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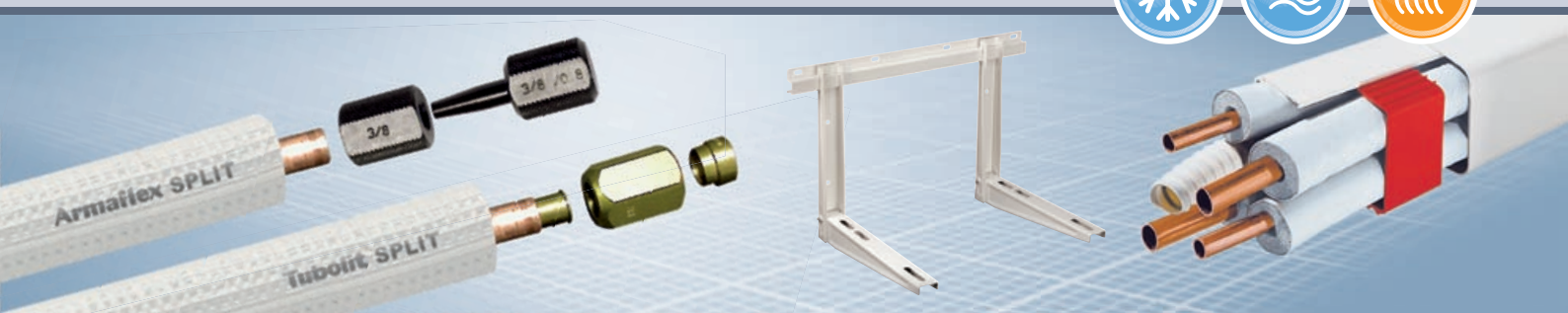
THE MAKERS OF
Armaflex®

SPLIT SYSTEM SOLUTIONS

SPLIT SYSTEM SOLUTIONS

Pre-insulated copper tubing and professional accessories for air conditioning systems



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The Armacell group, leader in innovative technology, has always provided a range of products that fully satisfy all the needs of the professional installer. In this era of technology and complex applications, a high degree of specialisation in components is required to guarantee maximum service. In order to provide more reliable work instruments at the disposal of the professional user Armacell provides more than 140 years of experience. Air conditioning systems have increasingly drawn the attention of professional installers – the sector percentage growth rate can be stated in double figures – who will find Armacell one of the sector‘s most reliable partners.

new ideas
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smart solutions

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SPLIT System components:

A general Split Air Conditioning system consists of the following elements:

A. The external unit (condensing unit) in a housing designed specifically for outdoor installation. This unit consists of:

- the compressor (which is controlled by the thermostat)
- condenser coil
- condenser fan motor
- several controls
- the electrical part
- control sensors (condensation, defrosting, etc.)
- intake vents and impellor
- valves and connectors for the cooling circuit

B. One or several indoor units (evaporators) placed in a plastic housing, ready to be installed indoors. This unit consists of:

- expansion valve
- evaporator coil
- PCB controller
- condensate collection container
- intake and impelling vents with filter
- valves and connectors for the cooling circuit

C. The cooling circuit between the outdoor and indoor units consists of two insulated tubes, one going out (liquid), and the other coming in (refrigerant liquid). A standard regulates the use of copper tubing, with several rules regarding its technical characteristics. The most important of these regulations refer to the thickness and degree of „internal cleanliness" of the copper tubing, expressed in terms of maximum carbon residues. Tubolit and Armaflex Split and Duosplit comply with these specifications (see page 8).

D. The electrical connection provides synchronisation between both units.

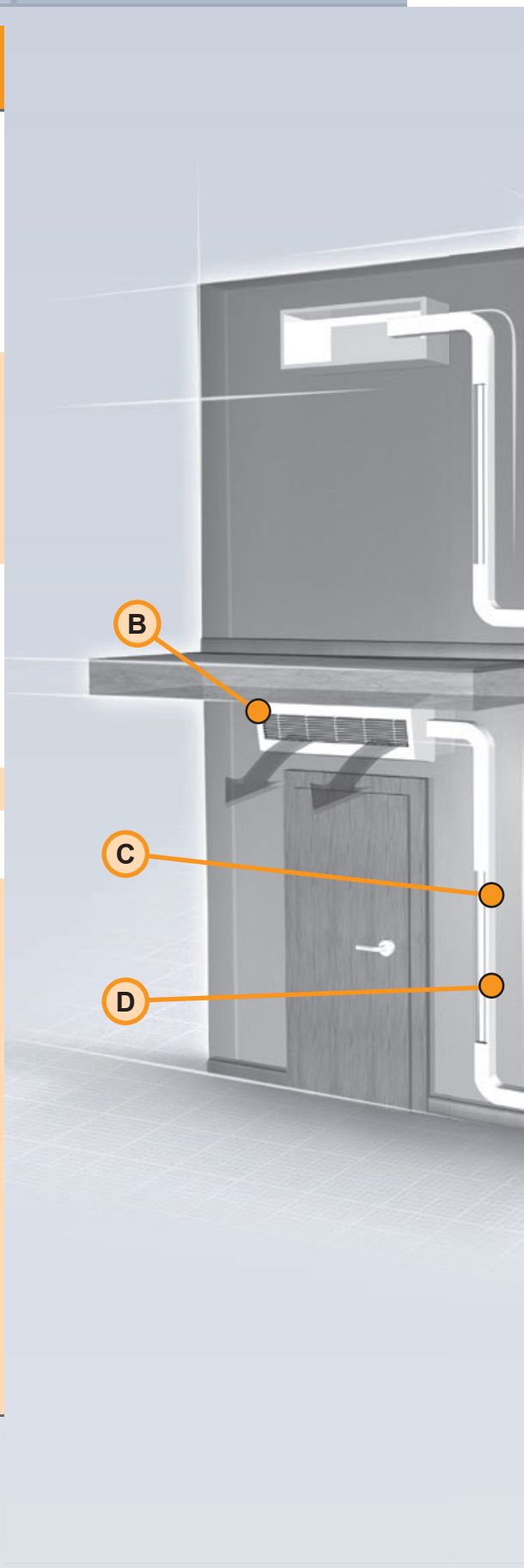
E. The condensate discharge system: serves to channel the condensate to the drainage network.

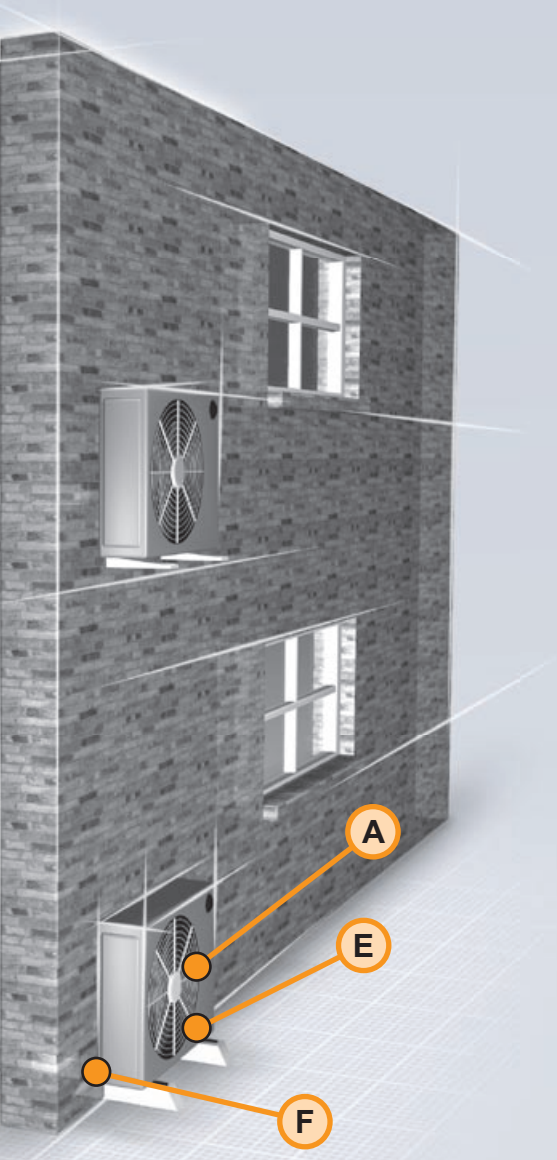
F. The cooling liquid must comply with current regulations (see page 23)

It is important to ensure the exact refrigerant liquid load according to the type of installation. Use the Armacell dual pressure/temperature scale gauges (see page 20) and the contact thermometer (see page 21). Remove the access panel located on the side of the compressor.

