



SOLUTIONS FOR MARINE APPLICATIONS



Titan International, Inc. Brands



ENGINEERED FOR SUCCESS

ITM is a global leader in the design, manufacture and distribution of undercarriage components and solutions. Our know-how and experience in service and technical support enables us to meet all the needs of our clients at every stage, from design and build to on-site. Through many years of collaboration with global OEMs and R&D and by listening to client feedback on the performance of our products, we continue to keep industry moving with solutions that maximise productivity.

What also differentiates ITM is our dedicated team of over 1,300 professionals located around the world. With 40 experts in our Engineering Centre, we develop innovative solutions for the most challenging projects, whatever the application and wherever it's

required. We supply components to the leading OEMs and our products can also be accessed via a global network of dealers and distributors, enabling clients to get the parts they need, quickly and efficiently.

Our Product Support Specialists assist clients with best performing products and lowering maintenance costs. And with our After Sales team that's there for you every step of your journey, we will continue to raise the bar and set the standard of excellence in the undercarriage industry.

This is how we get clients engineered for success.

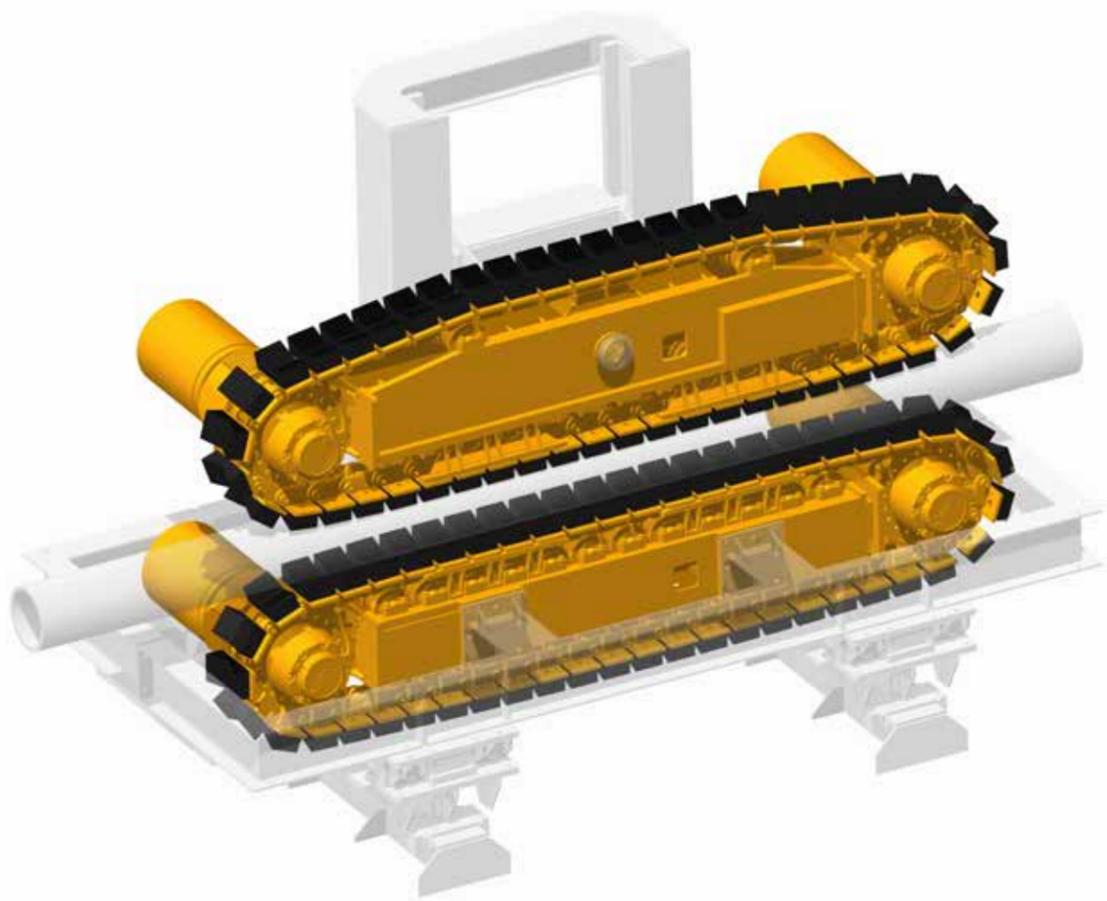


MARINE APPLICATION

For the machinery used in the marine industry, reliability is the key factor, as it needs to be able to handle heavy loads in tough conditions. ITM has designed and manufactured several complete side frames for tensioners, as a part of deck equipment for cable and pipe laying vessels. The equipment is able to load thousands

of tons of cable into the carousel and maintain cable tension during the seabed laying process. ITM provides a wide range of specially designed track components, e.g. low friction rollers with special bearings. We have recently developed new rollers with additional sealing, specifically for the marine application.

