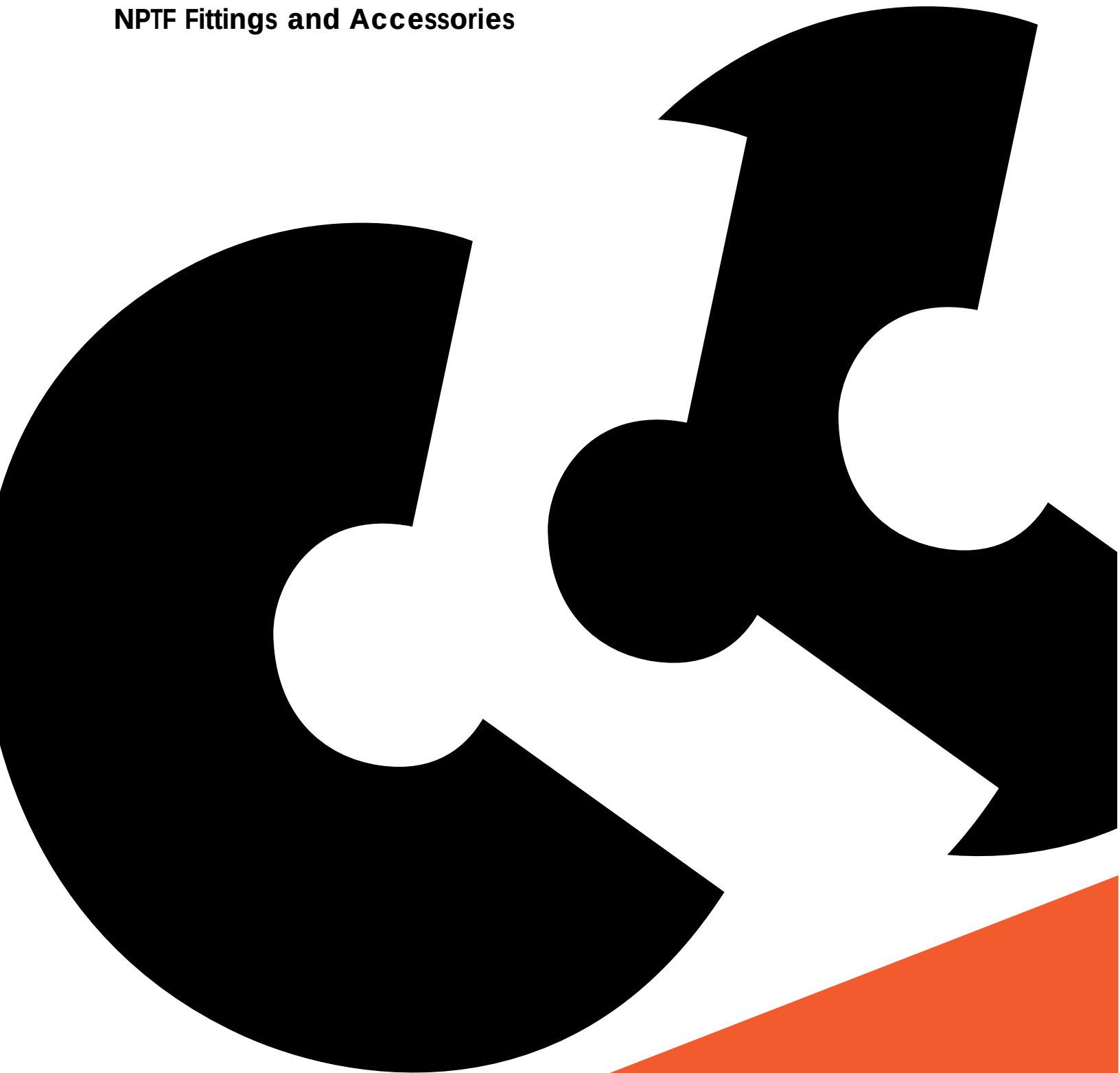
Camozzi Catalogue

NPTF Fittings and Accessories



CAMOZZI

Camozzi Pneumatics, Inc.

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Dallas, Texas 75229-1974
U.S.A.
Tel. 214-247-5411
Fax 214-247-5178

Camozzi spa

Distribution

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25126 **Brescia**
Italy
Tel.: 030/37921
Fax: 030/2400464

Production

Via Moretto, 29
25065 **Lumezzane S.S.** [BS]
Italy
Tel.: 030/8920521
Fax: 030/829341

Via Borrine, 3
25080 **Polpenazze d/G** [BS]
Italy
Tel.: 0365/674046
Fax: 0365/674306

CAMOZZI

CAMOZZI

The position we occupy
is not as important
as the direction
we are moving in.

L.N. Tolstoy

Moving Into the Future.

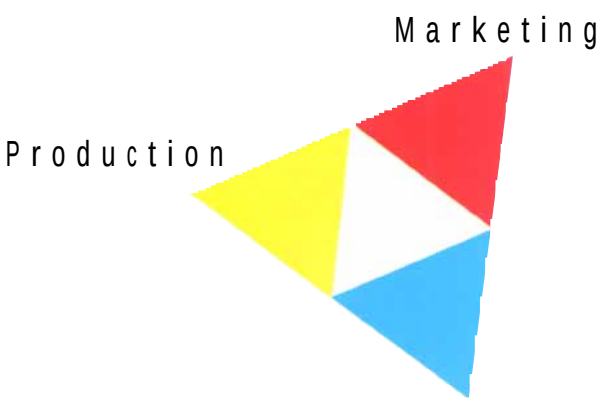
While living in the present, the Camozzi Group looks to the future with sensitivity, rationality and a spirit of competitiveness. We have followed this philosophy for thirty years and have worked as a committed and determined team, producing quality pneumatic components while, at the same time, satisfying the needs of our customers and achieving the personal pleasure of doing things well. As a result, new technologies and products are continually being developed, looking beyond the borders of Europe towards a worldwide market place. It is now possible to aim for an independent worldwide production and distribution base.

Total Quality, Quality of life.

Through perseverance, communication and teamwork, we have succeeded in opening up Camozzi to Total Quality. This concept is today at the very heart of the decisions made by senior management.

By working carefully, capitalizing on the strengths of the workforce, the Group can swiftly adapt production, marketing and finance plans to changes in the market place and individual customer's requirements.

We are not content with a life in which body and soul are not united, so we have managed to reconcile emotion with reason, endeavor with creativity and family with society.



Vertical Integration.

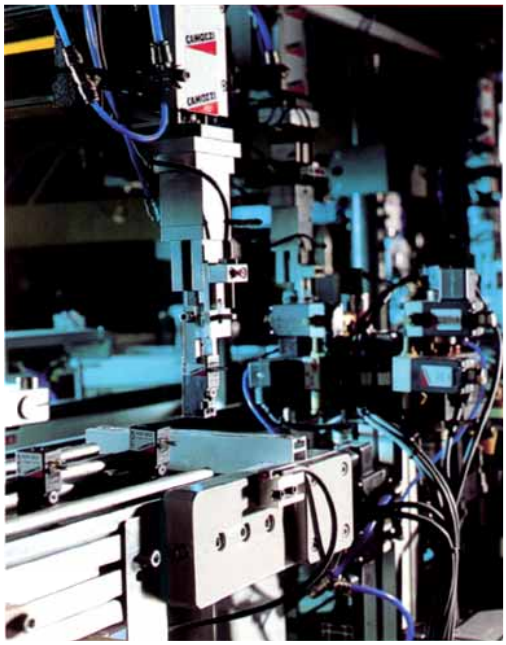
Development without Limits.

A culture of innovation that also includes continuous improvement in production capability is seen as a means of developing closer relationships with our customers.

There has been a significant investment in machinery which has led to a substantial increase in production capacity with maximum flexibility.

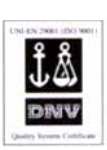
As a result, complete automation of the manufacturing process, along with the assembly lines and testing areas, is now a reality. Components are designed with the help of nine CAD stations, all interfaced with each other, while a CAM unit is used for the programming of machines. Our strategy for our three factories at Lumezzane, Polpenazze and Paderno is identical.

All three factories are outstanding examples of independent and fully automated production units. The manufacturing process is vertically integrated and all major operations are carried out internally, including casting.



The Camozzi Group believes that a strong competitive spirit is the main route to success.

We have therefore never rested on our laurels, but built on success to reach even more ambitious goals such as achieving ISO 9000 Certification.



A Market Without Frontiers.

We believe in using technological development as a means of satisfying our customers' needs.

Production processes are supported by a dedicated system of quality control which is linked to a central computer, and every component is subject to this procedure.

The quality of our craftsmanship is, above all, the product that we export to more than 50 countries worldwide.

Advancing Towards the Future.

The Camozzi name is proof of the quality of our products and has produced consistent results over the years.

The Camozzi Group understands the needs of the market place and concentrates on being aware of its customers' needs while opening up new markets. Pneumatics is one of the most flexible and cost effective systems available. There will be continued investment in people, machinery and systems to achieve our goals. We are proud of what we have achieved, but we will continue to rise to the greater challenges that we set for ourselves.

Camozzi worldwide

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1. Fittings

2. Automatic valves and accessories

3. Flow control valves

4. Technical data

1

Super-Rapid *Pro-Fit*® fittings for plastic tube Patented

Threads: 1/8", 1/4", 3/8", 1/2" NPTF
Diameter of tube: 1/8", 5/32", 1/4", 5/16", 3/8", 1/2"

CAMOZZI

Technical Data	
Material	Brass OT58 UNI 5705, nickel plated
Collet	Brass OT58 UNI 5705, nickel plated
O-ring	Buna-N [viton available]
Threads	1/8", 1/4" 3/8", 1/2"NPTF
Operating pressure	From 0 - 250 psi
Vacuum rating	[also available for vacuum service, tested to 29" Hg]
Tube to connect	Nylon 6, 11, 12
Tube diameter	1/8", 5/32", 1/4", 5/16", 3/8", 1/2"
Fluid	Compressed air
	[for other types of fluid please contact our engineers]
Operating temperature	0°F - 160°F

The Original Camozzi design - 100% All-metal, nickel-plated brass gives equipment that stainless-steel look while eliminating the danger of broken plastic pieces. Full I.D. tube flow is always maintained for maximum Cv ratings and quick cycle times. "Push-in" and lock the tube quickly and effortlessly.

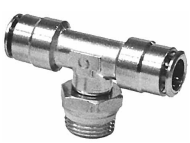
Low Profile Fit - New "Pro-Fit fittings offer the lowest profile fit for tight places. Their unique design eliminates all exposed threads making them ideal for food processing and hygienic applications.

Fast Installation - Assembly is fast due to the lack of thread preparation often necessary with other brands. The shortened thread makes for Super-rapid installations. Just a few turns and the fitting is secure.

Perfect Seal - A captured teflon ring seated around the base of the hex shoulder makes for a perfect, reusable (SAE-type) seal every time. There's no risk of defiling pneumatic components susceptible to loose particles typical of conventional thread sealants. Patented


P6510


P6520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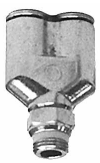
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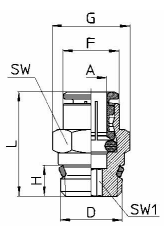
MALE CONNECTOR



	OD	THREAD NPTF						
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P6510-02-04	1/8	1/4	.346	.629	.255	.807	.551	.098
P6510-53-02	5/32	1/8	.346	.551	.200	.728	.472	.098
P6510-53-04	5/32	1/4	.346	.629	.255	.807	.551	.098
P6510-04-02	1/4	1/8	.460	.551	.200	.807	.472	.157
P6510-04-04	1/4	1/4	.460	.629	.255	.846	.551	.157
P6510-04-06	1/4	3/8	.460	.866	.294	.885	.748	.157
P6510-05-02	5/16	1/8	.539	.629	.200	.945	.551	.196
P6510-05-04	5/16	1/4	.539	.629	.255	.945	.551	.236
P6510-05-06	5/16	3/8	.539	.866	.294	.924	.748	.236
P6510-06-02	3/8	1/8	.641	.776	.200	1.082	.669	.196
P6510-06-04	3/8	1/4	.641	.776	.255	1.102	.669	.275
P6510-06-06	3/8	3/8	.641	.866	.294	.945	.748	.275
P6510-06-08	3/8	1/2	.641	1.004	.335	.984	.866	.275
P6510-08-04	1/2	1/4	.720	.866	.255	1.161	.748	.276
P6510-08-06	1/2	3/8	.720	.866	.294	1.161	.748	.393
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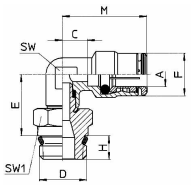
P6520
SWIVEL MALE ELBOW



Part No.	O.D. A	THREAD D	C	E	F	H	L	SW	SW1
		NPTF							
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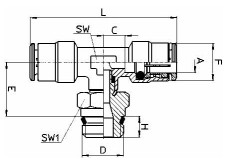
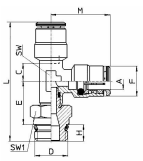
P6520-02-04	1/8	1/4	.236	.629	.346	.255	.807	.354	.551
P6520-53-02	5/32	1/8	.236	.589	.346	.200	.787	.354	.472
P6520-53-04	5/32	1/4	.236	.629	.346	.255	.787	.354	.551
P6520-04-02	1/4	1/8	.267	.629	.460	.200	.885	.393	.472
P6520-04-04	1/4	1/4	.267	.649	.460	.255	.885	.393	.551
P6520-04-06	1/4	3/8	.267	.649	.460	.294	.885	.472	.748
P6520-05-02	5/16	1/8	.295	.648	.539	.200	.964	.472	.472
P6520-05-04	5/16	1/4	.295	.688	.539	.255	.964	.472	.551
P6520-05-06	5/16	3/8	.295	.688	.539	.294	.964	.472	.748
P6520-06-02	3/8	1/8	.335	.747	.641	.200	1.102	.551	.551
P6520-06-04	3/8	1/4	.335	.767	.641	.255	1.102	.551	.551
P6520-06-06	3/8	3/8	.335	.767	.641	.294	1.102	.551	.748
P6520-06-08	3/8	1/2	.335	.786	.641	.335	1.102	.551	.866
P6520-08-04	1/2	1/4	.393	.806	.720	.255	1.200	.669	.669
P6520-08-06	1/2	3/8	.393	.806	.720	.294	1.200	.669	.748
P6520-08-08	1/2	1/2	.393	.826	.720	.355	1.200	.669	.866