Measure the following temperatures:
Te (evaporation) and Tc (condensation). Both appear in the pressure gauge; Ta (gas intake) and Tl (liquid). Both appear in the contact thermometer.
– Verify the following:
1. Ta – Te = between 5 and10 °C (overheating)
2. Tc – Tl = between 5 and 10 °C (subcooling)

If the overheating and subcooling values are outside these ranges, verify the following: If the heating value is < 5 °C or the subcooling value is > 10 °C, this means that the gas load is excessive (overheating could also be caused by a poor air intake in the lower part). If the overheating is >10 °C or subcooling is < 5 °C, the gas load is insufficient (this could be due to: obstruction in the vanes – poor air intake in the outdoor unit).





Step-by-step instructions for the correct installation of a „Split" unit:

1. Selection of the adequate unit and power: Split systems come in different varieties that can be adapted to best suit the conditions of the place of installation. An important factor when choosing a unit is the size, in terms of power, of the Spilt unit in relation to the location; an inadequate unit would not provide the desired results. Unit power is stated in BTU/h. This value corresponds to the volume and the characteristics of the room where the air conditioner is installed (type of walls, number and dimension of the windows, roof, number of people in the room, exposure to sun). A specific chart must be used to calculate these values.

BTU/h: British Thermal Unit.
Its equivalence with other units of energy is the following:
1 BTU/h = 0.25 Kcal/h = 0.293 W.

2. The location of the outdoor and indoor units: requires study prior to installation. Specific technical rules must be followed when positioning the units. The units must be placed in such a way that they can be easily accessed for maintenance, control and replacement tasks. Also, the outdoor unit should be located in a place that allows normal operation in terms of air recirculation; at a certain distance from any eventual obstacle, at least 15 cms free space at the back and on the sides, and totally clear in the front (where the ventilator is located). It is advisable to protect the unit from outdoor weather conditions and direct sunlight. When choosing the location, it is also important to study the condensate discharge system.

The outdoor unit should be placed **horizontally** (we recommend using the Armacell PRO bracket with level shown in page 14) and fixed to supports using Armacell Pro rubber vibration dampers (see page 14), or installed on the floor using floor supports, brackets and clamps (see page 14).

3. The cooling connection between the outdoor units and indoor units is the most delicate and important operation in a Split type installation. A bad connection could cause problems both during testing and a few months after startup.

- It is very important to use UNE EN 12735-1 compliant copper tubing such as Tubolit and Armaflex Split and Duosplit to ensure installation, environmental and personal safety.
- The insulation material must be at least 9 mm thick.
- UV resistance is also important to avoid deterioration of the insulation material and to extend its life time expectancy, even in sections where ducts are not used.

The 9 mm thickness complies with EU Directives 2037 and 2038, and with the DM by the Ministry of Environmental Affairs dated 03.10.2001 and the law dated 17.02.2002 Nr.3.

- Do not deviate from the maximum tube diameter and lengths specified by the manufacturer (shorter tubing improves unit performance).
- Avoid the use of a high number of bends. Each bend increases the straight trace by 90 cms, thereby affecting unit operation. If the bends cannot be avoided, use a wide radius.
- Pay special attention to avoid steep slopes between the outdoor and indoor units in order to avoid cooling performance problems and to prevent lubricating oil returning to the compressor.
- Pay special attention when checking the **cleanliness of the tubing:** the tubing should contain the least possible amount of residual carbon, **such pre-insulated Armaflex or Tubolit Split / DuoSplit with just 0.1 mg/dm2.** One of the worst enemies of a cooling circuit is water. Its presence inside the circuit generates ice, preventing the gas from circulating (depending on climatic conditions, even air contains a certain percentage of humidity that could be damaging). Dust and other small substances can be harmful for the correct operation of the units.

New cooling gases work at pressures **of about 40 bars** and are more volatile – they **contain „smaller" molecules.**

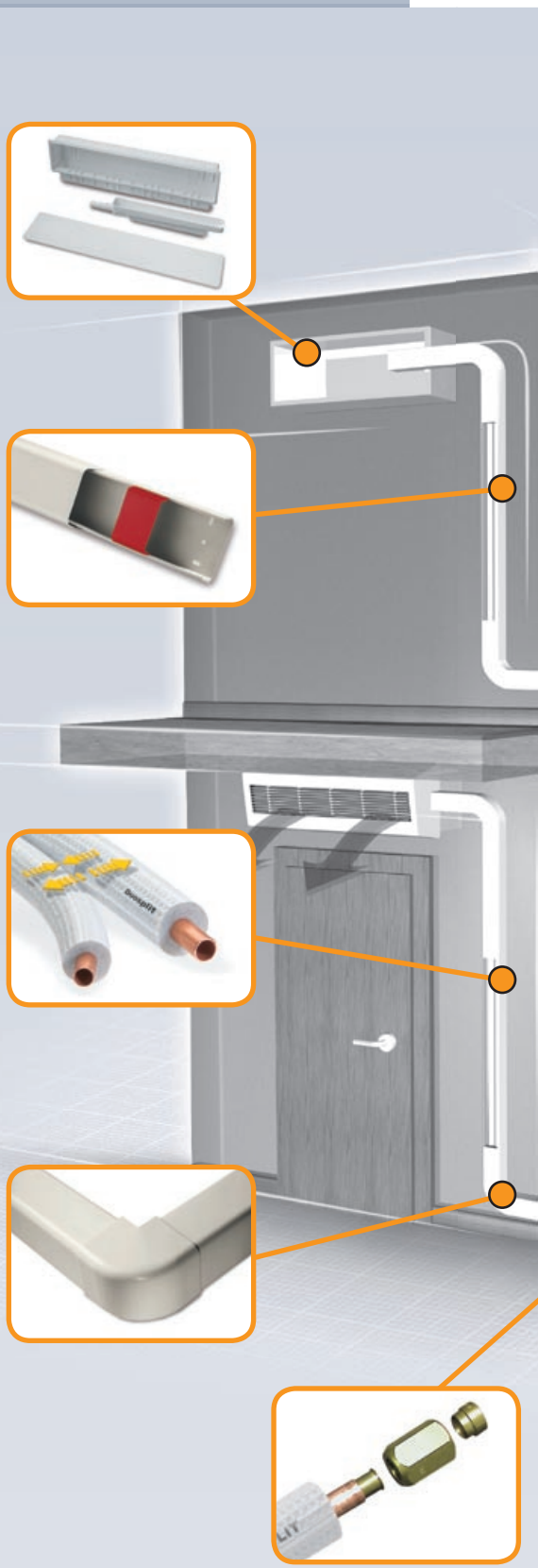
The connections linking the copper tubing to the units are of special importance. The introduction of new cooling gases has made it very important to use connection systems that are more efficient than the legacy systems (EN-378-2.2000 also suggests this). Armacell PRO SAE FLARE FITTING components are surely the best choice in terms of safety, reliability and ease of installation (see page 10). The in-wall installation frame from the Armacell PRO Accessories range helps to easily install the tubing (see page 19).

4. The condensate discharge tube should be flexible, for example Armacell PRO (see page 18) that complies with the requirement of being reliable and easy to use.

Flexible rubber tubing, such as garden hose, should never be used because it can be easily crushed, preventing the water from passing. Drainage tubing should have a slope of at least 1 cm per meter. Specific conditions could require reverse slope drainage. In such cases a condensate discharge pump will need to be connected to the Armacell PRO tubing or in the evaporator section (see page 19). **It is also recommended to insulate the condensate discharge tubing in order to prevent infiltration of toxic matter to the walls.**

Special care should be given to the condensate system layout. If it is connected directly to the sewer the unit ventilation could absorb the emissions, thus contaminating the air with unpleasant smells. **The installation of a siphon is recommended.**

The use of an **Armacell PRO** installation frame with drain outlet is recommended (see page 19).



