

» Secure Connections. World-wide. «



# » The STOCKO Success Story«

## From the beginnings...

STOCKO is a company with a tradition going back for more than one hundred years. The foundation stone was laid by Alfred Aders, Heinrich Pfeiffer, and Johann August Stock 1901 at Wuppertal under the name of Stock & Co. - as button manufacturers. Amongst other items, they produced hollow rivets, eyelets, and press fasteners that, during the Wilhelmian boom era, were in great demand and were even shipped to South America. When Stock & Co. developed the eyelet tag from a shoe eyelet with a solder tag added, the future direction of the company's activities was set: electrical technologies. Very soon there followed additional pressed, drawn, and seamed metal parts all of which could be manufactured with the same machines as the button parts up until now.

## ... to the present

During the Weimar period that is during the twenties of the last century, the living habits of the people changed dramatically; modern electrical devices such as the radio, telephone, or even the electric shaver found entry into the households in large scale. The new direction of the company proved to be a particularly lucky move, 500 people were employed 1935; two years later there were already 1000. Now under the sole company name STOCKO. With the new factory at Malmedy in Belgium 1940, the company grew to a concern employing 1800 people. However, the war was not without consequences, and the number sank down to 300. There followed the years of the so-called "economic miracle", and STOCKO, too, gained by the new boom. Subsidiaries were founded like in England, France, Switzerland, and overseas. With the expertise, which STOCKO had gained in the manufacture of plastic parts, the product range was extended by film spools, tape cassettes, slide frames etc.. During these years, the expansions abroad continued steadily until far-reaching re-structuring measures took place during the nineties. In 1994, STOCKO divorced themselves from the division Fasteners. In 1998 a merger with the Bamberg Wieland Group took place and since then the company's name is STOCKO Contact GmbH. & Co. KG. Today STOCKO employ about 550 people at three locations: Sales and Marketing are at Wuppertal, production is distributed among the plants at Hellenthal (Germany) and Andlau/France.

1901

Founding of Messrs. Stock & Co. in Wuppertal-Elberfeld. The button factory has five employees. Hugo Henkels becomes a partner and later the sole proprietor.

1911

The subsidiary at Hellenthal/Eifel is set up. Stock & Co. employ already 110 workers at that time

1929

At the end of the twenties, start of the production of special parts for the electro-technical and radio industries

1950

Steady growth of the company





» STOCKO has met the great ruptures and frequent changes of the industry in masterly fashion. Today the company is well prepared to continue with the 100 year old tradition also in the future.«

**1960**

Dr. Dirk Henkels, grandson of Hugo Henkels and son of Kurt Henkels (with the company since 1930) joins the firm

**1998**

Wieland Holding GmbH. take over Stocko Metallwarenfabriken, Henkels und Sohn GmbH & Co..  
New name : STOCKO Contact GmbH & Co. KG.

**2001**

STOCKO celebrate their centenary at Wuppertal.

**2007**

STOCKO France celebrate their 50th anniversary at Andlau.

**2009**

The Malmedy factory, one of four production facilities to date, will be closed in spring 2009 and the production will be relocated to Hellenthal.

**2011**

STOCKO Hellenthal celebrate their 100th anniversary.

**2012/2013**

A high volume of investment in all factories and divisions. Significant improvement in infrastructure, machinery and large parts of production.

**2014**

Production area extension by 1,000m<sup>2</sup> in Hellenthal  
Construction work in the order of 3,000m<sup>2</sup> is being completed in Andlau.

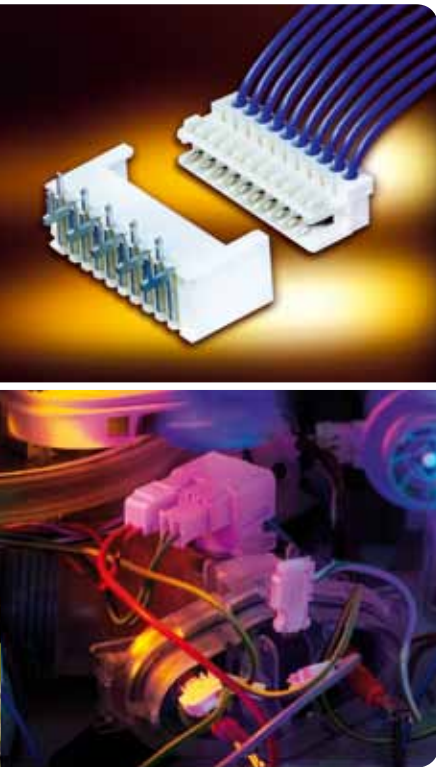








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## » Development «

### Design and Development

STOCKO products are renowned and held in high estimation. They represent solid solutions and a multitude of applications as connectors and terminals. The growing functionality and complexity in this sector, however, limits the usage of volume-produced standard components; more and more customers demand individual applications or new designs. Such processes need know-how, ideas, and adjustment to technical and economical philosophies in a sensible manner. Together with our customers, we are concentrating our energy on the expected performance of the new product and, step by step, work out the details – the material, the surface finish, the physical properties and finally the design. For design and development, we have the most modern, computer aided systems at our disposal. With the stereolithography method for example, we are in a position to check the precision of future products with the aid of prototypes, or manufacture prototype samples for testing purposes. Before reaching marketing stages, all STOCKO products are subjected to rigorous test procedures in our laboratories to check the mechanical and electrical properties as well as the influence they may have on the environment.

### Toolmaking

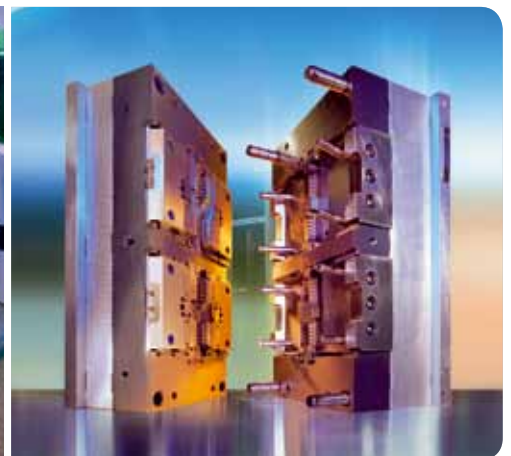
Absolutely essential and a decisive component in our successful connector technology, is our toolmaking capability and that takes place inhouse at STOCKO. The production tools with which amongst other things the negative forms of housings are produced are of paramount importance that quality is assured, and our design teams for electro-technical components have to adhere to strict guidelines with regard to the mechanical design of such components. All press and moulding tools are built by STOCKO according to the latest state of the art. They are central in a value producing chain that ultimately is to the benefit of our customers.



CAD work station



Wire erosion machine



Plastic moulding tool

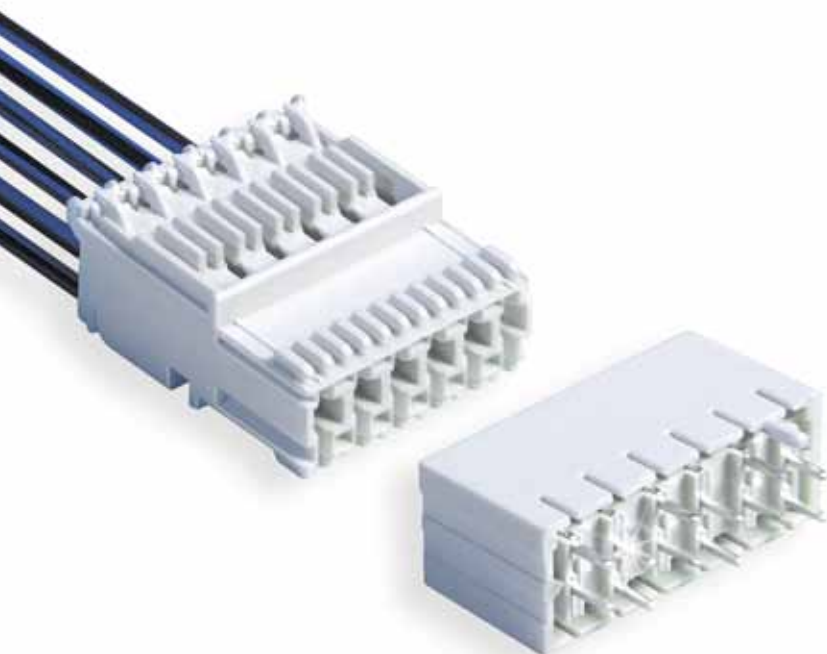


» Our laboratories test all components of their suitability for volume production. The quality and equipment of our laboratories are of such high level that the VDE approvals and certification institute uses them to carry out their own independent tests. These include VDE and even the stringent CSA and UL tests for the international markets.«






