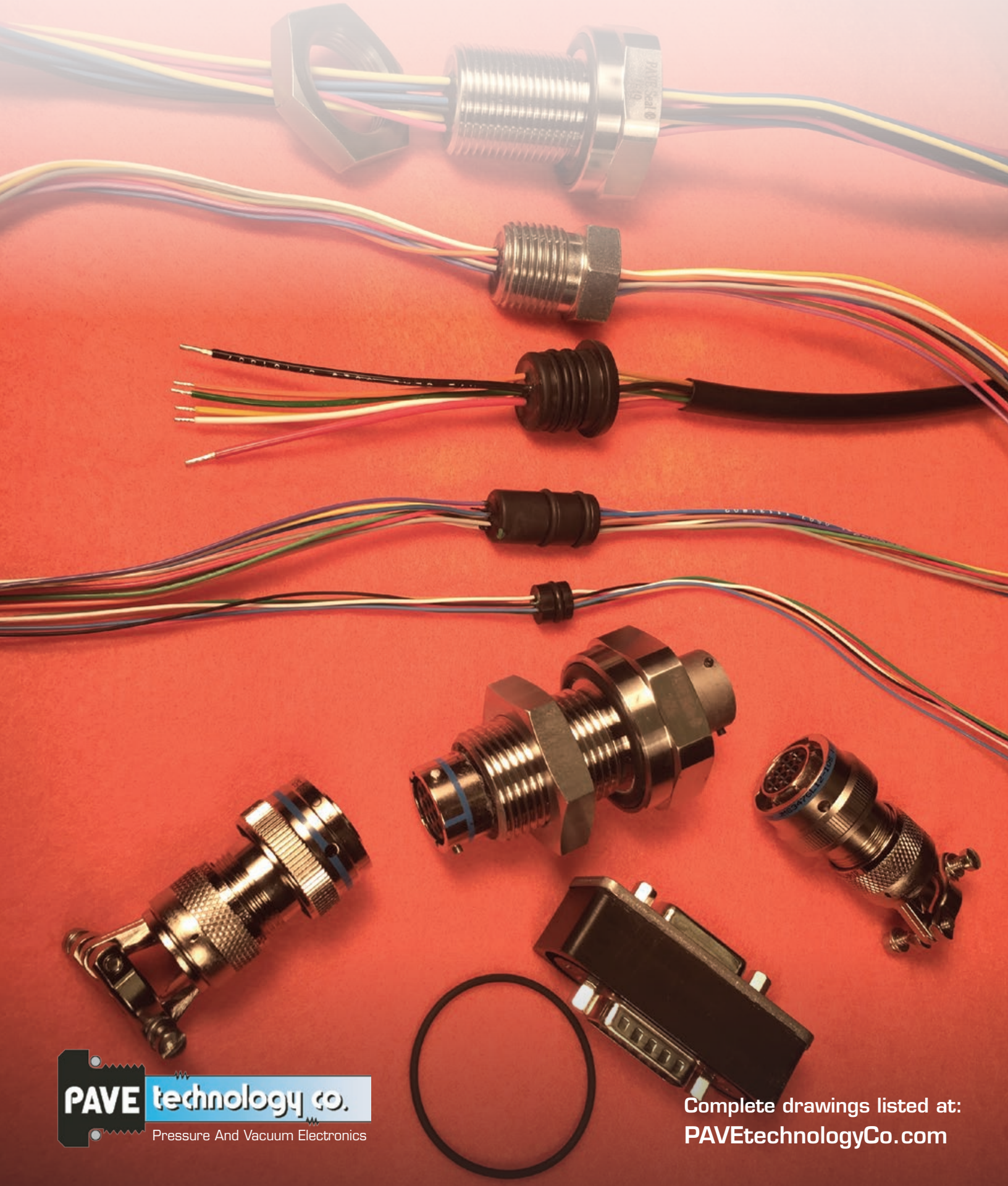
Hermetic Electrical and Fiber Optic PAVE-Seals®

Standard and Custom Design Guide



PAVE technology co.
Pressure And Vacuum Electronics

Complete drawings listed at:
PAVEtechnologyCo.com

Pressure And Vacuum Electronics

PAVE seals are hermetic seals for low or high pressure, vacuum, gas, or fluid environments with electrical or fiber optic applications. Virtually any type of insulated wire, multi-conductor cable or pin connector type may be specified for a hermetic version with no detectable leakage through the stranded wire copper conductors, insulation, shielding, through glass or plastic fiber optic cables.

No Leaks

Whether low or high pressures or vacuums, low or high voltages or amperages, electrical or fiber optic, sealing gases or liquids, with PAVE-Seals® there is:

- No detectable leakage through the stranded copper wire conductors regardless of length.
- No detectable leakage through any cable shielding or insulation including Teflon®, Tefzel® or Kapton® wires.

Not Fragile

The more robust epoxy PAVE-Seals replace traditional hermetic glass or ceramic pin seals whose glass or ceramic can be prone to cracking, corroded solder pin joints, higher installed costs and non-copper contacts with pressure applications of 700 bar (~10,000 psi) up to 1600 bar (24,000 psi).

High Vacuum Clean

NASA and major semiconductor companies have approved hermetic PAVE-Seal® epoxy seals for their low outgassing in high vacuums to 10^{-8} Torr, especially in systems with optics. Special cleaning or packaging processes are also available.

Readily Customized

Standard existing designs or readily customized hermetic wire or copper pin connector seals for small or high volume applications are available. All epoxy molded PAVE-Seals offer optimum low costs, compact designs and high reliability for PAVE customers whether small quantities of seals or +100,000/yr.

Highest Quality

100% leak and electrical testing is typical with ISO9001:2015 procedures for the highest reliability and quality for our customers developed over 25 years of successful service. Almost all PAVE wire seals are RoHS compliant. Check with the factory if your design requires RoHS.

Chemically Robust

PAVE-Seal® epoxy is compatible with a very wide range of chemicals including gasoline, SF6, natural gas, propane gas, hydrogen, helium, argon, nitrogen, Fluorinert, mineral oil, silicone oil, kerosene, saltwater, transmission fluids, JP8 jet fuel. Free epoxy samples for evaluation available upon request.

Temperature Resistant

Temperature range of PAVE-Seal epoxy limited only by the o-ring compound and wire insulation ratings used with the PAVE-Seal® Wire Harnesses or PAVE-Mate® connectors. The maximum range can be -200°C to up to 200°C.

Engineer Friendly Website

See our website for our Quick Ship In Stock Price List for seal designs available for immediate shipment as well as the most current hermetic seal design drawings and our online quote request form in Design Assistance web link.

For the most complete and up-to-date hermetic seal designs, please visit:

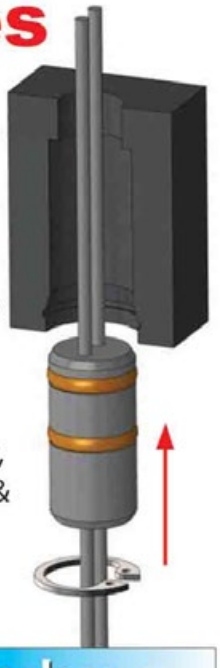
PaveTechnologyCo.com

Wide Range of Customers Use PAVE Products

Reliable, robust hermetic seals for low or high pressures or low or high vacuums, fluids or gases in use for over 30 years worldwide. Any type electrical or fiber optic wire, cable or pin connector can be specified. Current use applications include from submarines to the space station and many commercial and defense products in-between.

Sealed Wires

Used in low or high pressure fuel pumps (gasoline, JP4, NG, propane, fuel cells, bio-diesel), transmissions, suspensions, & hydraulic systems.



PAVE technology co.
Pressure And Vacuum Electronics

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Technical Data

Seal Integrity PAVE-Seal® PAVE-Mate® PAVE Optic-Seal™ PAVE-Flex®

While all PAVE products will comply with helium leak rates ranging from $<10^{-6}$ cc/sec to 10^{-9} cc/sec (air equivalent) depending upon the design, PAVE also uses more cost effective air bubble in fluid leak testing typically at 80 psi (5 bar). Special high pressure testing up to 10 k psi (600 bar) is also available.

HERMETIC EPOXY TEMPERATURE RATING

(Epoxy is proprietary and not sold separately)

Low temperature rating is normally limited by the selected o-ring compound

PAVE-Seal® 150	-60° to 125° C
PAVE-Seal® 200	-60° to 150° C
PAVE-Seal® 200UL94	-200° to 200° C
PAVE-Seal® 200FR	UL94V-O flame retardant UL1203

Toxicity Rating K (NASA MAPTIS)
Odor Rating A
Thermal Vacuum Stability Rating A
Flammability Rating X
(Use Flammability Rational Codes)
FM Class 3600, EExd II, 90° C TI

SPECIFICATIONS

Dielectric Strength	>14 kV/mm
Dielectric Constant	5.3 @ 1 Mhz
Volume Resistivity	>10^15
Dissipation Factor	0.03 @ 1 Mhz
Hardness, Shore D	96
Low Vacuum Outgassing:	
TML	0.25%
CVCM	0.01%
High Fungus Resistance	MIL-STD-454J/4
Compressive Strength	>150 mPa
Water Absorption (24 hours)	0.03%

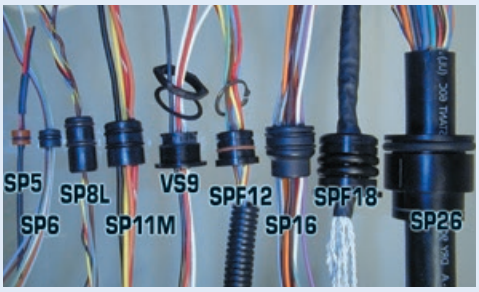
The PAVE-Seal epoxy is impervious to most oils, solvents, fuels, freons, gases, etc. Epoxy samples are available upon request for a customer's evaluation for any specific chemical compatibility.

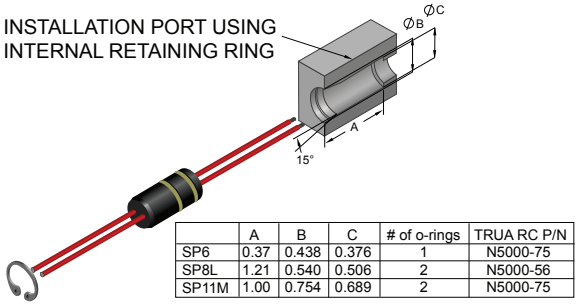
PAVE epoxy is listed on the NASA approved materials for Spacecraft for low vacuum outgassing, Publication 1124.

PAVE-Seal® Wire Harnesses

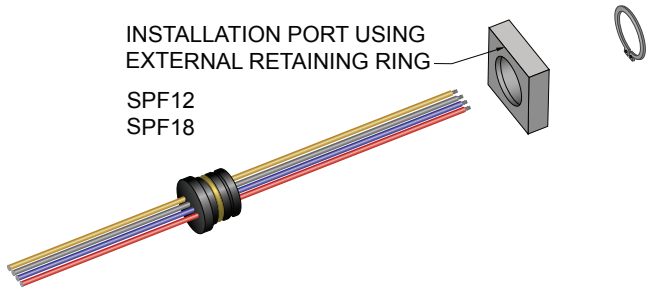
Epoxy molded seals are the most compact and cost effective version, particularly for larger quantities.
Go to our website for complete design listings and complete drawings.

Insulated, stranded conductor wires are standard (except for thermocouple wire which is normally solid conductor) with no detectable leakage through the wire insulation or conductors. Commercial or mil-spec wires may be specified.





	A	B	C	# of o-rings	TRUA RC P/N
SP6	0.37	0.438	0.376	1	N5000-75
SP8L	1.21	0.540	0.506	2	N5000-56
SP11M	1.00	0.754	0.689	2	N5000-75



Molded Epoxy Seals PAVE-Seal® Wire Harnesses

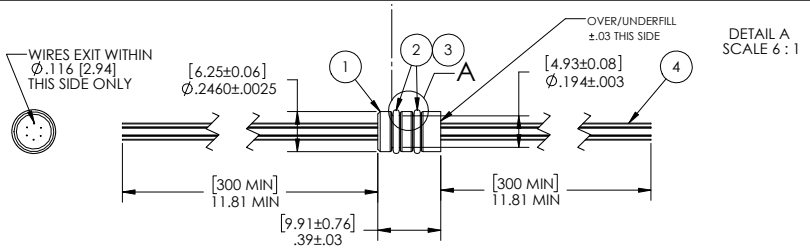
Partial summarized listing.
Go to website for more complete data.

See Website Quick Ship Price List

Dimensions in inches [mm]

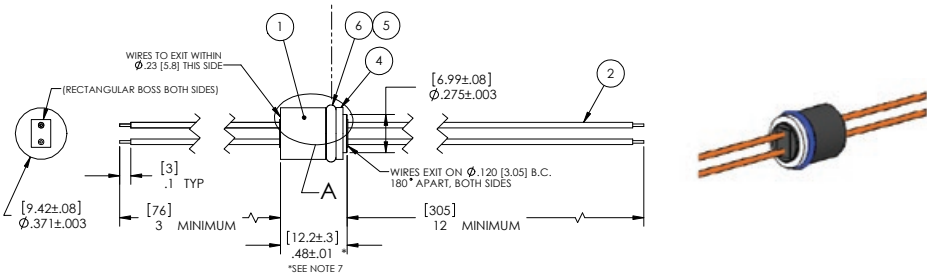
PAVE-Seal® #5092

SP4X 6 #32 Kapton wires
Vacuum to 300 bar pressure
High vacuum to high pressure



PAVE-Seal® #3340

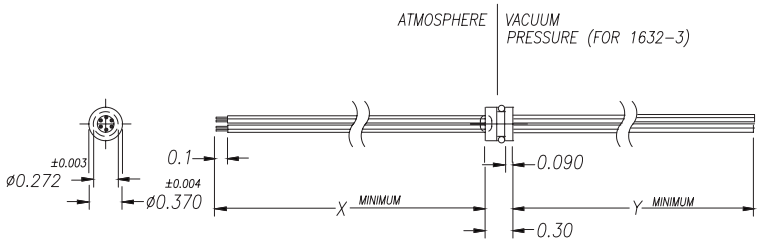
SP6L 2 #26 PTFE wire
Vacuum to +600 bar pressure
Seals gases & fluids



SP6

PAVE-Seal® #1632

SP6 6 #28
Teflon wires
Hermetic seal for vacuum to
300 bar (5000 psi) pressures



Product drawings at: PAVEtechnologyCo.com • Phone: 1.937.890.1100 • Fax: 1.937.890.5165

PAVE-Seal® Wire Harnesses

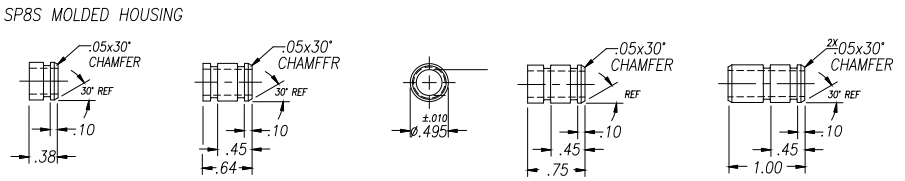
Partial listing. Go to website for more complete information.

SP8

Dimensions in inches [mm]

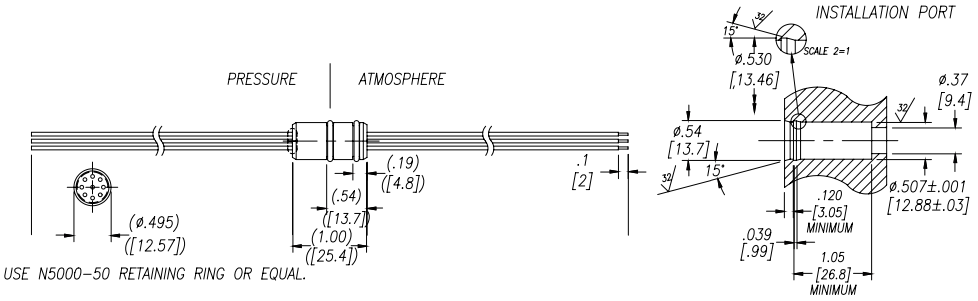
PAVE-Seal® #1226

SP8 Housing sizes
Four different length versions with one or two O-rings for a variety of wiring



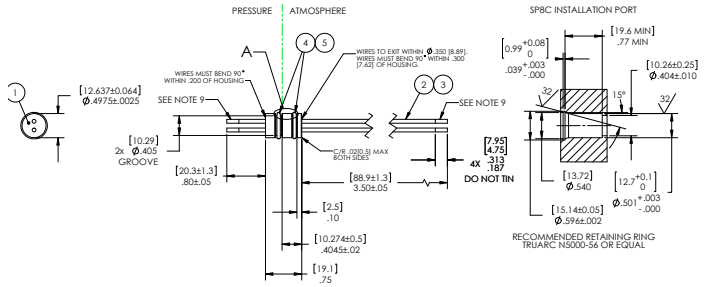
PAVE-Seal® #0597

SP8L 9 #22
Tefzel wires
Seals vacuum up to 200 bar (3000 psi)



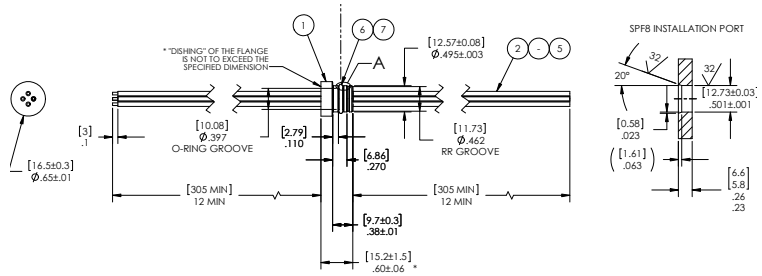
PAVE-Seal® #3451

SP8C 2 #18 PTFE wires
Vacuum to 5000 psi
Gasoline, ethanol, propane or natural gas fuel systems



PAVE-Seal® #4661

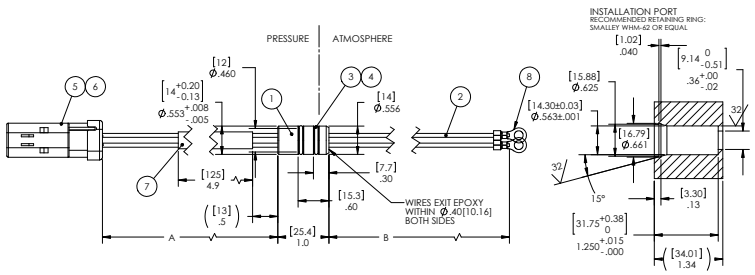
SPF8 4 #16 PTFE wires
Vacuum to 100 bar pressure
X-ray machines, inert gases



SP9

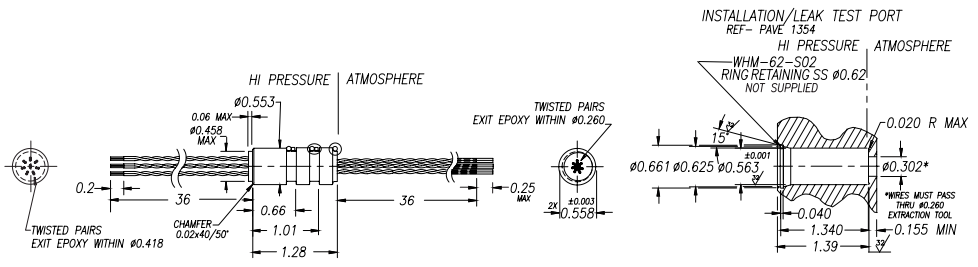
PAVE-Seal® #3656

SP9 2 #16 PTFE wires
Vacuum to 2000 psi
Bio-diesel fuel systems



PAVE-Seal® #1627

SP9 16 #24
Teflon wires
Super high pressures to 700 bar (10,000 psi)



