cmatic®
PNEUMATIC FITTINGS

Human Instinct for Power Control

cmatic®

PNEUMATIC FITTINGS

C.matic was founded in the early '70s; after a long term experience as a sub-contractor for precision metal parts, C.matic starts to expand and turns the craftsman activity into an industrial business.
The company " Mission " becomes Design, Development and Production of fittings for Industrial Automation without losing the sensitivity to the demands of a quickly changing market and focusing the attention on the search for new materials and the development of new products.
C.matic obtain the first ISO 9001 certificate in 1994 and the continuous Development of the Management Systems lead Cmatic to achieve in 2018 also the Environmental Management Certificate according the ISO 14001.
Today, the relentless care for high quality standards and the company flexibility have led C.matic to rank globally among the top producers of fittings for industrial automation.
A very comprehensive catalogue products offer featuring different materials, product functions along with custom made solutions developed in cooperation with the customers, represent C.matic's core business.

Chemical compatibility chart

SUBSTANCE	FITTINGS			SEALS			TUBINGS				
	BRASS	POM	INOX AISI316L	NBR	FPM	EPDM	PA12	PA6	LDPE	PU	P.T.F.E
Acetaldehyde											
Acetylene											
Vinegar											
Acetone											
Acetic Acid (5%)											
Acetic Acid (20%)											
Acetic Acid (50%)											
Arsenic Acid											
Boric Acid											
Hydrochloric Acid (10%)											
Chromic Acid (10%)											
Citric Acid											
Formic Acid											
Hydrofluoric Acid (10%)											
Phosphoric Acid (30%)											
Glycolic Acid											
Lactic Acid (20 °C)											
Nitric Acid (10%)											
Nitrous Acid											
Oleic Acid											
Palmitic Acid											
Perchloric Acid (10%)											
Salicylic Acid											
Sulfuric Acid (30%)											
Sulfurous Acid											
Stearic Acid											
Trichloroacetic Acid											
Uric Acid											
Fresh Water											
Sea Water											
Hydrogen Peroxide (1%)											
Hydrogen Peroxide (30%)											
Aqua Regia											
Butyl Alcohol											
Ethyl Alcohol (Ethanol)											
Methyl Alcohol (Methanol)											
Isopropyl Alcohol											
Ammonia (10%)											
Ammonium Acetate											
Ammonium Carbonate											
Ammonium Chloride											
Ammonium Nitrate											
Ammonium Sulfate											
Carbon Dioxide											
Sulfur Dioxide											
Aniline											
Nitrogen											
Gasoline											
Benzene											
Sodium Bicarbonate											
Methyl Bromide											
Methylene Bromide											
Butane											
Diesel Fuel											
Jet Fuel/Kerosene											
Cyclohexane											
Chlorine (dry)											
Chlorine, Anhydrous liquid											
Chloroform											
Calcium Chloride (10%)											
Ethyl Chloride											
Ethylene Chloride											
Methyl Chloride											
Methylene Chloride											
Sodium Chloride (10%)											
Sulfur Chloride											
Detergents											
Dibutyl Phthalate											
Dichloroethane											
Dimethyl Phthalate											
Dioxane											
Heptane											
Hexane											
Ethyl Ether											
Phenol											

Chemical compatibility chart

SUBSTANCE	FITTINGS			SEALS			TUBINGS				
	BRASS	POM	INOX AISI316L	NBR	FPM	EPDM	PA12	PA6	LDPE	PU	P.T.F.E
Brake Fluid											
Formaldehyde (37%)											
Freon 12											
Freon 22											
Chlorine Gas											
Glycerine											
Glycols											
Ethylene glycol											
Glucose											
Hydrazine											
Hydrogen (gas)											
Hydrogen Sulfide											
Sodium Hydroxide (10%) - Caustic Soda											
D.D.T.											
Iodine											
Calcium Hypochlorite (10%)											
Sodium Hypochlorite (5%)											
Isooctane											
Methane											
Methyl Ethyl Ketone											
Ammonium Nitrate											
Calcium Nitrate											
Sodium Nitrate											
Food Oils (vegetable)											
Fuel Oil											
Motor Oil											
Lubricating Oil											
Mineral Oil											
Carbon Monoxide											
Nitrous Oxide											
Oxygen (Cold)											
Ozone											
Paraffin											
Perchloroethylene											
Potassium Permanganate (10%)											
Petroleum Oil											
Propane (liquefied)											
Nickel Sulfate (10%)											
Copper Sulfate (10%)											
Calcium Sulfide											
Fruit Juice											
Carbon Tetrachloride											
Tetrahydrofuran											
Toulene (Toulol)											
Turpentine											
Trichloroethane											
Trichloroethylene											
Urea (5%)											
Steam (< 150 °C)											
Steam (> 150 °C)											
Wine											
Xylene											

Very Good

Good

Limited resistence

Not recommended

Information not available

The information given on this chart have to be used as a guide only and the actual materials' reaction has to be tested in the real working conditions as temperature, pressure and different concentrations can affect the mentioned chemical compatibility.

Conversion chart for Pressure Unit

	psi	Pa	kPa	MPa	bar	mbar	atm	mmHg
1 psi =	1	6894.75729	6.89476	.00689	.06895	68.9476	.06805	51.71492
1 Pa =	.000145	1	.001	.000001	.00001	.01	.0000099	.0075
1 kPa =	.14504	1000	1	.001	.01	10	.00987	7.50062
1 Mpa =	145.03774	1000000	1000	1	10	10000	9.86923	7500.61505
1 bar =	14.50377	100000	100	.1	1	1000	.98692	750.06151
1 mbar =	.0145	100	.1	.0001	.001	1	.0009869	.75006
1 atm =	14.69595	101325	101.325	.10133	1.01325	1013.25	1	759.99982
1 mmHg =	.01934	133.3224	.13332	.00013	.00133	1.3332	.00132	1

Conversion chart for Length Unit

	1 oz	1 lb	1g	1 Kg
1 oz	1	.0625	28.349	.0283
1 lb	16	1	453.9	.4539
1 g	.0352	.0022	1	.001
1 Kg	35,273	2205	1000	1

Conversion chart for Length units

	in	ft	m	mm
1 in	1	.08333	.0254	25.4
1 ft	12	1	.3048	304.8
1 m	39.37008	3.28084	1	1000
1 mm	.03937	.00328	.001	1

Conversion chart for Temperature units

K = °C + 273.15

°F = (°C *9/5) + 32

°C = (°F - 32) *5/9

Conversion chart for Flow units

1 CFM = 28.328 l/min

1 l/min = .0353 CFM

Conversion chart for Torque units

1 lb-ft = 1.356 Nm

1Nm = .7376 lb-ft

THREAD	NORM REFERENCE	TIGHTENING TORQUE (LB-FT)												
		M3x0,5	M5x0,8	M6x1	M7x1	M8x1	M10x1	M12x1,25	M12x1,5	10-32	1/8	1/4	3/8	1/2
NPTF PTFE coated	ANSI/ASME B1.20.3	-	-	-	-	-	-	-	-	-	2.58	3.32	5.16	8.85
UNF with O-Ring	ANSI/ASME B1.1	-	-	-	-	-	-	-	-	.59	-	-	-	-
easyThread	C.matic	-	-	-	-	-	-	-	-	-	.89	1.11	1.84	2.58
Gas parallel with O-Ring	UNI - ISO 228/1	-	-	-	-	-	-	-	-	-	.89	1.11	1.84	2.58
Gas parallel acetal resin threads with O-Ring	UNI - ISO 228/1	-	-	-	-	-	-	-	-	-	.89	1.1	1.84	-
Gas taper PTFE-coated	UNI - ISO 7/1	-	-	-	-	-	-	-	-	-	1.84	2.58	4.43	8.85
Gas parallel with plastic ring	UNI - ISO 228/1	-	-	-	-	-	-	-	-	-	1.48	2.21	2.95	5.90
Metric with O-Ring	ISO R/262	.59	.59	.59	.59	-	-	1.1	1.1	-	-	-	-	-
Metric taper PTFE-coated	UNI 7707	-	-	1.84	-	1.84	1.84	-	-	-	-	-	-	-

INDEX

SECTORS OF APPLICATION

General Pneumatics

Push in Fittings	PN	MA	PE
Standard Fittings	PA		
Couplings	PU	PU Safety	
Multiple Connectors	CO		
Function Fittings	PV		

Food, Chemical, Pharma, Vending Machines

Push in Fittings	MX	
Couplings	PUX	
Function Fittings	PVX	

Lubrication

Push in Fittings	PM

Misting

Push in Fittings	MM

Transportation

Push in Fittings	PT

cmatic®
PNEUMATIC FITTINGS

PN LINE

Push-in Fittings, Inch/NPT

The push-in fittings of the PN Line are manufactured according to the American standards (inch tubings and NPT Threads). They are suitable for quick connections in different industrial applications; they are robust, compact and guarantee high performances in time. All PN Fittings are electrolytic nickel-plated.

PN

1 - 2	3	4	5	6
Body and Release Ring	Holding Ring	Gripping ring	Protection Ring	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated	Acetal Resin (POM)	Stainless steel AISI 301	Acetal Resin (POM)	NBR

-4°F ÷ 176°F

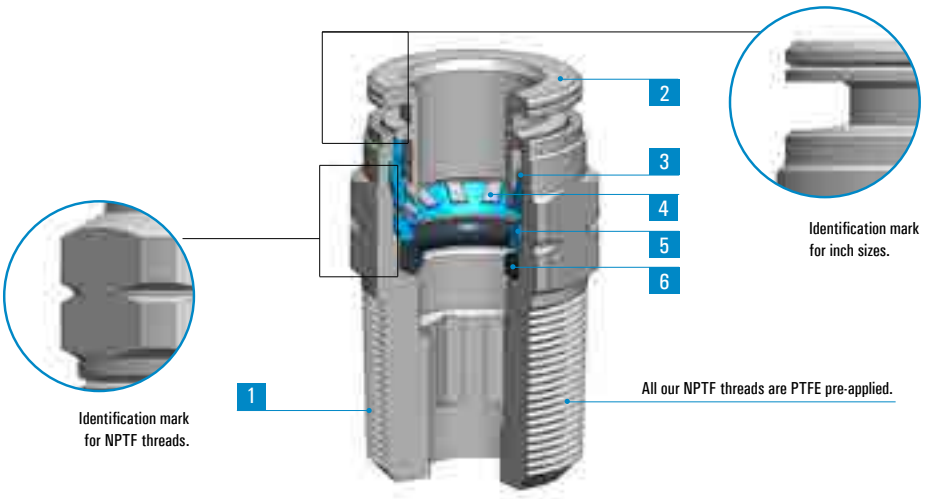
Max 290 PSI

-29" Hg

DATA SHEET

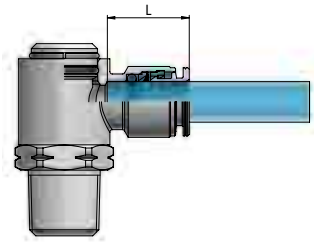
Recommended tubings:
PA11, PA12, PA6, Polyethylene PE, Polyurethane PU (98 Shore A).
Acceptable Tolerances on the tubings:
+/–0.003 up to Ø 3/8"
+/–0.004 Ø 1/2".

Application fields:
Pneumatic circuits.



	10-32 UNF	1/8 NPTF	1/4 NPTF	3/8 NPTF	1/2 NPTF
1/8	●	●			
5/32	●	●	●		
1/4		●	●	●	
5/16		●	●	●	
3/8		●	●	●	●
1/2			●	●	●

Tubing insertion depth



Tube OD	L
1/8	.386
5/32	.520
1/4	.634
5/16	.637
3/8	.720
1/2	.767

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.

   In case of use with metal hoses, make a groove all around the tube diameter with a suitable tool (TINC).The groove must be made according to the tube diameter so that the fitting collect can better grip onto it.

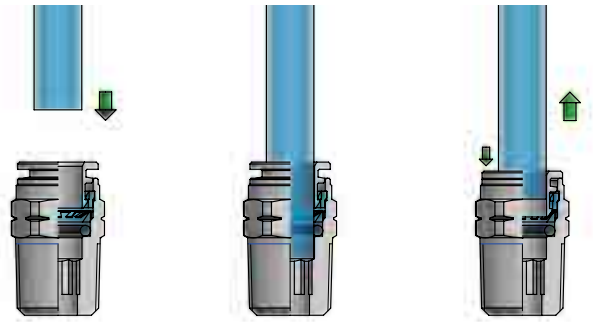
2. Insert the tube into the fitting until it bottoms.

Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).

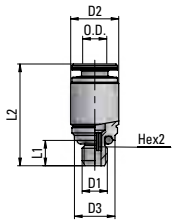
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.

To tighten threads, please check out our tightening torque chart illustrated at page 6.

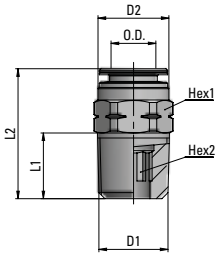


PN 11

Taper straight, male



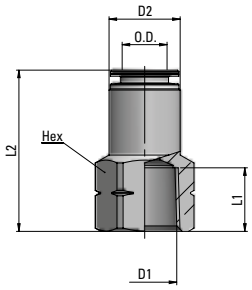
Type	Tube OD	D1 UNF	D2	D3	L1	L2	HEX2	oz
11 1/8 10-32	1/8	10-32	.276	.315	.197	.696	3/32	.088
11 5/32 10-32	5/32	10-32	.374	.315	.197	.787	3/32	.159
11 1/4 10-32	1/4	10-32	.472	.315	.197	.925	3/32	.300



Type	Tube OD	D1 NPTF	D2	L1	L2	HEX1	HEX2	oz
11 1/8 1/8	1/8	1/8	.276	.335	.748	7/16	3/32	.335
11 5/32 1/8	5/32	1/8	.374	.335	.768	7/16	1/8	.318
11 5/32 1/4	5/32	1/4	.374	.512	.945	9/16	1/8	.706
11 1/4 1/8	1/4	1/8	.472	.335	.866	1/2	5/32	.371
11 1/4 1/4	1/4	1/4	.472	.512	.965	9/16	5/32	.653
11 1/4 3/8	1/4	3/8	.472	.512	1.004	11/16	5/32	1.126
11 5/16 1/8	5/16	1/8	.551	.335	1.043	9/16	3/16	.530
11 5/16 1/4	5/16	1/4	.551	.512	1.004	9/16	1/4	.565
11 5/16 3/8	5/16	3/8	.551	.512	.984	11/16	1/4	.988
11 3/8 1/8	3/8	1/8	.630	.335	1.122	11/16	3/16	.794
11 3/8 1/4	3/8	1/4	.630	.512	1.260	11/16	1/4	.953
11 3/8 3/8	3/8	3/8	.630	.512	1.004	11/16	5/16	.900
11 3/8 1/2	3/8	1/2	.630	.669	1.201	7/8	5/16	1.977
11 1/2 1/4	1/2	1/4	.787	.512	1.358	13/16	5/16	1.253
11 1/2 3/8	1/2	3/8	.787	.512	1.161	13/16	3/8	.971
11 1/2 1/2	1/2	1/2	.787	.669	1.201	7/8	3/8	1.606

PN 13

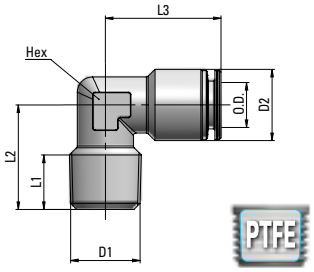
Female straight



Type	Tube OD	D1 NPTF	D2	L1	L2	HEX	oz
13 5/32 1/8	5/32	1/8	.374	.335	.984	1/2	.406
13 1/4 1/8	1/4	1/8	.472	.335	1.063	1/2	.494
13 1/4 1/4	1/4	1/4	.472	.492	1.240	11/16	.935
13 5/16 1/8	5/16	1/8	.551	.335	1.063	9/16	.706
13 5/16 1/4	5/16	1/4	.551	.492	1.240	11/16	1.006
13 3/8 1/4	3/8	1/4	.630	.492	1.339	11/16	1.147
13 3/8 3/8	3/8	3/8	.630	.492	1.339	13/16	1.324
new 13 3/8 1/2	3/8	1/2	.630	.531	1.476	1	-
new 13 1/2 1/4	1/2	1/4	.787	.472	1.339	13/16	-
new 13 1/2 3/8	1/2	3/8	.787	.492	1.398	13/16	-
new 13 1/2 1/2	1/2	1/2	.787	.531	1.496	1	-

PN 14

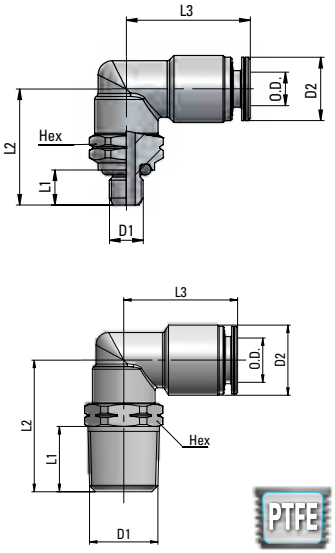
Taper elbow fitting, male



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
14 5/32 1/8	5/32	1/8	.374	.335	.630	.689	.394	.318
14 1/4 1/8	1/4	1/8	.472	.335	.630	.807	.394	.459
14 1/4 1/4	1/4	1/4	.472	.433	.787	.807	.394	.600
14 5/16 1/8	5/16	1/8	.551	.335	.748	.886	.472	.724
14 5/16 1/4	5/16	1/4	.551	.433	.807	.886	.472	.794
14 3/8 1/4	3/8	1/4	.630	.472	.886	.984	.551	1.041
14 3/8 3/8	3/8	3/8	.630	.433	.886	.984	.551	1.183

PN 15

Taper swivelling elbow fitting, male

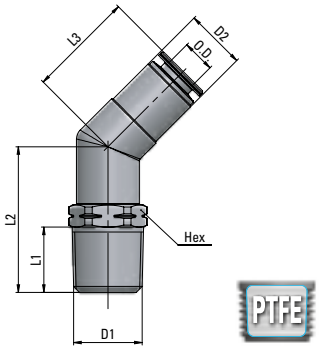


Type		Tube OD	D1 UNF	D2	L1	L2	L3	HEX	oz
15 1/8 10-32	1/8	10-32	.276	.315	.197	.629	.562	5/16	.282
15 5/32 10-32	5/32	10-32	.374	.315	.197	.650	.689	3/8	.353

Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
15 1/8 1/8	1/8	1/8	.276	.335	.708	.562	7/16	.371
15 5/32 1/8	5/32	1/8	.374	.335	.728	.689	7/16	.441
15 5/32 1/4	5/32	1/4	.374	.512	1.024	.748	9/16	.794
15 1/4 1/8	1/4	1/8	.472	.335	.827	.866	1/2	.688
15 1/4 1/4	1/4	1/4	.472	.512	1.024	.866	9/16	.865
15 1/4 3/8	1/4	3/8	.472	.512	1.043	.866	11/16	1.094
15 5/16 1/8	5/16	1/8	.551	.335	.827	.886	1/2	.812
15 5/16 1/4	5/16	1/4	.551	.512	.945	.886	9/16	.971
15 5/16 3/8	5/16	3/8	.551	.512	1.122	.906	11/16	1.412
15 3/8 1/8	3/8	1/8	.630	.335	.945	1.024	11/16	1.377
15 3/8 1/4	3/8	1/4	.630	.512	1.122	1.024	11/16	1.500
15 3/8 3/8	3/8	3/8	.630	.512	1.122	1.024	11/16	1.536
15 3/8 1/2	3/8	1/2	.630	.669	1.339	1.024	7/8	2.189
15 1/2 1/4	1/2	1/4	.787	.512	1.260	1.122	13/16	2.383
15 1/2 3/8	1/2	3/8	.787	.512	1.260	1.122	13/16	2.259
15 1/2 1/2	1/2	1/2	.787	.669	1.437	1.122	7/8	2.700

PN 15-45°

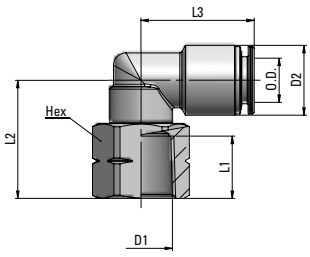
Swivelling elbow fitting, male 45°



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
new 15 1/4 1/8 45°	1/4	1/8	.472	.341	0.906	.827	1/2	-
new 15 1/4 1/4 45°	1/4	1/4	.472	.512	1.102	.827	9/16	-
new 15 3/8 1/4 45°	3/8	1/4	.630	.512	1.141	.984	11/16	-
new 15 3/8 3/8 45°	3/8	3/8	.630	.512	1.161	.984	11/16	-
new 15 3/8 1/2 45°	3/8	1/2	.669	.669	1.377	.984	7/8	-
new 15 1/2 3/8 45°	1/2	3/8	.787	.512	1.260	1.083	13/16	-
new 15 1/2 1/2 45°	1/2	1/2	.787	.669	1.437	27,5	7/8	-

PN 17

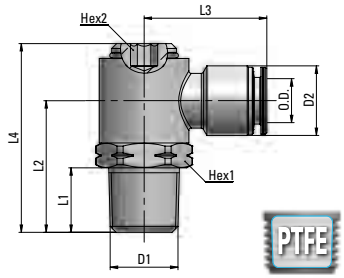
Swivelling elbow fitting, female



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
17 5/32 1/8	5/32	1/8	.374	.335	.768	.748	9/16"	.741
new 17 5/32 1/4	5/32	1/4	.354	.453	.933	.827	11/16"	
17 1/4 1/8	1/4	1/8	.472	.335	.768	.866	9/16"	.794
17 1/4 1/4	1/4	1/4	.472	.492	.925	.866	11/16"	1.130
17 5/16 1/8	5/16	1/8	.551	.335	.768	.886	9/16"	.935
17 5/16 1/4	5/16	1/4	.551	.492	.925	.886	11/16"	1.288
17 3/8 1/4	3/8	1/4	.630	.492	1.004	1.024	11/16"	1.571
17 3/8 3/8	3/8	3/8	.630	.492	1.004	1.024	13/16"	1.712
new 17 1/2 3/8	1/2	3/8	.787	.452	1.102	1.122	13/16"	-
new 17 1/2 1/2	1/2	1/2	.787	.531	1.220	1.122	1	-

PN 18

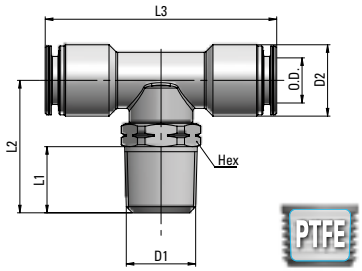
Swivelling fitting with banjo ring



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	L4	HEX1	HEX2	oz
18 5/32 1/8	5/32	1/8	.374	.335	.807	.807	1.220	9/16"	1/8"	1.006
18 1/4 1/8	1/4	1/8	.472	.335	.807	.886	1.220	9/16"	1/8"	1.059
18 1/4 1/4	1/4	1/4	.472	.512	1.043	.945	1.496	11/16"	3/16"	1.712
18 5/16 1/8	5/16	1/8	.551	.335	.807	.906	1.220	9/16"	1/8"	1.077
18 5/16 1/4	5/16	1/4	.551	.512	1.043	.965	1.496	11/16"	3/16"	1.747
18 5/16 3/8	5/16	3/8	.551	.512	1.142	1.043	1.654	13/16"	1/4"	2.269
18 3/8 1/4	3/8	1/4	.630	.512	1.043	1.043	1.496	11/16"	3/16"	1.836
18 3/8 3/8	3/8	3/8	.630	.512	1.142	1.142	1.654	13/16"	1/4"	2.965

PN 20

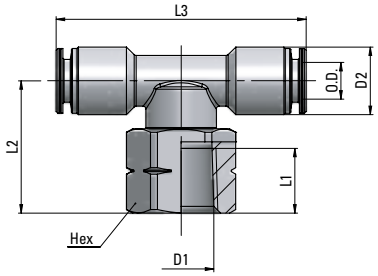
Swivelling tee fitting, taper



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
20 1/8 1/8	1/8	1/8	.276	.335	.708	1.125	7/16	.671
20 5/32 1/8	5/32	1/8	.374	.335	.827	1.535	1/2	.777
20 5/32 1/4	5/32	1/4	.374	.512	1.024	1.535	9/16	.953
20 1/4 1/8	1/4	1/8	.472	.335	.827	1.732	1/2	.900
20 1/4 1/4	1/4	1/4	.472	.512	1.024	1.732	9/16	1.077
new 20 1/4 3/8	1/4	3/8	.472	.512	1.051	1.732	11/16	-
20 5/16 1/8	5/16	1/8	.551	.335	.827	1.772	1/2	1.112
20 5/16 1/4	5/16	1/4	.551	.512	1.024	1.772	9/16	1.306
new 20 3/8 1/8	3/8	1/8	.630	.335	.945	2.047	11/16	-
20 3/8 1/4	3/8	1/4	.630	.512	1.122	2.047	11/16	1.906
20 3/8 3/8	3/8	3/8	.630	.512	1.122	2.047	11/16	1.942
new 20 3/8 1/2	3/8	1/2	.630	.670	1.339	2.047	7/8	-
new 20 1/2 1/4	1/2	1/4	.787	.512	1.260	2.244	13/16	-
20 1/2 3/8	1/2	3/8	.787	.512	1.260	2.244	13/16	2.753
20 1/2 1/2	1/2	1/2	.787	.669	1.437	2.244	7/8	3.301

PN 20-F

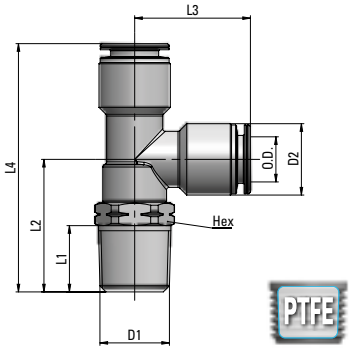
Swivelling tee fitting, female



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
new 20 1/4 1/4 -F	1/4	1/4	.472	.453	.933	1.732	11/16	-
new 20 3/8 1/4 -F	3/8	1/4	.630	.453	1.003	2.047	11/16	-
new 20 3/8 3/8 -F	3/8	3/8	.630	.453	1.003	2.047	13/16	-
new 20 1/2 3/8 -F	1/2	3/8	.787	.453	1.102	2.244	13/16	-
new 20 1/2 1/2 -F	1/2	1/2	.787	13,5	1.220	2.244	1	-

PN 23

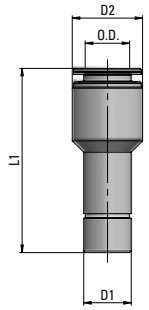
Lateral run tee fitting, taper



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	L4	HEX	oz
23 1/8 1/8	1/8	1/8	.276	.335	.708	.562	1.271	7/16	.671
23 5/32 1/8	5/32	1/8	.374	.335	.827	.768	1.594	1/2	.812
23 5/32 1/4	5/32	1/4	.374	.512	1.024	.768	1.791	9/16	.953
23 1/4 1/8	1/4	1/8	.472	.335	.827	.866	1.693	1/2	.900
23 1/4 1/4	1/4	1/4	.472	.512	1.024	.866	1.890	9/16	1.077
new 23 1/4 3/8	1/4	3/8	.472	.512	1.051	.866	1.910	11/16	-
23 5/16 1/8	5/16	1/8	.551	.335	.827	.886	1.713	1/2	1.112
23 5/16 1/4	5/16	1/4	.551	.512	1.024	.886	1.909	9/16	1.324
23 3/8 1/4	3/8	1/4	.630	.512	1.122	1.024	2.146	11/16	1.915
23 3/8 3/8	3/8	3/8	.630	.512	1.122	1.024	2.146	11/16	1.942
new 23 3/8 1/2	3/8	1/2	.630	.670	1.339	1.023	2.362	7/8	-
new 23 1/2 1/4	1/2	1/4	.787	.511	1.260	1.122	2.382	13/16	-
23 1/2 3/8	1/2	3/8	20	13	32	28,5	60,5	13/16	2.736
23 1/2 1/2	1/2	1/2	20	17	36,5	28,5	65	7/8	3.177

PN 25

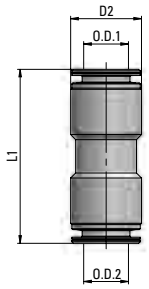
Reducer



Type	Tube OD	D_1	D_2	L_1	oz
25 1/8 5/32	1/8	5/32	.276	1.106	.088
25 5/32 1/4	5/32	1/4	.374	1.240	.265
25 1/4 5/16	1/4	5/16	.472	1.358	.406
25 1/4 3/8	1/4	3/8	.472	1.358	.477
25 1/4 1/2	1/4	1/2	.512	1.358	.883
25 5/16 3/8	5/16	3/8	.551	1.437	.547
25 3/8 1/2	3/8	1/2	.630	1.575	.865

PN 26

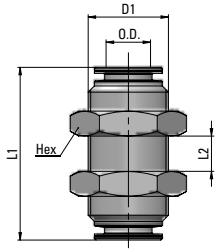
Union



Type	Tube OD_1	Tube OD_2	D_2	L_1	oz
26 1/8 1/8	1/8	1/8	.276	.989	.106
26 5/32 5/32	5/32	5/32	.374	1.110	.265
26 1/4 1/4	1/4	1/4	.472	1.339	.476
26 5/16 5/16	5/16	5/16	.551	1.354	.635
26 3/8 1/4	3/8	1/4	.630	1.457	.727
26 3/8 3/8	3/8	3/8	.630	1.740	.882
26 1/2 3/8	1/2	3/8	.787	1.594	1.210
26 1/2 1/2	1/2	1/2	.787	1.606	1.443

PN 27

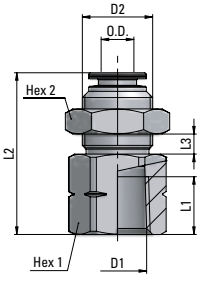
Bulkhead union



Type	Tube OD	D_1	L_1	L_2	HEX	oz
27 1/8 1/8	1/8	M10x1	.909	.177	.551	.477
27 5/32 5/32	5/32	M12x1	1.102	.315	.630	.818
27 1/4 1/4	1/4	M14x1	1.339	.571	.709	1.147
27 5/16 5/16	5/16	M16x1	1.339	.571	.787	1.37
27 3/8 3/8	3/8	M18x1	1.535	.689	.866	1.889
27 1/2 1/2	1/2	M22x1.5	1.614	.728	1.024	2.609

PN 27-F

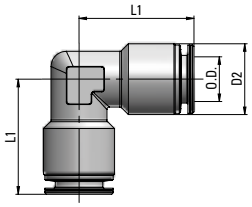
Bulkhead union female



	Type	Tube OD	D_1 NPTF	D_2	L_1	L_2	L_3	HEX_1	HEX_2	oz
new	27 5/32 1/4 -F	5/32	1/4	M12x1	.453	1.161	.276	11/16	.630	-
new	27 1/4 1/8 -F	1/4	1/8	M14x1	.295	1.063	.315	11/16	.709	-
new	27 1/4 1/4 -F	1/4	1/4	M14x1	.453	1.260	.315	11/16	.709	-
new	27 3/8 1/4 -F	3/8	1/4	M18x1	.453	1.339	.394	7/8	.866	-
new	27 3/8 3/8 -F	3/8	3/8	M18x1	.453	1,378	.394	7/8	.866	-
new	27 3/8 1/2 -F	3/8	1/2	M18x1	.531	1.496	.394	1	.866	-
new	27 1/2 3/8 -F	1/2	3/8	M22x1,5	.453	1.417	.472	1	.945	-
new	27 1/2 1/2 -F	1/2	1/2	M22x1,5	.531	1.535	.472	1	.945	-

PN 28

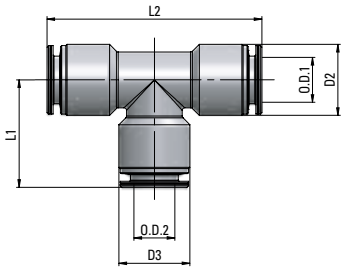
Union elbow



Type	Tube OD	D2	L1	oz
28 1/8 1/8	1/8	.276	.515	.159
28 5/32 5/32	5/32	.374	.689	.335
28 1/4 1/4	1/4	.472	.807	.547
28 5/16 5/16	5/16	.551	.886	.830
28 3/8 3/8	3/8	.630	.984	1.130
28 1/2 1/2	1/2	.787	1.063	1.818

PN 29

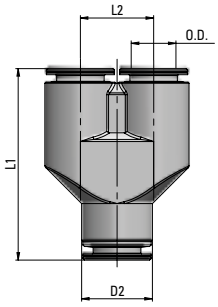
Union tee



	Type	Tube OD	D2	L1	L2	oz
	29 1/8 1/8	1/8	.276	.515	1.031	.194
	29 5/32 5/32	5/32	.374	.689	1.378	.441
	29 1/4 1/4	1/4	.472	.787	1.575	.706
	29 5/16 5/16	5/16	.551	.827	1.654	.988
	29 3/8 3/8	3/8	.630	.965	1.929	1.500
new	29 3/8 1/4	3/8	**.630**	**.886**	**1.929**	-
	29 1/2 1/2	1/2	.787	1.063	2.126	2.436
new	29 1/2 1/4	1/2	**.787**	**.965**	**2.126**	-
new	29 1/2 3/8	1/2	**.787**	**1.063**	**2.126**	-

PN 37

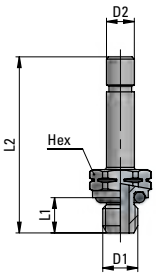
Y fitting



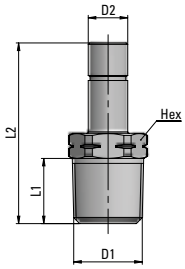
Type	Tube OD	D2	L1	L2	oz
37 1/8 1/8	1/8	.267	1.007	.295	.670
37 5/32 5/32	5/32	.354	1.161	.374	.476
37 1/4 1/4	1/4	.472	1.421	.492	1.076
37 5/16 5/16	5/16	.551	1.476	.571	1.482
37 3/8 3/8	3/8	.630	1.752	.650	2.451

PN 38

Stem adaptor



Type	D1 UNF	D2	L1	L2	HEX	oz
38 5/32 10-32	10-32	5/32	.311	.197	5/16"	.088

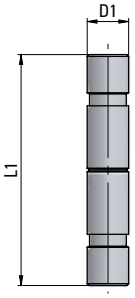


PTFE

Type	D1 NPTF	D2	L1	L2	HEX	oz
38 5/32 1/8	1/8	5/32	.335	1.142	7/16	.247
38 5/32 1/4	1/4	5/32	.512	1.339	9/16	.494
38 1/4 1/8	1/8	1/4	.335	1.220	7/16	.300
38 1/4 1/4	1/4	1/4	.512	1.417	9/16	.530
38 5/16 1/8	1/8	5/16	.335	1.220	7/16	.318
38 5/16 1/4	1/4	5/16	.512	1.417	9/16	.547
38 3/8 1/4	1/4	3/8	.512	1.496	9/16	.582
38 3/8 3/8	3/8	3/8	.512	1.516	11/16	.812
38 1/2 3/8	3/8	1/2	.512	1.634	11/16	.900
38 1/2 1/2	1/2	1/2	.669	1.831	7/8	1.518

PN 39

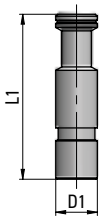
Extention piece



Type	D1	L1	oz
39 5/32 5/32	5/32	1.181	.099
39 1/4 1/4	1/4	1.378	.177
39 5/16 5/16	5/16	1.378	.194
39 3/8 3/8	3/8	1.575	.300
39 1/2 1/2	1/2	1.732	.494

PN 40

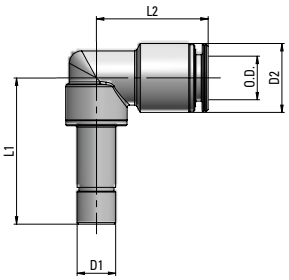
Plug



Type	D1	L1	oz
40 00 1/8	1/8	.787	.046
40 00 5/32	5/32	.984	.088
40 00 1/4	1/4	.984	.159
40 00 5/16	5/16	1.181	.441
40 00 3/8	3/8	1.378	.724
40 00 1/2	1/2	1.575	1.483

PN 43

Plug-in elbow

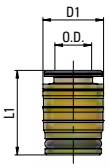


Type	Tube OD	D_1	D_2	L_1	L_2	oz ⚖
43 5/32 5/32	**5/32**	**5/32**	.374	1.004	.748	.491
43 1/4 1/4	**1/4**	**1/4**	.472	1.161	.866	.621
43 5/16 5/16	**5/16**	**5/16**	.551	1.161	.886	.724
43 3/8 3/8	**3/8**	**3/8**	.630	1.319	1.024	1.077

PN 10

Press-in cartridge

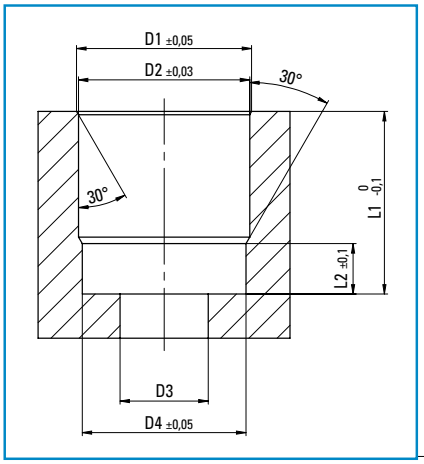
The new construction features of the cartridge PN10 allow for one single cartridge version to be assembled in plastic, aluminium as well as brass bodies.

