GEIGER

A brand of **legrand**

ODF TOTAL SYSTEM SOLUTIONS

The central foundation, for a modular, highly available and scalable communications infrastructure

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MORE THAN JUST A PRODUCT,
A MODULAR TOTAL SYSTEM SOLUTION
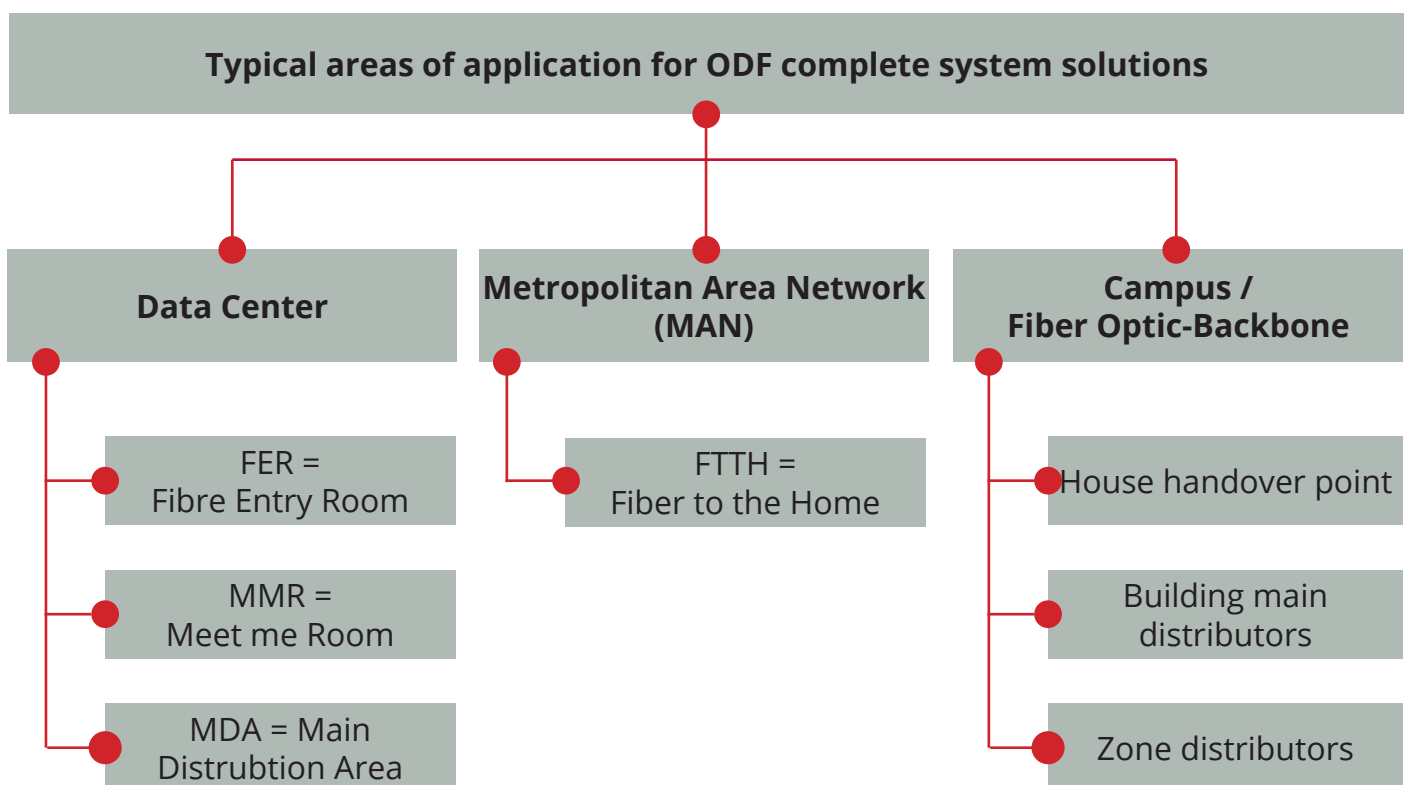
Typical areas of application
Modular total system solution

As bandwidth demand increases, the demand and amount of fiber optic connections within the data center and fiber backbone areas grows.

High numbers of optical fibers are of crucial importance for today's and especially for future applications in order to be able to ensure the required amounts of data within the structures, driven not least by hyperscale's.

The development and expansion of the active technology also includes the expansion of the physical structure through new construction or expansion of the existing building.

