



**2023 CEMA FALL ENGINEERING CONFERENCE
CONVEYOR PULLEY COMMITTEE MEETING**
Microsoft Teams Webinar
Tuesday, November 6, 2023 – 3:30 pm

AGENDA

1. Call to order.
2. Attendance and Introductions.
3. Approval of Minutes of June 13, 2023 (attached)
4. Old business
 - a) **Unit Pulley Standard to better support unit pulley requirements (CEMA Standard No. B106.1) – Updates.**

Subcommittee: Jeff Ellis, PPI (chair); Benjamin Brewer, Douglas Manufacturing Co. Inc.; Bob Hawkins, Continental Global MH; Zac Casper, Talos Engineered Products; Ted Hotvet, Van Gorp; Paul Schmidgall, Superior Industries; Ryan Cooksley, Universal Industries, Tamara Thimmel, Safari Belting LLC; Greg Pollitt, Honeywell Intelligrated; Adam Webster, Woodsage, A Div. of ProVeyance; and Sean Johnson, Honeywell Intelligrated

A roller section is being added to the standard. It was settled on simplifying it to a live shaft pulley and dead/non-rotating shaft roller with steel shafts for now. Load rating and availability charts are similar to the ANSI/CEMA Standard B105.1 standard format. They have been created to be able to duplicate the usability of the standard for potential users.

The subcommittee would incorporate the changes proposed during Monday's working session at the summer engineering conference into the draft. They plan to present the final draft at the 2023 CEMA Fall Engineering Conference.



b) **Maximum Tension Ratio per Diameter per Inch Belt Width** – Updates.

Subcommittee: Brett DeVries, FLEXCO (chair); David Keech, Dodge Industrial, Inc.; Bob Hawkins, Continental Global MH.; Jeff Ellis, PPI; Al Reicks, Overland Conveyor Co., Inc.; Benjamin Brewer, Douglas Manufacturing Co. Inc.; David Jesse, Lassing Dibben Consulting Engineers Ltd.; Peter Bradley, Continental ContiTech – North America.

The initial task of the subcommittee was to determine the minimum pulley diameter size based on the horsepower transmitted.

In a previous meeting, Brett presented his work and calculator on lagging friction factors. He was currently looking for help analyzing the data he’s gathered and/or using his calculator to compare it to real-world results. His question was, do we use his calculator in the future or stick with the existing Euler equation?

Al Reicks had agreed to help verify results but had questions about what the calculator was doing. Jeff Ellis volunteered to present real-world applications to Brett to validate the calculator. The committee agreed that more validation of the calculator would be needed before it could be voted on in any way at the Engineering Conference.

More clarity in the calculation is needed to show how the changes affect the belt—also, a comparison between Flexco and other calculators. Brett was not present at that meeting, so that a follow-up would be made for additional feedback or opinions on the calculator.

c) **CEMA Belt Book, 8th Edition – Chapter 8 “Pulley Shafts and Bearings”** – Updates.

Subcommittee: Jeff Ellis, PPI (Chair); Andrew Hustrulid, Shaw Almex Industries Ltd.; Bob Hawkins, Continental Global MH.; Travis Faulhaber, Imperial Conveying Systems; and Jonathan Phillips, Dodge Industrial, Inc.

This committee asked to review/rewrite the current chapter and the comments and errata received after the second printing of the book. The committee is also tasked with adding content to Chapter 8 related to when to use CEMA class pulleys and what to consider when moving beyond the standard CEMA class pulley.

5. New Business

- a) **Purpose to create a best practices or technical guide on the use of motorized pulleys.**

6. Next Meeting – June 11, 2024, Naples Grande Beach Resort, Naples, FL.



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7. Adjourn.

Jeff Ellis, Chair

Benjamin Brewer, Vice-Chair



**2023 CEMA ENGINEERING CONFERENCE
CONVEYOR PULLEY COMMITTEE MEETING**

Naples Grande Beach Resort, Naples, FL
Tuesday, June 13, 2023

MINUTES

1. Call to order.
Benjamin Brewer, Douglas Manufacturing Co. Inc.; Chair, called the meeting to order at 10:30 am.
2. Attendance and Introductions – Roll call attached.
3. Approval of Minutes of November 7, 2022 – Minutes were approved.
4. Old business

- a) **Unit Pulley Standard to better support unit pulley requirements (CEMA Standard No. B106.1) – Updates.**

Subcommittee: Jeff Ellis, PPI (chair); Benjamin Brewer, Douglas Manufacturing Co. Inc.; Bob Hawkins, Continental Global MH; Zac Casper, Talos Engineered Products; Ted Hotvet, Van Gorp; Paul Schmidgall, Superior Industries; Eddie Geerdes, Universal Industries, Tamara Thimmel, Safari Belting LLC; Greg Pollitt, Honeywell Intelligrated.

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The subcommittee will incorporate the changes proposed during Monday's working session into the draft. They plan to present the final draft at the 2023 CEMA Fall Engineering Conference.

