



Push-through Feedthroughs

Change feedthroughs without breaking hermetic seals

KEY BENEFITS

- Hermetic insert feedthrough can be replaced during maintenance and upgrades without breaking the hermetic seal and thus contaminating the outside environment.
- Quick installation
- Feedthrough conductor options include connectors, wires, cables, and fibers
- Bulkhead housing options include O-ring face seals, weld-in, NPT, bolt on flange and custom
- 100% QC checked for electrical & hermetic performance prior to shipment

ORDERING AND DELIVERY

- Engineered and manufactured in the USA
- Made to order in 4 to 6 weeks
- Expedite options available
- Ongoing technical support

CERTIFICATIONS AND STANDARDS

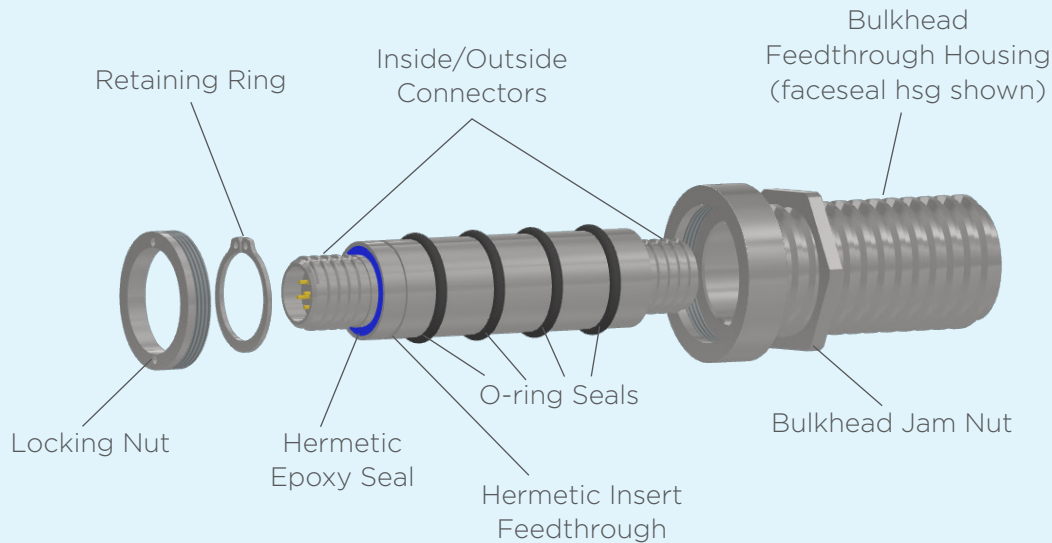
- ITAR-DDTC
- DFARS
- ISO-9001:2015
- ISO-14001:2015
- Traceability and MIL certifications available
- IPC-620
- Tested in accordance with MIL-STD-810
- On LANL's IESL (Institutional Evaluated Supplier List) in compliance with NQA-1

CONNECTION OPTIONS INCLUDE:

- Circular connectors including MIL-spec, metric, and NEMA power
- USB, RJ-45/CAT6, and Coaxial
- Fiber Optic
- High Voltage



FACESEAL O-RING ASSEMBLY EXAMPLE



*not representative of other bulkhead housings

Bulkhead Feedthrough Housing – Install the feedthrough housing directly into the bulkhead or glovebox opening.

Bulkhead Jam Nut – Used on face seal housing to secure the housing to the wall of the glovebox. An O-ring is compressed against the outside wall to create a hermetic seal. Jamnut torque specifications are thread specific.

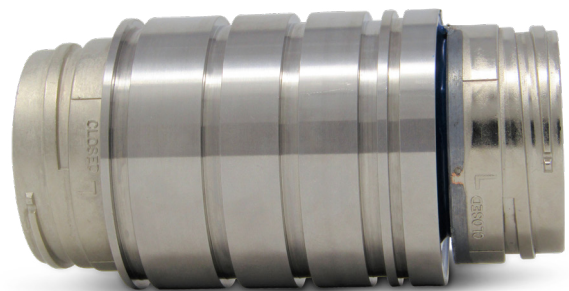
Hermetic Insert Feedthrough – The insert is the replaceable hermetic push-through. Four O-ring seals are used to hermetically seal the feedthrough within the bulkhead housing, even during replacement and upgrades.

