Multiconductor Technical Catalog

TransTech

A Wabtec Company

Engineering & Manufacturing Systems that Power Moving Machines

TransTech Multiconductor

A power transfer system for virtually any application with moving parts or machinery. As an enclosed, insulated conductor bar system the TransTech Multiconductor is not only safe, reliable and compact, but highly versatile and customizable.

A TransTech Multiconductor System is composed of the following basic components:
• Housing - contains the copper conductors and collector trolley(s)
• Continuous Copper Conductors - transfers power from the feed box to the collector trolley(s)
• Hangers, Joints and Brackets - used to connect and install system components.
• Feed Box - Safely encases the terminal wire connectors.
• Collector Trolley - collects and transfers power from the copper conductors to the moving parts or machinery
• Towing Arm - attaches to moving parts or machinery and tows the collector trolley(s)

All of the basic components can be customized to fit the needs of the application. Additional parts, such as sealing strip, transfer guides, curved housing, data transfer conductors, internal heating, epoxy and stainless steel hardware options allow further versatility.

The TransTech Multiconductor system is commonly utilized in the listed applications. However, the possibilities are endless.
• Automated feeding machines
• Cranes
• Concrete skippers
• Hangar Doors
• Observation towers
• Shooting ranges
• Warehouse equipment
• Window cleaning

Maximum Power Transmission

Spring pressured trolley brushes are in constant contact with copper conductors inside of PVC Housing, maximizing positive contact and power transmission. Continuous copper conductors circumvent problematic joints and result in minimum voltage drop.

High Current Capacity & High Travel Speed

Up to 7 copper conductors can be used inside the housing, allowing a standard of up to 320 amps. The collector trolleys can travel at a standard of 100 meters per minute, 250 meters per minute when utilizing ball bearing wheels.

Optimum Transmission of Control & Data Signals

Continuous copper conductors combined with constant contact between carbon brushes and copper achieves optimum transmission of Control and Data signals. Multiconductor is perfect for these types of applications, such as automated/computerized warehouse systems (ASRS). For positioning of moveable apparatus such as skippers and travel cars, Multiconductor can be fitted with a special pulse strip and detectors. With an additional PLC application, Multiconductor achieves a fully automated transport system.

Easy Installation & Low Maintenance

Multiconductor's lightweight PVC housing and installation tools make installation fast and simple. The housing requires no maintenance and the continuous copper conductors have no joints, so brush wear is minimal. Its compact design allows it be installed for applications with minimal space availability.

Unlimited Track Lengths

Multiconductor is able to suit both short and extremely long applications. For long applications it utilizes expansion joints which incorporate the continuous copper conductors. Multiconductor can also be curved to meet application needs.

Indoor & Outdoor Installation

Multiconductor is adaptable to various environments and ambient temperatures. It can be installed both indoors and outdoors. Expansion due to temperature change is accommodated without affecting system operation.

Degree of Safety Protection IP44

TransTech Multiconductor with sealing strips meets the IP44 degree of protection, without sealing strip it meets IP23. Multiconductor is approved in various countries by Inspection Authorities, such as UL, SEV, and CSA. The PVC housing is self-extinguishing and is a conspicuous red color to ensure personel safety. For added safety, hand-safe housing is also available.

Contents

Housing:

Numerous Possibilities and Variations

The conductor housing is available in various models, as indicated in the summary listed below. These variations allow optimal customization to meet application needs. Most of the conductor models can be provided with flexible rubber sealing strips; model AS7 (see page 2). Protection class of all conductor housing is IP23. The housing with rubber sealing strip AS7 is protection class IP44. Standard length is 4 meters with smaller lengths available by special request. With use of PVC, housing lengths can easily be custom cut at installation.
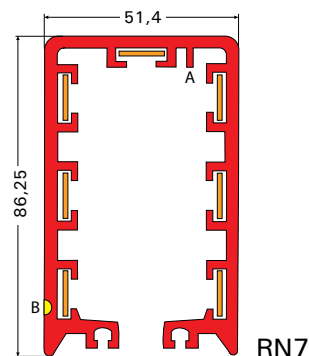
Standard Performance:

Type RN7

Color:signal red
Temperature range as of -30 °C up to +60 °C.

The anti-reverse rib (A) in the housing ensures the collector trolley can be installed in only one direction in order to prevent cross phasing. A continuous yellow stripe (B) on one side of the housing ensures correct fitting of the system. The PVC with a high impact strength is self extinguishing.
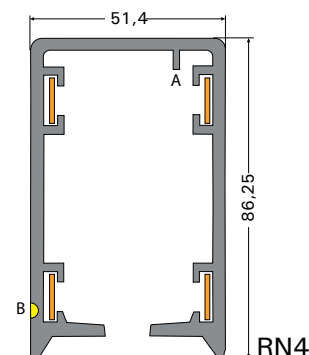
Type RN4

Color: grey
Temperature range as of -30 °C up to +60 °C.

With 4 conductor slots to accomodate 4 copper conductors. The anti-reverse rib (A) in the housing ensures that the collector trolley can only be installed in one direction and prevents cross phasing. A continuous yellow stripe (B) on one side of the housing ensures correct fitting of the system.
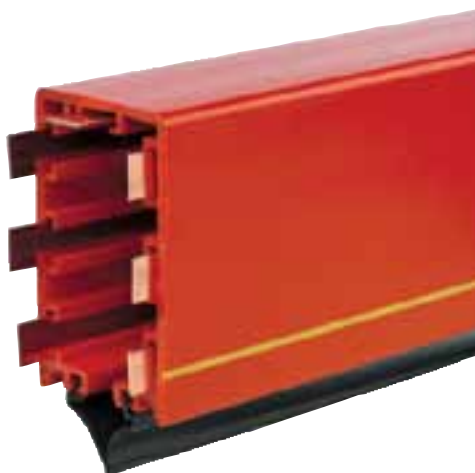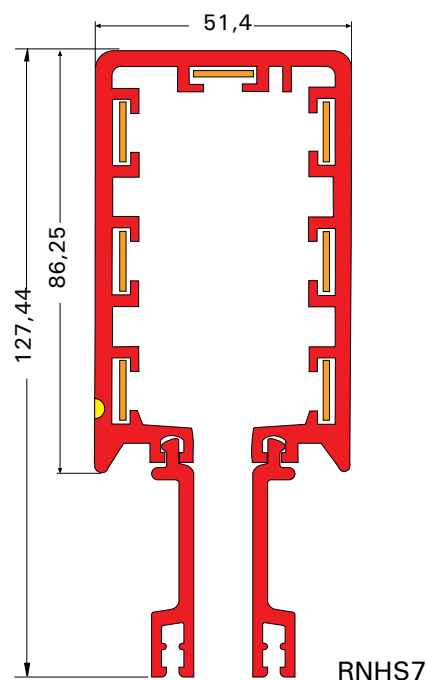
Type RNHS7

Color: signal red
Temperature range as of -30 °C up to +60 °C.

Due to the spacer strips on the bottom of the housing, this model is well suited for installations positioned at a low level. The spacer strips also act as a safety precaution by preventing hand access to the inside of the housing. Handsafe RNHS7 is protection class IP44.

1

Housing:

Continued...

Type RN7W
Color: white. Dimensions same as type RN7.
Temperature range as of -30 °C up to +60 °C.

When radiant heat is applicable, such as in green houses,
a white conductor housing is advised.

Type RNV7 (Vicat)
Color: grey white. Dimensions same as type RN7.
Temperature range as of -20 °C up to +80 °C.

When extreme low or high environment temperatures
RNV7 housing is advised.

| **Technical data of housings**	
Material	**Electrical Data**
Unplasticized Hard-PVC with approximate values:	
Notch shock strength 5-10 kJ/m²	Volume resistivity with 100 V >4.1015 Ω/cm
E-modulus 2500-3000 N/mm²	Dielectric strength with 50 Hz >30 kV/mm
Softening point (Vicat) 81-83°C	Flame class UL94 V0
Linear expansion 70.10-6 m/m/°C	Length of housing 4 m standard

Flexible Sealing Strips

Type AS7 Chloroprene
Color: black.

This is used to ensure the suitability of a Multiconduc-
tor installation for application in a **dusty**, **humid**, or even
corrosive atmosphere. Corrosion of copper conductors is
nearly always prevented. This sealing is recommended for
all outdoor installations and specific industries, such as,
concrete brick-works, **coal storage and transhipment**,
dairies, **galvanizing plants**, **textile production**, **paper
processing plants**, etc.

Housing type RN(HS)7 **with AS7** meets protection degree
IP44 and is permitted to be mounted on every desired
height.
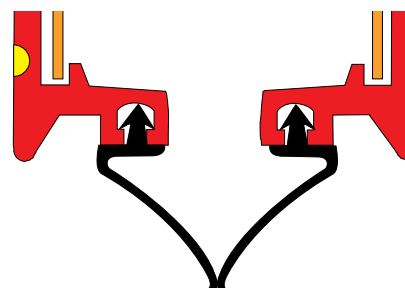
AS7

TransTech No.	Description		Red	White	4 Meter Section	Linear 10-6 M/M/°C	Min. Temp. °C	Max. Temp. °C	HS, Extra Protection	Combine With Transfer Guides	Combined With Curves
A1001050	PVC housing, red	RN7	x		x	70	-30	60		x	x
A1000940	PVC housing, white	RN7W		x	x	70	-30	60		x	x
A1001360	HS, Extra Protection Extension	RNHS7	x		x	70	-30	60	x	x	x
A1001960	PVC housing VICAT	RNV7		x	x	70	-20	80		x	x
A1004000	Chloroprene Sealing Strip – per meter (double sided)	AS7					-30	80			

Conductors:

Uninterrupted Feed At All Times
Each Multiconductor installation is supplied with joint-free flat copper conductors, rolled on and based on track length. Copper strips are available for current intensities of 50, 80, 125, and 160A (D.C. 80%). Material: electrolytic copper.

When 2 strips are parallel connected for each of the 3 phases of a three-phase system, current intensities of 250A (2x125) and 320A (2x160) are possible. The 7th conductor is utilized as ground supply.

Special Material Conductors
Silver-plated copper conductors are advantageous for data transfer. These are available for use in the Multiconductor system.

Installation of the Copper Conductors
After the installation of the housings, the copper conductors can easily be drawn into the PVC channels by means of the copper pulling block and cassette. A copper straightener tool should be ordered for conductors CU125 and CU160. This is designed to reduce resistance on very long installations.

Arrangement of the Copper Conductors
The RN7 housings and the four different copper conductors offer a vast array of possible combinations.

For high temperature applications, the resistance and Volt drop increases. Solution: use the next size copper conductors.

