United States District Court,
E.D. Michigan, Southern Division.

HENROB LIMITED,
Plaintiff/Counter-Defendant.
v.
B'd6LLHOFF SYSTEMTECHNICK GmbH & CO. and B'f6llhoff Rivnut, Inc., Bayerische Motoren Werke AG, BMW NA, Rolls-Royce Motor Cars Ltd. and Rolls-Royce NA,
Defendants/Counter-Plaintiffs.

No. 05-CV-73214-DT

Oct. 25, 2006.

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OPINION AND ORDER CONSTRUING CLAIMS AND SCHEDULING A STATUS CONFERENCE

ROBERT H. CLELAND**, District Judge.**

The matter is before the court for construction of two United States patents pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). FN1 Extensive briefing has been submitted by Plaintiff/Counter-Defendant, Henrob Limited ("Henrob"), Defendants/Counter-Plaintiffs, Bollhoff Systemtechnik GmbH & Co., and Bollhoff Rivnut, Inc., (collectively "Bollhoff"), and Defendants Bayerische Motoren Werke AG, BMW NA, Rolls-Royce Motor Cars Ltd., and Rolls-Royce NA (collectively "BMW") FN2, and the court conducted a claim construction hearing on June 6, 2006. In this order, the court will set forth its construction of the multiple claims at issue, as well as its analysis supporting that construction.

FN1. As expressed at the claim construction hearing, the court commends counsel for all parties on their briefing and professionalism. Both sides produced briefs that were thorough and targeted, while being well-supported with accurate citations to the factual record and respectful to opposing counsel. Although this is the type of behavior that the court expects of attorneys practicing in this district, the court nonetheless appreciates it when, as here, counsel provides zealous advocacy for their clients, without being contentious or acrimonious.

FN2. Shortly after the parties submitted their opening claim construction briefs, the court issued an order which, by stipulation, consolidated this case with another pending case between Henrob and BMW, 2:05-CV-73987. (*See* 3/07/06 Order.) BMW has adopted the proposed construction and related arguments advanced by Bollhoff. (*See* BMW's 4/13/06 Reply Br.) Thus, for purposes of this order, the interests of BMW and Bollhoff are aligned.

I. INTRODUCTIONFN3

FN3. The facts set forth in the Introduction section are intended purely to provide background and context to this opinion. Nothing in this section should be interpreted as supplementing or supplanting the court's construction as set forth in Section V., *infra*.

This litigation involves two patents, U.S. Patent No. 5,752,305 (the "'305 Patent" and U.S. Patent No. 5,779,127 (the "'127 Patent"), which deal with the self-piercing riveting technology invented by Henrob. Prior to 1999, an entity related to Bollhoff was an exclusive, licensed distributer of Henrob's technology. (Henrob's Opening Br. at 1.) According to Henrob, after their business relationship terminated, Bollhoff continued to distribute Henrob's technology, thereby infringing on both the '305 and '127 Patents.

Both Patents relate generally to riveting methods and fastening machines. As Bollhoff describes, "[w]hereas a conventional rivet requires a pre-drilled hole that is completely bored through the sheet material prior to the insertion of the rivet, a self-pierce rivet [such as Henrob's] is designed to pierce the sheet material without the need for drilling any hole into the material." (Bollhoff Opening Br. at 3.) Furthermore, "a self-pierce rivet is designed so that it dos not fully penetrate the lower sheet of material, thus forming a water-tight rivet joint and avoiding degradation to the corrosion resistance properties of the backside of the material, such as galvanization." (Id.)

The '305 Patent, entitled "Self-Piercing Riveting Method and Apparatus," was issued on May 19, 1998. (Bolhoff's Ex. A; Henrob's Ex. 2 & 3.) FN4 As Henrob generally explains, "[t]he ' 305 Patent relates to SPR [self-piercing riveting] methods and machines that connect sheets of material by driving a self-piercing rivet through a first sheet into contact with a second sheet without piercing the bottom sheet." (Henrob Opening Br. at 4.) Both parties state that the self-piercing process, particularly prior to Henrob's technology, causes deformation of the upper sheet of material, in the form of circular depressions or dimples around the rivet location. (Id.; Bollhoff's Opening Br. at 3.) The ' 305 Patent sought to correct or reduce this deformation through utilization of a substantial clamping force that clamps the sheets of material together in the region around the rivet insertion location. (Bollhoff's Opening Br. at 3; Henrob's Opening Br. at 4-5.)

FN4. After the '305 Patent was re-examined, Claim 1 was amended and Claim 16 was added. (*See* Henrob's Ex. 3.) The original Patent is attached as Exhibit 2 to Henrob's Opening Brief, and the amendments are attached as Exhibit 3 to Henrob's Opening Brief.

The '127 Patent, entitled "Fastening Machines," was issued on July 14, 1998. (Bollhoff's Ex. B; Henrob's Ex. 4 & 5.) FN5 Bollhoff generally describes the need for fastening machines as follows:

FN5. After the '127 Patent was re-examined, Claim 1 and Claim 10 were amended. (*See* Henrob's Ex. 5.) The original Patent is attached as Exhibit 4 to Henrob's Opening Brief, and the amendments are attached as Exhibit 5 to Henrob's Opening Brief.

During the self-piercing riveting process, a rivet punch delivers a rivet to the sheets of material to be riveted. The rivet punch moves vertically downwardly in a delivery passage to deliver the rivet to the sheets of material, and then, after the rivet is fully inserted into the sheets of material, moves vertically upwardly in the passage to reset and obtain another rivet to deliver to the sheets of material.
(Bollhoff's Opening Br. at 4-5.) In the background section of the '127 Patent it states that "[t]here are certain applications ... [for example,] in the automotive and white goods industries, where the dimensions of the feeding head preclude the use of the [earlier described type] of fastening machine to fasten components together, where limited space is available. ('127 Patent at Col. 1:19-24; Henrob's Ex. 4 & 5.) The '127 Patent sought to solve this problem by "providing a fastening machine with a unique fastener actuator that releasably secures a fastener to the nose of the actuator as the actuator advances the fastener towards the workpiece." (Henrob's Opening Br. at 7-8.) According to Henrob, when "[u]sing the invention, no other structure, which would increase the dimension of the feeding head, is needed to secure the fastener to the actuator." (Id. at 8.)
Both Patents claimed priority to other applications submitted around the same time that the '305 and '127 Patent applications were submitted. Further, both Patents were reexamined (apparently at the request of Bollhoff's counsel) in 2003. The prosecution histories of the two Patents will be further detailed, where necessary, in the Discussion section of this order.

II. CLAIMS TO BE CONSTRUED

A. U.S. PATENT NO. 5,752,305FN6

FN6. The '305 Patent is the only patent at issue in the claims against BMW. (*See* BMW's 4/13/06 Reply Br.)

1. Claims 1 and 16

The parties have submitted the following phrases in Claims 1 and 16 FN7 of the ' 305 Patent for construction by the court (phrases for construction are underlined): FN8

FN7. The disputed phrases in Claims 1 and 16 are identical.

FN8. Since their initial filings, the parties have narrowed their disagreement. The court has underscored only those phrases which, following the June 6, 2006 hearing, are no longer in dispute.

