



RFL 9550 Line Trap



(Figure 1) Typical RFL 9550 Line Trap

FEATURES

The 9550 Line Trap features low loss and modular design. RFL is able to design line traps according to customer requirements given the various application parameters such as outline dimensions and short time current per IEC Series 2 standards. The RFL 9550 Line Trap is inserted in series with high voltage a.c. power transmission lines to prevent loss of carrier-frequency signal power in the range of 30 to 500 kHz. It also minimizes interference from carrier signalling systems on adjacent power transmission lines.



CONSTRUCTION

The RFL 9550 Line Trap consists of three parts: main coil, tuning device and protective device.

MAIN COIL

The main coil carries power frequency currents as well as short-circuit currents of the power system. The main coils are made of several layers of insulated rectangular aluminum cable and epoxy resin fiberglass which results in a very strong structure. This manufacturing method also proves effective against ultraviolet rays and aging. The main coils' spiders, made of flat aluminum alloy connected by fiberglass ties, yield traps that provide high mechanical strength, corrosion-resistance and low loss.

TUNING DEVICE

The tuning device generally consists of a capacitor, inductor and resistor. The tuning device combined with the main coil forms a resonant circuit to block carrier signals. High voltage polystyrene film capacitors are used to provide a line trap insulation margin that is much higher than that required by IEC 353.

PROTECTIVE DEVICE

The protective device is used to protect the main coil and the tuning device. It can limit lightning and switching over-voltages applied across line traps to a certain extent. Depending on the voltage across the main coil, lightning arrestors or zinc-oxide valve disks are used, which are specially designed for the RFL 9550 Line Trap.

SERVICE CONDITIONS

- Operating Point: Outdoor
- Ambient Temperature: -40°C to $+45^{\circ}\text{C}$
- Altitude: Not greater than 1000m
- Power Frequency: 50/60Hz
- Atmospheric Condition: Free of damaging gas or excessive dust.
- Abnormal Condition: Above or below the specified temperature range, salt, spray, industrial pollution, or other environmental factors which could seriously affect the operating conditions should be submitted to RFL for review.

MOUNTING OPTIONS

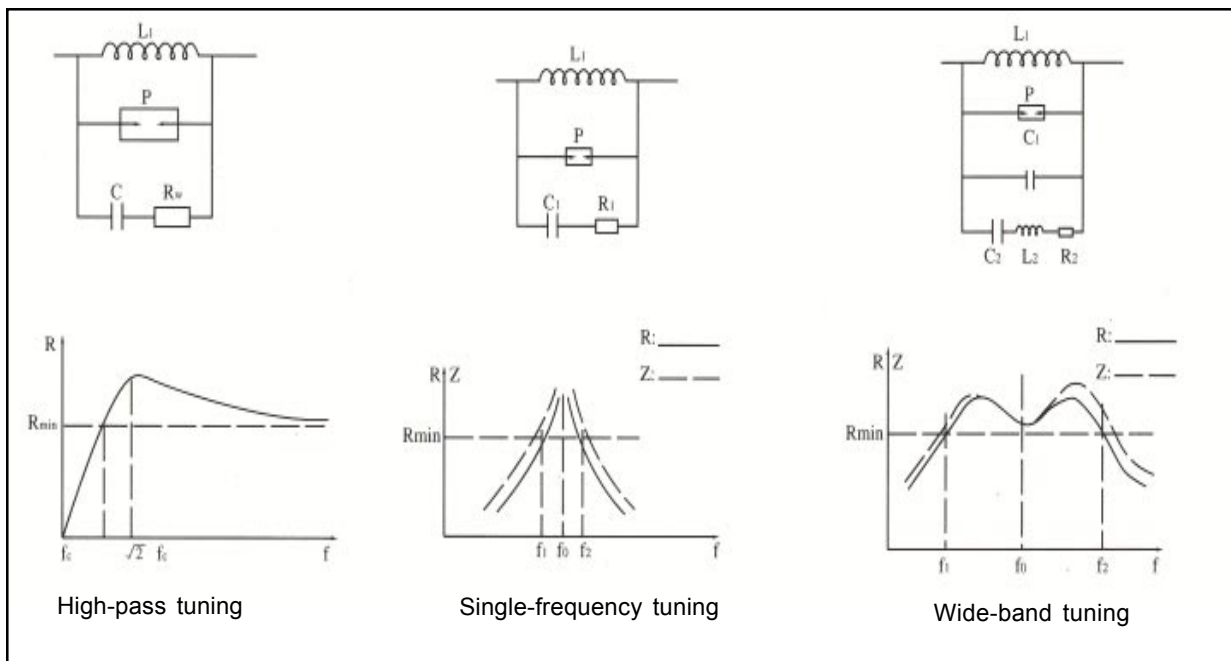
- a. Suspension line traps are provided with one, two, or four suspension points and eye nut(s), which must be turned tightly during assembly to mount the line trap in a vertical state.
- b. For pedestal mounted line traps, aluminum pedestal(s) should be mounted to the lower spider first, then connected to the post insulator. For large line traps with three or four supports, every support point shall be levelled to prevent insulators or line traps from carrying undue force.



SPECIFICATIONS

Inductance of Main Coil L_n (mH)	Bandwith for blocking frequency (kHz)						(kHz) Min frequency for single frequency	
	Band No.							
	1	2	3	4	5	6	6 kHz BW	4 kHz BW
0.1	340-500	300-400	265-340	245-300	230-275	210-245	133	109
0.2	260-500	220-360	186-280	164-228	150-195	135-170	95	79
0.3	208--500	164-300	142-228	124-184	116-164	104-140	78	65
0.5	160-500	120-268	96-168	80-124	72-106	60-78	62	51
1.0	84-500	70-208	58-126	48-84	42-64	40-60	45	40
1.5	64-500	40-84					32	30
2.0	48-500							

Application chart for line traps with a blocking impedance of 800 Ohms. The blocking resistance is not less than 570 Ohms for wide-band traps, and is at least 800 Ohms for single-frequency traps. (Line Traps with other blocking impedances, such as 400, 600 or 1000 Ohms, are also available.)