Volt drop in V/meter Multiconductor/A nominal current, cos ∅ = 1, +20 °C ambient

| Copper Conductor	3 phase ~	1 phase ~ en =	When utilizing 2 copper conductors in parallel, the volt drop values in the table will be halved. Impedance data can be supplied on request.
CU50	0.00339	0.00391	
CU80	0.00217	0.00251	
CU 125	0.00119	0.00138	
CU 160	0.00092	0.00106	
with + 35 °C multiply by 1.079; with + 45 °C multiply by 1.118; with + 55 °C multiply by 1.157.			

Please see examples below. ATTENTION: the ground conductor is always located at the yellow marker strip.

Voltage Drop In Copper Conductors
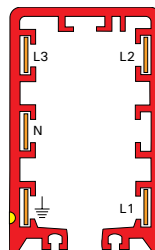By virtue of the continuous conductor, voltage drop in the system is kept to an absolute and constant minimum. With a power factor (cos. ψ) of < 1 the figures mentioned in the above table have to be changed accordingly, e.g. with cos ψ = 0.85 the Voltage drop figures have to be multiplied by 0.85.
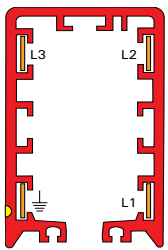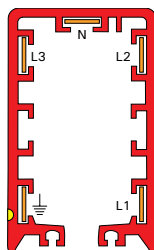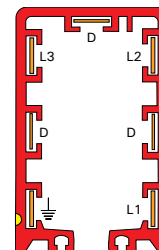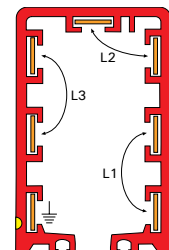

Standard 4-pole
Standard 5-pole
5-pole, for installations with curves
3 phase + ground & 3 conductors D for control & data
Per phase 2 conductors in parallel + ground

TransTech No.	Description		Max In (A) (ID=80%)	Dimension mm (b x d)	Linear exp. K-6 10-6 m/m/°C	DC resistance Ω/m	Specific Conductance (ρ) Sm/mm²	Max. length track part	
								Δt 25 °C	Δt > 25 °C
A1002560	Copper conductor 50A	CU50	50	12.6 x 0.7	17.00	0.001984127	58	525	525
A1002640	Copper conductor 80A	CU80	80	12.5 x 1.1	17.00	0.001272727	58	325	325
A1002720	Copper conductor 125A	CU125	125	12.5 x 2.0	17.00	0.0007	58	200	200
A1002870	Copper conductor 160A	CU160/7	160	12.5 x 2.6	17.00	0.000538462	58	150	150
A1003370	Copper conductor silv. 50A	CU50/AG	50	12.6 x 0.7	17.00	0.001984127	58	525	525

Hangers & Fixed Point Clamps

Free Expansion at All Times

The principle of the TransTech Multiconductor system is based on the free expansion of the PVC housing and the internal conductors. The conductor housing is therefore suspended in sliding hangers in which the conductors can slide continuously upon changes in expansion. The conductors are fixed near the feed point by means of a fixed point clamp which is connected during installation. Sliding hangers and fixed point clamps are available in four types for maximum adaptation to the environmental conditions. See table below.

Sliding Hanger

Type BN7-Z, Type BN7-L, Type BN7-R, & Type BN7-LR

The sliding hangers are fastened to the suspension frame by a bolt. The installation can be aligned vertically. Center distance of hanger supports:
2000 mm: with Cu50, Cu80, for 6- & 7-pole installations up to a max. ambient temperature difference of 40 °C.
1333 mm: travel speed up to 250 m/min.; using 125A or 160A Conductors
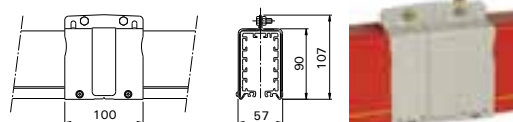1000 mm: travel speed up to > 250 m/min.
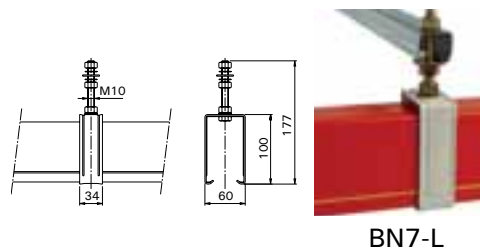
BN7-L

Fixed Point Clamp

Type VMN7-Z, Type VMN7-L, Type VMN7-R, & Type VMN7-LR

The complete conductor installation is to be fastened to the suspension frame by means of a self-gripping fixed-point-clamp. This allows the conductor housing to slide freely in the sliding hangers when expansion, due to temperature variations occurs.

VMN7-L

Support Bracket

Type UH330 : length = 330 mm, galvanized/(SS)
Type UH500/(R) : length = 500 mm, galvanized/(SS)
Type UH700/(R) : length = 700 mm, galvanized/(SS)

These brackets have clamps attached to sliding nut assemblies, facilitating a adaptable mounting arrangement, capable of accommodating various sizes of I-beams.
Note: For fast mounting on site, pre-mounted support brackets with sliding hangers are available on request.
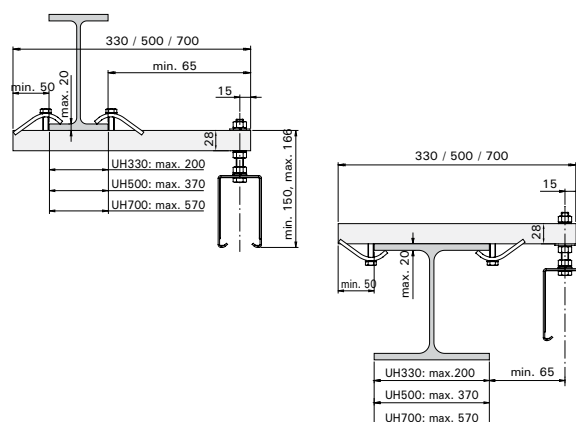
Finishing Of Metal Sliding Hangers And Joints
Type Z - Galvanized, for normal indoor installations.
Type L - Galvanized + epoxy coated, for outdoors and corrosive environments.
Type LR - As Type L, with stainless steel bolts and nuts A2.
Type R - Stainless steel A2/304, for corrosive environments.

TransTech No.	Description	Length (mm)
A1018010	Support bracket galvanized 330mm UH330	330
A1018160	Support bracket galvanized 500mm UH500	500
A1018320	Support bracket galvanized 700mm UH700	700
A1018370.B0000	Support bracket stainl. steel 330mm UH330-R	330
A1018380	Support bracket stainl. steel 500mm UH500-R	500
A1018390	Support bracket stainl. steel 700mm UH700-R	700

TransTech No.	Description		Ambient is		
			Dry	Humid	Chem. Agr.
A1004570	Sliding hanger galvanized	BN7-Z	x		
A1004650	Sliding hanger epoxy coated	BN7-L		x	
A1004420	Sliding hanger galv. + epoxy + A2	BN7-LR			x
A1005540	Sliding hanger SS-A2/304	BN7-R			x
A1005200	Rolling hanger galvanized	RB7	x	x	
A1004960	Fixed point clamp galvanized	VMN7-Z	x		
A1005070	Fixed point clamp galv. + epoxy coat.	VMN7-L		x	
A1005310	Fixed point clamp galv. + epox. + A2	VMN7-LR			x
A1005770	Fixed point clamp A2/304	VMN7-R			x

Joint Clamps:

For the Simple Connection of Conductor Housings

The lengths of the housing are connected by means of standard joint clamps. There are 2 variations:

- standard metal joint clamp
- ABS expansion joint clamp

Metal joint clamps are available in 4 types, to ensure maximum tuning to the operating conditions. Please refer to the table on page 4.

Joint Clamp

Type VN7-Z, Type VN7-L, Type VN7-R, & Type VN7-LR

The conductor housings are connected by means of a self-gripping joint clamp. The self-drilling screws, as supplied, ensure an extra firm connection with longer system lengths (from 80m length 2 screws. per joint; from 200m length 4 screws. per joint).
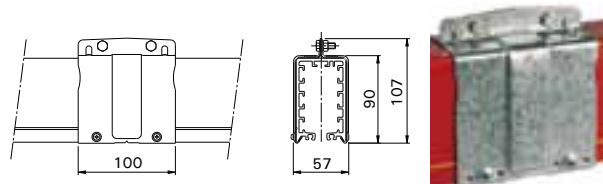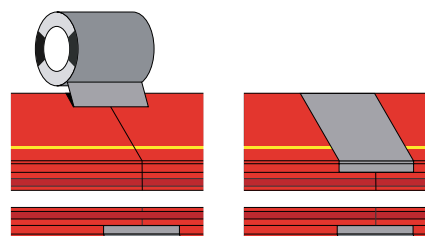
VN7-Z

Insulating Tape

Type T50 (50 mm width, roll of 10 m)

This adhesive tape is used to ensure a permanent shroud around the housing joints, prior to fitting the joint clamps, for both indoor and outdoor installations. 1 roll is sufficient for 35 joints.
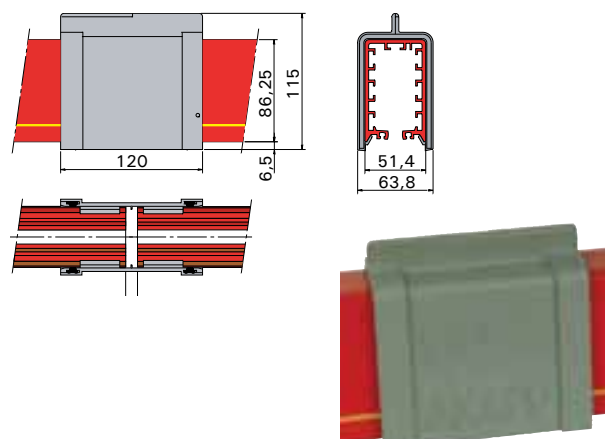
T-50

Expansion Joint

Type KEV7

This ABS expansion joint is applied when a free expansion of the Multiconductor from one fixed point is not possible. Such as with very long installations, tracks in which there are several current supply connections, closed curved tracks, etc.

The PVC housing is then fixed to the support construction with a fixed point clamp adjacent to an expansion gap at recommended positions.

Important: Read the supplied mounting instructions carefully **before** mounting, to determine the expansion gaps. Consult TransTech for application assistance.

The rubber sealing at the inner side of the synthetic expansion joint clamp, together with the continuous AS7 sealing strips, also allows installations outdoors. Installations with expansion joints require collector trolleys type "../E" (see page 14).

KEV7

TransTech No.	Description	Ambient Is			with VN7-.	with VN7-. & humidity	V max with humidity	max. free expansion in joint (mm)
		Dry	Humid	Chemical Agress.				
A1004730	Joint clamp galvanized VN7-Z	x					400V	0
A1004810	Joint clamp galv/epox.VN7-L		x				400V	0
A1004340	Joint clamp galv. + epox. + A2 VN7-LR			x			400V	0
A1005620	Joint clamp A2/304 VN7-R			x			400V	0
A1006040	Insulating tape 10m x 50mm T50				x	x		0
A1005461	Expansion joint KEV7	x	x	x			400V	25

End Feed Boxes:

Efficient and Reliable Solutions

End feed boxes are used for the connection of the feeding cable to the outer end of the Multiconductor system (see picture). The feedbox is chosen based on the conductor and feed cable sizes.

