

KABELSCHLEPP



CABLE & HOSE CARRIER SYSTEMS FOR CRANES

1. Introduction to KABELSCHLEPP and
TSUBAKI
2. Products
3. References
4. New development: RSC-System

Tsubaki KABELSCHLEPP

More than 60 years since the initial idea became a patented solution



1953
Invention of the
cable carrier
Dr.-Ing. Gilbert Waninger
an employee of von
H.A. Waldrich in Siegen



1954
Foundation of
KABELSCHLEPP GmbH
Dr.-Ing. E.h. Oskar Waldrich



Wenden-Gerlingen Headquarters

Everything under one roof.



- Production of all cable carrier systems made of steel and plastic
- Assembly plant
- Project division
- Design and engineering of all products
- Laboratory
- Worldwide distribution center
- Quality management

2010: Integration into the TSUBAKI Group

- For more than 40 years, both companies have been closely cooperating partners.
- With this integration, we will leverage our successful business relationship in one strategic enterprise.



TSUBAKI KABELSCHLEPP Headquarters
Wenden, Germany



TSUBAKI MOTO CHAIN Kyotanabe Plant
Kyoto, Japan

a global Network of specialists available at more than **80 places... even close to you**



- Tsubaki Global Network
- Tsubaki Kabelschlepp Global Network



Global set up of crane and long travel specialists



**HAPPY BIRTHDAY
MOM!!!!**

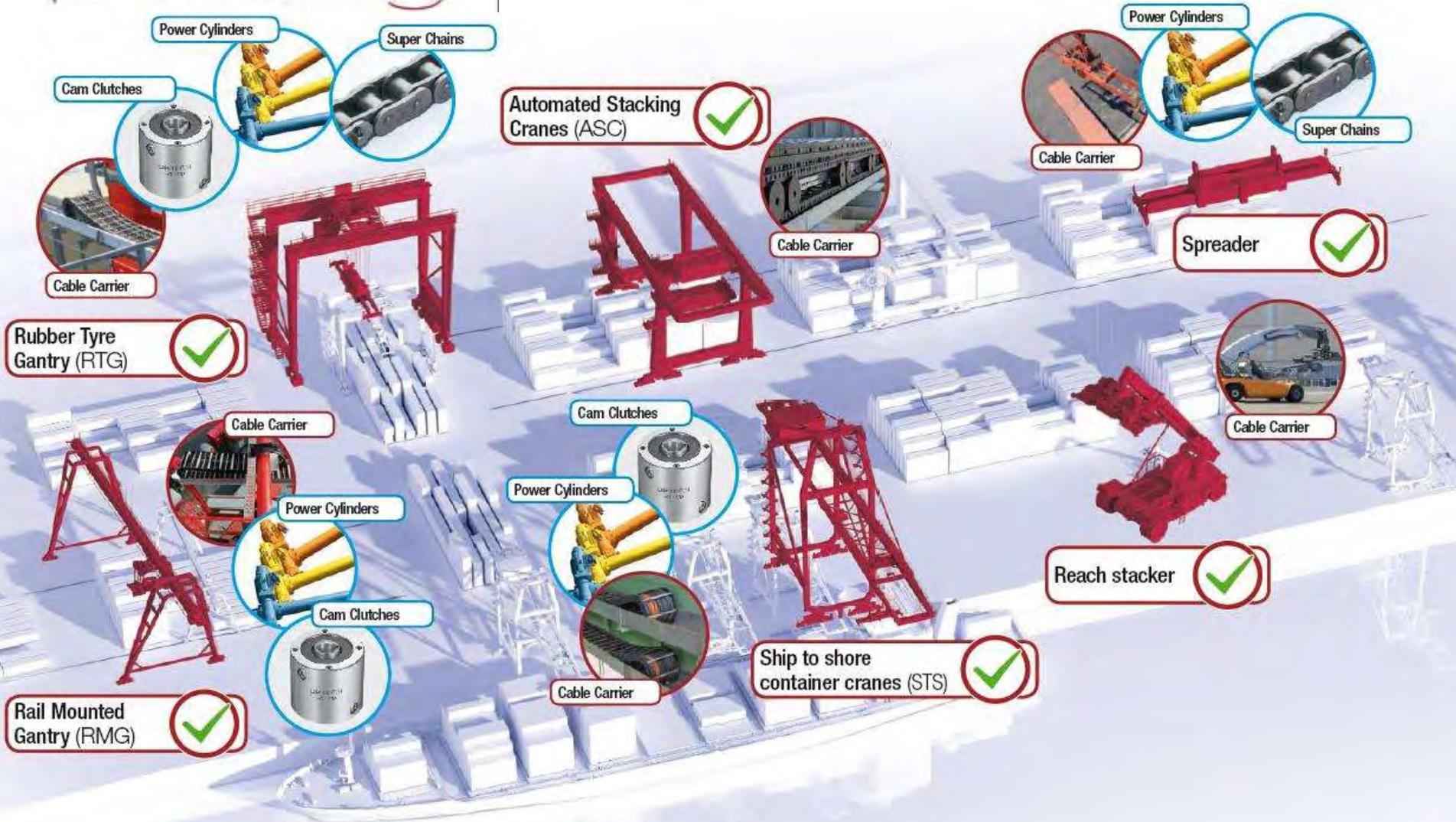
TSUBAKI

100

**th
ANNIVERSARY
since 1917**



Innovative technologies
for the crane industry



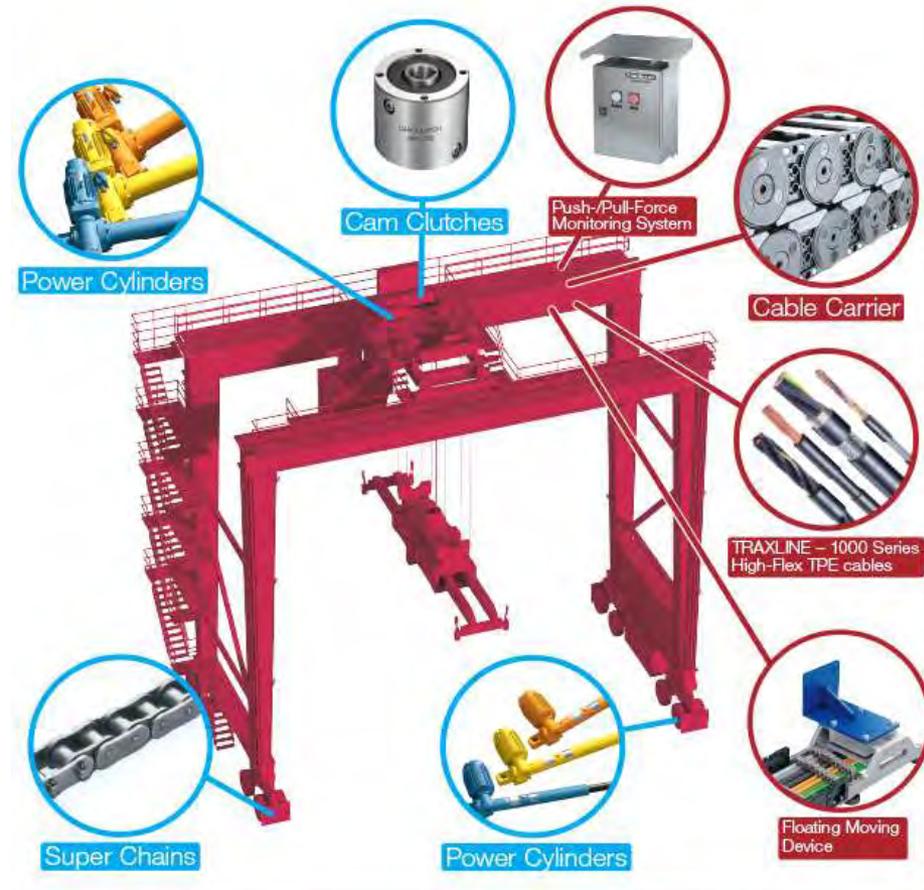
Innovative technologies
for the crane industry

TSUBAKI Innovation in Motion
 PowerCylinders,
 Electronical Actuators

TSUBAKI Innovation in Motion
 Super Chains,
 Heavy Duty Chains

TSUBAKI Innovation in Motion
 Cam Clutches,
 One Way Clutch

KABELSCHLEPP Cable Carrier
 Systems incl. TRAXLINE cables
 and equipment



Cable Carriers for crane applications benefits for crane builder and enduser

- Space saving design
- No loop station and also no additional steel structure for loop station
- No additional drives necessary
- No control system necessary
- All kind of media (power, data, hydraulics, pneumatics, ...) in one System
- No addition mechanical stress to the cables
- Short cable length Easy to maintain
- Safe data transfer via light velocity