P6430
MALE BRANCH TEE SWIVEL



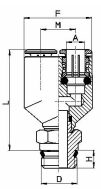
Part No.	OD A	THREAD D	C	E	F	H	L	SW	SW1
		NPTF							
P6430-02-02	1/8	1/8	.236	.589	.346	.200	1.614	.354	.472
P6430-53-02	5/32	1/8	.236	.589	.346	.200	1.574	.354	.472
P6430-53-04	5/32	1/4	.236	.629	.346	.255	1.574	.354	.551
P6430-04-02	1/4	1/8	.267	.609	.460	.200	1.771	.393	.472
P6430-04-04	1/4	1/4	.267	.649	.460	.255	1.770	.393	.551
P6430-04-06	1/4	3/8	.267	.649	.460	.294	1.770	.472	.748
P6430-06-04	3/8	1/4	.335	.767	.641	.255	2.204	.551	.551
P6430-06-06	3/8	3/8	.335	.767	.641	.294	2.204	.551	.748
P6430-06-08	3/8	1/2	.335	.786	.641	.335	2.204	.551	.866
P6430-08-04	1/2	1/4	.393	.806	.720	.255	2.400	.669	.669
P6430-08-06	1/2	3/8	.393	.806	.720	.294	2.400	.669	.748
P6430-08-08	1/2	1/2	.393	.826	.720	.335	2.400	.669	.866

P6440
MALE RUN TEE SWIVEL



Part No.	OD A	THREAD D	C	E	F	H	L	M	SW	SW1
		NPTF								
P6440-02-02	1/8	1/8	.236	.589	.346	.200	1.594	.807	.354	0.472
P6440-53-02	5/32	1/8	.236	.589	.346	.200	1.574	.787	.354	0.472
P6440-53-04	5/32	1/4	.236	.629	.346	.255	1.673	.787	.354	0.551
P6440-04-02	1/4	1/8	.267	.609	.460	.200	1.692	.885	.393	0.472
P6440-04-04	1/4	1/4	.267	.649	.460	.255	1.791	.885	.393	0.551
P6440-04-06	1/4	3/8	.267	.649	.460	.294	1.830	.885	.472	0.748
P6440-06-04	3/8	1/4	.335	.767	.641	.255	2.125	1.102	.551	0.551
P6440-06-06	3/8	3/8	.335	.767	.641	.294	2.165	1.102	.551	0.748
P6440-06-08	3/8	1/2	.335	.786	.641	.335	2.224	1.102	.551	0.866
P6440-08-04	1/2	1/4	.393	.806	.720	.255	2.263	1.200	.669	0.669
P6440-08-06	1/2	3/8	.393	.806	.720	.294	2.303	1.200	.669	0.748
P6440-08-08	1/2	1/2	.393	.826	.720	.335	2.362	1.200	.669	0.866

P6450
SWIVEL MALE “Y”



Part No.	OD A	THREAD D	F	H	M	L
		NPTF				
P6450-02-02	1/8	1/8	.826	.200	.393	1.278
P6450-53-02	5/32	1/8	.826	.200	.393	1.278
P6450-04-02	1/4	1/8	.964	.200	.492	1.397

Super-Rapid fittings for plastic tube

Threads: 10-32 UNF, 1/8”, 1/4”, 3/8”, 1/2” NPTF
Diameter of tube: 1/8”, 5/32”, 1/4”, 5/16”, 3/8”, 1/2”

CAMOZZI

Super-Rapid fittings are available in 23 different models. Connection and disconnection of the tube can be repeated several times and can be performed without tools. The sealing ring (o-ring) can easily be replaced if it is damaged or worn out.

Technical Data	
Material	Brass OT58 UNI 5705, nickel plated
Collet	Brass OT58 UNI 5705, nickel plated
O-ring	Buna-N [viton available]
Threads	10-32 UNF, 1/8”, 1/4” 3/8”, 1/2”NPTF
Operating pressure	From 0 - 250 psi; [same as *Pro-Fit*®]
Vacuum rating	29” of mercury Hg
Tube to connect	Nylon 6, 11, 12
Tube diameter	1/8”, 5/32”, 1/4”, 5/16”, 3/8”, 1/2”
Fluid	Compressed air
	[for other types of fluid please contact our engineers]
Operating temperature	0°F - 160°F


6510


6440


6450


6430


6463


6500


6520


6800


6580


6590


6550


6540


6560


6950


6900


6810


6700


1631-01


1631-02

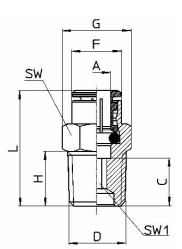

1631-03


6610


6620

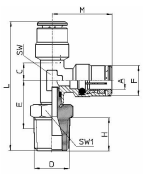

2023

6510
MALE CONNECTOR



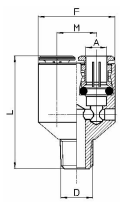
Part No.	OD A	THREAD D	C	F	G	H	L	SW	SW1
		UNF							
6511-02-32	1/8	10-32	.255	.346	.411	.177	.846	.354	.078
6511-53-32	5/32	10-32	.255	.346	.411	.177	.807	.354	.078
6511-04-32	1/4	10-32	.267	.46	.551	.177	.905	.472	.078
		NPTF							
6510-02-02	1/8	1/8	.255	.346	.551	.374	.846	.472	.078
6510-02-04	1/8	1/4	.393	.346	.629	.511	.984	.551	.078
6510-53-02	5/32	1/8	.255	.346	.551	.374	.807	.472	.098
6510-53-04	5/32	1/4	.393	.346	.629	.511	.944	.551	.098
6510-04-02	1/4	1/8	.346	.460	.551	.374	.984	.472	.157
6510-04-04	1/4	1/4	.444	.460	.629	.511	1.082	.551	.157
6510-04-06	1/4	3/8	.464	.460	.866	.511	1.102	.748	.157
6510-05-02	5/16	1/8	.452	.539	.629	.374	1.141	.551	.196
6510-05-04	5/16	1/4	.452	.539	.629	.511	1.141	.551	.236
6510-05-06	5/16	3/8	.452	.539	.866	.511	1.141	.748	.236
6510-06-02	3/8	1/8	.346	.641	.776	.374	1.141	.669	.157
6510-06-04	3/8	1/4	.590	.641	.776	.511	1.377	.669	.275
6510-06-06	3/8	3/8	.393	.641	.866	.511	1.181	.748	.275
6510-06-08	3/8	1/2	.472	.641	1.004	.708	1.259	.866	.275
6510-08-04	1/2	1/4	.531	.720	.807	.511	1.358	.748	.276
6510-08-06	1/2	3/8	.531	.720	.866	.511	1.358	.748	.393
6510-08-08	1/2	1/2	.531	.720	1.004	.708	1.358	.866	.393

6440
MALE RUN TEE SWIVEL



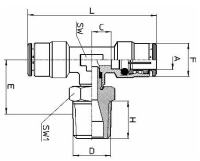
Part No.	OD A	THREAD D	C	E	F	H	L	M	SW	SW1
		UNF								
6441-02-32	1/8	10-32	.236	.531	.393	.177	1.534	.826	.354	.315
6441-53-32	5/32	10-32	.236	.531	.393	.177	1.495	.787	.354	.315
		NPTF								
6440-02-02	1/8	1/8	.236	.708	.393	.374	1.691	.826	.354	.472
6440-53-02	5/32	1/8	.236	.708	.393	.374	1.652	.787	.354	.472
6440-53-04	5/32	1/4	.236	.866	.393	.511	1.928	.826	.354	.551
6440-04-02	1/4	1/8	.267	.728	.500	.374	1.790	.905	.393	.472
6440-04-04	1/4	1/4	.267	.807	.500	.511	1.948	.905	.393	.551
6440-04-06	1/4	3/8	.287	.866	.500	.511	2.027	.925	.472	.748
6440-06-04	3/8	1/4	.335	.885	.688	.511	2.243	1.122	.551	.551
6440-06-06	3/8	3/8	.335	.905	.688	.511	2.263	1.122	.551	.748
6440-06-08	3/8	1/2	.335	1.043	.688	.708	2.480	1.122	.551	.866
6440-08-04	1/2	1/4	.393	.944	.767	.511	2.400	1.220	.669	.551
6440-08-06	1/2	3/8	.393	.944	.767	.511	2.400	1.220	.669	.748
6440-08-08	1/2	1/2	.393	1.122	.767	.708	2.657	1.220	.669	.866

6450
MALE «Y»



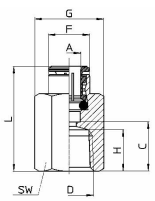
Part No.	OD A	THREAD D	F	M	L
		UNF			
6451-02-32	1/8	10-32	.826	.393	1.122
		NPTF			
6450-02-02	1/8	1/8	.826	.393	1.318
6450-53-02	5/32	1/8	.826	.393	1.279
6450-04-02	1/4	1/8	.964	.492	1.417

6430
MALE BRANCH TEE SWIVEL



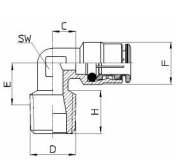
Part No.	OD A	THREAD D	C	E	F	H	L	SW	SW1
		UNF							
6431-02-32	1/8	10-32	.236	.531	.393	.177	1.652	.354	.315
6431-53-32	5/32	10-32	.236	.531	.393	.177	1.574	.354	.315
		NPTF							
6430-02-02	1/8	1/8	.236	.708	.393	.374	1.652	.354	.472
6430-53-02	5/32	1/8	.236	.708	.393	.374	1.574	.354	.472
6430-53-04	5/32	1/4	.236	.866	.393	.511	1.652	.354	.551
6430-04-02	1/4	1/8	.267	.728	.500	.374	1.810	.393	.472
6430-04-04	1/4	1/4	.267	.807	.500	.511	1.810	.393	.551
6430-04-06	1/4	3/8	.287	.866	.500	.511	1.850	.472	.748
6430-06-04	3/8	1/4	.335	.885	.688	.511	2.244	.551	.551
6430-06-06	3/8	3/8	.335	.905	.688	.511	2.244	.551	.748
6430-06-08	3/8	1/2	.335	1.043	.688	.708	2.244	.551	.866
6430-08-04	1/2	1/4	.393	.944	.767	.511	2.440	.669	.551
6430-08-06	1/2	3/8	.393	.944	.767	.511	2.440	.669	.748
6430-08-08	1/2	1/2	.393	1.122	.767	.708	2.440	.669	.866

6463
FEMALE CONNECTOR



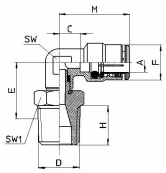
Part No.	OD A	THREAD D	C	F	G	H	L	SW
		NPTF						
6463-02-02	1/8	1/8	.413	.354	.639	.335	1.003	.551
6463-02-04	1/8	1/4	.551	.346	.776	.472	1.141	.669
6463-53-02	5/32	1/8	.413	.354	.639	.335	.964	.551
6463-53-04	5/32	1/4	.551	.346	.776	.472	1.102	.669
6463-04-02	1/4	1/8	.425	.460	.639	.335	1.063	.551
6463-04-04	1/4	1/4	.562	.460	.776	.472	1.200	.669
6463-06-04	3/8	1/4	.571	.641	.776	.472	1.358	.669
6463-06-06	3/8	3/8	.590	.641	1.004	.492	1.377	.866

6500
MALE ELBOW



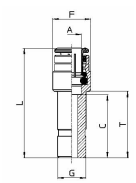
Part No.	OD A	THREAD D	C	E	F	H	M	SW
		NPTF						
6500-04-02	1/4	1/8	.267	.531	.500	.374	.905	0.393
6500-04-04	1/4	1/4	.267	.590	.500	.511	.905	0.393
6500-06-04	3/8	1/4	.335	.688	.688	.511	1.122	0.551
6500-06-06	3/8	3/8	.335	.688	.688	.511	1.122	0.551

6520
SWIVEL MALE ELBOW



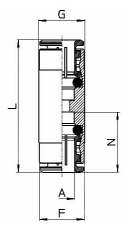
Part No.	OD A	THREAD D	C	E	F	H	M	SW	SW1
		UNF							
6521-02-32	1/8	10-32	.236	.531	.393	.177	.826	.354	.315
6521-53-32	5/32	10-32	.236	.531	.393	.177	.787	.354	.315
		NPTF							
6520-02-02	1/8	1/8	.236	.708	.393	.374	.826	.354	.472
6520-02-04	1/8	1/4	.236	.866	.393	.511	.826	.354	.551
6520-53-02	5/32	1/8	.236	.708	.393	.374	.787	.354	.472
6520-53-04	5/32	1/4	.236	.866	.393	.511	.826	.354	.551
6520-04-02	1/4	1/8	.267	.728	.500	.374	.905	.393	.472
		UNF							
6521-04-32	1/4	10-32	.267	.531	.500	.177	.906	.394	.354
		NPTF							
6520-04-04	1/4	1/4	.267	.807	.500	.511	.905	.393	.551
6520-04-06	1/4	3/8	.287	.866	.500	.511	.925	.472	.748
6520-05-02	5/16	1/8	.295	.767	.590	.374	.984	.472	.472
6520-05-04	5/16	1/4	.295	.846	.590	.511	.984	.472	.551
6520-05-06	5/16	3/8	.295	.866	.590	.511	.984	.472	.748
6520-06-02	3/8	1/8	.335	.885	.688	.374	1.122	.551	.551
6520-06-04	3/8	1/4	.335	.885	.688	.511	1.122	.551	.551
6520-06-06	3/8	3/8	.335	.905	.688	.511	1.122	.551	.748
6520-06-08	3/8	1/2	.335	1.043	.688	.708	1.122	.551	.866
6520-08-04	1/2	1/4	.393	.944	.767	.511	1.220	.669	.551
6520-08-06	1/2	3/8	.393	.944	.767	.511	1.220	.669	.748
6520-08-08	1/2	1/2	.393	1.122	.767	.708	1.220	.669	.866

