



Thomas-Trans

운송

운송 산업 및 주변환경의 적용 케이블

Thomas (주)토마스케이블

토마스케이블

(주)토마스케이블은 30년간의 케이블 전문 연구개발 활동과 다양한 현장경험을 바탕으로 자체 케이블 제조 및 하네스 전문 회사로 다양한 산업군 고객에게 맞춤형 One-stop 솔루션을 제공합니다. 또한 다양한 해외 네트워크를 통한 세계적인 기술력으로 지속 성장을 실현하고 있습니다.



Thomas-Trans

HISTORY



2005
토마스케이블 설립

2009
ISO9001인증 획득

2011
VDE/CE 인증취득

2016
UL인증취득
(AWM, MTW, TC외)

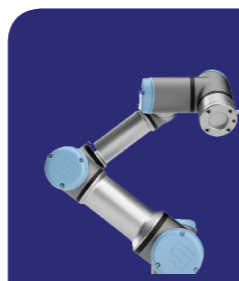
2019
IPA 인증취득

그룹사



Thomas (주)토마스

- 사업분야
- 산업용 네트워크스위치
- 무선장비 및 보안솔루션
- 센서 및 커넥터 솔루션
- 슬리핑 솔루션
- 기타 FA제품 솔루션



Thomas (주)토마스 오토메이션

- 사업분야
- 협동로봇
- ThomS-RING
- ThomS-Witch
- 바이브레이터

자동화된 운송 시스템은 빠르고 정확한 이동을 통해 물류 효율을 극대화해야 하며, 그 핵심에는 반복적인 동작과 진동, 다양한 환경 조건을 견디는 고신뢰성 케이블이 필요합니다.

특히 AGV, 컨베이어, 리프트, 철도 등의 시스템은 높은 유연성과 굽힘 내구성을 가진 케이블을 요구하며, 외부 충격과 온도 변화, 전자기 간섭에도 견딜 수 있어야 합니다.

운송 환경은 실내외를 오가며 먼지, 습기, 기름 등 다양한 요소에 노출되기 때문에 케이블의 내환경성은 시스템의 안정적 운영에 결정적인 역할을 합니다.

안정적인 데이터·전력 전달은 장비 성능 유지뿐만 아니라 전체 물류 시스템의 안전성과 직결되며, 고품질 케이블은 예기치 못한 다운타임을 줄이고 운영 효율성을 높이는 핵심 요소입니다.

토마스케이블의 독보적인 성능

토마스케이블의 운송 시스템 전용 케이블은 반복 굽힘, 진동, 외부 충격에도 강한 내구성과 유연성을 갖췄습니다. 고속 데이터 전송과 안정적인 전력 공급을 통해 자동화 물류 및 모빌리티 장비의 성능을 극대화합니다. 예측 불가능한 운송 환경에서도 신뢰할 수 있는 연결성을 제공하는 최적의 솔루션입니다.



자동차



철도



항공 우주



선박/해양



물류 및 유통



CABLE

- 제어용 케이블 : SABIX R 600 FRNC
SABIX R 638 FRNC
SABIX A 280 FRNC X
SABIX A 285 FRNC X
- 데이터 케이블 : SABIX R 645 FRNC TP

- 가동용 케이블 : SABIX R Flex
SAB RailLine 560
- 전원용 케이블 : GP 400 Sy - PUR
GP 400 SF S Power
GP 400 SF S Control



SABIX® R 600 FRNC

SABIX® Rail Control with numbered cores



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 600 FRNC 12 x 1,5 mm² CE



Construction (구조)

- 도체 : bare copper strands acc. to IEC 60228, VDE 0295, class 5
- 절연체 : Special SABIX®
- 선심식별 : black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
- 연합 : in layers
- 시스 소재 : Special SABIX®
- 시스 색상 : Grey (RAL 7000)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 불꽃 전파 금지 (no flame propagation)
- 난연제 및 자기소화성 (flame retardant and self-extinguishing)
- 화재 예방 요건 R15(EL1A) 충족 위험 수준 HL1-3에 대한 EN 45545-2에 대한 설명
- 난연제 UN/ECE R118에 대한 설명 (flame retardant acc. to UN/ECE R118)

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66000205	2 x 0,50	0,21	4,8	9,6	33
66000305	3 x 0,50	0,21	5,1	14,4	38
66000405	4 x 0,50	0,21	5,5	19,2	46
66000505	5 x 0,50	0,21	6,2	24	57
66000705	7 x 0,50	0,21	6,7	33,6	69
66001005	10 x 0,50	0,21	8,6	48	96
66001205	12 x 0,50	0,21	9,1	57,6	110
66001805	18 x 0,50	0,21	10,7	86,4	169
66002505	25 x 0,50	0,21	12,9	120	221
66003205	32 x 0,50	0,21	14	153,6	287
66004205	42 x 0,50	0,21	15,7	201,6	365
66006105	61 x 0,50	0,21	18,5	292,8	510
66000207	2 x 0,75	0,21	5,4	14,4	44
66000307	3 x 0,75	0,21	5,7	21,6	51
66000407	4 x 0,75	0,21	6,4	28,8	63
66000507	5 x 0,75	0,21	7	36	77
66000707	7 x 0,75	0,21	7,8	50,4	96
66001007	10 x 0,75	0,21	10	72	144
66001207	12 x 0,75	0,21	10,5	86,4	163
66001807	18 x 0,75	0,21	12,4	129,6	230
66002507	25 x 0,75	0,21	15,1	180	316
66003207	32 x 0,75	0,21	16,4	230,4	388
66004207	42 x 0,75	0,21	18,4	302,4	515
66006107	61 x 0,75	0,21	21,6	439,2	721
66000210	2 x 1,00	0,21	5,6	19,2	50
66000310	3 x 1,00	0,21	6,1	28,8	62
66000410	4 x 1,00	0,21	6,6	38,4	76
66000510	5 x 1,00	0,21	7,5	48	94
66000710	7 x 1,00	0,21	8,1	67,2	117
66001010	10 x 1,00	0,21	10,6	96	172
66001210	12 x 1,00	0,21	10,9	115,2	196
66001810	18 x 1,00	0,21	12,9	172,8	280
66002510	25 x 1,00	0,21	15,7	240	381
66003210	32 x 1,00	0,21	17,1	307,2	486
66004210	42 x 1,00	0,21	19,4	403,2	616
66006110	61 x 1,00	0,21	22,7	585,6	873
66000215	2 x 1,50	0,26	6,4	28,8	69
66000315	3 x 1,50	0,26	6,8	43,2	81
66000415	4 x 1,50	0,26	7,6	57,6	99
66000515	5 x 1,50	0,26	8,3	72	124

