



RoHS  
Ready 



## LEAVYSEAL Connector Series

with flame-retardant material acc. UL 94 V-0



INDUSTRIAL & COMMERCIAL  
TRANSPORTATION

# Industrial & Commercial Transportation

When every connection counts, TE Connectivity delivers reliable connectivity products designed to withstand harsh environmental conditions for on and off-highway vehicles and recreational transportation. As a world leader in rough and rugged connectivity, you can depend on TE Connectivity to provide innovative solutions for field applications where failure is not an option.

## We go to extremes to make every connection count

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The Industrial & Commercial Transportation business unit of TE Connectivity is a world leader in connectors and interconnect systems for use in the toughest and harshest environments. From trucks to tractors, from motorcycles to recreational vehicles, we offer products that work just as hard as the vehicles in which they are installed.

Our intelligent yet robust solutions and technologies function reliably in applications with high vibration and extreme temperature characteristics. The new business unit combines the service portfolios of DEUTSCH and TE Connectivity under one roof. The DEUTSCH brand is a global leader in interconnect solutions for use in heavy equipment and harsh industrial environments.

TE Connectivity has been among the world leaders in interconnect systems for automotive and system manufacturers for over 50 years. We offer you one of the world's most comprehensive connector product portfolios.

Thanks to the breadth of our product range, our global presence and our innovative strength, we are able to develop targeted solutions for the most demanding requirements of a rapidly changing market.

We engineer tough products for your application needs. We know that dependability is a must in the field or at the site. That's why our engineers designed rugged, high vibration resistant connector solutions to meet your application requirements.

## Support

We provide options to meet your needs. TE Connectivity offers sales options to service all Industrial & Commercial Transportation customers, including factory direct, LADD Distribution and third party distribution. Contact your local sales representative for more information.

**Please note our global contacts on page 23.**





## ***Industrial & Commercial Transportation Markets***

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### ***On-Highway Vehicles***

These include trucks (class 6 – 8, and utility), buses (city buses, coaches, school buses) and emergency vehicles.



### ***Off-Highway Vehicles***

In this segment, we equip construction vehicles such as front-loaders, dump trucks, excavators and bulldozers. In agriculture vehicles, our products are widely used in tractors and combine harvesters, for example. This segment also includes special vehicles like industrial lifts or material handling vehicles.



### ***Recreational Transportation***

From boats (including personal watercraft) to motorcycles, scooters, snowmobiles, ATVs and recreational vehicles, the range of recreational vehicles is broad.

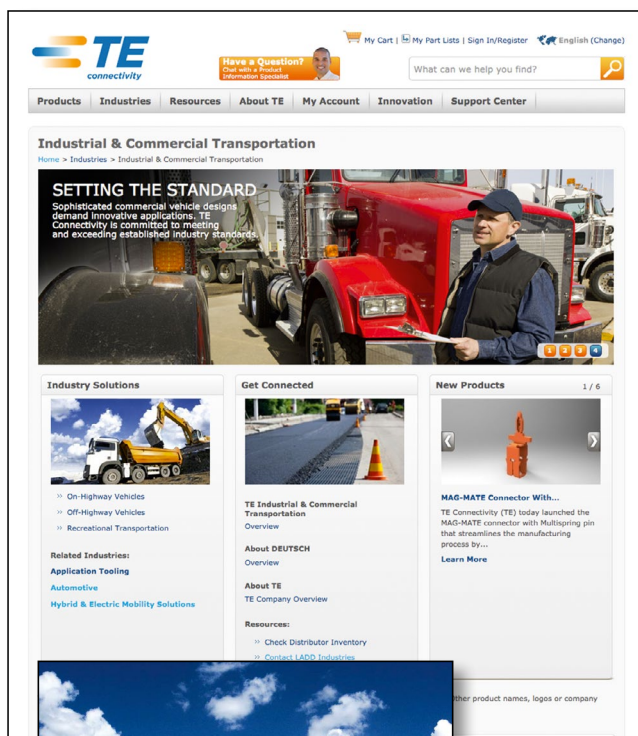
Whatever the application, we have a connector to match.



# Industrial & Commercial Transportation

The TE Connectivity Industrial & Commercial Transportation website is an innovative and interactive source for application information, product updates and technical solutions.

## Industrial & Commercial Transportation online



### Product and Machine Literature

TE Connectivity Industrial & Commercial Transportation offers a variety of product specific catalogs, brochures and high impact flyers to help better serve you!

For more information on literature for TE Connectivity Industrial & Commercial Transportation, please contact your local organization or go to [www.te.com/en/industries/industrial-commercial-transportation.html](http://www.te.com/en/industries/industrial-commercial-transportation.html)

### TE Products

[www.te.com/en/products/product-landing.html](http://www.te.com/en/products/product-landing.html)

### Product Information Center (PIC)

You can rely on TE Connectivity's PIC Team to provide you support for answers to your general information or technical questions in an efficient and effective manner.

To reach our PIC staff, please contact your local organization or see our Global Contacts page. Please contact us at [www.te.com/support-center](http://www.te.com/support-center)

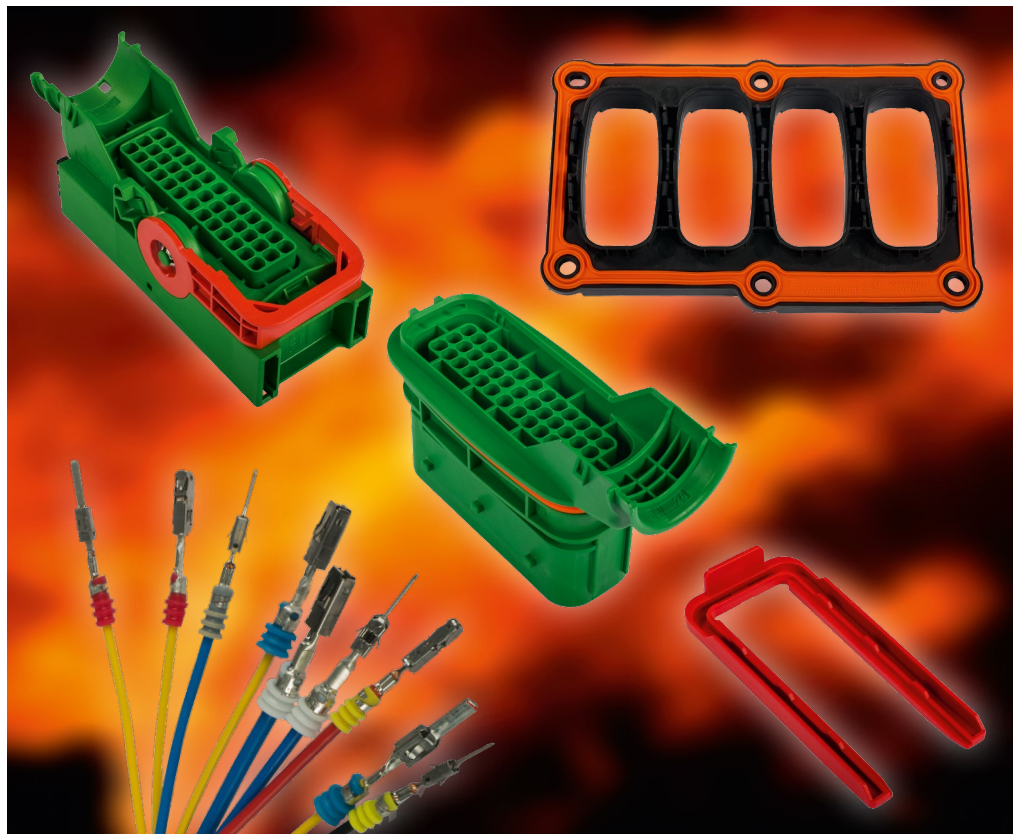




Introduction



**Reliable connector system for the truck industry**



LEAVYSEAL multi-position connectors, based on AMP MCP terminals, have proven themselves in truck applications where they withstand vibration and temperature exposure. Building on that experience, the successful connector family has now been expanded with new options including flame-retardant housings.

