FEICHUN CABLE | YXC7V (TSE) | N2XSY (IEC) | 18/30 kV | SINGLE CORE | Cu / XLPE / PVC | CONCENTRIC COPPER SCREEN | IEC 60502-2

Feichun YXC7V (TSE) / N2XSY (IEC) 18/30 kV — Single-Core XLPE Copper Cable

A full-English engineering guide to the supplied 18/30 kV construction: copper conductor, semiconducting conductor screen, XLPE insulation, semiconducting insulation screen, crape tape, concentric copper wires with copper tape and PVC outer sheath. The article separates source values, derived checks and project-release boundaries.

Uo/U: 18/30 kV | 1 core | -20 ... 90 °C | 250 °C short-circuit limit | Bending factor: 12 (xD) | IEC 60332-1-2 | Product IEC 60502-2

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1. Engineering position

YXC7V (TSE) / N2XSY (IEC) 18/30 kV is a single-core, XLPE-insulated, copper-conductor medium-voltage cable with a concentric metallic screen formed by copper wires and a copper tape, protected by a PVC outer sheath. The supplied application is fixed energy-network service with sudden load changes in residential or industrial areas, underground routes and ducts.

Why this voltage class matters
At 18/30 kV, insulation coordination, screen termination, creepage, clearances, earthing and accessory class must be controlled as one system. A lower-voltage accessory or unverified screen kit is not an acceptable substitution.

Single-core design consequence
Phase formation, induced voltage, circulating current, screen bonding, cleating and touch-voltage control are part of the route design. The source does not provide armour or a screen cross-section for this target record.

Fixed-route boundary
The 12 (xD) value is a laying factor. It does not qualify the cable for repeated flexing, reeling, festoon, drag-chain or torsional service.

Data discipline
All eleven matrix rows are reproduced exactly, including the supplied 615 A and 421 A air-flat values. Missing values are not filled from another product family.

2. Designation and construction logic

Designation / layer	Engineering reading	Design consequence	Evidence
YXC7V (TSE)	National designation retained in the product title.	Use the complete voltage, construction and standard record in procurement; do not rely on the code alone.	Supplied title
N2XSY (IEC)	IEC-oriented designation for single-core XLPE copper/PVC construction.	Coordinate conductor screen, XLPE, insulation screen, metallic screen, sheath and 18/30 kV accessories.	Supplied title
Copper conductor	Phase conductor material is copper.	Use the exact DC resistance and thermal row for voltage-drop and ampacity calculations.	Supplied construction
XLPE + semiconducting screens	Extruded dielectric with controlled electric-field interfaces.	Screen continuity, stripping length, cleanliness and stress control are critical at joints and terminations.	Supplied construction
Concentric copper wires + copper tape	Metallic screen around the insulation screen.	Bonding, earth-fault duty, induced current and touch voltage need project calculations; no screen area is invented here.	Supplied construction
PVC outer sheath	External environmental and mechanical interface.	Do not relabel the product as LSZH or halogen-free without a matching declaration.	Supplied construction

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Conductor → semiconducting conductor screen → XLPE insulation → semiconducting insulation screen → crape tape → concentric copper wires + copper tape → PVC outer sheath
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3. Standards and evidence

Reference	Role in the supplied record	Engineering interpretation	Release boundary
IEC 60502-2	Product standard.	Use as the product-standard basis for extruded-insulation MV cable design in the applicable voltage range and fixed-installation context.	Confirm project edition and Feichun conformity route.
TS IEC 60502	National standard.	Retain the national reference in the schedule where required by the project or market.	Confirm national edition and contract basis.
IEC 60332-1-2	Flame-retardant reference.	It is a single-cable vertical flame-propagation test method; it is not a complete grouped-cable fire declaration or CPR class.	Match the exact product test evidence.
PVC sheath	Specified outer sheath material.	Assess smoke, corrosive gas, fire stopping, UV, water, chemical and mechanical requirements for the actual route.	No LSZH claim supplied.

Scope distinction: a product standard and a single-cable flame test do not automatically qualify this cable for mining machinery, shipboard service, reeling, festoon or energy-chain motion. Those applications require dedicated mechanical and environmental evidence.

4. Complete source specification

Every supplied target field is preserved below. The source metadata is retained as provided: Generated 8/4/26, www.nexans.com.tr, Page 1 / 2 and Page 2 / 2. No missing target value is imported from another voltage class.