TKHD Series for Heavy Duty applications

developed for Ship to Shore cranes and long travel applications



Tsubaki
Kabelschlepp
world novelty

TKHD Series for Heavy Duty applications



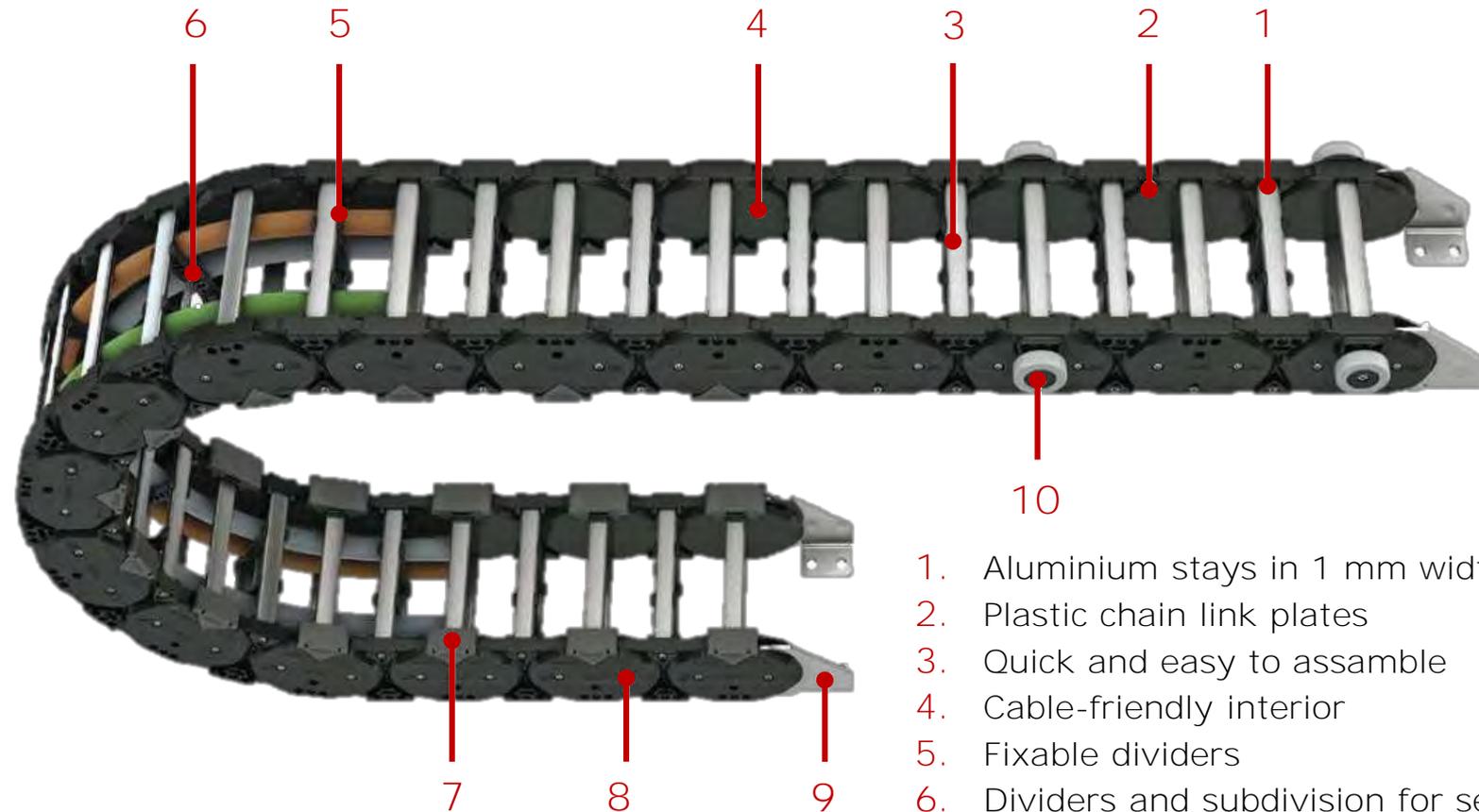
- Integrated Brake
- Reinforced stop dog-system
- 90mm pitch
- Shape optimized
- Reinforced bolt hole connection
- Linear Force curve
- Massive Design
- RSC-Version available
- With glide shoes available
- Integrated Rollers in planning

H-Strap-Design



First cable carrier with
 Inner Height: 87mm
 Link Pitch: 90mm

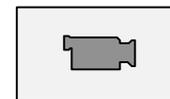
TKHD Series for Heavy Duty applications



1. Aluminium stays in 1 mm width section
2. Plastic chain link plates
3. Quick and easy to assemble
4. Cable-friendly interior
5. Fixable dividers
6. Dividers and subdivision for separating the cables
7. Replaceable glide shoes
8. Robust, double stop system
9. Steel Installation brackets
10. Alternatively available as RSC-system

First cable carrier with
 Inner Height: 87mm
 Link Pitch: 90mm

RSC-System for Long Travel and Cranes (Roller Supported Chain)



- Rolling instead of gliding
- 90% less force compared to a gliding System
- Quiet and less-vibration
- High travel speed and acceleration
- Minimum stress for cable carrier and cables
- Very long travels possible
- Easy to maintain
- Only visual inspection
- Easy Installation (self aligning)
- No fix distances of the support Structur necessary
- For M-Series and TKHD-Series

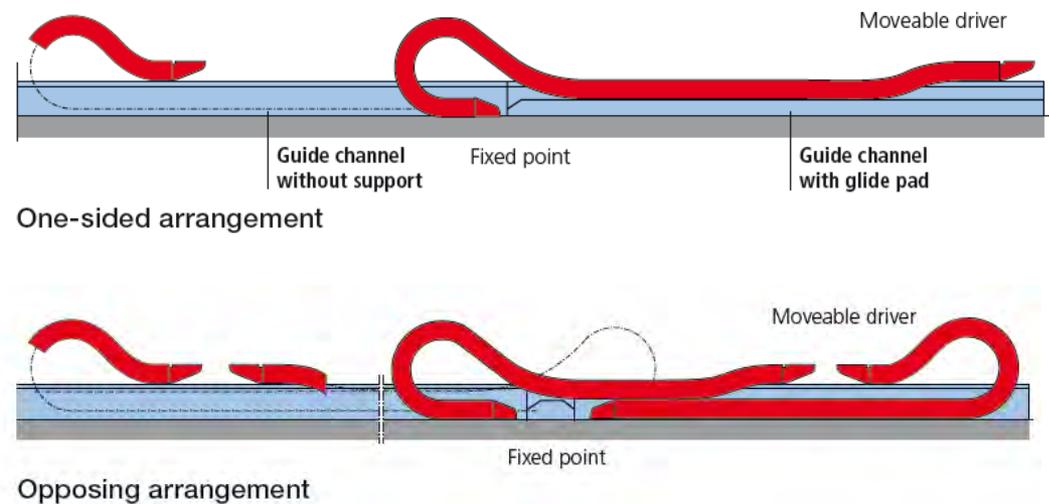
**100% Rolling System!!!
the upper Run never
touches the lower Run**



Tested at our full automatic crane Test-Center

Off-road Glide Shoes for the M-Series

All gliding and rolling applications are affected by wear. To extend the lifetime of a cable carrier, Kabelschlepp developed exchangeable glide shoes.

