

U400

TUBE FITTINGS

ABALOK®

















ABAC SRL

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Reliable solutions for high requirement applications

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General information

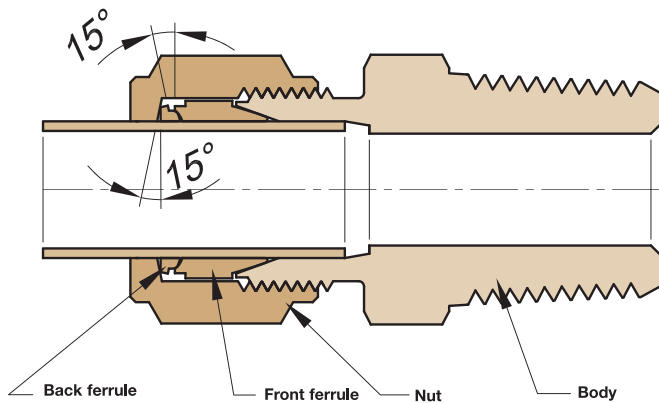
The ABALOK® tube fittings are double ferrule type, this means that they have a front ferrule and a back ferrule. Also, the hole system is composed by the body and the respective nut. When the nut is tightened, both ferrules move axially, advancing inside the body. This axial movement prevents any kind of torsion transfer to the tube to conserve its mechanical properties. The back ferrule constitutes the primary seal of the union, assuring fundamentally the mechanical fixing of the tube. During the assembling process, the back ferrule is deformed in a controlled way, obtaining by this way a radial swage on the tube, without reducing excessively its inner diameter. The front ferrule form a full faced seal, preventing the body expansion with its shoulder and allowing the free movement of the nut for further re-assemblies.

The ABALOK ® tube fittings are manufactured by ABAC S.R.L.They are used in instrumentation, control systems, chromatography, petrochemistry, refineries, CNG & LPG applications and, in general, for high demanding and reliable applications.The ABALOK® tube fittings can be used in:

- High, medium and low pressure.
- Vacuum
- High temperature
- Cryogenics applications.
- Vibration applications.

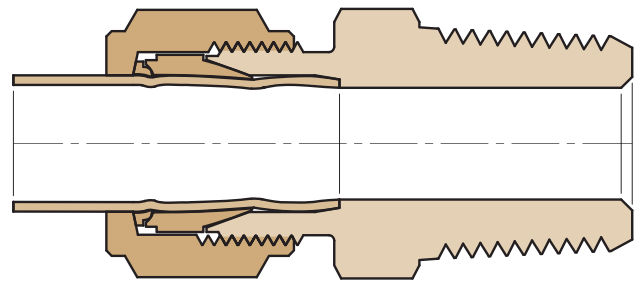
Characteristics

Pre-assembly by hand



- Easy assembly, with low torque
- No torsion transmission to the tube. All the closing pressures are axially applied along the tube.
- Front ferrule with shoulder, which provides an adjustment limit and keeps the body from expansion due torque excess.
- Minimum reduction of the inner diameter tube.
- No leak risks even with very light gases like helium
- Three tube subsection points to obtain a better vibration resistance.
- Perfect seal between the components, after assembly and in subsequent re-assembly.
- The stainless steel connectors are entirely of AISI 316 and do not have chemical and/or thermic treatment that could reduce their corrosion resistance.
- No surface treatment in back ferrules up to 5/8". Bigger sizes are ion hardening.

After assembly



- Back ferrules up to 1/2" are hardened without any superficial treatment. Larger ones are coated with hard electroless nickel.
- Design that avoids the nut engagement with the ferrule and back ferrule kit. (The nut frees without resistance and moves back to the tube when it is unscrewed after the adjustment)
- Material and manufacture batch traceability in bodies and nuts.

An unerasable engraved number in the pieces assures the traceability.



Interchangeability & intermixability

The ABALOK® tube fittings are functionally interchangeable with other reliable international trademarks like Gyrolok®, Parker® and Swagelok®, between others.

ABAC guarantees the interchangeability of the ABALOK® nut, and ferrules system with Swagelok®, Parker® or Gyrolok® bodies or backwards, without any restriction, to obtain safe, secure & leak free results until the maximum allowed working pressures detailed in this brochure.

Due to the improved design of the ABALOK® connectors, it can only be assured the random intermixability without restrictions with the Gyrolok® connectors because of their design similarity.

Materials

- Stainless steel type 316
- Others (by request)

Material Standards

- Stainless steel bar according to ASTM A276
- Stainless steel bodies according to ASTM A182 and CF8M

Pressure rating

The working pressures of the ABALOK® tube fittings are determined by the tube characteristics where there are installed. Therefore, the maximum internal pressure limit is provided by the tube, that will collapse before than the connector. The ends with female or male NPT threads have their own admissible maximum working pressures. Therefore, when a connector has ends of this kind, the union service pressure will be given by the minimum working admissible pressure of the ends that is composed.

Admissible pressures of tubes and threaded unions are indicated in table of page #18. Never use the ABALOK® connectors over these admissible pressures & temperatures.

Tube Selection

The suitable selection of the tube is essential to have the best performance of the connector. The stainless steel tubes must be seamless, type SS AISI 304, 316 or 316L, according to ASTM A269, A213 or A632 standards. The tubes must be annealed, with hardness lower than 90 HRB (recommended 80/82 HRB), its surface has to be free of scratches, blows and surface abrasion, the wall thickness must be according to the use requirements and be compatible with the process fluid and its temperature. If in table of pag #18 not pressure is identified for a given diameter and wall thickness of tubing, that tubing is not considered suitable for use with ABALOK® tube fittings.

Reliability

The ABALOK® tube fittings are tested under extreme pressure and service conditions. They meet the ASTM F 1387 standard, according to BVA/AT/0295-15 certificate issued by Bureau Veritas

To obtain this reliability level, the pieces are manufactured & tested under strict quality assurance standards. Also the pieces have the following controls during their process:

- Visual control
- Dimensional control
- Destructive test
- Adjustment and re-adjustment test



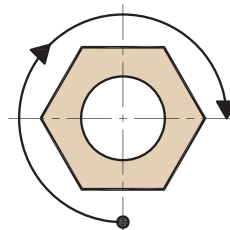
All the products are delivered with its respective quality certificate, detailing the controls performed & fulfilled and the material traceability.

Assembly Instructions

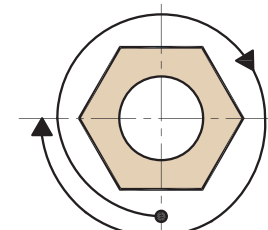
The tube fittings ABALOK® are delivered assembled and ready to use. It is not necessary to disassembly the fitting before using it because this could introduce dirtiness or strange particles into the union.

- 1°. Cut the tube in square and eliminate the internal and external burr.
- 2°. Insert the tube through the nut until reaching the bottom seat. The accessory must be pre-assembled with its body ferrule and nut. Never the extreme has to be under external tress, for example, traction or flection, specially during the assembly.
- 3°. Finger-tighten the nut clockwise.
- 4°. Keep the connector's body with a wrench and with another wrench adjust according to the following criteria:
 - 1/8" OD extreme: 3/4 turns from the finger-tighten.
 - 1/4" to 1" OD extreme: 1 + 1/4 turns from the finger-tighten.*For applications at very high pressure, where the fitting will be left working with only one adjustment, it is recommended a 1 + 1/2 turn.*

For tubing sizes over 1/2", it is recommended the use of a pre-setting tool – See pre assembly section for further information.



1/8" OD extreme
3/4 turn from the finger
tighten.



1/4" to 1" OD extremes
1 + 1/4 turns from the
finger tighten.

Reassembly Instructions

The tube fittings ABALOK® can be loosened and tightened many times.

- 1°. Insert the tube with the pre-assembled ferrules into the connector until the ferrule is fitted into the body.
- 2°. Finger-tighten the nut.
- 3°. Tight the nut with a wrench approximately 1/4 turn by going completely to the original position (there will be an important resistance). Then, tight the nut with the wrench lightly. The readjustment should not be more than 1/2 turn.