» Highly Flexible Automation «







## » Manufacturing Technology «

### Production of Plastic Mouldings

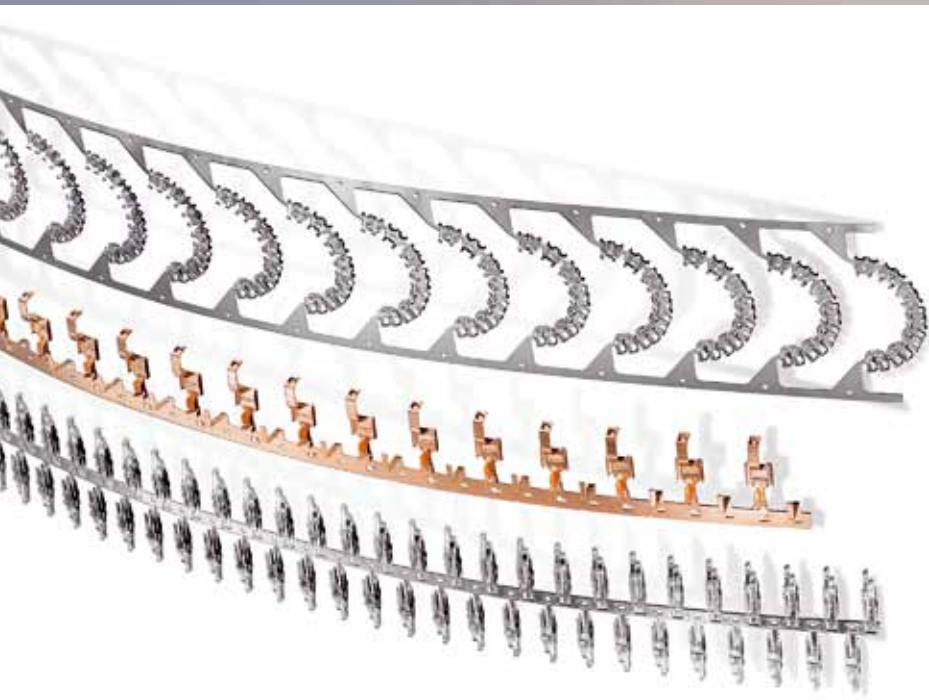
Production at STOCKO is concentrated in manufacturing centres to secure the highest quality even with growing output rates. Thus the whole production of plastic parts is at our Hellenthal plant. With this location specializing on this sector, they can fully concentrate on to the highly technical requirements of those parts such as the production of a maximum number of pin count with a minimum contact spacing and the closest possible tolerances, processing special flame retarding plastic materials, usage of a wide range of materials, and a high machine output rate. For this, we rely on the most modern machines available. We compliment our fully automated moulding presses with intelligent ancillary devices and tooling from our own in-house production. With regard to production techniques and the development of new possibilities for plastic materials, we are constantly aiming for the best possible solutions. This is hard cast quality.



»Quality from a single cast.«



» Highly Flexible Automation«





## » Manufacturing Technology «

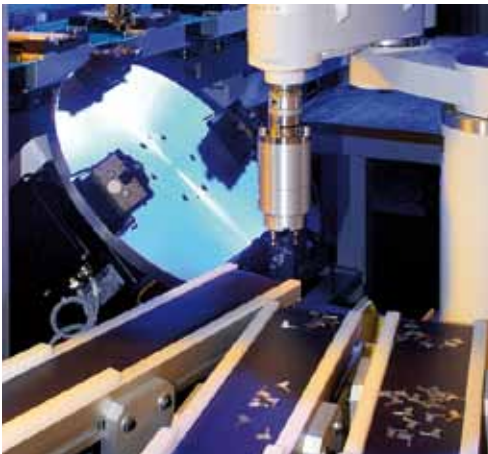
### Stamping

Stamping technology at STOCKO stands for the highest level of economy and quality. At our production centres in Hellenthal and Andlau we produce the precision stamped parts for our various product groups both in bands and loose. For this we have the latest high-performance stamping machines with speeds of between 100 and 1400 strokes per minute and a compression force range of up to 80 tonnes. All the presses are equipped with the latest peripherals.

Rationalised production stages, a high level of automation and well designed integrated process monitoring systems guarantee year-on-year increased productivity that we ensure with the latest electronic quality control. Here we produce our stamped, drawn and formed parts with downstream composite tools made in-house and precisely tailored to the process architecture. This creates further cost benefits that we can pass on to our customers.

### Assembly

Our connector systems are assembled by STOCKO in Hellenthal (Germany) and Sokolov (Czech Republic) using fully automated processes. Here, too, we apply the STOCKO philosophy of developing and producing most of the machinery, tooling and auxiliary devices in-house. The result is a highly flexible degree of automation leading to our high quality standards, which are assured with control systems that have also been developed in-house.





## » Machine Building «

We give high priority to our STOCKO terminating systems, because the quality and reliability of an electrical connection is largely determined by the high levels of the terminating technology. That is why we allocate considerable financial resources to the development and production of such systems. In addition to quality, innovation and economies play important parts. Our aim is to improve the productivity of our customers by integrating our terminating machines smoothly into their production processes. Thus once more, STOCKO solutions act as catalysts and enable profitable competition. And to make sure everything runs smoothly, training is given to your staff for the various production processes, and our team of service engineers is always at your disposal with help and advice to ensure productivity all along the line.





» Productivity all the way «



» STOCKO Terminating Technology - for every type of application, from simple hand tools, to semi-automated machines, and ultimately to fully automated modular machines with "Just in Time" functions, computer controlled, automated quality control functions, modem connections for outside diagnostic centres and the option to programme sequences of cable forms.«





» We take it as our social responsibility to integrate environmental protection in our manufacturing processes. For this reason, the plating shop at our manufacturing centre at Andlau was only recently modernized and converted taking account of the latest environmental and ecological developments. In an elaborate process, all effluents are returned to nature, purified and completely free of harmful substances.«



**For the sake of the environment.**

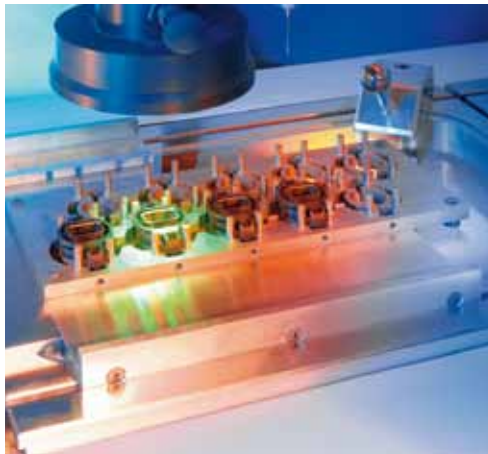


## »STOCKO Quality«

Quality is our highest premise. For it is the best argument for customers' satisfaction and a solid position in a hard fought market. This quality approach at STOCKO does not simply begin at the manufacturing stage.

From the first initial contact, we wish our customers to know they are in safe hands and can rely on this also during the planning and development stages: with an application oriented design, the uncompromising selection of the most suitable materials, and strict observation of the customers' requirements profile. International standards can only act as guidelines for us. We exceed their demands by setting our own additional standards: with our own designed testing programs, in-house laboratories, a continued striving for optimal organisational processes during all phases and a close exchange of experiences and know-how with our customers and users.

In addition to this, our quality offensive goes even further in that our environmental responsibilities are firmly imbedded in our manufacturing processes. Right from the development stage of our products, we aim for the conscientious use of our raw material resources. All our plastics and metal materials are recyclable and our state-of-the-art production processes completely eliminate the use of chlorinated hydrocarbons and chlorofluorocarbons. Moreover and to avoid waste, STOCKO are using re-usable packaging systems such as blister packs, reels, and magazines.





» Preserving our environment and natural resources for future generations is an integral part of the company policy and is enshrined in the management principles of STOCKO CONTACT.«



 **For the sake of the environment.**

# »STOCKO Quality«

## DIN EN ISO 9001 and ISO/TS 16949

Having been awarded certification to ISO 9001, we have received approval that a quality management system is in operation throughout all areas of activity that assures a uniform high level of quality. Likewise, this is also the basis for specification ISO/TS 16949. This certification is a prerequisite to qualify as supplier to the automotive industry. It acknowledges that the company has set up special procedures in all areas of activity and, therefore, complies with customers' specific demands in the automotive sector. Thus and in the long-term, STOCKO increase the efficiency and safety for their customers and themselves.

## DIN EN ISO 14001

In recent years we have with great commitment incorporated numerous improvement processes into our company environmental policy and constantly expanded them. Since 2011 our factory in Andlau has met the strict requirements of environmental management standard ISO 14001 and since 2012 our factory in Hellenthal has done so too. By doing so, we commit ourselves to a far greater extent than normal to the voluntary reduction of environmental risks such as waste, waste water and emissions. We are constantly planning, implementing and monitoring our goals in this regard. For us they are a major factor in our value system.

## DIN EN ISO 50001

It has long been one of our corporate goals to keep increasing the energy efficiency in our plants while at the same time reducing energy consumption as well as CO2 emissions.

For sustainable control and optimisation, STOCKO has developed an intelligent energy management system with which we can precisely detect any energy losses and initiate countermeasures at an early stage. ISO 50001 certification for this is for us the worthwhile supplement to ISO 14001. Whereas there energy is only a partial aspect, the focus in ISO 50001 lies on the energy efficiency of a company. With our energy management system we are, in the best-case scenario, even going beyond the strict requirements of this ISO because we can among other things increase our efficiency even without increasing our energy consumption.

