

# KABELSCHLEPP

Heavy duty cable carrier  
for long travel applications

**Systems for port cranes**



# Costs down – service life up

## Cable carrier systems for cranes

TSUBAKI KABELSCHLEPP develops customized solutions for cable carrier systems in cranes. Our decades of experience from hundreds of realized projects in various industries with diverse demands on our cable carrier systems, lead to new custom and application-specific solutions for our customers. Our specialists will support you from the planning and design stage through to the onsite installation and start-up of the tested complete system.



Rubber Tyre Gantry (RTG)



Rail Mounted Gantry (RMG)



Ship To Shore Container Cranes (STS)





Automated Stacking  
Cranes (ASC)



Reach stacker



Spreader



## Your global crane expert:



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# TSUBAKI KABELSCHLEPP

## Your partner for crane applications



### Engineering by **TSUBAKI KABELSCHLEPP**

TSUBAKI KABELSCHLEPP is a total solution provider. Our half-century of experience and thousands of installed applications worldwide make us a competent partner that you can rely on for your applications. Our specialists will support you from planning through installation and start-up of the complete system.

In order to achieve an optimal upgrade to the respective equipment, our experts will coordinate the components for your application on-site. As required, we use standard components or we can custom configure our systems to adapt them to the existing structures.

- site measuring for best engineering and assembly planning
- on-site-training custom tailored to the application
- application specific assembly and maintenance manuals
- CAD documentation of the installation in 2D and 3D formats for your records

## Benefits of cable & hose carriers for cranes

- cost-effective (compared to festoon systems) due to shorter cable lengths – no inefficient hanging loops are required
- extended cable service life – the cables are only bend in a defined bend radius and do not have to absorb any pulling forces
- very long travel lengths possible
- weatherproofed for offshore/onshore conditions
- low maintenance
- secure protection of cables and hoses even in high wind conditions, no mechanical loads on the crane
- secure data transfer with LWL cables
- no additional drives and control units necessary
- all power, control, data, pneumatic, water or hydraulic cables in one system





KABELSCHLEPP specializes in cable carriers for all types and sizes of cranes and has been a pioneer in dynamic cable and hose carrier systems ever since the invention of the original cable carrier that was patented by KABELSCHLEPP in 1954.

As modern crane systems demand increasingly higher cycle rates and travel speeds, they need cable management solutions that can hold up to the new requirements. To meet these demands, today's port cranes and lifting devices require lightweight plastic cable carriers that offer high speed, high acceleration and high durability.

Cable carrier systems made of plastic can help you to adapt your systems to meet these new demands. TSUBAKI KABELSCHLEPP has solutions for even extremely long travel applications that require high travel speeds and accelerations.

Since 1954, KABELSCHLEPP cable carriers have been proved in the field and provide high reliability, high quality, and cost-effective cable routing solutions that can also satisfy increasingly challenging needs of the future.



## TOTALTRAX Complete Systems From planning to the final complete system

Use our know-how. Working jointly with you, our experienced specialists can provide pre-sale support, including planning and design services through after sales service and support.

One order, one contact person, components optimally matched to each other, including the cable and hose carrier, the electrical cables, the hydraulic and pneumatic hoses and the connectors.

You receive the complete system in one delivery along with a guarantee certificate, if desired – in short: TOTALTRAX.

Reduce your storage costs for cable and hose carriers, cables and connectors with TOTALTRAX.

We supply all components Just-In-Time to your production facility or directly to the installation site.



## Expert installation by our Service Team

Let our Service Team handle the planning and execution of the installation of cable and hose carrier systems. We provide the support you need.

- complete assembly including the guide channel and the substructure
- uncoiling and assembling cable and hose carrier systems for long travel applications
- installation in harsh conditions at great height
- commissioning and acceptance



Outdoor testing facility

## Proven quality – tested under real conditions



TSUBAKI KABELSCHLEPP stands for high quality and safe solutions. To ensure the highest standards we have an outdoor testing facility with real conditions. Gliding and rolling systems with travel lengths of more than 100 meters as well as high speed applications are being tested by our experts under harsh conditions.

