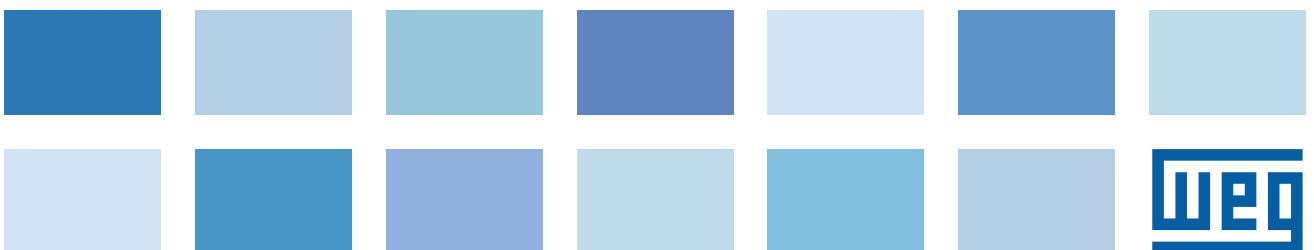




## WEG 4.3MW Fan Motors for SCR Plant at Ratcliffe-on-Soar Power Station



# Eight 4.3MW fan motors from WEG drive emission reducing SCR plant at Ratcliffe-on-Soar power station

E.ON has guaranteed the future viability of its Ratcliffe-on-Soar coal fired power station by installing a new selective catalytic reduction (SCR) emission control facility to reduce emissions. Driving the SCR process, which uses ammonia to neutralise Nitrogen Oxide (NOx) in exhaust gases, are eight highly efficient WEG 4300kW MGF710 Motors.

The move to cleaner running at Ratcliffe is required to comply with the government's Large Combustion Plant Directive (LCPD) regulations, intended to reduce emissions from UK coal and oil-fired power stations. Those stations that do not comply were allowed to opt-out and then limited to 20,000 operating hours between 2008 and 2015, before being closed down.

Meeting the first stage of reducing emissions at Ratcliffe required a Flue Gas Desulphurisation or FGD plant that removes Sulphur Dioxide gas before it is released into the atmosphere. It is based on a chemical reaction between warm exhaust gases from the coal-fired boiler and atomised limestone slurry which removes 92% of the sulphur

dioxide from the flue gas and converts the limestone into Calcium Sulphite. This process already includes two 750kW WEG MGF pump motors.

The second stage of compliance requires all plants to reduce nitrogen oxide (NOx) emissions from below 500mg/m<sup>3</sup> to below 200mg/m<sup>3</sup> by 2016. The SCR equipment injects ammonia into the exhaust stream which reacts with the gas and converts the NOx into nitrogen and water, which are far more neutral by-products from an environmental point of view. The process is used widely in both Germany and Japan, reducing the NOx emissions by 80-90% in the process.

The project to install the SCR system between the boiler house and existing extraction system required the use of Europe's largest mobile crane and cost approximately £200 million. Considering the high level of investment and the continuous nature of the process, reliability and efficiency were of paramount importance when specifying the main fan drive motors. Since the FGD plant has already been driven by WEG machines, proving



their reliability on this site, WEG was an ideal candidate for supplying the fan motors for the new SCR process.

Ratcliffe Power Station is recognised as one of the most efficient coal fired power stations in the UK and with the WEG motors delivering a confirmed 97.6% at peak efficiency they can only add to this reputation. Each fan motor is inverter driven and required to create movement in the flue gas to force it through the SCR process, before being passed through the FGD plant.

Chris Bennett: “Any power we consume on-site has to be generated and represents a significant cost to the site, although we produce up to 2000MW from our four main turbines, that equates to 20,000 tonnes of coal per week and any efficiency we gain from the operational plant is passed-on to our overall site efficiency, which is a key performance indicator and something we take very seriously.’

WEG is also providing availability / reliability guarantees with the motors, which are fully supported by WEG,

providing both the project specifiers and the maintenance teams with ultimate peace of mind.

