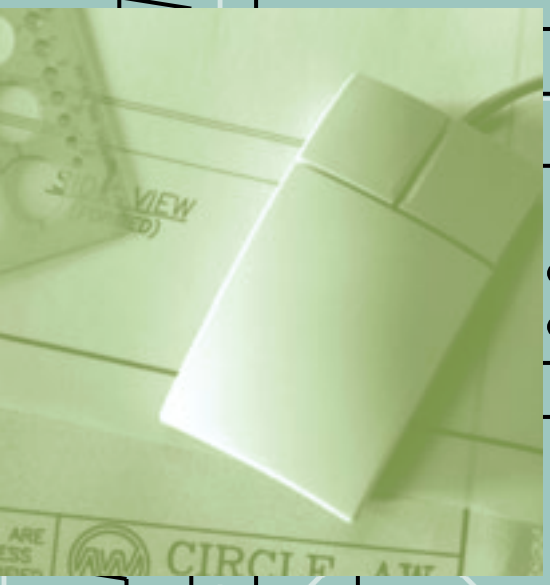
COOPER B-Line



B-Line®

12

Before energizing

1) Give equipment a thorough visual examination to determine that:

   A) Proper clearances have been maintained
   B) All connections have been made
   C) Equipment is clean and dry

2) Make a thorough physical examination to verify:

   A) Tightness of all bolted connections – see table
   B) Manually operate all circuit breakers, switches, relays, etc.
   C) Check rigidity of all mountings, bus bars and components

3) All switches and circuit breakers should be in the off position

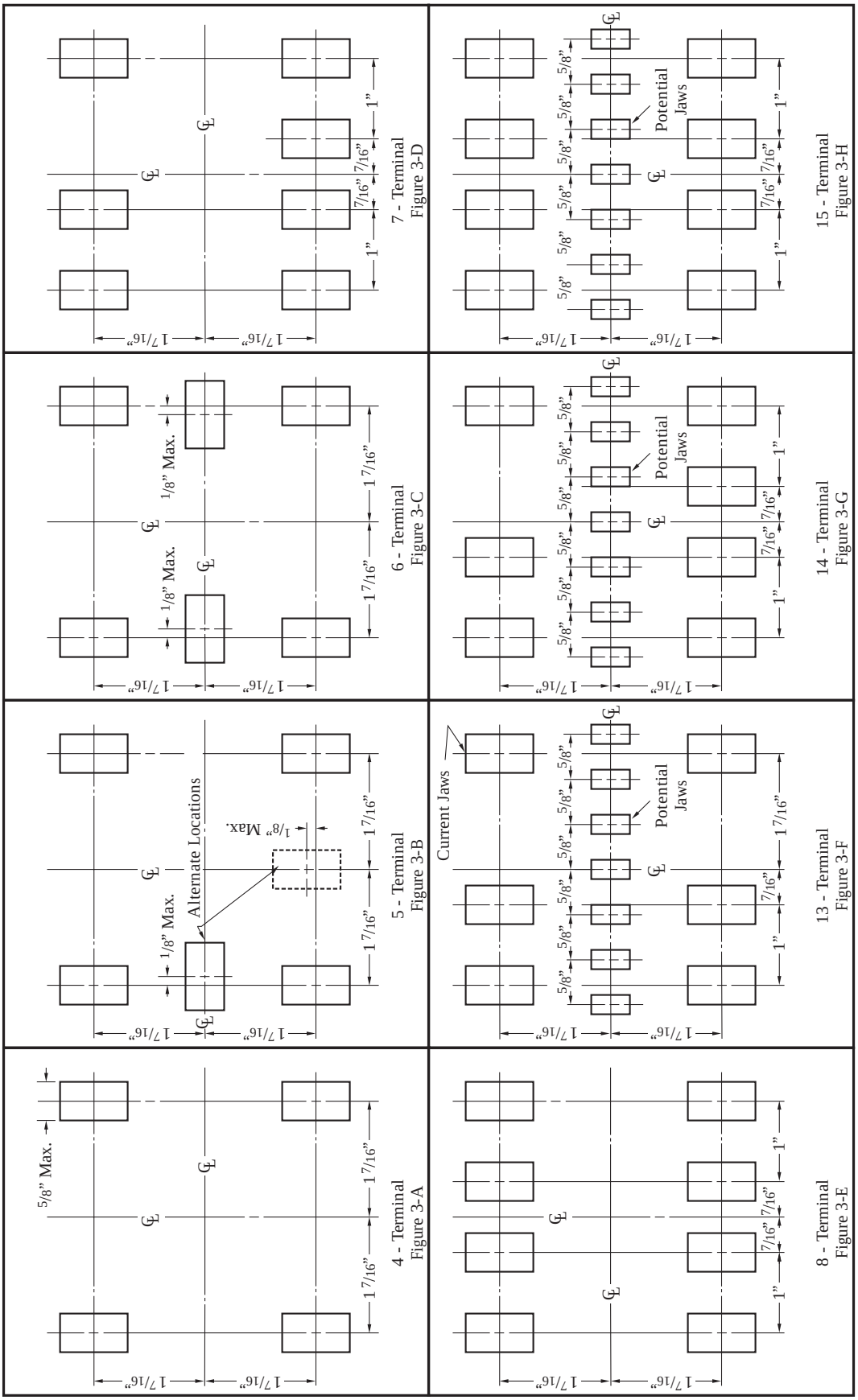
4) Mount covers and close doors

Recommend Torque Requirements

Screw Type	Screw Size	Torque	Tolerances
Slotted or Phillips	#10-32	30 in.-lbs.	5 in.-lbs.
	#12-24	38 in.-lbs.	5 in.-lbs.
	1/4"-20	45 in.-lbs.	5 in.-lbs.
	5/16"-18	60 in.-lbs.	5 in.-lbs.
Screw Type	**Screw Size**	**Torque**	**Tolerances**
Hex Head	1/4"-20	72 in.-lbs.	10 in.-lbs.
	5/16"-18	85 in.-lbs.	10 in.-lbs.
	3/8"-16	175 in.-lbs.	15 in.-lbs.
	7/16"-14	399 in.-lbs.	20 in.-lbs.
	1/2"-13	375 in.-lbs.	25 in.-lbs.

*Use 80-in-lbs. when threaded in aluminum bus connection.

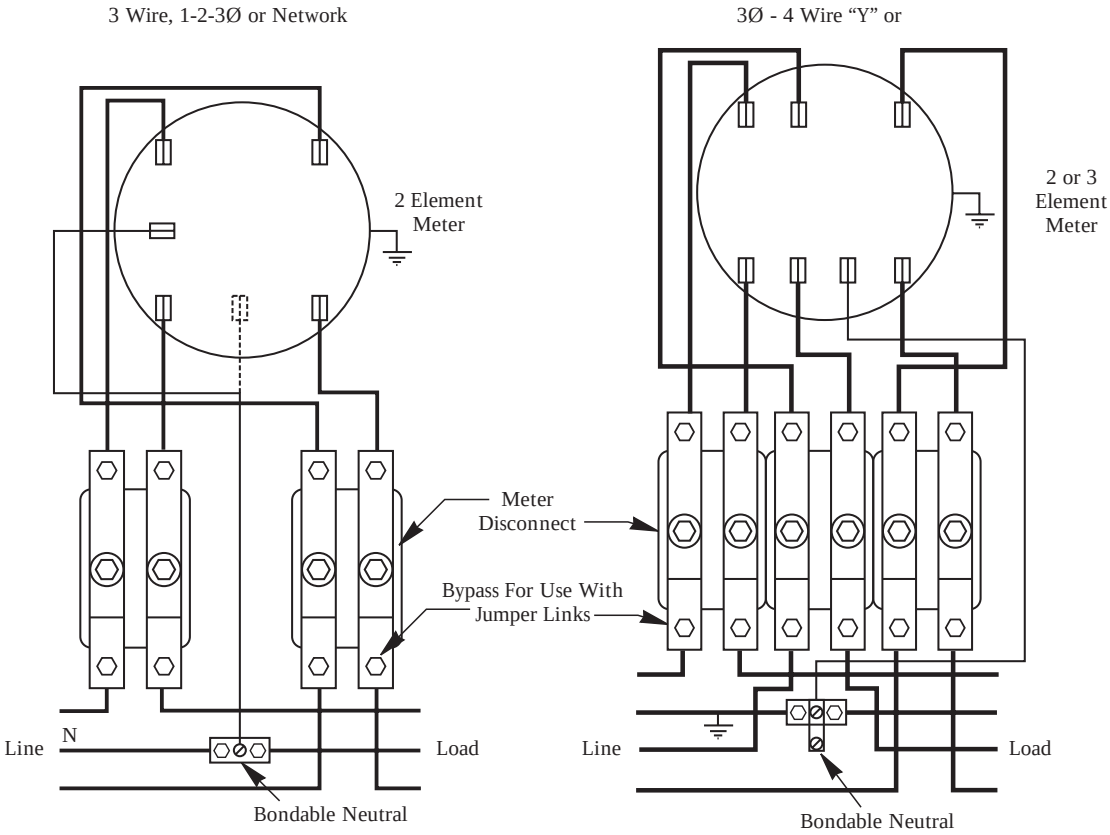
Location of Socket Jaws (Front view)