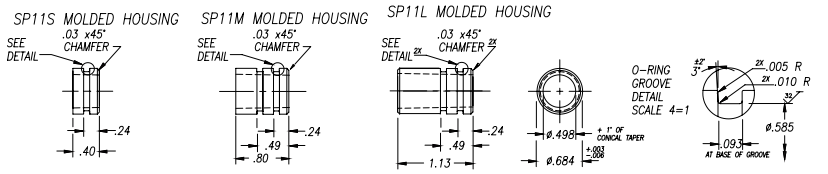
PAVE-Seal® Wire Harnesses

SP11

Dimensions in inches [mm]

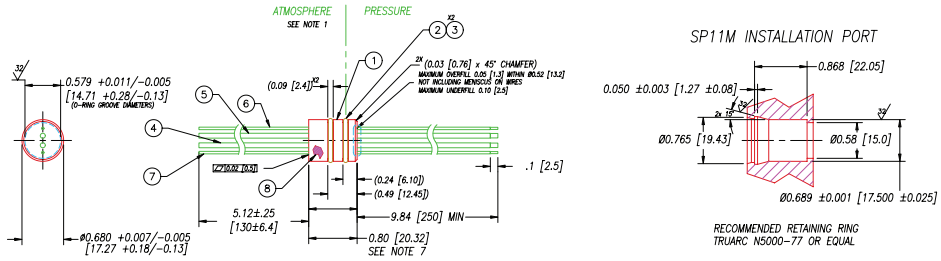
PAVE-Seal® #1374

SP11 Housing sizes
3 different lengths with one or two O-rings



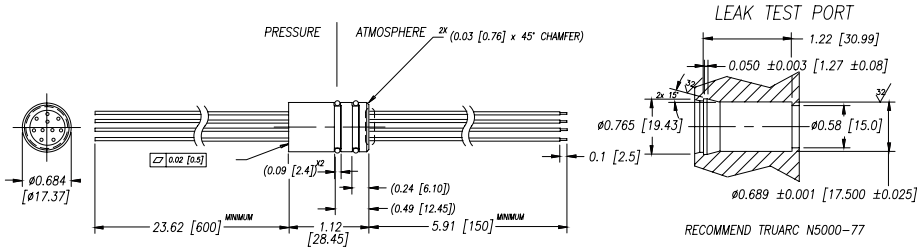
PAVE-Seal® #2476

SP11M 2 #14 and 2 #20
PTFE wires
Vacuum to 2000 psi



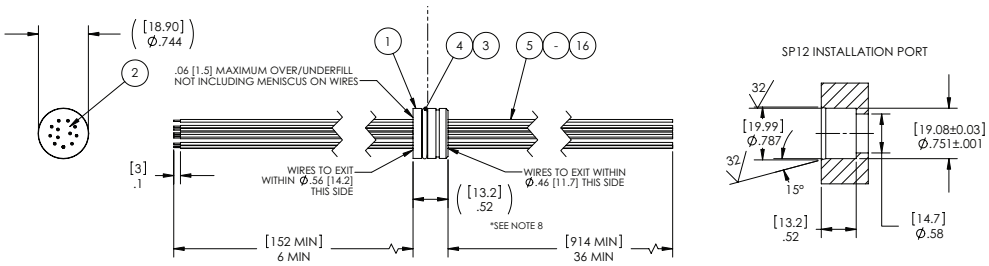
PAVE-Seal® #2316

SP11L 10 #24
Teflon wires
Mass flow meters, fuel pumps, transmissions



PAVE-Seal® #4416

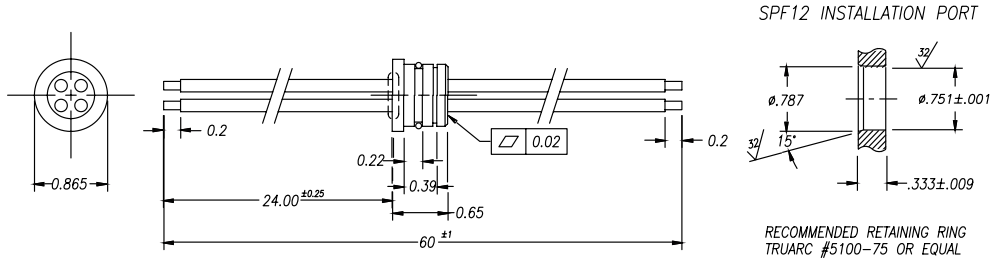
SP11M 2 #14 & 2 #22
PTFE wires
Vacuum to 100 bar (1500 psi)



SPF12

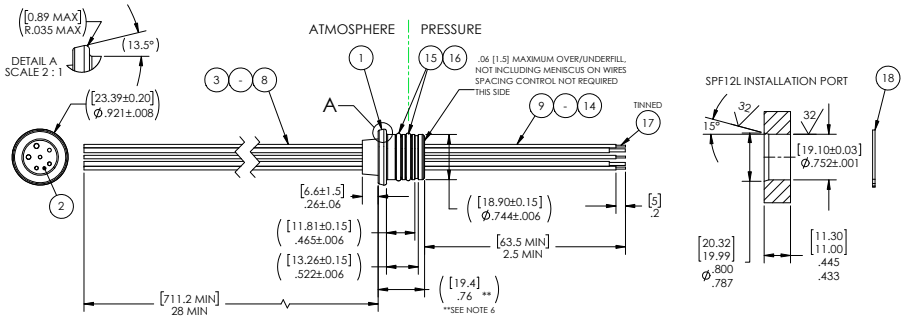
PAVE-Seal® #1575

SPF12 4 #10
Teflon wires
Up to 40 amps per wire
Vacuum to 200 bar



PAVE-Seal® #5138

SPF12L 2 #14 & 4 #20
ETFE wires
Fuel, fuel cell, actuator systems



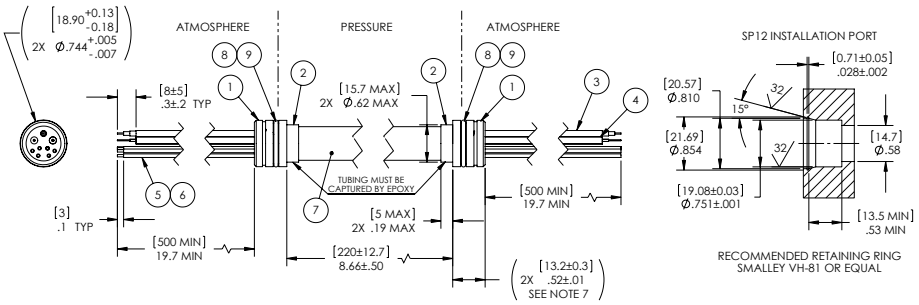
PAVE-Seal® Wire Harnesses

SP12 (continued)

Dimensions in inches [mm]

PAVE-Seal® #4823

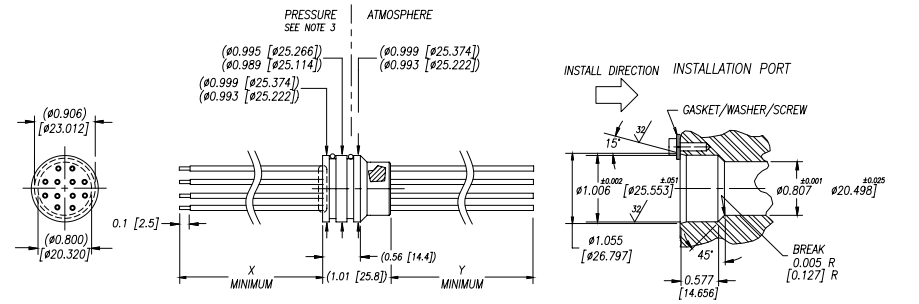
SPF12 4 #10
Teflon wires
Up to 40 amps per wire
Double wall hermetic seal



SP16

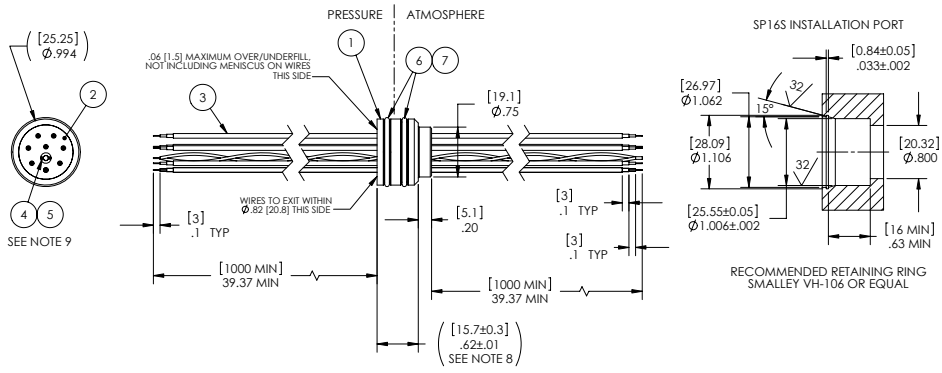
PAVE-Seal® #2189

SP16 12 #18
Teflon wires
Vacuum to 40 bar (600 psi)
Natural gas, propane, SF6, hydrogen gas systems



PAVE-Seal® #4942

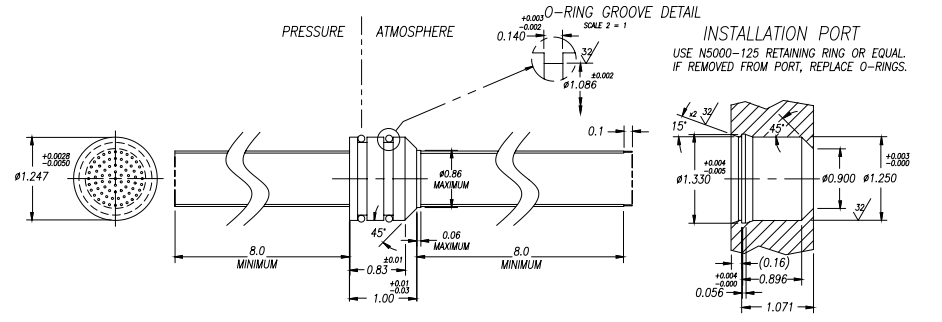
SP16 8 RG178 coaxial cables and 2 #26 PTFE wires
Vacuum to 1000 psi



SP20

PAVE-Seal® #1707

SP20 70 #26
Teflon wires
Vacuum to +200 bar (3000 psi)
GE oil field equipment



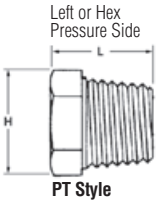
Standard Metal Housings

(Shown without wires, pins, or epoxy seal)
Available in 300 Series Stainless (SS), Brass (B), Galvanized Steel (PS), or Aluminum (AL).
Other sizes available.

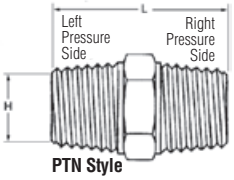
For use in PAVE-Seal, PAVE-Mate, PAVE-Flex or PAVE-Optic Seal products. Customer to specify wiring and/or contact arrangement to be sealed in below housings. Other sizes not shown may be available. Dimensions are subject to change. Confirm all pressure ratings above 300 psi (20 bar) including high pressure direction with the PAVE sales engineer.

Pipe Thread (NPT)
10^{-6} Torr (mbar) to +3,000 psi (+200 bar)

PAVE Part No.	Thread Size inch	PT Length inch	"L" mm	PIN Length inch	"L" mm	Hex Size inch	Max "H" mm
PT1	1/16	0.53	13,46	1.06	26,92	0.38	9,65
PT2	1/8	1.06	26,92	1.06	26,92	0.50	12,70
PT4	1/4	0.84	21,34	1.45	36,83	0.71	18,03
PT6	3/8	0.84	21,34	1.45	36,83	0.85	21,59
PT8	1/2	1.10	27,94	1.89	48,01	1.00	25,40
PT12	3/4	1.17	29,72	1.97	50,04	1.30	33,02
PT16	1	1.36	34,54	2.34	59,44	1.60	40,64
PT24	1-1/2	1.62	41,15	2.61	66,29	2.30	58,42



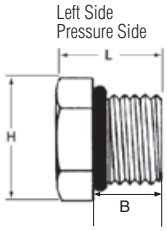
PT Style



PTN Style

SAE Straight Thread O-Ring (UNF-2A Threads)
10^{-8} Torr (mbar) to +4,000 psi (+300 bar)

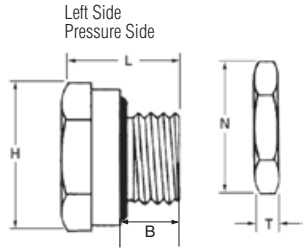
PAVE Part No.	Thread Size inch	Length inch	"L" mm	Parker O-Ring Size	"B" inch	"B" mm	Hex Size inch	Max "H" mm
S06	3/8 - 24	.061	15,49	3-3	.30	7,62	0.56	14,22
S08	1/2 - 20	0.67	17,02	3-5	.36	9,14	0.71	18,03
S08L	1/2 - 20	1.50	38,10	3-5	.36	9,14	0.71	18,03
S012	3/4 - 16	0.80	20,32	3-8	.44	11,18	1.00	25,40
S012L	3/4 - 16	1.25	31,75	3-8	.44	11,18	1.00	25,40
S016	1-1/16 to 12	1.09	27,69	3-12	.59	14,99	1.44	36,58
S016L	1-1/16 to 12	1.50	38,10	3-12	.59	14,99	1.44	36,58
S022	1-5/8 to 12	2.00	50,80	3-20	.63	16,00	2.15	54,61
S026	1-7/8 to 12	2.12	53,85	3-24	.59	14,99	2.45	62,23



Vacuum Seal and Jam Nut (UN-2A Threads)
10^{-8} Torr (mbar) to +1,000 psi (+70 bar)

Thru hole diameter is +0.010, -0.000 inches (+0,254, -0.000 mm) thread size

PAVE Part No.	Thread Size inch	Length inch	"L" mm	O-Ring Size	"B" inch	"B" mm	Hex Size inch	Max "H" mm
VS8	1/2 - 20	0.90	22,86	-112	.44	11,18	0.96	24,38
VS12L	3/4 - 16	1.48	37,59	-116	1.03	26,16	1.25	31,75
VS15L	1 - 1 4	1.88	47,75	-215	1.25	31,75	1.73	43,94
VS18	1-1/4 to 12	1.88	47,75	-219	1.25	31,75	1.91	48,51
VS22	1-5/8 to 12	2.00	50,80	-224	1.25	31,75	2.59	65,79
VS26	1-7/8 to 12	2.12	53,85	-226	1.25	31,75	2.88	73,15
VS32	2-1/2 to 12	2.25	57,15	-231	1.25	31,75	3.25	82,55
VS44	2-34 to 16	2.37	60.2	-233	1.37	34.8	3.50	88.9

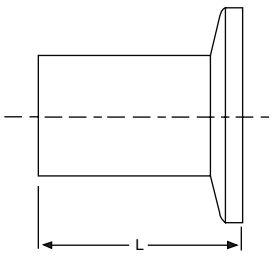


VS	8	12	15	18	22	26	32
T(in)	.25	.31	.32	.36	.39	.41	.41
T(mm)	6.4	7.9	8.1	9.1	9.9	10	10
N(in)	.77	1.0	1.6	1.7	2.3	2.5	3.3
N(mm)	20	25	36	43	58	63	83

Tighten nut to 20 ft-lbs max to avoid damage.

NW KF QF DN ISO CF Vacuum Flanges, Sanitary Flanges
10^{-8} Torr (mbar) to 150 psi (+10 bar)

PAVE Part No.	Length inch	"L" mm	Tube O.D. inch	Tube O.D. mm
NW16	0.75	19.1	3/4	19,05
NW25	1.58	40.13	1	25,4
NW40	2.00	50.8	1-1/2	38,1
NW50	2.25	57.2	2.0	50
CF275	2.46	62.5	1.5	38



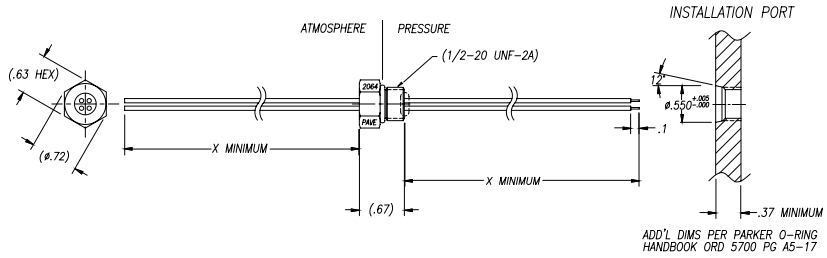
PAVE-Seal® Wire Harnesses – Threaded Metal Housings

See Website Quick Ship Price List

Dimensions in inches [mm]

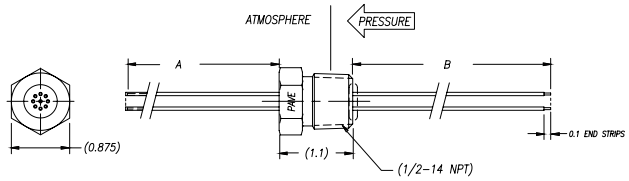
PAVE-Seal® #2064

SO8 1/2"-20 4 #24
Teflon wires
Vacuum to +60 bar (+1000 psi)



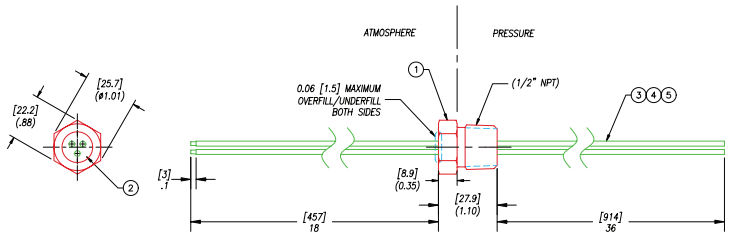
PAVE-Seal® #1588

PT8 1/2"NPT 9 #22
Tefzel wires
Vacuum to 200 bar (3000 psi)



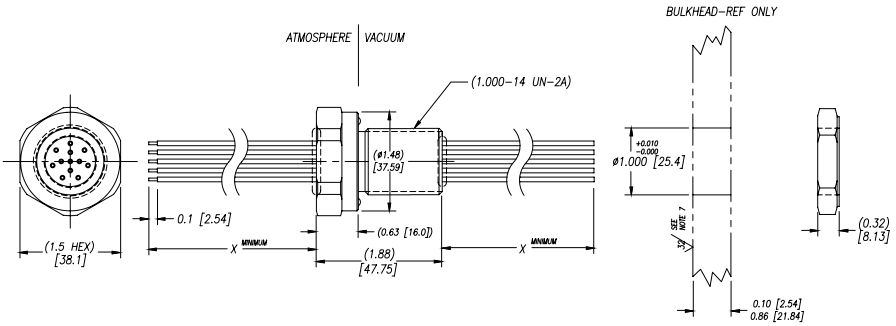
PAVE-Seal® #1447

PT8 1/2"NPT 2 #14
Teflon wires
Vacuum to 200 bar (3000 psi)



