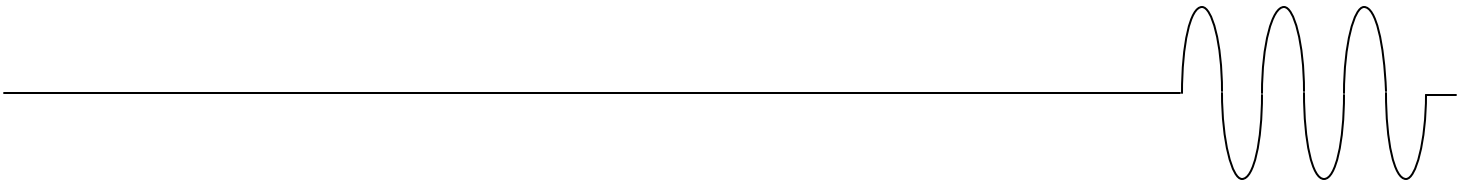
MTE Corporation

MTE - SERIES RL

LINE/LOAD REACTORS

USER MANUAL



PART NO. INSTR – 011
REL. 021126

IMPORTANT USER INFORMATION

NOTICE

MTE Series RL Line/Load Reactors are components designed to improve the reliability of adjustable frequency drives, DC drives and a wide variety of other types of power electronic equipment. In addition they provide input line current harmonic mitigation and long lead protection for inverter fed motors. MTE reactors are available in a large number of current ratings and a variety of inductance values. The suitability of a line/load reactor for a specific application must therefore be ultimately determined by the customer. In no event will MTE Corporation assume responsibility or liability for any direct or consequential damages resulting from the use or application of reactors. Nor will MTE Corporation assume patent liability with respect to the use of information, circuits or equipment described in this instruction manual.

TABLE OF CONTENTS

1. IMPORTANT SAFETY INFORMATION

WARNING

ONLY A QUALIFIED ELECTRICIAN CAN CARRY OUT THE ELECTRICAL INSTALLATION OF LINE/LOAD REACTORS

WARNING

High voltage is used in the operation of line/load reactors. Use Extreme caution to avoid contact with high voltage when operating, installing or repairing equipment containing line/load reactors. **INJURY OR DEATH MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED.**

Line/load reactors are used in conjunction with inverters, or other electrical equipment that may feedback lethal voltages. Follow the safety instructions in the equipment used with the reactor in addition to the safety instruction in this manual.

WARNING

The opening of the branch circuit protective device may be an indication that a fault current has been interrupted. To reduce the risk of fire or electrical shock, line/load reactors should be examined and replaced if damaged.

WARNING

An upstream disconnect/protection device must be used as required by the National Electrical Code (NEC).

WARNING

Even if the upstream disconnect/protection device is open, a drive or inverter down stream of the line/load reactor may feed back high voltage to the reactor. The inverter or drive safety instructions must be followed. **INJURY OR DEATH MAY RESULT IF THE DRIVE SAFETY PRECAUTIONS ARE NOT OBSERVED.**

WARNING

The frame of line/load reactors must be grounded at least at one of the reactor's mounting holes.

WARNING

Only spare parts obtained from MTE Corporation or an authorized MTE distributor can be used.

2. INTRODUCTION

This manual was specifically developed to assist in the installation, interconnection and operation of MTE Corporation Series RL Line/Load Reactors

This manual is intended for use by personnel experienced in the operation and maintenance of electronic drives, inverters and similar types of power electronic equipment. Because of the high voltages required by the equipment connected to line/load reactors and the potential dangers presented by rotating machinery, it is essential that all personnel involved in the operation and maintenance of line/load reactors know and practice the necessary safety precautions for this type of equipment. Personnel should read and understand the instructions contained in this manual before installing, operating or servicing line/load reactors and the drive to which the reactor is connected.

Upon Receipt of a Reactor:

MTE Line/load Reactors have been subjected to demanding factory tests before shipment. Carefully inspect the shipping container for damage that may have occurred in transit. Then unpack the filter and carefully inspect for any signs of damage. Save the shipping container for future transport of the reactor.

In the event of damage, please contact and file a claim with the freight carrier involved immediately.

If the equipment is not going to be put into service upon receipt, cover and store the reactor in a clean, dry location. After storage, ensure that the equipment is dry and that no condensation has accumulated on the reactor before applying power.

Repair/Exchange Procedure

MTE Corporation requires a Returned Material Authorization Number before it can accept any reactors that qualify for return or repair. If problems or questions arise during installation, setup, or operation of the filter, please call us for assistance at:

Phone: 1-262-253-8200

FAX: 1-262-253-8222

3. MODEL NUMBER CODES

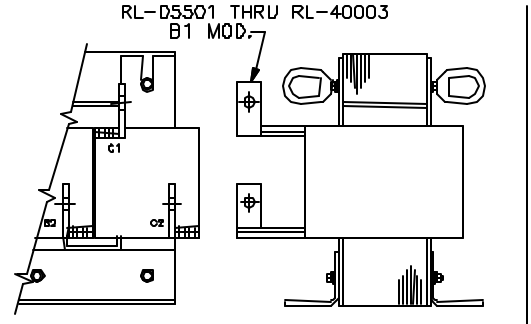
Standard RL Reactor model number codes are of the form RL-ABCDEF(GHI) with the number coded as outlined below.

