



**POWER.S<sup>3</sup>**

*Power **S**upply **S**afe **S**olutions*

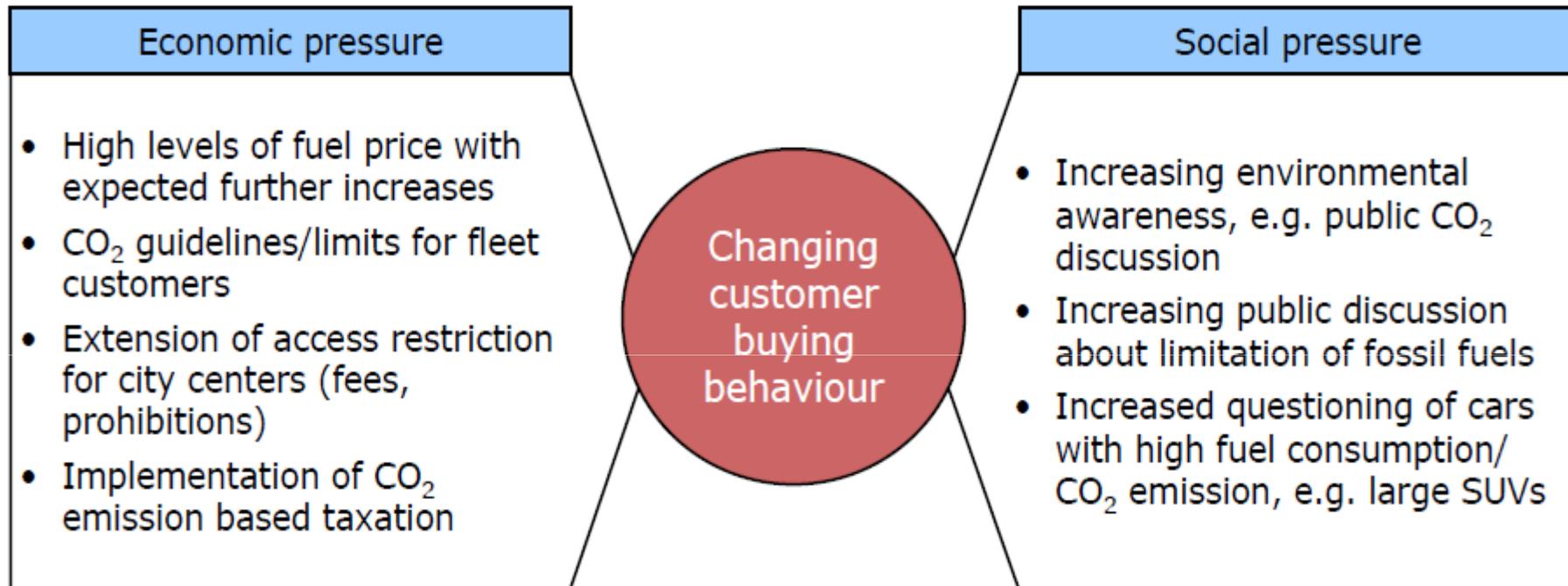
**INTERCONNECT PRODUCTS**



2012

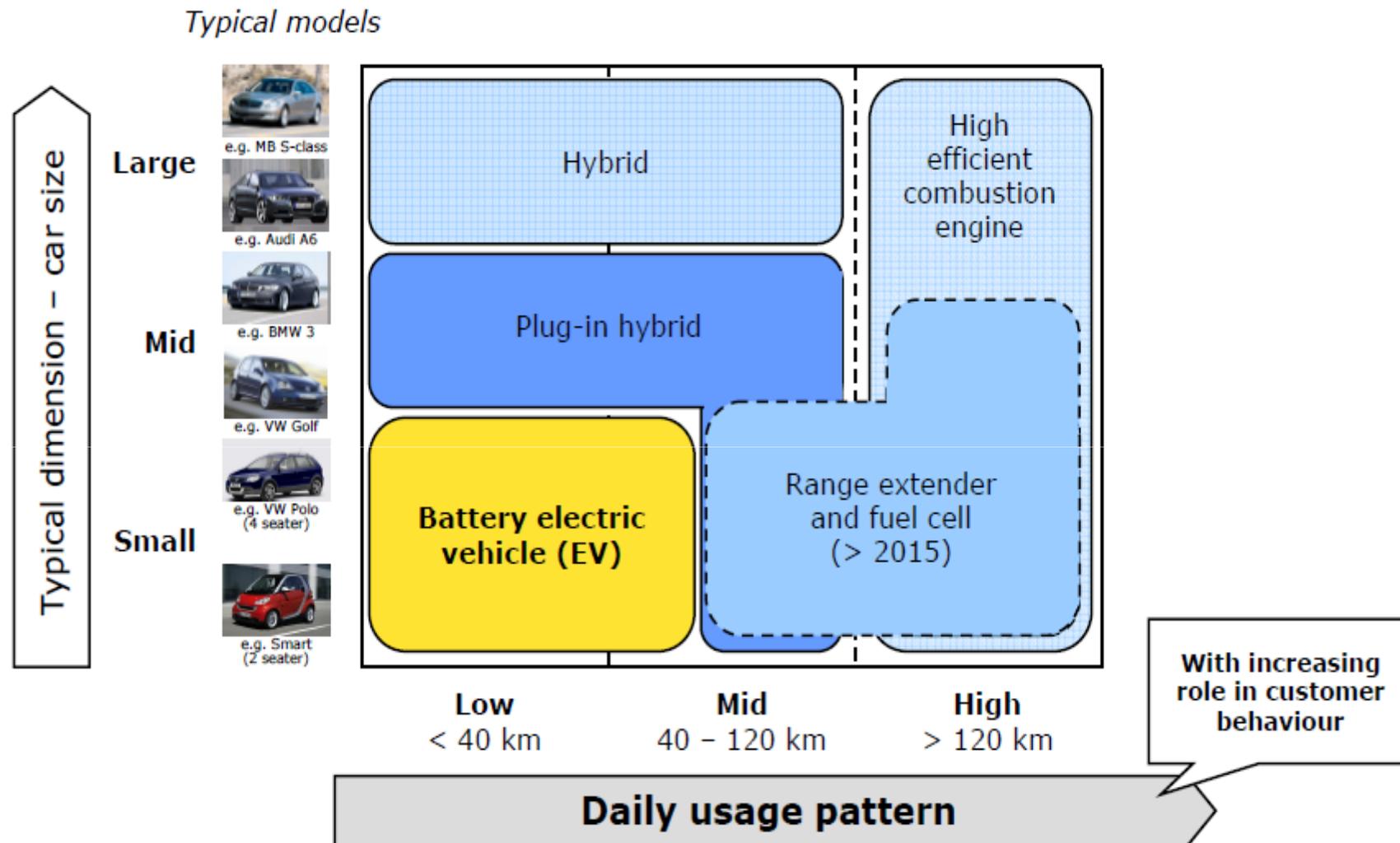
FCI MVL Division

FCI COPYRIGHT



Source : Bain & Co

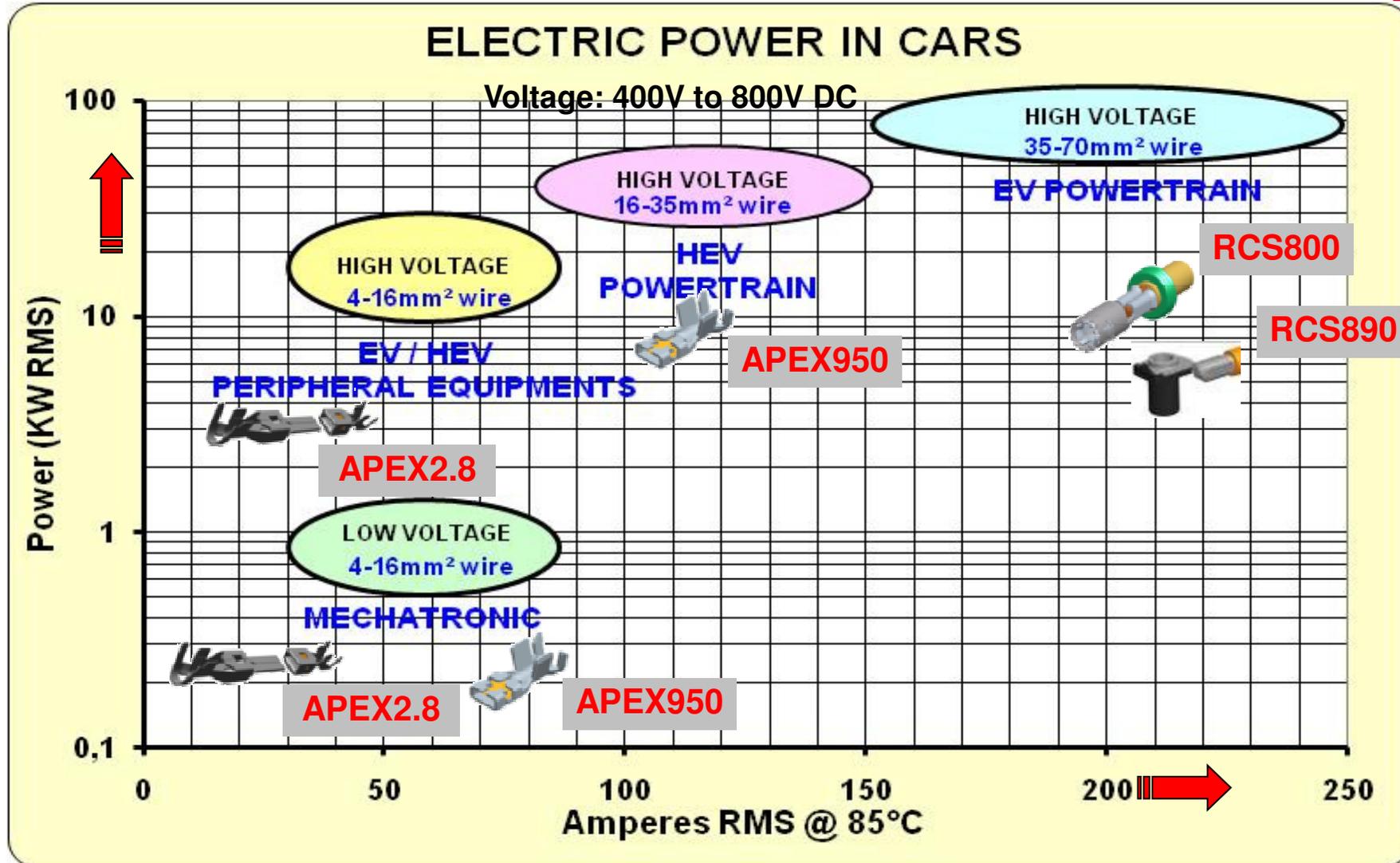
# Battery electrical solutions for metropolitan mobility



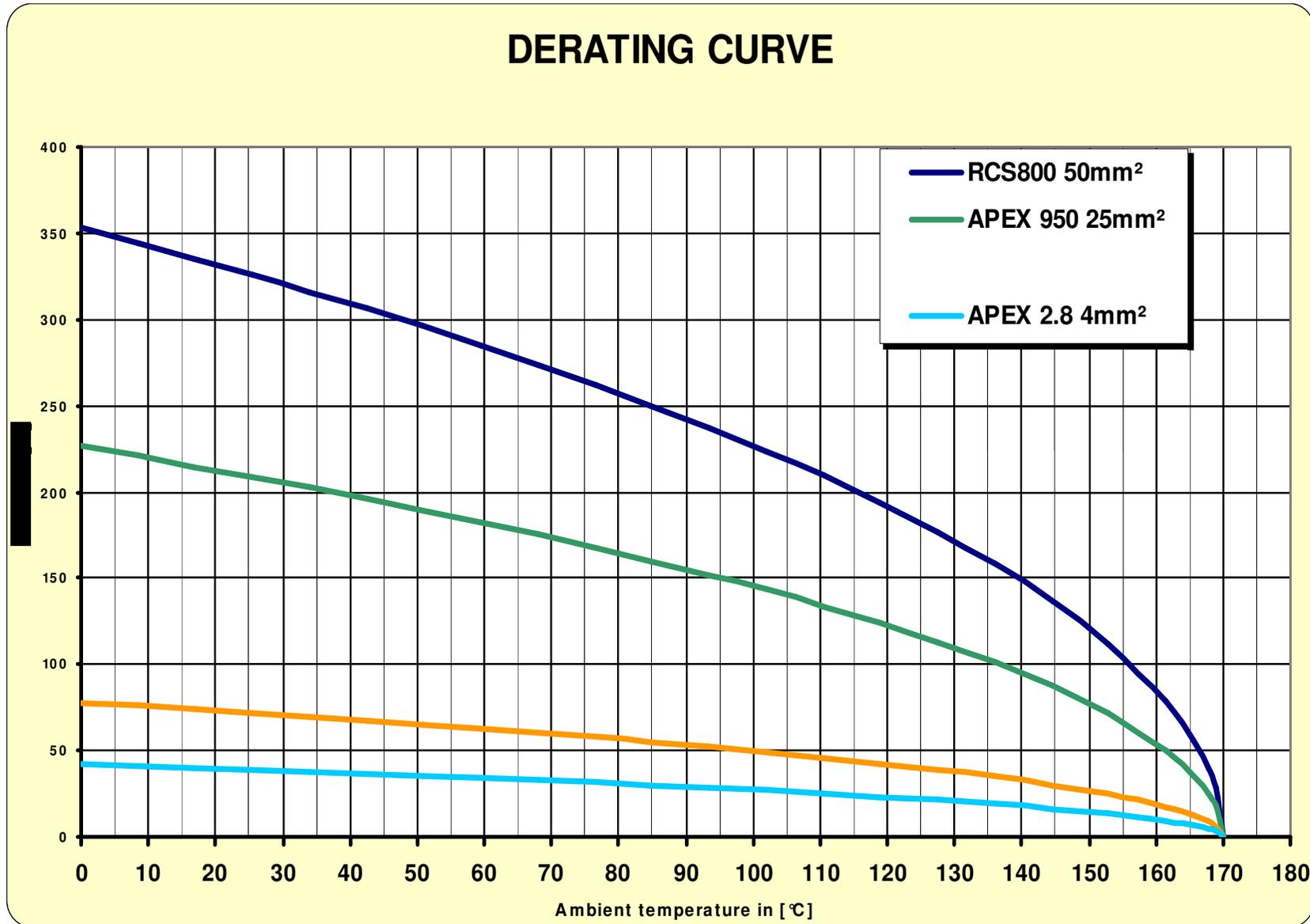
Note: 70% of the European population drive less than 40 km per day; 80% of U.S. population drive less than 50 miles per day

Source : Bain & Co

# What does High Power means in Automotive?



FCI's complete range of terminals to cover all applications



\* For RCS800, performance based on high quality cables.

