

C019 July 2012

TECHNICAL CATALOGUE

Pipes and fittings for compressed air



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APPENDIX A - ASSEMBLY GUIDE

APPENDIX B - QUICK LINE SYSTEM TECHNICAL SCHEDULE

APPENDIX C - AIRCOM ACCESSORIES TECHNICAL SCHEDULES

Information provided in this document were compiled according to our science and conscience and are representative of state of art. Information, data and pictures of Aircom products herein supplied are not binding and are supplied as a guide only. We reserve the right to introduce possible technical modifications without notice. We recommend to always check effective suitability of the product/s for the intended use. Any reprint or copying of this document and its annexes, or of part of them, requires prior written consent from Aircom Srl. All rights reserved. (E. and O. E.)

PRODUCT DESCRIPTION

The constant development of plants, the growth and the modifications of factories, the production technology progress, the strong push to automation are asking for pressured air plants correctly sized and easy modifiable.

The AIRCOM QUICK LINE was expressly designed and developed for the delivery and distribution of compressed air.

Materials and connection peculiarity allow the assembling of flexible plants; these can be integrated by all the Aircom components and work out all the problems and the needs of the more complex plants.

Perfect hydraulic seal, remarkable mechanical endurance and efficiency in the time are guaranteed, in spite off the easy and quick installation.

CORROSION

The special aluminium alloy of pipes, coated by hot electrostatic paint, the aluminium alloy and special coating of cast injected fittings, the tecnopolymers of QL fittings and components, create a corrosion-free pipeline both in internal and external surface. This guarantee, at least, 50 year life of the product under normal working conditions.



IMPACT RESISTANCE

The materials guarantee excellent performance relating to mechanical resistance and internal pressure resistance. The pipeline can support violent impacts.



U.V. RAYS

U.V. rays do not affect aluminium. For this reason the QUICK LINE pipes can be layed indoor and outdoor.



FIRE RESISTANCE

The aluminium alloy of the pipes allows an excellent fire resistance (flames cannot spread or progress)



AIR DELIVERY

Because of the low friction factor and the large inside pipe section, the AIRCOM QUICK LINE offers higher air delivery then others pipes at the corresponding inside diameter.



INSTALLATION

AIRCOM QUICK LINE allows the highest flexibility and integrability to any other kind of system and, off course, to all the others AIRCOM systems. The absolutely quick and easy installation allows to get "zero" waiting time before starting the plant.



DIMENSIONS AND STANDARD

All the items of AIRCOM QUICK LINE are in accordance to national and international standards as regards to pipes, fittings and valves under pressure.



COMPRESSORS OIL COMPATIBILITY

Normally the AIRCOM QUICK LINE components can work with a large range of lubricating oils for compressors. A detailed list is continually updated.

Ask for the compatibility list to the AIRCOM technical assistance.



ALL THE AIRCOM ITEMS ARE GUARANTEED "SILICON FREE"

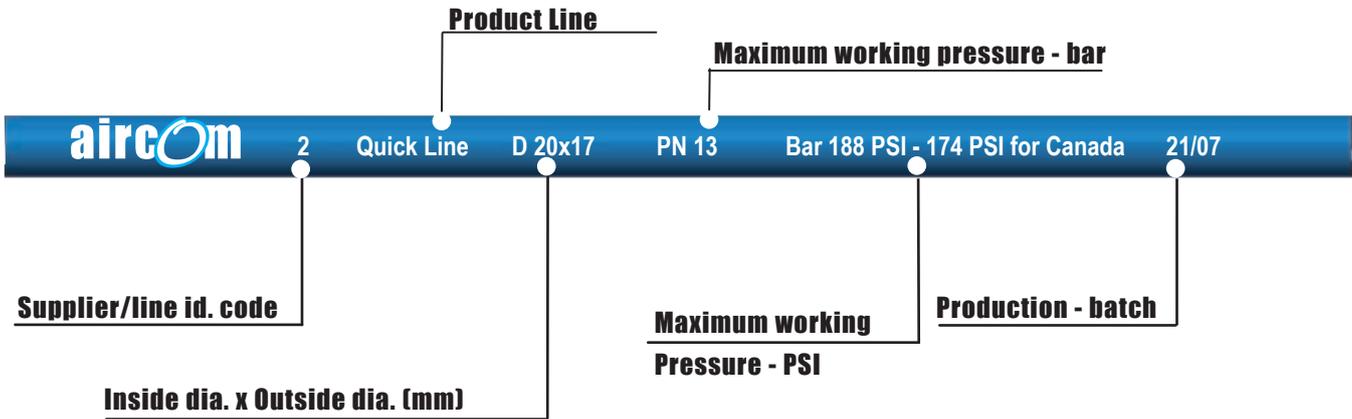
PRODUCT VISUAL IDENTIFICATION

The pipe color identifies the carried fluid

Aircom BLU Pipe: Compressed Air

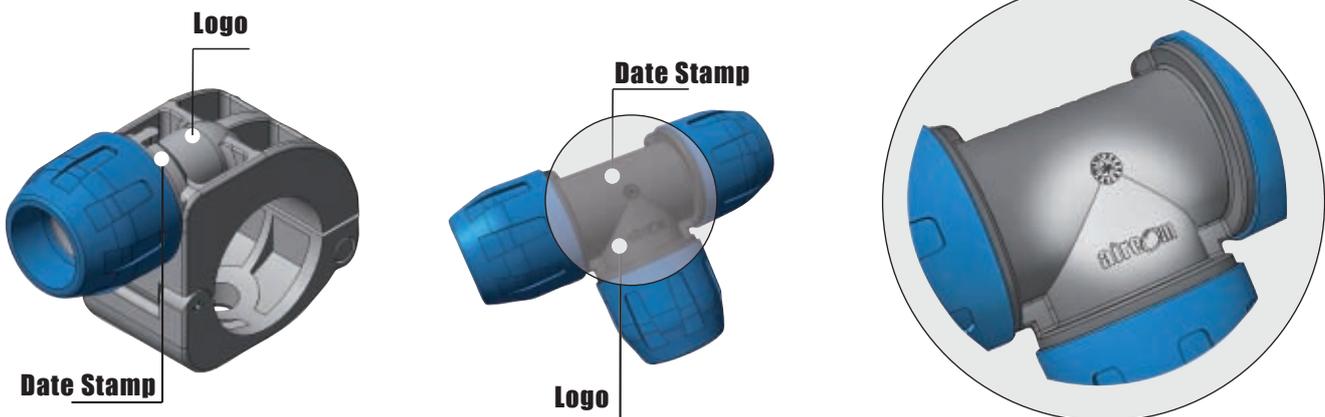
Aircom Green Pipe: Other Industrial Fluids

MARKING OF ALUMINIUM QUICK LINE PIPE



Pipe marking is black ink painted

MARKING OF FITTINGS



TECHNICAL SPECIFICATIONS

APPLICATION FIELDS

1. COMPRESSED AIR

AIRCOM QUICK LINE system is mainly dedicated to COMPRESSED AIR distribution up to a maximum pressure of 13 bar.

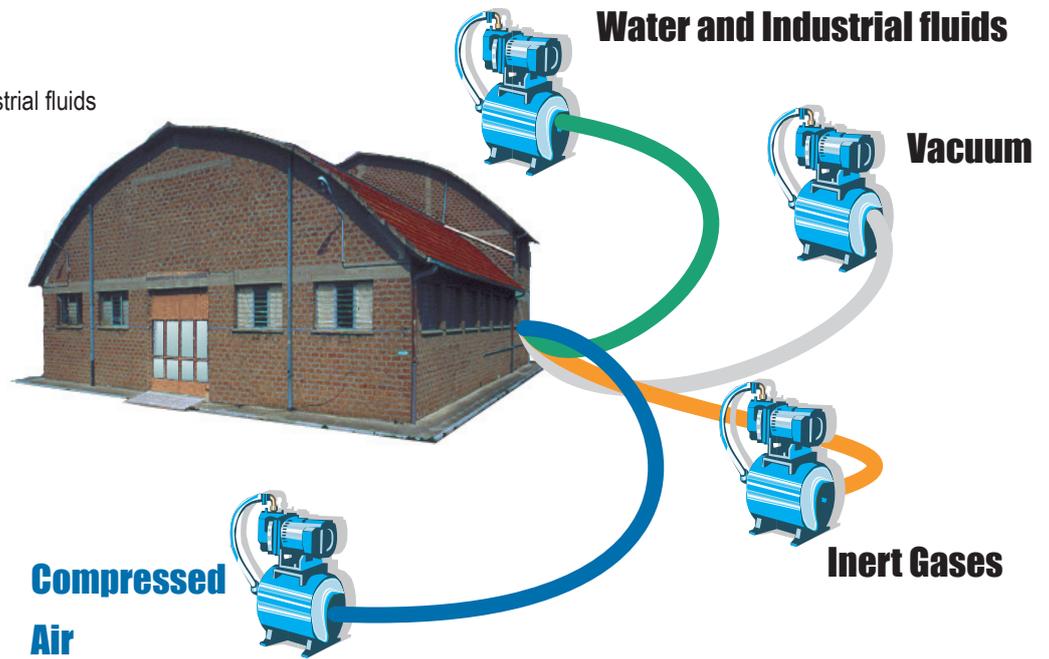
The wide range of products allows do develop plants starting from compressor, through the treatment units, through the distribution ring, up to the peripheral connections.

A set of special components allows quick and effective solutions to settle all the specific installation problems related to compressed air.

AIRCOM QUICK LINE system is perfectly integrable with all the others Aircom product range as CLASSIC Line.

2. OTHER USES

- . Inert gases
- . Vacuum
- . Water (not alimentary) and industrial fluids



Pipelines Distiguishing Colors

The Standard UNI 5634-1997 settles the colors in order to identify the carried fluid.

Fluid	Basic Color	RAL
Fire estinguishing	Red	3000
Water	Green	6032
Steam	Grey	9006
Air	Blue	-
Combustible end/or Inflammable Mineral Oils	Brown	8007
Gaseous or Liquified Gases (air excluded)	Yellow	1024
Acids	Orange	2010
Dangerous Fluids	Yellow-Green	1021

Colors of the most common fluids

PLANT DESIGN

There are two way to design a main line: through a single way pipeline (the line start from the compressor following all the connections up to the farrest one) or through a closed ring (the line start and go back to the compressor). The ring is usually the advisable solution because of a more equilibrate delivery and because it makes possible, with valves, to cut parts af the plant in order to set, modify, or enlarge the pipeline without complete stop of the air delivery in the firm.

The volume of the ring-line forms an air-storage, helping to keep the pressure value constant, especially during strong and sudden air requests.

To calculate the dimension of the main pipe ring, we must know all detailed data of each tool, machine, equipement etc. regarding the air consumption, usually expressed in Normal liter per Minute (NI/min), and the correct working pressure value (min and max).

So, the righth dimensioning of a main line, needs to consider several factors as following:

1. Air Flow Rate

The flow rate is estimated on the basis of the different users as well as on the operation frequency of all users ; the total average flow rate of all off takes will show the the maximum necessary quantity for the main pipeline. A certain precautionary increaseand an estimate of future increase is to be added to the above value.

This datum will allow us to size the compressor to be installed and consequently other necessary elements (receiver, main filter, oil separator, drier etc.).

2. Compressors - Indicative Air Delivery

The following table shows the air delivery values available for compressors with different powers.



KW	CV	NI/min
1,5	2	230
3	4	400
4	6	600
5,5	7,5	900
7,5	10	1200
11	15	1750
12,5	17	2000
15	20	2500
18	25	3000
22	30	3500
29	40	4500
37	50	4500
45	60	7000
55	75	8500
74	100	12000
92	125	15000
110	150	18000
132	180	21000
170	230	26000
200	270	31000

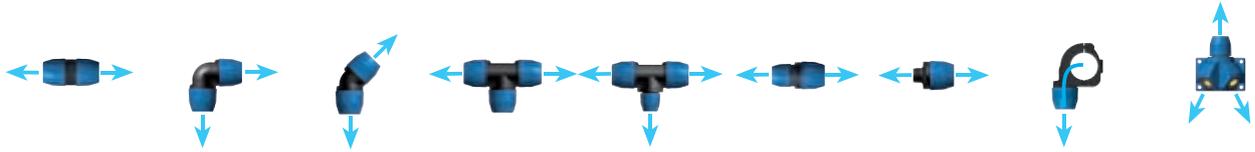
3. Working Pressure and Loss of Charge

The designe must fix the minimum needed pressure for each user and its position: far from compressor the available pressure will decrease because of many reasons:

- Air driers, filters
- Drop legs
- Restrictions (valvs etc.)
- Frictions from the flow speed
- Pipe section changes, direction changes, elbows, fittings and other accessories

In order to get a righth plant dimensioning, we must think of losses of charge due to fittings.This value change time by time according to the quantity and the shape of them.

The table below indicates the correspondence to pipe meters for every assembled fitting. The equivalent length obtained from all fittings will be added to the average length of the installed pipe.



	QLMAPA	QLGO90PA	QLGO45PA	QLTEPA	QLTRPA	QLRIDPA	QLMNPA	QLDERPA	QLAPL
16	0,1	0,7		0,1			0,1		0,8
20	0,2	1,2	1	0,2	1,3		0,2		1,2
25	0,2	1,5	1,2	0,3	1,8	0,5	0,2	1,8	1,5
32	0,3	2	1,3	0,3	2,4	0,6	0,3	2,4	
40	0,3	2,4	1,6	0,4	3	0,7	0,3	3	
50	0,4	3	2	0,4	4	1	0,4	4	
63	0,5	3,5	2,5	0,5	4,5	1,5	0,5	4,5	
80	0,7	4,8		0,7	5,5	2	0,7	5,5	
110	0,8	6		0,8	6,5	2,5		6,5	

PLANT LENGTH

When we know the service pressure, the required flow and the length of the pipe from the compressor line to the most distant air user (considering the sum in meters of the equivalent lengths - see table 1), we will be able to calculate the correct dimensioning of the main pipe.

CHOICE OF THE QLTUAL PIPE FOR THE MAIN RING
 Values referred to a 8 Bar pressure and a maximum pressure drop of 5%
 Distance between the compressor and the most distant user (in meters)

Nm ³ /h	NI / min	25	50	100	150	200	300	400	500	1000
36	600	16	16	20	20	25	25	25	25	32
54	900	16	20	20	25	25	25	32	32	40
72	1200	20	25	25	25	32	32	32	32	40
105	1750	25	25	32	32	32	40	40	40	50
150	2500	25	32	32	32	40	40	40	50	50
210	3500	32	32	40	40	40	50	50	50	63
270	4500	32	32	40	40	50	50	50	50	63
360	6000	40	40	40	50	50	50	63	63	63
510	8500	40	40	50	50	50	63	63	63	80
720	12000	50	50	50	63	63	63	80	80	80
1080	18000	50	63	63	63	80	80	80	80	
1260	21000	63	63	63	80	80	80	80		
1860	31000	63	80	80	80	80				
2700	45000	80	80	80						

ACCORDING THE TABLE INDICATIONS THE MAXIMUM PRESSURE DROP WILL BE APPROX 5%

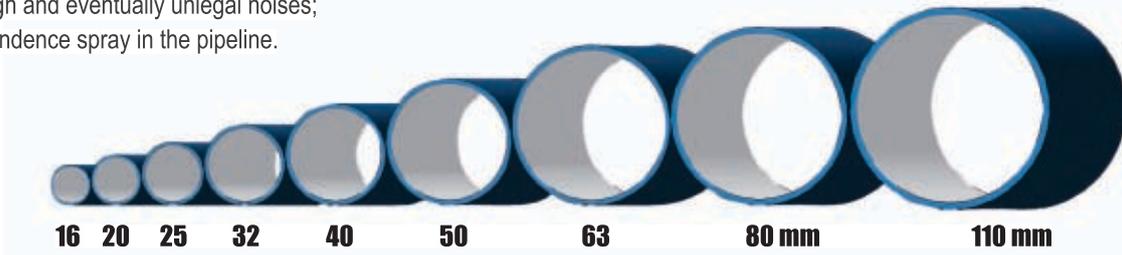
If the instant flow rate is equal or inferior to the one produced by the compressor and the ring is shorter than the suggested for a given pipe diameter, the pressure loss will not exceed 5%.

We recommend to use larger pipelines for possible future expansions and to avoid an excessive speed of the compressed air inside the piping system.

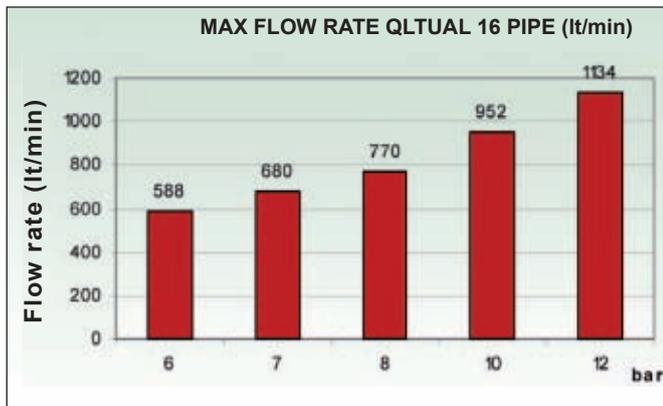
FLOW RATE/PRESSURE DROP TABLE

We indicate hereunder the maximum suggested flow rate not to create high speed in the air flow which will determinate :

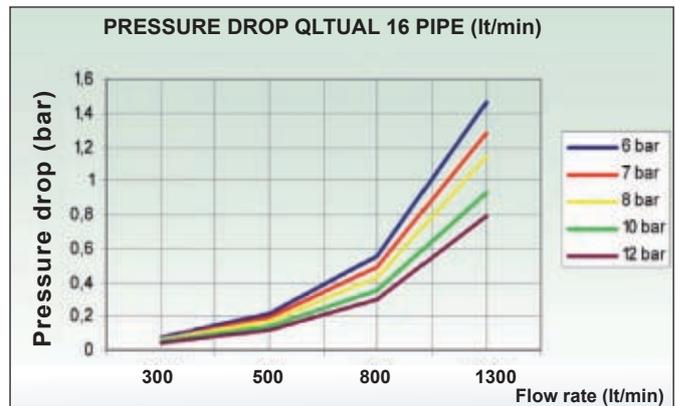
- Increase of turbulence with relative pressure drop;
- high and eventually illegal noises;
- condence spray in the pipeline.



