

Vibra-Proof Condenser Plugs



Vibra Proof Condenser Plugs

CPI Plugs™

Perma Plugs™

P2 High Pressure Plugs®

Ram Packages

Tube Stabilizers

Manual Installation Tools

Plug Removal Tools

The Condenser Plugs That Won't Vibrate Loose.



Corrosion resistant construction. Simple procedure to plug defective tubes.

- **Plug sizes .28-.47:** All stainless steel construction, positioning washer, support rod, and hex compression nut.
- **Plug sizes .50-1.28:** All brass construction, positioning washer, compression washer, support rod, and hex compression nut.
- **Sized to fit your tube ID from .28 - 1.31 (7.1 - 33.2 mm).**
- **Optional materials available:** Please contact EST Customer Service



World Headquarters:
Expansion Seal Technologies
2701 Township Line Road
Hatfield, PA 19440-1770 USA
Tel: 1-215-721-1100 Fax: 1-215-721-1101
Toll-Free: 1-800-355-7044

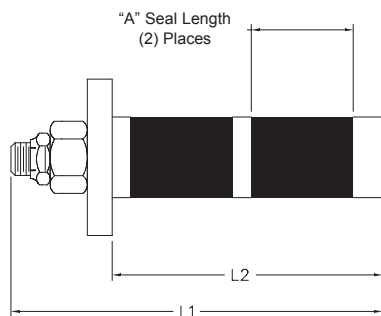
Expansion Seal Technologies EMEA
Hoorn 312a • 2404 HL Alphen aan den Rijn
The Netherlands
Tel: +31-172-418841
Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
35 Tannery Rd, #11-10 Tannery Block
Ruby Industrial Complex
Singapore 347740
Tel: +65-6745-8560 Fax: +65-6742-8700

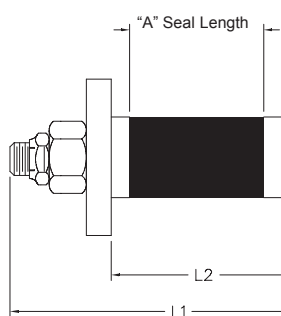
SPECIALISTS IN TUBE TESTING, SLEEVING AND PLUGGING TECHNOLOGY

AN ISO-9001 REGISTERED COMPANY

Vibra Proof Condenser Plugs



Sizes 0.28 - 0.83



Sizes 0.87- 1.28

Tube ID Range		Shaft OD		“A”		L1		L2		Materials of Construction	Maximum Operating Pressure
(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)		
.280-.499	7.11-12.69	0.13	3.2	0.50	12.7	1.81	46.1	1.50	38.1	Stainless Steel	150 (psi) 10 (Bar)
.500-.869	12.70-22.09	0.25	6.4	0.50	12.7	2.13	54.0	1.50	38.1	Brass	
.870-1.309	22.10-33.25	0.38	9.5	1.25	31.8	2.50	63.5	1.63	41.3		

Recommended Vibra-Proof Plug Size for Roller Expanded Tubes (Part No: VPC-XXXX-N)

BWG	Tube OD (XXXX)								
	1/4"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"
8		0030	0043	0056	0070	0081	0093	0106	0018
9		0033	0047	0060	0072	0083	0097	0110	0122
10		0037	0050	0062	0075	0087	0100	0112	0126
11	0028	0040	0053	0065	0078	0090	0103	0115	0128
12	0030	0043	0053	0068	0078	0093	0103	0118	0128
13	0033	0043	0056	0068	0081	0093	0106	0118	
14	0033	0047	0060	0072	0083	0097	0110	0122	
15	0037	0047	0062	0072	0087	0097	0112	0122	
16	0037	0050	0062	0075	0087	0100	0112	0122	
17	0040	0050	0062	0075	0087	0100	0112	0126	
18	0040	0053	0065	0078	0090	0103	0115	0128	
19	0040	0053	0065	0078	0090	0103	0115	0128	
20	0043	0056	0068	0081	0093	0106	0118	0128	
21-22	0043	0056	0068	0081	0093	0106	0118		
23-24	0043	0056	0068	0083	0093	0106	0118		

Ordering Information

When ordering please supply the following information:

- Tube size and wall thickness.
- Tube Material
- Maximum operating pressure.
- Temperature.

