



# Amphenol

Fiber Optic Solutions

## CTOS-CTOL

Fiber Optic Field Connectors

expanded beam connectors  
harsh environment

# Introduction



CTOS and CTOL series are robust optical connectors for rapid deployment of high-speed transmission links under harsh environments. The hermaphroditic mating makes it possible to "daisy chain" cable assemblies without using any interconnect adapters. The specific lens design guarantees a large beam diameter and a low loss connection, less sensitive to dirt and dust. A specific front design and ergonomic keys ensure blind mating. The flat protective window mounted on shock absorbers provides an easy to clean surface for improved performances and protection. CTOS and CTOL harnesses are easily and cost effective field maintainable with the FTOS splice kit.

Amphenol unique CTOS and CTOL design have already gained worldwide acceptance in the military. CTOS has been qualified by NATO according to STANAG 4290 requirements. These products are also widely used in geophysical, civil safety, railway, broadcast and industrial markets.

In the CTOS, 1, 2 or 4 channels are inserted in a small size design (o.d. 38mm). CTOL is a CTOS larger version up to 8 channels (o.d. 52mm). CTOL is intermateable with CTO, the first expanded beam connectors version.

- Hermaphroditic interface with rapid ramp coupling
- Design for gloved handling and blind mating in difficult conditions
- Large expanded beam
- Anti-reflective protective window easily reached and cleaned
- The rubber ergonomic shell allows an easy handling with or without gloves and ensures a high protection against shocks
- Up to 8 channels
- Cost effective field repairs
- Wavelength 850 - 1300 nm (Z version); 1300 nm (Y version)
- Multimode (for single mode, consult us)

# Table of contents



<b>CTOS and CTOL presentation</b> .....	<b>p2</b>
<b>CTOS and CTOL Expanded beam technology assets</b> .....	<b>p4</b>
<b>Technical specifications</b> .....	<b>p4</b>

## **CTOS: SMALL OPTICAL FIELD CONNECTOR** ..... **p5**

CTOS plug with protective cap (06M) - CTOS 06M .....	p6	How to order CTOS receptacle piece parts .....	p21
How to order CTOS plug piece parts .....	p7	CTOS "Square flange" Receptacle - rear mount (00) - CTOS 00P	
How to order plug to plug patchcord .....	p7	How to order CTOS receptacle patch cord .....	p22
How to order plug to plug patchcord reeled on a drum with or without accessories .....	p8	CTOS "Square flange" Receptacle - rear mount (00)	
CTOS PLUG - CTOS F (terminated)		CTOS 00C00: straight backshell receptacle for tactical cable .....	p23
How to order plug patchcord .....	p9	How to order CTOS receptacle piece parts .....	p23
CTOS "jam nut" Receptacle - rear mount (77) .....	p10	CTOS "Square flange" Receptacle - rear mount (00) - CTOS 00C00	
CTOS 77P: straight backshell receptacle for pigtail .....	p10	How to order CTOS receptacle patchcord .....	p24
How to order CTOS receptacle piece parts .....	p10	CTOS "Square flange" Receptacle - rear mount (00)	
CTOS "jam nut" Receptacle - rear mount (77) - CTOS 77P		CTOS 00M00: sealed straight backshell receptacle for tactical cable ..	p25
How to order CTOS receptacle patchcord .....	p11	How to order CTOS receptacle piece parts .....	p25
CTOS "jam nut" Receptacle - rear mount (77) .....	p12	CTOS "Square flange" Receptacle - rear mount (00) - CTOS 00M00	
How to order CTOS receptacle piece parts .....	p12	How to order receptacle patchcord .....	p26
CTOS 77C00: straight backshell receptacle for tactical cable .....	p10	CTOS "Square flange" Receptacle - rear mount (00)	
How to order CTOS receptacle piece .....	p12	CTOS 00C90: 90° backshell receptacle for tactical cable .....	p27
CTOS "jam nut" Receptacle - rear mount (77) - CTOS 77C00 .....	p13	How to order CTOS receptacle piece parts .....	p27
CTOS "jam nut" Receptacle - rear mount (77) .....	p14	CTOS "Square flange" Receptacle - rear mount (00) - CTOS 00C90	
How to order CTOS receptacle piece parts .....	p14	How to order receptacle patchcord .....	p28
CTOS "jam nut" Receptacle - rear mount (77) - CTOS 77M00		CTOS "Square flange" Receptacle - rear mount (00)	
How to order plug to plug patchcord .....	p15	CTOS 00M90: sealed 90° backshell receptacle for tactical cable .....	p29
CTOS "jam nut" Receptacle - rear mount (77)		How to order CTOS receptacle piece parts .....	p29
CTOS 77C90: 90° backshell receptacle for tactical cable .....	p16	CTOS "Square flange" Receptacle - rear mount (00) - CTOS 00M90	
How to order CTOS receptacle piece parts .....	p16	How to order receptacle patchcord .....	p30
CTOS "jam nut" Receptacle - rear mount (77) - CTOS 77C90 .....	p17	CTOS "Square flange" Receptacle - rear mount (00) .....	p31
CTOS "jam nut" Receptacle - rear mount (77)		CTOS Shunt caps	
CTOS 77M90: sealed 90° backshell receptacle for tactical cable .....	p18	CTOS receptacle protective shunt cap (BPPSA) .....	p32
How to order CTOS receptacle piece parts .....	p18	How to order CTOS receptacle protective shunt cap .....	p32
CTOS "jam nut" Receptacle - rear mount (77) - CTOS 77M90 .....	p19	CTOS BSA .....	p32
CTOS "jam nut" Receptacle - rear mount (77) .....	p20	How to order CTOS receptacle protective shunt cap .....	p32
CTOS "Square flange" Receptacle - rear mount (00) .....	p21		
CTOS 00P: straight backshell receptacle for pig tail .....	p21		

## **CTOL: LARGE OPTICAL FIELD CONNECTOR** ..... **p33**

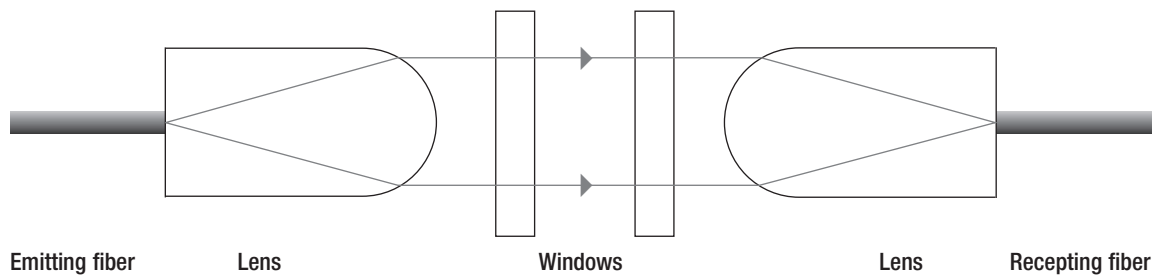
CTOL plug with protective cap 06M .....	p34	How to order CTOL receptacle piece parts .....	p42
How to order CTOL plug piece parts .....	p35	CTOL "Square flange" Receptacle - rear mount (00) - CTOL 00M00	
How to order plug to plug patchcord .....	p35	How to order receptacle patchcord .....	p43
How to order plug to plug patchcord reeled on a drum with or without accessories .....	p36	CTOL "Square flange" Receptacle - rear mount (00)	
CTOL PLUG - CTOL F (terminated)		CTOL 00C90: 90° backshell receptacle for a tactical cable .....	p44
How to order plug patchcord .....	p37	How to order CTOL receptacle piece parts .....	p44
CTOL "Square flange" Receptacle - rear mount (00) .....	p38	CTOL "Square flange" Receptacle - rear mount (00) - CTOL 00C90	
CTOL 00P: straight backshell receptacle for pig tail .....	p38	How to order receptacle patchcord .....	p45
How to order CTOL receptacle piece parts .....	p38	CTOL "Square flange" Receptacle - rear mount (00)	
CTOL "Square flange" Receptacle - rear mount (00) - CTOL 00P		CTOL 00M90: 90° sealed backshell receptacle for tactical cable .....	p46
How to order receptacle patchcord .....	p39	How to order CTOL receptacle piece parts .....	p46
CTOL "Square flange" Receptacle - rear mount (00)		CTOL "Square flange" Receptacle - rear mount (00) - CTOL 00M90	
CTOL 00C00: straight backshell receptacle for tactical cable .....	p40	How to order receptacle patchcord .....	p47
How to order CTOL receptacle piece parts .....	p40	CTOL "SQUARE FLANGE" Receptacle - rear mount (00) .....	p48
CTOL "Square flange" Receptacle - rear mount (00) - CTOL 00C00		CTOL Shunt caps .....	p49
How to order receptacle patchcord .....	p41	CTOL receptacle protective shunt cap (BPPSA) .....	p49
CTOL "Square flange" Receptacle - rear mount (00)		How to order CTOL receptacle protective shunt cap .....	p49
CTOL 00M00: straight backshell receptacle for sealed tactical cable. ....	p42	CTOL BSA .....	p49
		How to order CTOL plug shunt cap .....	p49

<b>Fiber optic cable catalogue</b> .....	<b>p50</b>
<b>Tactical cables technical information</b> .....	<b>p51</b>

# Expanded Beam

## CTOS AND CTOL EXPANDED BEAM TECHNOLOGY ASSETS

With AMPHENOL expanded beam technology, fibers are not in physical contact. The beam is expanded through the first lens and refocused through the second lens then into the fiber. By increasing the light beam surface (680 times for multimode technology), the connector becomes highly resistant to vibrations, shocks, small debris contamination and optical misalignment. A coated protective window makes the connectors easy to clean and easily field maintainable should any damage occurs.



## TECHNICAL SPECIFICATIONS

- Plugs and Receptacles (straight and 90°), Tactical Harnesses and Test caps for maintenance
- Hermaphroditic interface with rapid ramp coupling
- Large expanded beams with protective windows
- Stainless steel body with ergonomic rubber shell
- Termination and Maintenance FTOS tool kits available
- Tactical drums and accessories available

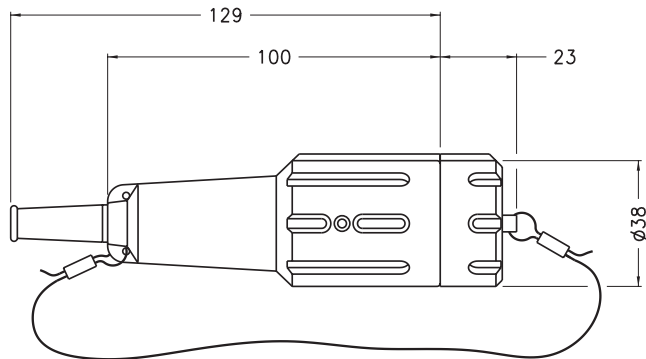
	CTOS	CTOL	STANDARD
Number of channel	1, 2 or 4	2, 4, 6 or 8	
Insertion loss (per mated pair of plug)	Multimode 50/125 @ 1300 nm DEL source : 1.5dB typical ; 2dB max Single mode LASER source: 0.8dB typ ; 1.2dB max		
Durability	10000 mating min		MIL-STD-810E
Operating temperature	-40°C, + 85°C		MIL-STD-810D
Vibrations	10 to 2000Hz, 10g, 1.5 mm p/p, 3 directions		MIL-STD-810E
Bump resistance	4000 Bumps, 40g, 6ms, 6 directions		
Mechanical shock	50g, 1/2 sinus, 3 shocks by direction, 3 axes		MIL-STD-810E
Mud resistance	Compliant		MIL-C-83526 13
Free drops	26 drops 1.2m on concrete (plugs)		MIL-STD-810D
Water immersion	> 5m depth		
Salt frog	500 hours		MIL-STD-810D
Low pressure	85 mbars 48 hours		NFC 20706
Storage temperature	-55°C, +85°C		MIL-STD-810E
Crush resistance	1 tonne, 10sec		NF 93810
Tensile load (cable dependant)	Short time: 2200 N Permanent: 1300 N		DOD-STD-1678
Decontamination Fluid Resistance	Compliant		DOD-STD-1678



# CTOS: XXXXXXXXXX SMALL OPTICAL FIELD CONNECTOR

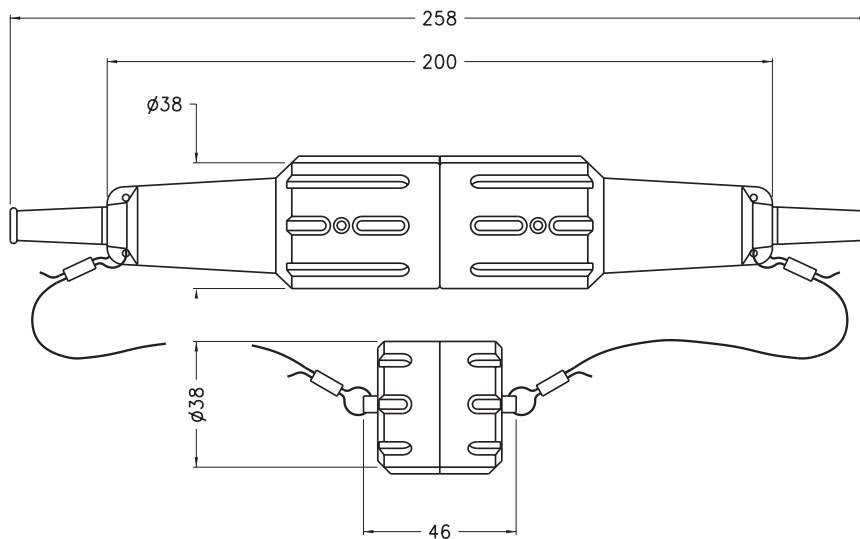


## ■ CTOS PLUG WITH PROTECTIVE CAP (06M) - CTOS 06M



The CTOS plug provides hermaphroditic optical links between two points. This plug is designed to be used in harsh environment applications. It can be terminated by a 1, 2, 4 fibers tactical cable.