Pre-assembly

When the fittings have to be installed in uncomfortable places or in series assembling, it should be better to pre-assembly. The preassembly means to follow up the steps of the assembly in a more comfortable place, using the pre-setting tool HPE (page 17). This tool must be fixed in a clamp or similar, where the pre assembly has to be done following the assembly instructions. To mount the union in its place, follow the reassembly instructions. It is convenient to lubricate the thread of the Pre-assembly tool at the first time and periodically to obtain a better lifetime of the tool and to do a low torque during the ferrules swaging.

ABAC propose the use of the manual or hydraulic pre-assembly tool in installations that have tubing of diameters that are over 1/2" in every application.

For 1" connections, or tubing walls of more than 2mm, this tool must be used to obtain a proper swaging of the ferrules to assure the maximum working pressures specified in this brochure.

Recommendations

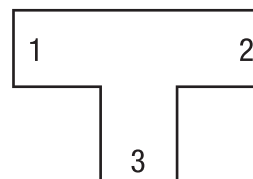
- Make sure that the system is not pressurized when tightening or loosening an ABALOK® fitting.
- Do not loosen an ABALOK® nut to relief or bleed the system pressure.
- Do not exceed the maximum allowable working pressure and temperature for tubing used.
- Before assembling a new ABALOK® tube fitting, loosen the nut before inserting the tube to allow full insertion of the tube to the seat.
- Always leave a length of straight tube between the bend and the fitting.
- During the assembly of the ABALOK® connector, always hold the fitting with one wrench while tighten the nut with another wrench. Follow the same instruction when loosening.
- Always use an ABALOK® tube insert when assembling an ABALOK® fitting to soft, pliable plastic tubing.
- If you have any doubt or question, please, do not hesitate in contact your local ABALOK® distributor.

How to Order

The ABALOK® numbering system allows identifying easily, the fitting type, tube and threading size and material.

RM 2 - 3 - 316

Type (eg. Straight male)	RM	2	3	316
Tube O.D. in eighteenths of an inch (e.g. 1/4 OD)				
Pipe size in eighteenths of an inch (e.g. 3/8 NPT)				
Material:				
				316: stainless steel AISI 316

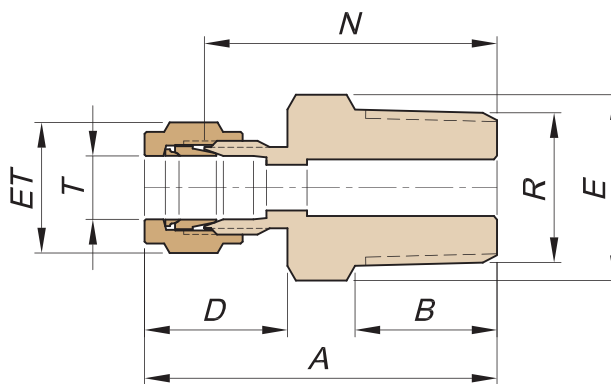


The unions tee are described by first the run (1 and 2); and next the branch (3).

TTM describes a Male branch tee that has tube connections at positions 1 and 2 and a male pipe thread at position 3.

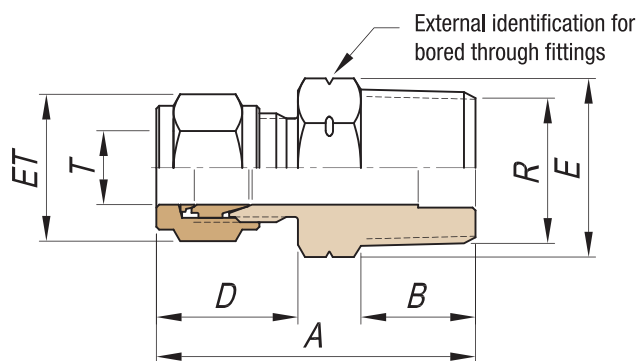
THT describes a female run tee that has a female pipe thread at position 2 and tube connections at 1 and 3.

RM male connector



Installation required measures

Model	T Tube OD	R NPT	MEASURES (mm)					
			A	B	D	E	ET	N
RM 1-1-	1/8	1/8	35.0	10.0	17.0	11.1	11.1	27.0
RM 1-2-	1/8	1/4	40.0	15.0	17.0	14.3	11.1	32.0
RM 1-4-	1/8	1/2	44.0	18.0	17.0	22.2	11.1	36.0
RM 2-1-	1/4	1/8	37.2	10.0	19.2	14.3	14.3	29.0
RM 2-2-	1/4	1/4	42.2	15.0	19.2	14.3	14.3	34.0
RM 2-3-	1/4	3/8	42.2	15.0	19.2	17.3	14.3	34.0
RM 2-4-	1/4	1/2	46.2	18.0	19.2	22.2	14.3	38.0
RM 2-6-	1/4	3/4	49.2	20.0	19.2	27.0	14.3	41.0
RM 3-1-	3/8	1/8	39.1	10.0	21.1	15.9	17.3	30.0
RM 3-2-	3/8	1/4	44.1	15.0	21.1	15.9	17.3	35.0
RM 3-3-	3/8	3/8	44.1	15.0	21.1	17.3	17.3	35.0
RM 3-4-	3/8	1/2	48.1	18.0	21.1	22.2	17.3	39.0
RM 3-6-	3/8	3/4	51.1	20.0	21.1	27.0	17.3	42.0
RM 4-1-	1/2	1/8	43.0	10.0	24.0	22.2	22.2	31.0
RM 4-2-	1/2	1/4	48.0	15.0	24.0	22.2	22.2	36.0
RM 4-3-	1/2	3/8	48.0	15.0	24.0	22.2	22.2	36.0
RM 4-4-	1/2	1/2	51.0	18.0	24.0	22.2	22.2	39.0
RM 4-6-	1/2	3/4	55.0	20.0	24.0	27.0	22.2	43.0
RM 4-8-	1/2	1	63.0	25.0	24.0	34.9	22.2	51.0
RM 5-3-	5/8	3/8	48.7	15.0	23.7	23.8	25.4	38.2
RM 5-4-	5/8	1/2	49.7	18.0	23.7	23.8	25.4	39.0
RM 5-6-	5/8	3/4	53.7	20.0	23.7	27.0	25.4	43.2
RM 5-8-	5/8	1	62.7	25.0	23.7	34.9	28.6	52.2
RM 6-2-	3/4	1/4	49.6	25.0	24.6	34.9	28.6	38.2
RM 6-4-	3/4	1/2	52.6	18.0	28.1	34.9	38.1	41.2
RM 6-6-	3/4	3/4	54.6	20.0	28.1	34.9	38.1	43.2
RM 6-8-	3/4	1	63.6	25.0	28.1	34.9	38.1	52.2
RM 8-4-	1	1/2	60.1	18.0	28.1	34.9	38.1	46.5
RM 8-6-	1	3/4	62.1	20.0	28.1	34.9	38.1	48.5
RM 8-8-	1	1	67.1	25.0	28.1	34.9	38.1	53.5