1. A method of riveting in which first and second superimposed sheets of material are interconnected by driving a self-piercing rivet through the first sheet into non-piercing engagement with the second sheet comprising the steps of:
a) locating a die defining a recess beneath the second sheet in alignment with a punch located above the first sheet;

b) positioning a rivet having an end adapted to expand when driven into a sheet of material between the punch and the first sheet;

c) *clamping the sheets together before the rivet is driven into the first sheet* with a clamping force applied immediately adjacent the rivet, *the clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets,* said clamping force being larger than a clamping force merely required to hold said sheets against each other in a generally non-moving relation; and

d) advancing the punch to drive the rivet into the first and second sheets so that the sheets are interconnected.

16. A method of riveting in which first and second superimposed sheets of material are interconnected by driving a self-piercing rivet through the first sheet into non-piercing engagement with the second sheet comprising the steps of:

a) locating a die defining a recess beneath the second sheet in alignment with a punch located above the first sheet;

b) positioning a rivet having an end adapted to expand when driven into a sheet of material between the punch and the first sheet;

c) *clamping the sheets together before the rivet is driven into the first sheet* with a clamping force applied immediately adjacent the rivet, *the clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets;* and

d) advancing the punch to drive the rivet into the first and second sheets so that the sheets are interconnected.

2. Claim 2

The parties have submitted the following phrase in Claim 2 of the '305 Patent for construction by the court (phrase at issue is underlined):

2. A method as claimed in claim 1, wherein the clamping force is maintained constant throughout at least *a major part of the riveting operation*.

3. Claim 9

The parties have submitted the following phrase(s) FN9 in Claim 9 of the ' 305 Patent for construction by the court (phrases at issue are underlined):

FN9. Henrob contends that the disputed language includes several phrases that should be separately construed; Bollhoff contends that the disputed language constitutes one disputed phrase.

9. A riveting machine for interconnecting a first sheet of a material and a second sheet of a material by

driving a self-piercing rivet through the first sheet into non-piercing engagement with the second sheet comprising:
a) a punch;

b) means for feeding rivets successfully to the punch for insertion into the sheets;

c) a die aligned with the punch for deforming the rivet inserted thereby; and

d) *clamping means for clamping the sheets during the riveting operation around a location wherein the rivet is inserted, the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets*.FN10

FN10. Henrob contends that the means-plus-function element in this claim does not include the italicized language; Bollhoff contends that this means-plus-function element includes the entirety of the language that is underlined.

B. U.S. PATENT NO. 5,779,127FN11

FN11. Henrob's allegations against BMW relate only to the '305 Patent, and accordingly, BMW takes no position with respect to the construction of the '127 Patent.

1. Claim 1

The parties have submitted the following phrases in Claim 1 of the '127 Patent for construction by the court (phrases at issue are bolded and underlined):

1. *A fastener actuator* for a fastening machine, wherein the actuator advances a fastener toward a workpiece for securing the fastener to the workpiece, comprising:

means defining a fastener delivery passage downwardly through which the fastener passes,

a fastener supply passage for sequentially delivering fasteners to the fastener delivery passage, and wherein

the *fastener actuator* is vertically movable through the fastener delivery passage, the actuator including a nose at its leading end for engaging a fastener and advancing the same toward the workpiece, the actuator being provided with an internal axial passage one end of which is open to the nose of the actuator and another end of which is connected to a vacuum source through a control, *the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage and toward the workpiece*.

2. Claim 10

The parties have submitted the following phrase in Claim 10 of the ' 127 Patent for construction by the court (phrase at issue is underlined):

10. A fastener actuator for advancing a fastener toward a workpiece for securing the fastener to the workpiece, comprising:

a housing,

a setting tool operatively connected to the housing, the setting tool being formed with a fastener supply passage for receiving fasteners seriatim from a fastener source, and a fastener delivery passage through which a fastener is directed to a workpiece, said setting tool further including a plurality of resiliently biased centralizing balls provided adjacent the upper end of the delivery passage to centralize the fastener with respect to a vertical axis of the delivery passage, and wherein

the fastener actuator is mounted for vertical reciprocal movement in the housing and through the fastener delivery passage, the actuator including a nose at its leading end for engaging a fastener and advancing the same toward the workpiece, the actuator being provided with an internal axial passage one end of which is open to the nose of the actuator and another end of which is connected to a vacuum source through a control, *the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage toward the workpiece*.

III. STANDARD

Under *Markman,* a court conducting a patent infringement analysis must undergo a two-step process. First, the court must determine the meaning and scope of the protected patents. This is known as the claim construction phase and is a question of law for the court. Markman, 52 F.3d at 976, 979. Once the court has interpreted the claims at issue, the second step requires comparing the properly construed claim and the accused device to determine whether the accused device is infringing. Id. at 976. The infringement analysis generally is for the jury.

"The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims." Embrex, Inc., v. Serv. Eng'g Corp., 216 F.3d 1343, 1347 (Fed.Cir.2000) (quotation omitted). In construing the claim, the court should keep in mind that "the language of the claim defines the scope of the protected invention." Bell Communications Research, Inc. v. Vitalink Communications, Corp., 55 F.3d 615, 619 (Fed.Cir.1995). For this reason, " 'resort must be had in the first instance to the words of the claim,' words [which are ascribed] their ordinary meaning unless it appears the inventor used them otherwise." Id. at 620 (quoting Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed.Cir.1984)). Further, "it is equally 'fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the invention.' " *Id*. (quoting United States v. Adams, 383 U.S. 39, 49, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966)).

In construing a claim, the court begins with an analysis of the ordinary meaning of the disputed claim terms. The terms used in the claims bear a heavy presumption that they mean what they say, having the ordinary meaning that would be attributed to those words by persons having ordinary skill in the relevant art. Texas Digital Systems, Inc. v. Telegenix, Inc. 308 F.3d 1193, 1202 (Fed.Cir.2002). The court can then look to other intrinsic evidence, including the specification, and the prosecution history if in evidence. Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001).

After exhausting the available intrinsic evidence, the court may also consider extrinsic evidence "to aid [it] in coming to a correct conclusion as to the true meaning of the language employed in the patent." Markman, 52 F.3d at 980 (quotations omitted). Extrinsic evidence consists of all evidence external to the patent and prosecution history, including testimony of inventors or experts, dictionaries, and learned treatises. *Id*. "However, extrinsic evidence cannot be used to contradict the established meaning of the claim language." Gart v. Logitech, 254 F.3d 1334, 1340 (Fed.Cir.2001). In sum, "the ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources." Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 (Fed.Cir.2003). These sources "include the claims themselves, dictionaries and treatises, and the written description, the drawings, and the prosecution history." *Id*. (internal citations omitted); *see also* Inverness Med. Switzerland GmbH v. Warner Lambert Co., 309 F.3d 1373, 1378 (Fed.Cir.2002) (noting that dictionaries are often helpful in ascertaining plain and ordinary meaning of claim language).

