

Spiral plastic tubing





FESTO



Spiral plastic tubing

Product range overview

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Version	Type	Ø [mm]	Colour			Operating medium		
			Blue	Black	Blue/black	Compressed air	Vacuum	Water (not drinking water)
Spiral tubing		O.D.						
	PUN-S Polyurethane	4, 6, 8, 10, 12	■	■	-	■	■	-
	PUN-S-DUO Polyurethane Paired tubing	4, 6, 8, 10, 12	-	-	■	■	■	-
Spiral tubing, pre-assembled		I.D.						
	PUN-SG Polyurethane	6.4; 7.9	■	-	-	■	■	■
	PPS Polyamide	4.75; 6.35	■	-	-	■	■	■

Spiral plastic tubing

Product range overview

Type	Halogen-free	PWS-free to FN 942 010	Suitable for use with energy chains	Approved by the German Technical Control Board (TÜV)	Resistance					Shore hardness ²⁾	→ Page/ Internet
					Chemicals	Microbes	UV radiation	Hydrolysis	Stress cracks		
Spiral tubing											
PUN-S	■	■	■	■	-	-	++ ¹⁾	+	++	D 52 ±3	6
PUN-S-DUO	■	■	■	■	-	-	+	+	+	D 52 ±3	8
Spiral tubing, pre-assembled											
PUN-SG	■	■	-	-	+	++	+	++	+	A 87 ±3	10
PPS	■	■	■	-	+	++	+	+	+	-	11

++ Highly suitable

+ Limited suitability (on request)

- Not suitable

1) Applies to black colour

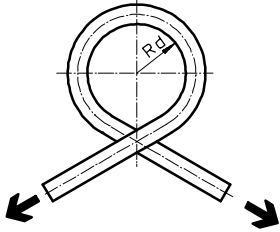
2) Values are determined using test boards. Values determined using tubing may vary.

Spiral plastic tubing

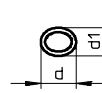
Technical data

Method of measurement

Flow-relevant bending radius R_d



The tube is bent in the direction of its own curve until the tubing outer diameter is flattened by 5%. R_d is then calculated mathematically. The flow rate is not reduced until R_d is reached.

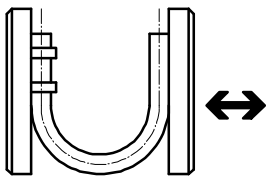


Cross section flattened by bending the tube.

d = non-deformed tubing O.D.

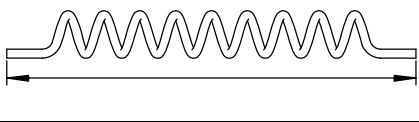
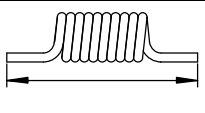
d_1 = deformed tubing O.D.

Minimum bending radius R_{min}



The tube fixed to the base plate is bent until the deformation results in a kink. The measured value is the minimum bending radius R_{min} . This R_{min} results in significant reductions in flow rate.

Length specifications

	Working length	With tensile load, 80% of the maximum section length
	Block length	Without tensile load

-  - Note

The working length represents 80% of the maximum permissible expansion. This maximum expansion is the limit value before permanent deformation takes place.

Spiral plastic tubing

Type codes

Type codes spiral plastic tubing PUN

PUN	-	6x1	-	S	-	1	-	DUO	-	BS	-	
-----	---	-----	---	---	---	---	---	-----	---	----	---	--

Material	
PUN	Polyurethane

O.D. x wall thickness [mm]	

Design	
S	Spiral
SG	Spiral with fabric

Working length [m]	

Number of tubes	
	Single tube
DUO	Paired tubing (only for S)

Colour	
BK	Black (only for S)
BL	Blue
BS	Blue/black (only for DUO)

