

PROTECTOR FITTINGS



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HAM-LET's Protector Fitting protects instruments and pressure gauges from sudden rises in pressure, a phenomenon that has a negative impact on the instrument's operation and accuracy. This fitting prevents penetration of contaminants from the gas or fluid of the hydraulic or pneumatic systems into the expensive and accurate control instrument mechanism, which could cause it to malfunction.

Note: The Protector Fitting is not a filter substitute, and should only be used to provide additional protection for the control instruments.

For systems requiring a filter because of contaminants in the gas/fluid, choose the appropriate filter suitable for the application from HAM-LET catalog, filter pages.

METHODS OF OPERATION

The fitting has a sintered filtering element made of St.St. 316. The element is sintered to the body of the fittings. The pores in the filtering element absorb the pressure hits occurring in the hydraulic/pneumatic systems, thus preventing sudden fluctuations in the instrument's mechanism. This operation protects the pressure gauge, lengthens its life span and maintains its accuracy.

SPECIFICATIONS

- End types include NPT, BSPP, BSPT Male & Female, Reducing NPT, Reducing BSPP, Reducing BSPT Male & Female.
- NPT, BSPT, LET-LOK® to BSPP
- NPT, BSPT, Face Seal HTC Connector to BSPP
- Face Seal HTC® Connector GSW Glands
- The filtering element is sintered to the body of the fitting, enabling it to work with differential pressure of up to 6000 psi (408 bar) in St.St. fittings 1/8" male NPT.
- 5 types of filtering elements, suitable for light gases up to oil in viscosity of 1000 SUS and more
- The body of the fitting is made of St.St. 316 or Brass.
- Max. working temperature in St.St. 1022°F (550°C), Brass 430°F (220°C)
- Suitable for steam

VISCOSITY CONVERSION TABLE FROM SUS* TO CENTISTOKES

Viscosity in Centistokes	For Viscosities of 32 to 100 Saybolt Universal Seconds: Centistokes = $.2253 \times \text{SUS} - \frac{194.4}{\text{SUS}}$	CS= $.2253 \text{ SUS} - \frac{194.4}{\text{SUS}}$
Viscosity in Centistokes	For Viscosities of 100 to 240 Saybolt Universal Seconds: Centistokes = $.2913 \times \text{SUS} - \frac{134.6}{\text{SUS}}$	CS= $.2913 \text{ SUS} - \frac{134.6}{\text{SUS}}$
Viscosity in Centistokes	For Viscosities Greater Than 240 Saybolt Universal Seconds: Centistokes = $\frac{\text{SUS}}{4.635}$	CS= $\frac{\text{SUS}}{4.635}$

NOTE: Saybolt Universal Seconds is often abbreviated SSU.



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CLEANING AND PACKAGING

Passivation, Cleaning and Packaging (Procedure 8075).
 Ham-Let Protector Fittings with Face Seal End Connections are treated with Ham-let Oxygen Cleaning and Packaging (Procedure 8055). Oxygen Cleaning and Packaging for other end connections are available as an option.

TESTING:

Burst and Leakage.

T-TYPE FILTERS MATERIALS				
No.	Part	Qty.	Material	
			316 St.St.	Brass
1	Nut*	1	St.St.ASTM A-276	Brass ASTM B-16
2	Back Ferrule*	1	St.St.ASTM A-276	Brass ASTM B-16
3	Front Ferrule*	1	St.St.ASTM A-276	Brass ASTM B-16
4	Body	1	St.St.ASTM A-276	Brass ASTM B-16
5	Filtration Element	1	St.St.ASTM A-276	Brass ASTM B-16

* For LET-LOK® end connection only

The Protector Fitting is designed for direct flow control, to be used according to the flow direction arrow only.