All feed boxes are fitted with metric glands. It is possible to use extra glands and/or several diameter ranges for type EB40/EB63.

An end feed clamp (EC160) is required for connection of copper for each 125A or 160A conductors (see details below).
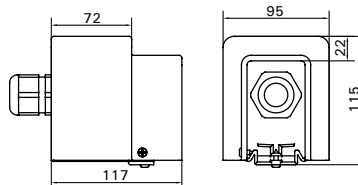
End Feed Boxes

Type EBS32

Compact end feed box with cable gland M32, suitable for cables Ø10-Ø21 mm. Connecting screws M6 included.
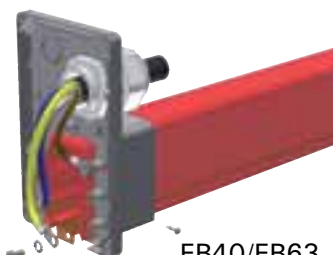
Type EB40

End feed box with cable gland M40 is suitable for cables Ø16-Ø28 mm. The push-through holes make mounting easy for various cable sizes. Connecting screws M6 included.

Type EB63

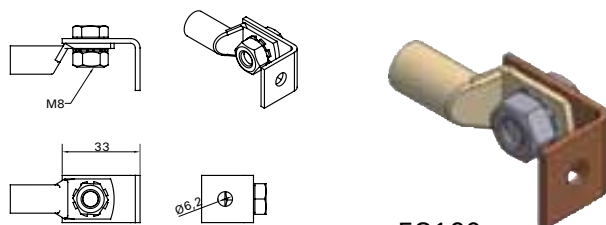As end feed box EB40, but with cable gland M63, suitable for cables Ø30-Ø44.5 mm. Connecting screws M6 included.
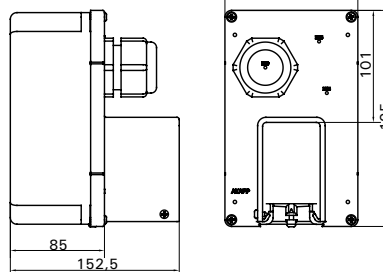
End Feed Clamps

Type EC160

Required for connecting copper conductors 125A or 160A to the cable lug of the connection cable. To be ordered separately.

Special arrangements and gland sizes available upon request.

EBS32

EB40/EB63

EC160

TransTech No.	Description		Max. Temp. (°C)	Range of Diameter Feeding Cable (mm)	Max. Copper Conductors Mounted	I max (80% D.C.) Non-parallel (A)	Protection Degree Without AS7	Protection Degree With AS7
A1006830	End feed box 1xM32	EBS32	80	10 - 21	4xCu80 / 7xCu50	80	IP23	IP44
A1006800	End feed box 1xM40	EB40	80	16 - 28	4xCu125 / 7xCu80	125	IP23	IP44
A1006810	End feed box 1x63	EB63	80	30 - 44	4xCu160 / 7xCu80			
A1006820	End feed box	EB	80	no glands			IP23	IP44
A1013010	End feed clamp (req. if Cu125 or Cu160)	EC160	80			160		

Line Feed Boxes:

## Designed for More Flexibility

A line feed is used for the connection of the feeding cable to any location on the system. The line feed connection is made from a line feed box, line feed clamp holder and feed clamps. The RN7-LCH line feed clamp allows for a continuous strip of copper from one end of the system to the other.

The collar plates of the line feed box are each installed over the housings meeting at the feed point. Next, the line feed clamp holder (LCH) is installed between the conductor housings. Each housing is then secured with a fixed point clamp. Feed clamps are installed prior to the copper conductors. Clamps tightened on the copper, secure the copper to the housing. The RN-LH is used for closed loop systems or very long systems where a conductor splice is needed at the line feed box.
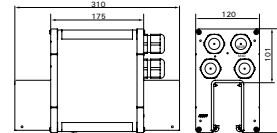
Line Feed Boxes Types LB

Type LB40
Line feed box for connection of copper conductors up to 125A. With 1 gland M40 for cables Ø16-Ø28 mm.
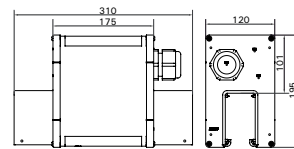
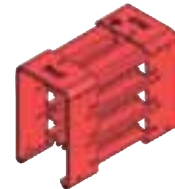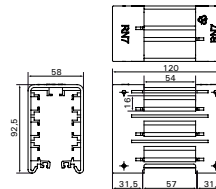### Type LB63
Line feed box for connection of copper conductors up to 160A. With 1 gland M63 for cables Ø30-Ø44.5 mm.

LB40/LB63

Type LB32-4
Similar to LB63, but with 4 glands M32 for cables Ø10-Ø21 mm.

Type LB32-7
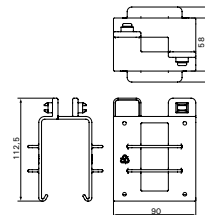Similar to LB32-4, but with 7 glands M32 for cables Ø10-Ø21 mm.

Line Feed Clamp Holders

Type RN7-LCH & RN4-LCH
For line feed connections with all sizes of copper, regardless of the number of poles. The required line feed clamps are ordered separately.

Type RNHS7-LCH
Includes spacer strips for use with hand-safe housing.

Type RN-LH
Is composed of two halves that "click" together around the housing, leaving the copper joints free. Includes bolts/nuts M6 for connections.

RN-LH (Mounted)

TransTech No.	Description		Max. Temp. (°C)	Range of Diameter Feeding Cable (mm)	Max. Copper Conductors Mounted	I max (80% D.C.) Non-parallel (A)	I max (80% D.C.) Parallel (A)	Protection Degree Without AS7	Protection Degree With AS7
A1006900	Line feed box 1xM40	LB40	80	16-28	4xCU125 / 7xCU80	125	-	IP23	IP44
A1006910	Line feed box 1x M63	LB63	80	30-44	4xCU160 / 7xCU125	160	250	IP23	IP44
A1006920	Line feed box 4xM32	LB32-4	80	4x 10-21	4xCU160	160	-	IP23	IP44
A1006930	Line feed box 7xM32	LB32-7	80	7x 10-21	7xCU160	160	320	IP23	IP44
A1006940	Line feed box	LB	80	no glands				IP23	IP44
A1006035	Line feed clamp holder	RN7-LCH	80						
A1006030	Line feed clamp holder	RN4-LCH	80						
A1006035.B0001	Line feed clamp holder	RNHS7-LCH	80						
A1006950	Set line feed	RN-LH	80						

Connecting the Copper Conductors:

Solutions with Clamps & Boxes

All line feed systems require clamp holders and feed clamps to connect the copper conductors within the housing to the cores of the supply cable.
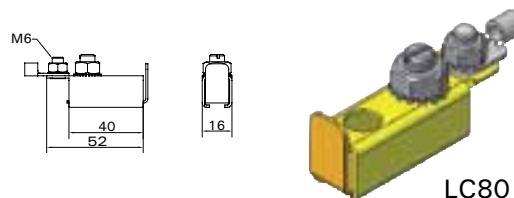
There are 2 types of feed clamps: LC80 and LC200.

To connect the copper conductors to a cable terminal in a transition box, the transition cables OK25 or OK35 can be used. In some cases, it can replace a feeding cable with an overly large outer diameter.
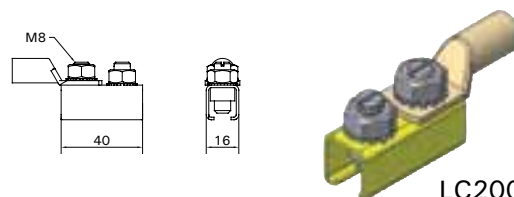
Feed Clamps

Type LC80

To be applied for mounting copper conductors Cu50 - Cu80.

Type LC200

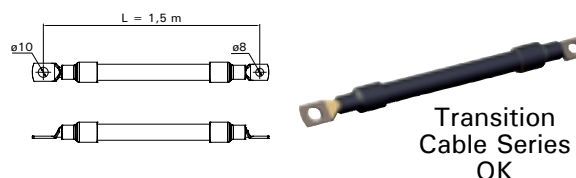To be applied for mounting copper conductors Cu125 - Cu160.
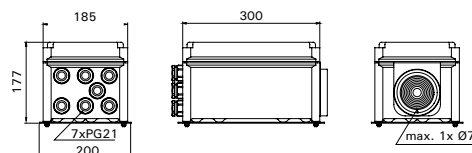
Transition Cables

Type OK25

Cable 1x 25 mm², length 1.5 m, fitted with cable lugs on both sides. For max. current capacity 125A or 250A (with 2 cables in parallel connection) and Cu125 copper conductor. Used with Transition box OGV320 (see below).

Type OK35

Cable 1x 35 mm², length 1.5 m, fitted with cable lugs on both sides. For max. current capacity 320A (with 2 cables in parallel connection and Cu160 copper conductor). To be used with Transition box OGV320 (see below).

Transition Box for Feed : Connection Multiconductor

Type OGV320

Complete with 2x5 bolts M10 for cable lug connections, 7 glands PG21 and a special grommet for cables of Ø20 - Ø75 mm .

LC80

LC200

Transition Cable Series OK

OGV320

Line Feed Clamps TransTech No.	Description	Number	Max. Current (A) (100% D.C.)	With Type Line Feed Holder
A1012750	Feed clamp small LC80	1 per conductor	72	RN7-LCH
A1013000	Feed clamp LC200	1 per conductor	179	RN7-LCH

Transition Cables TransTech No.	Description	Number	Max. Current (A) (100% D.C.)	With Type Transition Box
A1499560	Cable, 1x25 mm², L = 1.5m OK25	1 per conductor	135	OGV320
A1499640	Cable, 1x35 mm², L = 1.5m OK35	1 per conductor	169	OGV320

Transition Box TransTech No.	Description	Number	Max. Current (A) (100% D.C.)	Protection Degree
A1010510	Feed Connection Transition BoxOGV320	1 per system	286.3	IP44

Additional Components:

End Caps and Inspection Units

An end cap is used for sealing off the open end of a Multiconductor System. In order to eliminate length differences between copper conductors and PVC housing due to temperature variations, it is important that the conductors have sufficient length within the end cap. For installations with extreme length differences, extra long end caps can be applied.

An inspection unit, UN7, is fitted with two joint clamps. UN7 is used in Multiconductor installations where inspection of the trolley is not possible by removing an end cap or end feed. E.g. on endless curved tracks or on applications where several collector trolleys are fitted, or where a special location area for the inspection is available.

