Variable Speed Rack & Pinion Jacking System

Description
The GustoMSC jacking system offers safety, minimum maintenance and a variety of outstanding features from an operational point of view.
The range of jacking systems suits the GustoMSC CJ and NG series and can be easily customized to any other jack-up rig design.

Jacking units
Each jacking unit consists of a special design 7 teeth pinion driven by an electric motor through an input- and planetary gearbox.
In general four to eight jacking units engage with a rack of the jack-up leg. The jacking units can be mounted in a floating frame or can be mounted directly into the fixed jacking structure deepening on the jack-up design.

Variable Speed Drive
The electric motors of the rack and pinion systems are driven by individual variable speed drives (VSD’s). This arrangement allows for stepless speed control between zero and maximum speed.
The system automatically distributes the loads equally over the drive units and retorquing can be performed automatically by the VSD control.

Jacking velocities
Maximum jacking velocities vary from 0.3 m/min to 1.2 m/min for platform handling. For leg handling, the speed can be increased by typically 50%.

Model range
The following range of jacking systems and capacities are available:

- Module: 50 - 105 mm
- Rack width: 90 - 210 mm
- Jacking capacity: 80 - 455 tons
- Preload jacking capacity: 83 - 575 tons
- Normal holding capacity: 150 - 760 tons

References
GustoMSC rack and pinion jacking systems are fitted on the following jack-ups:

- Maersk Explorer 1976
- Maersk Endeavour (now Energy Endeavour) 1980
- ARB-2 (maintenance) 1981
- Arabiyah 1, 2 & 3 (well-servicing) 1981
- Kolskaja 1982
- Sahalin skaja (now West Janus) 1982
- Seajacks Kraken & Seajacks Leviathan 2009
- Naga 2, Naga 3 2009, 2010
- Perro Negro 6, Perro Negro 8 2009, 2010
- ARB-3 2010
- GMS Endeavour, GMS Endurance 2011
- West Elara 2011
- SEP-450 2012
- West Linus (CJ70) 2013
- COSL Gift & COSL Hunter (CJ46) 2014
- SEP-550 (NG-2500X) 2014
- Seajacks Hydra (NG-2500X) 2014
- GMS Enterprise (NG-2500X) 2014
- Tianjin Haiheng TBN 1 & 2 (CJ50) 2015
- Polynor TBN 1 & 2 (CJ46) 2015
- UMW Naga 6 & 7 (CJ46) 2014, 2015
- Seajacks Scylla (NG-14000X) 2015
- GMS Shamal, Scirocco & Sharqi (NG-18000X) 2015-2016
- SEP-750 (NG-25000-NP) 2016
- Falcon Energy TBN 1-4 (CJ50) 2015, 2016
- CMHI TBN 1 & 2 (CJ46) 2015
- Jinghang (CJ46) 2015
- Jingxuan (CJ46) 2015
- SEP-650 (NG-25000-NP) 2015
- Bestford Capital TBN 1-6 (CJ46) 2015, 2016
- Haiheng 6 & 7 (CJ46) 2016
- ESSM TBN 1 & 2 (CJ46) 2016
- Blue Ocean TBN 1, 2 & 3 (CJ46) 2016
- Vanda Offshore TBN (CJ50) 2016
- Noble Cat-J (CJ70) 2016
- Arjun & Aryan (NG-2500X) 2016
- GMS Evolution (NG-2500X) 2016
- COSL 944 (CJ50) 2016
- Statoil Cat-J 1 & 2 (CJ70) 2016, 2017
- Blue Ocean TBN 1 & 2 (CJ50) 2017
- Apollo (NG-5500X) 2017
Operational features

The GustoMSC electric VSD driven rack and pinion systems offer the following characteristics:

• System suitable for variable and slow / zero speed control
• Use of standard, offshore type electric motors, without special high-slip requirements
• Easy automatic retorquing through the VSD drives
• Easy disengagement of the fixation systems
• Automatic platform leveling during lifting and lowering
• Failsafe brakes with sensorless on/off/wear indication
• Leg position indication and rack phase difference (RPD)
• Load measuring through the VSD drives and optionally through load measuring devices in the upper shock pads for floating units
• Power consumption can be reduced by reducing the jacking speed
• Depending on the size of the emergency generator, jacking is possible on the emergency generator
• Increased leg handling speed
• Easy removal of a drive unit
• Control from central- and local control consoles
• Optional remote access of the control system via secured internet connection

Data presented in this product sheet is for information only and subject to change without notice.