

# Applied directive 2014/35/EU

## Low Voltage Directive to Memmert – Appliances

Ladies and gentlemen,

If a manufacturer (Memmert GmbH + Co. KG in this case) has designed and manufactured their product in accordance with the German Product Safety Act and their applicable directives (in this case, directive 2014/35/EU), the user can assume that this product meets the essential requirements of that directive (directive 2014/35/EU and its harmonised standards).

### Scope of Directives

Paragraph “§ 90 Specific EU legislation that apply instead of the Machinery Directive to machinery that is in their scope” states that

„The Low Voltage Directive is a comprehensive health and safety Directive, dealing with all risks, in accordance with Article 3, the MD is thus not applicable to machinery that is within the scope of the LVD.” [a]

Directive 2014/35/EU (or hereafter “LVD” ) refers to “electric equipment”. The term “electric equipment” is not defined in the LVD and therefore must be interpreted according to its internationally accepted meaning. The “International Electrotechnical Vocabulary” published by the International Electrotechnical Commission (IEC) defines the term as follows:

*„item used for such purposes as generation, conversion, transmission, distribution or utilization of electric energy, such as electric machines, transformers, switchgear and controlgear, measuring instruments, protective devices, wiring systems, current-using equipment”[b] [c]*

The scope of directive 2014/35/EU, clearly defined in art. 1(2), is crucial for manufacturers. It means that the directive applies “to electrical equipment designed for use with a voltage rating” if the products fall into the range

- ▶ between 50 and 1000 V for alternating current and
- ▶ between 75 and 1500 V for direct current

with their power consumption.

### Categorising Memmert Products

Memmert manufacturer categorisation – products (series: heating and drying ovens, incubators, climate chambers, waterbaths and oilbaths) with a voltage limit of 115V, 230V or 400V respectively (depending on the product) are to be categorised as low-voltage switchgear and controlgear within the scope according to art. 1 of the LVD. This excludes products ICP, ICPeco, ICH, ICHeco, CTC, TTC, WPE and all medical devices.

The conversion of electrical energy with Memmert measuring, steering and control technology products are within the voltage limits in the LVD that must be complied with (see above). According to this, the appliances foreseen by the machinery definition under art. 2a and art. 1(2)k of the Machinery Directive (2006/42/EC are excluded.

There are no other regulations within the standard harmonised for the Machinery Directive that explicitly apply to laboratory heating appliances. The range of standards EN 61010 that applies to

laboratory heating appliances is considered a harmonised standard that, in turn, is listed in the LVD. By applying the series of standards mentioned above, it stands to reason that there is likewise no categorisation in the Machinery Directive at this point.

Furthermore, the paragraph “§ 68 Low-voltage switchgear and control gear” confirms that

*„Low voltage switchgear and control gear referred to in the fifth indent of Article 1 (2) (k) are devices for making and breaking the current in electrical circuits and associated control, measuring and regulating equipment for the control of electrical energy using equipment.*

*Such equipment is not subject to the Machinery Directive as such.” [a]*

Most low-voltage electric motors (50-1000V AC or 75-1500V DC) are excluded from the scope of the Machinery Directive and are subject to the Low Voltage Directive 2014/35/EU, as long as they are not subject to the ATEX Directive 2014/34/EU (art. 1(2)k – fifth indent).

Furthermore, the Machinery Directive refers to the exclusion of electric motors in § 69 “Electric motors” if:

*„An electric motor is a device for converting electrical energy into mechanical energy. The exclusion applies to the motor itself without a specific application and without additional mechanical elements of a drive system.*

*The exclusion also applies to low voltage electric motor-generators which are similar devices for converting mechanical energy into electrical energy.” [a]*

## Fan Appliance Component

Appliances without recirculation fans fall under the Low Voltage Directive. Appliances with recirculation fans then fall under the Machinery Directive, if the manufacturer or supplier of the components (in this case, the fan) has declared them to be a machine or an incomplete machine according to Directive 2006/42/EC.