Table 1 Model Number Codes

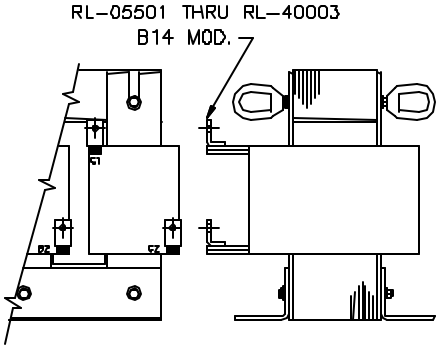
Character	Description	Code
RL-	Always for Harmonic Compensated Line/Load Reactor	
A,B,C,D	Characters A, B, C,(D), designate the Fundamental Current rating of the Reactor using 2 leading zeros (up to 8 Amps), 1 leading zero (12 to 80 Amps), no leading zeros (100 to 950 Amps), and 4-th digit (1,000 Amps and higher)	*Example: 080XX is an 80 Amp Reactor*
E	Indicates mechanical configuration	0 Open
		1 NEMA-1, Standard Cabinet
		2 NEMA-1, Next Size Larger Cabinet
F	Designates the inductance, and consequently, the % Impedance, Class at 480 Volts	
G,H,I	Modifications	A Omit Center coil
		B Terminal Modifications
		D Sub. Black Paint for Blue
		D1 Conformal Epoxy Coating
		T Temperature Switches

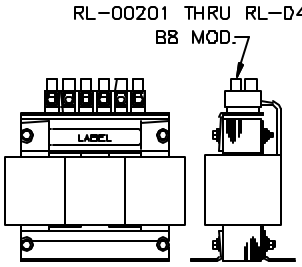
Terminal Modifications

“B1” Terminal Modification
(available on RL-05501 thru RL-40003)



“B14” Terminal Modification
(Available on RL-05501 thru RL-40003)





“B8” Terminal Modification
(Available on RL-00201 thru RL-04503)

4. SPECIFICATIONS

AGENCY APPROVALS:

UL-508, File E180243 Component Recognized (1 amp – 2400 amps)

UL-508, File E180243 **UL Listed** Nema 1 units (1 amp – 2400 amps)

CSA C22.2, File LR29753-13 CSA Certified (1 amp – 1200 amps)

