

RAIL INFRASTRUCTURE SOLUTIONS

ENGINEERING A SAFER TOMORROW



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High Performance Materials



Why Choose Engineering Plastics

A lighter, longer-lasting and low-maintenance alternative to traditional metals with excellent noise-damping properties. Choosing engineering plastics over metals helps reduce resource use and emissions while delivering long-lasting performance

LIGHTWEIGHT

Lower system weight and energy use

LONGER LIFE

Less replacement and waste

LOW MAINTENANCE

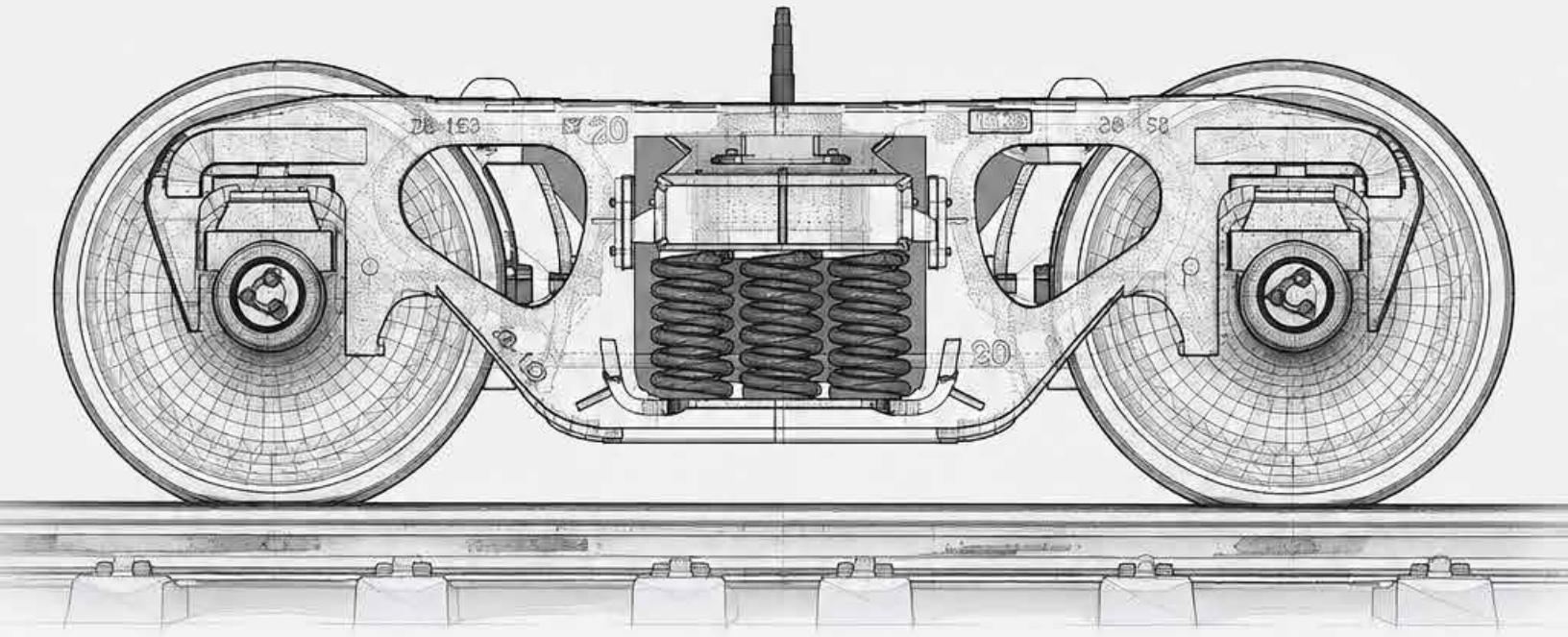
Self-lubricating properties

LOWER IMPACT

Reduced transportation energy

ENGINEERING PLASTICS VS METALS

PROPERTY	ENGINEERING PLASTICS	METALS (STEEL / BRONZE)
Weight	1/7th of steel - lighter, easier handling	Heavy, increase system weight
Corrosion	Chemically inert, no rust	Rusts, needs coating/maintenance
Machining	Easy to machine, less tool wear	Costly machining, heavy tooling
Noise	Dampening, quiet operation	Noisy in motion, vibration issues
Wear resistance	High wear resistance even in unlubricated condition.	Poor wear resistance.



POLYMER COMPONENTS FOR A MORE RELIABLE RAILWAY



WEAR PLATES

- No lubrication needed
- Protects coupling body
- High wear resistance
- Low maintenance



BRAKE BEAM LINER

- No lubrication needed
- High wear resistance
- Constant coefficient of friction
- Corrosion free



CENTRE & BOGIE PIVOT LINER

- Easy installation
- Little / no lubrication
- Protects mating surfaces
- High wear resistance
- Longer service life



ELASTIC RING

Cast Polyurethane Elastomer

- High load-bearing capacity
- High flexibility
- Excellent wear resistance
- Good fatigue resistance
- Temperature resistant
- Moisture & chemical resistant
- Long service life

TYPICAL APPLICATIONS

- Traction link pivots
- Bogie center pins
- Self-aligning gear hubs
- Suspension linkage bushings



