www.holderone.com
www.youngwonelectronic.com

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초경량용접케이블

HOLDERONE® 홀더원

High light-weight Arc Welding Cable

YOUNGWON ELECTRONIC

- 홀더용 용접케이블
  Special Welding Cable
- UL 와이어
  UL Wire
- CCA LED 케이블
  CCA LED Cable
- 기기용절연전선
  Low Voltage Cable
- CCA 에나멜와이어
  CCA Enamelded wire

최고 Best
품질 Quality
공급 Products

Youg Won Elrectronic Co., LTD

Young Won Electronic Co., Ltd.

The first reader enterprise in the world of new convergence CCA conductor application area.

· (주)대한트랜스 연구부장(2003)
· 미래특수금속 총괄 사업본부장 연구본부장 (2013)
· 중국 JIANGSU ZHONGJING GROUP 품질기술경영부문 CTO (2014)
· (주)에스와이테크 CTO / 연구소장 (2016)
· 한국옥외광고협회 전기부문 전임강사 (1998)
· 중소벤처기업부 기술개발지원사업 평가위원(2017)
· 산업통상자원부 산업기술혁신 평가단 위원
· 충북지역사업평가단 평가위원
· 국내최초 CCA절연전선 UL인증(2009)
· 세계최초 CCA도체 UL인증(2015)
· 국가 R&D 기술개발과제 중전기기, 조명기기, 부품소재 연구수행

- Perform of National R&D project component material, Lighting and Electric equipment
- Head of a R&D department of DAEHAN TRANS Co., Ltd.(2003)
- CTO of Quality & Technology management JIANGSU ZHONGJING GROUP in China (2014)
- R&D Evaluation Committee of Ministry of SMEs and Startups, Korea Government (2017)
- R&D Evaluation Committee of Ministry Trade, Industry and Energy, Korea Government
- R&D Evaluation Committee of Chungcheongbuk-do province, Korea Government

도체물성 Characteristics of conductor

도체종류 conductor	동선 Cu	동복알루미늄 CCA			알루미늄 Al
순도 Purity(%) Cu volume(%)	99.99	15%	20%	30%	99.9
비중 Specific Gravity (g/㎤, 20℃)	8.92	3.65	3.96	4.58	2.72
도전율 Conductivity (IACS, %)	101	67.0	70.0	74.0	61.7
인장강도 Tensile Strength (Kgf/㎟)	24~28	14~28	16~22	18~24	8~11
중량구성비(%) Weight PositionCu	Cu 100%	Cu 40% AL 60%	Cu 45% AL 55%	Cu 58% AL 42%	Al 100%

홀더원® 초경량 아크용접용 케이블

품명 : 용접기홀더케이블 **"홀더원"**

용도 : 아크용접기 2차쪽 출력연결선

모델 : S-WCT (CCA)

중량 : 기존동(copper)전선대비 **35% 경량**

구조 : 기존 제품과 동일

도체 : 100% 한국산 CCA 연동 집합선

성능 : 기존과 동등 수준

절연 : 기존 일반제품과 동급(고무)

◆ 참고규격

· KC 60245-6 60245 KS IEC 81
고무시스용접용케이블 WCT

· KEMC C-101 2008.12.16
특수아크용접용케이블 S-WCT

◆ 제품특징

· 기존 순수한 동(copper)전선 대비 35% 경량으로 작업자 피로도 및 운송비 급감

· 통전용량 : 동일 규격의 동(COPPER)제품 대비 85% 이상 우수한 허용전류

· 동일규격 동(copper) 용접선 대비 경제적인 가격

규격 (단면적㎟)	최대소선지름 (㎜)	피복합계두께 (㎜)	복합시스두께 (㎜)	완성바깥지름(㎜)		최대도체저항 20℃ (Ω/㎞)	케이블중량(kg/㎞)	
				하한값	상한값		동선	홀더원
16	0.20	2.0	1.3	9.2	11.5	1.608	**230**	151
25	0.20	2.0	1.3	10.5	13.0	1.029	**322**	207
35	0.20	2.0	1.3	11.5	14.5	0.735	**404**	263
50	0.20	2.0	1.5	13.5	17.0	0.515	**574**	373
70	0.20	2.4	1.6	15.5	19.5	0.368	**799**	519
95	0.20	2.6	1.7	18.0	22.0	0.271	**1,067**	694
기타	기타규격주문제작가능							

High light-weight Arc Welding Cable HOLDERONE®

Name : HOLDERONE is Welding Cable

Use : Output electrode cable of Ark Welder

Model : S-WCT (CCA)

