



# New Products' Catalogue

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



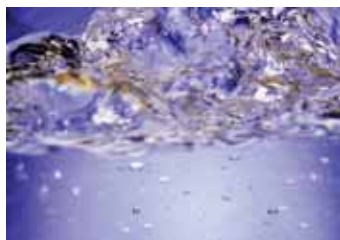
ENGINEERING YOUR SUCCESS.

# New Products' Catalogue

In this catalogue, we have gathered together the most recent product launch information that has been sent out over the past year.

Many new products were launched in 2010/2011 and therefore do not appear in our current General Catalogue; the General Catalogue is presently being revised and updated, and will be published in the coming months. In the meantime, we created this booklet in order to ensure that our customers had a summary of all our brand-new products...right at their fingertips.

For more information, please go to our website:  
**[www.parkerconnectic.com](http://www.parkerconnectic.com)**.



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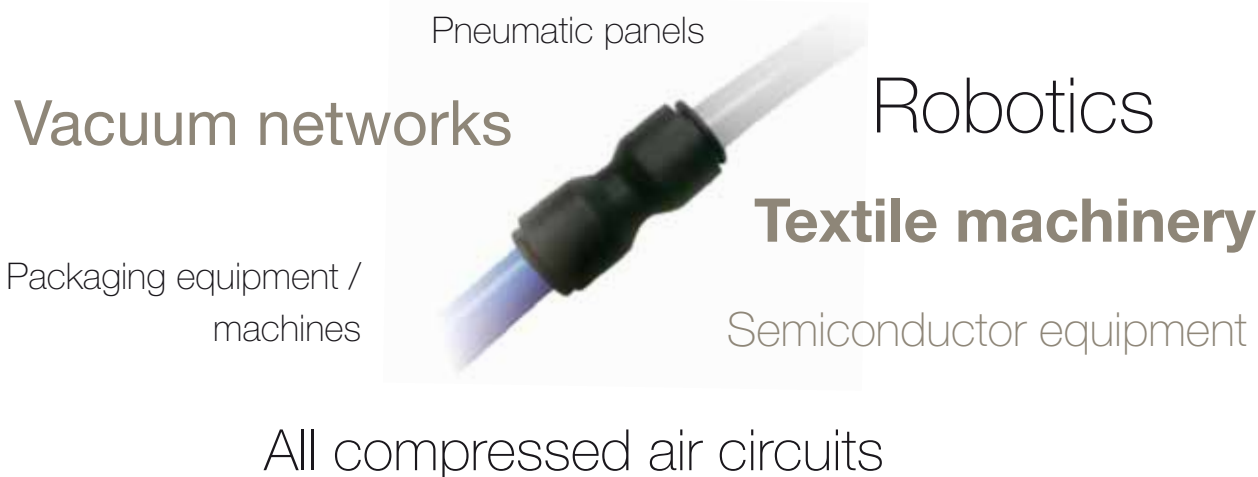
# New LF 3000 16 mm

An Even More Extensive Range



# 16 mm DIAMETER

## LF 3000 INSTANT FITTINGS AND TUBING



### An Even More Extensive Range

- ☒ An additional, bigger diameter for a more versatile range
- ☒ Adapted to the most modern machinery, composed of independent modules


### All the Advantages of the LF 3000 Range

- ☒ Instant connection and disconnection
- ☒ Performance and reliability
- ☒ Lightweight
- ☒ Compact
- ☒ Vacuum capability
- ☒ Aesthetic design

### A Dedicated Range of Tubing in 16 mm Diameter

- ☒ The best fitting/tubing trade-off on the market
- ☒ Polyamide tubing: provides optimum mechanical properties and chemical resistance
- ☒ Polyurethane tubing: extremely flexible, allowing compact cabling where a small bend radius is required

## > Technical Characteristics



	Fittings	PA & PU Tubing
<b>Suitable Fluids</b>	Compressed air	Compressed air (for other fluids, please contact us)
<b>Working Pressure</b>	up to 20 bar (at 20°C)	up to 12/13 bar (at 20°C)
<b>Working Temperature</b>	-20°C to +80°C	-15°C to +70°C for PU tubing -40°C to +80°C for PA tubing
<b>Vacuum</b>	99% (755 mm Hg)	99% (755 mm Hg)

All items in the LF 3000 range are guaranteed silicone-free

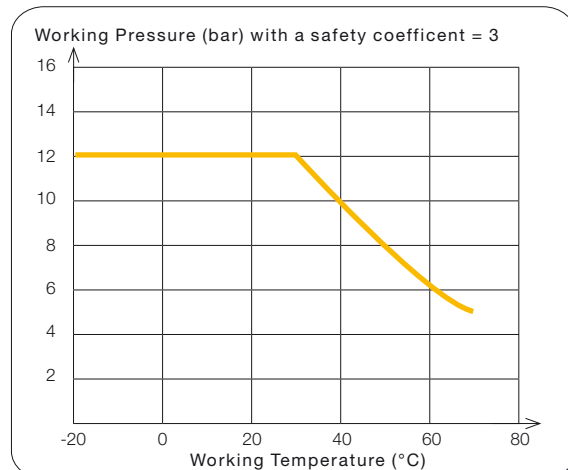
## > Tubing Performances

### Polyurethane Tubing Performances

ØD (mm)		Wall Thickness (mm)		Max. Ovality (mm)	Min. Bend Radius @ +23°C (mm)
ext.	Tolerances	e	Tolerances		
16	± 0.15	2.5 max.	+ 0.15 - 0.07	0.3	45 Max flow: 88

Safety coefficient= x3 to obtain burst pressure

Close tolerance to perfect sealing according to the NF E49-101 standard

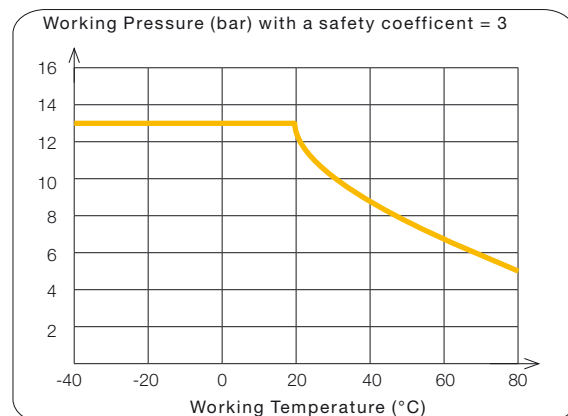


### Polyamide Tubing Performances

ØD (mm)		Wall Thickness (mm)		Max. Ovality (mm)	Min. Bend Radius @ +23°C (mm)
ext.	Tolerances	e	Tolerances		
16	+ 0.05 - 0.10	1.5	± 0.08	0.28	115

Safety coefficient= x3 to obtain burst pressure

Close tolerance to perfect sealing according to the NF E49-100 standard



## > Regulations

Products are manufactured from materials without any hazardous or prohibited substances.

New Machinery directive 2006/42/EC: our products comply with this directive to guarantee safe use and security of equipment.

The LF 3000 range also meets the latest international standard ISO 14743 - for instant fittings used in conjunction with thermoplastic tubes.



2002/95/EC

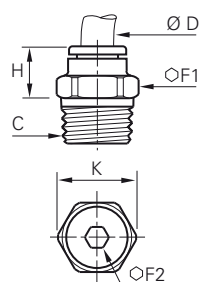


REACH Regulation n°1907/2006



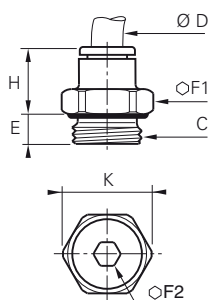
## > Threaded Fittings

### 3175 Male stud fitting, hexagonal, BSPT thread



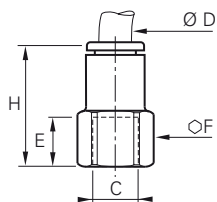
ØD	C		F1	F2	H	K	
16	R3/8	3175 16 17	27	9	32,5	29	0,069
16	R1/2	3175 16 21	27	12	32,5	29	0,079

### 3101 Male stud fitting, hexagonal, BSPP thread



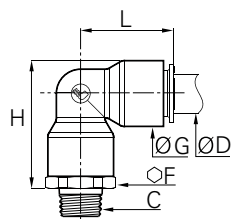
ØD	C		E	F1	F2	H	K	
16	G3/8	3101 16 17	7,5	27	9	32,5	29	0,061
16	G1/2	3101 16 21	9	27	12	32,5	29	0,066

### 3114 Female stud fitting, BSPP thread



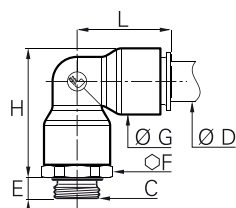
ØD	C		E	F	H	
16	G1/2	3114 16 21	15	27	49	0,101