(Figure 2) Tuning circuits and their characteristics



(Table 1) STANDARD SPECIFICATIONS for the RFL 9550 Line Trap (F Class)

No.	Type	Mfg. Code	In	Ikn	Ikp	T	Ltn	Loss	Figure No.		H	Øy	Øa	Øb	W
			(A)	(kA)	(kA)	s	mH	(k W)	Susp.	Ped.	(mm)	(mm)	(mm)	(mm)	kg.
1	XZF-630-0.1/20-B5	BTZ11A01	630	20	51	1	0.1	1.54	4	7	604	680	---	---	55
2	0.2	BTZ12A01					0.2	2.51	4	7	794	680	---	---	75
3	0.3	BTZ13A01					0.3	3.41	4	7	974	680	---	---	97
4	0.5	BTZ14A01					0.5	3.73	4	7	754	750	---	---	124
5	1	BTZ15A01					1	5.69	4	7	824	860	380	---	190
6	1.5	BTZ16A01					1.5	7.45	4	7	1054	930	380	---	244
7	2	BTZ17A01					2	8.77	4	8	1134	980	420	700	300
8	XZF-800-0.1/25-B5	BTZ21A01	800	25	63.8	1	0.1	1.85	4	7	664	690	---	---	70
9	0.2	BTZ22A01					0.2	2.97	4	7	824	740	---	---	100
10	0.3	BTZ23A01					0.3	3.84	4	7	884	840	---	---	126
11	0.5	BTZ24A01					0.5	5.51	4	7	1074	900	420	---	171
12	1	BTZ25A01					1	7.28	4	7	894	920	330	---	243
13	1.5	BTZ26A01					1.5	9.11	4	8	964	1060	420	700	323
14	2	BTZ27A01					2	11.04	4	8	1054	1110	470	800	380
15	XZF-1000-0.1/31.5-B5	BTZ31A01	1000	31.5	80.3	1	0.1	2.62	4	7	604	890	---	---	84
16	0.2	BTZ32A01					0.2	3.6	4	7	794	890	---	---	130
17	0.3	BTZ33A01					0.3	4.77	4	7	934	940	470	---	166
18	0.5	BTZ34A01					0.5	7.24	4	7	1054	1050	530	---	208
19	1	BTZ35A01					1	11.1	4	8	1184	1120	550	800	326
20	1.5	BTZ36A01					1.5	13.23	4	8	1244	1330	810	1000	437
21	2	BTZ37A01					2	16.03	5	8	1334	1430	860	1100	536
22	XZF-1250-0.1/40-B5	BTZ41A01	1250	40	102	1	0.1	3.44	4	7	834	790	---	---	109
23	0.2	BTZ42A01					0.2	4.97	4	7	814	850	330	---	156
24	0.3	BTZ43A01					0.3	6.37	4	7	754	1010	420	---	202
25	0.5	BTZ44A01					0.5	8.88	4	7	884	1060	470	---	264
26	1	BTZ45A01					1	14	5	8	1224	1200	600	900	440
27	1.5	BTZ46A01					1.5	17.14	5	8	1294	1400	810	1000	590
28	2	BTZ47A01					2	20.37	5	8	1334	1550	880	1200	702
29	XZF-1600-0.1/50-B5	BTZ51A01	1600	50	127.5	1	0.1	4.4	4	7	844	850	410	---	150
30	0.2	BTZ52A01					0.2	6	4	7	794	970	460	---	210
31	0.3	BTZ53A01					0.3	8.25	4	7	974	970	460	---	280
32	0.5	BTZ54A01					0.5	11.35	4	8	1154	1060	510	750	400
33	1	BTZ55A01					1	17.51	5	8	1214	1280	600	950	590
34	1.5	BTZ56A01					1.5	20.5	5	8	1294	1480	690	1100	800
35	2	BTZ57A01					2	24.56	5	8	1344	1650	870	1300	1015
36	XZF-2000-0.1/50-B5	BTZ61A01	2000	50	127.5	2	0.1	5.4	4	7	926	910	460	---	210
37	0.2	BTZ62A01					0.2	8.55	4	8	1116	1010	560	700	300
38	0.3	BTZ63A01					0.3	10.4	4	8	916	1140	560	800	360
39	0.5	BTZ64A01					0.5	14.02	5	8	1206	1150	400	800	550
40	1	BTZ65A01					1	21.71	5	8	1326	1440	650	1100	790
41	1.5	BTZ66A01					1.5	27.84	5	8	1436	1560	1140	1200	1035
42	2	BTZ67A01					2	31.31	6	8	1556	1670	1240	1300	1285
43	XZF-2500-0.1/50-B5	BTZ71A01	2500	50	127.5	3	0.1	7	4	8	966	960	400	---	270
44	0.2	BTZ72A01					0.2	10.8	2	8	1046	1110	500	700	400
45	0.3	BTZ73A01					0.3	13.41	2	8	1096	1310	600	900	520
46	0.5	BTZ74A01					0.5	18.74	2	8	1186	1560	780	1150	700
47	1	BTZ75A01					1	28.16	2	8	1276	1570	1060	1100	1000
48	1.5	BTZ76A01					1.5	34.1	6	8	1426	1780	1240	1400	1365
49	2	BTZ77A01					2	40.45	6	8	1596	1880	1340	1500	1670
50	XZF-3150-0.1/63-B5	BTZ81A01	3150	63	161	3	0.1	9.37	4	8	906	1120	500	700	340
51	0.2	BTZ82A01					0.2	13.72	5	8	966	1330	660	900	510
52	0.3	BTZ83A01					0.3	17.17	5	8	1046	1490	700	1100	660
53	0.5	BTZ84A01					0.5	25.33	5	8	1106	1760	1240	1350	880
54	1	BTZ85A01					1	38.98	6	8	1306	2010	1100	1700	1300
55	1.5	BTZ86A01					1.5	44.97	6	8	1566	2120	1170	1700	1830
56	2	BTZ87A01					2	52.52	6	8	1686	2330	1420	1900	2280
57	XZF-4000-0.1/80-B5	BTZ91A01	4000	80	204	3	0.1	11.95	5	8	1028	1330	540	900	490
58	0.2	BTZ92A01					0.2	18.62	5	8	1168	1530	720	1100	700
59	0.3	BTZ93A01					0.3	25.02	5	8	1228	1790	920	1400	880
60	0.5	BTZ95A01					0.5	32.65	6	8	1278	1870	840	1500	1190
61	1	BTZ95A01					1	49.11	6	8	1488	2150	1140	1700	1810
62	1.5	BTZ96A01					1.5	59.22	6	9	1868	2130	1090	1700	2610
63	2	BTZ97A01					2	69.66	6	9	1948	2340	1220	1900	3240



