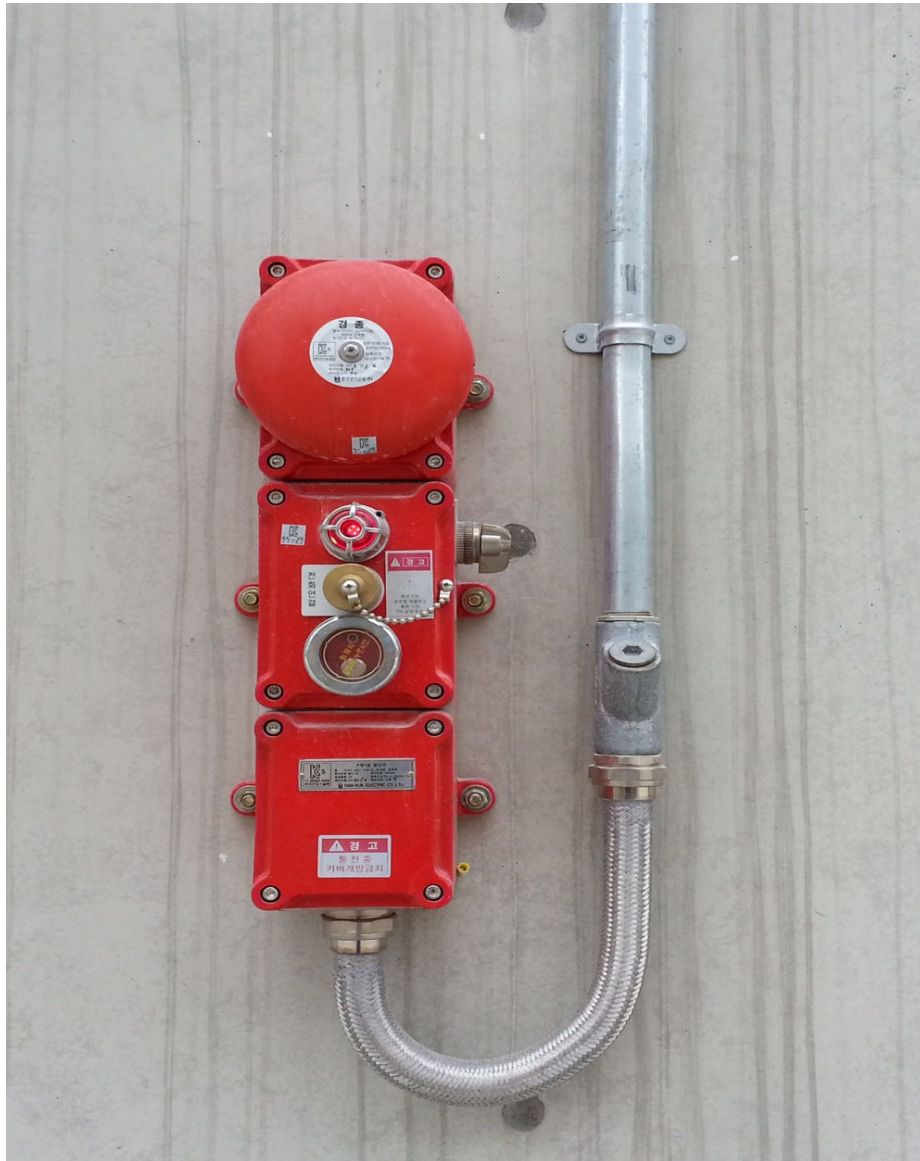




ELECTRICITY PRODUCTS

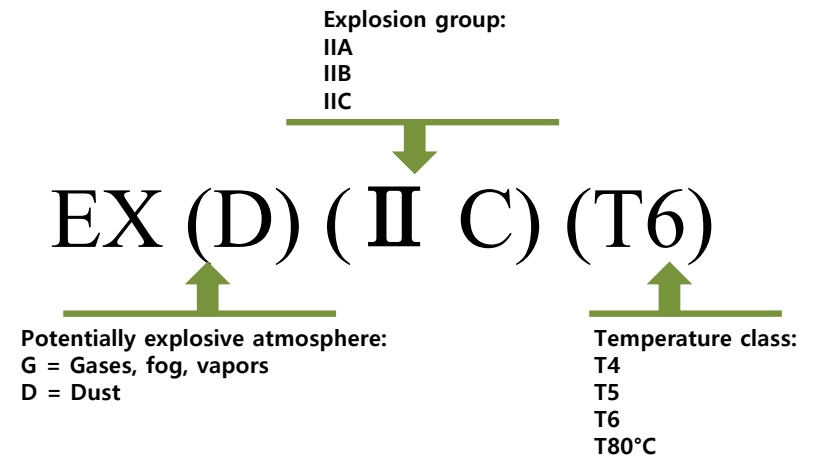
- EXPLOSION PROOF TYPE FLEXIBLE TUBES
- FLAMEPROOF TYPE CABLE GLANDS
- FLAMEPROOF TYPE SEALING FITTINGS
- VCB BELLOWS
(VACUUM CIRCUIT BREAKER BELLOWS)
- GIS BELLOWS
(GAS INSULATED SWITCHGEAR BELLOWS)

- EXPLOSION PROOF TYPE FLEXIBLE TUBES - (FLAME PROOF FLEXIBLE COUPLINGS)



ATEX/UL Designation Key:

Equipment and protection systems for legal use in explosive areas - Guideline 94/9/EG



Explosion-Proof Definition

Electrical Apparatus (such as Compressors, Motors, and Switches) designed to contain explosions or flames produced within them (Due to Arcs, Sparks, or Flashes) without igniting the surrounding (external) flammable gases or vapors.

There are two(2) types of SEUNG JIN's Explosion Proof Type Flexible Tube. One is Weld Type, and the other is Weld Free Type.

- EXPLOSION PROOF TYPE FLEXIBLE TUBES -

(1) WELD TYPE (Class1, Division 1, Ex d II C)



Model : SJ-EPF-W

Class1, Division 1, Ex d II C

Class 1, Division 1

Class 1 : Flammable gases, vapors & Flammable/Combustible liquids.

Division 1 : Where the hazard is considered to exist under Normal conditions.