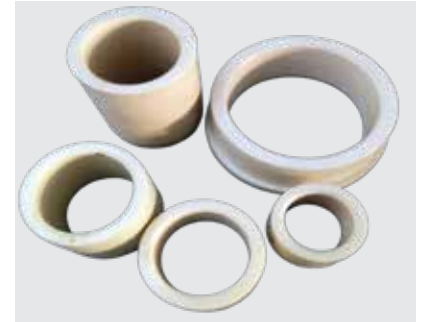
SHEAVES & PULLEYS

METALON® MDS

- Low friction & smooth operation
- High wear resistance
- Good impact resistance
- Chemical resistant
- Moisture resistant
- Self-lubricating & low maintenance

TYPICAL APPLICATIONS

- Cable routing and guidance systems
- Brake and door operating mechanisms
- Locomotive and coach auxiliary equipment
- Lifting, tensioning and actuation systems
- Cable-operated railway equipment



BREAK GEAR BUSH

High Performance Polyamide

- High wear resistance
- High impact resistance
- Low friction
- Self-lubricating
- High crush resistance
- Good dimensional stability
- Durable & low maintenance

TYPICAL APPLICATIONS

- Brake gear assemblies
- Brake rigging pivot points
- Brake gear linkages and joints
- B.G. Mainline Coach brake systems



UPPER/LOWER WASHER



NYLON PINION



PISTON ASSEMBLY



PROTECTIVE TUBE



GUIDE BUSH



BOTTOM LINER



HAPPY PAD



INSULATING BASE



TOP LINER

MANUFACTURING CAPABILITIES

Casting, Extrusion & Injection Moulding.

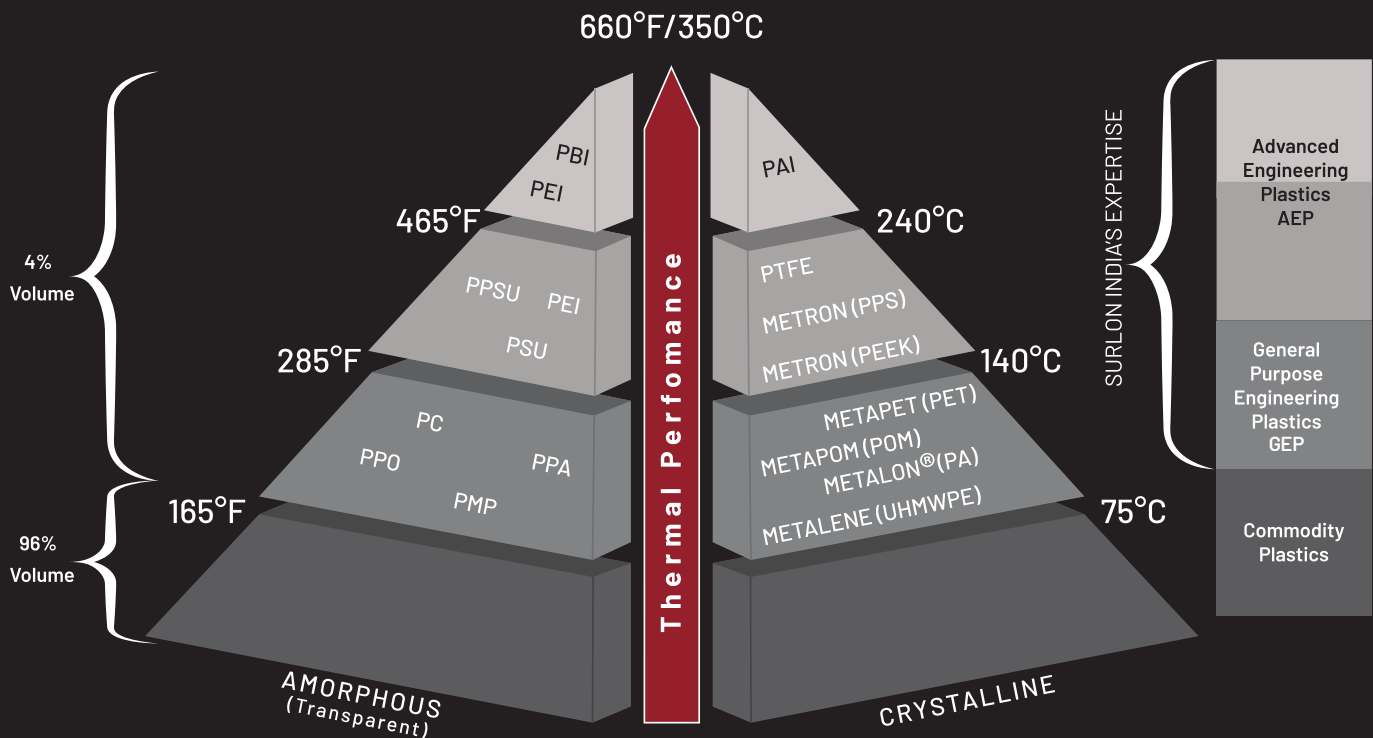
Casting, injection-moulding and extrusion in-house, from prototype to volume production.

Machining & Finishing.

Precision machining to drawing tolerance, clean and temp. controlled room and tooling for any component geometry.