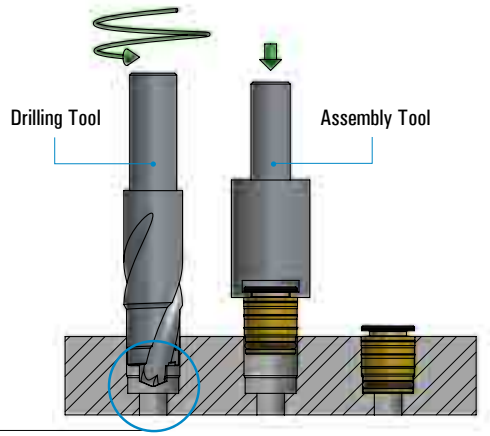


Type	Tube OD	D1	L1	oz
10 5/32 00	5/32	.366	.571	.127
10 1/4 00	1/4	.472	.650	.212
10 5/16 00	5/16	.539	.669	.279
10 3/8 00	3/8	.602	.748	.364

Cartridge seat drilling plan

Tube OD	D1	D2	D3	D4	L1	L2
5/32	.374	.362	.118	.339	.472	.126
1/4	.480	.469	.217	.445	.551	.157
5/16	.547	.535	.276	.512	.571	.157
3/8	.610	.597	.335	.575	.630	.157





1 2

1 Drill the cartridge seat, following the instructions given

2 Manually press the cartridge into the seat and by means of the Assembly tool push it all the way down until it bottoms; this will guarantee the proper cartridge assembly.

"Drilling and Assembly Tool "available upon request.

cmatic®
PNEUMATIC FITTINGS

MA LINE

Push-in Fittings

The push-in fittings of the MA line are completely made of brass and they are suitable for quick connections in different industrial applications; they are robust, compact and guarantee high performances in time. All MA fittings are electrolytic nickel-plated.

MA

All saize are in millimeters

1 - 2	3	4	5	6
Body and Release Ring	Holding Ring	Gripping ring	Protection Ring	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated	Acetal Resin (POM)	Stainless steel AISI 301	Acetal Resin (POM)	NBR

-4°F ÷ 176°F

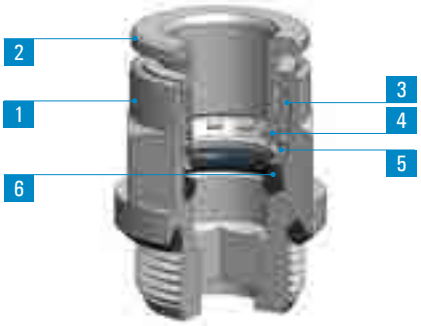
Max 290 PSI

-29" Hg

DATA SHEET

Recommended tubings:
PA11, PA12, PA6, Polyethylene PE, Polyurethane PU (98 Shore A).
Acceptable Tolerances on the tubings:
+/– 0,07 mm up to Ø 10 mm
+/– 0,1 mm from Ø 12 up to Ø 16 mm.

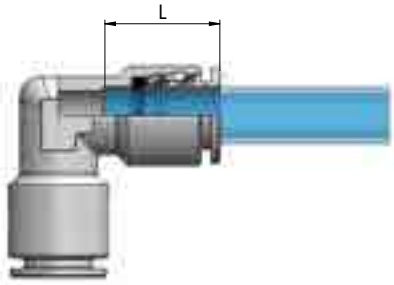
Application fields:
Pneumatic circuits.



	M3x0,5	M5x0,8	M6x1	M7x1	M12x1,25	M12x1,5	G1/8	G1/4	G3/8	G1/2	G3/4	R1/8	R1/4	R3/8	R1/2
3	●	●													
4		●	●	●			●	●				●	●		
6		●	●	●	●	●	●	●	●	●		●	●	●	
8							●	●	●	●		●	●	●	●
10							●	●	●	●		●	●	●	●
12									●	●			●	●	●
14									●	●				●	●
16										●	●				

All saize are in millimeters

Tubing insertion depth



Tube OD	L
3	9,8
4	13,2
6	16,1
8	16,2
10	18,3
12	19,5
14	22,5
16	22,5

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.
   In case of use with metal hoses, make a groove all around the tube diameter with a suitable tool (TINC).The groove must be made according to the tube diameter so that the fitting collect can better grip onto it.
2. Insert the tube into the fitting until it bottoms.

Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 121).

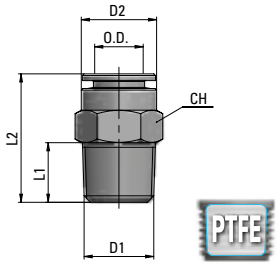
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.

To tighten threads, please check out our tightening torque chart illustrated at page 6.

MA 11

All saize are in millimeters

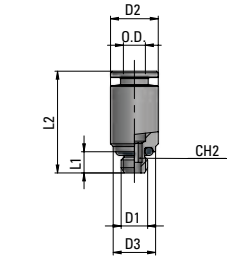
Taper straight, male

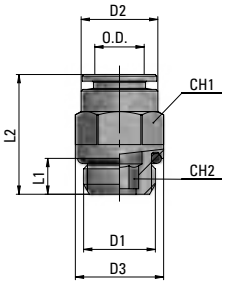


Type	Tube OD	D1	D2	L1	L2	HEX	g
11 04 18	4	R1/8	9	7,5	16	10	5,5
11 04 14	4	R1/4	9	11	20,5	14	16,1
11 06 18	6	R1/8	11,9	7,5	21	12	8,7
11 06 14	6	R1/4	11,9	11	20,5	14	15,8
new 11 06 38	6	R3/8	11,9	11,5	21	17	-
11 08 18	8	R1/8	13,9	7,5	25	14	13,2
11 08 14	8	R1/4	13,9	11	23,5	14	13,9
11 08 38	8	R3/8	13,9	11,5	22,5	17	23,6
new 11 08 12	8	R1/2	13,9	14	25	22	-
new 11 10 18	10	R1/8	15,9	7.5	28	16	-
11 10 14	10	R1/4	15,9	11	30,5	16	20,2
11 10 38	10	R3/8	15,9	11,5	24	17	20
11 10 12	10	R1/2	15,9	14	27	22	47,5
11 12 14	12	R1/4	18,9	11	32	19	28,5
11 12 38	12	R3/8	18,9	11,5	27,5	19	24,1
11 12 12	12	R1/2	18,9	14	27,5	22	42,3
11 14 38	14	R3/8	21,9	11,5	35,5	22	40,1
11 14 12	14	R1/2	21,9	14	32,5	22	39,5

MA 12

Parallel straight, male



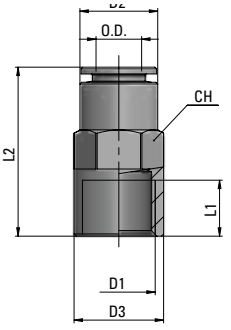


Type	Tube OD	D1	D2	D3	L1	L2	HEX1	HEX2	g
12 03 M3	3	M3x0,5	6,5	5,6	3	15,5	-	1,5	1,4
12 03 M5	3	M5x0,8	6,5	7	4	15,8	-	2	2,3
12 04 M5	4	M5x0,8	9	8	4	19	-	2,5	4,4
12 04 M6	4	M6x1	9	9	4,5	19,5	-	3	4,3
12 04 M7	4	M7x1	9	9	5	20	-	3	5
12 06 M5	6	M5x0,8	12	8	4	22,2	-	2,5	8,6
12 06 M6	6	M6x1	12	9	4,5	22,8	-	3	8,9
12 06 M7	6	M7x1	12	9,1	5	23	-	3	9,5

Type	Tube OD	D1	D2	D3	L1	L2	HEX1	HEX2	g
12 04 18	4	G1/8	9	13	5	16,5	9	3	6,1
12 04 14	4	G1/4	9	16	6,5	18,5	9	3	12
12 06 M12x1,25	6	M12x1,25	11,9	15	6,5	21	12	4	11,8
12 06 M12x1,5	6	M12x1,5	11,9	15	6,5	21	12	4	12,9
12 06 18	6	G1/8	11,9	13,5	5	19,5	12	4	9,1
12 06 14	6	G1/4	11,9	16	6,5	19,5	12	4	12,7
new 12 06 38	6	G3/8	11,9	20	7	20,5	12	4	-
new 12 06 12	6	G1/2	11,9	25	8,5	22,5	12	4	-
12 08 18	8	G1/8	13,9	14,5	5	23,5	13	6	11,5
12 08 14	8	G1/4	13,9	16	6,5	21,5	14	6	13,9
12 08 38	8	G3/8	13,9	20	7	21	14	6	20,1
12 08 12	8	G1/2	13,9	25	8,5	23	14	6	34,3
new 12 10 18	10	G1/8	15,9	13	5	26.5	15	8	-
12 10 14	10	G1/4	15,9	16,5	6,5	27,5	15	8	17,5
12 10 38	10	G3/8	15,9	20	7	25	16	8	22,6
12 10 12	10	G1/2	15,9	25	8,5	25,5	16	8	34,5
12 12 14	12	G1/4	18,9	21	6,5	28,5	19	8	26,2
12 12 38	12	G3/8	18,9	21	7	28,5	19	10	29
12 12 12	12	G1/2	18,9	25	8,5	26,5	19	10	36,1
12 14 38	14	G3/8	21,9	25	7	32	22	10	37,5
12 14 12	14	G1/2	21,9	25	8,5	32	22	12	42,4
12 16 12	16	G1/2	23,7	28	8,5	34,5	25	13	53,6
12 16 34	16	G3/4	23,7	32	9,5	32	24	13	68,2

MA 13

Female straight

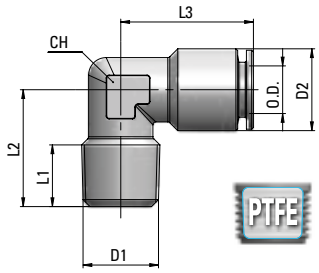


Type	Tube OD	D1	D2	D3	L1	L2	HEX	g
13 04 18	4	G1/8	9	13	7	23,5	9	10
13 06 18	6	G1/8	11,9	14	7	26	12	15,1
13 06 14	6	G1/4	11,9	16	10	30	12	18,5
13 08 18	8	G1/8	13,7	16,2	7	26	14	17,5
13 08 14	8	G1/4	13,9	16	10	30	14	20,2
13 08 38	8	G3/8	13,9	20	11	31	14	25,9
13 10 14	10	G1/4	15,9	18,5	10	32	16	24,4
13 10 38	10	G3/8	15,9	20	11	33,5	16	30,3
13 10 12	10	G1/2	15,9	25	11	36,5	16	45
13 12 38	12	G3/8	19	23,1	11	34	20	38,3
13 12 12	12	G1/2	18,8	25	11	37	19	50,9

MA 14

All saize are in millimeters

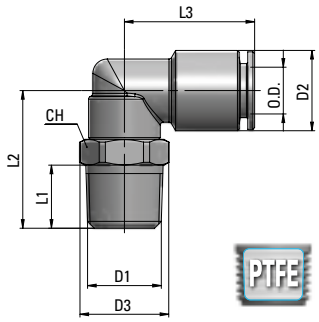
Taper elbow fitting, male



Type	Tube OD	D1	D2	L1	L2	L3	CH	g
14 04 18	4	R1/8	9	7,8	15	17,5	8	8,1
14 04 14	4	R1/4	9,1	10	19	17,5	10	13,9
14 06 18	6	R1/8	12	8,2	15,5	20,5	10	13,2
14 06 14	6	R1/4	12	10	19	20,5	10	16,7
14 08 18	8	R1/8	14	7,5	19	22,5	12	19,6
14 08 14	8	R1/4	14	10,5	20	22,5	12	22,6
14 10 14	10	R1/4	16	9,5	22	25	14	27,1
14 10 38	10	R3/8	16	10,8	22,5	25	14	32,1

MA 15

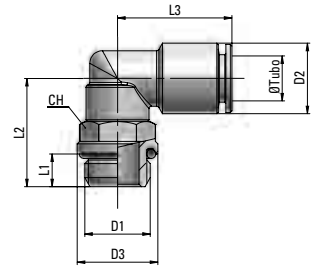
Taper swivelling elbow fitting, male



Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
15 04 18	4	R1/8	9,1	11,2	7,5	17,85	19,5	10	10,8
15 04 14	4	R1/4	9,1	15,5	11	24,2	19,5	14	20,9
15 06 18	6	R1/8	12	14,5	7,5	20,2	22	13	19,4
15 06 14	6	R1/4	12	15,5	11	24,2	22	14	23,9
new 15 06 38	6	R3/8	12	20	11,5	25,2	22	18	-
15 08 18	8	R1/8	14	14,5	7,5	20	22,5	13	23
15 08 14	8	R1/4	14	15,5	11	24	22,5	14	26,4
15 08 38	8	R3/8	14	20	11,5	27	23	18	39,2
new 15 08 12	8	R1/2	14	24,5	14	31	23	22	-
new 15 10 18	10	R1/8	16	20	7,5	26,5	23	18	-
15 10 14	10	R1/4	16	20	11	26,5	26	18	38,6
15 10 38	10	R3/8	16	20	11,5	27	26	18	41
new 15 10 12	10	R1/2	16	24,5	14	31	26	22	-
new 15 12 14	12	R1/4	19	22,5	11	30	28,5	20	-
15 12 38	12	R3/8	19	22,5	11,5	30,5	28,5	20	61,8
15 12 12	12	R1/2	19	24,5	14	33,5	28,5	22	71,5
15 14 38	14	R3/8	22	22,5	11,5	30,5	32	20	66,2
15 14 12	14	R1/2	22	24,5	14	33,5	32	22	74,6

MA 16

Parallel swivelling elbow fitting, male

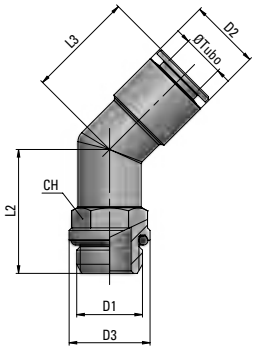


Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
16 03 M5	3	M5x0,8	7	7,9	4	13,7	14	7	7,1
16 04 M5	4	M5x0,8	9,1	10	4	14	17,5	9	8,8
16 04 M6	4	M6x1	9,1	10	4,5	14,5	17,5	9	8,7
16 04 18	4	G1/8	9,1	14,5	5	18,2	19,5	13	15,7
16 04 14	4	G1/4	9,1	16	6,5	21,7	19,5	13	19
16 06 M5	6	M5x0,8	12	10	4	14	20,5	9	11,9
16 06 M6	6	M6x1	12	10	4,5	14,5	20,5	9	12
16 06 M12x1,25	6	M12x1,25	12	15	6,5	21,7	22	13	22
16 06 M12x1,5	6	M12x1,5	12	15	6,5	21,7	22	13	21,5
16 06 18	6	G1/8	12	14,5	5	18,2	22	13	18,5
16 06 14	6	G1/4	12	16	6,5	21,7	22	13	22
new 16 06 38	6	G3/8	12	20	7	22,2	22	13	-
new 16 06 12	6	G1/2	12	25	8,5	24,2	22	13	-
16 08 18	8	G1/8	14	14,5	5	18	22,5	13	22
16 08 14	8	G1/4	14	16	6,5	21,5	22,5	13	26
16 08 38	8	G3/8	14	20	7	25,5	23	16	36,8
16 08 12	8	G1/2	14	25	8,5	27,5	23	16	41
new 16 10 18	10	G1/8	16	18	5	20,5	26	16	-
16 10 14	10	G1/4	16	18	6,5	22	26	16	32,5
16 10 38	10	G3/8	16	20	7	25,5	26	16	39,5
16 10 12	10	G1/2	16	25	8,5	27,5	26	16	43,2
16 12 14	12	G1/4	19	22,5	6,5	25,5	28,5	20	58,5
16 12 38	12	G3/8	19	22,5	7	26	28,5	20	57
16 12 12	12	G1/2	19	25	8,5	30,5	28,5	20	65,1
16 14 38	14	G3/8	22	22,5	7	26	32	20	61,6
16 14 12	14	G1/2	22	25	8,5	30,5	32	20	68,5
16 16 12	16	G1/2	24	27	8,5	33	36,5	25	105,2
16 16 34	16	G3/4	24	32	9,5	35	36,5	25	113,8

MA 16-45

All saize are in millimeters

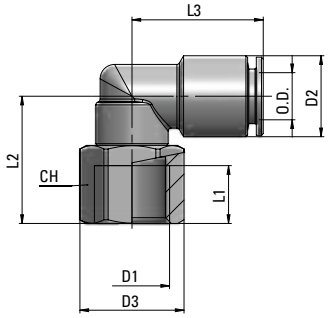
Parallel Swivelling Elbow Fitting, male
45°



	Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
new	16 06 18 -45	6	G1/8	12	12,8	5	21	21	13	-
new	16 06 14 -45	6	G1/4	12	16	6,5	24,5	21	13	-
new	16 08 18 -45	8	G1/8	14	12,8	5	21	21	13	-
new	16 08 14 -45	8	G1/4	14	16	6,5	24,5	21	13	-
new	16 10 14 -45	10	G1/4	16	16	6,5	23	25	13	-
new	16 10 38 -45	10	G3/8	16	20	7	26,5	25	16	-
new	16 12 38 -45	12	G3/8	20	20	7	26	25	16	-
new	16 12 12 -45	12	G1/2	20	25	8,5	30,5	25	20	-

MA 17

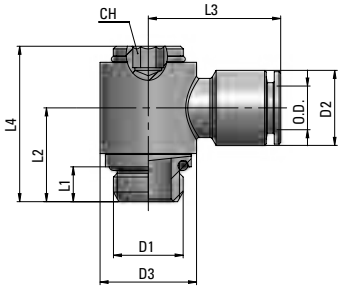
Swivelling elbow fitting, female



Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
17 04 18	4	G1/8	9,1	14,5	6,5	17,9	19,5	13	17,3
17 06 18	6	G1/8	12	14,5	6,5	17,9	22	13	19,7
17 06 14	6	G1/4	12	18	10	22,2	22	16	25,4
17 08 18	8	G1/8	14	14,5	6,5	17,7	22,5	13	23,1
17 08 14	8	G1/4	14	18	10	22	22,5	16	29,1
17 10 14	10	G1/4	16	18	10	23	26	16	35,6
17 10 38	10	G3/8	16	22,5	10,5	25	26	20	43,5

MA 18

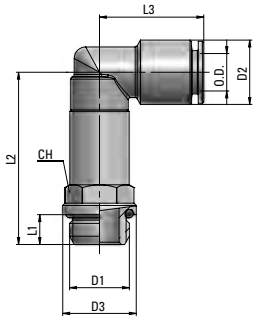
Swivelling fitting with banjo ring



Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	HEX	g
18 03 M3	3	M3x0,5	6,8	7	3	8,5	14	14	2	4,6
18 03 M5	3	M5x0,8	6,8	7	4	9,5	14	15	2	8,1
18 04 M5	4	M5x0,8	9	10	4	11	18,5	19,1	3	10,1
18 04 18	4	G1/8	9,1	14	5	15	20,5	25,5	4	22,2
18 06 M5	6	M5x0,8	12	10	4	11	21,5	19,1	3	13,3
18 06 18	6	G1/8	12	14	5	15	22,5	25,5	4	24,4
18 06 14	6	G1/4	12	18	6,5	17,5	24	29	5	39,3
18 08 18	8	G1/8	14	14	5	15	23,5	25,5	4	25,7
18 08 14	8	G1/4	14	18	6,5	17,5	24,5	29	5	39,1
18 10 14	10	G1/4	16	18	6,5	17,5	27	29	5	43,6
18 10 38	10	G3/8	16	22	7	19,5	29	32,5	6	62,2
18 12 38	12	G3/8	19	22	7	19,5	29,5	32,5	6	67,1
18 12 12	12	G1/2	19	26	8,5	24	31,5	39,6	8	114,8

MA 19

Swivelling extended elbow fitting, male, parallel

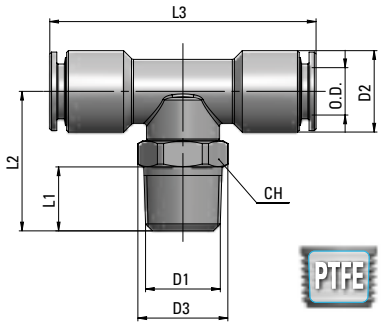


Type	Tube OD	D 1	D2	D3	L1	L2	L3	HEX	g
19 04 18	4	G1/8	9,1	14,5	5	29,2	19,5	13	25,6
19 06 18	6	G1/8	12	14,5	5	32,2	22	13	30,5
19 06 14	6	G1/4	12	16	6,5	35,7	22	13	30,9
19 08 18	8	G1/8	14	14,5	5	34	22,5	13	35,7
19 08 14	8	G1/4	14	16	6,5	37,5	22,5	13	36

MA 20

All saize are in millimeters

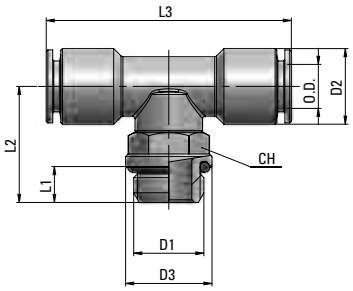
Swivelling tee fitting, taper



Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
20 04 18	4	R1/8	9,1	14,5	7,5	20,2	39	13	21,5
20 04 14	4	R1/4	9,1	15,5	11	24,2	39	14	25,6
20 06 18	6	R1/8	12	14,5	7,5	20	44	13	26,3
20 06 14	6	R1/4	12	15,5	11	24	44	14	30,4
20 08 18	8	R1/8	14	14,5	7,5	20	45	13	31,3
20 08 14	8	R1/4	14	15,5	11	24	45	14	35,3
20 08 38	8	R3/8	14	20	11,5	27	46	18	49,1
20 10 14	10	R1/4	16	20	11	26,5	52	18	50
20 10 38	10	R3/8	16	20	11,5	27	52	18	51,6
20 12 38	12	R3/8	19	22,5	11,5	30,5	57	20	80
20 12 12	12	R1/2	19	24,5	14	33,5	57	22	83,5

MA 21

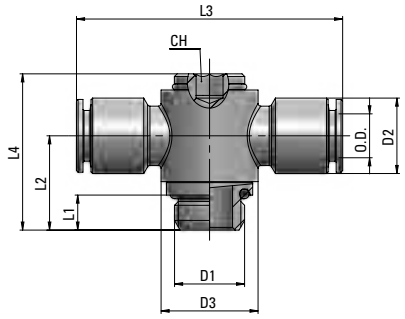
Swivelling tee fitting, parallel



Type	Tube OD	D1	D2	D3	L1	L2	L3	HEX	g
21 04 18	4	G1/8	9,1	14,5	5	18,2	39	13	20,2
21 04 14	4	G1/4	9,1	16	6,5	21,7	39	13	23,9
21 06 18	6	G1/8	12	14,5	5	18	44	13	25,2
21 06 14	6	G1/4	12	16	6,5	21,5	44	13	29,1
21 08 18	8	G1/8	14	14,5	5	18	45	13	30,7
21 08 14	8	G1/4	14	16	6,5	21,5	45	13	34,1
21 08 38	8	G3/8	14	20	7	25,5	46	16	46,4
21 10 14	10	G1/4	16	18	6,5	22	52	16	44,4
21 10 38	10	G3/8	16	20	7	25,5	52	16	49,7
21 12 38	12	G3/8	19	22,5	7	26	57	20	75,3
21 12 12	12	G1/2	19	25	8,5	30,5	57	20	82

MA 22

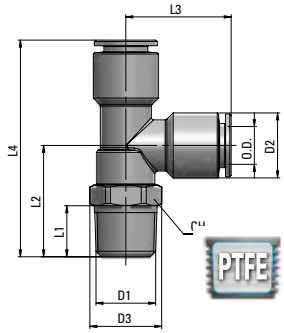
Swivelling fitting with double banjo ring



Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	HEX	g
22 04 M5	4	M5x0,8	9	10	4	11	38	19,1	3	13,8
22 04 18	4	G1/8	9	14	5	15	41	25,5	4	27,4
22 06 M5	6	M5x0,8	12	10	4	11	43	19,1	3	19,9
22 06 18	6	G1/8	12	14	5	15	45	25,5	4	32,1
22 06 14	6	G1/4	12	18	6,5	17,5	48	29	5	45,8
22 08 18	8	G1/8	14	14	5	15	47	25,5	4	34,1
22 08 14	8	G1/4	14	18	6,5	17,5	49	29	5	46,5
22 10 14	10	G1/4	16	18	6,5	17,5	54	29	5	55,2
22 10 38	10	G3/8	16	22	7	19,5	58	32,5	6	72,4
22 12 38	12	G3/8	19	22	7	19,5	59	32,5	6	79
22 12 12	12	G1/2	19	27	8,5	24	63	39,6	8	124,7

MA 23

Lateral run tee fitting, taper

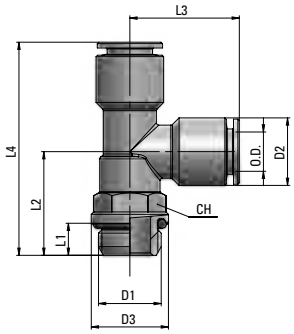


Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	HEX	g
23 04 18	4	R1/8	9,1	14,5	7,5	20,2	19,5	39,7	13	22
23 04 14	4	R1/4	9,1	15,5	11	24,2	19,5	43,7	14	25,5
23 06 18	6	R1/8	12	14,5	7,5	20,2	22	42,2	13	27,5
23 06 14	6	R1/4	12	15,5	11	24,2	22	46,2	14	31
23 08 18	8	R1/8	14	14,5	7,5	20	22,5	42,5	13	31
23 08 14	8	R1/4	14	15,5	11	24	22,5	46,5	14	35
23 10 14	10	R1/4	16	20	11	26,5	26	52,5	18	50
23 10 38	10	R3/8	16	20	11,5	27	26	53	18	51
23 12 38	12	R3/8	19	22,5	11,5	30,5	28,5	59	20	75
23 12 12	12	R1/2	19	24,5	14	33,5	28,5	62	22	83,5

MA 24

All saize are in millimeters

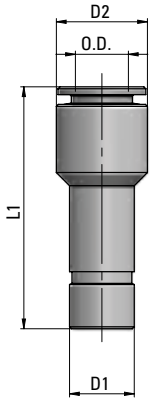
Lateral run tee fitting, parallel



Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	HEX	g
24 04 18	4	G1/8	9,1	14,5	5	18,2	19,5	37,7	13	20,5
24 04 14	4	G1/4	9,1	16	6,5	21,7	19,5	41,2	13	24
24 06 18	6	G1/8	12	14,5	5	18,2	22	40,2	13	26
24 06 14	6	G1/4	12	16	6,5	21,7	22	43,7	13	29,5
24 08 18	8	G1/8	14	14,5	5	18	22,5	40,5	13	30
24 08 14	8	G1/4	14	16	6,5	21,5	22,5	44	13	33,5
24 10 14	10	G1/4	16	18	6,5	22	26	48	16	44
24 10 38	10	G3/8	16	20	7	25,5	26	51,5	16	49
24 12 38	12	G3/8	19	22,5	7	26	28,5	54,5	20	73
24 12 12	12	G1/2	19	25	8,5	30,5	28,5	59	20	77

MA 25

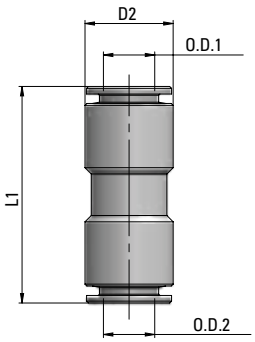
Reducer



Type	Tube OD	D1	D2	L1	g
25 03 04	3	4	7	27,5	2,5
25 04 06	4	6	9	33,5	7
25 04 08	4	8	9	33,5	10
25 04 10	4	10	10	31,5	15
25 04 12	4	12	12	32,5	24,5
25 06 04	6	4	12	35,5	10
25 06 08	6	8	12	35	11,5
25 06 10	6	10	12	36,5	16,5
25 06 12	6	12	12	35,5	22,2
25 06 14	6	14	14	37,5	25
25 08 06	8	6	14	39,5	13,5
25 08 10	8	10	14	37	15
25 08 12	8	12	14	39	23
25 08 14	8	14	14	38,5	31,5
25 10 12	10	12	16	42	20
25 10 14	10	14	16	42	29,5
25 12 14	12	14	19	43	24
25 14 16	14	16	22	49,5	91,8

MA 26

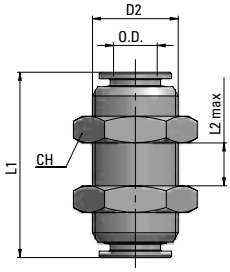
Union



	Type	Tube OD	Ø Tubo2	D1	D2	L1	g
	26 03 03	3	3	6,5	6,5	22,5	2,7
	26 04 04	4	4	9	9	28	6,8
	26 06 06	6	6	12	12	33,6	15
	26 06 04	6	4	12	12	31	14,7
	26 08 08	8	8	14	14	34	18
	26 08 06	8	6	14	14	34	21
	26 10 10	10	10	16	16	38,6	22,5
	26 10 08	10	8	16	16	36,5	25,2
	26 12 12	12	12	19	19	41	37
new	26 12 08	12	8	19	14	39	-
new	26 12 10	12	10	19	16	40,5	-
	26 14 14	14	14	22	22	47	47,4
new	26 14 12	14	12	22	19	44,5	-
	26 16 16	16	16	24	24	47	63,2
new	26 16 12	16	12	24	19	44,5	-
new	26 16 14	16	14	24	22	47	-

MA 27

Bulkhead union

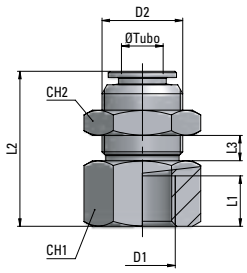


Type	Tube OD	D2	L1	L2	HEX	g
27 03 03	3	M8x0,75	22,5	9,5	12	14,5
27 04 04	4	M12x1	28	11	16	23,5
27 06 06	6	M14x1	34	16	18	33
27 08 08	8	M16x1	34	16	20	39,5
27 10 10	10	M18x1	39	19	22	51,5
27 12 12	12	M20x1	41	20	24	60

MA 27-F

All saize are in millimeters

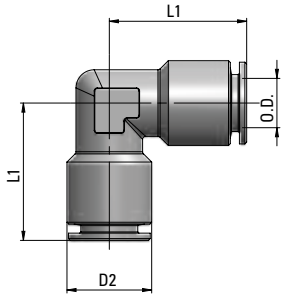
Bulkhead union, female



	Type	Tube OD	D_1	D_2	L_1	L_2	L_3	HEX_1	HEX_2	g
new	27 06 18 -F	6	G1/8	M14x1	7	26,5	9	18	18	-
new	27 06 14 -F	6	G1/4	M14x1	10	30,5	9	18	18	-
new	27 08 18 -F	8	G1/8	M16x1	7	26,5	9	20	20	-
new	27 08 14 -F	8	G1/4	M16x1	10	30,5	9	20	20	-
new	27 10 38 -F	10	G3/8	M18x1	11	33	10	22	22	-

MA 28

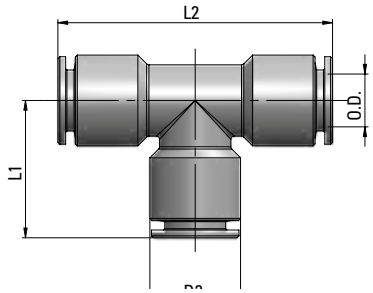
Union elbow



Type	Tube OD	D_2	L_1	g
28 03 03	3	7	12,8	4,5
28 04 04	4	9	17,5	9
28 06 06	6	12	20,5	16,5
28 08 08	8	14	22,5	22
28 10 10	10	16	25	29,5
28 12 12	12	19	26,5	48,5
28 14 14	14	22	31,5	58
28 16 16	16	24	36,5	90,6

MA 29

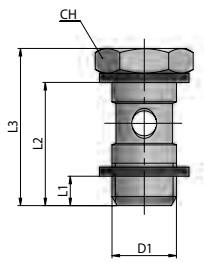
Union tee



	Type	Tube OD1	Tube OD2	D_1	D_2	L_1	L_2	g
	29 03 03	3	3	7	7	12,8	25,6	5,6
	29 04 04	4	4	9	9	17,5	35	12,5
	29 06 06	6	6	12	12	20	40	22,5
new	29 06 04	6	4	12	9	18	40	-
	29 08 08	8	8	14	14	21	42	28
new	29 08 06	8	6	14	12	20,5	42	-
	29 10 10	10	10	16	16	24,5	49	39,2
new	29 10 08	10	8	16	14	23	49	-
	29 12 12	12	12	19	19	26	52	61,3
new	29 12 10	12	10	19	16	26	52	-
	29 14 14	14	14	22	22	30,5	61	77,1
	29 16 16	16	16	24	24	34,5	69	124

MA 31

Simple screw

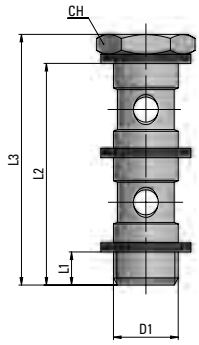


Type	D_1	L_1	L_2	L_3	HEX	g
31 00 M5	M5x0,8	4,1	14,3	18,5	8	2,5
31 00 18	G1/8	4,4	21,2	27	14	13,4
31 00 14	G1/4	5,9	24,7	31,5	17	27,8
31 00 38	G3/8	6,4	28,2	36	20	43
31 00 12	G1/2	7,5	33,5	41,5	26	80,5

MA 32

All saize are in millimeters

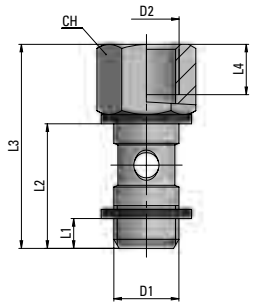
Double screw



Type	D1	L1	L2	L3	HEX	g
32 00 18	G1/8	4,1	37,7	43,5	14	19,5
32 00 14	G1/4	5,6	43,2	50	17	38,5
32 00 38	G3/8	6,1	49,7	57,5	20	63,5
32 00 12	G1/2	7	59	67	26	117

MA 33

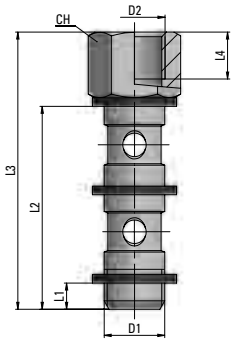
Screw, male female



Type	D1	D2	L1	L2	L3	L4	HEX	g
33 00 18	G1/8	G1/8	4,4	21,2	35	6,2	14	19,5
33 00 14	G1/4	G1/4	5,9	24,7	40,5	10	17	32,5
33 00 38	G3/8	G3/8	6,4	28,2	45	10	20	47