FRAMES



Track frames for marine applications are designed to meet individual customer requirements. Cable and pipe tensioner tracks from 5t to 200t capacity in the following variants

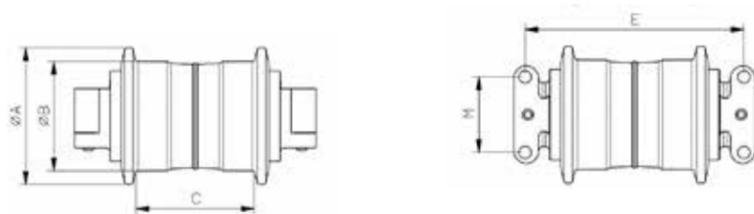
- 2, 3- or 4-track arrangement
- Single track drive and return idler or track drives on both frame sides
- Hydraulic or electric drive motors
- Steel frames with flange connection or with pivot shaft
- Single- or twin-track chain

Steel frames with FEA-optimized strength and stiffness to achieve equal squeeze force distribution on the product.

All frames include high-quality multi-layer painting and coated fastening elements to meet marine requirements.

ROLLER

The rollers are key components that insure optimal performance of the track frames. This is achieved by using materials, heat treatment and mechanical processes applied with a highly stringent criterion. We have a wide range of single and double flange rollers all suitable for use in the maritime industry.



Dimensions in mm

Outside diameter Ø A	Tread diameter Ø B	Gauge C	Hole pattern for Mounting bolts		Max. static radial load* in kN
			M	E	
152	126	104	70	175	88
160	135	114	80	210	100
180	156	125	80	210	270
190	155	142	88,9	298,5	250
200	160	173	110	320	400
209	172	206	114,3	368,4	420
300	250	210	125	400	440
300	250	250	135	430	1040
330	270	280	160	500	1440
390	330	316	200	580	2000
396	326	367	190	650	3000
480	405	365	290	660	5000

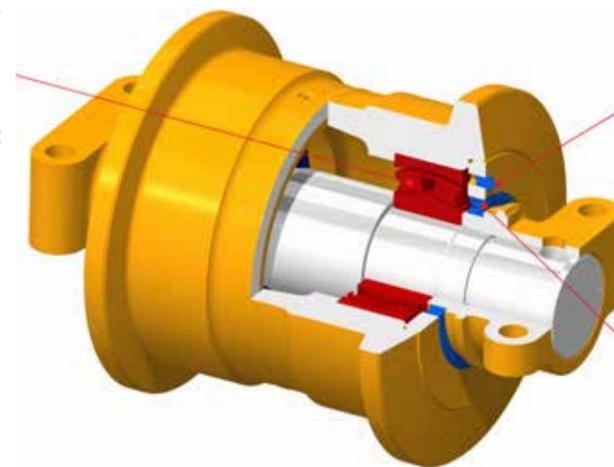
* The above information is based on a theoretical calculation of the static load capacity based on the geometric dimensions and material properties (steel type of shaft), without safety factor! The specified maximum loads are to be understood as guideline values in order to be able to make an initial preselection when designing new tensioners from which no responsibility can be derived. The exact determination of the size or selection of the suitable roller must be based on the technical specification/operation of the machine after consulting with Titan Intertractor GmbH. **Changes reserved!**

SPECIAL LOW FRICTION ROLLER

Rolling resistance approx. 7 times less than conventional rollers with bushings!

Low friction spherical roller bearing.

