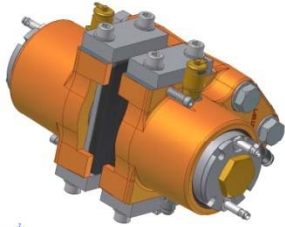


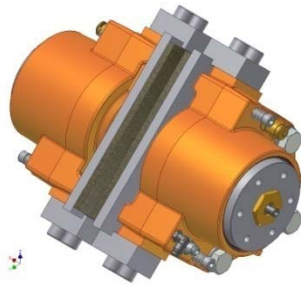
8

Industrial Disc Brakes

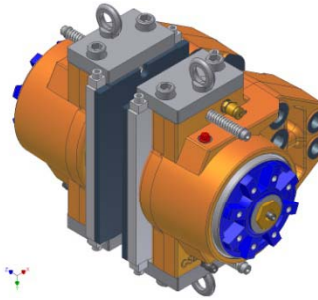
1.0 CSB-SA MODELS



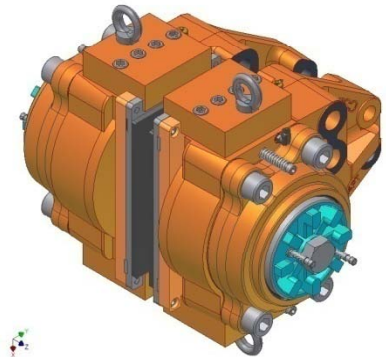
CSB-200-SA



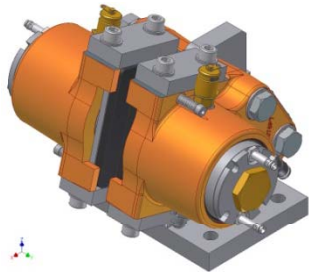
CSB-300-SA



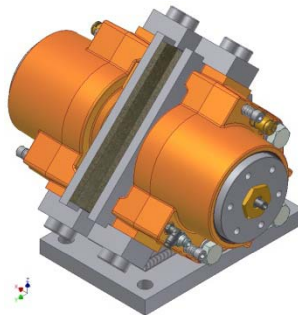
CSBH-3000-SA



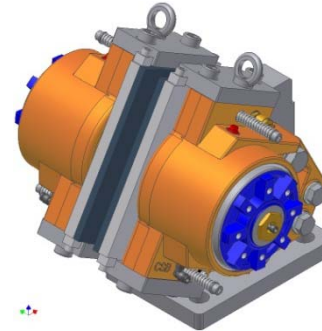
