

Detroit Stoker Company

Detroit[®] RotoGrate Stoker Planetary Grate Drives



THIS SYSTEM IS CAPABLE OF GRATE SPEED TURNDOWN VARIATION TO 10:1. DETROIT STOKER COMPANY GRATE DRIVE.



1-800-STOKER4

With the development of the Detroit Grate Drive, Detroit Stoker Company draws on more than a century of experience serving the industrial power and steam generating industry. This drive has been designed to reduce, and in some cases, eliminate many of the traditional problems associated with stoker grate drive operation and maintenance.

The grate drive can be readily installed as a replacement for existing installations and can be retrofitted to virtually any traveling grate system. The simplicity of design and ease of installation make it a definite winner for your stoker enhancement program. This mechanical grate drive provides the high quality and reliability you have come to expect from Detroit Stoker Company.

TORQUE LIMITATION AND GRATE PROTECTION SYSTEM

Each drive arrangement is equipped with a torque arm arrangement utilizing a hydraulic cylinder with a pressure switch to protect against damage caused by exceeding the torque limitations of either the drive or grate components.

The cylinder-operated torque limiting system is composed of a cylinder having a self-contained reservoir system and pressure switch arrangement.

As the grate drive is operated, the torque arm imposes a force on the cylinder rod.

The oil pressure in the cylinder is monitored by a dual output pressure switch with a 4-20mA analog pressure signal for integration with a distributed control system.

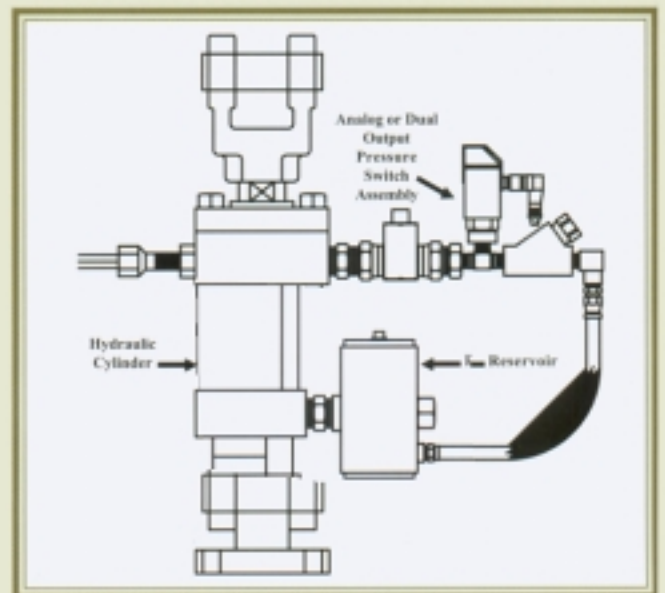
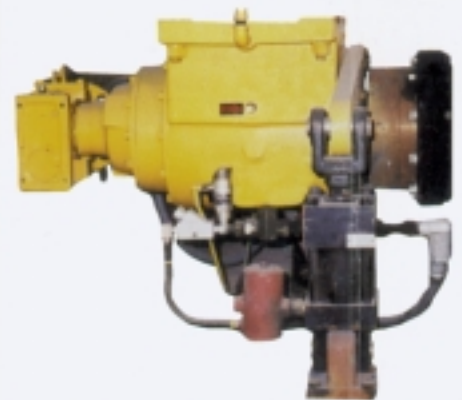
If the oil pressure exceeds the set point of the pressure switch, the system which is interlocked with the grate drive motor, shuts down the grate drive.

FEATURES

Detroit® RotoGrate Stoker Planetary Grate Drive is an easily installed system for new installations and retrofit applications. The direct drive, shaft mounted design eliminates a number of auxiliary items such as support brackets, drive chains, and sprockets used on other mechanical and hydraulic drive arrangements.

