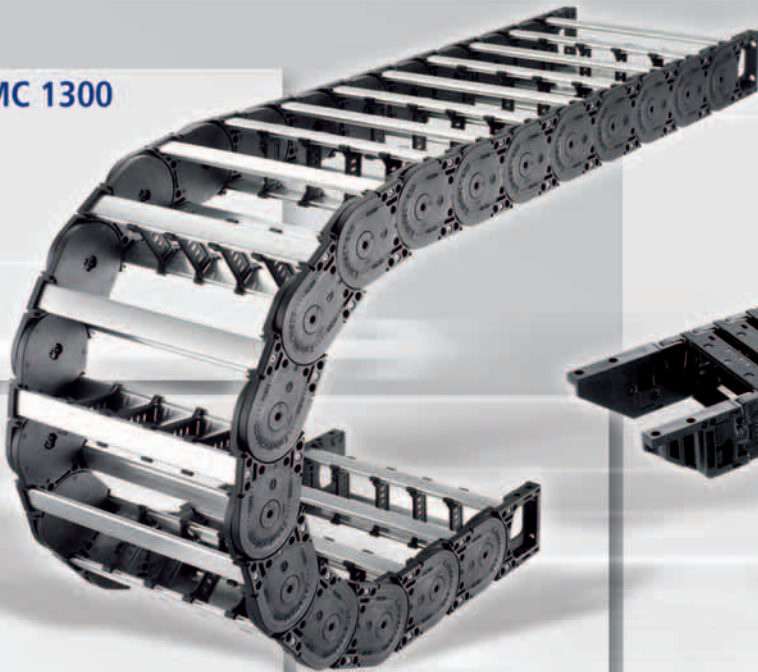


KABELSCHLEPP

the power to innovate

MC 1300



TKR 0200



Guideway Protection
Systems



LIFE-LINE
Safety Cables

Innovations 2007

Turning ideas into innovations.

The future requires innovations.

We generate customer-oriented solutions and products.

We do everything we can for our customers. We research, develop and produce both standard and tailored solutions.

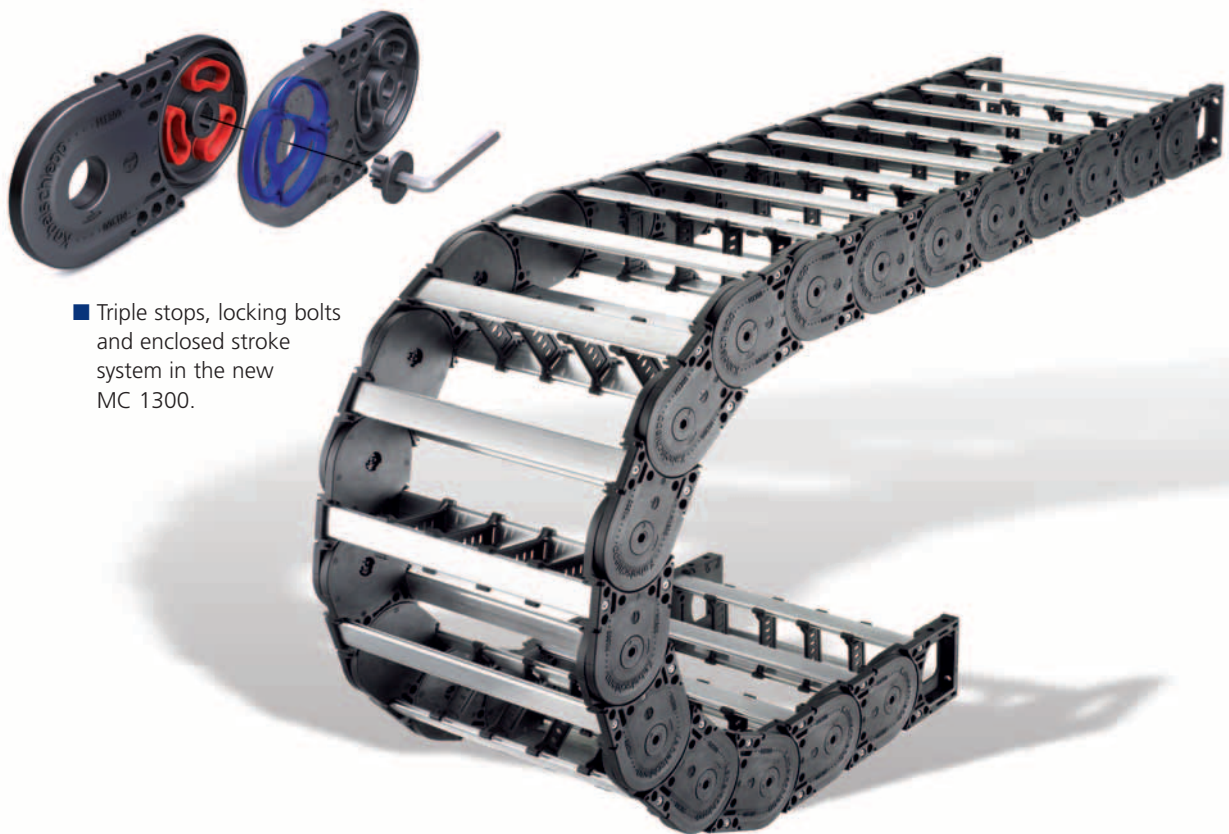
We know what the market needs by maintaining an ongoing constructive dialog with our business partners. A new variable-width cable carrier made of plastic with aluminum stays in a new size..., or perhaps you need a light, low-noise, powerful cable carrier, or one suitable for clean rooms? And that is not all. We offer suitable, ideal, long-life, continuous bending hi-flex electrical cables.

We have the right answer, even for special applications such as long travel lengths greater than 500 m.

Our portfolio for guideway protection has been expanded with a new wiper, an economical telescopic cover with a new gully, and an improved link apron cover.

Of particular interest is our wide variety of solutions for machine housings/ PROTECT-PANELS with sliding roofs.

KABELSCHLEPP offers you highly-detailed, user-specific solutions for any need, and is firmly committed to pursuing innovation over the long term.



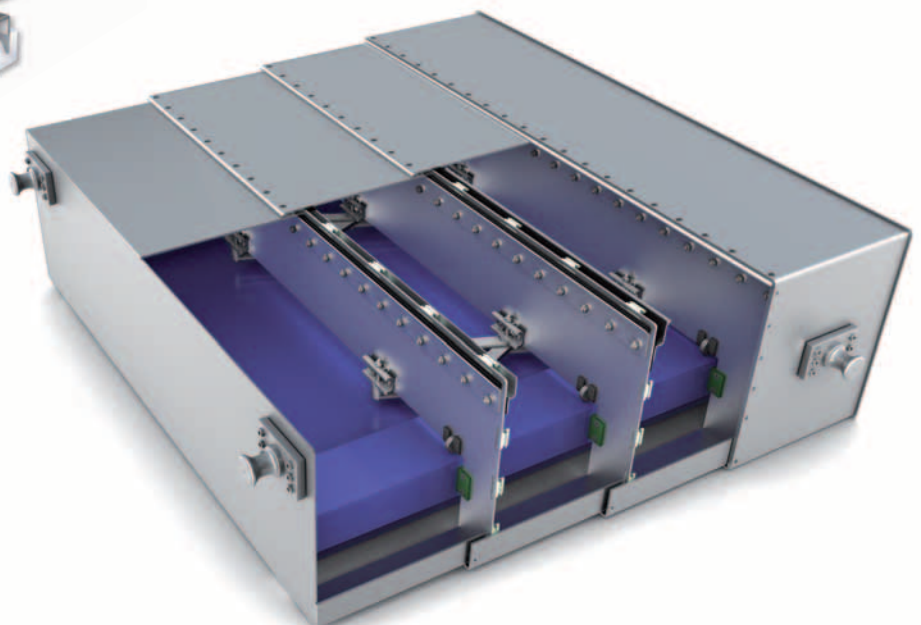
■ Triple stops, locking bolts and enclosed stroke system in the new MC 1300.

Contents Innovations 2007

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■ Easy to attach, easy to exchange, sealed to perfection – new wipers on telescopic covers.



The new UNIFLEX 1455 with 26 mm inside height.

Lighter, quieter, more powerful.

New **generation** – new **designation**

0455  **1455**
UNIFLEX UNIFLEX
New Generation

BASIC-LINE

The new generation of our cost-effective, light and quiet UNIFLEX Series now comes in a smaller design. The optimised geometry makes the carrier stable and robust.

The links are weight-optimised, the integrated damping system makes the cable carrier even quieter. For cable laying, the crossbars with ball joint can be opened easily and quickly.

This makes the new generation of our **solid plastic cable carriers** with fixed chain widths an cost-effective **multitasker with a wide range of uses**.



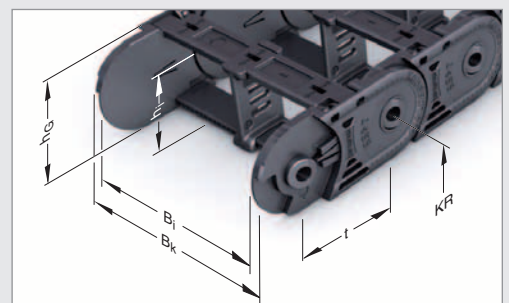
■ Design 020: Single-part links – simple, cost-effective, sturdy.

Dimensions

Type*	h _i	h _G	Inside widths B _i					Outside widths B _k
UNIFLEX 1455	26	36	25	38	58	78	103	B _i + 16

Dimensions in mm

* Further types in planning. Please do get in touch with us.





UNIFLEX 1455

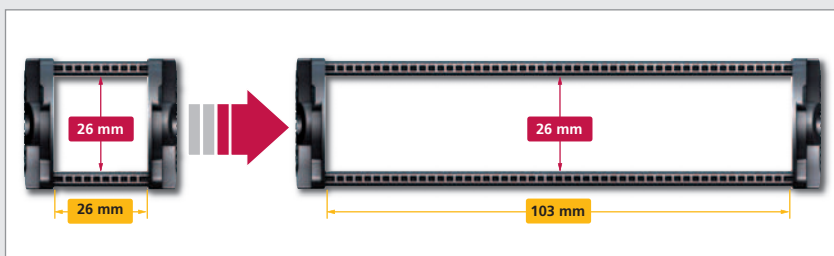
- cost-effective cable carrier
- single-part or openable designs
- lighter thanks to optimised geometry
- very quiet thanks to noise damping system
- greater unsupported length
- larger additional loads
- torsionally rigid
- for unsupported gliding applications and applications on their side
- end connectors with integrated strain relief

BASIC-LINE

Are you curious?

For more details, turn the page.

Inside widths / Inside height



Bend radii KR

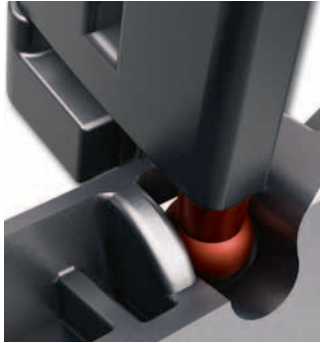
Bend radii KR in mm			
52	65	95	125
150	180	200	225

Pitch t = 45.5 mm

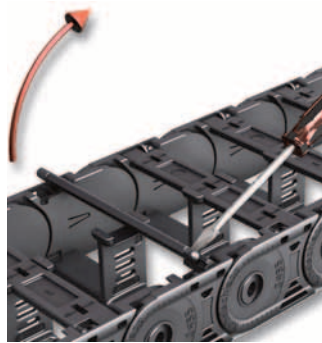
Quick-as-a-flash and easy opening.

Crossbar of the new UNIFLEX 1455.

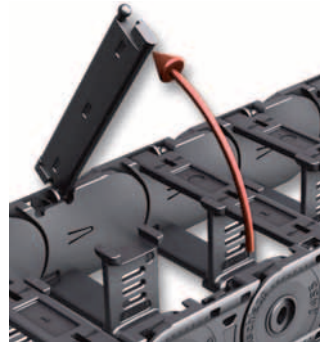
The crossbars in designs 030 and 040 are based on a ball-and-socket mechanism that allows quick and simple opening (right/left).



■ Crossbar with ball joint.



■ Simply turn crossbar and open up.



■ Particularly practical: The crossbar remains attached to the link even when open.



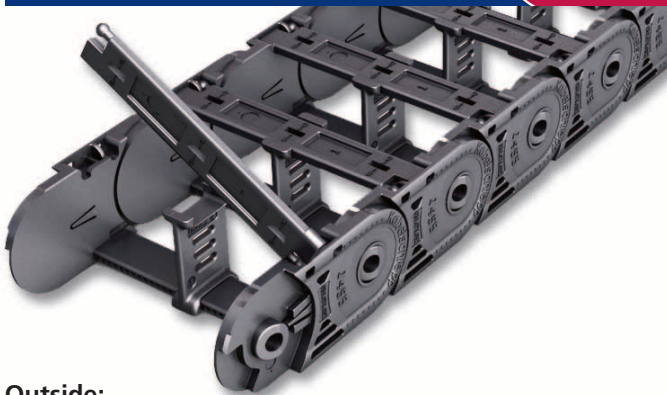
■ If necessary, the crossbar can be simply detached from the link.

BASIC-LINE

The optimum solution for every application.

Different opening possibilities.

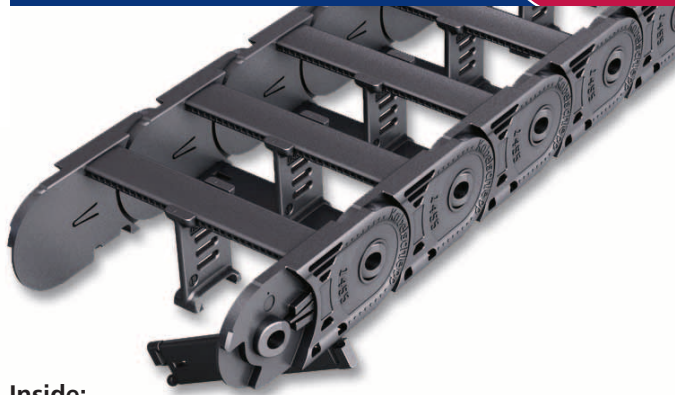
Design 030 opens outwards



Outside:

Crossbar is openable (on the right/left) and detachable.