CSB-5000-SA



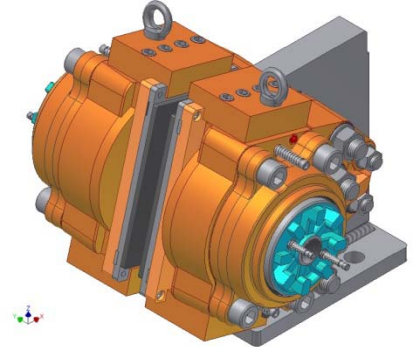
CSB-200-SAFM



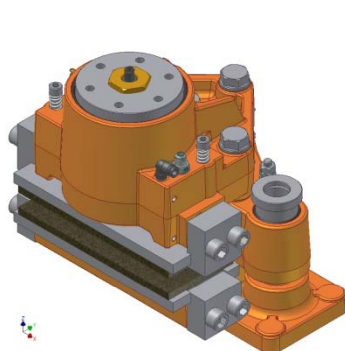
CSB-300-SAFM



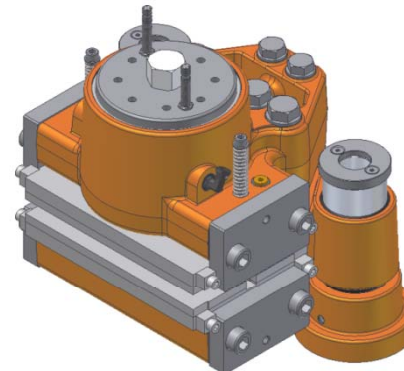
CSBH-3000-SAFM



CSB-5000-SAFM

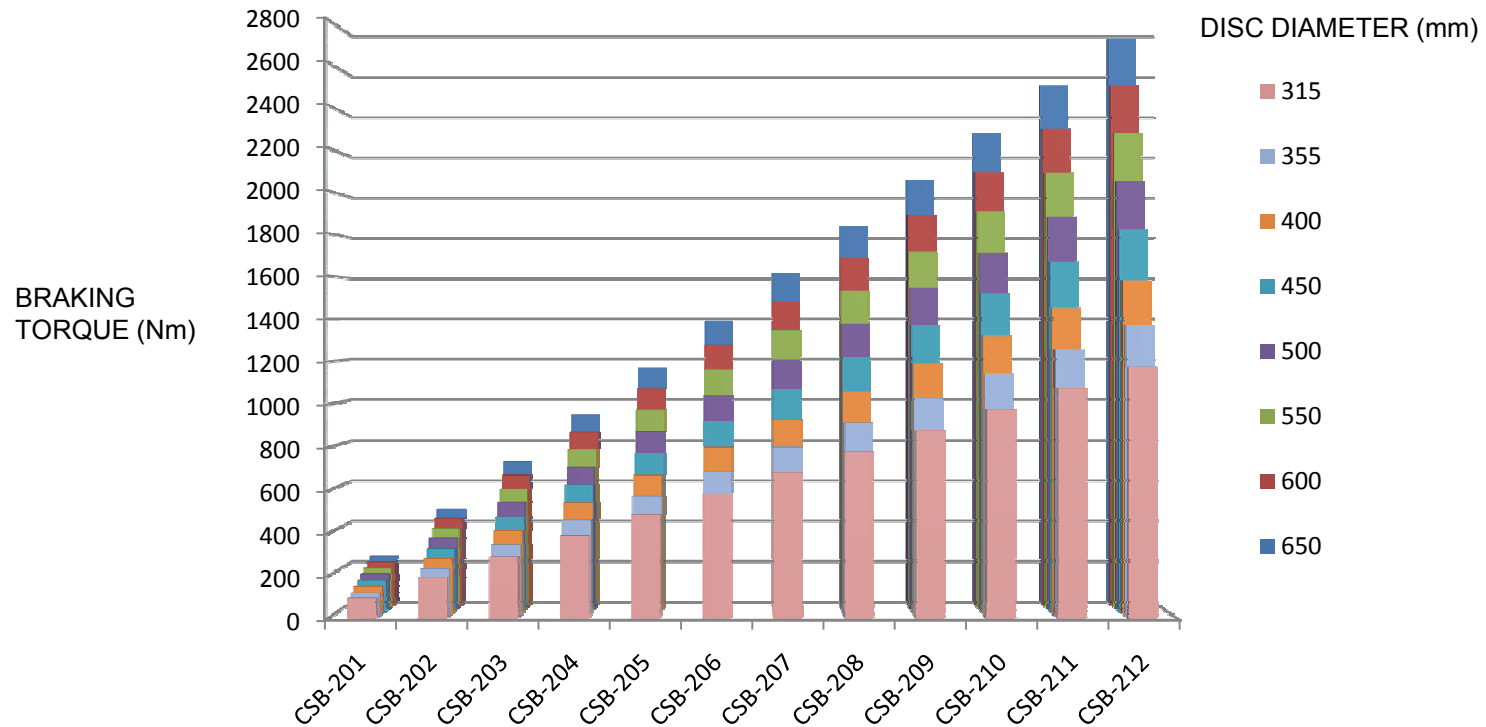


CSB-300-SAMS

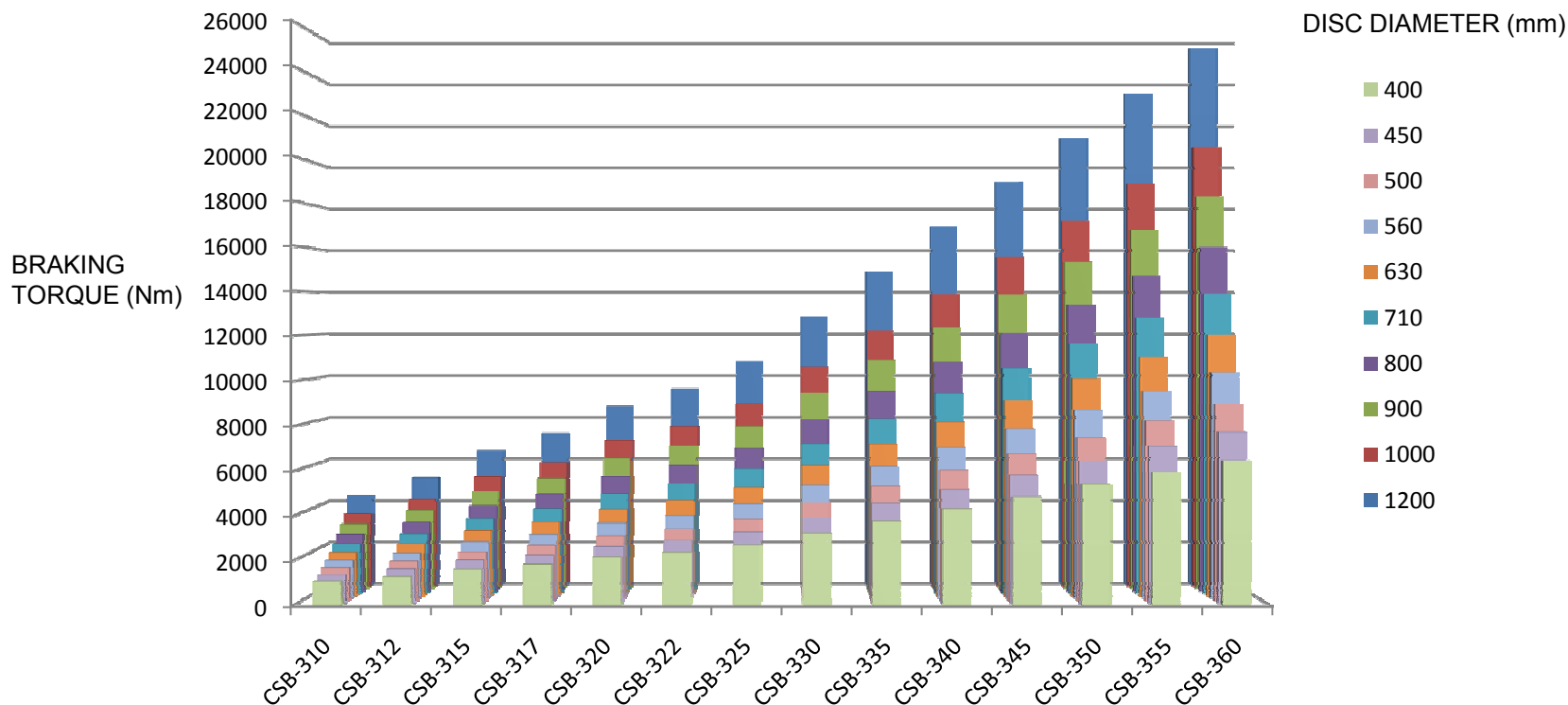


CSBH-3000-SAMS

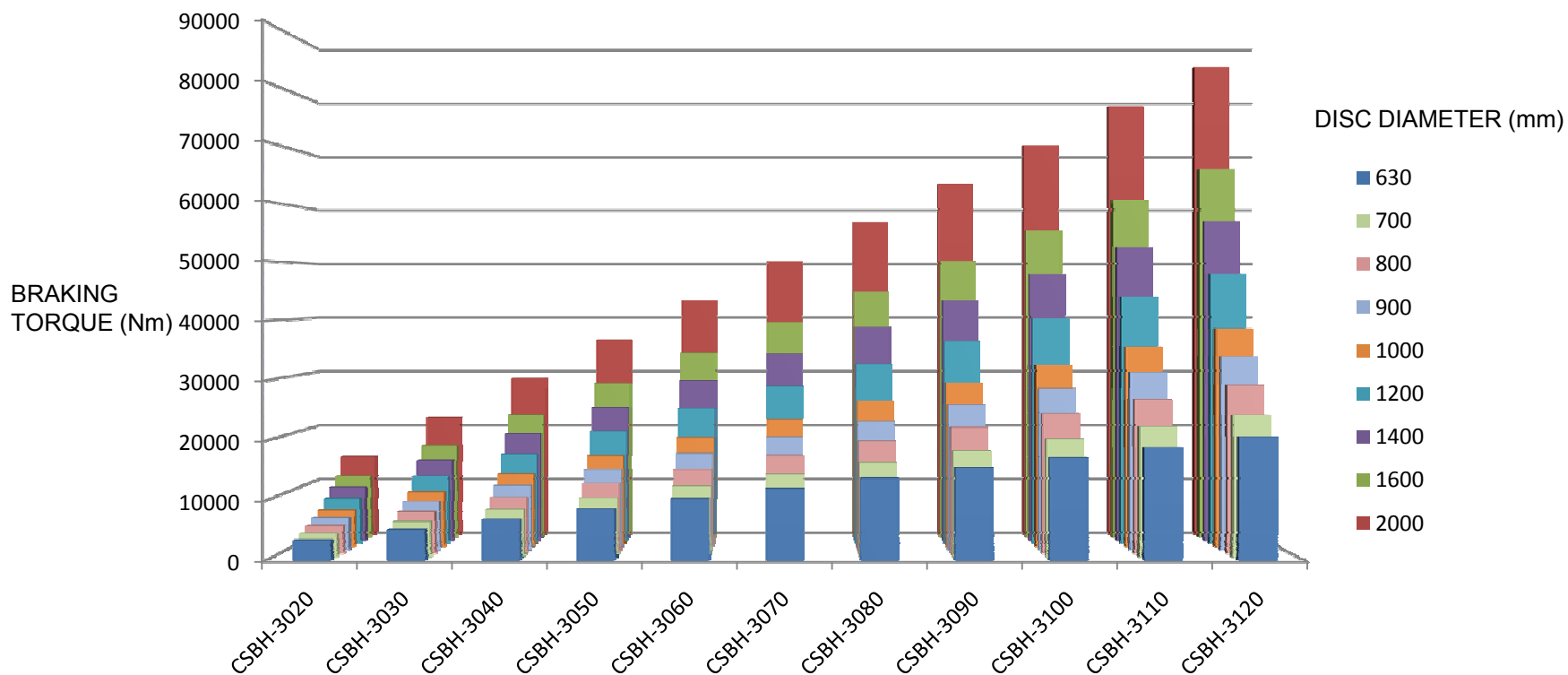
