

FALCON

EXPANDED BEAM CONNECTOR





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WE ARE MICROPOL

At Micropol we combine unique design and production technology to offer more complex and compact solutions for passive fiber optics than any other supplier on the market. Our work is of extreme high precision and we are known for providing short lead times, high quality and customized applications.

Regardless of the application, we have the knowledge and the capacity of manufacture the product needed – either according to the customer's specification or as a specially tailored solution. All our products are manufactured in our own facility in Sweden.

Our customers are found in a large variety of markets where advanced fiber optic solutions are crucial. Our products are used in a whole range of technologies, from complex fiber optic networks for telecom and data communication, to advanced sensor systems for industrial (e.g. mining, forest and offshore), medical and military applications.

We are proud to be a vital link between the information community of today and that of the future. We have always built our success on long term relations, knowledge and solid craftsmanship to provide the highest quality and the best service.

OUR SEGMENTS



**HARSH
ENVIRONMENT
SOLUTIONS**



**NETWORK
SOLUTIONS**

AREAS OF EXPERTISE

Our name “Micropol” is generated from “micro polishing” which is our mark – we polish fiber at a precision that few can copy. For this reason, our products have lower reflections and losses and can transfer higher data speed than our competitors, without additional cost. We pride ourselves for being the most innovative player in the market. This is why customers from all over the world turn to us for their fiber optical challenges. Micropol’s know-how in micro polishing is also what forms the foundation of our core Areas of Expertise.

TACTICAL COMMUNICATION

Micropol was born through innovation and the Swedish Armed Force’s increasing demand for secure, compact and fast communication. One of the results is the FALCON expanded beam technology, which has the best optical performance on the market. Customer ranges from national armed forces to small and multi national defence material suppliers like Saab, BAE Systems and Diehl Defence to whom we deliver built to specification components and systems. Our products and solutions are present below, on and above the surface.

SENSORS

We offer different kinds of sensor systems for a variety of applications. From optical fibers used for fluid detection in medical devices, to advanced systems for surveillance of fiber optic networks. The latter is increasingly important, as cyber security is a prioritized area for both armed forces, governments, public organizations, banks and insurance companies. Micro polishing is part of the know-how, but also our 30 years of experience in photonics and fiber optics play an important part in our customer commitment to a secure data network.

NETWORKS

As more data is transferred over fiber optics, the capacity of the existing and future fiber network is in focus globally, regardless if the customer is a domestic user, a company, or a data centre. Micropol offers a large range of customized and standard solutions, from pigtails and patch cords to pre-assembled ODFs, that can transfer higher data speed than any other supplier product on the market, all thanks to our expertise in micro polishing. Thanks to a well organized supply chain where our Swedish production facility is a key asset, we can offer state of the art quality control and shorter lead times than our competitors.

CIVIL COMMUNICATION IN HARSH ENVIRONMENTS

Our expertise in tactical communication has supported us to develop a strong portfolio to the outside broadcast and industry customer segments. We will continue to develop solutions supporting arena events, mining, off-shore and heavy industry, using a large range of connectors, cables and hybrid solutions dedicated to the world’s toughest environments. We are a certified Lemo producer and a Scandinavian hub for their service and repair activities which allow us to offer economy of scale solutions also to other customers in outside broadcast.

THE EVOLUTION OF FALCON™ EXPANDED BEAM CONNECTOR

In the morning of October 27 1981, a Soviet submarine ran aground in the Swedish archipelago. An event that became world news and suddenly put Sweden into an international crisis situation.

