

Product Guide

SIGRA

ROLLINGSTOCK COMPONENTS

Brakes, Dampers, Bogie Components



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1. About Us

SIGRA is an Australian owned company formed in 1990. Based in Penrith in the west of Sydney.

We specialise in the supply of components to the rail industry.

- Railcar Dampers (Shock Absorbers) new or Refurbished
- Slack Adjuster Overhaul
- Airbrake hose and Hose assemblies,
- Pneumatic Control Equipment
- Brake Cylinder components
- Door Motors
- Side Bearers and Friction elements
- Bearing Adapters
- Draft Gear
- Ball Valves and many other rollingstock components

Sigra is the Australian agent for railway products for the following organisations:

- MSA-Gimon Dampers
- Monroe (Tenneco) Dampers
- Dispen (Alstom) Dampers
- A.Stucki Bogie Components
- Parker Hannifin

2. New Railcar Dampers

MSA DAMPERS

MSA Damper

Sigra is the authorised agent for MSA Damper. MSA are a major supplier of railcar dampers in Europe and have a complete range of solutions for all Bogie types. Yaw dampers, Vertical, Lateral, Bolster and Pantograph dampers are all available in various mounting configurations damping rates etc.

MSA also offer price competitive non-rebuildable dampers to complement their complete range of re-buildable units. All MSA Dampers can be serviced and overhauled by Sigra



MONROE

SHOCK ABSORBERS

Monroe

Sigra is the agent for Monroe Railcar dampers in Australia and New Zealand. Monroe dampers have been used extensively in Australia and New Zealand for Locomotives and Passenger cars for over 40 years.

There are over 20 standard dampers to suit most applications and variations of lengths, mounting type, damping rate etc. are available.

All Monroe Dampers can be serviced and overhauled by Sigra.



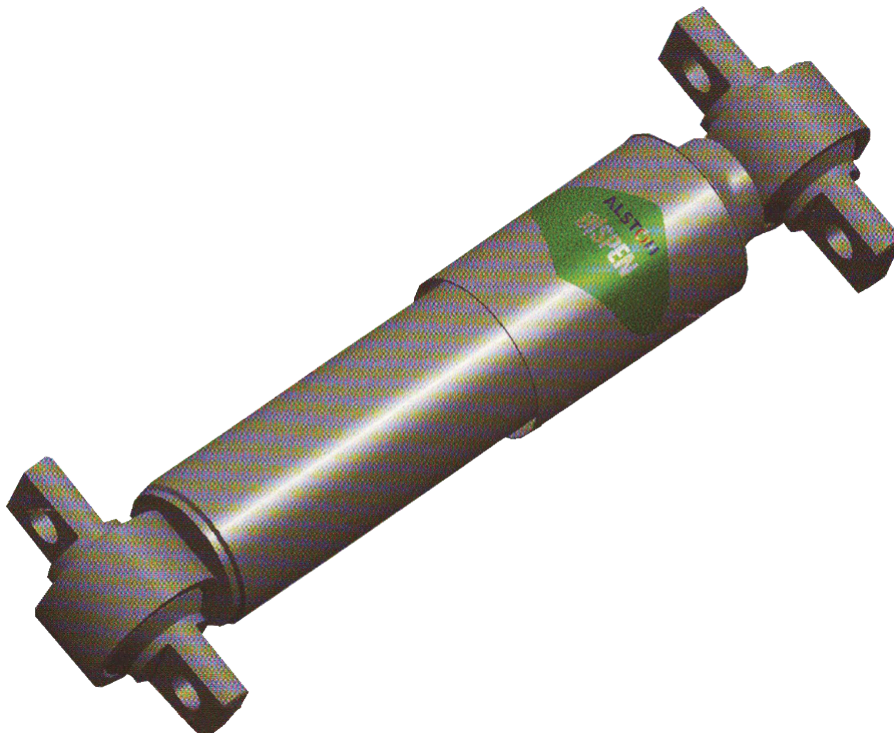


Dispen/Alstom

Sigra is also the Australian agent for Dispen dampers. Dispen is a division of Alstom and these dampers are currently used on Xtrapolis EMU trains as well as Citadis Trams in Melbourne.

Dispen dampers have a unique internal Compensating Bellows and a patented Seal assembly developed for current designs of Passenger car and Locomotive suspension.

All Dispen Dampers can be serviced and overhauled by Sigra.



3. Railcar Damper Overhaul

Our Maintenance division is dedicated to overhaul, testing and adjustment or re-engineering of railcar suspension dampers (shock absorbers).

Many operators now have dampers and Friction Snubbers rebuilt by Sigrail to our high standards, rather than discarding and replacing with OEM units at a much higher cost and long delivery delays.

Sigrail overhauls thousands of Railcar and Locomotive dampers each year, helping to keep our customers' maintenance programs on track.



We repair and test every damper according to its original specifications. Certificates of conformance as well as test logs and print outs for every damper overhauled are available upon request.

When to Overhaul Dampers?

Our general recommendations are that Dampers be serviced at time of bogie overhaul. 350,000 to 500,000km or 3 to 5 years and depending on conditions of use. Conditions of use can vary considerably for different applications including such factors as:

- Track condition
- Bogie design
- Loading
- Heavy haul or passenger
- Damper selection
- Damping rates

Typically once a few dampers start to fail in a fleet, this is a warning of the condition of the rest.

Inspection of Dampers

This can be done when other underframe inspections are done. Whether weekly, monthly, or after long hauls, the signs to look for are:

- leaking oil,
- collapsed or damaged mountings,
- impact damage.

Rough riding reported by drivers or passengers should also be investigated.

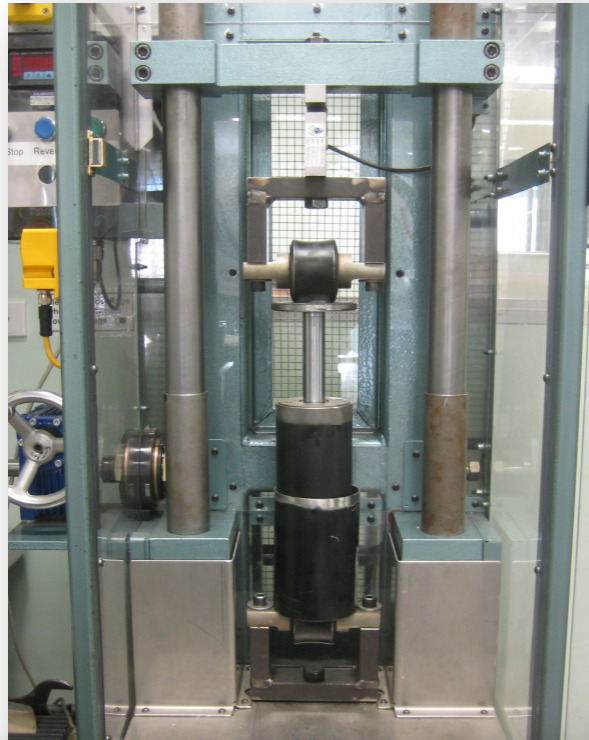
Pre Overhaul Testing

Each individual fleet will have its own requirements. Sigrail can provide testing and/or stripping and assessment of sample dampers from a fleet at various intervals up to the first major overhauls. This can help the fleet manager decide whether any action is required before a major overhaul. Such action is rarely necessary, but it's good to know if you have a developing problem in case of widespread failure. If the above approach is taken, once the fleet has passed major overhaul points, the requirements for damper checking and service will be well established.



Damper Testing

All dampers are tested using our Computer Aided Control (CAC) Damper Testing machines. Each Force vs. Displacement chart (as below) is then inspected for irregularities and the valving forces are set to the correct value as per OEM specifications.



Dampers Service



4. Airbrake Hose Assemblies

Sigra Airbrake hose assemblies are made at our facility in Penrith, NSW. All assemblies are of a crimped construction and use Sigra's NATA certified AS2435 airbrake hose.

"Glad Hand" or breakaway coupling assemblies, sometimes called "Hosebags" are available in standard sizes 1-1/4", 1", 3/4" and 1/2" types, with BSP or NPT nipple threads.

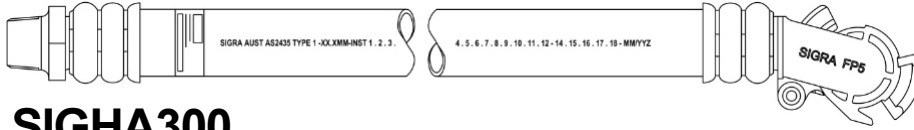
All assemblies are pressure tested and minimum pull-off forces (batch tested) are as per AAR requirements for end fittings.

Common assemblies are generally ex-stock. Less common assemblies or larger quantities are made to order. Some common assemblies are listed on pages 15-17. Many others are available on request, including Armour wire covered assemblies.

Special assemblies of uncommon length and other variations can be made. Most standard Brake Pipe, Main Reservoir, Control and Independent Release (CP and IRP - #3 and #4) hose assemblies are in stock and available for immediate delivery.