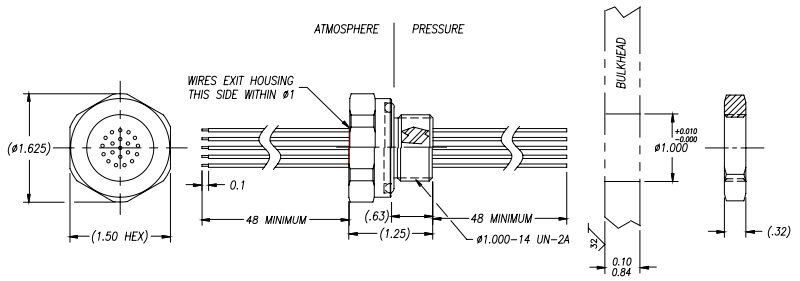
PAVE-Seal® #1649

VS15L 1"-14 12 #20
Teflon wires
High vacuum to 20 bar (300 psi)
Higher pressures if on O-ring side



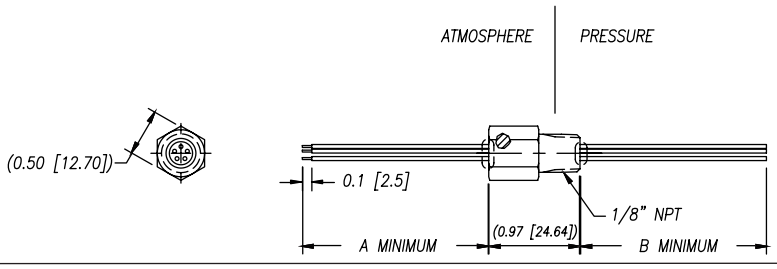
PAVE-Seal® #1872

VS15-AL 20 #22
Teflon wires
High vacuum to 20 bar (300 psi)



PAVE-Seal® #2411

PT2 1/8" NPT 5 #24
Teflon wires
Vacuum to pressures to 200 bar (3000 psi)

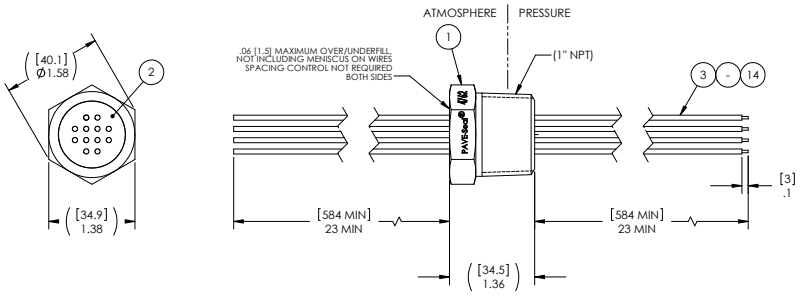


PAVE-Seal® Wire Harnesses Threaded Metal Housings

Dimensions in inches [mm]

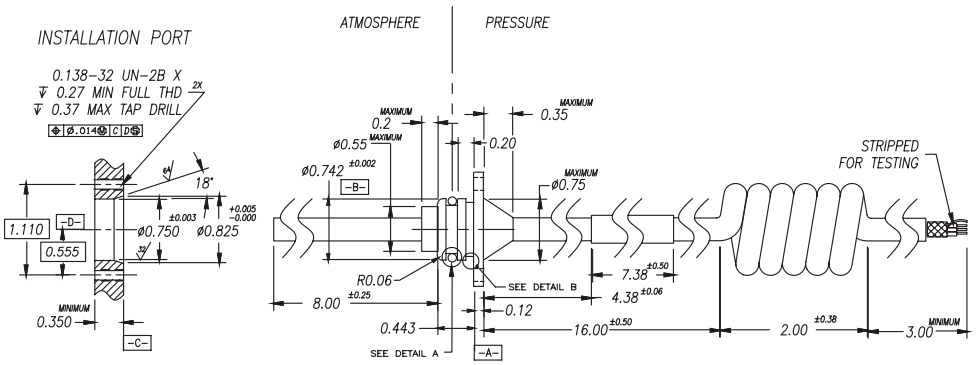
PAVE-Seal® #4762

PT12 3/4"mNPT 12 #18
PTFE wires
High vacuum to 100 bar



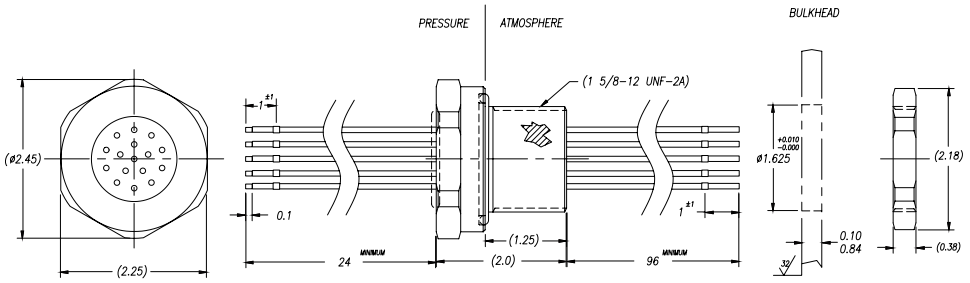
PAVE-Seal® #2281

Custom AL flange
9 #23 shielded
rubber cable
Pressures to 70 bar (1000 psi)



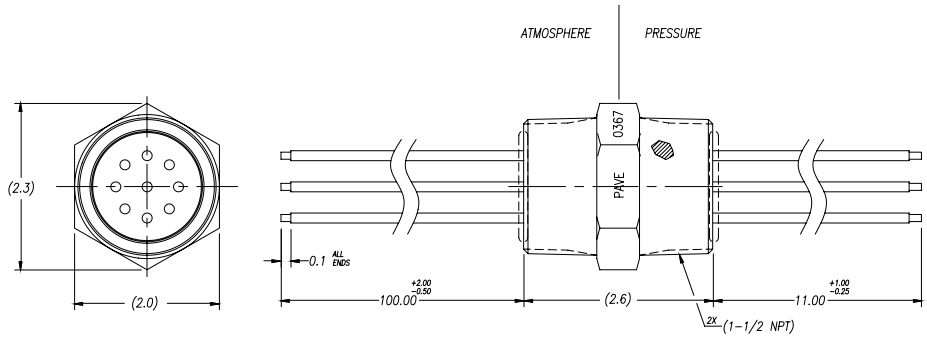
PAVE-Seal® #3223

VS22 1-5/8” thread, 16 #14
Tefzel wires
High vacuum to 40 bar (600 psi)



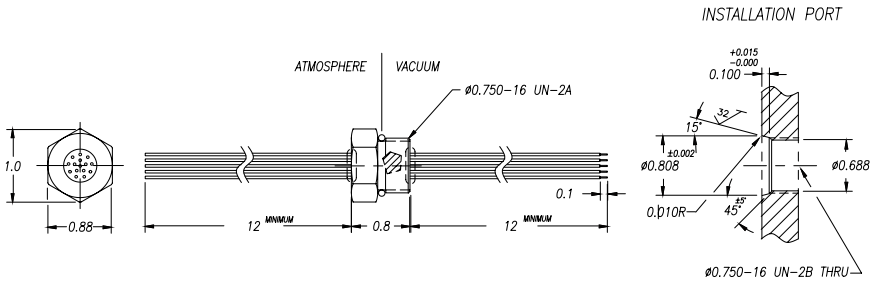
PAVE-Seal® #0367

1-1/2”NPT Nipple,
9 #10
PE/Teflon wires
Vacuum to 40 bar (600 psi)



PAVE-Seal® #3112

SO12 3/4"-16 thread, 15 #28
Teflon wires
High vacuum up to 70 bar
1000 psi)



Product drawings at: PAVEtechnologyCo.com • Phone: 1.937.890.1100 • Fax: 1.937.890.5165

PAVE-Optic Seals

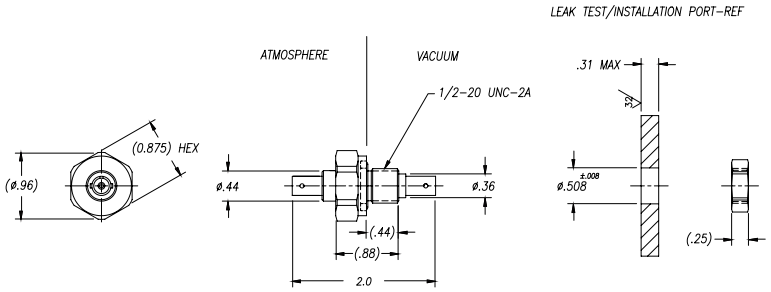
PAVE-Optic Seals are hermetically sealed single or multi-mode fiber optic cables, either insulated (Teflon or PVC) or bare cables. Insertion loss is less than 0.5 db @ 800 nm. Any type, combination or lengths can be ordered for a wide range of applications from high vacuums to moderate or high pressures. ST, SMA, FCPC PAVE-Mate standard multi-mode connectors are also available. See FAQ for quote requirements for special designs or contact factory sales engineer via website or telephone.

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

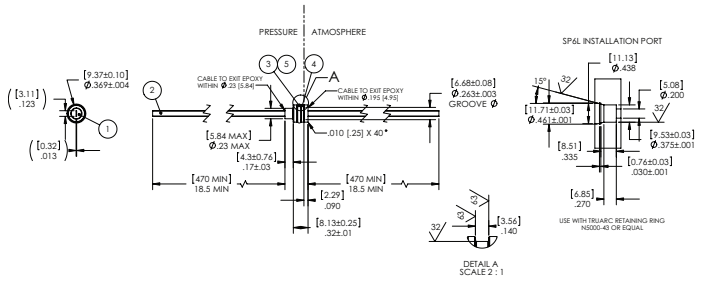
PAVE-Mate® I #1271

VS8 size, 1/2" port
Multi-mode 62.5/125µ
Vacuum to 100 bar (1500 psi)
ST coupling



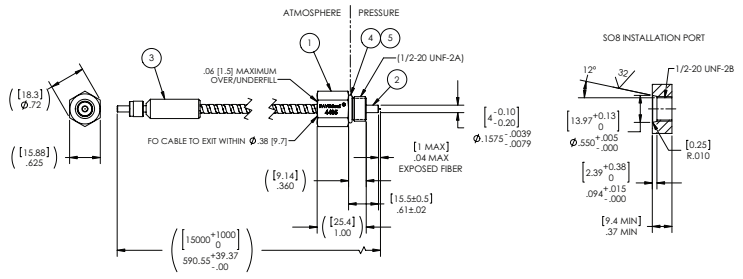
PAVE-Seal® #4547

SP6L, 3/8" port
12 single mode fibers
High vacuum to 6500 psi



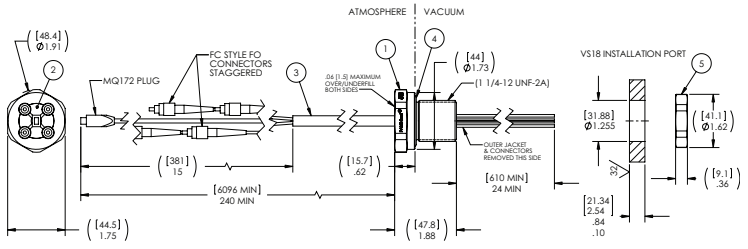
PAVE-Seal® #4485

SO8M, 1/2"-20 thread
Multimode fiber, armoured
3000 psi



PAVE-Seal® #4780

VS18, 1 1/4" port
4 fiber cable multimode
Vacuum to 500 psi



PAVE-Mate® I

Dual Sided Hermetic Electrical Connectors

PAVE-Mate I is a bulkhead, multi-contact connector with various styles of high performance mil-spec based or industrial electroless nickel plated aluminum, plastic or stainless steel shell disconnects that can be disconnected on either side of the bulkhead.

Signal, power, coaxial, thermocouple and fiber optic versions are available for high vacuum use or up to low or high-pressure applications. PAVE-Mate I style connectors have dual sided disconnects with male pins on hex side and female sockets on thread side. Mating connector plugs are supplied. Contacts are copper or brass, gold or silver-plated, #22 AWG (5 amps), #20 (7A), #16 (13A), #12 (23A), #8 (60A) and #4 (100A). Typically 600V rated minimum with ratings up to 1300 VDC available. Selected contact arrangements offer low outgassing in high vacuum mating connector plugs with either epoxy, Viton or dialyll phythalate inserts instead of neoprene.

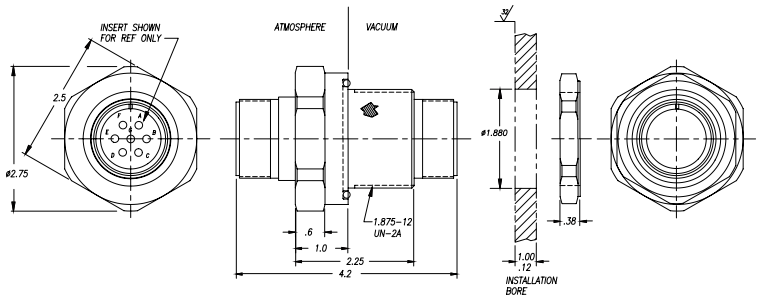
In-line PAVE-Mate I style allow for the mating connectors to be connected without the bulkhead PAVE-Mate connector being present. Most contacts for the mating plugs are loose crimp contacts, though both solder cup contacts and crimp contacts are normally available. Crimp, insertion and removal tools for contacts are also available.

Pressure ratings from 10^{-8} Torr up to 200 bar (3000 psi)

More detailed drawings at PAVEtechnologyCo.com

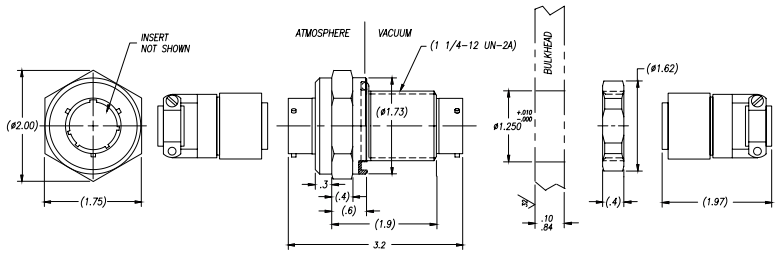
PAVE-Mate® I #1964

VS26 size with 7 #8 contacts
Up to 60 amps per contact
Threaded coupling



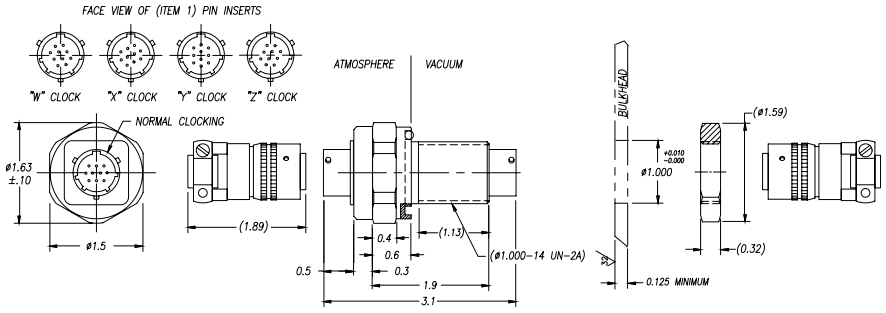
PAVE-Mate® I #1837

VS18 size with 8 #16 contacts
Up to 13 amps per contact
Bayonet coupling



PAVE-Mate® I #1656

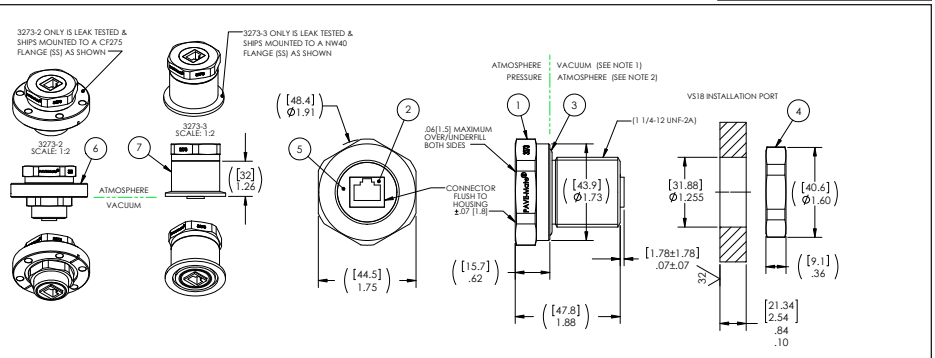
VS15L size with
10 #20 contacts
Up to 7 amps per contact
Bayonet coupling



Dimensions in inches [mm]

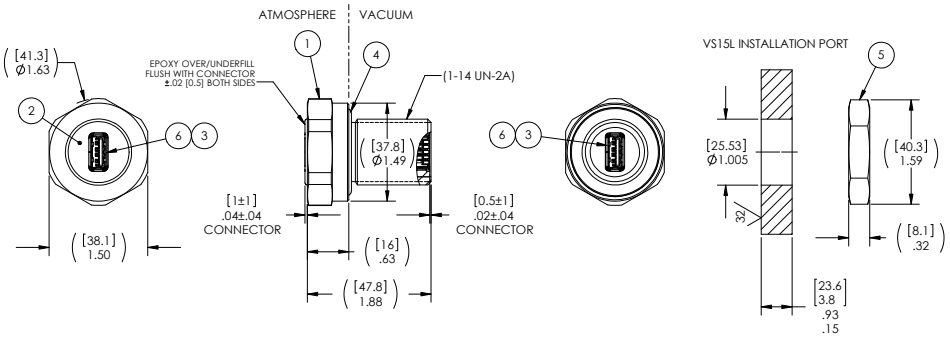
PAVE-Mate® I #3273

VS18 size RJ45 ethenet
LAN CAT 5 & 6



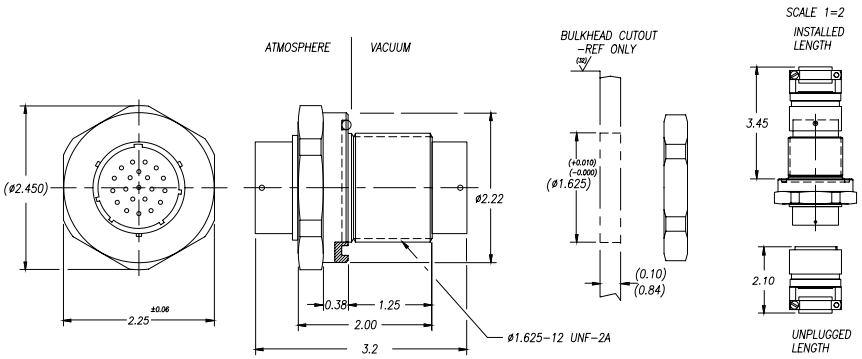
PAVE-Mate® I #4955

VS18 size RJ45 ethernet



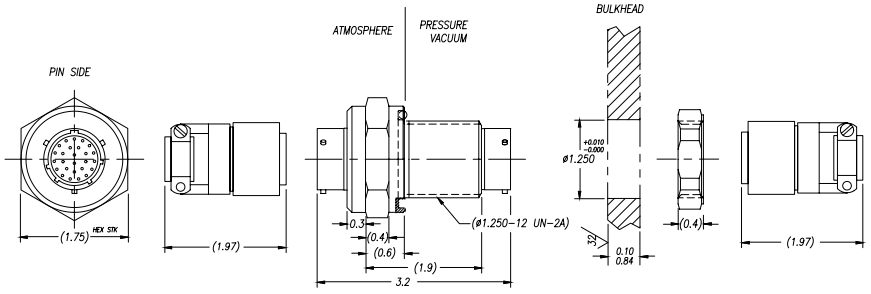
PAVE-Mate® I #1667

VS22 size with
21 #16 contacts
Up to 13 amps per contact
Bayonet coupling



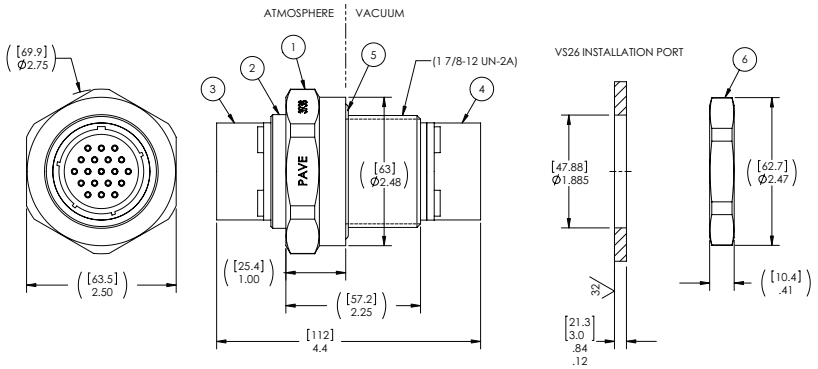
PAVE-Mate® I #1637-1

VS18 size with
26 #20 contacts
Up to 7 amps per contact
Low outgassing epoxy inserts
standard Bayonet coupling