Hermetic Epoxy Seals – Douglas Electrical employs a chemically inert hermetic epoxy to seal virtually any type of electrical or fiber connection within the insert housing, creating high-density customized hermetic solutions.

Inside and Outside Connector – Customers can specify the connectors and/or wires required to meet their program needs.

Locking Nut – On face seal housings Douglas supplies a locking nut to hold the insert housing into the bulkhead feedthrough housing. The customer tightens the locking nut to secure the insert housing within the feedthrough housing.

Retaining Ring – The retaining ring keeps the insert housing from being pulled inside the system during install or operation.



SPECIFICATIONS

Housing Material	300-series stainless steel with MIL certs standard. Consult factory for other material options.
O-ring Materials	Viton, Nitrile standard; contact factory for other options.
Connector Feedthrough Configuration	Receptacle/Pin to Receptacle/socket standard on MIL-spec connectors; contact factory for other available options
Leak rate	100% QC tested to $<1 \times 10^{-8}$ cc He/sec. Contact factory for more options.
Voltage Rating	100% QC tested to 600VAC or to design requirements
Pressure Rating	100 PSI standard, higher pressures available upon request.
Operating temperature	-40°F to 225°F (-40°C to 107°C) Consult factory for expanded thermal range assemblies.
Radiation	Per AECL report, After exposure of radiation at a dose rate of 1.5×10^6 rad/hr, we were able to maintain a leakage rate of $<1 \times 10^{-8}$ cc-He/sec when we accumulated a total dose of 50Mrads (AECL 29-63174-300-000).
Flame Resistance	UL File No. E92366 rated UL-94HB; Also tested at White Sands by NASA: WSTF 79-11713, JSC #0945, NASA NHB 8060.1A. Passed. Self extinguished and no ignition @ 130 amps on a #12 AWG wire.
Water Vapor Transmission (Per ASTM E-96-80)	7×10^{-5} gms/cm ² /day, 0.125 mil sample thickness

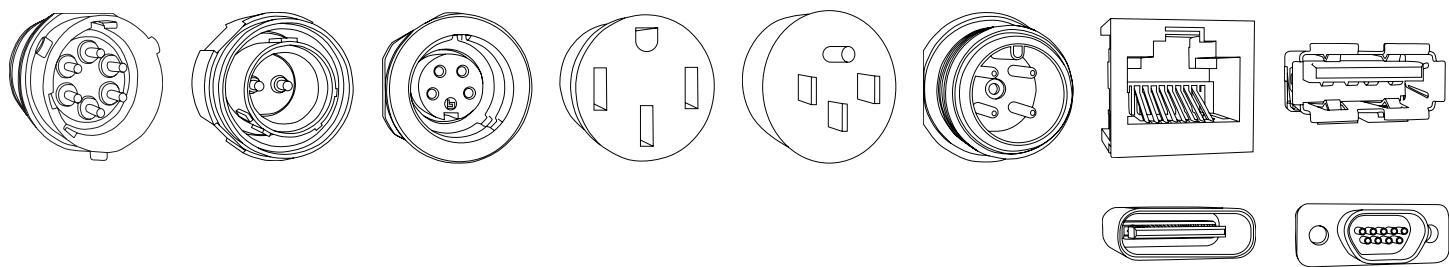
CERTIFICATIONS

Quality System	ISO 9001:2015; ISO 140001:2015
Workmanship	IPC-620 certified operators
ITAR	ITAR-DDTC
Traceability	MIL certs standard, vendor traceability available upon request.
Design and Manufacturing site	Randolph, NJ USA

MECHANICAL INTERFACES

Housings
Weld-in
NPT
Faceseal O-ring
Non-standard: bolt-on flanges, custom designs

COMMON CONNECTOR TYPES



STANDARD

MIL-Spec

- 38999
- 26482
- 5015

Industrial/Commercial

- 120V (NEMA 5-15P)
- 240V (NEMA 14-50P)
- RJ-45/CAT-6
- USB Type C
- USB 3.0 Type A

NON-STANDARD

MIL-Spec

- 24308 D-sub
- 83513 Micro-D

Fiber Optic

- ST
- LC
- MTP

Industrial/Commercial

- Metric connectors
- Power connectors (NEMA and IEC)
- Banana jacks
- Thermocouples
- Push-pull connectors
- High voltage
- High current/ampereage
- Coaxial

Note: Other connectors and configurations available including wires, cables, and liquid and gas fluid lines.
Contact factory with questions.