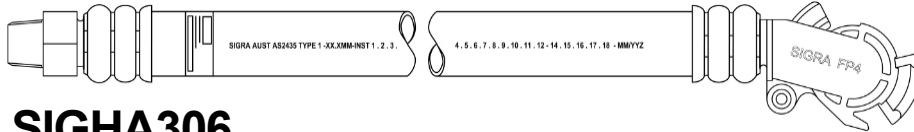
Crimped Airbrake Hose Assemblies

Brake Pipe & Main Reservoir Hoses



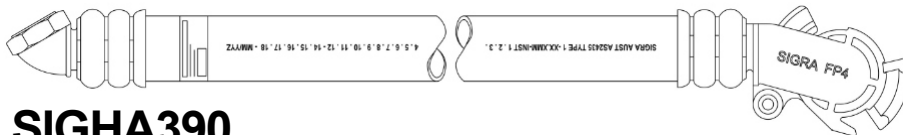
SIGHA300

Hose Assy FP5 x 35.0ID x 1-1/4" BSPT M x 721mm OA



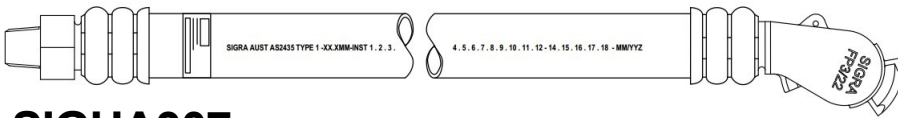
SIGHA306

Hose Assy FP4 x 29.5ID x 1" BSPT M x 755mm OA



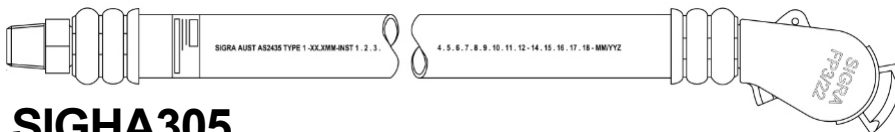
SIGHA390

Hose Assy FP4 x 29.5ID x 1" BSPF 120° x 740mm OA



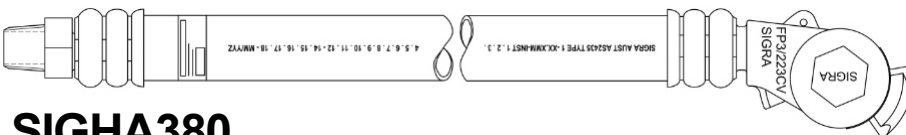
SIGHA307

Hose Assy FP3 x 29.5ID x 3/4 BSPT M x 735mm OA



SIGHA305

Hose Assy FP3 x 22.3ID x 3/4" BSPT M x 720mm OA

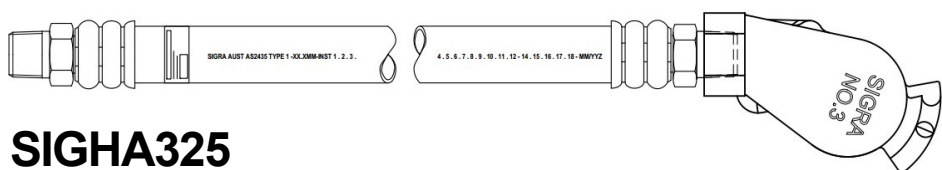


SIGHA380

Hose Assy. FP3 Check Valve x 22.3ID x 3/4" BSPT x 720mm

Crimped Airbrake Hose Assemblies

Control Hoses



SIGHA325

Hose Assy CP(#3 Type B) x 12.5ID x 1/2" BSPT M x 723mm



SIGHA326

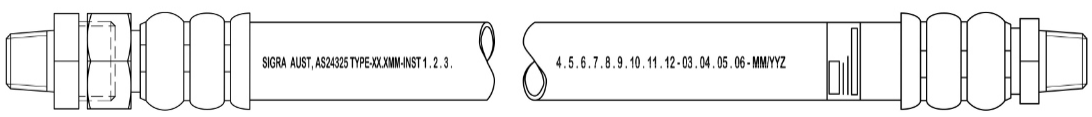
Hose Assy IRP(#4) x 12.5ID x 1/2"BSPT M x 683mm OA

Fixed Consist Hoses



SIGHA357

Hose Assy 3/4"-1.5BSW10TPIF/SW x 22.3ID x 3/4"BSPT M x 1364mm OA



SIGHA358

Hose Assy 1-1/4"-1-3/4"+1-3/4"BSPP F/SW x 35.0ID x 1-1/4BSPTM x 1283mm OA

VTA Hose

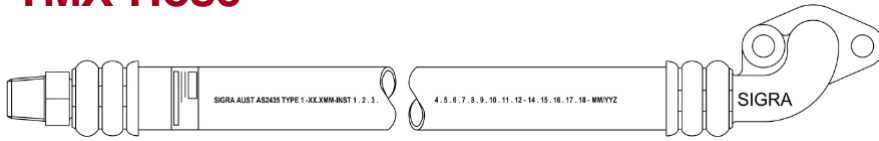


SIGHA347

Hose Assy 3/8"BSPT M x 12.5ID x 1/2"20TPI F/SW x 610mm OA

Crimped Airbrake Hose Assemblies

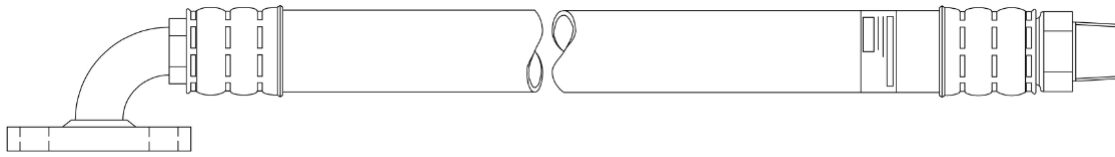
TMX Hose



SIGHA314

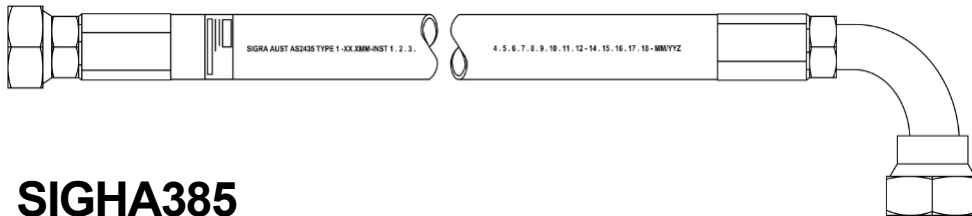
Hose Assy LH 1/2" Elbow Flange x 22.3ID x 3/4"BSPT M x 788mm OA

Brake Cylinder Hoses



SIGHA386

Hose Assy 90 deg 1/2" SW flange x 7/8"ID x 3/4"NPT M x 787mm OA



SIGHA385

Hose Assy 1" BSPP F/SW x 22.3ID x 1" BSPP F/SW 90 deg x 520mm OA

Many other Hose assembly variations and lengths are available on request

AAR Type Airbrake Hose Assemblies

Sigra's AAR Type Air Brake hose assemblies are manufactured in a variety of sizes and configurations. Designed for applications such as wagon / truck mounted brakes (e.g. TMX and Triax), articulated joint connections and Intermediate train lines.

- Machine Crimped construction using AAR Standard M-618 hose
- Available with 1/2", 3/4" and 1-1/4" Flange sizes, Straight or 90° Elbow and to any length required.
- Oil-resistant synthetic elastomer inner tube. Sizes -16, -20 and -24 feature two carbon steel wire braids and a textile braid. Oil, weather, and abrasion-resistant synthetic elastomer outer cover.
- Hose is embossed per AAR Regulation M-618.



**Many hose assembly variations and lengths
are available on request**

5. Airbrake Fittings & Accessories

Sigra has a wide range of airbrake fittings and accessories available to the Australian market.

All items are price competitive and are in many cases ex-stock for short lead times.

Our expertise and experience in air delivery systems means that we can provide solutions to meet your specific needs.

Our range of fittings and accessories include:

Dummy Couplings

Sigra also stocks a full range of Dummy Couplings (suit FP3, FP4, FP5, #3 and #4 heads). They are also available in vented versions.



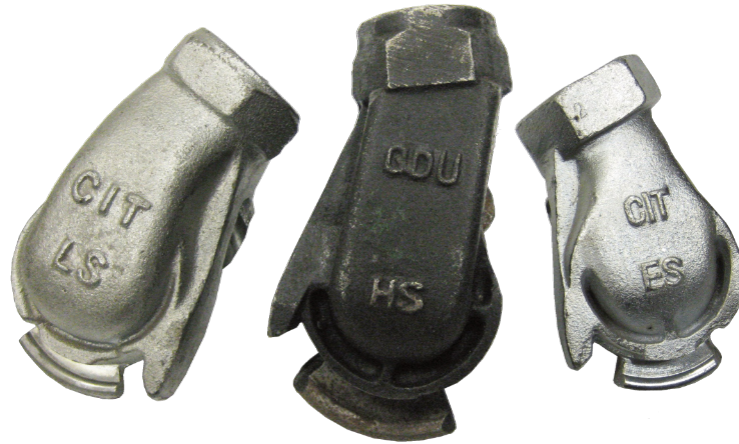
Bracket Couplings

Also available are Sigra manufactured 60° Bracket Couplings for use on locomotives in 1/2" & 3/4" BSP



US Style Heads

US Style Heads and NPT nipple threads also available



Continuity Tester (Brakeman's Test Gauge)