Class H, 200 C, File E66214, Type 180-36, UL Recognized Insulation System

CE Marked

Inductance Tolerance: ± 10 %

Current Rating: Refer to product nameplate

Voltage Rating: Refer to product nameplate

Dielectric Strength: 4000 Volts RMS, 5600 Volts Peak

dv/dt Protection: 17,825 volts/microsecond

Maximum Switching Frequency: 20 KHz

Insulation System Class: H

Maximum Ambient temperature: 45C

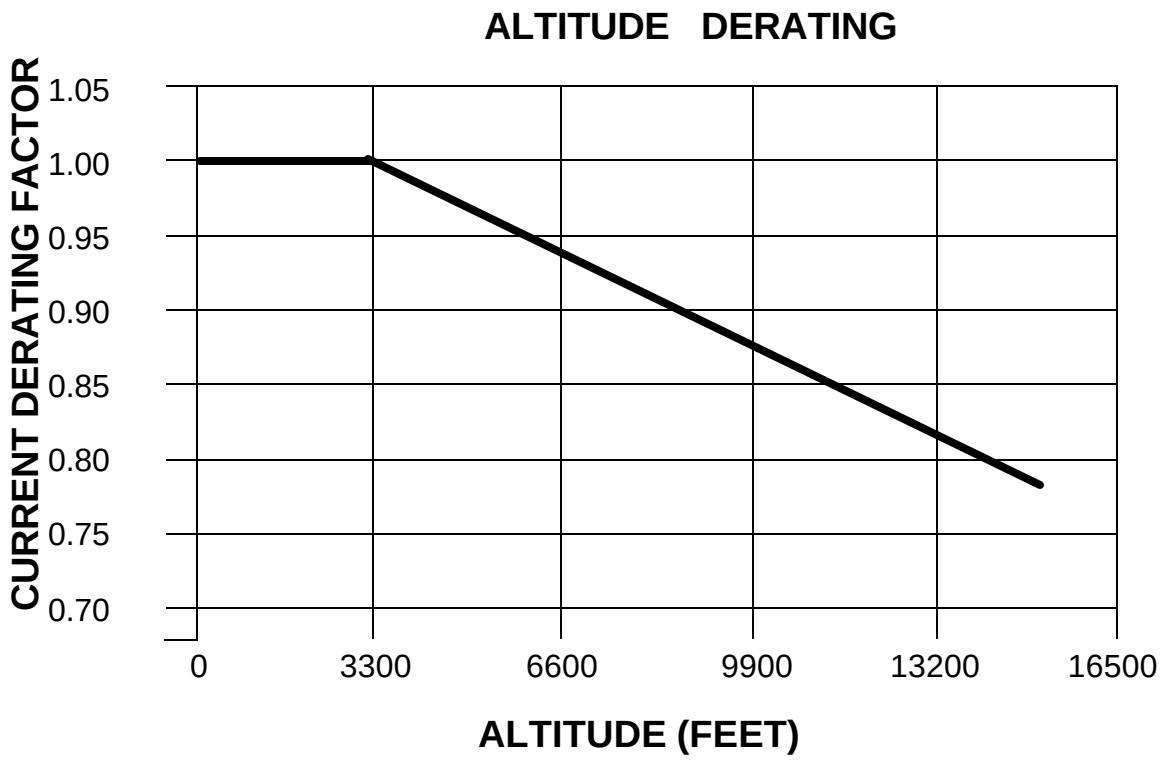
Average Temperature Rise: 115C

Altitude (See figure 3 for altitude derating curve): 3300 Ft. Max.

Maximum Fundamental Frequency without derating: 60 Hz

Color: Royal Blue

Figure 3. Altitude Derating Curve



DIMENSIONS AND TECHNICAL DATA

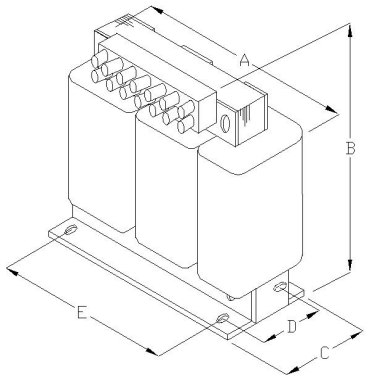


Figure 1

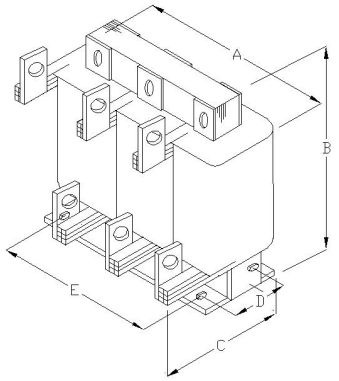


Figure 2

Table 3 Dimensions and Technical Data – Open Type

CAT. NO. RL-	A	B	C	D	E	MTG. HOLES	TERMINAL TYPE	WIRE RANGE (AWG)	TERMINAL TORQUE (in - lbs)	Watts Loss at (I_F)
00101	4.15	4	2.98	2.35	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	14
00102	4.15	4	2.47	1.85	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	15
00103	4.15	4	2.47	1.85	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	12
00104	4.15	4	2.47	1.85	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	5
00201	4.15	4	2.62	1.98	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	8
00202	4.15	4	2.62	1.98	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	12
00203	4.15	4	2.62	1.98	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	16
00204	4.15	4	2.37	1.73	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	11
00401	4.15	4	2.62	1.98	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	15
00402	4.15	4	2.62	1.98	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	20
00403	4.15	4	2.98	2.35	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	20
00404	4.15	4	3.24	2.60	1.44	0.31 x 0.56	TERM. BLK	22 -14	4.5	21
00801	5.75	4.62	2.87	2.10	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	20
00802	5.75	4.62	2.87	2.10	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	29
00803	5.75	4.87	3.22	2.62	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	26
00804	5.75	4.62	3.24	2.48	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	28
01201	5.75	4.87	3.12	2.10	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	26
01202	5.75	4.87	3.12	2.10	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	31
01203	5.75	4.87	3.74	2.75	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	41
01801	5.75	5.12	3.12	2.10	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	36
01802	5.75	5.12	3.37	2.48	2.0	0.31 x 0.62	TERM. BLK	22 - 5	16	43
01803	7.75	5.87	3.87	2.60	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	43
02501	7.0	5.87	3.30	2.35	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	48
02502	7.0	5.87	3.30	2.35	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	52
02503	7.0	5.62	4.12	3.10	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	61
03501	7.0	5.62	3.87	2.60	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	49
03502	7.0	5.62	3.87	2.75	3.0	0.38 X 0.75	TERM. BLK	22 - 5	16	54
03503	8.75	7.37	3.62	3.16	3.0	0.38 X 0.75	TERM. BLK	18 - 4	20	54
04501	8.75	7.22	3.62	3.16	3.0	0.38 X 0.75	TERM. BLK	18 - 4	20	54
04502	8.75	7.22	3.62	3.16	3.0	0.38 X 0.75	TERM. BLK	18 - 4	20	62
04503	8.75	7.12	5.17	3.66	3.0	0.38 X 0.75	TERM. BLK	18 - 4	20	65
05501	8.75	7.12	4.87	3.16	3.0	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	64
05502	8.75	6.87	4.87	3.16	3.0	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	67