Specification field	Reference value	Engineering interpretation	Evidence status
Product designation	YXC7V (TSE) - N2XSY (IEC) 18/30 kV	National TSE and IEC-oriented designations are retained separately in the procurement description.	Supplied source
International product description	N2XSY 18/30 kV XLPE insulated single core cables with copper conductor	Single-core fixed-installation MV cable architecture for energy-network routes.	Supplied source
Product standard	IEC 60502-2	Use the project-adopted edition and the exact Feichun conformity file for release.	Supplied source
National standard	National TS IEC 60502	Retain the national reference exactly as supplied; confirm the contract edition where applicable.	Supplied source
Application	These are cables with low dielectric losses used in energy network with sudden load changes. Laid in residental or industrial areas, underground or in ducts.	This wording defines fixed energy-network service; it does not establish reeling, festoon or continuous-flex qualification.	Supplied source
Number of cores	1	Single-core formation requires deliberate screen bonding, phase spacing, cleating and induced-current control.	Supplied source
Conductor	Copper	Copper conductor resistance, voltage drop and thermal capacity remain cross-section and installation dependent.	Supplied source
Conductor flexibility	Not stated in the supplied target record	Do not upgrade the product to Class 2, flexible, reeling or drag-chain status without the controlled Feichun construction record.	Not supplied
Conductor screen	Semi-conducting compound (XLPE)	Creates the controlled electric-field transition from conductor to XLPE insulation.	Supplied source
Insulation	XLPE	Primary extruded solid dielectric for the 18/30 kV system class.	Supplied source
Insulation screen	Semi-conducting compound (XLPE)	Controls the outer XLPE electric-field boundary before the metallic screen.	Supplied source
Semi-conducting tape	Crape tape	Source wording is preserved exactly; stripping and preparation must follow the approved accessory system.	Supplied source
Metallic screen	Concentric / Copper wires + copper tape	The metallic screen is an electrical screen and earth-fault path; its section and bonding method are not provided in this target record.	Supplied source
Outer sheath	PVC	PVC is the specified environmental and mechanical outer interface. No LSZH claim is added.	Supplied source
Rated Voltage Uo/U (Um)	18/30 kV	Confirm system earthing, switching, withstand, accessories and termination class against the project.	Supplied source
Operating temperature, range	-20 ... 90 °C	Apply with actual ambient, soil, duct, spacing, grouping, screen losses and accessory limits.	Supplied source
Short-circuit max. conductor temperature	250 °C	Use with conductor I^2t, protection clearing time and complete joint and termination system.	Supplied source

Specification field	Reference value	Engineering interpretation	Evidence status
Bending factor when laying	12 (xD)	A laying-radius factor only; it is not a continuous-flex or dynamic-bending qualification.	Supplied source
Max. conductor temperature in service	90 °C	The thermal design must be corrected for formation, ambient, soil, duct and grouping conditions.	Supplied source
Flame retardant	IEC 60332-1-2	A single-cable flame-propagation test reference; no CPR class is inferred.	Supplied source
Source record	Generated 8/4/26 — www.nexans.com.tr — Page 1 / 2 and Page 2 / 2	The page labels and source metadata are reproduced exactly as provided.	Supplied source
Source disclaimer	All drawings, designs, specifications, plans and particulars of weights, size and dimensions contained in the technical or commercial documentation of Nexans is indicative only and shall not be binding on Nexans or be treated as constituting a representation on the part of Nexans.	Use the controlled Feichun release and project-approved documents for procurement and installation decisions.	Supplied source

5. Complete technical matrix — 18/30 kV

The following matrix preserves every supplied value. Air ratings are stated for 30 °C in flat and trefoil formations; the buried rating is stated for 20 °C in trefoil formation. The source does not supply a buried-flat rating, so none is inferred.

Cross section [mm²]	Nom. outer diam. [mm]	Approx. weight [kg/km]	Max. DC Resist. Cond. 20 °C [Ohm/km]	Perm. current rating in air 30 °C — flat [A]	Current rating in air 30 °C — trefoil [A]	Perm. current rating buried 20 °C — trefoil [A]	Short circuit conductor 1 s [kA]
50	31.0	1300	0.387	286	238	196	7.2
70	33.0	1600	0.268	356	296	239	10
95	35.0	1900	0.193	434	361	285	13.6
120	36.0	2250	0.153	500	417	323	17.2
150	38.0	2500	0.124	559	473	361	21.4
185	39.0	3000	0.099	637	543	406	26.5
240	42.0	3500	0.0754	745	641	469	34.3
300	44.0	4250	0.06	846	735	526	42.9
400	47.0	5250	0.047	938	845	590	57.2
500	51.0	6250	0.037	615	1000	688	71.5
630	55.0	7750	0.028	421	1150	774	90.1

The 500 mm² and 630 mm² air-flat values of **615 A** and **421 A** are reproduced exactly as supplied. They are unusual relative to adjacent rows and should be confirmed against the controlled product sheet before thermal design or tender release.