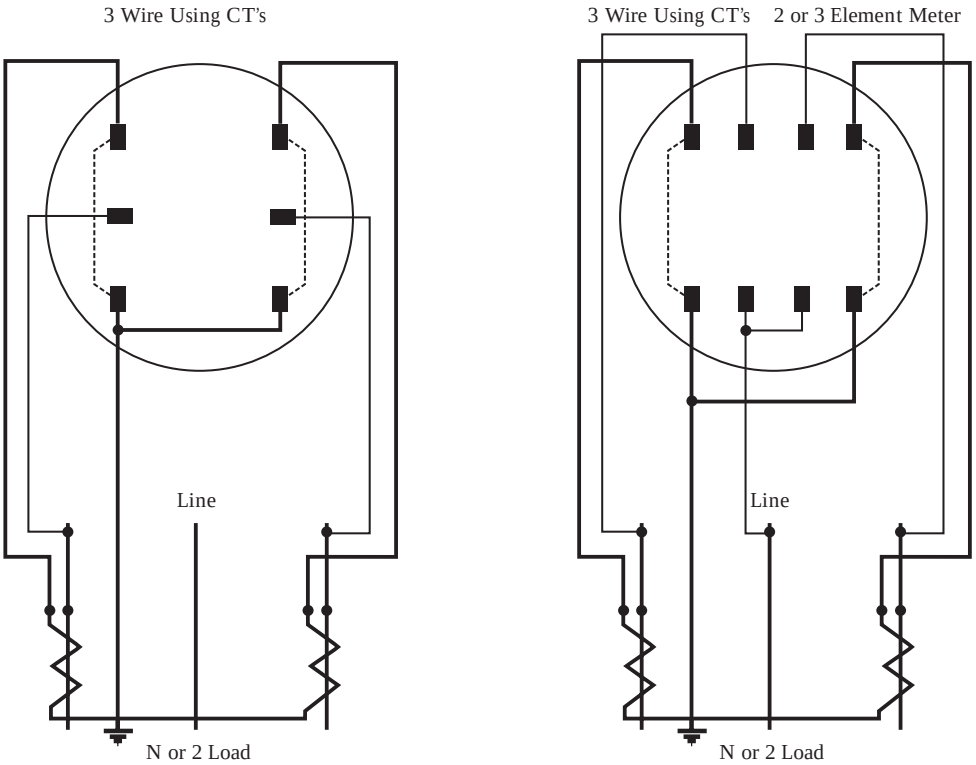
All dimensions in inches
Tolerances ±1/64 on any single dimension and ±1/32 on any cumulative dimension
℄ refers to Fig. 1 center lines

ANSI C12.7-1999 Standard
Reproduced by permission from NEMA

With Safety Test By-Pass Blocks

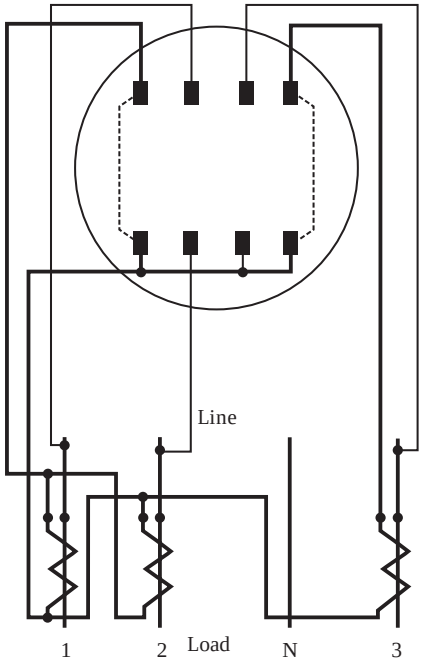


Current Transformer Installations

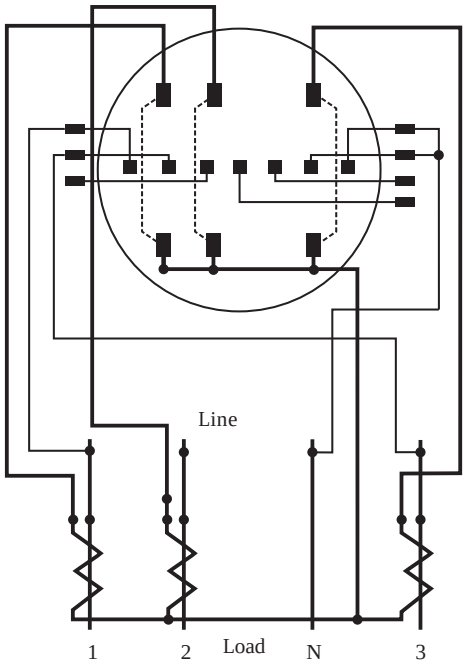


Current Transformer Installations

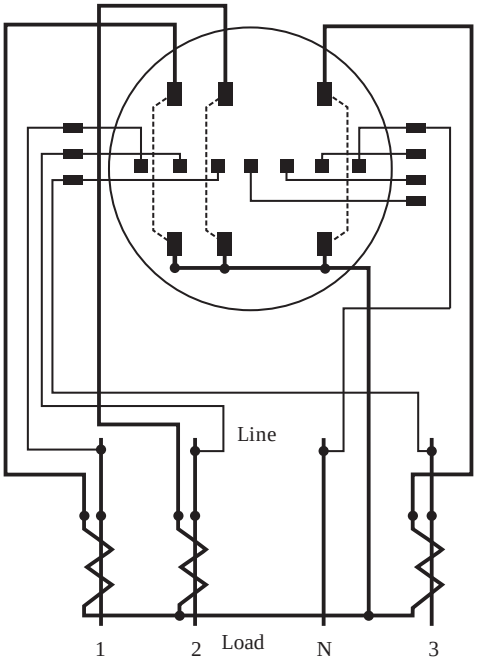
3Ø - 4Wire "Y" Using CT's
2 or 3 Element Meter



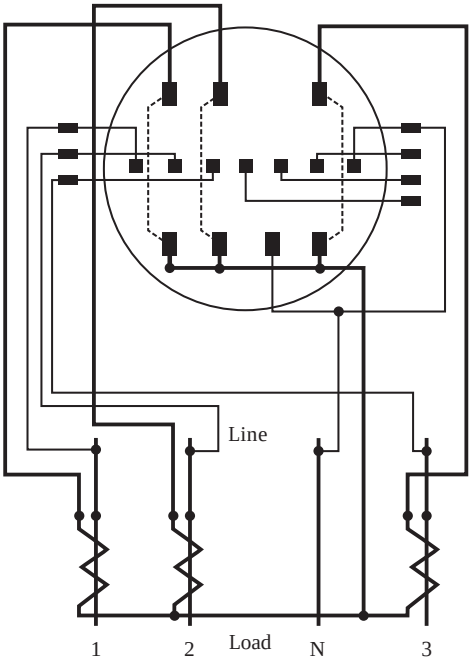
3Ø - 4Wire "Y" or Using CT's
2 or 3 Element Meter



