

**OPINION UNDER SECTION 74A**

Patent	GB2598546
Proprietor(s)	RiserTeQ Limited
Exclusive Licensee	
Requester	Hydrotech Fire & Mechanical Limited
Observer(s)	
Date Opinion issued	28 October 2024

**The request**

1. The comptroller has been requested to issue an opinion regarding the validity of GB 2598546 (“the patent”), specifically that it lacks an inventive step in view of each of several prior art documents and common general knowledge.
2. Observations have been filed on behalf of the proprietor and observations in reply received from the requester.

**Preliminary matters**

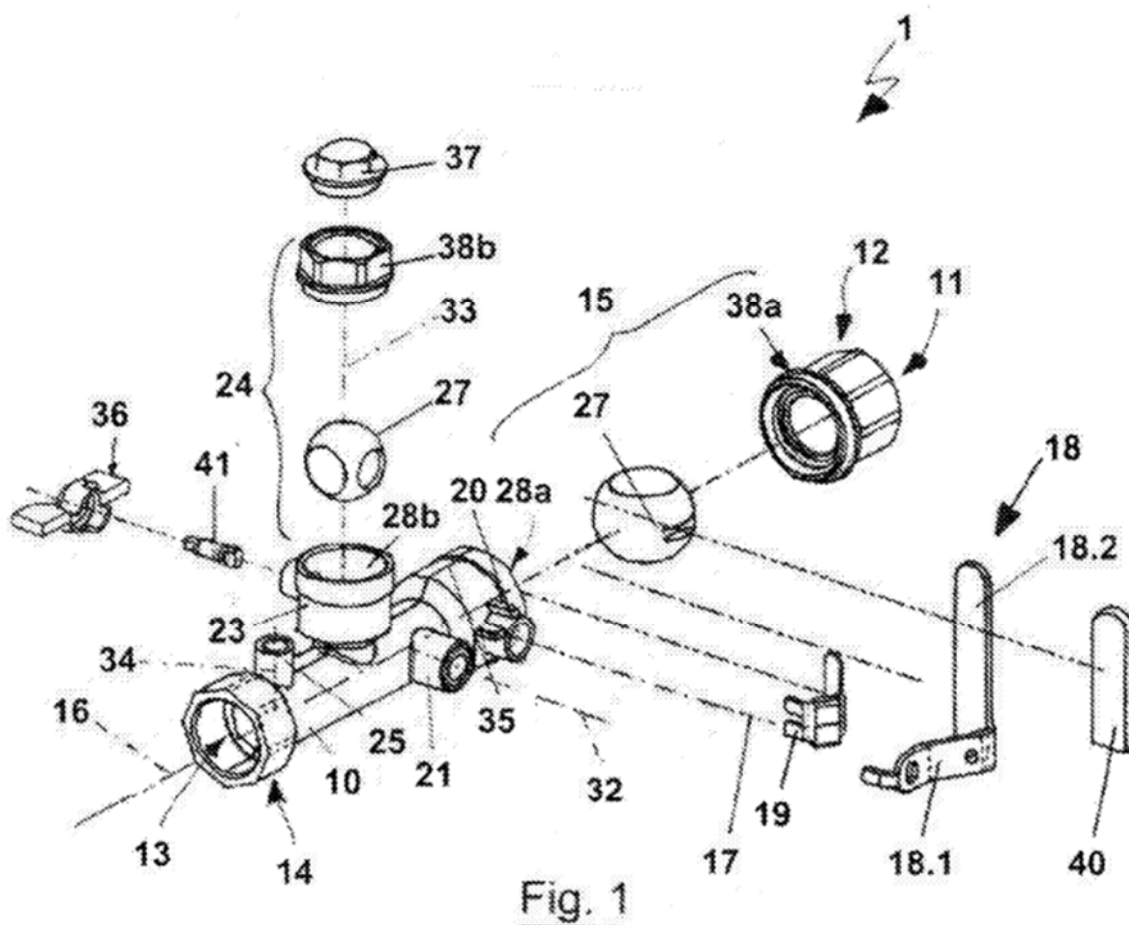
3. The observations in reply filed on behalf of the requester are said to be “*confined strictly to matters in reply to the Patent Holder’s observations*”. However, as part of the observations in reply two documents are introduced which are acknowledged as additional prior art documents, i.e. documents that did not form part of the original request.
4. Rule 96 of the Patents Rules 2007 concerns the submission of observations and observations in reply and rule 96(4) states

*(4) A person to whom observations are sent under paragraph (3) may, during the period of two weeks beginning immediately after the end of the relevant period, file observations confined strictly to matters in reply.*
5. As the introduction of the Opinions Manual explains (<https://www.gov.uk/government/publications/opinions-manual/opinions-manual>), the intention behind the Opinions service is to provide a relatively quick and simple procedure and it is for this reason that the rounds of observations are limited, as set out in rule 96.

