KATALOG · MARKAZIY OSIYO | 3,6/6 – 18/30 kV | EAC · TR TS 004/2011

PROTOLON (FL) / XPRT / SMRT analogi

Barabanga o‘rash uchun O‘K kabellari yassi va dumaloq · 3,6/6 – 18/30 kV

Qozog‘iston, O‘zbekiston, Qirg‘iziston, Tojikiston va Turkmanistonning tog‘-kon sanoati, energetika, metallurgiya va portlari uchun FeiChun yig‘ma katalogi — optik tolali va tolasiz 22 tur.

Hujjat № FC-CAT-CA-2026-6D91-UZ | Tahrir 0 | Nashr sanasi 10.10.2026 | Til O‘zbek tili

01 Dastur sharhi

FeiChun o‘rash kabellari og‘ir sharoitlarda ishlaydigan harakatlanuvchi uskunalarni quvvat va ma’lumot bilan ta’minlaydi: dinamik cho‘zilish yuklamalari, yo‘nalishning tez-tez o‘zgarishi, roliklar orqali o‘tish va past haroratlarda.

Dastur yagona belgilash, hujjatlash va sinov tizimiga ega uchta seriyani birlashtiradi — monospiral barabanlar uchun yassi kabellar hamda og‘ir va standart rejimdagi dumaloq kabellar, har bir tur o‘rnatilgan optik element bilan yoki usiz.

Qo‘llanish sohalari

- Ko‘mir konlari va rudniklardagi karyer ekskavatorlari, draglaynlar va rotorli komplekslar
- Ko‘mir va ruda omborlarining shtabeler-reklaymerlari, IES va metallurgiya kombinatlari qayta yuklagichlari
- Daryo portlari va quruq portlar / logistika markazlarining portal va ko‘prikli kranlari
- Metallurgiya va sement zavodlarining ko‘prikli va ruda kranlari
- Harakatlanuvchi podstansiyalar, uzatish aravalari va konveyer tizimlari

Yassi FC-FLR / FC-FLR-LWL

(N)TSFLCGEWÖU · 3,6/6 – 8,7/15 kV
PROTOLON (FL) / (FL)-LWL analogi
Monospiral barabanlarda past o‘rash balandligi, 120 m/min gacha

A qism →

Dumaloq FC-MVR / FC-MVR-LWL

(N)TSCGEWÖU / (N)TSKCGEWÖU · 6/10 – 18/30 kV
PROTOLON XPRT / XPRT-LWL analogi
Og‘ir rejim: 240 m/min gacha, ± 25 °/m

B qism →

Dumaloq FC-MVR-SR / FC-MVR-SR-LWL

(N)TSCGEWÖU · 6/10 – 12/20 kV
PROTOLON SMRT / SMRT-LWL analogi
Standart rejim: 200 m/min gacha, tejamkor yechim

B qism →

22 tur
yassi va dumaloq, OT bilan va OTsiz

3,6 – 30 kV
nominal kuchlanish diapazoni

−50 °C
qo‘zg‘almas o‘rnatish (harakatda −35 °C)

240 m/min gacha
harakat tezligi

Markaziy Osiyodagi loyihalar uchun

- YeOIIning muvofiqlik sertifikati № ЕАЭС KG417/052.CN.02.15390 (TR TS 004/2011, GOST 31996-2012, GOST 31565-2012), 23.10.2030 gacha amal qiladi
- Sovuqqa chidamlilik: qo‘zg‘almas o‘rnatish −50 °C gacha, harakatlanuvchi rejim −35 °C gacha; ozon, UB nurlanishi va moylarga chidamli — keskin kontinental iqlim uchun
- Rus tilidagi to‘liq hujjatlar to‘plami: texnik tavsiflar, sinov bayonnomalari, sifat pasportlari
- Tayyorlash muddati texnik kelishuvdan keyin 2–3 hafta; ishlab chiqarish nuqsonlariga kafolat kamida 3 yil
- FCA (Incoterms 2020) shartlarida yetkazib berish — xaridor ekspeditorining Xitoydagi ombori; Xorgos va Alashankou chegara o‘tish joylari orqali qulay temir yo‘l jo‘natmasi
- Texnik yordam: yiliga ikki marta onlayn o‘qitish, obyektga chiqish — mahalliy distribyutor orqali

Tanlash jadvali

FeiChun turi	Referens turi	Konstruksiya	Nominal kuchlanish	Rejim / tezlik	Optik tolalar	Kesimlar diapazoni	Bo‘lim
YASSI KABELLAR — A QISM							
FC-FLR (N)TSFLCGEWÖU 3,6/6 kV	PROTOLON (FL) 3,6/6 kV	Yassi	**3,6/6 kV**	120 m/min gacha	Yo‘q	3×25 – 3×120 mm²	§03
FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV	PROTOLON (FL)-LWL 3,6/6 kV	Yassi	**3,6/6 kV**	120 m/min gacha	Ha — 6G62,5 standart	3×35 – 3×95 mm²	§03
FC-FLR (N)TSFLCGEWÖU 6/10 kV	PROTOLON (FL) 6/10 kV	Yassi	**6/10 kV**	120 m/min gacha	Yo‘q	3×25 – 3×120 mm²	§04
FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV	PROTOLON (FL)-LWL 6/10 kV	Yassi	**6/10 kV**	120 m/min gacha	Ha — 6G62,5 standart	3×35 – 3×95 mm²	§04
FC-FLR (N)TSFLCGEWÖU 8,7/15 kV	PROTOLON (FL) 8,7/15 kV	Yassi	**8,7/15 kV**	120 m/min gacha	Yo‘q	3×25 – 3×120 mm²	§05
FC-FLR-LWL (N)TSFLCGEWÖU 8,7/15 kV	PROTOLON (FL)-LWL 8,7/15 kV	Yassi	**8,7/15 kV**	120 m/min gacha	Ha — 6G62,5 standart	3×35 – 3×70 mm²	§05
DUMALOQ KABELLAR — B QISM							
FC-MVR (N)TSCGEWÖU 6/10 kV	PROTOLON XPRT (N)TSCGEWÖU 6/10 kV	Dumaloq	**6/10 kV**	Og‘ir · 240 m/min	Yo‘q	3×25 – 3×300 mm²	§08
FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 6/10 kV	Dumaloq	**6/10 kV**	Og‘ir · 240 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§08
FC-MVR-SR (N)TSCGEWÖU 6/10 kV	PROTOLON SMRT (N)TSCGEWÖU 6/10 kV	Dumaloq	**6/10 kV**	Standart · 200 m/min	Yo‘q	3×25 – 3×300 mm²	§08
FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV	PROTOLON SMRT-LWL (N)TSCGEWÖU 6/10 kV	Dumaloq	**6/10 kV**	Standart · 200 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§08
FC-MVR (N)TSCGEWÖU 8,7/15 kV	PROTOLON XPRT (N)TSCGEWÖU 8,7/15 kV	Dumaloq	**8,7/15 kV**	Og‘ir · 240 m/min	Yo‘q	3×25 – 3×300 mm²	§09

FeiChun turi	Referens turi	Konstruksiya	Nominal kuchlanish	Rejim / tezlik	Optik tolalar	Kesimlar diapazoni	Bo‘lim
FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 8,7/15 kV	Dumaloq	**8,7/15 kV**	Og‘ir · 240 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§09
FC-MVR-SR (N)TSCGEWÖU 8,7/15 kV	PROTOLON SMRT (N)TSCGEWÖU 8,7/15 kV	Dumaloq	**8,7/15 kV**	Standart · 200 m/min	Yo‘q	3×25 – 3×300 mm²	§09
FC-MVR-SR-LWL (N)TSCGEWÖU 8,7/15 kV	PROTOLON SMRT-LWL (N)TSCGEWÖU 8,7/15 kV	Dumaloq	**8,7/15 kV**	Standart · 200 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§09
FC-MVR (N)TSCGEWÖU 12/20 kV	PROTOLON XPRT (N)TSCGEWÖU 12/20 kV	Dumaloq	**12/20 kV**	Og‘ir · 240 m/min	Yo‘q	3×25 – 3×300 mm²	§10
FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 12/20 kV	Dumaloq	**12/20 kV**	Og‘ir · 240 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§10
FC-MVR-SR (N)TSCGEWÖU 12/20 kV	PROTOLON SMRT (N)TSCGEWÖU 12/20 kV	Dumaloq	**12/20 kV**	Standart · 200 m/min	Yo‘q	3×25 – 3×300 mm²	§10
FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV	PROTOLON SMRT-LWL (N)TSCGEWÖU 12/20 kV	Dumaloq	**12/20 kV**	Standart · 200 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§10
FC-MVR (N)TSCGEWÖU 14/25 kV	PROTOLON XPRT (N)TSCGEWÖU 14/25 kV	Dumaloq	**14/25 kV**	Og‘ir · 240 m/min	Yo‘q	3×25 – 3×300 mm²	§11
FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 14/25 kV	Dumaloq	**14/25 kV**	Og‘ir · 240 m/min	Ha — 6G62,5 standart	3×25 – 3×300 mm²	§11
FC-MVR (N)TSCGEWÖU 18/30 kV	PROTOLON XPRT (N)TSCGEWÖU 18/30 kV	Dumaloq	**18/30 kV**	Og‘ir · 240 m/min	Yo‘q	3×35 – 3×300 mm²	§12
FC-MVR-LWL (N)TSKCGEWÖU 18/30 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 18/30 kV	Dumaloq	**18/30 kV**	Og‘ir · 240 m/min	Ha — 6G62,5 standart	3×35 – 3×300 mm²	§12

