

DOT FMVSS §571.106 and SAE J2494-3 push-to-connect fittings for vehicle applications



Parker Legris connectic

products are available from

MARYLAND METRICS

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fx: (410)358-3142 (800)872-9329

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RFQ form: <http://mdmetric.com/rfq.htm>



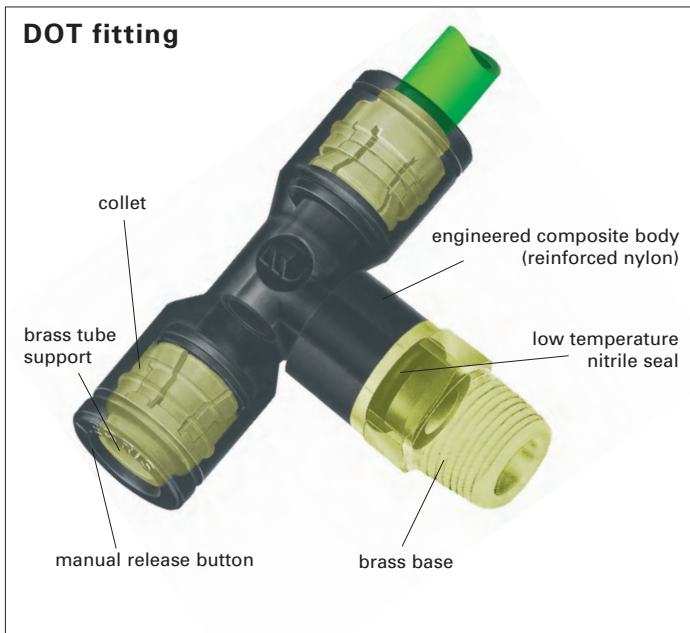
principle of SAE J2494-3 and DOT FMVSS §571.106 fittings

Legris is the leading supplier for the automotive connection and truck markets. Our ability to propose innovative and economical solutions has been proven with a long list of customers.

Concerning the Heavy Duty Truck Industry, Legris is the leader in manifolds and Push-to-Connect fittings for air assisted systems.

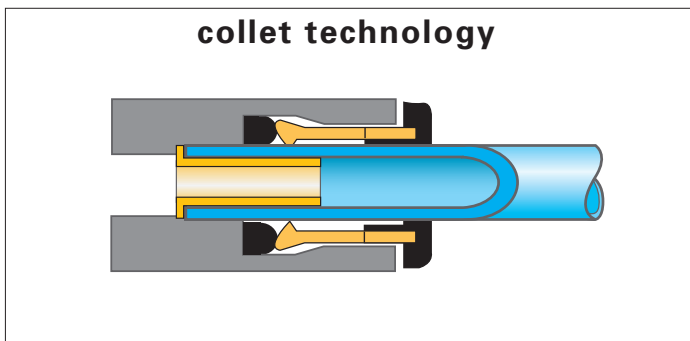
- **Legris DOT fittings** meet all applicable requirements of the **DOT FMVSS §571.106** specification.

- **Legris DOT fittings** for tube diameter **1/4", 3/8"** and **1/2"** comply also with **SAE J2494-3** and **SAE J1131**.



DOT Technical Specification

technology	collet
suitable fluids	compressed air only lubricated or non-lubricated
working pressure	28" Hg 275 psi maximum
working temperature	-40°F to +230°F
tubing	Tubing used should comply with SAE standards. Legris air brake tubing on pg M18 can be used.
materials of construction	body: glass reinforced nylon 12 glass filled (except 3/16" nylon 6.6 glass filled) seals: low temperature BUNA-N (ie -40°F) collet: brass tube support: brass base: brass



features

time savings:

- tube fitting assembly time is substantially reduced. Savings are on average, 80% of conventional compression fittings.
- the Legris Instant Fitting System provides a 100% tubing lock. This feature eliminates the need for tightening.
- no special tools required for assembly.

orientable:

- elbows, "Y"s and tees can be oriented 360°. This assembly feature is a great time saver in areas of poor accessibility and allows proper positioning of the fitting.

anti kink feature:

- the tubing will rotate 360° while being held in the fitting thus eliminating annoying and wasteful kinking.

temperature:

- fittings accommodate a wide range of temperature applications.

tubing

- tubing used should be that specified in SAE J844 which also meets NHTSA FMVSS 106. Legris air brake tubing on pg M18 complies with this standard.