6. In this case the additional documents appear to be an attempt to add to the documents referred to in the request showing what is said to be routine practice.
7. There is no opportunity for the proprietor to comment on the additional documents in the observations in reply and for this reason I will not consider them.

### The patent

8. The patent was filed on 18 August 2020 and granted with effect from 22 May 2024 with the title Manifold for a sprinkler system. One embodiment of the invention is illustrated and described in the patent, as shown in figure 1:



9. Passages on pages 2, 7 and 8 of the description explain the embodiment, parts of which are reproduced below:

*A manifold embodying the invention has the particular feature that a moulded seam forms a moulding plane, wherein the test outlet port axis and the pressure measuring port axis extend parallel to each other and lie in the moulding plane. The main tube body is manufactured by a moulding process using, for example, an inner moulding pin for forming the main passage. The moulding seam defines a moulding plane and forms an endless line in the moulding plane. The test outlet port axis and the pressure measuring port axis both lie in the moulding plane, which has the*

*result that the test outlet port can be machined more easily because it lies in the moulding plane. The reason is a test outlet valve with a ball body which must be received in a part of the test outlet port with a receiving geometry, which can already be formed in the moulding process and the moulding step, respectively.*

...

*The manifold 1 comprises a main tube body 10 having an inlet port 11 at a first end 12 and an outlet port 13 at a second end 14. The main tube body 10 comprises a main tube valve 15 to open and close an inner main passage extending a long main axis 16 in the main tube body 10. The main tube valve 15 can be operated by a handle 18 to turn a ball body 27 of the main tube valve 15 between an open and a closed state of the main tube valve 15.*

*A flow alarm port 21 is arranged in the main tube body 10 adjacent to the position of the main tube valve 15 and a flow alarm unit is mounted on the flow alarm port 21; the flow alarm unit is not shown in Fig. 1.*

*The main tube body 10 has, adjacent to the flow alarm port 21, a test outlet port 23 with a test outlet valve 24. The test outlet valve 24 can be operated by means of a butterfly handle 36, which is mounted on a valve stem 41 as a part of the test outlet valve 24.*

*The main tube body 10 has a pressure measuring port 25 adjacent to the position of the test outlet port 23.*

...

*A port axis 33 of the test outlet port axis 23 extends parallel to a port axis 34 of the pressure measuring port axis 25. The test outlet port axis 33 and the pressure measuring port axis 34 form a plane, and in this plane a moulding seam 35 of the main tube body 10 is arranged, which moulding seam 35 arises in the process for manufacturing the main tube body 10. In other words, the moulding seam 35 forms a plane with an orientation in which the test outlet port axis 33 and the pressure measuring port 34 are present. This leads to the advantage that the half casing 28b of the test outlet port 23 for receiving the ball body 27 of the test outlet valve 24 is formed directly in the moulding process while the moulding seam 35 divides the test outlet port 23 into notional halves. This leads to an improved manufacturing process and only a cutting machining process is necessary to finish the half casing 28b.*

## **Claim construction**

10. Before considering the documents put forward in the request I will need to construe the claims of the patent following the well known authority on claim construction which is *Kirin-Amgen and others v Hoechst Marion Roussel Limited and others* [2005] RPC 9. This requires that I put a purposive construction on the claims, interpret it in the light of the description and drawings as instructed by Section 125(1)

and take account of the Protocol to Article 69 of the EPC. Simply put, I must decide what a person skilled in the art would have understood the patentee to have used the language of the claim to mean.