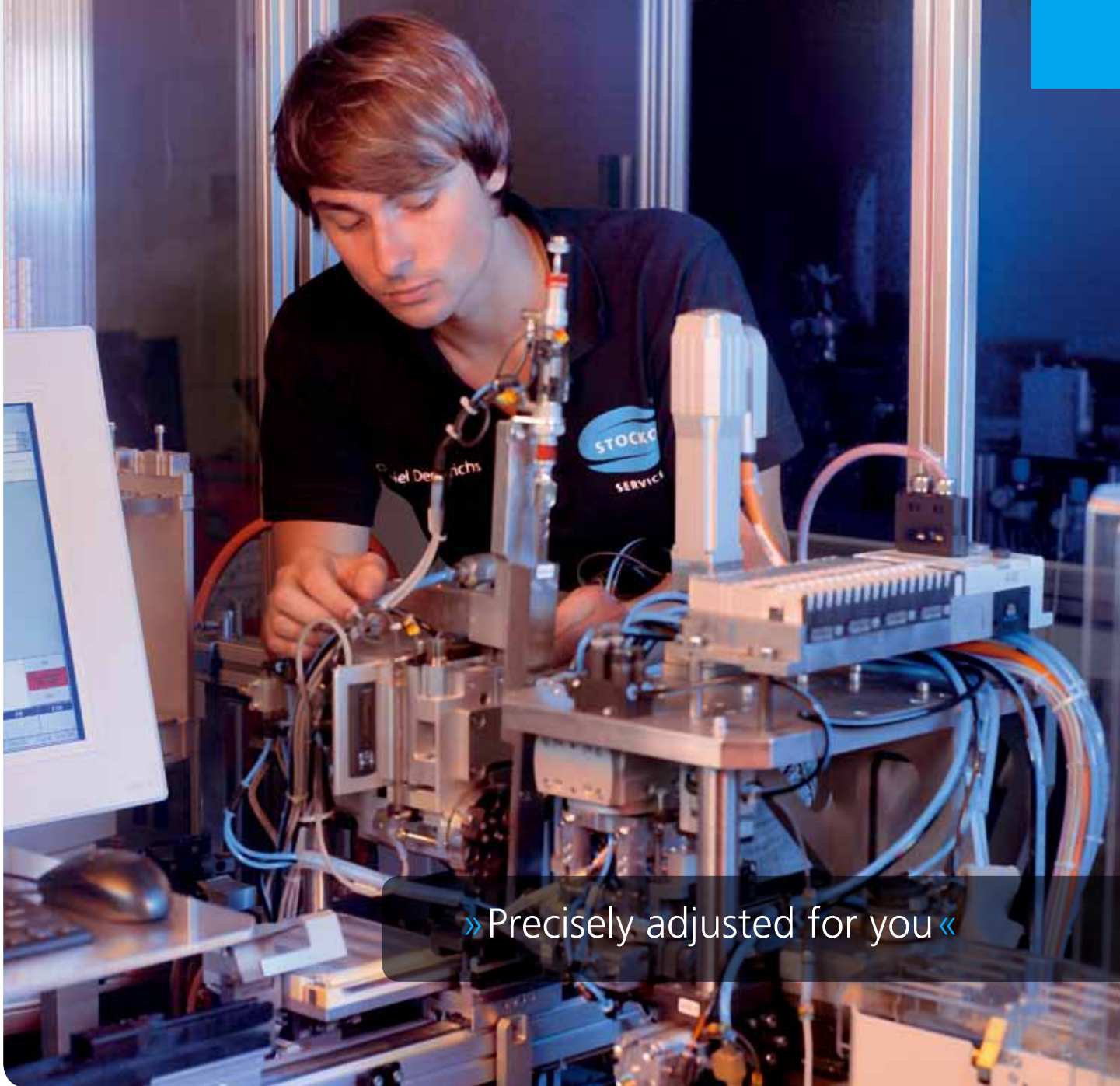




## » Service «

Service and close proximity with our customers has always been a top priority and form an integral part of the STOCKO philosophy. Of course, to discuss with our customers their specific requirements and to meet their expectations in the best possible way is part of our flexibility. We wish to offer our customers superior performance characteristics and to support them in their business activities by anticipating future requirements. Our customers shall be able to rely upon us so that they become true partners eventually. Partners, who we can assist with our know-how and comprehensive knowledge of the markets. Particularly our sales engineers and our service engineers carry this part of our philosophy outside. Moreover, an extensive network of subsidiaries, sales offices, and agencies around the world assist in bringing this principle close to our customers wherever they are. This network will be expanded still further during the next few years so that our customers can benefit from close on-site support even more efficiently. And should one of our customers ever ask if we are the right partners then something must have gone wrong from our part.





» Precisely adjusted for you «



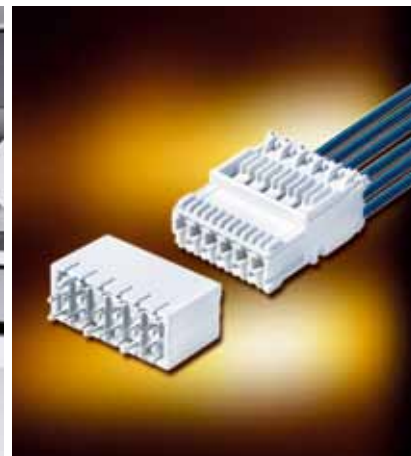


## » Our Markets «

Developments in the electro-technical market are short-lived and permanently exposed to innovative pressures; again and again the limits are newly defined. How gratifying, there is a safe constancy on which one can rely. STOCKO offer such constancy. Our name stands synonymous for connector systems in crimp and ID form, crimp contacts, solderless terminals, and special parts. Millions of all these elements perform their tasks unnoticed and reliably day in, day out. STOCKO components ensure secure and advanced connections and progress in a wide range of industries and areas of application. A range as wide as household appliances, the heating industry, automotives, industrial and entertainment electronics, control equipment and machine building, as well as the sectors multi-media and telecommunication. Maintaining the well-proven STOCKO quality, we are continuously upgrading the performance of our products to changing market conditions enabling us to set standards for customers of the highest levels of expectation.

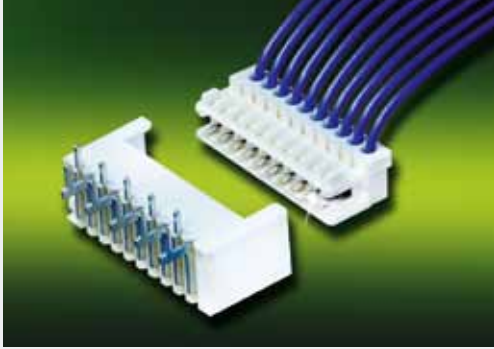
## » Our Products «

- Connector systems in insulation displacement, crimp or solder form
- Crimp contacts
- Solderless terminals
- Customers' special products
- Terminating systems for all STOCKO products: hand tools, semi-automated and fully automated machines.



## Connector system

Pitch 2.5 mm - ECO-TRONIC



### Description of system

#### IDC housings

- Direct and indirect connectors with IDC termination in accordance with the RAST 2.5 standard specification for domestic appliances
- Closed cable entries ensure long air and creepage distances
- Trimming polarizing pegs to individual requirements produces a large number of clearly defined connector combinations
- With direct edge versions, polarizing and locking feature for PCB

#### Pin connectors

- In vertical and horizontal versions facilitate 90° and 180° cable angles
- SMT version for vertical PC board assembly

#### Pin connector panel mount

- Pin connector with IDC termination for entry through back panel
- Lockable in metal thickness  $0.8 \pm 0.1$  mm

### Technical data

Mechanical	Pitch	2.5 mm
	Positions	2 - 20
	Termination	IDC
	Wire size	0.22 - 0.35 mm <sup>2</sup>
	Insulation Ø	max. 1.6 mm
	Hardness of insulation	Shore A 90° ± 5
	Type of wire	solid, stranded
	Temperature range	-40 °C ...+ 120 °C
	Board thickness	1.55 ± 0.19 mm
Electrical	Rated current	2 A
	Rated voltage	Pitch 2.5 mm: 32 V
		Pitch 5 mm: 250 V
	Dielectric strength	Fully assembled 2.5 mm: 1.4 kV
		Partially assembled 5 mm: 2.8 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
	Air gap and creeping distances	Pitch 2.5 mm: > 1 mm
		Pitch 5 mm: > 3 mm
Materials	Creeping strength	CTI ≥ 400
	Approved by	DIN EN 61984 (IEC 61984)
		UL / ULC E96569
	Contact	Socket: CuSn, Cu-alloy
		Pin: CuZn
	Contact finishing	Socket: Sn, NiAu
		Pin: NiSn
	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	SMT pin connector	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	natural, SMT pin connector black
	Polarizing	to RAST 2.5

## Connector system

Pitch 2,5 mm - ECO-TRONIC CRIMP



### Description of system

#### Crimp housings

- Direct and indirect connectors with crimp termination in accordance with the RAST 2.5 specification
- Closed cable entries ensure long air and creepage distances
- Trimming polarizing pegs to individual requirements produces a large number of clearly defined connector combinations
- With direct edge versions, polarizing and locking feature for PCB
- Primary and secondary lock

#### Pin connectors

- In vertical and horizontal versions facilitate 90° and 180° cable angles
- SMT version for vertical PC board assembly

#### Pin connector panel mount

- Compatible with pin connector of ECO-TRONIC with IDC termination
- Lockable in metal thickness  $0.8 \pm 0.1$  mm

### Technical Data

Mechanical	Pitch	2.5 mm
	Positions	2 – 12 (up to 20 on request)
	Termination	crimp technology
	Wire size	0.22 and 0.35 mm <sup>2</sup>
	Insulation Ø	max. 1.4 mm
	Hardness of insulation	Shore A 90° ± 5
	Type of wire	stranded
	Temperature range	-40 °C ...+ 120 °C (Sn)
	Board thickness	1.55 ± 0.19 mm
Electrical	Rated current	2 A
	Rated voltage	Pitch 2.5 mm: 32 V Pitch 5 mm: 250 V
	Dielectrical strength	Fully assembled 2.5 mm: 1.4 kV Partially assembled 5 mm: 2.8 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
	Air gap and creeping distances	Pitch 2.5 mm: > 1 mm Pitch 5 mm: > 3 mm
	Creeping strength	CTI ≥ 400
	Approved by	according to VW 60330 LV 214, USCAR 2 (on preparation)
Materials	Contact Socket:	CuSn, Cu-alloy
	Contact finishing	Sn, NiAu
	Housing	PA, glow wire resistant, GWT 750°C acc. to IEC 60335-1
	Colour of housing	natural
	Polarizing	to RAST 2.5



## Connector system

Pitch 2.5 mm - RFK 2



### Description of system

#### Socket connectors

- Crimp version for indirect connections, wire range 0.12 - 0.5 mm<sup>2</sup>
- IDC version for direct and indirect connections, wire range 0.14 - 0.25 mm<sup>2</sup>
- Suitable for terminating ribbon cables and discrete wires
- Also available with extended cable support

#### Pin connectors

- With or without snap-in locking device, for vertical or horizontal connections
- The tandem pin connectors can be used as flying lead connection

### Technical data

Mechanical	Pitch	2.5 mm
	Positions	up to 20
	Termination	IDC, crimp, soldering
	Temperature range	-40 °C + 115 °C
Electrical	Rated current	5 A / 30 °C 2.5 A / 70 °C
	Insulation resistance	>10 <sup>9</sup> Ω
	Contact resistance	<10 m Ω
	Test voltage	≥ 1 kV
	Rated voltage	32 V
	Approved by	UL
Materials	Housing	PC, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Contact	CuSn
	Finishing	Sn