End Caps

Type EN7
Length 300 mm. For use with the RN7 housing. Fitted to housing with a joint clamp (ordered separately).
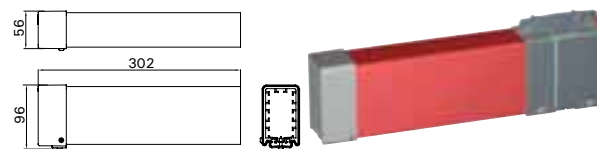
Type EN4
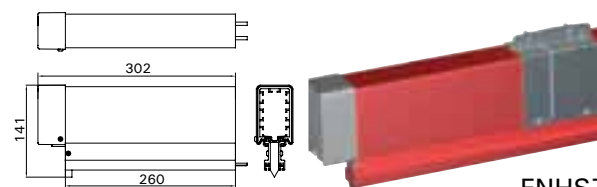Length 300mm. For use with the RN4 housing. Fitted to housing with a joint clamp (ordered separately)

Type EN7-W
Similar to EN7, but color is white. For use with the RN7W housing. Fitted to housing a joint clamp (ordered separately).

Type ENHS7
Length 300 mm. For use with the RNHS7 housing. Fitted to the housing by means of a joint clamp (ordered separately).

Type ENV7
Length 300mm. For use with RNV7 housing. Fitted to housing with a joint clamp (ordered seperately).

Type UN7
Length 200 mm. The inspection unit is fitted with 2 joint clamps (ordered seperately). Inspection units for curves can be supplied on request.
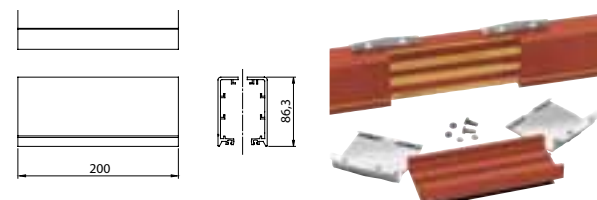
Type UNHS7
For use with the Multiconductor RNHS7 housing.

TransTech No.	Description		Length (m)	Red	White	Grey	Max. Poles	IP23	Sealing Rubber AS7 Applicible	IP44 with AS7	HS, Extra Protection
A1014140	End cap red	EN7	0.30	x			7	x	x	x	
A1014100	End cap grey	EN4	0.30			x	4	x	x	x	
A1014800	End cap white	EN7W	0.30		x		7	x	x	x	
A1014370	End cap red for RNHS7	ENHS7	0.30	x			7	x	x	x	x
A1014690	End cap for RNV7	ENV7	0.30			x	7	x	x		
A1015030	Inspection unit red	UN7	0.30	x			7		x		
A1015260.B0000	Inspection unit red f. RNHS7	UNHS7	0.30	x			7		x		x

Collector Trolley Series CL7:

Contact Characteristics

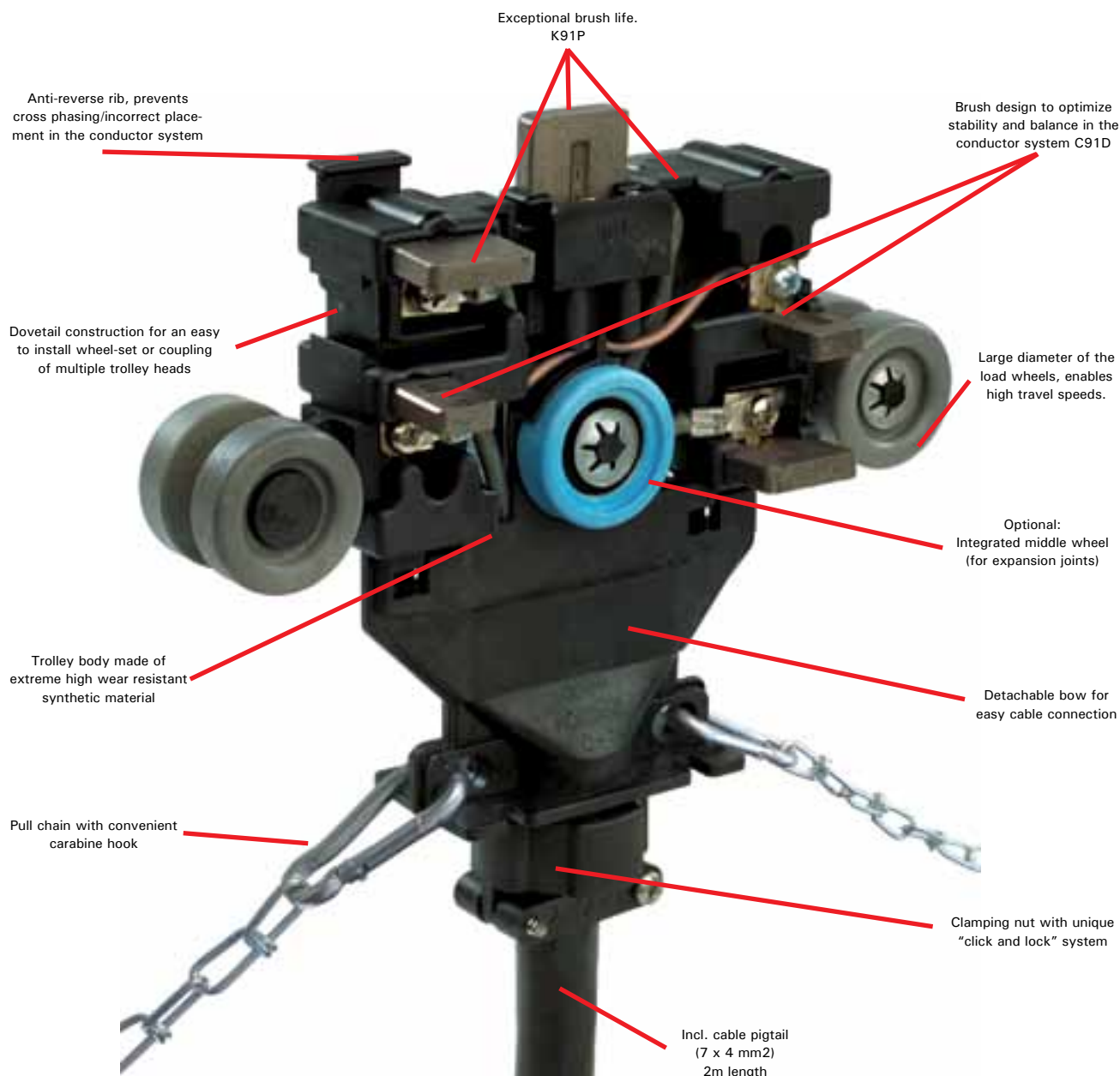The CL7 collector trolleys are available for 2 to 7 conductors, as required, and are suitable for maximum current capacity of 35A, 70A and 100A; duration of duty cycle is 60%. The collector trolley series "CL7" are supplied with a connector cable (approx. 2 m) with numbered wires.

The standard models of the CL7- collector trolleys are suitable for most applications and are easy to adjust. The summary below indicates the most commonly used models and options. The required model often depends on specific application specifications.

The Standard Collector Trolley

CL7-7-35/E/2M
TransTech Item: A1093650.B0053

Exceptional brush life.
K91P

Anti-reverse rib, prevents cross phasing/incorrect placement in the conductor system

Brush design to optimize stability and balance in the conductor system C91D

Dovetail construction for an easy to install wheel-set or coupling of multiple trolley heads

Large diameter of the load wheels, enables high travel speeds.

Optional: Integrated middle wheel (for expansion joints)

Trolley body made of extreme high wear resistant synthetic material

Detachable bow for easy cable connection

Pull chain with convenient carabine hook

Clamping nut with unique "click and lock" system

Incl. cable pigtail (7 x 4 mm2) 2m length

Collector Trolleys CL7:

Standard Series for High Performance

The collector trolley provides the current conduction from the Multiconductor system to your machine. The collector trolley maintains uninterrupted contact with the copper conductors by means of flexible wear-resistant carbon brushes manufactured from a bronze-carbon alloy. The Trolley is pulled along the Multiconductor system by a trolley towing arm which is mounted onto the machine.

The standard collector trolleys, supplied with low wear wheels, are suitable for travel speeds up to 100 m/min. For higher travel speeds, for heavy duty and/or for dusty environments the collector trolleys are fitted with dust proof, ball bearing wheels (type "S") and are suitable for speeds up to 250m per min. See page 22 for more information on all collector trolley series concerning maintenance and spare parts.

Collector Trolleys

Multiconductor collector trolleys are available with 2 to 7 conductors which carry current capacities of 35A, 70A, and 100A (D.C. 60%) or 27.11A, 54.22A, and 77.46A (D.C. 100%). Applicable from -20°C (types ../LT from -30°C) up to +80°C. See table on page 17 for complete amperage information.

Collector trolleys are fitted with a 2M supply cable. The connection with the apparatus/machine may be fed via a transition box (if required, ordered separately) which can be located adjacent to the collector trolley towing arm position (see page 16). Longer cables are available.

CL7-7-35   CL7-7-35/E

Standard Collector Trolleys + Transition Boxes

A Max.	35		70		100	
Number of Poles	Type Trolley	Type Trans. Box	Type Trolley	Type Trans. Box	Type Trolley	Type Trans. Box
2	CL7-2-35		CL7-2-70		CL7-2-100	
3	CL7-3-35	TTB35-4	CL7-3-70	TTB70-4	CL7-3-100	TTB100-4
4	CL7-4-35		CL7-4-70		CL7-4-100	
5	CL7-5-35		CL7-5-70		CL7-5-100	
6	CL7-6-35	TTB35-7	CL7-6-70	TTB70-7	CL7-6-100	TTB100-7
7	CL7-7-35		CL7-7-70		CL7-7-100	

Schedule brush positions in CL7

CL7-7-70

CL7-7-100

For the application of 2 or 3 separate collector trolleys per apparatus to be fed (e.g. for transfer installations), the transition boxes on the right will be used.

Carbon Brushes

The collector trolleys are supplied as standard with carbon brushes for 35A, positioned according to the table below.

