

CIRCULAR AND DIN CONNECTORS

FOR INDUSTRIAL & COMMERCIAL TRANSPORTATION

TERMINALS & CONNECTORS





WE GO TO EXTREMES TO MAKE SURE **EVERY CONNECTION COUNTS**

TE Connectivity (TE) Industrial & Commercial Transportation (ICT) is a reliable provider of solutions for harsh environmental conditions. With a focus on employee expertise and durable products, we deliver the solutions and support our customers can count on.

Years ago, tractors, construction equipment, trucks, and boats had simple electrical systems that might have included electrical starting and a basic lighting package. Today, ECUs, joysticks, fuel-efficient engines, LED lights, and CAN systems are standard equipment. The need to protect sensitive electrical systems from vibration, moisture, dust, dirt, salt, and airborne particles has never been greater. TE Industrial & Commercial Transportation is a leader in supporting today’s increasingly complex and sophisticated equipment and applications.

Our comprehensive line of products includes an unparalleled portfolio of rugged sensors, terminals, connectors, relays, and hybrid electric mobility solutions. These solutions are designed to withstand the harshest environmental conditions and to help vehicles operate safer, cleaner, and smarter.

Our solutions adapt to virtually any **harsh environment application**, including:



Motors and Gearboxes



ABS/EBS Brake Units



Telematics Units



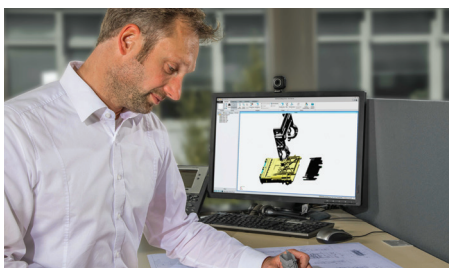
Sensors



Wire-To-Wire Coupling at the Chassis



Infotainment Applications



**2,000+
EMPLOYEES**



**10,000
CUSTOMERS**



**20,000+
DIFFERENT PARTS**

MARKETS WE SERVE



ON-HIGHWAY

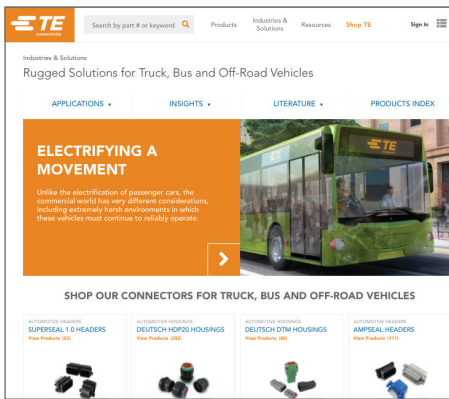


OFF-HIGHWAY

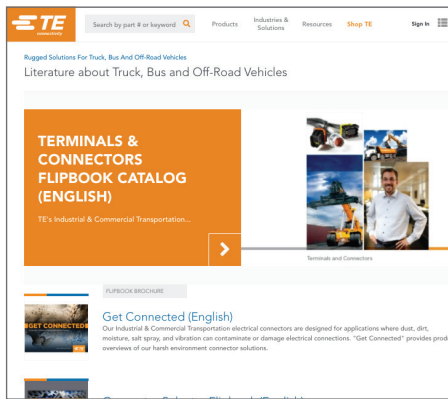


**RECREATIONAL
TRANSPORTATION**

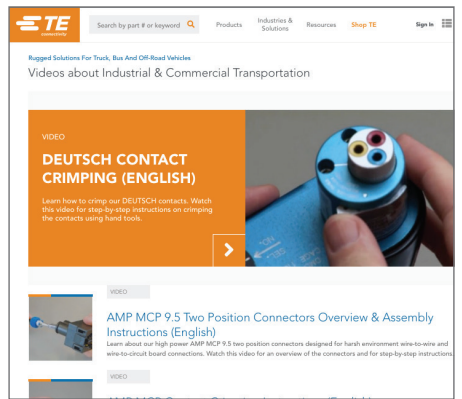
ONLINE RESOURCES



TE.COM/ICT



LITERATURE



VIDEOS

TE SOLUTION CENTER

You can rely on TE Connectivity's helpful Solution Center team to provide answers to your general and technical questions.

