FEICHUN CABLE | EXPLOSION-PROOF ETHERNET | ATEX CERTIFICATION | HD CCTV / IP CAMERA | PoE / Cat6A | HAZARDOUS AREAS

Feichun Explosion-Proof Ethernet Cable — ATEX-Certified Network Cable for HD CCTV and Hazardous Areas

A professional engineering guide to Feichun Cable’s dedicated explosion-proof network cable solution for high-definition cameras, IP surveillance, industrial Ethernet, PoE links and hazardous-area monitoring. The design focus is not only a cable jacket: it is a controlled transmission channel combining balanced-pair geometry, EMC shielding, outdoor mechanical protection, Ex-rated termination and product-specific ATEX documentation.

ATEX-certified project configuration | Cat 6 / Cat 6A selection | 100 Ω balanced Ethernet reference | HD CCTV and PoE | Zone 1 / 2 and 21 / 22 design logic | Port, mining and process applications

Certification priority
ATEX
Exact product, assembly and installation scope must match.

High-definition link
Cat 6A
10GBASE-T headroom when the complete channel is released and tested.

Power and data
PoE
Thermal load and bundle derating are part of cable selection.

Protection architecture
Ex + EMC
Camera, gland, screen bond, cable and network boundary work together.

Contents

1. Engineering position
2. What explosion-proof Ethernet means
3. ATEX zones and certificate boundary
4. HD CCTV and PoE design
5. Representative cable cross-section
6. Port and process applications
7. Termination and shield bonding
8. Feichun configurable specification
9. Transmission and mechanical checks
10. Comparison with ordinary network cable
11. Installation and acceptance
12. Failure mode analysis
13. Certification and documentation
14. Source map and data audit

1. Engineering position: a hazardous-area network cable is a system interface

Feichun Cable develops explosion-proof Ethernet cable solutions for high-definition camera networks where ordinary indoor Cat5e/Cat6 cable is not an adequate engineering basis. The intended applications include oil and gas process areas, chemical plants, tank farms, coal and mineral handling, mining transfer points, port bulk terminals, ship-to-shore crane monitoring and other industrial sites where video availability, EMC control, mechanical protection and hazardous-area documentation must be considered together.

Transmission layer
Controlled balanced pairs preserve impedance, insertion loss, return loss, pair balance, NEXT/FEXT and channel margin for IP video and industrial Ethernet.

Protection layer
Screening, jacket selection, water blocking, reinforcement, abrasion resistance and Ex-compatible glands protect the link from the environment around the camera.

Certification layer
ATEX conformity belongs to the exact released equipment, component or assembly scope. Certificate number, marking, area classification and installation restrictions must be traceable.

Operations layer
PoE heating, cable bundling, surge exposure, shield bonding, maintenance access and channel testing determine whether a camera remains online in service.

Important boundary: “explosion-proof network cable” is an engineering search term, not a permission to use an unmarked generic Ethernet cable in a classified zone. A cable being shielded, flame-retardant, UV-resistant, IP-rated or water-blocked does not by itself prove ATEX conformity.

2. What “explosion-proof Ethernet cable” means in technical terms

For an HD CCTV link, the cable is a passive transmission component, while the camera, enclosure, gland, connector, junction box, surge protector and switch may be the items with an ignition-protection function. The safe design objective is therefore to keep the cable’s transmission and mechanical behaviour stable while maintaining the integrity of the approved hazardous-area interface.

Balanced-pair control
The cable is designed around four twisted balanced pairs for conventional Ethernet. Pair lay, insulation diameter, separator geometry and screen construction affect characteristic impedance, attenuation and crosstalk.

EMC control
Individual pair foils plus an overall foil / braid can reduce coupling from VFD drives, crane motors, welding equipment, switch-mode power supplies and adjacent power feeders. The shield only works as intended when its termination is engineered.

Mechanical control
A camera route may be exposed to UV, salt mist, oil, dust, abrasion, vibration, impact, wash-down, cable-tray edge pressure and maintenance pulling. PUR, PVC, LSZH, TPU, armour and reinforcement are project options, not automatic properties.

Hazardous-area control
The final link may require an ATEX / IECEx camera and enclosure, an approved Ex gland, a defined cable diameter range, a seal, a shield / armour bond and an initial inspection record.

```
Video-link design logic
Camera bitrate budget = sum of enabled streams + metadata + protocol overhead + engineering headroom
PoE heat check = I² × loop resistance + connector / termination losses, evaluated at the installation temperature
Channel margin = transmitter / receiver capability − insertion loss − return-loss and crosstalk penalties
EMC path = cable screen / armour → approved gland or connector → equipotential bonding → project earthing design
Ex integrity = area classification → certified equipment → compatible gland / entry → installation inspection → dossier

These are engineering relationships for design review. They are not substitutes for the released Feichun data sheet, the exact ATEX certificate and the project installation standard.
```

3. ATEX zones, equipment categories and the certification boundary

The European ATEX framework addresses equipment and protective systems intended for potentially explosive atmospheres, together with relevant safety, control, regulating devices and components. The workplace zoning framework distinguishes gas / vapour / mist zones from combustible-dust zones. A camera link must be specified from the area classification outward; selecting a cable from the camera resolution alone is incomplete.