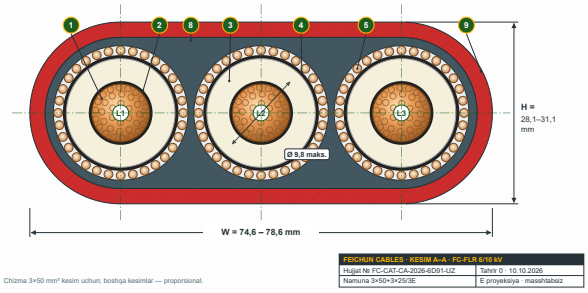
FEICHUN CABLES

QISM A

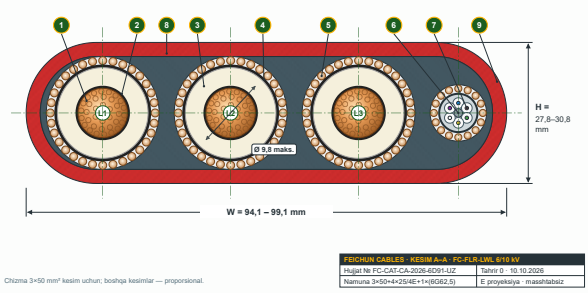
FC-FLR / FC-FLR-LWL yassi kabellari

(N)TSFLCGEWÖU · 3,6/6 – 8,7/15 kV · PROTOLON (FL) / (FL)-LWL analogi · monospiral barabanlar va yo‘naltiruvchi tizimlar uchun

02 Yassi kabellar — konstruksiya va xususiyatlar



FC-FLR (N)TSFLCGEWÖU
Faqat quvvat (chizmada: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU
Optik tolalar bilan (chizmada: 3×50+4×25/4E+1×(6G62,5))

Poz.	Element	Material
1	Faza o‘tkazgichi	Qalaylangan yumshatilgan mis, mayda simli, 5-sinf (IEC 60228) / F sinfi (DIN VDE 0295)
2	Ichki yarimo‘tkazgich qatlam	Ekstruziyalangan yarimo‘tkazgich EPR
3	Izolyatsiya	Yuqori sifatli EPR, kamida 3GI3 (DIN VDE 0207-20), tabiiy rangda
4	Tashqi yarimo‘tkazgich qatlam	Modifikatsiyalangan EPR, qora, iliq holatda olinadi
5	Yerga ulash o‘tkazgichi	Qalaylangan mis simlar, bo‘lingan va har bir tomir atrofida konsentrik joylashgan
6	OT markaziy elementi (faqat LWL)	Metall bo‘lmagan FRP kuch elementi
7	OT modullari va tolalar (faqat LWL)	Gel bilan to‘ldirilgan 6 ta ETFE modul, har birida 1–4 tola, rangli markirovka
8	Ichki qobiq / to‘ldirgich	Rezina aralashma, qora, tomirlararo bo‘shliqni to‘ldiradi
9	Tashqi qobiq	Polixloropren (CR), kamida 5GM5, qizil

Konstruksiya xususiyatlari

Parametr	Tavsif
Tomirlarning joylashuvi	Uchta quvvat tomiri (LWL variantida OT elementi qo‘shiladi) parallel joylashgan; yerga ulash o‘tkazgichi bo‘lingan va har bir tomir atrofida konsentrik taqsimlangan
Elektr maydonini boshqarish	Bir jarayonda uch qatlamli ekstruziya: ichki yarimo‘tkazgich / EPR izolyatsiya / tashqi yarimo‘tkazgich
Tomirlarni belgilash	Tabiiy rangli izolyatsiya, qora yarimo‘tkazgich qatlam; L1, L2, L3 raqamli lentalar
Optik element	Markaziy FRP element atrofida oltita erkin modul; 6 / 12 / 18 / 24 tola
Qobiq rangi	Qizil (standart); buyurtma bo‘yicha sariq yoki qora

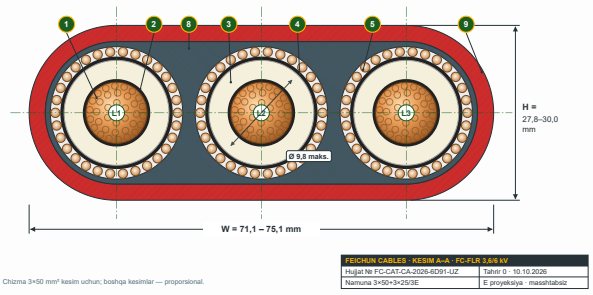
Kuchlanish sinflari bo‘yicha elektr parametrlari

Parametr	3,6/6 kV	6/10 kV	8,7/15 kV
Nominal kuchlanish U_0/U	3,6/6 kV	6/10 kV	8,7/15 kV
Maks. ishchi kuchlanish AC	4,2/7,2 kV	6,9/12 kV	10,4/18 kV
Maks. ishchi kuchlanish DC	5,4/10,8 kV	9/18 kV	13,5/27 kV
Sinov kuchlanishi AC, 5 daq	11 kV	17 kV	24 kV
Qisman razryadlar, 1,73 U_0 da		≤ 10 pKl	

Issiqlik, mexanik va kimyoviy parametrlar (barcha turlar)

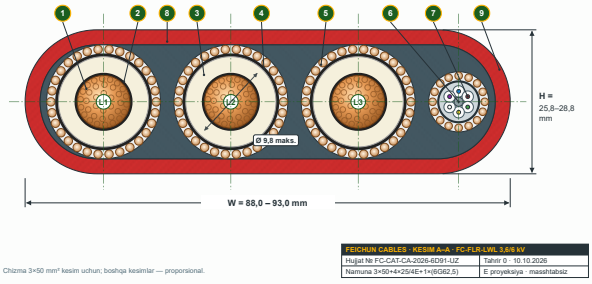
Parametr	Qiymati
Tomirning maks. harorati	+90 °C
Qisqa tutashuv harorati	+250 °C (maks. 5 s)
Atrof-muhit — qo‘zg‘almas o‘rnatish	−50 °C … +80 °C
Atrof-muhit — harakatlanuvchi rejim	−35 °C … +80 °C
Maks. cho‘zilish yuklamasi	Faza tomirlarining umumiy kesimiga 15 N/mm²
Min. egilish radiusi	DIN VDE 0298-3 bo‘yicha — turlar jadvaliga qarang (D = 1,5 × yassi kabel balandligi)
S-shaklidagi burilishlar	Min. masofa 20 × D
Harakat tezligi	120 m/min gacha (portal, o‘rash)
Buralish	Ruxsat etilmaydi
Chidamlilik	Moylar (DIN EN 60811-404), ozon, UB va namlik — ochiq havoda cheklovsiz foydalanish; suvga chidamlilik HD 22.16 bo‘yicha

03 Yassi kabellar 3,6/6 kV



FC-FLR (N)TSFLCGEWÖU 3,6/6 kV

Faqat quvvat (chizmada: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV

Optik tolalar bilan (chizmada: 3×50+4×25/4E+1×(6G62,5))

FC-FLR (N)TSFLCGEWÖU 3,6/6 kV

analog: PROTOLON (FL)

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og‘irligi kg/km	Maks. cho‘zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×25+3×25/3E	FC-FLR06-02525	6,9	24,2	27,2	64,3	68,3	408	2 730	1 125	0,795	105	3,58
3×35+3×25/3E	FC-FLR06-03525	8,3	24,7	27,7	65,8	69,8	416	3 120	1 575	0,565	130	5,01
3×50+3×25/3E	FC-FLR06-05025	9,8	27,8	30,0	71,1	75,1	450	3 860	2 250	0,393	162	7,15
3×70+3×35/3E	FC-FLR06-07035	11,4	28,9	31,9	76,8	80,8	479	4 730	3 150	0,277	200	10,01
3×95+3×50/3E	FC-FLR06-09550	13,3	31,0	34,0	82,5	86,5	495	5 600	4 275	0,210	241	13,59
3×120+3×70/3E	FC-FLR06-12070	15,1	35,4	37,4	92,3	97,3	561	7 400	5 400	0,164	282	17,16

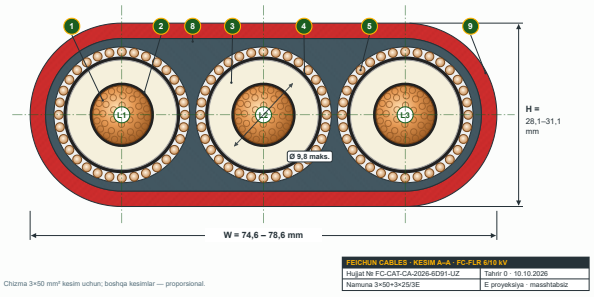
FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV

analog: PROTOLON (FL)-LWL

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og‘irligi kg/km	Maks. cho‘zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×35+4×25/4E +1×(6G62,5)	FC-FLR06-03525F	8,3	24,5	27,5	83,5	88,5	413	3 700	1 575	0,565	130	5,01
3×50+4×25/4E +1×(6G62,5)	FC-FLR06-05025F	9,8	25,8	28,8	88,0	93,0	432	4 250	2 250	0,393	162	7,15
3×70+4×35/4E +1×(6G62,5)	FC-FLR06-07035F	11,4	28,7	31,7	97,7	102,7	476	5 590	3 150	0,277	200	10,01
3×95+4×50/4E +1×(6G62,5)	FC-FLR06-09550F	13,3	30,6	33,6	105,3	110,3	504	6 720	4 275	0,210	241	13,59