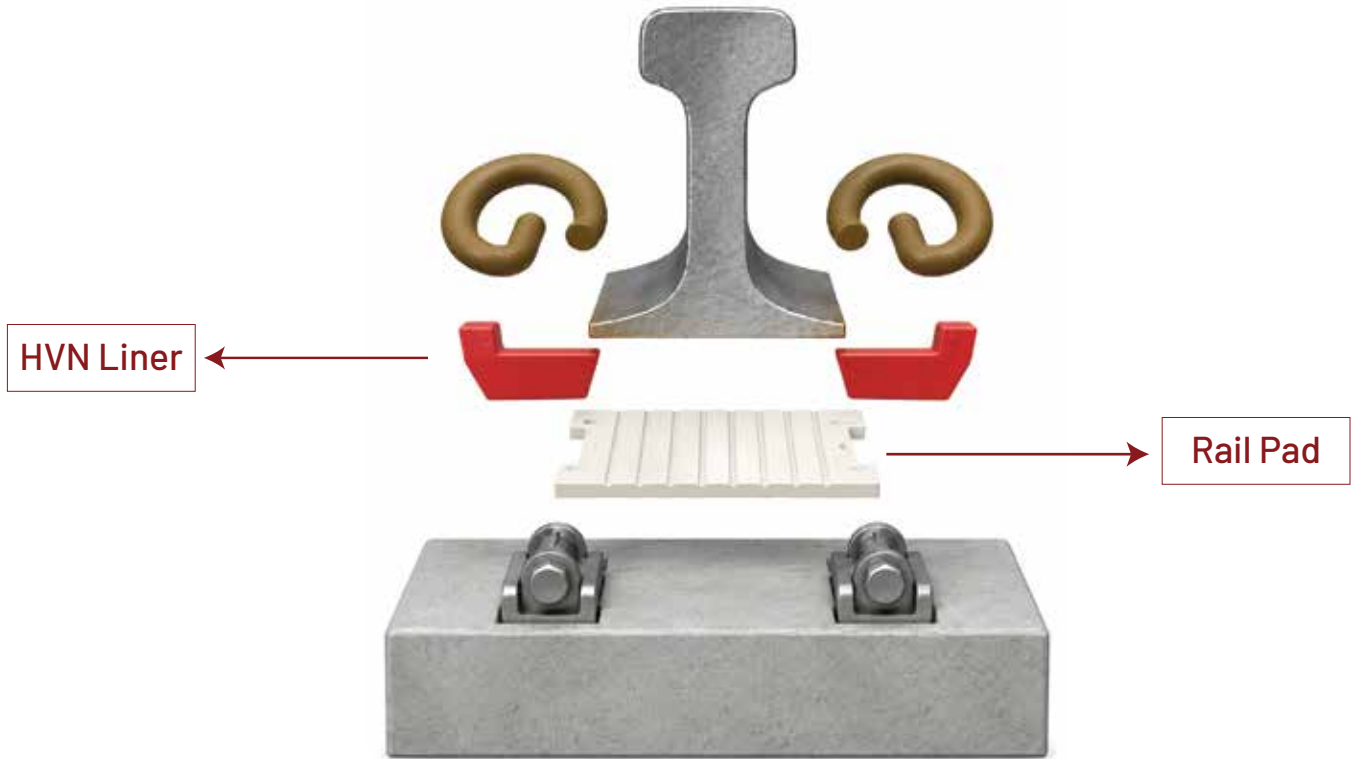
R&D & Testing.

Material testing and prototype development inhouse, so every component is validated before it ships.



Solutions for the Rail Fastening System

Surlon India engineers polymer components for rail fastening assemblies, including liners and pads that securely hold the rail to the sleeper while providing reliable cushioning, insulation and durability.



Rail Pad

Sits between the rail base and the sleeper, absorbing impact and vibration from passing wheels while electrically insulating the rail from the sleeper. Manufactured from TPE / TPU / EVA.

Thickness options	6.2 mm, 10 mm TPE/TPU); 6 mm, 10 mm
Hardness	Shore A 75-85 (6 mm) / 70-80 (10 mm)
Material	TPE / TPU / EVA

HVN Liner

HIGH VISCOSITY NYLON 66

Insulating liner interposed between the rail and the elastic rail clip, providing electrical insulation and maintaining clamping integrity within the fastening assembly.

Melting point	258-268°C
Dielectric strength	Volume resistivity
Volume resistivity	$\geq 10^{14} \Omega \cdot \text{cm}$
Hardness	Rockwell R ≥ 100
Available colours	



DAMPING SYSTEMS FOR RAILWAYS





TUBE DIAMETER
Ø70-110mm

MOUNTING LENGTH
300-1200mm

MOUNTING PCD
Ø90-180mm

BLOCK PCD
Ø90-180mm

PRODUCT RANGE

- 01 Primary vertical dampers
- 02 Secondary vertical dampers
- 03 Secondary lateral / horizontal dampers
- 04 Yaw dampers
- 05 Intercar (anti-yaw) dampers
- 06 Metro dampers
- 07 Pantograph dampers

MOUNTING & USE

- Rubber disc
- Silent block / spherical block
- Articulation bearing
- Rubber moulded bushes
- Rubber flange type