Technical data (기술 데이터)

Nominal voltage :	Uo/U 300/500V
Testing voltage :	core/core 3000V
Min. bending radius :	
fixed laying :	4 x d
flexible application :	6 x d
Temperature range :	
fixed laying :	-40/+90°C
flexible application :	-30/+90°C
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance :	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity :	acc. to EN 50305 + VDE 0260-305
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Flexibility :	good
Absence of harmful substances :	acc. to RoHS directive of the European Union

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66000715	7 x 1,50	0,26	9,2	100,8	170
66001015	10 x 1,50	0,26	12	144	229
66001215	12 x 1,50	0,26	12,4	172,8	263
66001815	18 x 1,50	0,26	14,8	259,2	289
66002515	25 x 1,50	0,26	18	360	537
66003215	32 x 1,50	0,26	19,5	460,8	661
66004215	42 x 1,50	0,26	22	604,8	867
66006115	61 x 1,50	0,26	25,8	878,4	1217
66000225	2 x 2,50	0,26	7,8	48	105
66000325	3 x 2,50	0,26	8,9	72	127
66000425	4 x 2,50	0,26	9,2	96	155
66000525	5 x 2,50	0,26	10,1	120	199
66000725	7 x 2,50	0,26	11,2	168	252
66001025	10 x 2,50	0,26	14,8	240	362
66001225	12 x 2,50	0,26	15,3	288	416
66001825	18 x 2,50	0,26	18,2	432	615
66002525	25 x 2,50	0,26	22,3	600	837
66000340	3 x 4,00	0,31	9,7	115,2	185
66000440	4 x 4,00	0,31	10,8	153,6	234
66000540	5 x 4,00	0,31	12,1	192	290
66000740	7 x 4,00	0,31	13,4	268,8	375
66000360	3 x 6,00	0,31	11,4	172,8	270

Other dimensions and colors are available on request

SABIX® R 638 FRNC

SABIX® Rail Control with numbered cores and overall copper screen



Marking for SABIX® R 638 FRNC 66380515:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 638 FRNC 5 x 1,5 mm² CE



Construction (구조)

- 도체 : bare copper strands acc. to IEC 60228, VDE 0295, class 5
- 절연체 : Special SABIX®
- 선심식별 : black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
- 연합 : in layers
- 테이핑 : foil
- 차폐 : tinned copper braiding
- 시스 소재 : Special SABIX®
- 시스 색상 : Grey (RAL 7000)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 차폐된 우수한 EMC 특성 (screened, good EMC characteristics)
- 불꽃 전파 금지 (no flame propagation)
- 난연 및 자가 소화 (flame retardant and self-extinguishing)
- 위험 수준 HL1-3에 대한 화재 보호 요건 R15(EL1A) 준수 EN 45545-2
- 난연제 : UN/ECE R118 (flame retardant acc. to UN/ECE R118)

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66380205	2 x 0,50	0,21	5,3	25,5	38
66380305	3 x 0,50	0,21	5,6	30,7	45
66380405	4 x 0,50	0,21	6,2	48	61
66380505	5 x 0,50	0,21	6,7	55,9	70
66380705	7 x 0,50	0,21	7,2	71,1	81
66381205	12 x 0,50	0,21	9,6	108,1	150
66381805	18 x 0,50	0,21	11,4	143,5	206
66382505	25 x 0,50	0,21	13,8	189,7	272
66380207	2 x 0,75	0,21	6,1	31,1	50
66380307	3 x 0,75	0,21	6,4	50,6	61
66380407	4 x 0,75	0,21	6,9	61,1	73
66380507	5 x 0,75	0,21	7,7	73,7	96
66380707	7 x 0,75	0,21	8,3	90,9	121
66381207	12 x 0,75	0,21	11,2	142,4	193
66381807	18 x 0,75	0,21	13,3	197,9	280
66382507	25 x 0,75	0,21	16,2	284,6	395
66380210	2 x 1,00	0,21	6,3	48	56
66380310	3 x 1,00	0,21	6,6	58,2	68
66380410	4 x 1,00	0,21	7,1	75,7	94
66380510	5 x 1,00	0,21	8	86,1	110
66380710	7 x 1,00	0,21	8,6	108,2	138
66381210	12 x 1,00	0,21	11,8	172,1	226
66381810	18 x 1,00	0,21	13,8	242,1	315
66382510	25 x 1,00	0,21	16,8	346,5	454
66380215	2 x 1,50	0,26	6,9	60,7	63
66380315	3 x 1,50	0,26	7,2	80,5	90
66380415	4 x 1,50	0,26	8,1	95,6	110
66380515	5 x 1,50	0,26	9	113,2	135
66380715	7 x 1,50	0,26	9,7	151,2	178
66381215	12 x 1,50	0,26	13,9	240,8	300
66381815	18 x 1,50	0,26	15,7	362,3	454
66382515	25 x 1,50	0,26	19,1	492,1	613
66380225	2 x 2,50	0,26	8,3	86,3	100
66380325	3 x 2,50	0,26	9	113	128
66380425	4 x 2,50	0,26	9,7	146,2	163
66380525	5 x 2,50	0,26	11	175	215
66380725	7 x 2,50	0,26	12,1	225,1	276