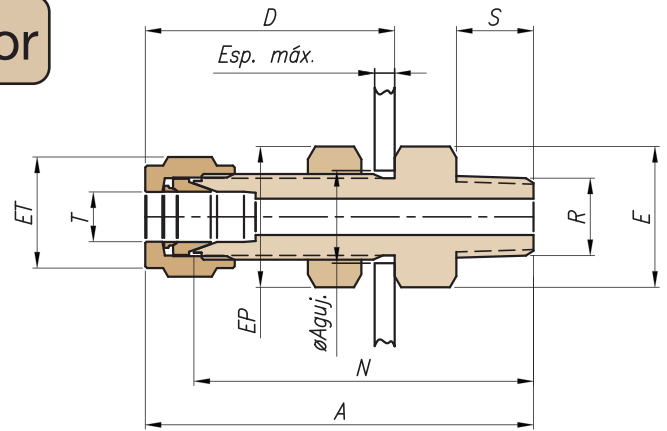


Bored-Through Fittings

For Thermocouples, and dip tubes

Add **AP** to the model. Ex. RM-2-2-316-AP

RMP male bulkhead connector



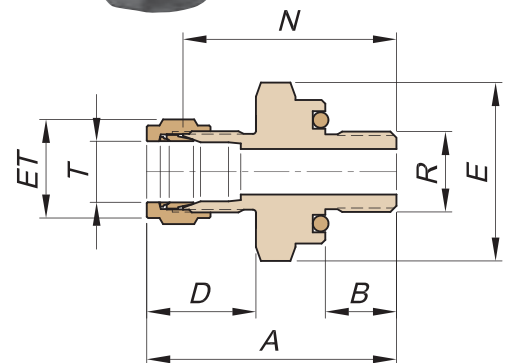
Installment required measures

Model	T Tube OD	R NPT	MEASURES (MM)							Panel	
			A	D	E	EP	ET	N	S	hole	maximum thickness
RMP 1-1-	1/8	1/8	48.0	31.0	12.7	12.7	11.1	40.0	10.0	8	14.0
RMP 2-1-	1/4	1/8	52.2	34.2	15.8	15.8	14.3	44.0	10.0	11.3	15.0
RMP 2-2-	1/4	1/4	57.2	34.2	15.8	15.8	14.3	49.0	15.0	11.3	15.0
RMP 3-2-	3/8	1/4	61.1	38.1	19.1	19.1	17.3	52.0	15.0	14.5	17.0
RMP 3-3-	3/8	3/8	61.1	38.1	19.1	19.1	17.3	52.0	15.0	14.5	17.0
RMP 3-4-	3/8	1/2	66.1	38.1	22.2	19.1	17.3	57.0	18.0	14.5	17.0
RMP 4-2-	1/2	1/4	67.0	44.0	25.4	25.4	22.2	55.0	15.0	19.3	20.0
RMP 4-3-	1/2	3/8	67.0	44.0	25.4	25.4	22.2	55.0	15.0	19.3	20.0
RMP 4-4-	1/2	1/2	72.0	44.0	25.4	25.4	22.2	60.0	18.0	19.3	20.0

RMA o'ring straight connector

ABALOK® o'ring connectors provide a vacuum-tight or pressure seal with existing straight thread ports.

The fittings are designed in a way that, when installed, the O-Ring is completely retained by metal, to prevent its extrusion. In order to make a leak tight seal with ABALOK® o'ring fittings, it is necessary to have a smooth, flat surface perpendicular to the axis of the threads. When connecting the tubing to the ABALOK® connector, always use a back-up wrench on the o'ring fitting hex to keep it from turning while the nut is being tightened. Also use a back-up wrench while disconnecting a tubing connection.



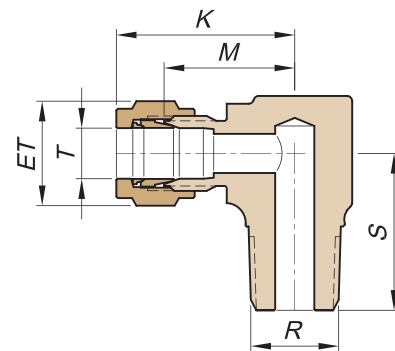
Installment required measures

Model	T Tube OD	R UNF	MEASURES (MM)					
			A	B	D	E	ET	N
RMA 20-R-	1/4	7/16-20	41.2	10.3	19.2	19.1	14.3	33.0
RMA 23-R-	1/4	9/16-18	42.3	11.7	19.2	23.8	14.3	34.1
RMA 3-R-	3/8	9/16-18	44.2	11.7	21.1	23.8	17.3	35.1
RMA 4-R-	1/2	9/16-18	48.3	12.0	24.0	23.8	22.2	36.3
RMA 5-R-	5/8	7/8-14	49.6	12.0	23.7	33.3	25.4	38.9
RMA 6-R-	3/4	1 1/16-12	53.2	14.3	24.6	38.1	28.6	41.8
RMA 8-R-	1	1 5/16-12	61.0	14.3	28.1	44.5	38.1	47.4

CM male elbow

Installment required measures

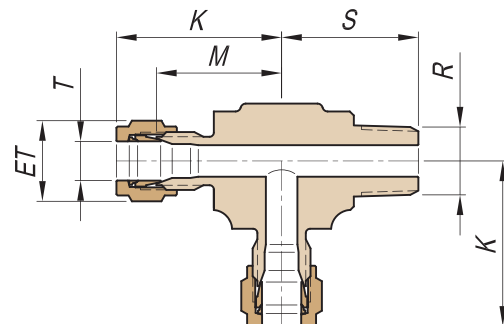
Model	T Tube OD	R NPT	MEASURES (MM)			
			ET	K	M	S
CM 1-1-	1/8	1/8	11.1	26.0	18.0	19.0
CM 1-2-	1/8	1/4	11.1	26.0	18.0	25.5
CM 1-4-	1/8	1/2	11.1	26.2	22.0	33.0
CM 2-1-	1/4	1/8	14.3	28.2	20.0	19.0
CM 2-2-	1/4	1/4	14.3	28.2	20.0	25.5
CM 2-3-	1/4	3/8	14.3	32.2	24.0	30.0
CM 2-4-	1/4	1/2	14.3	32.2	24.0	33.0
CM 3-1-	3/8	1/8	17.3	30.6	21.5	20.0
CM 3-2-	3/8	1/4	17.3	30.6	21.5	25.5
CM 3-3-	3/8	3/8	17.3	34.1	25.0	30.0
CM 3-4-	3/8	1/2	17.3	34.1	25.0	33.0
CM 4-2-	1/2	1/4	22.2	38.0	26.0	29.0
CM 4-3-	1/2	3/8	22.2	38.0	26.0	30.0
CM 4-4-	1/2	1/2	22.2	38.0	26.0	33.0
CM 4-6-	1/2	3/4	22.2	42.5	31.0	40.0
CM 5-4-	5/8	1/2	25.4	42.7	32.0	41.0
CM 5-6-	5/8	3/4	25.4	42.7	32.0	41.0
CM 6-4-	3/4	1/2	28.6	43.4	32.0	41.0
CM 6-6-	3/4	3/4	28.6	43.4	32.0	41.0
CM 8-6-	1	3/4	38.1	47.6	34.0	42.0
CM 8-8-	1	1	38.1	47.6	34.0	47.0



TMT male run tee

Installment required measures

Modelo	T Tubo OD	R NPT	MEASURES (MM)			
			ET	K	M	S
TMT 1-1-	1/8	1/8	11.1	26.0	18.0	19.0
TMT 1-2-	1/8	1/4	11.1	26.0	18.0	25.5
TMT 2-1-	1/4	1/8	14.3	28.2	20.0	19.0
TMT 2-2-	1/4	1/4	14.3	28.2	20.0	25.5
TMT 3-2-	3/8	1/4	17.3	30.6	21.5	25.5
TMT 3-3-	3/8	3/8	17.3	34.5	25.5	29.5
TMT 3-4-	3/8	1/2	17.3	34.5	25.5	32.5
TMT 4-2-	1/2	1/4	22.2	38.0	26.0	26.0
TMT 4-3-	1/2	3/8	22.2	38.0	26.0	27.5
TMT 4-4-	1/2	1/2	22.2	38.0	26.0	33.0
TMT 5-4-	5/8	1/2	25.4	41.2	30.5	36.0
TMT 6-6-	3/4	3/4	28.6	43.4	32.0	41.0

