



Climax Products in the
TIMBER INDUSTRY



From initial harvesting to final product, machinery used in forestry applications is constantly subjected to some of the harshest environments and strenuous loads for which an engineer can design. To compensate, many application designers forgo traditional keys and keyways which are subject to failure and rely upon spline interference fits to mount critical components on rotating shafts.

Keyless shaft/hub locking devices, internal locking assemblies, and external shrink discs offer all of the benefits of splines and traditional interference fits with none of the disadvantages, which is why they are employed by many forestry machinery OEMs.

1-800-542-6552
orders@climaxmetal.com

www.climaxmetal.com

CLIMAX
METAL PRODUCTS COMPANY

CLIMAX PRODUCTS USED IN THE TIMBER INDUSTRY

DEBARKERS

Due to the nature of the lumber and wood industry, sheared and rolled keys and broken shafts are common on equipment such as debarkers. Shaft/hub connections in this industry are subjected to constant pounding which leads to fatigue failures of keyed connections resulting in downtime and loss of production. Climax C405 Series heavy-duty locking assemblies create a 360° contact mechanical interference fit eliminating backlash associated with keyed connections. By eliminating the shaft keyway and associated notch factor provides for a shaft that is 30% stronger in both torsion and bending.

	Sprockets, Sheaves, Lever Arms	Debarkers
Series Name	C133 or C415 series	C405, C415, or C425 series
Benefits	<ul style="list-style-type: none">• High torque and bending capacity• No axial movement during installation	<ul style="list-style-type: none">• Extreme torque and bending capacity• Eliminates shaft keyways and easy installation/disassembly



LUMBER HANDLING SYSTEMS

Climax C133 series locking assemblies negate the need for keyways in drive sprocket applications often allowing for the use of A-Plates. When used with kicker arms our keyless locking devices (KLDs) do not require gang broaching or the need to locate keyways on shafting, resulting in reduced machining costs. Under the extreme operating environments of lumber handling systems, KLDs eliminate the need for keyed connections and the associated problems with backlash and fretting which over time can cause weakened shafts and /or shaft failures.



TRADITIONAL KEYED COUPLINGS

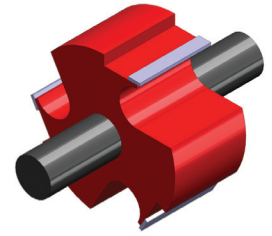
Rigid couplings are the true workhorse of the coupling family and can be used in many applications in the timber industry. Climax offers rigid clamp couplings in one piece and two piece styles and can be supplied with or without a keyway. In addition Climax offers balanced couplings which produce less vibration resulting in less wear and tear on expensive components. Our couplings provide a higher strength alternative to cast iron couplings in a lighter and smaller envelope suitable for timber line shaft applications. Two piece couplings provide easy installation and removal allowing access to components on line shafting without tearing down the complete line. Climax has the ability to manufacture special products to fit your application requirements, including made-to-spec couplings, the use of various grades of steel, stainless, and aluminum, with an assortment of coatings or plating for additional corrosion protection. Our ability to manufacture couplings in-house allows for quick turn-around.



WOOD CHIPPERS

Interference fit rotor/shaft connections in wood chippers require expensive machining, fixturing, heavy hydraulic presses, and a great deal of labor to facilitate assembly. Heavy duty locking assemblies achieve the same fit with much simpler and less expensive machining, are assembled with hand tools, and afford field serviceability.

The same heavy duty locking assemblies can be used to mount drive sheaves on these machines offering all of the advantages of eliminating the keyway.



	Rotor	Feed Roller
Series Name	C405 Series	C133, C405 Series
Traditional Connection	Shrink and/or Press Fit Interference fit	QD Taper Lock
Benefits of Using KLD	<ul style="list-style-type: none"> Do not require close tolerances and expensive finishes Simple to install and replace in the field 	<ul style="list-style-type: none"> Eliminates wallowing and fatigue failures associated with shaft keyways subjected to constant pounding

HYDRAULIC MOTOR/CONVEYOR SYSTEMS

Climax KLDs are used to shaft mount hydraulic motors and/or gearboxes in conveyor applications. They allow for easy installation by eliminating the need for brackets and expensive structure to support the motor. Additionally, KLDs will eliminate installation misalignment which can lead to hydraulic motor leaks and total bearing failures due to inordinate facial loads on the motor bearings. Keyless locking devices contain no flexible elements saving maintenance costs and downtime. Torque mounting ensures that shafts are in perfect alignment, and C600s provide the desired high torque and bending capacity eliminating bearing and motor failure.



