DATA CENTER NETWORKS
CONNECTION MAKERS

Data Center Interconnect

More reach, more capacity, everywhere



ACOME GROUP

Optical connectivity solutions for DCI and data center campus networks

Outdoor, indoor/outdoor and protected infrastructure solutions

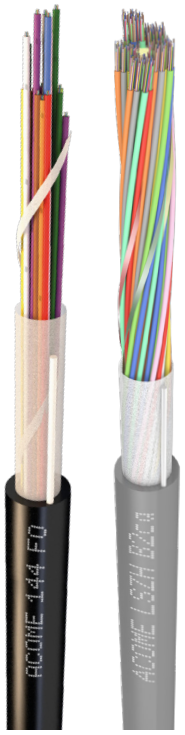
The rapid expansion of cloud services, artificial intelligence, and data-driven applications is driving continuous growth in Data Center Interconnection (DCI) requirements. To support this evolution, network operators, infrastructure providers, and hyperscalers are looking for fibre optic solutions that deliver ever-higher capacity while simplifying deployment, optimising the use of existing infrastructure, and ensuring the highest levels of reliability.

Leveraging its expertise in optical network, ACOME Group offers a comprehensive portfolio of connectivity, duct and optical cables designed to address the diverse requirements of data center interconnections and telecom infrastructures. Whether for duct installation, demanding pulling or blowing conditions, fire resistance, rodent-prone environments, or exposed outdoor deployments, our cable families are built on a common and proven technology platform.



At the core of the solutions below lies ACOME Group's Compact-Tube® architecture and compact cable constructions optimised for easy handling in the field. This modular approach simplifies fibre identification, splicing, and network operations while delivering high fibre density and reliable long-term performance across a wide range of deployment environments.

Duct cables (blown and pulled)



Outdoor plant duct cable

One of the most widely deployed duct cable platforms on the market, the **UND1533 and UND1558** series offers a robust design optimised for blowing and pulling installation. Available **from 12 to 864 fibres,** it addresses a large spectrum of DCI requirements while ensuring reliable deployment within existing duct infrastructure.

The **UNC1566** series is engineered for the most demanding pulling conditions. Available **up to 144 fibres,** it delivers up to 3x the tensile strength of the UND15xx range, it withstands long pulling runs, complex routes and high mechanical stress – while preserving the optical performance of the link.

Indoor/outdoor duct cable

The **UND1658** range enables simplified data center connectivity, from campus and metro networks to data center entrances. With capacities **from 72 up to 864 fibres and a CPR B2ca fire rating,** it delivers high-density connectivity, enhanced safety, eliminating the need for transition boxes and reducing installation complexity and overall infrastructure costs.

Anti-rodent armored cables



Outdoor steel armored cables

The **CCC1378** series is designed for harsh outdoor environments where maximum mechanical protection is required. Available with **up to 288 fibres,** it has delivered reliable performance in sewers, direct-buried routes, and rodent-prone areas. Its rugged construction ensures long-term network protection and dependable optical performance in applications where fire regulations do not apply.

Indoor LSOH cables

The **CCC1781** series combines **CPR B2ca fire performance with steel-armored protection,** making it the preferred solution for data center feeder routes through subway systems, utility tunnels, and other challenging environments. Available with **up to 288 fibres,** it delivers enhanced mechanical robustness while meeting stringent fire safety requirements.

Dieletric reinforced cables

The **CCC1575 and CCC1577** series are designed to protect critical fibre infrastructure in challenging environments. Available with **up to 288 fibres, they provide durable all-dielectric rodent protection** while offering greater flexibility and corrosion resistance than traditional steel-armored solutions. While both ranges are well suited for underground and duct applications, with flat FRP reinforcements, the CCC1577 also supports long-span aerial deployments and enhanced ballistic resistance, addressing the needs of the most demanding telecom networks.

Micro-Duct blowing: maximum reach, minimum risk

ACOME Group delivers a sovereign, end-to-end ecosystem for micro-duct blowing – micro-ducts, accessories, and blown fibre cables validated together on full-scale test tracks.

ACOME Group, the one-stop manufacturer of the blowing world.

