

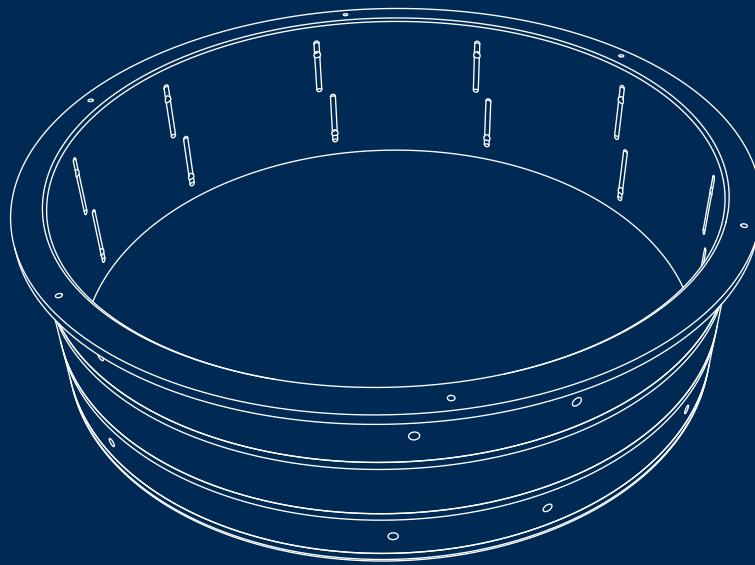
Spare replacement parts for P&H[®], Bucyrus[®] and Marion[®] Draglines



FLS

Premium dragline replacement parts backed by industry expertise

Effective dragline mining depends on equipment backed by reliable components. We design our replacement parts for durability and effectiveness, and then we work with you to customise them for your specific conditions.



Key benefits

- Extreme durability
- Consistent high quality
- Simplified maintenance
- Affordability

Extraordinary components do not happen by accident

EXCEL™ bronze bushings and components perform better because our standards are higher.

Higher tensile strength

Tin is the most expensive ingredient in the metallurgy of bronze alloys, but it creates tougher bushings that last longer. We use the maximum percentage of tin to increase your profits. We certify our crusher bronze to the top end of the CDA specification for tin.

Uniform lead distribution

During casting, we use an innovative technique that distributes lead and other alloy grains uniformly. We then use a unique chilling process that ensures the uniform distribution is locked in. Our dedication to lead distribution means that when you use EXCEL™ cast alloys, there is less friction and more defense against heat build-up. In short, our bushings and other cast parts last longer and have fewer problems.



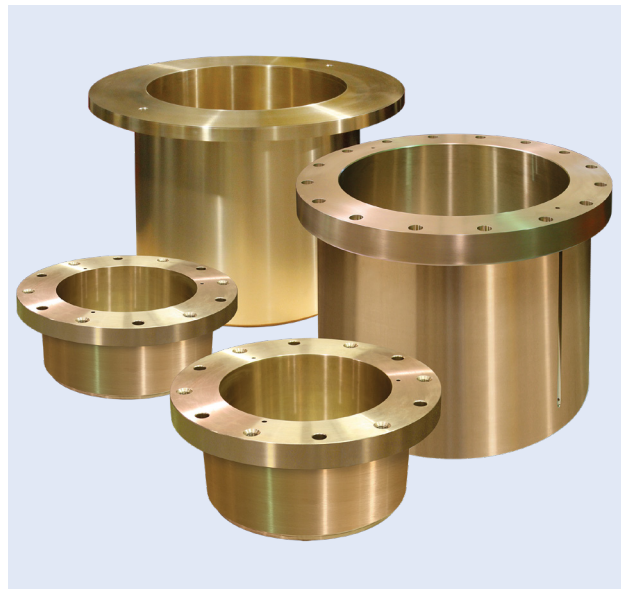
Standard bronze pour from furnace to ladle in our foundry for EXCEL parts, located in Pekin, Illinois, USA

Optimum concentricity

Our competitors are content with bushings that are close enough to concentric. We create perfectly concentric bushings using a unique pinch turning method during machining and cut the inside and outside diameters simultaneously. This process guarantees that your bushings are concentric with no weak spots or deformities and lowers the risk of hot spots.

