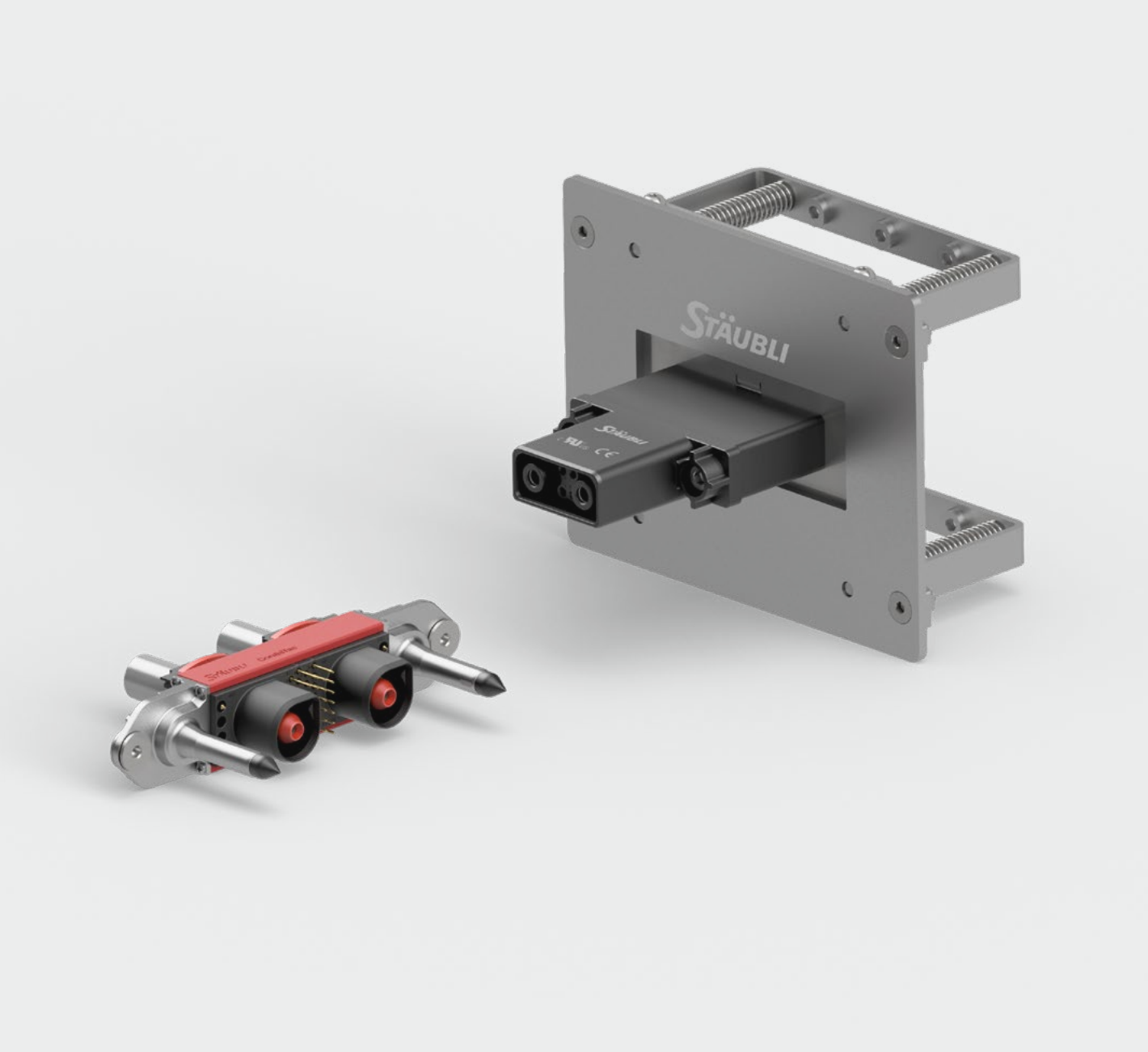
FAST MOVING TECHNOLOGY

CombiTac align

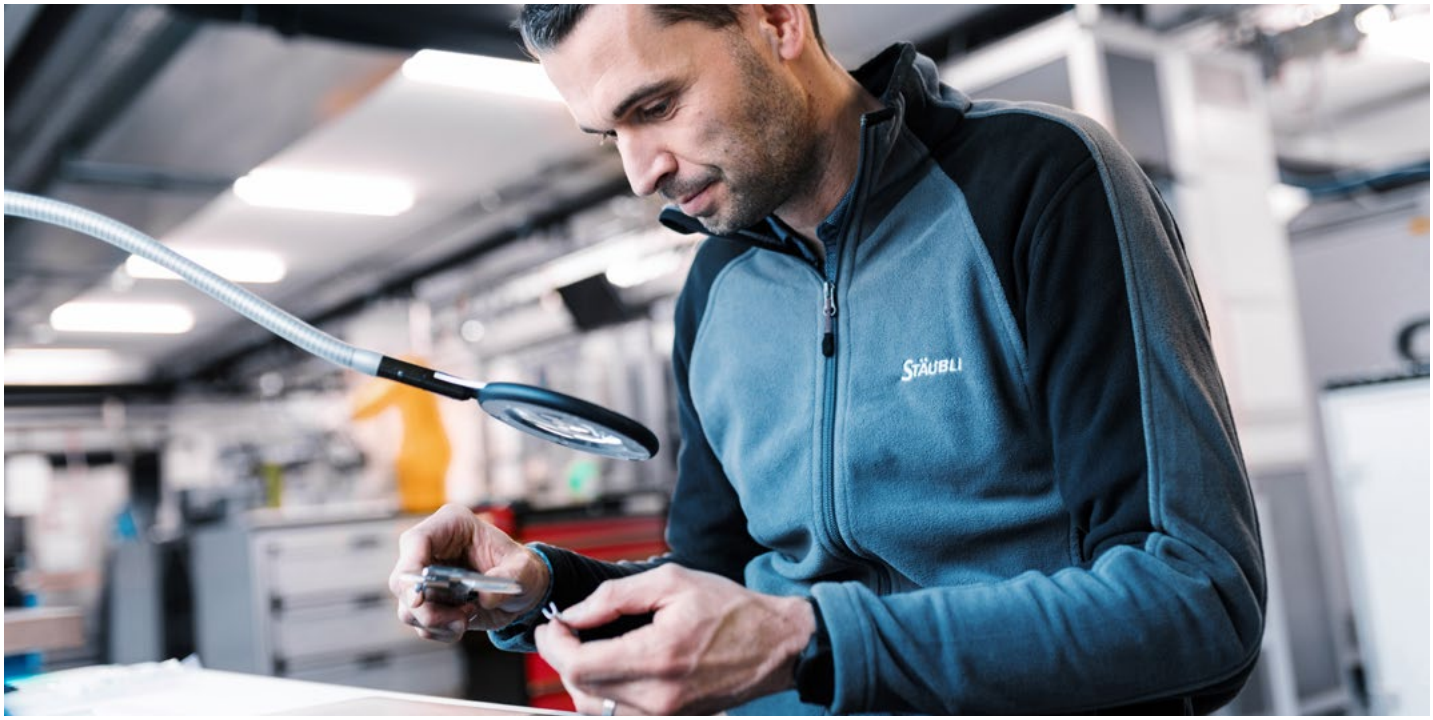
Connector solutions for high misalignment compensation

EN



STÄUBLI ELECTRICAL CONNECTORS

Connections for Life



Stäubli, as the international technology leader, offers innovative mechatronics solutions in its four divisions: Electrical Connectors, Fluid Connectors, Robotics, and Textile. At Stäubli Electrical Connectors, we develop advanced connection solutions based on the reliable MULTILAM contact technology.

We create connections for life – and our customers are at the center of these connections. We are convinced that solid and stable partnerships directly contribute to our mutual success.

We take on the needs of our partners and deal with the most extraordinary challenges. As a result, we always create, sell and support reliable and long-lasting products for markets with the highest productivity and safety requirements in close cooperation with our customers.