EFFECTIVE ELEMENT AREA BY ELEMENT DIAMETER			
Effective Diameter		Effective Element Area	
in	mm	in2	mm2
0.09	2.2	0.065	3.8
0.19	4.8	0.029	18.1
0.28	7.1	0.06	39.6
0.41	10.4	0.13	84.9

TEMPERATURE RATING		
Fitting material	Element material	Temperature max
Brass	Brass	430°F (220°C)
316 St.St.	316 St.St.	1022°F (550°C)

Pressure Rating
 Calculations based on ASME code for process piping B31.3, at 70°F (20°C)

Maximum Differential Pressure
 St.St. 316 Fitting with 1/8 male NPT: 5300 psi (365 bar)

CRACKING AND RESEAL PRESSURE		
Fluid	Average Fluid Flow Estimate	Element designator
	L / MIN*	
Light gases from 69 to 79 SUS (13 to 16 CST mm2/s)	0.05 at 25 psig (1.72 bar)	A
Air-Steam from 75 to 119 SUS (15 to 25 CST mm2/s)	2.4 at 25 psig (1.72 bar)	B
Water, light oils from 75 to 250 SUS (15 to 54 CST mm2/s)	3.3 at 25 psig (1.72 bar)	C
Oils from 250 to 1000 (54 to 220 CST mm2/s)	1.3 at 10 psig (0.69 bar)	D
Oils of 1000 SUS (220 CST mm2/s) and above	0.9 at 10 psig (0.69 bar)	**E

* The products are tested with air pressure at 70°F (20°C). The estimated flow is the average flow multiplied by the nominal air/fluid ratio of kinematic viscosity.

** Not available in 1/8 & 1/4 in 120H-P.

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ORDERING INFORMATION

Example:

***768L-P**

- 120H-P** - Adapter NPT Thread
- 120HNR-P** - Adapter NPT to BSPT
- **V-GSW-P** - Gland socket weld
- **MCF-P** - Male NPT Connector to Female
Female Face Seal Gland

* NPT/ISO Tapered Thread to

LET-LOK® End Connection

** Available in 316L SS Only

SS = Stainless Steel
B = Brass

1/4

X

1/4

- **A**

Tube O.D.
The O.D. size is always
the first to be described.

1/4 NPT

Element Designator

768L-P (NPT THREAD) & 768LR-P (*ISO TAPERED THREAD)

A Tube O.D.		T NPT	T ISO	D		W Width Across Hex		L	
mm	in	in	in	mm	in	mm	in	mm	in
1/8	3.17	1/8	R-1/8	2.28	0.09	11.1	7/16	29.7	1.17
1/4	6.35	1/8	R-1/8	4.82	0.19	12.7	1/2	32.8	1.29
1/4	6.35	1/4	R-1/4	4.82	0.19	14.28	9/16	37.9	1.49
1/4	6.35	3/8	R-3/8	4.82	0.19	11/16	17.46	38.4	1.51
3/8	9.52	3/8	R-3/8	9.52	0.375	3/8	9.52	39.9	1.57

* BSP-T Tapered Thread

120H-P ADAPTER NPT THREAD

T Female NPT	T1 Male NPT	D		W Width Across Hex	L	
Size	Size	mm	in	in	mm	in
1/8	1/8	4.8	0.19	9/16	27.9	1.1
1/4	1/8	4.8	0.19	3/4	32.0	1.26
1/4	1/4	7.1	0.28	3/4	35.6	1.4
3/8	3/8	9.6	0.38	7/8	38.4	1.51
1/2	1/4	7.1	0.28	11/16	44.7	1.76
1/2	3/8	11.9	0.47	11/16	49.3	1.94

120HNR-P ADAPTER NPT TO BSPT

T Female NPT	T1 Male BSPT	D		W Width Across Hex	L	
Size	Size	mm	in	in	mm	in
1/8	1/8 - 28	4.8	0.19	9/16	27.7	1.09
1/4	1/4 - 19	7.1	0.28	3/4	36.1	1.42
3/8	3/8 - 19	9.6	0.38	7/8	38.1	1.50
1/2	1/2 - 14	11.9	0.47	11/16	49.3	1.94

V-GSW-P GLAND SOCKET WELD

Part No.	T Tube O.D.	d		D		L	
	in	mm	in	mm	in	mm	in
V-GSW-P-1/4	1/4	4.56	0.18	8.9	0.35	33.3	1.3
V-GSW-P-3/8	3/8	7.73	0.30	15.2	0.60	38.1	1.5
V-GSW-P-1/2	1/2	10.2	0.40	15.2	0.60	38.1	1.5

MCF-P MALE CONNECTOR TO FEMALE

Part No.	T1 Male NPT	D		W	F	C	L		
	in	mm	in	in	in	mm	in	mm	in
P-MCF-P-1/4	1/4	4.56	0.18	3/4	9/16	23.4	0.92	45.5	1.79
P-MCF-P-1/2	1/2	10.2	0.40	11/16	7/8	25.6	1.01	53.1	2.09

