

United States Court of Appeals for the Federal Circuit

BELIMO AUTOMATION A.G.,
Plaintiff-Appellant,

v.

UNITED STATES,
Defendant-Appellee.

2014-1165

Appeal from the United States Court of International
Trade in No. 10-CV-0113, Judge Mark A. Barnett.

Decided: December 19, 2014

ROBERT B. SILVERMAN, Grunfeld, Desiderio, Lebowitz,
Silverman & Klestadt LLP, of New York, New York,
argued for plaintiff-appellant. With him on the brief were
PETER W. KLESTADT and ROBERT F. SEELY.

AMY M. RUBIN, Assistant Director, Commercial Litiga-
tion Branch, Civil Division, United States Department of
Justice, of New York, New York, argued for defendant-
appellee. With her on the brief were STUART F. DELERY,
Assistant Attorney General and JEANNE E. DAVIDSON,
Director, of Washington, DC. Of counsel on the brief was
MICHAEL W. HEYDRICH, Office of Assistant Chief Counsel,

United States Customs and Border Protection, of New York, New York.

Before PROST, *Chief Judge*, NEWMAN and TARANTO, *Circuit Judges*.

PROST, *Chief Judge*.

Belimo appeals from the Court of International Trade's classification of Belimo's imports as "electric motors" under subheading 8501.10.40 of the Harmonized Tariff Schedule of the United States ("HTSUS"). Belimo argues that the subject imports should have been classified as "automatic regulating and controlling instruments and apparatus; parts and accessories thereof" under HTSUS 9032.89.60. Because we agree with the Court of International Trade that Belimo's imports are not designed to measure either temperature or a variable of liquids or gases, as is required by HTSUS 9032.89.60, we affirm.

BACKGROUND

Belimo's imported devices consist of an electric motor, gears, and two printed circuit boards, and are principally used in heating, ventilating, and air conditioning ("HVAC") systems within buildings. *Belimo Automation A.G. v. United States*, 35 ITRD 2319, 2013 WL 6439119, at *1 (Ct. Int'l Trade 2013) ("*Opinion*"). HVAC systems work by pumping cold or hot air into a room. The HVAC system's sensors detect the ambient temperature in a given space, and send information to a central controller, which compares the actual temperature values to the user's desired temperature values. Next, the central controller sends a signal to the actuators, electric motors that adjust the angle of a damper blade to let in more or less hot or cold air.

In a traditional HVAC system, the actuator receives the signal from the central controller and moves the damper blade to the position indicated by the controller. However, if a disturbance such as a strong draft moves the damper blade, it may become stuck in the incorrect position. Belimo's products are similar to a traditional actuator, but represent an improvement in that they incorporate a programmed Application Specific Integrated Circuit ("ASIC"). The ASIC's purpose is to continuously and independently monitor the damper blade's position, and maintain it at the correct angle without any input from the central controller. The ASIC accomplishes this by monitoring the behavior of the electric motor that moves the damper blade.¹

The ASIC operates independently from the central controller and can detect unintended changes in damper blade position; this allows it to better maintain the blade's position against disturbances. The ASIC performs other independent functions: it can adapt to receive an AC or DC signal from the controller, filter out unintended electric signals, and use stored energy to prevent the motor from spinning out of control in the event of a power failure. *Opinion*, 2013 WL 6439119, at *8; Appellant's Br. 14 (agreeing with the Court of International Trade's factual recitation).

The subject imports entered the United States between February 9, 2007 and February 26, 2007. U.S. Customs and Border Protection liquidated them between

¹ Different models of the subject imports employ different methods to monitor the motor, such as measuring electric resistance or changes in the motor's magnetic field. We agree with the Court of International Trade that the differences in the subject imports' motor monitoring methods are not material to our analysis. *Opinion*, 2013 WL 6439119, at *1 n.2.