IV. DISCUSSION

A. The '305 Patent

1. Claims 1 and 16

a. "*positioning a rivet having an end adapted to expand when driven into a sheet of material between the punch and the first sheet*"

Henrob first asks the court to construe the following language, found in Claims 1 and 16 of the '305 Patent: "positioning a rivet having an end adapted to expand when driven into a sheet of material between the punch and the first sheet." (Henrob's Opening Br. at 12.) Henrob proposes that this phrase should be construed as "Positioning a rivet between the punch and the first sheet," the rivet "having an end adapted to expand when driven into a sheet of material." (Henrob's Opening Br. at 12; Joint Memo at 6.) Bollhoff did not originally ask the court to construe this phrase, but in its response brief it states that it "does not have any serious dispute with Henrob's claim construction." (Bollhoff Resp. Br. at 1; *see also* Joint Mem. at 6.) The court will therefore adopt Henrob's proposed construction.

b. "*clamping the sheets together before the rivet is driven into the first sheet*"

The parties do, however, dispute the proper construction of another phrase found in Claims 1 and 16, "clamping the sheets together before the rivet is driven into the first sheet." Henrob argues that no construction of this phrase is necessary, but that to the extent the court opts to construe this phrase, Henrob proposes the following alternative: "Clamping the sheets together before inserting the rivet into the first sheet." (Henrob Opening Br. at 14; Joint Mem. at 6.) Bollhoff, on the other hand, submits that the phrase instead means: "The sheets of material disposed between the die and the punch are clamped together with a clamping force and the clamping force is applied prior to a point in time when the self-piercing rivet contacts the upper surface of the first sheet of material." (Bollhoff's Opening Br. at 6-7; Joint Mem. at 6.)

First, the court agrees with Henrob that Bollhoff's proposed construction improperly adds a limitation to the claims by including the phrase, "the sheets of material disposed between the die and punch." (Henrob's

Resp. at 2.) As Henrob points out, no support for adding this limitation is suggested by Bollhoff and the court will therefore reject it. *See* Liquid Dynamics Corp. v. Vaughan Co., Inc., 355 F.3d 1361, 1368 (Fed.Cir.2004) (reversing district court "[b]ecause the plain language of the claim was clear and uncontradicted by anything in the written description or the figures, [and thus] the district court should not have relied upon the written description, the figures, or the prosecution history to add limitations to the claim"). Bollhoff's improper additional limitation, however, is not the heart of Bollhoff's argument regarding this disputed phrase.

Indeed, although the parties submit the entire phrase for construction, their central dispute with this phrase revolves around the meaning of the words "driven into." Henrob essentially argues that "driven into," means the same thing as "insert" (which is also why Henrob submits that this phrase does not require construction). (Henrob's Opening Br. at 16.) Bollhoff does not fundamentally disagree with this contention, (*see* Bollhoff's Resp. Br. at 3 ("[I]t is clear that, in the context of the '305 Patent, the words mean exactly the same thing.").) Nonetheless, Bollhoff argues that identifying "an ascertainable point in time" is necessary to construe this phrase and that point in time must be prior to the "point in time when the self-piercing rivet *contacts* the upper surface of the first sheet of material." (*Id*. at 2 (emphasis added).)

Thus, Bollhoff asks the court to construe a phrase which requires clamping to occur prior to the rivet being "driven into" the first sheet to mean that clamping occurs prior to the rivet first touching or contacting the first sheet. The court finds that this proposed construction contradicts the claim term's ordinary meaning.

The Federal Circuit indulges a " 'heavy presumption' that a claim term carries its ordinary and customary meaning." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002) (citing Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed.Cir.1999)). In determining a term's ordinary meaning, courts are allowed to consult dictionary definitions, so long as those definitions do not contradict any definition found in or ascertained by a reading of the patent documents. *Id*. (citing a string of Federal Circuit cases allowing use of dictionary definitions). While this "heavy presumption" may be overcome so as to narrow a claim term's ordinary meaning, it cannot be done "simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history." *Id*. (citing Johnson Worldwide, 175 F.3d at 989-90, 992).

To that end, Henrob argues that Bollhoff's proposed construction incorrectly defines the time period prior to which the clamping must occur, contrary to the plain language of the phrase "driven into." Henrob states that

[t]he claim speaks to only the time before the rivet is driven *into* the first sheet and is silent with respect to whether clamping occurs before the rivet contacts the first sheet. As a result, the clamping may occur either before or simultaneously with the rivet's contacting the first sheet as long as it occurs at some point before the rivet penetrates the first (top) sheet."

(Henrob's Opening Br. at 15-16 (emphasis in original).) The court agrees with this reasoning. Bollhoff's construction would improperly narrow the claim by imposing a requirement that the clamping occur prior to contact, rather than prior to the rivet being driven, or inserted, into the first sheet. The ordinary meaning of the phrase "driven into" connotes more than merely contacting an object, but rather connotes the act of insertion, as Henrob argues. Indeed, "driven," FN12 connotes that the rivet is being forced forward, and "into" necessarily connotes that the rivet is actually being inserted into the first sheet. Had Henrob intended to claim that the clamping must occur prior to the rivet touching the top sheet, as opposed to being inserted

into the top sheet, it clearly could have done so.

FN12. The court need not consult a dictionary for the ordinary meaning of the word "driven," but notes that *Merriam Webster's Collegiate Dictionary,* (10th ed.1993) defines "drive" as, among other meanings, "to impart a forward motion to by physical force."

As will be more fully explored below, Bollhoff argues that a stated goal of the '305 Patent is to prevent sheet material from being drawn laterally inwards. (Bollhoff Opening Br. at 7.) Bollhoff further argues:

Because sheet material begins to be drawn laterally inwards towards the rivet from the point in time that the rivet begins to penetrate the upper surface of the upper sheet of material ..., it necessarily follows that, in order to 'prevent' material from being drawn 'laterally inwards' towards the rivet, the clamping force must be applied before that point in time when the self-piercing rivet first contacts the upper surface of the upper sheet of material.

(Bollhoff Opening Br. at 7.) This argument does not support Bollhoff's interpretation, however, because even Bollhoff admits that the relevant time period is not when the rivet makes contact with the first sheet, but when the "rivet begins to penetrate the upper surface of the upper sheet of material." (Id .)

Moreover, as Henrob points out, Bollhoff's citations to the written description and prosecution refer to rivet *insertion,* rather than "contact" as Bollhoff argues. (*See* Bollhoff's Opening Br. 7-8.) To the extent that Bollhoff attempts to rely on extrinsic evidence, in the form of expert testimony and a brochure produced by Henrob (Bollhoff's Opening Br. at Ex. E, MacDonald Dec.; Bollhoff's Reply Br. at Ex. A), such evidence cannot be used to contradict the established meaning of claim language. Gart v. Logitech, 254 F.3d 1334, 1340 (Fed.Cir.2001).

