Hillmar

Hillmar Industries Ltd.

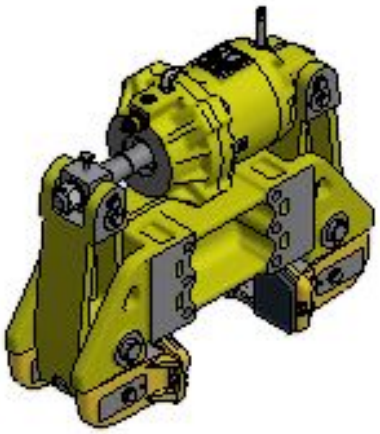
WHEEL BRAKES
WBHD-DT-ALL
POWER POINT PRESENTATION
SLS & MKTG
ENGLISH

DOC NO.: 200-345-65104

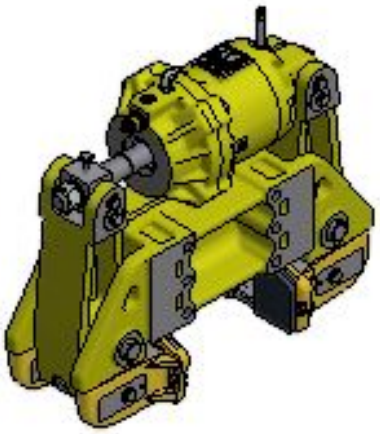
2 WHEEL BRAKES

INTERNATIONAL PATENTS APPLY

1.0 Wheel Brakes Models



WBHD-DT-030-ALL



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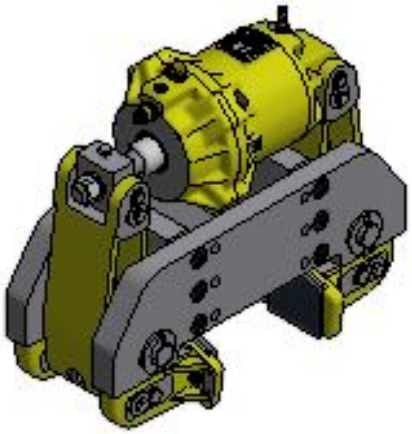

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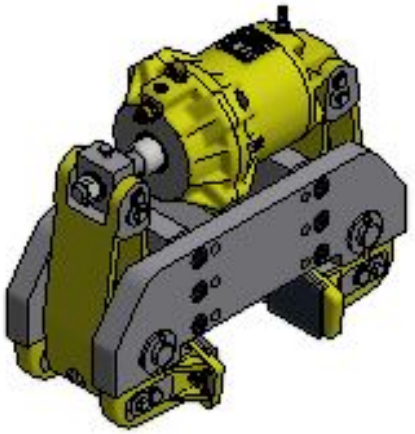
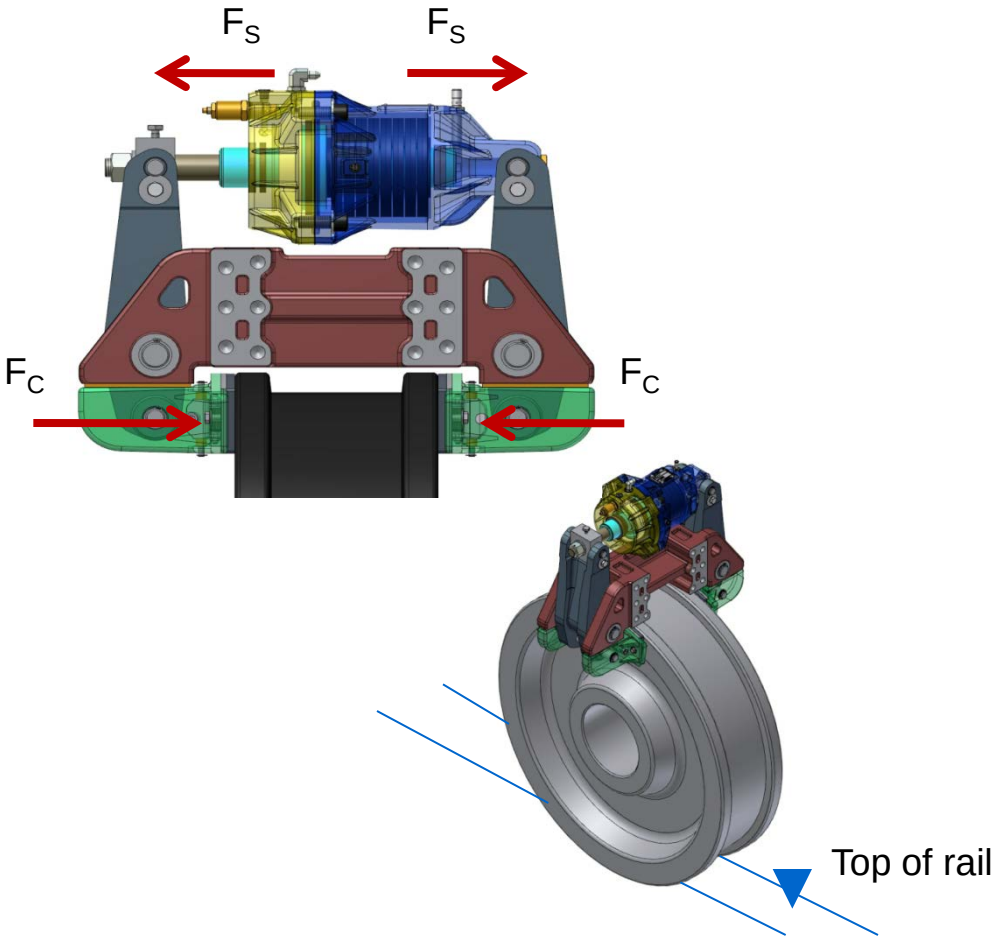