6. Derived installation checks

Cross section	Published outer diameter	Source laying factor	Derived minimum laying radius	Mass conversion
50 mm²	31.0 mm	12 × D	**372.0 mm**	**130.0 kg/100 m**
70 mm²	33.0 mm	12 × D	**396.0 mm**	**160.0 kg/100 m**
95 mm²	35.0 mm	12 × D	**420.0 mm**	**190.0 kg/100 m**
120 mm²	36.0 mm	12 × D	**432.0 mm**	**225.0 kg/100 m**
150 mm²	38.0 mm	12 × D	**456.0 mm**	**250.0 kg/100 m**
185 mm²	39.0 mm	12 × D	**468.0 mm**	**300.0 kg/100 m**
240 mm²	42.0 mm	12 × D	**504.0 mm**	**350.0 kg/100 m**
300 mm²	44.0 mm	12 × D	**528.0 mm**	**425.0 kg/100 m**
400 mm²	47.0 mm	12 × D	**564.0 mm**	**525.0 kg/100 m**
500 mm²	51.0 mm	12 × D	**612.0 mm**	**625.0 kg/100 m**
630 mm²	55.0 mm	12 × D	**660.0 mm**	**775.0 kg/100 m**

Derived values are arithmetic screening checks: minimum laying radius = 12 × nominal outer diameter; mass per 100 m = approximate kg/km ÷ 10. They do not replace the controlled installation method, pulling calculation or accessory manufacturer's radius.

7. Electrical, thermal and short-circuit design

Voltage drop
Use the supplied 20 °C DC resistance as a source value only. AC resistance, reactance, power factor, route length, formation and

Thermal rating
Air ratings are stated for 30 °C; buried trefoil ratings are stated for 20 °C. Apply corrections for ambient, soil thermal resistivity, ducts,

Fault coordination
The source gives a 250 °C maximum conductor short-circuit temperature and one-second conductor values. Verify protection I²t

Screen path
No metallic-screen cross-section or screen one-second current value is supplied for this target record. Do not infer a fault-current

screen-bonding losses must be established for the installation.	spacing, grouping, sheath losses and accessory limits.	with the actual conductor, screen, joint and termination system.	capability from the presence of copper wires and tape.

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Voltage-drop screening: ΔU ≈ I × (R_ac × cos ϕ + X × sin ϕ) × L

Thermal acceptance: I_load ≤ I_z(actual formation, ambient, grouping, soil, duct, screen losses and accessories)