Weight : 35% light weight rather than copper cables

Structure : Same as general welding cables

Conductor : 100% made in Korea with CCA conductor

Capacity : Have more than 85% by general Cu cables

Insulation : Same as general welding cables (rubber)

◆ Reference Standards

· KS C IEC 60245-6 IEC81

Nutral rubber or equivalent synthetic rubber sheath, arc welding electrode cables (WCT)

· KEMC C-101 2008.12.16

Special Arc welding electrode cables (S-WCT]

◆ Good features

· High decrease of fatigue for the welding shop workers

· Electric capacity have more than 85% or equivalent as general welding cables

· Unit price is inexpensive as compared with copper welding cables

Nominal Cross-Sectional Area (㎟)	Maximum diameter of wires in conductor (㎜)	Total thickness of Covering Specified Value (㎜)	Thickness of Sheath of Composite Covering Specified Value (㎜)	Mean Overall Diameter(㎜)		Maximum Conductor Resistance at 20℃ (Ω/㎞)	Cable Weight(kg/㎞)	
				Lower Limit	Upper Limit		Copper	HOLDERONE
16	0.20	2.0	1.3	9.2	11.5	1.608	**230**	151
25	0.20	2.0	1.3	10.5	13.0	1.029	**322**	207
35	0.20	2.0	1.3	11.5	14.5	0.735	**404**	263
50	0.20	2.0	1.5	13.5	17.0	0.515	**574**	373
70	0.20	2.4	1.6	15.5	19.5	0.368	**799**	519
95	0.20	2.6	1.7	18.0	22.0	0.271	**1,067**	694
other	The other sizes able to order made							

아크용접케이블 “홀더원” & 시중제품 비교분석 2017.08.30

Current capacity comparison of HOLDERONE & General copper welding cable

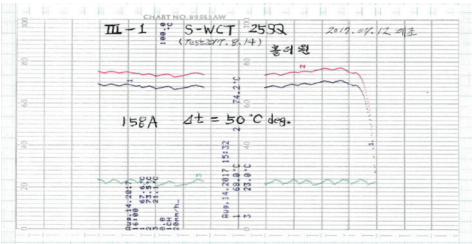
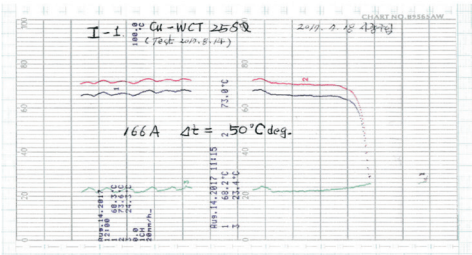
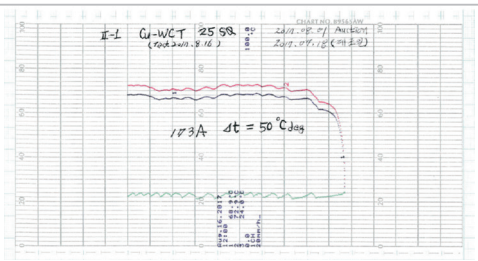
Ⅰ. 25㎟

인터넷검색 25㎟ 허용전류149A　　Maximum current is 149A of 25㎟ by internet research

Items	HOLDERONE® S-WCT-25SQ	Market-#1 Cu-WCT-25SQ	Market-#2 Cu-WCT-25SQ	Remark
제 조 자 manufacturer	영원전자 HOLDERONE	한국SW사 SW of Korea	한국KS사 KS of Korea	
구 입 일 buying date	2017.07.12	2017.07.18	2017.08.01	
완 성 경 Overall diameter	11.7Φ	10.8Φ	11.8Φ	동 일 구 조 Same structure
도체재료 Conductor	CCA	Copper	Copper	
100M 중량 Weight of 100m	20.7㎏	30.9㎏	33.0㎏	-35%↓경량
통전용량 Current Capacity	158A	166A	173A	91%~95%

◆ 참조 Reference

통전용량시험결과 (제품온도 △T=50℃ deg. 일 때의 전류)
Below : Max. Current test result of the welding cables at same temperature ΔT=50℃

홀더원 HOLDERONE S-WCT(CCA) 25㎟	
시중품 (시장구입) Market-#1 WCT (Cu) 25㎟	
시중품 (인터넷구입) Market-#2 WCT (Cu) 25㎟	