Together for reliable and safe connections

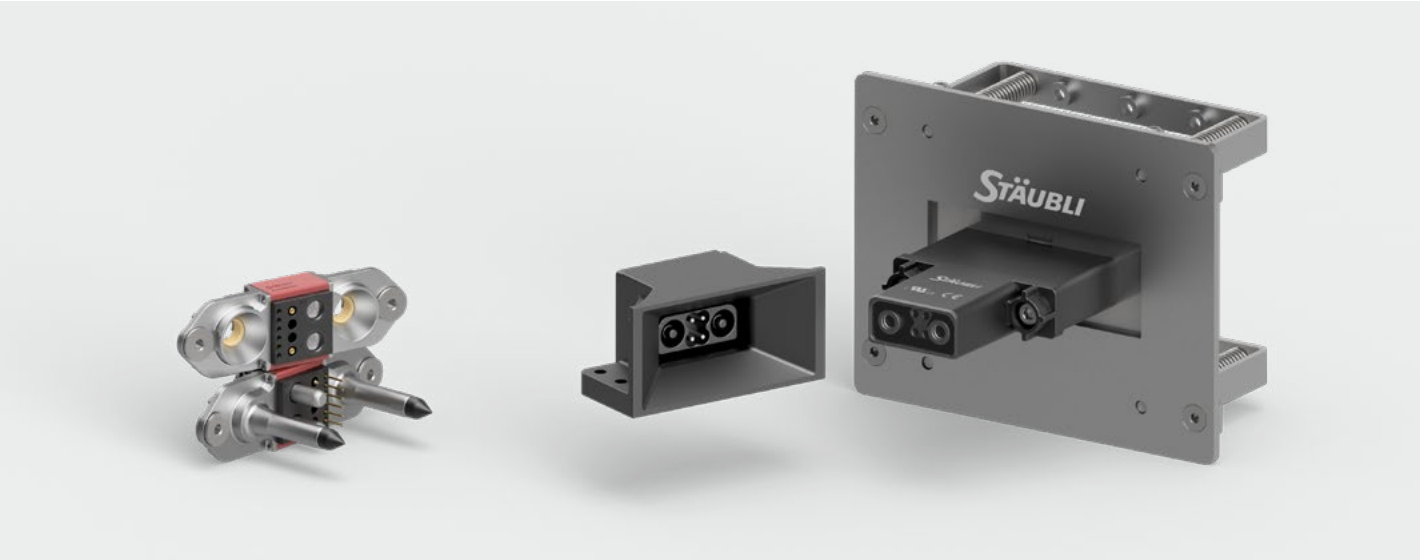
We know that you entrust us with the functionality of your applications and we work hard to ensure this every single day. Thanks to our high level of expertise, our extensive experience and the multiple successful co-operation with our partners, numerous new developments have originated at Stäubli Electrical Connectors and subsequently have become worldwide standards. This includes our MC4 connector portfolio for which we are today the global market leader in photovoltaic. As the Stäubli original, the MC4 represents the result of our constant quest for innovation, quality and safety.

Further examples are the CombiTac modular connector system or the Quick Charging Connector (QCC) for automatic charging systems.

We ensure connections for life together with our long-standing customers in a wide range of industries from renewable energies, power transmission and distribution and E-mobility to industrial automation applications, railway and welding automation, test and measurement and medical devices.

Thus, developing reliable, efficient and safe solutions based on our proven MULTILAM contact technology, which guarantees a high service lifetime in addition to highly efficient power transmission.

Applications and advantages



CombiTac modular connectors combine various connection types in a single frame and can be configured according to your exact specifications.

CombiTac align is a new connector family from Stäubli that offers solutions for applications requiring high misalignment compensation during the mating process. The two different product types, CombiTac align 4 and CombiTac align 15, cover a wide range of applications and requirements. The MULTILAM contact technology enables 100,000 mating cycles.

CombiTac align 4 is designed for more demanding applications and features misalignment compensation up to 4 mm, versatile long-life modular connector solutions, and customer-specific combinations of power, signal, data, fiber optic, fluid and pneumatic connections.

CombiTac align 4 is fully customizable to meet precise technical and dimensional specifications. It can also be equipped with the Last Mate First Break module as well as with contacts that can carry current up to 720 A.

CombiTac align 15 is ideal for applications requiring up to 15 mm of misalignment compensation combined with long lasting performance. It is designed to meet the mechanical and electrical needs of demanding applications like AGVs. Featuring Ø 6 mm power contacts and Ø 2.5 mm signal contacts, it ensures effective electrical connection and signal for data communication or battery management system. A robust floating mechanism paired with a funnel offers a durable, reliable solution that minimizes total cost of ownership.

As a solution provider, we offer you full support in the configuration of your own 100 % customized CombiTac connector, including optional cable assembly according to your requirements.

This product flyer is dedicated to the CombiTac align product line. Information about CombiTac uniq and CombiTac direqt can be found in the CombiTac website.

