

**We Keep
the World
in Motion.**

Watercooled motors more than thousandfold approved since 1973



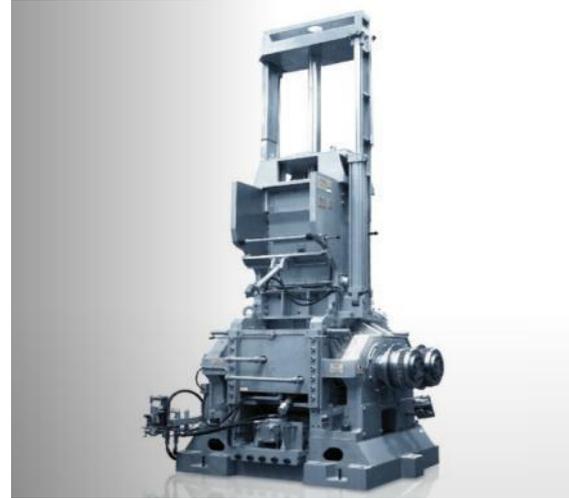
Mining

since 1973 > 1,000 pcs
100 kW – 400 kW



Mixer

since 2004 > 100 pcs.
132 kW – 1,650 kW



Extruder

since 2000 > 3,000 pcs.
50 kW – 2,000 kW



Tunneling

since 1985 > 5,000 pcs.
55 kW – 1,100 kW



Several type of machines

Air Cooled Motors



Surface cooled motors
200 kW up to 2,500 kW



Tube Cooled motors
200 kW up to 8,000 kW



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

Water Cooled Motors



Water Jacket Cooled motors
50 kW up to 2500 kW



Water cooled with heat exchanger
600 kW up to 30,000 kW



Slip ring motors
500 kW up to 15,000kW

Watercooled asynchronous motors MKH8

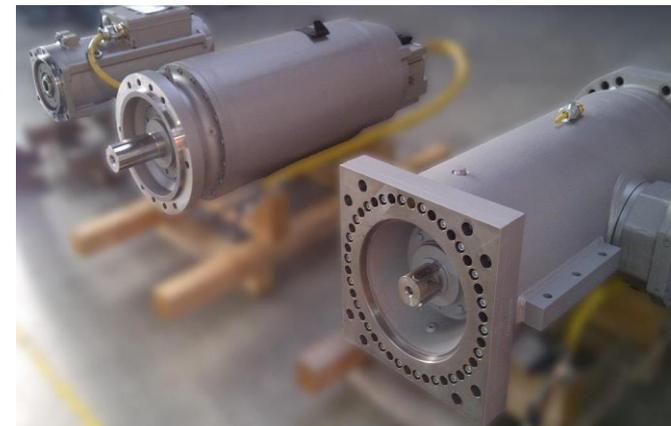


Motor-Type	Frame-Size	No. of poles	Power- and Speed-Range
MKH820A-E	200	4-pole	~1200 ... ~2000 1/min
MKH825A-F	250	4-pole	~1200 ... ~2000 1/min
		6-pole	~800 ... ~ 1500 1/min
MKH831A-F	315	4-pole	~1200 ... ~ 2000 1/min
		6-pole	~800 ... ~ 1500 1/min
MKH835A-F	355	4-pole	~1200 ... ~ 2000 1/min
		6-pole	~800 ... ~ 1500 1/min
MKH845A-F	450	4-pole	~1200 ... ~ 2000 1/min
		6-pole	~800 ... ~ 1500 1/min
MKH850A-E	500	4-pole	~1200 ... ~1800 1/min
		6-pole	~800 ... ~ 1500 1/min
MKH863C-E	630	6-pole	~600 ... ~1500 1/min
		10-pole	~400 ... ~ 800 1/min