6800
REDUCER



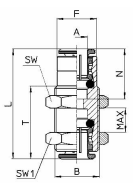
Part No.	OD A	G	C	F	L	T
6800-02-04	1/8	1/4	.787	.393	1.377	.708
6800-53-04	5/32	1/4	.787	.393	1.338	.708
6800-04-06	1/4	3/8	.858	.511	1.496	.905
6800-04-08	1/4	1/2	.858	.511	1.496	.905
6800-06-08	3/8	1/2	1.003	.669	1.791	.944

6580
UNION



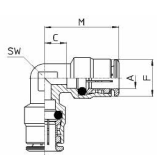
Part No.	OD A	F	G	L	N
6580-02-00	1/8	.346	.393	1.259	.590
6580-53-00	5/32	.346	.393	1.181	.551
6580-04-00	1/4	.460	.472	1.397	.637
6580-05-00	5/16	.539	.551	1.229	.688
6580-06-00	3/8	.641	.669	1.673	.787
6580-08-00	1/2	.720	.748	1.751	.826

6590
BULKHEAD UNION



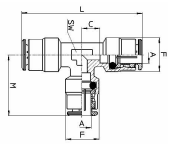
Part No.	OD A	B	F	L	N	MAX	SW	SW1	T
6590-02-00	1/8	M10X1	.346	1.259	.590	.354	.551	.551	.826
6590-53-00	5/32	M10X1	.346	1.181	.551	.315	.551	.551	.787
6590-04-00	1/4	M14X1	.492	1.397	.637	.374	.669	.669	.826
6590-05-00	5/16	M16X1	.539	1.496	.688	.413	.748	.748	.826
6590-06-00	3/8	M18X1	.641	1.673	.767	.472	.866	.866	.925
6590-08-00	1/2	M20X1	.720	1.751	.826	.531	.944	.944	.984

6550
UNION ELBOW



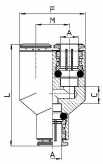
Part No.	O.D. A	C	F	M	SW
6550-02-00	1/8	.236	.393	.826	.354
6550-53-00	5/32	.236	.393	.787	.354
6550-04-00	1/4	.267	.500	.905	.393
6550-05-00	5/16	.295	.590	.984	.472
6550-06-00	3/8	.335	.688	1.122	.551
6550-08-00	1/2	.393	.767	1.220	.669

6540
UNION TEE



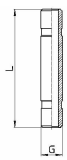
Part No.	OD A	C	F	L	M	SW
6540-02-00	1/8	.236	.393	1.653	.826	.354
6540-53-00	5/32	.236	.393	1.574	.787	.354
6540-04-00	1/4	.267	.500	1.811	.905	.393
6540-05-00	5/16	.295	.590	1.968	.984	.472
6540-06-00	3/8	.335	.688	2.244	1.122	.551
6540-08-00	1/2	.393	.767	2.440	1.220	.748

6560
UNION «Y»



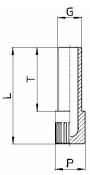
Part No.	OD A	C	F	L	M
6560-02-00	1/8	.236	.826	1.417	.393
6560-53-00	5/32	.236	.826	1.338	.393
6560-04-00	1/4	.236	.964	1.515	.492

6950
DOUBLE UNION



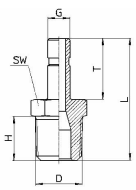
Part No.	G	L
6950-02-00	1/8	1.279
6950-53-00	5/32	1.279
6950-04-00	1/4	1.397
6950-05-00	5/16	1.594
6950-06-00	3/8	1.811
6950-08-00	1/2	1.889

6900
PLUG



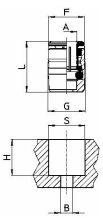
Part No.	G	L	P	T
6900-02-00	1/8	1.043	.236	.649
6900-53-00	5/32	1.043	.236	.649
6900-04-00	1/4	1.102	.315	.708
6900-05-00	5/16	1.200	.393	.807
6900-06-00	3/8	1.377	.472	.905
6900-08-00	1/2	1.417	.551	.944

6810
STEM ADAPTER



Part No.	G	THREAD D NPTF	H	T	L	SW
6810-02-02	1/8	1/8	.374	.649	1.200	.472
6810-02-04	1/8	1/4	.511	.649	1.358	.551
6810-53-02	5/32	1/8	.374	.649	1.200	.472
6810-53-04	5/32	1/4	.511	.649	1.358	.551
6810-04-02	1/4	1/8	.374	.708	1.259	.472
6810-04-04	1/4	1/4	.511	.708	1.417	.551
6810-05-02	5/16	1/8	.374	.807	1.358	.472
6810-05-04	5/16	1/4	.511	.807	1.338	.551
6810-06-04	3/8	1/4	.511	.905	1.614	.669
6810-06-06	3/8	3/8	.511	.905	1.614	.748
6810-08-06	1/2	3/8	.511	.944	1.653	.748
6810-08-08	1/2	1/2	.708	.944	1.870	.866

6700
CARTRIDGE



Part No.	OD A	F	G	L	S	H	B
6700-02-00	1/8	.338	.354	.590	.344	.433	.137
6700-53-00	5/32	.338	.354	.570	.344	.433	.137
6700-04-00	1/4	.464	.480	.649	.470	.472	.157
6700-05-00	5/16	.543	.559	.689	.549	.551	.236
6700-06-00	3/8	.622	.637	.787	.627	.590	.315
6700-08-00	1/2	.740	.755	.826	.746	.629	.413

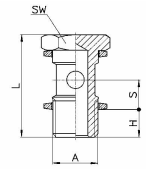
* Hole tolerances: +0.002-0.000 [in.]

* For plastic [non-metal] manifolds, reduce all hole dimensions “S” by 0.02 mm [0.001 in.]

* INSTALLATION: Drill or bore hole per specifications per size of cartridge. Simply press fit cartridge into hole with an evenly distributed force over the top suface. Removal of the collet ring is not necessary.

* Cartridge fittings are useful for installations in various manifolds and/or distribution blocks when drilling and tapping are not desirable.

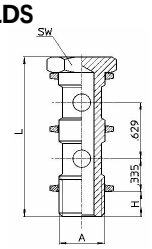
1631-01
STUD MANIFOLDS



*NPTF 2520 ADAPTERS INCLUDED

Part No.	A	H	L	S	SW
	UNF				
1631-01-32	10-32	.157	.708	.177	.315
	NPTF*				
1631-01-02	1/8	.236	1.063	.335	.551
1631-01-04	1/4	.354	1.161	.335	.669
1631-01-06	3/8	.354	1.181	.335	.748

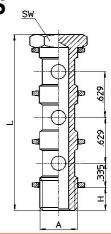
1631-02
STUD MANIFOLDS



*NPTF 2520 ADAPTERS INCLUDED

Part No.	A	H	L	SW
	NPTF*			
1631-02-02	1/8	.236	1.692	.551
1631-02-04	1/4	.315	1.791	.669
1631-02-06	3/8	.354	1.811	.748

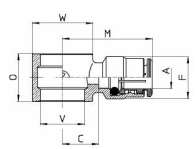
1631-03
STUD MANIFOLDS



*NPTF 2520 ADAPTERS INCLUDED

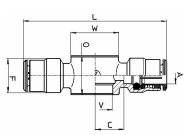
Part No.	A	H	L	SW
	NPTF*			
1631-03-02	1/8	.236	2.322	.551
1631-03-04	1/4	.315	2.421	.669
1631-03-06	3/8	.354	2.440	.748

6610
BANJO



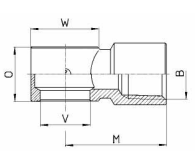
Part No.	O.D. A	V	C	F	M	O	V	W
6610-53-32	5/32	10-32	.196	.354	.748	.354	.204	.354
6610-02-02	1/8	1/8	.315	.393	.885	.571	.385	.551
6610-53-02	5/32	1/8	.315	.393	.885	.571	.385	.551
6610-04-02	1/4	1/8	.346	.500	.984	.571	.385	.551
6610-04-04	1/4	1/4	.425	.500	1.063	.571	.519	.708
6610-06-04	3/8	1/4	.393	.688	1.181	.571	.519	.708
6610-06-06	3/8	3/8	.452	.688	1.240	.571	.657	.826

6620
DOUBLE BANJO



Part No.	O.D. A	V	C	F	L	O	V	W
6620-53-32	5/32	10-32	.197	.354	1.496	.354	.205	.354
6620-04-02	1/4	1/8	.315	.512	1.890	.571	.386	.551
6620-04-04	1/4	1/4	.394	.512	2.087	.571	.520	.709
6620-06-04	3/8	1/4	.394	.689	2.323	.571	.520	.709
6620-06-06	3/8	3/8	.453	.689	2.441	.571	.657	.827

2023
FEMALE BANJO



Part No.	B	V	O	M	W
	UNF				
2023-32-32	10-32	10-32	.354	.413	.354
	NPTF				
2023-02-02	1/8	1/8	.570	.826	.551
2023-04-04	1/4	1/4	.570	1.023	.708
2023-06-06	3/8	3/8	.570	1.122	.826

Example assembly of stud manifold with various banjos

Pipe fittings and accessories

Connections: 10-32 UNF, 1/8”, 1/4”, 3/8”, 1/2” NPTF

CAMOZZI

When involved in factory maintenance or plant installation, its often difficult to be certain which size of fittings will be required. Pipe fittings provide a cost effective solution to this problem. The full range of fittings includes straight, L-shaped, T-shaped, and cross piece male or female couplings and are available in a varitey of thread sizes up to 1/2”.
Material brass: OT58 UNI 5705

Technical Data	
Material	Brass OT58 UNI 5705, nickel plated
Threads	10-32 UNF, 1/8”, 1/4” 3/8”, 1/2”NPTF
Operating pressure	From 0 - 250 psi
Fluid	Compressed air
	[for other types of fluid please contact our engineers]


2500


2520


2521


2530


2543


2020

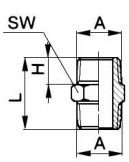

2013


2003


2033

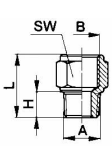

3033

2500
HEX NIPPLE



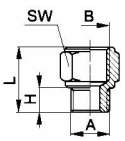
Part No.	A	H	L	SW
	NPTF			
2500-02-02	1/8	.374	.925	.472
2500-04-04	1/4	.511	1.220	.551
2500-06-06	3/8	.511	1.220	.748
2500-08-08	1/2	.708	.633	.866

2520
ADAPTER
BSP - FEMALE
NPTF - MALE



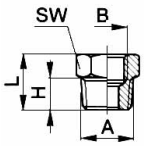
Part No.	A	B	H	L	SW
	UNF	METR.			
2520-32-M5	10-32	M5	.177	.472	.315
	NPTF	BSP			
2520-02-1/8	1/8	1/8	.374	.767	.551
2520-04-1/4	1/4	1/4	.511	1.063	.669
2520-06-3/8	3/8	3/8	.511	1.082	.748

2521
ADAPTER
BSP - MALE
NPTF - FEMALE



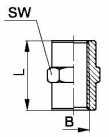
Part No.	A	B	H	L	SW
	BSP	NPTF			
2521-1/8-02	1/8	1/8	.236	.669	.551
2521-1/4-04	1/4	1/4	.315	.905	.669
2521-3/8-06	3/8	3/8	.354	.964	.866
2521-1/2-08	1/2	1/2	.393	1.161	1.063

2530
NPTF - NPTF REDUCER

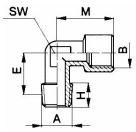
Part No.	A	B	H	L	SW
	NPTF	UNF			
2530-02-32	1/8	10-32	.374	.551	.472
		NPTF			
2530-04-02	1/4	1/8	.511	.708	.551
2530-06-02	3/8	1/8	.511	.708	.748
2530-06-04	3/8	1/4	.511	.708	.748
2530-08-04	1/2	1/4	.708	.925	.866
2530-08-06	1/2	3/8	.708	.925	.866

2543
COUPLING
NPTF FEMALE TO NPTF FEMALE

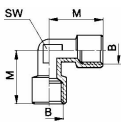
Part No.	THREAD B	L	SW
	NPTF		
2543-02-02	1/8	.708	.551
2543-04-04	1/4	.984	.669
2543-06-06	3/8	1.023	.866
2543-08-08	1/2	1.338	1.063

2020
ELBOW
NPTF FEMALE TO NPTF MALE

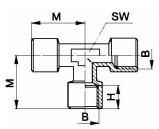
Part No.	A	B	E	H	M	SW
	NPTF	NPTF				
2020-02-00	1/8	1/8	.610	.335	.846	.433
2020-04-00	1/4	1/4	.767	.511	1.023	.511
2020-06-00	3/8	3/8	.807	.511	1.122	.669
2020-08-00	1/2	1/2	.964	.649	1.338	.836

2013
ELBOW
NPTF FEMALE TO NPTF FEMALE

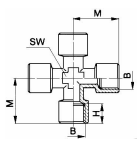
Part No.	THREAD B	M	SW
	NPTF		
2013-02-00	1/8	.846	.433
2013-04-00	1/4	1.023	.511
2013-06-00	3/8	1.122	.669
2013-08-00	1/2	1.338	.826