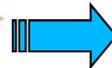
# We equip serial cars ...



## Example of Renault Fluence and Nissan Leaf EV

- *high power system interconnection*

**Apex280 2-way**  
**RCS800 2-way**



# Renault L38 electric car (Fluence)



## HOUSINGS

**“Peripherals”**  
Air conditioning  
Heating  
In-car charger



**APEX280 2-WAY**

**PERIPHERAL SHIELDING**

**“Peripherals”**  
In-car charger



**APEX950 4+1-WAY**

**UNSHIELDED**

*(serial Q3 2012)*

**“Powertrain”**  
Battery  
Junction box  
Inverter  
e-motor



**RCS800 2-WAY**

**PERIPHERAL SHIELDING**



**RCS890 2-WAY**

**PERIPHERAL SHIELDING**

*(serial Q2 2012)*

## HIGH POWER TERMINALS



**APEX-2.8mm**  
[ 2.8mm rectangular pin ]

**35A @ 70° C**  
(4mm<sup>2</sup> cable)



**APEX-950**  
[for 9.5mm rectangular pin]

**70A @ 70° C**  
(16mm<sup>2</sup> cable)



**RCS-800 [straight]**  
[for 8mm round pin]

**230A @ 70° C**  
(50mm<sup>2</sup> cable)



**RCS-890 [90° angle]**  
[for 8mm round pin]

**210A @ 70° C**  
(50mm<sup>2</sup> cable)

# POWER.S<sup>3</sup>

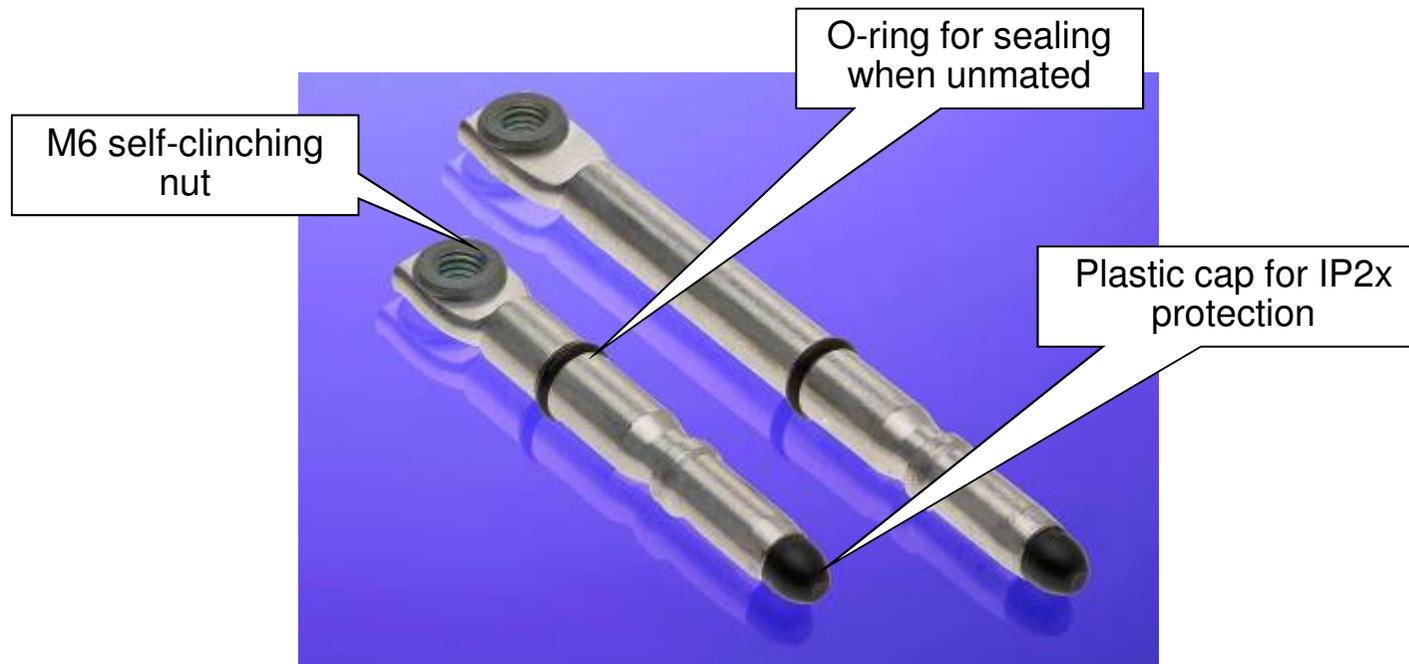
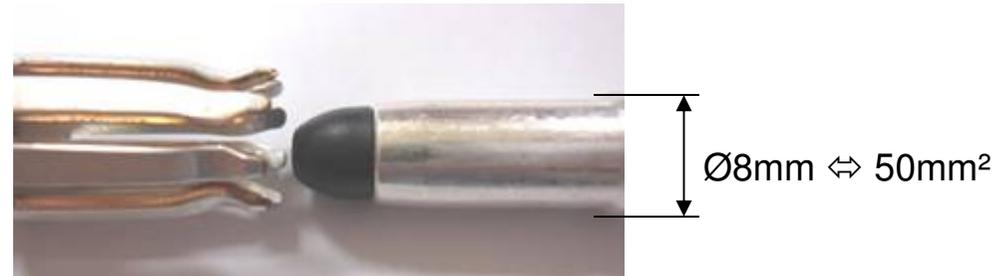
## RCS800 – 400/800V, 250A



# Power.S<sup>3</sup> - RCS-800 male terminal



- ✓ Ø8mm screw machined pin
- ✓ 50 mm<sup>2</sup> section
- ✓ Plastic cap for IP2x protection
- ✓ To be screwed to busbar (M6)
- ✓ Several terminal lengths for flexible busbar configurations (straight, 90°...)



