

HIGH FREQUENCY COAXIAL TRANSMISSION CABLES



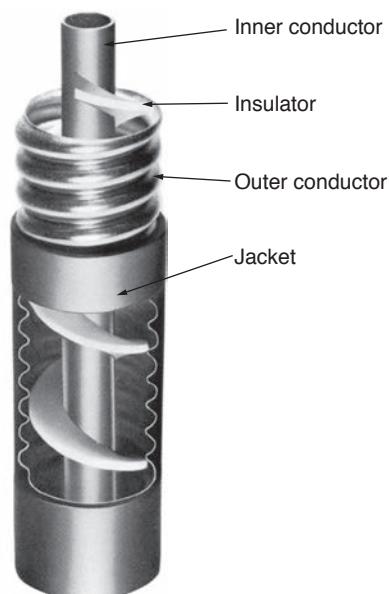
FEATURES

HF cables are noted for the following features:

- ▶ Super flexibility, for installation.
- ▶ Larger average power rating.
- ▶ Smaller attenuation value.
- ▶ Customized cable length available.
- ▶ Excellent V.S.W.R.
- ▶ Light weight and easy handling. Due to its corrugated outer conductor, can handle external pressure on.
- ▶ Cable uses its own unique oxygen-free copper to create copper Toughlex, as the outer conductor.



Connector



HFcable

APPLICATION



Broadcasting

Mainly used as the main and branch feeders for transmission.

- (a) Medium-wave, short-wave radio broadcasting
- (b) FM radio broadcasting
- (c) VHF-TV broadcasting
- (d) UHF-TV broadcasting

General use

- (a) Radar equipment
- (b) Antenna feeder
- (c) Microwave relay installation

HF-203D-S 8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	89.1	Corrugated copper
Insulator	196	PFA
Outer conductor	215	Corrugated copper
Jacket	226	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	15 kg/m
Minimum bending radius	
Single	1700 mm
Repeated	2500 mm
Tensile strength	4700 N
Flat plate crush strength	5000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	16 mΩ/100m
Insulation resistance	1000 MΩ-km
Peak voltage	20000 V
Peak power rating	4000 kW
Jacket spark	8000 V RMS
Maximum frequency	650 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.07	-
30 - 230	1.05	1.10	1.15
230 - 470	-	1.10	-
470 - 650	1.05	1.10	1.15

*1: Less than 30MHz band

Accessories

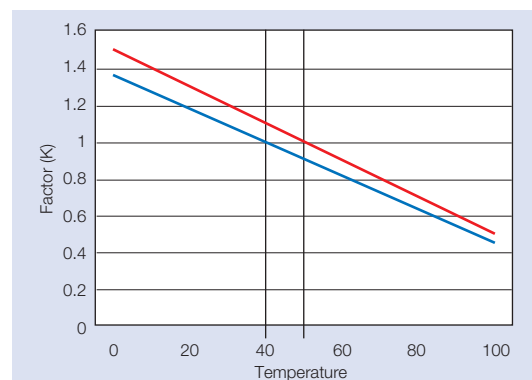
Connector/Flange type			
Standard	Structure		Type
-	Female flange	Gas through	203D-WFP-10FS
-	Female flange	Gas barrier	203D-WFS-11FS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.011	4000	4000
1	0.015	4000	4000
10	0.048	1395	1270
30	0.085	785	715
50	0.115	600	545
100	0.168	412	375
200	0.252	280	255
300	0.321	222	201
400	0.391	187	170
500	0.461	163	148
600	0.531	147	133
650	0.55	138	125

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 150°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$P = P_o \times K$

P_o : Ambient temperature 40°C & 50°C

P: Ambient temperature T°C

K: Factor $K = (150 - T) / 110$ $P_o = 40^\circ\text{C}$ (Blue line)

$K = (150 - T) / 100$ $P_o = 50^\circ\text{C}$ (Red line)

HF-152D 6-1/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	66.7	Corrugated copper
Insulator	147	Polyethylene
Outer conductor	162	Corrugated copper
Jacket	174	Polyethylene, Black

Mechanical Characteristics		
Item	Specification	
Cable weight	9.1 kg/m	
Minimum bending radius		
	Single	1200 mm
	Repeated	2000 mm
Tensile strength	5000 N	
Flat plate crush strength	5000 N/50mm	

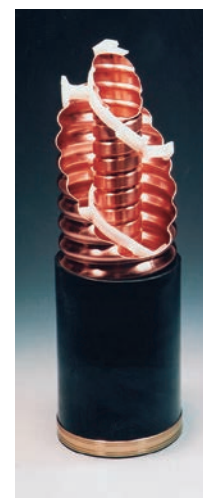
Electrical Characteristics		
Item	Specification	
Impedance	50 Ω	
Velocity	96 %	
Direct current resistance (Loop resistance)	23 mΩ/100m	
Insulation resistance	1000 MΩ·km	
Peak voltage	17000 V	
Peak power rating	2890 kW	
Jacket spark	8000 V RMS	
Maximum frequency	860 MHz	

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 850	1.05	1.10	1.15

*1: Less than 30MHz band

Accessories

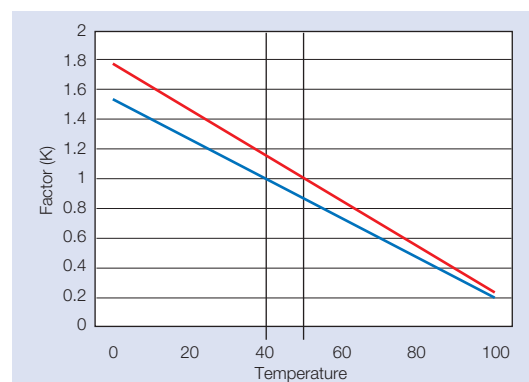
Connector/Flange type			
Standard	Structure		Type
EIA 6-1/8"	Female flange	Gas through	152D-EFP-11FS
	Female flange	Gas barrier	152D-EFS-11FS
JEITA BFX-152D	Male flange	Gas through	152D-WMP-10FS
	Female flange	Gas through	152D-WFP-10RS
	Coupling	Gas barrier	152D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.013	2505	2170
1	0.0185	1770	1530
10	0.058	550	480
30	0.11	315	275
50	0.135	244	210
100	0.19	171	148
200	0.275	120	104
300	0.34	97.0	84.0
400	0.395	83.5	72.5
500	0.45	74.5	64.5
600	0.495	68.0	59.0
700	0.54	63.0	54.5
800	0.58	58.5	51.0
850	0.6	56.5	49.5

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_0 \times K$

P_0 : Ambient temperature 40°C & 50°C

P: Ambient temperature T°C

K: Factor $K = (115 - T) / 75$ $P_0 = 40^\circ\text{C}$ (Blue line)

$K = (115 - T) / 65$ $P_0 = 50^\circ\text{C}$ (Red line)

HF-120D 5-1/2" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	58	Corrugated copper
Insulator	127	Polyethylene
Outer conductor	140.5	Corrugated copper
Jacket	148	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	7.8 kg/m
Minimum bending radius	
Single	900 mm
Repeated	1600 mm
Tensile strength	3500 N
Flat plate crush strength	3000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	27 mΩ/100m
Insulation resistance	1000 MΩ-km
Peak voltage	15000 V
Peak power rating	2250 kW
Jacket spark	8000 V RMS
Maximum frequency	950 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 950	1.05	1.10	1.15

*1: Less than 30MHz band

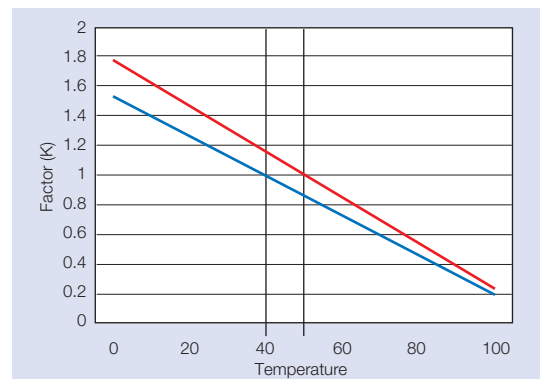
Accessories			
Connector / Flange type			
Standard	Structure		Type
IEC 4-1/2"	Female flange	Gas through	120D-105D-IFP-11FS
	Female flange	Gas barrier	120D-105D-IFS-11FS
JEITA BFX-120D	Male flange	Gas through	120D-WMP-10FS
	Female flange	Gas through	120D-WFP-10RS
	Coupling	Gas barrier	120D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.015	1885	1635
1	0.0215	1330	1155
10	0.0675	415	360
30	0.12	240	208
50	0.155	185	160
100	0.22	130	112
200	0.315	91.0	78.5
300	0.39	74.0	64.0
400	0.455	64.0	55.5
500	0.515	57.0	49.5
600	0.57	52.0	45.0
700	0.62	48.5	42.0
800	0.665	45.5	39.0
900	0.715	42.5	37.0
950	0.74	41.5	36.0

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$$P = P_o \times K$$

P_o : Ambient temperature 40°C & 50°C
 P : Ambient temperature T°C
 K : Factor $K = (115 - T) / 75$ $P_o = 40^\circ\text{C}$ (Blue line)
 $K = (115 - T) / 65$ $P_o = 50^\circ\text{C}$ (Red line)

HF-105D 5" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	45	Corrugated copper
Insulator	98	Polyethylene
Outer conductor	109	Corrugated copper
Jacket	117	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	4.85 kg/m
Minimum bending radius	
Single	500 mm
Repeated	1300 mm
Tensile strength	3000 N
Flat plate crush strength	3000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	42 mΩ/100m
Insulation resistance	1000 MΩ·km
Peak voltage	12500 V
Peak power rating	1560 kW
Jacket spark	8000 V RMS
Maximum frequency	1130 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15

