

- **Combination machine to be used as Puller or as Tensioner for 1, 2, 3 or 4 steel ropes or conductors up to Ø 60 mm and a pull/tension force of maximum 18 to**
- **In tensioning mode automatic control of the machine via ATS (Automatic Tensioning System)**
- **In pulling mode particularly suitable for replacement of conductors**
- **Robust machine constructed for highest reliability, simple operation and minimal maintenance**
- **Operation of the machine via cable remote control (optional also via radio remote control) from a safe distance => good overview, low noise level and safe position for the operator**



#### Technical data in pulling mode:

- Max. pull force: 18.000 daN
- Continuous pull force: 18.000 daN
- Continuously adjustable speed: 0 - 4,8 km/h (80 m/min)  
at 18.000 daN: max. 2,4 km/h (39 m/min)

#### Technical data in tensioning mode:

- Max. tension force: 18.000 daN
- Continuous tension force: 18.000daN
- Continuously adjustable speed: 0 - 4,58 km/h (80 m/min)
- Minimal tension force: 0 daN (with manual control)  
approx. 800 daN (with ATS)

#### Control of the machine:

- Cable remote control with 10 m cable to operate the machine:
  - In pulling mode the rope is controlled in/out via a joystick
  - In tensioning mode the tension force can be continuously regulated; the machine then functions independently via the Automatic Tensioning System (ATS) => constant sag of the conductor and an automatic stopping and restarting without manual intervention
- Emergency operation for controlling the machine by hand in pulling and tensioning modes
- Control panel with display of the pull force and all instruments to control engine, hydraulic and electrical systems
- Digital meter counter and digital tachometer
- Pull force switch off system (inductive system for highest safety of operation)
- Preparation for a quick installation of a pull force recorder

#### Cover:

- Lockable cover made of thick-walled aluminium sheet, protects the diesel engine, the hydraulic and electrical systems => increases the reliability of the machine and is noise reducing
- Integrated tool box

#### Bull wheels:

- 2 bull wheels with a diameter of 1.500 mm
- 12 grooves per bull wheel for up to 4 ropes/conductors simultaneously
- Designed for max. conductor Ø 60 mm / max. connector Ø 60 mm
- High tensile elastic groove linings for all steel ropes and conductors (easily and quickly replaceable)
- No anchoring of rope during change of reel/drum

#### Hydraulic drive system:

- In both bull wheels a complete driving unit consisting of planetary gear, brake and hydraulic motor is integrated => fully enclosed and therefore requiring minimal maintenance
- 2 emergency multiple-disc brakes, automatically activated
- High quality control technique enables inching even under maximum load
- Highly effective oil cooling system, electrically activated and controlled via thermostat, designed for extreme operating conditions
- 4 independent additional hydraulic systems to operate up to 4 hydraulically activated reel winders or drum stands
- Hydraulic hoses and screw connections with a special sealing system for a long service life without leakage
- Hydraulic differential system for the bull wheel drives => low stress for rope and planetary gears

#### Engine:

- Water-cooled diesel engine with 174 kW (237 HP) at 2.300 rpm
- Low speed => long life cycle and low noise level
- 12 V system with high capacity battery for a safe start also at cold temperatures

#### Weight, dimensions and noise level:

- Weight: approx. 8.700 kg
- Length x width x height: approx. 5.970 x 2.440 x 2.800 mm (dimensions can be reduced for shipment)
- Low noise level: approx. 80 dB (A)

#### Frame and support:

- Stable steel frame with anchoring eyes
- Back support via hydraulic backstay for high stability and a fast and easy anchoring; with integrated eyes for anchoring of ropes
- Front support via hydraulic support cylinder

#### Standard chassis:

- 1 axle chassis with rigid axle, pneumatic brake system and parking brake  
Optional: lighting system, mudguards and registration
- Stable towing bar with height-adjustable towing eye with  $\varnothing$  40 mm (optional:  $\varnothing$  of towing eye according to customer requirement)

#### Optional chassis:

- 2 axle chassis with rigid axles, pneumatic brake system and parking brake  
Optional: lighting system, mudguards and registration
- 1 or 2 axle chassis with spring-mounted axles, pneumatic-hydraulic brake system (with integrated brake cylinders), parking brake, lighting system, mudguards  
Optional: registration as high-speed trailer (in Germany up to 80 km/h)

#### Optional equipment:

- Special maintenance-free precleaner for the air filter; prevent engine overheating and reduce maintenance work at the diesel engine
- Central lifting ring for easy loading by crane
- Grounding plate with holding device
- Noise reduction kit for cover
- Hose set with quick coupling to operate reel winders or drum stands (standard length 15 m; or according to customer requirements)
- Biodegradable hydraulic oil
- Hydraulic press to operate 700 or 1.000 bar press units
- Spare wheel with lockable holding device
- Crawler chains to reduce the ground pressure (only for 2 axle chassis)
- Electronic pull force recorder to document the pull force
- Radio remote control (additional functions: ignition; engine starting; additional hydraulic circuit)
- Bull wheels and rope guiding devices with adjustment possibilities for „right“ and „left“ conductors
- Special equipment or special models on request



Modifications and errors excepted. Illustrations show in part optional equipment. Technical data varied according to model. Machine performance is calculated at sea level at 20°C.