While the court is inclined to adopt Henrob's proposed construction, which is consistent with the plain meaning of the disputed claim, the court finds that this construction adds little clarity to the meaning of "driven into." Thus, the court will adopt an alternative construction: "clamping the sheets together before the rivet penetrates the first sheet." Both parties used the verb "penetrates" in making their arguments for a proposed construction. (Henrob's Opening Br. at 16 ("As a result, the clamping may occur either before or simultaneously with the rivet's contacting the first sheet as long as it occurs at some point before the rivet penetrates the first (top) sheet."); Bollhoff's Opening Br. at 7 ("Because sheet material begins to be drawn laterally inwards towards the rivet from the point in time that the rivet begins to penetrate the upper surface of the upper sheet of material ....").) The court finds that substituting the word "penetrates" for "driven into" or "inserted" better clarifies the phrase while remaining true to the meaning of the claim.

c. *a clamping force applied immediately adjacent the rivet*

With respect to this disputed phrase, the parties originally disagreed as to the meaning of the terms "immediately adjacent." Henrob submitted that this phrase should be construed as "the clamping force is applied in the region directly around the rivet insertion location." (Henrob Opening Br. at 16; Joint Mem. at 6.) Bollhoff, however, attempted to define "immediately adjacent" much more narrowly: "The clamping force is applied with a structure so that there is virtually no space between the outer edge of the rivet head and the inside surface of the clamping structure that supplies the clamping force." (Bollhoff Opening Br. at 8-9; Joint Mem. at 6.) The court was informed at the claim construction hearing, however, that Bollhoff had

accepted Henrob's proposed construction. Because the parties are no longer in disagreement, the court will adopt Henrob's proposed construction.

Indeed, the court finds that Henrob's construction is faithful to the claim language. As with the previous disputed phrase, Bollhoff's proposed construction improperly attempted to contravene the ordinary meaning of the terms "immediately adjacent" with an overly narrow construction, supported primarily by the testimony of its expert. (*See* MacDonald Decl.) There is no support in the plain language of the claim itself or in the intrinsic evidence to support Bollhoff's argument that "immediately adjacent" means "virtually no space." Not only is Bollhoff's somewhat cumbersome construction too narrow, but it is also not clear to the court exactly what "virtually no space" means.

The court finds that Henrob's construction is well-supported by the ordinary meaning of "immediately adjacent" and the intrinsic evidence. (*See* '305 Patent at Abstract ("The sheet material is clamped with a substantial force during the riveting operation in the region around the rivet insertion location."); col. 1:59-60 ("... during the riveting operation in the region around the rivet insertion location."); col 2:3-4 ("... with a substantial force ... in the region around the rivet insertion location."); *see also* Prosecution History, Henrob's Ex. 9 at 405 ("... for clamping the sheet material with the necessary force during the riveting operation in the region around the rivet insertion location.").)

Indeed, in light of this abundant intrinsic evidence, the court may have considered construing the disputed phrase as referring simply to "the region around the rivet insertion location." Nonetheless, given the presence of the adverb "immediately" in the claim, and given further the fact that the parties have agreed to the added modifier to its proposed construction, the court will also include the word "directly" in adopting Henrob's proposed construction.

d. ***the clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet***

Henrob contends that the next disputed phrase means: "the clamping force is large enough to restrict inward, lateral flow of sheet material that is subject to the clamping force such that driving the rivet into the sheets does not result in noticeable deformation of the sheet material that is subject to the clamping force." (Henrob's Opening Br. at p. 20; Joint Mem. at 7.) Bollhoff, however, argues that the phrase means "the clamping force that is applied to the sheets of material is of such a magnitude to ensure that there is no inward flow of sheet material that is subject to the clamping force" (Bollhoff's Resp. Br. at 9; Joint Mem. at 7.) While their language is substantially different, the parties do not appear to dispute the meaning of most of the terms in this phrase. Rather, the crux of the parties dispute centers on the meaning of the word "prevent." According to Bollhoff, "prevent" means to completely stop all inward flow, while Henrob argues that "prevent" means only to restrict the flow.

Both parties have found support for their positions in the prosecution history, but the court finds that the bulk of the intrinsic evidence favors Henrob's construction. Bollhoff, for example, relies heavily on the reexamination history, during which Henrob distinguished its invention from prior art, stating that "[t]he distinction between the clamping sheets using a force applied by the nose ... and clamping sheets *to ensure that there can be no inward flow of material during the riveting operation* ..." (Henrob's Ex. 10 at HEN621 (emphasis added).) At first glance this language seems to support Bollhoff's position that Claims 1 and 16 require that the force be substantial enough to completely stop all inward flow of material. Indeed, "[d]uring prosecution, a patent applicant may consistently and clearly use a term in a manner either more or less

expansive than it is used in the relevant art, thereby expanding or limiting the scope of the term in the context of the patent claims." Sorensen v. International Trade Com'n, 427 F.3d 1375, 1378 (Fed.Cir.2005). Nonetheless, despite Bollhoff's argument to the contrary, Henrob did not effectuate a narrowing of the disputed term "prevent." As the court in *Sorensen* held, "in order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution." *Id*. (citing Middleton, Inc. v. Minn. Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed.Cir.2002)). Here, when the cited language is read in context, the focus of Henrob's statements was not the degree of material flow which was to be prevented, but rather, the degree of force which was to be applied. This language was used, not to explain "prevent" but to explain the magnitude of the "clamping force."

Moreover, the bulk of the reexamination history lends support to Henrob's proposed construction of "prevent," meaning to "restrict ." For example, Henrob refers to "minimal draw of the sheet material," (Henrob's Ex. 10 at HEN622), explains that the distortion is "*regulated* to give a uniform appearance," (*id*., emphasis added), refers to the "restricted material flow" and states that "the distortion of material around the joint is significantly reduced," (*id*.). Further, Henrob explained that its process "will always produce a joint with insignificant lateral draw compared to that on the same joint made without" using Henrob's process. (*Id*. at HEN611.) The focus, therefore, in the prosecution history is not on the complete eradication of all lateral draw, but on the restriction of it.

The court finds, however, that simply replacing the word "prevent" with the word "restrict" would impermissibly *broaden* the scope of the claim. Based on the representations of Henrob during the prosecution of the '305 Patent, and based on the ordinary meaning of the word "prevent," the court will add the modifier "significantly" to its construction to convey not only a restriction of lateral flow but a substantial restriction. (*See* Henrob Ex. 10 at HEN622 ("[T]he distortion of material around the joint is significantly reduced ...").)

It is true that Henrob's proposed construction would achieve this same result by adding the modifying clause "such that driving the rivet into the sheets does not result in noticeable deformation of the sheet material that is subject to the clamping force." This proposed construction, however, improperly adds a new limitation to the claim. *See* Liquid Dynamics Corp. v. Vaughan Co., Inc., 355 F.3d 1361, 1368 (Fed.Cir.2004). This phrase, which refers to "noticeable deformation," is not only somewhat imprecise, but is also not supported by the intrinsic evidence.

Further, as Bollhoff points out, during reexamination, Henrob attempted to add similar language to new claims 16 and 17, which would prevent "substantial distortion of sheet material" and "substantially maintain the flatness of the material." (*See* Bollhoff's Ex. H. at HEN661-HEN662.) After the Patent Office rejected these limitations, (*id*. at HEN678), Henrob amended its claims, dropping this language, (*id*. at HEN686-HEN688). "Arguments and amendments made during prosecution of a patent application must be examined to determine the meaning of terms in the claims." Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325 (Fed.Cir.2002) (citing Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.1995)). Here, in light of Henrob's actions during reexamination, Henrob cannot use a *Markman* proceeding to insert into the claim the Patent Office disallowed and Henrob appeared to abandon.

