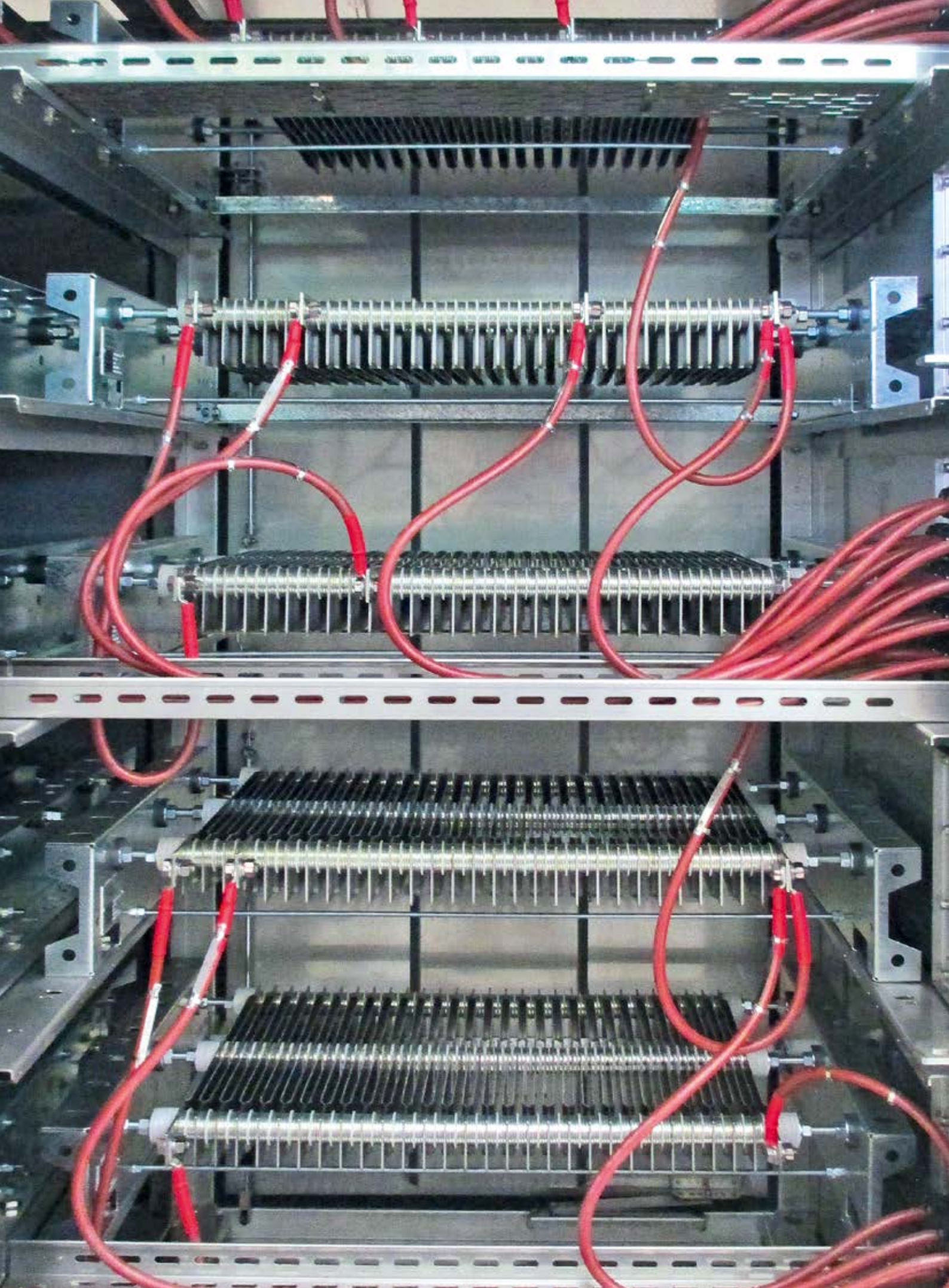


Rotor Resistance Starters





With over six decades of design, manufacturing and supply **Kounis Metal Industries** Pty Ltd has changed its name to **Kounis Group**. The change of name represents the broadening of our portfolio with greater diversification of products and services across all sectors of the business.