11. Section 125(1) of the Act states that:

*For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

12. And the Protocol on the Interpretation of Article 69 of the EPC (which corresponds to section 125(1) ) states that:

*Article 69 should not be interpreted in the sense that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Neither should it be interpreted in the sense that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patentee has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patentee with a reasonable degree of certainty for third parties.*

13. Claim 16 is directed to “A sprinkler system comprising main supply tubing with a manifold according to any one of the preceding claims.” and hence claim 1 is the only truly independent claim in the patent and reads as follows:

*1. Manifold (1) for a sprinkler system, comprising a main tube body (10) with an inlet port (11) at a first end (12) and an outlet port (13) at a second end (14), and with a main tube valve (15) to open and close a main passage, which extends along a main axis (16) of the main tube body (10), by turning the valve (15) in a valve axis (17), wherein the main tube body (10) has a test outlet port (23) with a test outlet port axis (33) and a pressure measuring port (25) with a pressure measuring port axis (34) and wherein the main tube body (10) is manufactured by a moulding process which leaves a moulding seam (35) at the main tube body (10), characterised in that the moulding seam (35) defines a moulding plane, wherein the test outlet port axis (33) and the pressure measuring port axis (34) extend parallel to one another and lie in the moulding plane.*

14. The claim seems to me to require no interpretation and I note that neither the requestor nor the proprietor comment on the construction of the claims in the request, the observations or the observations in reply.

## Inventive step

15. Section 1(1) of the Act reads:

*A patent may be granted only for an invention in respect of the following conditions are satisfied, that is to say –*

- (a) the invention is new;*
- (b) it involves an inventive step...*

16. Section 3 of the Patents Act 1977 states:

*An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*

17. The requester argues that the claimed invention is not inventive having regard to each of several prior art documents and common general knowledge, exemplified in some further documents. To come to an opinion on the matter I shall rely on the principles established in *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588, in which the well known Windsurfing steps were reformulated:

- (1)(a) Identify the notional “person skilled in the art”;*
- (1)(b) Identify the relevant common general knowledge of that person;*
- (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;*
- (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;*
- (4) Viewed without any knowledge of the alleged invention as claimed, determine whether those differences constitute steps which would have been obvious to the person skilled in the art.*