(Table 2) HEAVY DUTY SPECIFICATIONS for the RFL 9550 Line Trap (F class)

No.	Type	Mfg. Code	In	Ikn	Ikp	T	Ltn	Loss	Figure No.		H	Øy	Øa	Øb	W
			(A)	(kA)	(kA)	s	mH	(kW)	Susp.	Ped.	(mm)	(mm)	(mm)	(mm)	(kg)
1	XZF-630-0.1/25-B5	BTZ11B01	630	25	63.8	1	0.1	1.28	4	7	654	680	---	---	65
2	0.2	BTZ12B01					0.2	1.99	4	7	754	730	---	---	90
3	0.3	BTZ13B01					0.3	2.57	4	7	804	830	---	---	113
4	0.5	BTZ14B01					0.5	3.81	4	7	874	830	---	---	146
5	1	BTZ15B01					1	5	4	7	904	870	350	---	226
6	1.5	BTZ16B01					1.5	6.38	4	7	954	970	470	---	290
7	2	BTZ17B01					2	8.04	4	8	1114	1000	470	700	350
8	XZF-800-0.1/31.5-B5	BTZ21B01	800	31.5	80.3	1	0.1	1.7	4	7	684	740	---	---	80
9	0.2	BTZ22B01					0.2	2.72	4	7	684	840	---	---	115
10	0.3	BTZ23B01					0.3	3.56	4	7	764	890	---	---	140
11	0.5	BTZ24B01					0.5	4.26	4	7	724	870	350	---	190
12	1	BTZ25B01					1	6.78	4	7	914	930	410	---	270
13	1.5	BTZ26B01					1.5	8.73	4	7	994	1030	730	---	365
14	2	BTZ27B01					2	9.83	4	7	1204	1040	730	---	480
15	XZF-1000-0.1/40-B5	BTZ31B01	1000	40	102	1	0.1	2.23	4	7	604	850	---	---	100
16	0.2	BTZ32B01					0.2	3.48	4	7	684	1000	---	---	146
17	0.3	BTZ33B01					0.3	4.23	4	7	774	1050	500	---	190
18	0.5	BTZ34B01					0.5	5.92	4	7	884	1150	570	---	255
19	1	BTZ35B01					1	9.68	4	8	1084	1190	530	800	395
20	1.5	BTZ36B01					1.5	11.92	5	8	1244	1300	610	900	530
21	2	BTZ37B01					2	13.85	5	8	1414	1350	700	1000	660
22	XZF-1250-0.1/50-B5	BTZ41B01	1250	50	127.5	1	0.1	2.74	4	7	654	870	---	---	135
23	0.2	BTZ42B01					0.2	4.25	4	7	754	970	470	---	195
24	0.3	BTZ43B01					0.3	5.51	4	7	834	1070	480	---	245
25	0.5	BTZ44B01					0.5	6.92	4	8	934	1180	510	800	365
26	1	BTZ45B01					1	11.41	5	8	1274	1230	510	900	575
27	1.5	BTZ46B01					1.5	13.51	5	8	1454	1330	610	1000	795
28	2	BTZ47B01					2	13.67	5	8	1484	1560	740	1200	1130
29	XZF-1600-0.1/63-B5	BTZ51B01	1600	63	161	1	0.1	3.76	4	7	786	1100	550	---	190
30	0.2	BTZ52B01					0.2	5.6	4	7	796	1080	530	---	260
31	0.3	BTZ53B01					0.3	7.29	4	7	906	1080	530	---	315
32	0.5	BTZ54B01					0.5	10.22	4	8	996	1230	550	900	435
33	1	BTZ55B01					1	13.75	5	8	1306	1410	570	1100	825
34	1.5	BTZ56B01					1.5	15.75	5	8	1436	1590	700	1200	1215
35	2	BTZ57B01					2	18.08	5	8	1616	1650	730	1300	1520
36	XZF-2000-0.1/63-B5	BTZ61B01	2000	63	161	2	0.1	4.28	4	7	806	1230	570	---	295
37	0.2	BTZ62B01					0.2	7.11	4	8	806	1160	530	800	350
38	0.3	BTZ63B01					0.3	9.18	4	8	906	1210	550	900	440
39	0.5	BTZ64B01					0.5	12.41	5	8	1026	1310	560	1000	590
40	1	BTZ65B01					1	18.95	5	8	1296	1490	990	1100	970
41	1.5	BTZ66B01					1.5	23.68	5	8	1546	1550	1040	1200	1315
42	2	BTZ67B01					2	27.6	6	8	1636	1700	1190	1400	1610
43	XZF-2500-0.1/63-B5	BTZ71B01	2500	63	161	3	0.1	6.41	4	7	816	1260	530	---	320
44	0.2	BTZ72B01					0.2	9.17	5	8	836	1260	510	900	450
45	0.3	BTZ73B01					0.3	11.87	5	8	926	1310	540	900	550
46	0.5	BTZ74B01					0.5	16.26	5	8	1006	1460	610	1100	725
47	1	BTZ75B01					1	26.4	5	8	1306	1630	1100	1200	1115
48	1.5	BTZ76B01					1.5	33.02	6	8	1556	1650	1040	1300	1515
49	2	BTZ77B01					2	38.39	6	9	1626	1860	1240	1500	1910
50	XZF-3150-0.1/80-B5	BTZ81B01	3150	80	204	3	0.1	8.62	4	8	1058	1260	650	900	420
51	0.2	BTZ82B01					0.2	12.37	5	8	1068	1450	610	1100	635
52	0.3	BTZ83B01					0.3	15.85	5	8	1098	1600	780	1200	780
53	0.5	BTZ84B01					0.5	22.18	5	8	1248	1820	1290	1400	1070
54	1	BTZ85B01					1	34.31	6	8	1508	2020	1490	1600	1570
55	1.5	BTZ86B01					1.5	42.87	6	9	1708	2100	1490	1700	2170
56	2	BTZ87B01					2	49.5	6	9	1898	2250	1640	1900	2760
57	XZF-4000-0.1/100-B5	BTZ91B01	4000	100	255	3	0.1	10.76	5	8	1088	1340	560	1000	565
58	0.2	BTZ92B01					0.2	16.97	5	8	1228	1650	800	1300	840
59	0.3	BTZ93B01					0.3	20.03	5	8	1368	1720	1190	1300	1115
60	0.5	BTZ95B01					0.5	26.69	6	8	1508	1920	1390	1500	1445
61	1	BTZ95B01					1	45.22	6	9	1628	2110	1500	1700	2190
62	1.5	BTZ96B01					1.5	55.64	6	9	1798	2260	1490	1900	3030
63	2	BTZ97B01					2	64.47	6	9	1898	2470	1700	2000	3750