EX D II C

EX : Explosion Protected

D : Protection Concept - Flameproof

II : Petro-Chemistry etc. General Industry

C : Gas Group

Maximum Experimental Safe Gap (MESG)

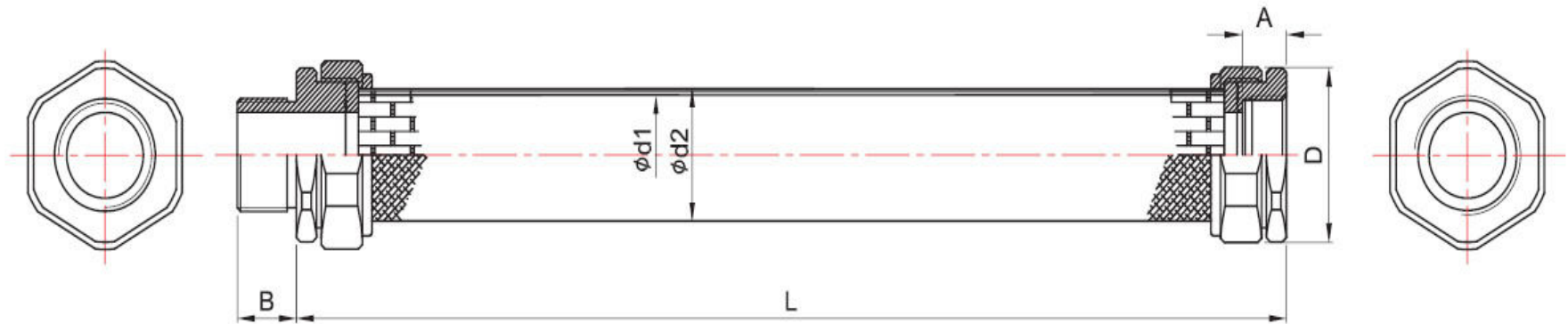
: less than 0.5mm

Minimum Ignition Current Ratio (MIC)

: less than 0.45 mm

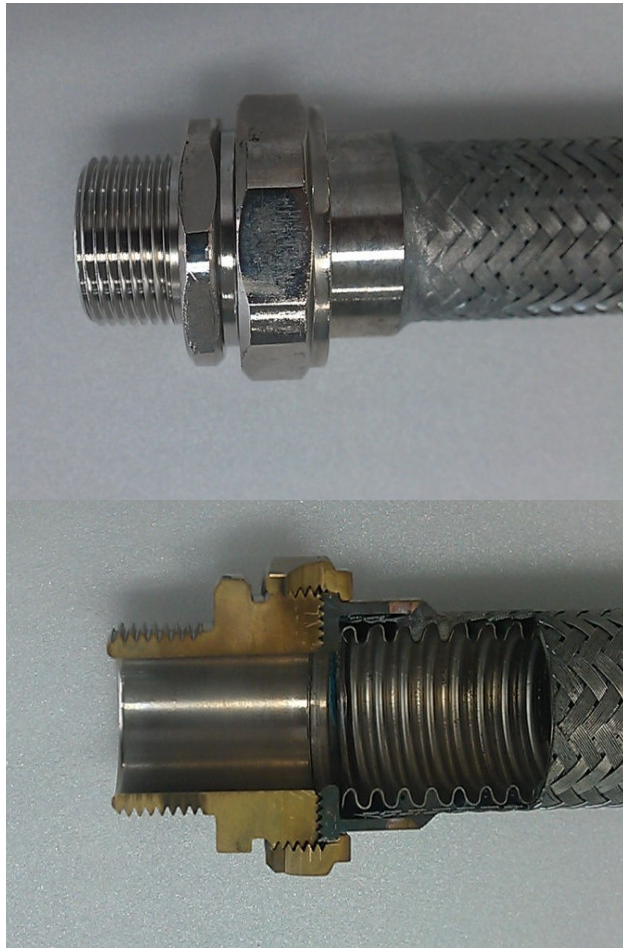
SEUNGJIN'S WELD TYPE FLAMEPROOF FLEXIBLE COUPLINGS

- EXPLOSION PROOF TYPE FLEXIBLE TUBES - (1) WELD TYPE (Class 1, Division 1, Ex d II C)



Model Number	Hub Size		Dimensions(mm)				
	Male	Female	A	B	ØD	Ød1	Ød2
SJ-EPF-W16	16(1/2")	16(1/2")	16	17	38	13.4	20.0
SJ-EPF-W22	22(3/4")	22(3/4")	16	17	46	19.1	27.1
SJ-EPF-W28	28(1")	28(1")	19	21	54	25.4	34.8
SJ-EPF-W36	36(1-1/4")	36(1-1/4")	20	21	65	39.3	42.1
SJ-EPF-W42	42(1-1/2")	42(1-1/2")	20	26	78	39.3	49.1
SJ-EPF-W54	54(2")	54(2")	23	27	98	51.8	63.0
SJ-EPF-W70	70(2-1/2")	70(2-1/2")	26	31	100	65.2	78.0
SJ-EPF-W82	82(3")	82(3")	30	31	118	76.5	92.0
SJ-EPF-W104	104(4")	104(4")	30	31	154	101.0	121.0

- EXPLOSION PROOF TYPE FLEXIBLE TUBES - (1) WELD TYPE (Class 1, Division 1, Ex d II C)



WELD TYPE FLAMEPROOF FLEXIBLE COUPLINGS

- Stainless steel flexible tube is welded to an explosion-proof union coupling.
- It is possible to weld two different metals by soldering.
- Due to the difference in material of the bellows(STS) and the explosion-proof union(BRASS), use of lead having a low melting point is inevitable.
- Vertical plane coupling explosion-proof type
- Sturdy and durable.

Material - Weld Type(SJ-EPF-W)

Flexible Tube	STS304
End Connections	Carbon Steel / Brass / STS304
Finish	Ni Electro Plated With Chromate Finish
End Connection Type	M X M(Male and Male)
	M X F(Male and Female)
	F X F(Female and Female)

- EXPLOSION PROOF TYPE FLEXIBLE TUBES - (2) WELD FREE TYPE (Class1, Division 1, Ex d II C)



SEUNG JIN'S NEW PRODUCT – WELD FREE TYPE FLAMEPROOF FLEXIBLE COUPLINGS

1) TECHNOLOGY OVERVIEW

Features of the Technology developed and implemented to the product

Explosion-proof Guidance for Factory Electrical Installation. The product is used in the wire tubing works in the Class 1 hazardous area as per the Regulation on Explosion-proof for Gas and Vapor.

The product is developed to improve user-friendliness, user safety and eco-friendliness.

The main feature of the technology implemented is the "**Weld-Free Joining Technology**".

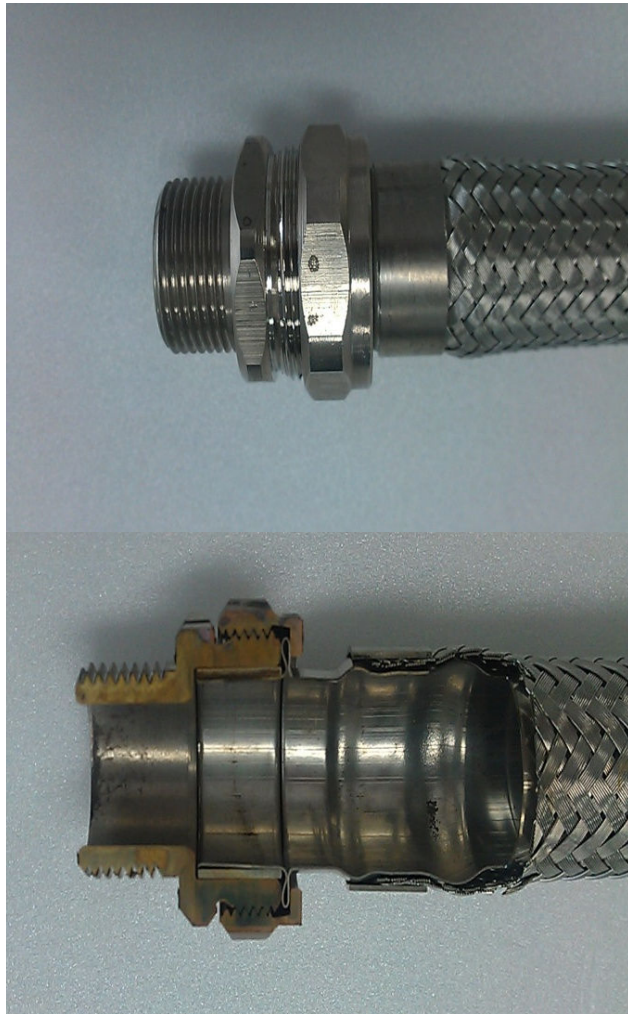
(2) WELD FREE TYPE (Class 1, Division 1, Ex d II C)