The drive arrangement is equipped with an innovative torque limiting design which eliminates the time consuming shear pin replacement necessary for other mechanical drive designs. The system is capable of grate speed variations up to 10:1. To insure that the drive has been properly serviced or installed, the pressure

TYPICAL PLANETARY DRIVE CONFIGURATION



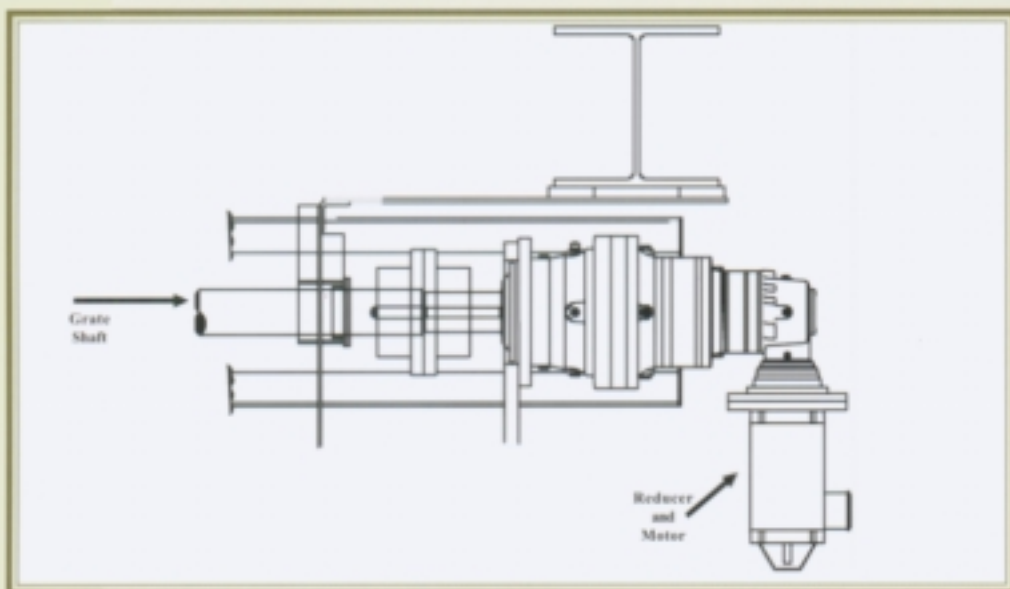
CYLINDER ASSEMBLY WITH DUAL PRESSURE SWITCH

switch has a low pressure setting which must be obtained within 10 seconds after energizing the grate drive motor or the system will shut down. The analog pressure switch allows for a 4-20 mA signal to be tied into a Distributive Control System, which can be configured to provide the same protection as

noted for the dual output pressure switch. In the event the cylinder develops a leak, an electronic proximity switch installed at the top of the cylinder will detect the cylinder piston position and shut-down the grate drive.

ROTOGRATE DRIVE COMPONENT DATA

- **Main Drive Unit** — Planetary speed reducer. Maximum continuous output torque 180,000 lb.-in. up to 1,200,000 lb.-in.
- **Input Motor** — 1-HP, 1200 RPM, NEMA C-face motor.
- **Other Drive Applications Available**



DETROIT GRATE DRIVE PLAN VIEW

BENEFITS

- Easy conversion and fewer parts to maintain/stock thereby reducing labor costs & inventory.
- Readily adapts to most existing arrangements and is easy to install (does not require significant modifications to existing arrangement).
- Avoids costly repairs due to grate jams. The drive is capable of jogging forward or reverse to relieve jams caused by tramp material.
- Eliminates ratcheting effect on grates equipped with hydraulic grate drives. This reduces wear and tear on grates, chain, and other critical components.
- Eliminates external hydraulic pump sets and leaking hydraulic components resulting in fewer parts to maintain, a more open accessible arrangement, and a much cleaner operation. Planetary gear design operates at a much higher efficiency over standard worm gear or hydraulic grate drive designs.
- Accepts 4-20mA signal from the boiler to enable speed to be varied according to anticipated load demand.
- With a high efficiency model gearbox, a lower horsepower is required.

www.detroitstoker.com

Detroit Stoker Company

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DETROIT EXPERT SERVICE ORGANIZATION

Detroit Stoker Company's (DSC's) worldwide support organization draws on more than 100 years of experience as the world's leading supplier of industrial stokers and related equipment to provide complete maintenance, repair, inspection, and upgrade services.

With the backing of its experienced Engineering and Sales Departments to help resolve any combustion related problems that may occur, DSC's Service Group is unsurpassed.

DSC's Service Group is continuously rated the best in its field. Service Consultants are kept abreast of the latest technological advances. This top notch information is then passed on to the customer in order to keep their equipment running at peak performance.

Whether a routine maintenance assignment or a comprehensive fuel conversion, DSC's service group supplies everything - design and site engineering, site supervision, labor, the right equipment to complete the job promptly with dependable Detroit equipment and parts.

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