APPLICATIONS

Electric & Diesel Locomotives

Passenger Coaches

Intercar

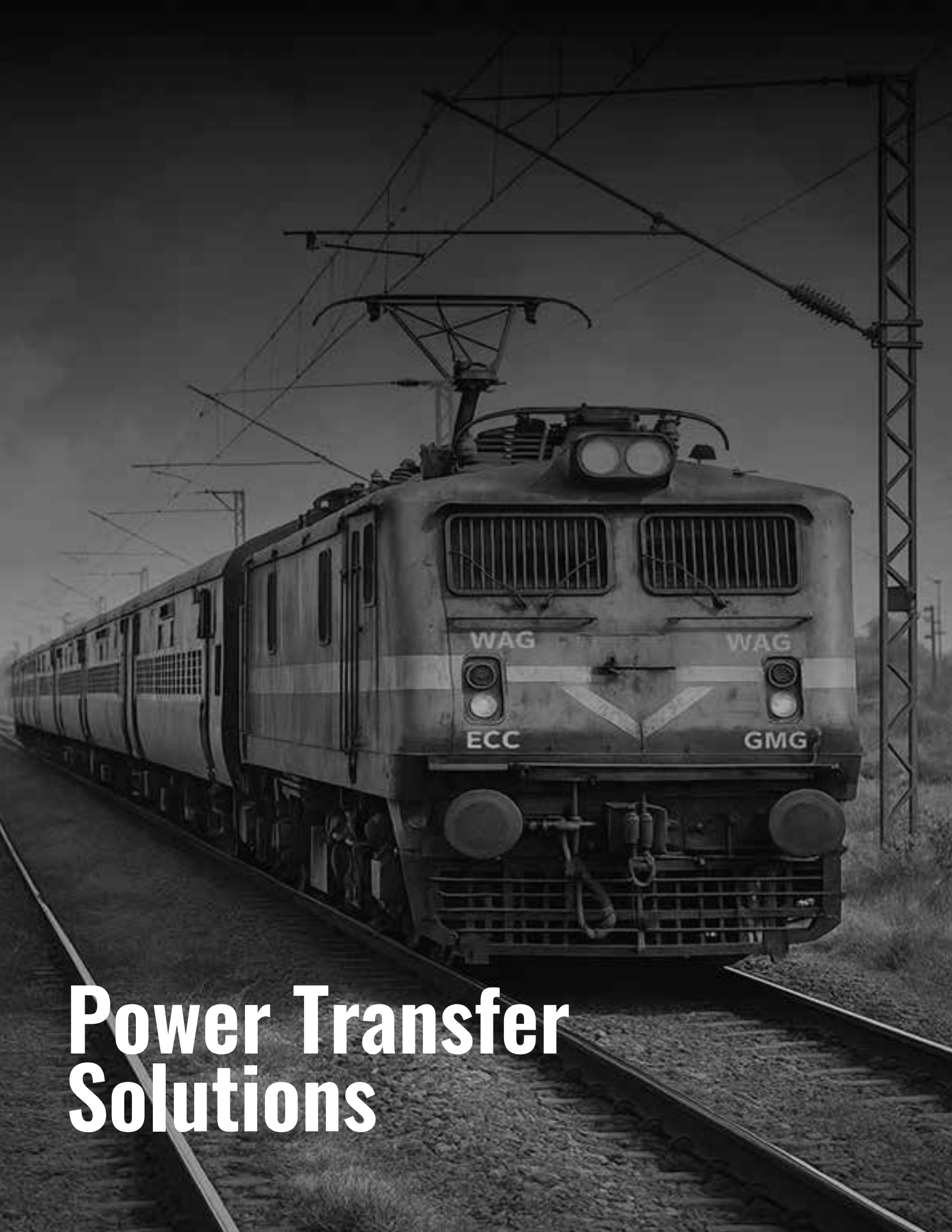
Metro systems

MANUFACTURING & TEST

- Servo-hydraulic performance-cumendurance testing, max. velocity up to 0.6 m/sec
- Conventional testing machine
- Semi-automated assembly line
- In-house welding facility
- UTM for tensile testing
- Ultrasonic and jet cleaning system
- Hydraulic presses
- Conveyorised painting facility
- In-house leakage testing

Capacity by Damper Type

Damper Type	Load Capacity	Velocity
Primary vertical	100 - 1200 Kgf	up to 0.3 m/sec
Secondary vertical	100 - 2500 Kgf	up to 0.3 m/sec
Secondary lateral / horizontal	100 - 2000 Kgf	up to 0.3 m/sec
Yaw	100 - 2500 Kgf	0.01 - 0.3 m/sec
Anti-yaw / intercar	—	max. length (Lmax) 1400 mm
Metro	100 - 2500 Kgf	up to 0.3 m/sec



Power Transfer Solutions



PANTOGRAPHS

Engineered for Safe & Efficient Power Transfer

Sequoia Safety pantographs are designed for reliable current collection in modern electric traction systems, combining robust construction, compact design and integrated protection features for demanding railway applications.



HIGH REACH PANTOGRAPH

For High-Reach OHE Applications

For High-Reach OHE Applications
Designed for wide contact-wire height coverage, with integrated ADD and ORD protection features.