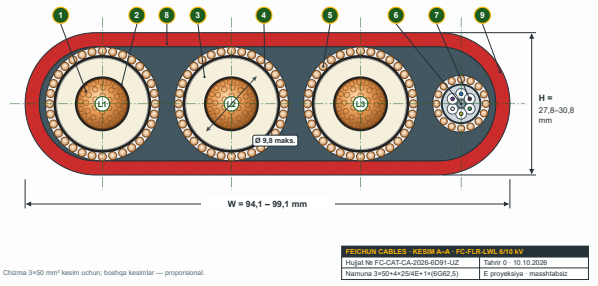
Jadvallardagi ruxsat etilgan toklar — atrof-muhit harorati 30 °C da bir qatlam o‘ralgan rezina kabellar uchun nominal qiymatlar (DIN VDE 0298-4). Boshqa kesimlar, qobiq ranglari va OT konfiguratsiyalari (12 / 18 / 24 tola, G50 yoki E9) buyurtma bo‘yicha tayyorlanadi.

04 Yassi kabellar 6/10 kV



FC-FLR (N)TSFLCGEWÖU 6/10 kV

Faqat quvvat (chizmada: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV

Optik tolalar bilan (chizmada: 3×50+4×25/4E+1×(6G62,5))

FC-FLR (N)TSFLCGEWÖU 6/10 kV

analog: PROTOLON (FL)

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og‘irligi kg/km	Maks. cho‘zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×25+3×25/3E	FC-FLR10-02525	6,9	25,0	27,5	66,7	69,7	413	2 860	1 125	0,795	105	3,58
3×35+3×25/3E	FC-FLR10-03525	8,3	25,5	28,5	68,2	72,2	428	3 260	1 575	0,565	130	5,01
4×35+4×25/4E	FC-FLR10-43525	8,3	25,5	28,5	86,7	91,7	428	4 110	2 100	0,565	130	5,01
3×50+3×25/3E	FC-FLR10-05025	9,8	28,1	31,1	74,6	78,6	467	4 030	2 250	0,393	162	7,15
3×70+3×35/3E	FC-FLR10-07035	11,4	29,7	32,7	79,2	83,2	491	4 850	3 150	0,277	200	10,01
4×70+4×35/4E	FC-FLR10-47035	11,4	29,5	32,5	100,9	105,9	488	6 240	4 200	0,277	200	10,01
3×95+3×50/3E	FC-FLR10-09550	13,3	31,7	34,7	84,7	89,7	521	5 920	4 275	0,210	241	13,59
3×120+3×70/3E	FC-FLR10-12070	15,1	35,1	38,1	92,9	97,9	572	7 420	5 400	0,164	282	17,16

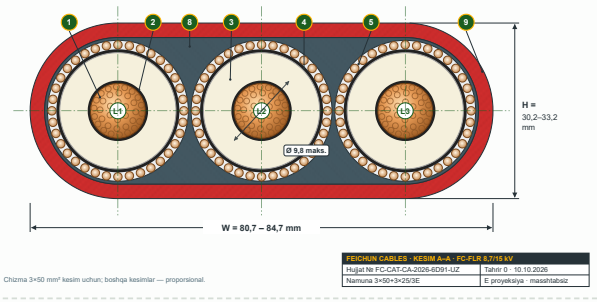
FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV

analog: PROTOLON (FL)-LWL

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og‘irligi kg/km	Maks. cho‘zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×35+4×25/4E +1×(6G62,5)	FC-FLR10-03525F	8,3	25,3	28,3	86,7	91,7	425	3 910	1 575	0,565	130	5,01
3×50+4×25/4E +1×(6G62,5)	FC-FLR10-05025F	9,8	27,8	30,8	94,1	99,1	462	4 810	2 250	0,393	162	7,15
3×70+4×35/4E +1×(6G62,5)	FC-FLR10-07035F	11,4	29,5	32,5	100,9	105,9	488	5 800	3 150	0,277	200	10,01
3×95+4×50/4E +1×(6G62,5)	FC-FLR10-09550F	13,3	31,4	34,4	108,5	113,5	516	6 940	4 275	0,210	241	13,59

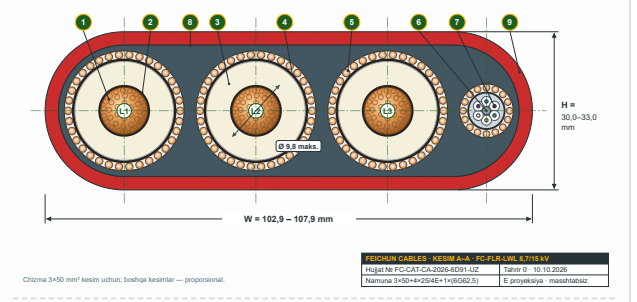
Jadvallardagi ruxsat etilgan toklar — atrof-muhit harorati 30 °C da bir qatlam o‘ralgan rezina kabellar uchun nominal qiymatlar (DIN VDE 0298-4). Boshqa kesimlar, qobiq ranglari va OT konfiguratsiyalari (12 / 18 / 24 tola, G50 yoki E9) buyurtma bo‘yicha tayyorlanadi.

05 Yassi kabellar 8,7/15 kV



FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

Faqat quvvat (chizmada: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 8,7/15 kV

Optik tolalar bilan (chizmada: 3×50+4×25/4E+1×(6G62,5))

FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

analog: PROTOLON (FL)

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×25+3×25/3E	FC-FLR15-02525	6,9	27,7	30,7	73,3	77,3	461	3 390	1 125	0,795	111	3,58
3×35+3×25/3E	FC-FLR15-03525	8,3	28,7	31,7	76,2	80,2	476	3 820	1 575	0,565	138	5,01
3×50+3×25/3E	FC-FLR15-05025	9,8	30,2	33,2	80,7	84,7	498	4 440	2 250	0,393	172	7,15
3×70+3×35/3E	FC-FLR15-07035	11,4	33,3	36,3	87,5	92,5	545	5 610	3 150	0,277	212	10,01
3×95+3×50/3E	FC-FLR15-09550	13,3	35,3	38,3	93,5	98,5	575	6 700	4 275	0,210	255	13,59
3×120+3×70/3E	FC-FLR15-12070	15,1	37,3	40,3	99,5	104,5	605	8 000	5 400	0,164	297	17,16

FC-FLR-LWL (N)TSFLCGEWÖU 8,7/15 kV

analog: PROTOLON (FL)-LWL

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Balandligi (H)		Kengligi (W)		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi N	R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
			min. mm	maks. mm	min. mm	maks. mm						
3×35+4×25/4E +1×(6G62,5)	FC-FLR15-03525F	8,3	29,3	32,3	96,9	101,9	485	4 630	1 575	0,565	138	5,01
3×50+4×25/4E +1×(6G62,5)	FC-FLR15-05025F	9,8	30,0	33,0	102,9	107,9	495	5 400	2 250	0,393	172	7,15
3×70+4×35/4E +1×(6G62,5)	FC-FLR15-07035F	11,4	31,7	34,7	109,7	114,7	520	6 460	3 150	0,277	212	10,01

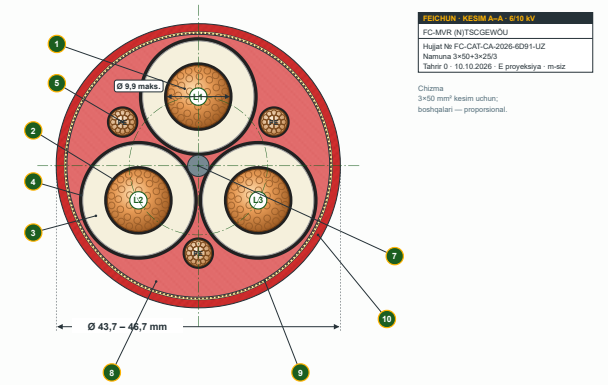
Jadvallardagi ruxsat etilgan toklar — atrof-muhit harorati 30 °C da bir qatlam o'ralgan rezina kabellar uchun nominal qiymatlar (DIN VDE 0298-4). Boshqa kesimlar, qobiq ranglari va OT konfiguratsiyalari (12 / 18 / 24 tola, G50 yoki E9) buyurtma bo'yicha tayyorlanadi.