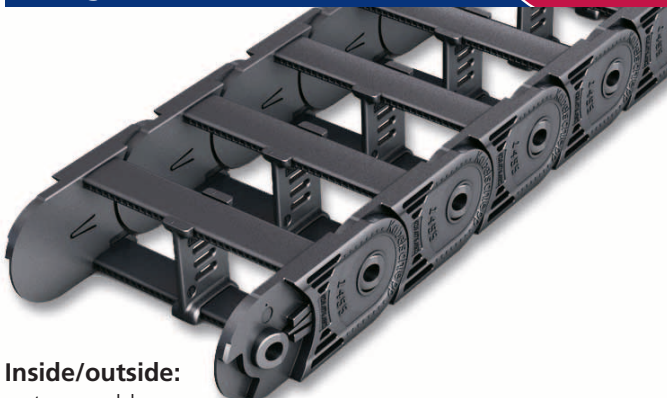
Design 040 opens inwards



Inside:

Crossbar is openable (on the right/left) and detachable.

Design 020 single-part links



Inside/outside:
not openable

Design 020

- single-part solid plastic links
- cost-effective solution
- not openable, thus even greater stability
- especially designed for extreme challenges, e.g. laying hydraulic hoses with small bend radii

Ideal for arrangements on their side.

Lateral wear surfaces for a long service life.

For applications on their side or gliding in a guide channel, the lateral wear surfaces provide an **even longer service life**.

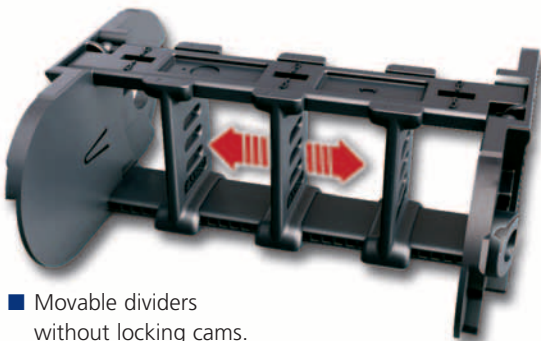


Various separation options for the cables.

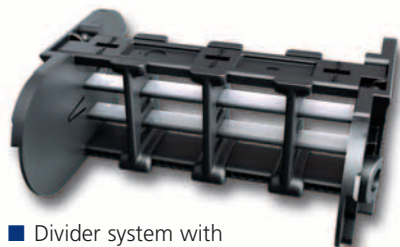
Dividers and height subdivisions.

Movable dividers

The standard dividers (divider version A) are movable.



■ Movable dividers without locking cams.



■ Divider system with continuous height subdivision.

Fixable dividers

for arrangements on their side and applications with **high transverse accelerations**. The dividers (divider version B) can be fixed at 2.5 mm steps **without any additional spacers**. This is achieved by the arresting cams becoming secured in the locking profile of the crossbar.



■ Locking profile and arresting cams.



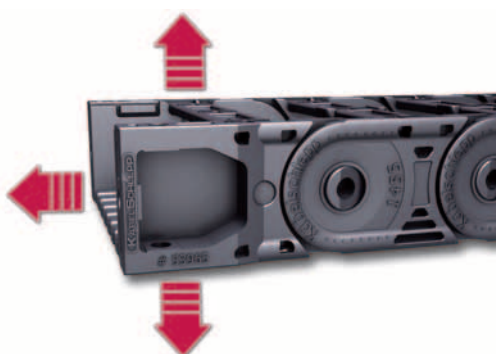
BASIC-LINE

Easy connection with optional strain relief comb.

UMB (Universal Mounting Bracket).

With plastic UMBs (Universal Mounting Brackets), you can connect the new UNIFLEX types very easily from above, below or at the front.

The **optional strain relief comb** allows the cables to be fixed securely and simply. It fits between the UMB connecting pieces, and does not need to be screwed on separately or mounted on a C-rail.



■ UMB (Universal Mounting Bracket).



■ UMB with strain relief comb.



■ Fixing in the UMB.

MC Series with 87 mm inner height – the new MC 1300.

Large, robust, multifacted.

The proven M Series has been expanded with a larger type. The MC 1300 is a very **robust** cable carrier that can be used for **short unsupported applications** and extremely **long travel lengths**.

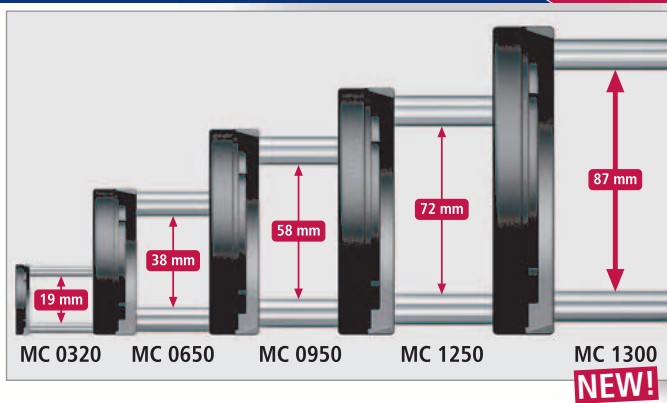
The optimised geometry of the side bars gives the cable carriers **superior stability and long service life**. Aluminium stays lower the abrasion of the cable jacket.

Applications: Cranes, plants, general mechanical engineering.

VARIO-LINE



MC Series – types

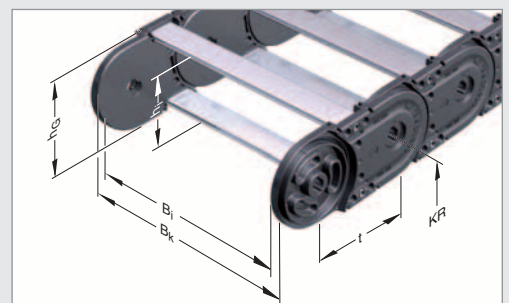


Dimensions

Type	h _i	h _g	Inside widths B _i *		Outside widths B _k
			min	max	
MC 1300	87	120	100	800	B _i + 50

Dimensions in mm

* available in 1 mm width sections





MC 1300

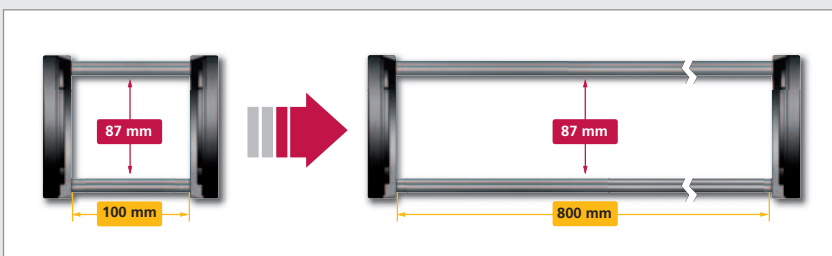
- robust construction, suitable even for the toughest ambient conditions
- available in 1 mm width sections
- large unsupported length
- gentle on the cables, stable aluminium stays
- long service life from minimum hinge wear
- can be quickly opened on the inside and outside
- also highly suitable for applications where the carrier is installed on its side and for high transverse accelerations (fixable dividers)
- locking bolts make it easy to install
- variety of separation options for the cables
- C-rail integratable in the end connector
- replaceable glide shoes for gliding arrangements in extreme environments

VARIO-LINE

Are you curious?

For more details, turn the page.

Inside widths / Inside height



Bend radii KR

Bend radii KR in mm			
150	195	240	280
320	360	400	500

Pitch t = 130 mm

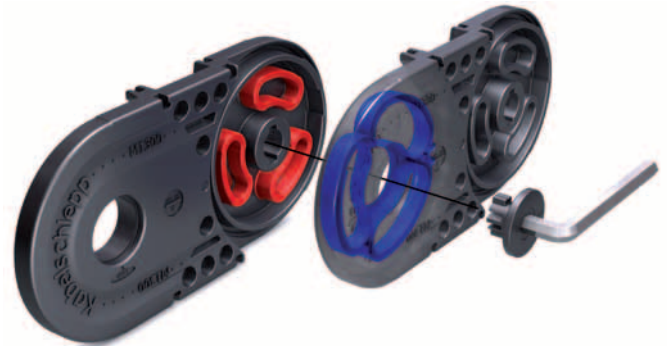
Robust, durable, easy to fit.

Solid plate construction, enclosed stroke system.



Triple stops. Robust, stable and for long unsupported lengths. Ideal for tough ambient conditions (dirt) and outdoor applications (such as crane systems).

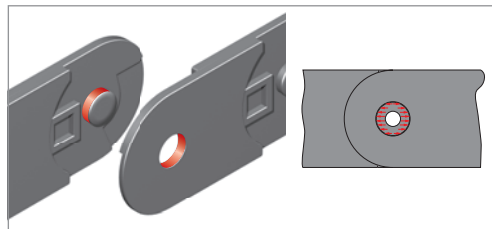
Easy installation with locking bolts.



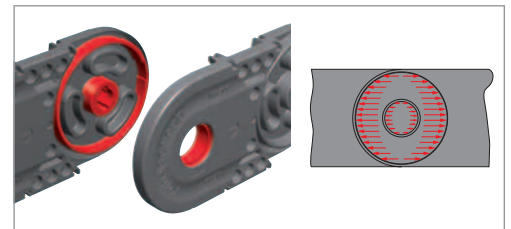
The side bars are connected with locking bolts. This makes it easy to install and disassemble the carrier.

Minimized hinge wear owing to the "life extending 2 disc principle".

With the MC 1300, 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 service life of the cable carrier is considerably lengthened.



■ Force transmission with a pin-hole joint.



■ Force transmission for the MC 1300 with the "life extending 2 disc principle".

Screwed aluminium stays for opening inside and outside.

The MC 1300 stay systems have additional advantages:

- **maximum flexural strength** with minimised weight
- **minimised cable abrasion** from low friction between aluminium and conventional jacket materials



■ **Stay variant RMF** – stays affixed to each side with 1 screw. Inside/outside: stays can be quickly released for laying cables.

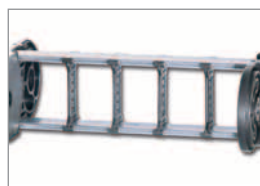


■ For extreme applications with chain widths up to 800 mm, the proven **solid frame stay RM** is available that can be screwed with 4 screws.

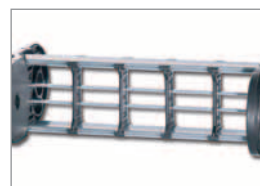
Various separation options for the cables.

With the divider systems for the MC 1300, you can organise the inside of the cable and hose carrier:

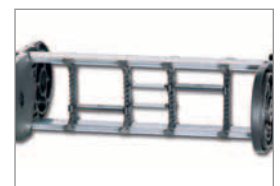
- Standard dividers for vertical and continuous horizontal height subdivision.
- Partition systems made of plastic or aluminium for more challenging separations.



■ **Divider system TS 0**



■ **Divider system TS 1** with additional continuous height subdivision.



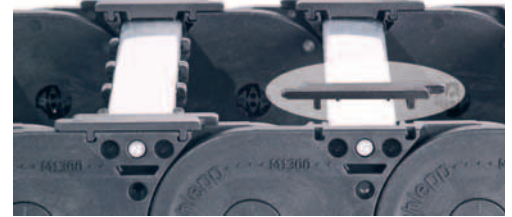
■ **Divider system TS 3** with plastic or aluminium partitions.

Ideal for long travel lengths.

Replaceable glide shoes for gliding arrangements.

In the case of cable carriers in gliding arrangement, the gliding surfaces are exposed to particularly heavy loads. At high travel speeds, when contamination exists or when there is a high number of travel cycles, highly abrasion-resistant glide shoes can be used.

This can practically double the service life of the carriers since only the glide shoes have to be exchanged when there is wear in the gliding area. Otherwise the entire cable carrier has to be exchanged.



■ Fast assembly of the glide shoes.

Roller holder for use in the Rail Cable Carrier – RCC.

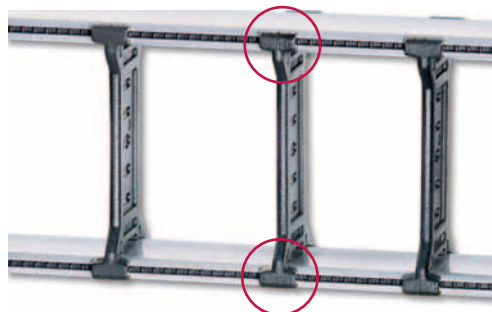
As with all other types in the M Series, the new MC 1300 is ideal for use in our new Rail Cable Carrier (RCC) roller system for extremely long travel lengths over 500 m (see page 16).



VARIO-LINE

A reliable solution for the applications on their side.

Also highly suitable for applications where the carrier is installed on its side and for extreme transverse accelerations (fixable dividers with RMF stay variants).



■ Fixing on both sides (in 4 mm steps) ensures that the dividers have a secure hold.



■ The fixing profiles are simply pushed into the stays.

Easy connection with integratable C-rails for strain relief elements.

UMB (Universal Mounting Brackets) made of plastic.

With the UMB (Universal Mounting Brackets), you can connect the MC 1300 very easily from “above, below and at the front”. The open construction ensures optimum accessibility and easy and quick installation.



■ UMB (Universal Mounting Brackets) – Inside open for easy and fast installation.

Strain relief devices.

The C-rails are fixed together with the end connectors and do not have to be screwed separately.

Different C-rails are available with slot widths of 11 and 17 mm.