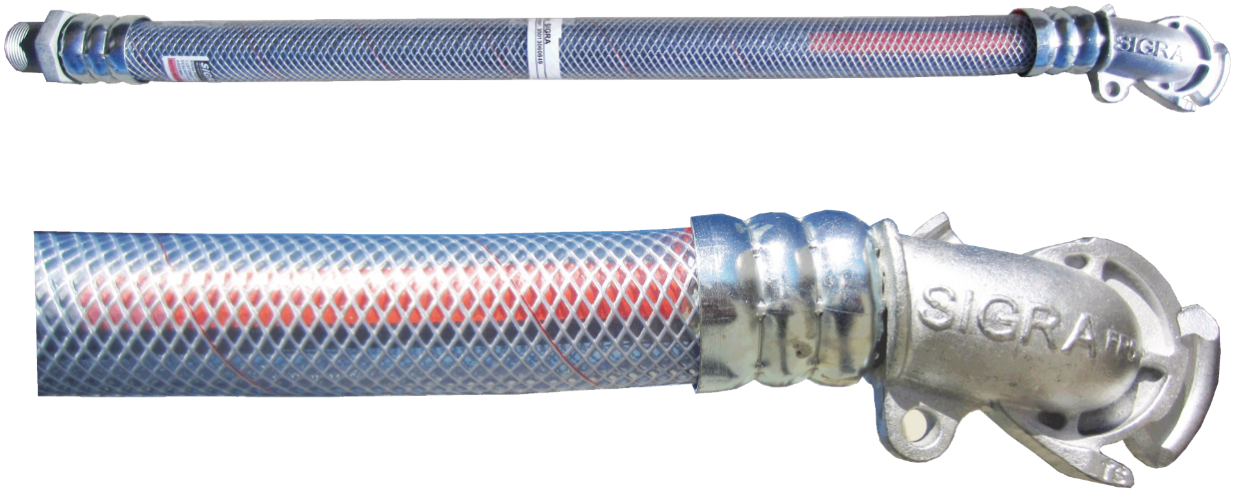
DCFP5-CT couples to standard FP5 and FP4 brake hose coupling heads. 0-800 kPa rubber protected gauge and 1/4" ball valve for quick release of air pressure. Also available to suit FP3, #3 CP & #4 IRP coupling heads.



UDE Hose (Undesired Emergency)

UDE hoses are installed in place of Intercar airbrake hose assemblies for fault finding purposes.

The transparent hose has an orange ribbon fixed internally at one end which will point to the origin of an undesired emergency caused by triggering of an emergency valve in AAR type brake system.



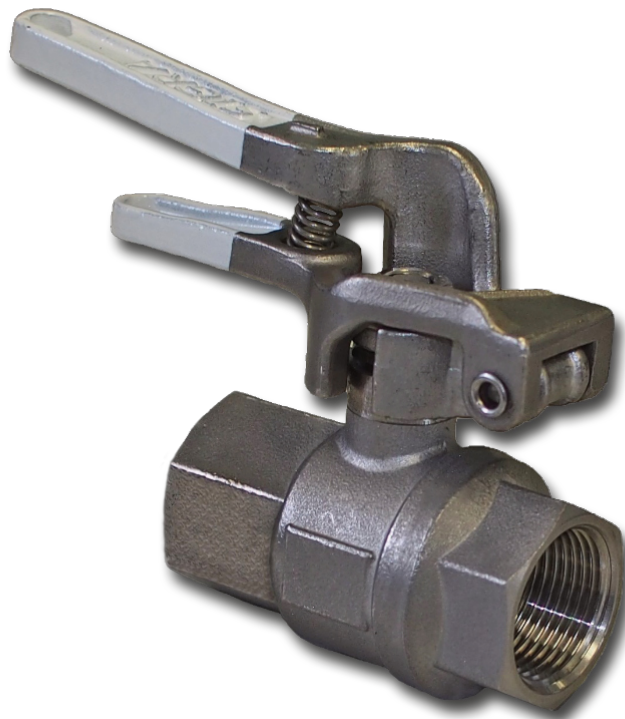
Brake Valve Mounting Kits

A full range of brake valve mounting kits are also available through Sigra and include all necessary o-rings, gaskets and strainers.

6. Isolating, Cut Out & End Cocks

Isolating & Cut-Out Cocks

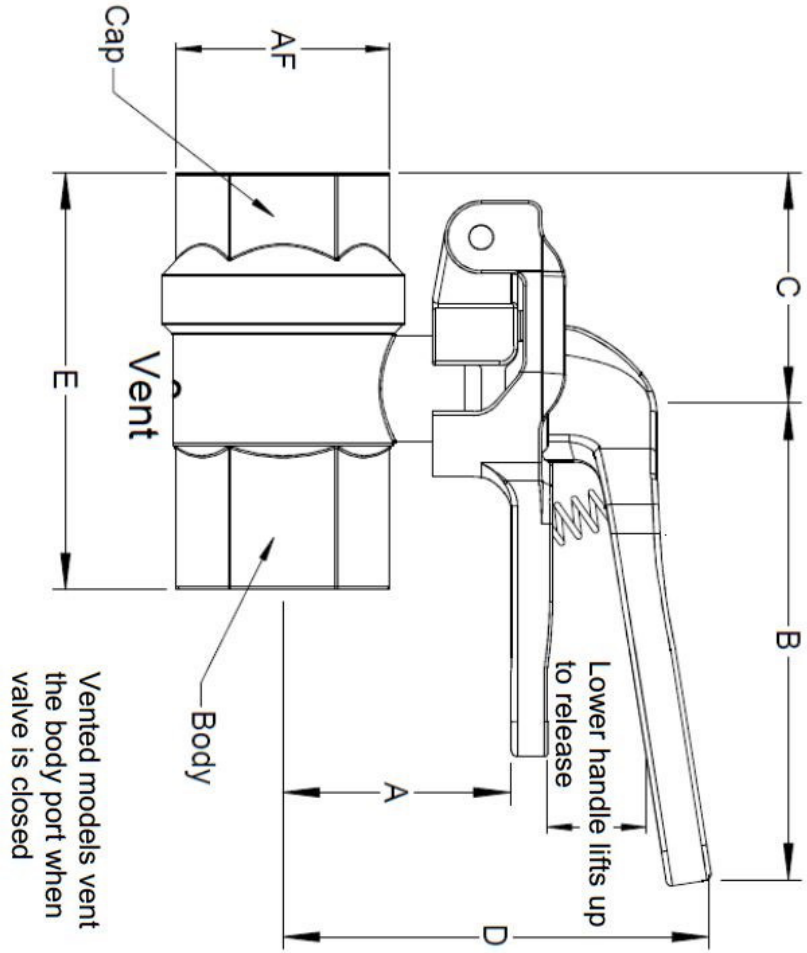
A full range of Stainless Steel, Latched Handle, Isolating & Cut Out Cocks are available in Vented and Non-Vented, Left Hand or Right Hand configurations.



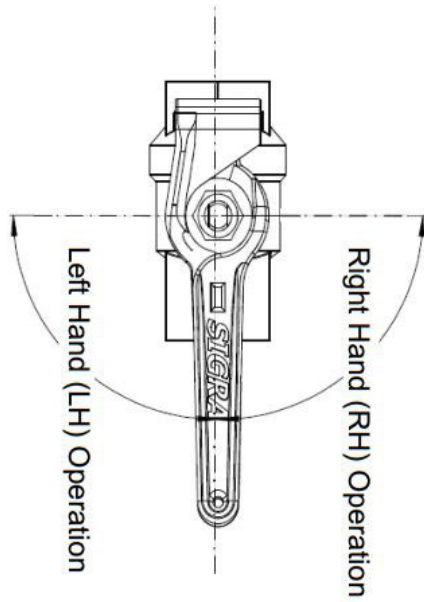
Features:

- Vibration tested to IEC-61373
- 316 Stainless Steel investment casting
- PTFE seals
- -20°C to +200°C
- Max operating pressure 7000kpa
- Can be locked out
- Designed & assembled in Australia
- Conforms to AS RISSB 7510-2014
- Must be operated in fully open or fully closed position