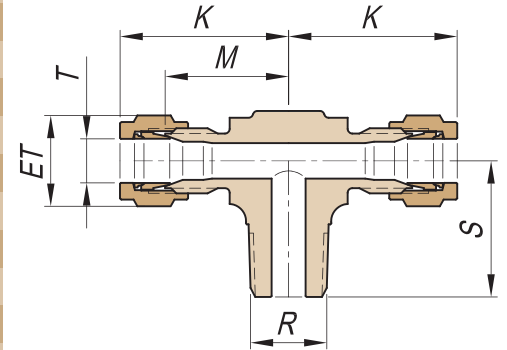


TTM male branch tee



Installment required measures

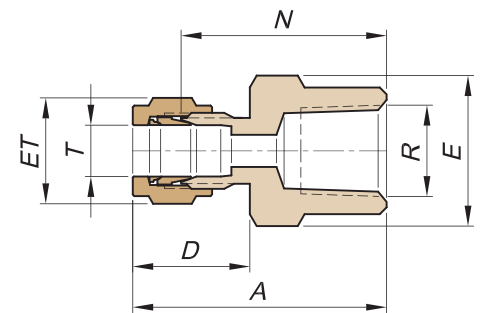
Model	T Tube OD	R NPT	MEASURES (MM)			
			ET	K	M	S
TTM 1-1-	1/8	1/8	11.1	26.0	18.0	19.0
TTM 1-2-	1/8	1/4	11.1	26.0	18.0	25.5
TTM 2-1-	1/4	1/8	14.3	28.2	20.0	19.0
TTM 2-2-	1/4	1/4	14.3	28.2	20.0	25.5
TTM 2-3-	1/4	3/8	14.3	33.7	25.5	29.5
TTM 2-4-	1/4	1/2	14.3	33.7	25.5	33.0
TTM 3-2-	3/8	1/4	17.3	30.6	21.5	25.5
TTM 3-3-	3/8	3/8	17.3	34.6	25.5	29.5
TTM 3-4-	3/8	1/2	17.3	34.6	25.5	33.0
TTM 4-2-	1/2	1/4	22.2	38.0	26.0	29.0
TTM 4-3-	1/2	3/8	22.2	38.0	26.0	29.0
TTM 4-4-	1/2	1/2	22.2	38.0	26.0	33.0
TTM 5-4-	5/8	1/2	25.4	41.2	30.5	36.0
TTM 6-6-	3/4	3/4	28.6	43.4	32.0	41.0



RH female connector

Installment required measures

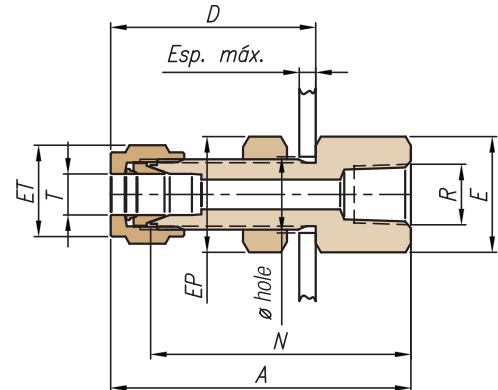
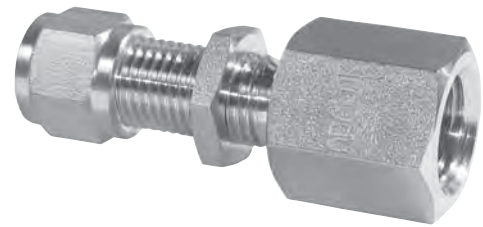
Model	T Tube OD	R NPT	MEASURES (MM)				
			A	D	E	ET	N
RH 1-1-	1/8	1/8	33.0	17.0	14.3	11.1	25.0
RH 1-2-	1/8	1/4	37.0	17.0	19.1	11.1	29.0
RH 1-4-	1/8	1/2	43.3	17.3	27.0	11.1	35.0
RH 2-1-	1/4	1/8	34.7	19.2	15.8	14.3	26.5
RH 2-2-	1/4	1/4	39.2	19.2	19.1	14.3	31.0
RH 2-3-	1/4	3/8	39.2	19.2	22.2	14.3	31.0
RH 2-4-	1/4	1/2	44.2	19.2	27.0	14.3	36.0
RH 3-1-	3/8	1/8	35.6	21.1	15.8	17.3	26.5
RH 3-2-	3/8	1/4	41.1	21.1	19.1	17.3	32.0
RH 3-3-	3/8	3/8	41.1	21.1	22.2	17.3	32.0
RH 3-4-	3/8	1/2	46.1	21.1	27.0	17.3	37.0
RH 4-2-	1/2	1/4	44.0	24.0	22.2	22.2	32.0
RH 4-3-	1/2	3/8	44.0	24.0	22.2	22.2	32.0
RH 4-4-	1/2	1/2	49.0	24.0	27.0	22.2	37.0
RH 4-6-	1/2	3/4	49.6	23.5	34.9	22.2	38.1
RH 5-4-	5/8	1/2	49.7	23.7	27.0	25.4	39.0
RH 6-4-	3/4	1/2	50.6	24.6	27.0	28.6	39.2
RH 6-6-	3/4	3/4	52.6	24.6	31.8	28.6	41.2
RH 8-8-	1	1	64.3	28.1	41.3	38.1	50.7



RHP female bulkhead connector

Installment required measures

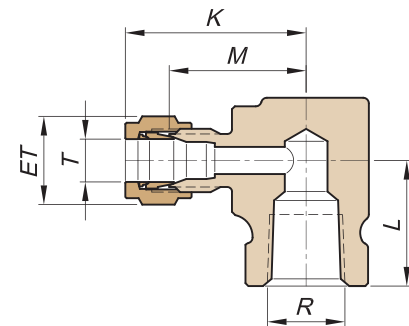
Model	T Tube OD	R NPT	MEASURES (MM)						Panel	
			A	D	E	EP	ET	N	hole	maximum thickness
RHP 1-1-	1/8	1/8	46.0	31.0	14.3	12.7	11.1	38.0	8.0	14.0
RHP 2-1-	1/4	1/8	49.2	34.2	15.8	15.8	14.3	41.0	11.3	15.0
RHP 2-2-	1/4	1/4	54.2	34.2	19.1	15.8	14.3	46.0	11.3	15.0
RHP 2-4-	1/4	1/2	59.2	34.2	27.0	15.8	14.3	51.0	11.3	15.0
RHP 3-2-	3/8	1/4	58.1	38.1	19.1	19.1	17.3	49.0	14.5	17.0
RHP 3-3-	3/8	3/8	58.1	38.1	22.2	19.1	17.3	49.0	14.5	17.0
RHP 3-4-	3/8	1/2	63.1	38.1	27.0	19.1	17.3	54.0	14.5	17.0
RHP 4-2-	1/2	1/4	64.0	44.0	24.0	25.4	22.2	52.0	19.3	20.0
RHP 4-3-	1/2	3/8	64.0	44.0	24.0	25.4	22.2	52.0	19.3	20.0
RHP 4-4-	1/2	1/2	70.0	44.0	27.0	25.4	22.2	58.0	19.3	20.0
RHP 6-6-	3/4	3/4	76.4	48.2	34.9	31.7	28.6	65.0	25.5	24.0



CH female elbow

Installment required measures

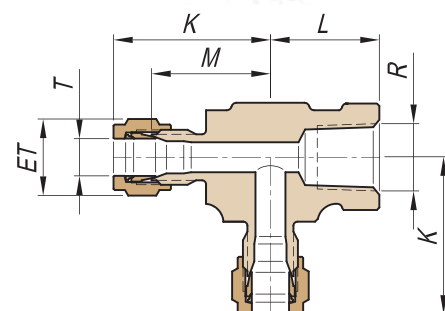
Model	T Tube OD	R NPT	MEASURES (MM)			
			ET	K	L	M
CH 1-1-	1/8	1/8	11.1	26.0	19.0	18.0
CH 1-2-	1/8	1/4	11.1	30.0	22.0	22.0
CH 1-4-	1/8	1/2	11.1	32.2	29.0	28.0
CH 2-1-	1/4	1/8	14.3	32.2	19.0	24.0
CH 2-2-	1/4	1/4	14.3	32.2	22.0	24.0
CH 2-3-	1/4	3/8	14.3	32.2	22.0	24.0
CH 2-4-	1/4	1/2	14.3	37.2	29.0	29.0
CH 3-2-	3/8	1/4	17.3	34.6	22.0	25.5
CH 3-3-	3/8	3/8	17.3	36.6	24.0	30.0
CH 3-4-	3/8	1/2	17.3	39.1	29.0	30.0
CH 4-2-	1/2	1/4	22.2	31.7	22.0	26.0
CH 4-3-	1/2	3/8	22.2	36.7	24.0	31.0
CH 4-4-	1/2	1/2	22.2	42.0	29.0	30.0
CH 5-4-	5/8	1/2	25.4	43.9	29.0	33.2
CH 6-4-	3/4	1/2	28.6	44.6	29.0	33.2