### Testing facility for all cable carrier types

- independent cable carrier systems beside each other
- gliding and rolling systems applicable
- travel lengths of more than 100 meters
- overtensioning protection system
- high speed (5 m/s) tests
- full automatic
- special testcycles (Vessel unloading simulation)
- 24/7 tests possible

### Outdoor conditions

- exposed to harsh winter
- direct solar radiation
- heavy rainfalls

Material variety

## Your application determines the material

### EX



For Ex-protection applications, we offer customized solutions made from solid plastic, hybrid or steel cable carriers, which meet the requirements of the standard (with  $< 10^5 \Omega$ ).

### ESD



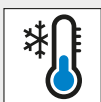
Our proven ESD cable carriers based on nano-technology with carbon tubes easily meet the requirements of the ESD standard (with  $< 10^9 \Omega$ ) in terms of conductivity and resistance.

### Flame Retardant



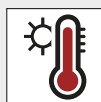
We offer special materials including V0 versions for operating areas having a risk of fire. All materials listed by UL94. Additional special solutions on request.

### Low Temperature



Suited for usage in low temperature areas such as cold stores, etc., up to around  $-40 \text{ }^\circ\text{C}$ .

### High Temperature



High temperature material 1: Suited for a (dimensionally stable) long-term temperature range for 2,500 hrs. up to  $190 \text{ }^\circ\text{C}$  and for 10,000 hrs. up to  $160 \text{ }^\circ\text{C}$ .  
High temperature material 2: Suited for transient surface contact temperatures of up to  $800 \text{ }^\circ\text{C}$ .



## Video: Testing facility “in action”

Take a look at our testing facility “in action”. Gliding and rolling systems with travel length of more than 100 meters are tested under real conditions.



Information also on your Smartphone!  
(QR READER app is a free of charge download)  
[kabelschlepp.de/testing-facility](https://kabelschlepp.de/testing-facility)





Roller Supported Chain (RSC):

## High performance – low maintenance costs for all your relevant travel lengths



### Rolling instead of gliding – the proven principle for less friction

Wherever it is impossible to install a gliding solution due to very long travel lengths or high friction, the Roller Supported Chain (RSC) is a safe and reliable solution. With the RSC, the upper trough does not glide on the bottom trough, as it runs on rollers. The rollers are mounted on ball bearings at the side of the carrier and allow very long travel lengths requiring substantially less driving power. The tension and thrust is 90 % less in comparison to gliding arrangements.

