

# KABELSCHLEPP

## CABLES FOR MOTION



CONTINUOUS-BENDING HI-FLEX ELECTRICAL CABLES

TOTALTRAX TURN-KEY SYSTEMS

PRE-ASSEMBLED CABLES

STRAIN RELIEF DEVICES

... FOR CABLE CARRIERS

# Durable, reliable, cost-effective

## Cables for cable carriers

### Ready for solutions – your advantage

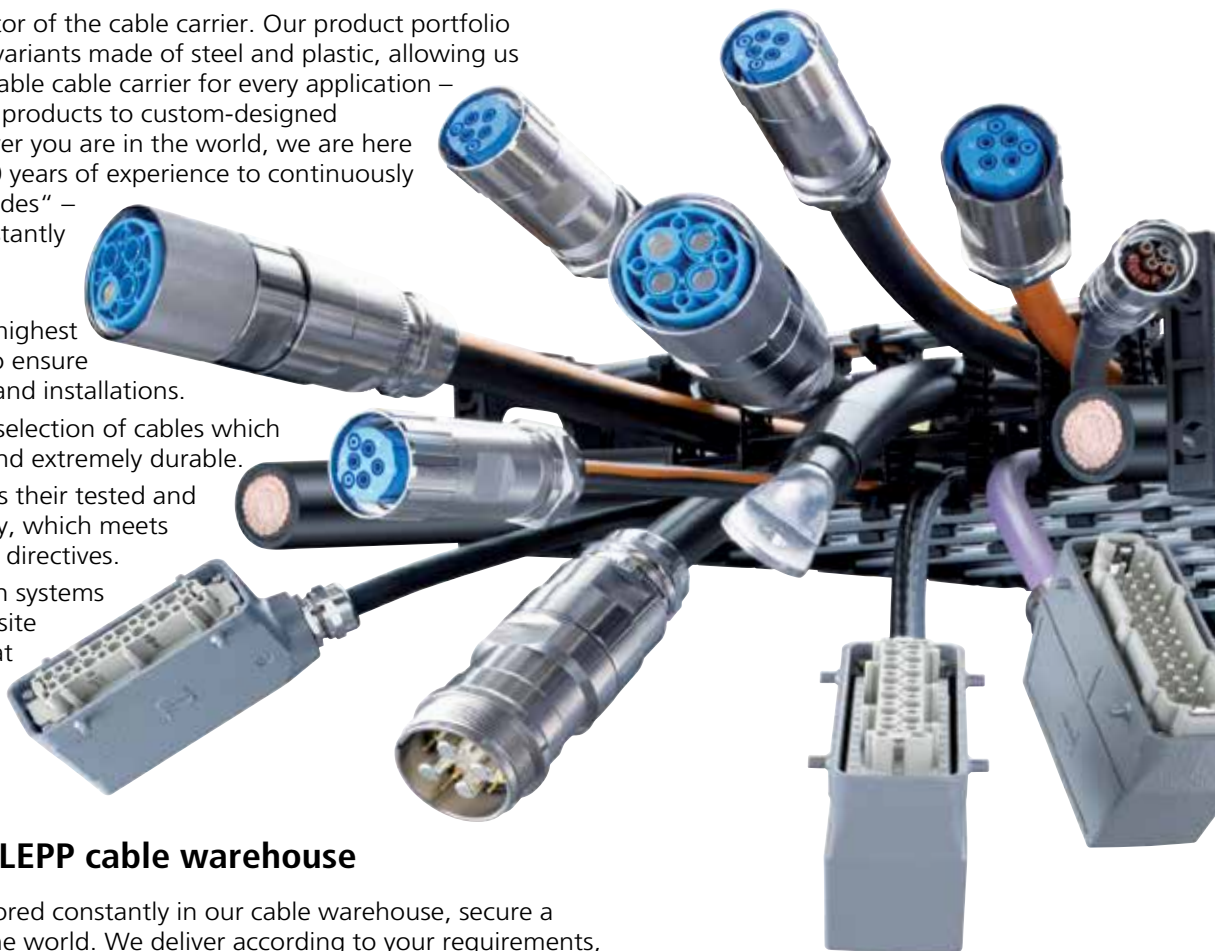
KABELSCHLEPP – the inventor of the cable carrier. Our product portfolio covers more than 100,000 variants made of steel and plastic, allowing us to deliver a suitable and reliable cable carrier for every application – from standard off-the-shelf products to custom-designed complete solutions. Wherever you are in the world, we are here to help. We use our over 50 years of experience to continuously develop and refine the “insides” – i.e. the cables – and to constantly adapt them to the market requirements.

Our cable ranges meet the highest quality standards in order to ensure availability of your systems and installations.

With the range, we offer a selection of cables which are cost-effective, flexible and extremely durable.

A key factor for our cables is their tested and proven operational reliability, which meets all applicable standards and directives.

Competent, objective-driven systems consultation and global on-site service are both part of what we consider an on-going commitment to the technical and commercial optimisation of your applications.



### TSUBAKI KABELSCHLEPP cable warehouse

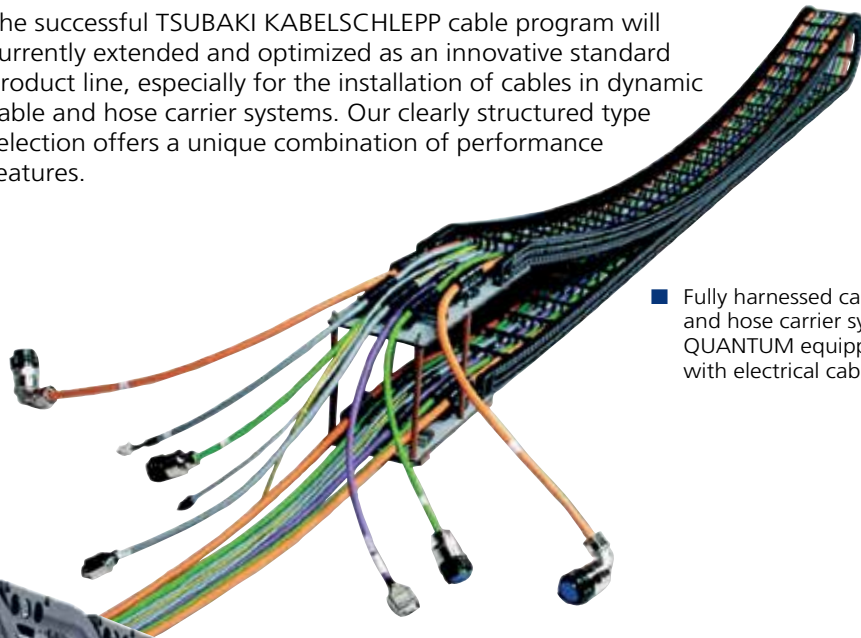
Hundreds of cable types, stored constantly in our cable warehouse, secure a fast availability all around the world. We deliver according to your requirements, no minimum quantities, each length without extra cutting costs.



■ TSUBAKI KABELSCHLEPP cable warehouse.



The successful TSUBAKI KABELSCHLEPP cable program will currently be extended and optimized as an innovative standard product line, especially for the installation of cables in dynamic cable and hose carrier systems. Our clearly structured type selection offers a unique combination of performance features.



■ Fully harnessed cable and hose carrier system QUANTUM equipped with electrical cables.



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# Overview cable types

Cable type	Outer jacket	Shield	Factor for $KR_{min} = n \times \varnothing$ cable	Temperature moved	Approvals
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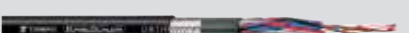

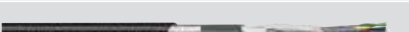

## CONTROL cables

CONTROL 200		PVC	–	10	-5 to +80 °C	
CONTROL 200 C		PVC	✓	10	-5 to +80 °C	
CONTROL 400 – 600 V		PVC	–	7.5	-5 to +80 °C	
CONTROL 400 C – 600 V		PVC	✓	7.5	-5 to +80 °C	
CONTROL 700 – 600 V		PUR	–	7.5	-30 to +90 °C	
CONTROL 700 C – 600 V		PUR	✓	7.5	-30 to +90 °C	

## POWER cables

POWER 400 1 KV		PVC	–	7.5	-5 to +80 °C	
POWER 400 C 1 KV		PVC	✓	7.5	-5 to +80 °C	
POWER 700 1 KV		PUR	–	7.5	-30 to +90 °C	
POWER ONE 700 1 KV		PUR	–	7.5	-40 to +90 °C	
POWER ONE 700 PE		PUR	–	7.5	-40 to +90 °C	
POWER 700 C 1 KV		PUR	✓	7.5	-30 to +90 °C	
POWER ONE 700 C 1 KV		PUR	✓	7.5	-40 to +90 °C	




## DATA cables

DATA 400 C		PVC	✓	7.5	-5 to +80 °C	
DATA 700		PUR	–	7.5	-30 to +90 °C	
DATA 700 TPI C		PUR	✓	7.5	-30 to +90 °C	
DATA 700 TPI CD DATA/POWER		PUR	✓	7.5	-30 to +90 °C	








Cable index by part number ► Page 83

Standards	Color type-department	Halogen-free	Flame-retardant	Oil-resistant	V <sub>max</sub> supported (m/s)	V <sub>max</sub> gliding (m/s)	d <sub>max</sub> (m/s <sup>2</sup> )	Diameter mm <sup>2</sup> /Type/Other	Core number	Page
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### 12

 <b>RoHS conform</b> ✓	black/grey	–	✓	✓	3.5	2	10	0,5 <sup>2</sup> to 2.5 <sup>2</sup>	2-25	12
 <b>RoHS conform</b> ✓	black/grey	–	✓	✓	3.5	2	10	0.5 <sup>2</sup> to 1.5 <sup>2</sup>	2-25	14
 <b>RoHS conform</b> ✓	black/grey	–	✓	✓	10	5	20	0.5 <sup>2</sup> to 2.5 <sup>2</sup>	2-30	16
 <b>RoHS conform</b> ✓	black/grey	–	✓	✓	10	5	20	0.5 <sup>2</sup> to 1.5 <sup>2</sup>	3-36	18
 <b>RoHS conform</b> ✓	black/grey	✓	✓	✓	20	5	50	0.5 <sup>2</sup> to 2.5 <sup>2</sup>	2-36	20
 <b>RoHS conform</b> ✓	black/grey	✓	✓	✓	20	5	50	0.5 <sup>2</sup> to 1 <sup>2</sup>	2-25	22

### 24

 <b>RoHS conform</b> ✓	black	–	✓	✓	5	3	20	1.5 <sup>2</sup> to 70 <sup>2</sup>	2-25	24
 <b>RoHS conform</b> ✓	black	–	✓	✓	5	3	20	1.5 <sup>2</sup> to 35 <sup>2</sup>	4-7	26
 <b>RoHS conform</b> ✓	black	✓	✓	✓	20	5	50	1.5 <sup>2</sup> to 185 <sup>2</sup>	2-36	28
 <b>RoHS conform</b> ✓	black	✓	✓	✓	20	5	50	0.25 <sup>2</sup> to 700 <sup>2</sup>	1	30
 <b>RoHS conform</b> ✓	black	✓	✓	✓	20	5	50	1.5 <sup>2</sup> to 95 <sup>2</sup>	1	32
 <b>RoHS conform</b> ✓	black	✓	✓	✓	20	5	50	1.5 <sup>2</sup> to 150 <sup>2</sup>	2-49	34
 <b>RoHS conform</b> ✓	black	✓	✓	✓	20	5	50	1.5 <sup>2</sup> to 300 <sup>2</sup>	1	36

### 38

 <b>RoHS conform</b> ✓	black/purple	✓	✓	✓	20	5	50	0.25 <sup>2</sup> to 0.34 <sup>2</sup>	4-25	38
 <b>RoHS conform</b> ✓	black/purple	✓	✓	✓	20	5	50	0.25 <sup>2</sup> to 0.34 <sup>2</sup>	3-15	40
 <b>RoHS conform</b> ✓	black/purple	✓	✓	✓	20	5	50	0.25 <sup>2</sup> to 1 <sup>2</sup>	2-32	42
 <b>RoHS conform</b> ✓	black/purple	✓	✓	✓	20	5	50	0.25 <sup>2</sup> to 1.5 <sup>2</sup>	6-20	44

Cable index by part number ► Page 83







# Overview cable types

Cable type	Outer jacket	Shield	Factor for $KR_{min} = n \times \varnothing$ cable	Temperature moved	Approvals
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## BUS-/fiber optic-/coaxial cables

Profibus 700 C		PUR	✓	15	-20 to +60 °C	
CAN-BUS 700 C		PUR	✓	7.5	-30 to +70 °C	
USB S 700 C		PUR	✓	10	-10 to +70 °C	
Interbus 700 C		PUR	✓	12	-30 to +70 °C	
CAT5E / CAT6 700 CD		PUR	✓	10	-20 to +60 °C	
Koax 700 C / 700 CD		PUR	✓	14	-5 to +50 °C	
LWL 700		PUR	–	7.5	-30 to +90 °C	–

## OEM SYSTEM cables

SYSTEM S 700 C		PUR	✓	7.5	-30 to +90 °C	 
SYSTEM M 700 C		PUR	✓	7.5	-30 to +90 °C	 



Standards	Color type-department	Halogen-free	Flame-retardant	Oil-resistant	V <sub>max</sub> supported (m/s)	V <sub>max</sub> gliding (m/s)	d <sub>max</sub> (m/s <sup>2</sup> )	Diameter mm <sup>2</sup> /Type/Other	Core number	Page
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### 46

CE RoHS conform	purple/black	✓	✓	✓	3.5	2	10	0.5 <sup>2</sup>	2	46
CE RoHS conform	purple/black	✓	✓	✓	3.5	2	10	0.5 <sup>2</sup>	2-4	48
CE RoHS conform	purple	✓	✓	✓	3.5	2	10	(1x2x0.08 <sup>2</sup> + 2x0.5 <sup>2</sup> )	4	50
CE RoHS conform	purple/black	✓	✓	✓	3.5	2	10	0.25 <sup>2</sup> to 1 <sup>2</sup>	9	52
CE RoHS conform	green/black	✓	✓	✓	3.5	2	10	0.15 <sup>2</sup> to 0.22 <sup>2</sup>	8	54
CE RoHS conform	black	-	-	✓	3.5	2	10	HF 50/75	1-3	56
CE RoHS conform	black	✓	✓	✓	4	4	10	50μ/62,5μ	6-12	58

### 60

CE RoHS conform	green	✓	✓	✓	6	3	8	0.14 <sup>2</sup> to 0.5 <sup>2</sup>	4-16	60
CE RoHS conform	orange	✓	✓	✓	6	3	8	1.5 <sup>2</sup> to 50 <sup>2</sup>	4-6	62



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# Overview pre-assembled cables

## USB / CAT5E

65

USB S 700 C pre-assembled



65

CAT5E 700 C pre-assembled



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## Signal cables Cables with connections compatible with the OEM standards

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Signal basic cables



66

Signal extension cables



66

## Power cables Cables with connections compatible with OEM standards

67

Power basic cables without brake wires



67

Power extension cables without brake wires



67

Power basic cables with brake wires



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Power extension cables with brake wires



68

## Technical Data, further information

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## KABELSCHLEPP and EPLAN

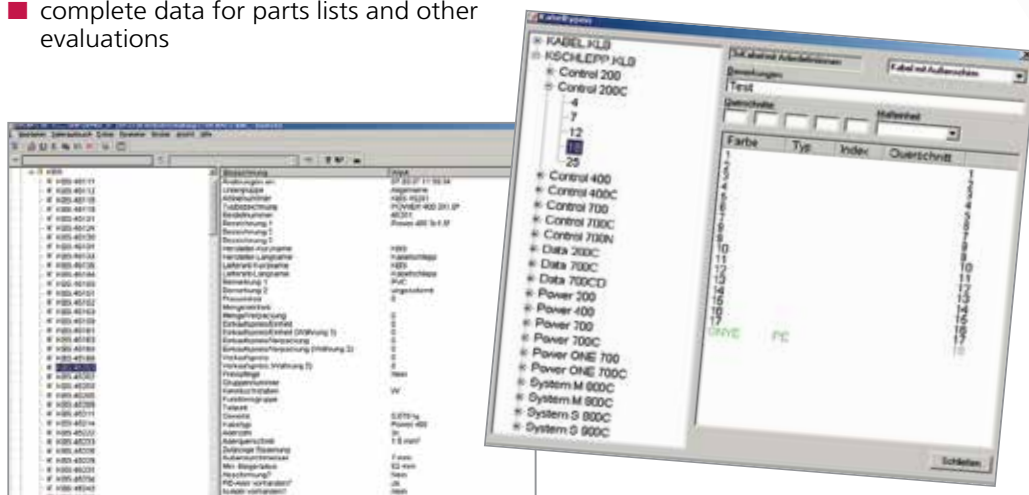
EPLAN has developed over more than 20 years into a leading E-CAD system and has become more-or-less established as a standard in some branches.

### Cable database for EPLAN

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

The databases are optimized 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 color
- complete data for parts lists and other evaluations



# TOTALTRAX turn-key systems

## Fully harnessed cable carrier systems

The product you need – we support and supply it to you completely harnessed

### One supplier – one responsibility

We develop, design and supply all components required for your individual cable & hose carrier system.



■ Ready-to-connect assembled plastic cable carrier system, packed ready for installation

### Everything you need

- Consulting
- Planning
- Design
- Cable carriers
- Electrical cables
- Complete guarantee
- Hydraulic hoses
- Pneumatic hoses
- Plug-and-socket connectors
- Assembly plates
- Complete assembly of all components

- + One contact person
- + One order
- + One delivery
- + Guaranteed quality

**= TOTALTRAX Complete System**

### TOTALTRAX – from design to the complete system

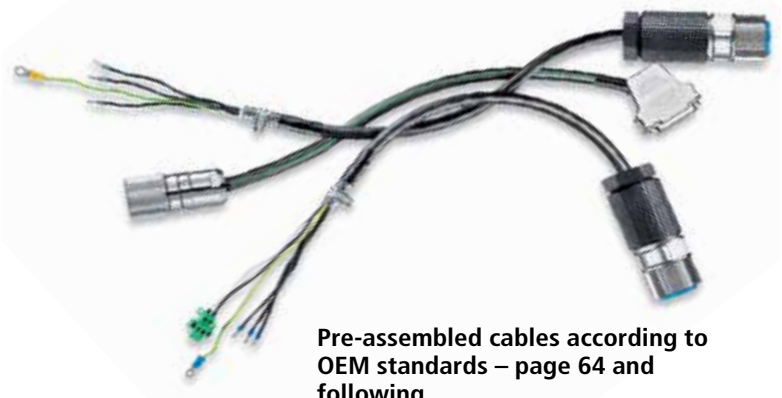


#### NOTE:

#### Harnessed cables according to all OEM

We manufacture KABELSCHLEPP cables according to OEM specifications, suitable for all drive controls which consist of signal and power cables and/or extension cables.

