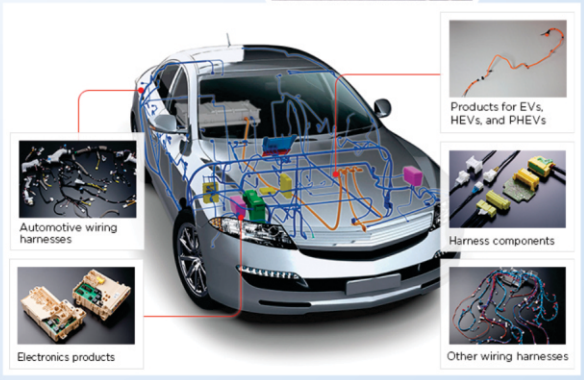
ISO 9001 : 2015 Certified

Manufacturer & Exporter of PTFE Wires & Cables

SANTRON
CABLE INDUSTRIES

- Hookup & Equipment Wires
- Multicore/ Multipair Cables
- Shielded / Sheathed Cables
- High Temperature Cables
- Thermocouple Extension Cables
- RTD's & Compensating Cables
- High Voltage (CR) Cables
- PTFE Electrical Sleeves
- Armoured Cable
- RF Coaxial Cables
- Fiber Cables



Customer's Satisfaction Through

- ✓ Quality Products
- ✓ Delivered Timely
- ✓ Consistently

Director's Massage

Dear Customer,

We would like to express our deep gratitude to all our customers for their unconditional support and trust shown in us for quality products. You all have made Santron Cable Industries a leading designer, manufacturer and exporter of **High Voltage, High Temperature & High Frequency Speciality** Wires, Cables and Sleeves under PTFE (Teflon*) Insulation.

We have complete in-house capabilities to design & develop a cable as per your requirements. Also our manufacturing facilities are efficient and streamlined to gear up for the future. We assure to deliverd you quality products and our best attention to your demands and orders, to be one of your reliable supplier.

At Santron Cable Industries business model is evolving. We are enhancing our key intemal operations to ensure a consistent and positive experience for our customers. Our business processes begin and end with the customers. We are confident that your confidence and trust in us will keep us ahead and winning in our constant endeavour to continue to be the preferred supplier in this competitive market.

We are improving each day to serve you better.

Happy Wiring and Cabling!!!

Santron Commitment

- Testing of 100% suppliers.
- Quick and cost effective delivery.
- Speciality Cable Sustainable at even upto 800^{0} C.
- Customised Designing of complex requirements of the customers.

About Santron Cable Industries

Santron Cable Industries is an ISO 9001 certified company. Santron is the fastest growing company in Indian PTFE cable Industry with consistent growth. We understand in the cable manufacturer industry, a competitive edge lies in consistent quality, ready availability and product innovation.

In an on-going process to improve Customer Satisfaction, Santron Cable Industries offers a variety of services:.

- Products at commercially competitive prices.
- Reliable & consistent quality with 100% testing.
- Product development for a changing market.
- Technical Support for Applications/Projects.

Santron Cable Industries derives its strengths from its Customers. The growth of our customers is a prerequisite to the growth of the company and hence customer satisfaction is its prime objective. Over the years, sincere service and dedication towards its Customers has earned the Company distinguished clientele which includes best players in sectors like Defense electronics, Space electronics, Aircrafts, Satellites, Missiles, Radio & Microwave Communications, Infrared sensing equipments, Temperature sensing equipments, High performance instrumentations & controls, Power generation etc. Santron Cable Industries has highly experienced qualified and dedicated professionals with strong adherence to the quality management system.

With experience gained over the years, We have developed a wide range of specialized cables to address specific needs of industries demanding highest standard, reliability, assured quality & safety as are cost effective and efficient than the products that are popular in the market.

About Santron Cable Industries

Be recognised as a leading global player providing PTFE cabling solutions to the electrical connectivity requirements of industrial users.

Key Applications of Our Wires & Cables

Our manufactured wires, cables and sleeves are being used in various industrial applications and industries including.

