The Ultimate Fibre Management System

HI-DEX

Brand-Rex

Unrivalled Accessibility

Superior Performance

Maximised Density

Super Fast Deployment

Future Proofed Technology

www.brand-rex.com/hi-dex

CHALLENGES IN THE DATA CENTRE ENVIRONMENT

Challenges and Drivers

Data Centres reliably store data and applications for remote access by users. The increasing volumes of data held and the growth in demand to access the data, means Data Centres need a high speed, scalable and flexible IT infrastructure.

The complex issues impacting Data Centre operational efficiency must be addressed in all aspects of design to achieve optimum performance and improve return on investment. Ultimate service reliability is essential as downtime costs money, and new technologies must be embraced to maximise network performance, availability and business continuity.

The components employed in the cabling system must be designed for optimum performance over their installed life and meet the rigours of the challenging environment. This not only requires assured component reliability but also intelligent cable management and secure routing. The availability, or 'uptime', of the Data Centre is assured by the performance and quality of all of its critical parts, not least of which is the cabling infrastructure.

The next Higher Speed Ethernet technologies are now emerging at 40G, 100G and 400G speeds. The IT cabling infrastructure must be installed to meet the requirements of both today and tomorrows technologies meaning future proofing is key to allow new equipment to be substituted into the network without replacing the cabling infrastructure.

To support these varied and complex challenges Brand-Rex presents HI-DEX...

Brand-Rex high performance solutions are designed specifically for the Data Centre environment, providing reliability, scalability and future proofing with optimum space efficiency.

