veam cannon

Rail Product Selection Guide

Proven rail expertise.
Global capabilities.

ITT

ENGINEERED FOR LIFE

veam cannon

We Connect
When it matters most.

The teams at ITT Veam and ITT Cannon have an extensive, in-depth knowledge of rail from the tracks to the engine to the passenger car and every connection, every wire, every socket that makes for a smooth and efficient ride. As we continue to develop leading-edge technology, we'll continue to bring you the reliability and durability required to push the limits of rail.

TRAIN CONTROL

ITT Veam and Cannon connectors support today's advanced train control systems, which include a wide range of on-board systems, for both PCB and cable applications.

PRODUCT SOLUTIONS:
FRCIR Standard, CA Bayonet, Trident

UNDER CAR

ITT Veam connectors support critical signal, power and data communications under train cars, with reliable vibration resistant connectivity enabled by compact solutions suitable for high-density wiring environments.

PRODUCT SOLUTIONS:
FRCIR Standard, FRCIR290, CIRM12, VBN, Power Plates, Junction Boxes, FRCIR Stainless Steel, VA900

INTERVEHICLE

ITT Veam solutions including connectors, junction boxes and jumper cables support critical signal, power and data communication between train cars, by delivering ultra-reliable vibration and shock resistant connectivity.

PRODUCT SOLUTIONS:
FRCIR Standard, FRCIR290, CIRM12, DSR, CIR Fiber Optic, HTB, Junction Boxes, Jumper Cables, FRCIR Marine Bronze

BOGIES

ITT Veam high power single & multi-pole standard and customized connectors deliver both extreme vibration resistance and space saving footprints to ensure reliable power supply and signal transmission to traction systems.

PRODUCT SOLUTIONS:
FRCIR Standard, FRCIR290, FRMGCIR, FRCIR Stainless Steel, FRCIR Marine Bronze, Power Plates, VA900

SENSORS

ITT Veam connectors are optimized for the very harsh environments of sensor applications, delivering minimized footprints, optimal sealing and extended lifetimes.

PRODUCT SOLUTIONS:
FRCIR Standard, FRMGCIR, VBN, FRCIR Stainless Steel, FRCIR Marine Bronze

SIGNALING

ITT Veam and Cannon connectors support modern intelligent traffic management systems, which include a diverse range of track-side applications, both inside communications cabinets and in the most exposed outdoor harsh environments.

