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**Date:** 04.04.2024  
**Court:** Düsseldorf Higher Regional Court  
**Panel:** 2nd Civil Senate  
**Type of decision:** Judgment  
**Reference number:** 2 U 72/23  
**ECLI:** ECLI:EN:OLGD:2024:0404.2U72.23.00

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**Lower court:** Düsseldorf Regional Court, 4b O 20/23  
**Keywords:** Relevant keywords: purpose statement, function statement

**Guidelines:** Guidelines to the decision:

If the purpose stated in a claim feature is to be fulfilled according to the specifications of the claim by the design of a certain device component (here: the coolant/lubricant ducts), it must be possible to determine a design of this component that ensures fulfillment of the specifications - even if the possible designs of the component for this purpose are only described by way of example in the patent. In order to demonstrate that a feature has been realized, it is therefore not sufficient to show that the desired success has occurred and thus the objective suitability of the device as such. Rather, the submission must also refer to the spatial and physical design of the device component mentioned in the claim and to the suitability of this design for achieving the desired success.

Relevant standards (please specify in the format "BGB § 823 para. 1" or "GG Art. 12 para. 2"): EPC Art. 69, PatG §§ 14, 139 ff.

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**Tenor:**

I. The plaintiff's appeal against the judgment of the 4b Civil Chamber of the Düsseldorf Regional Court delivered on August 24, 2023 is dismissed.

II. Orders the plaintiff to pay the costs of the appeal proceedings.

III. This judgment and the judgment of the Regional Court are provisionally enforceable against the defendants on account of their costs.

The plaintiff may avert enforcement against security amounting to 120% of the amount enforceable on the basis of the judgments, unless the defendants provide security amounting to 120% of the amount to be enforced in each case prior to enforcement.

IV. The appeal is not permitted.

V. The amount in dispute for the appeal proceedings is set at EUR 1,000,000.

**Reasons:**

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**Reasons:**

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**I.**

The plaintiff is suing the defendants for infringement of the German part of the European patent EP 2 146 XXA B1 (hereinafter: patent in suit), of which it is the registered proprietor, for injunctive relief, disclosure and accounting, determination of liability for damages, destruction (only defendant 2)) and recall.

2

The patent in suit was filed on April 30, 2008, claiming the priority of DE 102007023XXB of 20.05.2007 in the German language of the proceedings. The patent application was published on 27.01.2010. The reference to the grant of the patent in suit was published on 29.02.2012. The German part of the patent-in-suit is in force to a limited extent after the patent-in-suit was maintained in a limited version following an action for revocation by the defendant 1) (5 Ni 27/19 (EP)) by judgment of the Federal Patent Court of 27 July 2021 (Annex KAP 4). The defendant 1) has withdrawn the appeal lodged against this.

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The patent in suit bears the designation "D". Claim 1 of the patent is set out in as maintained and asserted by the plaintiff, whereby the features added by the decision of the Federal Patent Court are indicated by underlining:

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*"Rotationally drivable cutting tool, in particular fine machining tool, such as a reamer, with integrated coolant/lubricant supply, for machining bores, in particular through bores, with a cutting part (24; 124; 224) on which a plurality of cutting edges (28; 128; 228) or cutting edges and flutes (30; 130; 230), and a shaft (26; 126; 226) which is mounted on a cutting part (26; 126; 226) which is attached to the cutting part (26; 126; 226). (24; 124; 224) forms a clamping section (22; 122; 222) on the side facing away, **characterized in that**, in the clamping section (22; 122; 222), a number corresponding to the number of*

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*flutes (30) corresponding to the number of circumferentially closed cooling /lubricant channels (38) with inlet openings facing away from the cutting part (24; 124; 224) are designed in such a way that coolant/lubricant emerging from the end-face outlet openings (42) of the clamping section (22; 122; 222) facing the cutting part (24; 124; 224) can be fed along the shaft (26) in a free jet without a radially outer limit into an associated flute (30) of the cutting part (24) in each case,*

*the tool is constructed in one piece from a hard material,* 6

*the flutes (30) are ground exclusively in the area of the cutting part (24; 124; 224)* 7  
*and*

*the freely emerging coolant/lubricant jet over a certain axial distance (length of the shaft) is supported by the outer diameter of the shaft section (26; 126; 226) adjoining the clamping section (22; 122; 222).*" 8

Figure 3 of the patent in suit, reproduced in reduced form below, explains the invention based on the original version of the claim by means of a preferred embodiment. This is a perspective view of a rotationally drivable cutting tool in the form of a reamer: 9

In particular, the open cooling/lubricant channels (38) can be seen on the clamping section (22) and the flutes (30) of the cutting part (24). 10

In the Federal Republic of Germany, the defendants offer milling tools with an integrated cooling system/lubricant supply under the name "E", defendant 2) also manufactures these in the Federal Republic of Germany. These include milling tools with four cooling lubricant channels and four flutes, which are used for machining stainless steels, titanium alloys, CrCo and superalloys (attacked embodiment A), with three cooling/lubricant channels and three flutes, which are otherwise identical to the attacked embodiment A (attacked embodiment B), and with four cooling/lubricant channels and four flutes, which are otherwise identical to the attacked embodiment A (attacked embodiment B) as well as four cooling/lubricant channels and two flutes, which are also identical to the contested embodiment A (contested embodiment C). 11

In a brochure of the defendant (Annex KAP 8) there is a copy of the milling tool "E" are illustrated and described as follows: 12

In addition, the following illustrations of the contested (see annexes KAP 12, KAP 15, KAP 18 and p. 23 ff. of the statement of claim, p. 25 ff. eA LG): 13

Type A: 14

Type B: 15

Type C: 16

The plaintiff sees the production (only by the defendant under 2)) and the offer of the The Federal Republic of Germany considers the accused embodiments of types A, B and C to be a direct infringement of the patent in suit. In their opinion, these make use of the technical teaching of the patent in suit in accordance with the literal meaning. 17

The defendants, applied for the action to be dismissed, already denied infringement of the patent in suit at first instance and alternatively invoked a private right of prior use pursuant to Section 12 PatG.

In its ruling dated August 24, 2023, the Düsseldorf Regional Court dismissed the action, stating the following reasons in essence:

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The "number of cooling/lubricant channels corresponding to the number of flutes" required by the patent in suit only exists if the number of coolant/lubricant channels corresponds numerically to the number of flutes. Such a ratio of 1:1 is also apparent from the further specification in the claim, according to which the coolant/lubricant exiting from the outlet openings can be fed into "one assigned flute" in each case. The patent in suit - like the prior art already recognized in it - is aimed at introducing the coolant/lubricant of each channel into exactly one flute with minimal losses. In its judgment of 27.07.2021, the Federal Patent Court also clearly stated that the cooling/lubricant channels and the flutes must correspond in number.

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Furthermore, because the coolant/lubricant ducts are designed in such a way that the coolant/lubricant emerging from their outlet openings forms a "free jet", it is not sufficient for the coolant/lubricant to emerge from the channels somehow, and certainly not to be sprayed in all directions. Rather, the coolant/lubricant should be directed through the outlet openings as a directed stream. Furthermore, as can be seen in particular from the term "einspeisbar" (can be fed in), it is necessary for the respective jet of coolant/lubricant to be aligned with the start of the respective assigned chip groove and to hit it, so that the coolant/lubricant can be conveyed from there onwards through the chip groove. The flow profile sought by the patent in suit could not be produced - particularly if the cutting part was immersed in the bore - or could not be produced reliably if the jets of coolant/lubricant hit the flutes at random. This applies all the more if the jets are not directed at the cutting part at all, but hit the workpiece and the flutes are wetted by drops of coolant/lubricant splashing around. According to the understanding of the patent in suit, the flow velocity required for the formation of the desired flow profile in the flute is achieved by the coolant/lubricant jet.

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As can be seen from para. [0013], the jet of coolant/lubricant must hit the chip flute in its core area. In addition, the targeted feeding of coolant/lubricant into the flutes with the lowest possible losses corresponds to the mode of operation known from the prior art, which the patent in suit basically retains and only intends to further develop with regard to the effort involved in tool manufacture, which is criticized as disadvantageous. The Federal Patent Court also assumes that each of the cooling/lubricant jets must largely hit the respective assigned flute.

Insofar as the claim further requires that the jet of coolant/lubricant be directed over a certain axial distance (length of the shaft) is guided by the outer diameter of the shaft section adjoining the clamping section, the requirements in this respect should not be set too high and must be based on the purpose pursued by the specification of feeding the beam as fully as possible into the flute. It is in line with this purpose that the shaft forms an obstacle that prevents the beams emerging from the outlet openings of the channels from fanning out further radially. However, from the point of view of a person skilled in the art, which is confirmed by the description of the patent in suit, it is not that the beam necessarily adheres to the shaft over its entire length

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but that this takes place over a not insignificant part. The end area of the shaft, which is adjoined by the cutting part with the flutes into which the beam is ultimately to be directed, is particularly decisive. The Federal Patent Court had also made it clear in its judgment that it was the possibility of supporting the beam due to the nature of the shaft that was important, but not the fact that the beam was adjacent to the shaft along its entire length.

Based on this understanding, the contested embodiment C, with its four cooling/lubricant channels and two flutes, already lacks a number of cooling/lubricant channels corresponding to the number of flutes.