Ⅰ. 16㎟

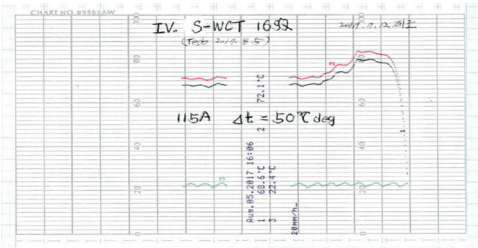
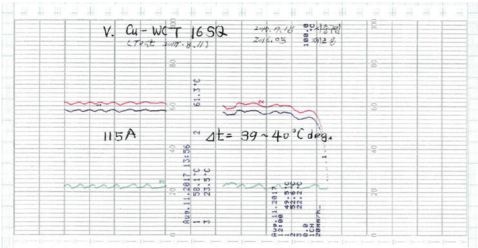
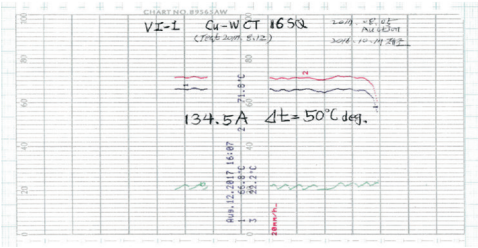
인터넷검색 16㎟ 허용전류115A　　Maximum current is 115A of 16㎟ by internet research

Items	HOLDERONE® S-WCT-25SQ	Market-#1 Cu-WCT-25SQ	Market-#2 Cu-WCT-25SQ	Remark
제 조 자 manufacturer	영원전자 HOLDERONE	한국SW사 SW of Korea	한국KS사 KS of Korea	
구 입 일 buying date	2017.07.12	2017.07.18	2017.08.01	
완 성 경 Overall diameter	10.2Φ	10.0Φ	10.0Φ	동 일 구 조 Same structure
도체재료 Conductor	CCA	Cu	Cu	
100M 중량 Weight of 100m	15.3㎏	22.1㎏	23.3㎏	-35%경량
통전용량 Current Capacity	115A	--- A	134.5A	86%~

◆ 참조 Reference

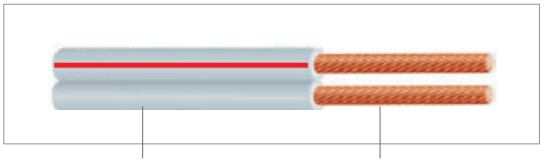
통전용량시험결과 (제품온도 △T=50℃ deg. 일 때의 전류)

Below : Max. Current test result of the welding cables at same temperature ΔT=50℃

홀더원 HOLDERONE S-WCT(CCA) 25㎟	
시중품 (시장구입) Market-#1 WCT (Cu) 25㎟	
시중품 (인터넷구입) Market-#2 WCT (Cu) 25㎟	

CCA LED Cable & CCA RGB Cable

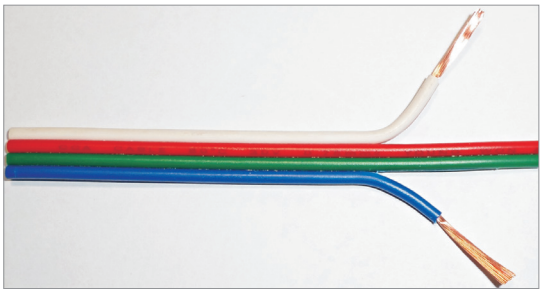
Construction and Characteristics



절연체
PVC

도체
Conductor

S-CCA 0.75㎟×2C (LED Cable)



S-CCA 0.75㎟×4C (RGB Cable)

◆ 사용정격 Ratings

- AC 30V, DC24V 이하. Below AC 30V, DC 24V

◆ 참고규격 Reference Standards

- UL Subject 758 & UL2880 style No.2468
- KS C IEC 60227-5, 전기용품안전기준 K 60227-5

◆ 적용분야 Applications

- 전기전자기기 기구의 내부 배선용 전선
  Inside wiring of electric machine and lighting appliances
- LED조명기구내부배선, 옥내외 싸인 보드 LED 모듈 배선
  Wiring for LED lighting circuit and LED modules

◆ 제품특징 Features

- CCA소재 순수한 한국산 15% 소재만 사용
  Using only 100% high pure quality of CCA material made in Korea
- 절연체 재료 정품 PVC(Poly Vinyl Chloride) 70℃~ 80℃ 사용
  Use only insulation PVC materials in articles of best quality