Specifications subject to change without notice.



World Headquarters:
Expansion Seal Technologies
 2701 Township Line Road
 Hatfield, PA 19440-1770 USA
 Tel: 1-215-721-1100 Fax: 1-215-721-1101
 Toll-Free: 1-800-355-7044

Expansion Seal Technologies EMEA
 Hoorn 312a • 2404 HL Alphen aan den Rijn
 The Netherlands
 Tel: +31-172-418841
 Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
 35 Tannery Rd, #11-10 Tannery Block
 Ruby Industrial Complex
 Singapore 347740
 Tel: +65-6745-8560 Fax: +65-6742-8700

SPECIALISTS IN TUBE TESTING, SLEEVING AND PLUGGING TECHNOLOGY

AN ISO-9001 REGISTERED COMPANY

OPERATING PROCEDURES FOR VIBRA-PROOF CONDENSER PLUGS**WARNINGS!**

- **ALL WARNING STATEMENTS MUST BE CAREFULLY OBSERVED TO HELP PROTECT AGAINST INJURY AND DAMAGE TO PERSONS AND PROPERTY.**
- **WHEN SYSTEM IS UNDER PRESSURE DO NOT, UNDER ANY CIRCUMSTANCES ATTEMPT TO ADJUST, MOVE, OR CHANGE THE TEST PLUG IN ANY WAY, SHAPE, OR FORM.**
- **DO NOT EXCEED THE MAXIMUM OPERATING PRESSURES LISTED IN TABLE 1.**

INSTALLATION PROCEDURE:

1. Prepare the tube end. Vibra Proof Condenser plugs are to be installed in a clean, dry tube end. Any scale or moisture present may interfere with the sealing of the plug and may reduce the pressure that the plug will be capable of holding.
2. Install the correct size Vibra Proof Condenser plug into the end of tube being sealed.
3. Insert plug into tube end and tighten compression hex nut until plug is finger-tight. Then using a calibrated torque wrench, continue tightening the compression nut to prescribed installation torque as indicated in Table 1.
4. Tighten lock nut to the back of hex nut making sure not to turn hex nut, doing so may over-torque hex nut.
5. Begin testing or in-service operation.

WARNING! WHEN SYSTEM IS UNDER PRESSURE DO NOT, UNDER ANY CIRCUMSTANCES ATTEMPT TO ADJUST, MOVE, OR CHANGE THE TEST PLUG IN ANY WAY, SHAPE OR FORM.

6. To remove loosen both nuts and withdraw from tube.
7. Inspect the plug for wear and replace any worn components. Any component, which is worn or damaged, must be replaced before attempting to use the plug. Contact the factory for information on replacement of worn or damaged parts.

TABLE 1:

Table 1. Vibra-Proof Condenser Plug Installation Torques And Operating Pressures					
TUBE ID SIZE RANGE		INSTALLATION TORQUE*		MAXIMUM OPERATING PRESSURE	
(in)	(mm)	(Ft-Lbs)	(kg-m)	(psig)	(Bar)
0.280 – 0.499	7.11 – 12.68	FINGER TIGHT + (2) TURNS		150	10
0.500 - 0.869	12.69 – 22.08	2.5	.35	150	10
0.870 – 1.309	22.09 – 33.25	9	1.26	150	10

Specifications subject to change without notice.

