



[smart4: the solution for your quadrangular ducts]



Change duct!

P3ductal smart4 is an evolution of the P3ductal system, based on revolutionary duct construction and installation procedures. **P3ductal smart4** is characterized by an easy and fast construction and installation which guarantee economical advantages. **P3ductal smart4** consists of panels ready to be assembled using a simple and quick inserting bayonet.

Valuable advantages

- » **competitiveness:** the “smart solution” combines economical advantages with the usual technical performances of pre-insulated aluminium ducts;
- » **fast to assemble:** panels are supplied inside a box, few easy and fast moves are enough to complete the whole operation, also on the job site;
- » **off-cuts reduction:** the pre-cut solution optimizes the use of the material itself by reducing the off-cuts.

The new **smart4** solution also reconfirms and guarantees all the technical characteristics which, for nearly 20 years, have been appreciated in all the rectangular versions (indoor and outdoor) of P3ductal system, such as:

- » **total safety in case of fire:** Class B-s2,d0 according to the European UNI EN 13501-1 2005;
- » **highest security in case of earthquake:** due to the high rigidity and lightness of materials;
- » **very high hygiene and quality of the air:** thanks to the use of aluminium for the internal surface of ducts
- » **complete respect of the environment:** our **smart4** panels are made using the exclusive “Hydrotec” technology, which utilizes only water for the expansion of the polyurethane insulation. This solution avoids the use of the undesired greenhouse effect gases (CFC, HCFC, HFC, HC).
- » **very good thermal insulation:** $\lambda_i=0,022 \text{ W/(m } ^\circ\text{C)}$ at 10 °C
- » **very low friction losses:** thanks to the fact that the internal surfaces of duct have reduced roughness.
- » **extraordinary air seal:** our special “labyrinth” bayonet, thanks to its particular shape, creates a true labyrinth which drastically reduces the air leaks. Thanks to the bayonet and the available frames a very good air seal is guaranteed.



Available solutions

	smart4.12	smart4.20	smart4.30
panel thickness	12 mm	20 mm	30 mm
type of aluminium external/internal	embossed/embossed	embossed/smooth ⁽¹⁾	embossed/smooth ⁽¹⁾
ideal for	low pressure systems	medium pressure systems	medium pressure systems

(1) the smooth aluminium is treated with a special antibacterial active principle

The secret: closing labyrinth bayonet and 22,5° cuts

closure of smart 4.12 straight duct



closure of smart 4.20/smart 4.30 straight duct



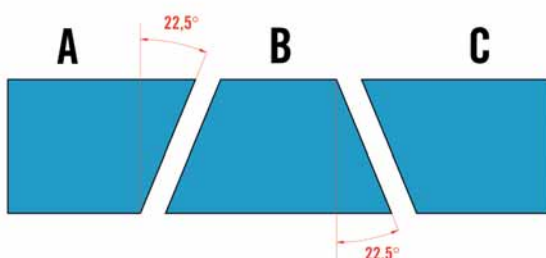
Closure with the labyrinth bayonet

Straight ducts in version **smart 4.12** are manufactured out of pre-cut panels, that are folded and closed with the “labyrinth” bayonet.

Smart 4.20 and **smart 4.30** straight ducts are manufactured out of single panels (selected according to the dimensions of the duct to be realized) folded together thanks to the 4 “labyrinth” bayonets (one for each edge). The **smart 4.12** kit includes both the panels and bayonets contained in the box. The **smart 4.20** and **smart 4.30** versions have the panels and bayonets sold separately.

From the straight duct to fitting with simple 22,5° cuts

In order to construct the fittings all you have to do is perform a series of transversal cuts on the straight duct obtaining a series of single components, which once reunited, generate the fitting.



Available sizes

smart 4.12 kit

The kit consists of 5 pre-cut Piral HD Hydrotec panels (each one 1200 mm long; equivalent to 6 m of linear duct), 12 mm thick, with 80 µm/80 µm embossed/embossed aluminium and 5 “labyrinth” bayonets. The panels are painted externally with RAL5025 light blue and anti-scratch paint.



Kit characteristics

Panels

5 sheets

1200 mm length of each one

6 m total linear duct

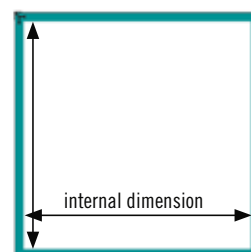
12 mm thickness

80 µm/80 µm embossed/embossed al.

