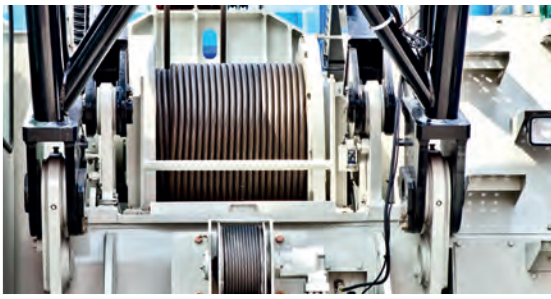
LEBUS®
germany
INTERNATIONAL

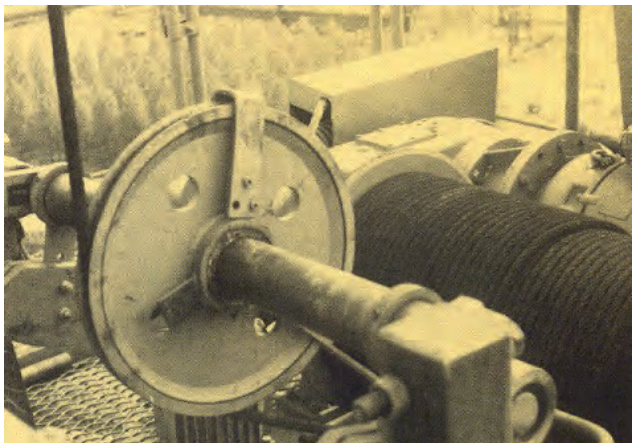




ADVANCED SPOOLING TECHNOLOGY LEBUS KNOWS HOW …

RENOWNED THROUGHOUT THE WORLD FOR ITS EXPERIENCE AND OUTSTANDING SPOOLING TECHNOLOGY – LEBUS WILL HELP YOU WIND UP ALL YOUR PROBLEMS.

THE ORIGINAL LEBUS SPOOLING SYSTEM



LEBUS system in 1937 …

… and today

A SYSTEM PROVES ITSELF

In 1937 Frank L. LeBus Sr., a supplier of equipment to the oilfields of Texas, USA, patented the use of a groove bar on hoisting drums to guide the spooling of rope.

In the 1950s he refined the grooving geometry and come up with the LEBUS Counterbalanced Spooling System, which is still the most effective way to ensure the smooth spooling of wire rope. Applications for the LEBUS system spread far beyond the oil industry and it was soon adapted for use in industries as diverse as logging, construction, offshore and cable car transport.

In 1963, Frank L. LeBus Sr. established LEBUS International Engineers GmbH in Germany as an engineering bureau with Karl Seidenather as chief executive. Three years later, production began in Germany. His son Cristof Seidenather joined the company in 1966 and was in charge of management from 1987 until 2017. Today Tim Seidenather (Dipl.-Ing. Engineer) and Matthias Kunkel (Dipl. Business Engineer) are responsible for operative management. With a highly competent team of young engineers, continuity is secured.

SPOOLING SUCCESS FOR ALL

The success of LEBUS wire rope spooling systems has been proven over many years, in many different applications and conditions. It is now the spooling technology of choice in shipping and marine industries, for cranes, mining machinery, logging, cable cars and general industrial hoisting.

Wherever wire rope is spooled onto a winch drum in multiple layers and complete safety is required, there is a need for the LEBUS wire rope spooling system. It is totally effective regardless of the line speed, the weight of the load, the size of the drum or the size of the wire rope.

With smooth spooling, the LEBUS system brings increased wire rope life and reduced maintenance downtime.

The benefits of the LEBUS system are available not just for new hoisting applications but also for retrofitting onto existing hoisting equipment. Installation can be carried out simply, either in the field or in the workshop.

Above all, LEBUS stands for: total dependability and peak performance for all hoisting operations, wherever you are.

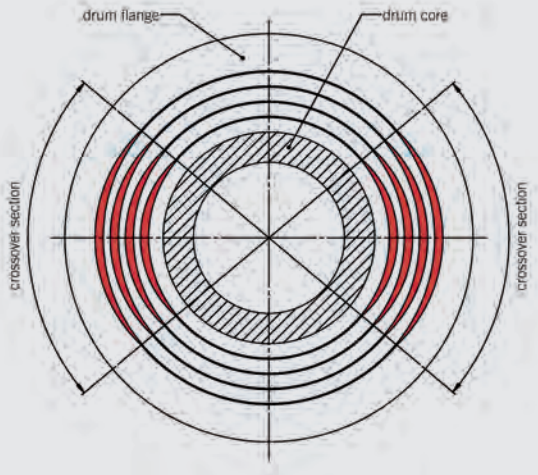
Since the very first LEBUS system was produced the basic LEBUS design has not changed.
Everything points to LEBUS – because a perfect system cannot be made better!