Drawing

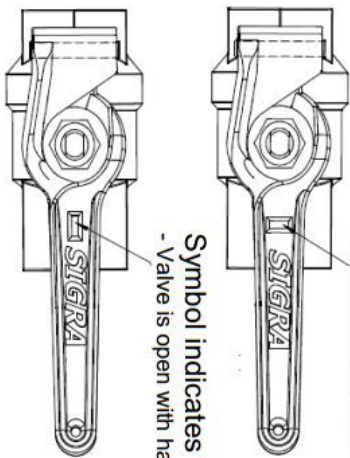


Vented models vent the body port when valve is closed

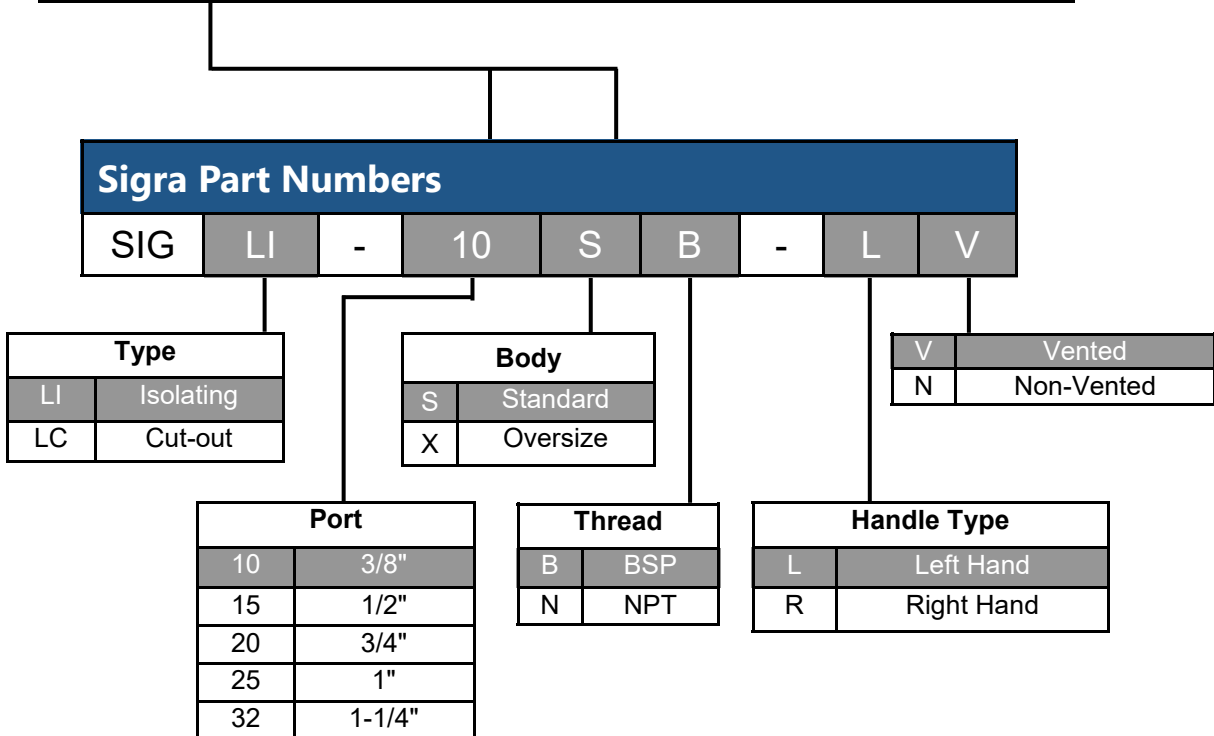


Symbol indicates "Cut Out" cock
- Valve is closed with handle in this position

Symbol indicates "Isolating" cock
- Valve is open with handle in this position



Sizing Table						
BODY	A	B	C	D	E	AF
10S	34	82	0.5 x E	65	59	21
15S	36	82		65	61	25
20S	39	82		65	70	31
25S	45	130		71	81	38
32S	53	130		76	95	47



Example: SIGLI-15SB-LV
 (Isolating Cock, Standard Body, 1/2" BSP Ports, LH Operation, Vented)

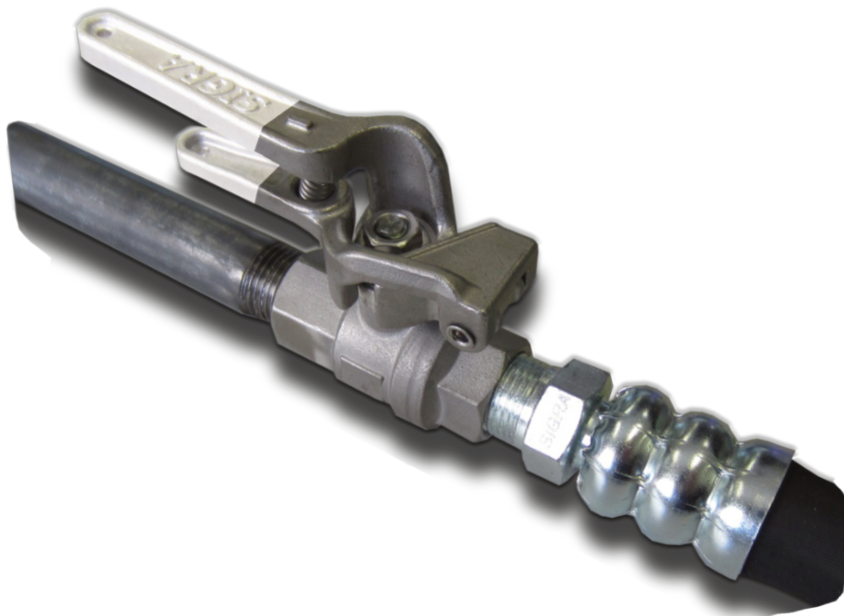
Overside bodies available upon request

Accessories

Also available, Stainless Steel locking sleeve



- Prevents operations when "locked out"
- Sleeve and latched handle include 7mm hole for compatibility with standard safety lockout padlocks
- 316 Stainless steel construction



Angle & End Cocks

New ball and angle cocks are available in various configurations. Left or Right Hand, 30 degree Offset, Straight Handle and Vented. In 1-1/4", 1", 3/4" BSP & NPT



We also offer a full overhaul service to bring your ball valves back to their original condition. This will generally be a much cheaper, quicker option when compared to replacement items. All internal parts are repaired or replaced and valve bodies stripped and repainted.

Brass range of Isolating Cocks are also available in Vented and Non-Vented, Left Hand or Right Hand configurations.



General Purpose Ball Valves

Sigra is an authorised distributor of Parker pneumatic Ball Valves. A full range is available to suit almost any application. Left Hand, Right Hand and Butterfly configurations are available in most sizes.

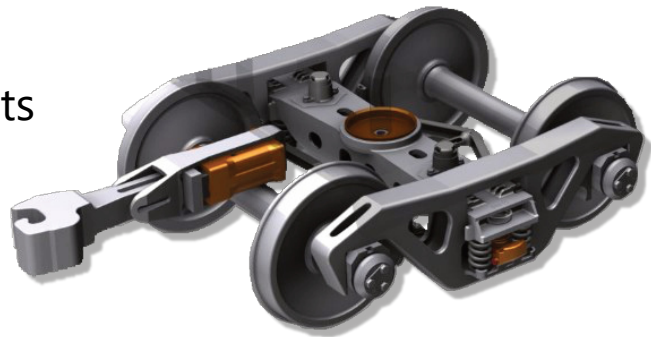


7. A. Stucki Company



Sigra is an authorized distributor for all A.Stucki Company dynamic ride control products for Australia and New Zealand. We offer the full Range of A.Stucki Company products including:

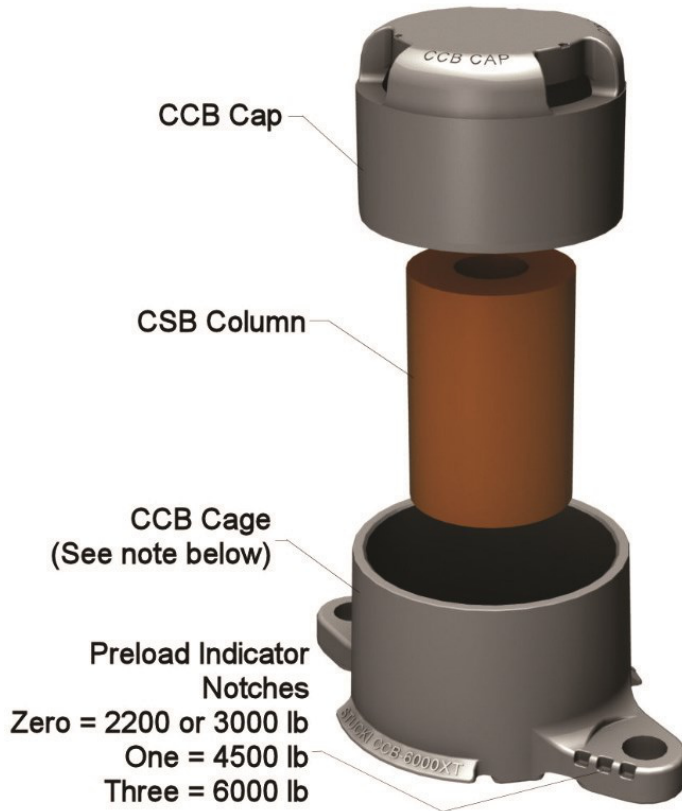
- Side Bearers
- Resilient Friction Elements
- Hydraulic Stabilizers
- Draft Gear
- Hand Brakes
- Brake Beams
- Reconditioned Roller Bearings
- Hot Wound Coiled Springs
- Brake Shoe Keys



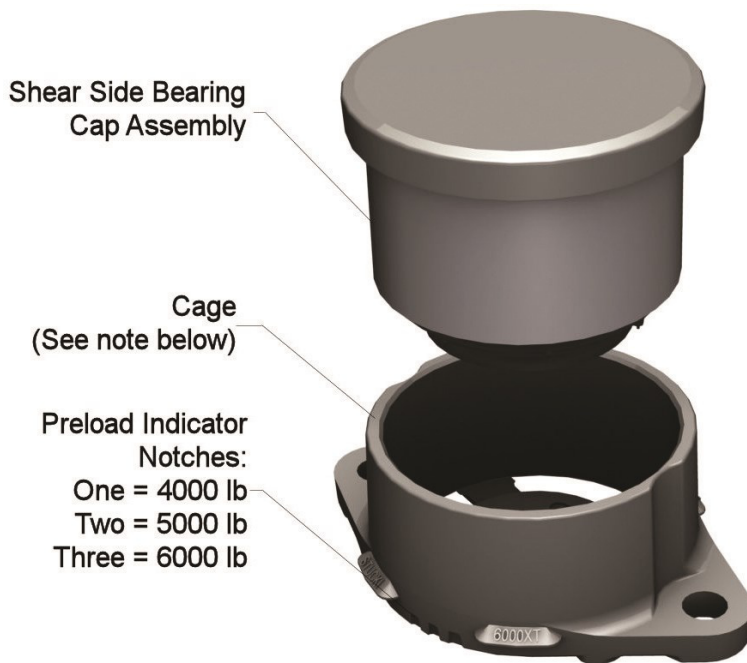
Side Bearers

Whether your need is for extended or standard travel, roller, extended life, or economy. A. Stucki Company offers a complete line of side bearings to meet those needs.

