



We Keep
the World
in Motion.

Motors for Cement Industry

Many Facts, why to trust in ELIN Machines



Your motor will be manufactured in..



AUSTRIA ... in one of Europe's most modern motor- and generator manufacturing sites!
A certified quality production!





Mining & Cement

Slip ring motors (and cascade operation) : 600 kW up to 15,000 kW

Squirrel cage motors : up to 35,000 kW

Since 1991 > ~1000 pieces

Industrial Plant Applications

Motor Types & Cooling Method - AIR



CODE	IC411	IC511	IC611	IC01 (IP23)	IC666 *
Motor Type					
Squirrel cage	HKG	HKR/ HRR	HKL/ HRL	HKJ/ HRJ	HK_/ HR_
Slip ring					
Power (based on 4-pole)					
Squirrel cage		8.0 MW	18.0 MW	30.0 MW	30.0 MW
Slip ring	2.2 MW	6.0 MW	12.0 MW	15.0 MW	15.0 MW
Voltage					
Squirrel cage	0.4 – 11.0 kV	0.4 - 15 kV	0.4 - 15 kV	0.4 - 15 kV	0.4 - 15 kV
Slip ring					

* The mentioned examples are a general overview about our products. We certainly will offer customer specific applications and requirements.

Motor Types & Cooling Method - WATER

Code

IC81W
(ICW37A81)



Motor Type

Squirrel cage

HKM/

Slip ring

HRM

Power (based on 4-pole)

Squirrel cage

30.0 MW

Slip ring

20.0 MW

Voltage

Squirrel cage

0.4 -15 kV

Slip ring

Water jacket cooled
(IC3A0W7)



Motor Type

Low Voltage

MKH/

High Voltage

HCZ

Power (based on 4-pole)