◆ 장점 Merits

- CCA소재 순수 한국산 정품만 사용하여 품질성능 우수
  Good quality using pure CCA conductor made in Korea
- 해외수입품 또는 타사 시장 제조품에 비해 통전성능 우수
  Have good current capacity rather than the other manufacturer
- 동일 규격의 순수한 동 전선 대비 가격 저렴
  Inexpensive price as compared with same size general copper cables

Model No. & Size	도체 Conductor			절연체PVC thick.		완성외경 Overall Diameter (t × w) (㎜)	최대도체저항 Maximum Conductor Resistance (20℃) (Ω / km)	절연전압 Puncture Voltage (Vac / 1min)	포장길이 Wrapping length (m / spool)
	재료 Material	단면적 Sectional Area (㎟)	구성 Composite (㎜×each)	최소두께 Minimum (㎜)	평균두께 Mean (㎜)				
S-CCA 0.75㎟ -2C	CCA	0.75	0.18×30	0.30	0.60	1.9×4.0 (±0.1)	35.37	2000	100 500
S-CCA 0.75㎟ -4C	CCA	0.75	0.18×30	0.30	0.60	2.0×7.9 (±0.1)	35.37	2000	100 500

◆ 표시사항 Marking

ⓐ CCA Cable 0.75㎟×2C CCA LED Cable 0.75㎟ (또는 SQMM)×2C Max 80℃ Young Won -RoHs- AC30V DC24V
ⓑ CCA Cable 0.75㎟×4C CCA LED Cable 0.75㎟ (또는 SQMM)×4C Max 80℃ Young Won -RoHs- AC30V DC24V

UL Wire, UL Style No.1007 Insulation Electric Wire (Single Conductor)

Construction and Characteristics

절연체
PVC

도체
Conductor

◆ 용도 Use

- 전기, 전자기기 내부배선용
  Inside wiring of electric and electronic machines

◆ 정격 Ratings

- (UL)80℃ 300V

◆ 난연성 Flame retardant

- VW-1, FT-1 만족함
  Satisfies VW-1 and FT-1 grade

◆ 적용규격 Standard

- UL subject 758, 1581

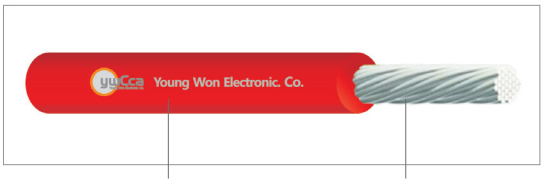
◆ 인증기관 Certification Agency

- UL Underwriters Laboratories Inc.

구분 Type	도체 Conductor			절연체 Insulation			최대도체저항 Max Conductor Resistance at 20℃ (Ω/km)	내전압 AC Withstand Voltage (V/1mim)	허용전류 Allowable Current (reference) (A)
	규격 AWG size	구성 Construction (No/㎜)	외경 Approx Diameter (㎜)	최소두께 Min.thick. (㎜)	평균두께 Ave.think. (㎜)	외경 Diameter (㎜)			
Standed 연선	30	7/0.100 T	0.31	0.33	0.42	1.15	354.24	3,000	2.3
	28	7/0.127 T	0.38			1.25	223.70		3.0
	26	7/0.16 T	0.48			1.35	139.72		4.0
	24	11/0.16 T	0.61			1.45	89.03		5.3
		7/0.20 T	0.61				85.93		
	22	17/0.16 T	0.76			1.60	58.83		7.2
		7/0.254 T	0.78				53.27		
	20	21/0.18 T	0.95			1.80	36.66		9.4
		10/0.254 T	0.94				37.17		
	18	41/0.16 T	1.18			2.00	22.60		12.5
		34/0.18 T	1.21				22.60		
	16	26/0.26 T	1.49			2.40	14.30		15.9
	14	41/0.254 T	1.88			2.72	9.07		
Solid 단선	30	1/0.254 T	0.26	0.33	0.42	1.10	352.96	3,000	2.3
	28	1/0.32 T	0.32			1.15	208.51		3.0
	26	1/0.40 T	0.40			1.20	128.73		4.0
	24	1/0.51 T	0.51			1.35	82.23		5.3
	22	1/0.64 T	0.64			1.45	52.63		7.2
	20	1/0.81 T	0.81			1.65	32.28		9.4
	18	1/0.02 T	1.02			1.85	18.38		12.5
	16	1/0.29 T	1.29			2.10	13.16		15.9
	14	1/1.70 T	1.70			2.54	7.70		
TA-SC (Hiwrape)	28	7/0.127 T	0.39	0.33	0.42	1.25	220.20	3,000	3.0
	26	7/0.16 T	0.48			1.35	138.20		4.0
	24	7/0.20 T	0.61			1.45	85.90		5.3
	22	7/0.254 T	0.76			1.60	53.50		7.2
	20	7/0.32 T	0.98			1.82	32.00		
	18	16/0.254 T	1.15			1.99	22.90		

