CATALOGUE · CENTRAL ASIA | 3.6/6 – 18/30 kV | EAC · TR CU 004/2011

PROTOLON (FL) / XPRT / SMRT Equivalent

MV Reeling Cables
flat and round · 3.6/6 – 18/30 kV

Consolidated FeiChun catalogue for mining, power, metallurgy and ports in Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan — 22 types with and without fibre optics.

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01 Programme Overview

FeiChun reeling cables supply power and data to mobile equipment operating in demanding conditions — dynamic tensile loads, frequent changes of direction, running over rollers and low temperatures.

The programme combines three series with a common designation, documentation and test system — flat cables for monospiral drums and round cables in heavy-duty and standard-duty versions, each type with or without an integrated fibre-optic element.

Applications

- Mining shovels, draglines and bucket-wheel systems at coal and ore mines
- Stacker-reclaimers at coal and ore yards, unloaders at power plants and steelworks
- Portal and gantry cranes at river ports and dry ports / logistics hubs
- Overhead and ore cranes at steel and cement plants
- Mobile substations, transfer cars and conveyor systems

Flat FC-FLR / FC-FLR-LWL

(N)TSFLCGEWÖU · 3.6/6 – 8.7/15 kV
PROTOLON (FL) / (FL)-LWL equivalent
Low stacking height on monospiral drums, up to 120 m/min

Part A →

Round FC-MVR / FC-MVR-LWL

(N)TSCGEWÖU / (N)TSKCGEWÖU · 6/10 – 18/30 kV
PROTOLON XPRT / XPRT-LWL equivalent
Heavy duty: up to 240 m/min, ± 25 °/m

Part B →

Round FC-MVR-SR / FC-MVR-SR-LWL

(N)TSCGEWÖU · 6/10 – 12/20 kV
PROTOLON SMRT / SMRT-LWL equivalent
Standard duty: up to 200 m/min, cost-optimised

Part B →

22 types
flat and round, with and without FO

3.6 – 30 kV
rated voltage range

–50 °C
fixed installation (–35 °C in motion)

up to 240 m/min
travel speed

For projects in Central Asia

- EAEU certificate of conformity No. ЕАЭС KG417/052.CN.02.15390 (TR CU 004/2011, GOST 31996-2012, GOST 31565-2012), valid to 23.10.2030
- Cold resistance: fixed installation to −50 °C, flexible operation to −35 °C; resistant to ozone, UV and oil — for the sharply continental climate
- Full documentation set in Russian: technical datasheets, test reports and quality certificates
- Production lead time 2–3 weeks after technical confirmation; warranty min. 3 years against manufacturing defects
- Delivery FCA (Incoterms 2020) — buyer's forwarder warehouse in China; convenient rail shipment via the Khorgos and Alashankou border crossings
- Technical support: online training twice a year; site visits via the local distributor

Selection guide

FeiChun type	Reference type	Design	Rated voltage	Duty / speed	Fibre optics	Size range	Section
FLAT CABLES — PART A							
FC-FLR (N)TSFLCGEWÖU 3,6/6 kV	PROTOLON (FL) 3,6/6 kV	Flat	**3.6/6 kV**	up to 120 m/min	No	3×25 – 3×120 mm²	§03
FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV	PROTOLON (FL)-LWL 3,6/6 kV	Flat	**3.6/6 kV**	up to 120 m/min	Yes — 6G62.5 standard	3×35 – 3×95 mm²	§03
FC-FLR (N)TSFLCGEWÖU 6/10 kV	PROTOLON (FL) 6/10 kV	Flat	**6/10 kV**	up to 120 m/min	No	3×25 – 3×120 mm²	§04
FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV	PROTOLON (FL)-LWL 6/10 kV	Flat	**6/10 kV**	up to 120 m/min	Yes — 6G62.5 standard	3×35 – 3×95 mm²	§04
FC-FLR (N)TSFLCGEWÖU 8,7/15 kV	PROTOLON (FL) 8,7/15 kV	Flat	**8.7/15 kV**	up to 120 m/min	No	3×25 – 3×120 mm²	§05
FC-FLR-LWL (N)TSFLCGEWÖU 8,7/15 kV	PROTOLON (FL)-LWL 8,7/15 kV	Flat	**8.7/15 kV**	up to 120 m/min	Yes — 6G62.5 standard	3×35 – 3×70 mm²	§05
ROUND CABLES — PART B							
FC-MVR (N)TSCGEWÖU 6/10 kV	PROTOLON XPRT (N)TSCGEWÖU 6/10 kV	Round	**6/10 kV**	Heavy · 240 m/min	No	3×25 – 3×300 mm²	§08
FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 6/10 kV	Round	**6/10 kV**	Heavy · 240 m/min	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§08
FC-MVR-SR (N)TSCGEWÖU 6/10 kV	PROTOLON SMRT (N)TSCGEWÖU 6/10 kV	Round	**6/10 kV**	Standard · 200 m/min	No	3×25 – 3×300 mm²	§08