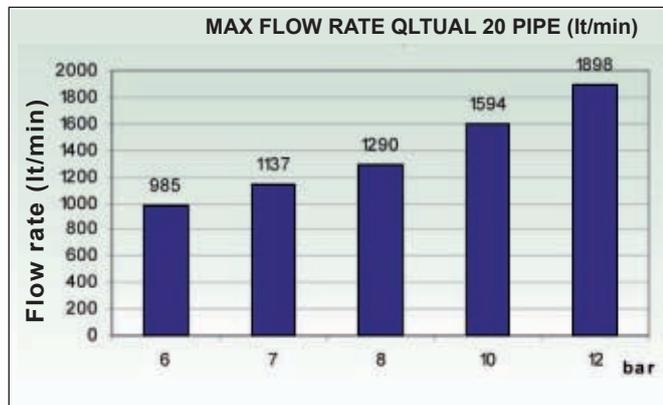
PIPE FLOW RATE TABLES



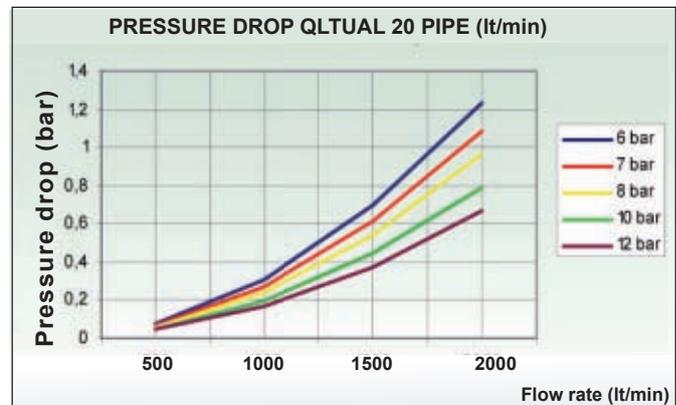
- Table 1a



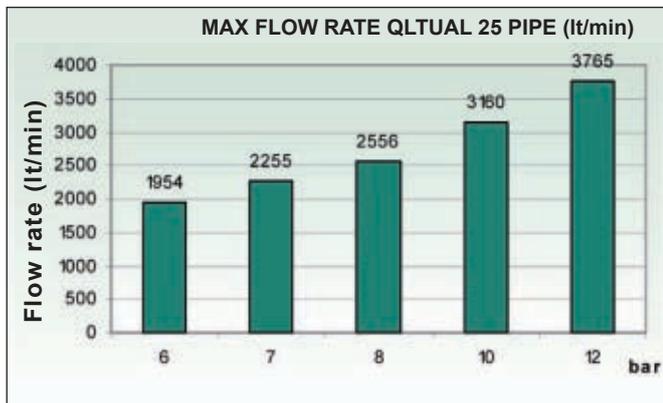
- Table 1b



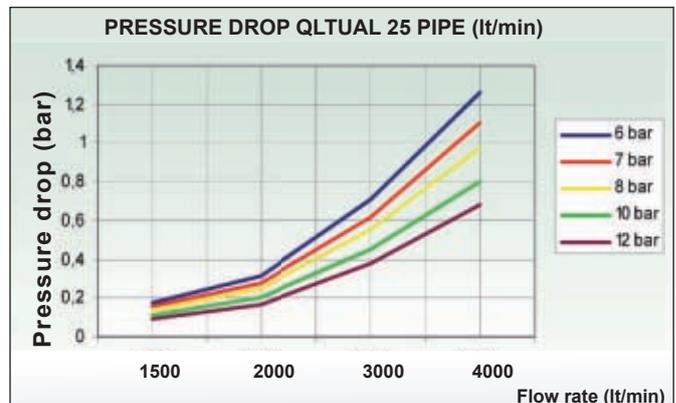
- Table 2a



- Table 2b

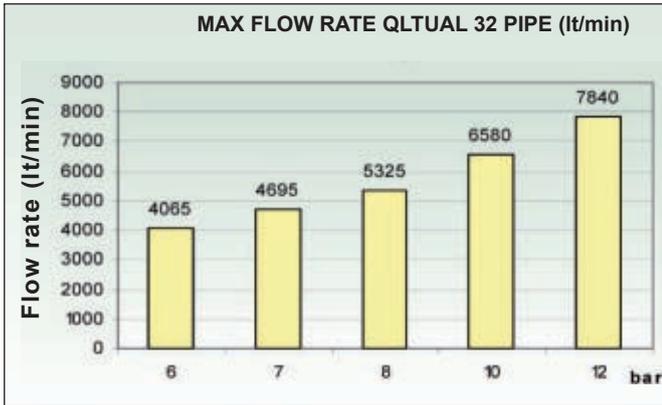


- Table 3a

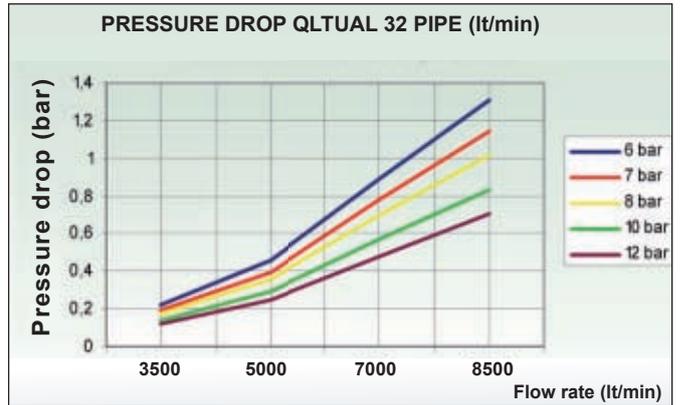


- Table 3b

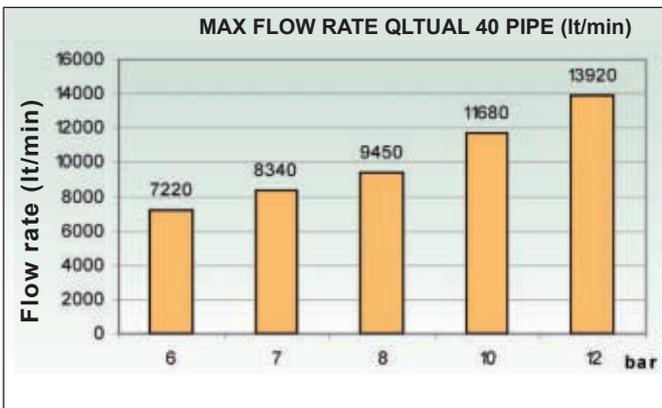
PIPE FLOW RATE TABLES



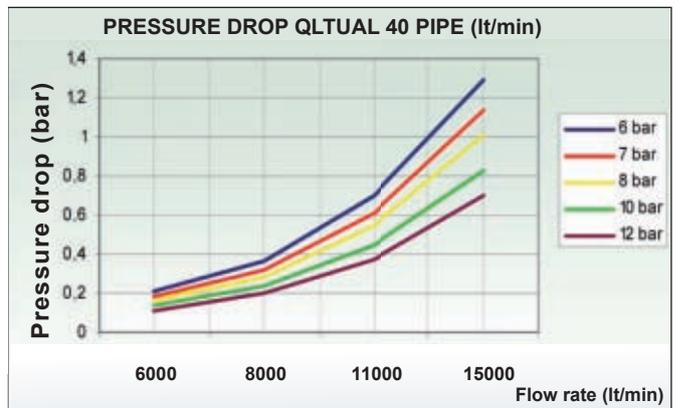
- Table 4a



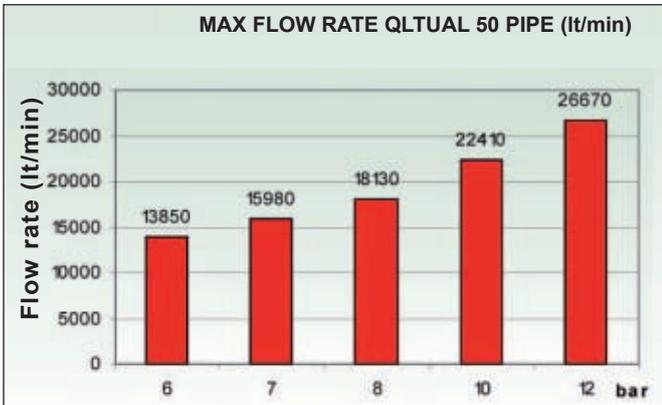
- Table 4b



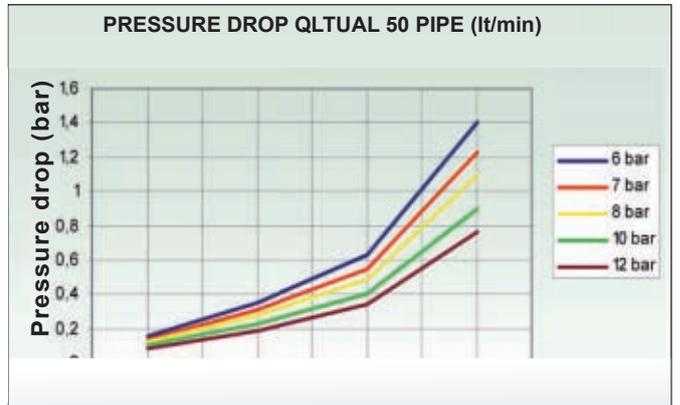
- Table 5a



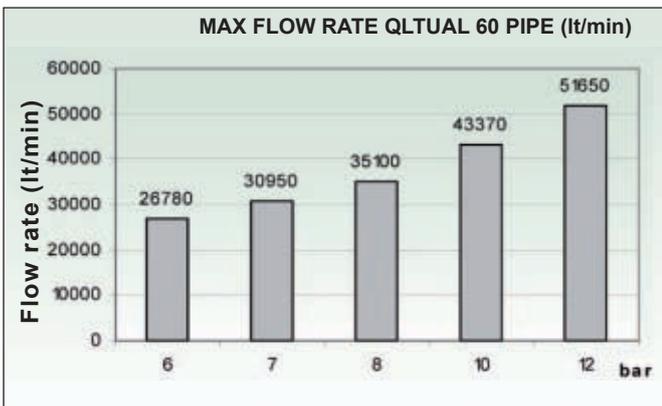
- Table 5b



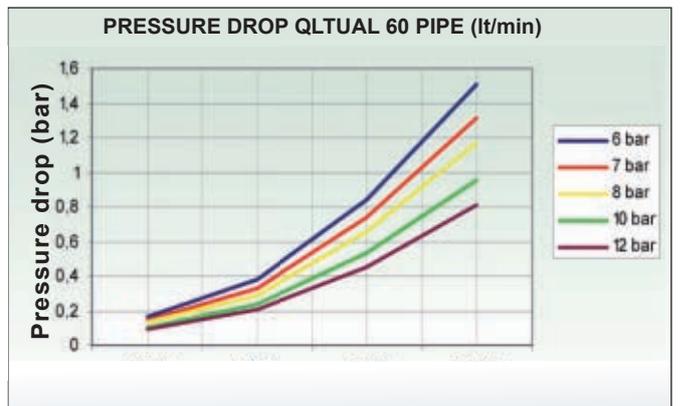
- Table 6a



- Table 6b

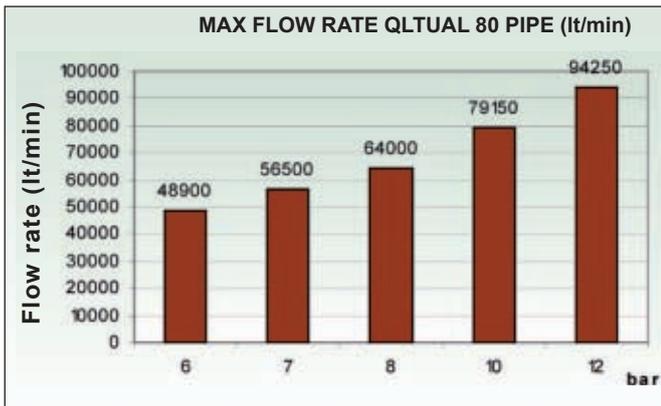


- Table 7a

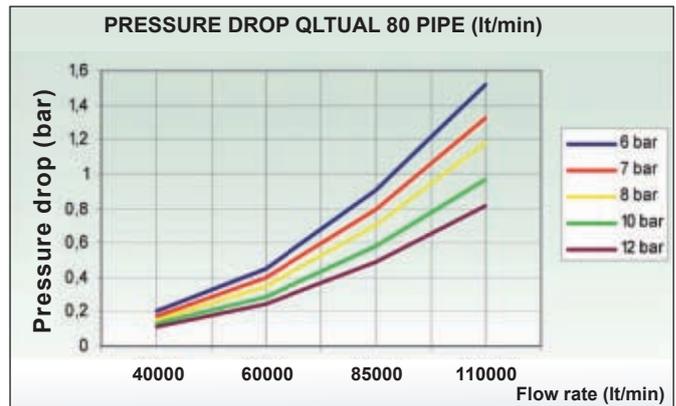


- Table 7b

PIPE FLOW RATE TABLES



- Table 8a



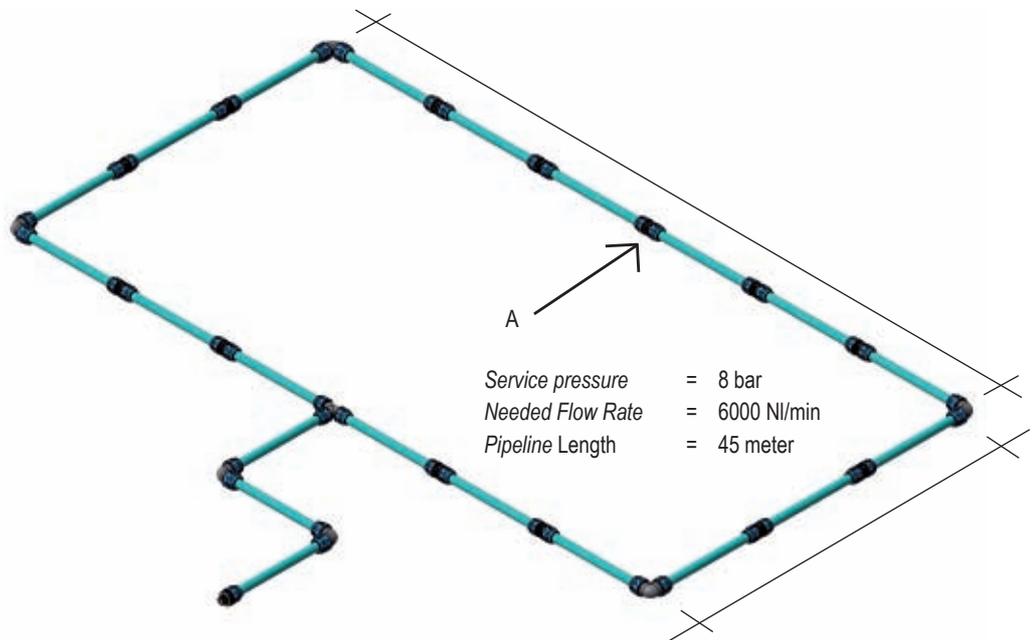
- Table 8b

Ring dimensioning example and pressure drop calculation in a Quick Line worknet.

The most distant point, in the pipeline lay-out, from the compressor will be:

90/2 meters = 45 meters (point "A")

If we compare this value with the flow rate indicated in Table 5b (page xx) we shall obtain the pipe size we have to install (in this case 40 mm).



To know the pressure loss at point "A" we have to calculate the **equivalent length (Leq)**:

$$\text{Leq} = 45 \text{ mt} + (\leftarrow \text{fitting} \rightarrow 0,3 \times 6) + (\downarrow \text{fitting} \rightarrow 3,6 \times 4) + (\leftarrow \text{fitting} \rightarrow 2,4 \times 1) + (\leftarrow \text{fitting} \rightarrow 1,2 \times 1) = 64,8 \text{ mt}$$

If in table C we cross the flow rate of 6000 NI/min with the curve at 8 bar we get a pressure loss (Δp) of 0,18 bar.

$$0,18 \text{ bar} : 30 \text{ mt} = \Delta p : \text{Leq}$$

$$\Delta p = \frac{0,18 \text{ bar} \times 59,7 \text{ mt}}{30 \text{ mt}} = 0,38 \text{ bar}$$

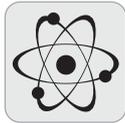
The pressure loss is lower than 5%.

The value obtained for a 30 mt pipeline is around 0,15 bar; as our datum is 95 t, the pressure loss will be : $\Delta p = (95 \times 0,15) / 30 = 0,475 \text{ bar}$

In this calculation we did not consider pressure drops due to the possible presence of treatment groups : air drier, filters, etc.

These values may be found on the instructions manual of the machine or may be requested to the machine supplier.

MATERIALS AND REFERENCE STANDARDS



Quick Line System	Material	Reference Standards
Pipe	Aluminium extrusion Alloy EN AW T6 UNI-EN 755-2 with inside and outside titanium-based, chrome-free and RoHS-complying treating and electrocoated outside surface	UNI-EN 755-2
Ring nuts up to dia. 50	Polyamide 6 Dia.16÷50	ISO 1043
Ring nuts larger than dia.50	Aluminium Alloy EN-AB 46100	UNI-EN 1676
Bodies up to dia. 50	Polyamide 6	ISO 1043
Bodies larger than dia.50	Aluminium Alloy EN-AB 46100	UNI-EN 1676
Push ring	Poliamyde 6	ISO 1043
Split ring	Stainless steel X10CrNi18-8	UNI-EN 10088
Gaskets	NBR 70 (Viton® on request)	ISO 1043
Aluminium bodies and joints	Aluminium Alloy EN-AW 2011	UNI-EN 755-2
Brass bodies and joints	Brass Alloy CW 617N	UNI-EN 12165
Threaded inserts	Polyamide 6	ISO 1043
Applique bodies	Polyamide 6	ISO 1043
Quick branch bodies	Polyamide 6	ISO 1043
Brackets	Polypropylene	ISO 1043
M8 screw-bolts	Galvanized steel	UNI-EN-ISO 4032
Spacers	Polypropylene	ISO 1043
Bracket systems	Galvanized steel	-

QUICK LINE ALUMINIUM PIPE - ALUMINIUM ALLOY EN AW 6060



CHEMICAL COMPOSITION

Si	Fe	Cu	Mn	Mg	Cr	Zn	Others	Al
0,30 ÷ 0,60	0,10 ÷ 0,30	0,10 max	0,10 max	0,35 ÷ 0,60	0,05 max	0,15 max	0,15 max	Rest



PHISICAL AND MECHANICAL CHARACTERISTICS

Characteristic	Value	Note
Treatment	T6	-
Density	2,7 Kg/dm ³	-
Elastic Modulus	69 KN/mm ²	-
Thermal Expansion	23 µm/°C	between 20°C and 100°C
Thermal Conductivity	200 W/(m·K)	at 20°C
Specific Warmth	880 ÷ 900 J/(Kg·K)	between 0°C and 100°C
Fusion Temperature	600 ÷ 660 °C	
Tensile Strength Rm	190 N/mm ²	Minimum
Yield Strength Rp	150 N/mm ²	Minimum
Elongation A %	8	Minimum
Elongation A (50mm) %	6	Minimum

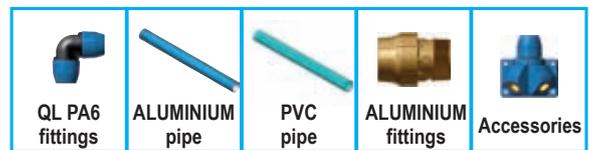
CHEMICAL COMPATIBILITY

Aircom systems guarantee a very high resistance against corrosion in standard working areas. In the following table you will find chemical compatibilities of our products with some organic compound, solvents, gases, acids, salts, bases.

CHEMICAL AGENTS



COMPATIBILITY WITH AIRCOM MATERIALS



	ALUMINIUM	NBR (O-ring)	VITON* (O-ring)	CANSAR (Inox)	PA (Poliammide)	PVC	QL PA6 fittings	ALUMINIUM pipe	PVC pipe	ALUMINIUM fittings	Accessories
ACETALDEHYDE	B	D	A	A	A	D	OK*	OK	NON	OK*	OK
ACETIC ACID 20%	B	B	B	A	D	B	NON	OK	OK	OK	NON
ACETONE	A	D	D	A	A	D	NON	OK	NON	NON	NON
ACETYLENE	A	B	A	A	A	A	OK	OK	OK	OK	OK
AMMONIUM	B	A	D	A	A	B	OK	OK	OK	OK	OK
BENZENE	B	D	A	B	B	C	OK*	OK	NON	OK*	OK
BORIC ACID	C	A	A	A	B	A	NON	NON	OK	NON	NON
BURNT LIME	A	A	A	A	A	A	OK	OK	OK	OK	OK
BUTANOL	A	B	A	A	D	A	OK	NON	OK	NON	NON
BUTTER	A	A	A	A	A	A	OK	OK	OK	OK	OK
CARBON DIOXIDE	A	A	A	A	A	A	OK	OK	OK	OK	OK
CARBON MONOXIDE	A	A	A	A	A	A	OK	OK	OK	OK	OK
CAUSTIC SODA	C	B	A	A	B	A	OK	NON	OK	NON	OK
CHLOROFORM	B	D	A	A	A	A	OK*	OK	OK	OK*	OK
CITRIC ACID	C	A	A	A	A	A	OK	NON	OK	OK	OK
CLHORIC ACID (20%)	D	D	D	D	D	A	NON	NON	OK	NON	NON
DIESEL GAS	B	A	A	B	A	-	OK	OK	NON	OK	NON
ETHANOL	A	A	A	B	B	A	OK	OK	OK	OK	OK
ETHYLENE GLYCOL	A	A	A	B	A	A	OK	OK	OK	OK	OK
FAT ACIDS	A	B	A	A	A	A	OK	OK	OK	OK	OK
FORMALDEHYDE 40%	B	B	A	A	A	A	OK	OK	OK	OK	OK
FUEL OIL	A	A	A	A	A	-	OK	OK	OK	OK	NON
GLUCOSE	A	A	A	A	A	A	OK	OK	OK	OK	OK
GLYCERINE	A	A	A	A	A	A	OK	OK	OK	OK	OK
HEPTAN	A	A	A	A	A	-	OK	OK	NON	OK	OK
HYDROGEN (GAS)	A	A	A	A	A	A	OK	OK	OK	OK	OK
METHYL ALCOHOL	B	A	C	A	B	A	OK*	OK	OK	OK*	OK
MILK	A	A	A	A	A	A	OK	OK	OK	OK	OK
MINERAL OIL	A	A	A	A	A	-	OK	OK	OK	OK	NON
MOTOR OIL	A	A	A	A	A	-	OK	OK	OK	OK	NON
NATURAL GAS (METHANE)	A	A	A	A	A	A	OK	OK	OK	OK	OK
NITRIC ACID (20%)	C	D	A	B	D	A	NON	NON	OK	NON	NON
NITROBENZENE	B	D	B	B	B	-	NON	OK	NON	NON	NON
OLEIC ACID	A	B	B	A	B	A	OK	OK	OK	OK	OK
OXALIC ACID	A	C	A	A	B	A	OK*	OK	OK	OK*	OK
PETROL	B	A	A	A	A	A	OK	OK	OK	OK	OK
PHENOL	A	D	A	B	D	D	NON	OK	NON	NON	NON
POTASSIUM PERMANGANATE	B	C	A	B	D	A	NON	NON	OK	NON	NON
PROPYLENE GLYCOL	B	A	A	B	A	A	OK	OK	OK	OK	OK
SILICONE	A	A	A	A	A	A	OK	OK	OK	OK	OK
SUGAR	A	A	A	A	A	A	OK	OK	OK	OK	OK
SULPHURIC ACID	C	D	B	D	D	A	NON	NON	OK	NON	NON
TANNIC ACID	C	A	A	A	C	A	NON	NON	OK	NON	NON
TARTARIC ACID	B	A	A	B	B	A	OK	OK	OK	OK	OK
TOLUENE	A	D	C	B	B	D	NON	OK	NON	NON	NON
UREA	B	B	A	B	A	A	OK	OK	OK	OK	OK
VASELINE	A	A	A	A	A	A	OK	OK	OK	OK	OK
VINEGAR	D	B	A	A	A	A	OK	NON	OK	OK	OK
XYLENE	A	D	B	B	B	A	OK*	OK	OK	OK*	OK

Legend

Compatibility between chemical agents and materials
Compatibility with Aircom products

A = Optimum; B = Good; C = Modest; D = Poor;

OK Compatible NON Compatible

* VITON O- Ring

Unavailable datum

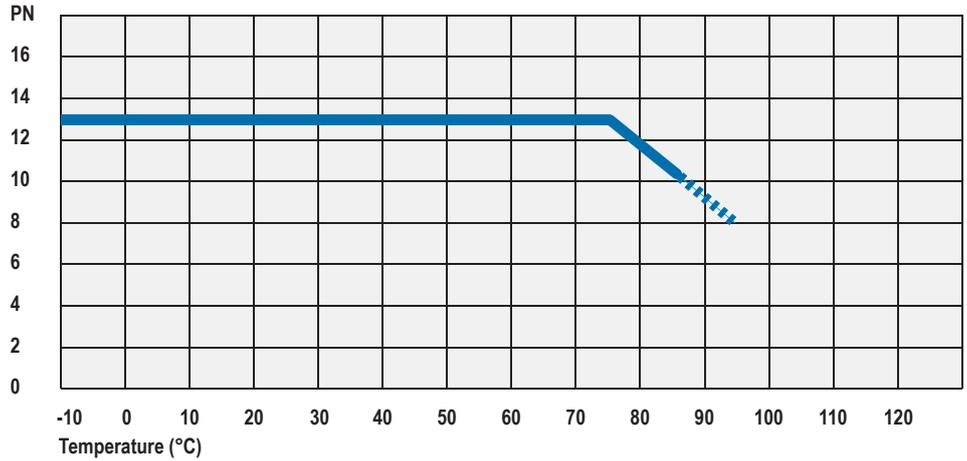
N:B: If you need further information on compatibilities, please contact AIRCOM technical office.

RATIO BETWEEN PRESSURE AND TEMPERATURE

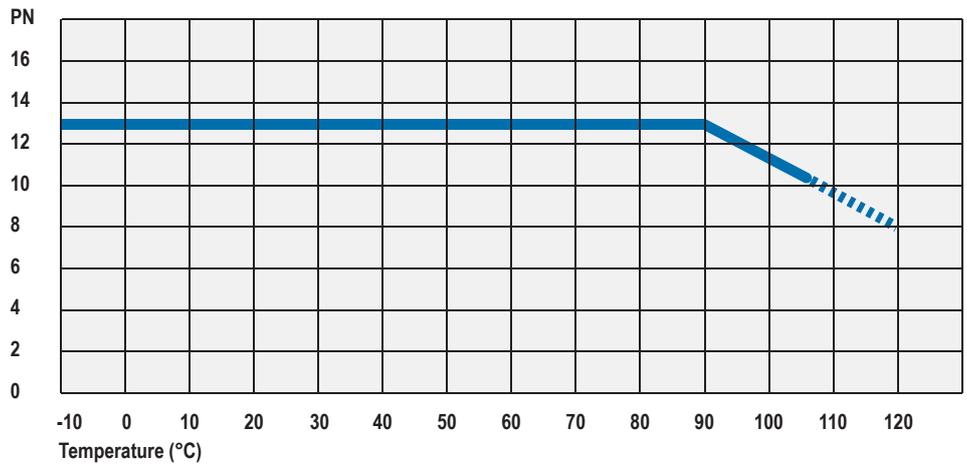
The indication Pn 13 means that AIRCOM Quick Line products may be used up to a maximum pressure of 13 bar.

If the temperature rises the nominal service pressure lowers according the curves showed in the following graphs:

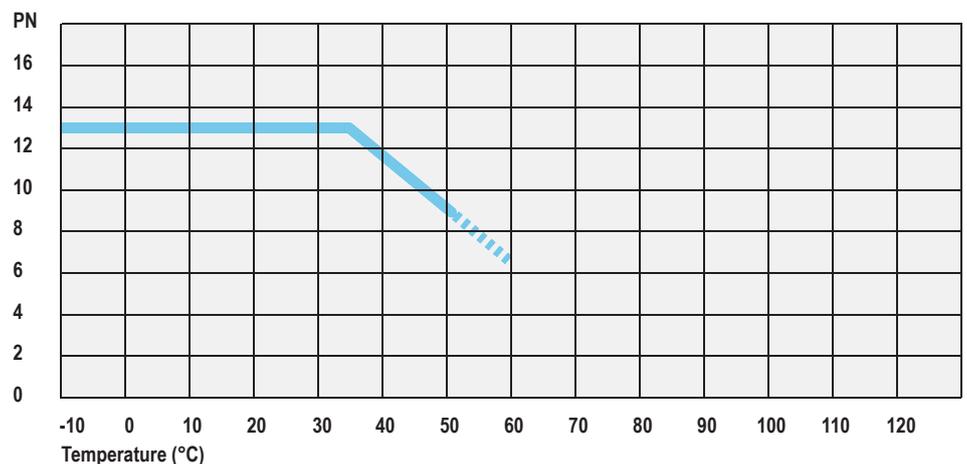
RATIO BETWEEN PRESSURE AND TEMPERATURE WITH ALUMINUM "QUICK" PIPE AND PA QUICK LINE FITTINGS



RATIO BETWEEN PRESSURE AND TEMPERATURE WITH ALUMINUM "QUICK" PIPE AND ALUMINIUM QUICK LINE FITTINGS



RATIO BETWEEN PRESSURE AND TEMPERATURE WITH "CLASSIC" PIPE



N.B.: (in graphs pressures are expressed in bars and temperatures in °C)

LINEAR THERMAL EXPANSION/CONTRACTION

All materials change their dimensions according to temperature variations; usually plastic materials are liable to higher variations than metals.

Considering the installation temperature as a reference:

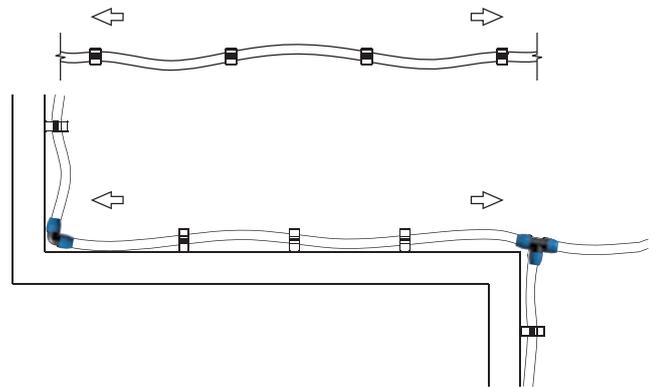
- they expand when temperature rises,
- they contract when temperature decrease.

The main general consequences of expansions and contractions are:

EXPANSION EFFECTS

Buckling of a pipeline segment included between two fixed points .

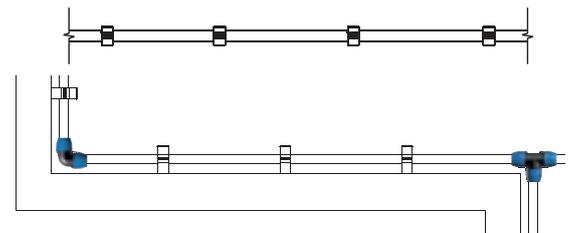
Compression of brackets, machines connections and/or other equipments which form fixed points with risk of stressing and breaking them.



NEUTRAL CONDITION

There are no visible bucklings due to expansion/contraction.

This condition mostly occurs during the installation, provided that the room temperature is not subject to excessive variations.



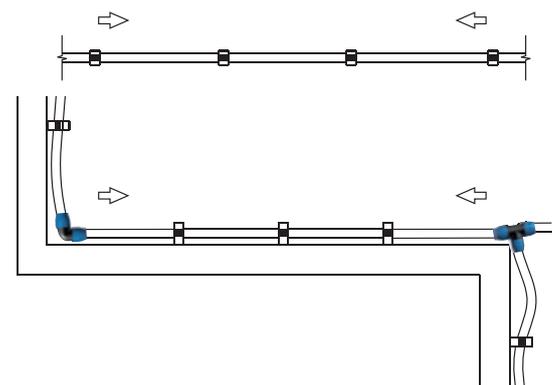
CONTRACTION EFFECTS

Pipeline traction of a segment included between two fixed points.

Traction of the brackets, machines connections and /or other equipments which form fixed points with risk of stressing and breaking them.