Further information concerning product portfolio, special features as well as exemplary videos can be found at www.combitac.com

Additional information on the complete CombiTac uniq portfolio can be found on our website:

Read more

COMBITAC ALIGN

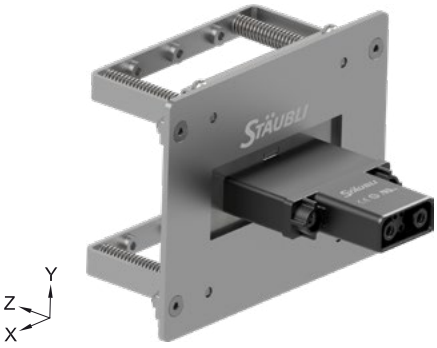
CombiTac align 15

High misalignment 15 mm compensation system

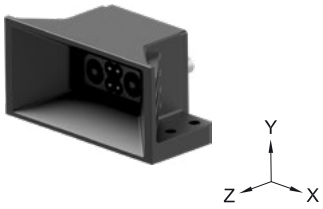
The CombiTac align 15 is purposed-designed for 3-dimensional misalignment compensation during the docking process of AGV/AMR robots.

This high misalignment solution fulfills mechanical and electrical requirements needed for automatic conventional and opportunity charging.

Socket (charger side)



Plug (AGV side)



Technical data	
Misalignment compensation, horizontal vertical depth	X = ± 15 mm Y = ± 10 mm Z = 20 mm
Angular misalignment compensation	Angle = 2°
Mating cycles	100,000
Carriers and funnel material	PA
Degree of protection (in mated condition)	IP23
Operating temperature, upper lower	+125 °C -40 °C
Flame class	UL 94 V-0

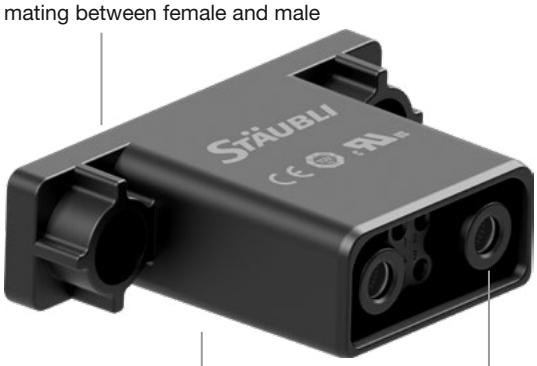
Technical data		
	Power	**Signal**
Number of poles	2	4
Contact diameter	6 mm	2.5 mm
Contact material	Copper (Ag)	Brass (Ag)
Pollution degree/overvoltage category	3/CAT III	3/CAT III
Rated voltage	300 V AC/DC	60 V AC/DC
Rated current	up to 100 A[1)]	up to 10 A[1)]
Average sliding force	11.5 N	3 N
Contact resistance	≤ 250 µΩ	≤ 1.1 mΩ
Contact mating cycles	100,000	100,000
Conductor cross-section	6 mm^2 – 25 mm^2 10 AWG – 4 AWG	0.5 mm^2 – 1.5 mm^2 20 AWG – 16 AWG

[1)] IEC rated values refer to copper wires in accordance with IEC 60364-5-52:2009.

AGV-CC6-UR connector

Socket (charger side)

Coded housing prevents wrong polarity mating between female and male



Socket fitted with MULTILAM

Retaining clip
Tool-free contact installation

Touch protection IP2X
(sockets and power plugs)

Plug (AGV side)

Coded housing prevents wrong direction housing in funnel

Numbered slots for correct position insertion

Plug with crimp termination

Plug with screw termination

Retaining clip
Tool-free contact installation

Developed in accordance to the standards

- EN 61984:2020
  Connectors – Safety requirements and tests.
- UL 1977
  Component Connectors for Use in Data, Signal, Control and Power Applications.

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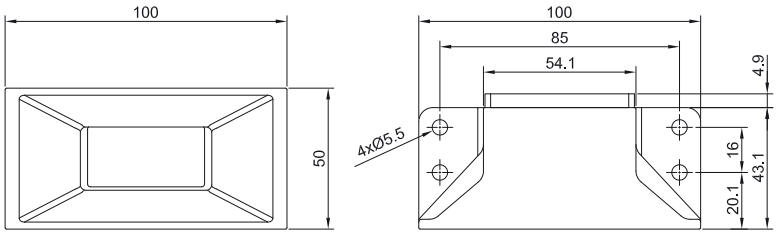
CombiTac align 15

The CombiTac align 15 solution provides innovative alignment capabilities designed to effectively handle high misalignment conditions and the associated forces in AGV-CC6-UR connector guidance systems.

