

UNITED STATES DISTRICT COURT FOR THE  
DISTRICT OF NEW HAMPSHIREHypertherm, Inc.

v.

Civil No. 05-cv-373-JD  
Opinion No. 2009 DNH 013American Torch Tip Company**S E A L E D O R D E R**

Hypertherm, Inc. moves for partial summary judgment of infringement by American Torch Tip Company ("ATTC"), accusing ATTC products of infringing certain claims of United States Patent Nos. 6,946,617 ("617 patent"), 7,019,255 ("255 patent"), 5,310,988 ("988 patent"), 5,977,510 ("510 patent"), and 6,207,923 ("923 patent"). ATTC moves for summary judgment that its accused electrodes do not infringe Hypertherm's patents and that certain of the patents in suit are invalid. As required by the court, Hypertherm and ATTC filed a joint notice specifying which parts of their pending motions have been resolved or otherwise affected by orders that have been issued since the motions were filed. The court addresses the issues raised in the motions in light of the joint notice.

### Standard of Review

Summary judgment is appropriate when “the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(c). The party seeking summary judgment must first demonstrate the absence of a genuine issue of material fact in the record. See Celotex Corp. v. Catrett, 477 U.S. 317, 323 (1986). A party opposing a properly supported motion for summary judgment must present competent evidence of record that shows a genuine issue for trial. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 256 (1986). All reasonable inferences and all credibility issues are resolved in favor of the nonmoving party. See id. at 255. “To be entitled to summary judgment, the party with the burden of proof must provide evidence sufficient for the court to hold that no reasonable trier of fact could find other than in its favor.” Am. Steel Fabricators, Inc. v. Local Union No. 7, 536 F.3d 68, 75 (1st Cir. 2008).

In this district, a motion for summary judgment must be accompanied by a supporting memorandum that incorporates “a short and concise statement of material facts, supported by appropriate record citations, as to which the moving party contends there is no genuine issue to be tried.” LR 7.2(b)(1). A motion opposing

summary judgment must also incorporate “a short and concise statement of material facts, supported by appropriate record citations, as to which the adverse party contends a genuine dispute exists so as to require trial.” LR 7.2(b)(2).

Importantly, “[a]ll properly supported material facts set forth in the moving party’s factual statement shall be deemed admitted unless properly opposed by the adverse party.” Id.

#### I. Infringement of the ‘255 and ‘617 Patents

Hypertherm moves for summary judgment that certain accused ATTC electrodes infringe claim 7 of the ‘255 patent and Claim 12 of the ‘617 patent. ATTC moves for summary judgment on its defense of invalidity due to anticipation by the ‘988 patent and that its accused electrodes do not infringe Claims 7 and 25 of the ‘255 patent or Claim 12 of the ‘617 patent. The pertinent limitations of the asserted claims of the ‘255 and ‘617 patents are the same, which is why the parties have grouped them together.

The parties agree, as is demonstrated in their joint notice, that the anticipation issue and some of the infringement claims have been resolved by the court’s previous orders. Based on the joint notice, infringement of Claim 7 of the ‘255 patent by the

following accused ATTC products, for purposes of Hypertherm's motion, is unresolved:

220307\_ATT, Original

220339\_ATT, Original

220181\_ATT, Original

220187\_ATT, A

220192\_ATT, A

220339\_ATT, Original

220352\_ATT, A

220435\_ATT, A

Hypertherm also accuses 220307\_ATT, Original, and 220339\_ATT, Original, of infringing Claim 12 of the '617 patent.

Infringement of Claims 7 and 25 of the '255 patent and Claim 12 of the '617 patent by the following accused ATTC products is unresolved for purposes of ATTC's motion:

120826, Original

120827\_ATT, Original

120828\_ATT, C

120927, E

120929\_ATT, G

120931, Original

220011, C

220047\_ATT, Original

220065\_ATT, Original  
220239\_ATT, C  
220181\_ATT, Original  
220187\_ATT, A  
220192\_ATT, A  
220339\_ATT, A  
220352\_ATT, A  
220435\_ATT, A

The pending motions are addressed only with respect to the issues that have not been resolved by prior orders.

Hypertherm seeks summary judgment that eight of ATTC's electrodes, two electrodes in the group labeled "Second '255 Accused Electrodes" (part numbers 220307\_ATT, Original, and 220339\_ATT, Original) and all six electrodes in the group labeled "Third '255 Accused Electrodes" (220181\_ATT, Original; 220187\_ATT, A; 220192\_ATT, A; 220339\_ATT, Original; 220352\_ATT, A; and 220435\_ATT, A) infringe claim 7 of the '255 patent. In its own motion, ATTC seeks summary judgment that ten of its accused products do not infringe Claims 7 and 25 of the '255 patent.<sup>1</sup>

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<sup>1</sup>Confusingly the accused parts exist in several versions which share the same part number and are distinguishable by a suffix of ATT or ATTC or no suffix and by a referenced version of the product.