Porosity-free/uniform grain structure

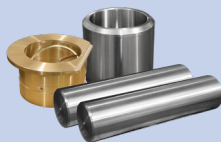
We begin preparing for casting by selecting the highest grade pure raw materials. The unique centrifugal casting technique that we use produces a tighter, denser grain structure in the alloy and eliminates nearly all gas pockets. What does this mean to you? The cast alloys you buy from us last longer and have significantly fewer defects.



XL40 bronze components.

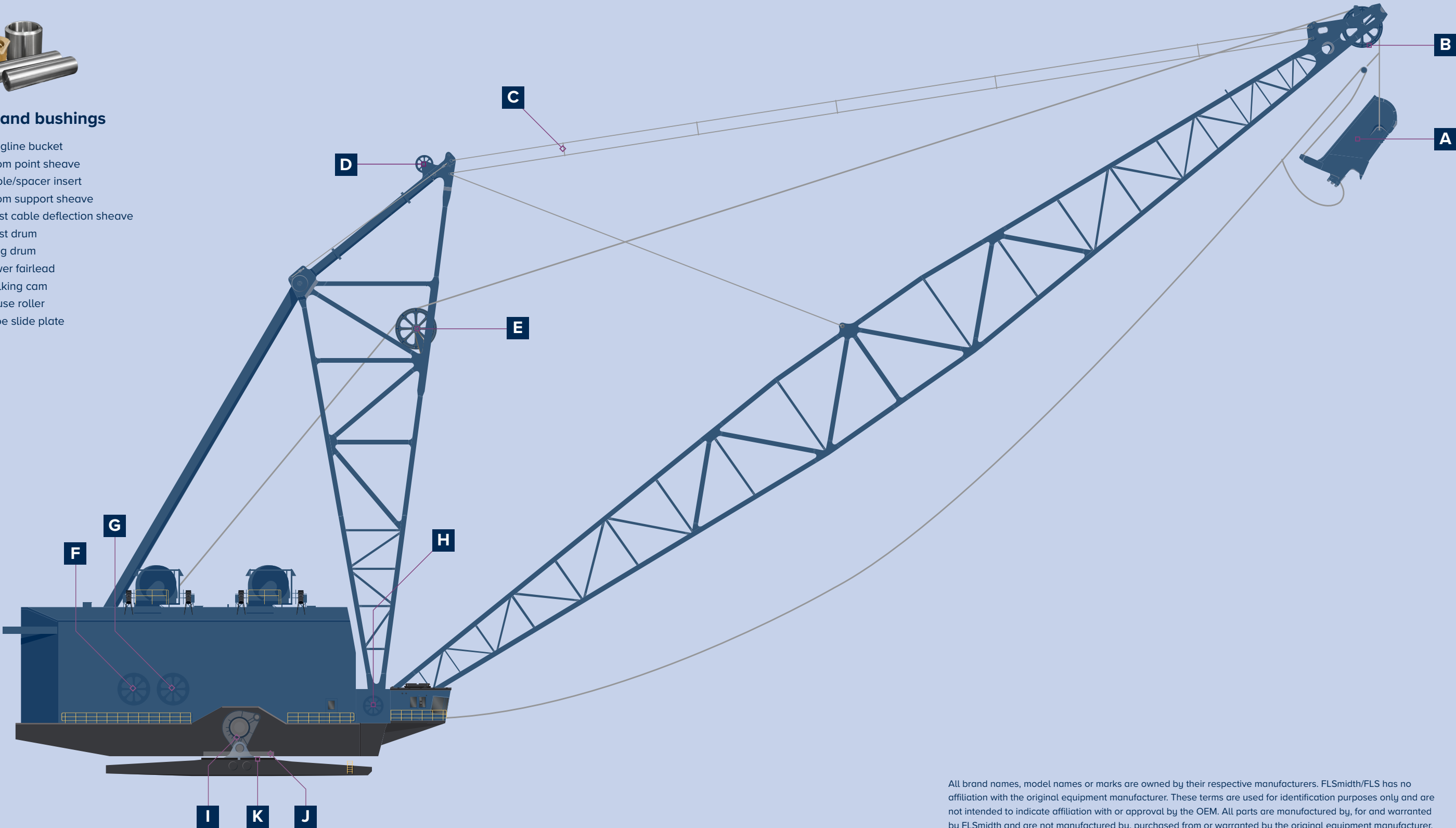
Draglines

P&H®, Bucyrus® and Marion® Component identification



Pins and bushings

- A** Dragline bucket
- B** Boom point sheave
- C** Cable/spacer insert
- D** Boom support sheave
- E** Hoist cable deflection sheave
- F** Hoist drum
- G** Drag drum
- H** Lower fairlead
- I** Walking cam
- J** House roller
- K** Shoe slide plate