Our ODF portfolio makes it possible to carry out this technology step as required and scalable for today's applications as well as the migration for the future.

Typical areas of application for ODF complete system solutions

Data Center	Metropolitan Area Network (MAN)	Campus / Fiber Optic-Backbone
FER = Fibre Entry Room	FTTH = Fiber to the Home	House handover point
MMR = Meet me Room		Building main distributors
MDA = Main Distrubtion Area		Zone distributors

Typical areas of application
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FTTH = Fiber to the Home

Fiber to the Home (FTTH) is a fiber optic connection technology in which the fiber optic is routed from the point of presence (PoP) in the local exchange in conduits to the end customer in his apartment and completed there with an Optical Network Termination (ONT) in the house transfer point. The fiber optic connection is often interrupted by fiber concentration points where the connections are joined together by a variety of connection points.

HOUSE TRANSFER POINT - BUILDING MAIN DISTRIBUTOR – ZONE DISTRIBUTOR

In areas of building main distributors and zone distributors for campuses with highly branched and or high-fibre fiber backbone structures. The house transfer points (HÜP) form the transition from external cables to internal cables, as well as the interface between external providers and their own structures.

FER = Fibre Entry Room

The Fibre Entry Rooms form the most important external connection points within the campus structures, e.B to service providers, building to building connections and data center to data center couplings.

In this central position, the safe operation, clarity and reliability of installed cabling solutions is crucial. The increasing demand for high numbers of fibers, especially in the field of DC coupling, is increasingly being implemented with new compact cable designs, often also as ribbon solutions in order to be able to optimally use the available cable paths. For odf solutions, this means being able to combine a wide variety of cabling solutions in conjunction with high numbers of fibers.

MMR = Meet-me-Room

Meet-me-rooms are an extremely crucial point to ensure constant communication between systems, cages, areas or customers. They form the most important nodes within the fiber optic backbone, especially in the colocation area, to ensure internal connections as well as connections to providers or other providers.

Typically, a large number of different connections have to be connected in one system, high-fibre connections to other meet-me-rooms, providers or Hyperscaler customers as well as a variety of low-fibre connections to customer areas and cage installations.

Typical areas of application
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MAIN DISTRIBUTOR AREA (MDA)

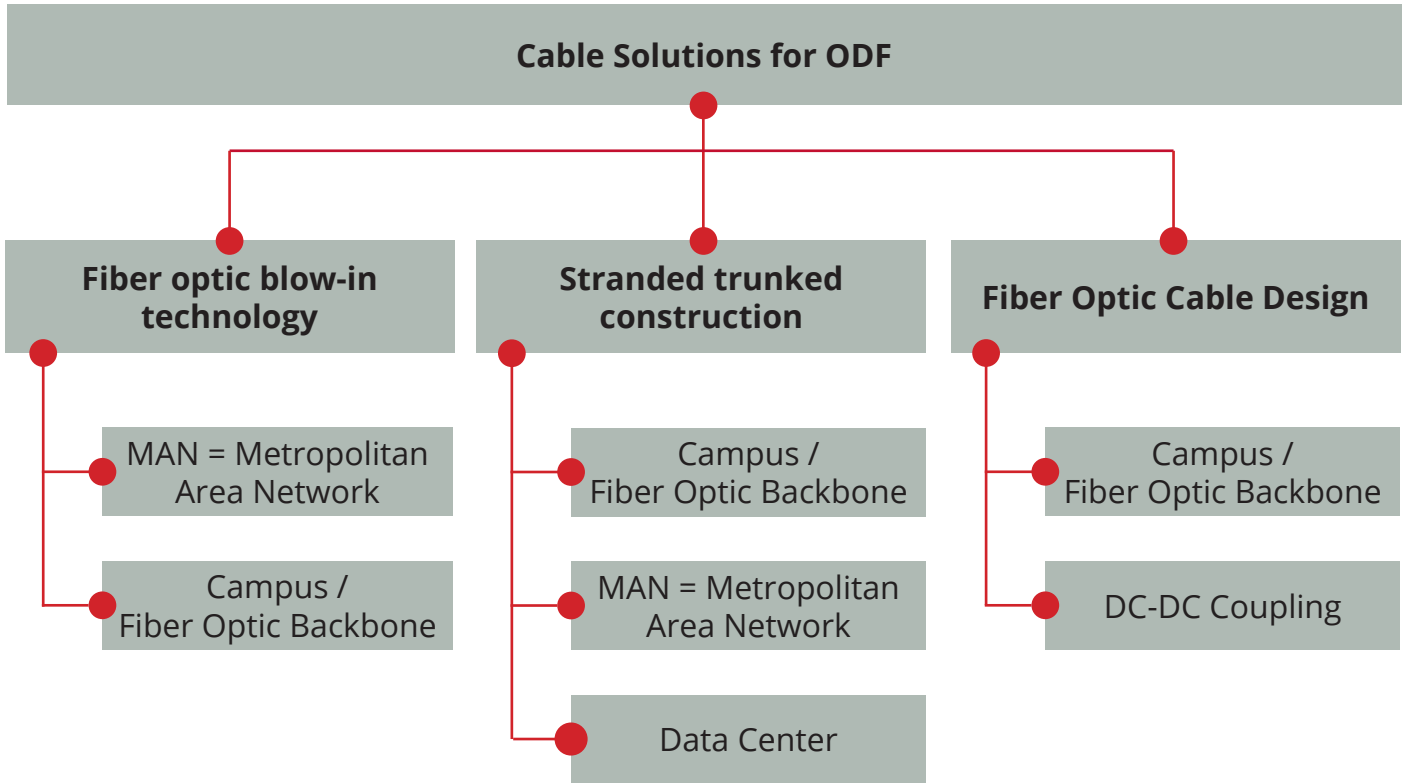The Main Distribution Area (MDA) is the place for the main distributor where structured cabling systems converge.