“To prove direct infringement, the plaintiff must establish by a preponderance of the evidence that one or more claims of the patent read on the accused device literally or under the doctrine of equivalents.” Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., 424 F.3d 1293, 1310 (Fed. Cir. 2005). “Literal infringement requires that each and every limitation set forth in a claim appear in an accused product.” Id. (internal quotation marks omitted). Patent infringement is a factual question. Tech. Licensing Corp. v. Videotek, Inc., 545 F.3d 1316, 1334 (Fed. Cir. 2008).

ATTC makes electrodes as replacement parts for plasma arc cutting systems, including systems designed and manufactured by Hypertherm. ATTC does not make the coolant tubes used in electrodes. Claim 7 of the ‘255 patent provides as follows:

An electrode for a plasma arc torch, the electrode comprising:  
a hollow elongated body having an open end and a closed end; and  
a surface located on an interior portion of the elongated body adapted to mate and align with a coolant tube along a direction of a longitudinal axis of the coolant tube, wherein the coolant tube is not rigidly attachable to a torch body.

Claim 25 is substantially the same, adding only that the surface on an interior portion is “in a region between the open end and the closed end.” Claim 12 of the ‘617 patent repeats the Claim 7

limitations and adds "an opening in the second end of the coolant tube does not contact an inner surface of the electrode."

Hypertherm contends that ATTC's accused electrodes meet every limitation of Claim 7 of the '255 patent and Claim 12 of the '617 patent. ATTC contends that its listed electrodes do not infringe Claim 7 or Claim 25 of the '255 patent or Claim 12 of the '617 patent. ATTC concedes the other elements of the Claims but argues that its accused electrodes do not have a "surface . . . adapted to mate and align with a coolant tube along a direction of a longitudinal axis of the coolant tube." Specifically, ATTC argues that its electrodes do not align the coolant tube and that its electrodes were not "adapted to" mate and align with the coolant tubes.

Hypertherm submitted color-coded drawings of a representative ATTC electrode overlaid on a Hypertherm coolant tube to show the "adapted to mate and align" limitation. The drawings show that the coolant tube fits down inside the representative accused ATTC electrode and that the electrode has a step, groove, or notch on the inside surface that contacts a corresponding surface on the Hypertherm coolant tube. ATTC does not dispute that the drawings are accurate representations of its accused electrodes.

A. Mate and Align

Hypertherm also submitted testimony from the Rule 30(b)(6) depositions of Jeffrey K. Walters, Sr., an ATTC principal, to show that ATTC admitted that its electrodes were adapted to mate and align with a coolant tube.<sup>2</sup> See Fed. R. Civ. P. 30(b)(6). During the depositions, Hypertherm's counsel asked Walters whether an ATTC electrode was adapted to mate and align with a floating coolant tube.<sup>3</sup> Walters explained that it would depend on the design of the coolant tube but that if a Hypertherm (floating) coolant tube were used, "the water tube would hit on that step, mate and hit on that step." Ex. 22 at 55. In a subsequent deposition, Walters agreed with Hypertherm's counsel, however, that when a floating coolant tube was used in the ATTC electrode, the notch in the ATTC electrode was meant to mate and align with or hit the coolant tube.

ATTC argues that Walters said only that the notch would mate with and hit the coolant tube not mate and align with the tube. ATTC contends, based on that difference in language, that Walters

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<sup>2</sup>Hypertherm mistakenly cites to Exhibit 23, with unrelated deposition testimony, instead of Exhibit 24.

<sup>3</sup>Only one ATTC electrode, 220181, is referenced in the submitted deposition excerpts. ATTC part number 220181\_ATT is one of the accused parts in the group of "Third '255 Accused Electrodes."



did not admit that the ATTC electrode had a surface adapted to align with the coolant tube. Taking Walters's deposition testimony as a whole, however, he admitted that when ATTC's electrodes were used with floating coolant tubes, such as those manufactured by Hypertherm, the interior would mate and align with the tube. ATTC's narrow focus on an asserted difference between "align" and "hit," in this context, is unavailing. Therefore, the evidence establishes that ATTC's accused electrodes, listed by Hypertherm in its motion, have an interior surface that mates and aligns with a coolant tube.

B. Adapted To

ATTC contends in opposition to Hypertherm's motion and in support of its own motion that because Hypertherm's expert witness construed the term "adapted to" to mean designed for the purpose of mating and aligning, Hypertherm must present evidence of ATTC's subjective intent in designing its electrodes to prove infringement.<sup>4</sup> Hypertherm responds that intent is not part of the infringement analysis and also offers evidence that ATTC

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<sup>4</sup>The question of the meaning of "adapted to" arose in the context of ATTC's defense that the '988 patent anticipated the '255 patent because its electrode was "capable of" mating and aligning with a coolant tube. Hypertherm responded that "adapted to" did not mean merely "capable of" but instead meant that the electrode was designed for that purpose.

intended to copy Hypertherm's patented products in designing its accused electrodes. ATTC explains that the intent limitation arises from Hypertherm's expert's claim construction, not from a requirement that intent generally be shown in proving infringement.