Squirrel cage

2.5 MW

Slip ring

1.5 MW

Voltage

Squirrel cage

0.4 -11.0 kV

Slip ring

Motor Types Associated with Cement Projects

Squirrel cage rotor



Surface cooled motors IC411
200 kW up to 2,500 kW



Tube Cooled motors IC511
500 kW up to 8,000 kW



Air Cooled motors IC611
500 kW up to 18,000 kW

Slip ring rotor



Tube Cooled motors IC511
200 kW up to 6,000 kW



Air Cooled motors IC611
500kW up to 12,000 kW

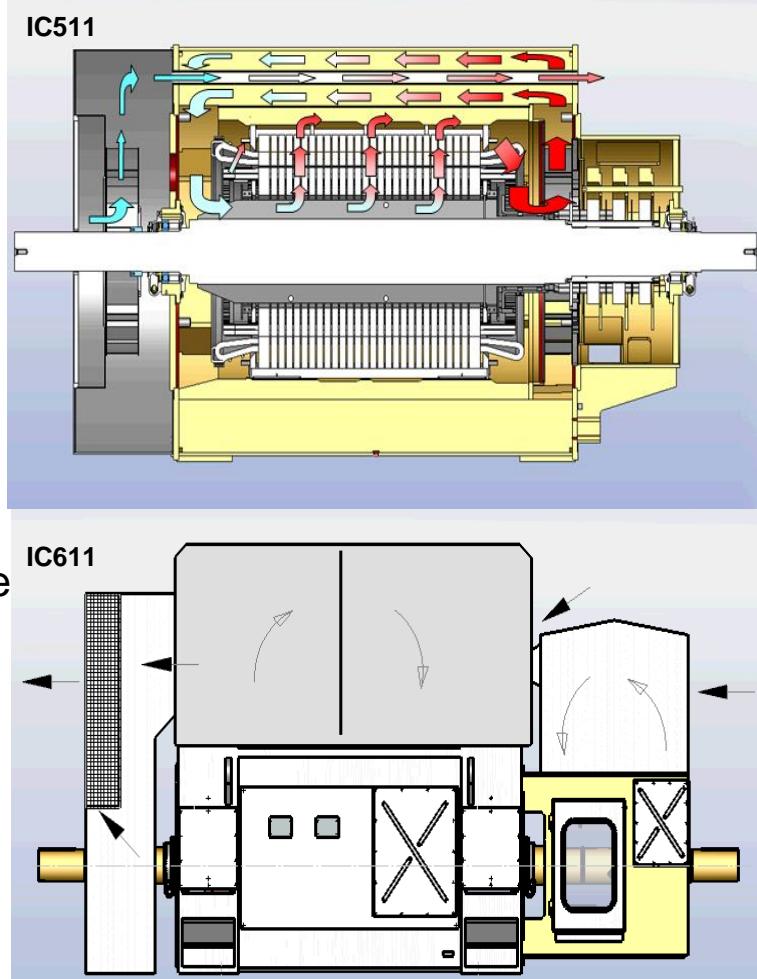


Air Cooled motors IC666
2000kW up to 15 MW

Products adapted to Special Requirements



- Air cooled designs IC511 / IC611 / IC616 / IC666
- Protection stages IP54 / IP55 for optimal dust protection
- Simple cleaning due to cooling method IC511
- VPI insulation system
- Antifriction bearings are designed for a 100,000-hours life
- Second shaft end for a turning gear
- Low vibrations



Products adapted to Special Requirements



- Optimal drive solutions for mills, crushers, fans and pumps
- Mechanically and electrically solid design
- Customer oriented design solutions
- All around drive solutions e.g. frequency inverters, starters ...
- Each motor gets routinely tested on a high standard / customer witnessed tests possible on request
- Fully developed service concept
- On-Site support with machine installation and commissioning



Products adapted to Special Requirements



- Long lifespan (designed for a lifetime of min. 30 years / some reference machines in operation since 60 years)
- Advantages
 - ✓ High availability & reliability
 - ✓ Robust design for external stresses
 - ✓ High efficiency
 - ✓ Lower life cycle costs
 - ✓ High Quality product manufactured completely in Austria
 - ✓ No additional external forced ventilation required
 - ✓ On site conditions considered



Advanced Slip Ring Unit



Permanent contact brushes

- Totally enclosed IP54/IP55 with heat exchangers
- Compact pocket filter system
- Differential pressure measurement to monitor the filter
- Separated from the motor housing
- Easy access and maintenance
- Different enclosures and cooling methods



Brush length up to 100 mm
(expected interval 8,000 h)

Brush lifting devices

After motor achieved full speed, the brush-lifting and slip ring short-circuiting gear, first short-circuits the rotor winding and then raises the brushes from the slip rings.



References



During the last years:

- 205 slip ring motors up to 12,500kW
 - > 1000 squirrel cage motors
- from 4-12 poles for several different plants.

Slip ring motor: 12,500 kW cascade operation

Squirrel cage motors : 21,700 kW; 4-poles; 60Hz; 114kNm (528067);

: 13,500 kW; 10 poles; 217kNM =^ ~33MW 4-poles (526475)

References

Cement Drives



Project: Cimentis Guyanais

Location: Guayana / Brasil

Year: 1971



- Type: Rv 7508n-60
(1527549)
- Power: 880 kW
- Voltage: 5500 V
- Speed: 740 rpm
- Cooling: Air
- Quantity: 1
- Application: Mill
- Highlight: In operation since 1971 without any problems.

Project: Firouzkuh Cement

Location: Iran

Year: 2004



- Type: HRR-010 B06
(525911)
- Power: 3,750 KW
- Voltage: 6.3 kV
- Frequency: 50 Hz
- Speed: 992 rpm
- Cooling: Air cooled
- Quantity: 1 piece
- Application: Cement mill

Project: Kahramanmaraş Cement

Location: Turkey

Year: 2007



- Type: HRR-011 Z06 (526266)
- Power: 5,400 kW
- Voltage: 6,3 kV
- Frequency: 50 Hz
- Speed: 992 rpm
- Cooling: Tube cooled
- Quantity: 3+3 pieces
- Application: Cement mill

Project: **Kavir Kashan**

Location: Kashan, Iran

Year: 2004



- Type: HRR-080B06
(525941)
- Power: 1400 kW
- Voltage: 6.3 kV
- Frequency: 50 Hz
- Speed: 977 rpm
- Cooling: Air cooled
- Quantity: 3 pieces
- Application: Mill

Project: Dyckerhoff

Location: Luxembourg

Year: 2002



- Type: HRR-010 Z06
(525759)
- Power: 2900 kW
- Voltage: 10 kV
- Frequency: 50 Hz
- Speed: 991 rpm
- Cooling: Air cooled
- Quantity: 2 pieces
- Application: Cement Mill
- Highlight: Brush lifting and short circuit device