- any cable length available
- delivery minimum: 1 unit



Pre-assembled cables according to OEM standards – page 64 and following.

## Cut costs with TOTALTRAX complete cable carrier systems

### We help you . . .

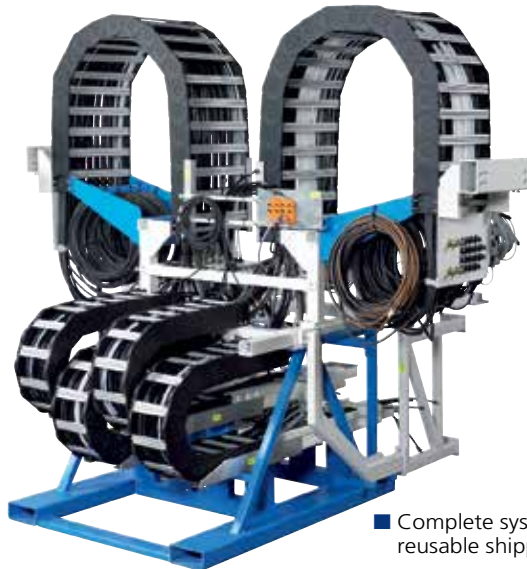
- Advice on planning
- Support in the design phase
- Only one contact person for the complete system including all the individual components
- Complete delivery from a single source
- Only one supplier – one purchase order and one item number
- All components match each other perfectly
- Guarantee certificate upon requests

### . . . to cut your costs!

- Goods receiving inspections for all individual components are no longer required
- Expensive technical personnel and special tools are no longer required
- Shorter assembly times
- No hidden costs, e.g. cables being cut to excessive lengths etc.
- Less captive capital with almost no inventory
- On-time delivery directly to your production site

## No storage costs for individual components like cables and connectors

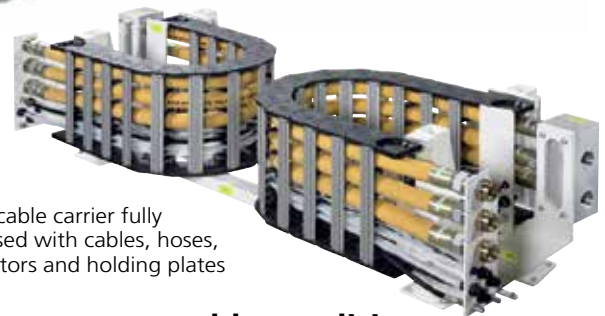
Our warehouses offer cables, plug-and-socket connectors as well as many other individual components.



■ Complete system with reusable shipping fixture



■ Fully harnessed steel cable carrier



■ Plastic cable carrier fully harnessed with cables, hoses, connectors and holding plates

## Complete service – even for applications with extreme assembly conditions

Our service team can design and assemble your cable carrier system even for applications with extreme assembly conditions. Our service center experts provide you with the support you need.

- Complete assembly with guide channels
- Uncoiling of harnessed cable carrier systems with long travel lengths
- Assembly at great heights (e. g. crane systems)



■ Fully harnessed cable carrier system in shipping crate



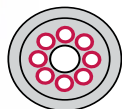
■ Assembly of the fully harnessed cable carrier system

# CONTROL 200

Unshielded continuous bending hi-flex PVC control cables



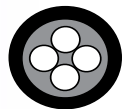
Picture obtainable.



**Core insulation**  
KS-PP  
layered



**Outer jacket**  
KS-PVC  
valley-sealed extruded  
hi-flex design  
UV-resistant  
ozone-resistant  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**2 million**  
motion cycles!

Up to  
**25 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- light to medium loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- flame-retardant
- silicone-free
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded bare copper wires class 5 in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores layered
<b>Outer jacket:</b>	KS-PVC

## Technical Data

<b>Temperature range:</b>	- 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10 \times \emptyset$
<b><math>v_{max}</math> supported:</b>	3.5 m/s
<b><math>v_{max}</math> gliding:</b>	2 m/s
<b><math>a_{max}</math>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 300/500 V according to UL 300 V

**Approvals:** UL, cUL,  
based on VDE

varying parameters possible – please contact us

## Type selection

### CONTROL 200 – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max. OD in mm	weight kg/m	Cu index kg/m
2 x 0.5 <sup>2</sup>	20 / 2c	47351	4.5	0.026	0.010
3 G 0.5 <sup>2</sup>	20 / 3c	47352	4.7	0.031	0.015
5 G 0.5 <sup>2</sup>	20 / 5c	47354	5.5	0.045	0.024
7 G 0.5 <sup>2</sup>	20 / 7c	47356	6.5	0.062	0.035
12 G 0.5 <sup>2</sup>	20 / 12c	47360	7.6	0.090	0.058
18 G 0.5 <sup>2</sup>	20 / 18c	47364	9.0	0.131	0.087
25 G 0.5 <sup>2</sup>	20 / 25c	47367	11.4	0.195	0.125
3 G 0.75 <sup>2</sup>	19 / 3c	47372	5.5	0.043	0.022
4 G 0.75 <sup>2</sup>	19 / 4c	47373	6.1	0.055	0.029
5 G 0.75 <sup>2</sup>	19 / 5c	47374	6.6	0.066	0.036
7 G 0.75 <sup>2</sup>	19 / 7c	47376	7.7	0.088	0.053
12 G 0.75 <sup>2</sup>	19 / 12c	47380	9.3	0.134	0.087
18 G 0.75 <sup>2</sup>	19 / 18c	47384	11.2	0.197	0.130
25 G 0.75 <sup>2</sup>	19 / 25c	47387	13.9	0.290	0.180
3 G 1 <sup>2</sup>	18 / 3c	47392	6.0	0.054	0.030
4 G 1 <sup>2</sup>	18 / 4c	47393	6.5	0.067	0.040
5 G 1 <sup>2</sup>	18 / 5c	47394	7.0	0.079	0.048
7 G 1 <sup>2</sup>	18 / 7c	47396	8.2	0.107	0.068
12 G 1 <sup>2</sup>	18 / 12c	47400	10.2	0.168	0.116
18 G 1 <sup>2</sup>	18 / 18c	47404	12.0	0.243	0.174
25 G 1 <sup>2</sup>	18 / 25c	47407	15.1	0.363	0.246
3 G 1.5 <sup>2</sup>	16 / 3c	47412	6.6	0.071	0.043
4 G 1.5 <sup>2</sup>	16 / 4c	47413	7.1	0.087	0.058
5 G 1.5 <sup>2</sup>	16 / 5c	47414	7.7	0.105	0.072
7 G 1.5 <sup>2</sup>	16 / 7c	47416	9.2	0.144	0.101
12 G 1.5 <sup>2</sup>	16 / 12c	47420	11.5	0.230	0.173
18 G 1.5 <sup>2</sup>	16 / 18c	47424	13.4	0.330	0.260
25 G 1.5 <sup>2</sup>	16 / 25c	47427	16.8	0.491	0.360
4 G 2.5 <sup>2</sup>	14 / 4c	47433	8.7	0.136	0.100

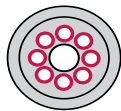


# CONTROL 200 C

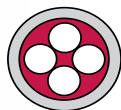
Shielded continuous bending hi-flex PVC control cables



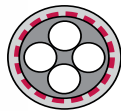
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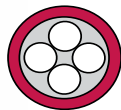
**Core insulation**  
KS-PP  
layered



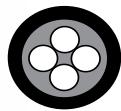
**Inner jacket**  
KS-PVC  
valley-sealed,  
pressure extruded,  
hi-flex design



**Overall shield**  
high flexural strength,  
tin-plated copper braiding  
for small bend radii



**Outer jacket**  
KS-PVC  
pressure extruded  
hi-flex design  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**2 million**  
motion cycles!

Up to  
**25 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- light to medium loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded bare copper wires class 5 in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores layered
<b>Shielding:</b>	coverage nom. 83 %
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-PVC

## Technical Data

<b>Temperature range:</b>	- 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 10 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V according to UL 300 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### CONTROL 200 C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(2 x 0.5 <sup>2</sup> )	(20 / 2c)	<b>47651</b>	6.2	0.057	0.030
(3 G 0.5 <sup>2</sup> )	(20 / 4c)	<b>47652</b>	6.4	0.062	0.036
(4 G 0.5 <sup>2</sup> )	(20 / 5c)	<b>47653</b>	6.8	0.070	0.042
(5 G 0.5 <sup>2</sup> )	(20 / 6c)	<b>47654</b>	7.2	0.081	0.048
(7 G 0.5 <sup>2</sup> )	(20 / 7c)	<b>47656</b>	8.2	0.104	0.064
(12 G 0.5 <sup>2</sup> )	(20 / 8c)	<b>47660</b>	9.7	0.149	0.105
(18 G 0.5 <sup>2</sup> )	(20 / 9c)	<b>47664</b>	11.0	0.194	0.137
(25 G 0.5 <sup>2</sup> )	(20 / 10c)	<b>47667</b>	13.6	0.283	0.210
(3 G 0.75 <sup>2</sup> )	(19 / 3c)	<b>47672</b>	7.2	0.079	0.048
(4 G 0.75 <sup>2</sup> )	(19 / 4c)	<b>47673</b>	7.6	0.090	0.055
(5 G 0.75 <sup>2</sup> )	(19 / 5c)	<b>47674</b>	8.3	0.108	0.066
(7 G 0.75 <sup>2</sup> )	(19 / 7c)	<b>47676</b>	9.8	0.147	0.085
(12 G 0.75 <sup>2</sup> )	(19 / 12c)	<b>47680</b>	11.3	0.198	0.135
(18 G 0.75 <sup>2</sup> )	(19 / 18c)	<b>47684</b>	13.4	0.284	0.190
(25 G 0.75 <sup>2</sup> )	(19 / 25c)	<b>47687</b>	16.5	0.416	0.275
(3 G 1 <sup>2</sup> )	(18 / 3c)	<b>47692</b>	7.7	0.091	0.050
(4 G 1 <sup>2</sup> )	(18 / 4c)	<b>47693</b>	8.2	0.108	0.070
(7 G 1 <sup>2</sup> )	(18 / 7c)	<b>47696</b>	10.4	0.167	0.106
(12 G 1 <sup>2</sup> )	(18 / 12c)	<b>47700</b>	12.1	0.232	0.174
(18 G 1 <sup>2</sup> )	(18 / 18c)	<b>47704</b>	14.2	0.334	0.240
(25 G 1 <sup>2</sup> )	(18 / 25c)	<b>47707</b>	17.5	0.486	0.332
(4 G 1.5 <sup>2</sup> )	(16 / 4c)	<b>47713</b>	8.8	0.133	0.090
(7 G 1.5 <sup>2</sup> )	(16 / 7c)	<b>47716</b>	11.2	0.207	0.157
(12 G 1.5 <sup>2</sup> )	(16 / 12c)	<b>47720</b>	13.7	0.318	0.240
(18 G 1.5 <sup>2</sup> )	(16 / 18c)	<b>47724</b>	15.8	0.440	0.355
(25 G 1.5 <sup>2</sup> )	(16 / 25c)	<b>47727</b>	19.6	0.646	0.448

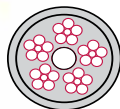


# CONTROL 400 – 600 V

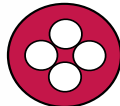
Unshielded continuous bending hi-flex PVC control cables



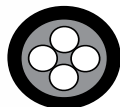
Picture obtainable.



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



**Outer jacket**  
**KS-PVC**  
valley-sealed extruded  
hi-flex design  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**4 million**  
motion cycles!

Up to  
**50 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- medium to heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded bare copper wires class 6 in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	black

## Technical Data

<b>Temperature range:</b>	– 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	3 m/s
<b>a<sub>max</sub>:</b>	20 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 10 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V, according to UL 600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

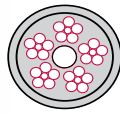
### CONTROL 400 – 600 V – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
2 x 0.5 <sup>2</sup>	20 / 2c	48110	5.0	0.032	0.010
3 G 0.5 <sup>2</sup>	20 / 3c	48111	5.3	0.038	0.014
4 G 0.5 <sup>2</sup>	20 / 4c	48112	5.7	0.045	0.019
5 G 0.5 <sup>2</sup>	20 / 5c	48113	6.4	0.058	0.025
7 G 0.5 <sup>2</sup>	20 / 7c	48115	7.5	0.078	0.034
12 G 0.5 <sup>2</sup>	20 / 12c	48119	10.3	0.137	0.063
18 G 0.5 <sup>2</sup>	20 / 18c	48121	12.7	0.199	0.087
25 G 0.5 <sup>2</sup>	20 / 25c	48124	14.4	0.275	0.130
30 G 0.5 <sup>2</sup>	20 / 30c	48125	15.9	0.324	0.155
36 G 0.5 <sup>2</sup>	20 / 36c	48126	17.5	0.390	0.185
48 G 0.5 <sup>2</sup>	20 / 48c	48128	21.0	0.524	0.260
4 G 0.75 <sup>2</sup>	19 / 4c	48040	6.4	0.057	0.029
5 G 0.75 <sup>2</sup>	19 / 5c	48041	7.0	0.070	0.036
7 G 0.75 <sup>2</sup>	19 / 7c	48042	8.3	0.096	0.051
12 G 0.75 <sup>2</sup>	19 / 12c	48043	11.9	0.178	0.088
18 G 0.75 <sup>2</sup>	19 / 18c	48044	14.5	0.258	0.138
25 G 0.75 <sup>2</sup>	19 / 25c	48045	16.6	0.354	0.195
3 G 1 <sup>2</sup>	18 / 3c	48046	6.2	0.056	0.029
4 G 1 <sup>2</sup>	18 / 4c	48047	6.8	0.070	0.039
5 G 1 <sup>2</sup>	18 / 5c	48048	7.4	0.084	0.050
7 G 1 <sup>2</sup>	18 / 7c	48049	9.0	0.119	0.068
12 G 1 <sup>2</sup>	18 / 12c	48050	12.5	0.212	0.125
18 G 1 <sup>2</sup>	18 / 18c	48051	15.4	0.310	0.187
25 G 1 <sup>2</sup>	18 / 25c	48052	17.7	0.429	0.260
3 G 1.5 <sup>2</sup>	16 / 3c	48053	6.9	0.073	0.045
4 G 1.5 <sup>2</sup>	16 / 4c	48054	7.9	0.097	0.058
5 G 1.5 <sup>2</sup>	16 / 5c	48055	9.1	0.125	0.072
7 G 1.5 <sup>2</sup>	16 / 7c	48056	10.8	0.170	0.101
12 G 1.5 <sup>2</sup>	16 / 12c	48057	14.7	0.303	0.174
18 G 1.5 <sup>2</sup>	16 / 18c	48058	18.0	0.437	0.280
25 G 1.5 <sup>2</sup>	16 / 25c	48059	20.9	0.597	0.360
4 G 2.5 <sup>2</sup>	14 / 4c	48060	9.2	0.140	0.096

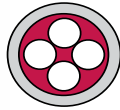


# CONTROL 400 C – 600 V

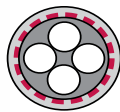
Shielded continuous bending hi-flex PVC control cables



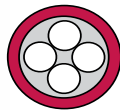
**Core insulation**  
KS-PP  
bundled stranding  
(> 8 cores)



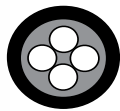
**Inner jacket**  
KS-PVC  
valley-sealed,  
pressure extruded,  
hi-flex design



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



**Outer jacket**  
KS-PVC  
pressure extruded  
hi-flex design  
very abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**4 million**  
motion cycles!

Up to  
**50 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- medium to heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded bare copper wires class 6 in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-PVC

## Technical Data

<b>Temperature range:</b>	– 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	3 m/s
<b>a<sub>max</sub>:</b>	20 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 10 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V according to UL 600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

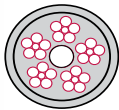
### Control 400 C – 600 V – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(5 G 0.5 <sup>2</sup> )	20 / 5c	<b>48664</b>	8.0	0.104	0.052
(7 G 0.5 <sup>2</sup> )	20 / 7c	<b>48666</b>	9.3	0.137	0.066
(9 G 0.5 <sup>2</sup> )	20 / 9c	<b>48668</b>	10.4	0.158	0.090
(12 G 0.5 <sup>2</sup> )	20 / 12c	<b>48670</b>	12.1	0.211	0.106
(18 G 0.5 <sup>2</sup> )	20 / 18c	<b>48674</b>	14.5	0.289	0.169
(25 G 0.5 <sup>2</sup> )	20 / 25c	<b>48678</b>	16.6	0.385	0.223
(30 G 0.5 <sup>2</sup> )	20 / 30c	<b>48679</b>	18.5	0.482	0.272
(36 G 0.5 <sup>2</sup> )	20 / 36c	<b>48680</b>	20.4	0.571	0.302
(3 G 0.75 <sup>2</sup> )	(19 / 3c)	<b>48682</b>	7.8	0.089	0.045
(4 G 0.75 <sup>2</sup> )	(19 / 4c)	<b>48070</b>	8.4	0.107	0.055
(7 G 0.75 <sup>2</sup> )	(19 / 7c)	<b>48071</b>	10.4	0.158	0.085
(12 G 0.75 <sup>2</sup> )	(19 / 12c)	<b>48072</b>	13.5	0.256	0.151
(18 G 0.75 <sup>2</sup> )	(19 / 18c)	<b>48073</b>	15.9	0.345	0.225
(25 G 0.75 <sup>2</sup> )	(19 / 25c)	<b>48074</b>	19.0	0.507	0.295
(4 G 1 <sup>2</sup> )	(18 / 4c)	<b>48075</b>	9.0	0.125	0.073
(7 G 1 <sup>2</sup> )	(18 / 7c)	<b>48076</b>	11.3	0.188	0.115
(12 G 1 <sup>2</sup> )	(18 / 12c)	<b>48077</b>	14.3	0.296	0.198
(18 G 1 <sup>2</sup> )	(18 / 18c)	<b>48078</b>	17.8	0.456	0.272
(25 G 1 <sup>2</sup> )	(18 / 25c)	<b>48079</b>	20.8	0.612	0.357
(4 G 1.5 <sup>2</sup> )	(16 / 4c)	<b>48080</b>	9.6	0.152	0.085
(5 G 1.5 <sup>2</sup> )	(16 / 5c)	<b>48081</b>	10.4	0.173	0.103
(7 G 1.5 <sup>2</sup> )	(16 / 7c)	<b>48082</b>	12.3	0.234	0.148
(12 G 1.5 <sup>2</sup> )	(16 / 12c)	<b>48083</b>	17.3	0.422	0.269
(18 G 1.5 <sup>2</sup> )	(16 / 18c)	<b>48084</b>	21.7	0.656	0.382
(25 G 1.5 <sup>2</sup> )	(16 / 25c)	<b>48085</b>	25.2	0.892	0.503
(30 G 1.5 <sup>2</sup> )	(16 / 30c)	<b>48086</b>	27.2	1.015	0.635