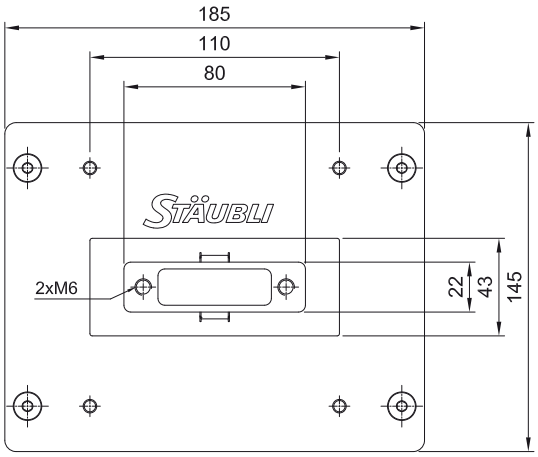
The funnel, installed at the front of the vehicle, accommodates the plug connector, while the socket connector combined with the floating mechanism is mounted at the charger side.

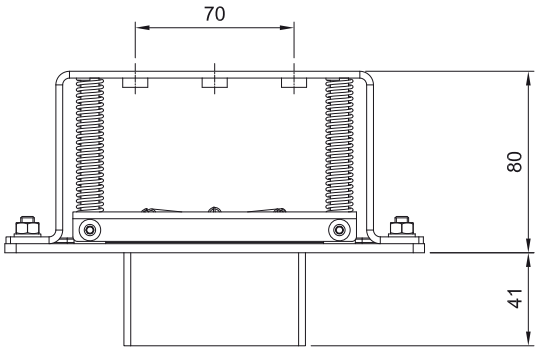
This design ensures precise coupling and mitigates radial and angular misalignments. It enables seamless automatic charging for AGV/AMR systems, enhancing efficiency and reliability in automated environments.

AGV-CC6/FSS



AGV-HME-FSS/15





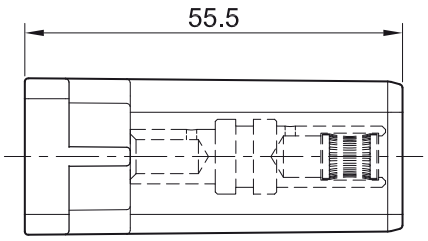
Order No.	Type	Description
37.0000	AGV-CC6/FSS	Funnel for CC6 male
37.0001	AGV-HME-FSS/15	Floating mechanism for CC6 female, ±15 mm

AGV-CC6-…

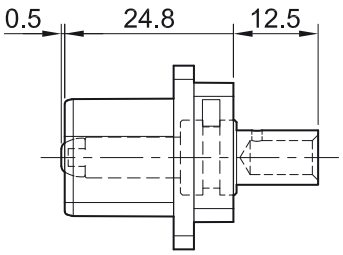
Pre-configured connectors with crimp termination for Cu conductors (class 5).

Technical data:
See pages 8 – 10

Socket (charger side)



Plug (AGV side)

