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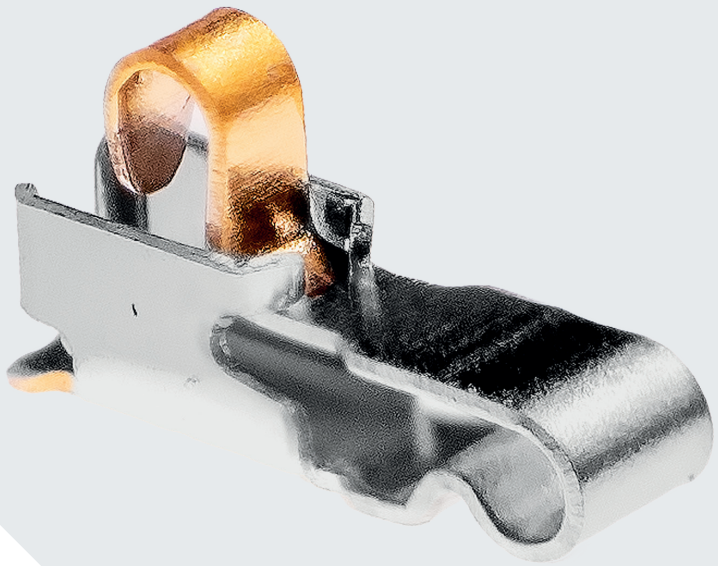
Universal Contact Series

An SMT Contact System



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Universal Contact

Versatile, Highly Engineered and Ultra-reliable

The Universal Contact series is an independent SMT contact that provides an electrical connection between a device and a PCB. Available in multiple heights, footprints, and configurations, UC is formed from a single piece of stamped material, and its domed contact point design delivers an outstanding Hertzian Stress performance level of a minimum of 0.3N of force and 300 psi with 0.1 mm of deflection. Available in both beryllium and titanium copper alloys with nickel plate and gold plate over nickel in contact areas, it exhibits contact resistance of less than 20m ohms and a minimum current rating of 2 amps.

Sometimes referred to as spring fingers, leaf springs, grounding contacts, PCB contacts, or shield fingers, the Universal Contact series can fulfill multiple functions on a PCB, including antenna, microphone, vibration, speaker, battery, and grounding connections.

Versatile, highly engineered, and ultra-reliable, the Universal Contact series is fully proven in tens of millions of devices over recent years. From today's and tomorrow's smartwatches and medical wearables to home security and industrial safety devices, the Universal Contact series delivers – when it matters most.

Key Features

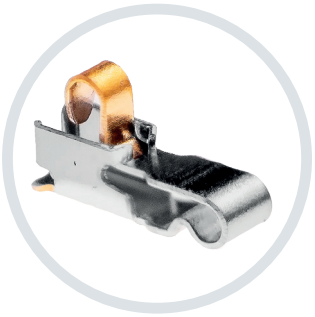
- RoHS and REACH compliant
- Minimum of 0.3N of force and 300 psi with 0.1 mm of deflection
- Up to 3000 mating cycles, dependent on application
- Minimal X-Y-Z movement delivers excellent shock and vibration resistance
- High Hertzian Stress design
- Surface mount with pick and place area for automated placement
- Multiple heights, sizes and layout configurations

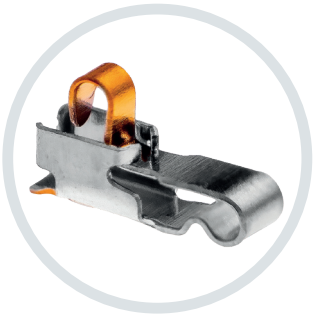
Technical Overview

Base Material	Beryllium Copper alloy, Titanium Copper alloy
Plating	Nickel plate. Gold over nickel plate at contact zones
Contact Resistance	< 20m ohms
Current Rating	2.0 to 3.0 amps depending on the free height
Solder Systems	Infrared and hot air reflow
Operating Temperatures	-40˚C and +85˚C
Operating Humidity	90% relative
Solder	According to JEDEC Standard J-STD-020C
Vibration Resistance	5Hz to 9Hz @ 1.5mm pk displacement, 9Hz to 200Hz @ 0.5g pk acceleration, 1 oct per minute; 1 hour per axis, 3 axis total
Shock Resistance	100g pk acceleration, 11ms duration, 3 shocks in each axis, 6 directions
Packaging	12mm wide tape and reels to EIA-481