2003
NPTF TEE FEMALE

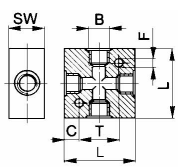
Part No.	THREAD B	H	M	SW
	NPTF			
2003-02-00	1/8	.335	.846	.433
2003-04-00	1/4	.472	1.023	.511
2003-06-00	3/8	.492	1.122	.669
2003-08-00	1/2	.649	1.338	.826

2033
FEMALE CROSS

Part No.	THREAD B	H	M	SW
	UNF			
2033-32-00	10-32	.157	.354	.354
	NPTF			
2033-02-00	1/8	.295	.827	.433
2033-04-00	1/4	.433	1.004	.512
2033-06-00	3/8	.453	1.102	.699

3033
DISTRIBUTION BLOCK
[aluminum]

Part No.	THREAD B	C	F	L	T	SW
	NPTF					
3033-02-00	1/8	.157	.177	.984	.669	.630
3033-04-00	1/4	.276	.217	1.575	1.024	.787
3033-06-00	3/8	.315	.217	1.969	1.339	1.024
3033-08-00	1/2	.315	.217	1.969	1.339	1.260

Nylon 11 tubing and accessories

Diameter of tube: 1/8”, 5/32”, 1/4”, 5/16”, 3/8”, 1/2”

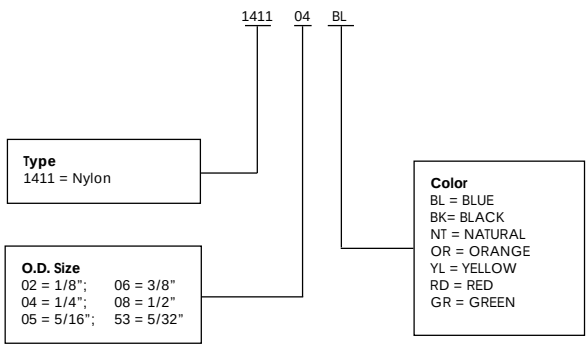
CAMOZZI

O.D.	I.D.	STD reel length feet
1/8	.093	100
5/32	.106	100
1/4	.180	100
5/16	.232	100
3/8	.275	100
1/2	.375	100

Technical Data	
Material	Nylon 11
Melting point	354° ± 4°
Water absorption	1.1%
Operating pressure	From 0 - 250 psi
Bursting pressure	1000 psi
Hardness	72
Tensile strength at break (D-638)	9500 psi
Elongation at break (D-638)	360 psi
Flexural modulus (D-790)	47,000 psi
Tube diameter	1/8”, 5/32”, 1/4”, 5/16”, 3/8”, 1/2”
Fluid	Compressed air
	[for other types of fluid please contact our engineers]
Operating temperature	-60°F - 160°F

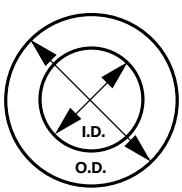
* See page 54 for additional technical data

Code of Tubing



Working Pressure Information

Size Inches	Tolerances for OD (inches)	Min. Bend. Rad. Inches	Working Pressure (PSI) @75°F	@100°F	@125°F	@150°F
1/8 x .093	+.002 - .003	.375	225	168	133	125
5/32 x .106	+.002 - .003	.500	275	200	169	160
1/4 x .180	+.002 - .004	.875	250	183	160	140
5/16 x .232	+.002 - .004	1.250	220	170	141	121
3/8 x .275	+.002 - .004	1.500	220	165	148	128
1/2 x .375	+.002 - .004	2.00	200	145	133	125



PART NUMBER: PNZ - 12
PLASTIC TUBE CUTTER

REPLACEMENT BLADES:
PNZ-12 BLADES

How To Use:
Insert plstic tube to desired length, allow tube cutter to close, then apply pressure until tube snaps off.

Chemical resistance of nylon tubing	
Acids	Good to ph-5
Alkalies	Good to ph-11
Hydrocarbons - aromatic	Excellent
Hydrocarbons - aliphatic	Excellent
Ketones	Excellent
Ethers	Excellent
Esters	Excellent
Alcohols	Good
Salts, neutral	Excellent
Freons	Excellent
Continuos sunlight	Fair
Zinc chloride	Good

1. Fittings

2. Automatic valves and accessories

3. Flow control valves

4. Technical data

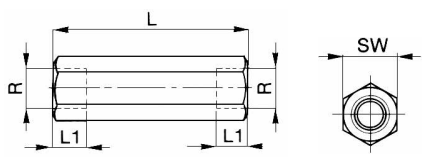
Automatic valves

Series VNR, VSO, VSC
Ports 10-32 UNF, 1/8”, 1/4”, 3/8”, 1/2” NPTF
cartridge dia. 4 mm [5/32” O.D.]

CAMOZZI

Automatic valves are defined as all those valves which change their state simply as a result of compressed air being present or absent at their inlets.

General Data	
Valve group	Automatic valves
Construction	Poppet type
Mounting	In-line
Materials	Nickel-plated brass body, Brass body, Buna-N seals, Polyurethane seals, Stainless steel spring
Port sizes	10-32 UNF, 1/8", 1/4", 3/8", 1/2" NPTF; 5/32" O.D. cartridge
Installation	In-line
Operating temperature	32 - 175° F, [dry air necessary down to ¯4° F]
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Pneumatic Data	
Operating pressure	0.3 - 10 bar, [5 - 145 psi]
Nominal pressure	6 bar, [87 psi]
Nominal flow	*Qn Series VNR: 1/8" = 420 NL/min. [14.83 SCFM] 1/4" = 1200 NL/min. [42.37 SCFM]
	Series VSC: P -> A, 1/8" = 600 NL/min. [21.19 SCFM] 1/4" = 1100 NL/min. [38.84 SCFM) 3/8" = 3300 NL/min. [116.53 SCFM] 1/2" = 3300 NL/min. [116.53 SCFM]
	A -> R, 1/8" = 950 NL/min. [33.55 SCFM] 1/4" = 1900 NL/min. [67.09 SCFM] 3/8" = 5100 NL/min. [180.08 SCFM] 1/2" = 5100 NL/min. [180.08 SCFM]
	Series VSO: P -> A, 5/32" O.D. = 40 NL/min. [1.41 SCFM] A -> R, 5/32" O.D. = 80 NL/min. [2.82 SCFM]
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].	
** Soft-seal repair kits are available for Series VSC Quick-exhaust valves.	
***Dimensions are in inches.	



Mod.	R	L	L1	SW
VNR-205-32	10-32 UNF	0.984	.236	.314
VNR-210-02	1/8”	1.338	.274	.511
VNR-843-04	1/4”	1.889	.354	.669

Unidirectional valves

The unidirectional valves in the VNR Series are available with 10-32 UNF, 1/8”, and 1/4” ports. They must be used when it is required to intercept a flow in one direction only. The design of these valves is of the poppet type and this feature allows operation at low pressures both when there is a free flow and during retention.
Materials used:
—OT58 [brass] body
—Buna-N seals
—stainless steel spring

Quick exhaust valves

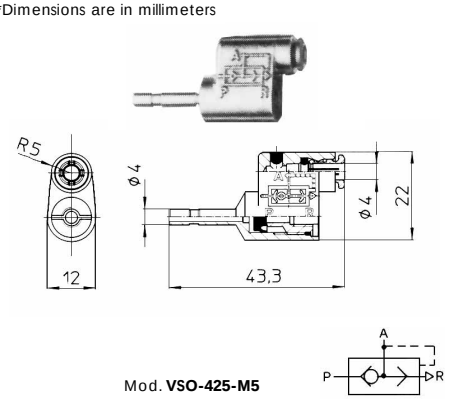
Quick exhaust valves are commonly used to increase the speed of cylinders or for rapid depressurisation of tanks containing compressed air. The models VSO-425-M5 and VSO-426-04 are specially designed for mounting on solenoid valves and valves incorporating a 5/32” O.D. port.
We recommend that a silencer be mounted on the outlet. [2931-M5]
Materials used:
—OT58 [brass] body
—Buna-N seal

Nominal flowrate
from P->A, Qn* 40 NL/min. [1.41 SCFM]
from A->R, Qn* 80 NL/min. [2.83 SCFM]

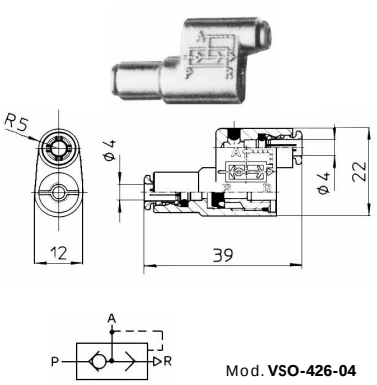
Qn* = determinated with 6 bar [87 psi] and ΔP=1 bar [14.5 psi]

Cv Rating
from P->A: Cv = 0.04
from A->R: Cv = 0.09

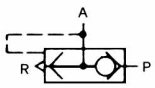
*Dimensions are in millimeters

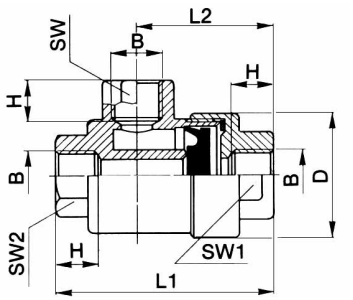


Mod. **VSO-425-M5**



Mod. **VSO-426-04**





Mod.	B	H	D	L1	L2	SW	SW1	SW2	Qn P->A	Cv	Qn‡R	Cv
VSC-588-02	1/8”	.2953	1.082	1.673	1.082	.551	.551	.551	21.2	.63	33.5	1.00
VSC-544-04	1/4”	.4331	1.299	2.165	1.397	.669	.669	.669	38.8	1.16	67.1	2.00
VSC-538-06	3/8”	.5906	1.692	2.814	1.751	1.062	1.062	1.063	116.5	3.47	180.1	5.37
VSC-522-08	1/2”	.5906	1.692	2.814	1.751	1.062	1.062	1.063	116.5	3.47	180.1	5.37

Quick exhaust valves

Quick exhaust valves are commonly used to increase the speed of cylinders or for rapid depressurisation of tanks containing compressed air.
We recommend that a silencer be mounted on the outlet.
Materials used:
—OT58 [brass] body
—Desmopan seal [polyurethane]

Adjustable-diaphragm pressure switches

Series PM [normally closed or open] Ports 1/8”

Electro-pneumatic transducer

Series TRP [normally closed or open] Ports 1/8”

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The diaphragm pressure switches in the PM Series are available in two versions: one with N.C. [normally closed] contacts and one with N.O. [normally open] contacts. A regulating screw, which can be adjusted using a small screwdriver, allows the switch to be set to the required pressure.
These pressure switches are particularly suitable for use as safety devices. In fact, the calibrated diaphragm enables an electrical signal to be generated or inhibited depending on the pressure set.

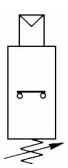
General Data	
Valve group	Automatic valves
Construction	Diaphragm type, adjustable
Mounting	Body through holes, ports
Materials	Brass body
Port sizes	1/8" NPTF [with adapters 2520-02-1/8]
Installation	According to requirements
Operating temperature	23 - 140° F
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Operating pressure	1.0 - 10 bar, [14.5 - 145 psi]
Min. activation pressure of the Series TRP-8	1.5 bar, [22 psi]
Electrical Data	
Voltage	220 V max.
Max. power	100 VA *
Protection class	IP54 ** [with rubber bonnet]
Max. no. of pulses per min.	300
Lifetime	1 million cycles
Max. current	0.5 A
Isolation voltage	1500 V

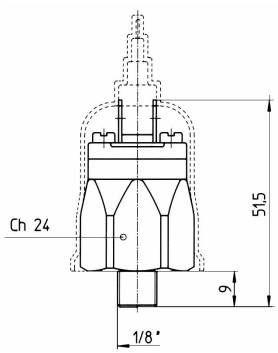
* Maximum power using standard P = V * I formula

** Protection class rating for resistance to penetration and water, [IP54 equals total protection against contact, possible powder penetration, and water-proof for water coming from any direction.]

*** Dimensions in millimeters.

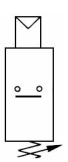
N.C. = The pressure switch opens an electric contact when it reaches the fixed pressure





Mod. **PM 11 NC**
[normally closed]

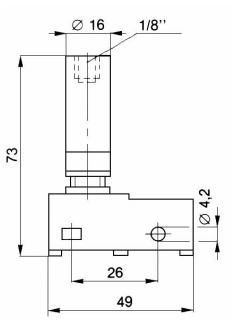
N.A. = The pressure switch closes an electric contact when it reaches the fixed pressure

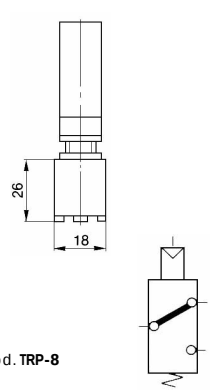


Mod. **PM 11 NA**
[normally open]

The TRP Series transducer is specially designed to convert a pneumatic signal into an electrical signal. The contacts are N.C. [normally closed] or N.O. [normally open], thus making it possible to generate or eliminate current when the pneumatic signal is present.

Minimum actuation pressure = 1.5 bar [22 psi]





Mod. **TRP-8**

VMS

3/2-way slide valve

Ports 1/8”, 1/4”, 3/8”, and 1/2” NPTF

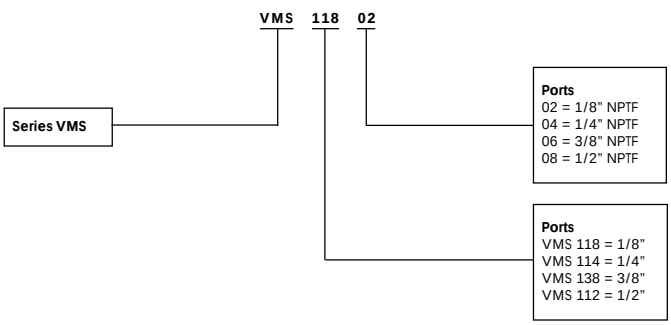
The VMS series slide valves are commonly used upstream of FRL units to ease repair and replacement. They can also be used in situations requiring the exhausting of all downstream air. This would assist in maintenance applications where ball valves may be too large and bulky to maneuver in tight assembly spaces. The exhausting of downstream air while simultaneously blocking inlet flow helps in building component groups to be tested in stages, and assembled later onto the main body of a machine.