SYMBOLS (Tables 1 & 2)

- susp.** = suspension type
- ped.** = pedestal type
- Ltn** = rated inductance
- In** = rated continuous current
- Ikn/T** = rated short-time current, r.m.s./Duration
- Ikp** = asymmetrical peak of Ikn
- Loss** = 75 °C power loss
- H** = height of line trap
- W** = weight of line trap
- y** = outer diameter including anti-corona ball or anti-corona ring
- a** = central distance between lifting holes
- b** = central diameter of pedestal brace flange

Please Note:

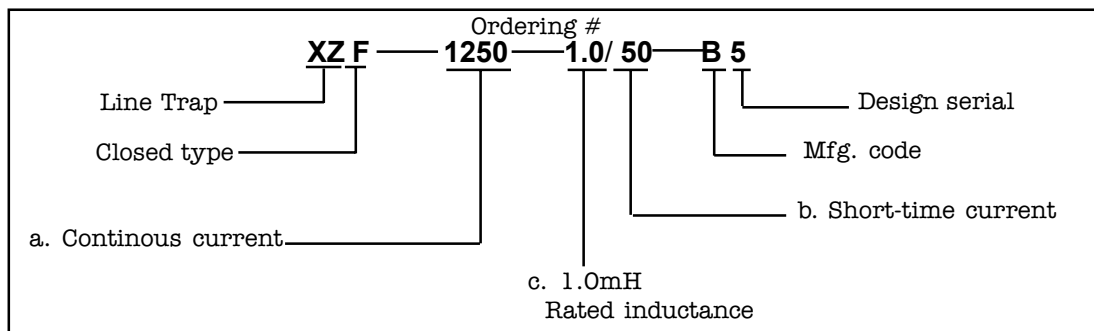
Corona balls are not required on line traps with rated continuous current below 800A, and therefore are not supplied.

For heavier traps, we do not use suspension mounting in general, therefore there is no suspension mounting drawing is provided in the catalog tables.

Non-standard trap characteristics can be supplied upon request.