Hazardous-area classification	Typical atmosphere definition	Equipment selection logic	Engineering consequence for the CCTV link
Zone 0	Gas, vapour or mist present continuously, for long periods or frequently	Category 1 equipment where the workplace selection rules apply; exact product suitability remains mandatory	Camera / enclosure and all entries require the highest applicable protection basis; cable route and termination must not compromise it
Zone 1	Explosive gas atmosphere likely to occur occasionally in normal operation	Category 1 or 2 equipment, subject to gas group, temperature class and protection concept	Use an exact ATEX-marked camera and approved cable-entry system; ordinary RJ45 and generic glands are not assumed acceptable
Zone 2	Explosive gas atmosphere unlikely in normal operation, or present only for a short period	Category 1, 2 or 3 equipment, subject to the project selection document	Outdoor weather and maintenance events still matter; a lower zone does not remove EMC, seal or mechanical requirements
Zone 20	Combustible dust cloud present continuously, for long periods or frequently	Category 1 equipment where the workplace selection rules apply	Dust ingress, surface temperature, dust layers and enclosure / cable-entry cleanliness become critical
Zone 21	Combustible dust cloud likely occasionally in normal operation	Category 1 or 2 equipment, subject to dust group and maximum surface temperature	Use the correct dust protection concept and keep cable surfaces, glands and enclosures maintainable
Zone 22	Combustible dust cloud unlikely in normal operation, or present only briefly	Category 1, 2 or 3 equipment, subject to the project selection document	Dust accumulation and abrasion can still degrade the jacket, gland seal and camera window

Marking example — explanatory only: a marking such as `II 2G Ex d IIC T6 Gb / II 2D Ex tb IIIC T80° C Db` describes a particular certified equipment configuration. It is not a Feichun cable marking and must never be copied onto a cable or camera without the relevant certificate.

ATEX certification emphasis
Feichun Cable provides ATEX-certified explosion-proof network cable solutions and can organize the released cable, termination and project documentation around the applicable hazardous-area scope. The exact certificate reference and marking must be tied to the ordered configuration.

Gas group and temperature
For gases, IIA / IIB / IIC and T-class selection can change the acceptable equipment. For dust, IIIA / IIIB / IIIC and maximum surface temperature are relevant. The cable, gland and camera documents must not be mixed across scopes.

ATEX is not IECEx
ATEX and IECEx use related technical concepts but are different conformity and certification routes. The project market, client specification and local authority determine which documents are required.

Port and vessel boundary
Port terminals, cranes, tank farms and shipboard equipment can fall under different legal and marine regimes. The ATEX Directive contains scope exclusions for seagoing vessels and mobile offshore units; confirm the jurisdiction before selecting the compliance route.

4. HD CCTV and PoE design: why the network cable is a critical component

A high-definition camera does not fail only when the cable is completely open-circuit. It can fail as intermittent packet loss, reduced link negotiation, PoE restart, image freezing, increased retransmission, video latency or a marginal link that collapses when the motor drive starts. Feichun’s camera-specific cable design therefore addresses signal margin, thermal loading and environmental stability at the same time.

Bandwidth headroom
Cat6A is a logical project option when the camera network needs 10GBASE-T headroom, multiple high-bitrate streams, analytics backhaul or long-term system expansion. The installed channel must be tested as a complete channel, not judged by the cable label alone.

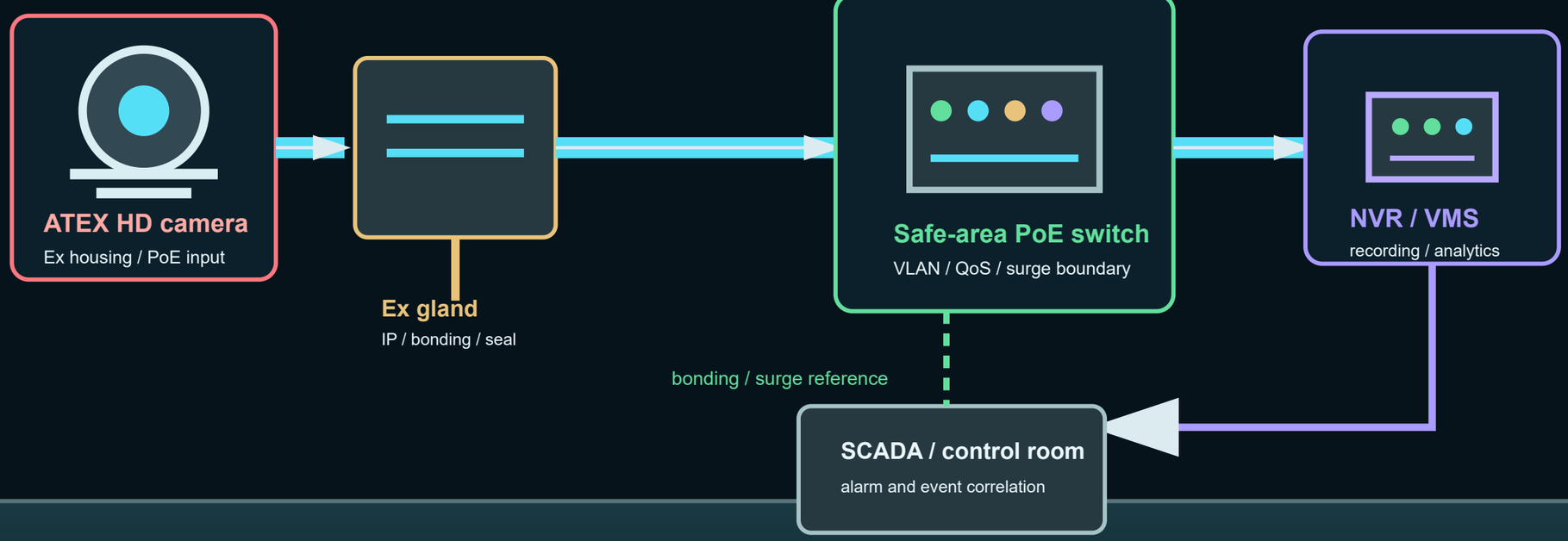
PoE over copper pairs
PoE adds DC current to the data conductors. Loop resistance, conductor size, contact resistance, bundle count, ambient temperature, sunlight and enclosure heat raise the cable temperature. The exact PoE class and bundle derating must be released for the chosen construction.