Having rejected portions of both Henrob's and Bollhoff's proposed constructions, the court will instead construe the disputed phrase as follows: "the clamping force being of such magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force." The court finds that this construction is supported, not only by the ordinary meaning of the terms at issue, but also by the bulk of

the intrinsic evidence. (*See, eg.,* Henrob's Ex. 2, Col 1:44 (purpose to obviate or *mitigate* disadvantages noted earlier, including deformation); Col. 2:32-33 (purpose is to prevent lateral pulling); Col. 2:60, referring to "minimal draw of the sheet material as a result of the clamping force.").)

e. ***as the rivet is driven into the sheets***

The parties also dispute the second portion of this phrase. Henrob argues that no construction is necessary for this phrase, but that in the alternative, the court should construe it to mean "while the rivet is inserted into the sheets." (Henrob Opening Br. at 25; Joint Memo at 7.) Henrob's proposal does little to elucidate the meaning of this phrase inasmuch as it would merely exchange the word "driven" with "inserted," which the parties admit are interchangeable in the context of the '305 Patent. Conversely, Bollhoff argues that Henrob's proposed construction is imprecise, and proposes the following construction: "A period of time defined from the point in time when the self-piercing rivet contacts the upper surface of the first sheet of material until the point in time when the self-piercing rivet is disposed in its fully driven position in the second sheet of material" (Bollhoff's Opening Br. at 10; Joint Memo at 7.) Neither party supports their position with much citation to intrinsic or extrinsic evidence, but rather rely primarily on the ordinary meanings of these disputed terms.

Bollhoff refers the court to its earlier arguments relating to construction of the phrase "clamping the sheets together before the rivet is driven into the first sheet," a construction which the court has already rejected. (*See supra* Section IV.A.1.b.) Bollhoff argues that "the clamping force must be applied throughout the entire period of time that sheet material can possibly flow laterally inwards towards the rivet; otherwise lateral flow will not be prevented." (Bollhoff's Resp. Br. at 23.) While the court generally agrees with this proposition, Bollhoff certainly cannot argue that lateral flow could occur simply by the rivet *contacting* the upper surface of the first sheet of material, yet that is what Bollhoff's construction would suggest. Rather, consistent with the court's construction of "driven into the first sheet," and for the reasons discussed above, the court believes that the starting point in this phrase should be the point in time when the rivet *penetrates* the first sheet. (*See supra* Section IV.A.1.b.)

While the end point in this phrase is a bit more difficult to ascertain, the court finds that Bollhoff's proposal, while perhaps somewhat cumbersome, is nonetheless consistent the language of the claim. Indeed, the claim requires that the force be applied "as the rivet is driven into the *sheets*." (Emphasis added.) The plural form of the word "sheets" necessarily requires that the force be applied as the rivet is inserted into both sheets. Because inward flow can occur at any point while the rivet is driven through the sheets, it is most consistent with the claim to define the end point as Bollhoff suggests. Accordingly, the court construes this phrase as follows: "from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material."

2. Claim 2

a. ***a major part of the riveting operation***

The parties' only dispute in Claim 2 relates to the construction of the phrase "a major part of the riveting operation," which defines the time period during which the clamping force must remain constant. Henrob contends that the phrase does not require construction but that, if it does, it means "a large portion of the time period during which the rivet is inserted into the sheets." (Henrob Opening Br. at 28; Joint Mem. at 8.) FN13

FN13. Bollhoff did not address this phrase in its opening brief. The court will nonetheless address it inasmuch as it is clear from the parties "Joint Claim Construction Memorandum" and Bollhoff's subsequent briefing that the meaning of the phrase is disputed.

The parties do not dispute that the "riveting operation" refers to the operation of inserting the rivet into the sheets of material, beginning from the point in time when the punch engages the rivet for insertion. (Henrob's Opening Br. at 28-29; Bollhoff's Resp. Br. at 24.) Rather, the parties' disagreement is over the meaning of the phrase "major part." Henrob seeks to have the court construe the phrase generally, without specific start and stop points. Bollhoff instead argues that the court should define the exact beginning and end point of the "major part" of the riveting operation.

The court will adopt Henrob's proposed construction, with a minor change, and construe the phrase more generally. First, the court finds that Bollhoff's construction, purported to represent a "major part" of the riveting operation, actually represents almost all, if not the entirety, of the riveting operation. Indeed, Bollhoff confuses the entire operation with a major part of the operation even in its response brief, arguing:

In its claim construction, Bollhoff has properly focused on the "riveting process" ' as being that portion of the riveting operation when the self-piercing rivet contacts the upper surface of the first sheet of material until the point in time when the self-piercing rivet is disposed in its fully driven position in the second sheet of material, *which is the "the major part of the riveting operation*."

(Bollhoff Resp. Br. at 25, emphasis added.) Bollhoff does not appear to recognize a distinction between the "riveting operation" and a "major part" thereof.

Moreover, the court is persuaded that Henrob has correctly defined the "riveting operation" as that time period during which the rivet is being inserted into the sheets. (*See* Henrob's Ex. 2, Col 1:53-54, "there is provided a method of riveting comprising inserting a self-piercing rivet into sheet material ....") Consistent with the ordinary meaning of "major," Henrob also logically construes "major part" as "a large portion of the time period." While the court recognizes that the construction is not as specific as Bollhoff's proposed construction, the phrase "major part" necessarily implies a degree of imprecision. The court should not add precision when the simple language of this claim uses general terms, even if to do so would add specificity. *See* Liquid Dynamics Corp., 355 F.3d at 1368. The court will therefore adopt Henrob's proposed construction, with a minor adjustment, and define this phrase "the bulk of the time period during which the rivet is being inserted into the sheets." FN14

FN14. The court substitutes "bulk" for "large portion" in order to simplify the construction.

3. Claim 9FN15

FN15. In their discussion of Claim 9, the parties devote a fair amount of time to the "Flugge Report." Dr. Flugge is one of Bollhoff's experts who, in 1999-2000, performed various tests to determine whether a clamping element with a smooth clamping surface or, alternatively, with a roughened clamping surface with a coining ring could prevent lateral flow. The Flugge Report is attached to Bollhoff's Opening Brief as Exhibit 3 to Bollhoff's Exhibits E and F. The Flugge Report is relied upon by Bollhoff's experts, Dr. Andrew MacDonald (Bollhoff's Opening Br. at Ex. E) and Dr. Franz-Josef Ulm (*id*. at Ex. F), both of whom

testified at the claim construction hearing. The Flugge Report is criticized by Henrob's expert, Dr. Jack Hu. (Henrob's Resp. Br. at Ex. 23.) While the experts' testimony and reports are helpful in providing context to the court's understanding of the technology at issue, they "cannot be used to contradict the established meaning of the claim language." Gart, 254 F.3d at 1340.

a. ***clamping means for clamping the sheets during the riveting operation around a location wherein the rivet is inserted, the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets.***FN16

FN16. Henrob contends that the means-plus-function element in this claim does not include the bolded language; Bollhoff contends that this means-plus-function element includes the entirety of the quoted phrase, including the bolded portion.