In order to avoid that compression/traction effects may cause heavy damages to the plant (in addition to aesthetic defects), it is necessary to observe the following rules to allow free sliding of pipes and to compensate pipe's expansion/contraction:

- support and bracket the pipeline in order to allow pipeline free sliding between two fixed points;
- insert a compensator between two fixed points if they are positioned at a distance which may cause sensible contractions/expansions.



The measure of these variations is given by the linear expansion coefficient d

for AIRCOM QUICK LINE with aluminum pipe this coefficient is $0,023 \text{ mm/m/}^\circ\text{C}$
that means $0,023 \text{ mm. per meter per } ^\circ\text{C degree}$

Please find hereunder the comparison between the linear thermal expansion/contractions coefficients for some materials of frequent use:

Steel	12,8 x 10 ⁻⁶ m/m °C
Copper	16,5 x 10 ⁻⁶ m/m °C
Aluminum (Alloys)	23 x 10⁻⁶ m/m °C
uPVC CLASSIC - FREEZE	75 x 10⁻⁶ m/m °C
ABS	101 x 10 ⁻⁶ m/m °C
PVDF	120 x 10 ⁻⁶ m/m °C
PP	150 x 10 ⁻⁶ m/m °C
PE	200 x 10 ⁻⁶ m/m °C

The design and execution of a plant must consider this phenomenon which is calculated through the following formula:

$$\Delta L = d \times L \times \Delta T$$

where: **d** = linear expansion coefficient
L = pipeline length
ΔT = temperature difference in °C degrees
ΔL = length difference (expansion or contraction)

Example: installation temperature 10°C; pipeline length 20 m; service temperature 35°C
 $\Delta T = 35 - 10 = 25^\circ\text{C}$
 $\Delta L = 0,023 \times 20 \times 25 = 11,5 \text{ mm}$



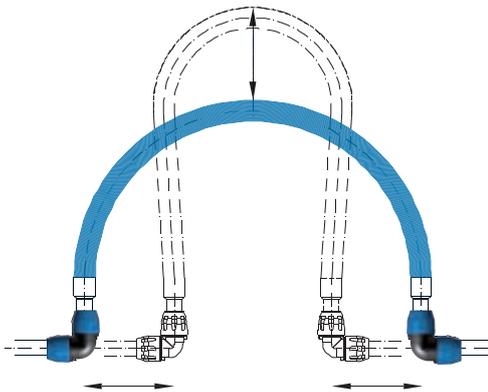
QLTUAL (Aircom Aluminium Pipe) CONTRACTION/EXPANSION “ΔL” relating to pipeline length “L” and to temperature difference “ΔT”

L (m)	ΔT=10°C	ΔT=15°C	ΔT=20°C	ΔT=25°C	ΔT=30°C	ΔT=35°C	ΔT=40°C
	ΔL (mm)						
30	6,9	10,35	13,8	17,25	20,7	34,15	27,6
40	9,2	13,8	18,4	23	27,6	32,2	36,8
50	11,5	17,25	23	28,75	34,5	40,25	46
60	13,8	20,7	27,6	34,5	41,4	48,3	55,2
70	16,1	24,15	32,2	40,25	48,3	56,35	64,4
80	18,4	27,6	36,8	46	55,2	64,4	73,6
90	20,7	31,05	41,4	51,75	62,1	72,45	82,8
100	23	34,5	46	57,5	69	80,5	92

EXPANSION/CONTRACTION COMPENSATION

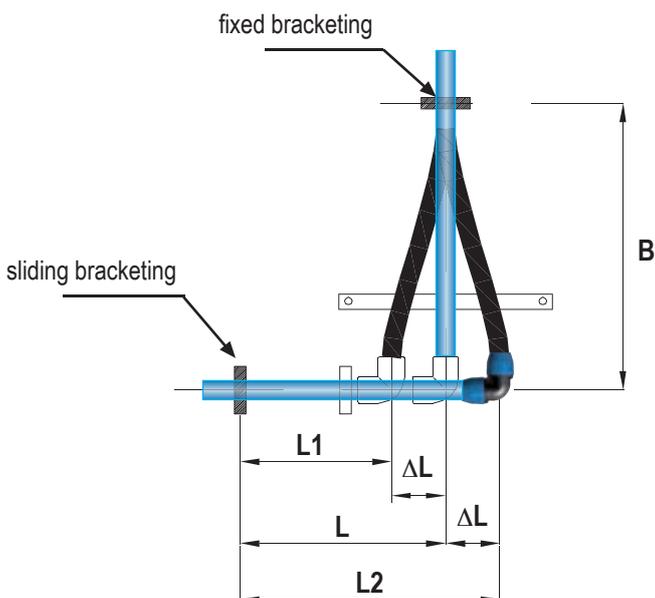
Among the most efficient compensation methods we suggest you the "LIRA" (lyre) (or OMEGA) or "DIRECTION CHANGE".

Lira and Direction Change are obtained with elbows and pipes; as they are perfectly homogeneous with the plant, of easy installation and economic, we think they represent the best remedy to expansions/contractions if there are no obstacles to their use.



LIRA

Diameter (mm)	Hose length (m)
20	0,79
25	0,80
32	0,96
40	1,20
50	1,40
63	1,60



DIRECTION CHANGE

L: pipeline length at the installation

L1: length with minimum temperature

L2: length with maximum temperature

ΔL : length difference due to ΔT

B: length of the arms of the Lira or of the direction change

BRACKETING METHOD

Special attention has to be paid in choosing pipe brackets.

They have to meet some requirements:

1. they have to anchor the pipeline to the holding structure steadily;
2. they must not, in any way, scratch or damage the pipe;
3. they must leave sufficient space between the pipeline and the wall or other obstacles to allow comfortable maintenance or other operations ;
4. they must hold the pipeline perfectly straight and support the pipeline itself and all sliding accessories weight.

Great attention has to be paid in bracketing of heavy accessories and valves; their anchoring has to be independent from the pipe one as they are subject to operation stresses and must allow assembly and disassembly.

Bracketing and fixing of pipelines ends (caps, appliques, descents) have to be executed accurately to prevent damages in case of explosion.

BRACKETS SPACING

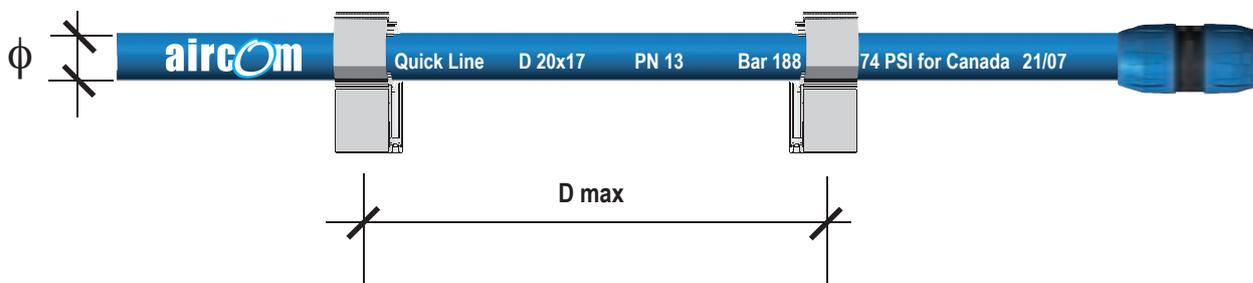
Brackets spacing follows standard tables executed according to pipe diameter and temperature and weight of the transported fluid.

Diameter mm	Spacing in meters (m) related to the maximum temperature difference "ΔT"		
	ΔT < 20°C	ΔT 30°C	ΔT 40°C
16	2	2	1,5
20	2,5	2	1,5
25	3	2,5	2
32	3,5	3	2,5
40	4	3,5	3
50	4	3,5	3
63	4	3,5	3

Spacing expressed in meters with reference to maximum temperature Δ

Brackets are positioned avoiding any contact with fittings or other accessories liable to block the sliding of the pipe.

In case of horizontal or vertical pipeline installation at a height from 0 up to 250 cm from the ground it's advisable to double the bracket quantity so to fix better the pipeline to the structure.



SAFETY INSTRUCTIONS



AIRCOM system has been designed to carry fluids under pressure.

The installer has to follow safe working procedures and to observe all requirements and local standards concerning working safety.

Installation, operation, maintenance and repairs have to be done by authorized, qualified and specialized personnel following what stated by standards and laws.

Before carrying out any maintenance, repair, adjustment or non-routine control operation, depressurize the system and isolate it accurately from any pressure source.

Do not use any component in a different manner from what stated by the producer.

AIRCOM pipes and fittings are not suitable for buried or embedded plants.

Do not use AIRCOM system as a support for electrical equipments or as a conductor in grounding third machineries or equipments.

Use correct tools only.

Use original spare parts only.

Plastics fittings are sensitive to UV: in case provide an adequate protection. The aluminium pipes offer a full UV resistance.

Never bend or weld the pipes.

Aircom pipelines must be protected from hard impacts.

Before connecting , pipes must be free the of end protection caps.

Avoid solvents or chemical agents that should damage the pipeline components.

Check AIRCOM pipes surface before the installation (they have to show no scratches, abrasions or dents).

Never connect AIRCOM pipes to a vibrations source; if necessary, use hoses.

Before operating a system the technician has to verify its complying with all tests, controls and standards which apply to compressed air plants.

At the initial starting, submit the system to a test pressure of 1,5 bar to check possible leakages or defective joints. After the inspection, increase the pressure gradually and constantly (max. 1 bar every 30 seconds).

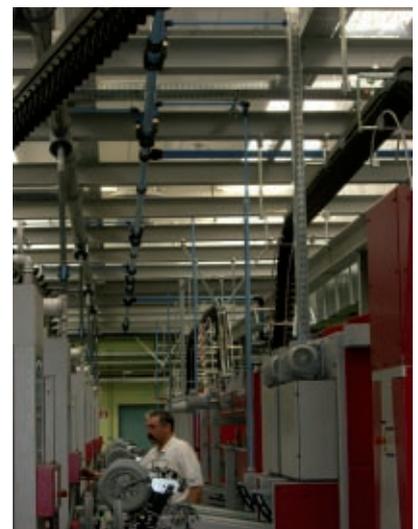
The pipeline has to be grounded. Where polymer fittings are used it is necessary to connect pipe bars with a copper plait of suitable section using a couple of collar terminals for each pipe bar.

10 YEARS AIRCOM WARRANTY

Following the high quality performances of AIRCOM products, we offer our customers a 10 years' warranty against possible damages due to faulty materials of aluminium pipes or AIRCOM fittings.

Guarantee terms and conditions

- Use original parts and spare parts only.
- Execute the installation following the instructions and guide lines supplied in this catalogue
- A test certificate must be done after first plant test
- Do no use components beyond their service limits.
- Protect the plant from shocks, vibrations or corrosive situations.
- Before forwarding any complaint, check the damaged parts and/or the site conditions.
- AIRCOM guarantee is limited to the component replacement only.
- Complaints are to be shipped to AIRCOM, Novi Ligure (AL), following the standard procedure.



PLANT TEST

All AIRCOM Quick Line System items are produced observing the European standards ; they are tested and controlled during the whole production phases and at end of them.

All products are guaranteed if used as indicated and only within the limits foreseen by the present technical catalogue and they fulfil the RES (Safety Essential Requirements) according to what stated by the directive 97/23/CE PED.

During the installation and at its end it's advisable anyway to make specific checks and a final test.

1. Inspection



After the assembling it's advisable to check the presence of anomalies, shocks, cuts and abrasions, to inspect that the bracketing and the execution of the plant are in accordance with the project. In case of anomalies it is necessary to replace immediately defective parts or parts different from the design.

Check that all supporting brackets are installed correctly. Check that a discharge valve has been installed and that it is working. Close all discharge points. Check the maximum service pressure of any component (valves, reducers, filters, balancers, etc.)

2. Pressurisation of the system



It's absolutely necessary that the whole working area is clear before pressurization of the plant.

The hydraulic pressure test (with water) can be carried at 20 bar; in one hour the pressure loss can achieve 6% max. due to adjustment no leakages should appear and the test can be considered positively settled after two hours.

The "pneumatic" test is to be carried out with air at a pressure level between of 1,2 and 1,5 times max. service pressure, foreseen or according to design. Any components with test pressure lower than the stated one (valves, reducers, filters, **balancers**, etc.) are to be cut off by means of suitable segmentings. They will also reduce the reduction of the test pressure.

3. Analysis of the pressure loss (pneumatic test)

After twenty minutes from the first setting in pressure it's advisable to restore the test pressure in the plant in order to balance any adjustment, 6% approx., and the air cooling, 5% approx.

The test can be considered passed if no leakages showed after two hours, excluding any variation due to thermal exchanges.

It's advisable to carry out the pneumatic tests keeping in mind the following points:

- a. The test fluid can't be any flammable or toxic gas.
- b. Before reaching the foreseen test pressure, make a preliminary test up to 1,5 bar so to check any losses and/or incomplete or imperfect connections in advance.
- c. After all checkings and adjustments, keep the pressure at 1,5 bar waiting 5 minutes at least before the following raise.

We suggest always to raise the pressure gradually and constantly (1 bar every 4-6 seconds) up to the reaching of the foreseen pressure.

DIRECTIVE 97/23/EC CONCERNING PRESSURE EQUIPMENT AND EC MARKING FOR AIRCOM PIPELINE NETWORKS



1. Directive 97/23/EC concerning pressure equipment

It's an European Parliament and Council Directive concerning pressure equipment acting as a law and is in force from May 29th, 2002.

This Directive has to harmonize provisions concerning the manufacture and finishing of pressure equipments inside EC and to reduce any obstacle to their trading.

Starting from the above said date, all products covered by the Directive have to use the EC marking; this means that also all products with EC marking meet the Directive requirements related to Design, manufacture and conformity evaluation.

As far as pressure equipment (components assemblies) is concerned the Directive is based on pressure (PS), on volume (V) or on nominal size (DN) and on the group of fluids which it covers.

Fluids are divided in two Groups: Group I = dangerous means and Group II = all other means including compressed air.

The maximum allowable pressure (PS), its determining volume (V) and nominal size (DN) and the group of fluids which it is destined to are essential for the classification of pressure equipment in the conformity evaluation procedure (I-IV).

According to the pressure equipment category the model types go from A Module (autocertification through the installing firm) up to H1 Module (full quality assurance with design control and specific test control)

2. Products covered by this Directive

The Directive concerns pressure equipments including vessels, pipelines, safety accessories and pressure accessories where they form a complete plant or are assembled individually.

Pipes and fittings : single components such as pipes and fittings are not covered by this Directive. According to the service conditions the Directive relates complete pipeline networks only formed by assembled pipes and fittings.

Valves : valves are covered by this Directive and they have to carry the EC marking if their nominal diameter is larger than 25 mm. and if their service conditions are those indicated in the Directive itself.

3. AIRCOM products procedure

Pipes and fittings : the responsibility for the EC marking of a pipeline network is of the installing firm. Anyway, AIRCOM thinks that some information required by the Directive has to be given to the installing firm in order to allow a correct EC marking of the network.

The information showed on AIRCOM Technical Sheets allow the installer to guarantee the EC marking when the pipeline network is ended and according to its application .

3.1 Valves (for instance ball valves)

All AIRCOM valves with a DN higher than 25 have EC marking (i.e. in the series of AIRCOM ball valves all equipments starting from 40). The marking is affixed both to the ball and to the packing.

According to the self certification allowed by the Directive this EC marking applies to Class I products including valves.

When the product is modified or accessories are assembled to it the manufacturer is no longer responsible both from the technical point of view and from the EC marking. In this case according to the Directive the responsibility is of the person who modified the product (for example the assembling of flanges or actuators, etc.)

3.2 AIRCOM pipeline network

AIRCOM products are subject to the Directive (Article 3, paragraph 1.3°. Fluids Group 2) starting from the moment when the pipeline network is completed and tested on site.

According to Annex II (Diagram 7) of the Directive on completion of the installation an AIRCOM pipeline network has to carry the EC marking if the following conditions are fulfilled

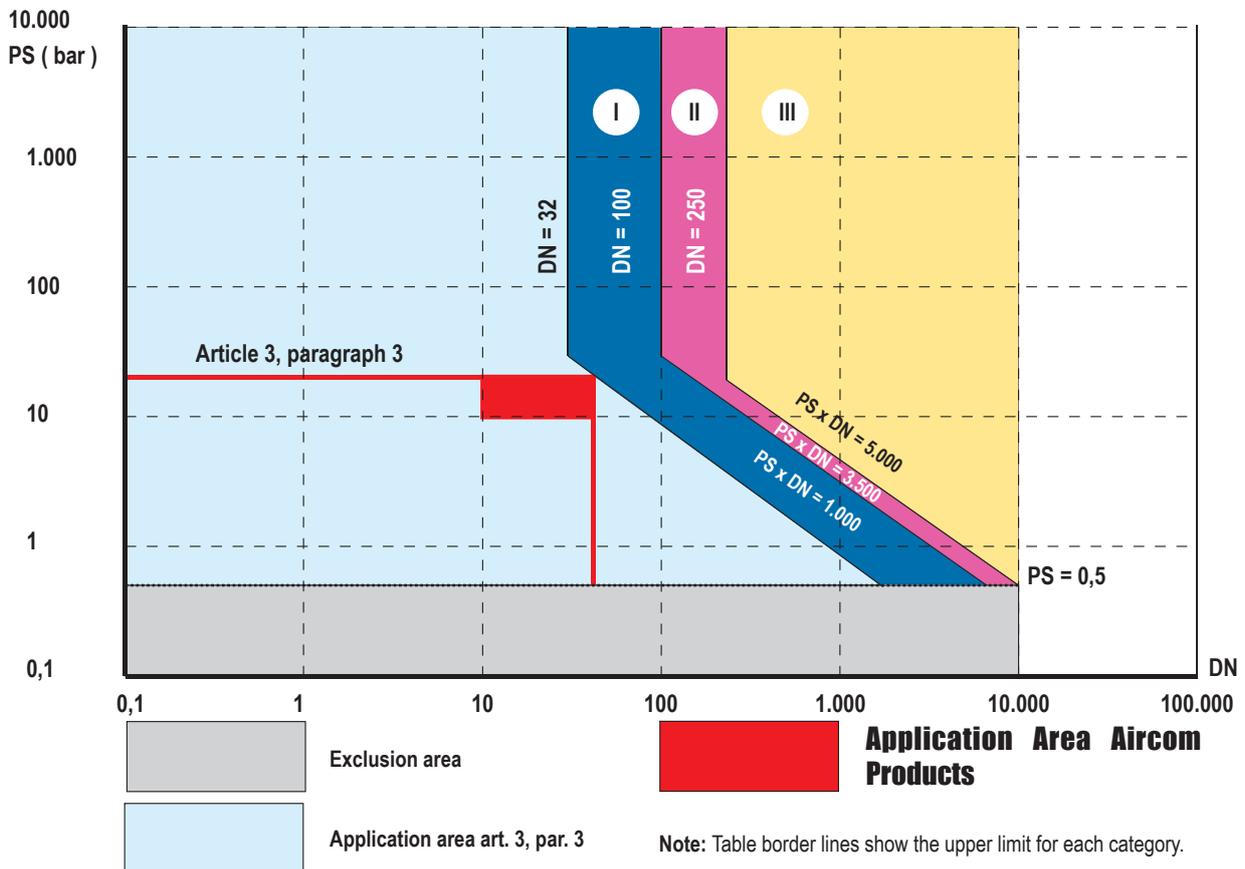
DN x PS > 1000 whereas

Means = compressed air

DN = nominal size

PS = maximum allowable pressure (for AIRCOM usually 13 bar).

In these conditions only the pipeline network is included in Class 1, has to carry the EC marking and a Type A Conformity Certificate is to be issued.



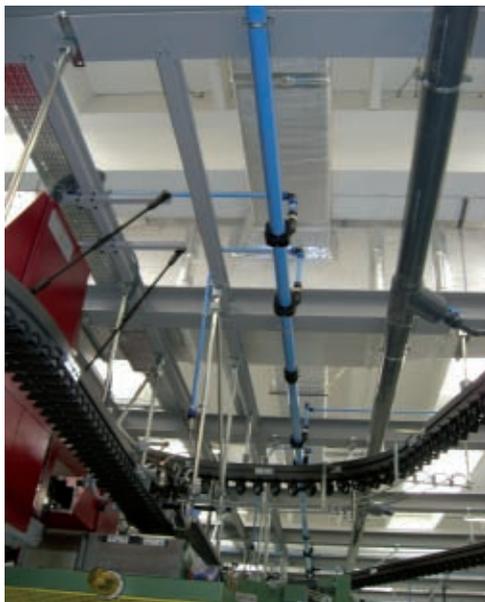
3.3 Application examples

Diameter	DN	PS	PS x DN	Marking
110	100	13,0	1300	CE
110	100	10,0	1000	No
90	80	13,0	1060	CE
90	80	10,0	800	No
75	65	13,0	845	No
63	50	13,0	650	No
50	40	13,0	520	No
40	32	13,0	416	No
32	25	13,0	325	No



As per the above table AIRCOM pipeline networks have to carry the EC marking only if the network is totally or partially formed by DN 100 pipes and fittings (external diameter 110 mm) and if the maximum allowable pressure in the network is higher than 10 bar.

In all other cases (DN<80 or PS<10) the EC marking on AIRCOM pipelines network is not necessary. The conformity to a good engineering practise is required only.



AIRCOM ensure that all their products (all AIRCOM network components) are manufactured and tested following the quality assurance procedures certified according to ISO 9001 and that all specifications required in the Directive for compressed air applications are included in the "AIRCOM SYSTEM" technical documentation. Essentially this is related to :

- the products general description
- the products technical description
- the applied standards to guarantee the Directive main fulfilments concerning pressure equipments (pressure resistance, soundness and resistance)
- test results in accordance with the standards.

At condition that the installation is carried out properly in conformity with the Directive and that the assembling is executed following the recommendations of the AIRCOM technical catalogue, AIRCOM PIPELINE NETWORKS meet the Directive requirements on pressure equipments. Therefore the EC marking is affixed on pipelines once all controls required by the Directive have been accomplished.

4. Products in stock

Pressure equipments Directive concerns the products from the moment they are put on the market only.

All products without EC marking which already were on customers' hands or in distribution warehouses before May 29th may be sold and used without any restriction.

5. Legal Reference

The information contained in this document is supplied in good faith. It is based on the Directive concerning pressure equipment, on other pertaining Directives and on current interpretation which is shared by the qualified Control Institute and by the Trade Association which we are member of. The official reference document is the Directive 97/23/EC itself.

ENERGY SAVING AND EFFICIENCY IN INDUSTRY



In recent decades “energy management” has taken on an increasing importance in industry.

This expression refers to a variety of mechanisms and economic, managerial, strategic, bureaucratic assessments that are nowadays required in any kind of industry using energy.

On one hand, fossil fuel prices are rising significantly, pushing up electric

energy costs, which represent a consistent amount of the company costs, while on the other side recent legislation on environmental protection impose limits) in emissions from power plants(and the trend is towards an increase of these limitations.

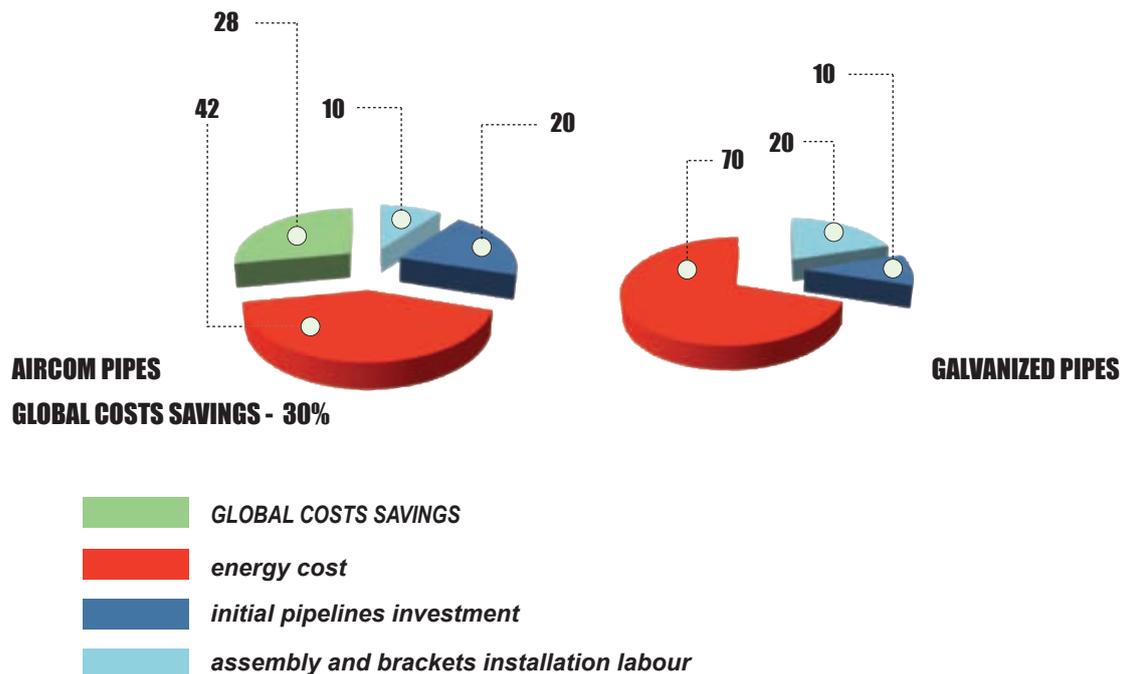
In this context, those company found themselves between the requirement of production, increase and the reduction of energy costs in compliance with the environment protection requirements.