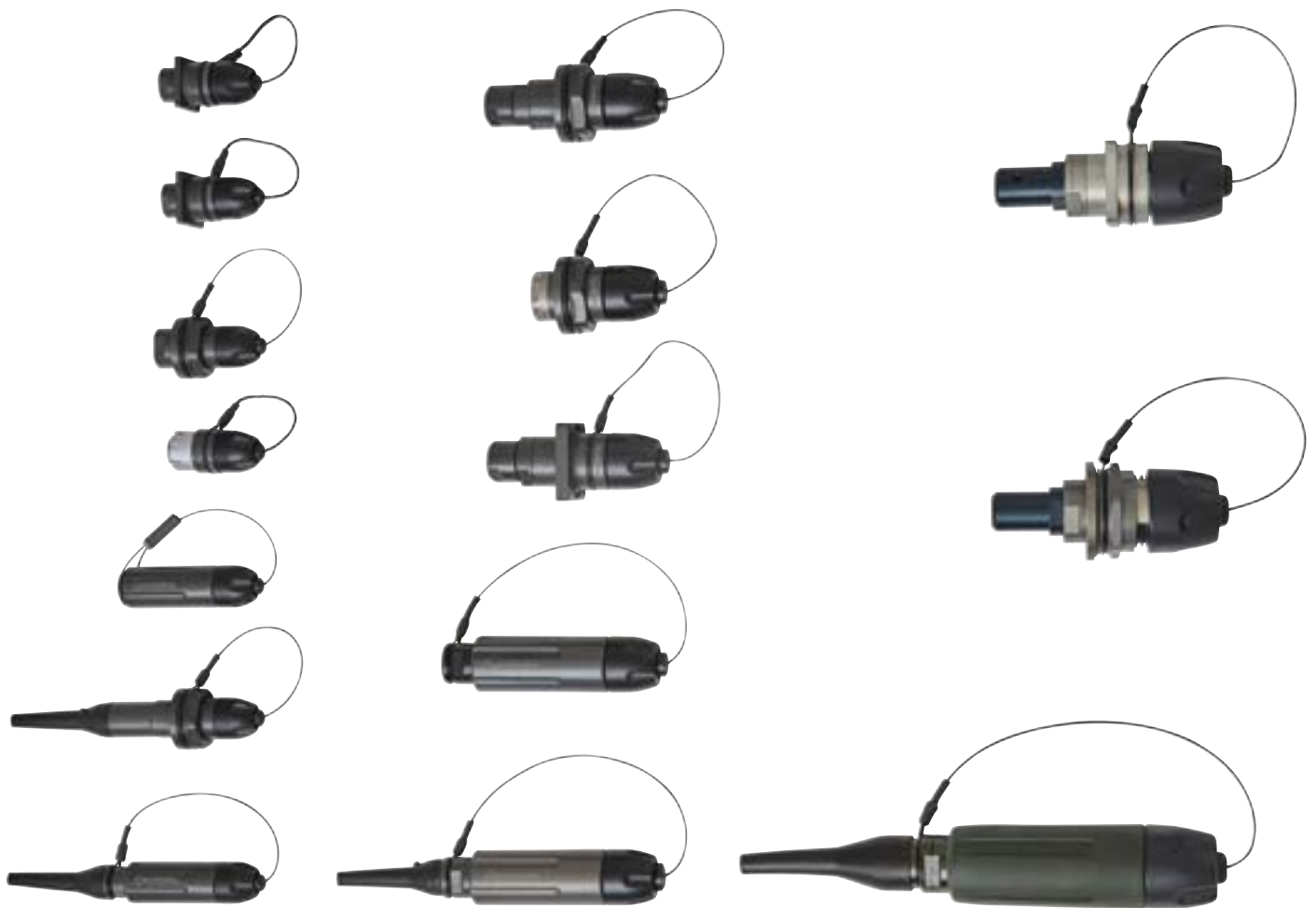
This event brought to light the use of fiber optics in sonar equipment and was the start of the Swedish Armed Forces (SAF) development of its own fiber optic competence. Later, the Swedish Defence Material Administration (FMV) chose expanded beam technology as the technology of choice for field tactical communication, because of its unique and reliable functionality in harsh environments. This became the start of Micropol, a company specializing in passive fiber optics for extreme conditions.

High ambitions in R&D

In the 1980s, as the SAF initiated their plans for wider usage of fiber optic field cables and rugged connectors, Micropol founder Anders Andersson became a key person. He had a background from the Royal Swedish Airforce and had founded Micropol after working with fiber optics since the archipelago incident. Micropol became a trusted development partner.