FeiChun type	Reference type	Design	Rated voltage	Duty / speed	Fibre optics	Size range	Section
FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV	PROTOLON SMRT-LWL (N)TSCGEWÖU 6/10 kV	Round	**6/10 kV**	**Standard · 200 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§08
FC-MVR (N)TSCGEWÖU 8,7/15 kV	PROTOLON XPRT (N)TSCGEWÖU 8,7/15 kV	Round	**8.7/15 kV**	**Heavy · 240 m/min**	No	3×25 – 3×300 mm²	§09
FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 8,7/15 kV	Round	**8.7/15 kV**	**Heavy · 240 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§09
FC-MVR-SR (N)TSCGEWÖU 8,7/15 kV	PROTOLON SMRT (N)TSCGEWÖU 8,7/15 kV	Round	**8.7/15 kV**	**Standard · 200 m/min**	No	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	Round	**8.7/15 kV**	**Standard · 200 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§09
FC-MVR (N)TSCGEWÖU 12/20 kV	PROTOLON XPRT (N)TSCGEWÖU 12/20 kV	Round	**12/20 kV**	**Heavy · 240 m/min**	No	3×25 – 3×300 mm²	§10
FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 12/20 kV	Round	**12/20 kV**	**Heavy · 240 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§10
FC-MVR-SR (N)TSCGEWÖU 12/20 kV	PROTOLON SMRT (N)TSCGEWÖU 12/20 kV	Round	**12/20 kV**	**Standard · 200 m/min**	No	3×25 – 3×300 mm²	§10
FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV	PROTOLON SMRT-LWL (N)TSCGEWÖU 12/20 kV	Round	**12/20 kV**	**Standard · 200 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§10
FC-MVR (N)TSCGEWÖU 14/25 kV	PROTOLON XPRT (N)TSCGEWÖU 14/25 kV	Round	**14/25 kV**	**Heavy · 240 m/min**	No	3×25 – 3×300 mm²	§11

FeiChun type	Reference type	Design	Rated voltage	Duty / speed	Fibre optics	Size range	Section
FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 14/25 kV	Round	**14/25 kV**	**Heavy · 240 m/min**	Yes — 6G62.5 standard	3×25 – 3×300 mm²	§11
FC-MVR (N)TSCGEWÖU 18/30 kV	PROTOLON XPRT (N)TSCGEWÖU 18/30 kV	Round	**18/30 kV**	**Heavy · 240 m/min**	No	3×35 – 3×300 mm²	§12
FC-MVR-LWL (N)TSKCGEWÖU 18/30 kV	PROTOLON XPRT-LWL (N)TSKCGEWÖU 18/30 kV	Round	**18/30 kV**	**Heavy · 240 m/min**	Yes — 6G62.5 standard	3×35 – 3×300 mm²	§12

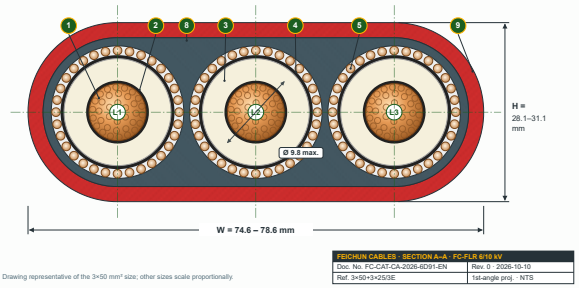
FEICHUN CABLE

PART A

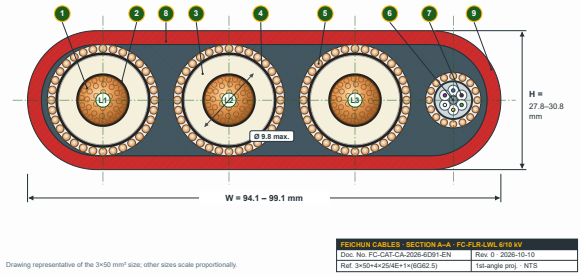
Flat cables FC-FLR / FC-FLR-LWL

(N)TSFLCGEWÖU · 3.6/6 – 8.7/15 kV · PROTOLON (FL) / (FL)-LWL equivalent · for monospiral drums and guiding systems

02 Flat cables — construction and data



FC-FLR (N)TSFLCGEWÖU
Power only (shown: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU
With fibre optics (shown: 3×50+4×25/4E+1×(6G62.5))

Pos.	Element	Material
1	Phase conductor	Tinned annealed Cu, finely stranded, class 5 (IEC 60228) / class F (DIN VDE 0295)
2	Inner semiconductive layer	Extruded semiconductive EPR
3	Insulation	High-grade EPR, min. 3GI3 (DIN VDE 0207-20), natural colour
4	Outer semiconductive layer	Modified EPR, black, strippable in warm condition
5	Earth conductor	Tinned Cu wires, split and applied concentrically around each core
6	FO central element (LWL only)	Non-metallic FRP strength member
7	FO tubes & fibres (LWL only)	6 gel-filled ETFE tubes, 1–4 fibres each, colour-coded
8	Inner sheath / bedding	Rubber compound, black, filling the inter-core spaces
9	Outer sheath	Polychloroprene (CR), min. 5GM5, red