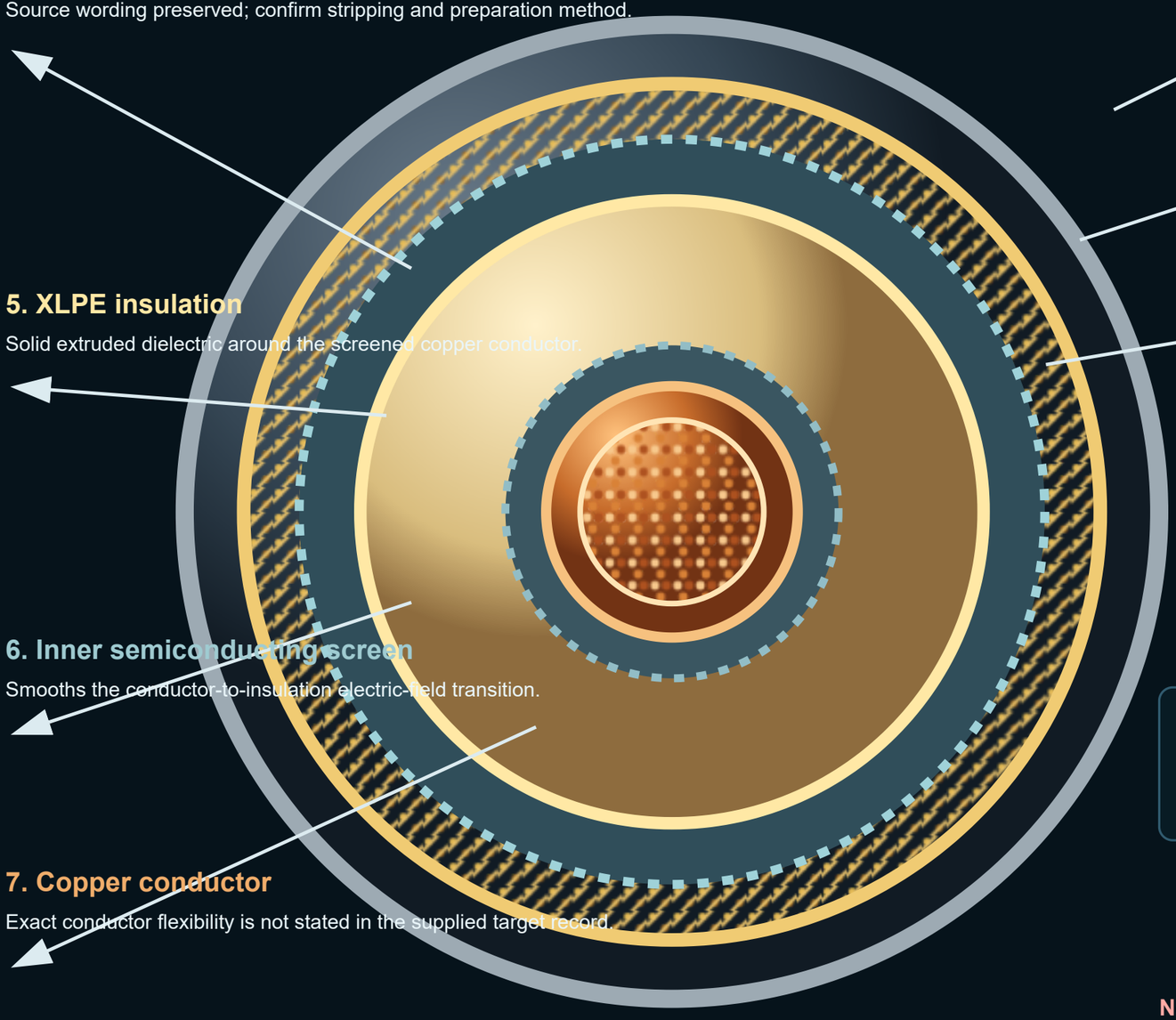
Fault coordination: I²t_protection ≤ I²t_conductor / screen / joint / termination system
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8. Layer-by-layer cross-section

YXC7V (TSE) / N2XSY (IEC) 18/30 kV — single-core construction

Copper conductor · XLPE electric insulation · semiconducting screens · concentric copper wires + copper tape helix · PVC outer sheath.

Conceptual engineering reconstruction, not a manufacturing drawing. Layer thicknesses and screen geometry are not shown to scale.



1. PVC outer sheath
Environmental and mechanical interface; source material: PV

2. Concentric metallic screen
Copper wires with a copper tape helix; bonding and fault dut

3. Outer semiconducting screen
Controls the XLPE-to-metallic-screen electric-field boundary.

4. Crape-paper semiconducting tape
Source wording preserved; confirm stripping and preparation method.

5. XLPE insulation
Solid extruded dielectric around the screened copper conductor.

6. Inner semiconducting screen
Smooths the conductor-to-insulation electric-field transition.

7. Copper conductor
Exact conductor flexibility is not stated in the supplied target record.

Engineering note:
The supplied construction lists no steel armour layer. The concentric copper screen must be designed for continuity, bonding, touch voltage and fault duty.

Not to scale · no unprovided dimensions are inferred.

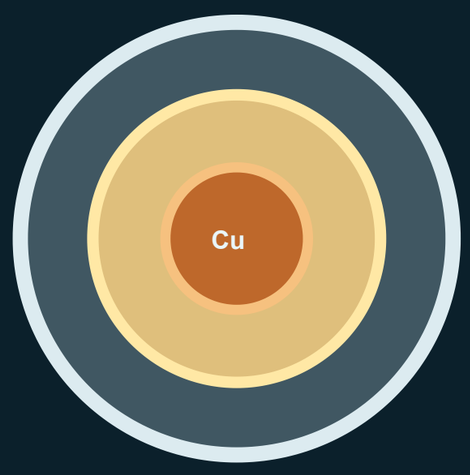
The SVG is a conceptual engineering reconstruction of the supplied layer sequence. It is not a manufacturing drawing and does not add unprovided dimensions, armour, LSZH compounds or screen sections.

9. Single-core electrical and screen system

Single-core MV system — screen bonding and fault-path review

A single-core cable concentrates the design on phase-to-earth electric field, concentric copper-screen continuity, bonding arrangement and installation formation.

Cable cross-section



XLPE + semicon screens
copper wires + tape helix

Electrical interfaces

- Copper metallic screen
- XLPE / semicon system
- PVC outer sheath

Release gates

- single-core formation
- screen continuity
- bonding arrangement
- touch-voltage control
- earth-fault I²t
- termination compatibility
- route thermal correction

Do not treat the screen as armour.