SAWMILL SYSTEMS/PLANER & FEED TABLES

Climax KLDs can be used to attach feed rollers for sawmill equipment such as planers and edgers. The use of a locking assembly removes the disadvantages of a keyed connection when subjected to extreme environments where constant load reverses can cause backlash. Keyless locking devices use multiple screws with opposing tapers to provide a mechanically generated interference fit. Where pin retention is used in sawmill equipment, using a C133 or C405 locking assembly eliminates the need for welding of components onto other structures. Climax KLDs can be easily installed and are field serviceable with simple hand tools.



	Feed Roller	Pin Retention
Series Name	C133, C405, C415 Series	C133, C405 Series
Traditional Connection	Keyed Connection	Bore and keyway or tapered bushing
Benefits of Using KLD	<ul style="list-style-type: none"> Do not require close tolerance machining Easy Removal Simple to install and field serviceable 	<ul style="list-style-type: none"> Eliminates wallowing Do not require welding or a tapered bore in the component Meant to transmit reverse bending

Since 1946, Climax Metal Products Company has grown into the leading source for engineered shaft locking solutions by providing outstanding customer service. Climax Shaft Collars, Rigid Couplings, and Keyless Locking Devices are manufactured with unsurpassed quality and stocked by distributors throughout North America.

SHAFT COLLARS



RIGID COUPLINGS



KEYLESS LOCKING DEVICES



SHAFT COLLARS

Shaft collars are used to position or locate a component on a shaft. In addition collars can be used to limit the travel of a shaft in reciprocating applications or used as a spacer between components. Climax provides a broad assortment of shaft collars to suit many customer applications. Available in imperial sizes 1/16" to 6" and metric shaft sizes 2mm through 80mm.

Set Screw	One-Piece	Two-Piece
Most economical collar design	Additional holding power over set screw collars	Additional holding power over one-piece collars
Single cup point set screw impinges on the shaft	Single recessed or non-recessed tangential screw does not mar the shaft	Two recessed or non-recessed tangential screws do not mar the shaft
Requires disassembly of shaft components upon replacement	Requires disassembly of shaft components upon replacement	Replace without major disassembly of other components

RIGID COUPLINGS

Shaft couplings serve as components to time, join, or align shaft at lower speeds and torque, especially when zero backlash is desired. Climax provides a broad assortment of rigid shaft couplings to suit many customer applications. Available to fit imperial shaft size from 1/4" to 3-15/16" and metric shaft sizes from 6mm through 100mm.

Set Screw	One-Piece	Two-Piece
The most economical rigid coupling design	4 socket head cap screws provide holding power	8 socket head cap screws provide the holding power
Cup point set screws impinge the shaft provides the holding power	Additional holding power over set screw couplings	Additional holding power over one-piece
Available with 4 set screws for extra holding power	Requires disassembly of shaft components upon replacement	Install/Replace without disassembly of other shaft components
Requires disassembly of shaft components upon replacement		Re-machinable couplings available for economical custom bores

KEYLESS LOCKING DEVICES

Keyless Locking Devices (KLDs) are mechanical bushings used to connect power transmission components onto rotating shafts. Without the use of keyways, KLDs eliminate the problems associated with backlash including fretting, corroding, and wallowing. KLDs work with straight bores and generous tolerances, reducing component machining and complexity cost. In addition, KLDs are installed and removed using simple hand tools; no heat or high forces are required.

Keyless Locking Assemblies	Shrink Discs
Internal bushings installed between the shaft and the component bore, capable of transmitting high torque, thrust and bending loads	External locking device mounted on the outside of an hub or hollow shaft, compressing it onto the driven shaft. Most typical application is hollow shaft gearbox
As the high-strength screws are tightened, tapers simultaneously apply radial force on the shaft and the component bore creating a high pressure mechanical Interference fit	As the screws are tightened, tapers create a radial force on the hollow shaft compressing it onto the driven shaft creating a high pressure mechanical interference fit
No key means infinite angular and axial positioning for precise alignment and timing	Keyless so infinite timing capability as well as easily mounted and removed with ordinary hand tools
Easily mounted and removed in the field with standard hand tools	Outer rings are supplied zinc plated for added corrosion protection

In June 2011, Climax entered an exclusive agreement with MAV S.p.A. of Bosentino, Italy to market and sell MAV's Keyless Locking Devices in the North American market. By joining forces, Climax and MAV offer the North American OEM and industrial distribution markets an unparalleled combination of product quality, extensive inventory, design and application acumen, and flexible manufacturing with attractive lead times. Together we have unsurpassed knowledge about KLDs and their applications.