Aircom has recently launched a project intended to achieve appreciable energy savings achievable through the proper sizing and a targeted use of materials in installations for the transport and distribution of compressed air, both of new construction or existing,through a detailed analysis of production cycle and energy use.

Aircom makes available to designers, users and maintainers, design / monitoring / control tools aimed to determine, in a quick and unambiguous manner, the real value of energy needs, in relation to the real amount of compressed air actually needed by users (mc / h) in relation with components changes or, on the same basis, the verify of existing plant performances.

Based on the results of research it's also possible the realization of improved geometric shapes, the use of different materials, both for individual components, and for the whole construction. These actions could reduce significantly the costs of energy.

The margins of energy saving appear, even in a first approximation, so broad as to be not only marginally beneficial, but so consistent to grant, in a few years, investments pay-back.



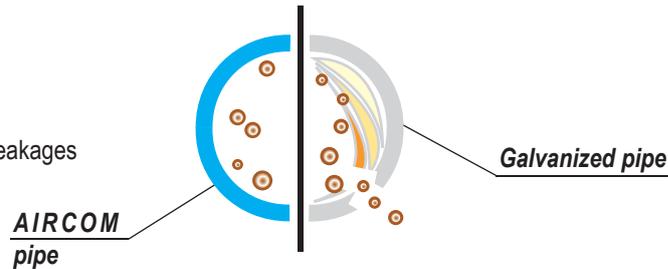
ENERGY SAVINGS ANALYSIS IN COMPRESSED AIR DISTRIBUTION

Compressed air plants are present in many different industrial sectors (whole industry, handcrafts, agriculture, etc..) where the fluid is used as a driving force to operate equipments, machinery, tools and accessories.

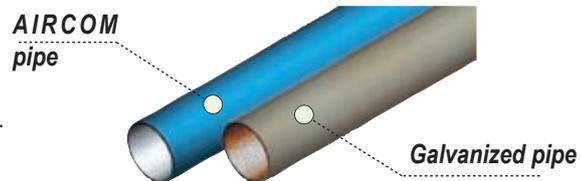
The optimum distribution of pneumatic energy should reach following targets:

- maintain pressure (minimum pressure drops due to narrowing in the pipe)

- reduction / elimination of leakages



- grant the best air quality (lack of rust, dust, water, oil, etc...).



The factors that affect the overall performance of the system (from beginning to final use) belong basically to 2 categories: pressure drops and loss of air (concentrated and distributed) on which our attention should be focused.

Pressure drops are mainly due to wrong layout and sizing of the distribution network and of accessories, compared to the changes in demand and production of pneumatic energy.

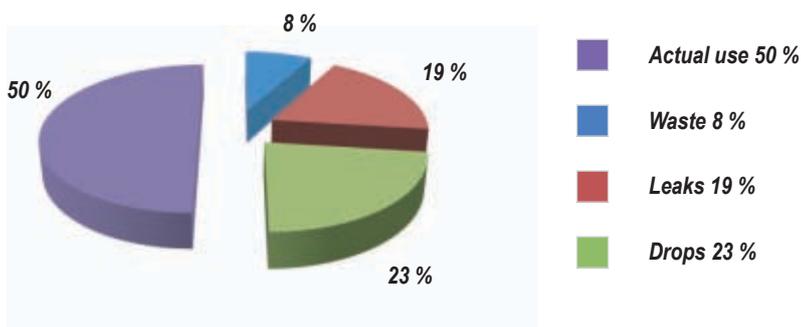
Differentiated levels of pressure and air treatment play both a significant role in the delivery of a certain volume of air.

The losses due to leakage should be identified and surveyed.

The analysis of the amount of pneumatic energy produced, and necessary for correct functioning of factory utilities, and measurement of pressure changes in the network will give us the opportunity to check its size, knowing wasteful and justify interventions programs.

80% of existing distribution networks of compressed air cause wastage of up to 50% of the used energy.

DIVISION COSTS OF COMPRESSED AIR PRODUCED IN A TRADITIONAL PLANT

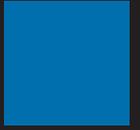
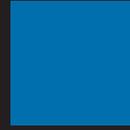


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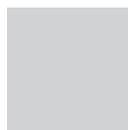
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APPENDIX A

QUICK LINE SYSTEM - ASSEMBLY GUIDE




I N D E X

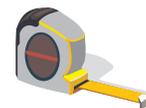
• Necessary tools for installation	Pag	3
• Well-done installation		4
• Fittings		5
• Qflex hose		7
• Bracketing systems		9
• Quick branches		11
• Appliques		13
• Pneumatic controlled valves		15
• Accessories		17

Information provided in this document were compiled according to our science and conscience and are representative of state of art. Information, data and pictures of Aircom products herein supplied are not binding and are supplied as a guide only. We reserve the right to introduce possible technical modifications without notice. We recommend to always check effective suitability of the product/s for the intended use. Any reprint or copying of this document and its annexes, or of part of them, requires prior written consent from Aircom Srl. All rights reserved. (E. and O. E.)

NECESSARY TOOLS FOR INSTALLATION

We suggest the use of the following tools for a correct installation of Aircom piping systems

- CHAMFERING CONE for a correct external and internal pipe de-burring
- SPECIFIC WRENCH for AIRCOM ring nut, which allows an efficient tightening.
- SOCKET DEPTH METER which allows to point out the correct internal stop of a fitting on pipes of all sizes
- SCREWING DRILL for the quick branches installation.
HOLLOW MILL 16-19 mms dia. - essential in assembling quick branches; it enables to make the hole through which the ideal air quantity flows from the descent.
- SCREWDRIVER - necessary to open the brackets during pipe clamping.
- HEXAGONAL MALE WRENCH for the tightening of quick branches.
- UNIVERSAL PLIER to hold the fitting body during the assembling.
- GASKET LUBRICANT – it allows a correct gasket lubrication and an easier introduction of the pipe so to avoid any damage on its surface. We suggest the use of neutral hand's soap in water because it contains no oils or greases and keeps the piping system clean.
- FELT-TIPPE PEN to mark assembling fittings and accessories.
- RULE to measure dimensions, depths, slopes., etc.
- PIPECUTTER for a correct vertical pipe cut avoiding any deburring.
- DEBURRING TOOL to clean the hole created during the quick branch execution.



WELL-DONE INSTALLATION

AIRCOM QUICK LINE allows to reduce installation, maintenance and running costs.

However the installation has to be well-done by following the supplied indications with the maximum precision in order to obtain the requested safety, reliability and performance results.

Pipelines have to follow a light slope towards a condensation collection and draining point.

It's advisable not to lay the system underground in order to grant its constant maintenance and the possibility of future intervention; in case of underground canalization, provide the system with suitable inspection sump pits.

Avoid any condition which may cause pipeline misalignment.

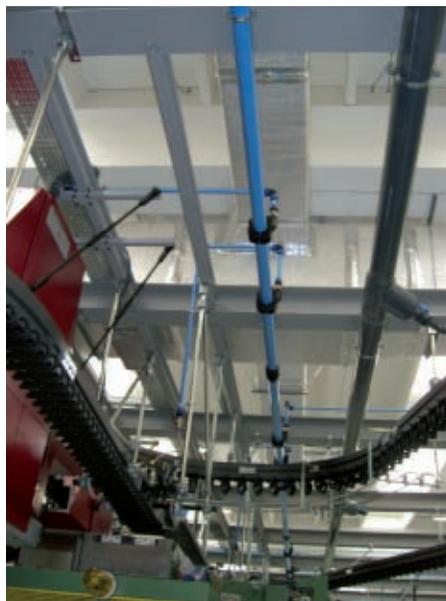
Support all heavy accessories assembled on the line before and after their position (valves, filters, hoses)

A good filtration level is always recommended; It will enable to keep a good quality air for many years.

Seal all threads accurately using suitable products in correct quantities

All maintenance operations and AIRCOM pipeline modifications must be performed by authorised, trained, specialised personal, those interventions have to be carried out with the pipeline empty.

It's always advisable to foresee the possibility of sectioning parts of the pipeline which are liable to maintenance, not to be obliged to stop the piping system totally.

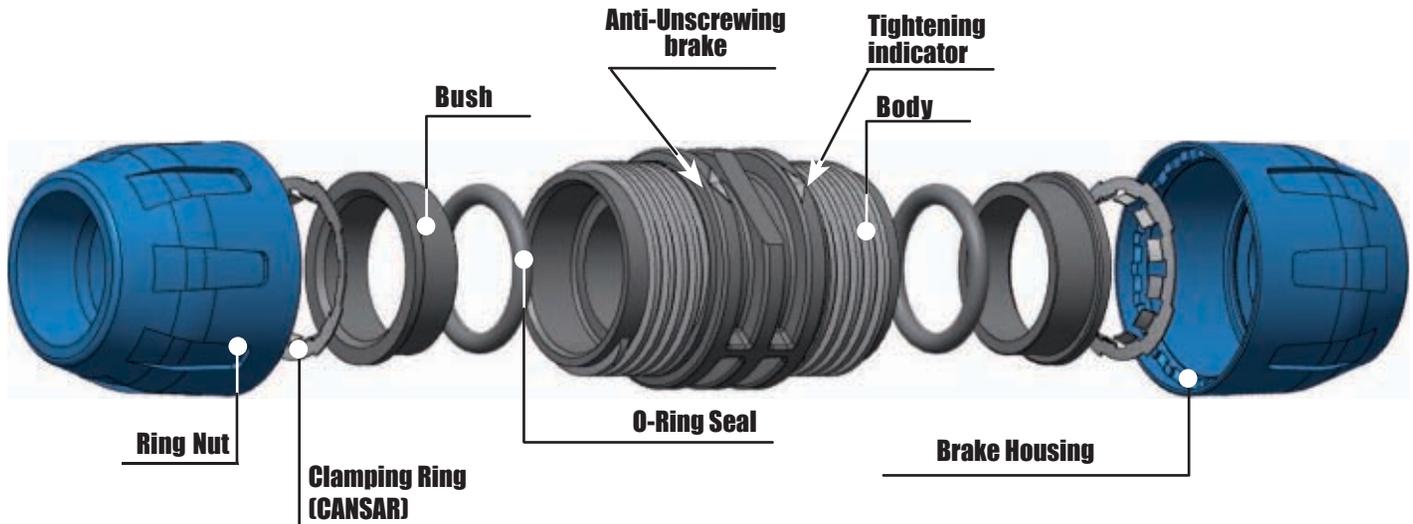


FITTINGS

“QUICK LINE” Aircom fittings may be assembled both on aluminum and “CLASSIC” line uPVC pipes.

“QUICK LINE” Aircom system is extremely simple and quick to install, doesn't need the use of expensive and complicated tools.

A few operations and the fitting is assembled



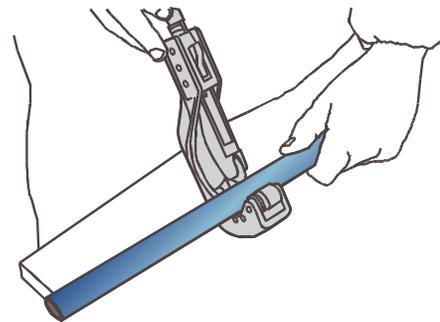
ALWAYS CHECK THE PRESENCE OF ALL COMPONENTS AND THEIR CORRECT POSITION

- 1** Make a neat and straight cut at the desired size, afterwards check the pipe's surface condition (there have not to be any visible scratchings, abrasions or bruises which may origin leaks).

The cut has to be done, as much as possible, with the right angle (at 90° to the pipe axis)

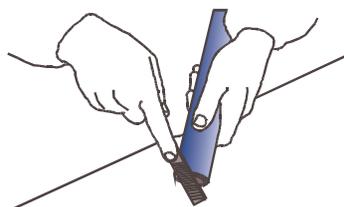
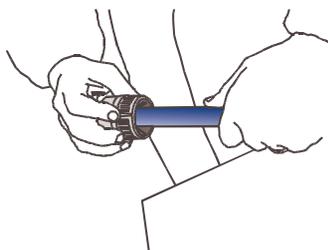


$\leq 7^\circ$
Maximum inclination tolerance to pipe cut.

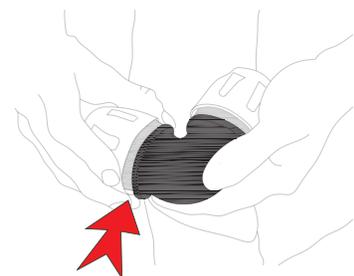


- 2** Chamfer the pipe extremity on the pipe external surface and remove any scrap along the internal diameter edge.

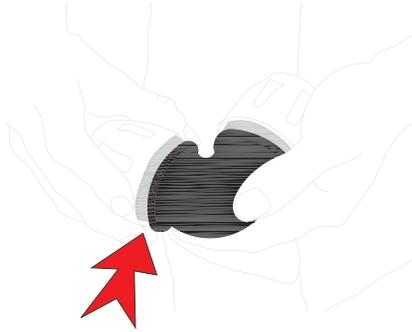
Remove cut scraps, dust and swarfs which may be present inside the pipe; this is important in order to avoid future problems to pneumatic equipments.



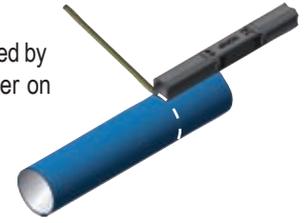
- 3** Fully tighten the fitting ring nut without excessively forcing, then reduce the distance between body and ring nut in the area indicated by the arrow.



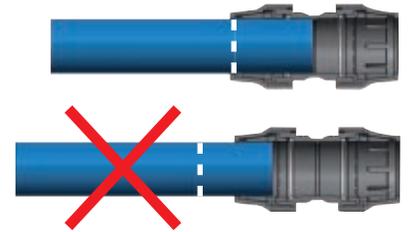
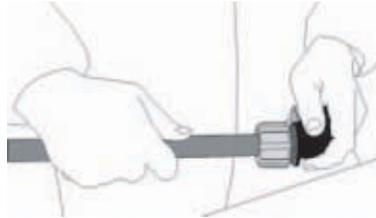
4 Unscrew the nut, which you have previously completely tightened, by making an half counterclock turn : this will increase the distance between the body and the nut in the area indicated by the arrow.



Mark the depth indicated by the socket depth meter on the pipe.

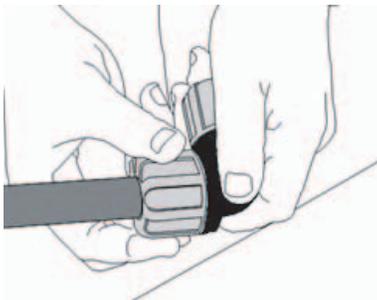


5 Introduce the pipe into the fitting pushing it to the stop at the end of the socket.
To make it easier, lubricate the end of the pipe and/or the contact surface of the O-Ring gasket with a liquid soap solution or vaseline grease.



Do Not use sliding means like oils or greases of uncertain compatibility. In doubt, please, apply to us.

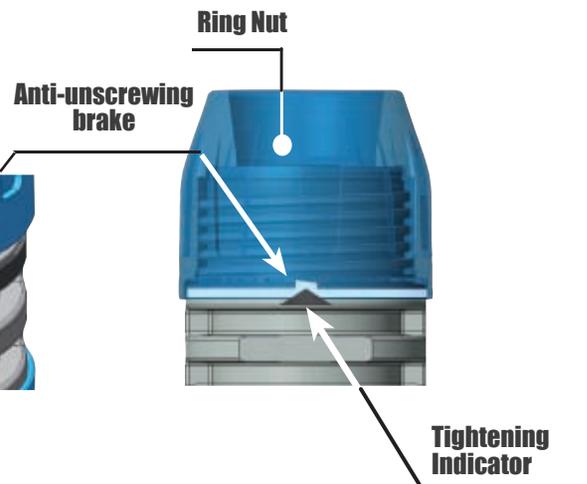
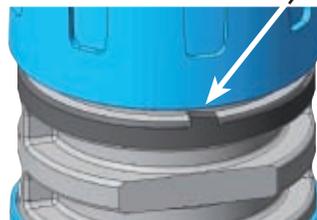
6 Fully tighten the ring nut. Usually for the dia. 16 up to 25 it is sufficient to screw them by hand.



For higher diameters tighten by hand to stop, then further rotate up to 180° maximum using a pin wrench of suitable size.



7 A correct fitting tightening will bring the ring nut base to stop around the middle of the tightening indicator. The nut brake will act as anti-screwing in case of light vibrations.



Connections made with AIRCOM "QUICK LINE" system do not need any waiting period; they may be put in pressure immediately.

QLFLEX HOSE

1 QLFLEX HOSES are produced with highly compatible compressor oils material ,they are studied to grant the minimum space waste and they are easy to install.

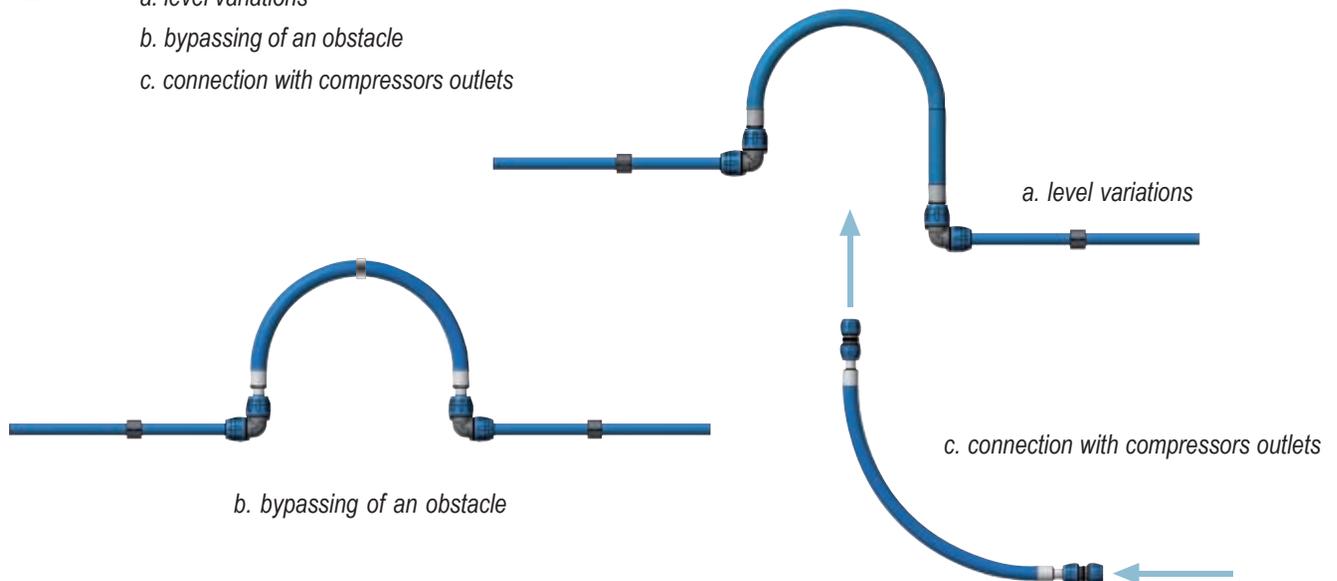


2 Thanks to aluminum spigots at each end the hose can be connected directly to the “Quick Line” fittings; the assembling is to be done following the same instructions given for the connection of the aluminum pipe.



3 QLFLEX hose represents the ideal solution for expansion or contraction compensations and in the presence of :

- a. level variations*
- b. bypassing of an obstacle*
- c. connection with compressors outlets*



RECOMMENDATIONS



- QLFLEX hose can't be cut or deburred.
- The hose can't be twisted under any circumstance.
- The hose has always to have a minimum bend and can't exceed the maximum stated bending radius.
- Avoid to rub QLFLEX hose against sharp edges.

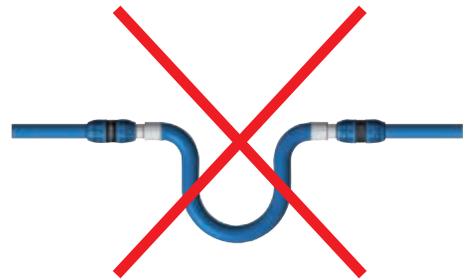
EXPANSION/CONTRACTION COMPENSATION

Using a QLFLEX hoses, as expansion/contraction compesator, we recommend to follow the directions stated below.

- a.** Execute the so called “Lira” (lyre) or “Omega” shapes by connecting QLFLEX hose to two 90° elbows; NEVER connect the hose with two couplings positioned at the same level

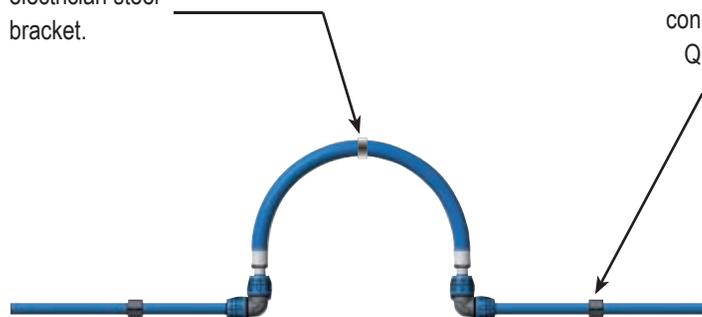


- b.** “Omega” has always to be shaped upwards so to avoid condense stagnation in the piping system.



- c.** We suggest to fix QLFLEX hose in central position between its ends by using an electrician steel bracket.

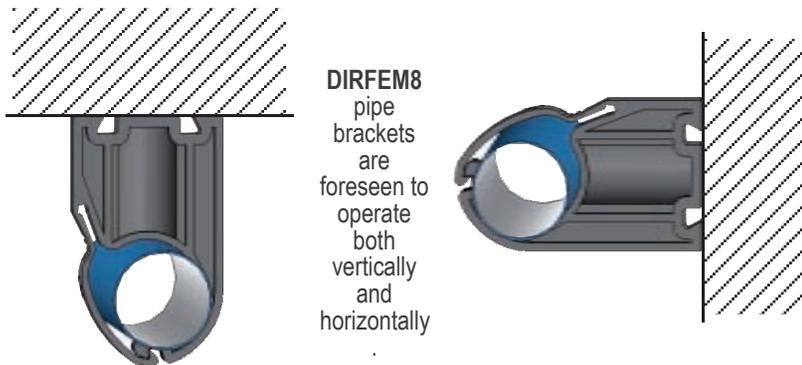
We suggest to fix the aluminum pipelines by positioning Aircom pipe brackets near the two elbows connected to the QLFLEX hose.



BRACKETING SYSTEMS

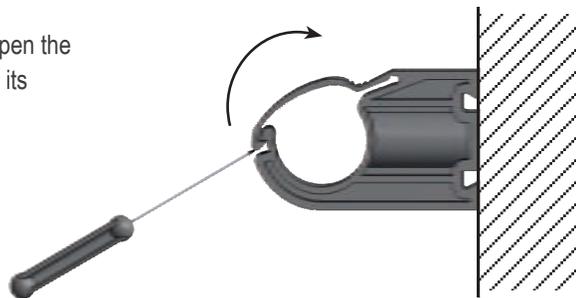
Aluminum pipe bracketing has always to be made by using the special DIRFEM8 pipe brackets expressly designed to allow pipes sliding through them in case of expansion or contraction.

1



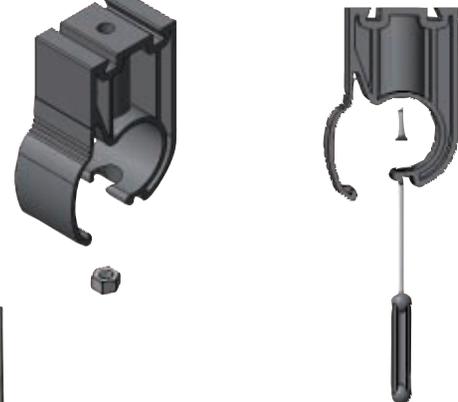
2

Use a screwdriver to open the pipe bracket by raising its closing tongue.



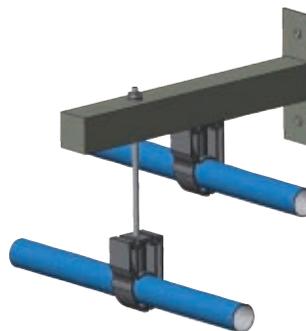
3

All pipe brackets packaging contain M8 hexagonal nut to be inserted in the foreseen site inside the bracket (by using a threaded bar). It's also possible to use self-tapping screws with a screw anchor in case of installation on concrete wall.



4

By using the above said threaded bar with its lock nut it's possible to fix the pipe bracket to any clamping system.



5 In case of need, **DIRSPE** spacers are also available to be added under the pipe bracket base.



BRACKETS SPACING

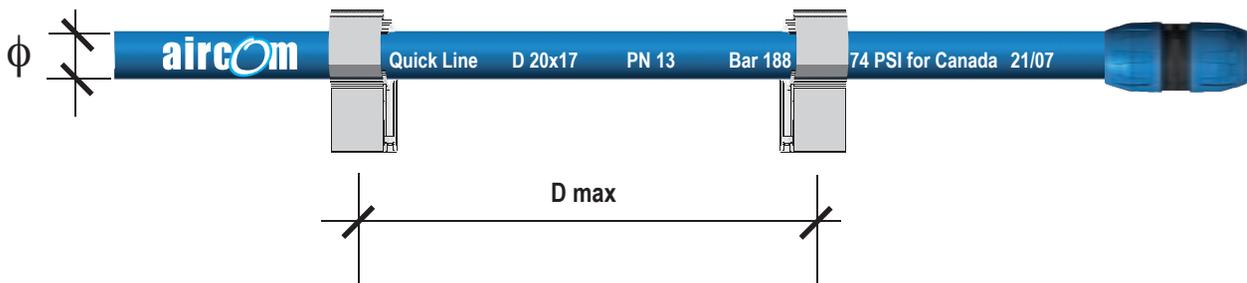
Brackets spacing follows standard tables executed according to pipe diameter and temperature and weight of the transported fluid.

