PLHT Series
304L/316L Stainless
Presslok

ENGINEERING SPECIFICATION

EVANS
COMPONENTS, INC®

DOCUMENT NUMBER:	**ES-4**
DOCUMENT TITLE:	**PLHT Series Stainless Steel Presslok Specification**
REVISION LEVEL:	**1**
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Approved by: *Coke Evans* Date: *04/09/14*
President

Approved by: *Scott Hughes* Date: *04/09/14*
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1.0 PURPOSE AND SCOPE

This document establishes the engineering specifications applicable to cleanroom cleaned and packaged CFOS grade PLHT Series Presslok fittings and stainless steel ball valve manufacturing processes.

This specification applies to Evans Presslok and PLH Series ball valve manufacturing unless dictated by specific customer requirements.

2.O GAS SPECIFICATIONS

Argon (Liquid)	
Grade:	Ultra Pure
Oxygen:	1 ppm, maximum
Moisture:	1 ppm, maximum
Total hydrocarbons:	0. 5 ppm, maximum
Purity:	99.999%, minimum

Helium (Liquid)	
Grade:	Ultra Grade
Composition:	Helium
Oxygen:	5 ppm, maximum
Moisture:	3.5 ppm, maximum
Purity:	99.997%, minimum

Nitrogen (Liquid)	
Grade:	Ultra Pure
Oxygen:	1 ppm, maximum
Moisture:	1 ppm, maximum
Total hydrocarbons:	0. 5 ppm, maximum
Purity:	99.999%, minimum

3.0 MATERIALS OF CONSTRUCTION

Ball Valve Body & Fitting	
Ball:	316/304 SS
Body, End Cap	ASTM A351 GR CF8M/CF3M
Seats, Stem Packing, Thrust Washer	PTFE
Stem:	316 SS
Bolts, Handles, Nuts, Washers	304 SS
Handle Cover	Plastic
Presslok Fitting	304L/316L SS
O-ring	Viton

Tubing: 304/316L seamless or welded seam (depending on size) construction, cold drawn bright finished, sulfur content controlled to 0.005 to 0.017%	
Specification	ASTM A269 / DIN17457/17458
OD – ½ in. thru 4 in.	ASTM A269, ASTM A213
Inner Surface Treatment	ASTM A632.S3
Surface Finish	32 Ra, max (0.80 um), O.D. not defined
Marking	Heat number, manufacturer, material, dimensions
Packing & Delivery	Tube ends capped with PE caps & PE/PA squares, bagged in Polythene PE.

4.O WELDING SPECIFICATIONS

Weld atmosphere	Inert gas (argon)
Porosity:	None allowed
Inspection:	100% with no discoloration

5.O CLEANING SPECIFICATIONS

Pre-Heated Deionized Water	
Usage:	100% of all components
Resistivity:	18 Megohms–cm minimum

Hobart Pre-Washer in Cleanroom	
Usage:	100% of all components
Time (wash):	4-6 minutes
Time (rinse)	1 minute
Rinse agent:	18 MGH DI water

Crest Ultrasonic Cleaning System in Cleanroom	
Usage:	100% of all components
Cleaning agent:	Valtron Sp2555 Surfactant
Tanks:	1 wash, 1 pre-rinse, 1 rinse
Time (wash):	5 minute, minimum
Time (rinse)	5 minute, minimum
Tank temperature:	150 degrees F minimum
Rinse flow rate:	1.2 GPM
Filtering:	0.5 to 0.1 micron (sequential)

Blow Down with Nitrogen in Cleanroom	
Usage:	All components
In-line N_2 Filtration:	0.01 micron

7.O AIR OVEN DRYING SPECIFICATIONS

Environment:	Clean Room
Usage:	100% of all components
Temperature:	100 degrees C
Resolution:	+/- 1 degree C
Time:	30 minutes, minimum

8.O ASSEMBLY SPECIFICATIONS

Environment:	Clean Room
Torque Verification:	100% of all ball valves

9.O TESTING SPECIFICATIONS

Leybold UL 400 Helium Leak Detector Test	
Environment:	Clean Room
Usage:	100% of all ball valve and welded fitting components
External agent:	Helium
Helium detection device:	Mass spectrometer
Device resolution:	0.1 ($x10^{-x}$ scc/sec)
Specification:	$1x10^{-7}$ scc/sec, minimum

(Optional) Pressure Decay Leak Test for Valves	
Usage:	Upon customer requirement
Applied pressure:	100 psig-120 psig ball open 100 psig-120 psig across seat
Pressure agent:	Nitrogen
Application time:	30 seconds
Measuring device:	Magnehelic differential pressure
Device resolution:	0.1 inch
Specification:	Less than 0.5 inch per application time

10.0 FINAL INSPECTION REQUIREMENTS

Visual inspection	100% of all ball valves/fittings
Dimensional check	100% of all ball valves/fittings
Final N2 Blowdown	100% of all ball valves/fittings
Capping and bagging	100% of all ball valves/fittings
Tubing Certification	100%
Certification of Conformance	Provided upon request

Reviewed and Approved by:		
See Record of Procedure Review on File in Master Binder		
Revision History		
Rev	**Description of Changes**	**Author & date**
1	Original issue.	Coke Evans 4/09/14