*1: Less than 30MHz band

Accessories

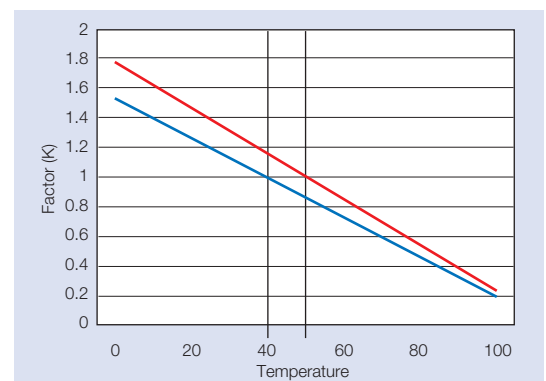
Connector / Flange type			
Standard	Structure		Type
EIA 6-1/8"	Female flange	Gas through	105D-152D-EFP-11FS
	Female flange	Gas barrier	105D-152D-EFS-11FS
IEC 4-1/2"	Female flange	Gas through	105D-IFP-11FS
	Female flange	Gas barrier	105D-IFS-11FS
EIA 3-1/8"	Female flange	Gas through	105D-77D-EFP-11FS
	Female flange	Gas barrier	105D-77D-EFS-11FS
JEITA BFX-120D	Male flange	Gas through	105D-120D-WMP-10FS
	Female flange	Gas through	105D-120D-WFP-10RS
	Coupling	Gas barrier	105D-120D-WGS-11NFS
JEITA BFX-77D	Male flange	Gas through	105D-77D-WMP-10FS
	Female flange	Gas through	105D-77D-WFP-10RS
	Coupling	Gas barrier	105D-77D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.0195	1200	1040
1	0.028	848	735
10	0.088	266	230
30	0.155	153	132
50	0.2	118	102
100	0.285	82.5	71.5
200	0.41	58.0	50.0
300	0.505	47.0	40.5
400	0.585	40.5	35.0
500	0.66	36.0	31.5
600	0.73	33.0	28.5
700	0.79	30.5	26.5
800	0.85	28.5	24.5
900	0.91	26.5	23.0
1000	0.96	25.5	22.0

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_o \times K$
 P_o : Ambient temperature 40°C & 50°C
 P : Ambient temperature T°C
 K : Factor $K = (115 - T) / 75$ $P_o = 40^\circ\text{C}$ (Blue line)
 $K = (115 - T) / 65$ $P_o = 50^\circ\text{C}$ (Red line)

HF-100D 4" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	38.2	Corrugated copper
Insulator	84	Polyethylene
Outer conductor	94.6	Corrugated copper
Jacket	100	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	3.7 kg/m
Minimum bending radius	
Single	450 mm
Repeated	1000 mm
Tensile strength	3000 N
Flat plate crush strength	2500 N/50mm

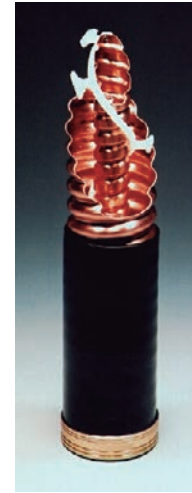
Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	55 mΩ/100m
Insulation resistance	1000 MΩ·km
Peak voltage	10000 V
Peak power rating	1000 kW
Jacket spark	8000 V RMS
Maximum frequency	1400 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15

*1: Less than 30MHz band

Accessories

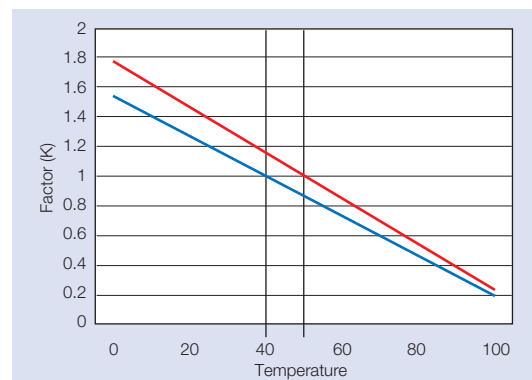
Connector / Flange type			
Standard	Structure		Type
EIA 6-1/8"	Female flange	Gas through	100D-152D-EFP-11FS
	Female flange	Gas barrier	100D-152D-EFS-11FS
IEC 4-1/2"	Female flange	Gas through	100D-IFP-11FS
	Female flange	Gas barrier	100D-IFS-11FS
EIA 3-1/8"	Female flange	Gas through	100D-77D-EFP-11FS
	Female flange	Gas barrier	100D-77D-EFS-11FS
JEITA BFX-120D	Male flange	Gas through	100D-120D-WMP-10FS
	Female flange	Gas through	100D-120D-WFP-10RS
	Coupling	Gas barrier	100D-120D-WGS-11NFS
JEITA BFX-77D	Male flange	Gas through	100D-77D-WMP-10FS
	Female flange	Gas through	100D-77D-WFP-10RS
	Coupling	Gas barrier	100D-77D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.0223	945	790
1	0.0315	665	558
10	0.101	210	175
30	0.177	120	100
50	0.23	92.5	77.4
100	0.33	64.9	54.3
200	0.475	45.2	37.8
300	0.59	36.5	30.6
400	0.67	31.4	26.3
500	0.78	27.9	23.3
600	0.865	25.3	21.2
700	0.94	23.3	19.45
800	1.02	21.6	18.10
900	1.085	20.3	17.00
1000	1.15	19.15	16.05

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$$P = P_0 \times K$$

P₀: Ambient temperature 40°C & 50°C

P: Ambient temperature T°C

K: Factor $K = (115 - T) / 75$ Po=40°C (Blue line)

$K = (115 - T) / 65$ Po=50°C (Red line)

HF-77D 3-1/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	33	Corrugated copper
Insulator	71	Polyethylene
Outer conductor	81	Corrugated copper
Jacket	88	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	3.0 kg/m
Minimum bending radius	
Single	400 mm
Repeated	800 mm
Tensile strength	3000 N
Flat plate crush strength	2000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	60 mΩ/100m
Insulation resistance	1000 MΩ·km
Peak voltage	9700 V
Peak power rating	940 kW
Jacket spark	8000 V RMS
Maximum frequency	1550 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15

*1: Less than 60MHz band

Accessories

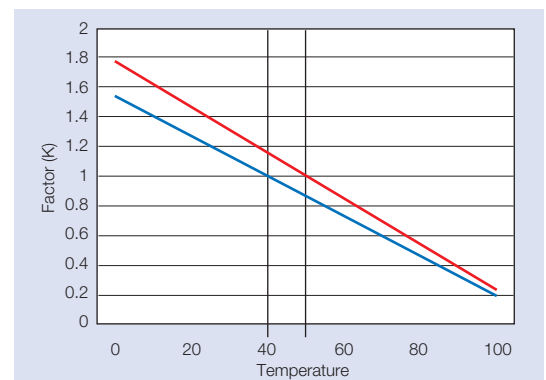
Connector / Flange type			
Standard	Structure		Type
EIA 3-1/8"	Female flange	Gas through	77D-EFP-11FS
	Female flange	Gas barrier	77D-EFS-11FS
JEITA BFX-77D	Male flange	Gas through	77D-WMP-10FS
	Female flange	Gas through	77D-WFP-10RS
	Coupling	Gas barrier	77D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.026	740	645
1	0.04	523	455
10	0.12	165	143
30	0.21	93.5	81.5
50	0.27	72.5	63.0
100	0.39	50.5	44.0
200	0.56	35.5	31.0
300	0.68	29.0	25.0
400	0.80	25.0	21.5
500	0.90	22.4	19.5
600	0.99	20.5	17.8
700	1.10	19.0	16.5
800	1.20	17.8	15.5
900	1.25	16.7	14.6
1000	1.30	15.9	13.8
1500	1.65	13.2	11.5

Condition

- 1) Attenuation
 - Ambient temperature 20°C, Nominal value
- 2) Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$P = P_0 \times K$

P_0 : Ambient temperature 40°C & 50°C

P : Ambient temperature T °C

K : Factor $K = (115 - T) / 75$ $P_0 = 40$ °C (Blue line)

$K = (115 - T) / 65$ $P_0 = 50$ °C (Red line)

HF-70D 3" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	30.1	Corrugated copper
Insulator	65	Polyethylene
Outer conductor	74	Corrugated copper
Jacket	79	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	2.5 kg/m
Minimum bending radius	
Single	300 mm
Repeated	750 mm
Tensile strength	2500 N
Flat plate crush strength	2000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	96 %
Direct current resistance (Loop resistance)	62 mΩ/100m
Insulation resistance	1000 MΩ-km
Peak voltage	7600 V
Peak power rating	578 kW
Jacket spark	8000 V RMS
Maximum frequency	1800 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15

*1: Less than 60MHz band

Accessories

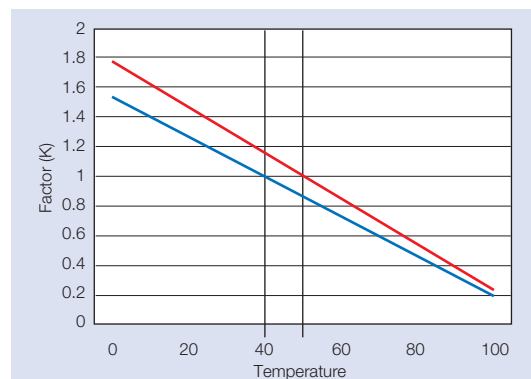
Connector / Flange type			
Standard	Structure		Type
EIA 3-1/8"	Female flange	Gas through	70D-EFP-11FS
	Female flange	Gas barrier	70D-EFS-11FS
JEITA BFX-77D	Male flange	Gas through	70D-WMP-10FS
	Female flange	Gas through	70D-WFP-10RS
	Coupling	Gas barrier	70D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.028	578	526
1	0.040	436	372
10	0.125	137	117
30	0.220	78.6	67
50	0.285	60.6	51.7
88	0.381	45.4	38.7
100	0.407	42.5	36.2
108	0.424	40.9	34.8
174	0.544	31.9	27.2
200	0.586	29.7	25.3
230	0.631	27.6	23.6
300	0.727	24.1	20.5
400	0.849	20.7	17.6
500	0.958	18.4	15.7
600	1.06	16.7	14.2
700	1.15	15.3	13.1
800	1.24	14.3	12.2
900	1.33	13.4	11.4
960	1.38	12.9	11
1000	1.41	12.7	10.8
1500	1.77	10.1	8.7