MA 34

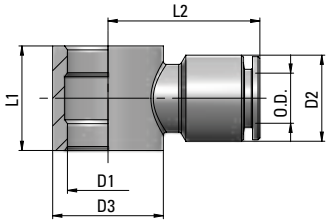
Double screw, male female



Type	D1	D2	L1	L2	L3	L4	HEX	g
34 00 18	G1/8	G1/8	4,1	37,7	51,5	6,2	14	26
34 00 14	G1/4	G1/4	5,6	43,2	59	10	17	44
34 00 38	G3/8	G3/8	6,1	49,7	66,5	10	20	66

MA 35

Single banjo ring



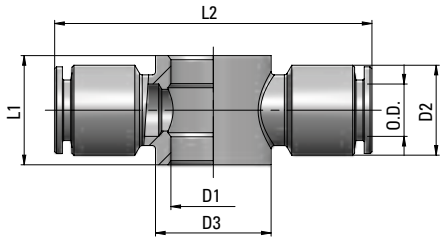
Type	Tube OD	D1	D2	D3	L1	L2	g
35 04 M5	4	M5	9,1	10	9	18,5	7,7
35 04 M5 /R	4	7	9,1	10	10	18,5	6,6
35 04 18	4	1/8	9,1	14	15	20,5	13,5
35 06 M5	6	M5	12	10	9	21,5	10,9
35 06 M5 /R	6	7	12	10	10	21,5	10,1
35 06 18	6	1/8	12	14	15	22,5	15,5
35 06 14	6	1/4	12	18	17	24	21,6
35 08 18	8	1/8	14	14	15	23,5	16,7
35 08 14	8	1/4	14	18	17	24,5	22,8
35 08 38	8	3/8	14	22	20	26,5	32,7
35 10 14	10	1/4	16	18	17	27	27,2
35 10 38	10	3/8	16	22	20	29	34,5
35 12 38	12	3/8	19	22	20	29,5	38,8
35 12 12	12	1/2	19	26	24	31,5	56,9

/R = For flow controls only

MA 36

All saize are in millimeters

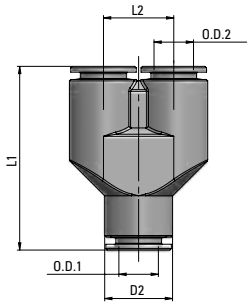
Double banjo ring



Type	Tube OD	D1	D2	D3	L1	L2	g
36 04 M5	4	M5	9	10	9	37	10,9
36 04 18	4	1/8	9	14	15	41	18
36 06 18	6	1/8	12	14	15	45	23
36 06 14	6	1/4	12	18	17	48	28,7
36 08 18	8	1/8	14	14	15	47	25,3
36 08 14	8	1/4	14	18	17	49	29,7
36 08 38	8	3/8	14	22	20	53	42,5
36 10 14	10	1/4	16	18	17	54	37,9
36 10 38	10	3/8	16	22	20	58	44,5
36 12 38	12	3/8	19	22	20	59	51,3
36 12 12	12	1/2	19	27	24	63	67,2

MA 37

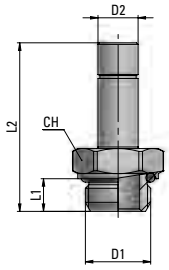
Y fitting



Type	Tube OD	Tue OD2	D2	L1	L2	g
37 04 04	4	4	9	29,5	9,5	14,3
37 06 06	6	6	12	36,5	12,5	32,7
37 06 04	6	4	12	34,1	11	36,1
37 08 08	8	8	14	37,5	14,5	44,1
37 08 06	8	6	14	37,5	14,5	51,1
37 10 10	10	10	16	44,5	16,5	62,7
37 10 08	10	8	16	44	16,5	74,9
37 12 12	12	12	19	49	19,5	95,8

MA 38

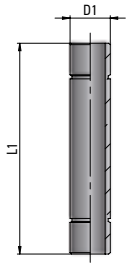
Stem adaptor



Type	D1	D2	L1	L2	HEX	g
38 04 M5	M5x0,8	4	4	26	9	3,2
38 04 18	G1/8	4	5	28	13	7,3
38 04 14	G1/4	4	6,5	29,5	16	12,4
38 06 M5	M5x0,8	6	4	28	9	5,9
38 06 18	G1/8	6	5	30	13	8,5
38 06 14	G1/4	6	6,5	32,5	16	13,7
38 08 18	G1/8	8	5	31	13	9,4
38 08 14	G1/4	8	6,5	33,5	16	14,5
38 10 14	G1/4	10	6,5	34,5	16	15,5
38 10 38	G3/8	10	7	35	20	22
38 12 38	G3/8	12	7	38	20	23,6
38 12 12	G1/2	12	8,5	39,5	25	38

MA 39

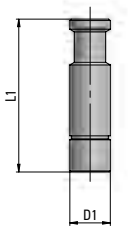
Extention piece



Type	D1	L1	g
39 04 04	4	35	2,7
39 06 06	6	40	5,1
39 08 08	8	42	8
39 10 10	10	50	11,8
39 12 12	12	53	15,3
39 14 14	14	54	18,8

MA 40

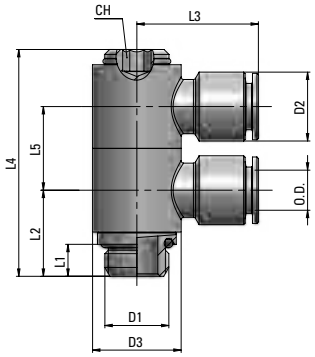
Plug



Type	D1	L1	g
40 00 03	3	20	1
40 00 04	4	25	2,3
40 00 06	6	25	3,7
40 00 08	8	30	7,2
40 00 10	10	35	11,8
40 00 12	12	40	18,2
40 00 14	14	40	26,2
40 00 16	16	40	32,5

MA 41

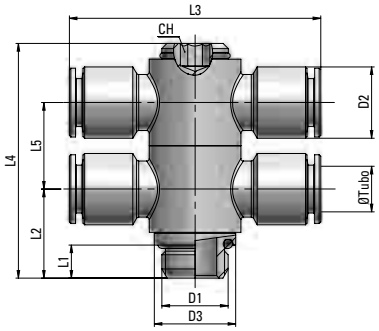
Swivelling fitting with two banjo rings



Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	L5	HEX	g
41 04 M5	4	M5x0,8	9	10	4	11	18,5	29,2	10	3	18,5
41 04 18	4	G1/8	9,1	14	5	15	20,5	40,4	15	4	40
41 06 18	6	G1/8	12	14	5	15	22,5	40,4	15	4	46
41 06 14	6	G1/4	12	18	6,5	17,5	24	46,1	17	5	69,5
41 08 18	8	G1/8	14	14	5	15	23,5	40,4	15	4	50
41 08 14	8	G1/4	14	18	6,5	17,5	24,5	46,1	17	5	69,5

MA 42

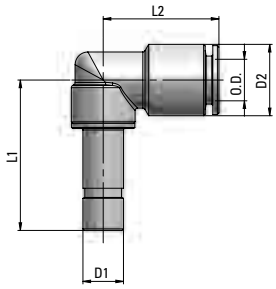
Swivelling fitting with two double banjo rings



Type	Tube OD	D1	D2	D3	L1	L2	L3	L4	L5	HEX	g
42 04 M5	4	M5x0,8	9	10	4	11	38	29,2	10	3	25
42 04 18	4	G1/8	9	14	5	15	41	40,4	15	4	50
42 06 18	6	G1/8	12	14	5	15	45	40,4	15	4	59
42 06 14	6	G1/4	12	18	6,5	17,5	48	46,1	17	5	82
42 08 18	8	G1/8	14	14	5	15	47	40,4	15	4	61
42 08 14	8	G1/4	14	18	6,5	17,5	49	46,1	17	5	83,5

MA 43

Plug-in elbow

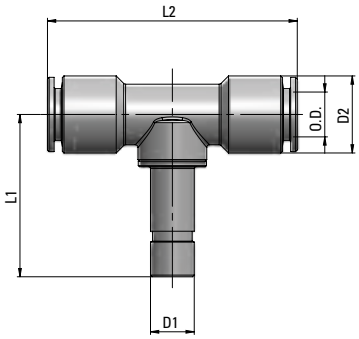


Type	Tube OD	D1	D2	L1	L2	g
43 04 04	4	4	9,1	25,7	19,5	14
43 04 06	4	6	9,1	29,7	19,5	15
43 06 04	6	4	12	25,7	22	17
43 06 06	6	6	12	29,7	22	17
43 06 08	6	8	12	29,7	22	17,5
43 08 06	8	6	14	29,5	22,5	20,5
43 08 08	8	8	14	29,5	22,5	20,5
43 10 10	10	10	16	33,5	26	30

MA 44

All saize are in millimeters

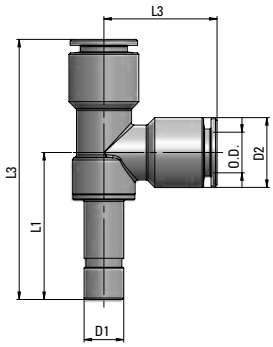
Plug-in tee



Type	Tube OD	D1	D2	L1	L2	g
44 04 04	4	4	9,1	25,7	39	18,5
44 04 06	4	6	9,1	29,7	39	19,5
44 06 06	6	6	12	29,5	44	24,5
44 06 08	6	8	12	29,5	44	24,5
44 08 08	8	8	14	29,5	45	29
44 08 10	8	10	14	33,5	46	38,5
44 10 10	10	10	16	33,5	52	41

MA 45

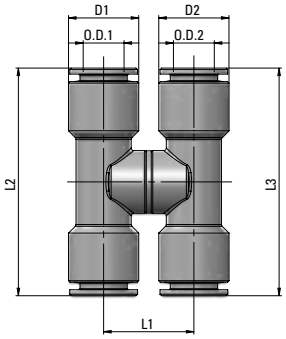
Plug-in run tee



Type	Tube OD	D1	D2	L1	L2	L3	g
45 04 04	4	4	9,1	25,7	19,5	45,2	18,5
45 04 06	4	6	9,1	29,7	19,5	49,2	20
45 06 06	6	6	12	29,7	22	51,7	25
45 06 08	6	8	12	29,7	22	51,7	25,5
45 08 08	8	8	14	29,5	22,5	52	30
45 10 10	10	10	16	33,5	26	59,5	41

MA 46

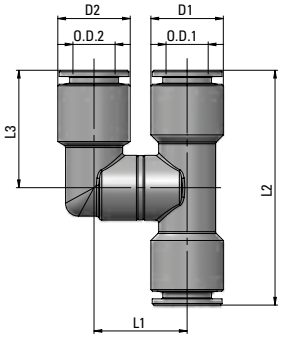
Swivelling cross fitting



Type	Tube OD1	Tube OD2	D1	D2	L1	L2	L3	g
46 04 04	4	4	9,1	9,1	18,4	39	39	31
46 04 06	4	6	9,1	12	18,4	39	44	36
46 06 06	6	6	12	12	18	44	44	41
46 06 08	6	8	12	14	18	44	45	46,5
46 08 08	8	8	14	14	18	45	45	50

MA 47

Swivelling Y fitting



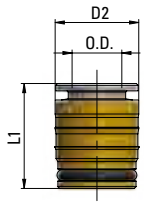
Type	Tube OD1	Tube OD2	D1	D2	L1	L2	L3	g
47 04 04	4	4	9,1	9,1	18,4	39	19,5	27
47 04 06	4	6	9,1	12	18,4	39	22	29,5
47 06 06	6	6	12	12	18,2	44	22	34,5
47 06 08	6	8	12	14	18	44	22,5	37,5
47 08 08	8	8	14	14	18	45	22,5	42

MA 10

All saize are in millimeters

Press-in cartridge

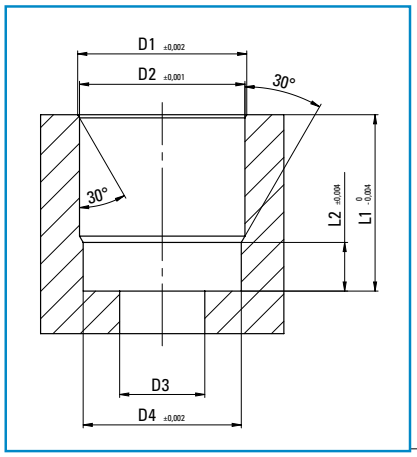
The new construction features of the cartridge MA10 allow for one single cartridge version to be assembled in plastic, aluminium as well as brass bodies.

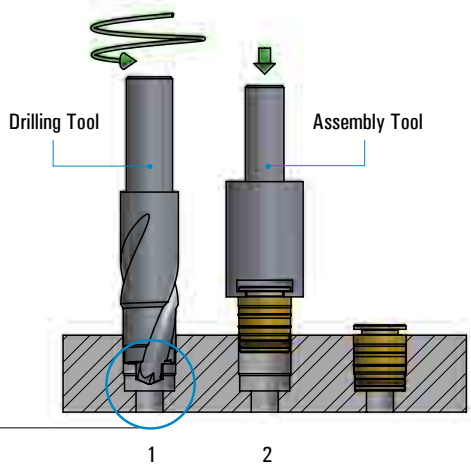


Type	Tube OD	D1	L1	g
10 04 00	4	9,3	14,5	3,6
10 06 00	6	11,5	16,5	5,7
10 08 00	8	13,7	17	7,9
10 10 00	10	15,8	19	10,3

Cartridge seat drilling plan

Type	D1	D2	D3	D4	L1	L2
4	9,5	9,2	3	8,6	12	3,2
6	11,7	11,4	5	10,8	14	4
8	13,9	13,6	7	13	14,5	4
10	16	15,7	9	15,1	16	4





1 Drill the cartridge seat, following the instructions given

2 Manually press the cartridge into the seat and by means of the Assembly tool push it all the way down until it bottoms; this will guarantee the proper cartridge assembly.

Drilling and Assembly Tool “available upon request.

cmatic®
PNEUMATIC FITTINGS

PE LINE

Easythread Push-in Fittings, "Uni" thread

Push-in fittings featured by the so called "easyThread" and made according to Cmatic Standards.
This thread feature allows for connections with different threads standards (NPT, BSPP, BSPT) and leads to greater operational flexibility and inventory cost reduction.

PE

1 - 2	3	4	5	6
Body and Release Ring	Holding Ring	Gripping ring	Protection Ring	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated	Acetal Resin (POM)	Stainless steel AISI 301	Acetal Resin (POM)	NBR

-4°F ÷ 176°F

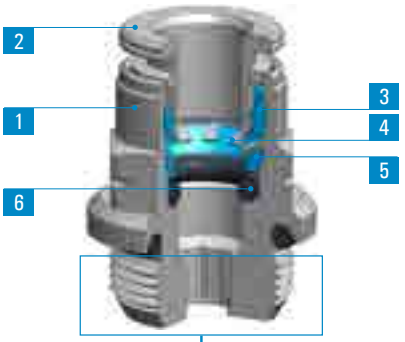
Max 290 PSI

-29" Hg

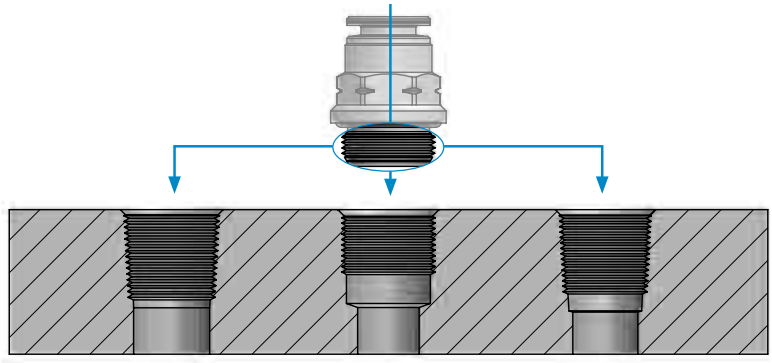
DATA SHEET

Recommended tubings:
PA11, PA12, PA6, Polyethylene PE, Polyurethane PU (98 Shore A).
Acceptable Tolerances on the tubings:
+/– 0,07 mm up to Ø 3/8" - 10 mm
+/– 0,1 mm Ø 1/2" - 12 mm.

Application fields:
Pneumatic circuits.



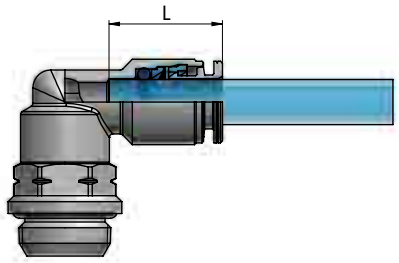
easyThread



NPTF BSPP (G) BSPT (R)

	Easy 1/8	Easy 1/4	Easy 3/8	Easy 1/2
1/4	●	●		
3/8		●	●	
1/2			●	●
6	●	●		
8		●		
10		●	●	
12			●	●

Tubing insertion depth



Tube OD	L
1/4	.634
3/8	.720
1/2	.767
6	.236
8	.315
10	.395
12	.472

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.
   In case of use with metal hoses, make a groove all around the tube diameter with a suitable tool (TINC). The groove must be made
   according to the tube diameter so that the fitting collect can better grip onto it.
2. Insert the tube into the fitting until it bottoms.

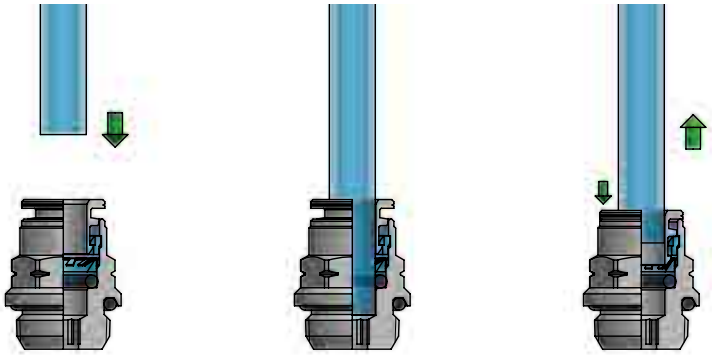
Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).

To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.

To tighten threads, please check out our tightening torque chart illustrated at page 6.

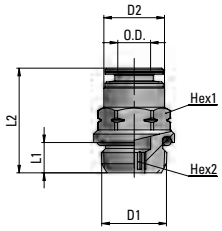
Tube release

While pressing on the release ring, pull out the tube from the fitting.



PE 12

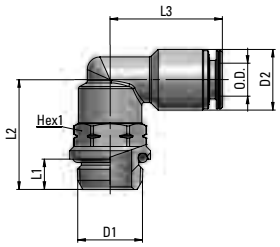
"EasyThread" straight, male



Type	Tube OD	D1	D2	L1	L2	HEX1	HEX2	oz
12 1/4 1/8	1/4	Easy 1/8	.472	.197	.807	1/2	5/32	.331
12 1/4 1/4	1/4	Easy 1/4	.472	.236	.807	1/2	5/32	.452
12 3/8 1/4	3/8	Easy 1/4	.630	.236	1.024	5/8	1/4	.694
12 3/8 3/8	3/8	Easy 3/8	.630	.236	.984	5/8	1/4	.850
12 1/2 3/8	1/2	Easy 3/8	.787	.236	1.102	13/16	13/32	1.134
12 1/2 1/2	1/2	Easy 1/2	.787	.335	1.043	13/16	12/32	1.256
12 06 1/8	6	Easy 1/8	.472	.177	.768	.472	.157	.328
12 06 1/4	6	Easy 1/4	1/2	5/32	.768	.472	.157	.427
12 08 1/4	8	Easy 1/4	1/2	5/32	.846	.551	.236	1.189
12 10 1/4	10	Easy 1/4	5/8	1/4	1.063	.591	.315	.568
12 10 3/8	10	Easy 3/8	5/8	1/4	.945	.630	.315	.716
12 12 3/8	12	Easy 3/8	13/16	13/32	1.083	.748	.394	.984
12 12 1/2	12	Easy 1/2	13/16	13/32	1.043	.748	.394	1.242

PE 16

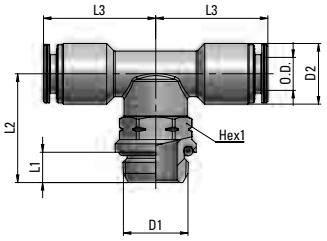
"EasyThread" swivelling elbow



Type	Tube OD	D1	D2	L1	L2	L3	HEX1	oz
16 1/4 1/8	1/4	Easy 1/8	.472	.197	.709	.866	1/2	.638
16 1/4 1/4	1/4	Easy 1/4	.472	.236	.846	.866	1/2	.739
16 3/8 1/4	3/8	Easy 1/4	.630	.236	.866	1.024	5/8	1.181
16 3/8 3/8	3/8	Easy 3/8	.630	.236	.984	1.024	5/8	1.357
16 1/2 3/8	1/2	Easy 3/8	.787	.236	1.004	1.122	13/16	2.039
16 1/2 1/2	1/2	Easy 1/2	.787	.335	1.280	1.122	13/16	2.453
16 06 1/8	6	Easy 1/8	.472	.177	.709	.866	1/2	.646
16 06 1/4	6	Easy 1/4	.472	.236	.846	.866	1/2	.762
16 08 1/4	8	Easy 1/4	.551	.236	.846	.886	1/2	.875
16 10 1/4	10	Easy 1/4	.630	.236	.866	1.024	5/8	1.118
16 10 3/8	10	Easy 3/8	.630	.236	.984	1.024	5/8	1.295
16 12 3/8	12	Easy 3/8	.748	.236	1.004	1.122	13/16	1.975
16 12 1/2	12	Easy 1/2	.748	.335	1.280	1.122	13/16	2.434

PE 21

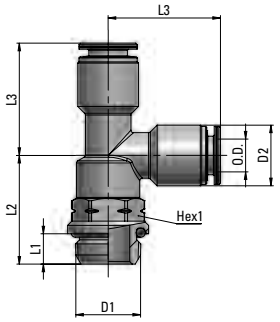
"EasyThread" swivelling tee fitting



Type	Tube OD	D1	D2	L1	L2	L3	HEX1	oz
21 1/4 1/8	1/4	Easy 1/8	.472	.197	.709	.866	1/2	.858
21 1/4 1/4	1/4	Easy 1/4	.472	.236	.846	.866	1/2	.982
21 3/8 1/4	3/8	Easy 1/4	.630	.236	.866	1.024	5/8	1.613
21 3/8 3/8	3/8	Easy 3/8	.630	.236	.984	1.024	5/8	1.786
21 1/2 3/8	1/2	Easy 3/8	.787	.236	1.004	1.122	13/16	2.649
21 1/2 1/2	1/2	Easy 1/2	.787	.335	1.280	1.122	13/16	3.069
21 06 1/8	6	Easy 1/8	.472	.177	.709	.866	1/2	.878
21 06 1/4	6	Easy 1/4	.472	.236	.846	.866	1/2	.981
21 08 1/4	8	Easy 1/4	.551	.236	.846	.886	1/2	-
21 10 1/4	10	Easy 1/4	.630	.236	.866	1.024	5/8	1.527
21 10 3/8	10	Easy 3/8	.630	.236	.984	1.024	5/8	1.714
21 12 3/8	12	Easy 3/8	.748	.236	1.004	1.122	13/16	2.610
21 12 1/2	12	Easy 1/2	.748	.335	1.280	1.122	13/16	3.058

PE 24

"EasyThread" lateral run tee fitting



Type	Tube OD	D1	D2	L1	L2	L3	HEX1	oz
24 1/4 1/8	1/4	Easy 1/8	.472	.197	.709	.866	1/2	.881
24 1/4 1/4	1/4	Easy 1/4	.472	.236	.846	.866	1/2	.981
24 3/8 1/4	3/8	Easy 1/4	.630	.236	.866	1.024	5/8	1.594
24 3/8 3/8	3/8	Easy 3/8	.630	.236	.984	1.024	5/8	1.791
24 1/2 3/8	1/2	Easy 3/8	.787	.236	1.004	1.122	13/16	2.582
24 1/2 1/2	1/2	Easy 1/2	.787	.335	1.280	1.122	13/16	3.002
24 06 1/8	6	Easy 1/8	.472	.177	.709	.866	1/2	.921
24 06 1/4	6	Easy 1/4	.472	.236	.846	.866	1/2	1.030
24 08 1/4	8	Easy 1/4	.551	.236	.846	.886	1/2	1.168
24 10 1/4	10	Easy 1/4	.630	.236	.866	1.024	5/8	1.534
24 10 3/8	10	Easy 3/8	.630	.236	.984	1.024	5/8	1.711
24 12 3/8	12	Easy 3/8	.748	.236	1.004	1.122	13/16	2.226
24 12 1/2	12	Easy 1/2	.748	.335	1.280	1.122	13/16	2.681

cmatic®
PNEUMATIC FITTINGS

PX LINE

316L Stainless Steel Push-in Fittings, Inch/NPT

NSF COMPONENT

The push-in fittings of the PX line are manufactured according to the American Standards (Inch tubings and NPT threads) and are made of AISI 316L (1.4404). They allow for connections in environments and applications, where any standard fitting would be incompatible for use.

PX

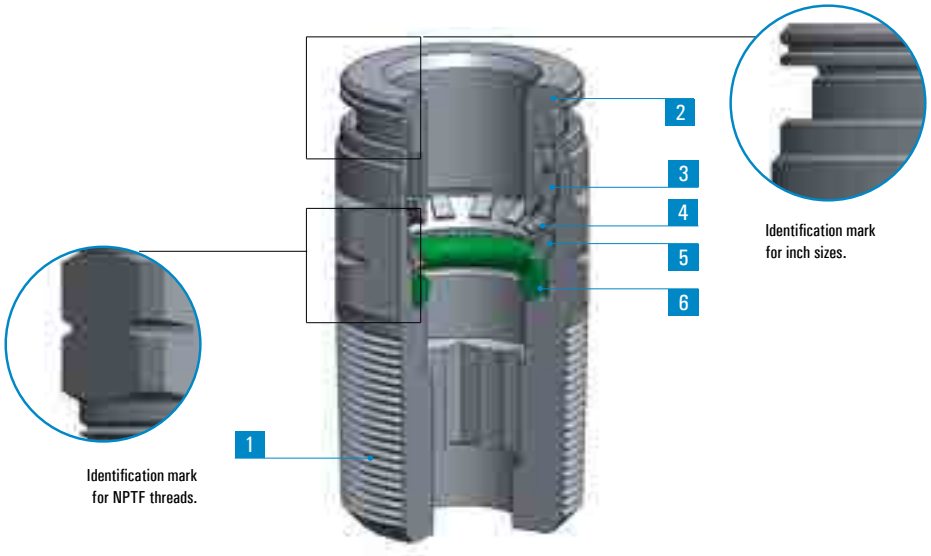
1 - 2	3	4	5	6
Body and Release Ring	Gripping ring	Holding Ring	Protection Ring	Seals
Stainless Steel AISI 316L (1.4404)	Stainless steel AISI 301	Stainless Steel AISI 316L (1.4404)	Stainless Steel AISI 316L (1.4404)	FPM

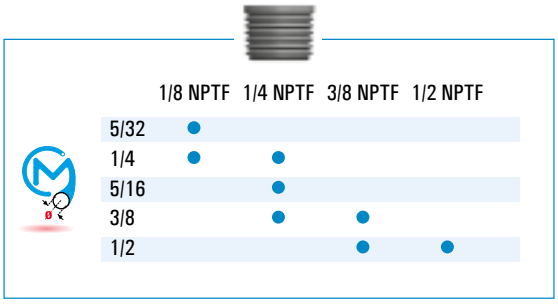
- 4°F÷ 356°F Max 290 PSI - 29" Hg

DATA SHEET

Recommended tubings:
PVDF, PTFE and Stainless steel tubes (for rigid hose assembly see the instructions above).
Acceptable Tolerances on the tubings:
.003 up to Ø 3/8"
.004 Ø 1/2".

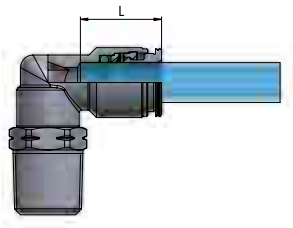
Application fields:
Pneumatics, Food Industry, Chemical, Medical and Pharmaceutical Industry.





	1/8 NPTF	1/4 NPTF	3/8 NPTF	1/2 NPTF
5/32	●			
1/4	●	●		
5/16		●		
3/8		●	●	
1/2			●	●

Tubing insertion depth



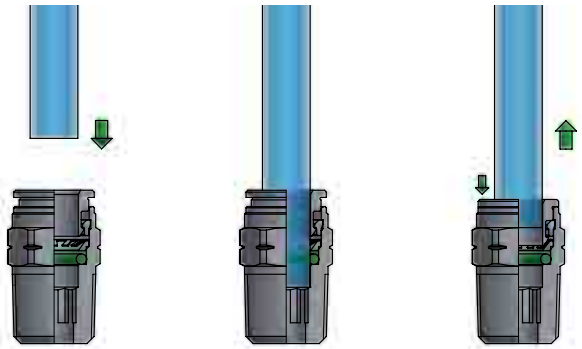
Tube OD	L
5/32	.520
1/4	.634
5/16	.637
3/8	.720
1/2	.767

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval. In case of use with metal hoses, make a groove all around the tube diameter with a suitable tool (TINC).The groove must be made according to the tube diameter so that the fitting collect can better grip onto it.
2. Insert the tube into the fitting until it bottoms.

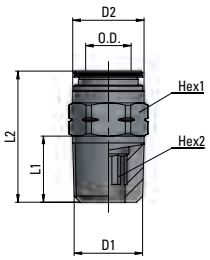
Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.
To tighten threads, please check out our tightening torque chart illustrated at page 6.



PX 11

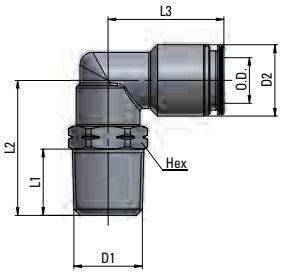
Taper straight, male



Type	Tube OD	D1 NPTF	D2	L1	L2	HEX1	HEX2	oz
11 5/32 1/8	5/32	1/8	.374	.335	.768	.472	1/8	.346
11 1/4 1/8	1/4	1/8	.472	.335	.866	.512	5/32	.385
11 1/4 1/4	1/4	1/4	.472	.512	.965	.551	5/32	.642
11 5/16 1/4	5/16	1/4	.551	.512	1.004	.551	1/4	.572
11 3/8 1/4	3/8	1/4	.630	.512	1.260	.669	1/4	.925
11 3/8 3/8	3/8	3/8	.630	.512	1.004	.709	5/16	.914
11 1/2 3/8	1/2	3/8	.787	.512	1.161	.827	13/32	1.126
11 1/2 1/2	1/2	1/2	.787	.669	1.201	.866	13/32	1.641

PX 15

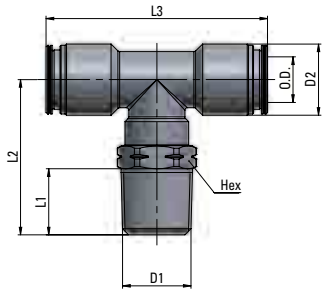
Taper swivelling elbow fitting, male



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
15 5/32 1/8	5/32	1/8	.374	.335	.748	.689	.472	.445
15 1/4 1/8	1/4	1/8	.472	.335	.827	.846	.512	.741
15 1/4 1/4	1/4	1/4	.472	.512	1.024	.846	.551	.893
15 5/16 1/4	5/16	1/4	.551	.512	1.024	.886	.551	.964
15 3/8 1/4	3/8	1/4	.630	.512	1.142	1.024	.669	1.454
15 3/8 3/8	3/8	3/8	.630	.512	1.142	1.024	.709	1.518
15 1/2 3/8	1/2	3/8	.787	.512	1.280	1.122	.827	2.386
15 1/2 1/2	1/2	1/2	.787	.669	1.457	1.122	.866	2.722

PX 20

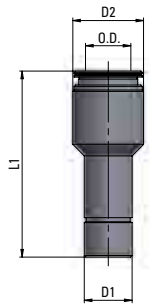
Swivelling tee fitting, taper



Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
20 5/32 1/8	5/32	1/8	.374	.335	.886	1.378	.472	.657
20 1/4 1/8	1/4	1/8	.472	.335	1.004	1.654	.512	1.034
20 1/4 1/4	1/4	1/4	.472	.512	1.201	1.654	.551	1.193
20 5/16 1/4	5/16	1/4	.551	.512	1.201	1.693	.551	1.313
20 3/8 1/4	3/8	1/4	.630	.512	1.260	1.969	.669	2.273
20 3/8 3/8	3/8	3/8	.630	.512	1.260	1.969	.709	2.351

PX 25

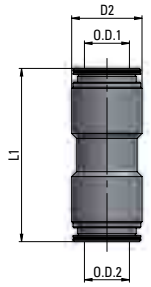
Reducer



Type	Tube OD	D1	D2	L1	oz
25 5/32 1/4	5/32	1/4	.374	1.240	.272
25 1/4 5/16	1/4	5/16	.472	1.358	.413
25 1/4 3/8	1/4	3/8	.472	1.358	.487
25 5/16 3/8	5/16	3/8	.551	1.437	.544

PX 26

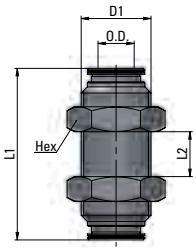
Union



Type	Tube OD1	Tube OD2	D2	L1	oz
26 5/32 5/32	**5/32**	**5/32**	.374	1.102	.311
26 1/4 1/4	**1/4**	**1/4**	.472	1.323	.519
26 5/16 5/16	**5/16**	**5/16**	.551	1.339	.695
26 3/8 3/8	**3/8**	**3/8**	.630	1.520	.946
26 1/2 1/2	**1/2**	**1/2**	.787	1.614	1.553

PX 27

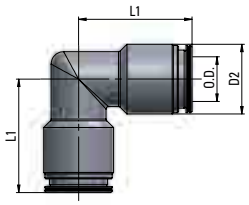
Bulkhead union



Type	Tube OD	D1	L1	L2	HEX	oz
27 5/32 5/32	**5/32**	M12x1	1.102	.315	.630	.699
27 1/4 1/4	**1/4**	**M14x1**	1.339	.571	.709	1.108
27 5/16 5/16	**5/16**	**M16x1**	1.339	.571	.827	1.278
27 3/8 3/8	**3/8**	**M18x1**	1.535	.689	.866	1.709
27 1/2 1/2	**1/2**	**M22x1.5**	1.614	.728	1.024	2.183

PX 28

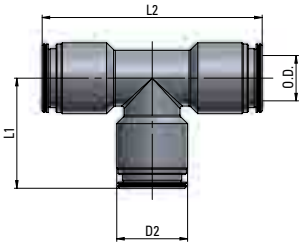
Union elbow



Type	Tube OD	D2	L1	oz
28 5/32 5/32	**5/32**	.374	.689	.448
28 1/4 1/4	**1/4**	.472	.827	.597
28 5/16 5/16	**5/16**	.551	.886	.872
28 3/8 3/8	**3/8**	.630	.984	1.536
28 1/2 1/2	**1/2**	.787	1.063	1.800

PX 29

Union tee



Type	Tube OD	D2	L1	L2	oz
29 5/32 5/32	**5/32**	.374	.689	1.378	.565
29 1/4 1/4	**1/4**	.472	.827	1.654	.992
29 5/16 5/16	**5/16**	.551	.846	1.693	1.165
29 3/8 3/8	**3/8**	.630	.984	1.969	2.040
29 1/2 1/2	**1/2**	.787	1.063	2.126	2.471

cmatic®
PNEUMATIC FITTINGS

PM LINE

Medium Pressure Push-in Fittings, 1,160 psi Inch/NPT

The push-in fittings of the PM line are manufactured according to the American Standards (inch Tubings and NPT Threads). They are conceived to work up to 1,1160 psi in central grease application

PM

1	2	3
Body	Gripping collet	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated	Brass UNI EN 12164 CW614N Nickel Plated	NBR

-4°F ÷ 176°F

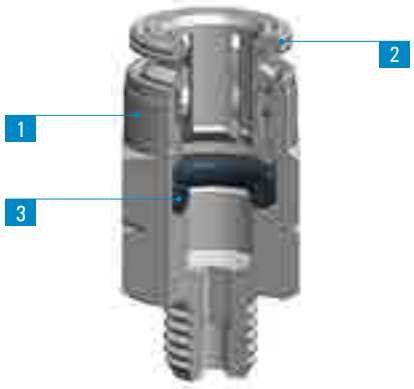
Max 1.160 PSI

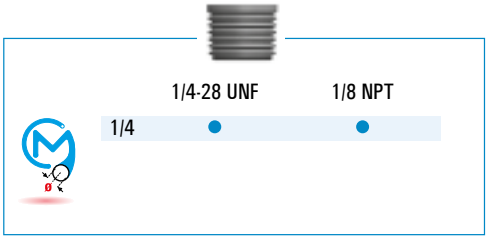
DATA SHEET

Recommended tubings:
PA6-6, PA12 HR
Acceptable Tolerances on the tubings:
0.003 up to Ø 1/4.