3Ø - 4Wire Using CT's
2 Element Meter

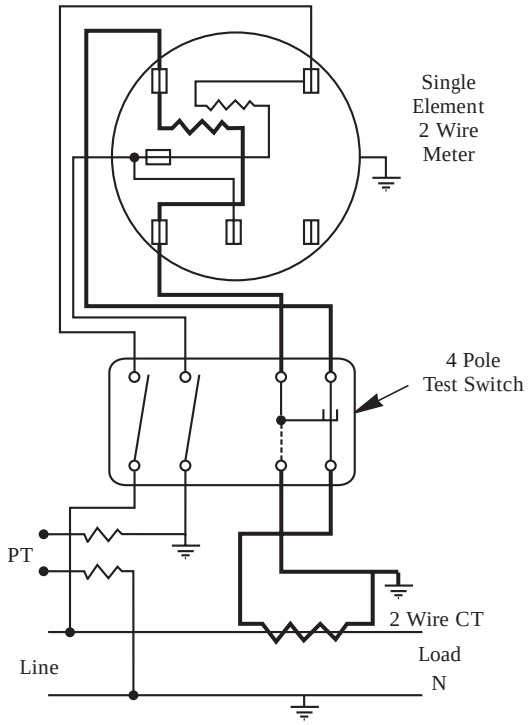


3Ø - 4Wire Using CT's
3 Element Meter

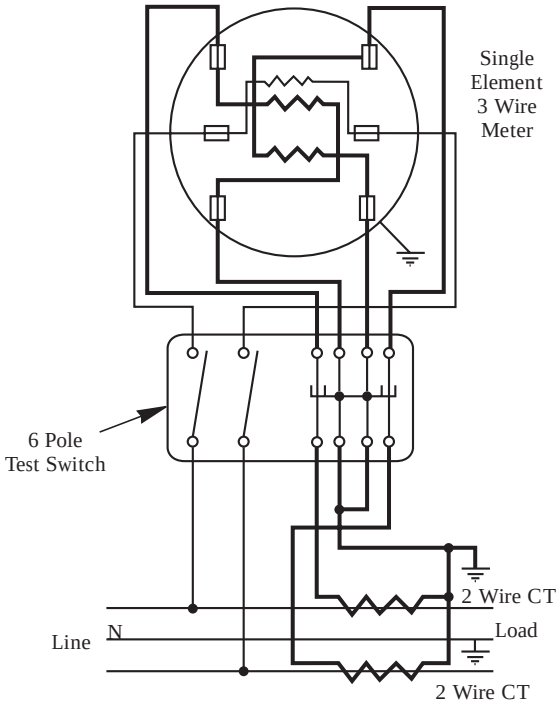


Current Transformer Installations

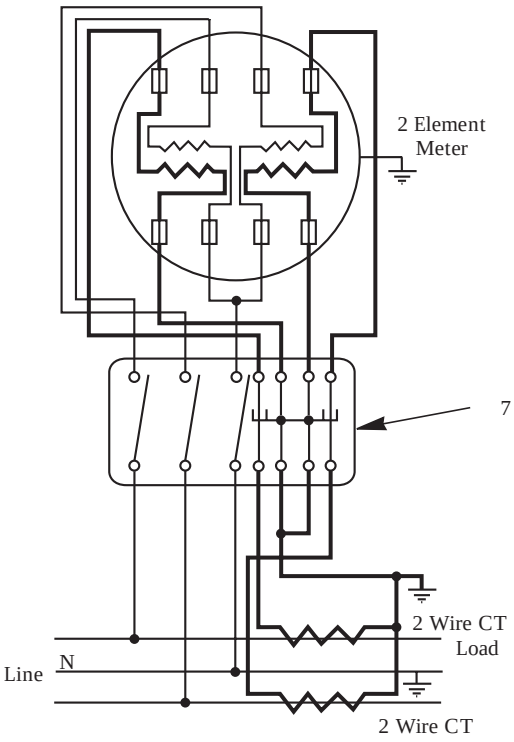
Single Ø - 2 Wire With CT & PT



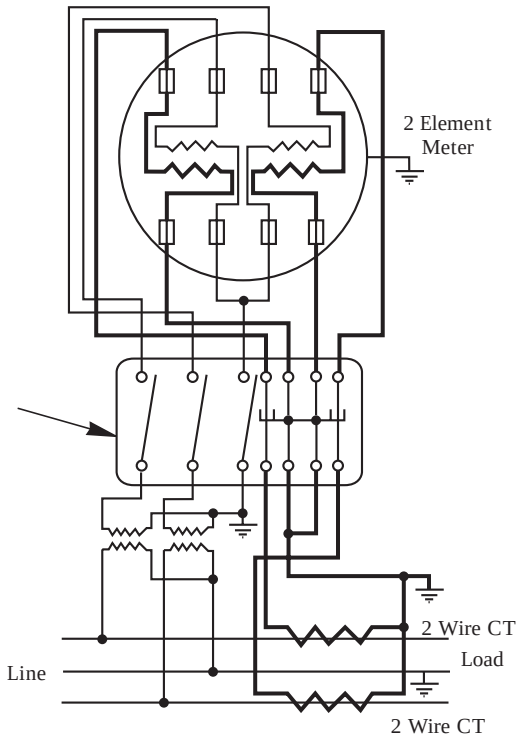
Single Ø - 3 Wire



Single Ø - 3Wire or Network With 2 Wire CT's

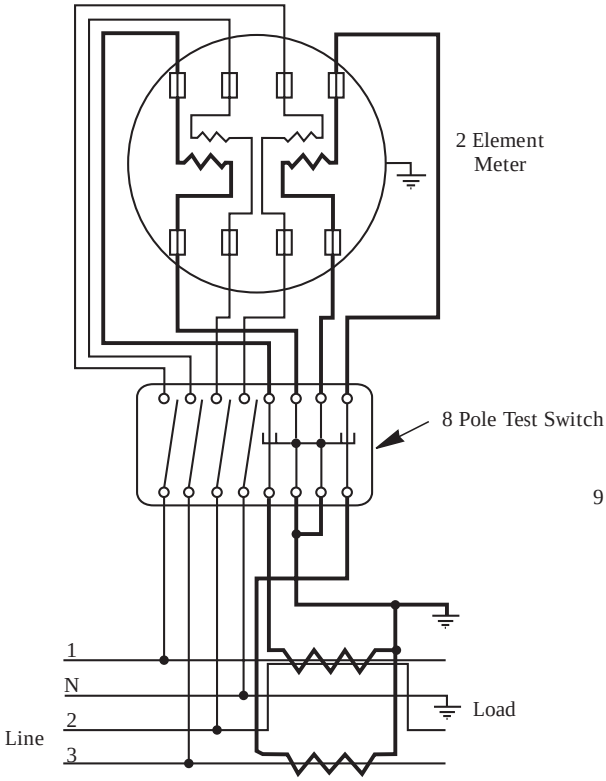


3Ø - 3 Wire With CT's & PT's

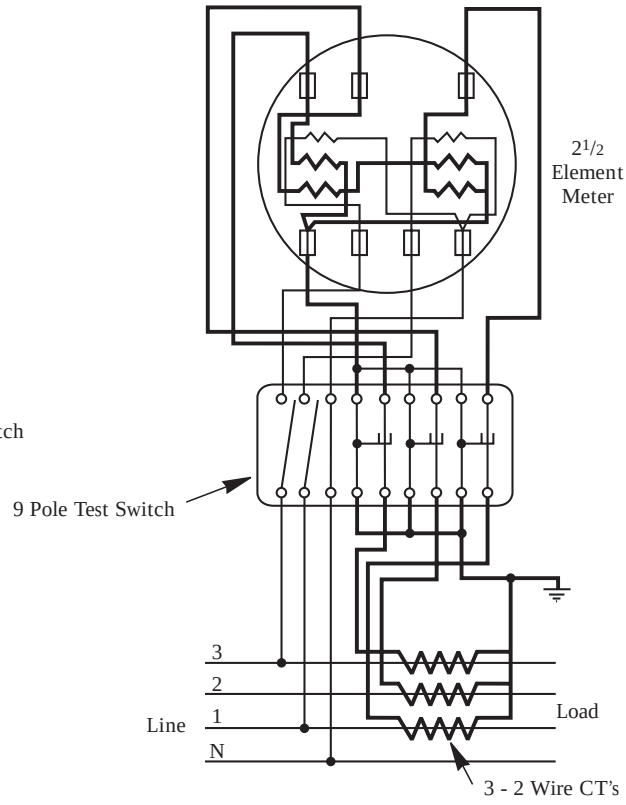


Current Transformer Installations

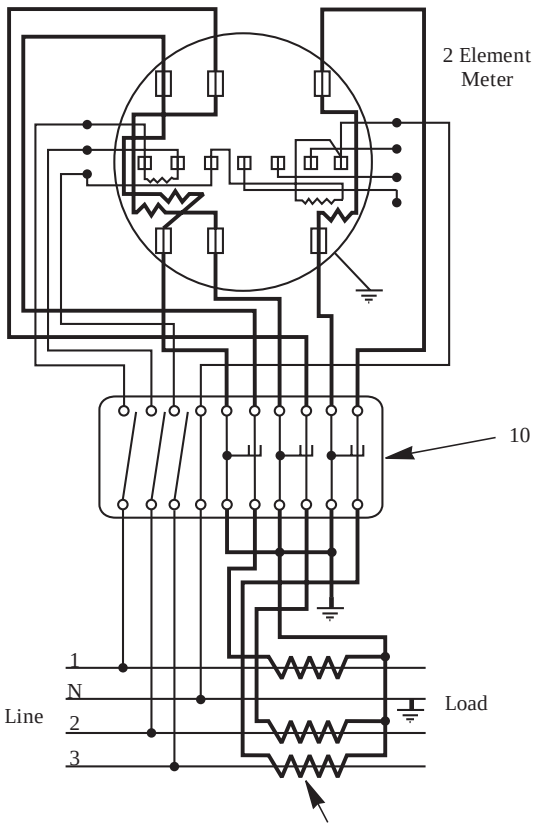
3Ø - 4Wire Using CT's



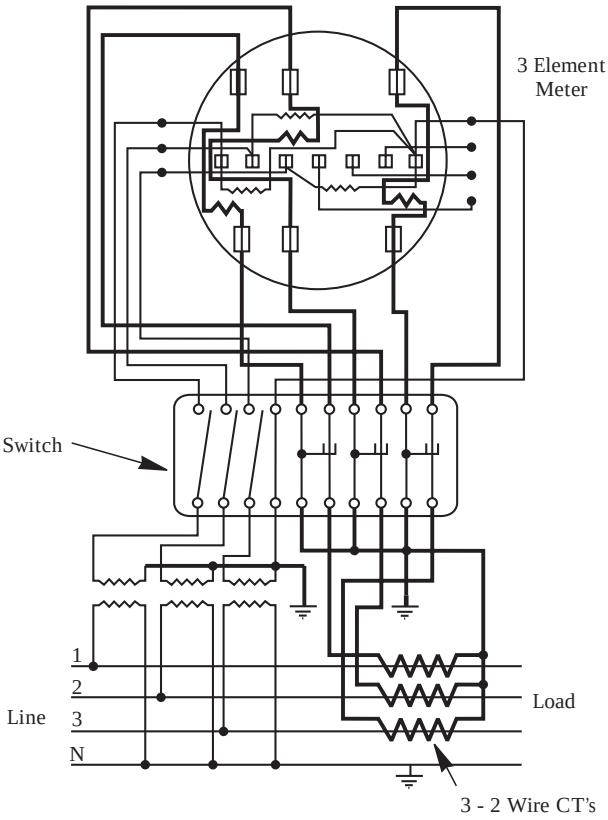
3Ø - 4Wire "Y" Using CT's



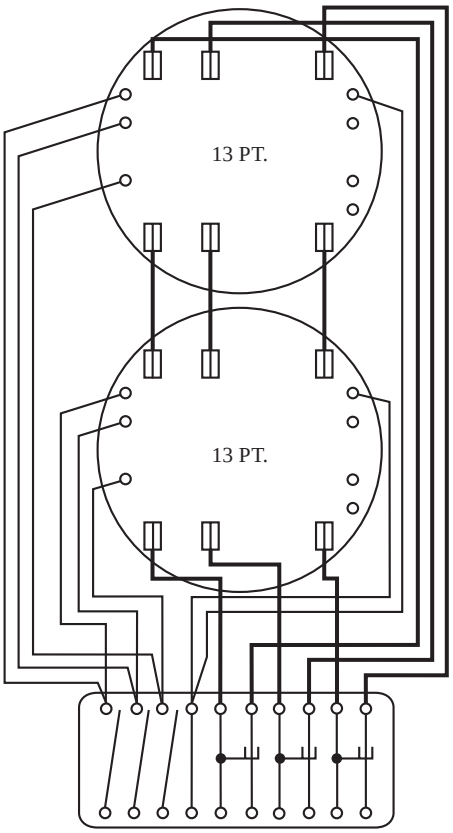
3Ø - 4Wire Using CT's



3Ø - 4Wire "Y" Using CT's & PT's

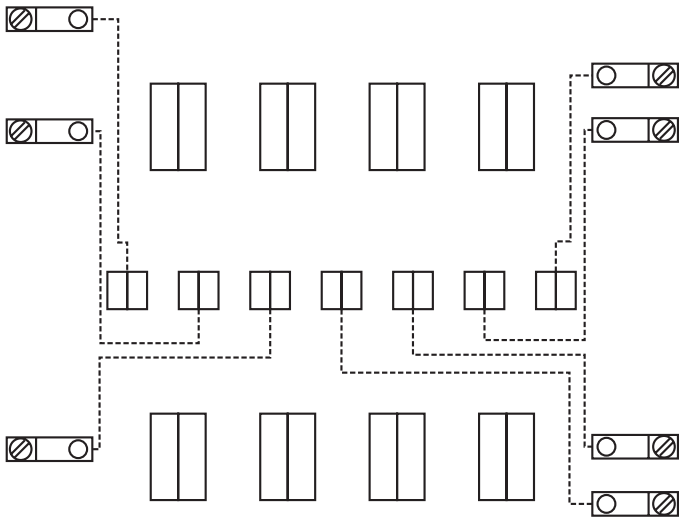


3Ø - 4Wire
Watthour & Reactive CT - Rated Meter Sockets



10 Pole Test Switch

Internal Potential Wiring of 13, 14, & 15 Jaw Sockets



Front View

Bonding Jumper

Ampere Rating Not Exceeding	Size of Main Bonding Jumper (Minimum) [a,b,c]		Cross Section of Main Bonding Jumper in Square Inches (Minimum) [a,b,c]		Grounded Service Conductor (Minimum)	
	Copper	Aluminum	Copper	Aluminum	Copper	Aluminum
90	8	6	0.013 [d]	0.021 [d]	8	6
100	6	4	0.021 [d]	0.033 [d]	6	4
125	6	4	0.021 [d]	0.033 [d]	6	4
150	6	4	0.021 [e]	0.033 [e]	6	4
200	4	2	0.033 [e]	0.052 [e]	4	4
300	2	1/0	0.052 [f,g]	0.083 [f,g]	4	1/0
400	1/0 [h]	3/0 [h]	0.083 [g,h]	0.132 [g,h]	1/0	3/0 [h]
500	0	3/0	0.083	0.132	1/0	3/0
600	2/0	4/0	0.105	0.166	2/0	4/0
800	2/0	4/0	0.105	0.166	2/0	4/0
1000	3/0	250 kcmil	0.132	0.196	3/0	250 kcmil
1200	250 kcmil	300 kcmil	0.196	0.196	250 kcmil	250 kcmil
1600	300 kcmil	400 kcmil	0.236	0.314	300 kcmil	400 kcmil
2000	400 kcmil	500 kcmil	0.314	0.393	400 kcmil	500 kcmil

[a] The cross section may be reduced to 12.5 percent of the total cross section of the largest main service conductor(s) of the same material (copper or aluminum) for any phase on equipment rated 1200 amperes and above.

[b] For equipment rated 1200 amperes or more and that has wiring terminals intended to connect service conductor wires sized larger than 600 kcmil copper or 750 kcmil aluminum, the cross section of the main bonding jumper shall be at least 12.5 percent of the the total cross section of the largest main service entrance conductor(s) of the same material (copper or aluminum) for any phase.

[c] SI Equivalents:

[d] A No. 8 (4.2 mm diameter) or larger brass or No. 10 (4.8mm diameter) or larger steel screw may be used.

[e] A No. 10 or larger brass or steel screw may be used.

[f] A No. 10 or larger brass screw may be used.

[g] A 1/4 inch (6.4mm) diameter or larger brass or steel screw may be used.

[h] When the ampere rating is 400 and the wire terminal connectors for the main service conductors are rated for two No. 3/0 AWG copper or two No. 250 kcmil aluminum conductor, but will not accept a 600 kcmil conductor, these values may be reduced to No. 2 AWG (0.052 square inch) copper or No. 0 AWG (0.083 square inch) aluminum.

Wire Size, AWG	Min. Cross Section (MM^2)	Wire Size	Min. Cross Section (MM^2)
8	8.4	4/0	107
6	13.3	250 kcmil	126
4	21.2	200 kcmil	152
2	33.6	400 kcmil	203
1/0	53.5	500 kcmil	253
2/0	67.4	600 kcmil	304
3/0	85.0	750 kcmil	380

The meter sockets shown in this section have certain short circuit current ratings when used in conformance with the tables below:

When used in conjunction with fuse or breaker	This meter socket is rated for use on a circuit capable of delivering not more than	At Volts Max.
Class 100 Meter Sockets		
100Amp class J, T, RK1 or RK5 fuse	100,000 RMS Symmetrical Amperes	600
100Amp Siemens type "HQP" circuit breaker	65,000* RMS Symmetrical Amperes	240
100Amp Westinghouse type "QHPX" circuit breaker	42,000* RMS Symmetrical Amperes	240
100Amp listed circuit breaker	25,000* RMS Symmetrical Amperes	240