## Connector system

Pitch 2.54 mm - S-GRID 2.54



### Description of system

- Suitable for the connection to HVAC periphery devices, e. g. stepping/servo motors or linear actuators
- Housing variants
  - In-line 3-positions or
  - dual-line 6-positions
- Three different coding variants
- Crimped wires are insertable from the rear
- Cable exit 180°

### SMD Socket Connector

- 4 to 80 poles socket connector doublerow
- Board to board connection (bottom entry) with 0.64 x 0.64 mm pins
- Surface Mount Technology
- Contact area flash gold, soldering area tin plated

### Technical data

		Housing	SMD Socket connector
Mechanical	Positions	3 / 6	4-80
	Pitch	2.54 mm	2.54 mm
	Termination	Crimp	SMD soldering
	Wire size	0.14 - 0.34 mm <sup>2</sup> AWG 26-22	
	Temperature range	- 20 °C ... + 110 °C	- 40 °C ... + 105 °C
Electrical	Rated current	max. 3 A at T <sub>amb</sub> 80 °C	max. 1 A at T <sub>amb</sub> 95 °C (max. 3 A at T <sub>amb</sub> 47 °C)
	Rated voltage	250 V	250 V
	Dielectrical strength	≥ 2.5 kV	≥ 1.39 kV
	Insulation resistance	> 10 <sup>9</sup> Ω	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω	< 40 m Ω
	Air gap	1.5 mm	1.5 mm
	Creeping distances	1.8 mm	≥ 1.25 mm
	Creeping strength	CTI ≥ 425	CTI ≥ 600
Materials	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	various colors	black
	Associated contact	RVB 8231.001 Z 0.64-0.35	
	Contact	CuSn	CuSn
	Contact finishing	Sn	Contact area: gold flash, Soldering area: Sn

## Connector system

Pitch 3.5 mm - HLK 3500



### Description of system

- Suitable for the connection to HVAC periphery devices, e. g. stepping/servo motors or linear actuators
- Pitch 3.5 mm
- Pluggable connector with external locking feature
- Crimped wires are from the rear insertable
- Cable exit 180°
- Remarks with or without seal
- With seal IP 44
- Clear positioning

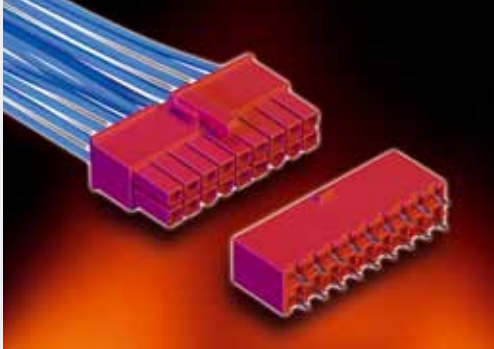
### Technical data

Mechanical	Positions	4
	Pitch	3.5 mm
	Termination	Crimp
	Temperature range	-40 °C ... +120 °C
	Wire size	0.12 - 0.5 mm <sup>2</sup>
Electrical	Rated current	max. 5 A
	Rated voltage	250 V
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	black
	Associated contact	RFB 7808 V 0.6-0.5
	Contact	CuSn
	Contact finishing	Sn



## Connector system

Pitch 4.2 mm - S-FIT 4.20



### Description of system

- Universal connector system for internal equipment wiring
- Applicable as flying lead coupling, for panel mounting or for printed circuit board contacting
- Available in a range of versions and materials
- Crimp contacts are touch-protected into the housing located
- Cable exit 180°

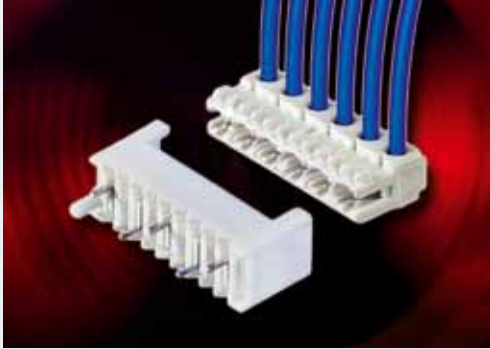
### Technical data

Mechanical	Positions	Single-row	2 - 6
		Dual-row	2 - 24
	Pitch		4.20 mm
	Termination	Connector, Counter part	Crimp
		Headers	Solder
	Wire size		0.22 - 0.48 mm <sup>2</sup> 0.50 - 1.00 mm <sup>2</sup>
	Degree of pollution		II
Electrical	Temperature range		-40 °C ... +110 °C
	Rated current		7 A
	Rated voltage		250 V
	Insulation resistance		> 10 <sup>9</sup> Ω
	Contact resistance		< 10 m Ω
	Air gap and creeping distances		≥ 3 mm
	Creeping strength		CTI ≥ 325*
	Surge category		II
	Insulation group		III a*
	Dielectric strength		3 kV
Materials	Housing		PA PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing		natural, other colours on request
	Contact		CuZn
	Contact finishing		Sn

\* Depending on material

## Connector system

Pitch 5 mm - ECO-TRONIC pro



### Description of system

#### IDC housings

- Direct and indirect connectors with IDC termination in accordance with the RAST 2.5 standard specification for domestic appliances
- Closed cable entries ensure long air and creepage distances
- Trimming polarizing pegs to individual requirements produces a large number of clearly defined connector combinations
- With direct edge versions, polarizing and locking feature for PCB

#### Pin connectors

- Versions for vertical or horizontal PC board assembly

### Technical data

Mechanical	Pitch	5 mm
	Positions	2 - 10
	Termination	IDC
	Wire size	0.35 - 0.75 mm <sup>2</sup>
	Insulation Ø	max. 2.4 mm
	Hardness of insulation	Shore A 90° ± 5
	Type of wire	stranded
	Temperature range	-40 °C ...+ 120 °C
	Board thickness	1.55 ± 0.19 mm
Electrical	Rated current	Direct connector 6 A Indirect connector 10 A / 2 - 4 way
	Rated voltage	250 V
	Dielectric strength	2.8 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
	Air gap and creeping distances	> 3.2 mm
	Creeping strength	CTI ≥ 400
	Approved by	DIN EN 61984 (IEC 61984) UL / ULC E96569
Materials	Contact	Socket: CuSn Cu-alloy
		Pin: CuZn
	Contact finishing	Socket: Sn Pin: NiSn
	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	natural
	Polarizing	to RAST 2.5

## Connector system

Pitch 5 mm - ECO-DOMO



### Description of system

#### IDC housings

- Direct and indirect connector with IDC termination in accordance with the RAST 5 standard specifications for domestic appliances, with locking features inside or outside
- Direct connector with central polarizing and polarizing pegs at sides, locking features for PCB
- Cable exit 90° and 180° according to RAST 5

#### Pin connectors for indirect connectors

- Versions for vertical or horizontal PC board assembly

### Technical data

Mechanical	Pitch		5 mm
	Positions	Direct connector	2 - 12
		Indirect connector	1 - 12
	Locking features	Direct connector	PCB
		Indirect connector	inside and outside
	Termination		IDC
	Wire size	Direct connector	0.5 - 0.75 mm <sup>2</sup>
		Indirect connector	0.35 - 1.5 mm <sup>2</sup>
	Insulation diameter		3.0 mm
	Cable exit 180°		max. ≤ 2.4 mm
Electrical	Type of wire		stranded
	Temperature range		- 40 °C ...+ 110 °C
	Rated current	Direct connector	6 A
		Indirect connector	16 A
	Rated voltage	ECO-DOMO	400 V
		ECO-DOMO NF	250 V
	Dielectrical strength		≥ 3.0 kV
	Insulation resistance		≥ 10 <sup>9</sup> Ω
	Contact resistance		≤ 5 m Ω
	Air gap		≥ 3 mm
	Creeping distance	ECO-DOMO	≥ 3 mm
		ECO-DOMO NF	≥ 3.6 mm
	Creeping strength	ECO-DOMO	CTI ≥ 600
		ECO-DOMO NF	CTI ≥ 400
Materials	Approved by		DIN EN 61984 (IEC 61984) UL / ULC E96569
	Contact		Socket: CuSn
	Contact finishing		Socket: Sn
	Housing	ECO-DOMO	PBT
		ECO-DOMO NF	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing		natural



## Connector system

Pitch 5 mm - RAST 5 Crimp



EH 688



### Description of system

#### Housings

- Housing with crimp connection
- Dimensions of housing in accordance with RAST 5 standard specification for domestic appliance
- Different polarizing features
- Indirect connector with inside locking device
- Cable exit 90° / 180°

#### Tab connector ECO-DOMO PM

- For flying lead or panel mounting



EH 699



### Technical data

Mechanical	Pitch		5 mm
	Positions	EH 699	2 - 5
		EH 688	1 - 8
		ED PM	2 - 10
	Locking features		inside 6.3 FSH
	Termination		Crimp technology
	Wire size		0.5 - 1.5 mm <sup>2</sup>
Electrical	Insulation-Ø		max. 3.3 mm
	Temperature range		-40 °C ... +120 °C
	Rated current		16 A
	Rated voltage		250 / 400 V
	Dielectrical strength		≥ 3.0 kV
	Air gap		≥ 3 mm
	Creeping distance		≥ 3 mm
Materials	Approved by	EH 688 / EH 699	DIN EN 61984 (IEC 61984)
		EH 688	UL / ULC E96569
		EH 699	UL E306640
	Contact	ECO-DOMO PM	CuZn
	Contact finishing		Sn
	Housing		PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing		natural other colours on request

## Connector system

Pitch 5 mm - ECO-DOMO FT



### Description of system

- Indirect IDC connector in accordance with the RAST 5 standard specification for domestic appliances
- Suitable for up to 10 A current load
- Complex cable assemblies with fully automated terminating capability
- Highly economical
- Cable exit at 90°
- As direct connector necessary, STOCKO offers with the series ECO-TRONIC pro an economical solution (s. page 23)