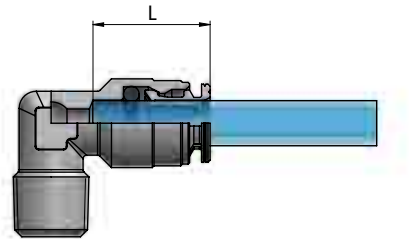
Application fields:
Lubrication installations.

The max pressure rate achievable can vary depending on the tubing used and on the room temperature. These two factors may in fact lower the tube bursting pressure.





Tubing insertion depth



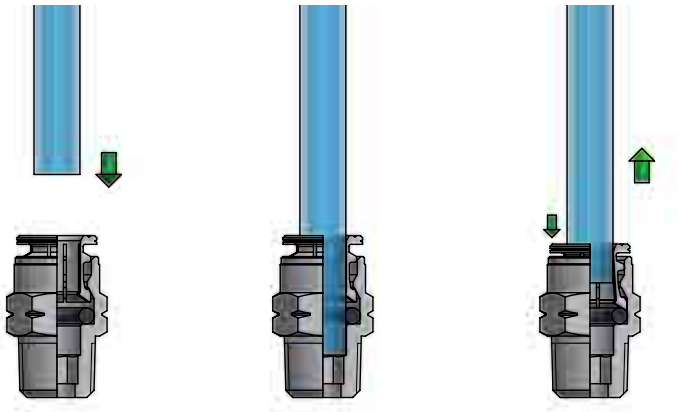
Tube OD	L
1/4	.669

ASSEMBLY INSTRUCTIONS

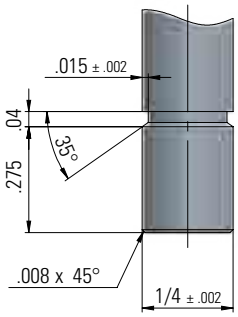
1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.
2. Insert the tube into the fitting until it bottoms.

Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.
To tighten threads, please check out our tightening torque chart illustrated at page 6.

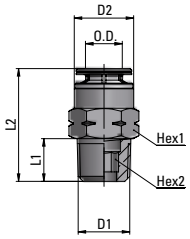


If a metal stem is connected to the fitting, the stem has to be manufactured according to the profile and sizes as set forth below. Should the fitting be connected to a metal stem not complying to the technical features recommended, the fitting may get irreversibly damaged and its function would no longer be guaranteed.



PM 11

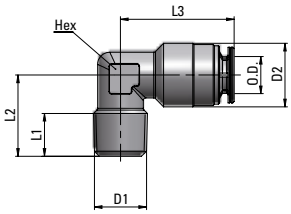
Taper straight, male



Type	Tube OD	D1 UNF	D1 NPTF	D2	L1	L2	HEX1	HEX2	oz
11 1/4 1/8	**1/4**	-	**1/8**	.465	.335	.886	.472	.197	.330
11 1/4 1/4-28	**1/4**	**1/4-28**	-	.465	.236	.965	.472	.098	.385

PM 14

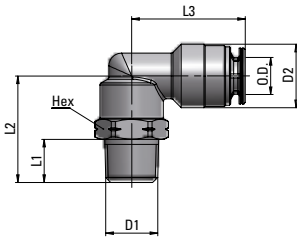
Taper elbow fitting, male



Type	Tube OD	D1 UNF	D2 NPTF	D2	L1	L2	L3	HEX	oz
14 1/4 1/8	**1/4**	-	**1/8**	.492	.323	.630	0.866	.394	.532
14 1/4 1/4-28	**1/4**	**1/4-28**	-	.492	.236	.591	0.866	.394	.527

PM 15

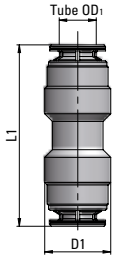
Taper swivelling elbow fitting, male



Type	Tube OD	D1 UNF	D1 NPTF	D2	L1	L2	L3	HEX	oz
15 1/4 1/8	**1/4**	-	**1/8**	.492	.335	.827	.886	.512	.860
15 1/4 1/4-28	**1/4**	**1/4-28**	-	.492	.236	.728	.886	.512	.748

PM 26

Union



Type	Tube OD1	Tube OD2	D1	L1	oz
26 1/4 1/4	**1/4**	**1/4**	.512	1.398	.596

cmatic®
PNEUMATIC FITTINGS

MM LINE

Misting Push-in Fittings, 1,160 psi Inch/NPT

MM is our new line of misting fittings. Cmatic is now using all its know-how and experience in high pressure connections for a completely new purpose. To create "Misting"Water at 80 bar pressure is channelled through hoses and sprayed through nozzles as millions of very fine mist drops, creating that way a refreshing effect all around a specific area.
Misting, as a cost effective, energy saving and non polluting technique is used both in industrial and commercial fields to control odours and humidity, to set dusts, to cool down indoor and outdoor temperatures.

MM

1	2	3
Body	Gripping ring	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated	Brass UNI EN 12164 CW614xN Nickel Plated	NBR

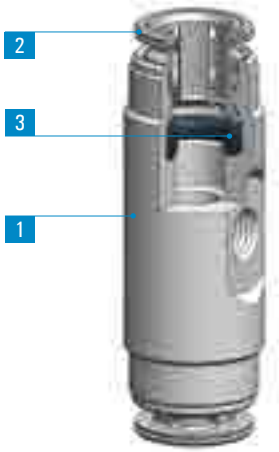
-4°F ÷ 176°F

Max 1,160 PSI

DATA SHEET

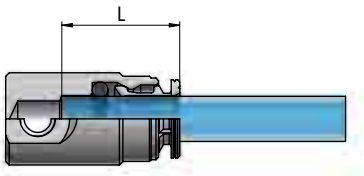
Recommended tubings:
PA12 HR
Acceptable Tolerances on the tubings:
003 up to Ø 3/8"
.004 Ø 1/2".

Application fields:
Misting circuits



	1/4 NPTF	3/8 NPTF	1/2 NPTF	G1/4
1/4	●			●
3/8	●	●		●
1/2			●	

Tubing insertion depth



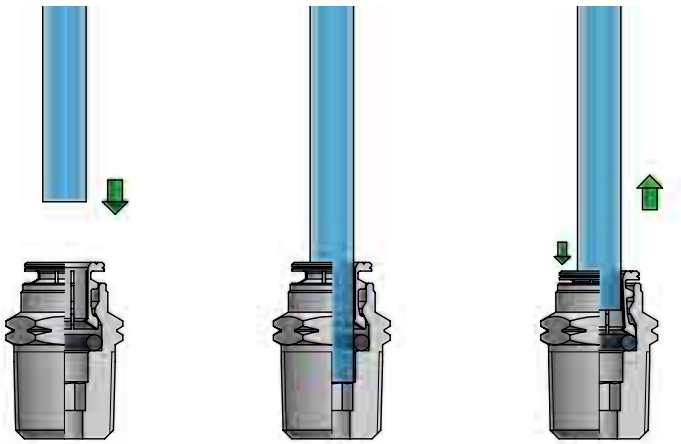
Tube OD	L
1/4	.669
3/8	.728
1/2	.803

ASSEMBLY INSTRUCTIONS

1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.
2. Insert the tube into the fitting until it bottoms.

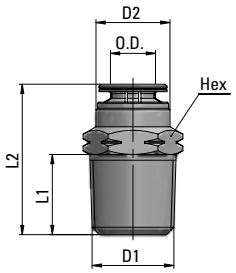
Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.
To tighten threads, please check out our tightening torque chart illustrated at page 6.



MM 11

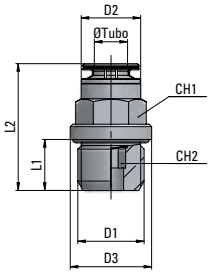
Taper straight, male



	Type	Tube OD	D1 NPT	D2	L1	L2	HEX	oz
	11 1/4 1/4	1/4	1/4	.472	.512	.965	.551	.582
	11 3/8 1/4	3/8	1/4	.630	.512	1.161	.630	.688
	11 3/8 3/8	3/8	3/8	.630	.512	1.122	.709	1.063
new	11 1/2 1/2	1/2	1/2	.748	.669	1.299	.866	1.862

MM 12

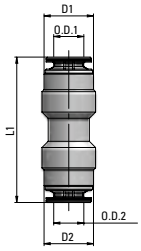
Parallel straight, male



	Type	Tube OD	D1 NPT	D2	D3	L1	L2	HEX1	HEX2	oz
new	12 1/4 G1/4	1/4	G1/4	.461	.630	.394	.980	.472	.197	.557
new	12 3/8 G1/4	3/8	G1/4	.622	.650	.394	1.240	.590	.276	.765

MM 26

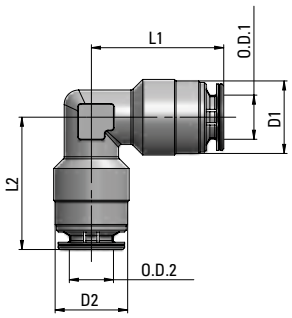
Union



	Type	Tube OD1	Tube OD2	D1	D2	L1	oz
	26 1/4 1/4	1/4	1/4	.472	.472	1.398	.600
	26 1/4 3/8	1/4	3/8	.472	.630	1.496	.851
	26 3/8 3/8	3/8	3/8	.630	.630	1.559	.946
new	26 3/8 1/2	3/8	1/2	.669	.768	1.626	1.351
new	26 1/2 1/2	1/2	1/2	.768	.768	1.693	1.372

MM 28

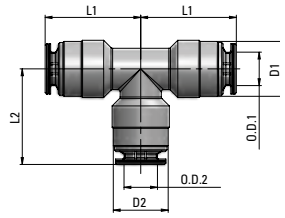
Union elbow



	Type	Tube OD1	Tube OD2	D1	D2	L1	L2	oz
	28 1/4 1/4	1/4	1/4	.472	.472	.866	.866	.635
	28 3/8 3/8	3/8	3/8	.630	.630	1.024	1.024	1.190
new	28 1/2 1/2	1/2	1/2	.768	.768	1.161	1.161	2.042

MM 29

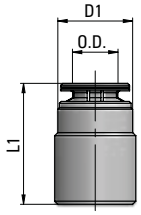
Union tee



	Type	Tube OD1	Tube OD2	D1	D2	L1	L2	oz
	29 1/4 1/4	1/4	1/4	.472	.472	.827	.827	.833
	29 3/8 3/8	3/8	3/8	.630	.630	1.024	1.024	1.672
new	29 1/2 3/8	1/2	3/8	.768	.630	1.122	1.063	2.561
new	29 1/2 1/2	1/2	1/2	.768	.768	1.122	1.122	2.579

MM 40

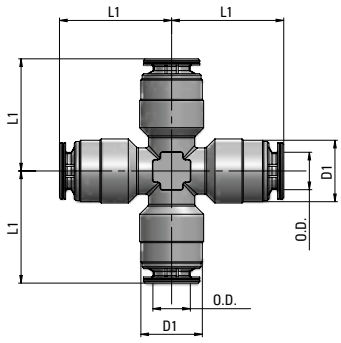
Terminal



	Type	Tube OD	D1	L1	oz
	40 001/4	1/4	.472	.768	.420
	40 00 3/8	3/8	.630	.846	.698
new	40 00 1/2	1/2	.768	.965	1.034

MM 46

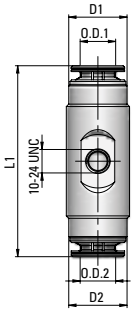
Cross fitting



Type	Tube OD	D1	L1	oz
46 1/4 1/4	1/4	.472	.965	1.468
46 3/8 3/8	3/8	.630	1.181	2.496

MM 60

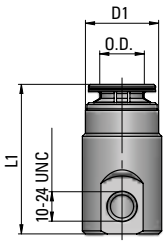
Union with nozzle port



Type	Tube OD1	Tube OD2	D1	D2	L1	oz
60 1/4 1/4	1/4	1/4	.472	.472	1.437	.819
60 3/8 3/8	3/8	3/8	.630	.630	1.634	1.368

MM 61

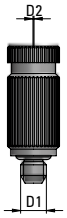
Terminal with nozzle port



Type	Tube OD	D1	L1	oz
61 00 1/4	**1/4**	.472	.965	.558
61 00 3/8	**3/8**	.630	1.063	.897

MM 99

Nozzle



Type	D1 UNC	D2	oz
99 10-24 ø0,15	10-24	.006	.349
99 10-24 ø0,20	10-24	.008	.349
99 10-24 ø0,30	10-24	.012	.349
99 10-24 ø0,40	10-24	.016	.349

The nozzles with hole 0.15 and 0.20 are generally used for cooling purposes (both in civil and in animal applications), while 0.30 and 0.40 are used primarily for dust, odors suppression and for moisturizing.

Water flow rate per nozzle size and water pressure

orifice size in	35 bar 500 psi	45 bar 640 psi	**70 bar 1000 psi**	84 bar 1200 psi	
.006	0,0330 0,0087	0,0380 0,0100	**0,0460** **0,0122**	0,0510 0,0133	l/min USGpm
.008	0,0568 0,0153	0,0643 0,0175	**0,0787** **0,0208**	0,0980 0,0258	l/min USGpm
.012	0,0790 0,0205	0,0867 0,0235	**0,1080** **0,0290**	0,1590 0,0420	l/min USGpm
.0160	0,1048 0,0282	0,1190 0,0322	**0,1483** **0,0398**	0,1950 0,0515	l/min USGpm

cmatic®
PNEUMATIC FITTINGS

PT LINE

DOT Push-in Fittings, inch/NPT

Push in fittings for Vehicles applications complying with SAE J2494-3 e SAE J1131 specs.
Cmatic PT Line is designed for use on all pneumatic circuits and assemblies except between the frame and axle, or between a towed and towing vehicle. PT also complies with DOT FMVSS §517.106 standard.

PT

1 - 2	3	4	5	6
Body and Release Ring	Holding Ring	Gripping ring	Protection Ring	Seals
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N	Resin (PEI)	Stainless steel AISI 301	Resin (PEI)	NBR (Low temperature)

-58°F ÷ 212°F

Max 290 PSI

OD 5/8; OD 3/4

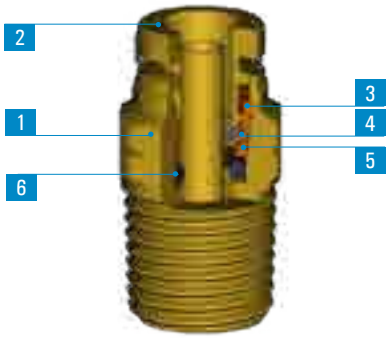
Max 200PSI

-29" Hg

DATA SHEET

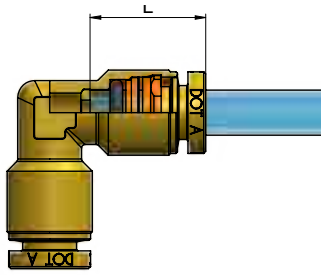
Recommended tubings:
PA Tubings complying with SAE (DOT).

Application fields:
Application Fields: Pneumatic circuits for truck and Trailers: Air Suspension, Braking Systems, Transmissions, locking doors and windows, Seat adjustment, Instrumentation, Air conditioning systems, horn, wiper motors, valves, cylinders and accessories.
PT line is suitable for all air assisted applications except those designed for use between frame and axle or between towed and towing vehicles.



	1/8 NPTF	1/4 NPTF	3/8 NPTF	1/2 NPTF	3/4 NPTF
5/32	●	●			
1/4	●	●	●		
3/8	●	●	●	●	
1/2		●	●	●	
5/8			●	●	
3/4			●	●	●

Tubing insertion depth



Tube OD	L
5/32	.547
1/4	.642
3/8	.720
1/2	.775
5/8	.917
3/4	.988

ASSEMBLY INSTRUCTIONS

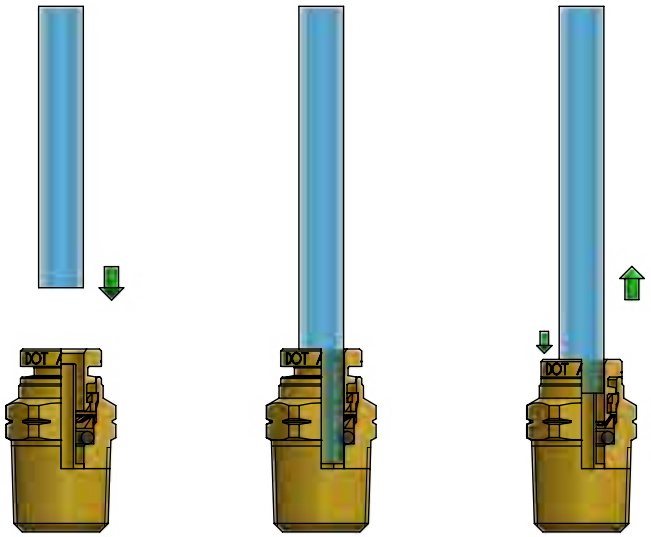
1. Cut the tube square (by means of a hose cutter i.e. our TCUT) making sure that no burrs are left and that the tube is not oval.
2. Insert the tube into the fitting until it bottoms.

Tube release
While pressing on the release ring, pull out the tube from the fitting.

Once the tubing is connected to the fitting, make sure that the tubing is not subject to any tensile strength and that the min. recommended bending radius stated in the tubing section of this catalogue is complied with (see page 363).

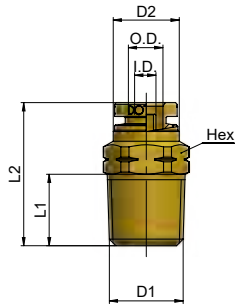
To prevent any accidental tube release, no components have to come in touch with the release ring and exercise any unwanted pressure on the same. Indeed however lateral, any load on the release ring may cause the tube disconnection.

To tighten threads, please check out our tightening torque chart illustrated at page 6.



PT 11

Taper straight, male

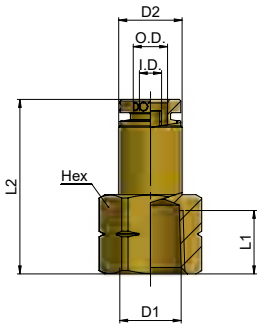


PTFE

	Type	Tube OD	Tube ID	D1 NPTF	D2	L1	L2	HEX	oz
new	11 5/32 1/8	5/32	.087	1/8	.374	.335	.827	7/16	-
new	11 5/32 1/4	5/32	.087	1/4	.374	.512	1.004	9/16	-
	11 1/4 1/8	1/4	.165	1/8	.472	.335	.925	1/2"	.415
	11 1/4 1/4	1/4	.165	1/4	.472	.512	1.024	9/16"	.700
	11 1/4 3/8	1/4	.165	3/8	.472	.512	1.063	11/16	1.178
	11 3/8 1/8	3/8	.244	1/8	.630	.335	1.161	11/16"	.846
	11 3/8 1/4	3/8	.244	1/4	.630	.512	1.299	11/16"	1.075
	11 3/8 3/8	3/8	.244	3/8	.630	.512	1.043	11/16"	1.002
	11 3/8 1/2	3/8	.244	1/2	.630	.669	1.240	7/8"	2.127
	11 1/2 1/4	1/2	.362	1/4	.787	.512	1.406	13/16"	1.423
	11 1/2 3/8	1/2	.362	3/8	.787	.512	1.209	13/16"	1.229
	11 1/2 1/2	1/2	.362	1/2	.787	.669	1.248	7/8"	1.794
new	11 5/8 3/8	5/8	.433	3/8	.925	.512	1.594	1"	-
new	11 5/8 1/2	5/8	.433	1/2	.925	.669	1.496	1"	-
new	11 3/4 3/8	3/4	.559	3/8	1.043	.512	1.713	1" 1/16	-
new	11 3/4 1/2	3/4	.559	1/2	1.043	.669	1.791	1" 1/16	-
new	11 3/4 3/4	3/4	.559	3/4	1.043	.669	1.535	1" 1/16	-

PT 13

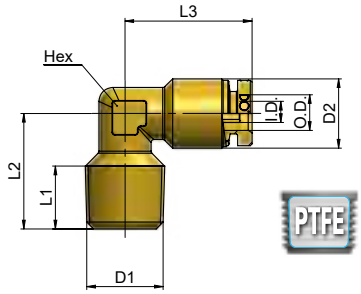
Female straight



	Type	Tube OD	Tube ID	D1	D2	L1	L2	HEX	oz
new	13 5/32 1/8	5/32	.087	1/8	.335	.335	1.043	1/2	-
	13 1/4 1/8	1/4	.165	1/8	.472	.335	1.122	1/2	.564
	13 1/4 1/4	1/4	.165	1/4	.472	.492	1.299	11/16"	.995
	13 3/8 1/4	3/8	.165	1/4	.630	.492	1.378	11/16"	.774
	13 3/8 3/8	3/8	.244	3/8	.630	.492	1.378	13/16"	1.421
new	13 3/8 1/2	3/8	.244	1/2	.630	.492	1.516	1"	-
new	13 1/2 1/4	1/2	.362	1/4	.787	.472	1.386	13/16"	-
new	13 1/2 3/8	1/2	.362	3/8	.787	.472	1.445	7/8"	-
new	13 1/2 1/2	1/2	.362	1/2	.787	.472	1.543	1"	-

PT 14

Taper elbow fitting, male

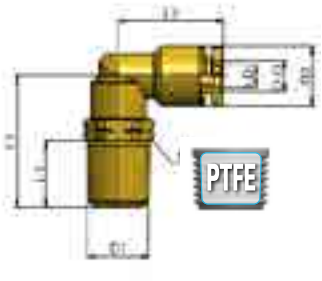


PTFE

	Type	Tube OD	Tube ID	D1 NPTF	D2	L1	L2	L3	HEX	oz
new	14 5/32 1/8	5/32	.085	1/4	.374	.331	.630	.748	.394	-
	14 1/4 1/8	1/4	.165	1/8	.472	.335	.630	.807	.394	.517
	14 1/4 1/4	1/4	.165	1/4	.472	.433	.787	.807	.394	-
	14 3/8 1/4	3/8	.244	1/4	.630	.472	.886	.984	.472	1.146
	14 3/8 3/8	3/8	.244	3/8	.630	.433	.886	.984	.472	1.258

PT 15

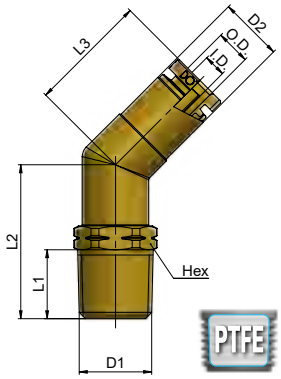
Taper swivelling elbow fitting, male



	Type	Tube OD	Tube ID	D1	D2	L1	L2	L3	HEX	oz
new	15 5/32 1/8	5/32	.087	1/8	.354	.335	.728	.748	7/16"	-
new	15 5/32 1/4	5/32	.087	1/4	.354	.512	1.031	.827	9/16"	-
	15 1/4 1/8	1/4	.165	1/8	.472	.335	.835	.925	1/2"	.741
	15 1/4 1/4	1/4	.165	1/4	.472	.512	1.031	.925	9/16"	.904
	15 1/4 3/8	1/4	.165	3/8	.472	.512	1.051	.925	11/16	1.142
	15 3/8 1/8	3/8	.244	1/8	.630	.335	.945	1.063	11/16"	1.461
	15 3/8 1/4	3/8	.244	1/4	.630	.512	1.122	1.063	11/16"	1.562
	15 3/8 3/8	3/8	.244	3/8	.630	.512	1.122	1.063	11/16"	1.613
	15 3/8 1/2	3/8	.244	1/2	.630	.669	1.339	1.063	7/8"	2.256
	15 1/2 1/4	1/2	.362	1/4	.787	.512	1.260	1.169	13/16"	2.592
	15 1/2 3/8	1/2	.362	3/8	.787	.512	1.260	1.169	13/16"	2.409
	15 1/2 1/2	1/2	.362	1/2	.787	.669	1.437	1.169	7/8"	2.880
	15 5/8 3/8	5/8	.433	3/8	.945	.512	1.398	1.417	7/8"	-
new	15 5/8 1/2	5/8	.433	1/2	.945	.669	1.555	1.417	7/8"	-
new	15 5/8 3/4	5/8	.433	3/4	.945	.669	1.555	1.417	1" 1/16	-
new	15 3/4 3/8	3/4	.559	3/8	1.063	.512	1.398	1.496	7/8"	-
new	15 3/4 1/2	3/4	.559	1/2	1.063	.669	1.555	1.496	7/8"	-
new	15 3/4 3/4	3/4	.559	3/4	1.063	.669	1.555	1.496	1" 1/16	-

PT 15-45

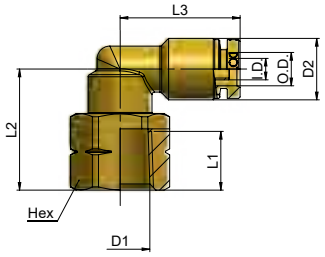
Swivelling elbow fitting, male 45°



	Type	Tube OD	Tube ID	D1	D2	L1	L2	L3	HEX	oz
new	15 1/4 1/8 45°	1/4	.165	1/8	.472	.335	.906	.886	1/2"	-
new	15 1/4 1/4 45°	1/4	.165	1/4	.472	.512	1.102	.886	9/16"	-
new	15 3/8 1/4 45°	3/8	.244	1/4	.630	.512	1.142	1.024	11/16"	-
new	15 3/8 3/8 45°	3/8	.244	3/8	.630	.512	1.161	1.024	11/16"	-
new	15 3/8 1/2 45°	3/8	.244	1/2	.630	.669	1.378	1.024	7/8"	-
new	15 1/2 3/8 45°	1/2	.362	3/8	.787	.512	1.260	1.130	13/16"	-
new	15 1/2 1/2 45°	1/2	.362	1/2	.787	.669	1.437	1.130	7/8"	-

PT 17

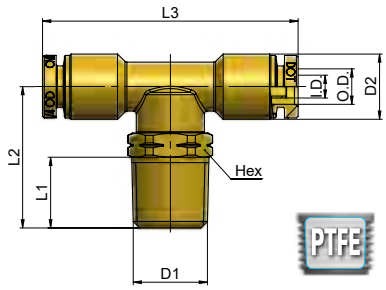
Swivelling elbow fitting, female



	Type	Tube OD	Tube ID	D1	D2	L1	L2	L3	HEX	oz
new	17 5/32 1/8	5/32	.087	1/8	.354	.295	.776	.748	9/16"	-
new	17 5/32 1/4	5/32	.087	1/4	.354	.453	.933	.827	11/16"	-
new	17 1/4 1/8	1/4	.165	1/8	.472	.295	.776	.925	9/16"	-
new	17 1/4 1/4	1/4	.165	1/4	.472	.453	.933	.925	11/16"	-
new	17 3/8 1/4	3/8	.244	1/4	.630	.453	1.004	1.063	11/16"	-
new	17 3/8 3/8	3/8	.244	3/8	.630	.453	1.004	1.063	13/16"	-
new	17 1/2 3/8	1/2	.362	3/8	.787	.453	1.102	1.169	13/16"	-
new	17 1/2 1/2	1/2	.362	1/2	.787	.531	1.220	1.169	1"	-

PT 20

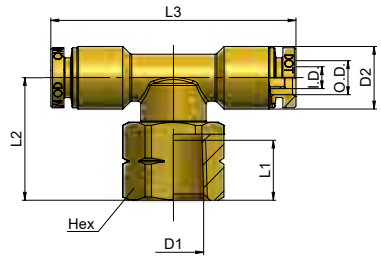
Swivelling tee fitting, taper



	Type	Tube OD	Tube ID	D1 NPTF	D2	L1	L2	L3	HEX	oz
new	20 5/32 1/8	5/32	.087	1/8	.354	.335	.835	1.654	1/2"	-
new	20 5/32 1/4	5/32	.087	1/4	.354	.512	1.031	1.654	9/16"	-
	20 1/4 1/8	1/4	.165	1/8	.472	.335	.835	1.850	1/2"	1.217
	20 1/4 1/4	1/4	.165	1/4	.472	.512	1.031	1.850	9/16"	1.184
new	20 1/4 3/8	1/4	.165	3/8	.472	.512	1.051	1.850	11/16"	-
new	20 3/8 1/8	3/8	.244	1/8	.630	.335	.945	2.126	11/16"	-
	20 3/8 1/4	3/8	.244	1/4	.630	.512	1.122	2.126	11/16"	2.111
	20 3/8 3/8	3/8	.244	3/8	.630	.512	1.122	2.126	11/16"	2.159
new	20 3/8 1/2	3/8	.244	1/2	.630	.669	1.339	2.126	7/8"	-
new	20 1/2 1/4	1/2	.362	1/4	.787	.512	1.260	2.339	13/16"	-
	20 1/2 3/8	1/2	.362	3/8	.787	.512	1.260	2.339	13/16"	3.183
	20 1/2 1/2	1/2	.362	1/2	.787	.669	1.437	2.339	7/8"	3.634

PT 20-F

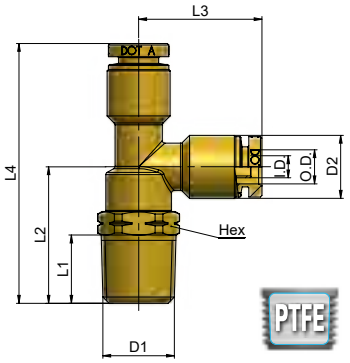
Swivelling tee fitting, female



	Type	Tube OD	Tube ID	D1	D2	L1	L2	L3	HEX	oz
new	20 1/4 1/4 -F	1/4	.165	1/4	.472	.453	.933	1.850	11/16"	-
new	20 3/8 1/4 -F	3/8	.244	1/4	.630	.453	1.004	2.126	11/16"	-
new	20 3/8 3/8 -F	3/8	.244	3/8	.630	.453	1.004	2.126	13/16"	-
new	20 1/2 3/8 -F	1/2	.362	3/8	.787	.453	1.102	2.339	13/16"	-
new	20 1/2 1/2 -F	1/2	.362	1/2	.787	.531	1.220	2.339	1"	-

PT 23

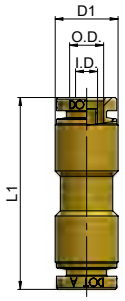
Lateral run tee fitting, taper



	Type	Tube OD	Tube ID	D1 NPTF	D2	L1	L2	L3	L4	HEX	oz
new	23 5/32 1/8	5/32	.087	1/8	.354	.335	.835	.827	1.654	1/2"	-
new	23 5/32 1/4	5/32	.087	1/4	.354	.512	1.031	.827	1.850	9/16"	-
	23 1/4 1/8	1/4	.165	1/8	.472	.335	.835	.925	1.752	1/2"	1.026
	23 1/4 1/4	1/4	.165	1/4	.472	.512	1.031	.925	1.949	9/16"	1.192
new	23 1/4 3/8	1/4	.165	3/8	.472	.512	1.051	.925	1.969	11/16"	-
	23 3/8 1/4	3/8	.244	1/4	.630	.512	1.122	1.063	2.185	11/16"	-
	23 3/8 3/8	3/8	.244	3/8	.630	.512	1.122	1.063	2.185	11/16"	2.151
new	23 3/8 1/2	3/8	.244	1/2	.630	.669	1.339	1.063	2.402	7/8"	-
new	23 1/2 1/4	1/2	.362	1/4	.787	.512	1.260	1.169	2.429	13/16"	-
	23 1/2 3/8	1/2	.362	3/8	.787	.512	1.260	1.169	2.429	13/16"	3.214
	23 1/2 1/2	1/2	.362	1/2	.787	.669	1.437	1.169	2.606	7/8"	3.650

PT 26

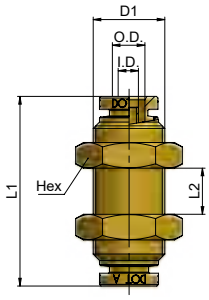
Union



	Type	Tube OD	Tube ID	D1	L1	oz
new	26 5/32 5/32	5/32	.087	.354	1.220	-
	26 1/4 1/4	1/4	.165	.472	1.323	1.021
	26 3/8 3/8	3/8	.244	.630	1.520	1.111
	26 1/2 1/2	1/2	.362	.787	1.614	3.214
new	26 5/8 5/8	5/8	.433	.945	2.047	-
new	26 3/4 3/4	3/4	.559	1.102	2.244	-

PT 27

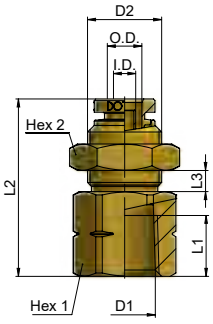
Bulkhead union



	Type	Tube OD	Tube ID	D1	L1	L2	HEX	oz
new	27 5/32 5/32	5/32	.087	M12x1	1.220	.571	.709	-
	27 1/4 1/4	1/4	.165	M14x1	1.457	.571	.709	.623
	27 3/8 3/8	3/8	.244	M18x1	1.614	.689	.866	2.120
	27 1/2 1/2	1/2	.362	M22x1,5	1.709	.728	1.024	2.969
new	27 5/8 5/8	5/8	.433	M26x1,5	2.047	.866	1.260	-

PT 27-F

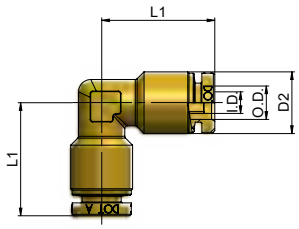
Bulkhead union female



	Type	Tube OD	Tube ID	D1	D2	L1	L2	L3	HEX1	HEX2	oz
new	27 5/32 1/4 -F	5/32	.087	1/4	M12x1	1.220	.453	.276	11/16"	.630	-
new	27 1/4 1/8 -F	1/4	.165	1/8	M14x1	1.122	.295	.315	11/16"	.709	-
new	27 1/4 1/4 -F	1/4	.165	1/4	M14x1	1.319	.453	.315	11/16"	.709	-
new	27 3/8 1/4 -F	3/8	.244	1/4	M18x1	1.378	.453	.394	7/8"	.866	-
new	27 3/8 3/8 -F	3/8	.244	3/8	M18x1	1.417	.453	.394	7/8"	.866	-
new	27 3/8 1/2 -F	3/8	.244	1/2	M18x1	1.535	.531	.394	1"	.866	-
new	27 1/2 3/8 -F	1/2	.362	3/8	M22x1,5	1.465	.453	.472	1"	.945	-
new	27 1/2 1/2 -F	1/2	.362	1/2	M22x1,5	1.583	.531	.472	1"	.945	-

PT 28

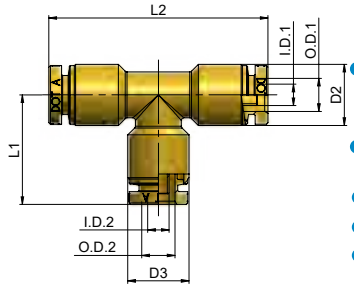
Union elbow



	Type	Tube OD	Tube ID	D2	L1	oz
new	**28 5/32 5/32**	**5/32**	.087	.354	.748	-
	28 1/4 1/4	**1/4**	.165	.472	.866	.639
	28 3/8 3/8	**3/8**	.244	.630	1.024	1.347
	28 1/2 1/2	**1/2**	.362	.787	1.110	2.161
new	**28 5/8 5/8**	**5/8**	.433	.945	1.378	-

PT 29

Union tee

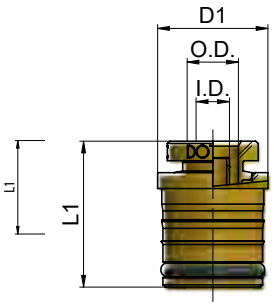


	Type	Tube OD1	Tube ID1	Tube OD2	Tube ID2	D2	D3	L1	L2	oz
new	**29 5/32 5/32**	**5/32**	.087	**5/32**	.087	**.354**	**.354**	**.748**	**1.496**	-
	29 1/4 1/4	**1/4**	.165	**1/4**	.165	**.472**	**.472**	**.846**	**1.693**	**.882**
	29 3/8 3/8	**3/8**	.244	**3/8**	.244	**.630**	**.630**	**1.004**	**2.008**	**1.852**
new	**29 3/8 1/4**	**3/8**	.244	**1/4**	.165	**.945**	**.472**	**.945**	**2.008**	-
	29 1/2 1/2	**1/2**	.362	**1/2**	.362	**.787**	**.787**	**1.063**	**2.220**	**2,948**
new	**29 1/2 1/4**	**1/2**	.362	**1/4**	.165	**.945**	**.472**	**1.024**	**2.220**	-
new	**29 1/2 3/8**	**1/2**	.362	**3/8**	.244	**.945**	**.630**	**1.102**	**2.220**	-
new	**29 5/8 5/8**	**5/8**	.433	**5/8**	.433	**.945**	**.945**	**1.378**	**2.756**	-

PT 10

Press-in cartridge

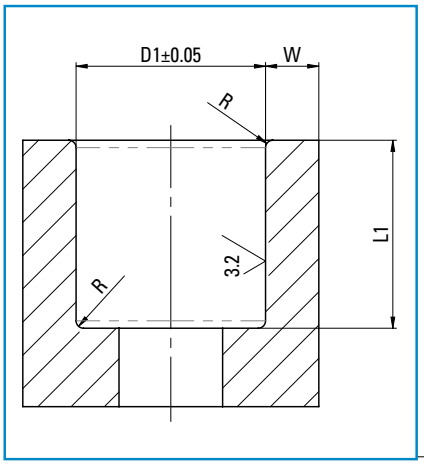
PT10 is Cmatic push in cartridge solution developed for applications where compactness is required and designed to be installed into Aluminum T6061 cavities according to SAE J2494-4 Standard. Cavities made from materials other than T6061 T6 SHALL be adjusted dimensionally so that when installed the tube/cartridge/cavity assembly will pass the applicable tests in SAE J1131 and SAE J2494-3.