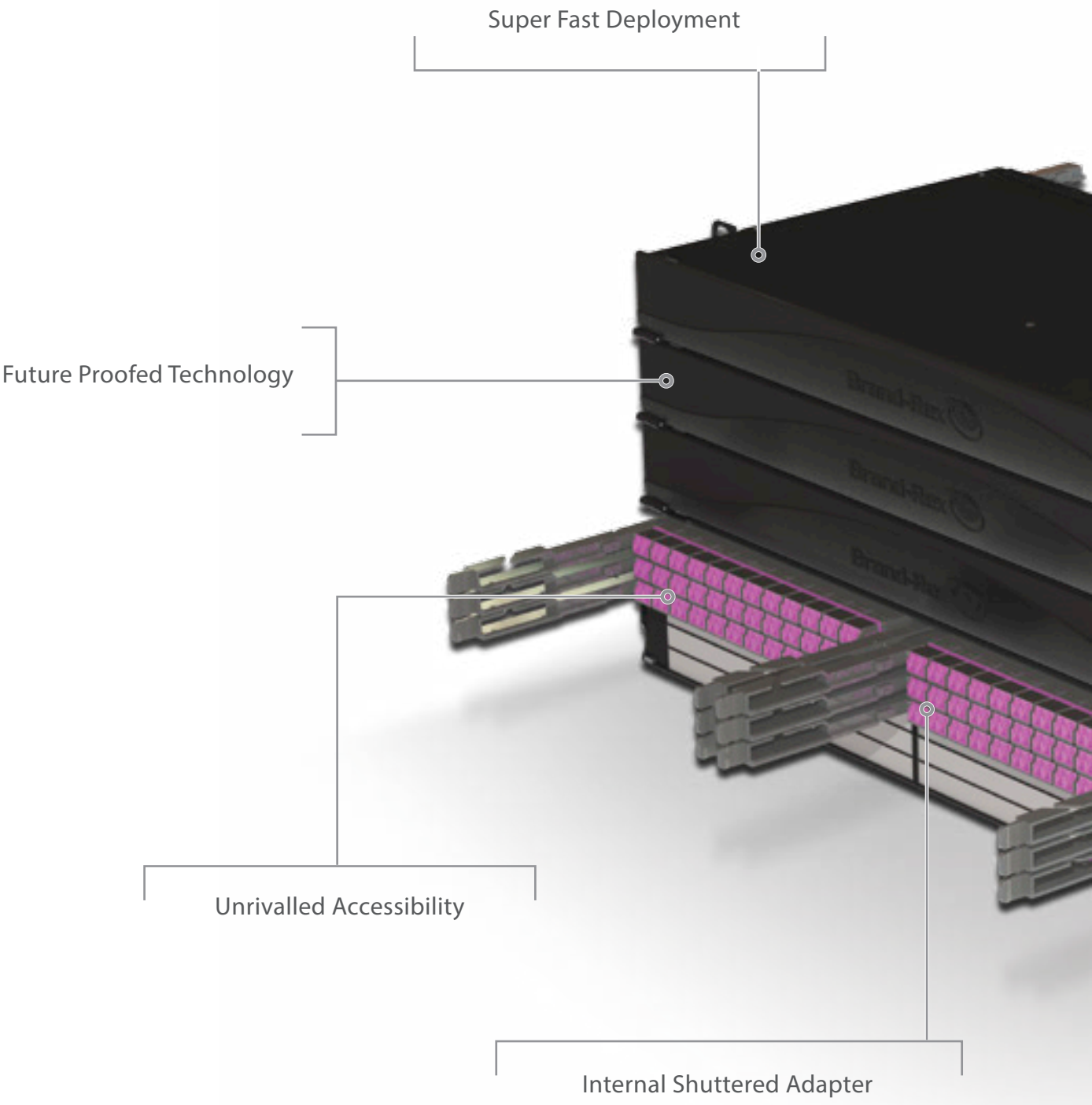
High Density – Design Excellence

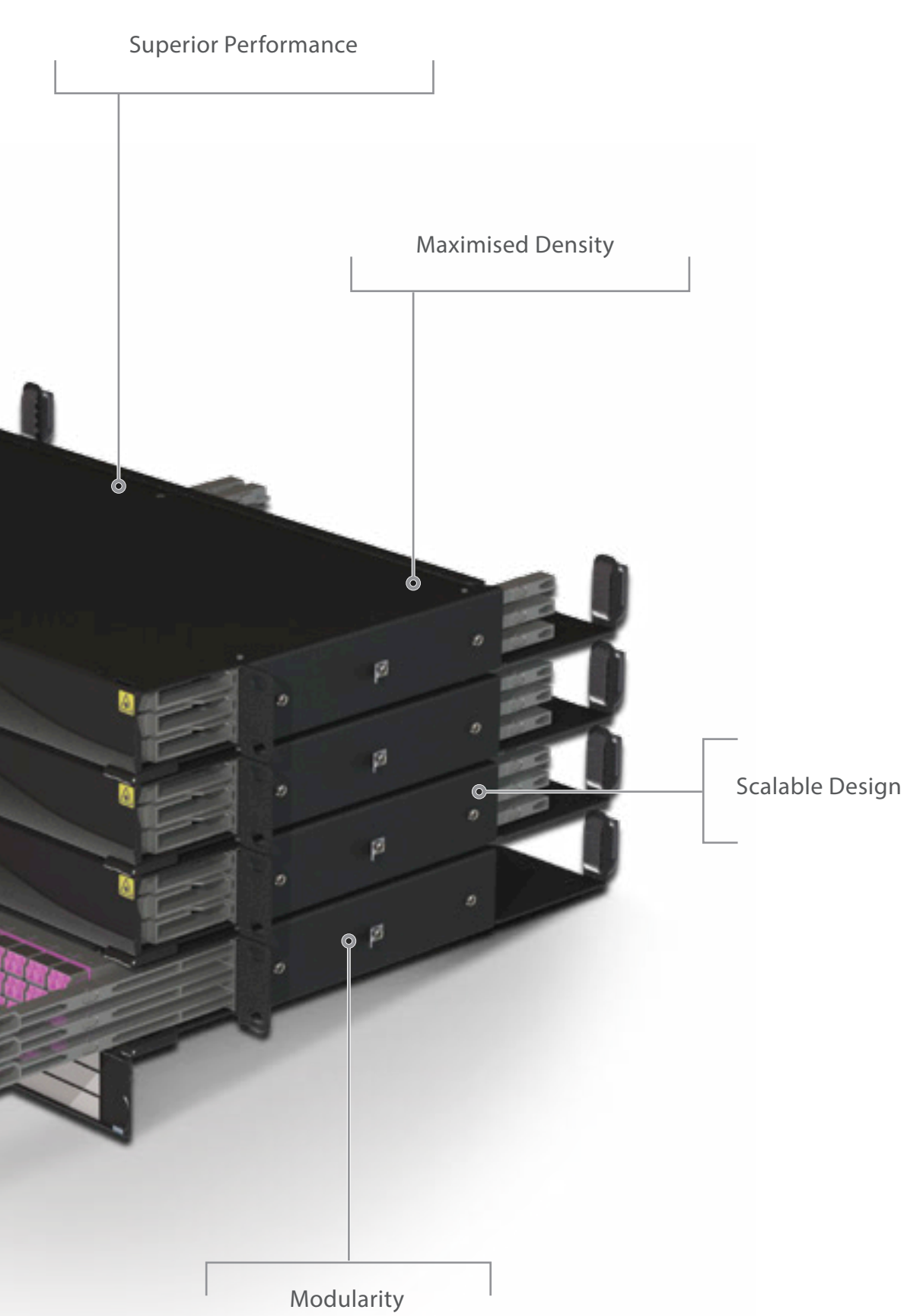
HI-DEX is an ultra high performance, pre-terminated, modular, Optical Fibre cabling system based on MT ferrule connector technology.

This product set is ideally suited for installation in the data centre where multiple, point to point, fibre connections between distribution racks and equipment racks can be quickly and efficiently installed and where an upgrade path to multi lane higher speed transmissions is required.

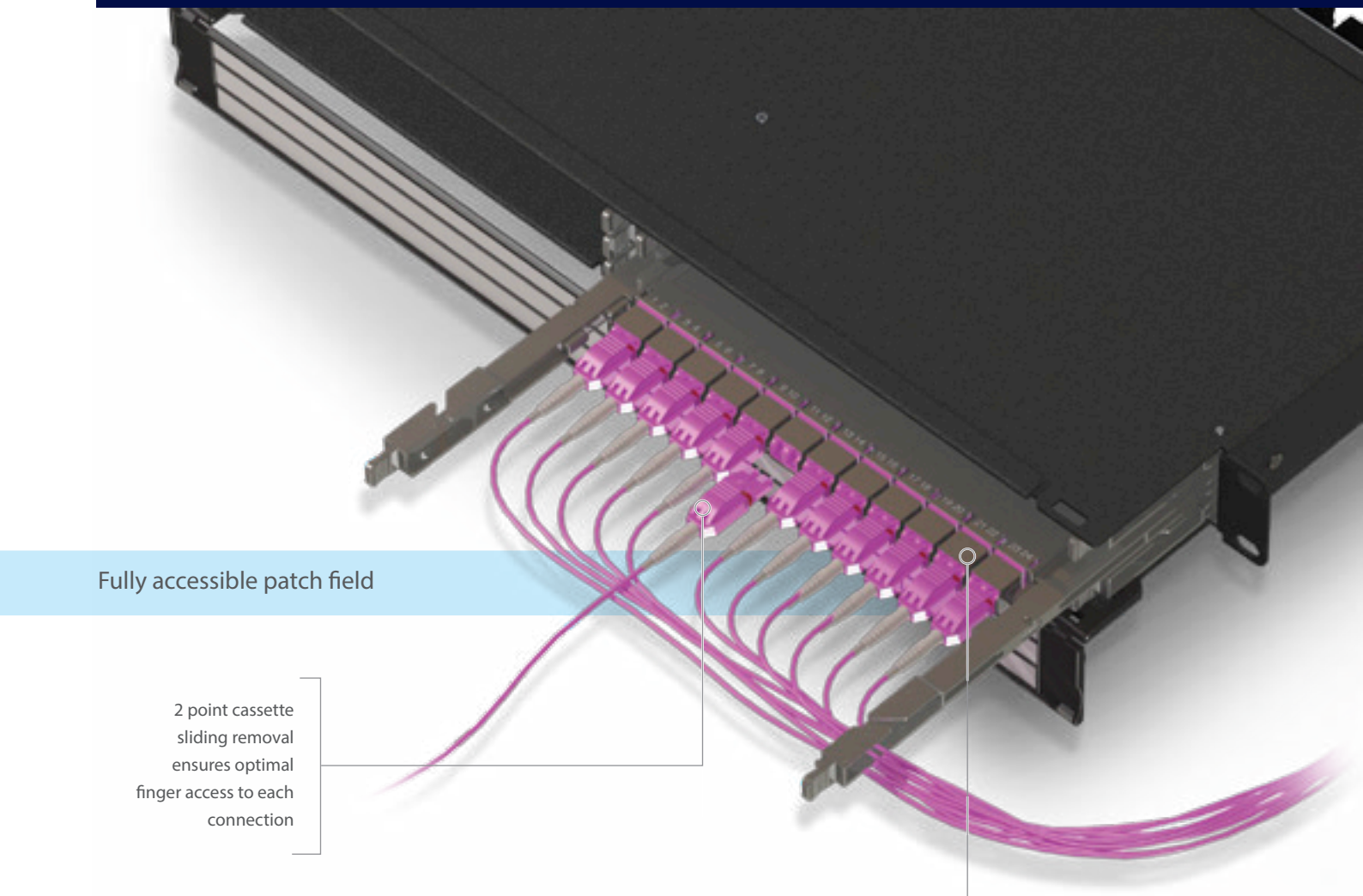
This extensive suite of products provides future proofing for multi-gigabit fibre channel infiniband and Ethernet technologies.