WBHD-DT-120-ALL

2.0 Principle of Operation



2.1 CALCULATION OF BRAKING FORCE

F_S = Spring Force
F_C = Clamping Force
F_B = Braking Force
μ = 0.4 Dynamic
μ = 0.5 Static
LR = Lever Ratio
$F_C = F_S \times LR$
$F_B = 2 \times F_C \times \mu$

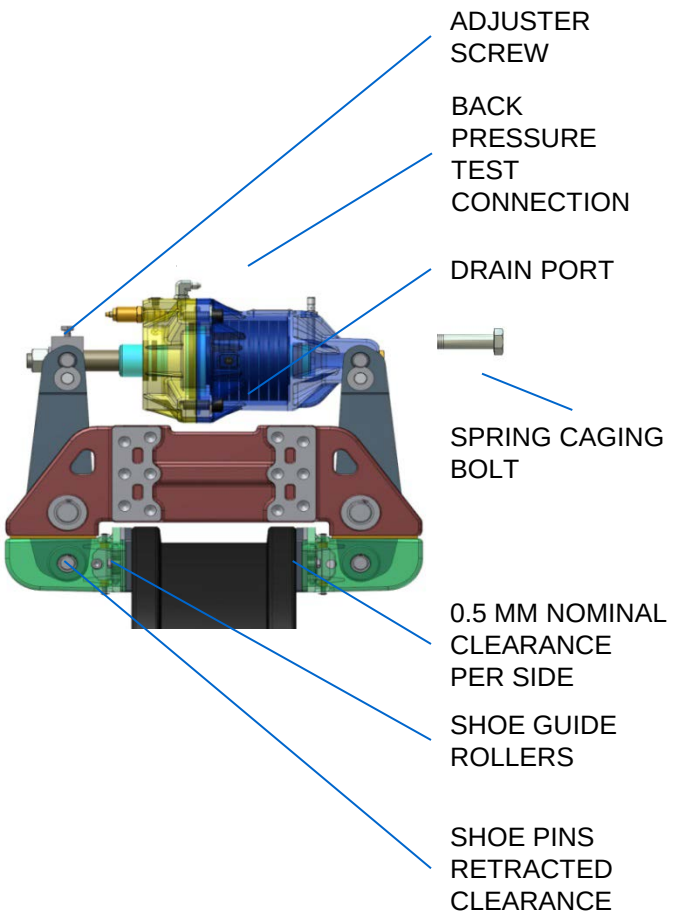
2.2 CALCULATION OF HOLDING FORCE

W_L = Wheel Load
μ_{WR} = Coefficient of friction between wheel & rail
W_B = Wheel Braking Force
$W_B = W_L \times \mu_{WR}$