What do all the different cabling areas have in common?

The different cabling areas combine the same requirements and conditions. Complex structures, high number of fibers and/or cables, high patch cable densities or branches, dynamic growth.

The ODF solutions meet the requirements of these complex structures and implement these high-density structures with optimal patch management without sacrificing flexibility or scalability. The clear structures and modularity allow easy expansion during operation in this flexible environment.

In all of these environments, modular and flexible cabling systems with high packing density are best suited because they focus on managing and handling high fiber counts as well as high cable counts and a variety of patches. Various bays are available for implementation, the main part in these areas are the splicing solutions, pre-assembled panel-to-panel connections and trunk-to-panel connections for switch port connections are suitable for cross-connections.

Cable Solutions
Modular total system solution

Cable Solutions for ODF

Fiber optic blow-in technology
- MAN = Metropolitan Area Network
- Campus / Fiber Optic Backbone

Stranded trunked construction
- Campus / Fiber Optic Backbone
- MAN = Metropolitan Area Network
- Data Center

Fiber Optic Cable Design
- Campus / Fiber Optic Backbone
- DC-DC Coupling

Fiber Optic Blow-in Cable

Fiber optic blow-in cables are extremely compact and often stiffened cable constructions, which are suitable for blowing into specially developed HDPE pipe systems. The cable designs of the blow-in cables are most commonly used for FTTH applications. The constructions include fiber counts from 4 fibers up to 144 in standard designs, in combination with ribbon technology up to 432 fibers.

Cable Solutions
Modular total system solution

Stranded trunked trunk construction

Fiber optic trunk cables are the most common cable designs for cabling worldwide and can be found in almost all cabling areas. The design of the cables allows a wide range of available types as well as fiber counts, from 24 fibers to 864 fibers.
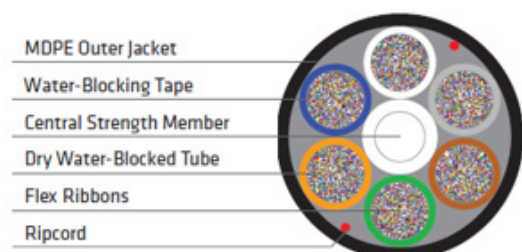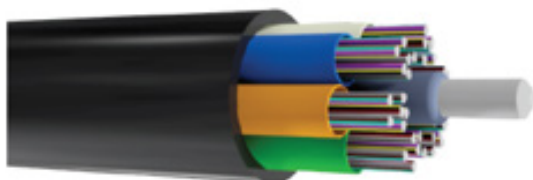

