IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

FRENI BREMBO, S.p.A. and BREMBO NORTH AMERICA, INC.,	)	
Plaintiffs,	)	
v.	)	**Case No. 04 C 5217**
ALCON COMPONENTS, LTD., and ALCON COMPONENTS (USA), INC.,	)	
Defendants.	)	

MEMORANDUM OPINION AND ORDER

MATTHEW F. KENNELLY, District Judge:

In this patent infringement suit, Freni Brembo, S.p.A. and Brembo North America, Inc. charge Alcon Components, Ltd. and Alcon Components (USA), Inc. with infringing U.S. Patent No. 6,446,766, which is held by Brembo. The case is before the Court for construction of disputed claim language in the patent-in-suit.

Factual Background

Brembo's disk brakes are used in high-performance motor vehicles, such as Indianapolis-type, Formula 1, and NASCAR race cars. Many of the cars that ran in this past weekend's Indianapolis 500 were equipped with Brembo brakes, including the car driven by fourth-place finisher and Illinois native Danica Patrick, the first woman ever to lead the field at what Indy-car racing fans call "the greatest spectacle in racing." *See* www.rahal.com/cars/overview/index.jsp.

The '766 patent, entitled "Disk Brake for Motor Vehicles and the Like," was issued to

Brembo in September 2002. The patented brake includes a caliper body mounted to the vehicle frame and a disk mounted to the wheel hub on each wheel. The caliper body contains two brake pads, one mounted on each side of the disk. When the driver applies pressure to the brake, hydraulic pistons push against the brake pads, causing them to press against the disk. The friction generated between the pads and the disk slows the vehicle but also significantly raises the temperature to 1,000 degrees Celsius or more. The heat from the pads can transfer to the brake fluid, which can cause the fluid to boil. When brake fluid boils, bubbles form that may interfere with the hydraulic system, adversely affecting the functioning of the brakes.

The stated purpose of Brembo's invention is to combat the problem of brake fluid boil. It does so by bringing cooling air through a series of ducts to the active ends of the pistons located on the hub and wheel sides of the caliper body. Brembo claims this caliper body venting system is unique and highly effective in dissipating heat before it can reach the brake fluid. Brembo alleges that Alcon's "Through Piston Cooled" caliper devices infringe the '766 patent.

Discussion

The first step in any patent infringement case is to construe the claims of the patent-in-suit. *Mars, Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1373 (Fed. Cir. 2004). The object of claim construction is to determine the meaning of terse and sometimes unfamiliar language in patent claims. *Gart v. Logitech, Inc.,* 254 F.3d 1334, 1339 (Fed. Cir. 2001).

The parties in this case agree on the general principles that govern claim construction. *See* Def. Claim Constr. Mem. at 2; Pl. Claim Constr. Mem. at 5. They agree that there is a heavy presumption that the terms used in the claims have the ordinary meaning that would be attributed to those words by persons skilled in the relevant technology. *See, e.g., Texas Digital Systems,*

Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002); *Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). "[U]nless compelled otherwise, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art." *Texas Digital,* 308 F.3d at 1202 (citing *Rexnord Corp. v. Laitram Corp.,* 274 F.3d 1336, 1342 (Fed. Cir. 2001)). In determining the ordinary and customary meaning of a claim term, a court may consult dictionaries as objective and reliable sources. *See, e.g., ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1089 (Fed. Cir. 2003); *Texas Digital,* 308 F.3d at 1202.

The parties agree that after determining the plain meaning of a claim term, the Court must examine the intrinsic evidence to confirm that the patentee's use of the term is consistent with the plain meaning. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). The intrinsic record includes the claims, the specification, and the prosecution history. *See, e.g., DeMarini Sports, Inc. v. Worth, Inc.,* 239 F.3d 1314, 1324 (Fed. Cir. 2001). The Federal Circuit has stated that careful consultation of the specification is especially important, as the specification may be the "single best guide to the meaning of a disputed term." *Novartis Pharms. Corp. v. Abbott Laboratories*, 375 F.3d 1328, 1334 (Fed. Cir. 2004).

The Court may also examine extrinsic evidence offered by the parties but may use such evidence to construe the claims only if the intrinsic evidence is insufficient to enable the Court to do so. "Such instances will rarely, if ever, occur." *Pitney Bowes*, *Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308-09 (Fed. Cir. 1999) (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1585 (Fed. Cir. 1996)) . Extrinsic evidence is evidence that is "external to the patent and file history, such as expert testimony." *Vitronics*, 90 F.3d at 1584. Both Brembo and Alcon have submitted extrinsic evidence in the form of affidavits from experts. Though the Court may

consider these affidavits in determining how those skilled in the art would construe the claim terms, *Markman*, 52 F.3d at 979, we may not rely on them to contradict the meaning of the claims that is discernible from the intrinsic evidence. *Pitney Bowes,* 182 F.3d at 1308; *see also*, *Vitronics*, 90 F.3d at 1583.

