

# SP G Products and Applications

# 2510M

## Service and Park Brake

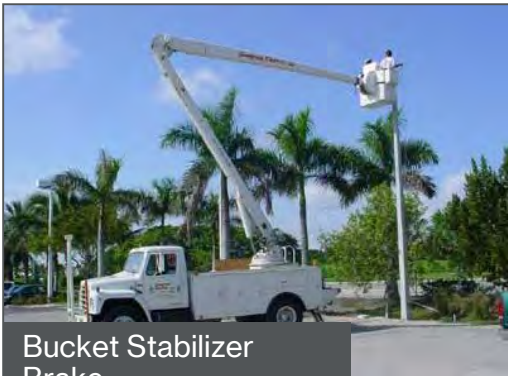
### Construction and Turf Equipment



In Wheel Park Brake



In Wheel Park Brake



Bucket Stabilizer  
Brake



Drive Line Park Brake



Drive Line Park Brake



Drive Line Park Brake

# 2510M

## FEATURES

- // Capable of 11120 N of clamp force
- // Economical heat treated stamped steel construction
- // Zinc finish resists rust and corrosion
- // Large friction area for extended pad life
- // Choice of CW or CCW lever actuation
- // Can be fixed or floating mounted
- // Mount Bracket optional, consult Hayes for available options

## SPECIFICATIONS

WEIGHT	1.27 Kg
ROTOR DIAMETER	127 mm - 216 mm
ROTOR THICKNESS	3.96 mm - 4.78 mm
LINING TYPE	Non-Asbestos Organic
TOTAL LINING AREA	7097 Sq. mm.
USABLE LINING THICKNESS PER PAD	3.30 mm

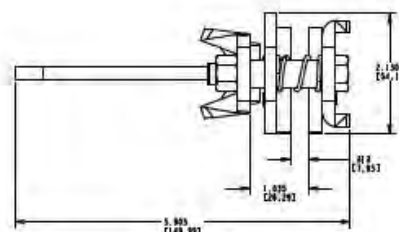
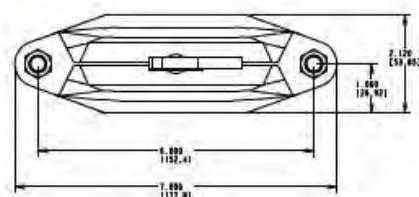
Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - [contact@hbgsl.com](mailto:contact@hbgsl.com).

## TORQUE INFORMATION



—	Dia = 127 mm, Lever length = 89.85 mm
—	Dia = 216 mm, Lever length = 89.85 mm
- - -	Dia = 127 mm, Lever length = 101.60 mm
...	Dia = 216 mm, Lever length = 101.60 mm

## REFERENCE DIMENSIONS





# M15/30

## Park Brake for Hydraulic Wheel Motors

# WM

## Turf Construction and Golf Equipment



Park Brake



Park Brake



Park Brake



Park Brake



Hydraulik Wheel Motor  
Brake



Wheel Motor Brake

# M15WM

## FEATURES

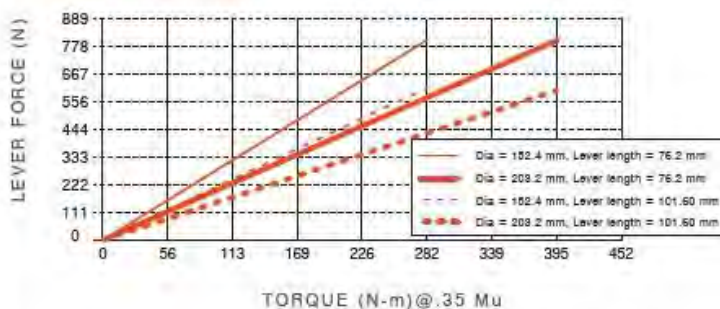
- Capable of 6450 N of clamp force
- Designed to fit inside an 203 mm - 254 mm diameter wheel
- Available as a complete system, aluminum caliper, ductile cast iron bracket & hub/disc
- Simple single piece caliper bridge design
- Choice of CW or CCW lever actuation
- Minimum moving parts to wear out

## SPECIFICATIONS

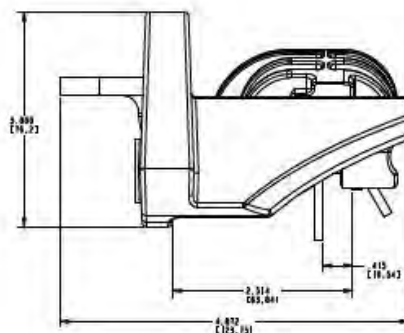
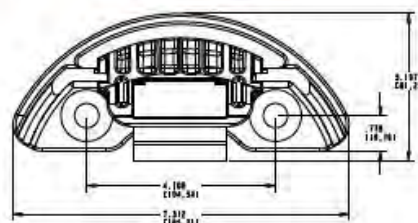
WEIGHT	1.13 Kg
ROTOR DIAMETER	152 mm - 203 mm
ROTOR THICKNESS	4.78 mm
LINING TYPE	Non-Asbestos Organic
TOTAL LINING AREA	1871 Sq. mm.
USABLE LINING THICKNESS PER PAD	3.18 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - [contact@hbpsi.com](mailto:contact@hbpsi.com).

## TORQUE INFORMATION



## REFERENCE DIMENSIONS



# M30WM

## FEATURES

- Capable of 12900 N of clamp force
- Designed to fit inside an 203 mm - 254 mm diameter wheel
- Available as a complete system, caliper, cast iron bracket & hub/disc
- Simple single piece caliper bridge design
- Choice of CW or CCW lever actuation
- Minimum moving parts to wear out

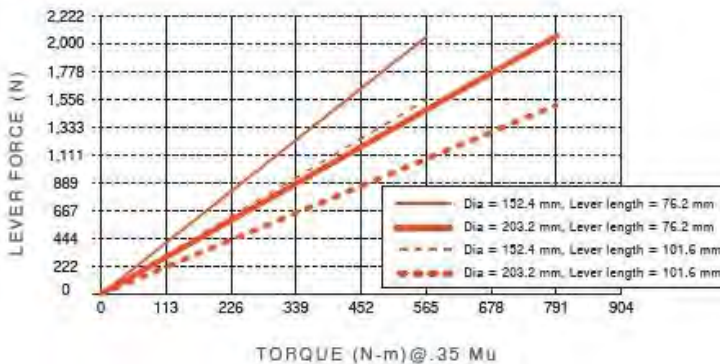


## SPECIFICATIONS

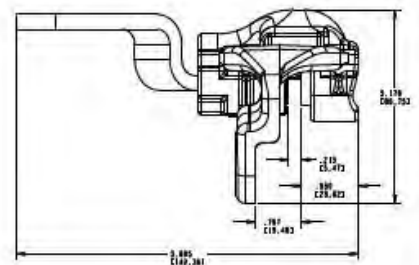
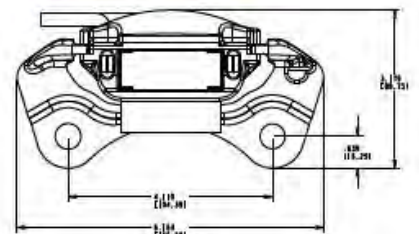
WEIGHT	1.36 Kg
ROTOR DIAMETER	152 mm - 203 mm
ROTOR THICKNESS	4.78 mm
LINING TYPE	Non-Asbestos Organic
TOTAL LINING AREA	1871 Sq. mm.
USABLE LINING THICKNESS PER PAD	3.18 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - [contact@hbpsi.com](mailto:contact@hbpsi.com).