### 3109 Male stud elbow, BSPT thread



ØD	C		F	G	H	L	
16	R3/8	3109 16 17	27	27	53	39	0,106
16	R1/2	3109 16 21	27	27	53	39	0,104

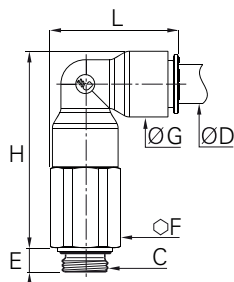
### 3199 Male stud elbow, BSPP thread



ØD	C		E	F	G	H	L	
16	G3/8	3199 16 17	7,5	27	27	54,5	39	0,101
16	G1/2	3199 16 21	9	27	27	54,5	39	0,097

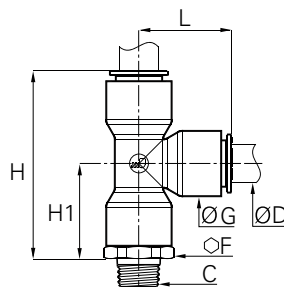
## > Threaded Fittings

### 3169 Extended male stud elbow, BSPP thread



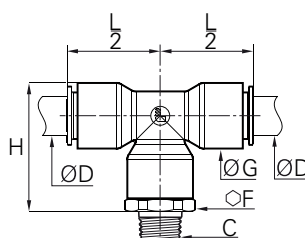
ØD	C		E	F	G	H	L	
16	G3/8	3169 16 17	7,5	27	27	82,5	52	0,220
16	G1/2	3169 16 21	9	27	27	82,5	52	0,206

### 3103 Male stud run tee, BSPT thread



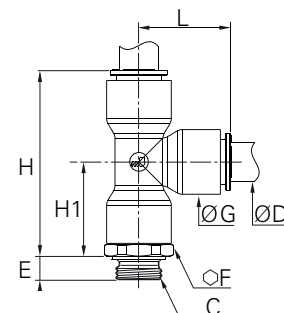
ØD	C		F	G	H	H1	L	
16	R3/8	3103 16 17	27	27	78	39,5	38,5	0,126
16	R1/2	3103 16 21	27	27	78	39,5	38,5	0,124

### 3108 Male stud branch tee, BSPT thread



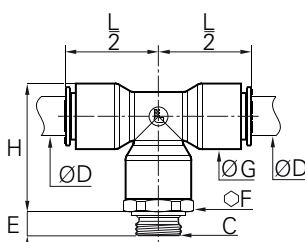
ØD	C		F	G	H	$\frac{L}{2}$	
16	R3/8	3108 16 17	27	27	53	38,5	0,128
16	R1/2	3108 16 21	27	27	53	38,5	0,124

### 3193 Male stud run tee, BSPP thread



ØD	C		E	F	G	H	H1	L	
16	G3/8	3193 16 17	7,5	27	27	79,5	41	38,5	0,121
16	G1/2	3193 16 21	9	27	27	79,5	41	38,5	0,117

### 3198 Male stud branch run tee, BSPP thread

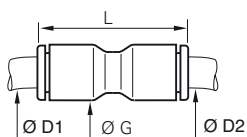




ØD	C		E	F	G	H	$\frac{L}{2}$	
16	G3/8	3198 16 17	7,5	27	27	54,5	38,5	0,121
16	G1/2	3198 16 21	9	27	27	54,5	38,5	0,117



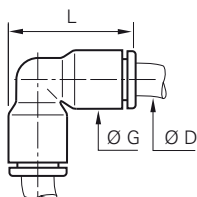
## > Tube-to-Tube Fittings

### 3106 Equal and unequal tube/tube connector



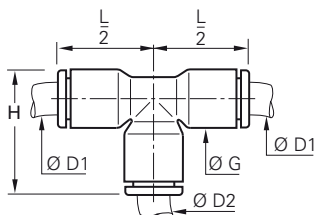
ØD1	ØD2		G	L	
16	16	3106 16 00	27	60,5	0,041
16	12	3106 12 16	27	61	0,066



### 3102 Equal elbow



ØD		G	L	
16	3102 16 00	27	52	0,043

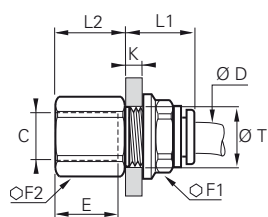
### 3104 Equal and unequal tee





ØD1	ØD2		G	H	$\frac{L}{2}$	
16	16	3104 16 00	27	52	39	0,063
16	12	3104 16 12	27	52,5	39	0,088

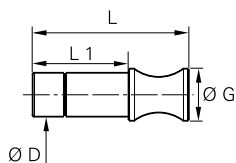
## > Fittings and Accessories



### 3136 Female bulkhead connector, BSPP thread



ØD	C		E	F1	F2	K <sub>max</sub>	L1	L2	T <sub>mini</sub>	
16	G3/8	3136 16 17	12	29	29	10,5	30	15	27,5	0,135
16	G1/2	3136 16 21	15	29	29	10,5	30	19,5	27,5	0,141





### 3126 Blanking plugs




ØD		G	L	L1	
16	3126 16 00	19	57	35	0,063

## > Technical Tubing






### Polyurethane polyester tubing

O.D. Tube (mm)	I.D. Tube (mm)	Minimum bend radius for tube at ambient temp. (mm)	Length (m)				
16	11	45	25	1025U16 01 11	1025U16 02 11	1025U16 03 11	1025U16 04 11
16	11	45	100	1100U16 01 11	1100U16 02 11	1100U16 03 11	1100U16 04 11

### Polyurethane polyether tubing

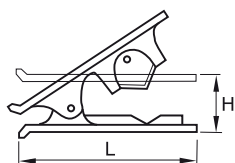
O.D. Tube (mm)	I.D. Tube (mm)	Minimum bend radius for tube at ambient temp. (mm)	Length (m)	
16	11	45	25	1025U16R08 11
16	11	45	100	1100U16R08 11



### Polyamide tubing

O.D. Tube (mm)	I.D. Tube (mm)	Minimum bend radius for tube at ambient temp. (mm)	Length (m)					
16	13	115	25	1025P16 00 13	1025P16 01 13	1025P16 02 13	1025P16 03 13	1025P16 04 13
16	13	115	100	1100P16 00 13	1100P16 01 13	1100P16 02 13	1100P16 03 13	1100P16 04 13

## > Related Products

### 3000 71 00 Tube Cutter



	H	L	
3000 71 00	25	79	0,029

This tool is designed to give a clean cut at right angles to the tube axis and will cut all resilient plastic tubes (polyamide, polyurethane, etc....), from 4 mm to 16 mm diameters inclusive.

A spring maintains the cutter in the closed position.

Replacement blades are available: part number **3000 71 00 05**.

Parker Legris has a continuous product development policy and therefore reserves the right to modify products shown in this catalogue. Please treat all dimensions therefore as indicative.

Parker Legris Connectic offers a comprehensive range of connection solutions; please consult our general catalogue or visit **[www.legris.com](http://www.legris.com)** or **[www.parkerconnectic.com](http://www.parkerconnectic.com)**.





# Piloted Non-Return Valve

A Compact and Reliable Multi-Purpose Fitting  
for Safer Pneumatic Installations



# PILOTED NON-RETURN VALVE

Packaging

Assembly machines

Material handling



Robotics

Machine tools

**Automotive process**

## Safer Pneumatic Installations

- Designed to protect your installations:
  - Blocks cylinder movement in a vertical or horizontal position
  - Allows the cylinder to stop in a mid-stroke position
  - Maintains loads in case of pressure loss or emergency shut-off\*
- New machinery directive 2006/42/EC: our piloted non-return valve conforms to this directive to guarantee safe use and security of equipment.

## 3 Integrated Functions into 1 Product

- A multi-purpose fitting:
  - **Piloted non-return valve**
  - **Flow regulator**
  - **Manual exhaust**
- 1-piece fitting: **integrated fittings** for pilot port and supply port
- Mounted in pairs directly on the cylinder

## Flexibility

- **All ports can swivel 360°** to suit all pneumatic connection configurations
- The flow regulator can turn on its axis
- Instant fitting ports (LF 3000) for a quicker and more reliable installation

\* With a pneumatic stop, very slight movement of the cylinder is still possible.  
Only a mechanical stop will ensure a full and immediate stop.



## > Technical Characteristics

### Constituent Materials

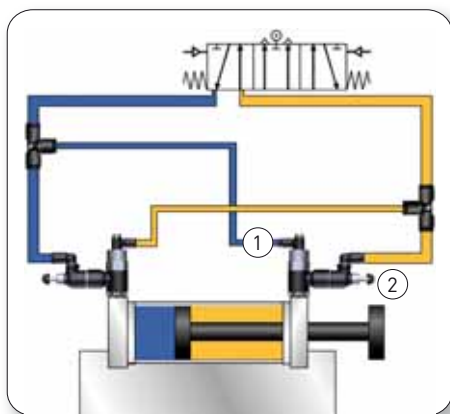
Suitable Fluid	Compressed air
Working Pressure	1 to 10 bar
Working Temperature	-5°C to +60°C
Suitable Tubing	Polyurethane Nylon
Nbr of turns	10 to 15

## > Flow Characteristics at 6 bar (NI/min)

Max. Flow	7894 06 10	7894 06 13	7894 08 10	7894 08 13	7894 08 17	7894 10 17	7894 10 21	7894 12 21
Adjustment	250	475	240	585	875	940	1535	1560
Return	365	620	355	815	1085	1205	1860	1940

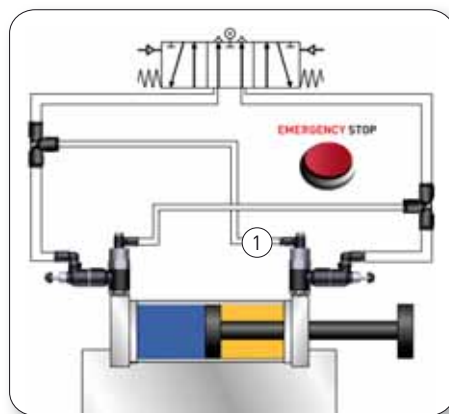
## > Working Principle

### Normal Operation



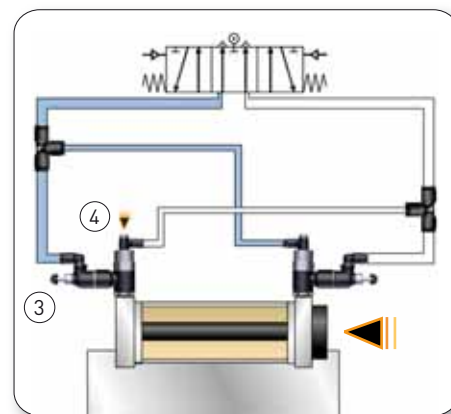
The control valve alternately supplies the two cylinder chambers; the pilot connection ① is connected to the opposite supply chamber with a tee fitting. Exhaust flow is controlled by the flow regulator ②.