Return loss and crosstalk
Untwisting too much pair length, damaging the separator, crushing the cable or using an incompatible connector can destroy the margin even when continuity passes. HD video needs a stable channel, not merely eight wires connected in the right order.

EMI and surge
Keep the data route separated from motor and VFD power circuits where possible. Use the approved shield-bonding and surge-protection scheme. Copper Ethernet is conductive; a fiber uplink may be considered where galvanic isolation or long exposure to lightning is dominant, but fiber components still need the correct hazardous-area approval.

ATEX-ready HD CCTV topology — camera, cable, gland, switch and documentation as one chain

Illustrative design for a hazardous-area camera link. Exact zone, gas / dust group, Ex protection concept and certificate scope must be confirmed before installation.



Engineering gates before energisation

Zone classification · Ex camera and enclosure marking · cable construction and certificate scope · Ex gland and sealing · shield bonding · PoE thermal calculation · copper channel test · surge / earthing design · initial inspection and dossier.

A standard RJ45 plug, a generic waterproof gland or an IP rating does not by itself make a network link ATEX compliant.

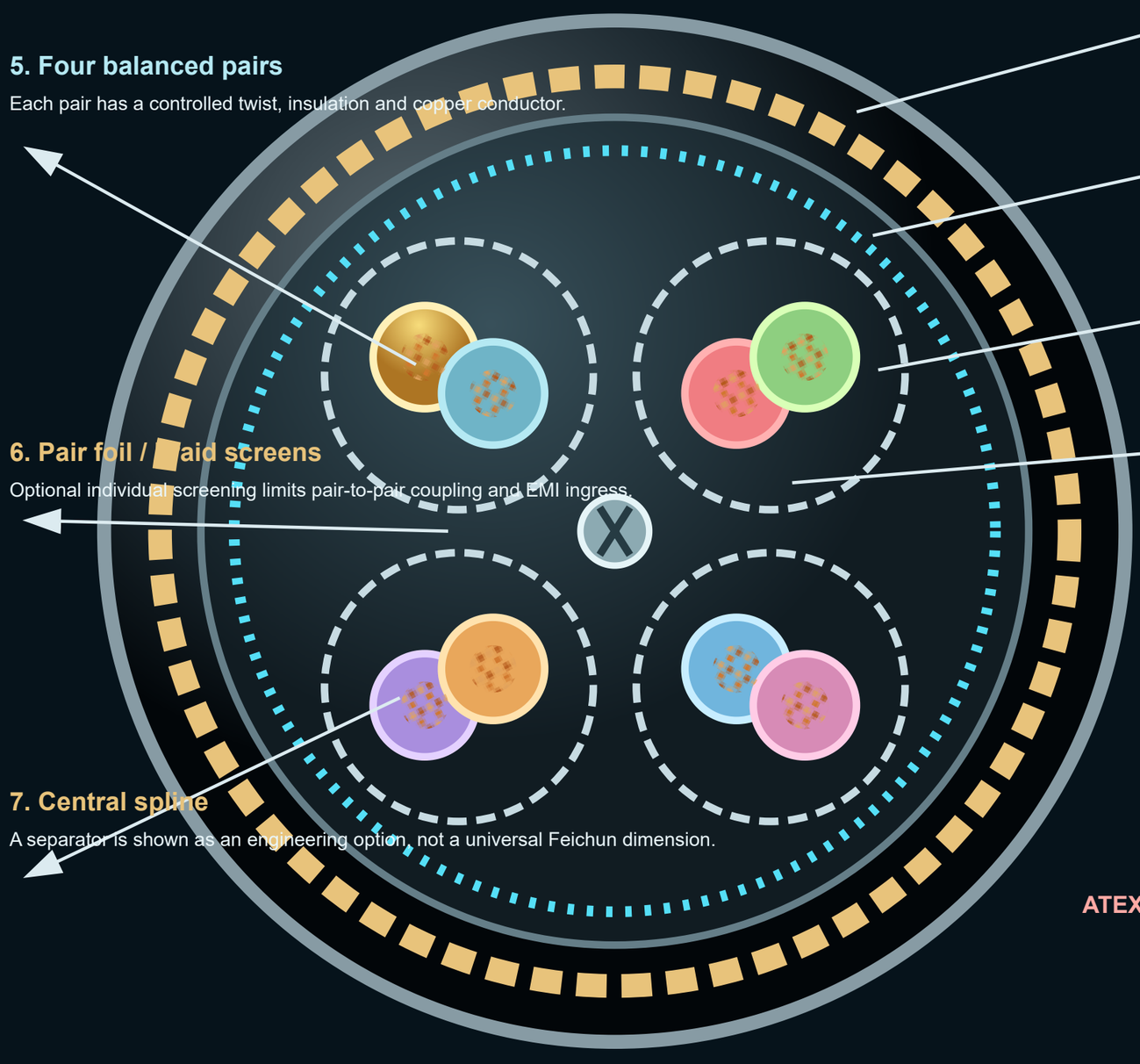
Camera-specific engineering question: “Can this cable carry 4K video?” is incomplete. The engineer must also ask: what is the camera bitrate, PoE class, channel length, ambient and bundle temperature, route exposure, connector system, Ex marking, surge environment, shield-bonding method and acceptance-test limit?