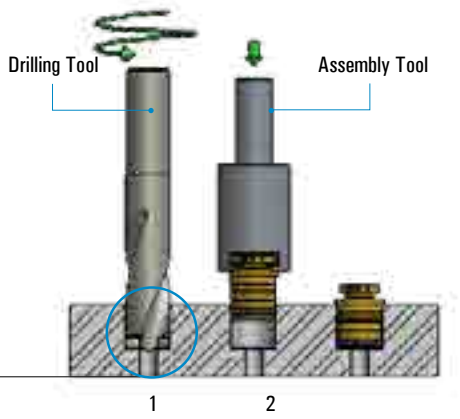


Type	Tube O.D.	Tube I.D.	D1	L1	oz
10 5/32 00	**5/32**	**.087**	.366	.571	.127
10 1/4 00	**1/4**	**.165**	.472	.650	.212
10 3/8 00	**3/8**	**.244**	.602	.748	.363

Cartridge cavity size according to SAE J2494-4

Tube O.D.	D1	L1	W	R
5/32	.346	.449	.079	.020
1/4	.504	.500	.079	.020
3/8	.650	.650	.079	.020





1 Drill the cartridge seat, following the instructions given.

2 Before insert the cartridge into the cavity please apply some lubricant on the external cartridge O-ring.

3 Manually press the cartridge into the seat and by means of the Assembly tool push it all the way down until it bottoms; this will guarantee the proper cartridge assembly.

"Drilling and Assembly Tool "available upon request.

cmatic®
PNEUMATIC FITTINGS

PA LINE

Brass Nickel-Plated Standard Fittings, NPT

The PA line, also known as the "Accessories line" or the "Standard fittings line" consists of a wide variety of components, such as Nipples, Reduction pieces, Connections, Plugs, Hose connections, L-T and Cross fittings. Due to the multiple auxiliary functions of this line, the PA fittings are the right complement for other ranges.
All components are brass nickel-plated.

PA

1
Fitting Body
Brass UNI EN 12164 CW614N - UNI EN 12165 CW617N Nickel Plated

-40°F ÷ 302°F

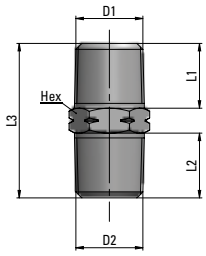
Max 870 PSI

Application fields:
Pneumatic, hydraulic and oleodynamic circuits.

10-32 UNF	G1/8	G1/4	G3/8	G1/2	1/8 NPTF	1/4 NPTF	3/8 NPTF	1/2 NPTF
●	●	●	●	●	●	●	●	●

PA 11

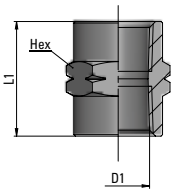
Nipple, taper



Type	D1 NPTF	D2 NPTF	L1	L2	L3	HEX	oz
11 1/8 1/8	1/8	1/8	.334	.334	.827	.472	-
11 1/4 1/4	1/4	1/4	.512	.512	1.220	.551	-
11 3/8 3/8	3/8	3/8	.512	.512	1.260	.709	-
11 1/2 1/2	1/2	1/2	.669	.669	1.614	.866	-

PA 13

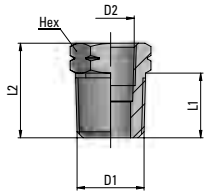
Joint Piece



Type	D1 NPTF	L1	HEX	oz
13 1/8 1/8	1/8	.709	.551	-
13 1/4 1/4	1/4	.906	.709	-
13 3/8 3/8	3/8	.984	.866	-
13 1/2 1/2	1/2	1.260	1.024	-

PA 14

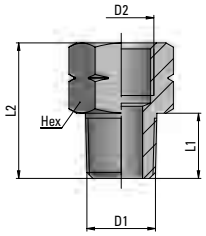
Taper female-male reducing connector



Type	D1 NPTF	D2 NPTF	L1	L2	HEX	oz
14 1/8 10-32	1/8	10-32 UNF	.335	.591	.472	-
14 1/4 1/8	1/4	1/8	.512	.748	.551	.434
14 3/8 1/8	3/8	1/8	.512	.748	.709	-
14 3/8 1/4	3/8	1/4	.512	.748	.709	.635
14 1/2 1/4	1/2	1/4	.669	.945	.866	-
14 1/2 3/8	1/2	3/8	.669	.945	.866	-

PA 16

Adaptor male-female, taper

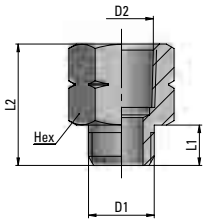


Type	D1 UNF	D2 BSP	L1	L2	HEX	oz
16 10-32 M5	10-32	M5x0.8	.197	.472	.315	.424

Type	D1 NPTF	D2 BSP	L1	L2	HEX	oz
16 1/8 1/8	1/8	G1/8	.335	.748	.709	.424
16 1/4 1/4	1/4	G1/4	.512	1.063	.709	.935
16 3/8 3/8	3/8	G3/8	.512	1.063	.866	1.359
16 1/2 1/2	1/2	G1/2	.669	1.339	1.063	2.347

PA 17

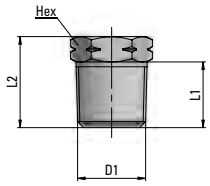
Adaptor male-female, parallel



Type	D1 BSP	D2 NPTF	L1	L2	HEX	oz
17 1/8 1/8	G1/8	1/8	.236	.709	.551	.441
17 1/4 1/4	G1/4	1/4	.315	.945	.709	.953
17 3/8 3/8	G3/8	3/8	.354	.984	.866	1.747
17 1/2 1/2	G1/2	1/2	.394	1.181	.945	1.765

PA 19

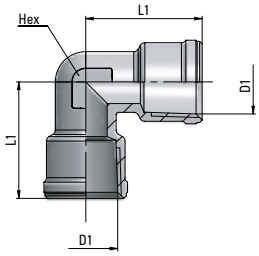
Male plug



Type	D1 NPTF	L1	L2	HEX	oz
19 00 1/8	1/8	.335	.492	.472	.229
19 00 1/4	1/4	.512	.709	.551	.512
19 00 3/8	3/8	.512	.709	.709	.865
19 00 1/2	1/2	.669	.906	.866	-

PA 21

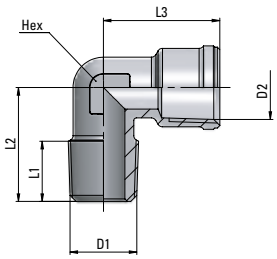
Female elbow



Type	D1 NPTF	L1	HEX	oz
21 1/8 1/8	1/8	.709	.394	-
21 1/4 1/4	1/4	.906	.472	-
21 3/8 3/8	3/8	1.024	.591	-
21 1/2 1/2	1/2	1.339	.709	-

PA 22

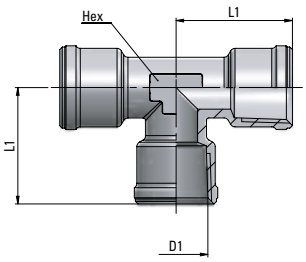
Male-Female elbow



Type	D1 NPTF	D2 NPTF	L1	L2	L3	HEX	oz
22 1/8 1/8	1/8	1/8	.335	.689	.709	.394	1.358
22 1/4 1/4	1/4	1/4	.472	.886	.906	.472	1.235
22 3/8 3/8	3/8	3/8	.472	1.004	1.024	.591	-
22 1/2 1/2	1/2	1/2	.630	1.220	1.339	.709	-

PA 23

Female tee

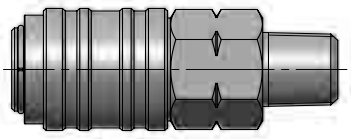
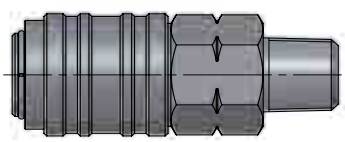


Type	D1 NPTF	L1	HEX	OZ ⚖
23 1/8 1/8	**1/8**	.748	.393	-
23 1/4 1/4	**1/4**	.906	.472	-
23 3/8 3/8	**3/8**	1.220	.669	-
23 1/2 1/2	**1/2**	1.319	.827	5.004

cmatic®
PNEUMATIC FITTINGS

PU LINE

NPT Couplings

Type	Profiles	Ø			Pag. ref.
PU10	**Multi**	**1/4”**		**NPTF**	**72**
PUX10 Stainless Steel	**Multi**	**1/4”**		**NPTF**	**76**

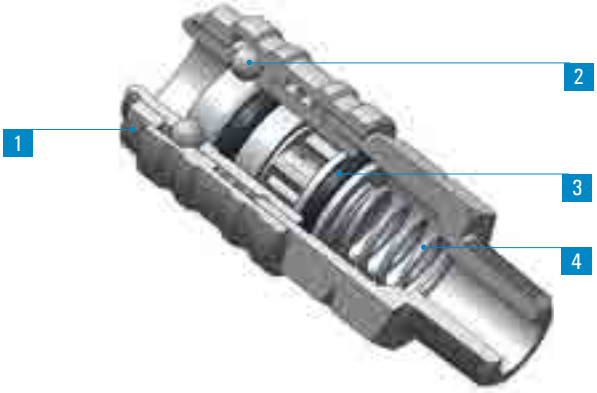
PU 10

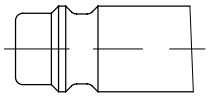
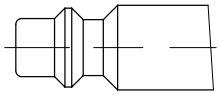
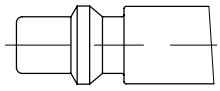
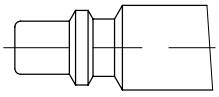
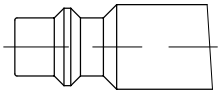
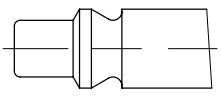
Multi socket quick coupling

1	2	3	4
Body	Balls	Seals	Springs
Brass UNI EN 12164 CW614N Nickel plated	Stainless Steel AISI 420	NBR	Stainless Steel AISI 302

-4°F ÷ 176°F

0 ÷218 PSI

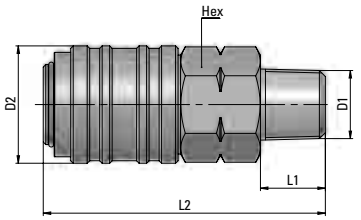


Suitable with following plugs profiles	Flow rate at 87 PSI Δp = 14.5)
 European Profile	29 CFM
 ISO 6150 B Profile	25 CFM
 Standard Swedisch Profile	26 CFM
 Standard Italian Profile	24 CFM
 MIL C4109 Profile	25 CFM
 ARO 210 Profile	25 CFM

Scale 1:1

PU 10-11

Male coupling

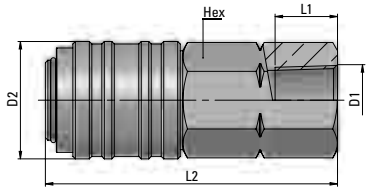


PTFE

Type	D1 NPTF	D2	L1	L2	HEX	oz
11 00 1/4	**1/4**	.925	.512	2.224	.787	3.530
11 00 3/8	**3/8**	.925	.512	2.224	.787	3.530
11 00 1/2	**1/2**	.925	.669	2.343	.945	4.783

PU 10-12

Female coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
12 00 1/4	**1/4**	.925	.492	2.303	.787	3.989
12 00 3/8	**3/8**	.925	.492	2.303	.787	3.671
12 00 1/2	**1/2**	.925	.531	2.441	.945	4.960

cmatic®
PNEUMATIC FITTINGS

PUX LINE

316L Stainless Steel Couplings, NPT

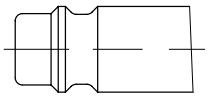
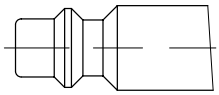
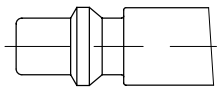
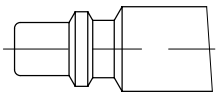
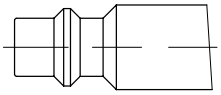
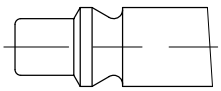
PUX

Stainless steel multi socket quick coupling

1	2	3	4	5	6	
Body	Command Sleeve	Valve	Springs	Balls	Seals	Plugs
Stainless Steel AISI 316L (1.4404)			Stainless Steel AISI 302	Stainless Steel AISI 420	FPM	Stainless Steel AISI 316L (1.4404)

-4°F ÷302°F

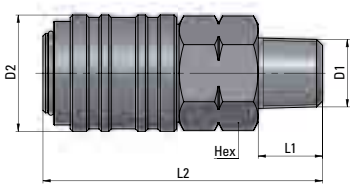
0 ÷218 PSI

Suitable with following plugs profiles		Flow rate	at 87 psi Δp 14,5
	European Profile	29 CFM	
	Industrial 1/4 - ISO 6150 B Profile	25 CFM	
	Standard Swedisch Profile	26 CFM	
	Standard Italian Profile	24 CFM	
	MIL C4109 Profile	25 CFM	
	ARO 210 Profile	25 CFM	

Scale 1:1

PUX 10-11

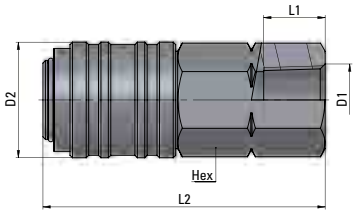
Male coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
11 00 14	**1/4**	.925	.512	2.224	.787	-
11 00 38	**3/8**	.925	.512	2.224	.787	-

PUX 10-12

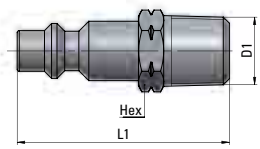
Female coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
12 00 14	**1/4**	.925	.492	2.303	.787	-
12 00 38	**3/8**	.925	.492	2.303	.787	-

PUX 10-20

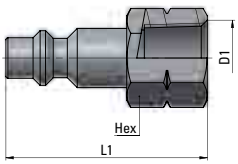
Male plug according
to ISO6150 B-12 profile



Type	D1 NPTF	L1	HEX	oz
20 00 1/4	**1/4**	1.654	.551	-
20 00 3/8	**3/8**	1.654	.709	-

PUX 10-21

Female plug according
to ISO6150 B-12 profile



Type	D1 NPTF	L1	HEX	oz
21 00 1/4	**1/4**	1.575	.669	-
21 00 3/8	**3/8**	1.575	.787	-

cmatic®
PNEUMATIC FITTINGS

PU Safety

Safety Couplings, NPT

Type	Profiles			Pag. ref.
PU42	Industrial 1/4" ISO 6150 B-12 US MIL 4109	1/4"	NPTF	80
PU44	Industrial 3/8" ISO 6150 B-15	3/8"	NPTF	82
PU45	1/4" ARO 210 Interchange	1/4"	NPTF	84

PU 42

Push-button safety coupling according to ISO 6150 B-12

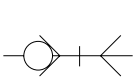
1	2	3	4	5	6	
Body	Button, Valve and Venting ring	Thread	Springs	Balls	Seals	Plugs
Anodised Aluminium Al2011	Hardened, zinc plated steel 11SMnPb37	Brass nickel plated UNI EN 12164 CW614N	Stainless Steel AISI 302	Stainless Steel AISI 420	NBR	Hardened, zinc plated steel 11SMnPb37

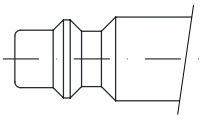
-4°F ÷ 176°F

0 ÷ 232 PSI

1/4”

28 CFM
(P = 87 psi- Δp = 14,5 psi)





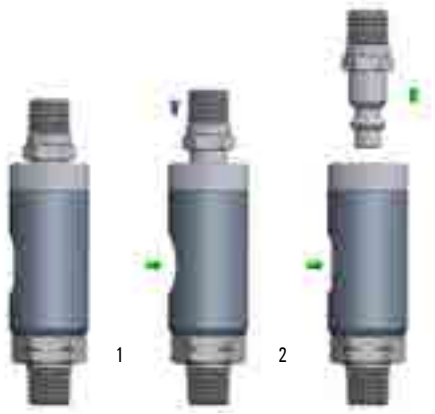
1/4”INDUSTRIAL Profile
MIL C4109 Profile
ISO 6150 B-12 Profile

The Coupling will remain swivelling after installation.

CONNECTION - TO RELEASE

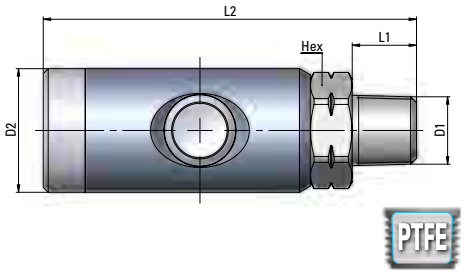
Insert the plug into the Coupling

To disconnect the plug follow instructions below:
Plug inserted in Coupling
Step 1:
Press the button once to vent the downstream air from the circuit; at this time the plug is still captive in the Coupling.
Step 2:
Press the button one more time to release the plug.



PU 42-11

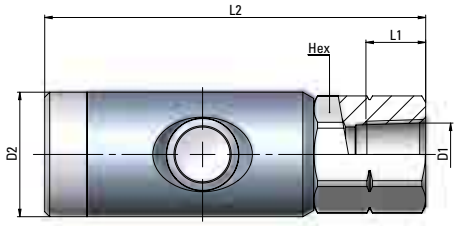
Male coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
11 00 1/4	1/4	.984	.512	2.972	.827	3.887
11 00 3/8	3/8	.984	.512	2.933	.827	4.248
11 00 1/2	1/2	.984	.669	3.091	.866	-

PU 42-12

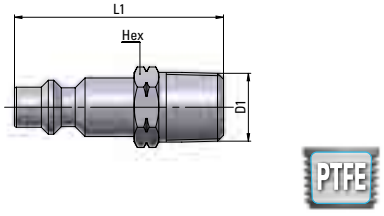
Female coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
12 00 1/4	1/4	.984	.472	3.012	.827	4.504
12 00 3/8	3/8	.984	.492	3.031	.827	4.165
12 00 1/2	1/2	.984	.531	3.110	.945	4.942

PU 42-20

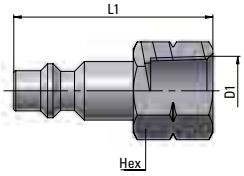
Male plug



Type	D1 NPTF	L1	HEX	oz
20 00 1/4	1/4	1.654	.551	.7978
20 00 3/8	3/8	1.654	.709	1.0202
20 00 1/2	1/2	1.850	.866	1.5214

PU 42-21

Female plug



Type	D1 NPTF	L1	HEX	oz
21 00 1/4	1/4	1.575	.669	.992
21 00 3/8	3/8	1.575	.787	1.115
21 00 1/2	1/2	1.732	.945	1.765

PU 44

Push-Button safety coupling according to ISO 6150 B-15

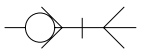
1	2	3	4	5	6	
Body	Button, Valve and Venting ring	Thread	Springs	Balls	Seals	Plugs
Anodised Aluminium Al2011	Hardened, zinc plated steel 11SMnPb37	Brass nickel plated UNI EN 12164 CW614N	Stainless Steel AISI 302	Stainless Steel AISI 420	NBR	Hardened, zinc plated steel 11SMnPb37

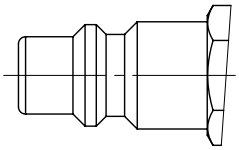
-4°F ÷ 176°F

0 ÷ 174 PSI

3/8"

58 CFM
(P = 87 psi· Δp = 14,5 psi)





3/8 INDUSTRIAL Profile ISO 6150 B-15

The Coupling will remain swivelling after installation.

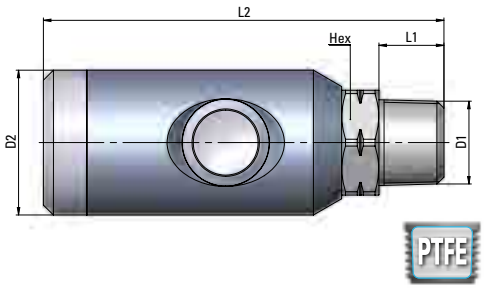
CONNECTION - TO RELEASE

Insert the plug into the Coupling

To disconnect the plug follow instructions below:
Plug inserted in Coupling
Step 1:
Press the button once to vent the downstream air from the circuit; at this time the plug is still captive in the Coupling.
Step 2:
Press the button one more time to release the plug.

PU 44-11

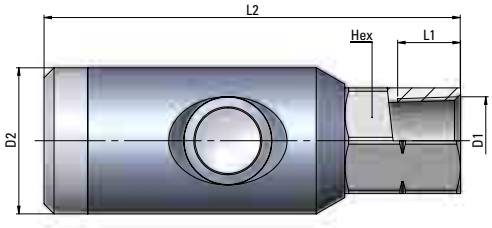
Male coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
11 00 3/8	**3/8**	1.142	.512	3.150	.827	5.401
11 00 1/2	**1/2**	1.142	.669	3.307	.866	-

PU 44-12

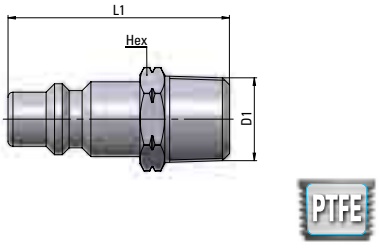
Female coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
12 00 3/8	**3/8**	1.142	.492	3.248	.827	5.948
12 00 1/2	**1/2**	1.142	.531	3.327	.945	-

PU 44-20

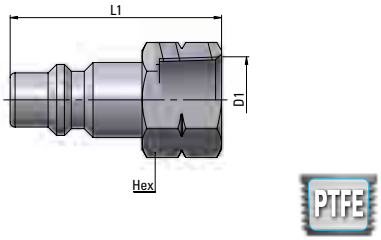
Male plug



Type	D1 NPTF	L1	HEX	oz
20 00 3/8	**3/8**	1.791	.669	-
20 00 1/2	**1/2**	1.791	.709	-

PU 44-21

Female plug



Type	D1 NPTF	L1	HEX	oz
21 00 3/8	**3/8**	1.673	.669	-
21 00 1/2	**1/2**	1.673	.787	-

PU 45

Push-button safety coupling
according to ARO 210

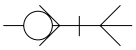
1	2	3	4	5	6	
Body	Button, Valve and Venting ring	Thread	Springs	Balls	Seals	Plugs
Anodised Aluminium Al2011	Hardened, zinc plated steel 11SMnPb37	Brass nickel plated UNI EN 12164 CW614N	Stainless Steel AISI 302	Stainless Steel AISI 420	NBR	Hardened, zinc plated steel 11SMnPb37

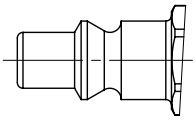
-4°F ÷ 176°F

0 ÷ 174PSI

1/4"

38 CFM
(P=87 psi- Δp = 14,5 psi)





ARO 210 Profile

The Coupling will remain swivelling after installation.

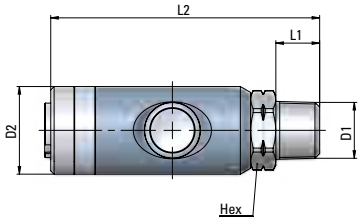
CONNECTION - TO RELEASE

Insert the plug into the Coupling

To disconnect the plug follow instructions below:
Plug inserted in Coupling
Step 1:
Press the button once to vent the downstream air from the circuit; at this time the plug is still captive in the Coupling.
Step 2:
Press the button one more time to release the plug.

PU 45-11

Male coupling

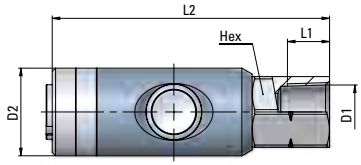


PTFE

Type	D1 NPTF	D2	L1	L2	HEX	oz
11 00 1/4	1/4	1.024	.512	3.189	.827	-
11 00 3/8	3/8	1.024	.512	3.150	.827	-
11 00 1/2	1/2	1.024	.669	3.307	.866	-

PU 45-12

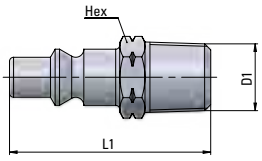
Female coupling



Type	D1 NPTF	D2	L1	L2	HEX	oz
12 00 1/4	1/4	1.024	.472	3.228	.827	-
12 00 3/8	3/8	1.024	.492	3.248	.827	-
12 00 1/2	1/2	1.024	.531	3.327	.945	-

PU 45-20

Male plug

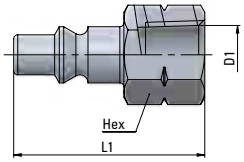


PTFE

Type	D1 NPTF	L1	HEX	oz
20 00 1/4	1/4	1.575	.551	-
20 00 3/8	3/8	1.575	.709	-
20 00 1/2	1/2	1.575	.866	-

PU 45-21

Female plug



Type	D1 NPTF	L1	HEX	oz
21 00 1/4	1/4	1.496	.669	-
21 00 3/8	3/8	1.496	.787	-
21 00 1/2	1/2	1.654	.945	-

cmatic®
PNEUMATIC FITTINGS

CO LINE

Multiple Connectors

The multiple connector is made of a fixed part to be connected to the control device of pneumatic powered machines and a mobile part to be assembled to the air distribution equipment. The big advantage offered by it, is that a bundle of hoses, varying from min 4 to max 24 tubes, can be rapidly and safely connected and disconnected.
Our multiple connector is manufactured in such a way that the reverse assembly of the two parts is not possible.

CO-A

Multiple connectors, rigid shell

1	2	3	4		
Multiple connector sheath	Couplings support	Lever	Tubing guide	Seals	Push-in fittings
PARA (Ixef® 1022)	PARA (Ixef® 1023)	PARA (Ixef® 1022)	PA6	NBR	MA push-in fittings

A013 A113 ÷ A313

-4°F ÷ 158°F Max 101 PSI Max 218 PSI -29 Hg

PP Anti Dust plug cover

STANDARD SYSTEM

The Multiple connector is available for each Shell Size with a predetermined number of connections; this solution is created to maximize the number of possible outlets with the same tube diameter.

DATA SHEET

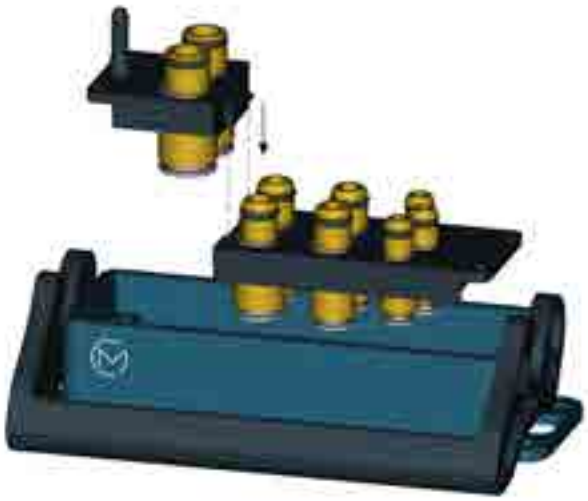
Recommended tubings:
PA11, PA12, PA6, Polyethylene PE, Polyurethane PU (98 Shore A).

Application fields:
Pneumatic circuits.

MODULAR SYSTEM

This solution is offering the user the opportunity to configure the multiple connector such as the tube diameter, the number of outlets and the layout of the same according to his needs. The user can choose the following number of modules based on the size of the multiple connector shell.

Size 1	Size 2	Size 3
3 Modules + End plate	4 Mondules + End Plate	6 Modules + End Plate

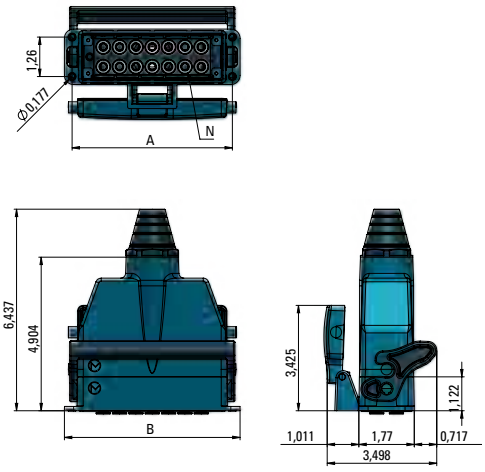


SIZE 0

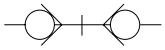
STANDARD SYSTEM

A013

Multiple connector, complete

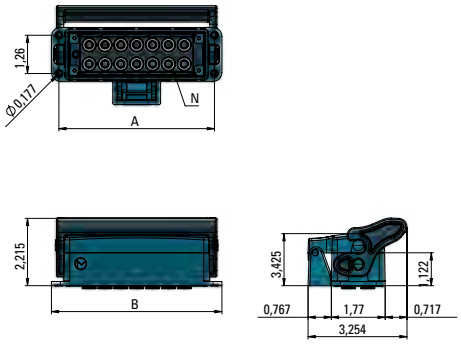


Type	Øe Tube	A	B	N°	oz
A013 08 04 COMPLETE	**5/16**	3.248	3.760	**4**	24.832



A013

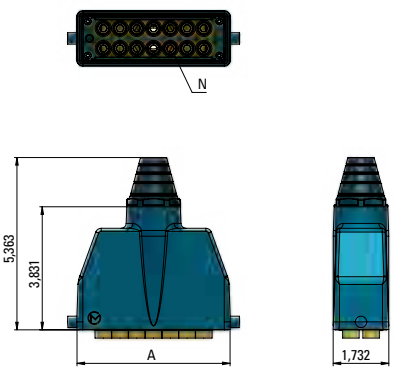
Socket with cover



Type	Øe Tube	A	B	N°	oz
A013 08 04 SOCKET+COVER	**5/16**	3.248	3.760	**4**	11.221

A013

Plug



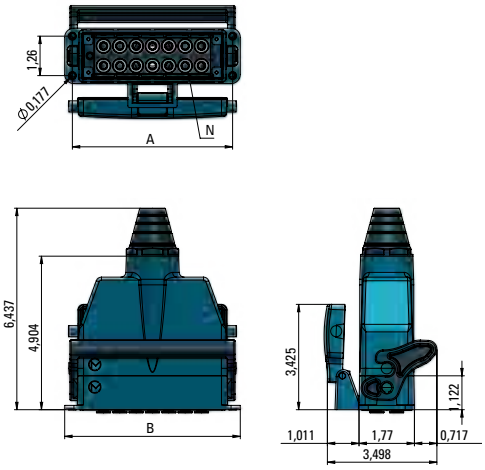
Type	Øe Tube	A	N°	oz
A013 08 04 PLUG	**5/16**	2.894	**4**	11.221

SIZE 1

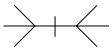
STANDARD SYSTEM

A113

Multiple connector, complete

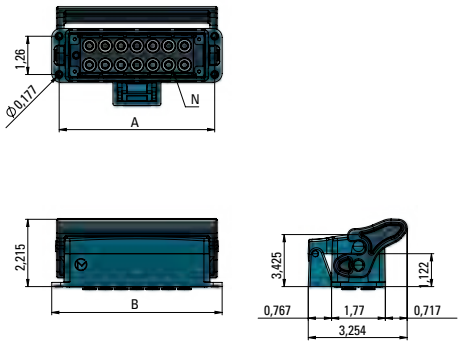


Type	Øe Tube	A	B	N°	oz
A113 04 12 COMPLETE	**5/32**	4.055	4.547	**12**	21.588
A113 08 08 COMPLETE	**5/16**	4.055	4.547	**8**	23.140



A113

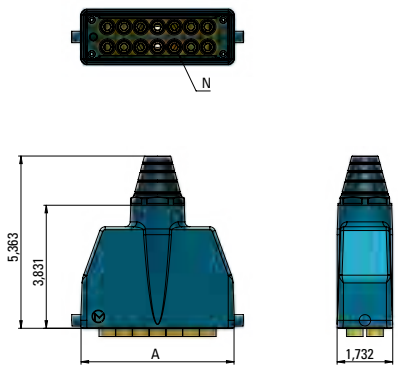
Socket with cover



Type	Øe Tube	A	B	N°	oz
A113 04 12 SOCKET+COVER	**5/32**	4.055	4.547	**12**	10.653
A113 08 08 SOCKET+COVER	**5/16**	4.055	4.547	**8**	10.900

A113

Plug



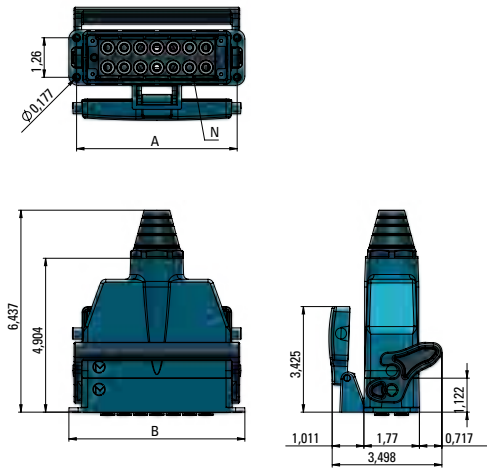
Type	Øe Tube	A	N°	oz
A113 04 12 PLUG	**5/32**	3.701	**12**	11.217
A113 08 08 PLUG	**5/16**	3.701	**8**	12.522

SIZE 2

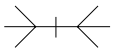
STANDARD SYSTEM

A213

Multiple connector, complete

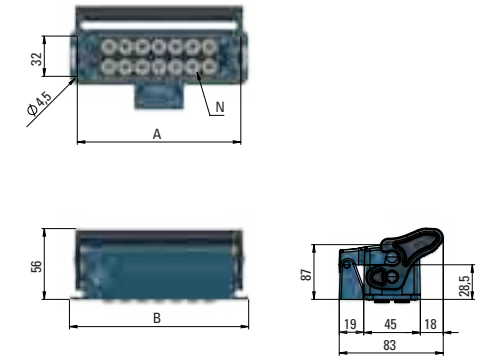


Type	Øe Tube	A	B	N°	oz
A213 04 20 COMPLETE	5/32	5.098	5.610	20	29.207
A213 08 10 COMPLETE	5/16	5.098	5.610	10	28.254