With these general principles in mind, the Court turns to the disputed claim terms at issue in this case. Claim one of the '766 patent discloses:

> A disk brake comprising:
>
> a caliper body, in which a hub side elongate element, a wheel-side elongate element and connecting bridges extending astride a disk constitute *a single part*;
>
> pressure means housed in the elongate elements and acting on respective pads by means of radiator elements;
>
> *a duct for the passage of cooling air*;
>
> *said duct formed inside the caliper body* and extending between an inlet opening, and at least one outlet opening *reaching into the immediate vicinity* and *directly facing at least one radiator element* of the radiator elements; and
>
> a cooling-air feed pipe coupled to said duct for supplying air from an air-intake of a motor vehicle.

U.S. Pat. No. 6,466,766, col. 4, lines 11-25 (disputed terms italicized).

1. "single part"

The first clause of claim one refers to a caliper body in which the hub-side and wheel-side elements and connecting bridges "constitute a single part." Brembo contends the term "a single part" means "one piece." Alcon argues that the term denotes "a single monolithic or assembled piece." The Court agrees with Brembo.

The first step in construing a claim is to determine the ordinary and customary meaning

understood by those skilled in the relevant technology. Alcon provides no definition for the word "single," from which the Court infers that Alcon does not dispute Brembo's proposed definition. Indeed, the dictionary defines the adjective "single" as "consisting of only one in number." Webster's Third New Int'l Dictionary at 2123 (3rd unabr. ed. 1993).

The parties do, however, dispute the definition of the term "part." Because this term has several alternative meanings, the Court must determine which meaning is most "consistent with the use of the word[] in the intrinsic record." *Texas Digital*, 308 F.3d at 1203. The most relevant dictionary definition for "part" is "piece." Webster's Third New Int'l Dictionary at 1641. This is consistent with the usage of the term in the context of the claim language, which makes it clear that the patentee was referring to the hub-side and wheel-side elongate elements and the connecting bridges as a single piece. It is also consistent with the usage of the term in the specification. *See, e.g.,* '766 patent, col. 2, lines 14-26 (describing the caliper body as being "formed as a single piece of aluminum" and being "completed by three connecting bridges ... formed integrally with the elongate elements ....").

Alcon argues that the definition of "part" that is most consistent with the use of the word in the claim language is "a monolithic or assembled piece." The Court is not quite sure why Alcon makes this argument or Brembo opposes it. Ordinarily an alleged infringer seeks a narrower construction of the claims. One could argue that defining "a single part" as "one monolithic *or assembled* piece" is a broader definition that the "one piece" proposed by Brembo. Nonetheless, Alcon has made the argument, so the Court will address it. Nothing in the ordinary meaning of the term, the context, or the specification precludes the "single piece" from being either a monolithic piece or an assembled piece. But it is equally true that nothing in those

sources necessarily limits the term to those two alternatives (though the Court is not entirely clear what the other possibilities might be). The Court therefore rejects Alcon's argument.

In sum "a single part," as used in the claim, means "one piece."

2. "a duct for the passage of cooling air"

The parties dispute whether the term "duct" in the claim phrase "a duct for the passage of cooling air" requires the duct to be enclosed. Alcon contends that a duct must be enclosed, arguing that the term means "an enclosed channel or conduit with at least one inlet and one outlet." Brembo construes the term as simply denoting "a passage or a conduit" without reference to whether it is an enclosed passage.

Brembo's proposed definition is consistent with the ordinary meaning of the term. Webster's Third New Int'l Dictionary at 699. Alcon argues that the term must be limited to an enclosed passageway, because persons skilled in the relevant technology would understand that to control the flow of air, a duct through which air is conveyed must be enclosed. In this regard, Alcon relies in part on the affidavit submitted by its expert. Def. Ex. B, Declaration of Terry L. Satchell ¶ 67. It is appropriate for a court to rely upon expert testimony to understand the underlying technology of a device. *Playtex Products v. Proctor & Gamble Co.*, 400 F.3d 901, 908 n.1 (Fed. Cir. 2005). A court may not, however, use expert testimony to construe a claim in a way that is at odds with the intrinsic evidence. *Id.* There is nothing in the ordinary meaning of "duct" or its usage in the patent claims or specification that requires the duct to be entirely enclosed except for openings at either end. Ducts often have multiple openings. Consider, for example, a heating duct in a home.