30 kW	37 kW	45 kW	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW	250 kW	315 kW	355 kW	400 kW	450 kW	500 kW	560 kW	630 kW	710 kW	800 kW	900 kW	1000 kW	1120 kW	1250 kW	1400 kW	1600 kW	1800 kW	2000 kW	2250 kW	2400 kW
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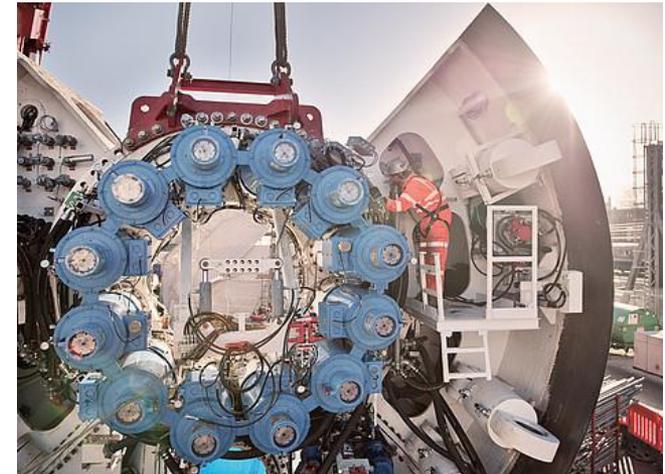
Customer value of fluid cooled motors

- The coolant water exists on the system
- Space and weight reduction due to compact design and omission of the internal fan
- The cooling system allows the operation on a frequency inverter above the complete speed-range (0...maximal speed) without additional cooling device
⇒ requires no external fan as necessary for air-cooled motors
- Considerable decrease of noise and vibration, compared with totally enclosed fan-cooled motors



Customer value of fluid cooled motors

- Waste heat of motor will be carried off by the cooling circulation and has no impact on the encloser surrounding
 - ⇒ expensive systems outgoing air can be avoided
 - ⇒ no additional heating of the machine room
 - ⇒ air condition is not necessary
- Maintenance-free operation
 - ⇒ no wearing parts such as carbon brushes for DC motors
- Winding adjustment to the desired vertex
- Insensitive to contamination and temperature fluctuations in the ambient air



Watercooled asynchronous motors MKH8

General technical description:

- Execution according to: DIN-EN 60034, IEC 60034,
Welded housing, water cooled stator IC 7A0W7
- Type of protection / construction: IP 55/IM 1001 (B3)
Water inlet temp. / pressure: max. 35 °C / max. 8 bar
Voltage / connection: 400 V / D – 690 V / Y
Insulation class: H
- Suitable for the drive with frequency – inverter
(IGBT –technology).
The rated point of the winding (voltage – frequency)
corresponds to necessary torque – speed – characteristic
of the Extruder.
- Motor protection: 3x temperature sensors PTC or 3x KTY
Incremental encoder as option:
e. g. Heidenhain ERN 430 or Hübner POG 10