performance and reliability

optimum flow

- **full flow:** the gripping and sealing of the fitting is achieved using the outside diameter of the tube without deformation, compact yet no restriction in flow.

immediate seal

- the fittings **seal both in static and dynamic** applications.
- **tube insert** reinforces the grip on the tubing OD.
- **slotted collet** mechanism locks the tubing into the fitting.

advantages of SAE J2494-3 and DOT FMVSS §571.106 fittings

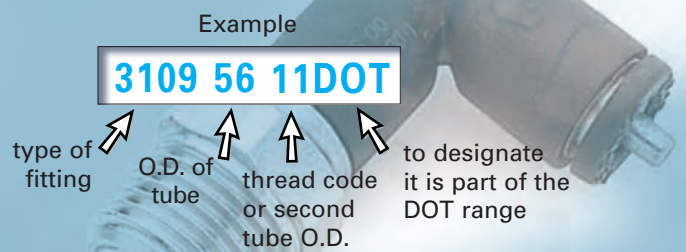
Legris DOT fittings meet all applicable requirements of the new **DOT FMVSS §571.106** specification. **Legris DOT fittings** for tube diameter **1/4"**, **3/8"**, and **1/2"** comply also with **SAE J2494-3** and **SAE J1131**. This table compares the requirements of the different specifications:

SAE J2494-3	DOT FMVSS §571.106 – 2004	DOT FMVSS §571.106 – 2007
Tensile strength	Tensile strength	Tensile strength
Water absorption	Water absorption	Not required
Boiling water	Not required	Boiling water
Not required	Not required	Ambient temperature
Temperature cycling	Not required	Temperature cycling
Pull force	Pull force	Pull force
5/32" = 50 lbf	5/32" = 40 lbf	5/32" = 40 lbf
3/16" = 50 lbf	3/16" = 50 lbf	3/16" = 50 lbf
1/4" = 50 lbf	1/4" = 50 lbf	1/4" = 50 lbf
3/8" = 150 lbf	3/8" = 50 lbf	3/8" = 150 lbf
1/2" = 200 lbf	1/2" = 150 lbf	1/2" = 200 lbf
Burst Pressure Test	Burst Pressure Test	Burst Pressure Test
5/32" = 800 psi	5/32" = 800 psi	5/32" = 1200 psi
3/16" = 800 psi	3/16" = 800 psi	3/16" = 1200 psi
1/4" = 800 psi	1/4" = 800 psi	1/4" = 1200 psi
3/8" = 800 psi	3/8" = 800 psi	3/8" = 1400 psi
1/2" = 800 psi	1/2" = 800 psi	1/2" = 950 psi
Air leakage: 3ccm to 7ccm	Pressure drop: 1 psi/min	Air leakage: <25ccm
Corrosion resistance	Corrosion resistance	Corrosion resistance
Vibration	Not required	Vibration
Re-assembly	Not required	Re-assembly
Oil compatibility	Not required	Oil compatibility
Side lead leakage	Not required	Not required
Moisture absorption	Not required	Not required
UV resistance	Not required	Not required
Zinc chloride resistance	Not required	Not required
Methyl alcohol resistance	Not required	Not required
Cold impact resistance	Not required	Not required

Identification

Part numbers have been chosen by a method of mnemonics. Each instant fitting for DOT is identified by:

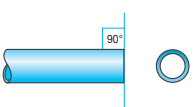
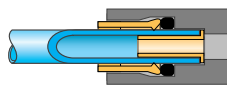
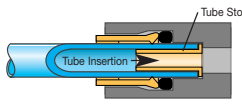
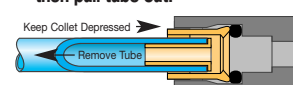
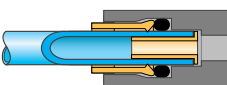
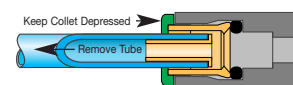
- its series
- the diameter of passage through the fitting
- the thread code or the second passage diameter
- the designation of DOT