– The SAF's non-standard and demanding specifications for harsh conditions ranges from extreme heat to melting and freezing snow. The equipment needs to be resistant to damage, abrasion, deformation and breakage. It should handle mud and sand particles that find their way between the connectors, says Mikael Andersson, R&D Director at Micropol.

One example of successful progress is the fiber optic technology developed for the FALCON connector, launched in 2013.



FEATURES

Standard configurations

FALCON™ MINI	1 to 4 channels
FALCON™ JUNIOR	1 to 12 channels
FALCON™ SENIOR	1 to 16 channels

Optical

Type	Single mode (SM), multimode (MM) or hybrid
Transmission	10Gbit/s (40Gbit/s optional)
Insertion loss (SM)	Typical Insertion Loss -0,8dB (1310 nm) Maximum Insertion Loss -1,2dB (1310 nm)
Insertion loss (MM)	Typical Insertion Loss -0,8dB (1300 nm) Maximum Insertion Loss -1,0dB (1300 nm)
Return loss	>35dB at 1310nm or 1550nm Polarization Dependent Loss less than 0,35dB

Mechanical

Coupling type	Hermaphroditic
Compliant	ROHS & REACH
Material	Hard anodized aluminum
Alternative material	Marine bronze, titanium & stainless steel
Colour	Grey
Durability	3000 mating cycles
Free fall	500 falls from 1,2 meters height
Vibration	5-500Hz, 0,75mm amplitude at 10G
Shaking	390 m/S numbers of shakes 3x4000
Shock pulse length	11ms, half sine at 35g Numbers of axis: 3 (x, y, z)
Recommended wall thickness	2-3 mm

Environmental

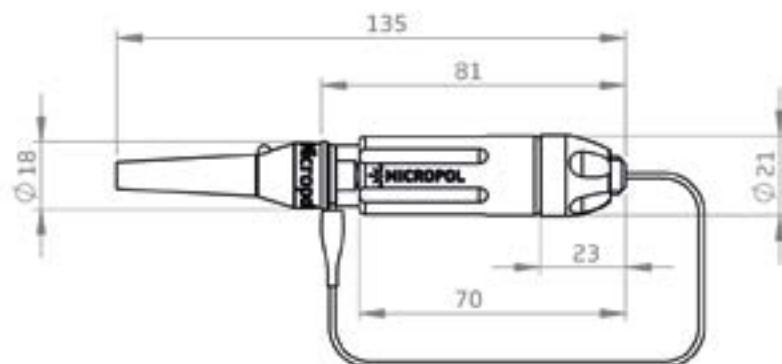
Operating temperature	-57°C to +85°C, +100°C optional
Water immersion	IP67
Air pressure	<25kPa -55°C during 4h
Corrosion resistance	500h salt spray
Flammability	DOD-STD-1678, method 5010

FALCON™ MINI

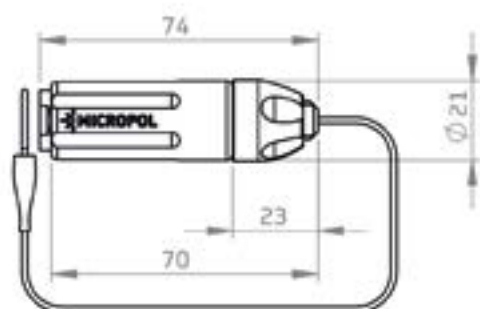
COMPATIBLE WITH: TE Pro-Beam, QPC Qmini, Telecast MX - MINI, Fibreco Mini 2