General Data			
Valve group	3/2, [way/positions]		
Construction	Shuttle slide		
Mounting	In/line thread ports		
Materials	Nickel-Plated brass body, Buna-N seals		
Threaded port sizes	1/8”, 1/4”, 3/8”, 1/2”, NPTF		
Installation	In-line		
Operating temperature	32 - 175° F, [dry air necessary down to −4° F]		
Fluid	Filtered air		
Lubricant	Oil compatible with Buna-N, [3 - 10 E]		
Pneumatic Data			
Operating pressure	0 - 10 bar, [0 - 145 psi])		
Nominal pressure	6 bar, [87 psi]		
Nominal flow	*Qn Series VMS:	P->A 1/8” = 700 NL/min. [24.71 SCFM]	1/4” = 1350 NL/min. [47.67 SCFM]
		3/8” = 2100 NL/min. [74.15 SCFM]	1/2” = 3900 NL/min. [137.71 SCFM]
		A->R 1/8” = 1250 NL/min. [44.14 SCFM]	1/4” = 2900 NL/min. [102.4 SCFM]
		3/8” = 3900 NL/min. [137.71 SCFM]	1/2” = 5500 NL/min. [194.21 SCFM]
Cv Rating	Series VMS:	1/8” = 0.73	1/4” = 1.41
		3/8” = 2.21	1/2” = 4.10

*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].

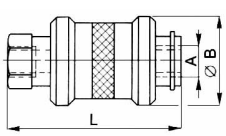
Exhausting flowrate [A->R], determined with an inlet pressure of 6 bar, [87 psi], while exhausting to atmosphere.

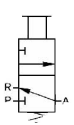
Coding for slide valves



3/2-way manually operated slide valve

These bistable manually operated valves direct air between their ports by use of a manual hand slide. In the closed position, downstream air is exhausted underneath the slide handle.





Mod.	A	BØ	L
VMS-118-02	1/8”	25	48
VMS-114-04	1/4”	30	58
VMS-138-06	3/8”	35	70
VMS-112-08	1/2”	40	80

Ball Valves

Series 2940, 2930
Ports 1/4”, 3/8”, 1/2”, 3/4”, 1”, 1 1/4”, 1 1/2”, 2”, 2 1/2”, 3”, 4”, NPT

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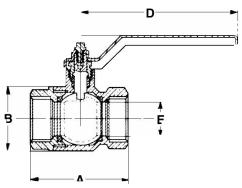
2

Benefits

Electroless Nickel-Plated: This plating offers excellent corrosion resistance, and is an FDA approved material, making the Camozzi ball valve suitable for food packaging, chemical processing, medical, dental, water treatment, and printing markets, in addition to standard application.

General Data	
Valve group	2/2, [way/positions]
Construction	Ball valve
Mounting	In-line
Materials	Brass body [2930], Nickel Plated brass body [2940], Aluminum handles [2940]
	Plastic handles [2930], Hardened chrome-plated brass ball, Teflon seat
Threaded port sizes	1/4", 3/8", 1/2" NPT [2930]
	1/4", 3/8", 1/2", 3/4", 1", 1-1/4", 1-1/2", 2" NPT [2940]
Installation	In-line
Operating temperature	Series 2940 5° - 300°F
	Series 2930 14° - 194°F
Fluid	Filtered air
Pneumatic Data	
Working pressure	Series 2940: 1/4", 3/8", 1/2" - 710 PSI; 2-1/2" - 260 PSI
	3/4", 1" - 570 PSI; 3" - 230 PSI
	1-1/4", 1-1/2" - 430 PSI; 4" - 200 PSI
	2" - 360 PSI
	Series 2930: 1/4", 3/8", 1/2" - 220 PSI
Nominal flow	Full flow design
**Dimensions are in inches	

2940
Ball Valve



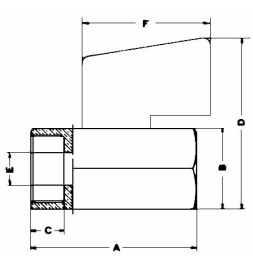
Electroless Nickel-Plated

Part No.	A	B	C	D	E	PSI
2940-1/4	1.880	.984	1.693	3.140	.394	710
2940-3/8	1.880	.984	1.693	3.150	.394	710
2940-1/2	2.047	1.259	1.692	3.149	.472	710
2940-3/4	2.205	1.260	1.732	4.330	.591	570
2940-1	2.600	1.654	2.402	4.449	.787	570
2940-1 1/4	2.913	1.969	2.560	4.449	.984	430
2940-1 1/2	3.228	2.323	3.071	5.433	1.260	430
2940-2	3.898	2.835	3.701	6.220	1.575	360
2940-2 1/2	5.040	3.819	4.410	7.677	2.126	260
2940-3	5.827	4.803	4.606	9.724	2.560	230
2940-4	6.693	5.630	5.157	9.724	3.150	200

These valves are constructed of a electroless nickel-plated brass body, a steel handle, a hardened chrome-plated brass ball, and a teflon seat. These valves are suitable for industrial, pneumatic, hydraulic, and various domestic installations. Among the various types of compounds which can be transported through these valves are steam, gasoline, fuel, oils, kerosene, acids, and compressed air.

These valves are constructed of all brass body, hardened chrome-plated brass ball, teflon seat, and light weight plastic handle.

2930
Mini Ball Valves (Brass)



Economical Ball Valves

Part No.	A	B	C	D	E	F	PSI
2930-1/4	1.535	.826	.354	1.496	.299	1.181	220
2930-3/8	1.653	.826	.393	1.496	.299	1.181	220
2930-1/2	1.889	.984	.472	1.638	.393	1.181	220

Compact minicylinders

Series 14

ø 6 - 10 - 16 [mm]

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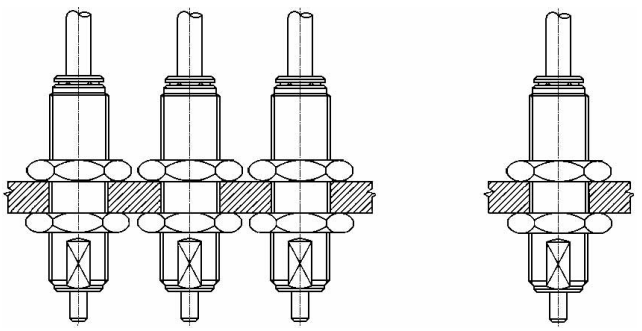
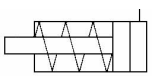
2

General Data	
Type of construction	Compact
Operation	Single-acting
Materials	Body OT 58 - NBR seals - other stainless steel
Operating pressure	P. min. 1 bar - P. max. 8 bar [14.5 PSI - 116 PSI]
Operating temperature	32°- 175°F [only dry air down to −4°]
Fluid	Clean air, lubricated or without lubrication
Bore (mm)	Dia. 6 - 10 - 16
Stroke	See table
Mounting method	By means of threaded body

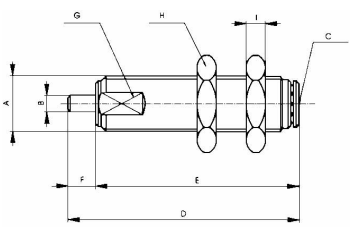
The compact minicylinders, series 14, (single-acting) have been designed to be installed in small places.
The available stroke with these minicylinders is shown on the table.
Their design favors assemblies in panels and manifolds which are part of the machine.
All of the minicylinders are incorporated with a rapid fitting for a 5/32 O.D. tube, and they are available with threaded or non threaded rods.

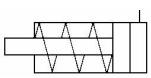
Example of assembly



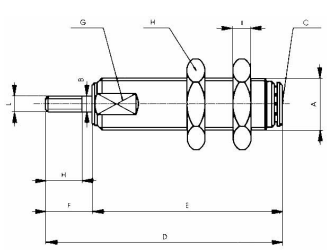


Code	ø Cyl	Stoke	A	B	TUBE OD C	D	E	F	SW G	SW H	I
14N1A6A05	6	5	M10x1	3	5/32	34	29	5	9	12	3
14N1A6A10	6	10	M10x1	3	5/32	42	37	5	9	12	3
14N1A6A15	6	15	M10x1	3	5/32	47	42	5	9	12	3
14N1A10A05	10	5	M15x1.5	5	5/32	50	38	12	13	19	4
14N1A10A10	10	10	M15x1.5	5	5/32	57	45	12	13	19	4
14N1A10A15	10	15	M15x1.5	5	5/32	62	50	12	13	19	4
14N1A16A05	16	5	M22x1.5	6	5/32	53.5	39.5	14	20	27	5
14N1A16A10	16	10	M22x1.5	6	5/32	62	48	14	20	27	5
14N1A16A15	16	15	M22x1.5	6	5/32	67	53	14	20	27	5





Code	ø Cyl	Stoke	A	B	TUBE OD C	D	E	F	SW G	SW H	I	L	M
14N1A6B05	6	5	M10x1	3	5/32	38	29	9	9	12	3	M3x0.5	7
14N1A6B10	6	10	M10x1	3	5/32	46	37	9	9	12	3	M3x0.5	7
14N1A6B15	6	15	M10x1	3	5/32	51	42	9	9	12	3	M3x0.5	7
14N1A10B05	10	5	M15x1.5	5	5/32	50	38	12	13	19	4	M4x0.7	10
14N1A10B10	10	10	M15x1.5	5	5/32	57	45	12	13	19	4	M4x0.7	10
14N1A10B15	10	15	M15x1.5	5	5/32	62	50	12	13	19	4	M4x0.7	10
14N1A16B05	16	5	M22x1.5	6	5/32	53.5	39.5	14	20	27	5	M5x0.8	12
14N1A16B10	16	10	M22x1.5	6	5/32	62	48	14	20	27	5	M5x0.8	12
14N1A16B15	16	15	M22x1.5	6	5/32	67	53	14	20	27	5	M5x0.8	12



1. Fittings

2. Automatic valves and accessories

3. Flow control valves

4. Technical data

Flow control valves

Unidirectional and bidirectional banjo flow controllers

Series SCU, MCU, SVU, MVU, SCO, MCO

Ports M5 [10-32 UNF], 1/8”, 1/4”, 3/8”, NPTF

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These bidirectional flow controllers have been designed as small as possible so as to be mounted directly on valves or cylinders. The MCU’s and SCU’s feature Camozzi’s new design. This new design features a fully rotatable swivel design and is constructed with a lower profile.

General Data	
Valve group	Unidirectional and bidirectional controller, [meter-in, meter-out, and needle valve]
Construction	Needle type
Mounting	Right-angle male thread
Materials	Nickel-plated brass body, Buna-N seals, Nylon gaskets
Port sizes	10-32 UNF, 1/8", 1/4", 3/8" NPTF
Tube sizes	1/8", 5/32", 1/4", 3/8" [O.D.]
Installation	Any position
Operating temperature	32 - 175° F, [dry air necessary down to ⁻4° F]
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Pneumatic Data	
Operating pressure	1.0 - 10 bar, [14.5 - 145 psi]
Nominal pressure	6 bar, [87 psi]
Nominal flow	See graphs below
Nominal diameter	10-32 UNF = 1.5mm [.059"], 1/8" = 2 mm [.079"], 1/4" = 4 mm [.157"], 3/8" = 7 mm[.275"]
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].	
For regulated flow, A->B	See graphs below
**Dimensions are in inches	

Coding of Banjo flow controllers

M C U - 04 - 02 - N

Adjustment
M = Manual
S = Screwdriver

Assembly
C = on cylinders
V= on valves

Function
U = unidirectional (flow control)
O = bidirectional (needle valve)

Ports
N=NPTF

Thread
32 = 10-32 UNF
02 = 1/8" NPTF
04 = 1/4" NPTF
06 = 3/8" NPTF

Attachments
32F = 10-32 UNF Female Thread
53 = 5/32" O.D.Tube
02 = 1/8" O.D.Tube
02F = 1/8" NPTF Female Thread
04 = 1/4" O.D.Tube
04F = 1/4" NPTF Female Thread
06 = 3/8" O.D.Tube
06F = 3/8" NPTF Female Thread

Identification of different types

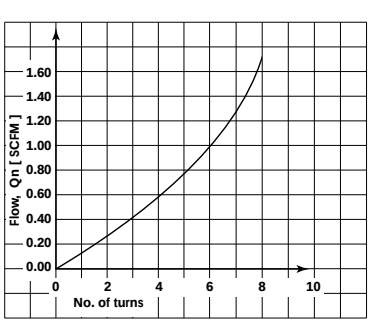
SCU
MCU

SVU
MVU

SCO
MCO

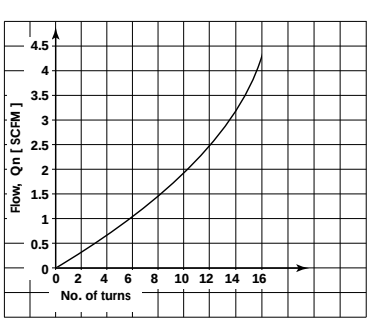
Unidirectional and Bidirectional flow control 53-32

Unregulated Flow B➔A with needle fully open - 60 NL/min. [2.12 SCFM]
Unregulated Flow B➔A with needle fully closed - 43 NL/min. [1.52 SCFM]