5. Representative cable cross-section and Feichun design logic

Representative Feichun hazardous-area Ethernet cable cross-section

Four balanced pairs, pair screening, overall EMC screen, optional armour / reinforcement and a weather-resistant outer jacket.

Engineering interpretation only — exact diameters, compounds, screen coverage, armour and ATEX scope must come from the released Feichun configuration.



ATEX is a conformity scope for the released product / assembly — not a visual p

The diagram shows a physically credible industrial Ethernet construction with four balanced pairs, optional individual pair screens, an overall EMC screen, a separator, mechanical reinforcement and an environmental outer jacket. It is a design explanation, not a manufacturing drawing. Feichun’s differentiator is the ability to configure these layers around the actual camera route: fixed tray, outdoor conduit, mining gallery, port crane, tank farm, conveyor transfer tower or a moving cable system.

Individual pair screening
Useful where pair-to-pair coupling and alien crosstalk threaten link margin. It also increases diameter and termination complexity; the connector and gland must accommodate it.

Overall foil plus braid
A foil gives high-frequency coverage while a copper braid can improve mechanical continuity and low-frequency bonding. Coverage and termination method are part of the release, not marketing decoration.

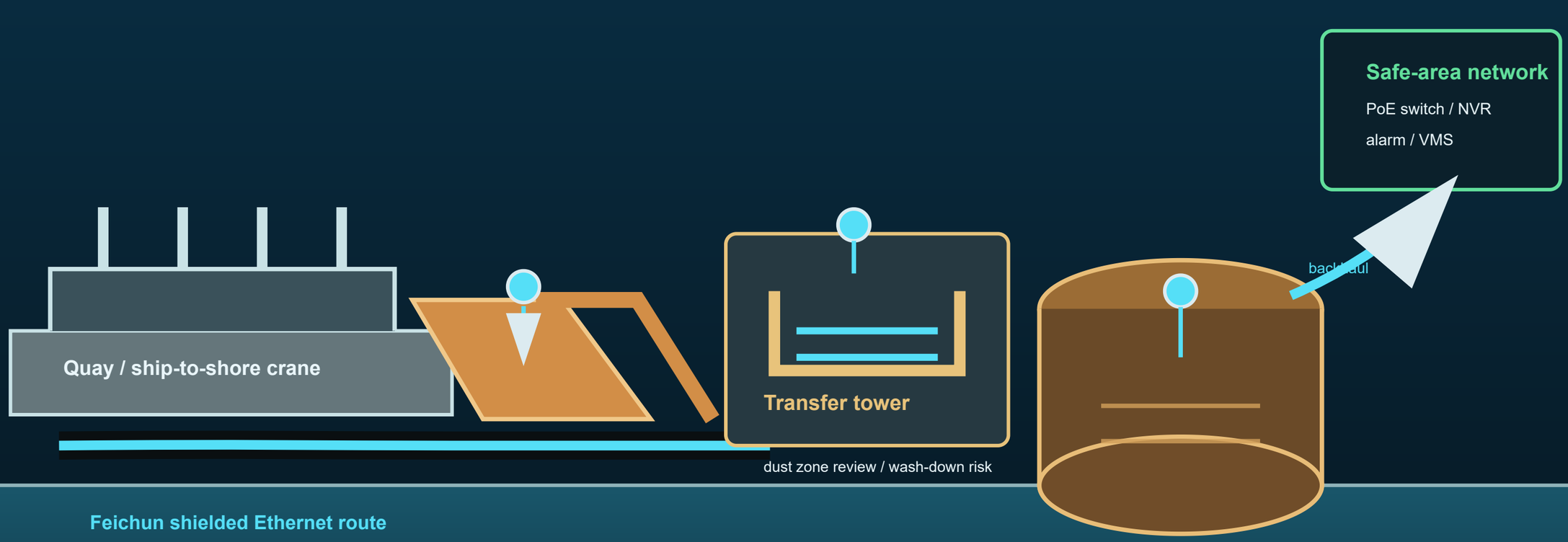
Armour and reinforcement
Armour can address impact, crushing, rodents or pulling conditions. It can also change minimum radius, gland selection, weight and bonding current paths. A heavier cable is not automatically a better dynamic cable.

Jacket compound
PUR is often selected for abrasion and oil resistance; PVC may be selected for cost and general industrial routes; LSZH may be required by the fire strategy; TPU or special compounds address other project conditions. Verify temperature, UV, hydrocarbon and fire data.

6. Application scenes for port, mining and process engineers

Hazardous-area HD CCTV in port and process environments

Tank farm, ship-to-shore crane, bulk conveyor and transfer tower — the cable construction follows the route risk, not the camera resolution alone.



Marine / port boundary: ATEX, IECEx, marine class, local electrical rules and shipboard exclusions must be checked for the exact asset and jurisdiction.
A ship-to-shore crane or port terminal route can require a different cable family in moving festoons, energy chains or cable reels.

Tank farms and loading arms
Use a certified HD camera and compatible Ex entry; route the cable to reduce exposure to hydrocarbon release points, hot surfaces, sunlight and maintenance traffic. Verify gas zone, T-class, surge and corrosion protection.

Bulk terminals and conveyors
Dust zoning, abrasion, impact and vibration can dominate. Consider a dust-suitable camera / enclosure, water blocking, a robust jacket, armouring and a cleaning / inspection plan.