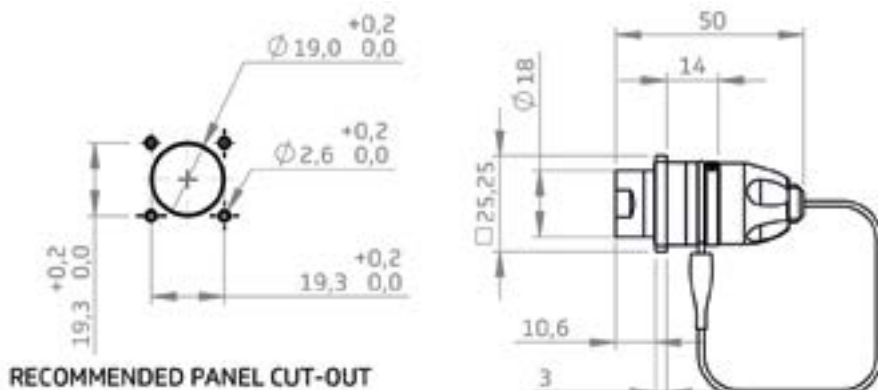
FALCON MINI PLUG



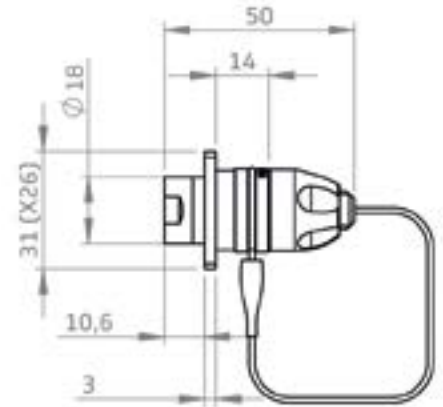
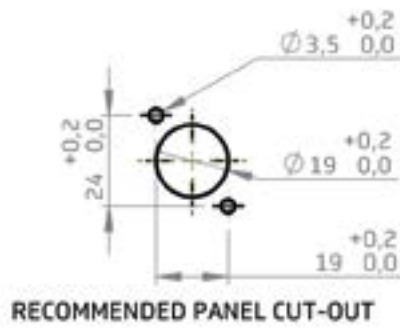
FALCON MINI SLP PLUG



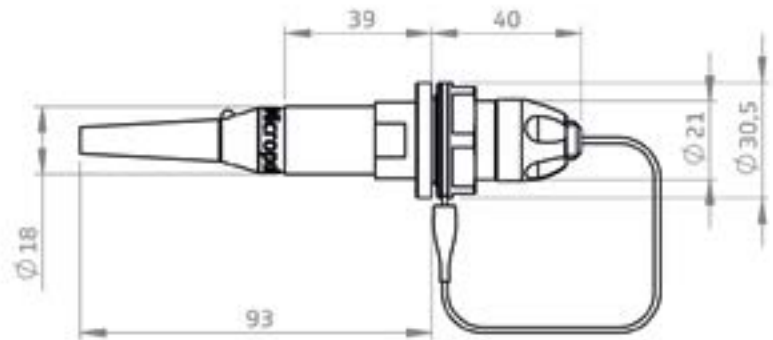
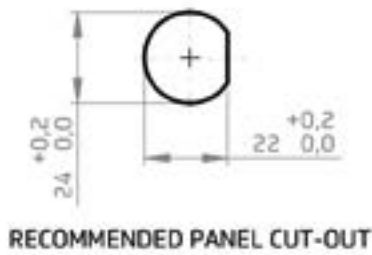
FALCON MINI SQUARE



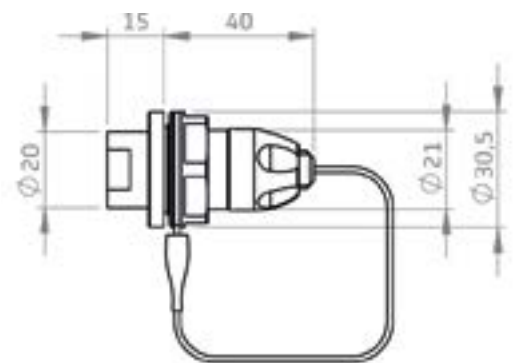
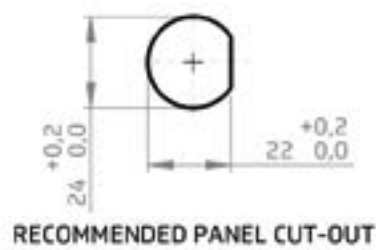
FALCON MINI XLR