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With regard to all the attacked embodiments (A, B and C), the plaintiff was also unable to demonstrate their suitability for the required feedability of the coolant/lubricant jets into a respectively assigned chip flute. The defendants had plausibly demonstrated that the challenged embodiments pursued a cooling concept that was fundamentally different from the teaching of the invention, in which a large amount of fluid was present in the sense of a regular flooding with coolant/lubricant, of which only a small proportion reaches the flutes and in which the tool is lubricated and cooled by indirect wetting of the cutting edges by flying droplets from the jets and by bursting of the jets on the workpiece and the subsequent penetration of the burst fluid mass into the flutes. The plaintiff, on the other hand, had not shown that the core of the freely flying jet of coolant/lubricant emerging from the openings was directed towards the respective flute, especially since it was undisputed between the parties that the cross-section of the outlet openings of the coolant/lubricant channels did not overlap with that of the – radially inwardly offset – flutes, and that the jet does not come out of the openings at an angle of incidence. In the video submitted by the plaintiff as Exhibit KAP 25, which shows the emergence of a jet of coolant/lubricant from the channels during the first rotations of an attacked milling cutter, the jets of coolant/lubricant are neither directed at a chip groove nor are they fed into a chip groove to any significant extent. One indication of the lack of realization of the specification is also the functioning of the attacked embodiment C, which – if only because of the lack of assignment of flutes to the cooling/lubricating channels – pursues a cooling of the tool by means of a principle that differs from the patent-compliant teaching, which obviously does not consist of feeding fluid jets into a flute. The parties' other video recordings or the defendant's advertising statements do not allow for any other conclusions either.

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Ultimately, the support of the free beam required by the invention was also lacking by the shaft to a sufficient extent, because at the time of complete pressure build-up and thus during actual use, the shaft is only wetted by the droplets emitted by the fluid jet, without supporting the jet itself.

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The plaintiff has appealed against this judgment, in which she continues to pursue her unsuccessful request before the Regional Court to have the defendant convicted.

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It repeats and supplements its submissions at first instance, asserting in particular that makes:

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The District Court had wrongly assumed that the number of coolant/lubricant channels could be equated with the number of flutes. The mathematical formulation of "correspondence" merely expresses the fact that two variables are in relation to each other,

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but not that they necessarily have the same numerical value. The skilled person can therefore provide for a larger number of channels than flutes if it seems more expedient for improving the efficiency of the manufacturing process and for a more effective supply of coolant/lubricant to the cutting edges. The District Court also interprets the requirement of an “assigned chip breaker groove” too narrowly when it demands that the coolant/lubricant emerging from an outlet opening be fed into exactly one chip breaker groove. It is true that it should be possible to feed the coolant/lubricant into at least one assigned chip groove, but there could also be a number of assigned flutes into which the coolant/lubricant is fed.

The restrictive interpretation of the Regional Court, according to which "can be fed into a slot" 29 means that the free jet is to be introduced directly into the beginning of a flute as its entry section directly adjacent to the shaft, is not supported by the patent in suit. It is only correct to infer from this that the part of the tool cutting edges subject to stress during machining is supplied with a sufficient quantity of coolant/lubricant. It is also not true that the coolant/lubricant may only emerge from the channels in a single jet. Rather, it must be able to be fed into an assigned flute in at least one free jet, meaning that several jets of coolant/lubricant can also emerge from one outlet opening, whereby the requirement of a directed flow established by the Regional Court can only relate - if at all - to the jet that is intended to be fed into the flute.

Furthermore, contrary to the opinion of the Regional Court, it cannot be inferred from the 30 patent in suit that a considerable amount of coolant/lubricant must be fed into the flute in order to achieve the desired function. Correctly, only enough coolant/lubricant needs to be fed in so that it is brought to the cutting edges of the tool in sufficient quantity. What constitutes a sufficient quantity is to be determined on the basis of the longer tool life achieved by the supply of coolant/lubricant compared to the tool life of a tool lacking such a supply (see para. [0010]). It should also be noted that the absolute amount of coolant/lubricant to be fed into the chip flutes can vary, among other things, because minimum quantity lubrication (MQL) requires only a fraction of the amount of coolant/lubricant needed for wet machining.

The District Court's interpretation is ultimately characterized by an incorrect understanding of 31 the term “coolant/lubricant”, because it fails to take into account that this refers not only to the liquid but also – if present – the gaseous portion of the fluid emerging from the channels. In general, the interpretation of the claim must take into account the fact that a tool according to the invention must be equally suitable for wet machining and for minimum quantity lubrication (MQL). This also applies to the term “supported” by the shaft, which – in order to also be applicable to a fluid with a larger gaseous than liquid content (aerosol) – must be understood as the presence of a structural boundary that is in contact with the cooling/lubricating jet, for the purpose of improved and directed spread of the jet compared to the “unsupported case”

On the basis of a correct understanding, the attacked embodiments made use of all 32 features of the patent-in-suit claim 1 in word-for-word fashion.

Insofar as the defendants, with reference to the purpose statement "for machining bores" contained in the claim, objected to the operating conditions described by the plaintiff to prove infringement, this did not prevail. Obviously, the patent claim sets the framework for functional operating conditions and does not further restrict the value ranges of the relevant parameters - quantity of coolant used, pressure and speed. Even taking into account the information to be taken from the patent specification, in particular the videos submitted by the applicant as evidence in accordance with Annexes KAP 25 and KAP 26 showed functional operating conditions. 33

The Regional Court had inadequately assessed the video in accordance with Annex KAP 25, in particular by failing to take into account that the presence of a second cooling /lubricant jet per outlet opening harmless. The Regional Court erred in law by failing to assess the video recording in Annex KAP 26, which shows the tool in the operating state of an MQL. 34

For the first time in the appeal instance, the plaintiff further submits: It had carried out a measurement on the tool already shown in the video recording according to Annex KAP 25, which showed that a first jet of coolant/lubricant was present, which was fed into the flutes and supplied the cutting edges of the tool located on the circumference and on the face of the cutting section with a sufficient quantity of coolant/lubricant (video recording of the measurement submitted as Annex KAP 27, image recordings submitted as Annexes KAP 28 and KAP 29, test documentation submitted as Annex KAP 30). 35

Also for the first time in the appeal instance, the plaintiff also submits a statement by Prof. Dr. F, Technical University G, (Annex KAP 31), which, according to its submission, the reasons for the existence of the first and second coolant/lubricant jets and assesses the extent to which the first jet adjacent to the shaft contributes to the supply of coolant/lubricant to the cutting edges. Moreover, it is clear from Prof. F's statement why the measurement she carried out (Annexes KAP 27-KAP 30) shows that a significant amount of coolant/lubricant reaches the cutting edges of the tool. 36

Finally, in the appeal instance, the plaintiff submits further expert opinions of Prof. Dr.-Ing. H of 19.01.2024 (Annexes KAP 32, 35) and of 09.02.2024 (Annex KAP 34), which it has already commissioned in earlier proceedings against the defendant 1) and which, according to its submission, concern in particular the expert understanding of several aspects of the teaching of the patent in suit and also (Annex KAP 34) deal with investigations submitted by the defendants in the appeal instance. 37

The applicant **claims that the Court should,** 38

I. to amend the judgment of the Regional Court of Düsseldorf, file number 4b O 20/23, handed down on August 24, 2023; 39

II. order the defendants to pay the costs, 40

- 1. to impose a fine of up to EUR 250,000.00 for each case of non-compliance, to be determined by the court, or alternatively to impose administrative detention 42

or an administrative detention order of up to six months, in the event of repeated infringements up to a total of two years, whereby the administrative detention order is to be enforced on the Board of Directors of Defendant 1) and on the managing directors of Defendant 2),

to refrain from doing so, 43

Rotary cutting tool, in particular 44

Fine machining tools, such as reamers, with integrated cooling /lubricant supply, for machining bores, in particular through bores, with a cutting part on which a plurality of cutting edges or cutting edges and flutes are formed, and a shank which forms a clamping section on a side facing away from the cutting part

in the Federal Republic of Germany (only defendant 2)), 45  
to place on the market or use or to import or possess for the aforementioned purposes,

wherein, in the clamping section, a number of cooling/lubricant channels closed 46  
on the circumference corresponding to the number of flutes are formed with inlet openings facing away from the cutting part in such a way that coolant/lubricant escaping from the end-facing outlet openings of the clamping section facing the cutting part can be fed along the shank in a free jet without any radial external limitation into a respective associated cutting flute of the cutting part.

the tool is constructed in one piece from a hard material, 47

the flutes are ground exclusively in the area of the cutting part and 48

the freely escaping coolant/lubricant jet over a certain axial distance (length of the 49  
shaft) is supported by the outer diameter of the shaft section adjoining the clamping section;

2. her, the applicant, in a chronological order by year and type 50  
to provide information on the extent to which the defendants have committed the acts described under 1. since 29.02.2012, stating

a) the names and addresses of manufacturers, suppliers and other 51  
previous owners,

b) the names and addresses of commercial customers and sales outlets, for 52  
fwhich the rotary cutting tools were intended,

c) the quantity of of rotary cutting tools manufactured, delivered, received 53  
or ordered, as well as the prices paid for the rotary cutting tools in question;

where 54

- the corresponding proofs of purchase (namely invoices, 55  
alternatively delivery bills) must be submitted in copy,

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-	details requiring confidentiality outside the data subject to disclosure may be redacted,	
-	the list with the information data in a form that can be evaluated by computer, in electronic form;	57
3.	her, the applicant, in a chronological order by year and type the extent to which the defendants have committed the acts described under 1. since 29.03.2012, stating	58
a)	the production quantities and times (only defendant 2)),	59
b)	of the individual deliveries, broken down according to delivery quantities, times and prices and the respective type designations as well as the names and addresses of the customers, including the sales outlets for which the products were intended,	60
c)	of the individual offers, broken down by offer quantities, times and prices and the respective type designations as well as the names and addresses of the commercial offerees,	61
d)	of the advertising operated, broken down by advertising media, whose circulation, distribution period and distribution area, in the case of Internet advertising the domain, the access figures and the placement periods, and in the case of direct advertising, such as newsletters, the names and addresses of the recipients,	62
e)	the prime costs broken down according to the individual cost factors and of the profit generated,	63
	where	64
-	the statement with the accounting data in a computerized format. is to be transmitted in an analyzable, electronic form; and	65
-	the defendants reserve the right to disclose the names and addresses of the non commercial purchasers and the offerees instead of the plaintiff to a sworn auditor domiciled in the Federal Republic of Germany to be designated by the plaintiff and bound to secrecy towards it, provided that the defendants bear his costs and at the same time authorize and oblige him to inform the plaintiff upon specific request whether a particular purchaser or offeree is included in the list;	66
III.	declare that the defendants are obliged to compensate the applicant for all damage which it has incurred and will incur as a result of the acts described under II.1. committed since 29.03.2012;	67
IV.	further order the defendant (2) to pay the costs incurred in the Federal Republic of Germany	68
	to destroy at its own expense the tools in its direct or indirect possession and/or ownership which fall under II.1. above or, at its discretion, to hand them over to a bailiff to be appointed by the plaintiff for the purpose of destruction at its - the defendant's (2) - expense;	

V. further order the defendants to pay the damages described under II.1. which have been in the possession of commercial customers since 29.02.2012 in the possession of commercial customers by requesting in writing the commercial customers who have been granted possession of the rotary cutting tools by the defendants or with their consent with reference to the fact that the Senate has found an infringement of the patent in suit in the present judgment, to return the rotary cutting tools to the defendants and, in the event that the rotary cutting tools are returned, to promise the commercial purchasers a refund of any purchase price already paid and to assume the costs of the return, and to take back the successfully recalled rotary cutting tools.