Diameter mm	Spacing in meters (m) related to the maximum temperature difference "ΔT"		
	ΔT < 20°C	ΔT 30°C	ΔT 40°C
16	2	2	1,5
20	2,5	2	1,5
25	3	2,5	2
32	3,5	3	2,5
40	4	3,5	3
50	4	3,5	3
63	4	3,5	3

Spacing expressed in meters with reference to maximum temperature Δ

Brackets are positioned avoiding any contact with fittings or other accessories liable to block the sliding of the pipe.

In case of horizontal or vertical pipeline installation at a height from 0 up to 250 cm from the ground it's advisable to double the bracket quantity so to fix better the pipeline to the structure.

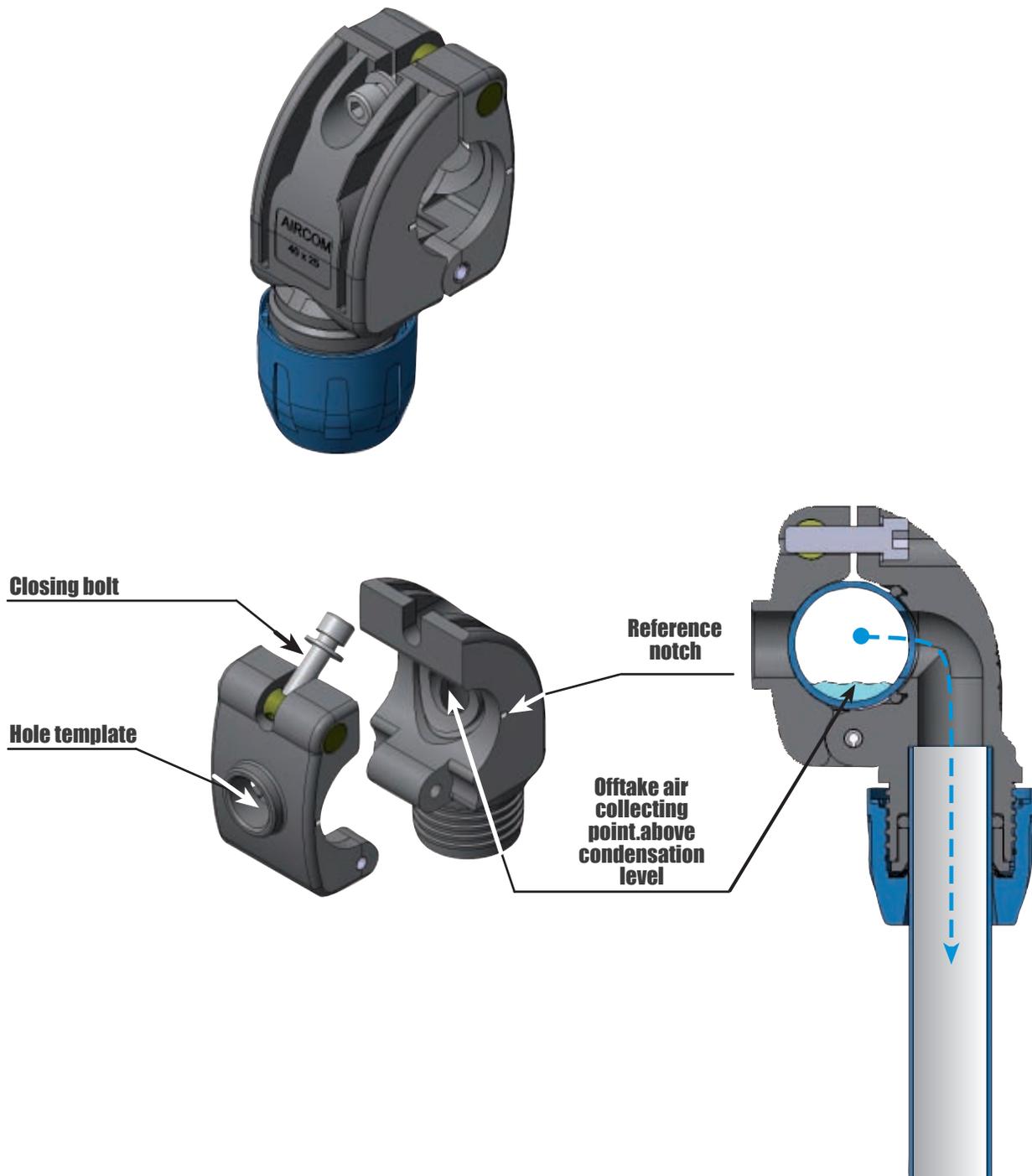


For a correct bracket installation and spacing for the various pipe diameters we suggest to fix the pipe bracket as showed at our technical catalogue.

QUICK BRANCHES

AIRCOM quick branches have been designed to allow the final user to get a quick drop-leg without cutting the main pipeline.

Moreover, thanks to its special design, the air offtake of the drop leg is above the condensation level to grant an excellent air quality.



Quick branches can also be used horizontally as a traverse beginning (with the hole in the upper part of the pipe) or as a condensation drainer (with the hole in the lower part of the pipe).

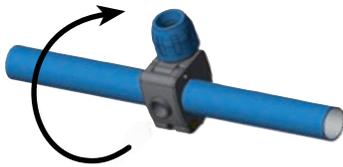
INSTALLATION GUIDE



1 Position the drop leg according to the applicative requirement



2 Mark the chosen position near the reference notches



3 Rotate the branch by 180° and position it near the reference marks previously marked



4 Hole the pipe by means of a hollow mill inside the template



5 Remove the branch and clean the hole with the help of the special deburring tool



6 Fix the branch and align the reference notches again to marks

APPLIQUES



Manifolds assure an ideal compressed air supply for any use (pneumatic tools, air blow guns, pneumatic machines)

Their fixing both on wall or on workbenches grants high steadiness.

Body made of 15% glass filled nylon

Threaded inserts in overmoulded aluminum.

COUPLING TYPES

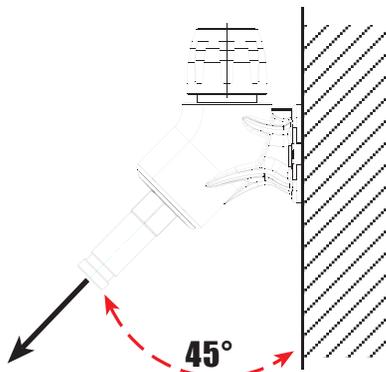
Different types of inlet connections may be used :



- PREASSEMBLED BALL VALVE
- ISO 7-1 GAS THREAD UNION
- STANDARD QL PIPE CONNECTION

MANIFOLD FOR WALL MOUNTING

It allows to get a single or double 1/2" offtake with a possible 1/4" hole for condensation discharge underneath (double outlets).

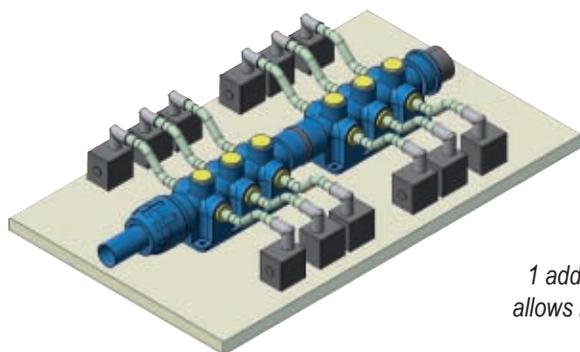


SAFETY

Appliques have their outlets turned downwards at 45° to the wall; this characteristic reduces possible risks of accident for the operator in case of casual coupling ejection.

MULTIWAY MANIFOLD

The most recent 9-ways model allows versatile and specific uses at the machine or on workbenches.



6-threaded 3/8" ways

3-threaded 1/4" ways

1 additional 1/2" threaded way which allows its in series connection creating a real manifold.



PNEUMATIC CONTROLLED VALVES

In large compressed air piping systems sectioning the main lines or the descending branches are usually done with normal ball valves.

These valves are often assembled in positions difficult to reach, usually situated near the ceiling of the building and therefore normally ladders or operators elevating devices have to be used for their operating.

The need and the usefulness of a servo controlled valve is particularly felt:

- during maintenance operations
- when some parts of the system need to be separated
- in case of failures when an immediate stop of the compressed air supply is basic for safety reasons for operators and equipments; to automate the closing and opening timing of the plant's different branches.



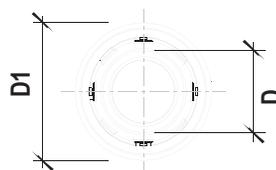
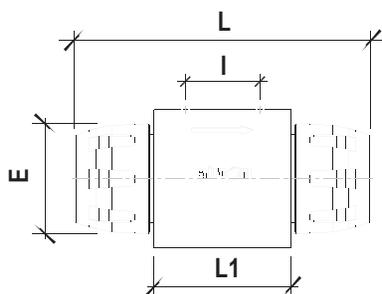
**SAFETY ON-OFF VALVE
SPECIFICALLY DESIGNED TO
INTERCEPT THE COMPRESSED AIR
OF THE PIPING SYSTEM**

SAFETY ON-OFF VALVE SPECIFICALLY DESIGNED TO INTERCEPT THE COMPRESSED AIR OF THE PIPING SYSTEM

It should be noted that, when pressure lowers at 2,5 Bar, the valve shuts off automatically; in case of failures in the piping system, the valve shuts off and those departments which are non directly interested may go on with their usual working operations.

This pneumatic controlled valve is a valuable alternative to manual valves and it offers the operator the possibility to close and open the distribution of compressed air to any section, descent or system area comfortably from the "floor" or from an automation panel.

QLVAVIP	Pneumatic single action Valve							
Code	Gr	D	D1	L	L1	I	E	C
QLVAVIP032	1250	32	89	200	92	47	62	35
QLVAVIP040	1420	40	89	210	92	47	75	36
QLVAVIP050	2120	50	109	245	110	57	87	70
QLVAVIP063	2350	63	140	290	140	60	97	95

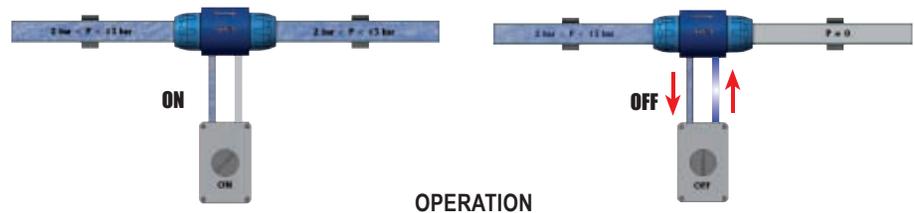


TECHNICAL SPECIFICATIONS

- Service temperature from -20°C up to + 80°C
- Maximum service pressure 16 Bar
- Minimum service pressure 2,5 Bar
- M5 Pilot ports (no high flow is requested)
- A pneumatic switch dia. 1 mm. is sufficient to operate a 110 mm valve
- The valve can operate up to 16 Bar and it has no particular needs of air filtration and lubrication.
- The valve is not affected by the presence of condensation.

CONSTRUCTIVE MATERIAL

- Anodized aluminum
- Passivated steel Spring
- Polyurethane slide
- NBR O-Ring gaskets



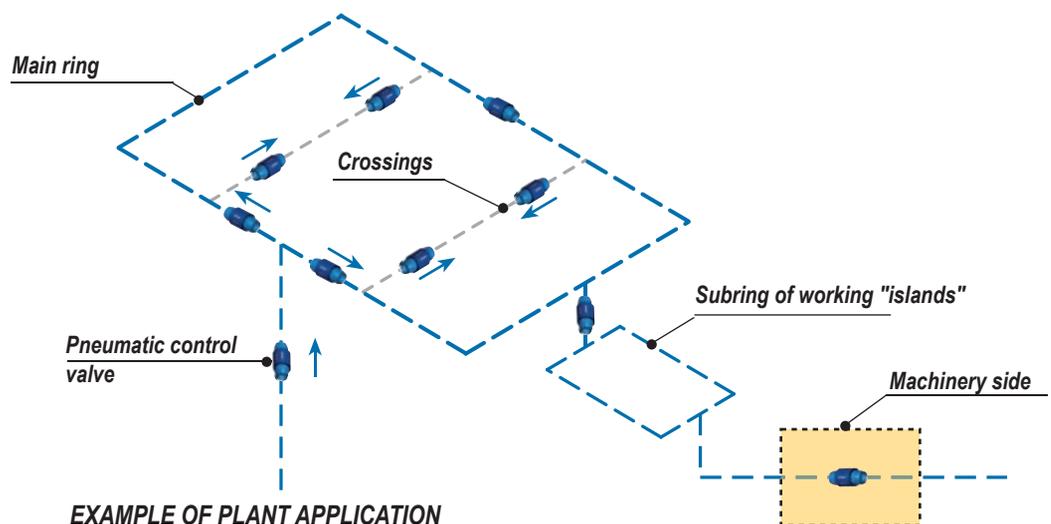
The valve looks like a normally closed valve; it uses the internal pressure of the pipeline to open and stop the compressed air flow.

The air necessary to the piloting is the air normally present upstream of the valve itself without any additional external energy.

The operation is obtained by using the piloting kit connected to the valve.

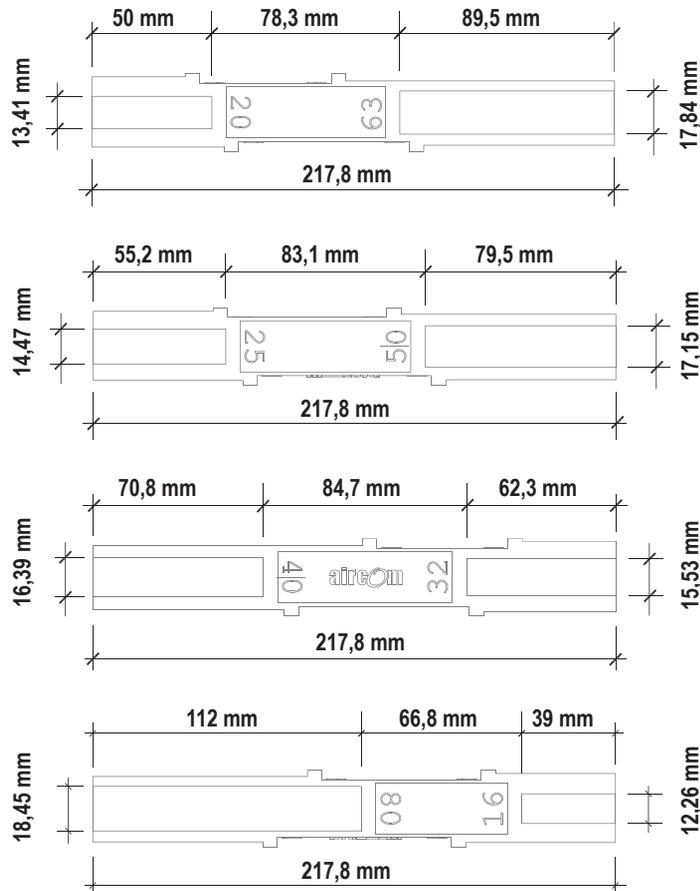
If not adequately controlled the valve change over to a close valve automatically when the internal pressure lows down to 2,5 Bar; it reaches its maximum flow rate with a pressure of approx. 3,5 Bar in the pipeline.

The pressure of the pipeline is always available at the "pilot pressure" outlet; by means of a simple pneumatic or electro-pneumatic switch it is possible to direct this pressure towards the "closing port" thus getting the immediate closing of the valve.



ACCESSORIES

Pipe insertion meter



Aircom "insertion meter" is a necessary tool for safe and proper fittings assembly.



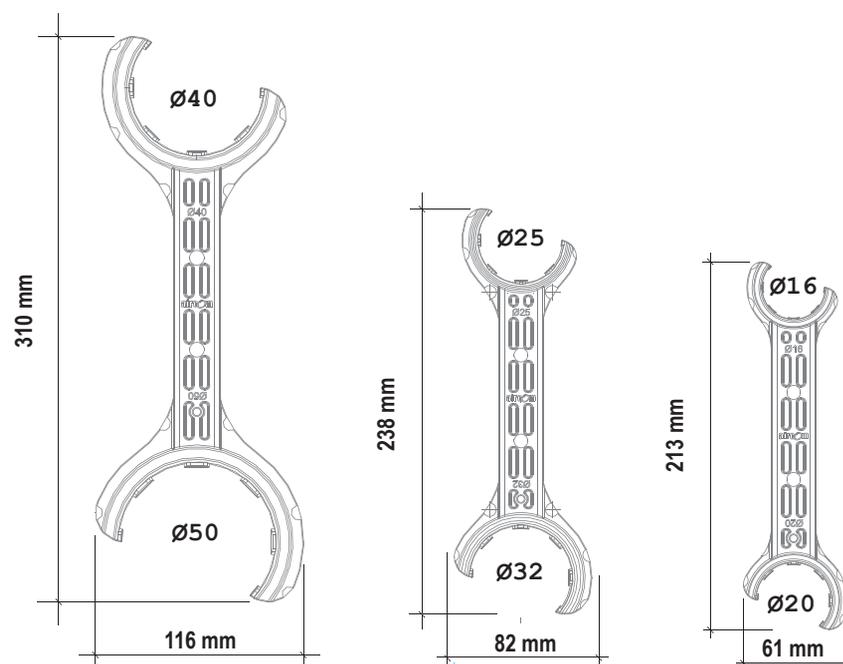
The "insertion meter" provides a correct marking of the fittings insertion depth on the pipe, for each pipe size.



The mark will be done with any common stencil and should appear close to the nut end in order to check the correct depth of the pipe insertion into the fitting.



Wrench (max dimensions)



AIRCOM wrench allows a correct nut tightening without any damage of the fitting.

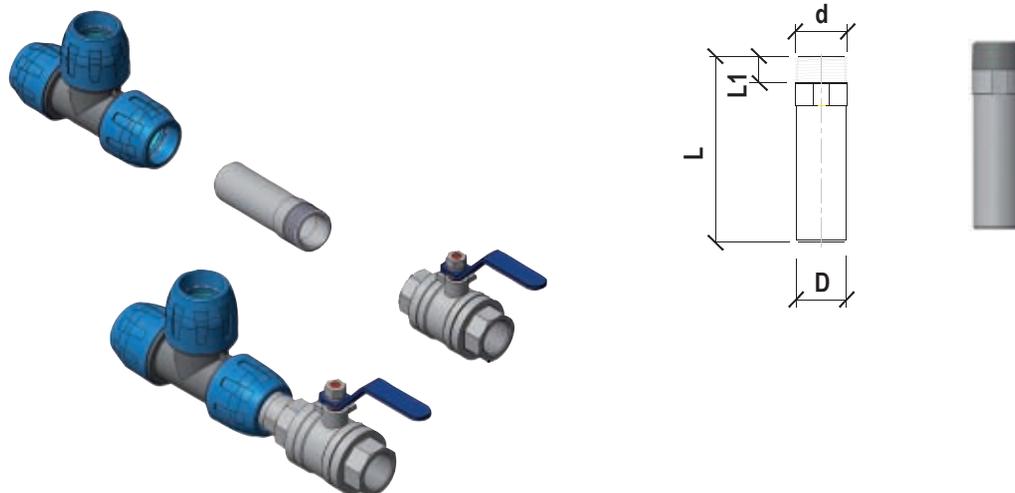
The wrench is expressly designed for AIRCOM Quick Line system.



MALE THREADED SPIGOT

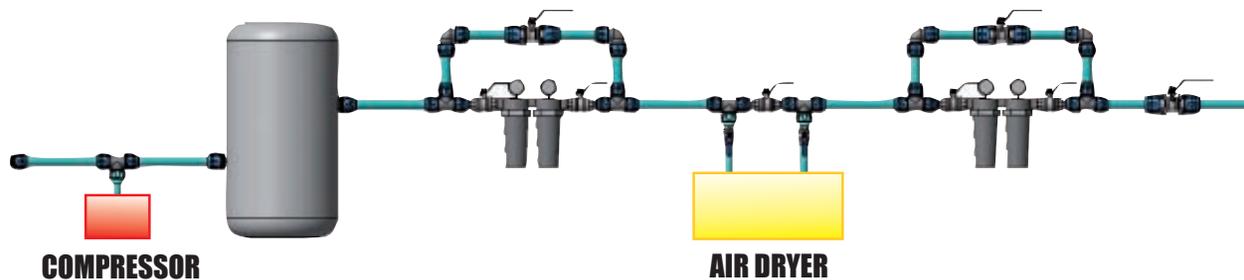
The male threaded spigot is a special hollow cylinder block in aluminum alloy with a male conic gas thread for airtight couplings according to ISO 7-1 at one end and a plain pipe segment of size identical to QLTUAL pipe on the other end.

QLPUNM	Male threaded Quick line spigot				
Code	Gr	D	d	L	L1
QLPUNM020048	36	20	1/2"	95	13
QLPUNM020068	43	20	3/4"	96	13
QLPUNM025088	73	25	1"	108	16
QLPUNM032108	95	32	1.1/4"	119	18
QLPUNM040128	152	40	1.1/2"	135	21
QLPUNM063168	517	63	2"	157	23
QLPUNM080248	675	80	3"	171	26



This product allows to reduce the fittings quantity in the compressor room for all the connections between the compressor and the treatment groups and relative by-passes.

All QUICK LINE fitting ends may rapidly be converted into pieces with ISO 7-1 male thread; consequently all installation times are sensibly reduced.





