

POWER TEX

ROUNDSLING

USE AND CARE

SUHBO

Main office with Testing & Inspections

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Powertex round slings offer
a number of advantages
for rigging purposes.

The most commonly used
Powertex round slings are
made of Poly-arylate(Vectran) yarns.



They have the following properties :

- The best stability,
- Convenience,
- Easy Handling
- Light weight.



For more information, please refer to the our catalogue.
Our Powertex roundsling is composed several types by
customers requirement.

Type of Powertex roundsling

1. (Normal) Powertex roundsling

Normal powertex roundsling is made of

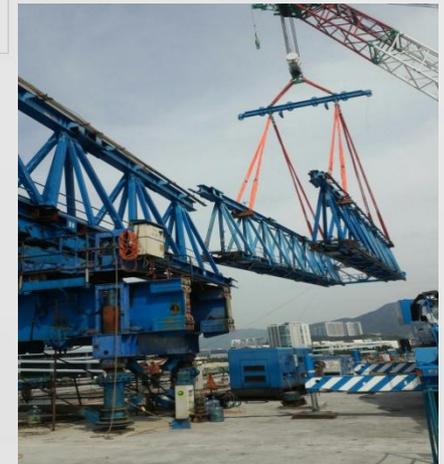
Core thread(Vectran),

sleeves(Polyester) and protection pad(Polyester),

Inspection way is only by visual inspection,

if it looks something wrong, It'll bring back to

manufacturer and proceed repairing system.



Type of Powertex roundsling

2. Powertex-multi roundsling

We got technical transfer the patent of
Multi checking system from Toray International Japan.

This patent is possible to check load bearing
core thread by silver coated yarn.

We put the silver coated yarn in roundsling and it bear the same load
with core thread.

This is coated by silver, so it's possible to check its electric resistance.



Type of Powertex roundsling

3. Powertex transparent roundsling

We're developing the powertex transparent roundsling, we got requestment from Hyundai Heavy Industries for developing this.

Load bearing core thread is made by Vectran and UHMWPE, sleeves is made by transparent polyester.

This is best way for inspection, but we need to do more study and more testing for site use.



Type of Powertex roundsling

4. Powertex Heat resistant roundsling

This is for high temperature cargo,

All parts(Core thread, Sleeves and protection pad)

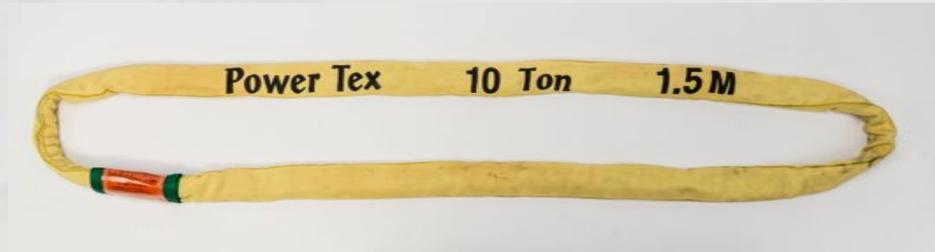
are made by Aramid fiber,

Aramid fiber got 500 °C melting

Temperature.

And Heat resistant roundsling is possible to use on 200 °C

cargo without strength loss.



Type of Powertex roundsling

5. Powertex anti cutting roundsling

Anti-cutting roundsling is developed

for sharp edge, tough surface and so on,

Normally, roundsling is not for use on this environment,

Therefore, we developed anti-cutting roundsling for this,

and now, we supply anti-cutting roundsling to Seah steel

and Hyundai steel in Korea.



Like this,

we supply and develop the roundsling

for customer requirement.

Identification:

Powertex roundsling marked to show by label:

- The rated load for the types of hitches, and the angle upon which they are based,
- Effective Length(EL) and Safety factor(SF)
- The core material
- The name or trademark of the manufacturer
(Suhbo Ind Co.,Ltd),
- The powertex's code or stock number, and
- Operating warning
- Multi checking system if it's powertex-multi roundsling

Rated loads:

Rated loads (capacities) for single-leg vertical, choker, basket hitches, and Horizontal angle degree are as shown in Table 1.