The new technology simplifies the complex and difficult Pb welding into a simple mechanical joining structure thereby improving the reliability of the joined structure, and a significant productivity improvement is gained due to the use of mechanical joining facilities compared to the manual process implemented in Pb welding.

The technology further offers an advantage of extremely low rate of material loss as the error rate is significantly reduced during manufacture, as well as the benefit of manufacture explosion-proof conduits using the eco-friendly processes since it does not use Pb.



(2) WELD FREE TYPE (Class1, Division 1, Ex d II C)



WELD FREE TYPE FLAMEPROOF FLEXIBLE COUPLINGS

- Mechanical joining using SEUNG JIN's proprietary stainless steel flexible tube, explosion-proof union coupling and facility
- Welding not required
- Light weighted; increased productivity
- Horizontal plane coupling explosion-proof type
- Eco-friendly and harmless to humans as lead-free

Material – Weld Free Type(SJ-EPF-WF)

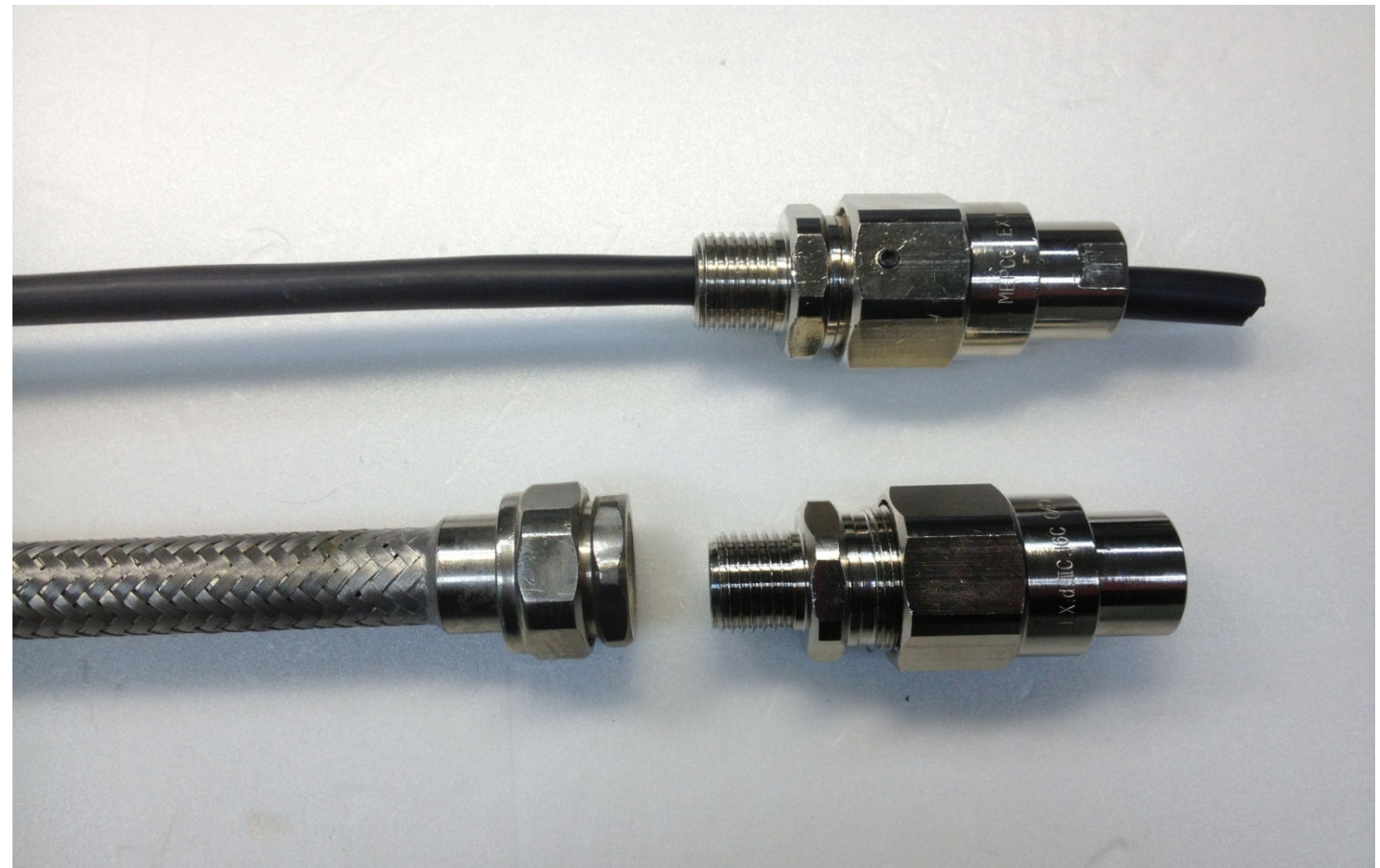
Flexible Tube	STS304
End Connections	Carbon Steel / Brass / STS304
Finish	Ni Electro Plated With Chromate Finish
End Connection Type	M X M(Male and Male)
	M X F(Male and Female)
	F X F(Female and Female)

- FLAMEPROOF TYPE PACKING CABLE GLANDS -

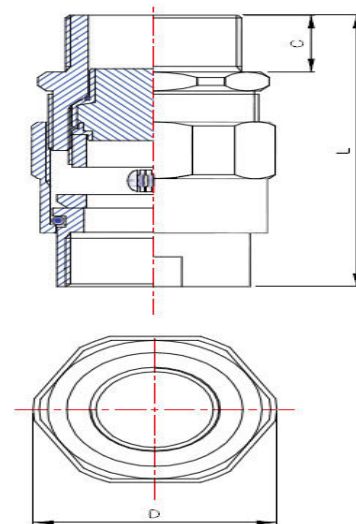
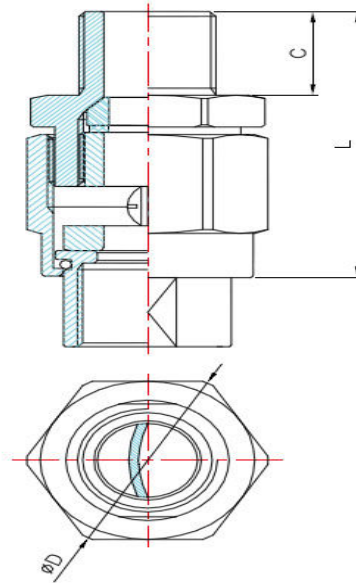