UNE EN 12735: applies several regulations regarding technical features of copper tubing, the most important of which refer to thickness (the regulation specifies maximum tolerances with a 10% margin for tubing with any nominal outer diameter and thickness < 1,0 mm; 13% for copper tubing with a nominal outer diameter < 18,0 mm and thickness ≥ 1,0 mm – to 15% for copper tubing with a nominal outer diameter > 18,0 mm and thickness ≥ 1,0 mm). It also refers to the degree of „internal cleanliness" of the tubing expressed in terms of maximum carbon residue (the regulation specifies a maximum value of 0.38 mg/dm2).

5. The electrical connection is the one-but-last step before checking the installation. Based on the intensity (A) and power rating (W) required by the unit (if there are several units, simply add the values of each individual unit), check the available power intensity, leaving a margin for operation of other household appliances.
As a rule, it is advisable to connect the Split unit to an independent circuit, separated from the rest by a circuit breaker.

6. Checking the installation. Once all the preceding operations have been performed, the installation phase can be considered as finished. The next step consists of creating a vacuum to check the installation and make sure there are no leaks before introducing the exact amount of cooling gas.

The first step is to connect the Armacell PRO pressure set to the system (using the valves in the outdoor unit) (see page 18) as follows:

- Connect the high pressure gauge tubing to the service connector in the condenser unit.
- Close all the pressure gauge valves.
- Open the high pressure valve followed by the vacuum meter valve (indicates vacuum pressure, see page 18).
- Open the vacuum pump and activate it.

To create the vacuum (according to the size of the installation) wait until the vacuum pressure gauge and the high pressure gauge read < 0. Once the vacuum has been achieved close the pump valve and stop the pump. If the needles have not moved, carefully open the outlet valve on the outdoor unit about one turn. Wait for the pressure to rise and stabilize. Then open the valve completely. Eventually charge the necessary amount of gas. Then disconnect the pressure gauge block and switch the unit on.

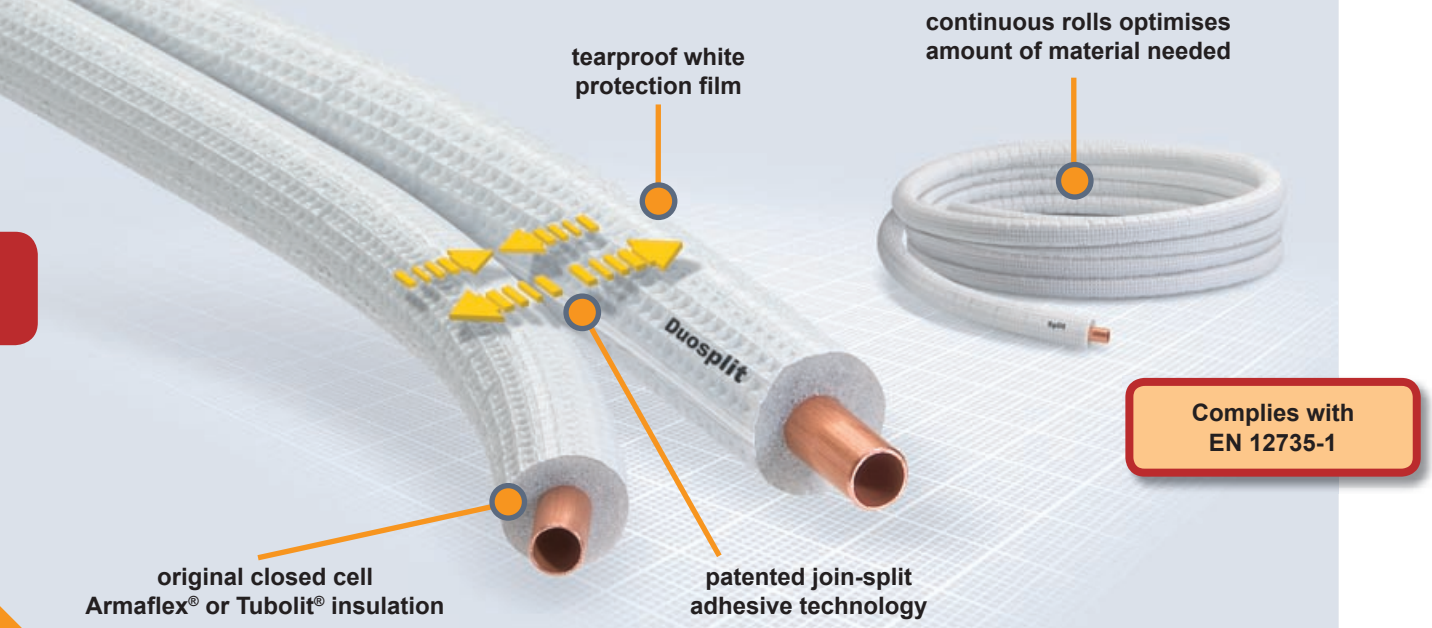
Once the vacuum has been achieved wait 15 minutes to see if the needles move. If they do it means there is a leak. If this happens, drain the gas from the system and locate the leak. Then repeat the operation. It is very easy to locate leaks if a tracing liquid from the Armacell PRO accessory kit, or a refrigerating gas with tracer is used.

Current regulation on refrigerating fluids:

- Law 16.06.1997, nr. 179 on ozone protection; replaces law 28.12.1993
- EU directives nrs. 2037 and 2038
- Environmental Affairs ministry law 03.10.2001 (ratifies and set the previous rules)
- Law 17.02.2002, nr. 35 (authorises the president of the republic to ratify the Montreal protocol).

PRE-INSULATED COPPER PIPES

The professional pre-insulated solution to save cost and reduce time.



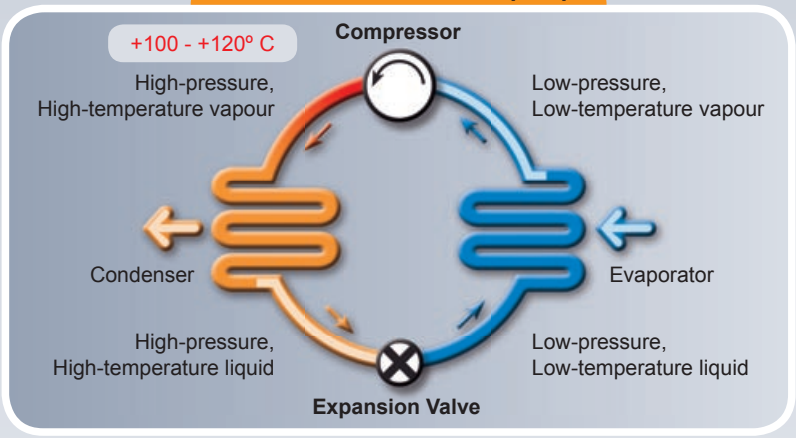
Complies with EN 12735-1

Your benefit:

Armaflex® and Tubolit® Split / DuoSplit is a reliable pre-insulated system solution to connect the indoor and outdoor units of split- and multi-split air conditioning systems. Certified, annealed copper tubes are pre-insulated with closed cell original Armaflex® or Tubolit® insulation materials. The system is easy to install, saves cost and time of assembly, avoids condensation and is suitable for the new refrigeration gases R-410A and R-407C. Its white UV resistant film protects against mechanical strain and ensures an aesthetical integration in the building shell. The patented join-split adhesion allows easy split & join, without the need for additional clamps or adhesives.

Cooling | Air conditioning | Heating

Reversible air-to-air heat pump



The transition away from ozone-depleting R-22 to systems that rely on replacement refrigerants like R-410A has required redesign of heat pumps and air conditioning systems. In these systems, the suction line of a reversible air-to-air heat pump can reach temperatures up to +120° C. For this particular event, Armacell designed Armaflex SPLIT/DUOSPLIT, high-quality copper pipes pre-insulated with HT/Armaflex, which ultimately meet thermodynamic and physical properties.