‘Unplanned downtime is also something we try to avoid wherever possible as we have power demands to meet and costs to control. The reliability of the WEG machines has been proven on other areas of the plant and also on other large applications around the UK and the rest of the world; that, plus availability, good technical support in the UK and competitive pricing meant we were confident about approving WEG as a supplier on this project.’

WEG’s HV and MV motors are used on power stations, printing presses, oil & gas platforms, refineries, minerals processing sites and other heavy industrial applications around the world. They have a reputation for being well engineered, quiet and highly efficient. Built-to-order, but also available on short lead-times large machines from WEG offer flexibility in terms of dimensions, poles, voltages power output, lubrication, control and cooling.



## **E.ON Ratcliffe-on-Soar power station**

The Ratcliffe site has a generation capacity of 2,000 MW from four 500 MW units, enough to meet the needs of approximately 1.5 million homes. The site covers 700 acres and has been producing electricity for over forty years.

Ratcliffe Power Station takes its environmental responsibility extremely seriously, ensuring that its impact on the surrounding area is kept as minimal as possible. Large numbers of native trees and shrubs have been planted and a biodiversity action plan exists to enhance the ecological value of the land.







## **WEG MGF HV and MV motors**

WEG motors provide an ideal solution for multi-megawatt applications as they deliver outstanding performance, reliability and safety in the most arduous of operating conditions. The motors are designed to be compact and robust, using precision fabricated housings and high purity copper windings. The windings are sealed using a specialist Vacuum Pressure Impregnation (VPI) system and a specially formulated WEG epoxy based resin which guarantees high quality insulation and stator protection.

Operating temperature is crucial to both the efficiency and the longevity of electric motors - high electrical efficiency relates directly to better thermal efficiency and so the WEG units already have an advantage. They also employ a combination of

internal cooling circuits and high efficiency cooling fans to guarantee an optimum temperature is maintained within the motor, even under full load. High quality commutation components and top quality bearings combine with extremely precise balancing procedures to ensure that the motors deliver smooth, quiet running over a long operational life.

As a global manufacturer, technical support is provided by both WEG in the UK and from its factories around the world. WEG distributors also supplement dedicated WEG LV and MV technical support teams. From an environmental perspective, WEGs production is powered to a large extent by renewable power sources and so the carbon footprint for a WEG electric motor is typically even lower than its inherent efficiency dictates, adding further to its green credentials.



# WEG Worldwide Operations

## ARGENTINA

San Francisco - Cordoba  
Phone: +54 3564 421484  
[info-ar@weg.net](mailto:info-ar@weg.net)

Cordoba - Cordoba  
Phone: +54 351 4641366  
[weg-morbe@weg.com.ar](mailto:weg-morbe@weg.com.ar)

Buenos Aires  
Phone: +54 11 42998000  
[ventas@pulverlux.com.ar](mailto:ventas@pulverlux.com.ar)

## AUSTRALIA

Scoresby - Victoria  
Phone: +61 3 97654600  
[info-au@weg.net](mailto:info-au@weg.net)

## AUSTRIA

Markt Piesting - Wiener  
Neustadt-Land  
Phone: +43 2633 4040  
[watt@wattdrive.com](mailto:watt@wattdrive.com)

## BELGIUM

Nivelles - Belgium  
Phone: +32 67 888420  
[info-be@weg.net](mailto:info-be@weg.net)

## BRAZIL

Jaraguá do Sul - Santa Catarina  
Phone: +55 47 32764000  
[info-br@weg.net](mailto:info-br@weg.net)

## CHILE

La Reina - Santiago  
Phone: +56 2 27848900  
[info-cl@weg.net](mailto:info-cl@weg.net)

## CHINA

Nantong - Jiangsu  
Phone: +86 513 85989333  
[info-cn@weg.net](mailto:info-cn@weg.net)

Changzhou - Jiangsu  
Phone: +86 519 88067692  
[info-cn@weg.net](mailto:info-cn@weg.net)

## COLOMBIA

San Cayetano - Bogota  
Phone: +57 1 4160166  
[info-co@weg.net](mailto:info-co@weg.net)

## ECUADOR

El Batan - Quito  
Phone: +593 2 5144339  
[ceccato@weg.net](mailto:ceccato@weg.net)

