



# FLUIDIC/PNEUMATIC CONNECTORS

- *Quick connect/disconnect design*
- *Available in single or multiple tubes or mixed with electrical contacts*
- *Working pressure up to 100 psi*



LEUIS000028

# Fluidic Connectors

# Series 00-B

LEMO fluidic connectors find many applications, for example in medical and dentistry equipment among many others. These connectors may be of the monotube type available in the Series 00 and 0B or of the multitube type and/or mixed with electrical contacts available in the Series 2B, 3B, and 4B. On request other types not mentioned in this catalog can be developed. **Mixed connectors combining fluidic and signal contacts are also available. Please see LEMO's B/S Series catalog for more information. Fluidic connectors may also be used in pneumatic applications.**

## Interconnections

### Series 00

#### Straight Plug

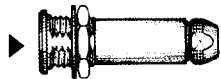


FFA

#### Straight Sockets



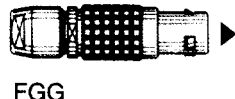
PCA



PSA

### Series B

#### Straight Plug



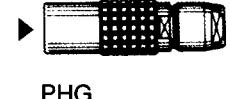
FGG

#### Fixed Socket

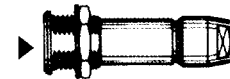


EGG

#### Straight Sockets



PHG



PKG

## Model Description

### Monofluidic (Series 00)

- FFA** Straight plug with cable collet
- PCA** Free socket with cable collet
- PSA** Fixed socket, nut fixing, with cable collet

### Monofluidic (Series 0B)

- FGG** Straight plug with key (G) or keys (code A...M) and cable collet
- PHG** Free socket with key (G) or keys (code A...M) and cable collet
- PKG** Fixed socket, nut fixing, with key (G) or keys (code A...M) and cable collet

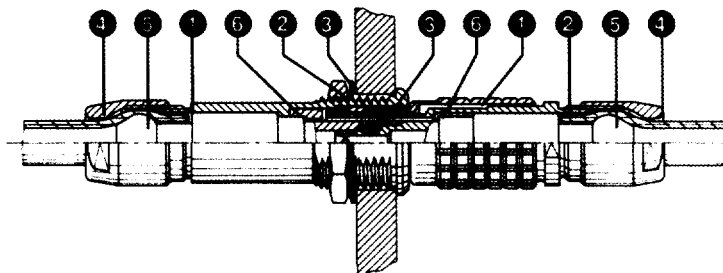
### Multifluidic and Mixed (Series 2B - 4B)

- EGG** Fixed socket, nut fixing, with key (G) or keys (code A...M)
- FGG** Straight plug with key (G) or keys (code A...M) and cable collet
- PHG** Free socket with key (G) or keys (code A...M) and cable collet
- PKG** Fixed socket, nut fixing, with key (G) or keys (code A...M) and cable collet

## Part Section Showing Internal Components (Monofluidic - Series 0B)

### Fixed Socket

- ① shell
- ② hexagonal nut
- ③ locking washer
- ④ collet nut
- ⑤ tube support
- ⑥ retaining ring



### Straight Plug

- ① outer shell
- ② latch sleeve
- ③ O-ring
- ④ collet nut
- ⑤ tube support
- ⑥ retaining ring

## Technical Characteristics

### Material and Treatment

Component	Material (Standard)	Surface treatment (µm)			
		Cu	Ni	Cr	Au
Outer shell and collet nut	Brass (ASTM C 385)	0.5	3	0.3	
	Aluminum (AISI 6262)	anodized			
Latching sleeve	Special brass	0.5	3		
Tube support	Brass (ASTM C 385)	0.5	3		
Retaining ring	Brass (ASTM C 385)	0.5	3		
Locking washer	Bronze (ASTM C 521)	0.5	3		
Insulator	PEEK (MIL-P-46183)				
Male contact	Brass (ASTM C 385)	0.5	3		1.5
Female contact	Bronze (ASTM C 544)	0.5	3		2.0
O-ring	Silicone rubber				

### Mechanical and Climatical

Characteristics	Unit	Series			
		00	0B	2B	3B
Max. working pressure	bar	2	2	0.5	0.5
Endurance	cycles	> 1000			
Operating temperature	°C	-15 +30 (+5°F +86°F)			

The surface treatment standards are as follows:  
 - Nickel FS-QQ-N-290A  
 - Chrome FS-QQ-C-320B

Data subject to change.