PAVE-Mate® I #3938

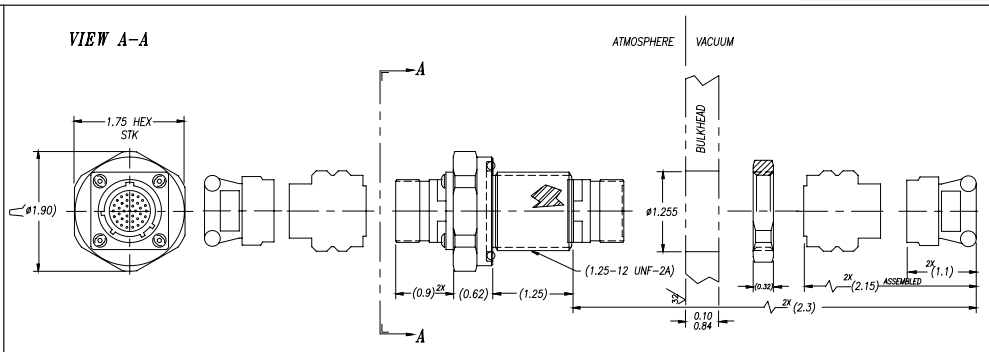
VS26 size with
19 #12 contacts
Up to 20 amps per contact
D38999 Series III threaded coupling



Dimensions in inches [mm]

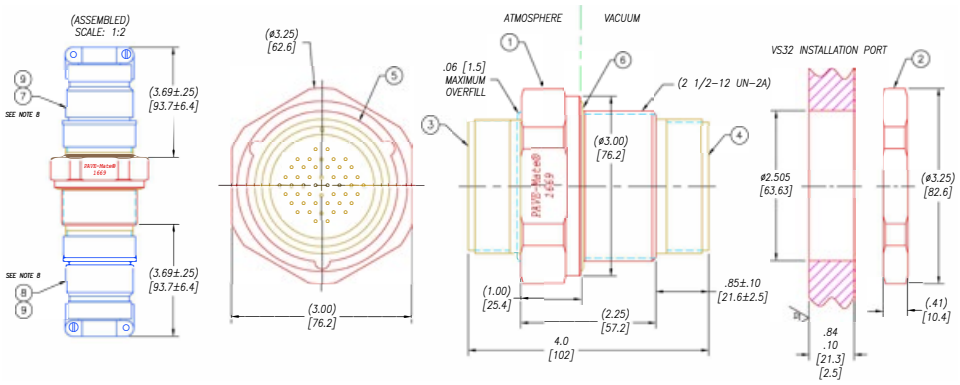
PAVE-Mate® I #1525

VS18 size with
37 #22 contacts
Up to 5 amps per contact
Threaded coupling



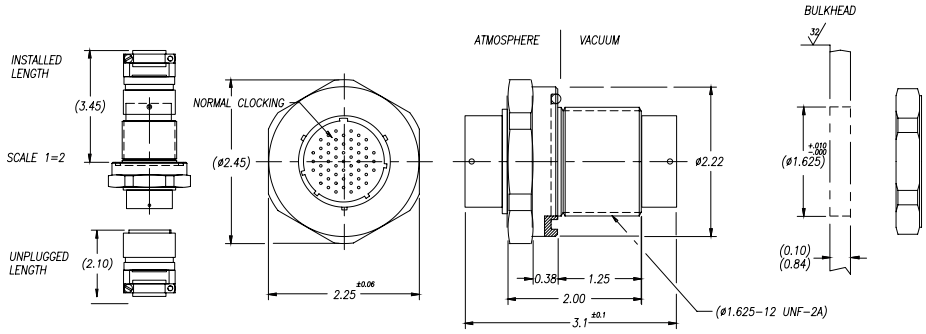
PAVE-Mate® I #1669

VS32 size with
48 #16 contacts
Up to 13 amps per contact
Threaded coupling



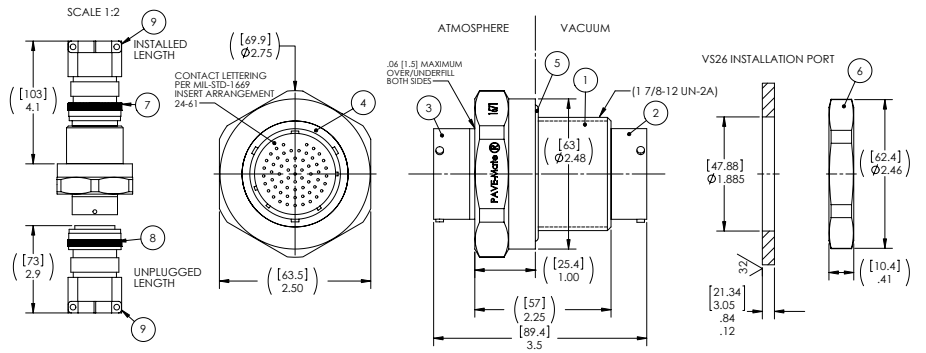
PAVE-Mate® I #1670

VS22 size with
55 #20 contacts
Up to 7 amps per contact
Bayonet coupling



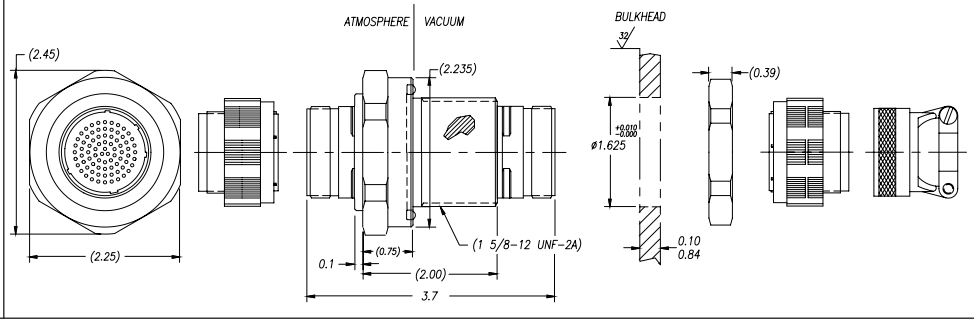
PAVE-Mate® I #1671

VS26 size with
61 #20 contacts
Up to 7 amps per contact
Bayonet coupling



PAVE-Mate® I #1491

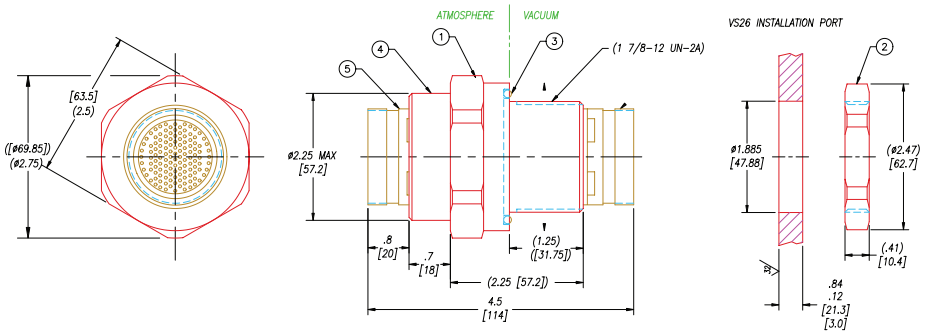
VS22 size with
79 #22 contacts
Up to 5 amps per contact
Threaded coupling



Dimensions in inches [mm]

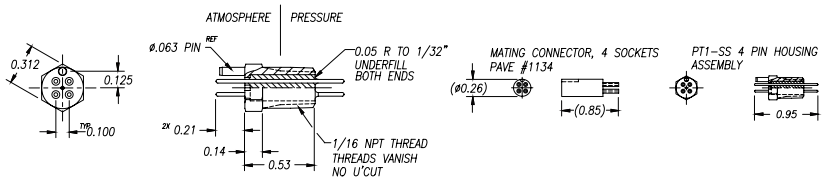
PAVE-Mate® I #3567

VS26 size with
128 #22 contacts
Up to 5 amps per contact
Threaded coupling



PAVE-Mate® I #2581

1/16" NPT size with
4 #24 contacts
Up to 2 amps per contact
Vacuum to 700 bar (10,000 psi)
Push-pull friction lock coupling

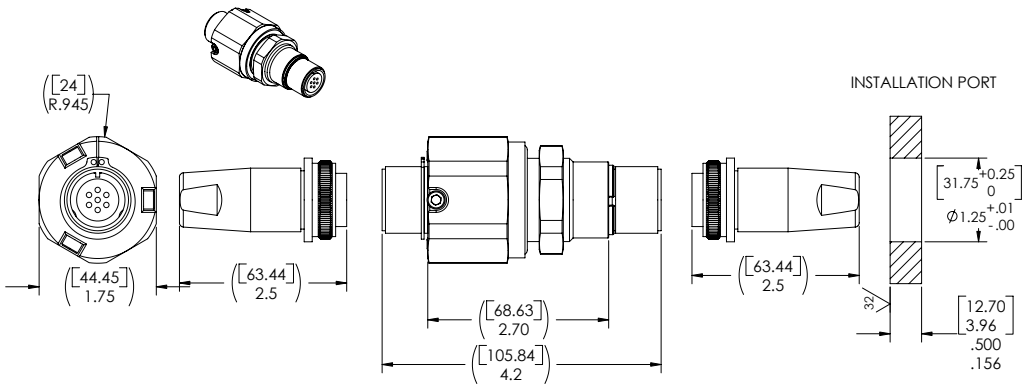


Pushthru PAVE-Mate® I Glovebox Connectors

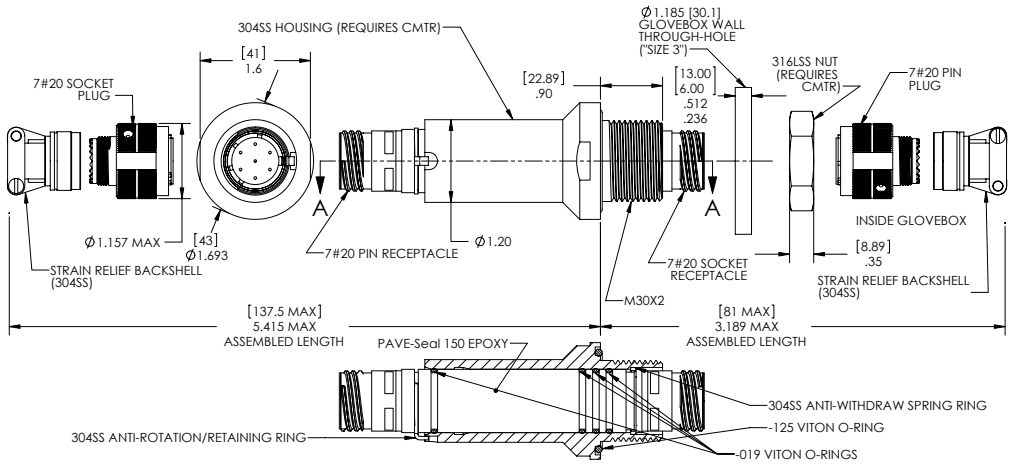
US Patent 4,666,228

The all **stainless steel** or lower cost aluminum version Pushthru PAVE-Mate connectors are designed for gloveboxes and other potentially hazardous chemical or pharmaceutical processes that may require the periodic safe replacement of the connector without potential exposure to personnel by "losing" the hermetic seal during the replacement operation. The replacement epoxy molded connector "core" pushes the original connector core into the chamber and then locks into place. With the unique double O-ring design, an O-ring seal is always maintained during this operation. Fluorocarbon O-rings are supplied.

PT1000



PT4123



PAVE-Mate® II Connectors

PAVE-Mate® II has a single disconnect on one side and pre-wired with any type insulated wire or cable for any length.

Signal, power, coaxial, thermocouple, high voltage and fiber optic versions are available.

Any connector series or type including circular or rectangular can be ordered either as a PAVE-Mate style, including both high performance military or economical industrial metal, or plastic shell multi-pin connectors.

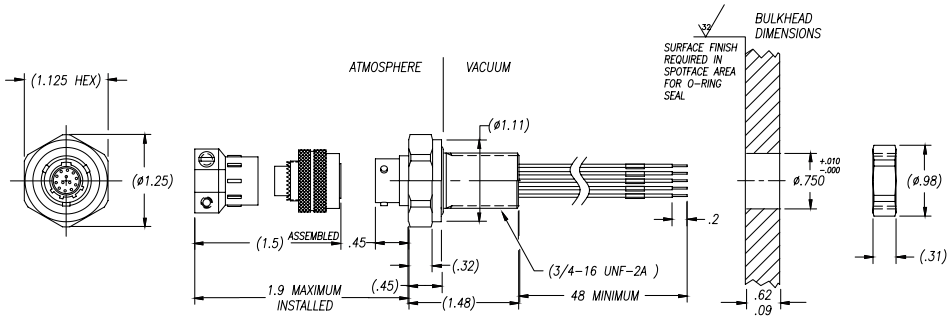
Pressure rating from high vacuum (10^{-8} Torr) to pressures to 100 bar (1500 psi).

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

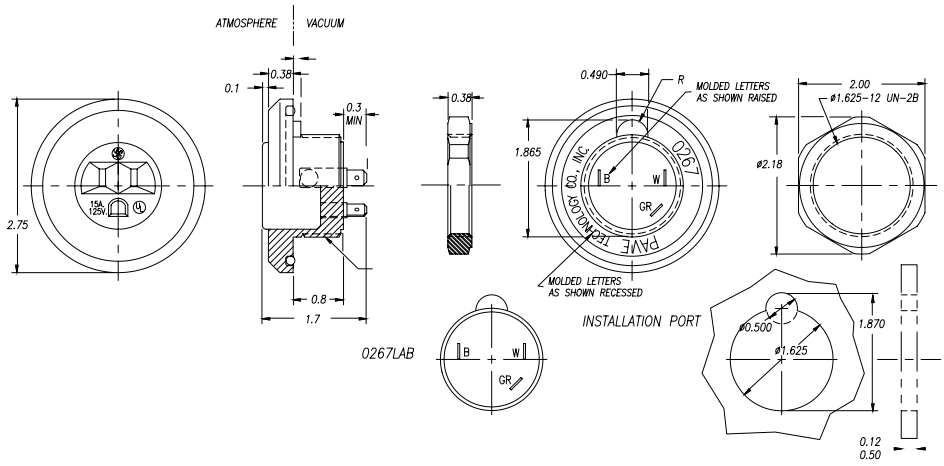
PAVE-Mate® II #1666

VS12L size with
13 #22 contacts & Teflon wires
Up to 5 amps per pin/wire
Bayonet coupling
In-stock Quick Ship Product



PAVE-Mate® II #0267

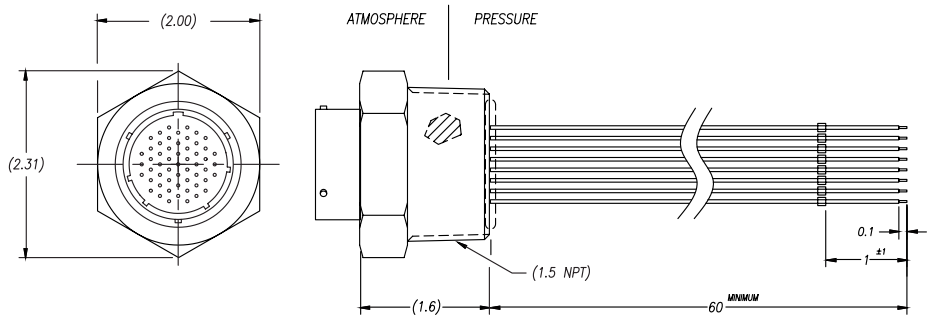
3 #12 125V 15 amps
Standard UL wall outlet receptacle
Vacuum to 5 bar (75 psi)



Dimensions in inches [mm]

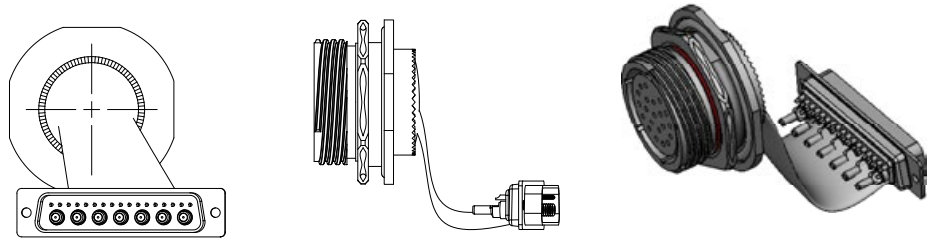
PAVE-Mate® II #3114

PT24 1-1/2" NPT size
Up to 7 amps per wire
55 #20 Teflon wires



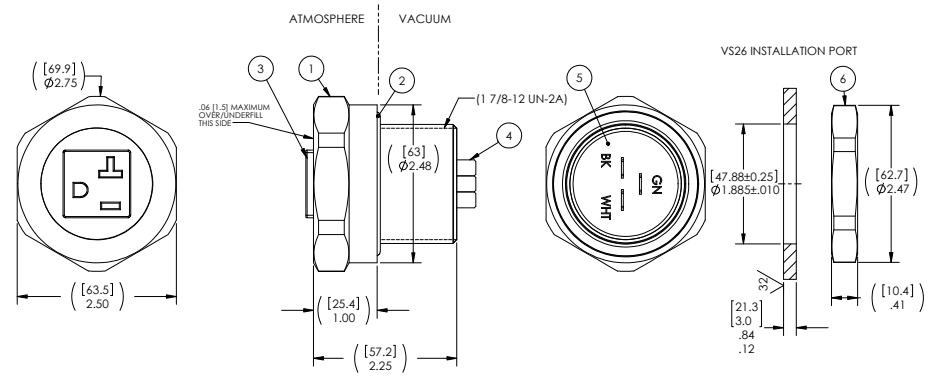
PAVE-Mate® II #2635

Low profile, fits any
Jam nut with O-ring
Seals in standard MIL-Spec
D-shaped port
Multiple coaxial and signal wires and pins



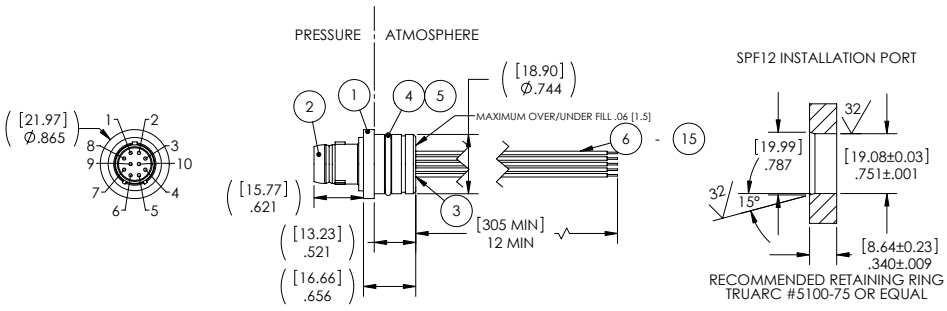
PAVE-Mate II #5071

Receptacle 20 amps 125V
NEMA 5-20R



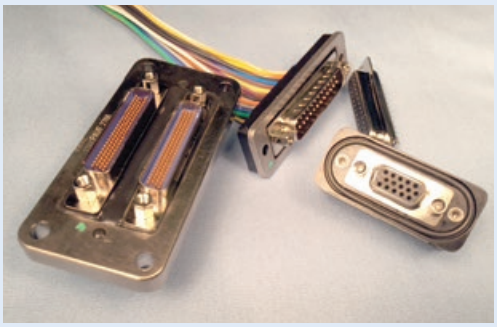
PAVE-Mate #4250

10 #24 PTFE wires
Vacuum to 1500 psi



D-Sub, Micro-D, and Nano Rectangular PAVE-Mate® Connectors

Both PAVE-Mate I (dual sided disconnects) or PAVE-Mate II (single sided disconnect with either insulated Teflon wires leads or solid bar conductor PCB leads) styles are available in all contact arrangements for standard density, high density, micro D and Nano contact density rectangular connector arrangements from 9 to 100 pins. In addition, special double connector arrangements are also available to achieve a higher contact density in a compact single installation port.