Class 200 Meter Sockets		
200Amp class J or T fuse	200,000 RMS Symmetrical Amperes	600
200Amp class RK-1 fuse	42,000 RMS Symmetrical Amperes	480
200Amp Siemens type "HFD6" circuit breaker	42,000* RMS Symmetrical Amperes	240
200Amp Siemens type "QJ2-H" circuit breaker	42,000* RMS Symmetrical Amperes	240
200Amp Siemens type "QJH2" circuit breaker	22,000* RMS Symmetrical Amperes	240
200Amp West. type "CAH" circuit breaker	22,000* RMS Symmetrical Amperes	240
125Amp listed circuit breaker (1ø only)	22,000* RMS Symmetrical Amperes	240
200Amp listed circuit breaker	18,000* RMS Symmetrical Amperes	240
Class 320 Meter Sockets		
400Amp class J or T fuse	100,000* RMS Symmetrical Amperes	600
400Amp listed circuit breaker	18,000* RMS Symmetrical Amperes	240
125Amp listed circuit breaker	22,000* RMS Symmetrical Amperes	240
200Amp listed circuit breaker	18,000* RMS Symmetrical Amperes	240

*****Not in excess of the circuit breaker interrupting rating*

Note: *This table does not apply to meter-breaker units or to CT rated sockets*

Allowable ampacities of insulated conductors rated 0 through 2000 volts, 60° to 90°C (140° to 194°F). Not more than three current-carrying conductors in raceway or cable or earth (directly buried), based on ambient temperature of 30°C (86°F).

NEC Table 310-16

Size	Temperature rating of conductor						Size
	60°C (140°)	75°C (167°F)	90°C (194°F)	60°C (140°F)	75°C (167°F)	90°C (194°F)	
AWG kcmil	TYPES TW†, UF†	TYPES FEPW†, RH†, RHW†, THHW† THW†, THWN† XHHW†, USE† ZW†	TYPES TBS, SA, SIS FEP†, FEPB† MI, RHH†, RHW-2, THHN† THHW†, THW-2† THWN-2†, USE-2, XHH, XHHW†, XHHW-2 ZW-2	TYPES TW†, UF†	TYPES RH†, RHW†, THHW†, THW†, THWN†, XHHW†, USE†	TYPES TBS, SA, SIS, THHN†, THHW†, THWN-2, THW-2, RHH†, RHW-2, USE-2, XHH, XHHW, XHHW-2, ZW-2	AWG kcmil
	COPPER			ALUMINUM OR COPPER-CLAD ALUMINUM			
18	.....	.....	14	.....	.....	.....	.....
16	.....	.....	18	.....	.....	.....	.....
14	20†	20†	25†	.....	.....	.....	.....
12	25†	25†	30†	20†	20†	25†	12
10	30	35†	40†	25	30†	35†	10
8	40	50	55	30	40	45	8
6	55	65	75	40	50	60	6
4	70	85	95	55	65	75	4
3	85	100	110	65	75	85	3
2	95	115	130	75	90	100	2
1	110	130	150	85	100	115	1
1/0	125	150	170	100	120	135	1/0
2/0	145	175	195	115	135	150	2/0
3/0	165	200	225	130	155	175	3/0
4/0	195	230	260	150	180	205	4/0
250	215	255	290	170	205	230	250
300	240	285	320	190	230	255	300
350	260	310	350	210	250	280	350
400	280	335	380	225	270	305	400
500	320	380	430	260	310	350	500
600	355	420	475	285	340	385	600
700	385	460	520	310	375	420	700
750	400	475	535	320	385	435	750
800	410	490	555	330	395	450	800
900	435	520	585	355	425	480	900
1000	455	545	615	375	445	500	1000
1250	495	590	665	405	485	545	1250
1500	520	625	705	435	520	585	1500
1750	545	650	735	455	545	615	1750
2000	560	665	750	470	560	630	2000

Correction Factors

Ambient Temp. °C	For ambient temperatures other than 30°C (86°F), multiply the allowable ampacties shown above by the appropriate factor shown below.						Ambient Temp. °F
21-25	1.08	1.05	1.04	1.08	1.05	1.04	70-77
26-30	1.00	1.00	1.00	1.00	1.00	1.00	78-86
31-35	0.91	0.94	0.96	0.91	0.94	0.96	87-95
36-40	0.82	0.88	0.91	0.82	0.88	0.91	96-104
41-45	0.71	0.82	0.87	0.71	0.82	0.87	105-113
46-50	0.58	0.75	0.82	0.58	0.75	0.82	114-122
51-55	0.41	0.67	0.76	0.41	0.67	0.76	123-131
56-60	.....	0.58	0.71	.....	0.58	0.71	132-140
61-70	.....	0.33	0.58	.....	0.33	0.58	141-158
71-80	.....	.....	0.41	.....	.....	0.41	159-176

† Unless otherwise specifically permitted elsewhere in this Code, the overcurrent protection for conductor types marked with an obelisk (†) shall not exceed 15 amperes for No. 14, 20 amperes for No. 12, and 30 amperes for No. 10 copper; or 15 amperes for No. 12 and 25 amperes for No. 10 aluminum and copper-clad aluminum after any correction factors for ambient temperature and number conductors have been applied.