The tensile strength between plug and cable can reach 200 daN (depending on cable performance)



### Channel arrangements :



1 Channel



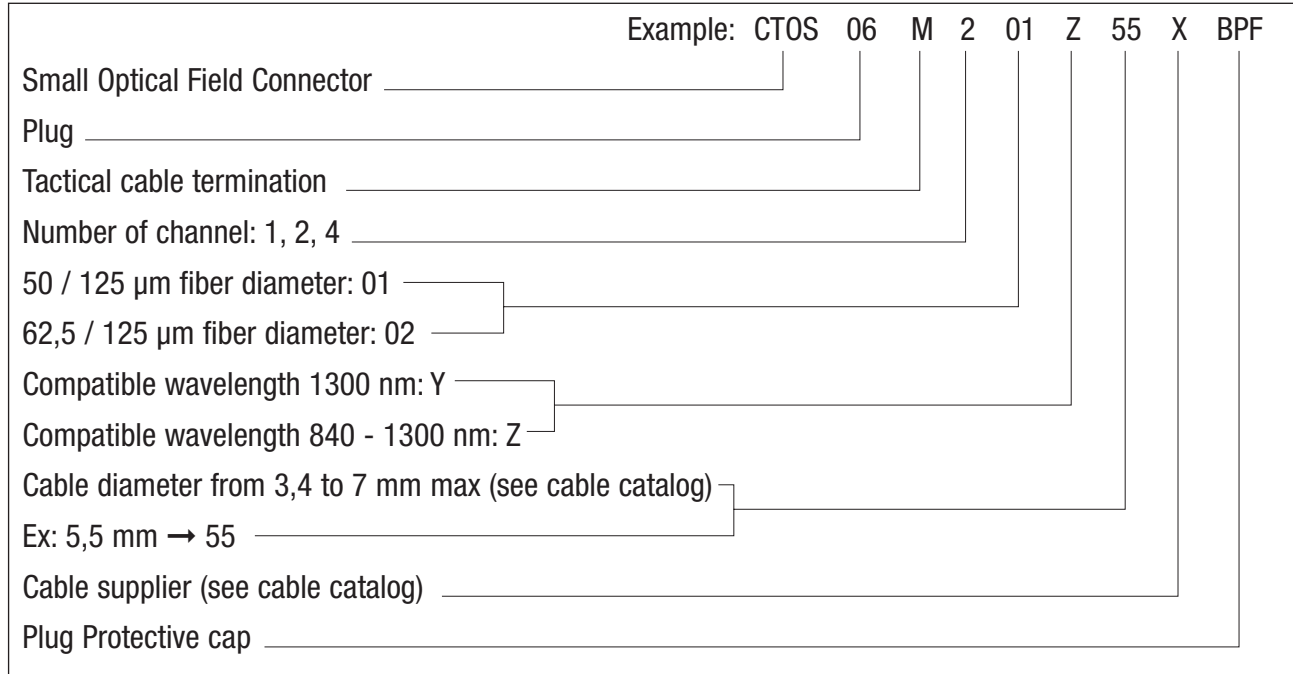
2 Channels



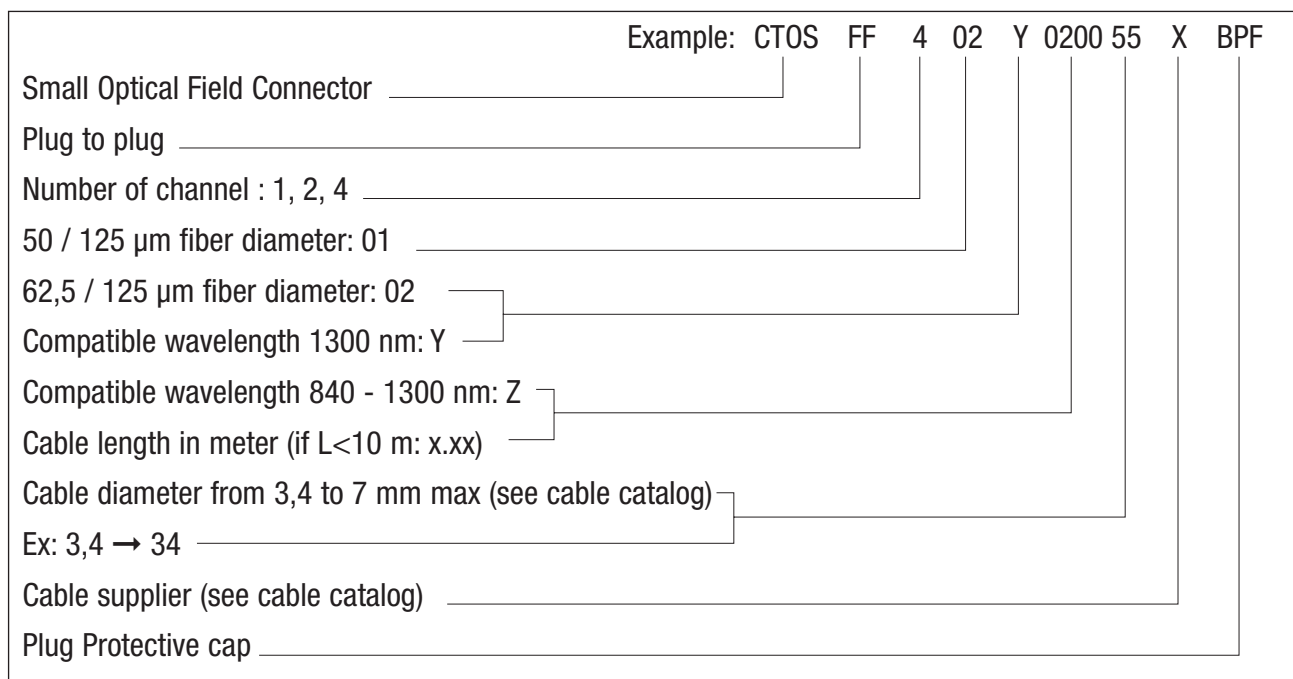
4 Channels



## ■ HOW TO ORDER CTOS PLUG PIECE PARTS



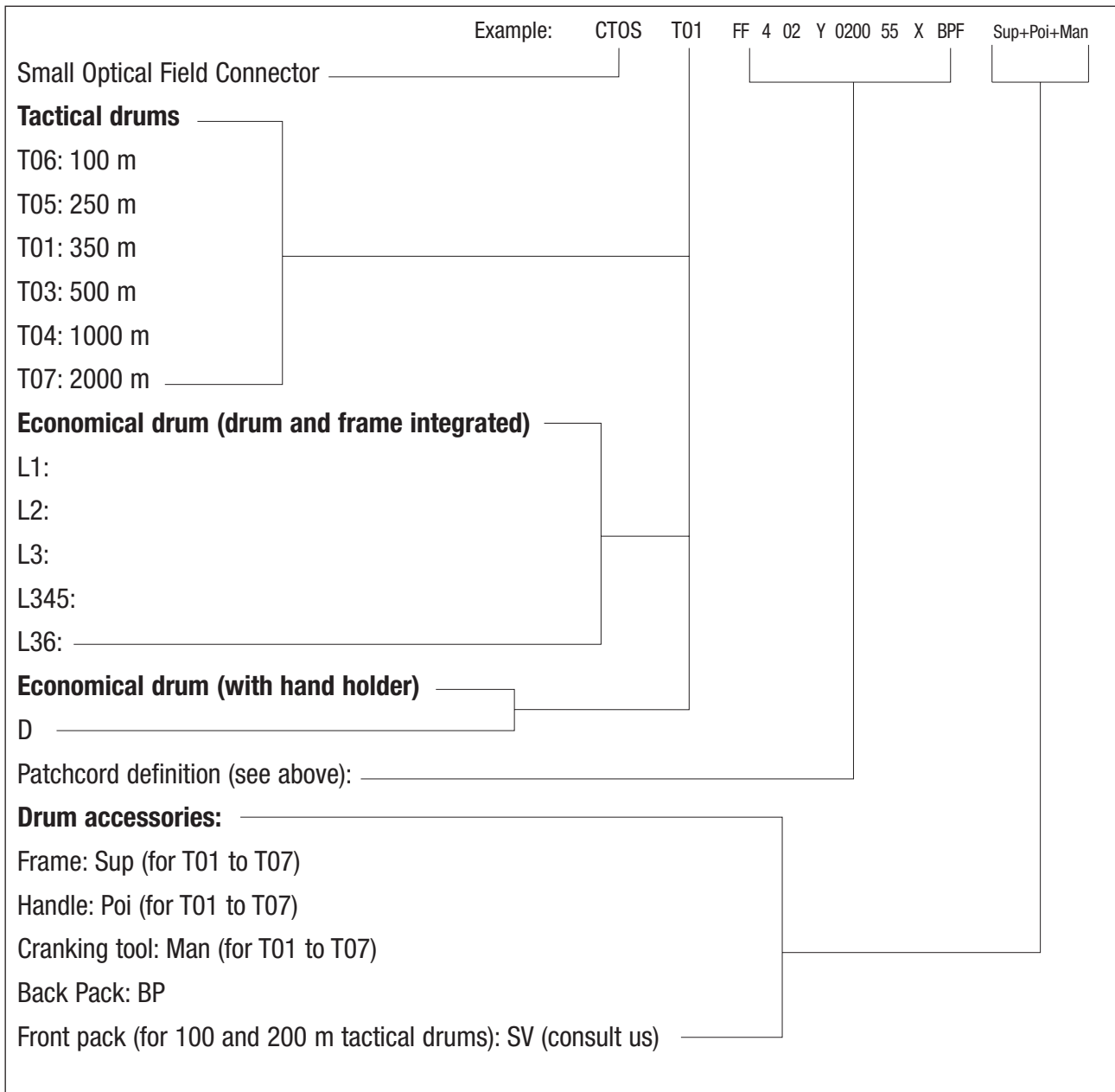
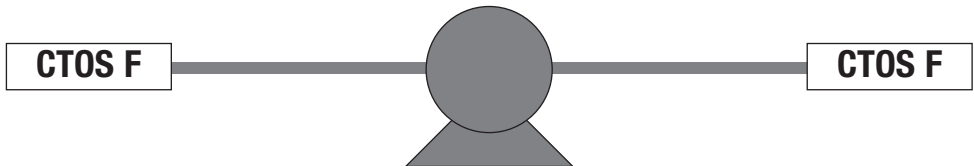
## ■ HOW TO ORDER PLUG TO PLUG PATCHCORD





## ■ HOW TO ORDER PLUG TO PLUG PATCHCORD REELED ON A DRUM WITH OR WITHOUT ACCESSORIES

See tactical and economical drum description on to the crums catalog



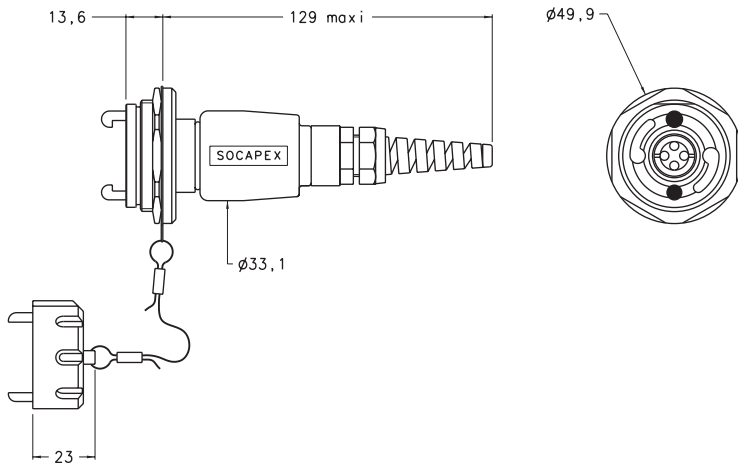






## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

### CTOS 77C00: straight backshell receptacle for tactical cable



#### Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in a non protected area.

Unsealed straight backshell to be used with 1 or 2 tactical cables (1,2 or 4 number of channels) inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	77	C	00	2	01	Z	55	X	BPE
Small Optical Field connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Two half shells rear part for tactical cable	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Straight backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel : 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 µm fiber diameter : 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 µm fiber diameter : 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm : Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm : Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

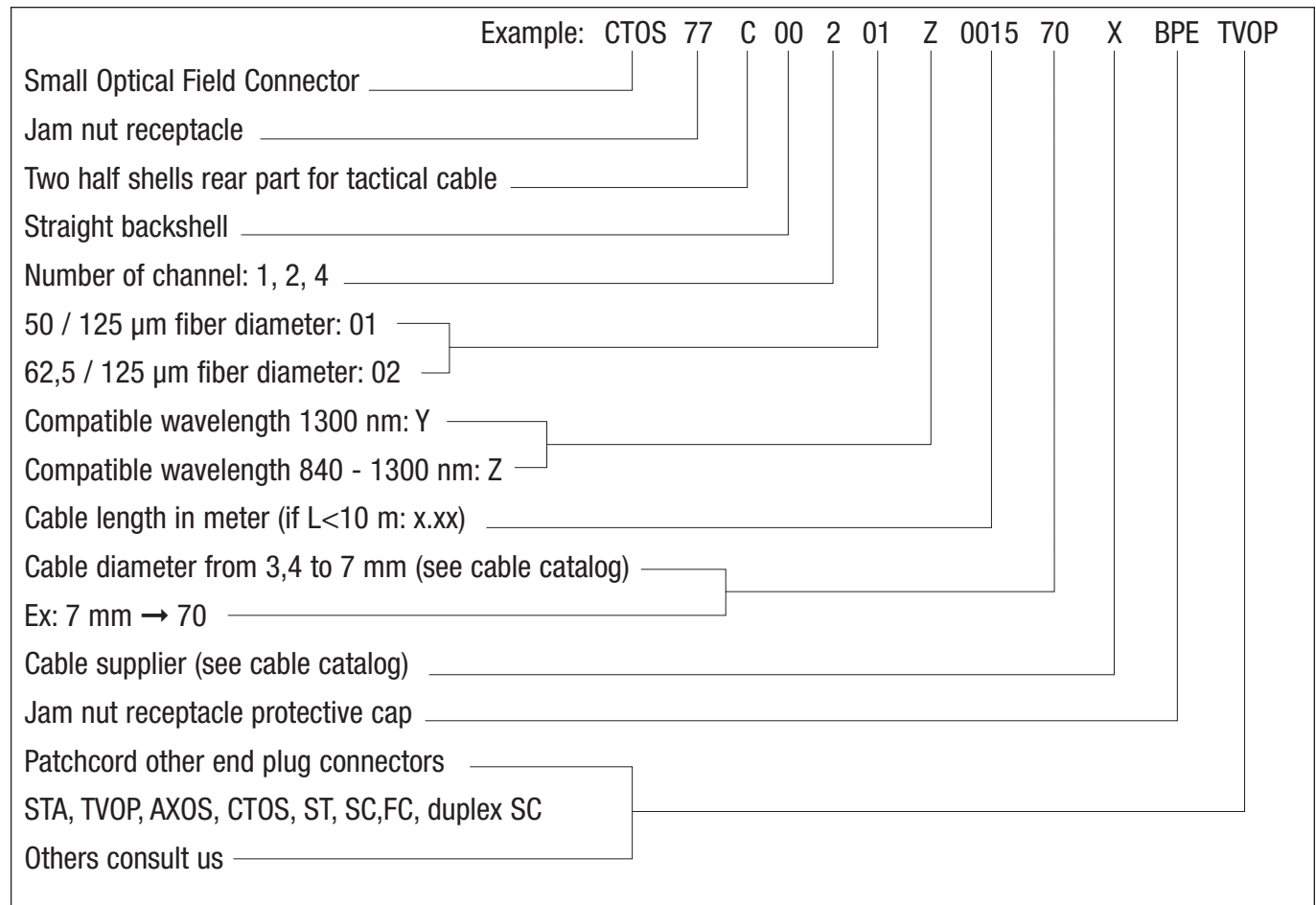


## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77C00

### How to order receptacle patchcord

**CTOS 77C00**

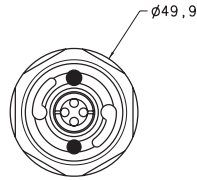
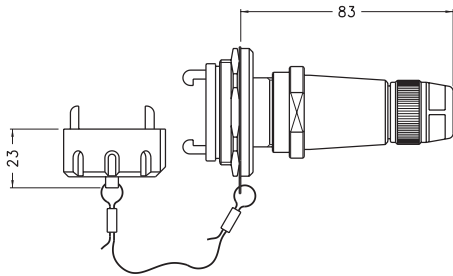
**TVOP**



For other configurations consult us.

## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

### CTOS 77M00: sealed straight backshell receptacle for tactical cable



#### Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected and humid area. Straight backshell to be used with a 1, 2, 4 fibers tactical cables inside or outside a vehicle.

The rear part is made of an aluminum alloy shell with a cable retention clamp.