“Labyrinth” bayonet

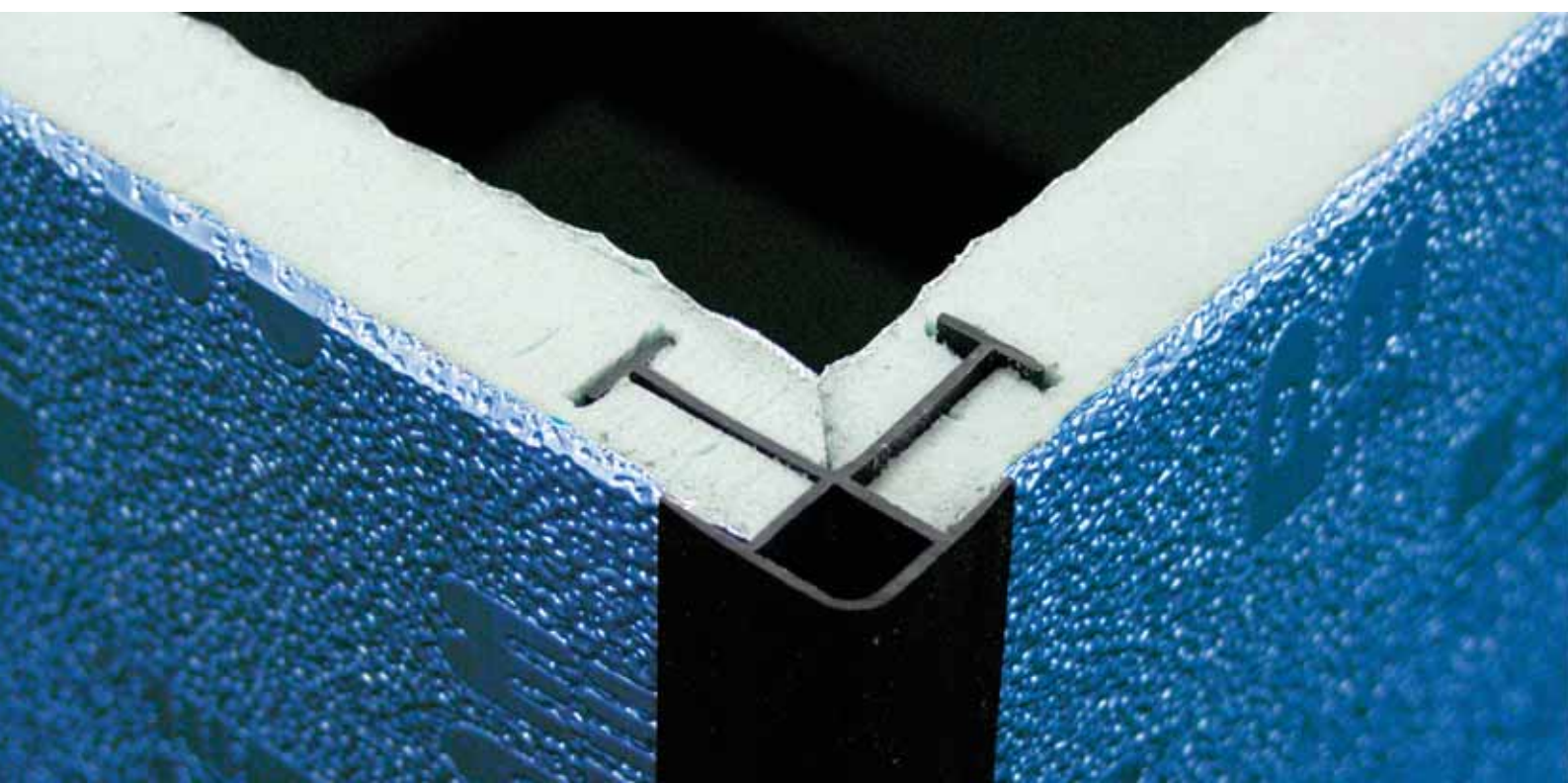
5 bars - 1200 mm long each

Measures indicated in the table correspond to the internal dimension of the section that can be manufactured out of pre-cut panels.



Standard pre-cut panels dimensions (mm)

100x100	150x150	200x200	250x250	300x300	350x350	400x400	450x450	500x500
100x150	150x200	200x250	250x300	300x350	350x400	400x450	450x500	
100x200	150x250	200x300	250x350	300x400	350x450	400x500		
100x250	150x300	200x350	250x400	300x450	350x500			
100x300	150x350	200x400	250x450	300x500				
100x350	150x400	200x450	250x500					
100x400	150x450	200x500						
100x450	150x500							
100x500								



smart 4.20 kit

The duct will be manufactured by joining two couples of sheets of the required dimension (i.e. to manufacture a duct with dimensions 700 x 1000 mm you have to use two sheets of 700 mm and two sheets of 1000 mm of internal dimensions).
Bayonets are supplied separately.

Kit characteristics

Panels

10 sheets

1200 mm length of each one

20 mm thickness

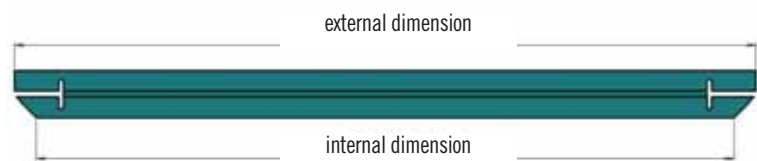
80 µm/80 µm embossed/smooth al.

smooth al. supplied with antibacterial treatment

“Labyrinth” bayonet

supplied separately

Measures indicated in the table correspond to the internal dimension of each sheet. The internal dimension of the duct will result from the dimension of the two couple of sheets that will compose the duct itself.



Standard panels dimensions (mm)

	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
350	450	550	650	750	850	950						

smart 4.30 kit

The duct will be manufactured by joining two couple of sheets of the required dimensions (i.e. to manufacture a duct with dimensions 1200 x 1800 mm you have to use two sheets of 1200 and two sheets of 1800 mm of internal dimensions).
Bayonets are supplied separately.

Kit characteristics

Panels

10 lastre

1200 mm length of each one

30 mm thickness

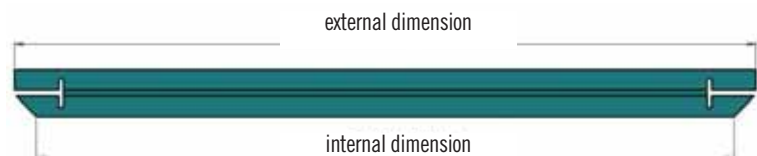
200 µm/80 µm embossed/smooth al.

smooth al. supplied with antibacterial treatment

“Labyrinth” bayonet

supplied separately

Measures indicated in the table correspond to the internal dimension of each sheet. The internal dimension of the duct will result from the dimension of the two couple of sheets that will compose the duct itself.



Standard panels dimensions (mm)