PRODUCT SOLUTIONS:
FRCIR Standard, Jumper Cables, Trident

veam cannon

STANDARD PRODUCTS

		FRCIR STANDARD	FRCIR290	FRMGCIR	VIP	CIRM12	CA Bayonet	VBN	TRIDENT	VRPC	DSR
											
GENERAL	APPLICATIONS										
GENERAL	Standards / Connector Specifications	VG95234 / MIL-DTL-5015 (where applicable)	VG95234 / MIL-DTL-5015 (where applicable)	VG95234 / MIL-DTL-5015 (where applicable)		VG95234 / MIL-DTL-5015 (where applicable)	VG95234 (where applicable)	VG95234 / MIL-DTL-5015 (where applicable)	EN61984 / UL 1977	NFF 61030	Shells based on Mil-C-38999, insert on Mil-C-5015
GENERAL	Fire & Smoke standards	EN 45545-2 NFPA 130	EN 45545-2 NFPA 130	EN 45545-2 NFPA 130	UNI 11170 / NFF 16 101/102 EN 45545-2	EN 45545-2 NF F 16-101/102	acc. VG95234	EN 45545-2 NFF16-101/102 NFPA 130	UL 94 V-0	NFF 16-101/102	EN 45545-2 NFPA 130
GENERAL	RoHS and Reach	Yes/No (depending on plating)	Yes/No (depending on plating)	Yes/No (depending on plating)	Yes	Yes/No (depending on plating)	Yes	Yes	Yes	Yes	Yes/No (depending on plating)
GENERAL	Number of Circuits	1 to 159 pins	3 to 101 pins	1 to 159 pins	1 (single pole)	1 - 4 lines	1 - 65 pins	4 to 70 pins	4 to 48	3-6-12 pins	1 to 159 pins
ELECTRICAL	Max. Operating Voltage	4200 Vdc ÷ 3000 Vac	2450 Vdc ÷ 1750 Vac	4200 Vdc ÷ 3000 Vac	1500Vca-2000Vcc	200Vac - 250Vdc	50VAC - 75VDC (acc. Low Voltage Directive)	1250Vdc - 900Vac	250 V AC - 500V DC/AC	380Vac-500Vdc	4.2kV (depends on insert)
ELECTRICAL	Max. Dielectric Withstanding Voltage	7000 Vac rms	4500 Vac rms	7000 Vac	9Kvdc	1000Vac	3000 VAC	3600V rms	2000 V AC - 3500 V AC	3250Vac	up to 8.5kV (depends on insert)
ELECTRICAL	Max. Current Rating	350A	350A	350A	700A	3A	245 A	73A	30 A	13-15-16A	1,000A (using VGE insert and contacts)
ELECTRICAL	EMI/RFI shielding	Yes	Yes	No	N/A	Yes / No (depending on plating)	YES	Yes	Yes	No	Consult factory
CONATCTS	Wire range AWG	AWG 26 ÷ AWG4/0	AWG 20 ÷ 4/0	AWG 26 ÷ AWG4/0		AWG 24 (8 poles)	AWG26 - 0	AWG 20 - AWG10	26 to 12	AWG14 to 26	24AWG - 500 MCM
CONATCTS	Wire Range mm²	0,15 ÷ 120 mm²	0,6 ÷ 120 mm²	0,15 ÷ 120 mm²	95 -240 mm2	0.34 - 0.75 mm2 (2 and 4 poles)	0,14 - 50 mm²	0,5mmq - 10mmq	0,14 - 4,0 mmq	0,25 -2,5mmq	0.15 sq mm - 240 sq mm
CONATCTS	Contact plating	Gold / Silver	Gold / Silver	Gold / Silver	Silver	Gold	Gold / Silver	Gold / Silver	Tin / Gold	Tin / Gold	Gold / Silver
CONATCTS	Crimp, machined	Yes	Yes	Yes	yes	Yes	Yes	Yes	Yes	Yes	Yes
CONATCTS	Crimp, stamped	No	No	No	No	No	No	No	Yes	Yes	No
CONATCTS	Solder	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes
CONATCTS	PCB	Yes	No	Yes	No	No	Yes	No	Consult factory	No	No
CONATCTS	Coax	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes
CONATCTS	Ethernet copper	See CIR M12 family	Consult factory	See CIR M12 family	No	Yes	No	No	No	No	No
CONATCTS	Fiber optic	See Fiber Optic family	Consult factory	See Fiber Optic family	No	No	No	No	No	No	No
CONATCTS	Power and Signal Layouts	Yes	Yes	Yes	Power	No	Yes	No	Yes	No	Yes
CONATCTS	Contact Size	20 ÷ 4/0	16 ÷ 4/0	20 ÷ 4/0	Special	M12	20 - 0	16S - 8	16 / Special	14-26 awg	from 20 to 240 sq mm
MECHANICAL	Mating cycles (max.)	2000	2000	2000	500	500 (2-4 pole) - 100 (8 pole)	500	500	500	up to 500	500
MECHANICAL	Max. shock resistance (g's)	50g	50g	50g	50g	50g	50 g	50g	50g's	50 g	200 g
MECHANICAL	Max. vibration resistance	20g - 10 up to 2000Hz	20g - 10 up to 2000Hz	20g - 10 up to 2000Hz	20g - 10 up to 2000Hz	20g - 10 up to 2000Hz	200m/s² at 10 - 2000 Hz	25-250Hz (NF F 60-002)	100m/s² 10g's	200m/s² at 10 - 2000 Hz	20 g
MECHANICAL	Mechanical coding	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	5 keyways
MECHANICAL	Type of coupling	Bayonet	Bayonet	Bayonet	Thread	Bayonet	Bayonet	Bayonet	Bayonet	Snap In	Double Ratchet
MECHANICAL	Configurations / Mounting options	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog	Refer to catalog
ENVIRONMENTAL	Temperature range	-40°C ÷ +125°C	-40°C ÷ +125°C	-40°C ÷ +125°C	-40°C ÷ +100°C	-40°C ÷ +100°C	-55°C to 125°C options for up to 200°C	-40°C to +100°C	-55°C to +125°C	-40°C to +100°C	-70C to 200C (depends on elastomer, consult factory)
ENVIRONMENTAL	IP rating	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 / IP68 / IP69k	IP67 (mated condition with appropriate accessories)	up to IP67	IP20 - IP67	IP67 (mated condition with appropriate accessories)
ENVIRONMENTAL	Individual wire sealing	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
ENVIRONMENTAL	Cable jacket sealing	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
ENVIRONMENTAL	Shell Material	Aluminium	Aluminum/Stainless steel/ Marine bronze	Aluminum/Stainless steel/ Rubber covered	Thermoplastic	Aluminium	Aluminium	Aluminium	Black Nylon or Zinc Alloy	Thermoplastic	Aluminium
ENVIRONMENTAL	Insert material	Flame retardant rubber	Flame retardant rubber	Flame retardant rubber	Thermoplastic	Thermoplastic	Chloroprene / KKM	Thermoplastic	Nylon	Grommet (Flame retardant rubber)	Flame retardant rubber
SHELL PLATINGS	RoHS Electroless Nickel - Conductive (48h)	Yes	Yes	No	No	Yes		Consult factory	A 34	No	No
SHELL PLATINGS	RoHS Zinc Cobalt black - Conductive (200h)	Yes	Yes	Yes	No	Yes		Yes	No	No	Yes
SHELL PLATINGS	Cadmium olive drab - Conductive (500h)	Yes	Yes	Yes	No	No		No	No	No	Yes
SHELL PLATINGS	RoHS Zinc Cobalt green - Conductive (200h)	Yes	Yes	No	No	Yes		Yes	No	NO	No
SHELL PLATINGS	RoHS Zinc Nickel blue - Conductive (500h)	Yes	Yes	No	No	Yes		Yes	No	No	Consult factory
SHELL PLATINGS	RoHS Epoxyurethanic Varnish black (500h) Non-conductive	Yes	Yes	Yes	No	Yes		Yes	No	No	Consult factory
SHELL PLATINGS	RoHS Hard Anodic coating black (1000h) Non-conductive (only for machined components)	Yes	Yes	Yes	No	Yes		Yes	No	No	Consult factory
SHELL PLATINGS	Other platings: Consult factory	Yes	Yes	Yes	No	Yes		Yes	No	No	Yes

