



Exploration & Production

GENERAL SPECIFICATION

TELECOMMUNICATIONS

GS EP TEL 414

Telecommunication cables

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1. Scope

The purpose of this General Specification is to define the minimum requirements for design, manufacture and testing of telecommunication cables.

This Specification applies to any and all industrial sites (offshore and onshore), and associated office and technical buildings. This specification does not cover subsea optical cables, which are described in the **GS EP TEL 190** General Specification.

Electrical cables used to power telecommunication systems shall be in accordance with the **GS EP ELE 161** General Specification.

The verbal forms used to indicate levels of requirement are specified in **ISO/IEC Directives, Part 2** and **Characteristics of good requirements**, INCOSE symposium 1996.

2. Reference documents

Telecommunication cables shall satisfy the requirements and regulations of the country of installation and specific standards referred to in this specification.

Where national regulations exist, their provisions and those of the standards and codes to which they refer shall apply, supplementing or amending the provisions of this document.

If there are no national regulations covering all or part of the subject of this document, the reference documents shall be strictly applied, as supplemented by the provisions of this document.

Only the main reference documents are mentioned; the CONTRACTOR shall be responsible for complying with all secondary reference documents dealing with the subject of this document.

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
TIA/EIA 568-B	Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted Pair Components - Addendum 10 - Transmission Performance Specifications for 4-Pair 100 Ohm Augmented Category 6A Cabling
TIA/EIA-598-A	Colour Code for Fibre and Loose tube Identification
ISO/IEC 11801	Information Technology: Generic Cabling for Customer Premises - 2nd edition, amendment 1 and 2
IEC 60189	Low-frequency cables and wires with PVC insulation and PVC sheath. Part 2: Cables in pairs, triples, quads and quintuples for inside installations
IEC 60227-1	PVC insulated cables of rated voltages up to and including 450/750 V

Reference	Title
IEC 60228	Conductors of insulated cables
IEC 60230	Impulse tests on Cables and their Accessories
IEC 60287	Calculation of the continuous current rating of cables
IEC 60331	Fire-resisting characteristics of electrical cables
IEC 60332-1	Tests on electric cables under fire conditions (single cable)
IEC 60332-3C	Tests on electric cables under fire conditions (bunched cable)
IEC 60540	Test methods for the insulation and sheaths of electric cables and cores (Elastomer and Thermoplastic compounds)
IEC 60754	Test on gases evolved during combustion of materials from cables - Part 1
IEC 60793	Optical Fibres
IEC 60811	Common test methods for insulating and sheathing materials of electric cables
IEC 60885	Electrical test methods for electric cables (partial discharge tests)
IEC 61034	Measurement of smoke density of cables burning under defined conditions
IEC 61156-5	Multicore and symmetrical pair/quad cables for digital communications - Part 5
ITU-T G.651.1	Characteristics of a 50/125µm multimode graded index optical fibre cable for the optical access network
ITU-T G.652	Characteristics of a single-mode optical fibre cable
ASTM D 2863	Oxygen Index
ASTM E 662	Standard test method for density of smoke from the burning or decomposition of plastics
UL 1581	Reference standard for electrical wires, cables and flexible cord: Part about Physical properties after immersion in oil
NFC 32-061	Polychlorure de vinyle pour enveloppes isolantes et gaines de câbles de communication
ISO/IEC Directives, Part 2	Rules for the structure and drafting of International Standards

Professional Documents

Reference	Title
HD 308 S2	Identification of cores in cables and flexible cords

**Regulations**

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Characteristics of good requirements	Requirements Working Group of the International Council on Systems Engineering (INCOSE symposium 1996)

Total General Specifications

The provisions of this document shall be applied in the light of the supplementary documents supplied by COMPANY, including:

- Country specificity appendices,
- Job specification,
- Data sheets,
- Articles and conditions; list of tasks,
- Quality assurance provisions.

Reference	Title
GS EP TEL 140	Public Address and General Alarm systems
GS EP ELE 161	Electrical cables
GS EP TEL 180	Engineering, installation of Telecommunication network pre-cabling
GS EP TEL 190	Engineering and installation of offshore optical fibres based telecommunications
GS EP TEL 410	Installation rules

3. General description

3.1 Environmental Conditions

All indoor and outdoor cables shall be suitable for continuous and reliable operation in the service conditions stated in the environmental data specification of the Project (i.e. general design specification / equipment design conditions).

All indoor cables shall also be capable of operating for a short time at a temperature higher than nominal to cover for a shutdown of air conditioning.

All cables shall be robustly constructed, highly reliable and suitably protected against the corrosive effects of a humid, salt, dust, and H₂S laden atmosphere. Cables shall not be affected by tropical rain or by the operation of deluge systems.

Only cables that are particularly suitable for this environment shall be selected and specified, whilst requiring minimal maintenance.

3.2 Identification

3.2.1 Outer sheath colour

- Indoor Data and Telephone cables: Blue or Grey,
- Outdoor Data and Telephone cables: Black or Grey,
- Outdoor Telephone cables: Black or Grey,
- Coaxial cables: Black,
- CCTV Camera / Monitor cables: Black,
- Other types of cables, depending on the application:
 - Fire resistant cable (non intrinsically-safe): Orange,
 - Fire resistant cable (intrinsically-safe): Orange with blue strips,
 - Flame retardant cable (non intrinsically-safe): Black or Grey,
 - Flame retardant (intrinsically-safe): Blue.

3.2.2 Wire colour

- Indoor / Outdoor Data and Telephone cables: As per [TIA/EIA 568-B](#) colour code,
- Outdoor Telephone cables: To be fully compliant with [IEC 60189](#) Part 2,
- Multipair cables: Red / White with pair number marked on the sheath of each core,
- Multicore cables: White with core number marked on the sheath of each core,
- PA/GA Flashing Beacon Cables: As per [HD 308 S2](#) professional document,
- Fibre Optic cables: As per [TIA/EIA-598-A](#) colour code.