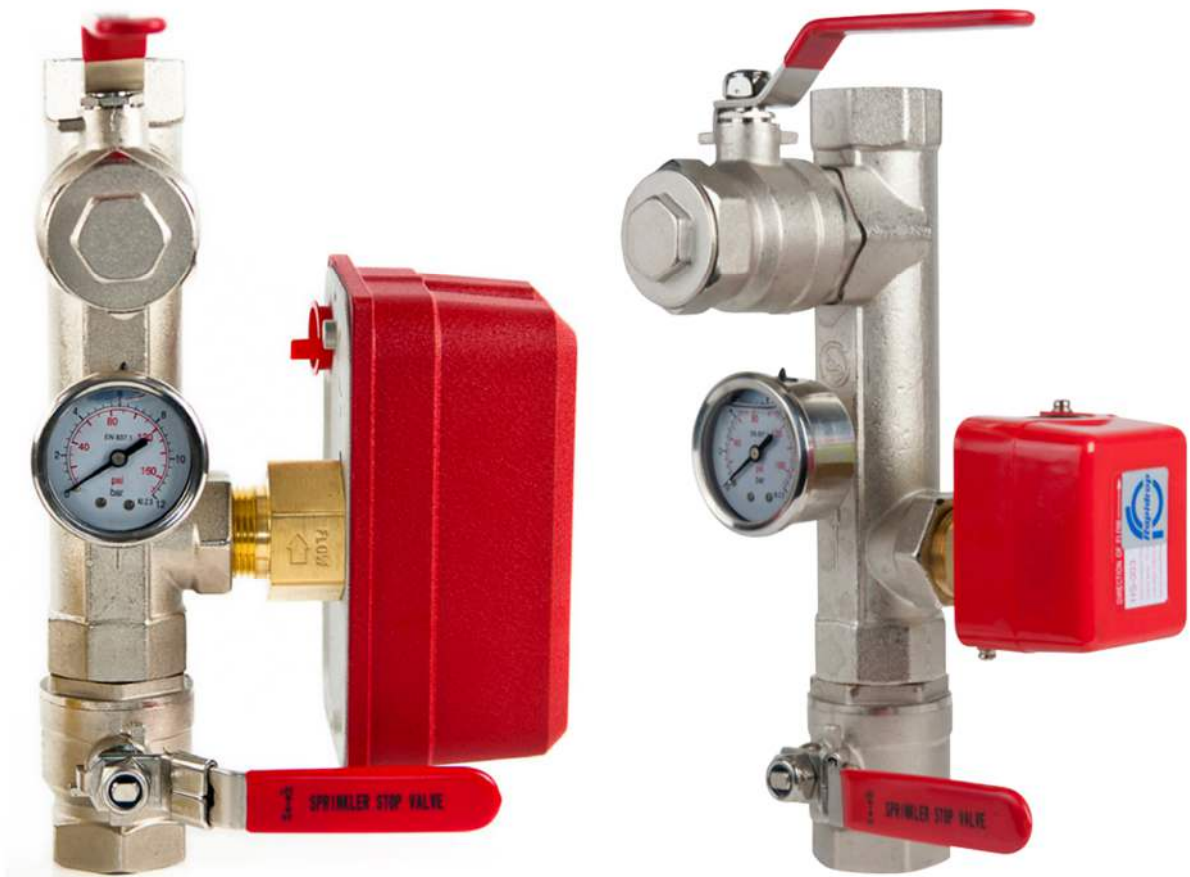
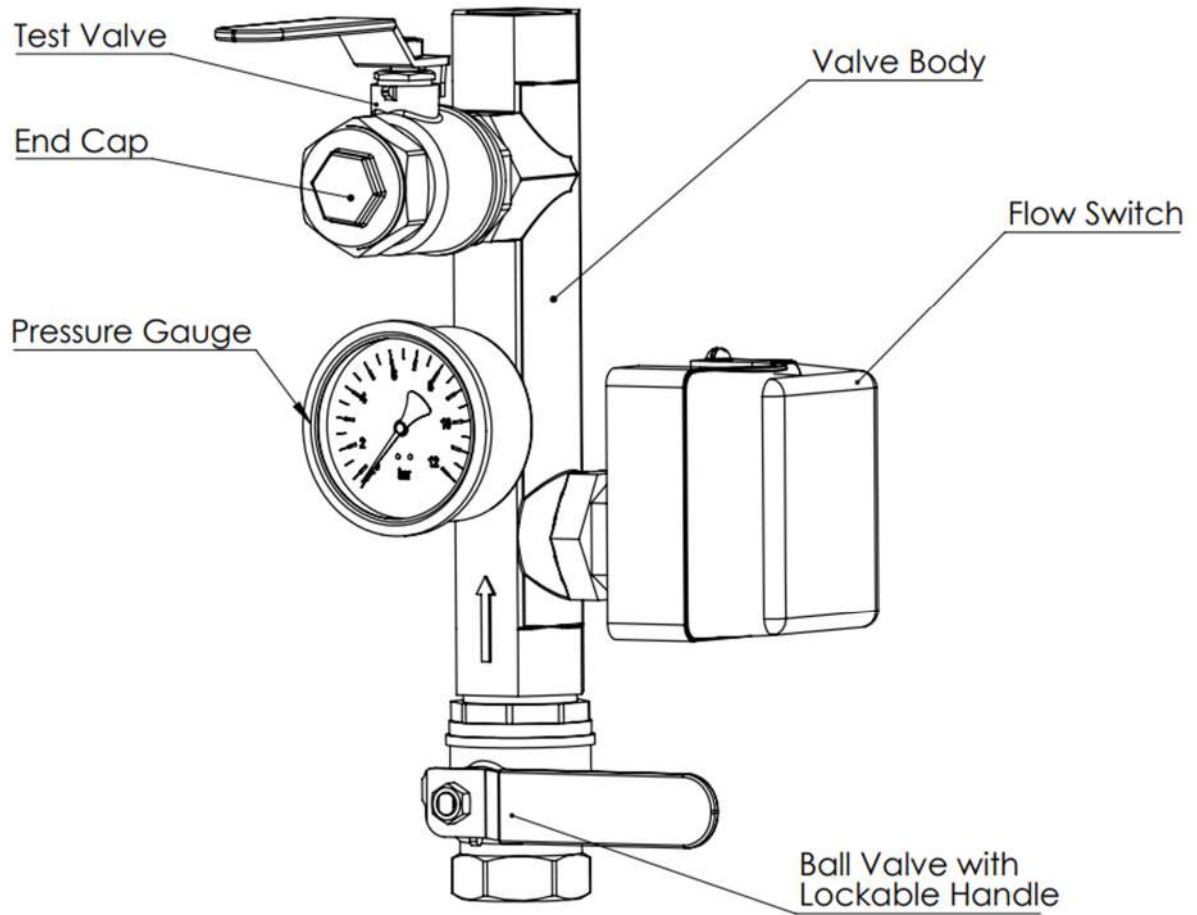
18. The request makes no explicit reference to these principles. I have no guidance from the request or from the observations to help me identify the notional “person skilled in the art”. However, the request does refer to a number of documents which are said to provide evidence of the common general knowledge. The requester does not construe the claim or identify the inventive concept beyond reciting claim 1. The request relies upon documents D1 and D2 which I take to be cited as matter forming part of the “state of the art”.