Claim construction is a legal issue for the court to decide. See iLOR, LLC v. Google, Inc., 550 F.3d 1067, 1070 (1st Cir. 2008). Hypertherm urges the court to adopt its expert's opinion that "adapted to" means "designed for the purpose of." Hypertherm further argues that the '255 and '617 patents claimed an electrode surface that is defined and limited by its stated purpose in relation to the structure of the coolant tube. For purposes of infringement, ATTC agrees with Hypertherm's proffered claim construction. Therefore, the court construes "adapted to" as used in Claims 7 and 25 of the '255 patent and Claim 12 of the '617 patent to mean "designed for the purpose of."

ATTC offers evidence that its electrodes were not designed for the purpose of mating and aligning with a coolant tube. Instead, ATTC asserts, the design of the notch in the interior surface is the inadvertent result of the machining process. Hypertherm offers evidence that ATTC purposefully copied Hypertherm's electrodes, including the notch. Therefore, the

purpose of the design of ATTC's electrodes is a disputed factual issue, precluding summary judgment for both parties.<sup>5</sup>

## II. The '988 Patent

Hypertherm moves for summary judgment that certain ATTC electrodes infringe Claim 1 of the '988 patent. ATTC moves for summary judgment that the '988 patent is invalid, and alternatively, that certain ATTC electrodes do not infringe the '988 patent. The parties agree that the issue of invalidity has been resolved as to Claims 1 through 10 of the '988 patent but invalidity has not been resolved as to Claims 11 and 12. They agree that prior orders have affected the motions as to infringement by listed electrodes but disagree as to the effect.

### A. Invalidity

ATTC contends that Claims 11 and 12 of the '988 patent are invalid as obvious, based on the prior art in the background

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<sup>5</sup>ATTC also contends that the coolant tube, not the electrode, provides alignment. ATTC argues that without the alignment surface on the tube, it would "'flop' lovely" from side to side within the electrode. For that reason, ATTC asserts that the step or notch on the interior surface of its electrodes does not align the coolant tube. As Hypertherm points out, however, the step or notch does keep the tube aligned longitudinally, as Walters agreed in his deposition testimony.

section of the '988 patent. ATTC's expert witness provides opinions and an analysis to support ATTC's obviousness defense. Hypertherm contends that ATTC addressed only one of the elements of Claims 11 and 12 and, therefore, failed to prove invalidity.<sup>6</sup>

A defendant bears the burden of proving a patent claim invalid by clear and convincing evidence. Eisai Co. Ltd. v. Dr. Reddy's Labs., Ltd, 533 F.3d 1353, 1356 (Fed. Cir. 2008). A patent claim is invalid due to obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103. Obviousness is a factual determination based on considering factors including: "1) the scope and content of the prior art, 2) the level of ordinary skill in the art, 3) the differences between the claimed invention and the prior art, and 4) evidence of secondary factors, also known as objective indications of non-obviousness." Eisai, 533 F.3d at 1356.

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<sup>6</sup>While ATTC asserts that Claims 11 and 12 of the '988 patent were obvious in light of the background section of the '988 patent, Hypertherm argues that ATTC has not shown anticipation. Obviousness and anticipation are two different defenses requiring different proof. Compare 35 U.S.C. § 102 with 35 U.S.C. § 103.

The '988 patent pertains to an "Electrode for High Current Density Plasma Arc Torch." Claim 11 is directed to an electrode with an

improvement comprising [an insert of a material characterized by a high thermionic emission] having its emissive surface area corresponding to the level of the operating current carried by the electrode, said emissive surface area being (i) at least equal to the area of the emissive spot produced by cutting at a given current level and (ii) sufficiently small that the insert material in said emissive area does not boil, and the diameter of the insert being selected to exceed the diameter of said emission spot by an amount that reliably isolates the arc from the electrode body to produce a constant current density over said insert emissive area of about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>.

Claim 12 is a method claim directed to "extending the life of an electrode of a plasma arc cutting torch, particularly a high definition torch characterized by a high current density and a small diameter emissive spot on an insert of a high thermionic emission material . . ." which involves "selecting the area of the insert exposed to the nozzle . . ." and "said selecting producing a current density during cutting over said exposed area of about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>."

During claim construction, ATTC argued that the term "operating current" used in Claim 11 was limited to "a low current of approximately 15-70 amps" and that Claim 12 was directed to "extending the life of a low current electrode of approximately 15-70 amps." The court disagreed, concluding that

the challenged claims do not include a limitation for low current. ATTC asserts that without the low current limitation, the prior art described in the background of the '988 patent would have current densities within the range of the densities covered by Claims 11 and 12 of the '988 patent.