Microducts manufacturing plants
United States and Denmark

Cable manufacturing plants and blow test tracks
France

Microducts and accessories that safeguard blowing performance

Single ducts from 7 to 25mm OD 3.5 to 20mm ID

- Thin wall and thick wall
- Ribbed or smooth inner surfaces
- PEHD or Indoor LSZH (4/2.5 to 14/10mm)



Bundles up to 25 ways

Standard or custom sizes available



Accessories

Connectors*



End Caps*

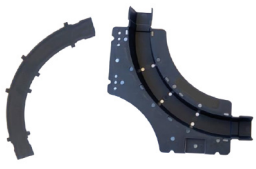


Reducers

(*Gas Blocker or Indoor versions available)



Branch support elbow and closures



Divisible Seals
Ball and Disc markers



The blowing-ready cable families

The MCD152x series are micro-loose tube based blown cables specifically designed for long distance blowing in microducts.



Cable		MCD1520	MCD1522HD	MCD1521HD
Fibre diameter		SMF 250µm	SMF 200µm	SMF 200µm
Element type		µLT	µLT	µLT
Element fibre count		12f	12f	24f
Cable capacity per duct size	**10/6mm**	–	12 to 72f	–
	12/8mm	12 to 96f	12 to 144f	144 to 192f
	14/10mm	12 to 216f	144 to 288f	144 to 288f
	16/12mm	144 to 288f	144 to 288f	192 to 576f
	18/14mm	144 to 288f	288f	288 to 576f

Validated on standardised, industry-recognised blowing tracks

The guarantee of an approved cable/pipe combination on standardised routes

ACOME Group has been using blowing circuits (IEC 60794-1-21 - E24 method, Vetter-like test track) for cable designing, testing, and certifying its cables and microducts, which reproduces IEC and Vetter standardised routes.

ACOME Group's blowing test centre has just implemented the brand new IEC 60794-1-124 Method B routes with a three-mandrel layout introduced to simulate realistic routes.



Passive solutions for Long-Haul ILA and regeneration sites

High-density fibre management for limited space, fast maintenance, and clean optical paths.

ACOME Group connectivity - the sovereign passive backbone of DCI long-haul sites.

Manufacturing plants
France

Delivering high-density, front-accessible, modular solutions for the world's long-haul amplifier and regeneration stations.

What matters in an ILA/regeneration site?

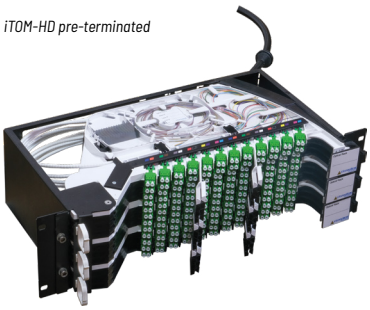
- Compact fibre management in restricted-access huts
- Safe bend-radius control for cross-device connectivity equipment
- Clean fibre interfacing
- Easy maintenance with minimal site visits
- Long-term reliability

Passive modules for modern DCI sites

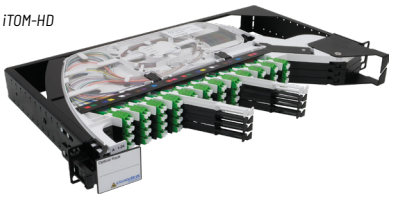
High-density patching (front-access)

- **High-density pivoting patch panel** (96F/144F) for safe bend-radius and rapid intervention in narrow huts.
- Ideal for diverse cross-device connectivity.

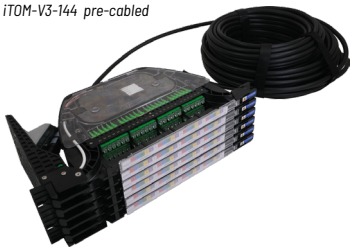
iTOM-HD pre-terminated



iTOM-HD



iTOM-V3-144 pre-cabled



iTOD-HD-96-1U

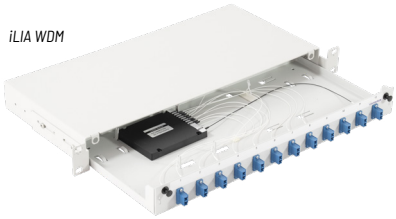


Passive modules for modern DCI sites

WDM, OSC and monitoring layers

- **Passive WDM rack** for OSC add/drop (1510/1625 nm), taps, splitters, and monitoring ports.
- Vendor-agnostic ensures integration with any amplifiers or optical add-drop multiplexer platform.