Ripcord
ø 2.5 mm FRP strength member
ø 2.3 mm loose tubes with jelly filling
Swellable wrapping tape
1.5 mm FireBur sheath
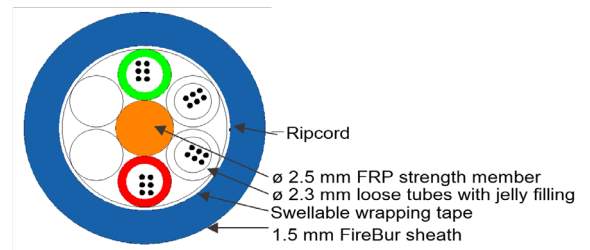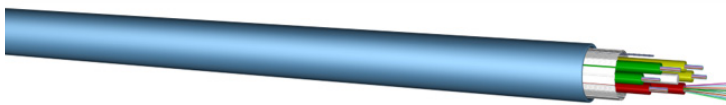
Quelle: Prysmian Group

Fiber Optic Cable Design

Fiber optic ribbon cables or ribbon cables are special designs that take up maximum packing density and thus very small space requirements in pipe and alignment systems. The compact design and ribbon technology enable fiber counts of up to 6912 fibers with a cable diameter of only 39mm.

Ribbon = 12 fibers of the fiber optic basic colors which are completely glued together, then one also speaks of a solid ribbon (inflexible, rigid)

Ribbon = 12 Fasern der LWL-Grundfarben welche punktuell aneinander geleimt sind, dann spricht man auch von einem flexible-Ribbon (rollable Ribbon), (flexibel in jede Richtung)


MDPE Outer Jacket
Water-Blocking Tape
Central Strength Member
Dry Water-Blocked Tube
Flex Ribbons
Ripcord

Quelle: Prysmian Group

Rack Solution
Modular total system solution

Together with Modulan, Geiger has developed a rack solution that is specifically tailored to the requirements of ODF. The rack solution is completely modular and can be configured according to customer requirements or circumstances. The dimensions (HxWxD), the patch management and other details are just a few examples of the flexibility and the solution-oriented concept. Access to the rack is only possible from the front. This saves space and makes it possible to place the rack directly on the wall or back-to-back with another rack.
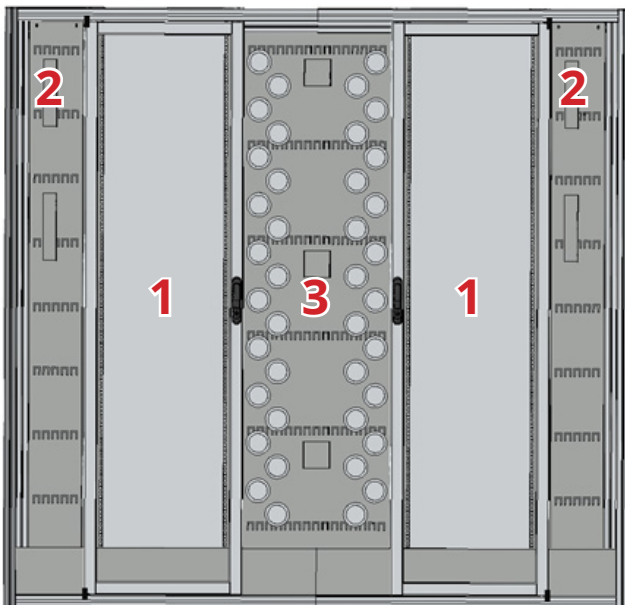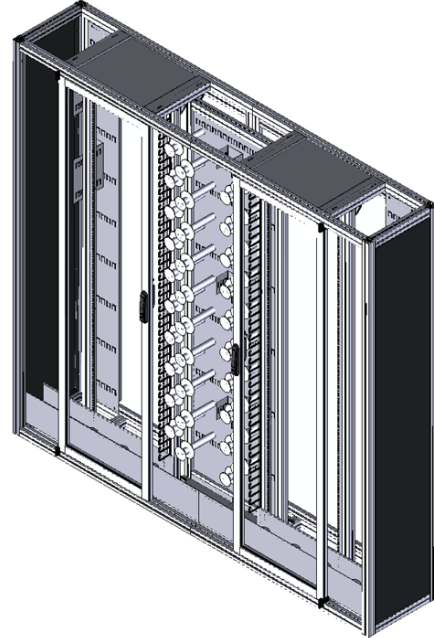
Rack height individually adjustable = maximum utilization and available U possible with the same installation space

1 Left and right segment to accommodate the ODF cabling components, each with a separate feed area for fixed cabling

2 Fork insertion from above as well as below possible. Line interception, strain relief and division in the feed area via the rack depth, so this can be done in several levels to accommodate a variety of individual outgoing lines or high-fiber incoming cables.