QISM B

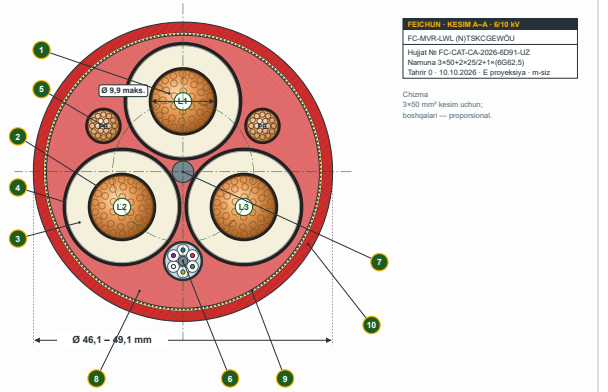
FC-MVR / FC-MVR-SR dumaloq kabellari

(N)TSCGEWÖU · (N)TSKCGEWÖU · 6/10 – 18/30 kV · PROTOLON XPRT / SMRT analogi · motorli barabanlar uchun

06 Dumaloq kabellar — konstruksiya va variantlar



FC-MVR / FC-MVR-SR (N)TSCGEWÖU
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU · FC-MVR-SR-LWL (N)TSCGEWÖU
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

Poz.	Element	Material
1	Faza o‘tkazgichi	Qalaylangan yumshatilgan mis, o‘ta mayda simli, 5-sinf (IEC 60228) / FS sinfi (DIN VDE 0295)
2	Ichki yarimo‘tkazgich qatlam	Ekstruziyalangan yarimo‘tkazgich EPR
3	Izolyatsiya	Yuqori sifatli EPR, kamida 3GI3 (DIN VDE 0207-20), tabiiy rangda
4	Tashqi yarimo‘tkazgich qatlam	Modifikatsiyalangan yarimo‘tkazgich aralashma, qora, sovuq holatda olinadi
5	Yerga ulash o‘tkazgichi	Yarimo‘tkazgich qoplamali qalaylangan mis — tomirlararo bo‘shliqlarda 3 qism (quvvat) yoki 2 qism (LWL)
6	Optik element (faqat LWL)	Markaziy FRP element atrofida gel bilan to‘ldirilgan 6 ta ETFE modul, har birida 1–4 tola
7	Profilli separator	Markaziy profilli rezina element
8	Ichki qobiq	EPR asosidagi rezina aralashma, kamida 5GM3, qizil, bo‘ylama suv to‘sgich
9	Buralishga qarshi o‘rim	Poliefir iplardan o‘rim, qobiqlar orasida vulkanizatsiyalangan
10	Tashqi qobiq	Polixloropren (CR/PCP), kamida 5GM5, ishqalanish va yirtilishga chidamli, qizil

Konstruksiya xususiyatlari

Parametr	Tavsif
Tomirlarning joylashuvi	Uchta quvvat tomiri markaziy profilli separator atrofida o‘ralgan; yerga ulash o‘tkazgichi tomirlararo bo‘shliqlarda 3 qismga (quvvat) yoki 2 qism va OT elementiga (LWL) bo‘lingan
Elektr maydonini boshqarish	Bir jarayonda uch qatlamli ekstruziya: ichki yarimo‘tkazgich / EPR izolyatsiya / tashqi yarimo‘tkazgich
Tomirlarni belgilash	Tabiiy rangli izolyatsiya, qora yarimo‘tkazgich qatlam; L1, L2, L3 raqamli lentalar
Qobiqlar tizimi	Vulkanizatsiyalangan buralishga qarshi o‘rimli ikki qatlamli «sendvich» qobiq — buralishga barqaror, yirtilish va ishqalanishga yuqori chidamli
Qobiq rangi	Qizil (standart); buyurtma bo‘yicha sariq yoki qora

Og‘ir va standart rejimni taqqoslash

Parametr	FC-MVR / FC-MVR-LWL PROTOLON XPRT analogi	FC-MVR-SR / FC-MVR-SR-LWL PROTOLON SMRT analogi
Yuklama sinfi	Og‘ir — yuqori va ekstremal mexanik yuklamalar	Standart — o‘rtacha mexanik yuklamalar
Kuchlanish diapazoni	6/10 – 18/30 kV	6/10 – 12/20 kV
Harakat tezligi (o‘rash)	240 m/min gacha, yuqorisi — so‘rov bo‘yicha	200 m/min gacha
Tomirga cho‘zilish yuklamasi	20 N/mm² statik · 30 N/mm² dinamik	20 N/mm² statik · 30 N/mm² dinamik
Buralish	± 25 °/m	± 25 °/m
O‘lchamlari	Turlar jadvali bo‘yicha	Og‘ir rejim varianti bilan bir xil
Belgilanishi, OT varianti	(N)TSKCGEWÖU	(N)TSCGEWÖU

07 Dumaloq kabellar — texnik xususiyatlar

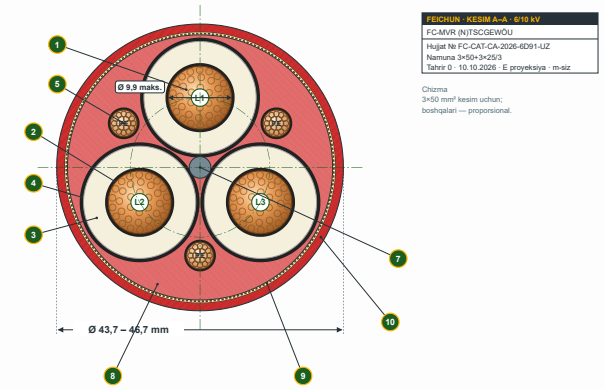
Kuchlanish sinflari bo‘yicha elektr parametrlari

Parametr	6/10 kV	8,7/15 kV	12/20 kV	14/25 kV	18/30 kV
Nominal kuchlanish U_0/U	6/10 kV	8,7/15 kV	12/20 kV	14/25 kV	18/30 kV
Maks. ishchi kuchlanish AC	6,9/12 kV	10,4/18 kV	13,9/24 kV	17,3/30 kV	20,8/36 kV
Maks. ishchi kuchlanish DC	9/18 kV	13,5/27 kV	20,8/36 kV	26/45 kV	31/54 kV
Sinov kuchlanishi AC, 5 daq	17 kV	24 kV	29 kV	35 kV	43 kV
Qisman razryadlar, 1,73 U_0 da			≤ 10 pKl		

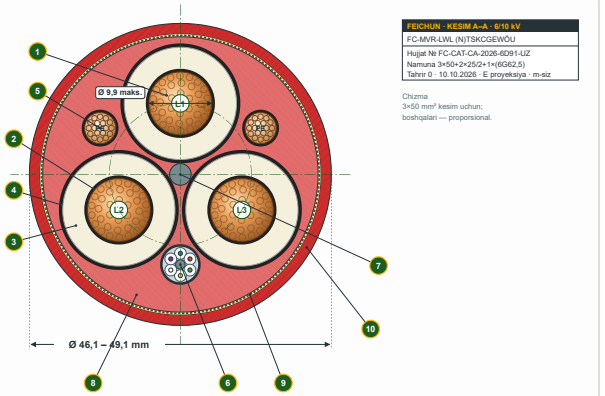
Issiqlik, mexanik va kimyoviy parametrlar (barcha turlar)

Parametr	Qiymati
Tomirning maks. harorati	+90 °C
Qisqa tutashuv harorati	+250 °C (maks. 5 s)
Atrof-muhit — qo‘zg‘almas o‘rnatish	−50 °C … +80 °C
Atrof-muhit — harakatlanuvchi rejim	−35 °C … +80 °C
Maks. cho‘zilish yuklamasi	20 N/mm² statik; 30 N/mm² dinamik (tezlanishda) — faza tomirlarining umumiy kesimiga
Buralish	± 25 °/m
Min. egilish radiusi	DIN VDE 0298-3 bo‘yicha — turlar jadvaliga qarang
S-shaklidagi burilishlar	Min. masofa 20 × D
Harakat tezligi	Og‘ir rejim 240 m/min gacha (yuqorisi — so‘rov bo‘yicha); standart rejim 200 m/min gacha
Chidamlilik	Moylar (DIN EN 60811-404), ozon, UB va namlik — ochiq havoda cheklovsiz foydalanish; suvga chidamlilik HD 22.16 bo‘yicha

08 Dumaloq kabellar 6/10 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 6/10 kV
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

FC-MVR / FC-MVR-SR (N)TSCGEWÖU 6/10 kV

analog: PROTOLON XPRT

analog: PROTOLON SMRT

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+3×25/3	FC-MVR10-02525 FC-MVRS10-02525	7,1	4,2	37,8	40,8	408	2 400	1 500	2 250	0,795	131	3,58
3×35+3×25/3	FC-MVR10-03525 FC-MVRS10-03525	8,3	4,2	40,2	43,2	432	2 830	2 100	3 150	0,565	162	5,01
3×35+3×35/3	FC-MVR10-03535 FC-MVRS10-03535	8,3	5,0	40,2	43,2	432	2 920	2 100	3 150	0,565	162	5,01
3×35+3×50/3	FC-MVR10-03550 FC-MVRS10-03550	8,3	5,9	42,7	45,7	457	3 280	2 100	3 150	0,565	162	5,01
3×50+3×25/3	FC-MVR10-05025 FC-MVRS10-05025	9,9	4,2	43,7	46,7	467	3 570	3 000	4 500	0,393	202	7,15
3×70+3×50/3	FC-MVR10-07050 FC-MVRS10-07050	11,8	5,9	47,7	50,7	507	4 570	4 200	6 300	0,277	250	10,01
3×95+3×50/3	FC-MVR10-09550 FC-MVRS10-09550	13,8	5,9	52,8	56,8	568	5 710	5 700	8 550	0,210	301	13,59
3×120+3×70/3	FC-MVR10-12070 FC-MVRS10-12070	15,4	7,0	56,2	60,2	602	6 840	7 200	10 800	0,164	352	17,16
3×150+3×70/3	FC-MVR10-15070 FC-MVRS10-15070	17,2	7,0	61,5	65,5	655	8 200	9 000	13 500	0,132	404	21,45
3×185+3×95/3	FC-MVR10-18595 FC-MVRS10-18595	19,0	8,0	65,3	69,3	693	9 690	11 100	16 650	0,108	461	26,46
3×240+3×120/3	FC-MVR10-24012 FC-MVRS10-24012	21,8	9,0	73,8	77,8	778	12 310	14 400	21 600	0,0817	540	34,32
3×300+3×150/3	FC-MVR10-30015 FC-MVRS10-30015	24,4	10,0	79,5	83,5	835	14 780	18 000	27 000	0,0654	620	42,90

FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV

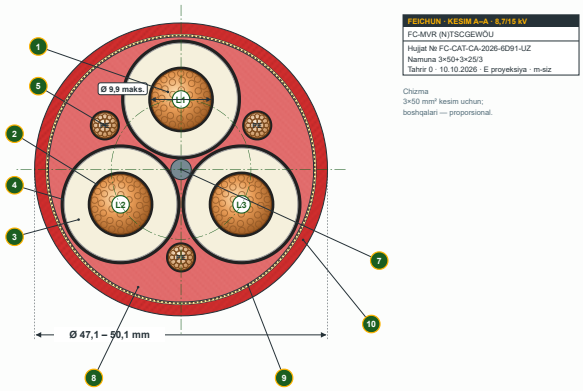
analog: PROTOLON XPRT-LWL

analog: PROTOLON SMRT-LWL

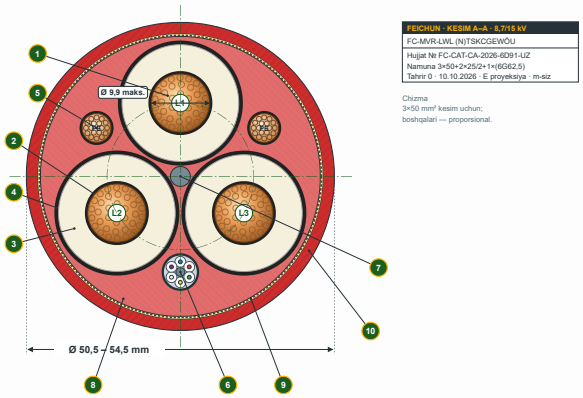
Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+2×25/2 +1×(6G62,5)	FC-MVR10-02525F FC-MVRS10-02525F	7,1	5,0	40,7	43,7	437	2 640	1 500	2 250	0,795	131	3,58
3×35+2×25/2 +1×(6G62,5)	FC-MVR10-03525F FC-MVRS10-03525F	8,3	5,0	42,7	45,7	457	3 060	2 100	3 150	0,565	162	5,01
3×50+2×25/2 +1×(6G62,5)	FC-MVR10-05025F FC-MVRS10-05025F	9,9	5,0	46,1	49,1	491	3 730	3 000	4 500	0,393	202	7,15
3×70+2×35/2 +1×(6G62,5)	FC-MVR10-07035F FC-MVRS10-07035F	11,8	5,9	51,1	55,1	551	4 870	4 200	6 300	0,277	250	10,01
3×95+2×50/2 +1×(6G62,5)	FC-MVR10-09550F FC-MVRS10-09550F	13,8	7,2	56,1	60,1	601	6 070	5 700	8 550	0,210	301	13,59
3×120+2×70/2 +1×(6G62,5)	FC-MVR10-12070F FC-MVRS10-12070F	15,4	8,3	60,9	64,9	649	7 500	7 200	10 800	0,164	352	17,16
3×150+2×70/2 +1×(6G62,5)	FC-MVR10-15070F FC-MVRS10-15070F	17,2	8,3	64,8	68,8	688	8 670	9 000	13 500	0,132	404	21,45
3×185+2×95/2 +1×(6G62,5)	FC-MVR10-18595F FC-MVRS10-18595F	19,0	9,8	69,3	73,3	733	10 290	11 100	16 650	0,108	461	26,46
3×240+2×120/2 +1×(6G62,5)	FC-MVR10-24012F FC-MVRS10-24012F	21,8	11,0	76,7	80,7	807	12 960	14 400	21 600	0,0817	540	34,32
3×300+2×150/2 +1×(6G62,5)	FC-MVR10-30015F FC-MVRS10-30015F	24,4	12,0	84,2	89,2	892	15 880	18 000	27 000	0,0654	620	42,90

Artikullar: yuqori qator FC-MVR (og'ir rejim, PROTOLON XPRT analogi); pastki qator FC-MVR-SR (standart rejim, PROTOLON SMRT analogi) — o'lchamlari va xususiyatlari bir xil. 12, 18 yoki 24 tolali, G50 yoki E9 turidagi, boshqa yerga ulash variantlari va qobiq ranglaridagi ijrolar buyurtma bo'yicha tayyorlanadi.

09 Dumaloq kabellar 8,7/15 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 8,7/15 kV
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 8,7/15 kV
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

FC-MVR / FC-MVR-SR (N)TSCGEWÖU 8,7/15 kV

analog: PROTOLON XPRT

analog: PROTOLON SMRT

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+3×25/3	FC-MVR15-02525 FC-MVRS15-02525	7,1	4,2	41,1	44,1	441	2 680	1 500	2 250	0,795	139	3,58
3×35+3×25/3	FC-MVR15-03525 FC-MVRS15-03525	8,3	4,2	43,7	46,7	467	3 150	2 100	3 150	0,565	172	5,01
3×50+3×25/3	FC-MVR15-05025 FC-MVRS15-05025	9,9	4,2	47,1	50,1	501	3 840	3 000	4 500	0,393	215	7,15
3×70+3×35/3	FC-MVR15-07035 FC-MVRS15-07035	11,8	5,0	52,0	56,0	560	5 010	4 200	6 300	0,277	265	10,01
3×95+3×50/3	FC-MVR15-09550 FC-MVRS15-09550	13,8	5,9	57,2	61,2	612	6 070	5 700	8 550	0,210	319	13,59
3×120+3×70/3	FC-MVR15-12070 FC-MVRS15-12070	15,4	7,0	62,1	66,1	661	7 480	7 200	10 800	0,164	371	17,16
3×150+3×70/3	FC-MVR15-15070 FC-MVRS15-15070	17,2	7,0	65,9	69,9	699	8 630	9 000	13 500	0,132	428	21,45
3×185+3×95/3	FC-MVR15-18595 FC-MVRS15-18595	19,0	8,0	69,8	73,8	738	10 140	11 100	16 650	0,108	488	26,46
3×240+3×120/3	FC-MVR15-24012 FC-MVRS15-24012	21,8	9,0	77,3	81,3	813	12 860	14 400	21 600	0,0817	574	34,32
3×300+3×150/3	FC-MVR15-30015 FC-MVRS15-30015	24,4	10,0	84,2	89,2	892	15 730	18 000	27 000	0,0654	660	42,90

FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 8,7/15 kV

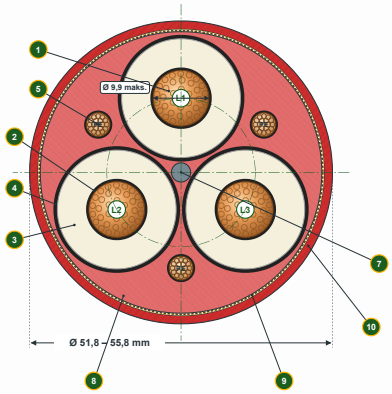
analog: PROTOLON XPRT-LWL

analog: PROTOLON SMRT-LWL

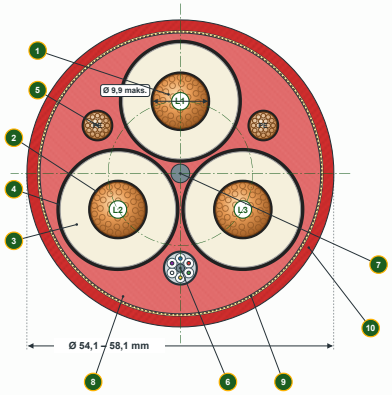
Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+2×25/2 +1×(6G62,5)	FC-MVR15-02525F FC-MVRS15-02525F	7,1	5,0	43,5	46,5	465	2 890	1 500	2 250	0,795	139	3,58
3×35+2×25/2 +1×(6G62,5)	FC-MVR15-03525F FC-MVRS15-03525F	8,3	5,0	46,1	49,1	491	3 380	2 100	3 150	0,565	172	5,01
3×50+2×25/2 +1×(6G62,5)	FC-MVR15-05025F FC-MVRS15-05025F	9,9	5,0	50,5	54,5	545	4 260	3 000	4 500	0,393	215	7,15
3×70+2×35/2 +1×(6G62,5)	FC-MVR15-07035F FC-MVRS15-07035F	11,8	5,9	55,2	59,2	592	5 350	4 200	6 300	0,277	265	10,01
3×95+2×50/2 +1×(6G62,5)	FC-MVR15-09550F FC-MVRS15-09550F	13,8	7,2	60,9	64,9	649	6 700	5 700	8 550	0,210	319	13,59
3×120+2×70/2 +1×(6G62,5)	FC-MVR15-12070F FC-MVRS15-12070F	15,4	8,3	64,4	68,4	684	7 870	7 200	10 800	0,164	371	17,16
3×150+2×70/2 +1×(6G62,5)	FC-MVR15-15070F FC-MVRS15-15070F	17,2	8,3	68,8	72,8	728	9 130	9 000	13 500	0,132	428	21,45
3×185+2×95/2 +1×(6G62,5)	FC-MVR15-18595F FC-MVRS15-18595F	19,0	9,8	74,1	78,1	781	10 920	11 100	16 650	0,108	488	26,46
3×240+2×120/2 +1×(6G62,5)	FC-MVR15-24012F FC-MVRS15-24012F	21,8	11,0	80,8	84,8	848	13 560	14 400	21 600	0,0817	574	34,32
3×300+2×150/2 +1×(6G62,5)	FC-MVR15-30015F FC-MVRS15-30015F	24,4	12,0	87,7	92,7	927	16 510	18 000	27 000	0,0654	660	42,90

Artikullar: yuqori qator FC-MVR (og'ir rejim, PROTOLON XPRT analogi); pastki qator FC-MVR-SR (standart rejim, PROTOLON SMRT analogi) — o'lchamlari va xususiyatlari bir xil. 12, 18 yoki 24 tolali, G50 yoki E9 turidagi, boshqa yerga ulash variantlari va qobiq ranglaridagi ijrolar buyurtma bo'yicha tayyorlanadi.

10 Dumaloq kabellar 12/20 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 12/20 kV
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

FC-MVR / FC-MVR-SR (N)TSCGEWÖU 12/20 kV

analog: PROTOLON XPRT

analog: PROTOLON SMRT

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+3×25/3	FC-MVR20-02525 FC-MVRS20-02525	7,1	4,2	44,1	47,1	471	2 950	1 500	2 250	0,795	139	3,58
3×35+3×25/3	FC-MVR20-03525 FC-MVRS20-03525	8,3	4,2	46,6	49,6	496	3 440	2 100	3 150	0,565	172	5,01
3×50+3×25/3	FC-MVR20-05025 FC-MVRS20-05025	9,9	4,2	51,8	55,8	558	4 300	3 000	4 500	0,393	215	7,15
3×70+3×35/3	FC-MVR20-07035 FC-MVRS20-07035	11,8	5,0	55,0	59,0	590	5 350	4 200	6 300	0,277	265	10,01
3×95+3×50/3	FC-MVR20-09550 FC-MVRS20-09550	13,8	5,9	61,6	65,6	656	6 660	5 700	8 550	0,210	319	13,59
3×120+3×70/3	FC-MVR20-12070 FC-MVRS20-12070	15,4	7,0	65,1	69,1	691	7 870	7 200	10 800	0,164	371	17,16
3×150+3×70/3	FC-MVR20-15070 FC-MVRS20-15070	17,2	7,0	69,0	73,0	730	9 060	9 000	13 500	0,132	428	21,45
3×185+3×95/3	FC-MVR20-18595 FC-MVRS20-18595	19,0	8,0	74,3	78,3	783	10 850	11 100	16 650	0,108	488	26,46
3×240+3×120/3	FC-MVR20-24012 FC-MVRS20-24012	21,8	9,0	80,3	84,3	843	13 340	14 400	21 600	0,0817	574	34,32
3×300+3×150/3	FC-MVR20-30015 FC-MVRS20-30015	24,4	10,0	87,2	92,2	922	16 250	18 000	27 000	0,0654	660	42,90

FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV

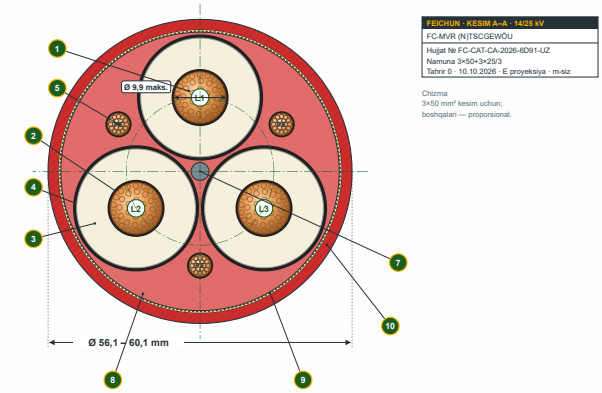
analog: PROTOLON XPRT-LWL

analog: PROTOLON SMRT-LWL

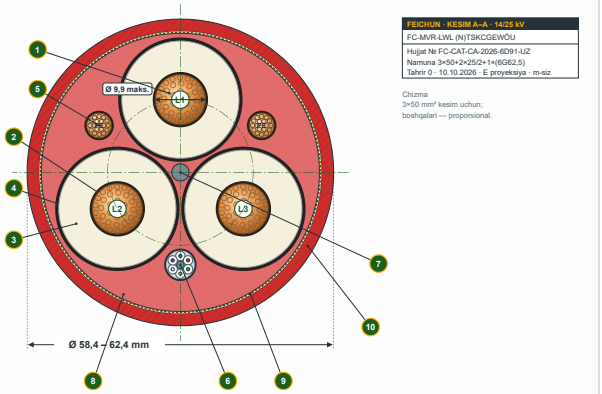
Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+2×25/2 +1×(6G62,5)	FC-MVR20-02525F FC-MVRS20-02525F	7,1	5,0	46,6	49,6	496	3 200	1 500	2 250	0,795	139	3,58
3×35+2×25/2 +1×(6G62,5)	FC-MVR20-03525F FC-MVRS20-03525F	8,3	5,0	50,1	54,1	541	3 880	2 100	3 150	0,565	172	5,01
3×50+2×25/2 +1×(6G62,5)	FC-MVR20-05025F FC-MVRS20-05025F	9,9	5,0	54,1	58,1	581	4 670	3 000	4 500	0,393	215	7,15
3×70+2×35/2 +1×(6G62,5)	FC-MVR20-07035F FC-MVRS20-07035F	11,8	5,9	58,2	62,2	622	5 640	4 200	6 300	0,277	265	10,01
3×95+2×50/2 +1×(6G62,5)	FC-MVR20-09550F FC-MVRS20-09550F	13,8	7,2	64,0	68,0	680	7 050	5 700	8 550	0,210	319	13,59
3×120+2×70/2 +1×(6G62,5)	FC-MVR20-12070F FC-MVRS20-12070F	15,4	8,3	68,0	72,0	720	8 360	7 200	10 800	0,164	371	17,16
3×150+2×70/2 +1×(6G62,5)	FC-MVR20-15070F FC-MVRS20-15070F	17,2	8,3	73,3	77,3	773	9 840	9 000	13 500	0,132	428	21,45
3×185+2×95/2 +1×(6G62,5)	FC-MVR20-18595F FC-MVRS20-18595F	19,0	9,8	77,2	81,2	812	11 410	11 100	16 650	0,108	488	26,46
3×240+2×120/2 +1×(6G62,5)	FC-MVR20-24012F FC-MVRS20-24012F	21,8	11,0	85,1	90,1	901	14 440	14 400	21 600	0,0817	574	34,32
3×300+2×150/2 +1×(6G62,5)	FC-MVR20-30015F FC-MVRS20-30015F	24,4	12,0	91,3	96,3	963	17 810	18 000	27 000	0,0654	660	42,90

Artikullar: yuqori qator FC-MVR (og'ir rejim, PROTOLON XPRT analogi); pastki qator FC-MVR-SR (standart rejim, PROTOLON SMRT analogi) — o'lchamlari va xususiyatlari bir xil. 12, 18 yoki 24 tolali, G50 yoki E9 turidagi, boshqa yerga ulash variantlari va qobiq ranglaridagi ijrolar buyurtma bo'yicha tayyorlanadi.