UL Wire, UL Style No.1015 Insulation Electric Wire (Single Conductor)

Construction and Characteristics



절연체
PVC

도체
Conductor

◆ 용도 Use

- 전기, 전자기기 내부배선용
  Inside wiring of electric and electronic machines

◆ 정격 Ratings

- (UL)105℃ 600V

◆ 난연성 Flame retardant

- VW-1, FT-1 만족함
  Satisfies VW-1 and FT-1 grade

◆ 적용규격 Standard

- UL subject 758, 1581

◆ 인증기관 Certification Agency

- UL Underwriters Laboratories Inc.

구분 Type	도체 Conductor			절연체 Insulation			최대도체저항 Max Conductor Resistance at 20℃ (Ω/㎞)	내전압 AC Withstand Voltage (V/1mim)	허용전류 Allowable Current (reference) (A)
	(kg/㎞)	구성 Construction (No/㎜)	외경 Approx Diameter (㎜)	최소두께 Min.thick. (㎜)	평균두께 Ave.think. (㎜)	외경 Diameter (㎜)			
Standed 연선	28	7/0.100 T	0.38	0.69	0.77	1.92	223.70	6000	
	26	7/0.16 T	0.48			2.02	139.72		5.8
	24	11/0.16 T	0.61			2.15	89.03		7.6
		7/0.20 T	0.61			2.15	85.93		
	22	17/0.16 T	0.76			2.30	58.83		10.0
		7/0.254 T	0.78			2.32	53.27		
	20	21/0.18 T	0.95			2.49	36.66		13.1
		10/0.254 T	0.94			2.48	37.17		
	18	41/0.16 T	1.18			2.72	22.60		17.2
		34/0.18 T	1.21			2.75			
	16	26/0.254 T	1.49			3.03	14.30		22.8
	14	41/0.254 T	1.88			3.42	9.07		30.4
	12	65/0.254 T	2.42			3.96	5.40		40.6
	10	105/0.254 T	3.03			4.57	3.46		55.3
Solid 단선	28	1/0.32 T	0.32	0.69	0.77	1.86	208.51	6000	3.0
	26	1/0.40 T	0.40			1.94	128.73		5.8
	24	1/0.51 T	0.51			2.05	82.23		7.6
	22	1/0.64 T	0.64			2.18	52.63		10.0
	20	1/0.81 T	0.81			2.35	32.28		13.1
	18	1/1.02 T	1.02			2.56	18.38		17.2
	16	1/1.29 T	1.29			2.83	13.16		22.8
	14	1/1.70 T	1.70			3.24	7.70		30.4
	12	1/2.10 T	2.10			3.64	5.04		40.6
	10	1/2.60 T	2.60			4.14	3.29		55.3
TA-SC (Hiwrape)	28	7/0.127 M	0.39	0.69	0.77	1.93	220.20	6000	
	26	7/0.16 M	0.48			2.02	138.20		5.8
	24	7/0.203 M	0.61			2.15	85.90		7.6
	22	7/0.254 M	0.76			2.30	53.50		10.0
	20	10/0.254 M	0.91			2.45	36.10		13.0
		7/0.32 M	0.98			2.52	32.00		
	18	16/0.254 M	1.15			2.69	22.90		17.2

UL Wire, UL Style No.1569 Insulation Electric Wire (Single Conductor)