ACCESSORIES

Douglas Electrical Components offers a variety of accessories to customers to include with the push-through assembly including:

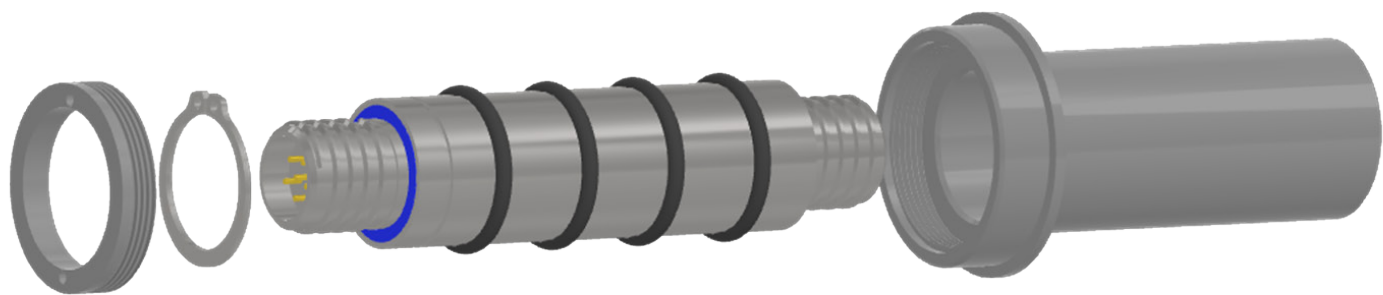
- Mating connectors
- Mating connector cable harnesses
- Strain reliefs (right angle and straight)
- Protective connector caps
- Installation tool
- Retaining ring
- Locking nut
- O-rings (Viton and Nitrile standard)

BLANK INSERT PLUG ACCESSORY

P	2	V
Plug	Size	O-ring Material
P-	1	V - Viton
	2	N - Nitrile
	3	

Note: Please note that the locking nut and retaining ring are not included in purchase of blank insert plugs.

ORDERING INFORMATION MATRIX



	PTR	5015-22-2	V	N	MATES	000	
Feedthrough Style	└─┘						
PTR =Push Through Receptacle							
Connector Identifier	└─┘	└─┘					
See Connector Series Table							
Insert O-ring Material			└─┘				
V = Viton							
N = Nitrile							
				└─┘			
					└─┘		
						└─┘	Special Codes
							Blank = No Special Options
							Set / Mates
							Blank = No Mates
							Mates = w/mates (no harness)
							Harness = w/custom harness
							Bulkhead Housing
							00 = No Housing required
							W = Weld-in
							N = NPT
							F = Faceseal

Notes:

- Housing material option defines insert housing, bulkhead housing, snap ring, and locking nut where applicable.
- Connector table defines the housing size. Dimensions available on page 7.