- Defense Electronics, Radars, Satellites and Missiles.
- OEM's for Defense, Marine, Naval and Aerospace applications and aircrafts.
- Railway Signaling and Lighting.
- High Precision Electrical equipment.
- for limited space and high current applications.
- Nuclear Power Systems and control equipment.
- Radio and Microwave Communication equipment.
- Excavators, lifts and High Performance automobiles.
- Industrial Heaters and other high temperature applications.
- Temperature Sensors, Transducers, Flow Meters and other sensors.
- Power-stations, UPS, Transformers and other Power supply Instruments.
- Fire proof wiring and wire harness in Furnace and Oven.

Advantages of PTFE as insulation Material on Wires and Cables

- Non propellant to flame.
- Inertness to almost all chemicals.
- Excellent thermal stability suitable for use from - 65° C to +260° C.
- Best dielectric properties in any flexible insulation.
- Unaffected by ageing, fungus and water absorption.
- Withstands over heating due to temporary current over loads.
- Smaller Size, more flexible, lighter weight and much higher reliability.

Specific Gravities and Di-electric constant of different insulating materials

Material	Specific Gravity	Max. Operating Temp.	Dielectric Constant
PTFE	2.15	260° C	1.95
FEP	2.15	200° C	2.15
KYNAR (Vinylidence Fluoride)	1.76	125°C	7.5
KAPTON	1.67	200° C	2.35
PVC	1.38	105°C	4.6
NEOPRENE	1.38	70° C	-
POLYSULFONE	1.24	125°C	3.3
NYLON	1.09	105°C	4.8

PTFE Insulated Hookup Wires

We manufacture variety of PTFE insulated hook-up wires in small-to-large gauge, solid as well as stranded, prominently used for making internal connections inside electrical or electronic devices. Our standard wires satisfy the International Standard MIL-W-16878 & BS3G210 Indian Standard JSS 51034.

PTFE wires has outstanding mechanical, thermal & electrical properties which makes it most suitable even at temperature ranging as high as 260° C and as low as minus 65° C.

Conductor	SPC/ NPC/ BC
Insulation	PTFE Tape Wrapped Sintered (TWS)
Voltage Rating	250V/ 600V/ 1000V/ As per customer Requirements
Temp. Range	-ve 65° C to +ve 260° C

COLOURS

ALL 11 solid standard colours and Natural opaque. Bicolour is also available.

HV Test

Type	Spark Test (For One Second)	Dielectric Test (For One Minute)
ET (250V)	2.5 KVAC	1.5 KVAC
E (600V)	3.4 KVAC	2.0 KVAC
EE(1000V)	5.0 KVAC	3.0 KVAC

Technical specification of the Wires and Cables :

Insulation is mainly governed by working voltage, mechanical protections and capacitance. The Standard insulation are ET (250V),E (600V) and EE (1000V). We also offer ET + as insulation which is between ET and E.

P.T.F.E. Insulated Silver Plated Copper Wire

P.T.F.E. insulated equipment / hookup wires are high temperature electrical wires generally used for internal wiring of various electronic and electrical equipments and other electrical purposes and are available in wide range of sizes and colours. They are most suitable to use for wiring of equipment involving high frequency signals. Uniform thickness of insulation around the conductor and very low dielectric constant of P.T.F.E. enables the transmission of high frequency signals with minimum signal losses. it results in high quality signal transmission as compared to ordinary wires. P.T.F.E. wires are manufactured in conformance with JSS, mil-Wand BSS specifications as desired. P.T.F.E. equipment wires are available in various working voltages :

Type Et for 250 volts,
Type E for 600 volts,
Type EE for 1000 V.