ATTC contends that the challenged claims were obvious based on the prior art cited in the '988 patent because the current densities in Claims 11 and 12 fall within the range of current densities disclosed by prior art. ATTC argues that because of the overlap in range, the claims are presumed to be obvious. Ormoc Corp. v. Align Tech., Inc., 463 F.3d 1299, 1311 (Fed. Cir. 2006) ("When the difference between the claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in range or value is minor.") (internal quotation marks omitted). Hypertherm responds that ATTC is overlooking the part of the invention that requires selecting the diameter of the insert to exceed the diameter of the emissive spot.

As the party with the burden of proof on the defense of obviousness, to be entitled to summary judgment, ATTC must show that Claims 11 and 12 of the '988 patent are obvious by clear and convincing evidence, such that no reasonable juror could find otherwise. See Am. Steel Fabricators, 536 F.3d at 75; Esai, 533

F.3d at 1356. The court is not persuaded that ATTC has carried its burden here. Therefore ATTC's motion for summary judgment is denied as to invalidity of Claims 11 and 12.

B. Infringement

Hypertherm moves for summary judgment that certain ATTC electrodes infringe Claim 1 of the '988 patent. ATTC moves for summary judgment that its accused electrodes do not infringe Claims 1 through 10, 11, and 12 of the '988 patent. The parties agree that the court's prior orders have affected the infringement issues but disagree as to the effect.

1. Hypertherm's Motion - Infringement of Claim 1

The parties agree that the issue of whether ATTC electrodes infringe Claim 1 of the '988 patent, as asserted in Hypertherm's motion for summary judgment, remains as to the following parts:

120111\_ATTC, Q

120410\_ATTC, W

120517, C

120683, F

120785, K

120793, K

Hypertherm asserts infringement, supported by the opinion of its expert witness, E. Smith Reed.

ATTC objects to summary judgment, arguing that during the "relevant period" it only manufactured certain electrodes "at the insert diameters and currents." ATTC cites its "Exhibit I" and "Walters Decl. at ¶ 65" to support that assertion. ATTC also states that "most of the accused electrodes fall outside of the claimed values in claim 1" and that its expert, James Sprague, "confirms the fact that such electrodes do not infringe by his analysis." ATTC then provides a chart of electrodes with dates of manufacture and valuations that it contends do not infringe Claims 1 through 10.<sup>7</sup> ATTC provides no record citation to support its chart.

To oppose a properly supported motion for summary judgment, ATTC is required to provide a statement of properly support facts to oppose Hypertherm's statement of facts. ATTC failed to provide any factual statement in its objection to summary judgment. A general reference to Sprague's report, which addresses electrodes without the complete number and letter identification necessary to identify them, is insufficient to

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<sup>7</sup>ATTC mentions in passing that it is entitled to summary judgment on the listed electrodes. In this district, however, objections to pending motions cannot include affirmative motions for relief. LR 7.1(a)(2).



oppose Reed's more specific report. In addition, the electrode chart ATTC provides is not supported by any citation to the record.

In the absence of a properly supported opposition, Hypertherm's properly supported facts as to infringement of Claim 1 of the '988 patent are deemed admitted. Therefore, Hypertherm is entitled to summary judgment that the listed electrodes infringe Claim 1 of the '988 patent.

## 2. ATTC's Motion - No Infringement of Claims 1-10

Summary judgment has been decided in Hypertherm's favor that the six electrodes listed above infringe Claim 1 of the '988 patent. ATTC moves for summary judgment that six other electrodes, which were originally accused of infringement but were not included in Hypertherm's expert's report, do not infringe the '988 patent. Hypertherm states that it no longer accuses certain electrodes of infringement and lists the "unaccused versions" of ATTC's electrodes in Exhibit 5. Therefore, Hypertherm's infringement claims, as to the electrodes listed in Exhibit 5, are dismissed.<sup>8</sup>

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<sup>8</sup>Exhibit 5 is appended to this order.

The parties disagree as to which of the electrodes identified by ATTC in its motion for summary judgment of no infringement of Claims 1-10 of the '988 patent remain in dispute. They agree that the July 24, 2008, order held that Part Nos. 120667/220021 (A and B) 120683 (Original, A-E), and 120690 (C-H, J) infringe. Therefore, those parts will not be considered for purposes of ATTC's pending motion.

Hypertherm asserts that it no longer accuses most of the listed parts of infringement, which it has identified on a reproduction of ATTC's chart. Therefore, as noted above, Hypertherm's claims of infringement as to those parts are dismissed. According to Hypertherm's reproduction of ATTC's chart, the only part listed in ATTC's pending motion that requires a decision is 120683, F.