PACKING CABLE GLAND

Materials	Standard	Brass + Ni Plated
	Specialty	Carbon Steel / Aluminium Alloy / STS304
Packing		Neoprene



Flameproof Type Cable Glands



SJ-ECG-A

Class 1, Division 1, Ex d II C

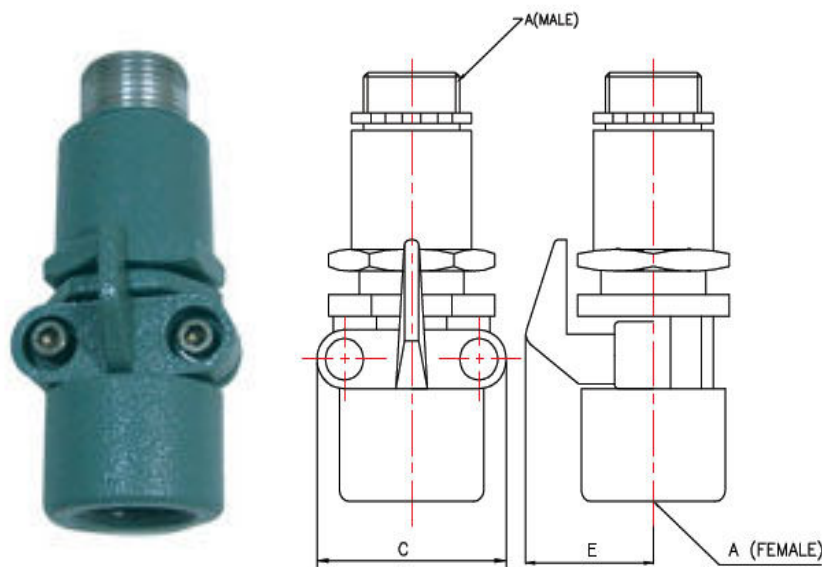
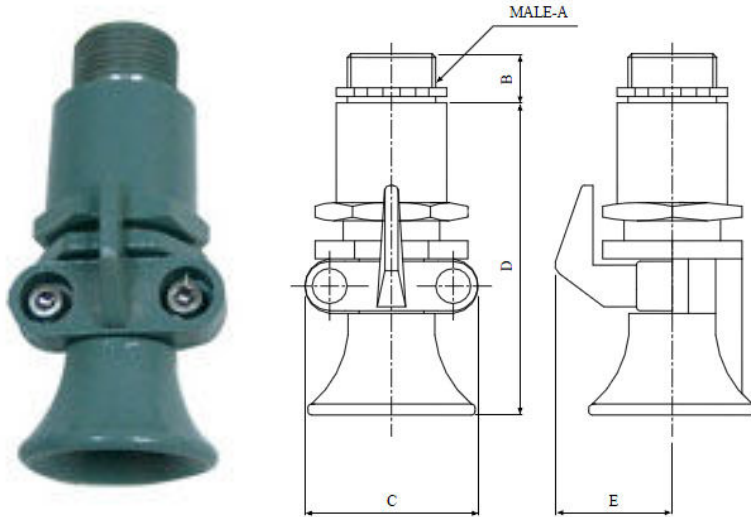
Size	C	L	D	Applicable Cable (ØA)	Conduit Thread T. T1
#16	17	64	38	7.0-11.0	CTG 16(1/2")
#22	17	66	41	10.5-15.0	CTG 22(3/4")
#28	21	72	53	16.5-21.3	CTG 28(1")
#36	21	83	58	20.6-27.0	CTG 36(1-1/4")
#42	26	92	67	23.7-29.0	CTG 42(1-1/2")
#54	27	93	79	30.9-39.0	CTG 54(2")
#70	30	94	99	40.3-51.0	CTG 70(2-1/2")
#82	30	109	122	52.6-63.0	CTG 82(3")
#104	31	125	144	64.2-75.0	CTG 104(4")

SJ-ECG-B

Class 1, Division 1, Ex d II C

Size	C	L	D	Applicable Cable (ØA)	Conduit Thread T. T1
#16	17	64	38	1.0-8.5	CTG 16(1/2")
#22	17	66	41	1.0-13.0	CTG 22(3/4")
#28	21	72	53	1.0-19.0	CTG 28(1")
#36	21	83	58	1.0-26.0	CTG 36(1-1/4")
#42	26	92	67	1.0-32.0	CTG 42(1-1/2")
#54	27	93	79	1.0-40.0	CTG 54(2")
#70	30	94	99	1.0-50.0	CTG 70(2-1/2")
#82	30	109	122	1.0-62.0	CTG 82(3")
#104	31	125	144	1.0-74.0	CTG 104(4")

Flameproof Type Cable Glands



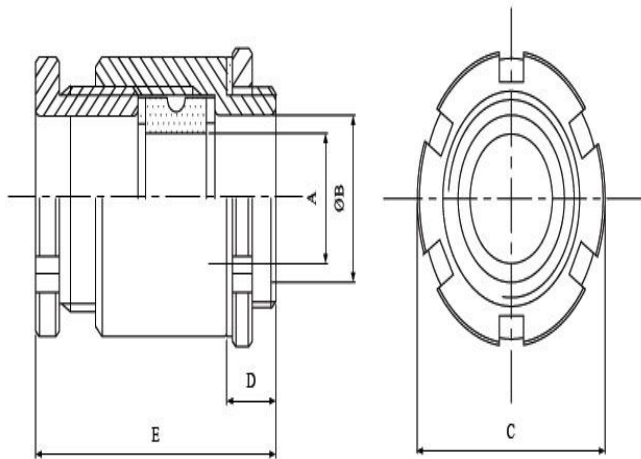
SJ-ECG-C Class 1, Division 1 & 2, Ex d II C

Size	Dimensions				Applicable Cable (ØA)	Conduit Thread A
	B	C	D	E		
#16	18	49	73	25	9.0-11.5	CTG 16(1/2")
#22	18	50	90	26	11.0-16.0	CTG 22(3/4")
#28	24	58	95	27	14.0-20.0	CTG 28(1")
#36	26	76	138	42	26.0-27.0	CTG 36(1-1/4")
#42	26	85	155	47	27.5-32.5	CTG 42(1-1/2")
#54	27	94	148	55	33.5-43.5	CTG 54(2")
#70	30	110	170	62	48.0-55.0	CTG 70(2-1/2")
#82	40	130	180	65	47.0-67.5	CTG 82(3")
#104	45	160	240	85	82.0-90.0	CTG 104(4")