# FCI Power.S<sup>3</sup> - RCS-800 female terminal



- ✓ Round shape for optimized dimensions  
→ rectangular terminal would require 15x2 mm male terminal

- ✓ Robust bend strength
- ✓ 8 contact points
- ✓ Mate with Ø8mm pin
- ✓ Protective metal cage



- ✓ Body material                   K75, Cu CR Ti Si, 1.20mm
- ✓ Box material                    stainless steel 0,4mm
- ✓ Crimping range                35 to 50 mm<sup>2</sup>
- ✓ Current capacity               230A at 70°C
- ✓ Contact resistance            < 0.1mΩ
- ✓ Operating temp.               -40°C / 170°C
- ✓ Plating                            Silver (Ag)

# FCI Power.S<sup>3</sup> - RCS-890 female terminal



- Same performances as RCS800
- 2 copper alloy parts and 1 isolating part

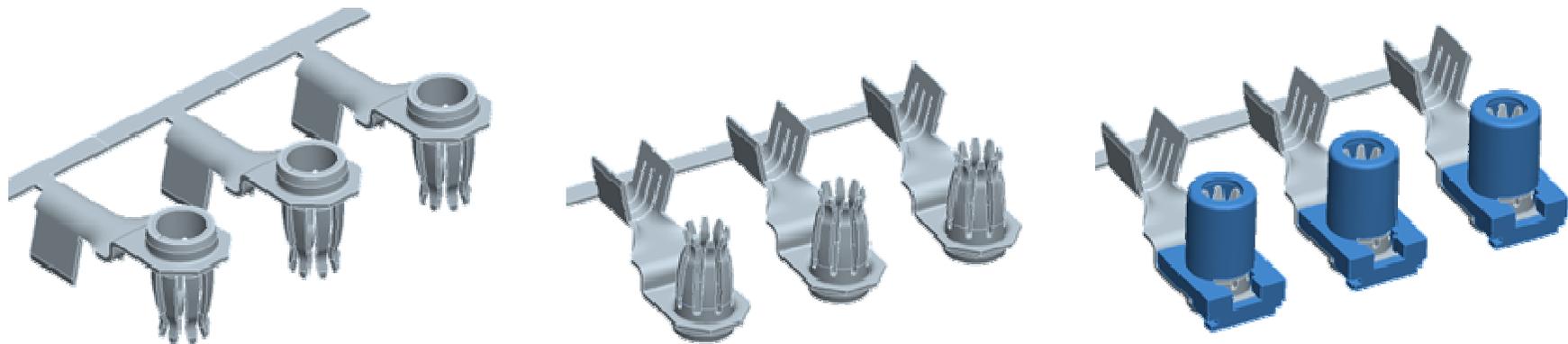
The active part is stamped and rolled



It is then inserted in force into a crimping part



Finally, an isolating body is added to ensure mechanical protection.



## ■ Features & benefits

- High voltage : 400 / 800 V
- Current rating: 230A @ 70°C
- Ergomate system with two-step disconnection system
- Dual sealing feature
- Shielding : 60 db
- Integrated Interlock system