Complete front and rear sealing.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	77	M	00	2	01	Z	55	X	BPE
Small Optical Field Connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Tactical cable sealed termination	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Straight backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 μm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 μm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

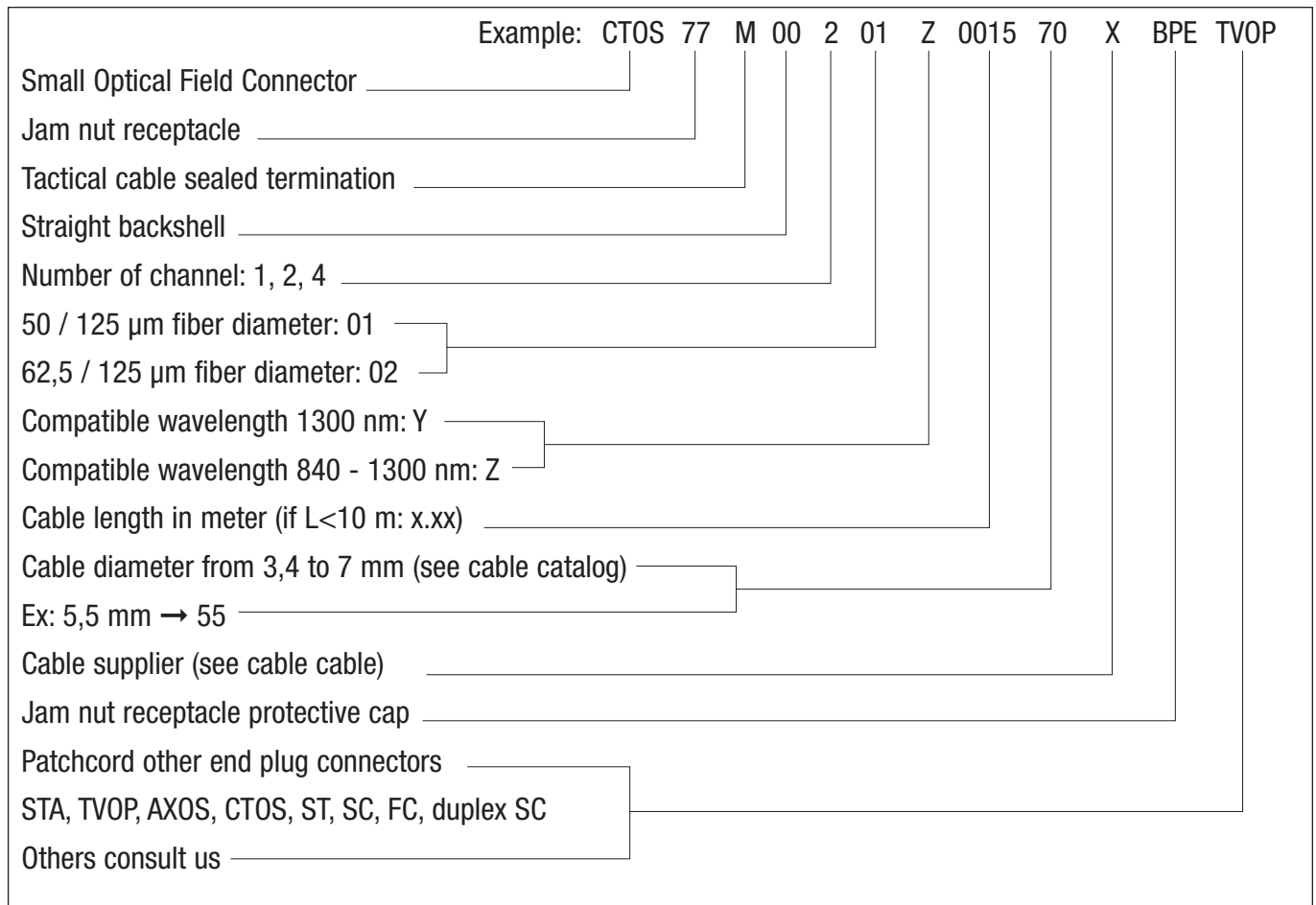


## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77M00

### How to order receptacle patchcord

**CTOS 77M00**

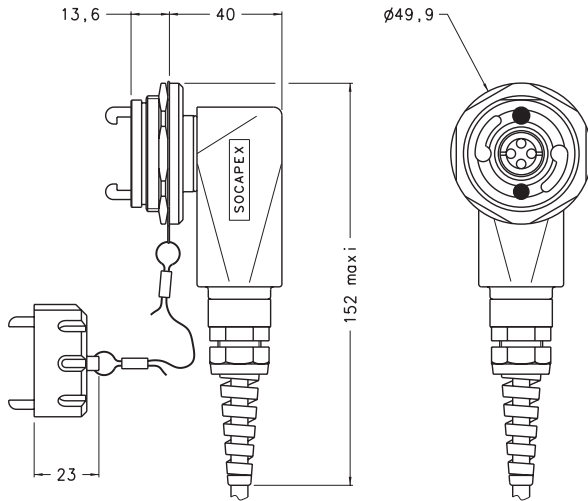
**TVOP**



For other configurations consult us.

## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

### CTOS 77C90: 90° backshell receptacle for tactical cable



#### Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in non protected area, or when the rear space is too narrow.

90° backshell not sealed to be used with a 1, 2, 4 fiber tactical cable inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

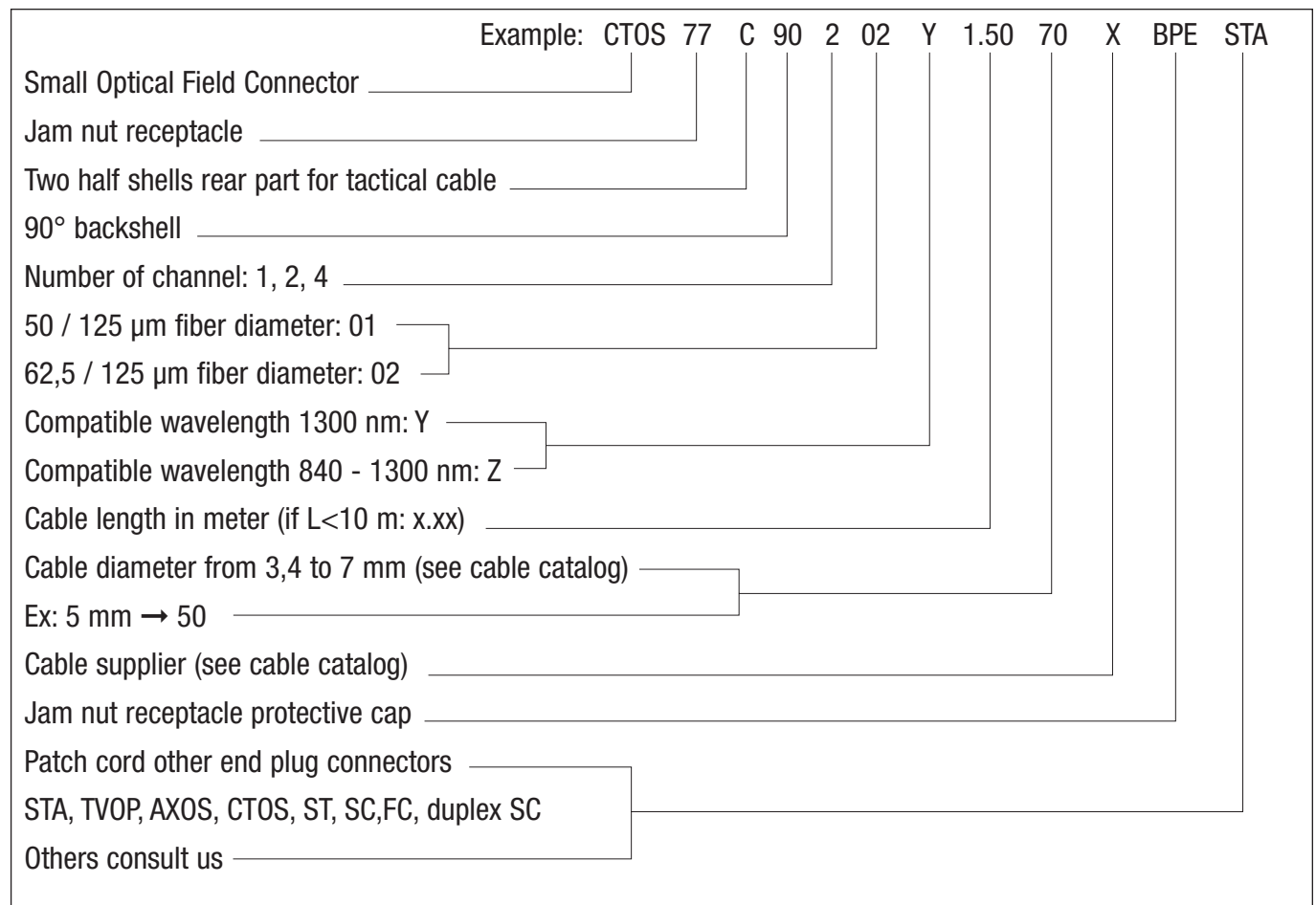
	Example: CTOS	77	C	90	2	01	Z	55	X	BPE
Small Optical Field Connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Two half shell rear part for tactical cable	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
90° backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 μm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 μm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____



## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77C90

### How to order receptacle patchcord

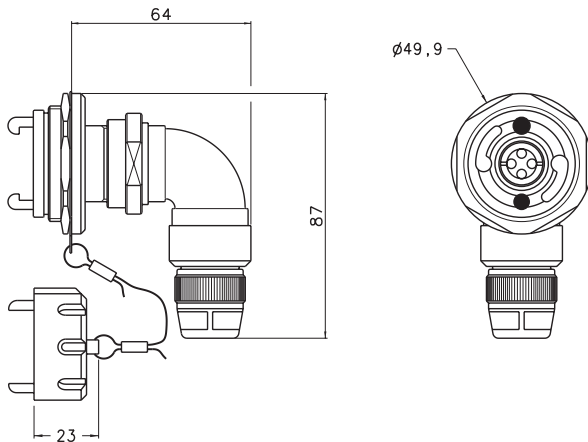
**CTOS 77C90** ————— **STA**



For other configurations consult us.

## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

### CTOS 77M90: sealed 90° backshell receptacle for tactical cable



#### Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow. 90° backshell to be used with a 2 or 4 fibers tactical cable outside a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	77	M	90	2	01	Z	55	X	BPE
Small Optical Field Connector _____										
Jam nut receptacle _____										
Tactical cable sealed termination _____										
90° backshell _____										
Number of channel: 1, 2, 4 _____										
50 / 125 µm fiber diameter: 01 _____										
62,5 / 125 µm fiber diameter: 02 _____										
Compatible wavelength 1300 nm: Y _____										
Compatible wavelength 840 - 1300 nm: Z _____										
Cable diameter from 3,4 to 7 mm (see cable catalog) _____										
Ex: 5,5 mm → 55 _____										
Cable supplier (see cable catalog) _____										
Jam nut receptacle protective cap _____										

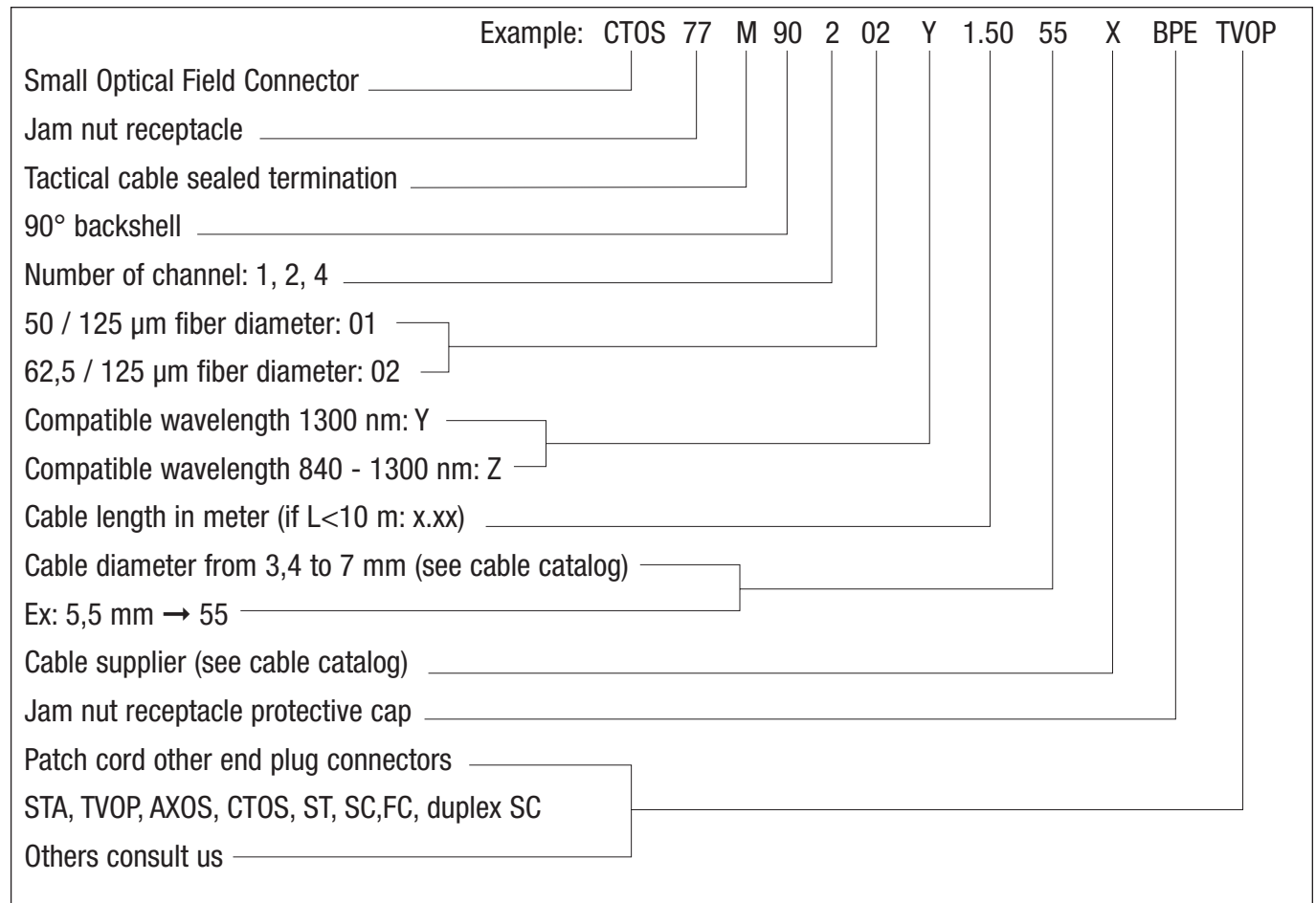


## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77M90

### How to order receptacle patchcord

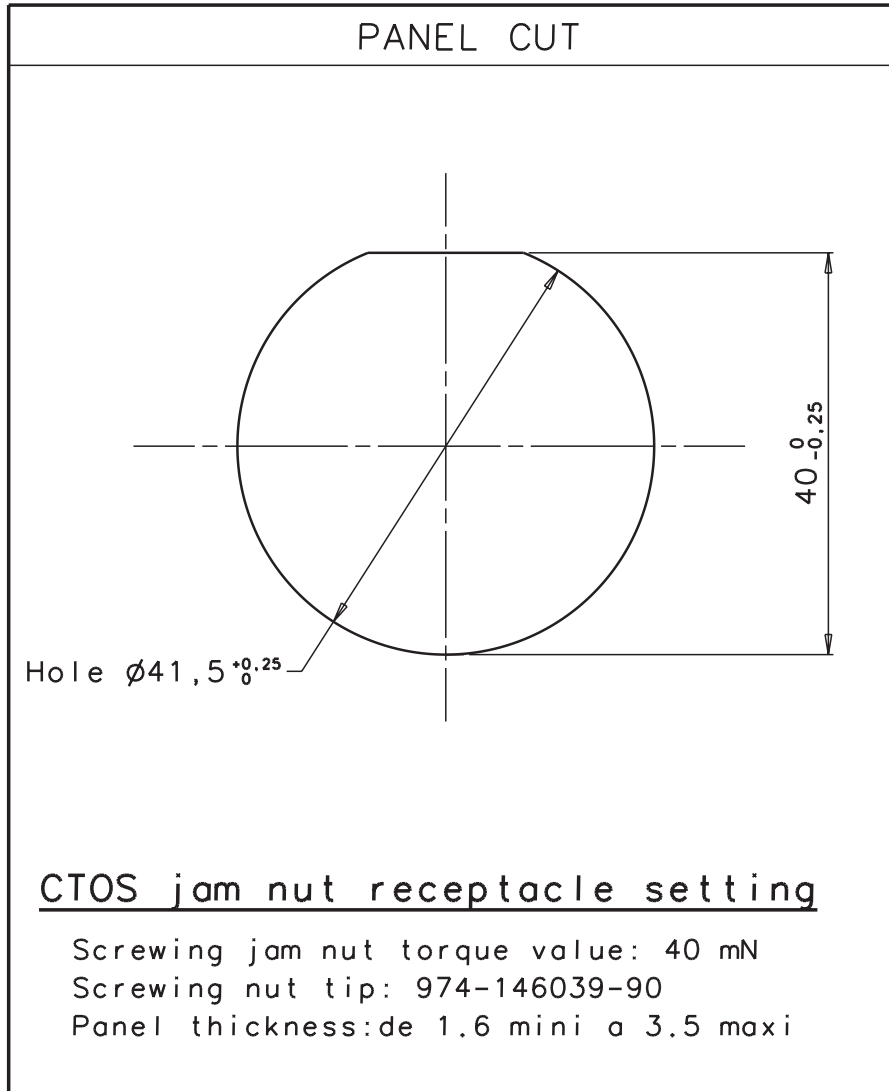
**CTOS 77M90**

**TVOP**



For other configurations consult us.