**(Table 1)Rated Load for Single-Leg Powertex Roundslings:
Endless and Eye-and Eye Type Expressed in Tonnes**

W.LL	WORKING LOAD LIMITS IN TONNES						
	M : 1.0	M : 0.8	M : 2.0	M : 1.4	M : 1.0	M : 1.4	M : 1.0
							
	VERTICAL LIFT	CHOKED LIFT	BASKET HITCH			TWO LEG SLING	
		Parallel	$\beta = 0$ to 45°	$\beta = 45^\circ$ to 60°	$\beta = 0$ to 45°	$\beta = 45^\circ$ to 60°	
10.0TON	10.0TON	8.0TON	20.0TON	14.0TON	10.0TON	14.0TON	10.0TON
20.0TON	20.0TON	16.0TON	40.0TON	28.0TON	20.0TON	28.0TON	20.0TON
30.0TON	30.0TON	24.0TON	60.0TON	42.0TON	30.0TON	42.0TON	30.0TON
40.0TON	40.0TON	32.0TON	80.0TON	56.0TON	40.0TON	56.0TON	40.0TON
50.0TON	50.0TON	40.0TON	100.0TON	70.0TON	50.0TON	70.0TON	50.0TON
60.0TON	60.0TON	48.0TON	120.0TON	84.0TON	60.0TON	84.0TON	60.0TON
75.0TON	75.0TON	60.0TON	150.0TON	105.0TON	75.0TON	105.0TON	75.0TON
80.0TON	80.0TON	64.0TON	160.0TON	112.0TON	80.0TON	112.0TON	80.0TON
100.0TON	100.0TON	80.0TON	200.0TON	140.0TON	100.0TON	140.0TON	100.0TON
120.0TON	120.0TON	96.0TON	240.0TON	168.0TON	120.0TON	168.0TON	120.0TON
150.0TON	150.0TON	120.0TON	300.0TON	210.0TON	150.0TON	210.0TON	150.0TON
200.0TON	200.0TON	160.0TON	400.0TON	280.0TON	200.0TON	280.0TON	200.0TON
300.0TON	300.0TON	240.0TON	600.0TON	420.0TON	300.0TON	420.0TON	300.0TON

GENERAL NOTES:

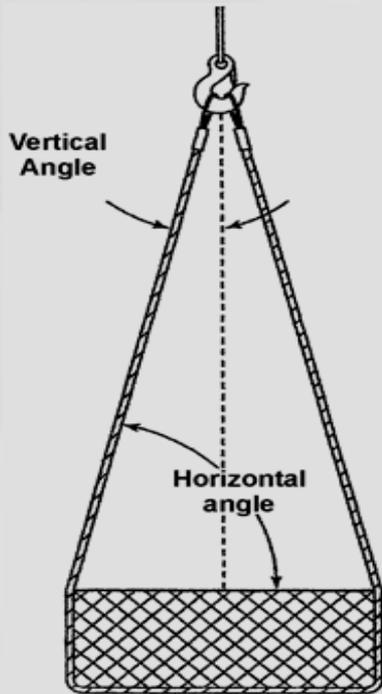
(a) Roundslings are identified by the vertical rated load shown on the sling identification.

For angles not shown, use the next lower angle or a qualified person to calculate the rated load.

Rated loads are based on:

- Material strength,
- Design factor,
- Type of hitch,
- Angle of loading (see fig.1), and
- Diameter of curvature over which the sling is used.