Design features

Item	Description
Core arrangement	Three power cores (plus the FO element in LWL versions) laid in parallel; earth conductor split and distributed concentrically around each core
Electrical field control	Triple-extruded inner semicon / EPR insulation / outer semicon in one continuous process
Core identification	Natural insulation with black semiconductive layer; numbered tapes L1, L2, L3
Optical element	Six loose tubes around a central FRP support; 6 / 12 / 18 / 24 fibres
Sheath colour	Red (standard); yellow or black on request

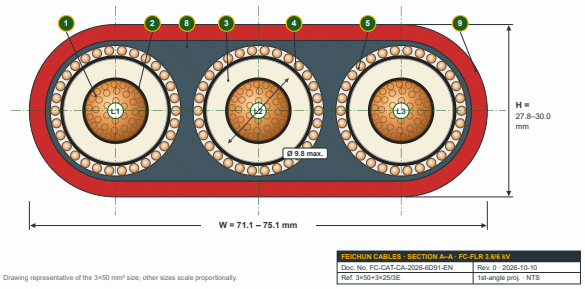
Electrical parameters by voltage class

Parameter	3.6/6 kV	6/10 kV	8.7/15 kV
Rated voltage U_0/U	3.6/6 kV	6/10 kV	8.7/15 kV
Max. operating voltage AC	4.2/7.2 kV	6.9/12 kV	10.4/18 kV
Max. operating voltage DC	5.4/10.8 kV	9/18 kV	13.5/27 kV
AC test voltage, 5 min	11 kV	17 kV	24 kV
Partial discharge at 1.73 U_0		≤ 10 pC	

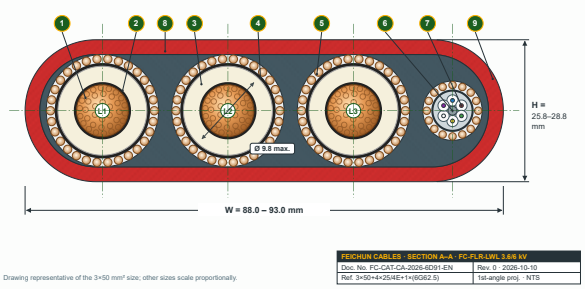
Thermal, mechanical & chemical parameters (all types)

Parameter	Value
Max. conductor temperature	+90 °C
Short-circuit temperature	+250 °C (max. 5 s)
Ambient — fixed installation	−50 °C to +80 °C
Ambient — fully flexible operation	−35 °C to +80 °C
Max. tensile load	15 N/mm² of total phase conductor cross-section
Min. bending radius	Per DIN VDE 0298-3 — see type tables (D = 1.5 × flat cable height)
S-type direction changes	Min. spacing 20 × D
Travel speed	Up to 120 m/min (gantry, reeling)
Torsional stress	Not permitted
Resistance	Oil (DIN EN 60811-404), ozone, UV and moisture — unrestricted outdoor use; water resistance per HD 22.16

03 Flat cables 3.6/6 kV



FC-FLR (N)TSFLCGEWÖU 3,6/6 kV
Power only (shown: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV
With fibre optics (shown: 3×50+4×25/4E+1×(6G62.5))

FC-FLR (N)TSFLCGEWÖU 3,6/6 kV

equivalent to PROTOLON (FL)

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

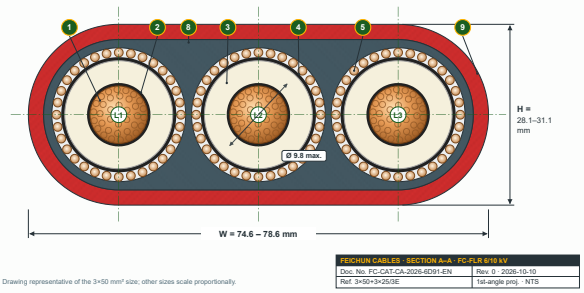
FC-FLR-LWL (N)TSFLCGEWÖU 3,6/6 kV

equivalent to PROTOLON (FL)-LWL

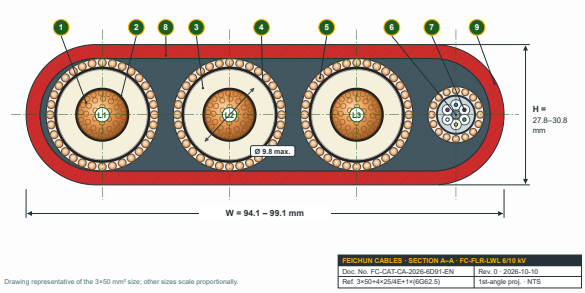
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
3×35+4×25/4E +1×(6G62.5)	FC-FLR06-03525F	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

Current ratings in the type tables are nominal values for rubber cables reeled in one layer at 30 °C ambient (DIN VDE 0298-4). Other sizes, sheath colours and fibre configurations (12 / 18 / 24 fibres, G50 or E9) are manufactured to order.