CONNECTOR SERIES

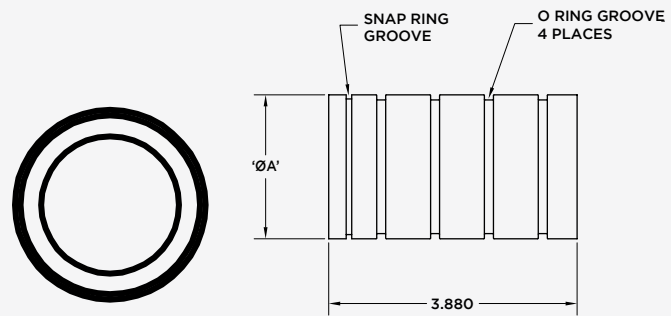
	Pin Count	AWG	Connector Series	Insert Arrangement	Connector Identifier for Model Matrix	Insert Housing Size (Diameter inches)
MIL-SPEC CONNECTORS	3	8	5015	22-2	5015-22-2	2 (2")
	3	12	5015	16-10	26482-16-10	2 (2")
	3	16	26482 II	12-3	26482-12-3	1 (1.25")
	4	12	26482 II	14-4	26482-14-4	2 (2")
	5	16	38999 I	15-5	38999-15-5	2 (2")
	6	12	38999 I	17-6	38999-17-6	2 (2")
	6	22	38999 I	09-35	38999-09-35	1 (1.25")
	7	8	5015	24-10	5015-24-10	3 (2.5")
	8	16	26482 II	16-8	26482-16-8	2 (2")
	8	20	38999 I	13-8	38999-13-8	2 (2")
	10	12	5015	28-20	5015-28-20	3 (2.5")
	11	16	26482 II	18-11	26482-18-11	2 (2")
	11	16	5015	20-33	26482-20-33	2 (2")
	13	22	38999 I	11-35	38999-11-35	1 (1.25")
	19	12	26482 II	24-19	26482-24-19	2 (2")
	21	16	26482 II	22-21	26482-22-21	2 (2")
	21	16	38999 I	23-21	38999-23-21	3 (2.5")
	22	22	38999 I	13-35	38999-13-35	2 (2")
	29	16	38999 I	25-29	38999-25-29	3 (2.5")
	31	16	26482 II	24-31	26482-24-31	3 (2.5")
	32	20	26482 II	18-32	26482-18-32	2 (2")
	37	22	38999 I	15-35	38999-15-35	2 (2")
	55	20	26482 II	22-55	26482-22-55	2 (2")
	55	20	38999 I	23-55	38999-23-55	3 (2.5")
	55	22	38999 I	17-35	38999-17-35	2 (2")
	61	20	38999 I	25-61	38999-25-61	3 (2.5")
	66	22	38999 I	19-35	38999-19-35	2 (2")
	79	22	38999 I	21-35	38999-21-35	2 (2")
	100	22	38999 I	23-35	38999-23-35	3 (2.5")
	128	22	38999 I	25-35	38999-25-35	3 (2.5")
INDUSTRIAL & COMMERCIAL CONNECTORS	N/A	N/A	120V - NEMA 5-15	N/A	120V	3 (2.5")
	N/A	N/A	240V - NEMA 6-20	N/A	240V	3 (2.5")
	N/A	N/A	RJ45/CAT-6	N/A	RJ45	2 (2")
	N/A	N/A	USB-C	N/A	USBC	1 (1.25")
	N/A	N/A	USB 3.0	N/A	USB3	1 (1.25")

Denotes maximum MIL-spec connector pin count for housing size.

DIMENSIONAL DATA

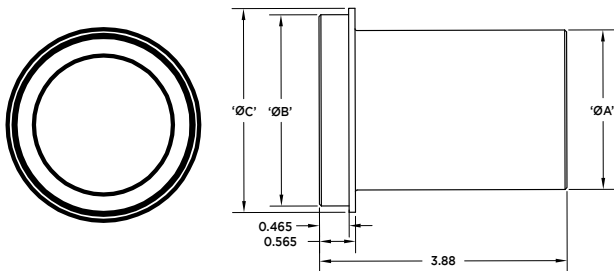
HERMETIC RADIAL O-RING INSERT

Insert Size	'ØA'	O-ring Size
1	1.248"	2-121
2	1.998"	2-133
3	2.498"	2-141



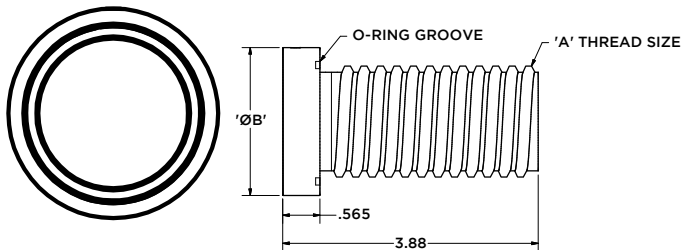
BULKHEAD HOUSING

WELD-IN BULKHEAD HOUSING



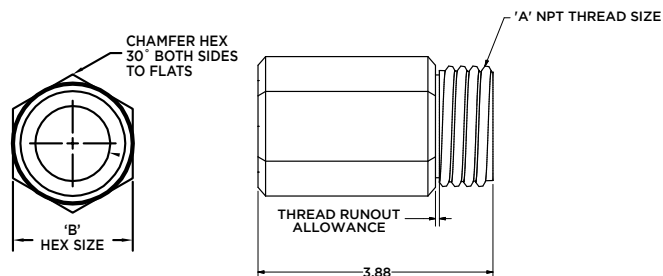
Insert Housing Size	'ØA'	'ØB'	'ØC'
1	1.50"	2.00"	2.20"
2	2.50"	3.00"	3.20"
3	3.00"	3.50"	3.70"

