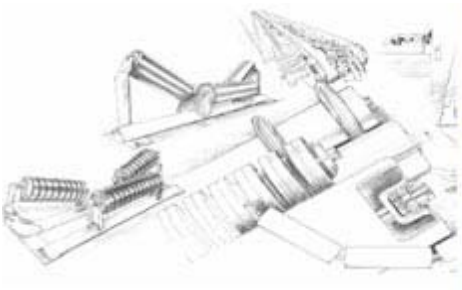
General

RULMECA belt pulleys presented on our web site combine experiences from different companies-Rulli Rulmeca and Rulmeca GERMANY which are working as one group today.
RULMECA GERMANY with a long experience as a developer and manufacturer of bulk conveyor components became a partner of the Interroll Group in 1991.
Interroll as a well known manufacturer of unit handling products was able with the Forder-und Antriebstechnik to open a bulk business unit at that time.
In July 2003 the Forder-und Antriebstechnik GmbH in Aschersleben, Germany, where belt pulleys have been produced for many years, was purchased by Rulli Rulmeca Spa Italy along with the products and the knowledge of developing & producing bulk conveyor components.
The Forder-und Antriebstechnik, today renamed RULMECA GERMANY GmbH, was now back in a business field of a well known manufacturer of bulk handling products.
In 2004 Rulli Rulmeca Spa the mother company of the RULMECA Group in Italy decided to establish the belt pulley centre in RULMECA Germany.

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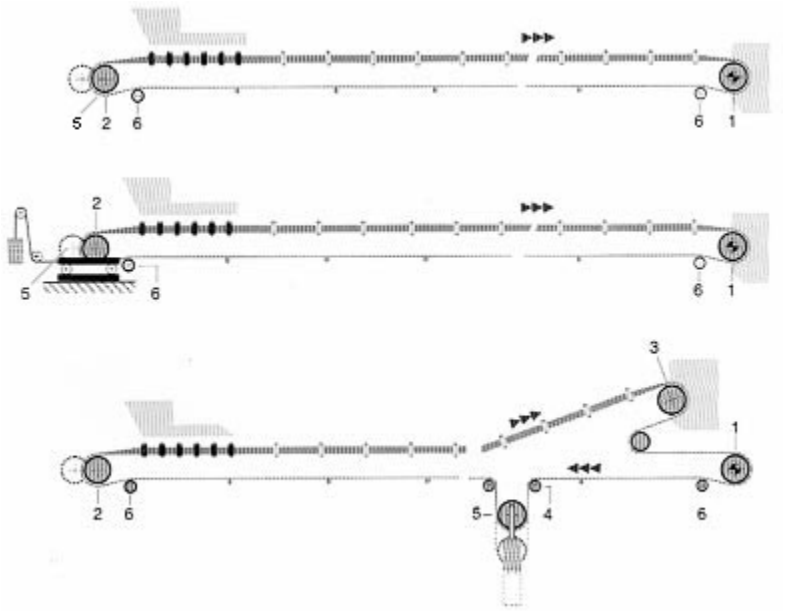
Introduction

RULMECA GERMANY is designing and manufacturing pulleys, using materials of the highest quality in a production process employing advanced technology.
This together with the application of the Quality Assurance system certified to ISO 9001:2000, contributes to the production of high quality products offering dependable, long life performance in the field and appreciably reducing maintenance cost.
Each RULMECA conveyor pulley is individually computer designed to meet the client's requirements.
Design is based on the predetermined tolerances of stress loading and the distribution of load through the individual components of the conveyor 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 conveyor pulley disc.
RULMECA have a deep understanding of the precise calculation of all stress potential and the matching performance of components and constituent materials.
The skills and experience of RULMECA 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.
In the following drawings various arrangements of traditional belt conveyors are shown, with the pulleys numbered and described according to their function and position in the belt conveyor layout.

