



















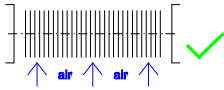
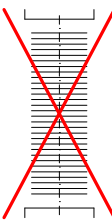
Safety relevant signs on the resistor unit	
	Warning sign indicating an area with hot surface
	Warning sign indicating an area with dangerous electric voltage.
	Prohibition sign indicating an area that may not be stepped on.



Safety relevant terms in this documentation	
	This heading is used if incorrect or non-compliance with the following instructions may cause severe or lethal <b>injuries</b> .
	This heading is used when incorrect or non-compliance with the following instructions may cause <b>damage</b> to the machine and/or system.
	This heading is used when attention is drawn to a <b>particularity</b> and/or a <b>work instruction</b> is given.



General safety information	
	In compliance with other, not specifically highlighted, instructions for transport, installation as well as technical data (in the operating and maintenance instructions and on the machine itself) is likewise essential to avoid malfunctions which in turn might directly or indirectly cause severe personal injury or property damage.
	The electric equipment described herein is for use in electrical systems. During operation, this equipment has bare parts which are live. Wrong connection, unauthorized removal of the necessary covers, improper use, incorrect operation or insufficient maintenance, e.g. due to incorrect connection, could lead to severe personal injury or property damage.
	Those responsible for the safety of the installation may exclusively entrust qualified persons with work on the equipment. These persons must always have at their disposal the operating and maintenance instructions supplied together with the equipment when doing such work and undertake to consistently follow these instructions. <b>Qualified personnel</b> are persons who, on account of their training, experience and instruction as well as their knowledge of relevant standards, specifications, accident prevention regulations and operating conditions, have been authorized by the person responsible for the safety of the system to carry out the necessary work, and who can identify and avoid any potential danger. Knowledge of first aid is also required. The stipulation that only qualified personnel may work on medium/high voltage systems is included in the standard DIN VDE 0105, for example.
	You must ensure that basic planning work for the installation and all work concerning transport, assembly/disassembly, start-up, maintenance and repair is done by qualified personnel and/or checked by responsible skilled experts.  Particular note must be taken of the following: <ul style="list-style-type: none"> <li>the technical data and information on permissible use (assembly/disassembly conditions, connection conditions, ambient and operating conditions) which are listed in the catalog, order documents, operating and maintenance instructions, name plate and other product documentation, among others,</li> <li>the general installation and safety instructions,</li> <li>the local, plant-specific regulations and requirements,</li> <li>the proper use of tools, lifting gear and transport devices,</li> <li>the use of personal protection equipment,</li> <li>the obligation of those in charge to instruct their employees in safety matters as stipulated by VBG 4 § 7 and § 8 of the German DIRECTIVE ON ACCIDENT PREVENTION and § 20 of the German HAZARDOUS GOODS ORDINANCE when using substances that may constitute a hazard for personal health or the environment (e.g. cleaners or lubricants, glues, paints, etc.). For detailed data on specific products, please refer to the manufacturer's respective "Safety Data Sheet".</li> </ul>
	For reasons of clarity, these operating and maintenance instructions cannot claim to cover all details of possible equipment design variations, nor in particular can they provide for every possible example of installation, operation or maintenance. This means that the operating and maintenance instructions essentially only contain those directions required for a qualified expert (see above) when the equipment is applied for its intended use in industrial applications.  In case of uncertainties, lacking product-specific detailed information, the necessary clarification must be obtained through GINO AG in Bonn. To this effect, the equipment type and serial number must be indicated as a rule.
	For general tasks, like check of incoming deliveries (transport damage), long-term storage and preservation of equipment and others, further details have to be coordinated with GINO AG.  It should be noted that the contents of the operating and maintenance instructions are not part of, or modify, any prior or existing agreement, commitment or legal relationship. The respective sales contract contains any and all obligations of GINO AG in Bonn and also specifies the complete and exclusively applicable warranties. This contractual warranty is neither extended

General installation information	
	To avoid possible confusion, please check the delivery note against your purchase order and then against the data on the name plate of the starting resistor.
	Deviations from standard operation (higher power consumption, temperatures or vibrations, unusual noise or smells, etc.) indicate that the function may be impaired. In such cases the maintenance staff in charge must be informed without delay to avoid malfunctions which in turn could indirectly cause severe damage to persons or property!  In case of doubt, immediately switch off the corresponding operating devices.  During operation, do not remove or open covers which prevent contact with moving or live parts. (Section 1.2. "General safety information")

Mechanical installation	
	Final installation must be done, either on flat foundation or on steel framework. In case of installed sheets to protect air in- or outlet during transport, the y must be opened. Further the air outlet cowlings must be mounted if applicable. For fixing the resistor unit is fitted with several fastening holes. For installation use suitable tools and mounting material.  To operate the resistor unit take care for adequate cooling air supply and air outlet. Hot outgoing air must be able to exhaust without thermal influence to the air inlet.
	In case of special installation condition, because of non industrial use (e.g. danger of touching by children fingers) additional protection must be provided by client on site
	Resistor banks according to IP00 (without enclosure) must be protected against accidental contact by suitable arrangements on site. Resistor similar to IP20 / IP23 but without bottom plate must be installed on closed floor to provide the degree of protection.

Installation position with natural convection	
	<div> <p>In case of air natural cooling air must be able to flow through the vertically mounted resistor elements without any handicap. It is not allowed to install the resistor banks with elements in horizontal position. To avoid cables in the hot area, arrange the resistor banks with their terminals in suitable position. Where necessary heat resistant cables should be used.</p> </div> <div>  </div> <div>  </div>

Electrical installation	
	During installation, maintenance or repair work on electrical equipment, ensure neither danger to people nor bad influence to the facilities will occur.
	At first take care for the 5 Safety Rules: <ol style="list-style-type: none"> <li>1. Disconnect mains</li> <li>2. Prevent reconnection</li> <li>3. Test for absence of harmful voltage</li> <li>4. Ground and short circuits</li> <li>5. Cover or close of nearby live parts</li> </ol>

Operational behavior	
	Starting resistors are components with preset parameters. The resistor is ready for operation after installation and connection. No modification is possible or necessary during start-up and operation.
	Although the resistor blocks are cleaned before installation, oil residues from manufacture may remain on the resistor elements. During the first start-up and as a result of the heating up of the resistor this may briefly cause smoke and malodors.