Technical data (기술 데이터)

Nominal voltage :	Uo/U 300/500V
Testing voltage :	core/core 3000V core/screen 2000V
Min. bending radius :	
fixed laying :	5 x d
flexible application :	10 x d
Temperature range :	
fixed laying :	-40/+90°C
flexible application :	-30/+90°C
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance :	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity :	acc. to EN 50305 + VDE 0260-305
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Flexibility :	good
Absence of harmful substances :	acc. to RoHS directive of the European Union

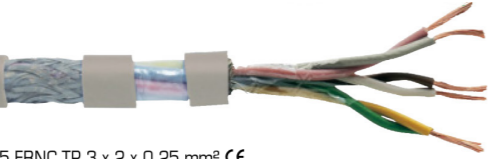
item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66381225	12 x 2,50	0,26	16,4	392	466
66381825	18 x 2,50	0,26	19,3	564,1	666
66382525	25 x 2,50	0,26	23,4	770,1	931
66380440	4 x 4,00	0,31	11,5	210,7	250
66380540	5 x 4,00	0,31	12,8	260	309
66380460	4 x 6,00	0,31	13,6	298,4	353
66380560	5 x 6,00	0,31	15,1	358,7	420
66380461	4 x 10,00	0,41	17,8	517,1	616
66380462	4 x 16,00	0,41	21,9	756	917

Other dimensions and colors are available on request

SABIX® R 645 FRNC TP

SABIX® Rail Data paired with overall copper screen

645 FRNC TP 3 x 2 x 0,25 mm² CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · SABIX® R 645 FRNC TP 3 x 2 x 0,25 mm² CE

Construction (구조)

- 도체 : bare copper strands with reference to IEC 60228, VDE 0295, class 5
- 절연체 : Special SABIX®
- 선심식별 : with reference to DIN 47100
- 연합 : pairwise, pairs in layers
- 테이핑 : foil
- 차폐 : tinned copper braiding
- 시스 소재 : Special SABIX®
- 시스 색상 : Grey (RAL 7032)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 불꽃 전파 금지 (no flame propagation)
- 좋은 EMC 특성 (good EMC characteristics)
- 난연제 및 자기소화 (flame retardant and self-extinguishing)
- 화재 예방 요건 R15(EL1A) 충족 위험 수준 HL1-3에 대한 EN 45545-2에 대한 설명
- NFPA 130 섹션 8.6.7.1.1 및 섹션 12.2.1 (1)에 따른 화재 예방 요건을 충족합니다.
- 미국 ASTM 표준에 따라 테스트 완료 (tested acc. to American ASTM standard)
- 난연제 UN/ECE R118에 대한 설명 (flame retardant acc. to UN/ECE R118)
- 우수한 전송 속도와 크로스토크 감소 (good transmission rates and crosstalk attenuation)

item no.	No. of cores x cross section (n x mm²)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66450214	2 x 2 x 0,14	5,2	19,1	38
66450314	3 x 2 x 0,14	5,7	23,4	44
66450414	4 x 2 x 0,14	6,5	27,8	54
66450514	5 x 2 x 0,14	7	31,9	64
66450614	6 x 2 x 0,14	7,2	36,2	71
66450814	8 x 2 x 0,14	7,8	43,4	83
66451014	10 x 2 x 0,14	8,9	50,6	105
66451214	12 x 2 x 0,14	9,7	58,2	121
66451614	16 x 2 x 0,14	10,5	71,4	147
66451814	18 x 2 x 0,14	11,1	92,8	174
66452414	24 x 2 x 0,14	12,8	114,8	223
66450225	2 x 2 x 0,25	5,7	24,9	46
66450325	3 x 2 x 0,25	6,4	31,4	61
66450425	4 x 2 x 0,25	7,2	39,3	72
66450525	5 x 2 x 0,25	7,7	45,8	83
66450625	6 x 2 x 0,25	7,9	50,7	92
66450825	8 x 2 x 0,25	9	62,1	119
66451025	10 x 2 x 0,25	9,8	73,9	138
66451225	12 x 2 x 0,25	10,9	102,3	173
66451625	16 x 2 x 0,25	11,9	126,8	213
66451825	18 x 2 x 0,25	12,7	136,6	245
66452425	24 x 2 x 0,25	14,2	170,3	296
66450234	2 x 2 x 0,34	6,8	31,5	63
66450334	3 x 2 x 0,34	7,4	39,7	79
66450434	4 x 2 x 0,34	8,8	49,8	102
66450534	5 x 2 x 0,34	9,5	58,5	121
66450634	6 x 2 x 0,34	9,7	65,1	125
66450834	8 x 2 x 0,34	10,6	80,7	159
66451234	12 x 2 x 0,34	13,4	133,1	248
66451634	16 x 2 x 0,34	14,6	165	305
66451834	18 x 2 x 0,34	15,1	178,3	334
66452434	24 x 2 x 0,34	17,6	255,1	449
66450250	2 x 2 x 0,50	7,2	39,3	72
66450350	3 x 2 x 0,50	7,9	50,1	92
66450450	4 x 2 x 0,50	9,4	64,6	119