500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
550	650	750	850	950											



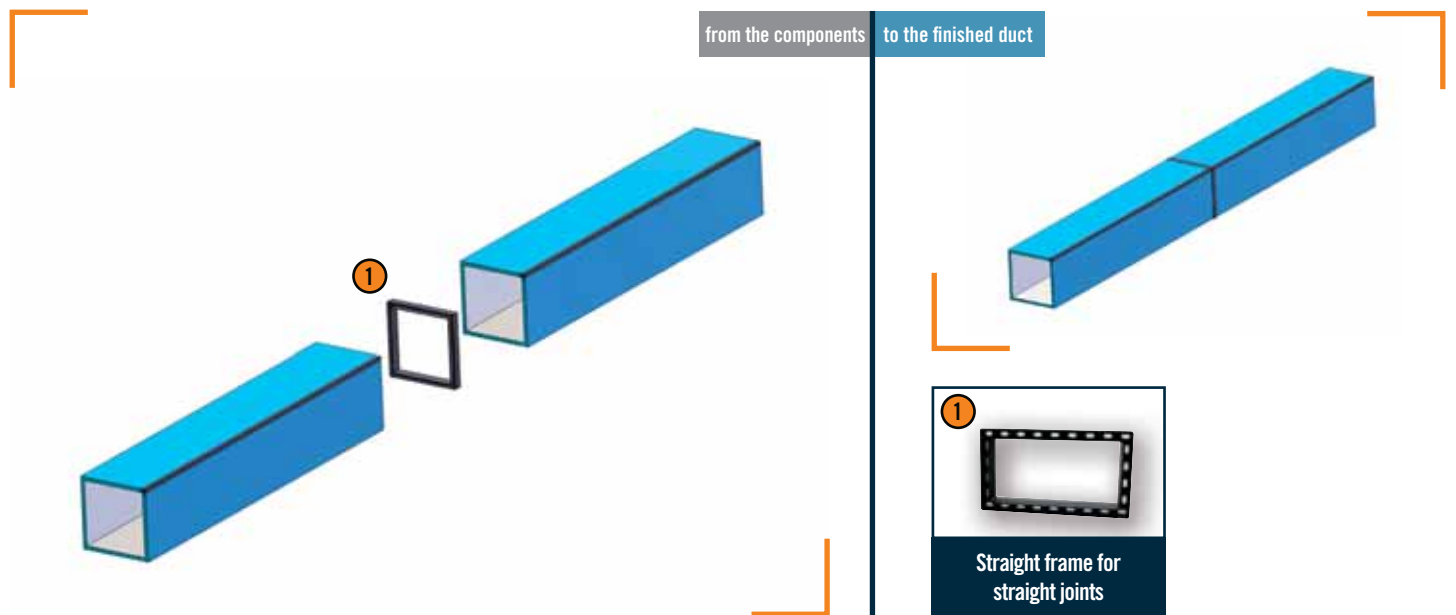
Smart 4.20 and 4.30 panels groove

All smart 4.20 and smart 4.30 panels are supplied with a groove. Sheets are, in fact, already finished with a special milling realized to allow the quick insertion of the straight joint profile to be used for the connection of single straight ducts sections.

P3smart 4.12

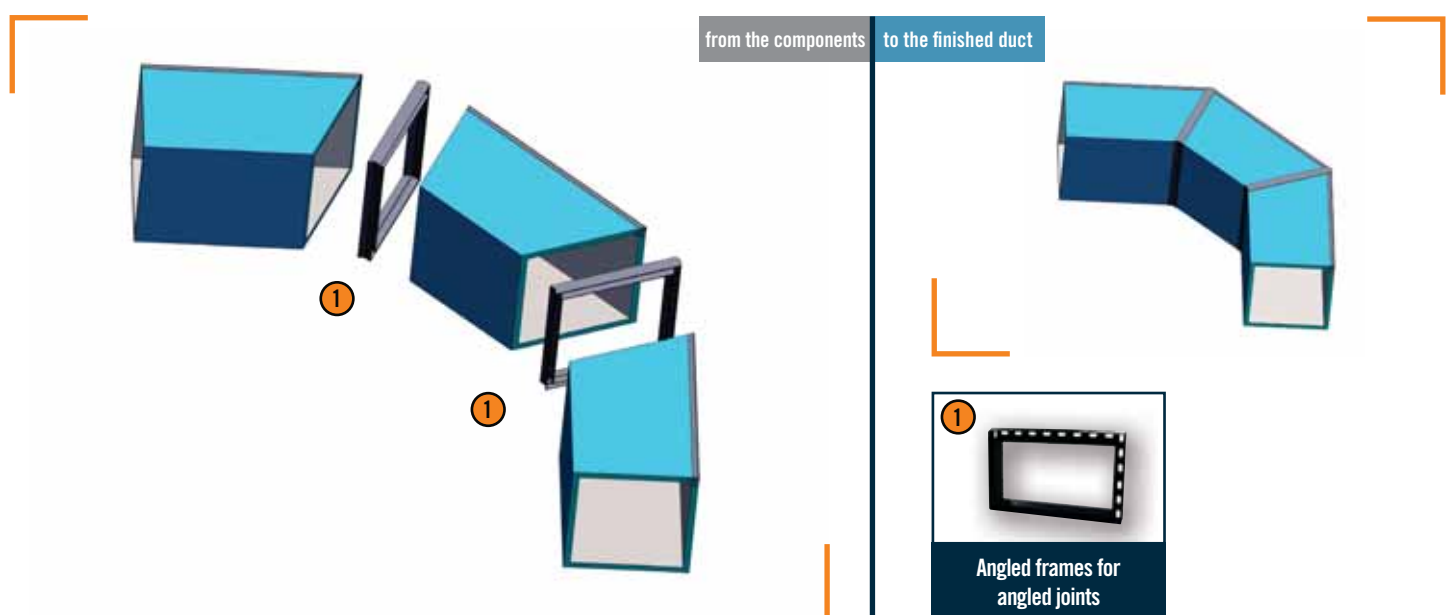
straight duct

With the appropriate straight frames you may join the single ducts in order to make any length of straight ducting for your system.



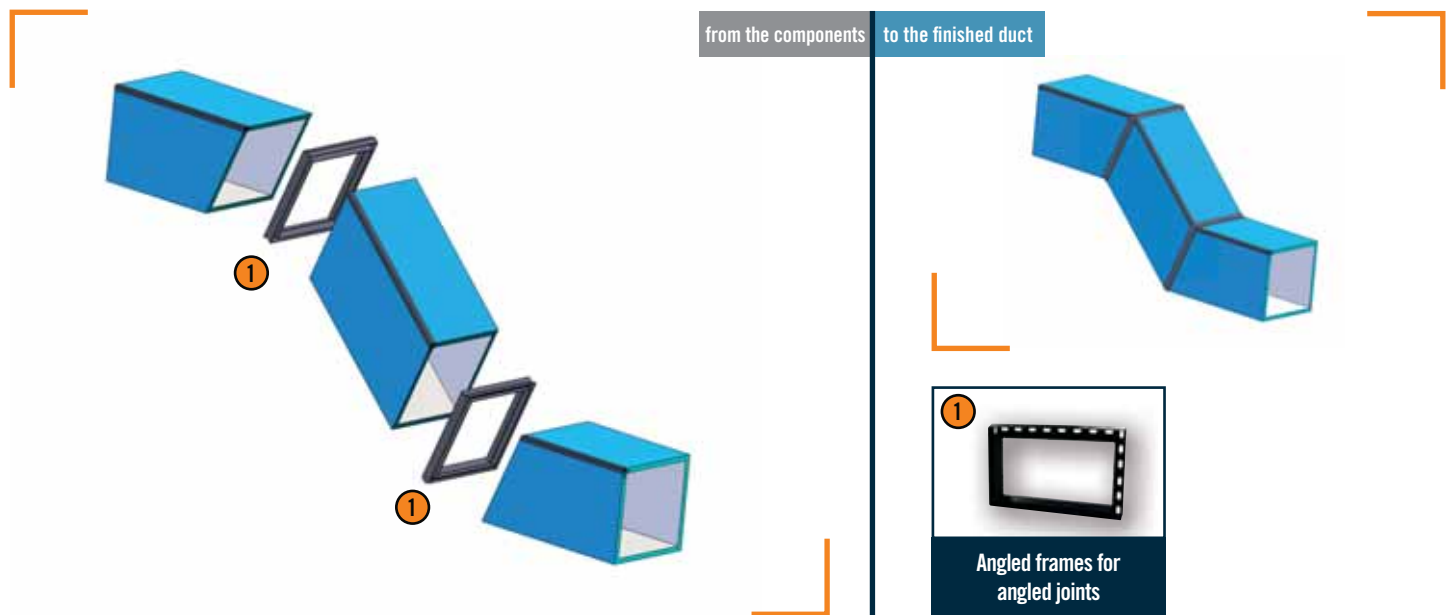
bend

The various components of the bend are united using the appropriate angled frames.