## TORQUE INFORMATION



## REFERENCE DIMENSIONS





# M90

## Park Brake

**Telehandlers, Airport Tugs, Graders, Backhoe Loaders**



Drive Line Brake



Drive Line Brake



Drive Line Brake



Drive Line Brake



Drive Line Brake



Drive Line Brake

# M90

## FEATURES

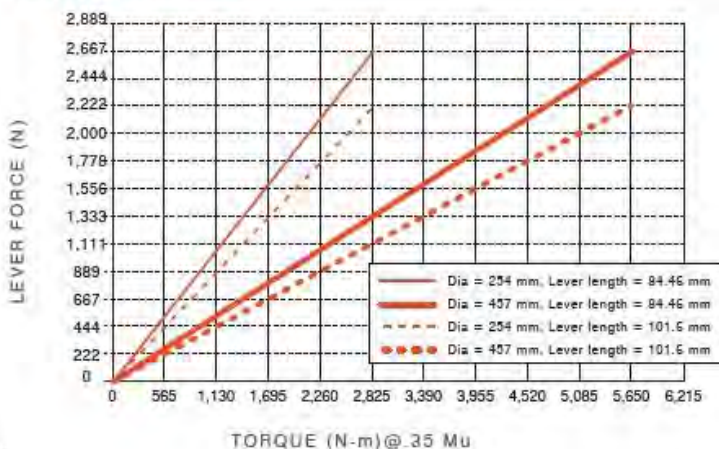
- Capable of 40050 N of clamp force
- One piece cast iron housing
- Efficient ball ramp actuation
- Sealed actuation mechanism
- High coefficient friction material
- Durable, low cost mount with sealed bushings
- Pads changed by removing one mount bolt
- Capable of parking a wide range of vehicles
- Choice of CW or CCW lever actuation

## SPECIFICATIONS

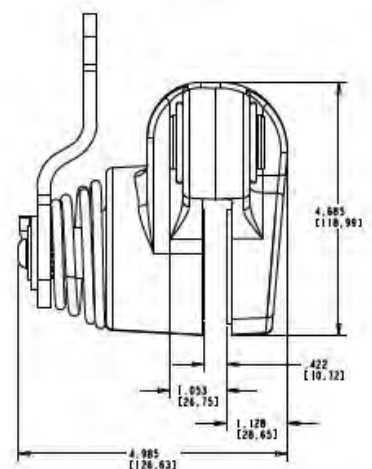
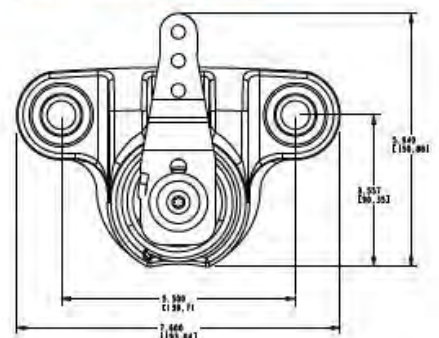
WEIGHT	5.90 Kg
ROTOR DIAMETER	254 mm - 330 mm
ROTOR THICKNESS	9.53 mm - 25.4 mm
LINING TYPE	Non-Asbestos Organic, Semi-Metallic, Sintered
TOTAL LINING AREA	5806 Sq .mm
USABLE LINING THICKNESS PER PAD	3.18 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - [contact@hbpsi.com](mailto:contact@hbpsi.com).

## TORQUE INFORMATION



## REFERENCE DIMENSIONS







# M90 INTEGRATED SAHR

## FEATURES

- # Capable of 33375 N minimum of park clamp force and 40940 N maximum
- # Sealed actuation mechanism
- # One piece iron housing
- # Self adjusting mechanism
  - Maintains consistent clamp force
  - Eliminates required pad adjustment by end user
  - Minimizes warranty due to end user interface
- # Compact size ideal for driveline mounting
- # Low hold-off pressures (DOT brake fluid or Hyd Oil)
- # Simple low torsional load mounting
- # Common tool manual release access

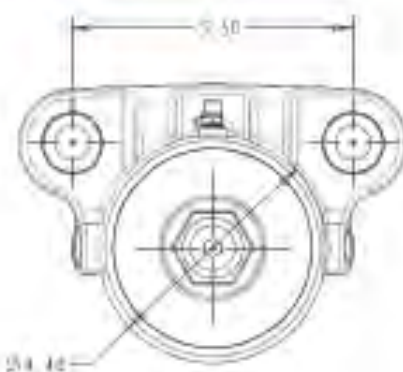


## SPECIFICATIONS

WEIGHT	~9.5 kg
ROTOR DIAMETER	254mm To 610mm
ROTOR THICKNESS	9.5mm To 25.4mm
LINING TYPE	Organic, Semi-Metallic, Sintered
TOTAL LINING AREA	29 sq. cm.
USABLE LINING THICKNESS PER PAD	3.2 mm

Specifications are guidelines only and subject to change. Contact Hayes Performance Systems for specific model part number and assembly drawings - [custserv@hays.com](mailto:custserv@hays.com).

## REFERENCE DIMENSIONS



## PARK BRAKE TORQUE INFORMATION



## BRAKE INFORMATION

MIN HOLD-OFF PRESSURE	100 Bar
MAX OPERATING PRESSURE	210 Bar
FILL VOLUME	~0.049 Liters
MIN HOLD-OFF VOLUME	0.033 Liters
ADJUSTED HOLD-OFF VOLUME	0.008 Liters

Park Brake Torque Formula:  $T = 15,164 \cdot \mu \cdot (DIA / 2 - t)$   
 $T$  = developed torque in lbs-in.  $DIA$  = diameter of rotor in inches  
 $\mu$  = friction coefficient, assume 0.35,  $P$  = applied pressure in PSI

# 600/61

## Park Brake

# OM

**Drive Line Parking Brakes, Transmission Park Brake,  
Generator Brakes, Fan Brakes, Motor Brakes**



Drive Line Brake



Power Cooling Tower  
Fan Brake



Drive Line Brake



Generator Brake



Motor Brake



Drive Line Brake



# 600M

## FEATURES

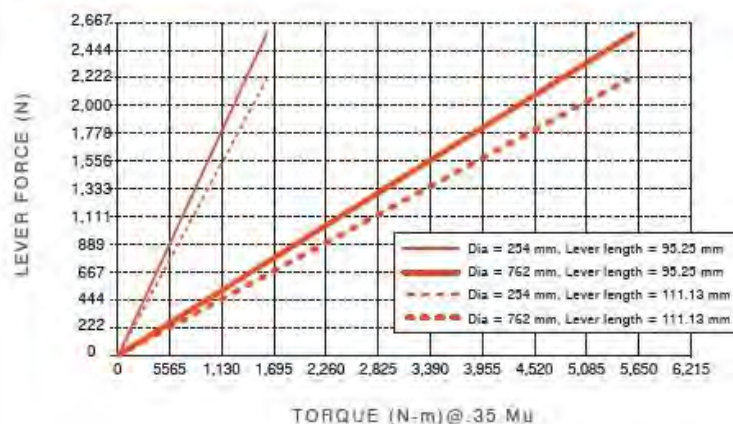
- Capable of 22241 N of clamp force
- Lightweight die cast aluminum housing
- Designed for quick change friction pads
- Unique dual mounting lugs permit either fixed or floating mount
- Pad wear adjustment quickly completed by removal of cotter pin and adjustment to takeup nut
- Quick rise on cam for maximum lever efficiency
- Push pin to housing seals
- Both CW and CCW lever actuation