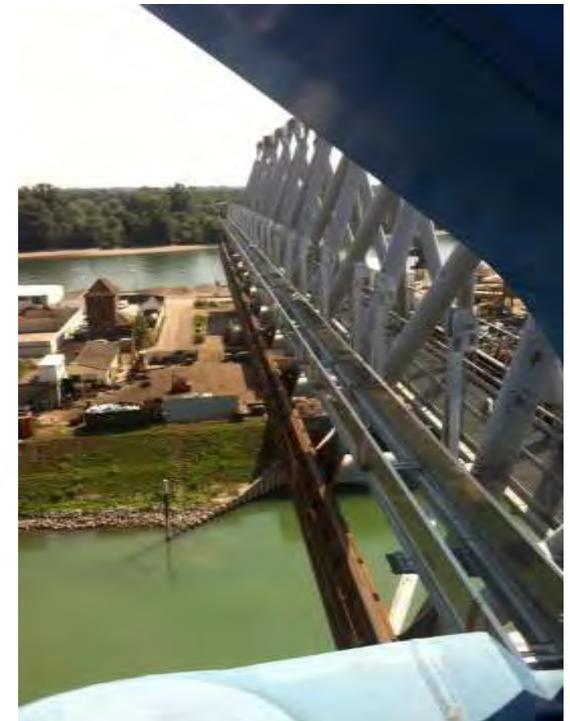


Biggest advantage:
Instead of changing the whole cable carrier by disassembling it on-site, only the attached glide shoes need to be replaced.
The glide shoes can be removed with a normal screwdriver. Replacing one glide shoe takes only a couple of seconds.

System Guide Channels

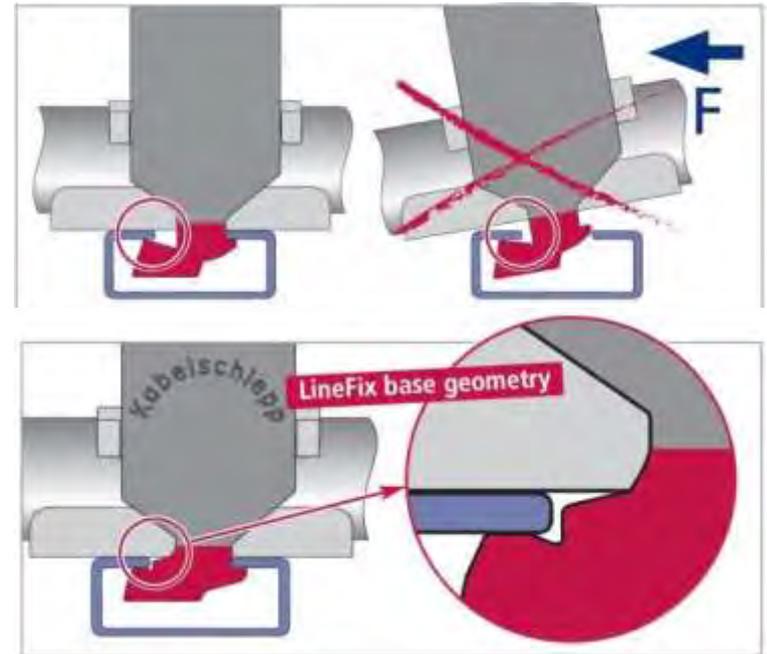
Advantages

- Standardized for all M Series cable carriers,
- Available in galvanized steel and stainless steel,
- Heavy Duty design with reinforced brackets and sideparts,
- Preassembled delivery,
- No welded parts → No heat affected zones,
- No weldseams → No cracks because of vibrations

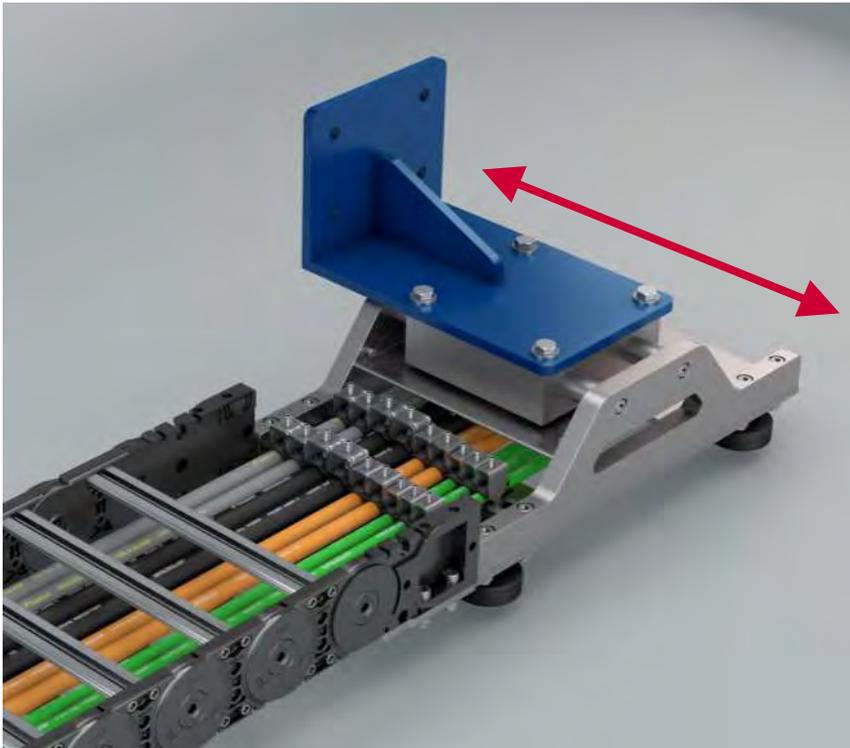


Line-Fix Saddle Clamps

- Clamps, screws made of steel or stainless steel
- Optimized base geometry
- Plain design with retaining ribs
- Label visible, even after installation
- Multi-layer arrangement possible
- Fixed with a defined torque