Our core belief and objective is to provide products and services of a quality which exceed customer expectations in respect to quality, performance, safety and price. This is reinforced by the positive growth of our core business whilst expanding into areas of new growth with the design and manufacture of transportable electrical switchrooms.

The Kounis Group Head Office is located in Western Australian and is also the location of its main manufacturing plant. In addition the group has several supporting workshops and warehouses located in Perth. The Kounis Group has a well-established large sales and warehousing facility in Melbourne to service the East Coast of Australia which carries comprehensive stocks of cable supports and standard products.

The Kounis Group is quality assured to ISO 9001 and prides itself on the quality of its

products and services, along with its dedicated highly experienced equal opportunity workforce. With large stocks of standard products all of which conform to Australian Standards and an ability to manufacture and provide services in a minimum time frame the Kounis Group is able to offer unparalleled service levels across all areas of business.

Manufacturing and Shipping Worldwide

- Precision and General Sheetmetal Work
- Electrical Switchboards
- Cable Support Systems
- Transportable Switchrooms
- Light to Medium Fabrication
- Rotor Resistance Starters
- Mining Enclosures
- Packaged sub-Stations
- CNC Turret Punching /Laser Cutting and Folding
- De-Watering Skids
- Architectural Screens and Perforating
- Switchboard Service Maintenance and Audits

Managing Director

Dave Kounis

November 2016

Health, Safety, Environment and Quality (HSEQ) Policy

The Kounis Group considers Health, Safety, Environment and Quality (HSEQ) an integral part of the company's business vision and values. Our objective is to provide, with the assistance of our people, a workplace that protects the safety and health of its employees, contractors, customers and visitors, whilst producing products and services of an outstanding quality.

The Kounis Group utilises its development and implementation of a documented and systematic HSEQ management system that includes the establishment of HSEQ business standards and supporting procedures, practices, guidance and information. A key aspect of this approach will involve the adoption of risk management for identifying, assessing, controlling and monitoring all areas of the business's operations. In maintaining this commitment, we have developed a Quality Assurance System (QAS) which incorporates all aspects of HSEQ, including objectives, targets and key performance indicators, all of which are utilised to enable continual improvement of operations.

Objective

The Kounis Group will provide products and services of a quality which conform to customer requirements and consistently exceed our customer's needs and expectations. To achieve this, we have implemented a Quality Management System which conforms to ISO 9001. The Kounis Group aims to strive towards continuous improvement in products and services for our customers by providing the appropriate training, resources (both internal and external), equipment, training, support and reference materials to ensure its HSEQ objectives are met.

Management Responsibilities

The Managing Director is ultimately responsible for HSEQ management and compliance throughout the company. All managers, supervisors and leading hands are responsible for work areas under their control. HSEQ procedures are in place and observed, and for communicating and implementing the necessary information and guidance to achieve the company's objectives. Managers, supervisors and leading hands are expected to continuously promote and maintain a high standard of quality and safety in their respective work areas and to lead by example and encourage involvement of employees.

Employee Responsibilities

Employees are responsible for actively participating in the HSEQ management system requirements. This includes working in a safe and healthy manner, participating in training, complying with company procedures, instructions and directions. And not adversely affecting the safety of fellow employees, contractors, customers and visitors, reporting of hazards or incidents, and ensuring the quality of both product and service.

Communication

The Kounis Group, through our consultative process, encourage two-way communication, cooperation and involvement of management, employees, contractors and customers in the ongoing development of our HSEQ management system (QAS).

Managing Director

Dave Kounis

November 2016

Introduction

The Kounis Group Rotor Resistance Starters are assembled from components accurately manufactured using latest CNC technology, which ensures uniformity and interchangeability.