DIMENSIONS AND TECHNICAL DATA (continued)

Table 3 Dimensions and Technical Data – Open Type

CAT. NO. RL-	A	B	C	D	E	MTG. HOLES	TERMINAL TYPE	WIRE RANGE (AWG)	TERMINAL TORQUE (in - lbs)	Watts Loss at (I_F)
05503	8.75	6.87	5.62	3.91	3.0	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	71
08001	10.42	8.37	5.87	3.47	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	82
08002	10.42	8.37	6.12	3.47	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	86
08003	10.42	8.37	6.37	4.16	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	96
10001	10.62	8.37	6.62	3.46	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	94
10002	10.62	8.37	6.25	3.66	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	84
10003	10.62	8.37	7.24	4.16	3.63	0.38 X 0.75	BOX LUG*	6 - 0	6-4(45) & 2-0(50)	108
13001	8.62	6.91	6.00	3.16	3.0	0.38 X 0.75	BOX LUG*	2 - 0000		108
13002	10.42	8.37	6.37	3.66	3.63	0.38 X 0.75	BOX LUG*	2 - 0000		180
13003	10.87	8.37	8.12	4.16	3.63	0.38 X 0.75	BOX LUG*	2 - 0000		128
16001	10.42	8.37	6.37	3.16	3.63	0.38 X 0.75	BOX LUG*	2 - 0000	2-1 =150	116
16002	10.62	8.37	6.62	3.47	3.63	0.38 X 0.75	BOX LUG*	2 - 0000	1/0-2/0 = 180	149
16003	10.87	8.37	8.62	4.66	3.63	0.38 X 0.75	BOX LUG*	2 - 0000	3/0-4/0 = 250	138
20001	10.42	8.37	6.87	4.16	3.63	0.38 X 0.75	BOX LUG*	2 - 0000		124
20002	11.12	8.37	7.87	4.41	3.63	0.38 X 0.75	BOX LUG*	2 - 0000		168
20003	11.12	8.37	9.62	5.91	3.63	0.38 X 0.75	BOX LUG*	2 - 0000		146
25001	10.62	8.37	9.12	4.16	3.63	0.38 X 0.75	BOX LUG*	00-500 MCM		154
25002	14.50	11.06	9.75	5.16	4.60	0.562 DIA.	BOX LUG*	00-500 MCM	00=180	231
25003	14.00	11.06	10.75	5.82	4.60	0.562 DIA.	BOX LUG*	00-500 MCM	000-0000 = 250	219
32001	14.50	11.06	14.00	5.16	4.60	0.562 DIA.	BOX LUG*	00-500 MCM	250-350 MCM = 325	224
32002	14.25	11.06	10.50	5.88	4.60	0.562 DIA.	BOX LUG*	00-500 MCM	500 MCM = 375	264
32003	14.50	11.06	11.50	7.13	4.60	0.562 DIA.	BOX LUG*	00-500 MCM		351
40001	13.90	11.06	9.50	5.16	4.60	0.562 DIA.	BOX LUG*	00-500 MCM		231
40002	15.0	11.06	11.60	6.76	4.60	0.562 DIA.	BOX LUG*	00-500 MCM		333
40003	15.0	11.06	14.00	7.26	4.60	0.562 DIA.	BOX LUG*	00-500 MCM		293
50001	15.0	11.06	10.00	5.50	4.60	0.562 DIA.	COPPER TAB	0.656 HOLE		266
50002	15.0	11.31	12.00	6.76	4.60	0.562 DIA.	COPPER TAB	0.656 HOLE		340
50003	15.0	11.06	14.25	9.76	4.60	0.562 DIA.	COPPER TAB	0.656 HOLE		422
60001	15.0	11.31	12.50	5.26	4.60	0.562 DIA .	COPPER TAB	0.656 HOLE		307
60002	15.0	11.06	12.50	8.00	4.60	0.562 DIA.	COPPER TAB	0.656 HOLE		414
60003	15.0	11.06	15.00	9.26	4.60	0.562 DIA.	COPPER TAB	0.656 HOLE		406
75001	20.50	16.31	11.00	6.63	7.20	0.562 DIA.	COPPER TAB	0.656 HOLE		427
75002	21.50	16.31	13.50	8.01	7.20	0.562 DIA.	COPPER TAB	0.656 HOLE		630
75003	21.50	16.56	15.00	9.51	7.20	0.562 DIA.	COPPER TAB	0.656 HOLE		552