## Part Number Example

**Model:** see below

**Series:** 00/0B-2B-3B-4B

**Type:** pages 4 & 5

**Housing:**

C = chrome plated brass (standard)  
L = anodized aluminum<sup>3)</sup> (on request)  
S = stainless steel (on request)

**Insulator:**

L = PEEK  
Z = without insulator<sup>1)</sup>

**Variant<sup>3)</sup>**

∅ Tube or collet:  
page 6

**Fixing type:** page 6  
D = cable collet  
N = tube support<sup>1)</sup>

**Contact type:**  
A = male solder  
C = male crimp  
L = female solder  
M = female crimp  
Z = without contact<sup>2)</sup>

FGG.0B.010.CZZN50 Straight plug with key (G), 0B series, monofluidic type fitted with one fluidic tube, chrome plated brass outer housing, nickel plated brass tube support for a 5.0 mm OD tube.

**Notes:**

- 1) For monofluidic (010) types only.
- 2) For monofluidic (010) and multifluidic (040) types only.
- 3) The 'variant' position of the part number is used to indicate the anodizing color of aluminum shells. The colors available and their corresponding reference letters are to the right.

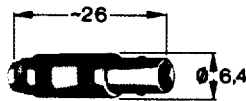
**Note:** All dimensions are in millimeters.

	Anodizing color		Anodizing color
A	blue	R	red
J	yellow	T	natural
N	black	V	green

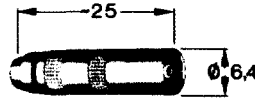
## Models (see page 2 for Model Descriptions)

### Series 00

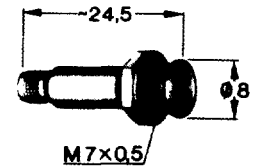
FFA



PCA

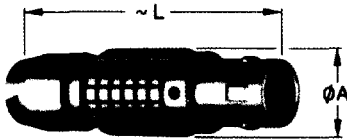


PSA

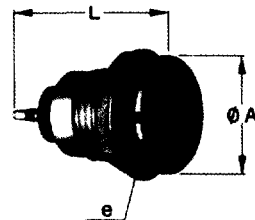


### Series B

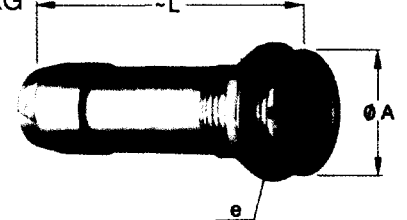
FGG



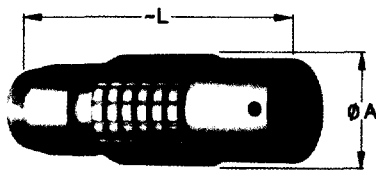
EGG



PKG



PHG

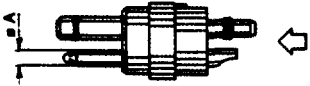
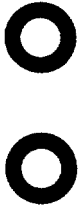




Model	Dim.	Series			
		0B	2B	3B	4B
FGG	A	9.5	15.0	18.0	25.0
	L	36.0	49.0	59.0	75.0
EGG	A	–	18.0	22.0	28.0
	e	–	M15x1	M18x1	M25x1
PHG	A	9.5	16.5	19.0	24.4
	L	35.0	47.0	56.0	73.0
PKG	A	10.0	18.0	22.0	28.0
	e	M9x0.6	M15x1	M18x1	M25x1
	L	35.5	37.0	56.0	73.0

Data subject to change.