04 Flat cables 6/10 kV



FC-FLR (N)TSFLCGEWÖU 6/10 kV
Power only (shown: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV
With fibre optics (shown: 3×50+4×25/4E+1×(6G62.5))

FC-FLR (N)TSFLCGEWÖU 6/10 kV

equivalent to PROTOLON (FL)

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

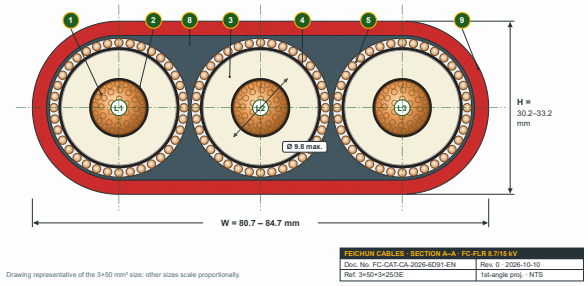
FC-FLR-LWL (N)TSFLCGEWÖU 6/10 kV

equivalent to PROTOLON (FL)-LWL

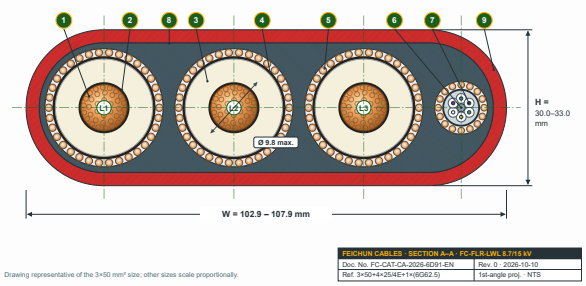
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
3×35+4×25/4E +1×(6G62.5)	FC-FLR10-03525F	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

Current ratings in the type tables are nominal values for rubber cables reeled in one layer at 30 °C ambient (DIN VDE 0298-4). Other sizes, sheath colours and fibre configurations (12 / 18 / 24 fibres, G50 or E9) are manufactured to order.

05 Flat cables 8.7/15 kV



FC-FLR (N)TSFLCGEWÖU 8,7/15 kV
Power only (shown: 3×50+3×25/3E)



FC-FLR-LWL (N)TSFLCGEWÖU 8,7/15 kV
With fibre optics (shown: 3×50+4×25/4E+1×(6G62.5))

FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

equivalent to PROTOLON (FL)

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

equivalent to PROTOLON (FL)-LWL

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H) min. mm	Height (H) max. mm	Width (W) min. mm	Width (W) max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

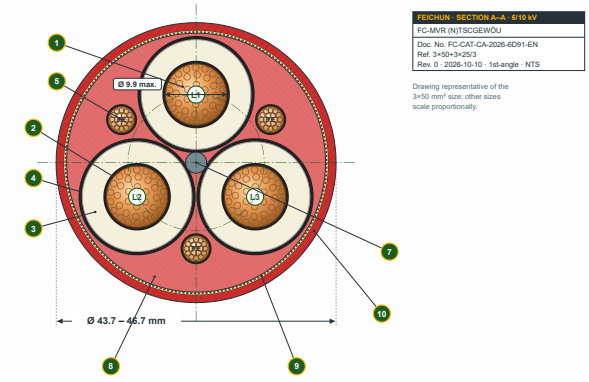
Current ratings in the type tables are nominal values for rubber cables reeled in one layer at 30 °C ambient (DIN VDE 0298-4). Other sizes, sheath colours and fibre configurations (12 / 18 / 24 fibres, G50 or E9) are manufactured to order.

PART B

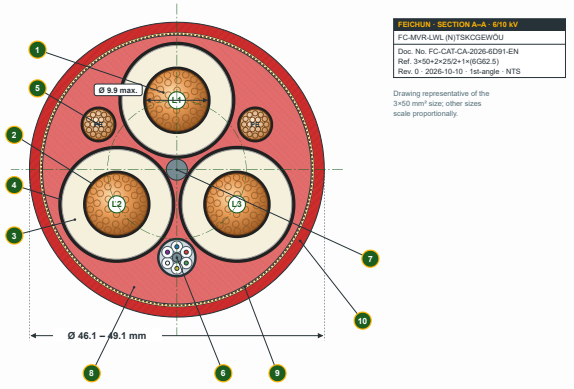
Round cables FC-MVR / FC-MVR-SR

(N)TSCGEWÖU · (N)TSKCGEWÖU · 6/10 – 18/30 kV · PROTOLON XPRT / SMRT equivalent · for motor-driven reeling drums

06 Round cables — construction and versions



FC-MVR / FC-MVR-SR (N)TSCGEWÖU
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU · FC-MVR-SR-LWL (N)TSCGEWÖU
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

Pos.	Element	Material
1	Phase conductor	Tinned annealed Cu, very finely stranded, class 5 (IEC 60228) / class FS (DIN VDE 0295)
2	Inner semiconductive layer	Extruded semiconductive EPR
3	Insulation	High-grade EPR, min. 3GI3 (DIN VDE 0207-20), natural colour
4	Outer semiconductive layer	Modified semiconductive compound, black, strippable cold
5	Earth conductor	Tinned Cu with semiconductive covering — 3 parts (power only) or 2 parts (LWL) in the interstices
6	Fibre-optic element (LWL only)	6 gel-filled ETFE tubes around a central FRP support, 1–4 fibres per tube
7	Cradle separator	Central profiled rubber element
8	Inner sheath	EPR-based rubber compound, min. 5GM3, red, longitudinally water-blocking
9	Anti-torsion braid	Polyester yarn braid, vulcanised between inner and outer sheath
10	Outer sheath	Polychloroprene (CR/PCP), min. 5GM5, abrasion- and tear-resistant, red

