



FOUR STARS



四星玻璃

FOUR STARS GLASS

Dedicate ourselves to pharmaceutical industry for patient safety

COMPANY PROFILE



- Since 1992
- China's Pioneer & Hidden Champion, USP TYPE I glass tubing & vial, ampoule and PFS
- 5G+MES & fully automated production
 - hot forming, 100% in-line inspection and elimination, box packaging, labeling & palletizing
- ISO 15378 (ISO 9001 + GMP), ISO 14001, ISO 45001, CNAS L14390
- USP, Ph. Eur. , JP, YBB standard and Customization Supported
- FDA DMF (vial 30080 & ampoule 30081) activated by BAXTER in 2019
- Glass tubing OD 6mm to 125mm & WT 0.6mm to 2.0 mm, clear / amber
- Injection vial, screwed vial, oral liquid vial etc
- ISO Form B, C & D Glass Ampoule
- PFS (DMF 39388 activated on 1/8/2024)



• Production Areas	• Workshops	• Floor Space	• Employees	• Tubing Annual Production	• Pharma Glass Container	• Furnace
4+	6+	200,000 m²	1200+	80,000+tons	8+billion	7

GLASS TUBING WORKSHOP



VIAL WORKSHOP

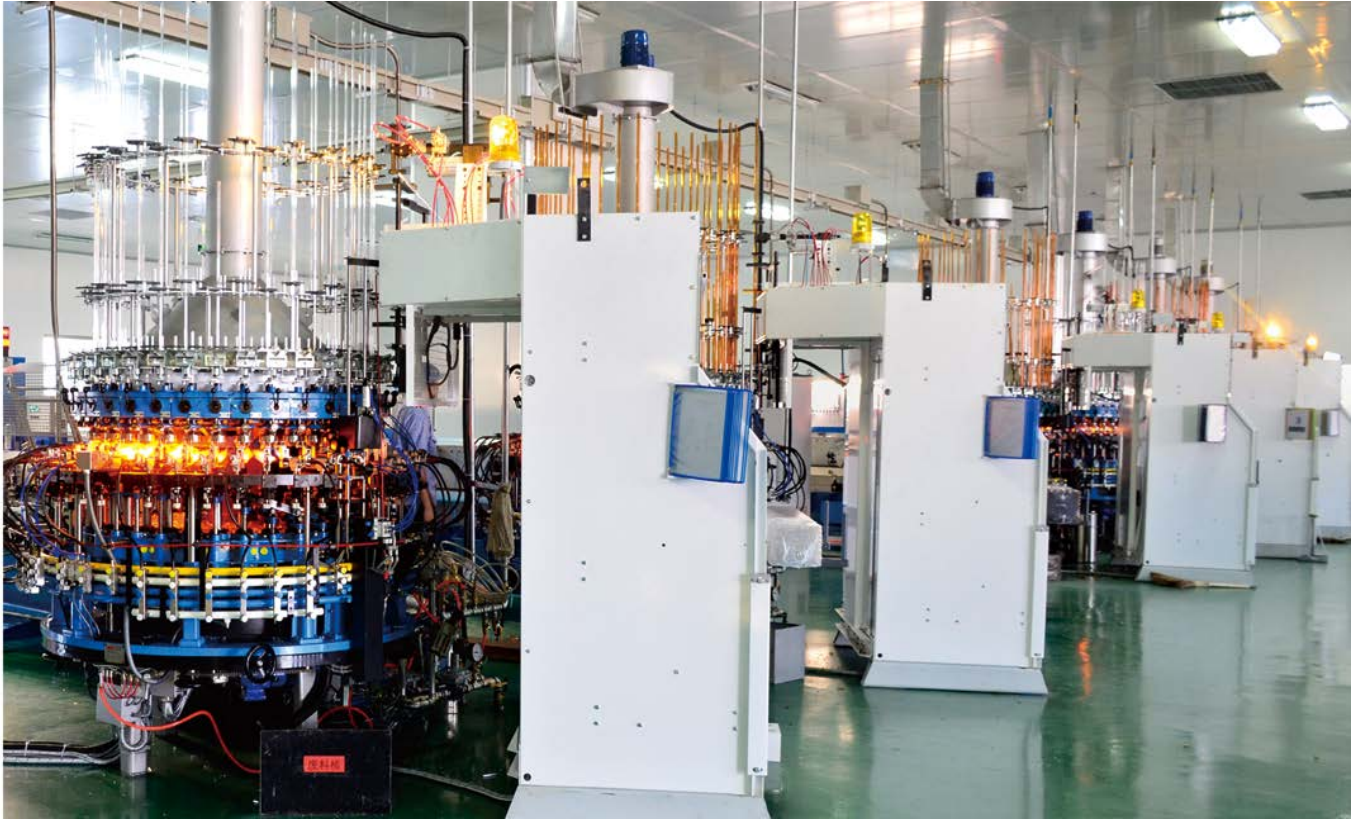


▲ 包检车间 Packaging and Inspecting Workshop



▲ 西林瓶生产车间 Vials Production Workshop

AMPOULE WORKSHOP



PFS WORKSHOP



QUALITY CONTROL

To provide customers with excellent packaging solutions, FOUR STARS has obtained ISO 15378 quality management system certification, and its laboratory has been accredited by CNAS. It has procured the most advanced chemical analysis instruments in the world, and its production line is equipped with multi-level intelligent camera inspection devices, achieving 100% inspection of all product indicators, replacing traditional manual testing. The comprehensive image and data intelligent analysis system ensures that all product parameters are controllable, minimizing product defects. The state-of-art analytical equipment guarantees the excellent physical and chemical properties of the products in a long-term and stable manner.