APPLICATIONS KEY: Switches | Signaling | Train Control | Electric Couplers | Converters/Inverters | Battery Chargers | Brake/Speed Sensors | Power Distribution | Automatic Doors | Intervehicle | HVAC | Bogies | Traction Motors | Data Communication | Seats | Driver's Cabin | Toilets | Wipers | Pantograph | Under Car

CUSTOM PRODUCTS

		CIR FIBER OPTIC	POWER PLATES	HTB	JUNCTION BOXES	JUMPER CABLES	FRCIR STAINLESS STEEL	FRCIR MARINE BRONZE	VA900
									
	APPLICATIONS								
GENERAL	Standards / Connector Specifications	VG95234 / MIL-DTL-5015 (where applicable)	N/A	VG95234 / MIL-DTL-5015 (where applicable)			VG95234 / MIL-DTL-5015 (where applicable)	VG95234 / MIL-DTL-5015 (where applicable)	VG95234 (where applicable)
	Fire & Smoke standards	UL 94 V0	EN 45545-2 NFF16101/102	ISO 834 - 1/REI 30			EN 45545-2 NFPA 130	EN 45545-2 NFPA 130	EN 45545-2 NF F 16-101/102
	RoHS and Reach	Yes/No (depending on plating)	Yes	Yes			Yes	Yes	Yes/No (depending on plating)
	Number of Circuits	2 to 12	2 to 4 poles	35 poles			1 to 159 pins	1 to 159 pins	1 (single pole)
ELECTRICAL	Max. Operating Voltage	n/a	Consult factory	900Vac - 1250Vdc			4200 Vdc ÷ 3000 Vac	4200 Vdc ÷ 3000 Vac	1800 Vdc
	Max. Dielectric Withstanding Voltage	n/a	9,6Kv	2800Vac			7000 Vac rms	7000 Vac rms	5000 Vac
	Max. Current Rating	n/a	750A	41A			350A	350A	750A
	EMI/RFI shielding	n/a	No	Yes			Yes	Yes	Yes
CONATCTS	Wire range AWG	n/a	Consult factory	AWG12			AWG 26 ÷ AWG4/0	AWG 26 ÷ AWG4/0	---
	Wire Range mm²	n/a	up to240mmq	2,5mmq			0,15 ÷ 120 mm²	0,15 ÷ 120 mm²	95 ÷ 240 mm²
	Contact plating	n/a	Silver	Gold			Gold / Silver	Gold / Silver	Silver
	Crimp, machined	n/a	yes	Yes			Yes	Yes	Yes
	Crimp, stamped	n/a	No	No			No	No	No
	Solder	n/a	No	No			Yes	Yes	No
	PCB	n/a	No	No			Yes	Yes	No
	Coax	n/a	No	No			Yes	Yes	No
	Ethernet copper	n/a	No	No			See CIR M12 family	See CIR M12 family	No
	Fiber optic	Single mode / Multimode	No	No			See Fiber Optic family	See Fiber Optic family	No
	Power and Signal Layouts	n/a	No	Yes			Yes	Yes	No
	Contact Size	n/a	Special	12			20 ÷ 4/0	20 ÷ 4/0	Special
MECHANICAL	Mating cycles (max.)	500	500	2000			2000	2000	500
	Max. shock resistance (g's)	50g	50g	50g			50g	50g	50g
	Max. vibration resistance	20g - 10 up to 2000Hz	20g - 2000Hz	20g - 10 up to 2000Hz			20g - 10 up to 2000Hz	20g - 10 up to 2000Hz	20g - 10 up to 2000Hz
	Mechanical coding	Yes	Yes	Yes	This product line is customized based on customer request. Consult factory	This product line is customized based on customer request. Consult factory	Yes	Yes	Yes
	Type of coupling	Bayonet / Thread	Screw or Latching	Bayonet			Bayonet	Bayonet	Bayonet
	Configurations / Mounting options	Refer to catalog	Refer to catalog	Refer to catalog			Refer to catalog	Refer to catalog	Refer to catalog
ENVIRONMENTAL	Temperature range	-40°C ÷ +100°C	-40°C ÷ +100°C	-55°C ÷ +180°C (800°CFor30')			-40°C ÷ +125°C	-40°C ÷ +125°C	-40°C ÷ +100°C
	IP rating	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)			IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)	IP67 (mated condition with appropriate accessories)
	Individual wire sealing	No	No	No			Yes	Yes	No
	Cable jacket sealing	Yes	Yes	Yes			Yes	Yes	Yes
	Shell Material	Aluminum	Aluminum	Stainless steel			Stainless steel	Marine Bronze	Aluminum/Stainless steel/Marine bronze
	Insert material	Thermoplastic / Metal	Thermoplastic	Ceramic (grommet silicone)			Flame retardant rubber	Flame retardant rubber	Thermoplastic
SHELL PLATINGS	RoHS Electroless Nickel - Conductive (48h)	Yes	No	No			No	No	No
	RoHS Zinc Cobalt black - Conductive (200h)	Yes	Yes	No			No	No	Yes
	Cadmium olive drab - Conductive (500h)	Yes	No	No			No	No	No
	RoHS Zinc Cobalt green - Conductive (200h)	Yes	No	No			No	No	No
	RoHS Zinc Nickel blue - Conductive (500h)	Yes	Yes	No			No	No	Yes
	RoHS Epoxyurethanic Varnish black (500h) Non-conductive	Yes	Yes	No			No	No	Yes
	RoHS Hard Anodic coating black (1000h) Non-conductive (only for machined components)	Yes	Yes	No			No	No	Yes
	Other platings: Consult factory	Yes	Yes	No			No	No	Yes