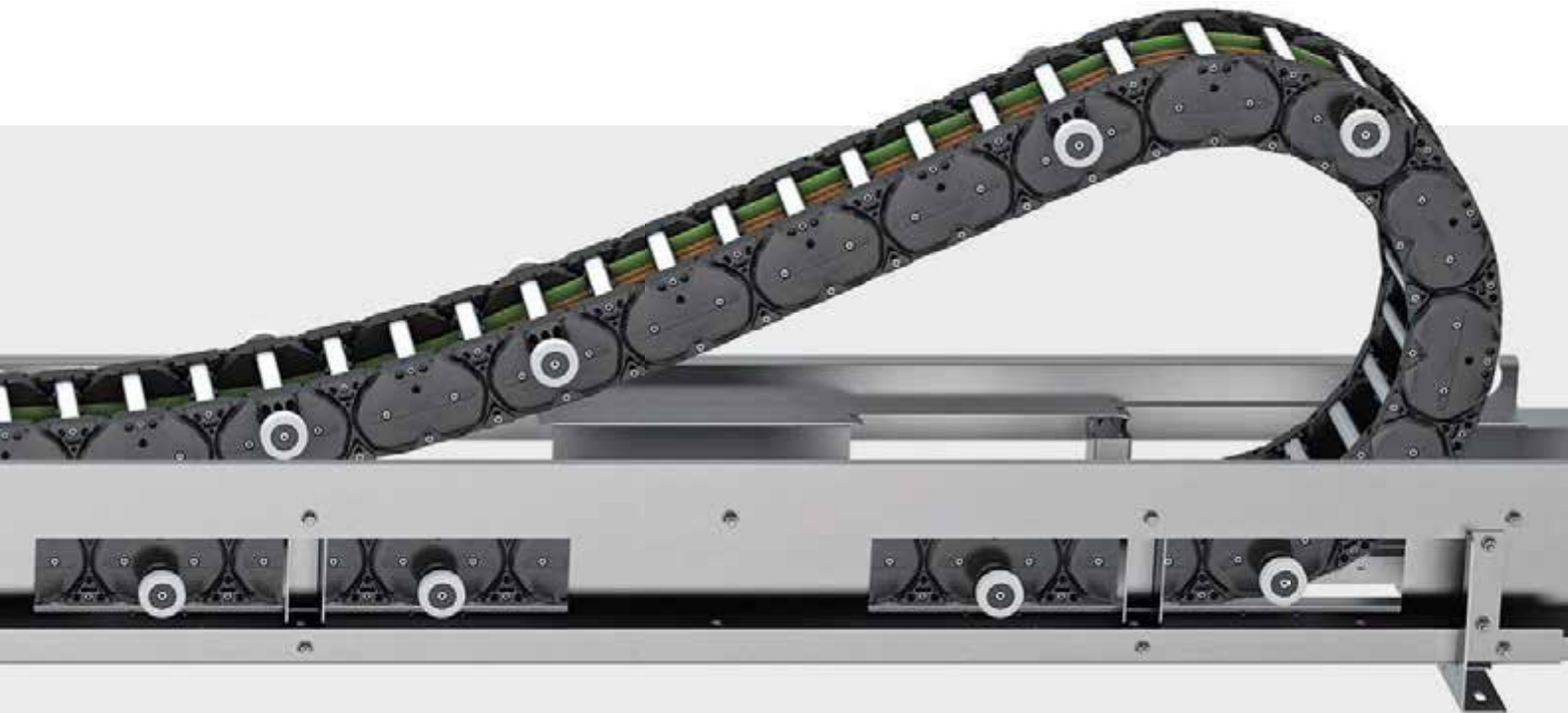
### Minimized costs and maintenance time

In case of maintenance only the wear part roller can be replaced individually. A time-consuming and cost-intensive replacement of the entire cable carrier is no longer necessary. The rollers are easily accessible through cutouts in the channel and modular side panels. This saves time during maintenance and service.

### Quiet and low-vibration operation

The rollers run on the guide rail and do not contact other rollers. Ball bearings and a polyurethane roller surface additionally contribute to quiet and smooth operation.





Easy maintenance – rollers can be replaced without replacing chain band



Integrated strain relief elements for safe cable fixing in the connection area

## Roller Supported Chain (RSC)

- suitable for all your relevant travel lengths
- 90 % less tension and thrust compared to a gliding arrangement, thus requiring substantially less driving power
- low-noise and low-vibration operation
- less space required and cost-optimized with a shorter loop overhang – minimum turnaround length
- no impacting of the rollers against one another
- long service life – low maintenance
- minimum stress on the cable and hose carrier and cables

- less push/pull forces
- high travel speed and acceleration
- substantial additional capacity possible
- use of proven standard cable carriers
- the cable carrier cannot rise
- variable profile lengths, adjusted to your connection points

# TK Force Monitoring System | Floating Moving Device

## Safety Devices for cranes and long travel applications



### TK 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
- components:
  - box (stainless steel)
  - force measuring unit
  - cables

### Floating Moving Device

- compensate horizontal misalignment
- for all TSUBAKI Kabelschlepp M-Series chains
- Misalignment compensation: Vertikal  $\pm 60$  mm
- 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



## M Series

### Proven cable carriers for long travel lengths, high speeds and high accelerations



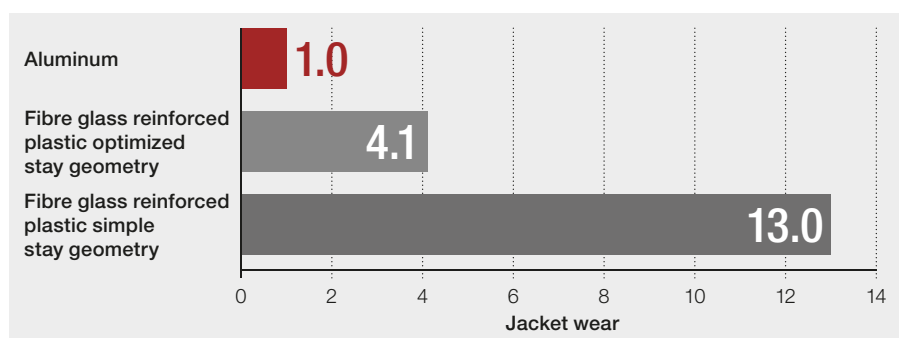
### Multivariable system – fits to any application