The ITT Cannon Difference

- Global capabilities & local support
- Engineering expertise and application experience across multiple application areas
- A century of interconnect leadership
- A committed innovator & business partner





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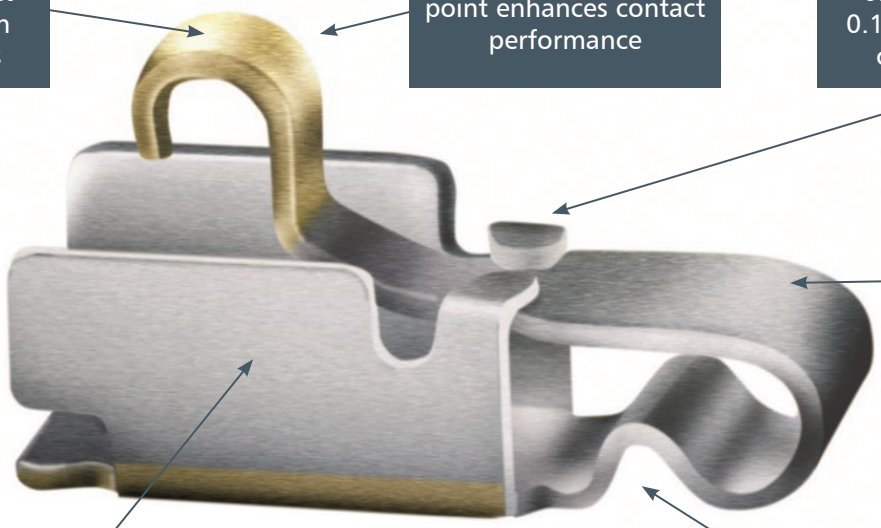
Designed to Perform. Fully proven.



Example Applications

- Handheld consumer devices
- Medical devices
- Communications
- Home appliances
- Telematics
- Security & safety devices
- Lighting & monitoring equipment

Fully Customizable

ITT Cannon has extensive experience in developing customized Universal Contact solutions. Contact us to discuss your custom SMT contact requirement.

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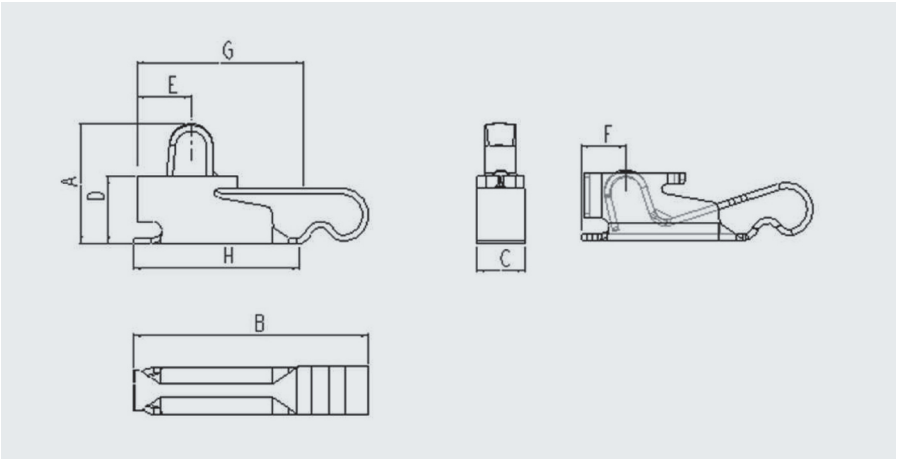
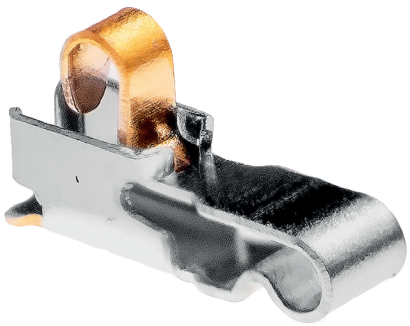
Universal Contact Series

Universal Contact is the original SMT contact from ITT Cannon. Highly engineered, with hundreds of millions of contacts shipped, it features a number of design features, as illustrated below, that ensure it delivers cost effective reliability and performance whatever the application.