SAY HI TO THE NEXT GENERATION




Superior Performance
Maximised Density
Scalable Design
Modularity

UNRIVALLED ACCESSIBILITY - IMPROVED ACCESS TO PATCH



Fully accessible patch field

2 point cassette sliding removal ensures optimal finger access to each connection

Split tray design

Ensures isolated access to 24f cassettes without compromising other connections

The IT cabling infrastructure in the Data Centre provides a transportation path for the reliable transmission of data, flexibility to support moves, adds and changes (MACs) and the ability to facilitate future technology upgrades.

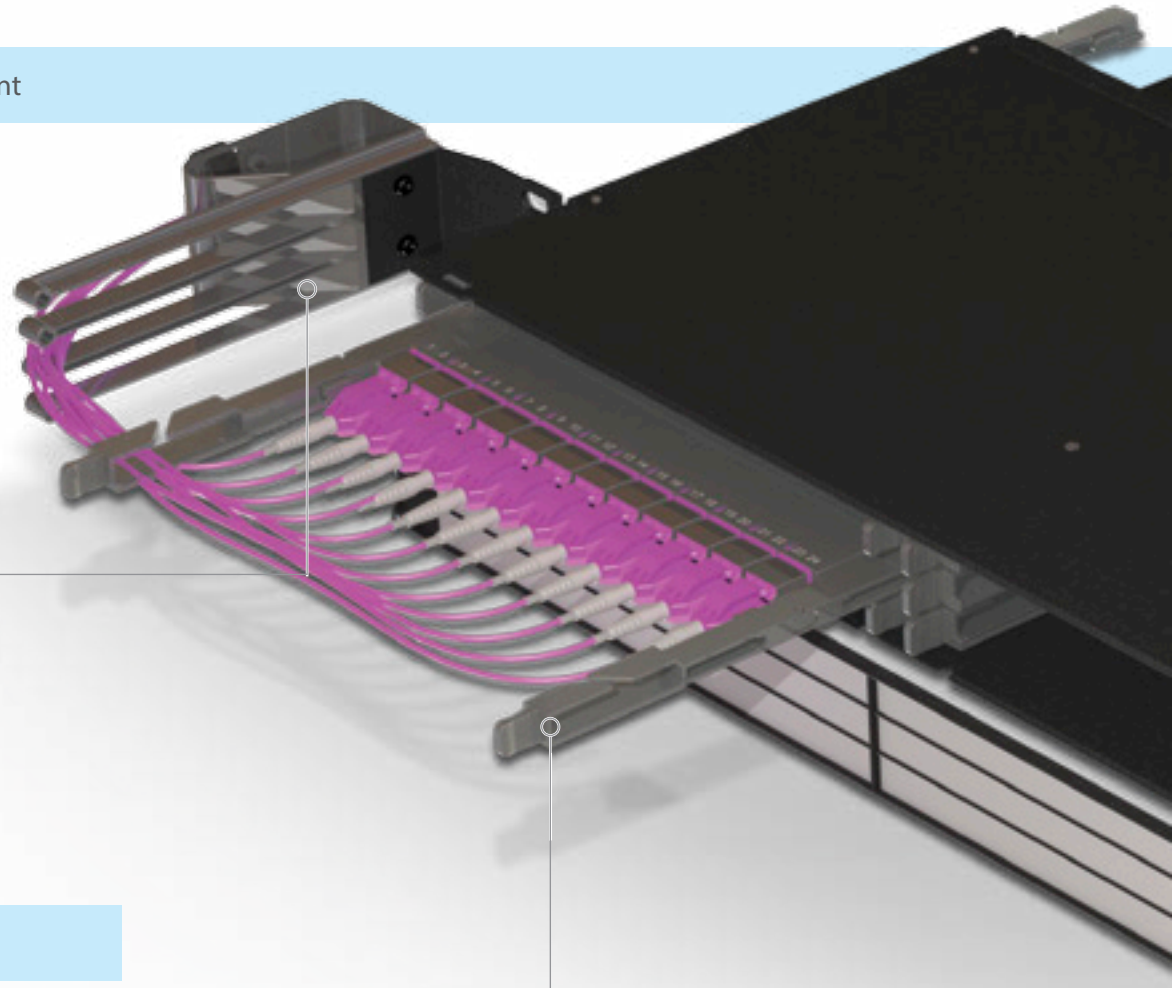
Cabling systems can provide facility stakeholders with a competitive advantage to support their installation needs, but to achieve that the system must be simple to integrate and maintain through their installed life.

With any move, add or change to a network comes significant risk. Reducing this disruption risk to adjacent circuits becomes a key consideration for every installer.

The HI-DEX split tray design not only offers unrivalled access to patch but also reliability by design.