3 Patch area in the middle with cable barrels for guiding and recording the patch lines. The distribution over the entire rack height allows the use of a patch cable length regardless of the mounting location within the ODF solution (standard patch cable lengths reduce stock – no length determination necessary).
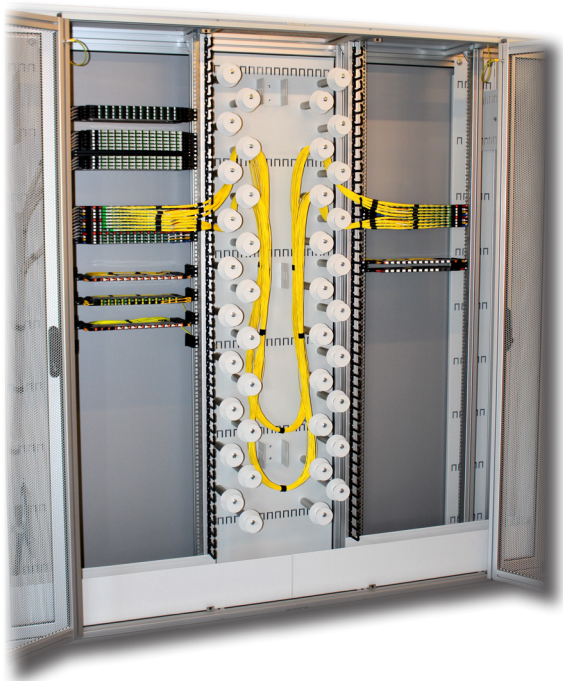
ODF Solution
Modular total system solution

Geiger has 2 modular, scalable and highly available system solutions in its product portfolio, which have been optimally created for the ODF sector. In the following, both system solutions are discussed in detail.

The system solution from Legrand:

It is a modular system solution for 19" mounting. The 19" carrier unit offers space for up to 4 bays, up to a maximum of 96 fibers per HE in LC connection technology.

The bays are available for the left or right mounting position to match the rack solution, the couplings are each inclined to the shunting area. As a result, an optimal supply or discharge of the patch lines is achieved and a fall below the minimum bending radius is excluded.

The patch area of the slots can be extended forward by approx.6cm by pressing the snap-in levers located on the left and right of the slot. This simplifies access and handling even in maximum expansion. The couplings located at the front also simplify professional cleaning of the end surfaces as well as end-loop viewing by means of video microscopy. The fixed wired portion of the slots – splicing area, supply of the fiber-carrying elements from the cable – are not moved = no risk of damage after installation to the hard-wired portion of the installation.

Front-loaded system

For installation, expansion and retrofitting as well as patching and manoeuvring work, front access to the rack is sufficient. The splicing work can be carried out at a normal working height regardless of the mounting location and is then inserted into the carrier.
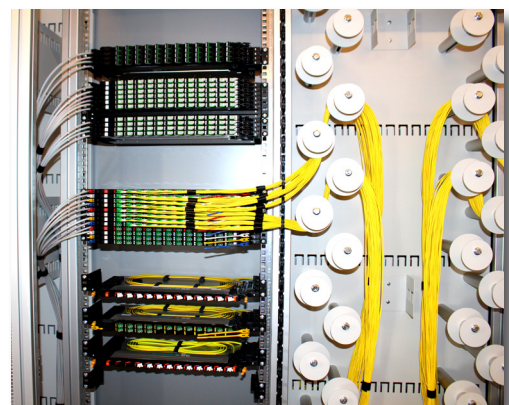
ODF-Lösungen
## Modular total system solution

Verfügbare Einschübe:

ODF-Einschub für Einzelfaserspleißtechnik in 12xLC-Duplex, 12xSC-Simplex und 12xLSH-Simplex verfügbar

ODF-Einschub – vorkonfektioniert für Switchportanbindungen, inkl. Überlängenaufnahme, Breakoutseite mit allen gängigen Steckertypen Konfektionierbar inkl. MPO/MTP®
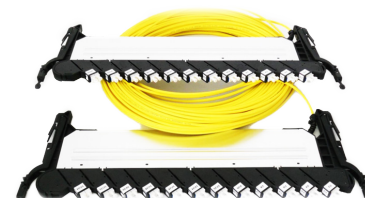