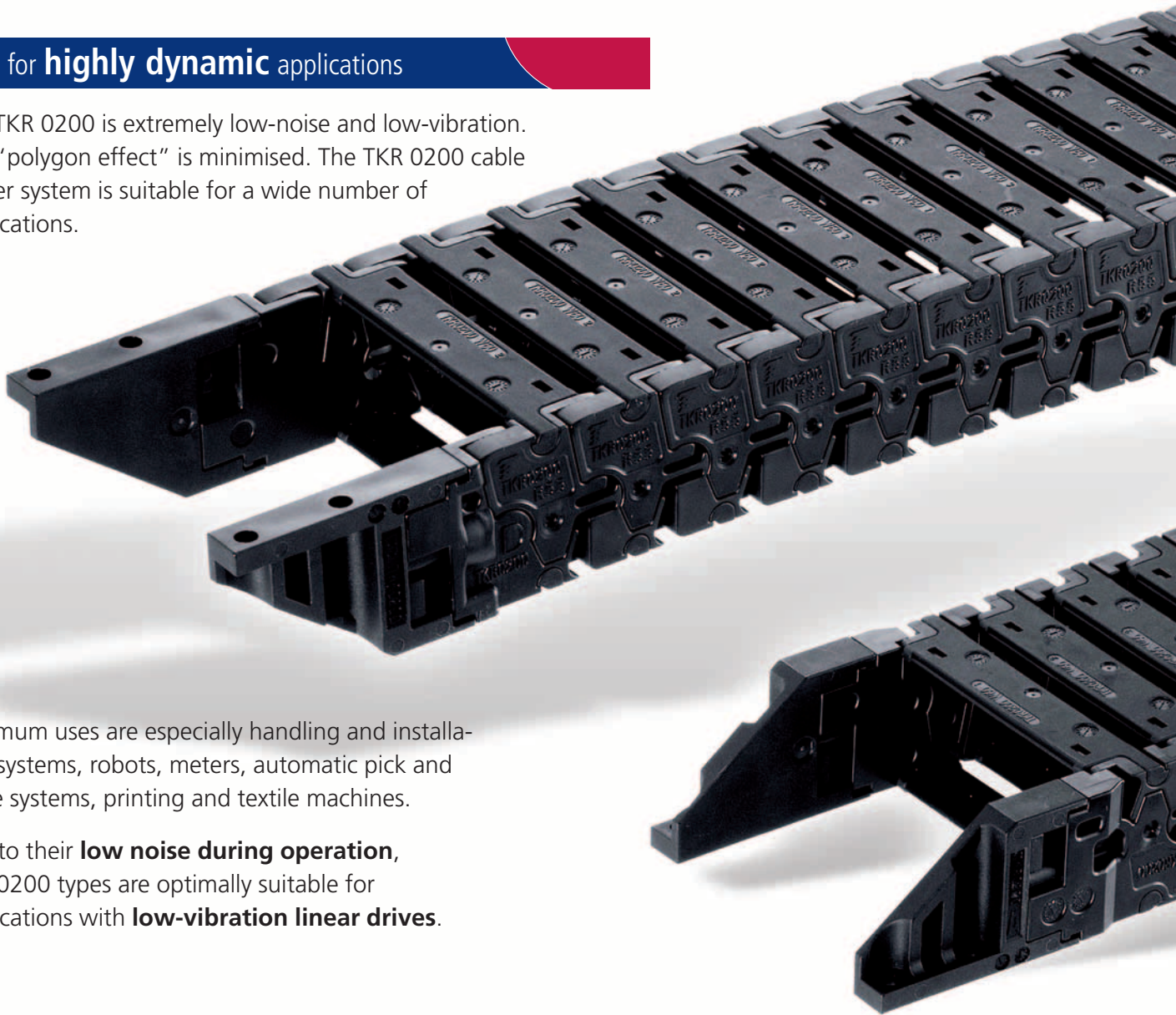
New in the KABELSCHLEPP product palette – TKR 0200.

Low-noise, low-vibration, suitable for clean rooms.

Ideal for **highly dynamic** applications

The TKR 0200 is extremely low-noise and low-vibration. The “polygon effect” is minimised. The TKR 0200 cable carrier system is suitable for a wide number of applications.

VARIO-LINE



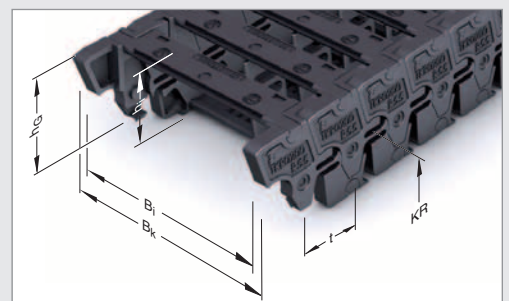
Optimum uses are especially handling and installation systems, robots, meters, automatic pick and place systems, printing and textile machines.

Due to their **low noise during operation**, TKR 0200 types are optimally suitable for applications with **low-vibration linear drives**.

Dimensions

Type	h _i	h _G	Inside widths B _i				Outside widths B _k
TKR 0200	28	36	40	60	80	100	B _i + 16

Dimensions in mm





TKR 0200

- extremely low-noise and low-vibration operation
- very long service life
- ideal for highly dynamic applications
- high side stability
- suitable for clean rooms
- can be quickly and easily opened on the inside and outside
- the modular design makes it easy to shorten and lengthen
- fixed dividers

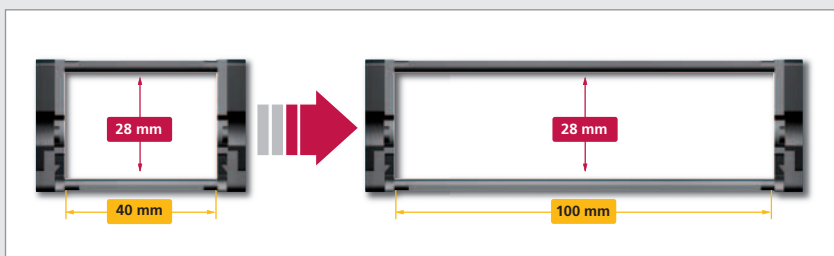
VARIO-LINE

TKR 0200 available immediately from stock!

Are you curious?

For more details, turn the page.

Inside widths / Inside height

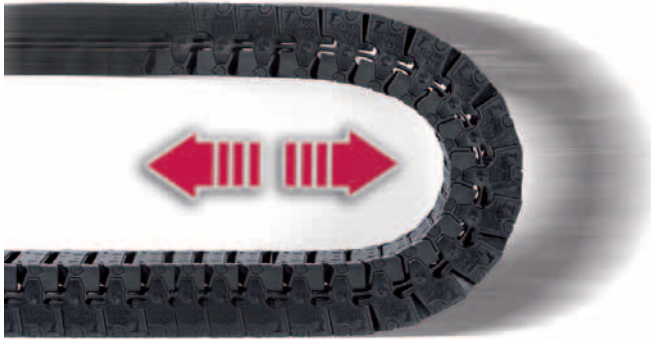


Bend radii KR

Bend radii KR in mm			
55	75	95	150

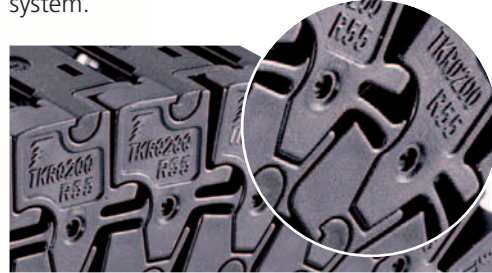
Pitch t = 20 mm

Highly dynamic applications.
Ideal for high acceleration.



Suitable for clean rooms and extremely long service life.

The movable joining elements are injection moulded onto the chain links and additionally increase the service life of the system.



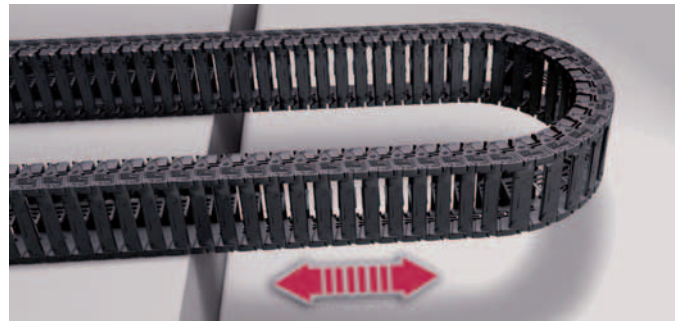
■ Suitable for clean rooms with abrasion-resistant joining elements.

VARIO-LINE

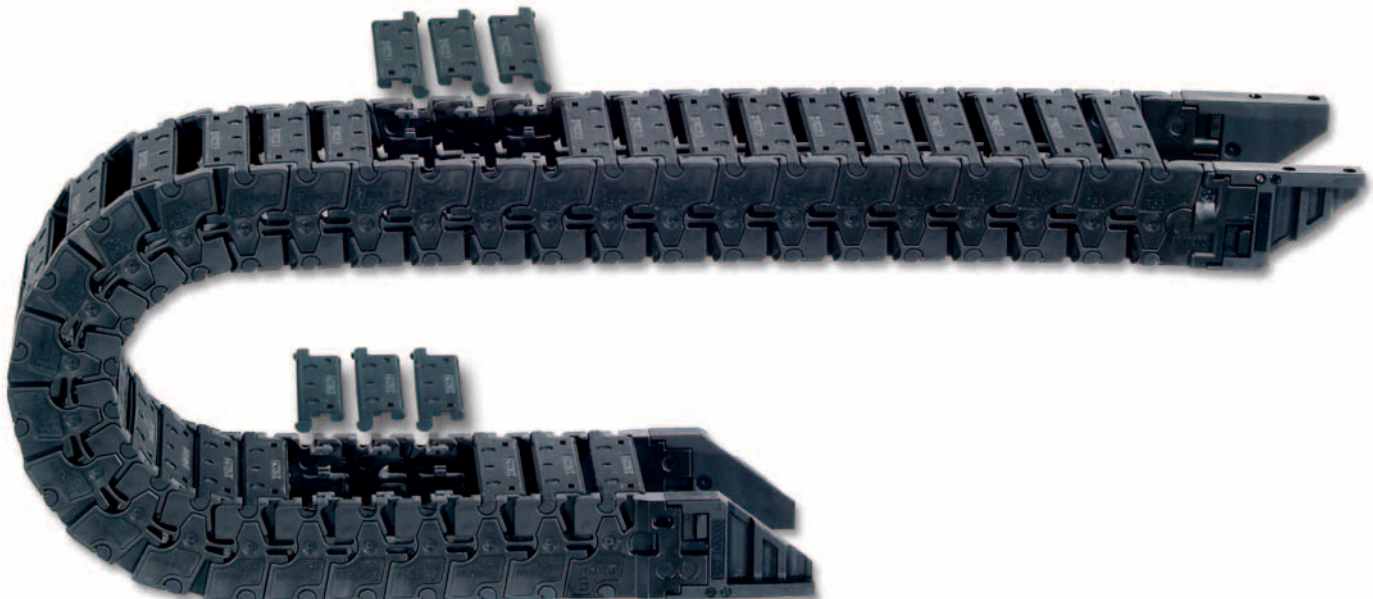
Reliable cable separation.
Divider system with continuous height subdivision.

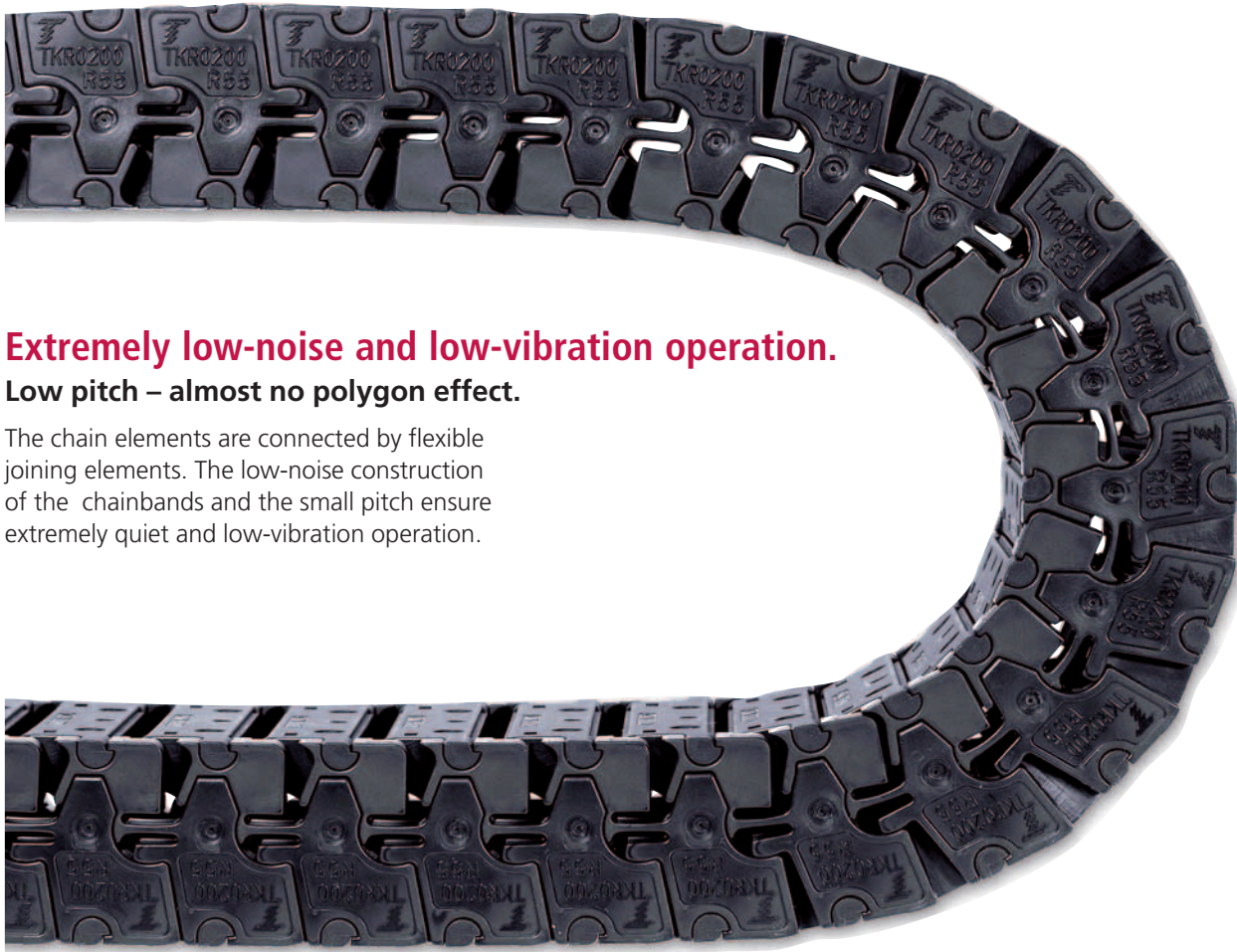


High side stability.
Ideal for unsupported applications on their side, and those with high transverse acceleration.



Simple to open.
Can be opened inside and outside in a single manual operation.





Extremely low-noise and low-vibration operation.