The parties agree that this phrase is a "means-plus-function" element subject to 35 U.S.C. s. 112 para. 6. It is well established that s. 112 permits inventors to use generic means of expression in claim limitations provided, however, they clearly identify and describe the corresponding structures to perform the stated function in the patent specification. Atmel v. Info. Storage Devices Inc., 198 F.3d 1374, 1381 (Fed.Cir.1999).

Paragraph six of s. 112 permits the use of the means-plus-function language and provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. s. 112 para. 6. The court interprets claims written in means-plus-function format to include only the structure set forth in the specification and its equivalents. Kahn v. General Motors Corp., 135 F.3d 1472, 1476 (Fed.Cir.1998).

In construing means-plus-function claim limitations, a court employs a two-step process. First, the court identifies the particular function claimed, often called the stated or claimed function. Second, it identifies the "corresponding structure, material, or acts described [by the claimant] in the specification." 35 U.S.C. s. 112; Budde v. Harley Davidson, Inc., 250 F.3d 1369, 1376 (Fed.Cir.2001); Asyst Technologies, Inc. v. Empak, Inc., 268 F.3d 1364, 1369-70 (Fed.Cir.2001) (describing the two steps in construing a means-plus-function limitation). Unlike ordinary claims, a party choosing to write a claim in the means-plus-function format is limited to claiming the corresponding structure actually disclosed in the specification and its equivalents. Kahn, 135 F.3d at 1476.

Here, the dispute centers not on whether the phrase "clamping means" constitutes a "means-plus-function" element, but rather on what constitutes the claimed function. Henrob asserts that the claimed function includes only the first portion of the phrase, a means "for clamping the sheets during the riveting operation around a location wherein the rivet is inserted," while Bollhoff contends the claimed function includes not only the first portion of the phrase but also the second portion, "the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as

the rivet is being driven into the sheets." The court agrees with Bollhoff's contention that the applied force is included in the function of the clamping means.

First, grammatically, both clauses are included in the same subpart (d) of Claim 9. (*See* Henrob Ex. 2, Col 5:11-15.) Had Henrob intended to claim the degree of force separately from the "clamping means," it should not have included the limitation within the subpart relating to the "clamping means." Moreover, although the phrase is written somewhat awkwardly, the second portion of the phrase can be read to modify the earlier word clamping, which both parties admit is included the first function of the "clamping means." Distilled to simpler language, the phrase is read to include a "clamping means" for clamping the sheets *with* a substantial force. The court therefore construes "clamping means" to have the full function included in subsection (d) of Claim 9, as argued by Bollhoff. The court, however, does not agree with the proposed construction articulated by Bollhoff for that function. The court will evaluate the two portions of the claimed function below. The court will then identify the required structure for the "clamping means." *See* Budde, 250 F.3d at 1376.

i. clamping the sheets during the riveting operation around a location wherein the rivet is inserted

In construing this first portion of the function of the "clamping means," the court first finds that the terms "clamping the sheets" does not require construction by the court. Henrob argues such construction is not necessary, and Bollhoff merely rearranges the words to propose a construction of "the sheets of material must be clamped with a clamping device." (*See* Joint Mem. at 10.) FN17 Inasmuch as Bollhoff's proposal does not clarify the meaning of the claim language, which is clear and straightforward, the court will simply decline to construe "clamping the sheets."

FN17. Originally, Bollhoff defined "clamping the sheets" to mean "the clamping structure applies a clamping force to the sheets of material disposed between the clamping structure and the die." (Bollhoff Opening Br. at 16.) In Bollhoff's response brief, however, Bollhoff's proposed construction does not include this language. (Bollhoff's Resp. Br. at 25.)

The court has already construed the "riveting operation" to mean "the time period during which the rivet is inserted into the sheets." The parties have presented no reason for the court to find that the meaning of "riveting operation" in Claim 9 is different from the meaning of "riveting operation" in Claim 2. The Federal Circuit has instructed that "[u]nless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim." Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1119 (Fed.Cir.2004); *see also* Fonar Corp. v. Johnson & Johnson, 821 F.2d 627, 632 (Fed.Cir.1987), *overruled on other grounds by* Cardinal Chemical Co. v. Morton Intern., Inc., 508 U.S. 83, 113 S.Ct. 1967, 124 L.Ed.2d 1 (1993); *see generally* Digital Biometrics, Inc. v. Identix, Inc. 149 F.3d 1335, 1345 (Fed.Cir.1998) ("[W]hatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently."). The court will therefore adopt the same construction in this claim, with a slight grammatical modification, and construe the term "riveting operation" to mean "the time that the rivet is being inserted into the sheets."

Likewise, in Claim 1 the court construed language similar to "around a location wherein the rivet is inserted." Specifically, the court construed "a clamping force applied immediately adjacent the rivet" to mean "[t]he clamping force is applied in the region directly around the rivet insertion location." (*See supra* Section IV.A.1.c.) Both parties adopt their previous Claim 1 arguments to support their construction of this

Claim 9 phrase. Because the language is not identical to the language found in Claim 1, the court finds it appropriate to adopt a construction consistent, but not identical, with its Claim 1 construction. *See* Innova/Pure Water, 381 F.3d at 1119. Specifically, unlike the phrase in Claim 1, this phrase does not include the adverb "immediately." Indeed, for this reason as well as for the reasons given by the court in its analysis of Claim 1, the court rejects Bollhoff's attempt to impermissibly narrow the scope of this limitation by construing the terms to mean "at a location immediately adjacent to and circumscribing the rivet head." Instead, the court will adopt Henrob's construction, which properly does not utilize a modifier, and construe this phrase to mean "the region around the rivet insertion location."

The court's final construction of the first portion of the claimed function, therefore, is "clamping the sheets during the time that the rivet is being inserted into the region around the rivet insertion location."

ii. the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets

The second portion of the claimed function of the "clamping means" also incorporates terms and phrases which the court has already construed. In Claim 1, the court construed "the clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet" to mean "the clamping force being of such magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force" (*See supra* Section IV.A.1.d.) Also in Claim 1, the court construed "as the rivet is being driven into the sheets" to mean "from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material." (*See supra* Section IV.A.1.e.) The language found in Claim 1 is nearly identical to the language found in Claim 9 and, absent any compelling argument from the parties that the claims should be construed differently, the court will adopt the same construction here. *See* Fonar, 821 F.2d at 632. Thus, the court will construe the second portion of the "clamping means" function to mean "the clamping force being of such [a substantial] FN18 magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material."