Ryan Cooksley, Universal Industries will replace Eddie Gerdes in the subcommittee. Adam Webster, Woodsage, A Div. of ProVeyance; and Sean Johnson, Honeywell Intelligrated, volunteered to this subcommittee.



CONVEYOR EQUIPMENT
MANUFACTURERS ASSOCIATION

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b) **Maximum Tension Ratio per Diameter per Inch Belt Width** – Updates.

Subcommittee: Brett DeVries, FLEXCO (chair); David Keech, Dodge Industrial, Inc.; Bob Hawkins, Continental Global MH.; Jeff Ellis, PPI; Al Reicks, Overland Conveyor Co., Inc.; Benjamin Brewer, Douglas Manufacturing Co. Inc.; David Jesse, Lassing Dibben Consulting Engineers Ltd.; Peter Bradley, Continental ContiTech – North America.

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Al Reicks had agreed to help verify results but had questions about what the calculator was doing. Jeff Ellis volunteered to present real-world applications to Brett to validate the calculator. The committee agreed that more validation of the calculator would be needed before it could be voted on in any way at the Engineering Conference.

More clarity in the calculation is needed and shows how the changes affect the belt. Also, a comparison between Flexco and other calculators. Brett was not present at this meeting, so a follow-up will be made for additional feedback or opinions on the calculator.

c) **ANSI/CEMA Standard. B105.1 "Specifications for Welded Steel Conveyor Pulleys – With Compression Type Hubs"- Pulley and Shaft Selection Tables 4A and 4B.** How often are these used? In what way do we feel they are used? – Updates.

Subcommittee: David Keech, Dodge Industrial, Inc. (chair); Benjamin Brewer, Douglas Manufacturing Co. Inc.; Jeff Ellis, PPI; Andrew Hustrulid, Shaw Almex Industries Ltd.; Paul Ormsbee, Overland Conveyor Co., Inc.; Brett DeVries, FLEXCO; Marc Dos Santos, Dos Santos International.

The Committee should gather more pulley manufacturers' input on removing some of the odd pulley shaft sizes. There should be a further discussion in the subcommittee to determine what to do with Tables 4A and 4B. There were some suggestions they are removed altogether, but they need to remain as a reference for the pulley load ratings.

David Keech provided a summary of the previous discussions. He doesn't see a way to remove the tables because there is no single formula to substitute this. Also, he recommends leaving it as is. The information has been used since the 1960s.



He discussed the changes in B105.1 to update Tables 4 to have an equation that matches the tables. Additionally, it was brought up that the 6,000-psi stress limit is a bending moment limit, not a shaft stress limit. The subcommittee will continue working on showing an equation that truly matches the tables.

It was a motion to use the formulas in the full expanded version with all the details and add some additional support for the underlying numbers.

Al Reicks, Overland Conveyor Co., Inc., and Akiko Wakatsuki, Fenner Dunlop Conveyor Belting volunteered for this subcommittee.

5. Election of a Vice Chair – **Benjamin Brewer, Douglas Manufacturing Co. Inc.** was elected Vice-Chair.
6. New Business.
 - a) **CEMA Pulley Design Criteria**

The CEMA's Board of Directors has requested the Engineering Conference determine the best course of action to mitigate concerns our standards are not broad enough. This has become evident, specifically for engineered class pulleys.

A general observation is that more documentation of the scope of CEMA may be needed in the standards. A standard that tells you how to design and what factors to use, less about the "Standard CEMA Product" that vendors stock.

The committee mentioned that they could leave the "Standard CEMA Product" on a separate standard to list stock products. For the time being, the committee will try to better define different pulleys classes within the belt book and can expand the standard later if desired by the CEMA Official Representatives (ORs).

It was mentioned that reestablishing what the purpose of the standard is, and refocusing on that, and can keep/regain respect for the standard for accomplishing that. It was suggested perhaps making a section to add that maybe give some criteria to consider when moving beyond the CEMA classes. Also, the Belt Book, Chapter 5 "Belt Conveyor Idlers", has a lot of that already there.

As a starting point, this committee will begin with the updates to Chapter 5 in the Belt Book and add some notes to this effect. This will be included in the Belt Book, 8th Edition.



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b) **CEMA Belt Conveyor for Bulk Materials book, 8th Edition** – Volunteers needed.

This committee asked to review/rewrite Chapter 8 “Pulley Shafts and Bearings”. A subcommittee was created to review this chapter: Jeff Ellis, PPI (Chair); Andrew Hustrulid, Shaw Almex Industries Ltd.; Bob Hawkins, Continental Global MH.; Travis Faulhaber, Imperial Conveying Systems; and Jonathan Phillips, Dodge Industrial, Inc.

7. Next Meeting – November 7, 2023, Virtual CEMA Fall Engineering Conference.

8. The meeting was adjourned at 11:50 am.

Benjamin Brewer, Chair

Jeff Ellis, Vice-Chair