Connect with our Solution Center staff at:

te.com/support

Circular and DIN Connectors

for Industrial & Commercial Transportation



Circular and DIN Connectors

TE Connectivity's (TE) circular and DIN connectors are a sealed, circular connector solution, using round contacts and offering flexibility for a wide range of applications. They are designed to meet the vibration, sealing, and longevity requirements imposed by demanding conditions found in the Industrial and Commercial vehicles market. Suitable for sealed wire-to-wire and wire-to-board applications, the system offers a wide range of accessories to extend usage throughout the vehicle.

Offering 2-7 and 31 cavity arrangements, with contacts sized 1.5 mm and 2.5 mm, rated at 30 A and 40 A respectively, IP67 and IP69K (with cover) immersion ratings, temperature ratings from -40°C to +120°C, mechanical polarization and secondary locking features, the circular and DIN connectors are designed for dependability. The line includes many connectors that meet ISO 15170/DIN 72585 standards, and are backed by TE's world-class system of field, application tooling, and engineering support, as well as localized manufacturing for excellent customer support, from design to production.

Circular and DIN Connectors

for Industrial & Commercial Transportation



Product Benefits.....	6
Product Applications.....	6
Product Documentation.....	7
Performance Specifications.....	7
Material Specifications.....	7
Housings.....	8 - 10
Accessories.....	11 - 12
Contacts.....	13
Tooling.....	14 - 16

Circular and DIN Connectors

for Industrial & Commercial Transportation

CIRCULAR AND DIN CONNECTORS

BENEFITS

- Enhance design-in flexibility and usability throughout the vehicle with wire-to-wire, wire-to-board and panel-mount configurations, a full range of accessories and tooling, and multiple contact plating options
- Minimize mismatching and mis-identification with color-coded keying and mechanical polarization
- Provide contact alignment and retention with an integrated secondary locking feature
- Dependable in extreme environments with IP67, IP69K ratings (with backshell) for high level of protection against mud and dust ingress, as well as high vibration support
- Backed by TE's localized world-class support, including local-for-local manufacturing to streamline ecological footprint, local technical support in major regions, and localized inventory availability



KEY INDUSTRIES



Truck



Bus



Construction



Agriculture



Special Vehicles



Mining

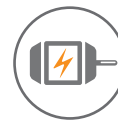
APPLICATIONS



Motor and Gearboxes



ABS/EBS Brake Units



Actuators



Fuel Level Sensors



Hydraulic Pump



Switches



Chassis



Sensors



Lighting



Wire-to-Wire



Wire-to-Board

Circular and DIN Connectors

for Industrial & Commercial Transportation

PRODUCT DOCUMENTATION

Additional documentation is available for assistance with circular and DIN products.

The following TE Connectivity document numbers may be helpful:

PRODUCT SPECIFICATIONS

108-18621	2 - 4 Position - following ISO 15170/DIN 72585
108-18622	5 - 7 Position
108-18742	31 Position special variant
108-3442 108-3428-1	Diesel fuel injector special variant

APPLICATION SPECIFICATIONS

114-18255	2 - 7 Position
114-18449	31 Position special variant
114-3219	Diesel fuel injector special variant