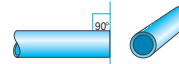



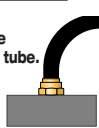


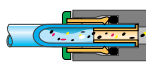
All products in the SAE and DOT range are SILICONE FREE

recommendations

Vehicle Technology Products
Push-to-Connect
Fittings
Quick Assembly

Connection	Disconnection
<p>1 Achieve a square cut edge with a tube cutter.</p> 	<p>1 Make sure there is no air flow.</p> 
<p>2 Simply push the tubing until it bottoms out. Holding and sealing is accomplished instantaneously.</p> 	<p>2 With no button, press disconnect tool (p/n 3000 70**) against collet, then pull tube out.</p> 
<p>3 Pull on the tubing to verify gripping action.</p> 	<p>With button - depress the manual release button, then pull the tube out.</p> 

Vehicle Technology Products
Push-to-Connect
Fittings
Quick List

Do's	Don'ts
<p>1 Tighten by hand. Make final adjustment with wrench at the hex.</p> 	<p>1 Avoid using wrench on push-to-connect end.</p> 
<p>2 Achieve a square cut and clean edge.</p> 	<p>2 Avoid drastic angle cutting which can lead to an improper seal.</p> 
<p>3 Use Legris tube cutter. (p/n 3000 71 00)</p> 	<p>3 Avoid using a knife, or a dull tool to cut the tubing. Avoid burrs, dirt, and anything that can hinder full flow.</p> 
<p>4 Allow adequate bend radius of tube.</p> 	<p>4 Avoid kinking the tubing and side load against the collet which can cause leaks.</p> 
<p>5 Simply push the tubing until it bottoms out. Holding and sealing is accomplished instantaneously.</p> 	<p>5 Avoid contaminating substances in fittings and cartridges.</p> 

application of SAE J2494-3 & DOT FMVSS §571.106 fittings

Auto/Truck/Bus

Cab

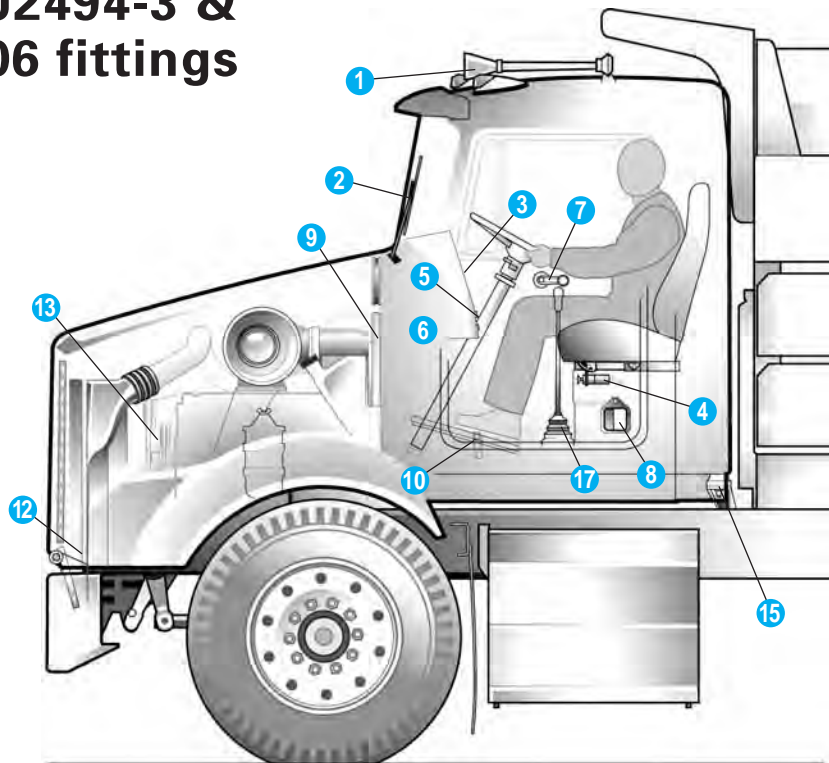
1. Air Horns/Valves
2. Wiper Motors/Controls
3. Instruments - Air Gauges
4. Air Seat Controls
5. Air Toggle Switches
6. Heaters/Air Conditioners
7. Air Window Lift/Controls
8. Air Door Locks
9. Air Manifolds
10. Air Throttle
11. Accessory Kits

Chassis

12. Shutter Stats/Cylinders
13. Fan Clutch - Air Op.
14. Air Slide 5th Wheels
15. Cab/Chassis Air Suspensions
16. Chassis Air Lines
17. Gearshift/Transmission
18. Air Manifolds - Chassis

Trailer

19. Chassis Air Lines
20. Air Operated Valves
21. Air Operated Cylinders
22. Air Suspensions
23. Air Manifolds



Excerpt from the National Highway Traffic Safety Administration Department of Transportation FMVSS 106.