For these reasons, the Court construes "a duct for the passage of cooling air" to denote a

passage or conduit through which cooling air may pass.

3. "said duct formed inside the caliper body"

The claim language states that the duct is "formed inside the caliper body." Brembo construes this phrase to mean that the duct is built at least partially within the caliper body. Alcon argues that the proper construction is that the duct is surrounded entirely along its length by the caliper body.

For the reasons stated in the previous section, the Court rejects Alcon's definition to the extent it requires the duct to have openings only at either end. Alcon's contention, however, is also that the duct must be entirely within the caliper body. This is consistent with the ordinary meaning of the phrase "formed inside." The ordinary meaning of "inside" is "within the boundaries of." Webster's Third New Int'l Dictionary at 1169. Another relevant source defines inside as "situated within the confines of (something): *he fitted a light inside the cupboard*," The New Oxford American Dictionary at 878 (1st ed. 2001), with "within" meaning "inside (something)," *id.* at 1938, and "confines" denoting "the borders or boundaries of a place." *Id.* at 360.

Brembo argues that the ordinary meaning of the term "inside" does not require the duct to be entirely within the caliper body. By way of example, Brembo says that "[a] person can be 'inside' a pool even though their head protrudes above the top surface of the pool." Pl. Reply Mem. at 13. The Court does not find Brembo's example helpful, as a swimming pool is not an enclosed structure. A more pertinent example is the reference to a cupboard used in The New Oxford American Dictionary. An object ordinarily would not be considered to be "inside" a cupboard if it were partly sticking out of the cupboard. Similarly, an object is not "inside" a

room if it is partly outside the room.

Brembo argues that Alcon's proposed definition excludes the preferred embodiment of the invention disclosed in the specification. Brembo contends that the duct referenced in the claim includes several ducts described in the preferred embodiment, some of which are outside the caliper body. The first is duct 19, which is in fact within the caliper body (the quoted passages include numeric references which correspond to one or more of the diagrams in the patent):

> The duct 19 has a first portion 25 in the form of a hole extending in an end portion 27 of the central bridge 12 disposed adjacent the hub-side elongate element 8, as well as a second portion 26 extending along and inside a central portion of the central bridge ...

'766 patent, col. 3, lines 1-5. The specification also refers to other ducts that are located within the "diffuser bodies" that, according the specification, distribute the cooling air onto the radiator elements:

> The outlet openings 21 and 22 preferably comprise respective diffuser bodies 37 and 38 which are substantially fan-shaped and are fixed to the elongate elements 8 and 9 by means of respective pairs of screws 37a and 38a. These diffuser bodies 37 and 38, which are made of aluminum alloy, have respective inlet openings 39 and 40 for the supply of cooling air....
>
> In particular, respective ducts 41 and 42 formed in the diffuser bodies 37 and 38 extend respectively, from the inlet openings 39 and 40 and branch, respectively, into three ducts 13c, 14c and 15c opening from the outlet openings 13b, 14b and 15b directly on the radiator elements 13a, 14a and 15a, and into three ducts 16c, 17c and 18c opening from the outlet openings, 16b, 17b and 18b directly onto the radiator elements 16a, 17a and 18a.
>
> It should be noted that each diffuser body 38, 38 is in the form of a half-shell in which the ducts are formed as channels. When each diffuser body 37, 38 is fixed by the screws 37a, 38a to the respective elongate element 8, 9 in a position against the internal surfaces 8a, 9a, the half-shell and hence also its channels, are covered by the elongate body.

Id., col. 3, lines 18-24, 29-43. The diffuser bodies are not, it appears, within the central bridge or the caliper body; the passage quoted above says they are "fixed to" the caliper body's elongate elements by means of screws.[1] Accordingly, Brembo argues, if "inside the caliper body" is construed as meaning these ducts must be *entirely* inside the caliper body, the preferred embodiment would be excluded. A construction excluding the preferred embodiment is presumed to be improper. *Vitronics*, 90 F.3d at 1583.[2]

Alcon claims that the ducts within the diffuser bodies cited by Brembo are not the duct referenced in the disputed claim language. Alcon cites the following portions of the specification:

> The outlet openings 21 and 22 preferably comprise respective diffuser bodies 37 and 38 which are substantially fan-shaped and are fixed to the elongate elements 8 and 9 by means of respective pairs of screws 37a and 38a. These diffuser bodies 37 and 38, which are made of aluminum alloy, have respective inlet openings 39 and 40 for the supply of cooling air. The diffuser bodies 37 and 38 have, respectively, three outlet openings 13b, 14b and 15b, spread out like a fan and three outlet openings 16b, 17b and 18b also spread out like a fan, all directly facing and close to the respective radiator elements.
>
> ...
>
> In operation, the cooling air coming from an air intake of the motor vehicle passes through the pipe 24, reaches and passes *through the duct 19 until it reaches the diffuser bodies* 37, 38 and the outlet openings. The cooling air emerges from these and passes directly over the radiator elements.