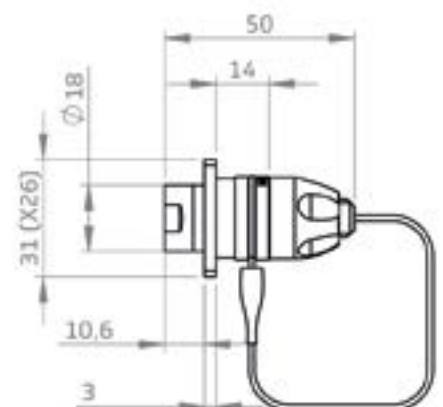
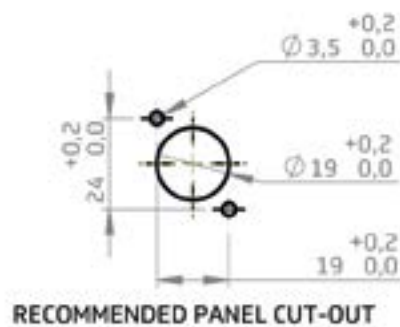
FALCON MINI D-HOLE SEALED



FALCON MINI D-HOLE LOW PROFILE



FALCON MINI D-HOLE SUPER LOW PROFILE



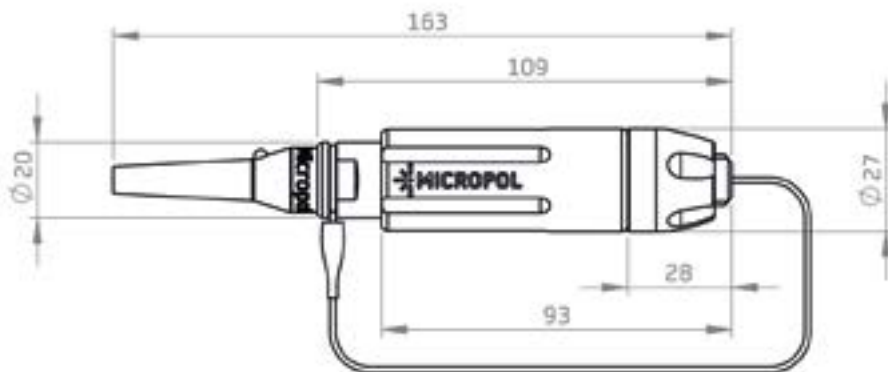
FALCON™ JUNIOR

- Built according to MIL-DTL-83526/20&21 - 2-4 channels.

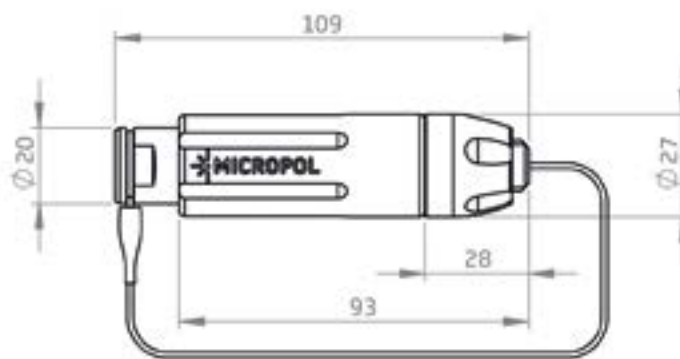
COMPATIBLE WITH: TE Pro-Beam, QPC Qmini, Fibreco Junior, Amphenol TacBeam, Stratos HMA