Legris DOT fittings meet all applicable requirements of the D.O.T. FMVSS §571.106 specification. Our fittings are designed for use on all pneumatic circuits other than air brake assemblies between the frame and axle. Final determination as to the use of this product in its application is the responsibility of the users design engineering.

Legris DOT fittings for tube diameter 1/4", 3/8" and 1/2" comply also with SAE J2494-3 and SAE J1131.

the complete range of DOT and SAE fittings

threaded fittings

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tube to tube fittings

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tubing & accessories

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NPTF
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Clip
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1094P
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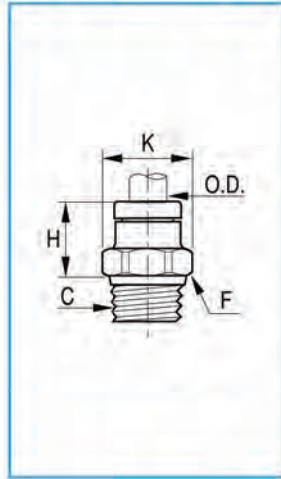


Legris DOT and SAE fittings

For all AIR ASSISTED applications except those designed for use between frame and axle or between towed and towing vehicle.

DOT and SAE products – threaded fittings

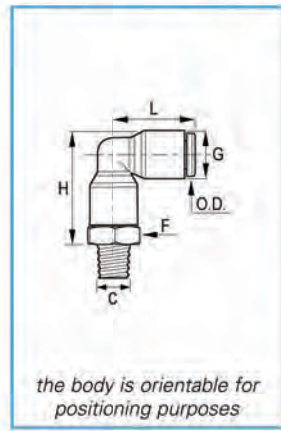
3115 male connector — fractional inch tube to NPTF



ØD in	C NPT		F in	H in	K in	⚖ oz
5/32	1/8	3115 04 11DOT	.438	.512	.490	.600
5/32	1/4	3115 04 14DOT	.563	.492	.650	.800
3/16	1/8	3115 55 11DOT	.438	.610	.490	.800
3/16	1/4	3115 55 14DOT	.563	.590	.628	.960

ØD in	C NPTF		F in	H in	K in	⚖ oz
1/4	1/8	3115 56 11DOT	.500	.669	.579	.540
1/4	1/4	3115 56 14DOT	.563	.630	.650	.940
1/4	3/8	3115 56 18DOT	.688	.630	.795	1.590
3/8	1/8	3115 60 11DOT	.750	1.102	.866	.950
3/8	1/4	3115 60 14DOT	.750	.941	.866	1.400
3/8	3/8	3115 60 18DOT	.750	.941	.866	1.840
3/8	1/2	3115 60 22DOT	.875	.862	1.010	3.140
1/2	1/4	3115 62 14DOT	.875	1.181	1.010	1.750
1/2	3/8	3115 62 18DOT	.875	1.020	1.010	2.160
1/2	1/2	3115 62 22DOT	.875	1.020	1.010	2.940

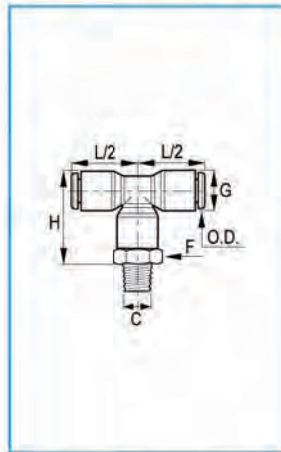
3109 male elbow — fractional inch tube to NPTF



O.D. TUBE	C NPT		F in	G in	H in	L in	⚖ oz
5/32	1/8	3109 04 11DOT	.500	.433	1.063	.787	.640
3/16	1/8	3109 55 11DOT*	.433	.427	1.090	.860	.900