## SPECIFICATIONS

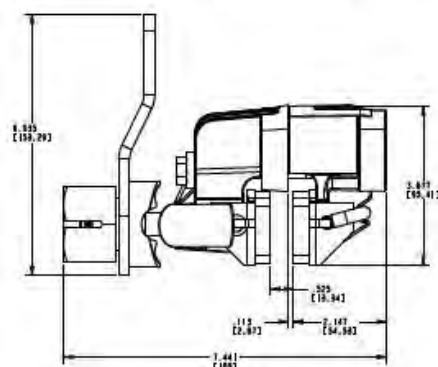
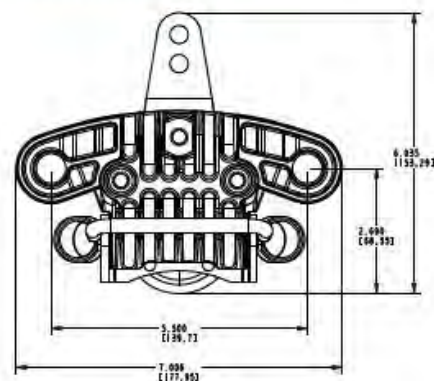
WEIGHT	1.36 Kg
ROTOR DIAMETER	254 mm - 762 mm
ROTOR THICKNESS	9.53 mm - 12.7 mm
LINING TYPE	Sintered, Non-Asbestos Organic
TOTAL LINING AREA	5548 Sq. mm.
USABLE LINING THICKNESS PER PAD	7.62 mm

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## TORQUE INFORMATION



## REFERENCE DIMENSIONS





# 610M

## FEATURES

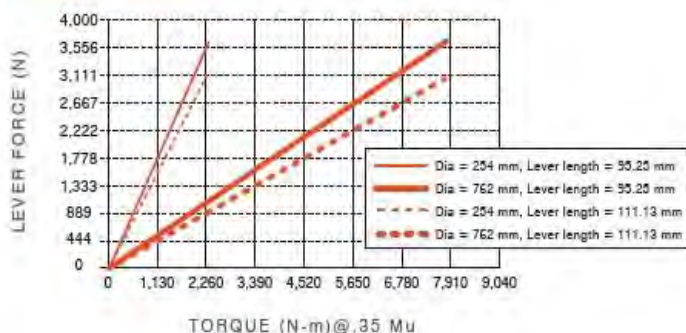
- // Capable of 31137 N of clamp force
- // Cast nodular iron housing
- // Designed for quick change friction pads
- // Unique dual mounting lugs permit either fixed or floating mounts
- // Pad wear adjustment quickly completed by removal of cotter pin and adjustment to takeup nut
- // Quick rise on cam for maximum lever efficiency
- // Both CW and CCW lever actuation

## SPECIFICATIONS

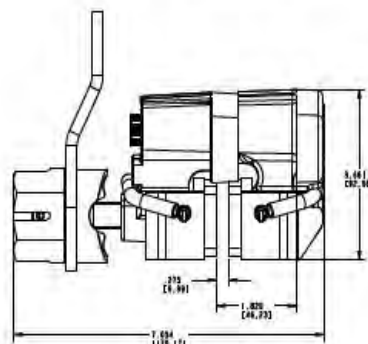
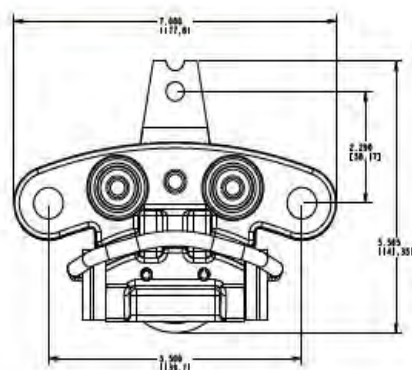
WEIGHT	6.24 Kg
ROTOR DIAMETER	254 mm - 762 mm
ROTOR THICKNESS	9.53 mm - 25.4 mm
LINING TYPE	Sintered, Non-Asbestos Organic
TOTAL LINING AREA	5806 mm
USABLE LINING THICKNESS PER PAD	7.37 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - contact@hbps.com.

## TORQUE INFORMATION



## REFERENCE DIMENSIONS



# M100

## Park Brake, Driveline and in Wheel Application

### Driveline Park Brakes, Generator Brakes and Load Holding Brakes



Drive Line Brake



Generator Brake



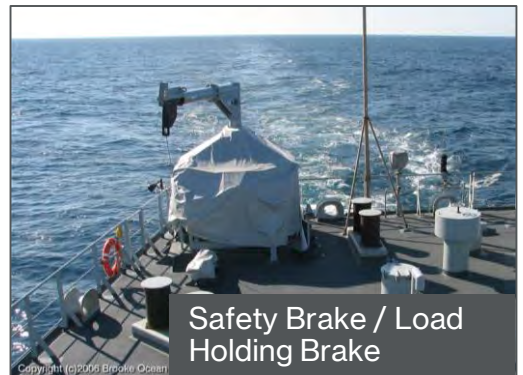
Drive Line Brake



Drive Line Brake



Drive Line Brake



Safety Brake / Load Holding Brake



# M100HM

## FEATURES

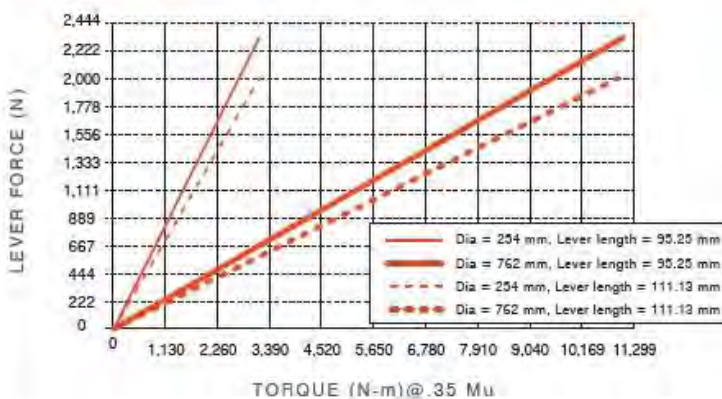
- Capable of 44482 N of clamp force
- Sealed actuation mechanism
- Self adjusting mechanism minimizes maintenance for pad wear
- Quick change brake pads, retained by mount pins
- Nodular cast iron housing
- Splined actuator lever can be positioned in 30° increments
- Choice of CW or CCW lever actuation