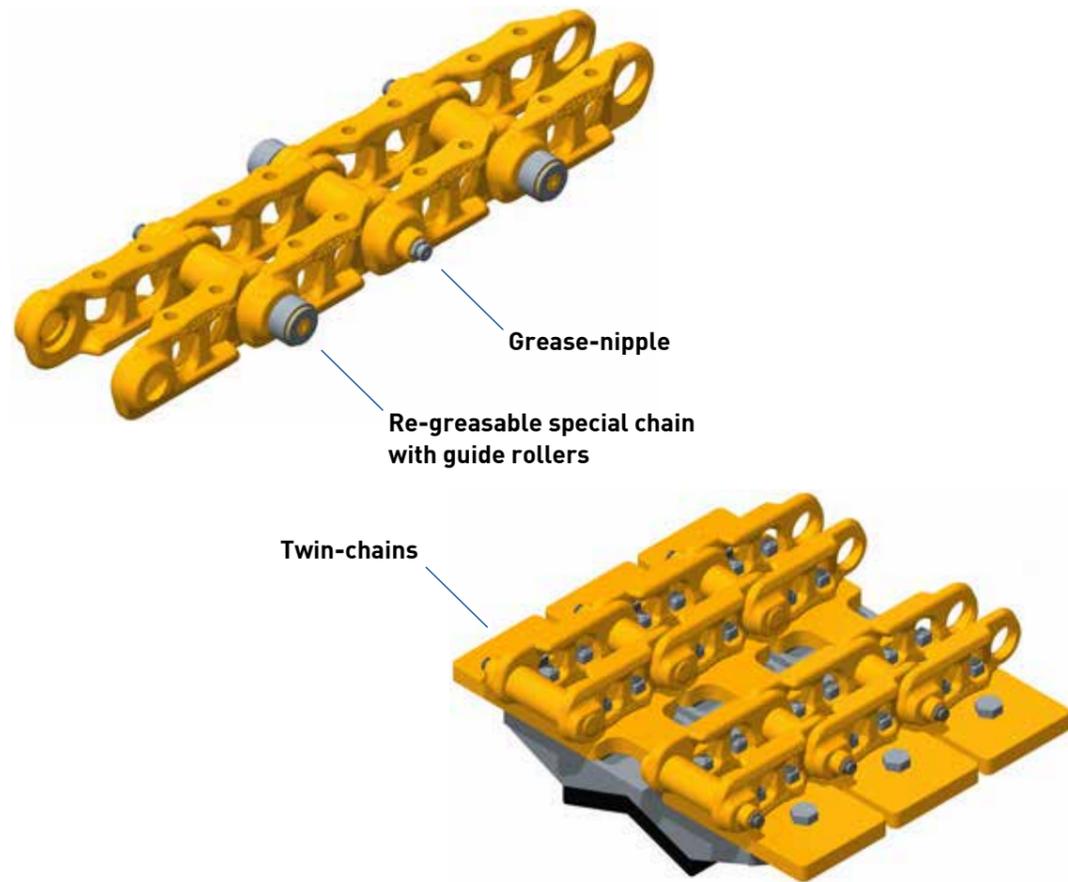
Lubricated with high performance grease. Protects bearing components against heavy shock.



Re-greasable

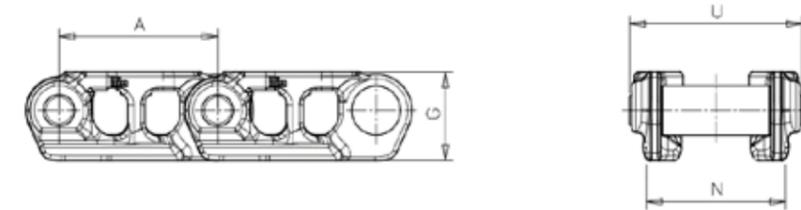
Low friction special seal. Robust design with integrated labyrinth to protect against extreme soiling and moisture ingress.

TRACK CHAIN



We supply track chains for any type of machine, from standard to special applications such as cable and pipe tensioner, subsea diamond dredgers, conveyors, and bucket wheel excavators. All our chains are developed by our R&D department in cooperation with our Product Support Specialists who have built up significant expertise in all kind of applications. We tirelessly test our products in close partnership with our customers. Innovative materials, new geometries and special heat treatments on all components (pins, bushings and links) guarantee maximum performance and longevity. Track Chains ranging from link pitch 125mm to 350 mm. Dry track chains, sealed chains and greased track chains, lubricated chains for high performance applications.

- New sealed and lubricated chains.
- Selectively anti-scallop versions are available.
- Additional surface coating treatment of the track pin significantly reduces the pin's galling phenomenon.
- Roller path, induction hardened to optimize wear performance under the most severe applications



Dimensions in mm

Pitch A	Hight G	Track gauge N	Width (pin) U	Theoretical, static breaking load* in kN
125	63	101	130	412
140	73	110	137	577
155,6	76,8	118,8	158	624
160	83	132	155	630
171,05	96	139	183,5	1203
171,07	101,5	167,7	207	966
175,4	103,9	164,5	207	979
190	105	170	222,5	1184
202,8	121,4	167,9	216	1171
202,8	117,5	200,4	251,5	1415
215,9	129	199,1	252,5	1974
228,6	139,2	241,6	292	2148
260,35	156	241,5	286	3820
260,35	156	266,7	311	3820
286,46	184	311	355,6	4828
318	210,5	348	400	7471
350	255	357,2	457	11250

* The breaking load values are based on a just theoretical calculation, considering the geometrical dimensions of the weakest cross section and the ultimate tensile strength of the chain-link material, without safety factor! The specified breaking loads are to be understood as guideline values in order to be able to make an initial preselection when designing tensioners from which no responsibility can be derived. The exact determination of the track size or selection of the suitable chain must be based on the technical specification/operation of the machine after consulting with Titan Intertractor GmbH.