Construction and Characteristics

절연체
PVC

도체
Conductor

◆ 용도 Use

- 전기, 전자기기 내부배선용
  Inside wiring of electric and electronic machines

◆ 정격 Ratings

- (UL) 105℃ 300V

◆ 난연성 Flame retardant

- VW-1, FT-1 만족함
  Satisfies VW-1 and FT-1 grade

◆ 적용규격 Standard

- UL subject 758, 1581

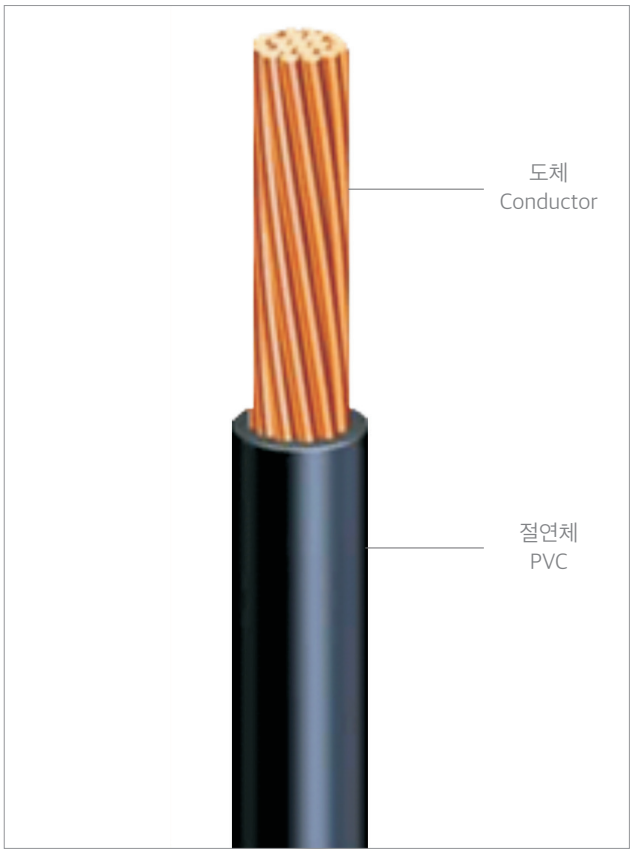
◆ 인증기관 Certification Agency

- UL Underwriters Laboratories Inc.

구분 Type	도체 Conductor			절연체 Insulation		최대도체저항 Max Conductor Resistance at 20℃ (Ω/㎞)	최소절연저항 Min. Insulation Resistance (MΩ/㎞)	내전압 AC Withstand Voltage (V/1mim)	허용전류 Allowable Current (reference) (A)
	규격 AWG size	구성 Construction (No/㎜)	외경 Approx Diameter (㎜)	평균두께 Ave.thick. (㎜)	외경 Diameter (㎜)				
Standed 연선	30	7/0.100 T	0.31	0.4	1.15	354.24	15	2.000	2.3
	28	7/0.127 T	0.38		1.25	223.70			3.0
	26	7/0.16 T	0.48		1.35	139.72			4.0
	24	11/0.16 T	0.61		1.45	89.03			5.3
		7/0.20 T	0.61			85.93			
	22	17/0.16 T	0.76		1.60	58.83			7.2
		7/0.254 T	0.78			53.27			
	20	21/0.18 T	0.95		1.80	36.66			9.4
		10/0.254 T	0.94			37.17			
	18	41/0.16 T	1.18		2.00	22.60			12.5
		34/0.18 T	1.21			22.60			
	16	26/0.26 T	1.49		2.40	14.30			15.9
Solid 단선	30	1/0.254 T	0.26	0.4	1.10	352.96	15	2.000	2.3
	28	1/0.32 T	0.32		1.15	208.51			3.0
	26	1/0.40 T	0.40		1.20	128.73			4.0
	24	1/0.51 T	0.51		1.35	82.23			5.3
	22	1/0.64 T	0.64		1.45	52.63			7.2
	20	1/0.81 T	0.81		1.65	32.28			9.4
	18	1/0.02 T	1.02		1.85	18.38			12.5
	16	1/0.29 T	1.29		2.10	13.16			15.9
TA-SC (Hiwrape)	28	7/0.127 T	0.39	0.4	1.25	220.20	15	2.000	3.0
	26	7/0.16 T	0.48		1.35	138.20			4.0
	24	7/0.20 T	0.61		1.45	85.90			5.3
	22	7/0.254 T	0.76		1.60	53.50			7.2

IEC08 PVC Insulated Flexible Cable

Electronic Flexible Cable (HVSF 90℃) ㊀



◆ 용도 Use

- 전기, 전자기기 내 외부 배선용
  Wiring of electric and electronic machines

◆ 정격 Ratings

- AC 300V/500V 90℃

◆ 적용규격 Standard

- KS C IEC 60227-3 (IEC 8)