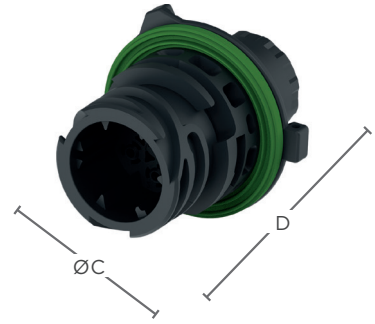
PERFORMANCE SPECIFICATIONS

Current	Up to 40 amps
Temperature	Operating at temperatures -40°C to +120°C for plastic parts, short term up to +140°C defined in the standard ISO 15170/DIN 72585.
Durability	20 cycles, max. testing requirement in the standard ISO 15170/DIN 72585.
Insulation Resistance	No flash over or breakdown between every two contacts or between every contact and outer contour of the housing permitted at 1000 volts AC and 50 or 60 Hz for 60 seconds.
Immersion	No ingress of water is allowed, according to ISO 20653/DIN 40050-9, IPX7, IPX9K.
Vibration	According to standard ISO 15170/DIN 72585

MATERIAL SPECIFICATIONS

Flange Seal	Liquid silicon rubber
Housing	Glass filled PBT and PA

Circular and DIN Housings



DIMENSION

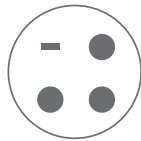
Group	Overall Length A	Overall Width B	Overall Width C	Overall Length D
1 & 2	1.22 (31.0)	1.29 (32.8)	1.73 (44.0)	1.34 (34.0)
3 - 31 Position	1.71 (43.4)	2.48 (63.0)	2.59 (65.8)	2.50 (63.6)
3 - Diesel Fuel 2 Position	1.36 (34.5)	0.85 (21.5)	-	-
3 - Diesel Fuel 4 Position	1.36 (34.5)	1.34 (34.0)	--	-

Dimensions are for reference only

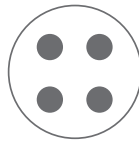
GROUP 1 CONFIGURATIONS 2 to 4 Position (ISO 15170/DIN 72585)



2 Position
Size 2.5 x 2

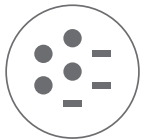


3 Position
Size 2.5 x 3

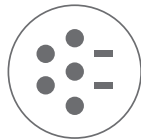


4 Position
Size 2.5 x 4

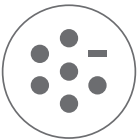
GROUP 2 CONFIGURATIONS 4 to 7 Position



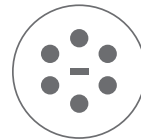
4 Position
Size 1.5 x 4



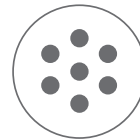
5 Position
Size 1.5 x 5



6 Position
Size 1.5 x 6

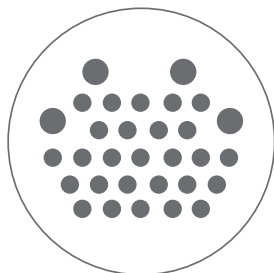


6 Position
Size 1.5 x 6



7 Position
Size 1.5 x 7

GROUP 3 CONFIGURATIONS Special variants

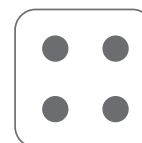


31 Position
Size 2.5 x 4
Size 1.5 x 27

Diesel fuel injector connector



2 Position
Size 2.5 x 2



4 Position
Size 2.5 x 4

Circular and DIN Connectors

for Industrial & Commercial Transportation

ORDERING INFORMATION RECEPTACLE HOUSING & TAB HOUSING



GROUP 1 HOUSING

Number of Positions	Keying Type	Housing Color	Receptacle Part Number	Tab Housing	
				In-line / Panel Tab Part Number	PCB Tab Part Number
2	1	Black	1-1813099-3 *	1-967402-3	1394324-1 (tin)
			5-1813099-3		
	2	Grey	2-1813099-3 *	2-967402-3	-
			2-1813099-6 * ³		
			6-1813099-3		
	3	Green	3-1813099-3 *	3-967402-1 (with blind plug)	-
7-1813099-3					
4	Blue	4-1813099-3 *	4-967402-1 (with blind plug)	-	
3	1	Black	1-1813099-2 *	1-967402-2	-
			5-1813099-2		
	2	Grey	2-1813099-2 *	2-967402-2	1394324-4 (gold)
			2-1813099-5 * ³		
3	Green	3-1813099-2 *	3-967402-1 (with blind plug)	-	
4	Blue	4-1813099-2 *	4-967402-1 (with blind plug)	-	
4	1	Black	1-1813099-1 *	1-967402-1	1394324-3 (gold)
			1-1813099-4 * ³		1703780-1 (tin)
			5-1813099-1		1241598-1 (gold)
	2	Grey	2-1813099-1 *	2-967402-1	-
			2-1813099-4 * ³		
			6-1813099-1		
	3	Green	3-1813099-1 *	3-967402-1	-
	4	Blue	4-1813099-1 *	4-967402-1	-