Rev. 0 - July 2012

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APPENDIX B

QUICK LINE SYSTEM TECHNICAL SCHEDULE



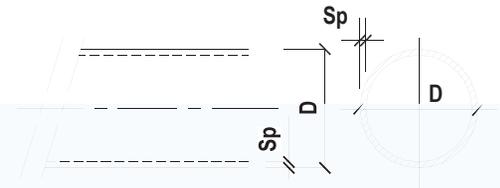
	Code	Description	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	110 mm	Page	
Aluminium Pipes • Quick Line System	QLTUAL	Blue Aluminium pipe 										5	
	QLTUALGY	Grey Aluminium pipe 										5	
	QLTUALG	Green Aluminium pipe 										5	
	QLSCI	Double bend (aluminium), Blue 										5	
Fittings diam 16 + 63 mm • Quick Line System	QLMAPA	Coupling 										7	
	QLMASPA	Sliding coupling 										7	
	QLGO90PA	90° Elbow 										8	
	QLGO45PA	45° Elbow 										8	
	QLTEPA	90° Tee 										9	
	QLCAPA	End cap 										9	
	QLTPPA	90° threaded Tee 		1/2"	1/2"								10
	QLTRPA	Reducing Tee 		16	16 20	20 25	25 32	32 40	40 50				10
	QLRIDPA	Reduction 			20	25	25 32	40					11
	QLMNPA	Union, male threaded 	1/2"	1/2" 3/4"	1/2" 3/4"	1/2" 3/4" 1"	1" 1.1/4"	1.1/2" 2"	2"				11
	QLGO90PM	90° Elbow, male thread 		1/2"	1/2" 3/4"								12
	QLMNM	Nipple socket - male threaded 		1/2" 3/4"	1"	1.1/4"	1.1/2"	2"					12
	QLMPM	Nipple socket - female threaded 		1/2" 3/4"	1"	1.1/4"	1.1/2"	2"					12
Aluminium Fittings diam 40 + 80 mm • Quick Line System	QLMAAL	Coupling 										13	
	QLMASAL	Sliding coupling 										13	
	QLGO90AL	90° Elbow 										13	
	QLTEAL	90° Tee 										13	
	QLCAAL	End cap 										14	
	QLTPAL	Threaded Tee, female thread 					1.1/4"		2"	2.1/2"			14
	QLMNMAL	Nipple socket - male threaded 					1.1/2"		2" 2.1/2"	2.1/2" 3"			14
	QLMPMAL	Nipple socket - female threaded 					1.1/2"		2.1/2"				14

	Code	Description	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	110 mm	Page
Aluminium Fittings diam 63 + 110 mm • Quick Line System	QLMAAL	Coupling diam. 110 mm										15
	QLGO90AL	90° Elbow diam. 110 mm										15
	QLTEAL	90° Tee diam. 110 mm										15
	QLTPAL	90° threaded Tee diam. 110 mm										15
	QLMFLAL	Flanged coupling							2"	3"		16
	QLMFLAL	Flanged coupling diam. 110 mm										16
	QLTFLAL	Flanged Tip								3"	4"	16
	QLRIDTU	Reduction pipe, male/male connection									63 80	16
	Wall mount manifolds Aluminium	DIRAPMAL	Single port manifold, female threads									
DIRAPFRLAL		Three port manifold										17
DIRAPLAL		Four port manifold										17
DIRPMUAL120		Five port manifold										17
DIRPMUAL200		Seven port manifold										17
Quick Line Accessories	QLAPM	Single port manifold	1/2"	1/2"								18
	QLAPMVA	Single port manifold with QL valve	1/2"	1/2"								18
	QLAPL	Double port manifold, f	1/2"	1/2"	1/2"							19
	QLAPMALVA	Single port manifold (aluminium), with QL valve	1/2"	1/2"								19
	QLDERPA	Quick branch plug			16 20	16 20	16 20 25	16 20 25	20 25 32	20 25 32	25 32	20
	QLFLEX	Compensator hose, male connection										20
	QLFLEXM	Flexible expansion hose with male threaded ends										21
	QLPUNM	Quick Line Spigot (aluminium)		1/2" 3/4"	1"	1.1/4"	1.1/2"	2"	2"	3"		21
	QLRIDMF	Concentric reduction (aluminium)										21
	DIRDIL	Expansion joint, flanged										22
	DIRFLFF	Threaded flange										22
	DIRSM DIRSMTR	Deburrer and Reamers Deburrers and Reamers with connection for drill										23

	Code	Description	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	110 mm	Page	
Quick Line Accessories	QLVAVIP	Pneumatic single action valve 										24	
	QLVAINOX	Quick Line steel ball valve 										24	
	QLVAINOX	Quick Line steel ball valve d. 110 mm 										25	
	QLVAINOXF	Quick Line steel ball valve, f 					1.1/2"		2"	3"		25	
	QLVAINOXF	Quick Line steel ball valve, f. d. 110 mm 									4"	26	
	QLVAM	QL male threaded connection ball valve 	1/2"	1/2"	3/4"								26
	QLVAF	QL female threaded connection ball valve 	1/2"	1/2"	3/4"								26
Quick Line Tools	QLCLE	Quick Line nut wrench 										27	
	QLCLEAL	Quick Line nut wrench Aluminium 										27	
	QLMIS	Pipe-Fittings insertion meter d. 16 - 80 										28	
	QLGUPFL	Flat seal 										28	

Aluminium Pipes

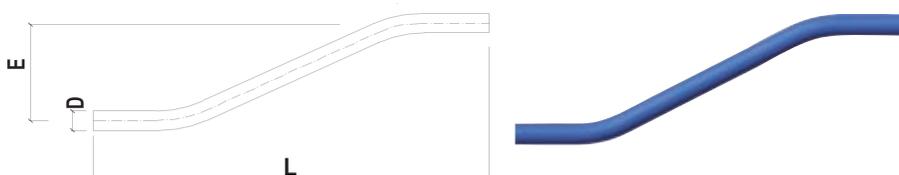
QLTUAL		Blue Aluminium pipe		
Code	Gr/m	D	bar length	sp
QLTUAL3016	101	16	3	1
QLTUAL3020	201	20	3	1,3
QLTUAL6020	201	20	6	1,3
QLTUAL3025	273	25	3	1,4
QLTUAL6025	273	25	6	1,4
QLTUAL3032	402	32	3	1,5
QLTUAL6032	402	32	6	1,5
QLTUAL3040	586	40	3	1,8
QLTUAL6040	586	40	6	1,8
QLTUAL6050	819	50	6	2
QLTUAL6063	1039	63	6	2
QLTUAL6080	1582	80	6	2,4
QLTUAL61110	2367	110	6	2,8



QLTUALGY		Grey aluminum pipe		
Code	Gr	D	bar length	sp
QLTUALGY6020	201	20	6	1,3
QLTUALGY6025	273	25	6	1,4
QLTUALGY6032	402	32	6	1,5
QLTUALGY6040	586	40	6	1,8
QLTUALGY6050	819	50	6	2
QLTUALGY6063	1,039	63	6	2
QLTUALGY6080	1,582	80	6	2,4

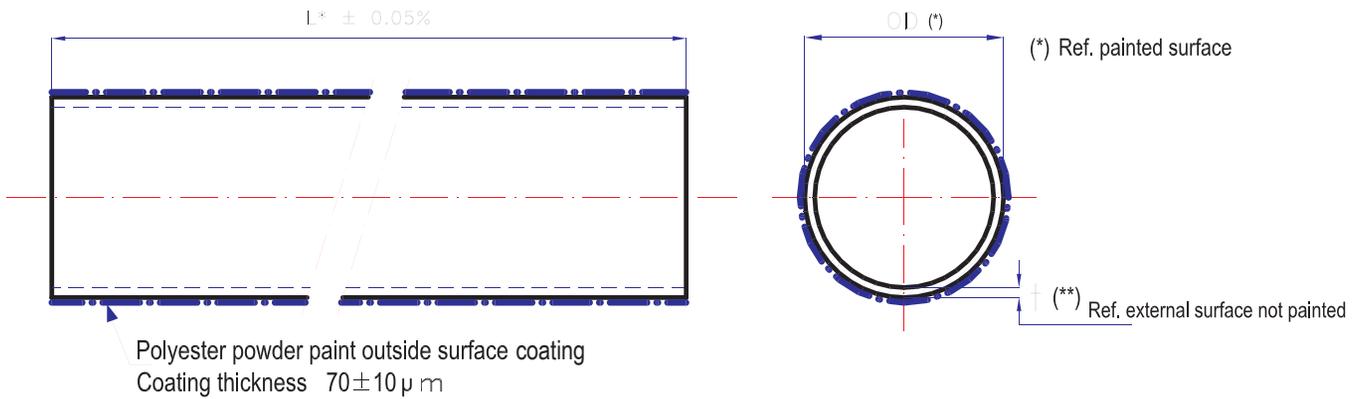
QLTUALG		Green Aluminium pipe		
Code	Gr	D	bar length	sp
QLTUALG6020	201	20	6	1,5
QLTUALG6025	273	25	6	1,5
QLTUALG6040	586	40	6	2
QLTUALG6063	1,039	63	6	2

QLSCI		Double Bend (Aluminium), Blue		
Code	Gr	D	L	E
QLSCI016	70	16	40	12
QLSCI020	100	20	43	15
QLSCI025	130	25	46	18



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Heigh
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance



CODE	DIMENSIONS (mm)					DIMENSIONS (in)					Q.ty / Pack
	OD Outside Diameter	Outside Diameter Tolerance	Ovality	t thickness	thickness tolerance	OD Outside Diameter	Outside Diameter Tolerance	Ovality	t thickness	thickness tolerance	
AIRTUAL016	16	±0.1	0.2	1.00	±0.1	0.629	±0.0039	0.008	0.039	±0.0039	
AIRTUAL020	20	+0.1 +0.3	0.3	1.30	+0.1 -0.2	0.787	+0.004 +0.012	0.008	0.051	+0.0039 -0.0078	10
AIRTUAL025	25	+0.1 +0.3	0.3	1.40	+0.1 -0.2	0.984	+0.004 +0.012	0.008	0.059	+0.0039 -0.0078	10
AIRTUAL032	32	+0.1 +0.3	0.3	1.50	+0.2 -0.1	1.259	+0.004 +0.012	0.008	0.059	+0.0078 -0.0039	5
AIRTUAL040	40	+0.1 +0.35	0.3	1.80	±0.2	1.574	+0.004 -0	0.008	0.070	±0.0078	5
AIRTUAL050	50	+0.1 +0.5	0.4	2.00	±0.2	1.574	+0.004 +0.012	0.012	0.078	±0.0078	4
AIRTUAL063	63	+0.1 +0.5	0.4	2.00	±0.2	2.480	+0.004 0.016	0.012	0.078	±0.0078	3
AIRTUAL080	80	+0.1 +0.5	0.5	2.40	±0.2	3.140	+0.004 0.016	0.012	0.078	±0.0078	3
AIRTUAL110	110	+0.1 +0.5	0.5	2.50	±0.2	4.330	+0.004 0.016	0.012	0.078	±0.0078	2

Max. Operating Pressure
13 Bar, From -10°C To +90°C

Inside Pressure Test
55 Bar For 1 Hour At +20°C

Material

Aluminium Extrusion Alloy EN AW T6 UNI-EN 755-2 With Inside And Outside Titanium-Based, Chrome-Free And Rohs-Complying Treating And Electrocoated Outside Surface

Colour

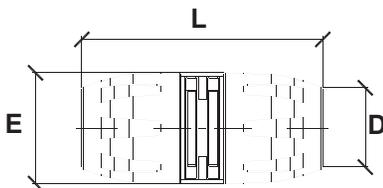
Blue RAL 5012 – Green Similar To RAL 6032

Manufacturing Process

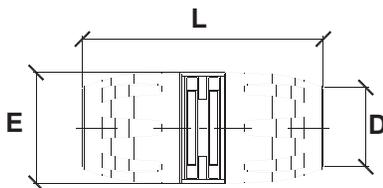
Seamless Extrusion Process

Quick Line Fittings diam 16 ÷ 63 mm

QLMAPA	Coupling				
Code	Gr	D	L	E	C
QLMAPA016	50	16	81	37	38
QLMAPA020	90	20	98	45	48
QLMAPA025	132	25	106	51	52
QLMAPA032	212	32	124	61	62
QLMAPA040	350	40	142	75	70
QLMAPA050	505	50	161	87	79
QLMAPA063	570	63	170	108	80,5



QLMASPA	Sliding Coupling				
Code	Gr	D	L	E	C
QLMASPA032	212	32	124	61	62
QLMASPA040	350	40	142	75	70
QLMASPA050	505	50	161	87	79
QLMASPA063	570	63	170	108	80,5

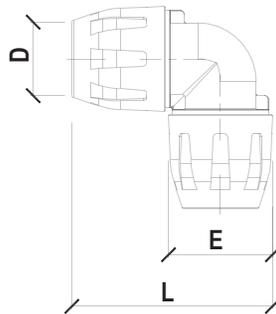


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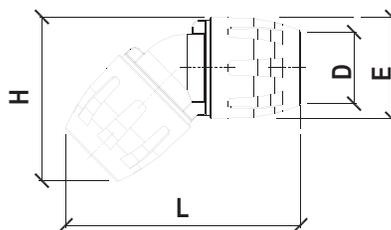
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Fittings diam 16 ÷ 63 mm

QLGO90PA		90° Elbow				
Code	Gr	D	L	E	C	
QLGO90PA016	70	16	72	37	38	
QLGO90PA020	100	20	86	45	48	
QLGO90PA025	140	25	95	51	52	
QLGO90PA032	240	32	122	61	62	
QLGO90PA040	390	40	130	75	70	
QLGO90PA050	580	50	152	87	79	
QLGO90PA063	800	63	165	108	80,5	



QLGO45PA		45° Elbow				
Code	Gr	D	L	H	E	C
QLGO45PA020	100	20	104	72	45	48
QLGO45PA025	145	25	115	81	51	52
QLGO45PA032	235	32	137	97	61	62
QLGO45PA040	375	40	160	115	75	70
QLGO45PA050	540	50	185	134	87	79
QLGO45PA063	770	63	210	140	108	80,5

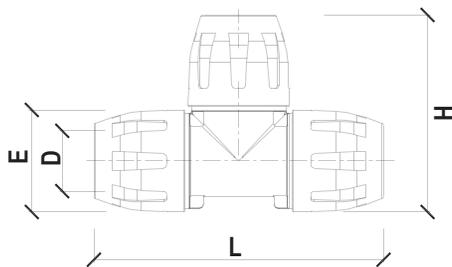


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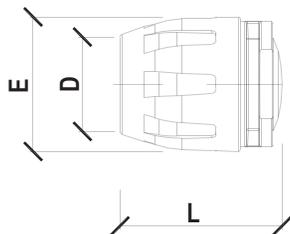
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Fittings diam 16 ÷ 63 mm

QLTEPA	90° Tee					
Code	Gr	D	L	E	H	C
QLTEPA016	90	16	109	37	73	38
QLTEPA020	160	20	127	45	86	48
QLTEPA025	210	25	140	51	95	52
QLTEPA032	360	32	170	61	122	62
QLTEPA040	565	40	185	75	130	70
QLTEPA050	850	50	216	87	152	79
QLTEPA063	1200	63	235	108	180	80,5



QLCAPA	End Cap				
Code	Gr	D	L	E	C
QLCAPA016	30	16	50	37	38
QLCAPA020	58	20	54	45	48
QLCAPA025	75	25	60	51	52
QLCAPA032	126	32	71	61	62
QLCAPA040	200	40	78	75	70
QLCAPA050	298	50	85	87	79
QLCAPA063	350	63	90	108	80,5



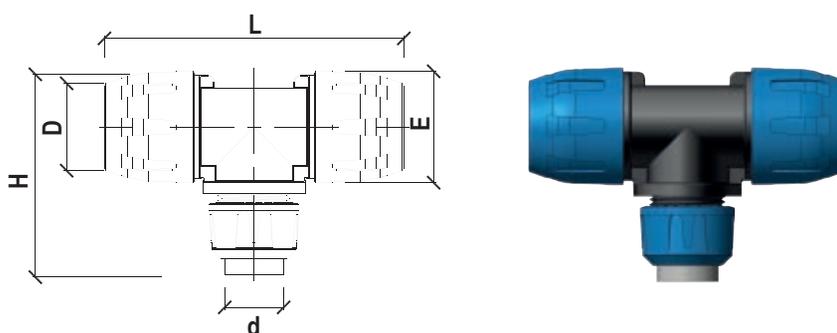
Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

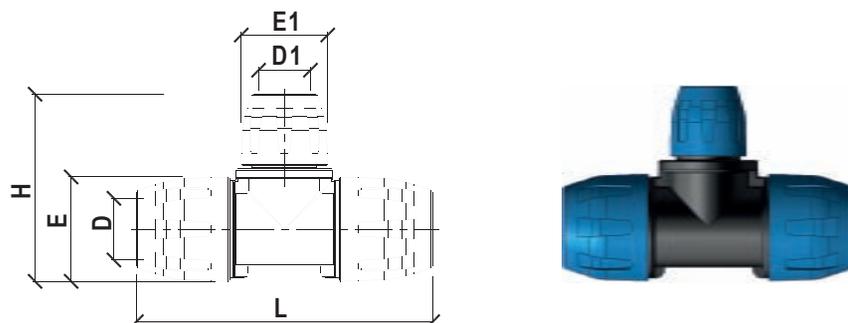
Quick Line Fittings diam 16 ÷ 63 mm

QLTPPA	90° threaded Tee						
Code**	Gr	D	d	L	E	H	C
QLTPPA020048	160	20	1/2"	127	45	75	48
QLTPPA025048	210	25	1/2"	140	51	80	52

**NPT thread available



QLTRPA	Reducing Tee								
Code	Gr	D	D1	L	E	E1	H	C	C1
QLTRPA020016	150	20	16	127	45	37	80	48	38
QLTRPA025016	200	25	16	140	51	45	88	52	38
QLTRPA025020	210	25	20	140	51	37	98	52	48
QLTRPA032020	340	32	20	170	61	45	111	62	48
QLTRPA032025	340	32	25	170	61	51	113	62	52
QLTRPA040025	510	40	25	185	75	51	128	70	52
QLTRPA040032	540	40	32	185	75	61	131	70	62
QLTRPA050032	760	50	32	216	87	61	147	79	62
QLTRPA050040	820	50	40	216	87	75	150	79	70
QLTRPA063040	820	63	40	235	108	75	160	80,5	70
QLTRPA063050	1120	63	50	235	108	87	168	80,5	79



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

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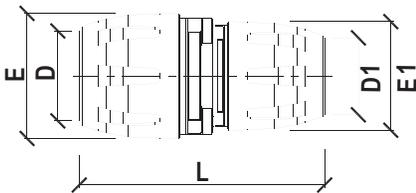
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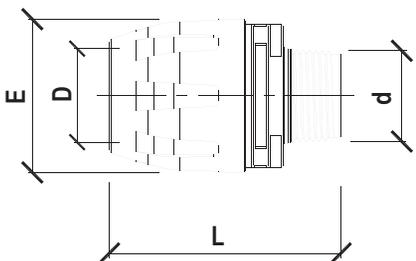
Quick Line Fittings diam 16 ÷ 63 mm

QLRIDPA	Reduction								
	Code	Gr	D	D1	L	E	E1	C	C1
QLRIDPA025020	120	25	20	101	51	45	52	48	
QLRIDPA032025	178	32	25	115	61	51	62	52	
QLRIDPA040025	230	40	25	125	75	61	70	52	
QLRIDPA040032	290	40	32	133	75	51	70	62	
QLRIDPA050040	450	50	40	151	87	75	79	70	



QLMNPA	Union, male threaded						
	Code**	Gr	D	d	L	E	C
QLMNPA016048	30	16	1/2"	64	37	38	
QLMNPA020048	60	20	1/2"	68	45	48	
QLMNPA020068	60	20	3/4"	68	45	48	
QLMNPA025048	80	25	1/2"	71	51	52	
QLMNPA025068	80	25	3/4"	73	51	52	
QLMNPA025088	80	25	1"	76	51	52	
QLMNPA032088	120	32	1"	85	61	62	
QLMNPA032108	130	32	1.1/4"	87	61	62	
QLMNPA040088	200	40	1"	96	75	70	
QLMNPA040108	200	40	1.1/4"	97	75	70	
QLMNPA040128	200	40	1.1/2"	98	75	70	
QLMNPA050128	300	50	1.1/2"	108	87	79	
QLMNPA050168	290	50	2"	111	87	79	
QLMNPA063168	350	63	2"	115	108	80,5	

**NPT thread available

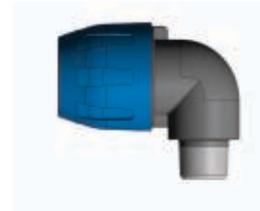
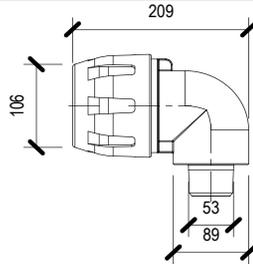


Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

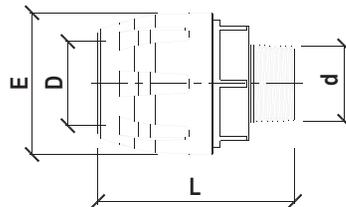
Quick Line Fittings diam 16 ÷ 63 mm

QLGO90PM		90° Elbow, male thread				
Code	Gr.	D	d	L	E	C
QLGO90PM020048	0,30	20	1/2"	200	45	48
QLGO90PM025048	0,60	25	1/2"	209	51	52
QLGO90PM025068	0,80	25	3/4"	209	51	52



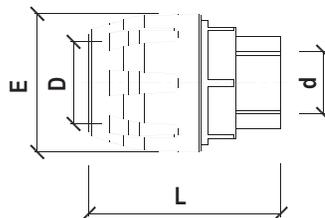
QLMNM		Nipple Socket - Aluminium body - male threaded				
Code**	Gr	D	d	L	E	C
QLMNM020048	100	20	1/2"	67	45	48
QLMNM020068	110	20	3/4"	67	45	48
QLMNM025088	130	25	1"	76	51	52
QLMNM032108	220	32	1.1/4"	87	61	62
QLMNM040128	420	40	1.1/2"	98	75	70
QLMNM050168	580	50	2"	111	87	79

**NPT thread available



QLMPM		Female Nipple Socket - Aluminium body - female threaded				
Code **	Gr	D	d	L	E	C
QLMPM020048	110	20	1/2"	67	45	48
QLMPM020068	110	20	3/4"	67	45	48
QLMPM025088	150	25	1"	76	51	52
QLMPM032108	230	32	1.1/4"	87	61	62
QLMPM040128	460	40	1.1/2"	98	75	70
QLMPM050168	590	50	2"	111	87	79

**NPT thread available



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

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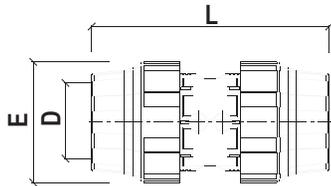
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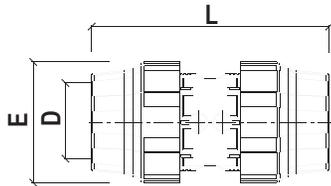
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Quick Line Fittings diam 40 ÷ 80 mm

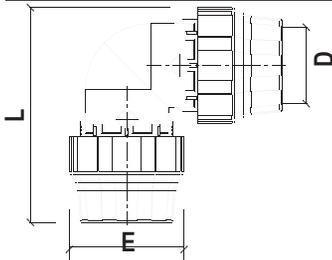
QLMAAL	Coupling				
Code	Gr.	D	L	E	C
QLMAAL040	250	40	156	62	77
QLMAAL063	890	63	193	97	95
QLMAAL080	1,490	80	232	116	114



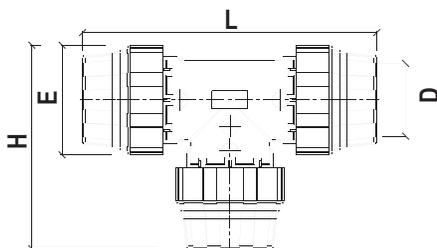
QLMASAL	Sliding Coupling				
Code	Gr.	D	L	E	C
QLMASAL040	250	40	156	62	77
QLMASAL063	890	63	193	97	95
QLMASAL080	1,490	80	232	116	114



QLGO90AL	90° Elbow				
Code	Gr.	D	L	E	C
QLGO90AL040	300	40	130	62	77
QLGO90AL063	1,050	63	180	97	95
QLGO90AL080	1,800	80	217	116	114



QLTEAL	90° Tee					
Code	Gr.	D	L	E	H	C
QLTEAL040	420	40	132	62	132	77
QLTEAL063	1,280	63	263	97	181	95
QLTEAL080	2,580	80	318	116	217	114

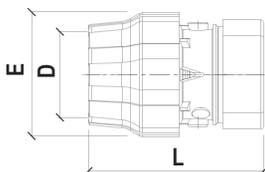


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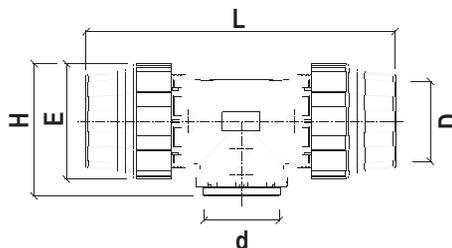
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Fittings diam 40 ÷ 80 mm

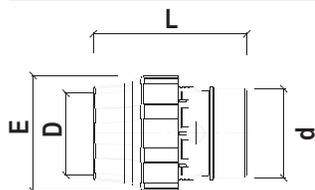
QLCAAL		End Cap			
Code	Gr.	D	L	E	C
QLCAAL040	450	40	94	62	77
QLCAAL063	1,230	63	139	97	95
QLCAAL080	1,560	80	163	116	114



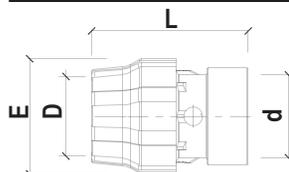
QLTPAL		Threaded Tee, female thread					
Code	Gr.	D	d	L	E	H	C
QLTPAL040108	450	40	1.1/4"	132	62	70	77
QLTPAL063168	1,180	63	2"	263	97	112	95
QLTPAL080208	1,850	80	2.1/2"	318	116	136	114



QLMNMAL		Nipple Socket - Aluminum body - male threaded				
Code	Gr.	D	d	L	E	C
QLMNMAL040128	160	40	1.1/2"	94	62	77
QLMNMAL063168	508	63	2"	130	77	95
QLMNMAL063208	520	63	2.1/2"	130	97	95
QLMNMAL080208	850	80	2.1/2"	152	116	114
QLMNMAL080248	870	80	3"	155	116	114



QLMPMAL		Nipple Socket - Aluminum body - female threaded				
Code	Gr.	D	d	L	E	C
QLMPMAL040128	175	1.1/2"	1.1/2"	94	62	77
QLMPMAL063208	560	2.1/2"	2.1/2"	134	97	95



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

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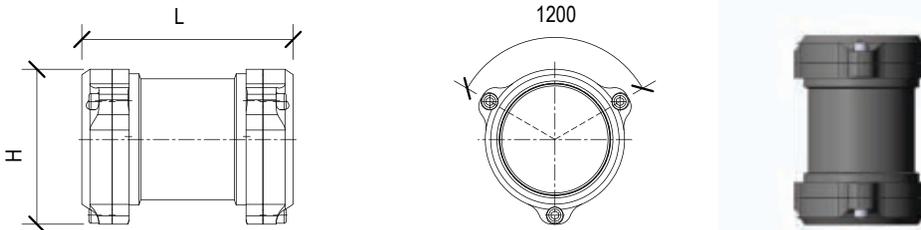
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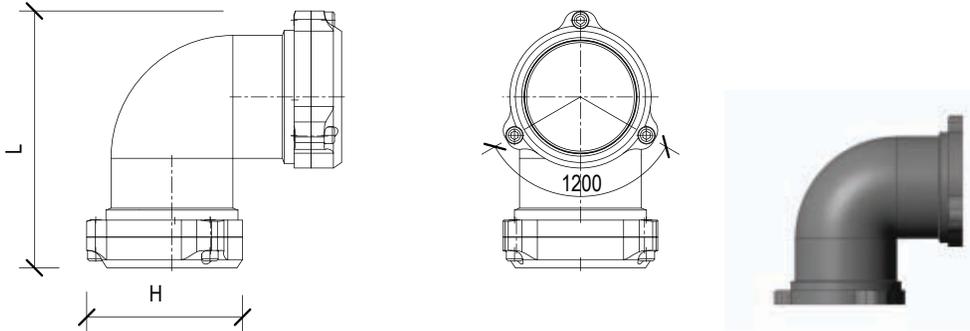
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Quick Line Fittings diam 110 mm