The defendants **request**, 70

dismiss the appeal. 71

They defend the judgment under appeal and, repeating and supplementing their submissions at first instance, specifically contest the arguments put forward by the plaintiff. 72

The District Court was right to dismiss the complaint. However, contrary to the opinion of the District Court, the suitability required by the patent in suit for fulfilling the requirements of the claim, in particular with regard to the supply of the cooling/lubricating agent and the support of the jet, must not only be present in an arbitrarily selected operating state – and thus in an extreme case even for a stationary tool – but must be determined on the basis of the operating condition required and assumed by the claim. This is the use “for machining bores”, which at the same time defines the operating parameters under which such machining is possible at all. 73

In the appeal instance, the plaintiff is attempting to establish an arbitrary subset of the cooling /lubricant as a "jet" and thus justify the realization of a feature. In fact, however, it is not in accordance with the claim if more than one jet emerges from the outlet openings or if a jet is fed into several flutes. In the overall view of the patent specification, there is indeed a connection between outlet openings, beams and flutes, according to which these have a ratio of 1:1:1 and one outlet opening is assigned to one beam and one groove. According to the information in the patent specification, the individual jets also formed a stable flow profile in the flow channels defined by flutes and bore walls. In the case of a hypothetical division of the jets, a stable profile in this sense no longer exists. 74

Insofar as the Regional Court takes the view that it is sufficient for the beam to spread over a not insignificant part of the shaft, this cannot be followed. In fact, the feature can only be realized if a support over the entire length of the shaft is proven. As was also the understanding of the Federal Patent Court in connection with the assessment of NK 2 (BPatG judgment, p. 22), embodiments in which there is a radial distance without an angle of attack are not covered by the scope of protection of the patent in suit, since there is no support and thus no feeding. 75

The accused products do not make use of the teaching as thus understood. Theoretically, it is already conceivably unlikely that the accused will be able to 76

implement the design due to the geometric design of the accused embodiments, which the plaintiff did not dispute in the appeal proceedings either. Accordingly, it is not surprising that the plaintiff did not succeed in proving infringement in practice either, in particular with the video recordings according to Annexes KAP 25 and KAP 26.

The new tests submitted by the plaintiff in the appeal proceedings and the statements of her private experts are late and also factually incorrect. 77

For the first time in the court of appeal, the defendants also claim that they have carried out further experiments of their own (presentation submitted as B&B 22) and asked the expert already consulted at first instance, Prof. Dr. I, for an expert analysis and commentary on the plaintiff's submission by way of a counter-expert opinion (Annex B&B 23). The defendant's statement proves that the experiment conducted by the plaintiff could not show that a significant portion of the coolant/lubricant reaches the cutting edges of the tool via the so-called "path 1" (surface flow) due to incorrect execution. On the other hand, the new experiments carried out by the defendants clearly fulfilled the reproducibility requirements set by Prof. I better than the plaintiff's experiment. Their own series of experiments proved, first, that the amount of coolant/lubricant collected was essentially determined by the dimensions of the nozzle and its position in relation to the tool; secondly, the coolant/lubricant does not enter the nozzle as a secondary flow (or path 1 as defined by the plaintiff), and thirdly, the amount of coolant/lubricant reaching the flutes is essentially formed by the droplets from the droplet cloud. The criticism of this by the plaintiff is unfounded, as can be seen from the supplementary statement by the defendant's expert (Exhibit B&B 28). 78

In any case, they were entitled to the right of prior use described in more detail at first instance. 79

For the further facts of the case and the state of proceedings, reference is made to the content of the reciprocal writs of the parties and the exhibits submitted by them, as well as to the facts and grounds of the decision under appeal. 80

## II.

The plaintiff's appeal is admissible but unsuccessful on the merits. The District Court was correct to find that there was no infringement of the patent in suit and to dismiss the complaint on this ground. Since the attacked embodiments do not make use of the technical teaching of the patent in suit as maintained by the Federal Patent Court, the plaintiff is entitled to the asserted claims for injunction, information and accounting, destruction, recall and damages under Art. 64 EPC in conjunction with Sections 139 (1) and (2), 140a (1) and (3), 140b (1) and (3) Patent Court Act (PatGIG) in conjunction with Sections 242, 259 of the German Civil Code (BGB) – the only possible legal basis for the claim – do not apply. 81

## 1.

The patent in suit relates to a rotationally drivable cutting tool, such as a reamer.

According to the introductory remarks of the patent in suit, such tools are used to different requirements. On the one hand, they have to guarantee ever higher machining accuracy, which requires high dimensional accuracy of the cutting edge positioning and high stability under dynamic stress on the cutting edges and the shank. On the other hand, they are required to have an increasingly long service life, which is why a coolant/lubricant supply is regularly integrated into them. This should ensure that the areas subject to the highest stress during use receive an adequate supply of coolant/lubricant at all times (para. [0002]).

In the state of the art, various approaches for the design of generic tools with an integrated coolant/lubricant supply are known.

DE 10347XXC A1 (hereinafter: DE 'XXC) - Figure 1 of which is shown below at shown for illustrative purposes - a generic tool in the form of a high-performance reamer, in which a cutting head made of a hard material is connected to a shank part in a rotationally and axially fixed manner via a central cooling element//lubricant supply channel in the tool shank and a radial channel system in or at the interface to the cutting head are supplied with coolant/lubricant:

The radially outer orifices of the muzzle openings of the radial channel system are covered by a coolant guide sleeve, which extends in the direction of the tool tip into an outlet area of the flutes and can thus ensure that the supplied coolant/lubricant can be fed into the flutes with the lowest possible losses (para. [0004]).

According to the patent in suit, such a coolant/lubricant supply is also suitable for the so-called minimum quantity lubrication (MQL) technology, in which the coolant/lubricant (in contrast to so-called "wet machining") is fed to the cutting edges in an extremely low concentration in a compressed air flow. The lubricant is therefore supplied to the cutting edges as an aerosol during machining with the aim of creating a sufficient lubricating film in the immediate vicinity of the cutting edges.

However, with MQL technology, it is important to supply the lubricant to the cutting edges in a small dosage and in as consistent a concentration as possible. In order to solve this task while at the same time reducing the technical effort required to manufacture the tool, DE 20 2004 00 85 XXXD discloses a high-performance reamer in which a sleeve on the clamping section extends to the groove outlet area of the tool, the sleeve being formed in one piece with the clamping section and accommodating the reamer shaft on the inside to form axial coolant/lubricant channels. Figure 3 of the document acknowledged by the patent in suit is shown below as an example:

According to the patent in suit, in such a configuration, the axially extending lubricant channels are supplied from a central lubricant channel in the clamping section in such a way that the cooling channel has a constant cross-section from the end of the shaft to the groove outlet area (para. [0006]).

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However, both solutions are associated with the disadvantage that the cooling /lubricant supply to the cutting edges can only be achieved through a correspondingly high level of effort in the manufacture of the tool. In addition, the tools would have to be assembled from different components (para. [0007]).

Against the background described above, the patent in suit has set itself the task of creating a rotary cutting tool of the type described at the beginning, which ensures the service life of the cutting edges required today with a simplified design of the tool. In addition, a method is to be provided with which the coolant/lubricant can be applied to the highly loaded cutting edges of a generic tool with little effort, but reliably and in sufficient quantity, both during wet and dry machining (MQL technology) (para. [0012]). 91

To solve this problem, patent claim 1 in the version upheld by the Federal Patent Court proposes a tool with the following features, the features added compared to the registered version being indicated by underlining: 92

1. Rotationally drivable cutting tool, in particular fine machining tool, such as a reamer, with integrated coolant/lubricant supply, for machining bores, in particular through bores. 93

2. The tool is constructed in one piece from a hard material. 94

3. The tool has a **cutting part** (24; 124; 224) on which a plurality of cutting edges (28; 128; 228) or cutting edges and flutes (30; 130; 230) are formed. 95

3.1. The flutes (30) are located exclusively in the area of the cutting part (24; 124; 224) ground in. 96

4. The tool has a **shank** (26; 126; 226), which is mounted on a cutting part (24; 124; 224) forms a **clamping section** (22; 122; 222) on the side facing away. 97

4.1. A number of coolant/lubricant channels (38) corresponding to the number of flutes (30) are formed in the clamping section (22; 122; 222). 98

5. The coolant/lubricant ducts (38) 99

5.1. are closed on the circumference, 100

5.2. have inlet openings facing away from the cutting part (24; 124; 224), 101

5.3. have end openings facing the cutting part (24; 124; 224) (42), 102

5.4. are designed in such a way that coolant/lubricant emerging from the outlet openings (42) of the clamping section (22; 122; 222) can be fed along the shaft (26) in a free jet without a radially external limit into an associated flute (30) of the cutting part (24). 103

6. The freely emerging coolant/lubricant jet is supported over a certain axial distance (length of the shaft) by the outer diameter of the shaft section (26; 126; 226) adjoining the clamping section (22; 122; 222).