## ■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)





## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

The square flange receptacle has to be mounted on to the vehicle panel. It provides the link between the inside electro-optic device and the outside optical link.

The square flange receptacle receives the first CTOS plug of the outer link patchcord.

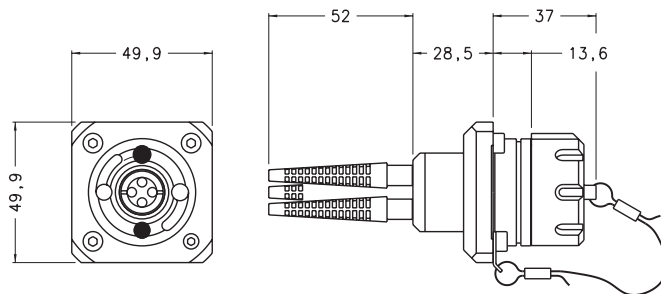
The square flange type makes it possible to have a high density of receptacles on a panel.

Easy panel cut off of 5 round holes.

Fixation by 4 screws. - Front sealing ensured by a flat gasket.

Electrical contact between panel receptacle and protective cap (EMI,CEM protection when cap is on). Protective cap attached to the panel or to the receptacle by a stainless steel rope.

## ■ CTOS 00P: STRAIGHT BACKSHELL RECEPTACLE FOR PIG TAIL



### Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in a protected area.

This rear part makes possible an easy cross connect output.

Straight rear part to be used with 1, 2, 4, pig-tails (2.8 mm single cable or duplex cable 2 x 3, 2x 1.6 ). Each pigtail can be terminated with ST,SC,FC, duplex SC and MTRJ connectors.

Pig tails tensile strength: 10 daN.

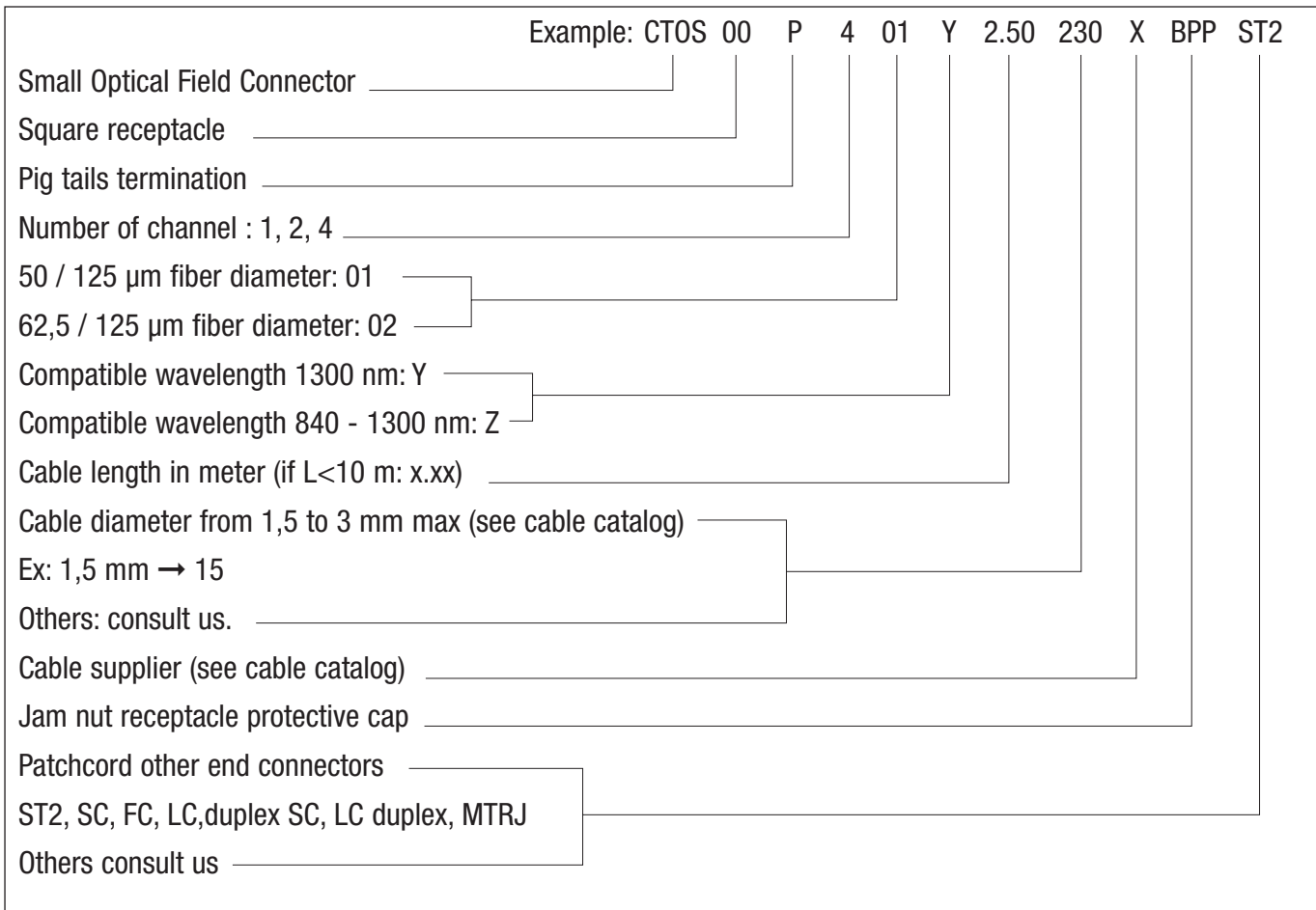
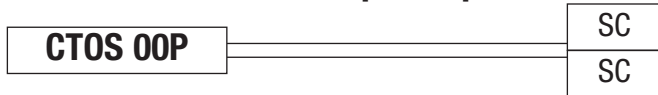
(depending on cable performance)

### How to order CTOS receptacle piece parts

	Example: CTOS	00	P	2	01	Z	28	X	BPP
Small Optical Field Connector: _____									
Square flange receptacle: _____									
Pig tails termination: _____									
Number of channel : 1, 2, 4 _____									
50 / 125 µm fiber diameter: 01 _____									
62,5 / 125 µm fiber diameter: 02 _____									
Compatible wavelength 1300 nm: Y _____									
Compatible wavelength 840 - 1300 nm: Z _____									
Cable diameter from 1,5 to 3 mm (see cable catalog) _____									
Ex : 2,8 mm → 28									
Others: consult us. _____									
Cable supplier (see cable catalog) _____									
Jam nut receptacle protective cap _____									

## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00P

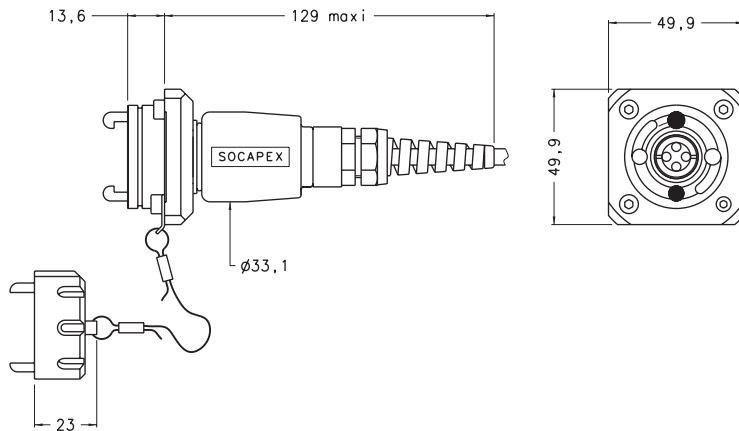
### How to order CTOS receptacle patchcord





## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

### CTOS 00C00: straight backshell receptacle for tactical cable



#### Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in non protected area.

Unsealed straight backshell to be used with 1 or 2 tactical cables (1,2 or 4 number of channels) inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performances).

### How to order CTOS receptacle piece parts

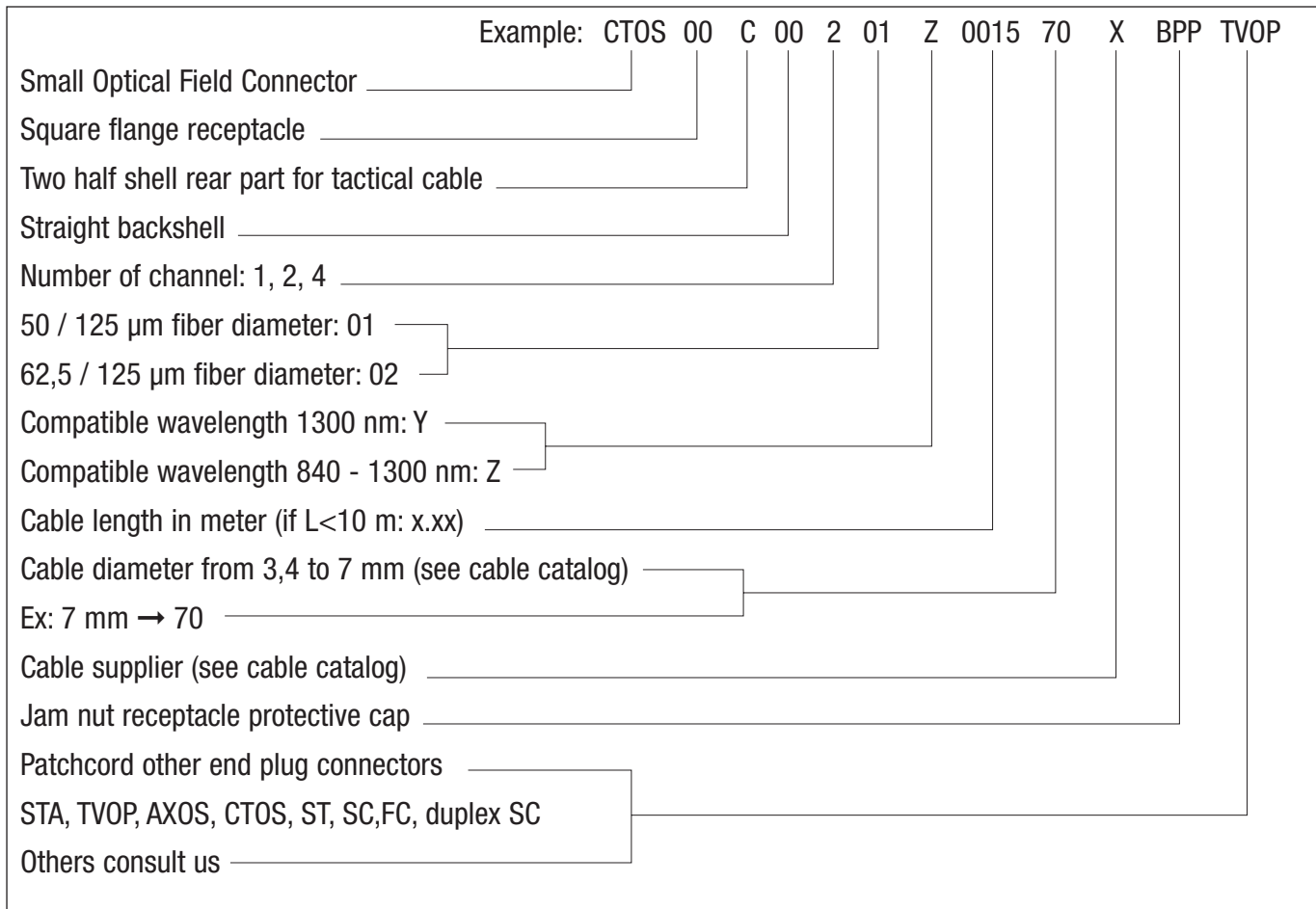
	Example: CTOS	00	C	00	2	01	Z	55	X	BPP
Small Optical Field connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Square flange receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Two half shell rear part for tactical cable	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Straight backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 μm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 μm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00C00

### How to order CTOS receptacle patchcord

**CTOS 00C00**

**TVOP**

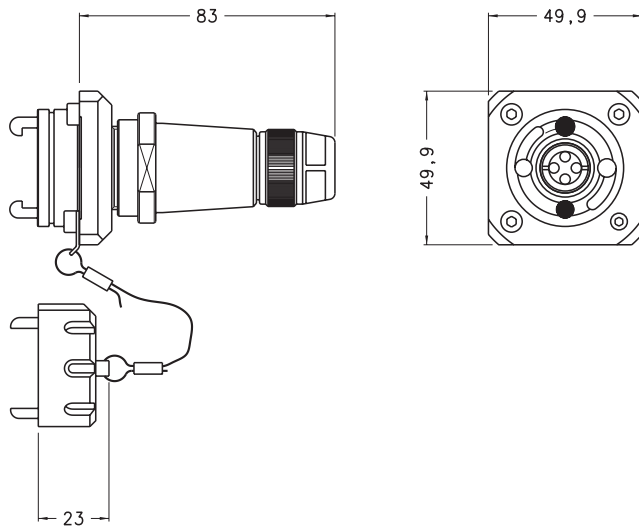


For other configurations consult us.



## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

### CTOS 00M00: sealed straight backshell receptacle for tactical cable



#### Backshell main use:

To be used inside and outside of a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area. Straight backshell to be used with a 1,2, 4 fibers tactical cable inside or outside a vehicle.

The rear part is made of an aluminum alloy shell with bit of cable retention gland.

Complete front and rear sealing.

Possibility to add a multi channel connector at the other cable end.