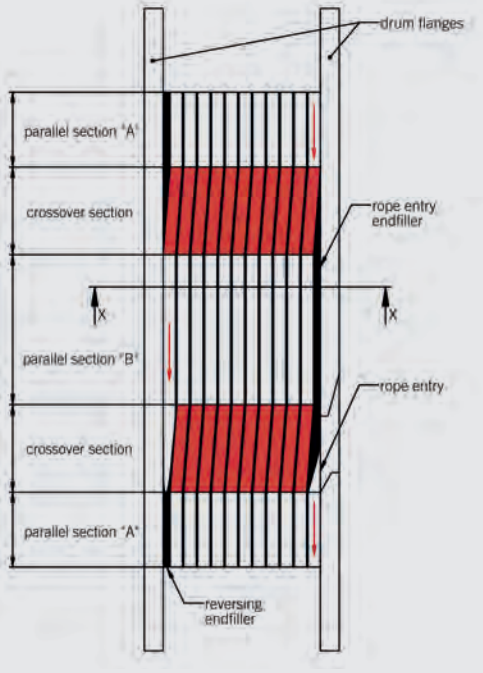
WHAT IS THE ORIGINAL LEBUS SPOOLING SYSTEM?

LEBUS is the most advanced method of controlling the spooling of a wire rope onto a winch drum in multiple layers. Unlike other systems, with the LEBUS engineered grooving there is no practical limit with regard to:

- Length of wire rope
- Diameter of wire rope
- Size of winch drum
- Rope- and/or drum speed
- Number of layers
- Winch load- and/or rope pull

HOW DOES THE LEBUS SYSTEM FUNCTION?





The winch drums are provided with the special LEBUS engineered grooving pattern and other features unique to LEBUS.

These illustrations show how the continuous groove is parallel to the flanges except for the two crossover sections where the groove moves across the drum one half pitch to give a full pitch of movement per revolution. Control of the spooling of the wire rope on to the second and subsequent layers is maintained at each drum flange by the specially designed ‚end fillers' and ‚risers' (patented by LEBUS) to retain a pyramidal pattern.

WINCH DRUM WITH LEBUS SYSTEM

The winch drum is located inside the drilling rig and spools 426m of 32mm-diameter rope in four layers with a speed up to 16m/sec.

UNPARALLELED ADVANTAGES WITH LEBUS

SAFETY DURING SPOOLING OPERATION

- even and harmonious spooling even at high speed and with high loads
- no gapping, cutting in or pinching of the wire rope
- drum and rope vibration is eliminated
- safety both for machinery and for operational personnel.

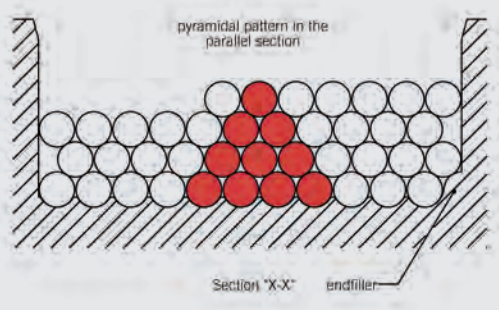
SIGNIFICANT INCREASE OF WIRE ROPE LIFE

With the spooling controlled from flange to flange and from layer to layer, a uniform pattern is established. This gives the best possible conditions for ensuring uniform distribution of the forces exerted by the upper layers of rope on the layers beneath. This, in turn, results in minimum wear on the rope and minimum thrust on the flanges.