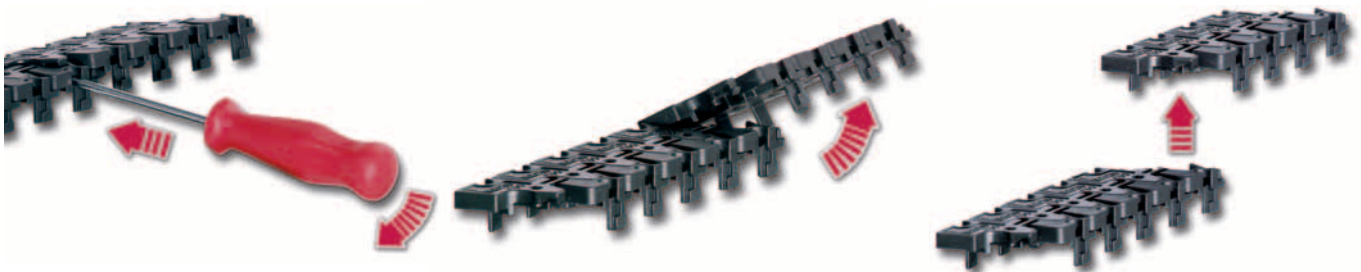
Low pitch – almost no polygon effect.

The chain elements are connected by flexible joining elements. The low-noise construction of the chainbands and the small pitch ensure extremely quiet and low-vibration operation.

VARIO-LINE

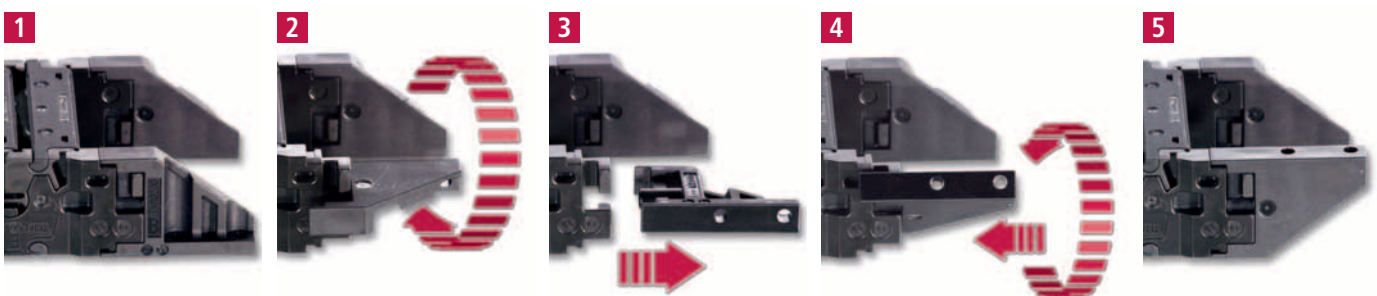
The modular design makes it easy to shorten and lengthen.

- Injection moulded joining elements
- Easy and fast disconnection of the individual chain links (no additional joining elements necessary)



Variable connectors for fast installation.

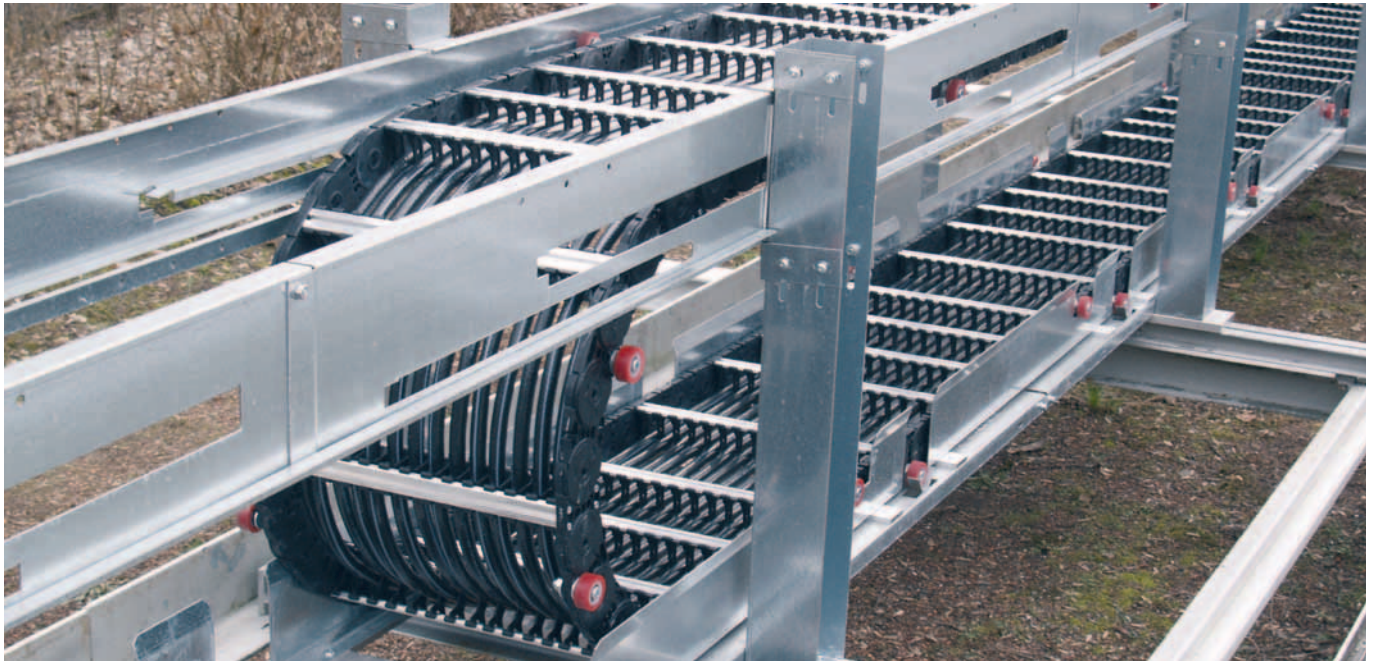
The inner and outer connection variants can be easily changed later at the driver and fixed point by rotating the connecting pieces.



Rail Cable Carrier – RCC.

500 m travel length and more without sag.

RAIL CABLE CARRIER



■ Rail Cable Carrier with proven cable and hose carrier MC 1250.



90%

less push/pull forces in comparison with gliding arrangement

For extremely long travel lengths.

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

Due to the substantial friction, it is nearly impossible to realise travel lengths greater than 200 m. With the new rail cable carrier, the upper trough does not glide on the bottom trough, it glides on guide rails. Rollers are mounted on ball bearings at the side of the carrier. The guide rails come in the standard connection height. The carrier does not sag. The **tension and thrust** is **90% less** in comparison to gliding arrangements.

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 quite and smooth operation.



Rail Cable Carrier

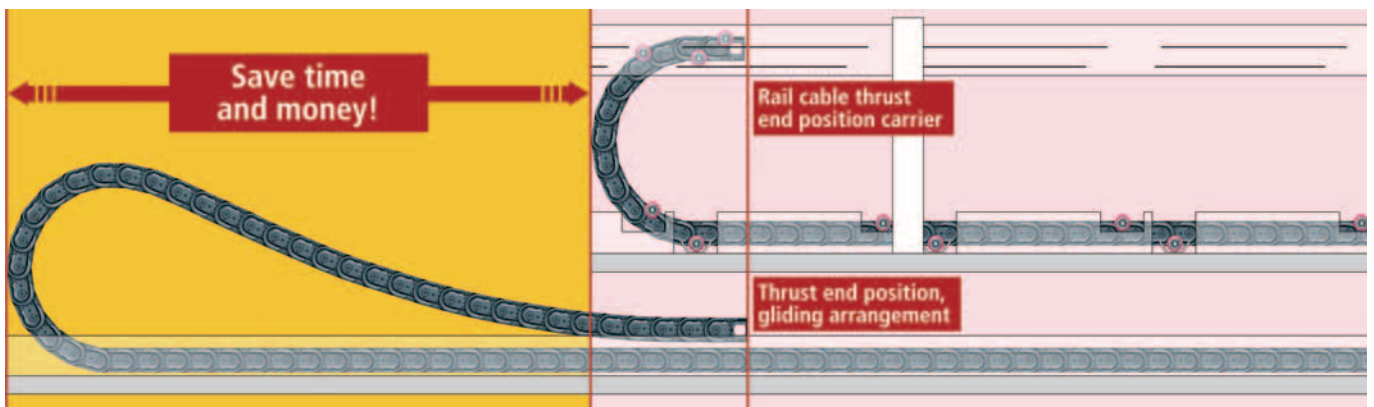
- suitable for very long travel lengths
- 90 % less tension and thrust than with a gliding arrangement, thus requiring substantially less driving power
- low-noise and low-vibration operation
- less space required and cost-optimised with a shorter loop overhang – minimum turnaround length
- no impacting 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 speeds up to 10 m/s possible
- possible additional load (cable weight) of more than 50 kg/m
- use of proven standard cable carriers
- the carrier cannot climb

Save time and money with a minimum loop overhang.

On the Rail Cable Carrier (RCC) – the driver connection is located at bend height. On gliding arrangements with a lower driver connection an extended loop overhang is required. This area cannot be used for travel.

RCC: Driver connection at bend height – minimum loop overhang

- Less space required, and no additional turnaround length.
- Save money with minimum carrier, cable and channel lengths.



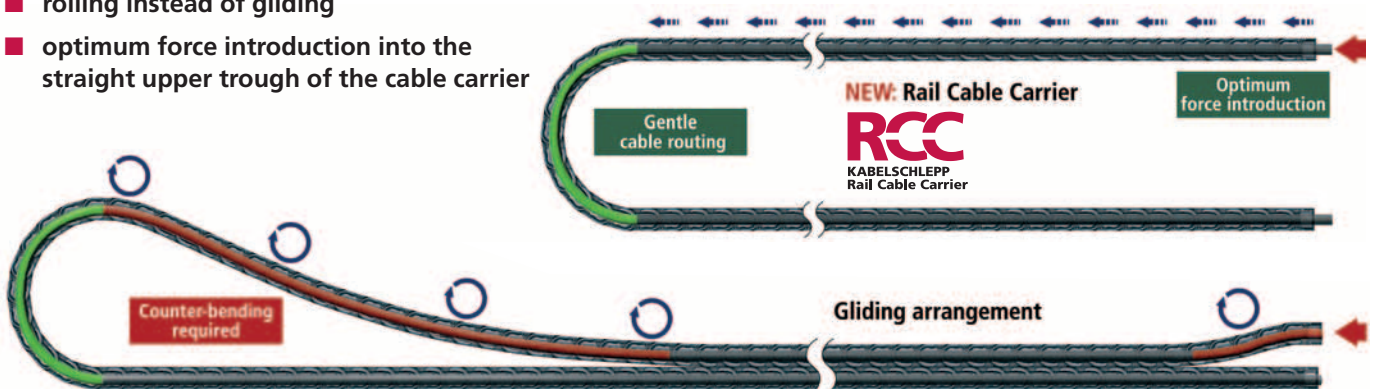
Long service life for the cable and cable carrier.

The carrier is subject to a minimum load which minimises wear and optimises the service life.

- rolling instead of gliding
- optimum force introduction into the straight upper trough of the cable carrier

Long service life for the cables.

Especially gentle on cables since they are only bent at the bending radius of the carrier. There is no counter-bending as is used in gliding arrangements.



- ◀ Force introduction
- ◀◀◀ Load only in the direction of travel
- ⊙ Additional stresses (and strains) on the chain and the cables

■ Comparison of Rail Cable Carrier (RCC) with gentle cable routing and gliding arrangement

Additional safety from integrated climbing protection.

The carrier does not climb dangerously in the acceleration phase due to the decreased friction and associated reduced thrust.

For additional safety, the top of the channel forms a U-shape which holds the carrier guide rails in case of malfunctions.



MASTER LC 60 with new frame stays.

Installation-friendly, robust, fixable dividers.

The new stays of the MASTER LC 60 make the cable and hose carrier even easier to install and more robust. The fixable dividers allow the MASTER LC 60 to be used in even more applications.

VARIO-LINE



Frame stays LC 60

- robust and stable thanks to optimised stay geometry – for chain widths up to 600 mm
- quick and easy for cable laying
- fixed dividers for applications on their side and uses with large transverse acceleration



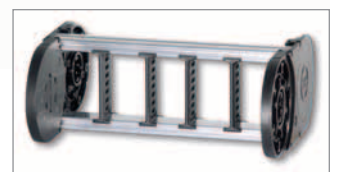
- Easy to open on the inside and the outside.

Also for arrangements on their side.

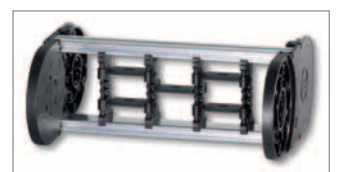
Also highly suitable for applications where the carrier is installed on its side and for extreme transverse accelerations.

Proven dividers for separating the cables.

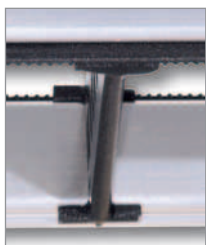
With the proven divider systems of the MASTER LC 60 for separating the cables you can create further order on the inside of the cable carrier.



- **Divider System TS 0** with vertical height subdivisions.



- **Divider System TS 3** with different partitions for more sophisticated cable arrangements.



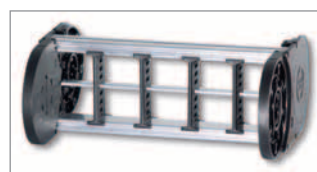
- Fixing on both sides ensures that the dividers have a secure hold.



- Fixing in 4 mm sections.



- The fixing profiles are simply pushed into the stays.



- **Divider System TS 1** with continuous horizontal height subdivision.

UNIFLEX 1555 with external dampers.

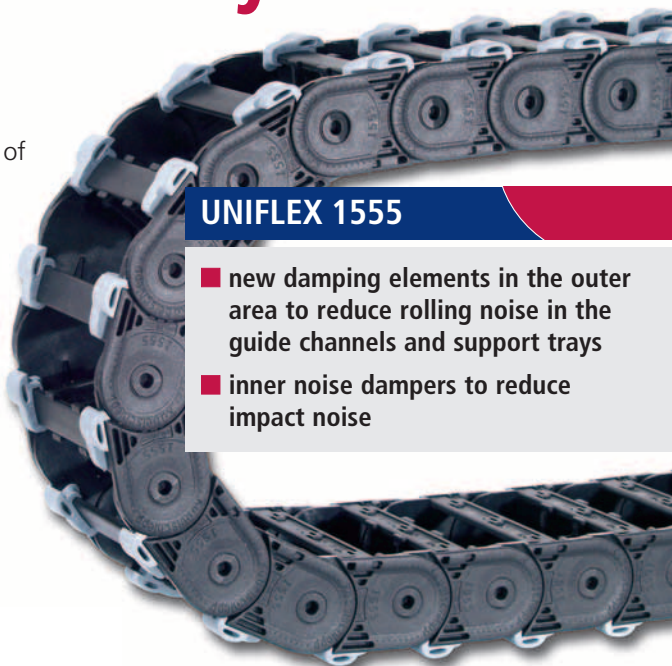
Rolling noise effectively reduced.