From art. 1 § 7 “Do components also fall within the scope of the directive?” it can additionally be assumed that

*“for other electrical components that are designed to be installed in other electrical operating equipment and for which a thorough safety assessment has been carried out, e.g. transformers and electric motors, the directive (LVD) applies and the CE label must be affixed to it.”\* [c]*

Following an inspection by the supplier of their displayed, publicly accessible declaration of conformity (manufacturer’s declaration of conformity) for supplied components (in this case, the fan), these are clearly provided with the directive 2014/35/EU and the wide-reaching conformity is confirmed. Thus, the suppliers have designed and manufactured their components in accordance with the LVD. Their components can therefore not be categorised in the Machinery Directive or as incomplete machinery according to 2006/42/EC.

The review of supplied components (in this case, fans) for product CE labels from the respective contractually regulated suppliers for conformity assures suppliers with the “CE” test symbol affixed to the label of each product that the components were designed and distributed in accordance with the LVD. By complying with the directive (on the part of manufacturers and suppliers), the Machinery Directive, likewise, does not apply at this point.

\*Analogous, own translation of the German source

The base product series of waterbaths and oilbaths falls under the LVD, as they do not contain moving parts.

Memmert appliances with recirculation fans fall under the LVD, as the recirculation system is enclosed and cannot be touched. From § 212 Moving parts, it can be assumed that eliminating the risks ensures that

*„Moving parts can be located in places where they are normally inaccessible to persons, such as, for example, inside the frame of the machinery, at a sufficient height or at a sufficient distance from protective structures to ensure that they cannot be reached.*

*Sufficient gaps can be provided between moving parts and fixed parts or other moving parts to prevent the risks of crushing, shearing or drawing in.*

*Where it is not possible to prevent risks due to moving parts by the design of the parts themselves or by means of safety distances or gaps, access to such parts must be prevented by means of guards or protective devices. [a]*

## Expanded Safety Tests

In addition to compliance with standards, a test led by an expert must be performed with the “standard test finger” for the manufactured appliances. The separation between “grid” and a protective enclosure of the recirculation fans is what makes the appliance compliant with the LVD standard in the requirements above. Thus, by applying the above standards, it is ensured that mechanical hazards (such as stability, safety) have been taken into account as well as other tests for the GS symbol (applied for VDE-tested appliances).

## Trade Supervisory Board

Impartial third parties (Trade Supervisory Board, Middle Franconia) have confirmed that the classification of appliances by the manufacturer into the LVD is correct and illustrated by this document.

## Conclusion

In conclusion, it can be summarised that in complete compliance with the standards stated by the European Commission, the Memmert productions named above have been categorised into the Low voltage directive 2014/42/EU, and the declaration of conformity for the defined appliances has been made on the basis of the low voltage directive.



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**Source reference:**

[a] [https://www.ibf.at/fileadmin/Dateidownloads/Guide\\_to\\_application\\_of\\_the\\_Machinery\\_Directive\\_2006\\_42\\_EC\\_V2.1.pdf](https://www.ibf.at/fileadmin/Dateidownloads/Guide_to_application_of_the_Machinery_Directive_2006_42_EC_V2.1.pdf)

[b] <http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=826-16-01>

[c] Federal Ministry of Labour and Social Affairs (2016). Guideline – Electrical equipment designed for use within certain voltage limits – 2014/35/EU. (2). (I.-P. BMAS, pub., & Federal Ministry of Social Affairs, editor) Berlin: European Commission. Retrieved on 09/2019 by: [https://www.bmas.de/SharedDocs/Downloads/DE/Thema-Arbeitsschutz/leitfaden-zur-richtlinie-2014-35-eu.pdf?\\_\\_blob=publicationFile&v=1](https://www.bmas.de/SharedDocs/Downloads/DE/Thema-Arbeitsschutz/leitfaden-zur-richtlinie-2014-35-eu.pdf?__blob=publicationFile&v=1)

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