



Bureau of Indian Standards
The National Standards Body of India

PRODUCTION AND GENERAL ENGINEERING DEPARTMENT (PGD)

Minutes

Meeting committee	and	DATE & DAY	TIME	VENUE
15 th Meeting of Transmission Devices Sectional Committee, PGD 33		8 th November 2023 (Wednesday)	02:30 am	Through Video Conference [WebEx]

Meeting link:	https://bismanak.webex.com/bismanak/j.php?MTID=m65095e3b45c153f40effbb53169cca1e
Meeting number:	2512 880 8015
Password:	05122023

Present

1. **CHAIRMAN:** Shri Vikas Chopra, Chairman
2. **MEMBER SECRETARY:** Shri Vichitra Vir Singh, Scientist-‘D’, BIS Delhi

Members

3.	Ashish Kumar Khanra, Retd. CPRI Bhopal akk1091@rediffmail.com	IN PERSONAL CAPACITY
4.	Prof. Neelesh Kumar Jain nkjain@iiti.ac.in	IIT, Indore
5.	Shri Mahendran M mahendran.muthu@lohiagroup.com	Lohia Corp., kanpur
6.	Shri Vijay Kumar Goel mp.directorbrake@gmail.com	RDSO Lucknow
7.	Shri K. K. S. Sinha kesharisinha@gmail.com	IN PERSONAL CAPACITY, Dhanbad

8.	Shri Vrajlal Senjaliya vbsenjaliya@elecon.com	Elecon Engineering Co.Ltd., Vallabh Vidyanagar, Gujarat
9.	Shri Amit Talwar amit.talwar@maruti.co.in	Maruti Suzuki India Ltd. Gurugram
10.	Shri Arvind Manohar almanohar@eicher.in	VE Commercial Vehicles Limited, Dewas, Indore
11.	Shri Dev Kanth dev.kanth@edtec.in	Lohia Corp Limited, Kanpur
12.	Shri Prakash Jha prakash.jha@lohiagroup.com	Lohia Corp Limited, Kanpur
13.	Shri Subbiah p.subbiah@lgb.co.in	LGB Coimbatore
14.	Shri A.shanmugam a.shanmugam@lgb.co.in	LGB Coimbatore
15.	Shri Devarajan.L l.devarajan@lgb.co.in	LGB Coimbatore
16.	Shri Amit Jaiswal amit.jaiswal@lohiagroup.com	Lohia Corp., kanpur
17.	Shri Mohamed Naseeruddin mohamed.naseeruddin@suzlon.com	Suzlon Group Chennai
18.	Shri Anil Bedi btchain22@gmail.com	Roller Chain Manufacturers Association, Ludhiana

Item 0. GENERAL

0.1 Welcome by BIS

Shri Vichitra Vir Singh, Scientist-D & Member Secretary welcomed all the members of the Committee and invitees who devoted their time to the meeting. He briefed all the members about the main agenda points for the meeting. He also informed about the recent decisions of the Bureau regarding small R&D projects and terms of reference (TOR) for carrying out small R&D for review/ revision of the Standards. He also requested the members to login into the BIS portal and get themselves acquainted with the BIS portal because in the coming days all the communication will be through the portal. He further emphasized that we should also be proactive in finding the right stakeholders to deliberate in formulation of the standards. He also impressed upon members to be proactive in the committee work so that new subjects for standards formulation can be taken up. He thanked all the members for

sparing their valuable time and presence in the meeting. He wished the members for a deliberative and fruitful meeting.

0.2 Opening Remarks by the Chairman

Mr. Vikas Chopra extended a warm welcome and conveyed greetings to all the members attending the meeting. He expressed heartfelt gratitude to the members for sparing their valuable time and for their valuable contributions and cooperation in the committee's work.

