

**BALL SEAT FOR MONOMER FLUID  
LOW PENETRATION**

**LP SEAT**  
**LOW PENETRATION WHITE COLOR SEAT**  
**HISAKA BALL VALVES**

**SUITABLE MODEL ■ HF5**

**HISAKA WORKS, LTD.**



# LOW PENETRATION WHITE COLOR SEAT (LP SEAT)

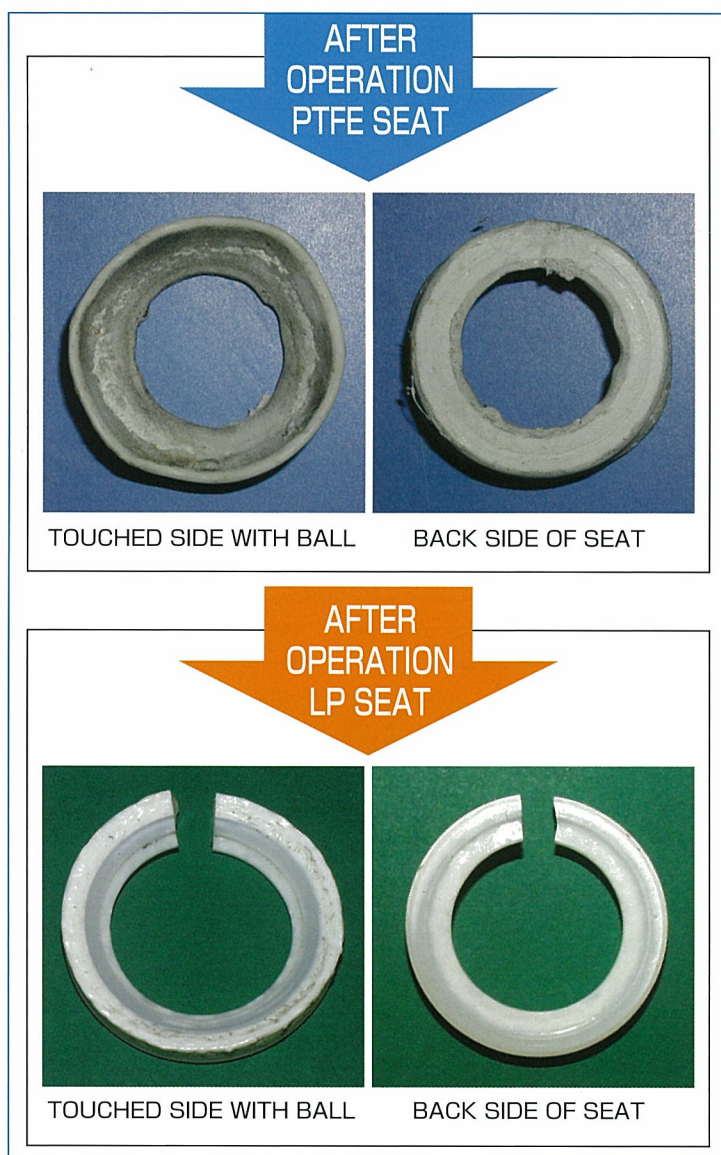
Fluoroplastics(PTFE) has some special performances compare with the other kinds of plastics, for example high temp./low temp. proof, chemical resistance, electric non-conductivity and so on. And it has non-cohesiveness and low erosive also. It is used for sealing parts of general ball valve by these features. But in case of using it for Monomer service, there are many case of trouble for penetration. Therefore Hisaka has developed a low penetration ball seat (LP seat) for Monomer Service.

## PAST PROBLEM

In case of using PTFE material service for Vinyl Chloride, Styrene, Butadiene, Propylene and so on, Monomer will be penetrate from surface of PTFE material and it will be polymerized at the part of Void. This is penetration trouble.

## CHARACTERISTIC

- LP seat Material. can be protected polymerization monomer in case of using for Monomer service. The result of it, operation life time will be extended.
- Performance of Fluoroplastics material are enable to get good sealing, light & stability torque and high chemical resistance.
- It available to use for Hisaka's standard ball valve, it's can be replaced the ball seat without any modification..



## Characteristic of Materials

	LP SEAT	PTFE	PFA
Specific Gravity	2.12~2.17	2.14~2.20	2.12~1.17
Pulling Strength (Mpa)	24.5~34.3	28.5~35.7	32.7
Stretch (%)	300~400	200~400	280~300
Color	White	White	White+Translucent

## Gas Permeability and Chemical Liquid Soaking

If the Gas Permeability is high, it becomes easy for monomer penetration.

LP seat is lower gas permeability compare with the other PTFE. And in case of soaking into the 90% Nitric Acid (23°C) for 30days, result is good condition

## Result of Test

	LP SEAT	PTFE	PFA
Nitrogen Gas Permeability Coefficient (cm <sup>3</sup> -cm/cm <sup>2</sup> -sec-cm-Hg)	0.8×10 <sup>-10</sup>	1.4×10 <sup>-10</sup>	1.1×10 <sup>-10</sup>
Weight Change of after soak into the 90% Nitric Acid for 30days	5.90	—	9.02

(TEST DATA)

## Result of Actual Operation

### ●Operation Condition

Fluid: Styrene Monomer

Pressure: 0.1 Mpa

Temperature: 50 ~ 80°C

Operation Term: Around 3months(PTFE seat)

Around 9months(LP seat)

On-Off Frequency: 5 times/day

## Result of using for Styrene Monomer service

Seat Mat'l	Seat Condition after using	Weight Change of Seat	
		Before	After
PTFE seat	Adhered a little polymerized Monomer on the surface of seat, and transformed.	1	1.0925
LP seat	adhered extremely a little polymerized Monomer on the surface of seat, but not transformed.	1	1.0735

\* Operation life time of Ball Seat is different according to the conditions(kind of Monomer, Density, Temperature, Pressure and so on). Therefore please try to use it and check by your operation condition.

## HISAKA WORKS, LTD. VALVE DIVISION

2-5-27, Nonaka-kita, Yodogawa-ku,  
Osaka 532-0034, JAPAN  
TEL:81-6-6391-8940 FAX:81-6-6391-8941  
http://www.hisaka.co.jp/  
e-mail:valve@hisaka.co.jp  
Printed in Japan