Project: Lafarge Perlmoser Retznei

Location: Austria

Year: 1965

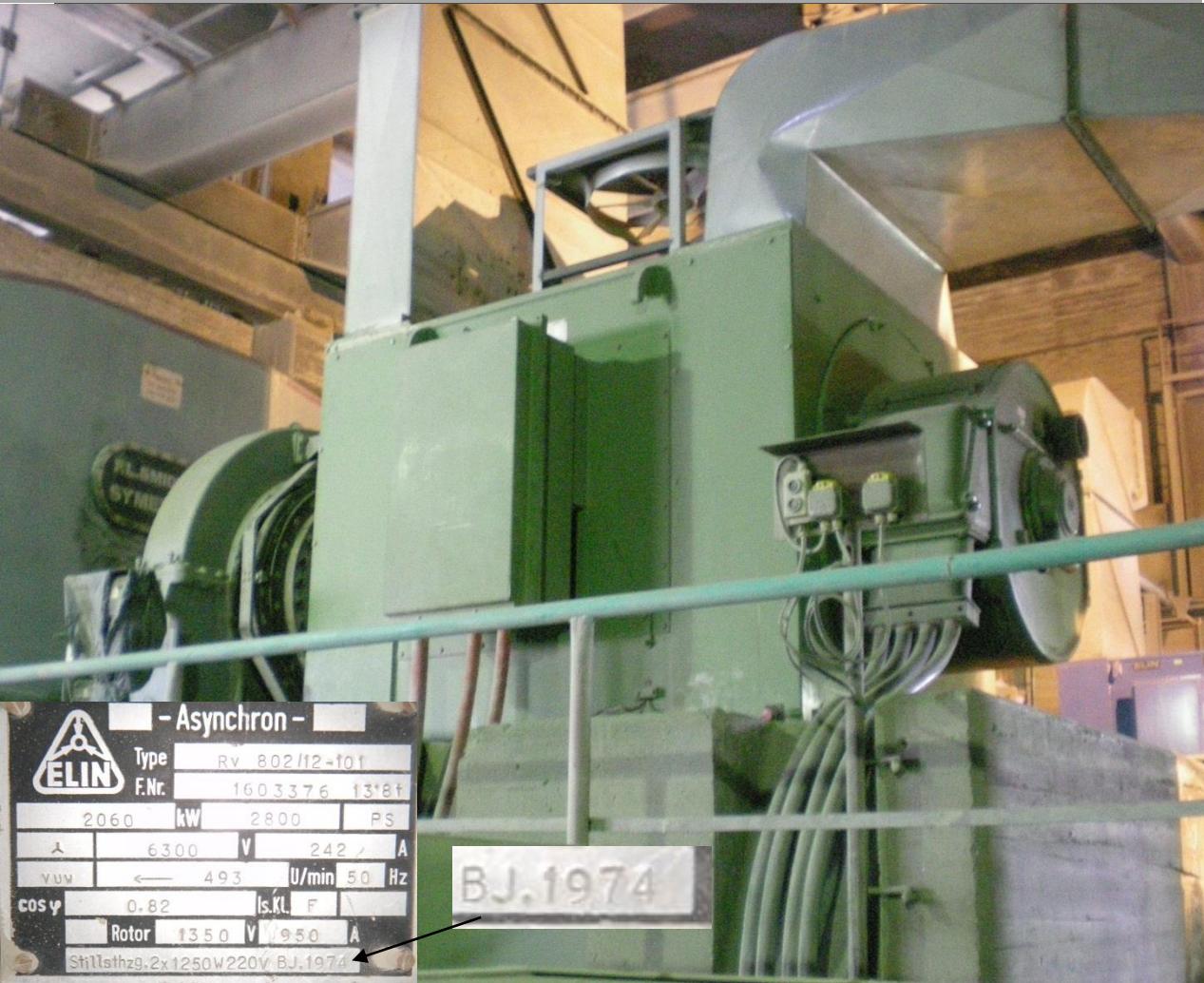


- Type: 46012 – 520
- Power: 1,600 kW
- Voltage: 3 kV
- Frequency: 50 Hz
- Speed: 495 rpm
- Cooling: Air cooled
- Quantity: 1 piece
- Application: Mill
- Highlight: In operation since 1965 without any problem!

Project: FLSmidth

Location: Soufian, Iran

Year: 1974



- Type: RV802/12-101
- Power: 2,060 kW
- Voltage: 6,3 kV
- Frequency: 50 Hz
- Speed: 493 rpm
- Cooling: Air cooled
- Quantity: 1 piece
- Application: Mill
- Highlight: In operation since 1974 without any problem!