Pneumatic connection (only for SG)	
1/4	Male thread G1/4
3/8	Male thread G3/8

Type codes spiral plastic tubing PPS

PPS	-	4	-	15	-	1/4	-	BL
-----	---	---	---	----	---	-----	---	----

Material	
PPS	Polyamide

I.D. [mm]	
4	I.D. 4.7 mm
6	I.D. 6.2 mm

Working length [m]	
7.5	Working length 7.5 m
15	Working length 15 m

Pneumatic connection	
1/4	Male thread G1/4

Colour	
BL	Blue

Spiral plastic tubing PUN-S

Technical data



Spiral plastic tubing PUN-S

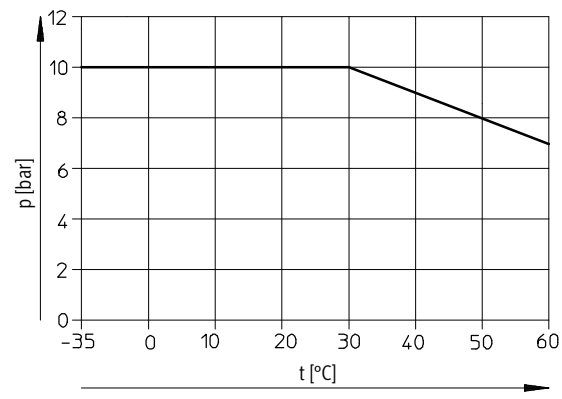
Highly flexible plastic tubing.




General technical data					
Type	PUN-4x0,75-S	PUN-6x1-S	PUN-8x1,25-S	PUN-10x1,5-S	PUN-12x2-S
Pneumatic connection	For push-in connector O.D. 4 mm	For push-in connector O.D. 6 mm	For push-in connector O.D. 8 mm	For push-in connector O.D. 10 mm	For push-in connector O.D. 12 mm
	For barbed connector I.D. 3 mm with union nut	For barbed connector I.D. 4 mm with union nut	For barbed connector I.D. 6 mm with union nut	–	–
	For barbed connector I.D. 3 mm	For barbed connector I.D. 4 mm	For barbed connector I.D. 6 mm	–	–


Operating and environmental conditions	
Temperature-dependent operating pressure [bar]	–0,95 ... +10 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:–:–]
Ambient temperature [°C]	–35 ... +60
Approval	German Technical Control Board (TÜV)


Operating pressure p as a function of temperature t





Possible fittings


- 

Push-in fitting QS, Quick Star¹⁾
→ Internet: qs
- 

Push-in fitting QS-B, Quick Star¹⁾
→ Internet: qs-b
- 

Push-in fitting CRQS, Quick Star, stainless steel
→ Internet: crqs
- 

Push-in fitting NPQM
→ Internet: npqm
- 

Quick connector CK
→ Internet: ck
- 

Barbed fitting CN
→ Internet: cn

1) Recommended fitting

Note
Greater force is required when assembling the fittings CK/CN. Expanding the tube ends using a tapered mandrel makes pushing them on easier.

Spiral plastic tubing PUN-S

Technical data

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Materials	
Shore hardness	D 52 ±3
Tube	TPE-U(PU)
Note on materials	RoHS-compliant
	Free of copper and PTFE

Dimensions and ordering data									
O.D.	I.D.	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]		[m]	[m]	[g]			
4	2.6	25	20	0.5	0.184	13	Blue	197587	PUN-4x0,75-S-0,5-BL
							Black	197602	PUN-4x0,75-S-0,5-SW
			45	1	0.284	27	Blue	197588	PUN-4x0,75-S-1-BL
							Black	197603	PUN-4x0,75-S-1-SW
			70	1.5	0.384	42	Blue	197589	PUN-4x0,75-S-1,5-BL
							Black	197604	PUN-4x0,75-S-1,5-SW
6	4	46	23	1	0.344	51	Blue	197590	PUN-6x1-S-1-BL
							Black	197605	PUN-6x1-S-1-SW
			52	2	0.518	110	Blue	197591	PUN-6x1-S-2-BL
							Black	197606	PUN-6x1-S-2-SW
			168	6	1.214	350	Blue	197592	PUN-6x1-S-6-BL
							Black	197607	PUN-6x1-S-6-SW
8	5.7	60	12	1	0.304	65	Blue	197593	PUN-8x1,25-S-1-BL
							Black	197608	PUN-8x1,25-S-1-SW
			27	2	0.424	140	Blue	197594	PUN-8x1,25-S-2-BL
							Black	197609	PUN-8x1,25-S-2-SW
			87	6	0.904	440	Blue	197595	PUN-8x1,25-S-6-BL
							Black	197610	PUN-8x1,25-S-6-SW
10	7	80	9.5	1	0.305	110	Blue	197596	PUN-10x1,5-S-1-BL
							Black	197611	PUN-10x1,5-S-1-SW
			22	2	0.43	250	Blue	197597	PUN-10x1,5-S-2-BL
							Black	197612	PUN-10x1,5-S-2-SW
			70	6	0.91	760	Blue	197598	PUN-10x1,5-S-6-BL
							Black	197613	PUN-10x1,5-S-6-SW
12	8	95	9	1	0.32	200	Blue	197599	PUN-12x2-S-1-BL
							Black	197614	PUN-12x2-S-1-SW
			20	2	0.452	420	Blue	197600	PUN-12x2-S-2-BL
							Black	197615	PUN-12x2-S-2-SW
			64	6	0.98	1300	Blue	197601	PUN-12x2-S-6-BL
							Black	197616	PUN-12x2-S-6-SW