iLIA WDM



iLIA monitoring



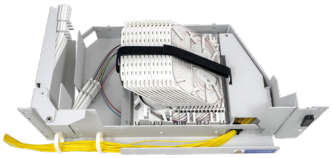
Splicing and fibre storage

- **Modular splicing patch panels and slack-management trays** for stable routing, clean pigtail organisation and long-term reliability.
- Perfect for EDFA/OSC pigtails and coherent patching.

iTEP



iTEP-BF-3U without its protective cover



iTOS



iTOD-HD-96-1U



iREP overlength absorption rack



Rural and harsh-environment protection

- **Anti-rodent patch panels** securing fibre and patchcords in unmanned huts and underground corridors.
- Designed for utility routes, railways, energy backbones.

iTOR-24/48-HB



iTES-HB-AR



Modular racks

- **High-capacity optical rack** for passive modules: MUX/DEMUX, splitters, circulators, OADM, monitoring blocks.
- Central to any scalable ILA or regeneration frame.

iROC high-density rack, 19" LGX frames



iMOD-ROC modules



Fast deployment: pre-terminated fibre rack

- **Factory-tested plug-and-play racks** reducing splicing and truck rolls.
- Ideal for rapid commissioning, SLA-sensitive routes, and remote huts.

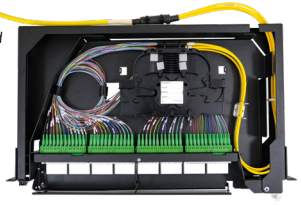
iLIA-V2-96 pre-terminated



iTERA pre-cabled



iTOD-HD pre-cabled



Faster, everywhere: the density challenge

The share of AI-related DCI traffic is rising by 30% to 50% annually, driving a sharp increase in optic fibre demand. To prevent DCI links from becoming a bottleneck, the physical layer must evolve accordingly.

A breakthrough in cable densification is now unavoidable, particularly where existing ducts are limited or where leasing costs depend on occupied space. Without proper capacity planning, DCI-related capital (CAPEX) and operating (OPEX) expenses can escalate quickly.

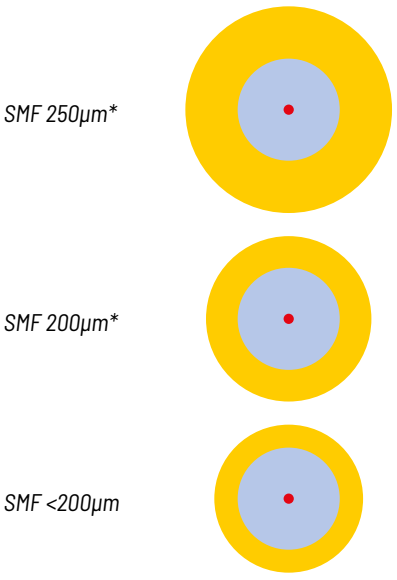
Three key drivers can enable cable miniaturisation and help overcome today's densification challenges.

Density lever 1

Optical fibre's diameter

Adding value without compromising performance

ACOME Group is working with Reduced-Coating Fibres — optical fibres whose protective coating is thinned to bring the overall diameter from 250 µm down to 200 µm or less, while keeping the standard 125 µm glass cladding. This increases the number of fibres per cable without increasing the cable footprint. A thinner coating requires an improved material to preserve mechanical protection, and careful cable design to maintain transmission performance.



*Levers already available at ACOME Group

Density lever 2

Element fibre count

Modularity: a limited lever for true densification

DCI cables frequently use 24- or 36-fibre elements. Increasing module size can contribute to densification, but it also complicates fibre identification and handling. With identical fibre technology, the resulting densification potential remains modest – around 10% – and is significantly outperformed by approaches based on reduced-diameter fibres.

*250µm**

1.81mm
*24f elements**



1.35mm
Standard
*12f elements**



Challenges in colour identification

Twelve basic colours are used to distinguish between optical fibres. For more than 12 fibres, this identification system is supplemented by ring markings. In practice, duplication of colors slows down the fibres' management.

**Levers already available at ACOME Group*

Density lever 3

Element technology

Sub-unit architecture: a densification lever often overlooked

Conventional loose tubes have a diameter ranging from 2.3 to 3 mm. This assembly technology is now reaching its limits in terms of densification: other assembly processes can reduce the cross-section of the assembly by a factor of 4, or even close to 8.