Project: Lamerd Cement

Location: Iran

Year: 2008



- Type: HRR-010B06
- Power: 2,900 kW
- Voltage: 6,3 kV
- Frequency: 50 Hz
- Speed: 1484 rpm
- Cooling: Air cooled
- Quantity: All MV Drives
- Application: Raw mill & Crusher
- Highlight: Delivery of all MV & LV drives for Cement plant Successful start up 2011

Project: Scheuch GmbH / Invecem

Location: Venezuela

Year: 2013



- Type: HKL156 E06
- Power: 2850 kW
- Voltage: 6.6 kV
- Frequency: 60 Hz
- Speed: 1192 rpm
- Cooling: Air cooled
- Quantity: 1 piece
- Application: Fan
- Highlight: Operated with frequency converter „Ingedrive“.



Project: **Lafarge**

Location: Austria

Year: 1983

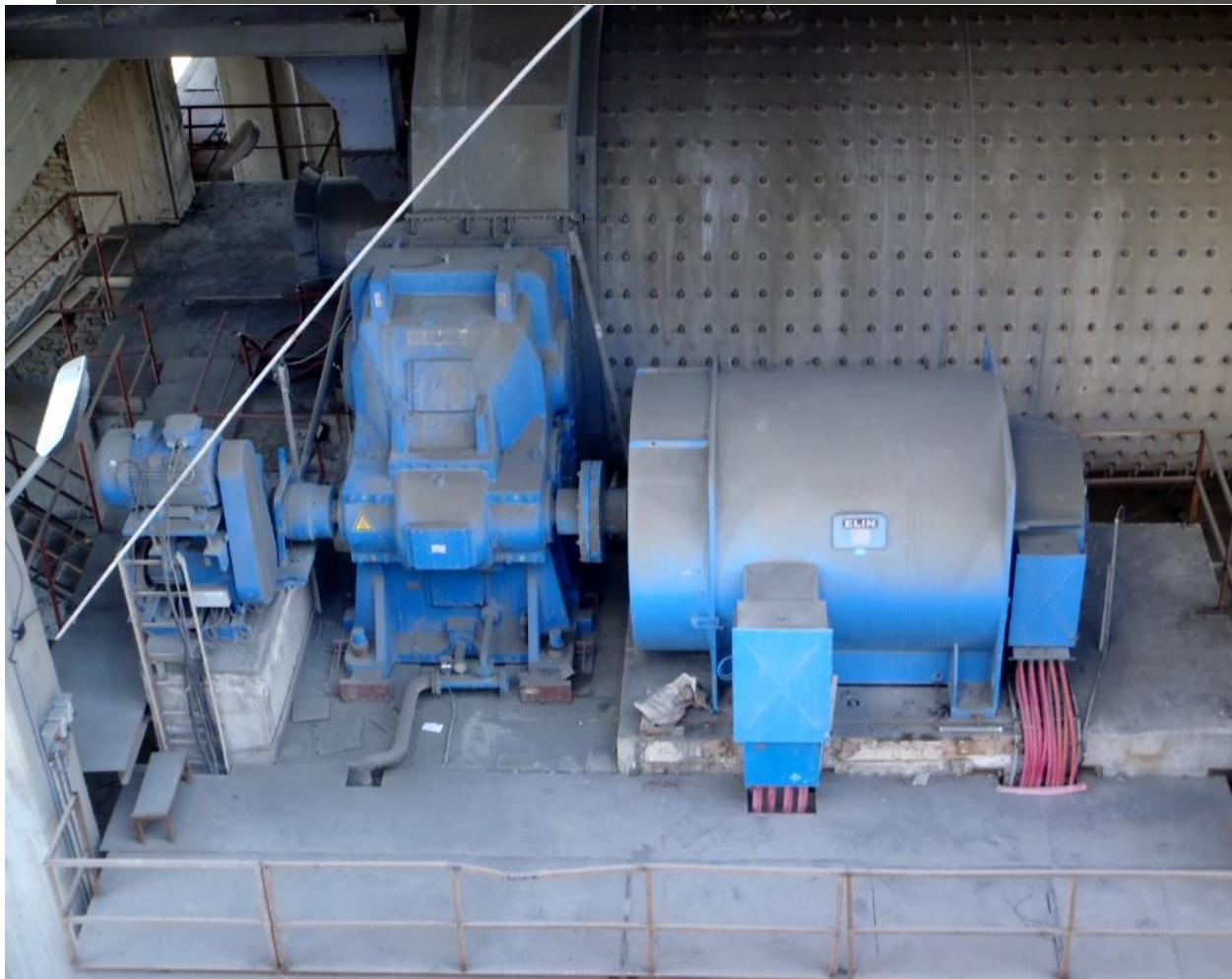


- Type: RR800/06-83
 - Power: 1120 kW
 - Voltage: 3 kV / 6kV
 - Frequency: 50 Hz
 - Speed: 990 rpm
 - Cooling: Air cooled
 - Quantity: 2 pieces
 - Application: Mill
 - Highlight: Slip Ring motor for operation with 3 kV or 6 kV.
- In operation since 1983 without any problem!

Project: Polysius - Hormcem

Location: Iran

Year: 2010



- Type: HRR-011B06 (526730)
- Power: 4900 kW
- Voltage: 6,3 kV
- Frequency: 50 Hz
- Speed: 993 rpm
- Cooling: Tube cooled
- Quantity: 1 piece
- Application: Ball Mill