# CONTROL 700 – 600 V

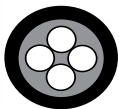
Unshielded continuous bending hi-flex PUR control cables



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



**Outer jacket**  
KS-PUR  
valley-sealed extruded  
hi-flex design  
extremely abrasion-  
resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black

## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V, according to UL 600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

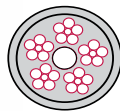
### CONTROL 700 – 600 V – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
2 x 0.5 <sup>2</sup>	20 / 2c	45391	5.0	0.031	0.010
3 G 0.5 <sup>2</sup>	20 / 3c	45392	5.3	0.038	0.014
4 G 0.5 <sup>2</sup>	20 / 4c	45393	5.7	0.045	0.020
7 G 0.5 <sup>2</sup>	20 / 7c	45396	7.5	0.078	0.035
12 G 0.5 <sup>2</sup>	20 / 12c	45400	10.3	0.137	0.060
15 G 0.5 <sup>2</sup>	20 / 15c	45401	11.3	0.161	0.072
16 G 0.5 <sup>2</sup>	20 / 16c	45402	11.6	0.177	0.077
36 G 0.5 <sup>2</sup>	20 / 36c	45412	17.1	0.375	0.198
3 G 0.75 <sup>2</sup>	19 / 3c	45421	5.8	0.045	0.023
4 G 0.75 <sup>2</sup>	19 / 4c	45422	6.4	0.057	0.031
5 G 0.75 <sup>2</sup>	19 / 5c	45423	7.0	0.070	0.038
7 G 0.75 <sup>2</sup>	19 / 7c	45425	8.3	0.096	0.053
12 G 0.75 <sup>2</sup>	19 / 12c	45429	11.3	0.164	0.096
18 G 0.75 <sup>2</sup>	19 / 18c	45431	13.9	0.241	0.146
25 G 0.75 <sup>2</sup>	19 / 25c	45434	15.8	0.328	0.209
36 G 0.75 <sup>2</sup>	19 / 36c	45436	19.6	0.481	0.270
3 G 1 <sup>2</sup>	18 / 3c	45441	6.2	0.056	0.029
4 G 1 <sup>2</sup>	18 / 4c	45442	6.8	0.069	0.044
5 G 1 <sup>2</sup>	18 / 5c	45443	7.4	0.084	0.048
7 G 1 <sup>2</sup>	18 / 7c	45445	9.0	0.118	0.070
8 G 1 <sup>2</sup>	18 / 8c	45446	9.7	0.135	0.077
12 G 1 <sup>2</sup>	18 / 12c	45449	11.9	0.197	0.125
18 G 1 <sup>2</sup>	18 / 18c	45451	14.6	0.286	0.210
25 G 1 <sup>2</sup>	18 / 25c	45454	16.9	0.400	0.302
7 G 1.5 <sup>2</sup>	16 / 7c	45477	10.8	0.169	0.105
12 G 1.5 <sup>2</sup>	16 / 12c	45480	13.7	0.269	0.195
18 G 2.5 <sup>2</sup>	14 / 18c	45497	21.8	0.653	0.450
25 G 2.5 <sup>2</sup>	14 / 25c	45498	24.0	0.866	0.625

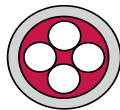


# CONTROL 700 C – 600 V

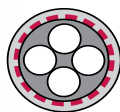
Shielded continuous bending hi-flex PUR control cables



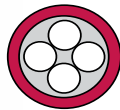
**Core insulation**  
KS-PP  
bundled stranding  
(> 8 cores)



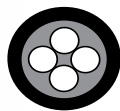
**Inner jacket**  
KS-TPE  
valley-sealed,  
pressure extruded,  
hi-flex design



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



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion ( $\leq$ 8 cores)
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-TPE

## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b><math>v_{max}</math> supported:</b>	20 m/s
<b><math>v_{max}</math> gliding:</b>	5 m/s
<b><math>a_{max}</math>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 300/500 V, according to UL 600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

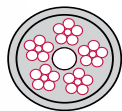
### CONTROL 700 C – 600 V – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(3 G 0.5 <sup>2</sup> )	(20 / 3c)	<b>45701</b>	7.1	0.073	0.036
(4 G 0.5 <sup>2</sup> )	(20 / 4c)	<b>45702</b>	7.5	0.081	0.042
(5 G 0.5 <sup>2</sup> )	(20 / 5c)	<b>45703</b>	8.0	0.095	0.048
(7 G 0.5 <sup>2</sup> )	(20 / 7c)	<b>45705</b>	9.3	0.125	0.064
(12 G 0.5 <sup>2</sup> )	(20 / 12c)	<b>45709</b>	12.1	0.199	0.109
(18 G 0.5 <sup>2</sup> )	(20 / 18c)	<b>45712</b>	14.5	0.274	0.167
(25 G 0.5 <sup>2</sup> )	(20 / 25c)	<b>45715</b>	16.6	0.364	0.212
(3 G 0.75 <sup>2</sup> )	(19 / 3c)	<b>45721</b>	7.8	0.085	0.048
(4 G 0.75 <sup>2</sup> )	(19 / 4c)	<b>45722</b>	8.4	0.103	0.055
(5 G 0.75 <sup>2</sup> )	(19 / 5c)	<b>45723</b>	9.0	0.119	0.066
(7 G 0.75 <sup>2</sup> )	(19 / 7c)	<b>45725</b>	10.4	0.152	0.087
(12 G 0.75 <sup>2</sup> )	(19 / 12c)	<b>45729</b>	13.5	0.242	0.147
(18 G 0.75 <sup>2</sup> )	(19 / 18c)	<b>45732</b>	15.9	0.328	0.222
(25 G 0.75 <sup>2</sup> )	(19 / 25c)	<b>45735</b>	19.0	0.482	0.293
(3 G 1 <sup>2</sup> )	(18 / 3c)	<b>45741</b>	8.3	0.102	0.059
(4 G 1 <sup>2</sup> )	(18 / 4c)	<b>45742</b>	9.0	0.120	0.070
(5 G 1 <sup>2</sup> )	(18 / 5c)	<b>45743</b>	9.6	0.137	0.084
(7 G 1 <sup>2</sup> )	(18 / 7c)	<b>45745</b>	11.3	0.181	0.106
(12 G 1 <sup>2</sup> )	(18 / 12c)	<b>45749</b>	14.3	0.281	0.174
(18 G 1 <sup>2</sup> )	(18 / 18c)	<b>45752</b>	17.8	0.496	0.240
(25 G 1 <sup>2</sup> )	(18 / 25c)	<b>45755</b>	20.8	0.585	0.332



# POWER 400 – 1 kV

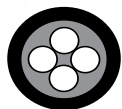
## Unshielded continuous bending hi-flex PVC power cables



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



**Outer jacket  
KS-PVC**  
valley-sealed extruded  
hi-flex design  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**4 million**  
motion cycles!

Up to  
**50 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- medium to heavy loads

### Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

### Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	black (according to DESINA)

### Technical Data

<b>Temperature range:</b>	– 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	3 m/s
<b>a<sub>max</sub>:</b>	20 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### POWER 400 – 1 kV – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
2 x 1.5 <sup>2</sup>	16 / 2c	45200	6.5	0.060	0.031
3 G 1.5 <sup>2</sup>	16 / 3c	45201	6.9	0.073	0.045
4 G 1.5 <sup>2</sup>	16 / 4c	45202	7.9	0.097	0.060
5 G 1.5 <sup>2</sup>	16 / 5c	45203	9.1	0.125	0.072
7 G 1.5 <sup>2</sup>	16 / 7c	45205	10.8	0.170	0.105
12 G 1.5 <sup>2</sup>	16 / 12c	45209	14.5	0.295	0.180
18 G 1.5 <sup>2</sup>	16 / 18c	45211	18.0	0.437	0.270
20 G 1.5 <sup>2</sup>	16 / 20c	45212	18.9	0.496	0.303
25 G 1.5 <sup>2</sup>	16 / 25c	45214	20.9	0.597	0.405
3 G 2.5 <sup>2</sup>	14 / 3c	45221	8.9	0.122	0.075
4 G 2.5 <sup>2</sup>	14 / 4c	45222	9.7	0.152	0.100
5 G 2.5 <sup>2</sup>	14 / 5c	45223	10.8	0.185	0.125
7 G 2.5 <sup>2</sup>	14 / 7c	45225	12.5	0.244	0.168
12 G 2.5 <sup>2</sup>	14 / 12c	45229	17.7	0.457	0.300
18 G 2.5 <sup>2</sup>	14 / 18c	45231	22.2	0.677	0.450
25 G 2.5 <sup>2</sup>	14 / 25c	45234	24.8	0.906	0.625
4 G 4 <sup>2</sup>	12 / 4c	45242	11.5	0.237	0.160
5 G 4 <sup>2</sup>	12 / 5c	45243	12.8	0.288	0.200
7 G 4 <sup>2</sup>	12 / 7c	45245	14.8	0.397	0.280
4 G 6 <sup>2</sup>	10 / 4c	45252	13.5	0.357	0.240
5 G 6 <sup>2</sup>	10 / 5c	45253	14.8	0.433	0.288
7 G 6 <sup>2</sup>	10 / 7c	45254	17.7	0.604	0.420
4 G 10 <sup>2</sup>	8 / 4c	45262	16.5	0.523	0.400
5 G 10 <sup>2</sup>	8 / 5c	45263	18.1	0.632	0.480
4 G 16 <sup>2</sup>	6 / 4c	45272	20.8	0.877	0.640
4 G 25 <sup>2</sup>	4 / 4c	45282	25.8	1.294	1.000
4 G 35 <sup>2</sup>	2 / 4c	45292	29.8	1.763	1.400
4 G 50 <sup>2</sup>	1 / 4c	45302	34.4	2.470	1.910
4 G 70 <sup>2</sup>	0 / 4c	45312	40.6	3.493	2.700



# POWER 400 C – 1 kV

Shielded continuous bending hi-flex PVC power cables

Up to  
**4 million**  
motion cycles!

Up to  
**50 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- medium to heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

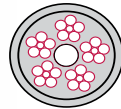
## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Shielding:</b>	coverage nom. 83 %
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-PVC

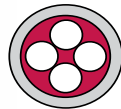
## Technical Data

<b>Temperature range:</b>	– 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	3 m/s
<b>a<sub>max</sub>:</b>	20 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

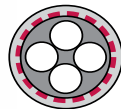
varying parameters possible – please contact us



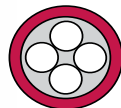
**Core insulation**  
KS-PP  
bundled stranding  
(> 8 cores)



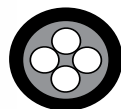
**Inner jacket**  
KS-PVC  
valley-sealed,  
pressure extruded,  
hi-flex design



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



**Outer jacket**  
KS-PVC  
pressure extruded  
hi-flex design  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

## Type selection

### POWER 400 C – 1 kV – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(4 G 1.5 <sup>2</sup> )	(16 / 4c)	<b>47202</b>	10.0	0.159	0.104
(4 G 2.5 <sup>2</sup> )	(14 / 4c)	<b>47222</b>	11.8	0.224	0.148
(5 G 2.5 <sup>2</sup> )	(14 / 5c)	<b>47223</b>	12.9	0.264	0.171
(7 G 2.5 <sup>2</sup> )	(14 / 7c)	<b>47225</b>	15.1	0.356	0.235
(4 G 4 <sup>2</sup> )	(12 / 4c)	<b>47242</b>	13.7	0.325	0.209
(7 G 4 <sup>2</sup> )	(12 / 7c)	<b>47245</b>	17.4	0.523	0.360
(4 G 6 <sup>2</sup> )	(10 / 4c)	<b>47252</b>	16.1	0.449	0.307
(4 G 10 <sup>2</sup> )	(8 / 4c)	<b>47262</b>	19.6	0.690	0.520
(4 G 16 <sup>2</sup> )	(6 / 4c)	<b>47272</b>	24.0	1.062	0.746
(5 G 16 <sup>2</sup> )	(6 / 5c)	<b>47273</b>	27.3	1.327	0.904
(4 G 25 <sup>2</sup> )	(4 / 4c)	<b>47282</b>	29.2	1.566	1.163
(4 G 35 <sup>2</sup> )	(2 / 4c)	<b>47292</b>	34.0	2.129	1.667

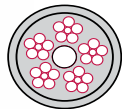


# POWER 700 – 1 kV

Unshielded continuous bending hi-flex PUR power cables



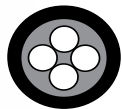
Picture obtainable.



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



**Outer jacket**  
**KS-PUR**  
valley-sealed extruded  
hi-flex design  
extremely abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black (according to DESINA)

## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### POWER 700 – 1 kV – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
2 x 1.5 <sup>2</sup>	16 / 2c	45500	7.5	0.071	0.031
3 G 1.5 <sup>2</sup>	16 / 3c	45501	7.7	0.084	0.045
4 G 1.5 <sup>2</sup>	16 / 4c	45502	8.4	0.105	0.058
5 G 1.5 <sup>2</sup>	16 / 5c	45503	9.1	0.125	0.072
7 G 1.5 <sup>2</sup>	16 / 7c	45505	10.8	0.171	0.105
12 G 1.5 <sup>2</sup>	16 / 12c	45509	14.5	0.294	0.195
18 G 1.5 <sup>2</sup>	16 / 18c	45511	18.0	0.447	0.270
25 G 1.5 <sup>2</sup>	16 / 25c	45514	20.9	0.596	0.405
36 G 1.5 <sup>2</sup>	16 / 36c	45516	26.2	0.894	0.540
2 x 2.5 <sup>2</sup>	14 / 2c	45520	8.4	0.107	0.050
3 G 2.5 <sup>2</sup>	14 / 3c	45521	8.9	0.122	0.075
4 G 2.5 <sup>2</sup>	14 / 4c	45522	9.7	0.151	0.108
5 G 2.5 <sup>2</sup>	14 / 5c	45523	10.8	0.185	0.125
7 G 2.5 <sup>2</sup>	14 / 7c	45525	12.7	0.254	0.175
12 G 2.5 <sup>2</sup>	14 / 12c	45529	17.7	0.456	0.300
18 G 2.5 <sup>2</sup>	14 / 18c	45531	22.2	0.676	0.450
25 G 2.5 <sup>2</sup>	14 / 25c	45534	24.8	0.904	0.625
36 G 2.5 <sup>2</sup>	14 / 36c	45536	30.0	1.265	0.900
2 x 4 <sup>2</sup>	12 / 2c	45540	9.9	0.147	0.080
3 G 4 <sup>2</sup>	12 / 3c	45541	10.6	0.182	0.120
4 G 4 <sup>2</sup>	12 / 4c	45542	11.5	0.226	0.154
5 G 4 <sup>2</sup>	12 / 5c	45544	12.9	0.274	0.240
7 G 4 <sup>2</sup>	12 / 7c	45543	15.3	0.395	0.269
3 G 6 <sup>2</sup>	10 / 3c	45551	12.2	0.259	0.173
4 G 6 <sup>2</sup>	10 / 4c	45552	13.5	0.330	0.240
5 G 6 <sup>2</sup>	10 / 5c	45553	15.1	0.410	0.288
7 G 6 <sup>2</sup>	10 / 7c	45555	18.2	0.577	0.403
4 G 10 <sup>2</sup>	8 / 4c	45562	16.9	0.537	0.384
5 G 10 <sup>2</sup>	8 / 5c	45563	18.9	0.669	0.500
4 G 16 <sup>2</sup>	6 / 4c	45565	21.0	0.842	0.640
5 G 16 <sup>2</sup>	6 / 5c	45566	23.7	1.054	0.800
4 G 25 <sup>2</sup>	4 / 4c	45568	25.8	1.292	1.000
5 G 25 <sup>2</sup>	5 / 4c	45569	28.8	1.599	1.200
3 G 35 <sup>2</sup>	2 / 3c	45570	26.6	1.361	1.008
4 G 35 <sup>2</sup>	2 / 4c	45571	29.8	1.760	1.344
5 G 35 <sup>2</sup>	2 / 5c	45560	33.4	2.187	1.750
4 G 50 <sup>2</sup>	1 / 4c	45572	34.4	2.471	1.920
4 G 70 <sup>2</sup>	2 / 0 / 4c	45573	40.6	3.493	2.700
4 G 95 <sup>2</sup>	3 / 0 / 4c	45574	45.1	4.481	3.800

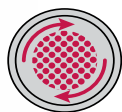


# POWER ONE 700 – 1 kV

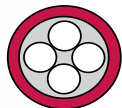
Unshielded continuous bending hi-flex PUR single-core cables



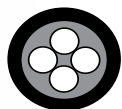
Picture obtainable.