LEAVYSEAL connector family gives a choice from 7 connector groups of 15 to 120 positions, with terminals of 3 different sizes. This series has been designed for long-term use in harsh environments and to meet increasing requirements of the truck industry.

This fully sealed series combines the advantages of proven AMP MCP terminals with a robust design and easy mating of multi-position connectors.

The lever-slide mechanism reduces the force required to close the system and offers easy handling. Due to high vibration resistance, perfect temperature behaviour and the size, LEAVYSEAL connectors are the product of choice for major commercial vehicles ECU manufacturers.

**Typical Applications are:**

Device interface, door, pass-through (bulkhead) or harness disconnection.

**Technical Features**

- UL-94 V-0 rated materials, indicated by red lever
- High vibration level supported
- Integrated secondary locking device delivered in pre-locked position
- Polarization, several keyings
- Lever-slide mechanism
- Easy handling
- Mixed terminal sizes in one housing

Sealed AMP MCP 1.5K/2.8 Receptacle Housings

**Technical Features**

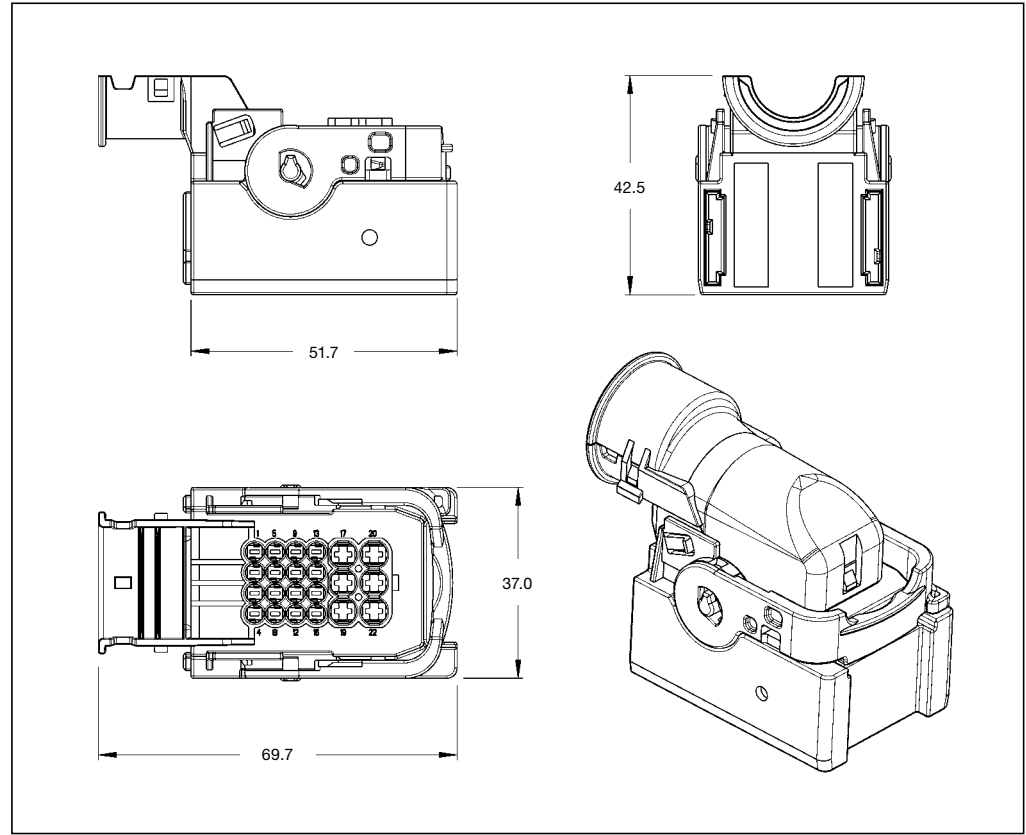
**No. of Positions:**  
22 Positions

**Housing Material:**  
PBT-GF30

**Wire Size Range:**  
16x AMP MCP 1.5K  
1.5mm<sup>2</sup> FLR Max.  
6x AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-94204

**Application Specification:**  
114-18993

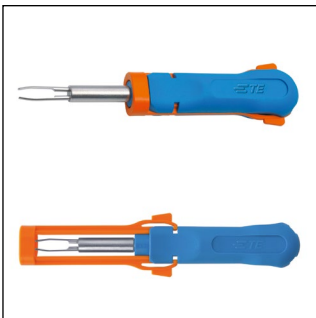


**Sealed Mixed Receptacle Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers			
			Receptacle Housing	Package Quantity	Cover	Mating Tab Housing
22	A	Black	1-1823440-3	180	2112452-1	1-1823449-1
	B	Gray	2-1823440-3	180		*)
	C	Blue	3-1823440-3	180		*)
	D	Green	4-1823440-3	180		*)

\*) On request

**Extraction Tool:**  
Part No. 1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-1\*



\*dependent on the contact

Sealed AMP MCP 2.8 Receptacle Housings

**Technical Features**

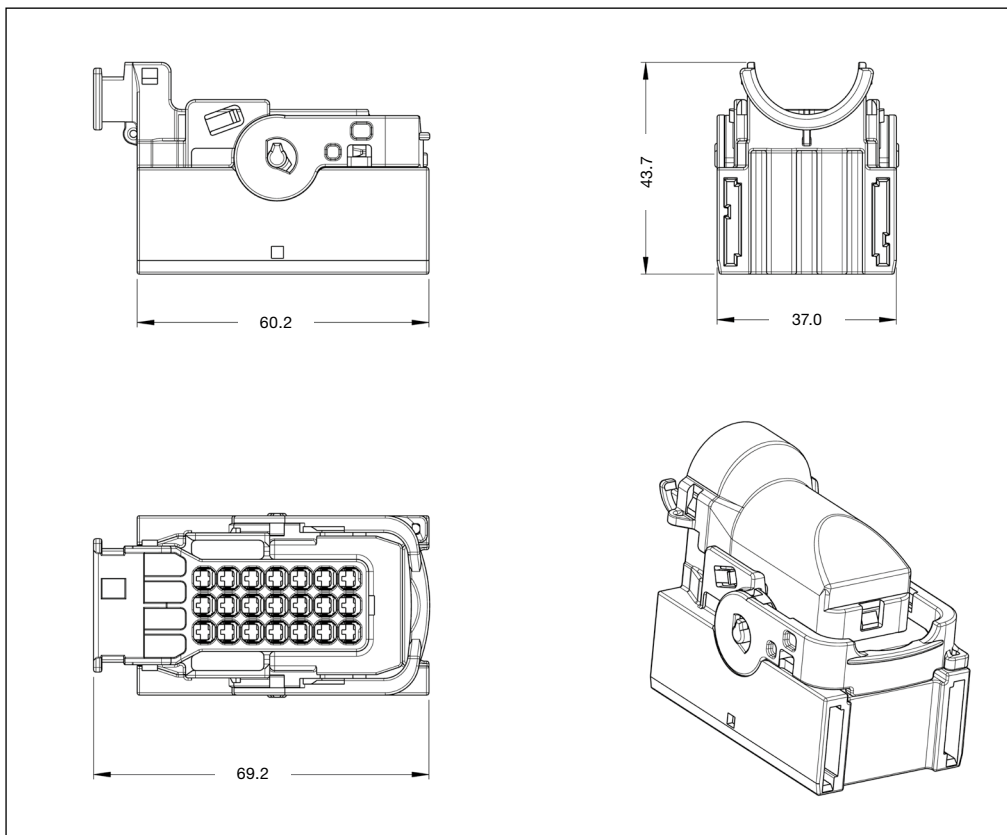
**No. of Positions:**  
21 Positions

**Cavity Block:**  
V-0

**Wire Size Range:**  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-18696

**Application Specification:**  
114-18376

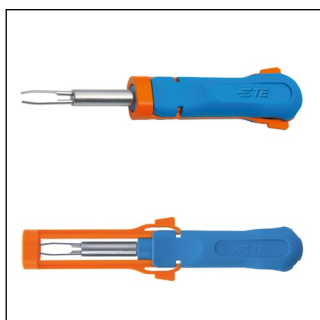


**Sealed Receptacle Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Receptacle Housing	Package Quantity	Cover	Mating Tab Housing with Flange	Mating Vertical PCB Header
21	A	Black	1-2208686-1	160	9-1394050-1**	1-2112162-1	1534238-1*