The new damping elements effectively reduce the rolling noise of the UNIFLEX 1555.

The use of external dampers is particularly recommendable for support trays and guide channels that are only attached at points and hence form a resonating body.



■ Easy to install; the dampers are securely held against the crossbars.



UNIFLEX 1555

- new damping elements in the outer area to reduce rolling noise in the guide channels and support trays
- inner noise dampers to reduce impact noise

BASIC-LINE

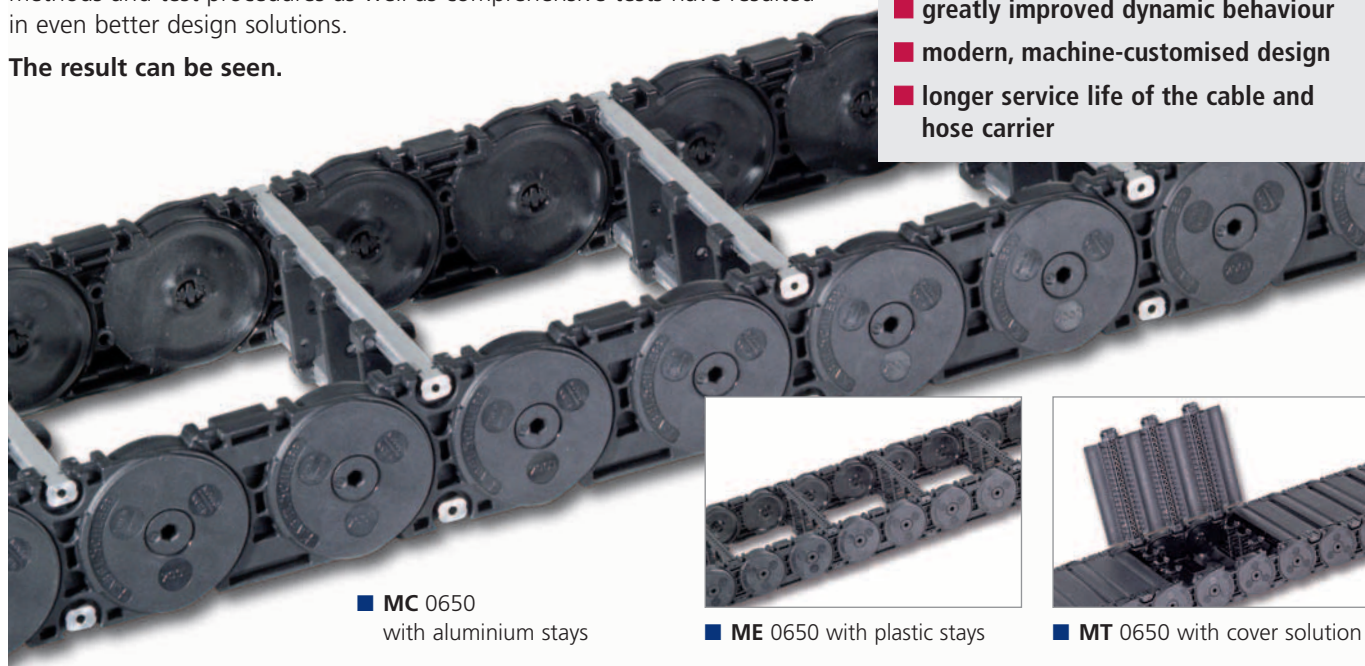
Re-design of the M Series 0650.

New design, new possibilities.

Our multi-variable cable carriers from the M 0650 Series have proven themselves in practice for years.

Some details were revised in the course of a redesign. Modern development methods and test procedures as well as comprehensive tests have resulted in even better design solutions.

The result can be seen.



M Series 0650

- more stability
- greatly improved dynamic behaviour
- modern, machine-customised design
- longer service life of the cable and hose carrier

VARIO-LINE

■ MC 0650 with aluminium stays

■ ME 0650 with plastic stays

■ MT 0650 with cover solution

MINI 0180/0182

Re-design of the MINI 0180/0182.

Low price, high performance.

Our **cost-effective solid plastic cable carriers** MINI 0180 and MINI 0182 have been redesigned to make them even better. The new design was transferred to all types this year.

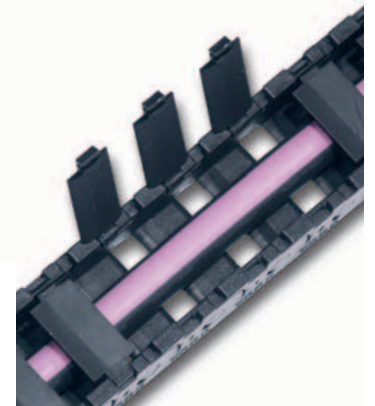
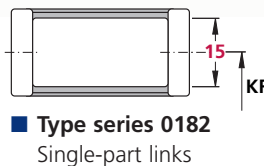
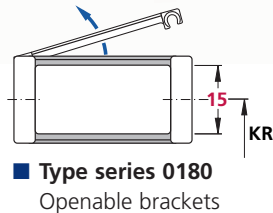


MINI 0180/0182

- longer service life
- greater unsupported lengths
- larger additional loads
- greater flexural rigidity
- reinforced stroke system
- available from stock

BASIC-LINE

Type	B _i mm
NEW! 0180.10 / 0182.10	10
NEW! 0180.15 / 0182.15	15
NEW! 0180.20 / 0182.20	20
0180.30 / 0182.30	30
NEW! 0180.40 / 0182.40	40



Short connecting pieces for the new MINI 0130/0180.

Compact, light, and quick to assemble.

The design of our smallest types 0130 and 0180 have been revised. New short special connection pieces are now available for use in extremely cramped installation areas. The connecting pieces for fixed points and drivers are the same.

The hole pattern is identical to standard connecting pieces.



■ Standard end connectors.



Short connection

- single-part connecting angle for limited spaces
- simple installation
- different connection options by simply changing the connectors
- available from stock for all carrier widths

■ New short special end connectors.

NEW!

Expanded database of our 2D and 3D data on the internet.

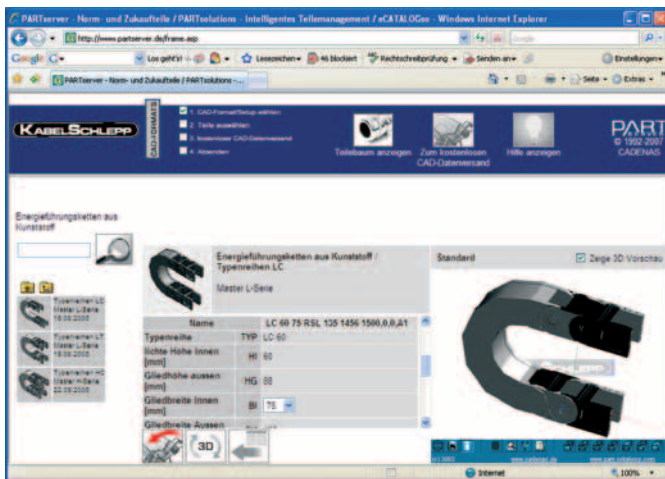
Your construction times are reduced.

Accelerate your design processes with our 2D and 3D models from the CAD component libraries. New product data has been added to the **CADENAS** and **TRACEPARTS** component libraries.

Download all product data from both libraries for free. Native data and all conventional export formats are available for all conventional CAD systems.

More information:
www.kabelschlepp.de

CADENAS



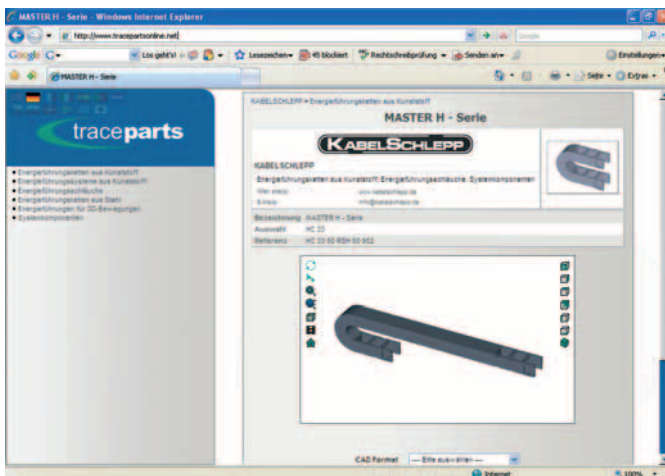
CADENAS

- easy to connect to PDM and ERP systems
- the PARTsolutions catalogue can be easily accessed with a button in the Autodesk Inventor
- detailed cable carrier models available



2D/3D data

TRACEPARTS



TRACEPARTS

- most KABELSCHLEPP cable carriers are available
- worldwide, the only CAD library with "CAA" (CATIA) partner status
- also available on a free CD – contact us to obtain it

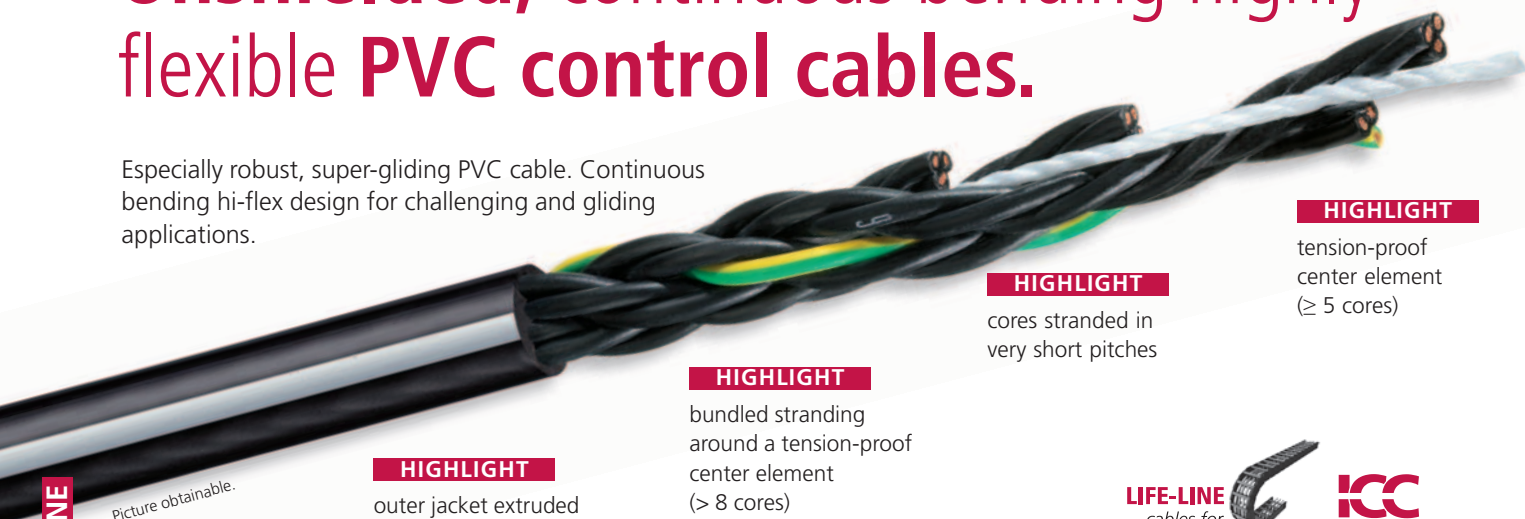


LIFE-LINE Control 400 Standard^{PLUS}

New cross-sections of LIFE-LINE Control 400 Standard^{PLUS}

Unshielded, continuous bending highly flexible PVC control cables.

Especially robust, super-gliding PVC cable. Continuous bending hi-flex design for challenging and gliding applications.



Picture obtainable.