1.1 CSB-200-SA PRODUCT MATRIX



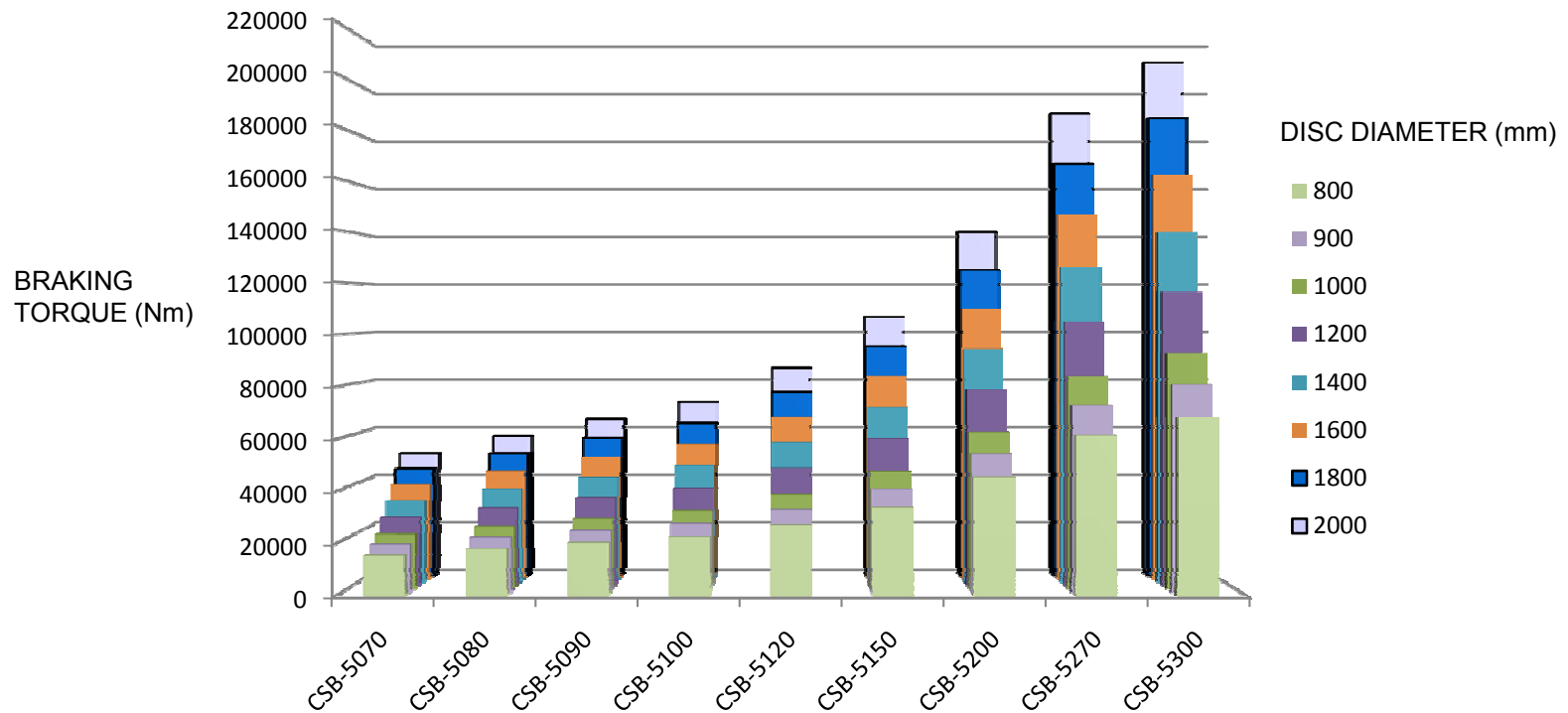
1.2 CSB-300-SA PRODUCT MATRIX



1.3 CSBH-3000-SA PRODUCT MATRIX



1.4 CSB-5000-SA PRODUCT MATRIX



2.0 PRINCIPALS OF OPERATION

2.1 SPRING APPLIED SA

F_S – SPRING FORCE

- This force is the applied spring force that would be applied to the disc at 1mm spring extension.
- i.e. 1mm per side retracted clearance

F_C – CLAMPING FORCE = $2 \times F_S$

F_B – BRAKING FORCE = $F_C \times \mu$

2.2 SPRING APPLIED MONOSPRING SAMs

F_S – SPRING FORCE

- This force is the applied spring force that would be applied to the disc at 1mm spring extension.
- i.e. 0.5mm per side retracted clearance
- All other forces as per 2.1 ABOVE.