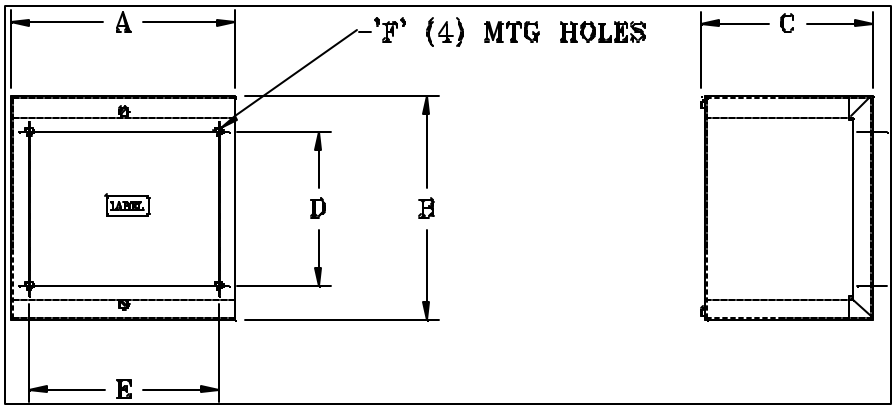
(*) ONLY 1 (one) Wire per Box Lug.

DIMENSIONS AND TECHNICAL DATA (Continued)

Table 3 Dimensions and Technical Data – Open Type

CAT. NO. RL-	A	B	C	D	E	MTG. HOLES	TERMINAL TYPE	WIRE RANGE (AWG)	TERMINAL TORQUE (in - lbs)	Watts Loss at (I_F)
85001	22.5	17	12	7.60	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		800
85002	22.5	17	15	8.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		930
85003	22.5	17	18	9.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1133
90001	22.5	17	15		7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		900
90002	22.5	17	15	8.26	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1025
90003	22.5	17	18	11.07	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1350
100001	22.5	17	14.5	7.26	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		940
100002	22.5	17	14	8.50	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1090
100003	22.5	17	15	10.76	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1500
120001	22.5	17	15	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		980
120002	22.5	17	18	10.76	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1130
120003	22.5	17	18	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1550
140001	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1200
140002	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1525
140003	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1680
150001	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1435
150002	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1675
150003	22.5	17	22	11.00	7.20	0.562 DIA.	COPPER TAB	2 x 0.656 HOLES		1815

Dimensions and Technical Data – Nema 1



CAB - 8

Figure 3
CAB – 8 (6 lbs)
(8W x 6D x 8H)

CAB – 13

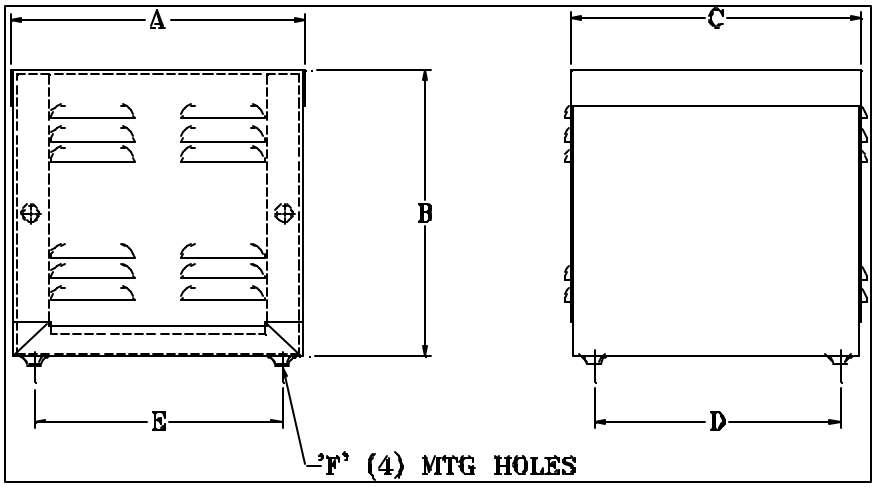
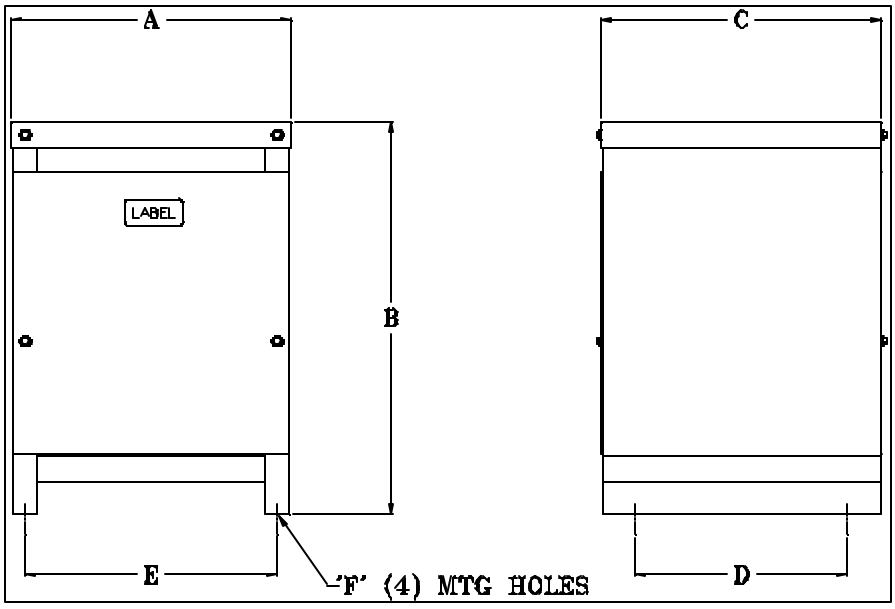