Advantages of mass splicing without the drawbacks of ribbons

The linear attenuation of an optical fibre cable is a key value in inter-data center transmission. It is also the main uncertainty with bendable ribbon cables, which can reach around ~0.3 dB/km at 1550 nm instead of the ~0.2 dB/km expected by standards due to residual micro-bending. Mass splicing can effectively cut splicing time for high-capacity cables by up to 70% but it is not exclusive to ribbon cables. Ribbonizing loose-fibre cables is a widespread practice, offering maximum field installation and repair flexibility. Contact ACOME Group for more information.

(with 250µm fibres)

Loose Tube
2.4mm



*µLT**
1.4mm



*Compact Tubes**
1.35mm



Rollable Ribbon
1.2mm



*Nanomodule**
1.0mm

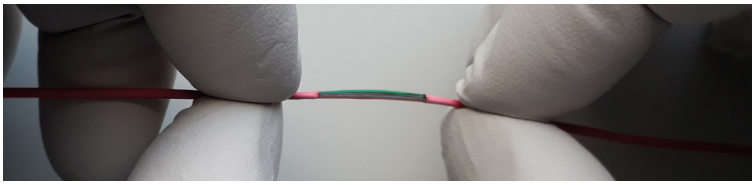


Fibre assembly: the densification lever inside the cable

Why Compact-Tube and Nanomodule technologies unlock new capacities in ACOME Group cables and make fibre management easier in passive cabinets.

Two assembly technologies, one goal: compact and safe fibre handling.

Compact-Tube: the proven standard for high-density cables

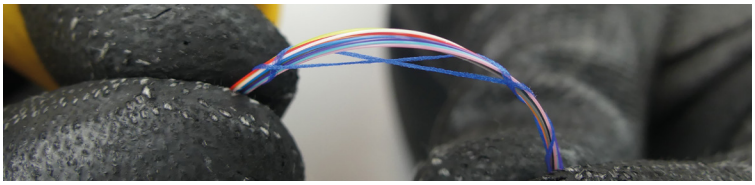


Fibre assembly technology directly influences density, mid-span access, splice count and cable handling – on the field and inside ILA racks.

Key characteristics

- Bundle with no shape memory, no kink effect
- Low grease (no-gel version available): clean handling
- Mid-span access: easy (drop fibres without cutting all modules)
- Reduced coil diameter (predictable performance in ILA drawers)
- Ideal for 24-fibre variants in densified platforms

Nanomodules: maximum compactness and easiest mid-span access



Nanomodule received the innovation of the year 2024 Award from the UK altnet association INCA after the demonstration of major benefits from deploying cables embedding Nanomodules on the field.



Key characteristics

- Ultra-compact units (~20% smaller than rollable ribbons)
- Minimum storing space (≤10 mm coil radius)
- No gel, no shape memory, no kink effect
- Fast fibre access, no-risk mid-span: major productivity gains

The assembly inside the cable drives the efficiency inside the racks.

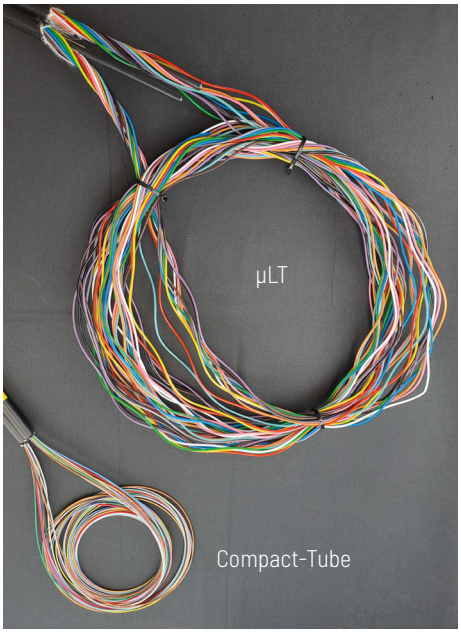
Better modules = easier splicing, cleaner drawers, safer bends, faster maintenance.

Choose the right assembly technology for your DCI fibre paths.