FACESEAL BULKHEAD HOUSING



Insert Housing Size	'A'	Ø'B'	Through Hole Dimensions	O-ring Size
1	1 1/2" - 18	2.25"	1.51"	2-130
2	2 1/2" - 16	3.25"	2.51"	2-146
3	2 3/4" - 16	3.50"	2.76"	2-151

NPT BULKHEAD HOUSING



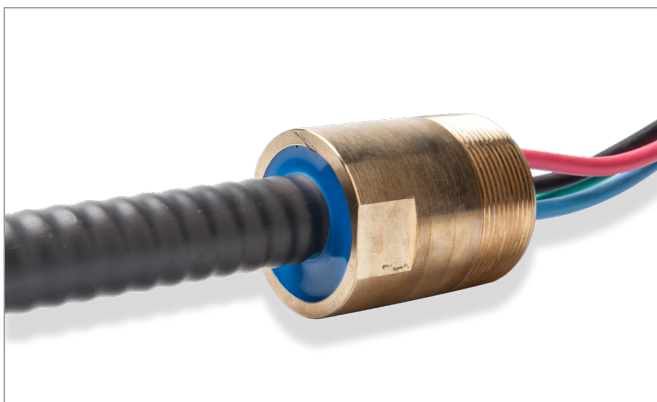
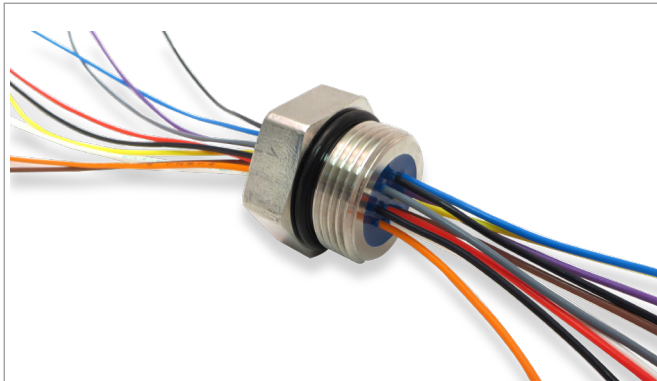
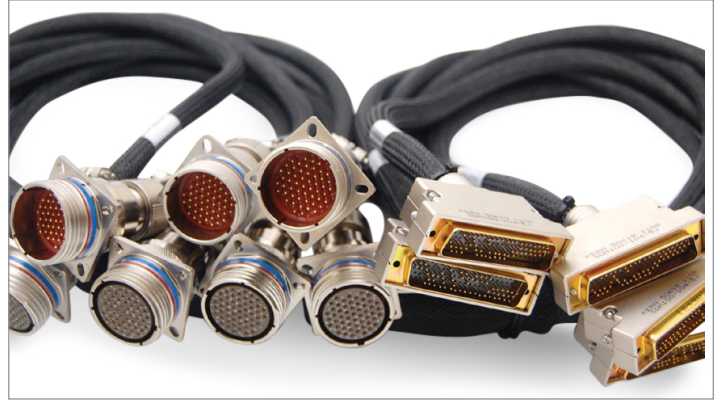
Insert Housing Size	'A' NPT Thread	'B'
1	1 1/2" NPT	2.00"
2	2 1/2" NPT	3.00"
3	2 1/2" NPT	3.50"

FIND MORE GLOVEBOX HERMETIC SOLUTIONS

Douglas Electrical provides reliable epoxy-based sealing solutions for nuclear, medical and laboratory glove boxes—bringing power, signal and data into critical environments while protecting operators from hazardous conditions or substances. Our sealing technologies are hermetically, electrically and optically tested for long-term performance in applications involving inert atmosphere containment and hazardous material handling. All of our feedthroughs are engineered and manufactured in the United States.

POPULAR PRODUCT TYPES INCLUDE:

- Hermetic bulkhead connectors
- D-sub / Micro-D Feedthroughs
- USB Feedthroughs
- Convenience Feedthroughs
- 120V/240V
- Wire/Cable Feedthroughs including optical fiber
- Non-hermetic Cable Harnesses
- Hermetic circuit board seals
- Hermetic terminal seals



Douglas Electrical Components, Inc.
5 Middlebury Blvd., Randolph, NJ 07869

Ph: +1 (973) 627-8230 | E: contactdeco@douglaselectrical.com
W: douglaselectrical.com