Project: **Dyckerhoff**

Location: Brasil

Year: 2009

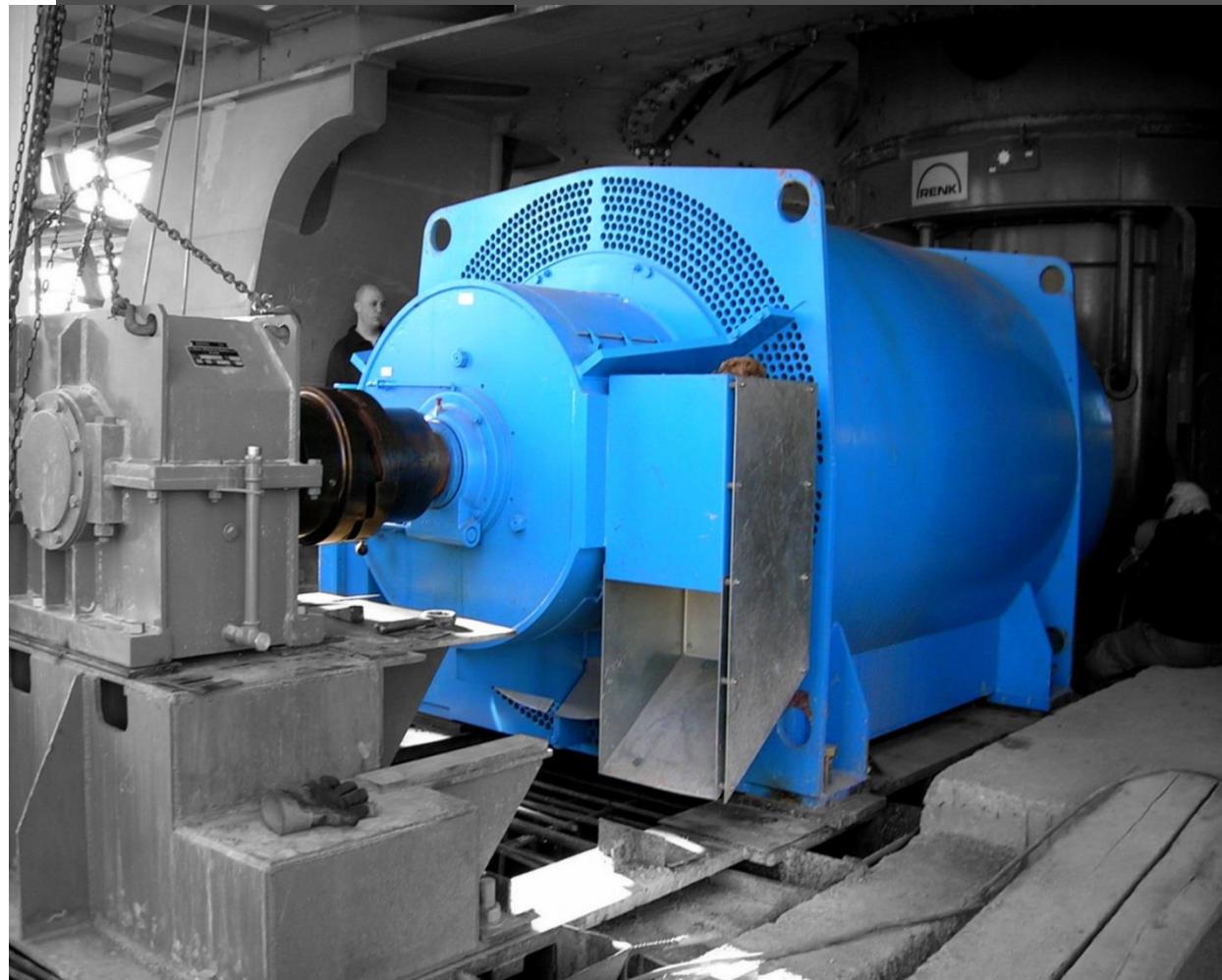


- Type: HRR-010 Z06
(526528)
- Power: 4250 kW
- Voltage: 6 kV & 10 kV
- Frequency: 50 Hz
- Speed: 993 rpm
- Cooling: Air cooled
- Quantity: 3 pieces with 6 kV
3 pieces with 10 kV
- Application: Cement Mill

Project: Sarooj Busher

Location: Iran

Year: 2006



- Type: HRR-010 Z06 (526096)
- Power: 4300 kW
- Voltage: 6300V
- Frequency: 50 Hz
- Speed: 992 rpm
- Cooling: Tube cooled
- Quantity: 1 pc
- Application: Raw Mill
- Highlight: 2nd shaft end for turning gear

Project: Omran

Location: Iran

Year: 2011



- Type: HRL – 056 E06 (52678)
- Power: 2250 kW
- Voltage: 6,3 kV
- Frequency: 50 Hz
- Speed: 991 rpm
- Cooling: Air cooled
- Quantity: 1 piece
- Application: Mill
- Highlight: Duplicate motor for existing drive
Continuous contact brushes
Slip ring room: IP55
P400 filter class G4

Project: **Sinoma- Southern Province Cement Co.**
(Main motors for new line at Tahamah Cement Plant)

Location: Kingdom of Saudi Arabia
Year: 2014



- Type: HKR163B06
(528031)
- Power: 640 kW
- Voltage: 690V
- Frequency: 50,7 Hz
- Speed: 1000
- Cooling: Air (IC511 / tube cooled)
- Quantity: 2
- Application: Seperator Bag Filter Fan
- Highlight: Amb. Temp.: -10/+55°C
VFD operation
IP55 design

Project: **Sinoma- Southern Province Cement Co.**
(Main motors for new line at Tahamah Cement Plant)

Location: Kingdom of Saudi Arabia