Multivariable cable carriers with extensive accessories and stay variants for extreme long travel lengths.

- seawater resistant aluminum stays; bolted 4 times for high stability and extreme loads
- aluminum stays with custom widths available in 1 mm width increments
- extremely long service life in long travel applications due to replaceable glide shoes
- can be opened easily and quickly on both sides for cable laying
- enclosed stroke system protects against dirt/contamination
- large selection of divider systems for separating the cables and hoses



### Save costs due to low jacket wear for cables

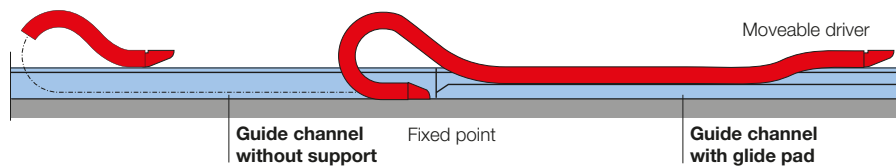


# Gliding arrangement: A cost-effective solution for your application

## Single-Sided Gliding Arrangement:

Here, the upper run of the cable and hose carrier glides on the lower run and/or on the support element of the guide channel. The single-sided arrangement is the most common and cost-effective solution.

TSUBAKI KABELSCHLEPP supplies cable carrier, guide channel, cables and hoses, and strain relief devices – the complete system solution. Cable carriers in this configuration operate trouble-free in installations all over the world.

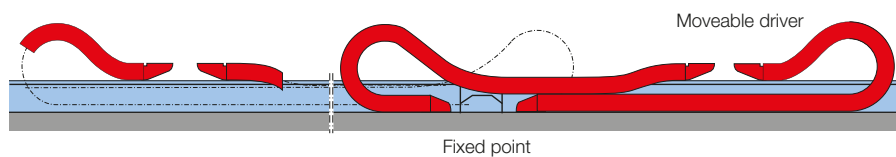


One-sided arrangement

## Opposed Two-Sided Gliding Arrangement:

With high additional loads, the cables in an Opposed Arrangement can be distributed between two opposing

cable carriers. This allows the installation width to be reduced and the separation of power, control and signal cables is also possible.



Opposing arrangement



## Replaceable OFFROAD glide shoes – the cost-effective solution

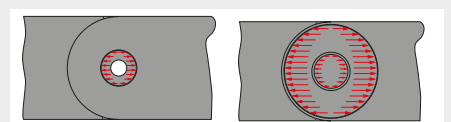
OFFROAD glide shoes increase the lifespan of cable carriers running in gliding arrangements where the gliding surface of the cable carrier is exposed to heavy loads. In case of wear, simply replace the glide shoes instead of the entire cable carrier. Our glide shoes reduce costs and standstill times. They are made from highly abrasion-resistant material, and have 80 % more wearing volume than our standard glide shoes.

- increased lifespan of cable carrier
- reduced costs and standstill times
- only the glide shoes instead of the complete carrier needs to be replaced
- 80 % more wearing volume
- made of a special, highly abrasion-resistant material with low friction coefficients



## Minimized hinge wear owing to the “life extending 2 disc principle”

In the M Series, the push and pull forces are transmitted via the optimum link design for this purpose. As a result link wear is reduced to a minimum and the life of the cable carrier is considerably lengthened.