**Core insulation**  
**KS-PUR**  
wire bundles  
in short pitches



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PUR
<b>Core stranding:</b>	single-core
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black (according to DESINA)

## Technical Data

<b>Temperature range:</b>	- 40 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

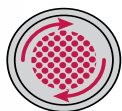
### POWER ONE 700 – 1 kV – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
1 x 0.25 <sup>2</sup>	23 / 1c	45575	4.05	0.018	0.002
1 x 0.34 <sup>2</sup>	22 / 1c	45576	4.15	0.019	0.003
1 x 0.5 <sup>2</sup>	20 / 1c	45577	4.25	0.021	0.005
1 x 0.75 <sup>2</sup>	19 / 1c	45578	4.65	0.026	0.007
1 x 1.0 <sup>2</sup>	18 / 1c	45579	4.85	0.029	0.010
1 x 1.5 <sup>2</sup>	16 / 1c	45580	5.4	0.037	0.014
1 x 2.5 <sup>2</sup>	14 / 1c	45581	6.2	0.053	0.025
1 x 4 <sup>2</sup>	12 / 1c	45582	6.8	0.072	0.040
1 x 6 <sup>2</sup>	10 / 1c	45583	7.4	0.094	0.060
1 x 10 <sup>2</sup>	8 / 1c	45584	8.6	0.141	0.100
1 x 16 <sup>2</sup>	6 / 1c	45585	9.7	0.201	0.154
1 x 25 <sup>2</sup>	4 / 1c	45586	11.3	0.293	0.240
1 x 35 <sup>2</sup>	2 / 1c	45587	13.3	0.406	0.350
1 x 50 <sup>2</sup>	1 / 1c	45588	15.7	0.577	0.500
1 x 70 <sup>2</sup>	2 / 0 / 1c	45589	17.5	0.802	0.700
1 x 95 <sup>2</sup>	3 / 0 / 1c	45590	19.5	1.008	0.950
1 x 120 <sup>2</sup>	4 / 0 / 1c	45591	21.4	1.268	1.200
1 x 150 <sup>2</sup>	250 MCM / 1c	45592	24.2	1.595	1.500
1 x 185 <sup>2</sup>	350 MCM / 1c	45593	26.6	1.949	1.850
1 x 240 <sup>2</sup>	400 MCM / 1c	45594	30.2	2.537	2.304
1 x 300 <sup>2</sup>	500 MCM / 1c	45595	34.4	3.160	2.880
1 x 400 <sup>2</sup>	800 MCM / 1c	45596	40.2	4.096	3.800
1 x 500 <sup>2</sup>	1000 MCM / 1c	45597	42.8	5.262	5.000
1 x 700 <sup>2</sup>	1380 MCM / 1c	45598	49.9	7.405	6.680

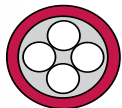


# POWER ONE 700 PE

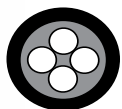
Unshielded, continuous bending highly-flexible PUR single-core cables with PE core identification



**Core insulation**  
KS-PUR  
wire bundles  
in short pitches



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PUR
<b>Core identification:</b>	green/yellow
<b>Core stranding:</b>	single-core
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black

## Technical Data

<b>Temperature range:</b>	- 40 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### POWER ONE 700 PE – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
1 G 1.5 <sup>2</sup>	16 / 1c	47580	5.4	0.037	0.015
1 G 2.5 <sup>2</sup>	14 / 1c	47581	6.2	0.053	0.025
1 G 4 <sup>2</sup>	12 / 1c	47582	6.8	0.072	0.040
1 G 6 <sup>2</sup>	10 / 1c	47583	7.4	0.094	0.060
1 G 10 <sup>2</sup>	8 / 1c	47584	8.6	0.141	0.100
1 G 16 <sup>2</sup>	6 / 1c	47585	9.7	0.201	0.154
1 G 25 <sup>2</sup>	4 / 1c	47586	11.3	0.293	0.240
1 G 35 <sup>2</sup>	2 / 1c	47587	13.3	0.406	0.350
1 G 50 <sup>2</sup>	0 / 1c	47588	15.7	0.577	0.500
1 G 70 <sup>2</sup>	3 / 0 / 1c	47589	17.5	0.802	0.700
1 G 95 <sup>2</sup>	4 / 0 / 1c	47590	19.5	1.008	0.950



# POWER 700 C – 1 kV

Shielded continuous bending hi-flex PUR power cables

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

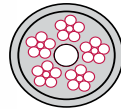
## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	black with white numbers, protective conductor green/yellow
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-TPE

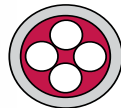
## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

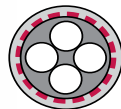
varying parameters possible – please contact us



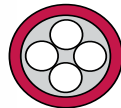
**Core insulation**  
KS-PP  
bundled stranding  
(> 8 cores)



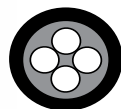
**Inner jacket**  
KS-TPE  
valley-sealed,  
pressure extruded,  
hi-flex design



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



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



**Jacket color black**  
ozone-resistant  
UV-resistant

## Type selection

### POWER 700 C – 1 kV – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(2 x 1.5 <sup>2</sup> )	(16 / 2c)	<b>45760</b>	9.1	0.114	0.064
(3 G 1.5 <sup>2</sup> )	(16 / 3c)	<b>45761</b>	9.7	0.134	0.075
(4 G 1.5 <sup>2</sup> )	(16 / 4c)	<b>45762</b>	10.5	0.161	0.089
(5 G 1.5 <sup>2</sup> )	(16 / 5c)	<b>45763</b>	11.2	0.183	0.108
(7 G 1.5 <sup>2</sup> )	(16 / 7c)	<b>45765</b>	12.7	0.235	0.148
(12 G 1.5 <sup>2</sup> )	(16 / 12c)	<b>45769</b>	17.3	0.420	0.264
(18 G 1.5 <sup>2</sup> )	(16 / 18c)	<b>45772</b>	21.7	0.716	0.362
(25 G 1.5 <sup>2</sup> )	(16 / 25c)	<b>45775</b>	25.2	0.852	0.564
(36 G 1.5 <sup>2</sup> )	(16 / 36c)	<b>45777</b>	30.0	1.170	0.698
(49 G 1.5 <sup>2</sup> )	(16 / 49c)	<b>45778</b>	35.9	1.633	0.950
(3 G 2.5 <sup>2</sup> )	(14 / 3c)	<b>45780</b>	11.0	0.179	0.110
(4 G 2.5 <sup>2</sup> )	(14 / 4c)	<b>45781</b>	11.8	0.216	0.142
(5 G 2.5 <sup>2</sup> )	(14 / 5c)	<b>45783</b>	12.9	0.254	0.170
(7 G 2.5 <sup>2</sup> )	(14 / 7c)	<b>45785</b>	15.1	0.365	0.268
(12 G 2.5 <sup>2</sup> )	(14 / 12c)	<b>45787</b>	21.6	0.648	0.421
(18 G 2.5 <sup>2</sup> )	(14 / 18c)	<b>45789</b>	26.2	0.919	0.607
(20 G 2.5 <sup>2</sup> )	(14 / 20c)	<b>45790</b>	26.8	1.003	0.621
(25 G 2.5 <sup>2</sup> )	(14 / 25c)	<b>45791</b>	28.8	1.176	0.765
(4 G 4 <sup>2</sup> )	(12 / 4c)	<b>45801</b>	13.7	0.313	0.211
(4 G 6 <sup>2</sup> )	(10 / 4c)	<b>45802</b>	16.1	0.432	0.298
(4 G 10 <sup>2</sup> )	(8 / 4c)	<b>45803</b>	19.6	0.666	0.526
(4 G 16 <sup>2</sup> )	(6 / 4c)	<b>45804</b>	24.6	1.100	0.781
(5 G 16 <sup>2</sup> )	(6 / 5c)	<b>45812</b>	27.7	1.368	0.904
(4 G 25 <sup>2</sup> )	(4 / 4c)	<b>45805</b>	29.2	1.516	1.145
(4 G 35 <sup>2</sup> )	(2 / 4c)	<b>45806</b>	34.0	2.060	1.667
(4 G 50 <sup>2</sup> )	(1 / 4c)	<b>45807</b>	38.9	2.833	2.306
(4 G 70 <sup>2</sup> )	(2 / 0 / 4c)	<b>45808</b>	45.6	3.974	3.045
(4 G 95 <sup>2</sup> )	(3 / 0 / 4c)	<b>45809</b>	50.5	5.056	4.060
(4 G 120 <sup>2</sup> )	(4 / 0 / 4c)	<b>45810</b>	55.9	6.424	5.128
(4 G 150 <sup>2</sup> )	(250 MCM / 0 / 4c)	<b>45811</b>	62.5	7.783	6.525

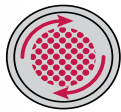


# POWER ONE 700 C – 1 kV

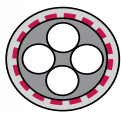
Shielded continuous bending hi-flex PUR single-core cables



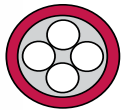
Picture obtainable.



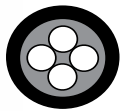
**Core insulation**  
KS-PUR  
wire bundles  
in short pitches



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



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- power and supply cable
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PUR
<b>Core stranding:</b>	Single-core
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black

## Technical Data

<b>Temperature range:</b>	– 40 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b><math>v_{max}</math> supported:</b>	20 m/s
<b><math>v_{max}</math> gliding:</b>	5 m/s
<b><math>a_{max}</math>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 0.6/1 kV according to UL 1 kV
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### POWER ONE 700 C – 1 kV – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(1 x 1.5 <sup>2</sup> )	(16 / 1c)	<b>45814</b>	6.4	0.55	0.029
(1 x 2.5 <sup>2</sup> )	(14 / 1c)	<b>45815</b>	6.8	0.072	0.041
(1 x 4 <sup>2</sup> )	(12 / 1c)	<b>45816</b>	7.4	0.093	0.059
(1 x 6 <sup>2</sup> )	(10 / 1c)	<b>45817</b>	8.0	0.119	0.071
(1 x 10 <sup>2</sup> )	(8 / 1c)	<b>45818</b>	9.2	0.169	0.122
(1 x 16 <sup>2</sup> )	(6 / 1c)	<b>45819</b>	10.4	0.236	0.190
(1 x 25 <sup>2</sup> )	(4 / 1c)	<b>45820</b>	11.9	0.333	0.289
(1 x 35 <sup>2</sup> )	(2 / 1c)	<b>45821</b>	13.9	0.451	0.393
(1 x 50 <sup>2</sup> )	(1 / 1c)	<b>45822</b>	16.5	0.651	0.560
(1 x 70 <sup>2</sup> )	(2 / 0 / 1c)	<b>45823</b>	18.3	0.883	0.873
(1 x 95 <sup>2</sup> )	(3 / 0 / 1c)	<b>45824</b>	20.3	1.099	1.029
(1 x 120 <sup>2</sup> )	(4 / 0 / 1c)	<b>45825</b>	22.2	1.373	1.272
(1 x 150 <sup>2</sup> )	(250 MCM / 1c)	<b>45826</b>	25.0	1.716	1.578
(1 x 185 <sup>2</sup> )	(350 MCM / 1c)	<b>45827</b>	27.4	2.081	1.911
(1 x 240 <sup>2</sup> )	(400 MCM / 1c)	<b>45828</b>	31.1	2.685	2.451
(1 x 300 <sup>2</sup> )	(500 MCM / 1c)	<b>45829</b>	35.4	3.393	2.997

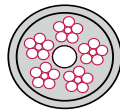


# DATA 400 C

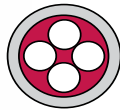
## Shielded continuous bending hi-flex PVC control cables



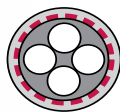
Picture obtainable.



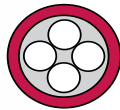
**Core insulation**  
KS-PP  
bundled stranding  
(> 8 cores)



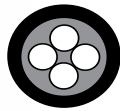
**Inner jacket**  
KS-PVC  
valley-sealed,  
pressure extruded,  
hi-flex design



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



**Outer jacket**  
KS-PVC  
pressure extruded  
hi-flex design  
high abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**4 million**  
motion cycles!

Up to  
**50 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- medium to heavy loads

### Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

### Design

<b>Conductor:</b>	finely stranded bare copper wires class 6 in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PVC
<b>Core identification:</b>	core identification coloured according to DIN 47100
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Shielding:</b>	coverage nom. 83 %
<b>Outer jacket:</b>	KS-PVC
<b>Jacket color:</b>	coloured/black
<b>Inner jacket:</b>	KS-PVC

### Technical Data

<b>Temperature range:</b>	- 5 to + 80 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	3 m/s
<b>a<sub>max</sub>:</b>	20 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 10 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V according to UL 600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### DATA 400 C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(4 x 0.25 <sup>2</sup> )	24 / 4c	<b>48623</b>	6.9	0.065	0.029
(8 x 0.25 <sup>2</sup> )	24 / 8c	<b>48627</b>	9.1	0.109	0.056
(25 x 0.25 <sup>2</sup> )	24 / 25c	<b>48638</b>	15.3	0.286	0.134
(4 x 0.34 <sup>2</sup> )	22 / 4c	<b>48647</b>	7.3	0.077	0.041
(5 x 0.34 <sup>2</sup> )	22 / 5c	<b>48648</b>	7.7	0.085	0.046
(7 x 0.34 <sup>2</sup> )	22 / 7c	<b>48649</b>	9.0	0.116	0.058

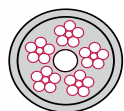


# DATA 700 – 300 V / 600 V

Unshielded continuous bending hi-flex PUR control cables



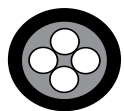
Picture obtainable.



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



**Outer jacket**  
KS-PUR  
valley-sealed extruded  
hi-flex design  
extremely abrasion-resistant



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!



## Developed for

- systems engineering and mechanical engineering
- crane and conveyor equipment
- monitoring, measuring and control cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	extremely fine stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-dependent
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	core identification coloured according to DIN 47100
<b>Core stranding:</b>	conductor cores bundled in short pitches with minimal torsion (> 8 cores) conductor cores layered in short pitches with minimal torsion (≤ 8 cores)
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	coloured/black

## Technical Data

<b>Temperature range:</b>	- 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 30 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/500 V, according to UL 300 V/600 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### DATA 700 – 300 V – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
6 x 0.25 <sup>2</sup>	24 / 3c	45355	6.0	0.043	0.014
7 x 0.25 <sup>2</sup>	24 / 4c	45356	6.5	0.050	0.017
8 x 0.25 <sup>2</sup>	24 / 5c	45357	7.0	0.057	0.019
9 x 0.25 <sup>2</sup>	24 / 7c	45358	8.3	0.075	0.023
10 x 0.25 <sup>2</sup>	24 / 8c	45359	9.1	0.085	0.024
12 x 0.25 <sup>2</sup>	24 / 12c	45360	9.2	0.094	0.029
15 x 0.25 <sup>2</sup>	24 / 15c	45361	9.8	0.123	0.039



## Type selection

### DATA 700 – 600 V – unshielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
3 x 0.34 <sup>2</sup>	22 / 3c	45372	5.1	0.033	0.010
4 x 0.34 <sup>2</sup>	22 / 4c	45373	5.5	0.037	0.014
5 G 0.34 <sup>2</sup>	22 / 5c	45374	5.9	0.043	0.017
7 x 0.34 <sup>2</sup>	22 / 7c	45376	7.0	0.061	0.024
8 x 0.34 <sup>2</sup>	22 / 8c	45377	7.7	0.072	0.027
12 G 0.34 <sup>2</sup>	22 / 12c	45380	9.8	0.111	0.041
15 x 0.34 <sup>2</sup>	22 / 15c	45382	10.9	0.133	0.053

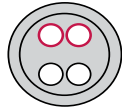


# DATA 700 TPI C

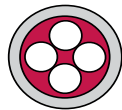
## Shielded continuous bending hi-flex PUR data cables



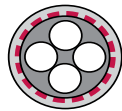
Picture obtainable.



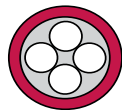
**Core insulation**  
KS-PP  
stranded in pairs



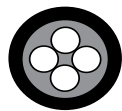
**Inner jacket**  
KS-TPE  
valley-sealed,  
pressure extruded,  
hi-flex design



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



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**200 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- measurement and control equipment
- sensor equipment
- data and signal cables
- extremely heavy loads

### Properties

- oil-resistant
- UV-stable
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

### Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	according to DIN 47100
<b>Core stranding:</b>	cores bundled in pairs in short pitches with minimal torsion
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black
<b>Inner jacket:</b>	KS-TPE

### Technical Data

<b>Temperature range:</b>	- 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 300/500 V according to UL 300 V
<b>Approvals:</b>	UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### DATA 700 TPI C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(1 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 1p)	<b>45622</b>	5.4	0.050	0.016
(2 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 2p)	<b>45623</b>	7.0	0.061	0.023
(3 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 3p)	<b>45624</b>	8.3	0.092	0.037
(4 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 4p)	<b>45625</b>	8.8	0.105	0.045
(5 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 5p)	<b>45626</b>	9.4	0.120	0.057
(6 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 6p)	<b>45627</b>	10.0	0.129	0.061
(8 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 8p)	<b>45628</b>	11.7	0.168	0.086
(10 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 10p)	<b>45629</b>	12.1	0.179	0.095
(12 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 12p)	<b>45630</b>	12.2	0.184	0.100
(16 x 2 x 0.25 <sup>2</sup> )	(23 / 2c / 16p)	<b>45632</b>	13.6	0.229	0.124
(1 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 1p)	<b>45634</b>	7.4	0.071	0.032
(2 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 2p)	<b>45635</b>	9.2	0.106	0.050
(3 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 3p)	<b>45636</b>	9.8	0.128	0.058
(4 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 4p)	<b>45637</b>	10.4	0.144	0.078
(5 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 5p)	<b>45638</b>	11.4	0.171	0.091
(6 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 6p)	<b>45639</b>	12.2	0.191	0.106
(10 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 10p)	<b>45641</b>	15.0	0.287	0.178
(12 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 12p)	<b>45642</b>	15.3	0.291	0.204
(14 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 14p)	<b>45643</b>	16.2	0.353	0.218
(1 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 2p)	<b>45646</b>	7.9	0.085	0.029
(2 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 1p)	<b>45647</b>	10.1	0.136	0.068
(4 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 4p)	<b>45649</b>	11.5	0.180	0.105
(5 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 5p)	<b>45650</b>	12.4	0.216	0.124
(6 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 6p)	<b>45651</b>	13.4	0.245	0.155
(8 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 8p)	<b>45652</b>	15.9	0.348	0.215
(12 x 2 x 0.75 <sup>2</sup> )	(18 / 2c / 12p)	<b>45654</b>	17.8	0.433	0.293
(12 x 2 x 1.0 <sup>2</sup> )	(17 / 2c / 12p)	<b>45665</b>	19.1	0.502	0.391

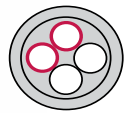


# DATA 700 TPI CD / Data/Power 700 TPI CD

## Double-shielded continuous bending hi-flex PUR data cables



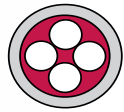
Picture obtainable.



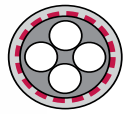
**Core insulation**  
KS-PP  
stranded in pairs



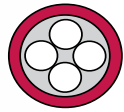
**Element shield**  
continuous bending hi-flex, tin-plated braided copper shield



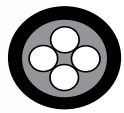
**Inner jacket**  
KS-TPE  
valley-sealed, pressure extruded, hi-flex design



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



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



**Jacket color black**  
ozone-resistant UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- measurement and control equipment
- sensor equipment
- data and signal cables
- extremely heavy loads

### Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

### Design

<b>Conductor:</b>	finely stranded conductors class 6 of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-optimized
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	according to DIN 47100 part number 45669, 45679: black with white numbers
<b>Core stranding:</b>	cores bundled in pairs in short pitches with minimal torsion
<b>Shielding:</b>	coverage nom. 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black/purple (type dependent) part number 45669, 45679: black/black with ICC color identification
<b>Inner jacket pairs:</b>	KS-TPE
<b>Inner jacket:</b>	KS-TPE

### Technical Data

<b>Temperature range:</b>	- 30 to + 90 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	20 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 30 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 300/300 V according to UL 300 V part number 45668, 45669, 45679: according to VDE 0.6/1 kV according to UL 1 kV

**Approvals:** UL, cUL, based on VDE

varying parameters possible – please contact us

## Type selection

### DATA 700 TPi CD – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(3 x (2 x 0.25 <sup>2</sup> ))	((24 / 2c) / 3p)	<b>45661</b>	12.4	0.197	0.077
(4 x (2 x 0.5 <sup>2</sup> ))	((20 / 2c) / 4p)	<b>45662</b>	15.6	0.326	0.158
(10 x (2 x 0.5 <sup>2</sup> ))	((20 / 2c) / 10p)	<b>45664</b>	28.6	0.870	0.335



### DATA/POWER 700 TPi CD – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(6 x (2 x 1 <sup>2</sup> ))	((20 / 2c) / 6p)	<b>45668</b>	22.9	0.658	0.300
(6 x (2 x 1.5 <sup>2</sup> ))	((16 / 2c) / 6p)	<b>45669</b>	27.0	0.928	0.403
(10 x (2 x 1.5 <sup>2</sup> ))	((16 / 2c) / 10p)	<b>45679</b>	37.5	1.771	0.752

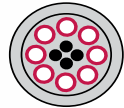


# PROFIBUS 700 C

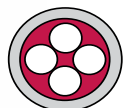
Shielded continuous bending hi-flex Profibus PUR cables



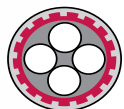
Picture obtainable.