A213

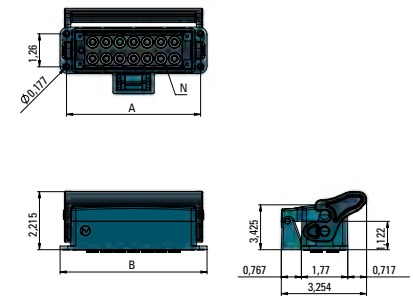
Socket with cover



Type	Øe Tube	A	B	N°	oz
A213 04 20 SOCKET+COVER	5/32"	5.098	5.610	20	14.498
A213 08 10 SOCKET+COVER	5/16"	5.098	5.610	10	13.016

A213

Plug



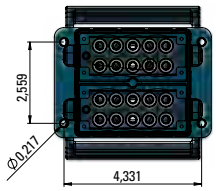
Type	Øe Tube	A	N°	oz
A213 04 20 PLUG	5/32	4.744	20	14.991
A213 08 10 PLUG	5/16	4.744	10	15.238

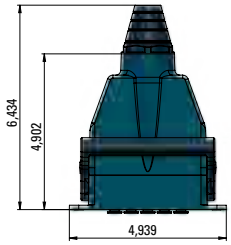
SIZE 3

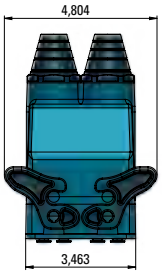
STANDARD SYSTEM

A313

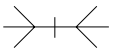
Multiple connector, complete





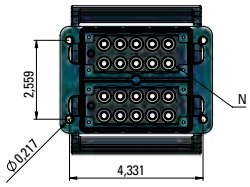


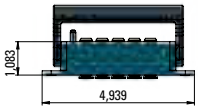
Type	Øe Tube	N°	oz
A113 04 24 COMPLETE	5/32	24	-
A113 08 16 COMPLETE	5/16	16	-



A313

Socket with cover

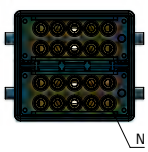


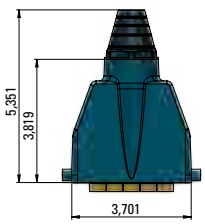


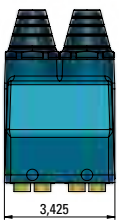
Type	Øe Tube	N°	oz
A113 04 24 SOCKET	5/32	24	-
A113 08 16 SOCKET	5/16	16	-

A313

Plug

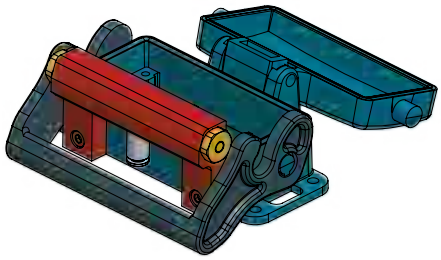






Type	Øe Tube	N°	oz
A113 04 24 PLUG	5/32	24	-
A113 08 16 PLUG	5/16	16	-

ANTI-RELEASE SOCKET



	Type	oz
new	A113 04 12 Socket + cover+ anti-release body	-
new	A113 08 08 Socket + cover+ anti-release body	-
new	A213 04 20 Socket + cover+ anti-release body	-
new	A213 08 10 Socket + cover+ anti-release body	16,628

The Anti-release body is made of Anodised Aluminium AI6082

Fig. 1

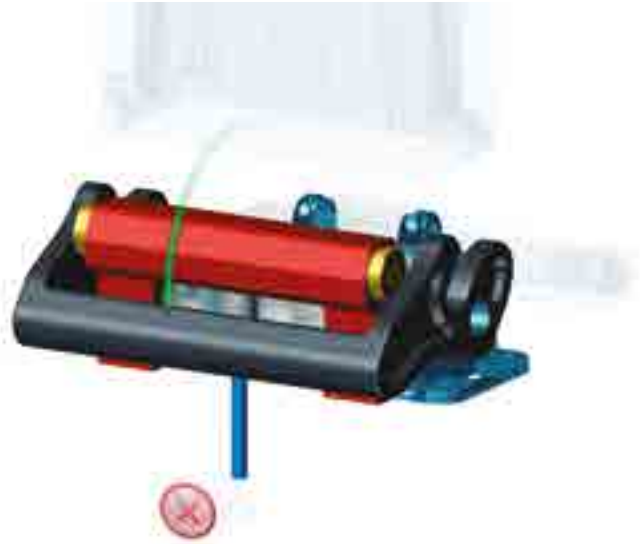
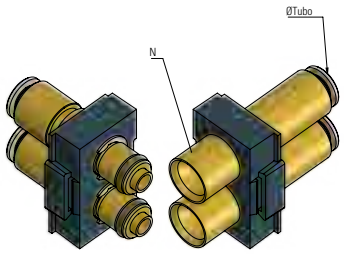


Fig. 2

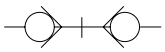
The Multiple connector socket equipped with the anti-release accessory prevents accidental disconnections of the connector if still pressurized.
To operate the anti-release safety device (Fig. 1), it is necessary to power the safety device from the main line once the plug has been connected to the socket.
Before disconnecting the plug from the socket (Fig. 2) turn off the power supply of the safety device.

MOD 2

Push-in fittings module

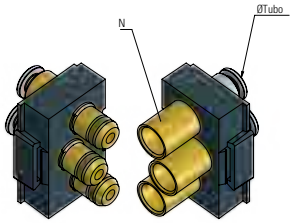


Type	Øe Tube	N°	oz
8	5/16	2	48.501

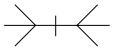


MOD 1

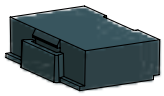
Push-in fittings module



Typeq	Tube OD 1	Tube OD 2	N°	oz
4	5/32	-	3	2.187
8	5/16	-	2	2.575

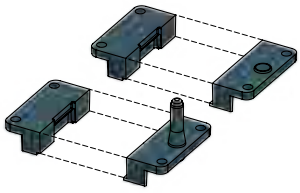


Blind module



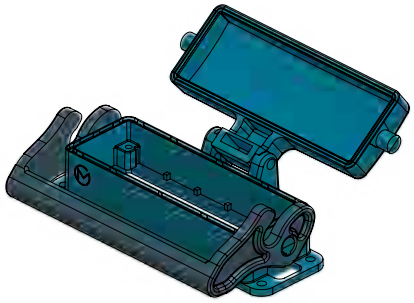
Type	oz
BLIND MODULE	.165

End plate



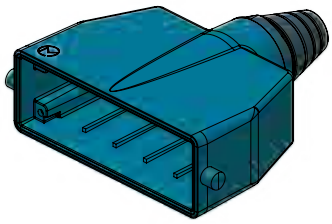
Type	oz
Size 1	0.388
Size 2	0.459
Size 3	0.776

Socket Shell



Type	oz ⚖
Size 1	-
Size 2	-
Size 3	-

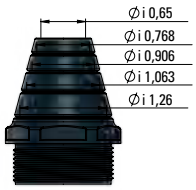
Plug Shell



Type	oz ⚖
Size 1	-
Size 2	-
Size 3	-

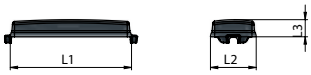
ACCESSORIES

Tubing guide



Type		oz ⚖
TUBING	GUIDE	.515

Anti dust plug cover



Type	L1	L2	L3	oz ⚖
A013 ANTI DUST PLUG COVER	2.992	1.850	6.890	.353
A113 ANTI DUST PLUG COVER	97	1.850	6.890	.423
A213 ANTI DUST PLUG COVER	124	1.850	6.890	.529
A313 ANTI DUST PLUG COVER	97	3,465	6.890	.737

CO-B

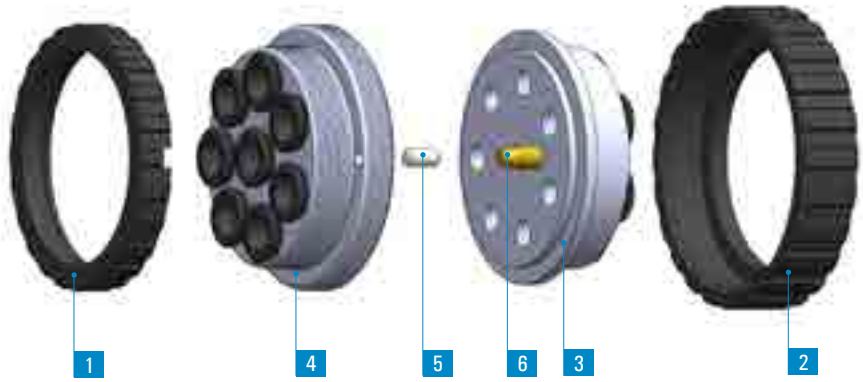
Bulkhead / in line M ultiple Connectors

1	2	3	4	5	6
Counternut	Sleeve	Plug	Socket	Pin	Screw
POM	POM	Anodised Aluminium Al2011	Anodised Aluminium Al2011	Brass UNI EN12164 CW614N	Steel

-4°F÷ 158°F

0÷145 PSI

-29 Hg



PANEL MOUNTING

Loosen counter nut **1** from the multiple connector socket; tighten the screw **6** to let it sticks out as much as the wall thickness (Fig.2). Place the socket in the wall hole and allow for the screw **6** to fit into the seat drilled through in the wall (Fig.1). Tighten the counter nut **1** on socket body until bottoms (Fig.3).

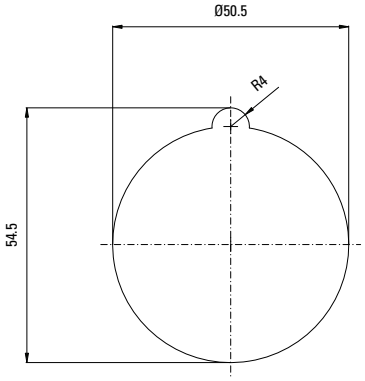


Fig. 1

Fig. 2

Fig. 3

FLOOR MOUNTING

Tighten counter nut **1** until it bottoms and then unscrew it a bit to allow the screw to fit into its seat **A** (Fig.5). Tighten the screw **6** all the way through its seat **A** into the counter nut (Fig.6). At this stage, the counter nut can no longer rotate and will help tighten and loosen the sleeve **2** to connect and disconnect the two multiple connector components.

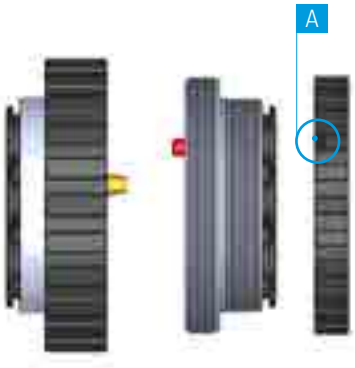


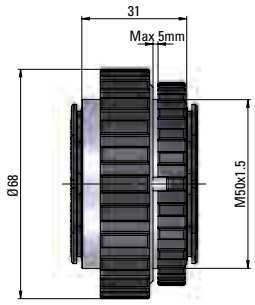
Fig. 4

Fig. 5

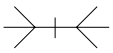
Fig. 6

B113

Multiple connector, complete

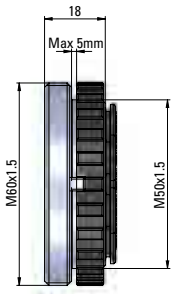


Type	Øe Tube	N°	oz ⚖
B113 04 12 COMPLETE	**5/32**	**12**	7.103
B113 08 08 COMPLETE	**5/16**	**8**	6.160



B113

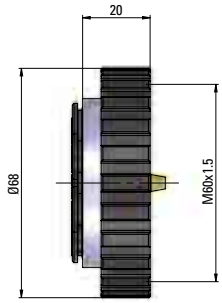
Socket



Type	Øe Tube	N°	oz ⚖
B113 04 12 SOCKET	**5/32**	**12**	3.634
B113 08 08 SOCKET	**5/16**	**8**	3.291

B113

Plug



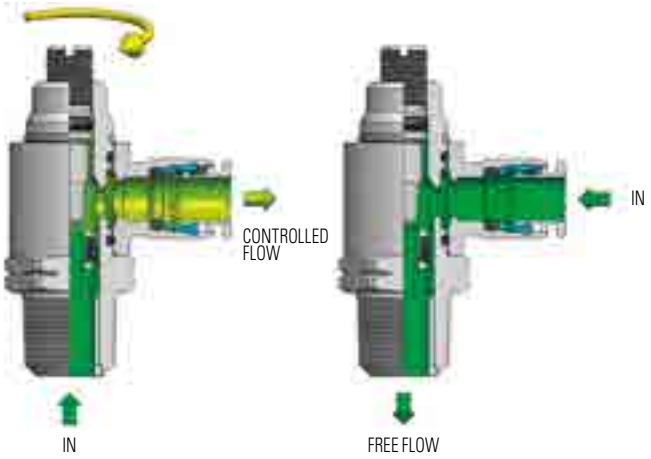
Type	Øe Tubo	N°	g ⚖
B113 04 12 PLUG	**5/32**	**12**	3.591
B113 08 08 PLUG	**5/16**	**8**	3.291

cmatic®
PNEUMATIC FITTINGS

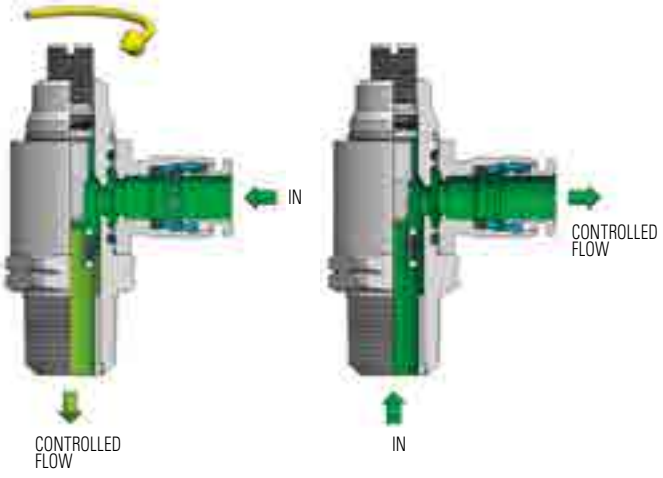
PV LINE

INCH/NPT Function Fittings

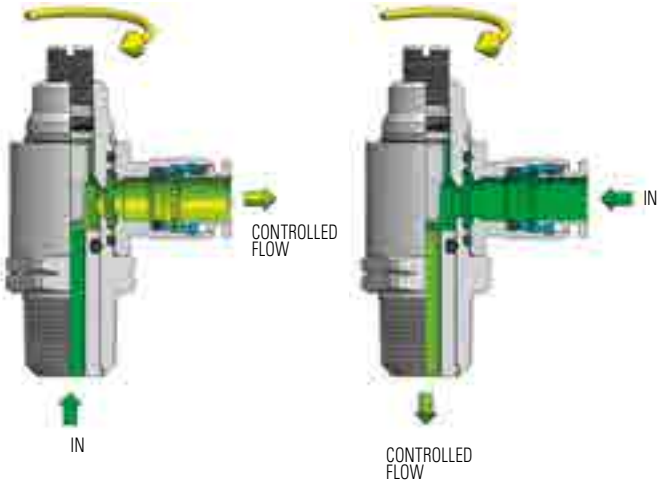
.../C = Meter out flow control



.../V = Meter in flow control



.../B = Bidirectional flow control



They can adjust the flow in a pneumatic circuit. Depending on the flow control used, the setting can be made both ways (Bidirectional Flow Control), or just one way (Unidirectional Flow Control). The Unidirectional Flow Control is particularly used to adjust the speed of pneumatic cylinders.

Flow control with swivel push-in fitting

PV 18

1	2	3	4	5
Body	Needle	Cartridge	Seals	Gasket
Brass UNI EN 12164 CW614N Nickel plated			NBR	PA6

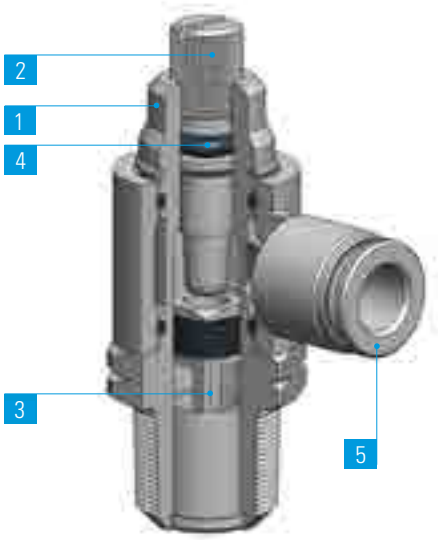
-4°F ÷ 176°F

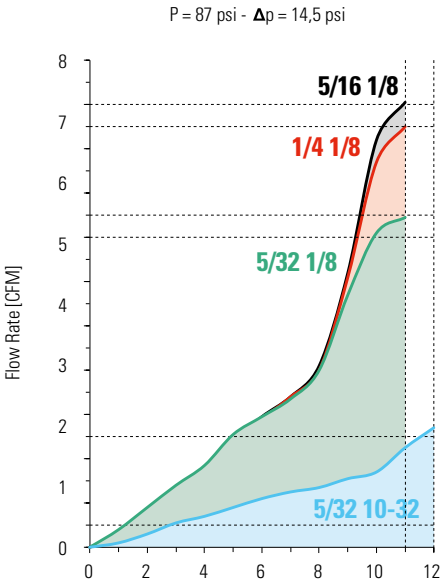
0 ÷145 PSI

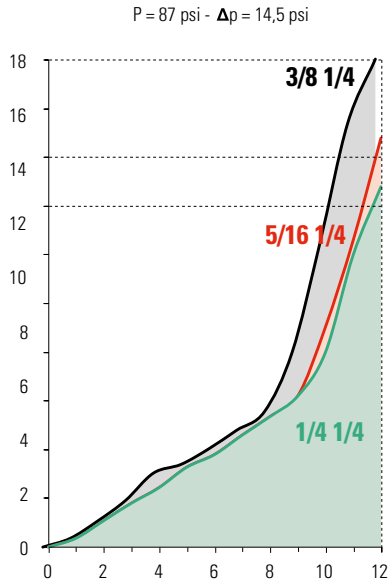
DATA SHEET

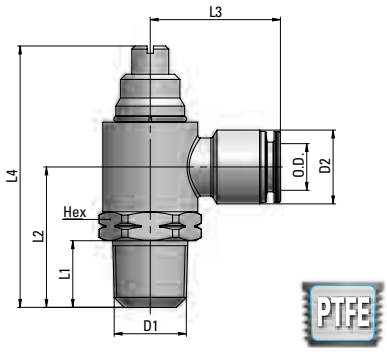
Recommended tubings:
according to the fitting connected to the flow control.

Application field:
pneumatic installations fed with filtered, lubricated air.









Type	Tube OD	D1 UNF	D2	L1	L2	L3	L4	HEX	oz
18 5/32 10-32	5/32	10-32		.374	.197	.531	.728	.236	.211

Type	Tube OD	D1 NPTF	D2	L1	L2	L3	L4	HEX	oz
18 5/32 1/8	5/32	1/8	.374	.335	.848	.807	1.638	9/16	1.147
18 1/4 1/8	1/4	1/8	.472	.335	.848	.886	1.638	9/16	1.218
18 1/4 1/4	1/4	1/4	.472	.512	1.059	.945	1.969	11/16	2.118
18 5/16 1/8	5/16	1/8	.551	.335	.848	.906	1.638	9/16	1.253
18 5/16 1/4	5/16	1/4	.551	.512	1.059	.965	1.969	11/16	2.153
18 3/8 1/4	3/8	1/4	.630	.512	1.059	1.043	1.969	11/16	2.312

Available as:

…/C = Meter Out 

…/V = Meter In 

…/B = Bidirectional 

The banjo ring swivels also after flow control installation.

PV 41

Brass Flow Control with swivelling push-in fitting and Handwheel

1	2	3	4	5	6
Body	**Needle**	**Handwheel**	**Cartridge**	**Seals**	**Push-in fittings**
Brass UNI EN 12164 CW614N Nickel plated				NBR	PN line push-in fittings

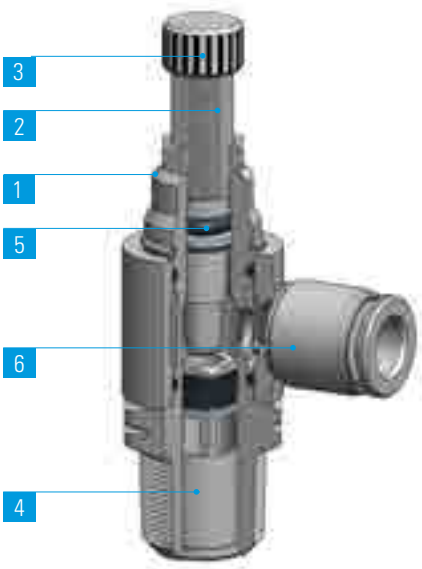
-4°F ÷ 176°F

0 ÷145 PSI

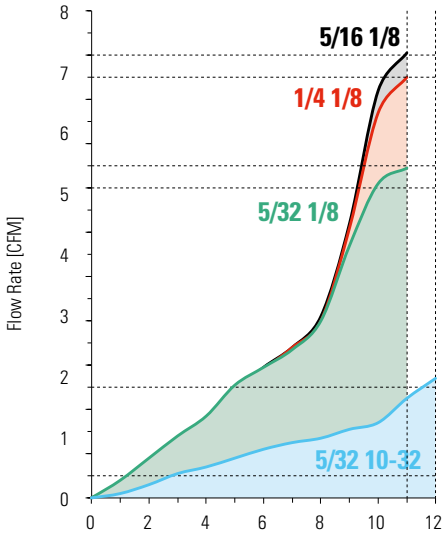
DATA SHEET

Recommended tubings:
PA11, PA12, PA6, Polyethylene PE, Polyurethane PU (95 Shore A)

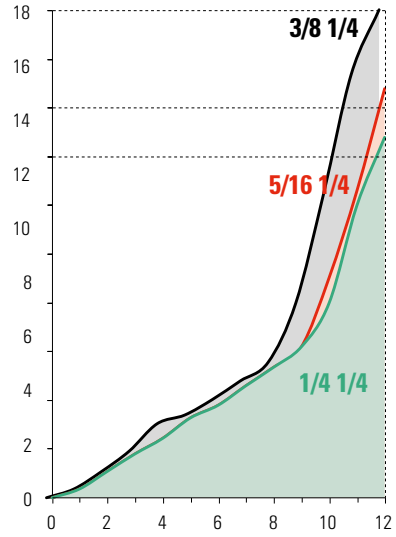
Application field:
pneumatic installations fed with filtered, lubricated air.

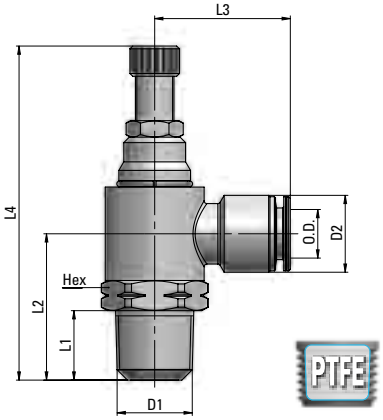


P = 87 psi - Δp = 14,5 psi



P = 87 psi - Δp = 14,5 psi





PTFE

Type	Tube OD	D1 UNF	D2	L1	L2	L3	L4	HEX	oz
41 5/32 10-32	5/32	10-32	.374	.197	.531	.728	1.594	.236	.459
Type	**Tube OD**	**D1 NPTF**	**D2**	**L1**	**L2**	**L3**	**L4**	**HEX**	**oz**
41 5/32 1/8	5/32	1/8	.374	.335	.848	.807	2.047	9/16	1.306
41 1/4 1/8	1/4	1/8	.472	.335	.848	.886	2.047	9/16	1.341
41 1/4 1/4	1/4	1/4	.472	.512	1.059	.945	2.421	11/16	2.347
41 5/16 1/8	5/16	1/8	.551	.335	.848	.906	2.047	9/16	1.359
41 5/16 1/4	5/16	1/4	.551	.512	1.059	.965	2.421	11/16	2.347
41 3/8 1/4	3/8	1/4	.630	.512	1.059	1.043	2.421	11/16	2.471

Available as:

…/C = Meter Out

…/V = Meter In

…/B = Bidirectional

The banjo ring swivels also after flow control installation.

in-line Flow Control

PV 21

1	2	3	4	5	6
Body	Valve	Needle	Handwheel	Nut	Seals
Anodized aluminium	Brass UNI EN 12164 CW614N Nickel plated				NBR

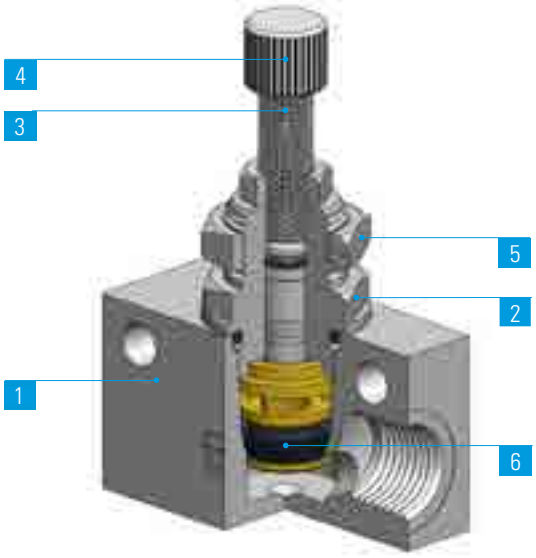
-4°F ÷ 176°F

0 ÷ 145 PSI

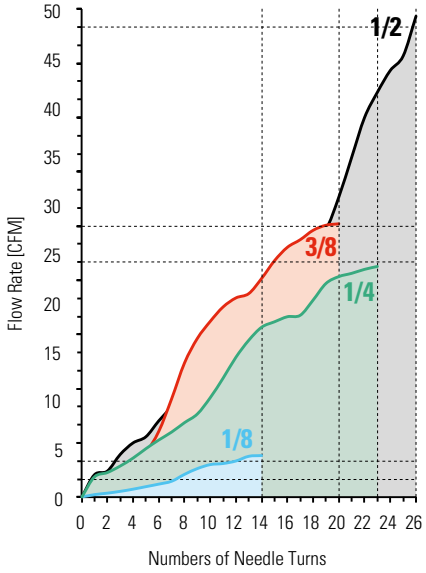
DATA SHEET

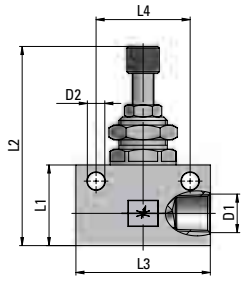
Recommended tubings:
according to the fitting connected to the flow control.

Application field:
pneumatic installations fed with filtered, lubricated air.

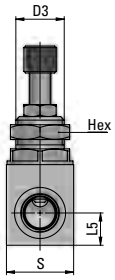


P = 87 psi - Δp = 14,5 psi





Type	D1 NPTF	D2	D3	L1	L2	L3	L4	L5	S	HEX	oz
21 00 1/8	**1/8**	.177	M12x0.75	.827	1.909	1.339	.945	.315	.630	.591	1.730
21 00 1/4	**1/4**	.256	M18x1.5	1.181	2.953	1.969	1.378	.472	.984	.866	5.789
21 00 3/8	**3/8**	.256	M18x1.5	1.181	2.953	2.283	1.575	.472	.984	.866	6.079
21 00 1/2	**1/2**	.256	M22x1.5	1.575	3.799	2.559	1.969	.669	1.181	1.024	10.625



Available as:

…/U = One way

…/B = Bidirectional

PV 23

Check valve

1	2	3		4
Body	**Valve**	**Spring**		**Seals**
Brass UNI EN 12164 CW614N Nickel plated		Stainless Steel AISI 302		NBR

-4°F ÷ 176°F

29 ÷ 145 PSI

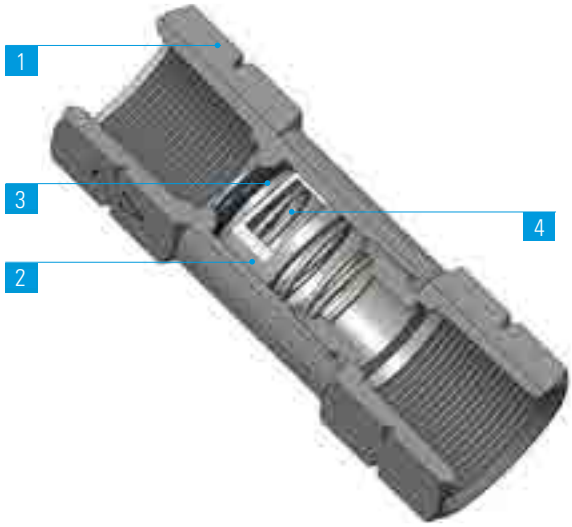
2.9 PSI

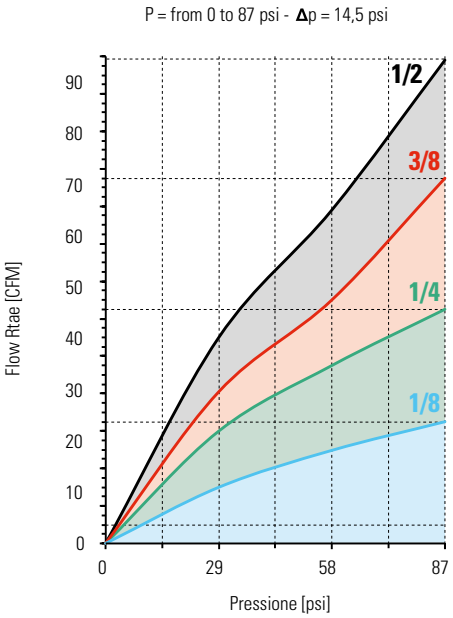
The flow is allowed only in one way (the arrow direction engraved on the body) and stopped in the reverse way.

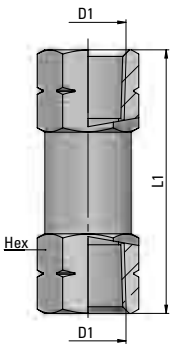
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.







Type	D1 NPTF	L1	HEX	oz
23 00 1/8	1/8	1.555	.512	.957
23 00 1/4	1/4	1.890	.630	1.514
23 00 3/8	3/8	2.047	.787	2.626
23 00 1/2	1/2	2.441	.945	4.292

Straigh t connection with check valve

PV 33

1	2	3		4	5
Body	Valve	Seals	Spring		Push-in fittings
Brass UNI EN 12164 CW614N Nickel plated		NBR	Stainless Steel AISI 302		PN line push-in fittings

-4°F ÷ 176°F

29 ÷ 145 PSI

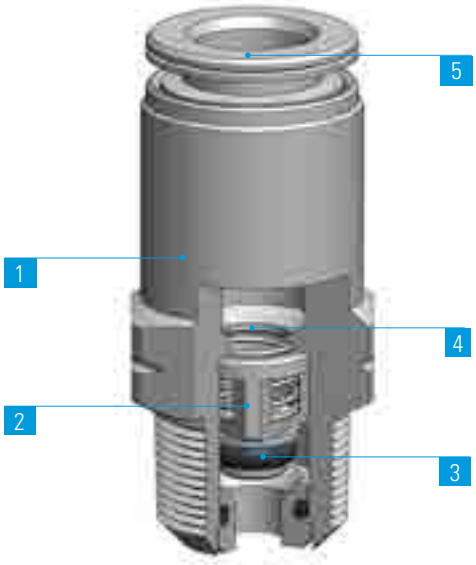
2.9 PSI

The flow is allowed only in one way (the arrow direction engraved on the body) and stopped in the reverse way.

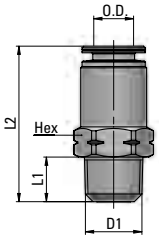
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.



Meter Out Version



Meter Out Version

Type	Tube OD	D1 NPTF	L1	L2	HEX	oz
33 1/4 1/8	1/4	1/8	.334	1.122	.512	-
33 1/4 1/4	1/4	1/4	.511	1.26	.551	-

PV 26

Slide valve

1	2		3
Body	**Sleeve**		**Seals**
Brass UNI EN 12164 CW614N Chrome plated	Anodised Aluminium		NBR

-4°F ÷ 176°F

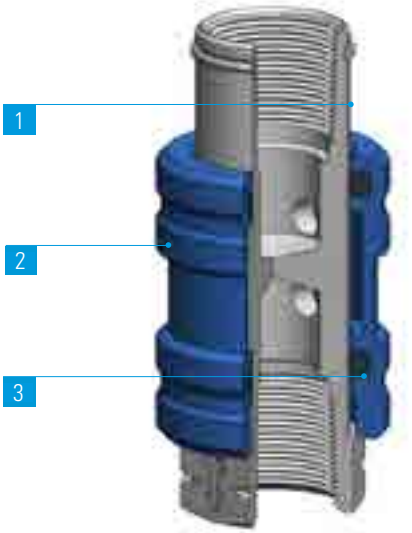
0 ÷ 145 PSI

The valve is used to section a pneumatic installation. Sliding the sleeve on the rod, both ON and OFF positions can be achieved. When the sleeve is against the rod hexagon, the flow goes in the arrow direction (ON); pushing it backwards the air supply is cut off and the installation is vented (OFF).

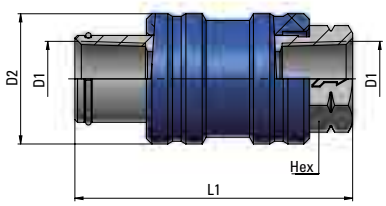
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

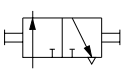
Application field:
pneumatic installations fed with filtered, lubricated air.



Flow rate at 87 psi Δp 14,5	IN OUT 1→2
PV 26 00 18	22CFM
PV 26 00 14	32 CFM
PV 26 00 38	54 CFM
PV 26 00 12	96 CFM



Type	D1 NPTF	D2	L1	HEX	oz
26 1/8 1/8	**1/8**	.827	1.909	.551	1.765
26 1/4 1/4	**1/4**	.945	2.283	.669	3.001
26 3/8 3/8	**3/8**	1.220	2.323	.866	-
26 1/2 1/2	**1/2**	1.378	2.854	1.024	-



In line quick exhaust valve

PV 22

1	2	3	4	5
Body	Lip ring	Seals	Muffler	Seeger
Anodised Aluminium	PU - NBR only for 1/4	NBR	Stainless Steel AISI 316	C75 Steel zinc coated

-4°F ÷ 176°F

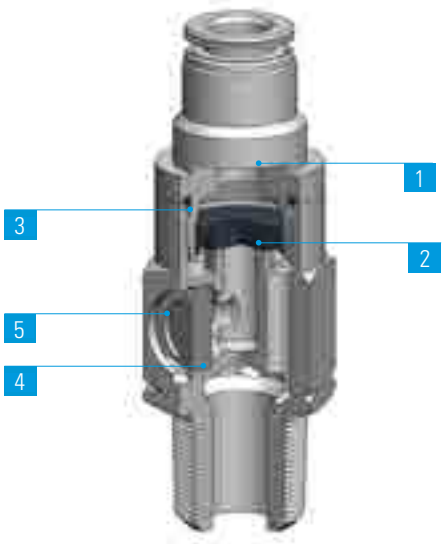
29 ÷ 145 PSI

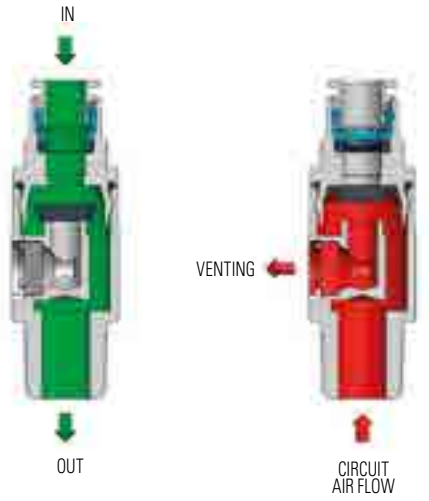
This valve can easily vent the circuit in case of an air supply failure. If assembled on the cylinder port, it increases the cylinder speed.