Height	Part Numbers	Material	Plating	Dimensions (mm)								Operating Height (mm)
				A	B	C	D	E	F	G	H	
1.3mm	120220-0210	Beryllium Copper Alloy	See Note 1	1.30	3.48	1.10	0.77	0.80	0.30	2.50	2.05	1.30-0.80
1.3mm	120220-0303	Titanium Copper Alloy	See Note 1	1.30	3.48	1.10	0.77	0.80	0.30	2.50	2.05	1.30-0.80
1.3mm	120220-0328	Beryllium Copper Alloy	See Note 2	1.30	3.48	1.00	0.77	0.80	0.71	2.70	2.05	1.30-0.80
1.3mm	120220-0342	Beryllium Copper Alloy	See Note 1	1.30	3.48	1.00	0.77	0.71	0.63	2.70	2.05	1.30-0.80
1.3mm	120220-0319	Titanium Copper Alloy	See Note 2	1.30	3.48	1.00	0.77	0.80	0.40	2.70	2.05	1.30-0.80
1.8mm	120220-0202	Beryllium Copper Alloy	See Note 1	1.80	3.40	0.90	1.00	0.84	0.47	2.40	2.35	1.80-1.00
1.8mm	120220-0219	Titanium Copper Alloy	See Note 1	1.80	3.40	0.90	1.00	0.84	0.47	2.40	2.35	1.80-1.00
1.8mm	120220-0329	Beryllium Copper Alloy	See Note 2	1.80	3.35	1.00	1.00	0.79	0.63	2.50	2.35	1.80-1.00
2.5mm	120220-0161	Beryllium Copper Alloy	See Note 1	2.50	4.87	0.98	1.40	1.19	0.74	2.80	3.38	2.50-1.45
2.5mm	120220-0301	Titanium Copper Alloy	See Note 1	2.50	4.87	0.98	1.40	1.19	0.74	2.80	3.38	2.50-1.45
2.5mm	120220-0330	Beryllium Copper Alloy	See Note 2	2.50	4.87	1.10	1.40	1.19	0.81	2.80	3.38	2.50-1.45
3.5mm	120220-0204	Beryllium Copper Alloy	See Note 1	3.50	5.00	1.10	2.00	1.65	0.50	3.40	3.25	3.50-2.10
3.5mm	120220-0212	Beryllium Copper Alloy	See Note 2	3.50	5.00	1.10	2.00	1.65	0.50	3.40	3.25	3.50-2.10
3.5mm	120220-0304	Titanium Copper Alloy	See Note 1	3.50	5.00	1.10	2.00	1.65	0.50	3.40	3.25	3.50-2.10
4.0mm	120220-0206	Beryllium Copper Alloy	See Note 1	4.00	5.00	1.10	2.50	1.58	0.45	3.40	3.00	4.00-2.50
4.0mm	120220-0308	Titanium Copper Alloy	See Note 1	4.00	5.00	1.10	2.50	1.58	0.45	3.40	3.00	4.00-2.50
4.6mm	120220-0211	Beryllium Copper Alloy	See Note 1	4.60	5.40	1.40	3.50	1.30	0.68	3.35	2.68	4.60-3.50
4.6mm	120220-0335	Titanium Copper Alloy	See Note 1	4.60	5.40	1.40	3.50	1.30	0.53	\	2.68	4.60-3.50





Note #	Plating on Contact Position	Plating on Soldering Position
1	1.0 Microns Au over 1.0/3.0 Microns Ni	0.05/0.15 Microns Au over 1.0/3.0 Microns Ni
2	0.3 Microns Au over 1.0/3.0 Microns Ni	0.05/0.15 Microns Au over 1.0/3.0 Microns Ni