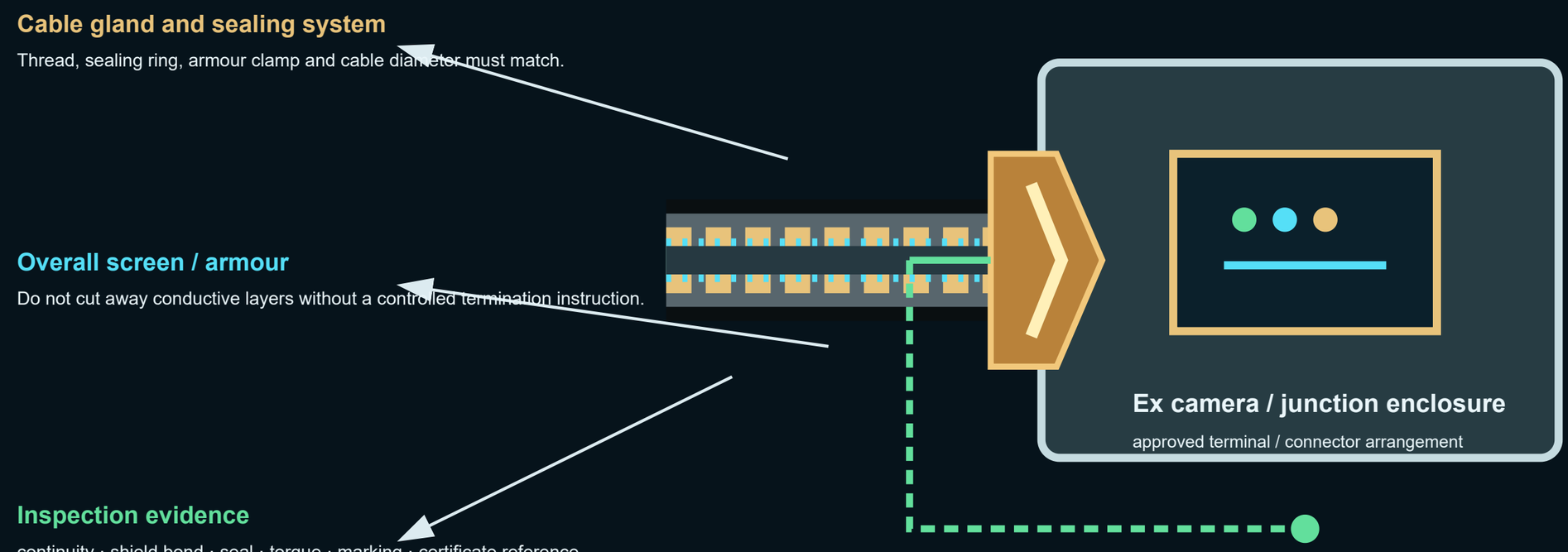
Ship-to-shore and RTG / RMG crane monitoring
Fixed legs may use an industrial Ethernet cable, while moving festoons, energy chains, trolley loops or reels need a dedicated dynamic cable family. Do not transfer a fixed-cable radius or tensile value into a moving route.

Mining and transfer towers
Coal dust, mineral dust, water, vibration, impact, long cable routes and harsh maintenance conditions require a joint review of dust classification, outer jacket, armour, EMC and the network topology.

7. Termination, shield bonding and Ex enclosure interface

Termination detail — shield bonding, seal integrity and Ex enclosure interface

The cable does not become an Ex installation at the gland alone. The cable, gland, enclosure, connector, bonding and inspection record must match the approved project design.



Never add an ordinary gland or field plug inside a classified zone merely because the cable is shielded, outdoor-rated or described as explosion-proof.

Ex gland selection
Confirm thread, cable outside-diameter range, sealing method, armour clamp, ingress rating, material compatibility and certificate scope. A gland is not selected from cable category alone.

Screen termination
For high-frequency EMC performance, the screen normally needs a controlled 360° termination at the interface. The exact single-point / multi-point bonding strategy must follow the project EMC and hazardous-area drawing.

Connector strategy
Standard RJ45 may be acceptable in a safe-area cabinet; it is not automatically acceptable inside a classified zone. Use a certified connector, Ex enclosure or approved field termination system where the area classification requires it.

Maintenance boundary
Document the torque, sealing parts, cable diameter, replacement component, certificate reference and inspection interval. A field replacement that changes the gland or connector can invalidate the original system basis.

8. Feichun configurable specification and data-status matrix

Data provenance: this request did not include a released Feichun explosion-proof Ethernet product drawing, dimensional matrix or certificate number. To avoid inventing specifications, the table below separates industry reference values from Feichun project-confirmation fields. The final order should carry the exact cable code, construction drawing, test limits and ATEX documentation.

Specification field	Reference / proposed value	Engineering use	Data status
Ethernet architecture	4 balanced pairs / 8 copper conductors	Industry reference for conventional four-pair Ethernet; confirm the released Feichun construction.	IEC / industry reference
Nominal impedance	100 Ω balanced system	Use the complete channel design, including connectors and patching, rather than cable impedance alone.	ISO / industry reference
Category option	**Cat 6 or Cat 6A**	Cat 6A is the preferred headroom option for high-definition CCTV, PoE and multi-gigabit uplinks when the complete channel supports it.	**Project selection**
Cat 6A performance reference	Up to 10GBASE-T; commonly 500 MHz cable class	The released Feichun data sheet must state insertion loss, return loss, NEXT/FEXT and balance limits.	Industry reference
PoE	**IEEE 802.3af / 802.3at; 802.3bt by release**	Power class, pair loading, bundle size, ambient temperature and thermal derating must be checked together.	**Project confirmation**
Pair screen	**Optional individual foil screen**	Useful where alien crosstalk, VFD fields, radio-frequency noise or camera image availability are critical.	**Project selection**
Overall screen	**F/UTP, S/FTP or equivalent**	Bond the shield through the approved EMC and Ex termination method; a loose drain pigtail is not a universal substitute for 360° bonding.	**Project selection**
Conductor	**Solid or stranded bare / tinned copper**	Solid construction is common for permanent links; stranded construction is selected for flexing or pre-assembled patch sections.	**Project selection**
Insulation	PE or foam-skin PE reference	The insulation geometry controls balance, impedance, attenuation and pair-to-pair separation.	Industry reference
Separator	**Cross separator, spline or equivalent**	A separator can stabilize pair geometry and reduce pair-to-pair coupling; it must be compatible with the bend and termination method.	**Project selection**
Outer jacket	**PUR, PVC, LSZH, TPU or project-specific compound**	Select for UV, oil, salt mist, abrasion, temperature, fire classification and installation method.	**Project confirmation**
Armour / reinforcement	**Braid, tape, corrugated layer, aramid or none**	Mechanical reinforcement does not create ATEX conformity by itself; it is part of the exact released construction.	**Project confirmation**
Water protection	**Longitudinal water-blocking option where required**	Use when outdoor camera routes, wash-down areas, quays, tank farms or buried ducts can admit water along the cable.	**Project confirmation**
Minimum bend radius	**Exact value from released Feichun data sheet**	Do not copy a bend factor from another Cat6A cable; installation and dynamic ratings are construction-specific.	**Project confirmation**