Year: 2014



- Type: HRL080Z06
(528034)
- Power: 6300 kW
- Voltage: 13800 V
- Frequency: 60 Hz
- Speed: 1194 rpm
- Cooling: Air (IC666)
- Quantity: 2
- Application: Cement Mill
- Highlight: Amb. Temp.: -10/+55°C

100% overload
4 times / hour

IP55 design

„Plug In“ filter system
for easy maintanance

filter differential
pressure measurement

Project: Conveyor drives

Location: Asia
Year: 2014



- Type: HRR956B04 (528090)
- Power: 1300 kW
- Voltage: 6600 V
- Frequency: 50 Hz
- Speed: 1484 rpm
- Cooling: Air (IC511)
- Quantity: 5
- Application: Conveyor with a length of over 20 km
- Highlights: IP55 design

Project: **Umm Al-Qura Cement Co.**
(Main motors for new line)

Location: Kingdom of Saudi Arabia
Year: 2014



- Type: HRLF080Z08
(528123)
- Power: 6100 kW
- Voltage: 13800 V
- Frequency: 60 Hz
- Speed: 893 rpm
- Cooling: Air (IC666)
- Quantity: 2
- Application: Cement Mill
- Highlight: Amb. Temp.: +4/+50°C
IP55 design
„Plug In“ filter system
for easy maintenance

Project: **Umm Al-Qura Cement Co.**
(Main motors for new line)

Location: Kingdom of Saudi Arabia
Year: 2014



- Type: HKG550J04
(528155 15001-002)
- Type: HKG550H04
(528156 15001)
- Power: 400 & 280 kW
- Voltage: 13800 V
- Frequency: 60 Hz
- Speed: 1788 rpm
- Cooling: Surface cooled (IC411)
- Quantity: 2 & 1
- Application: Pump
- Highlight: Amb. Temp.: +4/+50°C
IP55 design

Contact



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