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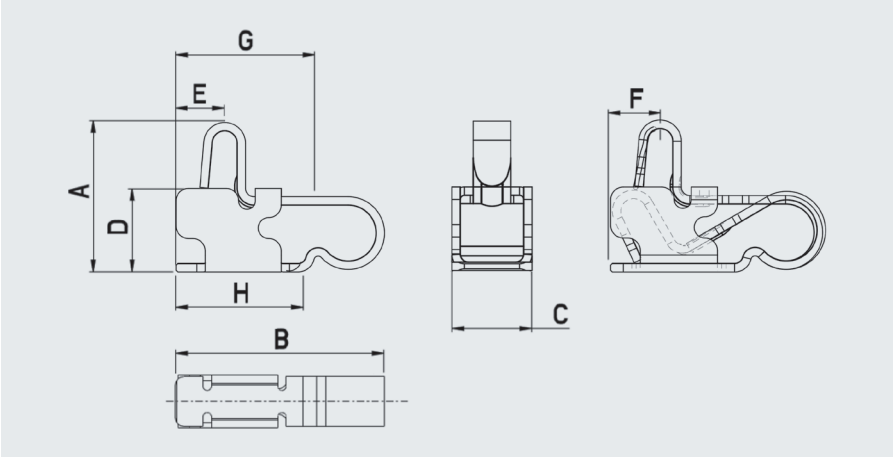
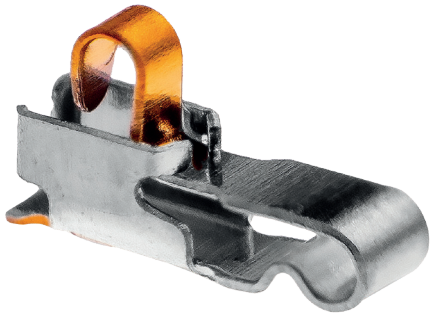
Dimensions shown in inches
Specifications and dimensions subject to change

Universal Contact Z Series (UCZ)

Universal Contact Z is a footprint-optimized version of the original universal Contact with an approximate 25% reduction in length. Manufactured with a single piece stamped Titanium Copper alloy it features protective sidewalls and a domed contact point that results in a high hertz stress contact with excellent contact resistance.

Height	Part Numbers	Material	Plating	Dimensions (mm)								Operating Height (mm)
				A	B	C	D	E	F	G	H	
1.1mm	120220-0348	Titanium Copper Alloy	See Note 2	1.10	2.48	0.96	0.55	0.40	0.32	1.80	1.90	1.10-0.60
1.3mm	120220-0310	Titanium Copper Alloy	See Note 1	1.30	2.37	0.96	0.80	0.49	0.35	1.61	1.39	1.30-0.80
1.3mm	120220-0323	Titanium Copper Alloy	See Note 2	1.30	2.37	0.96	0.80	0.49	0.35	1.61	1.39	1.30-0.80
1.6mm	120220-0331	Titanium Copper Alloy	See Note 1	1.60	2.92	0.96	0.90	0.74	0.57	2.25	1.96	1.60-0.90
1.8mm	120220-0311	Titanium Copper Alloy	See Note 1	1.80	2.50	0.96	1.00	0.56	0.27	1.82	1.46	1.80-1.00
1.8mm	120220-0322	Titanium Copper Alloy	See Note 2	1.80	2.50	0.96	1.00	0.56	0.27	1.82	1.46	1.80-1.00
1.85mm	120220-0343	Titanium Copper Alloy	See Note 1	1.85	2.92	0.96	0.90	0.73	0.45	2.25	1.96	1.85-0.90
2.1mm	120220-0334	Titanium Copper Alloy	See Note 1	2.10	2.93	0.96	1.20	0.64	0.35	1.88	1.75	2.10-1.30
2.1mm	120220-0339	Titanium Copper Alloy	See Note 2	2.10	2.93	0.96	1.20	0.64	0.35	1.88	1.75	2.10-1.30
2.5mm	120220-0312	Titanium Copper Alloy	See Note 1	2.50	3.66	0.96	1.60	1.35	0.83	2.66	2.30	2.50-1.50
2.5mm	120220-0321	Titanium Copper Alloy	See Note 2	2.50	3.66	0.96	1.60	1.35	0.83	2.66	2.30	2.50-1.50
3.0mm	120220-0313	Titanium Copper Alloy	See Note 1	3.00	3.73	0.96	2.20	1.37	0.73	2.69	2.30	3.00-2.20
3.0mm	120220-0324	Titanium Copper Alloy	See Note 2	3.00	3.73	0.96	2.20	1.37	0.73	2.69	2.30	3.00-2.20
3.5mm	120220-0314	Titanium Copper Alloy	See Note 1	3.50	3.79	0.96	2.60	1.22	0.41	2.43	1.95	3.50-2.60
3.5mm	120220-0325	Titanium Copper Alloy	See Note 2	3.50	3.79	0.96	2.60	1.22	0.41	2.43	1.95	3.50-2.60
4.0mm	120220-0315	Titanium Copper Alloy	See Note 1	4.00	3.99	0.96	3.00	1.27	0.36	2.43	2.15	4.00-3.00
4.0mm	120220-0326	Titanium Copper Alloy	See Note 2	4.00	3.99	0.96	3.00	1.27	0.36	2.43	2.15	4.00-3.00