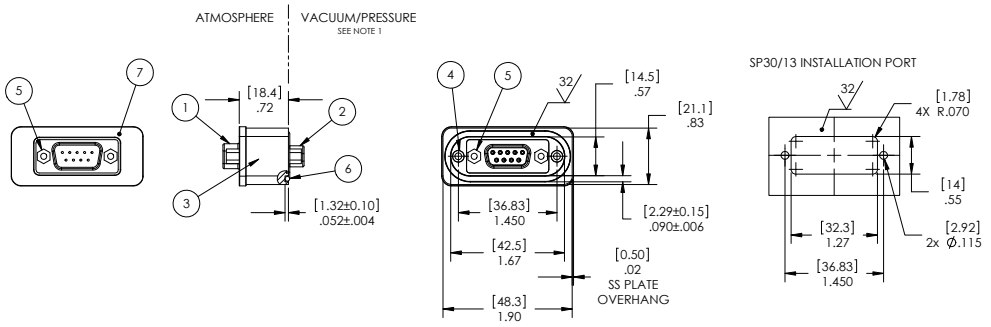
Male pin and/or female socket contacts hermetic connector versions are readily available.

More detailed drawings available at PAVEtechnologyCo.com

Dimensions in inches [mm]

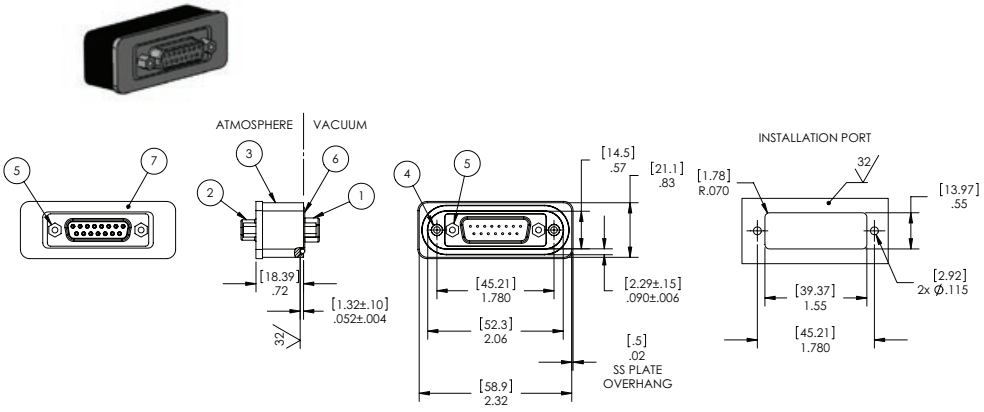
PAVE-Mate® II #2478

O-ring face seal
9 #28 contacts and flat cable
Vacuum to 10 bar (150 psi)



PAVE-Mate® II #3362

15 #20 contacts
High Vacuum to 80 psi

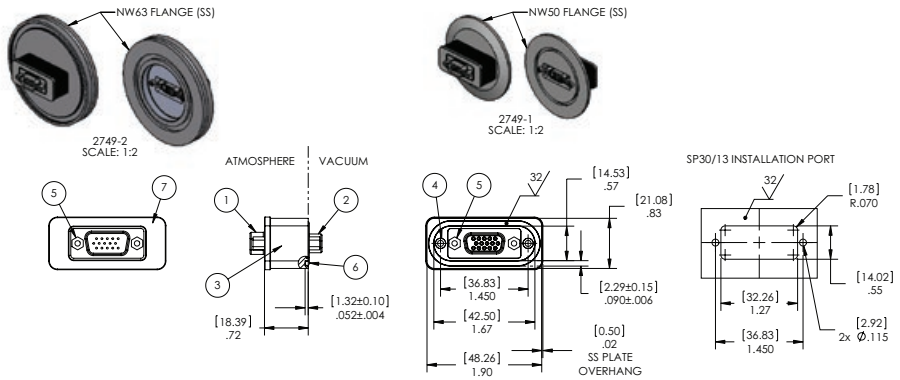


D-Sub, Micro-D, and Nano Rectangular PAVE-Mate® Connectors

Dimensions in inches [mm]

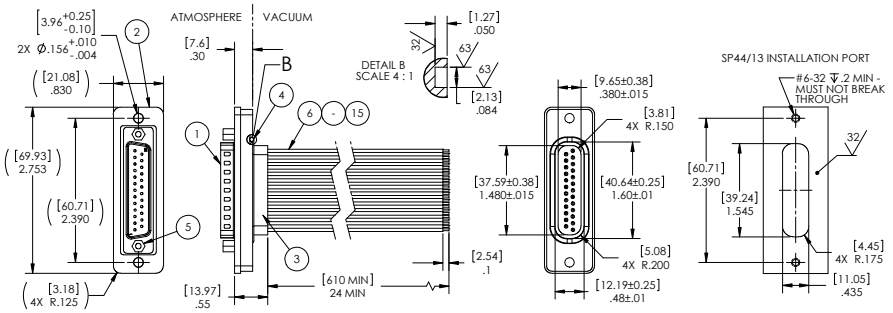
PAVE-Mate® II #2749

15 #22 Contacts VGA type
High vacuum to 80 psi
Mounted to flange is optional



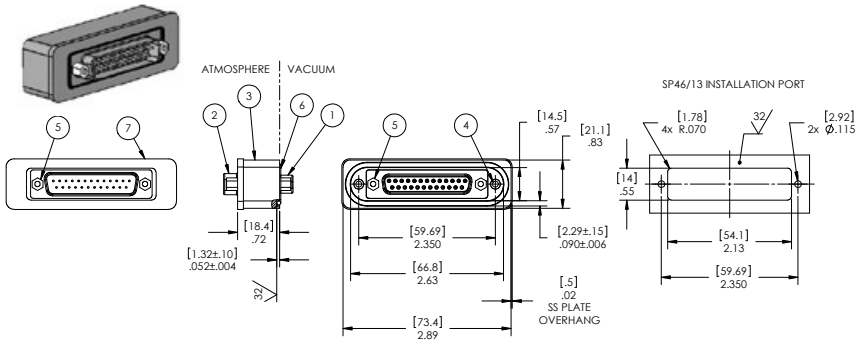
PAVE-Mate® I #3527

25 #20 contacts & Teflon wires
High vacuum to 80 psi



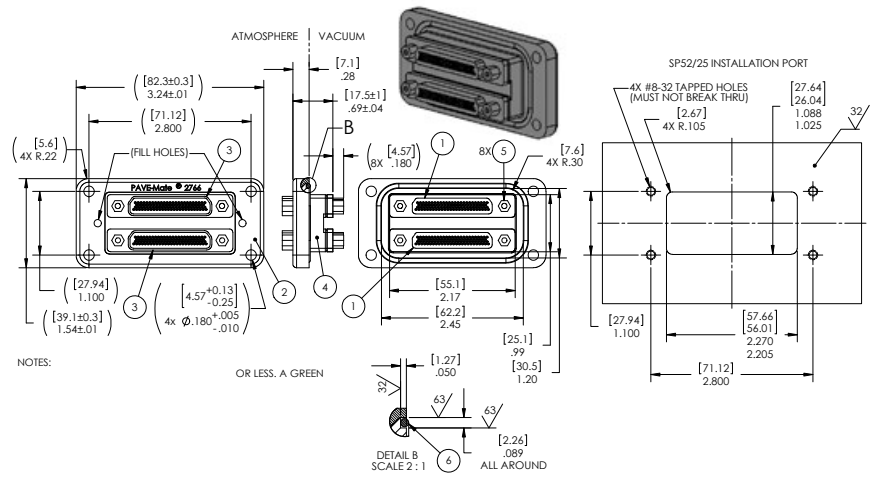
PAVE-Mate® I #3420

25 #20 contacts
High vacuum to 80 psi



PAVE-Mate® I #2766

200 #26 contacts
micro dsub
High vacuum to 80 psi



Coaxial, EMI Shielded PAVE-Seal® Wire Harness and PAVE-Mate® Connectors

Virtually any coaxial type connector is available in the PAVE-Mate I (dual sided disconnects) or PAVE-Mate II (single sided disconnect with cable leads) including BNC, SMA, SMB, SMC, Twinax, SHV, MHV, N, and Triaxal with floating or grounded shields for low or high pressure or vacuum uses. In addition, any type of coaxial or shielded cables can be hermetically sealed in almost any combination or length as a PAVE-Seal Wire Harness.

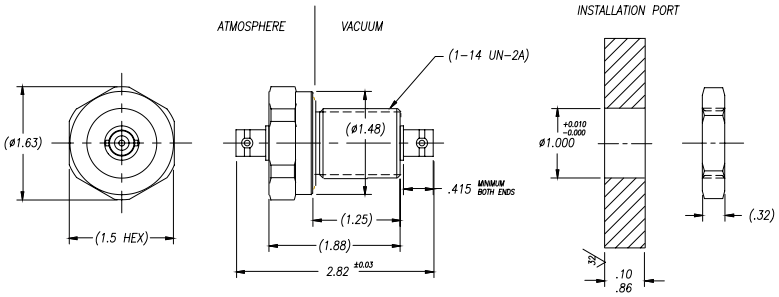
Multi-pin coaxial PAVE-Mate connectors are also available up to 29 shielded contacts. Connector shells are typical electroless nickel plated aluminum or gold-plated stainless steel. TDR testing is available for special impedance controls. Electrical frequencies up to 1 GHz are an acceptable use.

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

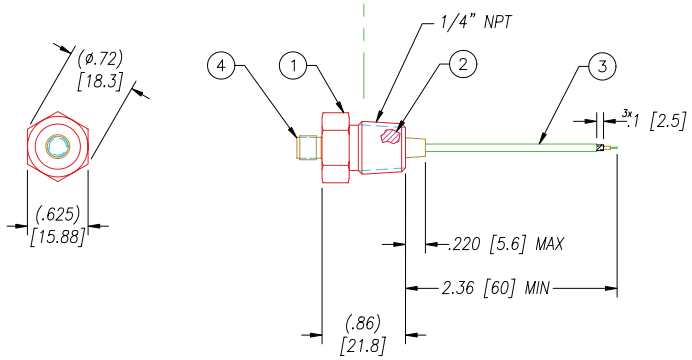
PAVE-Mate® I #4054

VS15L size, 1" port
BNC 50 ohm, Isolated floating shield
High vacuum to 200 bar (3000 psi)



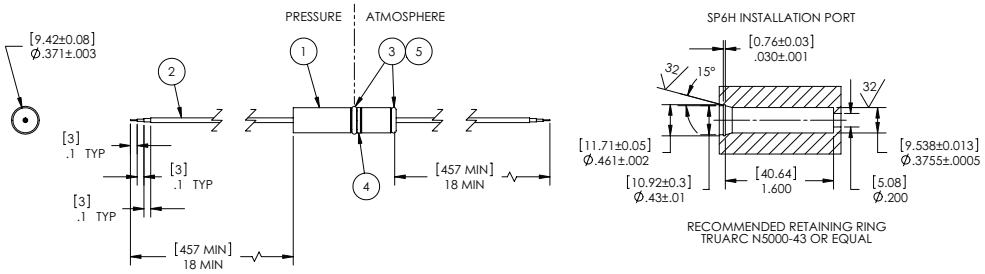
PAVE-Mate® II #4023

VS8 size, 1/4" mNPT
SMA floating shield, < 2 GHz
Vacuum to 200 bar (3000 psi)



Pave-Seal® Harness #4792

SP6H, 3/8" port
RG 178 coaxial cable
vacuum to 25,000 psi

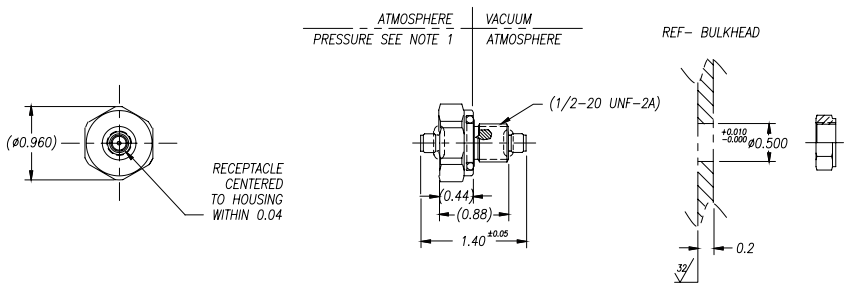


Coaxial, EMI Shielded PAVE-Seal® Wire Harness and PAVE-Mate® Connectors

Dimensions in inches [mm]

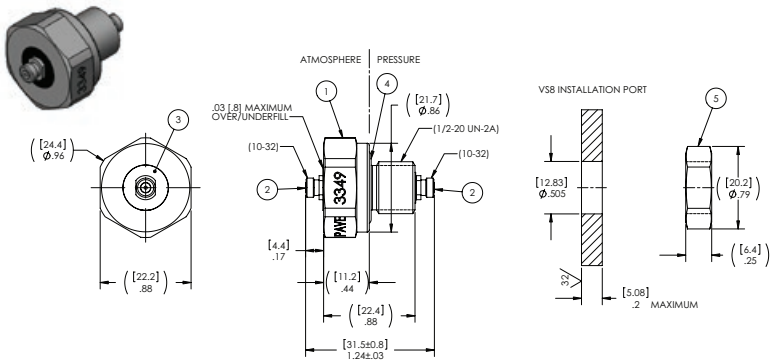
PAVE-Mate® I #1162

SMA to SMA <2 GHz
VS8 size, 1/2' port
Isolated floating shield
High vacuum to 200 bar (3000 psi)



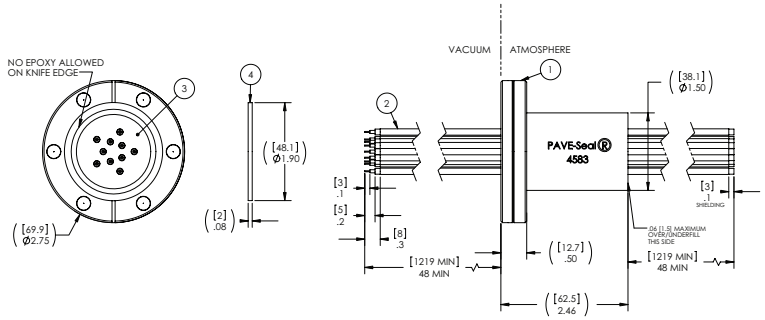
PAVE-Mate® II #3349

VS8 Size, 1/2" port
SMB MicroDot
High vacuum to 3000 psi



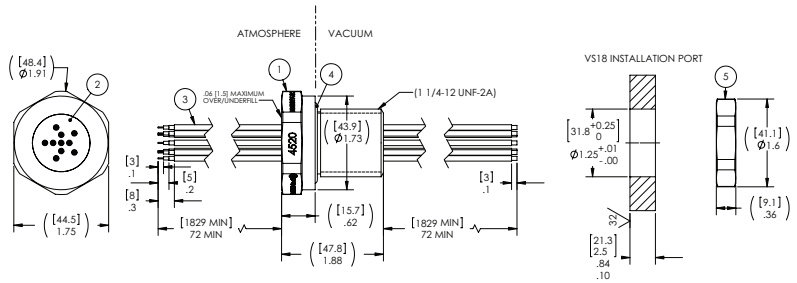
PAVE-Seal® #4583

2.75" Conflat flange
10 RG 188 coaxial cables
High vacuum



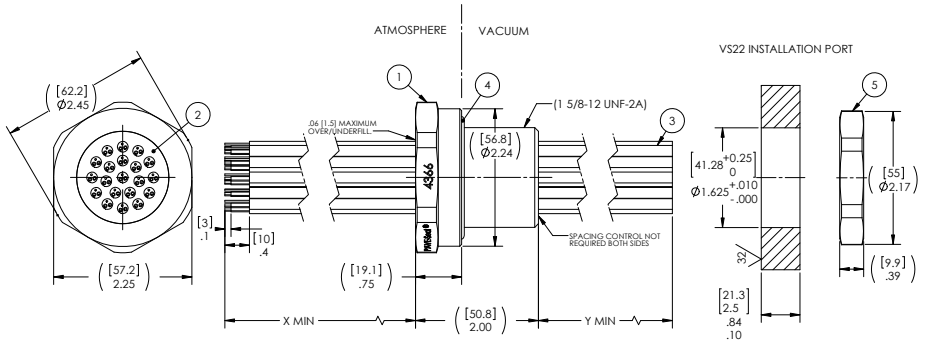
PAVE-Seal® #4520

VS18 size, 1.25" port
10 RG 174 coaxial cables
High vacuum to 3000 psi



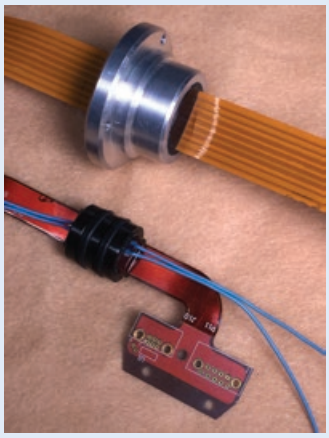
PAVE-Seal® #4366

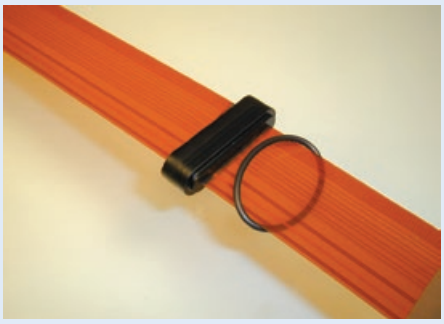
VS22 size, 1 5/8" port
20 twisted shield pairs #20 PTFE
High vacuum to 1000 psi



PAVE-Flex® Flat Cable Hermetic Seals

PAVE-Flex is a flat cable or flex circuit seal using either standard flat cables or custom flat flex circuits. PVC, Teflon or Kapton insulated flat cables are used. Solid conductor rather than stranded conductor flat cables are the most economical design.



