

### Advantages of Superlok Tube Fittings

#### 1. SUPERLOK liability when intermixed SWAGELOK®, PARKER, etc

All of SUPERLOK Tube Fittings, design and dimensions, are similar to Swagelok and Parker. Superlok fittings seamlessly interchange with these brands. Form, fit, and function.

The Nut and body threads of a SUPERLOK fitting OD are constructed in accordance with ASME B1.1 and the thread tolerances are controlled as specified in ASME B.1.1. This strict tolerance ensures a consistent make-up every time.

As proof, we have attached the "SGS intermix-ability & interchangeability burst-test certificate.





Certificate No. B-50/2010-0035/001 Page 1 of 1

#### INTERMIXABILITY & INTERCHANGEABILITY TEST-BURST TEST CERTIFICATE

Date : Apr. 01, 2010

Applicant / Manufacturer	: BMT Co., Ltd., Korea.
Date and Place of Test	: Feb. 17, 2010 at the manufacturer's premises in Yangsan, Korea
Kind of Test	: Witness of Intermixability & Interchangeability Test-Burst Test
Test Fitting	: SUPERLOK & SWAGELOK Twin-Ferrule Fitting
	<ul> <li>Size : 1/2", 316 Stainless Steel</li> <li>Tube : 12 Zmm O.D. X 1 24mm WE Scenders Tube</li> </ul>
	<ul> <li>Tube : 12.7mm O.D. X 1.24mm WT Seamless Tube</li> </ul>

Test condition

- Test Medium : Water
- Test Temperature : Room Temperature
- Configuration of Test Piece

		<ul> <li>SU : Superlok, -SW:Swagelok</li> </ul>					
Test 1	Nut	Back Ferrule	Front Ferrule	Body			
1-1	SU	SU	SW	SW			
1-2	SW	SW	SU	SU			
1-3	SW	SU	SW	SU			
1-4	SU	SW	SU	SW			

Burst Pressure

: 15000 PSI at Connection Tube

\*\*

This is to certify that the Intermixability & Interchangeability Test-Burst Test was performed by the manufacturer under our witness as above, and we confirmed the Burst Pressure of 15000 PSI at Connection Tube.

#### Note

The details of the test condition and data are as per Manufacturer's Technical Test Report No. BMT-TR100217, Which were verified and endorsed by us.

"In accordance with Client's instructions, the Company's involvement has been limited to witnessing/observing a third party's intervention(s) at the third party's laboratory/test house or other facilities and installations used for the intervention(s). The Company's sole responsibility was to be present at the time of the third party's intervention(s) to forward the results, or confirm the occurrence, of the intervention(s). The Company is not responsible for the condition or calibration of apparatus, instruments and measuring devices used, the analysis methods applied the qualifications, actions or omissions of the third party's personnel or the analysis results.

This document is issued by the Company under its General Conditions of Service accessible at <a href="http://www.ges.com/terms">http://www.ges.com/terms</a> and conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law."

SGS Korea Co., Ltd	- Walding Inspection
hull	SGS
S. H. Chun	Kores Industrial
Manager, Industrial	Division one

SHJ/bil

### 2. Excellent Surface Finish of the Superlok Body

Makes the front ferrule seat easily and properly in sealing area within the body of the fitting.

#### 3. Smooth inside curved line of products.

Keeps the flow of fluid smoothly flowing without turbulence. This results in less particle entrapment, better flows of fluids and gases, and less potential for contamination.



1 inch SUPERLOK UNION LOK Surface Roughness

Superior quality than Other Competitors'



Smooth Curved Line in SUPERLOK ELBOW

(SUPELOK ELBOW)



Competitor 's Fitting "S"



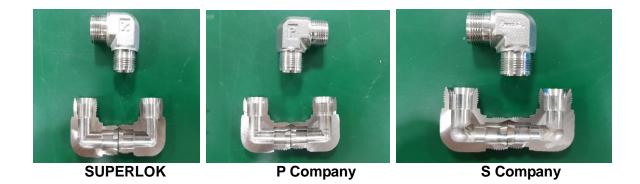
Competitor's Fitting "P"

### 4. Comparison of Interior Surface Roughness.

ltem	Spec	SUPERLOK	"P" company	"S" company	Remark
1/2"	Do 1 6 um	0.43 <i>µ</i> m	1.18 <i>µ</i> m	4.06 µm	SAMPLE
UNION	UNION Ra 1.6 µm	1.03 <i>µ</i> m	2.02 µm	4.10 µm	2EA