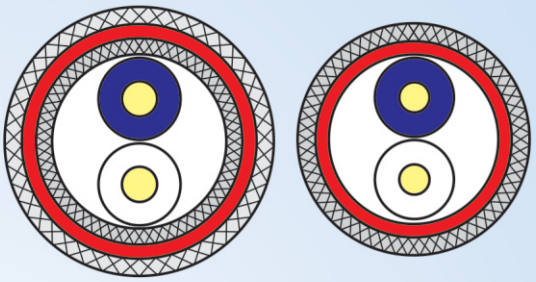
S.No	Size (AWG)	No. of strands /dia. Of strand (mm)	Parameters of conductor (nominal)			Current Rating (in amps)		Diameter of finished wire (mm)					
			Dia. (mm)	Cross section (Sq. mm)	Resistance ohm /km at 20 Dgree C	30° C	200° C	ET		E		EE	
								Min.	Max.	Min.	Max.	Min.	Max.
1	32/7/40	7/0.08	0.24	0.0350	570.9	2.5	6.0	0.51	0.61	0.66	0.86	0.91	1.12
2	30/1	1/0.25	0.25	0.0490	356.4	2.5	6.0	0.51	0.61	0.67	0.86	0.91	1.12
3	30/7/38	7/0.10	0.30	0.0550	332.3	2.5	6.0	0.56	0.66	0.71	0.91	0.97	1.17
4	28/1	1/0.32	0.32	0.0800	224.4	3.5	8.0	0.58	0.69	0.74	0.94	0.99	1.19
5	28/7/36	7/0.13	0.39	0.0930	210.5	3.5	8.0	0.64	0.74	0.79	0.99	1.04	1.25
6	26/1	1/0.40	0.40	0.1256	140.9	4.0	10.0	0.66	0.76	0.81	1.02	1.07	1.27
7	26/7/34	7/0.16	0.48	0.1407	133.7	4.0	10.0	0.74	0.84	0.89	1.09	1.14	1.35
8	26/19/38	19/0.10	0.50	0.1492	126.7	4.0	10.0	0.74	0.84	0.89	1.09	1.14	1.35
9	24/1	1/0.50	0.50	0.1963	88.4	6.0	15.0	0.76	0.86	0.91	0.12	1.17	1.37
10	24/7/32	7/0.20	0.60	0.2199	83.2	6.0	15.0	0.86	0.97	1.02	1.22	1.27	1.47
11	24/19/36	19/0.13	0.65	0.2522	80.2	6.0	15.0	0.86	0.97	1.02	1.22	1.27	1.47
12	22/1	1/0.65	0.65	0.3318	56.1	7.0	18.0	0.89	1.02	1.04	1.27	1.30	1.52
13	22/7/30	7/0.25	0.75	0.3436	52.5	7.0	18.0	1.02	1.12	1.17	1.37	1.42	1.63
14	22/19/34	19/0.16	0.80	0.3820	49.8	7.0	18.0	1.02	1.12	1.17	1.37	1.42	1.63
15	20/1	1/0.80	0.80	0.5027	34.7	9.0	22.0	1.07	1.17	1.22	1.42	1.47	1.68
16	20/7//28	7/0.32	0.96	0.5630	33.0	9.0	22.0	1.22	1.32	1.37	1.58	1.63	1.83
17	20/19/32	19/0.20	1.00	0.5969	30.3	9.0	22.0	1.25	1.36	1.37	1.58	1.63	1.83
18	18/1	1/1.00	1.00	0.7854	21.8	12.0	30.0	--	--	1.42	1.68	1.68	1.93
19	18/7/26	7/0.40	1.20	0.8796	20.7	15.0	35.0	--	--	1.63	1.88	1.88	2.13
20	18/19/30	19/0.25	1.25	0.9327	19.1	15.0	35.0	--	--	1.63	1.88	1.88	2.13
21	16/19/29	19/0.29	1.45	1.2550	14.9	19.0	45.0	--	--	1.85	2.21	2.11	2.49
22	16/37/32	37/0.20	1.40	1.1624	15.0	19.0	45.0	--	--	1.85	2.21	2.11	2.49
23	15/19/28	19/0.32	1.60	1.5218	12.5	22.0	50.0	--	--	2.04	2.39	2.29	2.70
24	14/19/27	19/0.36	1.80	1.9340	9.5	25.0	60.0	--	--	2.24	2.59	2.49	2.90
25	14/37/30	37/0.25	1.75	1.8162	10.0	25.0	60.0	--	--	2.24	2.59	2.49	2.90
26	13/19/26	19/0.40	2.00	2.3876	7.8	30.0	75.0	--	--	2.49	2.84	2.74	3.15
27	12/19/25	19/0.45	2.25	3.0218	6.0	35.0	90.0	--	--	2.72	3.07	2.97	3.38
28	12/37/28	37/0.32	2.24	2.9757	6.5	35.0	90.0	--	--	2.67	3.02	2.97	2.38
29	11/19/24	19/0.50	2.50	3.7306	5.0	40.0	100.0	--	--	2.93	3.28	3.18	3.58
30	10/37/26	37/.40	2.80	4.6496	3.9	50.0	125.0	--	--	3.23	3.58	3.48	3.89
31	9/19/22	19/0.65	3.25	6.3048	3.0	65.0	150.0	--	--	3.68	4.03	3.93	4.34
32	8/133/29	133/0.29	4.29	8.7849	2.2	85.0	200.0	--	--	--	--	5.06	5.56
33	6/133/27	133/0.36	5.41	13.5378	1.4	125.0	300.0	-	--	--	--	6.43	6.93