### Technical data

Mechanical	Pitch	5 mm
	Positions	1 - 12
	Termination	IDC
	Wire size	0.35 / 0.5 - 1 mm <sup>2</sup>
	Type of wire	stranded
	Temperature range	-40 °C ...+ 120 °C
Electrical	Rated current	10 A
	Rated voltage	250 V
	Dielectrical strength	3.0 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 5 m Ω
	Air gap and creeping distances	> 4 mm
	Creeping strength	> 400 CTI
Materials	Approved by	DIN EN 61984 (IEC 61984)
	Contact	Socket: Cu-alloy
	Contact finishing	Socket: Sn
	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	natural

## Connector system

Pitch 5 mm - ECO-DOMO TI



### Description of system

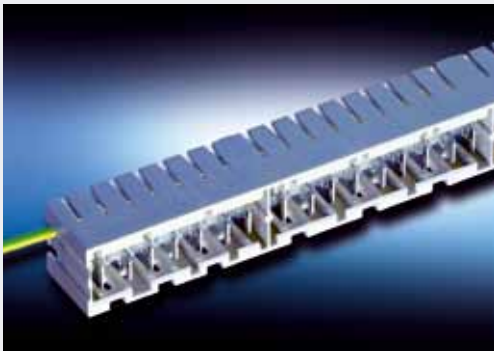
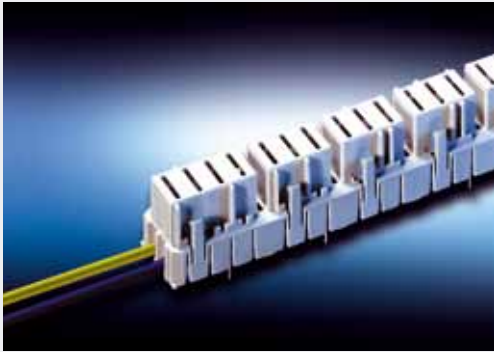
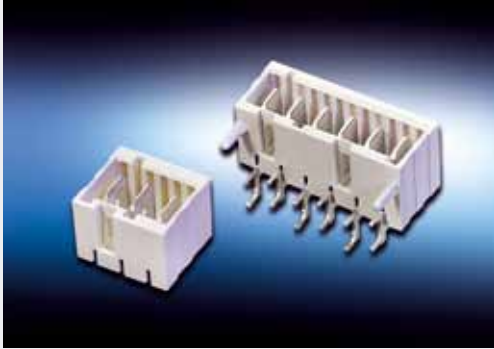
- RAST 5 Tab connector for IDC termination as flying lead coupling or for panel mounting application
- Versions with / without back panel clips
- Cable exits 90°, 180° (optional 270°)
- Single and / or twin terminations depending on wire size
- Individual positioning and coding
- Label optional

### Technical data

Mechanical	Pitch	5 mm
	Positions	2 - 10
	Termination	IDC
	Wire size	0.5 - 0.75 mm <sup>2</sup>
	Insulation diameter	2.3 mm
	Type of wire	stranded wire
	Temperature range	- 40 °C ...+ 110 °C
Electrical	Rated current	10 A
	Rated voltage	250 V
	Dielectrical strength	2,5 kV
	Creeping strength	CTI ≥ 400
	Air gap and creeping distance	≥ 4 mm
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Approved by	DIN EN 61984 (IEC 61984)
	Contact	tabs 6.3 x 0.8 mm
	Contact material	CuSn
	Contact finishing	Sn
	Housings	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	natural

## Connector systems

Pitch 5 mm - ECO-FLEX



### Description of system

ECO-FLEX M Tab connector

ECO-FLEX ML Tab connector with bridging contacts

ECO-FLEX BL Socket connector with bridging contacts

ECO-FLEX MBL Connectors in tab/socket combinations with bridging contacts

- Connector system allowing individual, free contact combinations in accordance with the RAST 5 - standard specification for domestic appliances
- Versions for vertical or horizontal PC board assembly
- For dual-in-line or in-line hole patterns
- Contact surface lead-free
- Individual polarizing possible
- Clear grouping of connecting positions using movable inserts or empty spaces
- Neutral and/or grounded bridging contacts
- Polarizing pegs optional
- Advancing tab contacts as grounded conductor optional

### Mating connectors

- Suitable for RAST 5 indirect connectors in screw, crimp, or IDC technology
- 8105B / 8105FU (screw type)
- EH 688 / EH 699 (crimp type)
- ECO-DOMO / RAST 5 (IDC type)

### Applications

Domestic appliances industry

Heating industry

### Technical data

Mechanical	Pitch		5 mm
	Positions		
	- ECO-FLEX M	without inserts	2 - 12
		with inserts	2 - 20
	- ECO-FLEX ML, BL, MBL;	with inserts or empty spaces	2 - 30*
	Pitch		7.5 mm, 10 mm
	Termination		soldering
	Temperature range		40 °C ... +120 °C
Electrical	Rated current		- Tab contacts 16 A - Socket contacts 10 A - Bridging contacts over IDC 10 A
	Rated voltage		250 V
Approved			DIN EN 61984 (IEC 61984) UL/ULC E96569 (only series MS 941x)
Materials	Housings		PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour	housing	natural
		SMT-Pin connector	black
	Contacts Tabs		6.3 x 0.8 mm
	Contact materials		CuZn / CuSn
	Contact surface		Sn

\* depending on number of inserts or empty spaces, higher pole versions on request



## Connector system

Pitch 5 mm - TL 1



### Description of system

#### IDC housings

- Direct and indirect connectors with IDC termination
- The leaf spring contacts ensure trouble-free connections even in large multi-way systems
- Suitable for termination with hand tools, or on semi automated machines

#### Pin connectors

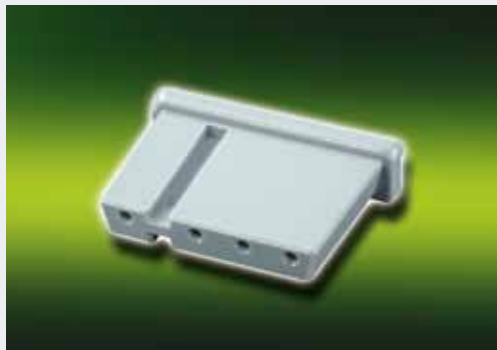
- Versions for vertical or horizontal PC board assembly

### Technical data

Mechanical	Pitch	5 mm
	Positions	2 - 12
	Termination	IDC
	Wire size	0.5 / 0.75 mm <sup>2</sup>
	Insulation Ø	max. 2.5 mm
	Hardness of insulation	Shore A 90° ± 5
	Type of wire	solid, stranded
	Temperature range	-40 °C ... + 110 °C
Electrical	Board thickness	1.6 ± 0,14 mm
	Rated current	6 A
	Dielectric strength	> 3.0 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 5 m Ω
	Air gap and creeping distance	> 3 mm
	Creeping strength	CTI ≥ 250
	Rated voltage	250 V
Materials	Approved by	DIN EN 61984 (IEC 61984) UL / ULC E96569
	Contact	Socket: CuSn - Pin: CuZn
	Contact finishing	Socket: Sn - Pin: NiSn
	Housing	PBT
	Colour of housing	natural

## Connector systems

Pitch 5.08 / 7.62 mm



**Series MKH 2800**, for pin connectors series MKS 2820

### Technical data

Mechanical	Pitch	5.08 / 7.62 mm
	Positions	1-8 / 11
	Termination	crimp
	Temperature range	-40 °C...+100 °C, PBT: +125 °C
	Wire size crimp contact	0.22-1 mm <sup>2</sup>
Electrical	Max. current load per contact	4 A
	Rated current	3 A
	Rated voltage	250 V
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Housings	PC, 2-way: PBT
	Crimp contact	RFB 7851 CuSn tin plated



**Series MKS 2820**, vertical, for socket connectors series MKF 2800

### Technical data

Mechanical	Pitch	5.08 / 7.62 mm
	Positions	2-8 / 11
	Termination	soldering
	Temperature range	-40 °C...+100 °C, PBT: +125 °C
Electrical	Max. current load per contact	4 A
	Rated current	3 A
	Rated voltage	250 V
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Contact	CuZn
	Contact finishing	Sn
	Housings	PC, 2-way: PBT



**Series MKS 2820**, horizontal, for socket connectors series MKF 2800

### Technical data

Mechanical	Pitch	5.08 / 7.62 mm
	Positions	2-8 / 11
	Termination	soldering
	Temperature range	-40 °C...+100 °C PBT: +125 °C
Electrical	Max. current load per contact	4 A
	Rated current	3 A
	Rated voltage	250 V
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Contact	CuZn
	Contact finishing	Sn
	Housings	PC, 2-way: PBT

## Connector system

Pitch 6.35 mm - S-LOCK 6.35



VDE tested



### Description of system

- Universal connector system for white goods, industrial electronics and commercial building equipment appliances.
- Application as flying lead assemblies, panel mounting and for PCB connections.
- Pitch 6.35 mm
- 2 to 15 positions with crimp contacts and locking feature outside
- Suitable for power connections up to 16 A
- Headers pre-loaded for PCB assembly
- Cable exit 180°
- Coding via contact types
- Clear positioning

### Technical data

Mechanical	Pitch	6.35 mm	
	Positions	In-line	2 - 5
		Multi-row	6 - 15
	Termination	Connector / Counter Part	Crimp
		Headers	Solder
	Wire size	0.34 - 0.82 mm <sup>2</sup>	
		0.75 - 2.03 mm <sup>2</sup>	
	Locking feature	yes	
Electrical	Degree of pollution	2	
	Temperature range	-40 °C ... +110 / +120 °C *	
	Rated current	max. 16 A	
	Rated voltage	400 V	
	Dielectric strength	2.21 kV	
	Insulation resistance	10 <sup>9</sup> Ω	
	Contact resistance	< 10 m Ω	
	Air gap and creeping distances	≥ 4 mm	
	Creeping strength	CTI 600 / ≥ 300 *	
	Surge category	II	
Materials	Insulation group	I / III a *	
	Approved by	UL E306640	
		VDE tested	
	Contact	CuZn, CuSn	
	Contact finishing	Sn	
	Housing	PA	
		PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1	
	Colour of housing	natural	
	Polarizing	yes	