LIFE-LINE

HIGHLIGHT

tension-proof center element (≥ 5 cores)

HIGHLIGHT

cores stranded in very short pitches

HIGHLIGHT

bundled stranding around a tension-proof center element (> 8 cores)

HIGHLIGHT

outer jacket extruded under pressure, hi-flex design, extremely abrasion-resistant, UV-resistant

HIGHLIGHT

co-extruded ICC Color Identification based on DESINA color code



Control 400 Standard^{PLUS}

- oil-resistant
- UV-resistant
- CFC-free
- flame-retardant
- silicone-free
- RoHS-compliant



Cable design

- Conductor:** Finely stranded bare copper wires in an optimised hi-flex design
- Center element:** Tension-proof center element (≥ 5 cores)
- Core insulation:** KS-PVC
- Core identification:** Black with white numbers, protective conductor yellow/green
- Core stranding:** Conductor cores bundled in short pitches with minimal torsion (> 8 cores)
Conductor cores stranded in short pitches with minimal torsion (≤ 8 cores)
- Jacket:** KS-PVC
- Jacket colour:** Black with ICC Color Identification based on the DESINA color code

Technical data

- Temperature range:** – 5 to + 80 °C
- Minimum bend radius while moved*:** KR min ≥ 7.5 x diam.
- v_{max} unsupported:** 10 m/s
- v_{max} gliding:** 5 m/s
- a_{max}:** 20 m/s²
- Insulation resistance:** ≥ 10 MΩ x km
- Voltage:** acc. to VDE 300/500V
acc. to UL 300V
- Approvals:** UL, CSA, based on VDE

* smaller bend radii are possible in many cases – contact us about options

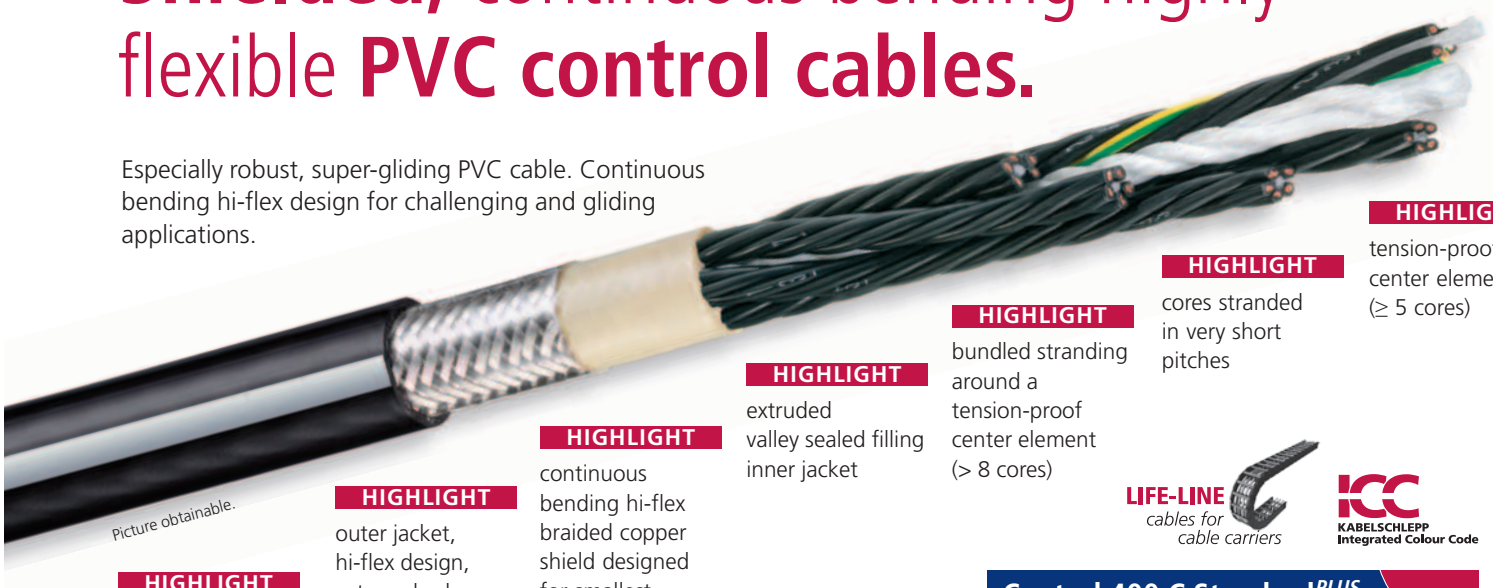
new cross-sections!

Core number x nominal cross-section in mm ²	Conduction cross-section AWG (approx. values)	Art. No.	Outer diam. max. in mm	Weight kg/m	Cu index kg/m
5 x 0.5 ²	5c/20 AWG	48113	6.7	0.069	0.025
7 x 0.5 ²	7c/20 AWG	48115	7.9	0.084	0.035
12 x 0.5 ²	12c/20 AWG	48119	11.4	0.175	0.062
25 x 0.5 ²	25c/20 AWG	48124	16.6	0.343	0.129
4 x 0.34 ²	4c/22 AWG	48373	5.7	0.045	0.014

New cross-sections of LIFE-LINE Control 400 C Standard^{PLUS}

Shielded, continuous bending highly flexible PVC control cables.

Especially robust, super-gliding PVC cable. Continuous bending hi-flex design for challenging and gliding applications.



Picture obtainable.

HIGHLIGHT
co-extruded
KCC Color
Identification
based on
DESINA color code

HIGHLIGHT
outer jacket,
hi-flex design,
extremely abra-
sion-resistant,
UV-resistant

HIGHLIGHT
continuous
bending hi-flex
braided copper
shield designed
for smallest
bend radii

HIGHLIGHT
extruded
valley sealed filling
inner jacket

HIGHLIGHT
bundled stranding
around a
tension-proof
center element
(> 8 cores)

HIGHLIGHT
cores stranded
in very short
pitches

HIGHLIGHT
tension-proof
center element
(≥ 5 cores)



Control 400 C Standard^{PLUS}

- oil-resistant
- UV-resistant
- CFC-free
- flame-retardant
- silicone-free
- RoHS-compliant

Cable design

- Conductor:** Finely stranded bare copper wires in an optimised hi-flex design
- Center element:** Tension-proof center element (≥ 5 cores)
- Core insulation:** KS-PVC
- Core identification:** Black with white numbers, protective conductor yellow/green
Core cross-section ≤ 0.34 mm²: Core ID as per DIN 47100
- Core stranding:** Conductor cores bundled in short pitches with minimal torsion (> 8 cores)
Conductor cores stranded in short pitches with minimal torsion (≤ 8 cores)
- Shielding:** Approx. 85 % coverage
- Jacket:** KS-PVC
- Jacket colour:** Black with **KCC** Color Identification based on the DESINA color code
- Inner jacket:** KS-PVC

Technical data

- Temperature range:** – 5 to + 80 °C
- Minimum bend radius while moved*:** KR min ≥ 7.5 x diam.
- v_{max} unsupported:** 10 m/s
- v_{max} gliding:** 5 m/s
- a_{max}:** 20 m/s²
- Insulation resistance:** ≥ 10 MΩ x km
- Voltage:** acc. to VDE 300/500V
acc. to UL 300V
- Approvals:** UL, CSA, based on VDE

* smaller bend radii are possible in many cases – contact us about options

new cross-sections!

Core number x nominal cross-section in mm ²	Conduction cross-section AWG (approx. values)	Art. No.	Outer diam. max. in mm	Weight kg/m	Cu index kg/m
(4 x 0.25 ²)	(4c/24 AWG)	48623	7.3	0.077	0.038
(8 x 0.25 ²)	(8c/24 AWG)	48627	9.6	0.125	0.055
(25 x 0.25 ²)	(25c/24 AWG)	48638	16.9	0.370	0.143
(3 x 0.75 ²)	(3c/18 AWG)	48682	8.4	0.108	0.053

LIFE-LINE Power 400 C

Shielded, continuous bending highly flexible PVC power cables: LIFE-LINE Power 400 C.

Proven PVC power cables now available with optimised PP-core insulation.

New with optimised, PP core insulation with extreme bending strength for long-term stress.

LIFE-LINE

Picture obtainable.

HIGHLIGHT

co-extruded ICC Color Identification based on DESINA color code

HIGHLIGHT

optimised gliding KS PVC outer jacket, pressure-extruded UV-stable, very abrasion-resistant

HIGHLIGHT

continuous bending hi-flex braided tin-plated copper shield designed for smallest bend radii

HIGHLIGHT

pressure-extruded valley sealed filling inner jacket material

NEW!

HIGHLIGHT

new core insulation for smaller cable diameters and smaller bend radii

HIGHLIGHT

optimised tension-proof center element

LIFE-LINE cables for cable carriers

ICC KABELSCHLEPP Integrated Colour Code

Power 400 C

- oil-resistant
- UV-resistant
- CFC-free
- flame-retardant
- silicone-free
- RoHS-compliant



Cable design

- Conductor:** Finely stranded bare copper wires in an optimised hi-flex design
- Core insulation:** PP
- Center element:** type-optimised
- Core identification:** Black with white numbers, protective conductor yellow/green
- Core stranding:** Conductor cores stranded in short pitches with minimal torsion (≤ 8 cores)
- Shielding:** Approx. 85 % coverage
- Jacket:** KS-PVC
- Jacket colour:** Black with ICC Color Identification based on the DESINA color code
- Inner jacket:** KS-PVC

Technical data

- Temperature range:** -5 to $+80$ °C
- Minimum bend radius while moved*:** KR min ≥ 7.5 x diam.
- v_{max} unsupported:** 5 m/s
- v_{max} gliding:** 3 m/s
- a_{max}:** 20 m/s²
- Insulation resistance:** ≥ 30 M Ω x km
- Voltage:** acc. to VDE 0.6/1kV acc. to UL 1kV
- Approvals:** UL, CSA, based on VDE

* smaller bend radii are possible in many cases – contact us about options

Core number x nominal cross-section in mm ²	Conduction cross-section AWG (approx. values)	Art. No.	Outer diam. max. in mm	Weight kg/m	Cu index kg/m
(5 x 2.5 ²)	5c/14 AWG	47223	12.9	0.275	0.173
(7 x 2.5 ²)	7c/14 AWG	47225	15.0	0.372	0.250
(4 x 4 ²)	4c/12 AWG	47242	13.7	0.335	0.203
(4 x 6 ²)	4c/10 AWG	47252	16.5	0.495	0.315
(4 x 10 ²)	4c/8 AWG	47262	20.1	0.765	0.485
(4 x 16 ²)	4c/6 AWG	47272	23.9	1.020	0.767
(4 x 25 ²)	4c/4 AWG	47282	27.9	1.545	1.108

KABELSCHLEPP & EPLAN.

LIFE-LINE cable database for EPLAN.

EPLAN has developed over more than 20 years into a leading E-CAD system and has become more-or-less established as a standard in some branches.

As a provider of highly-flexible electrical cables for cable and hose carriers, we offer you the KABELSCHLEPP LIFE-LINE cable data bases as a superior tool for optimising your daily work with EPLAN.

The databases are optimised for use in EPLAN5 and for transmission according to EPLAN P8 electric.

- easy cable selection by construction
- automatic addition of core number, cross-section and core colour
- complete data for parts lists and other evaluations



EPLAN

LIFE-LINE network cables.

CAT5 fully harnessed, ready to plug and play.

Our LIFE-LINE CAT5 700 C Ethernet cables are also available **preassembled** from stock.

Properties of the LIFE-LINE cables:

- UV-stable
- CFC-free
- Minimum bend radius: 7.5 x diam.
- halogen-free
- flame-resistant
- Approvals: UL, based on VDE, RoHS-compliant



LIFE-LINE harnessed cables

- easy to order with just the order number and cable length
- Just-in-time delivery of three work days
- **no minimum order amounts**
- **individual cable lengths without surcharge**
- checked and monitored for reliable connection



Illustration shows CAT5 8-stranded – straight

Cable type	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
CAT5 8-stranded – straight	610480	6.80	7.5 x Ø
CAT5 8-stranded – cross-over	610485	6.80	7.5 x Ø



Smaller bend radii are possible in many cases – contact us about options.

LIFE-LINE

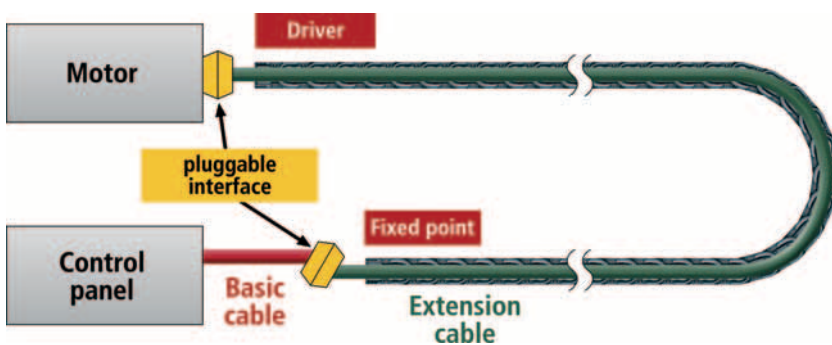
Pre-assembled cables.

Extension cables with connections compatible with the SIEMENS standard.

In addition to connection-ready harnessed basic cables, **extension cables** are also available. These are available as **signal and motor cables** for drives based on SIEMENS specifications.

Simply order by quoting just the **order number and cable length**, and wait for your original LIFE-LINE quality goods to arrive.

LIFE-LINE



Extension cables

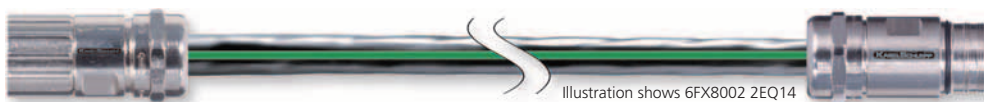
- easy to order with just order number and cable length
- based on SIEMENS specifications
- Just-in-time delivery of three work days
- no minimum order quantities
- individual cable lengths without surcharge
- checked and monitored for reliable connection

Properties of the LIFE-LINE cables:

- UV-resistant
- CFC-free
- Minimum bend radius for all cables: 7.5 x diam.
- halogen-free (not PVC)
- flame-resistant
- Approvals: UL, CSA, based on VDE, RoHS-compliant



Signal extension cables **PUR** design



KS alternative to SIEMENS standard	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
6FX8002 2AD04	610310	8.90	7.5 x Ø
6FX8002 2CA34	610315	10.20	7.5 x Ø
6FX8002 2CA54	610320	8.90	7.5 x Ø
6FX8002 2CB54	610325	9.30	7.5 x Ø
6FX8002 2CF04	610330	8.90	7.5 x Ø
6FX8002 2EQ14	610335	10.20	7.5 x Ø



Smaller bend radii are possible in many cases – contact us about options.

Motor extension cables without brake wires **PUR** design



Illustration shows 6FX8002 5CA28

KS alternative to SIEMENS standard	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
6FX8002 5CA05	610340	10.40	7.5 x Ø
6FX8002 5CA15	610345	11.70	7.5 x Ø
6FX8002 5CA28	610350	10.40	7.5 x Ø
6FX8002 5CA38	610355	11.70	7.5 x Ø
6FX8002 5CA48	610360	13.30	7.5 x Ø
6FX8002 5CA58	610365	16.00	7.5 x Ø
6FX8002 5CA68	610370	19.50	7.5 x Ø

LIFE-LINE
cables for cable carriers

ICC
KABELSCHLEPP
Integrated Colour Code

Smaller bend radii are possible in many cases – contact us about options.

Motor extension cables without brake wires **PVC** design

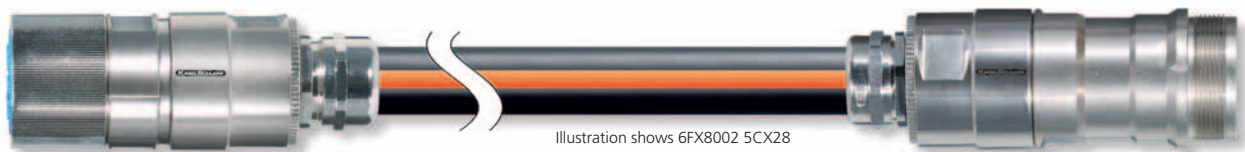


Illustration shows 6FX8002 5CX28

KS alternative to SIEMENS standard	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
6FX8002 5CA05	610395	10.40	7.5 x Ø
6FX8002 5CA15	610400	11.70	7.5 x Ø
6FX8002 5CA28	610405	10.40	7.5 x Ø
6FX8002 5CA38	610410	11.70	7.5 x Ø
6FX8002 5CA48	610415	13.30	7.5 x Ø
6FX8002 5CA58	610420	16.00	7.5 x Ø
6FX8002 5CA68	610425	19.50	7.5 x Ø
6FX8002 5CX18	610430	20.10	7.5 x Ø
6FX8002 5CX28	610435	23.90	7.5 x Ø

LIFE-LINE
cables for cable carriers

ICC
KABELSCHLEPP
Integrated Colour Code

Smaller bend radii are possible in many cases – contact us about options.