DATA SHEET

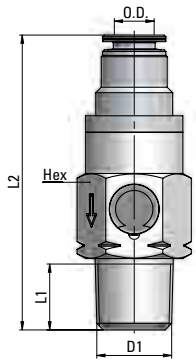
Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.



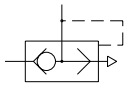


Flow rate at at 87 psi	IN OUT 1→2	OUT VENT 2→3
1/4	37 CFM	23 CFM
3/8	106 CFM	67 CFM
1/2	121 CFM	81 CFM



PTFE

Type	Tube OD	D1 NPTF	L1	L2	HEX	oz
22 1/4 1/4	1/4	1/4	.512	2.106	.709	.695
22 3/8 3/8	3/8	3/8	.512	2.598	1.063	-
22 1/2 1/2	1/2	1/2	.669	3.110	1.339	-



PV 27

Quick exhaust valve

1	2	3
Body	**Lip ring**	**Gasket**
Brass UNI EN 12165 CW617N Nickel plated	PU - NBR only for M5	PA6

-4°F ÷ 176°F

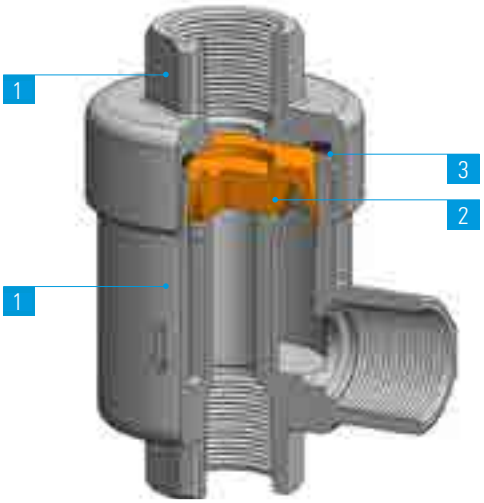
29 ÷145 PSI

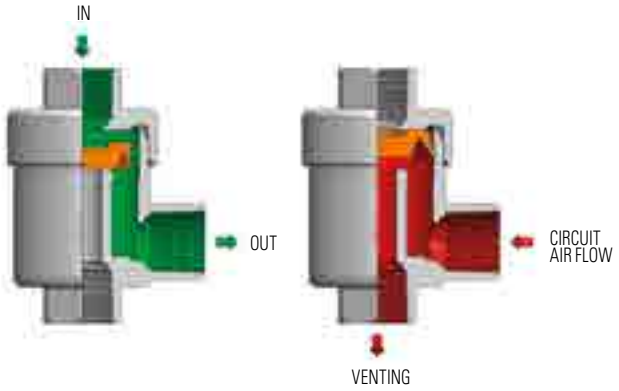
This valve can easily vent the circuit in case of an air supply failure. If assembled on the cylinder port, it increases the cylinder speed.

DATA SHEET

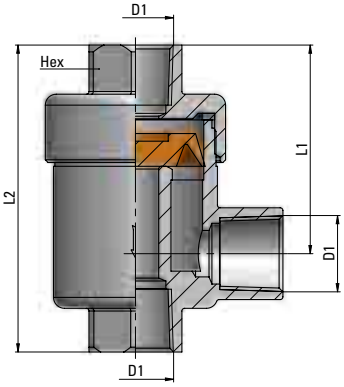
Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.

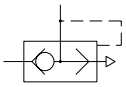




Flow rate at 87 psi Δp 14,5	IN OUT 1→2	OUT VENT 2→3
1/8	16 CFM	27 CFM
1/4	28 CFM	65 CFM
3/8	41 CFM	92 CFM
1/2	44 CFM	187 CFM
3/4 (at 43.5 psi)	54 CFM	117 CFM



Type	D1 NPTF	L1	L2	HEX	oz
27 00 1/8	**1/8**	1.063	1.654	.591	3.354
27 00 1/4	**1/4**	1.378	2.126	.748	5.577
27 00 3/8	**3/8**	1.378	2.126	.748	5.648
27 00 1/2	**1/2**	1.772	2.835	1.024	11.243
27 00 3/4	**3/4**	2.087	3.504	1.260	18.020



PV 45

Pilot Operated Check Valve

1	2	3	4	5
Body	Piston	Spring	Seals	Push-in fittings
Brass UNI EN 12164 CW614N Nickel plated	Stainless Steel AISI 304	Stainless Steel AISI 302	NBR-PU	PN line push-in fittings

-4°F ÷ 176°F

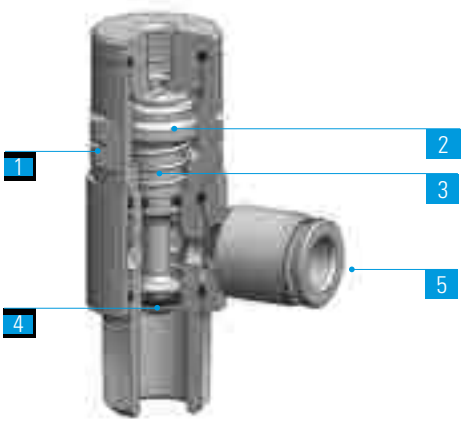
max 145 PSI

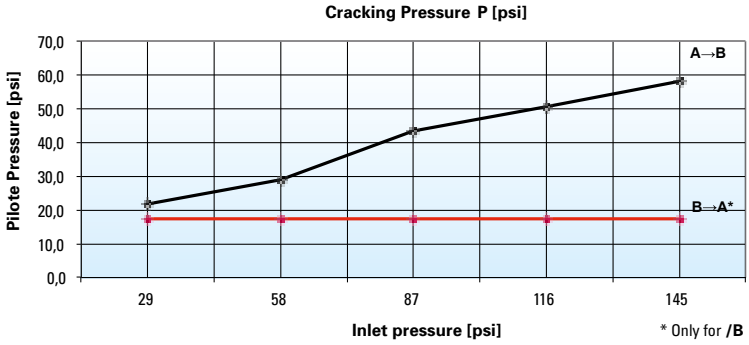
Should a sudden pressure failure happen, if the stop valves are assembled in pairs on the cylinder, the stop valves make sure, that the cylinder piston rapidily stops. By operating the override device, it is possible to reset manually the piston stroke, which is particularly important during a set-up phase or in case of air shortage.

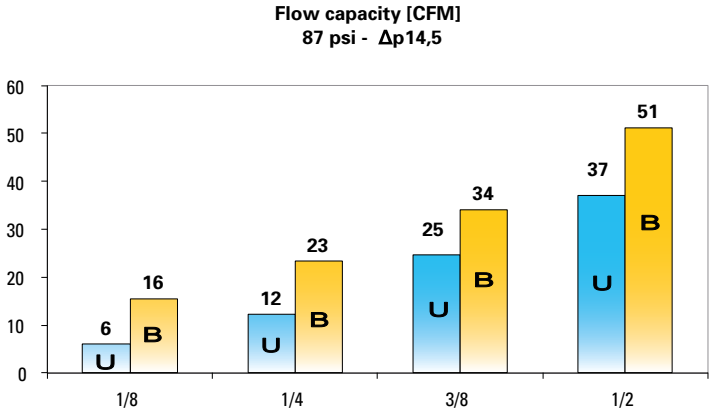
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

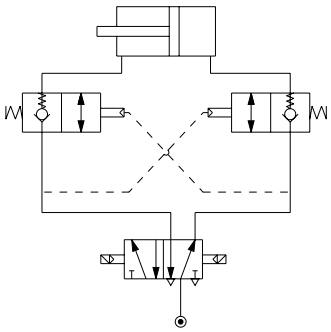
Application field:
pneumatic installations fed with filtered, lubricated air.



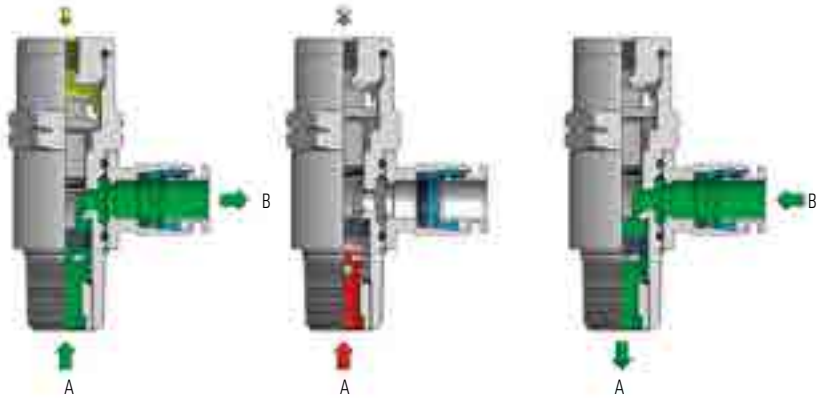




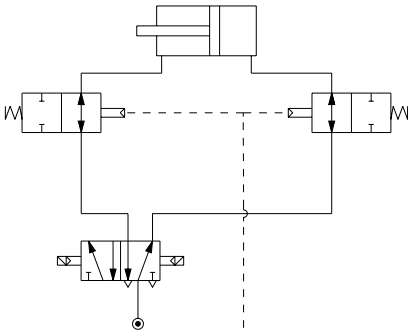
/U = One Way



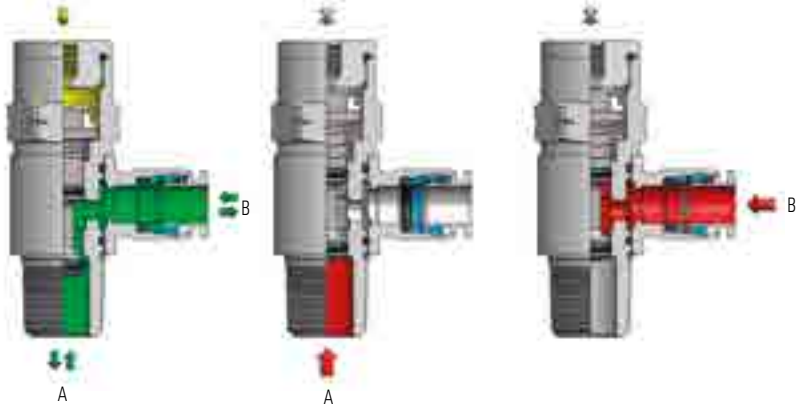
PILOT PRESSURE (P)

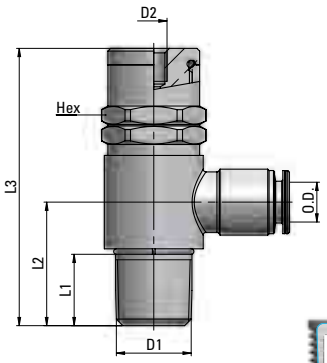


/B = Bidirectional



PILOT PRESSURE (P)

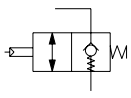


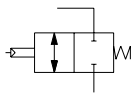


PTFE

Type	Tube OD	D1 NPTF	D2	L1	L2	L3	HEX	oz
45 1/4 1/8	**1/4**	**1/8**	10-32	.331	.669	1.744	.512	1.437
45 1/4 1/4	**1/4**	**1/4**	10-32	.512	.846	1.988	.669	2.531
45 3/8 3/8	**3/8**	**3/8**	1/8	.512	.984	2.303	.787	4.187
45 1/2 1/2	**1/2**	**1/2**	1/8	.669	1.209	2.665	.984	7.004

Available as: …/U = One way …/B = Bidirectional





PV 46

Pneumatic switch

1	2	3	4	5
Body	Handle	Seals	Spring	Push-in fittings
Brass UNI EN 12164 CW614N Nickel plated		NBR	Stainless Steel AISI 302	PN line push-in fittings

-4 ÷ 176F

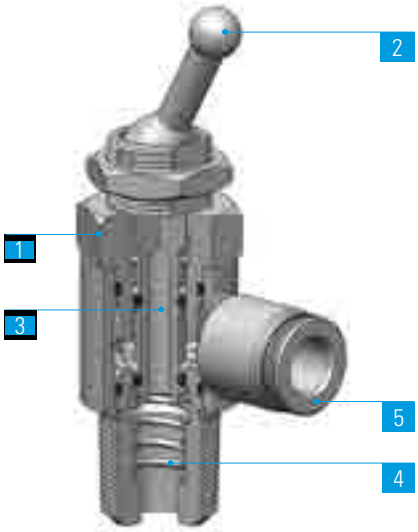
max 218 PSI

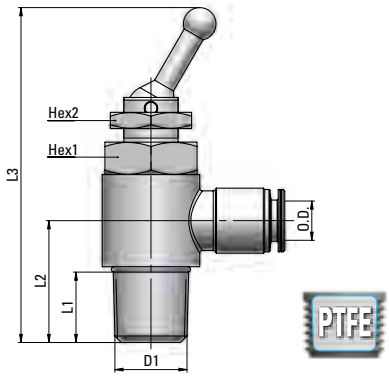
The PV 46 is a pneumatic switch. It is available in a 2/2 and 3/2-way version. The goal of the 2/2 way switch is to cut off the flow in the circuit whenever needed by simply operating the lever. The 3/2 way valve cuts off the flow and vents to atmosphere the terminal part of the circuit.

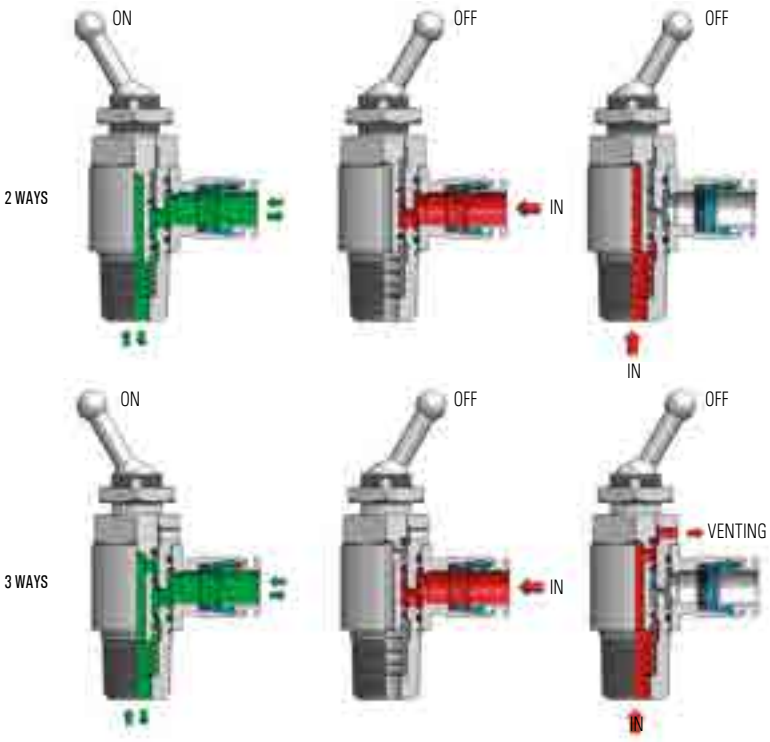
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.



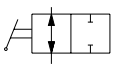




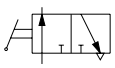
Flow rate (P=87 psi-Δp=14,5 psi)

1/8	8 CFM
1/4	9 CFM

Part Number	Tube OD	D1 NPTF	L1	L2	L3	HEX1	HEX2	oz
46 1/4 1/8	1/4	1/8	.331	.591	2.264	.551	.591	1.405
46 1/4 1/4	1/4	1/4	.512	.807	2.559	.669	.591	2.234



2 WAYS

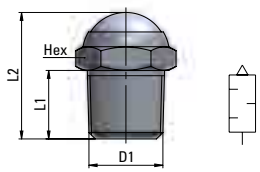


3 WAYS

	Body	Muffler		
PV11-FE	Brass UNI EN 12164 CW614N Nickel plated	Stainless Steel AISI 304	14°F - 160°F	0 ÷ 174 psi
PV11-BE	Brass UNI EN 12164 CW614N	Sintered bronze	14°F - 160°F	0 ÷ 174 psi

PV 11-FE

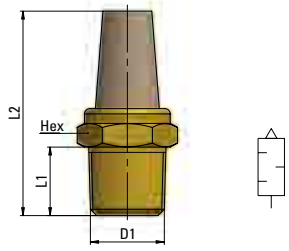
Air muffer with stainless steel wire



Type	D1 NPT	L1	L2	HEX	oz
11 00 18 -FE	**1/8**	.236	.591	.512	.191
11 00 14 -FE	**1/4**	.433	.866	.630	.441
11 00 38 -FE	**3/8**	.433	.906	.748	.671
11 00 12 -FE	**1/2**	.512	.984	.945	1.024

PV 11-BE

Sintered bronze air muffer



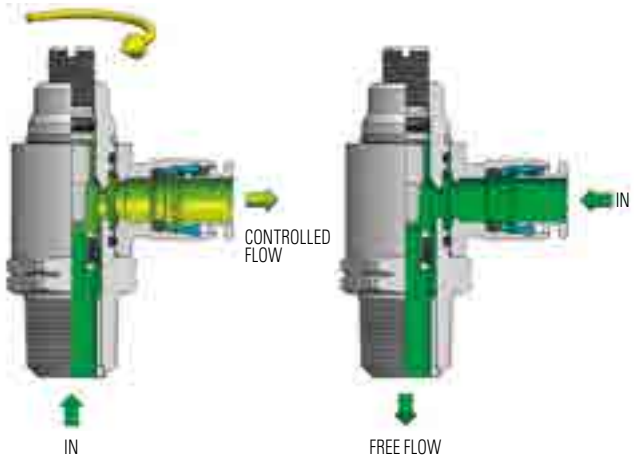
Type	D1 NPT	L1	L2	HEX	oz
11 00 18 -BE	**1/8**	.236	1.142	.512	.318
11 00 14 -BE	**1/4**	.433	1.417	.630	.600
11 00 38 -BE	**3/8**	.433	1.693	.748	1.024
11 00 12 -BE	**1/2**	.512	1.929	.945	1.553

cmatic®
PNEUMATIC FITTINGS

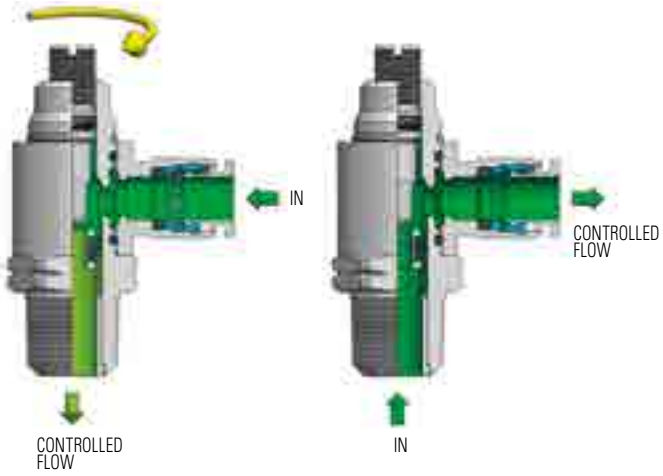
PVX LINE

316L Stainless Steel Function Fittings, Inch/NPT

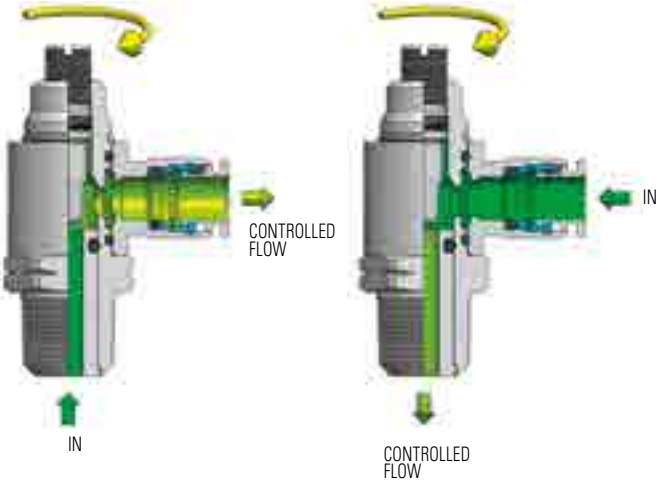
.../C = Meter out flow control



.../V = Meter in flow control



.../B = Bidirectional flow control



They can adjust the flow in a pneumatic circuit. Depending on the flow control used, the setting can be made both ways (Bidirectional Flow Control), or just one way (Unidirectional Flow Control). The Unidirectional Flow Control is particularly used to adjust the speed of pneumatic cylinders.

Flow Control with swivelling push-in fitting

PVX 18

1	2	3		4	5
Body	Needle	Cartridge		Seals	Banjo Ring
Stainless Steel AISI 316L (1.4404)				FPM	PX line push-in fittings

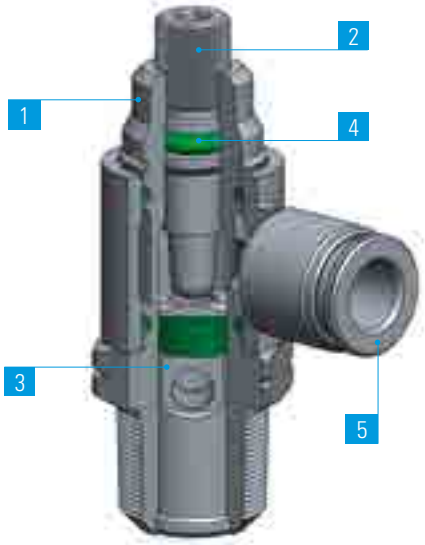
-4°F ÷ 302°F

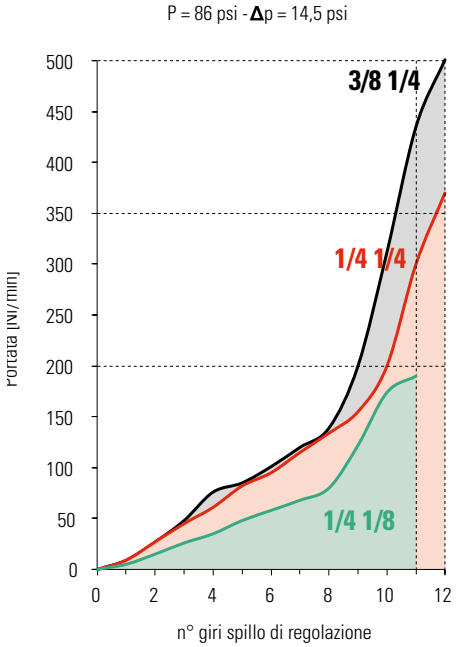
0 ÷ 145 PSI

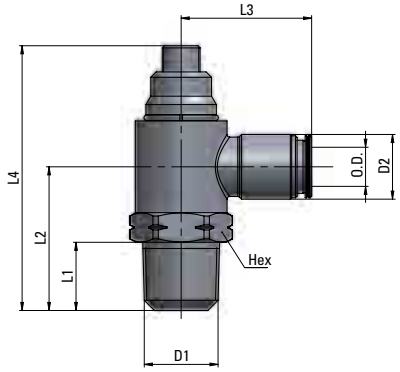
DATA SHEET

Recommended tubings:
PVDF and PTFE tubings.

Application field:
pneumatic installations fed with filtered, lubricated air.







Part Number	Tube OD	D1 NPTF	D2	L1	L2	L3	L4	HEX	oz
18 1/4 1/8	1/4	1/8	.472	.335	.848	.886	1.638	9/16	-
18 1/4 1/4	1/4	1/4	.472	.512	1.059	.945	1.969	11/16	-
18 3/8 1/4	3/8	1/4	.630	.512	1.059	1.024	1.969	11/16	-

Available as:

…/C = Meter Out

…/V = Meter In

…/B = Bidirectional

The banjo ring swivels also after flow control installation.

PVX 23 Check valve

1	2		3	4
Body	**Valve**	**Seals**		**Spring**
Stainless Steel AISI 316L (1.4404)		FPM		Stainless Steel AISI 302

-4°F ÷ 302°F

29 ÷ 145 PSI

2.9 PSI

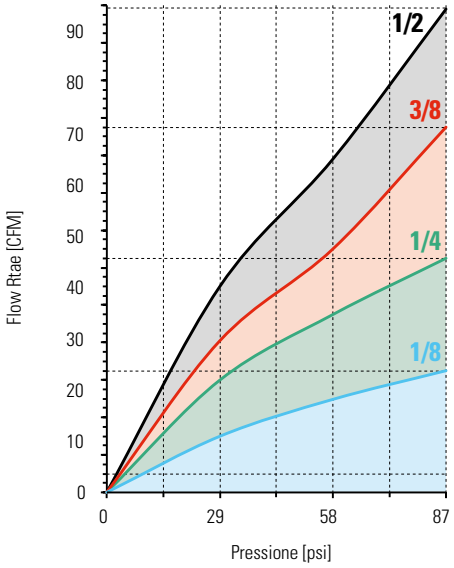
The flow is allowed only in one way (the arrow direction engraved on the body) and stopped in the reverse way.

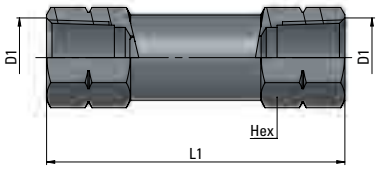
DATA SHEET

Recommended tubings:
according to the fitting connected to the valve.

Application field:
pneumatic installations fed with filtered, lubricated air.

P = from 0 to 87 psi - **Δ**p = 14,5 psi



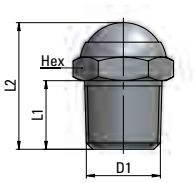


Type	D1 NPTF	L1	HEX	oz
23 00 1/8	1/8	1.692	.512	-
23 00 1/4	1/4	2.165	.630	-
23 00 3/8	3/8	2.047	.787	-
23 00 1/2	1/2	2.480	.945	-

	Body	Muffler		
PVX11-FE	Stainless Steel AISI 304	Stainless Steel AISI 304	-4°F ÷ 302°F	0 ÷ 174 psi

PVX 11-FE

Air muffer with stainless steel wire



Type	D1 NPT	L1	L2	HEX	oz
11 00 1/8-FE	**1/8**	.236	.591	.512	.265
11 00 1/4-FE	**1/4**	.433	.866	.630	.388
11 00 3/8-FE	**3/8**	.433	.906	.748	-
11 00 1/2-FE	**1/2**	.512	.984	.945	-

cmatic®
PNEUMATIC FITTINGS

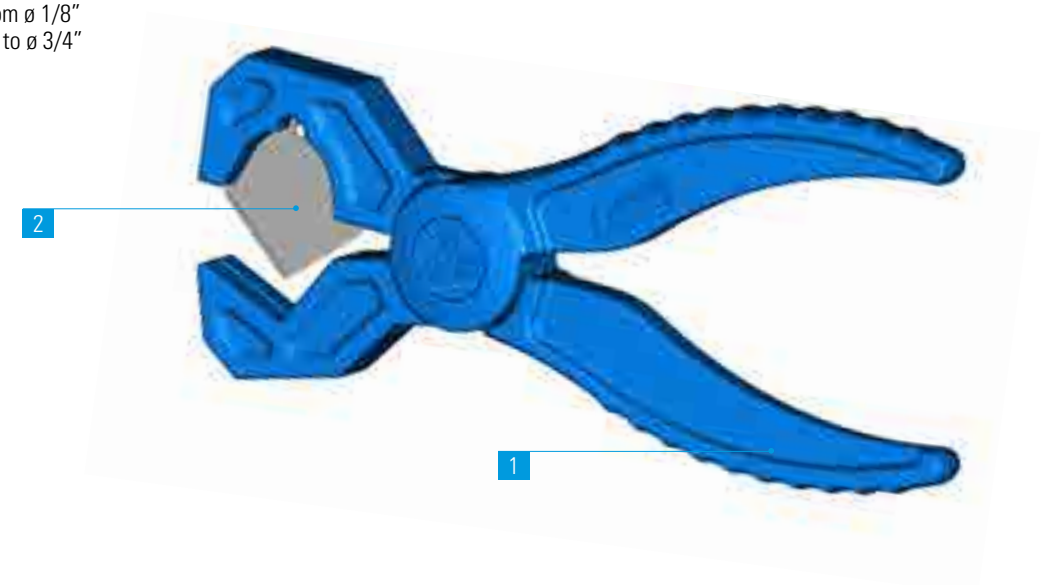
TOOLS

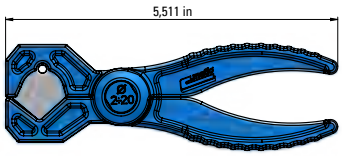
TCUT Hose Cutter

1 Body	2 Blade
PA66 - 50% FV	Carbon Steel C125

-4°F ÷ 122°F

from ø 1/8"
up to ø 3/4"





Type	Tube OD	oz
TCUT0001	**from ø 1/8" up to ø 3/4"**	0.141

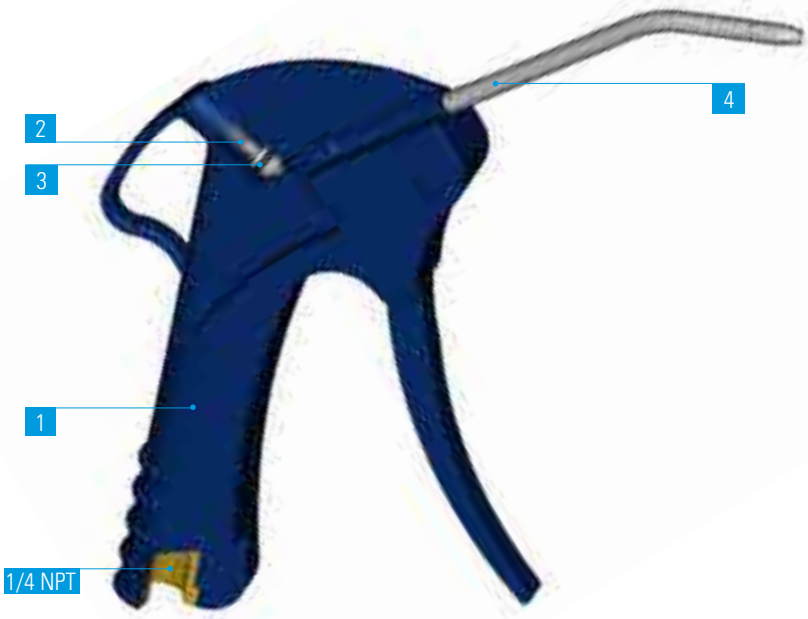
Spare Blades

Type	Tube OD	oz
TCUT0101	**from ø 1/8" up to ø 3/4"**	0.071

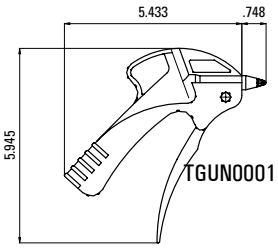
1	2	3	4
Body	**Spring**	**Seals**	**Tube**
POM	Stainless Steel	NBR	Brass Nickel

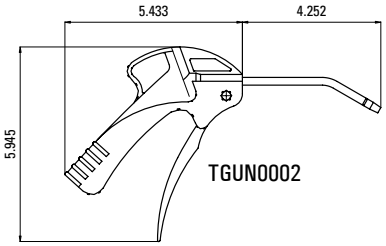
14°F ÷ 158°F

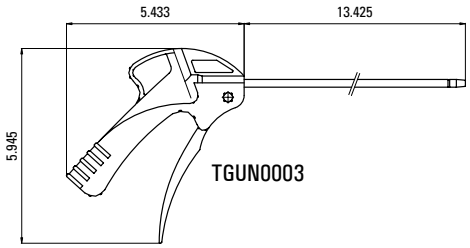
Max 87 PSI



Type	dB (87 psi)	oz ⚖
TGUN0001	75,1	3.386
TGUN0002	79,5	3.951
TGUN0003	79,2	5.150

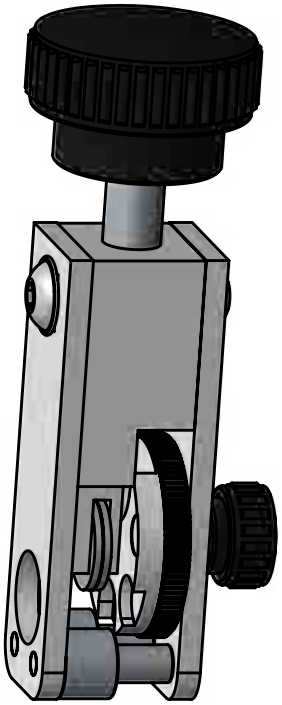




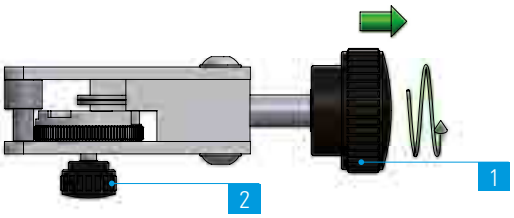


TINC

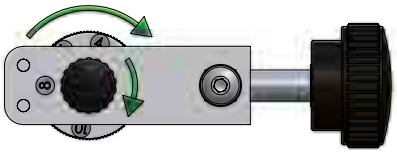
Grooving tool for metal tubings



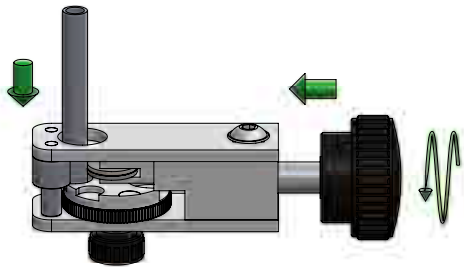
1 Step



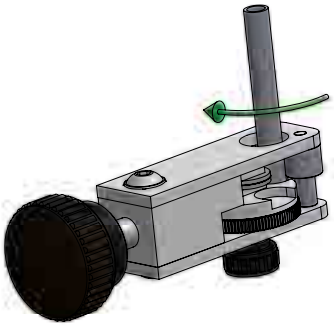
2 Step



3 Step



4 Step



INSTRUCTIONS FOR USE

Step 1. Pull back the tool blade by loosening the knob (1).

Step 2. Untighten the knob (2) and turn the numbered wheel to select the desired tube size. Once the tube size is selected, firmly tighten the knob (2) until the desired tubing size is blocked.

Step 3. Insert the tubing into the hole, all the way down through the internal wheels, until it bottoms; tighten the knob (1) until the blade is against the tubing and keep turning the knob firmly in order to groove the surface of the tubing.

Step 4. Hold the tubing tight and make the tool turn all around the tubing as many times as the desired groove on the tubing is achieved.

cmatic®
PNEUMATIC FITTINGS

TUBINGS

POLYAMIDE 12

FLEXIBLE TUBING

Limited humidity absorption, great dimensional stability at high temperatures and good chemical resis- tance are the major features of the C.MATIC Polyamide 12, highly recommended for all standard industrial applications.

Working temperature: from -40°F up to +212°F
Vacuum rating: To 28" Hg
Hardness: 64 Shore D
Working Pressure: 4 to 1 Safety Factor
Water absorption: 1%
Diameter Tolerances: +/- .002

Pressure variation (%) in relation with temperature change	
68°F	100%
104°F	85%
140°F	60%
176°F	40%
212°F	35%

	Diameter			Pressure at 75°F	
Type	OD (in)	ID (in)	Bend Radius (in)	Working pressure (psi)	Bursting point (psi)
28010000-colour	1/8	.093	.375	264	1058
28010010-colour	5/32	.106	.500	348	1392
28010030-colour	1/4	.180	.875	293	1174
28010040-colour	5/16	.232	1.250	268	1073
28010050-colour	3/8	.275	1.500	279	1116
28010060-colour	1/2	.375	2.000	257	1029

Reel length: 100 feet.
Colours available: Neutral (N), Blue (B) and Black (BK) on stock. Other colours available upon request.

POLYURETHAN 95 DUROMETER

FLEXIBLE TUBING

C.MATIC ether based Polyurethan resists attack with moisture, humidity and fungus.
It is highly abrasion and UV resistant.
Its flexibility allows for assemblies in reduced spaces and for very narrow bending radius and makes of our Polyurethan 95 one of the most popular choices.