During his address, Mr. Chopra expressed his concern and desire to involve more stakeholders in the composition of the committee. He shared his personal experiences in the field of Automobiles concerning transmission devices with fellow committee members. He encouraged them to explore new subjects under the committee's purview, aiming to formulate new standards and revise existing ones. He also praised the efforts of the member secretary in activating the committee and successfully bringing in experts from esteemed institutions like IIT Indore, Elcon Gears Gujarat, and Mahindra and Mahindra.

Mr. Vikas Chopra conveyed his best wishes for a productive and fruitful meeting and expressed gratitude to all the members for their attendance and cooperation.

Item 1. CONFIRMATION OF THE MINUTES OF THE LAST MEETING

In the absence of the comments, the Sectional Committee, PGD 33 formally confirmed the minutes of the 14th meeting of Transmission Devices Sectional Committee, PGD 33 held on 20th July 2023 at BIS, New Delhi through virtual conference (WebEx), was uploaded in the portal on 07th August 2023.

ITEM 2 REFORMS IN THE PROCESS OF STANDARDISATION

Committee has noted the information given at Agenda Item 2 and the committee is working as per the process reforms suggested by DG BIS.

Item 3 ISSUES ARISING OUT OF THE PREVIOUS MEETING

3.1 The decision of the committee on Summary of actions taken on the minutes of the last meeting is as given below.

SL.N O	DECISION OF THE COMMITTEE/ ACTIONS TO BE TAKEN	ACTIONS/ STATUS	Decision taken in the Committee
1.	<p>The committee decided to review IS 3654: 1966 DIMENSIONS FOR STRAIGHT SIDED SERRATIONS and the review document was circulated to the committee. It was requested to all the members for their comments/ inputs within 2 months for review of the standard.</p> <p>Shri Vikas Chopra, Chairman had volunteered to provide the inputs/ comments with his team for IS 3654: 1966 DIMENSIONS FOR STRAIGHT SIDED SERRATIONS, within 2 months.</p>	<p>The revised draft has been sent for wide circulation on 24-07-2023. The last date for sending comments on the draft is 17-09-2023.</p>	<p>The Committee has finalized the draft for printing.</p>
2.	<p>The committee decided to review IS 3665: 1966 DIMENSIONS FOR INVOLUTE SIDED SPLINES and the review document was circulated to the committee. It was requested to all the members for their comments/ inputs within 2 months for review of the standard.</p> <p>Shri Vikas Chopra, Chairman had volunteered to provide the inputs/ comments with his team for IS 3665: 1966 DIMENSIONS FOR INVOLUTE SIDED SPLINES, within 2 months.</p>	<p>The revised draft has been sent for wide circulation on 18-09-2023. The last date for sending comments on the draft is 17-11-2023.</p>	<p>The Committee has finalized the draft for printing.</p>
3.	<p>Review of the following Standards: IS 4600: 1968 Specification for flexible shafts IS 8843:1978 Accuracy requirements for turbine gears.</p>	<p>The revised draft has been sent for wide circulation on 07-08-2023. The last date for</p>	<p>The Committee has finalized the draft for</p>

SL.N O	DECISION OF THE COMMITTEE/ ACTIONS TO BE TAKEN	ACTIONS/ STATUS	Decision taken in the Committee
	<p>Shri Amit Talwar had volunteered to provide the inputs/ comments for IS 4600: 1968 Specification for flexible shafts and IS 8843: 1978 Accuracy requirements for turbine gears.</p> <p>SHRI AMIT TALWAR HAS VOLUNTEERED TO PROVIDE THE CONTACT DETAILS OF MANUFACTURES OF IS 4600: 1968 SPECIFICATION FOR FLEXIBLE SHAFTS.</p> <p>Mr. Murali from Shanthi Gears Limited has volunteered to provide inputs/ comments for review of IS 8843: 1978 Accuracy requirements for turbine gears within 2 months.</p>	<p>sending comments on the draft is 05-10-2023.</p> <p>Committee decided to archive IS 8843: 1978 Accuracy requirements for turbine gears.</p>	<p>printing.</p> <p>Committee has approved ToR for IS 8843: 1978 Accuracy requirements for turbine gears.</p>
4.	<p>Dr. Krishna Kumar, TIDC India Ltd., Chennai has volunteered to review IS 1072: 2014/ ISO 4347: 2004 Leaf chains, clevises and sheaves - Dimensions, measuring forces and tensile strengths (Third Revision) [ISO 4347 has been revised and published as ISO 4347: 2015]</p>	<p>The revised draft has been sent for wide circulation on 05-09-2023. The last date for sending comments on the draft is 03-11-2023.</p>	<p>THE COMMITTEE HAS FINALIZED THE DRAFT FOR PRINTING.</p>