## SPECIFICATIONS

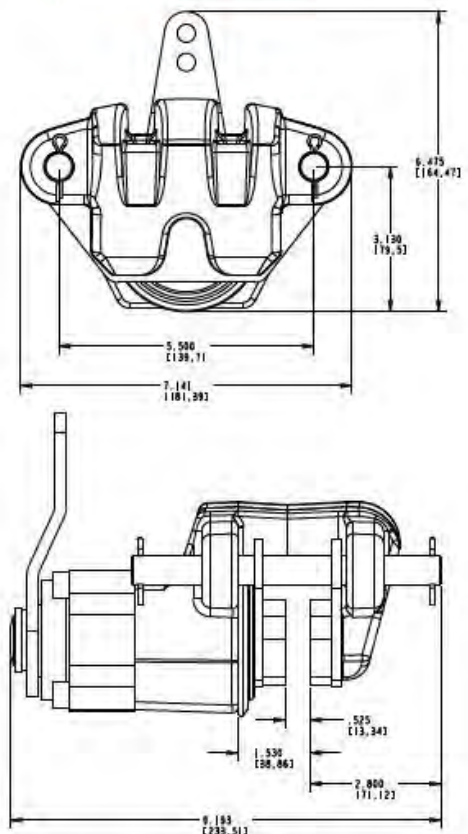
WEIGHT	9.75 Kg
ROTOR DIAMETER	254 mm - 762 mm
ROTOR THICKNESS	12.70 mm - 25.4 mm
LINING TYPE	Non-Asbestos Organic, Sintered
TOTAL LINING AREA	9032 Sq. mm.
USABLE LINING THICKNESS PER PAD	8.46 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - contact@hbpai.com.

## TORQUE INFORMATION



## REFERENCE DIMENSIONS





# M100LM

## FEATURES

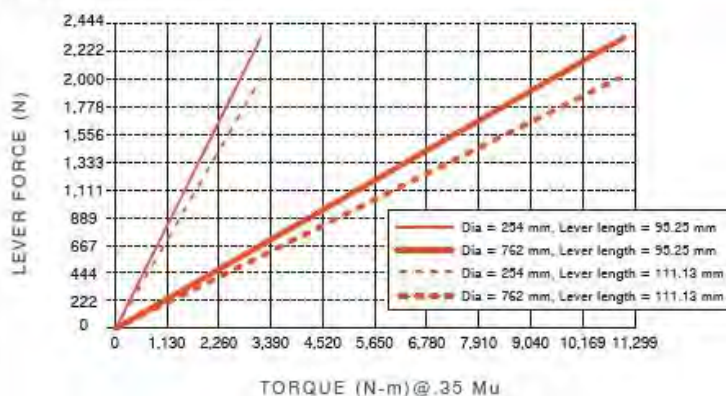
- // Capable of 44482 N of clamp force
- // Fully sealed ball ramp mechanism
- // Self adjusting mechanism minimizes maintenance for pad wear
- // Nodular cast iron housing
- // Splined actuator lever can be positioned in 30° increments
- // Choice of CW or CCW lever actuation
- // Supplied with mount bolts and sealed and lubricated slider pins

## SPECIFICATIONS

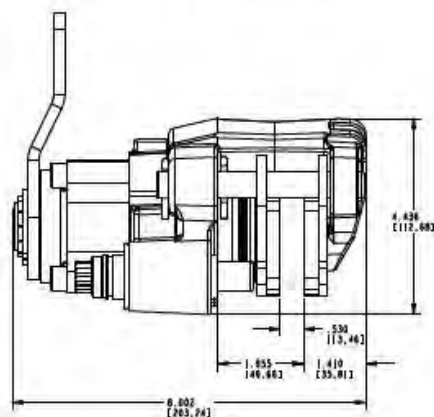
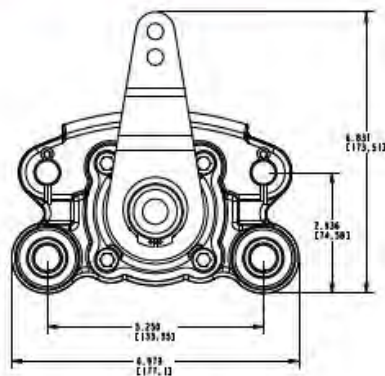
WEIGHT	9.53 Kg
ROTOR DIAMETER	254 mm - 508 mm
ROTOR THICKNESS	12.7 mm - 25.4 mm
LINING TYPE	Non-Asbestos Organic, Sintered
TOTAL LINING AREA	9548 Sq. mm
USABLE LINING THICKNESS PER PAD	11.94 mm

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - contact@hbpsi.com.

## TORQUE INFORMATION



## REFERENCE DIMENSIONS



# M100SA

## FEATURES

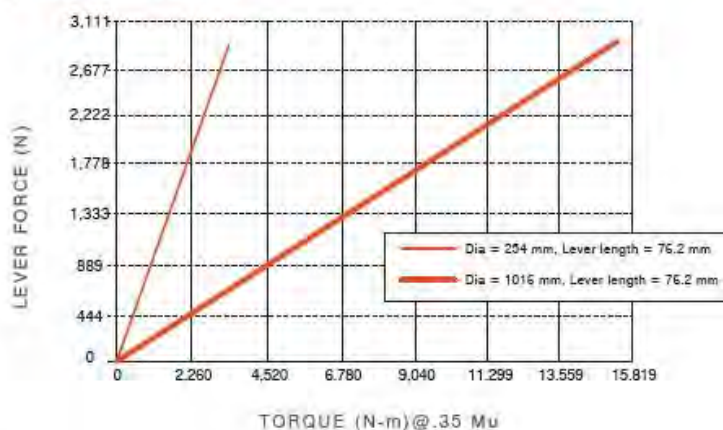
- // Capable of 44482 N of clamp force
- // Self adjusting for friction pad wear
- // Fully sealed internal ball ramp mechanism
- // Fully assembled, with air chamber mounted for either CW or CCW operation
- // Quick change pads, retained by mount pins
- // Fast response - capable of 100 milliseconds
- // Chamber can be positioned in 120 degree increments
- // Mechanical release using a wrench

## SPECIFICATIONS

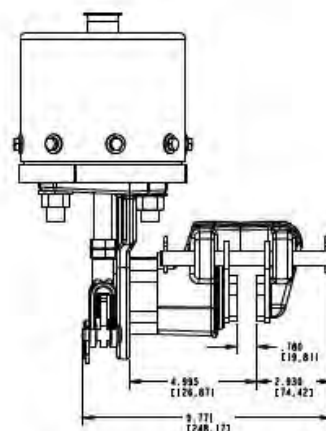
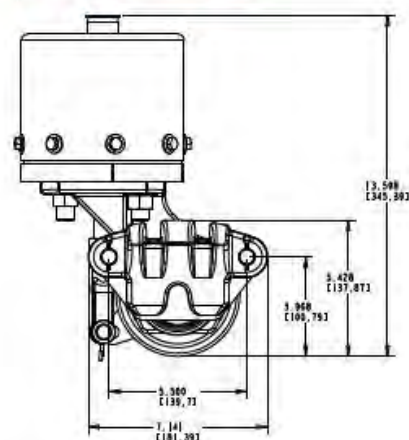
WEIGHT	16.56 Kg
ROTOR DIAMETER	254 mm - 1016 mm
ROTOR THICKNESS	9.53 mm - 19.05 mm
LINING TYPE	Non-Asbestos Organic, Sintered
TOTAL LINING AREA	9548 Sq. mm
USABLE LINING THICKNESS PER PAD	11.94 mm