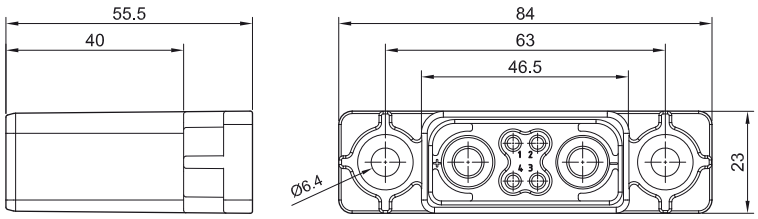


Order No.	Type	Female	Male	Description	Rated current Rated voltage	
		Charger	Vehicle	Per connector	Power	Signal
38.0106	AGV-CC6-2S6/6+4S2.5/0.5-1.5-UR	×		2 x Ø 6 mm crimp termination for 6 mm², 4 x Ø 2.5 mm, 2 x retaining clips	40 A 300 V AC/DC	10 A 60 V AC/DC
38.0506	AGV-CC6-2P6/6+4P2.5/0.5-1.5-UR		×			
38.0110	AGV-CC6-2S6/10+4S2.5/0.5-1.5-UR	×		2 x Ø 6 mm crimp termination for 10 mm², 4 x Ø 2.5 mm, 2 x retaining clips	55 A 300 V AC/DC	10 A 60 V AC/DC
38.0510	AGV-CC6-2P6/10+4P2.5/0.5-1.5-UR		×			
38.0116	AGV-CC6-2S6/16+4S2.5/0.5-1.5-UR	×		2 x Ø 6 mm crimp termination for 16 mm², 4 x Ø 2.5 mm, 2 x retaining clips	75 A 300 V AC/DC	10 A 60 V AC/DC
38.0516	AGV-CC6-2P6/16+4P2.5/0.5-1.5-UR		×			
38.0125	AGV-CC6-2S6/25+4S2.5/0.5-1.5-UR	×		2 x Ø 6 mm crimp termination for 25 mm², 4 x Ø 2.5 mm, 2 x retaining clips	100 A 300 V AC/DC	10 A 60 V AC/DC
38.0525	AGV-CC6-2P6/25+4P2.5/0.5-1.5-UR		×			
38.0505	AGV-CC6-2P6/M5+4P2.5/0.5-1.5-UR		×	2 x Ø 6 mm screw termination for M5, 4 x Ø 2.5 mm, 2 x retaining clips	up to 100 A 300 V AC/DC	10 A 60 V AC/DC

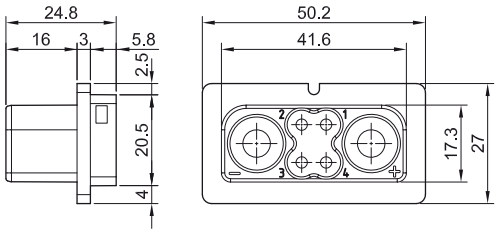
Contact carriers AGV-CC6/2-6+4-2.5/…

Contact carrier, without contacts.
For 2 x Ø 6 mm power contacts and 4 x Ø 2.5 mm signal contacts and 2 x retaining clips.

AGV-CC6/2-6+4-2.5/S-UR



AGV-CC6/2-6+4-2.5/P-UR



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AGV-CC6-RC6/2.5

MA

Assembly instructions MA432

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Order No.	Type	Description
37.4110	AGV-CC6/2-6+4-2.5/S-UR	Socket carrier, charger side
37.4510	AGV-CC6/2-6+4-2.5/P-UR	Plug carrier, AGV side
37.4080	AGV-CC6-RC6/2.5	Retaining clip (2 per carrier; must be ordered separately)

Technical data	
Number of poles	2 Power + 4 Signal
Pollution degree/overvoltage category	3/CAT III
Rated voltage	300 V power contacts / 60 V signal contacts
Rated voltage UL	300 V power contacts / 60 V signal contacts
Degree of protection	IP2X (sockets and power plugs)
Clearances and creepage distance	IEC 60664-1:2020 and UL 1977
Limiting temperature (IEC 61984:2008), upper lower	+125 °C -40 °C
Contact carrier material	PA

Ø 6 mm power contacts

For contact carrier AGV-CC6/2-6+4-2.5/…
Sockets fitted with MULTILAM.

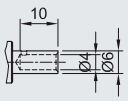
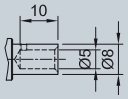
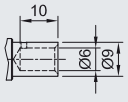
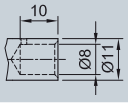
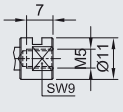
Type of termination:

- Crimp termination (C) for Cu conductors (class 5)
- Screw termination (S) using an M5 inside thread by means of a cable lug (DIN 46234) for Cu conductors. Available on plug side only.

AGV-SP6/... AG

AGV-PP6/...AG

AGV-P6/M5 AG

Order No.	Type	Socket	Plug	Surface	Conductor cross-section		Rated current	Type of termination
					mm²	AWG	A	
37.0106 **37.0506**	AGV-SP6/6 AG AGV-PP6/6 AG	×	×		6	10	40	C 
37.0110 **37.0510**	AGV-SP6/10 AG AGV-PP6/10 AG	×	×		10	8	55	C 
37.0116 **37.0516**	AGV-SP6/16 AG AGV-PP6/16 AG	×	×		16	6	75	C 
37.0125 **37.0525**	AGV-SP6/25 AG AGV-PP6/25 AG	×	×		25	4	100	C 
37.0505	AGV-P6/M5 AG		×		6 10 16 25	10 8 6 4	40 55 75 100	S 

MA

Assembly instructions MA432

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Ø 2.5 mm signal contacts

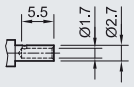
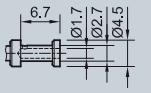
For contact carrier AGV-CC6/2-6+4-2.5/…
Sockets fitted with MULTILAM.