FN18. The court will add the modifier "substantial" to its construction in Claim 9, inasmuch as Claim 9 utilizes the phrase "the clamping force being sufficiently substantial" (Henrob Ex. 2, Col 5:13-14), whereas Claim 1 and 16 only use the phrase "the clamping force being sufficient" (Henrob Ex. 3 at Col 2:3-4, 27-28). Interestingly, the original '305 Patent used the phrase "sufficiently substantial" in Claim 1, (Henrob Ex. 2 at Col 4:37), but after reexamination, the language was changed to merely "sufficient." (Henrob Ex. 3 at Col 2:4).

iii. *the "clamping means"*

After the court has identified the function of the means-plus-function element, the next step is to identify the "corresponding structure, material, or acts described [by the claimant] in the specification." 35 U.S.C. s. 112. A structure disclosed in the specification is only deemed to be "corresponding structure" if the specification clearly links or associates that structure to the function recited in the claim. B. Braun Med., Inc. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed.Cir.1997); *see also* Budde., 250 F.3d at 1376 (noting that as a "quid pro quo" for the convenience of using s. 112 para. 6, the patentee accepts a duty to clearly link or associate the corresponding structure to the stated function).

Henrob contends that the "clamping means" constitutes "a hydraulically operated clamping element 11 with an annular clamping surface 12, 28" (Henrob's Opening Brief, at 29-33; Henrob's Resp. at 15-21) Bollhoff, on the other hand, contends that the "clamping means" consists of:

a hydraulically actuated annular clamping structure that is capable of providing a substantial clamping force and has a surface, on a bottomside thereof, that contacts the first sheet of material, with a rough finish provided by knurling or annular grooving, or preferably a coining ring disposed along the inner edge of the clamping structure.

(*See* Bollhoff's Opening Brief, at 15-16, 19-20; Bollhoff's Resp. at 27-30). Therefore, the parties do not significantly dispute that the "clamping means" consists of, at a minimum, a hydraulically operated [or actuated] clamping element [or structure]. Bollhoff, however, adds further limitations to this claimed structure, arguing that the structure should also be construed as one "*that is capable of providing a substantial clamping force and has a surface, on a bottomside thereof,* that contacts the first sheet of material, with a rough finish provided by knurling or annular grooving, or preferably a coining ring disposed along the inner edge of the clamping structure." (Emphasis added).

At the hearing, Henrob conceded that it had no dispute with the italicized portion of this proposed construction (other than its stylistic objection that the phrase is too "wordy"). Although the court agrees that the language is a bit cumbersome, the phrase is nonetheless consistent with the meaning of the claim and, more specifically, with the language of the claimed function. Because there is no material dispute regarding this portion of the proposed construction, the court will adopt it.

The remainder of Bollhoff's proposed construction is simply unsustainable. Bollhoff includes items, "knurling or annular grooving" or "a coining ring," which are clearly stated in the '305 Patent as optional structures. (*See* Henrob Ex. 2 at Col. 2:30-31, "the surface 12 *may* have a rough finish provided for example by knurling or annular grooving" (emphasis added); id. at Col. 2:33-35, "A coining ring *may* be provided on the surface 12" (emphasis added).) The reexamination history also supports Henrob's position that a coining ring is separate from the "clamping means." (*See generally* Henrob's Resp. Br. at 17-18.) A structure disclosed in the specification is only deemed to be "corresponding structure" if the specification clearly links or associates that structure to the function recited in the claim. B. Braun Med., 124 F.3d at 1424. Here, not only are Bollhoff's proposed structures ("knurling or annular grooving" or "a coining ring") not clearly linked, but they are also expressly identified as optional. The court, therefore, will not include the additional limitations in its construction of the required structure of a clamping means. Instead, the court will construe the structure as follows: "a hydraulically actuated annular clamping structure that is capable of providing a substantial clamping force and has a surface, on a bottomside thereof, that contacts the first sheet of material."

B. The '127 PatentFN19

FN19. Henrob's allegations against BMW relate only to the '305 Patent, and accordingly, BMW takes no position with respect to the construction of the '127 Patent.

Although the parties initially disputed multiple terms found in the ' 127 Patent, through the course of the briefing, the parties have narrowed their disputes to one term found in Claim 1 of the '127 Patent, and one

phrase found in both Claim 1 and Claim 10 of the '127 Patent. The court will address them in turn.

1. Claim 1: "*a fastener actuator*"

The parties first dispute the meaning of the term "fastener actuator," found in Claim 1 of the '127 Patent. Because the parties' arguments rely heavily on the organization of Claim 1, it is reproduced here, with the disputed portions underlined:

1. *A fastener actuator* for a fastening machine, wherein the actuator advances a fastener toward a workpiece for securing the fastener to the workpiece, comprising:

means defining a fastener delivery passage downwardly through which the fastener passes,

a fastener supply passage for sequentially delivering fasteners to the fastener delivery passage, and wherein

the *fastener actuator* is vertically movable through the fastener delivery passage, the actuator including a nose at its leading end for engaging a fastener and advancing the same toward the workpiece, the actuator being provided with an internal axial passage one end of which is open to the nose of the actuator and another end of which is connected to a vacuum source through a control, *the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage and toward the workpiece*.

As shown above, the preamble of Claim 1 states "A fastener actuator for a fastening machine, wherein the actuator advances a fastener toward a workpiece for securing the fastener to the workpiece, *comprising:*" (emphasis added). The issue is whether "comprising" refers to "fastener actuator" or to "fastening machine." Bollhoff contends that "comprising" relates to "fastener actuator," and therefore necessarily includes all of the structural components recited in Claim 1. Thus, Bollhoff submits that "fastener actuator" means

a cylindrical, plunger like structure for a fastening machine, that includes: (1) means defining a fastener delivery passage downwardly through which a fastener passage; (2) a fastener supply passage for sequentially delivery fasteners to the fastener delivery passage; (3) a nose at its leading edge for engaging a fastener and delivering the fastener toward the workpiece; and (4) an internal axial passage that runs the length thereof, which has an open end at the nose of the actuator and another open end at the opposite end of the actuator which is connected to a vacuum source through a control.

(Bollhoff's Opening Br. at 23-24; Bollhoff's Resp. at 30-31). Neither party disputes that if the term "fastener actuator" is construed as Bollhoff requests an "absurd result" is achieved, which will necessarily render the claim invalid. (Henrob Resp. at 22; Bollhoff Resp. at 31.) Yet Bollhoff contends this is "what Henrob claimed and it is not within Henrob's discretion to now rewrite the claim to preserve its validity." (Bollhoff Resp. at 31, citing cases which support the proposition that a court may not rewrite a claim to preserve validity.)

The court, however, is not persuaded that the language of Claim 1 so clearly requires construing "fastener actuator" to achieve Bollhoff's requested construction. Indeed, "[b]ecause the claims of a patent are afforded a statutory presumption of validity, overcoming the presumption of validity requires that any facts supporting a holding of invalidity must be proved by clear and convincing evidence." Budde, 250 F.3d at

1376-1377 (citing Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co., 204 F.3d 1360, 1367 (Fed.Cir.2000)). In this case, the court agrees with Henrob that Bollhoff has proposed a "tortured construction," when "a more natural construction" of the disputed phrase is readily available. (Henrob Resp. at 23.)