\*\* ) On request in UL94 V-0 material

**Extraction Tool:**  
Part No. 1579007-1



Sealed AMP MCP 1.5K/2.8/6.3 Receptacle Housings

**Technical Features**

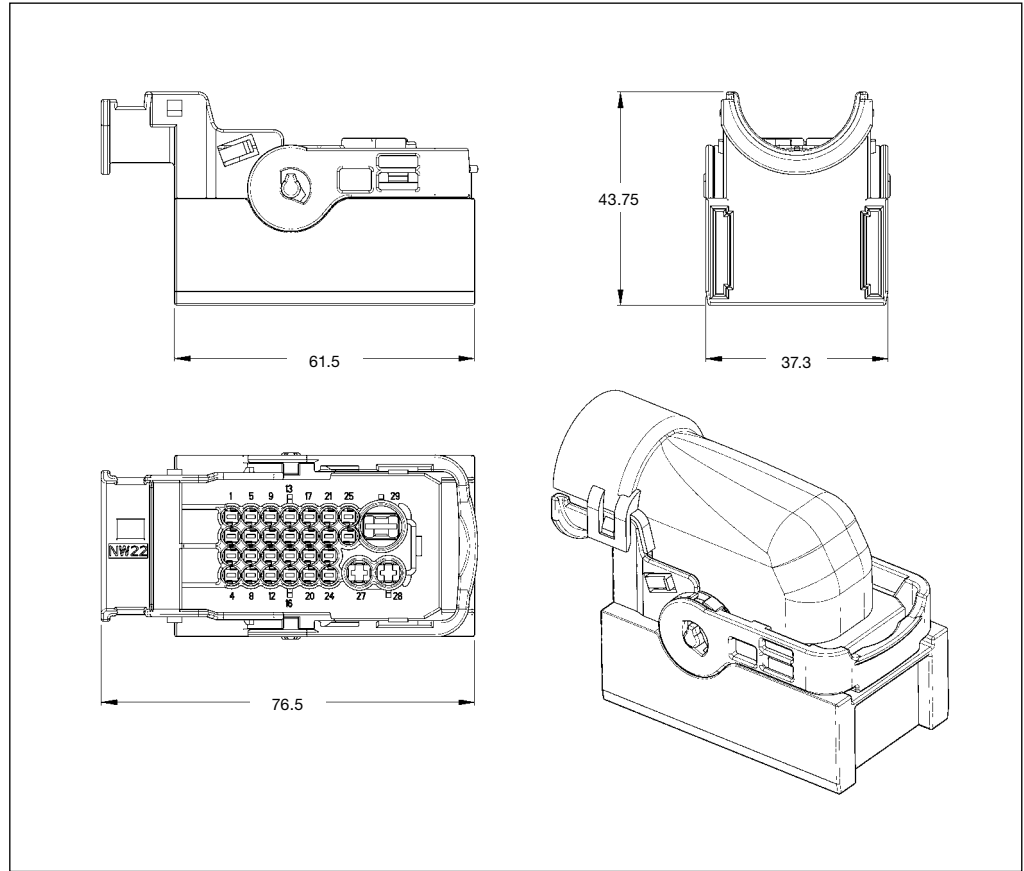
**No. of Positions:**  
29 Positions

**Housing Material:**  
V-0

**Wire Size Range:**  
26x AMP MCP 1.5K  
1.5mm<sup>2</sup> FLR Max.  
2x AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max.  
1x AMP MCP 4.8K/6.3  
6.0mm<sup>2</sup> FLR Max.

**Product Specification:**  
108-94215

**Application Specification:**  
114-94011

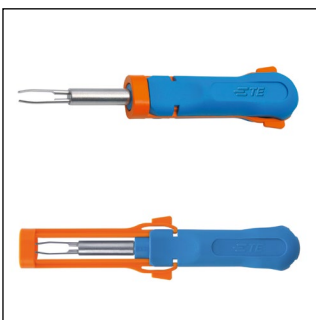


**Sealed Mixed Receptacle Housings**

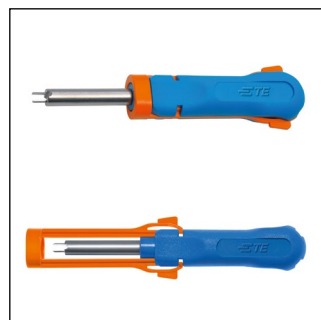
No. of Positions	Keying Options	Housing Color	Part Numbers			
			Receptacle Housing	Package Quantity	Cover	Mating Tab Housing
29	A	Black	1-1823402-1	117		
	B	Gray	2-1823402-1	117	*)	*)
	C	Blue	3-1823402-1	117		

\*) On request

**Extraction Tool:**  
Part No. 1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-3\*



\*dependent on the contact



Sealed AMP MCP 1.5K/2.8/6.3 Receptacle Housings

**Technical Features**

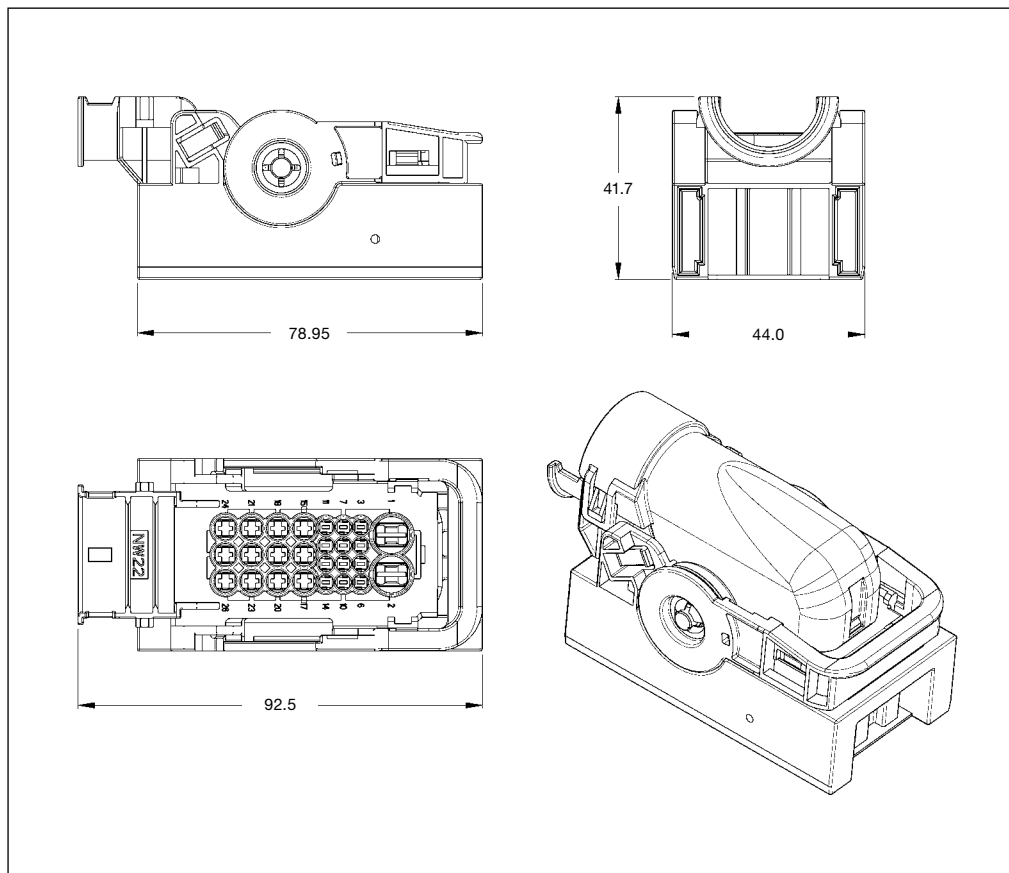
**No. of Positions:**  
26 Positions

**Housing Material:**  
V-0

**Wire Size Range:**  
12x AMP MCP 1.5K  
1.5mm<sup>2</sup> FLR Max.  
12x AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max.  
2x AMP MCP 4.8K/6.3  
6.0mm<sup>2</sup> FLR Max.