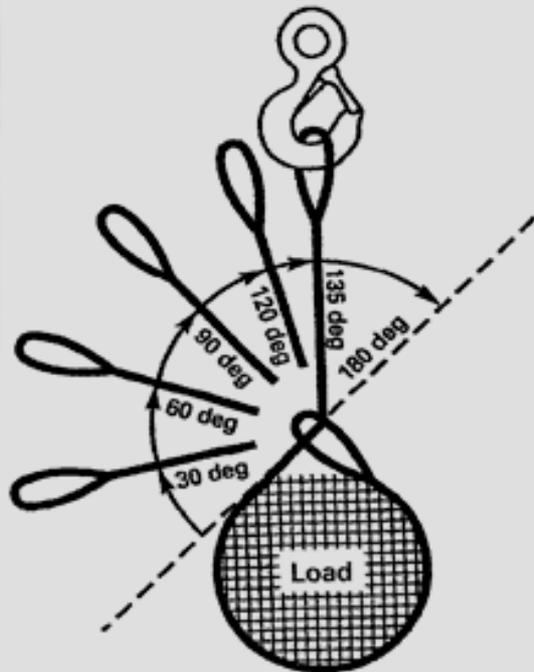
Fig.1) Angle of Loading



Do not use horizontal angles less than 30 degrees except as recommended by the sling manufacturer or a qualified person.

The rated load for a sling in a choker hitch is the value in Table.1 provided that the angle of the choke is 120 degrees or more (see Fig.2).

Fig.2) Angle of Choke



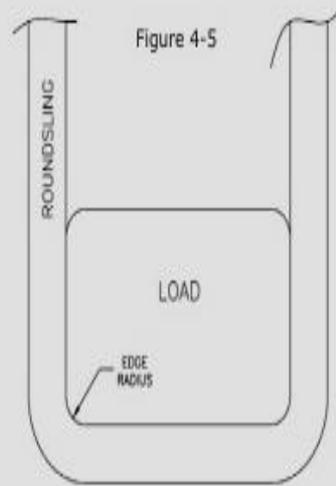
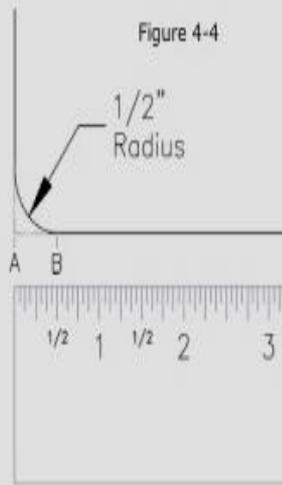
For other synthetic round sling materials and for configurations not shown, use the rated loads provided by the sling manufacturer or a qualified person.

Angle of choke (deg)	Rated Load (%)
Over 120	100
90-120	87
60-89	74
30-59	62
0-29	49

- Minimum Edge Radius suitable for Contact with Powertex roundslings.

(Figure 4-4 , 4-5, Table 2)

(Table 2)



파워텍스 제품번호 Powertex roundsling (Stock No)	사용하중(W.LL) Vertical Rated Capacity (Tonne)	최소 반경 R Minimum Edge Radius	적합 두께 Suitable Thickness of Lug (mm)
PTRS-05	5.0t	R11	22T
PTRS-10	10.0t	R17	34T
PTRS-15	15.0t	R24	48T
PTRS-20	20.0t	R25	50T
PTRS-25	25.0t	R26	52T
PTRS-30	30.0t	R27	54T
PTRS-35	35.0t	R32	64T
PTRS-40	40.0t	R32	64T
PTRS-50	50.0t	R37	74T
PTRS-60	60.0t	R44	88T
PTRS-70	70.0t	R49	98T
PTRS-80	80.0t	R50	100T
PTRS-90	90.0t	R50	100T
PTRS-100	100.0t	R53	106T
PTRS-120	120.0t	R60	120T
PTRS-150	150.0t	R65	130T
PTRS-200	200.0t	R84	168T
PTRS-300	300.0t	R98	196T

Fittings:

Ensure that mechanical fittings used as part of a synthetic round sling meet the following:

- Materials are compatible with the mechanical and environmental requirements of the sling,
- Fittings have a rated load at least the same as the round sling,
- Fittings have sufficient strength to sustain twice the rated load of the sling without visible permanent deformation, and
- Surfaces are clean, and sharp edges are removed.