## ■ Main applications : High current, high voltage DC connections for

- Battery
- Junction box
- Inverter



**FCI PATENTED**

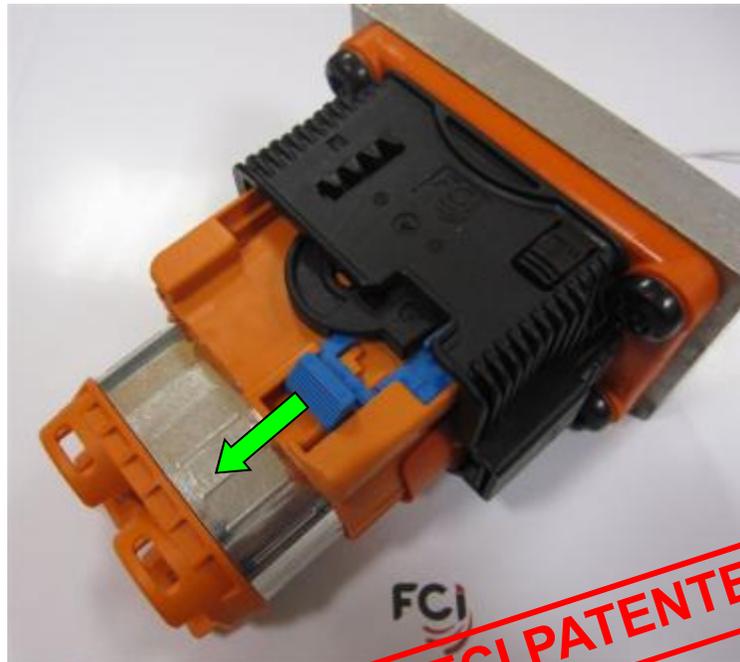


# FCI Power.S<sup>3</sup> : RCS-800 housings



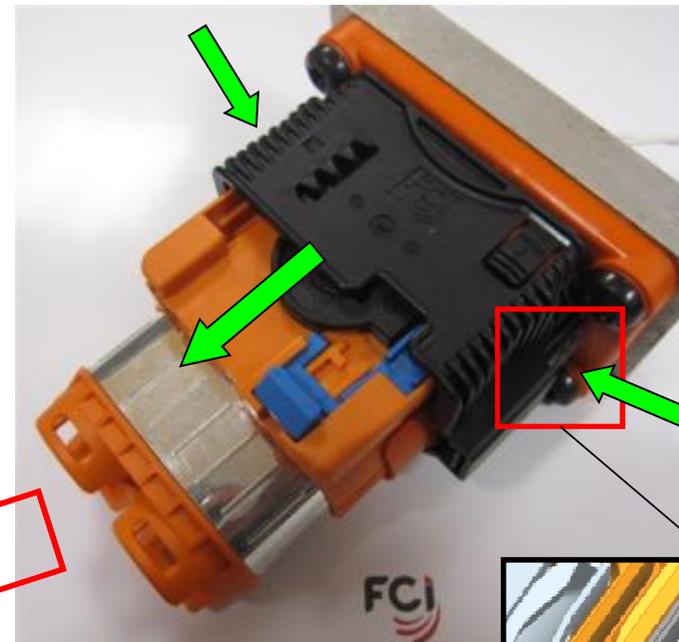
## Two step unmating

### 1st step

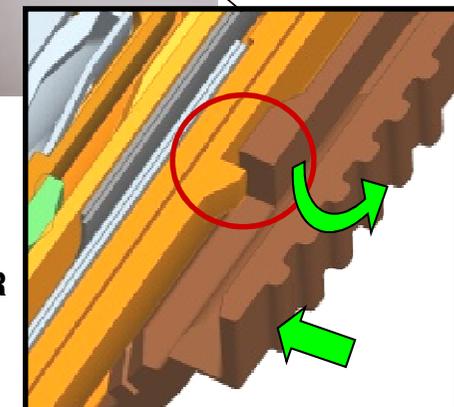


**FCI PATENTED**

1 PULL THE CPA TO ITS 'OPEN' POSITION



2 PRESS THE **SIDE LATCH** TO UNMATE THE PLUG CONNECTOR THEN PULL IT

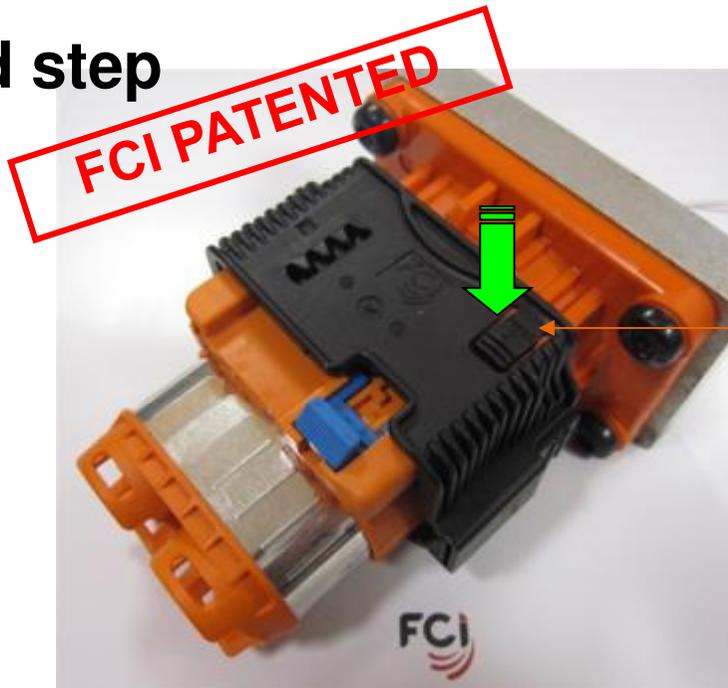


# FCI Power.S<sup>3</sup> : RCS-800 housings



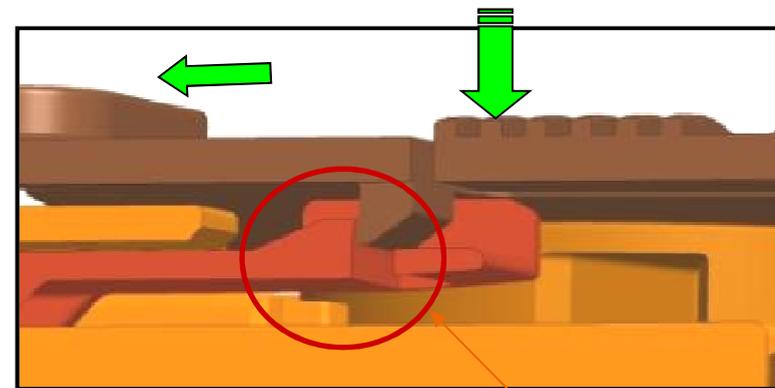
## Two step unmating

### 2nd step



Similar concept on Apex 280 and RCS890 housing

1 **CHANGE HAND'S POSITION AND PRESS TOP LATCH TO RELEASE THE SLIDER**



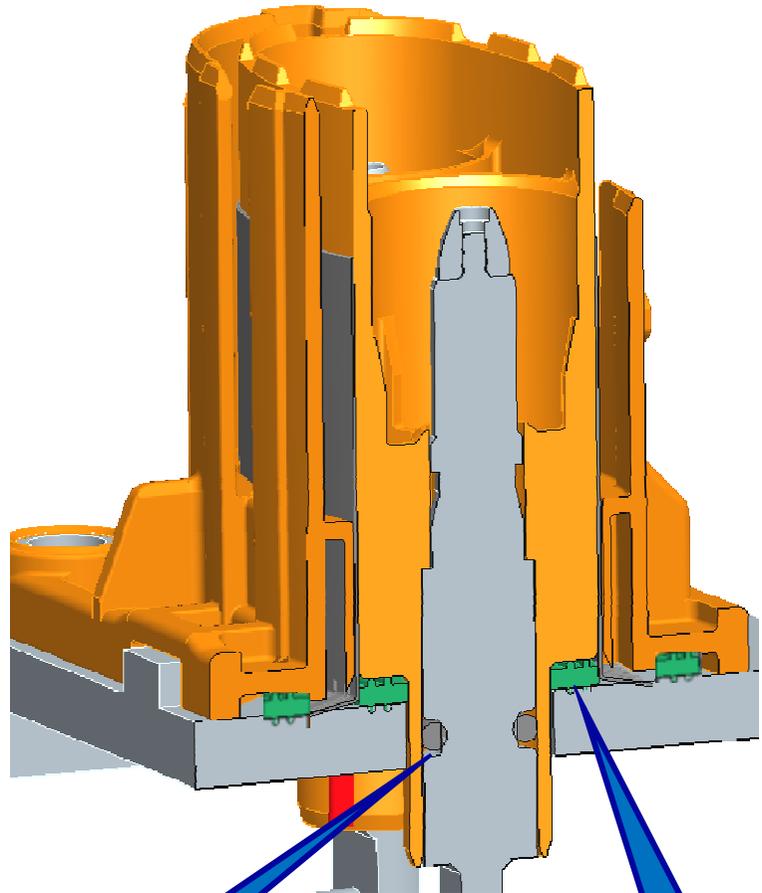
2 **PULL THE SLIDER TO FINISH THE UNMATING**

**THE SLIDER IS STOPPED ON THE CPA UNTIL TOP LATCH IS PRESSED**

# FCI Power.S<sup>3</sup> : RCS-800 housings

## Dual sealing feature - header

Header unmated sealed. Water can't go inside the box



1 O-ring seal

2 Rear flat seal

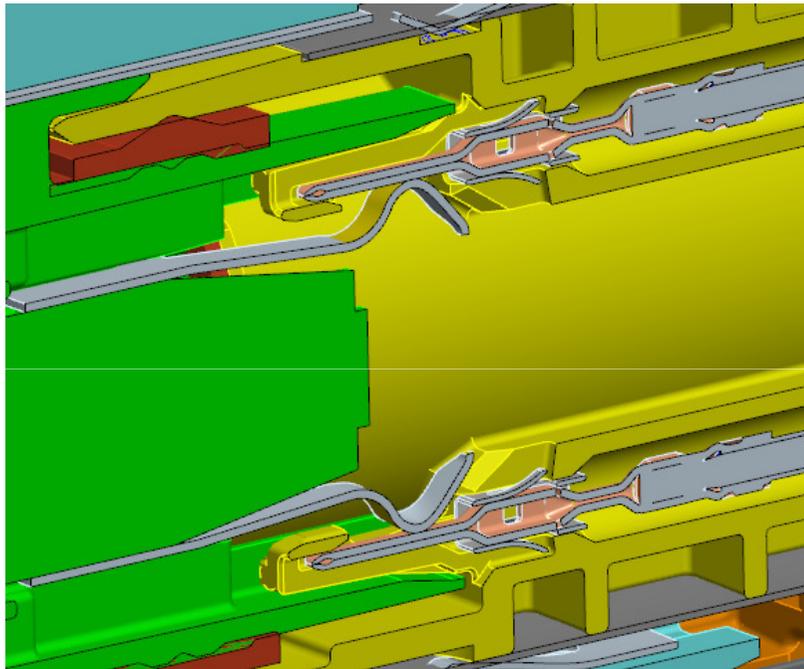


Peripheral seal for corrosion protection between connector shielded and metallic system.