## 2.

With regard to the parties' dispute, characteristics 4.1. and 5.4. of the above classification of characteristics in particular require further explanation. 105

However, there is no need to comment on characteristics 1. and 6., on the understanding of which there is also no agreement between the parties, in view of the lack of infringement (see 3.). 106

### a)

In order to apply the coolant/lubricant to the highly stressed cutting edges of the tool with minimal effort, but reliably and in sufficient quantities, both during wet and dry machining (MQL technology) (para. [0010]), it must be transported from the clamping section via the adjoining shank section to the cutting part. The patent in suit does not leave it to the skilled person to decide how this transport is to be carried out, but specifies a specific design: A number of coolant/lubricant channels corresponding to the number of flutes is to be formed at the clamping section, wherein the coolant/lubricant emerging from the end-face outlet openings of the clamping section facing the cutting part can be fed along the shank in a free jet without any radial external limitation into a respective associated flute of the cutting part (features 4.1. and 5.4.). 107

### aa)

The question of how the requirement for the formation of a *number of coolant/lubricant channels corresponding to the number of flutes* is to be understood on the basis of the wording of the claim has already been dealt with by the Federal Patent Court, which is composed of experts in the field, in its judgment of July 27, 2021 (Annex KAP 4; hereinafter: BPatG judgment), which was issued in nullity proceedings and states on page 12: 108

*"As feature 1.4 clearly and unambiguously states, the number of cutting flutes must correspond to the number of cooling/lubricant channels closed on the circumference, which can only be understood to mean a numerical correspondence between cooling/lubricant channels and cutting flutes, because if there are fewer or more cutting flutes than cooling/lubricant channels, the number of cutting flutes would not correspond to the number of cooling/lubricant channels. more cutting flutes than cooling/lubricant channels, the number of cutting flutes would not correspond to the number of cooling/lubricant channels. In this regard, the defendant's statements ... that the contested patent does not require a numerical correspondence between cooling/lubricant channels and cutting flutes must be clearly contradicted. Rather, according to feature 1.4, the "corresponding number" of cooling/lubricant channels unambiguously refers to the number of flutes and not to a sufficient quantity of cooling/lubricant, as the defendant argues. Feature 1.5 also refers to flutes assigned to the cooling/lubricant channels in each case."*[1]. 109

Even if the determination of the meaning of a patent claim is legal knowledge and must be carried out by the infringement court, as by any other court dealing with it, on its own responsibility (Federal Court of Justice, GRUR 2009, 653 para. 16 - Straßenbaumaschine; GRUR 2010, 858 para. 10 - Crimpwerkzeug III; GRUR 2015, 972 para. 20 - Kreuzgestänge), which includes the possibility that the infringement court reaches a result of interpretation that differs from the one reached by the Federal Patent Court in nullity proceedings concerning the same patent, these statements are a valuable aid to interpretation (OLG Düsseldorf, judgment of December 9, 2021 - I-2 U 9/21, GRUR- RS 2021, 39586 para. 59 - Halterahmen III). Apart from that, there is no room for a different understanding of the clear wording of the patent claim in the present case anyway.

If claim 1 requires a number of cooling /lubricant channels corresponding to the number of flutes, this cannot be understood otherwise than that the number of cooling/lubricant channels must correspond to the number of flutes, based on the wording. It must neither exceed nor fall below this number.

**bb)**

However, the skilled person, a graduate engineer (FH) specializing in mechanical engineering, who has several years of experience in the field of development and design of cutting tools (see judgment, BPatG, p. 9), does not stop at this point. Even if the wording of the patent claim - as here - appears to be unambiguous according to general usage or technical understanding, an interpretation of the patent claim is always required in which the technical meaning of the patent claim must be determined. The patent description and the drawings, which are to be used for interpretation pursuant to Art. 69 (1) sentence 2 EPC, may show that the patent specification defines terms independently and in this respect constitutes its own lexicon (BGH, GRUR 1999, 909, 912 - Spanschraube; GRUR 2015, 875 para. 16 - Rotorelemente; GRUR 2016, 361 para. 14 - Fugenband; GRUR 2021, 942 para. 22 - Anhängerkupplung II; OLG Düsseldorf, judgment of 29.02.2024 - I-2 U 6/20 with further references).

However, this is not the case here. Rather, the person skilled in the art will be able to determine the technical meaning of the terms used, taking into account the task and solution as they objectively result from the patent (BGH, GRUR 1999, 909, 911 - Spanschraube; GRUR 2016, 169 para. 16 - Luftkappensystem; GRUR 2020, 159 para. 18 - Lenkergetriebe; GRUR 2021, 1167 para. 21 - Ultraschallwandler; Higher Regional Court Düsseldorf, GRUR-RR 2021, 345 para. 70 - Endoskopievorrichtung), confirmed its finding, already obtained from the wording of the patent claim, that the number of coolant/lubricant channels must correspond to the number of flutes and that each coolant/lubricant channel must be assigned exactly one flute.

**(1)**

As the skilled person will understand from the description of the patent in suit, the number of coolant/lubricant channels corresponding to the number of flutes is intended to ensure an effective supply of coolant/lubricant to the cutting edges while at the same time ensuring the economic efficiency of the manufacturing process (para. [0069]). In contrast to the prior art, the

supply of the coolant/lubricant is no longer (fully) integrated into the shank tool (see para. [0005]). Instead, the coolant/lubricant emerges from the cooling /lubricant channels in the clamping section and is fed "free-flying" into the assigned flute in the form of individual, axially directed jets of coolant/lubricant. In other words, a free jet, which emerges under high pressure and at high speed from the outlet opening of the clamping section facing the cutting part, is intended to hit a specific, respectively assigned flute (see also BPatG judgment, p. 13 bottom to p. 14 top; see also paragraphs [0031], [0041] of the patent in suit). This requires that the number of coolant/lubricant channels corresponds to the number of flutes. The technical sense of such a design is revealed to the skilled person by paragraphs [0015] and [0051] of the specification of the patent in suit: On the one hand the external guidance of the coolant/lubricant avoids multiple deflections, which is why the supply is low-loss. Secondly, the quantity of coolant/lubricant supplied to the cutting edges can be considerably increased by its external guidance. As a result, a sufficient supply can be ensured in both wet and dry machining (MQL technology) in the area of the flutes and also on the surfaces of the tool cutting edges that are decisive for tool life, even if the working pressure of the coolant/lubricant is kept at an easily controllable level (para. [0012], [0031], cf. also para. [0050]).

(2)

The examples of embodiments of the patent in suit confirm the skilled person's previously gained conviction. 114

Even if these merely serve to describe possibilities for realizing the idea of the invention and therefore in principle do not permit a restrictive interpretation of the patent claim generally characterizing the invention (BGH, GRUR 2004, 1023, 1024 - Bodenseitige Vereinzelungseinrichtung; GRUR 2007 para. 21 - Ziehmaschinenzugeinheit; GRUR 2008, 779 para. 34 - Mehrgangnabe; OLG Düsseldorf, judgment of 11.02.2016 - I-2 U 29/15, BeckRS 2016, 9774 marginal no. 51; judgment of 13.08.2020 - I-2 U 25/19; judgment of 08.04.2021 - I-2 U 3/20, GRUR-RS 2021, 8024 marginal no. 49 - Halterahmen), they are nevertheless an important means of interpretation. The patent specification must be read in a meaningful context and, in case of doubt, a patent claim must be understood in such a way that there are no contradictions with the description and the drawings. Only if and to the extent that the teaching of the patent claim cannot be reconciled with the description and the drawings and an irresolvable contradiction remains, the elements of the description or the drawings are not reflected in the patent claim may not be used to determine the subject matter of the patent (BGH, GRUR 2011, 701 para. 23 - Okklusionsvorrichtung; GRUR 2015, 972 para. 22 - Kreuzgestänge; GRUR 2021, 1167 para. 21 - Ultraschallwandler) 115

Having said this, the cooling/lubricant channels in the designs shown in Figures 1 to 3 are not closed on the periphery in some cases, contrary to what is now required by feature 5.1, and therefore do not comply with the claim. However, apart from this detail of the more detailed technical design of the cooling/lubricant channels, the figures together with the associated description can still be used to determine the meaning of the rest of the patent claim. Against this background, if the skilled person turns to the figures contained in the patent specification together with the associated description, he will notice that all embodiments have a 116

design in which the number of coolant/lubricant channels corresponds to the number of flutes, whereby each chip groove is also assigned a coolant/lubricant channel (see paragraphs [0040], [0044], [0069], [0070] loc. cit.). Just as in the general description of the patent in suit, there is no indication in the special patent description that the number of cooling/lubricant channels may exceed or fall below the number of flutes. Rather, all embodiments presuppose such a correspondence and are primarily concerned the geometry of the flutes and the cooling/lubricant channels and their position in relation to one another.