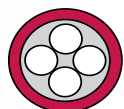
**Core insulation**  
KS-PP  
concentrically  
stranded



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



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
Coverage: approx. 90 %  
and foil shield



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

Up to  
**7 million**  
motion cycles!

Up to  
**100 m**  
travel length!



## Developed for

- Profibus applications
- sensor equipment
- data and signal cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-stable
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-optimized
<b>Core insulation:</b>	KS-PP/TPE
<b>Core identification:</b>	coloured, Profibus
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	purple (according to DESINA)
<b>Inner jacket:</b>	KS-PP/TPE

## Technical Data

<b>Temperature range:</b>	- 20 to + 60 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 15 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	≥ 10 MΩ x km
<b>Rated voltage:</b>	according to VDE 300/300 V
<b>Approvals:</b>	UL, based on VDE

varying parameters possible – please contact us

## Type selection

### PROFIBUS 700 C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(1 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 1p)	<b>45690</b>	9.5	0.086	0.039

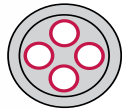


# CAN-BUS 700 C

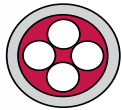
Shielded continuous bending hi-flex and robust PUR bus cables



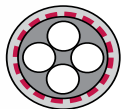
Picture obtainable.



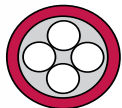
**Core insulation**  
KS-PP  
star quad  
stranded



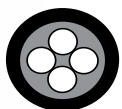
**Inner jacket**  
KS-PP  
valley-sealed,  
pressure extruded,  
hi-flex design



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii  
Coverage: approx. 85 %



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**200 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



## Developed for

- CAN bus applications
- sensor equipment
- data and signal cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-stable
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-optimized
<b>Core insulation:</b>	KS-PP/TPE
<b>Core identification:</b>	coloured, CAN-BUS
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black with ICC color identification based on the DESINA color code
<b>Inner jacket:</b>	KS-PP/TPE

## Technical Data

<b>Temperature range:</b>	- 30 to + 70 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10 \times \varnothing$ (- 30 to + 70 °C) $KR_{min} \geq 7.5 \times \varnothing$ (- 5 to + 70 °C)
<b><math>v_{max}</math> supported:</b>	3.5 m/s
<b><math>v_{max}</math> gliding:</b>	2 m/s
<b><math>a_{max}</math>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 300/300 V according to UL 300 V
<b>Approvals:</b>	UL, based on VDE

varying parameters possible – please contact us

## Type selection

### CAN-BUS 700 C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(1 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 1p)	<b>45670</b>	8.0	0.085	0.033
(2 x 2 x 0.5 <sup>2</sup> )	(20 / 2c / 2p)	<b>45672</b>	8.4	0.095	0.044

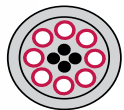


# USB S 700 C

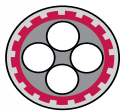
## Shielded continuous bending hi-flex USB PUR cables



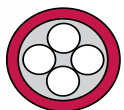
Picture obtainable.



**Core insulation**  
KS-PP  
concentrically  
stranded



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
Coverage: approx. 90 %  
and foil shield



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

Up to  
**7 million**  
motion cycles!

Up to  
**5 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- USB applications
- data and image transmission
- transmission lengths up to 5 m
- extremely heavy loads

### Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- ozone-resistant
- CFC-free
- silicone-free
- flame-retardant
- metal-free

### Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	type-optimized
<b>Core insulation:</b>	KS-PP/TPE
<b>Core identification:</b>	coloured, red, black/white, white, green
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	purple (according to DESINA)

### Technical Data

<b>Temperature range:</b>	- 10 to + 70 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 30 V according to UL 30 V
<b>Transmission length:</b>	nom. 5 m
<b>Approvals:</b>	UL, based on VDE

varying parameters possible – please contact us

## Type selection

### USB S 700 C

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(1 x 2 x 28 AWG + 2 x 20 AWG)	(28 / 2c + 20 / 2c)	<b>45686</b>	5.2	0.045	0.030

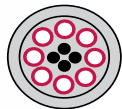


# INTERBUS 700 C

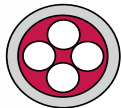
Shielded continuous bending hi-flex Interbus PUR cables



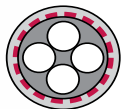
Picture obtainable.



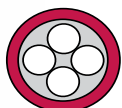
**Core insulation**  
KS-PP/TPE  
concentrically  
stranded



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



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii  
Coverage: approx. 85 %



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

Up to  
**7 million**  
motion cycles!

Up to  
**200 m**  
travel length!



## Developed for

- Interbus applications
- sensor equipment
- data and signal cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-stable
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- ozone-resistant

## Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PP/TPE
<b>Core identification:</b>	coloured, Interbus
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	purple (according to DESINA)

## Technical Data

<b>Temperature range:</b>	- 30 to + 70 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE, Ø 0,25 mm <sup>2</sup> 30 V Ø 1 mm <sup>2</sup> 300/300 V according to UL 300 V
<b>Approvals:</b>	UL, based on VDE
varying parameters possible – please contact us	

## Type selection

### INTERBUS 700 C – shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
(3 x 2 x 0.25 <sup>2</sup> )	(24 / 2c / 3p)	<b>45676</b>	8.3	0.085	0.047
(3 x 1 <sup>2</sup> + 3 x 2 x 0.25 <sup>2</sup> )	(17 / 2c + 24 / 2c / 3p)	<b>45678</b>	10.6	0.155	0.088

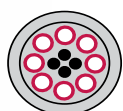


# CAT5E / CAT6 700 CD

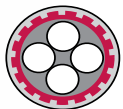
Shielded continuous bending hi-flex CAT5E / CAT6 PUR cable



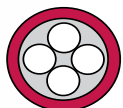
Picture obtainable.



**Core insulation**  
KS-PP/TPE  
concentrically  
stranded



**Overall double-shielding**  
continuous bending hi-flex,  
tin-plated copper braiding  
Coverage: approx. 90 %  
and foil shield



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

Up to  
**7 million**  
motion cycles!

Up to  
**60 m**  
travel length!



## Developed for

- computer cables
- sensor equipment
- data and signal cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant

## Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PP/TPE
<b>Core identification:</b>	coloured, white/blue, blue, white/orange, orange, white/green, green, white/brown, brown
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 85 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black with ICC color identification based on the DESINA color code

## Technical Data

<b>Temperature range:</b>	- 20 to + 60 °C
<b>Minimum bend radius while moved:</b>	$KR_{min} \geq 10 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	according to VDE 30 V according to UL 30 V
<b>Approvals:</b>	UL, based on VDE

varying parameters possible – please contact us

## Type selection

### CAT5E 700 CD – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
((4 x 2 x 0.15 <sup>2</sup> ))	((26 / 2c / 4p))	<b>45693</b>	6.8	0.055	0.030



### CAT6 700 CD – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
((4 x 2 x 0.24 <sup>2</sup> ))	((24 / 2c / 4p))	<b>45684</b>	10.8	0.145	0.078

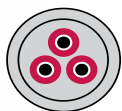


# KOAX 700 CD

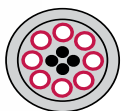
Continuous bending hi-flex PUR data cables



Picture obtainable.



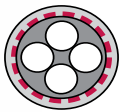
**Coax cable**  
flexible,  
continuous bending hi-flex



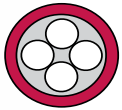
**Core insulation**  
KS-PP/TPE  
concentrically  
stranded



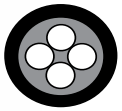
**Element shield**  
continuous bending hi-flex  
copper braiding  
– see type/design



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii  
Coverage: approx. 90 %



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**2 million**  
motion cycles!

Up to  
**50 m**  
travel length!



## Developed for

- image transmission
- sensor equipment
- data and signal cables
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- CFC-free
- silicone-free

## Design

<b>Conductor:</b>	extremely fine stranded conductors of bare copper wires in an optimized hi-flex design
<b>Core insulation:</b>	KS-PVC
<b>Core identification:</b>	part number 45680: black part number 45694: black with white numbers
<b>Core stranding:</b>	optimized stranding with maximum flexural strength
<b>Shielding:</b>	part number 45694: coverage 90 %
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black

## Technical Data

<b>Temperature range:</b>	type dependent
<b>Minimum bend radius while moved:</b>	type dependent
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Rated voltage:</b>	type dependent
<b>Approvals:</b>	type dependent
varying parameters possible – please contact us	

## Type selection

### KOAX 700 CD – 50 Ohm – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	approx. OD in mm	weight kg/m	Cu index kg/m
(1 x (1HF50)) 50 Ohm	(1 x (1HF50))	<b>45680</b>	9	0.059	0.021
(3 x (1HF50)) 50 Ohm	(3 x (1HF50))	<b>45683</b>	12	0.140	0.060
(5 x (1HF50)) 50 Ohm	(5 x (1HF50))	<b>45685</b>	15	0.230	0.099



## Type selection

### KOAX 700 CD – 75 Ohm – double-shielded

core number x nominal-cross-section in mm <sup>2</sup>	conductor cross section AWG (approximate values)	part number	approx. OD in mm	weight kg/m	Cu index kg/m
(1 x (1HF75)) 75 Ohm	(1 x (1HF75))	<b>45691</b>	9	0.061	0.024
(3 x (1HF75)) 75 Ohm	(3 x (1HF75))	<b>45694</b>	12	0.143	0.063
(5 x (1HF75)) 75 Ohm	(5 x (1HF75))	<b>45695</b>	15	0.238	0.102

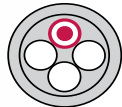


# LWL 700

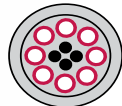
## Continuous bending hi-flex multi-mode glass fiber optic cable



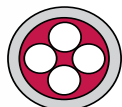
Picture obtainable.



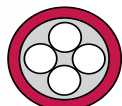
**Fiber-optic cable glass**  
flexible, continuous bending hi-flex, aramid fiber protection



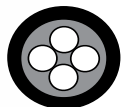
**Core insulation**  
KS-PP/TPE  
concentrically stranded



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



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



**Jacket color black**  
ozone-resistant  
UV-resistant

Up to  
**7 million**  
motion cycles!

Up to  
**500 m**  
travel length!

TSUBAKI KABELSCHLEPP  
cables for  
cable carriers



### Developed for

- light signal transmission
- sensor equipment
- data and signal cables
- extremely heavy loads

### Properties

- halogen-free
- Multimode 1300 nm
- RoHS-conform
- absolutely EMC safety
- CFC-free
- silicone-free
- flame-retardant
- metal-free

### Design

<b>Conductor:</b>	glass
<b>Conductor insulation:</b>	KS-PP/TPE
<b>Conductor identification:</b>	coloured, color coded
<b>Conductor stranding:</b>	concentrically around center element
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	black

### Technical Data

<b>Temperature range:</b>	- 30 to + 90 °C
<b>Minimum bend radius while moved*:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	3.5 m/s
<b>v<sub>max</sub> gliding:</b>	2 m/s
<b>a<sub>max</sub>:</b>	10 m/s <sup>2</sup>
<b>Approvals:</b>	IEC 60794 IEC 61300

varying parameters possible – please contact us

## Type selection

### LWL 700

number of conductors x nominal-cross-section in $\mu\text{m}$	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m
6G50/125	6G 50/125	<b>45696</b>	13.4	0.140
6G50/125	6G 62.5/125	<b>45697</b>	13.4	0.140
6G62,5/125	12G 50/125	<b>45698</b>	13.4	0.140
12G62,5/125	12G 62.5/125	<b>45699</b>	13.4	0.140

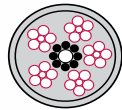


# SYSTEM S 700 C

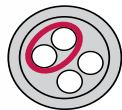
Shielded continuous bending hi-flex PUR signal cables



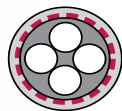
Picture obtainable.



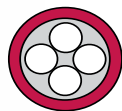
**Core insulation**  
KS-PP/TPE  
hybrid stranded



**Element shield**  
continuous bending hi-flex,  
in-plated braided copper shield  
with the option of foil shield  
– see type/design



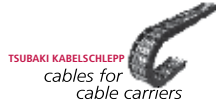
**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii  
Coverage: approx. 80 %



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

Up to  
**5 million**  
motion cycles!

Up to  
**50 meter**  
travel length



## Developed for

- KS alternative to OEM standards
- long transmission distances
- servo drives
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- DESINA

## Design

<b>Conductor:</b>	extra-fine wire conductor made from bare or tin-plated copper wires, design-optimized for maximum flexural strength
<b>Center element:</b>	type-optimized
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	according to OEM specifications (type-dependent)
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 80/85 % (type-dependent)
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	green (according to DESINA)

## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved*:</b>	$KR_{min} \geq 7.5 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	OEM type-dependent
<b>Approvals:</b>	UL, or UL/CSA (type-dependent), based on VDE

varying parameters possible – please contact us

## Type selection

### SYSTEM S 700 C –shielded

KS alternative to OEM-standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
6FX8008 1BD11	$(8 \times 2 \times 0.18^2)$	$(25 / 2c / 8p)$	<b>46100</b>	8.0	0.79	0.054
6FX8008 1DC00	$(2 \times 2 \times 0.25^2 + 1 \times 2 \times 0.38^2)$	$(23 / 2c / 2p + 21 / 2c / 1p)$	<b>46104</b>	7.0	0.72	0.041
6FX8008 1BD21	$(4 \times 2 \times 0.38^2 + 4 \times 0.5^2)$	$(21 / 2c / 4p + 20 / 4c)$	<b>46105</b>	10.1	0.135	0.083
6FX8008 1BD31	$(3 \times (2 \times 0.14^2) + 2 \times (0.5^2))$	$((26 / 2c) / 3p + (20) / 2c)$	<b>46110</b>	9.2	0.119	0.074
6FX8008 1BD41	$(3 \times (2 \times 0.14^2) + 4 \times 0.14^2 + 2 \times 0.5^2)$	$((26 / 2c) / 3p + 26 / 4c + 20 / 2c)$	<b>46115</b>	9.1	0.120	0.066
6FX8008 1BD51	$(3 \times (2 \times 0.14^2) + 4 \times 0.14^2 + 4 \times 0.25^2 + 2 \times 0.5^2)$	$((26 / 2c) / 3p + 26 / 4c + 23 / 2c / 4p) + 20 / 2c$	<b>46120</b>	9.8	0.138	0.075
6FX8008 1BD61	$(4 \times 2 \times 0.18^2)$	$(25 / 2c / 4p)$	<b>46125</b>	6.6	0.057	0.035
6FX8008 1BD71	$(2 \times 2 \times 0.18^2)$	$(25 / 2c / 2p)$	<b>46130</b>	5.2	0.042	0.024
6FX8008 1BD81	$(12 \times 0.23^2)$	$(23 / 12 c)$	<b>46135</b>	7.7	0.074	0.065

KS alternative to OEM-standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
INK 0448	$(4 \times 2 \times 0.25^2 + 2 \times 0.5^2)$	$(23 / 2c / 4p + 20 / 2c)$	<b>46400</b>	8.7	0.106	0.051
INK 0209	$(4 \times 2 \times 0.25^2 + 2 \times 1^2)$	$(23 / 2c / 4p + 17 / 2c)$	<b>46410</b>	9.1	0.099	0.064
INK 0280	$(3 \times 0.25^2 + 3 \times (2 \times 0.25^2) + 2 \times 1^2)$	$23 / 3c + ((23 / 2c) / 3p + 17 / 2c)$	<b>46412</b>	9.3	0.135	0.084
INK 0532	$(2 \times 0.14^2 + 4 \times 1^2 + (4 \times 0.14^2))$	$(26 / 2c + 17 / 4c + (26 / 4c))$	<b>46415</b>	10.0	0.142	0.081

KS alternative to OEM-standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
–	$(4 \times 2 \times 0.14^2 + 4 \times 0.5^2)$	$(26 / 2c / 4p + 20 / 4c)$	<b>46505</b>	8.8	0.100	0.052

KS alternative to OEM-standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
–	$(5 \times 2 \times 0.14^2 + 2 \times 0.5^2)$	$(26 / 2c / 5p + 20 / 2c)$	<b>46090</b>	9.3	0.098	0.072

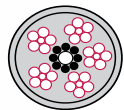


# SYSTEM M 700 C

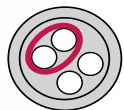
Shielded continuous bending hi-flex PUR motor/servo drive cables



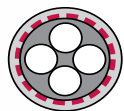
Picture obtainable.



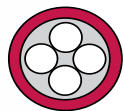
**Core insulation**  
KS-PP/TPE  
hybrid stranded



**Element shield**  
continuous bending hi-flex,  
in-plated braided copper shield  
with the option of foil shield  
– see type/design



**Overall shield**  
continuous bending hi-flex,  
tin-plated copper braiding  
for smallest bend radii  
Coverage: approx. 80 %



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

Up to  
**5 million**  
motion cycles!