SJ-ECG-D Class 1, Division 1 & 2, Ex d II C

Size	Dimensions				Applicable Cable (ØA)	Conduit Thread A
	B	C	D	E		
#16	18	49	73	25	9.0-11.5	CTG 16(1/2")
#22	18	50	80	26	11.0-16.0	CTG 22(3/4")
#28	24	58	95	27	14.0-20.0	CTG 28(1")
#36	26	76	125	42	26.0-27.0	CTG 36(1-1/4")
#42	26	85	145	47	27.5-32.5	CTG 42(1-1/2")
#54	27	94	148	55	33.5-43.5	CTG 54(2")
#70	30	110	160	62	48.0-55.0	CTG 70(2-1/2")
#82	40	130	160	65	47.0-67.5	CTG 82(3")
#104	45	160	200	85	82.0-90.0	CTG 104(4")

Weatherproof Type Cable Glands



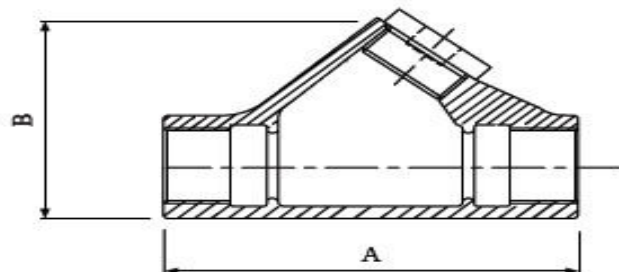
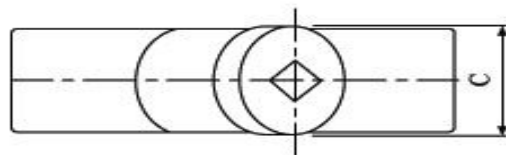
SJ-ECG-E

IP65

Size	Dimensions					Conduit Screw
	Applicable Cable (ØA)	ØB	ØC	D	E	
#10	4.0-8.0	10.0	28.0	11.0	43.0	3/8"
#15	6.4-11.0	15.0	31.0	11.0	47.0	CTG 16
#20	9.5-15.0	20.0	37.0	11.0	50.0	CTG 22
#25	14.0-20.0	25.0	45.0	11.0	58.0	CTG 28
#30	19.0-26.0	30.0	56.0	12.0	65.0	CTG 36
#35	24.5-30.0	40.0	63.0	12.0	67.0	CTG 42
#40	28.5-34.0	40.0	63.0	12.0	67.0	CTG 42
#45	33.0-40.0	50.0	76.0	12.0	72.0	CTG 54
#50	38.5-44.0	50.0	76.0	12.0	72.0	CTG 54
#55	43.0-50.0	60.0	95.0	12.0	84.0	CTG 70
#60	49.0-56.0	60.0	95.0	12.0	84.0	CTG 70
#65	54.5-60.0	75.0	110.0	15.0	94.0	CTG 82
#70	58.5-64.0	75.0	110.0	15.0	94.0	CTG 82
#75	63.0-70.0	75.0	110.0	15.0	94.0	CTG 82
#80	68.5-74.0	85.0	130.0	15.0	102.0	CTG 92
#85	72.5-78.0	85.0	130.0	15.0	102.0	CTG 92
#90	76.5-81.0	95.0	140.0	20.0	125.0	CTG 104
#95	80.0-86.0	95.0	140.0	20.0	125.0	CTG 104
#100	84.5-100.0	102.0	140.0	20.0	135.0	CTG 104

- FLAMEPROOF TYPE SEALING FITTINGS -

(1) Vertical Type



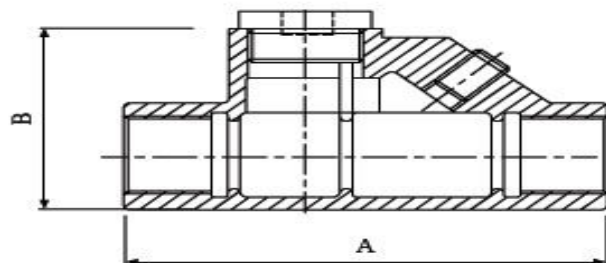
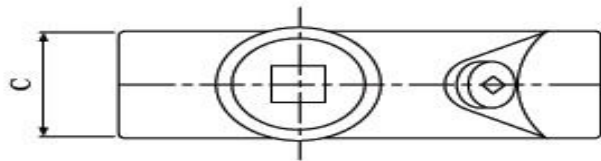
There are 3(Three) Types of SEUNG JIN's Sealing Fittings. The Types are Vertical Type, Horizontal Type, and Drain Type

SJ-SFV TYPE		Class 1, Division 1, Ex d II C		
Size	Conduit Size	Dimensions(mm)		
		A	B	C
#16	16 (1/2")	81	60	33
#22	22 (3/4")	96	72	38
#28	28 (1")	105	80	46
#36	36 (1-1/4")	127	100	57
#42	42 (1-1/2")	143	109	63
#54	54 (2")	163	136	80
#70	70 (2-1/2")	185	153	93
#82	82 (3")	205	185	108
#104	104 (4")	231	207	135

Materials	
Body	Cast Iron (Hot Dip. Galvanized) or Cast Aluminium
Plug	Carbon Steel or Cast Aluminium
O-Ring Gasket	Silicone

- FLAMEPROOF TYPE SEALING FITTINGS -

(2) Horizontal Type



SJ-SFH TYPE
d II C

Class 1, Division 1, Ex

Size	Conduit Size	Dimensions(mm)		
		A	B	C
#16	16 (1/2")	94	46	32
#22	22 (3/4")	94	50	38
#28	28 (1")	110	60	44
#36	36 (1-1/4")	128	72	55
#42	42 (1-1/2")	140	86	62
#54	54 (2")	158	100	76
#70	70 (2-1/2")	190	114	89
#82	82 (3")	216	138	108
#104	104 (4")	248	154	133

Materials

Body	Cast Iron (Hot Dip. Galvanized) or Cast Aluminium
Plug	Carbon Steel or Cast Aluminium
O-Ring Gasket	Silicone

- FLAMEPROOF TYPE SEALING FITTINGS -

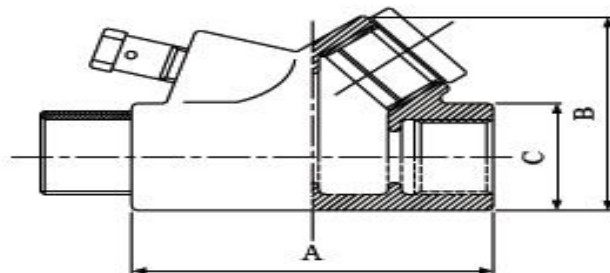
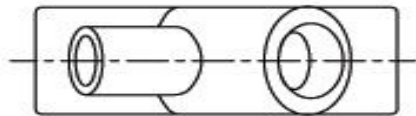
(3) Drain Type