THT female run tee

Installment required measures

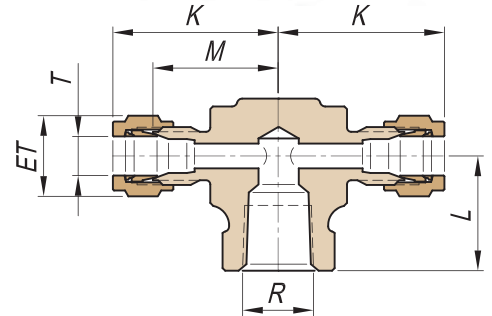
Model	T Tube OD	R NPT	MEASURES (MM)			
			ET	K	L	M
THT 1-1-	1/8	1/8	11.1	26.0	19.0	18.0
THT 2-1-	1/4	1/8	14.3	28.2	19.0	20.0
THT 2-2-	1/4	1/4	14.3	32.2	22.0	24.0
THT 3-2-	3/8	1/4	17.3	32.5	22.0	25.5
THT 3-3-	3/8	3/8	17.3	41.0	32.0	32.0
THT 4-2-	1/2	1/4	22.2	38.0	22.0	26.0
THT 4-4-	1/2	1/2	22.2	42.0	29.0	30.0
THT 5-4-	5/8	1/2	25.4	41.2	32.0	30.5
THT 6-4-	3/4	1/2	28.6	42.6	34.0	31.2



TTH female branch tee

Installment required measures

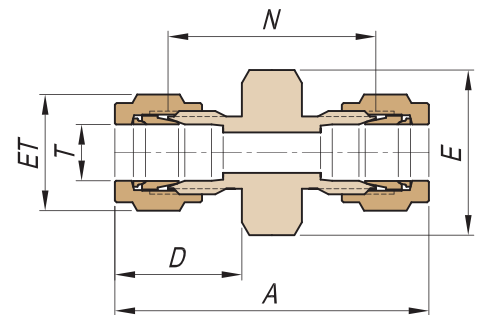
Model	T Tube OD	R NPT	MEASURES (MM)			
			ET	K	L	M
TTH 1-1-	1/8	1/8	11.1	26.0	19.0	18.0
TTH 2-1-	1/4	1/8	14.3	28.2	19.0	20.0
TTH 2-2-	1/4	1/4	14.3	32.2	22.0	24.0
TTH 3-2-	3/8	1/4	17.3	34.6	22.0	25.5
TTH 4-2-	1/2	1/4	22.2	38.0	22.0	26.0
TTH 4-4-	1/2	1/2	22.2	42.0	29.0	30.0
TTH 5-4-	5/8	1/2	25.4	41.2	32.0	30.5
TTH 6-4-	3/4	1/2	28.6	42.6	34.0	31.2



UT union

Installment required measures

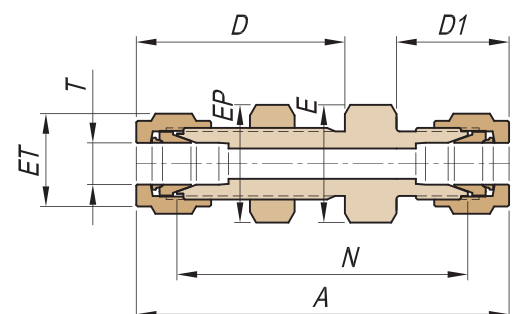
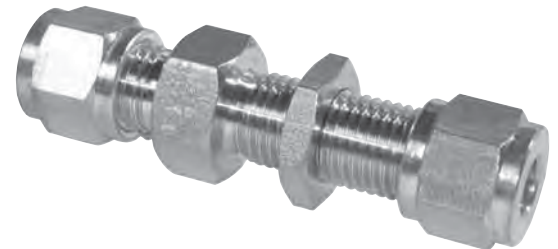
Model	T Tube OD	MEASURES (MM)				
		A	D	E	ET	N
UT 1-0-	1/8	42.0	17.0	11.1	11.1	26.0
UT 2-0-	1/4	46.4	19.2	14.3	14.3	30.0
UT 3-0-	3/8	50.2	21.1	15.8	17.3	32.0
UT 4-0-	1/2	57.0	24.0	22.2	22.2	33.0
UT 5-0-	5/8	55.4	23.7	23.8	25.4	34.0
UT 6-0-	3/4	59.2	24.6	27.0	28.6	36.4
UT 8-0-	1	70.2	28.1	34.9	38.1	43.0



UTP bulkhead union

Installment required measures

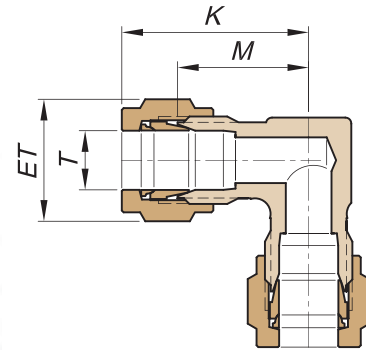
Model	T Tube OD	MEASURES (MM)						
		A	D	D1	E	EP	ET	N
UTP 1-0-	1/8	55.0	31.0	17.0	11.1	12.7	11.1	38.1
UTP 2-0-	1/4	61.4	34.2	19.2	15.8	15.8	14.3	45
UTP 3-0-	3/8	67.2	38.1	21.1	19.1	19.1	17.3	49
UTP 4-0-	1/2	76.0	44.0	24.0	25.4	25.4	22.2	52
UTP 5-0-	5/8	75.7	44.0	23.7	27.0	28.6	27.0	54.3
UTP 6-0-	3/4	81.0	48.4	24.6	34.9	31.8	28.6	58.2



CU union elbow

Installment required measures

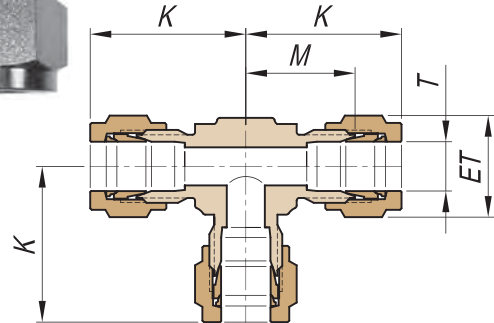
Model	T Tube OD	MEASURES (MM)		
		ET	K	M
CU 1-0-	1/8	11.1	26.0	18.0
CU 2-0-	1/4	14.3	28.2	20.0
CU 3-0-	3/8	17.3	30.6	21.5
CU 4-0-	1/2	22.2	38.0	26.0
CU 5-0-	5/8	25.4	42.7	32.0
CU 6-0-	3/4	28.6	43.4	32.0
CU 8-0-	1	38.1	47.6	34.0



TU union tee

Installment required measures

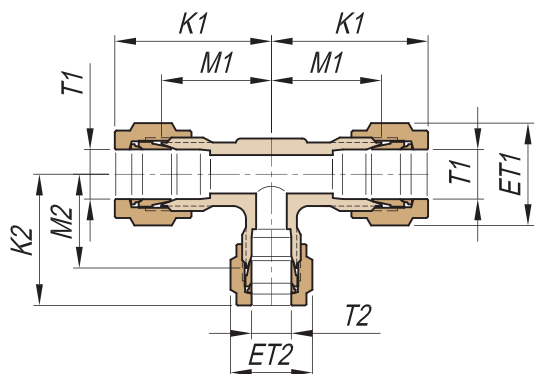
Model	T Tube OD	MEASURES (MM)		
		ET	K	M
TU 1-0-	1/8	11.1	26.0	18.0
TU 2-0-	1/4	14.3	28.2	20.0
TU 3-0-	3/8	17.3	30.6	21.5
TU 4-0-	1/2	22.2	38.0	26.0
TU 5-0-	5/8	25.4	38.2	27.5
TU 6-0-	3/4	28.6	43.4	32.0
TU 8-0-	1	38.1	47.6	34.0