Certificate CN16/10905
The management system of
Cangzhou Four Stars Glass Co., Ltd.

Zhifangou Industrial Park, Cangxian County, Cangzhou City, Hebei Province, P.R. China
has been assessed and certified as meeting the requirements of
ISO 15378:2017
Primary packaging materials for medicinal product – Particular requirements for the applications of ISO9001:2015 with reference to Good Manufacturing Practices (GMP)

For the following activities
Manufacture of Ampoules Made of Neutral Borosilicate Glass Tubing and Injection Vials Made of Neutral Borosilicate Glass Tubing

The responsibility for the quality of the individual batches of the primary packaging materials for medicinal products manufactured, packed and stored lies with the organization.
This certificate is valid from 25 November 2022 until 24 November 2025 and remains valid subject to satisfactory surveillance audits.
Issue 3. Certified since 25 November 2016

Authorized by
Ben Tang

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GMP





China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(Registration No. CNAS L14390)

Testing Center of Cangzhou Four Stars Glass Co., Ltd.
(Legal Entity: Cangzhou Four Stars Glass Co., Ltd.)
Zhifangou Industrial Park, Cangxian, Cangzhou, Hebei, China
is accredited in accordance with **ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories)** for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date: 2021-02-25
Expiry Date: 2027-02-24

Signed on behalf of China National Accreditation Service for Conformity Assessment 

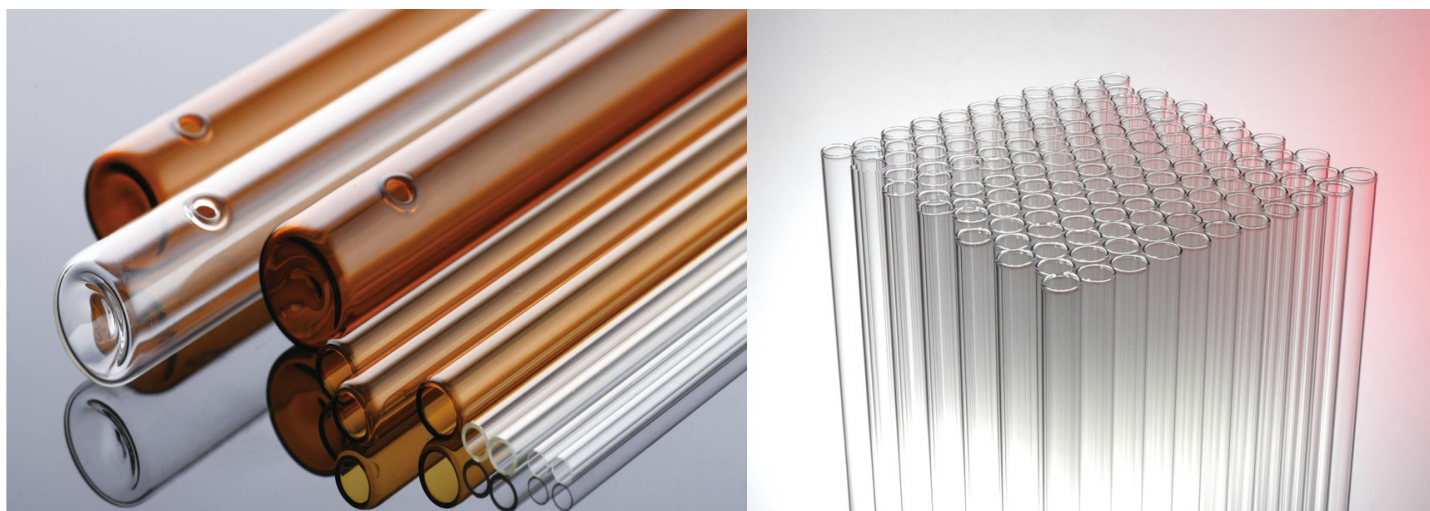
China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CMAA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA).
The validity of the certificate can be checked on CNAS website at <http://www.cnas.org.cn/english/findaccreditebody/index.shtml>.