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$$P = P_0 \times K$$

P_0 : Ambient temperature 40°C & 50°C

P : Ambient temperature $T^\circ\text{C}$

K : Factor $K = (115 - T) / 75$ $P_0 = 40^\circ\text{C}$ (Blue line)

$K = (115 - T) / 65$ $P_0 = 50^\circ\text{C}$ (Red line)

HF-50D 2-1/4" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	21.7	Corrugated copper
Insulator	47.5	Polyethylene
Outer conductor	55.5	Corrugated copper
Jacket	60	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	2 kg/m
Minimum bending radius	
Single	300 mm
Repeated	700 mm
Tensile strength	2500 N
Flat plate crush strength	2500 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	95 %
Direct current resistance (Loop resistance)	100 mΩ/100m
Insulation resistance	1000 MΩ·km
Peak voltage	6300 V
Peak power rating	397 kW
Jacket spark	8000 V RMS
Maximum frequency	2500 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15
960 - 1400	-	1.10	1.15
1400 - 1700	-	1.10	1.15
1700 - 2300	-	1.10	1.15

*1: Less than 60MHz band

Accessories

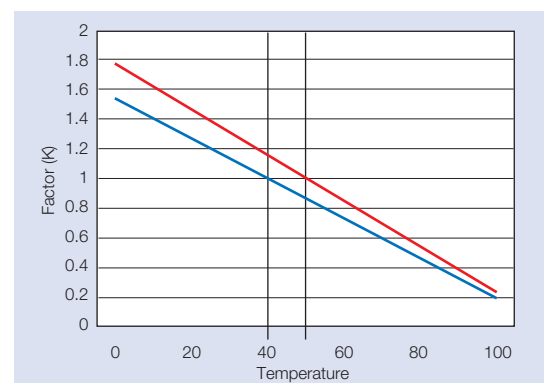
Connector / Flange type			
Standard	Structure		Type
EIA 3-1/8"	Female flange	Gas through	50D-77D-EFP-11FS
	Female flange	Gas barrier	50D-77D-EFS-11FS
EIA 1-5/8"	Female flange	Gas through	50D-39D-EFP-11FS
	Female flange	Gas barrier	50D-39D-EFS-11FS
EIA 7/8"	Female flange	Gas through	50D-20D-EFP-11FS
	Female flange	Gas barrier	50D-20D-EFS-11FS
N type	Male	Gas barrier	50D-NP-11S
	Female	Gas barrier	50D-NJ-11S
JEITA	Male flange	Gas through	50D-20D-WMP-10FS
BFX-20D	Female flange	Gas through	50D-20D-WFP-10RS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.038	330	285
1	0.055	232	200
10	0.175	72.5	63
30	0.305	41.5	36
50	0.395	32.0	27.5
100	0.565	22.0	19.0
200	0.85	15.5	13.5
300	1.05	12.5	10.5
400	1.25	10.5	9.20
500	1.4	9.40	8.15
600	1.55	8.55	7.40
700	1.65	7.85	6.75
800	1.75	7.25	6.30
900	2	6.80	5.90
1000	2.1	6.40	5.55
2000	3.05	4.30	3.75
2500	3.5	3.80	3.30

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_0 \times K$
 P_0 : Ambient temperature 40°C & 50°C
 P : Ambient temperature T°C
 K : Factor $K = (115 - T) / 75$ $P_0 = 40^\circ\text{C}$ (Blue line)
 $K = (115 - T) / 65$ $P_0 = 50^\circ\text{C}$ (Red line)

HF-39D 1-5/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	17.2	Copper tube
Insulator	39.6	Polyethylene
Outer conductor	46.3	Corrugated copper
Jacket	51	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	1.9 kg/m
Minimum bending radius	
Single	200 mm
Repeated	600 mm
Tensile strength	2000 N
Flat plate crush strength	2000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	91 %
Direct current resistance (Loop resistance)	65 mΩ/100m
Insulation resistance	1000 MΩ-km
Peak voltage	5200 V
Peak power rating	270 kW
Jacket spark	8000 V RMS
Maximum frequency	2900 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15
960 - 1400	-	1.10	1.15
1400 - 1700	-	1.10	1.15
1700 - 2300	-	1.10	1.15
2300 - 2700	-	1.10	1.15

*1: Less than 60MHz band

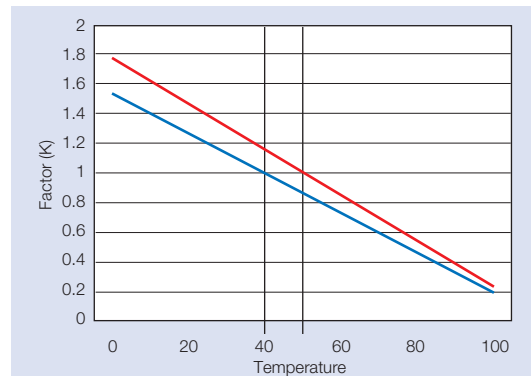
Accessories			
Connector / Flange type			
Standard	Structure		Type
EIA 1-5/8"	Female flange	Gas through	39D-EFP-10RZ
	Female flange	Gas barrier	39D-EFS-11RZ
EIA 7/8"	Female flange	Gas through	39D-20D-EFP-10RZ
	Female flange	Gas barrier	39D-20D-EFS-11RZ
JEITA BFX-39D	Male flange	Gas through	39D-WMP-10FS
	Female flange	Gas through	39D-WFP-10RS
	Coupling	Gas barrier	39D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.046	255	222
1	0.065	186	161
10	0.21	58.5	50.5
30	0.37	33.5	29.0
50	0.48	26.0	22.5
100	0.69	18.2	15.5
200	1.01	12.8	11.1
300	1.3	10.35	8.95
400	1.53	8.95	7.75
500	1.77	7.95	6.90
600	1.97	7.25	6.25
700	2.15	6.70	5.80
800	2.34	6.25	5.40
900	2.51	5.85	5.10
1000	2.7	5.55	4.80
2000	4.1	3.90	3.35
2500	4.9	3.45	2.99

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_o \times K$
 P_o : Ambient temperature 40°C & 50°C
 P : Ambient temperature T°C
 K : Factor $K = (115 - T) / 75$ $P_o = 40^\circ\text{C}$ (Blue line)
 $K = (115 - T) / 65$ $P_o = 50^\circ\text{C}$ (Red line)

HF-39DB 1-5/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	18.5	Corrugated copper
Insulator	39.8	Polyethylene
Outer conductor	46.3	Corrugated copper
Jacket	51	Polyethylene, Black

Mechanical Characteristics		
Item	Specification	
Cable weight	1.3 kg/m	
Minimum bending radius		
	Single	200 mm
	Repeated	600 mm
Tensile strength	1500 N	
Flat plate crush strength	1200 N/50mm	

Electrical Characteristics		
Item	Specification	
Impedance	50 Ω	
Velocity	94 %	
Direct current resistance (Loop resistance)	110 mΩ/100m	
Insulation resistance	1000 MΩ·km	
Peak voltage	5200 V	
Peak power rating	270 kW	
Jacket spark	8000 V RMS	
Maximum frequency	2900 MHz	

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15
960 - 1400	-	1.10	1.15
1400 - 1700	-	1.10	1.15
1700 - 2300	-	1.10	1.15
2300 - 2700	-	1.10	1.15

*1: Less than 60MHz band

Accessories

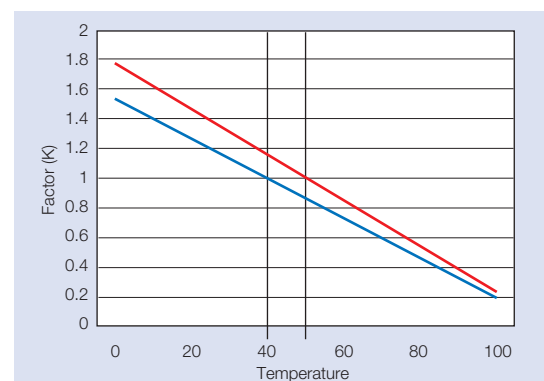
Connector / Flange type			
Standard	Structure	Type	
EIA 1-5/8"	Female flange	Gas through	39DB-EFP-11FS
	Female flange	Gas barrier	39DB-EFS-11FS
EIA 7/8"	Female flange	Gas through	39DB-20D-EFP-11FS
	Female flange	Gas barrier	39DB-20D-EFS-11FS
JEITA BFX-39D	Male flange	Gas through	39DB-WMP-10FS
	Female flange	Gas through	39DB-WFP-10RS
	Coupling	Gas barrier	39DB-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.045	270	245
1	0.064	200	170
10	0.204	62	53.5
30	0.341	36	31
50	0.444	27.5	24
88	0.596	21.2	18.35
100	0.638	19.85	17.2
108	0.664	19.1	16.55
174	0.858	14.95	12.95
200	0.923	13.93	12.06
300	1.15	11.25	9.76
400	1.35	9.84	8.36
500	1.52	8.55	7.42
600	1.68	7.75	6.74
700	1.84	7.13	6.19
800	1.98	6.64	5.76
900	2.12	6.22	5.4
1000	2.28	5.87	5.09
2000	3.38	4.00	3.46
2500	3.86	3.56	3.05

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_0 \times K$

P_0 : Ambient temperature 40°C & 50°C

P: Ambient temperature T°C

K: Factor $K = (115 - T) / 75$ $P_0 = 40^\circ\text{C}$ (Blue line)

$K = (115 - T) / 65$ $P_0 = 50^\circ\text{C}$ (Red line)

HF-20D 7/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	8.97	Copper tube
Insulator	19.8	Polyethylene
Outer conductor	25.8	Corrugated copper
Jacket	30	Polyethylene, Black

Mechanical Characteristics	
Item	Specification
Cable weight	0.9 kg/m
Minimum bending radius	
Single	100 mm
Repeated	350 mm
Tensile strength	900 N
Flat plate crush strength	1000 N/50mm