The brushes in positions 4 and 5 are both fitted as double brushes ("twin brushes"). Twin brushes are smaller than the others and their capacity is 35A per set. Advantages of this construction are a perfectly balanced collector trolley and an improved transmission of control signals providing dual contact with the conductor.
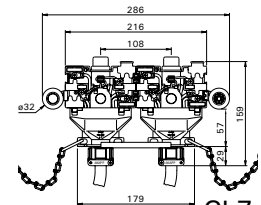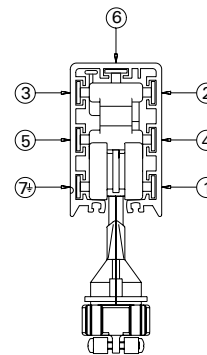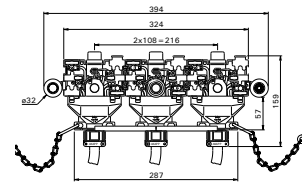
Number of Trolleys	Type Trolleys	Type Transition Box
2 collector trolleys	CL7-2 t/m 4-35	TTB70-4
2 collector trolleys	CL7-5 t/m 7-35	TTB70-7
2 collector trolleys	CL7-2 t/m 4-70	TTB200-4-6
2 collector trolleys	CL7-5 t/m 7-70	TTB200-7-6
2 collector trolleys	CL7-2 t/m 4-100	TTB200-4-6
2 collector trolleys	CL7-5 t/m 7-100	TTB200-7-6
3 collector trolleys	CL7-2 t/m 4-35	TTB100-4
3 collector trolleys	CL7-5 t/m 7-35	TTB100-7
3 collector trolleys	CL7-2 t/m 4-70	TTB200-4-6
3 collector trolleys	CL7-5 t/m 7-70	TTB200-7-6

Carbon Brush Types	Standard Carbon Brushes		Silver Graphite Brushes*	
Application	TransTech No.	For Normal Conductors	TransTech No.	For Silvered Conductors
Phase brush** norm.	A1411021	K91P	A1412221	KZ91P
Phase brush** twin	A1410601	C91D	A1410621	CZ91D
Ground brush	A1410521	C91A	A1410531	CZ91A

* Silvergraphite brushes are softer than the conductors
** Also suitable for DC
Note: K91P can be used in place of C91A

Collector Trolleys:

Adaptations for Special Applications

Numerous models of the standard collector trolleys, are available as well as special models. The CL7 series can easily be adapted to exceptional circumstances such as installations with very high travel speeds, transfer guides, curves, expansion gaps, etc.

The pre-mounted wheel set is appropriate for most applications; however, the dove-tail construction (see photo) makes it simple to install or exchange the wheel sets and create the trolley that fits the specific need. In the table below, an overview of the possibilities are listed, together with the respective suffix. Please refer to these suffixes when ordering. For unlisted models, please contact TransTech.

Performance	Type
Expansion (KEV's)	CL7-..-../E
Top wheels	CL7-..-../T
Side and top wheels	CL7-..-../TZ
Dust proof wheels	CL7-..-../S
High travel speeds *	CL7-..-../S
For galvanizing plants	CL7-..-../V
Low temperatures *	CL7-..-../LT
90 degree gland	CL7-..-../HWK
Silver graphite brushes	CL7-..-../AG
Special cable length	CL7-..-/..M
Transfer guide small	(ITKN) CLTK7-..-..
Transfer guide large	(ITN) CLTG7-..-..
* from 100 m/min.	
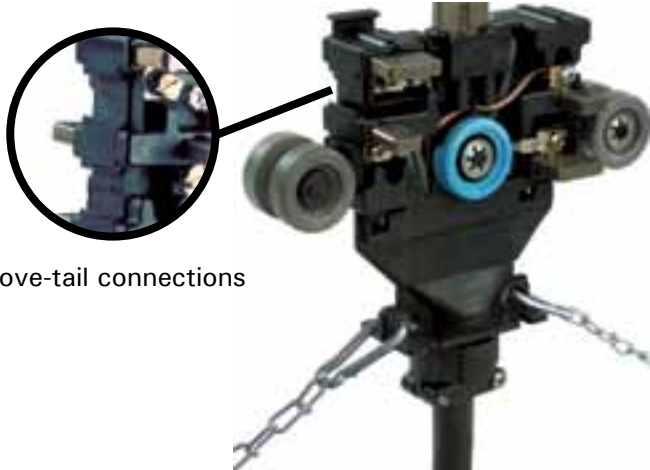
Dove-tail connections

Extra Wheel (../E)

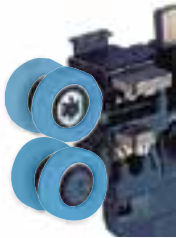## Collector Trolleys for RNHS7 Housing

Type NLHS7-..-..

Special trolleys with an elongated lower moulding are utilized in RNHS7 Housing Systems.

Collector Trolleys For Curves

Type S7-..-35

For installations with curves of a radius < 800 mm, special flexible current collectors are required. See also page 20. For more information contact TransTech.
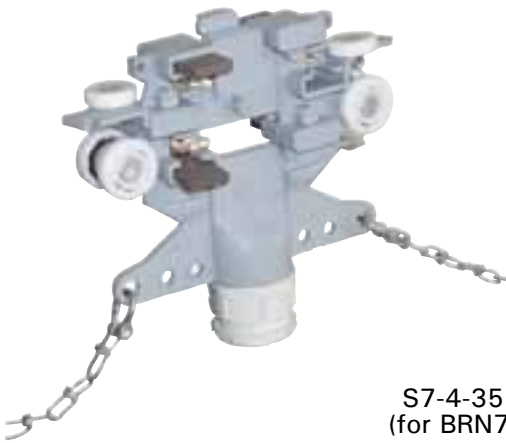
Top wheels (beared ../T/S, or not beared ../T)

Double top wheels with side wheels (../TZ)

NLHS7-7-35
(for RNHS7)

S7-4-35
(for BRN7)

Collector Trolleys:

The Compact Collector Trolley Series CL4-40
TransTech offers the possibility to use a singular collector trolley, (type CL4-40), with double brushes. This trolley applies to the IEC 60204.32.13.8.2 standard, describing the situations where conductor bar systems need to apply double carbon brushes. The CL4-40 trolley is a cost effective solution for those cases when the above standard is applied such as systems that are controlled by frequency inverters. The CL4-40 is a 4 pole trolley, capacity 40 Amps at 60% duty cycle at 50 °C. Applicable from -20°C up to +80°C.

Standard Collector Trolleys

Type CL4-40
4-pole trolley with standard wheels. Max. speed 100 m/min.
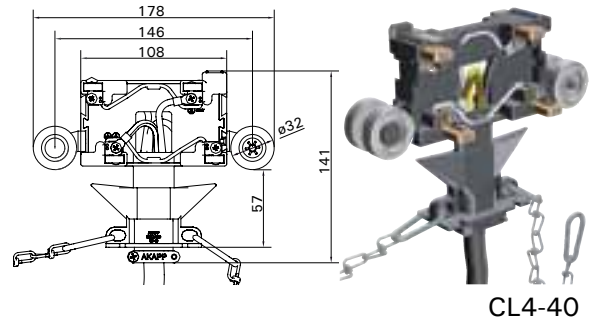
Type CL4-40/S
4-pole trolley with special ball bearing wheels. Max. speed 250 m/min.

Collector Trolley Assemblies

Type CL4-40/BMV/TTB
For easy ordering, we created a fully assembled version of the collector trolley CL4-40, complete with towing arm BMV35 and trolley transition box TTB70. See table on the right for order reference.

Current Collecting Capacity Doubles When Parallel Connecting Copper Conductors

Type CL4-40/BMV/TTB
A Multiconductor with 7 copper conductors offers the opportunity to double the current capacity for 2 phased and ground applicators. The 7th conductor is utilized for the ground supply. The extra capacity must be accounted for with a suitable collector trolley.

Selection chart of 7-pole trolleys and transition boxes for installations with copper conductors in parallel for 3 phase + ground feed see table below.

CL4-40

TransTech No.	Description	Max. Speed (m/min)
A1088600.B0002	Collector trolley + cable CL4-40	100
A1088620.B0002	Collector trolley + cable CL4-40 /S	250
A1088640	Assembly CL4-40/BMV/TTB	100

A Max.	Type Collector Trolley	Number of Poles	Type Trans. Box
70	CL7-7-35	4	TTB70-4
140	CL7-7-70	4	TTB140-4-2
200	CL7-7-100	4	TTB200-4-6
280	CL7-7-70 2 pcs	4	TTB400-4-6
400	CL7-7-100 2 pcs	4	TTB400-4-6

CL4-40/BMV/TTB
The CL4-40 uses twin carbon brushes.

13

Accessories for Collector Trolleys:

Towing Arms and Transition Boxes

A towing arm is attached to the moving machinery and connected to the collector trolley via chains. The arrangement is such that when pulling in either direction, one of the collector towing chains is taut while the other remains slack.

A transition box can be mounted on the towing arm or close by the apparatus/machine. This unit facilitates the connection of the flexible cable from the collector trolley with the fixed wiring from the apparatus/machine being fed.

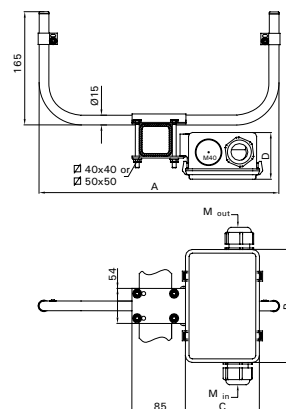## Standard Performances Towing Arm

Type BMV35
For collector trolleys 35A.

Type BMV70
For collector trolleys 70A.

Type BMV100
For collector trolleys 100A.

	BMV35 + TTB35	BMV70 + TTB70	BMV100 + TTB100
A	370	505	640
B	175	175	195
C	115	115	160
D	70	70	80
In	1xM32	2xM32	3xM32
Out	1xM32	1xM40	1xM40

BMV + TTB

Types of Transition Boxes for Collector Trolleys

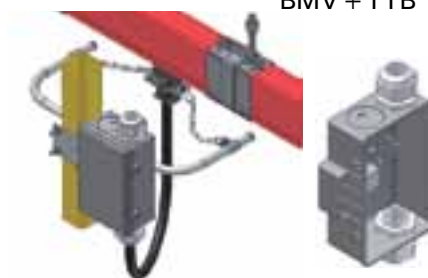| Type No. Transition Box	Dimensions LxWxH MM	Connecting Terminals	Cable Inlet
TTB35-4 and TTB35-7	175x115x70	4 st. 4 mm²	2 glands M32
		7 st. 4 mm²	
TTB70-4 and TTB70-7	175x115x70	4 st. 10 mm²	2 glands M32, 1 gland M40
		7 st. 10 mm²	
TTB100-4 and TTB100-7	195x160x80	4 st. 16 mm²	3 glands M32, 1 gland M40
		7 st. 16 mm²	
TTB140-4-2	195x160x80	4 st. 35 mm²	2 glands M32, 1 gland M50
TTB200-4-6 and TTB200-7-6	300x250x145	4 st. bolts M10	6 glands M32, 1 special inlet, 20-70 mmØ
		7 st. bolts M10	
TTB400-4-6	300x250x145	7 st. bolts M10	6 pakkingb. M32, 1 special inlet, 20-70 mmØ

BMV35 + TTB35-4

The box types TTB35 up to TTB140 can be mounted directly on the fastening clamp of the towing arm type BMV. The box types TTB200 and TTB400 are supplied with 4 holes Ø7 mm, which ensures easy mounting of these boxes to the apparatus to be fed.