Same concept for the Apex 280 housing

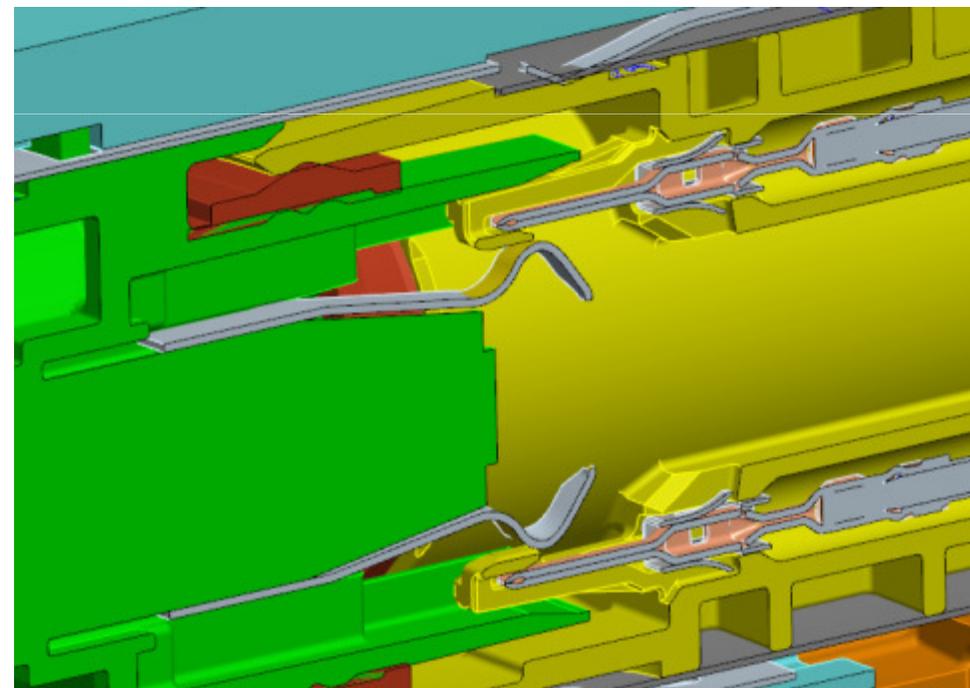
# FCI Power.S<sup>3</sup> : RCS-800 housings

## Integrated interlock function



Mated position

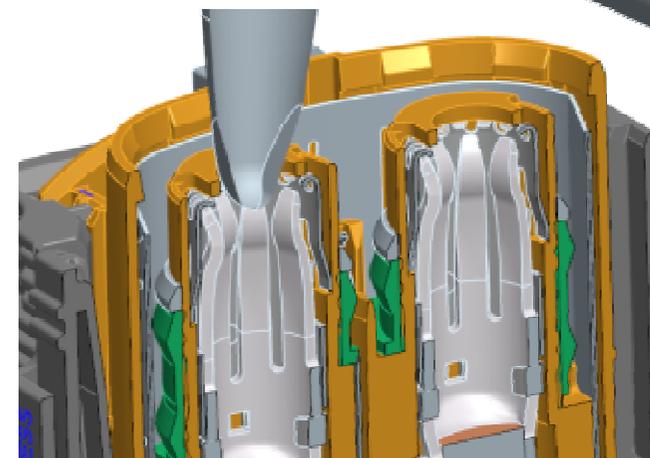
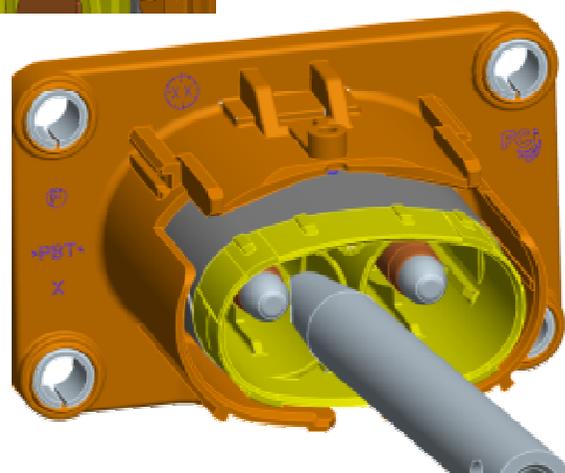
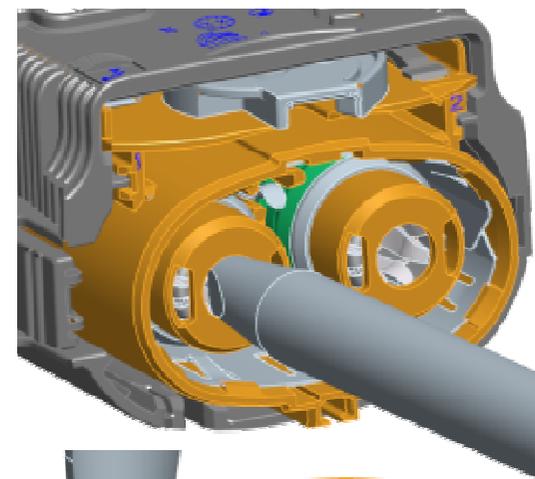
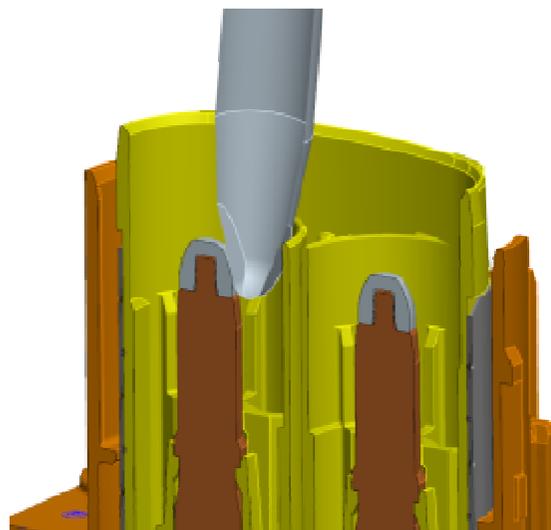
Unmated intermediate position



# FCI Power.S<sup>3</sup> : RCS-800 housings

## IP2XB electrical shock protection

Protection of the connector active/conductive parts against electric shock  
(i.e preventing access by operator's finger)

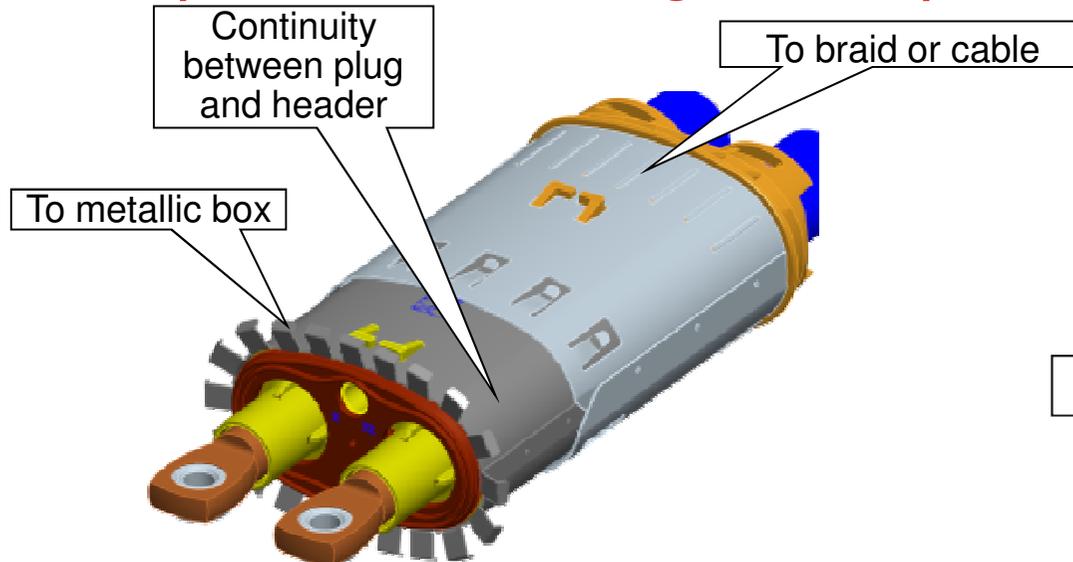


Same concept for APEX-280 housing

# FCI Power.S<sup>3</sup> : RCS-800 housings



## Peripheral shielding concept



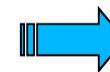
Same concept for APEX-280 housing

Shielding efficiency:  
60dB according EN 50289-1-6 clause N°8 and IEC61196-1-12.6 triaxial method ( $Z_t \leq 100\text{m}\Omega$  from 10 Hz to 100 MHz)