Item	Spec	SUPERLOK		"P" Company		"S" Company		Remark
	1.53	1.33	1.59	1.89	1.44	0.43		
		μm	μm	μm	μm	μm	μm	
	1.91	2.00	2.25	2.16	2.32	1.61		
	Da 1 (	μm	μm	μm	μm	μm	μm	SAMPLE
$1/2^{\circ}$ ELDOW	1/2" ELBOW Ra 1.6 µm	2.07	2.77	3.89	3.54	2.82	1.86	2EA
		μm	μm	μm	μm	μm	μm	
		2.42	3.14	4.85	4.10	2.86	2.89	
	μm	μm	μm	μm	μm	μm		

품명	조도 Spec	SUPERLOK		"P"Company		"S"Company		비고
1/0" TEE D- 1 ( /m	0.34	0.40	3.23	1.44	0.55	0.25		
	μm	μm	μm	μm	μm	μm		
	0.41	0.45	5.71	2.37	0.58	0.68		
	μm	μm	μm	μm	μm	μm		
	$\mathbf{D}_{2} = 1 \mathbf{C} \mathbf{U}_{m}$	0.42	0.49	5.85	3.29	1.00	1.73	SAMPLE 2EA
1/2 IEE	1/2" TEE Ra 1.6 #	μm	μm	μm	μm	μm	μm	
		0.57	0.56	6.25	3.38	1.15	1.77	
	μm	μm	μm	μm	μm	μm		
		1.04	0.62	7.80	4.88	1.69	2.11	
	μm	μm	μm	μm	μm	μm		





SUPERLOK

P Company

S Company

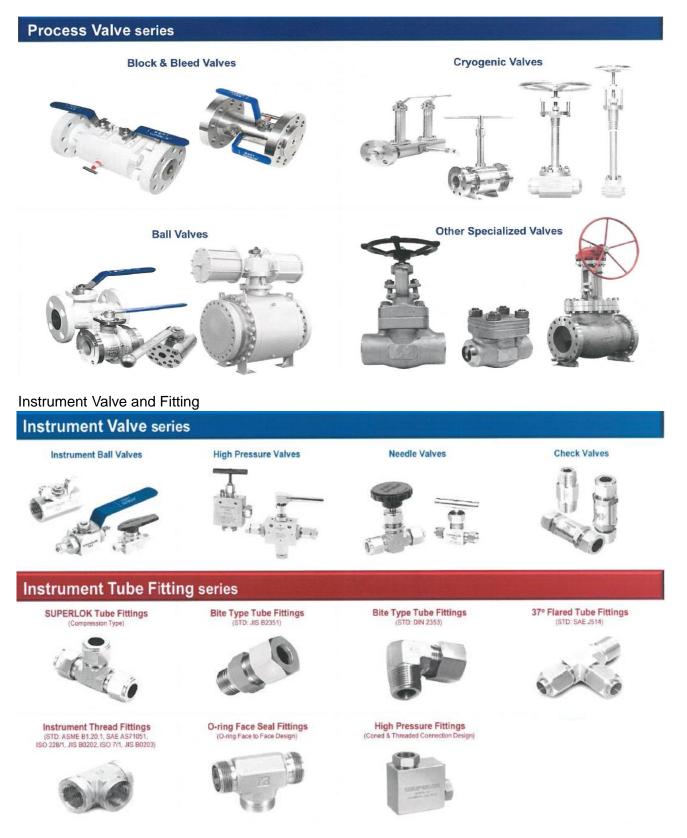
-Excellent surface finish inside of SUPERLOK products allows smoother flow of fluid and gases. This prevents pressure loss and protects the inside of tubing & pipe, while experiencing an extended lifetime of instrument lines and saving cost.

#### 5. Multiple Product lines for support.

6.1 Process Valve6.2 Instrument Fitting6.3 Instrument Valve6.4 UHP Fitting & Valve

Superlok has multiple product lines to support all of the projects in Semiconductor, Oil & Gas, Shipbuilding, Offshore, etc

#### Process Valve series



**UHP** line



Superlok can offer reliability tests for customers upon request.

-Cracking Test -Leak test -High-Pressure Gas test -Impulse & Vibration test -Cryogenic valve test -High-Pressure Gas Test -Helium detect test -Oil Content Analyzer test -Particle count test. -Fire Safety Test -Fugitive Emission test

Each Superlok instrumentation Fitting and Valve has passed a stringent visual and dimensional inspection to assure freedom from surface defects, fluid leaks, and possible malfunctions. Every individual valve from production is tested with nitrogen at 1,000 PSI (70bar)

Sample pieces of fittings & Valve are tested to confirm corrosion resistance and mechanical properties such as hardness, impact strength, and tensile strength.