* with secondary locking

³ PA6 coupling ring

Circular and DIN Connectors

for Industrial & Commercial Transportation

ORDERING INFORMATION

RECEPTACLE HOUSING & TAB HOUSING



GROUP 2 HOUSING

No. of Position	Keying Type	Housing Color	Receptacle Part Number	Tab Part Number
4	A	Black	967650-3 (with a blind plug in the fifth cavity)	1718230-4
5	A	Black	967650-3	1718230-3
6	A	Black	967650-2	1718230-2
	A	Black	967650-4	1718230-1 (with a blind plug in the first cavity)
7	A	Black	967650-1	1718230-1
	A	Blue	1-967650-1	1-1718230-1
	B	Grey	2-967650-1	2-1718230-1
	C	Green	3-967650-1	3-1718230-1

31 POSITION



No. of Position	Housing Color	Receptacle Part Number	Tab Part Number
31	Black	1394081-1	1718232-1

DIESEL FUEL INJECTOR



No. of Position	Housing Color	Receptacle Part Number
2	Black	1337245-3
4	Black	1337352-1

Circular and DIN Accessories

Backshells, protection caps, fixing rings, single wire seals and blind plugs are accessory items available for use with circular and DIN connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

PROTECTION CAPS

Protection caps prevent dust and dirt ingress of the unmated connector.



Type	Part Number	Description	No. of Position	Color
Protection Cap	1394277-1	For Pin housing without ring	2-7	Black
	1394277-2	For Pin housing with ring	2-7	Black
	185636-1	For Plug housing	2-4	Black

BACKSHELLS

Backshells help provide dust and ingress protection, and helps reduce wire strain.



Type	Part Number	Description	No. of Position	Color
Backshell (with strain relief)	1534791-1	180° cable exit for isolation tubes ID12	2-7	Black
Backshell (with strain relief)	1534789-1	90° cable exit for isolation tubes ID12	2-7	Black
Backshell (with strain relief)	965786-1	180° cable exit for corrugated tube NW10	2-7	Black
Backshell (with strain relief)	965785-1	180° cable exit for corrugated tube NW8.5	2-7	Black
Backshell (with strain relief)	185792-1	180° cable exit for corrugated tube NW7.5	2-7	Black
Backshell (with strain relief)	1418917-1	180° cable exit for variable fixing	2-7	Black
Backshell	1418916-1	180° cable exit for variable fixing	2-7	Black
Backshell (with strain relief)	965784-1	180° cable exit for variable fixing	2-7	Black
Backshell (with strain relief)	965783-1	90° cable exit for corrugated tube NW10	2-7	Black
Backshell	965577-1	90° cable exit for corrugated tube NW8.5	2-7	Black
Backshell (with strain relief)	185793-1	90° cable exit for corrugated tube NW7.5	2-7	Black
Backshell (with strain relief)	1418919-1	90° cable exit for variable fixing	2-7	Black
Backshell (with strain relief)	1418918-1	90° cable exit for variable fixing	2-7	Black
Backshell (with strain relief)	965576-1	90° cable exit for variable fixing	2-7	Black
Backshell (with strain relief)	1394089-1	180° cable exit	31	Black
Backshell	1394816-1	45° cable exit	31	Black

Circular and DIN Connectors

for Industrial & Commercial Transportation

FIXING RINGS

Fixing rings are required to mount the tab through a panel.