Technical data (기술 데이터)

Peak operating voltage :	< 0.25 mm² = max. 350 V ≥ 0.25 mm² = max. 500 V
Testing voltage :	core/core 1500 V core/screen 1200V
Min. bending radius :	
fixed laying :	5 x d
flexible application :	10 x d
Temperature range :	
fixed laying :	-40/+90 °C
flexible application :	-30/+90 °C
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance :	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24, resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to UL 1685 section 12, FT4/IEEE 1202. Burning tests acc. to ASTM E 162-09. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity :	acc. to EN 50305 + VDE 0260-305
Smoke density :	acc. to IEC 61034 + VDE 0482-1034 + ASTM E 662-09
Flexibility :	good
Absence of harmful substances :	acc. to RoHS directive of the European Union

item no.	No. of cores x cross section (n x mm²)	outer-ø ± 5% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
66450550	5 x 2 x 0,50	10,2	76,3	141
66450650	6 x 2 x 0,50	10,4	86	155
66450850	8 x 2 x 0,50	11,4	126,6	179
66451050	10 x 2 x 0,50	13,2	146,5	252
66451250	12 x 2 x 0,50	14,4	175,6	294
66451650	16 x 2 x 0,50	16,3	241,3	380
66451850	18 x 2 x 0,50	16,9	261	436
66452450	24 x 2 x 0,50	19	330,4	508
66450275	2 x 2 x 0,75	8,5	52,4	102
66450375	3 x 2 x 0,75	9,4	69,4	128
66450475	4 x 2 x 0,75	10,9	101,9	166
66450575	5 x 2 x 0,75	11,7	121,9	201
66450675	6 x 2 x 0,75	12,5	136,5	239
66450875	8 x 2 x 0,75	13,7	170,1	279

Other dimensions and colors are available on request

SABIX® R flex

continuously flexible SABIX® Rail cable with numbered cores

BRÖCKSKES · D-VIERSEN · SABIX® R flex 5G0,75 mm² CE



marking example:

SAB BRÖCKSKES · D-VIERSEN · SABIX® R flex 5G0,75 mm² CE

Construction (구조)

- 도체 : bare copper strands acc. to IEC 60228, VDE 0295, class 6
- 절연체 : Special Polymer
- 선심식별 : black cores with consecutive numbers acc to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores, Twisted pairs type without green-yellow earth wire
- 연합 : in layers resp. pairwise
- 테이핑 : foil
- 차폐 : tinned copper braiding (if existing)
- 시스 소재 : SABIX® Ultra
- 시스 색상 : Black (RAL 9005)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 지속적으로 유연한 (continuously flexible)
- 좋은 EMC 특성 (good EMC characteristics)
- 불꽃 전파 금지 (no flame propagation)
- 난연성 및 자기소화성 (flame retardant and self-extinguishing)
- 우수한 오존, 자외선 및 내후성 (good ozone, UV and weather resistance)
- 우수한 오일 및 연료 저항성 (good oil and fuel resistance)
- 우수한 산 및 알칼리 저항성 (good acid and alkalines resistance)
- 위험 수준 HL1-2에 대한 화재 보호 요구 사항 R15(EL1A) 및 R16(EL1B) 계정 EN 45545-2를 충족
- 난연제 UN/ECE R118에 대한 설명 (flame retardant acc. to UN/ECE R118)

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 10% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-pair cable screened					
66703002	2 x 2 x 0,50	0,16	7	36,9	69
66703003	3 x 2 x 0,50	0,16	8	49,4	90
66703004	4 x 2 x 0,50	0,16	10	65,3	121
66703006	6 x 2 x 0,50	0,16	10,4	103,4	161
66703008	8 x 2 x 0,50	0,16	12,5	129,4	229
66703012	12 x 2 x 0,50	0,16	14,3	177,1	278
66703103	3 x 2 x 0,75	0,16	8,9	69,2	113
66703108	8 x 2 x 0,75	0,16	14,6	177,6	306
66703202	2 x 2 x 1,00	0,16	8,9	64,4	111
66703203	3 x 2 x 1,00	0,16	9,5	83,9	135
66703206	6 x 2 x 1,00	0,16	12,6	168	249
66703208	8 x 2 x 1,00	0,16	15,1	220,8	357
66703302	2 x 2 x 1,50	0,16	10,3	103,2	157
66703304	4 x 2 x 1,50	0,16	12,7	168,1	243
66703306	6 x 2 x 1,50	0,16	14,3	234,7	345

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 10% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-core cable unscreened					
66700002	2 x 0,50	0,16	4,6	9,6	31
66700004	4 x 0,50	0,16	5,4	19,2	47
66700007	7 x 0,50	0,16	6,9	33,6	76
66700012	12 x 0,50	0,16	8,4	57,6	113
66700018	18 x 0,50	0,16	9,9	86,4	160
66700032	32 x 0,50	0,16	12,8	153,6	267
66700103	3 x 0,75	0,16	5,6	21,6	51
66700105	5 x 0,75	0,16	6,7	36	75
66700125	25 x 0,75	0,16	13,8	180	303
66700202	2 x 1,00	0,16	5,7	19,2	49
66700273	73 x 1,00	0,16	23	700,8	989
66700303	3 x 1,50	0,16	6,6	43,2	81
66700307	7 x 1,50	0,16	9,4	100,8	167
66700318	18 x 1,50	0,16	13,7	259,2	376