SL.N O	DECISION OF THE COMMITTEE/ ACTIONS TO BE TAKEN	ACTIONS/ STATUS	Decision taken in the Committee
5.	Revision of IS 2403/ISO 606 Short-Pitch Transmission Precision Roller and Bush Chains Attachments and Associated Chain Sprockets	The revised draft has been sent for wide circulation on 08-08-2023. The last date for sending comments on the draft is 07-10-2023.	THE COMMITTEE HAS FINALIZED THE DRAFT FOR PRINTING.

Item 4. COMPOSITION OF THE SECTIONAL COMMITTEE

4.1 The committee noted the information provided in the agenda.

It is requested the committee members to kindly share the specific contact details to the Organisations/ Industries/ Departments related to this committee.

4.2 The committee deliberated and decided to co-opt the active and relevant expert members and withdraw the co-option of the inactive organizations/members from the committee composition.

Committee decided to co-opt the following organisations:

Sl No.	Organisation	Member Name	Contact Details
1.	Advance Technologies (India), Ludhiana	Shri Anil Bedi, CEO,	btxchain22@gmail.com, 9417000910
2.	Honda Motorcycle & Scooter, Manesar	Shri Arpan Shukla, Asst. Manager,	arpan.shukla@honda2wheelersindia.com, 9599050336
3.	Suzlon Energy Limited, Chennai	Mohamed Naseeruddin, General Manager (Gearbox -	914466093070/ 66093000/ 9500065641,

		Design and Engineering),	mohamed.naseeruddin@suzlon.com
4.	L.G. Balakrishnan & Bros Limited, Coimbatore	Prabakaran P, Managing Director,	p.prabakaran@lgb.co.in, 98946 19006, 93628 63006
5.	Kirloskar Pneumatic Company Limited Pune	Shri Kannan Loganathan	l.kannan@kirloskar.com
6.	Lohia Corp Limited, Kanpur	Shri Prakash Kumar Jha, VP (R&D Mech.) Shri Mahendran M Shri Dev Kanth, Sr. Manager (R&D, Transmission) Shri Amit Jaiswal, Manager (R&D, Mech. design)	Prakash.jha@Lohiagroup.com sgicad@gmail.com Dev.kanth@lohiagroup.com amit.jaiswal@lohiagroup.com
7.	VE Commercial Vehicles Limited, Dewas, Indore	Shri Arvind Manohar, VP & Head (New product Development) Shri Mahendra Mohan, Sr. Manager (Product life cycle management & Project management) Shri Saptharishi Iyer, Manager	almanohar@vecv.in mmohan3@vecv.in sbiyer@eicher.in
8.	Elecon Engineering Company, Vallabh	Shri Vrajlal Senjaliya Mr. Prayasvin Patel,	vbsenjaliya@elecon.com

	Vidyanagar, Gujarat	Chairman and Managing Director (CMD)	s.vraj2001@gmail.com
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4.3 Committee decided to Nominate new members in the following organisation:

