rings (2,5 to 8 mm inclusive) is divided into 0,5 or 1,0 mm increments. In table 7, dimensions in inch units are given for oil control rings with axial width 4,75 mm (equal to 3/16 in) for existing applications. The requirements of this International Standard apply to oil control rings for reciprocating internal combustion piston engines, up to and including 200 mm diameter. It may also be used for piston rings of compressors working under similar conditions."*	**adopting ISO 6625.**

Other ISO Standards on Piston Rings

ISO Standards	Title of the Standard	Scope of the Standard	If Corresponding Indian Standards Exists	Recommendations
ISO 6621-1 :2018	Internal combustion engines — Piston rings — Part 1: Vocabulary	This document classifies materials intended for the manufacture of piston rings, based on their mechanical properties and the stresses the materials are capable of withstanding. This document is applicable to piston rings for reciprocating internal combustion engines up to and including those of 200 mm in diameter. It is also applicable to piston rings of compressors working under similar conditions.	Yes {IS/ISO 6621-1 : 2018}	Latest Version of ISO Document is adopted. Hence No Action is recommended.
ISO 6621- 2 :2020	Internal combustion engines — Piston rings — Part 2: Inspection measuring principles	This document defines the measuring principles to be used for measuring piston rings; it applies to piston rings up to and including 200 mm diameter for reciprocating internal combustion engines. This document can be used for piston rings for compressors working under analogous conditions.	Yes {IS/ISO 6621-2 : 2020}	Latest Version of ISO Document is adopted. Hence No action is recommended.
ISO 6621-3 :2021	Internal combustion engines — Piston rings — Part 3: Material specifications	This document classifies materials intended for the manufacture of piston rings, based on their mechanical properties and the stresses the materials are capable of withstanding. This document is applicable to piston rings for reciprocating internal combustion engines up to and including those of 200 mm in diameter. It is also applicable to piston rings of compressors working under similar conditions.	Yes {IS 5791 : 2006, Adoption of ISO 6621-3 : 2000}	Latest Version of ISO Document i.e. ISO 6623-3: 2021 may be adopted.
ISO 6621-4 :2015	Internal combustion engines — Piston rings — Part 4: General specifications	This part of ISO 6621 specifies the general characteristics of piston rings for reciprocating internal combustion engines for road vehicles and other applications (the individual dimensional criteria for these rings are given in the relevant International Standards). It also provides a system for ring coding, designation, and marking. It is applicable to all such rings of a nominal diameter from 30 mm up to and including 200 mm.	No	May be Considered for Adoption
ISO 6621-5 :2020	Internal combustion engines — Piston rings — Part 5: Quality requirements	This document specifies quality aspects that can be defined but that are not normally found on a drawing specification. It covers the following: — single-piece piston rings of grey cast iron or steel; — multi-piece piston rings (oil control rings) consisting of cast iron parts and spring components; and — single-piece and multi-piece oil control rings of steel, i.e. oil control rings in the form of strip steel components or steel segments (rails) with spring expander components. In addition to specifying some of the limits of acceptance relating to inspection measuring principles (covered by ISO 6621-2), this document also covers those features for which no recognized quantitative measurement procedures exist and which are only checked visually with normal eyesight (glasses if worn	No	May be Considered for Adoption

		normally) and without magnification. Such features (superficial defects) are additional to the standard tolerances of ring width, radial wall thickness and closed gap. This document does not establish acceptable quality levels (AQL), it being left to manufacturer and customer to decide the appropriate levels jointly. In this case, the recommendations of ISO 2859-1 are followed. This document specifies the quality requirements of piston rings for reciprocating internal combustion engines for road vehicles and other applications. It is applicable to all such rings of a nominal diameter from 30 mm up to and including 200 mm.		
ISO 6626-1 (DIS Stage) {As per the information available on ISO Portal, It Will Supersede ISO 6626:1989}	Internal combustion engines — Piston rings — Part 1: Coil spring loaded oil control rings made of cast iron	-	-	No Recommendation as document is still under formulation stage at ISO.
ISO 6626-2 :2013	Internal combustion engines — Piston rings — Part 2: Coil-spring-loaded oil control rings of narrow width made of cast iron	This part of ISO 6626 specifies the essential dimensional features of coil-spring-loaded oil control rings made of cast iron, types DSF-C, SSF, GSF, DSF, SSF-L, DSF-NG and DSF-CNP. It is applicable to those piston rings in sizes 60 mm to 110 mm, inclusive, for reciprocating internal combustion engines for road vehicles and other applications.	No	May be Considered for Adoption
ISO 6626-3 :2019	Internal combustion engines — Piston rings — Part 3: Coil-spring-loaded oil control rings made of steel	This document specifies the essential dimensions of coil-spring-loaded oil control rings made of steel, of piston ring types SOR (with R-shaped groove) and SOV (with V-shaped groove). This document applies to coil-spring-loaded oil control rings made of steel with a diameter from 60 mm up to and including 160 mm for reciprocating internal combustion engines. It can also be used for piston rings in compressors working under analogous conditions.	No	May be Considered for Adoption
ISO 6627 :2022	Internal combustion engines — Piston rings — Expander/rail oil-control rings	This document specifies the essential dimensional features of expander/rail oil-control rings, without providing a complete product description (because expander-rail designs vary from piston-ring manufacturer to piston-ring manufacturer, the interaction between the manufacturer and the client will determine specific design details). This document applies to expander/rail oil-control rings of nominal diameters ranging from 40 mm to 140 mm for reciprocating internal combustion engines for road vehicles and other applications. It also applies to piston rings for compressors working under analogous conditions.	No	May be Considered for Adoption