If the flutes are closed by the bore wall during the drilling process, they form a flow channel, as can be seen in paragraph [0048], whereby the coolant/lubricant ultimately flows from the coolant/lubricant channels via the exposed area into another flow channel. This naturally requires that each outlet opening of the coolant/lubricant channels is assigned exactly one flute, which can function as a flow channel. This also confirms the skilled person's understanding that the number of coolant/lubricant channels must correspond to the number of flutes. 117

(3)

Nor does anything else follow from the plaintiff's argument that the "corresponding number" is a mathematical formulation that expresses the necessity of a relationship between two quantities, but not their inevitable equality, whereby it refers to the relationship "60 min ? 1 h" as an example. In view of the different units chosen in the example for the respective indication of time, the statement that there is a (substantive) correspondence here, but not a numerical equality, may be correct. However, no conclusions can be from this for understanding the corresponding number of coolant/lubricant channels and flutes, which is not to be specified in different units. 118

The plaintiff's reference to paragraph [0069] also fails to support its view. The plaintiff relies on the following passage: 119

*"In order to supply the cutting edges more effectively with coolant/fluid while at the same time improving the efficiency of the manufacturing process, a number of coolant/lubricant channels corresponding to the number of flutes are formed in the clamping section, each of which has an axial outlet opening."* 120

Insofar as it draws the conclusion from this that the "correspondence" of the number of flutes and the number of coolant/lubricant channels is to be chosen with a view to improving the economic efficiency of the manufacturing process and a more effective supply of the cutting edges, whereby the skilled person, if he considered it useful for this purpose, would also have provided a larger number of coolant/lubricant channels than flutes, this argumentation amounts to a reduction of the specification to the mere function. However, in the case of features defined in terms of space and body or material, the required functional consideration must not lead to their content being reduced to mere function and the feature being interpreted in a sense that is no longer consistent with the spatial and physical design inherent in the feature (BGH, 121

GRUR 2016, 921 para. 30 et seq. - Pemetrexed; OLG Düsseldorf, judgment of 26.11.2020 - I-2 U 65/19, GRUR-RS 2020, 37856 para. 69 - Trägerplatte). Otherwise, the boundary between literal and equivalent use would be dissolved, which, however, is only relevant in the case of equivalent use due to the admissibility of the form-stone objection (OLG Düsseldorf, GRUR-RR 2014, 185, 188 - WC-Sitzgelenk). If the patent-in-suit requires - as in this case - a number of cooling channels corresponding to the number of flutes, as well as the feed of the cooling/lubricant into each assigned cutting groove, these features must not be understood exclusively in terms of their function and in the sense of a number of channels serving an economical manufacturing process or an effective supply of cooling/lubricant to the cutting edges.

**(4)**

Finally, a different view is not justified in view of the statements submitted in the appeal instance by the plaintiff's private expert on the understanding of the terms "corresponding number" (Annex K 32) and "assigned voltage level" (Annex KAP 35) and the plaintiff's subsequent further submission.

122

**(a)**

The restrictions of Sections 529 and 531 of the German Code of Civil Procedure (ZPO) do not apply to the submission of the opinions of the private expert for the first time in the appeal instance. Both the subject matter of the expert opinion and the plaintiff's submission in this regard are legal arguments. Such statements do not constitute a means of attack or defense within the meaning of the preclusion provisions and must therefore be taken into account without restriction in the appeal instance (see MüKo ZPO-Rimmelspacher, 6. ed., § 520 marginal no. 65).

123

How a patent is to be interpreted is a question of law (BVerfG, GRUR-RR 2009, 441, 442; BGH, GRUR 2004, 1023, 1025 - Bodenseitige Vereinzelungsvorrichtung; GRUR 2006, 131 para. 19 - Seitenspiegel; GRUR 2006, 313 para. 18 - Stapeltrockner; GRUR 2010, 858 para. 15 -

124

Crimpwerkzeug III; GRUR 2015, 868 para. 25 - Polymer foam; GRUR 2015, 972 para. 20 - Kreuzgestänge; GRUR 2021, 574 para. 32 - Crane arm; OLG Düsseldorf, judg. of 26.11.2015 - I-2 U 74/14, BeckRS 2016, 15016 para. 33; judgment of 29.02.2024 - I-2 U 6/20). In contrast the basis of the interpretation, i.e. specific factual circumstances that may be of significance for the interpretation, may lie within the scope of the determination of facts (see BGH, GRUR 1999, 977, 980 - Räumschild; GRUR 2004, 1023, 1025 - Bodenseitige Vereinzelungsvorrichtung). However, this is not yet the case if, in the sense of a legal assessment, a certain understanding of the expert in the relevant field is taken as a basis (see BGH, GRUR 2004, 1023, 1025 - Bodenseitige Vereinzelungsvorrichtung). For example, the knowledge, skills and experience of the relevant skilled persons with which they would have approached the understanding of the patent claim lie within the scope of the determination of facts (see BGH, GRUR 2006, 131 para. 19 - Seitenspiegel). Insofar as new - and disputed - factual assertions are made in this sense in connection with the presentation of aspects of the interpretation that were not addressed at first instance, the application of the preclusion provisions must therefore be examined.

125

Applying these principles, both the plaintiff's statements with reference to the expert opinion of her private expert and the expert's opinion itself are legal statements. Although the plaintiff's reference to the fact that the technical expertise of her private expert exactly meets the required recipient horizon suggests that she regards him as a relevant (average) expert, the plaintiff's submission and the expert opinion do not contain any concrete assertions regarding specific knowledge, skills and experience of the expert on the priority date, which could be regarded as factual assertions according to the principles set out above. Rather, these are legal considerations on the understanding of the patent and on the assessments made by the (abstract) skilled person.

(b)

The presentation of the plaintiff's private expert in the statement submitted as Annex KAP 32 and the plaintiff's submission in this regard are not convincing. The private expert refers in particular to paragraph [0068] of the patent in suit, which states: 126

**"The cooling/lubricant ducts of the second and third embodiments can also branch off directly from a central cooling/lubricant duct, whereby corresponding radially extending connecting ducts between the coolant feed and the cooling/lubricant ducts objected to (sic) by the tool axis and distributed in the circumferential direction are superfluous."** 127

(emphasis added) 128

Contrary to the opinion expressed in the statement (Annex K 32, p. 4 above), the quoted passage shows a clear differentiation between the coolant/lubricant ducts within the meaning of feature 4.1 - the more detailed design of which is described in feature group 5 - and the only optional central coolant/lubricant duct. The central coolant/lubricant channel serves to feed in coolant/lubricant and already has no end-face outlet openings facing the cutting part (feature 5.3.), which means that a design within the meaning of feature 5.4. cannot be considered from the outset. It is therefore not a coolant/lubricant channel within the meaning of the claim, which is why it cannot be concluded from its mention in an embodiment example for this reason alone that there does not have to be a numerical correspondence between the coolant/lubricant channels referred to in feature 4.1. and the flutes. 129

With regard to the plaintiff's further submission, with reference to the opinion of its private expert pursuant to Annex KAP 32, according to which the number of coolant/lubricant ducts and the number of flutes merely have a relationship to each other, but do not have to be identical, reference can be made to the explanations under (3). 130

(c)

The further opinion of the plaintiff's private expert submitted as Annex KAP 35 and the submissions made by the plaintiff in this regard do not indicate any other view. 131

As far as the concept of "allocated flute" is concerned, the statement essentially takes up the argumentation from Annex KAP 32, which is why reference is made to the above statements.

**b)**

Further aspects of the already mentioned feature 5.4. also require closer consideration, 132  
according to which the coolant/lubricant channels are designed in such a way that  
coolant/lubricant emerging from the outlet openings of the clamping section can be fed along  
the shaft in a free jet without a radially external limit into an associated flute of the cutting  
part.

**aa)**

According to the invention, the design of the coolant/lubricant ducts is intended to ensure that 133  
any coolant/lubricant that escapes can be fed *in a free jet* into an associated flute in the  
manner described in more detail in the feature.

**(1)**

The term "jet", which is not defined in the patent specification, is characterized by a (certain) 134  
delimitability and the presence of a core area which, in cooperation with a bore wall, enables  
the desired flow profile to be formed. According to the invention, the cooling  
/lubricant in this form from the outlet openings into (and through) the flutes. Against this  
background, the Regional Court rightly defined the jet as a directed stream and, in particular,  
considered the spraying of the coolant/lubricant in all directions to be inappropriate.

In its description and in the examples of embodiments, the patent in suit repeatedly refers to 135  
the "individual beams" emerging from the outlet openings (cf. para. [0015], [0018], [0019],  
[0031], [0034], [0047], [0048], [0053]), which makes it clear that it assumes that the individual  
beams can be separated from each other and thus, when it refers to the feedability "in a free  
beam", it means precisely the beam emerging from an outlet opening - and which can be fed  
into an associated flute in each case.

In addition, the patent in suit assumes that the beam has a core area, as can be seen from  
the passage in paragraph [0013] quoted below, which is taken from the general description:

*"Investigations of the coolant/lubricant flow along the tool axis, i.e. from the clamping section 136  
to the tip of the tool, have shown that **the flow** of coolant/lubricant **from the cooling**  
/In accordance with the invention, the **fluid jet emerging from the lubricant channels has**  
**a sufficiently large core area with a high flow velocity** at the moment when the tool  
plunges into the bore to be machined, in particular into the through-hole which is to be  
subjected to fine finishing, even if it has to travel a considerable axial length in the direction of  
the cutting head under the effect of the centrifugal forces that occur."*

(emphasis added) 137

Whether a jet can (always) be divided into the areas of core jet and droplet cloud from an expert point of view, as the defendants assert with reference to the private expert opinion of Prof. I (Annex B&B 23) submitted by them, does not require a final decision. In any case, a fluid escaping as a mere cloud of droplets without a recognizable core jet does not meet the requirements for a jet that meets the requirements. 138

(2)

Insofar as the plaintiff in the appeal instance takes the view that not necessarily only one jet may emerge from an outlet opening, but that several jets may also be present per outlet opening, the Senate is unable to agree with this. 139

(a)

According to the wording of the feature, coolant/lubricant emerging during operation of a device according to the claim is to be fed in a free jet into an associated flute. The resulting conceptual understanding that (exactly) one jet is to emerge and be fed into the respective assigned flute is otherwise confirmed by the patent specification. 140