19. To my mind the notional “person skilled in the art” is a person or perhaps a team concerned with the design and manufacture of manifolds for sprinkler systems. Claim 1 is characterised by a manufacturing feature in the form of the moulding seam and its location. This places a particular emphasis on the manufacturing skills and knowledge of the person, or team, skilled in the art. I note that the skilled person is generally held to be unimaginative, as was explicit in the original formulation of the Windsurfing steps.

20. As I have said the request refers to a number of documents which are said to provide evidence of the common general knowledge. The three documents, D7 to

D9 in the request, show two different ball valves from the same manufacturer and an isolating valve offered by a retailer. These documents themselves are not suggested to be commonly known to the person skilled in the art. There is no indication in D7 to D9 that any of them are particularly relevant to sprinkler systems. The request describes the valve shown in D9 as being used in the plumbing industry, an industry the requester says is related to the industry of the patent.

21. From the request it seems that the requester is seeking to establish that *“Having a moulding seam forming a plane in which other components of the manifold lie is not inventive, but instead normal manufacturing practice when producing moulds that enable the integration of components such as ball valves. This method is commonly used in several industries in order to reduce the number of joints needed to be produced and to integrate several components into one cast as demonstrated by documents D7-D9”*.
22. The valves shown in D7 to D9 each comprise a tubular body defining a flow path with an inlet and outlet between which lies a valve to open and close the flow path. The photographs are indistinct on the point, but in each case they appear to show a line that may be a seam that runs through a housing or port formed on one side of the tubular body to accommodate a valve spindle. I can derive no information from any of the documents regarding the nature of this line or seam. The documents also offer little or no information regarding how the valves are manufactured, only some information regarding the materials used, variously brass, light alloy, steel and stainless steel. There is a single reference in document D7 to the valve body being a forging.
23. To my mind these documents teach me that it is known to manufacture from metals valves that comprise a tubular body. Beyond the one reference to forging I have no evidence before me from the requester regarding how these valves are manufactured, still less what would be commonly known by the person skilled in the art of producing tubular bodies for valves and manifolds for sprinkler systems.
24. As I said earlier, claim 1 needs no interpretation and the claim 1 itself defines the inventive concept.
25. I shall now consider documents D1 and D2 in turn.
26. Document D1 is a data sheet from Rapidrop Global Limited concerning a *“Residential and Domestic Alarm and Test Valve Assembly”*. It carries a copyright date of 2017 and can be accessed at <https://www.rapidrop.com/media/4552/705-b-ds-rdresivalveset-residential-domestic-alarm-test-valve-assembly-bs9251-2014.pdf>. The valve assembly appears in the following figures:



27. It seems to be common ground that the figures in D1 show most of the features of claim 1, that is a manifold for a sprinkler system comprising a main tube body or valve body with an inlet port at a first end and an outlet port at a second end, and with a main tube valve or ball valve to open and close a main passage which extends along a main axis of the main tube body by turning the valve in a valve axis, the main tube body has a test outlet port with a test outlet port axis shown fitted with a test valve and endcap and a pressure measuring port with a pressure measuring port axis shown fitted with a pressure gauge. The test outlet port axis and the pressure measuring port axis appear to extend parallel to one another in the photographs above, this is shown more clearly in two line drawings from D1 that I have not reproduced above.
28. As the request indicates and the observations in reply reiterate, at the top of the right hand colour figure above there appears to be a raised line or seam running through a flat surface at the upper end of the valve body. On close inspection the same figure seems to show the line continuing along the valve body to a corresponding flat surface just above the ball valve housing at the bottom of the manifold. The requester also states that a moulding seam is shown in one of the two line drawings that I have not reproduced above. However, I share the view of the proprietor that the line in question is an artefact of the line drawing rather than a feature of the manifold itself.
29. The observations from the proprietor also rightly point out that document D1 says nothing about a moulding seam or moulding plane. I do not entirely agree with the observation of the proprietor that "*a moulding seam is not shown or discernible in the perspective view photographic image of D1*". As I have said I believe that a line or seam is discernible in one of the figures from D1, shown above.
30. Although the document specifies that the valve body, ball valves and end cap are made from brass, it is silent on details of how the valve body or the main tube body is manufactured, as the proprietor rightly points out in their observations.
31. In the absence of any description of the manufacturing process for the valve body in D1 I do not feel that the evidence before me is sufficient for me to say that the line discernible in D1 is a moulding seam. For me and for the proprietor this is a difference between document D1 and claim 1. Beyond the assertion that the line shown in the photograph is a moulding seam, neither the request nor the observations in reply address directly the question of what D1 teaches regarding how the valve body it shows is manufactured and hence whether the line in the photograph is a moulding seam.
32. As the request acknowledges, the test outlet port axis and the pressure measuring port axis in D1 do not lie in the plane defined by the line shown in the figure. I take it that for the requester this is the difference to which the third Windsuring/Pozzoli step refers.
33. I agree that this a difference between what is shown in D1 and claim 1. However, I have already noted that for me there is an additional difference. To recap and use the language of claim 1, I believe that these differences are "*the main tube body is manufactured by a moulding process which leaves a moulding seam at the main tube body, characterised in that the moulding seam defines a moulding plane*" and



*“the test outlet port axis and the pressure measuring port axis lie in the moulding plane”.*

34. That brings me to the final Windsuring/Pozzoli step that is, viewed without any knowledge of the alleged invention as claimed, to determine whether those differences constitute steps which would have been obvious to the person skilled in the art.
35. As I have said there is no evidence before me regarding how the valve body in document D1 is manufactured nor what is the common general knowledge of the skilled person regarding how such bodies are manufactured. This gives me no basis for concluding that it would have been obvious to the person skilled in the art to manufacture the valve body of document D1 *“by a moulding process which leaves a moulding seam at the main tube body, characterised in that the moulding seam defines a moulding plane”.*
36. Turning to the second difference, the requester argues that moving the seam to the position required by claim 1 *“represents a routine modification which is not inventive”.* They go on to assert that *“Having a moulding seam forming a plane in which other components of the manifold lie is not inventive, but instead normal manufacturing practice when producing moulds that enable the integration of components such as ball valves. This method is commonly used in several industries in order to reduce the number of joints needed to be produced and to integrate several components into one cast as demonstrated by documents D7-D9.”.* They further state *“In order to integrate a ball valve, such as the test outlet valve, for example, the valve must be cast from a mould that joins the manifold perpendicular/vertically. Casting around the ball valve takes place in the only configuration possible, by using a split cast in which the ball valve is dropped. It would not be possible to achieve integration of a ball valve in any other way.”.*
37. In their observations the proprietor takes issue with a number of the statements in the request in particular regarding how one would cast a ball valve housing.
38. To my mind integrating a ball valve into a manifold is beside the point. In the Windsurfing/Pozzoli context the skilled person is viewing the difference *“without any knowledge of the alleged invention as claimed”.* In this instance the skilled person is starting from the valve body shown in D1 and is assumed to have no knowledge of the invention claimed in the patent. To me the figures from document D1 above appear to show that the two valve housings are not formed as integral parts of the tubular valve body, but rather are assembled into ports provided on the valve body. This is unlike the embodiment shown in figure 1 of the patent above where half casings 28a and 28b for accommodating the ball bodies 27 are integrally formed in the main tube body 10. Beyond providing a port for a ball valve, forming such a valve is not a consideration when forming the valve body shown in D1 and consequently the advantage or necessity of using a mould split in the way the requester describes in order to integrate a ball valve could not motivate the skilled person.
39. The requester makes a more general point that documents D7 to D9 demonstrate that is commonly known to have *“a moulding seam forming a plane in which other components of the manifold lie”.* Even if I were to accept that the valve body in D1

has a moulding seam, and my opinion above is that it does not, that seam already forms a plane in which other components lie, specifically a port for a flow switch. There is no evidence provided to suggest that the unimaginative skilled person would be motivated to change the position of the line in the valve body in D1 and hence the plane such that different components lie in that plane.