Design features

Item	Description
Core arrangement	Three power cores stranded around a central cradle separator; earth conductor split into 3 parts (power only) or 2 parts plus FO element (LWL) in the interstices
Electrical field control	Triple-extruded inner semicon / EPR insulation / outer semicon in one continuous process
Core identification	Natural insulation with black semiconductive layer; numbered tapes L1, L2, L3
Sheath system	Double-layer sandwich sheath with vulcanised anti-torsion braid — torsion-stable, high tear and abrasion resistance
Sheath colour	Red (standard); yellow or black on request

Heavy duty vs standard duty

Parameter	FC-MVR / FC-MVR-LWL PROTOLON XPRT equivalent	FC-MVR-SR / FC-MVR-SR-LWL PROTOLON SMRT equivalent
Duty class	Heavy duty — high to extreme mechanical stress	Standard duty — medium mechanical stress
Voltage range	6/10 – 18/30 kV	6/10 – 12/20 kV
Travel speed (reeling)	Up to 240 m/min, higher on request	Up to 200 m/min
Tensile load on conductor	20 N/mm² static · 30 N/mm² dynamic	20 N/mm² static · 30 N/mm² dynamic
Torsional stress	± 25 °/m	± 25 °/m
Dimensions	Per type tables	Identical to heavy-duty version
Designation, FO version	(N)TSKCGEWÖU	(N)TSCGEWÖU

07 Round cables — technical data

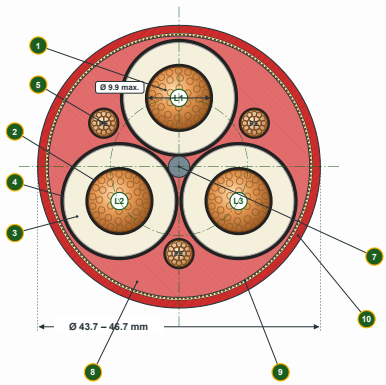
Electrical parameters by voltage class

Parameter	6/10 kV	8.7/15 kV	12/20 kV	14/25 kV	18/30 kV
Rated voltage U_0/U	6/10 kV	8.7/15 kV	12/20 kV	14/25 kV	18/30 kV
Max. operating voltage AC	6.9/12 kV	10.4/18 kV	13.9/24 kV	17.3/30 kV	20.8/36 kV
Max. operating voltage DC	9/18 kV	13.5/27 kV	20.8/36 kV	26/45 kV	31/54 kV
AC test voltage, 5 min	17 kV	24 kV	29 kV	35 kV	43 kV
Partial discharge at 1.73 U_0			≤ 10 pC		

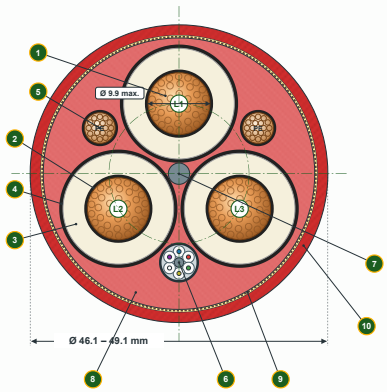
Thermal, mechanical & chemical parameters (all types)

Parameter	Value
Max. conductor temperature	+90 °C
Short-circuit temperature	+250 °C (max. 5 s)
Ambient — fixed installation	−50 °C to +80 °C
Ambient — fully flexible operation	−35 °C to +80 °C
Max. tensile load	20 N/mm² static; 30 N/mm² dynamic (acceleration) — of total phase conductor cross-section
Torsional stress	± 25 °/m
Min. bending radius	Per DIN VDE 0298-3 — see type tables
S-type direction changes	Min. spacing 20 × D
Travel speed	Heavy duty up to 240 m/min (higher on request); standard duty up to 200 m/min
Resistance	Oil (DIN EN 60811-404), ozone, UV and moisture — unrestricted outdoor use; water resistance per HD 22.16

08 Round cables 6/10 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 6/10 kV
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

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

equivalent to PROTOLON XPRT

equivalent to PROTOLON SMRT

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

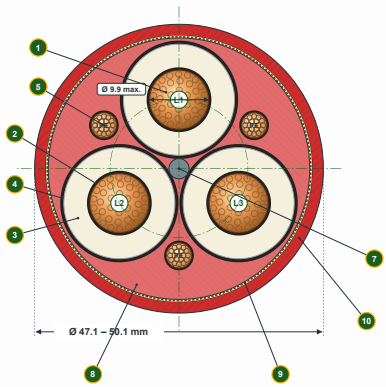
FC-MVR-LWL (N)TSKCGEWÖU 6/10 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 6/10 kV

equivalent to PROTOLON XPRT-LWL | equivalent to PROTOLON SMRT-LWL

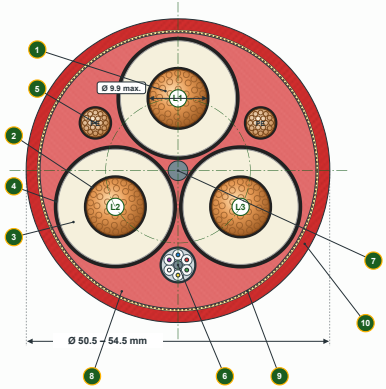
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
3×25+2×25/2 +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