## FRANCE

Saint-Quentin-Fallavier - Isère  
Phone: +33 4 74991135  
[info-fr@weg.net](mailto:info-fr@weg.net)

## GERMANY

Türnich - Kerpen  
Phone: +49 2237 92910  
[info-de@weg.net](mailto:info-de@weg.net)

Balingen - Baden-Württemberg  
Phone: +49 7433 90410  
[info@weg-antriebe.de](mailto:info@weg-antriebe.de)

Homburg (Efze) - Hesse  
Phone: +49 5681 99520  
[info@akh-antriebstechnik.de](mailto:info@akh-antriebstechnik.de)

## GHANA

Accra  
Phone: +233 30 2766490  
[info@zestghana.com.gh](mailto:info@zestghana.com.gh)

## INDIA

Bangalore - Karnataka  
Phone: +91 80 41282007  
[info-in@weg.net](mailto:info-in@weg.net)

Hosur - Tamil Nadu  
Phone: +91 4344 301577  
[info-in@weg.net](mailto:info-in@weg.net)

## ITALY

Cinisello Balsamo - Milano  
Phone: +39 2 61293535  
[info-it@weg.net](mailto:info-it@weg.net)

## JAPAN

Yokohama - Kanagawa  
Phone: +81 45 5503030  
[info-jp@weg.net](mailto:info-jp@weg.net)

## MALAYSIA

Shah Alam - Selangor  
Phone: +60 3 78591626  
[info@wattdrive.com.my](mailto:info@wattdrive.com.my)

## MEXICO

Huehuetoca - Mexico  
Phone: +52 55 53214275  
[info-mx@weg.net](mailto:info-mx@weg.net)

Tizayuca - Hidalgo  
Phone: +52 77 97963790

## NETHERLANDS

Oldenzaal - Overijssel  
Phone: +31 541 571080  
[info-nl@weg.net](mailto:info-nl@weg.net)

## PERU

La Victoria - Lima  
Phone: +51 1 2097600  
[info-pe@weg.net](mailto:info-pe@weg.net)

## PORTUGAL

Maia - Porto  
Phone: +351 22 9477700  
[info-pt@weg.net](mailto:info-pt@weg.net)

## RUSSIA and CIS

Saint Petersburg  
Phone: +7 812 363 2172  
[sales-wes@weg.net](mailto:sales-wes@weg.net)

## SOUTH AFRICA

Johannesburg  
Phone: +27 11 7236000  
[info@zest.co.za](mailto:info@zest.co.za)

## SPAIN

Coslada - Madrid  
Phone: +34 91 6553008  
[wegiberia@wegiberia.es](mailto:wegiberia@wegiberia.es)

## SINGAPORE

Singapore  
Phone: +65 68589081  
[info-sg@weg.net](mailto:info-sg@weg.net)

Singapore  
Phone: +65 68622220  
[watteuro@watteuro.com.sg](mailto:watteuro@watteuro.com.sg)

## SCANDINAVIA

Mölnlycke - Sweden  
Phone: +46 31 888000  
[info-se@weg.net](mailto:info-se@weg.net)

## UK

Redditch - Worcestershire  
Phone: +44 1527 513800  
[info-uk@weg.net](mailto:info-uk@weg.net)

## UNITED ARAB EMIRATES

Jebel Ali - Dubai  
Phone: +971 4 8130800  
[info-ae@weg.net](mailto:info-ae@weg.net)

## USA

Duluth - Georgia  
Phone: +1 678 2492000  
[info-us@weg.net](mailto:info-us@weg.net)

Minneapolis - Minnesota  
Phone: +1 612 3788000

## VENEZUELA

Valencia - Carabobo  
Phone: +58 241 8210582  
[info-ve@weg.net](mailto:info-ve@weg.net)

For those countries where there is not a WEG own operation, find our local distributor at [www.weg.net](http://www.weg.net).



WEG Group - Motors Business Unit  
Jaraguá do Sul - SC - Brazil  
Phone: +55 47 3276 4000  
[motores@weg.net](mailto:motores@weg.net)  
[www.weg.net](http://www.weg.net)