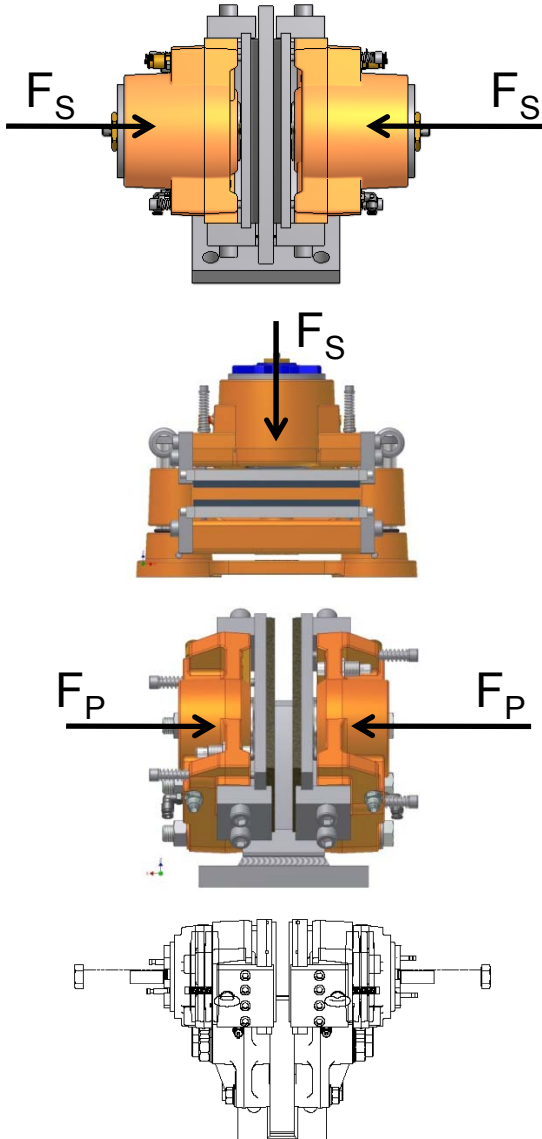
2.3 PRESSURE APPLIED PA

F_P – HYDRAULIC PRESSURE FORCE

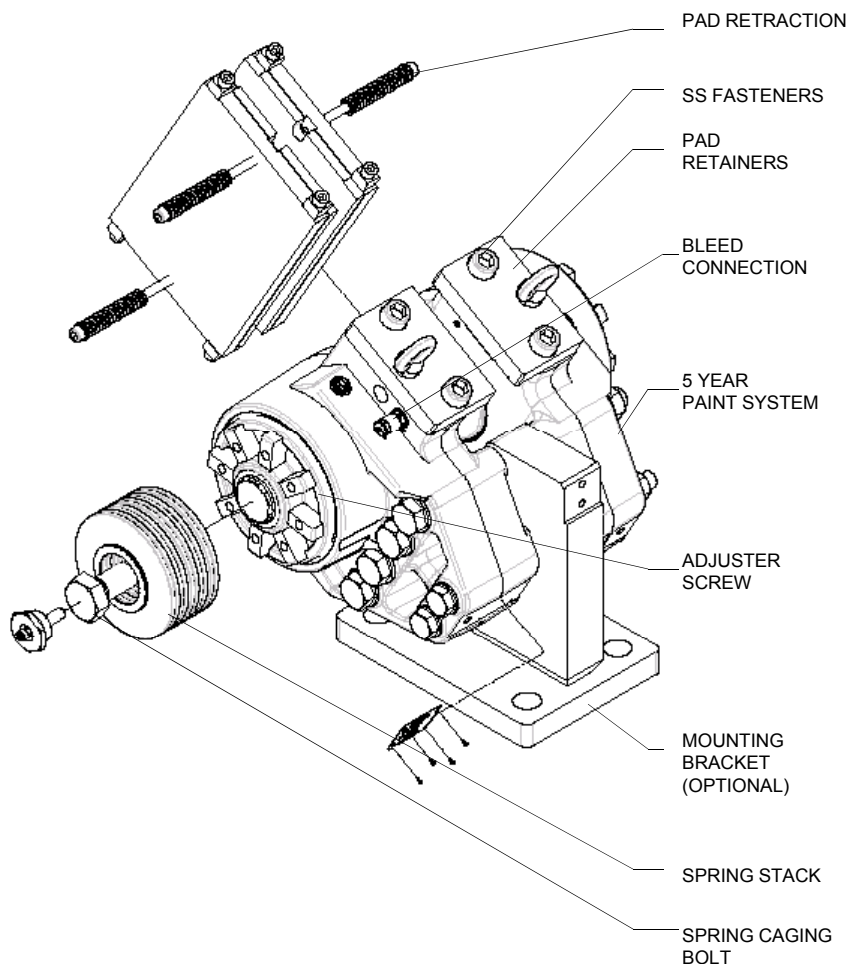
- All other forces as per 2.1 ABOVE.

2.4 SPRING CAGING BOLT

This allows the brake to be shipped in release position for easy installation. The caging bolt allows the brake to be taken out of service in case of emergency or for maintenance purposes.



3.0 DESIGN HIGHLIGHTS



❖ The CSB Brake is available in

- SA - Spring Applied with No Bracket
- SAFM - Spring Applied with Bracket