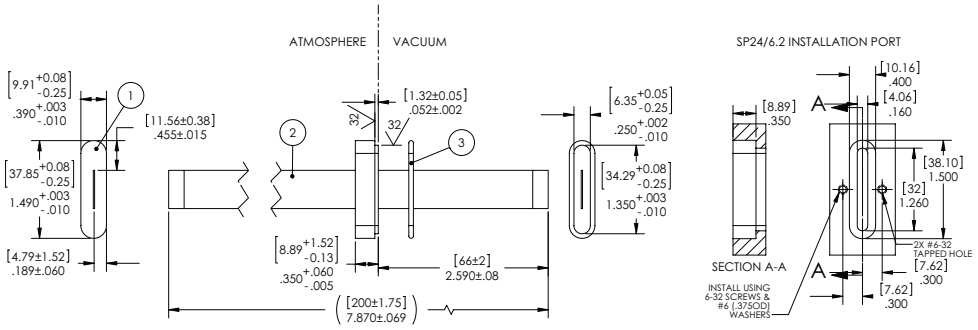


More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

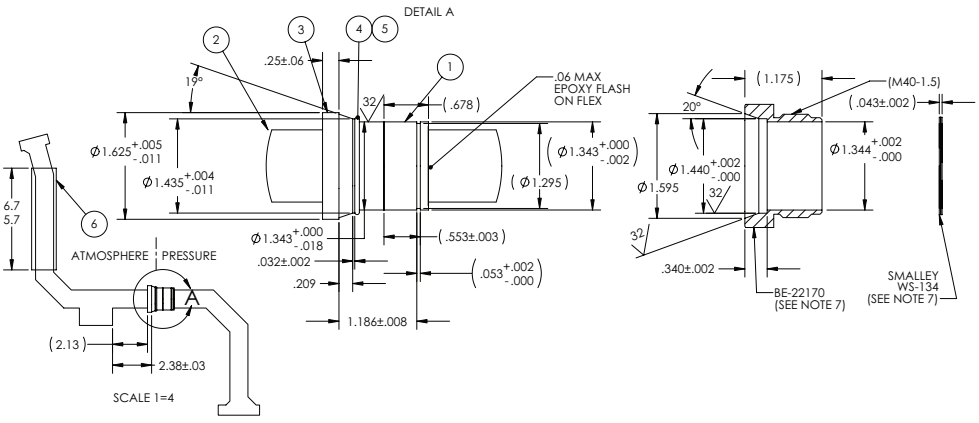
PAVE-Flex #4784

Low profile flex cable seal
High vacuum to 100 bar



PAVE-Flex #3684

Kapton flex circuit seal
Hermetic & explosion proof
with AL sleeve

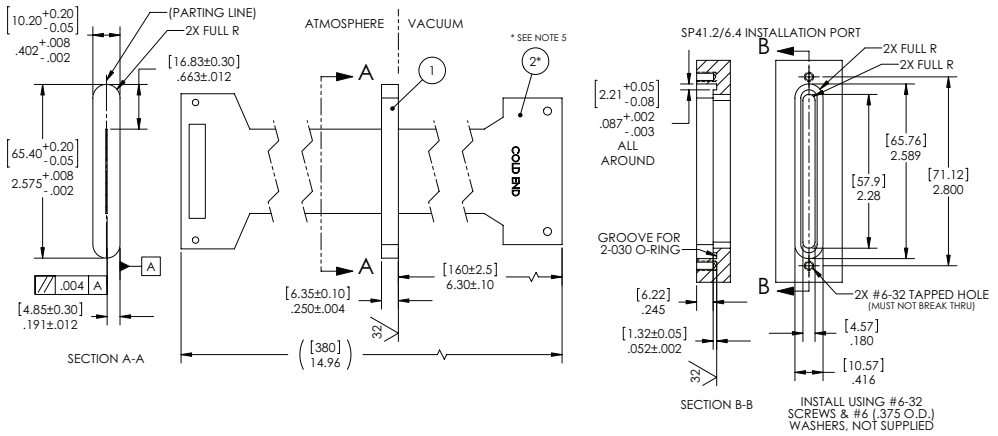


PAVE-Flex® Flat Cable Hermetic Seals

Dimensions in inches [mm]

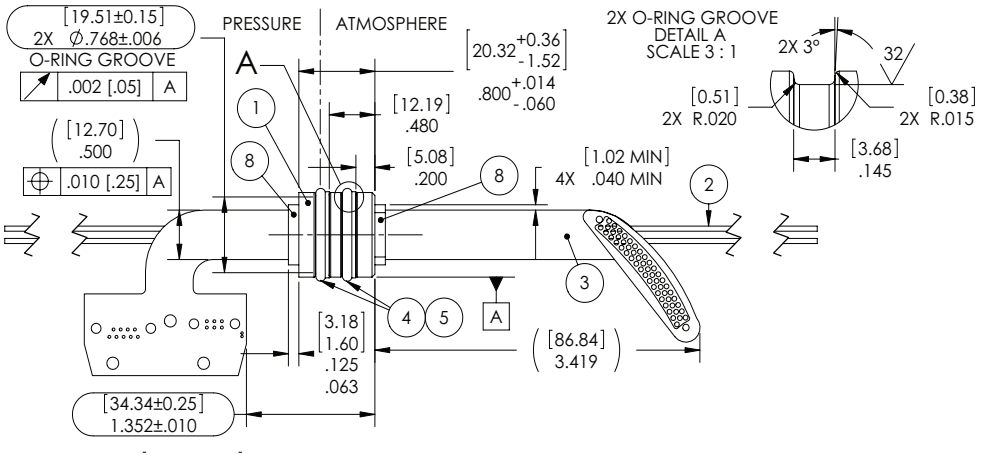
PAVE-Flex #4469

Polyimide flex circuit seal in metal or molded epoxy housing with o-ring face seal



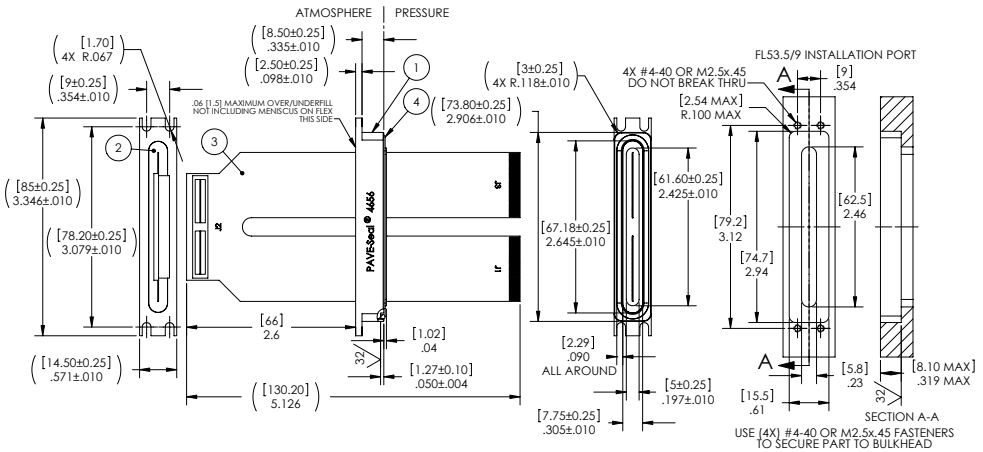
PAVE-Flex #4260

High pressure flex circuit seal with electrical wires



PAVE-Flex 4656

Kapton flex circuit seal in AL or SS housing



Thermocouple PAVE-Seal® and PAVE-Mate® Hermetic Seals

PAVE Technology can provide hermetic seals for one to over 100 pairs of all types and insulations of thermocouple wire (Teflon insulated most commonly used). Any wire lengths may be specified. The thermocouple wire conductor remains continuous and unbroken through the entire PAVE-Seal® wire assembly assuring maximum temperature reading accuracy.

PAVE-Mate® I or II style hermetic circular or rectangular pin connectors are also available.

Common thermocouple grade contacts are:

Type T, Copper-Constantan
Type K, Chromel-Alumel
Type J, Iron-Constantan
Type E, Chromel-Constantan

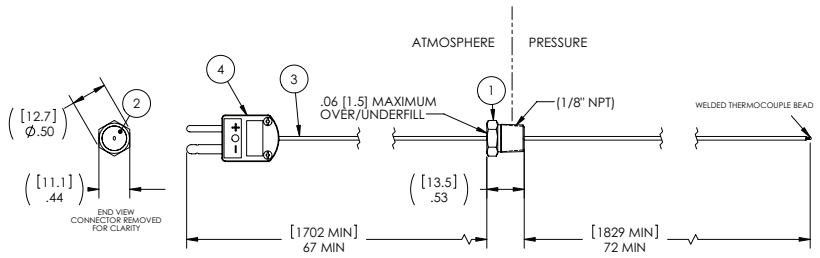
All types of thermocouple wires are available.

Visit PAVEtechnologyCo.com to view the Hermetic Seals Quick Ship price list for stocked thermocouple seals.

Dimensions in inches [mm]

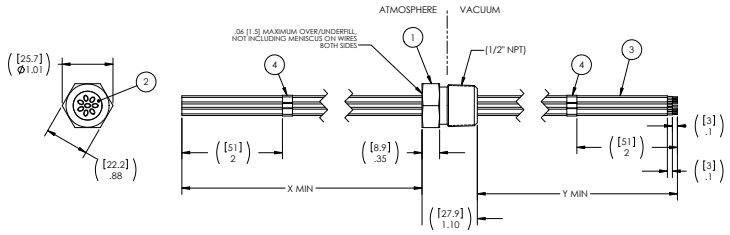
PAVE-Seal® #4718

1/8" NPT, single pair #30
Welded bead
Vacuum to 1000 psi



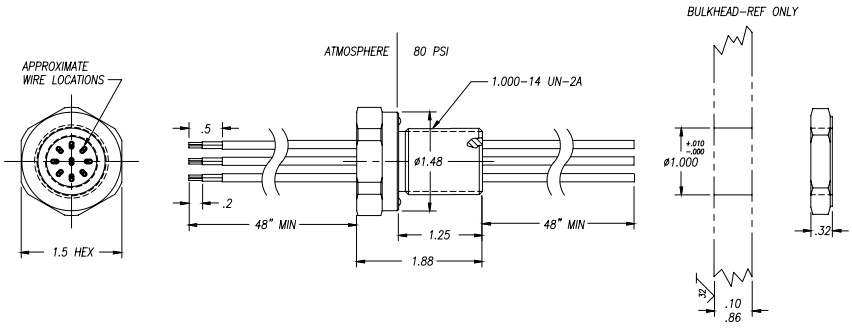
PAVE-Seal® #3285

PT8, 1/2" NPT
8 pairs #24 PTFE wires
Vacuum to 200 psi



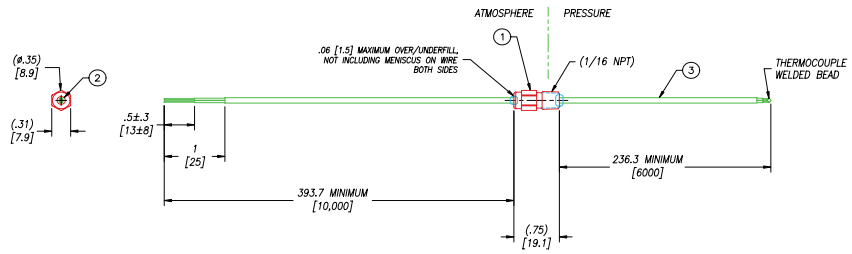
PAVE-Seal®

VS15L 1" port, 9 pairs Teflon
#1602, Type E Cu/Cu-Ni
#1664, Type J Fe/Cu-Ni
#1601, Type K, Ni-Cr/Ni-Al
#1650, Type T, Ni-Cr/Cu-Ni
High vacuum to 100 bar (1500 psi)



PAVE-Seal® #4080

PT1, 1/16" NPT
Singe pair #30 welded bead
vacuum to 1000 psi

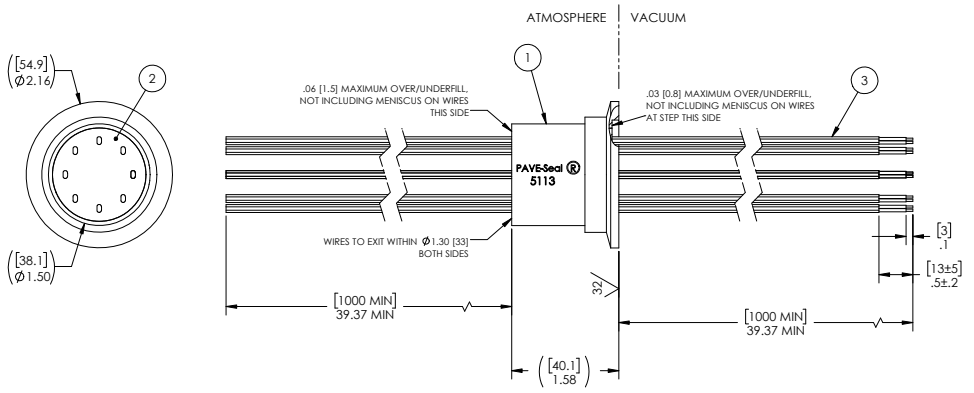


Thermocouple PAVE-Seal® and PAVE-Mate® Hermetic Seals

Dimensions in inches [mm]

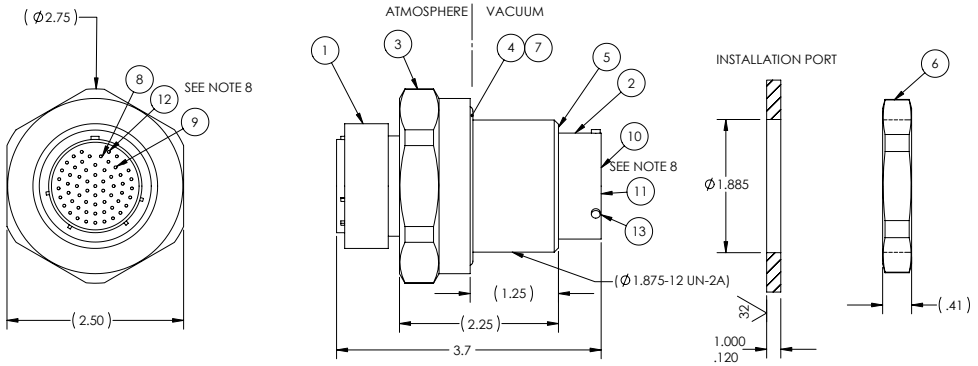
PAVE-Seal® #5113

NW KF 40 flange
8 pairs #20 Teflon insulated



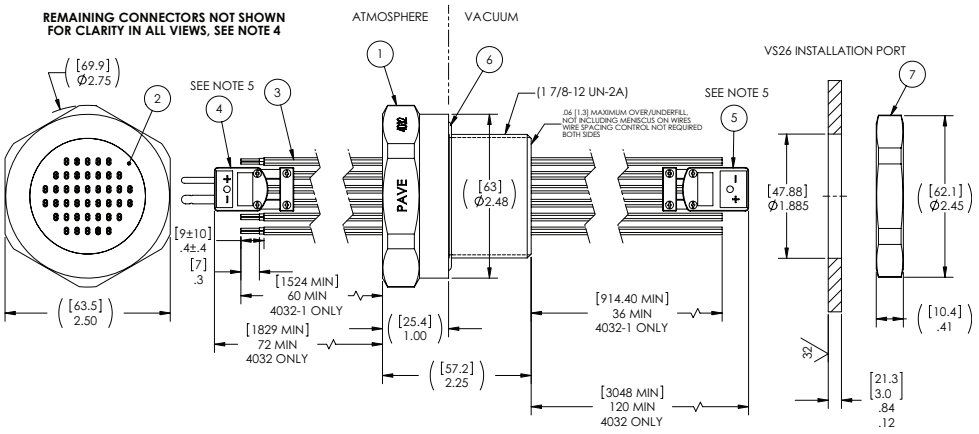
PAVE-Mate® I #2734

VS26, 1 7/8" port
61 #20 Thermocouple contacts
Inline style
See also 25 pin dsub version
PAVE-Mate 3714 at website.
K, T, J, E contacts versions.



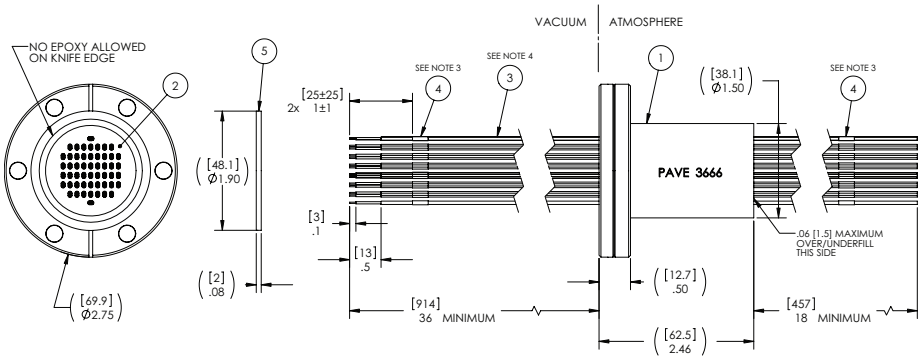
Pave-Seal® Harness #4032

VS26 size, 1 7/8" port
40 pairs #20 thermocouple
PTFE wires



Pave-Seal® Harness #3666

Conflat 2.75: flange
50 pairs #20 thermocouple
PTFE wires



High Voltage Hermetic Cable PAVE-Seal® and PAVE-Mate® Connectors

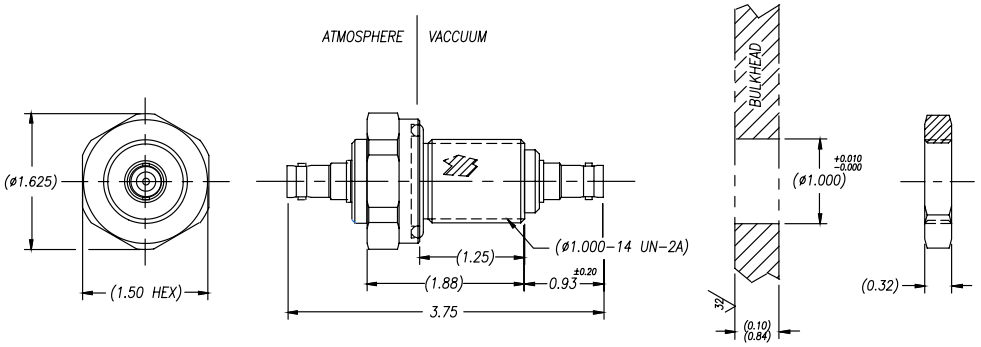
Any type of high voltage wire or cables up to 30 kV, single or multiple cables, with or without high voltage cable connectors for low or high pressures and vacuums.