◆ 인증기관 Certification Agency

- Korean Standards Association

◆ 색상 Color

- 검정, 흰색, 청색, 녹색, 회색
  Black, White, Blue, Green, Gray

도체 Conductor			절연체 Insulation			최대도체저항 Max Conductor Resistance at 20℃		최소절연저항 Min Insulation Resistance at 90℃ (mΩ/㎞)
공칭단면적 Nominal Sectional Area (㎟)	최대소선경 Maximum diameter of wire (㎜)	외경(dir) Approx. Diameter (㎜)	두께 thickness (㎜)	외경 Mean Overall Diameter		동선 Copper (Ω/㎞)	도금동선 Tin-Coated Copper (Ω/㎞)	
				Lower limit (㎜)	Upper limit (㎜)			
0.5	0.21	0.9	0.6	2.1	2.5	39.0	0.013	0.013
0.75	0.21	1.1	0.6	2.2	2.7	26.0	0.012	0.012
1.0	0.21	1.3	0.6	2.4	2.8	19.5	0.010	0.010
1.5	0.26	1.6	0.7	2.8	3.4	13.3	0.009	0.009
2.5	0.26	2.1	0.8	3.4	4.1	7.98	0.009	0.009

CCA 에나멜선 (Magnet Wire)

◆ CCA 에나멜선
◆ CCA Enameled Wire Technical Data

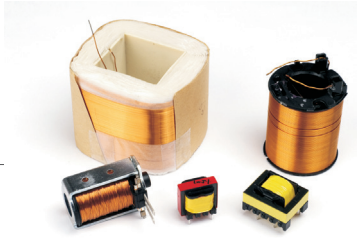
항목 Item	폴리우레탄 Polyurethane	폴리에스텔이미드 Polyesterimide	폴리우레탄 Polyurethane	폴리에스테크 Polyester
제품코드 Product Code	UCA(B)	ECA(H)	UCA(F)	PCA (F)
피막종류 Insulation Class	1, 2	1, 2	1, 2	1, 2
에나멜타잎 Enamelled Type	Self solderable	High temperature	Self soldrable	General purpose
온도분류 Thermal Classification	130 ℃	180 ℃	155 ℃	155 ℃
기본코팅구조 Chmical Base of Base Coat	Polyurethane	Polyesterimide	Polyurethane	Polyester
제조범위 Range of Wire	3.50㎜~0.09㎜	3.50㎜~0.09㎜	3.50㎜~0.09㎜	3.50㎜~0.09㎜
열충격온도 Heat Shock, Time	150℃, 1h	200℃, 1h	180℃, 1h	180℃, 1h
납땜온도 Solderable Temperature	375 ℃	Not applicable	390 ℃	Not applicable
내마모성 Abrasion Resistance	보통 Good	우수 Very good	보통 Good	보통 Good
내냉매성 Resistance of refregerant	나쁨 Not good	보통 Good	나쁨 Not good	나쁨 Not good
유연성&밀착성 Flexibility&Adherence	보통 Good	보통 Good	보통 Good	보통 Good

CCA 에나멜선 Magnet Wire

Class-1 : CCA 15% Enameled Wire Technical Data

도체규격 Conductor diameter (㎜)	도체허용차 Conductor allowance (±㎜)	최소피막두께 Minimum Insulation thickness (㎜)	최대완성외경 Max.Overall diameter (㎜)	절연파괴전압 Breakdown Voltage (V)	최대도체저항 Max. DC resistance (Ω/㎞,20℃)	CCA중량 CCA weight (㎏/㎞)	구리중량 Same as Copper dia. weight (㎏/㎞)
2.00	0.03	0.030	2.118	4350	8.441	12.391	28.30
1.90	0.03	0.030	2.018	4350	9.368	11.165	25.50
1.80	0.02	0.029	1.914	4350	10.340	10.026	22.90
1.70	0.02	0.029	1.814	4350	11.607	8.976	20.50
1.60	0.02	0.028	1.712	4150	13.123	7.969	18.20
1.50	0.02	0.028	1.612	4150	14.956	7.005	16.00
1.40	0.02	0.027	1.508	4150	17.203	6.086	13.90
1.30	0.02	0.027	1.408	4150	19.995	5.254	12.00
1.20	0.02	0.026	1.304	4150	23.528	4.466	10.20
1.00	0.01	0.025	1.102	3400	33.426	3.126	7.14
0.90	0.01	0.023	0.986	3400	41.359	2.531	5.78
0.80	0.01	0.021	0.882	3400	52.492	2.001	4.57
0.70	0.008	0.019	0.776	3050	68.413	1.532	3.50
0.60	0.008	0.017	0.672	3050	93.477	1.130	2.58
0.50	0.006	0.017	0.560	3050	134.244	0.788	1.80
0.45	0.006	0.016	0.508	2800	166.182	0.639	1.46
0.40	0.005	0.015	0.456	2800	209.969	0.504	1.15
0.35	0.005	0.014	0.402	2800	275.240	0.385	0.88
0.30	0.005	0.014	0.352	2800	376.449	0.285	0.65
0.28	0.004	0.013	0.330	2400	430.063	0.250	0.57
0.26	0.004	0.013	0.310	2400	499.885	0.215	0.49
0.25	0.004	0.013	0.298	2400	524.167	0.201	0.46
0.24	0.004	0.013	0.288	2400	588.201	0.184	0.42
0.23	0.004	0.013	0.278	2400	641.406	0.171	0.39
0.22	0.004	0.012	0.266	2400	702.170	0.153	0.35
0.20	0.003	0.012	0.246	2400	844.146	0.127	0.29
0.18	0.003	0.012	0.226	2400	1045.691	0.105	0.24
0.16	0.003	0.011	0.204	2200	1329.078	0.083	0.19
0.14	0.003	0.01	0.182	2200	1745.455	0.066	0.15
0.12	0.003	0.01	0.162	2200	2393.195	0.048	0.11
0.11	0.003	0.009	0.150	2000	2861.425	0.040	0.09
0.10	0.003	0.009	0.140	2000	3481.821	0.033	0.08