Comparison in size

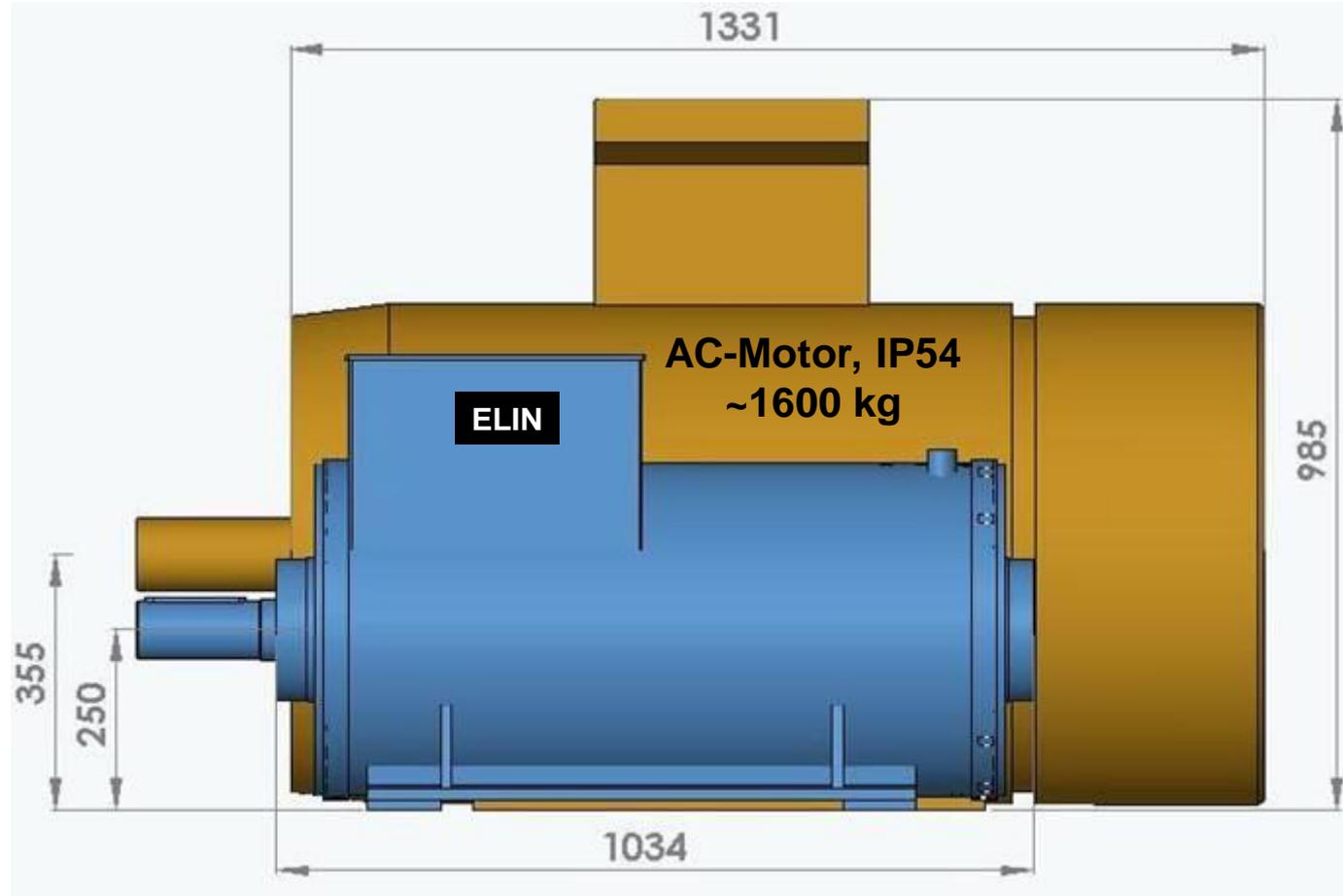
Power Data:

Standardmotor AC:

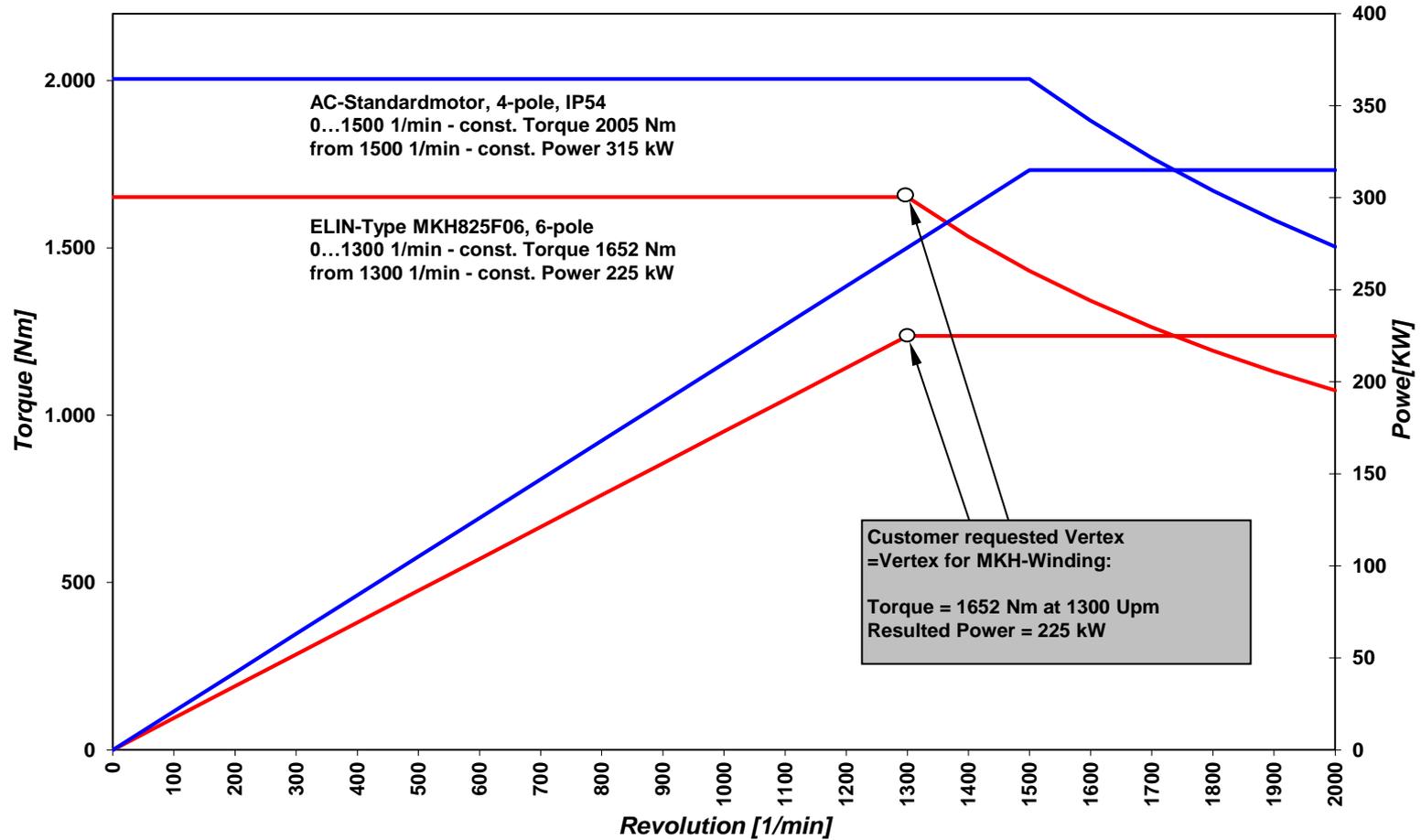
315 kW
2,005 Nm
1,500 rpm

MKH825F06 AC:

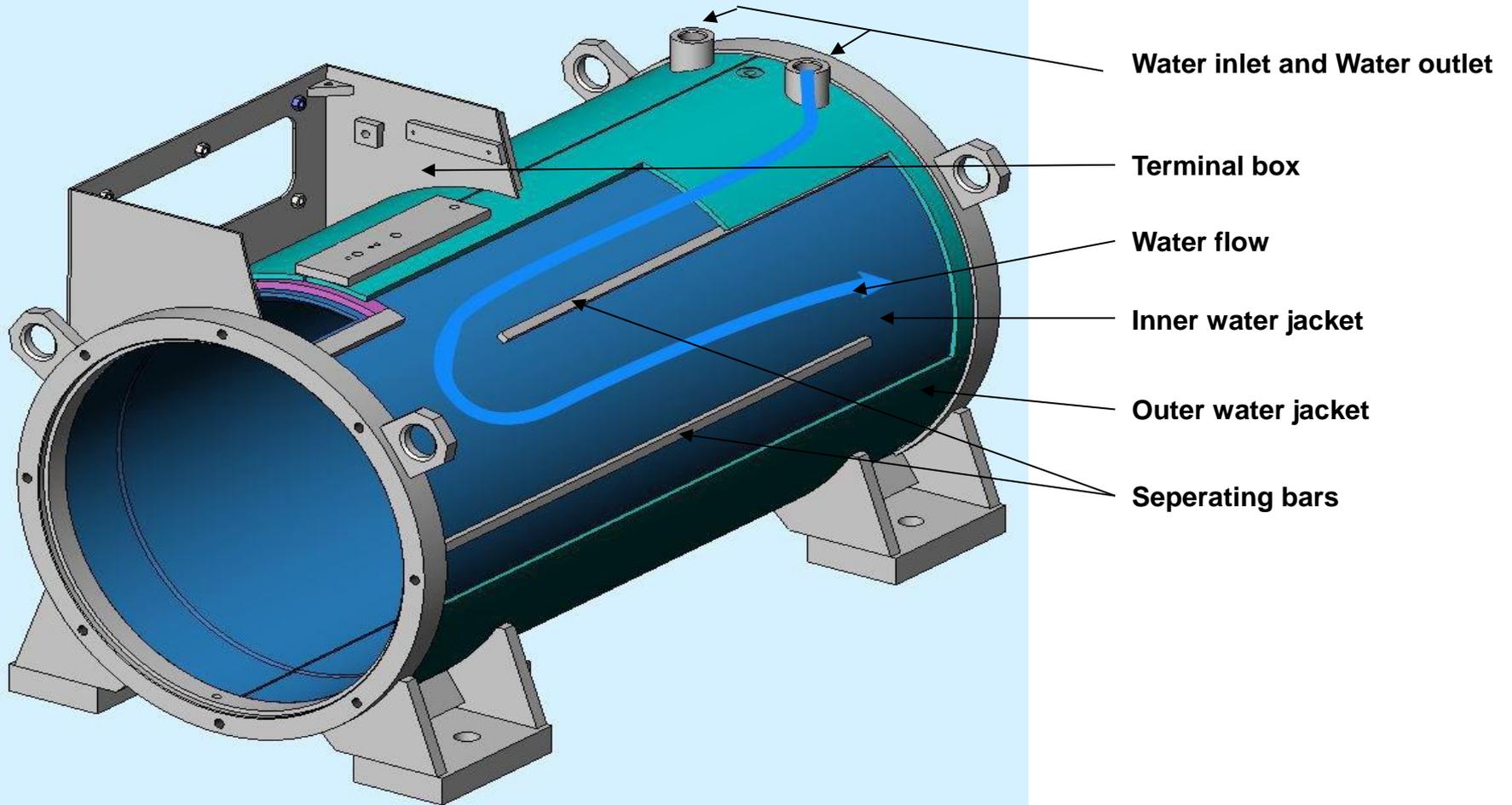
225 kW
1,652 Nm
1,300 rpm



Comparison in power



Water jacket cooling system



Project: **Vessel with jack-up platform**

Location: Dubai

Year: 2008



- Type: MKH745D04
- Power: 725 kW
- Voltage: 690 V
- Cooling: water - cooled
- Quantity: 4 pieces
- Appliance: Thruster