2.3 MAXIMUM WHEEL LOAD

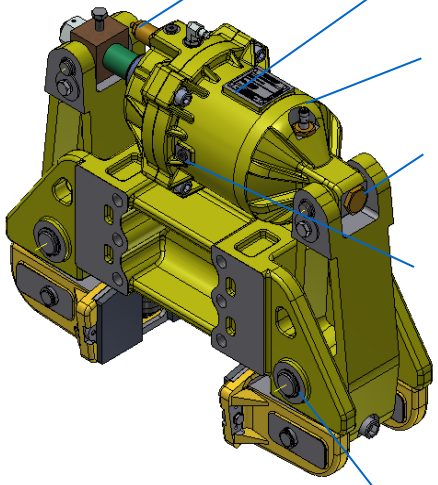
Maximum wheel load to utilize full capacity of wheel brake model ***WBHD-DT-090***
$= FB / \mu_{WR} = 90 / 0.15 = 600kN$

3.0 Design Highlights



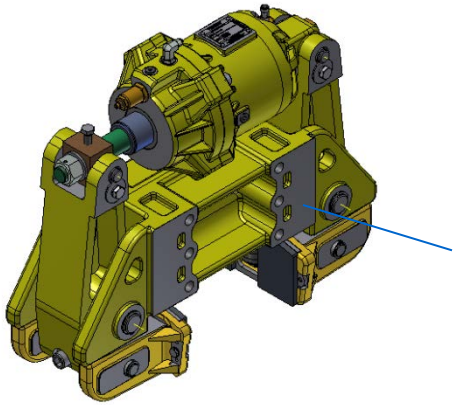
- *Patented Design* – covered by international patents.
- Brake designed for static parking and dynamic braking.
- Spring stack designed for 1 million + cycles.
- Controlled clearance provided by patented guide rollers.
- Complete corrosion protection including 5 year paint system, stainless steel pins & fasteners.
- Spring Caging bolt provided. Allows brake to be installed without using adjuster screw.
- Gap adjustment to compensate for spring force loss due to lining wear.
- *Patented Shoe Guide Wheels* guarantee shoes remain parallel to the wheel with minimum retracted clearance, preventing lining contact with wheel when brake is in released position.
- Maximum system design hydraulic pressure = 130 bar.
- Industry standard mounting design.
- Horizontal float ±10mm.
- Each brake can be customized to a specific wheel width by changing the position of the shoe pins.
- Nominal retracted clearance of 0.5mm minimizes spring extension to 6-8 mm at contact. This extends spring life & allows maximum shoe wear without adjustment.

4.0 Standard Features



- *Patented Guide Roller System* guarantees shoes are parallel with the wheel thus preventing premature lining wear, and designed for high speed applications.
- Spring chamber easily removable for maintenance.
- Single Spring Chamber for balanced braking.
- Each brake cylinder provided with spring caging bolt for mechanical lock during maintenance and transport.
- Each shoe is provided with pre-tension spring applied guide roller system for guaranteed minimum retracted clearance.
- Built-in flow control valve standard for adjustable setting time 3 – 15 seconds.
- Built-in proximity release switch standard.
- Brake pad linings – field replaceable.
- Organic non-asbestos or sintered metallic linings.
- Stainless steel pins & frictionless pre-lubricated du bushings at all pivot points.
- Spring life 1 million + cycle.
- Bolted construction for simple & easy maintenance.
- Sae o-ring oil ports.
- Zinc rich powder coat paint system standard.
- Cylinder bleed port with bsp fitting.
- Drain connection ports.
- Bolt storage kit