**Product Specification:**  
108-94214

**Application Specification:**  
114-94010



**Sealed Mixed Receptacle Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers			
			Receptacle Housing	Package Quantity	Cover	Mating Tab Housing
26	A	Black	1-2112035-1	96	2112046-1	1-2112041-1 1-2112041-2

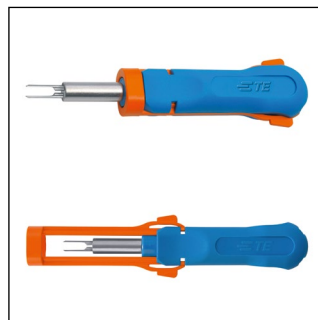
**Extraction Tool:**  
Part No. 1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-3\*



\*dependent on the contact

Sealed AMP MCP 2.8/6.3 Receptacle Housings

**Technical Features**

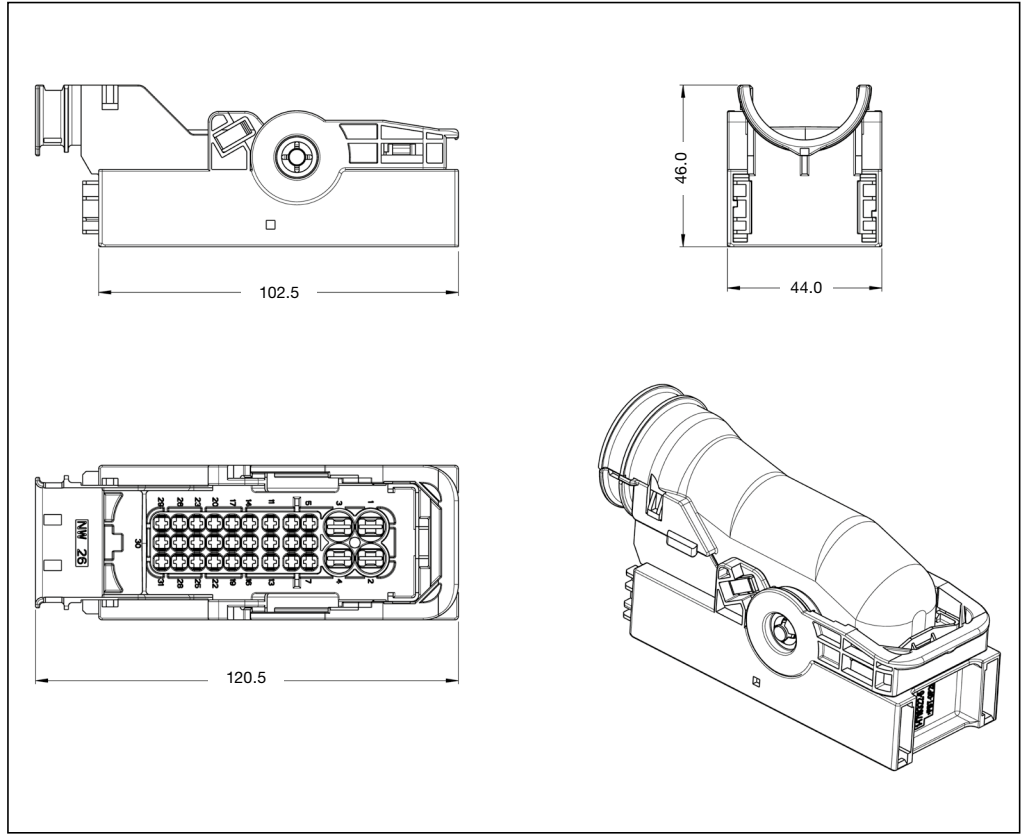
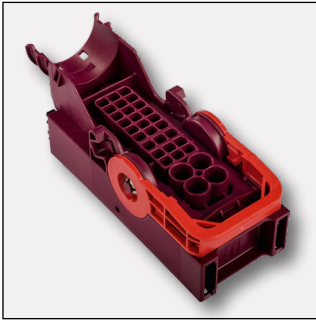
**No. of Positions:**  
31 Positions

**Cavity Block:**  
V-0

**Wire Size Range:**  
27x AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max./  
AWG 12 TXL Max.  
4x AMP MCP 4.8K/6.3  
6.0mm<sup>2</sup> FLR Max.

**Product Specification:**  
108-18946

**Application Specification:**  
114-18660

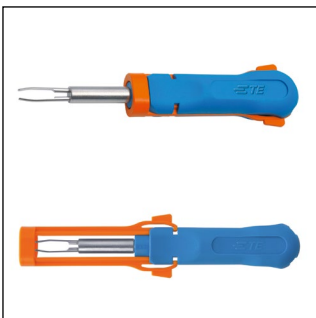


**Sealed Receptacle Housings**

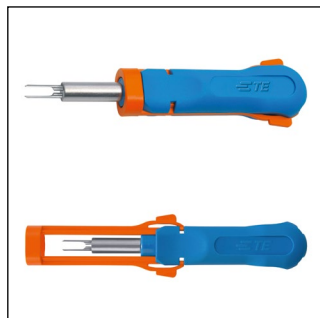
No. of Positions	Keying Options	Housing Color	Part Numbers				
			Receptacle Housing	Cover	Mating Tab Housing*	Mating PCB Header* Straight 90° Angled	
31	A	Bordeaux	1-2208685-6	1823500-1	*)	*)	*)

\*) On request

**Extraction Tool:**  
Part No. 1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-3\*



\*)dependent on the contact

Sealed AMP MCP 2.8 Receptacle Housings

**Technical Features**

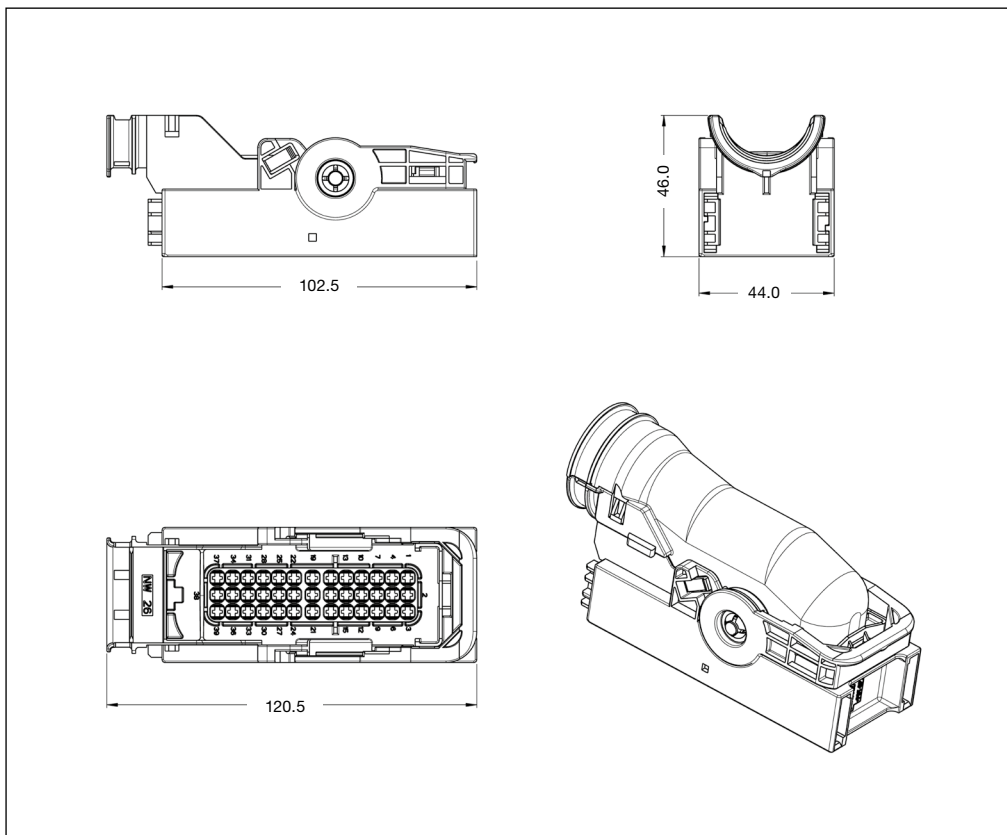
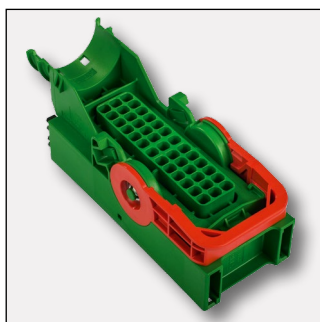
**No. of Positions:**  
39 Positions