A published screen section is not a complete fault-current guarantee: verify the bonding method, clearing time, parallel paths, joints, terminations and local earthing design.

Electric-field continuity
Semiconducting screens must remain clean, concentric and continuous through joints and terminations to avoid local field concentration.

Screen bonding
Choose bonding from system voltage, route length, induced voltage, circulating-current limits, earth-fault duty and local earthing rules.

Mechanical protection
The supplied construction lists no steel armour. Use rollers, cleats, ducts, supports and entry protection that prevent PVC and screen damage.

Accessory interface
Screen stripping, insulation diameter, sheath diameter, stress-control components and phase termination must match the ordered 18/30 kV cable size.

10. Fire and PVC performance boundary

IEC 60332-1-2
The listed reference concerns single-cable vertical flame propagation. It must not be presented as a grouped-cable fire class or as proof of low smoke and halogen-free performance.

PVC implications
Confirm smoke, corrosive gas, fire stopping, penetrations, ventilation, UV, chemical exposure and local construction requirements for the route.

No unprovided class
The target source does not state any CPR fire subclass or low-smoke/halogen-free classification. None is added to this article.

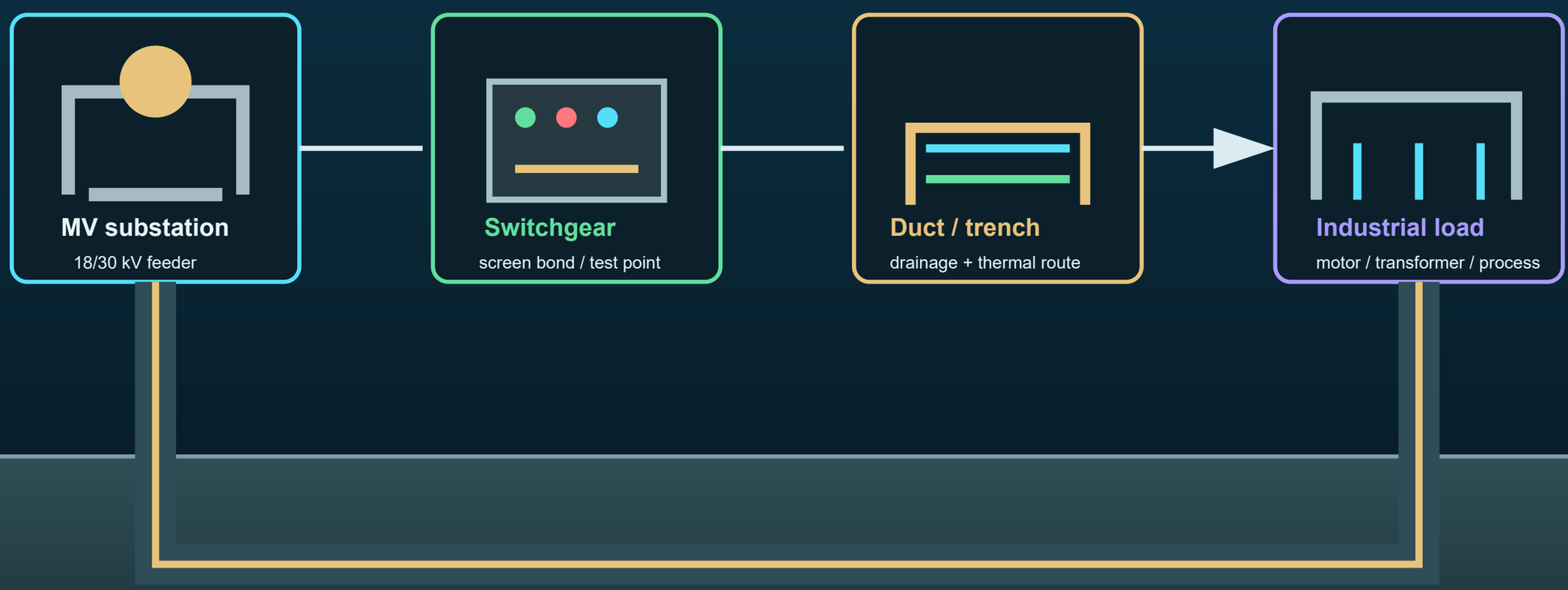
Certification boundary
Certification is configuration-specific. The exact Feichun product dossier must control the declared test result, market mark and ordered construction.

Procurement rule: do not relabel this PVC construction as LSZH, halogen-free, Cca, B2ca or fire-resistant without a matching current product declaration and test report.