Figure 4
CAB-13 (18 lbs)
(13.2W x 13.2D x 13.2H)

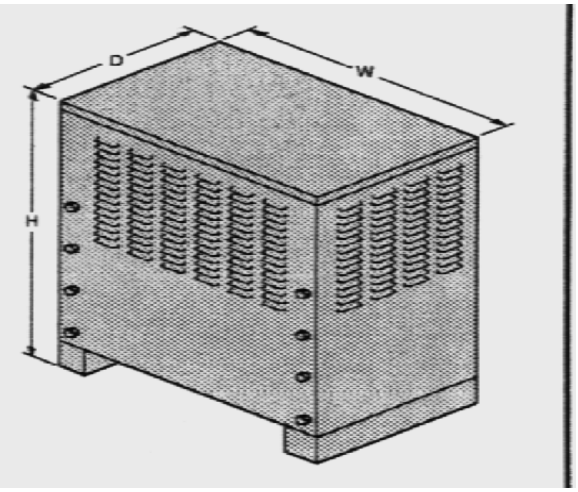


CAB – 17 and
CAB - 24

Figure 5
CAB-17 (46 lbs)
(17.66W x 18.38D x 24H)

CAB-24 (116 lbs)
(24W x 24D X 24H)

Dimensions and Technical Data – Nema 1



CAB-36 and CAB-54

Figure 6
CAB – 36 (180 lbs)
(36W x 26D x 42H)

CAB-54 (240lbs)
(54W x 26D x 42H)

Table 4 Dimensions – Nema Type 1

Catalog Number	Width Inches	Depth Inches	Height Inches	Weight Pounds	Cabinet Fig. No.
RL-00211	8	8	8	11	3
RL-00212	8	8	8	11	3
RL-00213	8	8	8	11	3
RL-00214	8	8	8	11	3
RL-00411	8	8	8	11	3
RL-00412	8	8	8	11	3
RL-00413	8	8	8	12	3
RL-00414	8	8	8	13	3
RL-00811	8	8	8	14	3
RL-00812	8	8	8	15	3
RL-00813	8	8	8	18	3
RL-00814	8	8	8	20	3
RL-01211	8	8	8	16	3
RL-01212	8	8	8	17	3
RL-01213	8	8	8	25	3
RL-01811	8	8	8	16	3
RL-01812	8	8	8	19	3
RL-01813	13.2	13.2	13.2	47	4
RL-02511	13.2	13.2	13.2	42	4
RL-02512	13.2	13.2	13.2	45	4
RL-02513	13.2	13.2	13.2	49	4
RL-03511	13.2	13.2	13.2	45	4
RL-03512	13.2	13.2	13.2	47	4
RL-03513	13.2	13.2	13.2	61	4
RL-04511	13.2	13.2	13.2	54	4
RL-04512	13.2	13.2	13.2	59	4
RL-04513	13.2	13.2	13.2	70	4

For terminal data and watts loss, refer to open type reactor data on pages 10-12.

Table 4 Dimensions – Nema Type 1 (continued)

Catalog Number	Width Inches	Depth Inches	Height Inches	Weight Pounds	Cabinet Fig. No.
RL-05511	13.2	13.2	13.2	55	4
RL-05512	13.2	13.2	13.2	58	4
RL-05513	13.2	13.2	13.2	72	4
RL-08011	13.2	13.2	13.2	74	4
RL-08012	13.2	13.2	13.2	82	4
RL-08013	13.2	13.2	13.2	86	4
RL-10011	13.2	13.2	13.2	78	4
RL-10012	13.2	13.2	13.2	86	4
RL-10013	13.2	13.2	13.2	105	4
RL-13011	13.2	13.2	13.2	60	4
RL-13012	13.2	13.2	13.2	88	4
RL-13013	13.2	13.2	13.2	95	4
RL-16011	13.2	13.2	13.2	71	4
RL-16012	13.2	13.2	13.2	81	4
RL-16013	13.2	13.2	13.2	98	4
RL-20011	13.2	13.2	13.2	79	4
RL-20012	13.2	13.2	13.2	98	4
RL-20013	13.2	13.2	13.2	131	4
RL-25011	13.2	13.2	13.2	99	4
RL-25012	17	17	24	151	5
RL-25013	17	17	24	185	5
RL-32011	17	17	24	155	5
RL-32012	17	17	24	170	5
RL-32013	17	17	24	235	5
RL-40011	17	17	24	145	5
RL-40012	17	17	24	200	5
RL-40013	17	17	24	245	5
RL-50011	17	17	24	165	5
RL-50012	17	17	24	225	5
RL-50013	17	17	24	335	5
RL-60011	17	17	24	205	5
RL-60012	17	17	24	255	5
RL-60013	17	17	24	335	5