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## TORQUE INFORMATION



## REFERENCE DIMENSIONS





# M100SH

## FEATURES

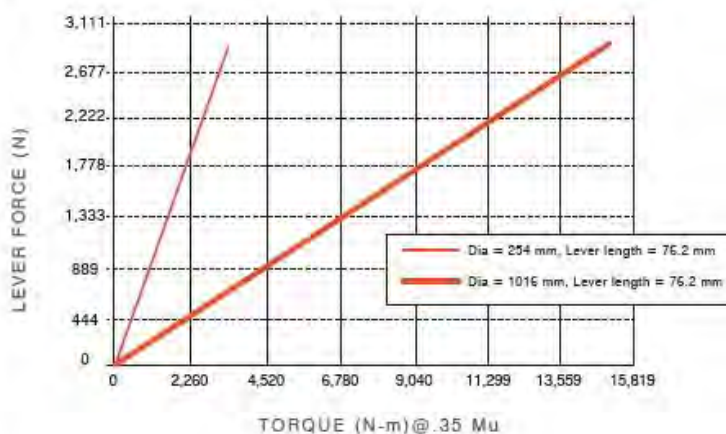
- // Capable of 44482 N of clamp force
- // Self adjusting for friction pad wear
- // Fully assembled with spring chamber capable of being rotated in 90 degree increments
- // Quick change pads, retained by mount pins
- // Fully sealed internal ball ramp mechanism
- // Capable of a 40 millisecond response time
- // Spring will have less than 2% creep in normal applications
- // Mechanical release using a wrench on chamber pull rod

## SPECIFICATIONS

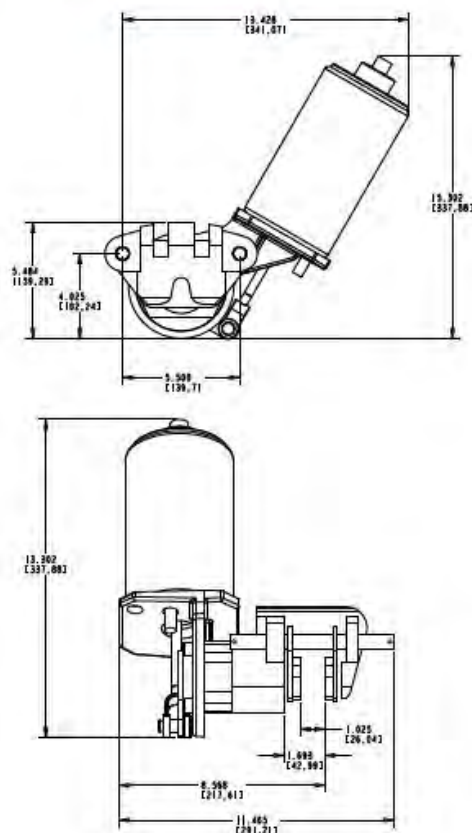
WEIGHT	21.77 Kg
ROTOR DIAMETER	254 mm - 1016 mm
ROTOR THICKNESS	12.7 mm - 25.4 mm
LINING TYPE	Non-Asbestos Organic, Sintered
TOTAL LINING AREA	9548 Sq. mm
USABLE LINING THICKNESS PER PAD	11.94 mm

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## TORQUE INFORMATION



## REFERENCE DIMENSIONS





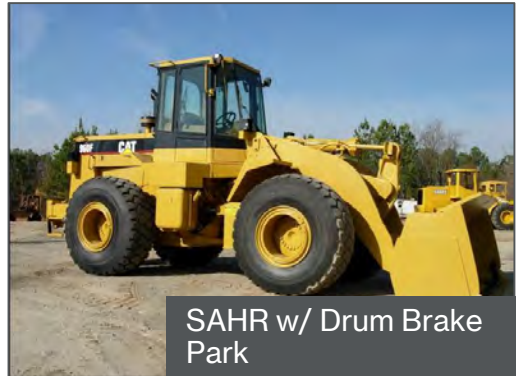
# SAHR/SA

Spring Applied Hydraulic or Air Release

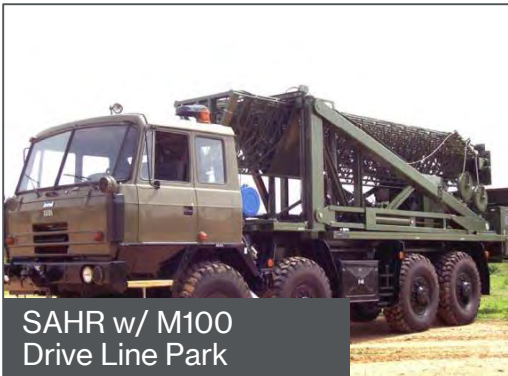
**AR** In Conjunction with M100, 663, 660 Calipers or also Drum Brakes. Redundant Brake Systems



SAAR w/ 663  
Service /Park



SAHR w/ Drum Brake  
Park



SAHR w/ M100  
Drive Line Park



SAAR w/ M100  
Drive Line Park



SAAR w/ M100  
Drive Line Park



SAHR Canister - Park



# SAHR – SPRING APPLY HYDRAULIC RELEASE

## FEATURES

- // Springs are permanently and safely sealed in corrosion resistant chamber
- // Only 45.23Cu. cm of fluid required for hold off
- // Designed for continuous system pressures up to 253.38 bar
- // Spring designed for less than 2% creep in normal applications
- // Minimal variation in spring force over entire 57.15 mm stroke
- // SAE J1453-6 O-ring face seal inlet \*
- // Sealed chamber prevents actuator and spring contamination
- // Ball socket push rod end minimizes binding and allows easy rotation for length adjustment and back off
- // Multiple interface options (Rod/Clevis) \*

\* Consult Hayes for other options

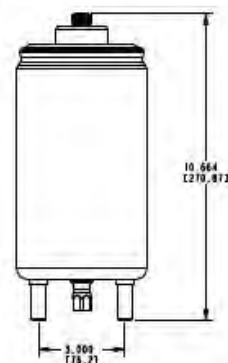
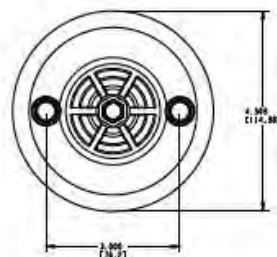


## TYPICAL SPECIFICATIONS

SAHR SPRING PACK NUMBER	Force (N) 0.00 mm Stroke	Force (N) 25.4 mm Stroke	Force (N) 57.2 mm Stroke	Bar Hold Off	Max Bar
1	1335	1268	1001	19	253
2	1847	1722	134	26	253
3	3338	2937	2292	46	253
4	4139	3694	2893	58	253
5	4895	4379	3338	69	253
6	6208	5318	3694	88	253
7	6617	5785	4762	92	253
8	8299	7432	5830	115	253