ODF-Einschub – FLASC Front Loaded Angled Splitter Cassette (mit integriertem Splitter)
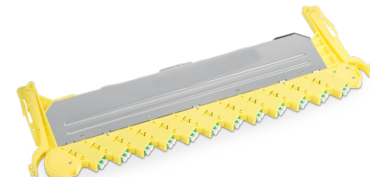
ODF-Einschub – FLAMC Front Loaded Angled Mutliplexing Cassette (Mux/Demux)

ODF-Einschub – Kasette zu Kasette

In unserer zertifizierten Glasfaserfertigung in Irschenberg, Oberbayern, sind Expressfertigungen für LWL-Trunks sowie LWL-Patchkabel möglich. Wir fertigen und konfektionieren individuell, ganz nach Kundenanforderungen.

ODF Solution
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The system solution Osirisone UHD:

The fiber distributor is designed for the use and termination of high-fiber fiber optic cables for up to 864 fibers. The housing and drawers are also optimized for the use of normal fiber optic trunk constructions (single fibers in bundle cores) as well as for the use of ribbon cables (solid ribbon, flex ribbon, rollable ribbon).

The cables are terminated and divided completely within the housing, and to protect the individual bundle cores when feeding them to the drawers, they are routed in bending radius boundary hoses.

The housings are available as 3U, 6U or 9U variants, the drawers (each 1U) are available with up to 96 fibers in LC and LSH connection technology.
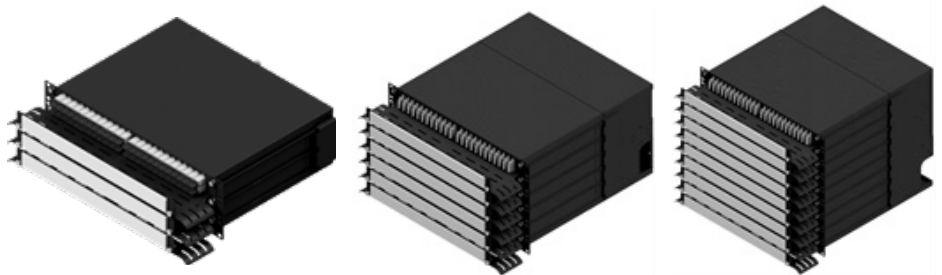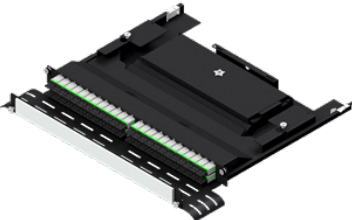
Available drawers:

Drawer 96xLC/PC SM OS2
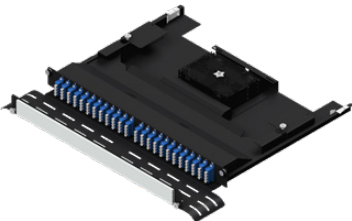
Drawer 96xLSH/HRL SM OS2

Front panel layout incl. screen printing for port/fiber marking:

Front panel for mounting 24xLC Quad couplings

Front panel for accommodating 24xLSH duplex compact couplings

The patch cable management is integrated on the drawer and designed as a tub for large-area support of the patch cables. Recessed slots allow the patch lines to be fixed with Velcro tape. The drawers can be extended 10cm forward for better handling during shunting work, the generous marking field mounted on the front of the drawer can be removed by loosening Rendel screws (without tools). This achieves optimal access and enables simple and professional cleaning of the end surfaces.

Services
Performance overview

Geiger is a company that combines a long-term, entrepreneurial and sustainable strategy with competence, loyalty and practical experience. With its 25-year success story, Geiger can support you in the field of communication and data center infrastructures from idea to implementation.

Geiger creates scalable and highly available communication and data center infrastructures with the following core competencies:

- Fiber optic & CU communication cabling,
- Complete solutions in the data center sector (complete expansion of DC whitespace),
- Management & Monitoring

The focus is always on individual customer requirements and solution-oriented work.