Up to  
**50 meter**  
travel length



## Developed for

- KS alternative to OEM standards
- long transmission distances
- motor server/servo drives
- extremely heavy loads

## Properties

- oil-resistant
- UV-resistant
- RoHS-conform
- halogen-free
- CFC-free
- silicone-free
- flame-retardant
- DESINA

## Design

<b>Conductor:</b>	finely stranded conductors of bare copper wires in an optimized hi-flex design
<b>Center element:</b>	NEW – OEM types-optimized
<b>Core insulation:</b>	KS-PP
<b>Core identification:</b>	according to OEM specifications (type-dependent)
<b>Core stranding:</b>	cores type-optimized stranded in short pitches with minimal torsion
<b>Shielding:</b>	coverage 80/85 % (type-dependent)
<b>Outer jacket:</b>	KS-PUR
<b>Jacket color:</b>	orange (according to DESINA)

## Technical Data

<b>Temperature range:</b>	– 30 to + 90 °C
<b>Minimum bend radius while moved*:</b>	$KR_{min} \geq 7.5 \times \varnothing / \geq 25 \text{ mm}^2$ $KR_{min} \geq 10 \times \varnothing$
<b>v<sub>max</sub> supported:</b>	5 m/s
<b>v<sub>max</sub> gliding:</b>	5 m/s
<b>a<sub>max</sub>:</b>	50 m/s <sup>2</sup>
<b>Insulation resistance:</b>	$\geq 10 \text{ M}\Omega \times \text{km}$
<b>Rated voltage:</b>	type-dependent
<b>Approvals:</b>	UL, cUL or UL/CSA (type-dependent), based on VDE

varying parameters possible – please contact us

## Type selection

### SYSTEM M 700 C – shielded

KS alternative to OEM standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
6FX8008 1BB11	(4 G 1.5 <sup>2</sup> )	(16 / 4c)	<b>46200</b>	9.4	0.144	0.080
6FX8008 1BB21	(4 G 2.5 <sup>2</sup> )	(14 / 4c)	<b>46205</b>	10.9	0.209	0.120
6FX8008 1BB31	(4 G 4 <sup>2</sup> )	(12 / 4c)	<b>46210</b>	12.2	0.298	0.195
6FX8008 1BB41	(4 G 6 <sup>2</sup> )	(10 / 4c)	<b>46215</b>	14.7	0.439	0.296
6FX8008 1BB51	(4 G 10 <sup>2</sup> )	(8 / 4c)	<b>46220</b>	17.8	0.660	0.445
6FX8008 1BB61	(4 G 16 <sup>2</sup> )	(6 / 4c)	<b>46225</b>	21.9	1.025	0.730
6FX8008 1BB25	(4 G 25 <sup>2</sup> )	(4 / 4c)	<b>46230</b>	25.5	1.225	1.100
6FX8008 1BB35	(4 G 35 <sup>2</sup> )	(2 / 4c)	<b>46235</b>	28.9	1.685	1.522
6FX8008 1BB50	(4 G 50 <sup>2</sup> )	(1 / 4c)	<b>46240</b>	33.7	2.405	2.165
6FX8008 1BA11	(4 G 1,5 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(16 / 4c + (16 / 2c))	<b>46150</b>	11.9	0.233	0.136
6FX8008 1BA21	(4 G 2,5 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(14 / 4c + (16 / 2c))	<b>46155</b>	13.7	0.313	0.178
6FX8008 1BA31	(4 G 4 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(12 / 4c + (16 / 2c))	<b>46160</b>	15.1	0.416	0.268
6FX8008 1BA41	(4 G 6 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(10 / 4c + (16 / 2c))	<b>46165</b>	17.1	0.546	0.358
6FX8008 1BA51	(4 G 10 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(8 / 4c + (16 / 2c))	<b>46170</b>	19.7	0.757	0.515
6FX8008 1BA61	(4 G 16 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(6 / 4c + (16 / 2c))	<b>46175</b>	23.4	1.095	0.802
6FX8008 1BA25	(4 G 25 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(4 / 4c + (16 / 2c))	<b>46250</b>	26.9	1.540	1.144
6FX8008 1BA35	(4 G 35 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(2 / 4c + (16 / 2c))	<b>46255</b>	31.2	2.033	1.850
6FX8008 1BA50	(4 G 50 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ))	(1 / 4c + (16 / 2c))	<b>46260</b>	34.3	2.755	2.540

KS alternative to OEM standard	type KS / construction	conductor cross section AWG (approximate values)	part number	max OD in mm	weight kg/m	Cu index kg/m
INK 0653	(4 G 1 <sup>2</sup> + 2 x (2 x 0.75 <sup>2</sup> ))	(17 / 4c + (18 / 2c) / 2p)	<b>46300</b>	12.7	0.225	0.136
INK 0650	(4 G 1.5 <sup>2</sup> + 2 x (2 x 0.75 <sup>2</sup> ))	(16 / 4c + (18 / 2c) / 2p)	<b>46305</b>	12.5	0.290	0.170
INK 0602	(4 G 2.5 <sup>2</sup> + 2 x (2 x 1 <sup>2</sup> ))	(14 / 4c + (18 / 2c) / 2p)	<b>46315</b>	14.9	0.336	0.229
	(4 G 4 <sup>2</sup> + (2 x 1 <sup>2</sup> ) + (2 x 1.5 <sup>2</sup> ))	(12 / 4c + (17 / 2c) / 2p + 16 / 2c)	<b>46323</b>	17.5	0.475	0.328
INK 0604	(4 G 6 <sup>2</sup> + (2 x 1 <sup>2</sup> ) + (2 x 1.5 <sup>2</sup> ))	(10 / 4c + (17 / 2c) / 2p + 16 / 2c)	<b>46330</b>	19.1	0.615	0.445
INK 0605	(4 G 10 <sup>2</sup> + (2 x 1.5 <sup>2</sup> ) + (2 x 1 <sup>2</sup> ))	(8 / 4c + (17 / 2c) / 2p + 16 / 2c)	<b>46345</b>	23.3	0.875	0.626
INK 0606	(4 G 16 <sup>2</sup> + 2 x (2 x 1.5 <sup>2</sup> ))	(6 / 4c + (16 / 2c) / 2p)	<b>46350</b>	26.5	1.170	0.922
INK 0607	(4 G 25 <sup>2</sup> + 2 x (2 x 1.5 <sup>2</sup> ))	(4 / 4c + (16 / 2c) / 2p)	<b>46355</b>	30.8	1.590	1.280
INK 0667	(4 G 35 <sup>2</sup> + 2 x (2 x 1.5 <sup>2</sup> ))	(2 / 4c + (16 / 2c) / 2p)	<b>46360</b>	32.8	2.196	1.621
INK 0668	(4 G 50 <sup>2</sup> + 2 x (2 x 1.5 <sup>2</sup> ))	(1 / 4c + (16 / 2c) / 2p)	<b>46365</b>	37.3	3.000	2.600



Subject to change.

Additional cable types upon request.

kabelschlepp.com

Questions about cable carrier cables? Call: 1 (800) 443-4216

# Pre-assembled OEM high flex cables

You need connection-ready harnessed **bus cables**?  
Or harnessed **signal- or power cables** for drives –  
in accordance to OEM specifications?

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

## Connection-ready harnessed cables

- easy to order with just order number and cable length
- in accordance to OEM 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 cables:



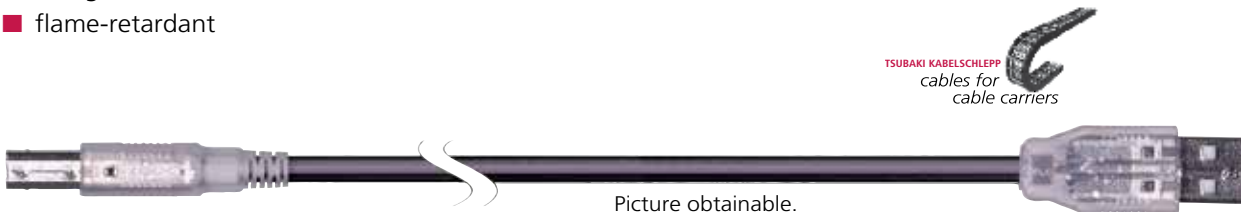
## USB S 700 C pre-assembled

### Shielded continuous bending hi-flex USB PUR cable

**Properties of the cables:**

- UV-resistant
- CFC-free
- Minimum bend radius 10 x Ø
- halogen-free
- flame-retardant

- Approvals: UL, based on VDE, RoHS conform



cable type	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
USB 700 C – type A/B	5.2	10 x Ø

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

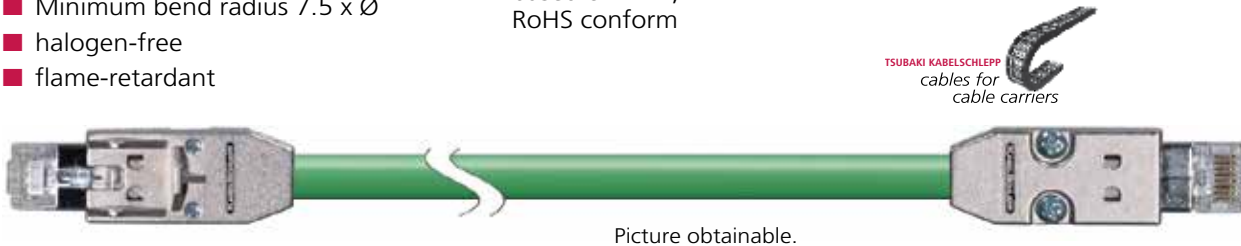
## CAT5E 700 C pre-assembled

### Shielded continuous bending hi-flex CAT5E PUR cable

**Properties of the cables:**

- UV-stable
- CFC-free
- Minimum bend radius 7.5 x Ø
- halogen-free
- flame-retardant

- Approvals: UL, based on VDE, RoHS conform



cable type	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
CAT5E 8-stranded straight	6.80	7.5 x Ø
CAT5E 8-stranded cross-over	6.80	7.5 x Ø

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

# Pre-assembled **PUR** signal cables

Cables with connections compatible with the OEM standards

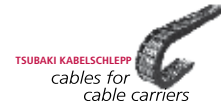
**Properties of the cables:**

- UV-resistant
  - CFC-free
  - Minimum bend radius 7.5 x Ø
  - halogen-free
  - flame-retardant
- Approvals:  
UL, CSA,  
based on VDE,  
RoHS conform



## Signal basic cables

**PUR** design



KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 2AD00	9.50	7.5 x Ø
6FX8002 2CA31	10.10	7.5 x Ø
6FX8002 2CA51	9.50	7.5 x Ø
6FX8002 2CA61	9.50	7.5 x Ø
6FX8002 2CF02	9.50	7.5 x Ø
6FX8002 2CH00	9.50	7.5 x Ø
6FX8002 2EQ00	10.10	7.5 x Ø
6FX8002 2EQ10	10.10	7.5 x Ø

Varying parameters possible – contact us about options.

## Signal extension cables

**PUR** design



KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 2AD04	9.50	7.5 x Ø
6FX8002 2CA34	10.10	7.5 x Ø
6FX8002 2CA54	9.50	7.5 x Ø
6FX8002 2CB54	9.30	7.5 x Ø
6FX8002 2CF04	9.50	7.5 x Ø
6FX8002 2EQ14	10.10	7.5 x Ø

Varying parameters possible – contact us about options.

## Pre-assembled **PUR** power cables

Cables with connections compatible with the OEM standards

**Properties of the cables:**

- UV-resistant
  - CFC-free
  - Minimum bend radius 7.5 x Ø
  - halogen-free
  - flame-retardant
- Approvals: UL, CSA, based on VDE, RoHS conform



### Power basic cables without brake wires

**PUR** design

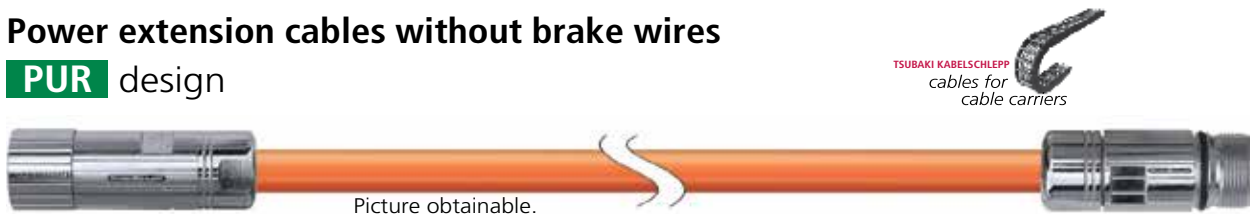


KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 5CA01	10.40	7.5 x Ø
6FX8002 5CA11	11.70	7.5 x Ø
6FX8002 5CA21	10.40	7.5 x Ø
6FX8002 5CA31	11.70	7.5 x Ø
6FX8002 5CA41	13.50	7.5 x Ø
6FX8002 5CA51	16.30	7.5 x Ø
6FX8002 5CA61	19.70	7.5 x Ø

Varying parameters possible – contact us about options.

### Power extension cables without brake wires

**PUR** design



KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 5CA05	10.40	7.5 x Ø
6FX8002 5CA15	11.70	7.5 x Ø
6FX8002 5CA28	10.40	7.5 x Ø
6FX8002 5CA38	11.70	7.5 x Ø
6FX8002 5CA48	13.50	7.5 x Ø
6FX8002 5CA58	16.30	7.5 x Ø
6FX8002 5CA68	19.70	7.5 x Ø

Varying parameters possible – contact us about options.

# Pre-assembled **PUR** power cables

Cables with connections compatible with the OEM standards

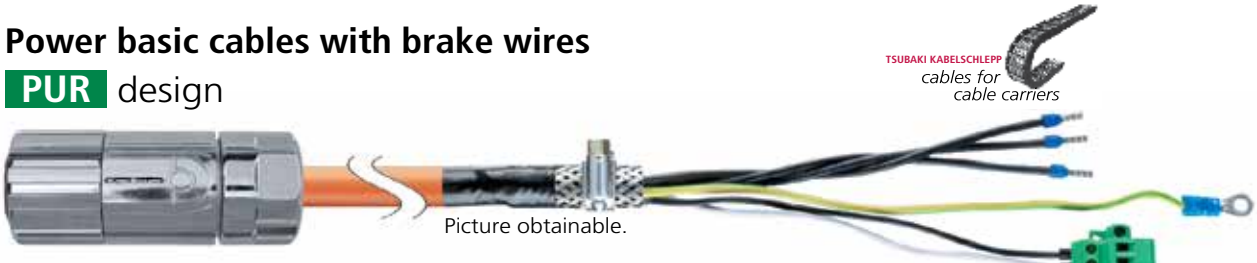
**Properties of the cables:**

- UV-resistant
  - CFC-free
  - Minimum bend radius 7.5 x Ø
  - halogen-free
  - flame-retardant
- Approvals: UL, CSA, based on VDE, RoHS conform



## Power basic cables with brake wires

**PUR** design

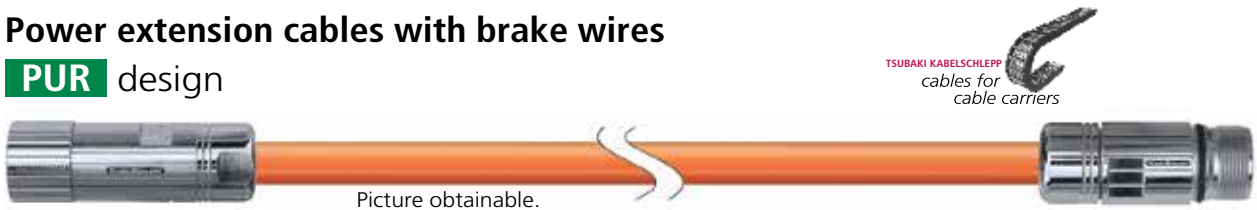


KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 5DA01	12.60	7.5 x Ø
6FX8002 5DA11	14.00	7.5 x Ø
6FX8002 5DA21	12.60	7.5 x Ø
6FX8002 5DA31	14.00	7.5 x Ø

Varying parameters possible – contact us about options.

## Power extension cables with brake wires

**PUR** design



KS alternative to OEM standard	approx. diameter mm	minimum bend radius moved KR <sub>min</sub>
6FX8002 5DA05	12.60	7.5 x Ø
6FX8002 5DA15	14.00	7.5 x Ø
6FX8002 5DA28	12.60	7.5 x Ø
6FX8002 5DA38	14.00	7.5 x Ø

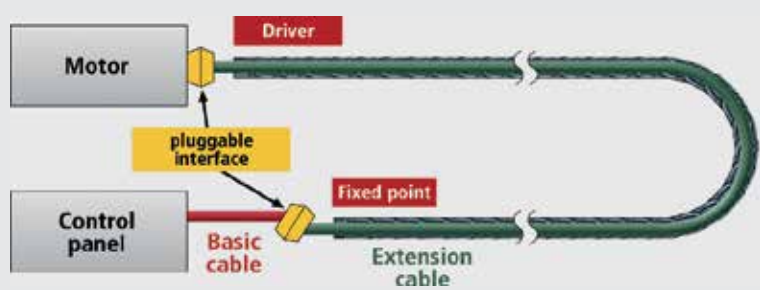
Varying parameters possible – contact us about options.

### Extension cables



In addition to connection-ready harnessed basic cables, **extension cables** are also available.

These are available as **signal and power cables** for drives – according to OEM specifications.

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



## Application parameters

Application parameters*	CONTROL 200/200 C	CONTROL 400/400 C	POWER 400/400 C	CONTROL / POWER 700/700 C	SYSTEM S 700 SYSTEM M 700
Acceleration a	up to 10 m/s <sup>2</sup>	up to 20 m/s <sup>2</sup>	up to 20 m/s <sup>2</sup>	up to 50 m/s <sup>2</sup>	subject to cable type
Speed v, self-supporting	up to 3,5 m/s	up to 5 m/s	up to 5 m/s	up to 20 m/s	subject to cable type
Speed v, gliding	up to 2 m/s	up to 5 m/s	up to 3 m/s	up to 5 m/s	subject to cable type
Travel length recommended application areas	up to 25 m	up to 50 m	up to 50 m	up to 500 m	up to 50 m
DESINA	subject to cable type	subject to cable type	subject to cable type	subject to cable type	subject to cable type
Cold-resistant	•	•	•	•••	••
Minimum bend radius, unshielded	KR <sub>min</sub> ≥ 10 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø	–
Minimum bend radius, shielded	KR <sub>min</sub> ≥ 10 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø	KR <sub>min</sub> ≥ 7,5 x Ø*	subject to cable type
UL-Approval 	+	+	+	+	+
Combined UL/CSA-Approval 	subject to cable type	subject to cable type	+	+	subject to cable type
Operating temperature range	- 5 to + 80 °C	- 5 to + 80 °C	- 5 to + 80 °C	- 30 to + 90 °C*	subject to cable type
UV-resistance	+	+	+	• jacket coloured ••• jacket black	• jacket coloured ••• jacket black
OEM-specification	–	–	–	–	+
OEM-specification	–	–	–	–	+
CFC-free	+	+	+	+	+
flame-retardant	+	+	+	+	+
halogen-free	–	–	–	+	subject to cable type
oil-resistant	+	+	+	+	+
silicone-free	+	+	+	+	+

+ Yes – No • suitable •• well suitable ••• very well suitable

\* Recommended values for the design of KABELSCHLEPP cable carrier systems, deviations possible in case of data cables.