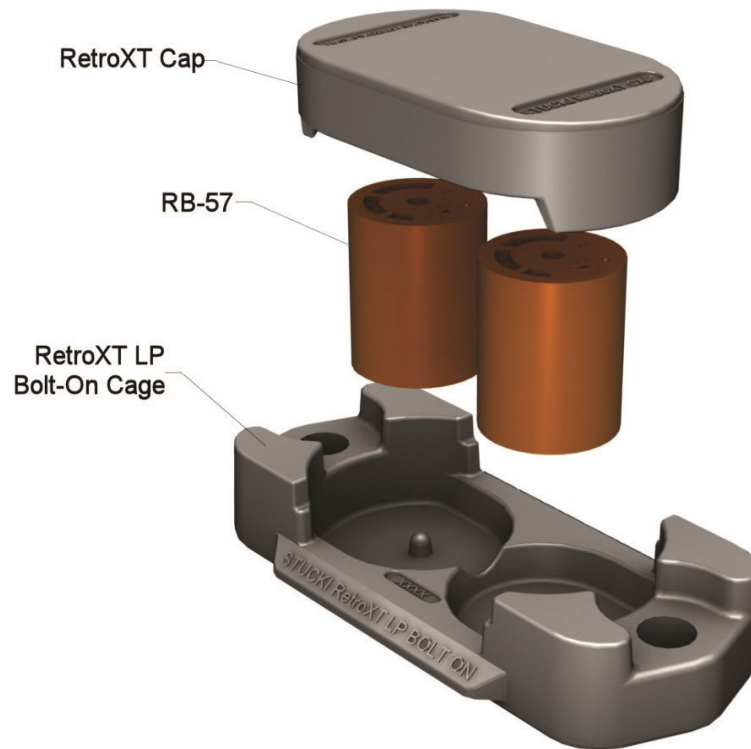




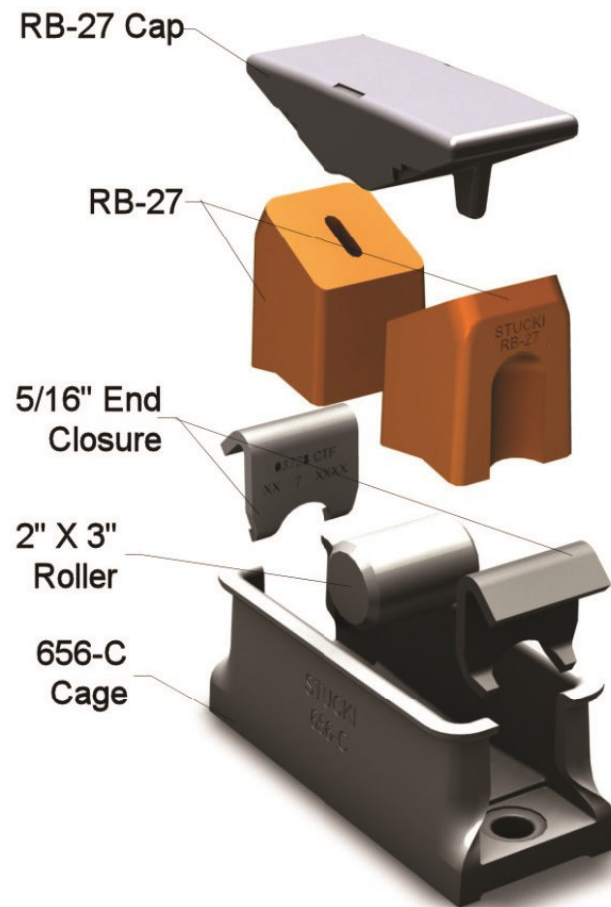
Compact Column Side Bearer (CCB)



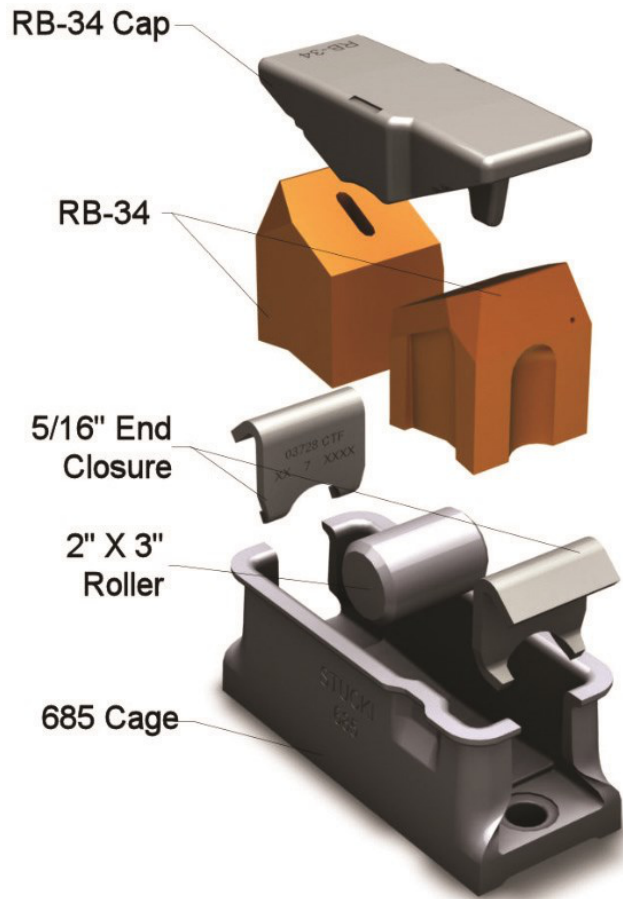
Shear Side Bearer (SSB)



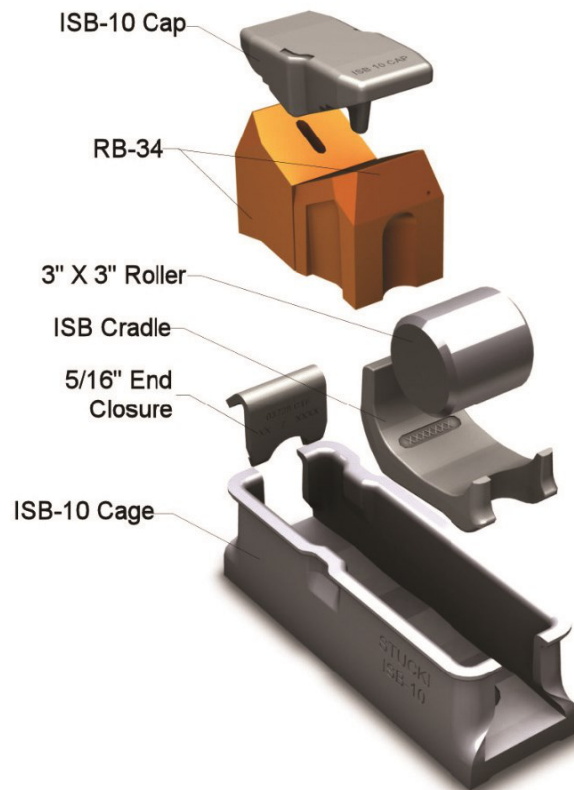
RetroXT LP Bolt-On, 4500lb.



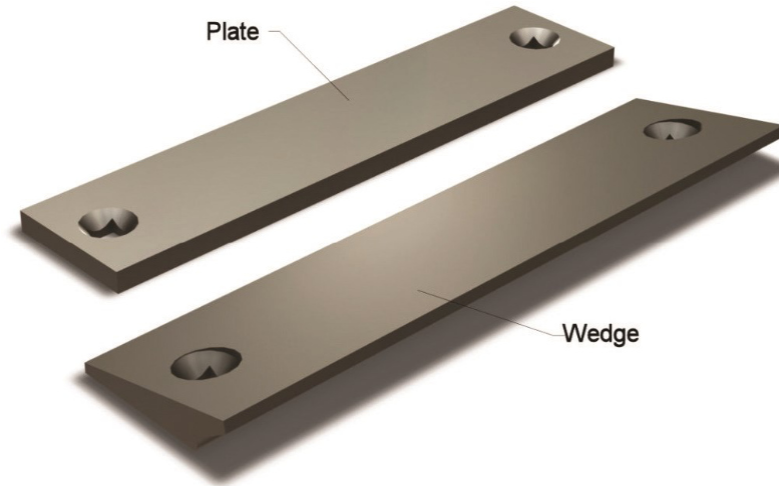
656-CRH, 5400lb. Preload



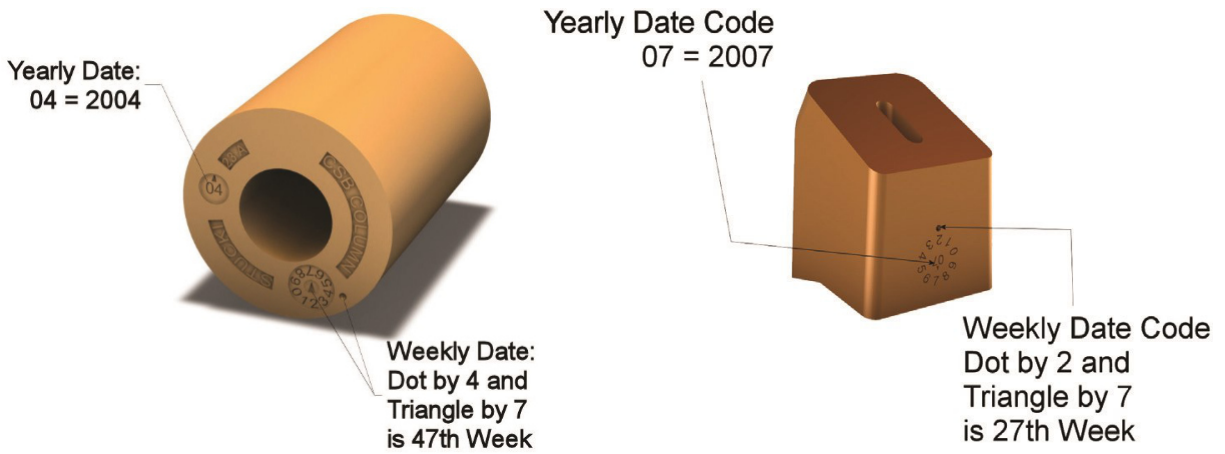
685-RM, 4500lb. Preload



ISB-10, 4500lb. Preload



Body Side Bearer (Plate & Wedge)