Technical data

Short description	Pre-insulated copper tube for gas or liquid, to connect the 2 units of a split system. The copper tube meets highest quality, demanding mechanical characteristics and reduced tolerances. The insulation is of highly flexible, closed cell elastomere (Armaflex®) or polyethylene (Tubolit®) material, covered with a resistant white polyolefine copolymer protection film.	
Characteristics	• average carbon residue of 0,1 mg/dm2 (in accordance to UNE-EN 12735, the maximum level is 0,38 mg/dm2) • the insulation thickness is 9 mm according to the EU Directives 2037 and 2038 and the Environmental Affairs ministry law 03.11.2001.	
	Armaflex® SPLIT & DUOSPLIT	**Tubolit® SPLIT & DUOSPLIT**
Insulation material	expanded elastomer HT/Armaflex®	expanded polyethilene Tubolit®
Area of application	• **Single Split and Multi Split Air Conditioner** • Reversible Air-Conditioner Heating pumps • Refrigeration systems • Cold shelves	• **Single Split and Multi Split Air Conditioner**
Application range		
maximum medium temperature minimum medium temperature	+150 °C -50 °C	+95 °C -50 °C
Resistance to diffusion of vapor μ	≥ 5.000	≥ 5.000
Thermal conductivity a 0 °C a 40 °C	 0,040 W/(m □ K) 0,045 W/(m □ K)	 0,035 W/(m □ K) 0,040 W/(m □ K)
Behavior in case of fire	Classe 1 DM 26-6-84	Classe 1 DM 26-6-84

Product range

The pre-insulated copper pipes from Armacell are available in 2 versions: Split (single pipe) and DuoSplit (liquide and gas pipe, with patented join-split system). Armaflex Split / DuoSplit and Tubolit Split / DuoSplit are packed in practical and robust cartons (reduced size of 80x80x20 cm) which protect the products from atmospheric agents and accidental damage, preserving its quality and allowing a better use of the space.

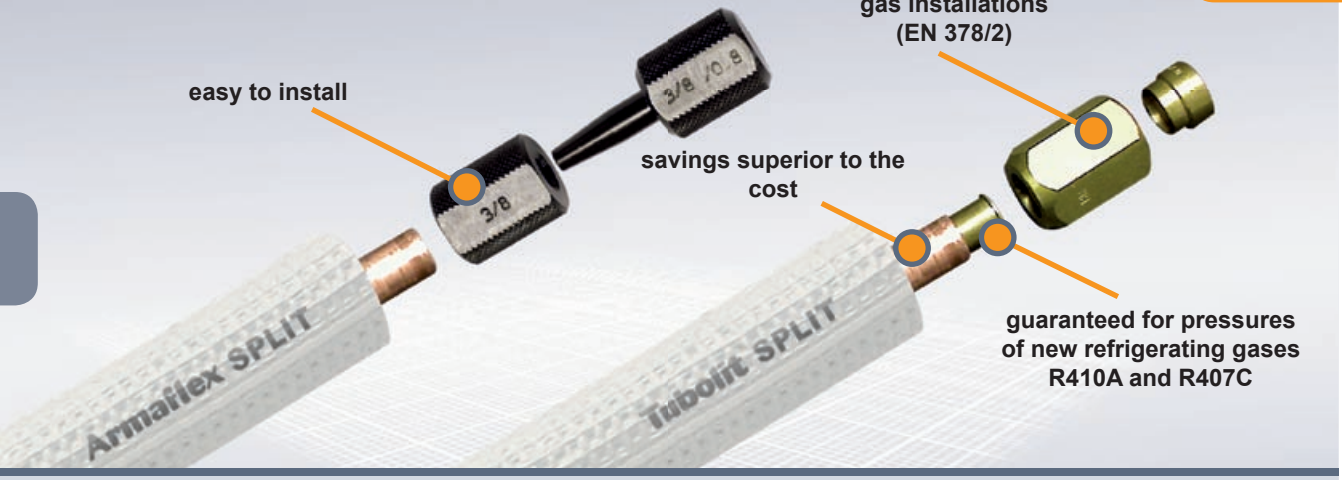
Armaflex® and Tubolit® SPLIT

Copper tubes				Insulation		Code	Code		
Sizes in inches	exterior Ø in mm	wall thickness in mm	max. working pressures (bar)*	exterior Ø in mm	wall thickness in mm	Armaflex® SPLIT	Tubolit® SPLIT	length of coils	n° of coils per carton
1/4	6,35	0,80	123	24	9	SP-ZO-09X06/E20	TS-ZO-09X06/E20	20 m	2
3/8	9,52	0,80	79	28	9	SP-ZO-09X10/E20	TS-ZO-09X10/E20	20 m	2
1/2	12,70	0,80	58	33	9	SP-ZO-09X12/E20	TS-ZO-09X12/E20	20 m	2
5/8	15,88	1,00	58	35	9	SP-ZO-09X16/E20	TS-ZO-09X16/E20	20 m	1
3/4	19,05	1,00	48	38	9	SP-ZO-09X19/E20	TS-ZO-09X19/E20	20 m	1
7/8	22,22	1,00	41	41	9	SP-ZO-09X22/E20	TS-ZO-09X22/E20	20 m	1

Armaflex® e Tubolit® DUOSPLIT

Copper tubes			Insulation		Code	Code		
Sizes in inches	exterior Ø in mm	wall thickness in mm	exterior Ø in mm	wall thickness in mm	Armaflex® DUOSPLIT	Tubolit® DUOSPLIT	length of coils	n° of coils per carton
1/4 – 3/8	6,35 – 9,52	0,80 – 0,80	24 – 28	9	SPZ-09X0610/E20	TSZ-09X0610/E20	20 m	1
1/4 – 1/2	6,35 – 12,70	0,80 – 0,80	24 – 33	9	SPZ-09X0612/E20	TSZ-09X0612/E20	20 m	1
1/4 – 5/8	6,35 – 15,88	0,80 – 1,00	24 – 35	9	SPZ-09X0616/E20	TSZ-09X0616/E20	20 m	1
3/8 – 1/2	9,52 – 12,70	0,80 – 0,80	28 – 33	9	SPZ-09X1012/E20	TSZ-09X1012/E20	20 m	1
3/8 – 5/8	9,52 – 15,88	0,80 – 1,00	28 – 35	9	SPZ-09X1016/E20	TSZ-09X1016/E20	20 m	1
3/8 – 3/4	9,52 – 19,05	0,80 – 1,00	28 – 38	9	SPZ-09X1019/E20	TSZ-09X1019/E20	20 m	1
1/2 – 3/4	12,7 – 19,05	0,80 – 1,00	33 – 38	9	SPZ-09X1219/E20	TSZ-09X1219/E20	20 m	1

The reliable mechanical connection between pre-insulated pipes and Split units.



Advantages

Armacell's SAE Flare Fitting system complies with the most stringent safety requirements. It allows the user to replace connections swiftly, safely and economically. No further connection is necessary. The most important element, the compression ferrule, guarantees better sealing versus traditional hand-made connections. No additional sealing is needed, nor do any of the elements need to be replaced during unit repairs and maintenance.

Cooling | Air conditioning | Heating

Tests and guarantees

The following GUARANTEES are applicable when:
- the installation has been correctly carried out (according to installation instructions)
- optimum quality copper tubing has been used (such as Tubolit® or Armaflex® SPLIT) with the correct thickness (0.8-1.0 mm.)
- An Armacell calibration tool has been used to shape the tube end

Testing

Tested using internal procedures according to DIN 3859 and by CETIM:
- Leak resistance test with vibrations: no leaks after 10 million cycles at 50 Hz and nominal pressure.
- Helium leak test (gas leak proof): <0,5 g/year (10-6 mbar/l/s) according to procedure DQJ/KP/926/99 developed by the commission for refrigeration gases.
- Temperature cycle test (5 cycles between -40 °C and +120 °C at 10 bar He pressure): no leakage.

Gas tightness

- Guaranteed against pressures of new refrigerants R410A and R407C (ISO 8434-1):

Size 1/4" PN 100 bar | Size 3/8" PN 64 bar | Size 1/2" PN 45 bar
Size 5/8" PN 45 bar | Size 3/4" PN 45 bar

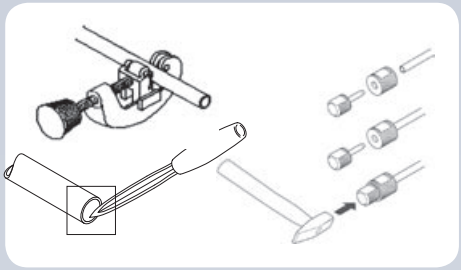
According to ISO 8434-1, the guaranteed pressure must be at least four times the declared nominal pressure. At these pressures (e.g., size 1/2" >180 bar) tests have shown that the copper tube bursts while the Armacell SAE Flare Fittings remain intact, confirming perfect tightness.