Safety Devices for Cranes Floating Moving Device



- Compensate horizontal misalignment
- For all TSUBAKI Kabelschlepp M-Series chains
- Misalignment compensation:
Vertikal: +/-60mm
- Also in stainless steel available
- Easy installation, less maintenance
- Roller supported
- Integrated strain relief system
- Safe cable guidance
- Combinable with TSUBAKI Kabelschlepp Force Monitoring System

Safety Devices for Cranes

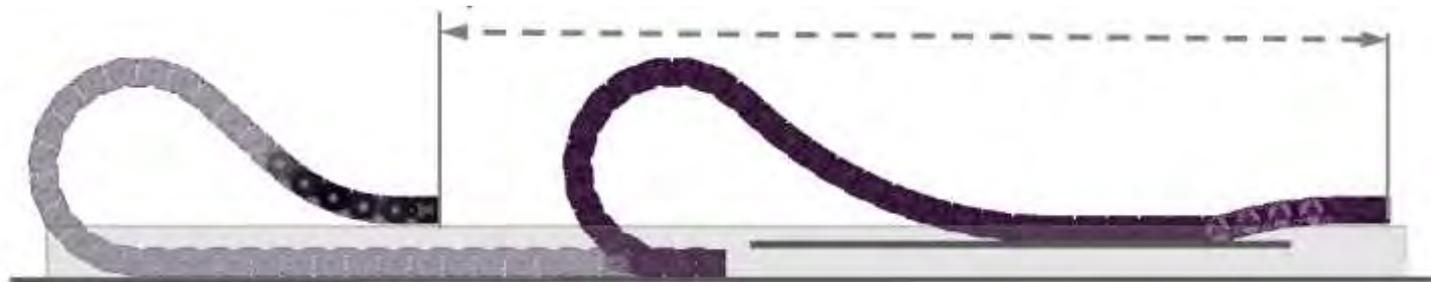
Push-/Pull-Force Monitoring System

- signal is usable for a fully-automatic emergency stop-system
- direct measurement of the push-/pull-forces at the moving point
- force limits freely programmable (lower limit, upper limit)
- error indication if the limits are exceeded
- outgoing signal PLC usable (full stop, slow down)
- internal data storage
- maintenance free (no battery change)
- no speed limit
- for long travel ways
- protection class IP67



Safety Devices for Cranes

„GO-Module“ (Gliding Optimized)



- gliding optimized
- Short Loopstation
- gliding after short distance
- Force will always in the right direction
- Less mechanical stress to the system

TRAXLINE Cables for Motion

High-flex TPE cables for projects and cranes

Developed for

- heavy load and long travel
- crane and conveyor equipment
- systems, mechanical and crane engineering
- clean room duties
- limited space solutions
- permafrost using
- outdoor applications

Technical Details

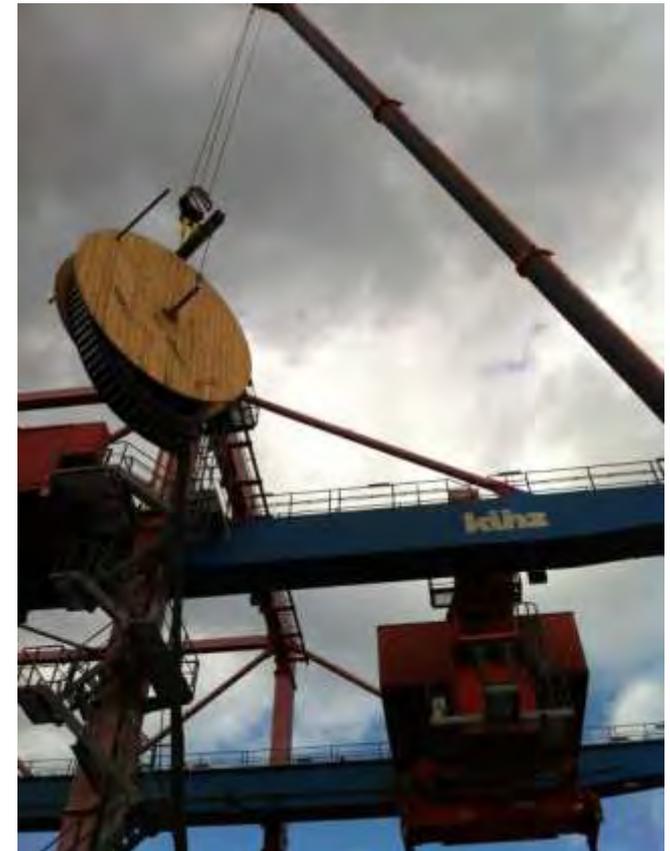
- shielded continuous bending
- top flexdesign TPE power cables
- TPE inner jacket
- special shielding with 85 % coverage
- top flexdesign copper wires
- KS-PP core insulation
- outer jacket color: black



The full TRAXLINE TPE program:
www.traxline1000.de

Total Trax Turnkey System for your crane Application

- Full harnessed Systems with System warranty.
- From the first sketch to the final check everything from one supplier.
- Full System documentation.
- Installation service on site.