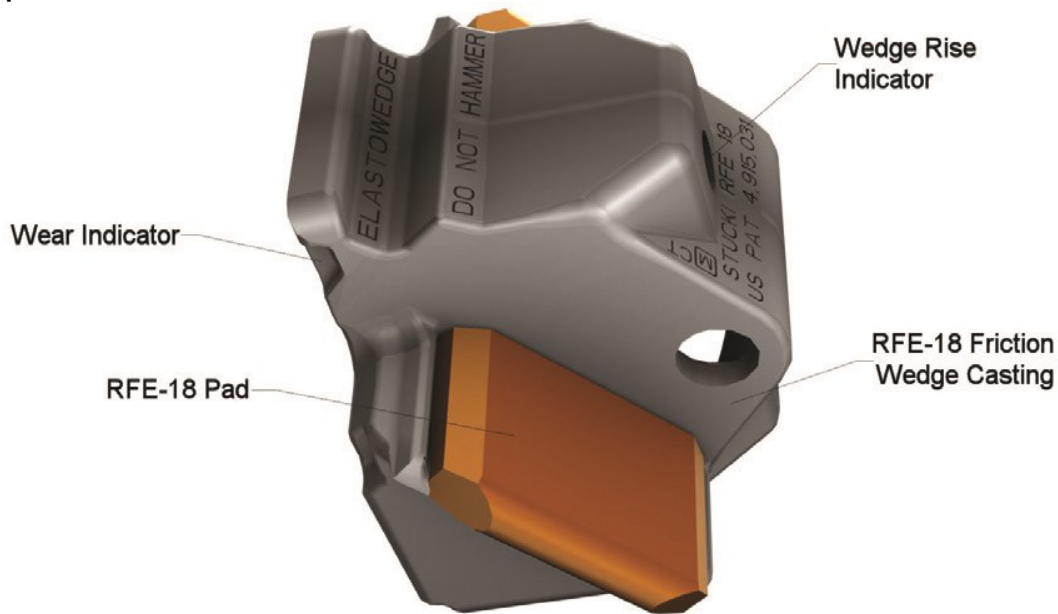


**Separate CSB Columns and RB Blocks
also available for purchase**

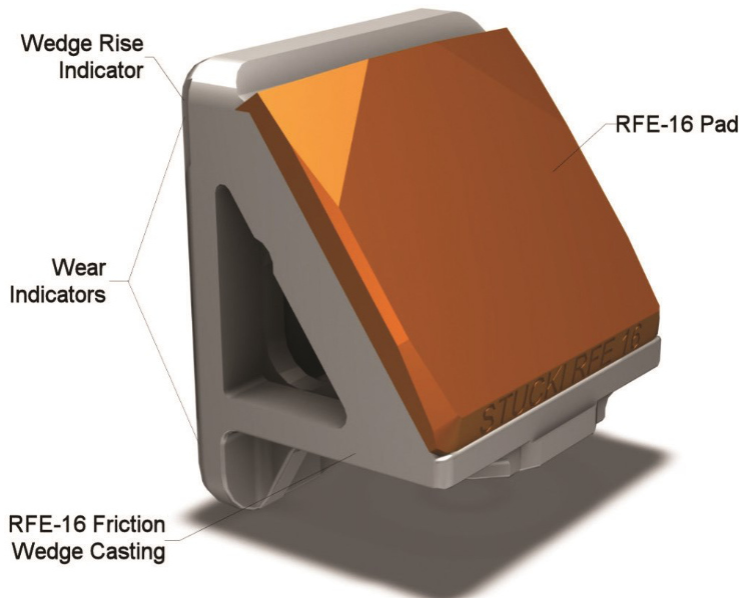
Many more types of Side bearers are available on request

Resilient Friction Wedges & Elements

A.Stucki's Resilient Friction Element's (RFE) AAR approved product line is designed to deliver the same friction dampening characteristics as their all metal counterparts without the associated wear in the bolster pocket.



RFE-18, for Ride Control

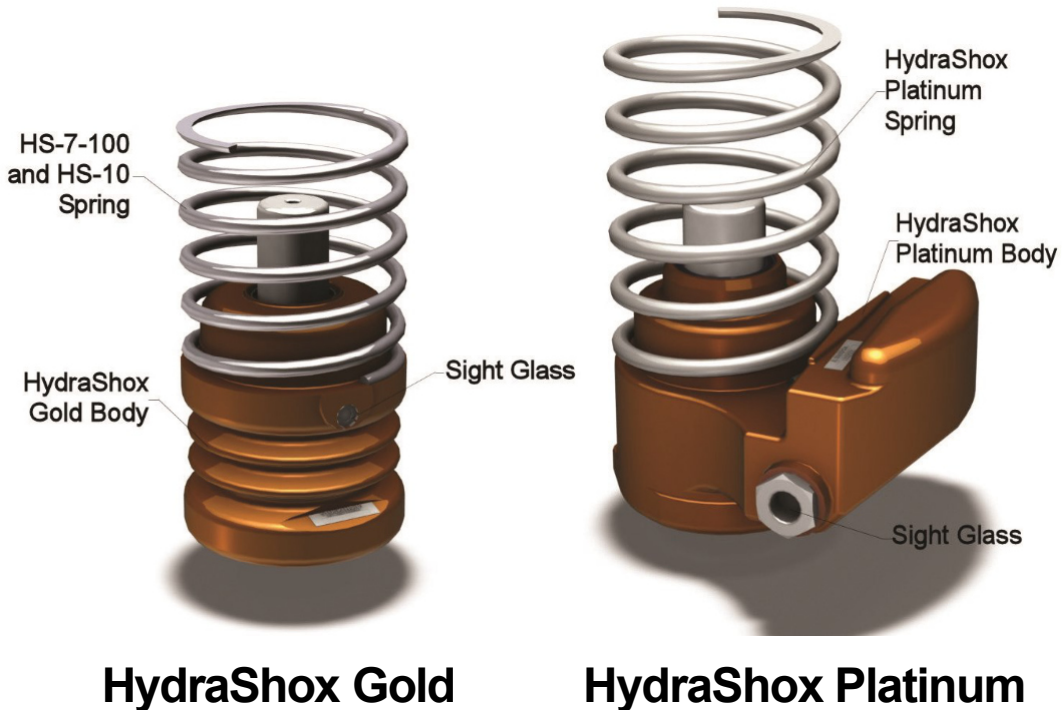


RFE-16, for Barber

More types of Friction Elements are available on request

Hydraulic Stabilizers

A.Stucki manufacture the most effective means available for assuring adequate control of adverse loaded car dynamics such as rocking and vertical bounce.



A.Stucki hydraulic stabilizers are the only hydraulic damping units guaranteed to meet AAR Specification M-965 and Field Manual Rule 50 to ensure safe operation when controlling resonant rocking of high-centre-of-gravity cars.

Brake Shoe Keys

As part of the A.Stucki range Sigra can also supply Brake Shoe Keys to suit most brake beams.

AAR approved and manufactured from Spring Steel they are a universal fit for any size brake beam, #18, #24, hangerless, truck mounted, etc.



8. Draft Gear

A.Stucki Company are a full-line supplier of new and reconditioned Draft Gear that are designed as a high quality, durable solution for your railcars.

The PowRGuard Draft Gear from A. Stucki are designed to be a high quality, durable solution for railcar owners and operators. The new Group J, Rule 21 model, the PowRGuard XE, is an all-metal gear with excellent wear characteristics, fully-approved by the AAR under M-901E.



Models available are:

- PowRGuard XE
- PowRGuard GXE
- PowRGuard GX
- DynamIQ 742
- Cardwell Westinghouse R500 (Reconditioned)
- Cardwell Westinghouse Mark 50 (Reconditioned)
- Miner SL76 (Reconditioned)
- Minor Crown SE (Reconditioned)

Draft Gear Lifting Tong

Suitable for various types of Draft Gear Packs with a capacity lift of up to 200kg and proof tested to AS4991-2004.

The lifting tong comes complete with chains, shackles and forklift arm adapter



9. Bearing Adapters

Sigra has a full range of AAR Certified Bearing adapters available to the Australian market.

Made from high quality machined castings, we offer the following types:

- 5 x 9 Narrow C Class
- 5-½ x 10 Narrow D Class
- 5-½ x 10 Wide D Class
- 6 x 8 Narrow L Class
- 6-½ x 9 Narrow K Class
- 6-½ x 12 Narrow F Class
- 6 x 11 Narrow E Class
- 6 x 11 Wide E Class
- 7 x12 Narrow G Class
- 7 x12 FS (Former Standard) G Class

Certain types available in Plain, Hardened Crown or Hardened Crown and Thrust configurations.