For example, the passage just quoted in paragraph [0013] states that "the fluid jet emerging from the coolant/lubricant ducts" has a core area described in more detail. Elsewhere, too (in relation to an outlet opening), "a" or "the" coolant/lubricant jet is mentioned (cf. para. [0027] f.; [0044]). Insofar as the patent in suit uses the term cooling/lubricant jets in the plural (cf. only para. [0014], [0015], [0018], [0019]), these remarks refer to the provision of several cooling/lubricant jets (cf. para. [0014], [0015], [0018], [0019]). and therefore several jets corresponding to the number of channels, but each individual jet for feeding into the respective assigned flute. This becomes clear in paragraph [0048], for example, when it says of an embodiment example: 141

*"The individual coolant/lubricant jets, distributed over the circumference in accordance with the pitch of the tool, impinge on the flutes 30."* 142

The outlet of the coolant/lubricant in exactly one jet and its feed into exactly one flute also corresponds to the avoidance of losses sought by the patent in suit, whereas the provision of a second jet - not fed into a flute - would be diametrically opposed to this concern. 143

The fact that avoiding losses when feeding the coolant/lubricant is an objective of the patent in suit is already clear from the assessment of the prior art. Thus, with regard to the reamer disclosed in DE 'XXC, the patent in suit emphasizes the feeding of the coolant/lubricant into the flutes with the lowest possible losses (para. [0004]). As the Regional Court rightly explained, the patent in suit does not regard the targeted and low-loss feed as a disadvantage, but rather the necessary manufacturing effort (see para. [0007]). Only in this respect does the patent in suit distinguish itself from this prior art in that the cooling/lubricant 144

is no longer fed in a channel, but in a free jet into the respective assigned flute. However, the concept of feeding the coolant/lubricant to the individual flutes with minimal losses is to be retained.

Also in its general description and in connection with the illustration of an embodiment example, the patent in suit emphasizes the advantage of a low-loss supply of the coolant/lubricant to the decisive points of the tool (cf. para. [0016], [0051]). Paragraph [0016] states: 145

*"The supply of coolant/lubricant to the critical points for the tool is low-loss, as deflections of the coolant/lubricant flow are avoided."* 146

The fact that the cited passage – like paragraph [0051] – emphasizes the avoidance of deflections as the decisive reason for low-loss delivery does not contradict the view that the avoidance of losses of coolant/lubricant is considered advantageous by the patent in suit. In fact, the low-loss supply of coolant/lubricant is a fundamental concern of the patent in suit because it ensures that the objective already mentioned in the problem definition (para. [0010]) is achieved, namely that the concept according to the invention is also suitable for dry machining or MQL. 147

This also becomes clear in paragraph [0016] just quoted, which states after emphasizing a low-loss supply:

*"This means that the concept according to the invention is not only suitable for wet machining, but also for so-called dry machining or for minimum quantity lubrication (MQL technology)."* 148

Paragraph [0034] also describes that the further development of claim 18 - probably referring to sub-claim 8 of the granted version - succeeds in additionally stabilizing the cooling/lubricant jets in order to bridge longer axial distances between the clamping section and the cutting part in such a way "that the individual cooling/lubricant jets reach the assigned flutes with the greatest possible surface overlap". This also makes it clear that the aim is to achieve a feed with as little loss as possible. 149

Finally, the understanding described above is in line with the statements of the Federal Patent Court in its judgment of 27 July 2021, which also bases its assessment on the provision of one beam per outlet opening, which is to be fed into exactly one flute. This is clearly evident from the explanations on page 13 of the judgment cited below (see also p. 24 f., p. 29 f.): 150

*"Each of these free jets, which under high pressure and at high speed from the outlet openings of the clamping section facing the cutting part, should - and in the opinion of the Senate this is now the core of the invention after the restrictions made - hit a specific, respectively assigned flute, ..."* 151

(b)

A different understanding is also not required taking into account the expert opinion of its private expert of 4 April 2022 on the understanding of the term "low-loss" already submitted by the plaintiff at first instance, which the latter prepared in connection with earlier proceedings (Annex KAP 21). The plaintiff's expert states that, in particular, the provision of large-area coolant/lubricant channels mentioned in paragraph [0051] would be absurd if the patent in suit intended to reduce the amount of 152

coolant/lubricant (Annex KAP 21, p. 2). In fact, flow losses caused by deflections are disadvantageous, as is the case with the tools known from the prior art (Annex KAP 21, p. 2). Specifically, in the case of wet machining, the quantity of coolant/lubricant already circulated, i.e. reused, is insignificant, while flow losses mean that lubricant has to be circulated under higher pressure, which is unfavorable in terms of energy (Annex KAP 21, p. 2). In the case of minimum quantity lubrication (MQL), a deflection causes droplets of the coolant/lubricant to be deposited at its "edges", so that the aerosol - contrary to the objective of MQL - must have a higher proportion of coolant/lubricant (Exhibit KAP 21, p. 3). Against this background, the term "low loss" does not refer to the lowest possible quantity of coolant/lubricant supplied, but to the reduction of flow losses (wet processing and MQL) and, in the case of MQL, also to the prevention of droplets from settling at the deflection points (Exhibit KAP 21, p. 3).

Contrary to the presentation of the plaintiff's private expert, however, the low-loss supply of coolant/lubricant sought by the patent in suit is not to be equated with the use of the smallest possible quantity of coolant/lubricant. Against this background, the argument that the patent in suit is not concerned with the use of the smallest possible quantity of coolant/lubricant cannot be refuted as a general objective of the claimed teaching. Even in the opinion of the Senate, the use of the smallest possible quantity is not an objective of the patent in suit, which is already clear from the fact that it seeks improvements in both wet machining and dry machining or MQL technology (para. [0010]). There are also several references to a significantly increased quantity of coolant/lubricant supplied to the cutting edges (para. [0015], [0050]) or at least the supply of a sufficient quantity is emphasized as positive (para. [0013], [0048], [0053]). In fact, the patent in suit understands the low-loss supply rather as the reduction of the proportion of coolant/lubricant which exits the channels but cannot be fed into the flutes. 153

Against this background, the provision of large-scale cooling /lubricant ducts, as mentioned in para. [0050] f., contrary to the opinion of the plaintiff's expert, does not contradict the concern of a low-loss supply.

Insofar as the plaintiff's private expert argues that in the tools known from the prior art the lubricant is supplied in an axial direction inside the tool and then diverted radially to the outside in order to reach the cutting edges, and that it is precisely the flow losses in the supply of the lubricant caused by such deflections which should be avoided according to the teaching of the patent in suit (Annex KAP 21, p. 2), this is not convincing either. On the one hand, the assessment of the prior art does not mention the avoidance of flow losses, but the patent in suit - as already discussed - considers the manufacturing costs of the prior art to be disadvantageous. On the other hand, the patent in suit recognizes the reamer disclosed in DE 'XXC, which has a channel system precisely as described by the expert, as having particularly low losses. This follows directly from paragraph [0004], which states: 154

*"In document DE 10347XXC A1, a generic tool in the form of a high-performance reamer is shown, in which a cutting head connected to a shank part in a rotationally and axially fixed manner ... **via a central coolant/lubricant supply channel** ... is supplied with coolant/lubricant via a central coolant/lubricant supply channel* 155

**in the tool shank and a radial channel system in or at the interface to the cutting head.**  
*The radially outer openings of the radial channel system are covered by a coolant guide sleeve, which extends in the direction of the tool tip into an outlet area of the flutes and can therefore ensure **that the supplied coolant/lubricant can be fed into the flutes with as little loss as possible.**"*

(emphasis added)

156

**bb)**

With the further specification that the coolant/lubricant exiting along the shaft can be fed into an associated flute in a free jet *without a radially external boundary*, the patent in suit addresses the external supply of the coolant/lubricant jets according to the invention (see para. [0050]), in which there is no boundary by a tool component on the side of the jet facing away from the shaft (see judgment of the BPatG, p. 13, p. 22). 157

The specification of a *free jet* takes up this embodiment and also describes the absence of a radial limitation, in particular in the form of a channel as in the prior art. The beam can emerge unhindered - and thus freely (see feature 6.; BPatG judgment, p. 22). Accordingly, the patent in suit also describes the beam as "free-flying" (para. [0047], para. [0048], [0069]). 158

Finally, the feedability *along the shaft* describes the basic direction in which the coolant/lubricant is guided. The fact that the shaft or shaft section also assumes a supporting function in this context is then apparent from feature 6. 159

**cc)**

The design of the channels must also ensure that the coolant/lubricant can be fed into an assigned flute in the free jet described above. 160

**(1)**

What the patent in suit understands by an *assigned groove* has already been explained under 161

a) is explained. With the further specification that the coolant/lubricant *can be fed* into such a flute, the claim expresses that the coolant/lubricant can be introduced into the flute - a depression ground into the cutting part (see features 3., 3.1.). In connection with an engaged tool, the patent in suit also speaks of a "filling up" of the flow channels delimited by the flutes (para. [0015], see also para.

"degree of filling" of the flutes). As already explained under a), the patent in suit specifies a certain way in which the coolant/lubricant is directed to the highly loaded cutting edges in a tool designed according to the invention. In this way, when the tool is plunged into the bore to be machined, an increasingly stable flow profile can be formed in the flow channels defined by the flutes and bore wall (para. [0013], [0015], [0023], [0048]). Furthermore

as an additional advantage, the removal of chips is improved by filling the flutes with coolant/lubricant (para. [0014], [0016], [0019], [0023], [0050]).