Type of termination:

- Crimp termination (C) for Cu conductors (class 5 and 6)

AGV-SP2.5/0.5-1.5 AG

AGV-PP2.5/0.5-1.5 AG

Order No.	Type	Socket	Plug	Surface	Conductor cross-section		Rated current	Type of termination
					mm²	AWG	A	
37.0101	AGV-SP2.5/0.5-1.5 AG	×			0.5 0.75 1.0 1.5	20 18 18 16	5 8 10 10	C 
37.0501	AGV-PP2.5/0.5-1.5 AG		×		0.5 0.75 1.0 1.5	20 18 18 16	5 8 10 10	C 

MA

Assembly instructions MA432

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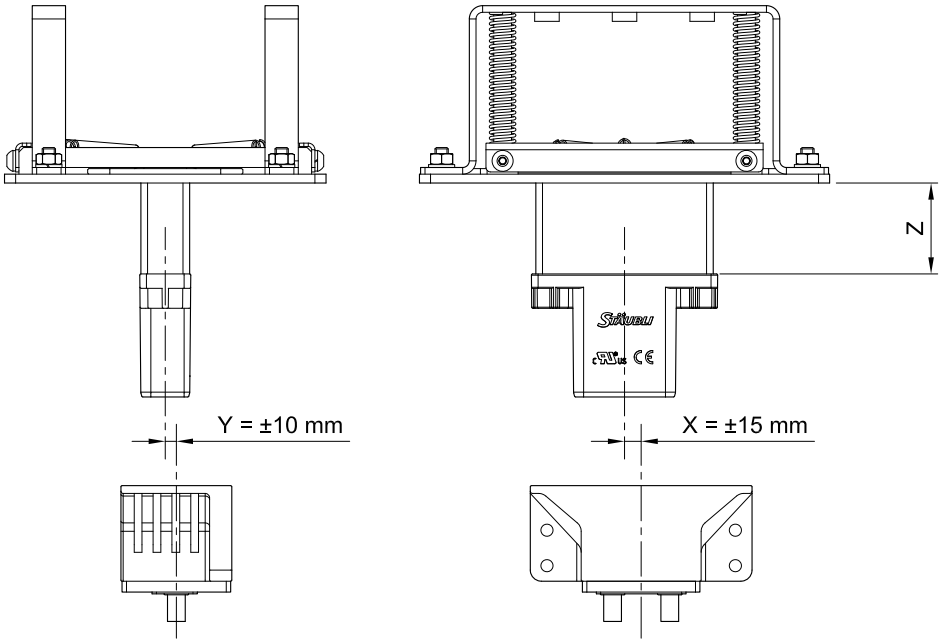
SYSTEM TOLERANCES

Misalignment compensation

Max. permissible docking offset

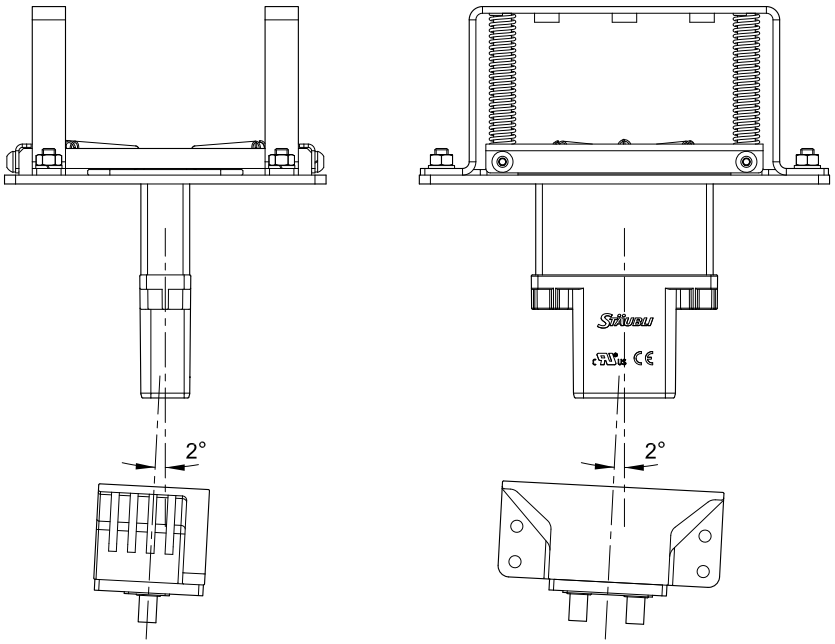


Depth compressibility:

Z = 41 mm (pre-compression), spring force 52 N

Z = 21 mm (max compression), spring force 128 N

Max. permissible angular misalignment during mating



Note:

When powered, the connector must be fully mated.