Electrical Characteristics	
Item	Specification
Impedance	50 Ω
Velocity	91 %
Direct current resistance (Loop resistance)	155 mΩ/100m
Insulation resistance	1000 MΩ-km
Peak voltage	2700 V
Peak power rating	73 kW
Jacket spark	8000 V RMS
Maximum frequency	5600 MHz

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15
960 - 1400	-	1.10	1.15
1400 - 1700	-	1.10	1.15
1700 - 2300	-	1.10	1.15
2300 - 2700	-	1.10	1.15
2700 - 3400	-	1.20	-

*1: Less than 60MHz band

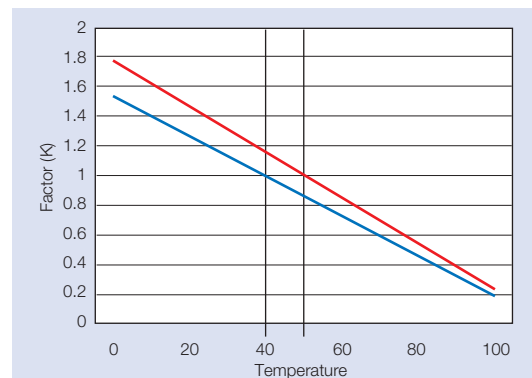
Accessories			
Connector / Flange type			
Standard	Structure		Type
EIA 7/8"	Female flange	Gas through	20D-EFP-10RZ
	Female flange	Gas barrier	20D-EFS-11RZ
N type	Male	Gas barrier	20D-NP-11S
	Female	Gas barrier	20D-NJ-11S
DIN type	Male	Gas barrier	20D-DP-11S
	Female	Gas barrier	20D-DJ-11S
JEITA BFX-20D	Male flange	Gas through	20D-WMP-10RS
	Female flange	Gas through	20D-WFP-10RS
	Coupling	Gas barrier	20D-WGS-11NFS



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.086	73	73
1	0.125	73	73
10	0.39	27.3	23.5
30	0.68	15.7	13.6
50	0.89	12.1	10.5
100	1.25	8.50	7.35
200	1.82	5.95	5.15
300	2.29	4.80	4.20
400	2.68	4.15	3.60
500	3.02	3.70	3.20
600	3.35	3.35	2.90
700	3.64	3.10	2.70
800	3.92	2.90	2.50
900	4.2	2.70	2.35
1000	4.45	2.55	2.20
2000	6.7	1.80	1.55
3000	8.6	1.45	1.25
4000	10.5	1.20	1.05
5000	12	1.10	0.95

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power
 $P = P_0 \times K$

P_0 : Ambient temperature 40°C & 50°C

P : Ambient temperature $T^\circ\text{C}$

K : Factor $K = (115 - T) / 75$ $P_0 = 40^\circ\text{C}$ (Blue line)

$K = (115 - T) / 65$ $P_0 = 50^\circ\text{C}$ (Red line)

HF-15D 5/8" Air dielectric coaxial cable

Structure		
Item	Diameter (mm)	Materials
Inner conductor	6.3	Copper wire
Insulator	13.6	Polyethylene
Outer conductor	18.9	Corrugated copper
Jacket	23	Polyethylene, Black

Mechanical Characteristics		
Item	Specification	
Cable weight	0.75 kg/m	
Minimum bending radius		
	Single	80 mm
	Repeated	250 mm
Tensile strength	900 N	
Flat plate crush strength	1000 N/50mm	

Electrical Characteristics		
Item	Specification	
Impedance	50 Ω	
Velocity	90 %	
Direct current resistance (Loop resistance)	180 mΩ/100m	
Insulation resistance	1000 MΩ·km	
Peak voltage	1800 V	
Peak power rating	32 kW	
Jacket spark	8000 V RMS	
Maximum frequency	7600 MHz	

V.S.W.R.			
Frequency range (MHz)	Specified channel	Specified band (*1)	Within range
10 - 30	-	1.05	-
30 - 230	1.05	1.05	1.10
230 - 470	-	1.10	-
470 - 770	1.05	1.05	1.10
770 - 960	1.05	1.10	1.15
960 - 1400	-	1.10	1.15
1400 - 1700	-	1.10	1.15
1700 - 2300	-	1.10	1.15
2300 - 2700	-	1.10	1.15
2700 - 5000	-	1.20	-

*1: Less than 60MHz band

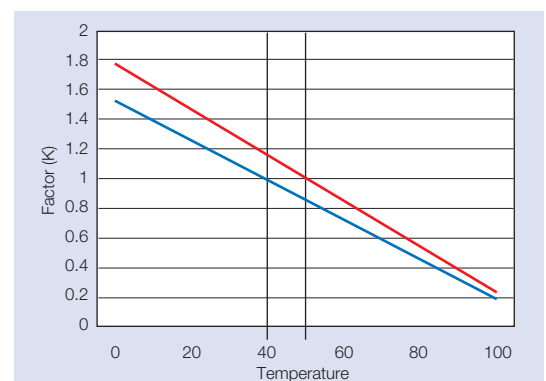
Accessories			
Connector / Flange type			
Standard	Structure		Type
EIA 7/8"	Female flange	Gas through	15D-EFP-10RZ
	Female flange	Gas barrier	15D-EFS-11RZ
N type	Male	Gas barrier	15D-NP-11S
	Female	Gas barrier	15D-NJ-11S
DIN type	Male	Gas barrier	15D-DP-11S
	Female	Gas barrier	15D-DJ-11S



Frequency (MHz)	Attenuation (dB/100m)	Amb. 40°C	Amb. 50°C
		Average power (kW)	Average power (kW)
0.5	0.12	32	32
1	0.17	32	28
10	0.54	15	13
30	0.94	8.75	7.50
50	1.22	6.75	5.85
100	1.75	4.75	4.10
200	2.50	3.35	2.90
300	3.10	2.70	2.35
400	3.60	2.35	2.00
500	4.00	2.05	1.80
600	4.50	1.90	1.65
700	4.85	1.75	1.52
800	5.20	1.63	1.41
900	5.55	1.55	1.33
1000	5.90	1.45	1.25
2000	8.55	0.98	0.85
3000	10.75	0.81	0.70
4000	12.70	0.69	0.60
5000	14.50	0.575	0.50

Condition

- Attenuation
 - Ambient temperature 20°C, Nominal value
- Average power
 - Ambient temperature 40°C & 50°C
 - Inner conductor temperature 115°C
 - V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$$P = P_0 \times K$$

P₀: Ambient temperature 40°C & 50°C

P: Ambient temperature T°C

K: Factor K=(115-T)/75 P₀=40°C (Blue line)

K=(115-T)/65 P₀=50°C (Red line)

Accessories CLAMP

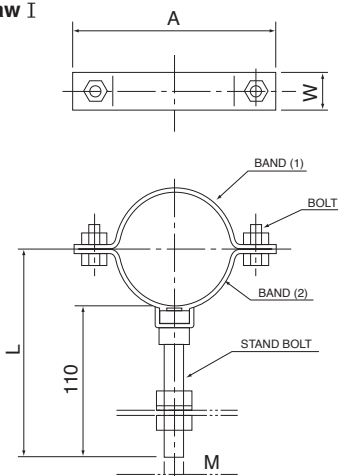
Clamp type B

Cable	Type	Dimension (mm)					
		Draw	A	W	L	M	
HF-20D	7/8"	HCC-20D-B1	I	70	20	130	M10
HF-39D	1-5/8"	HCC-39D-B1	I	90	25	140	M12
HF-50D	2-1/4"	HCC-50D-B1	I	100	25	120	M12
HF-70D	3"	HCC-70D-B1	I	130	32	130	M12
HF-77D	3-1/8"	HCC-77D-B1	I	140	32	120	M12
HF-100D	4"	HCC-100D-B1	II	170	40	150	M16
HF-105D	5"	HCC-105D-B1	II	185	40	150	M16
HF-120D	5-1/2"	HCC-120D-B1	II	230	55	170	M16
HF-152D	6-1/8"	HCC-152D-B1	II	250	60	210	M20

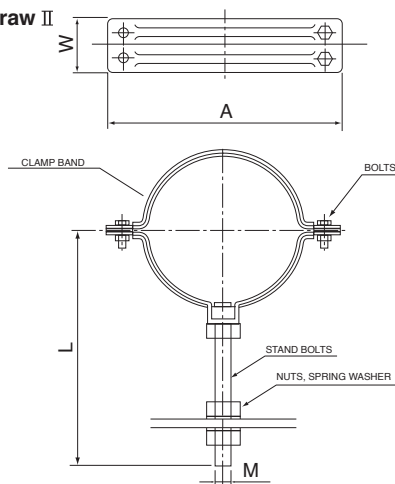


Holes are required in the steel frame to insert and fasten this type of clamp.

Draw I



Draw II



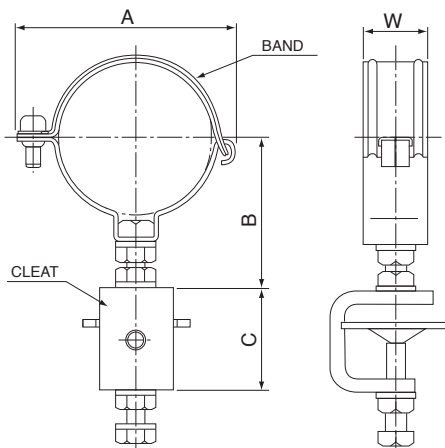
Clamp type C2

Cable	Type	Dimension (mm)				
		A	W	B	C	
HF-20D	7/8"	HCC-20D-C2	45	20	40	30
HF-39D	1-5/8"	HCC-39D-C2	77	25	50	30
HF-50D	2-1/4"	HCC-50D-C2	85	25	75	40
HF-70D	3"	HCC-70D-C2	110	32	85	46
HF-77D	3-1/8"	HCC-77D-C2	120	32	90	46
HF-100D	4"	HCC-100D-C2	145	40	100	46
HF-105D	5"	HCC-105D-C2	160	40	105	46



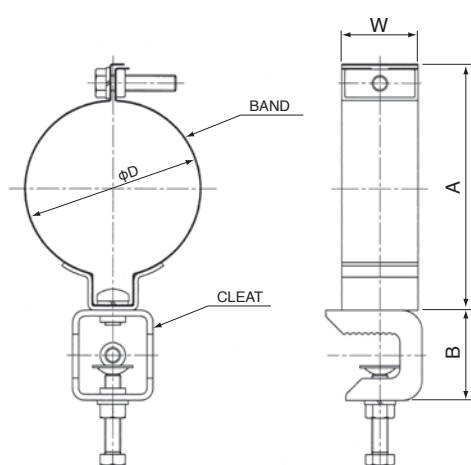
This type of clamp can be directly fastened to the steel frame without holes.