Inspections:

Designate a qualified person(From Suhbo) to inspect slings and attachments each day before use for damage or defects.

This qualified person also performs additional periodic inspections where service conditions warrant, as determined on the basis of:

- Frequency of sling use,
- Severity of service conditions,
- Nature of lifts being made, and
- Experience gained during the service life of slings used in similar circumstances.

Make periodic inspections of synthetic round slings at intervals no greater than 12 months. A good guide to follow includes:

- Yearly for normal service use,
- Monthly to quarterly for severe service, and
- As recommended by a qualified person for special and infrequent service use.

Make a thorough inspection of slings and attachments.
Items to look for include:

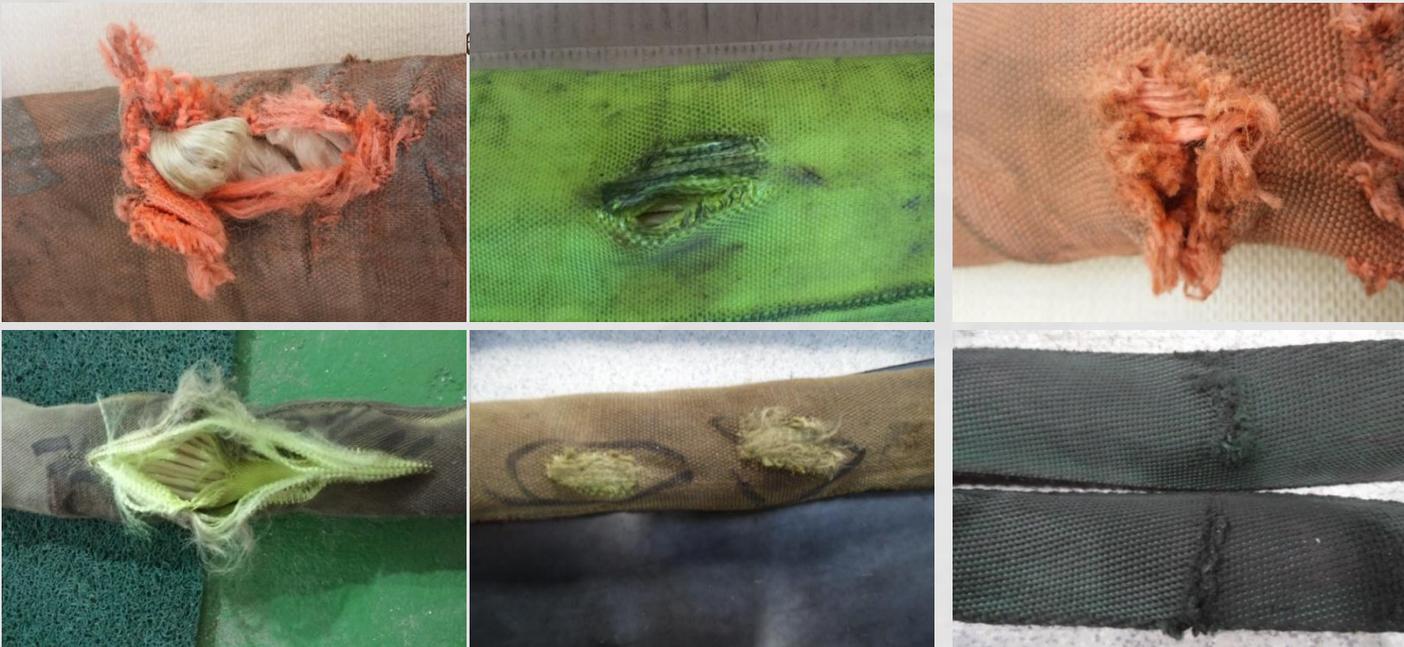
- Missing or illegible sling identification,