EFFICIENT AND MONEY-SAVING SOLUTION

The LEBUS system delivers economic benefits:

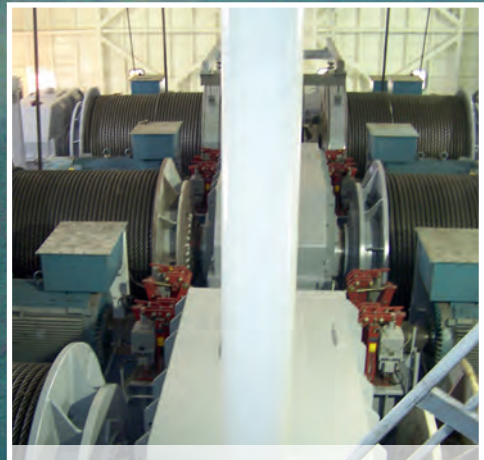
- longer rope life means deferred replacement cost
- LEBUS system enables efficient spooling in multiple layers, meaning that smaller winch drums can be used, saving on both materials and space
- as the LEBUS system can be retrofitted to any size of drum, if operating parameters change, it is not necessary to buy a whole new winching system – just new LEBUS grooved sleeves
- the LEBUS system is quick and simple to install, reducing maintenance downtime in the field.



RESULT: CONTROLLED SPOOLING

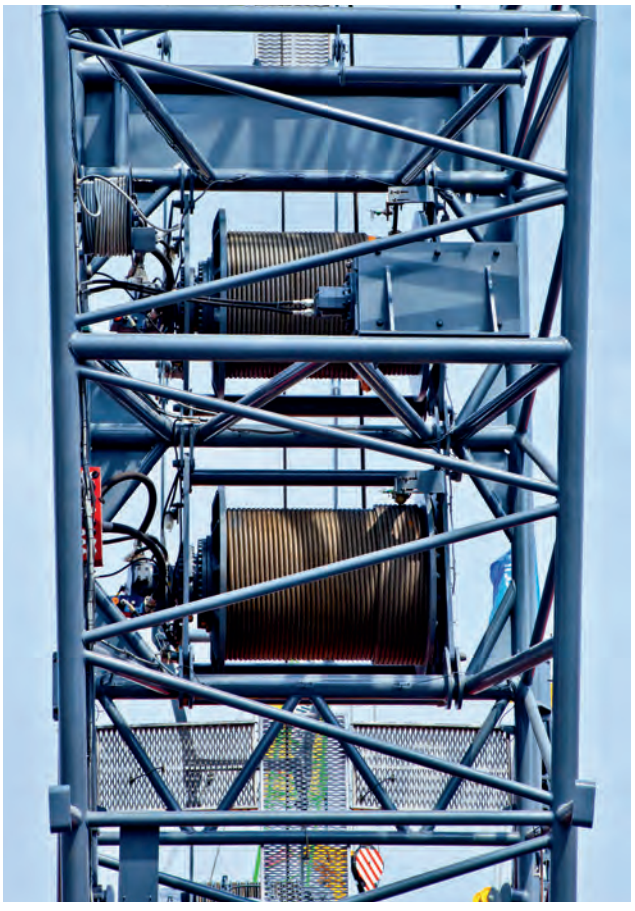
- with the continous parallel grooving approx. 70% per revolution.
- with the pyramidal building-up of the multilayered wire rope
- and with interdependent support-effect between coils and layers.

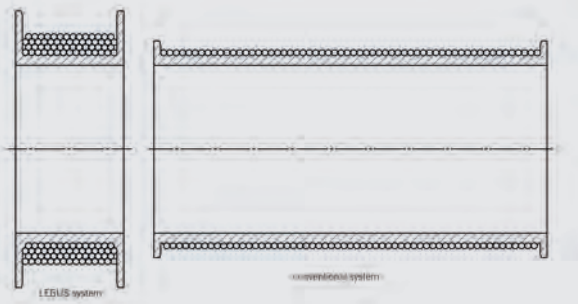
This 7000-tonne capacity offshore crane is equipped with a total of eight LEBUS systems. Each system spools up to 4000m of wire rope with a diameter of 60mm in 12 layers



LEBUS SYSTEMS INSIDE THE CRANE

SPACE SAVING WITH THE LEBUS SYSTEM





By multi-layering, it is now possible with LEBUS to acommodate a considerable length of rope on a relatively small drum.

THIS MEANS:

- Smaller drums – less construction weight
- Compact design package compared to conventional systems.

METHODS OF APPLICATION WITH THE LEBUS SYSTEM

For practically any wire rope size and design, LEBUS can supply the system in steel, cast iron, glassfibre or other synthetic materials.

LEBUS systems can be supplied in all required dimensions.