75% FASTER INSTALL

Live Line management



Innovative patch link management protects from damage when the cassette is opened by minimising movement on the cord

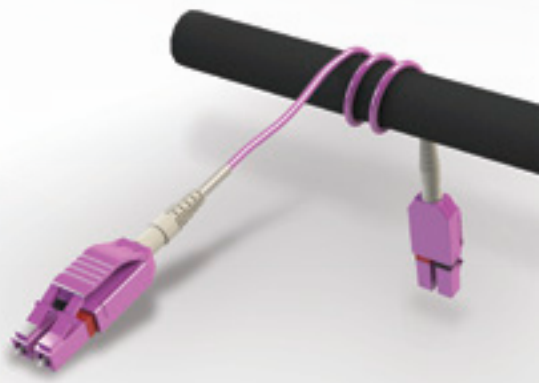
Cable management

Independent cable management per cassette limits cable congestion

Bending the rules

Bend insensitive fibre technology has been utilised throughout the HI-DEX product range. Choosing to include G.657. A2 Singlemode and bend insensitive OM3 and OM4 Multimode fibre options as standard, significantly reduces the risk of introducing bend induced attenuation during installation.

Further improvements to Live Line management are realised when this is coupled with the innovative patch link management features of HI-DEX. For IT managers and installers looking to future proof their cabling infrastructures, HI-DEX provides a complete solution for protecting your optical budget from bend induced attenuation throughout the life time of the install.



SUPERIOR PERFORMANCE - PREMIUM GRADE FIBRE AND ULTRA LOW LOSS CONNECTIVITY

HI-DEX is assembled with standards compliant component products which are designed and manufactured to conform to the requirements of the structured wiring cabling and data centre standards:

- ISO/IEC 11801:2002 & amendements 1 & 2
- EN 50173-1,TIA 568C series cabling standards
- Data Centre IEC 24764, EN 50173-5 and TIA 942

The use of premium grade fibre, low loss LC and low loss MTP® elite connectors allows the designer the flexibility to configure multi-connector links and travel longer distances while still maintaining the challenging optical budget for higher speed Ethernet applications.

Cable Performance

Fibre Type & Cable Performance Grade (& cable jacket colour)	wavelength (nm)	Maximum Attenuation (dB/km)	Typical Cable Attenuation (dB/km)
OM3 performance (Aqua) 50/125 Multimode	850	3.5	2.6
	1300	1.5	0.6
OM4 performance (Heather Violet) 50/125 Multimode (1)	850	3.5	2.6
	1300	1.5	0.6
Singlemode performance (Yellow)	1300	0.4	0.3
	1383	0.4	0.3
	1550	0.4	0.2

(1) enhanced performance OM4 cables with a minimum bandwidth of 4700 MHZ.km @ 850nm

Operating and storage temperature range (°C)	-20 to +60

Connector Performance

Connector Type		Insertion Loss (dB)		Return Loss (dB)	
		Typical	Maximum	Typical	Minimum
Multimode	MTP® Low Loss	0.10	0.35	-	20
	Low Loss LC	0.10	0.20	-	20
Singlemode (1)	MTP® Low Loss	0.10	0.35	-	60
	Low loss LC	0.10	0.20	-	65

(1) angled polish face

Polarity choices

HI-DEX is simple to install, operate and maintain. This solution employs polarity system `B' for both the multi-mode and single-mode fibre systems.

The polarity scheme chosen allows the use of standard, duplex and cross-over patchcords at both ends of the system for connection to end equipment that transmits duplex transmission technologies (up to 10GbE and 16GFC).

It also allows the use of unpinned MTP® to MTP® cords when migrating to multi-lane transmission technologies for 40G and 100GbE.

The multi-mode system is simple with all MTP® connector end faces flat polished. Angled polished ends are achieved with singlemode connectors.

Whilst the HI-DEX range supports A, B and C polarity schemes it is recommended to implement a B polarity scheme as this will support easier migration to higher speed parallel transmissions and will simplify stock management using an innovative cassette which can be flipped to provide both alpha & beta configuration with a single component.

Universal polarity flip able cassette ensures a simple migration path

Standardise your Inventory with one cassette style

Ordering Information

Product Set	Cable Type	Polarity	MTP Adaptor Type	LC Adaptor Type	Fibre Count
HDX = HI-DEX	AC = A and C Polarity BB = B Polarity	TM = MTP Adaptor with Pins	LC = UPC LC AL = APC LC	108 = Singlemode OM3 = Multimode OM4 = Multimode	24 = 24 Fibres

Example Part No: HDXBBTMLCOM424 HI-DEX 24-Fibre B-Polarity OM4 MTP® (With Pins) to LC Cassette

Real estate in the Data Centre for housing, processing and storage equipment is at a premium. Technology advances such as lower power processors, blade servers and virtualisation are all improving space utilisation. But the increase in demand for data storage is unabated, therefore efficient use of cabling infrastructure space is now more important than ever.