For terminal data and watts loss, refer to open type reactor data on pages 10-12.

Table 4 Dimensions – Nema Type 1 (continued)

Catalog Number	Width Inches	Depth Inches	Height Inches	Weight Pounds	Cabinet Fig. No.
RL-75011	24	24	30	283	5
RL-75012	24	24	30	393	5
RL-75013	24	24	30	483	5
RL-85011	24	24	30	500	5
RL-85012	24	24	30	560	5
RL-85013	24	24	30	640	5
RL-90011	36	26	42	500	6
RL-90012	36	26	42	580	6
RL-90013	36	26	42	740	6
RL-100011	36	26	42	500	6
RL-100012	36	26	42	600	6
RL-100013	36	26	42	805	6
RL-120011	36	26	42	605	6
RL-120012	36	26	42	725	6
RL-120013	36	26	42	880	6
RL-140011	36	26	42	680	6
RL-140012	36	26	42	810	6
RL-140013	36	26	42	1030	6
RL-150011	36	26	42	815	6
RL-150012	36	26	42	855	6
RL-150013	36	26	42	1080	6

For terminal data and watts loss, refer to open type reactor data on pages 10-12.

5. INSTALLATION INSTRUCTIONS

Open Line/Load Reactor Installation

MTE line/load reactors are available in open construction and in NEMA 1 enclosures. Open reactors are designed for mounting within an appropriate electrical equipment enclosure. Reactors rated 300 amperes RMS and under are designed for mounting in both a vertical and horizontal position. Larger reactors must be mounted in a horizontal position typically on the floor of the enclosure. Include the power dissipation of the reactor along with all the other components located in the enclosure to determine the internal temperature rise and cooling requirements of the enclosure.

Reactors may be located in any region of the enclosure where the ambient temperature does not exceed 45 degrees C. Allow a minimum side clearances of four (4) inches and vertical clearances of six (6) inches for proper heat dissipation and access. Do not locate the reactor next to resistors or any other component with operating surface temperatures above 125 degree C.

Select a well ventilated, dust-free area away from direct sunlight, rain or moisture. Do not install in or near a corrosive environment. Avoid locations where the reactor will be subjected to excessive vibrations.

NEMA 1 Enclosed Line/Load Reactor Installation

MTE line/load reactors mounted in enclosures with part number, CAB-8, are designed for wall mounting. All other enclosures are designed for floor mounting.

WARNING

MTE NEMA 1 enclosures designed for floor mounting must be mounted with the enclosure base horizontal for proper ventilation. Wall mounting a floor mounted enclosure with the base against the wall will cause the reactor to over heat resulting in equipment damage.

Allow a minimum side, front, and back clearances of twelve (12) inches and vertical clearances of eighteen (18) inches for proper heat dissipation and access. Do not locate the enclosure next to resistors or any other component with operating surface temperatures above 125 degree C.

Select a well ventilated, dust-free area away from direct sunlight, rain or moisture where the ambient temperature does not exceed 40 degrees C.

Do not install in or near a corrosive environment.

Avoid locations where the reactor will be subjected to excessive vibrations.

Where desirable, enclosures may be mounted on vibration isolating pads to reduce audible noise. Standard vibration control pads made from neoprene or natural rubber and selected for the weight of the enclosed reactor are effective.

Power Wiring Connection

WARNING

Input and output power wiring to the reactor should be performed by authorized personnel in accordance with the NEC and all local electrical codes and regulations.

Verify that the power source to which the reactor is to be connected is in agreement with the nameplate data on the reactor. A fused disconnect switch or circuit breaker should be installed between the reactor and its source of power in accordance with the requirements of the NEC and all local electrical codes and regulations. Refer to the drive, inverter, or other electrical equipment user manual for selection of the correct fuse rating and class.

The reactor is suitable for use on a circuit capable of delivering not more than 65,000 rms symmetrical amperes at 480 volts when protected by Bussman type JJS, KTK, KTK-R, SPP or T class fuses.

Reactor are designed for use with copper conductors with a minimum temperature rating of 75 degrees C. Table 2 lists the wire range and terminal torque requirements for the power input and output connections by reactor part number.