Henrob argues that the word "comprising" relates to "fastening machine," rather than "fastener actuator." This construction is supported by the structure of the preamble's sentence which, as Henrob points out, recites "a fastener actuator for a fastening machine, ..., comprising," indicating that "the following elements of the claim are part of a fastening machine and not the fastener actuator, as Bollhoff claims." (Henrob's Opening Br. at 36.) Henrob argues that "reviewing the patent as a whole, the term 'fastener actuator' is a tool, such as a punch, that moves a fastener, and a fastening machine includes the fastener actuator, a fastener delivery passage, and a fastener supply passage." (*Id.*) Such an interpretation is logical, given the context of the patent as a whole and the specific structure of the claim at issue here.

Henrob proposes that instead of Bollhoff's "absurd" construction, the court construe "fastener actuator" to mean "a tool, such as a punch, that moves a fastener." The court finds this construction is clear, consistent with the ordinary meaning of "actuator," and supported by the intrinsic evidence. The court finds significant that the patent specification defines "fastener actuator" to include "a punch when the fastener is a rivet; a driver when the fastener is a screw; or other tooling appropriate to insert or apply the fastener after its delivery by the nose assembly ." (Henrob Ex. 1 at Col 1:59-63.) The prosecution history also supports Henrob's construction, in that Henrob stated that "there is no other arrangement by which a fastener is releasably retained on the fastener actuator (*a punch in accordance with the present disclosure*)." (Henrob Ex. 11 at HEN 1751 (emphasis added).)

For these reasons, the court will adopt Henrob's proposed construction of a "fastener actuator."

2. Claims 1 & 10:

"the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage toward the workpiece"

The parties remaining dispute revolves around the above-quoted language, found in both Claim 1 and Claim 10. The parties do not disagree that this limitation requires the vacuum source to be connected while the fastener is moving through the passage. The parties only dispute at what point the vacuum source must be initially connected and at what point the source is disconnected. Henrob contends that, while the source may be connected for a longer time, the limitation only requires that the source be connected as the fastener is advancing. Thus, Henrob proposes the following construction: "The internal passage is connected to the vacuum source while the actuator moves the fastener through the delivery passage and towards the workpiece in order to maintain the orientation of the fastener and retain the fastener on the actuator." (Henrob's Opening Br. at 43-45; Henrob's Resp. Br. at 30-33.)

Alternatively, Bollhoff submits that the vacuum source must be connected for a longer period of time, and asks the court to construe the disputed phrase as follows:

during the period of time defined from the point in time when or just before the fastener actuator contacts the fastener until the point in time when or just after the fastener completely exits the delivery passage and is fully driven by the fastener actuator into the workpiece, the internal axial passage of the fastener actuator

is connected to the vacuum source and the vacuum retains the fastener on the nose of the fastener actuator to maintain proper orientation of the fastener as the fastener actuator advances the fastener.

(Bollhoff's Opening Br. at 30; Bollhoff's Resp. Br. at 32-34 .)

The court is persuaded that Henrob's construction more accurately defines the relevant time period. As Henrob argues, "[t]he time period referenced in the claim may include the entire journey through the passage, outside the passage, and into the sheets, but it may also include only a portion of this journey-as long as the internal passage is connected to the vacuum source while the fastener is advanced through the delivery passage." (Henrob's Resp. Br. at 31.) The plain language of the claim itself states that vacuum source must be connected "during advance of the fastener through the delivery passage" and "as the actuator advances through the delivery passage." The claim says nothing about being connected before or after this advance.

Bollhoff relies heavily on a lone comment made by the patent examiner. (*See* Bollhoff Opening Br. at 26 & Ex. J; Bollhoff Resp. Br. at 33.) Nonetheless, this lone comment is not so unmistakable so as to constitute a disavowal of what the Patent would otherwise clearly claim. *See* Sorensen v. International Trade Com'n, 427 F.3d 1375, 1378 (Fed.Cir.2005) ("[i]n order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution .") (citing Middleton, Inc. v. Minn. Mining & Mfg. Co., 311 F.3d 1384, 1388 (Fed.Cir.2002)). Because the language of the claim expressly states that the vacuum source needs to be attached "during advance of the fastener," the court will construe the claim as Henrob requests.

V. CLAIM CONSTRUCTION

In light of discussion and analysis set forth above, the disputed portions of the relevant claims of U.S. Patent Numbers 5,752,305 and 5,779,127 are construed as follows:

'305 PATENT ***CLAIM CONSTRUCTION CHART***

Claims 1 and 16

Claim Phrase	**Court's Construction**
"positioning a rivet having an end adapted to expand when driven into a sheet of material between the punch and the first sheet"	"positioning a rivet between the punch and the first sheet," the rivet "having an end adapted to expand when driven into a sheet of material"
"clamping the sheets together before the rivet is driven into the first sheet"	"clamping the sheets together before the rivet penetrates the first sheet"
"a clamping force applied immediately adjacent the rivet"	"the clamping force is applied in the region directly around the rivet insertion location"
"the clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet"	"the clamping force being of such magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force"
"as the rivet is driven into the sheets"	"from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of

material"

Claim 2

Claim	Phrase
"a major part of the riveting operation"	"the bulk of the time period during which the rivet is being inserted into the sheets"

Claim 9

Claim Phrase	Court's Construction
"clamping means for clamping the sheets during the riveting operation around a location wherein the rivet is inserted, the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets"	The phrase is a means-plus-function element in accordance with Section 112, paragraph 6, of the Patent Act, 35 U.S.C. s. 112, para. 6
Claimed function:	Construction of Claimed Function:
"clamping the sheets during the riveting operation around a location wherein the rivet is inserted, the clamping force being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets"	"clamping the sheets during the time that the rivet is being inserted into the region around the rivet insertion location, the clamping force being of such a substantial magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material" *Required Structure for Performing the Claimed Function:* "a hydraulically actuated annular clamping structure that is capable of providing a substantial clamping force and has a surface, on a bottomside thereof, that contacts the first sheet of material"

'127 PATENT **CLAIM CONSTRUCTION CHART**

Claim 1

Claim Phrase	Court's Construction
"A fastener actuator"	"a tool, such as a punch, that moves a fastener"
"the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage	"the internal passage is connected to the vacuum source while the actuator moves the

by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage and toward the workpiece"	fastener through the delivery passage and towards the workpiece in order to maintain the orientation of the fastener and retain the fastener on the actuator"

Claim 10

Claim Phrase	Court's Construction
"the internal passage being connected to the vacuum source during advance of the fastener through the delivery passage by the actuator so as to effect vacuum retention of the fastener on the nose of the actuator to maintain orientation of the fastener as the actuator advances through the delivery passage and toward the workpiece"	"the internal passage is connected to the vacuum source while the actuator moves the fastener through the delivery passage and towards the workpiece in order to maintain the orientation of the fastener and retain the fastener on the actuator"

VI. CONCLUSION

For the reasons set forth above, IT IS ORDERED that the claims of U.S. Patent No. 5,752,305 and U.S. Patent No. 5,779,127 are CONSTRUED as set forth in the body of this order.

IT IS FURTHER ORDERED that the court will conduct a status conference on **November 14, 2006 at 3:30 p.m.**

E.D.Mich.,2006.
Henrob Limited v. Bollhoff Systemtechnick GmbH & Co.

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