Technical data (기술 데이터)

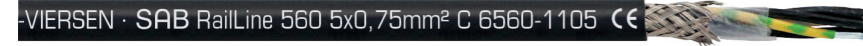
Nominal voltage :	Uo/U 300/500V	
Testing voltage :	core/core 2000V	core/screen 2000V
Min. bending radius	unshielded	shielded
fixed laying :	4 x d	5 x d
flexible application :	6 x d	10 x d
continuously flexible :	12 x d	15 x d
Temperature range		
fixed laying :	-50/+90°C	
flexible application :	-40/+90°C	
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5%, acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2	
Fire performance :	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)	
Toxicity :	acc. to EN 50305 + VDE 0260-305	
Smoke density :	acc. to IEC 61034 + VDE 0482-1034	
Oil and fuel resistance :	acc. to EN 50264-1 + VDE 0260-264-1	
Flexibility :	good	
Absence of harmful substances :	acc. to RoHS directive of the European Union	

item no.	No. of cores x cross section (n x mm²)	Largest single wire (ø mm)	outer-ø ± 10% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-core cable screened					
66701002	2 x 0,50	0,16	5,3	24,8	46
66701003	3 x 0,50	0,16	5,5	29,8	51
66701005	5 x 0,50	0,16	6,5	40,3	71
66701007	7 x 0,50	0,16	7,4	53,8	91
66701018	18 x 0,50	0,16	10,8	132,5	200
66701032	32 x 0,50	0,16	13,7	214,5	317
66701103	3 x 0,75	0,16	6,1	37,7	62
66701104	4 x 0,75	0,16	6,7	46,2	76
66701105	5 x 0,75	0,16	7,2	55,9	90
66701125	25 x 0,75	0,16	14,5	242,3	351
66701204	4 x 1,00	0,16	6,9	56	87
66701207	7 x 1,00	0,16	8,7	90,1	137
66701212	12 x 1,00	0,16	11	161,6	224
66701303	3 x 1,50	0,16	7,1	61	92
66701304	4 x 1,50	0,16	7,6	78	111
66701305	5 x 1,50	0,16	8,5	94,8	137
66701318	18 x 1,50	0,16	14,4	321,3	417
66701404	4 x 2,50	0,16	9,7	122,5	174
66701405	5 x 2,50	0,16	11	166,4	235
66701407	7 x 2,50	0,16	13,2	288,3	324

Other dimensions and colors are available on request

SAB RailLine 560

continuously flexible SAB Rail Cable for outdoor use, cross linked type



Marking for SAB RailLine 560 65601105:
SAB BRÖCKSKES · D-VIERSEN · SAB RailLine 560 5x0,75mm² C 6560-1105 CE



Construction (구조)

- 도체 : tinned copper strands, extra fine wires
- 절연체 : SABIX® X
- 선심식별 : black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
- 연합 : in layers resp. pairwise
- 차폐 : tinned copper braiding (if existing)
- 테이핑 : foil
- 시스 소재 : SABIX® X
- 시스 색상 : Black (RAL 9005)

Characteristics (특징)

- 내후성 (weather resistant)
- 지속적으로 유연한 (continuously flexible)
- 우수한 오존, 자외선 및 내후성 (good ozone, UV and weather resistance)
- 우수한 오일 및 연료 저항성 (good oil and fuel resistance)
- 위험 수준 HL1-3에 대한 화재 보호 요구 사항 R15(EL1A) 및 R16(EL1B) 계정 EN 45545-2를 충족
- 난연제 UN/ECE R118에 대한 설명(flame retardant acc. to UN/ECE R118)

item no.	No. of cores x cross section (n x mm ²)	nominal voltage	outer-ø (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-core cable unscreened					
65600002	2 x 0,50	300/500V	4,9	9,6	37
65600105	5 x 0,75	300/500V	6,4	36,0	73
65600203	3 x 1,00	300/500V	5,3	28,8	55
65600205	5 x 1,00	300/500V	6,7	48,0	86
65600207	7 x 1,00	300/500V	7,9	67,2	127
65600225	25 x 1,00	300/500V	13,4	240,0	346
65600304	4 x 1,50	300/500V	6,9	57,6	101
65600307	7 x 1,50	300/500V	9,3	100,8	175
65609001	5 x 35,0	0,6/1 kV	33,2	1680,0	2299

item no.	No. of cores x cross section (n x mm ²)	nominal voltage	outer-ø (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-core cable screened					
65601002	2 x 0,50	300/500V	4,9	24,7	42
65601003	3 x 0,50	300/500V	5,3	29,7	51
65601005	5 x 0,50	300/500V	6,1	40,2	67
65601012	12 x 0,50	300/500V	8,5	85,9	132
65601105	5 x 0,75	300/500V	6,8	53,6	87
65601204	4 x 1,00	300/500V	6,6	57,0	86
65601213	13 x 1,00	300/500V	10,8	169,2	235
65601303	3 x 1,50	300/500V	7,3	63,4	99
65601305	5 x 1,50	300/500V	8,3	94,6	152
65601307	7 x 1,50	300/500V	9,7	127,4	195
65609002	5 x 35,0	0,6/1kV	34,1	1885,3	2455

Technical data (기술 데이터)