Specification field	Reference / proposed value	Engineering use	Data status
Tensile / torsion duty	**Exact value from cable family and route study**	A fixed CCTV cable, drag-chain cable and reeling cable have different mechanical design bases.	**Project confirmation**
Operating temperature	**Exact compound and application range**	PoE heating, direct solar load, enclosure heat and cold-start installation limits must be included.	**Project confirmation**
ATEX scope	**Exact product / assembly certificate and Ex marking**	Record notified body or certificate issuer, product identification, gas/dust group, temperature class, category/EPL and installation restrictions.	**ATEX project certification**
IECEx scope	**Exact certificate or supporting documentation where specified**	IECEx is not interchangeable with ATEX; the project market and equipment scope determine the required file set.	**Project confirmation**
Ingress protection	**Cable, gland, connector and enclosure as a system**	IP66/IP67/IP68 is an assembly or product claim; it does not replace Ex approval or cable transmission testing.	**Project confirmation**
Testing	Channel certification plus physical and Ex installation inspection	Test with active electronics disconnected and follow the test limits of the exact cable, connector, camera and Ex assembly.	IEC 60079-14 / project

Industry benchmark, not a Feichun order specification: public industrial Cat6A examples show common constructions such as four pair, solid bare copper, PE or foam polyolefin insulation, individual foil plus overall braid, 100 Ω nominal impedance and 10GBASE-T support. Published manufacturer examples also show that cable diameter, shield coverage, jacket and conductor construction vary materially between products. Feichun must release the exact values for the selected hazardous-area configuration.

Public reference example	Published construction / performance	What it demonstrates	Limitation
Belden industrial Cat6A S/FTP example	Four pairs, 23 AWG solid bare copper, foam polyolefin insulation, individual foil shields, overall tinned-copper braid, LSZH jacket, 100 Ω nominal impedance and 10GBASE-T / 1000BASE-T application context	Industrial Ethernet cables use controlled geometry and layered shielding rather than a simple indoor UTP build	Belden reference only; not a Feichun dimension or ATEX certificate
Belden Cat6A F/UTP example	Category 6A, 500 MHz, four-pair, 23 AWG solid bare copper, PE insulation, 100% foil shield, LSZH jacket and 100 Ω nominal impedance	Category, frequency, shielding and jacket are separate specification fields	Building / product reference; not a hazardous-area approval
Phoenix Contact Cat6A industrial patch example	Shielded CAT6A, 10 Gbps industrial Ethernet patch cable with an industrial connector family	Connector and cable performance must be considered as a channel	Pre-assembled product reference; connector approval is product-specific
LAPP Cat6A industrial cable example	Cat6A performance up to 10 Gbit/s, transmission up to 600 MHz in a listed product family, with PVC / PUR / halogen-free outer-jacket options and PoE use cases including IP cameras	Jacket choice and PoE application are engineered together	Supplier family reference; no ATEX claim is inferred

9. Transmission, PoE and mechanical verification

Channel certification
Test the installed link with the selected cable, connectors, patch leads and patch panel. Check wire map, length, insertion loss, return loss, NEXT, PS-NEXT, ACR-F, propagation delay and delay skew as required by the selected category and channel standard.

PoE thermal verification
Calculate the DC loop resistance and bundle heat for the selected conductor, current class, ambient temperature, sunlight, installation method and enclosure. Do not copy a PoE limit from a different gauge, jacket or bundle geometry.

Mechanical verification
Use the exact Feichun minimum bend radius, maximum pulling load, permitted sidewall pressure, torsion limit, crush / impact data and dynamic cycle rating. A fixed outdoor cable and a reel cable are not interchangeable.

Environmental verification
Check UV, salt mist, oil, fuel, chemical compatibility, water penetration, abrasion, dust accumulation, cold installation, heat ageing, fire classification and the cable’s approved installation position.