Minimum wire bending space at terminals and minimum width of wiring gutters

NEC Table 312.6(A)

AWG or Circular-Mil Size of Wire	Wires per Terminal 1		2		3		4		5	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
14–10	Not specified		–	–	–	–	–	–	–	–
8–6	38.1	1 ½	–	–	–	–	–	–	–	–
4–3	50.8	2	–	–	–	–	–	–	–	–
2	63.5	2 ½	–	–	–	–	–	–	–	–
1	76.2	3	–	–	–	–	–	–	–	–
1/0–2/0	88.9	3 ½	–	–	–	–	–	–	–	–
3/0–4/0	102	4	127	5	–	–	–	–	–	–
250 kcmil	114	4 ½	152	6	203	8	–	–	–	–
300–350 kcmil	127	5	152	6	203	8	254	10	–	–
400–500 kcmil	152	6	203	8	254	10	305	12	–	–
600–700 kcmil	203	8	203	8	254	10	305	12	456	14
750–900 kcmil	203	8	254	10	305	12	356	14	406	16
1000–1250 kcmil	254	10	305	12	356	14	406	16	457	18
1500–2000 kcmil	305	12	–	–	–	–	–	–	–	–

Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector (in the direction that the wire leaves the terminal) to the wall, barrier or obstruction.

Minimum wire bending space at terminals

NEC Table 312.6(B)

Wire Size (AWG or kcmil)		Wires per Terminal 1		2		3		4 or more	
All Other Conductors	Compact Stranded AA-8000 Aluminum Alloy Conductors (See Note 3.)	mm	in.	mm	in.	mm	in.	mm	in.
14–10	12-8	Not Specified		–	–	–	–	–	–
8	6	38.1	1½	–	–	–	–	–	–
6	4	50.8	2	–	–	–	–	–	–
4	2	76.2	3	–	–	–	–	–	–
3	1	76.2	3	–	–	–	–	–	–
2	1/0	88.9	3½	–	–	–	–	–	–
1	2/0	114	4½	–	–	–	–	–	–
1/0	3/0	140	5½	140	5½	178	7	–	–
2/0	4/0	152	6	152	6	190	7½	–	–
3/0	250	165[a]	6½[a]	165[a]	6½[a]	203	8	–	–
4/0	300	178[b]	7[b]	190[c]	7½[c]	216[a]	8½[a]	–	–
250	350	216[d]	8½[d]	229[b]	8½[b]	254[b]	9[b]	254	10
300	400	254[e]	10[e]	254[d]	10[d]	279[b]	11[b]	305	12
350	500	305[e]	12[e]	305[e]	12[e]	330[e]	13 [e]	356[d]	14[d]
400	600	330[e]	13[e]	330[e]	13[e]	356[e]	14[e]	381[e]	15[e]
500	700-750	356[e]	14[e]	356[e]	14[e]	381[e]	15[e]	406[e]	16[e]
600	800-900	381[e]	15[e]	406[e]	16[e]	457[e]	18[e]	483[e]	19[e]
700	1000	406[e]	16[e]	457[e]	18[e]	508[e]	20[e]	559[e]	22[e]
750	–	432[e]	17[e]	483[e]	19[e]	559[e]	22[e]	610[e]	24[e]
800	–	457	18	508	20	559	22	610	24
900	–	483	19	559	22	610	24	610	24
1000	–	508	20	–	–	–	–	–	–
1250	–	559	22	–	–	–	–	–	–
1500	–	610	24	–	–	–	–	–	–
1750	–	610	24	–	–	–	–	–	–
2000	–	610	24	–	–	–	–	–	–

1. Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector in a direction perpendicular to the enclosure wall.

2. For removable and lay-in wire terminals intended for only one wire, bending space shall be permitted to be reduced by the following number of millimeters (inches) :

[a] 12.7mm (1/2 in.) [b] 25.4mm (1 in.) [c] 38.1mm (1 1/2 in.) [d] 50.8mm (2 in.) [e] 76.2mm (3 in.)

3. This column shall be permitted to determine the required wire-bending space for compact stranded aluminum conductors in sizes up to 1000 kcmil and manufactured using AA-8000 series electrical grade aluminum alloy conductor material in accordance with 310.14.

NEC Table 8

Size AWG/kcmil	Area Cir. Mills	Conductors				DC Resistance at 75° C (167°F)		
		Stranding		Overall		Copper		Aluminum
		Quantity	Diam. In.	Diam. In.	Area In.^{2}	Uncoated ohm/kFT	Coated ohm/kFT	ohm/kFT
18	1620	1	–	0.040	0.001	7.77	8.08	12.8
18	1620	7	0.015	0.046	0.002	7.95	8.45	13.1
16	2580	1	–	0.051	0.002	4.89	5.08	8.05
16	2580	7	1.019	0.058	0.003	4.99	5.29	8.21
14	4110	1	–	0.064	0.003	3.07	3.19	5.06
14	4110	7	0.024	0.073	0.004	3.14	3.26	5.17
12	6530	1	–	0.081	0.005	1.93	2.01	3.18
12	6530	7	0.030	0.092	0.006	1.98	2.05	3.25
10	10380	1	–	0.102	0.008	1.21	1.26	2.00
10	10380	7	0.038	0.116	0.011	1.24	1.29	2.04
8	16510	1	–	0.128	0.013	0.764	0.786	1.26
8	16510	7	0.049	0.146	0.017	0.778	0.809	1.28
6	26240	7	0.061	0.184	0.027	0.491	0.510	0.808
4	41740	7	0.077	0.232	0.042	0.308	0.321	0.508
3	52620	7	0.087	0.260	0.053	0.245	0.254	0.403
2	66360	7	0.097	0.292	0.067	0.194	0.201	0.319
1	83690	19	0.066	0.332	0.087	0.154	0.160	0.253
1/0	105600	19	0.074	0.372	0.109	0.122	0.127	0.201
2/0	133100	19	0.084	0.418	0.137	0.0967	0.101	0.159
3/0	167800	19	0.094	0.470	0.173	0.0766	0.0797	0.126
4/0	211600	19	0.106	0.528	0.219	0.0608	0.0626	0.100
250	–	37	0.082	0.575	0.260	0.0515	0.0535	0.0847
300	–	37	0.090	0.630	0.312	0.0429	0.0446	0.0707
350	–	37	0.097	0.681	0.364	0.0367	0.0382	0.0605
400	–	37	0.104	0.728	0.416	0.0321	0.0331	0.0529
500	–	37	0.116	0.813	0.519	0.0258	0.0265	0.0424
600	–	61	0.099	0.893	0.626	0.0214	0.0223	0.0353
700	–	61	0.107	0.964	0.730	0.0184	0.0189	0.0303
750	–	61	0.111	0.998	0.782	0.0171	0.0176	0.0282
800	–	61	0.114	1.030	0.834	0.0161	0.0166	0.0265
900	–	61	0.122	1.094	0.940	0.0143	0.0147	0.0235
1000	–	61	0.128	1.152	1.042	0.0129	0.0132	0.0212
1250	–	91	0.117	1.289	1.305	0.0103	0.0106	0.0169
1500	–	91	0.128	1.412	1.566	0.00858	0.00883	0.0141
1750	–	127	0.117	1.526	1.829	0.00735	0.00756	0.0121
2000	–	127	0.126	1.632	2.092	0.00643	0.00662	0.0106

NOTES:

These resistance values are valid only for the parameters given. Using conductors having coated strands, different stranding type, and, especially, other temperatures changes the resistance.

Formula for temperature change: $R_2 = R_1 [1 + a(T_2\text{-}75)$ where: $a_{cu} = 0.00323$, $a_{AL} = 0.00330$.

Conductors with compact and compressed stranding have about 9 percent and 3 percent, respectively, smaller bare conductor diameters than those shown. See Table 5A for actual compact cable dimensions.

The IACS conductivities used: bare copper = 100%, aluminum = 61%

Class B stranding is listed as well as solid for some sizes. Its overall diameter and area is that of its circumscribing circle.

(FPN): The construction information is per NEMA WC8-1988. The resistance is calculated per National Bureau of Standards Handbook 100, dated 1966, and Handbook 109, dated 1972.