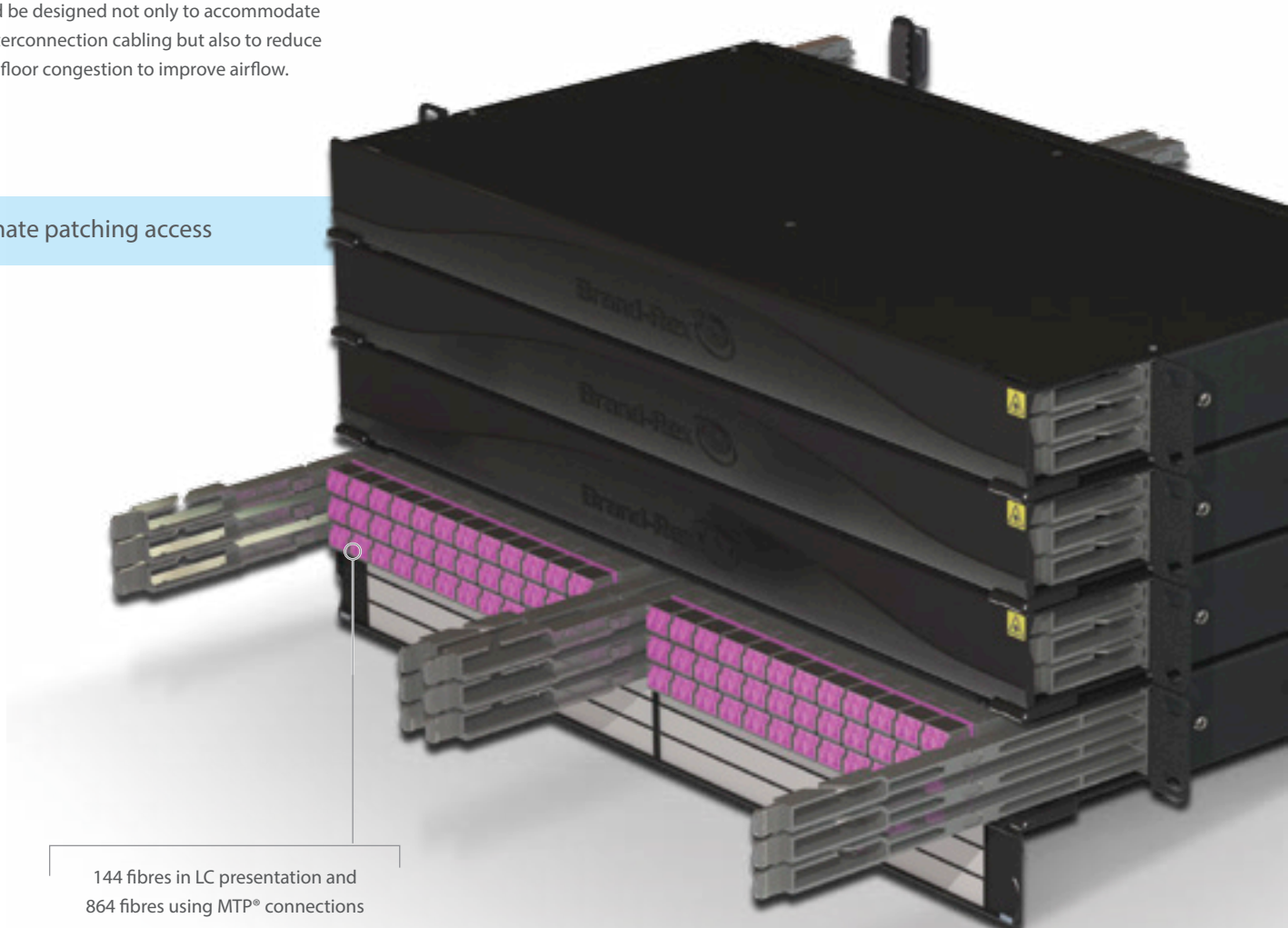
High density patching is required to maximise rack space for active equipment and pathways should be designed not only to accommodate the interconnection cabling but also to reduce under floor congestion to improve airflow.

HI-DEX offers the perfect balance between density, administration and realistic usability. Not only is the connectivity more compact but so too are the cable assemblies ensuring more cables can be routed and stored in a reduced amount of space.

HI-DEX has been designed to ensure the ultimate protection and reliability is achieved even when populated to its maximum both in installation and through its installed life.

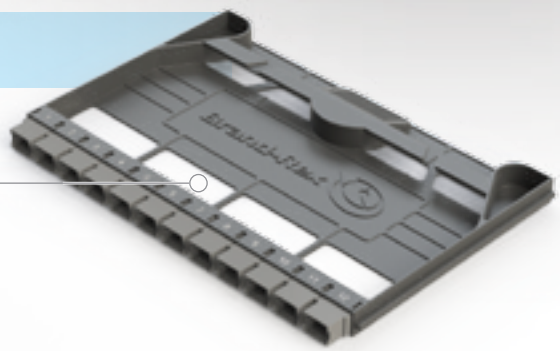
50% MORE DENSITY

Ultimate patching access



144 fibres in LC presentation and
864 fibres using MTP® connections

Modular and scalable migration



864 fibre using MTP® connections
in an open cassette

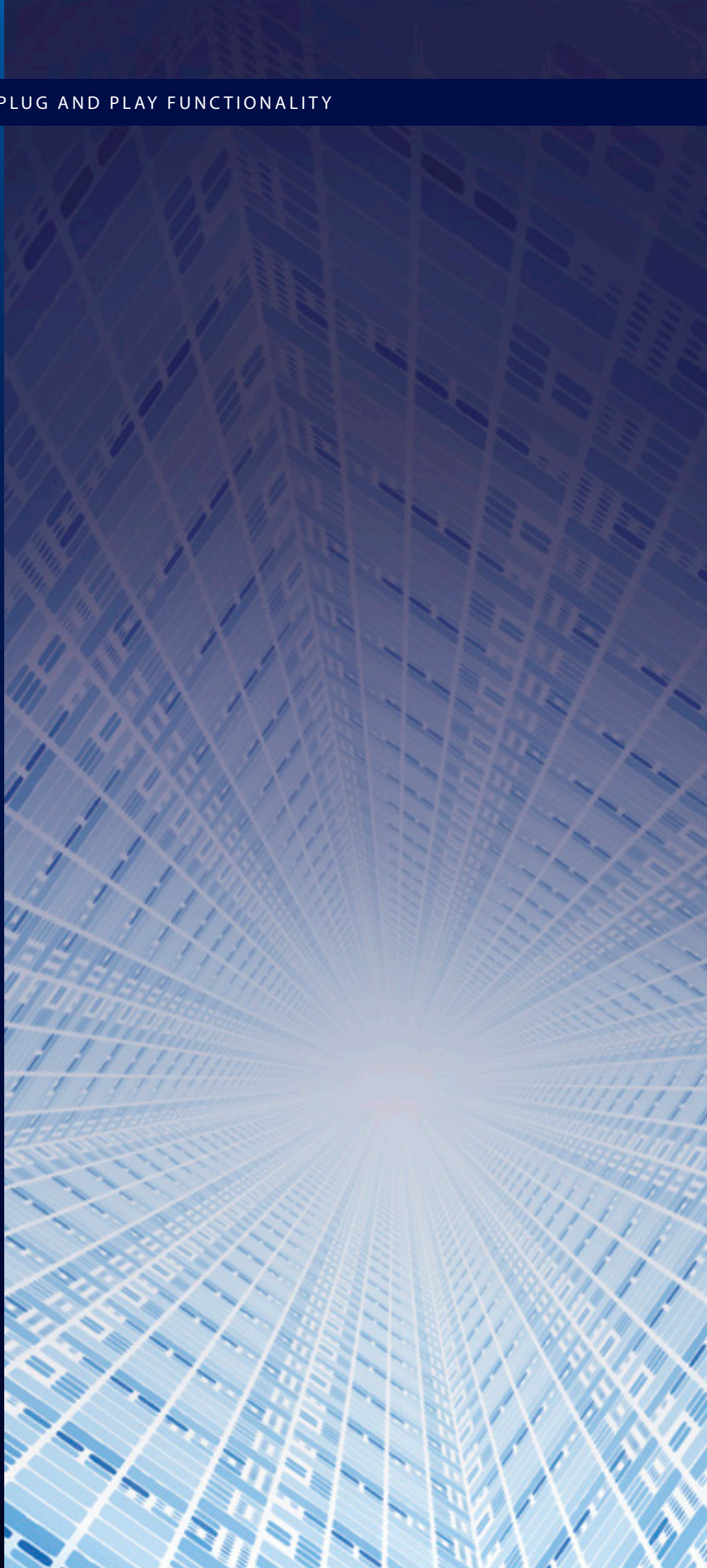
SUPER FAST DEPLOYMENT – PLUG AND PLAY FUNCTIONALITY

Within the modern day Data Centre, instant access to current and accurate data on demand and without disruption is crucial. Any impact on this continuity is damaging and when time is money the importance on rapid deployment of the system becomes critical.

