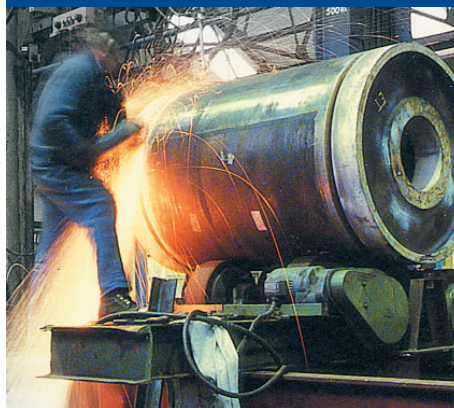
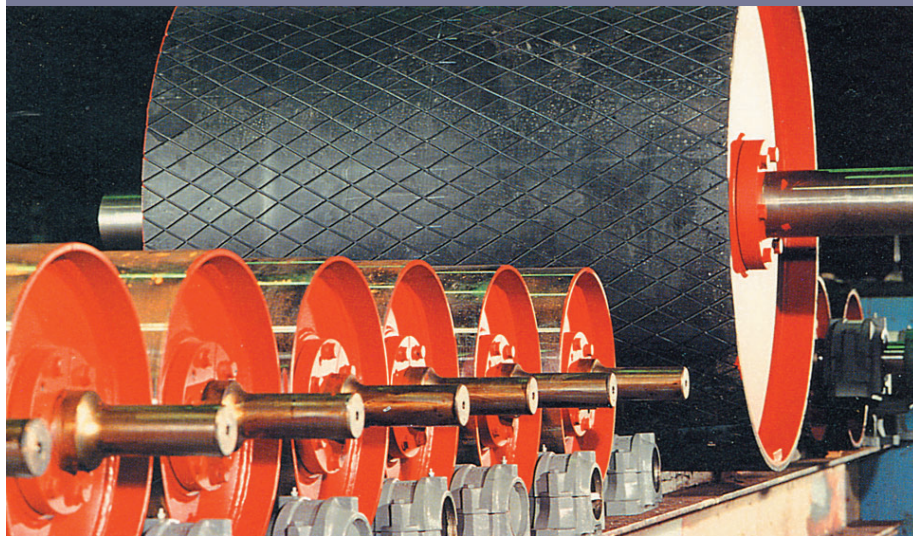




JENKINS NEWELL DUNFORD

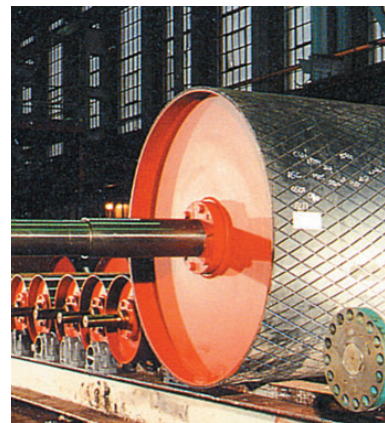
bulk materials handling technology



conveyor pulleys

conveyor pulleys

Long established market leaders Jenkins Newell Dunford (JND) have unrivalled abilities in conveyor pulley design and engineering and are internationally acknowledged as a premier supplier to the World industries of coal, civil construction, engineering steel, quarrying and mining. JND conveyor pulleys are the product of decades of dedicated research, development and perception of clients needs, producing the most proficient quality assured, high integrity manufactured pulley available today.



Design Philosophy

Each JND pulley is individually computer designed to meet the client's duty requirements. Design is based on the pre-determined tolerances of stress loading and the distribution of load through the individual components of the pulley, within the critical calculation of fatigue factors. Bending and shear stresses are limited in the design of drive and non-drive shafts together with the deflection of the shaft at the pulley hub. JND have a deep understanding of the precise calculation of all stress potential and the matching performance of components and constituent materials. End disc design calculation is based on the ability of each end disc to give 100% support of direct and bending stress. Internal diaphragms help support the rims of wider pulleys. The skills and experience of JND are assisted by the latest in computer aided technology and manufacturing techniques employed with the high level of control available only to a complete in-house production unit.