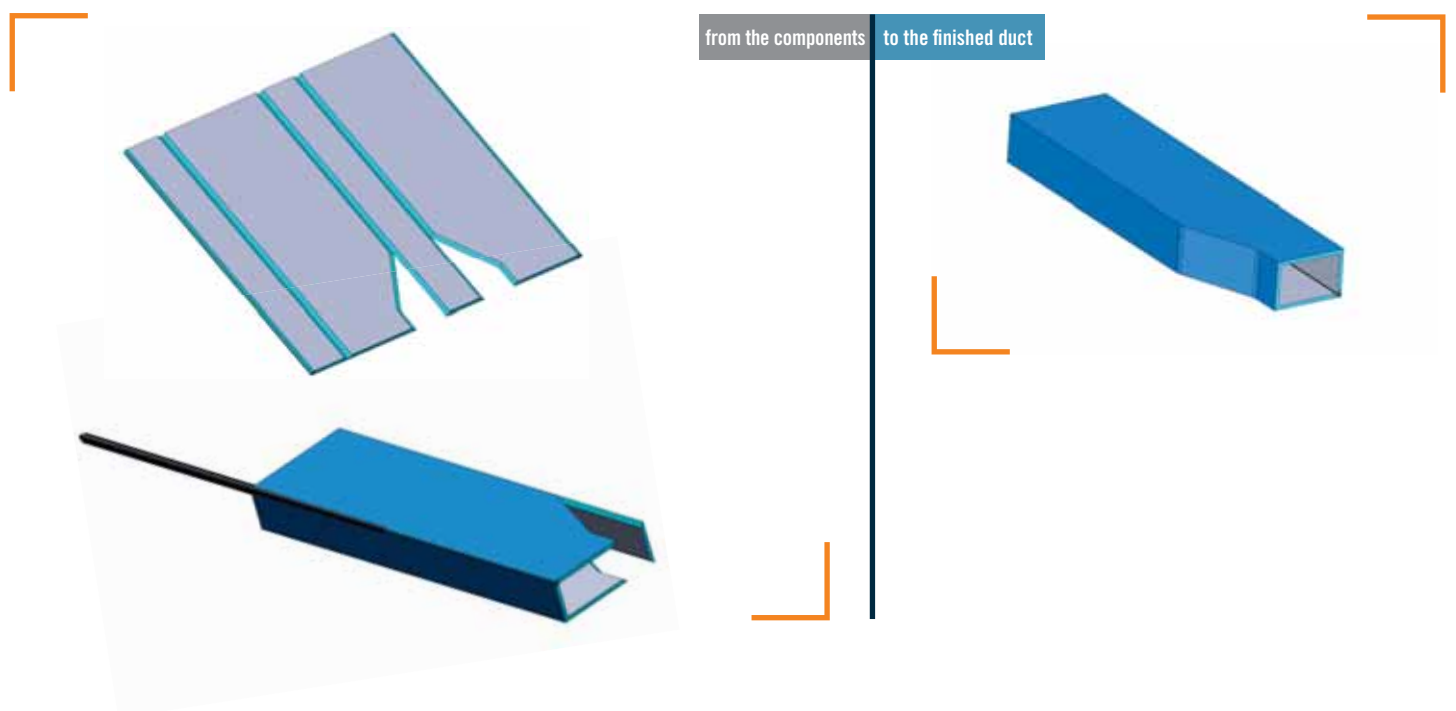
off-set

The various components of the off-set are united using the appropriate angled frames.



reduction

The reduction may be obtained directly from a straight pre-cut panel.

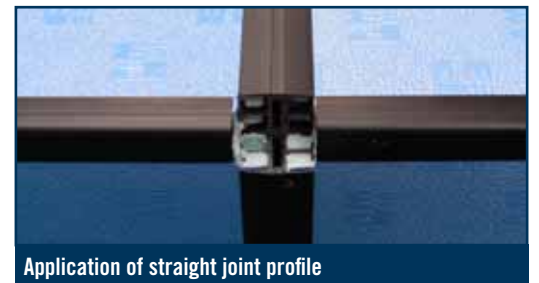
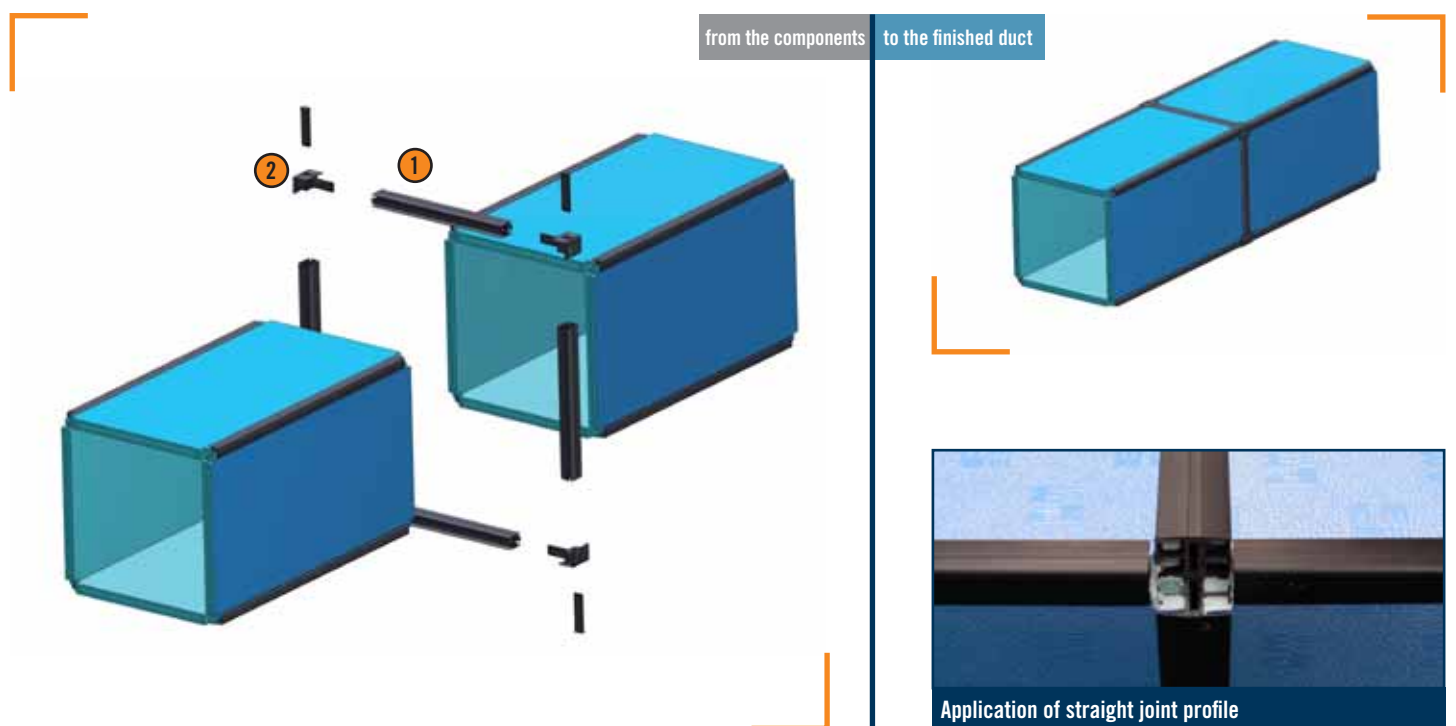