ATTC's disagreement is opaque. It asserts, apparently, that the court must render a summary judgment decision pertaining to electrodes that Hypertherm no longer accuses of infringement. The claims as to those electrodes are dismissed. ATTC also asserts that "[t]o the extent that the basis for non-infringement of all versions of all products accused of infringing claims 1-10 of the '988 Patent, as asserted in the replies to Hypertherm's motions or . . . (Docket No. 203), does not require expert testimony, a decision is still required for all versions of the

accused products with regard to those non-infringement positions." ATTC references no specific electrodes by part number or versions of part numbers that it believes remain in dispute.

The court cannot decipher ATTC's statement and therefore, cannot determine if ATTC suggests that additional electrodes on its list should be considered in the context of the pending summary judgment motions.<sup>9</sup> Based on the parties' responses, the court will consider ATTC's motion for summary judgment of no infringement as to Part No. 120683, F. Because summary judgment has been decided in Hypertherm's favor that Part No. 120683, F, infringes Claim 1 of the '988 patent, however, that issue now has been decided. The motion is denied as to Claims 1 through 10.<sup>10</sup>

### 3. ATTC's Motion - No Infringement of Claims 11, 12

ATTC moved for summary judgment of no infringement of claims 11 and 12 by all but one of its accused electrodes under its construction of the disputed claim term. In the alternative, it moved for infringement of only listed electrodes if Hypertherm's

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<sup>9</sup>It appears, however, that ATTC may be contesting the July 24, 2008, order, which would not be an appropriate basis for arguing that issues remain in dispute.

<sup>10</sup>The parties agree that Claims 2 through 10 are dependent on Claim 1.

construction were adopted. In their joint notice, the parties agree that infringement has been decided as to Part Nos.

120111\_ATTTC (Original, A-H, J-N, P); 120112 (F-H, J, M-N); 120667 (A); 220181\_ATTTC (A-C), and 220187\_ATTTC (Original, A).

Hypertherm contends that infringement by the other parts listed in its motion for summary judgment granted by the July 24, 2008, order is also decided.

ATTC contends that because Hypertherm did not list the additional products in a prior joint notice it is bound by the previous (shorter) list. The court disagrees. To the extent infringement has been decided as to particular ATTC parts, that issue will not be considered here.

Hypertherm, again, represents that it no longer accuses certain parts of infringement. Those parts are listed in Exhibit 5 and in the Joint Notice at page 23. Hypertherm's claims as to the listed, non-accused, parts are dismissed.

Therefore, infringement of Claims 11 and 12 as to the following ATTC parts remains in dispute:

120111ATTTC, Q

120667, B

120112ATTTC, K

For purposes of determining infringement, the parties disagree about the meaning of the phrase "said emissive area of

about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>" as used in Claim 11 and "said exposed area of about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>" as used in Claim 12. In particular, they dispute the meaning of "about" as used in each phrase. ATTC contends that "about" means "approximately values within 4% of the claimed  $6.0 \times 10^4$  amperes/inch<sup>2</sup>." Hypertherm calculated a broader range of current densities, varying by 25% from  $6.0 \times 10^4$  amperes/inch<sup>2</sup>, as being within the meaning of the phrase "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>."

Determining infringement is a two-step process that requires the court first to construe the meaning and scope of the asserted claims and then to compare the properly construed claims to the accused product. Stumbo v. Eastman Outdoors, Inc., 508 F.3d 1358, 1361 (Fed. Cir. 2007). The parties' dispute over the meaning of "about" presents a claim construction issue, which they failed to raise in their claim construction motions, at the Markman hearing, or in response to the court's claim construction order issued a year ago. It is necessary to construe the term "about" before considering infringement.

a. Claim Construction

Claim construction is a legal issue for the court to decide. iLOR, 550 F.3d at 1070. "In determining the meaning of a disputed claim limitation, [the court] look[s] to the intrinsic

evidence, including the claim language, written description, and prosecution history, as well as to extrinsic evidence." TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1369 (Fed. Cir. 2008). The analysis begins by considering the claim language itself, taken in the context of the specification. Boston Scientific Scimed, Inc. v. Cordis Corp., --- F.3d ---, 2009 WL 89246, at \*4 (Fed. Cir. Jan. 15, 2009). "Claim terms are generally construed in accordance with the ordinary and customary meaning they would have to one of ordinary skill in the art." Netcraft Corp. v. eBay, Inc., 549 F.3d 1394, 1396 (Fed. Cir. 2008).

A principal object of the invention claimed by the '988 patent was "to provide an electrode for plasma arc cutting torch that operates with a reactive plasma gas at a low operating current level and nevertheless has a useful life several times greater than that obtained with conventional electrodes for the same applications." '988 patent, Col. 1, ll. 43-48. In summarizing the invention, the patent specification explains that the electrode body is formed of "a high thermal conductive material [preferably copper] and an insert of a material with a high thermionic emissivity [preferably hafnium]." Id., ll. 59-60. The insert has "an emitting surface exposed to the plasma

gas." Id., l. 63. The size of the emitting surface "varies as a function of the maximum operating current." Id., ll. 63-64.