Clamp can be used upright or the top of the clamp can be detached and fastened side ways.



Accessories CLAMP

Clamp type C3						
Cable	Type	Dimension (mm)				
		ϕD	W	A	B	
HF-20D	7/8"	HCC-20D-C3	$\phi 28$	30	53	45
HF-39D	1-5/8"	HCC-39D-C3	$\phi 50$	38	83	45
HF-50D	2-1/4"	HCC-50D-C3	$\phi 60$	38	94	45
HF-70D	3"	HCC-70D-C3	$\phi 79$	38	114	45
HF-77D	3-1/8"	HCC-77D-C3	$\phi 87$	38	123	45
HF-100D	4"	HCC-100D-C3	$\phi 102$	43	134	45
HF-105D	5"	HCC-105D-C3	$\phi 117$	43	149	45



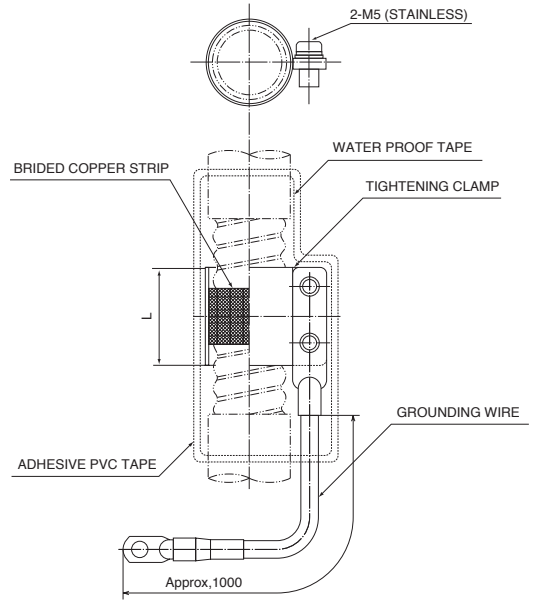
Recommended clamp spacing				
Cable		B1 type	C2 type	C3 type
HF-20D	7/8"	1.0	1.0	2.0
HF-39D	1-5/8"	1.5	2.0	2.0
HF-50D	2-1/4"	2.0	2.0	2.0
HF-70D	3"	2.0	2.0	1.5
HF-77D	3-1/8"	2.0	2.0	1.0
HF-100D	4"	2.0	1.5	1.5
HF-105D	5"	2.0	1.5	1.0
HF-120D	5-1/2"	2.0	-	-
HF-152D	6-1/8"	2.0	-	-

Recommended clamp space is shown in the above table. (terms: wind speed 60m/s)
Please choose an appropriate clamp space according to the wind speed condition.

Maximum clamp space according to the wind speed condition													
Cable		B1 type clamp Wind speed (m/s)				C2 type clamp Wind speed (m/s)				C3 type clamp Wind speed (m/s)			
		40	50	60	70	40	50	60	70	40	50	60	70
HF-20D	7/8"	1.2	1.1	1.0	0.9	1.2	1.1	1.0	0.8	2.0	2.0	2.0	2.0
HF-39D	1-5/8"	1.4	1.3	1.5	1.5	2.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0
HF-50D	2-1/4"	3.0	2.5	2.0	1.5	3.0	2.5	2.0	1.5	2.0	2.0	2.0	2.0
HF-70D	3"	3.0	2.5	2.0	1.4	3.0	3.0	2.0	1.5	2.0	2.0	1.5	1.0
HF-77D	3-1/8"	3.0	2.5	2.0	1.4	3.0	3.0	2.0	1.5	2.0	1.5	1.0	0.5
HF-100D	4"	3.0	2.5	2.0	1.5	2.5	2.0	1.5	1.0	2.0	1.5	1.5	1.0
HF-105D	5"	3.0	2.5	2.0	1.5	2.5	2.0	1.5	1.0	2.0	1.5	1.0	1.0
HF-120D	5-1/2"	3.0	2.5	2.0	1.4	-	-	-	-	-	-	-	-
HF-152D	6-1/8"	4.0	3.0	2.0	1.5	-	-	-	-	-	-	-	-

Accessories EARTHING KIT

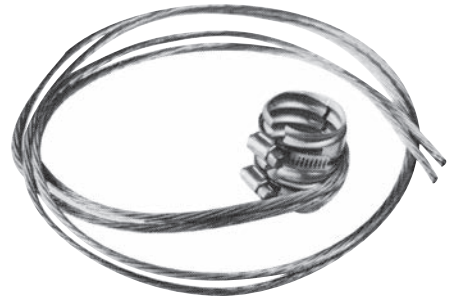
Type N			
Cable	Type	Type	Dimension
			L
HF-20D	7/8"	GB-20D-N	35
HF-39D	1-5/8"	GB-39D-N	35
HF-50D	2-1/4"	GB-50D-N	35
HF-70D	3"	GB-70D-N	35
HF-77D	3-1/8"	GB-77D-N	35
HF-100D	4"	GB-100D-N	65
HF-105D	5"	GB-105D-N	65
HF-120D	5-1/2"	GB-120D-N	65
HF-152D	6-1/8"	GB-152D-N	75



Caution

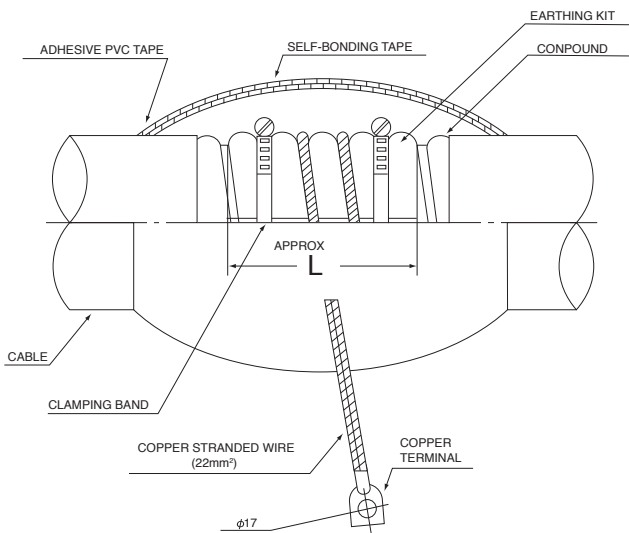
1. Length of the grounding wire is fixed with the copper terminal already attached.
2. Please prepare water proof tape and adhesive PVC tape on your own.
3. Water proof tape and adhesive PVC tape are separately sold material.
4. Please contact us when you difficult to purchase the material on your country.

Type A			
Cable	Type	Type	Dimension (mm)
			L
HF-20D	7/8"	GB-20D	60
HF-39D	1-5/8"	GB-39D	60
HF-50D	2-1/4"	GB-50D	80
HF-70D	3"	GB-70D	100
HF-77D	3-1/8"	GB-77D	100
HF-100D	4"	GB-100D	125
HF-105D	5"	GB-105D	125
HF-120D	5-1/2"	GB-120D	150
HF-152D	6-1/8"	GB-152D	200
HF-203D-S	8"	GB-203D	250



Construction of Clamping band

Length of the copper strand wire is adjustable.
Copper terminal needs to be attached at the end of the wire separately.

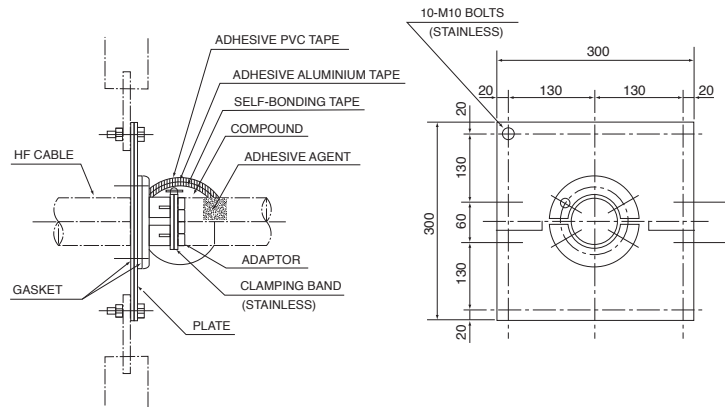


Accessories WALL GLAND

Type A, Single run

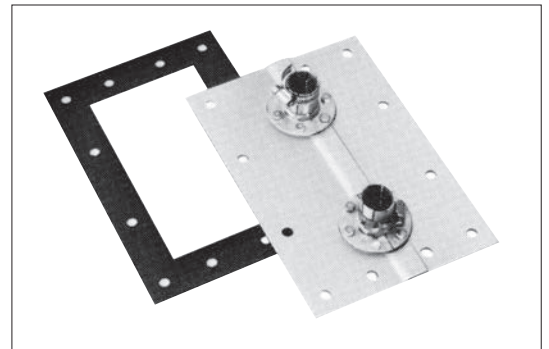
Cable	Type	Type
HF-20D	7/8"	WMS-20D-1A
HF-39D	1-5/8"	WMS-39D-1A
HF-50D	2-1/4"	WMS-50D-1A
HF-77D	3-1/8"	WMS-77D-1A
HF-105D	5"	WMS-105D-1A
HF-120D	5-1/2"	WMS-120D-1A
HF-152D	6-1/8"	WMS-152D-1A

This wall gland can be assembled sandwich the cable after it has been threaded before being attached to the wall.