40. From the evidence and arguments presented, my opinion is that the differences between what is disclosed in document D1 and the inventive concept of claim 1 constitute steps which would not have been obvious to the person skilled in the art. Consequently the invention of claim 1 involves an inventive step. Having come to this opinion there is no need for me to consider the dependent claims.
41. The second document to which the request refers or "*the matter cited as forming part of the "state of the art"*" is D2 in the request. This is a blog post dated May 16 2017 on the website of Applications Engineering Ltd. It is entitled "*Residential fire sprinkler systems: myths busted part 1*" and is available at <https://www.appeng.co.uk/blog/residential-fire-sprinkler-systems-myths-busted-part-1/>. The post includes the following image in two places, although it makes no direct reference to the image or what it shows.



42. The post also says nothing about valve assemblies or manifolds more generally.

Hence the only potentially relevant disclosure lies in the image itself. That image does appear to show a manifold or valve assembly of the kind with which the patent is concerned. The request highlights a section of the main tube body between the top two transverse ports asserting that a moulding seam runs along the section in line with the port for what I take to be a flow switch and not forming a plane in which lie the axes of a port for the pressure gauge shown and the port above it. So once again I take it that for the requester the difference between what D2 discloses and the invention of the patent is the location of a moulding seam.

43. Having examined the copy of the image from the request and the blog post online, much like the proprietor, I cannot make out any line or seam, still less one that might be a moulding seam. I can discern nothing from the image regarding how the main tube body is formed or manufactured.
44. I should say that in the absence of any description of the photograph in D2 I am assuming that what is shown is in fact a manifold for a sprinkler system and that the components shown are, starting at the top of the assembly, an outlet port, a test outlet port, a flow switch port, a pressure measuring port, a main tube valve and an inlet port. There also appears to be an additional port opposite the flow switch port. The only basis I have for my assumption is a resemblance to the valve assemblies shown in the patent and in document D1.
45. If my assumption is valid, once again most of the requirements of claim 1 appear to be disclosed. The differences between the valve assembly shown in the image in D2 and claim 1 are that the main tube body is not "*manufactured by a moulding process which leaves a moulding seam at the main tube body, characterised in that the moulding seam defines a moulding plane*" and the test outlet port axis and the pressure measuring port axis do not lie in a moulding plane, although they do lie in a plane.
46. The request makes exactly the same arguments regarding document D2 and inventive step as it makes regarding D1.
47. Once again the evidence before me gives me no basis for determining that it would have been obvious to the person skilled in the art to manufacture the valve body of document D2 "*by a moulding process which leaves a moulding seam at the main tube body, characterised in that the moulding seam defines a moulding plane*".
48. Since to my mind there is no seam shown in D2, the question of inventive step does not turn on changing the position of an existing line or seam, unlike my consideration of D1 above. Given my opinion that it would not have been obvious to use a moulding process that leaves a moulding seam to manufacture the valve body shown in D2 it is a moot point to ask if it would be obvious to locate such a seam in the manner required by claim 1. Nevertheless, there is no evidence provided to inform me as to where the skilled person would locate a moulding seam in the valve body shown in D2 were they motivated to manufacture it by a moulding process resulting in a moulding seam.
49. Based on the evidence and arguments offered, my opinion is that the differences between what is disclosed in document D2 and the inventive concept of claim 1 also constitute steps which would not have been obvious to the person skilled in the art.

Consequently the invention of claim 1 involves an inventive step. Again, there is no need for me to consider the dependent claims.

### **Conclusion**

50. In my opinion the invention claimed in the patent involves an inventive step having regard to the documents referred to in the request for an opinion and to the arguments in the request and the observations provided.

Karl Whitfield  
Examiner

---

### **NOTE**

*This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.*