Force transmission with a pin-hole joint

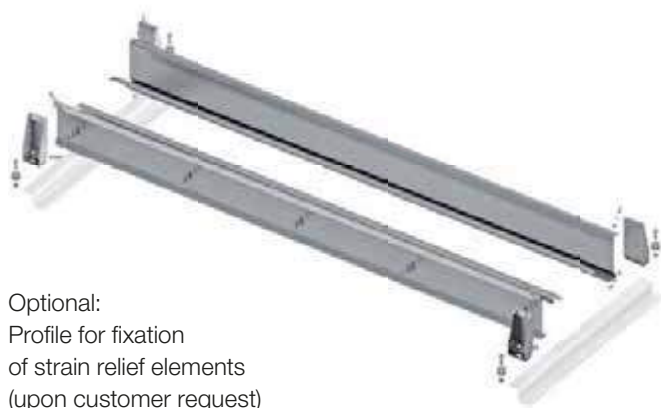
Force transmission with the “life extending 2 disc principle”



## TK System Channel: Easy to assemble and low maintenance times

The TK System Channel is especially designed for cranes and long travel applications.

- easy and time-saving assembly/disassembly
- single channel elements can be disassembled
- with integrated slide rails
- open construction, dust is not able to pile up
- no welded parts
- pre-assembled delivery
- available in galvanized and stainless steel



Optional:  
Profile for fixation  
of strain relief elements  
(upon customer request)

## TKAL – Alu Guide System: Modular guide channel system made of Aluminum

- Simple installation
- No joint bolting, simple alignment via double clamp connection with plastic clamping profiles
- Easy handling
- Low intrinsic weight
- Single-part channel side walls
- Channel side wall profiles with support
- With bevels on both sides



## Protection against external influences: Maintenance-friendly housing

The housing protects the cable carrier and the cables against external influences and can be used in combination with the channel system.

The housing can be opened without tools in any position for inspection and maintenance of the cable carrier.