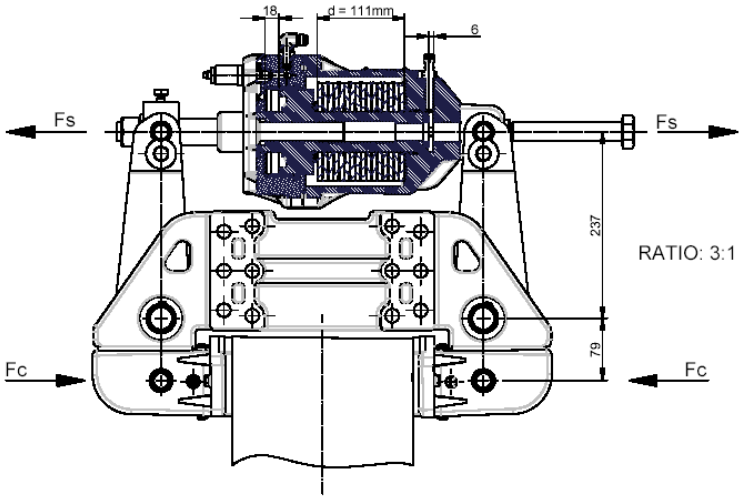
5.0 Optional Features



- Hillmar Hydraulic Power Unit
- Customized mounting flange
- Customized mounting holes
- Back Pressure Test Equipment
- Custom paint colour

6.0 Spring Life

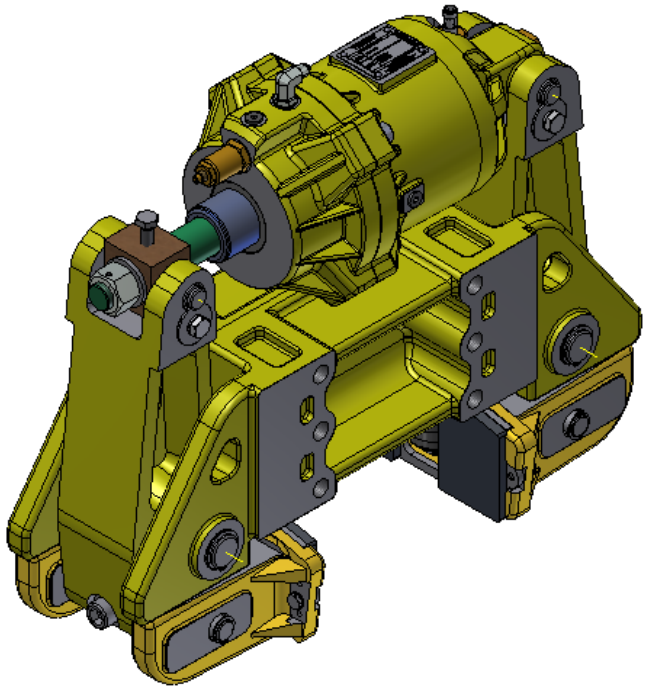
Each spring stack is coated with corrosion protective coating of *Molybdenum Disulphide Paste.*



Typical spring life for **WBHD-DT-120**

Spring stack height w/out shims		Worn Lining per side	Spring Force Fs	Clamping Force Fc	Spring Life
mm		mm	N	N	cycles
brake released	105		47,964		
brake set	111	0	43,163	129,489	>2,000,000
	114	0.5	40,654	121,962	>2,000,000
	117	1	38,058	114,174	>2,000,000
	120	1.5	35,364	106,092	911,000
	123	2	32,560	97,680	387,000

7.0 Standards



All Hillmar products are designed & manufactured in accordance with the following standards.

7.1 Design standards
7.2 Performance standards
7.3 Document standards
7.4 Production & Quality standards
7.5 Packaging standards

All Hillmar products are delivered with Hillmar commitment to customer satisfaction.

All Hillmar products manufactured in accordance with DIN 10204-2.1

Hillmar is an ISO 9001:2008 certified company.