The disputed phrase, "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>," is a calculation of the current density of the insert during operation of the torch. Current density is defined as "total current divided by the available emission area." Col. 2, ll. 6-7. The insert diameter must be small enough to operate at the selected current without boiling but large enough "to ensure that the arc does not attack the body end surface [] immediately adjacent the insert." Id., col. 2, ll. 35-36; col. 4, ll. 25-26. Because the area of the hafnium insert must be "at least equal to, and preferably a little bigger than, the emitting area required by the selected value of the operating current," the size of the area varies depending on the operating current selected. Col. 2, ll.9-10. "The relationship between the current I and the area A of the insert emission surface [] exposed to the plasma gas in the plasma chamber [] vary so that the current density I/A is generally constant." '988 patent, Col. 4, ll. 17-21. "Allowing for a non-impingement band, the current density in this preferred form is about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>." Col. 2, ll. 15-18.

Relying on the test results in Table 1 of the '988 patent and suitable borders for inserts in a range of .003 to .006 inch, Hypertherm calculated that "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>" means a

broad range of current densities from  $4.5 \times 10^4$  amperes/inch<sup>2</sup> to  $7.6 \times 10^4$  amperes/inch<sup>2</sup>, which vary by approximately 25% from  $6.0 \times 10^4$  amperes/inch<sup>2</sup>. ATTC contends that Hypertherm is wrong because the 25% variation is caused by using the largest areas with the lowest current, which is contrary to the teaching of the '988 patent. Instead, ATTC argues that the selected current and the area of the emission spot are related so that small area correlates with low current. ATTC calculates a range of from  $5.89 \times 10^4$  amperes/inch<sup>2</sup> to  $6.22 \times 10^4$  amperes/inch<sup>2</sup>.

The '988 patent teaches that the current level and the size of the emission spot vary to yield a constant current density level of about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>. The current level is divided by the size of insert to determine current density, which must be "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>." Hypertherm's calculations, which add larger borders to low ampere currents and result in a broad range of current density values, do not conform to the requirement that the size of the insert is related to the level of operating current. In addition, a 25% variation is not "about" the stated value. The court construes the phrase "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>" to mean values calculated in conformity with the requirements of the '988 patent that are close to the stated value and within a slight variation, which is less than 25%.



#### b. Infringement

Based on the court's construction of the phrase "about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>," ATTC is entitled to summary judgment that its electrodes, parts numbers 120111ATTC, Q; 120667, B, and 120112ATTC, K do not literally infringe Claims 11 or 12 of the '988 patent.

#### 4. Doctrine of Equivalents

"Under the doctrine of equivalents, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." Voda v. Cordis Corp., 536 F.3d 1311, 1324 (Fed. Cir. 2008) (internal quotation marks omitted). The doctrine of equivalents cannot be used, however, "for subject matter relinquished when a patent claim is narrowed during prosecution." Id. Prosecution history estoppel operates in two ways: (1) when the patent applicant narrows a claim by amendment or (2) when the applicant narrows the scope of the claim through argument to the patent examiner. Id. at 1325. A narrowing amendment "creates a presumption [] that the applicant surrendered the territory

between the original claims and the amended claims.” Lucent Techs., Inc. v. Gateway, Inc., 525 F.3d 1200, 1218 (Fed. Cir. 2008). To rebut the presumption, the patentee must show that its “objectively apparent reason” for the narrowing amendment was “peripheral, or not directly relevant to the alleged equivalent.” Id.

In his report, Reed stated that if the phrase “about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>” were construed narrowly, as not including the broad range of densities he proposed, ATTC’s accused products would infringe Claims 11 and 12 under the doctrine of equivalents. ATTC contends that Hypertherm is precluded by the prosecution history of the ‘988 patent from proving infringement under the doctrine of equivalents. Hypertherm admits that it amended the claims to include the particular current density levels but argues that it can overcome the presumption of estoppel.

The claim limitation at issue is the current density of “about  $6.0 \times 10^4$  amperes/inch<sup>2</sup>.” To overcome the estoppel presumption, Hypertherm contends that ATTC’s accused products have equivalent border sizes. As ATTC points out, however, border sizes are not elements of the claims of the ‘988 patent. Therefore, Hypertherm has not overcome the presumption that it is

estopped by its prosecution history from arguing infringement of Claims 11 and 12 under the doctrine of equivalents.