**Cavity Block:**  
V-0

**Wire Size Range:**  
AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-18946

**Application Specification:**  
114-18660



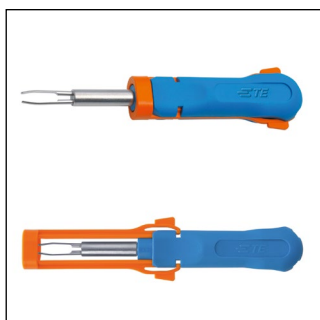
**Sealed Receptacle Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Receptacle Housing	Cover	Mating Tab Housing*	Mating PCB Header*	
						Straight	90° Angled
39	E	Emerald Green	5-2208684-3	1823500-1	5-1718323-1*	5-1418363-1*	5-1418362-3*
	F	Fawn Brown	6-2208684-3	1823500-1	6-1718323-1*	**	**

\*) On request VL94 V-0 rated

\*\*) On request

**Extraction Tool:**  
Part No. 1579007-1





Sealed AMP MCP 1.5K/2.8 Receptacle Housings

**Technical Features**

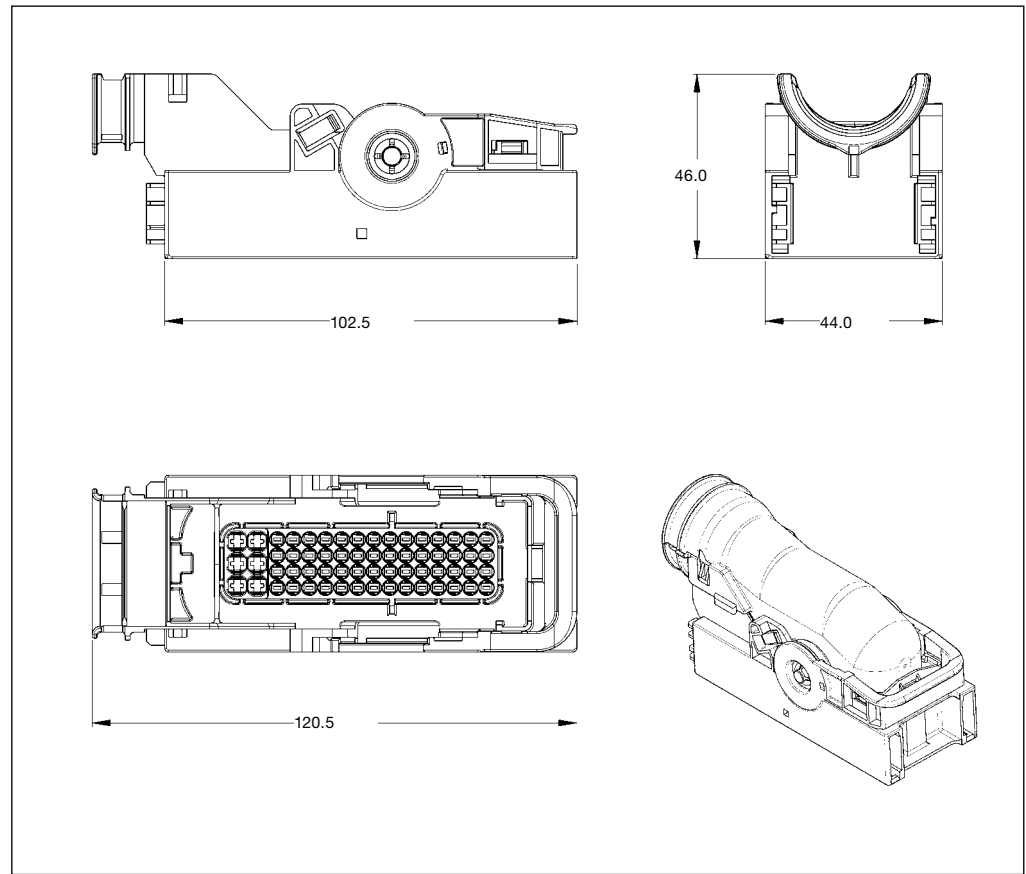
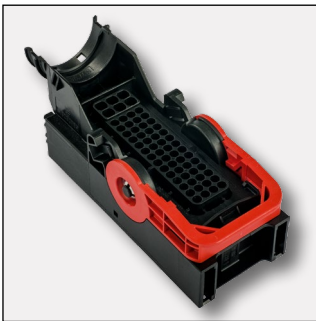
**No. of Positions:**  
62 Positions

**Housing Material:**  
V-0

**Wire Size Range:**  
56x AMP MCP 1.5K  
1.5mm<sup>2</sup> FLR Max.  
AWG 16 TXL Max.  
6x AMP MCP 2.8  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-18946

**Application Specification:**  
114-18660



**Sealed Mixed Receptacle Housings**

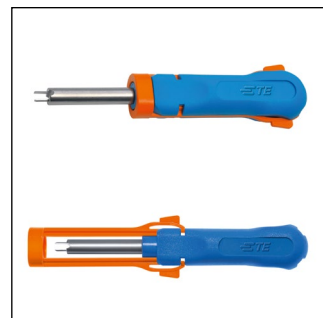
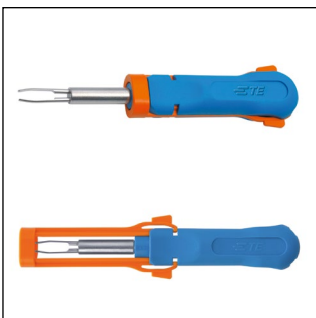
No. of Positions	Keying Options	Housing Color	Part Numbers				
			Receptacle Housing	Cover	Mating Tab Housing*	Mating PCB Header* Straight	Mating PCB Header* 90° Angled
62	A	Black	1-1823498-1	1823500-1	1-1718324-1*	1-1418362-1*	1-1418362-3*
	B	Gray	2-1823498-1		2-1718324-1*	2-1418362-1*	2-1418362-3*
	C	Blue	3-1823498-1		3-1718324-1*	**	**
	D	Green	4-1823498-1		**	**	**

\*) On request UL94 V-0 rated

\*\*) On request

**Extraction Tool:**  
Part No. 1579007-1\*

**Extraction Tool:**  
Part No. 1-1579007-1\*



\*dependent on the contact

Sealed 1.5mm/2.8mm Tab Housings

**Technical Features**

**No. of Positions:**

22 Positions

**Housing Material:**

PBT-GF30

**Wire Size Range:**

1.5 mm<sup>2</sup> FLR Max.