BMV100 + TTB100-7

BMV70 + TTB70-4

Spring Loaded Towing Arm
For installations with large transfer guides (type ITN7) a special spring loaded towing arm is required.
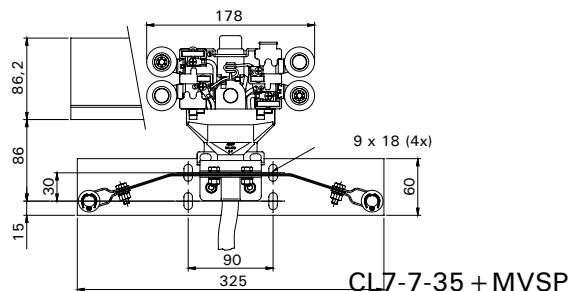
Type MVSP35
For collector trolleys 35A.

CL7-7-35 + MVSP

Overview of:

Trolleys, Towing Arms & Transition Boxes

See the chart below for the most common collector trolley. The reference numbers and some details are listed for each type. The other charts show all towing arms and transition boxes including their reference numbers.

Selection Chart Standard Collector Trolleys

Description	With Grey Standard Wheels		With Blue Ball-Beared Wheels		Max in (A) d.c = 100%	Number of Poles	Expansion Joint (KEV)	Transfer Guides ITN7	Transfer Guides TKN7	Hand Safe	Vertical
	Model#	Part#	Model#	Part#							
Collector Trolley	CL7-4-35/2M	A1093440.B00002	CL7-4-35/S/2M	A1093450.B0005	27.11	4					
Collector Trolley	CL7-5-35/2M	A1093510.B0002	CL7-5-35/S/2M	A1093520.B0050	27.11	5					
Collector Trolley	CL7-6-35/2M	A1093580.B0002	CL7-6-35/S/2M	A1093580.B0051	27.11	6					
Collector Trolley	CL7-7-35/2M	A1093650.B0003	CL7-7-35/S/2M	A1093660.B0008	27.11	7					
Collector Trolley	CL7-4-70/2M	A1093860.B0003	CL7-4-70/S/2M	A1093870.B0003	54.22	4					
Collector Trolley	CL7-5-70/2M	A1093930.B0001	CL7-5-70/S/2M	A1093940.B0050	54.22	5					
Collector Trolley	CL7-6-70/2M	A1094420.B0002	CL7-6-70/S/2M	A1094010.B0052	54.22	6					
Collector Trolley	CL7-7-70/2M	A1094070.B0050	CL7-7-70/S/2M	A1094080.B0050	54.22	7					
Collector Trolley	CL7-4-100/2M	A1094280.B0002	CL7-4-100/S/2M	A1094280.B0050	77.46	4	x				
Collector Trolley	CL7-5-100/2M	A1094350.B0001	CL7-5-100/S/2M	A1094360.B0052	77.46	5	x				
Collector Trolley	CL7-6-100/2M	A1094420.B0001	CL7-6-100/S/2M	A1094420.B0051	77.46	6	x				
Collector Trolley	CL7-7-100/2M	A1094490.B0008	CL7-7-100/S/2M	A1094490.B0051	77.46	7	x				
Coll. Trolley for Lg. Trans. Guide	CLTG7-4-35/2M	A1094720	CLTG7-4-35/S/2M	A1094730.B0000	27.11	4		x			
Coll. Trolley for Lg. Trans. Guide	CLTG7-5-35/2M	A1094790.B0053	CLTG7-5-35/S/2M	A1094790.B0054	27.11	5		x			
Coll. Trolley for Lg. Trans. Guide	CLTG7-6-35/2M	A1094850.B0050	CLTG7-6-35/S/2M	A1094850.B0051	27.11	6		x			
Coll. Trolley for Lg. Trans. Guide	CLTG7-7-35/2M	A1094910.B0053	CLTG7-7-35/S/2M	A1094910.B0052	27.11	7		x			
Coll. Trolley for Sm. Trans. Guide	CLTK7-4-35/2M	A1095060.B0050	CLTK7-4-35/S/2M	A1095060.B0051	27.11	4			x		x
Coll. Trolley for Sm. Trans. Guide	CLTK7-5-35/2M	A1095180.B0050	CLTK7-5-35/S/2M	A1095180.B0051	27.11	5			x		x
Coll. Trolley for Sm. Trans. Guide	CLTK7-6-35/2M	A1095250.B00051	CLTK7-6-35/S/2M	A1095250.B0052	27.11	6			x		x
Coll. Trolley for Sm. Trans. Guide	CLTK7-7-35/2M	A1095300.B0052	CLTK7-7-35/S/2M	A1095300.B0053	27.11	7			x		x
Coll. Trolley for RNHS7 (Handsafe)	Not Available		NLHS7-4-35	A1072020.B0000	27.11	4		x	x	x	
Coll. Trolley for RNHS7 (Handsafe)	Not Available		NLHS7-5-35	A1072170.B0000	27.11	5		x	x	x	
Coll. Trolley for RNHS7 (Handsafe)	Not Available		NLHS7-6-35	A1072250.B0000	27.11	6		x	x	x	
Coll. Trolley for RNHS7 (Handsafe)	Not Available		NLHS7-7-35/2M	A1072330.B0002	27.11	7		x	x	x	

Selection Chart Towing Arms

TransTech No.	Description		Collector Trolley
A1019050	Towing arm	BMV35	..-..35/..-..40
A1019130	Towing arm	BMV70	..-..70
A1019210	Towing arm	BMV100	..-..100
A1018940	Towing arm, stainl.st.	BMV35-R	..-..35
A1019830	Towing arm, stainl.st.	BMV70-R	..-..70
A1019910	Towing arm, stainl.st.	BMV100-R	..-..100

Selection Chart Transition Boxes

TransTech No.	Description	
A1020000	Transition box for collector trolleys	TTB35-4
A1020010	Transition box for collector trolleys	TTB35-7
A1020020	Transition box for collector trolleys	TTB70-4
A1020030	Transition box for collector trolleys	TTB70-7
A1020040	Transition box for collector trolleys	TTB100-4
A1020050	Transition box for collector trolleys	TTB100-7
A1020060	Transition box for collector trolleys	TTB140-4-2
A1020090	Transition box for collector trolleys	TTB200-4-6
A1020100	Transition box for collector trolleys	TTB200-7-6
A1020120	Transition box for collector trolleys	TTB400-4-6

Transition boxes for collector trolleys, not to be mounted on the towing arm. Cable shoes are not included. See page 14 for more information.

Transfer:

Transfer Guides

Transfer guides are for the passage of collector trolleys through conductor transfers, on turn or slide switches (see drawing). The type is related to the mechanical tolerance of the transfer system itself.

Type ITN7
Suitable for mechanical tolerances vertical and horizontal planes of less than 10 mm; infinite gap.
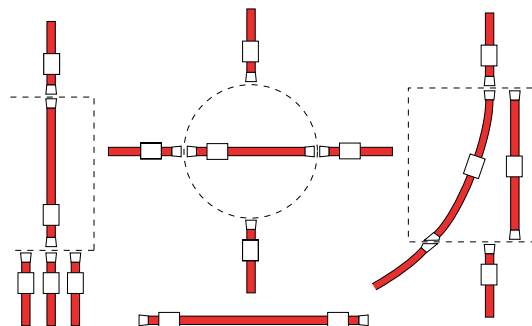
Type ITNHS7
For Multiconductor RNHS7

Type ITKN7
Suitable for mechanical tolerances, vertical and horizontal planes less than 2 mm and gap less than 3 mm.

Type ITKNHS7
For Multiconductor RNHS7

ITN7

ITKN7

TransTech No.	Description	left	right	space between transf.guides <= 3mm	vertical tolerance <= 2mm	horizontal tolerance <= 2mm	red	white	length	min. temperature	max. temperature	max. number of poles	protection degree IP23	sealing rubber AS7 applicable	HS, extra protection
									m	°C	°C				
A1016310	Transfer guide large red ITN7-L	x					x		1.15	-30	60	7	x	x	
A1016540	Transfer guide large red ITN7-R		x				x		1.15	-30	60	7	x	x	
A1017820	**Transfer guide large red ITN7-N**	**x**	**x**				**x**		**1.15**	**-30**	**60**	**7**	**x**	**x**	
A1017830.B0000	Transfer guide large, ITN7W-L	x						x	1.15	-30	60	7	x	x	
A1017840.B0000	Transfer guide large, ITN7W-R		x					x	1.15	-30	60	7	x	x	
A1016770.B0000	Transfer guide f. RNHS7 ITNHS7-L	x					x		1.15	-30	60	7	x	x	x
A1017510.B0000	Transfer guide f. RNHS7 ITNHS7-R		x				x		1.15	-30	60	7	x	x	x
A1016630.B0000	Transfer guide vicat ITNV7-L	x							1.15	-20	80	7	x	x	
A1016640.B0000	Transfer guide vicat ITNV7-R		x						1.15	-20	80	7	x	x	
A1017040	Transfer guide small red ITKN7-L	x		x	x	x	x			-30	60	7	x	x	
A1016930	Transfer guide small red ITKN7-R		x	x	x	x	x		1.025	-30	60	7	x	x	
A1017270.B0000	Transfer guide f. RNHS ITKNHS7-L	x		x	x	x	x		1.025	-30	60	7	x	x	x
A1018710.B0000	Transfer guide v.RNHS ITKNHS7-R		x	x	x	x	x		1.025	-30	60	7	x	x	x

It is important to consider the travel speed on transfer systems.

Transfer guides are not suitable for switching higher currents.

This transfer guide includes: 1 trumpet to which is fitted 500 mm of housing RN7, in which are already fitted copper conductors CU 125 (ITN7) or CU80 (ITKN7), 500 mm of housing RN7 to attach the transfer guide section to the Multiconductor (incl. mounting material). To be ordered separately: a line feed box for shrouding the connection between the trumpet housing and opposite RN7-housing and 2 fixed point clamps to be placed on each side of the line feed.
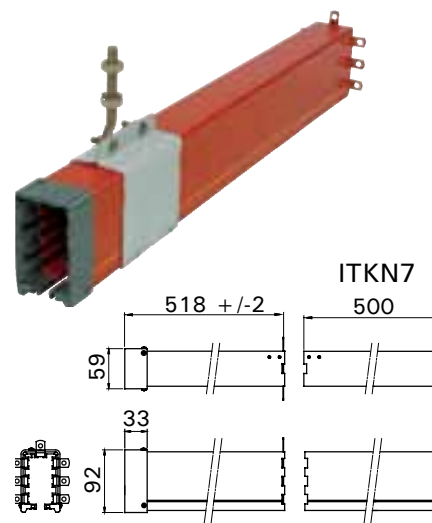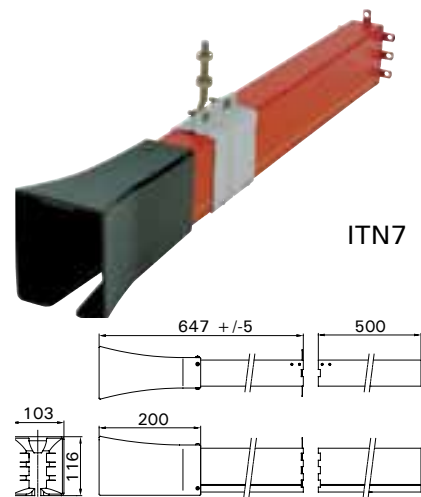
Isolation:

Conductor Isolation Sections

Copper conductors isolation sections are used in the event of an electrical division between one single or various conductors. The conductor isolation section is not suitable for switching >125A currents. Two models are available:

SO7 - for electrical isolation of 1 - 7 strips
SO1/SRN1 - for electrical isolation of 1 strip

It is important to consider the correct compensation for the expansion differences. If one or more isolation sections are applied, we strongly recommend that you send TransTech a situation drawing of the feeding system in order to determine the correct execution.