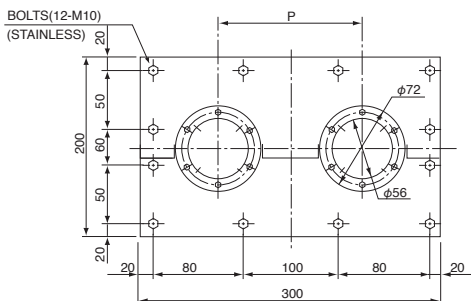


Type A, Dual run

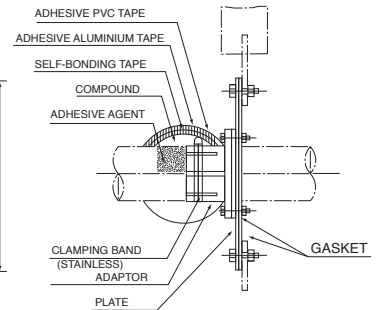
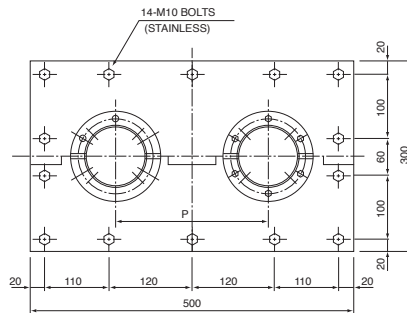
Cable	Type	Type	Dimension (mm)	
			Draw	P
HF-20D	7/8"	WMS-20D-2A	I	160
HF-39D	1-5/8"	WMS-39D-2A	II	200
HF-50D	2-1/4"	WMS-50D-2A	II	200
HF-77D	3-1/8"	WMS-77D-2A	II	200
HF-105D	5"	WMS-105D-2A	III	400
HF-120D	5-1/2"	WMS-120D-2A	III	400
HF-152D	6-1/8"	WMS-152D-2A	III	440



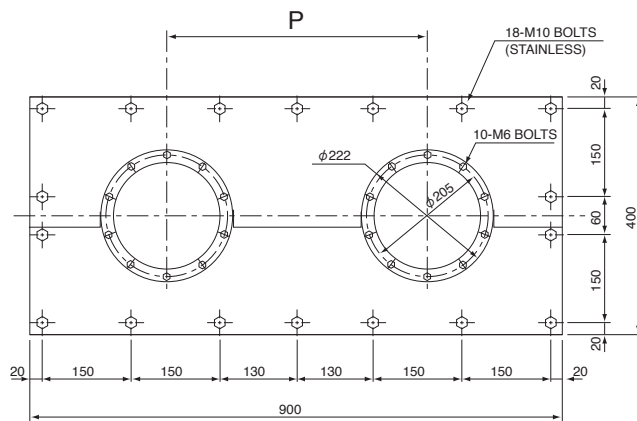
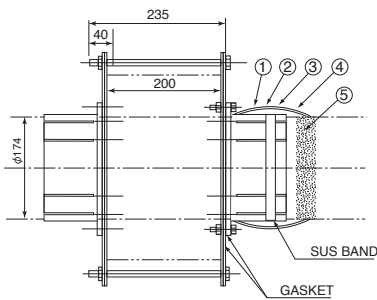
Draw I



Draw II



Draw III



- ① COMPOUND
- ② SELF BONDING TAPE
- ③ ADHESIVE ALUMINIUM TAPE
- ④ ADHESIVE VINYL TAPE
- ⑤ ADHESIVE AGENT

Accessories WALL GLAND

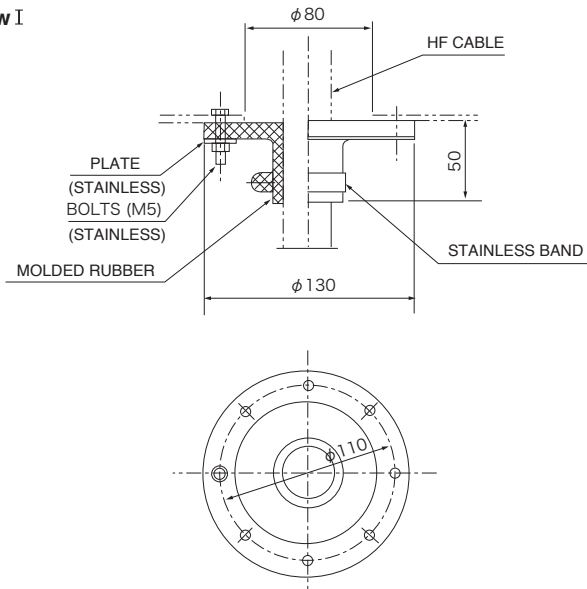
Type 1C, Single run

Cable	Type	Dimension (mm)						
		Draw	D1	D2	L	P	Bolts	
HF-20D	7/8"	WMS-20D-1C	I	130	80	50	110	8-M5
HF-39D	1-5/8"	WMS-39D-1C	I	130	80	50	110	8-M5
HF-50D	2-1/4"	WMS-50D-1C	I	130	80	50	110	8-M5
HF-70D	3"	WMS-70D-1C	II	200	130	80	170	8-M10
HF-77D	3-1/8"	WMS-77D-1C	II	200	130	80	170	8-M10
HF-100D	4"	WMS-100D-1C	II	230	160	80	200	8-M10
HF-105D	5"	WMS-105D-1C	II	230	160	80	200	8-M10
HF-120D	5-1/2"	WMS-120D-1C	II	260	190	90	230	8-M10
HF-152D	6-1/8"	WMS-152D-1C	II	285	210	95	260	8-M10

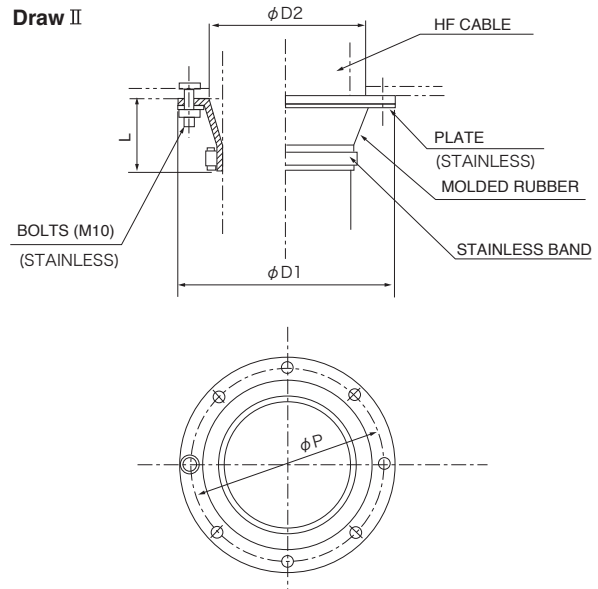
This wall gland must be attached to the wall before the cable can be threaded.



Draw I



Draw II

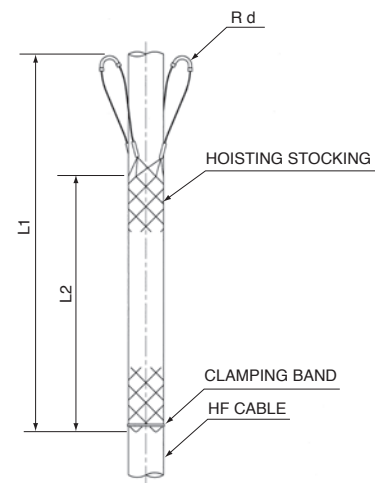
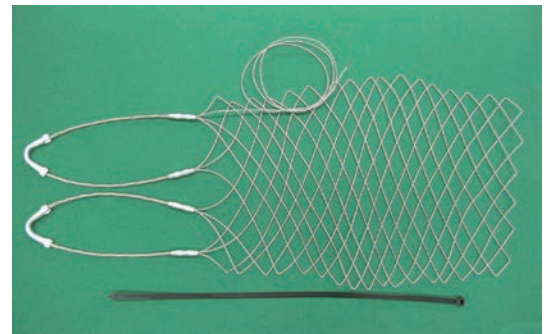


Accessories HOISTING STOCKING

Hoisting Stocking					
Cable	Type	Type	Dimension(mm)		
			L1	L2	R d
HF-20D	7/8"	HSC-20D	690	390	R20
HF-39D	1-5/8"	HSC-39D	820	520	R20
HF-50D	2-1/4"	HSC-50D	860	560	R20
HF-70D	3"	HSC-70D	940	640	R20
HF-77D	3-1/8"	HSC-77D	940	640	R20
HF-100D	4"	HSC-100D	1350	1050	R20
HF-105D	5"	HSC-105D	1350	1050	R20
HF-120D	5-1/2"	HSC-120D	1550	1150	R20
HF-152D	6-1/8"	HSC-152D	1700	1250	R20

Material: Stainless wire (stocking)
Aluminum (sleeve)

This product is used for pulling the cable up during installation.

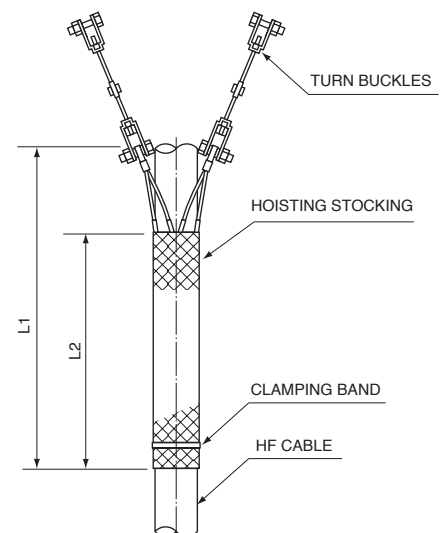
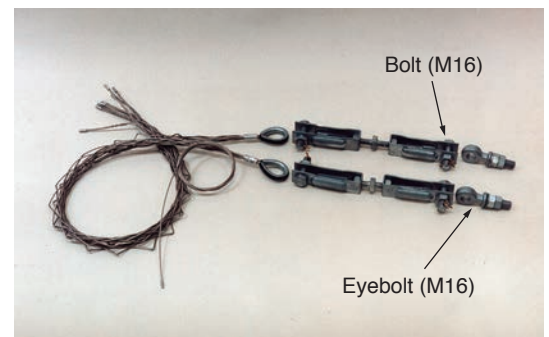


Fixing use				
Cable	Type	Type	Dimension(mm)	
			L1	L2
HF-20D	7/8"	HSF-20D	450	300
HF-39D	1-5/8"	HSF-39D	600	400
HF-50D	2-1/4"	HSF-50D	780	520
HF-70D	3"	HSF-70D	910	700
HF-77D	3-1/8"	HSF-77D	910	700
HF-100D	4"	HSF-100D	1350	900
HF-105D	5"	HSF-105D	1350	900
HF-120D	5-1/2"	HSF-120D	1800	1200
HF-152D	6-1/8"	HSF-152D	1800	1200

Material: Stainless wire (stocking, clamping band)
Galvanized steel (eyebolt, turn buckle)

This product is used for fixing cable to the tower.