Manufacturing and Assembly

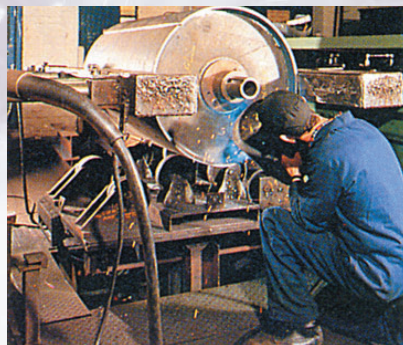
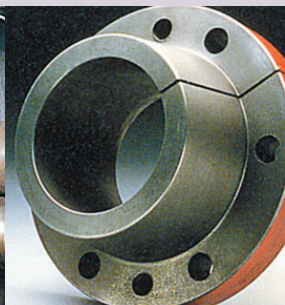
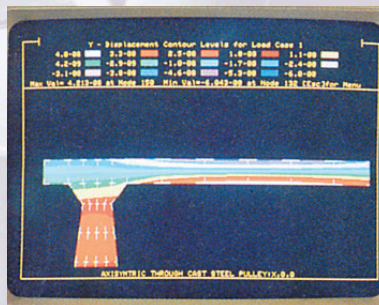
JND pulleys are manufactured and assembled in accordance with ISO standards with welding to ASME 9/BS4870. Special purpose fixtures are employed in pulley assembly to ensure concentricity is maintained. Stage inspection and quality control is inherent in every process and selected welds are subjected to the MPI method of non-destructive testing, a process which can be further extended to include 100% ultrasonic or radiography testing where required.

The Shell

JND pulley shells are one piece rolled with a single seam weld. The partly formed shell is squeezed in a special machine around the machined end discs to ensure accurate concentricity and to keep consistent weld preparations between the discs and the shell. The resulting fabrication is accurate in concentricity, has even load distribution between the rim and the end discs and although static and dynamic balancing is not necessary for most applications, it can be added if required.

Pulley Range

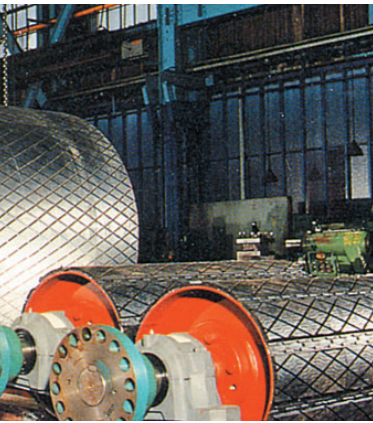
The JND standard range of conveyor pulleys is available in sizes up to 2m in diameter and up to 2.2m face width. Special pulleys are available for larger drives. End discs, shells and shafts, can be assembled in different combinations to fit customer needs and the individual factor identifying different pulley types, can be compression, keyed boss or shrink fit. Whilst the majority of pulleys produced by JND are fitted with the patented Dick single taper



shaft fastener, JND's application specialists will advise the most suitable fastening for any application.

A JND conveyor pulley is a unique rotating fabrication, in which the integrity of design produces a component, fully engineered but economically priced.





'...the most proficient quality assured, high integrity manufactured pulley available today...'

Single Tapered Compression

Incorporating the Dick Bush

- Interchangeable shafts
- Shaft sizes 60 to 250mm
- Ideal for rationalisation
- Easy to install and remove

The Dick bush, as adapted by JND is the best example of this unique fastening. It features a steep taper in a compression type coupling which has the significant advantage of eliminating the need for fitted keys and allows for easier removal. A side-fitting key

Double Tapered Compression

- High load capacity (best achieved with cast steel end disc)
- Interchangeable shaft
- High torque carrying ability
- Low surface pressure compression
- Designed specifically for handling exceptionally heavy loads.

Shrink Fit

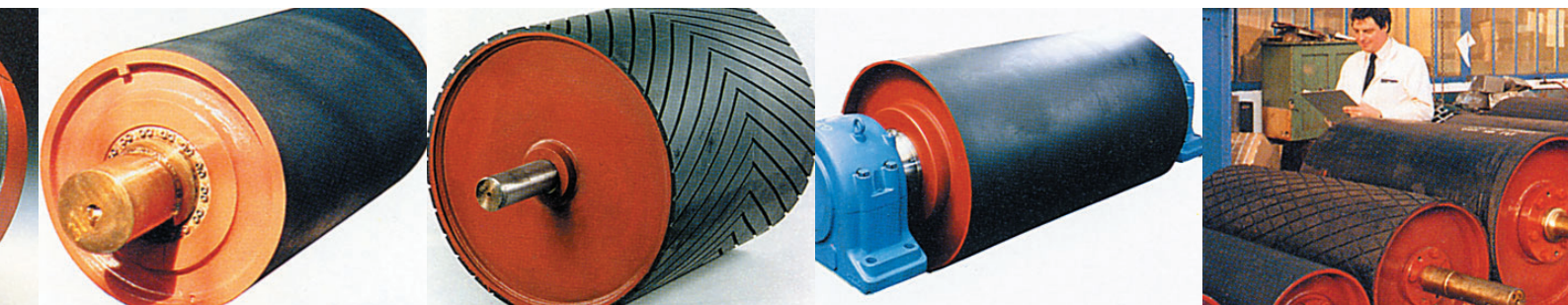
JND "shrink fit" pulleys are designed specifically to transmit high torque, making them especially effective in heavy load applications. Captive shaft pulleys with "shrink fit" type hubs, do not require keys although they can be fitted to customer specification.

End Discs

The load distribution is determined at the design stage and is a deciding factor in the choice of end disc. Three basic designs are used, all machined on the outer rim and bores.

