

Specification

Both 40mm caps must be of a Splittable type and shall have sufficient strength to guarantee long term performance and repeated assembly. The front of the cap facing the incoming 40mm duct will have a conical contour to reduce the possibility of the connector snagging against obstruction which may exist in location. The 40mm caps shall provide upstands at 90 to the tongue and groove sections to assist manual tightening.

The threads on all caps shall be single start to ease assembly.

The connector shall have the necessary sealing arrangement to protect the inner cavity against significant ingress of mud, sand and debris.

The connector must be able to be assembled and disassembled without the use of tools.

For dimensions see drawings in Appendix A

3.1 Material

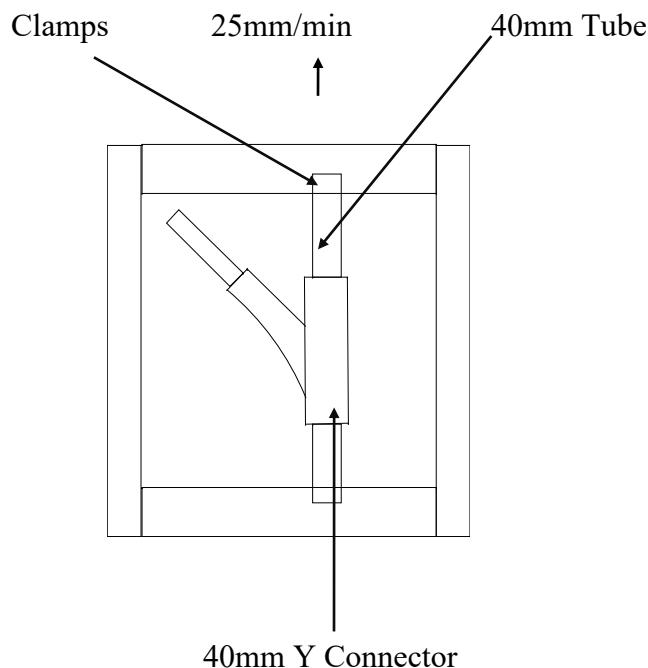
The connector body and caps shall be constructed in HDPE/High Impact Polypropylene and the protective and branch tube grab rings in ABS/POM. The following performance tests will demonstrate satisfactory design performance and material selection will ensure good lifetime and stability of performance characteristics.

3.2 Performance Tests.

The Y connector shall withstand the following mechanical and environmental tests :

3.2.1 Tensile Test.

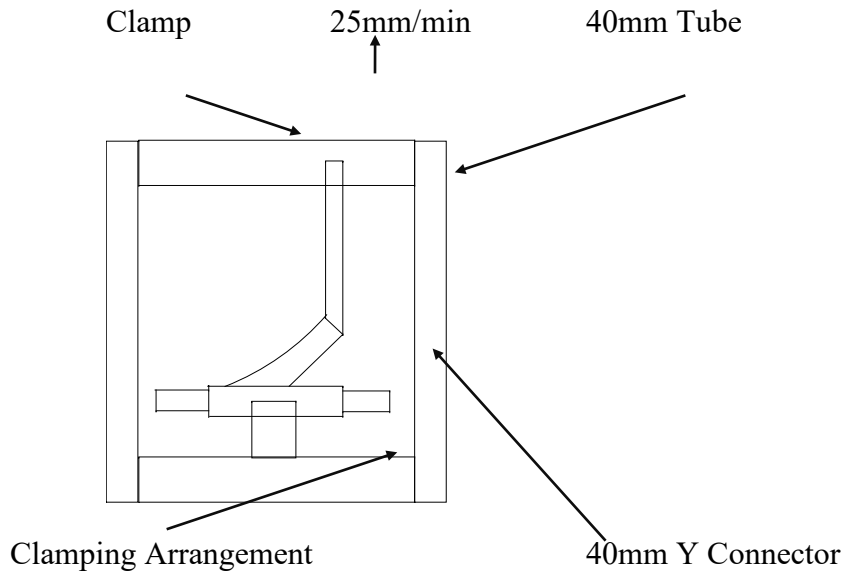
The purpose of the test is to establish the minimum force necessary to destroy the integrity of the assembly.



Specification

Connect three pieces of 40mm duct. Ensure all the connections are tightened. Place the assembly in a tensometer connecting the two 63mm tubes to the opposing jaws and perform a destructive test at a rate of extension of 25mm/minute.

Record the maximum force before failure and note also the failure mode. Minimum acceptable force 2000 Newton's.



Prepare an assembly as above and using a suitable clamping arrangement secure the 40mm protective tube section to one of the tensometer jaws. Place the branch tube in the other jaw and perform a destructive test at a rate of extension of 25mm/minute.

Record the maximum force before failure and note also the failure mode. Minimum acceptable force 2000 Newton's.

3.2.2 Impact Test

The purpose of this test is to prove the resistance of the Y connector against impact at low temperature.

Connect three pieces of 40mm duct. Ensure all the connections are tightened. Pre-condition the assembly for two hours at a temperature of -5 ± 2 C. Place the assembly on the ground and subject it to an impact force using a tup of 1kg and a height of 2.0 metres.

The assembly is deemed to have passed the test if the assembly has no fracture lines. Slight localised indentations are permissible.

Specification

3.2.3 Pressurisation.

The purpose of this test is to ensure that the assembly protects against ingress of foreign matter.

Connect three pieces of 40mm duct. Ensure all the connections are tightened. The assembly should be submerged in a mixture of mud/sand and rubble and a head of water of 1 metre. Ensure that there is no contamination from the free ends of the protective and branch tube. Pre-condition for 24 hours and then clean off all the external contamination. Open the assembly and record condition.

The assembly is deemed to have passed the test if there is minimal debris present.

3.2.4 Design Lifetime

The connector shall meet all performance requirements, over a minimum period of 20 years. It shall be designed and manufactured such that there is no residual stress which could adversely affect performance over the lifetime of the product.