IDLER AND TENSION GROUPS

After decades of working alongside the leading global manufacturers of earthmoving machinery and our field experience, we have know how about producing cutting-edge idlers, especially with respect to fatigue, strength and wear resistance. Our tension groups are highly efficient, even in extreme environments.

- Idlers suitable for track-type earthmoving and special application
- Cast and fabricated versions available (produced in our own foundry).
- Wide range of spring units and tensioners.
- "Made to measure" possible.



SPROCKETS AND SEGMENTS

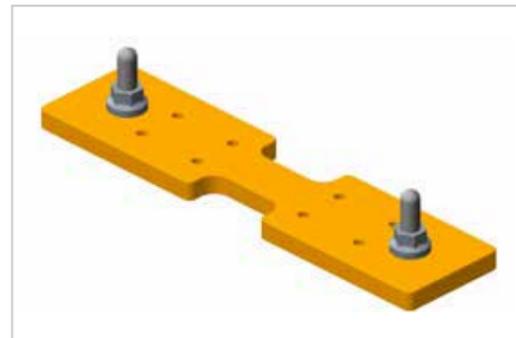
Our ongoing research to find the highest performing sprockets and segments has resulted in a significant reduction of wear. Our sprockets match all common final drives. If required we can "manufacture to customer specifications"



SHOES

Our range of track shoes will cater for all customer needs from standard to extreme.

- Shoes suitable for chains ranging from link pitch 125mm to 350 mm available.
- Cast shoes (from our own foundry).
- Rubber or polyurethane vulcanized versions for special applications.
- Baseplates for different shoes.
- "Made to measure" is possible.





Titan International

Quincy, IL, USA
 Bryan, OH, USA
 Des Moines, IA, USA
 Freeport, IL, USA
 Saltville, VA, USA

Titan Tire Corporation

Union City, TN, USA

Titan Pneus do Brasil Ltda

São Paulo, Brazil

Voltyre-Prom

Volgograd, Russia

Titan Mining Services (TMS)

SWT
 Saskatoon, SK, Canada

Titan Mining Services (TMS)

Titan Australia Pty Ltd
 Emerald, QLD, Australia
 Kalgoorlie, WA, Australia
 Karratha, WA, Australia
 Mildura, VIC, Australia

Muswellbrook, NSW, Australia
 Perth, WA, Australia
 Port Hedland, WA, Australia
 Sydney, NSW, Australia
 Whyala, SA, Australia
 Yatala, QLD, Australia

Titan Mining Services (TMS)

PT Titan Wheels Indonesia
 Jakarta, Indonesia

Titan Mining Services (TMS)

Titan Wheels South Africa (Pty) Ltd
 Nuffield, Springs, SA

Titan Mining Services (TMS)

Aros del Pacifico S.A.C.
 Lima, Peru

Titan Mining Services (TMS)

Aros del Pacifico S.A.
 Santiago, Chile
 Iquique, Chile

Titan Steel Wheels Ltd

Kidderminster, UK

Titan Distribution (UK) Ltd

St. Helens, UK

Titan Italia SpA

Crespellano (BO), Italy
 Finale Emilia (MO), Italy
 Jesi (AN), Italy

Titan France SAS

Flers, France

Titan Asia A.S.

Aydin, Turkey

Wheels India Ltd

Tamilnadu, India
 (Minority Share)

Italtractor ITM SpA

Fanano (MO), Italy
 Ceprano (FR), Italy
 Potenza, Italy

Titan Intertractor GmbH

Gevelsberg, Germany

Pyrsa Piezas y Rodajes S.A.

Monreal del Campo
 (Teruel), Spain

Intertractor America Corp.

Elkhorn, WI, USA
 Winston-Salem, NC, USA
 Gillette, WY, USA
 Holden, WV, USA

ITM Latin America Ltda

Atibaia, São Paulo, Brazil
 Parauapebas, Pará, Brazil

ITM Track (Tianjin) Ltd

Tianjin, P.R. of China

Titan ITM (Tianjin) Co. Ltd

WDA Tianjin, P.R. of China