Spiral plastic tubing PUN-S-DUO

Technical data



DUO spiral plastic tubing PUN-S-DUO

Highly flexible paired plastic tubing. Two lengths of tubing are fused together into a tubing pair. For fitting,

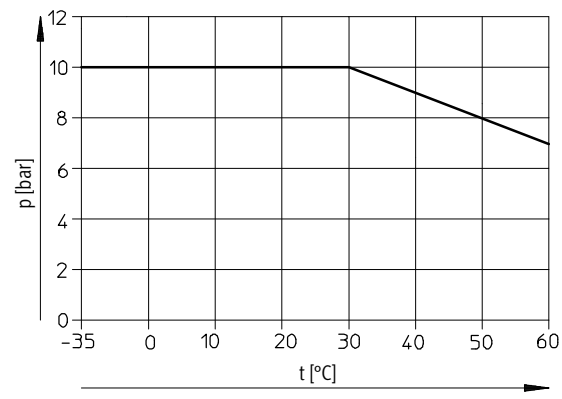
the paired tubing is separated to the required length at both ends.




General technical data					
Type	PUN-4x0,75-S	PUN-6x1-S	PUN-8x1,25-S	PUN-10x1,5-S	PUN-12x2-S
Pneumatic connection	For push-in connector O.D. 4 mm	For push-in connector O.D. 6 mm	For push-in connector O.D. 8 mm	For push-in connector O.D. 10 mm	For push-in connector O.D. 12 mm
	For barbed connector I.D. 3 mm with union nut	For barbed connector I.D. 4 mm with union nut	For barbed connector I.D. 6 mm with union nut	–	–
	For barbed connector I.D. 3 mm	For barbed connector I.D. 4 mm	For barbed connector I.D. 6 mm	–	–


Operating and environmental conditions	
Temperature-dependent operating pressure [bar]	–0.95 ... +10 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:–:–]
Ambient temperature [°C]	–35 ... +60
Approval	German Technical Control Board (TÜV)


Operating pressure p as a function of temperature t





Possible fittings


- 

Push-in fitting QS, Quick Star¹⁾
→ Internet: qs
- 

Push-in fitting QS-B, Quick Star¹⁾
→ Internet: qs-b
- 

Push-in fitting CRQS, Quick Star, stainless steel
→ Internet: crqs
- 

Push-in fitting NPQM
→ Internet: npqm
- 

Quick connector CK
→ Internet: ck
- 

Barbed fitting CN
→ Internet: cn

1) Recommended fitting

Note
Greater force is required when assembling the fittings CK/CN. Expanding the tube ends using a tapered mandrel makes pushing them on easier.

Spiral plastic tubing PUN-S-DUO

Technical data

FESTO

Materials	
Shore hardness	D 52 ±3
Tube	TPE-U(PU)
Note on materials	RoHS-compliant
	Free of copper and PTFE

Dimensions and ordering data									
O.D.	I.D.	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]		[m]	[m]	[g]			
4	2.6	25	20	0.5	0.268	25	Blue/black	197617	PUN-4x0,75-S-0,5-DUO-BS
			45	1	0.468	55		197618	PUN-4x0,75-S-1-DUO-BS
			70	1.5	0.668	84		197619	PUN-4x0,75-S-1,5-DUO-BS
6	4	46	23	1	0.488	102	Blue/black	197620	PUN-6x1-S-1-DUO-BS
			52	2	0.836	230		197621	PUN-6x1-S-2-DUO-BS
			168	6	2.228	700		197622	PUN-6x1-S-6-DUO-BS
8	5.7	60	12	1	0.408	130	Blue/black	197623	PUN-8x1,25-S-1-DUO-BS
			27	2	0.648	280		197624	PUN-8x1,25-S-2-DUO-BS
			87	6	1.608	870		197625	PUN-8x1,25-S-6-DUO-BS
10	7	80	9.5	1	0.41	220	Blue/black	197626	PUN-10x1,5-S-1-DUO-BS
			22	2	0.66	490		197627	PUN-10x1,5-S-2-DUO-BS
			70	6	1.62	1520		197628	PUN-10x1,5-S-6-DUO-BS
12	8	95	9	1	0.44	390	Blue/black	197629	PUN-12x2-S-1-DUO-BS
			20	2	0.704	830		197630	PUN-12x2-S-2-DUO-BS
			64	6	1.76	2600		197631	PUN-12x2-S-6-DUO-BS

Spiral plastic tubing PUN-SG, pre-assembled

Technical data

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Spiral plastic tubing PUN-SG

Highly flexible and hydrolysis-resistant pneumatic tubing with fibre reinforcement and captive rotatable fittings.