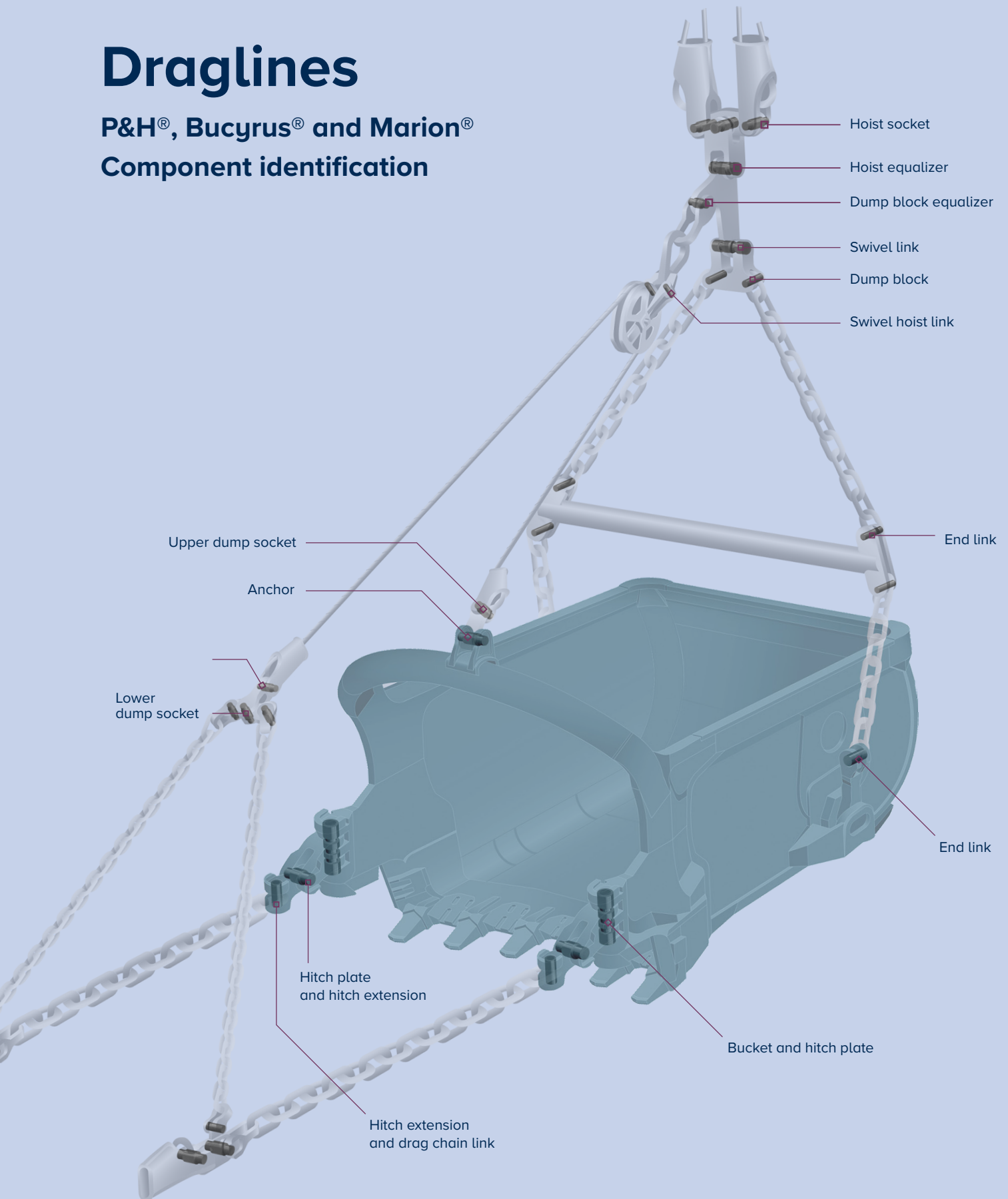


All brand names, model names or marks are owned by their respective manufacturers. FLSmidth/FLS has no affiliation with the original equipment manufacturer. These terms are used for identification purposes only and are not intended to indicate affiliation with or approval by the OEM. All parts are manufactured by, for and warranted by FLSmidth and are not manufactured by, purchased from or warranted by the original equipment manufacturer.