2.5 mm<sup>2</sup> FLR Max.

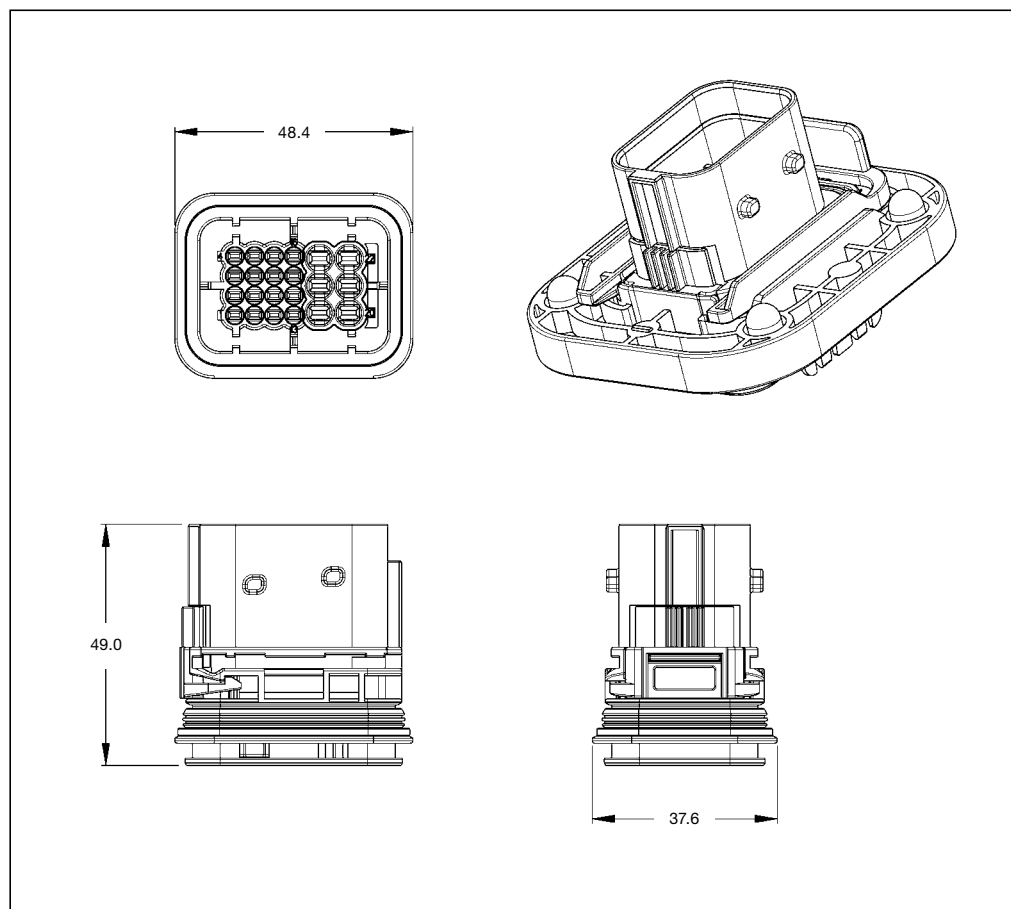
AWG 12 TXL Max.

**Product Specification:**

108-94204

**Application Specification:**

114-18993



**Sealed Mixed Tab Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Tab Housing	Cover	Adapter	Locking Slide	Mating Receptacle Housing
22	A	Black	1-1823449-1				1-1823440-3
	B	Gray	**)	**)	1703806-1	1703804-1	2-1823440-3
	C	Blue	**)				3-1823440-3
	D	Green	**)				4-1823440-3

\*\*) On request

**Extraction Tool:**

Part No. 1-1579007-1\*



**Extraction Tool:**

Part No. 1-1579007-6\*



\*dependent on the contact

Sealed 2.8mm Tab Housings

**Technical Features**

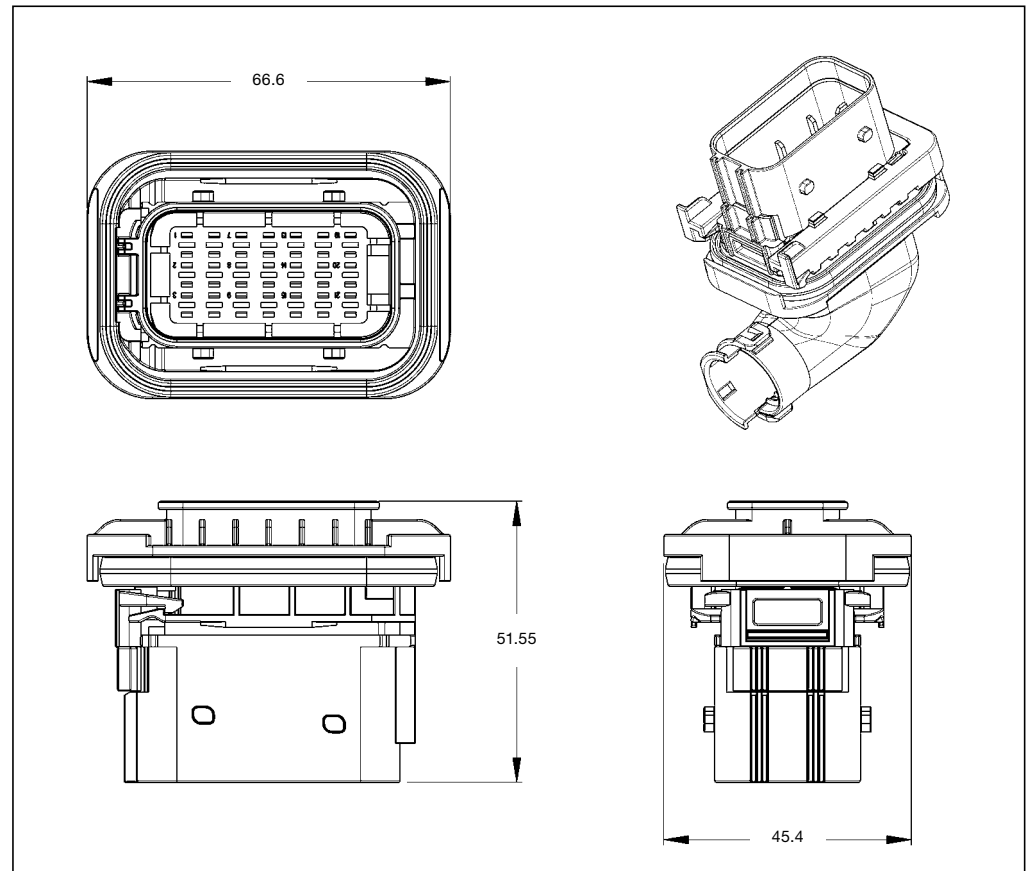
**No. of Positions:**  
21 Positions

**Housing Material:**  
PBT-GF30

**Wire Size Range:**  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-18696

**Application Specification:**  
114-18376



**Sealed Tab Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Tab Housing with Flange	Cover	Interface Protection Cover	Locking Slide	Mating Receptacle Housing
21	A	Black	1-2112162	2112167-1	1-1394052-1*	2112166-1 (2.5mm)	1-2208686-1
						2112166-2 (3mm)	
						2112166-3 (3,5mm)	

\*) On request UL94 V-0 rated

**Extraction Tool:**  
Part No. 1-1579007-6\*





Sealed 1.5mm/2.8mm/6.3mm Tab Housings

**Technical Features**

**No. of Positions:**

26 Positions

**Housing Material:**

PBT-GF30

**Wire Size Range:**

12x 1.5mm<sup>2</sup> FLR Max.

12x 2.5mm<sup>2</sup> FLR Max.

AWG 12 TXL Max.