Annexure – 4

Research Project
on
Methods of tests for internal combustion engines

Title	**:**	Study of Methods of tests for internal combustion engines and related National and International Standards
Sectional Committee	**:**	Automotive Prime movers, Transmission Systems and Internal Combustion Engine Sectional Committee
Supervisor	**:**	Member Secretary of TED 02
Duty Station	**:**	All over India
Proposed Duration	**:**	5-6 Months

Introductory background

The testing and performance of constant speed and variable speed internal combustion engines were originally covered by Indian Standards IS 1600:1960, IS 1601:1960, IS 1602:1960, and IS 1603:1960. These standards have been extensively revised over the years, resulting in two sets of standards: one covering methods of testing and the other covering specification and performance requirements of engines. The standard covering methods of tests is published in 13 parts, designated as IS 10000 (Part 1 to Part 13). These standards have been aligned with international practices and supersede the older IS 1600, IS 1601, IS 1602, and IS 1603.

Proposed Scope of the Project

The project aims to study relevant Indian and International standards for the methods of tests for internal combustion engines. The objective is to come up with recommendations for the revision of IS 10000 (Part 1 to 13).

Objective

The primary objective of this research project is to evaluate and analyze existing Indian and International standards related to the methods of tests for internal combustion engines. This will

include a comprehensive review of the literature, stipulations, and practices in the field. The project will culminate in the development of recommendations for the revision of IS 10000 (Part 1 to 13) to align them with the current state of the art and international best practices.

Methodology

The research methodology will involve a thorough examination of relevant Indian and International standards, including a literature review. The project proposer will conduct site visits and audits to identify specific requirements for revisions. This will be followed by drafting a final working document that includes all aspects outlined in the ToR.

Criteria for Identification of Proposer to conduct Research work

The project proposer should have expertise in the field of internal combustion engines, standards development, and testing methodologies. They should have a proven track record of research and analysis in similar domains. The proposer should be able to demonstrate a clear understanding of the objectives and requirements outlined in this ToR.

Deliverables

The project will deliver the following key outcomes:

Interim Report: A report covering the review of literature and existing stipulations within 2 months from the date of assignment received from BIS.

Site Visit and Audit Report: A report outlining the findings from site visits and specific requirements for revisions, including audit criteria, by the end of 4 months from the date of issue of the sanction letter by BIS.

Final Working Drafts: Comprehensive documents as per IS 12 covering all aspects of the ToR, to be delivered by the end of 5 months from the date of assignment received from BIS.

Justification for Delay: In case of any delay in the submission of the final draft report, the project proposer shall provide a justification for consideration by the Sectional Committee.

Compliance with BIS Guidelines: The proposer shall adhere to the provisions given in the BIS guidelines for Research & Development Projects for Formulation and Review of Standards, as outlined in document number SCMD/R&D Guidelines/20230909.

Clarification of Doubts: The project proposer shall seek clarification on any provisions related to research, including the ToR and BIS guidelines, before accepting the project and signing the agreement.

This project will contribute to the enhancement of standards and testing methods for internal combustion engines, ensuring they are in alignment with current international best practices.

Delivery Milestones and Review Process

1. Interim Report covering the review of the literatures and existing stipulations, thereof – within 2 months from the date of assignment received from BIS.
2. Report of site visits and specific requirement for GB developments including audit criteria etc. – By end of 4 months from the date of issue of sanction letter by BIS.
3. Final Working Draft covering all the aspects of the ToR – By end of 5 months from the date of assignment received from BIS.
4. In case of delay in submission of final draft report, the justification shall be given by the project proposer for consideration by the Sectional Committee.
5. The proposer shall comply to the provisions given in the BIS guidelines for Research & Development Projects for Formulation and Review of Standards, i.e., **doc no. SCMD/R&D Guidelines/20230909.**
6. The proposer taking up the project shall clear all doubts on provisions of research including ToR and BIS guidelines before acceptance of the project and signing agreement.