11. Fixed-route applications

YXC7V / N2XSY 18/30 kV — fixed-route application architecture

Single-core copper / XLPE / copper-screen / PVC cable for residential, industrial, underground and duct installations.



Fixed single-core MV route

Use in underground, duct or exposed fixed installation only after screen, thermal and fire design approval.

The source does not establish reeling, festoon, drag-chain or continuous-flex service. Select a qualified dynamic cable family when movement is required.

18/30 kV distribution feeders
Use after voltage, insulation-coordination, screen-bonding, thermal, voltage-drop and protection studies are complete.

Underground infrastructure
Check soil thermal resistivity, water exposure, drainage, route spacing, joint access, mechanical protection and fault return paths.

Duct installations
Check duct fill, pulling tension, sidewall pressure, entry radius, phase formation, heat dissipation and water management.

Industrial and port shore-side fixed routes
Evaluate substations, plant feeders and shore-side MV infrastructure for corrosion, flooding, impact, fire, maintenance and earthing.

Moving equipment
The supplied record establishes fixed-route service and a laying factor, not continuous flexing. Select a dedicated dynamic cable for reeling, festoon or drag-chain motion.

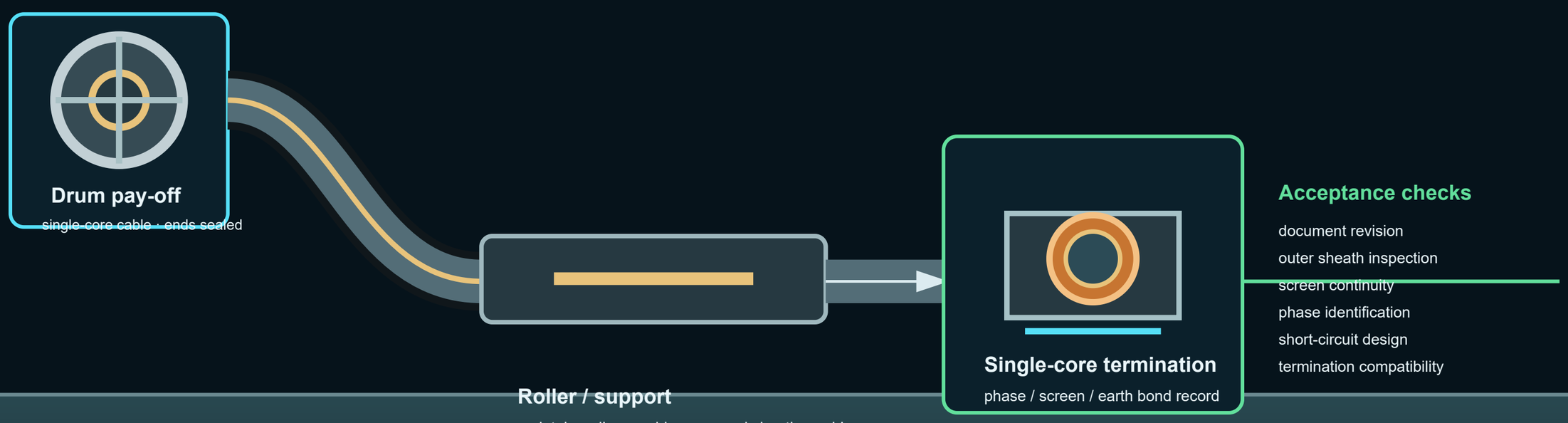
12. Handling and termination

Installation controls — 12 × D laying factor

The source publishes a 12 (xD) laying factor. Apply the ordered size's outer diameter and still follow the controlled installation method.

Controlled pulling direction

Protect the PVC sheath and concentric copper screen from local damage.



Minimum laying radius

r = 12 × D: 342.0 mm for 31.0 mm to 55.0 mm, depending on ordered size for 36.3 mm.

12 × D is a laying factor, not a continuous-flex qualification. Do not install this fixed-route cable in a reeling or energy-chain application without a dedicated dynamic design.