Against the background of this specific definition, it is not in accordance with the invention if the coolant/lubricant reaches the cutting edges by a route other than that through the flutes. In light of this specific stipulation, it is not considered an invention if the coolant/lubricant reaches the cutting edges by a means other than through the flutes. The cutting edges are indeed the part of the tool where cooling and lubrication are primarily required and which must therefore be supplied with coolant/lubricant (see paragraphs [0023], [0028], [0050], [0069]). However, if it were considered to be in accordance with the claim to supply the cutting edges with coolant/lubricant by other means, this would involve reducing the feature to its mere function, which, as already explained in a) bb) (3), is inadmissible. Furthermore, the additional advantages sought by the patent in suit, which are associated with the transport of the coolant/lubricant through the flutes, could not be achieved. Consequently, paragraph [0012] expressly states that a supply of lubricant is required not only at the cutting edges but also in the area of the flutes. It states:

*"Tests have shown that this tool design can stabilize **a sufficient lubricant supply in the area of the flutes and also on the surfaces of the tool cutting edges that are decisive for tool life**, both in so-called wet machining, i.e. when using liquid coolants/lubricants, and in so-called "dry machining" according to MQL technology, even if the working pressure of the coolant/lubricant is kept at an easily controllable level of, for example, over 5 bar, preferably over 10 bar."*

(emphasis added)

This means that a design in which the cooling/lubricant jets clearly miss the flutes and, at best, hit the workpiece and flood it at the bore opening, causing the cooling/lubricant to flow (subsequently) under pressure via the flutes toward the end of the bore, is therefore even less suitable. (see judgment of the Federal Patent Court, p. 20 f., see also p. 31, p. 32).

In principle, the District Court was also correct in assuming that the coolant /lubricant according to the teaching of the patent in suit is to be introduced into the beginning of a flute as its entry section adjacent to the shank. It should be clarified in this respect that, in the absence of a corresponding specification in the claim, it is not decisive whether the introduction of the coolant/lubricant takes place at an area of the flute which is slightly offset in the direction of the tool head. In any case, however, in order to be able to be fed *into* a flute within the meaning of the feature, it must be ensured that the coolant/lubricant essentially fills the flute completely, can form a flow profile there and can take on the additional function of removing the chips.

Finally, a different understanding does not result from the above-mentioned statement of the plaintiff's private expert, submitted by the plaintiff in the appeal instance in accordance with Exhibit KAP 35, which also deals with the concept of feedability (p. 4 f.). In summary, the plaintiff's expert assumes that the injection of the coolant/lubricant, i.e. its introduction at the latest permissible point, must take place at the engaged cutting edges, in particular at the relatively highly loaded tool cutting edges near the tool tip, but not at the beginning of the flute facing the clamping area (Exhibit KAP 35, p. 5). Since this

view is based solely on the argument that the coolant/lubricant must be applied to the most highly stressed areas of the tool, reference can be made to the above explanations. This view represents, as explained, an inadmissible reduction of the feature to the mere function, which moreover disregards the further effects sought by the patent in suit.

Finally, the requirements set out apply irrespective of whether the flutes run in a straight line, as described as advantageous by the patent in suit and shown in the figures (see paragraphs [0031], [0038], [0066]). The requirements of the claim apply in particular in the same way if the flutes are helical, as expressly described as possible by the patent in suit (see paragraphs [0031], [0067]). 168

(2)

It cannot be inferred from the claim that the respective coolant/lubricant jet must be able to be fed into a flute without losses - 100%, as it were. The skilled person will not make such an assumption because he is aware that the free-flying jet will increasingly fan out and increase in cross-section in the course of its "free flight" over the area of the shaft section (see BPatG judgment, p. 18 f.). If, on the other hand, only a small proportion of the respective cooling /lubricant jet can be fed into the assigned flute, this is no longer consistent with the wording of the feature. 169

In its judgment of July 27, 2021, the expert Federal Patent Court draws the necessary line at a beam that largely hits the groove when it states on page 15: 170

*"According to the restriction made in the nullity proceedings, according to which the cooling /lubricant can now fed in a free jet into an assigned flute, of the coolant/lubricant jets must therefore hit the assigned flute for the most part."* 171

The Federal Patent Court uses a similar formulation to take up this understanding at a later point when it states that the "majority of the respective jet" hits the respective assigned flute (BPatG judgment, p. 19). This understanding, which the Senate agrees with, is in line with the feeding of the coolant/lubricant with the lowest possible losses, which is the aim of the patent in suit and has already been discussed. 172

Insofar as the plaintiff, on the other hand, with reference to para. [0010], takes the view that only enough coolant/lubricant must be fed into the flute so that it is brought to the cutting edges of the tool in sufficient quantity, whereby the sufficient quantity is measured on the basis of a longer service life of the tool achieved by the supply of coolant/lubricant compared to the service life of a tool which lacks a coolant/lubricant supply, this is not to be followed. This already applies because - as also already explained - the patent in suit attaches independent importance to the coolant/lubricant fed into the flutes with regard to the flow profile to be formed and the removal of the chips. 173

The plaintiff's further argument that the coolant/lubricant jet could also be an aerosol, whereby only the proportion of the liquid lubricant in the 174

total coolant/lubricant has the effect of cooling and lubricating, which is why it is not true that the coolant/lubricant must be fed into the flutes to a considerable extent or even for the most part in order to achieve the desired function, does not apply. It is true that the plaintiff correctly points out that the *coolant/lubricant* mentioned in the claim can consist of both liquid and gaseous components. In particular, in the so-called minimum quantity lubrication (MQL) already known from the prior art, the lubricant is supplied as an aerosol during machining (see paras. [0005], [0033], [0046], [0084]). It is also correct that the patent in suit is concerned, among other things, with bringing the coolant/lubricant to the cutting edges reliably and in sufficient quantity during both wet and dry machining (MQL) (para. [0010]). However, this does not result in a different understanding with regard to the requirements of the claim. At no point can it be seen that the patent in suit evaluates the desired advantages of feeding the coolant/lubricant into the flutes differently in the case of an aerosol. On the contrary, according to the understanding of the patent-in-suit, the claimed teaching allows (equally) working with both liquid coolants/lubricants and aerosols (cf. para. [0033]). Against this background, it is irrelevant whether the plaintiff's assertion - disputed by the defendants - that no cooling effect is to be attributed to the gaseous components is correct. Even if this is the case, this circumstance does not call into question either the formation of a flow channel in or through the chip flutes as sought by the patent in suit or the improvement in the removal of the chips.

**dd)**

The *coolant/lubricant channels* of a tool according to the invention are *designed* according to features 5. and 5.4. *in such a way that they can realize the specifications already discussed.* 175

In contrast to a mere statement of purpose or function, this explicitly specifies a spatial and physical requirement for a particular component of the claimed tool, namely its coolant/lubricant channels. These must be designed in such a way that during operation of the tool - irrespective of whether this is its intended (main) purpose - they can ensure the feed capability described in more detail in the feature. The background to this requirement is, as can be seen in paragraph [0049], that the flow rate of the coolant/lubricant in the flutes depends decisively on the profile design of the coolant/lubricant channels. 176

The patent in suit deals with two possible embodiments in order to be able to fulfill the requirements of this feature in particular: The cooling/lubricant channels and the respective cutting flutes can—firstly—overlap (completely) in the axial projection and thus, for example, be aligned in the axial direction, which requires corresponding positioning of the cooling/lubricant channels and cutting flutes in both the radial and circumferential directions (see para. [0040], Fig. 2; judgment of the Federal Patent Court, p. 14). Secondly, if there is a significant offset between the channels and the clearance flutes, the cooling/lubricant channels may be arranged at an angle of attack to the respective clearance flutes so that, regardless of the radial offset, each jet hits the associated clearance groove (see para. [0056], Fig. 4; judgment of the Federal Patent Court, p. 14). In both cases, it is essential that an imaginary extension of the cooling/lubricant channels across the intervening shaft section is essentially aligned with the flutes. 177

(see BPatG judgment, p. 14 f.).

It is true that the specific embodiments described in the patent in suit are not reflected in the claim. However, since, as mentioned above, the requirements of the feature is to be fulfilled precisely by the spatial-physical design of the coolant/lubricant channels, such a design – ensuring that the requirements of the feature are met – is necessary, i.e. a spatial-physical design in which an imaginary extension of the coolant/lubricant channels beyond the intervening shaft section is essentially aligned with the flutes. In this context, it is true that, insofar as the coolant/lubricant channels and chip flutes only partially overlap in the axial direction, it is in principle possible to ensure that an imaginary extension of the channels is essentially aligned with the chip flutes by means other than forming an angle of incidence. However, a design in which there is both a complete lack of overlap in the radial direction between the outlet openings of the coolant/lubricant channels and the associated flutes and any other measures in the design of the coolant/lubricant channels that ensure the exit of the jets in the direction of an imaginary alignment with the flutes is not covered by the claim. Whether features 5. and 5.4 result in the mandatory structural instruction to provide the coolant/lubricant channels in such a way that they at least partially overlap the respectively assigned flutes in the axial projection can be left open in view of the attacked embodiments. 178

The Federal Patent Court also assumes such an understanding in its judgment of July 27, 2021, when it states following the description of the two explicitly disclosed embodiments (p. 14 f.): 179

*"For both cases, according to the explanations of the patent in suit, it is essential (see paragraphs [0043] and [0056]) that an imaginary extension of the coolant/lubricant channels across the intervening shank portion is substantially aligned with the flutes of the cutting part.* 180

*Here, too, the statements of the defendant ... must be contradicted, according to which the patent in suit does not require a strict geometric positional assignment in such a way that a flute must be in axial and/or radial alignment with the outlet opening of precisely one cooling element/lubricant channel, for which it refers to paragraph [0026] of the patent in suit. According to the restriction made in the nullity proceedings, according to which the coolant/lubricant can now fed in a free jet into an associated flute in each case, each of the coolant/lubricant jets must therefore largely hit the associated flute in each case."* 181

In embodiments in which the exiting coolant/lubricant jets miss the flutes due to a radial offset of outlet openings and flutes, the Federal Patent Court logically regards feature 5.4. as not disclosed (see BPatG judgment, p. 21/22). 182

### 3.

Based on the above understanding, the challenged embodiments, as the Regional Court correctly, do not make use of the technical teaching of patent claim 1 in its limited version in accordance with the literal meaning.