Draglines

P&H®, Bucyrus® and Marion®

Component identification

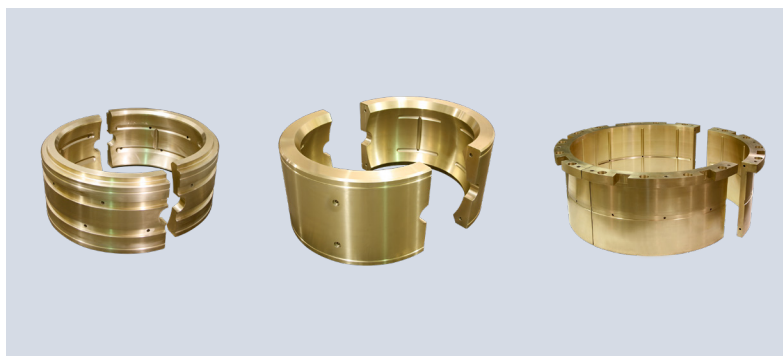
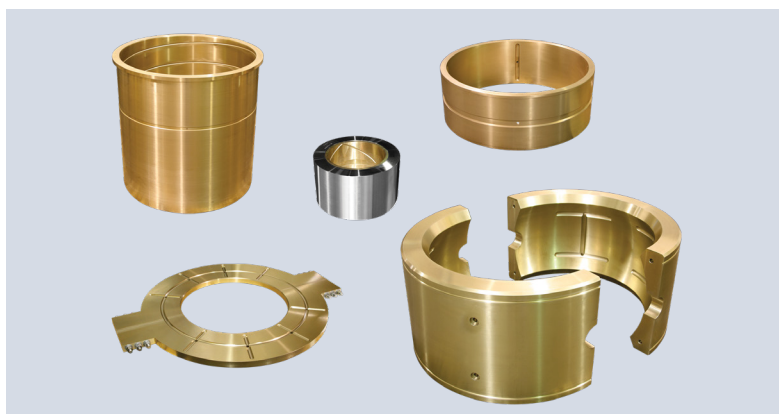


Dragline components designed for you

When you buy your dragline replacement bushings and washers from us, you get far more than something that fits. We are ready to work with you to custom-design any part that you need.

Groove patterns

Our dragline part specialists help you determine the groove pattern that will be most advantageous for your lubrication needs. When lubricating your equipment is easier and more effective, your operators will thank you, your overall dragline performance will improve and the components will last longer.



Split options

Are you tired of the amount of time and effort required to replace the OEM bushings and washers? We offer split designs that make replacements faster, easier and safer. Enjoy the benefits of increasing productivity while at the same time increasing safety.

Inside and outside diameter options

We perfectly match any custom specifications that you have. From our foundry and machining to the final inspection, we do not rest until we have created a part that is exactly what you need.



We offer consistent, top-quality spare parts... as always

This is what we do and have been doing more than 80 years.
Your machines need to run reliably to keep your business successful.
We're here to help keep that equipment operating efficiently.

Premium pins

We are the leading supplier of high quality dipper, handle, bail and equaliser replacement pins in the mining industry. With over eight decades of experience, state-of-the-art equipment and our selection of the highest quality raw materials, we manufacture unmatched replacement pins.

Induction hardened pins

Our induction hardened pins have an extended service life because our unique hardening process penetrates the pin deeper than our competitor's pins. Conventional pins have approximately 12.7 mm (1/2 in) thick hardened layer. Our induction hardening process creates a hardened layer that is 17% deeper, making it 15.88 mm (5/8 in) thick.

Proprietary overlay pins

Our overlay pins are manufactured using an automated process to precisely control the depth that the overlay material penetrates the base metal. The technique we use involves making multiple passes over the pin, adding a small amount of overlay each time. This process keeps the pin strong while adding the versatility that overlay provides. Our pins have the optimal amount of overlay without diluting the base metal. In contrast, other overlay pins on the market are often weaker because the overlay penetrates too far into pin and dilutes the base.

You can trust EXCEL™ overlay pins to stand up to extreme applications. In fact, they last up to five times the life of heat treated pins. The overlay material we use has a hardness of over 60 HRC.