NOTE: TO AVOID DAMAGE TO PLUG DO NOT EXCEED INSTALLATION TORQUE VALUES BY MORE THAN 5%



World Headquarters:
Expansion Seal Technologies
 2701 Township Line Road
 Hatfield, PA 19440-1770 USA
 Tel: 1-215-721-1100 Fax: 1-215-721-1101
 Toll-Free: 1-800-355-7044

Expansion Seal Technologies EMEA
 Hoorn 312a • 2404 HL Alphen aan den Rijn
 The Netherlands
 Tel: +31-172-418841
 Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
 35 Tannery Rd, #11-10 Tannery Block
 Ruby Industrial Complex
 Singapore 347740
 Tel: +65-6745-8560 Fax: +65-6742-8700

Table 2. Vibra-Proof Condenser Plug Parts List, P/N: VPC-XXXX-M (1)				
Item	Quan	Description	Tube ID Size Range	Part Number (1)
1	1	Shaft Assembly, 1/8" dia	0.280" to 0.499"	VPC-XXXX-NRS
		Shaft Assembly, 1/4" dia.	0.500" to 0.869"	
		Shaft Assembly, 3/8" dia.	0.870" to 1.309"	
2	2	Seal, Neoprene	0.280" to 0.869"	
	1	Seal, Neoprene	0.870" to 1.309"	
3	2	Compression Washer	0.280" to 0.869"	
	1	Compression Washer	0.870" to 1.309"	
4	1	Positioning Washer	0.280" to 1.309"	
5	1	Hexnut	0.280" to 1.309"	
6	1	Locknut	0.280" to 1.309"	

NOTE: 1. The Part Number **VPC-XXXX-M** is defined as follows, where:

"XXXX" = TUBE I.D. SPECIFIED IN (2) DECIMAL PLACES (XX.XX)

"M" = SEAL MATERIAL DESIGNATION

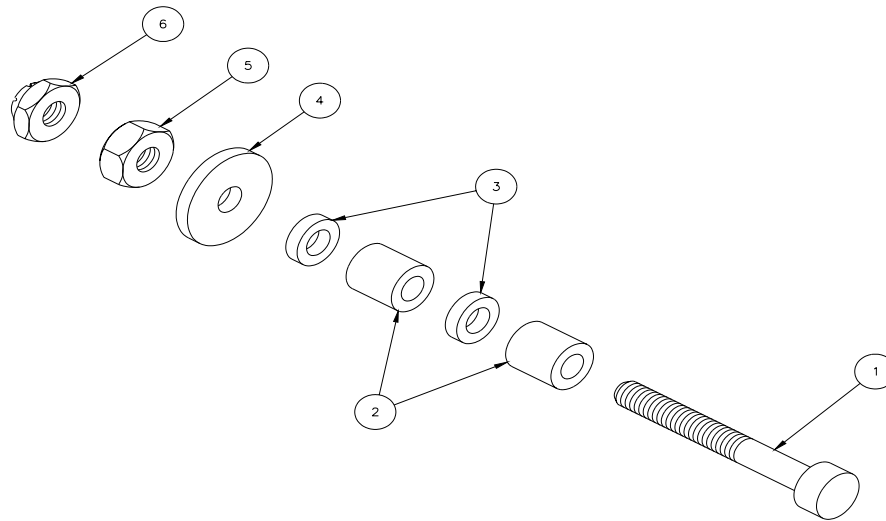
B - BUNA-N

N - NEOPRENE

S - SILICONE

V - FLUROELASTOMER (VITON OR EQUIVALENT)

Figure 1. Vibra-Proof Condenser Plug Exploded View



QUESTIONS? Contact EST Customer Service at any of the following locations with questions.

In USA and Canada: tel: 800-355-7044, fax: 215-721-1101, e-mail: info@expansionseal.com

In Europe: tel: +31-172-418841, fax: +31-172-418849; e-mail: info@estgrp.nl

In Asia: tel: +65-6745-8560, fax: +65-6742-8700, e-mail: estasia@singnet.com.sg

On the Internet: www.expansionseal.com

Expansion Seal Technologies is part of the EST Group of companies. **EST Group** provides a complete range of repair products, services and replacement parts covering the life cycle of tubular heat exchangers and condensers; additionally EST provides products and services to facilitate pressure testing pipe, piping systems, pressure vessels and their components. Visit EST Group on the internet at www.estgrp.com.