AC Resistance and Reactance for 600 Volt Cables, 3-Ø, 60 Hz, 75°C (167°F) – Three Single Conductors in Conduit

NEC Table 9

Size AWG/ kcmil	XL (Reactance) for all wires		AC resistance for uncoated copper wires			AC resistance for aluminum wires			Effective Z at 0.85 PF for uncoated copper wires			Effective Z at 0.85 for aluminum wires			Size AWG/ kcmil
	PVC, AL Conduit	Steel Conduit	PVC Conduit	AL Conduit	Steel Conduit	PVC Conduit	AL Conduit	Steel Conduit	PVC Conduit	AL Conduit	Steel Conduit	PVC Conduit	AL Conduit	Steel Conduit	
14	0.058	0.073	3.100	3.100	3.100	--	--	--	2.700	2.700	2.700	--	--	--	14
12	0.054	0.068	2.000	2.000	2.000	3.200	3.200	3.200	1.700	1.700	1.700	2.800	2.800	2.800	12
10	0.050	0.063	1.200	1.200	1.200	2.000	2.000	2.000	1.100	1.100	1.100	1.800	1.800	1.800	10
8	0.052	0.065	0.780	0.780	0.780	1.300	1.300	1.300	0.690	0.690	0.700	1.100	1.100	1.100	8
6	0.051	0.064	0.490	0.490	0.490	0.810	0.810	0.810	0.440	0.450	0.450	0.710	0.720	0.720	6
4	0.048	0.060	0.310	0.310	0.310	0.510	0.510	0.510	0.290	0.290	0.300	0.460	0.460	0.460	4
3	0.047	0.059	0.250	0.250	0.250	0.400	0.410	0.400	0.230	0.240	0.240	0.370	0.370	0.370	3
2	0.045	0.057	0.190	0.200	0.200	0.320	0.320	0.320	0.190	0.190	0.200	0.300	0.300	0.300	2
1	0.046	0.057	0.150	0.160	0.160	0.250	0.260	0.250	0.160	0.160	0.160	0.240	0.240	0.250	1
1/0	0.044	0.055	0.120	0.130	0.120	0.200	0.210	0.200	0.130	0.130	0.130	0.190	0.200	0.200	1/0
2/0	0.043	0.054	0.100	0.100	0.100	0.160	0.160	0.160	0.110	0.110	0.110	0.160	0.160	0.160	2/0
3/0	0.042	0.052	0.077	0.082	0.079	0.130	0.130	0.130	0.088	0.092	0.094	0.130	0.130	0.140	3/0
4/0	0.041	0.051	0.062	0.067	0.063	0.100	0.110	0.100	0.074	0.078	0.080	0.110	0.110	0.110	4/0
250	0.041	0.052	0.052	0.057	0.054	0.085	0.090	0.086	0.066	0.070	0.073	0.094	0.098	0.100	250
300	0.041	0.051	0.044	0.049	0.045	0.071	0.076	0.072	0.059	0.063	0.065	0.082	0.086	0.088	300
350	0.040	0.050	0.038	0.043	0.039	0.061	0.066	0.063	0.053	0.058	0.060	0.073	0.077	0.080	350
400	0.040	0.049	0.033	0.038	0.035	0.054	0.059	0.055	0.049	0.053	0.056	0.066	0.071	0.073	400
500	0.039	0.048	0.027	0.032	0.029	0.043	0.048	0.045	0.043	0.048	0.050	0.057	0.061	0.064	500
600	0.039	0.048	0.023	0.028	0.025	0.036	0.041	0.038	0.040	0.044	0.047	0.051	0.055	0.058	600
750	0.038	0.048	0.019	0.024	0.021	0.029	0.034	0.031	0.036	0.040	0.043	0.045	0.049	0.052	750
1000	0.037	0.046	0.015	0.019	0.018	0.023	0.027	0.025	0.032	0.036	0.040	0.039	0.042	0.046	1000

Notes:

1) These values are based on the following constants: UL-type RHH wires with Class B stranding, in cradled configuration. Wire conductivities are 100 percent IACS copper and 61 percent AICS aluminum, and aluminum conduit is 45 percent.
Capacitive reactance is ignored, since it is negligible at these voltages. These resistance values are valid only at 75°C (167°F) and for the parameters as given, but are representative for 600 volt wire types operative at 60 Hz.

2) "Effective Z" is defined as R cos(~~Θ~~) + X sin(~~Θ~~), where "~~Θ~~" is the power factor angle of the circuit. Multiplying current by effective impedance gives a good approximation for line-to-neutral voltage drop.
Effective impedance values shown in this table are valid only at 0.85 power factor. For another circuit power factor (PF), effective impedance (Zc) can be calculated from R and X_L values given in this table as follows:

$Zc = R \times PF + X_L \quad \sin[\arccos(PF)]$.

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT)
(Based on Table 1, Chapter 9)

NEC Table C1

CONDUCTORS											
	Conductor	Metric Designator (Trade Size)									
Type	Size (AWG/kcmil)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
RHH, RHW, RHW-2	14	4	7	11	20	27	46	80	120	157	201
	12	3	6	9	17	23	38	66	100	131	167
	10	2	5	8	13	18	30	53	81	105	135
	8	1	2	4	7	9	16	28	42	55	70
	6	1	1	3	5	8	13	22	34	44	56
	4	1	1	2	4	6	10	17	26	34	44
	3	1	1	1	4	5	9	15	23	30	38
	2	1	1	1	3	4	7	13	20	26	33
	1	0	1	1	1	3	5	9	13	17	22
	1/0	0	1	1	1	2	4	7	11	15	19
	2/0	0	1	1	1	2	4	6	10	13	17
	3/0	0	0	1	1	1	3	5	8	11	14
	4/0	0	0	1	1	1	3	5	7	9	12
	250	0	0	0	1	1	1	3	5	7	9
	300	0	0	0	1	1	1	3	5	6	8
	350	0	0	0	1	1	1	3	4	6	7
	400	0	0	0	1	1	1	2	4	5	7
	500	0	0	0	0	1	1	2	3	4	6
	600	0	0	0	0	1	1	1	3	4	5
	700	0	0	0	0	0	1	1	2	3	4
	750	0	0	0	0	0	1	1	2	3	4
	800	0	0	0	0	0	1	1	2	3	4
	900	0	0	0	0	0	1	1	1	3	3
	1000	0	0	0	0	0	1	1	1	2	3
	1250	0	0	0	0	0	0	1	1	1	2
	1500	0	0	0	0	0	0	1	1	1	1
	1750	0	0	0	0	0	0	1	1	1	1
	2000	0	0	0	0	0	0	1	1	1	1

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT)
(Based on Table 1, Chapter 9)

NEC Table C1

CONDUCTORS											
	Conductor	Metric Designator (Trade Size)									
Type	Size (AWG/kcmil)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
TW, THHW, THW, THW-2	14	8	15	25	43	58	96	168	254	332	424
	12	6	11	19	33	45	74	129	195	255	326
	10	5	8	14	24	33	55	96	145	190	243
	8	2	5	8	13	18	30	53	81	105	135
RHH*, RHW*, RHW-2*	14	6	10	16	28	39	64	112	169	221	282
	12	4	8	13	23	31	51	90	136	177	227
	10	3	6	10	18	24	40	70	106	138	177
	8	1	4	6	10	14	24	42	63	83	106
RHH*, RHW*, RHW-2*, TW, THW, THHW, THW-2	6	1	3	4	8	11	18	32	48	63	81
	4	1	1	3	6	8	13	24	36	47	60
	3	1	1	3	5	7	12	20	31	40	52
	2	1	1	2	4	6	10	17	26	34	44
	1	1	1	1	3	4	7	12	18	24	31
	1/0	0	1	1	2	3	6	10	16	20	26
	2/0	0	1	1	1	3	5	9	13	17	22
	3/0	0	1	1	1	2	4	7	11	15	19
	4/0	0	0	1	1	1	3	6	9	12	16
	250	0	0	1	1	1	3	5	7	10	13
	300	0	0	1	1	1	2	4	6	8	11
	350	0	0	0	1	1	1	4	6	7	10
	400	0	0	0	1	1	1	3	5	7	9
	500	0	0	0	1	1	1	3	4	6	7
	600	0	0	0	1	1	1	2	3	4	6
	700	0	0	0	0	1	1	1	3	4	5
	750	0	0	0	0	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	3	5
	900	0	0	0	0	0	1	1	2	3	4
	1000	0	0	0	0	0	1	1	2	3	4
	1250	0	0	0	0	0	1	1	1	2	3
	1500	0	0	0	0	0	1	1	1	1	2
	1750	0	0	0	0	0	0	1	1	1	2
	2000	0	0	0	0	0	0	1	1	1	1

* Types RHH, RHW, and RHW-2 without outer covering.