Designed and Tested for long lifetime



Free span tests



Bending moment tests



Long span tests



Pull force tests

short and long term tests
for all energychains and
cables



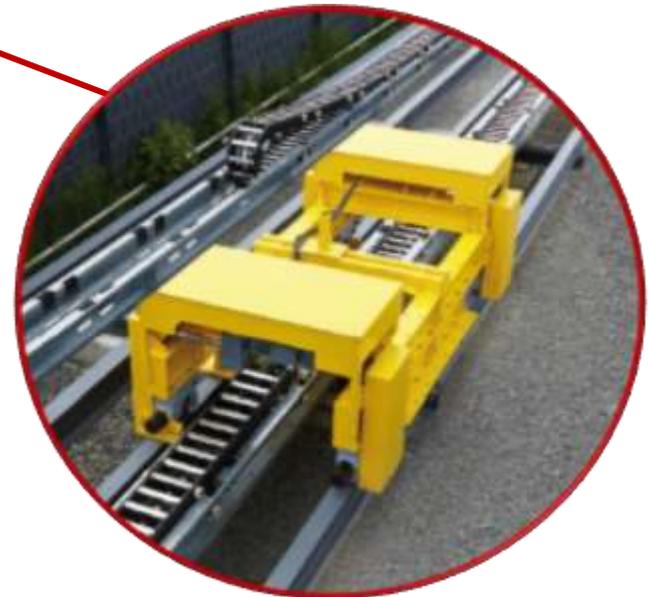
Long travel tests

Crane Test Facility

Proven under real conditions on outside test facility



- Test facility for 2 distinct systems
- Travel lengths of more than 100 m
- Test speeds up to 5 m/s
- Test under real weather conditions
- Automatic Test in 24/7





References

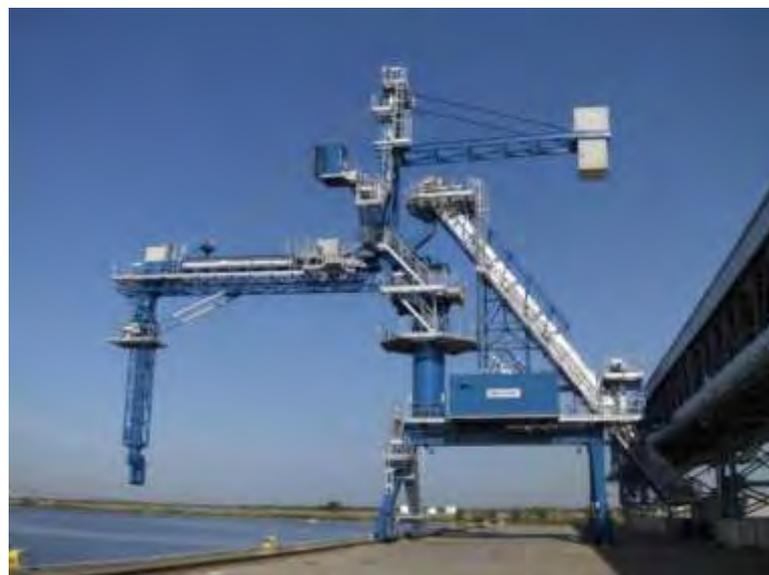


Shiploader/-unloader

With new Roller Supported Chain System

Spezifikation:

Amount:	1 Set
Country:	USA
Applicationtyp:	Grain Unloader
Travelway:	147m
Speed:	1,0 m/s
acceleration:	0,5 m/s ²
Additional load:	12 kg/m
Cable carrier:	MC1300.330.RMF-320-79170

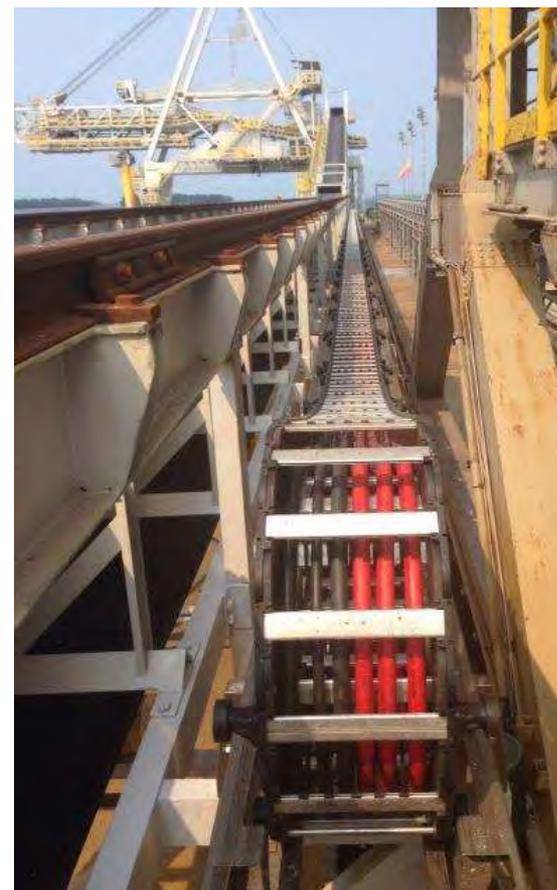


Shiploader/-unloader

With new Roller Supported Chain System

Spezifikation:

Amount:	1 Set
Country:	Indonesia
Applicationtyp:	Ship-Unloader
Travelway:	300m
Speed:	1,5 m/s
acceleration:	0,5 m/s ²
Additional load:	15 kg/m (incl. Medium Voltage Cables)
Cable carrier:	MC1300.330.RMF-320-155000



RTGs for



Specifications:

Company: Mitsui Engineering & Shipbuilding
Amount: 29 sets (since October 2013)
Type of crane: RTG
(Turkey, Japan, USA, Malaysia)

Travel length: approx. 20 m
Speed: 1,7 m/s
Acceleration: 0,3 m/s²
Additional load approx. 12 kg/m
Cable carrier: MC1300.320-RMF-320-12220



RTG for



Specifications:

Company:	ZPMC Group, Shanghai
Place of usage:	within China
Amount:	several sets
Type of crane:	RTG
	Port environment
Travel length:	up to 30 m
Speed:	1,2 m/s
Acceleration:	0,5 m/s ²
Additional load	up to 12 kg/m



RTGs for  *Trans Gulf Port Cranes L.L.C*
عبر الخليج لرافعات المرافئ ذ.م.م

Specifications:

Company: Trans Gulf Port Crane, Abu Dhabi
Amount: 13 Sets
Type of crane: Rubber Tyred Gantry (RTG)
Port environment

Travel length: 17,5 m
Speed: 1,2 m/s
Acceleration: 4 m/s²
Additional load 12 kg/m
Installation:
Cable carrier: MC0950.352-RS-260



Framecontract for RTGs with

Specifications:



Company: Cargotec
Place of usage: Finland
Amount: Framecontract
Type of crane: Rubber Tyred Gantry (RTG)
Port environment

Travel length: 19,1 m
Speed: 1,17 m/s
Acceleration: 0,5 m/s²

Test RTG in Winter operation



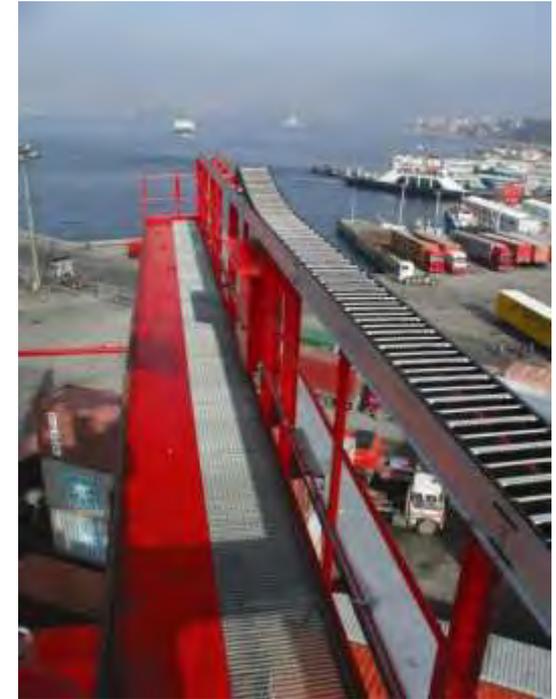
RTGs for **NIKMNÖELL**
SPECIAL CRANES

Container Terminal Istanbul , Turkey

Specifications:

Type of crane: 26 Rubber Tired Gantry Crane (RTG)
Port environment
Travel length: 18,40 m, center fixed point
Speed: 1,17 m/s
Acceleration: 0,3 m/s²
Additional load: 10 kg/m
Installation: 2000