Project: **LMF / „Western GECO“**

Location: all over the World

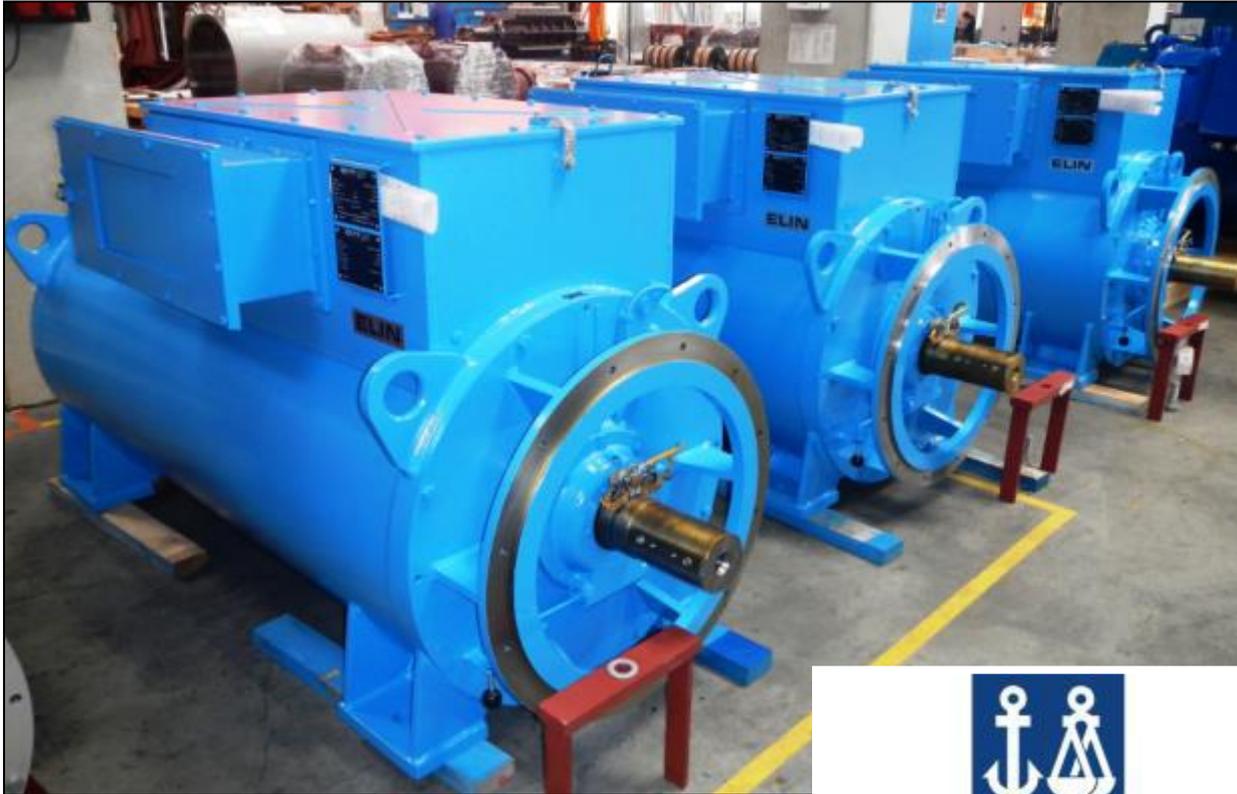
Year: 2008



- Type: MCZ-545 N04
- Power: 1400kW
- Voltage: 690 V
- Cooling: water - cooled
- Quantity: 3 pieces

- Appliance: Reciprocating compressor

- Highlights:
 - DNV Certified
 - Double shaft end IM2202
 - Flange mounted
 - operation on exploration ships



DET NORSKE VERITAS

Project: **Pumped storage hydro power station
Heiterwang**

Location: Reutte

Year: 2009



- Type: MKH750C06
- Power: 1200 kW
- Voltage: 690 V
- Cooling: water - cooled
- Quantity: 4 pieces

- Appliance: Pump station

Project: **Injection moulding machine**

Location: Worldwide

Year: since 2002



- Type: MUP
 - Power: 90 – 250 kW
 - Voltage: 380 – 480 V
 - Cooling: oil – cooled
-
- Appliance: Hydraulic Pumps



Project: **Steel plant “Acerinox Malaysia“**

Location: Malaysia

Year: 2009



- Type: 2x MKH763E10
1x MKH750B06
2x MKH745B06
2x MKH735E06
2x MKH735D06
2x MKH731E06
- Power: 224 kW – 1860 kW
- Voltage: 460 V – 690 V
- Cooling: water - cooled
- Appliance: Stainless steel mill

Project: **Gear pump for extrusion**

Location: Germany
Year: since 2008



- Type: MKH920 - 725
- Power: 90 kW - 132 kW
- Voltage: 400 V – 690 V
- Cooling: water - cooled
- Quantity: 4 pieces
(01/2008 – 11/2011)

- Appliance: Extrusion-Gear Pump additional for pressure rise in average up to highly viscous media