Painting for identification purposes also available



10. Slack Adjusters (Overhaul & New)

Overhaul

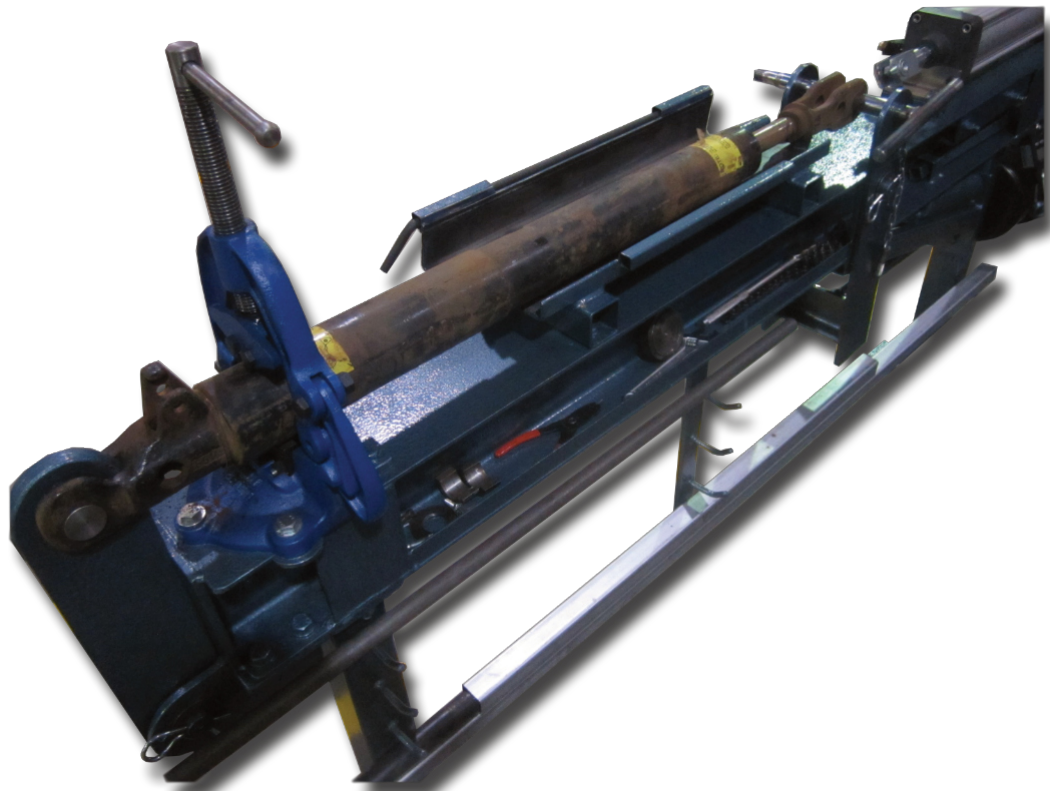
Our maintenance division is dedicated to overhaul, testing and adjustment or re-engineering of railcar.

Slack Adjusters that are used in conventional body and truck mounted brake systems in both tension and compression scenarios.

We repair and test every Slack Adjuster according to it's original specification, taking care to ensure they are reconditioned in accordance with AAR standards.

This involves a complete disassembly and inspection, replacing any necessary parts and performing operation and load tests.

All slack adjusters are repaired and tested in Sigrá's approved test rig according to OEM specifications.



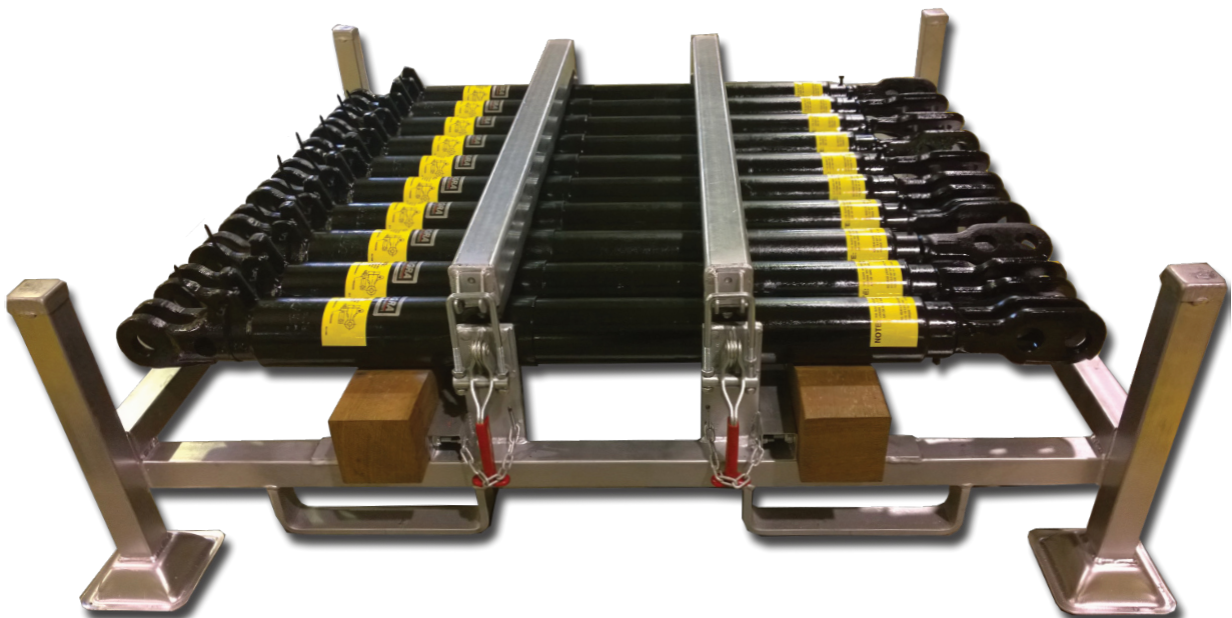
New Slack Adjusters

Sigra also supply a range of new slack adjusters to the Australian rail industry. Slack adjusters to suit most applications are available.



Transport and Storage

Slack Adjuster racks for transport and storage are also available from Sigra. All racks are stackable and are suitable for most type of slack adjusters.



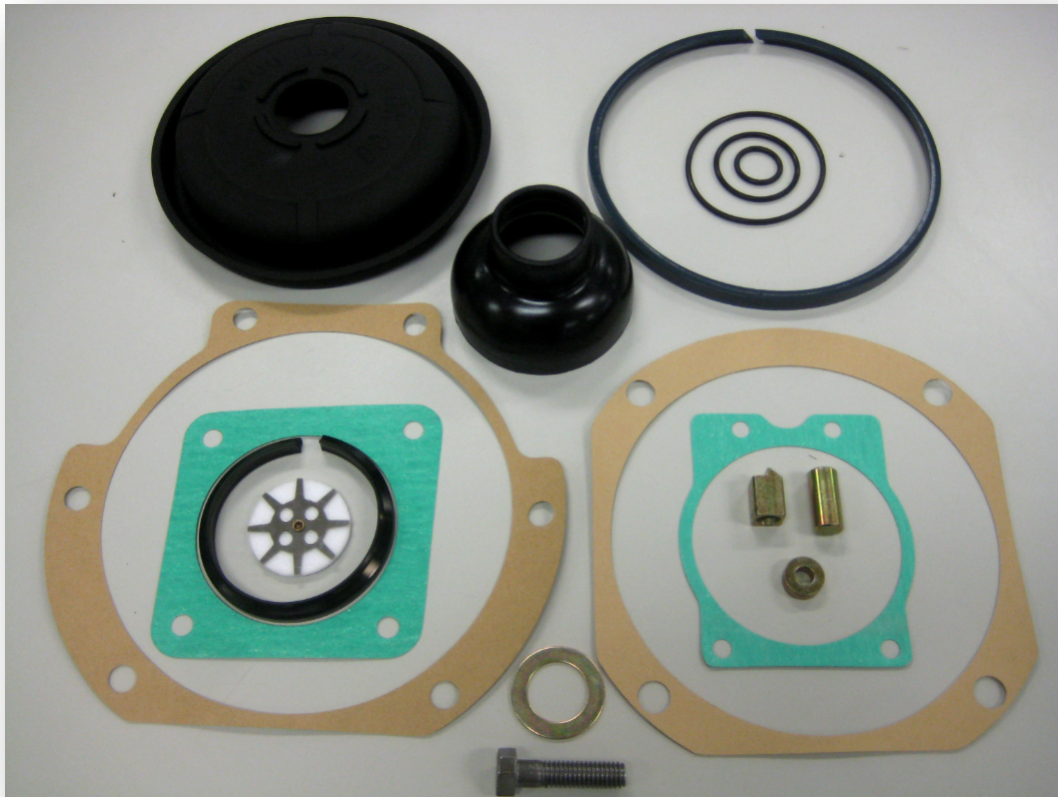
11. Brake Cylinders/Components

Sigra specialises in the supply of brake cylinders and repair kits for the following cylinder types:

- JSLA
- HSL
- Triax

JSLA/ HSL Brake Kits

Replacement items are available where necessary or repair kits for standard overhaul. Packing Cups, Backup rings, Gaskets, Strainers, Pawls, Rollers, O-rings, Bolts, Grease Nipples, Seals, etc are all available for 8", 9" and 10" JSLA and HSL Brake Cylinders.



Triax & TMX Brake Cylinders

Sigra supplies new Triax and TMX brake cylinders, spare parts and overhaul services.

Overhauled cylinders are pressure tested and a pressure testing log is available on request.



12. Hand Brakes & Brake Beams & Kits

Hand Brakes

AAR Certified Hand Brakes, available in Group N, Group O (Intermediate) and Group P (High Power) Available in Long and Short Release Handle versions along with a range of Hand Wheels, Shock Retarders and Hand Brake accessories.