P3smart 4.20 · P3smart 4.30

straight panel (grooved panel)

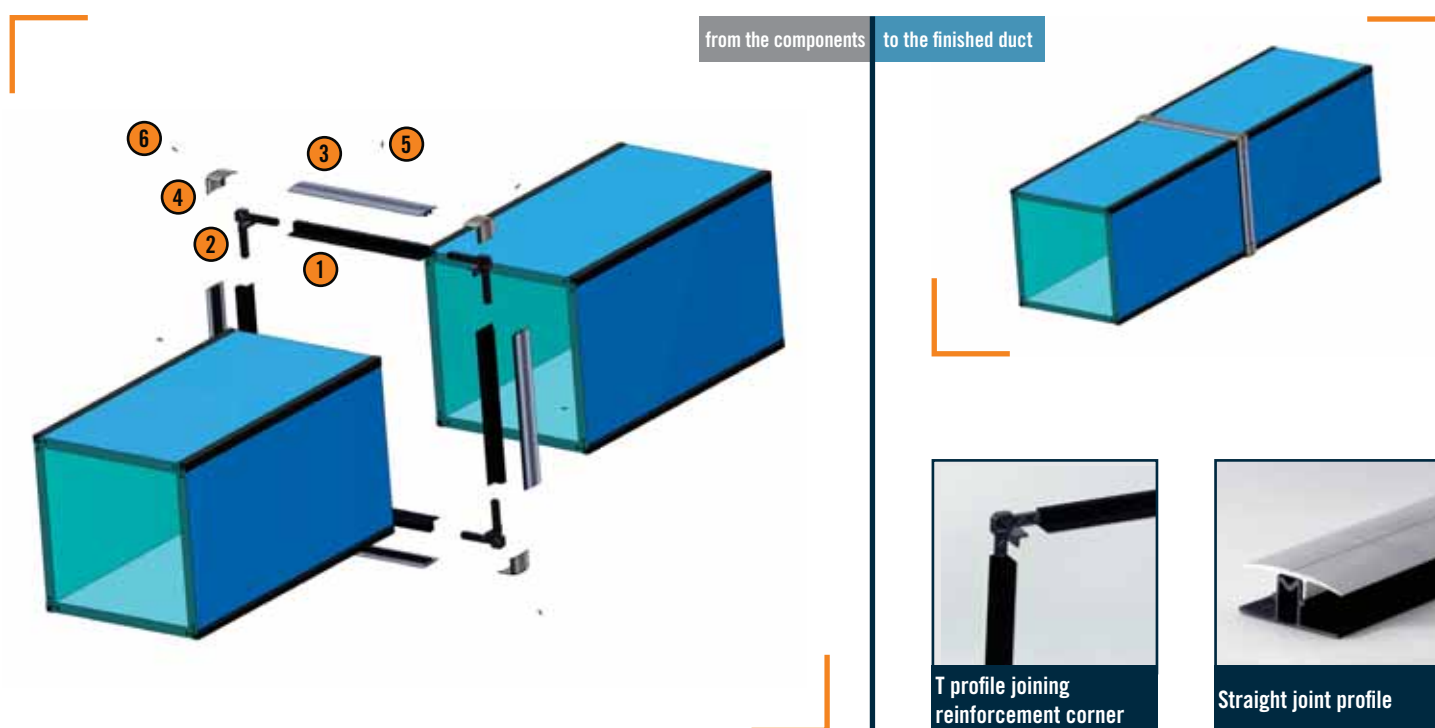
Joining two ducts sections by using the straight joint profile (21PR32 for 20 mm thickness and 21PR33 for 30 mm thickness) in the made on purpose milling on the four sides of the two duct sections (sheets are supplied already grooved).