December 21, 2007 and January 11, 2008 under HTSUS 8501.10.40. Belimo timely filed a request protesting this classification decision on June 17, 2008. On September 18, 2009, Customs denied the request. HQ H044560 (Sept. 18, 2009). Belimo challenged the denial of its request at the Court of International Trade, claiming that the products should have been classified as “automatic regulating and controlling instruments and apparatus; parts and accessories thereof” under HTSUS 9032.89.60.

The Court of International Trade affirmed on cross-motions for summary judgment that the actuators could not be classified under HTSUS 9032, because they do not automatically measure the actual value of the temperature or any variable of air, as required by HTSUS Chapter 90, Note 7(a). *Opinion*, 2013 WL 6439119, at *7. The Court of International Trade also held that the subject actuators were correctly classified as “electric motors” under Heading 8501. *Id.* at *7–8. Despite the fact that the actuators incorporated additional parts and components such as the ASIC, which allowed the motor to operate more precisely and reliably, the court held that “the ASIC does not change the principal function of the subject imports as electric motors.” *Id.* at *8 (quoting *Nidec Corp. v. United States*, 68 F.3d 1333, 1337 (Fed. Cir. 1995)). Belimo appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(5).

STANDARD OF REVIEW

The meaning and scope of tariff headings and sub-headings presented in this appeal are pure questions of law which this court reviews de novo. *Deckers Corp. v. United States*, 532 F.3d 1312, 1314 (Fed. Cir. 2008); *Metchem, Inc. v. United States*, 513 F.3d 1342, 1345 (Fed. Cir. 2008).

DISCUSSION

HTSUS Chapter 90, Note 7(a) can be broken up into three main clauses, and provides that Heading 9032 applies only to:

[1] Instruments and apparatus for automatically controlling the flow, level, pressure or other variables of liquids or gases, or for automatically controlling temperature,

[2] whether or not their operation depends on an electrical phenomenon which varies according to the factor to be automatically controlled,

[3] which are designed to bring the factor to, and maintain it at, a desired value, stabilized against disturbances, by constantly or periodically measuring its actual value.

The parties' disagreement is focused on whether Belimo's products satisfy the requirements of clauses one and three. We hold that Belimo's actuators are not designed to measure the actual value of a factor of liquids or gases, as required by clause three. Thus, we do not decide whether they automatically control temperature or a variable of liquids or gases as required by clause one.

Clause three requires a qualifying instrument to measure the actual value of "the factor." Belimo incorrectly argues that "the factor" includes electrical phenomena, such as the actuator motor's behavior. Rather, "the factor" refers to "the factor to be automatically controlled" in clause two. Clause one in turn establishes the set of things that may be automatically controlled: "the flow, level, pressure or other variables of liquids or gases," as well as "temperature." Therefore, "the factor" is a general term that consists of temperature, as well as flow, level, pressure, and other variables of liquids or gases that may be automatically controlled by the instrument or apparatus. The factor to be automatically controlled by the

subject imports is air flow—and by extension, room temperature—but the “factor” here does *not* include motor winding position or any electrical phenomenon. To qualify under Heading 9032, therefore, Belimo must show at least that its actuators are designed to measure the actual value of temperature, or some other variable of air such as flow, level, or pressure.

Belimo acknowledges that the ASIC “measure[s] the current position of the damper blade.” Appellant’s Br. 8. The ASIC does not directly measure air flow or temperature; that is the job of the HVAC sensors. Belimo argues, however, that its ASIC measures flow *indirectly*, using the changes in damper blade position as a reference. Appellant’s Reply Br. 16 (“[Damper blade] position equates to a specific flow as a proportion of the total potential flow through the HVAC conduit at a given level of pump or fan pressure.”). Belimo argues that “[i]t is enough if the controlling device is simply ‘sensitive to changes in the variable to be controlled.’” *Id.* at 17. To support this position, Belimo cites the additional guidance in Explanatory Note EN 9032(I), which explains that “in some cases, a simple device which is sensitive to changes in the variable . . . may be used instead of a measuring device.” Appellant’s Br. 20. The government does not dispute that a Heading 9032 controller may measure the variable to be controlled indirectly. Appellee’s Br. 30. Rather, the government argues that the subject imports do not “measure” flow in the relevant sense. *Id.*

