

# SCM (Sanjel Cyclonic Mixer) CEMENTING SKID



Sanjel's Cyclonic Mixer (SCM) is the industry's premier high energy mixing system utilized by Emjel. Coupled with Sanjel's Twin Cementing Unit, the SCM is capable of mixing at slurry rates up to 11.5 bbl/min with densities up to 22 lb/usg. Non-nuclear density measurements for both the process control loop and the downhole fluid line ensures accurate readings for slurry density, rate, temperature and volume. The SCM is a true Twin Cementing Unit with redundant mixing systems and ground mixing capabilities. It is capable of mixing and measuring ultralight slurries starting at 8.5 lbs/usg. The SCM mixing system utilizes Sanjel's Mark IV Automated Control Technology. The target slurry properties drive mix water and bulk control to within blend specifications. Complex job parameters are pre-programmed and is capable of on-the-fly transition of up to 10 cement systems using touch-button simplicity. Key job parameters can also be managed in real-time. These include pressure limits, system sensors and supplementary information ranging from trend graphs to sensor diagnostics.

## Applications

- Shallow to deep well applications
- Critical and sour gas wells
- Surface, intermediate and production casings
- Liner cementing operations
- Plug-back and Whipstock cementing operations
- Injectivity tests
- Conductor barrels
- High pressure pumping
- Remedial cementing operations

## Equipment

- 2 – 600 hp 6 cylinder diesel deck engines
- 1 – 375 hp 6 cylinder diesel auxiliary engine
- 2 – Heavy duty 5 speed automatic deck transmissions
- 2 – Triplex pumps with 3.5" and 4.5" plungers
- 2 – 4" x 3" centrifugal water pumps
- 1 – 6" x 5" centrifugal recirculating pump
- 1 – 6" x 5" centrifugal charge pump
- 2 – 10 bbl displacement tanks
- 1 – 25 bbl mixing tank
- 2 – Non-nuclear Coriolis flow meters used for density measurement
- 2" Fig 1502 treating iron package

## Performance

- Maximum Mixing Rate: 11.5 bbl/min
- Maximum Pumping Rate: 13 bbl/min @ 1600 psi (4.5" plunger)
- Maximum Pressure: 10000 psi @ 2 bbl/min (3.5" plunger)
- Maximum Slurry Density: 22 lb/usg

## MARK IV Automated Control Technology

- Automation of both mix water and bulk cement rates
- Target slurry properties used to control automation
- Set mix rate or actual downhole rate can be used to control automation
- Capable of holding density to within  $\pm 0.1$  lb/usg under steady state conditions while pumping downhole
- Up to 10 different cement blends can be entered at one time
- All job parameters displayed simultaneously on the operator's touch screen
- Single button stage advance
- Visual identifiers indicate if slurry and operation parameters are outside of target range
- Supplementary information also displayed on operator screen (e.g., trend graphs, P&ID process displays, sensor diagnostics)
- Electronic over pressure management