- SAMS - Spring Applied Mono-spring
- PA – Pressure Applied

❖ Compact design with very few moving parts.

❖ Each brake supplied with spring caging bolt.

❖ External corrosion protection including 5 Year Paint System

❖ Stainless steel pad retraction springs & bolts

❖ Reduced operating pressure. All brakes designed to operate at less than 170 Bar.

❖ Fully integrated brake pad & adjusting screw.

❖ Hydraulic oil drain ports on all cylinders.

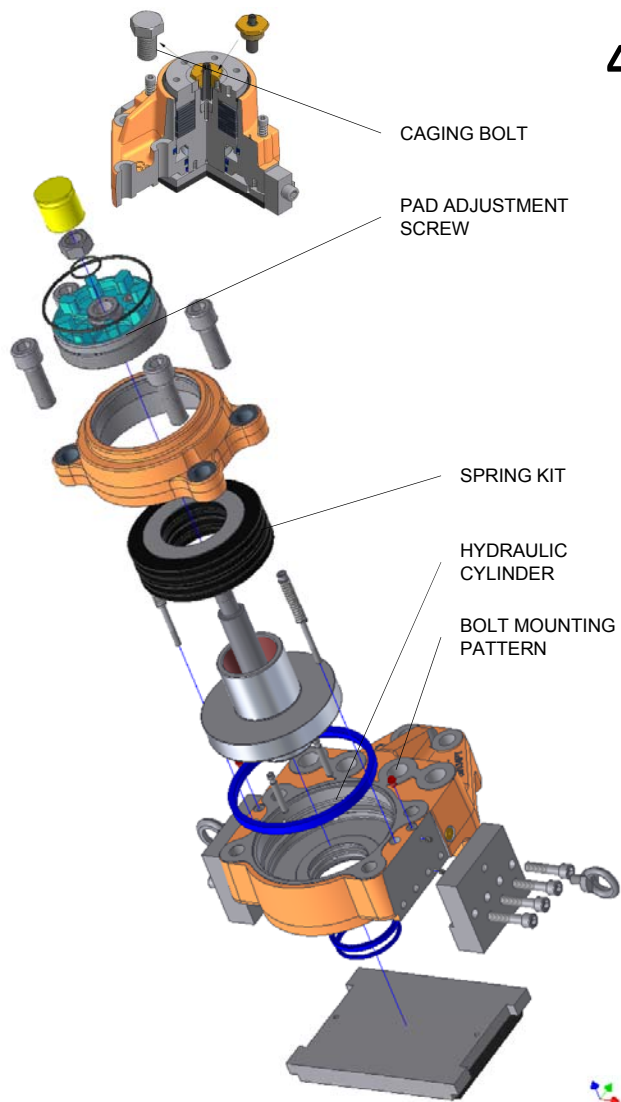
❖ Air bleed port to ease start up & maintenance.