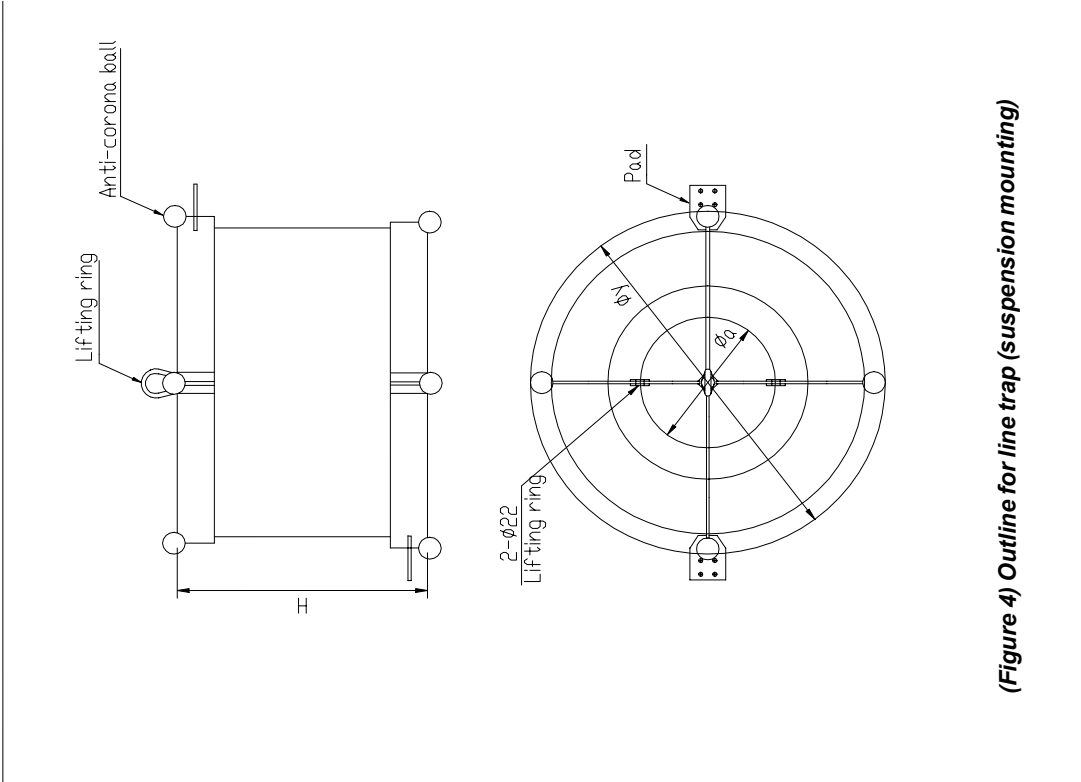
ITEMS REQUIRED FOR QUOTE

- a. Continuous current rating
- b. Short-time current rating
- c. Inductance
- d. Line voltage/frequency
- e. Minimum blocking impedance or resistance
- f. Suspension or pedestal mounting mode
- g. With or without bird barriers
- h. Altitude if above 1000 meters

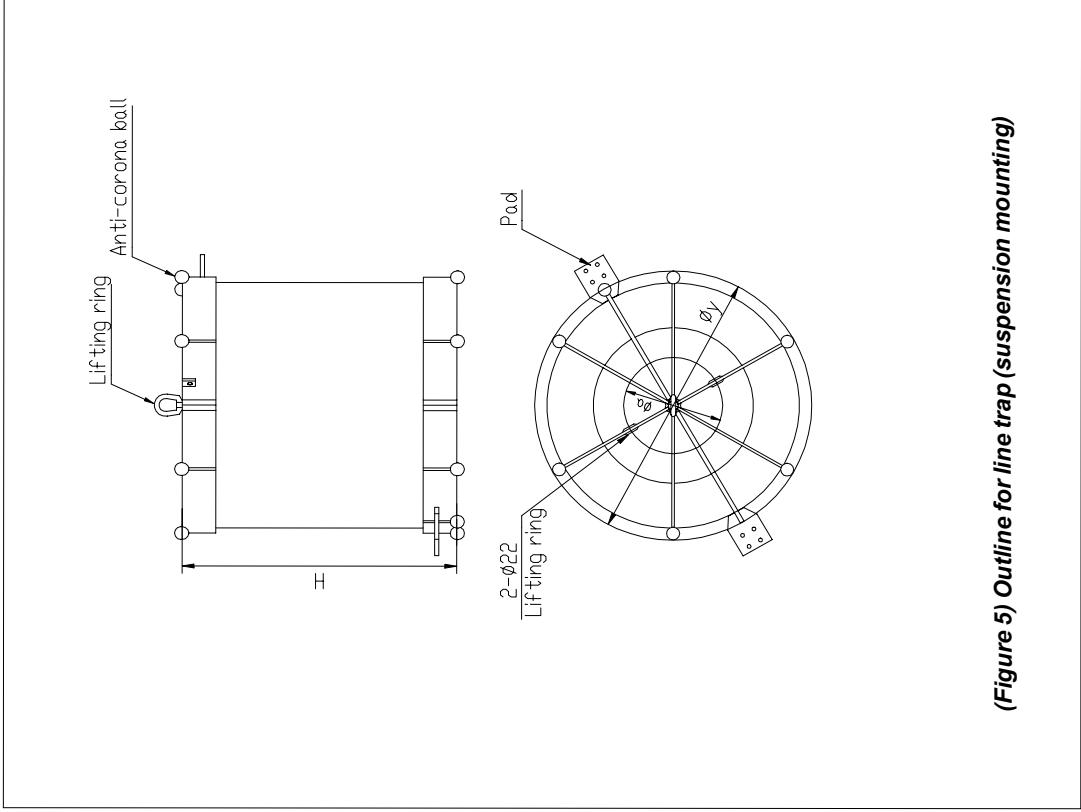


(Figure 3) Example for ordering.