## Electrical load capacity

Cross section	PVC	PUR	PUR Single cores
0.75 mm <sup>2</sup>	12 A		15 A
1 mm <sup>2</sup>	15 A		19 A
1.5 mm <sup>2</sup>	18 A	23 A	24 A
2.5 mm <sup>2</sup>	26 A	32 A	32 A
4 mm <sup>2</sup>	34 A	42 A	42 A
6 mm <sup>2</sup>	44 A	54 A	54 A
10 mm <sup>2</sup>	61 A	75 A	73 A
16 mm <sup>2</sup>	82 A	100 A	98 A
25 mm <sup>2</sup>	108 A	127 A	141 A
35 mm <sup>2</sup>	135 A	158 A	176 A
50 mm <sup>2</sup>	168 A	192 A	216 A
70 mm <sup>2</sup>	207 A	246 A	279 A
95 mm <sup>2</sup>	250 A	298 A	342 A
120 mm <sup>2</sup>	292 A	346 A	400 A
150 mm <sup>2</sup>	335 A	399 A	464 A
185 mm <sup>2</sup>	382 A	456 A	533 A
240 mm <sup>2</sup>	453 A	538 A	634 A
300 mm <sup>2</sup>	523 A	621 A	736 A
400 mm <sup>2</sup>			868 A
500 mm <sup>2</sup>			998 A
700 mm <sup>2</sup>			1240 A

These values are extracted from DIN VDE 0298-4. The laying procedure "Continuous flexible/moving in a cable carrier" is not standardized. Due to this fact these values are for orientation only. Please observe reduction factors for cumulation of cables and varying ambient temperatures while selecting cables. Please observe additional standards which will be security-relevant for the application. All data in this publication are to be used as guidelines for planning purposes only. In particular, we do not guarantee that the products supplied suit the users application. It is the customer's responsibility to verify that our products fit the users application specifications.

### Conversion factors for different ambient temperatures

Ambient temperatures in °C	Permitted/recommended operating temperature at conductor					
	40 °C	60 °C	70 °C	80 °C	85 °C	90 °C
	Conversion factors, must be applied to the loading capacity information!					
10	1.73	1.29	1.22	1.18	1.17	1.15
15	1.58	1.22	1.17	1.14	1.13	1.12
20	1.41	1.15	1.12	1.10	1.09	1.08
25	1.22	1.08	1.06	1.05	1.04	1.04
<b>30</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>
35	0.71	0.91	0.94	0.95	0.95	0.96
40	–	0.82	0.87	0.89	0.90	0.91
45	–	0.71	0.79	0.84	0.85	0.87
50	–	0.58	0.71	0.77	–	0.82
55	–	0.41	0.61	0.71	–	0.76
60	–	–	0.50	0.63	–	0.71
65	–	–	0.35	0.55	–	0.65
70	–	–	–	0.45	–	0.58
75	–	–	–	0.32	–	0.50
80	–	–	–	–	–	0.41
85	–	–	–	–	–	0.29
90	–	–	–	–	–	–
95	–	–	–	–	–	–

## Color codes

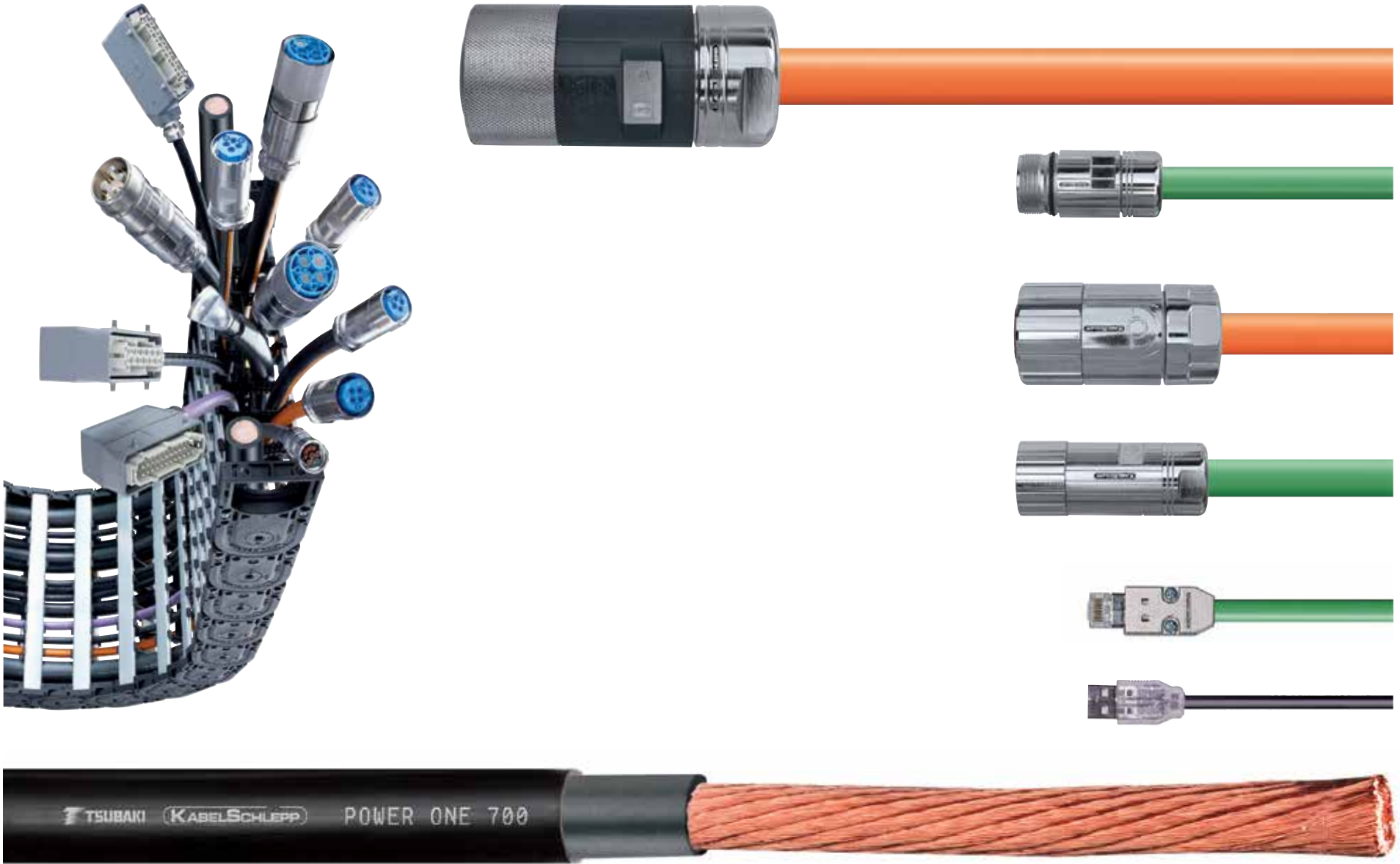
### DIN 47100 color code

1 white	11 grey-pink	21 white-blue	31 green-blue	41 grey-black
2 brown	12 red-blue	22 brown-blue	32 yellow-blue	42 pink-black
3 green	13 white-green	23 white-red	33 green-red	43 blue-black
4 yellow	14 brown-green	24 brown-red	34 yellow-red	44 red-black
5 grey	15 white-yellow	25 white-black	35 green-black	
6 pink	16 yellow-brown	26 brown-black	36 yellow-black	
7 blue	17 white-grey	27 grey-green	37 grey-blue	
8 red	18 grey-brown	28 yellow-grey	38 pink-blue	
9 black	19 white-pink	29 pink-green	39 grey-red	
10 purple	20 pink-brown	30 yellow-pink	40 pink-red	



The first color describes the base color of the core insulation, the second color that of the printed ring.

## Copper wire dimensions according to AWG


AWG-No.	Cross section mm <sup>2</sup>	Diameter mm	AWG-No.	Cross section mm <sup>2</sup>	Diameter mm
500	254	20.7	16	1.31	1.29
400	203	18.9	17	1.04	1.15
350	178	17.3	18	0.823	1.024
300	152	16	19	0.653	0.912
250	127	14.6	20	0.519	0.812
4/0	107.2	11.68	21	0.412	0.723
3/0	85	10.4	22	0.325	0.644
2/0	67.5	9.27	23	0.259	0.573
0	53.4	8.25	24	0.205	0.511
1	42.4	7.35	25	0.163	0.455
2	33.6	6.54	26	0.128	0.405
3	26.7	5.83	27	0.102	0.361
4	21.2	5.19	28	0.0804	0.321
5	16.8	4.62	29	0.0646	0.286
6	13.3	4.11	30	0.0503	0.255
7	10.6	3.67	31	0.04	0.227
8	8.366	3.26	32	0.032	0.202
9	6.63	2.91	33	0.0252	0.18
10	5.26	2.59	34	0.04	0.16
11	4.15	2.3	35	0.0161	0.143
12	3.3	2.05	36	0.0123	0.127
13	2.62	1.83	37	0.01	0.113
14	2.08	1.63	38	0.00795	0.101
15	1.65	1.45	39	0.00632	0.0897



## Definitions

Definition	Description	Example
<b>Design</b>	number of cores x nominal cross-section in mm <sup>2</sup>	3 G 1.5 <sup>2</sup>
<b>Design AWG</b>	American Wire Gauge	18AWG/2c
<b>Shielding</b>	without	4 G 1.5 <sup>2</sup>
	total	(4 G 1.5 <sup>2</sup> )
	total and pair	(4 x (2 x 0.5 <sup>2</sup> ))
	total and pair and center element	((2 x 0.75 <sup>2</sup> ) + 2 x (1 <sup>2</sup> ))
<b>DESINA</b>	decentral and standardized installation technology on machine tools	
<b>Flame-retardant</b>	according to UL or equal specification	
<b>Halogen-free</b>	according to VDE 0282-13 attachment C	700 Series
<b>Oil-resistant</b>	for special applications	see application parameters
<b>UV-resistant</b>	without any restriction	outer jacket: black / black + ICC
<b>UV-stable</b>	time restriction possible	outer jacket: coloured
<b>Stranding</b>	core stranding in bundle technology	5 x 5 x 2.5 <sup>2</sup> = 25 x 2.5 <sup>2</sup>
	core stranding mixed, in hybrid technology	((4 G 50 <sup>2</sup> ) + 2 x (2 x 1.5 <sup>2</sup> ))
	core stranding in layer design	7 x 1.5 <sup>2</sup>
	core stranding in pairs	(8 x 2 x 0.75 <sup>2</sup> )

## Abbreviations

Abbreviation	Description	Note
<b>C</b>	total shield with Cu-braid	optical coverage
<b>D</b>	double-shielded	CD identification
<b>Ø max</b>	maximum outer diameter	see type selection
<b>EMV</b>	electromagnetic compatibility	use shielded cables
<b>LWL</b>	fiber-optic cables – fiber/diameter	e.g. 6G62,5/125
<b>KS-PUR</b>	special KABELSCHLEPP compound	e.g. 11 Y
<b>KS-TPE-E</b>	Thermoplastic Polyester Elastomer	12 Y
<b>KS-PP/TPE</b>	special KABELSCHLEPP compound	e.g. 9 Y
<b>KS-PVC</b>	special KABELSCHLEPP PVC compound	Y
<b>UL/CSA</b>	USA/Canada approval	

## Chemical resistance

Chemical product	Resistance				
	Control 200	Control/Power 400	Control/Power 700	Data 700 C/CD	Control/Power 700 C
<b>Inorganic chemicals / aqueous solutions, neutral</b>					
Water	✓	✓	✓	✓	✓
Common salt (10%)	✓	✓	✓	✓	✓
Sodium sulphate (10%)	✓	✓	✓	✓	✓
<b>Aqueous solutions, alkaline</b>					
Soda (10%)	✓	✓	✓	✓	✓
<b>Aqueous solutions, acidic</b>					
Aqueous solutions, oxidising	◆	◆	✓	✓	✓
Hydrogen peroxide (3%)	✓	✓	✓	✓	✓
Potassium permanganate (2%)	✓	✓	✓	✓	✓
<b>Inorganic acids</b>					
Concentrated hydrochloric acid	-	-	-	-	-
Hydrochloric acid (10 %)	✓	✓	✓	✓	✓
Concentrated sulphuric acid	-	-	✓	✓	✓
Sulphuric acid (10 %)	✓	✓	✓	✓	✓
Concentrated nitric acid	-	-	✓	✓	✓
Nitric acid (10 %)	○	○	✓	✓	✓
<b>Inorganic alkalis</b>					
Concentrated sodium hydroxide	-	-	✓	✓	✓
Sodium hydroxide (10 %)	✓	✓	✓	✓	✓
Concentrated caustic potash solution	-	-	✓	✓	✓
Caustic potash solution (10 %)	✓	✓	✓	✓	✓
Concentrated ammonia	○	○	✓	✓	✓
Ammonia (10 %)	✓	✓	✓	✓	✓
<b>Organic chemicals / organic acids</b>					
Concentrated acetic acid	-	-	✓	✓	✓
Acetic acid (10% in H <sub>2</sub> O)	✓	✓	✓	✓	✓
Tartaric acid (10% in H <sub>2</sub> O)	✓	✓	✓	✓	✓
Citric acid (10% in H <sub>2</sub> O)	-	-	-	-	-
<b>Ketones</b>					
Acetone	-	-	-	-	-
Methyl ethyl ketone (MEK)	-	-	-	-	-
<b>Alcohols</b>					
Ethyl alcohol (white spirits)	-	-	○	○	○
Isopropyl alcohol	-	-	✓	✓	✓
Diethylene glycol	○	○	✓	✓	✓
<b>Aromatics</b>					
Toluene	-	-	-	-	-
Xylene	-	-	-	-	-
<b>Fuels</b>					
Petrol	-	-	✓	✓	✓
Diesel	○	○	✓	✓	✓
Kerosene	-	-	✓	✓	✓
<b>Synthetic oils / lubricating oil</b>					
ASTM oil #2	✓	✓	✓	✓	✓
<b>Hydraulic fluid</b>					
Based on mineral oil	-	-	✓	✓	✓
Based on glycol	-	-	✓	✓	✓
Based on synthetic ester	-	-	◆	◆	◆
<b>Vegetable oils</b>					
Rapeseed oil	○	○	✓	✓	✓
Olive oil	○	○	✓	✓	✓
Soybean oil	○	○	✓	✓	✓
<b>Other</b>					
Seawater	✓	✓	✓	✓	✓

✓ = resistant    - = not resistant    ○ = short-term resistance    ◆ = no data

## You don't know just how good a cable is until you see it in the carrier

Nothing proves the excellent performance of our products better than an uncompromising test



kabelschlepp.com

The following test set-ups were used as the basis for the indicated motion cycles:

### Series 200

Test KS VL – 1 200



Travel length:	<b>13,8 m</b>	Speed:	<b>2 m/s</b>
Acceleration:	<b>2,2 m/s<sup>2</sup></b>	Radius:	<b>9 to 11 x cable diameter</b>

**Result: over two million cycles**

### Series 400

Test KS VL – 2 400



Travel length:	<b>17,4 m</b>	Speed:	<b>2,6 m/s</b>
Acceleration:	<b>2,2 m/s<sup>2</sup></b>	Radius:	<b>7,5 to 8 x cable diameter</b>

**Result: over four million cycles**

### Series 700

Test KS VL – 3 700



Travel length:	<b>28,3 m</b>	Speed:	<b>3 m/s</b>
Acceleration:	<b>2,2 m/s<sup>2</sup></b>	Radius:	<b>7,5 to 8 x cable diameter</b>

**Result: over seven million cycles**

Subject to change.

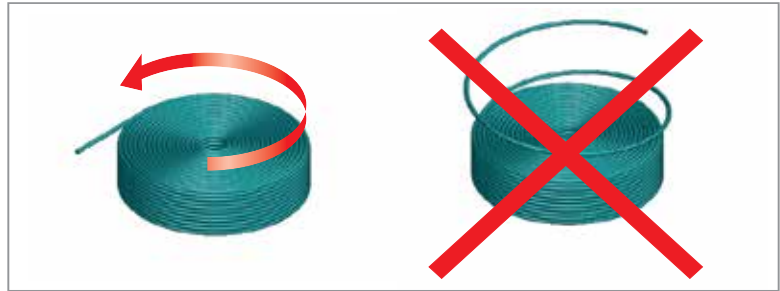
**With a cable from KABELSCHLEPP, you play it safe!**

Questions about cable carrier cables? Call: 1 (800) 443-4216

## Installing cables into the cable carrier

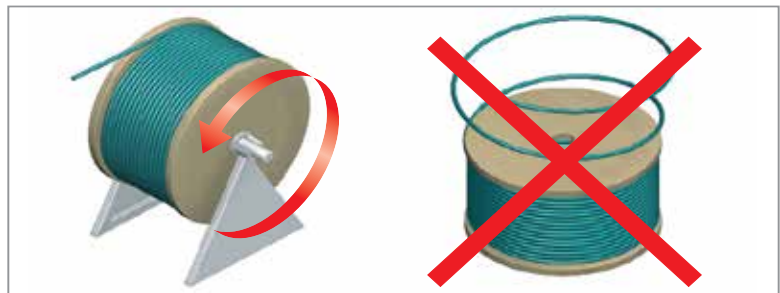
### Do not cut ring-coiled cables

When cutting cables prior to installation into the cable carrier, ring-coiled cables must be unspooled tangentially and not be pulled in loops off the top.



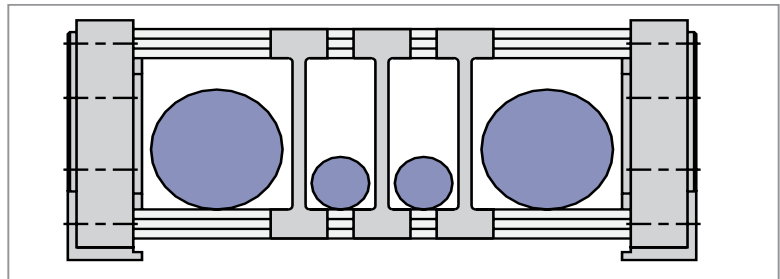
### Uncoil cables from reels torsion-free

When cutting cables prior to installation into the cable carrier, drum-coiled cables must be unreeled, twist- and torsion-free.

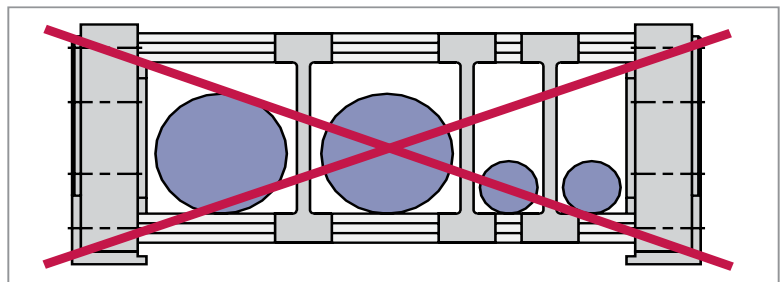


### Weight distribution inside the carrier cavity

When inserting the cables into the cable carrier, the cable weight is to be symmetrically distributed within the cavity width to assure maximum cycle life of the cable carrier and reduce the likelihood of cable carrier twist or tilt during operation.