POWER TEX Round Slings

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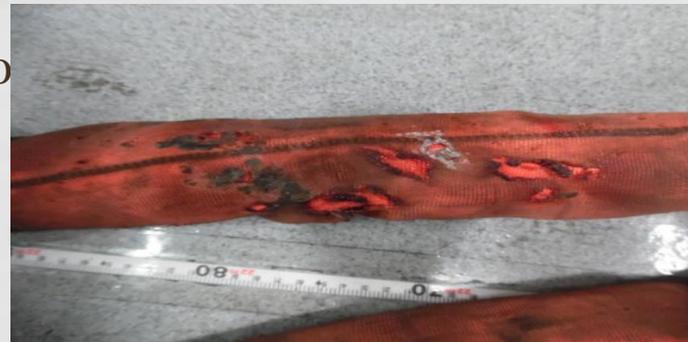
- Acid or caustic burns,
- Evidence of heat damage,
- Holes, tears, cuts, abrasive wear, or snags,



POWER TEX Round Slings

SUHBO

- Broken or damaged core yarns,



- Knots in the round sling body, except for core yarn knots inside the cover,
- Discoloration and brittle or stiff areas on any part of the sling,
- Pitted, corroded, cracked, bent, twisted, gouged, or broken fittings, and
- Other conditions that cause doubt as to the continued use of the sling.

Where any such damage or deterioration is present, remove the sling or attachment from service immediately.

Repairing/Reconditioning:

Do not use worn or damaged slings or attachments.

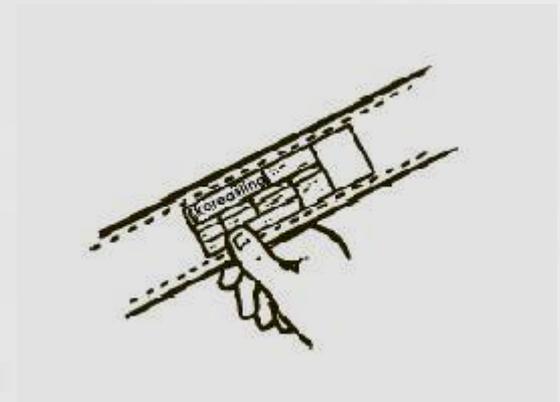
Discard or repair them. Use damaged slings only after they are repaired, reconditioned, and proof tested by the sling manufacturer or a qualified person using the following criteria:

- Ensure that the manufacturer or a qualified person performs repairs,
- Do not repair cracked, broken, melted, or damaged fittings or attachments,
- Do not repair melted or damaged internal yarns,
- Do not make any temporary repairs of round slings or fittings, and
Mark repaired slings to identify who made the repairs.

Operating practices:

Ensure that Powertex round slings have suitable characteristics for the type of load, hitch, and environment in which they will be used and that they are not used with loads in excess of the rated load capacities described in the appropriate tables.

Consult the sling manufacturer for slings not included in the table. Follow other safe operating practices, including:



Sling Selection



- For multiple-leg slings used with nonsymmetrical loads, ensure that an analysis by a qualified person is performed to prevent overloading of any leg,
- Ensure that multiple-leg slings are selected according to Table.1 when used at the specific angles given in the table. Ensure that operations at other angles are limited to rated loads of the next lower angle given in the table or calculated by a qualified person, and
- Ensure that the fitting is the proper shape and size to ensure that it is seated properly in the hook or lifting device.