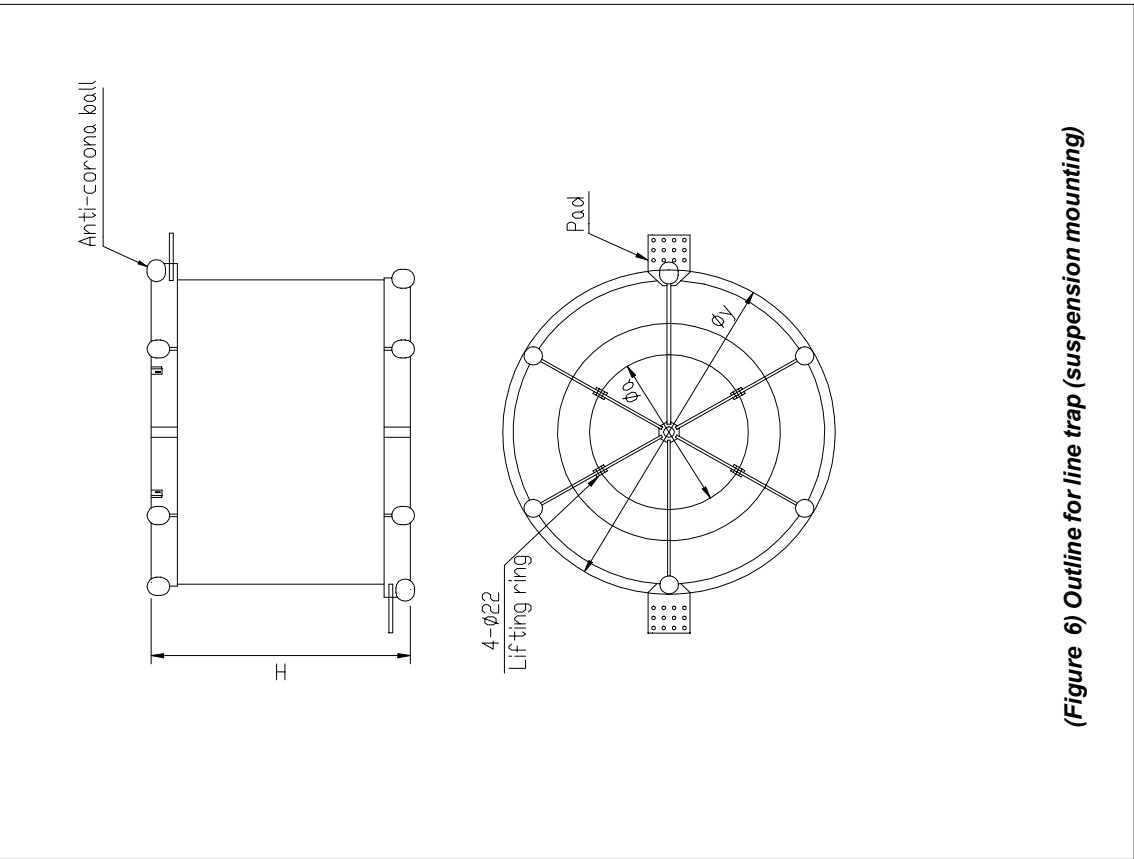
Other Items required (not pictured in Fig. 3): d. Line voltage/frequency, e. Minimum blocking impedance or resistance, f. Suspension or pedestal mounting mode, g. With or without bird barriers, h. Altitude



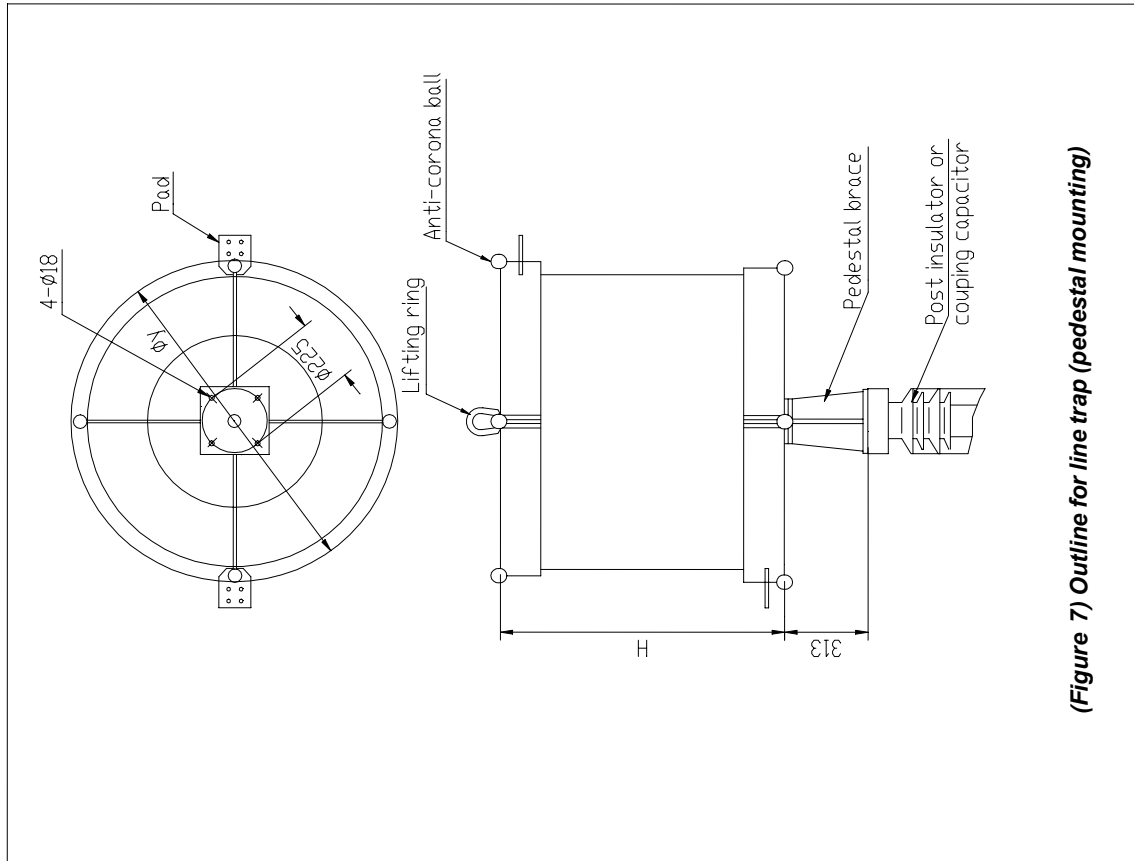
(Figure 4) Outline for line trap (suspension mounting)