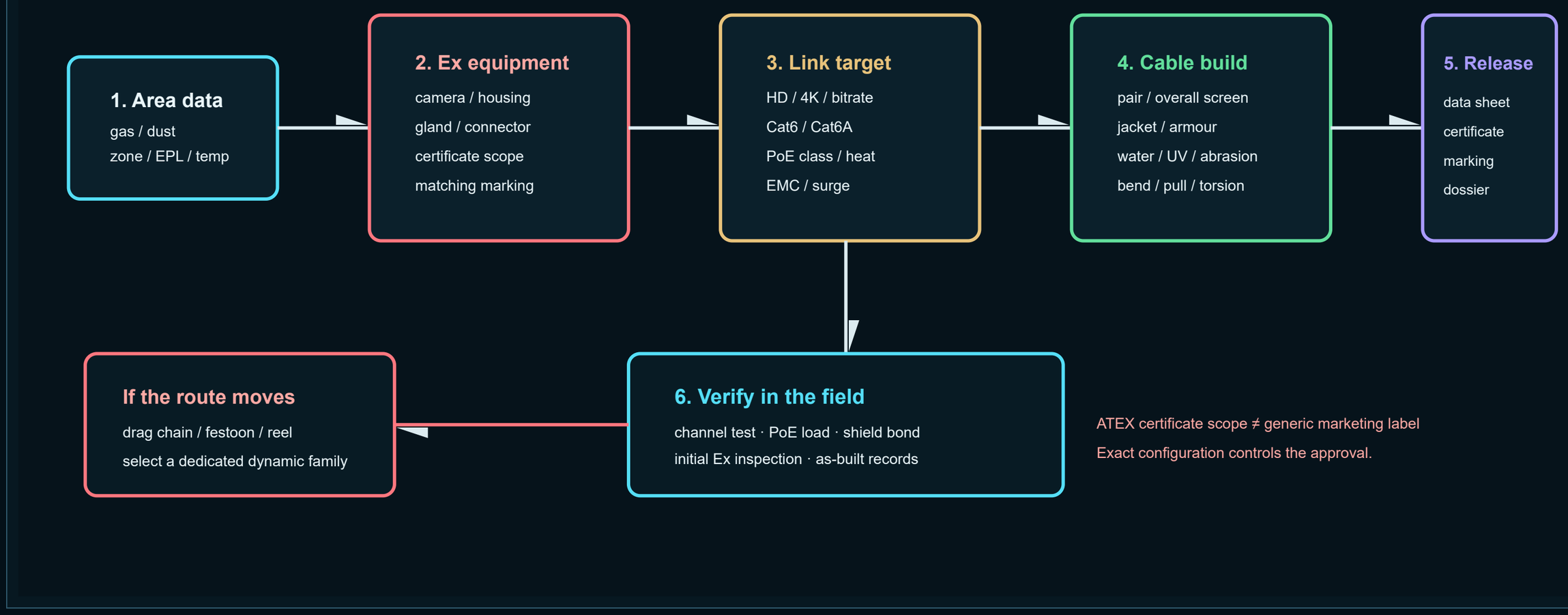
```
Practical screening calculations
PoE loop loss ≈ I² × R_loop
Total camera power margin = switch budget − (camera maximum power + cable / connector loss + cold-start margin)
Video uplink headroom = available channel throughput − aggregate camera bit rate − protocol / monitoring overhead
Approximate copper voltage drop for a two-conductor DC path: ΔU = I × R × L
Mechanical route review = minimum bend radius + pulling / sidewall load + support spacing + vibration + movement profile

For a final release, use the exact Feichun conductor resistance, cable length, cable OD, PoE current, thermal derating, installation method and system acceptance criteria. “Cat6A” alone does not define any of these limits.
```

10. Comparison: ordinary network cable, industrial cable, Feichun ATEX configuration and fibre

Solution	Signal capability	Environmental protection	ATEX / hazardous-area position	Engineering decision
Indoor UTP Cat5e / Cat6	May carry standard IP video in a controlled safe-area route	Limited UV, oil, abrasion, water and EMC protection	No ATEX claim by category name; ordinary RJ45 and jacket are not classified-area approval	Use only in the safe-area portion when the environment and channel design support it
Outdoor shielded industrial Cat6A	Strong option for 1G / 10G industrial links and PoE when released	Can provide UV, oil, abrasion and EMC features; armour and water-blocking vary	Outdoor rating and shield do not equal ATEX certification	Good for industrial safe areas or as part of a certified project solution after scope review
Feichun ATEX-configured HD CCTV Ethernet	Cat6 / Cat6A project selection with high-definition video and PoE design margin	Screen, jacket, armour, water, reinforcement and termination matched to the route	ATEX-certified project configuration; exact product / assembly certificate and Ex marking must match	Preferred when hazardous-area camera coverage, documentation and environmental duty must be closed together
Fibre optic link	High bandwidth and galvanic isolation; no copper PoE unless	Immune to electromagnetic coupling along the fibre, but fibre protection and optical	Galvanic isolation is not ATEX approval; optical equipment, enclosures and	Consider for long, high-EMI or lightning-exposed backbones where power is

Solution	Signal capability	Environmental protection	ATEX / hazardous-area position	Engineering decision
	separately engineered	equipment still matter	termination must be suitable	separately solved



11. Installation and acceptance workflow

1. **Classify the area:** record gas / dust, zone, equipment group, category or EPL, gas / dust group, temperature class or maximum surface temperature, ambient range and special conditions.
2. **Freeze the camera interface:** confirm the exact ATEX / IECEx camera or housing, power method, connector, enclosure entry, surge device and certificate restrictions.
3. **Release the cable build:** confirm category, pair count, conductor, screen, jacket, armour, water blocking, outside diameter, bend radius, pulling load, temperature, PoE and ATEX documentation.
4. **Design the route:** separate from VFD and motor power where practical; control crossing, support, tray fill, sunlight, drip loops, abrasion, vibration, moving sections and maintenance access.
5. **Install with control:** do not exceed the released bend radius, twist or pulling load; protect the jacket at tray edges; keep cable ends sealed from water and dust.
6. **Terminate correctly:** use the approved Ex gland / connector, preserve pair twist and screen geometry, bond shield / armour as the drawing requires and record torque and sealing components.
7. **Test the channel:** certify the copper channel with active devices disconnected; record wire map, length, loss, return loss, crosstalk and shield continuity; do not apply insulation-resistance test voltages to connected Ethernet electronics.
8. **Commission the PoE video:** verify negotiation, maximum camera power, link speed, packet loss, latency, frame rate, night mode, heater / IR load, switch temperature and VMS recording.
9. **Close the Ex dossier:** retain certificates, declarations, cable and gland data sheets, marking photographs, torque records, test results, inspection checklist, as-built route and maintenance restrictions.