\* Depending on material

## Connector

Pitch 6.5 mm – Sensor Plug



### Description

- 2-pole sensor plug
- Pitch 6.5 mm
- Loadable with flag receptacles 4.8 mm RSB 8186
- Cable exit 90°
- Locking cap
- Different colours

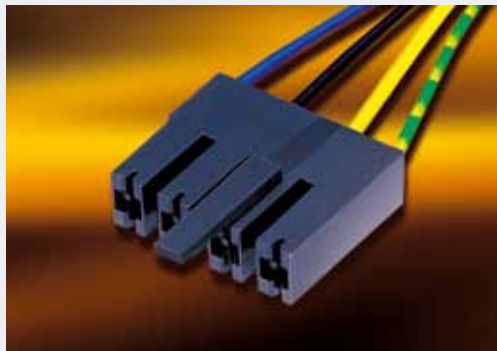
### Technical data

Mechanical	Positions	2
	Pitch	6.5 mm
	Termination	Crimp
	Wire size	0.5 - 1.5 mm <sup>2</sup> (AWG 20-16)
	Insulation Ø max.	2.8 mm
	Stripping length	4.5 ± 0.5 mm
	Locking feature	Locking cap
	Temperature range	
	Ambient temperature	-40 °C ... +110 °C
Electrical	Rated current	16 A / Contact up to T <sub>Amb</sub> = 64 °C
	Rated voltage	250 V
	Overvoltage category	III
	Test voltage	1.39 kV / 60 s
	Dielectric strength at housing material	5 kV
	Insulation group	III a
	Degree of pollution	3
	Creeping strength	CTI ≥ 325
	Air gap	≥ 1.5
	Creeping distances	≥ 2.5
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
Materials	Contact material	CuZn
	Contact finishing	Sn
	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	Different colours



## Connector systems

Pitch 8 / 11.4 mm - Series TL 3 HT  
Series TL 4



### Series TL 3 HT - Pitch 8 mm

#### Description of system

This connector range, which consists of housings EH 700/4-2 HT and receptacle RSB 8180.1158, is designed to interconnect with tabs 6.3 x 0.8 mm to DIN spec. 46244. The housings have a connector spacing of 8 mm and are ideally suitable to mate with interconnections of electric kitchen hobs. Temperature range max. 270° C.



### Series TL 4 - Pitch 11.4 mm

#### Description of system

The connector system TL 4, pitch 11.4 mm, was developed to provide the manufacturers of electric cookers with a fast and secure means of connecting the cooking rings and rotary switches of built-in appliances. Special attention was paid to the fully automated production of the cable harness. That ensures a high standard of quality coupled with maximum cost efficiency.

## Circular Connector

MH 2490 / MV 2490



### Description of system

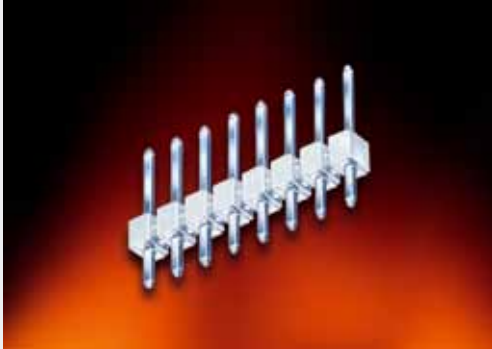
- 1 to 4 poles circular connector
- Round contacts for crimp termination
- Sealed according to IP44
- Two-sided external locking latches
- Possibility of coding
- Single or hose cable
- Cable exit 180°
- Clamping possibility for lateral plate cut out
- Housing rip

### Technical data

Mechanical	Poles	1 - 4
	Termination	Crimp
	Applicable terminals	
	Socket	RBB 8210
	Pin	RTB 8211
	Split pin, low insertion force	RTB 8212
	Wire size	0.35 - 2.03 mm <sup>2</sup>
	Temperature range	-40 °C ... + 120 °C
Elektrical	Rated current	16 A
	Rated voltage	250 V
	Dielectrically strength	> 2.21 kV
	Insulation resistance	> 10 <sup>9</sup> Ω
	Contact resistance	< 10 m Ω
	Creeping distance	≥ 2.2 mm
	Creeping strength	CTI ≥ 400
Materials	Housing	PA, glow wire resistant, GWT 750 °C acc. to IEC 60335-1
	Colour of housing	natural
	Contact material	CuZn or CuSn
	Contact finishing	Sn

## Pin strips

Pitch 2.54 mm



Versions: vertical, horizontal, single row, double row

### Technical data

Mechanical	Positions	single row 2-40 double row 2-80
	Termination	soldering
	Temperature range	-40 °C...+100 °C
Electrical	Max. current load per contact	*
	Rated current	*
	Rated voltage	*
	Insulation resistance	*
	Contact resistance	*
Materials	Contact	CuZn
	Contact finishing	Sn
	Housings	PBT

\* Electrical data are dependent on the application.  
Information is available on request.

## PCCR

### Long Version - Personal Computer Card Reader



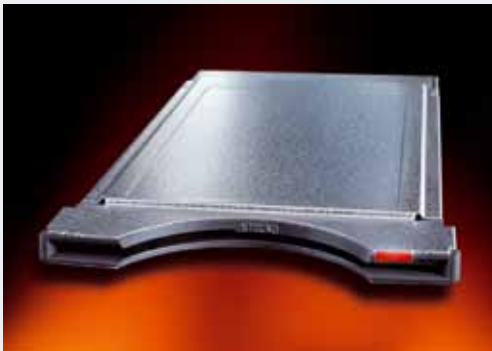
#### Function of the PCCR

The PCCR system consists of a PCMCIA Module Type II as the interface with an integrated chip card reader of compact design.

The module is connected via a 68-pin PCMCIA connector. The front of the module has a card slot to take a chip card. The chip card is pushed into the module as far as the stop edge, which connects the smart card reader to the PCMCIA platform.

The housing kits developed by STOCKO, which are the subject of several patents, are used mainly for the production of CI and CI+ modules in the pay TV sector. Other uses include security modules for securing sensitive data in PC, laptop and network applications.

STOCKO supplies the housing kit as a standard version and as a „Light Channel“ version with an additional integrated light channel for displaying the module status. Both versions may optionally be equipped with a hole in the top plate to create twin card modules.



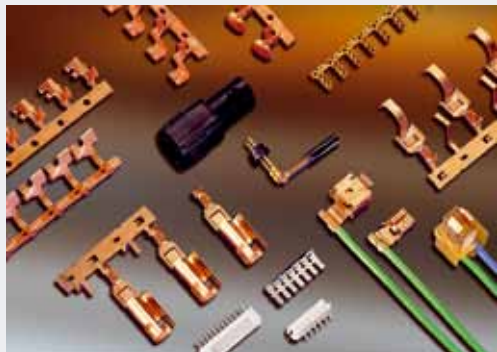
#### Technical data

PCMCIA	Housing	Dimensions	100.5 x 54 mm (Chip card lead-in 57.5 mm)
		Coding	5 V (3,3 V on request)
	Materials	Housing	Stainless steel (matt finish)
		Frame	Plastic (LCP)
	PC Board	Thickness	0.45 mm max.
		Dimensions	74.5 x 50 x 0.45 mm
	Fixing	PCB	with guide elements
		68-way connector	in plastic adator
Chip card	Reader	Number of ways	8-way with microswitch (to ISO 7816)
		Chip height	over PCB 1.6 mm
		Area for labelling	at top and bottom within the stamping area of the housing
	Standard	ISO 7816, EMV spec.	
Conformance tests	Versions	With and/or without stamping	
	Dimensions	85.6 x 54 x 0.78 mm + stamping (1.24 mm)	
Conformance tests	PCMCIA	PCMCIA standard spec.	
	Chip card	ISO 7816 / EMV spec.	



## Automotive

### Standard program



#### Safety and Security Systems

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Contacts for bulb holders head and rear lights, also indicator lights  
Connector systems for lights  
Contacts for airbag systems



#### Engine Management

---

Contacts for ABS and exhaust systems  
Ignition terminals  
Battery terminals



#### Comfort and Communication

---

Connectors for communication systems  
Loudspeakers and height adjustable car seats  
Contacts for air conditioning systems

## Automotive

Examples for custom design solutions



### Lampholder group NCC

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for the Automotive Industry



### Bulb contacts H 7

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for the Automotive Industry



### Lampholder Group D 1 S

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for the Automotive Industry

## Connectors

Examples for custom design solutions



Ring terminals with assembled nut

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Loudspeaker module

---

Centre disc and contact unit for miniature loudspeakers 13 mm dia.