HIGH SPEED PANTOGRAPH

For High-Speed Passenger Applications

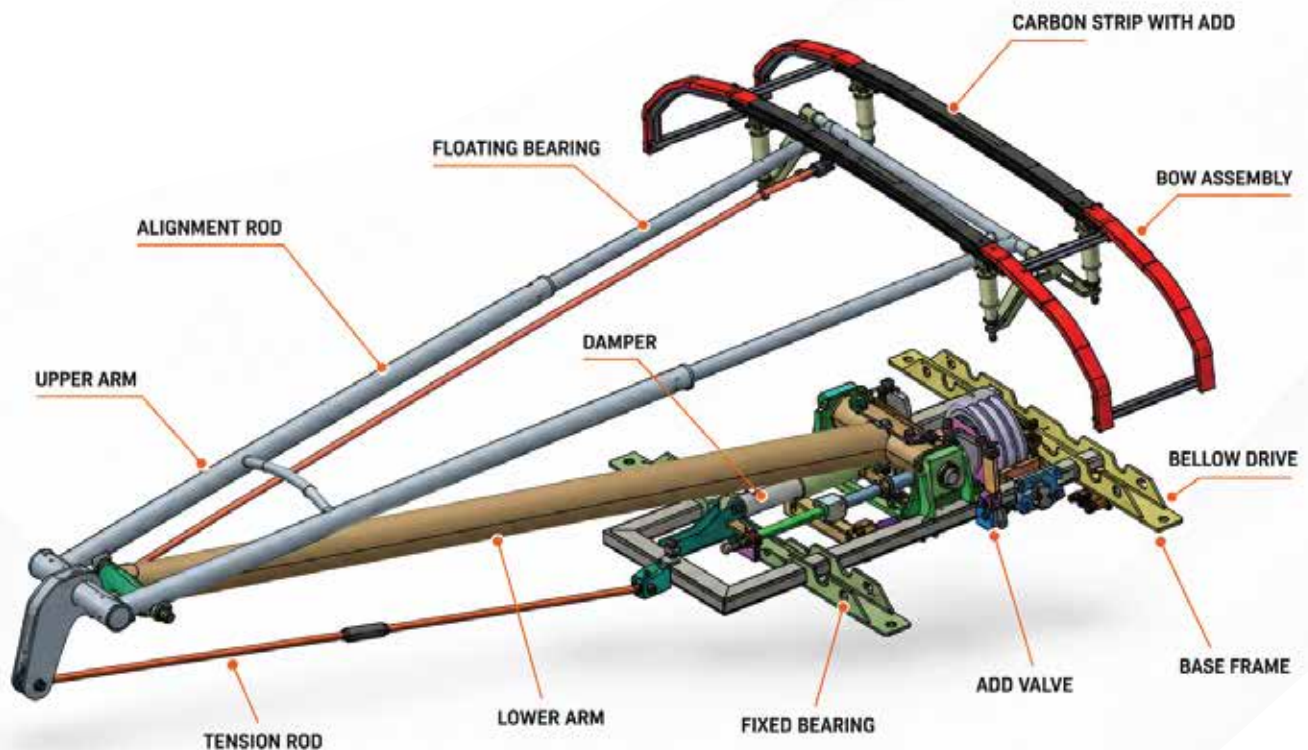
For High-Speed Passenger Applications
Compact and lightweight design engineered for stable, reliable current collection at high operating speeds.



FREIGHT PANTOGRAPH

For Electric Freight Applications

For Electric Freight Applications
Robust configuration designed for reliable current collection across demanding freight rail operations.



PANTOGRAPH SPECIFICATIONS

Specification	High Reach Pantograph	High Speed Pantograph	Freight Pantograph
Maximum Operating Speed	200 km/h	250 km/h	120 km/h
Rated Current : Running	600 A	600 A	600 A
Rated Current : Standstill	100 A	80 A	80 A
Rated Voltage	25 kV AC 50 Hz	25 kV AC 50 Hz	25 kV AC 50 Hz
Working Range	150–3,600 mm	150–2,050 mm	100–2,260 mm
Locked Down Height	295 ± 5 mm	295 ± 5 mm	295 ± 5 mm
Electrical Clearance	≥250 mm	≥250 mm	≥250 mm
System Weight (without foot insulators)	Approx. 180 kg	Approx. 160 kg	Approx. 180 kg
Raising Mechanism	Air Bellow	Air Bellow	Spring Raised

COMPLIANCE

IEC 60949-1

IEC 61373

IEC 62486

APPLICATIONS BY ROLLING STOCK TYPE

EMU / Suburban

Frequent raise-lower cycles across multiple-unit rakes, with consistent contact through station stops

Metro & Mass Transit

Compact stowed height for tunnel and depot clearance, built for high duty-cycle daily operation

High-Speed Passenger

Low-drag, lightweight profile for stable current collection at sustained high running speeds

Freight & Heavy Haul

Robust frame and higher static contact force for long-haul electric freight operations

SIDE BUFFERS



LOCO SIDE BUFFERS

- Equipped with 30KJ Polymer Assembly
- Weight 141 kg approx
- Stroke 110mm
- Easy installation
- Operational reliability range from -25°C to 50°C
- Round head Plate Ø 457mm
- Total length 635 (+2 -1.5) mm
- Mounting Plate pitch 210 mm



CATEGORY A SIDE BUFFERS

- Tested in Germany as per EN15551:2017
- Anti-rotation mechanism
- Equipped with Durel Polymer assembly
- Light Weight 110kg approx
- Easy installation and maintenance free
- Operational reliability range from -25°C to 50°C
- Head Plate 450X340 mm & 550X340 mm

IMPACT & OVERRIDING PROTECTION

CRASH BUFFERS WITH ANTI-CLIMBER



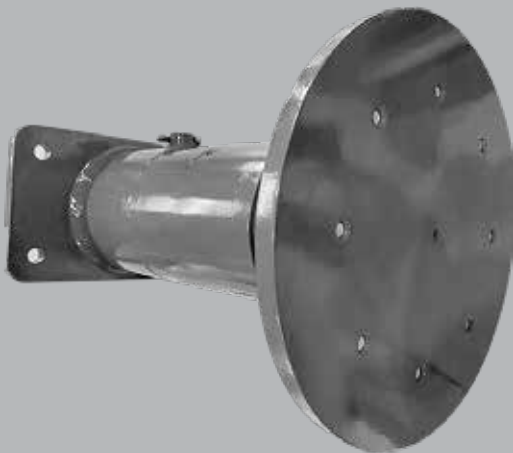
TECHNICAL PARAMETER

PLASTIC STROKE	100 ± 5 mm
ENERGY ABSORPTION	65 ± 5kJ
FORCE LEVEL	600 ± 5 KN



TECHNICAL PARAMETER

PLASTIC STROKE	500 ± 5 mm
ENERGY ABSORPTION	815 ± 5kJ
FORCE LEVEL	1600 ± 5 KN



HYDRODYNAMIC BUFFER

	STATIC	DYNAMIC
STROKE	110 mm	110 mm
ENERGY ABSORPTION	15kj	84kj
ENERGY ABSORPTION COEFFICIENT	50%	>80%
WEIGHT	Approx. 142 kg	Approx. 142 kg
OVERALL LENGTH	635 mm + - 4mm	635 mm + - 4mm
END FORCE (KN)	max 550	max 1400