### Emergency Stop



In case of an emergency stop or pressure drop, pilot pressure ① drops, closing the piloted non-return valves and blocking the cylinder rod.

### Venting Operation



The cylinder can be put into low position using a vent ④ that empties the pressure chamber through the flow regulator ③ and the control valve.

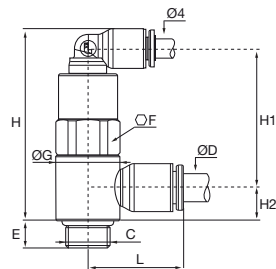
## > Precautions of use


- Close the control regulator before venting in order to avoid sudden release of the cylinder rod.
- Do not use in corrosive environments.



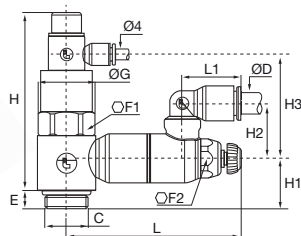
## > Dimensions


### 7892 Piloted non-return valve, BSPP



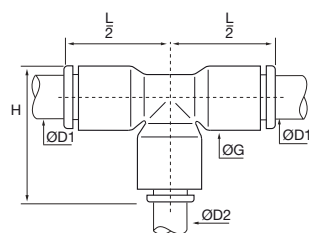
ØD	C		E	F	G	H	H1	H2	L	
6	G1/8	7892 06 10	6	13	14	42	30	7	21	0,028
6	G1/4	7892 06 13	9	17	18,5	45	32	9	23	0,049
8	G1/8	7892 08 10	6	13	14	42	29	9	25	0,029
8	G1/4	7892 08 13	9	17	18,5	45	32	9	27	0,051
8	G3/8	7892 08 17	6	20	22,5	57	41	11	28	0,093
10	G3/8	7892 10 17	6	20	22,5	57	41	11	31	0,094
10	G1/2	7892 10 21	10	24	28	63	47	16	36	0,172
12	G1/2	7892 12 21	10	24	28	63	47	16	36	0,162


### 7894 Piloted non-return valve with flow regulator and exhaust, BSPP



ØD	C		E	F1	F2	G	H	H1	H2	H3	L <sub>mini</sub>	L <sub>maxi</sub>	L1	
6	G1/8	7894 06 10	6	13	8	14	46	7	24	31	48,5	51	16	0,049
6	G1/4	7894 06 13	9	17	10	18,5	49	11	18	31	59,5	65	17	0,081
8	G1/8	7894 08 10	6	13	8	14	46	7	27	31	48,5	51	22	0,050
8	G1/4	7894 08 13	9	17	10	18,5	49	11	23	31	59,5	65	23	0,084
8	G3/8	7894 08 17	7	20	14	22,5	69	13	21	40	67,5	73	23	0,148
10	G3/8	7894 10 17	7	20	14	22,5	69	13	29	40	67,5	73	26	0,152
10	G1/2	7894 10 21	9	24	17	28	76	12,5	26	47	74	81	26	0,234
12	G1/2	7894 12 21	9	24	17	28	76	12,5	27	47	74	81	30	0,236

### 3104 Unequal tee



ØD1	ØD2		G	H	$\frac{L}{2}$	
6	4	3104 06 04	10,5	22,5	17,5	0,006
8	4	3104 08 04	13,5	29	22,5	0,014
10	4	3104 10 04	16	33	26	0,027
12	4	3104 12 04	19	39	31	0,034

## > Regulations



The piloted non-return valve is manufactured from materials without any hazardous prohibited substances.

New machinery directive 2006/42/EC: our piloted non-return valve conforms to this directive to guarantee safe use and security of equipment.

# Legris' Blowgun Range

A Large Selection to Suit all Applications



# LEGRIS' BLOWGUN RANGE

Blowing  
Manufacturing Workshops  
Assembly Machines  
Drying  
Material Handling



Robotics  
Cooling  
Mixing  
Packaging  
**Automotive Process**

## Quality and Performance

- Gradual and accurate control
- Progressive and directional air jet up to 10 bar
- Durable: impact-resistant materials, high quality structure and finish
- Rigorously tested and approved: seals and flow levels for all Legris blowguns are tested 100%

## Versatility and Safety

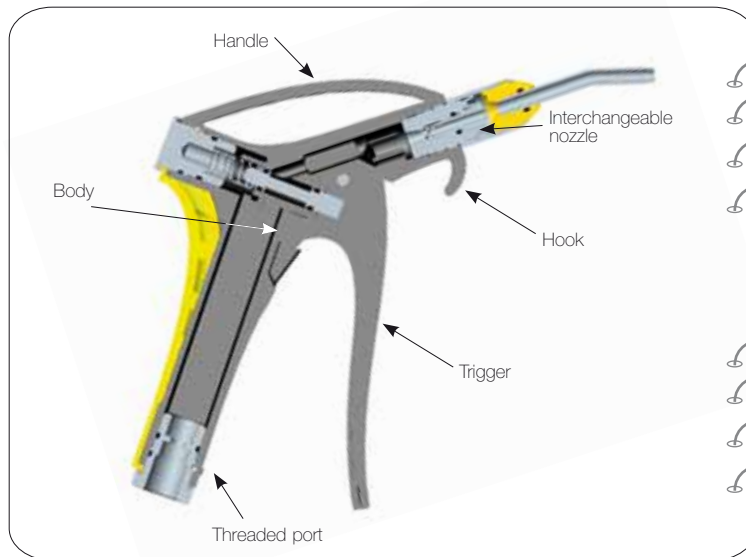
- Integrated short and angled pre-assembled standard nozzle, ready for use
- Can be used with a wide range of M12 x 1,25 threaded interchangeable nozzles
- Safety blowgun with specific "Safety Nozzle System"
- Flow reducer blowgun for energy savings and safe use
- Threaded port insert with G1/4 metal securing pin:
  - Numerous connections and disconnections without any loosening of the threaded insert
  - Optimal long-term sealing
  - NPT thread on request

## Ergonomics

- Upper and lower connection points for natural and easy gripping
- Numerous hanging points, for quick and easy removal
- Lightweight
- Optimized connection whatever the configuration of your installation

Registered design protection: all Legris blowguns have been submitted to the registered design protection organization for the drawings and models with the numbers 13224 - 13225 - 13226.

## > Technical Specifications



Suitable Fluid	Compressed air Other fluids: on request
Working Pressure	1 to 10 bar
Working Temperature	-15°C to +50°C
Suitable Tubing	Recoil tubing and hoses
Constituent Materials	<ul style="list-style-type: none"> <li>Body: Polyamide 66 HR</li> <li>Seal: Nitrile</li> <li>Nozzle*: Nickel-plated brass</li> <li>Aluminium</li> <li>Pin: Nickel-plated brass</li> </ul>

*\*Depending on the blowgun version*

## > Working Principles

### Safety Nozzle System

- When in close proximity to an obstacle, the pressure falls rapidly, restricting pressure to 0,5 bar and stopping air flow
- Conversely, as soon as the nozzle is removed from the obstacle, the pressure automatically increases



### Flow Reducer System "Energy Saving"

- Combined with the OSHA 1910.242(b) nozzle, when in close proximity to an obstacle, the flow is deviated to reduce pressure to 0,5 bar at the end of the nozzle
- The flow reducer system allows for 40% savings in air consumption and guarantees stable flow Max 120 NI/m



## > Connection Configurations

### Upper Connection



### Lower Connection



## > Blowgun kits

Blowgun Kits include:

- A blowgun
- Recoil tubing (4m long) External Ø 8 mm
- G1/4" male thread connector adapted to coupler

Kits are packaged in individual plastic bags.