Refer to Figure 4 for typical electrical diagrams describing the application of reactors in both line and load applications. For reactors supplied as a component part of a drive system or a component part of power electronic apparatus follow the interconnection diagram supplied by the System Engineer.

Where desirable, a flexible conduit connection to the reactor enclosure should be made to reduce audible noise.

WARNING

Failure to connect reactors supplied as a component part of a drive system or other power electronic system according to the system interconnection diagram supplied by the System Engineer will result in equipment damage, injury, or death.

WARNING

If a line reactor or a line reactor and a load reactor are used with a drive equipped with a bypass circuit, the reactors must be removed from the motor circuit in the bypass mode. Damage to the motor and other equipment will result if this warning is not observed.

Grounding

A stud is provided on enclosed reactors for grounding the enclosure. The enclosure must be grounded. Open reactors must be grounded at the designated grounding terminal or the reactor mounting holes if no designated grounding terminal is provided.

WARNING

The frame of line/load reactors must be grounded at the designated grounding terminal or one of the reactor mounting holes if no designated grounding terminal is provided. The enclosure of reactors supplied in enclosures must be grounded. INJURY OR DEATH MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED.

Figure 4 –Typical Connection Diagrams

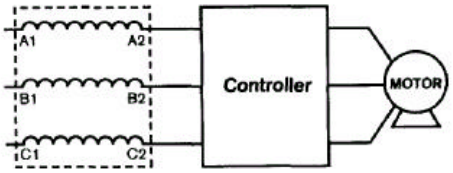


Fig 4a LINE Reactor
Connects between power source and VFD

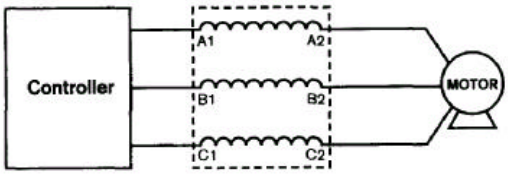


Fig. 4b LOAD Reactor
Connects between ASD and load (motor)

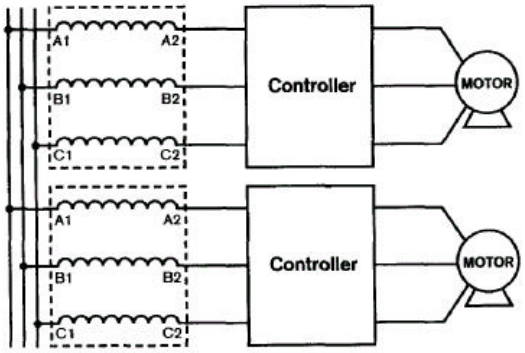
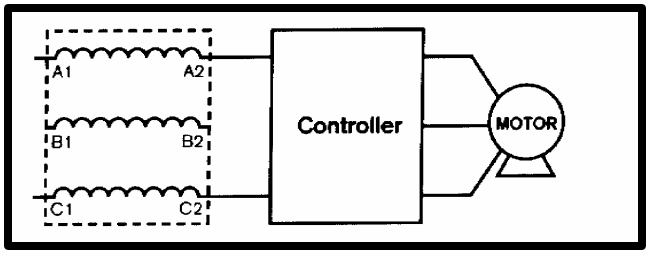


Fig 4c Use individual Line Reactors for multiple drives connected to a common power source

Figure 5 - Single phase connection diagram

Standard three phase reactors may be used for single phase applications. Refer to *Application Note* AN0102 for proper selection. Application Notes are available on our website at www.mtecorp.com.



6. STARTUP

Safety Precautions

Before startup, observe the following warnings and instructions:

WARNING

A Reactor is at line potential when the Reactor is connected to the utility. This voltage is extremely dangerous and may cause death or severe injury if you come in contact with it.

WARNING

High voltage is used in the operation of line/load reactors. Use Extreme caution to avoid contact with high voltage when operating, installing or repairing equipment containing line/load reactors. Line/load reactors are used in conjunction with inverters, or other electrical equipment that may feedback lethal voltages. Follow the safety instructions in the equipment used with the reactor in addition to the safety instruction in this manual. INJURY OR DEATH MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED.

Sequence of Operation

1. Read and follow safety precautions.

2. After installation, ensure that:
   - All Reactor ground terminals are connected to ground.
   - Power wiring to the utility, drive and motor is in accordance with the interconnection diagrams supplied by the System Engineer.

3. Check that moisture has not condensed on the Reactor. If moisture is present, do not proceed with startup until the moisture has been removed.

4. Proceed with startup according to the instructions provided by the system supplier.

WARNING

Reactors are a component part of an electrical system. Do not proceed with startup until the system startup instructions provided by the System Engineer are understood and followed. Injury, death and damage to equipment may result if the system startup instructions are not followed.

WARNING

Use extreme caution to avoid contact with line voltage when checking for power. INJURY OR DEATH MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED.