


CHS Controls

Wire and Cable




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Machine Tool Wire type MTW, UL1015 see notes 1, 2, 3, 4, 5

	16 AWG Flexing type MTW or TFF 600V VW-1 (UL) or AWM Styles 1015-1032		AWG 18-14	Black, blue, brown, green, grey, orange, purple, red, white, violet, yellow
			AWG 12	Black, blue, green, red, white, yellow
			AWG 10	Black, green, red, white, yellow
			AWG 8-2	Black
Use	Internal wiring in control cabinets		Temperature r.	AWM/TEW -35 - +105°C, MTW -35 - +90°C
Conductor	Copper		Standard	MTW, TEW, TFF and AWM style UL1015, UL1032, UL1230, UL1231, UL10269
Conductor insulation	PVC		Approvals	UL, CSA
Rated voltage	MTW, 600 V/AWM 1000 V			

Conductor size AWG/kcmil	mm ²	Current, A NFPA 79	Number of strands	Overall diameter mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	7	16	2,7	CAU18+	152	0,016
16	1,3	10	26	3	CAU16+	152	0,021
14	2,1	15	41	3,4	CAU14+	152	0,03
12	3,3	20	19	3,8	CAU12+	152	0,042
10	5,3	30	19	4,4	CAU10+	152	0,067
8	8,4	50	19	5,9	CAU8+	152	0,114
6	13	65	19	7,6	CAU6+	152	0,177
4	21	85	19	8,8	CAU4+	152	0,257
2	34	115	19	10,3	CAU2+	152	0,451

Tri-rated Wire see notes 1, 2, 4, 5, 6

	14AWG CSA-TEW F11 105°C UR AWM 1015 600V VW-1 BS 6231 2,5 mm2		AWG 22-10	Black, blue, brown, green, grey, orange, purple, red, white, yellow, yellow-green
			AWG 8	Black, blue, brown, green, grey, red, white yellow, yellow-green
			AWG 6-4/0	Black
			Temperature r.	-30 - +105°C
Application	Internal wiring in controls cabinets		Standard	UL see table, TEW, BS6231
Conductor	Copper		Approvals	UR, CSA
Conductor insulation	PVC			
Rated voltage	UL and CSA, 600 V/BS 1000 V			

Conductor size mm ²	AWG/kcmil	Current, A NFPA 79	Number of strands	Overall diam. mm	UL style	Catalogue number	Packing size, m	Weight kg/m
0,5	22	3	16	2,6	1015	CAT0522+	100	0,012
0,75	20	5	24	2,8	1015	CAT07520+	100	0,015
1	18	7	32	3	1015	CAT0118+	100	0,019
1,5	16	10	30	3,3	1015	CAT01516+	100	0,023
2,5	14	15	50	3,7	1015	CAT02514+	100	0,034
4	12	20	56	4,4	1015	CAT0412+	100	0,05
6	10	30	84	5,1	1015	CAT0610+	100	0,07
10	8	50	80	6,9	1025	CAT108+	100	0,12
16	6	65	126	8,6	1283	CAT166+	100	0,21
25	4	85	196	10,5	1283	CAT254+	100	0,3
35	2	115	276	11,9	1283	CAT352+	50	0,4
50	1	130	396	14,4	1284	CAT501+	50	0,6
70	2/0	175	360	16,7	1284	CAT7020+	50	0,8
95	3/0	200	475	19	1284	CAT9530+	50	1
120	4/0	230	608	20,5	1284	CAT12040+	50	1,3

Wire type TFFN/THHN see notes 1, 2, 3, 5, 7, 8



AWG 18-10 Black, blue, brown, green, grey, orange, red, purple, white, yellow
 AWG 8-6 Black, blue, red, white
 AWG/kcmil 4-500 Black

Application	Conduit installation, wiring in control cabinets	Temperature r.	-35 - + 90°C
Conductor	Copper	Standard	TFFN, THHN, MTW, AWM, T90, TWN75
Conductor insulation	Nylon covered PVC	Approvals	UL, cUL
Rated voltage	600 V		

Conductor size AWG/kcmil	mm ²	Current, A NEC	Number of strands	Overall diameter mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	6	16	2,3	CATH18+	152	0,011
16	1,3	8	19	2,6	CATH16+	152	0,017
14	2,1	25 See note 8	19	2,8	CATH14+	152	0,024
12	3,3	30 See note 8	19	3,3	CATH12+	152	0,036
10	5,3	40 See note 8	19	4,2	CATH10+	152	0,056
8	8,4	55	19	5,5	CATH8+	152	0,098
6	13	75	19	6,4	CATH6+	152	0,149
4	21	95	19	8,2	CATH4+	152	0,237
2	34	130	19	9,7	CATH2+	152	0,358
1	42	150	19	11,3	CATH1+	152	0,454
1/0	53	170	19	12,3	CATH1/0+	See note 9	0,56
2/0	67	195	19	13,4	CATH2/0+	See note 9	0,69
3/0	85	225	19	14,7	CATH3/0+	See note 9	0,86
4/0	107	260	19	16	CATH4/0+	See note 9	1,1
250	136	290	37	18	CATH250+	See note 9	1,3
500	257	430	37	24	CATH500+	See note 9	2,5

Switchboard Wire type SIS see notes 1, 2, 3, 7, 8, 10



AWG 16-8 Grey, other on request

Application	Internal wiring in switchgear	Temperature r.	-70 - +90°C
Conductor	Tinned copper	Standard	SIS, XHHW-2, NEC 384, NEMA SG5
Conductor insulation	Cross linked polyethylene, XLP	Approvals	UL (AWG14-8), CSA on request
Rated voltage	600 V		

Conductor size AWG/kcmil	mm ²	Current, A NEC	Number of strands	Overall diameter mm	Catalogue number	Packing size, m	Weight kg/m
16	1,3	18	26	3,1	CASIS16GR	152	0,021
14	2,1	25	41	3,5	CASIS14GR	152	0,028
12	3,3	30	65	4	CASIS12GR	152	0,041
10	5,3	40	103	4,6	CASIS10GR	152	0,062
8	8,4	55	133	6,6	CASIS8GR	152	0,106

Notes
 See notes on page 4

Wire type XHHW-2 see notes 1, 2, 3, 5, 7, 8



16 AWG Type XHHW-2 600V (UL) A.I.W Corp.

AWG 14-10 Black, blue, brown, green, orange, red, white, yellow
 AWG/kcmil 8-500 Black

Application	Conduit installation, wiring in control cabinets	Temperature r.	-40 - + 90°C
Conductor	Copper	Standard	XHHW-2
Conductor insulation	Cross linked polyethylene, XLP	Approvals	UL, cUL
Rated voltage	600 V		

Conductor size AWG/kcmil	mm ²	Current, A NEC	Number of strands	Overall diameter mm	Catalogue number	Packing size, m	Weight kg/m
14	2,1	25 See note 8	7	3,4	CAXHHW14+	152	0,026
12	3,3	30 See note 8	7	3,9	CAXHHW12+	152	0,038
10	5,3	40 See note 8	7	4,4	CAXHHW10+	152	0,058
8	8,4	55	7	6	CAXHHW8+	152	0,098
6	13	75	7	7	CAXHHW6+	152	0,147
4	21	95	7	8,2	CAXHHW4+	152	0,225
2	34	130	7	9,7	CAXHHW2+	152	0,346
1	42	150	19	11,2	CAXHHW1+	152	0,448
1/0	53	170	19	12,1	CAXHHW1/0+	See note 9	0,55
2/0	67	195	19	13,3	CAXHHW2/0+	See note 9	0,69
3/0	85	225	19	14,6	CAXHHW3/0+	See note 9	0,8
4/0	107	260	19	16	CAXHHW4/0+	See note 9	1,1
250	136	290	37	18	CAXHHW250+	See note 9	1,2
500	257	430	37	24	CAXHHW500+	See note 9	2,5

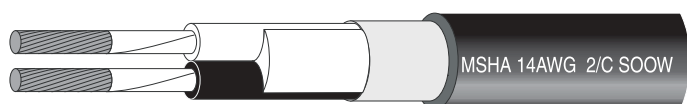
Colour Codes for Wire - Replace + in the Catalogue Number with Corresponding Code see note 11

Colour	Code	Colour	Code	Colour	Code
Black	B	Grey	GR	White	W
Blue	BL	Orange	O	Yellow	Y
Brown	BR	Purple	P	Yellow-green	YG
Green	G	Red	R		

Notes

- 1 Replace + with proper colour code from the table on page 4.
- 2 AWG/kcmil, North American conductor size designation.
- 3 Stated conductor size in mm² is for guidance only.
- 4 Rated current is based on NFPA 79, "Electrical Standard for Industrial Machinery 1997 Edition", Table 11.
- 5 Contact CHS Controls for other colours than standard.
- 6 Tri-rated wire is manufactured in mm². Actual conductor size is slightly larger compared to stated AWG number.
- 7 Rated current is based on National Electrical Code (NEC) 2002, table 310-16 and table 402-5 (AWG18-16).
- 8 Unless otherwise specially permitted in NEC 2002, the overcurrent protection shall not exceed 15 A for AWG 14, 20 A for AWG 12 and 25 A for AWG 10. See article 240.4(D).
- 9 Contact CHS Controls for packing quantity.
- 10 SIS AWG 14 or larger are rated as "Switchboard Wire" according to NEMA SG-5, 1975, contact CHS Controls for larger sizes.
- 11 Green is the prescribed colour for grounding conductor/protective earth, but yellow-green is accepted in most of the cases. Sizes less than AWG 6 shall be colour marked in their full length. Larger can be colour marked by tape or similar at the ends, contact CHS Controls for more information.

Rubber Cable type SOOW, 2-5 Conductors see notes 2, 3, 12, 13



2 conductors	Black, white
3 conductors	Black, white, green
4 conductors	Black, white, green, red
5 conductors	Black, white, green, red, orange

Application	Portable cord and power cable	Rated voltage	600 V
Conductor	Copper	Jacket colour	Black, yellow on request
Conductor insulation	EPDM rubber	Colour coding	ICEA/NEMA
Overall jacket	CPE rubber	Standard	SOOW
Temperature range	-40 - +90°C	Approvals	UL, CSA, MSHA, OSHA

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	2	10	16	8,6	CASOW218	76	0,106
18	0,8	3	10	16	9,1	CASOW318	76	0,125
18	0,8	4	7	16	9,8	CASOW418	76	0,149
18	0,8	5	5,6	16	11,8	CASOW518	76	0,177
16	1,3	2	13	26	9,3	CASOW216	76	0,124
16	1,3	3	13	26	9,8	CASOW316	76	0,15
16	1,3	4	10	26	10,4	CASOW416	76	0,177
16	1,3	5	8	26	12,4	CASOW516	76	0,234
14	2,1	2	18	41	12,6	CASOW214	76	0,211
14	2,1	3	18	41	13,2	CASOW314	76	0,254
14	2,1	4	15	41	14,2	CASOW414	76	0,315
14	2,1	5	12	41	16	CASOW514	76	0,379
12	3,3	2	25	65	14,4	CASOW212	76	0,281
12	3,3	3	25	65	15	CASOW312	76	0,342
12	3,3	4	20	65	16	CASOW412	76	0,418
12	3,3	5	16	65	18	CASOW512	76	0,52
10	5,3	2	30	103	16	CASOW210	76	0,353
10	5,3	3	30	103	17	CASOW310	76	0,436
10	5,3	4	25	103	18	CASOW410	76	0,53
10	5,3	5	20	103	19	CASOW510	76	0,69
8	8,4	3	40	65	21	CASOW38	See note 9	0,71
8	8,4	4	35	65	24	CASOW48	See note 9	0,9
6	13	3	55	133	25	CASOW36	See note 9	1
6	13	4	45	133	27	CASOW46	See note 9	1,3
4	21	3	70	133	29	CASOW34	See note 9	1,5
4	21	4	60	133	32	CASOW44	See note 9	1,9
2	34	4	80	133	37	CASOW42	See note 9	2,6

Notes

- 12 Fore use according to NEC article 400.7 and 400.8 for mobile equipment, movable equipment like elevators and hoists, to prevent transformation of vibrations or similar. Not generally approved for fixed installation on cable trays or similar. Contact CHS Controls for more information.
- 13 Rated current is based on NEC 2002 table 400.5A provided that in 3 and 4 conductor systems, one conductor is used as grounding conductor/protective earth and for 5-wire system, one conductor is used as grounding conductor/protective earth and one as neutral conductor.

Rubber Cable type W, 3-4 Conductors, Round see notes 2, 3 12 ,14

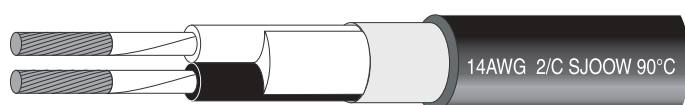


3 conductors Black, white, green
4 conductors Black, white, green, red

Application	Portable cord and power cable	Rated voltage	600V/2000 V
Conductor	Copper	Jacket colour	Black
Conductor insulation	EPDM rubber	Colour coding	ICEA/NEMA
Overall jacket	CPE rubber	Standard	W
Temperature range	-40 - +90°C	Approvals	UL, MSHA, OSHA, CSA on request

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
8	8,4	3	59	133	24	CAW38	See note 9	0,88
8	8,4	4	54	133	26	CAW48	See note 9	1,1
6	13	3	79	133	26	CAW36	See note 9	1,2
6	13	4	72	133	28	CAW46	See note 9	1,4
4	21	3	104	133	29	CAW34	See note 9	1,5
4	21	4	93	133	31	CAW44	See note 9	1,8
2	34	3	138	133	34	CAW32	See note 9	2,1
2	34	4	122	133	35	CAW42	See note 9	2,5
1	42	4	143	133	41	CAW41	See note 9	3,3
1/0	53	3	186	259	41	CAW31/0	See note 9	3,2
1/0	53	4	165	259	45	CAW41/0	See note 9	4
2/0	67	3	215	259	44	CAW32/0	See note 9	3,8
2/0	67	4	192	259	48	CAW42/0	See note 9	4,9
3/0	85	4	221	259	52	CAW43/0	See note 9	6,1
4/0	107	3	287	259	51	CAW34/0	See note 9	5
4/0	107	4	255	259	56	CAW44/0	See note 9	6,3

Rubber Cable type SJOOW see notes 2, 3, 12, 13



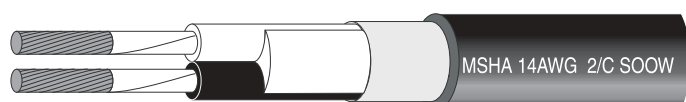
2 conductors Black, white
3 conductors Black, white, green
4 conductors Black, white, green, red

Application	Portable cord	Rated voltage	300 V
Conductor	Copper	Jacket colour	Black
Conductor insulation	EPDM rubber	Colour coding	ICEA/NEMA
Overall jacket	CPE rubber	Standard	SJOOW
Temperature range	-40 - +90°C	Approval	UL, CSA, MSHA, OSHA

- Notes**
- 2 AWG/kcmil, North American conductor size designation.
 - 3 Stated conductor size in mm² is for guidance only.
 - 12 Fore use according to NEC article 400.7 and 400.8 for mobile equipment, movable equipment like elevators and hoists, to prevent transformation of vibrations or similar. Not generally approved for fixed installation on cable trays or similar. Contact CHS Controls for more information.
 - 13 Rated current is based on NEC 2002 table 400.5A provided that in 3 and 4 conductor systems, one conductor is used as grounding conductor/protective earth and for 5-wire system, one conductor is used as grounding conductor/protective earth and one as neutral conductor.
 - 14 Rated current is based on NEC 2002 table 400.5B provided that one conductor is used as grounding conductor/protective earth.
 - 15 Contact CHS Controls for control cable in AWG 14 and for other numbers of conductors.

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	2	10	16	7,1	CASJOW218	76	0,068
18	0,8	3	10	16	7,6	CASJOW318	76	0,086
18	0,8	4	7	16	8,3	CASJOW418	76	0,113
16	1,3	2	13	26	7,7	CASJOW216	76	0,083
16	1,3	3	13	26	8,3	CASJOW316	76	0,116
16	1,3	4	10	26	8,9	CASJOW416	76	0,143
14	2,1	2	18	41	8,5	CASJOW214	76	0,113
14	2,1	3	18	41	9,1	CASJOW314	76	0,147
14	2,1	4	15	41	9,9	CASJOW414	76	0,18
12	3,3	2	25	65	10,3	CASJOW212	76	0,168
12	3,3	3	25	65	10,8	CASJOW312	76	0,211
12	3,3	4	20	65	11,8	CASJOW412	76	0,266

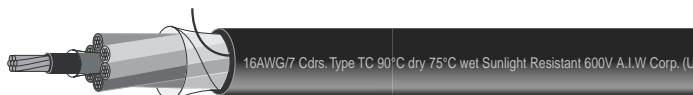
Rubber Cable type SOOW, Multi-Conductor see notes 2, 3 12, 13, 15



Application	Control cable	Rated voltage	600 V
Conductor	Copper	Jacket colour	Black
Conductor insulation	EPDM rubber	Colour coding	ICEA Method 1, tab. A page 15
Overall jacket	CPE rubber	Standard	SOOW
Temperature range	-40 - +90°C	Approvals	UL, CSA

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	6	5,6	16	12,5	CASOW618	See note 9	0,204
18	0,8	7	4,9	16	12,6	CASOW718	See note 9	0,219
18	0,8	8	4,9	16	13,3	CASOW818	See note 9	0,235
18	0,8	10	4,9	16	14,7	CASOW1018	See note 9	0,308
18	0,8	12	4,9	16	15	CASOW1218	See note 9	0,345
18	0,8	16	4,9	16	18	CASOW1618	See note 9	0,446
18	0,8	20	4,9	16	19	CASOW2018	See note 9	0,57
18	0,8	24	4,9	16	21	CASOW2418	See note 9	0,63
18	0,8	30	4,2	16	22	CASOW3018	See note 9	0,76
16	1,3	6	8	26	13,2	CASOW616	See note 9	0,268
16	1,3	7	7	26	13,2	CASOW716	See note 9	0,283
16	1,3	8	7	26	14,1	CASOW816	See note 9	0,313
16	1,3	10	7	26	15	CASOW1016	See note 9	0,378
16	1,3	12	7	26	16	CASOW1216	See note 9	0,458
16	1,3	14	7	26	18	CASOW1416	See note 9	0,53
16	1,3	16	7	26	19	CASOW1616	See note 9	0,6
16	1,3	18	7	26	20	CASOW1816	See note 9	0,65
16	1,3	20	7	26	20	CASOW2016	See note 9	0,72
16	1,3	24	6	26	22	CASOW2416	See note 9	0,85
16	1,3	30	6	26	25	CASOW3016	See note 9	1,1
16	1,3	40	5	26	27	CASOW4016	See note 9	1,3
16	1,3	60	5	26	34	CASOW6016	See note 9	1,9

Control Cable type TC see notes 2, 3, 7, 8, 16, 17, 18



Application	Control cable	Rated voltage	600 V
Conductor	Copper	Jacket colour	Black
Conductor insulation	Nylon covered PVC	Colour coding	ICEA Method 3, Tab B, see page 15
Overall jacket	PVC	Standard	TC, TFFN/THHN/THWN
Temperature range	-35 - +90°C	Approvals	UL, CSA

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	2	6	16	7	CATC218	See note 9	0,067
18	0,8	3	6	16	7,4	CATC318	See note 9	0,075
18	0,8	4	4,8	16	7,9	CATC418	See note 9	0,09
18	0,8	5	4,8	16	8,6	CATC518	See note 9	0,106
18	0,8	6	4,8	16	9,3	CATC618	See note 9	0,126
18	0,8	7	4,2	16	9,3	CATC718	See note 9	0,133
18	0,8	8	4,2	16	10	CATC818	See note 9	0,148
18	0,8	9	4,2	16	10,7	CATC918	See note 9	0,167
18	0,8	10	3	16	11,3	CATC1018	See note 9	0,181
18	0,8	12	3	16	11,8	CATC1218	See note 9	0,233
18	0,8	15	3	16	13	CATC1518	See note 9	0,252
18	0,8	20	3	16	15	CATC2018	See note 9	0,341
18	0,8	24	2,7	16	16	CATC2418	See note 9	0,4
18	0,8	30	2,7	16	19	CATC3018	See note 9	0,485
18	0,8	37	2,1	16	19,3	CATC3718	See note 9	0,58
16	1,3	2	8	19	7,5	CATC216	See note 9	0,081
16	1,3	3	8	19	7,9	CATC316	See note 9	0,099
16	1,3	4	6,4	19	8,5	CATC416	See note 9	0,118
16	1,3	5	6,4	19	9,3	CATC516	See note 9	0,14
16	1,3	6	6,4	19	10	CATC616	See note 9	0,163
16	1,3	7	5,6	19	10	CATC716	See note 9	0,176
16	1,3	8	5,6	19	10,9	CATC816	See note 9	0,199
16	1,3	9	5,6	19	11,7	CATC916	See note 9	0,22
16	1,3	10	4	19	12,1	CATC1016	See note 9	0,242
16	1,3	12	4	19	12,7	CATC1216	See note 9	0,302
16	1,3	15	4	19	14,7	CATC1516	See note 9	0,362
16	1,3	20	4	19	17	CATC2016	See note 9	0,463
16	1,3	24	3,6	7	18	CATC2416	See note 9	0,55
16	1,3	30	3,6	7	20	CATC3016	See note 9	0,68
16	1,3	37	3,2	7	22	CATC3716	See note 9	0,87
14	2,1	2	25	7	8,1	CATC214	See note 9	0,106
14	2,1	3	25	7	8,6	CATC314	See note 9	0,13
14	2,1	4	20	7	9,4	CATC414	See note 9	0,16
14	2,1	5	20	7	10,4	CATC514	See note 9	0,193
14	2,1	6	20	7	11,2	CATC614	See note 9	0,22

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Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
14	2,1	7	17,5	7	11,2	CATC714	See note 9	0,242
14	2,1	8	17,5	7	12,1	CATC814	See note 9	0,274
14	2,1	9	17,5	7	13,1	CATC914	See note 9	0,33
14	2,1	10	12,5	7	14,4	CATC1014	See note 9	0,353
14	2,1	12	12,5	7	15	CATC1214	See note 9	0,42
14	2,1	15	12,5	7	17	CATC1514	See note 9	0,51
14	2,1	20	12,5	7	18	CATC2014	See note 9	0,63
14	2,1	24	11,2	7	20	CATC2414	See note 9	0,76
14	2,1	30	11,2	7	23	CATC3014	See note 9	0,99
14	2,1	37	10	7	25	CATC3714	See note 9	1,2
12	3,3	2	30	7	9,4	CATC212	See note 9	0,138
12	3,3	3	30	7	9,9	CATC312	See note 9	0,169
12	3,3	4	24	7	10,7	CATC412	See note 9	0,217
12	3,3	5	24	7	11,7	CATC512	See note 9	0,261
12	3,3	6	24	7	12,7	CATC612	See note 9	0,297
12	3,3	7	21	7	12,8	CATC712	See note 9	0,333
12	3,3	8	21	7	14,6	CATC812	See note 9	0,4
12	3,3	9	21	7	16	CATC912	See note 9	0,454
12	3,3	10	15	7	16	CATC1012	See note 9	0,488
12	3,3	12	15	7	17	CATC1212	See note 9	0,58
12	3,3	15	15	7	19	CATC1512	See note 9	0,7
12	3,3	20	15	7	21	CATC2012	See note 9	1
12	3,3	24	13,5	7	24	CATC2412	See note 9	1,1
12	3,3	30	13,5	7	26	CATC3012	See note 9	1,4
12	3,3	37	12	7	28	CATC3712	See note 9	1,7
10	5,3	2	40	7	10,9	CATC210	See note 9	0,19
10	5,3	3	40	7	11,6	CATC310	See note 9	0,249
10	5,3	4	32	7	12,7	CATC410	See note 9	0,317
10	5,3	5	32	7	14,6	CATC510	See note 9	0,402
10	5,3	6	32	7	16	CATC610	See note 9	0,473
10	5,3	7	28	7	16	CATC710	See note 9	0,53
10	5,3	8	28	7	17	CATC810	See note 9	0,6
10	5,3	9	28	7	19	CATC910	See note 9	0,66
10	5,3	10	20	7	19	CATC1010	See note 9	0,73
10	5,3	12	20	7	21	CATC1210	See note 9	0,86
10	5,3	15	20	7	24	CATC1510	See note 9	1,1
10	5,3	20	20	7	26	CATC2010	See note 9	1,5
10	5,3	24	18	7	29	CATC2410	See note 9	1,7
10	5,3	30	18	7	31	CATC3010	See note 9	2,1
10	5,3	37	16	7	34	CATC3710	See note 9	2,5

Notes

- 2 AWG/kcmil, North American conductor size designation.
- 3 Stated conductor size in mm² is for guidance only.
- 7 Rated current is based on National Electrical Code (NEC) 2002, table 310-16 and table 402-5 (AWG18-16).
- 8 Unless otherwise specially permitted in NEC 2002, the overcurrent protection shall not exceed 15 A for AWG 14, 20 A for AWG 12 and 25 A for AWG 10. See article 240.4(D).
- 16 Approved for installation on cable trays according to NEC 2002 article 336 and 392.
- 17 TC cable is also available with XHHW-2 insulated conductors, contact CHS Controls for more information.
- 18 TC cable is also available with colour coding according to ICEA Method 1 (K-1). Contact CHS Controls for more information.

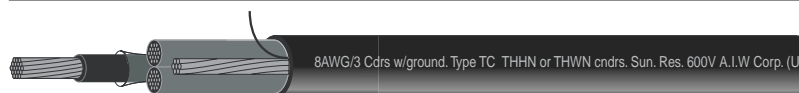
Control Cable type TC, Overall Shield see notes 2, 3, 7, 8, 16, 17



Application	Control cable	Temperature range	-35 - +90°C
Conductor	Copper	Rated voltage	600 V
Drain wire	Tinned copper, 7 strands <small>see note 19</small>	Jacket colour	Black
Conductor insulation	Nylon covered PVC	Colour coding	ICEA Method 3, Tab B, <small>see page 15</small>
Overall shield	Aluminium/polyester foil	Standard	TC, TFFN/THHN/THWN
Overall jacket	PVC	Approvals	UL, CSA

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	2	6	16	7,1	CATCS218	See note 9	0,08
18	0,8	3	6	16	7,5	CATCS318	See note 9	0,092
18	0,8	4	4,8	16	8	CATCS418	See note 9	0,107
18	0,8	6	4,8	16	10,3	CATCS618	See note 9	0,144
18	0,8	7	4,2	16	10,3	CATCS718	See note 9	0,151
18	0,8	10	3	16	12,2	CATCS1018	See note 9	0,203
18	0,8	25	2,7	16	18	CATCS2518	See note 9	0,445
16	1,3	2	8	19	7,6	CATCS216	See note 9	0,093
16	1,3	3	8	19	8	CATCS316	See note 9	0,119
16	1,3	4	6,4	19	8,8	CATCS416	See note 9	0,14
16	1,3	5	6,4	19	10,5	CATCS516	See note 9	0,163
16	1,3	6	6,4	19	11,3	CATCS616	See note 9	0,185
16	1,3	7	5,6	19	11,3	CATCS716	See note 9	0,197
16	1,3	8	5,6	19	12,1	CATCS816	See note 9	0,221
16	1,3	9	5,6	19	12,8	CATCS916	See note 9	0,242
16	1,3	12	4	19	14,7	CATCS1216	See note 9	0,328
16	1,3	13	4	19	15	CATCS1316	See note 9	0,352
16	1,3	19	4	19	17	CATCS1916	See note 9	0,472
16	1,3	25	3,6	19	19	CATCS2516	See note 9	0,6
16	1,3	32	3,2	19	22	CATCS3216	See note 9	0,8
16	1,3	37	3,2	19	24	CATCS3716	See note 9	0,91
14	2,1	2	25	7	8,4	CATCS214	See note 9	0,127
14	2,1	3	25	7	8,8	CATCS314	See note 9	0,152
14	2,1	4	20	7	9,5	CATCS414	See note 9	0,182
14	2,1	5	20	7	11,9	CATCS514	See note 9	0,215
14	2,1	6	20	7	12,8	CATCS614	See note 9	0,242
14	2,1	7	17,5	7	12,8	CATCS714	See note 9	0,269
14	2,1	12	12,5	7	17	CATCS1214	See note 9	0,434
14	2,1	13	12,5	7	17	CATCS1314	See note 9	0,468
14	2,1	15	12,5	7	19	CATCS1514	See note 9	0,54
14	2,1	24	11,2	7	22	CATCS2414	See note 9	0,8
14	2,1	30	11,2	7	24	CATCS3014	See note 9	1
14	2,1	35	10	7	26	CATCS3514	See note 9	1,2

Power Cable type TC, uninsulated earth see notes 2, 3, 4, 7, 8, 16, 17



Application	Power cable with uninsulated earth	Rated voltage	600 V
Conductor	Copper	Jacket colour	Black
Conductor insulation	Nylon covered PVC/uninsulated earth conductor	Colour coding	ICEA method 4, printed numbers
Overall jacket	PVC	Standard	TC, THHN, THWN
Temperature range	-35 - +90°C	Approval	UL

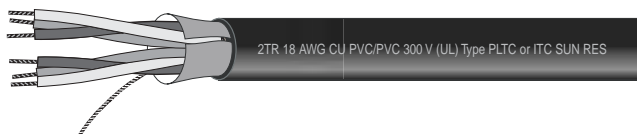
Size main cond. AWG/kcmil	mm ²	No of main conductors	Rated current, A	No of strands	Earth cond. AWG	mm ²	Overall dia. mm	Catalogue number	Packing size, m	Weight kg/m
8	8,4	3	55	7	10	5,3	15	CATCG38	See note 9	0,47
8	8,4	4	44	7	10	5,3	17	CATCG48	See note 9	0,57
6	13	3	75	7	8	8,4	18	CATCG36	See note 9	0,67
6	13	4	60	7	8	8,4	19	CATCG46	See note 9	0,83
4	21	3	95	7	8	8,4	22	CATCG34	See note 9	1,1
4	21	4	76	7	8	8,4	24	CATCG44	See note 9	1,3
2	34	3	130	7	6	13	26	CATCG32	See note 9	1,5
2	34	4	104	7	6	13	28	CATCG42	See note 9	1,9
1	42	3	150	19	6	13	29	CATCG31	See note 9	1,8
1	42	4	120	19	6	13	32	CATCG41	See note 9	2,7
1/0	53	3	170	19	6	13	31	CATCG31/0	See note 9	2,2
1/0	53	4	136	19	6	13	34	CATCG41/0	See note 9	2,9
2/0	67	3	195	19	6	13	34	CATCG32/0	See note 9	2,7
2/0	67	4	156	19	6	13	37	CATCG42/0	See note 9	3,6
3/0	85	3	225	19	4	21	36	CATCG33/0	See note 9	3,6
3/0	85	4	180	19	4	21	40	CATCG43/0	See note 9	4,3
4/0	107	3	260	19	4	21	39	CATCG34/0	See note 9	4,1
4/0	107	4	208	19	4	21	45	CATCG44/0	See note 9	5,5
250	136	3	290	37	4	21	45	CATCG3250	See note 9	5
250	136	4	232	37	4	21	49	CATCG4250	See note 9	6,3
500	257	3	430	37	2	34	58	CATCG3500	See note 9	9,2
500	257	4	344	37	2	34	64	CATCG4500	See note 9	11,7

Notes

- 2 AWG/kcmil, North American conductor size designation.
- 3 Stated conductor size in mm² is for guidance only.
- 7 Rated current is based on National Electrical Code (NEC) 2002, table 310-16 and table 402-5 (AWG18-16).
- 8 Unless otherwise specially permitted in NEC 2002, the overcurrent protection shall not exceed 15 A for AWG 14, 20 A for AWG 12 and 25 A for AWG 10. See article 240.4(D).
- 16 Approved for installation on cable trays according to NEC 2002 article 336 and 392.
- 17 TC cable is also available with XHHW-2 insulated conductors, contact CHS Controls for more information.
- 19 Size for drain wire

AWG 18	drain wire in AWG 20
AWG 16	drain wire in AWG 18
AWG 14	drain wire in AWG 16

Control Cable type PLTC/ITC, Twisted Pair/Triads with Overall Shield see notes 2, 3, 16, 20, 21, 22



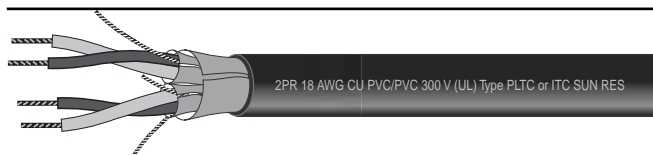
Application	Control cable	Rated voltage	300 V
Conductor	Copper	Jacket colour	Black
Drain wire	Tinned copper	Colour coding, pairs	Black/white and pair number
Conductor insulation	PVC	Colour coding, triads	Black/white/red and triad no.
Overall shield	Aluminium/polyester foil with drain wire	Standard	PLTC/ITC
Overall jacket	PVC	Approval	UL
Temperature range	-25 - +105°C		

Conductor size AWG	mm ²	Number of pairs/triads	Drain wire AWG	mm ²	No. of strands	Overall dia. mm	Catalogue number	Packing size, m	Weight kg/m
Twisted pairs, 2 conductors									
18	0,8	1	20	0,52	7	5,8	CAPLTCS1P18	See note 9	0,051
18	0,8	2	20	0,52	7	7,7	CAPLTCS2P18	See note 9	0,1
18	0,8	4	20	0,52	7	10,5	CAPLTCS4P18	See note 9	0,156
18	0,8	8	20	0,52	7	13,7	CAPLTCS8P18	See note 9	0,262
18	0,8	12	20	0,52	7	17	CAPLTCS12P18	See note 9	0,382
18	0,8	24	20	0,52	7	23	CAPLTCS24P18	See note 9	0,708
18	0,8	36	20	0,52	7	27	CAPLTCS36P18	See note 9	1
18	0,8	50	20	0,52	7	31	CAPLTCS50P18	See note 9	1,3
16	1,3	1	18	0,8	7	6,4	CAPLTCS1P16	See note 9	0,07
16	1,3	2	18	0,8	7	8,6	CAPLTCS2P16	See note 9	0,135
16	1,3	4	18	0,8	7	11,8	CAPLTCS4P16	See note 9	0,211
16	1,3	8	18	0,8	7	16	CAPLTCS8P16	See note 9	0,381
16	1,3	12	18	0,8	7	19	CAPLTCS12P16	See note 9	0,531
16	1,3	16	18	0,8	7	21	CAPLTCS16P16	See note 9	0,68
16	1,3	24	18	0,8	7	26	CAPLTCS24P16	See note 9	0,99
16	1,3	36	18	0,8	7	31	CAPLTCS36P16	See note 9	1,4
16	1,3	50	18	0,8	7	37	CAPLTCS50P16	See note 9	1,9
Twisted triads, 3 conductors									
18	0,8	1	20	0,52	7	6,2	CAPLTCS1T18	See note 9	0,063
18	0,8	4	20	0,52	7	12,1	CAPLTCS4T18	See note 9	0,143
18	0,8	8	20	0,52	7	16	CAPLTCS8T18	See note 9	0,378
16	1,3	1	18	0,8	7	6,8	CAPLTCS1T16	See note 9	0,086
16	1,3	4	18	0,8	7	13,5	CAPLTCS4T16	See note 9	0,286
16	1,3	8	18	0,8	7	18	CAPLTCS8T16	See note 9	0,52
16	1,3	16	18	0,8	7	25	CAPLTCS16T16	See note 9	0,98

Notes

- 2 AWG/kcmil, North American conductor size designation.
- 3 Stated conductor size in mm² is for guidance only.
- 16 Approved for installation on cable trays according to NEC 2002 article 336 and 392.
- 20 See NEC 2002 article 725 and 727 for max current.
- 21 Contact CHS Controls for other size/number of conductors.
- 22 An orange extra conductor may be included in some types of PLTC/ITC cables.

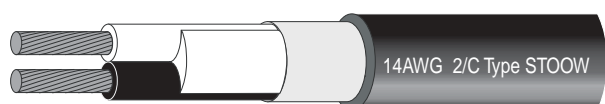
Control Cable type PLTC/ITC, Shielded Twisted Pairs/Triads w. Overall Shield see notes 2, 3, 16, 20, 21, 22



Application	Control cable	Temperature range	-25 - +105°C
Conductor	Copper	Rated voltage	300 V
Drain wire	Tinned copper	Jacket colour	Black
Conductor insulation	PVC	Colour coding, pairs	Black/white and pair number
Overall shield	Aluminium/polyester foil with drain wire	Colour coding, triads	Black/white/red and triad no.
Shield pair/triads	Aluminium/polyester foil with drain wire	Standard	PLTC/ITC
Overall jacket	PVC	Approval	UL

Conductor size AWG	mm ²	Number of pairs/triads	Drain wire AWG	mm ²	No. of strands	Overall dia. mm	Catalogue number	Packing size, m	Weight kg/m
Twisted pairs, 2 conductors									
18	0,8	2	20	0,52	7	9,7	CAPLTCS2PS18	See note 9	0,125
18	0,8	4	20	0,52	7	11,3	CAPLTCS4PS18	See note 9	0,18
18	0,8	8	20	0,52	7	14,6	CAPLTCS8PS18	See note 9	0,314
18	0,8	12	20	0,52	7	19	CAPLTCS12PS18	See note 9	0,487
18	0,8	16	20	0,52	7	21	CAPLTCS16PS18	See note 9	0,62
18	0,8	24	20	0,52	7	23	CAPLTCS24PS18	See note 9	0,91
18	0,8	36	20	0,52	7	27	CAPLTCS36PS18	See note 9	1,3
18	0,8	50	20	0,52	7	31	CAPLTCS50PS18	See note 9	1,8
16	1,3	2	18	0,8	7	11,3	CAPLTCS2PS16	See note 9	0,179
16	1,3	4	18	0,8	7	13,1	CAPLTCS4PS16	See note 9	0,259
16	1,3	8	18	0,8	7	17	CAPLTCS8PS16	See note 9	0,472
16	1,3	12	18	0,8	7	21	CAPLTCS12PS16	See note 9	0,67
16	1,3	16	18	0,8	7	24	CAPLTCS16PS16	See note 9	0,88
16	1,3	24	18	0,8	7	30	CAPLTCS24PS16	See note 9	1,3
16	1,3	36	18	0,8	7	35	CAPLTCS36PS16	See note 9	1,9
16	1,3	50	18	0,8	7	41	CAPLTCS50PS16	See note 9	2,5
Twisted triads, 3 conductors									
18	0,8	4	20	0,52	7	12,1	CAPLTCS4TS18	See note 9	0,238
18	0,8	8	20	0,52	7	16	CAPLTCS8TS18	See note 9	0,436
18	0,8	12	20	0,52	7	19	CAPLTCS12TS18	See note 9	0,62
18	0,8	24	20	0,52	7	27	CAPLTCS24TS18	See note 9	1,1
18	0,8	36	20	0,52	7	31	CAPLTCS36TS18	See note 9	1,7
16	1,3	4	18	0,8	7	13,5	CAPLTCS4TS16	See note 9	0,329
16	1,3	8	18	0,8	7	18	CAPLTCS8TS16	See note 9	0,61
16	1,3	12	18	0,8	7	22	CAPLTCS12TS16	See note 9	0,88
16	1,3	24	18	0,8	7	31	CAPLTCS24TS16	See note 9	1,7

Portable Cord type STOW, 2-5 Conductors see note 2, 3, 12, 13, 23



2 conductors	Black, white
3 conductors	Black, white, green
4 conductors	Black, white, green, red

Application	Portable cord and power cable	Rated voltage	600 V
Conductor	Copper	Jacket colour	Grey
Conductor insulation	PVC	Colour coding	ICEA/NEMA
Overall jacket	PVC	Standard	STOW
Temperature range	-40 - +60°C	Approvals	UL, CSA,

Conductor size AWG	mm ²	No. of cond.	Nominal current, A	Number of strands	Overall diameter, mm	Catalogue number	Packing size, m	Weight kg/m
18	0,8	2	10	16	8,7	CASTOW218	76	0,097
18	0,8	3	10	16	9,2	CASTOW318	76	0,113
18	0,8	4	7	16	9,9	CASTOW418	76	0,133
16	1,3	2	13	26	9,4	CASTOW216	76	0,132
16	1,3	3	13	26	9,8	CASTOW316	76	0,113
16	1,3	4	10	26	10,6	CASTOW416	76	0,153
14	2,1	2	18	41	12,7	CASTOW214	76	0,119
14	2,1	3	18	41	13,3	CASTOW314	76	0,227
14	2,1	4	15	41	14,4	CASTOW414	76	0,278
12	3,3	2	25	65	14,5	CASTOW212	76	0,249
12	3,3	3	25	65	15	CASTOW312	76	0,311
12	3,3	4	20	65	16	CASTOW412	76	0,36
10	5,3	2	30	104	16	CASTOW210	76	0,267
10	5,3	3	30	104	17	CASTOW310	76	0,381
10	5,3	4	25	104	18	CASTOW410	76	0,489

- Notes**
- 2 AWG/kcmil, North American conductor size designation.
 - 3 Stated conductor size in mm² is for guidance only.
 - 12 For use according to NEC article 400.7 and 400.8 for mobile equipment, movable equipment like elevators and hoists, to prevent transformation of vibrations or similar. Not generally approved for fixed installation on cable trays or similar. Contact CHS Controls for more information.
 - 13 Rated current is based on NEC 2002 table 400.5A provided that in 3 and 4 conductor systems, one conductor is used as grounding conductor/protective earth and for 5-wire system, one conductor is used as grounding conductor/protective earth and one as neutral conductor.
 - 23 Contact CHS Controls for 300 V version type SJTOW.

Colour Coding, Multi-conductor Cable see note 24

**Colour Codes Table A,
ICEA Method 1 (K-1), Solid Colours and Markings**

Conductor	Base colour	Marking
1	Black	
2	White	
3	Red	
4	Green	
5	Orange	
6	Blue	
7	White	Black
8	Red	Black
9	Green	Black
10	Orange	Black
11	Blue	Black
12	Black	White
13	Red	White
14	Green	White
15	Blue	White
16	Black	Red
17	White	Red
18	Orange	Red
19	Blue	Red
20	Red	Green
21	Orange	Green
Repeat as necessary		

Note

24 ICEA Insulated Cable Engineers Association, manufacturers association for standardization of cable and wire in USA.

**Colour Codes Table B
ICEA Method 3 (K-2), Solid Colours and Numbers**

Conductor	Base colour	Print
1	Black	1-Black
2	Red	2-Red
3	Blue	3-Blue
4	Orange	4-Orange
5	Yellow	5-Yellow
6	Brown	6-Brown
7	Red	7-Red-Black
8	Blue	8-Blue-Black
9	Orange	9-Orange-Black
10	Yellow	10-Yellow-Black
11	Brown	11-Brown-Black
12	Black	12-Black-Red
13	Blue	13-Blue-Red
14	Orange	14-Orange-Red
15	Yellow	15-Yellow-Red
16	Brown	16-Brown-red
17	Black	17-Black-blue
18	Red	18-Red-Blue
19	Orange	19-Orange-Blue
20	Yellow	20-Yellow-Blue
21	Brown	21-Brown-Blue
22	Black	22-Black-Orange
23	Red	23-Red-Orange
24	Blue	24-Blue-Orange
25	Yellow	25-Yellow-Orange
26	Brown	26-Brown-Orange
27	Black	27-Black-Yellow
28	Red	28-Red-Yellow
29	Blue	28-Blue-Yellow
30	Orange	30-Orange-Yellow
31	Brown	31-Brown-Yellow
32	Black	32-Black-Brown
33	Red	33-Red-Brown
34	Blue	34-Blue-Brown
35	Orange	35-Orange-Brown
36	Yellow	36-Yellow-Brown
37	Black	37-Black-Brown
Repeat as necessary		

Technical Information, Standards

Smallest Conductor Size

NFPA 79, Section 15.3 see note 25

Power circuits	AWG 14
Control circuits on machine	AWG 16
Control circuit in control cabinets	AWG 18
PLC, I/O system	AWG 24

Ambient Temperature Correction Factors

NEC Table 310.16 see note 26

Ambient temperature °C	Correction factor
------------------------	-------------------

21 - 25	1,04
26 - 30	1
31 - 35	0,96
36 - 40	0,91
41 - 45	0,87
46 - 50	0,82
51 - 55	0,76
56 - 60	0,71
61 - 70	0,58
71 - 80	0,41

Correction Factors, 3 and more Conductors

in Conduit, NEC Table 310.15 see note 26

Number of conductors	Correction factor
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4 - 6	0,8
7 - 9	0,7
10 - 20	0,5
21 - 30	0,45
31 - 40	0,4
40 and more	0,35

Colour Coding for Wire

NFPA 79, section 16.1.2 and 16.1.3 see note 25, 27

Black	Power circuits, AC/DC
Red	Control circuits, AC
White	Control circuits, neutral
Blue	Control circuits, DC
Yellow	Interlocking circuits from external source
Green	Grounding conductor/protective earth <small>see note 11</small>
Yellow-green	Grounding conductor/protective earth <small>see note 11</small>

Colour Codes for Conductors, Two or More Systems in the Same Conduit/Box

NEC article 200.6D see note 26

	208/120 VAC	480/277 VAC
Phase L1	Black	Brown
Phase L2	Red	Orange
Phase L3	Blue	Yellow
Neutral	White	White with marking, not green
Protective earth	Green	Green

Notes

- 11 Green is the prescribed colour for grounding conductor/protective earth, but yellow-green is accepted in most of the cases. Sizes less than AWG 6 shall be colour marked in their full length. Larger can be colour marked by tape or similar at the ends, contact CHS Controls for more information.
- 25 NFPA 79, Electrical Standard for Industrial Machinery, 1997 Edition
- 26 NEC, National Electrical Code 2002
- 27 Control circuit DC, NFPA 79 state that white with a blue strip shall be used for grounded DC conductor. Wire with this colour is made to order, contact CHS Controls for more information.