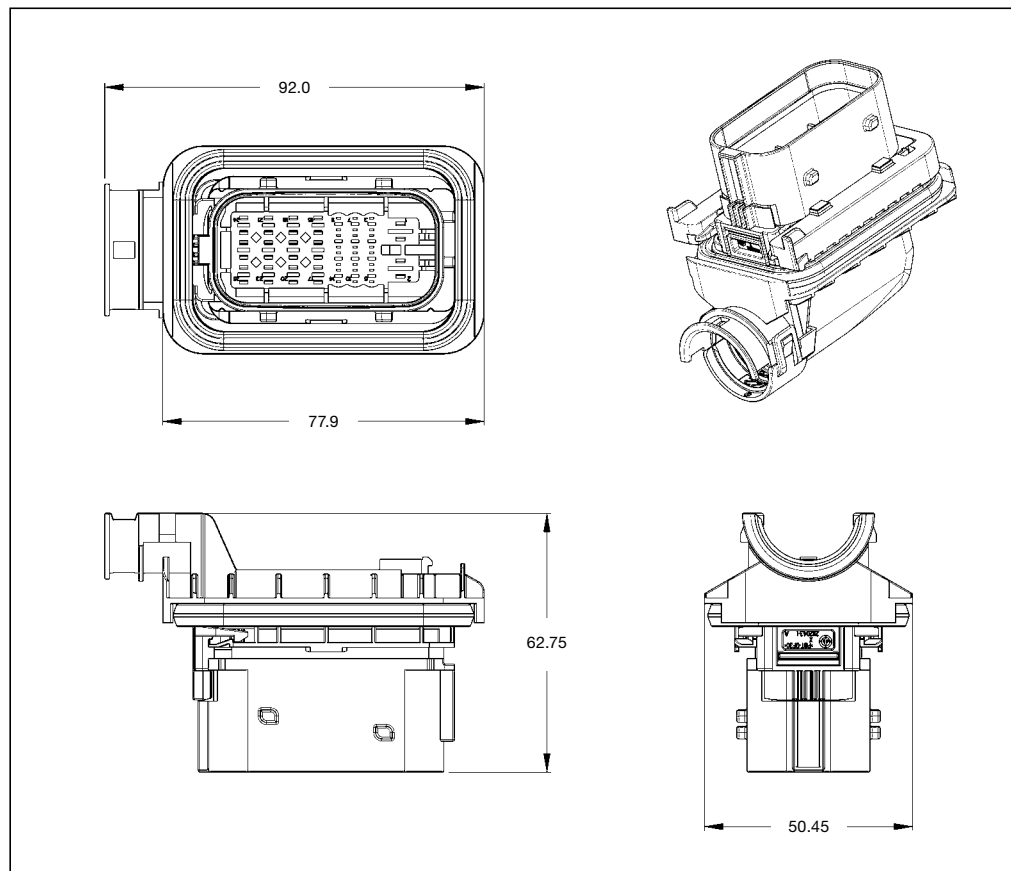
4x 6.0mm<sup>2</sup> FLR Max.

**Product Specification:**

108-94214

**Application Specification:**

114-94010



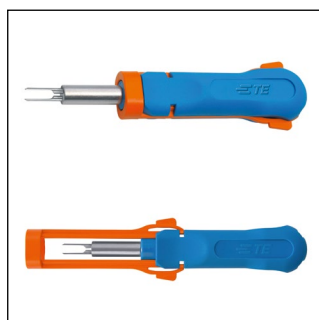
**Sealed Mixed Tab Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Tab Housing with Flange	Cover	Locking Slide	Mating Receptacle Housing	
26	A	Black	1-2112041-1	1-2112041-2	2112046-1	2112045-1 (2.5mm)	1-2112035-1
						2112045-2 (3mm)	

**Extraction Tool:**  
Part No. 1-1579007-1\*



**Extraction Tool:**  
Part No. 1-1579007-3\*



**Extraction Tool:**  
Part No. 1-1579007-6\*



\*dependent on the contact

Sealed 1.5mm/2.8mm Tab Housings and Adapters

**Technical Features**

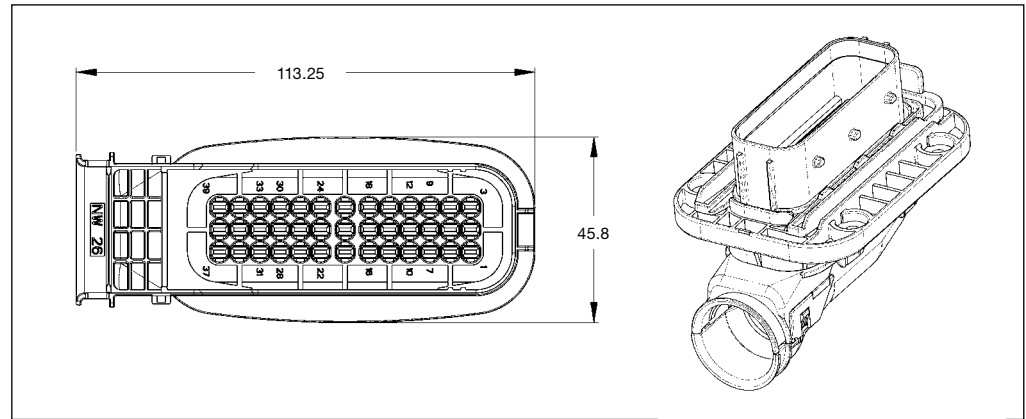
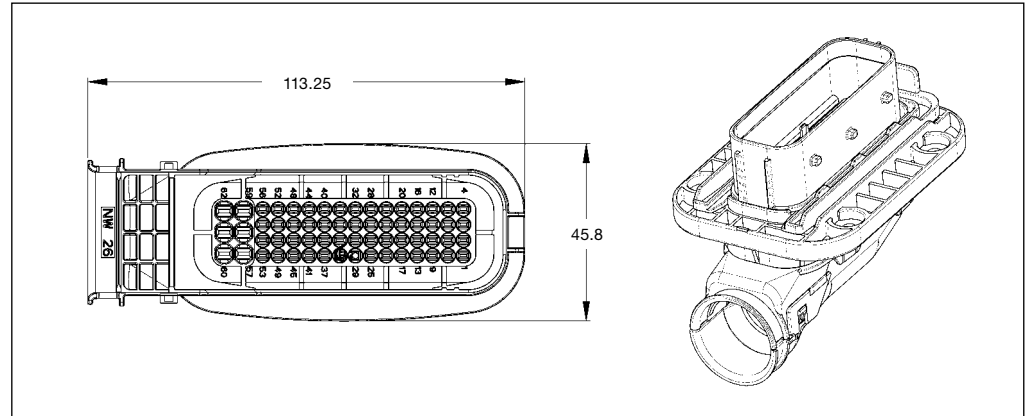
**No. of Positions:**  
62 Positions

**Housing Material:**  
PBT-GF20 (HB)

**Wire Size Range:**  
1.5mm<sup>2</sup> FLR Max.  
2.5mm<sup>2</sup> FLR Max.  
AWG 12 TXL Max.

**Product Specification:**  
108-18946

**Application Specification:**  
114-18660



**Sealed Tab Housings**

No. of Positions	Keying Options	Housing Color	Part Numbers				
			Tab Housing	Cover	Adapter	Locking Slide	Mating Receptacle Housing
62**	A	Black	1-1718324-1**	1823500-1	1718329-1* (1bay)**	1718328-1**	1-1823498-1
	B	Gray	2-1718324-1**		2236721-1 (1bay)**		2-1823498-1
	C	Blue	3-1718324-1**		1813123-1 (2bay)**		3-1823498-1
	D	Green	(on request)		1813123-2 (2bay)**		4-1823498-1
39**	-	-	-	1823500-1	2098891-2 (4bay)**	1718328-1**	-
	-	-	-		1718329-1* (1bay)**		-
	-	-	-		2236721-1 (1bay)**		-
	-	-	-		1813123-1 (2bay)**		-
	E	Emerald Green	5-1718323-1**		1813123-2 (2bay)**		5-2208684-3
	F	Fawn Brown	6-1718323-1**		2098891-2 (4bay)**		6-2208684-3

\*) Unsealed    \*\*) On request in UL V-0 rated

**Extraction Tool:**  
Part No. 1-1579007-1\*

**Extraction Tool:**  
Part No. 1-1579007-6\*



\*dependent on the contact

Application Tooling



The TE Application Tooling group is dedicated to providing high quality equipment options to meet all levels of your connector product specifications.