Surface finish

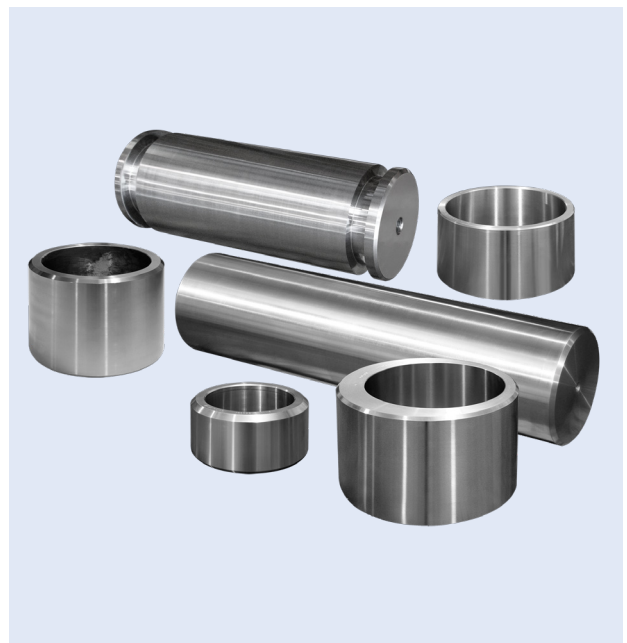
No matter what type of pin you need, the surface finish of our pins exceeds industry standards. We accomplish this by focusing more time on each pin and applying more passes than our competitors. Then every pin goes through an inspection process to make sure that the finish meets our strict standards. The fine finish that we achieve is free of pores and extends the life of the pin. For our overlay pins, this attention to the finish also makes sure that the overlay application is the full depth of the mating contact surfaces.

Customised designs

All our pins and bushings can be customised to your specifications and requirements. As a standard, we adhere to tight tolerances, but any dimensional tolerances that you require can be accommodated. Whether you have specific maintenance objectives that you are concerned about or want to discuss extreme loads and environments, our pin and bushing experts will work with you to engineer exactly what you are looking for. All customisation is available for single pins and sets of mated pins and bushings.

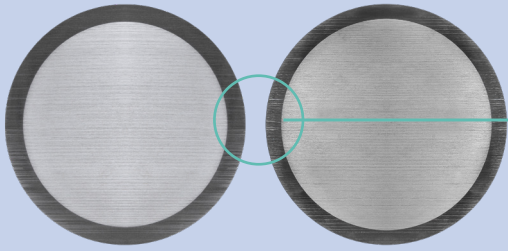
Mated pins and bushings

Take full advantage of our expertise in applied mining and engineering, and use our mated pins and bushings together. We are confident that our mated pins and bushings will stand up to the mining industry's heaviest demands. These pin and bushing sets can be designed and produced specifically for custom, extreme applications using a variety of materials that maximise performance.

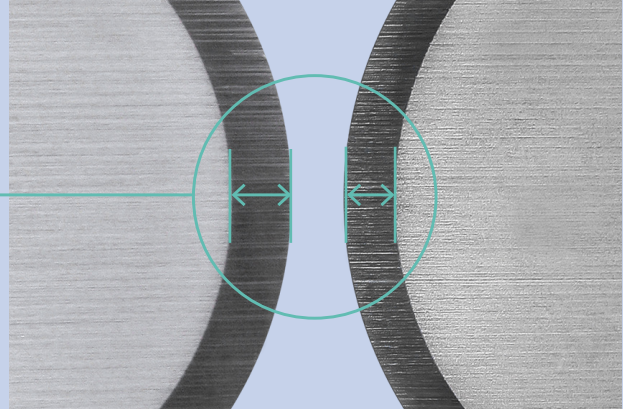


Induction hardened pins

- Provides outstanding service life
- Greater penetration than the competition



17% Deeper hardening. 1/2" to 5/8" (12.7-15.88mm)

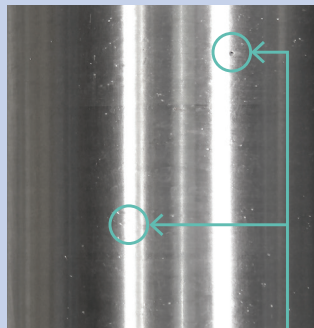


EXCEL's hardening

Conventional depth



EXCEL's finish



Unacceptable finish

Excel's surface finish exceeds industry standards

- Excel applies more passes than the competition
- Fine surface finish provides extended life
- Ensures full-depth overlay application with mating contact surfaces
- 100% Inspected