## TKHD Series

# Heavy duty cable carriers for long travel lengths and high additional loads



**Sub-division**  
simple



**Inner height**  
87 mm



**Inner widths**  
up to 500 mm,  
larger widths on request



**Pitch**  
90 mm



**Bending radius**  
250 – 360 mm



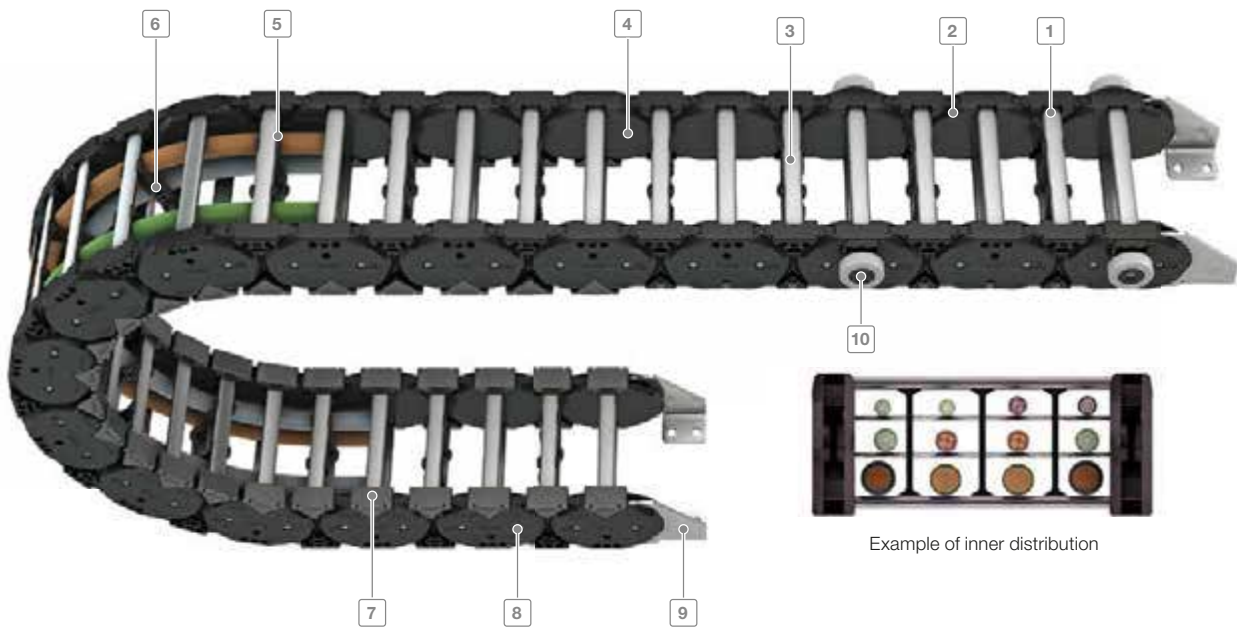
**Bi increments**  
1 mm



**Travel speed**  
up to 5 m/s



**Travel acceleration**  
up to 2 m/s<sup>2</sup>



Example of inner distribution

- 1 Aluminium stays in 1 mm width section
- 2 Plastic chain link plates
- 3 Quick and easy opening to the inside or outside for cable laying
- 4 Cable-friendly interior – no interfering edges
- 5 Fixable dividers
- 6 Dividers and subdivision for separating the cables
- 7 Replaceable glide shoes for increased service life in gliding application
- 8 Robust, double stop system
- 9 Steel installation brackets
- 10 Alternatively available as RSC-system (roller supported system)





## Features

- Massive, enclosed, stain-repellent stop system
- Massive sidebands through robust double fork-bracket-construction
- Sidebands easy to assemble
- Reinforced pin bore connection
- Integrated noise damping
- Integrated brake
- Quick and easy opening to the inside or outside for cable laying
- Soil-resistant outer contour
- Low maintenance effort
- Variable vertical inner distribution optional with fixable dividers
- Replaceable glide shoes for longer service life in gliding long travel arrangements
- Aluminium stays with 1 mm width section
- Suitable also for roller-mounted application (RSC)
- Linear force curve
- Polygon-optimized contour
- 90 mm chain pitch

## Selection criteria

- For dirty and rough application conditions
- When a particularly robust chain is required
- When a simple and quick installation is requested
- When an especially long service life is required
- When a simple vertical inner distribution is needed, also with fixable dividers
- When the highest demands are placed on the cable carrier
- When a chain needs to be fitted exactly into an installation space in a 1 mm width section
- When replaceable gliding shoes are desired for long travel applications
- When a simple opening is required
- When a rolling system is required
- When long travels have to be realized



# TRAXLINE® Cables – developed for cranes

The TSUBAKI KABELSCHLEPP family of continuous-flex cables has been specially developed for optimal use in dynamic cable and hose carriers.

TSUBAKI KABELSCHLEPP cables are distinguished by high reliability and performance at low costs, as well as by a long service life even in outdoor long term use. Crane applications with long travel paths and high travel speeds place high demands on electrical cables.

The Series 700 is optimized for outdoor use, e.g. on container cranes, due to the use of high quality, UV & ozone resistant materials and the special design.

**Permanently flexible  
from – 35 °C to + 90 °C**

The highly flexible and cold-resisting single-core cables were designed specifically for permanently low temperatures down to – 35 °C. They are manufactured

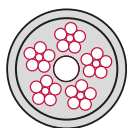
with sophisticated extrusion technology and have excellent unwinding smoothness.

Any occurring system vibrations caused by changes in acceleration of the cable carrier are significantly reduced, which prolongs the service life.

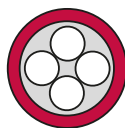
**More information at:  
traxline.de**



## High-Flex Cables – 700 Series



**Core insulation  
KS-PP**  
bundled stranding  
(> 8 cores)



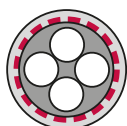
**Outer jacket  
KS-PUR**  
pressure extruded, hi-flex  
design, extremely  
abrasion-resistant



**Inner jacket  
KS-TPE**  
valley-sealed, pressure  
extruded, hi-flex design



**Jacket colour  
black**  
ozone-resistant  
UV-resistant



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii

### Developed for

- long travel length crane applications
- – 35 to + 90 °C
- outdoor/indoor
- offshore/onshore
- very high electrical voltages
- small bend radii
- high speed (up to 50 m/s)
- high acceleration (up to 50 m/s<sup>2</sup>)