Shielding continuity:  
 $R_s \leq 100\text{m}\Omega$

### **MAIN ADVANTAGES :**

- ✓Fast and simple process to attach the metal braid on the female connector.
- ✓Usage of shielded cables is unnecessary



**EFFECTIVE  
TOTAL APPLIED COST**



**Shielded braid choice is essential to make sure to keep shielding efficiency performance after ageing. Please refer to our FCI user manual to select recommended braids.**

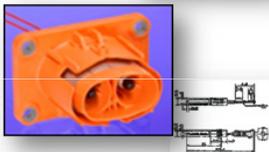
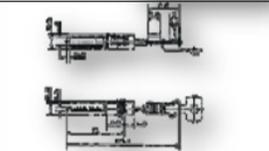
# Power.S<sup>3</sup> : RCS-800 Part numbers



Description	Bill of material BOM	New version P/N	Product image
RCS-800 2WAY PLUG CODE 1 BLACK	1	F673110	
RCS-800 2WAY PLUG CODE 2 BROWN	1	F773110	
RCS-800 FEMALE TERMINAL silver version 35 to 50 MM <sup>2</sup>	2	F385400	
RCS-800 FEMALE RETAINER (PLUG)	2	F527600	
RCS-800 FEMALE SWS 50 MM <sup>2</sup> (PLUG)	2	F327600	
RCS-800 FEMALE SWS 35-40 MM <sup>2</sup> (PLUG)	2	F427600	
RCS-800 HEADER CODE 1 BLACK	1	F473110	
RCS-800 HEADER CODE 2 BROWN	1	F573110	
RCS-800 MALE Bus Bar TERMINAL Round 8 Silver version - standard length 49.7 mm	2	F076600	
RCS-800 MALE Bus Bar TERMINAL Round 8 Silver version - V1 71.7 mm	optional	F176600	
RCS-800 MALE Bus Bar TERMINAL Round 8 Silver version - V2 95.7 mm	optional	F276600	
DCS2 1.5 gold-plated MALE TERMINAL 0,5-1,00 mm <sup>2</sup>	2	60100734	
DCS 1.5 MALE RED SWS 0,22 - 0,5 mm <sup>2</sup>	2	60993913	

# Power.S<sup>3</sup> : RCS-800 tooling (1)



RCS 800			
Related product Pictures	Tool Pictures	Description	Part-number
		RCS800 removing tool for female terminal	<b>F 226010</b>
		RCS800 removing tool for male terminal	<b>F218500</b>
		DCS2 1,5 removing tool for male terminal	<b>F418500</b>
		Press and positioning of the SWS 50 <sup>2</sup> & 35 <sup>2</sup> on the connector	<b>F214600</b>
		Insert help tool for the SWS (Optional tool : to be used if the SWS is positioned on the cable after terminal)	<b>F979500</b>
		DCS2 1,5 hand crimp tool (0,50 / 0.75 / 1.00 mm <sup>2</sup> )	<b>6 520 04 14-M</b>