We supply a complete product range from simple hand tools over wire preparation machines to the most complex automated systems including crimp quality monitoring and automated testing equipment enabling customers to process TE Connectivity as well as other manufacturer's products.

A global network of highly-qualified field service engineers keeps your production running. Their professional knowledge helps you with your requirements and other technical questions or problems.

Equipment is segregated into two categories:  
Generic Equipment  
We supply you with sufficient information referenced by Part Number allowing you to identify and order what you need yourself.

### Specialized Equipment

Our specialists identify the proper tooling options for your application.

### Finding Equipment Online

Powerful search functions are available to identify appropriate tooling:

- Applicators — [www.tooling.te.com/europe/applicator.asp](http://www.tooling.te.com/europe/applicator.asp)
- Hand Tools — [www.tooling.te.com/europe/handtools.asp](http://www.tooling.te.com/europe/handtools.asp)



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## Application Tooling

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### OCEAN Applicator Series

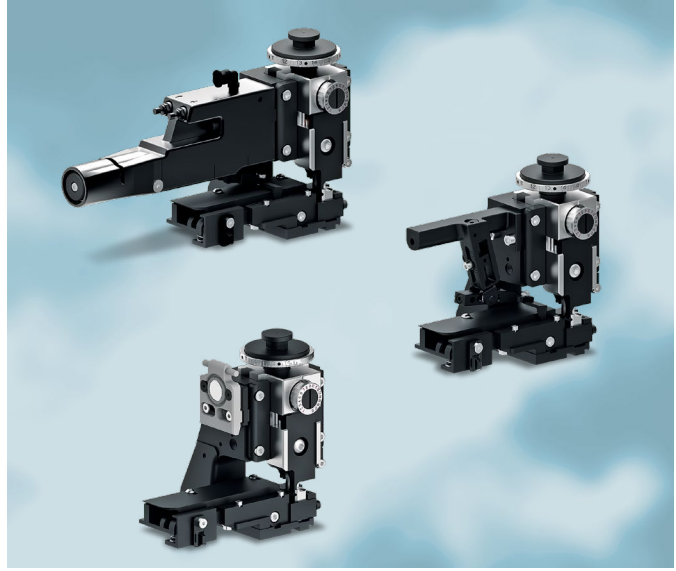
TE Application Tooling has created the OCEAN applicator series to meet higher demands and to take terminal crimping to a new level.

By consolidating our applicator offering, TE can provide design consistency and tooling standardization to the market. One of the resulting benefits to customers of this consolidation is flexibility in the choice of feeding options: new and improved mechanical and pneumatic feeds along with the innovative and precise servo feed option.

The OCEAN applicator series design also allows customers to perform field upgrades to system III technology. It provides an upgrade path for terminal intelligence that allows the machine to obtain set-up features as the applicator is upgraded.

One applicator platform –  
modular family design

- Two ram interface styles
- Three interchangeable feed options:
  - Mechanical
  - Pneumatic
  - Servo



### Applicator Replacable Paerts Stocking Program

To ensure the support of our installed applicator base, we have established a stocking program for replaceable parts. Subsequently, all crimpers and anvils for your applicator are normally available in stock, ensuring the shortest possible lead times.



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**Application Tooling**

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**AMP 3/K-30 and AMP 5/K-40 Terminators\***

\*This information applies to the CE version only.

These terminators are powerful, economically-priced machines that deliver the increased output and quality of a semi-automatic machine, while meeting specific production applications.

Standard features such as tool-less precision, crimp height adjust, CQM capability, batch counter and a work light are integral parts of serial equipment.

By offering options the AMP 3/K-40 and AMP 5/K-40 terminator can be tailored to the specific application requirements without inflating the price for unwanted features.

When used on TE terminators the optional available CQM II (Crimp Quality Monitor) provides a complete crimp detection analysis.

**Gamma 333 PC / 333 PC-B Lead Maker**

The Gamma 333 PC lead maker is a flexible fully automatic crimping machine for efficient wire processing. It processes cross sections in a range from 0.13–5.0 mm<sup>2</sup> (AWG 26–AWG 10).

Short conversion times, additional applications and a user-friendly user interface with multiple-language capability. The Gamma 333 PC and Gamma 333 PC-B lead makers (B-version with belt-drive) makes it all possible! With its third processing station and state of the art control software, you are provided high flexibility and an even more efficient way of meeting your wire processing needs.

With an additional processing station on side 1, the Gamma 333 PC lead maker enables you to crimp both ends of the wire, to create double crimp connections with three different contacts, to carry out one-ended seal application, tinning or ink-jet marking.

In addition, process monitoring is all integrated to ensure that the wire is cut to length and stripped perfectly.



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**Application Tooling**

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**Alpha 355 S Fully Automatic Crimping Machine**

The Alpha 355 S fully automatic crimping machine is a proven performer and now available in a model that offers the flexible selection of modules. The high safety cover and the flat table design is the most striking difference between this version and the Alpha 355 lead maker. It allows processing modules not specifically designed for certain machines to be mounted. One of the two module slots on each processing side is fitted with special mounting tables to accommodate the various mounting methods.

Combined with the ingenious open-ended software interface, the flexibility of the Alpha 355 S lead maker can be increased.

Short setup and changeover times, integrated quality measurements, and top performance are the three main features of this machine.

**Hand Tools**

A selection of commercial or premium manual hand tools suitable for R & D, prototyping, field work or low volume production, these hand tools combine ease of use with reliability and precision.

Insertion and extraction tools are used for inserting discrete terminals into connector housings or removing them, without causing damage to either the terminals or housings.

Our new standard design features a comfortable handle and snap-in/out protective cover that allows users to stow the business end of the tool to help protect from inadvertent personal injury when the tools are not in use.





Numerical Index

Part Number	Page	Part Number	Page	Part Number	Page
1-1394052-1	14	2112166-3	14		
1-1418362-1	12	2112167-1	14		
1-1418362-3	12	2112452-1	6		
1-1579007-1	8, 9	2236721-1	16		
1-1579007-1	6, 10, 12, 13, 15, 16	3-1718324-1	12, 16		
1-1579007-3	8, 9, 15	3-1823402-1	8		
1-1579007-6	14, 15	3-1823440-3	6, 13		
1-1718324-1	12, 16	3-1823498-1	12, 16		
1-1823402-1	8	4-1823440-3	6, 13		
1-1823440-3	6, 13	4-1823498-1	12, 16		
1-1823449-1	6, 13	5-1418363-1	11		
1-1823498-1	12, 16	5-1418363-3	11		
1-2112035-1	9, 15	5-1718323-1	11, 16		
1-2112041-1	9, 15	5-2208684-3	11, 16		
1-2112041-2	9, 15	6-1718323-1	11, 16		
1-2112162-0	14	6-2208684-3	11, 16		
1-2112162-1	7	6-2208684-3	16		
1-2208685-6	10	9-1394050-1	7		
1-2208686-1	7, 14				
1534238-1	7				
1579007-1	6, 8, 9, 10, 11, 12				
1703804-1	13				
1703806-1	13				
1718328-1	16				
1718329-1	16				
1813123-1	16				
1813123-2	16				
1823500-1	10, 11, 12, 16				
1823500-1	16				
2-1418362-1	12				
2-1418362-3	12				
2-1718324-1	12, 16				
2-1823402-1	8				
2-1823440-3	6, 13				
2-1823498-1	12, 16				
2098891-2	16				
2112045-1	15				
2112045-2	15				
2112046-1	9, 15				
2112166-1	14				
2112166-2	14				

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