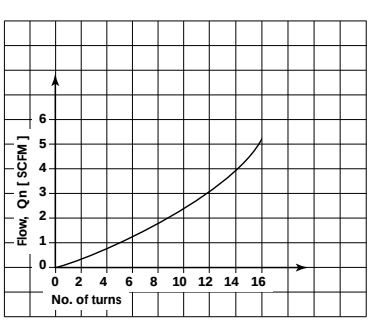
Unidirectional and Bidirectional flow control 53-02

Unregulated Flow B➔A with needle fully open - 107 NL/min. [3.78 SCFM]
Unregulated Flow B➔A with needle fully closed - 28.3 NL/min. [1.0 SCFM]



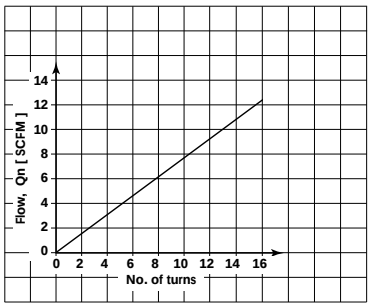
Unidirectional and Bidirectional flow control 04-02

Unregulated Flow B➔A with needle fully open - 164 NL/min. [5.79 SCFM]
Unregulated Flow B➔A with needle fully closed - 33.0 NL/min. [1.17 SCFM]



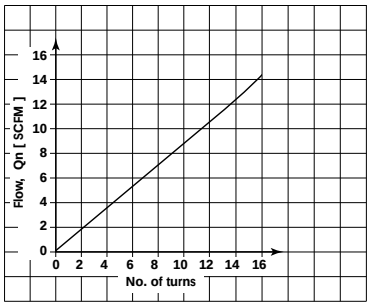
Unidirectional and Bidirectional flow control 04-04

Unregulated Flow B➔A with needle fully open - 367 NL/min. [12.96 SCFM]
Unregulated Flow B➔A with needle fully closed - 133.0 NL/min. [4.71 SCFM]



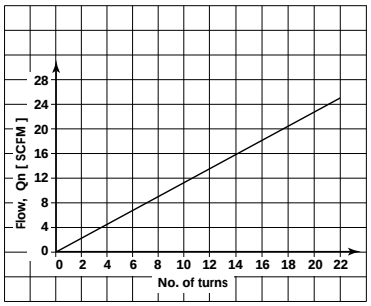
Unidirectional and Bidirectional flow control 06-04

Unregulated Flow B➔A with needle fully open - 466 NL/min. [16.45 SCFM]
Unregulated Flow B➔A with needle fully closed - 153 NL/min. [5.40 SCFM]

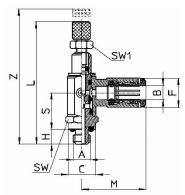


Unidirectional and Bidirectional flow control 06-06

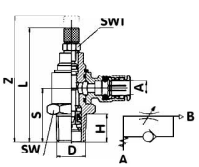
Unregulated Flow B➔A with needle fully open - 875 NL/min. [30.90 SCFM]
Unregulated Flow B➔A with needle fully closed - 428 NL/min. [15.11 SCFM]



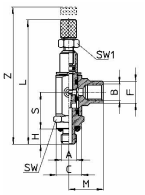
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with a right-angle push to connect tube fitting.



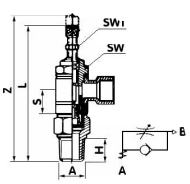
Part No.	TUBE O.D. A	B	C	S	H	L	Z	M	F	SW	SW1
	UNF										
MCU 53-32-N	10-32	5/32	.307	.433	.177	1.457	1.614	.709	.346	.315	.217



Part No.	TUBE O.D. A	D	S	H	L	Z	SW	SW1
		NPTF						
MCU 53-02-N	5/32"	1/8"	.840	.374	1.913	2.149	.551	.275
MCU 04-02-N	1/4"	1/8"	.840	.374	1.913	2.149	.551	.275
MCU 04-04-N	1/4"	1/4"	.978	.511	2.046	2.282	.748	.275
MCU 06-04-N	3/8"	1/4"	.978	.511	2.046	2.282	.748	.275
MCU 06-06-N	3/8"	3/8"	1.000	.511	2.322	2.637	.866	.393



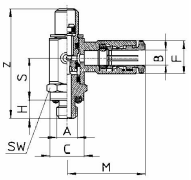
Part No.	A	B	C	S	H	L	Z	M	F	SW	SW1
	UNF	UNF									
MCU 32F-32-N	10-32	10-32	.307	.433	.177	1.457	1.770	.413	.256	.315	.217



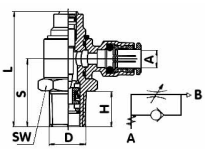
Part No.	Banjo Female Thread A	A	S	H	L	Z	SW	SW1
	NPTF	NPTF						
MCU 02F-02	1/8"	1/8"	.511	.374	2.375	2.564	.551	.275
MCU 04F-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275
MCU 06F-06	3/8"	3/8"	.484	.511	2.950	3.252	.748	.393

This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with right-angle female threads.

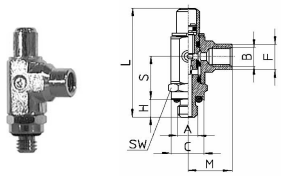
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



Part No.	TUBE O.D. A	B	C	S	H	L	M	F	SW
	UNF								
SCU 53-32-N	10-32	5/32	.307	.433	.177	1.080	.709	.346	.315

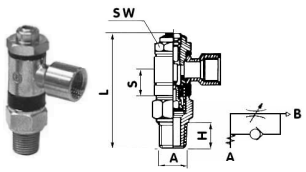


Part No.	TUBE O.D. A	D	S	H	L	SW
		NPTF				
SCU 53-02-N	5/32"	1/8"	.840	.374	1.500	.551
SCU 04-02-N	1/4"	1/8"	.840	.374	1.500	.551
SCU 04-04-N	1/4"	1/4"	.978	.511	1.633	.748
SCU 06-04-N	3/8"	1/4"	.978	.511	1.633	.748
SCU 06-06-N	3/8"	3/8"	1.000	.511	1.830	.866



Part No.	A	B	C	S	H	L	M	F	SW
	UNF	UNF							
SCU 32F-32-N	10-32	10-32	.307	.433	.177	1.080	.413	.256	.315

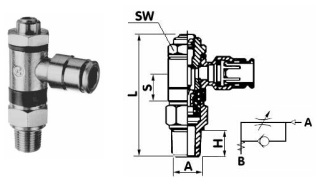
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with right-angle female threads.



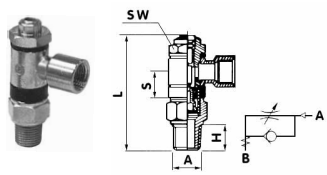
Part No.	Banjo Female Thread	A	S	H	L	SW
	NPTF	NPTF				
SCU 02F-02	1/8"	1/8"	.511	.374	2.000	.551
SCU 04F-04	1/4"	1/4"	.453	.511	2.250	.669
SCU 06F-06	3/8"	3/8"	.484	.511	2.440	.748

3

This unidirectional flow control is designed to be mounted on valves. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



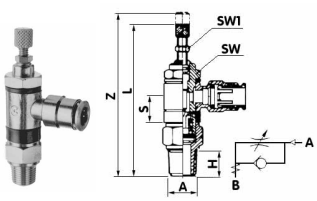
Part No.	TUBE O.D.	A	S	H	L	SW
		UNF				
SVU 53-32	5/32"	10-32	.216	.177	1.141	.315
		NPTF				
SVU 53-02	5/32"	1/8"	.511	.374	2.000	.551
SVU 04-02	1/4"	1/8"	.511	.374	2.000	.551
SVU 04-04	1/4"	1/4"	.453	.511	2.250	.669
SVU 06-04	3/8"	1/4"	.453	.511	2.250	.669



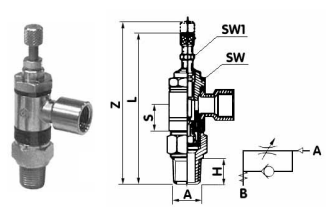
Part No.	Banjo Female Thread	A	S	H	L	SW
	UNF	UNF				
SVU 32F-32	10-32	10-32	.216	.177	1.141	.315
	NPTF	NPTF				
SVU 02F-02	1/8"	1/8"	.511	.374	2.000	.551
SVU 04F-04	1/4"	1/4"	.453	.511	2.250	.669

This unidirectional flow control is designed to be mounted on valves. It has a screwdriver adjustment with right-angle female threads.

This unidirectional flow control is designed to be mounted on valves. It has a manual adjustment with a right-angle push to connect tube fitting.



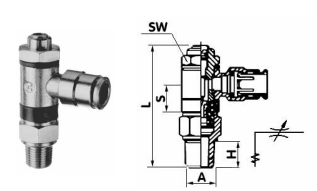
Part No.	TUBE O.D.	A	S	H	L	Z	SW	SW1
		UNF						
MVU 53-32	5/32"	10-32	.216	.177	1.500	1.670	.315	.216
		NPTF						
MVU 53-02	5/32"	1/8"	.511	.374	2.375	2.564	.551	.275
MVU 04-02	1/4"	1/8"	.511	.374	2.375	2.564	.551	.275
MVU 04-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275
MVU 06-04	3/8"	1/4"	.453	.511	2.844	3.090	.669	.275



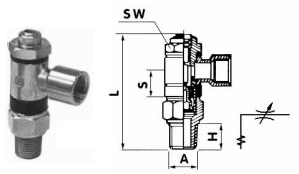
Part No.	Banjo Female Thread	A	S	H	L	Z	SW	SW1
	UNF	UNF						
MVU 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216
	NPTF	NPTF						
MVU 02F-02	1/8"	1/8"	.511	.374	2.375	2.564	.551	.275
MVU 04F-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275

This unidirectional flow control is designed to be mounted on valves. It has a manual adjustment with right-angle female threads.

This bidirectional flow control is designed with a needle orifice. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



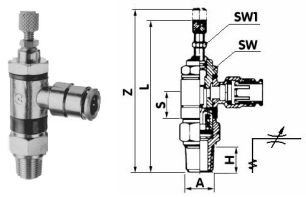
Part No.	TUBE O.D.	A	S	H	L	SW
		UNF				
SCO 53-32	5/32"	10-32	.216	.177	1.141	.315
		NPTF				
SCO 53-02	5/32"	1/8"	.511	.374	2.000	.551
SCO 04-02	1/4"	1/8"	.511	.374	2.000	.551
SCO 04-04	1/4"	1/4"	.453	.511	2.250	.669
SCO 06-04	3/8"	1/4"	.453	.511	2.250	.669



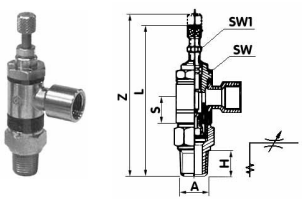
Part No.	Banjo Female Thread	A	S	H	L	SW
	UNF	UNF				
SCO 32F-32	10-32	10-32	.216	.177	1.141	.315
	NPTF	NPTF				
SCO 02F-02	5/32”	1/8”	.511	.374	2.000	.551
SCO 04F-04	1/4”	1/4”	.453	.511	2.250	.669

This bidirectional flow control is designed with a needle orifice. It has a screwdriver adjustment with right-angle female threads.

This bidirectional flow control is designed with a needle orifice. It has a manual adjustment with a right-angle push to connect tube fitting.



Part No.	TUBE O.D.	A	S	H	L	Z	SW	SW1
		UNF						
MCO 53-32	5/32”	10-32	.216	.177	1.500	1.670	.315	.216
		NPTF						
MCO 53-02	5/32”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04-02	1/4”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275
MCO 06-04	3/8”	1/4”	.453	.511	2.844	3.090	.669	.275



Part No.	Banjo Female Thread	A	S	H	L	Z	SW	SW1
	UNF	UNF						
MCO 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216
	NPTF	NPTF						
MCO 02F-02	1/8”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04F-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275

This bidirectional flow control is designed with a needle orifice. It has a manual adjustment with right-angle female threads.

Flow control valves

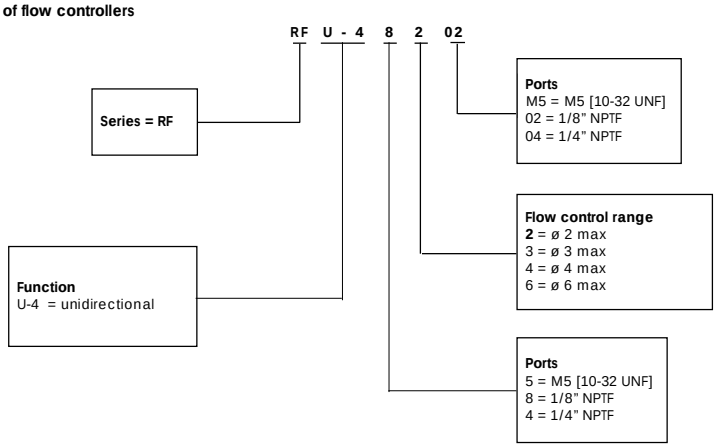
Panel or wall-mounted flow controllers
Series RFU
Ports M5 [10-32 UNF], 1/8”, 1/4” NPTF

CAMOZZI

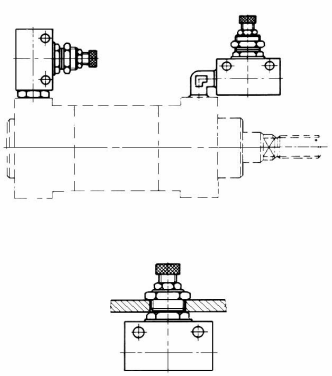
The unidirectional flow controllers are equipped with M5 [10-32 UNF], 1/8” and 1/4” ports, each of which is available with two different types of adjustment [see diagrams].
They are used mainly for controlling the speed of cylinders. They may be mounted on control panels or cylinders, as required.