Nominal voltage :	Uo/U 300/500 V resp. 0.6/1kV		
Testing voltage :	300/500V	0.6/1kV	
	core/core	2000V	4000V
	core/screen	2000V	4000V
Min. bending radius :			
fixed laying :	4 x d		
flexible application :	6 x d		
continuously flexible :	10 x d		
Torsion angle :	± 15°/1 m		
Temperature range			
fixed laying :	-50/+90°C		
flexible application :	-50/+90°C		
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5%, acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.		
Fire performance :	No flame propagation acc. to IEC 60332-3-24+ VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)		
Toxicity :	acc. to EN 50305 + VDE 0260-305		
Smoke density :	acc. to IEC 61034 + VDE 0482-1034		
Weather resistance :	very good		
Oil and fuel resistance :	acc. to EN 50264-1 + VDE 0260-264-1		
Flexibility :	very good		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

item no.	No. of cores x cross section (n x mm ²)	nominal voltage	outer-ø (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)
multi-core cable screened					
65609004	6 x 2 x 0,25	300/500V	8,0	46,3	98
65609005	12 x 2 x 0,34	300/500V	11,9	131,4	204
65603002	2 x 2 x 0,50	300/500V	6,7	35,5	69
65603004	4 x 2 x 0,50	300/500V	8,5	60,1	108
65603006	8 x 2 x 0,50	300/500V	12,3	129,3	230
65603103	3 x 2 x 0,75	300/500V	8,4	65,9	124

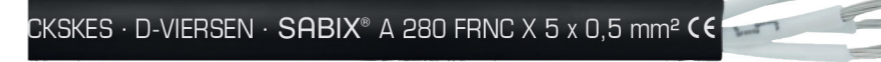
Other dimensions and colours are possible on request.

SABIX® A 280 FRNC X

wiring cable / control cable, cross linked type



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 1 x 1,0 mm² CE



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 5 x 0,5 mm² CE

Construction (구조)

- 도체 : tinned copper strands fine wires acc. to IEC 60228, VDE 0295, class 5
- 절연체 : Special SABIX®
- Single conductor : Colour code : White (similar RAL 9010)
- Multi-core cable : Colour code : white cores with consecutive numbers acc. to EN 50334 + VDE 0293-334
- Multi-core cable : Stranding : in layers
- Multi-core cable : Sheath material : Special SABIX®
- Multi-core cable : Sheath colour : Black (RAL 9005)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 불꽃 전파 금지 (no flame propagation)
- 난연 및 자기소화성 (flame retardant and self-extinguishing)
- 우수한 오존 저항성 (good ozone resistance)
- 우수한 오일 및 화학적 저항성 (good oil and chemical resistance)
- 위험 수준 HL1-3에 대한 화재 보호 요구 사항 R15(EL1A) acc. EN 45545-2를 충족

Technical data (기술 데이터)

Nominal voltage :	Uo/U 300/500V
Testing voltage :	core/core 2000V
Min. bending radius :	5 x d
Temperature range during protected, fixed laying:	-40/+125°C (single conductor) -50/+125°C (multi-core cable)
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5%, acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance :	No flame propagation acc. to IEC 60332-3-24 VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Toxicity :	acc. to EN 50305 + VDE 0260-305
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Absence of harmful substances :	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section (n x mm ²)	largest single wire (ø mm)	outer-ø ± 10% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)	ohmic resistance at 20 °C (max. Ω/km)	heating value approx (kWh/km)
62800105	1 x 0,50	0,21	1,7	4,8	7	40,1	13,0
62800305	3 x 0,50	0,21	4,7	14,4	35	40,1	115
62800505	5 x 0,50	0,21	5,8	24	50	40,1	170
62800805	8 x 0,50	0,21	7,3	38,4	83	40,1	246
62801005	10 x 0,50	0,21	8,1	48	97	40,1	275
62801205	12 x 0,50	0,21	8,4	57,6	112	40,1	306
62800607	6 x 0,75	0,21	7,2	43,2	86	26,7	237
62800807	8 x 0,75	0,21	7,3	57,6	101	26,7	245
62801007	10 x 0,75	0,21	9,4	72	133	26,7	345
62800110	1 x 1,00	0,21	2,1	9,6	12	20	16,0
62800310	3 x 1,00	0,21	5,5	28,8	55	20	162
62800410	4 x 1,00	0,21	6,2	38,4	71	20	186
62800610	6 x 1,00	0,21	7,5	57,6	101	20	252
62800810	8 x 1,00	0,21	9	76,8	135	20	338
62801010	10 x 1,00	0,21	10,1	96	164	20	402
62800115	1 x 1,50	0,21	2,5	14,4	17	13,7	22,5
62800315	3 x 1,50	0,21	6,6	43,2	68	13,7	210
62800125	1 x 2,50	0,26	3,1	24	27	8,21	34,0

Other dimensions and colours are possible on request.