Motor extension cables with brake wires **PUR** design



Illustration shows 6FX8002 5DA05

KS alternative to SIEMENS standard	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
6FX8002 5DA05	610375	11.20	7.5 x Ø
6FX8002 5DA15	610380	13.80	7.5 x Ø
6FX8002 5DA28	610385	11.20	7.5 x Ø
6FX8002 5DA38	610390	13.80	7.5 x Ø

LIFE-LINE
cables for cable carriers

ICC
KABELSCHLEPP
Integrated Colour Code

Smaller bend radii are possible in many cases – contact us about options.

Pre-assembled cables.

Basic cables with connections compatible with the SIEMENS standard – now in a cost-effective PVC design.

Our connection-ready harnessed basic cables are **immediately available in a PVC design**:

- An **economical alternative** to high-quality PUR cables for indoor applications.
- High-quality, economical PVC cables for **challenging applications**. Unsupported and gliding applications with small bend radii and high speeds.

Order **motor cables** for drives merely by providing the **order number and cable length**.

Properties of the LIFE-LINE cables:

- UV-resistant
- CFC-free
- Minimum bend radius for all cables: 7.5 x diam.
- flame-retardant
- Approvals: UL, CSA, based on VDE, RoHS-compliant



PVC cables

- easy to order with just order number and cable length
- based on SIEMENS specifications
- Just-in-time delivery of three work days
- no minimum order quantities
- individual cable lengths without surcharge
- checked and monitored for reliable connection

Motor basic cables without brake wires **PVC** design



KS alternative to SIEMENS standard	Order No.:	Diameter mm	Minimum bend radius moved KR _{min}
6FX8002 5CA01	610440	10.40	7.5 x Ø
6FX8002 5CA11	610445	11.70	7.5 x Ø
6FX8002 5CA21	610450	10.40	7.5 x Ø
6FX8002 5CA31	610455	11.70	7.5 x Ø
6FX8002 5CA41	610460	13.30	7.5 x Ø
6FX8002 5CA51	610465	16.00	7.5 x Ø
6FX8002 5CA61	610470	19.50	7.5 x Ø
6FX8002 5CA23	610475	23.90	7.5 x Ø



Smaller bend radii are possible in many cases – contact us about options.

FLEX-COVER detail-optimised.

The light, stable link apron cover.

Our link apron covers of steel plate have quickly made a name for themselves. And no wonder – they are more durable than aluminium while weighing the same.

We built upon this success and optimised the details of the FLEX-COVER. The material and processing of the plastic pipes holding the individual modules together were improved. They now form an easily moving hinge that works almost silently.



FLEX-COVER



■ FLEX-COVER with improved connecting elements.

Now light, stable plastic spacers ensure that all the elements are reliably seated. While in horizontal use, these spacers serve as sliders, reduce friction and noise emission.

These improvements have made the FLEX-COVER link apron covers even more effective with a favourable price/performance ratio.

Replaceable wipers

Easy to fasten, easy to exchange, reliably sealed.

Replaceable wipers for telescopic covers.

The new generation of wipers for telescopic covers is especially effective in preventing the penetration of coolant and chips into the machine.

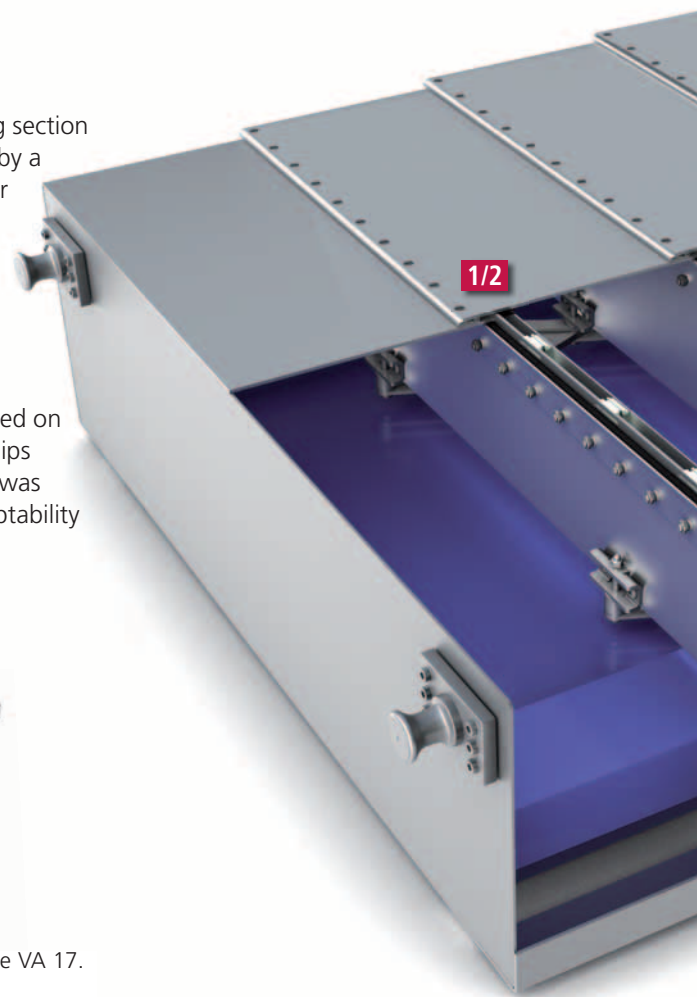
Type VA 17 – proven profile, new features.

The wiper consists of a great idea and 4 components. The steel retaining section serves to hold the PUR wiper lip, and the pressure spring that is formed by a simple cord seal of appropriate hardness. Turn-lock fastener fix the wiper to the cover plate.

A specific distance between the fixing holes is not necessary since the dovetail groove in the profile makes it easier for the parts to be cut to the necessary length. The wiper system is locked or unlocked by turning the turn-lock fastener 90°. This makes it easy to exchange the system.

In comparison to the previous version, the front of the wiper lip was raised on the of the steel section to more effectively prevent the penetration of chips in the new, improved VA 17 solution. The previously used spring profile was exchanged for an elastic cord seal which permanently increases the adaptability of the wiper.

WIPERS



VA 17 – new construction



■ New construction of the VA 17.

Type VA 12 – slim profile for thinner plates.

We developed the VA 12 for telescopic covers with a thinner plate and less distance between the cover plates. With a design similar to the VA 17, a pressure spring is not needed due to the lower construction height. The wiper lip is directly clamped by the steel retaining section.

Thanks to the turn-lock fasteners, the PUR wiper lip can also be easily exchanged. The wiper construction is more effective for plate thicknesses of 1.0 to 2.5 mm and a spacing between the cover plates of 3.5 mm.

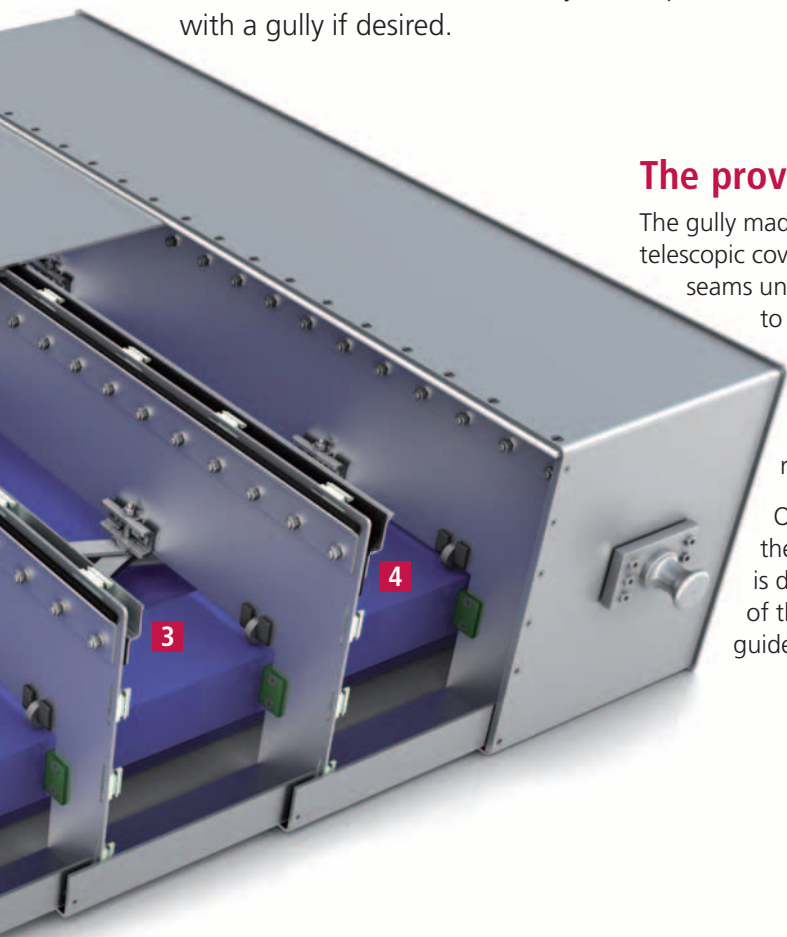


■ Slim profile for thin plates – the new type VA 12.

Water gully type ST 05 and condensate gully ST 05 K.

Splash and hose-proof protection on telescopic covers.

Telescopic covers effectively prevent the undesired penetration of chips and foreign bodies. Hydrostatically mounted machine tools must also be protected from water spray and condensation water. Our additionally developed telescopic covers can also be provided with a gully if desired.



The proven gully type ST 05.

The gully made of solid steel plate is affixed to the back wall of the telescopic cover, for example with screws or pop rivets. This makes weld seams unnecessary, enabling, for example, pregalvanized sheet metal to be used.

The seal against water is created by an inserted cord seal and sealing membrane that is firmly held between the gully and the telescopic cover. The wiped-off water hence automatically remains in the gully.

On both sides of the cover, the water is drained outside of the machine guides.



■ Gully type ST 05

Condensate gully type ST 05 K.

Condensate water can collect on the bottom of the telescopic cover when there are major differences in temperature, for example in regions with high humidity. To prevent this water from dripping into the hydrostatic system, it is reliably wiped off with our new condensate gully, collected and drained.

The new gully is based on the proven type ST 05. A taller sealing membrane made of elastic plastic wipes off the condensate in both directions of travel and guides it into the gully. From there, it automatically flows to the side drain.



■ Condensate gully type ST 05 K

PROTECT-PANEL system:

Roof elements providing security on all sides.

Our impenetrable housing for machines and machining centres has proven itself on numerous occasions around the world.

The modular housing system passes strenuous safety tests, and nearly every demand has been satisfied by developments to the system.

We continue to develop new system modules to meet individual requirements.

This included new roof constructions with movable sliding roof elements and telescopic sliding doors.

PROTECT-PANEL



■ Impenetrable housing of a CNC machining centre.



■ The modular system enables brief construction and assembly times.

PROTECT-PANEL system:

New roof constructions.

Safety roof without braces.

The machine tools had to be secured at the top for reasons of job safety.

The task: Although the covers to be constructed do not have to bear the same load as the side walls, they need to ensure a high degree of stability to effectively block flying chips.

Based on our PROTECT-PANEL system, we developed a roof with a sandwich design that is both light-weight and stable.

To dispense with inner braces, a bearing structure was selected that is also used for suspension bridges: Steel cables and pylons assume the static function for the roof elements.



PROTECT-PANEL

■ Roof construction without interior supports.

Roof construction similar to a convertible.

Since workpieces are frequently supplied by cranes in processing centres, the roof was designed to open a few locations. This open-

ing was created by two movable elements that telescopically overlap. The sliding roof elements take up very little space when open.



■ Roof opening to supply workpieces by crane.



■ Sliding roof elements in different opening positions.

PROTECT-PANEL System

PROTECT-PANEL system:

Space-saving telescopic sliding door.

The access to the inside of machining centres is particular large due to our space-saving telescopic sliding door. Components in XXL format can be easily supplied.

The PROTECT-PANEL system already boasts of a series of sliding door and roll gate solutions.

The telescopic sliding door can be opened wide quickly, but it remains impenetrable when closed.

The sliding door elements also come in a sandwich construction and additionally provided with bullet-proof glass window to allow a view of the interior.

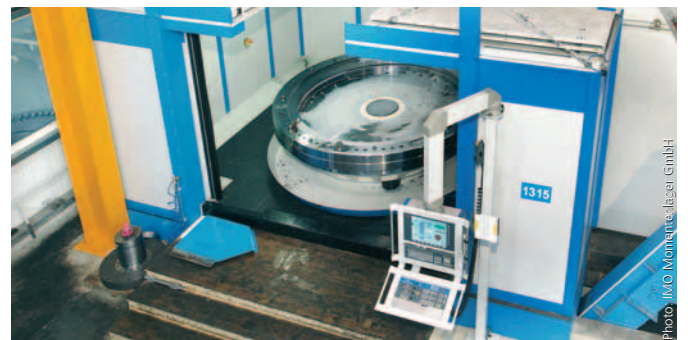
PROTECT-PANEL



■ Telescopic sliding door with a large opening requiring minimum space.

Powder coated for long durability.

Nearly all the components of the PROTECT-PANEL System are powder-coated. This system is tougher and more durable than conventional paint. For this reason, PROTECT-PANEL elements are permanently protected.



■ Opened telescopic sliding door.

KABELSCHLEPP is there for you:

On site worldwide.