Group N - Conventional (RollGuard™)

- Sealed, wider bearings for extended life
- Roller bearing at wheel/clutch axle for smooth operation
- Lubrication free
- E-coated in rust proof black oxide



Group O - Intermediate

- Higher force than conventional AAR hand brake
- Minimum vertical chain force 4,475 lbs
- Trip Lever and Non-spinning wheel
- Shock-Retarder device serves as a chain anchor



Group P - High Power

- Designed for 125 ton capacity and larger wagons
- Minimum vertical chain force 6,800 lbs
- Extended Trip lever

Brake Beams & Kits

A.Stucki can also offer reliable braking products with their Brake Beams and replaceable Brake Beam Head kits.



13. Brake Beam Wear Guides

Brake Beam Wear Guides and Wear Liners are available and designed to work with any size or manufacture of brake beams. Available in the following configurations:

- Brake Beam Centering Wear Liners
- Metallic Brake Beam Wear Guides
- Non-Metallic Brake Beam Wear Guides



14. End of Train Lights & Accessories

MK3 Portable Tail Light (End of Train Light)

The MK3 Portable Tail Lamp is compliant with UK Network Rail specifications and Rail Group Standards.

- High reliability LED's
- High impact resistant poly carbonate lens and one piece body moulding
- Retro-reflective red panel
- Supplied with two 50Ahr Air Alkaline batteries
- Battery condition constantly monitored and displayed on both sides of the lamp
- Robust rotary switch incorporating a solid state optical device with no moving contact parts
- Battery life is approximately 10,000 hours when continuously operated with two batteries
- Coupling mounting brackets and custom engraving also available



Fixed Marker/Tail Lights

Unipart Dorman Dual Aspect Red Tail / White Marker lamps are also available including

- European Marker/Tail Lamps (includes heavy duty cast housing for bracket mounting)
- LED Fixed Marker Lamps
- LED Fixed Tail Lamps



LED Hand Lamps (3 & 4 Aspect)

As part of the Unipart Dorman range, Sigrail is proud to offer 3 & 4 aspect hand lamps.

Made from high impact polycarbonate for a light yet highly durable construction, Dorman hand lamps use true signaling colours in Red, Yellow, Green and White aspects. Aspects can be easily changed using a colour selection switch.

LED Hand Lamps (3 & 4 Aspect) continued

Thanks to the use of LED's, battery life is extended to 20 hours of continuous use and LED life is up to 10 years.



Portable Headlight (Halogen)

Also available through Sigra is Unipart Dorman's range of portable headlights and accessories. Made from durable polycarbonate and boasting up to 18 hours battery life, the Unipart Dorman portable head light complies with Visibility Group Standard GM/RT 2483: Issue 1.



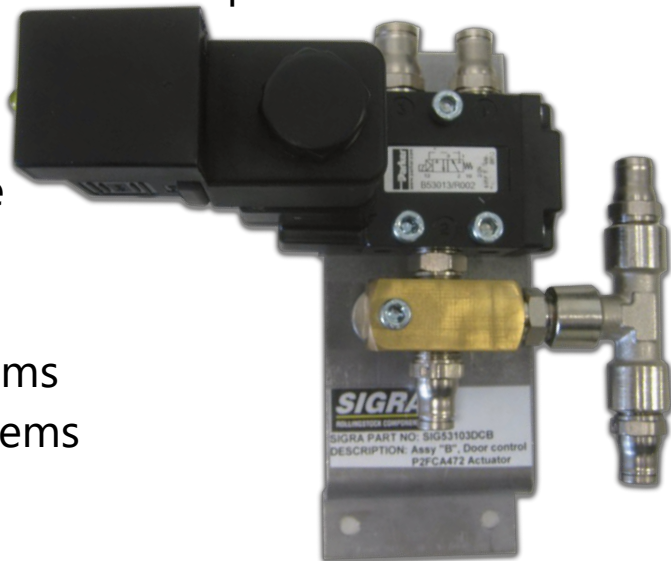
15. Pneumatic Control & Automation

We offer an extensive range of Pneumatic control components including ISO Cylinders, Solenoid Valves, Filter/Regulator/Lubricators (FRL's) and a wide range of fittings connectors and adaptors.

Sigra is an authorised distributor of Parker-Hannifin components in Australia and has access to a wide range of pneumatic products.

As specialists in Pneumatic control systems we can also engineer a solution to meet most requirements for applications such as:

- Door control modules
- Emergency door release
- Sanding systems
- Wiper Controls
- Sanitary and toilet systems
- Pantograph control systems



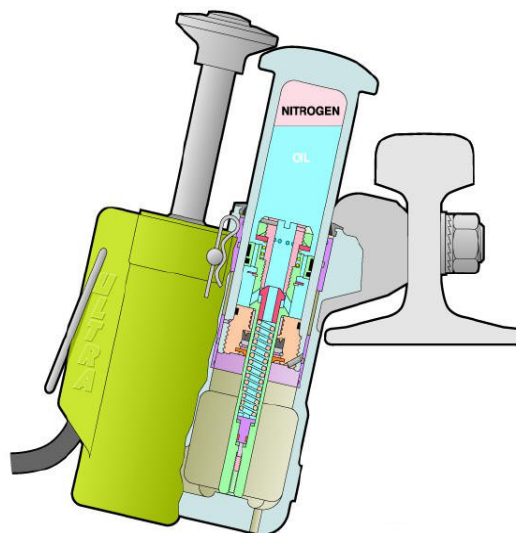
We have developed pneumatic control solutions for companies such as United Group, Pacific National, Railcorp and Namoi Cotton and have access to a large number of process control products distributed worldwide by Parker-Hannifin.

16. Rail Retarders & Arresters

Sigra supplies and services Ultra Dynamics Rail Retarders and Arresters. Over 300,000 of these units are in service throughout the world assisting in the control of rollingstock movements.

Retarders/Arresters

There are 2 types, Trackmaster and High Capacity. Trackmaster is larger and each has its own advantages. We can advise which is the most suitable for the application. Basically, piston retarders can be used anywhere where speed control on a gradient is required.



17. Precision Roller Bearings

As a part of our range of components and service, Sigrail can provide a reconditioning service for all sizes of tapered Roller bearings for use in freight car / wagons and locomotives

- Reconditioning of multiple sized tapered roller bearings for use in the Locomotive, Freight and Transit industries
- Remanufacturing of bearings according to the AAR specifications
- Locomotive (GG Tapered, Journal Box Bearings)



18. Springs

From the world's leading manufacturer of hot wound coiled springs since 1909, Sibra is the Australian distributor for Alco Springs. Springs are available for applications such as Freight Car / Wagon Springs, Locomotive Springs, Control & Load Springs. Made to AAR specification M-1003.

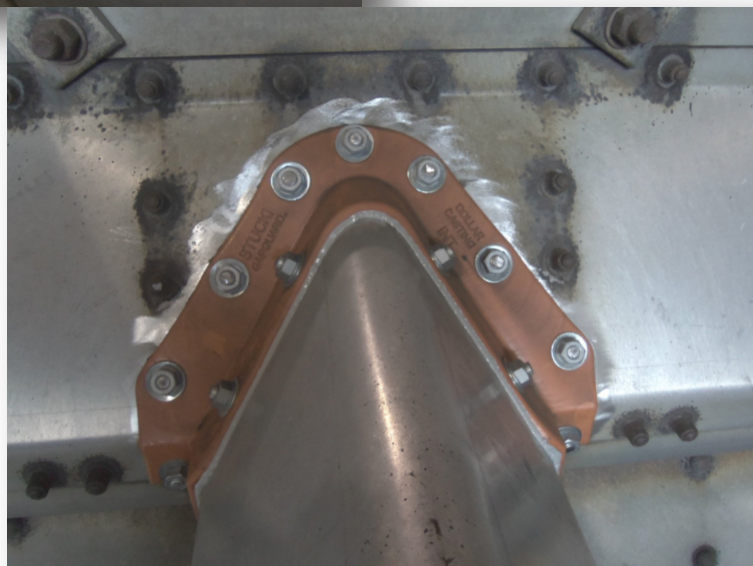


19. Gap Guard Dust Control

Hoppers develop large gaps where side sheets meet the slope sheets or where the slope sheets meet the centre sills allowing the car to leak coal.

A.Stucki's Urethane GapGuard is a deigned to help with the following issues

- Eliminates loss from Gap
- Keep Coal Dust contained
- Protect rails and ballast
- Avoid recaulking



20. SIGRA Motorsport

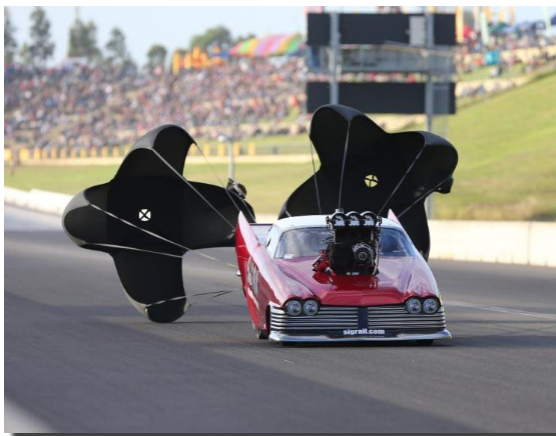


1959 Chrysler Saratoga

Best ET: 5.736 seconds

Best MPH: 250.83 mph (403 km/h)

Best 60 Foot: 0.975 seconds



For racing news, calendar and videos visit our
<http://www.sigrail.com/motorsport-home>



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