### III. Infringement of the '510 Patent

The parties agree in their Joint Notice that Hypertherm's motion for summary judgment of infringement of Claim 10 of the '510 patent has been resolved by prior orders. To the extent they disagree about the effect of prior orders on issues of infringement of the '510 patent, the court notes that the parties agreed in their Joint Notice dated November 26, 2008, that ATTC's motion for summary judgment regarding the '510 patent was not resolved or changed by the court's order issued on July 24, 2008. Therefore, any claimed conflicts between the court's July 24 order and the order issued on January 7, 2009, must be resolved in light of the parties' representation to the court, which the court relied on in issuing the January 7, 2009, order.

### IV. Infringement of the '923 Patent

The parties agree that Hypertherm's motion for summary judgment of infringement of Claim 13 of the '923 patent has been resolved by prior orders. They also agree that some, although not all, of the products listed in ATTC's motion for summary judgment of no infringement of the '923 patent have been

resolved. As to the parts that require an infringement decision, the parties also disagree as to the effect of the prosecution history. The products that remain in dispute are parts numbered:<sup>11</sup>

120826, Original

120827\_ATTIC, Original

120828\_ATTIC, C

120927, E

120929\_ATTIC, G

120931, Original

220011, C

220047\_ATTIC, Original

220065\_ATTIC, Original

220239\_ATTIC, C

ATTIC seeks summary judgment that its accused products do not literally infringe the '923 patent and that the doctrine of equivalents does not apply. The '923 patent pertains to "plasma arc torches, and more particularly to plasma arc torches having a torch tip designed to produce a substantially columnar shield

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<sup>11</sup>For purposes of summary judgment, the parties disputed which products were accused and which had the distinguishing feature claimed by ATTIC. The court assumes that those issues do not pertain to the parts listed by the parties as remaining in dispute.

flow that surrounds the plasma arc without substantially interfering with the plasma arc.” Col. 1, ll. 7-10. Plasma arc torches have a nozzle and a shield that direct two separate gas flows, a plasma gas flow and a shield gas flow. The problem addressed by the ‘923 patent was to direct the shield gas flow into a column around the plasma gas flow, rather than at an angle to it as in prior art, because the angle caused the shield flow to impinge on and disrupt the plasma arc.

A. Literal Infringement

ATTC seeks summary judgment that its accused products do not infringe the ‘923 patent. ATTC focuses on elements of ‘923 patent claims that describe a shield with an exit orifice “having an inlet and an outlet, the shield exit orifice dimensioned such that the nozzle head portion extends to a position between the inlet and the outlet of the shield exit orifice . . . .” Col. 5-6, ll. 66-1 (Claim 1); see also Claims 8 & 13. Based on that language, ATTC asserts that the ‘923 patent requires that the nozzle head must extend past the inlet of the shield’s exit orifice. ATTC further asserts that its accused products do not meet that element of the ‘923 patent and, therefore, are not infringing.

In support of its position, ATTC contends that "inlet" of the shield exit orifice means "the point where the shield head is parallel to the central axis of the shield exit orifice."

Because the inside wall of the shield area in ATTC products is sloped, ATTC argues that the "inlet" of the shield exit orifice for its products is located at the bottom of the sloped area where the angle of the shield changes from a slope to perpendicular. ATTC further contends that the nozzles of its accused products extend to the point of the inlet but do not extend past the inlet of the exit orifice as required by the '923 patent claims.

In contrast, Hypertherm argues that the "inlet" of the exit orifice of ATTC's products is at the top, not the bottom, of the sloped area. As a result, Hypertherm contends that ATTC's products infringe the '923 patent because the nozzles extend below the inlet of the exit orifice. Hypertherm challenges ATTC's drawing of the parts of its products in relation to Hypertherm's design.<sup>12</sup> Hypertherm also contends that the disagreement between its expert, Reed, and ATTC's expert,

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<sup>12</sup>Hypertherm's argument that the drawings create a factual issue based on the relative locations of the inlet is not persuasive, however.

Sprague, as to the location of the inlet to the exit orifice in ATTC's products creates a factual dispute.

The parties' dispute raises a question of claim construction, requiring the court to determine the meaning of the inlet of the exit orifice as used in the '923 patent. As is explained above, claim construction is a legal question, not a factual issue. Therefore, the experts' disagreement does not preclude summary judgment. Once again, the parties did not raise an issue of claim construction for "inlet" in the course of the claim construction portion of this case.

The specification of the '923 patent explains that a plasma arc torch includes an electrode and a nozzle, which is surrounded by a shield. The shield "is secured in a spaced relationship relative to the nozzle in the torch body and defines a shield exit orifice." Col. 3, ll. 21-23. The torch operates with a pressurized gas flow. A portion of the gas passes through vents into the area between the nozzle and the shield, passes through the space between the nozzle and the shield body, and exits through the shield exit orifice.