Heavy Duty & Soft Draft Gears

OPEN HOUSING

Fully open on all sides; pads separated by forged intermediate plates rather than enclosed in a casing.

UNBONDED ELASTOMER PADS

No bonded rubber-to-metal joints to fatigue or delaminate.

SIDE GUIDE RODS

Hold the assembly, eliminating free slack and centre-sill bulging.

NO DRAFT STOPS

Full stroke is usable for buffing.

RADIATOR-FORM HOUSING

Cast steel with large contact surfaces dissipates heat efficiently.

FRICTIONLESS DESIGN

No clutch shoes, wedges or wear parts.

HIGH DAMPING

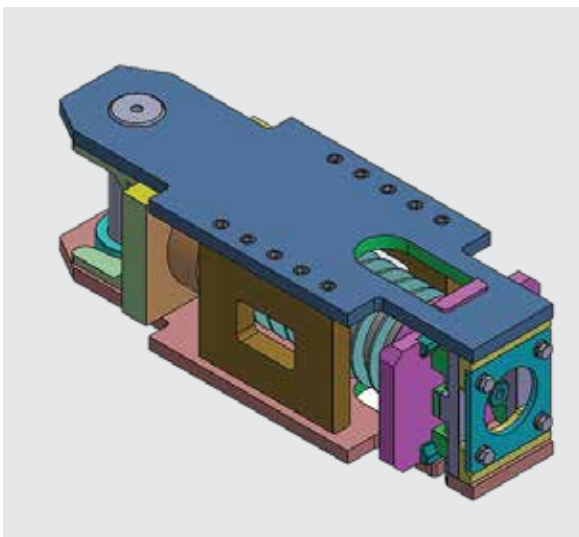
75% or more, for smooth travel with no jerks or vibration.

MAINTENANCE-FREE

No seals or scheduled service items.

Technical Data

Parameter	HDDG
Pocket fitting	AAR M-201 standard pocket, 625x320x229 mm
Preload	>50 kN
Stroke	83 mm
Maximum dynamic end force	2500 kN
Dynamic energy absorption	>90 kJ (measured 93-95 kJ across independ test programmes)
Damping	≥75 %
Weight	160 kg
Front end	Adaptable to other coupler tail designs



Parameter	SOFT DRAFT GEAR
Pocket fitting	Pocket size as per AAR S-141-83 - 625.5 L × 327 W × 235 H mm
Preload	3KN - 14KN
Stroke	110 mm stroke in buff; 70 mm stroke in draw
Maximum dynamic end force	2943 kN
Dynamic energy absorption	≥70 KJ
Damping	70% (min)
Weight	160 kg
Front end	Adaptable to other coupler tail designs

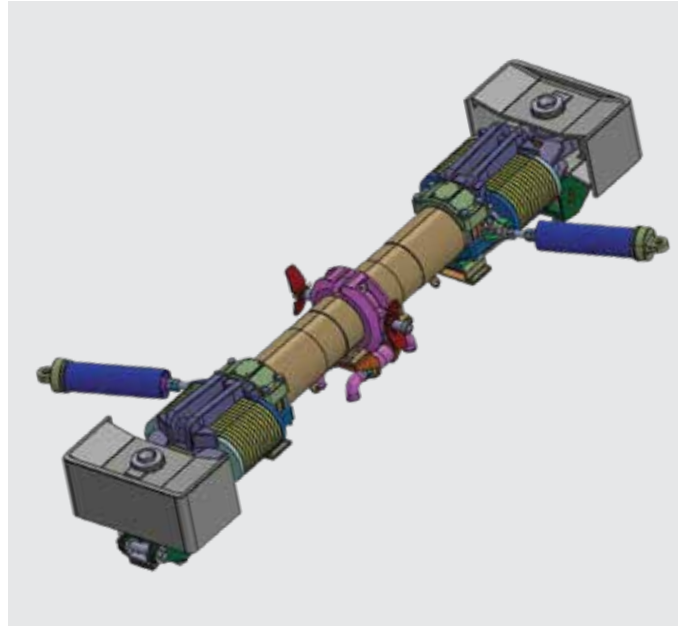
SEMI PERMANENT COUPLER

Automatic & semi-permanent coupling systems

Designed for EMU, DEMU and MEMU rolling stock, including end automatic couplers and semi-permanent intermediate couplers.