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## REFERENCE DIMENSIONS



# 1-663-

## Service Brake, Driveline and in Wheel Application

# 1S

**Driveline and Outboard Service Brakes,  
Dynamometer Driveline Service and Wheel  
Service Brakes**



Drive Line Service  
Brake



Drive Line Service  
Brake



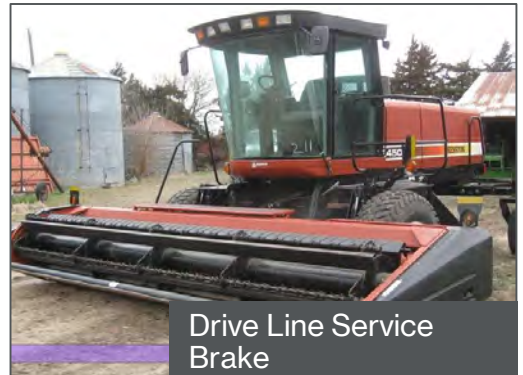
Drive Line Service  
Brake



Drive Line Service  
Brake



Drive Line Service  
Brake



Drive Line Service  
Brake



# 1-663-1S

## FEATURES

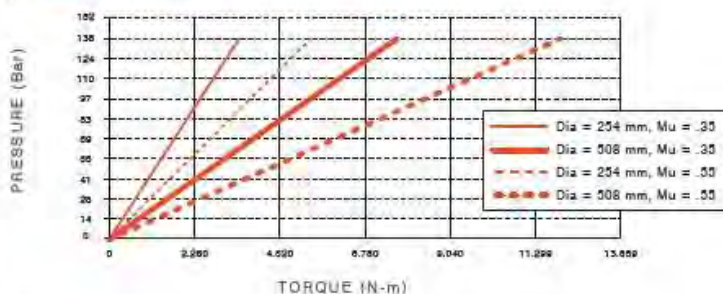
- Capable of 44482 N of clamp force
- One-piece nodular iron housing
- Ideal for mount on driveline or in the wheel
- Square seal piston retraction for constant running clearance
- Supplied with mount bolts and sealed and lubricated slider pins
- Variety of inlet and bleeder options for mounting flexibility
- Quick change pads

## SPECIFICATIONS

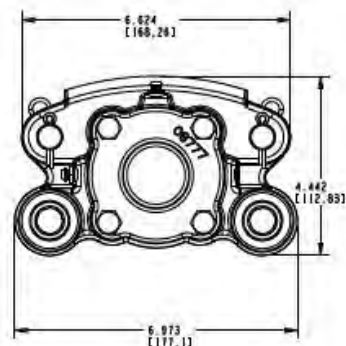
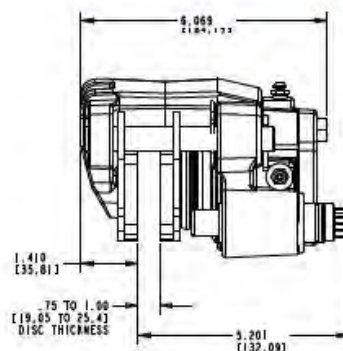
WEIGHT	8.17 Kg
ROTOR DIAMETER	254 mm - 508 mm
ROTOR THICKNESS	12.7 mm - 25.4 mm
LINING TYPE	Non-Asbestos Organic, Sintered, Semi-Metallic
TOTAL LINING AREA	9355 Sq. mm.
USABLE LINING THICKNESS PER PAD	8.33 mm
PISTON DIAMETER	66.04 mm
MAX PRESSURE	138 bar
FLUID DISPLACEMENT	3.28 Cu. cm.
FLUID TYPE	Brake Fluid, Hydraulic Oil
FLUID INLET	12:00, 3:00, 9:00
BLEEDER	12:00, 3:00, 9:00

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## TORQUE INFORMATION



## REFERENCE DIMENSIONS

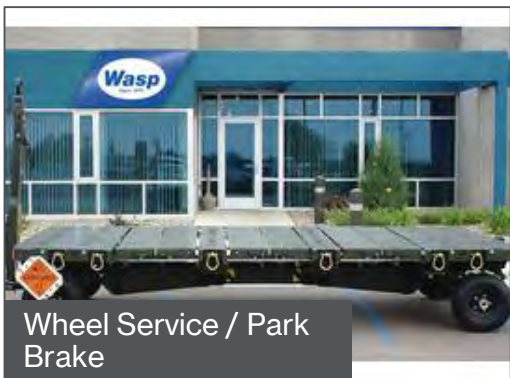


HAYES HYDRAULIC BRAKES

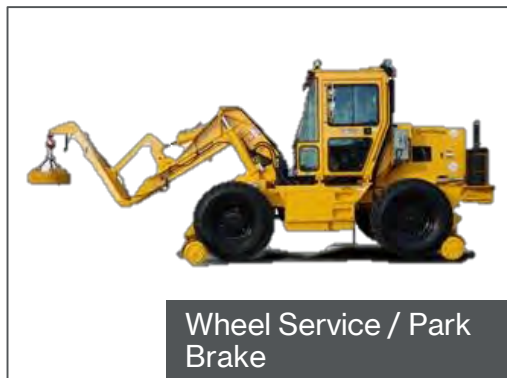
# 1-663-

## Service and Park Brake, Driveline and in Wheel Mounting

**Driveline and Outboard Service / Park Brakes,  
Dynamometer Driveline Service / Park and Wheel Service /  
Park Brake**



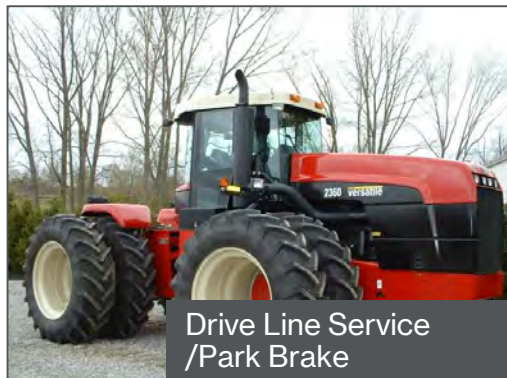
Wheel Service / Park  
Brake



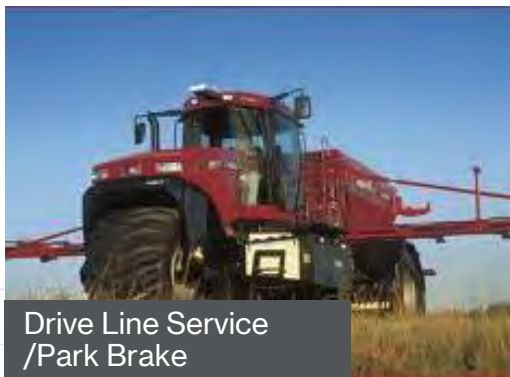
Wheel Service / Park  
Brake



Drive Line Service  
/Park Brake



Drive Line Service  
/Park Brake



Drive Line Service  
/Park Brake



Drive Line Service  
/Park Brake

**HAYES**

HayesPerformance.com | 5800 W. Donges Bay Road, Mequon, WI 53092

**HAYES**  
PERFORMANCE SYSTEMS





# 1-663-1SA

## FEATURES

- // Capable of 44482 N of service clamp force, and 44482 N of mechanical clamp force
- // Ideal for mount on driveline or in the wheel
- // One piece nodular iron housing
- // Square seal piston retraction for constant running clearance
- // Integral secondary/park brake self adjusts for pad wear
- // Choice of CW or CCW lever actuation
- // Variety of inlet and bleeder options for mounting flexibility
- // Supplied with mount bolts and sealed and lubricated slider pins
- // Quick change pads