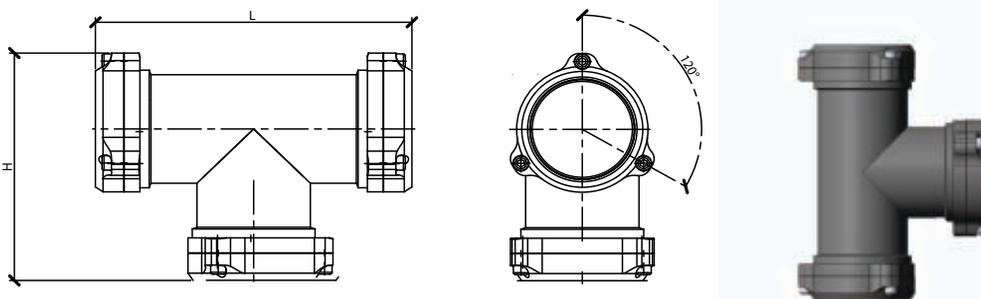
QLMAAL	Coupling diam 110 mm				
Code	Gr.	D	L	H	C
QLMAAL110	2,500	110	211	153	102



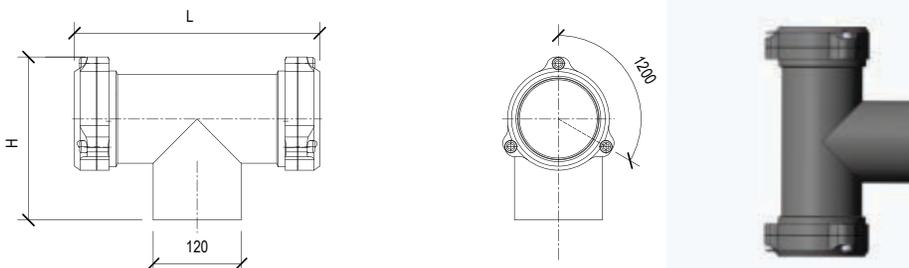
QLGO90AL	90° Elbow diam 110 mm				
Code	Gr.	D	L	H	C
QLGO90AL110	3,000	110	251	162	102



QLTEAL	90° Tee diam 110 mm				
Code	Gr.	D	L	H	C
QLTEAL110	4,200	110	335	227	102



QLTPAL	90° threaded Tee diam 110 mm				
Code	Gr.	D	L	H	C
QLTPAL110248	3,500	110	335	221	102

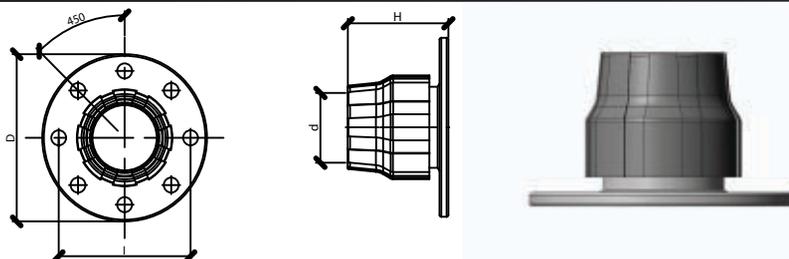


Legend

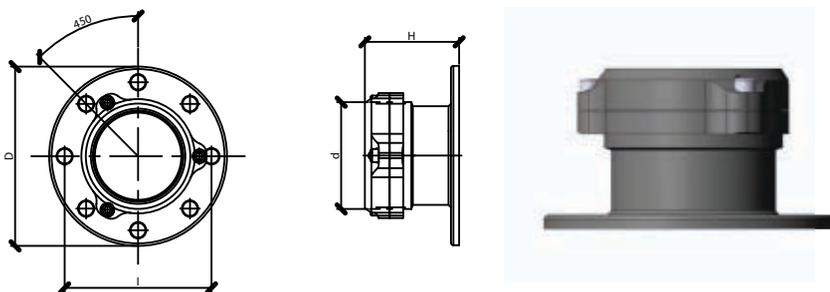
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Fittings diam 63 ÷ 110 mm

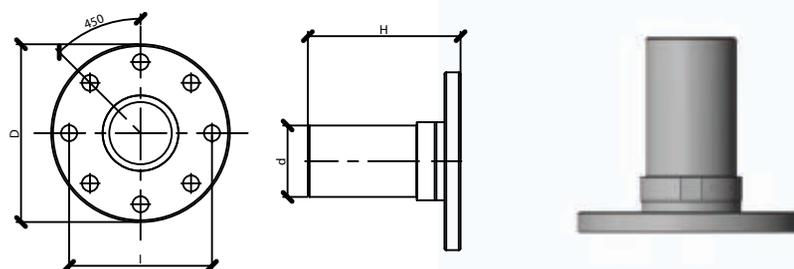
QLMFLAL	Flanged Coupling						
Code	Gr.	D	d	L	E	H	C
QLMFLAL063168	1,200	63	2"	227	97	109	95
QLMFLAL080248	2,000	80	3"	227	116	115	114



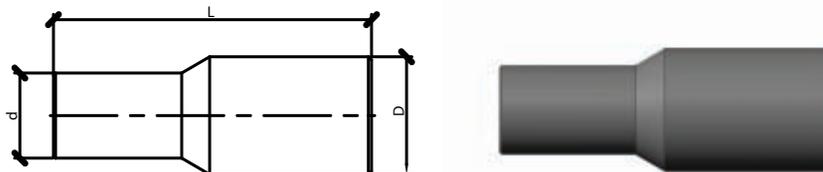
QLMFLAL	Flanged Coupling						
Code	Gr.	D	d	L	E	H	C
QLMFLAL110328	2,100	110	106	227	154	117	102



QLTFLAL	Flanged Tip						
Code	Gr.	D	d	L	E	H	C
QLTFLAL80208	1,300	80	3"	227	80	172	120
QLTFLAL110248	1,700	110	4"	227	110	180	120



QLRIDTU	Reduction pipe, male/male connection					
Code	Gr.	D	d	L	E	C
QLRIDTU11063	1,000	110	63	302	63	120
QLRIDTU11080	1,200	110	80	302	80	120



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

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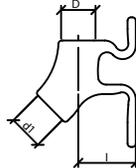
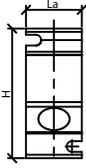
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Wall Mount Manifolds Aluminum

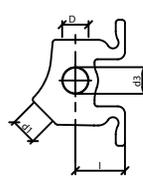
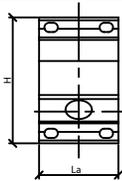
DIRAPMAL Single port manifold, female threads

Code	Gr.	D	d1	d2	d3	H	L
DIRAPMAL048048	120	1/2"	1/2"	-	-	78	34



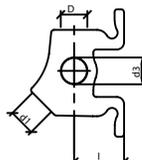
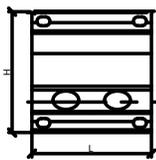
DIRAPFRLAL Three port manifold, female threads + drain 1/4" blind

Code	Gr.	D	d1	d2	d3	H	L
DIRAPFRLAL048048	340	1/2"	1/2"	1/2"	1/2"	88	55



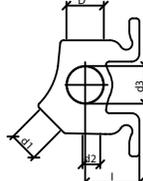
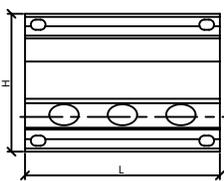
DIRAPLAL Four port manifold, female threads + drain 1/4" blind

Code	Gr.	D	d1	d2	d3	H	L
DIRAPLAL048048	510	1/2"	1/2"	1/2"	1/2"	88	88
DIRAPLAL068068	470	3/4"	1/2"	1/2"	3/4"	88	88



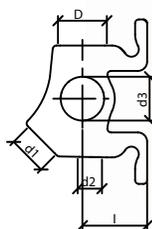
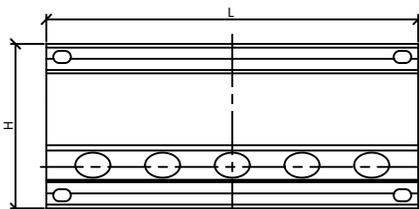
DIRPMUAL120 Five port manifold, female threads + drain 1/4" blind

Code	Gr.	D	d1	d2	d3	H	L
DIRPMUAL120	840	3/4"	1/2"	1/2"	3/4"	88	125



DIRPMUAL200 Seven port manifold, female threads + drain 1/4" blind

Code	Gr.	D	d1	d2	d3	H	L
DIRPMUAL200	1,300	3/4"	1/2"	1/2"	3/4"	88	200



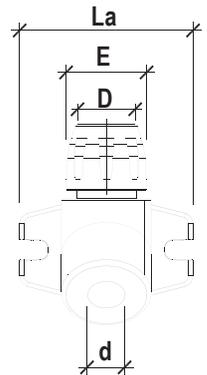
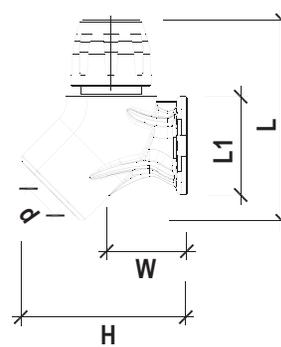
Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Accessories

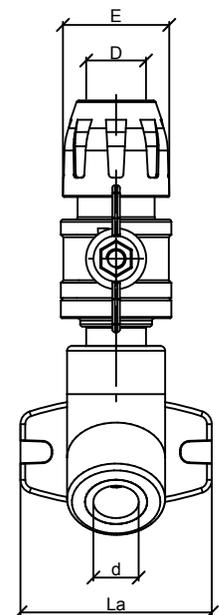
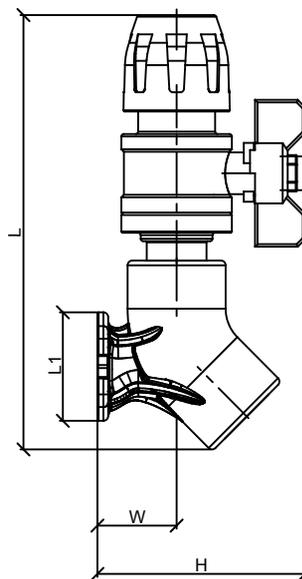
QLAPM	Single port manifold, female thread									
Code**	Gr	D	d	L	L1	La	H	E	W	C
QLAPM016	120	16	1/2"	94	45	80	41	37	35	38
QLAPM020	190	20	1/2"	96	45	80	41	45	35	48

**NPT thread available



QLAPMVA	Single port manifold with Quick Line male threaded ball valve										
Code**	Gr	D	d	L	L1	L2	La	H	E	W	C
QLAPMVA016	420	16	1/2"	170	45	-	80	41	37	35	38
QLAPMVA020	560	20	1/2"	170	45	-	80	41	45	35	48

**NPT thread available



QUICK LINE SYSTEM TECHNICAL SCHEDULE

Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axis distance

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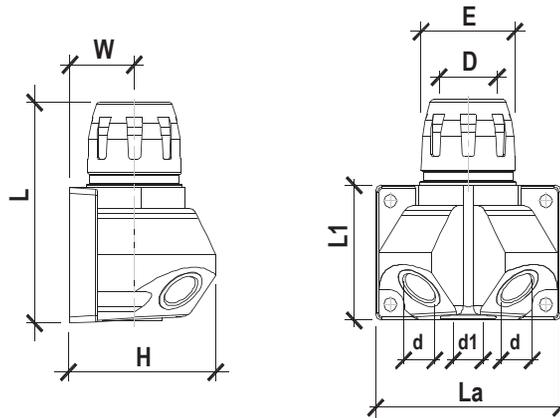
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Quick Line Accessories

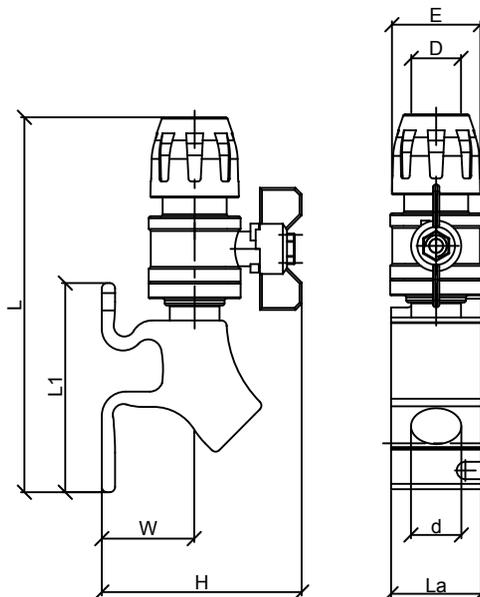
QLAPL	Double port manifold, female thread											
Code**	Gr	D	d	d1	L	L1	La	H	E	W	C	
QLAPL016	270	16	1/2"	1/4"	100	68	99	78	37	35	38	
QLAPL020	320	20	1/2"	1/4"	110	68	99	78	45	35	48	
QLAPL025	330	25	1/2"	1/4"	110	68	99	78	51	35	52	

**NPT thread available



QLAPMALVA	Single port manifold, female threads with Quick Line male threaded ball valve											
Code**	Gr	D	d	d1	L	L1	L2	La	H	E	W	C
QLAPLVA016	340	16	1/2"	-	164	78	-	34	164	37	43	38
QLAPLVA020	480	20	1/2"	-	164	78	-	34	164	45	43	48

**NPT thread available



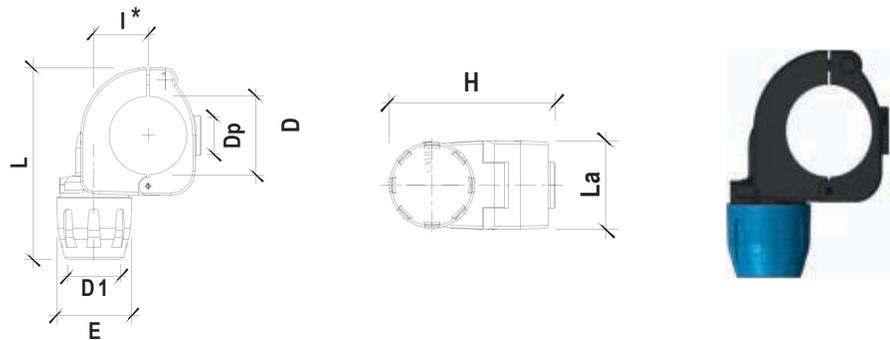
Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

Quick Line Accessories

QLDERPA	Quick branch plug						
Code	Gr	D	D1	L	E	La	Dp
QLDERPA025016	210	25	16	113	37	52	16
QLDERPA025020	230	25	20	113	45	52	16
QLDERPA032016	200	32	16	113	37	52	16
QLDERPA032020	220	32	20	113	45	52	16
QLDERPA040016	250	40	16	125	37	52	20
QLDERPA040020	270	40	20	125	45	52	20
QLDERPA040025	280	40	25	125	51	52	20
QLDERPA050016	420	50	16	145	37	60	20
QLDERPA050020	420	50	20	145	45	60	20
QLDERPA050025	430	50	25	145	51	60	20
QLDERPA063020	400	63	20	145	45	60	20
QLDERPA063025	410	63	25	145	51	60	20
QLDERPA063032	420	63	32	148	61	60	20
QLDERPA080020	1110	80	20	220	45	63	22,5
QLDERPA080025	1120	80	25	220	51	63	22,5
QLDERPA080032	1130	80	32	220	61	63	22,5
QLDERPA110025	1240	110	25	220	51	63	22,5
QLDERPA110032	1350	110	32	220	61	63	22,5

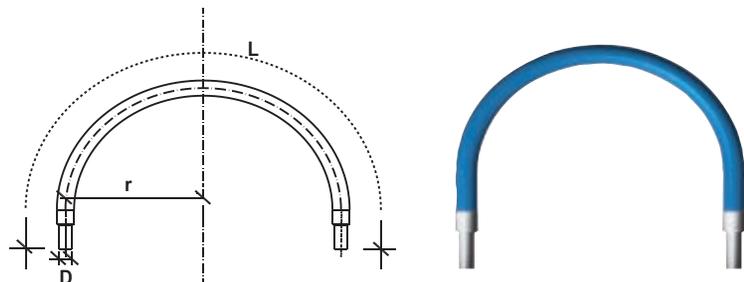
I*: Interaxis (see DIRDERFF in Aircom System Accessories - Technical Schedules)



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

QLFLEX	Compensator hose, male connection				
Code	Gr	D	< r >		L
QLFLEX020	420	20	15	20	800
QLFLEX025	760	25	18	25	820
QLFLEX032	1430	32	23	32	960
QLFLEX040	1900	40	29	38	1200
QLFLEX050	3500	50	36	47	1430
QLFLEX063	5000	63	45	59	1650



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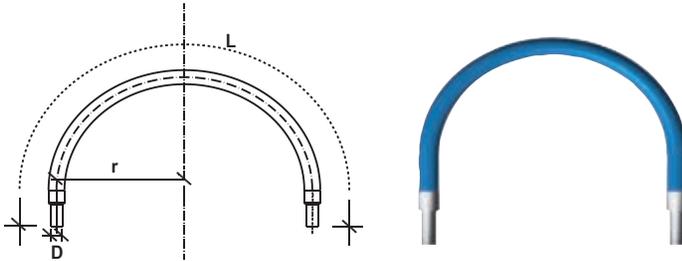
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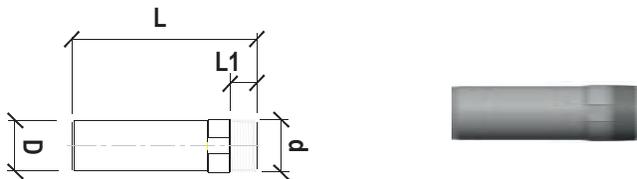
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Quick Line Accessories

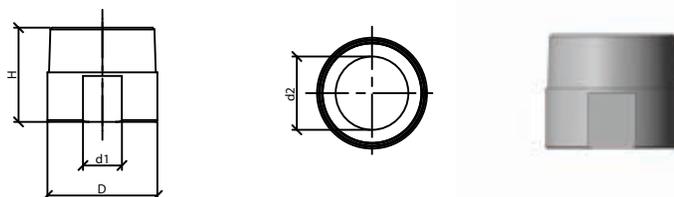
QLFLEXM Flexible expansion hose with male threaded ends					
Code	Gr.	D	< r >		L
QLFLEXM088	1,430	1" x 1"	18	25	820
QLFLEXM108	1,900	1.1/4" x 1.1/4"	23	32	1200
QLFLEXM128	3,500	1.1/2" x 1.1/2"	29	38	1430
QLFLEXM168	5,000	2" x 2"	45	59	1650



QLPUNM Male threaded Quick Line Spigot (aluminium)					
Code	Gr.	D	d	L (in)	L1 (in)
QLPUNM020048	0,035	20	1/2"	95	13
QLPUNM020068	0,045	20	3/4"	96	13
QLPUNM025088	0,076	25	1"	108	16
QLPUNM032108	0,137	32	1.1/4"	119	18
QLPUNM040128	0,182	40	1.1/2"	135	21
QLPUNM050168	0,241	50	2"	141	23
QLPUNM063168	0,300	63	2"	157	23
QLPUNM080248	0,734	80	3"	171	26



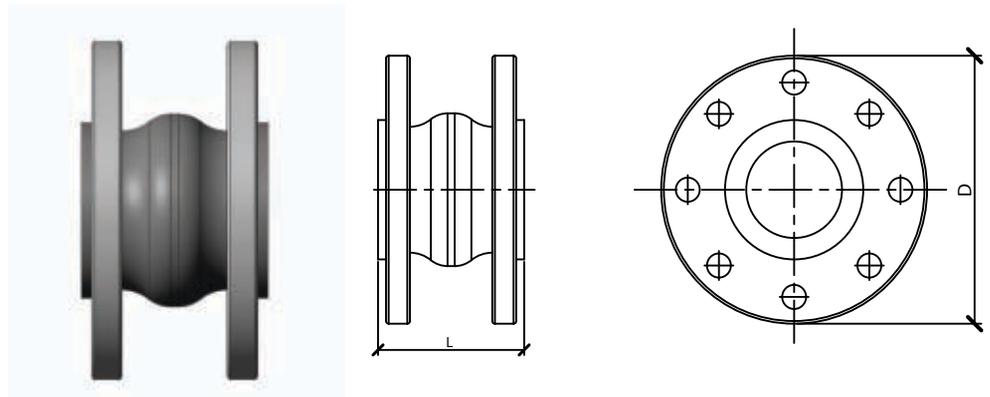
QLRIDMF Concentric male-female reduction (aluminium)					
Code	Gr.	D	d	L (in)	L1 (in)
QLRIDMF108088	0,018	1.1/4"	1"	39	17
QLRIDMF128108	0,022	1.1/2"	1.1/4"	42	18
QLRIDMF168128	0,038	2"	1.1/2"	52	23
QLRIDMF208168	0,066	2.1/2"	2"	52	23
QLRIDMF248208	0,090	3"	2.1/2"	56	27



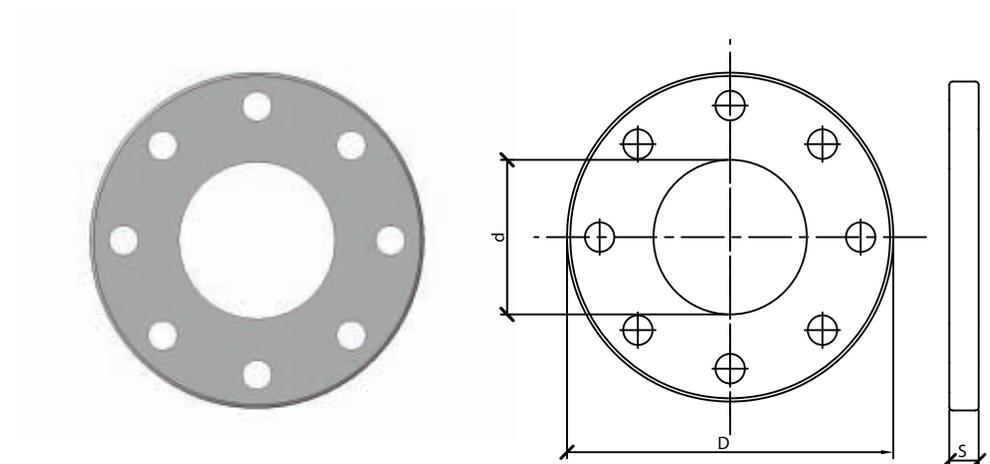
Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

DIRDIL		Expansion joint, flanged	
Code	Gr.	D	
DIRDIL063DIN	6,500	63	
DIRDIL080DIN	9,000	80	
DIRDIL110DIN	12,000	110	



DIRFLFF		Threaded flange	
Code	Gr.	D	
DIRFLFF168DIN	0,745	63	
DIRFLFF248DIN	1,100	80	
DIRFLFF328DIN	1,200	110	



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Heigh
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

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DIRSM		Deburrers and Reamers		
Code	Gr.	D	H	
DIRSM008032	0,187	8-32	60	
DIRSM016050	0,420	16-50	85	
DIRSM063110	0,617	63-110		



DIRSMTR		Deburrers and Reamers with connection for drill		
Code	Gr.	D	H	
DIRSMTR016050	0,450	16-50	94	

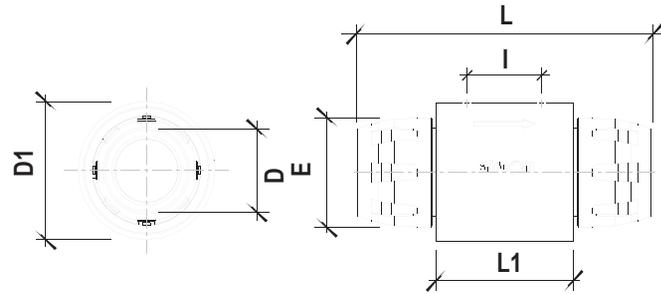


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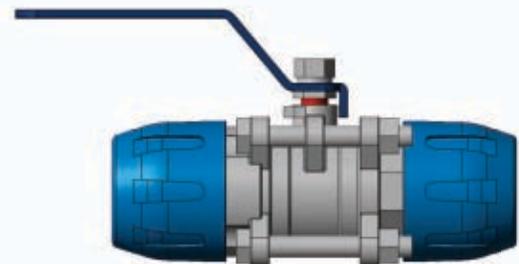
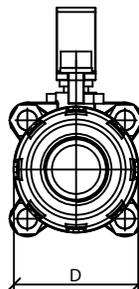
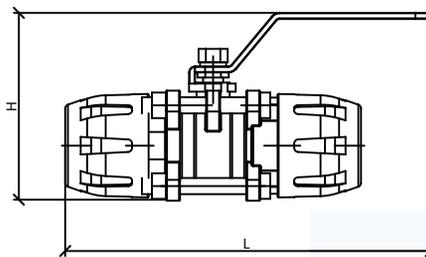
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance



QLVAVIP	Pneumatic single action Valve						
Code	Gr.	D	D1	L	L1	E	C
QLVAVIP032	1,250	32	89	200	92	62	35
QLVAVIP040	1,420	40	89	210	92	75	36
QLVAVIP050	2,120	50	109	245	110	87	70
QLVAVIP063	2,300	63	140	290	140	97	95



QLVAINOX	Quick Line steel ball valve, male threaded						
Code	Gr.	D	D1	L	L1	E	C
QLVAINOX040	2,000	40	-	269	-	62	77
QLVAINOX063	4,000	63	-	376	-	97	95
QLVAINOX080	9,500	80	-	483	-	116	114



Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Heigh
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