Finish the joint by applying on each edge the special angle for joint profile (21SQ15 for 20 mm thickness and 21SQ16 for 30 mm thickness), that guarantees the maximum air seal thanks to the special joint system.



straight panel (not grooved panel)

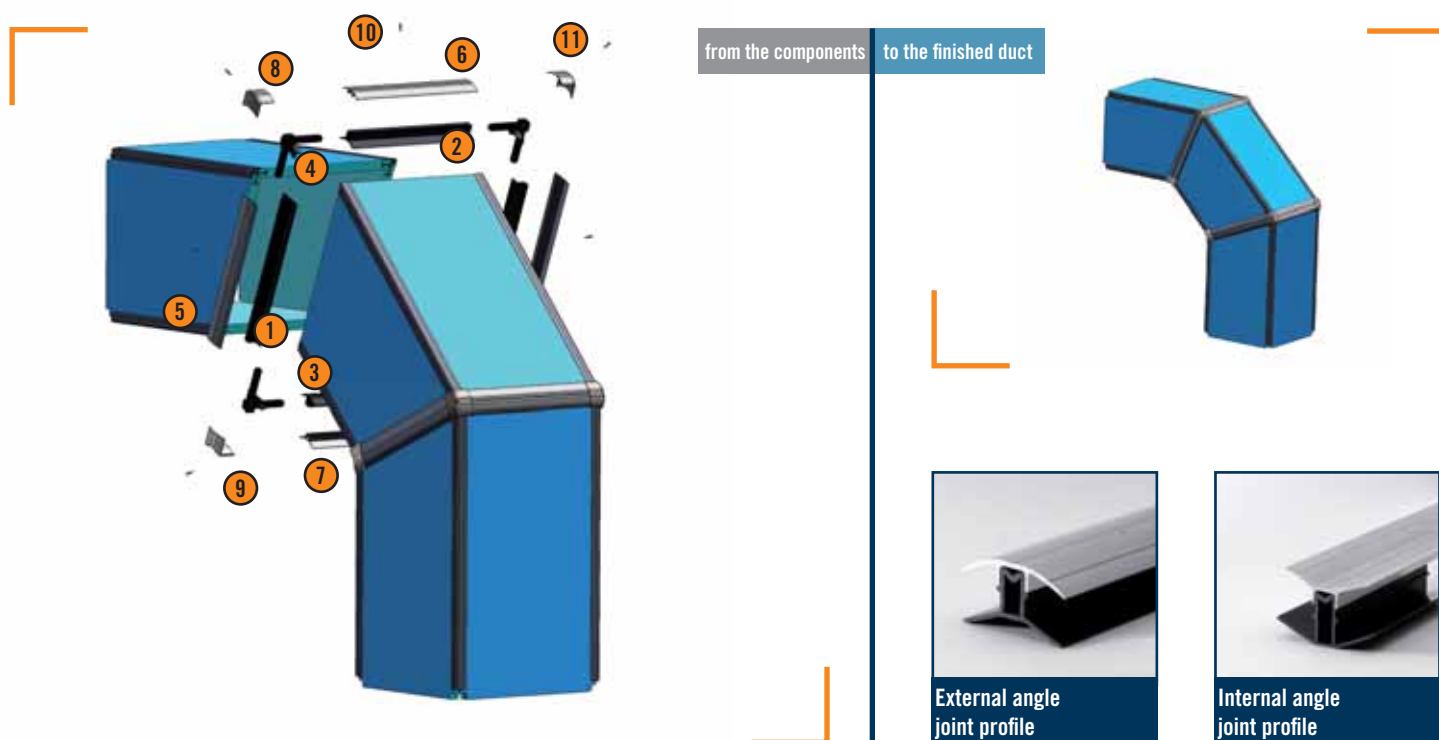
In case of trimming of panels, as it is not possible to use the grooving on panels, you can join through the composite joining system. Using the appropriate reinforcement corners (21SQ09 for 20 mm thickness and 21SQ10 for 30 mm thickness) you build the internal rectangular structure by joining the four segments of T profile (21PR22 for 20 mm thickness and 21PR20 for 30 mm thickness) provided already pre-cut at the correct length. This structure fits perfectly in the internal dimension. The two straight ducts may now be united in this way. In order to guarantee a perfect air seal you will then apply a layer of silicon. Along the external perimeter, in order to further increase the air seal, you will then go and apply the segments of aluminium covering frames (21PR23), fixing them in the middle to the internal structure with self-threading screws (21RF04). In order to finish the join you will finally apply, in the eight corners, the appropriate covering angles (21FN20) that will be fixed with the appropriate screws (21RF05) to the reinforcement corners (21SQ09 for 20 mm thickness and 21SQ10 for 30 mm thickness).



P3smart 4.20 · P3smart 4.30

bend

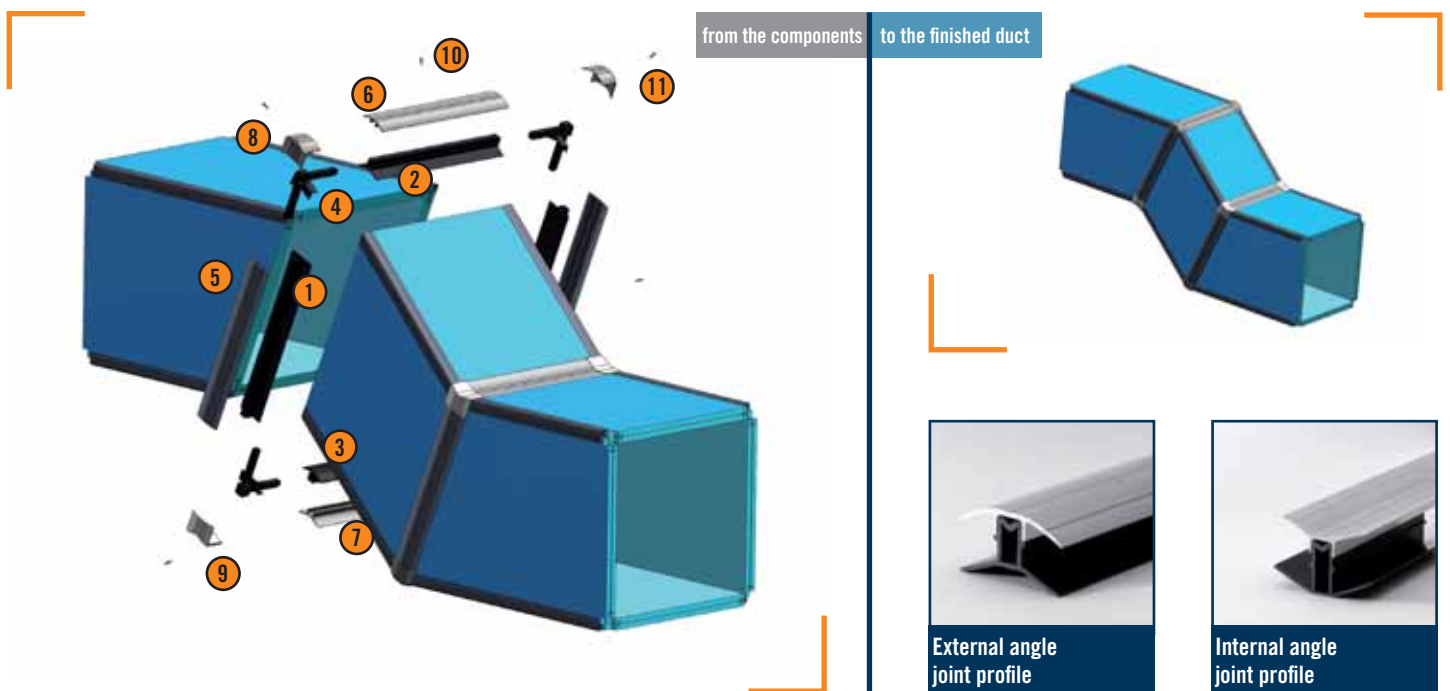
Using the appropriate reinforcement corners (21SQ09 for 20 mm thickness and 21SQ10 for 30 mm thickness) you build the internal rectangular structure by joining the four segments of T profile supplied in different models for the straight side (21PR22 for 20 mm thickness and 21PR20 for 30 mm thickness) all already pre-cut at the correct length. This structure fits perfectly in the internal dimension. The two straight ducts may now be united in this way. In order to guarantee a perfect air seal you will then apply a layer of silicon. Along the external perimeter, in order to further increase the air seal, you will then go and apply the segments of aluminium covering frames supplied in different models for the straight side (21PR23), for the external radius (21PR24) and for internal radius (21PR25), fixing them in the middle to the internal structure with self-threading screws (21RF04). In order to finish the join you will finally apply, in the eight corners, the appropriate covering angles (21FN18 for external radius, 21FN19 for internal radius) that will be fixed with the appropriate screws (21RF05) to the reinforcement corners (21SQ09 for 20 mm thickness and 21SQ10 for 30 mm thickness).