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT)
(Based on Table 1, Chapter 9)

NEC Table C1

CONDUCTORS											
	Conductor	Metric Designator (Trade Size)									
Type	Size (AWG/kcmil)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
THHN, THWN, THWN-2	14	12	22	35	61	84	138	241	364	476	608
	12	9	16	26	45	61	101	176	266	347	443
	10	5	10	16	28	38	63	111	167	219	279
	8	3	6	9	16	22	36	64	96	126	161
	6	2	4	7	12	16	26	46	69	91	116
	4	1	2	4	7	10	16	28	43	56	71
	3	1	1	3	6	8	13	24	36	47	60
	2	1	1	3	5	7	11	20	30	40	51
	1	1	1	1	4	5	8	15	22	29	37
	1/0	1	1	1	3	4	7	12	19	25	32
	2/0	0	1	1	2	3	6	10	16	20	26
	3/0	0	1	1	1	3	5	8	13	17	22
	4/0	0	1	1	1	2	4	7	11	14	18
	250	0	0	1	1	1	3	6	9	11	15
	300	0	0	1	1	1	3	5	7	10	13
	350	0	0	1	1	1	2	4	6	9	11
	400	0	0	0	1	1	1	4	6	8	10
	500	0	0	0	1	1	1	3	5	6	8
	600	0	0	0	1	1	1	2	4	5	7
	700	0	0	0	1	1	1	2	3	4	6
	750	0	0	0	0	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	4	5
	900	0	0	0	0	1	1	1	3	3	4
	1000	0	0	0	0	1	1	1	2	3	4

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT)
(Based on Table 1, Chapter 9)

NEC Table C1

CONDUCTORS											
	Conductor	Metric Designator (Trade Size)									
Type	Size (AWG/kcmil)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
FEP, FEPB, PFA, PFAH, TFE	14	12	21	34	60	81	134	234	354	462	590
	12	9	15	25	43	59	98	171	258	337	430
	10	6	11	18	31	42	70	122	185	241	309
	8	3	6	10	18	24	40	70	106	138	177
	6	2	4	7	12	17	28	50	75	98	126
	4	1	3	5	9	12	20	35	53	69	88
	3	1	2	4	7	10	16	29	44	57	73
	2	1	1	3	6	8	13	24	36	47	60
PFA, PFAH, TFE	1	1	1	2	4	6	9	16	25	33	42
PFAH,TFE, PFA, PFAH,TFE, Z	1/0	1	1	1	3	5	8	14	21	27	35
	2/0	0	1	1	3	4	6	11	17	22	29
	3/0	0	1	1	2	3	5	9	14	18	24
	4/0	0	1	1	1	2	4	8	11	15	19
Z	14	14	25	41	72	98	161	282	426	556	711
	12	10	18	29	51	69	114	200	302	394	504
	10	6	11	18	31	42	70	122	185	241	309
	8	4	7	11	20	27	44	77	117	153	195
	6	3	5	8	14	19	31	54	82	107	137
	4	1	3	5	9	13	21	37	56	74	94
	3	1	2	4	7	9	15	27	41	54	69
	2	1	1	3	6	8	13	22	34	45	57
	1	1	1	2	4	6	10	18	28	36	46

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT)
(Based on Table 1, Chapter 9)

NEC Table C1

CONDUCTORS											
	Conductor	Metric Designator (Trade Size)									
Type	Size (AWG/kcmil)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
XHH, XHHW, XHHW-2, ZW	14	8	15	25	43	58	96	168	254	332	424
	12	6	11	19	33	45	74	129	195	255	326
	10	5	8	14	24	33	55	96	145	190	243
	8	2	5	8	13	18	30	53	81	105	135
	6	1	3	6	10	14	22	39	60	78	100
	4	1	2	4	7	10	16	28	43	56	72
	3	1	1	3	6	8	14	24	36	48	61
	2	1	1	3	5	7	11	20	31	40	51
XHH, XHHW, XHHW-2	1	1	1	1	4	5	8	15	23	30	38
	1/0	1	1	1	3	4	7	13	19	25	32
	2/0	0	1	1	2	3	6	10	16	21	27
	3/0	0	1	1	1	3	5	9	13	17	22
	4/0	0	1	1	1	2	4	7	11	14	18
	250	0	0	1	1	1	3	6	9	12	15
	300	0	0	1	1	1	3	5	8	10	13
	350	0	0	1	1	1	2	4	7	9	11
	400	0	0	0	1	1	1	4	6	8	10
	500	0	0	0	1	1	1	3	5	6	8
	600	0	0	0	1	1	1	2	4	5	6
	700	0	0	0	0	1	1	2	3	4	6
	750	0	0	0	0	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	4	5
	900	0	0	0	0	1	1	1	3	3	4
	1000	0	0	0	0	0	1	1	2	3	4
	1250	0	0	0	0	0	1	1	1	2	3
	1500	0	0	0	0	0	1	1	1	1	3
	1750	0	0	0	0	0	0	1	1	1	2
	2000	0	0	0	0	0	0	1	1	1	1

Formulas for determining amperes, hp, kw and kva

Amps, hp, kw and kva

To Find	Direct Current	Alternating Current		
		1Ø	2Ø– 4 Wire+	3Ø
Amperes when horsepower is known	$\frac{\text{hp x 746}}{\text{E x \% eff}}$	$\frac{\text{hp x 746}}{\text{E x \% eff x p-f}}$	$\frac{\text{hp x 746}}{\text{2 x E x \% eff x p-f}}$	$\frac{\text{hp x 746}}{\text{1.73 x E x \% eff x p-f}}$
Amperes when kilowatts is known	$\frac{\text{kw x 1000}}{\text{E}}$	$\frac{\text{kw x 1000}}{\text{E x p-f}}$	$\frac{\text{kw x 1000}}{\text{2 x E x p-f}}$	$\frac{\text{kw x 1000}}{\text{1.73 x E x p-f}}$
Amperes when kva is known		$\frac{\text{kva x 1000}}{\text{E}}$	$\frac{\text{kva x 100}}{\text{2 x E}}$	$\frac{\text{kva x 1000}}{\text{1.73 x E}}$
kilowatts	$\frac{\text{I x E}}{1000}$	$\frac{\text{I x E x p-f}}{1000}$	$\frac{\text{I x E x 2 x p-f}}{1000}$	$\frac{\text{I x E x 1.73 x p-f}}{1000}$
kva		$\frac{\text{1 x E}}{1000}$	$\frac{\text{I x E x 2}}{1000}$	$\frac{\text{I x E x 1.73}}{1000}$
horsepower (output)	$\frac{\text{I x E x \% eff}}{746}$	$\frac{\text{I x E x \% eff x p-f}}{746}$	$\frac{\text{I x E x 2 x \% eff x p-f}}{746}$	$\frac{\text{I x E x 1.73 x \% eff x p-f}}{746}$

*For 3W, 2Ø circuits the current in the common conductor is 1.41 times that in either of the two other conductors.

How to compute power factor

Determining watts: $\text{p-f} = \frac{\text{watts}}{\text{volts x amperes}}$

1. From watthour meter:
   watts = rpm of disc x 60 x kh
   Where kh is meter constant printed on face or nameplate of meter. If metering transformers are used the above formula must be multiplied by the transformer ratios.

2. Directly from watthour meter,
   where:
   volts = line-to-line voltage as measured by voltmeter
   amps = current measured in line wire (not neutral) by ammeter

Conversion factors

$C° = \frac{5}{9} \text{ x } (F° - 32°)$ $F° = \frac{9}{5} C° + 32°$

Conversion Factors

C°	-15	-10	-5	0	5	10	15	20
F°	5	14	23	32	41	50	59	68
C°	25	30	35	40	45	50	55	60
F°	77	86	95	104	113	122	131	140
C°	65	70	75	80	85	90	95	100
F°	149	158	167	176	185	194	203	212

1 inch	= 2.54 centimeters
1 kilogram	= 2.20 lbs.
1 square inch	= 1,273,200 circular mills
1 circular mill	= .785 square mill
1 btu	= 778 ft. lbs.
	= 252 calories
1 year	= 8,760 hours

Common electrical terms

Ampere	(I)	= Unit of current or rate of flow of electricity
Volt	(E)	= Unit of electromotive force
OHM	(R)	= Unit of resistance
		ohms law: $I = \frac{E}{R}$ (d-c or 100% p-f)
Megohm		= 1,000,000 ohms
Volt amperes	(va)	= unit of apparent power
		= EI (single phase)
		= E x I x 1.73 (3Ø)
kilovolt amperes	(kva)	= 1000 volt-amperes
watt	(w)	= unit of true power
		= va x p-f
		= .00134 hp
kilowatt	(kw)	= 1000 watts
power factor	(p-f)	= ratio of true to apparent power
		$= \frac{w}{va} \circ \frac{kw}{kva}$
watthour	(whr)	= unit of electrical work
		= one watt for one hour
		= 3.413 BTU
		= 2,655 ft lbs.
kilowatthour	(kwhr)	= 1000 watthours
horsepower	(hp)	= measure of time rate of doing work
		= equivalent of raising 33,000 lbs. one ft. in one minute
		= 746 watts
demand factor		= ratio of maximum demand to the total connected load
diversity factor		= ratio of the sum of individual maximum demands of the various subdivisions of a system to the maximum demand of the whole system.
load factor		= ratio of the average load over a designated period of time to the peak load occurring in that period