The time taken to install HI-DEX is a fraction of the time taken to install conventional optical fibre systems which waste time and restrict migration. Plugging in 12 fibres in a pre-terminated assembly is much more time efficient than splicing 12 pigtails to each end of an installed cable and dressing the spliced fibres into the panel.

Internally shuttered adapters not only offer dust and laser protection but they ensure a quick and efficient one handed assembly operation. The shutter compresses as the cord is inserted, negating the need for dust caps.

Cassettes can be loaded from the front and the rear of the panel for the most efficient deployment, meaning maintenance and additions to the system are also much simpler. The modular nature of the build and easy plug and play characteristics mean that upgrade and expansion can be achieved quickly and with minimal disruption.



In the Data Centre environment a well designed cabling system provides a reliable foundation for the IT network, improves the operational efficiency of the facility and future proofs for change and growth.

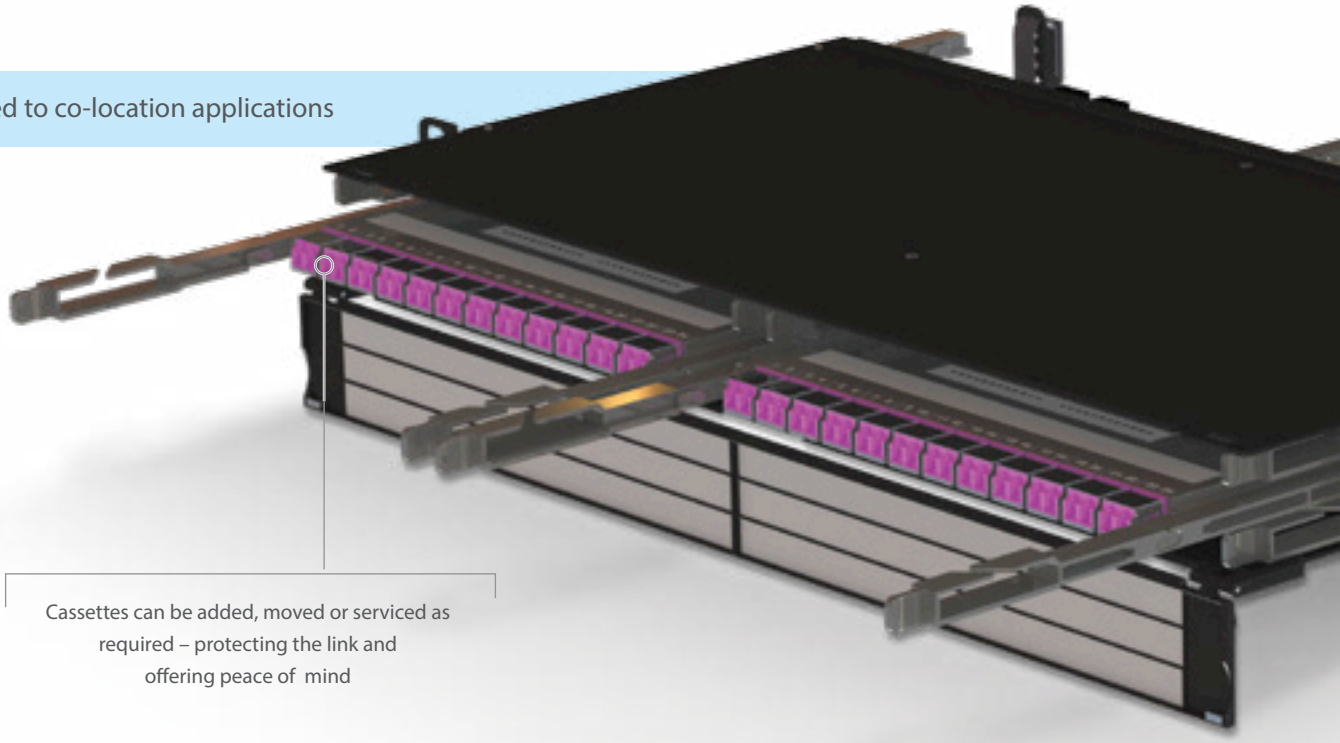
In this constantly evolving and changing environment, the cabling infrastructure needs to offer flexibility and scalability. Modularity complements all stages of the Data Centre life.

Modular components offer advantages during initial build and live operations by assisting the installation through use of common parts, providing a platform for the logical addition or expansion of existing plant and simplifying operational moves, adds and changes.

The Modular and scalable design of the HI-DEX range allows isolated access to the split trays ensuring a simple and intuitive, yet cost effective upgrade path.

SCALABLE TO 40 & 100G

Ideally suited to co-location applications

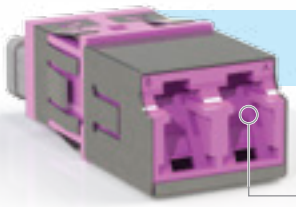


Cassettes can be added, moved or serviced as required – protecting the link and offering peace of mind

Improved administration

Segregated labelling on drop down door & comprehensive identification per port and cassette

Integrated dust protection



Shuttered LC adapters with integrated dust & laser protection negating need for dust caps

HI-DEX BREAKOUT CABLE ASSEMBLIES

The micro-distribution cables used in the cable array assemblies are smaller and lighter than conventional optical cable products. This offers the added benefits of reducing the space taken in pathways, lightening loads in trays, and minimising the possibility of adversely affecting cooling under-floor air flows by creating air dams in cable pathways.