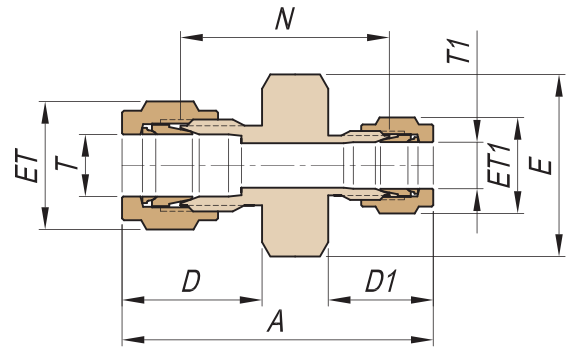
TUR reducing tee union

Installment required measures

Model	T1 Tube OD	T2 Tube OD	MEASURES (MM)					
			ET1	ET2	K1	K2	M1	M2
TUR 2-1-	1/4	1/8	14.3	11.1	28.2	26.0	20.0	18.0
TUR 3-2-	3/8	1/4	17.3	14.3	30.6	28.2	21.5	20.0
TUR 4-2-	1/2	1/4	22.2	14.3	38.0	28.2	26.0	20.0
TUR 4-3-	1/2	3/8	22.2	17.3	38.0	30.6	26.0	21.5
TUR 5-3-	5/8	3/8	25.4	17.3	41.2	38.0	30.2	29.0
TUR 5-4-	5/8	1/2	25.4	22.2	38.2	38.0	27.5	26.0
TUR 6-3-	3/4	3/8	28.6	17.3	43.4	30.6	32.0	21.5
TUR 6-4-	3/4	1/2	28.6	22.2	44.1	40.4	30.2	29.0
TUR 8-3-	1	3/8	38.1	17.3	47.6	30.6	34.0	21.5
TUR 8-4-	1	1/2	38.1	22.2	47.6	38.0	34.0	26.0
TUR 8-6-	1	3/4	38.1	28.6	49.6	48.6	36.0	34.7



UR reducing union



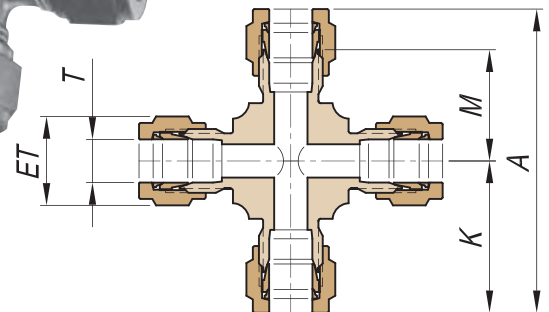
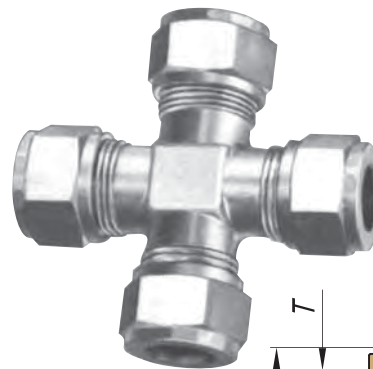
Installment required measures

Model	T Tube OD	T1 Tube OD	MEASURES (MM)						
			A	D	D1	E	ET	ET1	N
UR 2-1-	1/4	1/8	44.2	19.2	17.0	14.3	14.3	11.1	28.0
UR 3-1-	3/8	1/8	46.1	21.1	17.0	15.8	17.3	11.1	29.0
UR 3-2-	3/8	1/4	48.3	21.1	19.2	15.8	17.3	14.3	31.0
UR 4-1-	1/2	1/8	50.0	24.0	17.0	22.2	22.2	11.1	30.0
UR 4-2-	1/2	1/4	52.2	24.0	19.2	22.2	22.2	14.3	32.0
UR 4-3-	1/2	3/8	54.1	24.0	21.1	22.2	22.2	17.3	33.0
UR 5-4-	5/8	1/2	55.7	23.7	24.0	23.8	25.4	22.2	33.0
UR 6-2-	3/4	1/4	53.8	24.6	19.2	27.0	28.6	14.3	34.2
UR 6-3-	3/4	3/8	55.7	24.6	21.1	27.0	28.6	17.3	35.2
UR 6-4-	3/4	1/2	58.6	24.6	24.0	27.0	28.6	22.2	35.2
UR 8-6-	1	3/4	66.7	28.1	24.6	34.9	38.1	28.6	41.7

XC union cross

Installment required measures

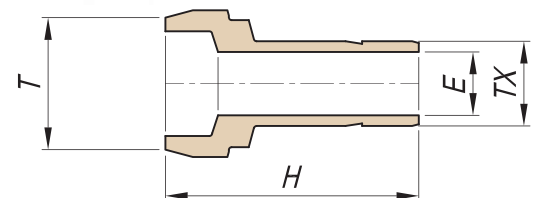
Model	T Tube OD	MEASURES (MM)			
		A	ET	K	M
XC 2-0-	1/4	54.4	14.3	27.2	19.0
XC 3-0-	3/8	61.0	17.3	30.5	21.4
XC 4-0-	1/2	73.2	22.2	36.6	24.6
XC 6-0-	3/4	81.6	28.6	40.8	29.4



TM Port connector

Installment required measures

Model	T Tube OD	Tx Tube OD	MEASURES (MM)	
			H	E
TM 2-2-	1/4	1/4	25	4.5
TM 3-3-	3/8	3/8	26	7
TM 4-4-	1/2	1/2	37	9.5
TM 6-4-	3/4	1/2	38	9.5
TM 6-6-	3/4	3/4	39	15.2

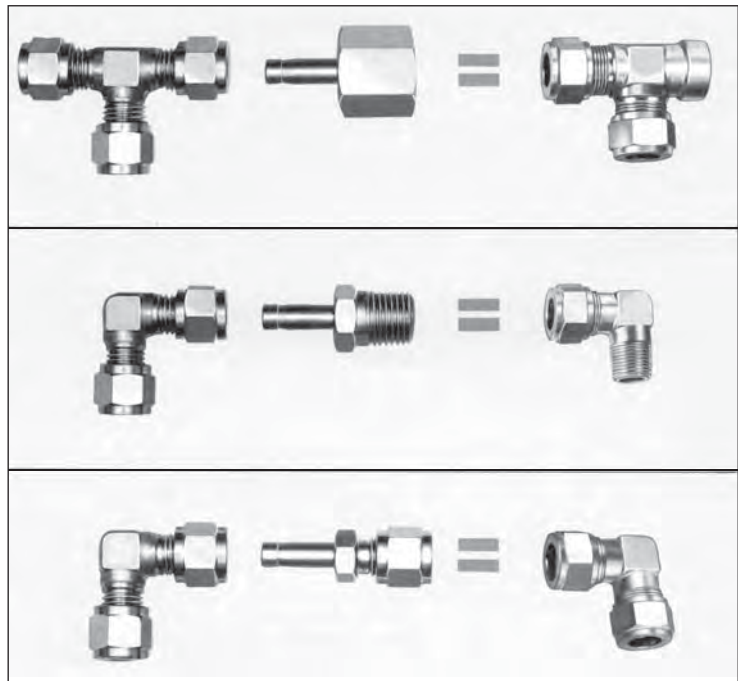


Other combinations available

Adapters and Reducers

Using the ABALOK® adapters with the elbows and tees you can obtain the following benefits:

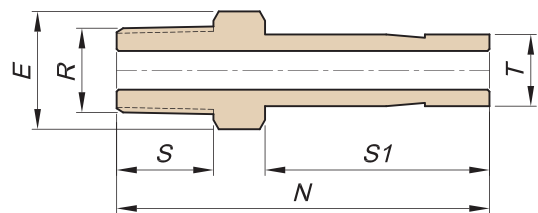
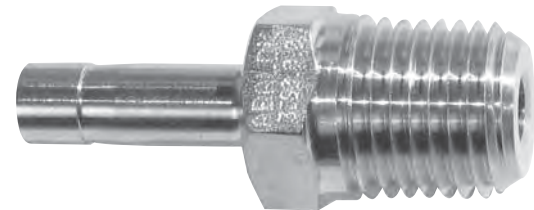
- It solves the difficult alignment problems during the installment of elbows and tees. When the threads are strongly tightened, an angle connector usually remains disaligned with the tube.
- It eliminates the need of having stock of special elbows and tees, reducing the quantity of items stored. Only having some tee & elbow unions and combining them in a proper way with the adapters any configuration can be obtained.