1 - drive pulley;
2 - return pulley;
3 - return pulley;
4 - bend pulley;
5 - tensioning pulley;
6 - snub pulley



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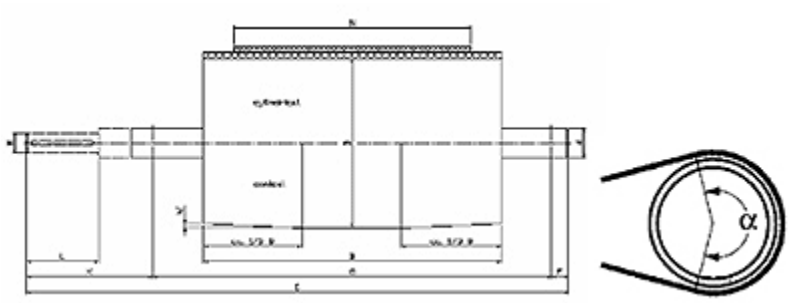
Dimensioning pulleys

According to the position that they occupy in a belt conveyor, the pulleys must withstand the forces imposed by both belt tension and conveyed load.
To be as efficient as possible both for replacement and for new installation, proper selection of pulleys requires the following data that allows the determination of the construction characteristics and dimension.
The principal data necessary to design a pulley comprises the following:

- belt width;
- diameter of drum in relation to the belt type and characteristics;
- locking arrangement of the shaft to the pulley (friction locking, welding);
- position of pulley (drive, return, snub, etc...)
- wrap angle of belt on pulley;
- belt tension T1, T2 or T3;
- distance between the supports and flange of the pulley "A";
- type of lagging as required..



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General construction data

RULMECA pulleys have been developed using a high degree of security in the dimensioning of the flanges, in the sizing and penetration of the welding and in the assembly between the shell, and pulley end disc.
The conveyor pulley shells are one-piece rolled with a single seam weld.
The fabrication is accurate in concentricity. All of the shells are statically balanced and can be dynamically balanced if required.
All conveyor pulley shells are seam welded by MAG and submerged arc process.
Both the welding system and the welders themselves are certified by a German authorized Institute of Welding, according to norms of DIN 18800-7:2002-09.
Continuous wire feeds are employed during the welding process, utilizing an inert gas atmosphere, which guarantees the maximum uniformity and resistance of weld.
Well equipped workshops with advanced CNC machining facilities ensure high quality finishing of all conveyor pulley components.
Pulleys may be cylindrical or machine crowned to aid belt tracking. If required all components can be normalized after machining or welding, for internal stresses to be eliminated and to facilitate assembly

and in turn disassembly, and also to eliminate reasons for cracking or deforming under load.
Shafts are normally manufactured from high strength steel bar.

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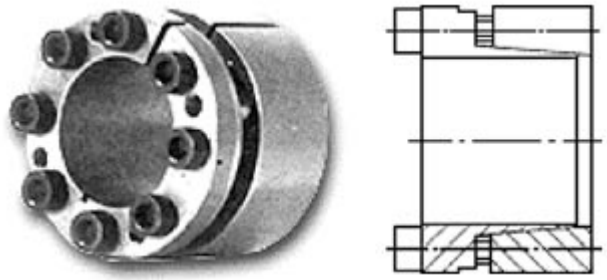
Types and designs

In this catalogue numerous designs and types of pulleys are proposed, to meet the great variety of uses.
To meet the duties of the severest working conditions they may be supplied rubber lagged. Lagging prevents belt slippage (in particular when water is present) and increases the drive traction of the pulley.
For Drive pulleys a friction lagging should always be used.
Series ATN-UTN with Taper friction lock assemblies allow compression shaft locking, using a system of screws and tapered sleeves, eliminating play and eccentricity ensuring the power transmission at the end disc/hub of the pulley.
Pulleys using this method of shaft locking are the most utilized today for their strength, simplicity of construction, assembly and maintenance.

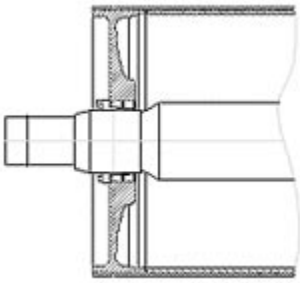


Above all disassembly by unscrewing, typical in such a bush, is always smooth and easy even in the case of dirt build-up or rusting.