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[1] The central bridge is also relevant to the construction of "inside" because claims three, four, nine, ten, and thirteen make reference to a "duct formed inside the central bridge."

[2] Brembo also asserts that "inside" cannot mean "entirely inside" because duct 19 has a connector which extends it outside the caliper body. The specification states that "the inlet opening 20 preferably has a connector 23 for the connection of the duct 19 to a cooling-air feed pipe 24, for example, for air coming from a suitable air-intake of the motor-vehicle." '766 patent, col. 2, lines 64-67. This statement from the specification, however, describes a connector outside of the caliper body, not the duct.

‘766 patent, col. 3, lines 18-28, 44-49 (emphasis added). Alcon argues that the outlet openings, of which the diffuser bodies (and thus the ducts within those bodies) are a part, are not part of the duct referenced in the disputed claim language.

The claim language and its context and the other intrinsic evidence indicates that Alcon’s interpretation of “inside” is the correct one. First, the claim states that the disk brake contains *a duct* for the passage of cooling air, not multiple ducts. Second, the specification makes it clear that duct 19 is *the* duct referenced in the claim as being used for the passage of cooling air:

> The disk brake 1 according to the present invention comprises *a duct* 19 provided for the passage of cooling air for cooling the radiator elements 13a-18a, *the duct 19 being formed inside the caliper body*.

Id., col. 2, lines 53-57 (emphasis added). Finally, the specification consistently refers to duct 19 as “the duct.” For example, it states, as cited above, that “the cooling air coming from an air intake of the motor vehicle passes through the pipe 24, reaches and passes through *the duct* 19 until it reaches the diffuser bodies 37, 38 and the outlet openings.” *Id.,* col. 3, lines 44-47 (emphasis added).

Thus, the claim language, the specification, and the drawings support Alcon’s position that the duct is entirely within the caliper body. The Court construes “inside” as meaning “entirely within.”

The parties also disagree over the meaning of “formed” in the phrase “formed inside.” Brembo urges that the definition of formed is “built.” Alcon construes “to form” as “to give form or shape to” or “to give a particular shape to.” Alcon’s definition is consistent with the dictionary definition of the term, *see* Webster’s Third New Int’l Dictionary at 893, and Brembo’s is not. Specifically, there is no support in the dictionary or the intrinsic evidence for reading

"formed" to mean "built." The only support Brembo provides for its proposed construction is expert testimony. Brembo's expert states that a person of ordinary skill in the art would understand form to mean "build through known manufacturing techniques." Pl. Ex. G, Declaration of Albert V. Karvelis ¶ 31. The expert does not explain to the Court why this is so. We cannot rely on expert testimony for the proper construction of a claim term when its meaning is discernable from the intrinsic record, *Vitronics*, 90 F.3d at 1585, which is the case here. The Court therefore adopts Alcon's proposed definition; "formed" means "given form or shape by."

The parties also dispute the meaning of "formed inside" in the context of claims three, four, nine, ten, and seventeen, which state that the duct is "formed inside the central bridge." Neither side contends, however, that the phrase has a different meaning when referring to the central bridge than it does when referring to the caliper body. Thus, "formed inside" in claims one, three, four, nine, ten, and seventeen is construed to mean that the duct is entirely within, and given form or shape by, the central bridge.

4. "reaching into the immediate vicinity and directly facing at least one radiator element"

The claim language states that the duct has at least one outlet opening "reaching into the immediate vicinity and directly facing" at least one radiator element. Brembo argues that the meaning of this phrase is, "orienting the outlet opening and its cooling air toward the proximate area of, and facing, without significant obstruction, at least one radiator opening," with "facing" defined to mean "arranged or placed opposite or oriented toward another object so that there is an intervening space." Alcon argues that the phrase should be defined to mean "sufficiently close to and opposite or pointing toward the structure of the radiator element to blow cooling air at the

structure without obstruction."

1. "reaching into the immediate vicinity"

Brembo argues that the phrase "reaching into" should be defined as "orienting towards" and that "immediate vicinity" should be construed as "proximate area." Brembo's proposed definition of "reaching into" would make the phrase largely redundant of the claim term "directly facing." The dictionary defines reaching as extending into, *see* Webster's Third New Int'l Dictionary at 1888, as Brembo acknowledges in its brief. *See* Pl. Claim Constr. Mem. at 11 n.14. Defining the claim phrase in that way is consistent with the ordinary meaning of the term as well as its usage in the claim and specification.

