

Strander Facegear and Knife Clamping Redesign (FOR PMP STUDENTS)

Status:	Filled
Group Members:	Angad Singh Renu, Tamunoboma Erekosima, Ge Xu
Sponsor(s):	Kadant Carmaneh Design
Supervisor(s):	Gary Wang, PhD, PEng, Professor, Mechatronic Systems Engineering Lorne Fardy, Kadant Camaneh Design

Project Description

Project description – research description

With the roll out of our new product line - Integrated Scoring Knives (ISK) and the continued investment to increase ISK manufacturing capability, the next project phase is the development of new Facegear/Clamp for the Stranders (SmartDISC & SmartRING) to accommodate the ISK system. With the new clamp design, it also provides an opportunity to develop a design for a new clamping system which doesn't require the Nutrunner system (presently used on the SmartRING Strander).

The current facegear design provides the flexibility for customers to have a choice on the knife system to operate, Plate Knife or Disposable Knife System (DKS) / ISK. As the majority of Kadant Carmanah customers operate using the DKS/ISK knife system, a redesign of the system is a logical progression in the Strander design. The new facegear will provide advantages to our customers, i.e. decreased part replacement costs and/or wear part longevity.

The Strander facegear redesign also provides an opportunity to eliminate the usage of Nutrunners for bolt tightening and loosening of the clamps.

Research objectives / sub-objectives

- Redesign of the Strander facegear to accommodate the Disposable Knife System (DKS) & Integrated Scoring Knife (ISK) cutting systems.
- Elimination of the current Nutrunner system used to clamp the DKS & ISK systems in the SmartRING Strander.

Expertise and Skills Needed (for each project)

- Engineering Design; usage of SolidWorks for design modelling
- FEA analysis
- 3D printer prototyping experience
-

About the partner

Kadant Carmanah Design located in Surrey, B.C. Canada, designs and manufactures equipment for the panel and engineered wood products, pulp and paper, and sawmill industries. Providing leading edge technology and equipment to optimize fiber use for the production of wood-based panels, Kadant Carmanah's products include SmartDISC stranders, SmartRING stranders, rotary debarkers and conveying/feeding equipment.

Equipment for the sawmill and pulp and paper industries includes chippers, screens, and debarkers. Kadant Carmanah has a long history supplying and servicing chippers and providing OEM quality parts globally, with chipper brands that include Sumner, Black Clawson, CAE and Nicholson for waste-wood, whole-log, pellet and veneer applications.

Kadant Carmanah is also a major service center for pulp and paper equipment repair and refurbishment.