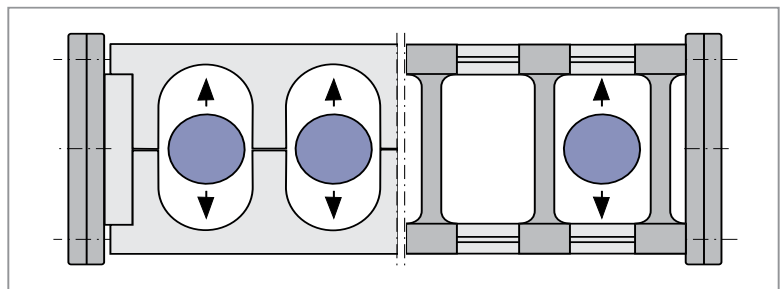
■ Right weight distribution



■ False weight distribution

### Cable length

A change in the length of the cables after installation can be balanced out in the carrier loop. Thus, the cables must move freely inside the cable carrier at sufficient length and torsion-free.

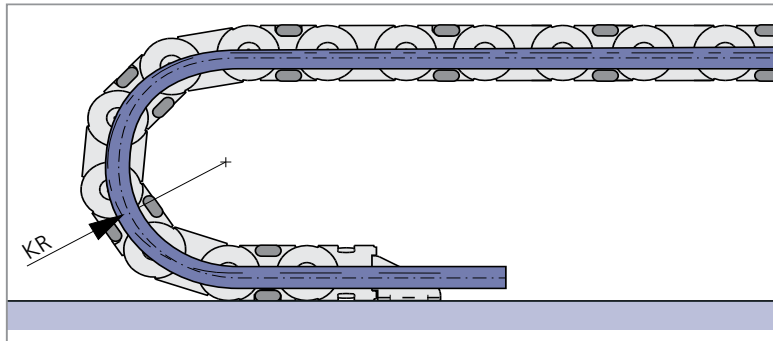


## Installing cables into the carrier

The cables must be inserted into the carrier system in a way to allow them to move independently through the carrier's bend radius.

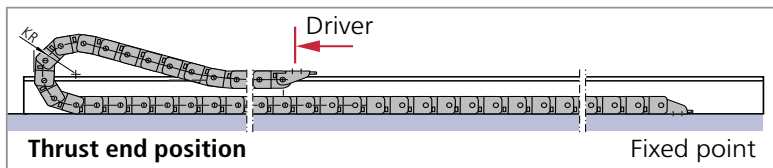
### How to do it:

- Always allow sufficient clearance between the dividers and within the cable carrier cavity area.
- Insert cables tension-free.
- Never tie-wrap or fasten cables onto the carrier links or cross bars!



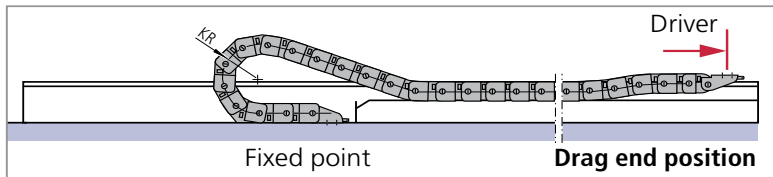
## Strain relief at the driven end of the carrier

After positioning the driven end (moving end) in the **retracted position** the cables are strain-relieved at the moving end.



## Correct cable length inside the carrier

After repositioning the driven end (moving end) in the carrier's **extended position** the cables are checked for tension-free length in the carrier loop and if necessary, pushed further into the carrier.



## Strain relief at the fixed end of the carrier

At this tension-free "installation length", the cables are then strain-relieved at the carrier's fixed point.



## Cable scout

### Cable dimensioning for your cable carrier application

**Inquiring party:** Company: \_\_\_\_\_  
 Contact person: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 E-mail: \_\_\_\_\_  
 Street address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Cable application:** Is the cable being used in a cable carrier?  
 yes  no

**Number of cables:** \_\_\_\_\_ **please attach cable list**

**Carrier application:** Machine type: \_\_\_\_\_  
 Carrier type: \_\_\_\_\_  
 Free installation height H (mm): \_\_\_\_\_ Bend radius of carrier KR (mm): \_\_\_\_\_

**Operational parameters:** Travel length  $L_S$  (m): \_\_\_\_\_ Speed v (m/s): \_\_\_\_\_  
 Acceleration a (m/s<sup>2</sup>): \_\_\_\_\_ approx. number of cycles (per year): \_\_\_\_\_

**Cable design:** No. of cores: \_\_\_\_\_ Core cross-section: \_\_\_\_\_

**Shielding:**  unshielded  shielded  doubled shielded

**Purchases & delivery:** approx. requirements per year (m): \_\_\_\_\_ Lot size (m): \_\_\_\_\_  
 coil  reel  
 Desired date for 1st delivery: \_\_\_\_\_ Length of 1st delivery: \_\_\_\_\_  
 I would like a sample of a similar part no.: \_\_\_\_\_

**Core identification:**  numbers + 1x gn/ye  color acc. to DIN 47100

**Voltage:** Rated voltage U (V): \_\_\_\_\_

**Capacitance:** core/core c (nF/m): \_\_\_\_\_ core/shield c (nF/m): \_\_\_\_\_

**Operating conditions:** Operating temperature range:  $T_{min}$  (°C): \_\_\_\_\_  $T_{max}$  (°C): \_\_\_\_\_  
 Ambient conditions:  
 indoor application  outdoor application  
 Chemical resistance: \_\_\_\_\_  
 UV radiation: \_\_\_\_\_  
 other radiation: \_\_\_\_\_

**Approvals:**  UL  UL/CSA other \_\_\_\_\_

**Other:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Application examples



- TOTALTRAX – the system solution for time-saving final assembly and short rework



- Complete systems with a total weight of up to 10+ tons
- Customer inspection, if desired, at the factory
- Special packaging and transportation logistics for delivery to the construction site
- Up to 50 % time saving during final assembly



- MC-crane cable with cable package, SZL strain relief driven-end plate and sea-watertight AL-guide channel for worldwide use in port cranes



- High-speed test stand
- Durability tests exceeding 25 million cycles



- Optimized SZL-strain relief for long cable life – safe, compact, easy-to-assemble



- 125 m travel length: carrier fully harnessed with Series 700

## Definitions

### Oil-resistant

The term "oil-resistant" means the chemical resistance of cables that are used in an environment where they are continuously exposed to oil or lubricants. Tests are carried out using approx. 55 oils and lubricants.

### UV-resistant

The UV-resistance describes the resistance of the cable jacket to premature aging of the material due to sunlight. In addition, cables are also weather-resistant.

### CFC-free

#### Chlorofluorocarbons

Due to the very detrimental effects of CFCs on the environment, and in particular on the ozone layer, we do not use them either in the manufacture of our products or in the products themselves.

### Flame-retardant

Flame-retardant describes the fire behavior of cables tested according to IEC 60331. Flame retardant is a characteristic of the materials used in the insulation according to which it only catches fire after a delay when it is subjected to an open flame, and extinguishes itself when the flame is removed.

### Silicone-free

The silicones used in cables are a very serious problem when applying paint, because if a surface contains silicone, paints and lacquers will not adhere to it properly. That is why all of our cables are generally silicone-free.

### RoHS-compliant

#### Restriction of the use of certain hazardous substances in electrical and electronic equipment.

In particular, the use of lead, mercury and cadmium should be strictly limited.

### Halogen-free

No materials such as chlorine, fluorine, iodine or bromide are used in our cables, because in the event of a fire corrosive gases would form hydrochloric acid, hydrofluoric acid, etc., thus greatly extending the scope of damage.

### Profibus

This field bus was developed in Germany in 1989, and today is the most widespread bus of its type worldwide. It is used equally extensively in both production automation and process automation. We make a distinction between two types:

#### Profibus DP (Decentralized Periphery)

Sensors and actuators are controlled by a central controller. Data rates of up to 12 Mbit/s are possible.

#### Profibus PA (Process Automation)

Is used in process engineering and process technology. The data transfer rate is only 31.25 kbit/s.

### Interbus

Is a field bus developed by the German company Phoenix Contact. The Interbus bus system is widely used in the automotive industry. The standard data transfer rate is 500 kBit/s.

## Definitions

### CAN-BUS

Is a bus system developed by Bosch. The CAN bus was developed for use in vehicles. Its data transfer capabilities are thus very large over short distances, but decrease greatly as the distance increases. The data transfer rate up to 40 m is 1 Mbit/s. Variants of the CAN bus:

**CAN open** – Primarily used in Europe.

**DeviceNet** – Primarily used in the USA. Developed by Allen-Bradley.

### USB

#### Universal Serial Bus

A serial bus developed by Intel that connects a PC with external devices. USB 2.0 achieves a data rate of 480 Mbit/s, which gives it an advantage over the industrial bus systems, but because it transfers data only in packets, it is less suitable for time-critical applications.

### LWL

#### Fiber-optic cables

Electric signals are converted by an optocoupler into light pulses, transferred via the fiber-optic cable and then converted back. The transfer rate is larger than for all comparable copper cables, and furthermore the cables are not subject to electromagnetic influences, and thus particularly suitable for industrial environments. The data transfer rate at 1300 nm/km is up to 10 Gbit/s. The fiber-optic cables can be made of plastic (POF) or glass.

### Cable carrier suitability

Cable carrier suitability designates the characteristic of a cable to be moved continuously in a cable carrier. This characteristic is present if the cable can withstand more than one million motion cycles. All of the cables offered in our catalog are cable carrier suitable.



### Servo cable

Servo cables designate cables that, in addition to the electric power required for the drive, can also transmit the signals generated by the servo controller. These measurements are made by means of an encoder such as a resolver, an incremental encoder or an absolute encoder.

### Center element

The center element serves to fill the cavity that is present with an extruded jacket. This center element must be able to hold the stranded assembly securely in position. It is one of the essential elements of our cables.

### Rated voltage

The rated voltage designates the working range of the cable as defined by standards. The permissible voltage may differ depending on the approval.

### Insulation resistance

The insulating materials used oppose the flow of electric current with a very high resistance. This is inversely proportional to the cable length. The insulation resistance is a measure of the quality of the insulating material between two conductors or between a conductor and a shield.

### Temperature range

The temperature range designates the range in which the cables can be moved in a cable carrier. It is dependent on the insulating materials employed in the cable. Use outside of the specified temperature spectrum will result in significant damage to the cable.

## Explanations

### ICC

#### Integrated Color Code

Part-extruded color code based on the DESINA color code. Cable types are easy to distinguish, thus greater safety and shorter assembly times.

### TOTALTRAX

#### Pre-assembled cable carrier systems.

Ready-to-connect cable carrier complete systems with system guarantee.

### Approvals

Our cables feature extensive approvals: here are a few examples of the possibilities for KABELSCHLEPP cables:

#### UL – Underwriters Laboratories

Required approval for use in the US market.

#### CSA – Canadian Standards Association

Required approval for use in the Canadian market.

#### CE – Conformité Européenne

The cable conforms with the EU directives for use and sales.



### Technical plastics

#### Insulating materials

The insulating materials used in our cables can be subdivided into the following groups:

#### PVC – polyvinyl chloride

The material most often used in the cable industry. Plasticizers, stabilizers, masterbatches and other additives are added to form an individual mix, i.e. KS-PVC. Operating temperature: from  $-5\text{ °C}$  to  $+80\text{ °C}$

#### PUR – polyurethane

Besides a significantly higher notch toughness, polyurethane is also more resistant to chemicals. Its very good flexibility at low temperature makes this material excellent for outdoor applications. Operating temperature: from  $-30\text{ °C}$  to  $+90\text{ °C}$

#### PP – polypropylene

Because of its very high dielectric strength, polypropylene is a very good insulating material. In combination with PUR insulation it is thus possible to produce cables that are excellent for use in cable carriers. Operating temperature: from  $-30\text{ °C}$  to  $+90\text{ °C}$

### CAT cables

Unlike with normal data cables, with a Cat cable the transfer parameters are always specified, and therefore the damping and frequency of transfer are clearly defined.

#### Cat 5

Frequency of transfer: 100 MHz  
Damping: 22 dB  
NEXT (min. at 100 MHz): 32.3 dB

#### Cat 5E

Frequency of transfer: 100 MHz  
Damping: 22 dB  
NEXT (min. at 100 MHz): 35.3 dB

#### Cat 6

Frequency of transfer: 250 MHz  
Damping: 19.8 dB  
NEXT (min. at 100 MHz): 44.3 dB

### Ethernet

Ethernet is a defined standard for data transfer in networks (LANs). At present the transfer rates are up to 100 Mbit/s.

## Overview as by part number

part no.	page	part no.	page	part no.	page	part no.	page	part no.	page	part no.	page
45200	25	45502	29	45636	43	45785	35	46412	61	47700	15
45201	25	45503	29	45637	43	45787	35	46415	61	47704	15
45202	25	45505	29	45638	43	45789	35	46505	61	47707	15
45203	25	45509	29	45639	43	45790	35	47202	27	47713	15
45205	25	45511	29	45641	43	45791	35	47222	27	47716	15
45209	25	45514	29	45642	43	45801	35	47223	27	47720	15
45211	25	45516	29	45643	43	45802	35	47225	27	47724	15
45212	25	45520	29	45646	43	45803	35	47242	27	47727	15
45214	25	45521	29	45647	43	45804	35	47245	27	48040	17
45221	25	45522	29	45649	43	45805	35	47252	27	48041	17
45222	25	45523	29	45650	43	45806	35	47262	27	48042	17
45223	25	45525	29	45651	43	45807	35	47272	27	48043	17
45225	25	45529	29	45652	43	45808	35	47273	27	48044	17
45229	25	45531	29	45654	43	45809	35	47282	27	48045	17
45231	25	45534	29	45661	45	45810	35	47292	27	48046	17
45234	25	45536	29	45662	45	45811	35	47351	13	48047	17
45242	25	45540	29	45664	45	45812	35	47352	13	48048	17
45243	25	45541	29	45665	43	45814	37	47354	13	48049	17
45245	25	45542	29	45668	45	45815	37	47356	13	48050	17
45252	25	45543	29	45669	45	45816	37	47360	13	48051	17
45253	25	45544	29	45670	49	45817	37	47364	13	48052	17
45254	25	45551	29	45672	49	45818	37	47367	13	48053	17
45262	25	45552	29	45676	53	45819	37	47372	13	48054	17
45263	25	45553	29	45678	53	45820	37	47373	13	48055	17
45272	25	45555	29	45679	45	45821	37	47374	13	48056	17
45282	25	45560	29	45680	57	45822	37	47376	13	48057	17
45292	25	45562	29	45683	57	45823	37	47380	13	48058	17
45302	25	45563	29	45684	55	45824	37	47384	13	48059	17
45312	25	45565	29	45685	57	45825	37	47387	13	48060	17
45355	41	45566	29	45686	51	45826	37	47392	13	48070	19
45356	41	45568	29	45690	47	45827	37	47393	13	48071	19
45357	41	45569	29	45691	57	45828	37	47394	13	48072	19
45358	41	45570	29	45693	55	45829	37	47396	13	48073	19
45359	41	45571	29	45694	57	46090	61	47400	13	48074	19
45360	41	45572	29	45695	57	46100	61	47404	13	48075	19
45361	41	45573	29	45696	59	46104	61	47407	13	48076	19
45372	41	45574	29	45697	59	46105	61	47412	13	48077	19
45373	41	45575	31	45698	59	46110	61	47413	13	48078	19
45374	41	45576	31	45699	59	46115	61	47414	13	48079	19
45376	41	45577	31	45701	23	46120	61	47416	13	48080	19
45377	41	45578	31	45702	23	46125	61	47420	13	48081	19
45380	41	45579	31	45703	23	46130	61	47424	13	48082	19
45382	41	45580	31	45705	23	46135	61	47427	13	48083	19
45391	21	45581	31	45709	23	46150	63	47433	13	48084	19
45392	21	45582	31	45712	23	46155	63	47580	33	48085	19
45393	21	45583	31	45715	23	46160	63	47581	33	48086	19
45396	21	45584	31	45721	23	46165	63	47582	33	48110	17
45400	21	45585	31	45722	23	46170	63	47583	33	48111	17
45401	21	45586	31	45723	23	46175	63	47584	33	48112	17
45402	21	45587	31	45725	23	46200	63	47585	33	48113	17
45412	21	45588	31	45729	23	46205	63	47586	33	48115	17
45421	21	45589	31	45732	23	46210	63	47587	33	48119	17
45422	21	45590	31	45735	23	46215	63	47588	33	48121	17
45423	21	45591	31	45741	23	46220	63	47589	33	48124	17
45425	21	45592	31	45742	23	46225	63	47590	33	48125	17
45429	21	45593	31	45743	23	46230	63	47651	15	48126	17
45431	21	45594	31	45745	23	46235	63	47652	15	48128	17
45434	21	45595	31	45749	23	46240	63	47653	15	48623	39
45436	21	45596	31	45752	23	46250	63	47654	15	48627	39
45441	21	45597	31	45755	23	46255	63	47656	15	48638	39
45442	21	45598	31	45760	35	46260	63	47660	15	48647	39
45443	21	45622	43	45761	35	46300	63	47664	15	48648	39
45445	21	45623	43	45762	35	46305	63	47667	15	48649	39
45446	21	45624	43	45763	35	46315	63	47672	15	48664	19
45449	21	45625	43	45765	35	46323	63	47673	15	48666	19
45451	21	45626	43	45769	35	46330	63	47674	15	48668	19
45454	21	45627	43	45772	35	46345	63	47676	15	48670	19
45477	21	45628	43	45775	35	46350	63	47680	15	48674	19
45480	21	45629	43	45777	35	46355	63	47684	15	48678	19
45497	21	45630	43	45778	35	46360	63	47687	15	48679	19
45498	21	45632	43	45780	35	46365	63	47692	15	48680	19
45500	29	45634	43	45781	35	46400	61	47693	15	48682	19
45501	29	45635	43	45783	35	46410	61	47696	15		



# KABELSCHLEPP

## **CABLE CARRIER SYSTEMS**

Cable carriers made of steel and plastic  
QUANTUM cable and hose carrier system  
PROTUM cable and hose carrier system  
ROBOTRAX cable and hose carrier system

## **CABLES FOR MOTION**

Continuous bending hi-flex cables for cable carriers  
TOTALTRAX complete turn-key carrier systems  
Pre-assembled cables

## **GUIDEWAY PROTECTION SYSTEMS**

Armored apron covers  
Way wipers  
Protective devices

**TSUBAKI KABELSCHLEPP America, Inc.**  
A division of U.S. Tsubaki Power Transmission LLC  
7100 W. Marcia Road  
Milwaukee, WI 53223  
PH: (414) 354-1994  
FX: (414) 354-1900  
E-mail: [info@kabelschlepp.com](mailto:info@kabelschlepp.com)  
[kabelschlepp.com](http://kabelschlepp.com)

**TSUBAKI KABELSCHLEPP worldwide**  
For contacts, addresses and  
much more, visit our web site at  
**[kabelschlepp.de](http://kabelschlepp.de)**