SABIX® A 285 FRNC X

control cable with numbered cores and overall copper screen, cross linked type



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 285 FRNC X 5 x 0,5 mm² CE

Construction (구조)

- 도체 : tinned copper strands fine wires
acc. to IEC 60228, VDE 0295, class 5
- 절연체 : special SABIX®
- 선심식별 : white cores with consecutive numbers
acc. to EN 50334 + VDE 0293-334
- 연합 : in layers
- 테이핑 : foil
- 차폐 : tinned copper braiding
- 시스 소재 : special SABIX®
- 시스 색상 : Black (RAL 9005)

Characteristics (특징)

- 할로겐 프리 (halogen-free)
- 선별된 우수한 EMC 특성 (screened, good EMC characteristics)
- 불꽃 전파 금지 (no flame propagation)
- 난연 및 자기소화성 (flame retardant and self-extinguishing)
- 우수한 오존 저항성 (good ozone resistance)
- 우수한 오일 및 화학적 저항성 (good oil and chemical resistance)
- 위험 수준 HL1-3에 대한 화재 보호 요구 사항 R15(EL1A) acc. EN 45545-2를 충족

Technical data (기술 데이터)

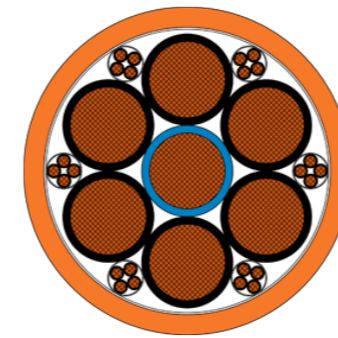
Nominal voltage :	U ₀ /U 300/500V
Testing voltage :	core/core 2000V core/screen 2000V
Min. bending radius :	10 x d
Temperature range during protected, fixed laying :	-50/+125°C
Halogen-free :	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5%, acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 μS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance :	No flame propagation acc. to IEC 60332-3-24+ VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity :	acc. to EN 50305 + VDE 0260-305
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Absence of harmful substances :	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section (n x mm ²)	largest single wire (ø mm)	outer-Ø ± 10% (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)	ohmic resistance at 20 °C (max. Ω/km)	heating value approx (kWh/km)
62850305	3 x 0,50	0,21	5,2	30,3	45	40,1	99
62850505	5 x 0,50	0,21	6,3	43,5	68	40,1	154
62850805	8 x 0,50	0,21	7,9	62,2	97	40,1	237
62851005	10 x 0,50	0,21	8,6	74,3	114	40,1	258
62851205	12 x 0,50	0,21	8,9	86,6	127	40,1	288
62850607	6 x 0,75	0,21	7,7	67	101	26,7	231
62850807	8 x 0,75	0,21	9,1	86,6	132	26,7	305
62851007	10 x 0,75	0,21	10,4	119,7	172	26,7	381
62850310	3 x 1,00	0,21	6,2	46,5	66	20,0	155
62850610	6 x 1,00	0,21	8,2	83,7	125	20,0	285
62850810	8 x 1,00	0,21	9,8	106	160	20,0	366
62851010	10 x 1,00	0,21	10,8	149,9	200	20,0	401

Other dimensions and colours are possible on request.

GP 400 Sy - PUR

Supply cable - Symmetrical



Construction (구조)

- 도체 : tinned copper strands, fine wires acc. to IEC 60228 class 5
- 절연체 : SABIX®
- 선심식별 : 1,0 mm²: black with numbers 1 – 24
35,0 mm² resp. 50,0 mm²:
blue, 2 x white, 2 x brown, 2 x black
- 연합 : 1,0 mm²: each four cores twisted in layers, wrapped with non-woven tape
Elements and 50,0 mm² cores twisted in layers, blue core in the centre, wrapped with non-woven tape
- 시스 소재 : PUR
- 시스 색상 : Orange

Characteristics (특징)

- 최적화된 가격 (price optimised)
- 저용량 단열재 (low capacity insulation)

Technical data (기술 데이터)

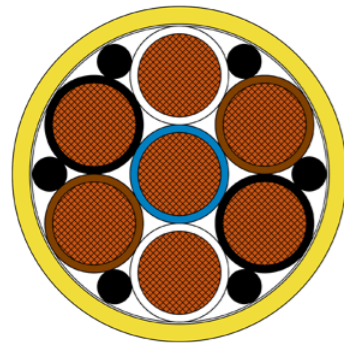
Nominal voltage :	1,0 mm ² : U ₀ /U 115/200 V 50,0 mm ² : U ₀ /U max. 0,6/1 kV
Testing voltage :	core/core 4000 V AC 50 Hz
Min. bending radius : fixed laying:	4 x d
flexible application :	6 x d
for one single bend :	3 x d
Halogen-free :	acc. to IEC 60754-1
Temperature range fixed laying :	-50/+90 °C
flexible application :	-40/+90 °C +110 °C (bis 7500 h) limited time of use
Fire performance :	sheath material: UL 94 V2
Chemical resistance :	good against acids, alkalines, solvents, hydraulic liquids, etc.
Hydrolysis and microbial resistance :	very good - acc. to EN 50363-10-2
Salt water resistance :	very good - acc. to UL 1309
Oil resistance :	very good - acc. to EN 50363-10-2
MUD resistance :	very good - acc. to IEC 60092-360
Weather resistance :	very good - acc. to HD 605 (VDE 0276-605)
Ozone resistance :	very good - acc. to EN 50396
Mechanical resistance :	characteristics of the PUR outer sheath: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance - high shear strength
Absence of harmful substances :	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section (n x mm ²)	outer-Ø approx. (mm)	Copper figure (kg/km)	Cable weight (≈kg/km)	Ohmic resistance (max. Ω/km)
34000452	7 x 35,0 + 6 x 4 x 1,0	min. 40 - max. 41,9	2583	3219	35,0 mm ² : 0,554 1,0 mm ² : 19,5
34000453	7 x 50,0 + 6 x 4 x 1,0	min. 40 - max. 41,9	3590	4123	50,0 mm ² : 0,386 1,0 mm ² : 20,0

Other dimensions and colours are possible on request.