Belimo’s argument that a device merely needs to be “sensitive to changes in the variable to be controlled” stretches the heading too far. A block of ice may be sensitive to temperature, but the ice does not “measure” temperature in any meaningful way. We need not decide precisely how direct or indirect a device’s measurement must be in order to satisfy this requirement. It is enough to resolve this case that Note 7(a) requires the instrument or apparatus be “designed” to control a factor through the

measurement of the factor's actual value. See Note 7(a) (Heading 9032 applies to "instruments . . . which are *designed* to bring the factor to, and maintain it at, a desired value, . . . by constantly or periodically measuring its actual value.") (emphasis added). Although the ASIC monitors the motor's behavior and measures the damper blade's position, it was not designed to control airflow or temperature by directly or indirectly measuring its actual value. The airflow rate is not well correlated to the position of the damper blades; it also depends on the speed of the system fan, for example. Meanwhile, temperature is sensitive to a multitude of factors besides damper blade position, including whether the doors or windows in the room are open, the number of room occupants, the location of the room within the building, etc. Moreover, even if Belimo's actuators could be used with some degree of success to calculate air flow in a room, they are not *designed* to take the place of the HVAC sensors, which *do* measure temperature and report this information to the central controller. Unlike the exemplars in EN 9032(I) that are designed to measure the actual value of variables of gases through indirect methods, see Appellant's Reply Br. 18 ("Pressure regulators may operate based on the force exerted on 'an adjustable spring,' and a humidistat may operate based on the length of strands of hair."), Belimo's actuators are only designed to monitor motor behavior. Therefore, they cannot be classified under HTSUS Heading 9032.

We turn next to whether Belimo's actuators were properly classified as "electric motors" under HTSUS Heading 8501.10.40. Belimo concedes that absent the ASIC, its actuators would be classified under Heading 8501. Appellant's Br. 47. Belimo argues, however, that the inclusion of the ASIC "changes [the actuator's] functionality from electric motor to automatic controller of fluids and gases." *Id.* at 47–48. Belimo even goes so far

as to say they are no longer “actuators” as a result. Appellant’s Reply Br. 24.

The Court of International Trade properly dismissed Belimo’s argument. The actuators are electric motors, as they convert electric energy into mechanical energy. *Opinion*, 2013 WL 6439119, at *7. Note 3 to Section XVI, which encompasses Heading 8501, states that “[u]nless the context otherwise requires, . . . machines designed for the purpose of performing two or more complementary or alternative functions are to be classified as . . . that machine which performs the principal function.” Although the ASIC “contributes additional functionalities beyond those that a basic electric motor offers, including continuous monitoring of the motor absent a signal from the central controller, adapting to AC or DC electrical signals, and storing energy for use in the event of a power failure,” these additional functions are complementary to the principal function of an electric motor, and all relate to improving the precision and reliability of the motor’s operation. *Id.* at *8. In other words, although the presence of the ASIC may allow the motor to do its job more efficiently and accurately, and in some cases more safely, the ASIC’s principal function is nonetheless to assist in moving the damper blades.² Classification of Belimo’s

² Belimo criticizes the Court of International Trade for relying on *Nidec Corp. v. United States*, 68 F.3d 1333, 1336-37 (Fed. Cir. 1995). Belimo attempts to distinguish the case on the ground that its products automatically perform a measurement and control function, whereas the motor in *Nidec* did not. However, as in *Nidec*, the “basic character” of Belimo’s product is a motor with an additional component—the ASIC—that improves its precision. Thus, its principal function is still that of an electric motor. *See Opinion*, 2013 WL 6439119, at *8.

products as motors under Heading 8501.10.40 is therefore proper.

CONCLUSION

For the aforementioned reasons, we affirm the judgment of the Court of International Trade.

AFFIRMED