Claim 8 of the '923 patent pertains to a torch tip with a nozzle and a shield, composed of a body portion and a head portion that defines an exit orifice dimensioned so that the nozzle head extends to a position between the inlet and the

outlet of the shield exit orifice. The dependant claims following Claim 8, Claims 9 through 12, add certain shape and size limitations. Claim 13 pertains to a shield with a generally cylindrically shaped upper body, a substantially conically shaped lower body portion, and a shield head portion, that defines the exit orifice, with an inlet and an outlet, and dimensioned so that the nozzle head portion can extend to a position between the inlet and the outlet. Its dependent claims, Claims 14 through 16, add shape and size limitations. In both claims, the nozzle extends beyond the inlet of the exit orifice but not as far as the outlet and instead is "recessed within the shield head portion relative to said outlet of said shield exit orifice to prevent a substantial portion of splattered molten metal produced during marking or cutting of the workpiece from reaching the nozzle." Col. 6, ll. 53-58.

Based on the language of the claims themselves, and the specification, the exit orifice is defined by the head portion of the shield. The shield head provides the structure around the inlet and outlet of the exit orifice, which is space. As shown in figures 2 and 3, the inlet is the beginning of the exit orifice and the outlet is the end, and the inlet is located at the beginning of the head portion of the shield. Although the dependent claims add other limitations to the head portion and



exit orifice, including a limitation that the head portion is generally cylindrical, those limitations are not part of the independent claims. In the absence of any contrary evidence, the cylindrical shield head portion claimed in dependent Claims 10 and 14 and illustrated in figures 2 and 3 cannot be used to construe the term "inlet," as used in the independent claims, to require the inlet to be parallel to the central axis of the orifice.<sup>13</sup> See Regents of the Univ. of Calif. v. Dakocytomation Calif., Inc., 517 F.3d 1364, 1375 (Fed. Cir. 2008) (discussing claim differentiation); Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent

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<sup>13</sup>ATTC asserted, based on the figures shown in the '923 patent, and perhaps echoing the language used by Hypertherm's expert, Reed, that the "inlet" was located at the point at which the shield head was parallel to the central axis of the exit orifice. Reed stated in his report that the inlet was [t]he point at which the shield body cavity surface (1) changes direction to a substantial/significant degree toward a direction more parallel with the central axis . . . ." To support that opinion, Reed stated: "An orifice, in an engineering context, begins where the hollow body's inner surface substantially/significantly changes profile or contour direction to a substantial degree toward a direction more parallel to the orifice's central axis . . . ." Report at 62, 63. Expert opinions, however, are extrinsic evidence for purposes of claim construction that cannot be used to overcome the intrinsic evidence. Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1328 (Fed. Cir. 2008).

claim." ). Therefore, the inlet of the shield exit orifice is the space at the top or beginning of the exit orifice as defined by the shield head portion.

ATTC based its theory of no infringement on a different construction of "inlet." Therefore, ATTC has not shown that it is entitled to summary judgment of no infringement as a matter of law.

#### B. Doctrine of Equivalents

ATTC argues that Hypertherm is barred from claiming infringement under the doctrine of equivalents because the patent was originally rejected based on other patents that claimed torch tips which produced a substantially columnar gas flow and Hypertherm then amended its patent to require the nozzle to be recessed to avoid splatter. ATTC argues that its nozzles are recessed further than the '923 patent requires.

Hypertherm, however, does not claim equivalence based on the recess location of the nozzle. Therefore, ATTC's argument is unavailing.

ATTC also contends that its products are not equivalent to the '923 patent. This argument was buried in a section of its motion titled: "Hypertherm Cannot Claim Doctrine of Equivalents Because It Is Estopped from Doing So By the Prosecution History

of the '923 Patent." ATTC provided no facts in its factual statement to support its argument that its products are not equivalent to the '923 patent. Not surprisingly, Hypertherm did not address the issue of equivalence on the merits.

The court will not consider an argument that was not properly presented in the motion and accompanying memorandum.

#### Conclusion

For the foregoing reasons, the pending motions are resolved, as is more fully explained in the order, as follows:

1. Hypertherm's motion for summary judgment (document no. 171) is granted in part and denied in part.

To the extent that matters raised in the motion were resolved by prior orders, those matters were not considered and remain as previously decided.

The motion is denied as to infringement of Claim 7 of the '255 patent and Claim 12 of the '617 patent by the listed accused parts.

The motion is granted as to infringement of Claim 1 of the '988 patent by the listed accused products.

Hypertherm's infringement claims as to formerly accused products listed in Exhibit 5 to its objection (Document no. 235) are dismissed. Exhibit 5 is appended to this order.

2. ATTC's motion for summary judgment (document no. 201) is denied.

3. ATTC's motion for summary judgment (document no. 203) is granted to the extent that its three listed parts do not infringe Claims 11 and 12 of the '988 patent and is otherwise denied.

4. ATTC's motion for summary judgment (document no. 199) is denied.

SO ORDERED.

  
Joseph A. DiClerico, Jr.  
United States District Judge

February 3, 2009

Appendix

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