CNAS

CNAS CERTIFIED LAB



COE 5.0 USP TYPE I BORO GLASS TUBING



A production capacity of more than 80,000 metric tons in four production sites has made FOUR STARS one of the world's leading suppliers of USP TYPE I Glass tubing, and China's first and biggest intelligent manufacturer thanks to its most cost-effective, energy-saving and environment-friendly tube drawing technique, Cold-top All-electric Melting Vello Process. FOUR STARS provides a premium glass of the first hydrolytic and acid-resistance class with outstanding chemical stability, neutrality, impermeability, thermal shock resistance and strength, OD range from 4mm to 125 mm, clear and amber against ultraviolet rays and short-wave visible light. Hence, it is recognized as the best pharmaceutical packaging material both home and abroad.

Physical and Chemical Properties

CHEMICAL COMPOSITION wt%	SiO ₂	B ₂ O ₃	Al ₂ O ₃	BaO	CaO	Na ₂ O	K ₂ O
	75 ± 2	10-11	5.4 ± 0.2	0.3-0.5	0.5-1	6.6 ± 0.2	0.5 ± 0.3
PHYSICAL PROPERTY	Expansion ASTM E228 (20-300°C, $\times 10^{-6}/K$)	Annealing point 1g η =13	Soft point 1g η =7.6	Working point 1g η =4.0	Transformation 1g η =14.5	Density ASTM C729	
	4.9	540	783	1120	520	2.32	
CHEMICAL PROPERTY	Hydrolytic resistance 0.02N H ₂ SO ₄ 0.3 USP TYPE I		Acid class DIN 12116 Class S1		Alkali class ISO 695 Class A2		

NEUTRAL BOROSILICATE GLASS TUBE

Standardline Tubing Dimensions

Outside Diameter: 6–50mm

Wall Thickness: 0.4–2.0mm

Length: 1250–1800mm

OUTSIDE DIAMETER (mm)		WALL THICKNESS (mm)	
RANGE	tol.	RANGE	tol.
6.0–8.9	0.13	0.4–0.95	0.03
		1.0–1.15	0.04
9.0–14.9	0.15	0.4–0.95	0.02
		1.0–1.15	0.04
	0.18	1.2–1.35	0.05
15.0–17.9	0.15	0.5–0.8	0.04
	0.20	0.85–1.05	
18.0–19.9	0.20	1.1–1.35	0.05
		0.7–0.95	0.04
20.0–22.9	0.20	1.0–1.35	0.05
		0.7–1.05	0.04
	0.25	1.1–1.35	0.05
23.0–24.9	0.20	1.4–1.6	0.06
		0.7–1.05	0.04
	0.25	1.1–1.25	0.05
25.0–29.9	0.25	1.3–1.6	0.06
		0.75–1.05	0.04
	0.28	1.1–1.35	0.05
30.0–34.9	0.25	1.4–1.6	0.06
	0.30	1.0–1.35	0.05
35.0–40.0	0.40	1.4–1.6	0.07
	0.40	1.4–1.6	0.07
41.0–50.0	0.40	1.4–1.6	0.07
	0.50	1.6–2.0	0.10

* NOTES: OD, WT, Length Customization Supported

GLASS AMPOULE



Ampoule offers several significant advantages, including their strong anti-interference capability and the fact that the medication only comes into contact with glass.