Part numbers: upper line FC-MVR (heavy duty, PROTOLON XPRT equivalent); lower line FC-MVR-SR (standard duty, PROTOLON SMRT equivalent) — identical dimensions and ratings. Designs with 12, 18 or 24 fibres, G50 or E9 fibre types, alternative earth configurations and sheath colours are manufactured to order.

09 Round cables 8.7/15 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 8,7/15 kV
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 8,7/15 kV
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

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

equivalent to PROTOLON XPRT

equivalent to PROTOLON SMRT

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

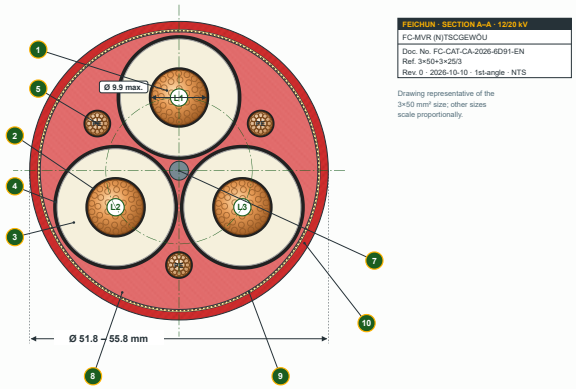
FC-MVR-LWL (N)TSKCGEWÖU 8,7/15 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 8,7/15 kV

equivalent to PROTOLON XPRT-LWL | equivalent to PROTOLON SMRT-LWL

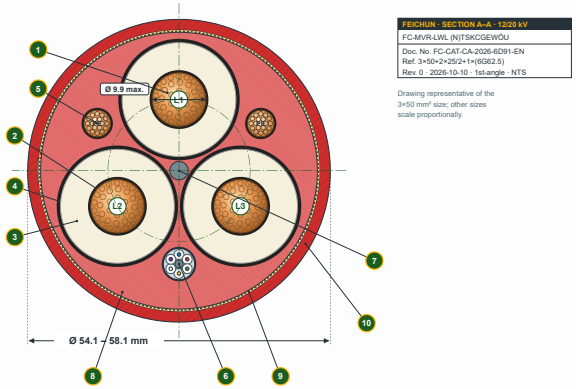
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
3×25+2×25/2 +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

Part numbers: upper line FC-MVR (heavy duty, PROTOLON XPRT equivalent); lower line FC-MVR-SR (standard duty, PROTOLON SMRT equivalent) — identical dimensions and ratings. Designs with 12, 18 or 24 fibres, G50 or E9 fibre types, alternative earth configurations and sheath colours are manufactured to order.

10 Round cables 12/20 kV



FC-MVR / FC-MVR-SR (N)TSCGEWÖU 12/20 kV
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

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

equivalent to PROTOLON XPRT

equivalent to PROTOLON SMRT

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

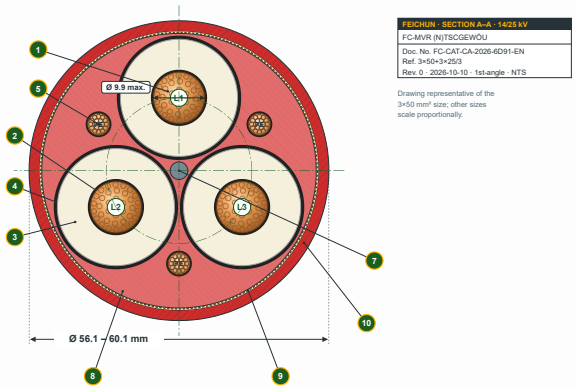
FC-MVR-LWL (N)TSKCGEWÖU 12/20 kV · FC-MVR-SR-LWL (N)TSCGEWÖU 12/20 kV

equivalent to PROTOLON XPRT-LWL | equivalent to PROTOLON SMRT-LWL

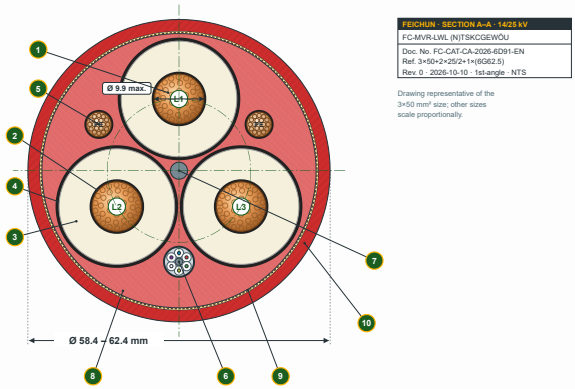
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
3×25+2×25/2 +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

Part numbers: upper line FC-MVR (heavy duty, PROTOLON XPRT equivalent); lower line FC-MVR-SR (standard duty, PROTOLON SMRT equivalent) — identical dimensions and ratings. Designs with 12, 18 or 24 fibres, G50 or E9 fibre types, alternative earth configurations and sheath colours are manufactured to order.