SJ-SFD TYPE
d II C

Class 1, Division 1, Ex

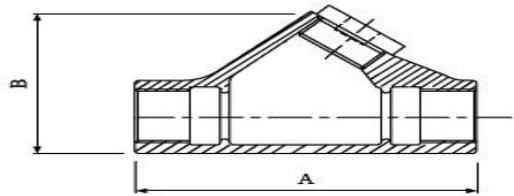
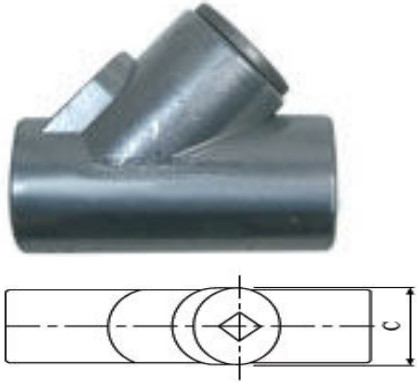
Size	Conduit Size	Dimensions(mm)		
		A	B	C
#16	16 (1/2")	94	46	32
#22	22 (3/4")	94	50	38
#28	28 (1")	110	60	44
#36	36 (1-1/4")	128	72	55
#42	42 (1-1/2")	140	86	62
#54	54 (2")	158	100	76
#70	70 (2-1/2")	190	114	89
#82	82 (3")	216	138	108
#104	104 (4")	248	154	133



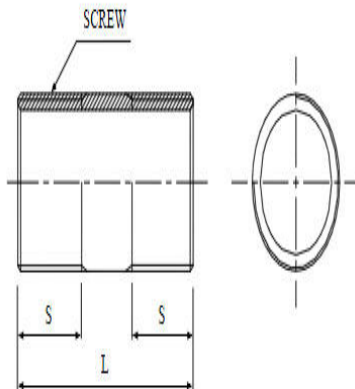
Materials

Body	Cast Iron (Hot Dip. Galvanized) or Cast Aluminium
Plug	Carbon Steel or Cast Aluminium
Drain	Stainless Steel
O-Ring Gasket	Silicone

(4) Vertical Type(AL)



- ACCESSORIES (1) -



SJ-SFV-AL TYPE

Class 1, Division 1, Ex d II C

Size	Conduit Size	Dimensions(mm)		
		A	B	C
#16	16 (1/2")	82	55.3	31
#22	22 (3/4")	90	65	36
#28	28 (1")	98	76	43
#36	36 (1-1/4")	106	94	55
#42	42 (1-1/2")	114	105	61
#54	54 (2")	136	130	75

Materials

Body	Die Cast Aluminium Alloy
Plug	Carbon Steel or Cast Aluminium
O-Ring Gasket	Silicone

Nipple

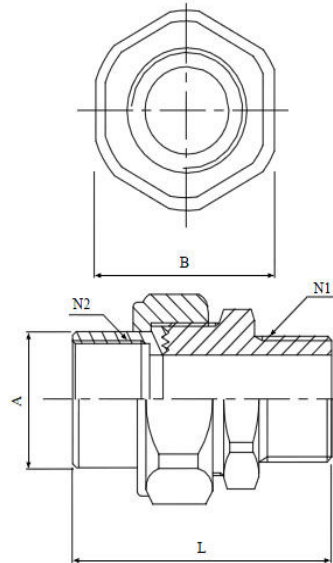
Class 1, Division 1 & 2, Ex d II C

Size	Conduit Thread	S	L
#16	1/2"	17	44
#22	3/4"	17	44
#28	1"	20	55
#36	1-1/4"	20	55
#42	1-1/2"	20	55
#54	2"	25	65
#70	2-1/2"	25	65
#82	3"	30	80
#104	4"	35	90

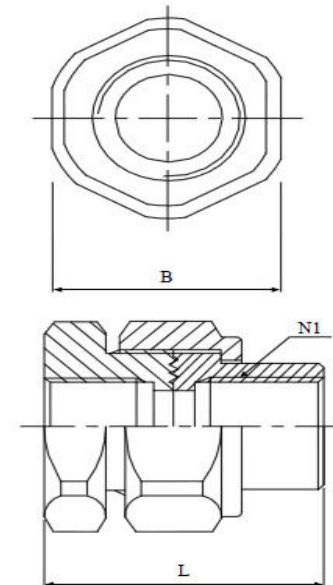
- ACCESSORIES (2) -



Union Coupling(Male)



Union Coupling(Female)



Union Coupling(Male)		Class 1, Division 1 & 2, Ex d II C	
Size	L	B	CTG
#16	55	32	16(1/2")
#22	57	38	22(3/4")
#28	66	46	28(1")
#36	69	56	36(1-1/4")
#42	80	64	42(1-1/2")
#54	84	74	54(2")
#70	97	90.5	70(2-1/2")
#82	100	105	82(3")
#104	104	133	104(4")

Union Coupling(Female)		Class 1, Division 1 & 2, Ex d II C	
Size	L	B	CTG
#16	39	32	16(1/2")
#22	40	38	22(3/4")
#28	45	46	28(1")
#36	48	56	36(1-1/4")
#42	54	64	42(1-1/2")
#54	57	74	54(2")
#70	67	90.5	70(2-1/2")
#82	70	105	82(3")
#104	73	133	104(4")

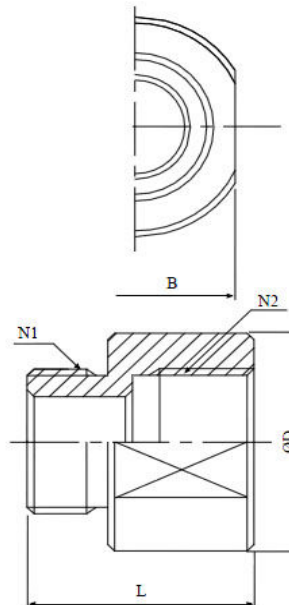
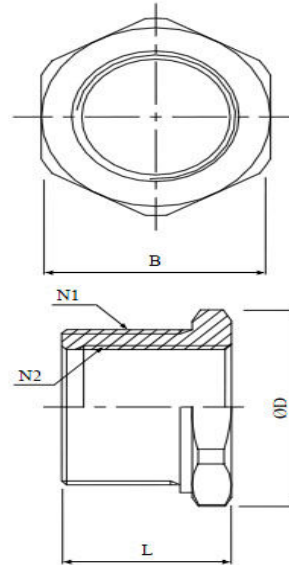
- ACCESSORIES (3) -



Adapter



Socket

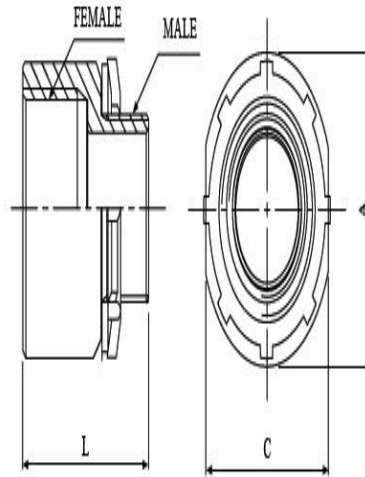


Adapter & Socket		Class 1, Division 1 & 2, Ex d II C			
Size	B	ØD	L	CTG	
				N1	N2
22x16	30	33	23	22(3/4")	16(1/2")
28x22	35	38	27	28(1")	22(3/4")
36x28	46	49	28	36(1-1/4")	28(1")
42x36	50	53	33	42(1-1/2")	36(1-1/4")
54x42	62	64.5	35	54(2")	42(1-1/2")
70x54	78	82	38	70(2-1/2")	54(2")
82x70	90	94	41	82(3")	70(2-1/2")
104x82	115.5	119.5	41	104(4")	82(3")
Size	B	ØD	L	CTG	
				N1	N2
16x22	29	31	36	16(1/2")	22(3/4")
22x28	36	38	39	22(3/4")	28(1")
28x36	45	47	44	28(1")	36(1-1/4")
36x42	51	53	44	36(1-1/4")	42(1-1/2")
42x54	62.5	64.5	53	42(1-1/2")	54(2")
54x70	80	82	61	54(2")	70(2-1/2")
70x82	92	96	64	70(2-1/2")	82(3")
82x104	117	120	65	82(3")	104(4")