Product life guarantee

Armacell SAE Flare Fittings require no replacement during the life cycle of the Split unit under the following conditions:
- The installation has been performed following instructions;
- The surroundings do not generate corrosion. In the presence of ammonia or other corrosive substances, corrosion can still be prevented by using protection tapes, according to DIN 30662-1.
- Optimum quality copper tubing has been used (e.g.,: Tubolit® or Armaflex® SPLIT) with the correct thickness (0.8-1.0 mm)
- An Armacell calibration tool has been used to shape the copper tube ends.

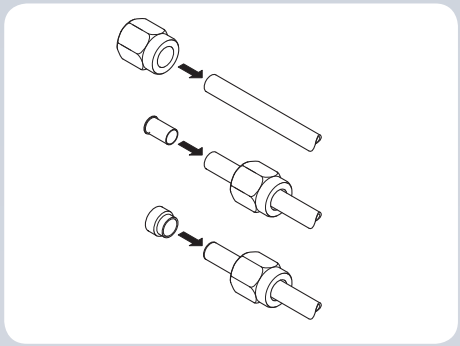
Tube connection SAE Installing instruction

1. Preparation



Cut the tube to length and deburr it.
The tube must be straight and free from blemishes for approx. twice the diameter of the pipe from the end.
Recalibrate squeezed tube ends with the calibration tool (grease slightly):
- Put on calibration sleeve on tube end
- Insert calibration bolt and hammer in to the stop (use steel hammer)

2. Reinforcing the tube

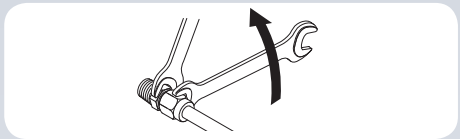


Prepare the tube union corresponding to the copper tube used; push union nut over the tube.
The use of stiffener sleeves to reinforce the tube is required. Completely insert stiffener sleeve into the tube (flange facing outwards), align tube sleeve properly.
Put compression ferrule on the tube (smaller diameter facing the union nut) completely until stop.
Fit tube and tube union to the corresponding counterpart on the device (AC unit or heat pump) and screw on the union nut manually.

3. Compression

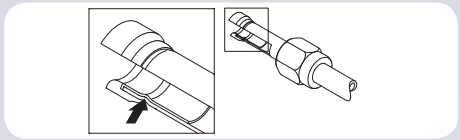
Screw on the union nut by hand until finger tight. Tighten down the union nut 11/2 rotation using an open ended spanner (making a mark will assist in correct rotation).

4. Stress relieving



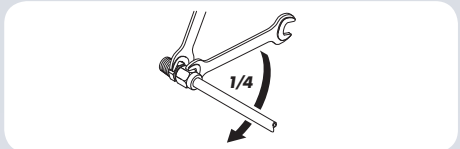
Slightly release the nut once again to take the radial stress off the tube.

5. Checking of fit



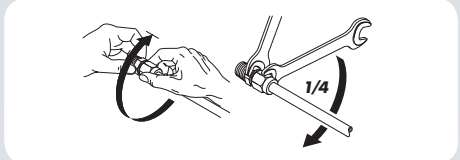
Release the union nut completely. A distinct bead or deformation must be visible on the inside of the tube.

6. Final assembly

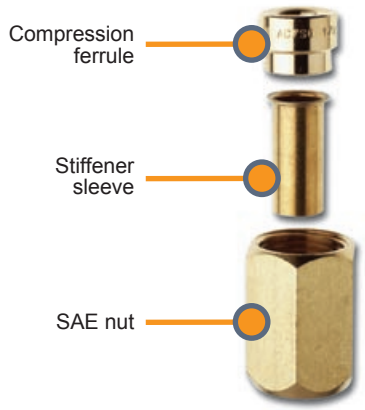


Screw the union nut back on until finger tight. Tighten down the union with an open ended spanner with 1/4 rotation for the final fit.

7. Repeated fitting fo the union



When refitting the same tube union, screw the union nut back on until finger tight and tighten down the union with an open ended spanner 1/4 rotation for the final fit.
In case of repeated assembly, parts must be lubricated.



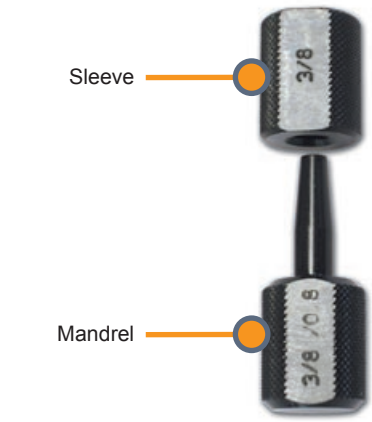
SAE FLARE FITTING

For copper tube diameter		For copper tube thickness	Code	Sets per carton	
inches	mm	mm		bag	carton
1/4”	6,35	0,8	SF-FZ-006	10	100
3/8”	9,52	0,8	SF-FZ-010	10	100
1/2”	12,70	0,8	SF-FZ-012	10	100
5/8”	15,88	1,0	SF-FZ-016	10	100
3/4”	19,05	1,0	SF-FZ-019	10	100

Mechanical connection system (in kit) for Split installations according to CEN standards and regulations

Each kit consists of a ferrule, stiffener sleeve and nut

Size carton	1/4”: mm 184x154x62 5/8”: mm 300x200x200	1/2”: mm 184x154x137 3/4”: mm 184x154x62	3/8”: mm 184x154x92
Weight carton	1/4”: kg 1,660 5/8”: kg 9,050	1/2”: kg 5,800 3/4”: kg 7,000	3/8”: kg 3,700



CALIBRATION TOOLS FOR SAE FLARE FITTINGS

For copper tube diameter		For copper tube thickness	Code	Sets per carton	
inches	mm	mm		bag	carton
1/4”	6,35	0,8	SF-CTZ-006	1	10
3/8”	9,52	0,8	SF-CTZ-010	1	10
1/2”	12,70	0,8	SF-CTZ-012	1	10
5/8”	15,88	1,0	SF-CTZ-016	1	10
3/4”	19,05	1,0	SF-CTZ-019	1	10

Tools (in kits) to calibrate tube ends before connecting the tube to the Split unit using the Armacell PRO SAE Flare Fitting.

Each kit consists of a sleeve and mandrel

Size carton	mm 184x154x62		
Weight carton	1/4”: kg 0,750 5/8”: kg 1,680	3/8”: kg 1,100 3/4”: kg 2,300	1/2”: kg 1,300

SET OF CALIBRATOR TOOLS FOR SAE FLARE FITTINGS

For copper tubing	Code	Sets per kit	Sets per carton
In inches 0,8 mm	SF-CBZ-06-16	1	5
In mm	SF-CBM-06-16	1	5

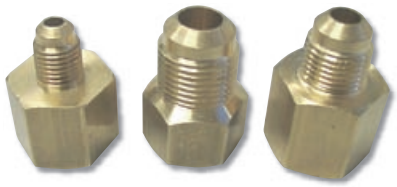
Each kit consists of 4 calibrator tools for 1/4” – 3/8” – 1/2” – 5/8” copper tubing plus a handy transport case (300x200x195 mm, weight 3.48 Kg.).