Key Features:

Design and Specification: Based on ISO standards (Type B, C, D) and YBB specifications, or according to customer-specific requirements

Capacity Range: from 1ml to 40ml

Color Options: Clear / Amber

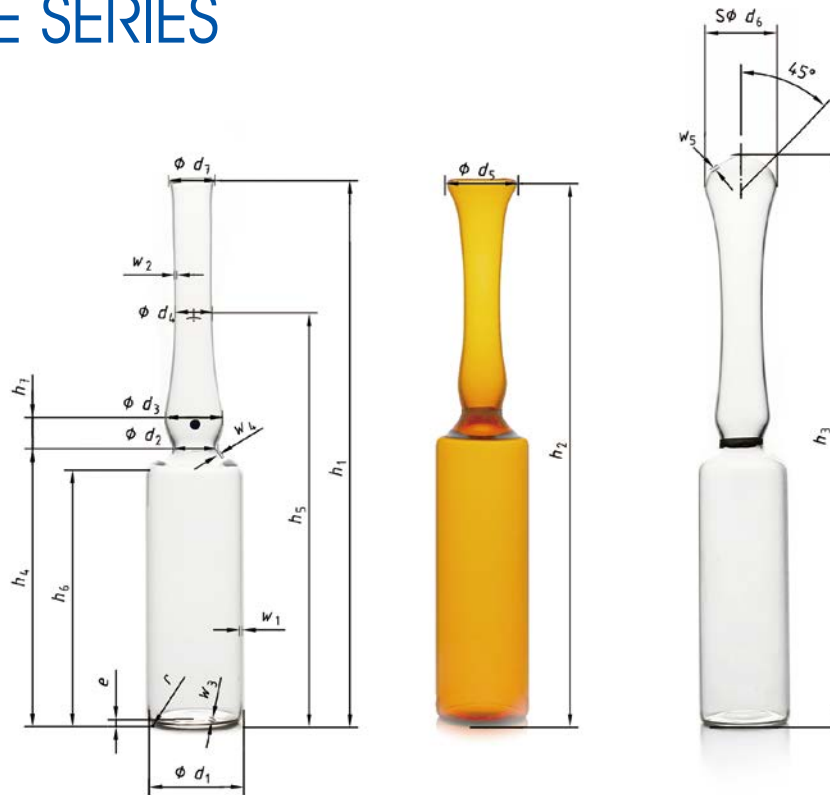
Easy-Break Mechanisms: OPC & CBR

Printing: The identification color rings printed on the stem or body are free of heavy metals.

With these features, our ampoule provides a safe, reliable, and customized packaging solution for various medications and pharmaceutical products as well as cosmetic beauty products.



AMPOULE SERIES



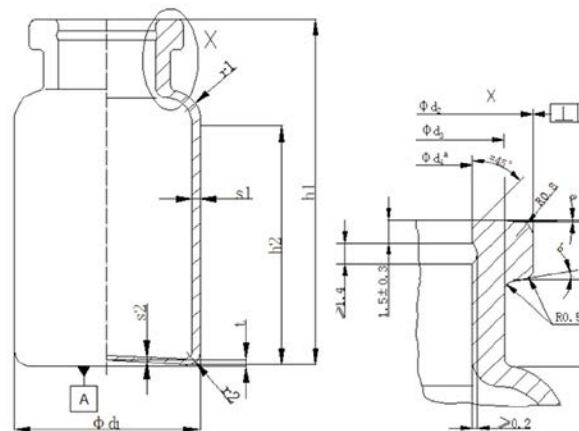
ISO Standard Ampoule Dimension (mm)

Size ml	Volume	Circular runout mm	d_1	d_2	d_3	d_4	d_5	d_6	d_7	h_1	h_2	h_3	h_4	h_5	h_6	h_7	r	e	w_1	w_2	w_3	w_4	w_5
1	1.5	0.6	10.75	6.5	8.5	6	9	10	8	60	67	70	25.5	47	21	4.5	1	1	0.5	0.37	0.3	0.7	0.1 to 0.25
2	2.3	0.6	10.75	6.5	8.5	6	9	10	8	72	79	83	37.5	57	33	4.5	1	1	0.5	0.37	0.3	0.7	0.1 to 0.25
3	3.5	0.8	12.75	6.5	8.5	6	10.7	10.5	8	75	82	89	39.5	62	35	5	1.5	1	0.5	0.37	0.3	0.7	0.1 to 0.25
5	5.5	1	14.75	7	9	7	12.2	12	9	83	90	95	46.5	68	41	5.5	1.5	1	0.55	0.4	0.4	0.7	0.1 to 0.25
10	11.5	1	17.75	7.5	9.5	7.1	13	13.5	9.5	102	109	112	62	87	55	6	2.0	1.25	0.6	0.4	0.4	0.8	0.1 to 0.25
20	23.5	1.2	22.5	8.5	12	7.8	14	13.5	11	113	120	125	76	100	65	6.5	2.5	1.5	0.7	0.5	0.5	1	0.1 to 0.3
25	28.5	1.2	22.5	8.5	12	7.8	14	13.5	11	128	135	141	91	115	80	6.5	2.5	1.5	0.7	0.5	0.5	1	0.1 to 0.3
30	33.5	1.2	22.5	8.5	12	7.8	14	13.5	11	143	150	156	106	130	95	6.5	2.5	1.5	0.7	0.5	0.5	1	0.1 to 0.3