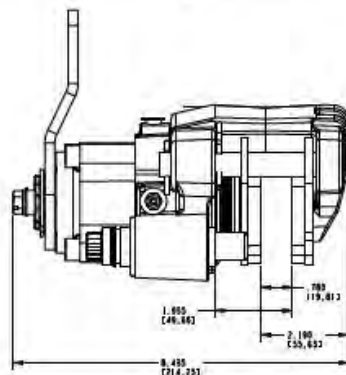
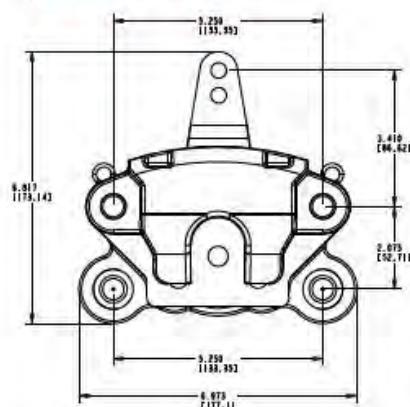


## SPECIFICATIONS

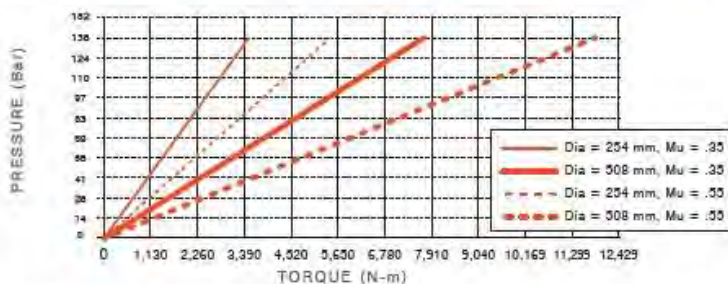
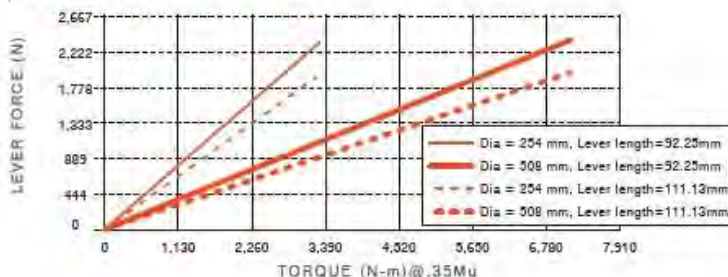
WEIGHT	9.53 Kg
ROTOR DIAMETER	254 mm - 508 mm
LINING TYPE	Non-Asbestos Organic, Sintered, Semi-Metallic
TOTAL LINING AREA	9355 Sq. mm.
USABLE LINING THICKNESS PER PAD	8.33 mm
PISTON DIAMETER	66.04 mm
MAX PRESSURE	138 bar
FLUID DISPLACEMENT	3.28 Cu. cm.
FLUID TYPE	Brake Fluid, Hydraulic Oil
FLUID INLET	12:00, 3:00, 9:00
BLEEDER	12:00, 3:00, 9:00

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - [contact@hps.com](mailto:contact@hps.com).

## REFERENCE DIMENSIONS



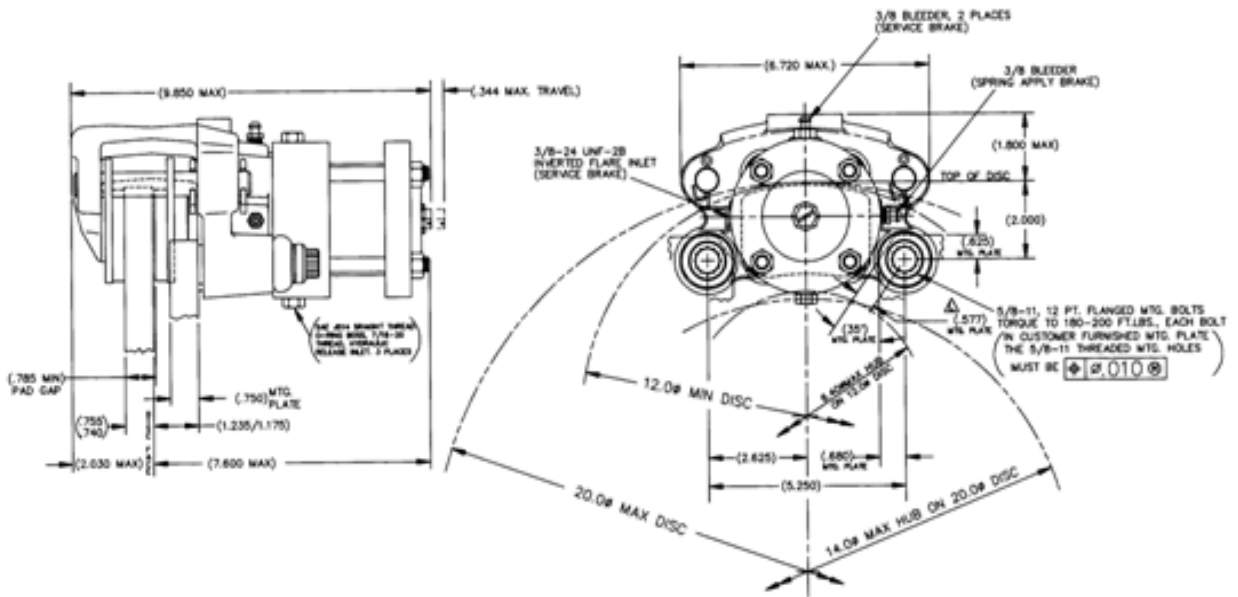
## TORQUE INFORMATION





# 1-663-1SB

## Service / Park Brake



CLAMP FORCE	22200 N min
RELEASE PRESSURE	138 – 173 bar
INIT: FLUID REQD: TO UNCLAMP	22,95 cm <sup>3</sup>
OPERATING FLUID REQD: TO UNCLAMP	2,46 cm <sup>3</sup>
OAL	250 mm
WIDTH	171 mm
HEIGHT	203,2 mm