General Data	
Valve group	Unidirectional controller, [meter-in, meter-out]
Construction	Needle type
Mounting	Through holes in body, or control panel
Materials	Aluminum body, Brass needle, Buna-N seals
Port sizes	M5 [10-32 UNF], 1/8", 1/4", NPTF
Installation	As required
Operating temperature	32 - 175° F, [dry air necessary down to −4° F]
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Pneumatic Data	
Operating pressure	1.0 - 10 bar, [14.5 - 145 psi]
Nominal pressure	6 bar, [87 psi]
Nominal flow	See graphs
Nominal diameter	1/8" = 2 mm [.079"], or 3 mm [.118"]
	1/4" = 4 mm [.157"], or 6 mm [.236"]
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].	
For regulated flow, A -> B	See graphs below
**Dimensions are in inches	

Coding of flow controllers

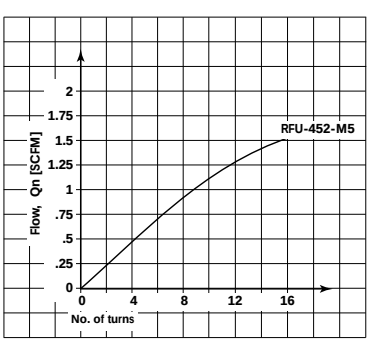


An example of assembling



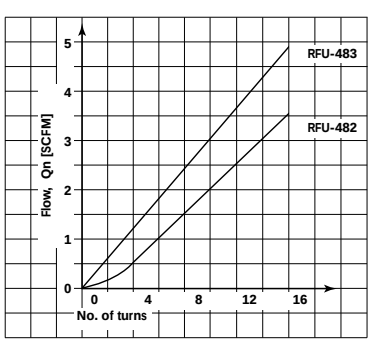
Unidirectional flow control M5 [10-32 UNF]

Unregulated Flow B➔A **RFU 452** needle fully open - 55 NL/min. [1.94 SCFM]
RFU 452 needle fully closed - 41 NL/min. [1.45 SCFM]



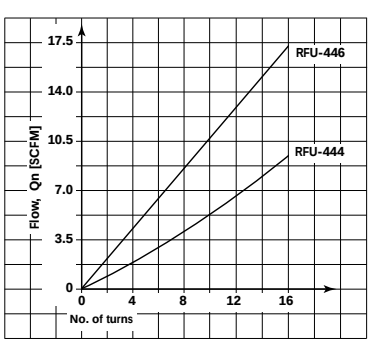
Unidirectional flow control [1/8”NPTF]

Unregulated Flow B➔A **RFU 482** needle fully open - 121 NL/min. [4.27 SCFM]
RFU 482 needle fully closed - 120 NL/min. [4.24 SCFM]
Unregulated Flow B➔A **RFU 483** needle fully open - 145 NL/min.[5.12 SCFM]
RFU 483 fully closed - 120 NL/min. [4.24 SCFM]

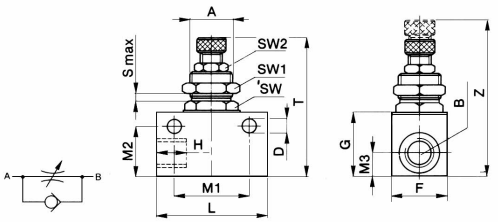


Unidirectional flow control [1/4” NPTF]

Unregulated Flow B➔A **RFU 444** needle fully open - 550 NL/min. [19.42 SCFM]
RFU 444 needle fully closed - 446 NL/min. [15.75 SCFM]
Unregulated Flow B➔A **RFU 446** needle fully open - 616 NL/min. [21.75 SCFM]
RFU 446 needle fully closed - 446 NL/min. [15.75 SCFM]



To regulate the speed of a cylinder, the air flow from the chamber which is being discharged must be regulated. For this reason, the unidirectional flow controller must be connected as follows: connect the threaded outlet marked “A” to the cylinder inlet and the threaded outlet marked “B” to the user port.



Part No.	A	B	H	D	F	G	L	M1	M2	M3	T	Z	SMax	SW	SW1	SW2
	METR.	UNF														
RFU-452-M5	M10x1	10-32	.256	.165	.551	.630	1.02	.728	.520	.280	1.54	1.750	.118	.472	.551	.315
		NPTF														
RFU-482-02	M12X1	1/8”	.354	.177	.629	.826	1.338	.964	.649	.315	1.811	2.007	.157	.551	.669	.354
RFU-483-02	M12X1	1/8”	.354	.177	.629	.826	1.338	.964	.649	.315	1.811	2.007	.157	.551	.669	.354
RFU-444-04	M20x1.5	1/4”	.492	.255	.984	1.181	2.047	1.377	.944	.472	2.362	2.716	.275	.866	.944	.551
RFU-446-04	M20x1.5	1/4”	.492	.255	.984	1.181	2.047	1.377	.944	.472	2.362	2.716	.275	.866	.944	.551

1. Fittings

2. Automatic valves and accessories

3. Flow control valves

4. Technical data

Technical Data

Corrosion resistance of electroless nickel-plating

[Camozzi fittings are plated at a thickness of 5-8 µm {microns}]

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Substance	% Concentration	Temperature Degrees C	Resistance
Acetic Acid	0-70	Ambient Temperature	C-B
Acetone	100	54	A-B
Acidic Well-Water	-	20-4	B
Aliphatic Acid	100	Ambient Temperature	B
Aluminum Chloride	saturated	Ambient Temperature	D
Aluminum Sulphate	saturated	Ambient Temperature	B
Ammonium Chloride	saturated	Ambient Temperature	B
Ammonium Hydroxide	5-28	Ambient Temperature	C
Ammonium Nitrate	saturated	Ambient Temperature	B
Amyl Alcohol	100	Ambient Temperature	A
Amyl Chloride	100	Ambient Temperature	A
Aviation Gasoline	100	Ambient Temperature	A
Barium Chloride	2-40	Ambient Temperature	A
Barium Hyroxide	2-50	60	A
Beer	-	10	A
Benzil Acid	saturated	Ambient Temperature	D
Benzyl	100	Ambient Temperature	A
Boiling Oil	100	Ambient Temperature	A
Borax	saturated	Ambient Temperature	B
Boric Acid	saturated	Ambient Temperature	C
Bromine	100	Ambient Temperature	B
Butane	100	25	A
Butyl Alcohol	100	Ambient Temperature	A
Calcium Chloride	saturated	Ambient Temperature	A
Calcium Hydroxide	saturated	60	A
Calcium Nitrate	saturated	Ambient Temperature	A
Carbon Dioxide	100	Ambient Temperature	B
Carbon Tetrachloride	100	@ boiling point	A
Chlorine	100	Ambient Temperature	B
Chloroform	100	@ boiling point	B
Chloroform	100	Ambient Temperature	A
Chromic Acid	2-100	Ambient Temperature	D
Citric Acid	5	Ambient Temperature	A
Coal Oil	100	Ambient Temperature	A
Coffee		@ boiling point	A
Copper Chloride	saturated	Ambient Temperature	D
Copper Nitrate	saturated	Ambient Temperature	D
Copper Sulphate	2-30	Ambient Temperature	C
Crude Oil	100	Ambient Temperature	A
Dichloro Ethylene	100	@ boiling point	A
Dichloro Ethynol	100	Ambient Temperature	A
Dimethyl Benzol	100	Ambient Temperature	A
Distilled Water		Ambient Temperature	A
Drinkable Water		80	A
Dry Chlorine	100	Ambient Temperature	A
Ethyl Acid	100	Ambient Temperature	A
Ethylene	100	Ambient Temperature	A
Ethylic Glycol	100	Ambient Temperature	A
“Exhaust Gas, Basic”		260	D
“Exhaust Gas, Oxidative”		540	A
Ferrous Chloride	saturated	Ambient Temperature	D
Ferrous Nitrate	saturated	Ambient Temperature	D
Ferrous Sulphate	saturated	Ambient Temperature	D
Formaldehyde	37	Ambient Temperature	B
Formic Acid	88	Ambient Temperature	B
Fruit Juice		Ambient Temperature	A
Gas	100	Ambient Temperature	A
Glucose	saturated	Ambient Temperature	A
Glycerine	100	Ambient Temperature	A
Hydrochloric Acid	30	Ambient Temperature	D
Hydrochloric Acid	conc.	Ambient Temperature	D
Hydrochloric Acid	10	Ambient Temperature	D
Hydrochloric Acid	20	Ambient Temperature	D
Hydrofluoric Acid	2-100	Ambient Temperature	D
Hydrogen Sulphide	100	Ambient Temperature	A
Iron Chloride	saturated	Ambient Temperature	D
Kerosene	100	Ambient Temperature	A
Lactic Acid	85	Ambient Temperature	A
Lactic Acid	10-50	Ambient Temperature	C
Lead Acetate	saturated	Ambient Temperature	B
Lead Nitrate	saturated	Ambient Temperature	A
Linseed Oil	100	Ambient Temperature	A
Lithium Chloride	saturated	Ambient Temperature	A
Magnesium Chloride	2-50	Ambient Temperature	A
Magnesium Hyroxide	2-50	Ambient Temperature	A
Molasses		100	B
Molasses		Ambient Temperature	A
Methyl Alcohol	100	Ambient Temperature	A
Methyl Chloride	100	Ambient Temperature	C
Milk		Ambient Temperature	A
Mineral Oil	100	Ambient Temperature	A
Natural Resin	100	50	A
Nickel Chlorine	saturated	Ambient Temperature	C
Nickel Sulphate	saturated	Ambient Temperature	C

Substance	% Concentration	Temperature Degrees C	Resistance
Nitric Acid	2-100	Ambient Temperature	D
Oleic Acid	100	Ambient Temperature	A
Oleum	20	Ambient Temperature	D
Orange Juice		Ambient Temperature	A
Oxalic Acid	saturated	Ambient Temperature	A
Palm Oil	100	Ambient Temperature	A
Parafin	100	Ambient Temperature	A
Peanut Oil	100	Ambient Temperature	A
Phenol	100	90	A
Phosphoric Acid	0-100	Ambient Temperature	0-10% C
		Ambient Temperature	10-80 % B
Picric Acid	100	Ambient Temperature	D
Polymers	100	20...200	A
Potassium Carbonate	saturated	Ambient Temperature	A
Potassium Chloride	saturated	Ambient Temperature	A
Potassium Hydrate	2-50	Ambient Temperature	A
Potassium Ironcyanide	saturated	Ambient Temperature	B
Propane	100	Ambient Temperature	A
Rosin	100	@ boiling point	A
Sea Water		Ambient Temperature	A
Silver Chloride	saturated	Ambient Temperature	D
Soap		95	A
Sodium Bicarbonate	saturated	Ambient Temperature	B
Sodium Carbonate	saturated	Ambient Temperature	A
Sodium Chloride	saturated	Ambient Temperature	A
Sodium Cyanide	5	Ambient Temperature	B
Sodium Hydrate	2-73	>=60	A
Sodium Nitrate	10	Ambient Temperature	A
Sodium Phosphate	saturated	Ambient Temperature	A
Sodium Sulphate	saturated	Ambient Temperature	A
Sodium Sulphide	saturated	Ambient Temperature	A
Steam		425	A
Steam Condensate		80	A
Stearic Acid	saturated	Ambient Temperature	A
Sulphuric Acid	20	Ambient Temperature	C
Sulphuric Acid	50-70	Ambient Temperature	C
Sulphuric Acid	30-40	Ambient Temperature	C
Sulphuric Acid	90	Ambient Temperature	C
Sulphuric Acid	10	Ambient Temperature	D
Sulphuric Acid	80	Ambient Temperature	D
Sulphuric Acid	100	Ambient Temperature	D
Sulphurous Acid	2-60	Ambient Temperature	D
Tanning Solution	100	Ambient Temperature	A
Toluol	100	95	A
Trichlorethylene	100	95	A
Turpentine	100	Ambient Temperature	A
Urine	saturated	Ambient Temperature	A
Vinegar	100	Ambient Temperature	B
Vinyl Chloride	100	35	A
Whiskey		Ambient Temperature	A
Wine	100	Ambient Temperature	A
Zinc Chloride	saturated	Ambient Temperature	B
Zinc Nitrate	saturated	Ambient Temperature	B

LEGEND:

- A: Very satisfactory result, rate of removal from corrosion less than 2.5 microns per year.
- B: Useful result, rate of removal from corrosion less than 12.5 microns per year.
- C: To be decided in each case individually, rate of removal from corrosion less than 25 microns per year.
- D: Application not recommended for long periods, rate of removal from corrosion more than 25 microns per year.