GLASS VIAL

Made of USP Type I Glass, FOUR STARS vials offer high chemical resistance for the safe storage of liquid drug formulations, including vials for injection, screw neck vial, indented lip vials and oral liquid vials of clear or amber tubing with a format range of 1ml up to 50 ml according to ISO standards as well as PH.Eur., USP norms or customized products by our professional R&D team.

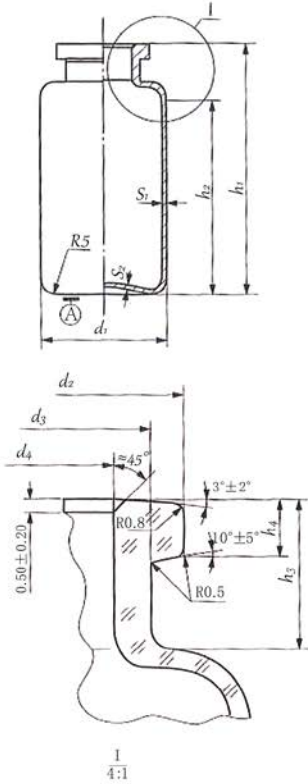
Apart from being a perfect neutral glass tubing for injectable solutions, FOUR STARS also provides a particularly safe packaging medium for biotechnological and cosmetic products.



Dimensions of ISO standard A and C injection bottles (mm)

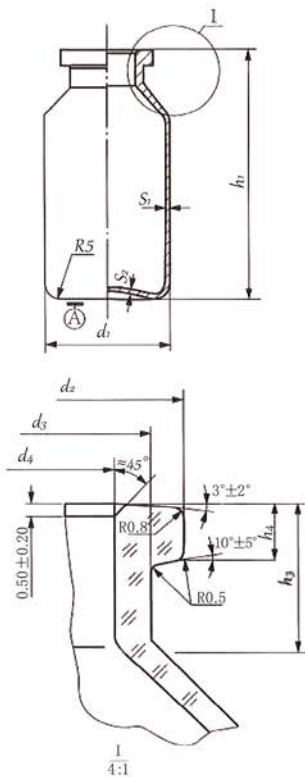
Size	Volume	a	d ₁	d ₂	d ₃	d ₄	h ₁	h ₂	h ₃	r ₁	r ₂	s ₁	s ₂	t
2R	4	1	16	13	10.5	7	35	22	8	2.5	1.5	1	0.6	0.7
4R	6	1	16	13	10.5	7	45	32	8	2.5	1.5	1	0.6	0.7
6R	10	1.2	22	20	16.5	12.6	40	26	8.5	3.5	2	1	0.7	0.7
8R	11.5	1.2	22	20	16.5	12.6	45	31	8.5	3.5	2	1	0.7	0.7
10R	13.5	1.2	24	20	16.5	12.6	45	30	9	4	2	1	0.7	0.7
15R	19	1.2	24	20	16.5	12.6	60	45	9	4	2	1	0.7	0.7
20R	26	1.5	30	20	17.5	12.6	55	35	10	5.5	2.5	1.2	0.7	1
25R	32.5	1.5	30	20	17.5	12.6	65	45	10	5.5	2.5	1.2	0.7	1
30R	37.5	1.5	30	20	17.5	12.6	75	55	10	5.5	2.5	1.2	0.7	1

GLASS VIALS SERIES



YBB standard shoulder bottle dimensions (mm)

Size	2	4	6	8	10	15	20	25	30
Vertical axis deviation a_{max}	1.00		1.20			1.50			
outer dia of bottle body d_1	Size	16.00	22.00		24.00			30.00	
	SD	± 0.20	± 0.20			± 0.30			
Outer diameter of bottle mouth d_2	Size	13.00		20.00					
	SD				± 0.20 -0.30				
Bottleneck outer diameter d_{3max}	10.50		16.00		16.50		17.50		
Inner diameter of bottle mouth d_4	Size	7.00		12.50					
	SD	± 0.20		± 0.20					
Bottom thickness of bottle S_2	≥ 0.70								
Full height of bottle body h_1	Size	35.00	45.00	40.00	45.00	60.00	55.00	65.00	75.00
	SD	± 0.50			± 0.70				
Bottle length h_{2min}	23.00	33.00	27.00	32.00	31.00	46.00	35.00	45.00	55.00
Long bottleneck h_3	Size	8.00		8.50		9.00			10.00
	SD			± 0.50					± 0.75
Thick bottle edge h_4	Size	3.60							
	SD	± 0.20							
Bottle wall thickness S_1	Size	1.00			1.20				
	SD	± 0.04			± 0.05				