# 2-660-

## Service Brake

# 1S Dynamometer Driveline and Driveline Service Brake



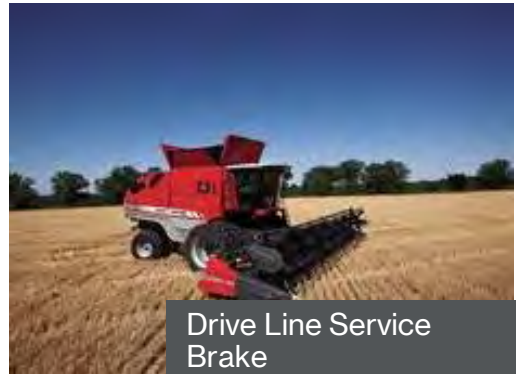
Drive Line Service Brake



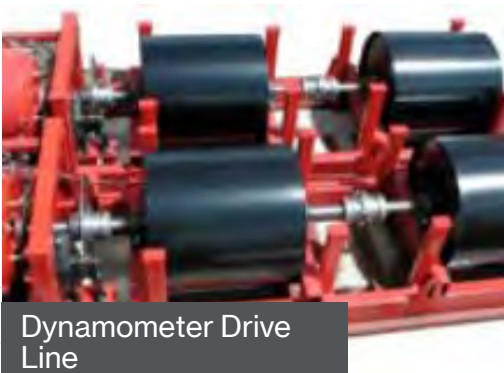
Drive Line Service Brake



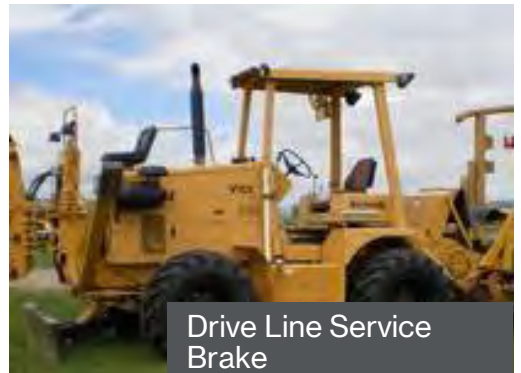
Drive Line Service Brake



Drive Line Service Brake



Dynamometer Drive Line



Drive Line Service Brake

# 2-660-1S

## FEATURES

- // Capable of 44482 N of clamp force
- // Ideal for mount on driveline or in the wheel
- // One piece nodular iron housing
- // Square seal piston retraction for constant running clearance
- // Variety of inlet and bleeder options for mounting flexibility
- // Quick change pads with 15484 Sq. mm. of pad area



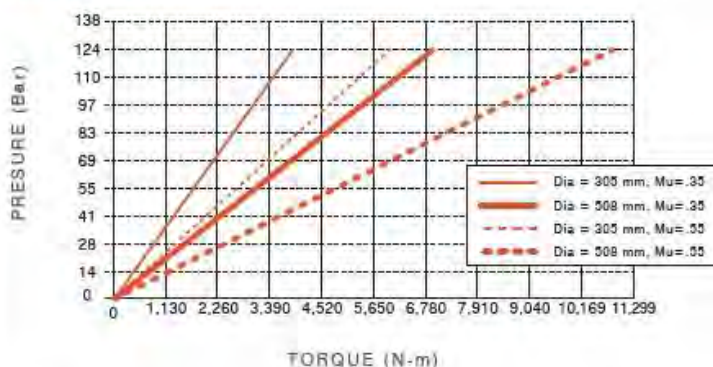
## SPECIFICATIONS

WEIGHT	17.7 Kg
ROTOR DIAMETER	304.80 mm - 508 mm
ROTOR THICKNESS	12.70 mm - 25.4 mm
LINING TYPE	Sintered, Non-Asbestos Organic
TOTAL LINING AREA	15484 Sq. mm.
USABLE LINING THICKNESS PER PAD	12.7 mm
PISTON DIAMETER	66.04 mm
MAX PRESSURE	124.11 Bar
FLUID DISPLACEMENT	6.56 Cu. cm.
FLUID TYPE	Brake Fluid, Hydraulic Oil
FLUID INLET	12:00, 3:00, 9:00
BLEEDER	12:00, 3:00, 9:00

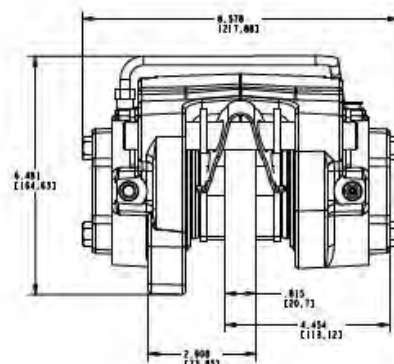
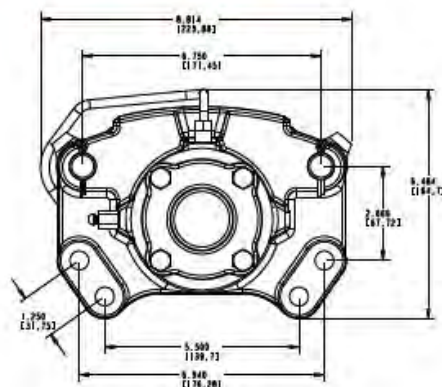
Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - contact@hbpsl.com.

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## TORQUE INFORMATION



## REFERENCE DIMENSIONS





# 2-660-

## Service and Park Brake

# 1SA

Dynamometer Driveline/park, Driveline Service  
/ Park



Drive Line Service  
/Park Brake



Drive Line Service  
/Park Brake



Dynamometer Service  
/Park Brake



Drive Line Service  
/Park Brake



Drive Line Service  
/Park Brake



Dynamometer Service  
/Park Brake

# 2-660-1SA

## FEATURES

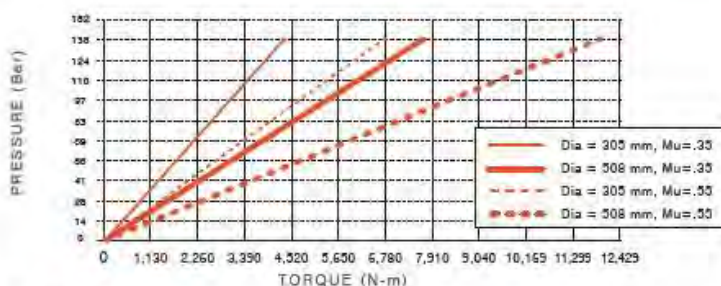
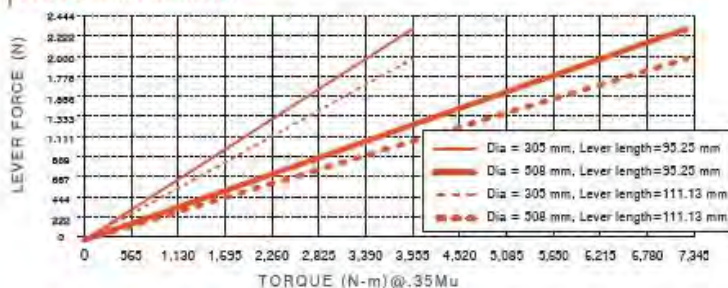
- // Capable of 44482 N of service clamp force, and 44482 N of mechanical clamp force
- // Ideal for fixed mount on driveline
- // One piece nodular iron housing
- // Square seal piston retraction for constant running clearance
- // Integral secondary/park brake self adjusts for pad wear
- // CW or CCW park brake lever actuation
- // Variety of inlet and bleeder options for mounting flexibility
- // Quick change pads

## SPECIFICATIONS

WEIGHT	20.87 Kg
ROTOR DIAMETER	304.8 mm - 508 mm
ROTOR THICKNESS	12.70 mm - 25.4 mm
LINING TYPE	Sintered, Non-Asbestos Organic
TOTAL LINING AREA	15484 Sq. mm.
USABLE LINING THICKNESS PER PAD	12.7 mm
PISTON DIAMETER	66.04 mm
MAX PRESSURE	138 bar
FLUID DISPLACEMENT	6.56 Cu. cm.
FLUID TYPE	Brake Fluid, Hydraulic Oil
FLUID INLET	12:00, 3:00, 9:00
BLEEDER	12:00, 3:00, 9:00

Specifications are guidelines only and subject to change. Consult Hayes Performance Systems for specific model, part number, and assembly drawings - contact@hbps.com.

## TORQUE INFORMATION



## REFERENCE DIMENSIONS