Sl No.	Organisation	Member Name	Contact Details

4.4 Committee decided to Withdrawal the Co-option of the following:

Sl No.	Organisation	Member Name	Contact Details

1.	International Centre for Automotive Technology	Sh S K Kalia, Shri Amit K Karwal, 9871259859	Sk.kalia@icat.in , amit.karwal@ic at.in
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2.	National Test House , Ghaziabad	Shri D.N. Ray Shri B. Chakraborty	nthnr@rediffmail.com , nthsal-wb@nic.in , nthnr-ca@nic.in
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3.	Bharat Heavy Electricals Limited (BHEL), 10 th Floor, Joy Tower, C/20/1A, Sector-62, Noida, 201309	Shri Vineet Gupta 0120-6748541/ 9873967276	vineet.gupta@bhel.in
4.	In Personal capacity	Shri Mahendran M 9578634944	sgicad@gmail.com
5.	Combat Vehicles Research and Development Establishment, Ministry of Defence, Chennai	-	-
6.	Defence Research and Development Organization, Research Centre Imarat, Hyderabad	Shri C K Bhatt, Shri S Panwar,	dmpbk@rdso.railnet.gov.in dmphyd@gmail.com
7.	Directorate General of Mines Safety, Dhanbad	Shri D. Sinha	spuri2002@gmail.com
8.	National Thermal Power Corpn. NOIDA	Shri K.V. Adivarahan Shri Sharad Anand	info@ntpc.co.in

9.	Uttar Pradesh Jal Vidyut Nigam Ltd., Badshahi Bag, Saharanpur, U.P.	Shri Abhijeet Srivastava Shri Vivek Singh	srivastavabhijeet@gmail.com vivek.singh1186@gmail.com"
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Item 5: REVIEW/REAFFIRMATION OF PUBLISHED INDIAN STANDARDS

5.1 As per the policy of the BIS, the Indian Standards, which have completed five years since their last publications/reaffirmations, are reviewed by the concerned sectional committee for their reaffirmation/revision/withdrawal/amendment based on the latest technology/industrial trend world over as well as their application to the Indian industries.

The Committee noted the information given at agenda Item no. 5.1 & 5.2.

Item 6 PROGRAMME OF WORK

6.1 The Committee noted the information given at Agenda item 6.1 & 6.2.

Item 7 INTERNATIONAL ACTIVITIES

7.1 The Committee noted the information given at Agenda item 7.1 & 7.2.

7.2 The committee has noted the information given at agenda from item 7.3 to 7.11. Committee has deliberated and discussed to actively participate in the ISO/TC meetings and suggested for creating a working Panel for review of the Standards under ISO/TC 60 & ISO/TC 60/ SC/ 1 & 2 for adoption.

Composition of the working Panel as given below:

S.No.	Principle Member/ Alternate Member	Organization
1.	Shri Mahendran M, Convenor mahendran.muthu@lohiagroup.com	Lohia Corp., kanpur
2.	Prof. Neelesh Kumar Jain nkjain@iiti.ac.in	IIT, Indore

3.	Shri Vrajlal Senjaliya vbsenjaliya@elecon.com	Elecon Engineering Co.Ltd., Vallabh Vidyanagar, Gujarat
4.	Shri Arvind Manohar almanohar@eicher.in	VE Commercial Vehicles Limited, Dewas, Indore
5.	Shri Dev Kanth dev.kanth@edtec.in	Lohia Corp Limited, Kanpur
6.	Shri Prakash Jha prakash.jha@lohiagroup.com	Lohia Corp Limited, Kanpur
7.	Shri Mohamed Naseeruddin mohamed.naseeruddin@suzlon.com	Suzlon Group, Chennai

Shri Mahendran will convene this working Panel meeting for reviewing the ISO Standards related to Gears. He had volunteered to review ISO 6336 series and IS 4460 series. Member secretary will guide and provide the necessary support to this working Panel.

7.3 Standard and/or Project Under the Direct Responsibility of ISO/TC 60 Secretariat

The Committee noted the information given at Agenda item 7.5.

7.4 Standard and/or Project Under the Direct Responsibility of ISO/TC 60/SC 1 Secretariat

The Committee noted the information given at Agenda item 7.6.