**New**



### Easy-to-use Blowgun Kits



**0631 00 01**  
Safety Blowgun kit,  
lower connection



**0631 00 02**  
Short Nozzle  
Blowgun kit,  
upper connection

**0631 00 03**  
Short Nozzle  
Blowgun kit, lower  
connection



**0631 00 04**  
Angled Nozzle  
Blowgun kit,  
upper connection

**0631 00 05**  
Angled Nozzle  
Blowgun kit, lower  
connection



**0631 00 08**  
Flow Reducer  
«Energy Saving»  
Interchangeable  
Nozzle blowgun kit,  
lower connection

**0631 00 22**  
Flow Reducer  
"Energy Saving"  
Angled Nozzle  
Blowgun kit, lower  
connection



**0631 00 06**  
Interchangeable  
Nozzle blowgun kit,  
upper connection

**0631 00 07**  
Interchangeable  
Nozzle blowgun kit,  
lower connection



**0631 00 09**  
Standard  
Blowgun kit,  
lower connection

## > Additional products

**Recoil Tubing**  
with or without  
thread connector



**C9000 Advanced Quick-Acting  
Safety Couplers**



**Metal Quick-Acting Couplers**

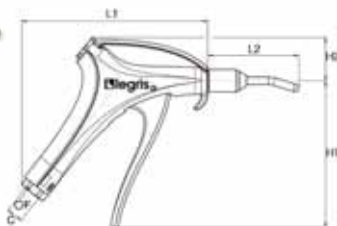


## > Customized Blowgun

- Customer Marking
- Blowgun Kit adapted to your specific applications
- Blowgun with additional functions  
UPON REQUEST ONLY

## > Blowguns

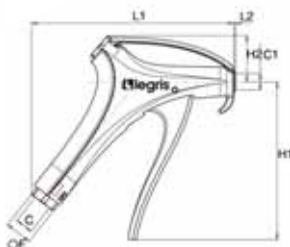
### 0654 Dynamic safety blowgun, lower connection



C			F	H1	H2	L1	L2	
G1/4	0654 00 13		20	117	34	147	1,5	0,213



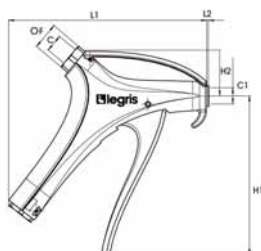
### 0652 Progressive control blowgun, lower connection, threaded version M12x1,25



C	C1		F	H1	H2	L1	L2	
G1/4	M12x1,25	0652 66 13	20	117	37	147	1,5	0,161



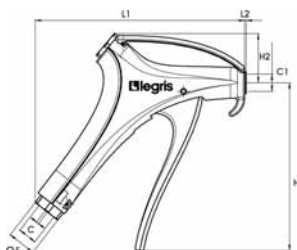
### 0655 Progressive control blowgun, upper connection, threaded version M12x1,25



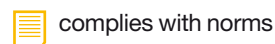
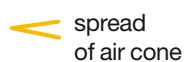
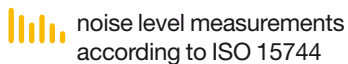
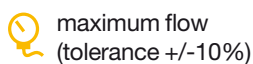
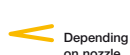
C	C1		F	H1	H2	L1	L2	
G1/4	M12x1,25	0655 66 13	20	117	37	145	1,2	0,169



### 0653 Flow reducer "Energy Saving" blowgun, lower connection



C	C1		F	H1	H2	L1	L2	
G1/4	M12x1,25	0653 66 13	20	117	34	147	1,5	0,180



## > Regulations



The blowgun is manufactured from materials without any hazardous, prohibited substances.

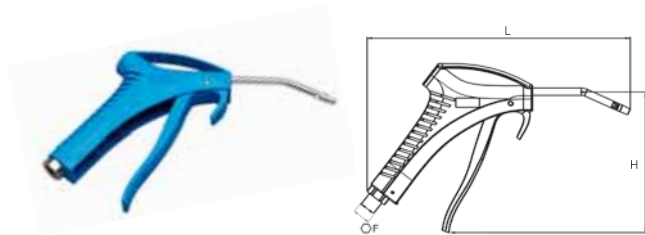


The blowgun range complies with both regulations, depending on the nozzles and versions.



## > Blowguns

### 0659 Standard blowgun with angled nozzle, lower connection



C		F	H	L	
G1/4	0659 00 13	20	120	223	0,075



21°



475 NI/min



82 dBA



OSHA 1910.242 (b)  
OSHA 1910.95 (b)  
Directive 2003/10/EC:  
Ear plugs should always be worn when exposure to noise lasts longer than 8 hours.  
INRS ED755 European Recommendation

### 0651 Progressive control blowgun, lower connection, with standard nozzle



C		F	H1	H2	L1	L2	
G1/4	0651 66 13	20	117	34	147	10	0,173



26°



350 NI/min



86 dBA



OSHA 1910.95 (b)  
Directive 2003/10/EC:  
Ear plugs should always be worn.  
INRS ED755 European Recommendation

### 0658 Progressive control blowgun, upper connection, with standard nozzle



C		F	H1	H2	L1	L2	
G1/4	0658 66 13	20	117	37	145	10	0,195



26°



350 NI/min



86 dBA



OSHA 1910.95 (b)  
Directive 2003/10/EC:  
Ear plugs should always be worn.  
INRS ED755 European Recommendation

### 0656 Progressive control blowgun, lower connection, with short angled nozzle



C		F	H1	H2	L1	L2	
G1/4	0656 66 13	20	117	34	147	81	0,173



21°



565 NI/min

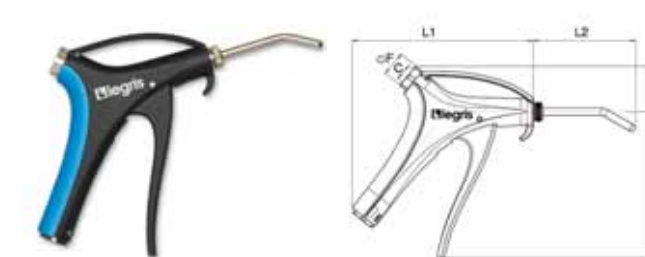


86 dBA



OSHA 1910.242 (b)  
OSHA 1910.95 (b)  
Directive 2003/10/EC:  
Ear plugs should always be worn.  
INRS ED755 European Recommendation

### 0657 Progressive control blowgun, upper connection, with short angled nozzle



C		F	H1	H2	L1	L2	
G1/4	0657 66 13	20	117	37	145	82	0,195



21°



565 NI/min



86 dBA



OSHA 1910.242 (b)  
OSHA 1910.95 (b)  
Directive 2003/10/EC:  
Ear plugs should always be worn.  
INRS ED755 European Recommendation



maximum flow  
(tolerance +/-10%)



noise level measurements  
according to ISO 15744



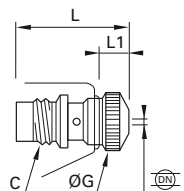
spread  
of air cone



complies with norms

## > Nozzles

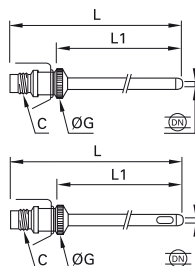
### 0690 02 Safety nozzle



C	DN		G	L	L1	
M12x1,25	3	0690 02 00	15	31,2	9,2	0,025

26°	315 NI/min	83 dBA	OSHA 1910.242 (b) OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn when exposure to noise lasts longer than 8 hours.
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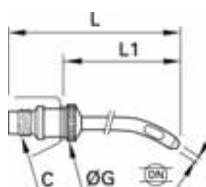
### 0690 03 / 0690 04 Straight tube nozzle (long)/ Straight tube nozzle (short)



C	DN		G	L	L1	
M12x1,25	2,5	0690 03 00	15	332	307	0,065
M12x1,25	2,5	0690 04 00	15	102	77	0,035

21°	0690 03 00 365 NI/min 0690 04 00 385 NI/min	82 dBA	0690 03 00 OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn when exposure to noise lasts longer than 8 hours. 0690 04 00 OSHA 1910.242 (b) OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn when exposure to noise lasts longer than 8 hours.
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### 0690 06 Angled tube nozzle (short)

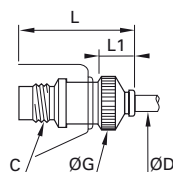


C	DN		G	L	L1	
M12x1,25	2,5	0690 06 00	15	94	70	0,035

21°	565 NI/min	86 dBA	OSHA 1910.242 (b) OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn.
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Available without hole, upon request

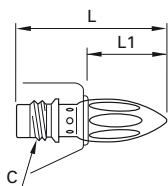
### 0690 07 Safety nozzle



ØD	C		G	L	L1	
4	M12x1,25	0690 07 00	15	35	12,7	0,025

22°	330 NI/min (without tube) 266 NI/min (with tube 2,5x4) 153 NI/min (with tube 2x4)	81 dBA	OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn when exposure to noise lasts longer than 8 hours.
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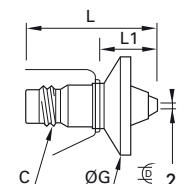
### 0690 08 Coanda effect nozzle



C		L	L1	
M12x1,25	0690 08 00	47,5	26	0,033

20°	240 NI/min	73 dBA	OSHA 1910.242 (b) OSHA 1910.95 (b) Directive 2003/10/EC: No hearing protectors should be worn.
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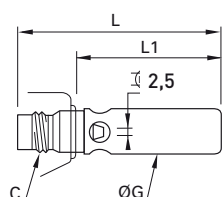
### 0690 09 Air screen nozzle



C	DN		G	L	L1	
M12x1,25	2	0690 09 00	30	40,5	18,5	0,021

jet 24° screen 140°	650 NI/min	86 dBA	OSHA 1910.242 (b) OSHA 1910.95 (b) Directive 2003/10/EC: Hearing protectors should always be worn.
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### 0690 10 Booster nozzle



C	DN		G	L	L1	
M12x1,25	2,5	0690 10 00	15	64	42	0,038

28°	335 NI/min	99 dBA	OSHA 1910.242 (b) Directive 2003/10/EC: Hearing protectors should always be worn.
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You will find the full range of Parker-Legris nozzles in our general catalogue or on our website [www.legris.com](http://www.legris.com) or [www.parkerconnectic.com](http://www.parkerconnectic.com).