Type	Part Number	Description	No. of Position	Color
Fixing Ring	965687-1	-	2-7	Black

SINGLE WIRE SEALS

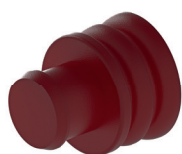
Wire seals are required without an integrated rear seal to maintain an environmental seal.



Type	Part Number	Description	No. of Position	Color
Single Wire Seal	828904-1	For 1.5 DIA contacts	All	Light Blue
	828904-2	For 1.5 DIA contacts	All	Light Blue
	828905-1	For 1.5 DIA contacts	All	White
	828920-1	For 2.5 DIA contacts	All	Grey
	828921-1	For 2.5 DIA contacts	All	Yellow

BLIND PLUGS

Blind plugs close unused cavities within the connector housing.



Type	Part Number	Description	No. of Position	Color
Blind Plug	828922-1	For 1.5 DIA and 2.5 DIA contacts	All	Natural
	828922-2	For 1.5 DIA and 2.5 DIA contacts	All	Green
	828986-1	For 2.5 DIA contacts	All	Brown

Circular and DIN Contacts

The circular and DIN connector series utilizes the common stamped & formed contact system. Contacts are available in strip form, in DIA 1.5 (capable of up to 30 A), and DIA 2.5 (capable of up to 40 A), and in tin, silver and gold contact plating. Handheld and automatic tooling are both available.



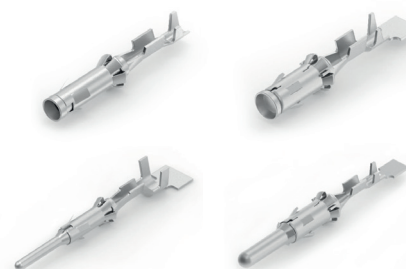
Contact	Size (mm)	Part Number Strip Form	Quantity	Wire Size (mm ²)	Insulation Diameter	Finish	With Single Wire Sealing
Receptacle	1.5	929985-1	4000	0.2-0.4	1.15-1.6	Tin	Yes
		929986-1	4000	0.5-1.0	1.4-2.1	Tin	Yes
		929987-1	4000	1.0-2.5	1.9-3.0	Tin	Yes
		929988-1	4000	0.2-0.4	1.2-2.1	Tin	No
		929989-1	4000	0.5-1.0	1.2-2.1	Tin	No
		929989-7	4000	0.5-1.0	1.2-2.1	Silver	No
		929990-1	3800	1.0-2.5	2.2-3.0	Tin	No
		1-929989-0	4000	0.5-1.0	1.2-2.1	blank	No
Tab	1.5	1703012-1	4000	0.2-0.4	1.2-2.1	Tin	Yes
		1703013-1	3500	0.5-1.0	1.2-2.1	Tin	Yes
		1703013-2	3500	0.5-1.0	1.2-2.1	Silver	Yes
		1703013-8	3500	0.5-1.0	1.2-2.1	Gold	Yes
		1703014-1	3500	1.0-2.5	2.2-3.0	Tin	Yes
Receptacle	2.5	929970-1	3200	0.5-1.0	1.4-2.1	Tin	Yes
		929970-8	3000	0.5-1.0	1.4-2.1	Gold	Yes
		929971-1	3000	1.0-2.5	1.9-3.0	Tin	Yes
		929972-1	3000	2.5-4.0	2.7-3.6	Tin	Yes
		929973-1	3000	0.2-0.4	1.2-2.1	Tin	No
		929974-7	3000	0.5-1.0	1.2-2.1	Silver	No
		1-929974-4	3000	0.5-1.0	1.2-2.1	Silver	No
		929975-1	3000	1.0-2.5	2.2-3.0	Tin	No
Tab	2.5	929962-1	3500	0.2-0.4	1.5-1.6	Tin	No
		929963-1	3500	0.5-1.0	1.4-2.1	Tin	No
		929965-1	2500	2.5-4.0	2.7-3.6	Tin	No
		929967-1	3000	0.5-1.0	1.2-2.1	Tin	Yes
		929967-8	3000	0.5-1.0	1.2-2.1	Gold	Yes
		1-929967-0	3000	0.5-1.0	1.2-2.1	Gold	Yes

CIRCULAR CONTACT SYSTEM

The circular and DIN connectors commonly use the 2.5 mm round, two-piece stamped & formed contact system.