Cautions to Personnel

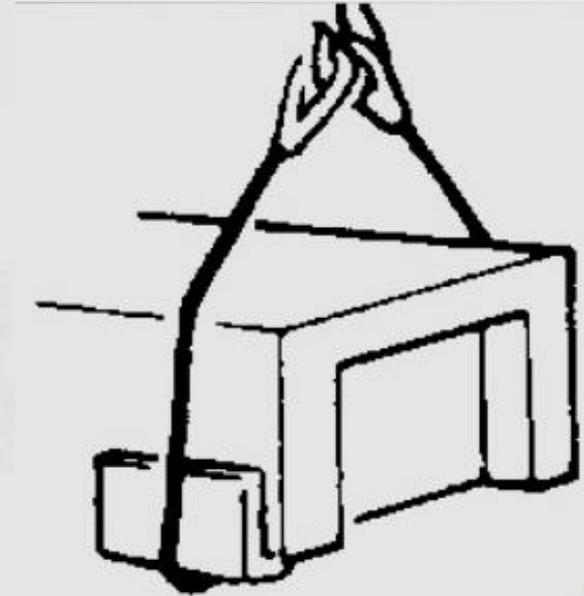
- Ensure that all portions of the human body are kept away from the areas between the sling and the load and between the sling and the crane or hoist hook,
- Ensure that personnel never stand in line with or next to the legs of a sling that is under tension,
- Ensure that personnel do not stand or pass under a suspended load,
- Ensure that personnel do not ride the sling or the load, unless the load is specifically designed and tested for carrying personnel, and
- Do not use synthetic round slings as bridles on suspended personnel platforms.

Effects of Environment

- Store slings in an area where they will not be subjected to mechanical, chemical, or ultraviolet damage, or to extreme temperatures, and
When slings are exposed to extreme temperatures, follow the guidance provided by the sling manufacturer or qualified person.

Rigging Practices

- Ensure that sharp edges in contact with slings are padded with material of sufficient strength to protect the sling,



Rigging Practices

- Ensure that slings are hitched in a manner providing control of the load,
- Ensure that sharp edges in contact with slings are padded with material of sufficient strength to protect the sling,
- Ensure that slings are shortened or adjusted only by methods approved by the sling manufacturer or a qualified person,

Rigging Practices

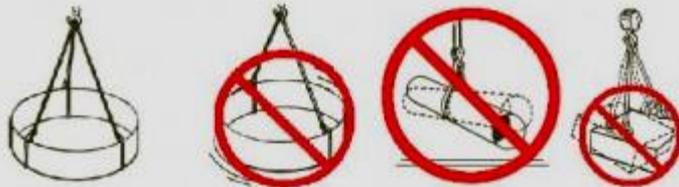
- Ensure that, during lifting with or without a load, personnel are alert for possible snagging,
- Ensure that, in a basket hitch, the load is balanced to prevent slippage,
- When using a basket hitch, ensure that the legs of the sling contain or support the load from the sides, above the center of gravity, so that the load remains under control,

Rigging Practices

- Ensure that, in a choker hitch, the choke point is only on the sling body, never on a splice or fitting,
- Ensure that, in a choker hitch, an angle of choke less than 120 degrees is not used without reducing the rated load,
- Ensure that slings are not constricted, bunched, or pinched by the load, hook, or any fitting,

Rigging Practices

- Ensure that the load applied to the hook is centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading,



- Ensure that an object in the eye of a sling is not wider than one length of the eye,
- Do not shorten or lengthen a sling by knotting or twisting,



Rigging Practices

- Do not rest loads on the sling,
- Do not pull a sling from under a load when the load is resting on the sling,
- Do not drag slings on the floor or over abrasive surfaces,
- Do not allow shock loading, and
- Avoid twisting and kinking.



Proof testing:

Before initial use, ensure that all synthetic round slings incorporating previously used or welded fittings are proof tested by the manufacturer or a qualified person.

Other new synthetic round slings and fittings need not be proof tested, although the employer may require proof testing in purchasing specifications.

Environmental effects:

Temperature

Do not allow Powertex round slings to be used in contact with objects or at temperatures in excess of

194 degrees F (90 degrees C),

or below minus 40 degrees F (minus 40 degrees C).

Some synthetic yarns do not retain their breaking strength during long-term exposure above

140 degrees (60 degrees C). Consult the sling manufacturer for the effects of long-term heat exposure.