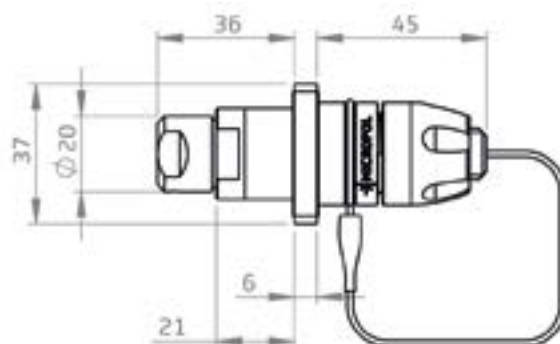
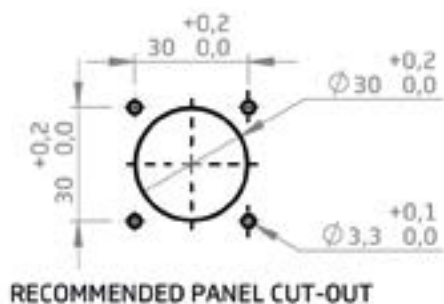
FALCON JR PLUG



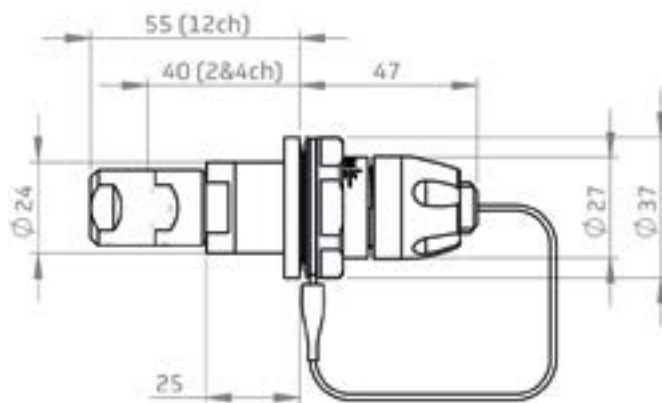
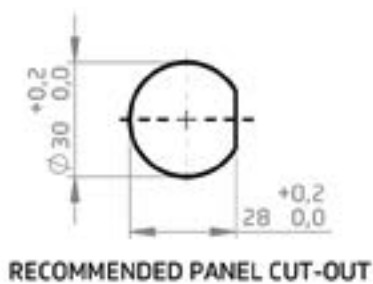
FALCON JR PLUG LOW PROFILE



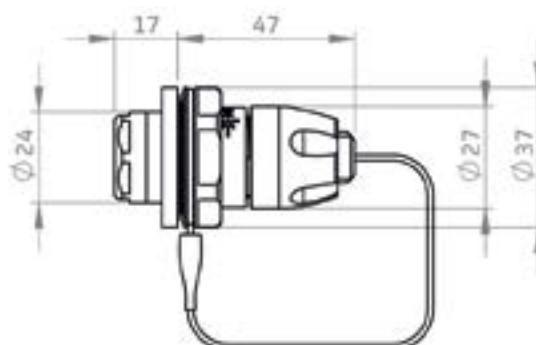
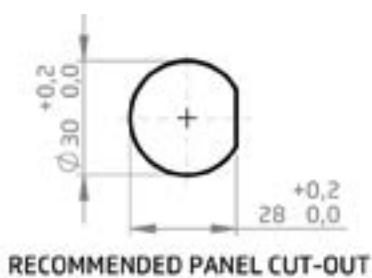
FALCON JR SQUARE