Note #	Plating on Contact Position	Plating on Soldering Position
1	1.0 Microns Au over 1.0/3.0 Microns Ni	0.05/0.15 Microns Au over 1.0/3.0 Microns Ni
2	0.3 Microns Au over 1.0/3.0 Microns Ni	0.05/0.15 Microns Au over 1.0/3.0 Microns Ni

Dimensions shown in inches
Specifications and dimensions subject to change

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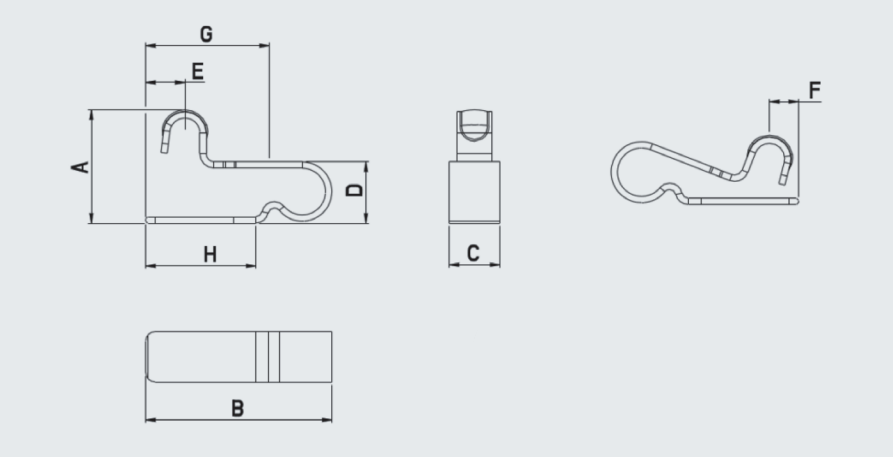
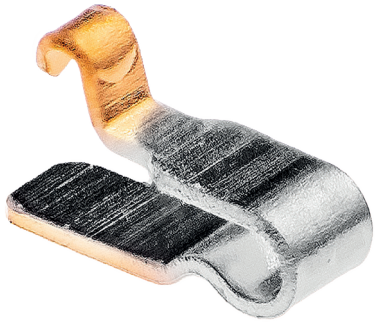
Universal Contact DSC Series

DSC is a cost-optimized version of the original Universal Contact that is available in Beryllium Copper or Titanium Copper alloy. This paired down variant has the sidewall removed but is a high performance solution where the domed contact point results in a high hertz stress contact with excellent contact resistance.

Height	Part Numbers	Material	Plating	Dimensions (mm)								Operating Height (mm)
				A	B	C	D	E	F	G	H	
1.3mm	120220-0400	Beryllium Copper Alloy	See Note 1	1.30	2.80	0.90	0.82	0.61	0.54	2.41	1.65	1.30-0.90





Note #	Plating on Contact Position	Plating on Soldering Position
1	1.0 Microns Au over 1.0/3.0 Microns Ni	0.05/0.15 Microns Au over 1.0/3.0 Microns Ni