11 Round cables 14/25 kV



FC-MVR (N)TSCGEWÖU 14/25 kV
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

FC-MVR (N)TSCGEWÖU 14/25 kV

equivalent to PROTOLON XPRT

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

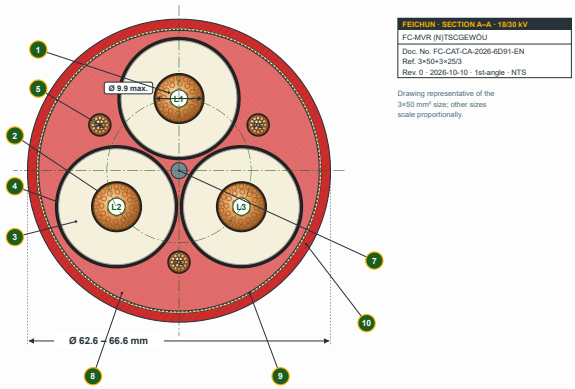
FC-MVR-LWL (N)TSKCGEWÖU 14/25 kV

equivalent to PROTOLON XPRT-LWL

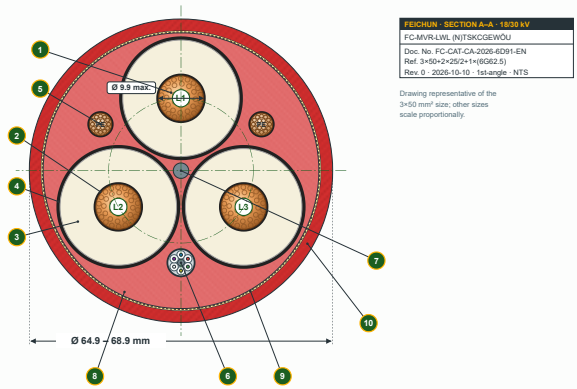
Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter		Min. bending radius mm	Weight approx. kg/km	Max. tensile force		R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
				min. mm	max. mm			static N	dynamic N			
3×25+2×25/2 +1×(6G62.5)	FC-MVR25-02525F	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

Available in the heavy-duty FC-MVR / FC-MVR-LWL version. Designs with 12, 18 or 24 fibres, G50 or E9 fibre types, alternative earth configurations and sheath colours are manufactured to order.

12 Round cables 18/30 kV



FC-MVR (N)TSCGEWÖU 18/30 kV
Power only (shown: 3×50+3×25/3)



FC-MVR-LWL (N)TSKCGEWÖU 18/30 kV
With fibre optics (shown: 3×50+2×25/2+1×(6G62.5))

FC-MVR (N)TSCGEWÖU 18/30 kV

equivalent to PROTOLON XPRT

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	Min. bending radius mm	Weight approx. kg/km	Max. tensile force static N	Max. tensile force dynamic N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
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

equivalent to PROTOLON XPRT-LWL

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Earth cond. Ø max. mm	Outer diameter		Min. bending radius mm	Weight approx. kg/km	Max. tensile force		R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
				min. mm	max. mm			static N	dynamic 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

Available in the heavy-duty FC-MVR / FC-MVR-LWL version. Designs with 12, 18 or 24 fibres, G50 or E9 fibre types, alternative earth configurations and sheath colours are manufactured to order.

PART C

Common data

Optical fibres · rating factors · standards and tests · installation · certificates

13 Optical fibre data (LWL versions)

Characteristic	G50/125 µm Multimode OM2/OM3	G62.5/125 µm Multimode OM1 (standard)	E9/125 µm Single-mode OS2
Fibre type	Graded-index	Graded-index	Monomode
Core / cladding / coating Ø	50 / 125 / 250 µm	62.5 / 125 / 250 µm	9 / 125 / 250 µm
Attenuation at 850 nm	≤ 2.8 dB/km	≤ 3.3 dB/km	—
Attenuation at 1310 nm	≤ 0.8 dB/km	≤ 0.9 dB/km	≤ 0.4 dB/km
Attenuation at 1550 nm	—	—	≤ 0.3 dB/km
Bandwidth at 850 nm	≥ 400 MHz·km	≥ 200 MHz·km	—
Bandwidth at 1300 nm	≥ 1,200 MHz·km	≥ 500 MHz·km	—
Numerical aperture	0.20 ± 0.02	0.275 ± 0.02	0.14 ± 0.02
Chromatic dispersion 1310 / 1550 nm	—	—	≤ 3.5 / ≤ 18 ps/(nm·km)
Fibre count	6 (standard) · 12 · 18 · 24 — in six gel-filled loose tubes		

14 Rating factors, standards and tests

Reeling factors — cylindrical drum (round cables)

Layers on drum	1	2	3	4	5
Factor	0.80	0.61	0.49	0.42	0.38

Ambient temperature correction factors (90 °C conductor)

Ambient °C	10	15	20	25	30	35	40	45	50
Factor	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82

Flat cables: current ratings are given for reeling in one layer at 30 °C. Round cables: current ratings are given for laying in air at 30 °C — multiply by the reeling factor for cylindrical drum operation. In both cases apply the ambient temperature factor (DIN VDE 0298-4).