FALCON JR D-HOLE



FALCON JR D-HOLE LOW PROFILE

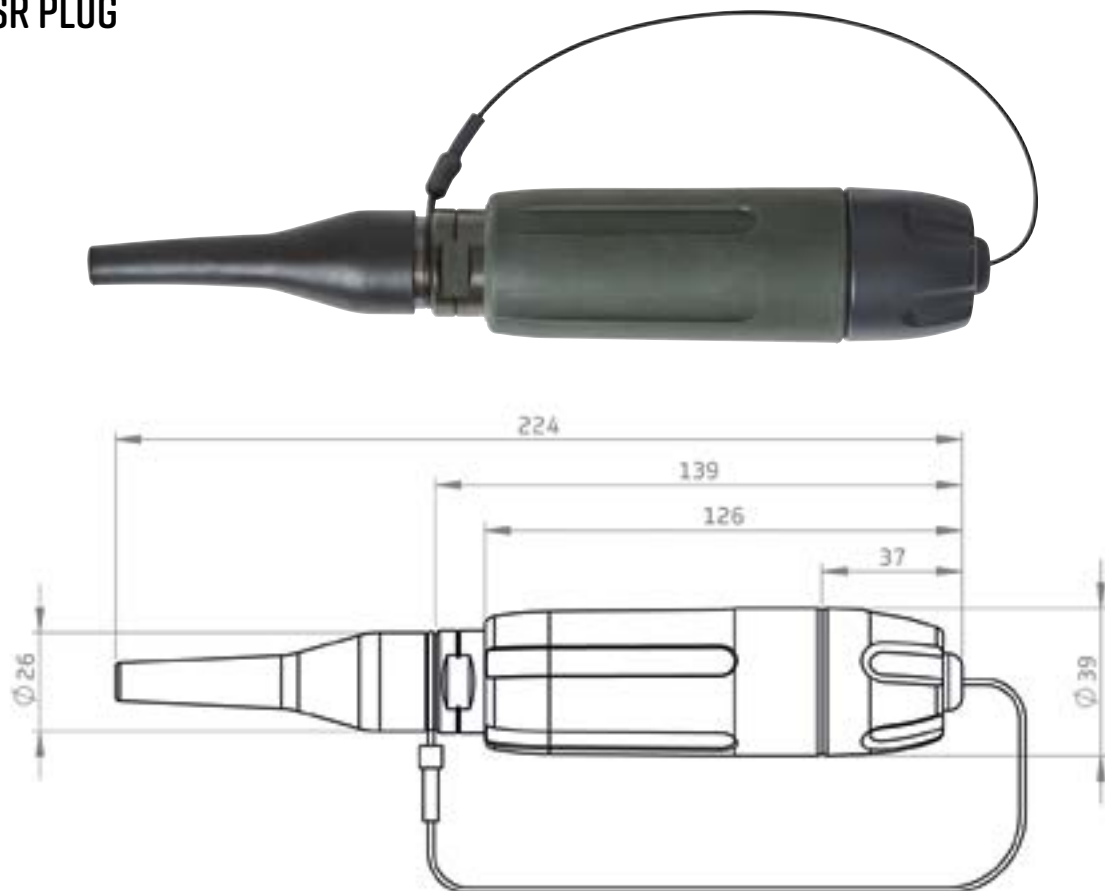


FALCON™ SENIOR

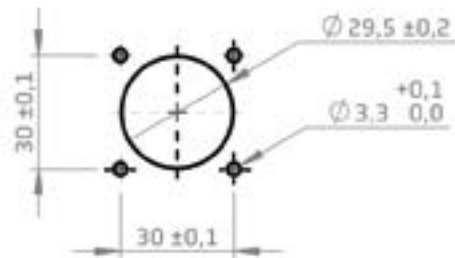
COMPATIBLE WITH: TE Pro-Beam Senior, Stratos S900, Fibreco F900