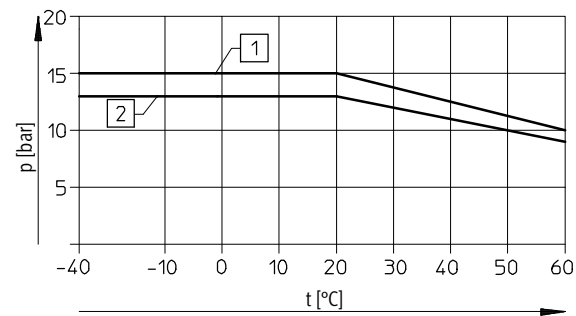
General technical data		
Type	PUN-10x1,5-SG	PUN-12x2-SG
Pneumatic connection 1, 2	Male thread G1/4	Male thread G3/8
Nominal tightening torque [Nm]	11 ±20%	12.5 ±20%

Operating and environmental conditions		
Type	PUN-10x1,5-SG	PUN-12x2-SG
Temperature-dependent operating pressure [bar]	-0.95 ... +15 → graph	-0.95 ... +13 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Ambient temperature [°C]	-40 ... +60	
Corrosion resistance class CRC ¹⁾	1	

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Operating pressure p as a function of temperature t



- 1 PUN-10x1,5-SG
- 2 PUN-12x2-SG

Materials	
Shore hardness	A 87 ±3
Tube	TPE-U(PU)
Connecting thread	Nickel-plated brass
Protection against kinking	POM
Note on materials	RoHS-compliant Free of copper and PTFE

Dimensions and ordering data										
O.D.	I.D.	Flow-relevant bending radius	Winding Ø	Number of windings	Working length	Block length	Weight	Colour	Part No.	Type
[mm]	[mm]	[mm]	[mm]		[m]	[m]	[g]			
9.5	6.4	50	42	21	2.4	0.889	180	Blue	533463	PUN-10x1,5-SG-2,4-BL-1/4
				50	4.8	1.165	340		533464	PUN-10x1,5-SG-4,8-BL-1/4
				66	6	1.317	430		533465	PUN-10x1,5-SG-6-BL-1/4
11.7	7.9	65	51	41	4.8	1.172	480	Blue	533466	PUN-12x2-SG-4,8-BL-3/8
				53	6	1.312	560		533467	PUN-12x2-SG-6-BL-3/8

Spiral plastic tubing PPS, pre-assembled

Technical data

Spiral plastic tubing PPS

This hydrolysis-resistant plastic tubing demonstrates high thermal and mechanical load capacities. Each tubing length is delivered ready for

installation with 2 rotatable connectors and captive O-ring sealing rings. Kinks at the tubing ends are prevented by the anti-kinking springs.

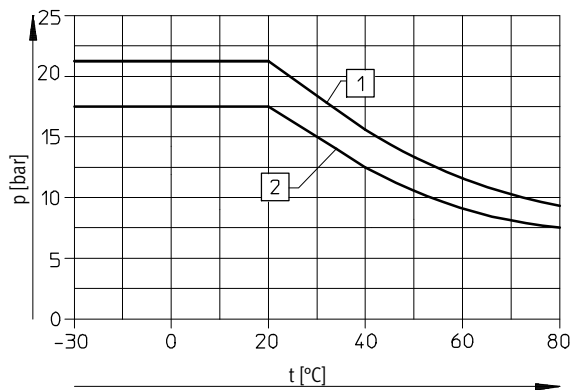


General technical data		
Pneumatic connection 1, 2	Male thread G1/4	
Nominal tightening torque [Nm]	11 ±20%	
Operating and environmental conditions		
Type	PPS-4	PPS-6
Temperature-dependent operating pressure [bar]	-0.95 ... +21.2 → graph	-0.95 ... +17.2 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Ambient temperature [°C]	-30 ... +80	
Corrosion resistance class CRC ¹⁾	1	

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Operating pressure p as a function of temperature t