❖ Interchangeable with other leading brand.

❖ Direct acting pushes piston against brake pad.

Note: Stainless steel internals available as corrosion protection option.

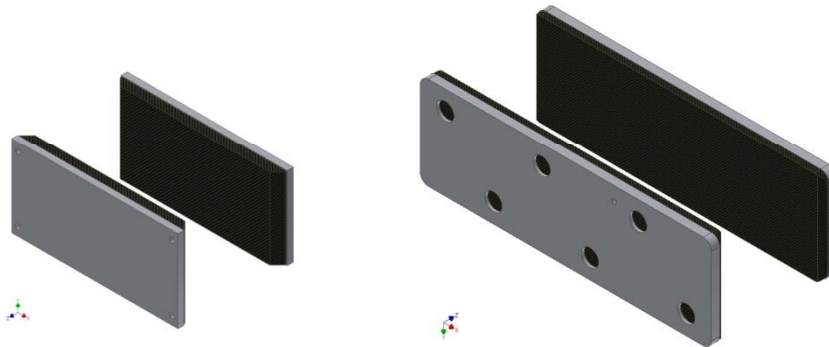
4.0 STANDARD FEATURES



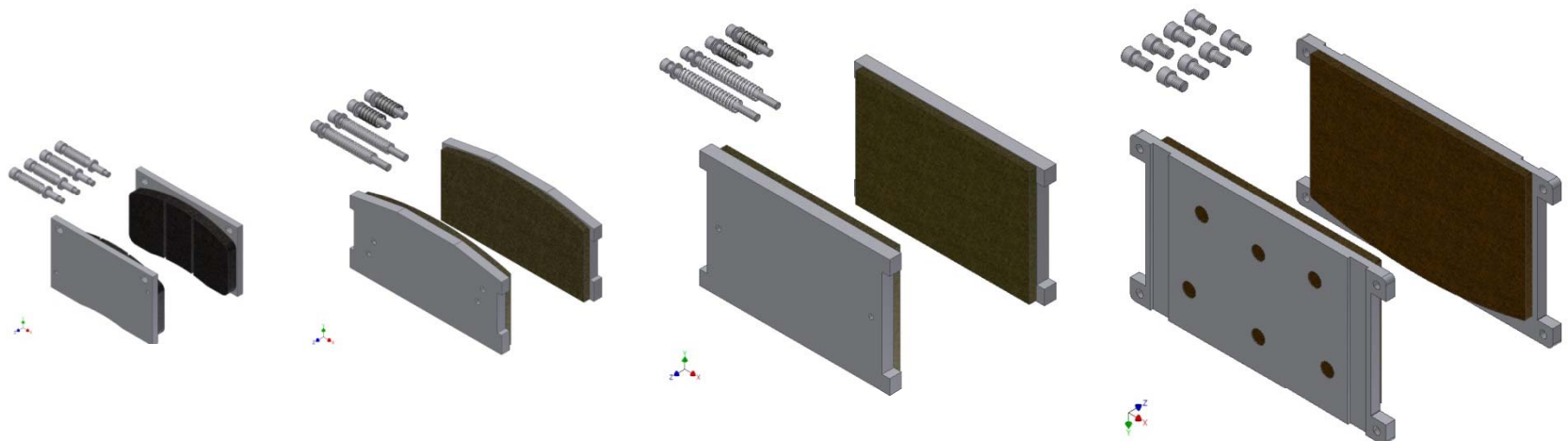
- ❖ All spring kit assemblies certified.
- ❖ Each brake supplied with certified performance certificate.
- ❖ All hydraulic cylinders provided with drain ports.
- ❖ All hydraulic cylinders provided with air bleed ports.
- ❖ All brakes standard with 5 Year Zinc Rich Paint System.
- ❖ All brakes provided with caging bolt.
- ❖ All brakes standard with marine corrosion protection package. Note: This does not apply to the 5000 series brake.
- ❖ Pad adjustment screw standard on all spring cylinders.
- ❖ Bolt mounting pattern interchangeable with leading brand name product.
- ❖ 100% interchangeable brake pad kits.