P.T.F.E. High Voltage Corona Resistant (HVCR) Cables

The size of the electronic and electrical equipments is decreasing day by day bringing in the need of wires of smaller diameter so that they can be accommodated in reduced space inside the equipment. But in high voltage applications if diameter of conductor is reduced a corona (ionized discharge) is produced. This corona attacks the insulation and greatly reduces the life of insulating material. Hence to avoid the damage of insulation the conductor diameter has to be kept large which in turn limits the miniaturization process to the equipment. High voltage corona resistant (HVCR) cables remove this Problem.

HVCR cables are made by insulating the conductor with specially made corona resistant (CR) P.T.F.E. tape. CR P.T.F.E. tape has higher resistance to corona discharge which helps in making high voltage cables in thinner diameter. The HVCR cables are available for voltages as high as 22 KV AC or 50 KV DC both with screen and without Screen. Screened HVCR cables are recommended where electrical circuit in proximity of HVCR cable needs to be protected from corona.

P.T.F.E Insulated HR Compensating Cable



Where ever the temperature is involved, it needs to be measured, monitored and controlled. One of the common methods for the purpose is the use of thermocouples.
When the thermocouple comes in contact with heating object, an emf is generated between its two wires which is proportional to the temperature of the object. Temperature indicator senses this emf and displays the corresponding temperature.

Thermocouple extension cables are the lead wires connecting the thermocouple and the temperature indicator. Conductors of these wires are of same metal as that of Thermocouple and hence are quite costly. Compensating cables are used as a cheaper alternative to the thermocouple extension cables. Here a combination of cheaper metal conductors is used which generates nearly similar emf as the original cables. P.T.F.E. insulated compensating cables are available in various types like 'J', 'K', 'T', 'R' and 'S' in different conductor sizes for specific applications as per need of the customer. P.T.F.E insulated HR compensating Cable Type 'K' are specially made for use with temperature measuring themocouples ('K' type) installed near Rotary Kilns and furnaces in steel, Cement, fertilizer, chemical plants etc. They are best suited for installations where environmental temperatures are high. Compensating cables are available both with screen (shielded) are without screen as per requirement of the customer. Overall SS wire braid armoring is provided to increase the durability and strength of the cable.

INTERNATIONAL COLOUR CODES FOR THERMOCOUPLE CABLE INSULATION

THERMOCOUPLE TYPE	BRITISH BS : 1843	AMERICAN ANSI MC96.1	GERMAN DIN43710-4	INDIAN IS : 8784	MATERIAL OF EXTENSION CABLE		MV OUTPUT	
EXTENSION					+ve(Lead)	-ve(Lead)	100° C	200° C
Kx	Chromel/ Alumel				NI/Cr	NiAl	4.10	8.13
Jx	Iron/ Constantan				Iron	Constantan	5.26	10.77
Tx	Copper/ Constantan				Copper	Constantan	4.24	9.17
COMPENSATING					+ve(Lead)	-ve(Lead)	100 C	200 C
Vx/ KC	Copper/ Constantan (Com for Type K)				Copper	Constantan	4.10	
Rc/ SC	Copper/ Cupronic (Com for Type R/S)				Copper	Cupronic	0.645	

P.T.F.E. Insulated RTD Cables

RTD cables manufactured by Santron Cable Industries are used as connecting lead wire between RTD sensor and temperature indicator device. RTD Cables are made in 2 core,3 core, 4 core and 6 core configurations, 3 cores being the most commonly used configuration.

CONSTRUCTION: RTD Cables are made in three common constructions for making them suitable for different situations. These are

Tef/Tef = This is the most common construction. The cores are insulated with Teflon and then cores are twisted and jacketed with Teflon.

Tef/Fg = in this construction cores are of Teflon and jacket is of Fiber glass braid. This is used when RTD cable has to be installed in high temperature environment.

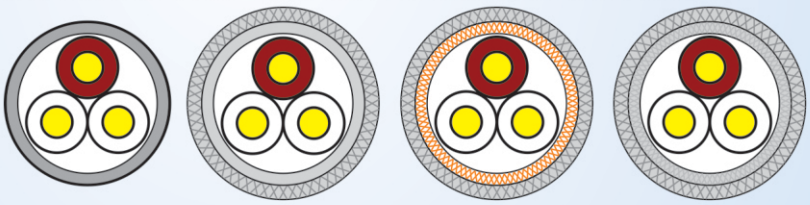
Tef/SPC/Tef = In this construction a SPC wire braid shield is provided between twisted cores and outer jacket. This type of Cable is used where higher accuracy is required. The current and voltage signals in RTD Cables are of very small magnitude and can get affected by external electromagnetic noises produced by external devises such as motors, electronic equipments etc near the cable. The SPC Shield is grounded from one end and this protects the signals in the cable from the these external noises.

In all these configurations, an additional SS wire braid Armoring can be provided to increase the mechanical toughness of the cable.

S.No.	SIZE (AWG)	Conductor Dia (mm)	Conductor Resistance (OHM/Km) max at 20degC	NOMINAL DIA OF FINISHED CABLE CABLE (mm)											
				Tef/Tef				Tef/Tef				Tef/SPC/Tef			
				2 CORE	3 CORE	4 CORE	6 CORE	2 CORE	3 CORE	4 CORE	6 CORE	2 CORE	3 CORE	4 CORE	6 CORE
1	28/7/36 SPC ET	0.39	210.5	1.69	1.95	2.15	2.5	1.6	1.85	2.10	2.4	2.09	2.35	2.55	2.9
2	26/7/34 SPC ET	0.48	133.7	1.85	2.10	2.35	2.80	1.75	2.00	2.30	2.70	2.25	2.50	2.75	3.20
3	26/7/32 SPC ET	0.60	83.2	2.06	2.35	2.65	3.13	1.96	2.25	2.60	3.03	2.46	2.75	3.05	3.53
4	22/19/34 SPC FT	0.80	49.8	2.42	2.77	3.15	3.17	2.32	2.67	3.10	3.60	2.82	3.75	3.55	4.11

Conductor sizes shown in the table are the generally used common sizes. RTD cables can be made in other sizes also as per requirement. When using long cables, it is necessary to check that the measuring equipment is capable of handling the resistance of the cables. Most equipment can cope with up to 100 ohms per core. For better accuracy in measurement, longer the cable length being used, larger should be the area of the conductor so that resistance of the lead wire is minimal.

COMMON CONSTRUCTIONS OF RTD CABLES



Tef/Tef | Tef/Tef/SS | Tef/Fg/SS | Tef/SPC/SS

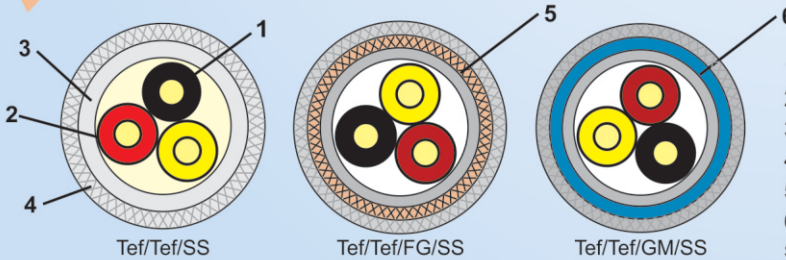
High Temperature Cables

Our team has developed the high temperature cable in our in-house R&D and testing facilities that can easily withstand at temperature ranging up to 800^0 C, such as wiring of furnace heaters, ovens and industrial wiring under harsh working conditions. See Pictures

Conductor	NPC/ SPC/ BC
Primary Insulation	PTFE (Teflon*)
Voltage Range	Upto 1100 V
Temp. Range	Upto 800^0 C

Note: Technical Specification could be shared with user on request.

Heat Resistant (HR) High Temperature P.T.F.E. Cable



Tef/Tef/SS | Tef/Tef/FG/SS | Tef/Tef/GM/SS

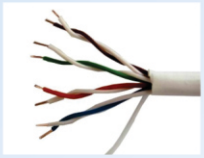
1. Core Conductor
2. P.T.F.E. Insulation
3. P.T.F.E. Jacket
4. SS Wire Armour
5. FG Braid
6. GM Tapping

SS=Stainless steel wire
GM=Glass Mica tape
FG=Fiber glass thread

Applications

- Cement Plants
- Steel Plants
- Kilns
- Glass Plants
- Power Plants

Multicore / Mulipair Cables



We manufacture a wide variety of PTFE insulated multi core signal & control cables suitable for extreme environments and rough usage. These are mainly used for high reliability and high temperature interconnections. This construction is widely used in instrumentation of aerospace and industrial applications requiring high reliability and ultimate physical and electrical performance.

These cables are available with shield as well as without shield. Shield is provided to prevent electrostatic interferences; it keeps external electrical disturbances away for affecting the signal and eliminates the unwanted transfer of signal between circuits of same cable.

Conductors	SPC/NPC/BC in any number of pairs, triads, quads combined into one large cable.
Primary Insulation	PTFE (Teflon*)
Shielding	SPC/TPC/BC/SS
Jackets	PTFE/PVC/ Fiberglass/ Customer requirements
Voltage Range	250V/600V/ 1000V/ Customer requirements.
Temp. Range	-ve 65^0 C to +ve 260^0 C

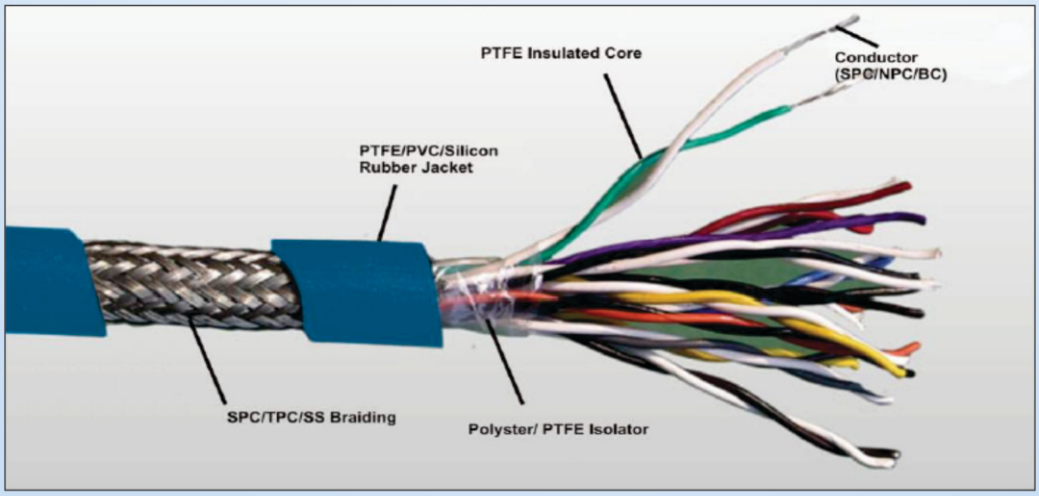
PTFE Electrical Sleeves

We manufacture PTFE sleeves and tubing as per the requirements of Indian Defense Standard JSS 54802. Made from PTFE tape wrapping and sintering process these sleeves are more flexible, high tear resistance and are mechanically more stable.

Construction	PTFE Tape Wrapping and Sintering
Temp. Range	from -ve 65^0 C + ve 260^0 C
Properties	Free from Aging, Fungus, Water Absorption, Resistance to UV radiation, High Dielectric Strength, Unaffected by soldering temperatures, Resistant to Lubricants, Aircraft or Rocket fuel and virtually all chemicals.

P.T.F.E. SLEEVES CONFORMING TO JSS SPECIFICATIONS

S.No.	Nominal ID (mm)	Nominal wall thickness (mm)	Over all dia. (mm)
1	0.50	0.25	1.00
2	0.75	0.25	1.25
3	1.00	0.30	1.60
4	1.50	0.30	2.10
5	1.50	0.40	2.30
6	2.00	0.30	2.60
7	2.00	0.40	2.80
8	2.50	0.40	3.30
9	3.00	0.40	3.80
10	3.50	0.50	4.50
11	4.00	0.50	5.00
12	5.00	0.50	6.00
13	6.00	0.50	7.00
14	7.00	0.50	8.00
15	8.00	0.50	9.00
16	9.00	0.50	10.00
17	10.00	0.50	11.00
18	12.00	1.00	14.00



ABBREVIATIONS :

PTFE	: Polytetra Fluoro Ethylene	**JSS**	: Joint Service Standards	**BC**	: Annelled Bare Copper
ETFE	: Ethylene Tri Fluoro Ethylene	**MIL**	: American Military Standard	**SS**	: Stainless Steel
FEP	: Fluorinated Ethylene Propylene	**SPC**	: Silver Plated Copper	**RF**	: Radio Frequency
PFA	: Perfiuoroalkoxy	**TPC**	: Tin Plated Copper	**RTD**	: Resistance Temperature Detector
BSG	: British Military Standard	**NPC**	: Nickel Plated Copper		

Company Profile

M/s. Santron Cable Industries, manufacture of PTFE Wires & Cables, PTFE Tape, PTFE Sleeve etc. The Company was incorporated in 2017 and owned by Mr. Kapil Chaudhary has done Post Graduation with 10 years of experience in this domain, Mr. Vijay Sharma has done Graduation with 12 Year of experience in the Industry who actively manages dedicated team of engineering marketing and administrative professionals.

We always believe in quality and timely delivery of our products. Starting from the visualization to production, the complete responsibility can be entrusted in the hands of our capable team. We have all the necessary infrastructure for manufacturing High Voltage, High Temperature & High Frequency Speciality Wires, Cables and Sleeves under PTFE (Teflon) insulation.

Santron Cable Industries has a world class state of the Art production facility, where a highly trained work force, delivers the high goal as envisaged by the management. By using rigorous quality assurance procedures ad cutting edge tools, the optimum quality of the offered is maintained at all times. The level of commitment is phenomenal. The work standards are the best in the industry which is significantly represented by quality parameters adhered to. The unparallel success of Santron Cable Industries lies in receptive approach, managerial capabilities and vision to forecast changes in market and technology.

SANTRON
CABLE INDUSTRIES
ISO 9001 : 2015 Certified

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