



■ A. GENERAL ATTRIBUTES

The RAPID POSITIONING CLIP is a unique one-piece design manufactured from a composite polyamide alloy combining strength with light weight.

The RAPID POSITIONING CLIP is designed to be extremely quick and simple to use. It is designed to support and locate a number of piping products on a variety of mounting channels, mounted either horizontally or vertically, whilst allowing some expansion movement of the pipe. It is not a structural type of fixing and, although it has a firm hold, it does not tighten down on the channel of pipe work.

The RAPID POSITIONING CLIP is designed to fit into all pre-formed channels of a profile width of 41mm with an inturned channel lip of 10mm width and 7mm depth. To ensure there is sufficient grip, allowing for the channel lip tolerances, the feet may prove tight to fit on certain types of mounting channel. To overcome this, a short length of the appropriate sized pipe may be inserted into the clip (with no need to lock over the top) and used to twist the clip into position.

The RAPID POSITIONING CLIP, being a one-piece moulding, is a major time saver in the installation of air conditioning and refrigeration pipe-work compared with competing products which are made up of several components. It will help the problems occasioned by cracked and fractured joints.

■ B. MATERIAL SPECIFICATION

1. **General** The RAPID POSITIONING CLIP is manufactured from a composite polyamide (nylon) alloy which has similar tensile strength properties to nylon but with much superior impact strength especially at low temperatures. It will function with no noticeable change in its general attributes within a temperature range from -40°C to +140°C. Much of the technical information with regard to the material is contained in several graphs prepared by the raw material manufacturer. To the extent that this information is required by a customer, Rapid Positioning Clips Limited will supply copies. Where the graphs are available, it is indicated in the following comments by "MGA" (manufacturer's graph available).
2. **Rigidity and Tensile Performance** In cases of material fatigue, resistance to stress-cracking is greater than standard polyamides. As for all polyamides, flexural rigidity of the RAPID POSITIONING CLIP drops between 20°C and 80°C although within this range it is much more rigid than a standard P6 polyamide. (MGA) It has nylon tensile properties but with a superior impact strength. There is less than 4% deformation under stresses of up to 40MPa (Mega Pascals). (MGA)
3. **Creep** The RAPID POSITIONING CLIP has a high resistance to mechanical stress creep. Graphs are available showing the creep at various temperatures under a load of 4 MPa.
4. **Chemical resistance** The RAPID POSITIONING CLIP has greater chemical resistance than other polyamides. It withstands all known solvents, hydrolysis, battery acids, salt solutions, etc.
5. **Moisture sensitivity** The RAPID POSITIONING CLIP has a low moisture sensitivity. It has dimensional stability, stable mechanical properties and better rigidity in equilibrium than with standard polyamides. It has both stable electrical and vibration properties and is a very good seal to water, solvents and gases.
6. **Ageing** THE RAPID POSITIONING CLIP has less yellowing at higher temperatures than standard polyamides. It also has a good resistance to UV light.
7. **Melting point and flammability** The RAPID POSITIONING CLIP has a melting point of 220°C and a UL94 (Underwriter's Laboratory) rating of HB. As the clip is carrying non-combustible pipes which are generally fixed (via the Unistrut channel) to masonry or similar non-combustible structures and are adequately spaced at 1000mm centres, there should be no flame spread from one set of supports to another. Under these conditions any toxic emission from the RAPID POSITIONING CLIP would be insignificant.



■ C. PHYSICAL PULL AND SLIP TESTS

A number of pull and slip tests were carried out on the RAPID POSITIONING CLIP under supervision at the Unistrut laboratory in Bedford, England. These tests were performed to give a general indication of the forces necessary to pull the RAPID POSITIONING CLIP out of the channel or to cause slippage along the channel. They were witnessed by ERA Technology Limited, world-wide research, development and testing specialists and copy of their report is available on written request.

The pull and slip tests were all carried out on Unistrut P2000PG (pre-galvanised) plain channel. Being a smoother channel than the hot dip galvanised, the slip tests were conducted under "worst case scenario" conditions. The tests were undertaken on all sizes of the RAPID POSITIONING CLIP from 3/8" to 1-1/8" diameter. All tests were performed with clips randomly selected from standard production runs and at an ambient temperature of 24°C.

The perpendicular pull tests, to demonstrate the horizontal weight holding capacity of the RAPID POSITIONING CLIP, give results between 80 Kg and 107 Kg. This is a multiple of the weight the clip would be required to hold under normal operating conditions.

The slip tests to show movements along the channel, and to demonstrate the vertical weight holding capacity of the RAPID POSITIONING CLIP, gave results between 7 Kg and 15 Kg, again well in excess of the requirements under normal operating conditions.

It should be emphasised that these results are only applicable to the RAPID POSITIONING CLIP as mounted in Unistrut P2000PG channel. Although other manufactures' channel may claim to be similar in physical nature and tolerances, there is no guarantee of equality of aspects, and thus the results may vary.