11 Dumaloq kabellar 14/25 kV



FC-MVR (N)TSCGEWÖU 14/25 kV
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

FC-MVR (N)TSCGEWÖU 14/25 kV

analog: PROTOLON XPRT

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+3×25/3	FC-MVR25-02525	7,1	4,2	48,4	51,4	514	3 470	1 500	2 250	0,795	139	3,58
3×35+3×25/3	FC-MVR25-03525	8,3	4,2	50,9	53,9	539	3 990	2 100	3 150	0,565	172	5,01
3×50+3×25/3	FC-MVR25-05025	9,9	4,2	56,1	60,1	601	4 900	3 000	4 500	0,393	215	7,15
3×70+3×35/3	FC-MVR25-07035	11,8	5,0	59,3	63,3	633	5 990	4 200	6 300	0,277	265	10,01
3×95+3×50/3	FC-MVR25-09550	13,8	5,9	65,9	69,9	699	7 360	5 700	8 550	0,210	319	13,59
3×120+3×70/3	FC-MVR25-12070	15,4	7,0	69,4	73,4	734	8 610	7 200	10 800	0,164	371	17,16
3×150+3×70/3	FC-MVR25-15070	17,2	7,0	73,3	77,3	773	9 840	9 000	13 500	0,132	428	21,45
3×185+3×95/3	FC-MVR25-18595	19,0	8,0	78,6	82,6	826	11 680	11 100	16 650	0,108	488	26,46
3×240+3×120/3	FC-MVR25-24012	21,8	9,0	84,6	88,6	886	14 240	14 400	21 600	0,0817	574	34,32
3×300+3×150/3	FC-MVR25-30015	24,4	10,0	91,5	96,5	965	17 220	18 000	27 000	0,0654	660	42,90

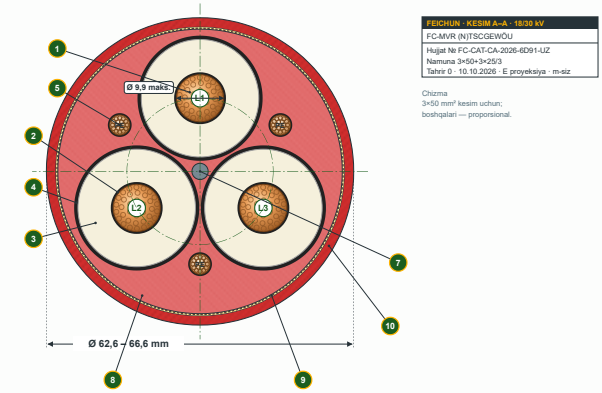
FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV

analog: PROTOLON XPRT-LWL

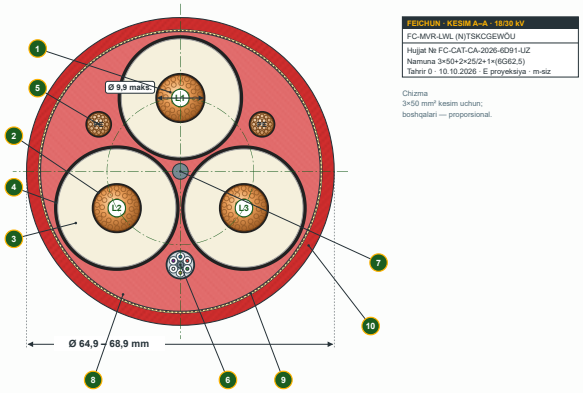
Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×25+2×25/2 +1×(6G62,5)	FC-MVR25-02525F	7,1	5,0	50,9	53,9	539	3 740	1 500	2 250	0,795	139	3,58
3×35+2×25/2 +1×(6G62,5)	FC-MVR25-03525F	8,3	5,0	54,4	58,4	584	4 460	2 100	3 150	0,565	172	5,01
3×50+2×25/2 +1×(6G62,5)	FC-MVR25-05025F	9,9	5,0	58,4	62,4	624	5 290	3 000	4 500	0,393	215	7,15
3×70+2×35/2 +1×(6G62,5)	FC-MVR25-07035F	11,8	5,9	62,5	66,5	665	6 300	4 200	6 300	0,277	265	10,01
3×95+2×50/2 +1×(6G62,5)	FC-MVR25-09550F	13,8	7,2	68,3	72,3	723	7 770	5 700	8 550	0,210	319	13,59
3×120+2×70/2 +1×(6G62,5)	FC-MVR25-12070F	15,4	8,3	72,3	76,3	763	9 120	7 200	10 800	0,164	371	17,16
3×150+2×70/2 +1×(6G62,5)	FC-MVR25-15070F	17,2	8,3	77,6	81,6	816	10 650	9 000	13 500	0,132	428	21,45
3×185+2×95/2 +1×(6G62,5)	FC-MVR25-18595F	19,0	9,8	81,5	85,5	855	12 260	11 100	16 650	0,108	488	26,46
3×240+2×120/2 +1×(6G62,5)	FC-MVR25-24012F	21,8	11,0	89,4	94,4	944	15 370	14 400	21 600	0,0817	574	34,32
3×300+2×150/2 +1×(6G62,5)	FC-MVR25-30015F	24,4	12,0	95,6	100,6	1 006	18 800	18 000	27 000	0,0654	660	42,90

Og'ir rejimli FC-MVR / FC-MVR-LWL variantida yetkazib beriladi. 12, 18 yoki 24 tolali, G50 yoki E9 turidagi, boshqa yerga ulash variantlari va qobiq ranglaridagi ijrolar buyurtma bo'yicha tayyorlanadi.

12 Dumaloq kabellar 18/30 kV



FC-MVR (N)TSCGEWÖU 18/30 kV
Quvvat varianti (chizmada: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 18/30 kV
Optik tolalar bilan (chizmada: 3×50+2×25/2+1×(6G62,5))

FC-MVR (N)TSCGEWÖU 18/30 kV

analog: PROTOLON XPRT

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×35+3×25/3	FC-MVR30-03525	8,3	4,2	57,4	60,4	604	4 910	2 100	3 150	0,565	172	5,01
3×50+3×25/3	FC-MVR30-05025	9,9	4,2	62,6	66,6	666	5 900	3 000	4 500	0,393	215	7,15
3×70+3×35/3	FC-MVR30-07035	11,8	5,0	65,8	69,8	698	7 050	4 200	6 300	0,277	265	10,01
3×95+3×50/3	FC-MVR30-09550	13,8	5,9	72,4	76,4	764	8 510	5 700	8 550	0,210	319	13,59
3×120+3×70/3	FC-MVR30-12070	15,4	7,0	75,9	79,9	799	9 810	7 200	10 800	0,164	371	17,16
3×150+3×70/3	FC-MVR30-15070	17,2	7,0	79,8	83,8	838	11 110	9 000	13 500	0,132	428	21,45
3×185+3×95/3	FC-MVR30-18595	19,0	8,0	85,1	89,1	891	13 020	11 100	16 650	0,108	488	26,46
3×240+3×120/3	FC-MVR30-24012	21,8	9,0	91,1	95,1	951	15 680	14 400	21 600	0,0817	574	34,32
3×300+3×150/3	FC-MVR30-30015	24,4	10,0	98,0	103,0	1 030	18 770	18 000	27 000	0,0654	660	42,90

FC-MVR-LWL (N)TSKCGEWÖU 18/30 kV

analog: PROTOLON XPRT-LWL

Tomirlar soni × kesim mm²	FeiChun artikuli	Tomir Ø maks. mm	Yerga ulash tomiri Ø maks. mm	Tashqi diametr		Min. egilish radiusi mm	Taxminiy og'irligi kg/km	Maks. cho'zilish kuchi		R_{20} maks. Om/km	Ruxsat etilgan tok A	QT toki kA (1 s)
				min. mm	maks. mm			statik N	dinamik N			
3×35+2×25/2 +1×(6G62,5)	FC-MVR30-03525F	8,3	5,0	60,9	64,9	649	5 410	2 100	3 150	0,565	172	5,01
3×50+2×25/2 +1×(6G62,5)	FC-MVR30-05025F	9,9	5,0	64,9	68,9	689	6 300	3 000	4 500	0,393	215	7,15
3×70+2×35/2 +1×(6G62,5)	FC-MVR30-07035F	11,8	5,9	69,0	73,0	730	7 380	4 200	6 300	0,277	265	10,01
3×95+2×50/2 +1×(6G62,5)	FC-MVR30-09550F	13,8	7,2	74,8	78,8	788	8 930	5 700	8 550	0,210	319	13,59
3×120+2×70/2 +1×(6G62,5)	FC-MVR30-12070F	15,4	8,3	78,8	82,8	828	10 340	7 200	10 800	0,164	371	17,16
3×150+2×70/2 +1×(6G62,5)	FC-MVR30-15070F	17,2	8,3	84,1	88,1	881	11 950	9 000	13 500	0,132	428	21,45
3×185+2×95/2 +1×(6G62,5)	FC-MVR30-18595F	19,0	9,8	88,0	92,0	920	13 620	11 100	16 650	0,108	488	26,46
3×240+2×120/2 +1×(6G62,5)	FC-MVR30-24012F	21,8	11,0	95,9	100,9	1 009	16 850	14 400	21 600	0,0817	574	34,32
3×300+2×150/2 +1×(6G62,5)	FC-MVR30-30015F	24,4	12,0	102,1	107,1	1 071	20 390	18 000	27 000	0,0654	660	42,90

Og'ir rejimli FC-MVR / FC-MVR-LWL variantida yetkazib beriladi. 12, 18 yoki 24 tolali, G50 yoki E9 turidagi, boshqa yerga ulash variantlari va qobiq ranglaridagi ijrolar buyurtma bo'yicha tayyorlanadi.