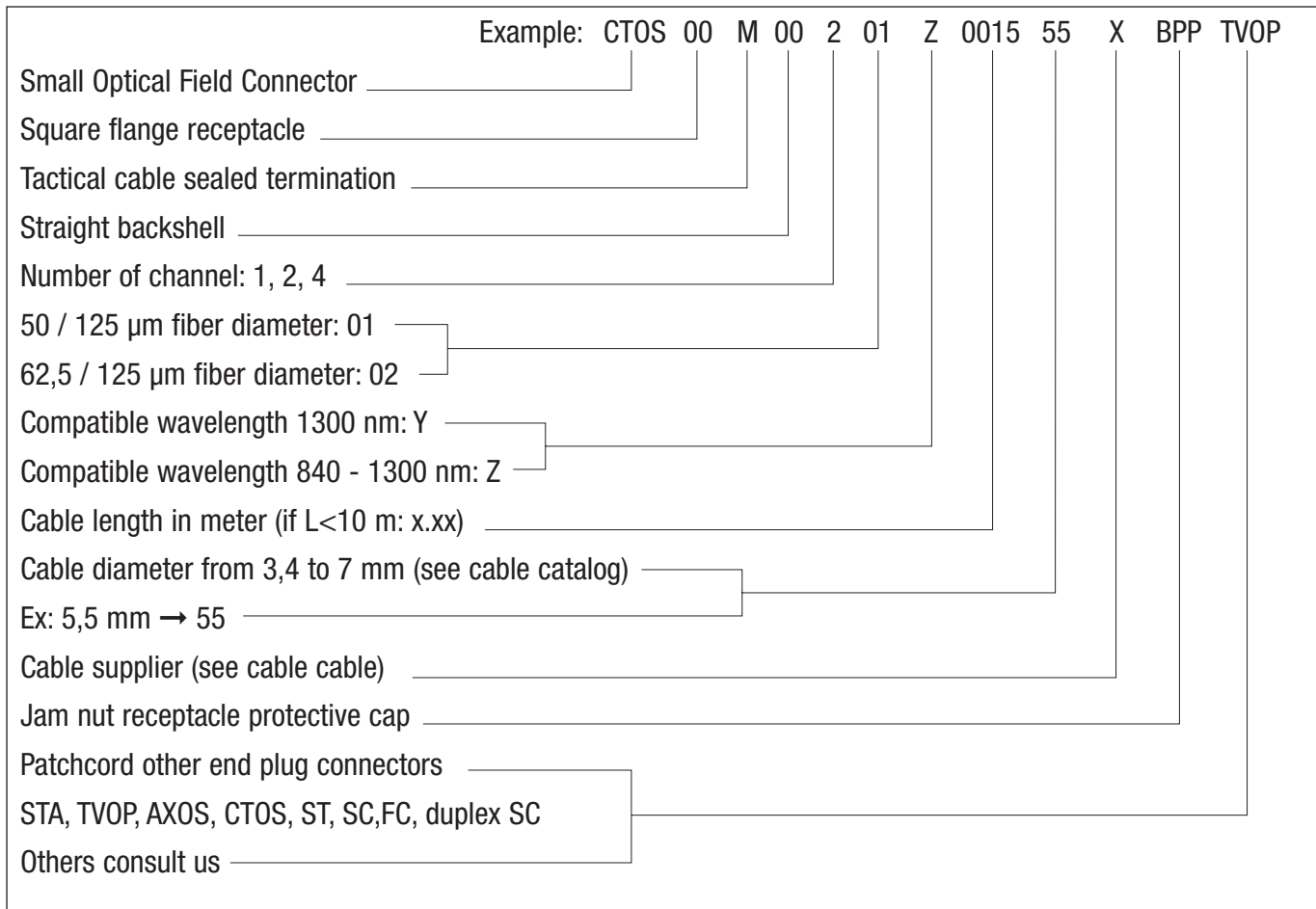
Cable/receptacle tensile strength: 100 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	00	M	00	2	01	Z	55	X	BPP
Small Optical Field Connector	_____									
Square flange receptacle	_____									
Tactical cable sealed termination	_____									
Straight backshell	_____									
Number of channel: 1, 2, 4	_____									
50 / 125 µm fiber diameter: 01	_____									
62,5 / 125 µm fiber diameter: 02	_____									
Compatible wavelength 1300 nm: Y	_____									
Compatible wavelength 840 - 1300 nm: Z	_____									
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____									
Ex: 5,5 mm → 55	_____									
Cable supplier (see cable catalog)	_____									
Jam nut receptacle protective cap	_____									

## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00M00

### How to order receptacle patchcord

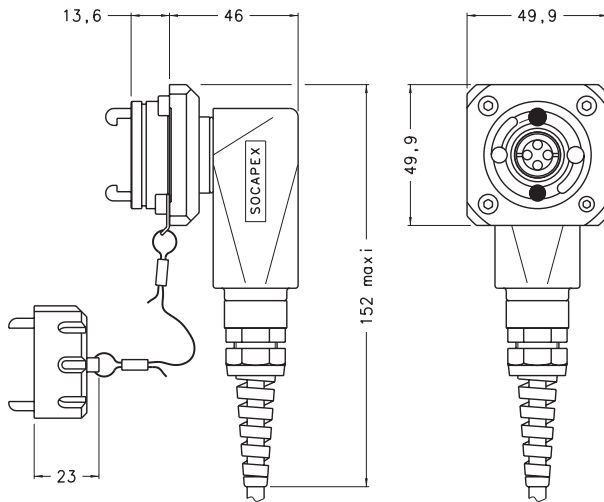


For other configurations consult us.



## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

### CTOS 00C90: 90° backshell receptacle for tactical cable



#### Backshell main use:

To be used inside a vehicle or on a box to connect CTOL receptacle to the electro-optic transceivers, in a non protected area, or when the rear space is too narrow.

Unsealed 90° backshell to be used with a 1, 2, 4, fibers tactical cable inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

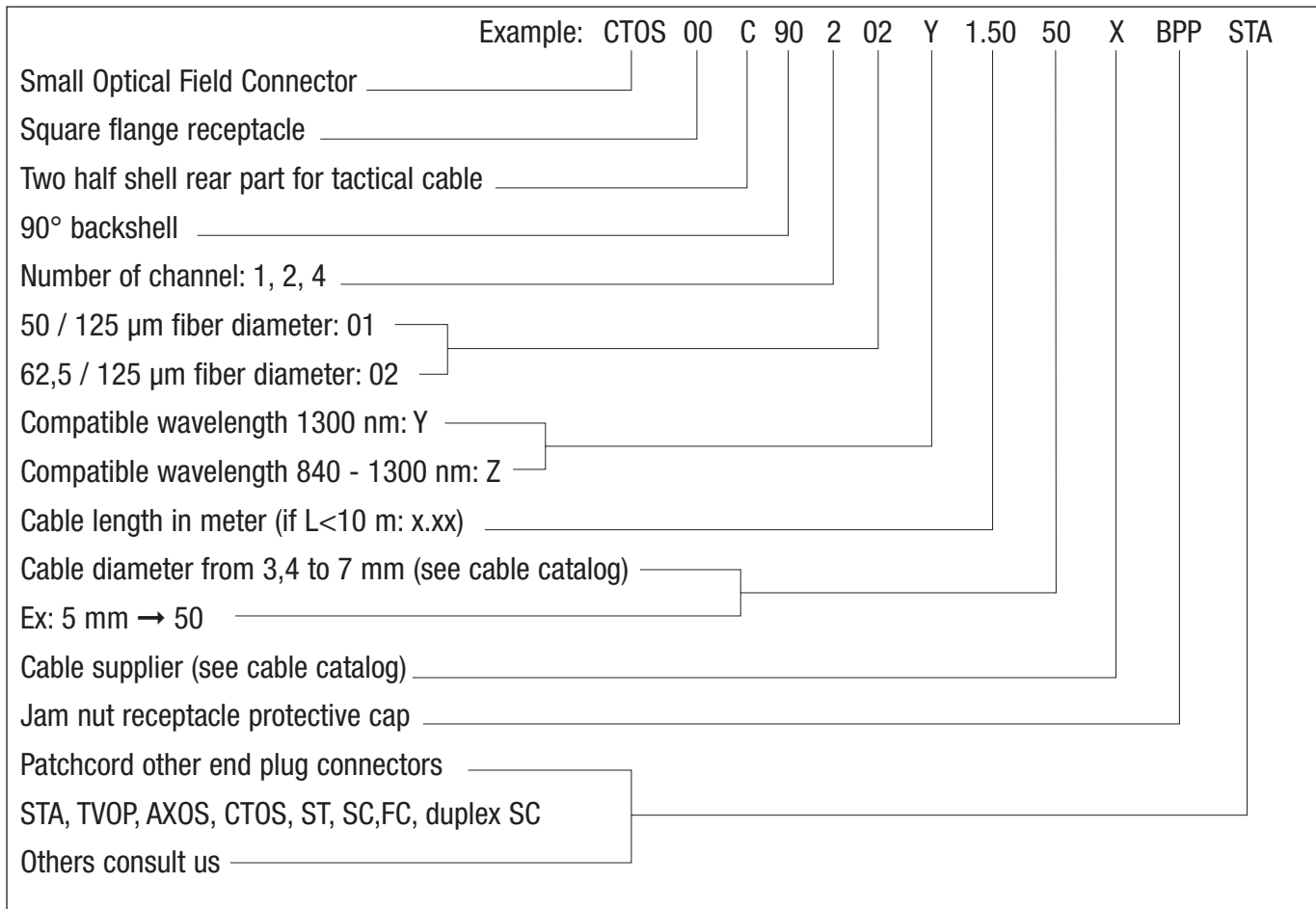
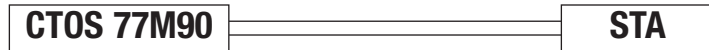
Cable/receptacle tensile strength: 50 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	00	C	90	2	01	Z	55	X	BPP
Small Optical Field Connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Square flange receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Two half shell rear part for tactical cable	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
90° backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 μm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 μm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00C90

### How to order receptacle patchcord

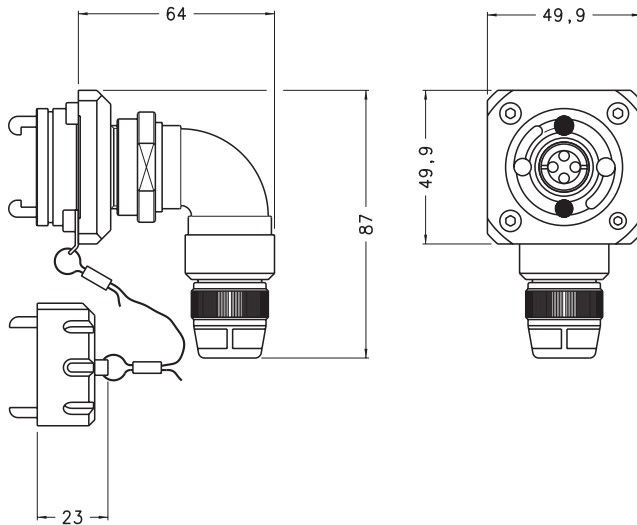


For other configurations consult us.



## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

### CTOS 00M90: sealed 90° backshell receptacle for tactical cable



#### Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow.

90° backshell to be used with a 1, 2, 4 fibers tactical cable inside or outside a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

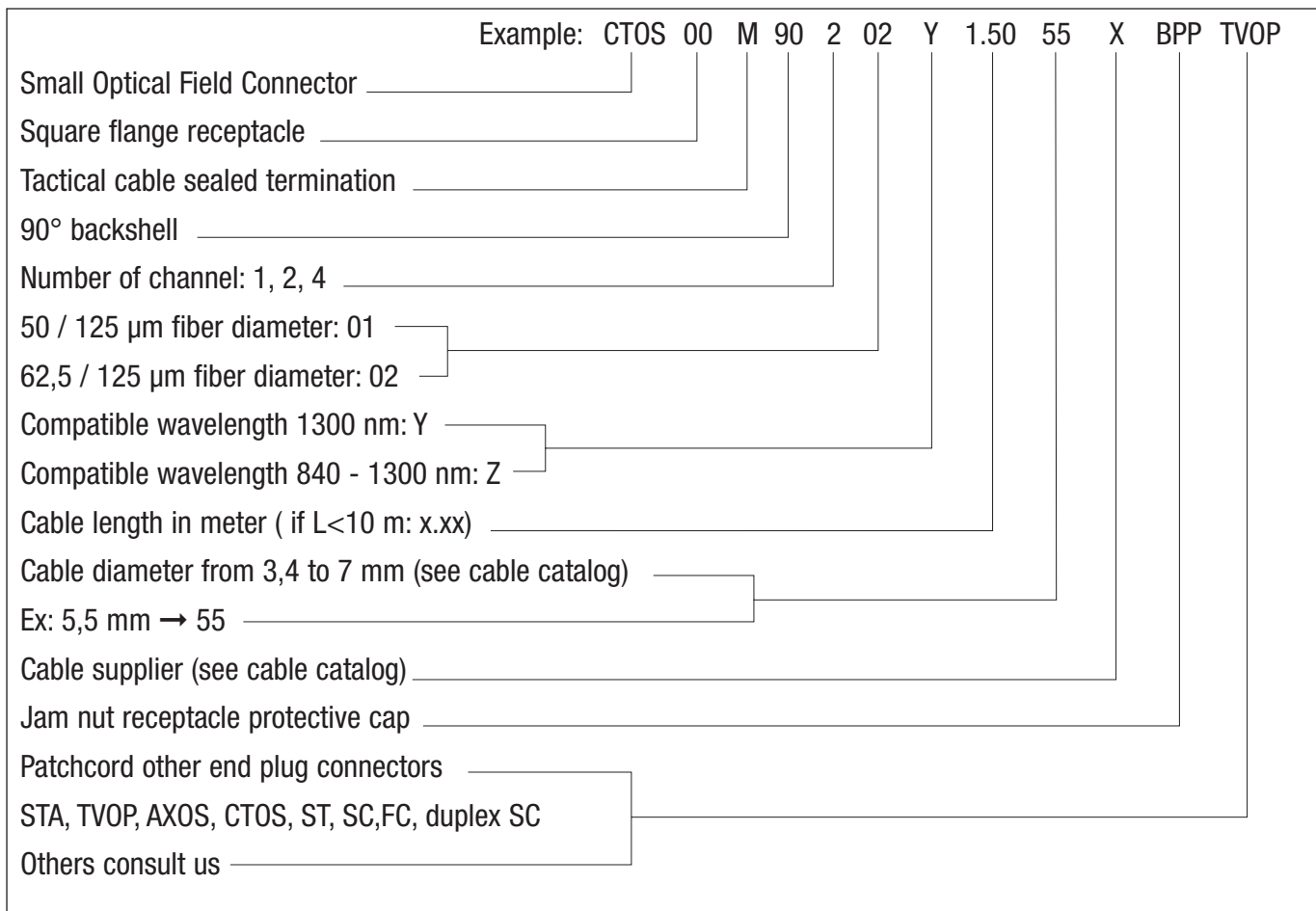
Cable/receptacle tensile strength: 50 daN (depending on cable performance).

### How to order CTOS receptacle piece parts

	Example: CTOS	00	M	90	2	01	Z	55	X	BPP
Small Optical Field Connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Square flange receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Tactical cable sealed termination	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
90° backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 μm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 μm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

## ■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00M90

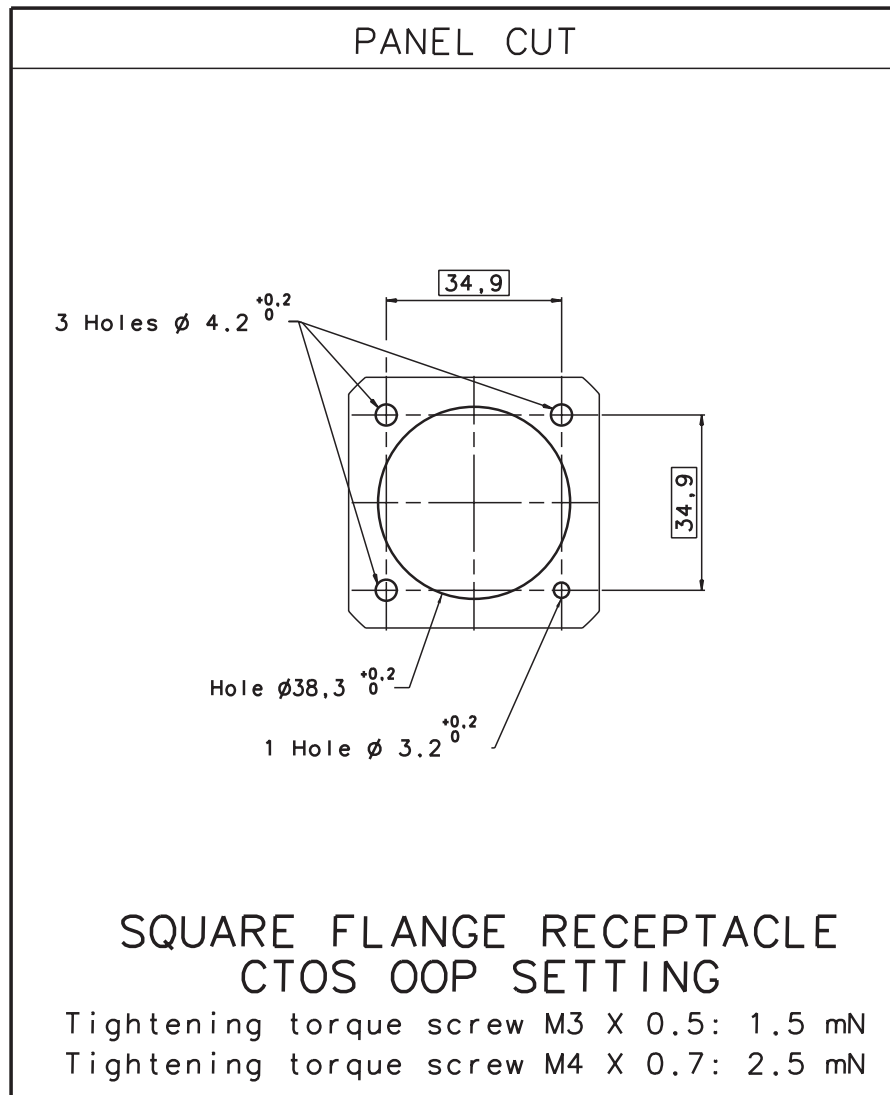
### How to order receptacle patchcord



For other configurations consult us.