Solid End Discs are designed to carry the fastening directly, satisfying the demand for extending the original pulley design to accommodate increased loads.

Cast Steel End Discs are a further development for very high horsepowers that exceed the design loads on the more conventional disc to shell welds. Standard designs, machined, butt welded to the ends of the shells and thermally stress relieved are available up to 5,000h.p.

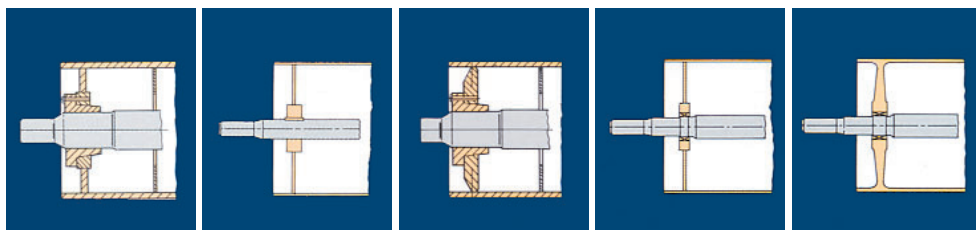


can be specified for the drive pulley assemblies. Good tolerances to bending and deflection result in an exceptionally cost effective design and each bush can be machined to suit a range of shaft diameters. The bush is manufactured in close grain cast iron and machining standards of the matching tapers of the bush and hub ensure minimal assembly stresses, fretting and corrosion.

Keyed Boss

A low cost pulley with captive or removable shafts. Parallel keys can be supplied at one end of the pulley for non-drive and single drive and at both ends for double drive.

Fabricated End Discs are the most common, they are individually design engineered in two types - flexing discs and rigid discs. They employ either keyed hub or compression fasteners for replaceable shaft pulleys.



Fabricated End Disc Keyed Hub Solid End Disc Fabricated End Disc Cast Steel End Disc

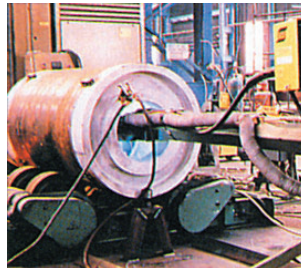
Pulley Rationalisation

The flexibility of the Dick bush design removes the need to carry a complete pulley for each location.

The resulting rationalising effects the whole range of interchangeable shafts, bushes and pulleys and significantly reduces the spares stockholding. As an example, a recent survey of a major site with 34 conveyors and a total of 158 pulleys has greatly reduced the spares holding to only:

- 4 pulley shells
- 4 non-drive shafts
- 4 drive shafts
- 5 Dick bushes
- 7 pairs of bearings

JND offer a service to both new and existing plants to survey and submit rationalisation proposals.



Welding to ASME/BS4870

JND pulley designs have been developed specifically to eliminate all stress concentration from machined components and fixtures between shafts and hubs. The designs are based on theoretical and practical tests carried out with the Welding Institute for fatigue analysis of welded construction and since there are no established recommendations for stress levels on some welds-fillet and one side penetration welds, JND's design calculations are derived from their own fatigue tests.

Seam Welding

All JND shells are seam welded by MIG and submerged arc process and all welds are finished to a smooth profile with the completed pulley. The accuracy of construction eliminates the need for the machining of standard flat pulleys.

End Disc Welding

Both discs are welded simultaneously to the shells by a specially developed double-ended welding machine to ensure consistent, economically efficient manufacture.

Cast Steel End Disc Welding

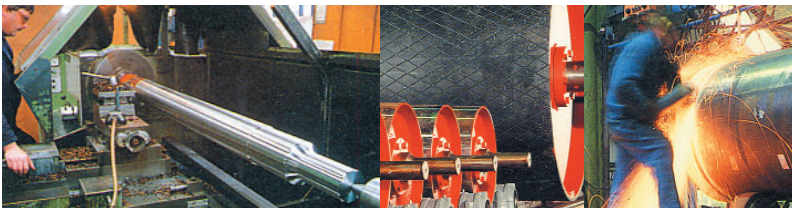
The cast steel end discs are welded to the pulley shell by MIG and submerged arc welding using special tools and fixtures to weld the inside and outside of the disc to the shell, in a low stress area.

Machining

Well equipped workshops with advanced CNC facilities ensure high calibre finishing of all components.

Assembly

Final assembly is a meticulous operation and pulleys are prepared for delivery with a lagged specification, using rubber or neoprene, or unlagged with paint finish and protected machined surfaces. Bearings can be supplied and fitted or customers' free issue bearings fitted together with couplings and drive components.



JENKINS NEWELL DUNFORD



LANGLEY

A Langley Holdings Company

The information contained within this brochure is deemed to be correct at the time of going to press. Due to the policy of continued improvement, we reserve the right to change any specification without prior notice. ERRORS & OMISSIONS EXCEPTED

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