LEBUS systems are manufactured as following:

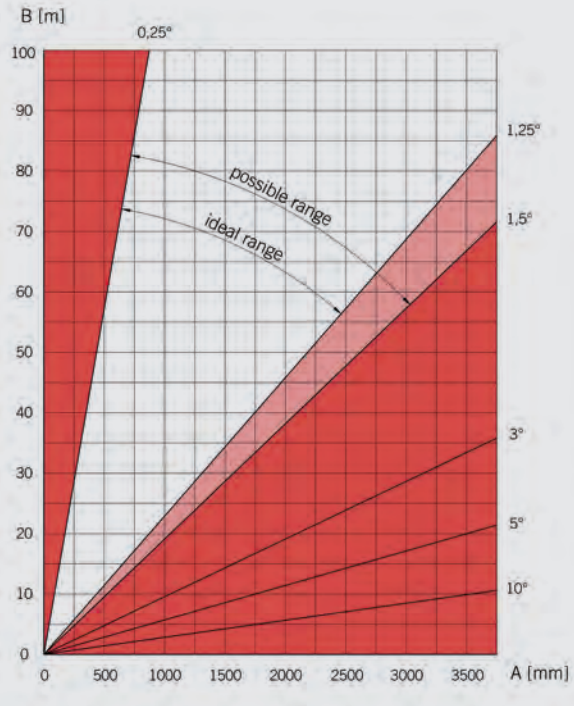
- LEBUS machine-grooved split sleeves
- LEBUS grooved drum barrels without flanges
- LEBUS complete grooved drum assemblies with flanges of any dimension specified by the customer.

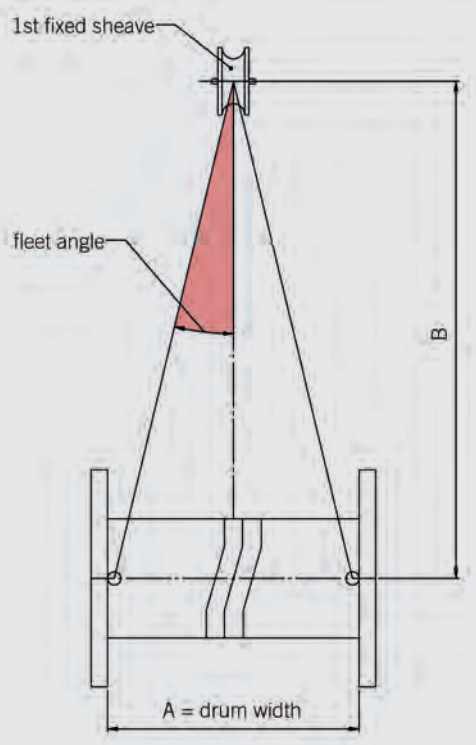
The LEBUS split sleeves can be fitted to an existing drum by bolting or welding. If required, customers‘ own flanges can be attached by bolting them to LEBUS grooced drum barrels.

You are also welcome to request our experienced and qualified service personnel carry out the installation.

CONDITION FOR PROPER FUNCTION OF LEBUS SYSTEMS

FLEET ANGLE





The fleet angle – which is the angle of the rope between the sheave and the drum (as pictured above right) – is the most crucial parameter for effective multi-layer spooling.

The optimum fleet angle varies slightly according to the design of the hoisting equipment. However, a good rule of thumb is that it should be between 0.25° and 1.5° or, in the diagram above:

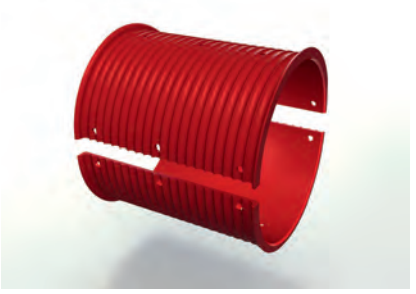
B = 20 x A

Fleet angles in excess of the values given on the fleet angle chart (above left) will have a directly adverse effect on the spooling.

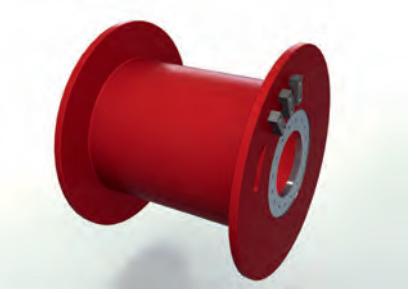
In such cases, LEBUS strongly advises the additional installation of a spooling compensation device in conjunction with LEBUS controlled grooving.