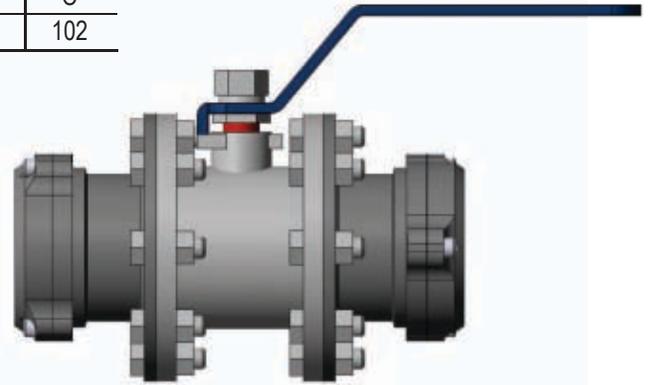
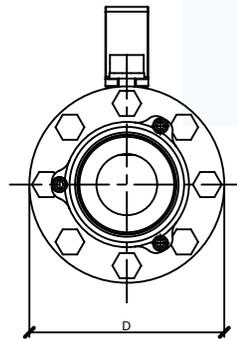
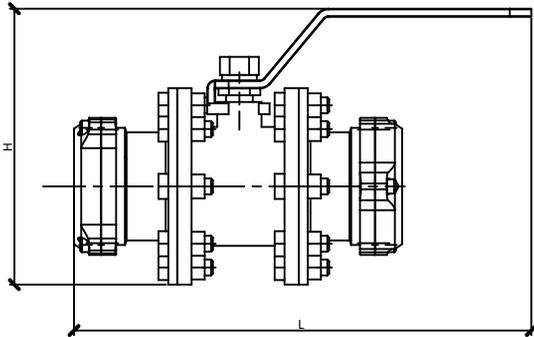
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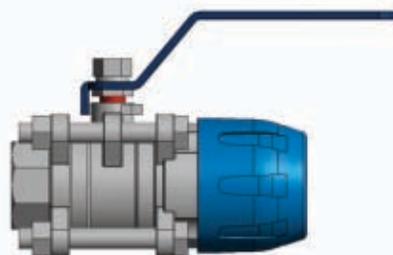
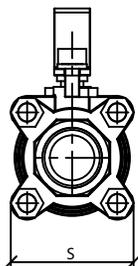
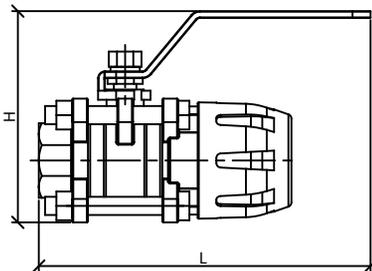
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QLVAINOX		Quick Line steel ball valve, male threaded					
Code	Gr.	D	D1	L	L1	E	C
QLVAINOX110	12,000	110	-	694	-	154	102



QLVAINOXF		Quick Line steel ball valve, female threaded					
Code	Gr.	D	D1	L	L1	E	C
QLVAINOXF040	1,800	40	-	225	-	67	77
QLVAINOXF063	3,500	63	-	309	-	97	95
QLVAINOXF080	8,000	80	-	393	-	116	114

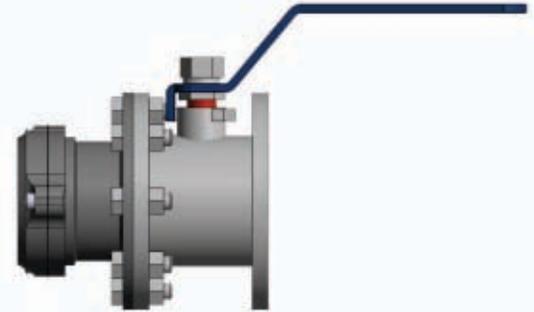
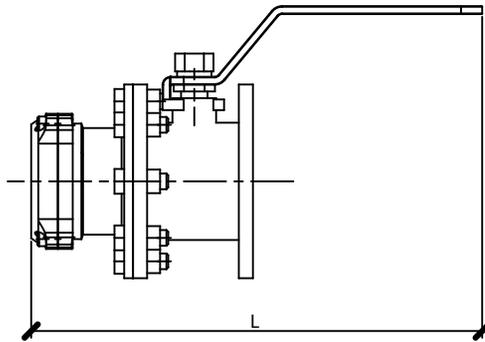
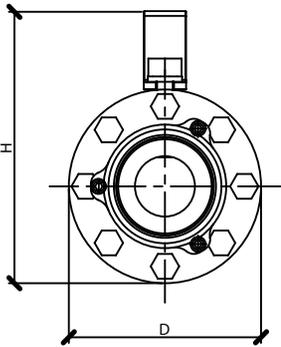


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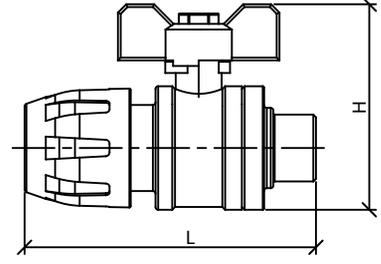
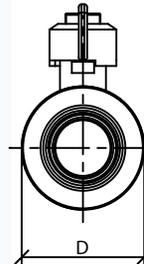
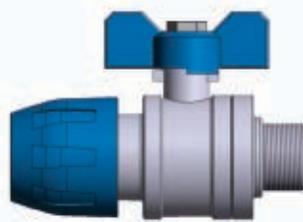
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance



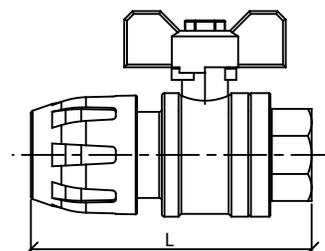
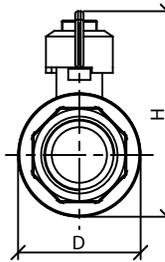
QLVAINOXF		Quick Line steel ball valve, female threaded					
Code	Gr.	D	D1	L	L1	E	C
QLVAINOXF110	11,000	110	-	553	-	154	102



QLVAM		Quick Line male threaded connection ball valve						
Code	Gr.	D	d	L	L1	H	E	C
QLVAM016048	0,220	16	1/2"	103	-	60	37	38
QLVAM020048	0,360	20	1/2"	104	-	60	45	48
QLVAM025068	0,360	25	3/4"	106	-	60	51	52



QLVAF		Quick Line female threaded connection ball valve						
Code	Gr.	D	d	L	L1	H	E	C
QLVAF016048	0,220	16	1/2"	103	-	60	37	38
QLVAF020048	0,360	20	1/2"	104	-	60	45	48
QLVAF025068	0,360	25	3/4"	106	-	60	51	52

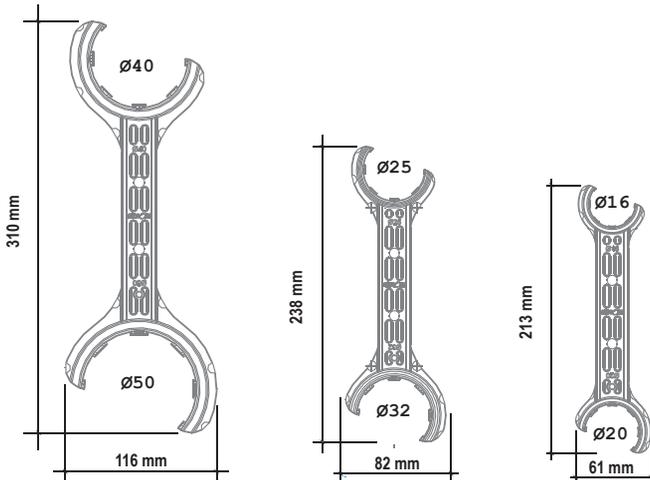


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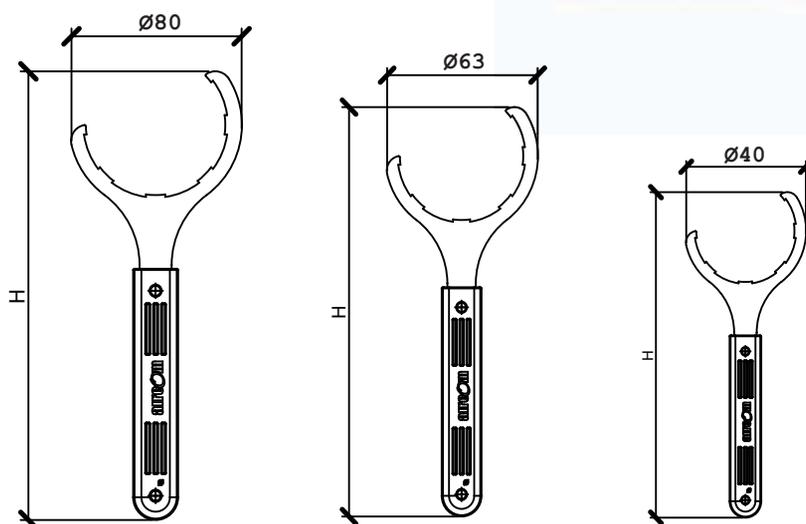
C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axis distance

Quick Line Tools

QLCLE	Quick Line nut wrench for Aircom fittings	
Code	Gr.	D
QLCLE016020	0,065	16-20
QLCLE025032	0,090	25-32
QLCLE040050	0,090	40-50
QLCLE063	0,150	63



QLCLEAL	Quick Line nut wrench for Aircom fittings, aluminium body	
Code	Gr.	D
QLCLEAL040	0,364	40
QLCLEAL063	0,460	63
QLCLEAL080	0,544	80



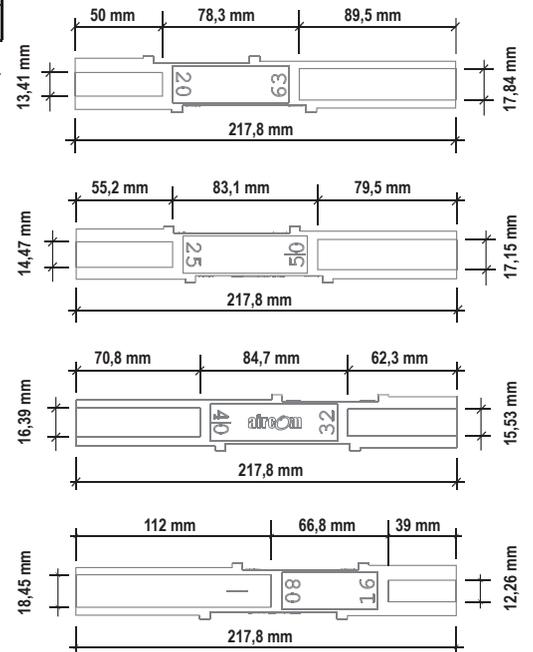
Legend

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
Dp	Hollow mill driving diameter
d	Thread diameter
d1	Thread diameter 1
d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Heigh
L	Length
L1	Length 1
L2	Length 2
La	Width
W	Wall central axe distance

QLMIS

Pipe-fittings insertion meter D 16-80

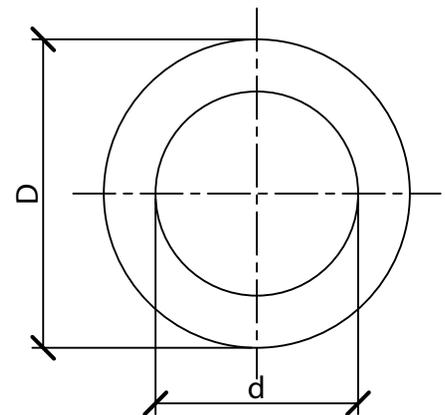
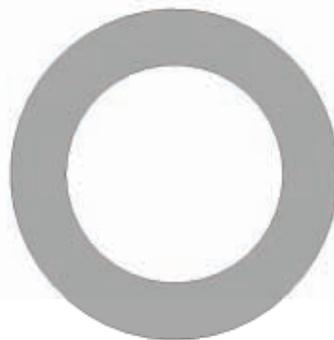
Code	Gr.	D
QLMIS016080	100	16-80



QLGUPFL

Flat seal

Code	Gr.	D (mm)	d
QLFUPFL063	0,016	63	59
QLFUPFL080	0,026	80	76
QLGUPFL110	0,036	110	106



Legend

C	Socket depth
C1	Socket depth 1
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Gr	Weight in grams
H	Height
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L1	Length 1
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W	Wall central axis distance

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TERMS USED IN THE LEGEND

Means and explanations

C - Socket length

It is the length of the pipe section which is to be introduced completely into the fitting, from the nut entrance to the inner stop of the fitting.

D - Socket diameter

It is the nominal diameter of the fitting. It corresponds to the external nominal diameter of the pipe.

Dp - Guide diameter of the hollow mill

It is the hollow diameter situated on one of the two parts of the quick branch. This hollow is located perpendicularly to the main pipeline and it is used as a drilling template during the assembling of the branch. It allows the positioning and keeping in place of the milling cutter during the drilling.

d - thread diameter

It indicates the nominal dimension of the fitting threads which is usually shown by a corresponding designation (ex. R 1/2" Iso 7-1 or simply 1/2").

E - Maximum nut diameter

Maximum overall diameter of fitting nuts.

Gr - Weight in grams

Weight of the fitting or of an accessory including all its components, in grams.

H - Height

Maximum height of the product.

I - Distance between centers

Pipe or fitting or valve axis.

L - Length

Maximum length of the product.

La - Width

Maximum width of the product.

W - Distance axis-wall

Distance between the supporting surface (wall or panel) and the component center-axis.

Legend

C	Socket depth
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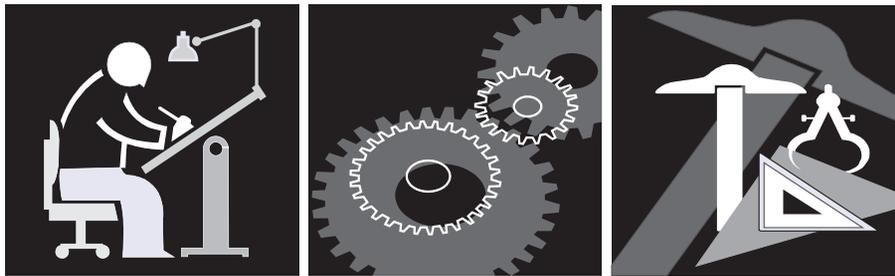
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AIRCOM SYSTEM ACCESSORIES

TECHNICAL SCHEDULES



Classic Line - Freeze Line - Quick Line

code	description	1/2"	3/4"	page
DIRAPM	Single port manifold, female thread + threaded inlet 	1/2"		3
DIRAPL	Double port manifold, female threads + threaded inlet 	1/2"	1/2"	3
DIRPMU	Multiple manifold, threaded inlet + 10 threaded outlets 		1/4"x3/8"	4

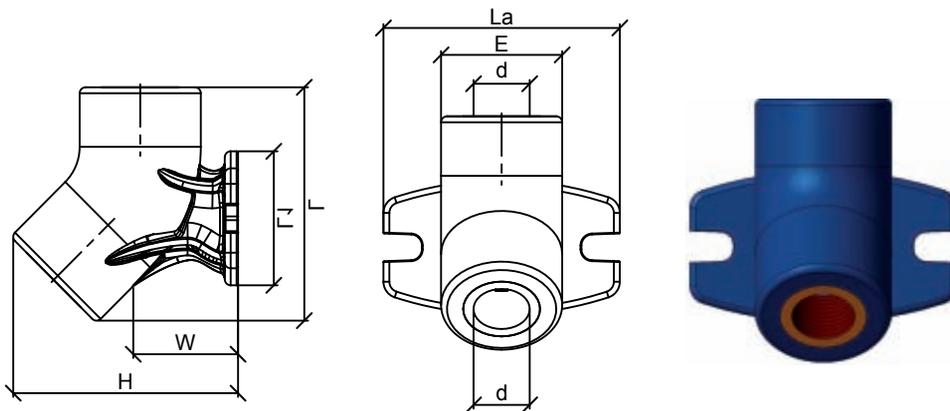


code	description	16mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	75 mm	80 mm	90 mm	110 mm	page
DIRDERFF	Quick branch plug, f thread outlet (aluminium) 			1/2"	1/2"	1/2" 3/4"	1/2" 3/4"	1/2" 3/4" 1"		3/4" 1"			5
DIRFEM8CF	Bracket M8 thread insert pieces 												6
DIRSPE	Spacers 												6

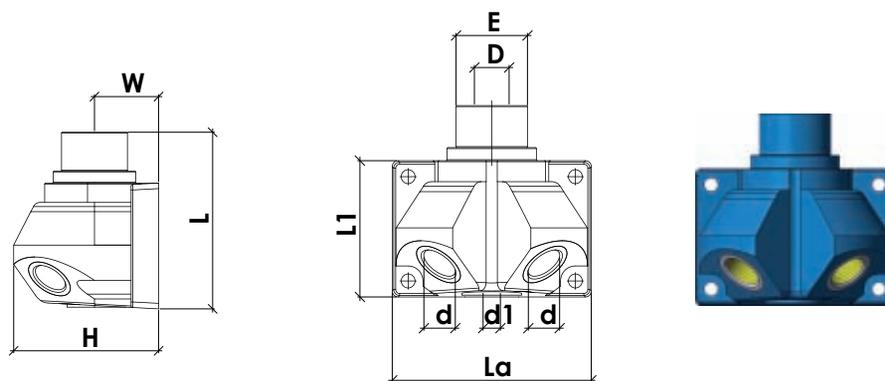
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Quick, Classic, Freeze Line Accessories

DIRAPM	Single port manifold, female thread + threaded inlet									
Code	Gr	D	d	L	L1	La	H	E	W	
DIRAPM048	0,2	1/2"	1/2"	77	45	80	40	31	38	



DIRAPL	Double port manifold, female threads + threaded inlet									
Code	Gr	D	d	d1	L	L1	La	H	E	W
DIRAPL048	330	1/2"	1/2"	1/4"	96	68	99	79	18	35
DIRAPL068	350	3/4"	1/2"	1/4"	96	68	99	79	18	35

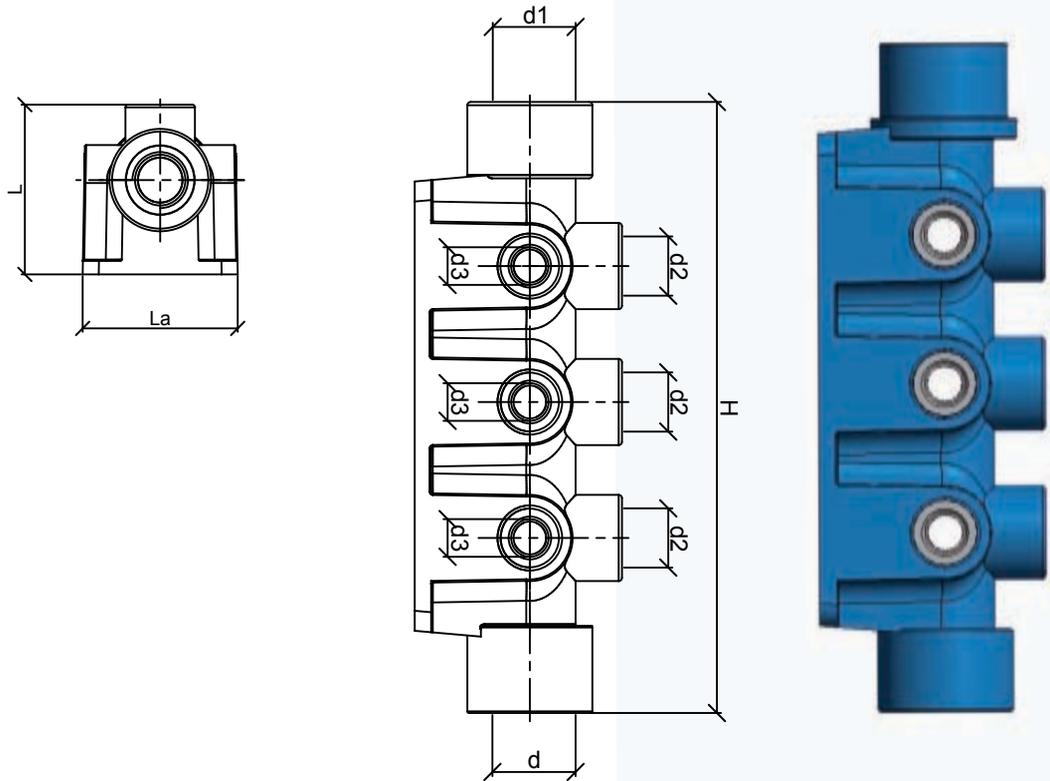


Legenda

C	Socket depth
C1	Socket depth 1
D	Socket diameter
D1	Socket diameter 1
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d	Thread diameter
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d2	Thread diameter 2
E	Overall outside diameter ring nut
E1	Overall outside diameter ring nut 1
Gr	Weight in grams
H	Height
L	Length
L1	Length 1
L2	Length 2
La	Width
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Quick Classic Freeze Line Accessories

DIRPMU		Multiple manifold, threaded inlet + 10 threaded outlets									
Code	Gr	d	d1	d2	d3	E	H	L	La	W	
DIRPMU048028038	310	1/2"	1/4"	3/8"	1/2"	38	181	59	-	40	



Legenda

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E1	Overall outside diameter ring nut 1
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L	Length
L1	Length 1
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La	Width
W	Wall-axis distance

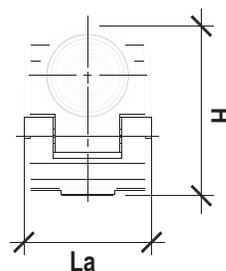
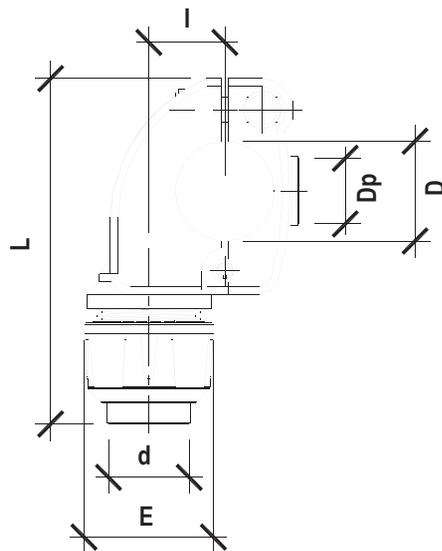
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Quick Classic Freeze Line Accessories

DIRDERFF	Quick branch plug, f thread outlet (aluminium)							
Code **	Gr	D	d	L	E	La	Dp	l
DIRDERFF025048	240	25	1/2"	113	45	52	16	24,5
DIRDERFF032048	230	32	1/2"	113	45	52	16	24,5
DIRDERFF040048	260	40	1/2"	125	45	52	20	29,6
DIRDERFF040068	300	40	3/4"	125	51	52	20	29,6
DIRDERFF050048	460	50	1/2"	145	45	60	20	31
DIRDERFF050068	550	50	3/4"	145	51	60	20	31
DIRDERFF063048	420	63	1/2"	145	45	60	20	43
DIRDERFF063068	520	63	3/4"	145	51	60	20	43
DIRDERFF063088	620	63	1"	148	61	60	20	43
DIRDERFF080048	1120	80	1/2"	220	45	63	22,5	71
DIRDERFF080068	1240	80	3/4"	220	51	63	22,5	71
DIRDERFF080088	1350	80	1"	220	61	63	22,5	71
DIRDERFF110068	1240	110	3/4"	220	51	63	22,5	71
DIRDERFF110088	1350	110	1"	220	61	63	22,5	71

** NPT thread available

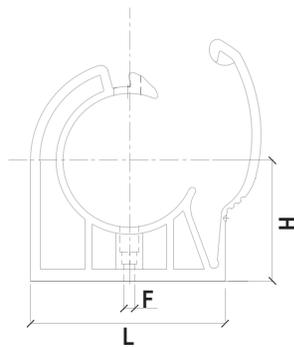


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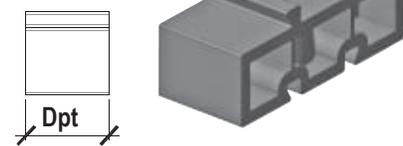
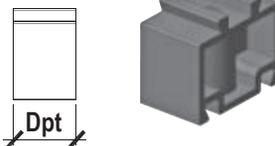
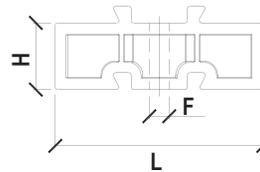
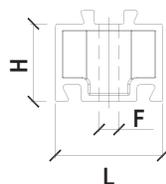
Quick Classic Freeze Line Accessories

DIRFEM8CF		Bracket M8 thread insert pieces				
Code	Gr	D	L	H	F	Dpt*
DIRFEM8016CF	9	16	31	35	9	30
DIRFEM8020CF	20	20	31	35	9	30
DIRFEM8025CF	30	25	38	35	9	30
DIRFEM8032CF	70	32	49	35	9	30
DIRFEM8040CF	80	40	60	70	9	40
DIRFEM8050CF	85	50	75	70	9	40
DIRFEM8063CF	110	63	94	70	9	40
DIRFEM8075CF	260	75	118	100	9	49
DIRFEM8080CF	250	80	120	100	9	49
DIRFEM8090CF	240	90	120	100	9	49
DIRFEM80110CF	330	110	163	100	9	49



Dpt*: Depth

DIRSPE		Spacers				
Code	Gr	D	L	H	F	Dpt*
DIRSPE020032	19	20-32	49	35	9	30
DIRSPE040063	55	40-63	94	30	9	40



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