**a)**

According to the unchallenged factual findings of the Regional Court, the contested embodiment C has two flutes but four coolant/lubricant channels, so that the number of coolant/lubricant channels does not correspond to the number of flutes based on the understanding described (feature 4.1.). Correspondingly, the coolant/lubricant emerging from the end-face outlet openings of the clamping section cannot be fed into an associated flute as required by feature 5.4. For this reason alone, the contested embodiment C does not comply with the requirements of the patent in suit. 184

**b)**

Moreover, all challenged embodiments (A, B and C) do not comply with feature 5.4. 185

**aa)**

The design of the coolant/lubricant ducts required according to the above interpretation is already lacking. These are not designed in the sense of feature 5.4. in such a way that the coolant/lubricant emerging from the outlet openings of the clamping section can be fed in a free jet without a radially external limit into an associated flute of the cutting part. 186

**(1)**

The Senate must base its decision on the following unchallenged findings of the Regional Court in accordance with Section 529 (1) No. 1 ZPO (LG judgment, p. 32): 187

It is undisputed between the parties that the cross-section of the outlet openings of the cooling /lubricant channels of the attacked embodiments do not overlap with that of the chip flutes, since the flutes are offset radially inwards. This is not an offset "by a certain amount", but rather a complete lack of overlap of the cross-sections, as can be seen from the following design drawings - taken from the defendant's statement of 16.12.2022 (p. 131 f. eA LG): 188

The radial distance of the outlet openings can also be seen in the following figure taken from the defendant's statement of 28.07.2023 (p. 302 eA LG) 189

in which the lower limit of the outlet opening is continued with a red line that is recognizably at a distance from the shaft:

Furthermore, it is undisputed between the parties that the beam does not emerge from the openings at an angle of incidence. 190

**(2)**

Based on this, a realization of the feature cannot be determined. There is a complete lack of overlap between the outlet openings of the coolant/lubricant ducts and the flutes in the radial direction and there are also no other design measures, such as for the outlet of the jets with an angle of attack. As explained under 2. b) dd), such a design is not up to standard. 191

**(3)**

The plaintiff's submission cannot change this. In particular, the video recordings submitted by the plaintiff at first instance (Annexes KAP 25, KAP 26) do not show any structural design of the coolant/lubricant ducts in the sense described, even according to the plaintiff's own submission. As far as the video submitted as Annex KAP 26 is concerned, the inadequate assessment of which by the Regional Court is objected to by the plaintiff, no other understanding of the claim characteristics is required, even in view of the operating mode of minimum quantity lubrication (MQL) shown in this video. In particular, the intended usability of the tool in this mode does not release it from the requirement that the coolant/lubricant channels be designed in accordance with the specifications of feature 5.4. 192

**bb)**

Even if this were to be viewed differently, in the contested embodiments, coolant/lubricant escaping from the outlet openings of the clamping section cannot flow along the shaft *in a free jet* without radial external limitation *into* a corresponding *flute* of the *cutting part*. 193

**(1)**

According to the interpretation set out above, this presupposes that the coolant/lubricant escaping from an outlet opening can be fed at least for the most part into an assigned flume. According to the plaintiff's own submission, this is not the case. 194

**(a)**

In the first instance, the plaintiff asserted - without specifying concrete proportions - that the lubricant flows into the flutes in considerable quantities or reaches the cutting edges in sufficient quantities. The fact that this is the largest or predominant part of the escaping coolant/lubricant and that this is also 195

actually fed into the respective voltage supply in the sense described above was not apparent from the first instance submission.

In the second instance, the plaintiff substantiated its submission with reference to a measurement it had carried out to the effect that during operation of the contested embodiment, a proportion of 17% of the lubricant exiting is fed into the flutes. Irrespective of the question of whether this is also the coolant/lubricant fed into the respective assigned flute, a proportion of 17% does not in any case meet the requirements for the majority of the lubricant to be fed in. Whether the plaintiff can be heard with its submission on the measurement carried out for the first time in the appeal instance on the tool already shown in the video sequence according to Annex KAP 25 can be left open, since the measurement is not able to prove the realization of the characteristic anyway. It is also irrelevant whether the plaintiff's measurement is correct.

196

(b)

The fact that the coolant/lubricant escaping from an outlet opening can be fed at least for the most part into an associated chute has also not been demonstrated by the plaintiff with its reference to the operating state shown in seconds 15 to 17 of the video submitted as Annex KAP 25.

197

According to the plaintiff's submission, the video according to Exhibit KAP 25 shows the test operation of an attacked tool with the coolant/lubricant J, a speed of 12,000 revolutions per minute and a pressure of 30 bar, whereby the pressure builds up in the course of the test operation, which is why the plaintiff also describes the operating state shown in seconds 15 to 17 as "operation under low pressure". A still image taken from the plaintiff's statement of grounds of appeal (p. 23, p. 180 eA OLG) and marked by the plaintiff is shown below, which shows second 16 of the aforementioned video:

198

Irrespective of the question disputed between the parties as to whether the "operation under low pressure" shown in the initial phase of the test run can be used at all for the realization of the characteristic, it does not follow from the plaintiff's submission, even with regard to this operating state, that the coolant/lubricant escaping from an outlet opening can be fed into an assigned flute in the sense of the understanding set out above. In this respect, the plaintiff has neither named a specific proportion of the coolant/lubricant emerging from an outlet opening that is fed into an assigned flute in this operating state, nor has it generally referred to the fact that it would be the largest or predominant part of the respective lubricant. This is also not apparent when viewing the video. As the Regional Court correctly stated, in the sequence in question, a large part of the jet is not fed into the flutes at all and it is also not possible to assign the jet emerging from one opening in each case to a specific flute.

199

(c)

200

Insofar as the plaintiff emphasized, also at the oral hearing before the Senate, that the decisive factor should not be, or at least not solely, the proportion of the coolant/lubricant emerging from an outlet opening that can be fed into a respective assigned flute, this does not apply. The plaintiff argues that the absolute quantity of the coolant/lubricant fed in during operation of a tool according to the invention must be considered, which - as it has proven by its tests - is in any case sufficient for cooling and lubrication during operation of the attacked embodiment. Moreover, this should not be based solely on so-called wet machining, but should also include the quantities required for minimum quantity lubrication (MQL). However, this consideration is already contradicted by the fact that, according to the interpretation described above, a relative consideration must be made in the sense that the coolant/lubricant emerging from an outlet opening must be able to be fed for the most part into a respective assigned flute (see above under 2. b) cc) (2)). Furthermore, it is not convincing to compare the value of the coolant/lubricant introduced into the flutes, which was determined in tests not carried out under MQL conditions, with the values required for MQL.

(2)

Insofar as the plaintiff argues for the first time in the appeal proceedings that the coolant/lubricant emerges from the outlet openings in a first jet (which can be fed into a slot) and a second jet (serving other purposes), which is why the proportion should be calculated only on the basis of the part of the emerging coolant/lubricant identified by it as the first jet, such a view is precluded by the above statements. For better clarification, the figure taken from the plaintiff's statement of grounds of appeal is shown below, in which a yellow arrow shows the part of the still image taken at second 50 (upper figure) and 56 (lower figure) from the video according to Annex KAP 25, which she considers to be the first jet of coolant/lubricant, and a green arrow shows the part of the still image taken at second 50 (upper figure) and 56 (lower figure), respectively, which she considers to be the second jet of coolant/lubricant:

201

According to the understanding described above, such a view is already ruled out irrespective of the delimitability of the jets identified by the plaintiff because only one jet per outlet opening of the coolant/lubricant ducts is permissible and thus the presence of a second jet - which cannot be fed into the flutes - would already exclude the realization of the feature.

202

(3)

The opinion of Prof. F submitted by the plaintiff in the appeal instance as Annex KAP 31 does not indicate otherwise, which is why it can be left open whether and to what extent the plaintiff can still be heard on this in the appeal instance. In his statement, the plaintiff's private expert analyzes, among other things, the video sequence according to Annex KAP 25 (Annex KAP 31, pp. 1-3). In particular, he describes that in operating mode two paths are formed for the coolant to reach the cutting edges from the shank opening. Path 1 is the direct path of the coolant/lubricant along the surface of the tool to its cutting edges, with the other part of the coolant separating from the surface of the tool along path 2. This can be seen from the illustrations of stills from the video in Exhibit KAP 25, with the upper figure

203

showing a snapshot of the video at high pressure and the lower figure at lower pressure:

Irrespective of the reasons for the formation of the two jets described by the plaintiff's private expert, it remains the case that, according to the teaching of the patent in suit, the coolant/lubricant should emerge from the outlet openings in only one free jet and that the largest part of this jet should be able to be fed into the flute. This is also not the case according to the opinion submitted, which is why reference can also be made to the above statements. 204

**(4)**

Against this background, the results of the defendants' own tests submitted by the defendants in the appeal instance and the plaintiff's calculation submitted to refute them (Annex KAP 33) as well as the opinion of its private expert submitted by the plaintiff (Annex KAP 35) are no longer relevant. 205

**III.**

The decision on costs follows from Sections 97 (1), 269 (3) sentence 2 Code of Civil Procedure (ZPO). 206

The orders for provisional enforceability are based on Sections 708 No. 10, 711, 108 ZPO. 207

There was no reason to allow an appeal on points of law because the requirements set out in Section 543 ZPO clearly not met. This is purely an individual case decision of no fundamental importance, which does not have to be referred to the Federal Court of Justice in the interests of further developing the law or ensuring uniform case law (Section 543 (2) ZPO). 208

X	Y	Z	209
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[1] The features 1.4. and 1.5. referred to essentially correspond to features 4.1. and 5.4. of the above outline of features. 210