MTP® Hybrid breakout units are made up of 12 fibres LSZH jacketed cables terminated at one end in pinned MTP® Low Loss uniboot connectors. This passes through a bifurcation unit, to LC duplex low loss connectors (high precision SM tolerance versions) terminated to 2mm OD simplex cables. These are used to connect equipment in racks to MTP® terminated backbone cables.

The assemblies are available in OM3, OM4 and OS2 performance grade fibre.

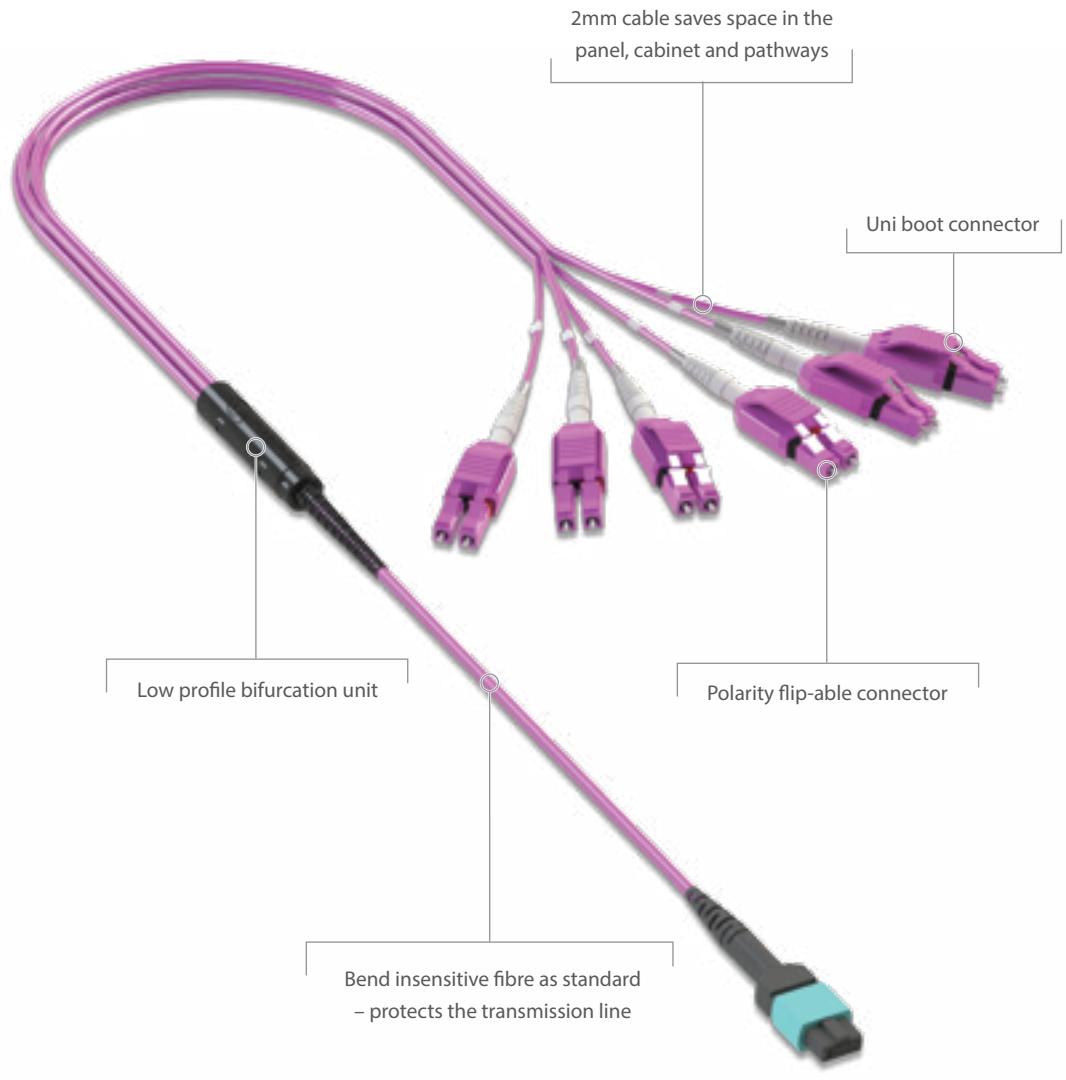
Ordering Information

The assemblies are available in standard lengths of 2 & 3m. Custom engineered lengths are also available on request. The assemblies are delivered as coils.

Product Part Numbers

MTP® Low Loss connector with pins(2)	Duplex Low Loss connector (2)	Cable performance	Number of fibres	Overall length (m)[1]
ST - MTP without pins STM - MTP with pins	LC	'OM3', or 'OM4', or or '108'	12	ZZZ

(1) breakout unit legs are a standard 1m long, (2) SMF terminations are angled polished



Cable assemblies are made up of 12 fibre LSZH jacketed cables terminated at both ends in MTP® Low Loss connectors (without pins). They are used as back bone or horizontal cable interconnections between distribution racks. They feature a low profile 3mm cable ensuring congestion in the pathways and the cabinet is reduced and therefore increasing airflow.

The assemblies are available in a OM3, OM4, and OS2 to suit the needs of the network.

Ordering Information
The assemblies are available in standard lengths of 1, 3, 5, 10, 20, 30, 50 and 100m. Custom engineered lengths are also available on request.