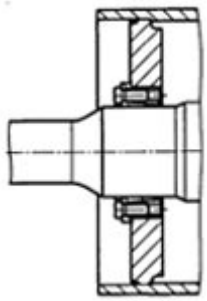
Type of end discs

Various types of end disc are used dependant on the required load. As a standard solution we use machined steel end discs. Due to the loading conditions different types of end discs will be used.

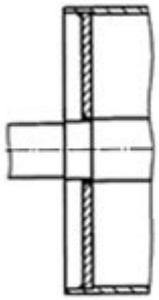
T-section end disc:



I-section end disc: for light & medium duty



welded design for light duty application:



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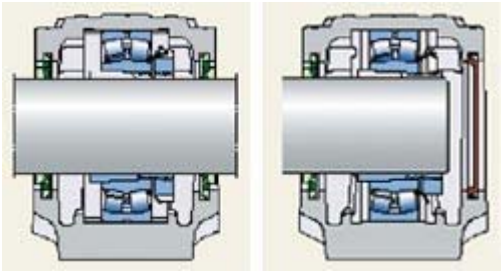
Bearings and Bearing Housings

High quality pillow block housings with incorporated high precision bearings are used with our standard pulley range.

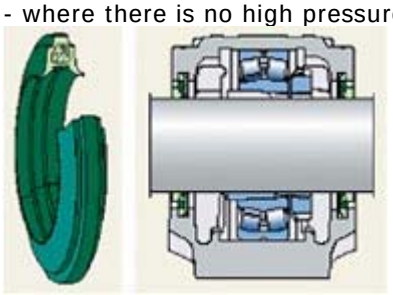
The bearing housing together with the appropriate bearings are easy to maintain.
The following types of bearing housings are used:
- **SNH** - housings with an adapter sleeve, two locating rings and a lock nut with the choice to locate the bearing on the shaft at the required position (fixed bearing).
Housings without locating rings are used for floating bearings.
The SNH bearing housing can be equipped with a variety of seals to meet different application demands.



Other types of bearing housings like flanged bearing housings, take-up bearings housings etc. are available on request. Special take-up bearing housings can be produced at our company.

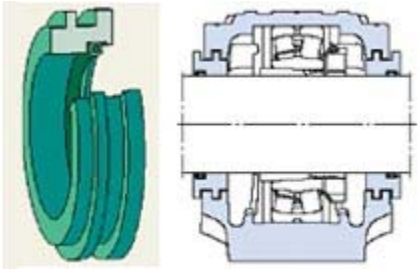
Sealing systems

A variety of seals are available with our product range. The sealing system should be selected according to the application-environment condition, operating condition etc. For our standard sealing system we use double lip seals.
Such sealing system should be used for normal application such as:
- for application without any influences of heavy dust,
- where deposits of material can be avoided,
- where there is no high pressure cleaning,

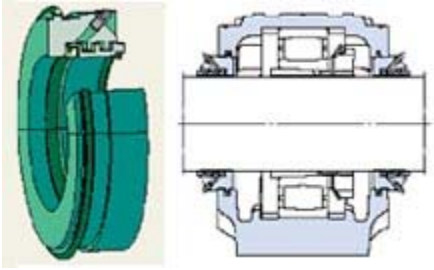


For medium duty application

such as normal dust, heavy rain, and light wash down we recommend a standard labyrinth sealing system.



For heavy duty application
such as high pressure wash down, heavy dust, coal dust, quartz sand application, or wherever abrasive materials exist we recommend to use a taconite sealing system.