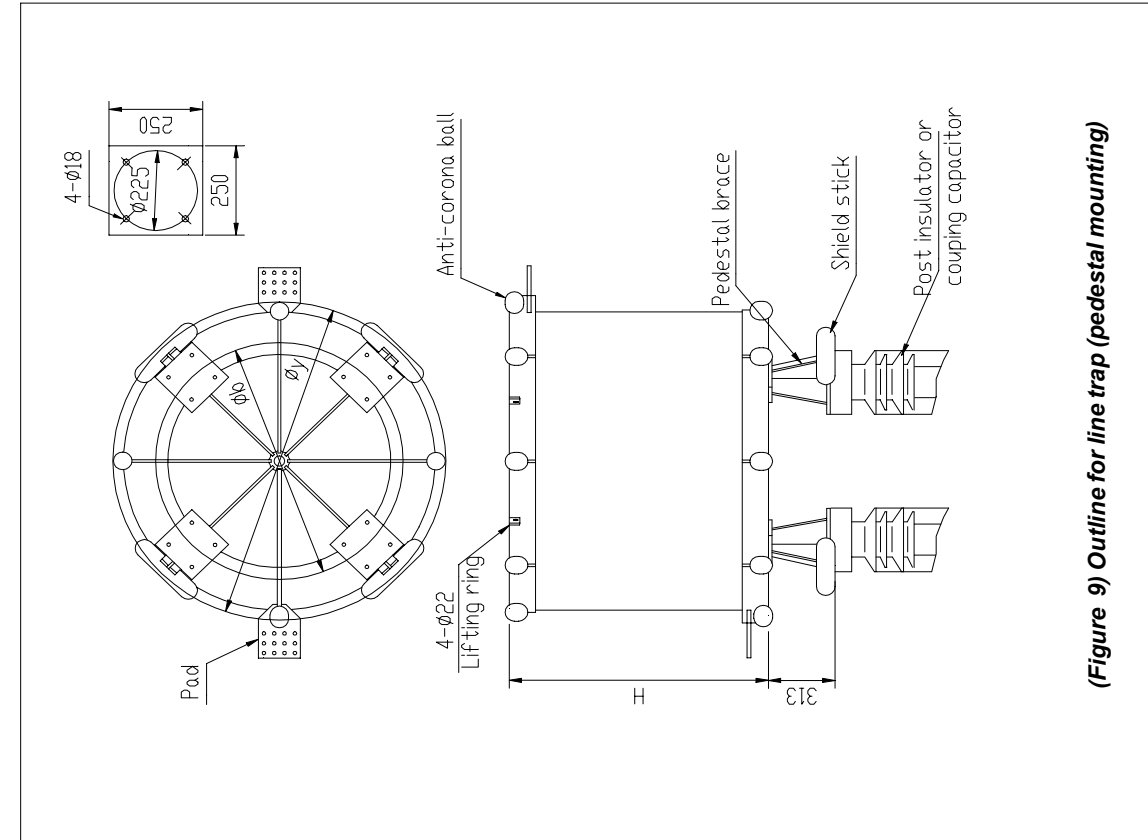
(Figure 5) Outline for line trap (suspension mounting)



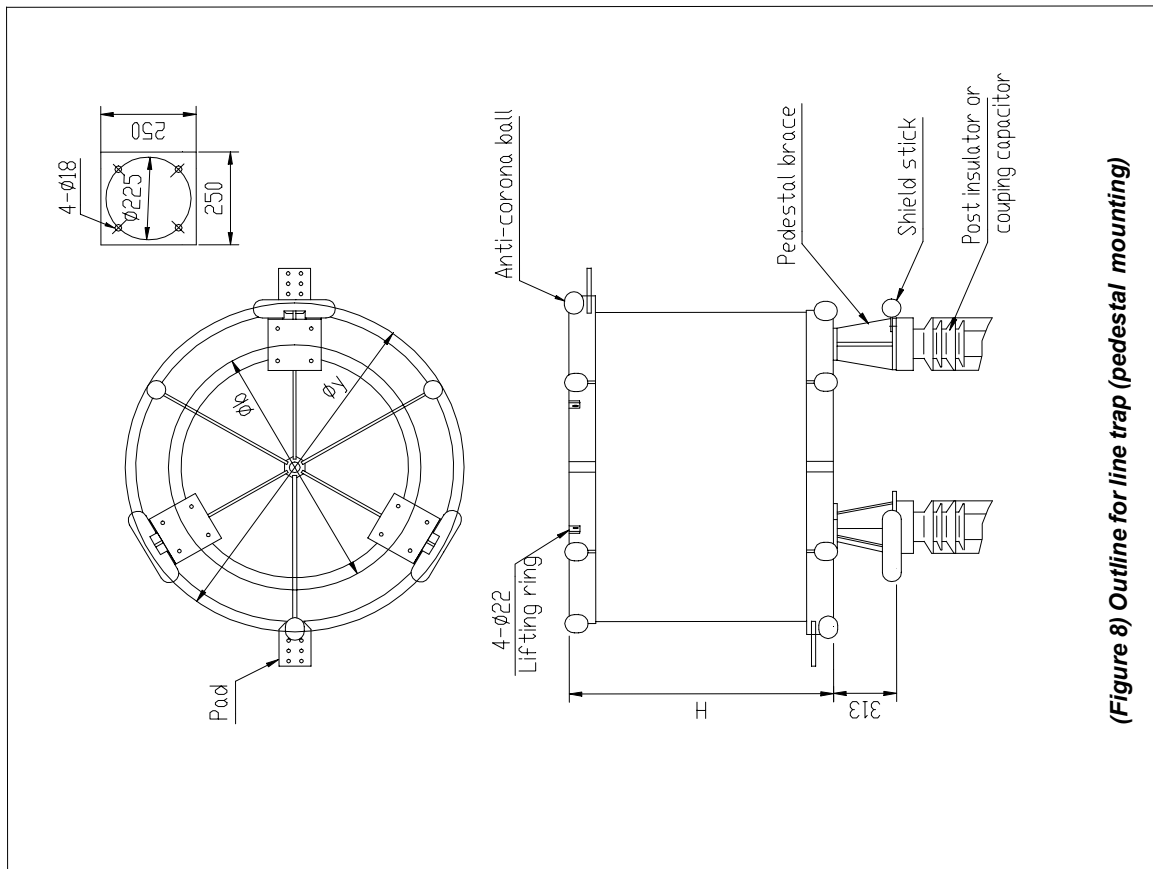
(Figure 6) Outline for line trap (suspension mounting)