7.5 Standard and/or Project Under the Direct Responsibility of ISO/TC 60/SC 2 Secretariat

The Committee noted the information given at Agenda item 7.7.

7.6 Standard and/or project under the direct responsibility of ISO/TC 60 Secretariat

The Committee noted the information given at Agenda item 7.8.

7.7 Standard and/or project under the direct responsibility of ISO/TC 60/SC 1 Secretariat

The Committee noted the information given at Agenda item 7.9.

7.8 Standard and/or project under the direct responsibility of ISO/TC 60/SC

2 Secretariat

The Committee noted the information given at Agenda item 7.10.

Item 8 NATIONAL AND INTERNATIONAL LEVEL EVENTS TO BE PARTICIPATED IN -

Committee noted the information given in the agenda Item 8.

Item 9 SCIENTIFIC JOURNALS AND PERIODICALS TO BE SUBSCRIBED

Committee noted the information given in the agenda Item 9.

Item 10 CREATION OF POOL OF EXPERTS

Committee noted the information given in the agenda Item 10.

Item 11 RESEARCH PROJECT TO BE TAKEN UP FOR INCLUSION OF EMPIRICAL DATA AND INSIGHTS

Committee noted the information given in the agenda Item 11.

Item 12 DATE AND PLACE OF NEXT MEETING

Shri Subbiah from LGB Coimbatore had volunteered to host the next sectional committee at LGB Coimbatore on 7th March 2023 and an exposure visit on 8th March for the members of this committee. Committee will also engage with stakeholders of IS 2403/ ISO 606. Committee agreed to the above proposal.

Item 13 ANY OTHER BUSINESS

13.1 Committee noted the information given in the agenda Item 13.1.

13.2 Committee noted the information given in the agenda Item 13.2.

The committee discussed and approved the following Standards for ToR and also identified the Standards for consideration under ToR.

PGD 33 – List of Standards approved for ToR :

S. No.	IS Number	Title
1.	IS 3681 : 1995	Gears - Cylindrical gears - Accuracies First Revision
2.	IS 4071 : 1986	Specification for Master Gears first revision
3.	IS 4278 : 1988	Specification for flexible shafts for speedometers and tachographs Second Revision
4.	IS 4600 : 1968	Specification for flexible shafts
5.	IS 8843 : 1978	Accuracy requirements for turbine gears

PGD 33 – List of Standards identified for consideration under ToR :

S. No.	IS Number	Title
1.	IS 10686 : 1983	Specification for mechanical multi - Disc clutches Wet Type
2.	IS 12405 : 1988	Specification for gear type flexible couplings

3.	IS 14285 : 1995	Transmission devices - Flexible couplings - Tyre type - Specification
4.	IS 14696 : 2000	Transmission steel roller chains and chain wheels for oil field applications - Specification
5.	IS 2292 : 1974	Specification for taper keys and keyways First Revision
6.	IS 2293 : 1974	Specification for gib - Head - Keys and keyways First Revision
7.	IS 2294 : 1986	Specification for woodruff keys and keyways Second Revision
8.	IS 2693 : 1989	Power transmission bush type flexible coupling Second Revision
9.	IS 3542 : 1980	Specification for extended pitch transmission precision roller chains and chain wheel First Revision
10.	IS 3560 : 1980	Specification for short pitch transmission precision bush chains and chain wheels First Revision
11.	IS 3681 : 1995	Gears - Cylindrical gears - Accuracies First Revision

12.	IS 4071 : 1986	Specification for Master Gears first revision
13.	IS 4278 : 1988	Specification for flexible shafts for speedometers and tachographs Second Revision
14.	IS 4600 : 1968	Specification for flexible shafts
15.	IS 6166 : 1971	Specification for thin taper keys and keyways
16.	IS 6167 : 1971	Specification for thin parallel keys and keyways
17.	IS 6276 : 1971	Specification for flexible shafts used in concrete vibrators