PRODUCT FEATURES

- Round, two-piece stamped & formed contact system
- Contact sizes DIA 1.5 (up to 30 A), 2.5 (up to 40 A)
- Tin, silver and gold contact plating options
- Strip form
- Hand tool and automatic tooling options



Circular and DIN Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOLS



CERTI-LOK
tool

Contact Part Number	Hand Crimp Tool Part Number
929985-1	2-1579024-4
929962-1	
929963-1	2-1579024-5
929986-1	
929970-1	
929970-8	

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AUTOMATED TOOLING



OCEAN
Side Feed Applicator

Contact Part Number	Applicator Part Number	Applicator Type		
929989-1	2151139	OCEAN		
1703013-1				
929967-1				
1-929974-4				
929974-4				
1-929967-0				
929974-7				
929967-8				
1703013-2				
1703013-8				
929989-7				
929975-1			2151345	OCEAN
929990-1				
1703014-1				
929973-1	2151732			
1703012-1				
929988-1				
929963-1	2266254			
929986-1				
929970-1				
929970-8				
929971-1	2266503			
929987-1				
929985-1	2836097			
929962-1				
929963-1	2837603			
929986-1				
929970-1				
929970-8				
929965-1	1426425	HDI		
929972-1				

Note: Applicators with additional feed styles are available, contact your representative

Circular and DIN Connectors

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EXTRACTION TOOL



Contact Strip Part Number	Extraction Tool Part Number
929975-1	1-1579007-8
929967-1	
929963-1	
929971-1	
929970-1	
1-929974-4	
929974-4	
1-929967-0	
929974-7	
929973-1	
929965-1	
929962-1	
929967-8	
929972-1	
929970-8	
1703013-1	3-1579007-7
1703014-1	
1703013-2	
1703013-8	
1703012-1	

NOTES

A large grid of 20 columns and 30 rows of dots for taking notes. Several dots are highlighted in orange:

- Row 1, Column 6
- Row 4, Column 15
- Row 7, Column 11
- Row 10, Column 2
- Row 11, Column 8
- Row 14, Column 14
- Row 14, Column 19
- Row 16, Column 15
- Row 20, Column 20
- Row 23, Column 6

NOTES

A large grid of 20 columns and 30 rows of dots for taking notes. Several dots are highlighted in orange, indicating specific points of interest or notes taken during the review of the document. The orange dots are located at the following approximate coordinates (row, column): (1, 6), (2, 15), (8, 10), (11, 2), (13, 8), (17, 14), (17, 19), (21, 14), (29, 6).

NOTES

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- Row 1, Column 6
- Row 4, Column 15
- Row 8, Column 10
- Row 11, Column 2
- Row 12, Column 8
- Row 17, Column 14
- Row 17, Column 19
- Row 19, Column 15
- Row 21, Column 19
- Row 24, Column 20
- Row 26, Column 6

ABOUT TE CONNECTIVITY

TE Connectivity is a \$12 billion global industrial technology leader creating a safer, sustainable, productive and connected future. Our broad range of connectivity and sensor solutions, proven in the harshest environments, enable advancements in transportation, industrial applications, medical technology, energy, data communications and the home.

With approximately 80,000 employees, including more than 7,500 engineers, working alongside customers in approximately 140 countries, TE ensures that EVERY CONNECTION COUNTS. Learn more at www.te.com and on LinkedIn, Facebook, WeChat and Twitter.

LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. For additional information or product assistance, please contact your field representative or our customer service department. Additional information is also available on the website te.com/ict.

TECHNICAL SUPPORT

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