Available Short Circuit

Transformer Rating 3Ø kVA and Impedance %	Maximum short Circuit kVA available from Primary System	208 Volts				240 Volts				480 Volts			
		Normal Continuous Load Current in Amperes	Interrupting Capacity Total RMS Amperes			Normal Continuous Load Current in Amperes	Interrupting Capacity Total RMS Amperes			Normal Continuous Load Current in Amperes	Interrupting Capacity Total RMS Amperes		
			Transformer Alone	50% Motor Load	Combined		Transformer Alone	50% Motor Load	Combined		Transformer Alone	50% Motor Load	Combined
450	15000		12500		13600		10800		12700		5500		6500
3%	25000		14300		15400		12300		14200		6200		7200
	50000		15800		16900		13700		15600		6800		7800
	100000	417	16600	1100	17700	361	14200	1900	16100	180	7200	1000	8200
	150000		16800		17900		14500		16400		7300		8300
	250000		16900		18000		14800		16700		7400		8400
	500000		17000		18100		14900		16800		7450		8450
	Unlimited		17100		18200		15000		16900		7500		8500
225	15000		13600		15100		11700		14700		5900		7100
4%	25000		15800		17300		13700		16700		6800		8000
	50000		17600		19100		15200		18200		7600		8800
	100000	625	18300	1500	19800	542	16000	3000	19000	271	7900	1200	9100
	150000		18800		20300		16200		19200		8200		9400
	250000		18900		20400		16300		19300		8300		9500
	500000		19000		20500		16400		19400		8350		9550
	Unlimited		19100		20600		16500		19500		8400		9600
300	15000		14900		17000		12900		16500		.....		.....
5%	25000		16700		18800		14600		18200		7300		9100
	50000		18600		20700		16100		19700		8100		9900
	100000	834	19600	2100	21700	722	17000	3600	20600	361	8500	1800	10300
	150000		20000		22100		17400		21000		8700		10500
	250000		20300		22400		17600		21200		8800		10600
	500000		20500		22600		17900		21500		8900		10700
	Unlimited		20800		22900		18100		21700		9000		10800
500	25000		24800		28300		21500		27500		10800		13800
5%	50000		28900		32400		25100		31100		12500		15500
	100000		31500		35000		27300		33300		13700		16700
	150000	1388	32500	3500	36000	1200	28200	6000	34200	600	14100	3000	17100
	250000		33300		36800		28900		34900		14500		17500
	500000		34000		37500		29500		35500		14800		17800
	Unlimited		34600		38100		30100		36100		15100		18100
750	25000		30600		35800		26600		35600		13300		17800
5½%	50000		37100		42300		32300		41300		16100		20600
	100000		41600		46800		36100		45100		18000		22500
	150000	2080	43300	5200	48500	1800	37600	9000	46600	900	18800	4500	23300
	250000		44800		50000		39000		48000		19500		24000
	500000		46100		51300		40000		49000		20000		24500
	Unlimited		47300		52500		41000		50100		20500		25000
1000	25000		36500		43500		31700		43700		15800		21800
5½%	50000		46300		53300		40200		52200		20100		26100
	100000		53400		60400		46300		58300		23200		29200
	150000	2780	56300	7000	63300	2400	48800	12000	60800	1200	24400	6000	30400
	250000		58900		65900		51000		63000		25500		31500
	500000		60900		67900		52800		64800		26400		32400
	Unlimited		63200		70200		54700		66700		27400		33400
1500	25000						39300		57300		19600		28600
5½%	50000						53200		71200		26600		35600
	100000						64500		82500		32300		41300
	150000					3600	69500	18000	87500	1800	34800	9000	43800
	250000						74000		92000		37000		46000
	500000						77900		95900		38900		47900
	Unlimited						82000		100000		41100		50100
2000	25000										22100		34100
5½%	50000										31700		43700
	100000										39400		51400
	150000									2400	44100	12000	56100
	250000										46800		58800
	500000										50700		62700
	Unlimited										54700		66700

All computations are based on voltages, transformer impedances and motor loads, as indicated, including a factor of 1.25 for the dc component. For conditions differing from those given in these tables the short-circuit currents should be calculated.

The motor short-circuit contributions are computed on the basis of motor characteristics that will give five times normal current. For the 208 volt table, 50 percent motor load is assumed. For the 480 volt and 240 volt tables, 100 percent motor loads are assumed. For other percentages of motor load, the motor contribution to the short-circuit current will be in direct proportion.

Where the circuit voltage is less than 480 or 240 volts, the current values given should be multiplied by the ratio: $\frac{480 \text{ or } 240}{\text{circuit voltage}}$

Inches and Millimeters

4ths	8ths	16ths	32nds	64ths	To 3 places	To 2 places	Millimeters
				1/64	.016	.02	0
			1/32		.031	.03	1
				3/64	.047	.05	1
		1/16			.062	.06	2
				5/64	.078	.08	2
			3/32		.094	.09	2
				7/64	.109	.11	3
	1/8				.125	.12	3
				9/64	.141	.14	4
			5/32		.156	.16	4
				11/64	.172	.17	4
		3/16			.188	.19	5
				13/64	.203	.20	5
			7/32		.219	.22	6
				15/64	.234	.23	6
1/4					.250	.25	6
				17/64	.266	.27	7
			9/32		.281	.28	7
				19/64	.297	.30	8
		5/16			.312	.31	8
				21/64	.328	.33	8
			11/32		.344	.34	9
				23/64	.359	.36	9
	3/8				.375	.38	10
				25/64	.391	.39	10
			13/32		.406	.41	10
				27/64	.422	.42	11
		7/16			.438	.44	11
				29/64	.453	.45	12
			15/32		.469	.47	12
				31/64	.484	.48	12
1/2					.500	.50	13
				33/64	.516	.52	13
			17/32		.531	.53	13
				35/64	.547	.55	14
		9/16			.562	.56	14
				37/64	.578	.58	15
			19/32		.594	.59	15
				39/64	.609	.61	15
	5/8				.625	.62	16
				41/64	.641	.64	16
			21/32		.656	.66	17
				43/64	.672	.67	17
		11/16			.688	.69	17
				45/64	.703	.70	18
			23/32		.719	.72	18
				47/64	.734	.73	19
3/4					.750	.75	19
				49/64	.766	.77	19
			25/32		.781	.78	20
				51/64	.797	.80	20
		13/16			.812	.81	21
				53/64	.828	.83	21
			27/32		.844	.84	21
				55/64	.859	.86	22
	7/8				.875	.88	22
				57/64	.891	.89	23
			29/32		.906	.91	23
				59/64	.922	.92	23
		15/16			.938	.94	24
				61/64	.953	.95	24
			31/32		.969	.97	25
				63/64	.984	.98	25
1					1.000	1.00	25

Metric conversion tables

Length

US to metric		Metric to US	
1 inch	25.40 millimeters	1 millimeter	0.03937 inch
1 inch	2.540 centimeters	1 centimeter	0.3937 inch
1 foot	30.480 centimeters	1 meter	39.37 inch
1 foot	0.3048 meter	1 meter	3.2808 feet
1 yard	91.440 centimeters	1 meter	1.0936 yards
1 yard	0.9144 meter	1 kilometer	0.62137 mile
1 mile	1.609 kilometers		

Area

US to metric		Metric to US	
1 sq. inch	645.16 sq. millimeters	1 sq. millimeter	0.00155 sq. inch
1 sq. inch	6.4516 sq. centimeters	1 sq. centimeter	0.1550 sq. inch
1 sq. foot	929.03 sq. centimeters	1 sq. meter	10.7640 sq. feet
1 sq. foot	0.0929 sq. meter	1 sq. meter	1.196 sq. yards
1 sq. yard	0.836 sq. meter	1 sq. hectometer	2.471 acres
1 acre	0.4047 sq. hectometer	1 hectare	2.471 acres
1 acre	0.4047 hectare	1 sq. kilometer	0.388 sq. mile
1 sq. mile	2.59 sq. kilometers	1 sq. kilometer	0.388 sq. mile

Volume (Capacity)

US to metric		Metric to US		
1 fluid ounce	2.957 centiliters – 2.957 cm^3	1 centiliter	10 cm^3	– 0.338 fluid ounce
1 pint (liq)	4.732 deciliters – 473.2 cm^3	1 deciliter	100 cm^3	– 0.0528 pint (liq)
1 quart (liq)	0.9463 liters – 0.9463 dm^3	1 liter	1 dm^3	– 1.0567 quarts (liq)
1 gallon (liq)	3.7853 liters – 3.7853 dm^3	1 liter	1 dm^3	– 0.26417 gallon (liq)

Notes

Additional B-Line Support Systems

ENCLOSURES

For over 50 years, Circle AW electrical enclosures have been recognized for their high quality construction and superior performance. Since acquiring Circle AW in 1993, Cooper B-Line has continued to improve the quality and further develop the customer service and delivery aspects of the product line. B-Line enclosures are manufactured using state-of-the-art equipment and are designed not only to meet, but to exceed industry standards.

Cooper B-Line offers one of the broadest ranges of electrical enclosures in the industry for commercial and industrial applications. From Type 1 wireway and Type 1 screw covers, to Type 12 free-standing multi-door industrial and made-to-order custom enclosures, Cooper B-Line is ready to provide the type enclosure your application requires. Our full product offering includes Type 1, 3R, and 12 wireway; Type 1, 3, and 3R commercial enclosures; Type12/13, 4, and 4X industrial enclosures and consoles, plus a full range of accessories.

Many of B-Line's commercial boxes, enclosures, wireway, and trough are available in your choice of painted 16, 14, or 12 gauge steel, galvanized steel, type 304 stainless steel, or fiberglass.

CABLE TRAY

Cable Tray is a continuous mechanical support system, designed for the support of electrical power, control and instrumentation cables. Our unique I-Beam construction, using extruded aluminum or roll-formed steel, incorporates advanced design features which make our cable tray a highly versatile support system.

Reinforced I-Beam side rails are welded to the structural cross members in ladder types and to the corrugated bottoms in trough types. This unique construction with bolted splice plates provides excellent electrical continuity. Standard cable trays are available in ladder, trough, and channel types. B-Line Trays meet all the requirements of Article 318 of the National Electrical Code.

Cooper B-Line now offers Cent-R-Rail® cable tray systems for datacom installations.

STRUT

B-Line's rigid metal framing support system is used in electrical and mechanical construction. Strut is fully adjustable and reusable - designed to eliminate welding or drilling.

Our channel sections are roll-formed from high quality structural steel on modern roller mills. Strut is available from stock in a number of sizes and gauges with a variety of protective finishes.

For added strength, multiple spot-welded channel combinations are available. A complete selection of fittings, fasteners, and accessories make B-Line's Strut System well suited for most support requirements.

COOPER B-Line

Customer Service

Address: Cooper B-Line
509 West Monroe Street
Highland, IL 62249

Phone: 618-654-2184
Fax: 618-654-1917

www.cooperbline.com

Questions, Comments, Suggestions?
"B-VOCAL℠ with B-Line"
Voice Of the Customer...Actively Listening
bvocal@cooperbline.com
618-654-2184 ext. 456

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