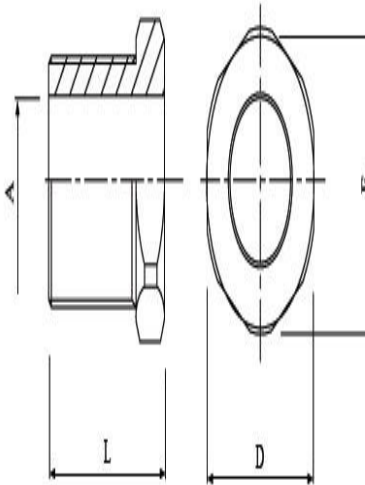
- ACCESSORIES (4) -



Hub



Chase Nipple



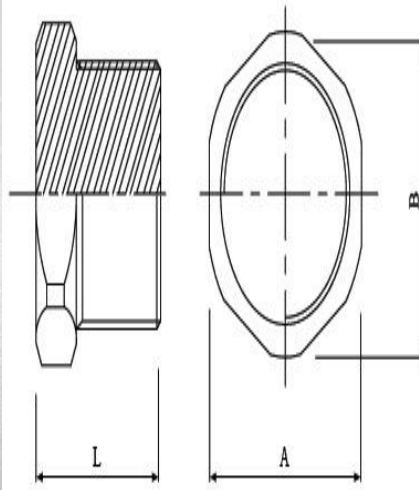
Hub		Class 1, Division 1 & 2, Ex d II C			
Size	Conduit Thread		A	L	C
	Male	Female			
#16	1/2"	1/2"	26.0	36.0	25.0
#22	3/4"	3/4"	31.0	36.0	29.0
#28	1"	1"	38.0	43.0	36.0
#36	1-1/4"	1-1/4"	47.0	44.0	45.0
#42	1-1/2"	1-1/2"	54.0	55.0	52.0
#54	2"	2"	66.0	61.0	63.0
#70	2-1/2"	2-1/2"	83.0	65.0	80.0
#82	3"	3"	95.0	66.0	92.0
#104	4"	4"	119.5	66.0	116.0

Chase Nipple		Class 1, Division 1 & 2, Ex d II C			
Size	Conduit Thread	A	D	F	L
#16	1/2"	14.0	24.0	26.0	23.0
#22	3/4"	19.0	30.0	33.0	23.0
#28	1"	25.0	35.0	38.0	27.0
#36	1-1/4"	33.0	46.0	49.0	28.0
#42	1-1/2"	39.0	50.0	53.0	33.0
#54	2"	51.0	62.0	65.0	35.0
#70	2-1/2"	62.0	78.0	82.0	38.0
#82	3"	77.0	90.0	95.0	41.0
#104	4"	102.0	115.5	120.0	41.0

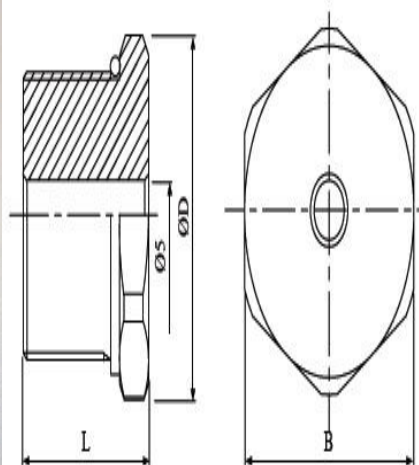
- ACCESSORIES (5) -



Plug



Drain Plug



Plug		Class 1, Division 1 & 2, Ex d II C		
Size	Conduit Thread	A	B	L
#16	1/2"	24	26	23
#22	3/4"	30	33	23
#28	1"	35	38	27
#36	1-1/4"	46	49	28
#42	1-1/2"	50	53	33
#54	2"	62	64.5	35
#70	2-1/2"	78	82	38
#82	3"	90	94	41
#104	4"	115.5	119.5	41

Drain Plug		Class 1, Division 1 & 2, Ex d II C		
Size	Conduit Thread	B	ØD	L
#16	1/2"	25	28	22
#22	3/4"	30	33	22
#28	1"	35	39	26
#36	1-1/4"	46	49	28
#42	1-1/2"	50	54	30
#54	2"	63	67	32
#70	2-1/2"	79	82	40
#82	3"	93	97	42
#104	4"	125	129	45

- VCB BELLOWS(VACUUM CIRCUIT BREAKER BELLOWS) -



Vacuum circuit breakers have minimal arcing (as there is nothing to ionize other than the contact material), so the arc quenches when it is stretched to a very small amount. (<2-3 mm)

At or near current zero the arc is not hot enough to maintain the plasma, and current ceases; the gap can then withstand the rise of voltage.

VCB (Vacuum Circuit Breaker)

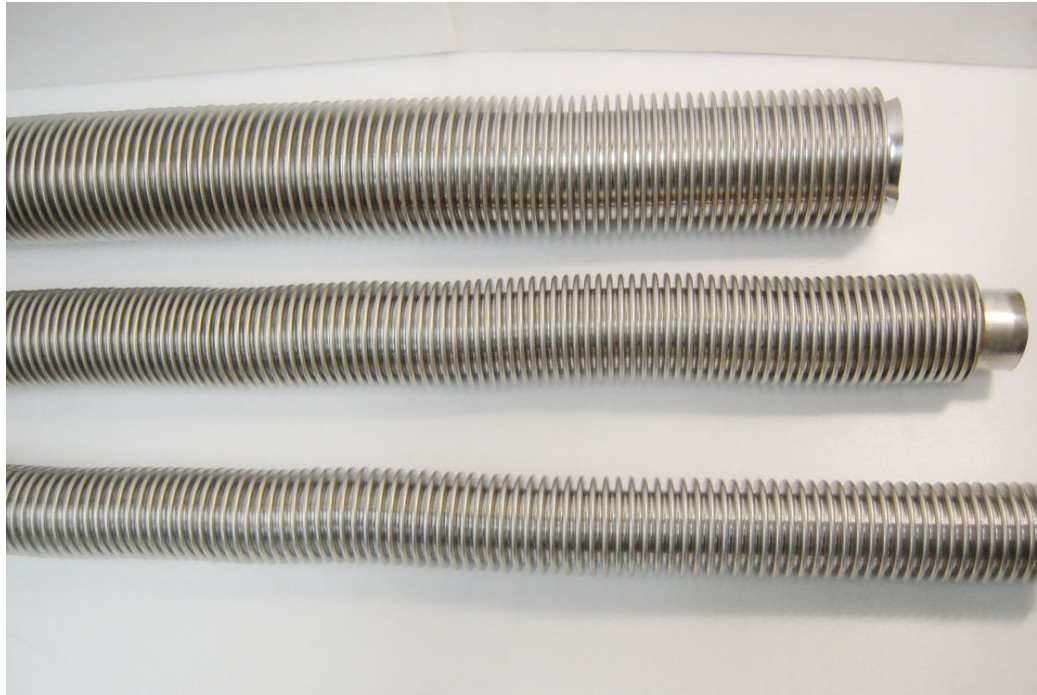
Vacuum circuit breakers are used to protect medium and high voltage circuits from dangerous electrical situations.