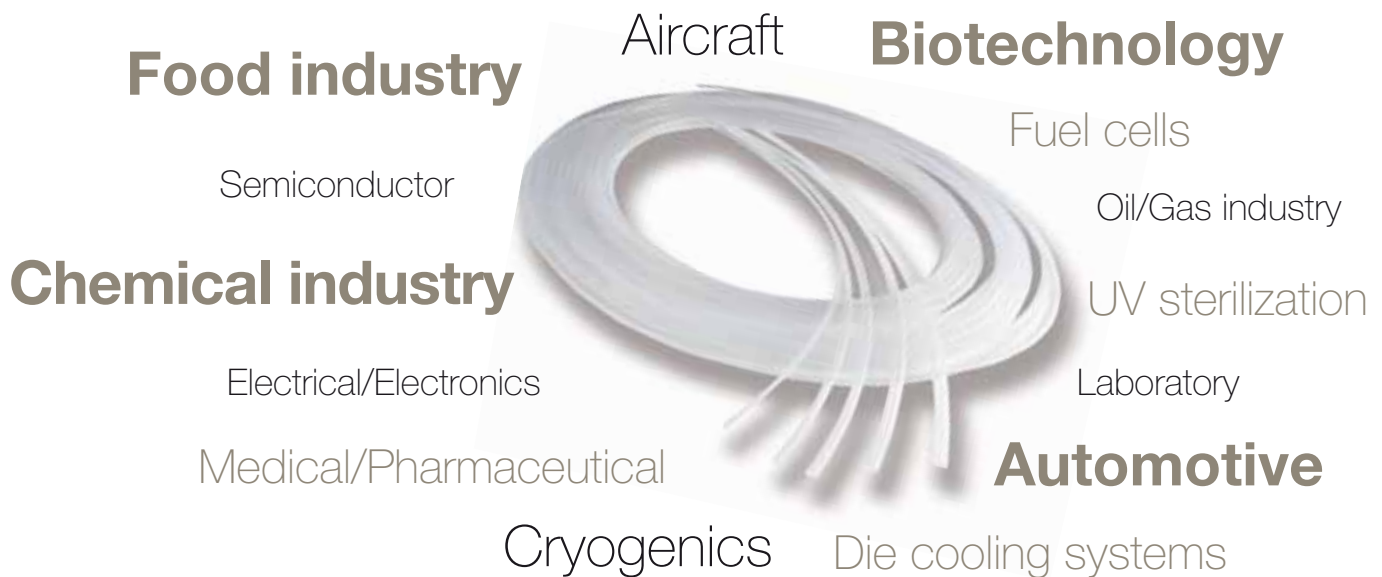
# PFA Tubing

A Range of Tubing Suitable for the Most Aggressive Environments and Demanding Applications





# PFA TUBING



## A Comprehensive Range of PFA Tubing for Perfect Adaptability

- ☒ High purity grade PFA for our clear tubing to cover all applications
- ☒ Standard grade PFA for our coloured tubing for circuit identification and special requests
- ☒ Antistatic grade PFA for our black tubing to prevent all electrostatic discharges

## PFA: Extreme Versatility for all Technical Applications

- ☒ A flexible alternative to stainless steel tubing
- ☒ Chemical inertia offering the most extensive solvent resistance
- ☒ Broad range of working temperatures, from cryogenic to extremely hot
- ☒ Non-stick properties to allow the conveyance of numerous fluids and gases
- ☒ Outstanding resistance to ageing
- ☒ The lowest gas and fluid permeability for safer use
- ☒ Non-flammable
- ☒ UV-transparent
- ☒ Clear tubing has unsurpassed purity with ability to withstand repeated flexing and resist stress cracking

## > Technical Characteristics

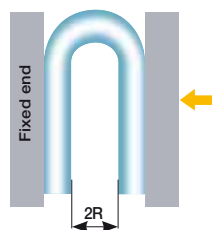


Suitable Fluids / Applications	Medical, food, gas and compressed air
Working Pressure	Vacuum to 36 bar (diam. 4 mm at +20°C)
Working Temperature	-196°C to +260°C
Material	PFA (Perfluoroalkoxy): <ul style="list-style-type: none"> <li>• High purity grade PFA</li> <li>• Standard grade coloured crystal PFA</li> <li>• Antistatic grade PFA*</li> </ul>

\*Available on request only

## > Dimensions

Ø (mm)		Wall Thickness (mm)		Max. Ovality (mm)	Min. Bend Radius@ +23°C (mm)
O.D.	Tolerances	e	Tolerances		
4	± 0.10	1.0	+ 0.10 - 0.05	0.2	12
6	± 0.10	1.0	+ 0.10 - 0.05	0.2	34
8	± 0.10	1.0	+ 0.10 - 0.05	0.2	60
10	± 0.15	1.0	+ 0.10 - 0.05	0.2	95
12	± 0.15	1.5	+ 0.15 - 0.07	0.3	120



Measurement method of the bending radius:  
 Bend the tube into the U-form at a temperature of +20°C (+/- 3°C).  
 Hold one end and close loop gradually up to 2R measurement between both ends.

## > Performances and Regulation Compliances



To calculate burst measurements, the values in this graph should be multiplied by 3.

Close tolerance to perfect sealing with Parker Legris fittings based on NF E49-100.

With compression fittings, a ferrule must be used.

### Medical Regulations

- USP Class VI (A)  
External communication devices

### Industrial Regulations

- DI: 2006/42/EC (Machinery directive)
- UL 94 - V0
- DI: 2002/95/EC (RoHS)
- DI: 97/23/EC (PED)
- RG: 1907/2006 (REACH)

### Food Regulations

- FDA: 21 CFR 177.1550  
(clear, coloured crystal)
- RG: 1935/2004

(A) high purity PFA

## > Packaging







Tubepack® advantages:







- Compactness: optimized sizes
- Protection against dust: airtight plastic bag
- Easy to stock, to use and to identify











## > References and Dimensions

Length: 10 m								
O.D. tube mm	I.D. tube mm	Minimum bend radius for tube at ambient temp. (in mm)	 clear HP* PFA	 antistatic**	 crystal	 crystal	 crystal	 for 10 m
4	2	12	1010T04P00	1010T04A01	1010T04P12	1010T04P13	1010T04P14	0.087
6	4	34	1010T06P00	1010T06A01	1010T06P12	1010T06P13	1010T06P14	0.237
8	6	60	1010T08P00	1010T08A01	1010T08P12	1010T08P13	1010T08P14	0.410
10	8	95	1010T10P00	1010T10A01	1010T10P12	1010T10P13	1010T10P14	0.723
12	9	120	1010T12P00	1010T12A01	1010T12P12	1010T12P13	1010T12P14	1.148

Length: 50 m								
O.D. tube mm	I.D. tube mm	Minimum bend radius for tube at ambient temp. (in mm)	 clear HP* PFA	 antistatic**	 crystal	 crystal	 crystal	 for 50 m
4	2	12	1050T04P00	1050T04A01	1050T04P12	1050T04P13	1050T04P14	0.435
6	4	34	1050T06P00	1050T06A01	1050T06P12	1050T06P13	1050T06P14	1.185
8	6	60	1050T08P00	1050T08A01	1050T08P12	1050T08P13	1050T08P14	2.050
10	8	95	1050T10P00	1050T10A01	1050T10P12	1050T10P13	1050T10P14	3.615
12	9	120	1050T12P00	1050T12A01	1050T12P12	1050T12P13	1050T12P14	5.740

Length: 100 m								
O.D. tube mm	I.D. tube mm	Minimum bend radius for tube at ambient temp. (in mm)	 clear HP* PFA	 antistatic**	 crystal	 crystal	 crystal	 for 100 m
4	2	12	1100T04P00	1100T04A01	1100T04P12	1100T04P13	1100T04P14	0.870
6	4	34	1100T06P00	1100T06A01	1100T06P12	1100T06P13	1100T06P14	2.370
8	6	60	1100T08P00	1100T08A01	1100T08P12	1100T08P13	1100T08P14	4.100
10	8	95	1100T10P00	1100T10A01	1100T10P12	1100T10P13	1100T10P14	7.230
12	9	120	1100T12P00	1100T12A01	1100T12P12	1100T12P13	1100T12P14	11.480

\*HP: High Purity

\*\* : available upon request

## > Custom Services

### ☒ Marked Tubing

Custom laser scribing on clear version for:

- 100% batch traceability
- Identifying chemical names
- Brand/Private labels

# Advanced PA Tubing

An Excellent Alternative to Polyamide 12





# ADVANCED PA TUBING

In-Plant Automotive

**Industrial Automation**

Material Handling

**Transportation**

**Pneumatics**

Robotics

Machine Tools

**Packaging**

Assembly Machines



## For Optimizing Your Equipment, Advanced PA Tubing Guarantees:

- ☒ Material availability
- ☒ Technical performance: thanks to unsurpassed temperature and pressure resistance
- ☒ Versatility: due to chemical compatibility and suitability to a large range of applications
- ☒ Environmentally-friendly approach