CCA 에나멜선 Magnet Wire



Class-2 : CCA 15% Enameled Wire Technical Data

도체규격 Conductor diameter (㎜)	도체허용차 Conductor allowance (±㎜)	최소피막두께 Minimum Insulation thickness (㎜)	최대완성외경 Max.Overall diameter (㎜)	절연파괴전압 Breakdown Voltage (V)	최대도체저항 Max. DC resistance (Ω/㎞,20℃)	CCA중량 CCA weight (㎏/㎞)	구리중량 Same as Copper dia. weight (㎏/㎞)
1.00	0.01	0.017	1.062	2400	33.426	3.100	7.08
0.95	0.01	0.017	1.008	2400	37.076	2.798	6.39
0.90	0.01	0.016	0.956	2400	41.359	2.513	5.74
0.85	0.01	0.015	0.904	2400	46.429	2.242	5.12
0.80	0.01	0.015	0.852	2400	52.492	1.988	4.54
0.75	0.008	0.014	0.798	2400	59.503	1.747	3.99
0.70	0.008	0.013	0.746	2150	68.413	1.519	3.47
0.65	0.008	0.012	0.694	2150	79.484	1.314	3.00
0.60	0.008	0.012	0.644	2150	93.477	1.121	2.56
0.55	0.006	0.012	0.592	2150	110.701	0.941	2.15
0.50	0.006	0.012	0.542	2150	134.244	0.779	1.78
0.45	0.006	0.011	0.490	2000	166.182	0.630	1.44
0.40	0.005	0.011	0.439	2000	209.969	0.499	1.14
0.37	0.005	0.010	0.407	2000	245.903	0.429	0.98
0.35	0.005	0.010	0.387	2000	275.240	0.385	0.88
0.32	0.005	0.010	0.357	2000	330.163	0.320	0.73
0.30	0.005	0.010	0.337	2000	376.449	0.285	0.65
0.29	0.004	0.009	0.324	1600	400.514	0.263	0.60
0.28	0.004	0.009	0.314	1600	430.063	0.250	0.57
0.27	0.004	0.009	0.304	1600	463.006	0.228	0.52
0.26	0.004	0.009	0.294	1600	499.885	0.215	0.49
0.25	0.004	0.009	0.284	1600	524.167	0.197	0.45
0.24	0.004	0.009	0.274	1600	588.201	0.184	0.42
0.23	0.004	0.009	0.264	1600	641.406	0.166	0.38
0.22	0.004	0.008	0.252	1600	702.170	0.153	0.35
0.21	0.003	0.008	0.241	1600	764.556	0.140	0.32
0.20	0.003	0.008	0.231	1600	844.146	0.127	0.29
0.19	0.003	0.008	0.221	1600	936.843	0.114	0.26
0.18	0.003	0.008	0.211	1600	1045.691	0.105	0.24
0.17	0.003	0.007	0.199	1300	1174.673	0.092	0.21
0.16	0.003	0.007	0.189	1300	1329.078	0.083	0.19
0.15	0.003	0.006	0.177	1300	1516.056	0.070	0.16
0.14	0.003	0.006	0.167	1300	1745.455	0.061	0.14
0.13	0.003	0.006	0.157	1300	2031.152	0.053	0.12
0.12	0.003	0.006	0.147	1300	2393.195	0.048	0.11
0.11	0.003	0.005	0.135	1100	2861.425	0.039	0.089
0.10	0.003	0.005	0.125	1100	3481.821	0.032	0.074
0.09	0.003	0.005	0.113	1100	4328.240	0.026	0.060