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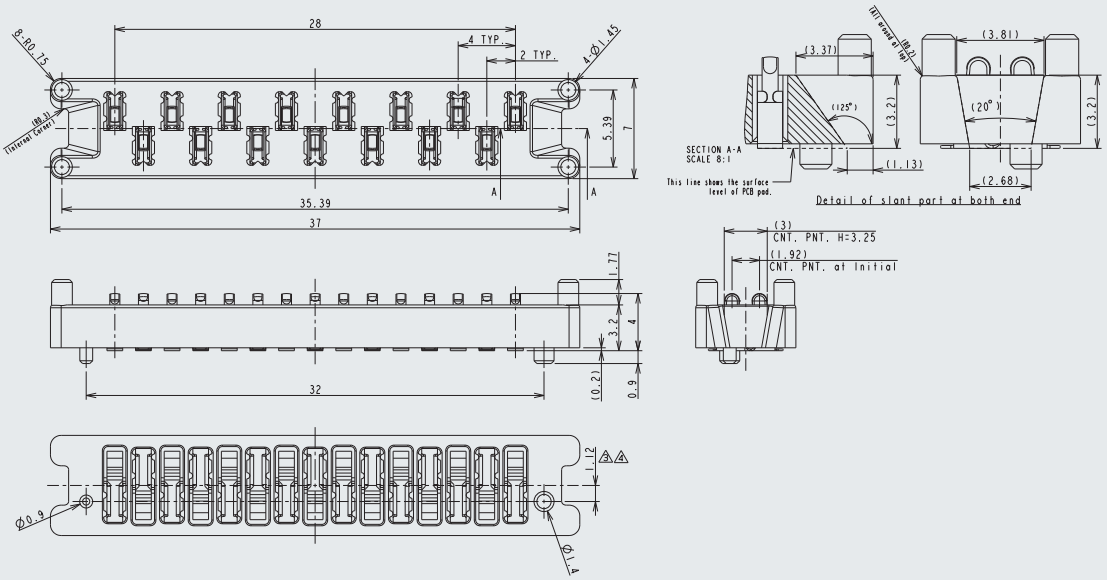
Dimensions shown in inches
Specifications and dimensions subject to change

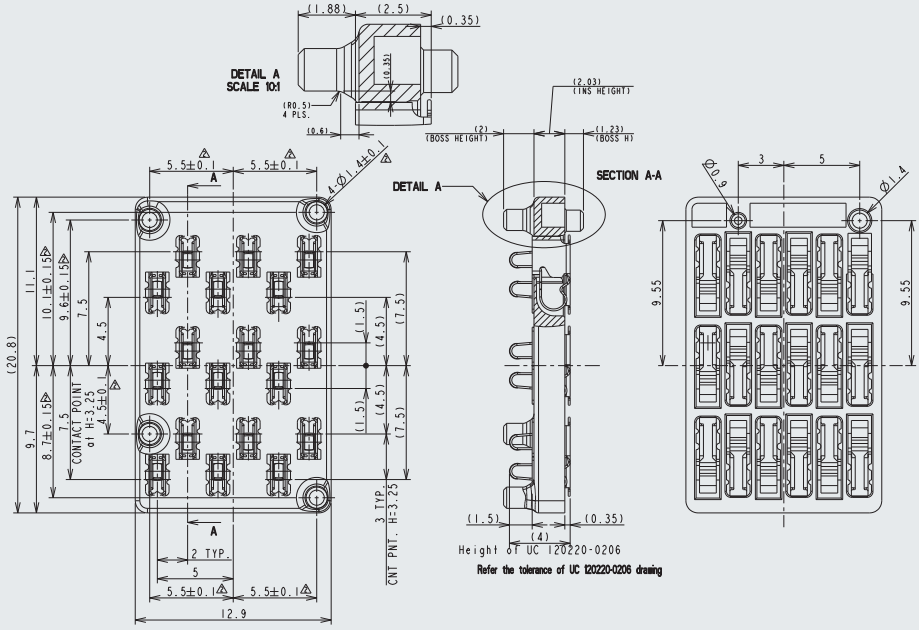
Universal Contact Modules

Universal Contact modules are also available that enable deployment of multiple UCs.
To learn more or discus requirements for customized modules contact the factory.

UC 15-way module



UC 18-way module



Dimensions shown in inches
Specifications and dimensions subject to change

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Connect with the experts

ITT's Cannon brand is a world leader in the design and manufacture of highly engineered connector solutions for multiple end markets.

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Why ITT

ITT is a focused multi-industrial company that designs and manufactures highly engineered critical components and customized technology solutions. ITT's Cannon brand is a leading global manufacturer of connector products serving international customers in aerospace, defense, medical, industrial and transportation end markets. ITT's Connector business, which also includes the Veam and BIW Connector Systems brand, manufactures and supplies a variety of connectors and interconnects that make it possible to transfer data, signal and power in an increasingly connected world.

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