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

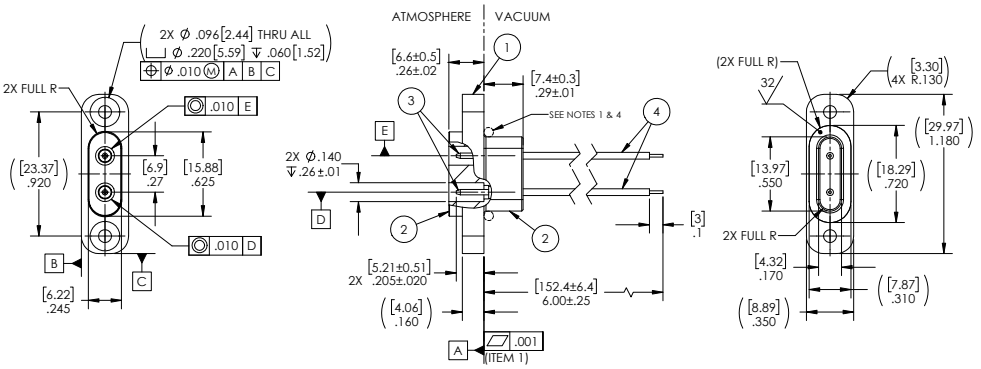
PAVE-Mate® I #1518

VS15L size, 1" port
High vacuum to 100 bar (1500 psi)
SHV to SHV connector
5 kV, isolated shield



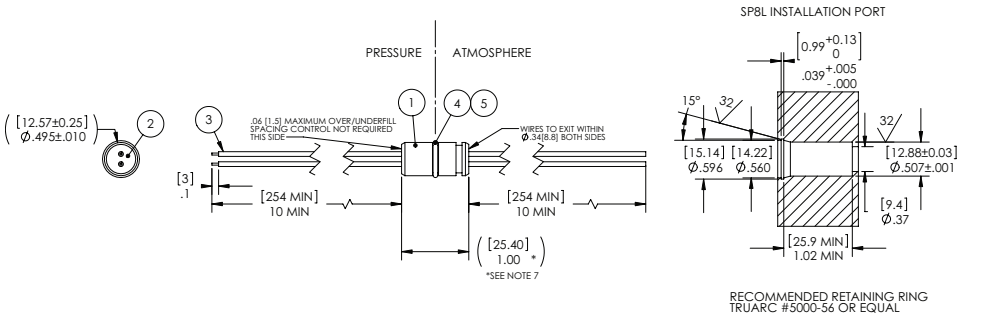
PAVE-Seal® I #5006

Custom flange 5kV seal
2 #24 pins and wires



PAVE-Seal® #4480

SP8L, 1/2' port
2 #22 5kV silicone wires

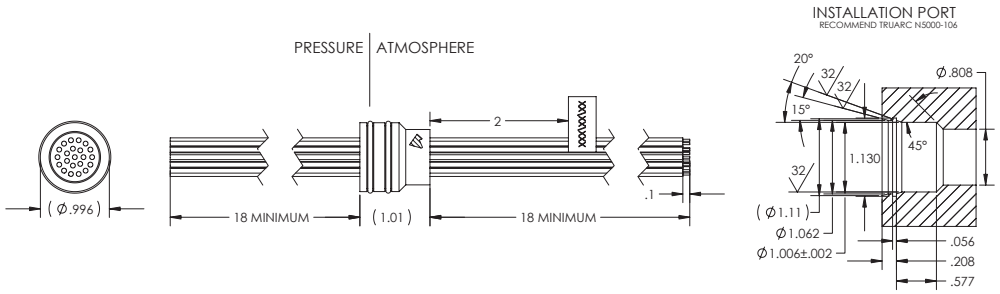


High Voltage Hermetic Cable PAVE-Seal® and PAVE-Mate® Connectors

Dimensions in inches [mm]

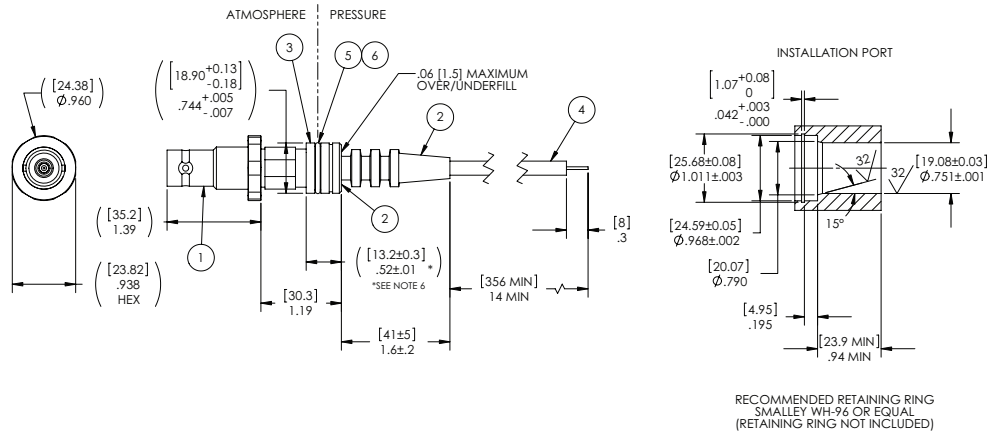
PAVE-Seal® #2959

SP16 size, 1" port
Vacuum to 100 bar (1500 psi)
22 wires rated 2.5 kV
submarine array



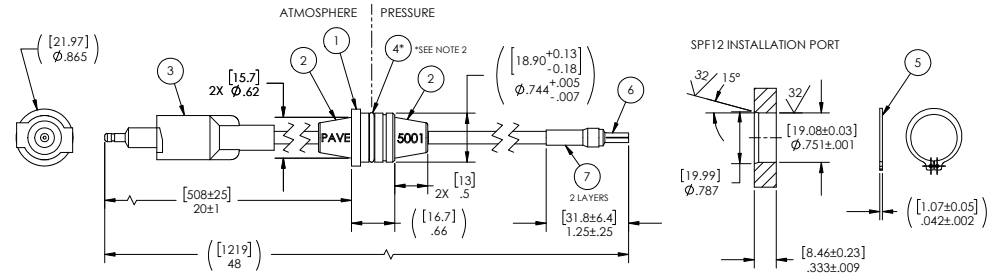
PAVE-Seal® #4439

SP12, 3/4" port
SHV 20kV
2,000 psi



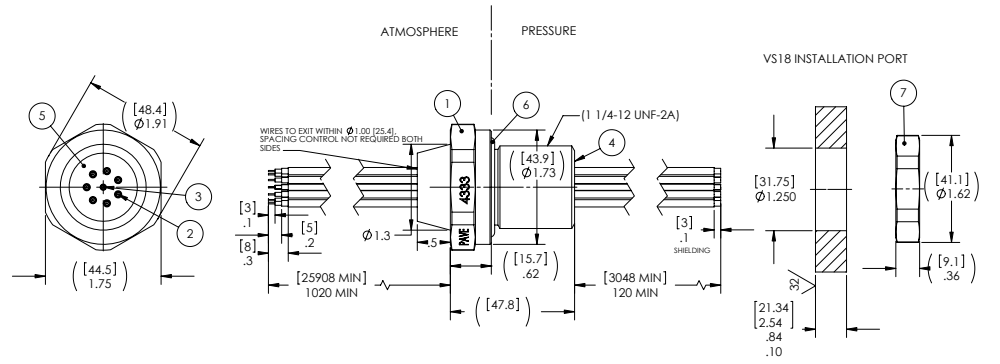
PAVE-Seal® #5001

SPF12, 3/4" port
30 kV cable seal
Vacuum to 300 psi



PAVE-Seal® #4333

VS18, 1 1/4" port
1 #26 18kV cable and
7 RG 174 cables
High vacuum to 1000 psi



PAVE-Seal® Threaded Cu Rod Hermetic

Low and high-current and voltage terminal seals for low or high pressures and vacuum use.

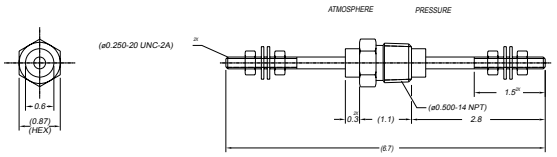
600 V minimum ratings

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

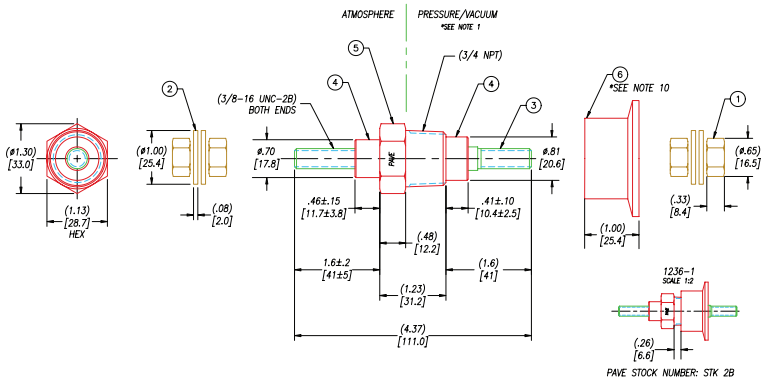
PAVE-Seal® #1573

PT8 size, 1/2" NPT
1/4" copper rod, 70A
Vacuum to 50 bar (750 psi)



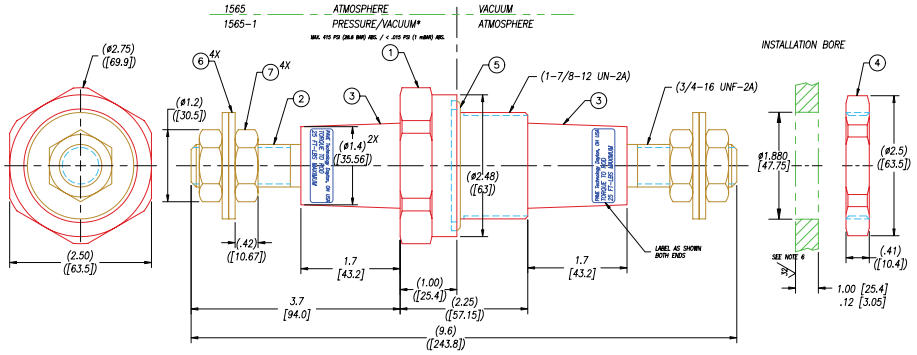
PAVE-Seal® #1236

PT12 size, 3/4" NPT
½" copper rod, 200A
Vacuum to 50 bar (750 psi)



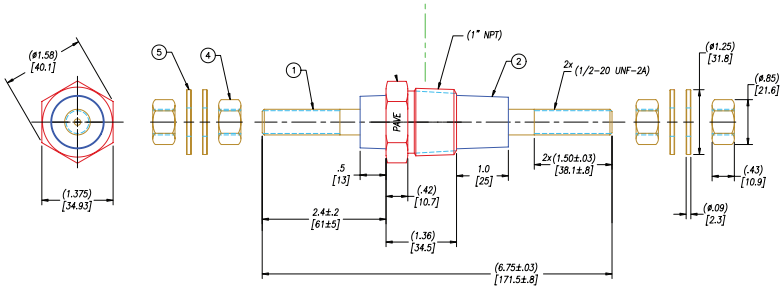
PAVE-Seal® #1565

VS26 size, 1 7/8" port
¾" copper rod, 400A
High vacuum to 30 bar (450 psi)



PAVE-Seal® #1587

PT16, 1" NPT
1/2" copper rod
Vacuum to 30 bar, 500 psi



PAVE-Seal® Solder Cup Pin Seals

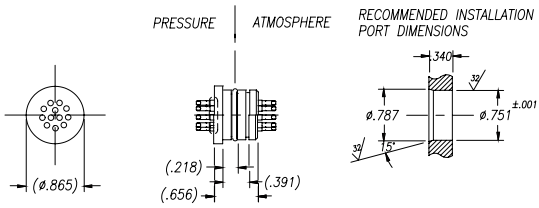
PAVE offers both standard and custom designed solder cup pin seals for sizes #20 AWG or smaller for low and high pressures and vacuums. Contacts are typically gold-plated copper or brass alloy. Pins can be on both sides or just one side and the other side pre-wired with a sealed insulated wire of any insulation type or lengths in either a molded epoxy or metal housing of your choice.

More detailed drawings at PAVEtechnologyCo.com

Dimensions in inches [mm]

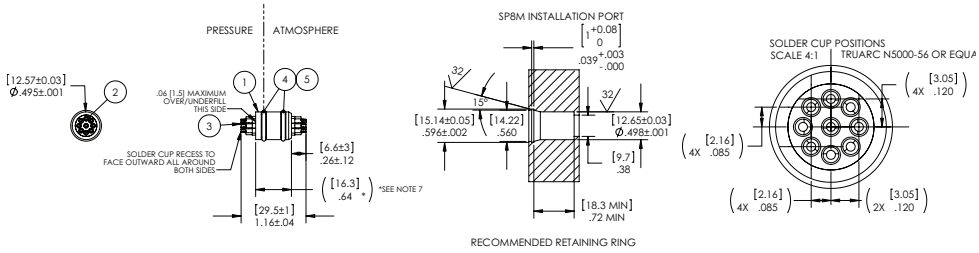
PAVE-Seal® #1962

SPF12 size, 3/4" port
12 #20 solder cup contacts
Non-magnetic versions
High vacuum to 10 bar (150 psi)



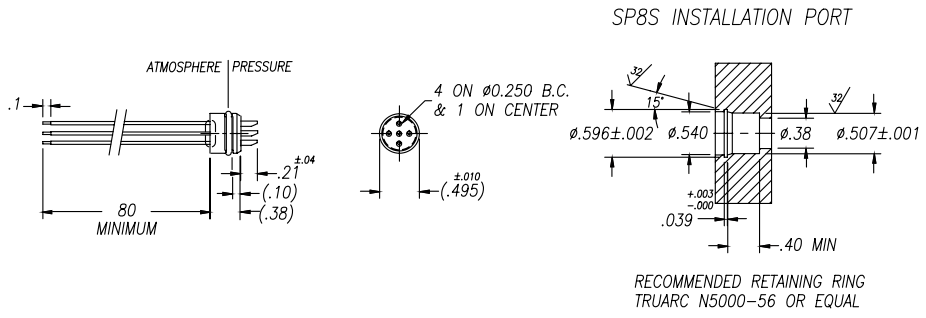
PAVE-Seal® #4538

SP8M size, 1/2" port
9 #20 solder cup contacts
High vacuum to 200 bar (3000 psi)



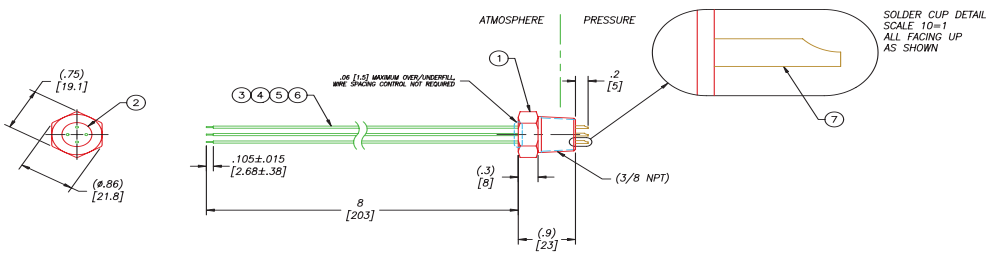
PAVE-Seal® #2208

SP8S size, 1/2" port
5 #22 Tefzel wires and pins
High vacuum to 60 bar (1000 psi)



PAVE-Seal® #0953

PT6, 3/8" NPT
4 #26 PTFE wires and solder cups
Vacuum to 1000 psi

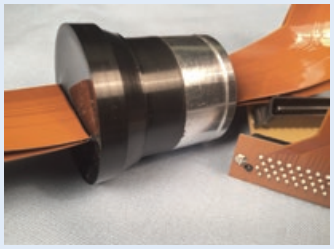


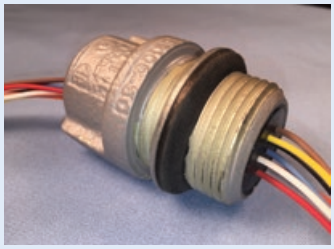
Explosion-proof and Hermetic PAVE-Seal® Wire Harnesses

ATEX

EExd II, UL, Factory Mutual Enclosure 3600, and/or CSA in metric threads, NPT threads and/or TIG/laser welded designs can be provided.

Flame-proof barrier





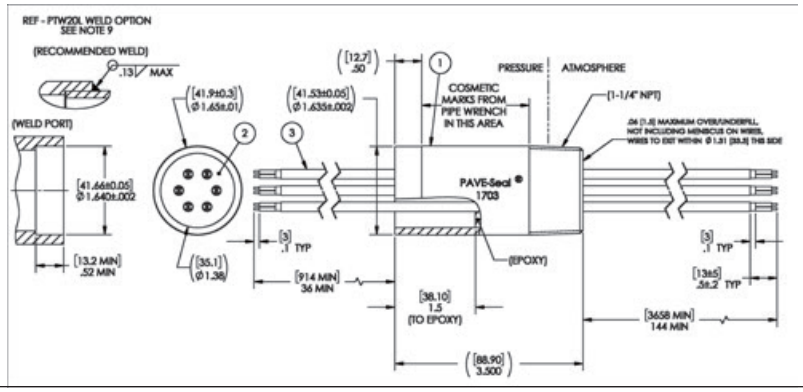
Hazardous Locations PAVE-Seal® Wire Harnesses

More detailed drawings at PAVEtechnologyCo.com

Metric mm

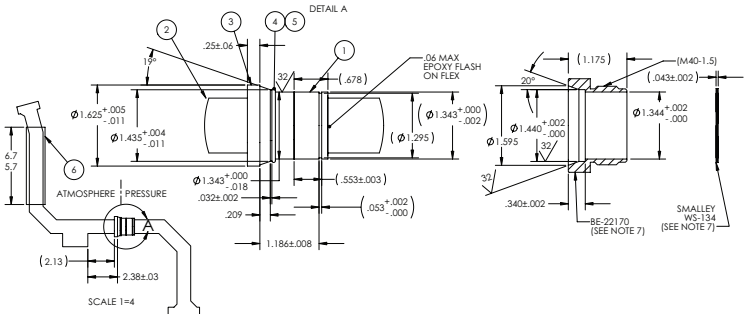
PAVE-Seal® #1703

1 ¼" NPT port
6 pairs twisted shield #18 Teflon wires
Vacuum to 1500 psi
TIG welded on non-threaded side



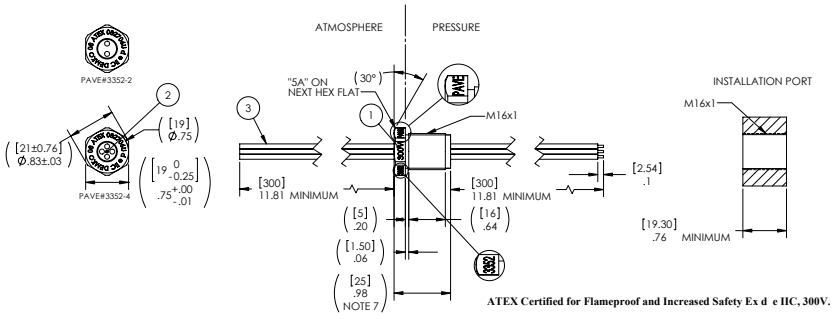
PAVE-Seal® #3684

Flex circuit seal
AL sleeve ATEX approved



PAVE-Seal® #3352

M16 housing
4 #20 PVC wires
UL ATEX CSA certified



Other safety agency explosion-proof certifications such as ATEX, UL 1203 and 60079, and CSA C22.2 No 30 with either metric, NPT or pg threading can be obtained for most PAVE-Seal® Wire or Cable Harness products.