## The Best Offer for:

- ☒ Better flexibility than all other polyamide tubing
- ☒ Superior mechanical performance: excellent abrasion and shock resistance

## Advanced PA Tubing Conforms to:

- ☒ NF E49-100: for high quality design and long-term reliability
- ☒ DIN 74324, DIN 73378 and ISO 7628\*: for compatibility with the most demanding on-board systems

\*Test results from certified laboratory expected in 2012

## > Technical Characteristics

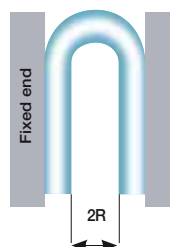


Suitable Fluids	Compressed air, various chemicals, gases and liquids*
Working Pressure	Vacuum up to 50 bar (as per diameter and temperature)
Working Temperature	-40°C to +100°C
Material	Bio-sourced polyamide (68 shore D)

\*cf Compatibility Chart, page 6

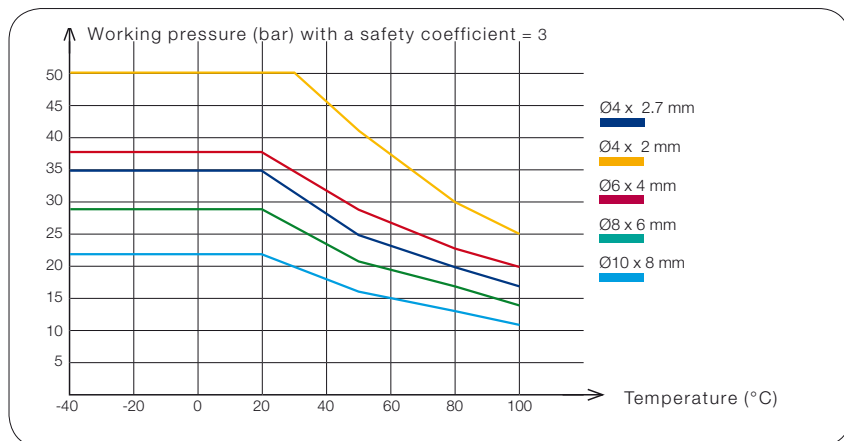
## > Dimensions

Ø (mm)		Wall Thickness (mm)		Max. Ovality (mm)	Min. Bend Radius@ +20°C (mm)
O.D.	Tolerances	e	Tolerances		
4	+ 0.05 - 0.08	0.65	± 0.08	< 0.16	10
4	+ 0.05 - 0.08	1	± 0.08	< 0.16	10
6	+ 0.05 - 0.10	1	± 0.08	< 0.20	15
8	+ 0.05 - 0.10	1	± 0.08	< 0.20	25
10	+ 0.05 - 0.10	1	± 0.08	< 0.20	50



**Measurement method of the bending radius:**  
Bend the tube into the U-form at a temperature of +20°C (+/- 3°C).  
Hold one end and close loop gradually up to 2R measurement between both ends.

## > Advanced PA Tubing Performance



To calculate burst measurements, the values in this graph should be multiplied by 3.

Close tolerance to perfect sealing with Parker Legris fittings based on NF E49-100.

With compression fittings, a ferrule must be used.

Where Polyamide 12 was used in standard applications, there is no risk of switching to Advanced PA tubing.

## > Tube Marking

- Marking every metre
- Time saved when cutting specific length
- Immediate identification of remaining quantity



## > Comparative Product Advantages: Polyamide 12 vs. Advanced PA Tubing

### Semi-Rigid Polyamide 12 (PHL\*)

Parker Legris' polyamide tubing provides optimum mechanical properties, has good chemical resistance and conforms to the NF E49-100 standard. Shore hardness of semi-rigid tubing is 60D.

#### Advantages of Parker Legris' Polyamide Tubing

- ☒ Large range of working temperatures and pressures
- ☒ Good chemical resistance
- ☒ Good humidity resistance
- ☒ Constant rigidity, good ageing
- ☒ Good absorption of vibrations
- ☒ Strong abrasion resistance
- ☒ Silicone-free
- ☒ Tube length marked every metre

### Advanced PA Tubing

Very good flexibility and excellent mechanical resistance, combined with a bio-sourced material, allow Parker Legris' Advanced PA tubing to optimize cabling installation without compromising quality.

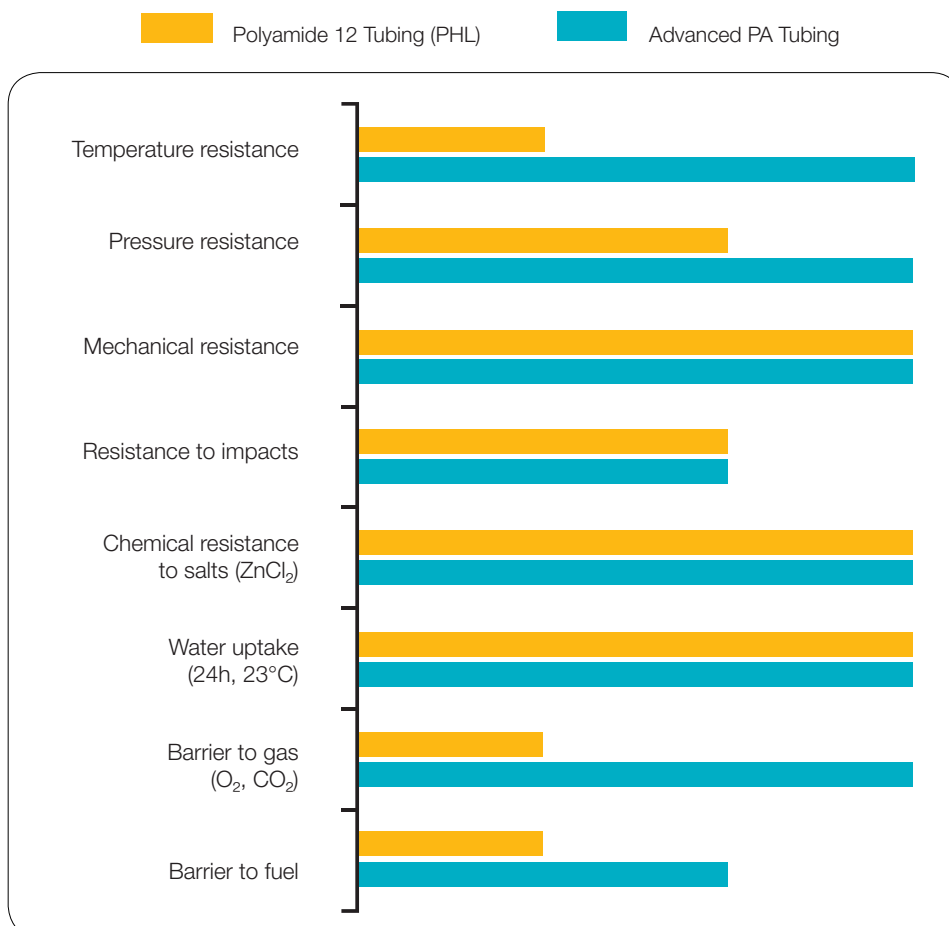
Advanced PA tubing has a shore hardness of 68D and conforms to the NF E49-100 standard.

#### Advantages of Parker Legris' Advanced PA Tubing

- ☒ High resistance to temperature and pressure
- ☒ Good chemical resistance
- ☒ Very good flexibility and small bend radius
- ☒ Constant rigidity, good ageing
- ☒ Bio-sourced material
- ☒ Strong abrasion resistance
- ☒ Silicone-free
- ☒ Tube length marked every metre

\*PHL (Polymer  $\Omega$ -Dodecanolactam): plasticized, expandable, heat-ageing and light stabilized.

## > Technical Features at a Glance



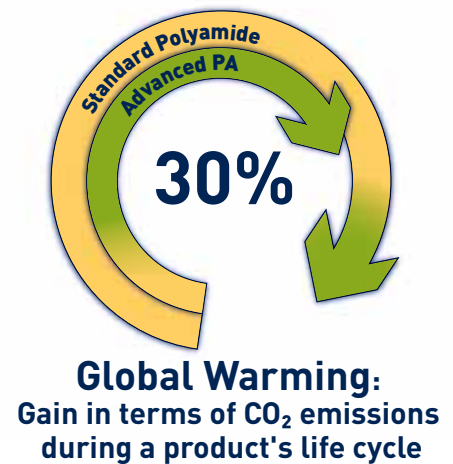
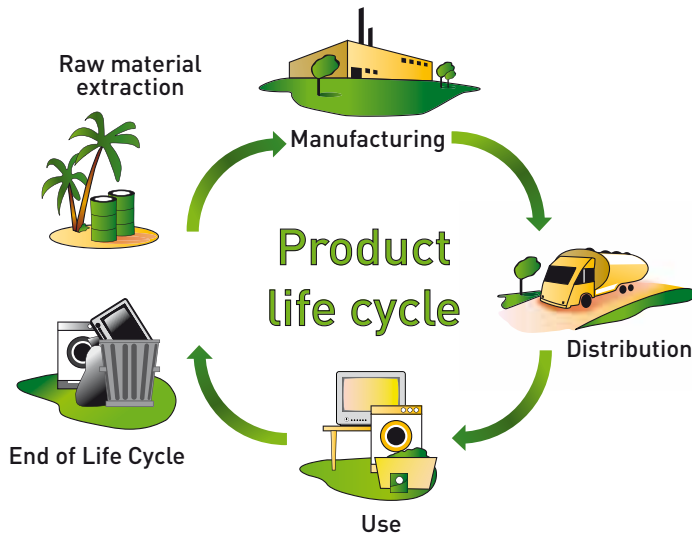
## > Advanced PA: Eco-Design Approach