Cabling systems fiber optic/ copper	**Splicing & Measurement Services**
DC & Backbone Cabling Structures	**Glass fiber blow-in technology**
Glass fiber assembly/assembly with express production	**Communication cabling as a central component of the building infrastructure**
3D space measurement	**Rack Design - Enclosure Design**

Our service and assembly team Germany/ Austria/Netherlands comprises >20 employees

Skills Overview

Fiber Optic Assembly & Box Assembly

Fiber optic assembly operations in the data center & backbone environment

Fiber optic blow-in work

Fiber Optic Splicing, Single-fiber + Ribbon (Multifiber)

Fiber optic acceptance measurements OTDR, IL measurements

Fiber Optic End Surface Certifications

Fiber Optic Acceptance Measurements for Multifiber Applications

CU assembly operations in data center, backbone & office environment

CU installation work, single cable + trunk solutions

CU Certification Measurements

Rack cold aisle mounting

Fiber Raceway Assembly

Managed service in the data center environment

Network & Infrastructure Analysis & Recording

Services
Performance overview

Fiber optic device pool for splicing & measurement services

Geiger has the following splicing and measuring equipment for the execution of fiber optic services.

Splice equipment:		
	• 2 pcs. Fitel Fusion Splicer S178A • 4 pcs. Fitel Fusion Splicer S178AV2	Fully automatic 3-axis splicer with core-to-core positioning for single-mode, multimode and specialty fibers
	• 6 pcs. Fitel Crusher S325A	High-precision separator for all fiber types
	• 4 pcs. Sumitomo T71C	Fully automatic 3-axis splicer with core-to-core positioning for single-mode, multimode and specialty fibers
	• 4 pcs. Fc-8R-F Separator	High-precision one-hand separator for all fiber types
	• 1 pcs. Sumitomo T72B	Fully automatic 3-axis splicer for multi-fibers (up to 12 pieces), solid ribbon or rollable ribbon Core to core positioning for singlemode, Multimode and specialty fibers
	• 1 pcs. Fc-8R-F Separator	High-precision separator for multi-fiber applications
	• 1 pcs. Ribbon Heater	For ribbon applications
Messequipment:		
	• 3 pcs. Fluke OptiFiber Pro Quad OTDR incl. Accessories	Multimode: Wavelength 850nm + 1300nm Singlemode: Wavelength: 1310nm + 1550nm
	• 5 pcs. Fluke Certifiber Pro Quad-OLTS incl. Accessories	Multimode: Wavelength 850nm + 1300nm Singlemode: Wavelength: 1310nm + 1550nm
	• 2 pcs. Fluke DSX5000 CableAnalyzer	Permanent Link + Channel Adapter
	• 1 pcs. Fluke Multifiber Pro	Multi-fiber measuring device for MPO/MTP connection technology incl. polarity measurement
	• 2 pcs. VIAVI OTDR MTS-2000, Type 4146-Quad	Multimode: Wavelength 850nm + 1300nm Singlemode: Wavelength: 1310nm + 1550nm

	• 4 pcs. VIAVI Damping Measurement Set, OLS-36 and OLP-35	Multimode: Wavelength 850nm + 1300nm Singlemode: Wavelength: 1310nm + 1550nm
	• 10 pcs. Pre- / Trailing Fiber Sets	Multimode 100m SC/UPC – LC/UPC Multimode 100m SC/UPC – ST/UPC Multimode 100m SC/UPC – SC/UPC Singlemode 500m SC/PC – E2000/HRL Singlemode 500m SC/PC – LC/PC Singlemode 500m SC/PC – LC/APC Singlemode 500m SC/PC – SC/PC
	• 4 pcs. SWT OTS-20 Fiber Optic Phone KIT	4 pcs. SWT OTS-20 Fiber Optic Phone KIT

Inspection equipment:

	• 3 Stk. VIAVI Back-Panel	Videomikroskop mit 400-facher Vergrößerung, Anschluss mittels USB, inkl. Software
	• 5 Stk. Fluke Back-Panel	Videomikroskop mit 400-facher Vergrößerung, Anschluss an Fluke Versiv, inkl. Software

Glass fiber blow-in technology:

	• 1 pcs. Blow-in compressor 16A • 1 pcs. Blow-in compressor 32A	Compressor for blowing in fiber optic mini cables, fibers and fiber bundles
	• 1 pcs. Microjet for cable Ø 0.8-7.5mm	Cable blow-in device with blow-in assistant and electronic blow-in data memory
	• Cable unwinding devices	Manual or automatic (electrically driven, in this case coupled with the blow-in device, the winding speed is automatically regulated to the blow-in speed)

*All splicing & measuring equipment is sent to the manufacturer 1x a year for maintenance and testing.

Personal contact persons
Your Geiger competence team

Communication without detours

Customer proximity is a living practice at Geiger. Our team of experts is there when you need us – whether on the phone or at your site.

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