PAVE-Seal® Quick Ship

Quick Ship Listing of Electrical and Fiber Optic Hermetic Feedthrough Wire or Pin Connector Seals

Call +1 937 890 1100 x103 tech sales or x102 for order placement including credit cards.

- For Low and High Pressure and Vacuum hermetically sealing fluids or gases
- Most of our circular hermetic seals can be leak tested and certified upon request for significantly higher pressures than a typical 80 psi (5 bar) air bubble test or vacuum helium leak test shown on drawings.
- Lower temperature ranges as low as -200C may also be possible.

Please refer to the appropriate online catalog pages for more information and pricing.

Go to PAVEtechnologyco.com for current pricing for small quantities.

Hermetic Wire Seals		
Part #	PAVE Description Code	Description. See drawing online for details.
5092	5092 – SP4X-E-150-6-K34-12-12	6 #34 Kapton wires, ¼" PORT
3340	3340 – SP6X-E-200UL94-2-TE26-3-12	2 #26 TEFLON WIRES, 3/8" PORT, 3×12" lengths, up to 10k psi
3656	3656 – SP9-E-150-2-TZ16-8-6	2 #16 Teflon wires, 9/16" PORT
3451	3451 – SP8C-E-200-2-TEE18-1-4	2#18 TEFLON wires, ½" PORT
1447	1447 – PT8-SS-150-3-TEE14-18-36	3 #14 TEFLON WIRES, ½" NPT, 18×36" lengths
1575	1575 – SPF12-E-150-4-TZZ10-24-36	4 #10 TEFLON WIRES, ¾" PORT, 24×36" lengths
2064	2064 – SO8-SS-150-4-TEE24-24-24	4 #24 TEFLON WIRES, ½"-20 thread, 24×24" lengths
4488	4488 – PTN20-PS-150-3/1-PC6/PC8-16-16 submersible pump flat cable	3 #6 + 1 #8 PVC WIRES, 1 ¼" NPT HEX NIPPLE, 16X16" wire lengths THW UL 83 flat cable
2476	2476 – SP11M-E-150-2/2-TZ14/22-130-25	2 #14 & 2 #22Teflon wires, 5/8" PORT, 5×10" lengths
3936	3936 – SPF12L-E-200UL94-4-TZ14-7-6	4#14 Teflon wires, ¾" PORT, 7×4" lengths
2411-2	2411-2 – PT2-SS-150-5-TE24-12-12	5 #24 TEFLON WIRES, 1/8" NPT, 12X12" lengths
4760	4760 – PT4-B-150-6-TE28-18-18	6 #28 PTFE WIRES, 1/4" NPT Port, 18X18" lengths
1632	1632 – SP6-E-150-6-TE28-50-50cm	6 #28 TEFLON WIRES, 3/8" PORT, 50x50cm lengths
0597	0597 – SP8L-E-150-9-TZ22-70-70cm	9 #22 TEFLON WIRES, ½" PORT, 70x70cm lengths
1588	1588 – PT8-SS-200-9-TZ22-24-	9 #22 Teflon wires, 1/2" NPT"
2104	2104 – SPF12-E-150-10-TE28-12-10,	10 #28 TEFLON WIRES, ¾" PORT, 12X10" lengths
2189	2189 – SP16-E-150-12-TEE18-24-24	12 #18TEFLON WIRES, 1" PORT, 24×24" lengths
4762	4762 – PT16-SS-150-12-TEE18-23-23	12 #18 PTFE wires, 1" NPT Port, 23×23" lengths
1962-1	1962-1 – SPF12-E-200-12-22-SC-SC	12 #22 SN PLATED BRONZE SOLDER CUPS EACH SIDE
1649	1649 – VS15L-SS-150-12-TEE20-48-48	12 #20 TEFLON WIRES 1" PORT, 48×48" lengths
1872	1872 – VS15-AL-150-20-TE22-48-48	20 #22 TEFLON WIRES, 1" PORT, 48×48" lengths
Thermocouple Hermetic Wire Seals		
Part #	PAVE Description Code	Description. See drawing online for details.
3285	3285 – PT8-SS-150-8P-TT24-120-40	8 PAIRS #24 TYPE T TEFLON THERMOCOUPLE, ½" NPT, 120x40" lengths
1664	1664 – VS15L-SS-150-9P-JT20-48-48	9 PAIRS #20 TYPE J TEFLON THERMOCOUPLE,1" PORT, 48x48" lengths
1601	1601 – VS15L-SS-150-9P-KT20-48-48	9 PAIRS #20 TYPE K TEFLON THERMOCOUPLE, 1" PORT, 48x48" lengths
1650	1650 – VS15L-SS-150-9P-TT20-48-48	9 PAIRS #20 TYPE T TEFLON THERMOCOUPLE, 1" PORT, 48x48" lengths
Hermetically Sealed Pin Connectors, Single and Dual Double Ended		
Part #	PAVE Description Code	Description. See drawing online for details.
4054	4054 – VS15L-SS-150HV-1-BNC-BNC	BNC, 1" PORT, Floating Isolated shield Dual Sided connector
1162	1162 – VS8-SS-150-SMA-SMA COAXIAL	SMA, ½" PORT, Floating Isolated Shield Dual Sided connector
1518-1	1518-1– VS15L-SS-150HV-1-SHV-SH 7kVdc	SHV dual sided connector 1"o-ring face seal
3273	3273 – VS18-SS-150-8-24-RJ45-RJ45 CAT5 CAT6 ethernet LAN	CAT5 CAT 6 RJ45, 1 ¼" PORT, ethernet dual sided connector
4884	4884 – VS15L-SS-150-1-USBAfemale-USBAfemale USB	USB 2.0, 1" PORT, USB dual sided connector
4955	4955 – VS15L-SS-150-1-USBAfemale-USBAfemale USB 3.1	USB 3.1 dual ended hermetic connector, vacuum to 300 psi
1964	1964 – VS26-SS-150-7-8-3102PS	7 #8 + 2 PLUGS, 1 7/8" PORT, dual sided threaded coupling connector
1837	1837 – VS18-E-150-8-16-3112PS	8 #16 + 2 PLUGS, 1 ¼" PORT, dual sided bayonet connector
2748	2748 – SP30/13-E-150-9-20-DSUB	9 #20 dsub Standard density dual sided
1656	1656 – VS15L-SS-150-10-20-3112PS	10 #20 + 2 PLUGS, 1" PORT, dual sided connector
1666	1666 – VS12L-AL-150-13-TE22-27508P-48	13 #22 TEFLON WIRES, ¾" PORT, single side connector
3362	3362 – SP37/13-E-150-15-20-DSUB-DSUB	15 #20 STANDARD DENSITY, dual sided DB connector
2749	2749 – SP30/13-E-150-15-22-DSUB-DSUB	15 #22 HIGH DENSITY, VGA RGB dual sided DB connector
3938	3938 – VS26-SS-150-19-12-99920PS	19 #12 + 2 Crimp Plugs, 1 7/8" PORT, dual sided connector
1667	1667 – VS22-E-150-21-16-3112PS	21 #16 + 2 PLUGS, 1 5/8" PORT, dual sided connector
3527	3527 – SP44/13-E-150-25-TE20-DSUB25-2	25 #20 STANDARD DENSITY DSUB, single sided connector
3420	3420 – SP46/13-E-150-25-20-DSUB-DSUB	25#20 STANDARD DENSITY DSUB, dual sided connector
1637	1637-1 – VS18-SS-150-26-20-3112PS (CRIMP)	26 #20 CONTACTS + 2 PLUGS, 1¼" PORT, dual sided connector
1525	1525 VS18-SS-150-37-22-99920PS	37 #22 + 2 PLUGS, 1 ¼" PORT, dual sided connector
1669	1669 – VS32-E-150-48-16-3102	48 #16 + 2 plugs, 2 ½" PORT, dual sided connector
1670	1670 – VS22-SS-150-55-20-3112PS	55 #20 + 2 PLUGS, 1 5/8" PORT, dual sided connector
1671	1671 – VS26-E-150-61-20-3112PS	61 #20 + 2 PLUGS, 1 7/8" PORT, dual sided connector
1491	1491 – VS22-304SS-150-79-22-999/20PS	79 #22 + 2 PLUGS, 1 5/8" PORT, dual sided connector
3567	3567 – VS26-SS-150-128-22-99920PS	128 #22 + PLUGS, 1 7/8" PORT, dual sided connector
2766	STK #85 - 27662766X – SP52/25-E-150-199-25-M8	199 #25 contacts micro dsub connector dual sided
Hermetic Threaded Copper Terminal Rod Seals, low & high currents amperage		
Part #	PAVE Description Code	Description. See drawing online for details.
1573	1573-1 – PT8-SS-200-.25CU-3-3	75 AMP PAVE-SEAL, ½" NPT, ¼ copper threaded rod
1236	1236 – PT12-SS-200HV-.38-1.6-1.6	150 AMP PAVE-SEAL, ¾" NPT
1587	1587 – PT16-SS-200HV-.5CU-2.4-3.0	200 AMP PAVE-SEAL, 1" NPT
1565	1565 – VS26-SS-200-1-.75CU-3.7-3.7	400 AMP PAVE-SEAL 1-7/8" PORT, JAM NUT & O-RING
Hermetic Fiber Optic Seals		
Part #	PAVE Description Code	Description. See drawing online for details.
1271	1271 – VS8-SS-150-1-62/125u-ST-ST	1 FIBER MULTIMODE FIBER OPTIC ST DUAL SIDE CONNECTORS, ½" PORT
4547	4547 – SP6L-E-150-12-SMFO-18-18	12 FIBERS SINGLE MODE SMF28e RIBBON OPTIC SEAL, 9,37mm PORT, 7k psi to vacuum

Frequently Asked Questions Answers at website

1. PAVE-Seal® and PAVE-Mate® Installation Instructions
2. Does the PAVE-Seal versions with insulated and stranded conductors have a much higher leak rate compared to the PAVE-Mate styles with solid pins?
3. What are the available circular connector contact or pin arrangements available as PAVE-Mate connectors that connect to MIL-Spec or commercial connectors?
4. Where can I find the PAVE-Mate connector pin and wire assembly instructions?
5. Can the customer order additional mating plugs or contacts for the PAVE-Mate series?
6. Do you have other PAVE-Mate connector pin arrangements not shown in the catalog, as well as all the contact arrangements lettering or numbering?
7. How do I find out what is available in existing PAVE designs?
8. How does PAVE seal PTFE, stranded, shielded wire?
9. How are the minimum seal length and the minimum outside diameter of the seal determined?
10. Where can I get help on retaining or snap ring design and usage?
11. Where can I find sources for available cables and their specifications that PAVE can seal?
12. Do you supply PAVE-Seal Wire Harnesses with the wire ends terminated with connectors?
13. Does the customer have to go through the local sales representative? Or can the customer contact PAVE Sales Engineering or place a Purchase Order directly to the Dayton, Ohio USA location?
14. I only need a very small quantity. How do I find our what PAVE stocks?
15. What type of leak rates are possible?
16. Can the customer supply PAVE their cable or connector to be sealed?
17. I do not need a hermetic seal, only environmental seal. Can PAVE provide a lower cost seal solution?
18. How do I order a fiber optic seal?
19. Does PAVE have an automotive quality report on PAVE products used on the 1995-97 Ford Explorer SUV in the electronic stability control suspension system?
20. Does PAVE have any test data from a recognized laboratory, such as NASA, that demonstrates that PAVE epoxy sealants have very low vacuum outgassing characteristics?
21. What does the -E- mean versus the -SS- description for the PAVE-Mate I connectors?
22. Where can I find technical help on o-rings?
23. Does PAVE offer welded junctions on its thermocouple hermetic wire seal products?
24. Do you have any current quality reports showing the strong performance, reliability and high quality of PAVE-Seals in large production volumes?
25. Are PAVE products bi-directional seals?
26. How do I determine amperage or current load capacity of a given size wire conductor or copper rod?
27. Besides meeting low emissions standards for small engine technology such as motorcycles what large engine applications use PAVE seals?
28. Are your wire seals and connectors compliant to RoHS specifications?
29. Does PAVE offer special cleanliness and packaging processes to further reduce any high vacuum outgassing?
30. Does PAVE offer special for high vacuum low outgassing connectors in its dual-sided PAVE-Mate I connector line?
31. Does PAVE have electrical test data on your SMA frequency characteristics?
32. Can PAVE supply the o-rings used on their products used without any silicone O-ring grease or lubricant material that might contaminate a high vacuum system sensitive to silicone?
33. What is the wire pull test specs?
34. Do PAVE-Seal wire harnesses seal to very low -100C or near cryogenic temperatures such as with LNG?
35. Does PAVE have any rigorous life cycle testing on its epoxy molded wire seals?
36. Does the PAVE-Seal epoxy resist strong solvents, acids, and other chemicals?
37. What is the PAVE-Seal epoxy Comparative Tracking Index or CTI used to measure the electrical breakdown (tracking) properties used for electrical safety assessment by Underwriters Laboratory?

Quotation Request Form

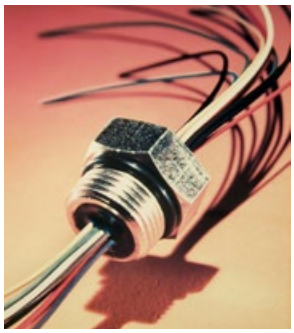
Also available on-line in Design Assistance section.

Any type or size of wire or cable may be specified including shielded cables, coaxial cables, thermocouple wire pairs, high voltage wires, fiber optic cable, flat cables, etc. for any length.

NO DETECTABLE LEAKAGE THRU CONDUCTOR OR INSULATION.

Wire Conductor Gage (AWG)	O.D.	Amperage Rating	Nominal Insulation Overall	Diameter (O.D.)
30	0,30 mm	2	.03"	0,8 mm
28	0,40	2	.04	1,0
26	0,50	3	.05	1,3
24	0,60	3	.06	1,5
22	0,78	4	.06	1,5
20	0,90	6	.07	1,8
18	1,21	8	.08	2,0
16	1,50	10	.09	2,3
14	1,85	18	.11	2,8
12	2,4	25	.12	3,0
10	2,94	40	.21	5,3
6	4,67	80	.26	6,6

Fax copy to +1 937-890-5165
or go online for design assistance



Please send the following information with your request for a quote or sales engineering design recommendations:

Name _____ Title _____ Department _____

Company name _____ Street _____

City _____ State/Providence _____ Mail code _____ Country _____

Telephone _____ Fax _____ E-Mail _____ Mail catalog? _____

How did you become aware of PAVE? _____

Operating Conditions

Describe equipment our product will be used in _____

Describe media to be sealed (e.g., gas, fluids) _____

Maximum pressure and/or vacuum _____ Temperature extremes (°C) _____

Voltage (Indicate AC or DC) _____ Amperage duty cycle _____

Special requirements _____

Leak rate test _____

Design Requirements

Number of electrical/fiber-optic conductors by size/type.

PAVE-Seal Style with cable both ends (____) Cable Gage(s) _____ Insulation type _____

PAVE-Mate I® Style with pin disconnects both ends. Number of Pins (____) Gage _____

PAVE-Mate II® Style with pin disconnect one side only. Number of pins (____) Gage _____

Number of Pins/Wires _____ Gage or size? _____

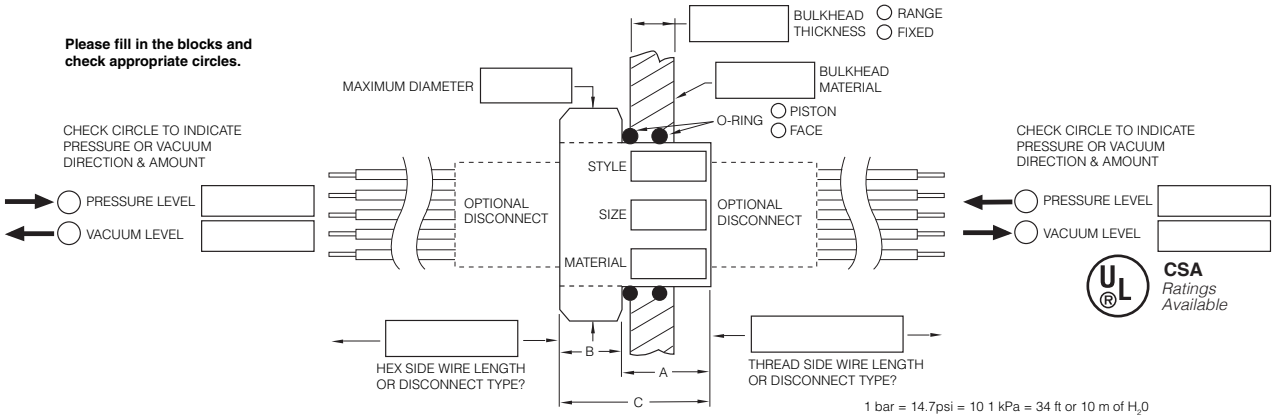
PAVE Optic-Seal® Style with fiber-optic cable both ends (____) _____

Cable specification including insulation type and size _____ Define any high pressure cycling, direction and duration

_____

Preferred method of installation (Threaded type, O-ring gland or face seal or TIG or laser welded) _____

Quantities to quote _____ Target/budget prices? _____ Needed ship date? _____



Quick-shipping standard connectors and rush shipment or prototyping available! Simple or detailed drawings sent along with your quotation request are encouraged to help clarify your minimum critical mechanical and electrical requirements so we can help direct you to the most cost effective, fast solution.

PAVE technology co.

Pressure And Vacuum Electronics

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Dayton, Ohio 45414-3451 U.S.A.
Phone +1-937-890-1100
Fax +1-937-890-5165
PAVEtechnologyCo.com

PAVE products have a limited lifetime warranty, depending upon the application's pressure, temperature, and other operating conditions.

Specifications are subject to change without notice.

Pressure ratings and pressure direction use should be factory verified on drawings prior to use by the customer. In most cases, PAVE-Seals will seal bi-directional pressures or vacuum, though test rating may vary by the pressure direction.