THREADED SAE FLARE FITTING CONNECTOR

For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4”	SF-NZ-006	10	100
3/8”	SF-NZ-010	10	100
1/2”	SF-NZ-012	10	100
5/8”	SF-NZ-016	10	100

THREADED STEP-DOWN SAE FLARE FITTING MM

For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4”-3/8” MM	SF-RM-00610	5	50
1/4”-1/2” MM	SF-RM-00612	5	50
1/4”-5/8” MM	SF-RM-00616	5	50
3/8”-1/2” MM	SF-RM-01012	5	50
3/8”-5/8” MM	SF-RM-01016	5	50
1/2”-5/8” MM	SF-RM-01216	5	50



THREADED STEP-DOWN SAE FLARE FITTING MF

For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4”-3/8” MF	SF-RF-00610	5	50
1/4”-1/2” MF	SF-RF-00612	5	50
3/8”-1/4” MF	SF-RF-01006	5	50
3/8”-1/2” MF	SF-RF-01012	5	50
1/2”-3/8” MF	SF-RF-01210	5	50
1/2”-5/8” MF	SF-RF-01216	5	50
5/8”-1/2” MF	SF-RF-01612	5	50

THREADED 90º ELBOW SAE FLARE FITTING

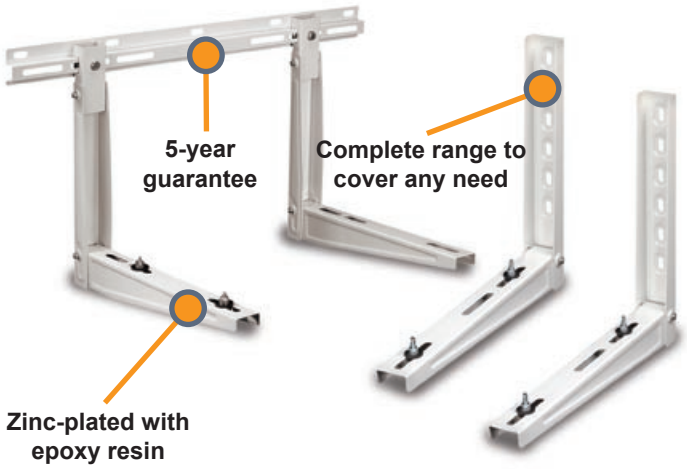
For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4“-1/4“ MM	SF-EN-006	5	50
3/8“-3/8“ MM	SF-EN-010	5	50
1/2“- 1/2“ MM	SF-EN-012	5	50
5/8“ - 5/8“ MM	SF-EN-016	5	50

THREADED SAE FLARE PLUG

For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4“	SF-BF-006	5	50
3/8“	SF-BF-010	5	50
1/2“	SF-BF-012	5	50
5/8“	SF-BF-016	5	50

180º SWIVEL FITTING

For copper tubes diameter	Code	Number of items	
inches		per bag	per carton
1/4“	SF-IJ-006006	5	20



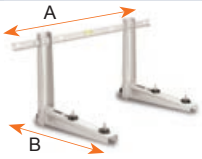
Armacell wall brackets, made of zinc-plated steel, are available in different shapes and load-bearing capacities.

The brackets have an epoxy-resin covering to allow outdoor use, RAL 9002. The brackets carry folding supporting arms.

Each kit comes packed in a cardboard box and consists of anchoring bolts, rubber stops and installation instructions.

5-year guarantee.

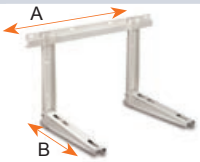
Maximum load
50 + 50 kg



ADJUSTABLE BRACKET WITH LEVEL

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Adjustable Bracket with level	SBAL-800x420	800x420	117

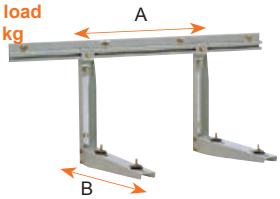
Maximum load
70 + 70 kg



ADJUSTABLE BRACKET STANDARD

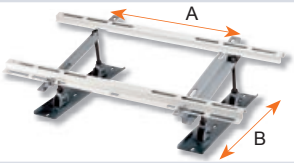
Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Adjustable bracket standard	SBAS-800x465	800x465	117

Maximum load
100 + 100 kg



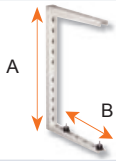
HEAVY DUTY BRACKET

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Heavy duty bracket complete with 3-cm EPDM dampers, tropicalized anchors, single size.	SBHD-1000X550	1000x550	100



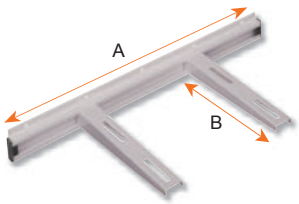
ROOF BRACKET

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Adjustable zinc plated steel roof bracket	SBR-800X450	800x450	108



CEILING BRACKET

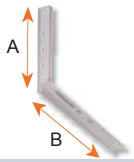
Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Varnished steel bracket for ceilings	SBCB-420X70X50	700x420	108



WINDOW BRACKET

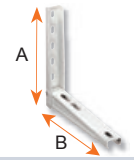
Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Window Bracket Sliding varnished zinc plated steel bracket with aluminium alloy struts – Patented.	SBW-800X420	800x420	108

Wall mounting brackets



WELDED BRACKET

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Welded steel bracket	SBE-315X420	315x420	200



STANDARD BRACKET

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Folding zinc plated, varnished folding bracket	SBEP-370X420	370x420	180

ANTI-VIBRATION DAMPER

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Natural rubber vibration dampers (hardness 55° Sh.A – M quality) with rust resistant supports Kits consist of 4 items	SBD-302X55	370x420	50

CONDENSATE DRAINPAN

Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Condensate drainpan for outdoor units	SBT-850X350	850x350	60

OUTDOOR UNIT COVERS

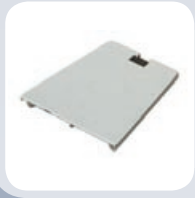
Description	Code	Sizes mm (AxB)	No. of KITS per pallet
Protecting (vinyl) covers for outdoor units	SBP-650X800X330	650x800x330	50

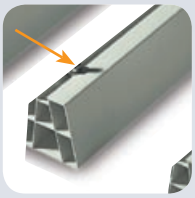
Floor supports

The Armacell ground floor supports (supporting rails) are made of rigid impact-resistant PVC, stabilised against UV with a load-bearing capacity of 150 kg each.
Caps and anchors are available, to be ordered separately.

FLOOR SUPPORT 150 kg load-bearing capacity

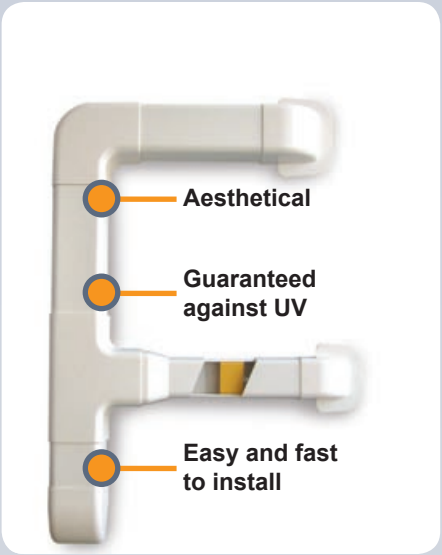
Description	Code	size mm	Items per carton
Floor Support rail 1000	SOR-1000	80x80x1000	4
Floor Support rail 450	SOR-450	80x80x450	24
Floor Support rail 350	SOR-350	80x80x350	24





END CAPS AND BOLTS

Description	Code	size mm	Items per carton
End cap for floor support	SOR-CAP	80x80	24
Bolt for floor support	SOR-10-30	M10x30	48



The Armacell Ducts & Accessories provide an aesthetical and compact ducting, an ideal complement for any Split installation.
The ducts are impact resistant, easy to install and UV resistant. The available sizes have been carefully studied to provide **easy and fast installation.**

Technical data

Material	Rigid impact-resistant PVC with fire retardant, stabilized against UV radiation.
Temperature	Minimum - 20 °C, Maximum + 60 °C
Colour	RAL 9001 (pure white)
Guarantee	5 years

DUCTS FOR SPLIT SYSTEMS - Length: 2 m

Description	Code	Sizes mm width x height	Meters per carton	Meters per pallet
Duct Split 60x45	SD-CD-60X45	80x80x1000	24	1008
Duct Split 80x60	SD-CD-80X60	80x80x450	16	672
Duct Split 110x75	SD-CD-110X75	80x80x350	8	336

TIGHTENING CLAMPS

Description	Code	Duct sizes mm width x height	Items per carton
Tightening Clamps 60x45	SD-CT-60x45	60x45	30
Tightening Clamps 80x60	SD-CT-80x60	80x60	30
Tightening Clamps 110x75	SD-CT-110x75	110x75	20

CONNECTION COVER

Description	Code	Duct sizes mm width x height	Items per carton
Connection cover 60x45	SD-CC-60X45	60x45	30
Connection cover 80x60	SD-CC-80x60	80x60	30
Connection cover 110x75	SD-CC-110x75	110x75	20