Key capabilities

- Automatic coupling
- Brake-pipe & electrical-contact provisions
- ≥ 34 t draft capacity
- ≥ 800 m-kg buff capacity
- Designed for tight-lock, low-slack operation



POLYMER SPRINGS BY DUREL*



DUREL DP30

Suitable for buffer type Cat. A according to EN 15551, comprising a stack of 6 pads

ENERGY ABSORPTION

≥ 40 kJ (dynamic)

DAMPING

50%

STANDARD

EN 15551



Draft Gear Springs

Draw gears with limited installed space and nominal stroke

ENERGY ABSORPTION

15-20 kJ

DAMPING

32-40%

STANDARDS

UIC 520 / EN 15566



Coupling System Springs

Combined with mechanical friction or hydraulic system

ENERGY ABSORPTION

32-50 kJ

DAMPING

> 50%

COMBINED SYSTEM

> 90 kJ

AT A GLANCE

Operating temperature range -60°C to +50°C across all three families, with appropriate material selection. Energy absorption figures are per individual spring, combined-system values for coupling springs (paired with mechanical friction or hydraulic systems) can exceed 90 kJ. Proven in coupling-system service on heavy-duty freight trains up to 20,000 t gross weight.

THIRD RAIL COVER & SUPPORT BLOCK

Insulated cover system for DC third-rail traction, comprising standard cover, ramp cover, expansion joint cover and cable termination cover sections, fitted with support blocks along the conductor rail run.



Cover Support Block



Standard Rail Cover



Ramp Cover



Expansion Joint Cover



Cable Termination Cover



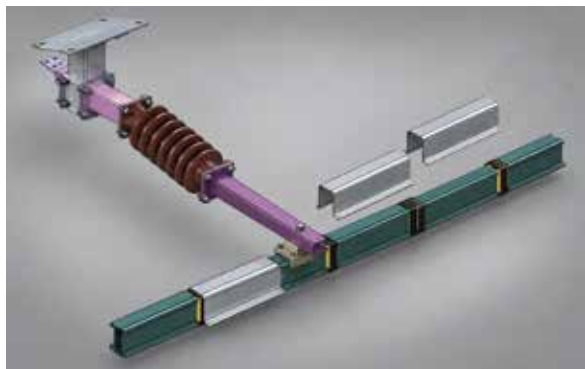
Normal 3rd Rail Cover

Technical Data

Parameter	Specification
Voltage rating	DC 750 V and DC 1500 V systems
Insulation	Fully insulated, fire-resistant
UV protection	UV-stabilised material
Environmental rating	Weatherproof
Retention	Anti-slide spacer-secures cover while permitting thermal expansion/contraction
Inspection	Optional Inspection window for internal monitoring without cover removal
Installation	Lightweight Construction for tool-free/simplified fitting

ROCS PROTECTION SOLUTIONS

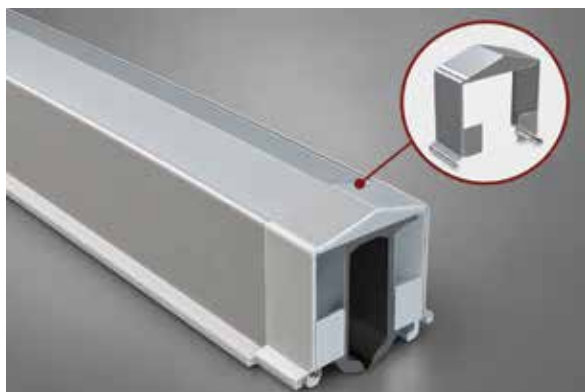
Plastic protection cover system for ROCS, used in place of catenary in tunnels, depots, metro corridors and other low-clearance sections. Prevents water ingress and bi-metallic corrosion between the conductor rail and contact wire.



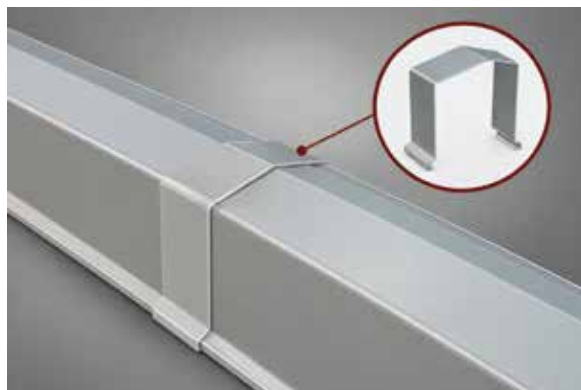
ROCS System



ROCS COVER



ROCS End Stopper



ROCS Joint Connector

Technical Data

Parameter	Specification
Compatibility	25 kv AC ROCS traction systems
Fire rating	Fire-retardant, FRLS-OH grade
Material Property 1	Transparent - permits visual inspection without disassembly
Material Property 2	Hydrophobic surface - resists moisture build - up
Corrosion resistance	High-strength, corrosion-resistant materials
Fin length	25 mm (current), 10 mm (earlier design)

Also available: cover system for 3rd rail on rapid-metro applications (normal third-rail cover, ramp cover, expansion joint cover, cable termination cover) sharing the same support-block/cover-joining-piece mechanical interface as the ROCS system.

Cable Management Accessories & OHE Components

01

Cable Management & Insulation

Cable Cleats
Polyamide Liners

02

Conductor Connections & Clamps

PG & T-Type Clamp
Hydraulic Crimping Tool

03

Switching Devices

Railway Electrification
Switching Devices
LBS

04

Line Protection

Anti-Bird Disk

CABLE CLEATS

Engineered to fix, retain and support cables. Crafted from 304/316 stainless steel, protecting against harsh environmental conditions and deterring cable theft.

Material	304/316 Stainless Steel
Standard	IEC 61914
Application	Securing high-tension (HT) cables
Field record	In service with DMRC



POLYAMIDE LINERS

Developed by Sequoia Safety to ensure safe and efficient cable management. These liners provide a secure foundation for high-voltage cables, preventing current leakage and minimising the risk of electrical damage or localised overheating.