Germany

Headquarter

KABELSCHLEPP GmbH
 Marienborner Str. 75
 D-57074 Siegen
 Phone: +49-271/5801-0
 Fax: +49-271/5801-220
 e-mail: info@kabelschlepp.de

Service-Center

KABELSCHLEPP GMBH-HÜNSBORN
 Wielandstraße 1 - Industriegebiet Ost
 D-57482 Wenden-Hünsborn
 Phone: +49-2762/97420
 Fax: +49-2762/974299
 e-mail: ksh@kabelschlepp.de

Automotive

KABELTRAX Europe GmbH -
 Automotive
 Marienborner Str. 75
 D-57074 Siegen
 Telefon: +49-271/5801-444
 Telefax: +49-271/5801-40444
 e-mail: info@kabeltrax.de
 http://www.kabeltrax.de

KABELSCHLEPP international

America

KABELSCHLEPP AMERICA
 7100 West Marcia Road
 Milwaukee, WI 53223-3363/USA
 Phone: +14143541994
 Fax: +14143541900
 e-mail: info@kabelschlepp.com
 http://www.kabelschlepp.com

KABELTRAX LLC - Automotive
 7100 West Marcia Road
 Milwaukee, WI 53223 / USA
 Phone: +14143541994
 Fax: +14143541900
 e-mail: info@kabeltrax.com
 http://www.kabeltrax.com

Argentina

NORTECNICA S.R.L.
 103 Heredia 638
 1672 Villa Lynch - Pica
 Pcia. De Buenos Aires
 Argentina
 Phone: +54-11/47573129
 Fax: +54-11/47571088
 e-mail: info@nortecnica.com.ar

Australia

Wampfler SCA Pty Ltd
 Unit 2/9 Archimedes Place
 Murarrie, Brisbane, QLD 4172
 P.O. Box 3556
 Tingalpa, Brisbane, QLD 4173
 Australia
 Phone: +61-7/3902-6000
 Fax: +61-7/3902-6001
 e-mail: sales@wampfler.com.au
 http://www.wampfler.com.au

Austria

Robert Ganglberger
 Holzbauernstraße 20
 A-4050 Traun
 Phone: +43-7229/74330
 Fax: +43-7229/61503
 e-mail: ganglberger@aon.at
 http://www.kabelschlepp.at

Belgium

Wisman Electro Techniek
 Drie Eikenstraat 112
 B-2650 Edegem
 Phone: +32-3/4572482
 Fax: +32-3/4572980
 e-mail: electro@wisman-techniek.be

Brazil

Porta Cabos Indústria e Comércio
 Ltda.
 Av. Dr. Ulysses Guimarães, 3.388
 Bloco B - Vila Lidia
 09990-080 - DIADEMA - SP.
 Brazil
 Phone: +55-11-4 072-2217
 Fax: +55-11-4072-1223
 e-mail: portacabos@portacabos.com.br
 http://www.portacabos.com.br

China

TSUBAKI KABELSCHLEPP SHANGHAI
 CO., LTD.
 Rm. 701, Tomson Financial Building,
 No. 710 Dong Fang Rd.,
 Pudong Shanghai, P.R.C. 200122,
 China
 Phone: +86-21/68670511
 Fax: +86-21/68769456
 e-mail: zhangtk@sh163.net

Croatia

INOSIS ITEM d.o.o.
 Susedsko polje bb
 10090 Zagreb
 Croatia
 Phone: 00385-1-345 75 77
 Fax: 00385-1-345 75 78
 e-mail: inosis.item@gmx.net

Czech Republic

OPTICONTROL s.r.o.
 Lelekovice 103
 CZ-66431 Brno
 Phone: +420-5/41232288
 Fax: +420-5/41232711
 e-mail: info@opticontrol.cz
 http://www.kabelschlepp.cz

Denmark

Bagger-Nielsen
 Svalehövej 10
 DK-3650 Olstykke
 Phone: +45-7020/7633
 Fax: +45-7020/7603
 e-mail: info@bagger-nielsen.dk
 http://www.bagger-nielsen.dk

Finland

Movetec Oy
 Hannuksentie 1
 FIN-02270 Espoo
 Phone: +358-9/5259230
 Fax: +358-9/52592333
 e-mail: info@movetec.fi
 http://www.movetec.fi

France

KABELSCHLEPP FRANCE S.A.R.L.
 27, Rue du chemin vert
 B.P. 1 Bâtiment Parwest
 F-78612 Le Perray en Yvelines
 Phone: +33-1/34846365
 Fax: +33-1/34848671
 e-mail: contact@kabelschlepp.fr
 http://www.kabelschlepp.fr

Great Britain

METOOOL PRODUCTS LTD.
 Lilac Grove, Beeston
 Nottingham NG9 1PG
 Great Britain
 Phone: +44-115/9225931
 Fax: +44-115/9224578
 e-mail: postmaster@metool.com
 http://www.metool.com

Greece

E. D. Koumakis S.A.
 O.T. 32 Sindos Industrial Area
 P.O.B. 199
 GR-57022 Thessaloniki - Hellas
 Phone: +30-2310/796791
 Fax: +30-2310/795056
 e-mail: info@koumakis.gr
 http://www.koumakis.gr

Hungary

FIGRA-Műszaki Kereskedelmi Kft
 Szentmiklósi út 14.
 H-1213 Budapest
 Phone: +36-1/420-3053
 Tel./Fax: +36-1/277-6067
 e-mail: figra@online.hu
 http://www.figra.hu

India

Kabelschlepp India Pvt. Ltd.
 B-14, ITI Ancillary Industrial Estate
 Mahadevapura Post,
 Bangalore - 560048
 India
 Phone: +91-80-41158997
 Fax: +91-80-41158998
 e-mail: sales@kabelschlepp.info

Israel

RS Tech Ltd
 64 Ashkenazy St.
 Tel-Aviv 69869 Israel
 Phone: +972-3-6490454
 Fax: +972-3-6487307
 e-mail: samitai@012.net.il

Italia

KABELSCHLEPP ITALIA S.R.L.
 Via Massari Marzoli, 9
 I-21052 Busto Arsizio - VA
 Phone: +39-0331/350962
 Fax: +39-0331/341996
 e-mail: infoksi@kabelschlepp.it
 http://www.kabelschlepp.it

Japan

TSUBAKIMOTO CHAIN COMPANY
 1-3, Kannabidai 1 Cho-me
 Kyotanabe
 Kyoto 610-0380 / Japan
 Phone: +81-774-64-5212
 Fax: +81-774-64-5024
 e-mail: mchiya.hashino@tsubakimoto.co.jp
 http://www.tsubakimoto.co.jp

Korea

KABELSCHLEPP Korea Inc.
 203-4, Misa-dong, Hanam-shi,
 Kyunggido, 465-140, Korea
 Phone: +82-31-792-5860
 Fax: +82-31-792-5861

Liechtenstein

see Switzerland

Luxembourg

Wisman Electro Techniek
 Drie Eikenstraat 112
 B-2650 Edegem
 Phone: +32-3/4572482
 Fax: +32-3/4572980
 e-mail: electro@wisman-techniek.be
 http://www.wisman-techniek.be

Netherlands

Wisman Elektrotechniek
 Ernst Technische
 Handelsonderneming B.V.
 Waarderweg 52-B
 2031 BP Haarlem
 Netherlands
 Phone: +31-23/5290376
 Fax: +31-23/5287781
 e-mail: electro@wisman-techniek.nl
 http://www.wisman-techniek.nl

Norway

Ing.H.Asmyrh a.s.
 Hvamsvingen 10
 N-2013 Skjetten
 Phone: +47-64/834550
 Fax: +47-64/834555
 e-mail: firmapost@asmyrh.no
 http://www.asmyrh.no

Poland

KABELSCHLEPP Sp z o.o. Polen
 ul. Piekna 13
 85303 Bydgoszcz/Poland
 Phone: +48-52/3487711
 Fax: +48-52/3487715
 e-mail: kabelschlepp@kabelschlepp.com.pl
 http://www.kabelschlepp.com.pl

Portugal

Vahle Portuguesa
 Sistemas de Alimentação
 Eléctrica, Lda.
 Quinta do Borel,
 Rua Tenente Gouveia, 21-21A
 P-2720-525 Amadora
 Phone: +351 214998690
 Fax: +351 214998699
 e-mail: geral@vahle.pt
 http://www.vahle.pt

Russia

see White Russia

Singapore

KABELSCHLEPP Singapore Pte. Ltd.
 60 Kaki Bukit Place
 #07-15 Eunos Techpark
 Singapore 415979 / Singapore
 Phone: +65-68419008
 Fax: +65-68416887
 e-mail: a.seah@kabelschlepp.com.sg

Slovakia

KABELSCHLEPP SYSTEMTECHNIK
 spol. s r.o.
 Povazská 67
 SK-94067 Nové Zámky
 Phone: +421-35/6923200
 Fax: +421-35/6923222
 e-mail: info@kabelschlepp.sk
 http://www.kabelschlepp.sk

Slovenia

Inoteh d.o.o.
 Ruska Cesta 34
 SI-2345 Bistrica ob Dravi / Slovenia
 Phone: +386-2/6651131+6719012
 Fax: +386-2/6652081
 e-mail: info@inoteh.si
 http://www.inoteh.si

South Africa

Magnapower (Pty.) Ltd.
 P.O.Box 682
 Maraisburg 1700/South Africa
 Phone: +27-11/4748933/39
 Fax: +27-11/4748940
 e-mail: magnaequip@hotmail.com

Spain

Exclusivas Rein, S.A.
 Portal de Gamarra, 36
 Pabellón 14
 E-01013 Vitoria
 Phone: +34-945/262922
 Fax: +34-945/266437
 e-mail: tecnico@exrein.es
 http://www.exrein.es

Sweden

Stiebel AB
 Dalhemsvägen 35
 SE-14146 Huddinge
 Phone: +46-8/7119939
 Fax: +46-8/7119923
 e-mail: info@stiebel.se
 http://www.stiebel.se

Switzerland/Liechtenstein

Hans Hess + Co. AG
 Gewerbestrasse 16/Postfach
 CH-8800 Thalwil
 Phone: +41-44/7225500
 Fax: +41-44/7225502
 e-mail: mail@hanshess.ch
 http://www.hanshess.ch

Taiwan

SIGNET TRADING CO. LTD.
 No. 99, An-Chai 8th St.
 Hsin-Chu Industrial Park.
 Hu-Ko, Hsin-Chu/Taiwan
 Phone: +886-35/978808
 Fax: +886-35/978848
 e-mail: gudel@ms42.hinet.net
 signet@tpts4.seed.net.tw

Thailand

PLANET T & S CO., LTD
 42 Seree 4 Road, Suanluang
 Suanluang, Bangkok, Thailand
 Phone: +6627189935-7
 Fax: +6627203343
 e-mail: info@planet.co.th
 http://www.planet.co.th

Turkey

Kabellimited
 Kabel Enerji iletim zincirleri
 San. Tic. Ltd. Sti.
 Nilüfer Ticaret merkezi 61.
 Sk. No: 17
 TR-16120 Nilüfer-Bursa
 Phone: +90-224/4440075
 Fax: +90-224/4417230
 e-mail: kabel@kabeltr.com
 http://www.kabeltr.com

Ukraine

see White Russia

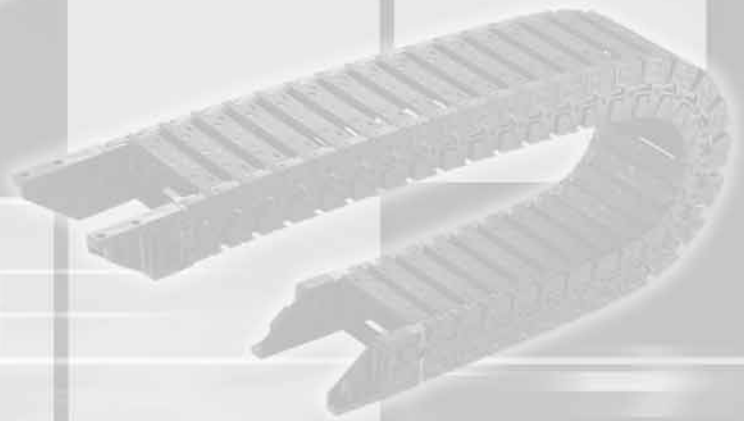
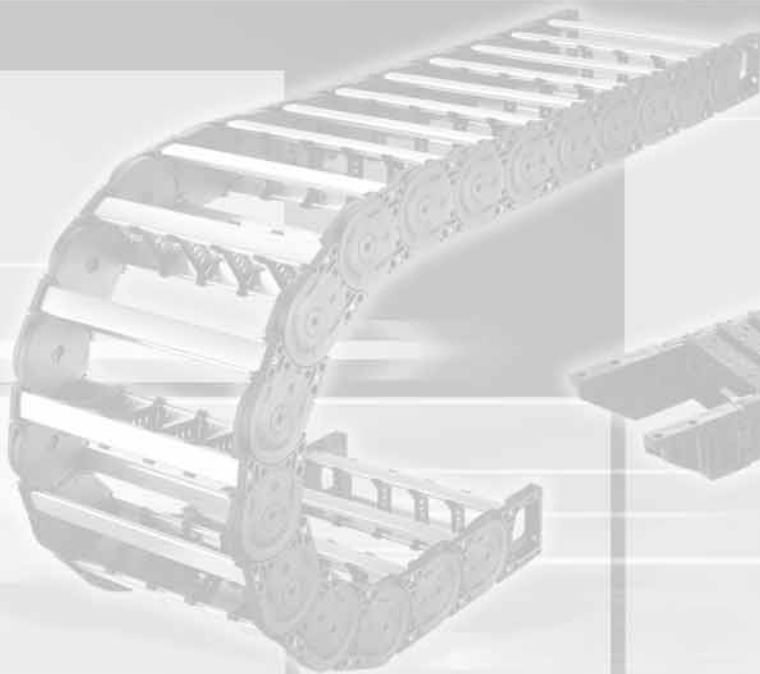
Venezuela

NORSTAT C.A.
 Apdo. 68761
 Caracas 1062 A/Venezuela
 Phone: +58/212425358
 Fax: +58/212416848

White Russia/Russia

Asboga LTD
 Minsk region
 Smolevichski ar. Vill. Zadomylya 41a
 222210 Minsk / Belarus / White
 Russia
 Phone: +375-17285-64-67
 Phone: +375-17280-2486
 Fax: +375-17287-3727
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KABELSCHLEPP GmbH

Marienborner Str. 75
D-57074 Siegen
Tel.: +49 271 5801-0
Fax: +49 271 5801-220
E-Mail: info@kabelschlepp.de
www.kabelschlepp.de

KABELSCHLEPP worldwide

For contacts, addresses
and much more, visit our
web site at www.kabelschlepp.de