WALL COVERS

Description	Code	Duct sizes mm width x height	Items per carton
Wall Cover 60x45	SD-CW-60X45	60x45	10
Wall Cover 80x60	SD-CW-80X60	80x60	8

END COVER

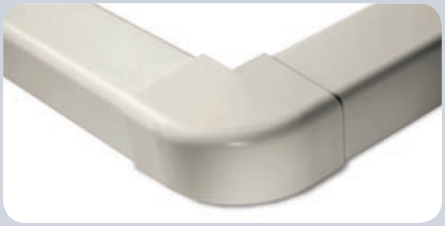
Description	Code	Duct sizes mm width x height	Items per carton
End cover 60x45	SD-CE-60X45	60x45	12
End cover 80x60	SD-CE-80X60	80x60	9

WALL ADAPTER

Description	Code	Duct sizes mm width x height	Items per carton
Wall Adapter 60x45	SD-CA-60X45	60x45	9
Wall Adapter 80x60	SD-CA-80X60	80x60	6
Wall Adapter 80x60	SD-CA-110X75	110x75	4

INTERNAL ELBOW 90º

Description	Code	Sizes mm width x height	Items per carton
Internal Elbow 60x45	SD-CI-60X45	60x45	8
Internal Elbow 80x60	SD-CI-80X60	80x60	6
Internal Elbow 110x75	SD-CI-110X75	110x75	4



EXTERNAL ELBOW 90º

Description	Code	Sizes mm width x height	Items per carton
External Elbow 60x45	SD-CX-60X45	60x45	12
External Elbow 80x60	SD-CX-80X60	80x60	9
External Elbow 110x75	SD-CX-110X75	110x75	6

FLAT BEND

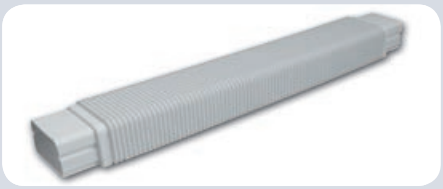
Description	Code	Sizes mm width x height	Items per carton
Flat Bend 60x45	SD-CF-60X45	60x45	10
Flat Bend 80x60	SD-CF-80X60	80x60	8
Flat Bend 110x75	SD-CF-110X75	110x75	6

REDUCTION JOINT

Description	Code	Sizes mm width x height	Items per carton
Reduction Joint 80x60	SD-CR-80x60	80x60	12
Reduction Joint 110x75	SD-CR-110x75	110x75	8

T-PIECE

Description	Code	Sizes mm width x height	Items per carton
T-Piece 80x60	SD-CP-80x60	80x60	4
T-Piece 110x75	SD-CP-110x75	110x75	2



FLEXIBLE DUCT

Description	Code	Size mm height x widt x length	Items per carton
Flexible duct 60x45	SD-CL-60x45	60x45x590	6
Flexible duct 80x60	SD-CL-80x60	80x60x590	4

DUCT DISPLAY PANEL

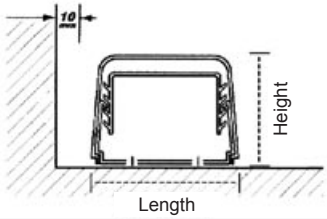
Description	Code	Sizes mm width x height	Items per carton
Duct display panel	SD-CDPANEL	500x720 mm	1

This Armacell duct display panel is made specially for displaying products in specialized sales points.

Ducts: Installation instructions

The basis must be fixed using rawlplugs, with a pitch of maximum 600 mm and 10 mm far from the wall.

- The tightening clamps must be fixed on the same position as the screws.
- Also the ellbows and the wall adapters have to be fixed by using rawlplugs.



CONDENSATE DRAIN HOSES

Armacell condensate drain hoses are made of low density polyethylene.

- available in 30-meter coils (individual manufacture)
- specially suited for installation on walls
- pressure resistant
- crush-proof spiral
- working temperatures -20 til +65 °C

SPIRAL HOSE (smooth inner finishing)

Description	Code	Dia./length Tube mm/m	Meters per carton
Spiral Hose smooth bore 16/30	SC-SH-16/E30	16x30	30
Spiral Hose smooth bore 18/30	SC-SH-18/E30	18/30	30
Spiral Hose smooth bore 20/30	SC-SH-20/E30	20/30	30

CORRUGATED HOSE Corrugated finishing on the inner and external surfaces, with 16-18 mm ø joins every 75 cm

Description	Code	Dia./length Tube mm/m	Meters per carton
Corrugate hose 16/18	SC-CH-1618/E50	16-18/50	50

Two-way junction (for spiral hose dia. 16 or 18 and for corrugated tube)

Description	Code	Dia./length Tube mm/m	Items per carton
Two-way junction 16/18	SC-YW-16/18	16 o 18	20

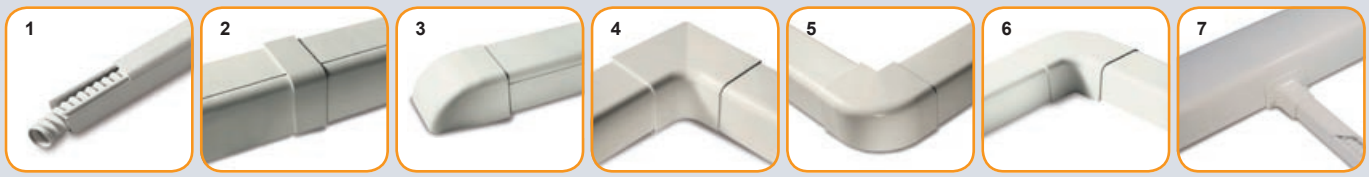
SPIRAL HOSE TRANSPARENT (SMOOTH INSIDE) FOR CONDENSATE DRAIN

Description	Code	Dia./length Tube mm/m	Meters per pallet
Description: spiral hose transparent 18/30	SC-ST-18/E30	18/30	2700

CONNECTIONS FOR CONDENSATE DRAIN

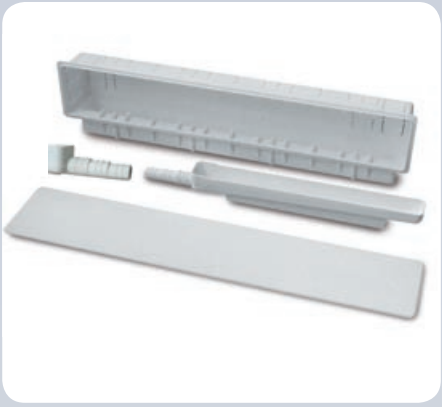
Description	Code	Pezzi per confezione:	Items per pallet
Connections for Condensate Drain 18/20, can be adapted to 18-20 diameters. UV radiation resistant.	SC-O18-20	10	5600

Other accessories



OTHER ACCESSORIES

	Description	Code	Sizes mm width x height	Items per box
1	Duct Split 25x25 in 2-meter strips	SD-CA-60X45	60x45	9
2	Connection Cover 25x25	SD-NC-25x25	25x25	20
3	End Cover 25x25	SD-NE-25x25	25x25	20
4	Internal Elbow 25x25	SD-NI-25x25	25x25	20
5	External Elbow 25x25	SD-NX-25x25	25x25	20
6	Flat Bend 25x25	SD-NF-25x25	25x25	20
7	Connecting Piece 25x25	SD-NN-25x25	25x25	20



The Armacell in-wall installation frame, made of shock-proof polystyrene, is suitable for most air-conditioning systems.

The separate ccondensate drain box can be placed inside the frame to the right and to the left position. For inspection and cleaning purposes, it can be taken out.

The drain outlet is designed to connect pipes having a diameter of 16, 18 or 20 mm.

An optional cover plate can be applied to protect from dirt during construction. After, the two removable plates can be used for fixing the evaporator's template.

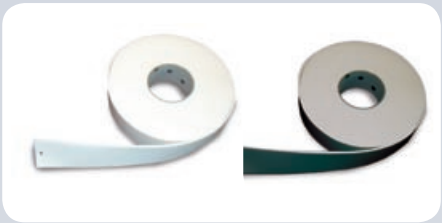
INSTALLATION FRAME

Description	Code	Sizes mm	Items per carton
Installation frame	SIC540x85x55	540x85x55	15

The installation frame is supplied together with a drain outlet and a temporary cap.