APPLICATIONS KEY: Switches | Signaling | Train Control | Electric Couplers | Converters/Inverters | Battery Chargers | Brake/Speed Sensors | Power Distribution | Automatic Doors | Intervehicle | HVAC | Bogies | Traction Motors | Data Communication | Seats | Driver's Cabin | Toilets | Wipers | Pantograph | Under Car

We Connect

Passengers to their next adventure

For more than a century, ITT has developed innovative connector solutions for the world's harshest environments. With facilities in the United States, Germany, Italy, Mexico, China and Japan, each with its unique strengths, we offer our customers Interconnect Solutions that are truly Engineered for Life.

In addition to this truly global footprint, we offer highly specialized rail industry expertise. We have a proven track record as an industry leader in harsh-environment applications. This has equipped us with the knowledge needed to continue to produce extremely advanced, resilient and reliable connectors for our customers' most challenging rail applications.

Global interconnect solutions for the rail industry.

The ITT Veam and Cannon difference

- Global capabilities & local support
- Proven application expertise
- A century of rail interconnect leadership
- A committed innovator & business partner

veam
cannon

About ITT

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in White Plains, N.Y., with employees in more than 35 countries and sales in a total of approximately 125 countries. For more information, visit www.itt.com.

Connect with your ITT Interconnect Solutions representative today or visit us at www.ittcannnon.com

Connect with the experts

ITT Interconnect Solutions' Veam and Cannon brands are world leaders in the design and manufacture of highly engineered connector solutions for the rail market.

ITT

ENGINEERED FOR LIFE

North America

56 Technology Drive
Irvine, CA 92618
Phone: +1.800.854.3208

100 New Wood Road
Watertown, CT 06795
Phone: +1.860.274.9681

Europe

Italy
Corso Europa 41/43
I - 20020 Lainate (MI) Italy
Phone: +39.02938721

Germany
Cannonstrasse 1
D – 71384 Weinstadt, Germany
Phone: +49.7151.699.0

Asia

Tuopandun Industrial Area, Jinda Cheng,
Xiner Village, Shajing Town, Boan District,
Shenzhen City, Guangdong Province, China 518215
Phone: +86.755.2726.7888

The "ITT Engineered Blocks" symbol, "Engineered for life", "ITT" and "Cannon" are registered trademarks of ITT Corporation.
Specification and other data are based on information available at the time of printing, and are subject to change without notice.

© 2015 ITT Corporation

ITT ICS Rail PSG 122015