The starter consists of a control cubicle and resistor cubicles solidly mounted on a sturdy galvanised base frame all under a single roof. A splitter cubicle for dual drives can also be incorporated within the main assembly and this adjoins the control cubicle.

The roof consists of a pitched overhanging canopy which affords protection from the sun and rain whilst perforated infills in the canopy overhang and base of starter cubicles allow for maximum passive air circulation for generated heat on start up. The starter requires no forced ventilation to dissipate generated resistor heat, thus reducing maintenance costs. The robust and simple design also reduces maintenance and repair costs compared to solid state starters.



“designed and type tested by a NATA accredited laboratory and manufactured to cope with the harsh extremes of the North West Mining environment”

Construction

The Rotor Resistance starter cubicle, roof canopy, doors and mounting pans are constructed from 2mm 316 grade stainless steel with an industrial random orbital sand finish and come standard with white powder coated mounting pans in the control section. Additionally an option of 2mm Zinc- Seal construction can be offered with a choice of paint specifications to suit the installed environment or client colour request.

Incoming and outgoing cables are bottom entry through large 5mm thick aluminium gland plates mounted at the base of the control and splitter cubicles.

Lifting eyes are located at the top of the gable roof and provide for complete starter lifting or roof canopy removal only.

The base frame is constructed from 150 x 75 mm steel channel which is Hot Dip Galvanised after manufacture and offers a segregation gasket when paired with the 2mm 316 grade stainless steel option for protection against galvanic corrosion due to contact of dissimilar materials.

The Rotor Resistance Starter cubicles are designed and type tested by a NATA accredited laboratory and manufactured to cope with the harsh extremes of the North West Mining environment.

The Rotor Resistance Starters are built to the following Australian Standards and ratings,

AS 3439.1:2002 Switchgear and Control Assemblies

AS 1939-2004 Degree of Protection

AS 3000-2007 Wiring Rules

60529-2004 IP65-Contactor Cubicle / IP23-Resistor Cubicle

AS1170.2-2002 Cat. 1, Region D severe Tropical Cyclonic Wind Loading



E.&O.E.

Safe Operation

- Pitched overhanging roof affords protection from the elements and minimises dust build up.
- Doors fitted with sturdy door stays for safe use in windy conditions.
- Control cubicles fitted with door switch operated fluorescent lighting.
- Opening or removal of doors necessitates the use of a key or tool for safety purposes.
- Safety interlocking to suit customer requirements.
- Manufactured and engineered to Category 1, Region D severe Tropical Cyclonic Wind Loadings.



Certification and Testing

A 3.3kv 800kw Kounis Group Rotor Resistance Starter was successively type tested for allowable resistance variation and temperature rise limits at Testing & Certification Australia on the 3rd of March 2003.

The full test report (No. 101636) is available for viewing and is summarised below,

After 3 consecutive tests the following ratings were achieved and are within the following required specifications,

- Maximum absolute grid temperature rise of 377K was measured on resistor grid bank 5, (top grid in white phase tier) during test sequence 3.
Maximum absolute grid temperature = $(377K + 25.9^{\circ}C) = 403^{\circ}C$.
- Maximum internal air temperature rise of 252K was measured above the resistor grids in Red phase tier during test sequence 3.
Maximum absolute air temperature = $(252K + 25.9^{\circ}C) = 278^{\circ}C$.
- Maximum increase in total resistance after 3 consecutive starts = 3.2%.

E.&O.E.



ABN 43 008 701 335

Western Australia

84 Norma Rd Booragoon WA 6154

Ph: 08 9330 5333

Fax: 08 9330 7772

Email: wasales@kounis.com.au

Freecall: 1300 KOUNIS

Victoria

40 Glenbarry Rd Campbellfield Vic 3061

Ph: 03 8339 3800

Fax: 03 8339 0785

Email: vicsales@kounis.com.au

www.kounis.com.au



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