Recommended fixation interval is 50m on the vertical part of the tower. Loosening or tightening the turnbuckles can adjust the tautness of the hoisting stocking.



Accessories CONNECTOR and TOOL

Connector		
Cable	Type	
HF-20D	7/8"	
HF-39D	1-5/8"	
HF-39DB	1-5/8"	
HF-50D	2-1/4"	
HF-70D	3"	
HF-77D	3-1/8"	See each cable sheet
HF-100D	4"	
HF-105D	5"	
HF-120D	5-1/2"	
HF-152D	6-1/8"	
HF-203D-S	8"	



The structure of the trade type name of connector

(1) Flange interface connector

39D - EFP - 10FS

□□ D - □□□□ - □□□□
 ① ②③④ ⑤ ⑥ ⑦

Cable size and flange size is same.

- | | |
|----------------------------|---|
| ① Cable size | Outer conductor size in mm, D means 50Ω |
| ② Standard of Flange | E:EIA I:IEC W:JEITA |
| ③ Inner conductor | F:Female M:Male |
| ④ Gas pass/stop | P:Gas pass S:Gas stop |
| ⑤ Gas inlet exist or not | 10:Inlet non 11:Inlet exist |
| ⑥ Flange swivel or not | F:Not swivel R:Swivel flange |
| ⑦ Inner conductor assemble | S:Taper nut lock Z:Screw lock |

(2) Flange interface reducer type connector

39D - 20D - EFP - 10FS

□□ D - □□ D - □□□□ - □□□□
 ① ② ③④⑤ ⑥ ⑦ ⑧

Cable size and flange size is different.

- | | |
|---------------------------------------|---|
| ① Cable size | Outer conductor size in mm, D means 50Ω |
| ② Flange size | Outer conductor size in mm, D means 50Ω |
| ③ Standard of Flange | E:EIA I:IEC W:JEITA |
| ④ Inner conductor | F:Female M:Male |
| ⑤ Gas pass/stop | P:Gas pass S:Gas stop |
| ⑥ Gas inlet exist or not | 10:Inlet non 11:Inlet exist |
| ⑦ Flange (swivel or not) / Non Flange | F:Not swivel flange R:Swivel flange NF:Non Flange |
| ⑧ Inner conductor assemble | S:Taper nut lock Z:Screw lock |

(3) N,DIN type interface connector

39D - NJ - 11S

□□ D - □□ - □□
 ① ②③ ④ ⑤

- | | |
|----------------------------|---|
| ① Cable size | Outer conductor size in mm, D means 50Ω |
| ② Standard of interface | N:N type D:DIN-7/16 |
| ③ Inner conductor | J:Jack(Female) P:Plug(Male) |
| ④ Gas inlet exist or not | 11:Inlet exist 12:Inlet non |
| ⑤ Inner conductor assemble | S:Taper nut lock Z:Screw lock |

Note:In case of HF-39DB, please use "DB" instead of "D"

Accessories CONNECTOR and TOOL

Tool Kit		
Cable		Type
HF-20D	7/8"	FTK-20D
HF-39D	1-5/8"	FTK-39D
HF-50D	2-1/4"	FTK-50D
HF-70D	3"	FTK-70D
HF-77D	3-1/8"	FTK-77D
HF-100D	4"	FTK-100D
HF-105D	5"	FTK-105D
HF-120D	5-1/2"	FTK-120D
HF-152D	6-1/8"	FTK-152D
HF-203D-S 8"		FTK-203D



This tool kit is for attaching connectors at the end of the cable. The flaring tool included will enhance V.S.W.R. performance because it is precisely engineered to eliminate the risk of connector burnout from hot spots.

Gas Inlet		
Pipe		Type
Copper	ϕ 10	GI-C10
	ϕ 6	GI-C6
	ϕ 3/8"	GI-C3/8
	ϕ 1/4"	GI-C1/4
Decabon	ϕ 6	GI-DC6
	ϕ 6	GI-V6
Vinyl	ϕ 8	GI-V8
	ϕ 9	GI-V9



Gas inlets are used to connect the gas pipe/hose to the connector (gas stop) to inflate gas into the cable. A variety of sizes are available depending on the pipe/hose used.

Rigid Coaxial Line

Type WX-□□DF, WX-□□DNF, WX-□□DNF-T

Rigid Coaxial Line (with Flange)		
Standard	Size	Type
EIA	7/8"	WX-20DF
	1-5/8"	WX-39DF
	3-1/8"	WX-77DF
	6-1/8"	WX-152DF
IEC	4-1/2"	WX-105DF
JEITA	20D	WX-20DF(J)
	39D	WX-39DF(J)
	77D	WX-77DF(J)
	120D	WX-120DF(J)
152D	WX-152DF(J)	
Hitachi	203D	WX-203DF(J)

Rigid Coaxial Line (None Flange)		
Standard	Size	Type
EIA	7/8"	WX-20DNF
	1-5/8"	WX-39DNF
	3-1/8"	WX-77DNF
	6-1/8"	WX-152DNF
IEC	4-1/2"	WX-105DNF
JEITA	20D	WX-20DNF(J)
	39D	WX-39DNF(J)
	77D	WX-77DNF(J)
	120D	WX-120DNF(J)
152D	WX-152DNF(J)	
Hitachi	203D	WX-203DNF(J)



* The copper tube and the insulator can be separately delivered.
Copper tube: WX-□□ DNF-T

Structure								
Item	Size	Dimension						
		7/8"	1-5/8"	3-1/8"	4-1/2"	5"	6-1/8"	8"
Inner conductor	Inner (mm)	7.39	14.94	31.27	42.8	50.1	64.0	86.2
	Outer (mm)	8.66	16.87	33.40	44.73	52.1	66.0	88.2
Outer conductor	Inner (mm)	19.94	38.79	76.89	103	120.0	151.9	203
	Outer (mm)	22.23	41.30	79.38	106	123.2	155.6	208
Standard length (mm)		2,000	2,000	2,000	5,000	4,000	5,000	4,000

Electrical Characteristics								
Item	Size	Specification						
		7/8"	1-5/8"	3-1/8"	4-1/2"	5"	6-1/8"	8"
Impedance (Ω)		50						
Velocity (%)		99.5	99.5	99.5	99.5	99.5	99.5	99.5
Direct current resistance	Inner (mΩ/m)	1.08	0.36	0.16	0.130	0.107	0.084	0.063
	Outer (mΩ/m)	0.23	0.11	0.06	0.035	0.028	0.019	0.011
Peak voltage (V)		2,500	5,000	9,900	13,000	15,500	19,500	25,000
Peak power rating (kW)		63	250	980	1,690	2,403	3,803	6,250
Maximum frequency (MHz)		6,200	3,250	1,650	1,200	1,050	860	650
Insulation resistance (MΩ)		> 5,000						
V.S.W.R.	VHF	< 1.05						
	UHF	< 1.05						
Attenuation 1)	100 MHz (dB/100m)	1.24	0.64	0.33	0.25	0.215	0.17	0.13
	200 MHz (dB/100m)	1.76	0.915	0.47	0.355	0.31	0.25	0.19
	500 MHz (dB/100m)	2.79	1.46	0.76	0.58	0.5	0.41	0.315
	800 MHz (dB/100m)	3.55	1.86	0.975	0.745	0.65	0.53	-
Average power 2)	100 MHz (kW)	12.3	27.	79.4	121	190	250	402
	200 MHz (kW)	8.7	19.6	55.7	85.2	133	176	278
	500 MHz (kW)	5.5	12.3	34.8	53.2	83.9	109	168
	800 MHz (kW)	4.3	9.7	27.4	41.9	66.5	86.3	-

Condition

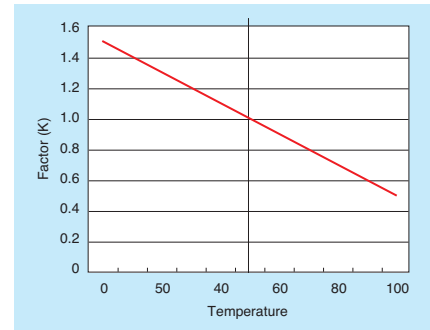
1) Attenuation

• Ambient temperature 20 °C, Nominal value

2) Average power

• Ambient temperature 50 °C • Inner conductor temperature 150 °C

• V.S.W.R.=1.0



Factor (K) of Ambient temperature and Average power

$$P = P_o \times K \quad K = (150 - T) / 100$$

P_o: Average power at Ambient temperature 50 °C

P: Average power Ambient temperature T °C

Rigid Coaxial Line

Type ELB-□□D, ACX-□□D

90 degree Elbow (Flange)		
Standard	Size	Type
EIA	7/8"	ELB-20D
	1-5/8"	ELB-39D
	3-1/8"	ELB-77D
	6-1/8"	ELB-152D
IEC	4-1/2"	ELB-105D
JEITA	20D	ELB-20D(J)
	39D	ELB-39D(J)
	77D	ELB-77D(J)
	120D	ELB-120D(J)
	152D	ELB-152D(J)