Porosity

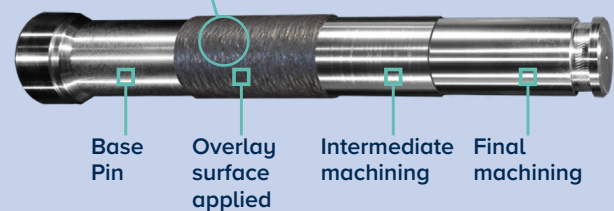
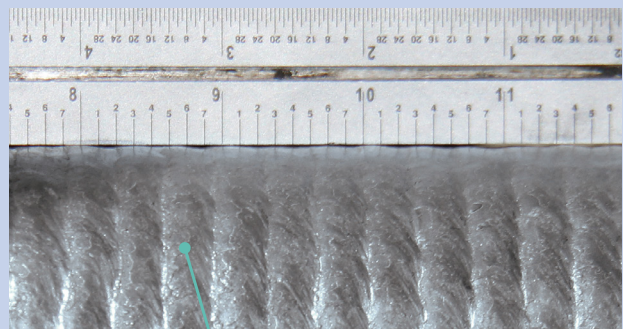
EXCEL's proprietary overlay pins

Setting new standards throughout the mining industry

Our pins are manufactured using an automated process to precisely control the depth of penetration of proprietary overlay material to the base metal. This technique allows for the application of the optimal amount of overlay material without further dilution of the base metal which is commonly found in other overlay pins on the market.

Multi-pass overlay penetration is the key

- Soft core retains toughness, adds versatility
- Excel pins stand up to extreme applications
- Up to 5 times the life of heat treated pins
- Proprietary overlay material with hardness ranged at 60+ hrc
- Surface finish exceeds industry standards



We provide top-quality service and spare parts to keep your equipment moving

Don't accept anything less than the high quality that we provide.

Quality redefined

We know that your success depends on our quality control so we dedicate more time and people to our inspections than any of our competitors. From our strict metallurgical standards and precision machining processes to our exacting inspections, our quality assurance protocols align our processes to produce quality and dependable results. We are ISO 9001 certified, and our program is managed here along with our traceability and record retention. Our procedures allow us to trace any part that we produce, even years later. For each part, we can confirm any possible production details that are needed.

Our promise to our customers

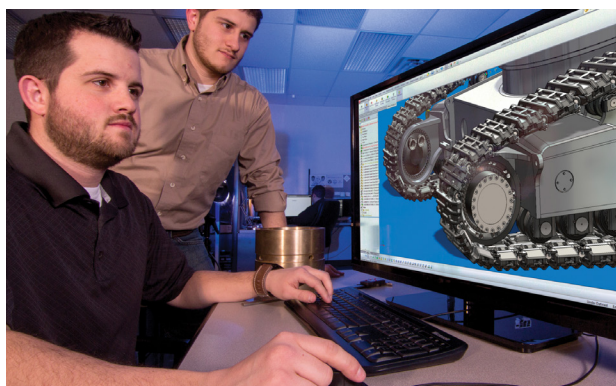
Without satisfied customers, we cease to exist. This very basic principle is the reason we gear everything we do toward delivering a recognisably higher level of service and quality to you – our customer. This is our passion.

It starts with our employees

In order to consistently deliver great products, superior service and exceptional support, we must establish and maintain a culture that inspires passion for these outcomes. Our employees understand that our goal is to exceed our customers' expectations and prove how much we truly care about their business.

Service that makes a difference

Our parts are backed by a talented and accessible team of design engineers and technical service engineers, who have metallurgical expertise and are ready to offer support when you need it. Yes, we use state-of-the-art, 3D-based design technology. We also take advantage of the experience of former miners and quarry engineers who are on our staff and feedback from customers like you to make sure that what we are designing is relevant in the real world. Whether you need help finding a part for your application, have a custom request, need a metallurgical analysis or need any other technical assistance, we are here to help.



"Our goal is to give our customers the greatest possible usage out of their equipment with high quality replacement components. Many customers see replacement parts as big hunks of steel and assume that they will function under abuse and any circumstance. We see our parts as precisely honed instruments that can be optimized for better performance and longevity."

BRADEN PRICE

Design Engineer, Product Design & Enhancement
FLSmith Inc. - Pekin Operations



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