■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

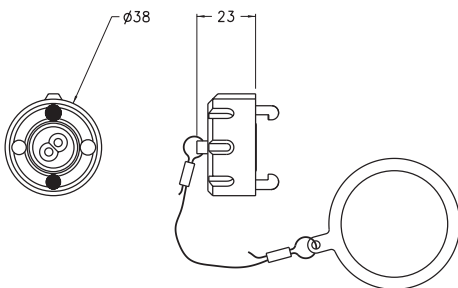


## ■ CTOS SHUNT CAPS

This device is designed to test the electronic emitter and receiver as well as the optical receptacle and the link before the optical link deployment in the field.

The loop back is done by channel pairs: channel 1 with channel 2, channel 3 with channel 4.

### CTOS receptacle protective shunt cap (BPPSA/BPESA)



BPESA shunt cap

The receptacle protective shunt cap is used to test the emitter, the receiver and the CTOS receptacle on a vehicle before using the link. This shunt cap introduces a large insertion loss which is optical power budget dependent and has to be defined with the customer (generally 20 dB max).

The BPESA is dedicated to test the jam nut receptacle. It is delivered with a rope and a ring to be fixed under the hexagonal nut in order to replace the receptacle protective cap (see the drawing).

The BPPSA is dedicated to test square flange receptacle. It is delivered with a panel attachment cord and can replace the receptacle protective cap.

The BPBSA itself is equipped with a protective cap.

### How to order CTOS receptacle protective shunt cap

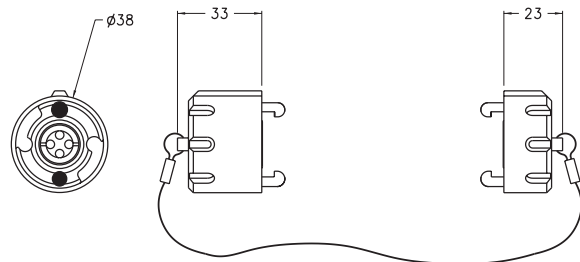
	CTOS	BPPSA	20
Small Optical Field Connector _____	_____	_____	_____
Protective shunt attenuating cap for jam nut receptacle: BPESA _____	_____	_____	_____
Protective shunt attenuating cap for square flange receptacle: BPPSA _____	_____	_____	_____
Protective shunt attenuating cap for receptacle equipped with a protective cap: BPBSA _____	_____	_____	_____
Insertion loss in dB: _____	_____	_____	_____

## ■ CTOS BSA

The BSA is a plug shunt cap with a low insertion loss, to test the plug to plug CTOS patchcord on a reel before the optical link is deployed.

The maximum insertion loss is fixed at 4 dB.

The BSA is equipped with a protective cap.



### How to order CTOS receptacle protective shunt cap

	CTOS	BSA	4
Small Optical Field Connector _____	_____	_____	_____
Attenuating shunt cap for plug equipped with a protective cap: _____	_____	_____	_____
Insertion loss maximum in dB: _____	_____	_____	_____



**CTOL:** [REDACTED]  
LARGE OPTICAL FIELD CONNECTOR



## CTOL PLUG WITH PROTECTIVE CAP 06M

The plug allows to do hermaphroditic field optical daisy chain link between two points, with large possibility of channels redundancy or large bandwidth in multimode fiber.

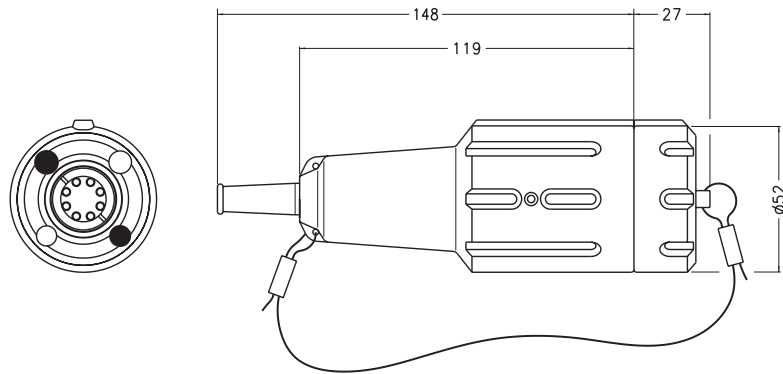
This plug can be used as a concentrator of 2 and 4 channels CTOS links.

This plug is design to be use in harsh environment.

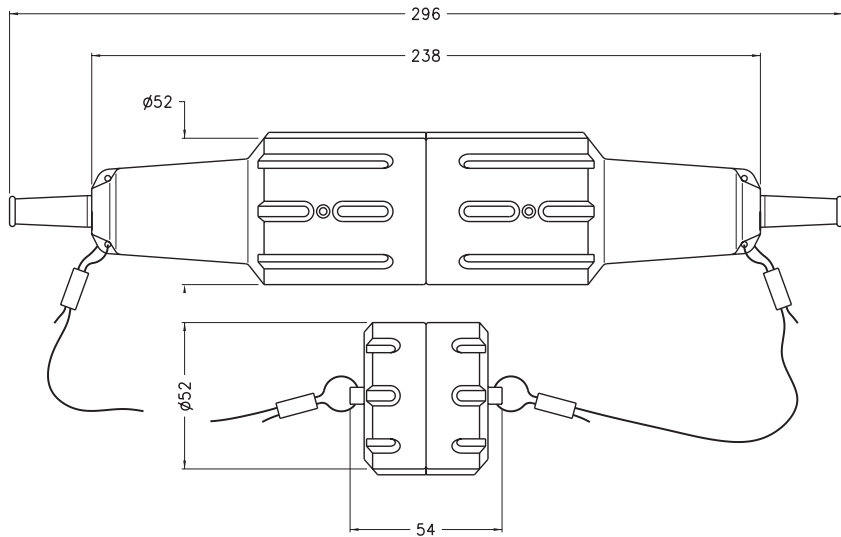
It can be terminated on 2, 4, 6, 8 fibers tactical cable.

The tensile strength between plug and cable can reach 200 daN (cable dependent).

Special arrangements of 2 and 4 channels plug are designed to be mated with the first CTO connector version (2S and 4S arrangement versions).



### Two plugs mated together



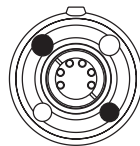
### Channel arrangements :



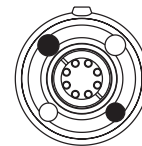
2 Channel



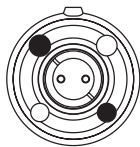
4 Channels



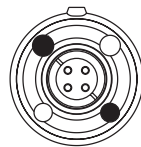
6 Channels



8 Channels



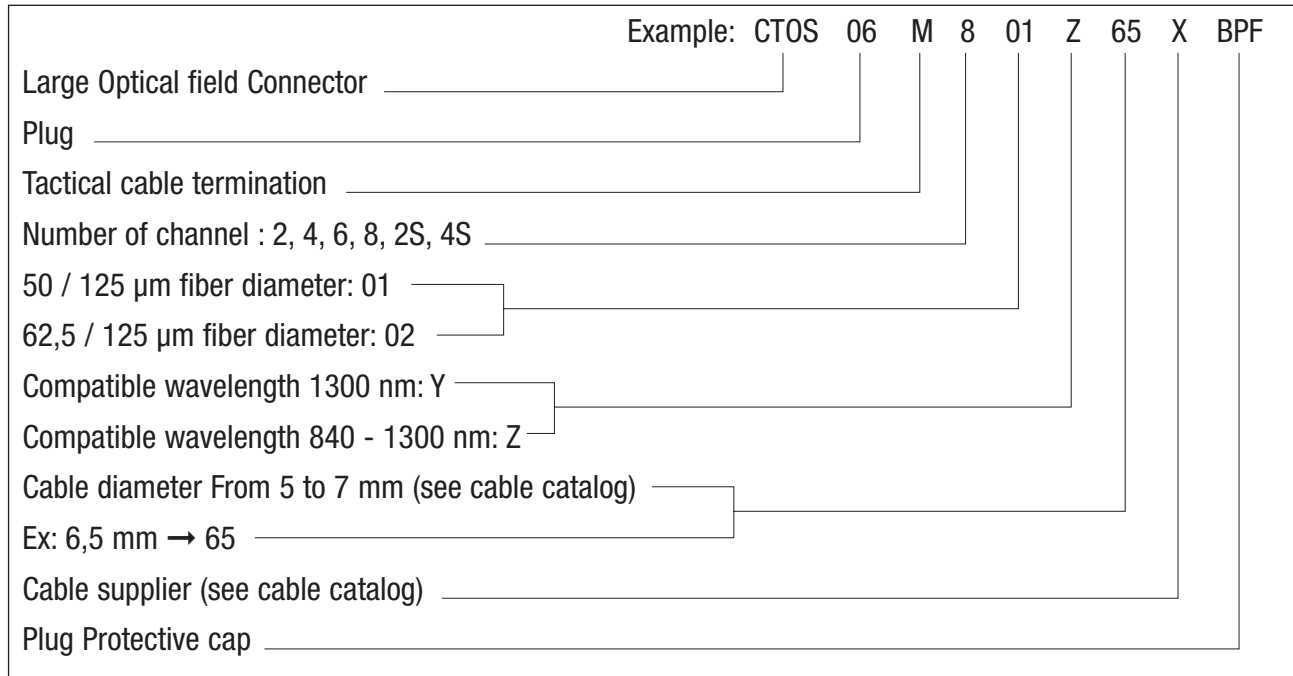
2S Channels



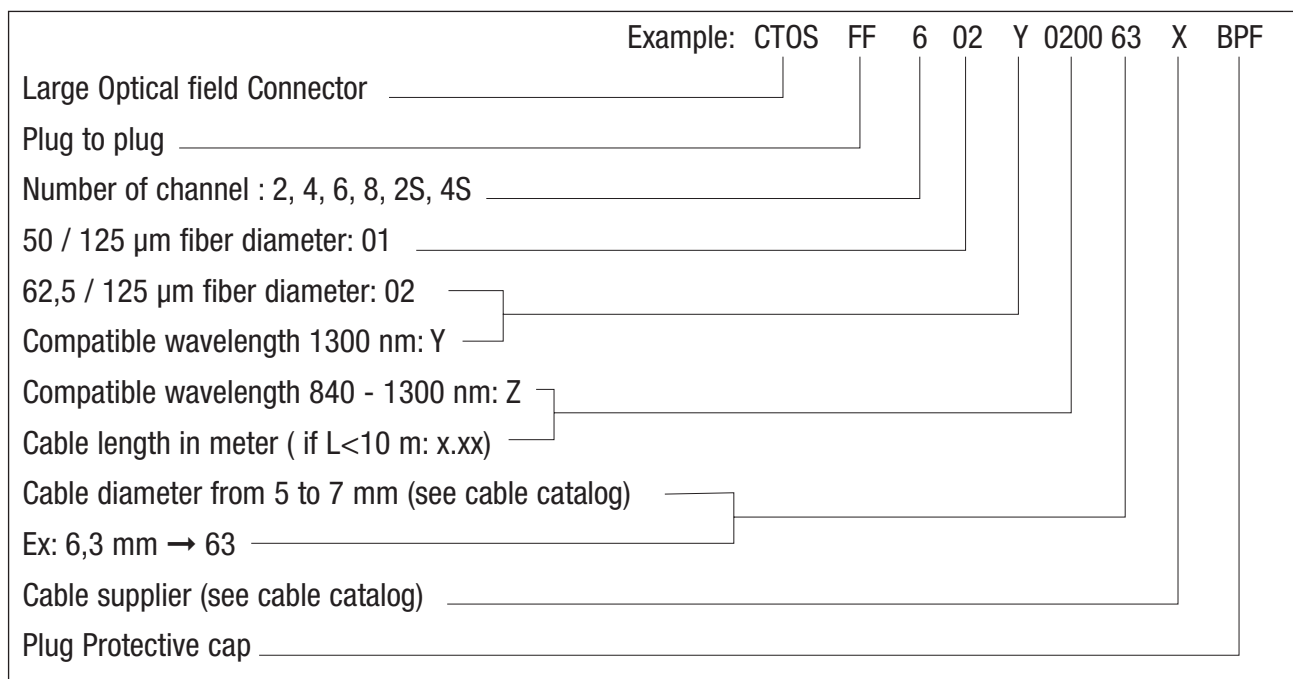
4S Channels



## ■ HOW TO ORDER CTOL PLUG PIECE PARTS

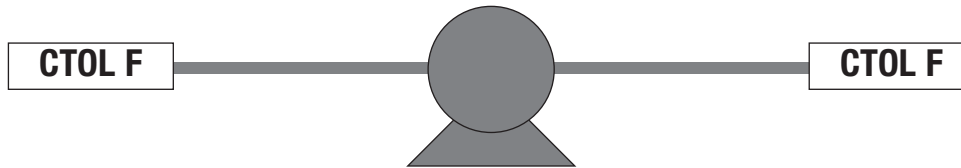


## ■ HOW TO ORDER PLUG TO PLUG PATCH CORD



## ■ HOW TO ORDER PLUG TO PLUG PATCHCORD REELED ON A DRUM WITH OR WITHOUT ACCESSORIES

See tactical and economical drum description on to the drums catalog



Example: CTOL T01 FF 8 02 Y 0200 64 X BPF Sup+Poi+Man

Small Optical Field Connector \_\_\_\_\_

**Tactical drums**

T06: 100 m \_\_\_\_\_

T05: 250 m \_\_\_\_\_

T01: 350 m \_\_\_\_\_

T03: 500 m \_\_\_\_\_

T04: 1000 m \_\_\_\_\_

T07: 2000 m \_\_\_\_\_

**Economical drum (drum and frame integrated)**

L1: \_\_\_\_\_

L2: \_\_\_\_\_

L3: \_\_\_\_\_

L345: \_\_\_\_\_

L36: \_\_\_\_\_

**Economical drum (with hand holder)**

D \_\_\_\_\_

Patchcord definition (see above): \_\_\_\_\_

**Drum accessories:**

Frame: Sup (from T01 to T07) \_\_\_\_\_

Handle: Poi (from T01 to T07) \_\_\_\_\_

Cranking tool: Man (from T01 to T07) \_\_\_\_\_

Back Pack: BP \_\_\_\_\_

Front pack (for 100 and 200 m tactical drums): SV (consult us) \_\_\_\_\_

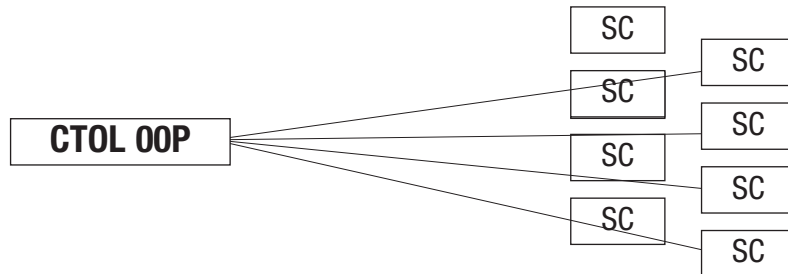






## ■ CTOL “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOL 00P

### How to order receptacle patchcord



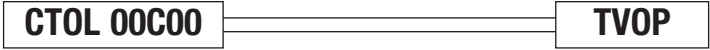
	Example: CTOL	00	P	6	01	Y	2.50	230	X	BPP	SC
Large Optical field Connector											
Square flange receptacle											
Pig tails termination											
Number of channel : 2, 4, 6, 8, 2S, 4S											
50 / 125 μm fiber diameter: 01											
62,5 / 125 μm fiber diameter: 02											
Compatible wavelength 1300 nm: Y											
Compatible wavelength 840 - 1300 nm: Z											
Cable length in meter (if L<10 m: x.xx)											
Cable diameter from 1,5 to 3 mm (see cable catalog)											
Ex: 3 mm duplex → 30											
Others: consult us											
Cable supplier (see cable catalog)											
Square flange receptacle protective cap											
Patchcord other end connectors											
ST2, SC, FC, LC,duplex SC, LC duplex, MTRJ											
Others consult us											