# Types

## Fluidics and Fluidics + LV

		Reference	Fluidic						Low Voltage (LV)										
			Standard Group	Watertight Group	Number of Tubes	O.D. of Tube	I.D. of Tube	I.D. of Contact	Max. working pressure (bar)	Number of Contacts	Contact Ø	Contacts Type		Working Voltage (kV rms)	Working Voltage (kV dc)	Test Voltage (kV rms)	Test Voltage (kV dc)	Rated Current (A)	Tube or Collet Ø <sup>2)</sup>
												Solder	Crimp						
00		010	00 -	1	2.2	1.4	0.9	2.0	-	-	-	-	-	-	-	-	-	22	
		010	00 -	1	3.2	1.9	0.9	2.0	-	-	-	-	-	-	-	-	-	32	
0B 0K		010	0B 0K	1	5.0	4.0	1.6	2.0	-	-	-	-	-	-	-	-	50		
2B 2K		012	2B 2K	1	2.6	2.2	1.3	0.5	4	0.9	●	●	0.33	0.50	1.0	1.50	8	1)	
		013	2B 2K	1	3.6	3.2	1.6	0.5	6	0.7	●	○	0.40	0.60	1.2	1.80	5	1)	
		015	2B 2K	1	2.6	2.2	1.3	0.5	10	0.7	●	○	0.33	0.50	1.0	1.50	4	1)	

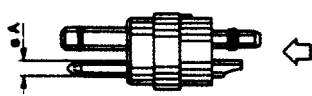





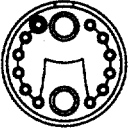
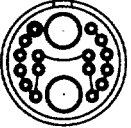
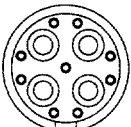
- 1) Refer to the table for the diameters of the collets.
  - 2) For the monofluidic connector types (00, 0B) this diameter indicates the outside diameter of the fluidic tube being fitted.
- Available
  - On request

All the "B" Series inserts may be used in our Environmental "K" Series.  
Please see our K/E catalog for shell configurations.

Data subject to change.

# Types

## Fluidics and Fluidics + LV

		Reference	Standard Group	Watertight Group	Fluidic					Low Voltage (LV)									
					Number of Tubes	O.D. of Tube	I.D. of Tube	I.D. of Contact	Max. working pressure (bar)	Number of Contacts	Contact Ø	Contacts Type		Working Voltage (kV rms)	Working Voltage (kV dc)	Test Voltage (kV rms)	Test Voltage (kV dc)	Rated Current (A)	Tube or Collet Ø <sup>2)</sup>
												Solder	Crimp						
<b>3B 3K</b>		022	3B 3K	2	2.6	2.2	1.3	0.5	4	0.9	●	●	0.40	0.60	1.2	1.80	8	1)	
		023	3B 3K	2	2.6	2.2	1.3	0.5	6	0.9	●	●	0.40	0.60	1.2	1.80	8	1)	
		025	3B 3K	2	2.6	2.2	1.3	0.5	10	0.7	●	○	0.20	0.28	0.6	0.85	5	1)	
		040	3B 3K	4	2.0	1.6	0.7	0.5	-	-	-	-	-	-	-	-	-	1)	
		042	3B 3K	4	2.0	1.6	0.7	0.5	4	0.7	●	○	0.20	0.28	0.6	0.85	5	1)	
<b>4B 4K</b>		026	4B 4K	2	2.6	2.2	1.3	0.5	12	0.9	●	●	0.40	0.60	1.2	1.80	4	1)	
		028	4B 4K	2	2.6	2.2	1.3	0.5	16	0.9	●	●	0.40	0.60	1.2	1.80	4	1)	
		049	4B 4K	4	2.6	2.2	1.3	0.5	9	0.7	●	○	0.33	0.50	1.0	1.50	3	1)	

1) Refer to the table for the diameters of the collets.

2) For the monofluidic connector types (00, 0B) this diameter indicates the outside diameter of the fluidic tube being fitted.

- Available
- On request

**All the "B" Series inserts may be used in our Environmental "K" Series.  
Please see our K/E catalog for shell configurations.**

Data subject to change.



## Collets

Reference		Series	Tube $\varnothing$
Type	$\varnothing$		
N	22	00	22
N	32		32

Reference		Series	Cable OD	
Type	$\varnothing$		max.	min.
M	21	2B	2.0	1.5
M	31		3.0	2.1
M	42		4.0	3.1
D	52		5.0	4.1
D	62		6.0	5.1
D	72		7.0	6.1
D	82		8.0	7.1
D	92		9.0	8.1
D	99		9.7	9.1