# Power.S<sup>3</sup> : RCS-800 tooling (2)



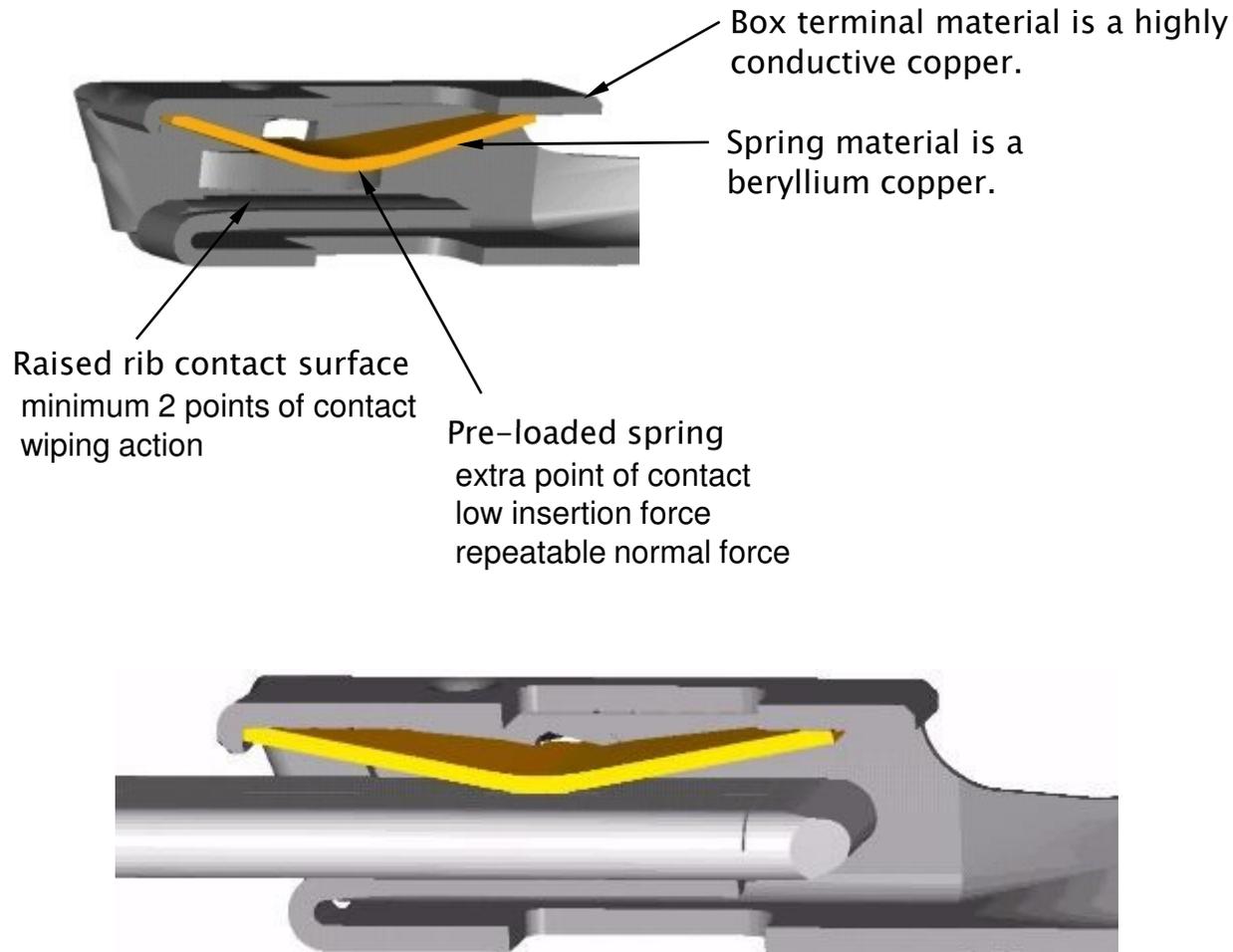
RCS 800																									
	<p>RCS800 crimp tool</p>	<p><b>RCS800 crimp tool</b></p> <table border="1"> <tr><td>CRIMPING HEIGHT</td><td>272mm (10.7")</td></tr> <tr><td>STROKE</td><td>50 mm (1.968")</td></tr> <tr><td>TERMINAL PITCH</td><td>Loose</td></tr> <tr><td>TERMINAL THICKNESS</td><td>&gt; 1,5mm</td></tr> <tr><td>WIRE SECTION</td><td>oltre 75mm<sup>2</sup></td></tr> <tr><td>FEEDING SYSTEM</td><td>Manual</td></tr> <tr><td>WEIGHT</td><td>20,4 (44,85)</td></tr> <tr><td>DIMENSION mm</td><td>W250xH270xD197</td></tr> <tr><td>DIMENSION (")</td><td>W9.84xH10.6x07.75</td></tr> </table>	CRIMPING HEIGHT	272mm (10.7")	STROKE	50 mm (1.968")	TERMINAL PITCH	Loose	TERMINAL THICKNESS	> 1,5mm	WIRE SECTION	oltre 75mm <sup>2</sup>	FEEDING SYSTEM	Manual	WEIGHT	20,4 (44,85)	DIMENSION mm	W250xH270xD197	DIMENSION (")	W9.84xH10.6x07.75	<p><b>RCS -800 TOLL 03.2010 (Model MECAL) Other Tool Typ please ask FCI Nürnberg</b></p>				
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	<p>RCS800 crimp tool</p>	<p><b>CRIMP PRESS</b></p> <table border="1"> <tr><td>POWER</td><td>5,5Kw (7,5 HP)</td></tr> <tr><td>FORCE</td><td>15000 Kg (33000 lb)</td></tr> <tr><td>STROKE</td><td>40/50mm (1,57/1,96")</td></tr> <tr><td>CRIMPING HEIGHT</td><td>190mm (7,48")</td></tr> <tr><td>WEIGHT</td><td>1200Kg (2640 lb)</td></tr> <tr><td>DIMENSION (mm)</td><td>W900xH2100xD1200</td></tr> <tr><td>DIMENSION (")</td><td>W35,43"xH82,6"xD47,2"</td></tr> <tr><td>CONFIGURATION</td><td>manual</td></tr> <tr><td>POWER SUPPLY</td><td>to see versions</td></tr> <tr><td>VOLTAGE</td><td>to see versions</td></tr> <tr><td>SURFACE FINISHING</td><td>Light grey RAL7038</td></tr> </table>	POWER	5,5Kw (7,5 HP)	FORCE	15000 Kg (33000 lb)	STROKE	40/50mm (1,57/1,96")	CRIMPING HEIGHT	190mm (7,48")	WEIGHT	1200Kg (2640 lb)	DIMENSION (mm)	W900xH2100xD1200	DIMENSION (")	W35,43"xH82,6"xD47,2"	CONFIGURATION	manual	POWER SUPPLY	to see versions	VOLTAGE	to see versions	SURFACE FINISHING	Light grey RAL7038	<p><b>CRIMPPRESS P150</b>  for max. Cable: <b>100 mm<sup>2</sup>.</b></p>
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	<p>CH 460 0</p>	<p><b>HAND CRIMPPRESS FCI C10</b> for max. Cable: <b>100 mm<sup>2</sup>.</b></p>	<p><b>FCI C10</b></p>																						
		<p><b>CRIMP SPARE PARTS SET</b> for HAND <b>CRIMP TOOL FCI C10</b></p>	<p><b>CR10 (10mm<sup>2</sup>) CR16 (16mm<sup>2</sup>) CR25 (25 mm<sup>2</sup>) CR35 (35-40mm<sup>2</sup>) CR50 (50 mm<sup>2</sup>)</b></p>																						

# POWER.S<sup>3</sup>

## APEX-280 – 400/800V, 35A



## ■ Features



- Apex-280 housings offers same features and benefits as RCS-800 housings

- High voltage 400 / 800V
- Ergomate system with two-step disconnection system
- Dual sealing feature
- Shielding : 60 db @ 100MHz
- Integrated Interlock system



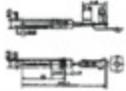
- Current rating: 35A @ 70°C

- Main applications : Medium current, high voltage DC connections for:

- Heating device
- Air conditioning
- In-car charge plug interconnection

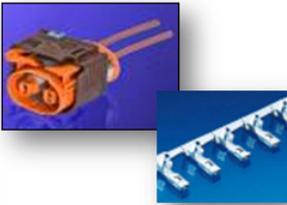
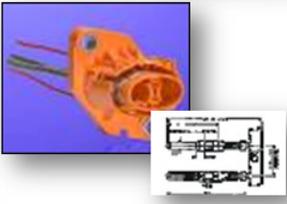
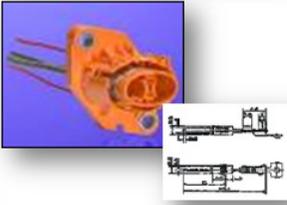
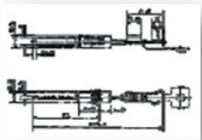
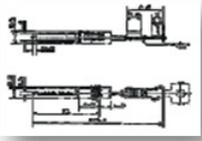
# FCI Power.S<sup>3</sup> : Apex-280 Part numbers



Description	Bill of material	New version P/N	Product image
APEX-280 PLUG CODE 1 BLACK	1	<b>F083110</b>	
APEX-280 PLUG CODE 2 BROWN	1	<b>F183110</b>	
APEX-2.8 FEMALE TERMINAL 4 mm <sup>2</sup>	2	54001202	
APEX-2.8 MALE & FEMALE SWS Red 4 mm <sup>2</sup>	2	C302400	
APEX-280 HEADER CODE 1 BLACK	1	<b>F873110</b>	
APEX-280 HEADER CODE 2 BROWN	1	<b>F973110</b>	
APEX-2.8 MALE TERMINAL 4 mm <sup>2</sup>	2	54001027	
APEX-2.8 MALE & FEMALE SWS Red 4 mm <sup>2</sup>	2	C302400	
DCS2 1.5 gold-plated MALE TERMINAL 0,5-1,00 mm <sup>2</sup>	2	60100734	
DCS 1.5 MALE RED SWS 0,22 - 0,5 mm <sup>2</sup>	2	60993913	

# FCI Power.S<sup>3</sup> : Apex-280 Tooling



APEX280			
Related product Pictures	Tool Pictures	Désignation	Part-number
		Apex 280 removing tool for female terminal	<b>F911110</b>
		Apex 280 removing tool for male terminal	<b>F689500</b>
		DCS2 1,5 removing tool for male terminal	<b>F858400</b>
		DCS2 1,5 hand crimp tool (0,50 / 0.75 / 1.00 mm <sup>2</sup> )	<b>6 520 04 14-M</b>
		Apex 2.8 hand crimp tool (4.0 mm <sup>2</sup> with SWS)	<b>6 520 10 99 -M</b>

# THANK YOU !



Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкуренспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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