Standard	Scope
DIN VDE 0250-813	Basis of design (flat MV reeling cable)
DIN VDE 0295 / IEC 60228	Conductors, class 5 / F
DIN VDE 0207-20 / -21	Insulation (3GI3) and sheath (5GM5) compounds
DIN VDE 0298-3 / -4	Bending radii, current ratings
DIN EN 60811-404	Oil resistance
HD 22.16 / EN 50525-1	Water resistance; general requirements
IEC 60793 / IEC 60794	Optical fibres and FO cable tests
TR CU 004/2011 · GOST 31996-2012	EAEU safety requirements, conformity assessment

Routine & type tests

- AC voltage test on every drum (11 / 17 / 24 / 29 / 35 / 43 kV by voltage class) and partial discharge measurement
- Conductor resistance and dimensional checks
- OTDR attenuation test of every fibre (LWL versions), report supplied with drum
- Reeling, reversed bending and torsion tests (type test)
- Ozone, UV and oil resistance

Test documentation: each delivery is accompanied by a FeiChun in-house laboratory inspection certificate. Third-party witnessed testing can be arranged at the buyer's cost.

15 Installation, marking and delivery

Flat cables

- Use monospiral reeling drums sized for flat cable; drum core diameter ≥ 2 × minimum bending radius.
- Unwind tangentially from the delivery drum — never pull off over the flange; avoid loops and twisting.
- Torsion is not permitted; keep at least 20 × D between S-type direction changes.
- Keep tensile force within the tabulated limit, including acceleration and braking peaks.
- Use stress-control terminations rated for the cable voltage class and connect each split earth conductor at both ends.

Round cables

- Drum core diameter ≥ 2 × minimum bending radius; use guide rollers sized to the same radius.
- Unwind tangentially from the delivery drum — never pull off over the flange; avoid loops and kinks.
- Keep torsion within ± 25 °/m; maintain at least 20 × D between S-type direction changes.
- Keep tensile force within the static / dynamic limits tabulated, including acceleration and braking peaks.
- Lay out and relax the cable before the first reeling; check tension-control settings at commissioning.
- Use stress-control terminations rated for the voltage class and connect every earth conductor part at both ends.

Fibre-optic termination (LWL): preparation of the FO element requires specialised skills and tooling. Factory pre-assembly of FO connectors or pigtails is recommended — please supply connection dimensions with the order.

Sheath marking

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FEICHUN FC-FLR[-LWL] (N)TSFLCGEWÖU [cores × cross-section] [U0/U] [year] [serial no.] [metre mark]
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FEICHUN FC-MVR[-SR][-LWL] (N)TSCGEWÖU / (N)TSKCGEWÖU [cores × cross-section] [U0/U] [year] [serial no.] [metre mark]
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Packing & delivery

Item	Standard
Drum	Steel or fumigated wooden drums, ends sealed with heat-shrink caps
Lengths	To order, single continuous length (no joints)
Production lead time	2–3 weeks after technical confirmation
Warranty	Min. 3 years against manufacturing defects
Drum label	Type, size, length, gross/net weight, batch no., drum no.

16 Certifications and quality

EAC — TR CU 004/2011
Certificate No. ЕАЭС KG417/052.CN.02.15390 · TR CU 004/2011, GOST 31996-2012, GOST 31565-2012 · valid 24.10.2025 – 23.10.2030

CE — LVD 2014/35/EU
Attestation No. M.2025.206.C116598 · EN 50525-1:2011+A1:2022 · UDEM International Certification · valid to 01.04.2030

UKCA — Verification
No. ICR/VC/HS2508110 · BS EN 50525-1:2011+A1:2022 · ICR Polska · valid to 17.08.2030

FeiChun also holds ATEX (Directive 2014/34/EU) documentation verification and IECEx / VDE related approvals for designated product families. Certificate copies are available on request.

17 Trademark Notice & Intellectual Property

PROTOLON®, PROTOLON (FL), PROTOLON (FL)-LWL, PROTOLON XPRT, PROTOLON XPRT-LWL, PROTOLON SMRT, PROTOLON SMRT-LWL and PROTOLON (SMK) are trademarks of their respective owner (Prysmian Group). They are cited solely to identify reference types for technical cross-referencing; FeiChun Cables has no affiliation with, and is not endorsed by, the trademark owner. FC-FLR, FC-FLR-LWL, FC-MVR, FC-MVR-LWL, FC-MVR-SR and FC-MVR-SR-LWL are FeiChun products designed to equivalent functional performance.

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Scope 22 types · flat and round · 3.6/6 – 18/30 kV · with / without FO

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