O.D. TUBE	C NPTF		F in	G in	H in	L in	⚖ oz
1/4	1/8	3109 56 11DOT	.563	.531	1.260	.902	.900
1/4	1/4	3109 56 14DOT	.563	.531	1.260	.902	1.020
1/4	3/8	3109 56 18DOT	.688	.531	1.260	.902	1.300
3/8	1/4	3109 60 14DOT	.750	.748	1.680	1.230	2.100
3/8	3/8	3109 60 18DOT	.750	.748	1.700	1.230	2.290
3/8	1/2	3109 60 22DOT	.875	.748	1.700	1.230	2.860
1/2	1/4	3109 62 14DOT	.875	.866	1.969	1.417	2.800
1/2	3/8	3109 62 18DOT	.875	.870	1.960	1.410	3.000
1/2	1/2	3109 62 22DOT	.875	.870	1.960	1.410	3.910

3108 male branch tee — fractional inch tube to NPTF



O.D. TUBE	C NPT		F in	G in	H in	L/2 in	⚖ oz
5/32	1/8	3108 04 11DOT	.500	.433	1.063	.797	.720
5/32	1/4	3108 04 14DOT	.500	.433	1.063	.797	.800
3/16	1/8	3108 55 11DOT*	.433	.427	1.090	.850	.800

O.D. TUBE	C NPTF		F in	G in	H in	L/2 in	⚖ oz
1/4	1/8	3108 56 11DOT	.563	.531	1.260	.902	.900
1/4	1/4	3108 56 14DOT	.563	.531	1.260	.902	1.020
1/4	3/8	3108 56 18DOT	.688	.531	1.260	.902	1.300
3/8	1/4	3108 60 14DOT	.750	.748	1.680	1.230	2.620
3/8	3/8	3108 60 18DOT	.750	.748	1.700	1.230	2.800
3/8	1/2	3108 60 22DOT	.875	.748	1.700	1.230	3.370
1/2	1/4	3108 62 14DOT	.875	.866	1.969	1.417	2.920
1/2	3/8	3108 62 18DOT	.875	.870	1.960	1.410	3.150
1/2	1/2	3108 62 22DOT	.875	.870	1.960	1.410	4.050

5/32" and 3/16": compliance with DOT FMVSS §571.106

1/4" and 3/8", 1/2": compliance with DOT FMVSS §571.106, SAE J2494-3 and SAE J1131

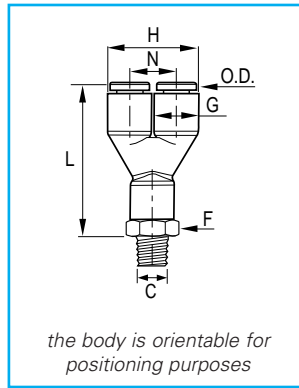
*nickel-plated brass base

Legris DOT and SAE fittings

For all AIR ASSISTED applications except those designed for use between frame and axle or between towed and towing vehicle.

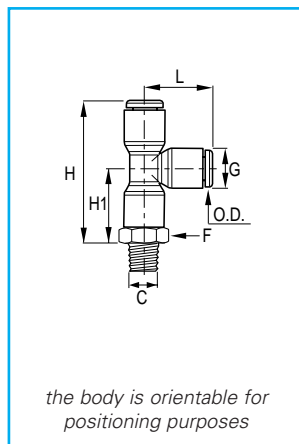
DOT and SAE products – threaded fittings

3148 Y connector — fractional inch tube to NPTF



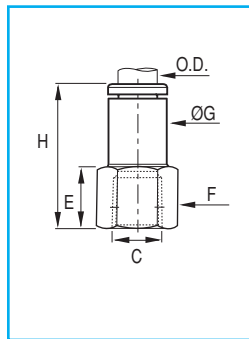
O.D. TUBE	C NPT		F in	G in	H in	L in	N in	oz
5/32	1/8	3148 04 11DOT	.438	.433	.886	1.634	.453	.650
O.D. TUBE	C NPTF		F in	G in	H in	L in	N in	oz
1/4	1/8	3148 56 11DOT	.563	.531	1.090	1.870	.562	.930
1/4	1/4	3148 56 14DOT	.563	.531	1.090	1.870	.562	1.040