### Application

Mobile telephones



Charge contacts for battery shavers

---

## Crimp contacts

in bandolier form



**Receptacles for tab width 6.3 mm, in versions self locking, permanently engaged, with low insertion force, as timer contact, inserted into housing, suitable for RAST 5 connector housings**

- Material: brass, phosphor bronze or steel, other materials on request
- Finishing: natural, tin plated or nickel plated
- Wire size: 0.2 - 6 mm<sup>2</sup> / AWG 24 - 10
- Tab thickness: 0.8 mm in accordance with DIN or IEC specifications
- Temperature range: - 40 °C to +300 °C



**Receptacles for tab width 4.8 mm, in versions self-locking, permanently engaged, with low insertion force, inserted into housing**

- Material: brass, phosphor bronze or steel, other materials on request
- Finishing: natural, tin plated or nickel plated
- Wire size: 0.14 - 2.5 mm<sup>2</sup> / AWG 26 - 14
- Tab thickness: 0.5 - 0.8 mm in accordance with DIN or IEC specifications
- Temperature range: - 40 °C to +300 °C



**Receptacles for tab width 2.8 mm, in versions permanently engaged, with low insertion force, as timer contact, inserted into housing**

- Material: brass, phosphor bronze or steel, other materials on request
- Finishing: natural, tin plated or nickel plated
- Wire size: 0.14 - 1.5 mm<sup>2</sup> / AWG 26 - 16
- Tab thickness: 0.5 - 0.8 mm in accordance with DIN or IEC specifications
- Temperature range: - 40 °C to +300 °C

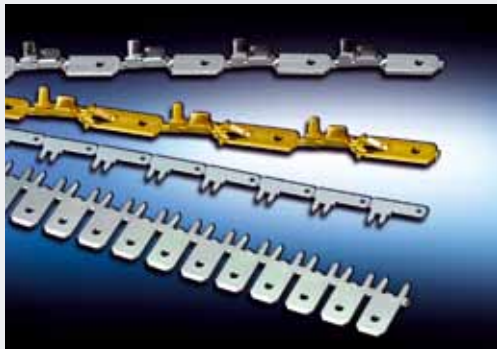
STOCKO products are fully tested at our laboratories. VDE, UL / ULC and other approvals for the main STOCKO items are regularly updated.

Technical data sheets are available on request.



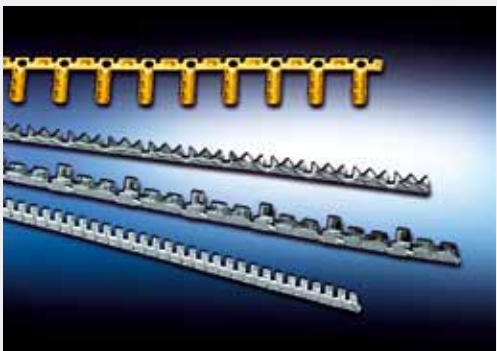
## Crimp contacts

in bandolier form



### Tabs 2.8 / 4.8 or 6.3 mm wide for STOCKO receptacles

- For crimping
- For PC Board assembly
- Weld tabs



### End splices with or without insulation crimp

- For longitudinal or transverse transport
- For stranded or enamel wires
- Wire size: 0.2 - 16 mm<sup>2</sup> / AWG 24 - 6



### Open barrel terminals in ring or c-type version, with or without insulation crimp

- Drill hole diameter: 2.3 - 10 mm
- Wire size: 0.25 - 20 mm<sup>2</sup> / AWG 22 - 4

Complementary to our product range "Crimp Contacts", STOCKO offers

- Circular sockets
- Circular pins
- PC board contacts
- Miscellaneous special types

STOCKO products are fully tested at our laboratories. VDE, UL / ULC and other approvals for the main STOCKO items are regularly updated.

Technical data sheets are available on request

## Insulation housings



### Single or multi-way housings for receptacles and tabs, available in following versions

- Glow wire resistant, GWT 750 °C acc. to IEC 60335-1
- Flammability class UL 94 V2 or V0
- Natural or in different colours



STOCKO products are fully tested at our laboratories. VDE, UL / ULC and other approvals for the main STOCKO items are regularly updated.

Technical data sheets are available on request.

## Solderless terminals



- Solderless terminals with and without insulation
- Pin terminals
- Parallel splices
- Butt splices
- Receptacles
- Tabs
- Terminal blocks
- Circular terminals and blocks
- End splices
- Insulation housings
- Terminating technology:  
Cable stripper, hand tools, electrical and hydraulic crimping tools



## Terminating technology



The quality and reliability of an electrical connection depend largely on the terminating technology.

Consequently, STOCKO offers an economical and efficient terminating technique for every product.

Whatever the particular requirements and production quantities are, we offer state-of-the-art tools and machinery.

From a simple hand tool to semi-automated machines and to fully automated machines of modular construction incorporating "Just-in-Time" functions, Computer controlled machine operation, automated quality control, modem connection for remote diagnostics, and the option to program sequences in cableform output.

With the object in mind improving our customers' productivity through optimum production rationalization.

A qualified STOCKO team of service engineers is always at your disposal for advice and practical assistance. In an emergency, they attend to prompt machine maintenance and carry out preventative servicing tasks.



1 Service hand tool for IDC connector systems

2 STOCKOMAT CRIMP professional line

Semi-automated terminating machine for crimp contacts in bandolier form

3 Quick-release applicator for STOCKOMAT CRIMP professional line - longitudinal transport

4 Quick-release applicator for STOCKOMAT CRIMP professional line - transverse transport

5 STOCKOMAT ECO-DOMO professional line

Semi-automated terminating machine for connector ECO-DOMO according to RAST 5 specification

6 ECO-MASTER

Fully automated terminating machine for connector series ECO-TRONIC, ECO-TRONIC pro and optional crimp contacts.

## Contact addresses

**D** Distribution  
**P** Plant  
**R** Representation  
**S** Subsidiary  
**SO** Sales Office

<b>Germany</b>		
Head Office	STOCKO Contact GmbH & Co. KG Simonshöfchen 31 42327 Wuppertal Tel.: +49 202 9733 - 0 Fax: +49 202 9733 - 411 E-Mail: info@stocko-contact.com	
<b>P</b>	STOCKO Contact GmbH & Co. KG Olefallstr. 26 53940 Hellenthal Tel.: +49 248284 - 0 Fax: +49 248284 - 240 E-Mail: hellenthal@stocko-contact.com E-Mail: service-ids@stocko-contact.com	
<b>D</b>	BAUM electronic GmbH Schieferstein 6 65439 Flörsheim / Main Tel.: +49 6145 5056 - 0 Fax: +49 6145 5056 - 40 E-Mail: info@baum-electronic.de	
<b>D</b>	HZ GmbH Technische Kunststoffe & Elektrische Verbindungstechnik Kuchengrund 20 71522 Backnang Tel.: +49 7191 3281 - 0 Fax: +49 7191 3281 - 29 E-Mail: mail@hz-gmbh.com	
<b>R</b>	Hoppe & Co. Electronic Inhaber Hans Zeltner e.K. Thomas-Mann-Straße 50 90471 Nürnberg Tel.: +49 911 327175 Fax: +49 911 327141 E-Mail: info@hoppe-electronic.de	
<b>D</b>	zeb elektroTECHNIK GmbH Thomas-Mann-Straße 50 90471 Nürnberg Tel.: +49 911 323957-0 Fax: +49 911 327141 E-Mail: info@zeb-gmbh.de	
<b>D</b>	ETB Electronic Team Beratungs- und Vertriebs GmbH Wundramweg 1 31303 Burgdorf Tel.: +49 5136 97229-0 Fax: +49 5136 97229-39 E-Mail: info@etb-electronic.de	
<b>Australia</b>		
<b>D</b>	Braemac Pty Ltd 1/59-61 Burrows Road, Alexandria Sydney, NSW 2015 Australia Tel.: +61 2 95506600 Fax: +61 2 95506377 E-Mail: info@braemac.com.au	
<b>Austria</b>		
<b>D</b>	CODICO GmbH Zwingenstraße 6-8 A-2380 Perchtoldsdorf Tel.: +43 01 86305-0 Fax: +43 01 86305-5000 E-Mail: office@codico.com	
<b>Belgium and Luxembourg</b>		
<b>R</b>	ATEM N.V./S.A. Bedrijvenpark De Veert 4 B-2830 Willebroek Tel.: +32 03 8661800 Fax: +32 03 8661828 E-Mail: info@atem.be	
<b>Belarus</b>		
<b>D</b>	FEK Company 29b, Pushkina pr-t 220015 Minsk Belarus Tel.: +375 17 2102189 Fax: +375 17 2102189 E-Mail: info@fek.by	
<b>Brazil, Argentina, Uruguay, Paraguay</b>		
<b>SO</b>	STOCKO do Brasil Ltda. Av. Dr. José Bonifácio C. Nogueira 150 Galeria Plaza - Térreo 13091-611 – Campinas – SP Brasil Tel.: +55 19 3578-123 Fax: +55 19 3707-1599 E-Mail: brazil@stocko-contact.com	
<b>Canada</b>		
<b>R</b>	WIELAND Electric Inc. 2889 Brighton Road Oakville, Ontario L6H 6C9 Tel.: +1 905 8298414 Toll Free: +1 800-WIELAND Fax: +1 905 8298413 E-Mail: oakville@wielandinc.com	
<b>China</b>		
<b>R</b>	STOCKO Contact GmbH & Co. KG c/o Wieland Electric Trading (Shanghai) Co. Ltd. Unit 2703 Int'l Soho City 889 Renmin Rd, Huang Pu District PRC-Shanghai 200010 Tel.: +86 21 63555772-126 63555772-127 Fax: +86 21 6355 0090 Mobile: +86 136 3643 5222 E-Mail: china@stocko-contact.com	
<b>SO</b>	STOCKO Contact GmbH & Co. KG #3-601, No.42 Dongshan 4th Road, Qingdao 266100, P.R.China Mobile: +86 139 69760609 Fax: +86 532 66870622 E-Mail: china@stocko-contact.com	
<b>SO</b>	STOCKO Contact GmbH & Co. KG No 147-149, Changping Avenue, Lian Guan Plaza, Room 1520, Guangdong Province, Dongguan City, Changping Town 523560, P.R.China Mobil: +86 137 12787427 E-Mail: china@stocko-contact.com	
<b>SO</b>	STOCKO Contact GmbH & Co. KG Unit 08-1-302, No.184 Taishan Road New district Changzhou 213022, P.R.China Mobile: +86 136 85216240 Fax: +86 0519 88050927 E-Mail: china@stocko-contact.com	
<b>D</b>	WG Industrial Control Equipment Suit. 22, No. 328, Hengyong RD Jiading District 201806 Shanghai, P.R.China Tel.: +86 21 34533671 Fax: +86 21 34311361 E-Mail: sales@wg-ind.com	
<b>Croatia, Slovakia, Slovenia, Czech Rep.</b>		
(via Codico Partner)		
<b>D</b>	CODICO GmbH Zwingenstraße 6-8 A-2380 Perchtoldsdorf Tel.: +43 01 86305-0 Fax: +43 01 86305-5000 E-Mail: office@codico.com	
<b>Denmark</b>		
<b>R</b> <b>D</b>	Matech Systems ApS Ankelbovej 6 DK-7190 Billund Tel.: +45 75338949 Fax: +45 75338946 E-Mail: info@matechsystems.dk	
<b>Estonia, Latvia, Lithuania</b>		
<b>R</b>	Adcontact/Gammeter Paldiski mnt 31 EE - 76606 Keila, Harjumaa Tel.: +372 6712251 Fax: +372 6712253 Mobile: +372 5089343 E-Mail: info@gammeter.ee	
<b>Finland</b>		
<b>R</b>	Adcontact/Gammeter Naulakatu 3 P.O. Box 627 FIN-33101 Tampere Tel.: +358 3 3802211 Fax: +358 3 3802244 E-Mail: info@gammeter.fi	
<b>France</b>		
<b>S</b>	STOCKO CONTACT Eurl 7, Route d'Eichhoffen CS 40017 Andlau 67145 - BARR Cedex Tel.: +33 388 585858 Fax: +33 388 585888 E-Mail: andlau@stocko-contact.com	
<b>R</b>	M. Roland DOTIGNY 4 Rue Rougette 60240 Liancourt St Pierre Tel.: +33 3 44479168 Fax: +33 3 44479168 E-Mail: roland.dotigny@stocko-contact.com (Parisienne, Ouest, Normandie, Nord)	
<b>R</b> <b>D</b>	CONNECT-SYSTEMES 31, Impasse de la Balme 69800 Saint-Priest Tel.: +33 478901315 Fax: +33 478906332 E-Mail: commercial@connect-systemes.fr (Rhône-Alpes, Sud, Centre, Est)	



