Belt Design Notes for Xtremachen 7

Belt Design Selection

- Company to supply belts and pulleys
  - Brecoflex CO,.L.L.C.
- Determine size of belts and pulleys
  - Belt calculations and models are from the company MULCO in Germany
  - Free model downloads and free calculations
- Determine belt backing
  - Several different materials offered.

Brecoflex

www.brecoflex.com

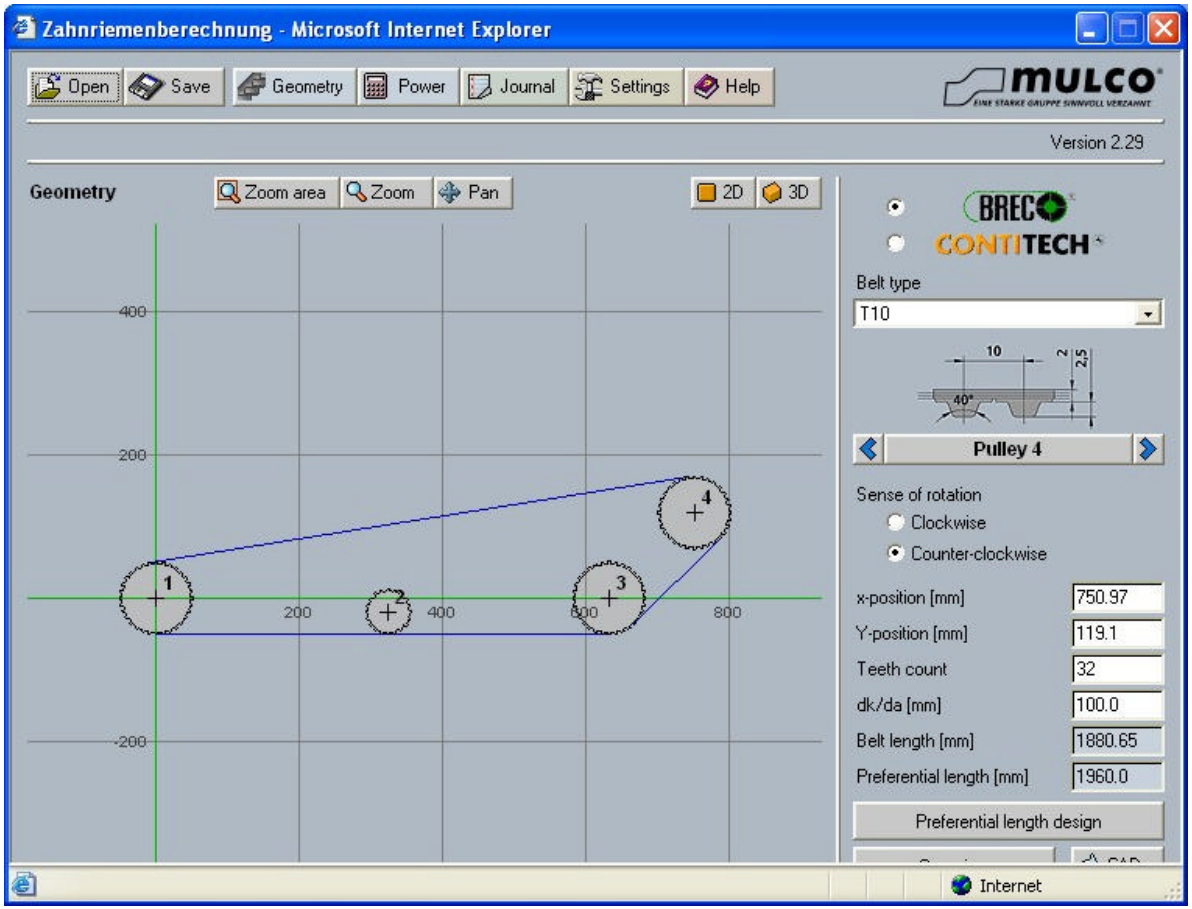
Brecoflex

- Large selection of belt profiles, lengths, widths, and backings.
- Using Free Calculation tools makes finding standard belt lengths easy.
- Offer a discount to FIRST teams.

Mulco

www.mulco.net

Calculations



Calculations

- Tools are free for anyone to use.
- Pulley models and belt profile models are free to download in various CAD formats
- Calculations can be saved.
- Easy to put data into spreadsheet format.

Calculations

- We chose 100 mm (4 in) dia pulley's
- Modeling our layout in the tool, we adjusted the pulley distances to obtain a standard belt length of 1880 mm (74 in)
- With guidance from an engineer at Brecoflex we chose the TK10 belt profile, with a serrated k-13 tracking guide. The tracking guide keeps the belt on the pulley without flanges.

Backings

SUPERIOR TIMING BELT BACKINGS

BRECO*flex* BACKING CHARACTERISTICS

-For technical details, see backing specifications on page 6

1. **Linatex**

This natural rubber backing has good tear resilience and excellent cut resistance. The high coefficient of friction makes this backing extremely versatile in general conveying applications. It can be offered in endless form when there are concerns about splice delamination.

2. **Supergrip**

Supergrip offers a high coefficient of friction, good resilience and high wear resistance. This backing is good for diagonal and inclined conveying applications and is available in blue or green.

3. **T-cover/ PU-385 series**

Solid polyurethane composition makes our T-cover and PU-385 series backings superlative to wear and abrasion resistance. The PU-385 series backings are also available in waffle - WM, nub - NP and herringbone - FG profiles. These are excellent products for machining.

4. **PU Yellow**

High density closed polyurethane foam offers good abrasion and wear resistance. This highly machinable backing material can be customized for unlimited applications. It is ideal for heavy-duty, vacuum and paper product transfer applications.

5. **PVC Blue**

PVC offers increased friction and good wear resistance for

Backings

- Past experiences lead us to use the linatex backing. It is a natural rubber compound. We have a 6mm (.25 in) thickness to the backing.
- The PU Yellow is another popular backing used by FIRST teams. It is a foam rubber backing.

Important Design Factors

- Belt width?
- Center Pulley offset distance?
- Friction in the drive system?
- Frictional contact forces?
- Lead-in angle?
- Additional support for the belt?