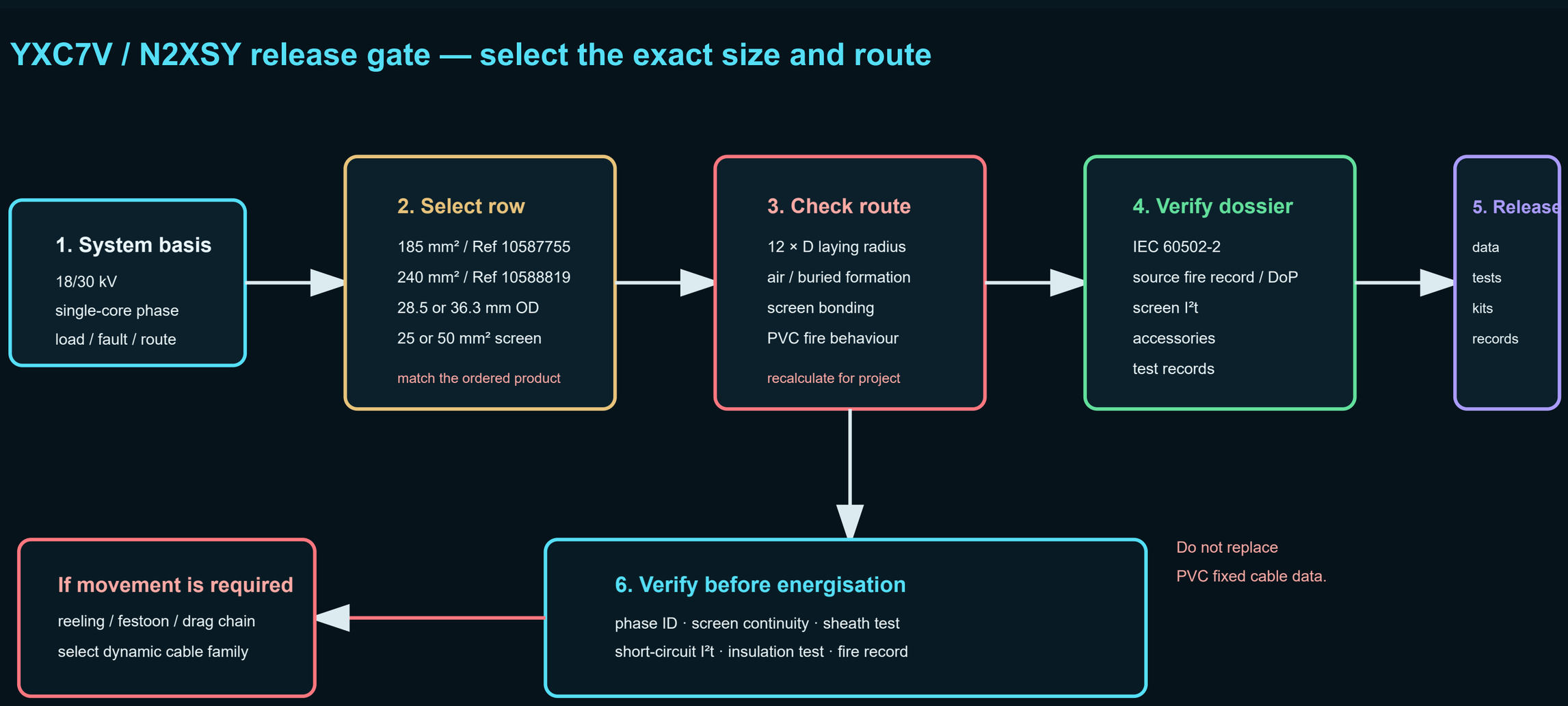
1. Confirm the exact controlled conductor size, matrix row, revision, outer diameter, mass and accessory family before delivery.
2. Apply the 12×D laying factor to the ordered diameter. The arithmetic screening radii span 372.0 mm for 50 mm² to 660.0 mm for 630 mm².
3. Keep the drum aligned with the pay-off direction. Prevent reverse winding, uncontrolled twist, flange impact and local PVC sheath damage.
4. Use rollers and supports that control radius and sidewall pressure. Do not pull against a sharp duct entry or force the copper screen around a local obstruction.
5. Prepare the conductor screen, XLPE insulation, semiconducting screen, copper wires, copper tape and PVC sheath using the approved 18/30 kV joint or termination method.

6. Record screen continuity, bonding arrangement, phase identification, conductor resistance, insulation and sheath tests, torque and accessory inspection before energisation.
7. Complete MV withstand or partial-discharge tests where specified by the project and retain the product record, batch, test results and as-built route documentation.

Installation release: 12×D is a laying-factor reference. It does not authorize repeated bending, torsion, reel operation or energy-chain installation.