In the manufacturing of Parker Legris' Advanced PA, we have applied the Product Life Cycle Analysis (PLCA). This approach aims to evaluate the environmental impact of a product during its different life cycle stages and thereby:

- allows for the protection of natural resources
- guarantees the improvement of equipment performance
- contributes to your ISO 14001 certification

The use of organic carbon for the polymer manufacturing of this Advanced PA tubing significantly reduces its:

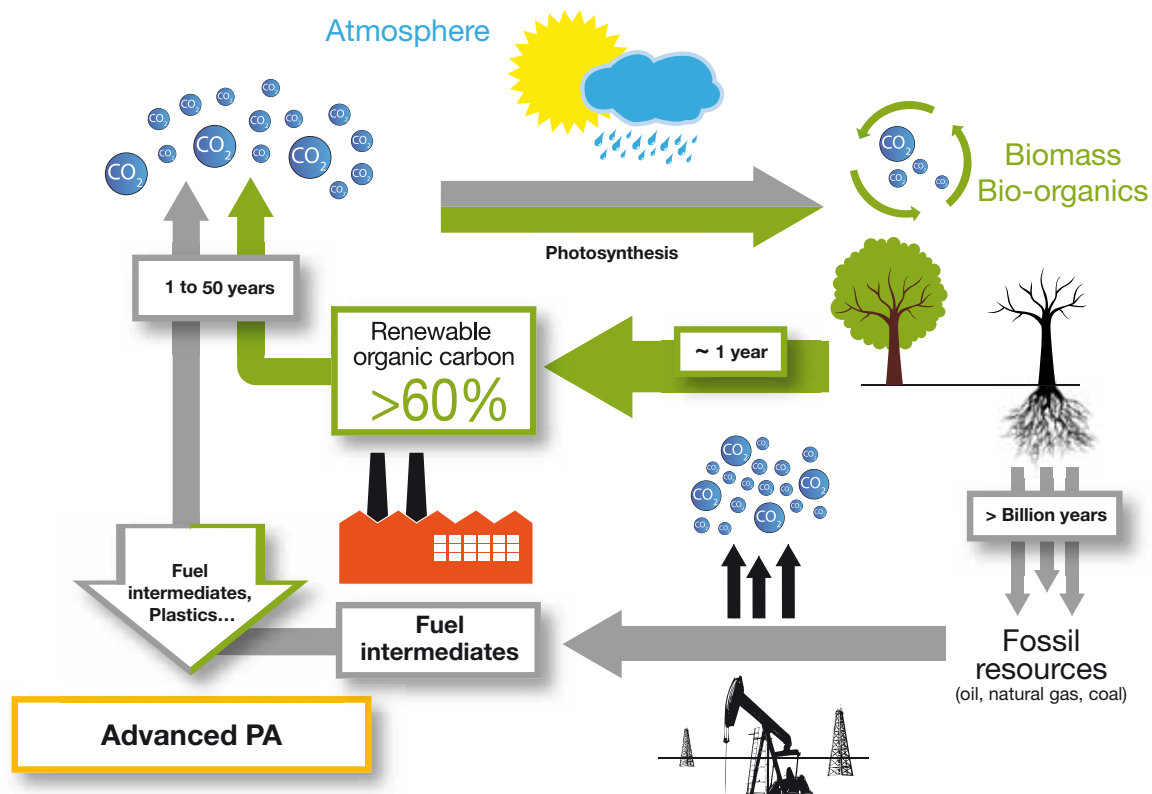
- environmental footprint, hence the depletion of our planet's natural resources
- CO<sub>2</sub> emissions that are in part responsible for global warming



## > Advanced PA: Carbon Cycle

The carbon cycle is an important part of the Product Life Cycle Analysis because it explains:

- the manufacturing process of our Advanced PA tubing
- the impact that a product has on its environment





## > Chemical Compatibility Chart

1	Recommended
2	Satisfactory
3	Not recommended

Substances	PA	Advanced PA
Acetaldehyde	1	1
Acetone	1	1
Acetylene	1	1
Acid, acetic	-	2
Acid, hydrochloric up to 10%	1	1
Acid, citric	1	1
Acid, chromic up to 10%	3	3
Acid formic up to 10%	-	2
Acid, nitric	1	1
Phosphoric acid up to 50%	3	3
Acid, sulphuric up to 10%	1	2
Ammonia and gaseous	1	1
Benzene	1	1
Bromine	3	2
Butane	1	1
Butyl acetate	1	1
Butylic and Butyl alcohol	1	1
Calcium chloride	1	1
Carbon tetrachloride (sodium ypochlorite)	3	2
Copper sulphate	1	1
Compressed air	1	1
Cyclohexanone	1	1
Ethanol	-	1
Ethyl acetate	1	1
Ethyl alcohol	1	1
Ethylen oxide	1	1
Freon 12-22	1	1
Formalin (formaldehyde)	2	1
Glucose	1	1
Hydrogen	1	1
Hydrogen peroxide (perydrol)	2	3
Kerosene	1	1
Magnesium chloride (up to 30%)	-	1
Methane	1	1
Methyl acetate	1	-
Methyl alcohol (pure)	1	1
Methyl bromide	1	1
Methyl chloride	1	2





For complementary information, please contact us.





Substances	PA	Advanced PA
Methyl ethyl ketone	1	1
Methyl isobutyl ketone	1	1
Oils (cutting)	1	1
Oils (ASTM class A)	1	1
Oils (ASTM class B)	1	1
Oils (ASTM class C)	1	1
Oils (ASTM class 1)	1	1
Oils (ASTM class 2)	1	1
Oils (ASTM class 3)	1	1
Oils, engine (diesel)	1	1
Oils, paraffin	1	1
Oxygen	2	2
Ozone	3	3
Perchlorate ethylene	2	1
Phenols	3	3
Potash	1	1
Potassium chloride up to 40%	1	1
Potassium Hydroxide	-	1
Potassium sulphate	1	1
Propane	1	1
Soda 50%	1	1
Sodium carbonate	1	1
Sodium chloride	1	1
Sodium hydroxide (caustic soda)	2	2
Sodium hypochlorite( bleach)	1	1
Sulphurous anhydride	2	2
Petrol with up to 40% aromatic	1	1
Petrol with more than 40% aromatic	1	1
Tetrachloroethylene	1	1
Toluene	1	1
Tributylphosphate	1	1
Trichlorethylene	1	1
Water (drinking, food)	3	3
Water (Industrial)	1	1
Water (distilled)	1	1
Water (sea)	2	2
Xylem	1	1
Zinc chloride	1	1

## > Polyamide 12 vs. Advanced PA Tubing

**1025P** Close tolerance semi-rigid polyamide tubing, 25 m rolls





**1025P..C** Advanced PA Tubing, 25 m rolls





Length: 25 m						
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (mm)				 for 25 m
4	2	25	1025P04 00	1025P04 01	1025P04 04	0.318
4	2.7	30	1025P04 00 27	1025P04 01 27	1025P04 04 27	0.254
6	4	35	1025P06 00	1025P06 01	1025P06 04	0.535
8	6	55	1025P08 00	1025P08 01	1025P08 04	0.748
10	8	90	1025P10 00	1025P10 01	1025P10 04	0.989

Length: 25 m						
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (mm)				 for 25 m
4	2	10	1025P04C00	1025P04C01	1025P04C04	0.318
4	2.7	10	1025P04C00 27	1025P04C01 27	1025P04C04 27	0.254
6	4	15	1025P06C00	1025P06C01	1025P06C04	0.535
8	6	25	1025P08C00	1025P08C01	1025P08C04	0.748
10	8	50	1025P10C00	1025P10C01	1025P10C04	0.989

**1100P** Close tolerance semi-rigid polyamide tubing, 100 m rolls

**1100P..C** Advanced PA Tubing, 100 m rolls

Length: 100 m						
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (mm)				 for 100 m
4	2	25	1100P04 00	1100P04 01	1100P04 04	1.152
4	2.7	30	1100P04 00 27	1100P04 01 27	1100P04 04 27	0.893
6	4	35	1100P06 00	1100P06 01	1100P06 04	1.799
8	6	55	1100P08 00	1100P08 01	1100P08 04	2.898
10	8	90	1100P10 00	1100P10 01	1100P10 04	3.667

Length: 100 m						
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (mm)				 for 100 m
4	2	10	1100P04C00	1100P04C01	1100P04C04	1.152
4	2.7	10	1100P04C00 27	1100P04C01 27	1100P04C04 27	0.893
6	4	15	1100P06C00	1100P06C01	1100P06C04	1.799
8	6	25	1100P08C00	1100P08C01	1100P08C04	2.898
10	8	50	1100P10C00	1100P10C01	1100P10C04	3.667

NB: for other diameters or colours, please continue to order close tolerance semi-rigid polyamide tubing.