### Properties

- high flex design
- side pressure strength
- seawater-resistant
- ozone-resistant
- UV-stable
- crude oil resistant
- flame-retardant
- cut resistant
- halogen-free
- silicone-free
- CFC-free
- RoHS II conform
- metermarked
- MUD resistant





### TRAXLINE® CONTROL 700 0.6 kV

Unshielded continuous bending hi-flex  
PUR control cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	0.5 <sup>2</sup> to 1 <sup>2</sup>
Core number:	2 – 49
Cable diameter:	5.8 – 21.3 mm



### TRAXLINE® CONTROL 700 C 0.6 kV

Shielded continuous bending hi-flex  
PUR control cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	0.5 <sup>2</sup> to 1 <sup>2</sup>
Core number:	3 – 49
Cable diameter:	7.1 – 30.0 mm



### TRAXLINE® POWER 700 1 kV

Unshielded continuous bending hi-flex  
PUR power cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	1.5 <sup>2</sup> to 95 <sup>2</sup>
Core number:	2 – 36
Cable diameter:	7.8 – 45.1 mm



### TRAXLINE® POWER ONE 700 1 kV

Unshielded continuous bending hi-flex  
PUR single-core cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	0.25 <sup>2</sup> to 700 <sup>2</sup>
Core number:	1
Cable diameter:	4.1 – 49.9 mm



### TRAXLINE® POWER ONE 700 PE

Unshielded continuous bending hi-flex  
PUR single-core cables with PE core identification

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	1.5 <sup>2</sup> to 240 <sup>2</sup>
Core number:	1
Cable diameter:	5.4 – 30.2 mm



### TRAXLINE® POWER 700 C 1 kV

Shielded continuous bending hi-flex  
PUR power cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	1.5 <sup>2</sup> to 150 <sup>2</sup>
Core number:	2 – 49
Cable diameter:	9.1 – 62.5 mm



### TRAXLINE® POWER ONE 700 C 1 kV

Shielded continuous bending hi-flex  
PUR single-core cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 35 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	20 m/s   50 m/s <sup>2</sup>
Wire cross section:	1.5 <sup>2</sup> to 300 <sup>2</sup>
Core number:	1
Cable diameter:	6.4 – 35.4 mm



### TRAXLINE® POWER ONE HEAVY DUTY 10–12 kV

Shielded continuous bending hi-flex  
PUR high performance cables

Temperature range fix:	- 50 to + 90 °C
Temperature range in motion:	- 30 to + 80 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	50 m/s   50 m/s <sup>2</sup>
Wire cross section:	10 <sup>2</sup> to 400 <sup>2</sup>
Core number:	1
Cable diameter:	21.5 – 65.5 mm



### TRAXLINE® FOC 700

Continuous bending hi-flex  
multi-mode glass fiber optic cables

Temperature range fix:	- 40 to + 90 °C
Temperature range in motion:	- 30 to + 90 °C
Minimum bend radius moved:	$KR_{min} \geq 7.5 \times \varnothing$
$v_{max}   a_{max}$ :	3.5 m/s   10 m/s <sup>2</sup>
Wire cross section:	50µ/62.5µ
Core number:	6 – 12
Cable diameter:	13.4 mm