Replacement rule: if the cable is replaced with another diameter, jacket, armour, connector or gland, the original ATEX interface and EMC design must be rechecked. A visually similar cable is not automatically an equivalent component.

12. Failure mode and effects analysis

False ATEX assumption: an outdoor Cat6A cable or IP68 gland is installed in a classified zone without the exact certificate and marking.

Certificate mismatch: the camera is approved for a gas group or temperature class that does not match the area, or the cable-entry accessory belongs to another assembly.

PoE thermal overload: high-power PoE is bundled tightly in hot sun or a tray without conductor, ambient and bundle derating.

EMC shield discontinuity: foil or braid is cut back excessively, bonded with a long pigtail or terminated into an incompatible connector; the camera drops during VFD operation.

Pair geometry damage: excessive untwist, crushing or a wrong field plug raises return loss / crosstalk while simple continuity still passes.

Water migration: an unsealed end, damaged jacket or missing water-blocking option allows moisture to travel along the route into the camera box.

Dynamic misuse: a fixed cable is routed through a crane festoon, energy chain or reel; repeated bending and torsion produce intermittent links and sheath fatigue.

Maintenance drift: a replacement gland, patch cord or camera is installed without updating the certificate, marking, shield bond and dossier.

13. Feichun Cable certification and project assurance

Engineered for maximum safety in demanding environments, Feichun Cable’s 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.

ATEX is deliberately emphasized
Feichun’s explosion-proof network cable

Certificate package to request
Product code; certificate number; certificate

Global certification scope
ATEX, IECEx, VDE, CE, UKCA, EAC and

Feichun engineering value
One controlled project interface links

and HD CCTV cable solutions can be supplied as ATEX-certified project configurations with the exact product identification, cable / gland interface and conformity documentation defined for the hazardous-area application.

issuer or notified body; ATEX category; gas / dust marking; Ex protection concept; gas / dust group; temperature class or maximum surface temperature; EPL; ambient range; cable-entry limitations; installation and inspection instructions.

Russian fire-safety documentation are not interchangeable logos. The final dossier must state which document applies to the selected product, market, configuration and installation.

transmission performance, mechanical protection, Ex termination, PoE thermal design, EMC bonding, field testing and certificate traceability. This reduces the risk of buying a nominally compatible cable that cannot close the hazardous-area inspection.

Release condition: this article intentionally does not invent a Feichun certificate number, notified body, Ex marking, cable diameter, PoE current, bend radius or temperature range that was not provided with the request. Those values must appear on the current product data sheet and exact certificate package before purchase or installation.

14. Source map and data-status audit

Source	Use in this article	Status and limitation
EU ATEX Directive 2014/34/EU	Scope for equipment, protective systems, safety / control devices and components intended for potentially explosive atmospheres; importance of intended use and marking.	Official legal text; the article does not reproduce the normative directive.
EU workplace directive 1999/92/EC	Zone and equipment-category selection logic for gas / vapour / mist and combustible-dust areas.	Official legal text; the project risk assessment and local implementation remain controlling.
IEC 60079-14:2024	Electrical Ex installation design, selection, installation, initial inspection, documentation and competency context.	Official IEC publication record; detailed clauses are controlled by IEC.
IEC 61156-5:2020	Balanced communication cable construction and transmission characteristics up to 1 000 MHz; support for remote powering such as PoE developments.	Official IEC publication record; the exact Cat6A release and channel standard must be specified.
ISO/IEC TR 11801-9901	100 Ω nominal balanced-cabling reference and Cat6A channel context.	Official ISO publication record; not a Feichun product data sheet.
Belden industrial Cat6A S/FTP example	Public construction reference for four pairs, individual foil, overall braid, LSZH, 100 Ω and industrial Ethernet applications.	Manufacturer example used for comparison only; no Feichun or ATEX claim is inferred.
Belden Cat6A F/UTP example	Public reference for Cat6A / 500 MHz, 100 Ω, four-pair, foil-screened construction.	Manufacturer example used for comparison only.
Phoenix Contact industrial CAT6A example	Public industrial connector / patch-cable context for shielded CAT6A and 10 Gbps Ethernet.	Pre-assembled product reference; connector approval is specific to that product.
LAPP ETHERLINE Cat6A example	Public reference for Cat6A, 10 Gbit/s, jacket options and PoE use cases including IP cameras.	Supplier family reference; no ATEX claim is inferred.

This article is for preliminary engineering, search and technical comparison. The final Feichun explosion-proof Ethernet / HD CCTV cable release must be checked against the current product data sheet, certificate, marking, cable-entry system, project classification, channel test requirement and local authority rules.

Feichun Cable — ATEX explosion-proof Ethernet and HD CCTV engineering support

Phone
+86 13855123218

Technical email
Tech@feichuncables.com

This article separates industry reference data, engineering interpretation and project-confirmation values. ATEX, IECEx and hazardous-area installation claims must be matched to the exact product configuration and certificate package.

FEICHUN-EXPLOSION-PROOF-ETHERNET-HD-CCTV-ATEX-EN · 03 August 2026