## > Packaging

### Tubepack® Advantages:

- Compactness: optimized sizes
- Easy to stock, to use and to identify
- Available on stock

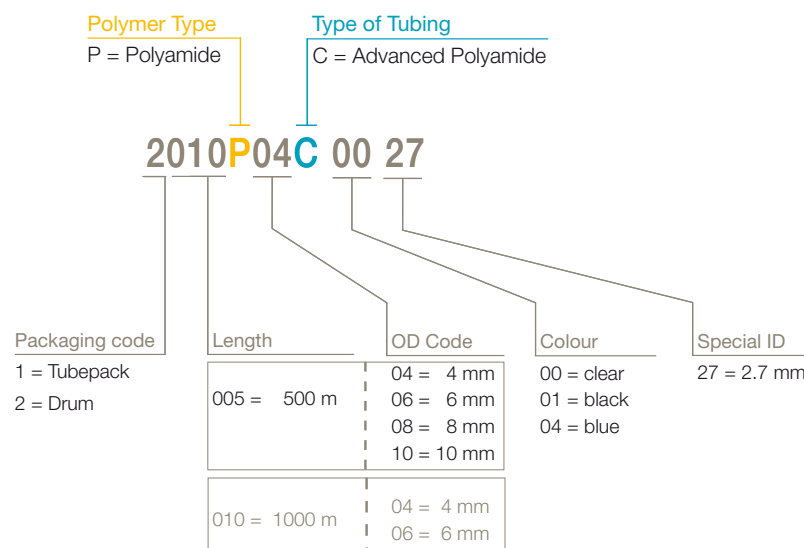


### Drum Advantages:

- For optimized handling
- Available on request



## > Product Codes





# Fireproof High Resistant Polyamide Tubing

For Railways and Demanding Markets







# FIREPROOF HIGH RESISTANT POLYAMIDE TUBING

## Industrial Machinery

## Railways

Pantographs

Control Systems

Ancillary Air Supply

Air Horn Control

## Pneumatic Doors

Step Units

## Centralized Lubrication

Welding

Trains' Vacuum Toilets



## Ensures Safety and Life Span of all On-Board Railway Equipment

- ☒ Conforming to pr EN 45545 standard project (European standard for railway components):
  - Excellent flame resistance
  - Non-toxic smoke
- ☒ UV-resistance according to ISO 4892 standard
- ☒ High resistance to pressure and temperature

## Offers a New Solution for Industrial Applications

- ☒ Spark resistance, conform to UL 94V0 standard
- ☒ A technical, economical alternative for your equipment: combines technical advantages of both rigid and semi-rigid polyamide tubing

## A Comprehensive Range

- ☒ Available from Ø 4 to 10 mm (other diameters on request)
- ☒ 5 colours available
- ☒ Fluid direction marking



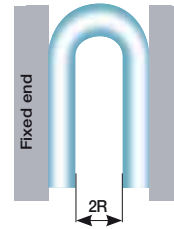
## > Technical Characteristics



Suitable Fluids	Compressed air and lubricants. For other fluids, please consult us.
Working Pressure	Vacuum to 50 bar (as per diameter and temperature)
Working Temperature	-40°C to +100°C
Material	Polyamide (63 shore D)

## > Dimensions

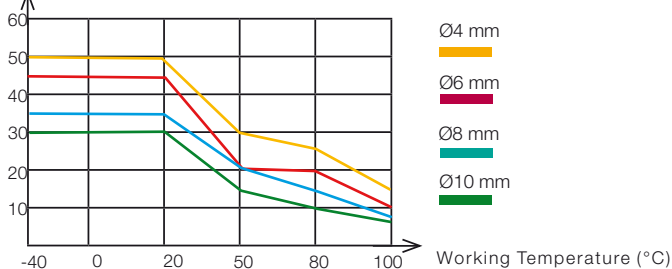
Ø (mm)		Wall Thickness (mm)		Max. Ovality (mm)	Min. Bend Radius = 2R @ +20°C (mm)
O.D.	Tolerances	e	Tolerances		
4	+ 0.05 - 0.08	1	± 0.08	0.16	17
6	+ 0.05 - 0.10	1	± 0.08	0.20	29
8	+ 0.05 - 0.10	1	± 0.08	0.20	40
10	+ 0.05 - 0.10	1	± 0.08	0.20	77



Measurement method of the bending radius:  
Bend the tube into the U-form at a temperature of +20°C (+/- 3°C). Hold one end and close loop gradually up to 2R measurement between both ends.

## > Performance

Working Pressure (bar) with safety coefficient = 3



To calculate burst pressures, the values in this graph should be multiplied by 3.

Close tolerance to perfect sealing with Parker Legris fittings based on NF E49-100.

With compression fittings, a ferrule must be used.

## > Regulations

### Railway Regulations

- Pr EN 45545 (HL3 : R23, R24, R25)
- NF F16101 class I2F2 clear, I3F2 coloured

### Industrial Regulations

- PED (97/23/EC)
- RoHS (2002/95/EC)
- REACH (1907/2006/EC)
- UL 94 V0, for flammability resistance
- Machinery directive (2006/42/EC)

## > Packaging

### TubePack® Advantages:

- Compactness: optimized sizes
- Easy to stock, to use and to identify















### Drum Advantages:







- For lengths up to 1000 m
- For optimized handling
- Easy to use and to identify









## > References and Dimensions

Length: 25 m								
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (in mm)	 clear					 for 25 m
4	2	17	1025P04R00	1025P04R01	1025P04R02	1025P04R03	1025P04R04	0.367
6	4	29	1025P06R00	1025P06R01	1025P06R02	1025P06R03	1025P06R04	0.554
8	6	40	1025P08R00	1025P08R01	1025P08R02	1025P08R03	1025P08R04	0.721
10	8	77	1025P10R00	1025P10R01	1025P10R02	1025P10R03	1025P10R04	0.930

Length: 100 m								
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (in mm)	 clear					 for 100 m
4	2	17	1100P04R00	1100P04R01	1100P04R02	1100P04R03	1100P04R04	1.308
6	4	29	1100P06R00	1100P06R01	1100P06R02	1100P06R03	1100P06R04	2.122
8	6	40	1100P08R00	1100P08R01	1100P08R02	1100P08R03	1100P08R04	2.725
10	8	77	1100P10R00	1100P10R01	1100P10R02	1100P10R03	1100P10R04	3.535

Length: 500 m								
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (in mm)	 clear					 for 500 m
8	6	40	2005P08R00	2005P08R01	2005P08R02	2005P08R03	2005P08R04	17.500
10	8	77	2005P10R00	2005P10R01	2005P10R02	2005P10R03	2005P10R04	22.800

Length: 1000 m								
O.D. tube (mm)	I.D. tube (mm)	Minimum bend radius for tube at ambient temp. (in mm)	 clear					 for 1000 m
4	2	17	2010P04R00	2010P04R01	2010P04R02	2010P04R03	2010P04R04	14.300
6	4	29	2010P06R00	2010P06R01	2010P06R02	2010P06R03	2010P06R04	23.000

## > Custom Marking (upon request)

- Brand/Private labels

# LF 3600 Nickel-Plated Brass Instant Fittings

One fitting for all industrial applications!



## > Technical Specifications

<b>Suitable Fluid</b>	All fluids and gases compatible with the fitting materials. Examples: compressed air, grease, water, food...
<b>Working Pressure</b>	<b>30 bar</b> (limited to 20 bar for compact swivel elbows 3699, 3609)
<b>Working Temperature</b>	-20°C to +150°C
<b>Vacuum</b>	99% (755mmHg)

## > Maximum tightening torque for LF 3600, BSPP and metric threads

	Thread	DaN.m
Maximum tightening torque for LF 3600, BSPP and metric threads	M5x0,8	0,16 DaN.m
	G1/8	0,8 DaN.m
	G1/4	1,2 DaN.m
	G3/8	3 DaN.m
	G1/2	3,5 DaN.m

## > Tubing

- Polyurethane tubing
- Polyamide tubing
- Polyethylene and fluoropolymer FEP tubing
- Anti-spark tubing

## > How to recognize the new generation

The note 150° is mentioned on the packaging label.

OLD NEW

The new seal is dark brown.

The letter P is written on the collet.

**Caution** : for use at +150°C, 30 bar, it is the user's responsibility to check that the new generation of LF 3600 is indeed used.

## > Regulations

The LF 3600 instant fittings conform to the following standards:



All materials in contact with food are in compliance with the American Food and Drug Administration.



All materials in contact with food are in compliance with the European Regulation 1935/2004/EC (minimum flow 0,02 l/h)



NSF H1 grease



Reduction of Hazardous Substances – 2002/95/EC. All products shown in this catalogue are RoHS-certified

### Other compliances:

- DIN 73378: polyamide tubing for use in motor vehicles
- UL 94 V0
- ASTM B733 - 04: for autocatalytic (electroless) nickel-phosphorus coatings on metal
- European Directive ATEX: for devices used in potentially explosive atmospheres

> Our instant fittings are guaranteed silicone-free

You will find the full range of Parker Legris LF 3600 nickel-plated brass instant fittings in our general catalogue or on our website [www.legris.com](http://www.legris.com) or [www.parkerconnectic.com](http://www.parkerconnectic.com)





# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sub>2</sub> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.

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