Environmental effects: Sunlight & Ultraviolet

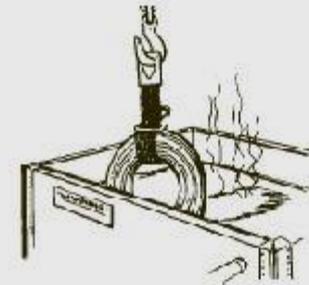
Long-term exposure to sunlight or ultraviolet radiation can affect the strength of powertex round slings. Consult the sling manufacturer for proper retirement criteria for powertex round slings subjected to long-term storage or use in sunlight.



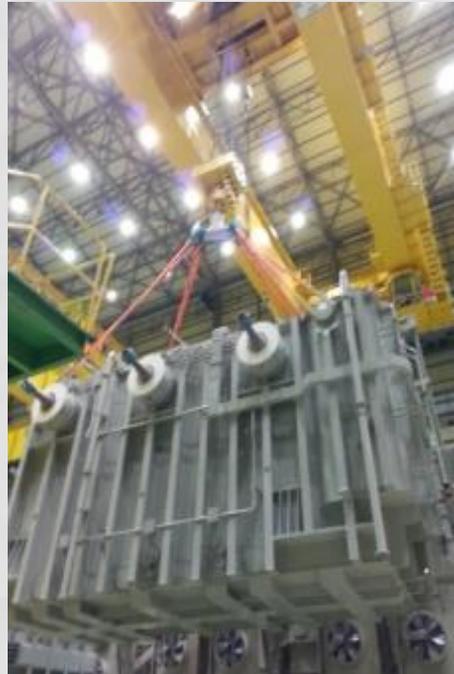
Environmental effects: Chemical

Chemically active environments can affect the strength of synthetic round slings. Consult the manufacturer before using a sling in such environments.

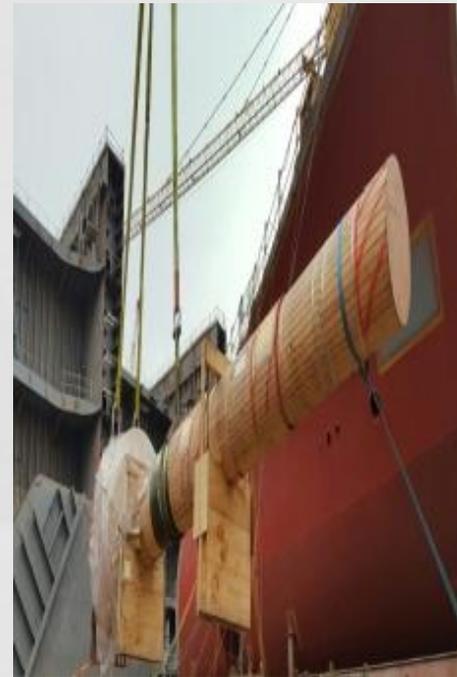
Ensure that in chemically active environments the cover is the same yarn as the load-bearing core.



Gallery



Gallery



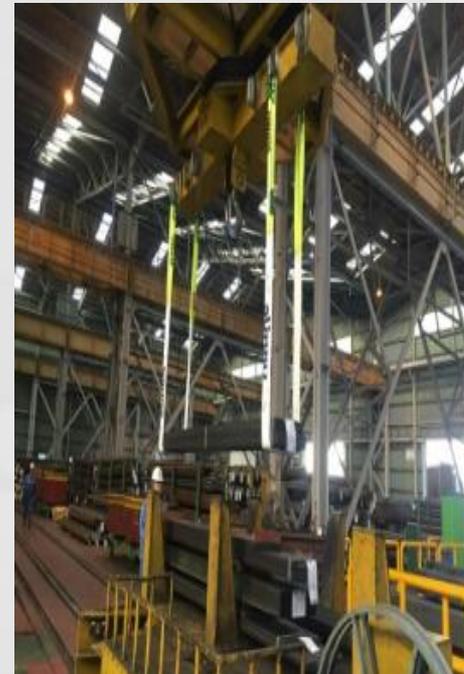
Gallery



Gallery



Gallery



Thank you