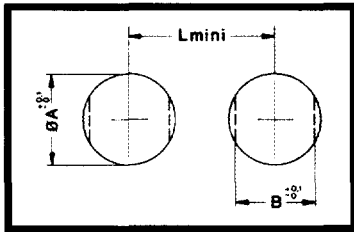
Reference		Series	Cable OD	
Type	$\varnothing$		max.	min.
M	52	3B	5.0	4.1
D	62		6.0	5.1
D	72		7.0	6.1
D	82		8.0	7.1
D	92		9.0	8.1
D	10		10.0	9.1
D	11		11.0	10.1
D	12		11.7	11.1

Reference		Series	Cable OD	
Type	$\varnothing$		max.	min.
M	62	4B	6.0	5.1
M	72		7.0	6.1
M	82		8.0	7.1
M	92		9.0	8.1
D	10		10.5	9.1
D	12		12.0	10.6
D	13		13.5	12.1
D	15		15.0	13.6
D	16		16.0	15.1

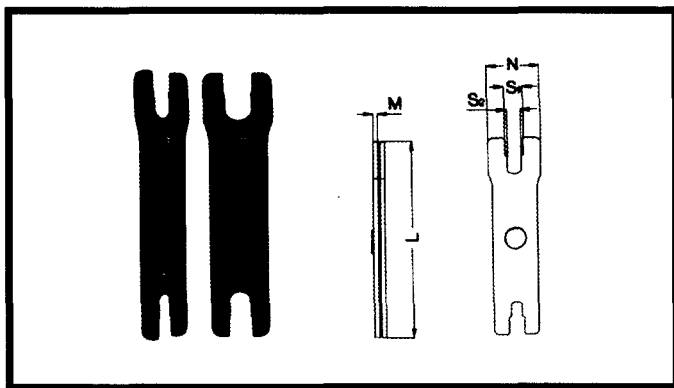
- Contact LEMO USA for K Series collet specification.

## Cut-out and Mounting Nut Torque

### Panel Cut-out



Series	Dimensions			Torque (lbf.-in.)
	A	B	L	
00	7.1	6.4	11.5	18 lbf.-in.
0B	9.1	8.3	13.6	25 lbf.-in.
2B	15.1	13.6	21.5	60 lbf.-in.
3B	18.2	16.7	27.0	100 lbf.-in.
4B	25.2	23.6	34.0	150 lbf.-in.



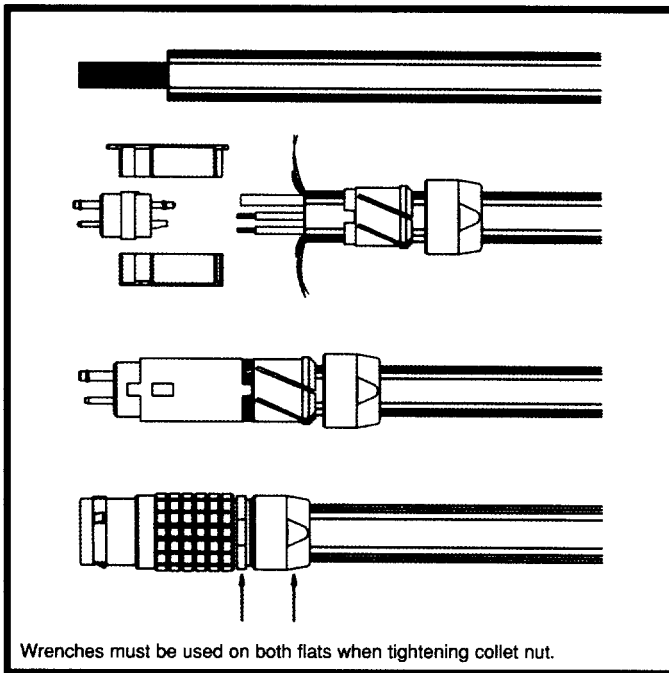
### Wrenches for Tightening Backnut

Part Number	Series	Dimensions (mm)				
		L	M	N	S1	S2
DCP.91.001.TN	0B	95	2.5	21	8.1	7.1
DCP.91.023.TN	2B	115	3.0	30	13.1	12.1
DCP.91.023.TN	3B	115	3.0	35	15.1	14.1
DCP.91.045.TN	4B	130	3.5	40	21.2	20.2

Material: steel blackened

Data subject to change.