AM male adapter

Installment required measures

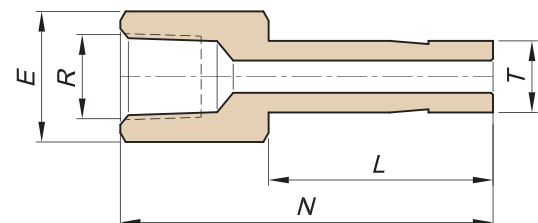
Model	T Tube OD	R NPT	MEASURES (MM)			
			E	N	S	S1
AM 2-1-	1/4	1/8	11.1	35.0	10.0	18.5
AM 2-2-	1/4	1/4	14.3	40.0	15.0	18.5
AM 2-4-	1/4	1/2	22.2	44.0	18.0	18.5
AM 3-2-	3/8	1/4	14.3	43.0	15.0	21.0
AM 3-3-	3/8	3/8	17.5	43.0	15.0	21.0
AM 3-4-	3/8	1/2	22.2	46.0	18.0	21.0
AM 4-4-	1/2	1/2	22.2	52.0	18.0	26.0
AM 5-4-	5/8	1/2	22.2	54.0	18.0	27.5
AM 6-6-	3/4	3/4	28.6	58.0	20.0	28.0
AM 8-6-	1	3/4	28.6	63.0	20.0	33.0
AM 8-8-	1	1	34.9	68.0	25.0	33.0



AH female adapter

Installment required measures

Model	T Tube OD	R NPT	MEASURES (MM)		
			E	L	N
AH 2-1-	1/4	1/8	14.3	17.5	31.0
AH 2-2-	1/4	1/4	19.1	17.5	36.0
AH 2-3-	1/4	3/8	22.2	17.5	38.0
AH 3-2-	3/8	1/4	19.1	20.0	38.0
AH 3-3-	3/8	3/8	22.2	20.0	39.0
AH 3-4-	3/8	1/2	27.0	20.0	44.0
AH 4-4-	1/2	1/2	27.0	25.0	49.0
AH 5-4-	5/8	1/2	27.0	27.5	51.0
AH 6-6-	3/4	3/4	31.8	28.5	54.0

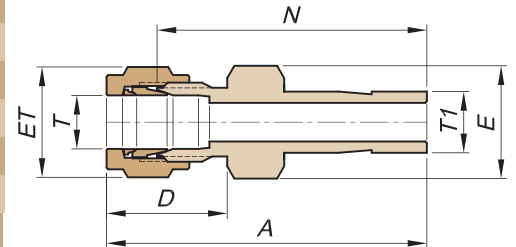


AR reducer

Installment required measures

Model	T Tube OD	T1 Tube OD	MEASURES(MM)				
			A	D	E	ET	N
AR 1-2-	1/8	1/4	39.0	17.0	11.1	11.1	31.0
AR 1-4-	1/8	1/2	47.0	17.0	14.3	11.1	39.0
AR 2-3-	1/4	3/8	44.2	19.2	12.7	14.3	36.0
AR 2-4-	1/4	1/2	49.7	19.2	14.3	14.3	41.5
AR 3-4-	3/8	1/2	51.6	21.1	15.9	17.3	42.5
AR 3-6-	3/8	3/4	56.6	21.1	20.6	17.3	47.5
AR 4-5-	1/2	5/8	58.0	24.0	20.6	22.2	46.0
AR 4-6-	1/2	3/4	59.5	24.0	20.6	22.2	47.5
AR 6-4-	3/4	1/2	59.4	24.6	27.0	28.6	48.0

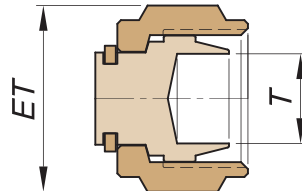
*Ask for other dimensions



PO plug

Installment required measures

Model	T Tube OD	ET (MM)
PO 1-0-	1/8	11.1
PO 2-0-	1/4	14.3
PO 3-0-	3/8	17.3
PO 4-0-	1/2	22.2
PO 5-0-	5/8	25.4
PO 6-0-	3/4	28.6
PO 8-0-	1	38.1

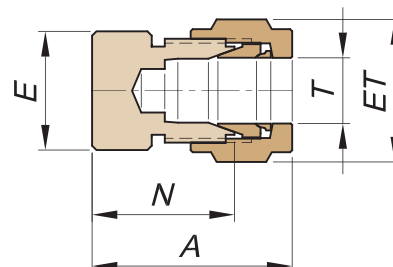


Note: It is not necessary an adjustment of 1 1/4 turn. Only adjust the plug 1/4 turn form the hand tight.

PA cap

Installment required measures

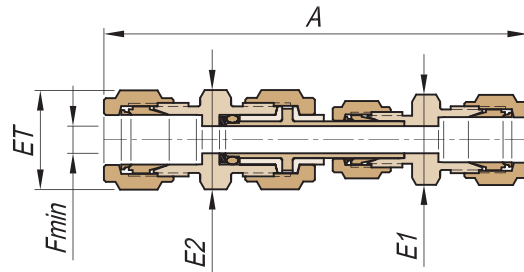
Model	T Tube OD	MEASURES (MM)			
		A	E	ET	N
PA 1-0-	1/8	23.0	11.1	11.1	15.0
PA 2-0-	1/4	25.2	14.3	14.3	17.0
PA 3-0-	3/8	29.1	17.3	17.3	20.0
PA 4-0-	1/2	32.0	22.2	22.2	20.0
PA 5-0-	5/8	33.7	25.4	25.4	23.0
PA 6-0-	3/4	34.9	28.6	28.6	23.5
PA 8-0-	1	44.6	38.1	38.1	31.0



RMD/UTD dielectric fitting

Dielectric fittings isolate monitoring instruments from the effects of electrical current. The fittings interrupt cathodic current flow while permitting full fluid flow. Its thermoplastic insulation provides an excellent electrical and chemical resistance.

It is available in straight male or union versions, $\text{\O} 1/4''$, $3/8''$ y $1/2''$.



Caution: The insulating connection must not be broken or used as a disconnection point. Any wrenching must be done in accordance with the installation instructions.

Installment required measures

Model	T Tube OD	R NPT	MEASURES (MM)				
			A	E1	E2	ET	F min.
UTD 2-0-	1/4	-	101.5	15.8	22.2	14.3	4.75
UTD 3-0-	3/8	-	105.5	15.8	22.2	17.3	7.0
UTD 4-0-	1/2	-	111.0	22.2	22.2	22.2	7.0
RMD 2-2-	1/4	1/4	97.5	15.8	22.2	14.3	7.0
RMD 3-3-	3/8	3/8	99.5	17.4	22.2	17.3	7.0
RMD 4-4-	1/2	1/2	105.0	22.2	22.2	22.2	7.0

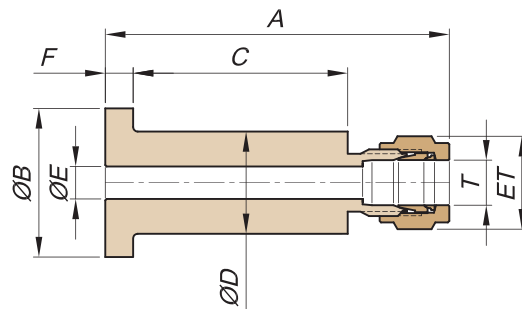
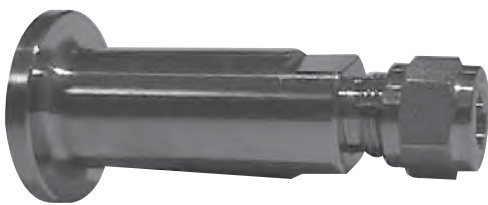
Materials:

Body: AISI 316 stainless steel
 Insulators: PEEK or similar
 Seals: Fluorocarbon / PTFE

Technical data:

Electrical resistance of insulators:
 $4 \times 10^9 \text{ ohm @ } 1000 \text{ V, } 70^\circ\text{F}$
 Maximum pressure rating:
 5000 psi @ 70°F
 Temperature rating: $-30 \text{ to } 400^\circ\text{F}$

ALJ lapped flange connector



Installment required measures

Model	T Tube OD	Flange	MEASURES (MM)							FINISH SMOOTH-FINISH
			A	B	C	D	E	ET	F	
ALJ 3-4-	3/8	1/2"	79.1	34.9	53.0	21.3	7.5	17.3	5.0	x
ALJ 3-6-	3/8	3/4"	79.1	42.9	53.0	26.9	7.5	17.3	5.0	x
ALJ 4-4-	1/2	1/2"	82.0	34.9	53.0	21.3	10.5	22.2	5.0	x
ALJ 4-6-	1/2	3/4"	82.0	42.9	53.0	26.9	10.5	22.2	5.0	x

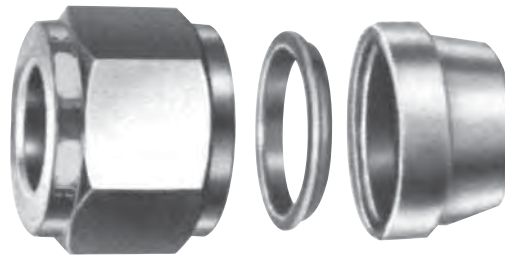
KV ferrule set

Model	T Tube OD
KV1-0-	1/8
KV2-0-	1/4
KV3-0-	3/8
KV4-0-	1/2
KV5-0-	5/8
KV6-0-	3/4
KV8-0-	1



KT nut and ferrule set

Model	T Tube OD
KT1-0-	1/8
KT2-0-	1/4
KT3-0-	3/8
KT4-0-	1/2
KT5-0-	5/8
KT6-0-	3/4
KT8-0-	1



The nut and ferrule set ABALOK® allow the fitting re use, replacing the components damage or deformed.