World Headquarters:
Expansion Seal Technologies
 2701 Township Line Road
 Hatfield, PA 19440-1770 USA
 Tel: 1-215-721-1100 Fax: 1-215-721-1101
 Toll-Free: 1-800-355-7044

Expansion Seal Technologies EMEA
 Hoorn 312a • 2404 HL Alphen aan den Rijn
 The Netherlands
 Tel: +31-172-418841
 Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
 35 Tannery Rd, #11-10 Tannery Block
 Ruby Industrial Complex
 Singapore 347740
 Tel: +65-6745-8560 Fax: +65-6742-8700

OPERATING PROCEDURE FOR SHORT VIBRA-PROOF PLUGS**WARNING!**

- **ALL WARNING STATEMENTS MUST BE CAREFULLY OBSERVED TO HELP PROTECT AGAINST INJURY AND DAMAGE TO PERSONS AND PROPERTY.**
- **WHEN SYSTEM IS UNDER PRESSURE DO NOT, UNDER ANY CIRCUMSTANCES ATTEMPT TO ADJUST, MOVE, OR CHANGE THE TEST PLUG IN ANY WAY, SHAPE, OR FORM.**
- **DO NOT EXCEED THE MAXIMUM TEST PRESSURES LISTED IN TABLE 1.**

INSTALLATION PROCEDURE:

1. Prepare the tube end. Vibra-Proof plugs are to be installed in a clean, dry pipe end. Any scale or moisture present may interfere with the sealing of the plug and may reduce the pressure that the plug will be capable of holding.
2. Install the correct size Vibra-Proof plug into the end of pipe being sealed.
3. Insert the Vibra-Proof plug into pipe end and tighten compression hex nut until plug is finger-tight. Then using a calibrated torque wrench, continue tightening the compression nut to prescribed installation torques as indicated in Table 1.
4. Begin testing or in-service operation.

WARNING: WHEN SYSTEM IS UNDER PRESSURE DO NOT, UNDER ANY CIRCUMSTANCES ATTEMPT TO ADJUST, MOVE, OR CHANGE THE TEST PLUG IN ANY WAY, SHAPE OR FORM.

5. To remove, loosen nut and withdraw from pipe.
6. Inspect the plug for wear and replace any worn components. Any component that is worn or damaged, must be replaced before attempting to use the plug. Contact the factory for information on replacement of worn or damaged parts.

TABLE 1.

PART NUMBER	PIPE SIZE	PLUG RANGE	INSTALLATION TORQUE FT-LBS (KG-M)	ROTATE NUT THIS NUMBER OF TURNS AFTER SEAL CONTACTS PIPE I.D.	MAXIMUM OPERATING PRESSURE P.S.I. (BAR)
SVPC-0075-M	3/4"	.73 - .82	2 ft-lbs (.3 kg-m)	3	100 p.s.i. (6.9 bar)
SVPC-0100-M	1"	.93 - 1.05	10 ft-lbs (1.4 kg-m)	4	100 p.s.i. (6.9 bar)
SVPC-0125-M	1-1/4"	1.13 - 1.38	10 ft-lbs (1.4 kg-m)	4	100 p.s.i. (6.9 bar)
SVPC-0150-M	1-1/2"	1.33 - 1.61	10 ft-lbs (1.4 kg-m)	1-1/2	100 p.s.i. (6.9 bar)
SVPC-0200-M	2"	1.73 - 2.07	15 ft-lbs (2.0 kg-m)	3-1/2	75 p.s.i. (5.2 bar)
SVPC-0250-M	2-1/2"	2.13 - 2.47	15 ft-lbs (2.0 kg-m)	3	50 p.s.i. (3.5 bar)
SVPC-0300-M	3"	2.73 - 3.07	15 ft-lbs (2.0 kg-m)	3	50 p.s.i. (3.5 bar)