# Assembly Instructions



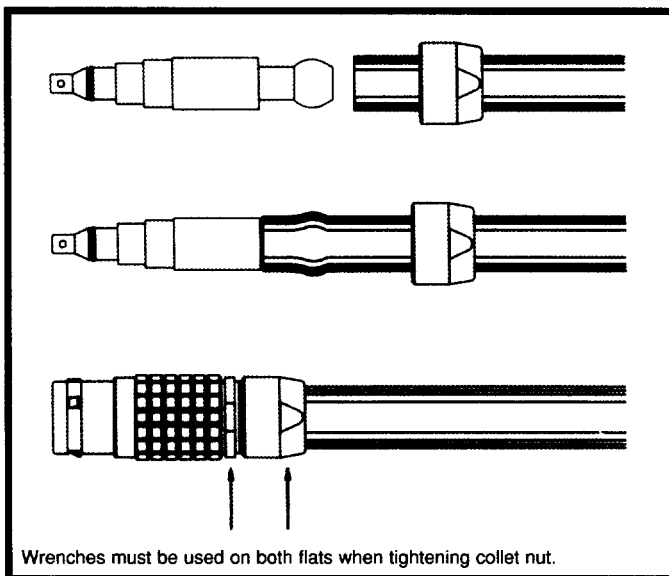
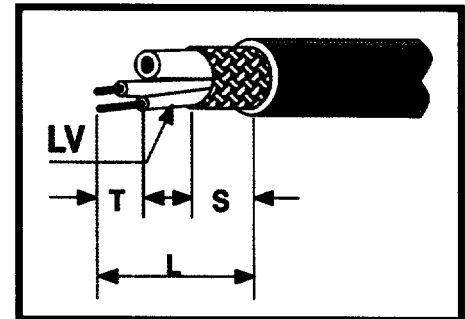
## Connector Assembly Mixed Fluidic/Pneumatic + Electrical

1. Strip cable jacket as shown.
2. Slide collet nut and collet onto cable. If connector shell is to be grounded, fray shielding as shown.
3. Strip conductor insulation to dimension as shown below.
4. Slide tubing over fluidic/pneumatic contact.
5. Terminate contacts using solder methods.
6. Position midpieces on insert as shown, making sure that insert key appears through midpiece window.
7. Position collet as shown.
8. Fold and trim shielding over collet flange making sure to keep collet keying slot clear.
9. Install outershell and tighten collet nut to specified torque value by holding shell while tightening back nut (two wrenches will be required). The use of a removable thread locking compound is recommended (see page 3).

Connector		Contact Ø (mm)	Conductor Stripping Lengths (mm)			Maximum Collet Nut Torque (in-lbs)
Series	Type		Low Voltage Conductors			
			L	S	T	
1B	012	0.9	17	9	3.0	9
2B	013	0.7	17	9	3.0	11
3B	025	0.7	21	10	3.0	15

The tolerances of these dimensions are L,L<sub>1</sub>: ±4%; S,S<sub>1</sub>: ±3%; T,T<sub>1</sub>: ±5%; and M: ±4%.

Cable stripping lengths for fluidic contact will vary according to individual applications.



## Connector Assembly Mono-Fluidic/Pneumatic

1. Slide collet nut over tubing as shown.
2. Slip tubing completely over midpiece.
3. Install outershell and tighten collet nut to specified torque value by holding shell while tightening collet nut (two wrenches will be required).

Data subject to change.

# LEMO's Family of Quality Connectors

LEMO manufactures precision engineered circular self-latching quick connect-disconnect electronic connectors for a wide variety of applications.

## Keyed Connectors

(multi and mixed contact configurations)

### B Series Features:

- Contact arrangements from 2-64 pins and mixed configurations including coaxial, triaxial, fiber optic, fluidic/pneumatic and high voltage
- Wire gauges range from 8-30 AWG.
- Vacuum sealed shells
- Alignment key on the shell which prevents errors in alignment.
- Polarized keying system which enables keying exclusivity and prevents accidental cross mating of similar connectors.
- High contact density in a small amount of space.
- Contact terminations in either solder, crimp, or printed circuit.

### S Series Features:

- Contact arrangements from 1-106 pins and mixed configurations including coaxial, triaxial, fluidic/pneumatic and high voltage.
- Wire gauges from 4-26 AWG.
- Hermaphroditic inserts which assure proper contact alignment and quick-disconnect design.
- Contact terminations in solder or printed circuit.
- Vacuum sealed shells.