YBB standard sliding shoulder bottle dimensions (mm)

Size	2	3	5	10	15	20	30	50
Vertical axis deviation a_{max}	1.00	1.20	1.30	1.40		1.50		1.80
outer dia of bottle body d_1	Size	16.00	16.40	22.00	24.00		28.00	40.00
	SD	± 0.30		± 0.35		± 0.40		1.00
Outer diameter of bottle mouth d_2	Size	13.00		19.60				28.80
	SD				$+0.20$ -0.30		± 0.30	
Bottleneck outer diameter d_{3max}	10.50	16.00		16.50		17.50	23.30	
Inner diameter of bottle mouth d_4	Size	7.00		12.50				18.80
	SD				± 0.20		± 0.30	
Bottom thickness of bottle S_2	≥ 0.40		≥ 0.70		≥ 1.00		≥ 1.20	
Full height of bottle body h_1	Size	35.00	37.00	39.00	48.00	58.00	60.00	80.00
	SD	± 0.50			± 0.70		± 1.00	
Long bottleneck h_3	Size	8.00		8.50				12.00
	SD				± 0.50		± 0.80	
Thick bottle edge h_4	Size	3.60						4.50
	SD	± 0.20			± 0.30			
Bottle wall thickness S_1	Size	1.00	1.10	1.30		1.50	1.80	
	SD	± 0.06	± 0.08	± 0.10		± 0.05		

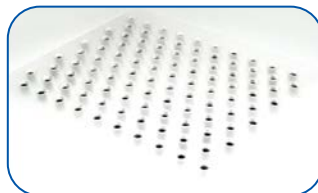
PREFILLABLE SYRINGE



PREFILLABLE SYRINGE



Rubber Stopper in Bag



Rubber Stopper in Nest



Injection Needle



Wing Handle

» INTRODUCTION

◆ Product Characteristics

- Ready to Use
- Accurate Dosage
- Safe Medicine Storage
- Less Medicine Residues
- Contamination Prevented
- Mismedication Prevented

◆ Scope of Application

- Vaccine
- Interferon
- Infertility
- Heparin sodium
- Anesthetic
- Hyaluronic acids
- Monoclonal antibody
- Protein polypeptides
- MRI contrast agent

» Technical Parameters

PFS WITH NEEDLE

Size	Barrel OD	Barrel Length	Needle Size	Needle Shield
0.5ml	6.85mm	57.6mm	27G1/2 *	✓
1ml long	8.15mm	64mm	27G1/2 *	✓
1ml	10.85mm	46.7mm	25G5/8 *	✓
1.5ml	10.85mm	54mm	27G1/2 *	✓
2.25ml	10.85mm	65.5mm	27G1/2 *	✓

The model with the symbol(*) represents the injection needle is the standard configuration of the corresponding syringe, and we can customize it according to customers' needs

PFS WITH LUER CONE

Size	Barrel OD	Barrel Length	Rubber Cone Cap
1ml long	8.15mm	64mm	✓
1 ml	10.85mm	46.7mm	✓
1.5ml	10.85mm	54mm	✓
2.25ml	10.85mm	65.5mm	✓
3ml	10.85mm	83.2mm	✓
5ml	14.45mm	78.7mm	✓

PFS WITH LUER LOCK

Size	Barrel OD	Barrel Length	Rubber Cap	Luer Lock
1ml long	8.15mm	66.5mm	✓	✓
1ml	10.85mm	48.3mm	✓	✓
2.25ml	10.85mm	67mm	✓	✓
3ml	10.85mm	85.7mm	✓	✓
5ml	14.45mm	80mm	✓	✓

» SHOWCASE



PFS with Needle

Quality Canula UV-cured to the Barrel



PFS without Needle

Various needles available upon request



PFS Packed in Sterile Nest Tub

Ready to fill for pharmaceutical companies



Note: Wing Handle Available for PFS with or without Needle

PFS with Wing Handle

Easy Pushing Force with Wing Handle