These circuit breakers break the circuit so that energy cannot continue flowing through it, thereby preventing fires, power surges, and other problems which may emerge.

FEATURES

Temperature	-200°C ~ 800°C
Elasticity of Bellows	50%~70%
Leakage Rate	< 1.0X10 ⁻⁹ Pa·m ³ /s
Bellows Material	SUS304, 316L
Life Cycle	5X10 ³ ~ 1X10 ⁶
Application	Bellows Sealed Valve, Vacuum Interrupter, Industrial Auto Controller, etc.

- VCB BELLOWS(VACUUM CIRCUIT BREAKER BELLOWS) -



Vacuum circuit breakers are frequently used in modern medium-voltage switchgear to 35,000 volts. Unlike the other types, they are inherently unsuitable for interrupting DC faults.

VCB Bellows is widely and essentially applied on the various industrial branches demanding high leveled precision and quality, zero-emission/leakage and the latest modern characteristics.

VCB BELLOWS SPECIFICATION

Material: SUS304, 316, 316L

【Unit: mm Outside tolerance:±0.3】

	16A	20A	22A	25A	30A	40A	50A	60A	65A	80A	100A	125A	150A	200A	250A	300A
ID	16.1	20.0	22.0	25.3	31.0	37.7	49.8	60.0	66.0	78.1	100.3	127.2	148.6	200.2	250.3	300.0
OD	26.0	30.5	33.5	38.5	46.0	56.0	69.0	81.5	90.0	104.0	132.0	160.0	188.0	250.0	306.0	352
Leakage Rate	<1.0X10 ⁻¹⁰ Pa·m ³ /s															
Elasticity	50%~70%															
Length	2 Meter															
Temp	-200°C ~ 800°C															

- GIS BELLOWS(GAS INSULATED SWITCHGEAR BELLOWS) -

GIS BELLOWS



GIS Bellows are mainly used on SF6 high voltage metal clad compact switchgear which is commonly known as gas insulated switchgear and it is the key part concerning to the safety and service life of the entire high voltage compact gas insulated switchgear.

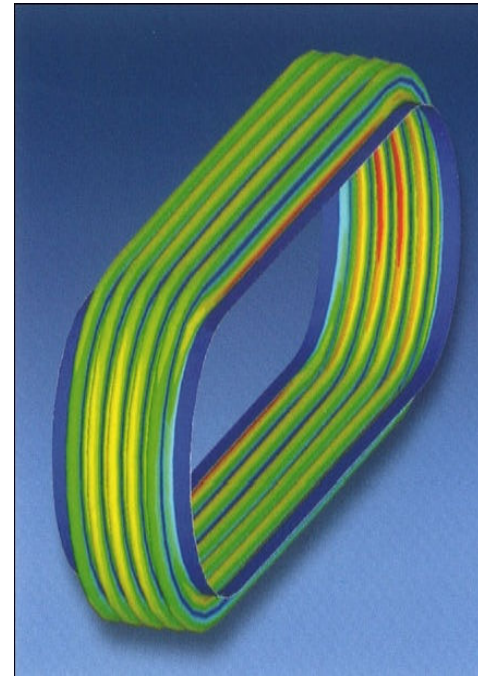
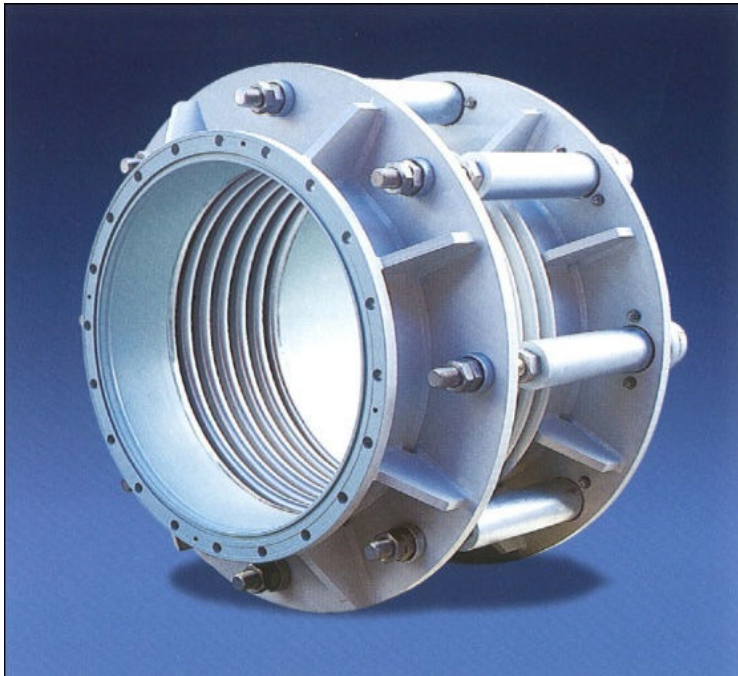
Being the connection part between shields of two facilities, GIS bellows are mainly used to adjust the installation and compensate the movement, and absorb the extension and compression due to the thermal changes.

Expansion bellows utilized on GIS substation is an element performing to compensate length variation and deformation due to temperature changes, dismantling, dimensional possible tolerance while assembling and earthquake.

GIS Bellows Ellipse Type

SPECIFICATION	
Application	Interrupter, Transformer 25.8kV/72kV/84kV/ 145kV/170kV/362kV/800kV
Material	SUS304, SUS316L, etc.
Manufacturing Size	50A ~ 2000A
Pressure Range	1 ~ 10kgf/cm ²

- GIS BELLOWS - (SF6 GAS INSULATED SWITCHGEAR BELLOWS)



Expansion bellows used for the GIS device absorbs the shock generated during switching on and off.

This bellows also permits changes in shape and length due to fluctuations in temperature while absorbing movements due to repair, reassembly or earthquake.

GIS Bellows Circle Type

Bellow Expansion Joints are needed inside the Gas Insulated Switchgear to balance the thrust generated from internal pressure. The Gas Insulated Switchgear works as a circuit breaker to isolate electrical equipment and balance electrical loads. Pressurized gas within the GIS provides insulation and interrupts faults, reducing the likelihood of the current arcing from one piece of equipment to another.