**C & G Series (compact) Connectors:** Multiple and coaxial contact connectors in a specially designed short shell for space saving applications.

## Environmentally Sealed Keyed Connectors

### K Series Features:

- Environmental connectors with triple wall construction to provide water and dust resistance.
- Mechanically keyed.
- Contact configurations identical to the B Series Connectors.

### E Series Features:

- Environmental connectors with triple wall construction to provide water and dust resistance.
- Hermaphroditic inserts.
- Contact configurations identical to the S Series Connectors.

## NIM-CAMAC Coaxial Miniature Connectors

**00-NIM-CAMAC - 50 ohm:** (Nuclear Instrumentation Module, Computer Automated Measurement and Control).

Recommended cables:

RG.58C/U	RG.180B/U	RG.316/U
RG.174A/U	RG.187A/U	CCE.99.281.505
RG.178B/U	RG.188A/U	CCH.99.281.505
RG.179B/U	RG.196A/U	HF-2114 Dätwyler

## Other Coaxial/Triaxial Connectors

**01-MINAX Series - 50 ohm:** LEMO's smallest coaxial connectors. Recommended cables:

RG.174A/U	RG.196A/U	CCE.99.281.505
RG.178B/U	RG.316 /U	CCH.99.281.505
RG.188A/U		

**0A-Telecommunications Series 50 & 75 ohm:** Designed with contacts to accommodate the following cables:

RG.58C/U	CCH.99.281.505 LEMO
RG.59B/U	2YCY (0.4/2.5) Siemens
RG.174A/U	2YCCY (0.4/2.5) Siemens
RG.179B/U	0722 102 11 001 Philips
RG.316/U	0722 102 29 011 Philips
CCE.99.281.505 LEMO	HF-5408/1 Dätwyler

**Standard Series Coaxial and Triaxial Connectors:** Other 50 and 75 ohm coaxial and triaxial connectors are available to accommodate cables up to .886"/22.0mm. These are also available in an environmentally sealed design.

**Video Triax Connectors:** LEMO's triaxial series is designed for video camera applications. Recommended cables:

8232-Belden	12766601-F&G
HF-2426-Dätwyler	8233-Belden
12765700-F&G	9232-Belden
9267-Belden	10070-C-G14-BIW
10069-C-G20-BIW	12766700-F&G
12766400-F&G	4.6/1.0EFTX-Fujikura

## Other LEMO Connectors

**Underwater Connectors - 03 Series and V Series:**

- Available in 50 ohm coaxial, triaxial, mixed and multicontact configurations up to 48 pins.
- Accommodates a maximum cable of 23.5mm.
- O-ring seals and locking nut to assure against water penetration and accidental unmating.
- Watertightness and stability guaranteed for up to 870 psi or severe vibration conditions.

**High Voltage Series:**

- S Series High Voltage Connectors available in a large range of sizes featuring teflon inserts and a time proven design.
- Y Series High Voltage Connector in a long shell design insuring mechanical mating prior to contact engagement.
- 0S and 1S Series High Voltage Connectors distinguished by their favorable size to voltage relationship.
- Multi High Voltage Connectors in sizes 4B and 5B for applications where multiple high voltage contacts are desired.

**Fiber Optic Connectors:** LEMO's fiber optic connectors are designed for single mode and multimode transmission on single or multi-fibers. Terminations are made by the cut and epoxy/polish method. A full range of fiber sizes are available.

**Plastic Connectors:** Plastic connectors in PSU or autoclaveable PEI shells ranging in contact arrangements from 26 contacts accommodating a cable Ø of 2.7-9mm.

**Fluidic Connectors:** Available in single or multiple tubes as well as mixed with electrical contacts with working pressure up to 2 bar (29 psi).

**Thermocouple Series:** LEMO's Thermocouple connectors are designed to assure continuous and accurate monitoring of hostile environments where extreme surface or ambient temperatures, gases or liquids must be controlled.

**Cable Assemblies:** LEMO manufactures complete cable assemblies with both coaxial and multi-conductor cables. Assemblies can be fabricated from customer-owned cables or LEMO can provide all materials. LEMO capabilities include cable assembly design, fabrication, continuity and capacitance testing, and heat stamped cable or shrink marker identification.

**Custom Designs:** For more information please contact LEMO.