KABELSCHLEPP MC 0950.429-RS/RM-260-10.545



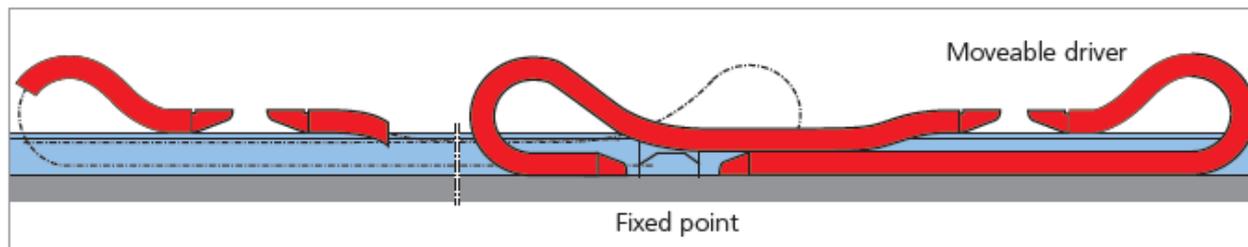
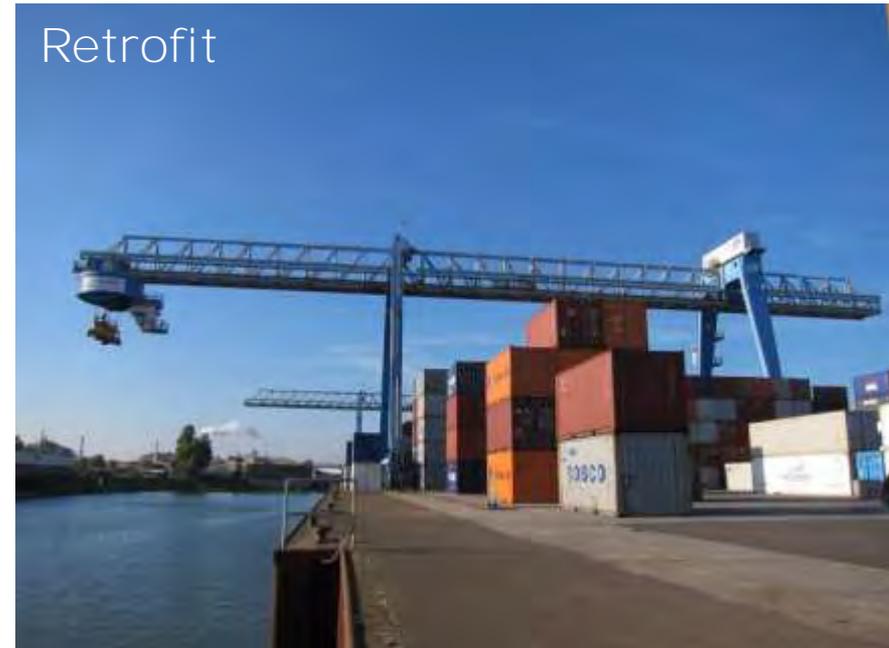
CONTARGO®

STS for ■■■ trimodal network

Specifications:

Company: CONTARGO, Ludwigshafen
 Amount: 1 Set
 Type of crane: STS
 Inland port

Travel length: 108 m
 Speed: 2 m/s
 Acceleration: 1 m/s²
 Additional load: 17 kg/m
 Installation:
 Cable carrier: MC1300.335-RMF-360-57200

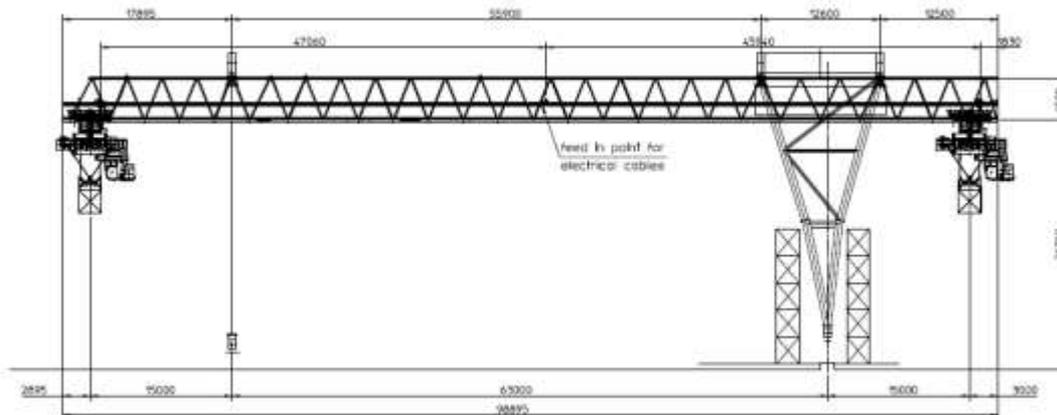


Opposing arrangement

RMGs for **Liebherr Container Cranes Ltd.**

Specifications:

Company:	Liebherr Container Cranes
Place of usage:	Vladivostok, Russia
Amount:	2 cranes
Type of crane:	RMG Crane
	Port environment, -40° C to +40° C
Travel length:	94 m
Speed:	2 m/s
Acceleration:	1,0 m/s ²
Additional load	12,2 kg/m
Cable carrier:	MC1250.300-RM-260-50500



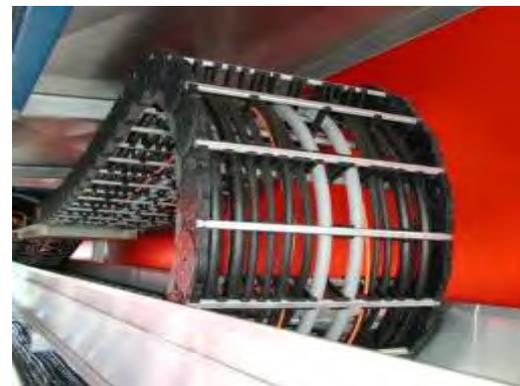
RMG for **künz**

Container Terminal Altenwerder (CTA), Germany

Specifications:

Amount: 52 Sets
Type of crane: Rail-Mounted Gantry Crane (RMG)
Port environment

Travel length: 32,30 m
Speed: 1,0 m/s
Acceleration: 0,3 m/s²
Opposite Arrangement
Additional load 12 kg/m
(divided among two carriers)
Installation: 2001-2005



stx Goliath Cranes

- STX Shipbuilding, Dalian (China)
- Feed for Upper und Lower Trolley
- Travel distance: approx. 250 m
Additional load: max. 50 kg/m
(distributed among two carriers)
- MC1300 with double-sidebands in opposing arrangement



- Cable carrier system for elevator.
- Close project management between Kabelschlepp India and Germany.




Reliance
Industries Limited

And many more.....



KABELSCHLEPP

TSUBAKI KABELSCHLEPP

Thank you
for your attention!