3103 male run tee — fractional inch tube to NPTF



O.D. TUBE	C NPT		F in	G in	H in	H1 in	L in	oz
5/32	1/8	3103 04 11DOT	.500	.433	1.634	.817	.787	.720
5/32	1/4	3103 04 14DOT	.563	.433	1.634	.817	.787	.800
3/16	1/8	3103 55 11DOT*	.433	.427	1.730	.874	.850	.800
O.D. TUBE	C NPTF		F in	G in	H in	H1 in	L in	oz
1/4	1/8	3103 56 11DOT	.563	.531	1.900	1.000	.902	1.010
1/4	1/4	3103 56 14DOT	.563	.531	1.900	1.000	.902	1.230
1/4	3/8	3103 56 18DOT	1.750	.531	1.920	1.000	.902	1.300
3/8	1/4	3103 60 14DOT	.750	.748	2.530	1.300	1.230	2.620
3/8	3/8	3103 60 18DOT	.750	.748	2.550	1.320	1.230	2.800
3/8	1/2	3103 60 22DOT	.875	.748	2.552	1.320	1.230	3.370
1/2	1/4	3103 62 14DOT	.875	.866	2.953	1.535	1.417	2.920
1/2	3/8	3103 62 18DOT	.875	.866	2.929	1.535	1.417	3.150
1/2	1/2	3103 62 22DOT	.875	.866	2.929	1.535	1.417	4.050

3114 straight female connector — fractional inch tube to NPTF



O.D. TUBE	C NPT		E in	F in	G in	H in	oz
5/32	1/8	3114 04 11DOT	.472	.563	.433	1.083	.640
5/32	1/4	3114 04 14DOT	.453	.563	.433	1.063	.700
3/16	1/8	3114 55 11DOT	.374	.563	.450	1.010	.700
O.D. TUBE	C NPTF		E in	F in	G in	H in	oz
1/4	1/8	3114 56 11DOT	.413	.563	.472	1.190	.710
1/4	1/4	3114 56 14DOT	.551	.688	.472	1.378	.750
3/8	1/4	3114 60 14DOT	.551	.750	.689	1.654	.900
3/8	3/8	3114 60 18DOT	.551	.750	.689	1.654	1.050

5/32" and 3/16": compliance with DOT FMVSS §571.106

1/4" and 3/8", 1/2": compliance with DOT FMVSS §571.106, SAE J2494-3 and SAE J1131

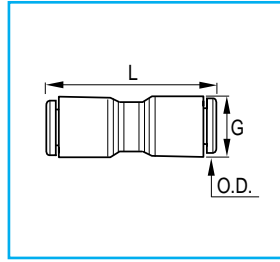
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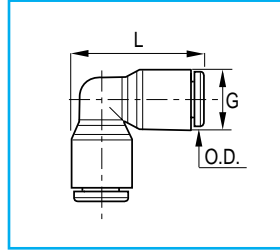
DOT and SAE products – tube to tube fittings

3106 union — fractional inch tube to tube



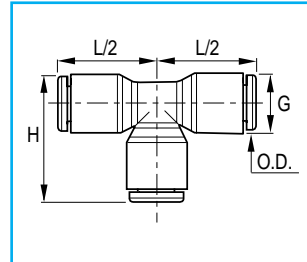
O.D. TUBE		G in	L in	
5/32	3106 04 00DOT	.433	1.319	.210
3/16	3106 55 00DOT	.427	1.440	1.120
1/4	3106 56 00DOT	.531	1.500	.410
3/8	3106 60 00DOT	.748	2.030	1.050
1/2	3106 62 00DOT	.870	2.240	1.930

3102 union elbow — fractional inch tube to tube



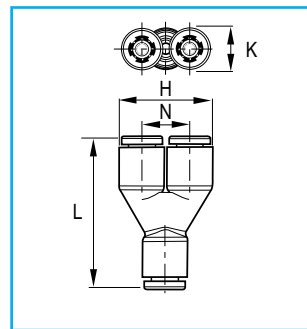
O.D. TUBE		G in	L in	
5/32	3102 04 00DOT	.433	1.004	.210
3/16	3102 55 00DOT	.427	.930	.280
1/4	3102 56 00DOT	.531	1.070	.420
3/8	3102 60 00DOT	.747	1.600	1.100
1/2	3102 62 00DOT	.870	1.840	2.010

3104 union tee — fractional inch tube to tube to tube



O.D. TUBE		G in	H in	L/2 in	L in	
5/32	3104 04 00DOT	.433	.886	.797	1.594	.140
3/16	3104 55 00DOT	.427	1.020	.850	1.700	.420
1/4	3104 56 00DOT	.531	1.170	.900	1.800	.620
3/8	3104 60 00DOT	.747	1.600	1.230	2.460	1.600
1/2	3104 62 00DOT	.870	.840	1.410	2.820	2.530