- 1 PPS-4
- 2 PPS-6

Materials	
Tube	PA12-P
Connecting thread	Brass
Protection against kinking	Galvanised steel
Note on materials	RoHS-compliant

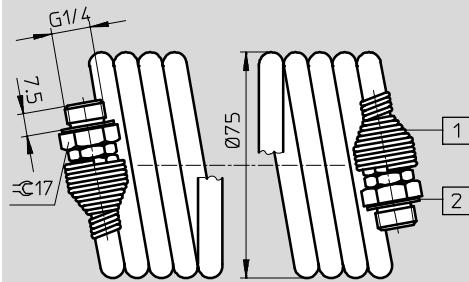
Spiral plastic tubing PPS, pre-assembled

Technical data

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Dimensions

Download CAD data → www.festo.com



- 1 Kink protection spring
- 2 Captive seal

Ordering data

O.D. [mm]	I.D. [mm]	Winding Ø [mm]	Number of windings	Working length [m]	Block length [m]	Weight [g]	Colour	Part No.	Type
6.3	4.7	75	44	7.5	0.34	249	Blue	19798	PPS-4-7,5-1/4-BL
			90	15	0.67	367		19799	PPS-4-15-1/4-BL
7.8	6.2	75	43	7.5	0.43	298	Blue	19796	PPS-6-7,5-1/4-BL
			86	15	0.80	500		19797	PPS-6-15-1/4-BL

Product Range and Company Overview

A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



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Electromechanical actuators, motors, controllers & drivers



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Pneumatic linear and rotary actuators, valves, and air supply



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Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

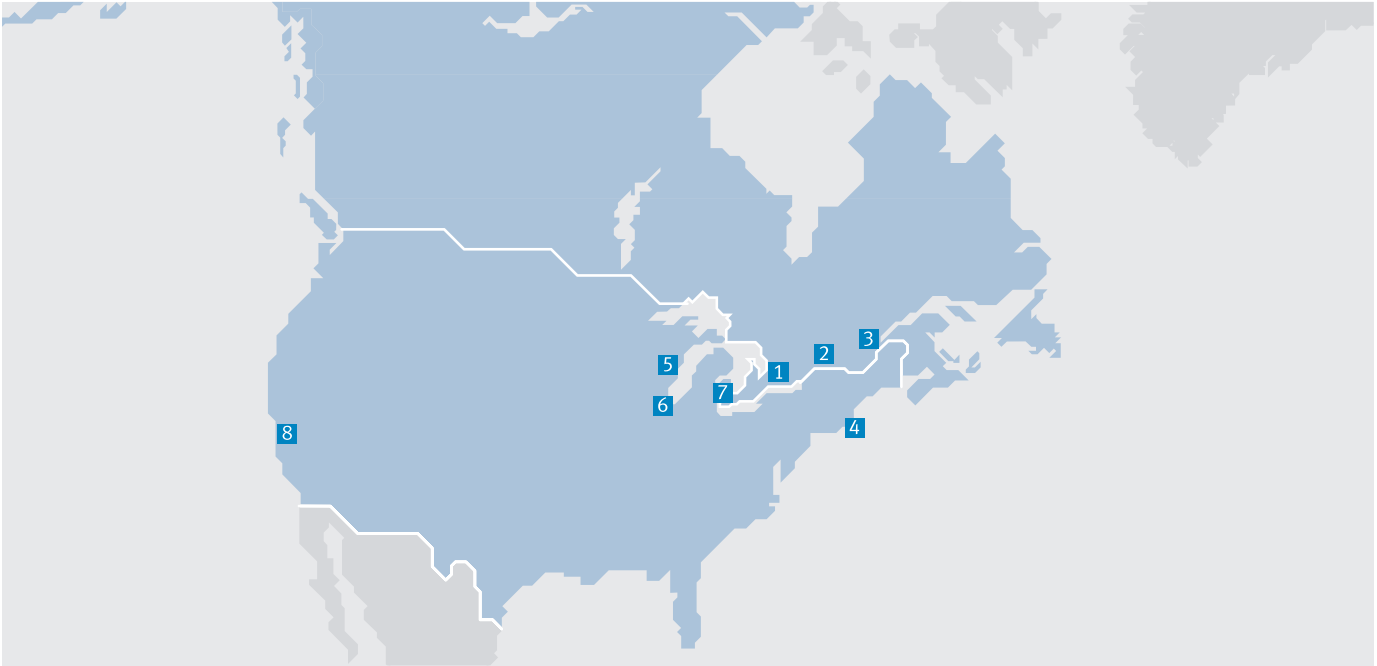


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