Working temperature: from -40°F up to +140°F.
Vacuum rating: To 28" Hg
Hardness: 95 Shore A
Working Pressure: 3 to 1 Safety Factor
Diameter Tolerances: +/- .003

Pressure variation (%) in relation with temperature change	
68°F	100%
86°F	83%
104°F	72%
122°F	64%
140°F	47%

	Diameter			Pressure at 75°F	
Type	OD (in)	ID (in)	Bend Radius (in)	Working pressure (psi)	Bursting point (psi)
28060000-colour	1/8	.0625	1/4	256	768
28060010-colour	5/32	3/32	3/8	193	580
28060030-colour	1/4	.160	1/2	169	507
28060040-colour	5/16	.216	3/4	140	420
28060050-colour	3/8	.245	7/8	164	493
28060060-colour	1/2	.320	1 1/8	169	507

Reel length: 100 feet.
Colours available: Neutral (N), Blue (B) and Black (BK) on stock. Other colours available upon request.

POLYAMIDE 12 HR (PA12 HR)

FLEXIBLE TUBINGS

Working temperature:from -40°F up to 176°F.
Working Pressure: 3 to 1 Safety Factor
Reel length: 328 feet (100 mt.)
Colours available: Black

Pressure variation (%) in relation with temperature change	
14°F	120%
32°F	110%
68°F	100%
86°F	83%
104°F	72%
122°F	64%
140°F	52%
176°F	47%

	Diameter			Pressure at 75°F	
Type	OD (in)	ID (in)	Bend Radius (in)	Working pressure (psi)	Bursting point (psi)
08130030-N	1/4	.142	1.969	1305	3741
08130050-N	3/8	.197	3.150	1261	3785

PA11 and PTFE tubings available upon request.

1. General Notes

The following general terms of supply are understood to be valid and applicable in all commercial practices of C.Matic with reference to all products manufactured or sold by C.Matic . These general terms constitute the legal basis for every contract entered into by C.Matic except where, in specific orders or agreements, they are expressly waived in writing.
These terms prevail over any purchase terms of the Customer and constitute an essential part of the supply contract implemented by C.Matic in favour of the Customer.
The general terms of supply set out below, therefore, relate to all contracts and all orders implemented even if not expressly confirmed by the Customer.
These general terms of supply, in any case, are understood to be automatically accepted by the Customer and, therefore, an integral part of the order, upon C.Matic 's Product first being made available to the Customer and, in any case, upon the implementation of the order by C.Matic .

2. Scope of application of the contract

The following will be an integral part of the contract entered into by C.Matic:

a) these general terms of supply, which are understood, in any case, to be applicable irrespective of express written acceptance by the Customer.
b) every technical document, study, report, in any capacity sent by C.Matic to the Customer.
c) the order confirmation
d) the delivery note
e) the invoice

Advertising documents, sales brochures, samples, catalogues, price lists and anything else used or sent by C.Matic prior to or during implementation of the supply will not be considered, unless it is expressly agreed in written, essential elements of the contract.

3. Orders and Contract Formalization

Any quotation of C.Matic is subject to, and shall not become binding upon C.Matic until (i) actual receipt by C.Matic of customer's written order based on all the terms and conditions stated herein, and (ii) C.Matic's written acceptance of such order at its main office .
Order means any document containing the identification details of the supply to be made, such as quantity, product type and price. The order is understood to be transformed into a finalized contract both in the case of express acceptance by C.Matic by any written means (fax, e-mail, etc.) or upon implementation of the first supply to the Customer.
Implementation of the supply means the material made available to the Customer as provided at point 7.2 below.
Even in the presence of discrepancies between the offer, the order received from the Customer and the order acknowledgment sent by C.Matic, the contract will in any case be understood to be established and finalized for the purchasing party.
C.Matic may, at its sole discretion and at any time, not accept orders from the Customer or interrupt or suspend , with sufficient prior notice, the execution of planned orders.

3.1 Closed order

Closed order means that order in which the quantity of the product, price, delivery methods and timescales are expressly identified.

3.2 Blanked or planned order

"Blanked" order means that order which, having established the type of Product and unit price of the same, in general, indicates the quantities of product estimated as consumable by the Customer in the period of time expressly indicated and agreed between C.Matic and the Customer (week/month/year). C.Matic and the Customer will determine the quantities that the Customer irrevocably buys within the agreed timeframe to get the fixed price. C.Matic shall modify the price of the Products in case the Supplier doesn't reach, within the fixed period, the agreed volume of sales.
The liability of C.Matic in any case is limited to the quantity agreed or, in case the order includes a minimum and a maximum quantity, to the minimum .
C.Matic is not required to guarantee the supply of additional quantities of Product or to comply with more burdensome delivery time than those expressly accepted by C.Matic itself.
If the customer ask to modify the content of any order C.Matic shall not be obligated to satisfy that request, but will make every effort to satisfy the request made by the Customer. In case of acceptance, C.Matic shall be allowed to modify the price of the Products.
For this purpose C.Matic shall communicate to the Customer the difference in price of the Product: that variation is understood to apply in the case of express acceptance by the Customer or will be considered to be "in force" commencing from the first delivery of the product after C. Matic's communication.

3.3 Changes to orders

Any request to change the contract made by the Customer shall be subject to express acceptance by C.Matic . In the absence of express acceptance by C.Matic , the contractual conditions previously agreed will be understood to be unchanged, subject, in any case, to the applicability of these general terms of supply.

3.4 Cancellation of closed order or reduction below the minimum quantities of blanked orders

In no case, except in circumstances of force majeure, the Customer may cancel the closed order or reduce the minimum quantities of any type of orders.
If the Customer intends to proceed in that sense, it must notify its request in writing to C.Matic which, in the following 30 days, may accept or refuse the request made or indicate to the Customer the cost for acceptance.
Failing that, the Customer will be required to collect and pay for the product in accordance with what was agreed or in accordance with the maximum quantities indicated or agreed in the blanked orders.
In the indication of the cost for the cancellation or reduction, depending on the contract, of the open or blanked order below the minimums, C.Matic may take account of all costs incurred and being incurred for procurements also of raw materials and provisions, equipment and specific or other tools, research and design costs and, in any case, all costs and/or direct and indirect consequences that have for any reason economic significance for C.Matic .
C.Matic may retain, on a final basis, and on account of anything due in addition, any sums received from the Customer paid for any reason.

4 Preparatory and/or accessory works relating to the order

4.1 Designs and requirements

All documents, designs, estimates, technical reports, evaluations, offers, analyses and, in any case, any information or document that, in any capacity, the Customer and C.Matic have exchanged prior to or during the implementation of the order, are understood to be sent only for the specific use for which they are intended without that transmission involving a transfer of ownership or usage rights. The recipient may not in any case use what is received for other purposes.
The Customer and C.Matic will reciprocally maintain all property rights, including intellectual, on the documentation being exchanged. The Customer and C.Matic are understood to be bound to the strictest confidentiality and secrecy, as agreed at point 6 below, in relation to the existence and content of the documents being exchanged.
In cases of use other than what is permitted or what has been planned for the material being exchanged, the injured party will be entitled to compensation for damages. The Customer acknowledges, in any case, the exclusive ownership of what is received in any capacity from C.Matic and that it constitutes C.Matic 's know-how.

4.2 Return of samples

All samples, prototypes, pre-series or semi-finished products or in any case artefacts sent by C.Matic to the Customer are and shall remain the property of C.Matic and the Customer may use them only for the purposes set out in the contract entered into with C.Matic. The Customer will be liable for the custody of what is received and undertakes to return all the material received upon termination of the contract or within 15 days from C.Matic making an express request for the same.
The Customer shall use what is received in the strictest secrecy and confidentiality and may not in any way utilize, even to perform tests, directly or indirectly, anything received from C.Matic without the prior written consent of the latter.
If any sample or model is shown or delivered to the Customer , the Customer acknowledges that such sample or model was used merely to illustrate the general type and quality of goods and not to represent that the goods would necessarily comply with the sample or model.
In cases of breach of this clause, C.Matic may suspend the supplies and claim compensation for damages.

4.3 Conservation of equipment

The equipment even subject to wear, necessary to create the Product for the Customer, is understood, unless otherwise agreed in a written deed, to be under the exclusive ownership of C.Matic . The tools for production will be designed by C.Matic or by a company instructed by the same, and will take account of the working methods, systems and equipment normally used by C.Matic .
C.Matic may ask the Customer to contribute to the costs for what is indicated above. That cost may even not be expressly specified, but included in the price of the product being delivered. Even in that case, the tools necessary for production will remain under the exclusive ownership of C.Matic without any contribution guaranteeing for the Customer rights of use or ownership, even only intellectual or by way of know-how.
C.Matic , unless otherwise agreed by written deed, may freely use the equipment and, in general, any work tool, even for productions other than that intended for the Customer and also in the case of production created exclusively for the Customer.

5 Characteristics and condition of ordered Products

5.1 Use of Products

C.Matic undertakes to produce the Product in the respect of the technical specifications agreed with the Customer (special products) or as specified in the catalog (standard product) . The Product will also be compliant with the safety rules in force in EU in that regard. The Customer will be solely liable for the use of the Product.
The Product must be used exclusively in accordance with what is indicated in the catalog or agreed in writing with C.Matic.
C.Matic shall not be liable for the consequences of any unauthorized , incorrect or different use of the Products with reference to what it's stated in C.Matic's catalog or that is different from what is authorized in writing by C.Matic .
Where the Customer must use the Product in a manner other than that agreed, it must provide specific information thereof to C.Matic .
C.Matic , upon receiving the request, will have 30 days to confirm its willingness to satisfy the request of the Customer also providing an indication of the timescales and the new price; the Customer shall confirm in writing the acceptance of the communication received from C.Matic.
Except where previously agreed or in any case known to C.Matic , the Product supplied may not be stored in locations in which materials are stored, including potentially explosive, polluting or flammable materials, or in rooms where the moisture or temperature levels are not compliant with the type of Product being delivered.

The Customer accepts, hereby waiving the right to make any claim or complaint, that the quantities indicated by C.Matic are always understood to be with an allowance of +/- 5%.
The Customer undertakes, in any case, to accept even partial supplies of Product.

5.2 Product Packaging

C.Matic shall supply the product packaged in accordance with its standards and compliant with existing regulations in relation to safety.
The Customer, by sending the order, expressly declares to be aware and to have accepted the type of packaging used by C.Matic and to deem the aforementioned "standard" to be suited to its requirements, to transportation, handling, deposit and storage; all activities that will occur at the care and expense of the Customer.
The Customer will be solely liable for the correct deposit and storage of the Product, activities that must be implemented in such a way as to allow for the correct conservation of the technical and functional characteristics of the Product supplied. No liability may be attributed to C.Matic in the event of use of different packaging to that used by C.Matic or for deposit, storage or handling of the product performed in a manner not compliant with the product characteristics.

5.3 Transmission of information relating to the Product

The Customer undertakes to make its purchasers aware of the technical-functional characteristics of the Product.

6 Intellectual Property Rights and Confidentiality Clause

6.1 Intellectual property rights and on technical know-how

C.Matic is the only owner of rights relating to any information, data, design, characteristic, process, chemical composition, functional feature and for all and any element relating to the Product. The ownership of those rights will remain even after the delivery of the Product. The implementation of the supply contract will not constitute, in any case, transfer of industrial property rights or licence to use the know-how relating to the Product and/or to the production process, C.Matic , as owner of the rights set out above, reserves the right to use for its own purposes, the results of verifications, tests or experiments performed in any way on the Product, even after delivery.

6.2 Confidentiality clause

The Customer, during the supply relationship and for 5 years after its conclusion, will be required scrupulously to respect the confidentiality and secrecy of everything of which, on the occasion of implementing or preparing the contract, it becomes aware (documents, data, characteristics, elements, technical information, prices, designs, graphics, reports, outlines, notes, etc.).
The Customer undertakes to store all the material received from C.Matic with the same care and in respect of the most scrupulous secrecy as though what was received or exchanged were its own exclusive property.
C.Matic and the Customer must only allow persons involved in the implementation of the supply to have access to the data, documents and all material received.
The Customer expressly declares to be compliant with the procedures for the respect of privacy as provided by existing regulations.
If necessary, C.Matic and the Customer will appoint, notifying the other of his/her name, a person responsible for managing any sensitive data that may be transmitted.
The confidentiality and secrecy obligation shall not apply in the case of:

- information that is in the public domain or in any case was already known at the time of entering into the contract.
- information already in possession prior to entering into the contract.
- disclosure obligation of information when required by a Judicial Authority or a Public Authority in general.

Any breach of this clause will entitle C.Matic to claim compensation for damages and/or the termination of the contract.

6.3 Guarantee against counterfeiting

Where the Product is custom-made, or produced in accordance with indications or information provided by the Customer, the latter will be solely liable for any infringement, even relating to the production process, of rights of third parties in relation to industrial property and it undertakes to hold harmless C.Matic from each and any direct or indirect consequence that the availability or use, in any capacity, of that information or the Product itself may cause, directly or indirectly, to C.Matic or to third parties. The Customer will, finally, bear directly or in any case will keep C.Matic indemnified for all direct and indirect damages and for all costs, including of legal support or any other professional reason, even technical, including the fees of Professionals instructed by C.Matic in the event of legal or extrajudicial action or for mediation, brought against C.Matic or by it due to any infringement of the obligations set out in this clause.

7 Delivery, transportation, verification and acceptance of Product

7.1 Delivery term

C.Matic will make any effort to respect the delivery term agreed with the Customer.
In no case, however, may the delivery date be deemed as mandatory and binding for the correct implementation of the order. The Customer expressly waives the right to make any claim for damages or reimbursement in any capacity or to request the termination of the contract in cases of failure to respect the delivery term of the Product.
As stated above all delivery dates are approximate and C.Matic shall not be responsible for any damages of any kind resulting from any delay .
C.Matic reserves the right to communicate, by any means, to the Customer any changes to the delivery term when the change is of particular significance. The Customer may request that C.Matic makes its best efforts to improve the delivery but in no case it may refuse to pay for the Product.
C.Matic reserves the right to suspend, indefinitely, the delivery of the Product in the event of non-payment of the supplies. Similarly, in any case of non-fulfillment, C.Matic may, if existing, deem the exclusivity of the product reserved to the Customer to be terminated and no longer in existence.

7.2 Delivery terms (Ex-works)

Unless otherwise agreed, the delivery of the Product will be made "Ex-works" and is understood to be executed on the day and time on which the loading of the goods on the vehicle used by the carrier or shipping agent is completed or, in any case, from the communication made by C.Matic of the availability of the goods.
From the above date, the Customer will be transferred all rights and responsibilities relating to the Product even if physically still stored at C.Matic's plant.
The Customer is required to collect the Product directly or indirectly within 5 days from the notification of availability of the goods. In the event of a delay in collecting the goods beyond the aforementioned term, C.Matic will charge to the Customer all costs and disbursements that are necessary for storage, deposit and handling of the goods.
C.Matic will issue for that reason the corresponding invoice which must be paid before collecting the Product and in any case by the terms set out in point 10.1.
Once 10 days have elapsed from the notification that the goods are ready for delivery, C.Matic may, at its sole discretion, subject to the obligation for the Customer to pay the costs as indicated above, sell the Product to third parties, destroy it at the expense of the Customer, or reuse it, charging to the Customer all consequent costs. The invoice issued for that reason is understood to be payable immediately. Similarly, in the event of non-collection of the Product, by the term indicated above, C.Matic may deem any exclusivity , if existing, granted to the Customer terminated, even with reference to the continuation of the contract with the Customer.
C.Matic shall in good time send to the Customer or to the conveyor the "goods ready for delivery" notification. The Customer, or the conveyor under Customer's responsibility, shall collect the Product at the date and time indicated in the "goods ready for delivery" notification as received from C.Matic. Where the goods are not collected in accordance with what is stated in the "goods ready for delivery" notification, the Customer shall bear any cost, disbursement or expenditure for any reason (deposit, insurance, handling, storage, use of space, etc.) incurred by C.Matic as already specified above.

7.3 Transportation, customs charges, insurance

Unless otherwise expressly provided in the order, the transportation will always be performed at the care and expense of the Customer which shall, if deemed necessary, and under its exclusive liability, insure the Product during transportation.
Where C.Matic takes responsibility for shipping the Product to the destination, the transfer of risk will occur when the Product is delivered to the first shipping agent or the first haulier.
The Customer shall always bear, unless otherwise agreed, the customs charges, freight and costs of storage at destination, proceeding, if due, to fulfill the shipping, loading, unloading and customs clearance procedures, irrespective of the means of transport chosen by the Customer.
The Customer shall offer to C.Matic proof of the customs clearance of the product and its receipt.
C.Matic, however, will never be required to insure the Product irrespective of the agreed delivery methods.

7.4 Check of quantities and type of Product delivered

The Customer shall check quantitates and weight of the Product by way of its own personnel, the conformity of the Product with the order terms; that check will be conducted at the cost of the Customer and under its exclusive responsibility as soon as the delivery is made.
Any dispute or reservation relating to clear defects of the Product shall be noted immediately on the consignment docket, CMR, way bill or transportation document. A copy of the consignment docket, way bill or transportation docket with the respective reserves or disputes shall be sent for information to C.Matic which, in any case, will not be liable for any shortages and will not be liable for reserves made by the Customer except where it is proven that the defect subject to the reserve was already existing at the time of delivery of the product at the plant of C.Matic . In the absence of reserves noted on the consignment docket, CMR, way bill or transportation document, the Product, from the perspective of type and quantities, will be understood to be accepted on a final basis, with express irrevocable waiver for the Customer of the right to claim in any venue, for that reason, rights of any nature.

7.5 Dispute in relation to existence of defects

C.Matic is required to deliver the Product free from defects and compliant with the order.
The quality of the Product is understood to refer to the "standard" of C.Matic, as well-known to the Customer.
The Customer, in the case of defects existing in the Product, shall, under penalty of forfeiture within 10 calendar days from the delivery, dispute the Product supplied, sending to C.Matic an appropriate written communication containing the list of defects or faults, the number of items on which the same have been identified, the methods by which the checks were performed, the batch number and any useful evidence to allow C.Matic exactly to identify the Product subject to dispute.
The Customer, if requested by C.Matic , shall return, at the care and expense of the Customer, the Product subject to dispute.
C.Matic, at its sole discretion, and without this constituting any acknowledgement of any liability,

may repair the product, sending it back to the Customer. In that case, C.Matic will bear the transportation costs.
Where C.Matic does not identify the presence of the disputed defects or faults, it can invite the Customer to its own plant to jointly assess the results of its investigations, after which the Product will be sent back to the Customer at its expense.
C.Matic, however, may, at its sole discretion, and without this constituting any acknowledgement of liability, proceed to replace the disputed Product, sending a new one to the Customer.
In no case may the Customer suspend payment of the Product even if it is subject to total or partial dispute. Similarly, even in the case of total or partial dispute of the supply made, the Customer may not suspend the payment of any sum for any reason due to C.Matic .
The Customer may not, for any reason, autonomously perform or have performed by third parties processes or interventions on the Product. In that case the Product will no longer be guaranteed, meaning, in addition, that the Customer irrevocably waives the right to claim in any venue any liability by C.Matic .
Where the Customer, in the presence of clear defects or faults, decides not to inform C.Matic of them and uses, assembles or sells the Product, it will lose any right to the replacement or repair of the Product.
Similarly, the guarantee provided by C.Matic , in accordance with point 7.6 below, is also understood to be terminated.
In any case, subject to an indication to the contrary sent by C.Matic , the Customer shall take exclusive responsibility for the activity and cost of disassembly, storage, disposal of the Product subject to dispute and the activity and cost of assembling the new, reworked or re-sent Product by C.Matic to the Customer.
Any complaints or disputes do not exonerate the Customer from the obligation of honouring any obligation accepted towards C.Matic , irrespective of the reason for which the obligation was contracted.

7.6 Guarantee - duration

C.Matic, unless otherwise agreed, guarantees the Product supplied for a period not exceeding twelve months. The guarantee is understood to commence from the "goods ready for delivery" notification or from the day of the ex-works delivery.
The guarantee shall be effective in the case of correct use of the Product and when the malfunctioning of the same or the defect identified in the Product is not also indirectly or partially attributable to the Customer or to the end user or in the case of inconsistent or unauthorized use of the Product.

7.7 Acceptance

Once the term of 10 days has elapsed from delivery of the product and in the absence of disputes, the Product supplied will be understood to be definitively accepted and the Customer will have forfeited the possibility of making any claim, protest or request whatsoever.
In no case after the acceptance has been made will C.Matic be required to replace or repair the Product supplied or bear any cost or disbursement even by way of damages.

8 Adversity clause and causes of force majeure

8.1 Conditions for changing the prices of the Product

C.Matic may change the prices of the Product even after acceptance of the order and conclusion of the contract. C.Matic shall notify the Customer in writing the new price, indicating the reasons for which that change is necessary. The new price will be binding for the Customer commencing from the first delivery after the communication or in any case once 10 calendar days have elapsed from the communication sent to the Customer.
C.Matic , where exceptional events occur that make the implementation of the order particularly burdensome, may terminate or withdraw at any time from the contract, cancel the order or delivery program, without the Customer being able to claim, with that right being understood to be irrevocably waived, any reimbursement or compensation.

8.2 Causes of force majeure

C.Matic may suspend its supply obligations and, in any case, the contractual commitments with the Customer in any case of Force Majeure. Where C.Matic intends to invoke that right it must promptly inform the Customer in writing, indicating the invoked cause of Force Majeure and, if possible, the expected duration of the suspension of the contractual obligations assumed. If the cause of suspension protracts for more than 90 working days, the Customer may, temporarily, source the Product it requires from another supplier, subject to the commitment, for the Customer, once the cause of Force Majeure has ended, to repurchase the Product from C.Matic .
C.Matic undertakes to communicate in writing to the Customer the termination of the cause of Force Majeure, also indicating the date of first delivery of the Product after the Force Majeure event.
The Customer is required to accept those deliveries. If the case of Force Majeure protracts for more than 90 days, C.Matic and the Customer will meet in order to assess the possibility of deeming the supply contract to be terminated.
In any case, the Customer shall collect and pay for all the Products in storage at C.Matic , the cost of the semi-finished products, raw materials, paper and anything that was specifically purchased or produced by C.Matic to implement the supply. C.Matic may also invoke Force Majeure in all cases where its performance becomes particularly onerous or impossible. The following circumstances constitute Force Majeure, by way of an indicative but not comprehensive list:
- natural disasters (earthquakes, fires, floods, storms, etc.).
- armed conflicts, wars, disputes, attacks, uprisings, terrorist acts.
- trade union or labor conflicts or disputes, lock-outs, general and industry strikes or strikes at the plant of C.Matic or C.Matic s of the same.
- trade union conflicts or disputes, general or industry or plant strikes or lock-outs, even if relating to C.Matic s of C.Matic , hauliers, service companies, shipping agents, post offices in general or, in any case, all those involved in the production process.
- orders of judicial, government or public authorities in general.
- prohibitions on import, embargoes, blocks on production imposed by the health or public authority in general.
- accidents at work, seizures, machine faults, explosions, power shortages and any and every event that might limit or exclude the possibility of production.
- shortages or excessive cost of raw materials.

Where the Customer intends to invoke cases of Force Majeure, it must promptly inform C.Matic .
In that case, the Customer shall also indicate to C.Matic the methods by which the Product may be collected, possibly even in a different location to that agreed, with the Customer, in that case, bearing the greater cost that C.Matic will indicate.
In no case may the Customer invoke Force Majeure to suspend the payments of supplies

9 Definition of prices"

The prices indicated by C.Matic are all understood to be net of taxes, rates, duties on the Product. Unless otherwise agreed, the prices are in any case understood to be "ex works". Unless otherwise agreed, the prices will always be expressed in Euros.

10 Payments

10.1 Payment Terms

The payment of supplies, unless otherwise agreed, shall occur, at the domicile of C.Matic, irrespective of any disputes, upon receipt of the pro-forma or of the invoice in advance. C.Matic may allocate the payments received at its sole discretion, providing information thereof to the Customer.
C.Matic shall not be required to agree any discount in cases of early payment of the Product.

10.2 Payment Delays

Subject to what is indicated in this contract, in cases of non-payment of the Product within the term identified in point 10.1, interest will accrue in favour of C.Matic amounting to the rate established by Italian Legislative Decree 231/2002.
C.Matic is authorized to issue an invoice for interest in accordance with the methods set out in this point and to send it to the Customer.
The invoice will also include the costs that C.Matic has incurred for that activity. The Customer must immediately proceed with the payment of what is due. Where an invoice is issued for interest and/or costs for delayed payment, C.Matic may, at its sole discretion, allocate all payments subsequently made by the Customer to settle the invoice for interest and costs and, only for any residual amount, to payment of the Product supplied.
C.Matic may also, in the case of non-payment, suspend the delivery of the Product, refuse the request for further deliveries and/or deem the contract terminated or also the commitment made to process any subsequent orders of the Product.
Similarly, C.Matic , in the case of non-payment by the payment date of even just one supply, may deem any "exclusivity" ,if existing, of the product no longer to apply. The invoice issued in accordance with this article shall, in any case, be paid by the Customer prior to collecting the Product.

10.3 Changes in the financial or corporate situation of customers

Any event or conduct that might lead to doubts about the solvency of the Customer or its desire or possibility to pay or collect the Product supplied may be considered a reason for the suspension of the supply of the Product by C.Matic. C.Matic, in that case, must send to the Customer a specific communication. From receipt of the aforementioned communication, all debts of the Customer towards C.Matic shall be understood to be immediately due and the sums all collectable, and this is in derogation of any agreement to the contrary that may have been made with the Customer. C.Matic will also be entitled to take the Product supplied but not paid from the warehouses or plants of the Customer. The Customer hereby authorizes C.Matic to request and obtain from the judicial authority and also as a matter of urgency any measure required.
From the date of sending the communication referred to in this paragraph, the Customer will be required, irrevocably, to pay, in advance, any sum requested for subsequent supplies of the Product, and this is in derogation of both existing orders, even if accepted by C.Matic , and any supply condition even if agreed and in existence between C.Matic and the Customer, subject in any case to C.Matic 's right to suspend the deliveries and terminate the existing contract.
Where the Customer is subject to insolvency proceedings (arrangement with creditors, receivership, bankruptcy, forced liquidation, special administration, debt restructuring agreement, etc.) C.Matic may, in compliance with the specific regulations in relation to recovery of credits, suspend the further supplies, deem the contract terminated and revoke any exclusivity, if existing, of the product.
The Customer is required to communicate to C.Matic any significant change to its corporate structure or its managerial-administrative organization or the signature of deeds of sale or rental of the business or branches of the same even by way of preliminary agreement. C.Matic , having assessed that information or where the same has been acquired autonomously, may communicate to the Customer its intention not to continue the relationship, also suspending the implementation of orders already accepted. In that case, all credits of C.Matic shall be understood to be immediately due and the exclusivity, if existing, of the product revoked.
C.Matic may in any case retain, by way of greater damages, the advances or anything collected up until that time.

10.4 Credits of the Customer

The Customer may not, for any reason, even in cases of dispute recognized by C.Matic, issue, without the consent of C.Matic , debit notes or invoices for credits even ascertained to be due to it or in any case charge C.Matic sums of which the latter has not, expressly and in writing, acknowledged to be the debtor of. The Customer may not, in any case, except with written authorization, offset or retain sums due for any reason to C.Matic against its own alleged or ascertained credits; in that case, C.Matic may claim interest for non-payment or delayed payment and suspend the subsequent supplies.

10.5 Retention of Title

The Product is supplied with the formula and guarantee for C.Matic of "Retention of Title", such that the product will remain the property of C.Matic until the Customer has fulfilled every obligation for any reason existing towards C.Matic .

The Customer shall implement every measure necessary for the protection and safeguarding of the right of "Retention of Title" and will be liable for any consequence that might derive to the product itself. The "Retention of Title" does not imply a derogation of what is provided at points 7.2 and 7.3 in relation to transfer of risk and liability for transportation and custody of the product itself.

The Customer is required to implement every useful measure so as not to confuse C.Matic 's product with another possibly similar product of other C.Matic's, and it must store the product in spaces appropriately separated and easily identifiable.

The Customer is required to inform its customers, particularly in the case of processing performed on behalf of third parties, of the existence of the "Retention of Title" guarantee in favour of C.Matic, expressly authorizing the latter, in the case of non-payment by the Customer or a request by the same for admission to insolvency proceedings, arrangement with creditors or similar, to recover, even by urgent judicial measure, and at the expense of the Customer, the Product supplied and not yet paid for in full. Similarly, the Customer must consent to the amicable collection of the Product by C.Matic, where requested by it, except where the Customer has fulfilled every obligation in place with C.Matic and paid every debt for any reason existing towards C.Matic.

11 Liability

11.1 Definition of liability of C.Matic

C.Matic will be liable for the correct production of the product and for complying with the characteristics provided in the order. The Product will be produced in compliance with existing EU legislation. It will be the responsibility of the Customer to communicate in good time any specific regulatory or administrative provision outside the Italian national territory or that may relate to the production or packaging of the Product.

C.Matic will never be liable for defects of the Product when these are attributable to:

- materials supplied by the Customer or by third parties indicated by the customer.
- design or planning errors when those activities are implemented by the Customer or by third parties indicated by the Customer.
- use of equipment indicated or provided by the Customer or by third parties indicated by the Customer.
- treatments, manipulations, transformations, surface treatment, or processing performed on the Product without the written consent of C.Matic.
- non-compliant, non-permitted, anomalous, atypical or particular use.
- poor storage, transportation, conservation or handling.
- normal wear of the Product or deterioration of the same attributable to events referable to the Customer or to third parties.
- lack of compliance with recommendations, indications or suggestions of C.Matic in relation to maintenance, conservation or use of the product itself.

11.2 Limits of Liability

The liability of C.Matic, except as stated hereinafter, will in any case be limited only to direct damages caused to things or persons of the Customer or used by the same due to faults or defects of the Product recognized by C.Matic as attributable to the same. Any liability for indirect damages, loss of image, loss of income, loss of earnings, costs, loss of business, of profit, costs for production shutdowns even of third parties or in any case as an indirect consequence of the defect of the product, even where the defect is recognized by C.Matic, is excluded. Similarly, C.Matic may never be liable for damages that the product may have caused to third parties once the Product is assembled, sold autonomously or together with the product of the Customer.

In no case C.Matic will be liable for lack of performance in addition to those indicated in the catalog. The Customer, upon delivery of the product, irrevocably waives the right to take action against C.Matic for any other claim that is outside the liability of C.Matic, the extension of which is that limited to what is stated in this paragraph. Similarly, any liability of C.Matic is excluded in the case of infringement of any property rights of third parties except where the Customer can prove the knowledge by C.Matic of the existence of patents or property rights.

In any case, the limit of liability for C.Matic is understood to be fixed at the value of the product supplied, and accepted as defective by C.Matic. C.Matic may be exempted from any liability by offering to the Customer a replacement product of the same type and with the same technical characteristics. The Customer waives, in any case ,with the delivery or receipt of confirmation of the availability of the product , the right to make any other or additional claims than those indicated herein, being understood that the Customer irrevocably waives the right to claim damages or compensation of any nature.

12 Jurisdiction

The supply of the product and any consequence deriving from implementation of the contract or, in any case, any fact connected to or aimed at the conclusion of the contract and/or the order, will always and in any case, mandatorily be submitted to Italian jurisdiction and to the laws in force in Italy, with the validity and applicability of foreign jurisdictions or regulations being excluded.

C.Matic may, at is sole discretion, deem applicable, even foreign jurisdictions, to protect its rights of credit or those consequent to the supply.

13 Court with Jurisdiction for Disputes

C.Matic and the Customer undertake to make all their best efforts to settle amicably any disputes that might arise between them for any reason that is connected to or results from the supply of the product.

In any case, any dispute that might arise in relation to the relationship between the parties or for any other reason or consequence that is connected to or results from the supply of the Product, or the interpretation or execution, even partial, of the contract in place between the Customer and C.Matic , shall be understood to be devolved, unless decided differently by C.Matic as a result of the right set out in the previous paragraph, to the exclusive and mandatory jurisdiction and responsibility of the Court of Monza.

In the event of any litigation arising herefrom, C.Matic shall be entitled to recover all reasonable attorney's fees , cost and expense incurred by C.Matic in enforcing any C.Matic's right hereunder.

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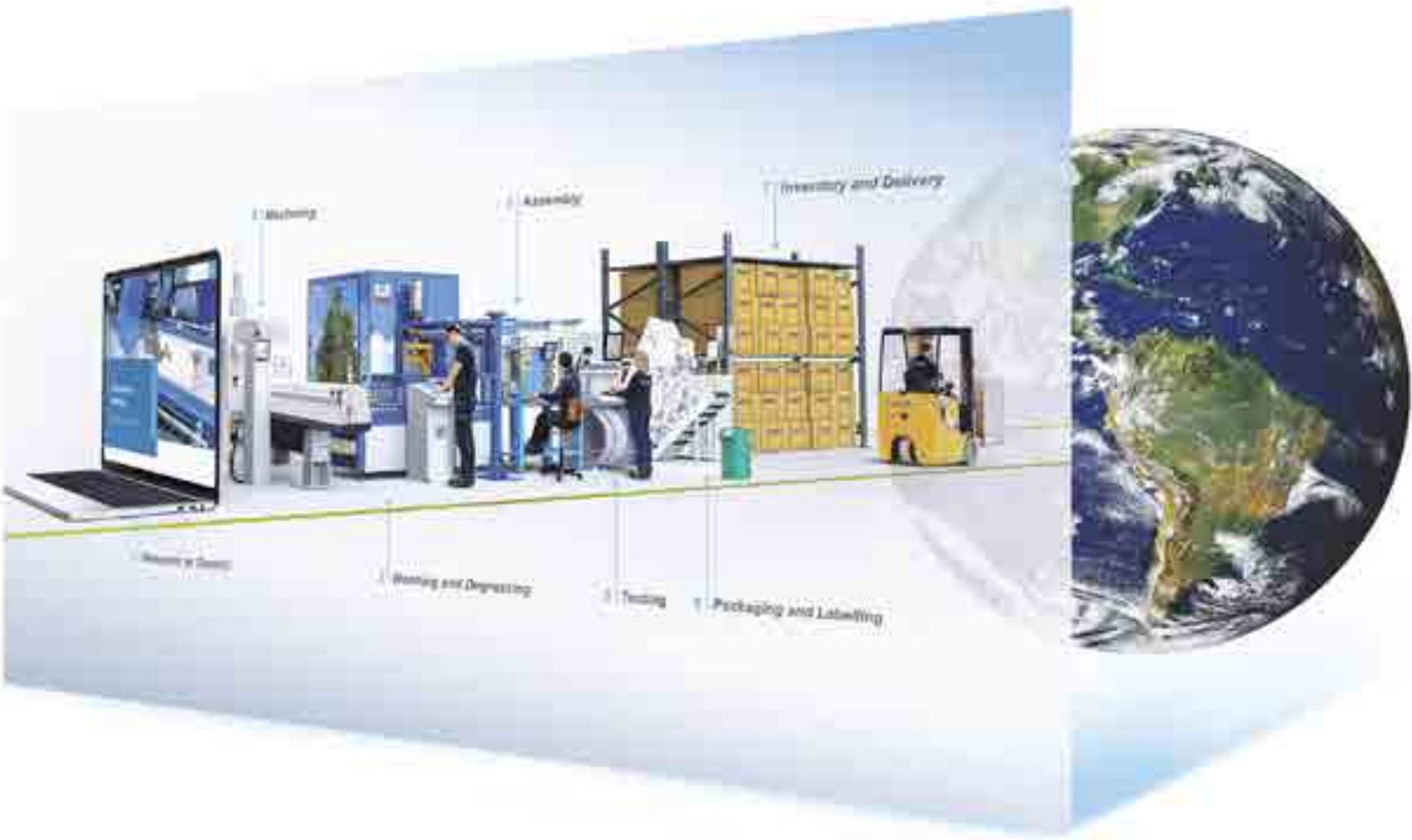

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