They are provided mounted over a plastic mandrel, for an easy use.

HPE pre-setting tool

Installment required measures

Model	T Tube OD	MEASURES (MM)	
		Lenght	across flats
HPE 1	1/8	49.2	17.5
HPE 2	1/4	49.2	17.5
HPE 3	3/8	50.0	17.5
HPE 4	1/2	50.8	22.2
HPE 5	5/8	57.1	25.4
HPE 6	3/4	63.5	28.6
HPE 8	1	63.5	38.1



Threads of pre-setting tools should be lubricated the very first time and relubricated every tenth time thereafter

Other configurations and measurements

In addition of the products detailed here, we can offer variants like other measurements, millimetric versions, configurations according with special customer request, etc. Contact our Sales Department.

MAXIMUM ALLOWABLE WORKING PRESSURES (PSI)

316 Stainless steel annealed seamless tubing (ASTM A-213 or equivalent)

Tube OD size (inches)	Wall Thickness (inches)								
	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109
1/8	4585	5891	8590	10970					
3/16	3004	3816	5514	7110	10288				
1/4	2220	2815	4048	5166	7560	10288			
3/8			2626	3337	4817	6617	8677		
1/2			1944	2467	3526	4788	6297	7357	
5/8				1944	2786	3758	4919	5717	
3/4				1625	2307	3105	4034	4672	
7/8				1378	1959	2626	3410	3947	4585
1"				1204	1698	2278	2960	3410	3961

Factor of safety = 4, considering tensile strength to be 75.000 psi at room temperature

Copper annealed seamless tubing (ASTM B-75 or equivalent)

Tube OD size (inches)	Wall Thickness (inches)								
	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.1090	0.120
1/8		3200	4053						
3/16		2033	2616	3768					
1/4		1479	1891	2787	3754				
5/16			1479	2147	2958				
3/8			1209	1749	2417				
1/2			882	1266	1735	2289			
5/8			697	995	1351	1778			
3/4			583	825	1109	1450	1692	1962	
7/8			498	697	939	1223	1422	1650	
1			427	611	825	1067	1223	1422	1593

Factor of safety = 5, considering tensile strength to be 30.000 psi at room temperature

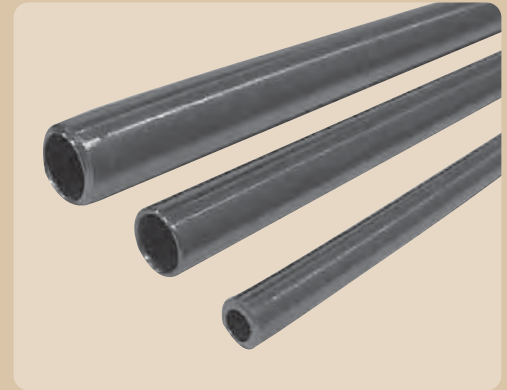
Size thread (inches)	Threaded connections			
	Straight		Tee or elbow	
	female	male	female	male
1/8"	7300	12300	5700	9700
1/4"	7300	9900	5400	7800
3/8"	5500	9000	5000	7500
1/2"	4900	8900	4600	7400
3/4"	3700	8300	4100	6900
1"	4300	5900		

- For others thickness not shows in this tables, it will be necessary to test to validate its use.
- The admisible pressures indicated here corresponds to a usage under room temperature and normal workable conditions (factor of safety 4 or 5). In case of using high temperatures or over pressures and hard vibrations, it will be necessary to apply a factor in order to reduce such maximun pressure. Contact our Technical Department.

OTHER PRODUCTS

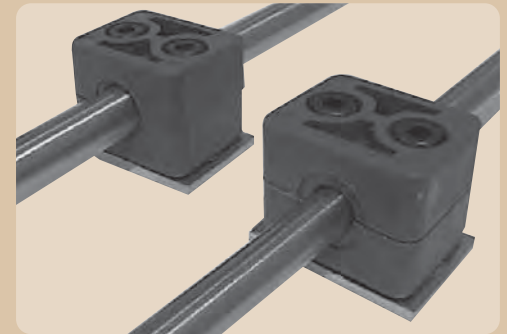
Stainless Steel Tubes

AISI 316 and 316L tube, seamless, for instrumentation, according to ASTM A269 or A213 standards 1/8" to 1" diameter and 0.028 to 0.083 inches thickness

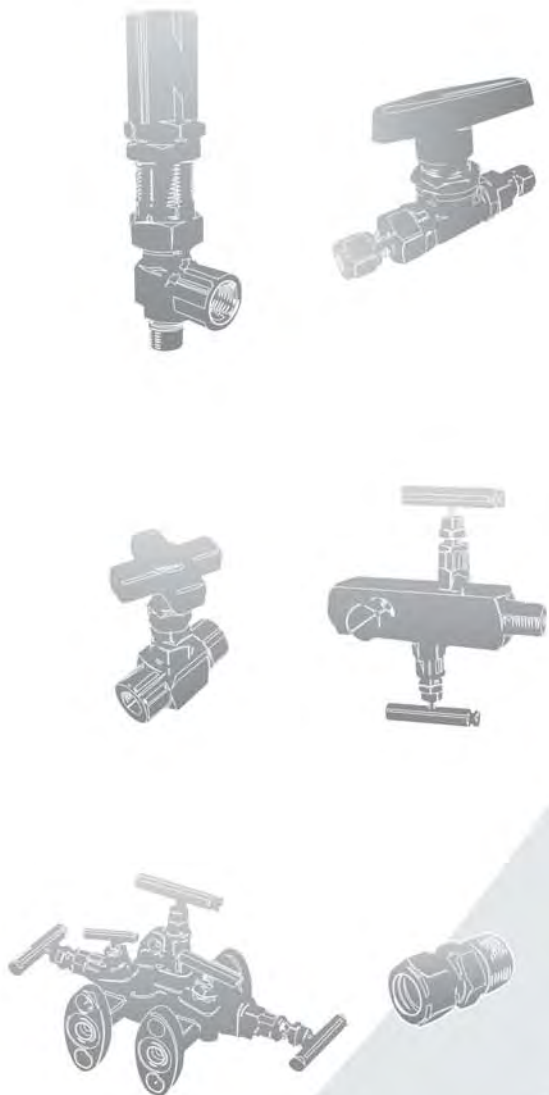


Tube supports

The tube supports are made of polypropylene in two half for 1 or 2 tubes with its carbon steel base. The base could be to weld or to bolt. Available AISI 304/316 stainless steel base. For tubes of 1/8", 1/4", 3/8", 1/2", 3/4" and 1" OD



WARNING: The content of this publication has different options of products and/or systems to provide the most complete information to technical experienced users. Because of the different operative conditions and applications of this products, the proper selection of them will be responsibility of the designer and/or user to fulfill the specific application requirements and to ensure proper installation, operation and maintenance of the product.



▶ *The widest variety of pressure, flow and fluid control components:*

- *Needle valves*
- *Instrument manifolds*
- *Fluid control components*
- *Ball valves*
- *Tube and pipe fittings*
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• *For more information about these products please contact us, visit our web site or call to our Sales & Service authorized Reps.*

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