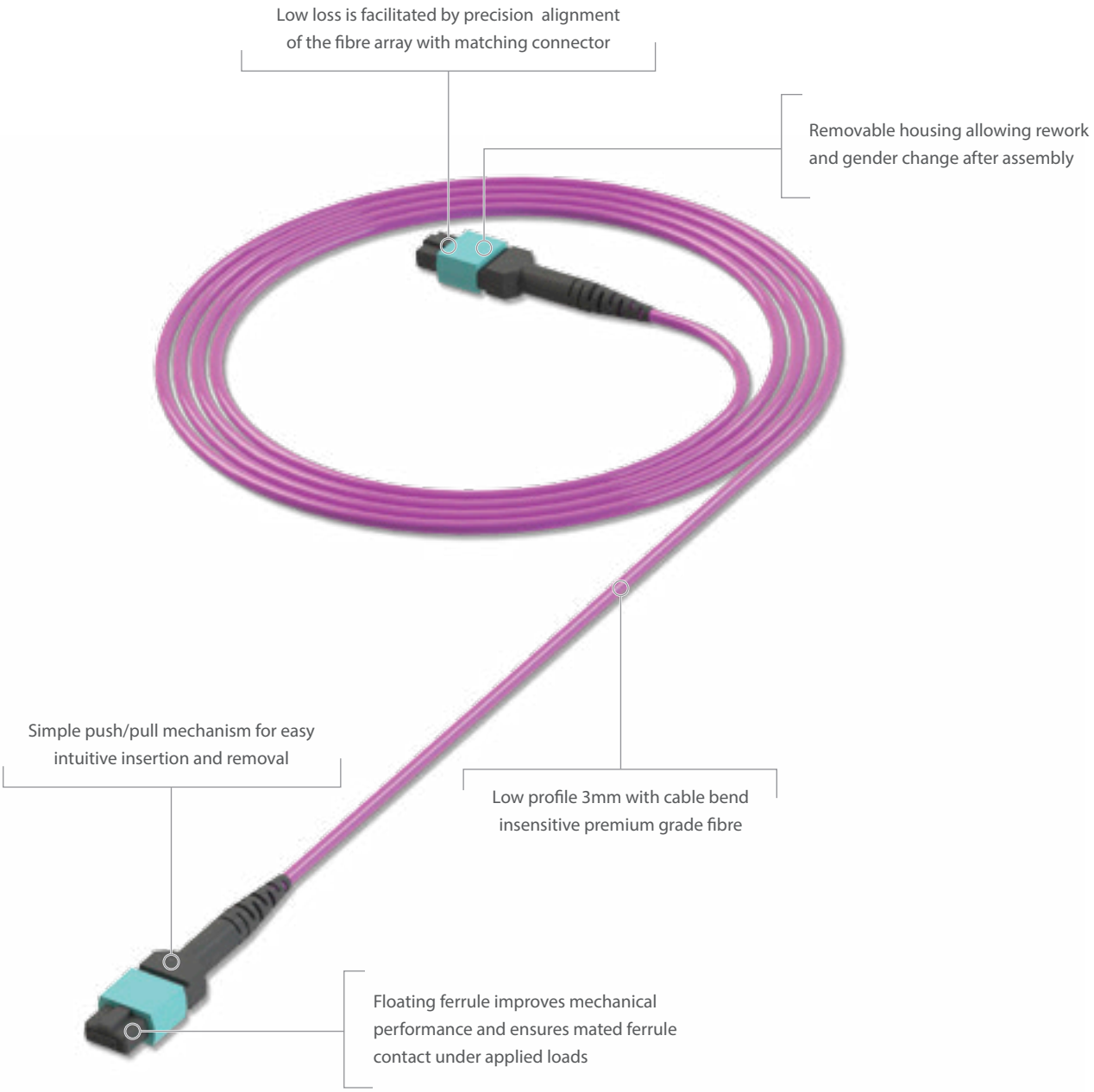
The assemblies are delivered as coils in lengths up to 50m long and on reels for lengths over 50m.

Single-mode cables are yellow, multi-mode cables are Aqua (OM3) and Heather Violet (OM4).

Part Number Breakdown

MTP® connector	Cable Type	Cable assembly polarity scheme	MTP® Low Loss connector	Cable performance	No of fibres(1)	Length (m)
S T, or S TM (with pins)	Compact = C	A B B	T, or TM (with pins)	OM3, or OM4, or 108*	12	ZZZ Z

** SMF terminations are angled polished*



HI-DEX

Unrivalled Accessibility
- Fully accessible patching field and split tray design ensure ultimate access to patch

Superior Performance
- Protecting the transmission line with premium grade fibre and ultra low loss connectivity

Maximise Density
- Minimise Footprint and up to 50% more density

Super Fast Deployment
- Plug and play functionality can be up to 75% faster to install than conventional practices

Future Proofed Technology
- Simple and scalable migration path to 40 and 100G applications

Complete peace of mind

Exceeding standards compliance from ISO/IEC 24764, EN 50173-5 to TIA 942 at cable and component level is achieved through stringent design, manufacturing and operational processes, enabling us to offer the highest performance and quality our customers have come to expect.

Superior performance

Increasing use of mobile devices and the need for file sharing, networking and instant access have all increased application size and data transfer rates. These applications are complex and require additional bandwidth, leading to the introduction of 40 and 100G applications.

The applicable and constraining optical budget has driven the adoption of low loss MTP® connectivity, which is ideal for the migration to higher speed Ethernet.

Significant space savings

Maximising density and minimising footprint is key in Data Centre design. This can be achieved by following specific product selection guidelines. Reducing air blockages and increasing space in cabinets and cable trays can be realised using low profile solutions.

Faster installation

Whilst technologies continue to grow at an exponential rate, installation practices have been slower to evolve. Legacy often dictates that familiar products and processes offer reassurance; however the drive for more efficient and financially feasible solutions is changing that rationale.

Delivering significant savings in time and money, pre-terminated solutions have become a viable and attractive option for maximising return on investment. Simplifying the 'Smart Design' premise and using premium quality products for installations now will help future proof your networks performance and offer long term reliability

Proven reliability

The focus on reliability, increased density and modularity during installation and throughout the life of the project is paramount. Superior and consistent performance is achieved using process capability to control the repeatability and consistency of the manufacturing process and specification limits. Superior performance products are backed by the Brand-Rex industry leading 25 systems warranty to provide peace of mind.

Flexibility

Supporting the evolving demands of the Data Centre requires a solution set which offers true plug and play functionality and accommodates the needs of the moves, adds and changes environment where multiple point to point connections can be quickly and efficiently installed. This level of flexibility is essential to deliver fast access to services and data, to increase application performance and improve operational efficiency. It is now more crucial than ever to design your installation today to support the needs of tomorrow.

Sustainability

Energy efficiency is an important characteristic of a green Data Centre, the adoption of new cabling technologies can ensure adherence to the EU Code of Conduct for Data Centres and enable organisations to realise significant and long term operational savings.

As a leading manufacturer of Data Centre network infrastructure solutions, Brand-Rex recognises it has a responsibility to ensure its solutions are designed and manufactured responsibly using sustainable energy sources and materials.

Brand-Rex is a leading technology company who design, develop and manufacture innovative fibre and high-end copper connectivity solutions for the network infrastructure cabling market and high performance cables for extreme environment applications.

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