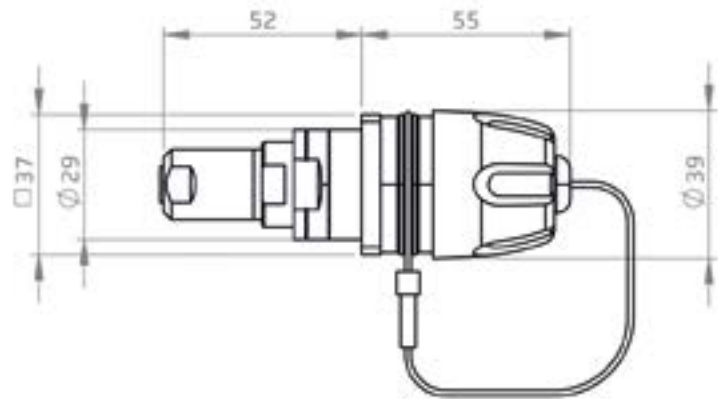
FALCON SR PLUG



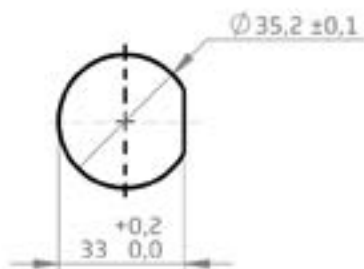
FALCON SR SQUARE



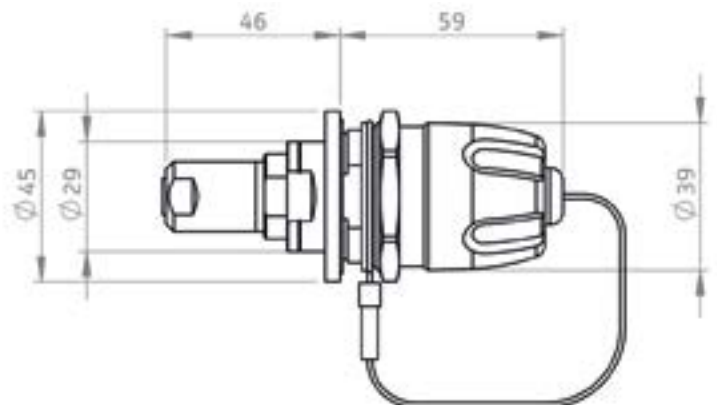
RECOMMENDED PANEL CUT-OUT



FALCON SR D-HOLE



RECOMMENDED PANEL CUT-OUT



FALCON™ RELATED PRODUCTS

FALCON CABLE ASSEMBLY



MISSION READY FOR EXTREME CONDITIONS

Micropol offers a wide range of products and accessories in the field of tactical optical fiber for harsh environments. Our cable reels organize and protect tactical fiber for use and storage in tough conditions. It combines low weight with high endurance and can be customized in terms of e.g. length and color. It can be fully assembled on a cable reel and in cable lengths of your choice with Falcon™ connectors or as fanout cables.

TACTICAL BACKPACK



SOLUTIONS FOR HARSH ENVIRONMENTS

Micropol offers low weight ergonomic backpacks for field deployment of optical fiber in any harsh environment. This easy to carry backpack is well suited also for use in a variety of other situations e.g. mobile emergency telecommunication stations, broadcast applications and mining and exploration operations.

CABLES



FIBER OPTIC CABLE FOR ALL APPLICATIONS

Micropol is brand independent and can offer a large selection of cables depending on application. The cable of choice for the Swedish Armed forces is produced by US company OCC (Optical Cable Corporation) and is one of the toughest specifications available on the market. The cable has been approved for 15 million bending at radius 30 mm, without any effect on optical performance.

MIL-ODF



RUGGED ODF BOXES FOR ROUGH CONDITIONS AND VIBRATIONS

Micropol MIL-ODFs (Optical Distribution Frame) are used as connection panels in fiber optic cable systems to connect field tactical cable systems with active equipment. The ODF is modular and has several configurations with adapters and FALCON connectors. It's possible to stack several panels on each other to save space in vehicles and racks. Size and color are adjustable. It is also possible to mount active copper into the ODF.

FALCON FANOUT & ROCKY FANOUT



CONNECTING TO ACTIVE EQUIPMENT

An alternative to the MIL-ODF when connecting a field tactical cable system to active equipment, is a cable designed to include both expanded beam and LC-connectors. In this case, the use of the Micropol ROCKY tube, which protects and offers bend limitations to patch cords, is an effective way to adapt to harsh environments. When combined with the MIL-LC, produced in aluminum with a stainless-steel hatch, the durability in low temperature increases dramatically.

TESTKIT



ENSURING BEST PERFORMANCE IN FIELD

A complete test kit with equipment for control measurement, mainly of single mode fiber cable and with qualified measuring instruments for military use.

The Micropol MIL-test kit makes it possible to test and troubleshoot fiber cables in the field. Equipment and accessories for measuring and control of all types of single mode fiber cables commonly used in the defense area is included; the kit contains measuring cables and connecting cables for all kinds of field- and patch cables.

TECHNOLOGY LEADER IN PASSIVE FIBER OPTICS