Conductor Isolation Sections

Type SO7

This isolation section is fitted into a Multiconductor between 2 housings RN7. This section is covered by two line feed boxes and a linebox extension. Then a fixed point clamp is positioned on each side (all sold seperately).
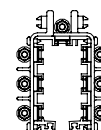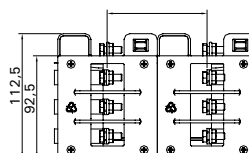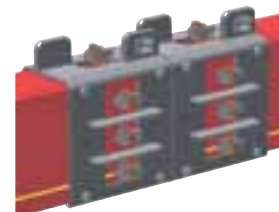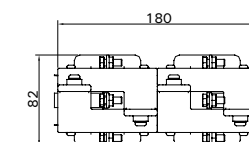
Type SOHS7

For Multiconductor RNHS7. Similar to SO7, with additional spacer strips at the bottom for use with extra hand-safe housing RNHS7.

SO7

## Special Conductor Isolation Sections

Type SO1

In case only one or two isolations in the controlling current conductors are required, these small isolation sections can be used. At the position of the required isolation, slots are made in the housing, through which the copper conductors are bent outwards. A small isolation section is then placed between the conductors, after which the assembly is enclosed by a small cover (45x38x20 mm). Connection of a supply cable is possible by piercing a hole in the cover. When sealed with silicone-mastic (not supplied) this unit is also suitable for outdoor installations.
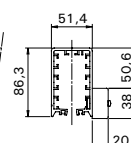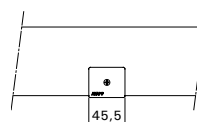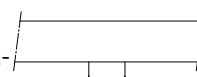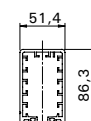

SO1

Type SRN1

This prepared housing (200 mm length) is available as an alternative to cutting slots in the standard housing and is fitted in the Multiconductor by means of 2 joint clamps type VN7.
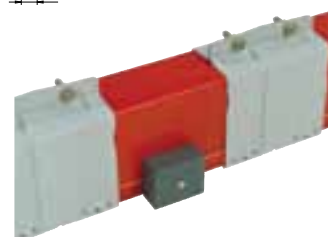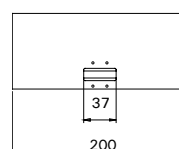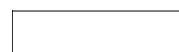
SRN1

Curved Tracks:

Horizontal & Vertical

Multiconductor is also used for curved applications. In general, the curved segments are made to measure in the required radius to the degree of the curve. A correct drawing is required for accurate system specifications. Contact Transtech for assistance. Horizontal curves do not have a marking strip and no antireverse rib in the conductor. It is not required to take the positioning into consideration with regard to the other conductor segment when ordering.

Curved Housing

Type BRN7- . . . . (Radius)

Horizontal curves are available from R = 600 mm and vertical curves from R = 1800 mm (center sizes, see drawing A).

In curves, the center distance of the hanger support varies from 600 - 1000 mm (in general min. 2 hanger supports per curved section).

Vertical curves exist in 2 varieties: Concave: biggest radius at the bottom (= opening) of the housing;

Convex: smallest radius at the bottom of the housing. See drawings.

A

Horizontal curve BRN7

Type BRNHS7- .. (Radius)

Curves for Multiconductor RNHS7.

## Collector Trolleys In Installations with

Curves

For installations with curves, only 35A collector trolleys should be used. It is possible to use more collector trolleys in parallel for higher current capacities. For curves with bending radius < 800 mm the flexible trolley type S7-..-35 is used.

Copper Conductors in Curved Tracks

For vertical curves less than the radius allowed in the table, conductors must be supplied pre-bent. See table.

In horizontal curve installations, it is preffered to not use the top conductor channel. If you need 3 conductors, choose 4; if you need 5, choose 6 and avoid using the top slot. If the top slot must be used and radius is less than allowed in table, conductors must be supplied pre-bent.

In all other cases, the copper conductors can be rolled directly from the drum through the curves.

Vertical curve, convex

Vertical curve, concave
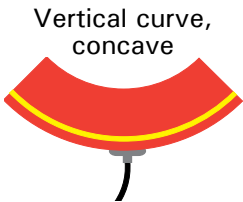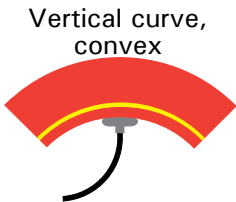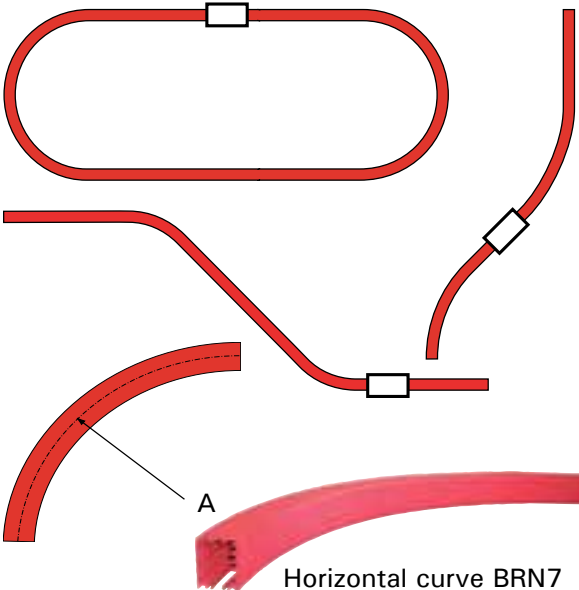
S7-4-35

Pre-bent strips are required for installations with following conductors and radii (horizontal or vertical):

Type Copper Conductor	Curves Up To Radius R
Cu50 *	1500 mm
Cu80	2000 mm
Cu125	2500 mm
Cu160	3000 mm

* Copper conductors Cu50 can not be prebent. If required, Cu80 shall be applied in the curve(s).

Installation Tools:

For Optimal Efficiency

The Multiconductor components have been designed for fast and simple installation. The installation process will be even more efficient if you opt for the auxiliary tools detailed below. Contact TransTech for assistance.

Copper Pulling-Cassette

This device can be included in all new installations of the Multiconductor. The copper rolls are placed onto the cassette after which the copper will be rolled off smoothly. The roll is provided with a feed-through aperture. A limiter prevents the rolling off of the copper onto the platform.

| TransTech No.	Copper Casette	Cu200	Cu 160	Cu125	Cu80	Cu50
A1039820	50x50 cm, small core	-	-	-	90	145
A1040220	80x80 cm, large core	60	100	130	230	350
A1040450	100x100 cm, large core	100	200	260	470	740

Copper Pulling-Block

Eases the pulling of the copper conductor into the channels of the Multiconductor. This pulling block includes a drawbar eye into which a rope can be attached. To be used in combination with the copper pulling cassette.

Copper Straightener

It is strongly recommended to use this tool for installation of the copper conductors 125A and 160A. The straightener eliminates the ridged form of the copper during the mounting. This is especially important for track lengths over 50 meters.
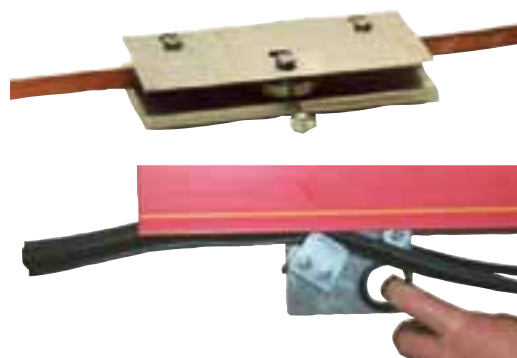
Tom Thumb Tool for Sealing Strips

Used for the easy application of the flexible rubber seal AS7 to the bottom side of the Multiconductor. In one single movement, the rubber strips can be applied to both bottom channels of the Multiconductor.

Wooden Wedge Set

Type OBA

For fast extraction and insertion of trolleys at almost any location of a Multiconductor system. The set consists of two wooden wedges with two PVC plates. By inserting the wedge into the housing and then turning it, the housing will widen and the trolley can be extracted easily. When inserting the trolley again, the two plates can be used to guide it into the housing.

TransTech No.	Description	Length >25m	AS7	CU125	CU160
A1003610	Copper Pulling-Block	x			
A1003950	Straightning device	x		x	x
A1003760	Tom thumb		x		
A1003800	Tom thumb for Hand-Safe		x		

OBA

19
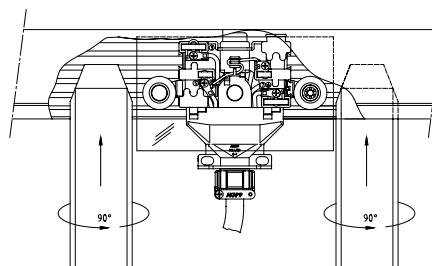
More on Multiconductor:

Technical Data and Ordering References

Nominal voltage: 660 Volt. Under humid conditions and on all outdoor installations for the 6 and 7-pole Multiconductor systems: 500 Volt. Comprehensive installation instructions will accompany every Multiconductor system. It is generally possible to increase the length of an existing system utilizing standard components. Please consult TransTech for full details of the existing system and required extension. We reserve the right to amend dimensions/design of components in the interests of design advancement without prior notification.

Multiconductor Internal Heating

In applications where condensation and ice should be prevented, the Multiconductor can be heated along part or the entire length of the system.

Type ESR20 (A), Insulated.

For up to 6-pole systems. 1 channel fitted with heating strip, covered with plastic strip. Max. track length 60 m. Connecting voltage: AC 230V. Automatic control of required capacity based on the ambient temperature. Capacity 10W/m at +10°C.
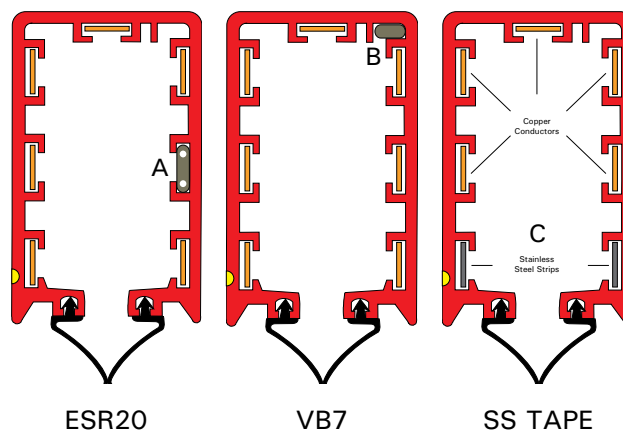
Type VB7 (B), Insulated.