3140 "Y" union — fractional inch tube to tube



O.D. TUBE		H in	K in	L in	N in	
5/32	3140 04 00DOT	.886	.433	1.575	.453	.112
1/4	3140 56 00DOT	1.090	.531	1.780	.563	.120
3/8	3140 60 00DOT	1.530	.740	2.240	.780	.368

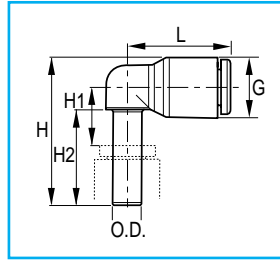
5/32" and 3/16": compliance with DOT FMVSS §571.106 1/4" and 3/8", 1/2": compliance with DOT FMVSS §571.106, SAE J2494-3 and SAE J1131

Legris DOT and SAE fittings

For all AIR ASSISTED applications except those designed for use between frame and axle or between towed and towing vehicle.

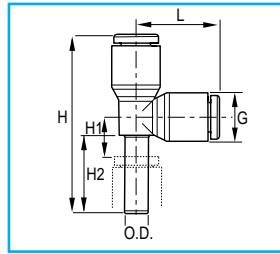
DOT and SAE products – tube to tube fittings

3182 plug-in elbow — fractional inch



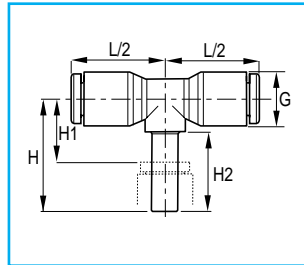
O.D. TUBE		G in	H in	H1 in	H2 in	L in	
1/4	3182 56 00DOT	.531	1.310	.512	.843	.902	.310

3183 plug-in run tee — fractional inch



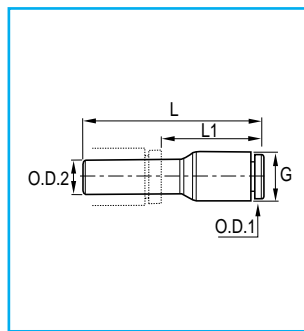
O.D. TUBE		G in	H in	H1 in	H2 in	L in	
1/4	3183 56 00DOT	.53	1.94	.43	.84	.90	.430

3188 plug-in tee — fractional inch



O.D. TUBE		G in	H in	H1 in	H2 in	L in	
1/4	3188 56 00DOT	.53	1.09	.61	.77	.90	.430

3166 reducer — fractional inch



O.D.1 TUBE	O.D.2 TUBE		G in	L in	L1 in	
5/32	1/4	3166 04 56DOT*	.470	1.590	.830	.250
1/4	3/8	3166 56 60DOT	.531	1.930	1.080	.250

*Brass body.

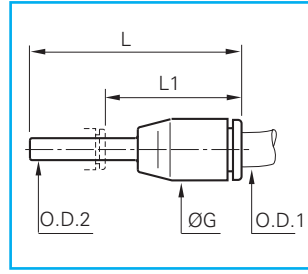
5/32" and 3/16": compliance with DOT FMVSS §571.106 1/4" and 3/8", 1/2": compliance with DOT FMVSS §571.106, SAE J2494-3 and SAE J1131

Legris DOT and SAE fittings

For all AIR ASSISTED applications except those designed for use between frame and axle or between towed and towing vehicle.

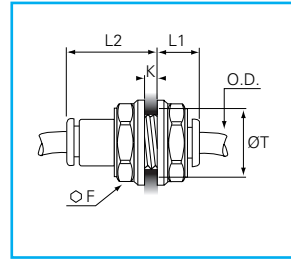
DOT and SAE products – tube to tube fittings

3168 expander — fractional inch



ØD1 tube	ØD2 tube		G in	L in	L1 in	oz
1/4	5/32	3168 56 04DOT		.530	1.520	1.060

3116 bulkhead union — fractional inch



O.D. TUBE		F in	K max	L in	T min	oz
5/32	3116 04 00DOT*	.591	.490	1.339	.492	.112
1/4	3116 56 00DOT	.709	.590	1.500	.590	.150
3/8	3116 60 00DOT	1.024	.860	2.010	.866	.400
1/2	3116 62 00DOT*	1.132	1.000	2.170	1.000	1.024

*Brass body with nylon nut.