 <p>1 PVC T profile 21PR22 20 mm th. 21PR20 30 mm th.</p>	 <p>2 T profile for external angle 21PR26 20 mm th. 21PR30 30 mm th.</p>	 <p>3 T profile for internal angle 21PR27 20 mm th. 21PR31 30 mm th.</p>	 <p>4 90° reinforcement corner 21SQ09 20 mm th. 21SQ10 30 mm th.</p>	 <p>5 21PR23 Aluminium covering frames</p>	 <p>6 21PR24 Aluminium covering frames for external angle</p>
 <p>7 21PR25 Aluminium covering frames for external angle</p>	 <p>8 21FN18 Covering angles for external angle</p>	 <p>9 21FN19 Covering angles for internal angle</p>	 <p>10 11 21RF04 Screw for 21PR23/4/5 21RF05 Screw for 21FN18/19</p>		

off-set

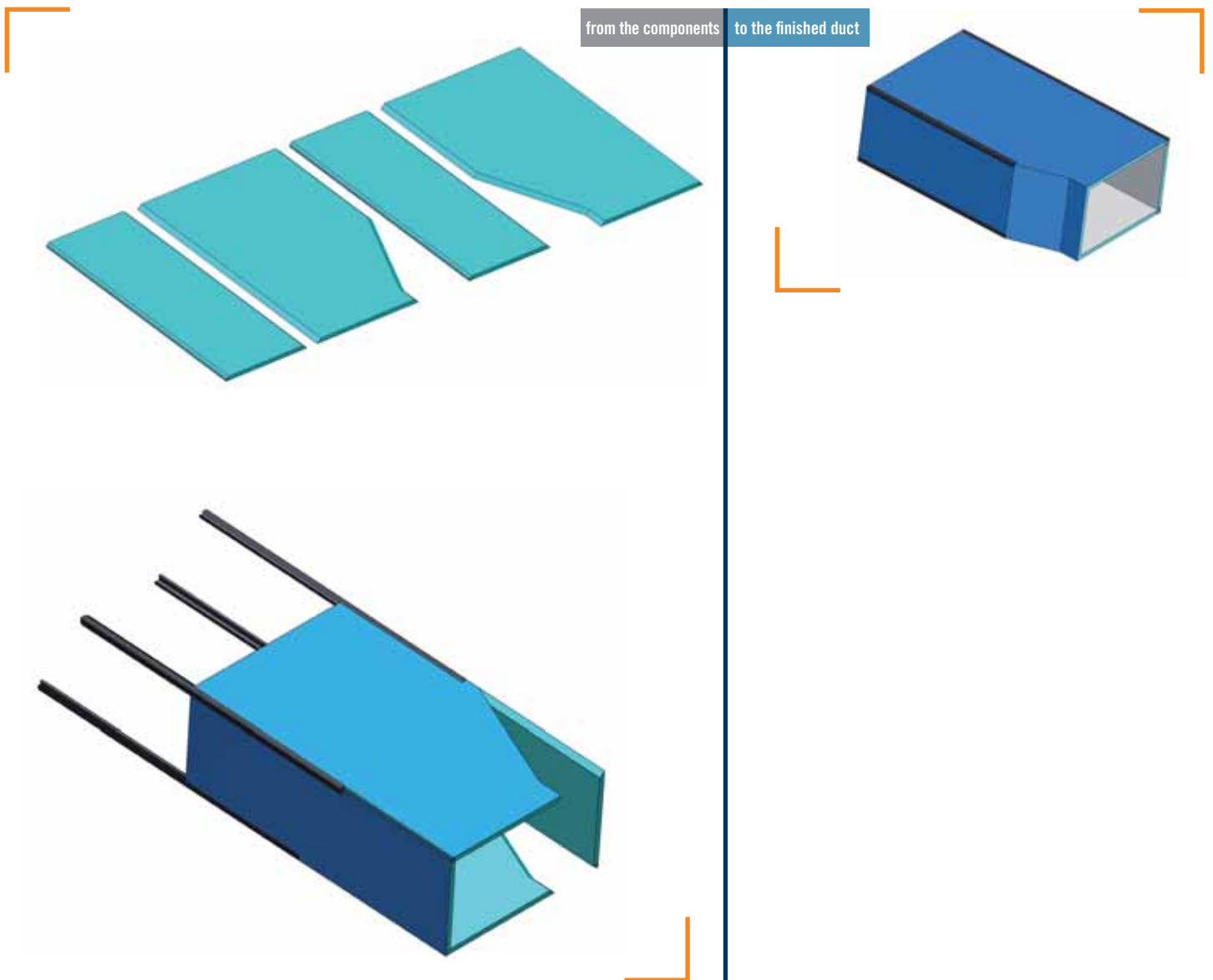
The off-set is assembled repeating twice the same joining procedure used for the bend and explained in the previous page. In this particular situation, on the contrary to the bend, the last piece of duct has to be jointed with an inverted angle.