CombiTac align 4

High misalignment 4 mm compensation system

The CombiTac align 4 high misalignment solution provides radial and angular misalignment compensation during the connection process in docking applications. The pins on the plug side serve as guiding pins, the socket side has a conic shape. The guiding pins include insulation caps to prevent unintentional contact with live parts on the socket side.

Features:

- Radial misalignment compensation up to 4 mm
- Up to 100,000 mating cycles
- Insulation security on the guiding pins to prevent unintentional contact with live parts on the socket side
- Suitable for all CombiTac uniq panel mount sizes

Benefits:

- All-in-one solution
- Simplified guiding system
- Added user safety
- Long-life solution
- Cost- and space-saving with a ready-to-use solution

CombiTac align 4

Based on the CombiTac uniq platform, is a customizable modular connector for demanding applications. It provides up to 4 mm misalignment compensation and supports power, signal, data, fiber optic, fluid and pneumatic connections in one long-life connector solution. It can also be equipped with Last Mate First Break and contacts up to 720 A.

Applications

CombiTac high misalignment end pieces are suitable for small AGVs, logistics, robotics, e-mobility, automotive, aerospace and food industry. Typical applications are automated docking/connection for battery swapping of logistic indoor vehicles, production lines, testing applications, and many more.

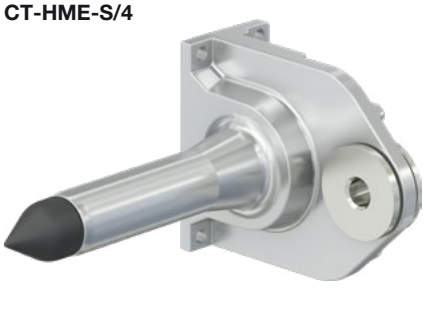
Additional information on the complete CombiTac uniq portfolio can be found on our website:

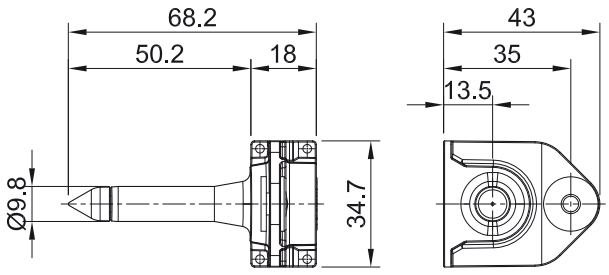
Read more

The end pieces are designed solely for the guiding of the connectors and the associated forces.

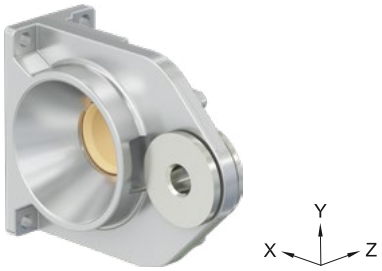
In a permanent installation application, the customer must provide a stable guide system, e.g. with mechanical pins in addition to the CombiTac align 4 solution.

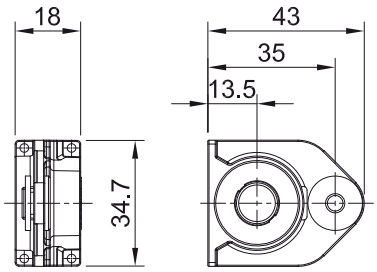
CT-HME-S/4





CT-HME-B/4





Order No.	Type	Description
33.0245	CT-HME-S/4	Male part for panel mount
33.0244	CT-HME-B/4	Female part for panel mount

Technical data	
Misalignment compensation, radial angular	4 mm ±2° (around x-axis)
Mating cycles	100,000
Material	Zinc die casting
Ambient temperature for CT-HME-...[1], upper lower	+125 °C 0 °C

[1] Temperature rating of electrical contacts and carriers remains as specified in their relative specification section in catalog.

IS CT align 11014023-en B 08.2026

● Stäubli Units ○ Representatives / Agents

Global presence of the Stäubli Group

www.staubli.com

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