GP 400 SF S Power

Supply cable - Drag chain Power



Construction (구조)

- 도체 : bare copper strands, fine wires acc. to IEC 60228 class 5
- 절연체 : SABIX®
- 선심식별 : blue, white, white, brown, brown, black, black
- 연합 : cores twisted in layers, blue core in the centre, filler in interstices, wrapped with non-woven tape
all elements optimized stranded in layers, wrapped with overlapping non-woven tape
- 시스 소재 : SABIX®
- 시스 색상 : Yellow

Characteristics (특징)

- 저용량 단열재 (low capacity insulation)
- 내마모성 PUR 피복 (abrasion-resistant PUR sheath)
- 차갑고 유연한 (cold flexible)
- 할로겐 프리 (halogen-free)
- 내유성 (oil resistant)
- 내후성 (weather resistant)
- 비틀림 저항성 (torsion resistant)

Technical data (기술 데이터)

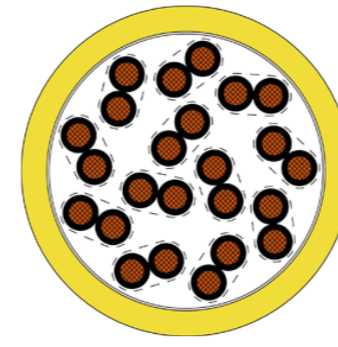
Nominal voltage :	U ₀ /U 0,6/1 kV
Testing voltage :	core/core 4000 V AC 50 Hz
Min. bending radius :	
fixed laying :	4 x d
flexible application :	6 x d
continuously flexible :	12 x d
Torsion angle :	± 60°/1 m
Min. tensile strength :	4035 N (15 N/mm ²)
Temperature range	
fixed laying :	-50/+90°C
flexible application :	-40/+90°C
Fire performance :	no flame propagation acc. to IEC 60332-3-24 +VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 und EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Halogen-free :	acc. to EN 50306-1 + EN 50264-1. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 μS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Toxicity :	acc. to EN 50305 + VDE 0260-305
Free-hanging length for festoon application :	50 m
Absence of harmful substances :	acc. to RoHS directive of the European Union

Other dimensions and colours are possible on request.

item no.	no. of cores x cross section (n x mm ²)	outer-Ø approx. (mm)	Copper figure (kg/km)	Cable weight (≈ kg/km)	Ohmic resistance (max. Ω/km)
34006230	7 x 35,0	ca. 34,3	2352	2888	35,0 mm ² : 0,55
34000251	7 x 35,0 + 6 x 6,0	ca. 38,7 - max. 40,0	2707	3405	35,0 mm ² : 0,55 6,0 mm ² : 3,3

GP 400 SF S Control

400 Hz Ground Power control cable



Construction (구조)

- 도체 : bare copper strands, fine wires acc. to IEC 60228 class 5
- 절연체 : SABIX®
- 선심식별 : black with numbers 1 - 24
- 연합 : cores twisted to pairs, pairs stranded in layers, wrapped with non-woven tape
all elements optimized stranded in layers, wrapped with overlapping non-woven tape
- 시스 소재 : SABIX®
- 시스 색상 : Yellow

Characteristics (특징)

- 저용량 단열재 (low capacity insulation)
- 내마모성 PUR 피복 (abrasion-resistant PUR sheath)
- 차갑고 유연한 (cold flexible)
- 할로겐 프리 (halogen-free)
- 내유성 (oil resistant)
- 내후성 (weather resistant)
- 비틀림 저항성 (torsion resistant)

Technical data (기술 데이터)

Nominal voltage :	U ₀ /U 0,6/1 kV
Testing voltage :	core/core 4000 V AC 50 Hz
Min. bending radius :	
fixed laying :	4 x d
flexible application :	6 x d for repeated winding action
guided on pulleys :	7,5 x d
continuously flexible :	12 x d
Temperature range	
fixed laying :	-50/+90°C
flexible application :	-40/+90°C
Torsion angle :	± 60°/1 m
Min. tensile strength :	4035 N (15 N/mm ²)
Fire performance :	no flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 und EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Halogen-free :	acc. to EN 50306-1 + EN 50264-1. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 μS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Smoke density :	acc. to IEC 61034 + VDE 0482-1034
Toxicity :	acc. to EN 50305 + VDE 0260-305
Free-hanging length for festoon application :	50 m
Absence of harmful substances :	acc. to RoHS directive of the European Union

Other dimensions and colours are possible on request.

item no.	no. of cores x cross section (n x mm ²)	outer-Ø approx. (mm)	Copper figure (kg/km)	Cable weight (≈ kg/km)	Ohmic resistance (max. Ω/km)
34000252	12 x 2 x 1,5	ca. 20,7 - max. 22,0	346	529	1,5 mm ² : 13,3



Thomas (주)토마스케이블

[본사/중부] 충청북도 청원군 오창읍 여천3길 206
T. 043-240-0700 F. 043-240-0760

[경인] 경기도 안양시 동안구 학의로282 금강펜테리움 IT타워 B동 1818호
T. 031-421-1713 F. 031-421-1715

[영남] 부산광역시 강서구 유통단지1로 41 부산 T-PLEX 125동 210호
T. 051-325-0755 F. 051-325-5766

[호남] 광주광역시 북구 설죽로 416 상가2동 202호
T. 062-573-6630 F. 062-573-6631

Thomas (주)토마스

[본사] 경기도 안양시 동안구 학의로 282 금강펜테리움IT타워 B동 18층
T. 031-424-3030 F. 031-424-3866

Thomas (주)토마스오토메이션

[본사] 경기도 안양시 동안구 시민대로 266, 1120호 18층
T. 031-467-8585 F. 031-424-3866