DOT and SAE – tube accessories

1487P recoil assembly for fifth wheel

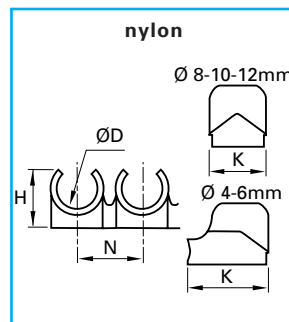


ØD tube	NPTF	
1/4	1/4	1487P00 21SP (without thread sealant)

Standard assembly consists of: 1 recoil tube; 2 1/4" x 1/4" male connectors without sealant; 2 spring guards; J844 type A fifth wheel assembly.

O.D.	Contracted Length	Working Length	Linear Feet Per	Pigtail Length	Coil Length	Temp	Max Working Pressure
1/4"	6"	5'	8'	3 1/2"	1 3/4"	-15°F to +160°F	200 psi

Clip clip strips for tubing and fittings



ØD	Ø DOT fitting		H mm	K mm	N mm	Number of clips per strip	kg
5/32, 4mm	Clip 04 00		9	13.5	10.5	8	.008
1/4, 3/16, 6mm	Clip 06 00		10.5	13	10.5	8	.009
5/16, 8mm	Clip 08 00		12.5	10.5	12	7	.009
3/8, 10mm	5/32, 3/16 Clip 10 00		14	12	15	6	.010
1/2, 12mm	1/4 Clip 12 00		16.5	14	16.5	5	.011

Legris clips can be used to mount both tubing and fittings. To order clips for tubing use the column "O.D. tube". To order clips for mounting a fitting order by the "O.D. body size". Clip strips are packaged in quantities of 5, but ordered by individual strip. They come complete with screws of 9.5mm length.

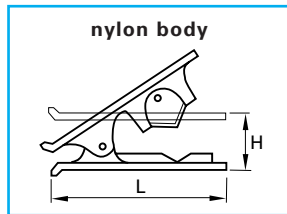
5/32" and 3/16": compliance with DOT FMVSS §571.106 1/4" and 3/8", 1/2": compliance with DOT FMVSS §571.106, SAE J2494-3 and SAE J1131

Legris DOT and SAE fittings

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DOT and SAE – tube accessories

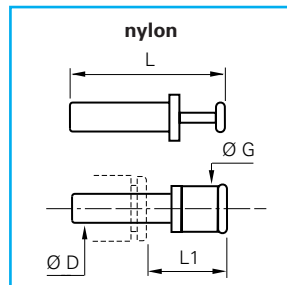
3000 71 00 tube cutter



		H in	L in	
3000 71 00		.98	3.11	1.09

This tool will cut all resilient plastic tube (e.g. nylon, teflon, polyurethane, braided PVC, soft rubber, etc.) from 1/8" to 1/2" and 4mm to 14mm diameter inclusive. It is designed to give a clean cut at right angles to the tube axis. A spring maintains the cutter in the closed position.

3126 plug — fractional inch



ØD in		G in	L in	L1 in	
5/32	3126 04 00	.16	1.18	.61	.04
3/16	3126 55 00	.27	1.36	.79	.06
1/4	3126 56 00	.32	1.44	.87	.06
3/8	3126 60 00	.46	1.67	.87	.10
1/2	3126 62 00	.58	1.91	.85	.18

1094P DOT air brake nylon tubing more information is on page M18



O.D. tube in	I.D. tube in	min. bend radius in	min. burst PSI
TYPE A non-reinforced tubing			
5/32	.124	1	1000
3/16	.153	1	1000
1/4	.210	1	1200
TYPE B reinforced tubing			
3/8	.313	1.5	1400
1/2	.438	2	950

nylon tubing in 100ft rolls – packaged in tubepack®

black	
1094P04 01DT	10.68
1094P55 01DT	14.95
1094P56 01DT	26.21
1094P60 01DT	48.73
1094P62 01DT	71.84

Parker Legris connectic

products are available from

MARYLAND METRICS

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fx: (410)358-3142 (800)872-9329

email: sales@mdmetric.com web: <http://mdmetric.com>

RFQ form: <http://mdmetric.com/rfq.htm>

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