Why this matters for DCI, long-haul and regeneration sites

- **Compact fibre routing in restricted huts:** Compact-Tube and Nanomodule designs reduce slack and ensure tight-radius safe handling in dense drawers.
- **Safe bend-radius control near active layer optical equipement:** assemblies without shape memory behave predictably around sensitive optics.
- **Clean fibre interfacing, easier splicing, less grease, and stable routing:** cleaner optical paths inside high density shelves.
- **Easy maintenance with minimal site visits:** fast mid-span access and cleaner modules reduce intervention time in remote huts.
- **Long-term reliability:** stable materials, no gel migration, and controlled microfibre routing ensure durable performance.

Coiling 12 elements (144F cable)



How fibre assembly links cable platforms and fibre management equipment

- Duct cables (UND15xx / UNC15xx)
- Armored cables (CCC13xx / CCC15xx)

All can embed Compact-Tube or Nanomodule assemblies for higher density.

- HD patching racks (iTOM-HD / iTOD-HD)
- Splicing patch panel (iTEP / iTES)
- LGX racks (iROC, 19" LGX)

Fibre assemblies determine ease of routing, splicing, and bend-radius control in these products.

Next-generation fibres for scaling optical network capacity

Multicore fibre – densifying at fibre

Multicore fibre (MCF) integrates several independent transmission cores within a single standard 125 µm cladding – typically four in the architectures now converging across the industry. Rather than increasing the bandwidth of a single path, MCF multiplies the number of optical paths carried by each fibre, making it one of the most promising approaches to space division multiplexing (SDM). The structural benefit is direct: more optical channels within the same cable footprint. Where conventional densification relies on adding fibres – and therefore volume **– MCF increases capacity at the fibre level itself, easing pressure on ducts, cable trays, racks and patching areas.** A four-core fibre can carry up to four spatial channels per physical fibre, and this gain can combine with reduced-diameter fibre technologies.

ACOME Group takes an active part in the industry consortia and standardisation work shaping this technology. Beyond the fibre itself, ACOME Group has already cabled MCF fibres while preserving their intrinsic performance – attenuation and inter-core crosstalk remaining in line with the recommendations recently published under the SDM4 MCF MSA.

This is precisely where the challenge lies: a high-performing fibre does not automatically make a high-performing cable.
These topics are explored in depth in the series of white papers ACOME Group is publishing on SDM and multicore fibres, covering the technology fundamentals, fibre architectures and cabling considerations.
Results from our MCF cable development programme will be shared during the first half of 2027.

G.654.E fibre – more reach, fewer sites

Each active site – amplification or regeneration – drives CAPEX, OPEX and energy consumption, with regeneration being the most demanding as it requires OEO conversion of every WDM channel. **Lowering attenuation and non-linear sensitivity at fibre level extends the distance between active sites: spans are longer, amplification sites fewer, and regeneration can be removed entirely.** A structural gain, independent of the transponder generation deployed.

ACOME Group integrates G.654.E long-haul fibre, combining ultra-low attenuation and large effective area, into a range of robust terrestrial cable designs. Engineered for deployment in ducts,

microducts and overhead networks, these cable solutions help extend the reach between active sites while ensuring long-term mechanical reliability, environmental resistance and stable optical performance throughout their service life.

To learn more see the dedicated ACOME Group white paper.

Hollow-core fibre – the latency lever

Hollow-core fibre (HCF) guides light through air rather than glass. Light propagates roughly 1.5 times faster than in conventional silica – which translates into a latency reduction of some 30 % compared with standard single-mode fibre. Meanwhile, recent designs have brought attenuation down to levels once thought unreachable. This makes HCF particularly relevant for latency-critical DCI corridors, such as financial trading and AI workloads, while conventional SMF continues to carry capacity elsewhere on the network.

Beyond pure speed, this property opens a structural perspective: for a given latency budget, data centers can be sited further apart. At equal latency budget, hollow-core fibre extends the reachable distance by ~47 % – which translates into more than twice the eligible siting area around a given anchor point. This flexibility in site selection can ease access to available land, power capacity and cooling resources, with a direct impact on both CAPEX and OPEX. In the short term, deployments are likely to target intra-campus links and niche latency-sensitive applications such as financial trading, before extending to metro and long-haul networks.

ACOME Group is working on HCF to engineer the passive path – cable design, bend and strain control, connectorisation and low-loss installation – so that the physics of the fibre translates into real performance in the field. First results from our HCF cable development programme will be shared during the first half of 2027.



With a view to improving the performance of its products, ACOME reserves the right to modify these specifications without prior notice.
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