COVER PLATE

Description	Code	Sizes mm	Items per carton
Cover Plate for Installation frame	SIP540x85	540x85	15



Self-adhesive tape specially indicated for use with Split systems.

Description	Code	Length m	Width mm	Thickness mm	Rolls per carton
Tape white 50	WH-TAPE	10	50	2,5	24
Tape white 30	WH-TAPE-30	10	30	2,5	40
Tape black 50	MFB-TAPE	15	50	3	12

CONDENSATE DISCHARGE PUMP

Description	Code	Sizes mm	Items per carton
Condensate Discharche pump Small-sized condensate discharge pump for Split systems, occupying very little space and extremely silent (sound level < 30dBa a 1 m). Wing pump. Pump shutoff and 3-level alarm system with floater (Operation –Stop - Alarm). The activation of the alarm can shut off power to the compressor or the electrovalve, blocking condensate production. Electrical connection through connection box. Pump-integrated thermal protection (90º). Maximum flow rate. 10 L/h. Maximum draw height: 1.5 meters. Maximum discharge height: 6 meters.	SC-P10	58x42x55	1

As usual with Armacell, the section of accessories needed for the installation and maintenance of Split air conditioning systems guarantees reliability, safety and ease of use. All the products have a **2-year guarantee.**

TUBE CUTTER – SMALL

Description	Code	Items per carton
Cuts 4 to 15 mm diameter tubes	STC-0001	1

TUBE CUTTER - BIG

Description	Code	Items per carton
Cuts 4 to 28 mm diameter tubes	STC-0002	1

DEBURRING TOOL

Description	Code	Items per carton
Ideal for aluminium, copper and brass tubes; for cleaning the inner and outer surfaces. Available with 3 cavities for deburring and levelling after cutting. Ideal for diameters between 3/16” and 1-1/2”.	STC-0003	1

DIGITAL THERMOMETER

Description	Code	Items per carton
Digital pocket thermometer. Temp. scale from -40° to + 150° C. Precision ± 1° C. Impact-resistant pouch	STCT-0004	1

ELECTRONIC LEAK DETECTOR

Description	Code	Items per carton
Electronic refrigerant gas (CFC, HFC and CFC) leak detector. High sensitivity. Instantaneous response. LED display. 7 adjustable sensitivity levels.	STC-LD-005	1

ELECTRONIC SCALE

Description	Code	Items per carton
Battery-operated electronic scale – maximum load: 35 kg. Comes with hard case for transport.	STC-BE-080	1

BLOCK OF PRESSURE GAUGES

Description	Code	Items per carton
Block of “pulse-free” pressure gauges, Ø 80 de 4 outlets with hook. Ideal for refrigerant gases: R134A – R22 – R404A – R407C.	STC-MG-009	1

BLOCK OF PRESSURE GAUGES FOR R410A

Description	Code	Items per carton
Block of “pulse-free” pressure gauges, Ø 80 de 4 outlets with hook. Ideal for refrigerant gases: R410A.	STC-MG-010	1

FLEXIBLE TUBING 1/4”

Description	Code	Items per carton
Batch of 3 flexible tubes (R-B-G), compliant with SAE J2196 Served with valves 1/4” – 1/4” 45°. Working pressure 60 bar. Bursting pressure 240 bar. Working temperature – 30 °C a +125 °C. Length 150 cm.	SCT-FH-150-006	1

FLEXIBLE TUBING 5/16”

Description	Code	Items per carton
Set of 3 SAE J2196 compliant flexible tubes (R-B-G) Served with 1/4” – 5/16” 45° valves. Working pressure: 60 bar. Bursting pressure: 240 bar. Working temperature: – 30 °C a +125 °C. Length: 150 cm.	SCT-FH-150-004	1

VACUUM PUMP

Description	Code	Items per carton
Professional dual-stage vacuum pump for air conditioning systems. Flow rate: 72 l/minute, complete with electrovalve and vacuum gauge (vacuum grade 0.07 mbar). Weight: Kg. 8. Size: 28x10,5x26,5 cm.	STC-VP-090-EV	1

PRO VACUUM AND LOAD KIT

Description	Code	Items per carton
Kit consists of : • Armacell PRO vacuum pump (STC-VP-090-EV); • Armacell PRO battery-operated electronic scale (STC-BE-080); • Armacell PRO pressure gauge block (STC-MG-009 y STC-MG-010); • Armacell PRO set of flexible tubes (SCT-FH-150-006);	STC-KC-011	1

PRO NITROGEN LEAK DETECTION KIT

Description	Code	Items per carton
Kit consists of: • Single-use nitrogen cartridges - 110 bar • Nitrogen pressure regulator. 825ARS-40N2 certified • Input pressure gauge - 220 bar • Output pressure gauge: 40 bar • Connection: 1/4” SAE • External safety valve • Nitrogen pressure gauge Ø 80 mm; class 1.0 with connector and valve • Adaptor: 5/16 “ SAE F. x 1/4” SAE M. • Tank adapter.	STC-NL-012	1

PRO ELECTRONIC DIAGNOSTIC TOOL

Description	Code	Items per carton
Diagnostic tool for detecting damage in air conditioning systems. • Graphic LCD display • Thermo-hygrometric probe • Temperature probe • Connection cables • Serial PC link cable • Carrying case • Battery charger • User’s Manual • CE Certification	STC-DI-013	1

Cleaning and hygiene in air conditioning systems is critical to maintain efficiency and health for people using these systems. Besides preventing Legionellosis (epidemic form of pneumonia caused by gram negative bacteria known as Legionella Pneumofila), the maintenance of air conditioning circuits implies greater benefits which convert into higher savings.
The use of Armacell PRO cleaning products helps to avoid risks related to legionellosis, maintaining the efficiency of the system.

DETERGENTS AND DISINFECTANTS FOR AIR CONDITIONING SYSTEMS

Description	Code	Items per carton
Foam-generating detergent spray, for cleaning vents in air conditioning systems.	SL-SC-001	12 bott.

Description	Code	Items per package
Disinfecting deodorant spray, for vents	SL-SD-002	12 bott.

Description	Code	Items per blister	Blisters per carton
Disinfectant tablets for treating condensate water in air conditioning systems.	SL-ST-003	6	72

PORTABLE KIT FOR WASHING AIR CONDITIONING SYSTEMS

Description	Code	Items per packaging
Complete, practical and affordable kit for washing the interior of personal or commercial air conditioning systems. With a pressure rating of 10 bar, it eliminates dirt, particles and oil residues present inside the installation. Its light weight allows use in barely accessible areas.	SL-CK-004	1

The current regulations related to refrigerating gases are the following:

- Act dated 16.06.1997, n° 179 ozone protection replaces Act 28.12.1993 – EU Directives nr. 2037 and nr. 2038 – Ministry of Environmental Affairs law 03.10.2001 (ratifies and set regulations for the above stated);
- Act dated 17.02.2002, nr. 35 (autoriza al Presidente de la República Italiana a ratificar el contenido del protocolo de Montreal)

The refrigerating gases used are:

- **R 410 A**, mixture consisting of two gases (50% R 32 and 50% R 125) almost azeotropic; used for systems up to 20 KW (drop of 0,6°C)
- **R 407 C**, mixture of three gases (23% R 32, 25% R 125, 52% R 134a) not azeotropic and is used from 20 KW to 150 KW (drop of 5°C)
- **R 134 A**, a pure gas used in systems exceeding 150 KW.).

REFRIGERATING GASES IN SINGLE-USE CANISTERS, WITH TRACER

Description	Code	Capacity
R22	SR-R22-900	900 ml
R134a	SR-R134-750	750 ml
R410a	SR-R410-750	750 ml
R407c	SR-R407-750	750 ml

REFRIGERATING GASES IN REFILLABLE CANISTERS

Description	Code	Capacity
R22	SR-R22-005	5 Kg.
R134a	SR-R134-005	5 Kg.
R410a	SR-R410-005	5 Kg.
R407c	SR-R407-005	5 Kg.

ACCESSORIES

Description	Code	Items per packaging
Tracer in 7,5 ml canisters	SR-TR-075	12
Stand for small single-use cansisters R407c R22 – R134a	SR-SB-001	1
Stand for small single-use canisters R410a	SR-SB-002	1
Nitrogen cartridges 100lt/110 bar	SR-NI-001	1

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