THE LEBUS FABRICATION AND DELIVERY PROGRAMME

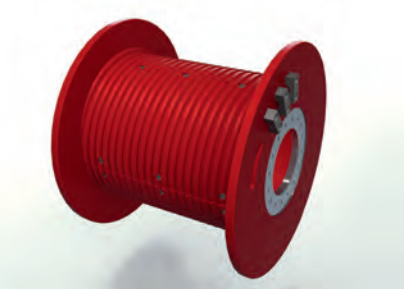
SPLIT SLEEVE (LEBUS OR HELICAL GROOVING) / PLAIN DRUM DESIGN



split sleeves welded or bolted



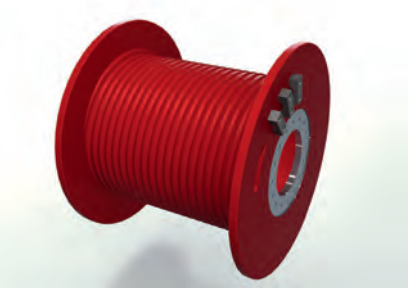
plain drum for installation of split sleeves



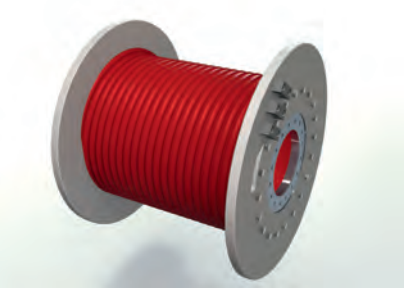
plain drum equiped with split sleeves

GROOVED DRUM DESIGN (LEBUS OR HELICAL GROOVING)

drum barrel without flanges



complete drum assembly, welding construction



complete drum assembly, bolting construction

AUTOMATIC SPOOLING DEVICE

fleet angle compensator

MECHANIC SPOOLING DEVICE

diamond screw levelwinder

FURTHER PRODUCTS

- wire rope guide sheaves
- horizontal guide sheaves
- vertical guide sheaves
- pressure rollers
- kickback rollers
- Fairleaders

WORLDWIDE LEBUS SERVICE

Around the globe, LEBUS's mulitlingual service engineers are on call 24 hours a day. This has earned us the confidence of our customers and the reputation of being on the job and on time with our experience, to the customers's considerable advantage.

APPLICATIONS OF LEBUS SYSTEMS

HOISTING / CRANES

Wherever objects are being lifted or pulled by wire rope, you may very well be seeing LEBUS in action. You will find our systems on construction sites in tower cranes and piling rigs, on cranes of all types on oil rigs and ships, lifting containers in ports and harbours, in elevators, ropeways, cable cars and funicular railways, and even on ski slopes pulling piste grooming machinery.

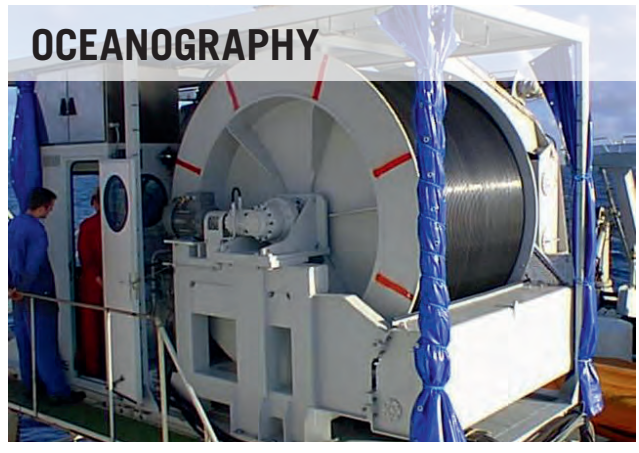
OFFSHORE

This is the fastest growing market for LEBUS-system applications, integrated in ship-cranes for faster hoisting, and in special ships for deepwater cable placement and ship lifting and salvage. With the help of LEBUS, ropes up to 4,000m long can be perfectly spooled and loads of up to 10,000 tonnes are lifted.

DRILLING / MINING

The LEBUS system has proved itself around the world in heavy-duty environments of mining, tunnelling and drilling, where it is used to ensure there is no failure in wire rope spooling operations. These industries offer some of the most challenging working conditions for machinery but the simplicity of the LEBUS system ensures total reliability.

OCEANOGRAPHY



This is quite a new field for LEBUS technology but one that is fast growing. At sea, rope lengths of up to 10,000m are not unusual. Submersible remotely operated vehicles (ROVs) are used to carry out special tasks at oil and gas platforms, to undertake deep-water exploration and to lay or inspect subsea cables. These are very expensive tools and so require the highest precision and reliability.

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