Annexure-5

Research Project
on
Performance requirements for internal combustion engines

Title	**:**	Study of Performance requirements for internal combustion engines and related National and International Standards
Sectional Committee	**:**	Automotive Prime movers, Transmission Systems and Internal Combustion Engine Sectional Committee
Supervisor	**:**	Member Secretary of TED 02
Duty Station	**:**	All over India
Proposed Duration	**:**	5-6 Months

Introductory background

The testing and performance of constant speed and variable speed internal combustion engines were originally covered by Indian Standards IS 1600:1960, IS 1601:1960, IS 1602:1960, and IS 1603:1960. These standards have been extensively revised over the years, resulting in two sets of standards: one covering methods of testing and the other covering specification and performance requirements of engines. The standards covering Performance requirements are IS 10001 and IS 10002

Objectives

The objective of this research project is to revise and update the existing Indian Standards IS 10001 and IS 10002 related to the performance requirements for internal combustion engines. This revision aims to:

1. Review and evaluate the current standards (IS 10001 and IS 10002) in light of technological advancements and industry best practices.
2. Identify areas for improvement or modification in the standards to ensure alignment with modern engineering practices and global standards.
3. Analyze the applicability and relevance of existing test methods, specifications, and

performance requirements outlined in IS 10001 and IS 10002.
4. Propose additions to the standards to accommodate emerging technologies, enhance accuracy, and ensure comprehensive coverage of engine performance parameters.
5. Ensure harmonization with relevant international standards to facilitate global compatibility and competitiveness of Indian internal combustion engines.

Scope of Work

The research project will involve the following key activities:

1. *Literature Review and Comparative Analysis:*
   - Review existing IS 10001 and IS 10002 standards along with related national and international standards applicable to internal combustion engines.
   - Conduct a comparative analysis to identify gaps, inconsistencies, or areas needing improvement in the current standards.

2. *Stakeholder Consultation:*
   - Engage with industry experts, manufacturers, regulatory bodies, and other stakeholders to gather insights, feedback, and recommendations for standard enhancement.

3. *Technical Evaluation and Recommendations:*
   - Evaluate the performance parameters, test methods, and specifications outlined in IS 10001 and IS 10002 against contemporary technological advancements.
   - Formulate recommendations for updating, refining, or introducing new clauses in the standards to ensure comprehensive coverage and accuracy in performance evaluation.

4. *Drafting Proposed Revisions:*
   - Prepare draft revisions for IS 10001 and IS 10002, incorporating identified changes, enhancements, or additions based on the research findings and stakeholder inputs.

5. *Documentation and Reporting:*
   - Document all research methodologies, findings, analyses, and proposed revisions in a comprehensive report.
   - Present the finalized recommendations and draft revisions to the relevant committee for review and approval.

6. *Feedback Incorporation:*

- Incorporate feedback and suggestions received during the review process into the final draft revisions of IS 10001 and IS 10002.

Criteria for Identification of Proposer to conduct Research work

The project proposer should have expertise in the field of internal combustion engines, standards development, and testing methodologies. They should have a proven track record of research and analysis in similar domains. The proposer should be able to demonstrate a clear understanding of the objectives and requirements outlined in this ToR.

Deliverables

The project will deliver the following key outcomes:

Interim Report: A report covering the review of literature and existing stipulations within 2 months from the date of assignment received from BIS.

Site Visit and Audit Report: A report outlining the findings from site visits and specific requirements for revisions, including audit criteria, by the end of 4 months from the date of issue of the sanction letter by BIS.

Final Working Drafts: Comprehensive documents as per IS 12 covering all aspects of the ToR, to be delivered by the end of 5 months from the date of assignment received from BIS.

Justification for Delay: In case of any delay in the submission of the final draft report, the project proposer shall provide a justification for consideration by the Sectional Committee.

Compliance with BIS Guidelines: The proposer shall adhere to the provisions given in the BIS guidelines for Research & Development Projects for Formulation and Review of Standards, as outlined in document number SCMD/R&D Guidelines/20230909.

Clarification of Doubts: The project proposer shall seek clarification on any provisions related to research, including the ToR and BIS guidelines, before accepting the project and signing the agreement.

This project will contribute to the enhancement of standards and testing methods for internal combustion engines, ensuring they are in alignment with current international best practices.

Delivery Milestones and Review Process

7. Interim Report covering the review of the literatures and existing stipulations, thereof – within 2 months from the date of assignment received from BIS.

8. Report of site visits and specific requirement for GB developments including audit criteria etc. – By end of 4 months from the date of issue of sanction letter by BIS.

9. Final Working Draft covering all the aspects of the ToR – By end of 5 months from the date of assignment received from BIS.

10. In case of delay in submission of final draft report, the justification shall be given by the project proposer for consideration by the Sectional Committee.

11. The proposer shall comply to the provisions given in the BIS guidelines for Research & Development Projects for Formulation and Review of Standards, i.e., **doc no. SCMD/R&D Guidelines/20230909.**

12. The proposer taking up the project shall clear all doubts on provisions of research including ToR and BIS guidelines before acceptance of the project and signing agreement.