QISM C

Umumiy ma’lumotlar

Optik tolalar · tuzatish koeffitsiyentlari · standartlar va sinovlar · montaj · sertifikatlar

13 Optik tolalar parametrlari (LWL variantlari)

Xususiyat	G50/125 mkm Ko‘p modali OM2/OM3	G62,5/125 mkm Ko‘p modali OM1 (standart)	E9/125 mkm Bir modali OS2
Tola turi	Gradiyentli	Gradiyentli	Bir modali
O‘zak / qobiq / qoplama Ø	50 / 125 / 250 mkm	62,5 / 125 / 250 mkm	9 / 125 / 250 mkm
850 nm da so‘nish	≤ 2,8 dB/km	≤ 3,3 dB/km	—
1310 nm da so‘nish	≤ 0,8 dB/km	≤ 0,9 dB/km	≤ 0,4 dB/km
1550 nm da so‘nish	—	—	≤ 0,3 dB/km
850 nm da o‘tkazish polosasi	≥ 400 MGs·km	≥ 200 MGs·km	—
1300 nm da o‘tkazish polosasi	≥ 1 200 MGs·km	≥ 500 MGs·km	—
Raqamli apertura	0,20 ± 0,02	0,275 ± 0,02	0,14 ± 0,02
Xromatik dispersiya 1310 / 1550 nm	—	—	≤ 3,5 / ≤ 18 ps/(nm·km)
Tolalar soni	6 (standart) · 12 · 18 · 24 — gel bilan to‘ldirilgan oltita erkin modulda		

14 Tuzatish koeffitsiyentlari, standartlar va sinovlar

O‘rash koeffitsiyentlari — silindrik baraban

(dumaloq kabellar)

Barabandagi qatlamlar	1	2	3	4	5
Koeffitsiyent	0,80	0,61	0,49	0,42	0,38

Atrof-muhit harorati bo‘yicha tuzatish koeffitsiyentlari (tomir 90 °C)

Muhit harorati, °C	10	15	20	25	30	35	40	45	50
Koeffitsiyent	1,15	1,12	1,08	1,04	1,00	0,96	0,91	0,87	0,82

Yassi kabellar: ruxsat etilgan toklar 30 °C da bir qatlam o‘rash uchun berilgan. Dumaloq kabellar: ruxsat etilgan toklar 30 °C da havoda yotqizish uchun berilgan — silindrik barabanda ishlaganda o‘rash koeffitsiyentiga ko‘paytiring. Ikkala holatda ham atrof-muhit harorati koeffitsiyentini qo‘llang (DIN VDE 0298-4).

Standart	Qo‘llanish sohasi
DIN VDE 0250-813	Konstruksiya asosi (o‘rta kuchlanishli o‘rash kabeli)
DIN VDE 0295 / IEC 60228	Tomirlar, 5 / F sinfi
DIN VDE 0207-20 / -21	Izolyatsiya (3GI3) va qobiq (5GM5) aralashmalari
DIN VDE 0298-3 / -4	Egilish radiuslari, ruxsat etilgan toklar
DIN EN 60811-404	Moyga chidamlilik
HD 22.16 / EN 50525-1	Suvga chidamlilik; umumiy talablar
IEC 60793 / IEC 60794	Optik tolalar va OT kabel sinovlari
TR TS 004/2011 · GOST 31996-2012	YeOII xavfsizlik talablari, muvofiqlikni tasdiqlash

Qabul-topshirish va tipik sinovlar

- Har bir barabanni AC kuchlanish bilan sinash (kuchlanish sinfi bo‘yicha 11 / 17 / 24 / 29 / 35 / 43 kV) va qisman razryadlarni o‘lchash
- Tomirlar qarshiligi va o‘lchamlarini nazorat qilish
- Har bir tolani OTDR reflektometriyasi (LWL varianti), bayonnoma barabanga ilova qilinadi
- O‘rash, o‘zgaruvchan egilish va buralishga sinovlar (tipik)
- Ozon, UB va moylarga chidamlilik

Hujjatlar: har bir yetkazib berishga FeiChun o‘z laboratoriyasining sinov bayonnomasi ilova qilinadi. Uchinchi tomon ishtirokidagi sinovlar xaridor hisobidan mumkin.

15 Montaj, markirovka va yetkazib berish

Yassi kabellar

- Yassi kabel uchun monospiral barabanlardan foydalaning; baraban o‘zagi diametri ≥ 2 × min. egilish radiusi.
- Kabelni barabandan urinma bo‘yicha tortib oling — yonoq orqali tortmang; halqa va buralishga yo‘l qo‘ymang.
- Buralishga ruxsat etilmaydi; S-shaklidagi burilishlar orasidagi masofa kamida 20 × D.
- Cho‘zilish kuchi jadvaldagi chegaradan oshmasligi kerak, tezlanish va tormozlash cho‘qqilarini ham hisobga oling.
- Kuchlanish sinfiga mos maydonni boshqaruvchi uchlik muftalardan foydalaning; har bir bo‘lingan yerga ulash o‘tkazgichini ikkala uchida ulang.

Dumaloq kabellar

- Baraban o‘zagi diametri ≥ 2 × min. egilish radiusi; xuddi shu radiusdagi yo‘naltiruvchi roliklardan foydalaning.
- Kabelni barabandan urinma bo‘yicha tortib oling — yonoq orqali tortmang; halqa va sinishlarga yo‘l qo‘ymang.
- Buralish ± 25 °/m dan oshmasligi kerak; S-shaklidagi burilishlar orasidagi masofa kamida 20 × D.
- Cho‘zilish kuchi jadvaldagi statik / dinamik qiymatlar doirasida bo‘lishi kerak, tezlanish va tormozlash cho‘qqilarini ham hisobga oling.
- Birinchi o‘rashdan oldin kabelni yoyib, dam oldiring; ishga tushirishda taranglik tizimi sozlamalarini tekshiring.
- Kuchlanish sinfiga mos maydonni boshqaruvchi uchlik muftalardan foydalaning; yerga ulash o‘tkazgichining har bir qismini ikkala uchida ulang.

OT uchlarini ulash (LWL): optik elementni ochish maxsus malaka va asboblarni talab qiladi. Optik ulagichlar yoki pigteyllarni zavodda o‘rnatish tavsiya etiladi — buyurtmada ulanish o‘lchamlarini ko‘rsating.

Qobiq markirovkasi

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FEICHUN FC-FLR[-LWL] (N)TSFLCGEWÖU [tomirlar soni × kesim] [U0/U] [yil] [zavod raqami] [metr belgisi]
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FEICHUN FC-MVR[-SR][-LWL] (N)TSCGEWÖU / (N)TSKCGEWÖU [tomirlar soni × kesim] [U0/U] [yil] [zavod raqami] [metr belgisi]
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Qadoqlash va yetkazib berish

Pozitsiya	Standart
Baraban	Po‘lat yoki fumigatsiya qilingan yog‘och barabanlar, uchlari termo-kirishuvchan qopqoqlar bilan germetiklangan
Uzunliklar	Buyurtma bo‘yicha, bitta qurilish uzunligida (ulanmalarsiz)
Tayyorlash muddati	Texnik kelishuvdan keyin 2–3 hafta
Kafolat	Ishlab chiqarish nuqsonlariga kamida 3 yil
Baraban yorlig‘i	Turi, kesimi, uzunligi, brutto/netto og‘irligi, partiya №, baraban №

16 Sertifikatlar va sifat

EAC — TR TS 004/2011

Muvofiqlik sertifikati № ЕАЭС KG417/052.CN.02.15390 · TR TS 004/2011, GOST 31996-2012, GOST 31565-2012 · 24.10.2025 – 23.10.2030 amal qiladi

CE — LVD 2014/35/EU

Attestat № M.2025.206.C116598 · EN 50525-1:2011+A1:2022 · UDEM International Certification · 01.04.2030 gacha amal qiladi

UKCA — verifikatsiya

№ ICR/VC/HS2508110 · BS EN 50525-1:2011+A1:2022 · ICR Polska · 17.08.2030 gacha amal qiladi

FeiChun shuningdek ATEX (2014/34/EU direktivasi) hujjatlari verifikatsiyasiga va ayrim mahsulot guruhlari uchun IECEx / VDE ruxsatnomalariga ega. Sertifikat nusxalari so‘rov bo‘yicha taqdim etiladi.

17 Tovar belgilari va intellektual mulk

PROTOLON®, PROTOLON (FL), PROTOLON (FL)-LWL, PROTOLON XPRT, PROTOLON XPRT-LWL, PROTOLON SMRT, PROTOLON SMRT-LWL va PROTOLON (SMK) tegishli huquq egasining (Prysmian Group) tovar belgilari hisoblanadi va faqat turlarni texnik taqqoslash uchun keltiriladi; FeiChun Cables huquq egasi bilan bog‘liq emas va uning ma’qullashiga ega emas. FC-FLR, FC-FLR-LWL, FC-MVR, FC-MVR-LWL, FC-MVR-SR va FC-MVR-SR-LWL — funksional xususiyatlari ekvivalent bo‘lgan FeiChun mahsulotlari.

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Texnik va tijorat aloqalari

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Tog‘-kon va og‘ir sanoat: mining@feichuncables.com
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Sayt: www.feichuncables.com

Hujjatni boshqarish

Hujjat № FC-CAT-CA-2026-6D91-UZ
Tahrir 0 — birinchi nashr
Sana 10.10.2026
Hajmi 22 tur · yassi va dumaloq · 3,6/6 – 18/30 kV · OT bilan va OTsiz

Ishlab chiqdi — texnik bo‘lim	Tekshirdi — sifat nazorati	Tasdiqladi — xalqaro bo‘lim

FEICHUN CABLES