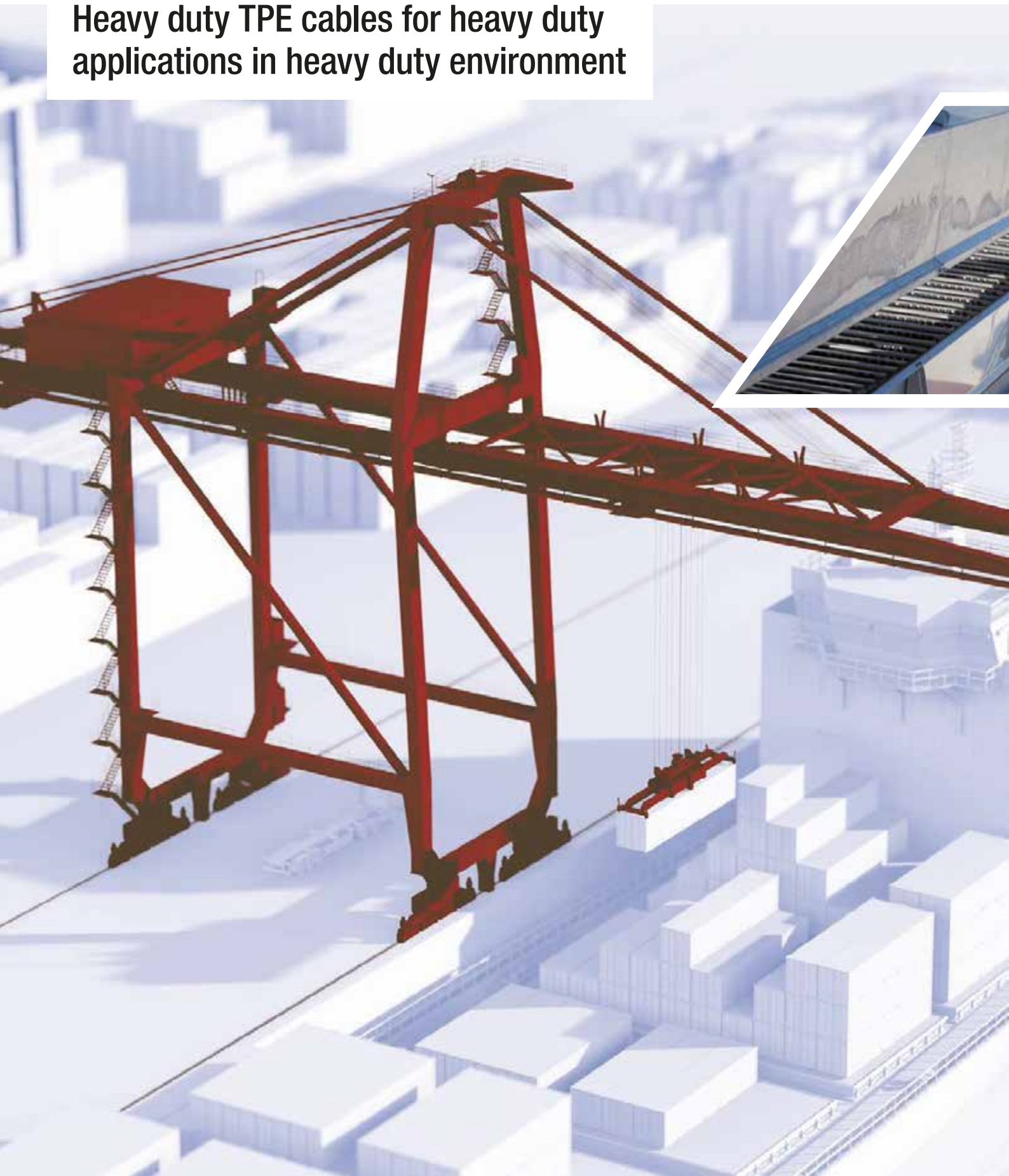
### TRAXLINE® pre-assembled

You need connection-ready harnessed  
cables and cable carrier systems?  
Simply order in one step.



# TRAXLINE® – 1000 Series

Heavy duty TPE cables for heavy duty applications in heavy duty environment





# TRAXLINE® – 1000 Series

## Cables for projects and cranes



**BUS cables**

**DATA cables**

**POWER cables**

**CONTROL cables**

**High voltage cables 30 kV**

Top FLEXdesign TPE cables

**Bundled stranding, usable between – 40 to + 90 °C**

**Wear resistant TPE outer jacket and inner jacket**

### 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

### Premium properties

- top FLEXdesign
- oil-resistant
- UV-resistant
- RoHS II-conform
- halogen-free
- microbe resistant
- metermarked
- CFC-free
- silicone-free
- spark tested
- ozone-resistant
- hydrolysis durable



### Technical details

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

The full TRAXLINE® TPE program at: [www.traxline1000.de](http://www.traxline1000.de)

# KABELSCHLEPP

The TSUBAKI KABELSCHLEPP  
Global network – worldwide near you



Information also on your Smartphone!

(QR READER app is a free of charge download)

[kabelschlepp.de/global-crane-network](http://kabelschlepp.de/global-crane-network)

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