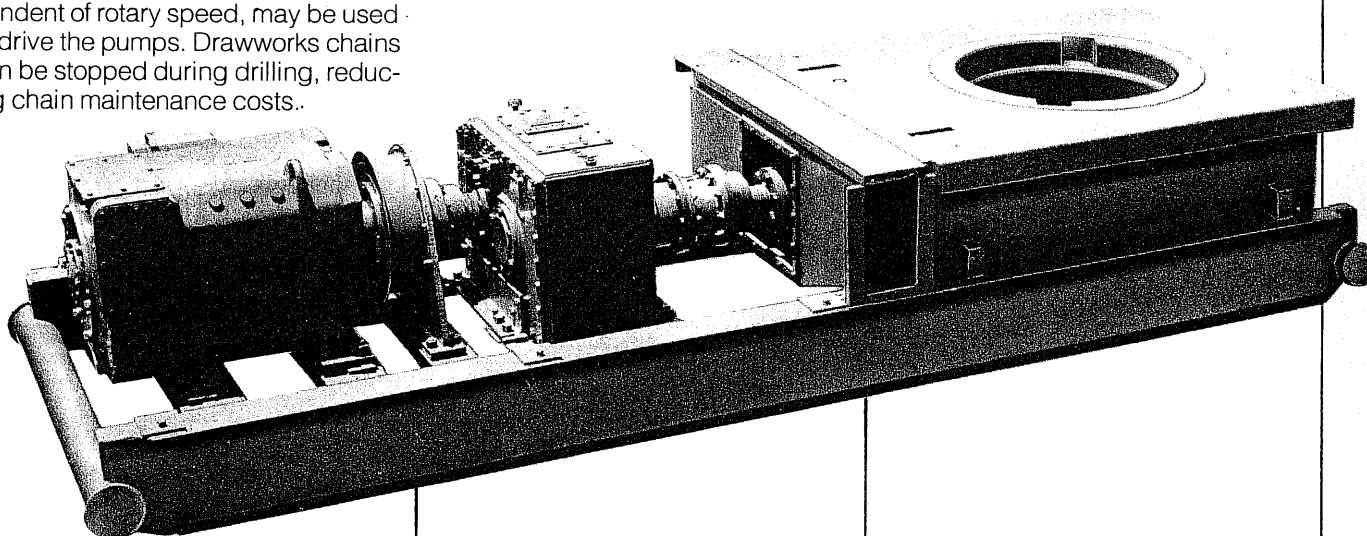


NATIONAL ROTARIES AND DRIVES

NATIONAL independent rotary drives

The NATIONAL independent rotary drive eliminates the necessity of selecting a drawworks transmission ratio to obtain desired speed for both pumps and rotary. Full engine horsepower with separate control, independent of rotary speed, may be used to drive the pumps. Drawworks chains can be stopped during drilling, reducing chain maintenance costs.

The rotary can be provided with a drive sprocket, permitting emergency drive from the drawworks.



Three transmissions

Three, two-speed transmissions are offered on National independent rotary drives, one with reverse and two without.

The transmission with reverse, Type B-500, is suitable for use with internal combustion engines of the 500 hp class at 900 or 1200 rpm, equipped with a National torque converter. The reverse is a chain drive with a ratio of 1.38 to 1.

The Type C-700 two-speed transmission, without reverse, is suitable for use with D.C. electric motors of the 700 hp at 1200 rpm class. This transmission is rated to handle most rotary torque requirements and has a low ratio output torque of 6200 ft/lbs.

The Type D-1000 two-speed transmission without reverse is suitable for use with D.C. electric motors of the 1000 hp at 1200 rpm class with an output rating of 12,222 ft/lbs. of torque. The Type D transmission has the increased torque capacity to handle "High Torque" drilling conditions.

All three transmissions feature herringbone gears, spline clutches, shifter lock mechanism, high capacity splash cascade lubrication system and are roller bearing equipped.

Each of the NATIONAL transmissions may be equipped with any two of the five gear ratios available. One

gear ratio must be a speed increaser and the other a speed reducer.

Available gear ratios are: High ratios: 1 to 1.02; 1 to 1.17; 1 to 1.33. Low ratios: 1.33 to 1; 1.76 to 1; 2.03 to 1.

NATIONAL independent rotary drives can be engineered and fabricated to match specific applications.