## Contact addresses

- (D)** Distribution  
**(P)** Plant  
**(R)** Representation  
**(S)** Subsidiary  
**(SO)** Sales Office

### Great Britain

**(D)** Cabletrix Ltd  
 9/10 James Watt Close  
 Drayton Field Industrial Estate  
 Daventry, Northants NN11 8QU, UK  
 Tel.: +44 1327 876769  
 Fax: +44 1327 300130  
 E-Mail: sales@cabletrix.co.uk

**(D)** J-Tronics Ltd  
 1 Granger Avenue  
 Acomb  
 York, YO26 5LF, UK  
 Tel.: +44 1904 795690  
 Fax: +44 1904 790887  
 E-Mail: julie@j-tronics.co.uk  
 If you need a design partner for harnesses  
 contact: gareth@j-tronics.co.uk

**(D)** New Force Ltd  
 Unit 6, Larkstore Park  
 Lodge Road  
 Staplehurst  
 Kent, TN12 0QY, UK  
 Tel.: +44 1580 895111  
 Fax: +44 1580 895222  
 E-Mail: sales@new-force.co.uk

### Greece

**(R)** S. SAKELLIU & CO O.E.  
 Manufacturer's Agents  
 15B Konstantinidou str.  
 K. Patissia 104 45 - Athens  
 Tel.: +30 210 8322611  
 Fax: +30 210 8325444  
 E-Mail: sasta@on.gr

### Hungary

**(R) (D)** CZINEGE és FIAI Kft.  
 Pesti ucta 36,  
 H-5100 - Jászberény  
 Tel.: +36 057 500190  
 Fax: +36 057 500191  
 E-Mail: czinege@czinege.hu

### India, Sri Lanka, UAE

**(D)** AURO CONTROLS PRIVATE LIMITED  
 Florina Apartment, 6th Floor,  
 Survey No. 2/1/7, Erandwane,  
 Pune 411004 INDIA  
 Tel.: +912025465915  
 E-Mail: sales@aurocontrols.com

### Ireland, Republik of

**(D)** EirKen Enterprises Ltd.  
 247 Riverforest  
 Leixlip  
 Co Kildare, Ireland  
 Tel.: +353 1 6156705  
 Fax: +353 1 6156704  
 E-Mail: americ@eirken.ie

### Italy

**(R) (D)** KLEMI Contact Srl  
 Via G. Marcora, 13  
 I-20097 San Donato Milanese (Mi)  
 Tel.: +39 02 55606101  
 Fax: +39 02 55607134  
 E-Mail: klemi@klemi-contact.com

### Japan

**(SO)** STOCKO CONTACT GmbH & Co.KG  
 c/o Wieland Electric Co., Ltd.  
 Nisso No. 16 Bldg. 3-8-8  
 Shin-Yokohama Kohoku-ku Yokohama  
 222-0033 Japan  
 Tel.: +81-45-473-5085  
 Fax: +81-45-470-5408  
 E-Mail: japan@stocko-contact.com

### Korea

**(D)** Sam Tra International  
 Hoseo Venture Tower 609 Ho  
 319 Gasan-dong  
 Geumcheon-gu, Seoul 153-711  
 Korea  
 Tel.: +82 2 26275625  
 Fax: +82 2 26275629  
 E-Mail: sales@samtra.co.kr

### Netherlands

**(R)** INTRONICS BV  
 Koolhovenstraat 1E  
 NL-3772 MT BARNEVELD  
 Niederlande  
 Tel.: +31 342 407080  
 Fax: +31 342 412114  
 E-Mail: sales@intronics.nl

### Norway

**(R) (D)** Adcontact/Gammeter  
 P.O. Box 246 Skøyen  
 N-0213 Oslo  
 Tel.: +47 224 17700  
 Fax: +47 224 17701  
 E-Mail: info@adkontakt.se

### Poland

**(R) (D)** EVOLTEC Tomasz Pawlowski  
 ul. Postepu 1  
 02-676 Warszawa  
 Tel.: +48 22 550 27 40-44  
 Tel.: +48 22 550 27 47  
 Fax: +48 22 550 27 45  
 E-Mail: info@evoltec.pl

### Portugal

**(R)** E. Kramer, LDA.  
 AP. 3096  
 Leça da Palmeira  
 P-4456 Matosinhos  
 Tel.: +351 022 9964585  
 Fax: +351 022 9964588  
 E-Mail: e.kramer@ekramer.pt

### Russia

**(D)** Connectors & Engineering KG  
 Krasnokazarmennaya 3 build 5  
 Moscow 111250  
 Russia  
 Tel.: +7 495 9671560  
 Fax: +7 495 9671561  
 E-Mail: sales@faston.ru

**(D)** ELCO Group LLC  
 13A, Building 4, Structure 4  
 Varshavskoye Shosse  
 Moscow 115230  
 Tel.: +7 495 9818516  
 Fax: +7 495 7750255  
 E-Mail: info@elcogroup.ru

### Sweden

**(R) (D)** Adcontact/Gammeter  
 Ursviksv. 127B  
 P.O. Box 7044  
 S-17407 Sundbyberg  
 Tel.: +46 8 4453600  
 Fax: +46 8 4453610  
 E-Mail: info@adcontact.se

### Switzerland

**(R) (D)** AWAG Elektrotechnik AG  
 Sandbühlstrasse 2  
 CH-8604 Volketswil  
 Tel.: +41 044 9081919  
 Fax: +41 044 9081999  
 E-Mail: info@awag.ch

### Singapore

**(SO)** STOCKO CONTACT GmbH & Co. KG  
 Liason Office Singapur  
 Blk 5, Rivervale Crescent  
 # 08-05 Singapore 545084  
 Mobile: +65 91 832131  
 E-Mail: singapore@stocko-contact.com

**(D)** STOCKO Electronics  
 Asia Pacific Pte. Ltd.  
 16 New Industrial Road  
 # 01-03/04 Hudson Technocentre  
 Singapore 536204  
 Tel.: +65 6 3451788  
 Fax: +65 6 3486116  
 E-Mail: info@stocko.com.sg

### Spain

**(SO)** STOCKO CONTACT GmbH & Co. KG  
 Vertriebsbüro Spanien  
 F. Rius i Taulat, 19-3º  
 E-08850 Gavà (Barcelona)  
 Tel.: +34 936 627188  
 Fax: +34 936 627188  
 Mobile: +34 676490974  
 E-Mail: spain@stocko-contact.com

**(D)** TC Componentes, S.L.  
 Cami de Can Calders, 6 12-G  
 E-08173 Sant Cugat del Vallès  
 Barcelona  
 Tel.: +34 93 590 28 30  
 Fax: +34 93 590 02 67  
 E-Mail: info@tc-componentes.es

### South Africa

**(R)** APT Advanced Product Technology (PTY)  
 LTD.  
 Strijdom Park, Randburg  
 P.O. Box 832  
 Ferndale 2160  
 Tel.: +27 11 7926010  
 Fax: +27 11 7929879  
 E-Mail: craig@aptsa.co.za

### Thailand

**(D)** ST Global Industries Co., Ltd.  
 36 Moo 4, Tambon Pimpha  
 Amphur Bangpakong  
 24130 Chachoengsao  
 Thailand  
 Tel.: +66 38 595988  
 Fax: +66 38 595950  
 E-Mail: sales@st-global.co.th

### Turkey

**(SO)** STOCKO CONTACT GmbH & Co. KG  
 Istanbul Liason Office  
 Atakoy 11. Kism, Cigdem D Blok, D:33  
 34158 Istanbul / TÜRKİYE  
 Tel.: +90 212 6618710  
 Fax: +90 212 6618720  
 E-Mail: info@stockotr.com

## STOCKO CONTACT GmbH & Co. KG

Simonshöfchen 31  
D-42327 Wuppertal

Tel. +49 202 9733 - 0  
Fax +49 202 9733 - 411

e-mail [info@stocko-contact.com](mailto:info@stocko-contact.com)  
Internet [www.stocko-contact.com](http://www.stocko-contact.com)

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