Anchor connector		
Standard	Size	Type
EIA	7/8"	ACX-20D
	1-5/8"	ACX-39D
	3-1/8"	ACX-77D
	6-1/8"	ACX-152D
IEC	4-1/2"	ACX-105D
JEITA	120D	ACX-120D



Rigid Coaxial Line (Indoor)

Type IEB-□□D, SCX-□□D,
ICA-□□D, SCX-□□D-S,
ISX-□□D, ICX-□□D

90 degree Elbow (Indoor use)		
Standard	Size	Type
EIA	7/8"	IEB-20D
	1-5/8"	IEB-39D
	3-1/8"	IEB-77D
	6-1/8"	IEB-152D
IEC	4-1/2"	IEB-105D
JEITA	120D	IEB-120D



Straight coupling (Indoor use)		
Standard	Size	Type
EIA	7/8"	SCX-20D
	1-5/8"	SCX-39D
	3-1/8"	SCX-77D
	6-1/8"	SCX-152D
IEC	4-1/2"	SCX-105D
JEITA	120D	SCX-120D



Coupling adaptor (Flange to coupling)		
Standard	Size	Type
EIA	7/8"	ICA-20D
	1-5/8"	ICA-39D
	3-1/8"	ICA-77D
	6-1/8"	ICA-152D
IEC	4-1/2"	ICA-105D
JEITA	120D	ICA-120D



Straight coupling (Indoor use)		
Standard	Size	Type
EIA	7/8"	SCX-20D-S
	1-5/8"	SCX-39D-S
	3-1/8"	SCX-77D-S
	6-1/8"	SCX-152D-S
IEC	4-1/2"	SCX-105D-S
JEITA	120D	SCX-120D-S



Inner Support		
Standard	Size	Type
EIA	7/8"	ISX-20D
	1-5/8"	ISX-39D
	3-1/8"	ISX-77D
	6-1/8"	ISX-152D
IEC	4-1/2"	ISX-105D
JEITA	120D	ISX-120D



Inner connector		
Standard	Size	Type
EIA	7/8"	ICX-20D
	1-5/8"	ICX-39D
	3-1/8"	ICX-77D
	6-1/8"	ICX-152D
IEC	4-1/2"	ICX-105D
JEITA	120D	ICX-120D



Dehydrator

Type MINILAB, LAB4.50, LAB9.50

This device pressurizes by dry air the coaxial cable to prevent moisture entering, thus increasing the cable performance and lifetime.

Manufacturer: CIBRED SUD (Our Partner Company)



Item		MINILAB	LAB4.50	LAB9.50
Output pressure		1 to 6 kPa (factory presettable)	10 to 60 kPa	10 to 60 kPa
Operating voltage *1)		AC 100 - 240 V 50/60 Hz	AC 220 - 240 V 50/60 Hz	AC 220 - 240 V 50/60 Hz
Maximum flow rate		150 NI/h	300 NI/h	1000 NI/h
Dew point		Better than -45 °C	Better than -45 °C	Better than -45 °C
Power Consumption	Normal operation	≤ 2.5 W	≤ 30 VA	≤ 30 VA
	Regeneration phase	≤ 55 W	≤ 80 VA	≤ 160 VA
Outlets		6	6	4 or 8
Dimension	Wall mounting	482x88x190 mm	482x131x305 mm	482x310x230 mm
	Rack 19" mounting	482x88x190 mm	482x131x202 mm	482x310x150 mm
	Frame N3 mounting	533x88x190 mm	532x131x202 mm	533x310x150 mm
Weight	Wall mounting	4.2 kg	8.5 kg	14 kg
	Rack mounting	4.2 kg	8.5 kg	14 kg

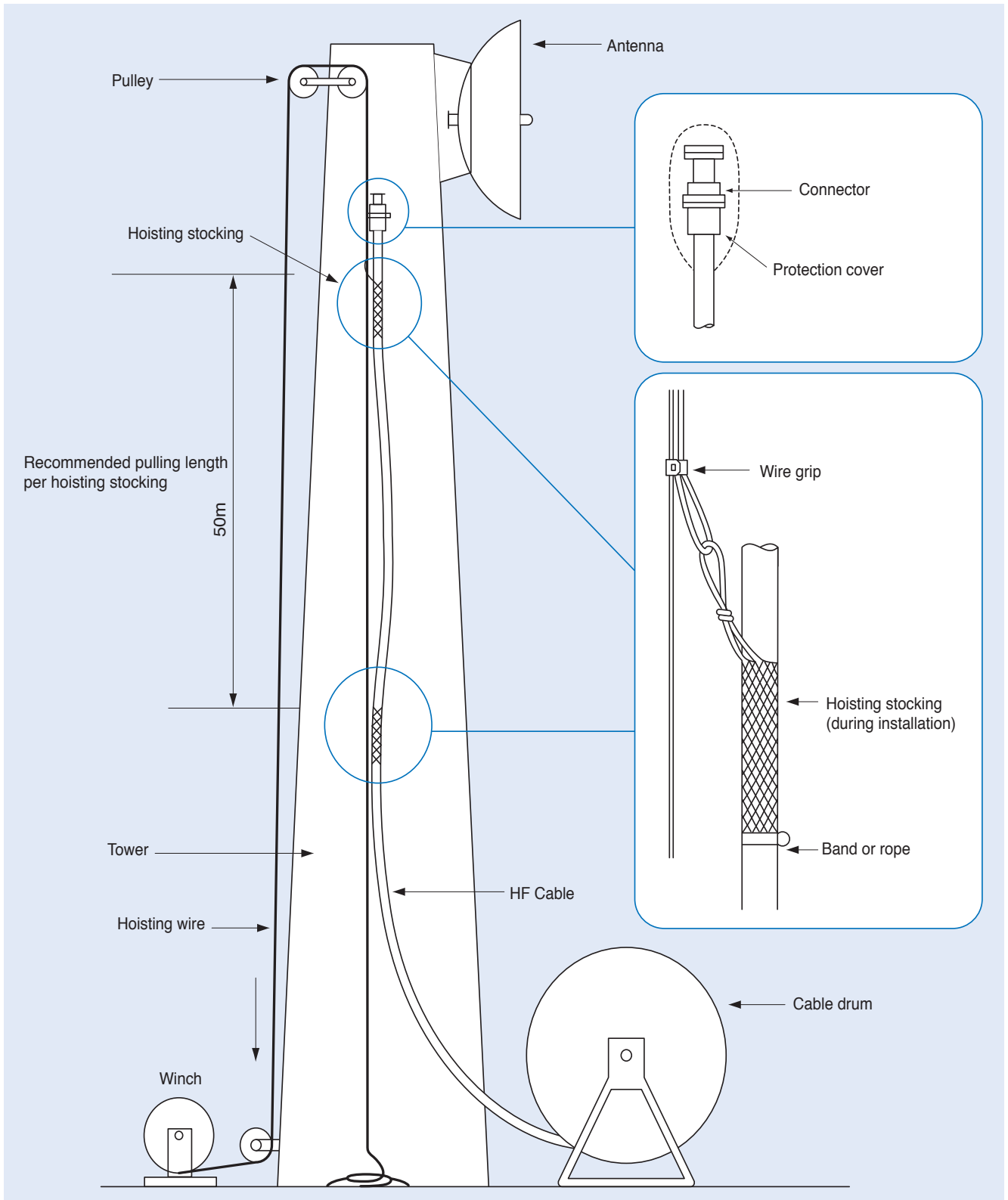
*1) Others on request

Type DHK-2, DHK-3, DHK-15

Item	DHK-2	DHK-3	DHK-15	DHK-15S
Nominal capacity (l/min.)	2	3	15	15
Operating voltage	AC100V/AC200V			
Consumption power	70(VA)	70(VA)	600(W)	600(W)
Dew point	-40 °C			
Pressure	Upper (Mpa)	0.035±0.003		0.035±0.003
	Lower (Mpa)	0.01±0.003		0.01±0.003
Outlets	3	3 to 6	1 to 6	1 to 8
Dimension (mm)	530 x 360 x 120	600 x 450 x 150	950 x 450 x 400	920 x 650 x 210
Weight (kg)	20	25	80	70



INSTALLATION OF HF CABLES



Caution when installing cables

Please pay attention to the following points in order to keep the electrical and mechanical characteristics of HF cables in optimum working condition.

- **Do not bend less than the minimum bending radius specified in this catalog.**

Bending less than minimum bending radius can cause serious damage to the cable.

- **Avoid putting undue pressure on the cable.**

Do not drop tools or other objects on the cable.

- **Do not leave a cut cable unattached.**

After cutting cable, please attach the connector or waterproof it as soon as possible.

- **Maximum pulling tension for the cable must be especially kept within the permissible limit.**

To prevent damages during cable laying, hoisting and installation.

- **Don't drag the cable on sharp edged objects.**

To avoid damage of cable jacket. If damaged, will have influence upon the life of cable.

- **When laying/hoisting cable, do not grip the connector portion.**

To grip the cable portion with hoisting stocking.

To protect the connector with protection cover.

Attenuation value

The attenuation values on this catalog are Nominal values.

The Maximum values of attenuation are 105% of Nominal values.

When requesting information, Please provide us with the following.

1. Frequency band.
2. Cable length.
3. Connector type (EIA, JEITA, DIN, IEC, etc.)
4. If you need the tool kit to attach connectors.

- ACX is the code of Anchor Connector for coaxial transmission lines.
- WMS is the code of Wall entryland Molded rubber (single run).
- HSC is the code of Hoisting Stocking (installation type).
- HSF is the code of Hoisting Stocking (Fix type).
- NFS is the code of Not Flange and Screw stop.
- ELB is the code of 90 degree ELBow with flange.
- IEB is the code of Indoor use 90 degree ELBow not flange.
- ICA is the code of Indoor use Coupling Adaptor with Flange.
- ISX is the code of Inner Support for rigid coaxial line.
- SCX is the code of Straight Coupling for rigid coaxial line.
- SCX-S is the code of Straight Coupling with Silver plating for rigid coaxial line.
- ICX is the code of Inner Connector for rigid coaxial line.
- Specifications subject to change without notice.

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