Brembo's proposed definition of immediate vicinity as "proximate area" is consistent with the ordinary meaning of the phrase, *see* Webster's Third New Int'l Dictionary at 1129, 2550, as well as the term's usage in the claim and specification. Alcon argues that "immediate" should be defined as "without obstruction," citing a different dictionary definition of "immediate": "acting or being without the intervention of another object, cause, or agency: direct, proximate ‹the ~ cause of death›." *Id.* at 1129. But that definition is the one that applies when the term "immediate" is used in relation to causation. In the claim language, immediate is used in relation to a location. When used in that sense, the dictionary cited by Alcon defines "immediate" as "being near at hand: not far apart or distant ‹hid the money in the ~ neighborhood›." *Id.*

For these reasons, and because Alcon does not support its proposed construction with anything in the specification or prosecution history, the Court adopts Brembo's construction of "immediate vicinity" as "proximate area."

2. "directly facing at least one radiator element"

The Court construes the term "directly facing at least one radiator element" as meaning that at least one outlet opening must be pointing squarely toward at least one radiator element. The term "face" means "to stand or sit opposite to: occupy a position with the face toward (he stood facing the window)." Webster's Third New Int'l Dictionary at 811. Another source similarly defines facing as "positioned with the front toward a certain direction; opposite: *a book with Italian and English lyrics printed on facing pages*." The New Oxford American Dictionary at 606. This understanding of "facing" is consistent with the context in which the term is used in the claims and with the specification, which indicates that the cooling air passes "directly over the radiator elements." '766 patent, col. 3, lines 44-48.

The claim uses the term "directly" in reference to direction or location. Used in that sense, the ordinary meaning of the term is "squarely" or "exactly." *See* Webster's Third New Int'l Dictionary at 641 ("without any intervening space or time: next in order: squarely, exactly ‹directly opposite the city hall› ‹directly in the center of the room› ‹during the decade directly before his birth›"); The New Oxford American Dictionary at 483 ("exactly in a specified position: *the ceiling directly above the door, the houses directly opposite*").

The parties propose to define "directly" as denoting the absence of any obstruction (Alcon) or any significant obstruction (Brembo), but neither the ordinary meaning of the term nor its usage in the claim or specification involve the presence or absence of obstructions. By way of example, two house can be "directly opposite" each other yet still have objects between them, such as trees. None of the dictionaries consulted by the Court contained a reference to obstruction in the definition of "directly." Nor does the specification include any reference to

the presence or absence of obstructions between the outlet opening and radiator element.

Alcon argues that for the air to pass from the duct to the radiator element, no obstructions can exist between the two. To support its position, Alcon relies on the fact that the dictionary says that "directly" means, among other things, "without any intervening space," which, it says, requires the term to be construed as meaning "without obstruction." This argument fails, for two reasons. First, even were "without intervening space" a relevant definition in context, the absence of space is not the same as the absence of obstruction. Second, the diagrams included in the specification depict that there is, in fact, space between the duct and the radiator elements. *See*, *e.g.*, '766 patent, figure 2.

Defining "directly" as meaning squarely or exactly is more consistent with the use of the term in context of the claim language. *See Texas Digital*, 308 F.3d at 1203 (court must determine which of possible alternative meanings of a term is most consistent with the use of the word in the patent). Substituting the words squarely or exactly for "directly" in the examples provided by Webster's Dictionary make this clear – exactly opposite the city hall; squarely in the center of the room.

In sum, the phrase "reaching into the immediate vicinity and directly facing at least one radiator element" means that at least one outlet opening must extend into the proximate area of, and must point squarely toward, at least one radiator element. Claim fifteen contains a similar phrase, however, instead of facing the radiator element, the duct faces the pressure means. *See* '766 patent, claim 15 ("at least one outlet opening reaching into the immediate vicinity and directly facing said pressure means"). The parties do not dispute the meaning of "pressure means" and do not contend that the phrase at issue should have a different meaning in this

context than it has in claim one. Thus, "reaching into the immediate vicinity and directly facing said pressure means" means that at least one outlet opening must extend into the proximate area of, and must point squarely toward, the pressure means.

Conclusion

The disputed claim terms are construed in accordance with the conclusions set forth in this Memorandum Opinion and Order. This case is set for a status hearing on June 13, 2005 at 9:45 a.m.

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MATTHEW F. KENNELLY
United States District Court

Date: May 31, 2005