## ■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00C00

### How to order receptacle patchcord



Example: CTOL 00 C 00 6 01 Z 0015 63 X BPP TVOP

Large Optical field Connector	00
Square flange receptacle	C
Two half shell rear part for tactical cable	00
Straight backshell	6
Number of channel: 1, 2, 4	01
50 / 125 μm fiber diameter: 01	Z
62,5 / 125 μm fiber diameter: 02	
Compatible wavelength 1300 nm: Y	0015
Compatible wavelength 840 - 1300 nm: Z	
Cable length in meter (if L<10 m: x.xx)	63
Cable diameter from 3,8 to 7 mm (see cable catalog) Ex: 6,3 mm → 63	X
Cable supplier (see cable catalog)	BPP
Jam nut receptacle protective cap	TVOP
Patchcord other end plug connectors STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC Others consult us	

For other configurations consult us.





## ■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00M00

### How to order receptacle patchcord

**CTOL 00M00** ————— **TVOP**

	Example: CTOL	00	M	00	8	01	Z	0015	65	X	BPP	TVOP
Large Optical field Connector												
Square flange receptacle												
Tactical cable sealed termination												
Straight backshell												
Number of channel: 2, 4, 6, 8, 2S, 4S												
50 / 125 μm fiber diameter: 01												
62,5 / 125 μm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter ( if L<10 m: x.xx)												
Cable diameter from 3,8 to 7 mm (see cable catalog)												
Ex: 6,5 mm → 65												
Cable supplier (see cable catalog)												
Square flange receptacle protective cap												
Patchcord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC												
Others consult us												

For other configurations consult us.

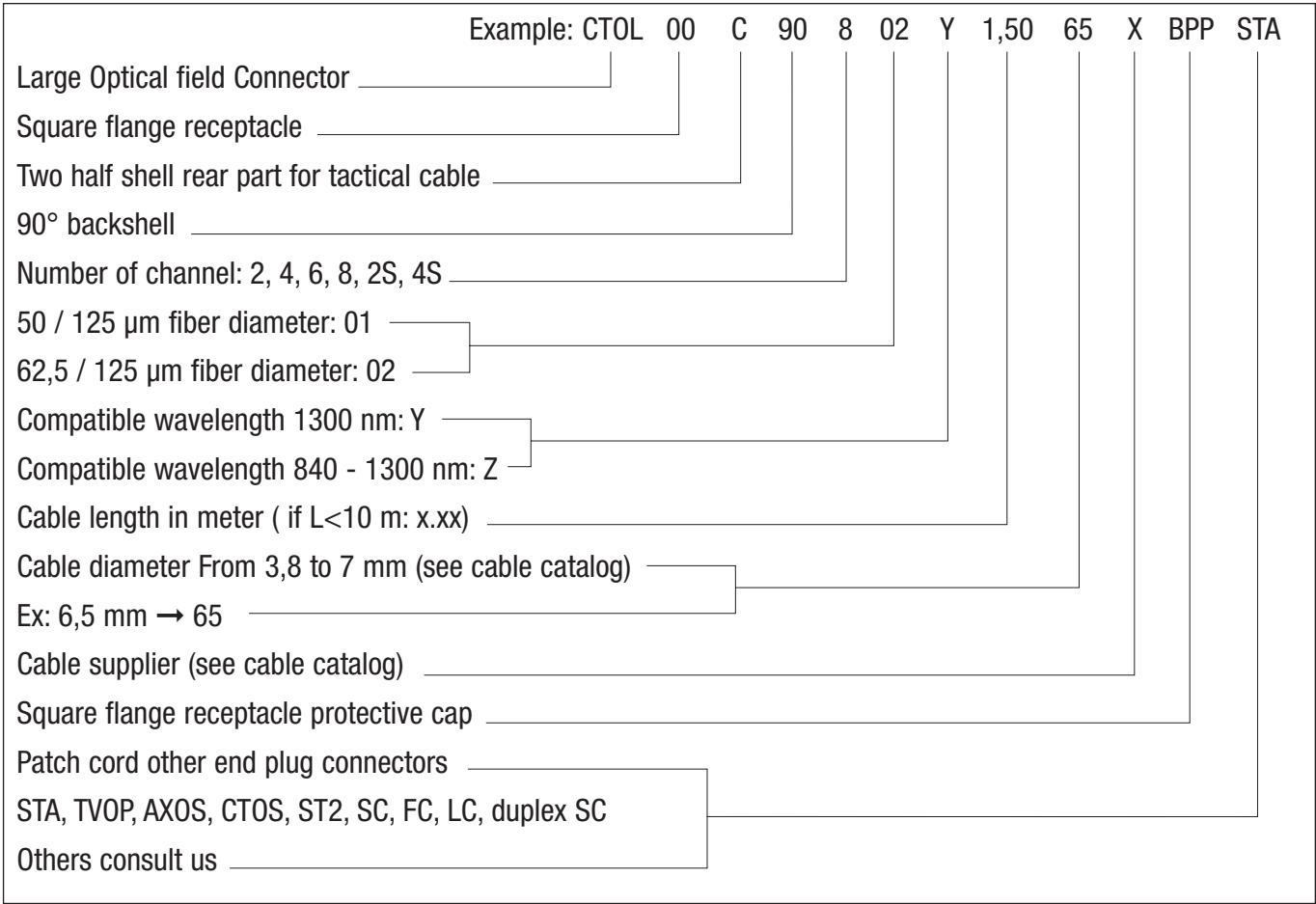




## ■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00C90

### How to order receptacle patchcord

**CTOL 00C90** ————— **STA**



For other configurations consult us.

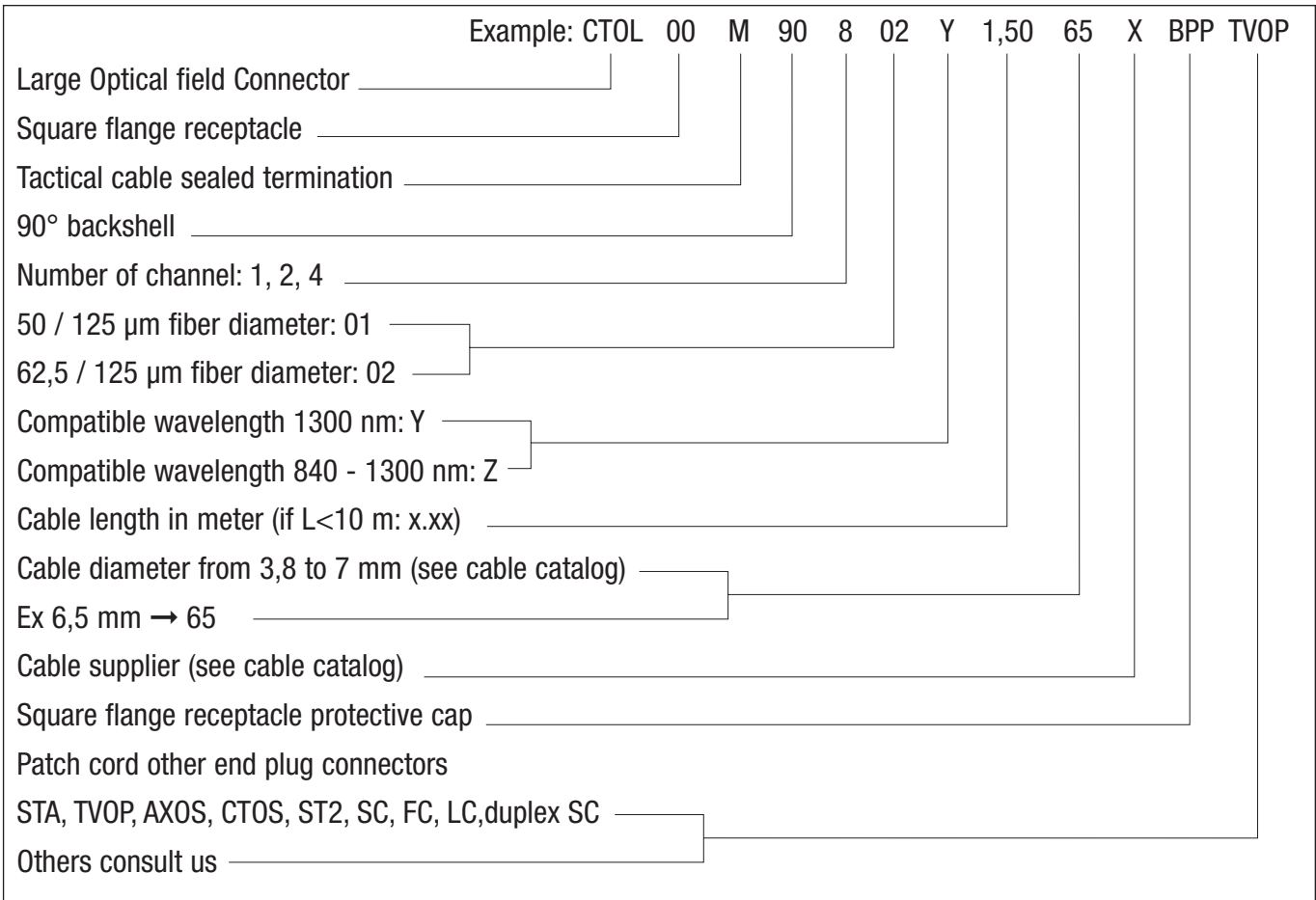




## ■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00M90

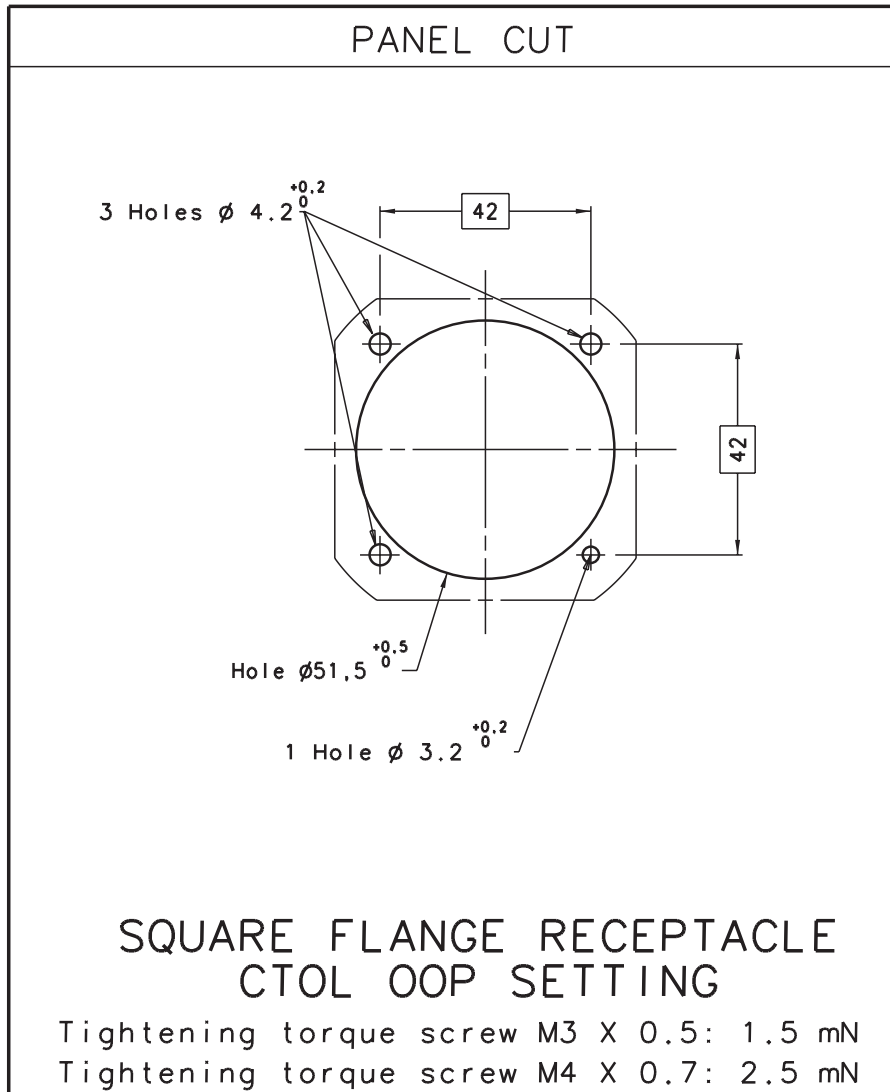
### How to order receptacle patchcord

**CTOL 00M90** ————— **TVOP**



For other configurations consult us.

## ■ CTOL “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)



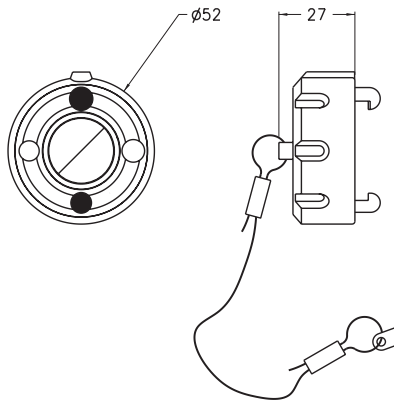


## ■ CTOL SHUNT CAPS

This device makes it possible to test the electronic emitter and receiver as well as the optic receptacle and the link before the optical link deployment in the field.

The loop back is done by channel pairs: channel 1 with channel 2, channel 8 with channel 3, channel 7 with channel 4, channel 6 with channel 5.

### CTOL receptacle protective shunt cap (BPPSA)



The BPPSA is a shunt protective cap for the square flange receptacle used to test the emitter, the receiver and the CTOL receptacle on a vehicle before using the link.

This shunt cap introduces a large insertion loss which is optical power budget dependent and has to be evaluated with the customer (generally 20 dB max).

The BPPSA is delivered with a panel attachment cord and can replace the receptacle protective cap.

The BPBSA is the same as BPPSA but equipped with a protective cap.