13. Selection comparison for engineers

Requirement	YXC7V / N2XSY reference	What must be verified	Engineering decision
18/30 kV fixed single-core feeder	Cu / XLPE / semiconducting screens / concentric copper wires + copper tape / PVC.	System earthing, screen bonding, conductor size, formation, accessories and protection.	Candidate after exact-size release.
50–240 mm² selection	Published diameter 31.0–42.0 mm; DCR 0.387–0.0754 Ohm/km; buried trefoil 196–469 A.	Voltage drop, route correction, pulling, screen duty and termination dimensions.	Use the exact matrix row.
300–630 mm² selection	Published diameter 44.0–55.0 mm; DCR 0.06–0.028 Ohm/km; buried trefoil 526–774 A.	Thermal correction, duct capacity, joint size, drum handling and installation radius.	Use the exact matrix row.
500 / 630 mm² air-flat values	615 A and 421 A as supplied.	Confirm these unusual adjacent-row values against the controlled source before ampacity release.	Do not silently correct source data.
Reeling / festoon / drag chain	12×D laying factor and fixed-route application wording only.	Cycles, torsion, speed, acceleration, tensile load, dynamic bend radius and environmental tests.	Select a dedicated dynamic cable family.



14. Failure-mode controls

Failure mode	Mechanism	Control action	Release evidence
Wrong voltage class	18/30 kV cable is confused with a lower-voltage accessory system.	Lock voltage, insulation level, screen termination and accessory class on the purchase schedule.	Approved cable and accessory schedule.
Matrix-row mixing	Diameter, mass, resistance, ampacity and fault values are copied across sizes.	Use the exact cross-section row on every calculation, drum record, joint schedule and test sheet.	Controlled matrix and released drawing.
Radius violation	12×D is applied to the wrong diameter or ignored at duct entries.	Calculate the ordered-size radius and control rollers, entry geometry and support spacing.	Method statement and inspection.
Screen fault-path error	Presence of copper wires and tape is treated as a complete earth-fault guarantee.	Verify screen section, bonding, parallel paths, clearing time, temperature and joint capability from controlled data.	Earthing and short-circuit study.
Air-flat anomaly ignored	615 A and 421 A are used without checking the source revision.	Confirm the supplied values against the controlled release before thermal design.	Signed datasheet verification.
Dynamic misuse	Fixed-route PVC cable is installed on a reel, festoon or energy chain.	Select a qualified dynamic cable with mechanical cycle and torsion evidence.	Dedicated dynamic-cable data required.

15. Feichun Cable certification and project assurance

Engineered for maximum safety in demanding environments, our cable systems comply with global standards including ATEX, IECEx, VDE, CE, UKCA, EAC, and the Russian Fire Safety Certificate. They are the trusted choice for heavy-duty mining equipment, ship-to-shore cranes, RTG/RMG cranes, and conveyor systems where high reliability is non-negotiable.

Configuration-specific release
Certification and market documentation apply to the exact conductor size, screen geometry, sheath compound, accessory system, destination market and shipment batch.

Feichun engineering dossier
Confirm conductor resistance, outer diameter, mass, thermal ratings, short-circuit duty, sheath tests, fire declaration and accessory compatibility for the ordered 18/30 kV construction.

Fixed MV engineering value
Feichun can develop the copper / XLPE / concentric copper-screen / PVC architecture around the actual route, protection system, earthing design and project documentation.

Market and application boundary
ATEX, IECEx, VDE, CE, UKCA, EAC and Russian Fire Safety documentation must be matched to the applicable product scope; certification capability is not an automatic claim for every size or construction.

Release condition: this article does not invent a Feichun certificate number, test report number or conformity declaration. The ordered product dossier must be checked before procurement, installation or energisation.

16. Source and revision audit

Source	Use in this article	Status and limitation
Nexans Türkiye YXC7V / N2XSY family page	Family designation and related product-family context.	External family reference; the supplied Feichun target record remains primary for every listed matrix value.
IEC 60502-2 official publication	Product-standard and fixed-installation engineering context.	Confirm the adopted edition and exact Feichun conformity route.
IEC 60332-1-2 official publication	Single-cable flame-propagation test context.	Test-method reference only; it is not a complete grouped-cable fire declaration.
User-supplied source record	All voltage, temperature, bending, flame, construction, page metadata and eleven matrix rows are reproduced.	Primary record for this article. Missing screen section, screen fault rating and buried-flat rating are not inferred.
Derived calculations	12×D radius screening and kg/100 m conversion.	Arithmetic only; not a substitute for the controlled installation method or accessory instruction.

This article supports preliminary engineering, technical search and comparison. The final Feichun YXC7V / N2XSY 18/30 kV release must be checked against the current product datasheet, exact conductor size, screen design, current ratings, bending instructions, fire documentation, accessories, installation method and local authority requirements.

Feichun Cable — YXC7V / N2XSY 18/30 kV engineering support

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This article separates supplied values, derived calculations, external references and Feichun project-confirmation values. No external contact details are added.

FEICHUN-YXC7V-N2XSY-18-30KV-ENGINEERING-EN · 03 August 2026