

REFERENCE STANDARD FOR ELECTRICAL
WIRES, CABLES AND FLEXIBLE CORDS
UL 1571-2011

1.1

UL44

UI8 3

UL62

UI8 54

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a	ASTM B557-, 4	1in min
25mm min		
1	11bf in ² 1MN m ² 6, N cm ² 1.7kgf mm ²	
2	ASTM E 2-, 3a	5
b		

11 1

11.1

	a		b		c		d				1.8 S a		1.7 S b	
	mil mm		mil (1.8 S) mm		mil (1.1 S) mm		mil (1.8 S) mm		cmil mm ²		cmil mm ²		cmil mm ²	
31	11.1	1.254	1.8	1.24	11.1	1.257	1.1	1.251	11.1	1.1517	1.8	1.147	---	---
2	11.3	1.287	11.1	1.282	11.4	1.291	11.2	1.284	12	1.1647	125	1.1633	---	---
28	12.6	1.321	12.3	1.321	12.7	1.323	12.5	1.318	15	1.1814	125	1.171	---	---
27	14.2	1.361	13.1	1.353	14.3	1.363	14.1	1.358	21.2	1.112	18	1.111	---	---
26	15.1													

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	a	b	c
mil	mm	mil (1.8)	mm mil (1.

A C

	a		b		c	
	mil	mm	mil (0.8 S)	mm	mil (1.1 S)	mm
14AWG	1671	18 4	1671	1.7	1672	18 3
13	18 1	2 3	168	1.8	18 1	2 6

1.161	26.1	1.163	26.3	1.171	27.21
1.117	28.4	1.15	278.1	1.128	28.65
1.173	2.8	1.151	2.21	1.185	31.11
1.225	31.1	1.21	31.4	1.237	31.42
1.251	318	1.225	31.12	1.262	32.15
1.275	32.4	1.251	31.75	1.288	32.72
1.323	33.6	1.27	32.4	1.336	33.3
1.371	348	1.343	34.11	1.34	35.15
1.415	35.1	1.37	35.23	1.42	36.31
1.45	37.1	1.431	36.32	1.474	37.44
1.481	37.6	1.451	368.3	1.4.5	37.7
1.512	38.2	1.472	37.3	1.517	38.53
1.542	3.2	1.511	38.3	1.557	3.55
1.583	4.5	1.551	3.41	1.5.1	4.61
a) 12AWG-214cmil 14 13AWG					
b) 3					
C) ()					

A

	a		b c			
	mil	mm	mil (1.8 S)	m	mil (1.1 S)	mm
1AWG	1313	7.5	1317	78.1	1316	8.13
1.1	1352	8.4	1345	8.76	1356	1.14
2.1	13.5	11.13	137	8.3	13.1	11.13
3.1	1443	11.25	1434	11.12	1447	11.35
4.1	148	12.65	1488	12.41	1513	12.78
251cmil	1542	13.77	1531	13.4	1547	138
31.1	15.4	15.1	1582	14.78	1611	15.24
35.1	1641	16.28	1628	15.15	1647	16.43

55k	18 14	21.42	188	21.12	18 12	21.66
61k	18 41	21.34	18 23	21. 1	18 48	21.54
65k	18 74	22.21	18 57	21.77	188 3	22.43
71k	1. 17	23.14	188	22.8	1. 16	23.27
75k	1. 3	238 5	1. 21	23.37	1. 48	24.18
8 1k	1. 6	24.61	1. 51	24.13	1. 7	248 7
1k	1.18	26.11	1.167	25.8	1.18	26.37
11k	1.18 4	27.53	1.162	26. 7	1.1. 5	278 1
11k	1.137	28 88	1.114	28.31	1.148	2. 16
12k	1. 8 7	31.15	1.163	2. 54	1.1. 1	31.45
125k	1.212	31.8	1. 88	31.8	1.224	31.1
13k	1.236	31.3	1.211	31.76	1.248	31.71
14k	1. 8 2	32.56	1.256	31. 1	1.2. 5	328
15k	1.327	33.71	1.31	33.12	1.341	34.14
16k	1.371	348 2	1.344	34.14	1.38 5	35. 8
17k	1.413	358	1.38 5	35. 8	1.427	36.25
175k	1.434	36.42	1.415	35.6	1.448	36.8
8 1k	1.454	36. 3	1.425	36.21	1.46	37.31

22	1.1.8 7	1.72,	1.1.8 1	1.714	1.1.2, 1.	1.737
21	1.1.323	1.8 21	1.1.317	1.8 1.5	1.1.326	1.8 8
21	1.1.362	1., 1.	1.1.355	1., 1.2	1.1.366	1., 31
1,	1.1.417	1.1.3	1.1.3,	1.1.13	1.1.411	1.1.44
8	1.1.456	1.16	1.1.477	1.135	1.1.461	1.171
17	1.1.513	1.31	1.1.512	1.275	1.1.518	1.315
16	1.1.576	1.46	1.1.564	1.433	1.1.58 2	1.48
15	1.1.647	1.64	1.1.635	1.613	1.1.653	1.65,
14	1.1.727	18 5	1.1.712	18 1	1.1.734	18 6
13	1.1.8 16	2.1.7	1.1.8 1.1	2.1.3	1.1.8 24	2.1.
12	1.1. 15	2.32	1.1.8 , 7	2.8	1.1. 24	2.35
11	1.1.1.3	2.62	1.1.1.1	2.57	1.1.1.4	2.64
11	1.1.116	2., 5	1.1.114	2.		

121	1.263	32.18	1.238	31.45	1.276	32.41
1251	1.28	32.74	1.263	32.18	1.312	33.17
131	1.314	33.38	1.288	32.72	1.327	33.71
141	1.365	34.67	1.338	33.11	1.371	35.13
151	1.412	358.6	1.348	35.15	1.426	36.22
161	1.451	37.16	1.431	36.32	1.474	37.44
171	1.514	38.21	1.474	37.44	1.511	38.38
1751	1.526	38.76	1.415	37.17	1.541	39.14
181	1.548	39.32	1.517	38.53	1.563	39.71
111	1.511	41.31	1.538	39.57	1.616	41.71
211	1.632	41.45	1.511	41.61	1.648	418.6

a)

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21	21.5	71.5	13.1	42.7	218	71.5	13.3	43.6
21	16.5	55.4	11.3	33.5	17.2	56.6	11.5	34.6
15	13.5	44.2	8.21	26.5	13.7	45.1	8.37	27.4
8	11.7	35.1	6.52	21.4	11.5	35.7	6.64	218
17	8.45	27.7	5.15	16.5	8.61	28.2	5.25	17.2
16	6.72	22.1	4.11	13.5	68.5	22.5	4.8	13.7
15	5.31	17.4	3.24	11.6	5.41	178	3.31	11.8
14	-----	-----	2.57	8.45	-----	-----	2.62	8.61
13	-----	-----	2.14	6.6	-----	-----	2.18	68.2
12	2.65	8.71	1.62	5.31	2.71	8.8	1.65	5.42
11	2.11	6.2	1.2	4.22	2.15	7.16	1.32	4.31
11	1.671	5.47	1.11	3.343	1.713	5.51	1.18	3.418
.	1.325	4.348	1.8184	2.652	1.352	4.435	1.8242	2.714
8	1.151	3.446	1.6417	2.112	1.171	3.515	1.6532	2.413
7	1.838	2.733	1.5181	1.667	1.847	2.788	1.581	1.65
6	1.661	2.18	1.4131	1.323	1.6741	2.211	1.4111	1.348
5	1.5242	1.721	1.317	1.11	1.5361	1.754	1.3261	1.171
4	1.4155	1.363	1.2535	1.8315	1.423	1.31	1.285	1.848
3	1.326	1.181	1.2111	1.655	1.3362	1.113	1.2151	1.6725
2	1.2613	1.8574	1.154	1.5231	1.2666	1.8747	1.1626	1.5333
1	1.2173	1.678	1.1264	1.4146	1.2113	1.635	1.1	

22	17.2	56.4	17.5	57.5
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75١٥	١٥١23٨	١٥١77٨	١٥١١4٨	١٥١٤721	١٥١24١٤	١٥١٨ , 4	١٥١١467	١٥١٨ 12
8 ١٥	١٥١2211	١٥١7254	١٥١١34٨	١٥١٤425	١٥١2255	١٥١74١٤	١٥١١375	١٥١4512
, ١٥	١٥١١ , 66	١٥١644٨	١٥١١1 , ,	١٥١3 , 33	١٥١2١٤٥	١٥١65٨	١٥١١222	١٥١4١١1
11١٥	١٥١١76 ,	١٥١٨ ١٤	١٥١١١7 ,	١٥١354١	١٥١٨ ١٤	١٥١5 , 2١	١٥١١1١١	١٥١361١
11١٥	١٥١١6١	١٥١5275	١٥١٤٨ ١٤	١٥١32٨	١٥١١64١	١٥١6٨ 3	١٥١١١٤١	١٥١3٨ 1
12١٥	١٥١١474	١٥١٨ 36	١٥١٨ , , 2	١٥١2 , 5١	١٥١١5١٤	١٥١4 , 34	١٥١١ 16 ,	١٥١3١٤٨
125١	١٥١١415	١٥١4643	١٥١٨ 632	١٥١٨ 33	١٥١١443	١٥١4736	١٥١٨٨ ١2	١٥١٨٨٨
13١٥	١٥١١357	١٥١4465	١٥١٨ 23١	١٥١2723	١٥١١٨٨	١٥١4554	١٥١٨ 463	١٥١2776
14١٥	١٥١١264	١٥١4145	١٥١٤77١7	١٥١252 ,	١٥١١٨ ,	١٥١422 ,	١٥١٨٨ 5 ,	١٥١257 ,
15١٥	١٥١١17 ,	١٥١٨ 6 ,	١٥١٤71 , 3	١٥١236١	١٥١١2١٤	١٥١3 , 47	١٥١٤7335	١٥١24١٤
16١٥								

٨ ١٥ ١٥١٨ 27 ١٥١3316 ١٥١٤6166 ١٥١2١23 ١٥١١١31 ١٥١3٨ 3 ١٥١٤5٨ 7 ١٥١2١٤2

١٥١٨ 3١

8 10	1010171	101024	101062, 1	101063
1, 10	10108 45	1010, 8	10105, 610	1010, 55
2100	10105552	10108 22	10105662	10108 57

3105

ASTM C D

ASTM B

C 7 Tf 1015, 610Td (D)T R16 7.5, , 36 Tf 10, , , 747 101013 43108 6100, 6 Tm (2O)T R1, 7.5, , 36 Tf 10, , , 747 101013451078 6100, 6 T

6	l0427	1.41	l0436	1.43	l0427	1.41	l0436	1.43
5	l033	1.11	l0346	1.13	l033	1.11	l0346	1.13
4	l026	l088 2	l0274	l0	l026	l088 2	l0274	l0
3	l0213	l0710	l0217	l0713	l0213	l0710	l0217	l0713
2	l016	l0555	l0172	l0566	l016	l0555	l0172	l0566
1	l0134	l0440	l0137	l044	l0134	l0440	l0137	l044
1 l0	l0116	l034	l0118	l0355	l0116	l034	l0118	l0355
2 l0	l018 44	l0276	l018 60	l08 2	l018 44	l0276	l018 60	l08 2
3 l0	l0166	l021	l0168 1	l0223	l0166	l021	l0168 1	l0223
4 l0	l016310	l0174	l016541	l0177	l016310	l0174	l016541	l0177
25l0mil	l0144	l0147	l01438	l01510	l0144	l0147	l01438	l01510
3l0	l01374	l0122	l0138 1	l0125	l01374	l0122	l0138 1	l0125
35l0	l013210	l0116	l01326	l01167	l013210	l0116	l01326	l01167
4l0	l0128 l0	l01210	l0128 6	l012 8	l0128 l0	l01210	l0128 6	l012 8
45l0	l0124	l018 8	l01254	l018 34	l0124	l018 8	l01254	l018 34
5l0	l01224	l01736	l01228	l01751	l01224	l01736	l01228	l01751
55l0	l01214	l0166	l01218	l0168 2	l01214	l0166	l01218	l0168 2
6l0	l0128 7	l01614	l0121	l01625	l0128 7	l01614	l0121	l01625
7l0	l0121610	l01626	l012163	l01637	l0121610	l01626	l012163	l01637
75l0	l0121510	l0141	l012153	l012151	l0121510	l0141	l012153	l012151
8 l0	l012141	l0121610	l012143	l01216	l012141	l0121610	l012143	l01216
l0	l012124	l012110	l012128	l012117	l012124	l012110	l012128	l012117
11l0	l012111	l012164	l012113	l012171	l012112	l012168	l012114	l012175
11l0	l012112	l012135	l012114	l012142	l012112	l012135	l012114	l012142
12l0	l012135	l012137	l012154	l012113	l012135	l012137	l012154	l012113
125l0	l01218 8	l01215	l012115	l012110	l01218 8	l01215	l012115	l012110
13l0	l01218 63	l01218 4	l012188 l0	l01218	l01218 63	l01218 4	l012188 l0	l01218
14l0	l01217 4	l0121610	l01218 l0	l012165	l01218 12	l012163	l01218 17	l012168
15l0	l0121741	l012143	l0121755	l012148	l0121748	l012146	l0121763	l0121510
16l0	l0121712	l012131	l0121715	l012135	l0121712	l012131	l0121715	l012135
17l0	l0121610	l012116	l0121673	l0121210	l0121610	l012116	l0121673	l0121210
175l0	l0121642	l012110	l0121654	l012114	l0121642	l012110	l0121654	l012114
8 l0	l0121617	l012122	l012162	l012116	l0121623	l012115	l0121635	l012118
1 l0	l01218 4	l01212	l01216	l01216	l01215	l01214	l0121612	l01218
2l0	l012155	l01218 3	l0121666	l01218 6	l012161	l01218 4	l0121672	l012188

316

1.

	AWG	25		25	
		á /1000ft	á /1000ft	á /1000ft	á /1000ft
	14	2.7	15	28.5	32
	13	2.21	7.26	2.25	7.41
	12	1.75	5.75	1.8	588
	11	1.37	48	1.3	4.56
	10	1.18	3.55	1.10	3.62
		1.857	28.2	1.874	28.7
	8	1.67	2.23	1.62	2.27
	7	1.53	1.76	1.55	18.1
	6	1.427	1.41	1.436	1.43
	5	1.33	1.11	1.346	1.13
	4	1.26	1.88.2	1.274	1.10
	3	1.213	1.710	1.217	1.713
	2	1.16	1.555	1.172	1.566
	1	1.134	1.438	1.1367	1.445
	1	1.1163	1.347	1.118.4	1.3556
	2	1.18.432	1.2766	1.18.58	1.28.20
	3	1.16688	1.21.4	1.168.20	1.228
	4	1.16248	1.1722	1.16352	1.1755
	14	2.62	8.62	2.68	8.8
	13	2.18	68.2	2.12	6.7
	12	1.65	5.43	1.68	5.53
	11	1.32	4.30	1.34	4.3

36A

1.

AWG	25		25	
	á /1000ft	á /1000ft	á /1000ft	á /1000ft
6	6716	2 2	68 52	2 2
5	5326	1.7	5436	1.8 4
4	4224	1.8 6	43	1.414
3	3351	1.1	348	1.121

13, 31	1656	215	1668	21,	18 1	223	16, 6	28	117	353	11	361
4	1521	171	1531	174	1541	177	1552	8 1	18 53	27,	18 6,	28 6
251	143	145	1451	148	1461	151	146,	154	14725	238	14741	1243
31	168	121	1675	123	168 4	125	163, 1	12,	16614	118	16616	1212
351	1616	114	1622	116	1638	118	1635	111	1668	171	1658	173
41	1276	117	168 2	1124	1688	1142	162, 3	1162	16453	114,	16462	152
451	1246	118 16	16251	118 22	16255	118 38	16261	118 55	164143	1132	16411	135
51	1221	16725	16225	16714	16231	16755	16235	1676,	16362	111,	16371	121
551	16112)	16681	16216	16175	16211	16116	16216	16116	16116	16116	16116	16116
61	118 6	16617	168 ,	1661,	161, 3	16631	161, 6	16644	16314	161, 6	16311	1112
71	1171	16661	16174	16571	16177	168 3	168 2	165, 5	161 1			

161	111718	11233	111721	11237	111735	11242	111751	11246	11116	11181	11118	1118
171	111666	1128	11167	11222	11163	11227	111716	11232	1111	11138	11111	11165
1751	111647	11212	111661	11216	111672	11221	111685	11225	11116	11134	11118	11155
81	11162	11216	111642	11211	111654	11214	111667	1128	11113	11133		

71	162	1631	165	16541	16173	1656,	16177	1681
751	16151	164, 5	16154	165165	16162	16531	16165	16542
81	16142	16464	16144	16473	16152	164,	16155	16518
161	16125	16413	1612,	16421	16135	16443	16138	16452
1161	16113	16371	16115	16378	16121	163,	16124	16417

311

ASTM M

	21				25			
	21		25		21		25	
	á	á	á	á	á	á	á	á
	1111ft	km	1111ft	km	1111ft	km	1111ft	km
14AWG	2.62	8.61	2.67	8.78	28.2	2.25	288	2.42
13	2.11	68	2.13	7.13	2.26	7.41	2.31	7.54
12	1.68	5.53	1.71	5.64	18.1	5.4	18.5	6.15
11	1.33	4.3	1.36	4.47	1.44	4.71	1.46	4.7
11	1.16	3.48	1.18	3.55	1.14	3.73	1.16	38.1
1	18.41	2.75	18.57	28.2	18.8	2.6	18.21	3.12
8	1666	2.8	167	2.23	1715	2.35	172	2.41
7	1533	1.75	1544	1.78	1572	188	158.4	1.2
6	1423	1.3	1431	1.42	1455	1.4	1463	1.52
5	1336	1.11	1343	1.12	1361	1.8	1367	1.21
4	1266	18.73	1271	18.7	128.6	1.37	12.2	1.56
3	1213	16	1217	1714	1226	1744	1232	1738
2	116	1554	1172	1565	118.2	15.5	118.5	1617
1	1134	1441	1137	1448	1144	1472	1147	148.1
11	1116	134	1118	1355	1114	1374	1116	138.1
21	118.51	1276	118.67	128.2	111.13	1311	111.31	1315
31	11674	1221	1168.7	1225	11724	1238	11738	1242
41	11534	1175	11546	117	11574	118	1158.5	11.2
251kmil	11453	114	11462	1151	1148.7	115	114.6	1162
31	11377	1123	1138.5	1125	114115	1133	114113	1136
351	11323	1116	1132	1118	11347	1114	11354	1116
41	1138.3	111.8	1138	111.47	113114	111.7	113111	11112
451	11252	118.25	11256	118.42	11261	118.38	11267	118.75
51	11226	11743	11231	11757	11243	117.8	11248	118.13
551	11216	11675	11211	11688	11221	11725	11225	11741
61	1118	1161	111.3	11631	112113	11664	112116	11677
71	162	1631	165	16541	16173	1656,	16177	1681

751	111151	11115	111154	1111515	111162	1111531	111165	1111542
8 11	111142	111164	111144	111173	111152	1111	111155	111118
111	111125	111113	11112	111121	111135	111143	11113	111152
1111	111113	111171	111115	111138	111121	1111	111123	111117

411

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412

41111 1 11

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47.1 47.1

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47.2 47.1

UL13 1

UL62 2x 1x

UL62 UL15 1 5k

47.1

5k1

CATV 1,4 75 167 CP USE-2 USE

RHW-2 RHH

SIS

	1in 25mm	
15lb in	5k	8 5
13MN m		
134n cm		
1.5kg mm		
USE-2 RHW-2 RHH		
1,4		
121 ¥ 1.1 24,8 ¥ 18		
RHW RH 75 167	5k	8 5
113.1 ¥ 1.1 235.4 ¥		
18 1		
121 ¥ 1.1 24,8 ¥ 18	6k	6k

85

6k

51.21

33

21.6

51.23

42 1. 194 CPCPE NBR/PVC

51.2

CATV

USE-2

RHW-2 RHH

1.1 194

CPE

W

	1 in 25mm	
121 ¥ 1.1 1.1 24.8 ¥ 18 121 ¥ 1.1 1.1 24.8 ¥ 18 121 ¥ 1.1 1.1 24.8 ¥ 18	25.1 2-1 2in 62.5mm 6.1 6.1	15.1 1.1bf in 1.1 3MN m 1.1 34n cm 1.1 5kg mm 8 5 6.1
CPE	W	

51.31

CATV

USE

RHW-2 RHH

75 167

CPE

W

	1 in 25mm	
113 ¥ 1.1 1.1 235.4 ¥ 18 121 ¥ 1.1 1.1 24.8 ¥ 18 121 ¥ 1.1 1.1 24.8 ¥ 18	2.1 2in 5.1mm 6.1 6.1	15.1 1.1bf in 1.1 3MN m 1.1 34n cm 1.1 5kg mm 8 5 6.1
CPE	W	

5k31

CPE

	1in 25mm	
113 ¥ 1.1k 113 235.4 ¥ 18 121 ¥ 1.1k 121 24.8 ¥ 18 8	2k 2in 5mm 6k 6k	15k 11k 11k 11k 8 5 6k
CPE	W	

5k32

37 1k 194

CPE

	1in 25mm	
113 ¥ 1.1k 113 235.4 ¥ 18 121 ¥ 1.1k 121 24.8 ¥ 18 8	2k 2in 5mm 1k 1in 25mm	12k 8 8 18 4
6k 14k 121 ¥ 1.1k 121 24.8 ¥ 18 8		6k

51.33

47 11.5 221 CPE

	1in 25mm	
113 11.5 235.4 18 121 11.5 24.8 18 6 14 121 11.5 24.8 18	25 2-1 2in 62.5mm 5 6	12 11.5 8 27MN m 8 27n cm 1 44kg mm 8 6
47 CPE	51.34	

USE-2 USE RHW-2 RHH SIS 1.4 75 167

	1in 25mm	
113 11.5 235.4 18 121 11.5 24.8 18 6 14 121 11.5 24.8 18 USE-2 RHW-2 RHH 1.4 121 11.5 24.8 18 RHW RH 75 167 113 11.5 235.4 18 18 1 121 11.5 24.8 18	25 2-1 2in 62.5mm 5 6	15 11.5 1 3MN m 1 34n cm 1 5kg mm 8 5 8 5 6
CP	51.34	

5142

RHW-2 RH RHW RHH EP Ш

	1in 25mm		
121 16 24,8 18 Ш	25 75	7 48 3 4 2	75
EP Ш - EPM Ш 1,4 CP RHW-2 Ш RHH SIS	75 Ш 167 CP RHW RHH		

5152

8 75 Ш 167 Ш 194 EPDM

	1in 25mm				
	75 Ш	Ш	75 Ш	75 Ш	Ш

51.53

35

11.5

Ň

221

EP

Ш

--	--	--

1in 25mm

51.6

518 k



RH RHH

75 Ń 167 NBR/PVC



a	β		6k	6k
---	---------	--	----	----

	1 in 25mm 3 in 75mm	(1 in 25mm)	
24 121. 1. 1. 212. 1. 18 6 14 121. 1. 1. 24, 8 18 8	25 1.4 in 6.8 mm	25 2-1 2 in 62.5mm 5 1 2 in 12.5mm 6	12 1bf in² 8 .27MN m² 8 27n cm² 18 44kgf mm² 1bf in² 6.2MN m² 621n cm² 1633kgf mm² 6
a 17			

5125

41 194 a NBR/PVC^b

	1 in 25mm	
24 121. 1. 1. 24, 8 18 6 14 121. 1. 1. 24, 8 18 8	25 2 in 5mm 5 1 2 in 12.5mm 6	12 1bf in 8 .27MN m 8 27n cm² 18 44kg mm² 1bf in 6.21MN m 621n cm² 1633kg mm² 6
a41		
b41 NBR PVC		

5133

CATV 75 167 LDFRPE^a

5 26

	1 in	25mm	
LDPE		LDPE	LPDE
	3 in	75mm	14 lb _f in
		LDPE	16.5MN m
	35 lb		165n cm ²
	3-1 2in	8 7.5mm	1.8 4kg mm ²
HDPE	3 in	75mm	24 lb _f in
			16.5MN m
			1665n cm ²
LDPE HDPE			1.6 kgf mm ²
4		75	75
1 lb _f 1.8N 212 lb _f 18			
aLDPE			1.1 lb _f 25g cm ³
[ASTMD 1248 4(R1,8)	I		
bHBFPE			1.41-1.5 g cm ³
[ASTMD 1248 4(R1,8)	III		
C 1.3 g cm ³ (, 3kg cm ³)	PE	2 lb _f 2in min	5 lb _f 5mm min
1.3 g cm ³ (, 3kg cm ³)	PE		2 lb _f 2in min 5 lb _f 25
mm min	PE		1.3 g cm ³ (kg cm ³)

16
3 7.

115 Ň 4 16 Ň 4 75 Ň 61 Ň

(2768 ¥ 18) THWN () p5Ö) 16 , 121.1.¥ 1.1.Ñ (24,8 ¥ 18)	45	65	75
--	----	----	----

51.145

THW	THWN	PVC ^a
	1in 25mm b THWN THW ^b THWN THW ^b	
	151.1.¥ 1.1.Ñ 1-1 2in 3 mm	

16
121.1.¥ 1.1.Ñ 24,8 ¥ 18

45

	1in	25mm	b	b
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ASTM

5k156

12B 1kN(1,4)PVC^a

		(1in 25mm)	
75N(167)	6k , 75. ¥ 1 N 167.k ¥ 18		5k
60N(14k)	6k , 11k ¥ 1 N 212.k ¥ 18		6k

ak

16 144.4 ¥ 1.4 212.4 ¥ 18 6.4 (14.4) : 64.4 ¥ 1.4 144.4 ¥ 18 16 64.4 ¥ 1.4 144.4 ¥ 18 6.4	5.4 8.5 75	1.12kgf mm² 3.5 75
a 11 PVC		

5.166

11 6.4(14.4)PVC^a

	1in 25mm	
16 144.4 ¥ 1.4 212.4 ¥ 18 6.4 (14.4) : 64.4 ¥ 1.4 144.4 ¥ 18 16 64.4 ¥ 1.4 144.4 ¥ 18 6.4	2.4 2in 5.4mm 6.4 75	164.4bf in² 11.4MN m² 114.3N cm² 1.12kgf mm² 3.5 75
a 11 PVC 5.165 a		

5.167

11 6.4(14.4)PVC^a

	1in 25mm	
16 144.4 ¥ 1.4 212.4 ¥ 18 6.4 (14.4) : 64.4 ¥ 1.4 144.4 ¥ 18 16 64.4 ¥ 1.4 144.4 ¥ 18 6.4	2.4 2in 5.4mm 6.4 75	84.4bf in² 12.4MN m² 124.4N cm² 1.27kgf mm² 3.5 75
a 11 PVC 5.165 a		

5k.16₁

11 6k.Ñ(14k₁)PVC^a

16 121.6 ¥ 1.6 24.8 ¥ 18 6.6 16 (14.6) : 6.6 ¥ 1.6 14.6 ¥ 18 16 6.6 16 (14.6) : 6.6 ¥ 1.6 14.6 ¥ 18 16 6.6 ¥ 1.6 14.6 ¥ 18 6.6	45	7.6
	65	65
	75	75
	8.5	3.5
	75	75
a 12 PVC 5.17. a		

5.8 1 12 1.5 16 (221) PVC^a		
	1in 25mm	
16 136.6 ¥ 1.6 27.6 ¥ 18 6.6 16 (14.6) : 6.6 ¥ 1.6 14.6 ¥ 18 16 6.6 16 (14.6) : 6.6 ¥ 1.6 14.6 ¥ 18 16 6.6 ¥ 1.6 14.6 ¥ 18 6.6	45	7.6
	65	7.6
	75	75
	8.5	3.5
	75	75
a 12 PVC 5.17. a		

5k 8 2

CATV 6k 14k) 45 167) 4k 1,4) 1k 5 221) PVC^a

4

4

43

	1in 25mm	
--	----------	--

b

5k8 3

CATV 4 4

6kN(14k) 475N(167) 4kN(1,4) 1k5N(221) PVC^a

6kN(14k) 475N(167)

15kN 3k2 6k 136.4kN 316.4kN 125N 257 16 136.4kN 316.4kN PVDE 3k 136.4kN 2768kN	5k d d	2.46kgf mm ² 5k d d
a PVDF 4 W bPVDF 4 W cPVDF PVDF 2kN 2in min 5kN 5mm min d 4 W W	W W W W W	PVDF W W W W

5kN

RH4RHW-24RHW RHH SBR IIIR NR

5k1, 5

4 6kN 14k SBR/NR^a

	(1in 25mm 3in 75mm)	(1in 25mm)	
16 7kN 1.1kN 13kN 18	25 (1 4in 6.2mm)	35k (3-1.2in } 7.5mm)	15kbf in² 1k3MN m² 1k34N cm² 1.15kgf mm²
		65 14k 7k	
a 4 SBR NR SBR NR			

5k1, 6

6 6kN 14k SBR/NR^a

	(1in 25mm 3in 75mm)	(1in 25mm)	
	1 (3 16in 48 mm)	3k (3in 75mm)	8 AWG S 8kbf in² 12.4MN m² 124kN cm² 1.27kgf mm²
			15kbf in² 1k3MN m² 1k34N cm² 1.15kgf mm²

16

7kN 1.1kN 13kN 18

5k1,7

7 75 Ń 167 SBR/NR^a

	1in 25mm	
	3k 3in 75mm	7k 48 3MN m ² 4 3N cm ² k4, 2kgf mm ²
6k 1k1,7 1,1 Ń 212,1k18	5k	7k

51.1

1 75 167 SBR/NR^a

	(1in 25mm 3in 75mm) 25 (1 4in 6.2mm)	(1in 25mm) 3 (3in 75mm)	15bf in ² 1.3MN m ² 1.34N cm ² 1.5kgf mm ²
24 71.1 ¥ 1.1 212 ¥ 18		5	7
a 1 SBR NR	SBR NR		

52.1

4 6 14 SBR/NR^a

	1in 25mm	
16 H 71.1 ¥ 1.1 13 ¥ 18	2 2in 5mm 65	5bf in ² 3.45MN m ² 345N cm ² 352kgf mm ² 6
a 4 SBR NR	SBR NR	

5k2k5

SA

2k2k3, 2

a

	1in 25mm	
21.1k ¥ 1.1k 41k ¥ 18	25k 2-1 2in 62.5mm 25	8 1kbf in ² 5.52MN m ² 552N cm ² 1k562kgf mm ² 6k
a		

5k2k6

RHH

a

	1in 25mm	
136.1k ¥ 1.1k 2768 ¥ 18	25k 2-1 2in 62.5mm 65	8 1kbf in ² 5.52MN m ² 552N cm ² 1k562kgf mm ² 75
a		

5k21k

CATV

15k2k (3k2) 2k2k (3, 2)

a

22

	1in 25mm	
	1k 1in 25mm	5kbf in ² 3.45MN m ²

6, 2k6

345N cm²
352kgf mm²

15kN 3k2

6k

5k

5k2b

18.1kN 316.4kN

1.2in

12.5mm

21kN 3k2

25

6k

5k

21kN 41kN

1.2in

12.5mm

25

7k

2k6

	21		8
	2in	51mm	5.52MN m ²
			552N cm ²
			1562kgf mm ²
16 H			
136 ¥ 1.1	75	75	
2768 ¥ 18			
6 14			
16 H	75	75 m	
15 1 ¥ 1 3			

5k28

1.1N(1,4)36

TPE

	1 in 25mm	
15k 1-1 2in 37.5mm 16 1k1k¥ 1.1kN 212k¥ 18 7k	15k1bf in ² 1k3MN m ² 1k34N cm ² 1.1k5kgf mm ² 7k	
a)XL	XLPE	XL PVC XLEVA
W	W	

5k22

USE 75N(167) XL^a

	1 in 25mm	
15k 1-1 2in 37.5mm 16 1k1k¥ 1.1kN 212k¥ 18 7k	15k1bf in ² 1k3MN m ² 1k34N cm ² 1.1k5kgf mm ² 7k	
a)XL	XLPE	XL PVC XLEVA
W	W	

5k23k

XL^a

	1 in 25mm	
--	-----------	--

		15kV 1-1 2in 37.5mm 7kV	15kVbf in ² 11.3MN m ² 11.34N cm ² 1.15kgf mm ²	7kV
a)XL	XLPE	XL PVC	XLEVA	
	Ш		Ш	

5kV231

CATV 1kV(1,4) 75kV(167)XL

XHHW-2 XHHW XHH

RHW-2 RHH RHW SIS

	25mm (lin)	
--	-------------	--

16
121.1kV1.1kV 24,8 kV

5k232

3 15kN (3k2) XLPO^a

	1in	25mm	
	15k	1-1 2in 37.5mm	15kbf in ² 11.3MN m ² 11.34N cm ² 1.15kgf mm ²
16 11.3kN 1.1kN 212.1kN 18		7k	7k
a)XLPO	XLPE	XL PVC	XLEVA
	W	W	

5k233

11.5 N (221)XLPO

	1in	25mm	
	15k	1-1 2in 37.5mm	15kbf in ² 11.3MN m ² 11.34N cm ² 1.15kgf mm ²
16 11.3kN 1.1kN 212.1kN 18		7k	7k
a)XLPO	XLPE	XL PVC	XLEVA
	W	W	

11.34 N cm²
1.15 kgf mm²

16
11.15 N 212.15 N

7k

7d (

75

216

—

2141

W

141 in 141 mm,

141 in 141 mm,

, 2,

.

$$A_{cmil} = \frac{11.4 \times 10^{-6} S W_{lb}}{(11.4 + K) S L_{ft} S f}$$

$$A_{cmil} = \frac{4 W_{lb} K}{f L_{ft}}$$

$$lb-cmil = 11.4 \times 10^{-6} ft$$

45.154222 S W_g

A mm²=

(1.40+K) S L_{mm} S f

A mm²4W_g4K4L_{mm}

f

kg.mm²1 km

		d				c	
		(6-4.1AWG1,)				(6-4.1AWG1,)	
		Lb	g	Lb	g	Lb	g
4 inches	14AWG	1.14, 75	22.57	1.18 5,	8.43	1.11513	68.6
	13	1.1626,	8.44	1.12342	11.62	1.11, 1.6	8.64
	12	1.17, 1.3	358.5	1.12, 52	13.3,	1.1241.3	11, 1.
	11	1.1, 61	45.8	1.13721	1688	1.131.3	13.74
	11	1.1256	56, 6	1.146, 3	21.2,	1.138 21	17.33
	,	1.134	718.5	1.15, 21	268.5	1.148 17	218.5
	8	1.1, 8	, 1.63	1.17465	338.6	1.161.76	27.56
	7	1.1261	57.15	1.171.7	21.35	1.18 32	17.8

24inches	61	3.631	1647	1.357	615.5	1.114	5128
	65	3.33	1784	1.471	6668	1.16	542.5
	71	4.236	1.21	1.33	78.1	1.38	34.2
	75	4.53	215	1.66	76.3	1.31	626.1
	81	48.41	21.6	18.1	821.5	1.472	667.7
	11	5.446	2471	2.135	23.1	1.656	751.1
	11	6.152	2745	2.261	1126	18.41	834.6
	11	6.657	3121	2.47	113	2.124	8.1
	12	7.262	32.4	2.713	1231	2.21	112
	13	78.67	256	2.3	1333	2.33	118.5
	14	8.472	343	3.165	1436	2.577	116
	15	11.77	4121	3.31	153	2.761	1252
	16	11.62	43.2	3.617	1641	2.45	1336
	17	11.2	4667	38.43	1743	3.12	141
	175	11.5	418	3.57	17.5	3.221	1461
	81	11.8	4.41	4.171	846	3.313	1513
	11	11.51	5216	4.26	1.4	3.47	136
	21	12.11	5488	4.522	1151	3.61	1671
a)	K 2 B C D 1						
	Ш K 2						211
2-211.4	Ш						
b	F						

2113

MM

81

216

				a		K
	B	C	D			2 ^b
						2 ^b
						2 ^b
1,						2 ^b
					G	H
4,						3
133						4
25,						4,5
427						5
427						6
					IK	M
7			1			4
1, 4						

$$k=1,2,\dots,(M-1)$$

$$\left(\frac{1}{2} \right) M^2$$

$$(a) \quad M=M_{\text{conc}}$$

$$M_{\text{conc}} = \frac{1+(p_2) \mathbf{s}(m_2)+(p_3) \mathbf{s}(m_3)+\dots+(P_y) \mathbf{s}(m_3)}{1}$$

$$y = \left(\frac{1}{2} \right)$$

p
m

$$\left(\frac{1}{2} \right),$$

$$m = \frac{1 + H^2 \cdot n^2}{2}$$

$$n \approx 1$$

$$4.38$$

$$m = 1 + H^2 (2 n^2) = 1 + n^2$$

N

$$N =$$

d

d

$$d = +1$$

$$d = -1$$

$$d = +$$

$$1 = d () Tj 4.32 9.999301 999657 Td () Tj /R19 9.99936 T999657 TdT T$$

C

E a

1,

6

a

1.732xD

D

6

D

LOL

D

6

1.732xD

12

6

LOL

W

$$M_{\text{combo unilay}} = \frac{1 + 6m_2 + 6m_3 + 6 \times 1.732 \times m_4}{1 + 6 + 6 + (6 \times 1.732)}$$

m2

m3

D

m4

1.732xD

a

$$m = \sqrt{1 + \frac{h}{N}}$$

n

D

n1=

6

D

LOL

$$n_2 = \frac{2D}{LOL}$$

6

D

LOL

$$n_3 = \frac{3.464D}{LOL}$$

6

1.732xD

$$n_4 = \frac{LOL}{3.732D}$$

n2 n3 n4

1.732

—

22.1

8 3

2.6

2

Ш 25 Ń 77 2k.Ń 6

22k.2Ш

3k.1~3k.11 Ч

Ш

22k.3~22k.

Ш

22k.2 77 2k.Ń 6

22k.1

77 2k.Ń 6

Ш

22k.3

24~8 in 61k~122kmm

22k₂ Ш k₂mm Ш

22k₇ Ш

15~3k₂ Ń Ń

Ш 22k₂ 22k₁ a Ш

22k₈

Ш Ч

Ш

22k₂ Ч Ч

Ш

Ш

Ш

22k₁

a

		25 Ń 77		2k ₂ Ń 8	
Ń					
k ₂	32k ₂	1.1k ₇	1.11k ₂	1.18 5	1.188

5	41.1	1.18 4	1.18 5	1.163	1.164
6	428	1.167	1.18 1	1.165	1.161
7	44.6	1.1675	1.1676	1.1654	1.1655
8	46.4	1.1671	1.1672	1.1651	1.1651
.	48.2	1.1666	1.1667	1.1645	1.1646
11	51.1	1.1661	1.1663	1.1641	1.1642
11	518	1.1657	1.165	1.1637	1.168
12	53.6	1.1653	1.1654	1.1633	1.1633
13	55.4	1.168	1.1651	1.168	1.162
14	57.2	1.1644	1.1645	1.1624	1.1624
15	5.1	1.1641	1.1641	1.1621	1.1621
16	61.8	1.1636	1.1637	1.1616	1.1616
17	62.6	1.1632	1.1633	1.1612	1.1612
8	64.4	1.168	1.168	1.168	1.168
1	66.2	1.1624	1.1624	1.1644	1.1644
21	68.1	1.1621	1.1621	1.1641	1.1641
21	6.8	1.1616	1.1616	1.1616	1.1616
22	71.6	1.1612	1.1612	1.1612	1.1612
23	73.4	1.168	1.168	1.168	1.168
24	75.2	1.164	1.164	1.168 5	1.168 4
25	77.1	1.1641	1.1641	1.168 1	1.168 1
26	78.8	1.1616	1.1616	1.1677	1.1676
27	81.6	1.1612	1.1612	1.1673	1.1672
28	82.4	1.168	1.168	1.1671	1.166
2	84.2	1.168 5	1.168 5	1.1666	1.1665
31	86.1	1.168 1	1.168 1	1.1662	1.1661
31	87.8	1.1677	1.1677	1.168	1.1657
32	88.6	1.1674	1.1673	1.1655	1.1654
33	1.4	1.1671	1.1671	1.1651	1.1651
34	3.2	1.1667	1.1666	1.1648	1.1647
35	5.1	1.1663	1.1662	1.1644	1.1643
36	6.8	1.165	1.168	1.1641	1.163
37	8.6	1.1656	1.1655	1.1637	1.1636
38	11.4	1.1652	1.1651	1.1634	1.1632
3	12.2	1.164	1.1648	1.1631	1.162
41	14.1	1.1645	1.1644	1.1627	1.1625
41	15.8	1.1642	1.1641	1.1624	1.1622
42	17.6	1.168	1.1637	1.1621	1.168
43	19.4	1.1635	1.1634	1.1617	1.1615
44	111.2	1.1631	1.1631	1.1614	1.1611
45	113.1	1.1628	1.1627	1.1611	1.1618

46	1148	10.25	10.24	10.18	10.165
47	116.6	10.22	10.210	10.165	10.162
48	118.4	10.18	10.17	10.161	10.158
49	121.2	10.15	10.13	10.18	10.15
50	122.10	10.12	10.110	10.15	10.12
51	1238	10.10	10.107	10.12	10.18
52	125.6	10.166	10.164	10.18	10.186
53	127.4	10.162	10.160	10.185	10.182
54	129.2	10.188	10.17	10.182	10.17
55	131.10	10.16	10.14	10.17	10.176
56	1328	10.13	10.11	10.176	10.173
57	134.6	10.10	10.188	10.173	10.1710
58	136.4	10.187	10.184	10.1710	10.167
59	138.2	10.184	10.181	10.167	10.164
60	141.10	10.181	10.178	10.164	10.161
61	1418	10.178	10.175	10.161	10.158
62	143.6	10.175	10.172	10.158	10.155
63	145.4	10.172	10.16	10.156	10.152
64	147.2	10.16	10.166	10.153	10.14
65	149.10	10.166	10.163	10.1510	10.146
66	151.8	10.163	10.1610	10.147	10.143
67	152.6	10.1610	10.157	10.144	10.1410
68	154.4	10.158	10.155	10.142	10.138
69	156.2	10.155	10.152	10.13	10.135
70	158.10	10.152	10.14	10.136	10.132
71	159.8	10.14	10.146	10.133	10.12
72	161.6	10.146	10.143	10.1310	10.126
73	163.4	10.144	10.141	10.128	10.124
74	165.2	10.141	10.138	10.125	10.121
75	167.10	10.138	10.135	10.122	10.118
76	168.8	10.135	10.132	10.11	10.115
77	171.16	10.133	10.12	10.117	10.113
78	172.4	10.1310	10.127	10.114	10.1110
79	174.2	10.128	10.124	10.112	10.110
80	176.10	10.125	10.121	10.110	10.105
81	1778	10.122	10.118	10.107	10.102
82	179.6	10.1210	10.116	10.104	10.1010
83	181.4	10.117	10.113	10.102	10.107
84	183.2	10.115	10.111	10.10	10.105
85	185.10	10.112	10.108	10.107	10.102
86	1868	10.1110	10.106	10.104	10.1010

8.7	88.6	18.17	18.18	17.2	18.7
88	1.4	18.15	18.14	18.7	18.5
8.	1.2.2	18.12	17.8	18.7	18.2
.1	1.4.1	18.11	17.6	18.4	18.1
a 15~31	N(5.8.6) 22.7				

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28.1 ,

28.2 , 4

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N 28.1).

28.3 ,

28.1()

28.2() 4 ,

28.4 , (28.5)

1in 2mm , 1.1

5ft .t

, 1.1k, P

2k 1.1k,

P

28.5, 12in 3kmm

6in 15kmm

		K	$K=11.5 \frac{S}{G}$	1
		$\tan a=2.5 \frac{3.1416}{S} \frac{P(D+2)}{C}$ $F=NSP \frac{S}{w} \sin a$		
			, Deq	D
			, Deq	D

C=

d= , 1.111 in 1.111m5.2 1.1Td (1)T 4. 218 3, , 4.7, 8 re f 725.613 6, 5.2E f 21, 68 67618 4.7, 8 B, T .R168.4

1		B	$B = \frac{H d}{(D+d)} \cdot 3.1416 \cdot \sin a$	3
		K	$K = 11.4 \cdot \sin B$	1

$$\tan a = 3.1416 \cdot \sin (D+t) \cdot L$$

5 (14345...),

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24k6 k1mm----- k~4
5 (k4244...),

6~

5 (14345...),

1.

24k7 24k1~24k4 ,

k1in k1mm

24k3

243.3 4in 1kmm ,

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, k1in k1mm.

, 24k5 24k6 ,

k1in k1mm.

24k8 24k3 . 24k3

, 24k7 , ,

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24k₄ 4in 1k₄mm

24k₁1k₁

(k₁k₈ S k₃15in 1.8 S .52mm) 25 ¥ 2gf

k₂25 ¥ k₂2N . k₄37in 11.1k₄mm,

k₂2k₁in k₅1mm(k₄43in

24k14

24k8 ~24k13

,

1.111in 1.111mm

24k5 24k6

, 1.111in 1.11mm,

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25k1

25k11

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25k6~25k11

1.143in 1.1mm

, 24⁴2 2kAWG ,8 AWG

25k2

,

, 2,

,

, 1.111in 1.11mm

, (1.18 in 1.315in

1.8 S .52mm)

1k¥2gf 1.1k¥1k2N

25k3

,

,5 2k6

25k4

0.001 in 0.01 mm

25k5

0.001 in 0.01 mm

3mil 0.08 mm

25k6

25k

25 ¥ 2gf

0.25 ¥ 0.02N

0.043 in

1.1 mm

(8 AWG

0.437 in

11.1 mm,

0.043 in

1.1 mm,

(0.043 in 0.312 in 1.1 mm 7.2 mm).

25k7

25k8

25k

0.001 in

1.1 mm

25.1

1.1 in 1.1 mm

3 mil 1.8 mm

25.1 1.43 in 1.4 mm,

1.43 in 1.4 mm

1.2 in 1.51 mm

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26.1 6 in 15 mm

1 ft 3 m

26.2

4

PVC 4 38 in

1 mm

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26.3 4 3

(1.43 S 1.315 in 1.4 S 7.2 mm) 25 ¥ 2gf 1.25 ¥ 1.2 N

1.437in 11.1mm, 1.42in 1.51mm,

1.441in 1.41mm,

1.441in 1.41mm . 24.2

26.4

PVC.

1.441in 1.42mm

5

PVC

26.5

26.4

26.6

PVC

24.5

24.6

1.441in 1.41mm,

PVC

26.8

26.7

24.5

24.6

1.441in

1.41mm,

PVC.

26k8

26k3~26k7

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kkkkin kkkmm

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kkkin kklmm,

24k5 24k6

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kkkin kklmm,

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8kl

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kkkin kklmm,

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ASTM D412- 2

42k2

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42k1

ASTM

C

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1.4in

6mm

C

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ASTM

D,

18 in

3mm

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C

42k3

42k1

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42k2

42k1

a

b

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c

, c

58 in

16mm

, d

42k4

W

1in 25mm

W

1k1

2k6

Ш

421.5

4

a) 6AWG

b) 31mil 1.76mm 4

421.1

18 inch	1.125	3.8
3 16	1.88	4.76
1 4	1.251	6.35
5 16	1.312	7.2
38	1.375	5.52
1 2	1.511	12.7
1 32	1.54	15.1
58	1.625	16
11 16	1.68	17.4
3 4	1.751	17.1
78	1.875	22.2
1	1.111	25.4
1-1 16	1.162	27.1
1-18	1.125	28.6
1-1 4	1.251	31.8
1-17 64	1.266	32.2
1-1 2	1.5	38
1-3 4	1.75	44.5
2-38	2.375	61.3
3-1 4	3.251	82.6
3-78	3.875	98.4

42k

ASTM D 5423- 3(R1. . .)(II . . .)

ASTMD 5374- 3(R1. . .) ,

W

W

1kk-2kk

4

W

¥

1. kŃ ¥ 18 F W

441

44k 1

4

W

24.1 $\text{¥}8.1\text{N}$ 75.2 $\text{¥}14.4\text{F}$

W

48

W

442

6AWG

44k 11

W

W

46AWG

5mil 2.41mm

42k5

42k6

4

XL

PE

4413

114

216

4413

XL PE

31

44k.5 44k.4

4416

1.2in 13mm , ,

44k7 24k1~24k7

, k

， k125in 3mm 。

44k17 ，
42k4 1in
25mm ，

44k18 ，
， 4k7~44k8

44k1 42k7 ，
44k11 ，

44k2k ， 44k13~44k16
44k22~44k24 。

44k21 ，
44k17

1in 25mm

42k22 (7in 8 kmm),

(,

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, 42k2 44k23

, 1in 25mm .

44k23 ,

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44k24 , kkk1in

kk1mm 1.2in 13mm

, 1.4in 6mm

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k25k¥ kkl1in 6.4 ¥ k2mm , 3.k¥ 1.kozf 8.5 ¥

3gf k8.4 ¥ kkl2N , ,

1.16in 2mm ,

kkk1in kkl1mm .

46k1 .

46k2 2k¥ 1in. min 5k4¥ 25mm min

2 , 2

k4k1in k1mm

, ¥ 1mn. mi 5k4¥ 55mm m ¥

W

a

1.5 1bf 1.22N 23gf

b

W

W

W

W

1in 2mmW

11.4*

1in

25mm

W

471.2

4

4

W

W

471.3

$$A = \frac{\pi}{4} (D^2 - d^2)$$

A

4

4

D

4

4

D

4

4

47k4 (4)

$$A_{\bar{n}} \frac{\quad}{\quad} G$$

A
W 1k1n k1g
G 47k5~47k

$$A_{\bar{n}} \frac{s}{G}$$

$$A_{\bar{n}} \frac{\quad}{G}$$

$$A_{\bar{n}} \frac{\quad}{G}$$

A 4
W 25kmm k1g
G 47k5~47k
47k5 47k4 ,

G, 2 .
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471.6

4 4

11in

251mm

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471.1

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471.7

2in

51mm

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5g

5g

1.1151in

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1.127mm(36AWG),

471.8

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47k

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W₁, 5mg.

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48 k1

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ASTM

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48 k2

4 1.3

421.1

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4 1.5

IRM 1.2 ATSM D471-8

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4 1.6

1 in 25mm 4 6 in 151mm

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IRM

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 4 1/2 TFN TFFN
 4 1/8 1 in 25mm
 ASTM C ASTM471-8
 4 1/2 TFN TFFN , 4 1/8
 , 1 in 25mm , AS

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$$T_{\text{test}}(\tilde{N})=1.42 \times 10^5 \times 273.15+T_{\text{rating}}(\tilde{N}) \times 273.15$$

表 1.4 表 1.2 , , , 47k 1-

1 3 3

6

3

表 1.5 () ,

$$E(t)=E_0 \times e^{-R^{(t_0,t)}}$$

$$E(t) \times t \times E_0 \times k$$

R3

$$\text{表 1.6} \quad Y=1n \times E(t) \quad B=1n \times E_0 \quad T= t_0 \times k$$

$$Y=B \times RT$$

表 1.7 1 ,

B R, 3k

表 1.8 3k 5k .

2 C

4.1.1 --- PVC

,

4.1.2

(FTIR)

(cm⁻¹)

W

4111-4111

4.1.3

PVC

() (THF,

4.1.4)

()THF

PVC

THF

4.1.4 THF

4.1.1

4.2

4.3

THF

THFW

THFW

W

4

4

4

4

W

4.1.5

(KBr)

KBr

4.1.6

()

(KBr)

1mm 1.2in 12.7mm

1111~15111bf.in² 6~113 Mpa 7~11 kgf. mm²

4.1.7

PVC

THF

4.4

┆

┆

Ш

471.8

PVC

THF

4.4

┆

┆

4.5

Ш

4.1.

┆

a

PVC

Ч

b

c

Ч

Ч

d

Ш

4.1.1

┆

PVC

Ш

ISO34518 pt5 ┆

PVC

4.1.2 | A W
 a 1mg
 b
 c d e
 d
 e 8 5k ¥ 5k N 1562 ¥ k
 f W
 4.1.3 | PVC 4~5g 4
 W W
 W
 8 5k ¥ 5k N 1562 ¥ k 3k
 W W
 | k.5mg W
 3 W 3
 3 W
 4.1.4 W
 1k
 1k W
 4.1.5 | 8 5k ¥ 5k N 1562 ¥ k

4, 1.6 |

a PVC 4

b

c 1mg

d 1

e

—

4, 2.1 | PVC 4 4

Ш

4, 2.2 AA Ш

Ш

4, 2.3 Ш

1 2Ш

Ш

4, 2.4 4 Ш

4, 2.5 1 4 4

PVC 25k~325mg 6, ~72

4, 2.6 6, ~71 Ш

Ш

Ч

Ш

Ш

4, 2.6

!

4, 2.5

61-72

Ш

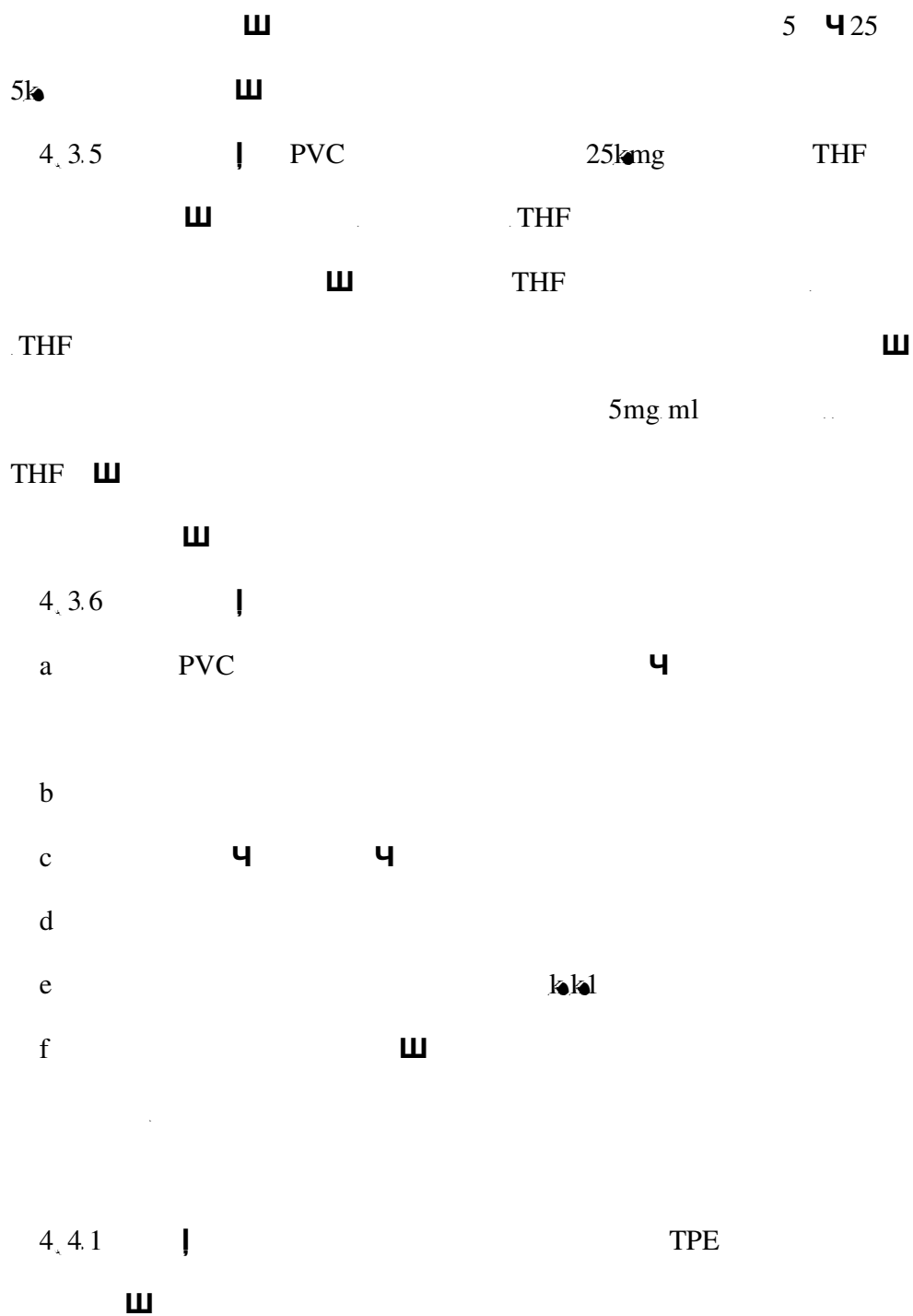
a

1

2

PVC

4



d -----

4.4.6 TPE

,
, 3~5
, (2um)
,
(KBr),

1mm 1.2in 12.7mm ,
11111~15111 1bf.in² 6.~1k3 Mpa
7~11kgf. mm² , ,

4.4.7 ---

- a) TPE , ,
- b) () ,
- c) ,
- d) ()
- e) ,

4.5.1 ----- TPE

,
,
()

4.5.2

4.5.3

4.5.4

a)

TPE

b)

()

c)

d)

4.6.1

TPE

, ASTM D 354 (R2011)

1

20 (36)

4.6.2 ASTM D 354

4.6.3

a) TPE , .. .

b) ()

c)

d)

4.7.1 TPE

, ASTM D 348 - 2(R1...) 1

1 ,

21.3(36) ,

4.7.2 ASTM D 348

(A

5k1

(5k 1 2)

W

18) 1 ,

(),

54 2 1AWG TW 4 THW-2 4 THHW 4 THW 4
THWN-2 4 THWN 4 THHN 4 TBS

4

1 1AWG TW 4 THW-2 4 THHW 4 THW 4
THWN-2 4 THWN 4 THHN 4 TBS

8 U 42
121. 1. 1. (24.8 18) 1

(),

56 1 14~4 , 1in

25mm , ,

T₁, D₁, 1in 1mm,

8 5 3gf 8 4 1.2N 3. 1. ozf

, 25 1.1in 6.4 2mm.

, 1.5in 3 mm .

T₁.

1.1in 1mm .

$$T_1 = \frac{D_1 - d}{2}$$

562 252-244cmil ,

8 in 2mm , 1in

16 25mm 14mm , 443 .

, 1.6in 1.52mm

561

T₁, 1.1in 1mm ,

563

T₁, 561 .

1in 25mm ,

564 561 , 3

1.75 1.1in 1.2mm 25kg

3.4in 1 mm 1.375 1.1in .5 2mm.

(25kg 2.45N)

56k.1

()

56k.5 3 2-1.4in 57mm() ,

(8 -1.2in 2-3.4in

1.4in 216mm 7mm 6mm).

(

).

3.4in 1 mm ,

(2-3.4in 7mm)

3 (1.4in 6mm).

().

(38 in .5mm).

56k.6 () ,

(

) , 36 TPE

, 15k.¥ 1.Ñ (3k.¥ 18) 3k PE , 1k.¥
 1.Ñ (212.k¥ 18) THHN , 136.k¥ 1.Ñ (2768 ¥ 18
) , 121.k¥ 1.Ñ (24.8 ¥ 18).

6k .6k ,
 ,
 6k ,
 ,
 56k7 6k , , (
) () T₂, k.k1in
 k.k1mm. T₁ ,
 , T₂ , T₁ d,
 ,
 15 ,
 ,

$$(\quad) = \frac{1k.s(T_1 - T_2)}{T_1}$$

56k8 ,
 3 (56k.). 6k ,
 3 ,
 ,3
 56k. ,

，
，
，
，
，
5618 3 ()
3

§ 1.1

4
6 ()
3 (8 ¥3 6),

3k

()

§ 3.1 4 ---25.1¥2.1Ñ(---13.1¥3.6)

§ 3.2~§ 3k

§ 38 ,

§ 3. , 2k

4 ,
6 . 24k.5 ()

24k.6 () 2k. mil 5mm

§ 3.1k , § 3.3 ürf 27.6k. 1 kTd (5)T, 5.761, kTd 8)T 6, k

§ 3.15

SE

1.6in 1.5mm

()

5.3.1

8 in 213mm 2.5 4

5.3.2

3 lb 1.36 kg 1in

25mm

5.3.3

11 5in

131mm

5433% 531%

ŷ

5.3.6

15

()

(

)

5.3.5

36in 15mm.

36iN 15mm

24.1kN (75.2kN)

24

()

5.3.7

5.3.6

1k

1k

2

14k

2k6

5.5. 1kN 254mm 14AWG ,
 1k , 1k
 1k 254mm, 5in
 127mm.

, 5k 5in min 1k 1mm min
 2in 5mm. 3.4in 1 mm.

25.k
 ¥ 5.1Ñ (77.k¥ .k)

5.5.2 ,
 ,

5.5.3 ,
 ,

,
 5k 5in min 1k 1mm min

1k 225lbf 1kN
 1k2kgf,

6k1.1

¥1.15in min 1k¥ 1mm min

2in 5kmm

23.1¥ 5.1Ñ (73.4 ¥ .k)

6k1.2

1k1in 2.55m

1k

in 23kmm

in 23kmm

6k1.3

()

6k1.4

k5k¥1.15in min 1k¥ 1mm min

6k1.5

1k

1k

- X

- X

X

62k1 14~2AWG

1k

2in 5mm . ,

1.5in min 1mm min .

2in 5mm , .

24.18.1 (75.2 ¥

14.4) ,

(

).

14m h.

X _ X X

711 14AWG 6 15in 3mm ,

2in 4in 5mm 11mm

() ,

45^W , 7

8 in 46mm 5

7144 24.1¥8.1Ń(75.2¥14.4)

(,). 8 ~62Hz

8 21

7145

61 114 , 11 114

(514V.s).

6

, 7147145

7

8 k1 15in 3 kMM
2in 5kMM

k

U

5IN

25MM

W

8 k2 76k2 76k3

W

6k W

W

8 k

8 k1

, ,

, 1 ,

, ,

() ,

8 k2 , ,

, ,

8 k3 8 2k1

8 2k4

—

8 2k1 , (

, --- ,

).

4 ~62Hz

,

rms

,

5kV.s.

,

(

)

, 5~1k5

,

,

(

)

1

,

5

.

.

,

8 2k2

,

,

,

6in

15kmm

,

6

,

8 2k3

,

,

8 2k4

,

6k

1k

,

1k

1k

(

5kV.s).

rms

.

.

14

2k6

6k .

6k ,

8 2k5

, 2k I-

“

Ш

Ш

8 3k1

8 3k2

8 3k3

8 3k2

1 ,

8 3k3

48 ~62Hz

()

5~11k5 .

2577 4326.16.11.11(1)T 38 126.16 Td (2577 41516 16418 7 Tf 141.2 1Td ()T R553 12.114.7 Tf 1 Ú73

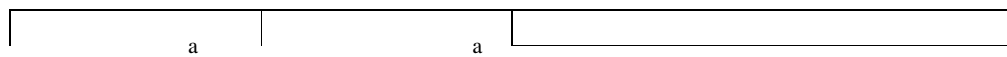
141

146

147

148

141



c)

d)

1k

1k1

1k2~1k15

()

1k2

a)

b)

5mA,

1

5

2ft

61mm

1k3

1k4

1k5

U V

(1-1.2in 4mm)

1k6

1k1

1k1

a		a					
in	mm	in	mm	in	mm	in	mm
3 16	5.1	1 2	13	1 2	13	38	1k
3 32	2.5						
a							

1k7

1k8

1k

1k1k

25

11.11 ,

11.12 ,

24.1in 611mm

,

=1.2 S S

1.666 S

11.13 ,

5.1 ¥ 1.1in 125 ¥ 25mm

11.14 ,

8

()

=5 S () S ()

=5 S () S ()

, 1.2

1.2
L

Hz	(L)	(L)
----	------	------

919.4 50.0 Ч 61.0 Ч 72.0 Ч 82.0 95.0

(10.0,16.1,22.2,27.8 35.0) 919.

82.0,72.0,61. 50.0(27.8,22.2,16.1 10.0) Ш

Ш

919.5 4

Ш 4 95F 35

Ш 5

60 Ш

919.6 60.F 15.6C 61F 16.1C

1F 0.55C C 919.1

C M Ш

919.1

15.6 Ñ 60 ð F Ma

		0.55 Ñ 1 ð F								C	
Ñ	ð F	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12
40	4.4	0.55	0.46	0.38	0.31	0.26	0.22	0.18	0.15	0.12	0.10
41	5.0	0.57	0.48	0.40	0.33	0.28	0.23	0.19	0.16	0.14	0.12

54	12.2	0.84	0.79	0.75	0.70	0.67	0.63	0.60	0.56	0.54	0.51
55	12.8	0.86	0.82	0.78	0.75	0.71	0.68	0.65	0.62	0.59	0.57
56	13.3	0.89	0.86	0.82	0.79	0.76	0.74	0.71	0.68	0.66	0.64
57	13.9	0.92	0.89	0.86	0.84	0.82	0.79	0.77	0.75	0.73	0.71
58	14.4	0.94	0.93	0.91	0.89	0.87	0.86	0.84	0.83	0.81	0.80
59	15.0	0.97	0.95	0.94	0.95	0.94	0.93	0.92	0.91	0.90	0.89
60	15.6	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
61	16.1	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12
62	16.7	1.06	1.08	1.10	1.12	1.14	1.17	1.19	1.21	1.23	1.25
63	17.2	1.09	1.12	1.16	1.19	1.23	1.26	1.30	1.33	1.37	1.40
64	17.8	1.13	1.17	1.22	1.26	1.31	1.36	1.41	1.46	1.52	1.57
65	18.3	1.16	1.22	1.28	1.34	1.4	1.47	1.54	1.61	1.69	1.76
66	18.9	1.19	1.27	1.34	1.42	1.50	1.59	1.68	1.77	1.87	1.97
67	19.4	1.23	1.32	1.41	1.50	1.61	1.71	1.83	1.95	2.08	2.21
68	20.0	1.27	1.37	1.48	1.59	1.72	1.85	1.99	2.14	2.20	2.48
69	20.6	1.30	1.42	1.55	1.69	1.84	2.00	2.17	2.36	2.56	2.77

70	210.6	1.34	1.48	1.63	1.79	1.97	2.16	2.37	2.59	2.84	3.11
71	21.7	1.38	1.54	1.71	1.90	2.10	2.33	2.58	2.85	3.15	3.48
72	22.2	1.43	1.60	1.80	2.01	2.25	2.52	2.81	3.14	3.50	3.90
73	22.8	1.47	1.67	1.89	2.13	2.41	2.72	3.07	3.45	3.88	4.369
74	23.3	1.51	1.73	1.98	2.26	2.58	2.94	3.34	3.80	4.31	4.89
75	23.9	1.56	1.80	2.08	2.40	2.76	3.17	3.64	4.18	4.78	5.47
76	24.4	1.60	1.87	2.18	2.54	2.95	3.43	3.97	4.59	5.31	6.13
77	25.0	1.65	1.95	2.29	2.69	3.16	3.70	4.33	5.05	5.90	6.87
78	25.6	1.70	2.03	2.41	2.85	3.36	4.00	4.72	5.56	6.54	7.69
79	26.1	1.75	2.11	2.53	3.03	3.62	4.32	5.14	6.12	7.26	8.61
80	26.7	1.81	2.19	2.65	3.21	3.87	4.66	5.60	6.73	8.06	9.65

—

1121

3

Ш

24

47

14

60 Ń 14

30.1.1 Ń 8 6.1.18

75 Ń 167

75.1.1 Ń 167.1

18

90 Ń 1, 4

90.1.1 Ń 1, 4.1.18

Ш

Ш75

ú

Ш

$$\mathfrak{a} \check{G} = 1$$

70.1.¥ 1 Ñ 13.1.¥ 18

48

Ш

W1Ш

U

Ш

1040.4

Ш

Ш

1040.5

10in 250mm

Ш

1040.4

Ш

Ш

1040.6

168

Ш

Ч

Ш

3

W2Ш

1040.7

70.1.¥ 1 Ñ 13.1.¥ 18

48

Ш

W3Ш

1040.8

MWA

W3

W1

$$MWA = \frac{W_2 - W_3}{S} \quad W_3 \quad W_1$$

$$MWA = \frac{W_2 - W_1}{S} \quad W_3 \quad W_1$$

W1 mg

W2 mg

W3 mg

S in² cm²

1040.9 1040.2 4

1040.83 4 4

168 11

1040.6 11

1040.7 4 111040.6

T 4

S=2 8 +2T 8 +

1143.1 11

32ft 1km 5

32ft 2 4 4 16 4 23 3ft

7ft 1km 1 4 3 4 5 4

7 m 2m 5

1 in 1 mm 1 in

1 mm

1 d

1 43.2 24in 6 mm

50. 1 1 122. 1 18 12in

300mm

336 14

4 4

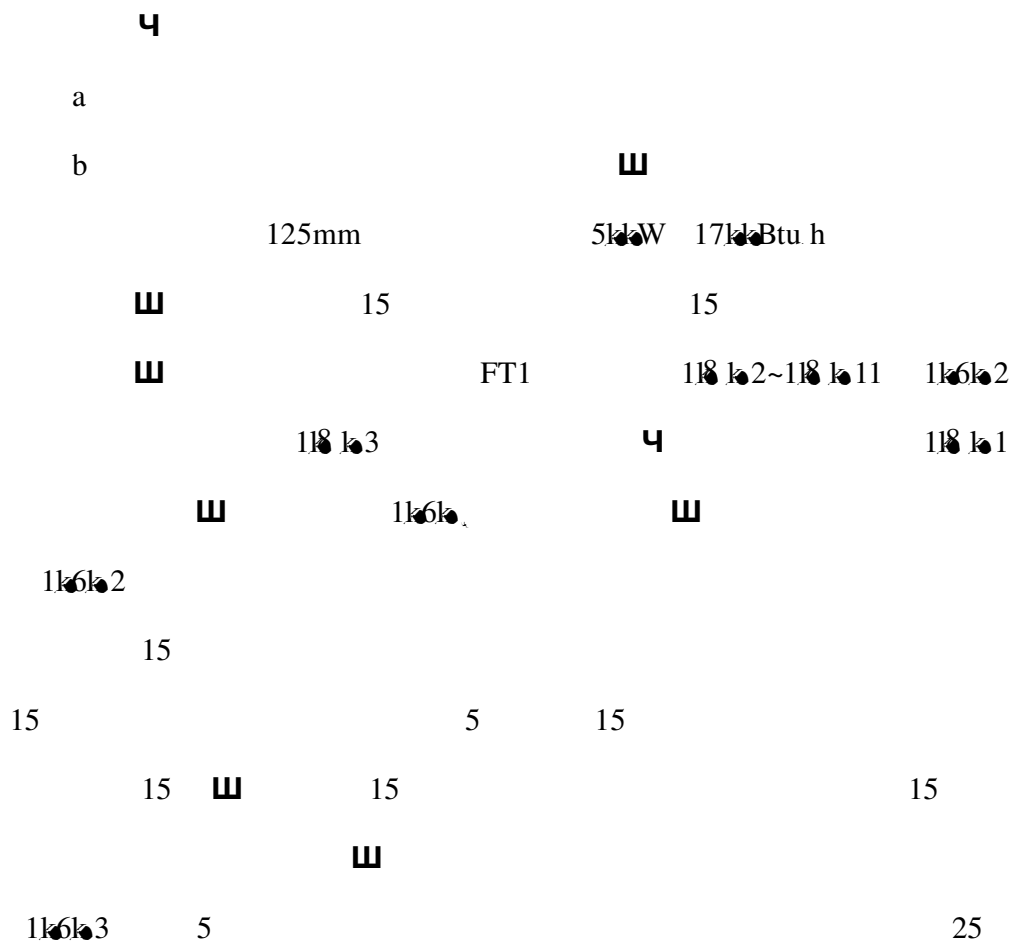
1 43.3 5

1 D

I 2

I=1 D-d d

1 6 1 5 15



4

A© ,X&?' ú4»4Á'—&»11.5997 Tf 73.9445 0 T(2) é

1k61.1 3 6k 4

c

d ㄣ

125mm 5k6W 17k6Btu h

ㄣ 3k 3k

ㄣ 118 k.2~118 k.11 1k61.2 118 k.3

4 118 k.1 ㄣ 1k61.3

ㄣ

1k6k2

6k

3k 3 3k

3k ㄣ 3k 3k

ㄣ

1k6k3 3 25

ㄣ

4 3

6k

ㄣ

1k61.1

16 2k6

118 k.1 5 15 4

e

f

125mm 514W 1714Btu h

15 15

15

118 k.2~118 k.13 118 k.3 ANSI ASTM

D5125- 4 a ANSI ASTM

D5217- 1 118 k.14

A ASTM D5125- 4

13-1 27-111 UL

Atlas Electric Devices Company (ASTM D 5125)

4114 North Ravenswood Avenue 1.1413mm

Chicago IL613 USA 1.615mm

Humboldt Manufacturing Company

7312 West Agatite Avenue

Norridge IL6156 USA

118 k.2

4

24in 611mm

141ft³ 4m³

W

W

71ft³ 2m³

W

W

W

W

W

W

W

118 k.3

(8 k.),

1141Btu()

37.3 MJ.m³ 8 . (

)

,

118 k.4

(118 k.7)

,

,

118 k.5

,

23.1 ¥ 5.1 Ñ (73.4 ¥ . k)

1080.6

1080.2

.

, () . ()
) () 4ft
 1200mm .
 18in 455mm ,
 . ,
 , () .
 , 1/4in 6mm
 12in(305mm) § 14in(355mm) ,
 . B 9~1.2in
 23k~24kmm,B 5k~W
 118 k1 VW-1 ()
 118 k7 ,
 125 ¥ 1kmm 4-78 in, 4k~2mm 1~16in,
 ,
 ()
 , ,
 , 4k~2mm 1~16in,
 . 1k~2k lbf in² 6~13 Kpa
 6k~13 kmbar 7k~14k gf cm²
 ,
 118 k8

2k^W ().

, 1.4in 6mm.

A () B (

) 1-16in 4mm B

118 k_a (118 k₂)

(

)

118 k₂

118 k_{1k} 6k_{Ib} 4g m², 1.2in 1kmm,

5mil k1mm,

B

1kin 25kmm,B

3.4in ho 2kmm, 118 k₈ (118 k₁).

,

,
 118 k12 ,
 15 , 15
 (, 118 k13).
 , 5 15 , 15
 (, 118 k13).
 15 , 15

118 k13 15 ,

118 k14 5 25
 (),
 (6k ,

1k k1 1 3k 225W(77k Btu h)
 5kmm

a)

b)

118 k.2~118 k.5 11k k.2~11k k.6 (),

118 k.3 ANSI ASTM D 5k25-

a ANSI ASTM D 52k7-8 ,

125mm 5kmm

c) 125mm 5kmm , 5kmm ,

25mm 1in

d) 44k ¥ 1kL min, 45 ¥ 5mm

e) 5k ¥ 4mm 2in,

16.5 ¥ 1.5mm 11.16in

f) 11k.Ñ 700 Ñ (212 1292) 84 ¥ 2s.

11k k.7

a ASTM D 5k25- 4 , 118 k.1 a

11k k.2 118 k.2

, () . (

) () 4ft

12kmm .

24in 61kmm ,

22in56kmm 3

3 , 3.4in 2kmm.3

2in 51mm 7in 178 mm 13in 34mm ,

,

().

1.4in 6mm,

24in(611mm) 8 12in(305mm) ,

~ -1.2in

23~24mm(1.1).

,

1.3

,

5~1mm 2in,

17~1mm 11.16in,

,

,

() .

,

,

.

BF,X Y'0.105 0 Td (/R553 11.5997 Tf 5.5

16.5 ¥ 1.5mm 11.16in ,A 2in

51mm .A

1k. k5 1k. k4

1k. k1 ()

1k. k6 1k. k5 , (

,)

2in 51mm (A), 3k

, ,

7in 18 mm

, 7in 18 mm 13in 33mm

, 7in 18 mm 13in 33mm

1k. k7 1k. k6 7in 18 mm

12in 33mm 1in mm min,

I

),

-

.()

1113

3 ,

114

14mm 3-15 16in,

4

Ш

111~115

116 UL

UL18 5

1161-1163

1164 FT4 IEEE122

UL18 5

1165~11

12kk

12kk1, 5.

12kk2 12kk3~12kk6

12kk7~12kk1k,

12kk11~12kk15.

1.kk¥kk1r.min.

12kk3 |

ASTMG155-kk

└ ASTMG151-kk

└ W

W

4

774kPyrex

W

kk35W.m² , (

34kkA 34kMM). ,

ASTMG155-kk 1 .

12kk4

,
 ,ASTM 414
 , 2144
 1214.5 2 8 ,
 , 2 1214.6 112
 8 (
),PH 6.18.1 16.1¥5.1.Ñ (60.0 ¥
 9.0). , .
 , 63.0 ¥ 3.1
 Ñ (145.0 ¥ 5.4).
 1200.6 ,
 18 102 . 2
 , ,
 , 16 , 96
 , .
 1200.7 ---
 , ASTM G 153-00 I-
 Ł ASTM G 151-00 I-
 Ł .
 , 1/2in 13mm,
 8 1 216

: 2000

, ,
 , 16 , 6 ,
 ,
 1211 5 5

(,

), p468Tj /R553 j -281.133 -26.16 Td (E> Ø)2118.839 0 Td (5)Tj /R553 11.5997 Tf

121415

5

5

2in min

5

5

314

18 5,

721

18 k

8 5

UI8 54

(114314 514)

65

15

5

2420

UI8 54

A P72222 (5)T 54 11615d (.)T r Td P “,X Tf -2 Tf -2 d

W_1 , 800 ¥ 2kN (1412 ¥ 36)

1 , , W_2 ,

:

$$71.5X = \frac{11.4W_2}{W_1}$$

X

W_1 ;

W_2 ;

1270

1270.1 11in 275mm ,

2in 50mm . , 3in

75mm, 6in 150mm . 3in 275mm

, .

4lbf 18N 1.81kgf ,

. .

,

60 . 1/8in

3mm (),

.

1280

C ,in mm
D ,in mm

1320

1320.1 120in 3048mm ,
3/4in 20mm . . ,
3

,
 , 120 240V.48~62Hz
 , 1320.1 .
120V 240V .

1320.1 ()

1320.2 ,
 . 1141.6
 , , 12in 31.8 mm
 11ft 31.8 mm .

1320.3 ,
 ,
 . I- UA L
 ,

1.5kV 13mm ,

, 5kV 1kMá , 3 ,

5kV 1kMá ,

14kV 1

1400.5 100in 2540mm ,

. **4.0 ± 0.5 ozf**
1.1 ± 0.1N 113 ± 13gf . ,
1/2 () .
3.5in 90mm, (
) .
1500.3 28 (
), **6-1/4in 160mm, 50**
 . ,
 . **400** ,
 , .

1510

1510.1 14AWG 40in 1000mm
 . ,
25.0 ± 5.1N (77.0 ± 9.0) .

1500.2 ,
 . **12.0 ± 0.5 ozf**
3.3 ± 0.1N 340 ± 13gf . ,

1/2 () .
3.5in 90mm, (
) .

1500.3 28 (

), 6-1/4in 160mm. 50

.

.

800 ,

,

22AWG CXTW

1520

1520.1 .

. , 23.0 ¥8.1N (73.4 ¥ 14.4

) .

1520.2 U ,U .

U (1520.1 A),

,U

0.50in12.7mm (1520.1 B) .

0.75 ¥ 0.01 ozf 0.210 ¥ 0.003N 21.3 ¥ 0.3gf .

,

.

, 1/32in

1mm. 15A .

1520.3 12 (

), 1520.1 .

180^W . 6000 , ,
 . 6000 ,
 (12) , .
 1520.1 ()
 TFN.TFFN SPT-1

1540

1540.1

420.8

4	1.5	14.7	3.3	12	4.72	7	6
2	1.5	14.7	3.3	12	4.72	.5	8

18 2.3 ,
 , 33m s 12 ,
 1m 3.4in, 15

18 2.4 6 15

,
 -
 15 1 14 12 1 AWG THWN-2 THWN THHN
 , 4 , 6
 . 5

1 mm 6in 15mm

W

W

24.1 ¥ 8.1 N (75.2 ¥ 14.4)

W

1600.2

36in 915mm

3

W

W

9in 230mm

9in 230mm

W

1600.3

W

W

W

W

0.50 ¥ 1.15in min 1 ¥ 1mm min

W

W

6

W

W

0.50 ¥ 1.15in min 1 ¥ 1mm min

W

161.4

2

3

W 3

W 3

W

2 lbf 8 N

1.5 2

1 KGF



161.5

4-3 4in

212mm

3in

76mm

5in

127mm



4-3 4in 3 3in

212mm 3 76mm

1600.10

3W.120V

2

120V, 60 ~62Hz

1614.11

1614.7

ú

1610.2

,

21.1 ¥ 1.1 Ñ (69.8 ¥ 1.8) .

.

1610.3

24 ¥

1/4in 610 ¥ 6mm .

,

1610.1 ,

1610.2 . 2AWG

1610.2 F .

2	1.563	41
1	2.08	6
1 1/2	28.75	73
1 1/2	3.144	76
3 1/2	3.251	8.3
4 1/2	3.514	8.5
25 1/2 kemil	5.88	132
3 1/2	5.514	141
35 1/2	58.75	14.5
4 1/2	6.251	15.5
45 1/2	6.625	16
5 1/2	6.751	171
55 1/2	11.514	267
66 1/2	11.144	27.5
65 1/2	11.251	28.6
7 1/2	11.514	2.2
75 1/2	12.144	31.5
8 1/2	12.251	311
1 1/2	128.75	327
11 1/2	13.514	343
11 1/2	17.144	432
12 1/2	17.251	438
125 1/2	17.514	445
13 1/2	17.751	451
14 1/2	8.125	461
15 1/2	8.514	471
16 1/2	8.8.75	47.5
17 1/2	1.375	4.2
175 1/2	1.751	51.2
8 1/2	1.8.75	51.5
1 1/2	21.125	511
2 1/2	21.514	521

161 1/2

F

in	mm	F
----	----	---

1. 2 1/2

1.51~1.75	12.71~1.16	4.5
1.751~1.125	1.16~3.3	6
1.126~1.51	3.5~3.11	.
1.51	3.11	1

1611.4 21.1¥ 1.1Ñ (69.8 ¥ 1.8)

18 .

10mg, W.

1610.5 180^W

n 69.8 ____

Ш

1671

HPN

211

216

24IN 61kMM



16 k2

24IN 61kMM



24V 4 -62Hz



2k4MA



8 -1.2IN 215MM

16 k1



16 k1

AWG	lbf	N	Gf
8	2	8 .	. 17
17	2.5	11.1	1134
16	3	13.3	1361
14	4	178	8 14
12	5	22.2	226

16 k3



12



. 1

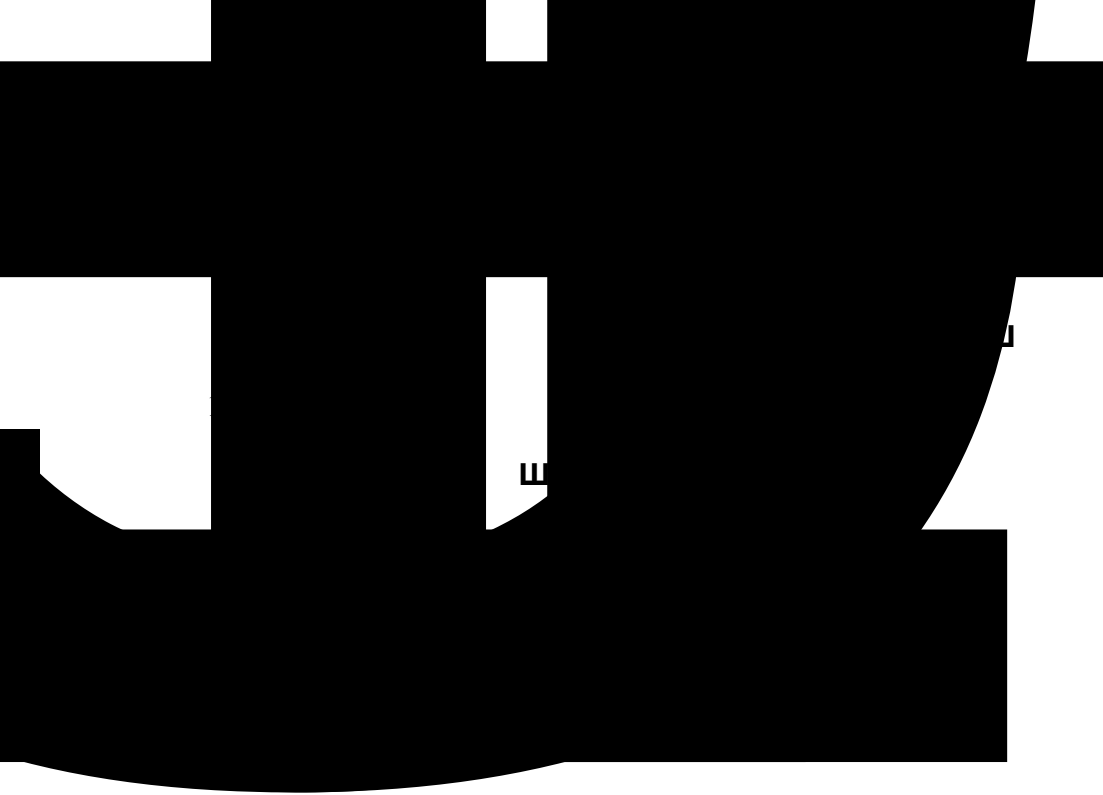


8 k



2k2

2k6



18 k7

18 k1

,

4

1

2k4

2k6

2k ,

16, 1.1 3kmm

12in ,

16, 1.2 42k8 ~42k (

1k~2k) ,

6k

23.1¥5.1Ñ (73.4¥9.0)

24 ,

1690.3 ,

25mm § 50mm 1in § 2in.

1.2mm

0.047in (). ,

450¥5 g 1 lbf¥0.2 ozf 4.45¥0.06N

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23.0¥5.1Ñ (73.4¥9.0)

.

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1690.4

50mm 2in

3

3

5~1

-----the end-----