Technical Data

Corrosion resistance of electroless nickel-plating

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Corrosion resistance table for various foods

Substance	pH Value	Test Volume (ML)	Test Time (HRS)	Penetration (microns/yr)
Apple Juice	3.1	850	1702	1.2
Bean Soup		500	1702	0.7
Canadian Whiskey	5.2	150	3910	1.6
Canned Corn	6.2	250	1702	0.7
Canned Peaches	3.5	400	1681	0.2
Canned Peas	6.1	450	1702	0.2
Canned Pineapple		500	1681	0.3
Canned Potatoes	5.8	350	1681	1.9
Cherry	3.8	150	3910	6.4
Chicken Broth (3 tests @ 95 degrees C)	6	200	312/502	1
Chocolate Candy		250	1681	
Coffee	5.3	700	1729	9.9
Coffee (4 tests @ 95 degrees C)	4.8	200	312/554	4.7
Cooked Onions		450	1702	0.8
Cranberry Juice		950	1702	0.5
Eggs (2 tests @ 2 degrees C)	8.3	300	1248/1633	0.2
Gin (2 tests)	7.5	150	3910	0.02
Grape Juice	4	800	1702	1.8
Grapefruit Juice	3.2	900	1702	0.5
Lemon Juice	2.3	800	1702	1
Lemonade		950	1702	11.4
Molasses		350	1702	0.2
Margarine (2 degrees C)		200	1633	
Mayonnaise	3.7	470	1681	0.2
Meat Gravy		400	16581	0.6
Milk (2 tests @ 2 degrees C)	6.4	950	1248/1633	0.04
Mushroom Soup		250	1702	0.3
Mushrooms		150	1681	0.6
Peanut Butter		450	1702	
Peeled Tomatoes	4.2	400	1681	0.5
Plum Juice		1000	1702	1
Pork and Beans	5.5	350	1681	0.3
Quark Cheese (2 tests @ 2 degrees C)		300	1248/1633	0.4
Rum	5.8	150	3910	0.2
Sardines in Soybean Oil		30 (oil)	1681	
Scotch Whiskey	5.3	150	3910	1.8
Sliced Radishes	5.2	400	1681	1.8
Sour Kraut	3.5	150	1681	4.4
Spanish Olives	3.7	250	1702	0.3
Tea	2.6	750	1729	4.2
Tea (4 tests @ 95 degrees C)	2.6	200	312/554	9
Tequila (2 tests)	4.8	150	3910	0.4
Tomato Juice (2 tests)	4.2	710	1321/1336	0.5
Tomato Soup		250	1702	0.5
Tomato Soup (2 Tests @ 95 degrees C)	3	200	502	6.1
Tropical Punch		950	1702	1.3
Vegetable Oil		470	1729	
Vegetable Soup		250	1702	1.2
Vinegar	2.9	470	1729	7
Vodka	8.2	150	3910	

Substance	Test Volume (ML)	Test Time (HRS)	Penetration (microns/yr)
Acacia 1%, 4.4 pH	500	5570	0.2
Acetic Acid, 5% CH3COOH (2 tests)	500	2616	13.7
Alum, 5% (A12S04) 3	450	1609	4.3
Ammonia, 28% NH40H	500	3624	12.6
Asorbic Acid, 10% C4H605	500	2660	16.7
Asorbic Acid, 5% C6H806	500	4990	6.6
Carbon Dioxide 5% Fenol	450	4891	4.3
Citric Acid, 5% C6H807	500	2660	14.7
Deionized Water (2 tests @ 95 degrees C)	200	211	
Deionized Water, (1MQ-cm% tests)	900	4536/5089	1.9
Dextrine, 1%, 3.8 pH	500	5570	0.1
Drinkable Water, 8.0 pH (4 tests)	900	4536/5089	0.05
Fecula, 1%	500	3839	0.5
Lactic Acid, 85% C3H603	500	1337	1.3
Phosphoric Acid, 1% H3P04 (2 tests)	450	2599/2618	12.6
Potassium Carbonate, 25% K2C02	450	2302	0.2
Saline Water, 26% NaCl (2 tests)	450	1337/3478	2
Saline Water, 40% CaCl2 (2 tests)	450	1198/3335	0.1
Salt, 5% NaCl, 6.3 pH	450	1198	0.5
Sea Water, Artifical, 8.2 pH (2 tests)	500	1272	1
Sodium Bicarbonate 2% NaHC03	500	3839	6.4
Sodium Hyroxide, 1% NaOH	500	5042	0.2
Sodium Hypochlorite, 1% NaOCL	450	460	0.5
Sodium Nitrate, 42% NaNO2	450	574	12
Sodium Nitrate, 47% NaNO3	450	1198	
Water 700mg/1CO2, 3.9 pH (2 tests)	450	404	7.9

LEGEND:
—Very satisfactory result, rate of removal from corrosion less than 2.5 microns per year.
— Useful result, rate of removal from corrosion less than 12.5 microns per year.
— To be decided in each case individually, rate of removal from corrosion less than 25 microns per year.
— Application not recommended for lond periods, rate of removal from corrosion more than 25 microns per year.

Technical Data

Tubing chemical resistance guidelines

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The following ratings are very general guidelines, designed ONLY to be used as an initial screening tool. Bear in mind that dynamic vs. static application, temperature, chemical mixtures, and the specific tubing compound selected can significantly affect or change these ratings either positively or negatively. Careful testing under actual conditions is essential. Accuracy for these ratings is not given or implied.

N = Nylon
PUR = Polyurethane
P/E = Polyethylene
PVC = Polyvinylchloide (vinyl)

RATINGS:
SOLVENT/CHEMICAL
1 = little or no effect
2 = minor effect
3 = moderate effect
4 = severe effect
- = no tested data available

SOLVENT/CHEMICAL	N	PUR	P/E	PVC
Acetic Acid	-	4	1	4
Acelic Acid 30%	-	4	1	4
Acetone	-	4	2	4
Acetylene	-	4	1	1
Alkazene	-	4	-	-
Aluminum Chloride (aq	-	3	2	1
Aluminum Nitrate (aq)	-	3	-	-
Ammoni Anhydrous	-	4	2	1
Ammonia Gas (cold)	-	3	-	-
Ammonia Gas (hot)	-	4	-	-
Ammonium Chloride (aq)	-	1	1	1
Ammonium Sulfate (aq)	-	1	1	1
Amyl Alcohol	-	4	2	1
Amyl Naphthalene	-	4	-	-
Animal Fats	-	1	-	-
Aqua Regia	-	4	2	3
Arsenic Acid	-	3	2	1
Asphalt	-	2	1	1
ASTM Fuel A	-	2	-	-
ASTM Fuel B	-	3	-	-
ASTM Fuel C	-	3	1	1
Barium Chloride (aq)	-	1	1	1
Beer	1	2	1	1
Beet Sugar Liquors	-	4	1	1
Benzene	1	3	3	3
Benzine	-	2	-	-
Blast Furnace Gas	-	4	-	-
Bleach Solutions	-	4	-	1
Borax	-	1	1	2
Boric Acid	-	1	1	1
Brake Fluid	-	4	-	-
Brine	-	2	4	3
Bromine Water	4	4	-	-
Bunker Oil	-	2	-	-
Butane	1	1	3	3
Butter	-	1	-	-
Butyl Alcohol	3	4	1	2
Butylene	-	4	1	1
Calcium Chloride (aq)	1	1	2	1
Calcium Hydroxide (aq)	-	1	2	1
Calcium Nitrate (aq)	1	1	-	-
Calcium Sulfide (aq	-	1	-	-
Cane Sugar Liquors	-	4	-	1
Carbolic Acid	-	3	2	3
Carbon Dioxide	-	1	3	1
Carbonic Monoxide	-	1	2	1
Carbon Tetrahchloride	3	4	2	2
Castor Oil	-	1	-	1
Chlorine (dry)	4	4	2	1
Chlorine (wet)	4	4	-	-
Chloroform	3	4	3	4
Chlorox	-	4	-	-
Chromic Acid	4	4	1	1
Citric Acid	1	1	1	2
Coal Tar	-	3	-	-
Coconut Oil	-	2	-	1
Cod Liver Oil	-	1	-	1
Coke Oven Gas	-	4	-	-
Copper Chloride (aq)	-	1	2	1
Copper Cyanide (aq)	-	1	2	1
Corn Oil	-	1	3	2
Cotton Seed Oil	-	1	2	2
Creosol	4	4	3	4
Cyclohexane	1	1	2	4
Denatured Alcohol	-	4	-	-
Detergent Solution	-	4	1	1
Diesel Oil	-	3	3	1
Dioxane	-	4	-	-
Dowtherm Oil	-	3	-	-
Dry Cleaning Fluids	-	4	-	-
Ethane	-	3	-	4
Ethyl Acrylate	-	4	-	-
Ethyl Alcohol	3	4	-	-
Ethyl Benzine	-	4	-	-
Ethyl Cellulose	-	2	-	-
Ethyl Chloride	-	2	-	-
Ethyl Ether	-	3	-	-
Ethyl Chloride	-	4	3	4
Ethyl Glycol	2	4	1	1
Ethylene Oxide	1	4	3	3
Ethylene Trichloride	-	4	-	-
Ferric Chloride (aq)	-	1	1	1
Ferric Nitrate (aq)	-	1	2	1
Ferric Sulfate (aq)	-	1	1	1
Flourine (liquid)	4	4	3	4
Formaldehyde (RT)	-	4	3	1
Formic Acid	3	3	2	1
Freon 11	-	4	3	1
Freon 12	1	1	3	1
Freon 22	1	4	-	2
Fuel Oil	-	2	3	1
Furlural Glucose	-	4	1	1
Glue	-	1	1	3
Glycerin	1	1	1	1
Glycols	1	4	-	-
Green Sulfate Liquor	-	1	-	-
Hexane	-	2	3	2
Hydraulic Oil	-	1	1	1
Hydrochloric Acid (cold) 37%	-	4	2	2
Hydrochloric Acid (hot) 37%	-	4	-	-
Hydrochloric Acid cold	-	3	-	-
Hyrochloric Acid hot	-	4	-	-
Hydrogen Gas	1	1	1	1
Isobutyl Alcohol	-	4	-	-
Isooctane	-	2	-	-
Isopropyl Acetate	-	4	2	4
Isopropyl Alcohol	1	3	-	-
Isopropyl Ether	-	2	1	2
Kerosene	1	1	3	4
Lacquers	-	4	2	3
Lacquer Solvents	-	4	2	3
Lard	-	1	2	1
Lavender Oil	-	4	-	-
Lead Acetate (aq)	-	4	1	1
Linseed Oil	1	2	3	1
Liquified Petroleum Gas	-		-	-
Lubricating Oils	-	2	4	2
Lye	-	4	-	-
Magnesium Chloride (aq)	1	1	1	1
Magnesium Hydroxide (aq	-	4	1	1
Mecury	1	1	1	2
Methane	1	3	-	-
Methyl Acetate	1	4	2	4
Methyl Acrylate	-	4	-	-
Methyl Alcohol	1	4	1	1
Methyl Butyl Ketone	-	4	-	1
Methyl Chloride	3	4	3	4
Methylene Chloride	-	4	3	4
Methyl Ethyl Ketone	1	4	2	4
Methyl Isobutyl Ketone	1	4	-	-
Milk	1	4	1	1
Mineral Oil	1	1	2	1
Naphtha	1	2	1	3
Naphthaline	1	2	1	4
Natural Gas	-	2	-	-
Nitric Acid (conc.)	4	4	3	4
Nitric Acid (dilute)	4	3	-	4
Nitreothane	-	4	-	-
Nitrogen	-	1	-	-
N-Oclane	-	4	-	-
Oleic Acid	1	2	3	3
Oleum Spirits	-	3	4	4
Olive Oil	-	1	1	3
Oxygen-cold	1	1	-	-
Oxygen (200-400 Degrees F)	-	4	-	-
“Paint Thinner, Duco”	-	4	-	-
Perchloric Acid	-	4	-	-
Perchloroehylene	3	4	4	3
Petroleum-Below 250 degrees	-	2	-	-
Petroleum-Above 250 degrees	4	4	-	-
Phenol	4	3	2	3
Phenyl Ethyl Ether	-	4	-	-
Phosphoric Acid 45%	2	1	2	2
Pickling Solution	-	4	-	-
Ploric Acid	3	2	-	4
Potassium Acetate (aq)	-	4	-	-
Potassium Chloride (aq)	-	1	1	1
Potassium Cynaide (aq)	-	1	1	1
Potassium Hyroxide (aq)	3	4	1	1
Producer Gas	-	1	1	1
Propane	1	3	3	1
Propyl Alcohol	-	4	-	-
Propylene	-	4	-	-
Propylene Oxide	-	4	-	-
“Pyraul, 10E, 29 ELT”	-	4	-	-
“Pydraul, 30E, 50E,65E”	-	4	-	-
“Pydraul, 115E”	-	4	-	-
“Pydraul, 23DE,312C, 540C”	-	4	-	-
Rapseed Oil	-	2	-	-
Red Oil (MIL-H-5808)	-	1	-	-
RJ-1 (MIL-F-23338 0)	-	1	-	-
RP-1 (MIL-F-25578 C)	-	1	-	-
Salt Water	1	2	1	1
Sewage	-	4	-	-
Silicate Esters	-	1	-	-
Silicone Oils	-	1	1	1
Silver Nitrate	-	1	2	1
Skydrol 500	-	4	-	-
Skydrol 700	-	4	-	-
Soap Solutions	1	3	3	1
Sodium Chloride (aq)	1	1	1	1
Sodium Hydroxide (aq)	2	4	2	1
Sodium Peroxide (aq)	-	4	1	2
Sodium Phosphate (aq)	-	1	-	-
Sodium Sulfate (aq)	-	1	1	1
Soy Bean Oil	-	2	1	1
Steam Under 300 degrees	4	4	-	-
Steam Over 300 degrees	4	4	-	-
Sloddard Solvent	-	1	3	3
Styrene	-	3	-	4
Sucrose Solution	-	4	-	-
Sulfuric Acid (dilute)	-	3	1	1
Sulfuric Acid (conc.)	-	4	3	4
Sulfuric Acid (20% oleum)	-	4	-	-
Sulfurous Acid	-	3	2	1
Tannic Acid	-	1	2	1
Tetrochloroethylene	-	4	2	4
Toluene	1	4	3	4
Transformer Oil	-	1	-	-
Transmission Fluid Type A	-	1	-	-
Trichloroethane	3	4	-	3
Trichloroethylene	3	4	3	4
Turbine Oil	-	1	3	1
Turpentine	1	4	3	2
Varnish	-	3	3	4
Vinegar	1	4	2	1
Vinyl Chloride	-	4	-	-
Water	1	1	1	1
“Whiskey, Wines”	1	2	3	1
White Oil	-	1	-	-
Wood Oil	-	3	-	-
Xylene	2	4	3	4
Zinc Acetate (aq)	-	4	-	-
Zinc Chloride (aq)	1	1	1	1

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Notes

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