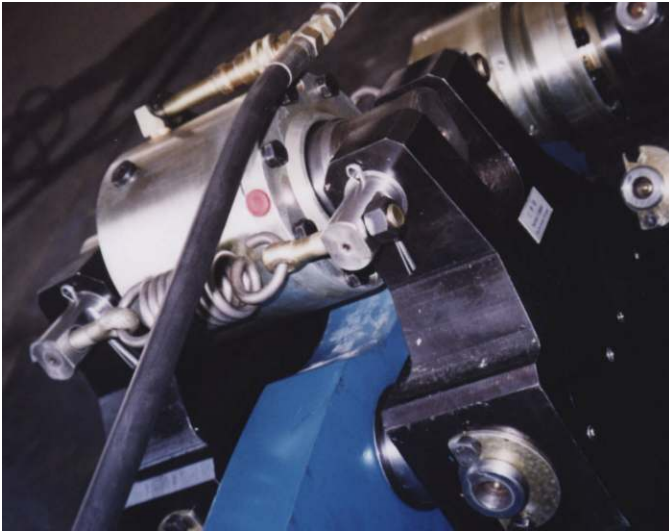


"Quality by Design, Satisfaction by Performance"



More than 700 installed worldwide.
Upgrade your rig with a disc brake in the field!

- **For Use With New or Existing Drawworks Packages**
- **Quickly Retrofit Existing Band Brake Drawworks**
- **Quick and Easy Replacement and Clearance Adjustment of Pads**
- **Optional Electronic Remote Control Packages For Improved Safety**
- **Optional Autodriller and Block Energy Monitoring Systems.**
- **Electronic Joystick Option**
- **Greater Holding Power**
- **Reliable Operation**
- **Overpull Protection**

Overview

The disk brake packages are available in several capacities including 3,000 to 30,000 foot depth drilling rigs, workover rigs and tractor hoists. The packages consist of the hydraulically actuated caliper assembly, a hydraulic operators control assembly and a Hydraulic Power Unit.

The caliper assembly can include 4 or 6 service calipers and 2 or 4 spring set emergency calipers, depending on rig requirements. Calipers can be cooled by internal water jackets, air cooled or ordinary sold disk calipers.

The Hydraulic power unit consists of the Hydraulic pumps, accumulators and the caliper controls. It provides hydraulic pressure to the service calipers and the emergency calipers, allowing the operator to easily maintain smooth and precise block movement.

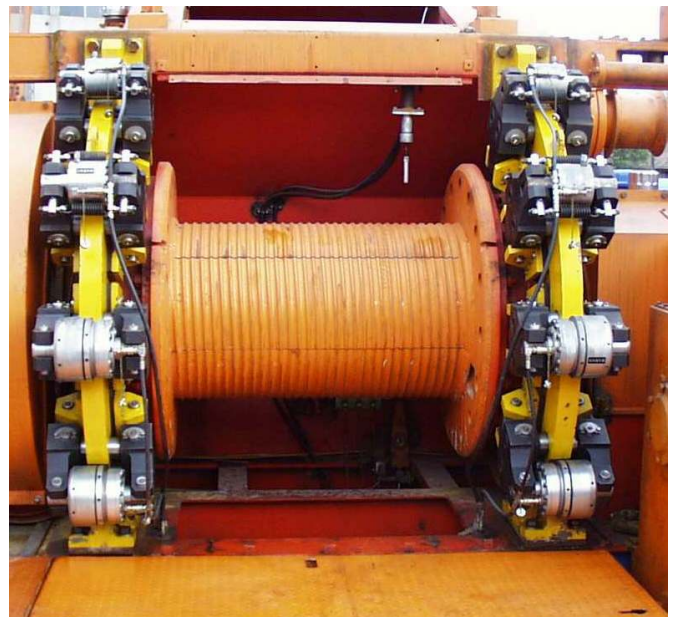
The Disk Brake System has dual oil resources, dual operators control circuits and separate accumulator systems. The service calipers of the left and the right brake disks are pressured by two independent circuits. If one circuit fails the other can still supply 100% braking force.

The dual control main operation valve controls the braking force of the service calipers. In the event of hydraulic pump failure, the accumulators can supply enough pressure for 4 or 5 brake stops. In addition, a back-up pump can be started to provide system pressure.

Advantages

Compared with traditional band brakes, the hydraulic disk brake system has many advantages. Greater braking force, stable brake performance, less motion inertia of the brake pairs, consistent brake force under heavy loads, accurate and sensitive control, easier maintenance and greater reliability.

Compared to most competitors disk brakes, the replacement and adjustment of the pads is quicker and easier, reducing downtime and reducing costs.



Functional Operations

Service Braking - Using the brake handle of the brake valve, the driller can control the pressure on the service calipers of the disk brake allowing accurate and precise control of the movement of the traveling assembly.

Emergency braking - In the event of a failure in the hydraulic control circuit or loss of pressure, the emergency calipers are released, the springs actuate the calipers causing a controlled stop

Parking Brake - To insure no block movement or if the driller



leaves the control area, the parking brake valve can be actuated so that the emergency calipers are applied. This prevents any block movement, regardless of the status of system pressures.

Interface With Other Systems

The Drawworks Disk Brake system can be interfaced with our unique **Autodrilling System**, and/or any of our patented line of block controlling systems. During drilling and tripping, combining a series 7500 disk brake with our autodriller incorporating our unique "Rig Match" feature and our *Traveling Block Controller* (**U. S. Patent Number 5,342,020**) that incorporates "Soft Stop" and "Intelligent Crown - A- Matic" provides a complete solution to safe and accurate block operation during all conditions. The driller is warned of potentially unsafe conditions and if necessary, the Traveling Block Controller maintains safe rig operation. An optional "Overpull" feature is available to disengage the clutch and set the brake if the hook weight exceeds a preset value.

Other options include Electronic Remote Control packages and Electronic Joystick Controls.

Your Rig Systems Partner

Innovative Electronics' business philosophy is to work as a partner with our clients, not just as a vendor.

Our project and application engineers will work with you to implement the best, most cost effective solutions possible. Our organization is available to you 24 hours a day, seven days a week .

At Innovative Electronics, **"Quality by Design, Satisfaction by Performance"** is not just a tag line, it's our business philosophy.

Nominal Specifications for Various Size Packages

Caliper Size	Drawworks HP	Drilling Depth		Max. Force, Single Side		Caliper Count		System Press.	
				Service Caliper	Safety Caliper				
		Feet	Meters	kN	kN	Safety	Service	PSI	mPa
90	3000	29500	9000	90	90	4	6	1450	10
75	2000	23000	7000	75	90	2	6	1160	8
75	1500	16500	5000	75	90	2	4	1160	8
65	1000	13000	4000	65	75	2	4	950	6.5
65	550-750	10000	3000	65	75	2	2	950	6.5
65	350-550	6500	2000	65	75	2	2	950	6.5
50	350-450	5000	1500	50	50	2	2	870	6
50	150-270	3200	1000	50	50	2	2	870	6

Inquiry Information

Packages are available for new or existing drawworks assemblies. Retrofit packages can be engineered to meet specific existing requirements. Brake controls can be all hydraulic, pneumatic/hydraulic or electronic/hydraulic. Drillers controls can be installed in any location convenient to the driller. For a quotation on your requirements, contact Innovative Electronics and request a "Quoting Sheet for Series 7500 Disk Brake"

For Additional Information Contact:



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