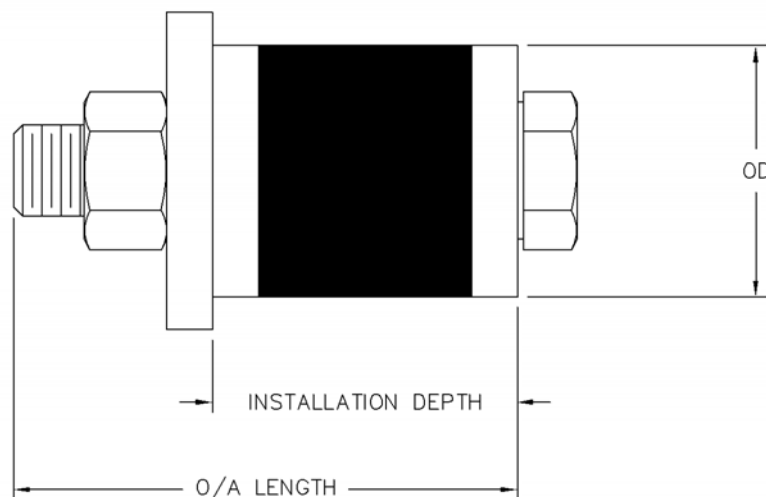
Specifications subject to change without notice.



World Headquarters:
Expansion Seal Technologies
 2701 Township Line Road
 Hatfield, PA 19440-1770 USA
 Tel: 1-215-721-1100 Fax: 1-215-721-1101
 Toll-Free: 1-800-355-7044

Expansion Seal Technologies EMEA
 Hoorn 312a • 2404 HL Alphen aan den Rijn
 The Netherlands
 Tel: +31-172-418841
 Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
 35 Tannery Rd, #11-10 Tannery Block
 Ruby Industrial Complex
 Singapore 347740
 Tel: +65-6745-8560 Fax: +65-6742-8700

**Table 2. Short Vibra-Proof Technical Specifications**

PART NUMBER	PIPE SIZE	PLUG RANGE	OD	INSTALLATION DEPTH	O/A LENGTH
SVPC-0075-M	3/4"	.73 - .82	.70	1-1/4	2"
SVPC-0100-M	1"	.93 - 1.05	.90	1-1/4	2-1/4
SVPC-0125-M	1-1/4"	1.13 - 1.38	1.10	1-3/8	2-1/4
SVPC-0150-M	1-1/2"	1.33 - 1.61	1.30	1-5/8	2-1/2
SVPC-0200-M	2"	1.73 - 2.07	1.70	1-5/8	2-1/2
SVPC-0250-M	2-1/2"	2.13 - 2.47	2.10	2-1/4	3-1/2
SVPC-0300-M	3"	2.73 - 3.07	2.70	2-1/2	3-1/2

QUESTIONS? Contact EST Customer Service at any of the following locations with questions.

In USA and Canada: tel: 800-355-7044, fax: 215-721-1101, e-mail: info@expansionseal.com

In Europe: tel: +31-172-418841, fax: +31-172-418849; e-mail: info@estgrp.nl

In Asia: tel: +65-6745-8560, fax: +65-6742-8700, e-mail: estasia@singnet.com.sg

On the Internet: www.expansionseal.com

Expansion Seal Technologies is part of the EST Group of companies. **EST Group** provides a complete range of repair products, services and replacement parts covering the life cycle of tubular heat exchangers and condensers; additionally EST provides products and services to facilitate pressure testing pipe, piping systems, pressure vessels and their components. Visit EST Group on the internet at www.estgrp.com.



World Headquarters:
Expansion Seal Technologies
 2701 Township Line Road
 Hatfield, PA 19440-1770 USA
 Tel: 1-215-721-1100 Fax: 1-215-721-1101
 Toll-Free: 1-800-355-7044

Expansion Seal Technologies EMEA
 Hoorn 312a • 2404 HL Alphen aan den Rijn
 The Netherlands
 Tel: +31-172-418841
 Fax: +31-172 - 418849

Expansion Seal Technologies Asia Pte Ltd.
 35 Tannery Rd, #11-10 Tannery Block
 Ruby Industrial Complex
 Singapore 347740
 Tel: +65-6745-8560 Fax: +65-6742-8700