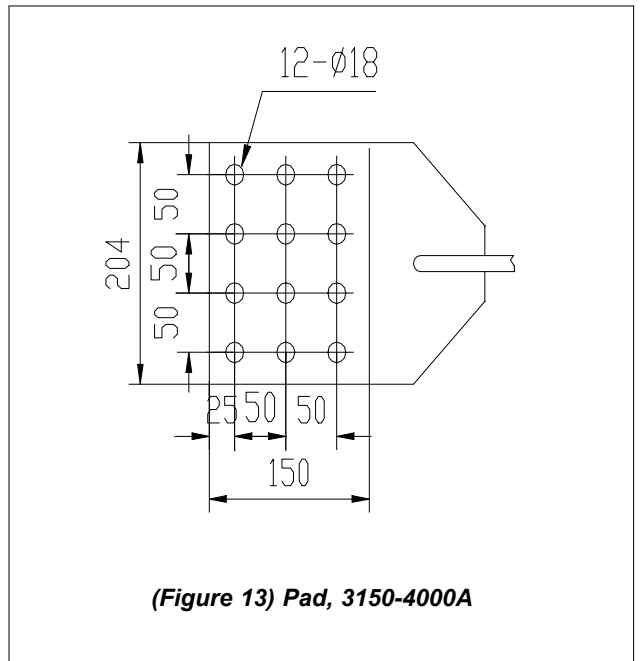
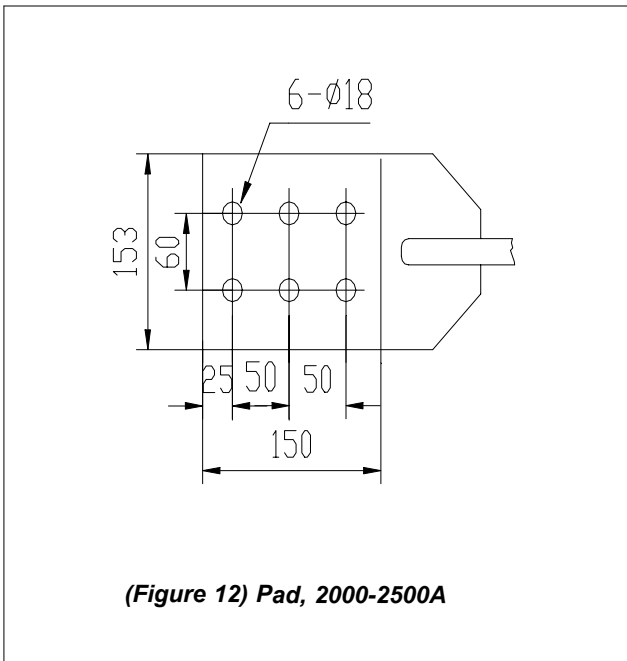
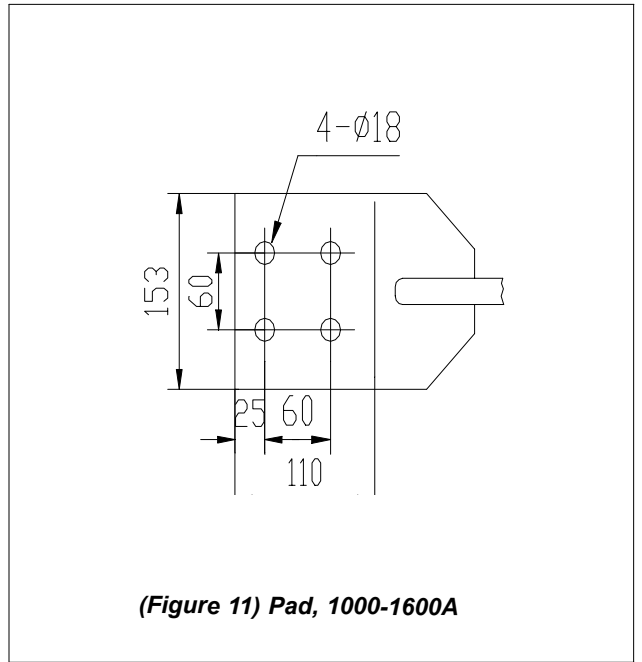
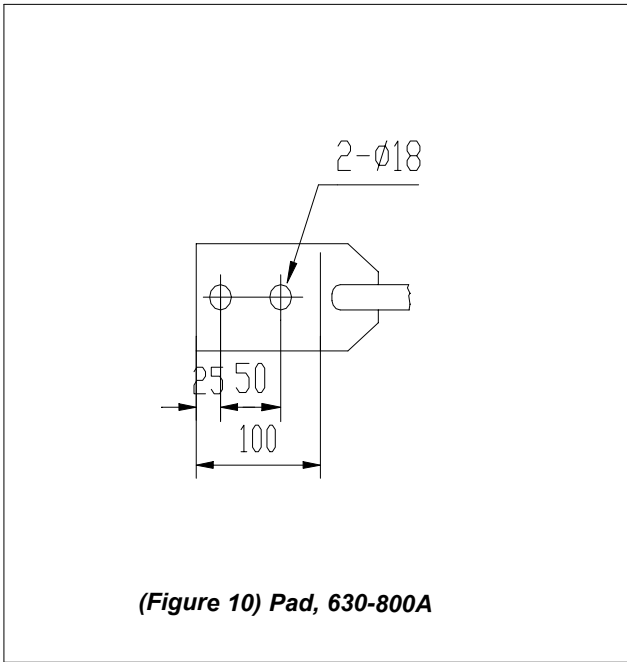
(Figure 7) Outline for line trap (pedestal mounting)



(Figure 9) Outline for line trap (pedestal mounting)



(Figure 8) Outline for line trap (pedestal mounting)





NOTES



RFL Electronics Inc.

*353 Powerville Road
Boonton Twp., NJ 07005-9151
Tel: 973.334.3100
Fax: 973.334.3863
www.rflect.com
email: sales@rflect.com*