For up to 7-pole systems. Pull into slot next to anti-reverse rib. Max. track length 80 m. Connecting voltage AC 230V. Self regulating. Capacity 23W/m at +5°C.

Type SS TAPE (C), Not Insulated.

For systems including a minimum of 2 free channels. Stainless steel strip 13x0.5mm; R=0.1106 Ω/m. Not self regulating; transformer and thermostat needed (not included).

Example for Ordering Indoor Installation

1 TransTech Multiconductor type RN7, 3 phase + ground, track length 48 m, 4 poles, nominal capacity up to 35A, duty cycle 80%, with end feed. Apparatus to be fed: 1 overhead crane, maximum total power 7.5 kW, 400V, speed 40 m/min, in warehouse, dry, no excessive dust, ambient temperatures from +10°C up to +35°C. Supports every 2m.

Length	Product	Description
48 m	Type RN7	PVC housing (12 x 4 m)
192 m	Type CU50	copper conductor 50A (4 x 48 m)
24 pcs	Type BN7-Z	sliding hangers, galvanized
13 pcs	Type VN7-Z	joint clamps, galvanized
1 pc	Type VMN7-Z	fixed point clamps, galvanized
1rl	Type T50	insulation tape (10 m)
1pc	Type EBS32	end feed box
1pc	Type EN7	end cap
1 pc	CL7-4-35 / 2m	Collector Trolley
1 pc	BMV 35	Towing Arm

Note: Installation Tools are recommended.

Example for Ordering Indoor Installation

1 TransTech Multiconductor type RN7, 3 phase, neutral, ground, track length 84 m, 5 poles, nominal capacity up to 125A, duty cycle 80%, with line feed at 2 4 m. Apparatus to be fed: 2 cranes, 25 kW each, 400V, speed 90 m/min, in concrete industry, alternate dusty, humid and corrosive, ambient temperatures from -15°C up to +35°C. Supports every 1.33 m.

| Length	Product	Description
84 m	Type RN7	PVC housing (21 x 4 m)
1 pc	Type RN7-LCH	line feed clamp holder
84 m	Type AS7	flexible sealing strip
420 m	Type CU125	copper conductor 50A (5 x 84 m)
64 pcs	Type BN7-L	sliding hangers, galv. + coated
22 pcs	Type VN7-L	joint clamps, galv. + coated
2 pcs	Type VMN7-L	fixed point clamps, galv. + coated
1 rl	Type T50	insulation tape (10 m)
1 pc	Type LB63	line feed box
5 pcs	Type LC200	feed clamps
2 pcs	Type EN7	end caps
2 pcs	Type CL7-5-70/S/2M	collector trolleys
2 pcs	Type BMV70	towing arms

Installation Examples:

System Configuration

The construction method to be used with the TransTech Multiconductor is based on "controlled expansion". This guarantees the solution of expansion related problems which coincide with three different elements: synthetics, copper, and suspension frame. The linear expansion and shrinking of the PVC conductor housing is 0.07 mm/°C/m, which is the 5-fold of copper conductors to be mounted into the conductor housing as well as the suspension frame.

The TransTech Multiconductor design permits the free movement of the three elements thus resolving problems experienced with other systems. Most common installations with one feed point at the end or somewhere along the installation (see illustration below, examples A or B) are mounted on the basis of free expansion. The expansion movement takes place from the fixed point.

For installations where the required system is longer than 300M or where similar to one of the applications C - F (see below), please refer to the TransTech sales office for additional installation instructions.
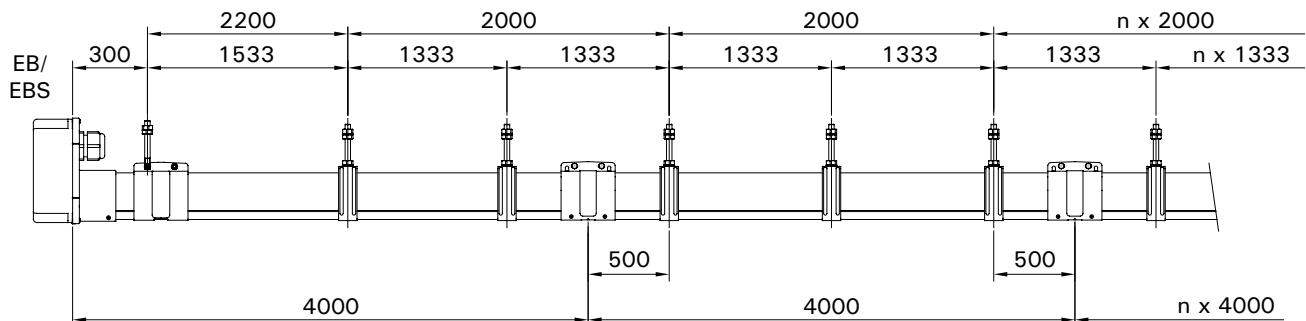
Multiconductor System Construction
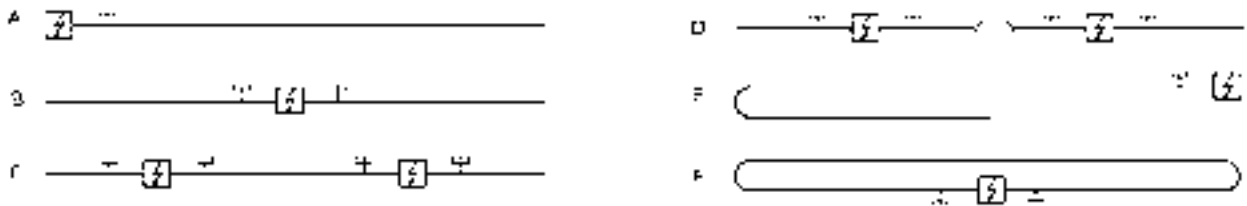
Multiconductor System Configuration Line Feed With CU125 or CU160
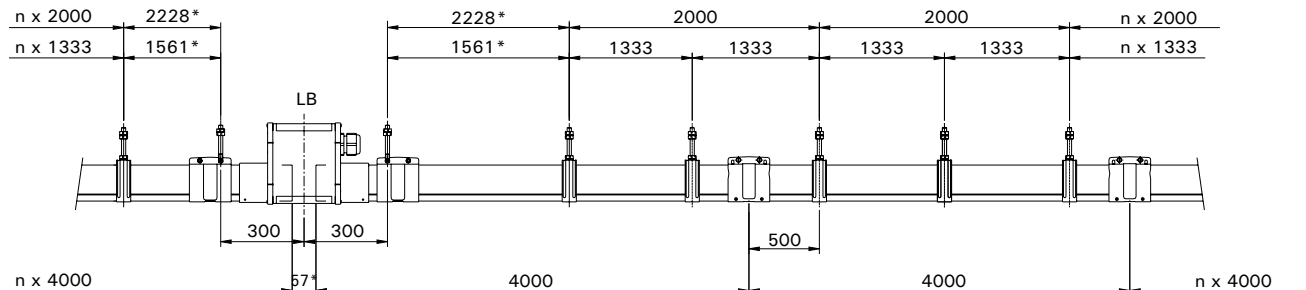
Multiconductor System Configuration End Feed With CU125 or CU160

Appendix:

## Maintenance & Spare Parts of Collector Trolleys

When replacing a TransTech collector trolley, the information below needs your special attention to prevent accidents or failures of the installation. Older trolley models (series "S") have a different numbering of the cable wires to the brushes. The table below displays all information concerning the spare parts, used in each trolley model.

Attention!

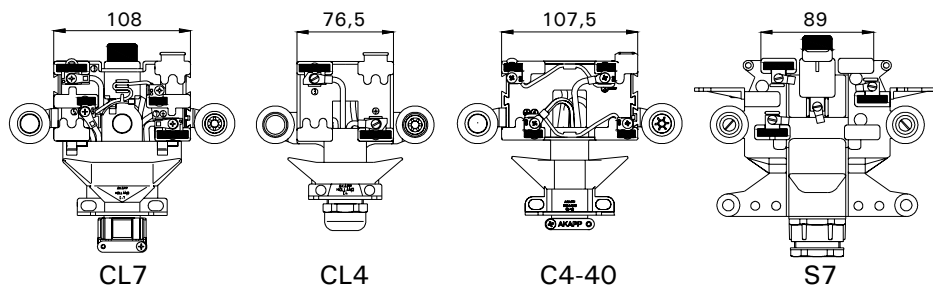Trolley type S7 has different cable numbering

Please check before installing that the internal wiring of the trolley is correct!

Length of the towing chains for 35A trolleys is 5 links and for 70A and 100A trolleys 6 links.

CL7/NL7   S7

108   76,5   107,5   89
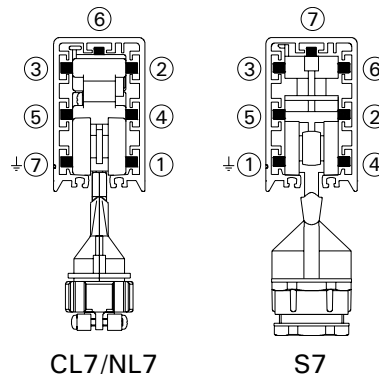
CL7   CL4   C4-40   S7

TransTech No.	Type	Description	C7	C4	C4-40	S7	N7
A1411021	K91P	Carbon brush phase / ground	x	x			x
A1410601	C91D	Carbon brush twin	x		x		
A1410130	B91SP	Carbon brush phase				x	
A1410210	B91SA	Carbon brush ground				x	
A1410050	B91SN	Carbon brush neutral				x	
A1630100	W	Wheel set	x		x		
A1630110	WS	Wheel set ball beared	x		x		
A1630120	WZ	Wheel set + side wheel	x		x		
A1630130	WSZ	Wheel set ball beared + side wheel	x		x		
A1096550	WE	Set middle wheel	x				
A1096500	BG	Set bow	x				
A1331930	G	Gliding shoe	x		x		
A1510460		Wheel C4		x			
A1510230		Wheel				x	

*N7 is a discontinued item, it can be replaced by the CL7 (despite the length differences). Contact TransTech with any questions.
**The CL4 can be replaced by the CL7.
***K91P can be used in place of C91A and K91A.

Applications:

A 500 m long enclosed track for a passenger train in the zoo

Curved installation for window cleaning equipment

Exterior and interior of an enclosed track for rotating building motor

Feed and control of bridge cranes in a galvanizing plant

Feed for Paper Mill Machine Operations

Multiconductor Technical Catalog