P3smart 4.20 · P3smart 4.30

reduction

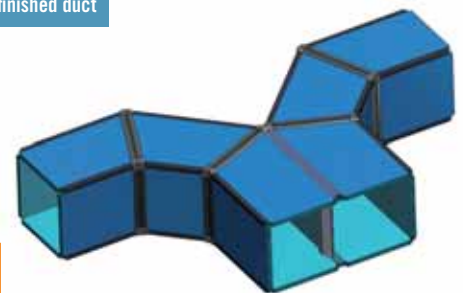
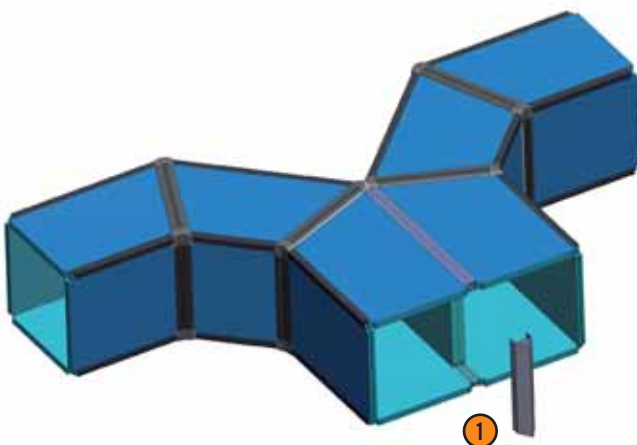
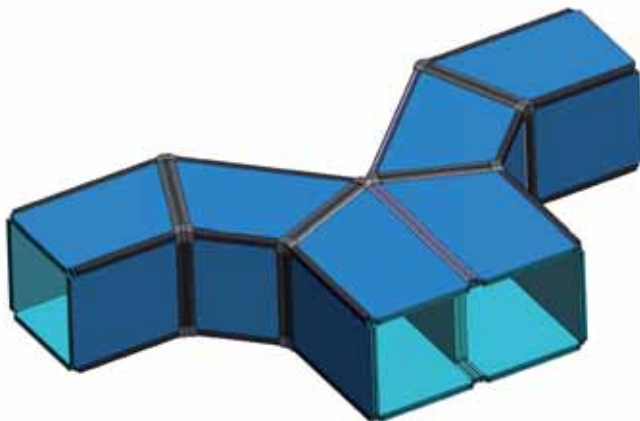
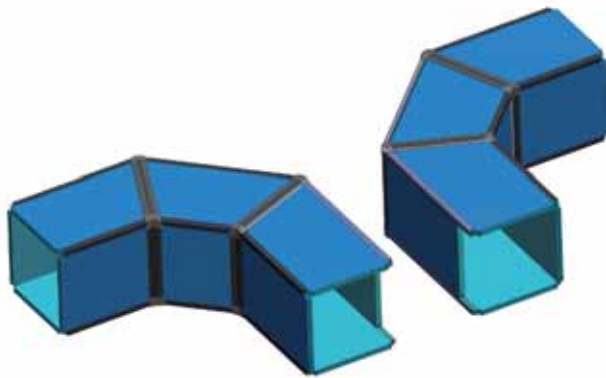
The reduction may be obtained directly from a straight pre-cut panels realizing, as below indicated, the plotting and cutting of the reduced side.



symmetrical 2 ways diverging junction

To realize the 2 ways diverging junction you will join two bends thanks to the made on purpose deflecting profile (21PR14 for 20 mm thickness and 21PR35 for 30 mm thickness).

from the components to the finished duct



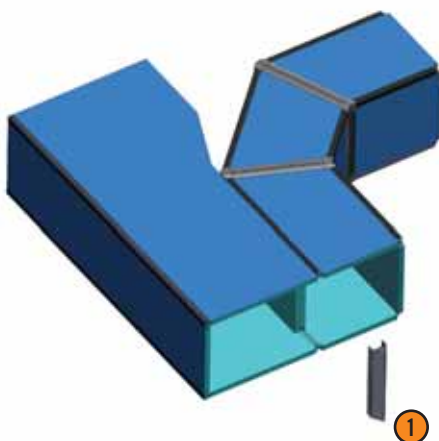
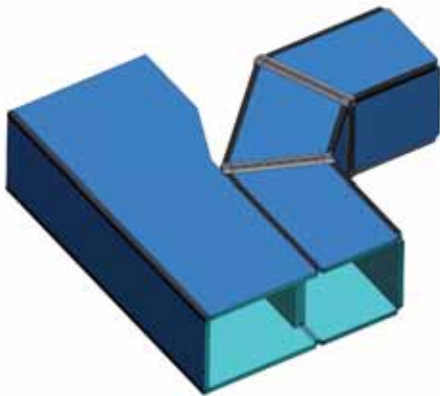
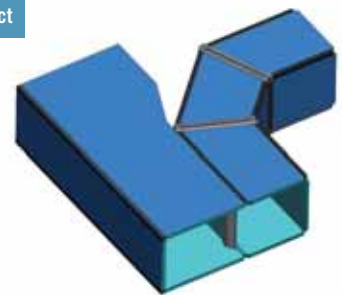
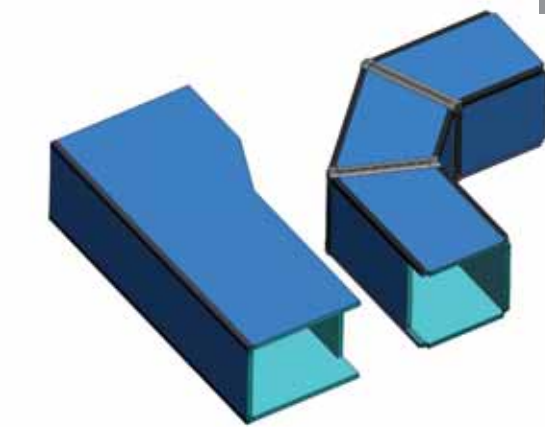
Deflecting profile
21PR34 20 mm th.
21PR35 30 mm th.

P3smart 4.20 · P3smart 4.30

asymmetrical 2 ways diverging junction

To realize the 2 ways diverging junction you will join one bend to a reduction thanks to the made on purpose deflecting profile (21PR34 for 20 mm thickness and 21PR35 for 30 mm thickness).

from the components to the finished duct



Deflecting profile
21PR34 20 mm th.
21PR35 30 mm th.



smart 4.1 2



smart 4.20



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