13.3 The Committee deliberated and decided to form a working Panel to address the matter as given below :

S.No.	Principle Member/ Alternate Member	Organization
1.	Shri Mahendran M, Convenor mahendran.muthu@lohiagroup.com	Lohia Corp., kanpur
2.	Prof. Neelesh Kumar Jain nkjain@iiti.ac.in	IIT, Indore
3.	Shri Vrajlal Senjaliya vbsenjaliya@elecon.com	Elecon Engineering Co.Ltd., Vallabh Vidyanagar, Gujarat
4.	Shri Arvind Manohar almanohar@eicher.in	VE Commercial Vehicles Limited, Dewas, Indore

5.	Shri Dev Kanth dev.kanth@edtec.in	Lohia Corp Limited, Kanpur
6.	Shri Prakash Jha prakash.jha@lohiagroup.com	Lohia Corp Limited, Kanpur
7.	Shri Mohamed Naseeruddin mohamed.naseeruddin@suzlon.com	Suzlon Group, Chennai

We had received a request from Mr. Mahendran, representative of M/S Lohia Corp Kanpur for adoption of the latest version of ISO 6336 series (Part 1, 2, 3, 4, 5, 6, 20, 21, 22, 30 & 31). These Standards will be very useful to the gear manufacturing Industries. After adoption of these Standards we can withdraw/ archive our IS 4460 (Part 1, 2 & 3).

Standard and/or project under the direct responsibility of ISO/TC 60/SC 2

- [ISO 6336-1:2019](#) Calculation of load capacity of spur and helical gears — Part 1: Basic principles, introduction and general influence factors
- [ISO 6336-2:2019](#) Calculation of load capacity of spur and helical gears — Part 2: Calculation of surface durability (pitting)
- [ISO 6336-3:2019](#) Calculation of load capacity of spur and helical gears — Part 3: Calculation of tooth bending strength
- [ISO/TS 6336-4:2019](#) Calculation of load capacity of spur and helical gears — Part 4: Calculation of tooth flank fracture load capacity
- [ISO 6336-5:2016](#) Calculation of load capacity of spur and helical gears — Part 5: Strength and quality of materials
- [ISO 6336-6:2019](#) Calculation of load capacity of spur and helical gears — Part 6: Calculation of service life under variable load
- [ISO/TS 6336-20:2022](#) Calculation of load capacity of spur and helical gears — Part 20: Calculation of scuffing load capacity — Flash temperature method
- [ISO/TS 6336-21:2022](#) Calculation of load capacity of spur and helical gears — Part 21: Calculation of scuffing load capacity — Integral temperature method
- [ISO/TS 6336-22:2018](#) Calculation of load capacity of spur and helical gears — Part 22: Calculation of micropitting load capacity
- [ISO/TR 6336-30:2022](#) Calculation of load capacity of spur and helical gears — Part 30: Calculation examples for the application of ISO 6336 parts 1, 2, 3, 5
- [ISO/TR 6336-31:2018](#) Calculation of load capacity of spur and helical

gears — Part 31: Calculation examples of micropitting load capacity

Committee requested the relevant experts to support the above Panel and find some other experts for this working panel.

13.4 The Committee noted the information given at Agenda item 13.4.

13.5 Committee noted the information given in the agenda Item 13.5.

14 STANDARDS UNDER DEVELOPMENT -

Committee noted the information given in the agenda Item 14.

15 PREPARATION OF ROLLING ACTION PLAN -

Committee noted the information given in the agenda Item 15.

16 MAPPING OF GOVERNMENT SCHEME -

Committee noted the information given in the agenda Item 16.

ITEM 17 ANY ENQUIRY TO BIS

17.1. Committee noted the information given in the agenda Item 17.1.

17.2 Committee noted the information given in the agenda Item 17.2.

The meeting ended with a thanks to the Chair