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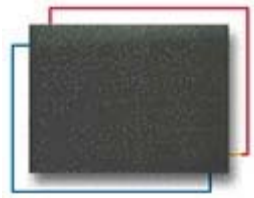
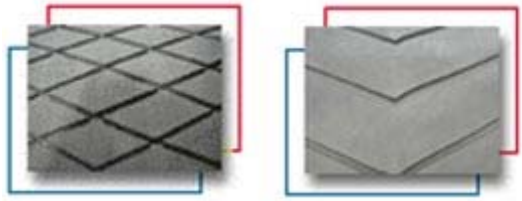
Friction lagging

Various types of friction lagging are available.
Lagging prevents belt slippage (in particular when water is present) and increases the drive traction of the pulley. For Drive pulleys a friction lagging should always be used. The type of friction lagging should be selected by the customer according to its application.
Properly selected lagging helps to prevent wear and belt slippage; in addition, an excellent self-cleaning effect is attained and less belt tension can be set.
The standard shore hardness of the lagging will be 60±5 Shore A. Other hardness's are available on request. Different types of lagging based on its chemical ingredients such as oils-resistant, heat-resistant, antimagnetic, etc. can be offered.

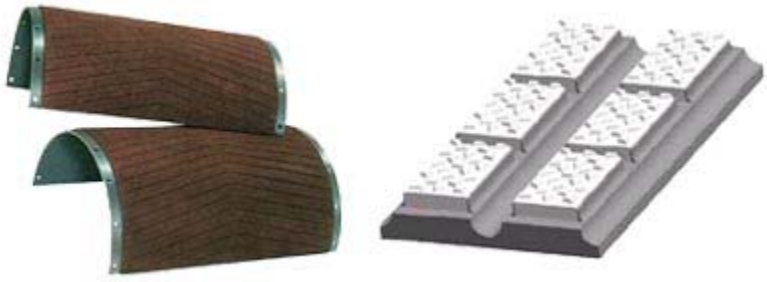
For normal dry application
and where material deposits between belt and pulley can be avoided a soft plain lagging can be used.
For drive pulleys diamond pattern will be standard.



For application where material deposits cannot be
totally avoided grooved lagging should be used.
This can be diamond or herringbone shaped.
Lagging with herringbone shape will be hot vulcanized.



For extreme wet and slippery application like:
potash loading-unloading, ceramic lagging should be used.



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Standard Finishing

For normal dry non-abrasive application;
- Shafts are treated with anti-corrosion wax-layer thickness 100 µm.
- End discs & pillow block bearing housings silver grey painted-layer thickness 80 µm.
- Shell without lagging silver grey painted-layer thickness >=80 µm.

For wet, abrasive and aggressive application we offer a 3 layer finishing as follows:
1. layer-primer; two-component paint based on zinc phosphate - 80 µm.
2. layer-two; two-component paint based on epoxy - 80µm.
3. layer-top coating; two-component paint based on polyurethane - 80 µm.

Standard colour is silver grey (RAL7001). Other kind of finishing and colours are available on request.

Other paint coats are available on request.

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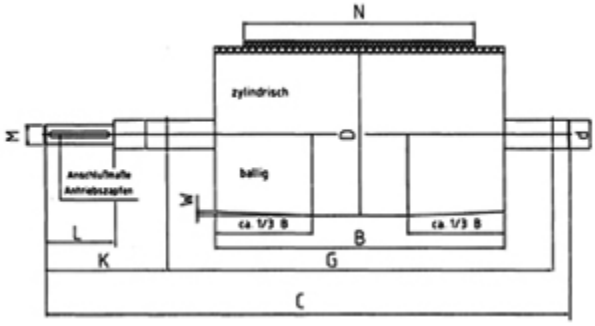
Order code for standard pulleys

Pulleys are identified according to the following characteristics

* The lagging must be specified as: the form, the thickness and in the case of lagging cut as herringbone, the rotational sense of the pulley as seen from the drive side, as the following list:

R -rubber lagged in smooth plain rubber
RR -lagged in rubber diamond pattern
RHacw -lagged in rubber herringbone pattern, sense anti-clockwise-hot vulcanized only
RHcw -lagged in rubber herringbone pattern, sense clockwise-hot vulcanized only



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