### How to order CTOL receptacle protective shunt cap

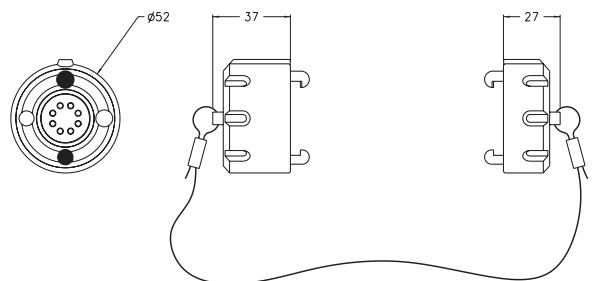
	CTOL	BPPSA	20
Large Optical field Connector _____	_____	_____	_____
Protective shunt attenuating cap panel mounting for square flange: BPPSA _____	_____	_____	_____
Protective shunt attenuating cap for receptacle equipped with a protective cap: BPBSA _____	_____	_____	_____
Insertion loss in dB: _____	_____	_____	_____

## ■ CTOL BSA

The BSA is a plug shunt cap with a low insertion loss, used to test the plug to plug CTOS patchcord on a reel before the optical link is deployed.

The maximum insertion loss is fixed at 4 dB.

The BSA is equipped with a protective cap.

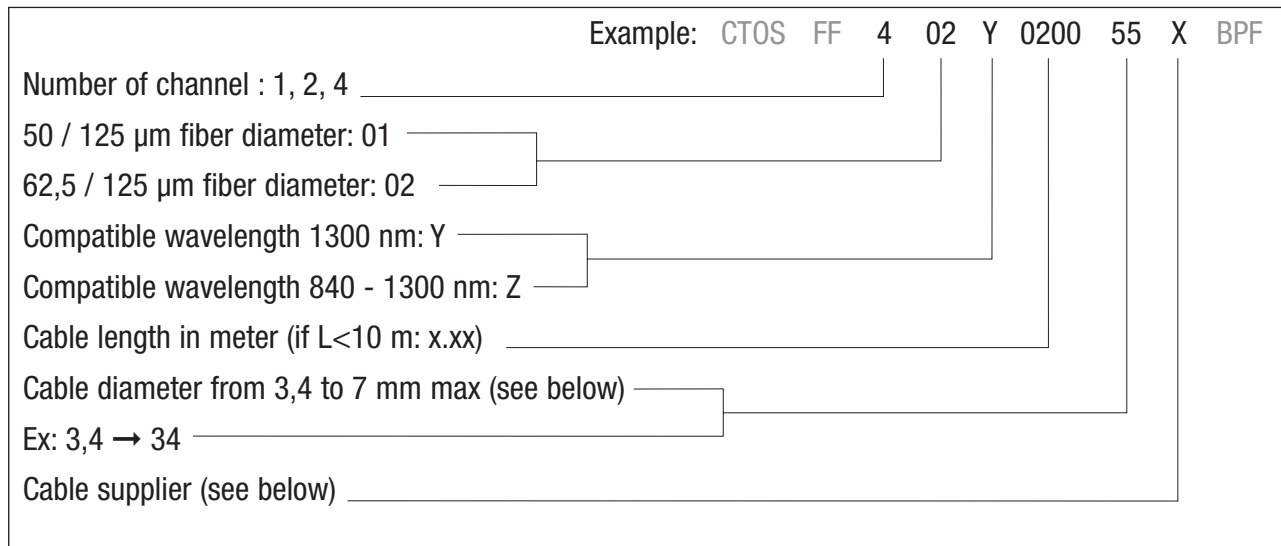


### How to order CTOL plug shunt cap

	CTOL	BSA	4
Large Optical field Connector _____	_____	_____	_____
Attenuating shunt cap for plug equipped with a protective cap: _____	_____	_____	_____
Insertion loss maximum in dB: _____	_____	_____	_____

# Fiber optic cable catalogue

Every “How to order” related to plug, patchcord and receptacles requires fiber optic cables informations as below:



## Cable diameter & supplier:

Cable diameter and supplier have to be indicated in the « How to order » document. They are describe as below under « Specifications to write down ».

Cable diameter (mm)	1.5	1.6	2.8 mono	3 duplex	3 scindex	3.8	5.5	6	6.6	7	7.5
Specifications to write down on the how to order	15	16	28	230	231	38	55	60	65	70	75

Cable suppliers	Specifications to write down on the how to order
NEXANS	A
SPECTRA	S
PIRELLI	P
NOKIA	N
BOSH	B
DRAKA	D
BRUGG	G
No customer requirements	X

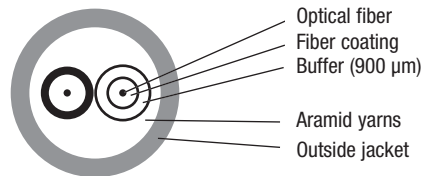
# Tactical cables technical information



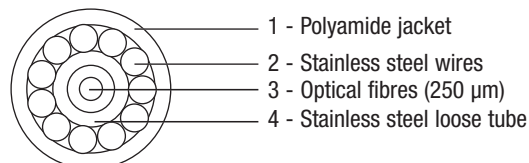
Company		OCC				NEXANS				SPECTRA STRIP		BRUGG		
Number of fibers		2	4	6	8	1	2-4	6	8	1 - 2 - 4 - 6 - 8		1	2	4
Cable diameter mm (in)		5 (0,2)	5,5 (0,22)	6,0 (0,24)	6,5 (0,26)	6 (0,24)	5,4 (0,21)	6,1 (0,24)	6,3 (0,25)	5,5 (0,22)		3,4 (0,13)	3,8 (0,15)	3,8 (0,15)
Cable weight kg/km (lb/1,000ft)		23 (15)	28 (19)	28 (19)	38 (26)	26 (18)	25 (17)	32 (22)	35 (24)	(2-4 core typically) (17)	25	18 (12)	25 (17)	26 (17)
Reinforcing protection		aramid yarns				aramid yarns				aramid yarns		stainless-steel wires		
Outside jacket		polyurethan				polyurethan				spectraloy		polyamid		
Fiber minimum bandwidth	Multimode 850nm (MHz/km)	200 (62,5/125)				500 (50/125) 200 (62,5/125)				200 (50/125) 400 (62,5/125)		500		
	Multimode 1300nm (MHz/km)	500 (62,5/125)				800 (50/125) 500 (62,5/125)				400 (50/125) 600 (62,5/125)		800		
	Single mode 1310nm (GHz/km)	-				-				3,5		3,5		
	Single mode 1550nm (GHz/km)	-				-				18		18		
Fiber maximal attenuation	Multimode 850nm (dB/km)	3 (62,5/125)				3,5				3,5		2,7		
	Multimode 1300nm (dB/km)	1 (62,5/125)				1,5				1,5		0,8		
	Single mode 1310nm (dB/km)	-				0,42				0,45		0,36		
	Single mode 1550nm (dB/km)	-				0,28				0,3		0,25		
Temperature range	Storage	-70°C / +85°C (-94°F / +185°F)				-40°C / +70°C (-40°F / +158°F)				-60°C / +85°C (-76°F / +185°F)		-60°C / +85°C (-76°F / +185°F)		
	Operating	-55°C / +85°C (-67°F / +185°F)				-40°C / +70°C (-40°F / +158°F)				-55°C / +85°C (-67°F / +185°F)		-55°C / +85°C (-67°F / +185°F)		
Minimum bending radius mm (in)		8 X OD cable				60 (2,36)	50 (1,97)			10 X OD cable		30 (1,18)	35 (1,38)	35 (1,38)
Maximum tensile strength	Short term N (lbs.f)	1800 (405)	1800 (405)	1800 (405)	1800 (405)	(IEC 794 1E1) 2200 (495)				(2-4 core typically) (60- 1 part.3 cl.15.1) 2000 (450)		1000 (225)	2500 (562)	1600 (360)
	Operating N (lbs.f)	600 (135)	600 (135)	600 (135)	600 (135)	1300 (292)				(2-4 core typically) 2600		750 (169)	1800 (405)	1100 (247)
Crush resistance N/cm (lbs/in)		(EIA 455 41) 440 (251)				(IEC 794 1E3) 300 (171)				(2-4 core typically) (IEC 60794-1-1 &2) 1200 (685)		2500 (1428)	1200 (685)	1000 (571)
Impact resistance (1J impact)		(EIA 455 25) 200				(IEC 794 1E4) 100				100 min		100 min		
Torsion/torque		(TIA/EIA-455-104) 2000 cycles				(IEC 794 1E8) 30000 cycles				(2-4 core typically) (IEC 60794-1-1) 1000 cycles		10000 min	7000 min	7000 min

Technical information given by the supplier

## Tactical cables with aramid yarn reinforcing protection



## Tactical cable with stainless steel wires reinforcing protection



## **NORTH AMERICA**

### **AMPHENOL Pcd, Inc.**

2 Technology Drive  
Peabody, MA 01960  
Telephone: 1-978-532-8800  
Fax: 1-978-532-6800

### **AMPHENOL AEROSPACE OPERATIONS AMPHENOL INDUSTRIAL OPERATIONS**

40-60 Delaware Street  
Sidney, New York 13838-1395 - USA  
Telephone: 1-607-563-5011  
Fax: 1-607-563-5157

### **AMPHENOL BACKPLANE SYSTEMS**

18 Celina Avenue  
Nashua, New Hampshire 03063 - USA  
Telephone: 1-603-883-5100  
Fax: 1-603-883-0171

### **AMPHENOL CANADA CORPORATION**

20 Melford Drive - Scarborough, Ontario M1B 2X6  
Canada  
Telephone: 1-416-291-4401 Fax: 1-416-292-0647  
1870 boul. des Sources, Suite 204  
Pointe Claire, Quebec H9R 5N4 - Canada  
Telephone: 1-514-630-7242 ext. 225  
Fax: 1-514-630-7697

### **AMPHENOL FIBER OPTIC PRODUCTS- RICHARDSON OPERATION**

1778 North Plano Road, Suite 212  
Richardson, Texas 75081  
Telephone: 1-972-744-9801  
Fax: 1-972-744-9022

### **AMPHENOL FSI**

1300 Central Expwy N, Suite 100  
Allen, TX 75013 U.S.A.  
Toll-Free: 800-472-4225 - Fax: 214-547-9344  
info@fibersystems.com

## **EUROPE**

### **AMPHENOL SOCAPEX**

MIL-AERO & INDUSTRIAL Business Unit  
948 Promenade de l'Arve - B. P. 29  
74311 Thyez Cedex - France  
Telephone: 33-4-5089-2800  
Fax: 33-4-5096-1941

### **AMPHENOL LIMITED WHITSTABLE**

Thanet Way, Whitstable - Kent, CT5 3JF  
United Kingdom  
Telephone: 44-1227-773-200  
Fax: 44-1227-276-571

### **AMPHENOL LIMITED NOTTINGHAM**

Unit D1 Crossgate Drive, Queens Drive Industrial  
Estate - NG2 1LW - Nottingham - United Kingdom  
Telephone: 44-1159-866-200  
Fax: 44-1159-866-212

### **AMPHENOL AIR LB GmbH**

Am Kleinbahnhof 4 - 66740 Saarlouis Germany  
Telephone: 49-6831-981-00  
Fax: 49-6831-981-030

### **AMPHENOL ITALIA**

Via Barbaiana n. 5, 20020 Lainate - Milano - Italy  
Telephone: 39-293-55-03-71  
Fax: 39-348-361-7249

### **AMPHENOL IBERICA**

C/Calderon de la barca, 3 4A, 28 100 Alcobendas,  
Madrid - Spain  
Telephone: 34-91-654-83-52  
Fax: 34-91-640-73-07

### **AMPHENOL SCANDINAVIA**

Snosvängen 14 13466 Ingarö - Sweden  
Telephone: 46-8-571-423-90  
Fax: 46-8-571-423-89

### **AMPHENOL BENELUX**

Zadelmaker 121 NL-2401 PD Alphen aan den Rijn  
The Netherlands  
Telephone: 31-172-444-903  
Fax: 31-172-240-254

### **AMPHENOL CENTRAL EUROPE**

Topolowa 13, 41 600 Swietochlowice - Poland  
Telephone: 48-32-3484-201 - Fax: 48-32-3484-202

### **AMPHENOL EUROPEAN**

#### **SALES OPERATIONS**

Hoofdveste 19 - 3992 DH Houten - The Netherlands  
Telephone: 31-30-635-8000 - Fax: 31-30-637-7034

## **ASIA**

### **CHINA (FOP)**

3rd Floor, The 4th Ind. District of Ind.  
Headquarters Dong Keng Road, Gong Ming Town  
Shenzen 518132, Guangdong Province - PR China  
Telephone: 86-755-717-7945  
Fax: 86-755-717-7622

### **AMPHENOL TAIWAN CORPORATION**

No. 116, Lane 956, Zhong Shan Road  
Taoyuan City, R. O. C., 330 - Taiwan  
Telephone: 886-3-379-5677  
Fax: 886-3-360-7259 Sales/CS/Eng./QA/MIS

### **AMPHENOL EAST ASIA LIMITED**

2201 Railway Plaza, 39 Chatham Road South  
Tsimshatsui, Kowloon - Hong Kong  
Telephone: 852-2699-2663  
Fax: 852-2691-1774

### **AMPHENOL INTERCONNECT INDIA**

#### **PRIVATE LIMITED**

105 Bhosari Industrial Area - Pune 411 026 - India  
Telephone: 91-20-712-0363/0463/0155  
Fax: 91-20-712-0581

### **AMPHENOL JAPAN MIL/AERO INDUSTRIAL**

689-1, Iseochi, Ritto-shi Shiga 520-3044 - Japan  
Telephone: 81-77-553-8501  
Fax: 81-77-551-2200

### **AMPHENOL DAESHIN**

558 Sosa, SongNea  
Bucheon-city, Kyunggi-Do - Korea 420-130  
Telephone: 82-32-610-3800  
Fax: 82-32-673-2507/665-6219

## **REST OF THE WORLD**

### **AMPHENOL MEXICO**

Prolongacion Reforma 61-6 B2  
Col. Paseo de las Lomas - C.P. 013130 Mexico  
Telephone: 52-55-5258-9984  
Fax: 52-55-5081-6890

### **AMPHENOL SOUTH AFRICA**

30 Impala Road  
2196 Chislehurst-Sandton - South Africa  
Telephone: 27-11-783-9517 - Fax: 27-11-783-9519

### **BAR TEC LTD**

4 Hagavish St, PO Box 279 - Kfar Saba 44102 -  
Israel  
Telephone: 972-9-767-4097  
Fax: 972-9-767-4324

### **GESTAS**

34630, Besyol Londra Asfalti  
Florya is Merkezi Kat.2 - Sefakoy / Istanbul - Turkey  
Telephone: 90-212-624-52-29  
Fax: 90-212-599-30-68

### **AMPHENOL ARGENTINA**

"Av. Callao 930 2do piso Oficina B "Plaza"  
C1023" - AAP Buenos Aires - Argentina  
Telephone: 54-11-4815-6886  
Fax: 54-11-4814-5779

### **TFC SOUTH AMERICA**

#### **BUENOS AIRES, ARGENTINA**

Local Sales Office - Tucuman 540 - Suite 28 "C"  
C1049AAL- Buenos Aires - Argentina  
Telephone: 54-11-4325-3471  
Fax: 54-11-4327-1339

### **AMPHENOL AUSTRALIA PTY LIMITED**

2 Fiveways Blvd., Keysborough  
Melbourne, Victoria 3173 - Australia  
Telephone: 61-3-8796-8888  
Fax: 61-3-8796-8801

### **AMPHENOL DO BRAZIL**

Rua Diogo Moreira, 132, 20 andar, rooms 2001-2-3  
CEP: 05423-010 Sao Paulo SP - Brazil  
Telephone: 55-11-3815-1003  
Fax: 55-11-3815-1629

Amphenol reserves the right to change the content of this document without prior notice

**Amphenol**  
Fiber Optic Solutions

Realisation : wagen:studios - Steven Kilgallon - 01/2004  
Printed in France by MenloPark

For more informations, please consult our website :  
[www.amphenol-fiberopticsolutions.com](http://www.amphenol-fiberopticsolutions.com)

DOC-000502-ANG