5.0 ORGANIC LINING BRAKE PADS

- WIND TURBINE TESTED
- NOISE FREE FORMULATION
- LARGE PAD AREAS STANDARD
- EASY FIELD REPLACEMENT
- INTERCHANGABLE PARTS



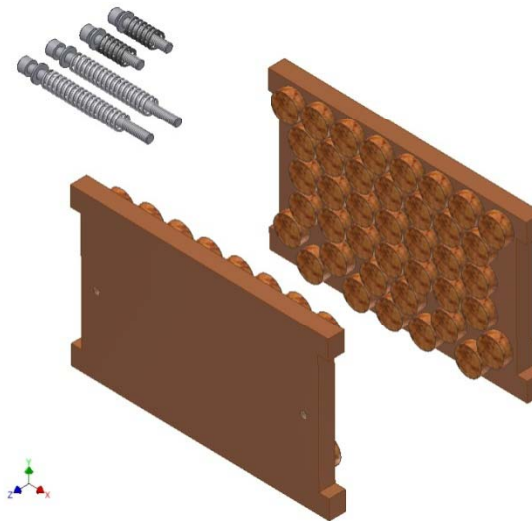
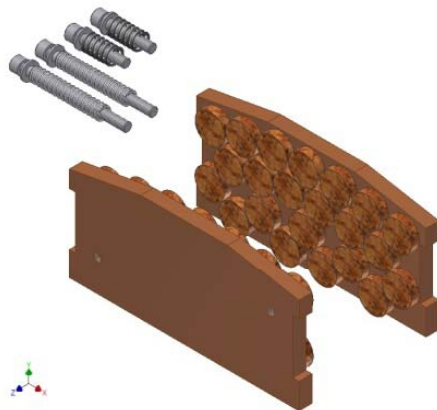
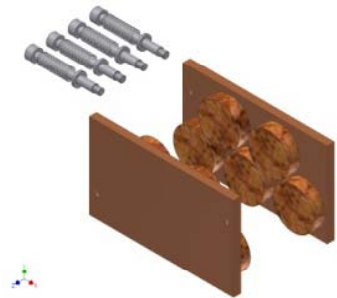
ORGANIC LININGS
FOR STATIC
APPLICATIONS



ORGANIC LININGS
FOR DYNAMIC/STATIC
APPLICATION

6.0 SINTERED METALIC BRAKE PADS

- WIND TURBINE TESTED
- LARGE PAD AREAS STANDARD
- EASY REPLACEMENT
- INTERCHANGABLE PARTS
- PAD RETRACTION SPRINGS





ADJUSTMENT TOOL



TOOL BRACKET KIT



BLEED HOSE



BRAKE RELEASE
PROXIMITY SWITCH



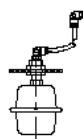
PAD WEAR
PROXIMITY SWITCH



PROXIMITY
SWITCH CABLE



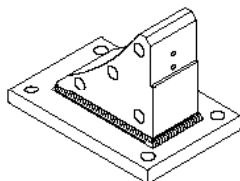
DRAIN BOTTLE KIT



EXPANSION
CHAMBER KIT



HAND PUMP TEST KIT



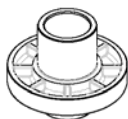
FOOT MOUNT BRACKET



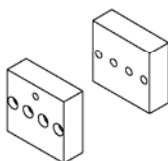
BOLT KIT



TEST POINT
CONNECTORS KIT



PISTON



PAD RETRACTION



ADJUSTER
SCREW

7.0 DESIGN OPTIONS

- ❖ Mounting bracket with bolts.
- ❖ Brake adjustment tool.
- ❖ Bleed hose & fitting kit.
- ❖ Tool kit bracket.
- ❖ Drain bottle kit or expansion chamber kit.
- ❖ Hydraulic power units.
- ❖ Hose & fitting kits.
- ❖ Full range organic & sintered metallic lining kits.
- ❖ Pad wear switch
- ❖ Brake release switch
- ❖ Spring caging bolt mounting bracket kit.
- ❖ Marine corrosion protection package for the CSB-5000 series
- ❖ Stainless steel option for piston, pad retraction & adjuster screw.