Enhanced electrical safety	Prevents current leakage, ensuring reliable performance
Protection against hazards	Shields against voltage hazards and localised overheating
Lower total cost of ownership	Reduces maintenance needs and extends equipment life
Field record	In service with Indian Metro



Conductor Connections & Clamps

COMPRESSION PG CLAMP

Connects copper cables of the same or varying cross-sections for jumper and general electrical connections, installed using hydraulic compression tooling.



Technical Data

Clamp Designation	Main Conductor	Branch/Jumper Cable	Tool	H (mm)	L (mm)	D (mm)	D (mm)
Compression Clamp [65/26]	Catenary 65 mm ²	Jumper 26 mm ²	SQ 700	48	30	8	11.0
Compression Clamp [65/164]	Catenary 65 mm ²	Jumper 164 mm ²	SQ 700	48	30	19	11.0
Compression Clamp [120/120]	Catenary 120 mm ²	Jumper 120 mm ²	SQ 700	48	30	17	14.5
Compression Clamp [65/120]	Catenary 65 mm ²	Jumper 120 mm ²	SQ 700	48	30	17	11.0
Compression Clamp [120/26]	Catenary 120 mm ²	Jumper 26 mm ²	SQ 700	48	30	8	14.5
Compression Clamp [145/165]	Feeder Wire 145 mm ²	Jumper 165 mm ²	SQ 700	48	30	19	19.0

BOLTED PG & T-TYPE CLAMPS

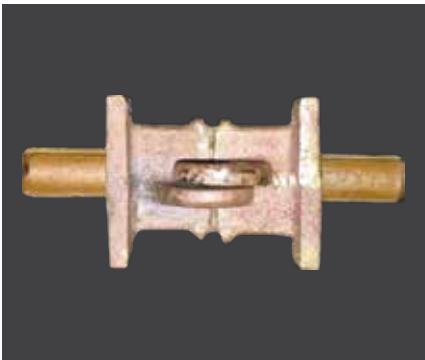
Bolt-type clamps engineered for parallel and tap/branch conductor connections on overhead electrification lines. Each clamp is torqued onto the conductor, allowing it to be inspected, re-tightened or removed on site as part of routine line maintenance



BOLTED PG CLAMP



T-TYPE CLAMP



PG CLAMP

Custom-engineered to your requirements.
Surlon manufactures clamps to your specified dimensions, geometry, material and performance requirements, providing application-specific solutions for demanding industrial and railway applications.

HYDRAULIC CRIMPING TOOL

Bolt-type clamps engineered for parallel and tap/branch conductor connections on overhead electrification lines. Each clamp is torqued onto the conductor, allowing it to be inspected, re-tightened or removed on site as part of routine line maintenance



Parameter	Specification
Model	SQ-700D
Function	Crimping of compression-type connectors
Compatible connectors	65/26, 65/164, 120/120, 65/50 mm ² and similar compression types
T-type connectors	26 mm ² , 164 mm ² , 120 mm ² and similar
Crimping capacity	10 mm ² to 630 mm ²
Special crimping dies	65-164 mm ² , 65-26 mm ² , 164-145 mm ² , 164-164 mm ² (compression type)
Hexagonal dies	164 mm ² and 26 mm ² for compression-cum-bolted T-connector

Swiss Switching Devices Represented by Surlon

RAUSCHER*
STOECKLIN



DISCONNECTOR

Provides electrical and visible isolation of de-energised sections of the overhead line. Confirms a section is safely isolated before maintenance work begins



LOAD-BREAK SWITCH

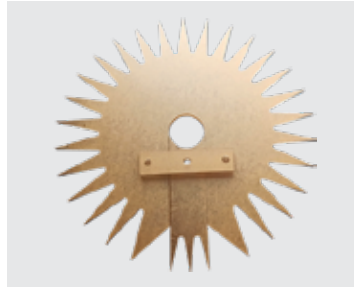
Switches sections of the line on and off while under load. The only device in this range rated for switching live circuits rather than isolating de-energised ones



EARTHING SWITCH

Provides safe and reliable earthing of de-energised sections. Ensures a section carries no residual voltage before personnel access it for maintenance

Overhead Structure Protection ANTI-BIRD DISC



OTHER COMPONENTS

SALOON DOOR ROLLER FOR AUTOMATIC DOORS

Our Saloon Door Rollers were rigorously tested by DMRC on specialized test jigs, successfully completing 2 lakh operations during the first trial phase.



WHEEL-SET EARTHING DEVICE

Controlled electrical path between axle and vehicle

Wheel-set earthing equipment provides a low-resistance current path while isolating traction return current from the axle bearings.

Key specifications

- 400 A allowable current
- 600 A / 5 min maximum current
- 5-20 mΩ contact resistance
- 95 mm² cable cross-section



CERTIFIED FOR

SAFER RAILWAYS

Our products and processes meet globally recognised railway standards.



EN 15085-2
Rail Welding



IGBC
Green Building



IATF 16949
Automotive Quality



EN 9100
Aerospace Quality



IRIS Certification
Rail Quality



ISO Certification
International Quality

OUR GROUP

ENGINEERING FOR A BETTER TOMORROW

Five companies
A shared purpose
A more connected world



SURLON INDIA
Engineering plastics for
rail & industry.



SURLON DUREL
Energy absorption &
shock-control systems.



SEQUOIA SAFETY
Railway safety & control
systems.

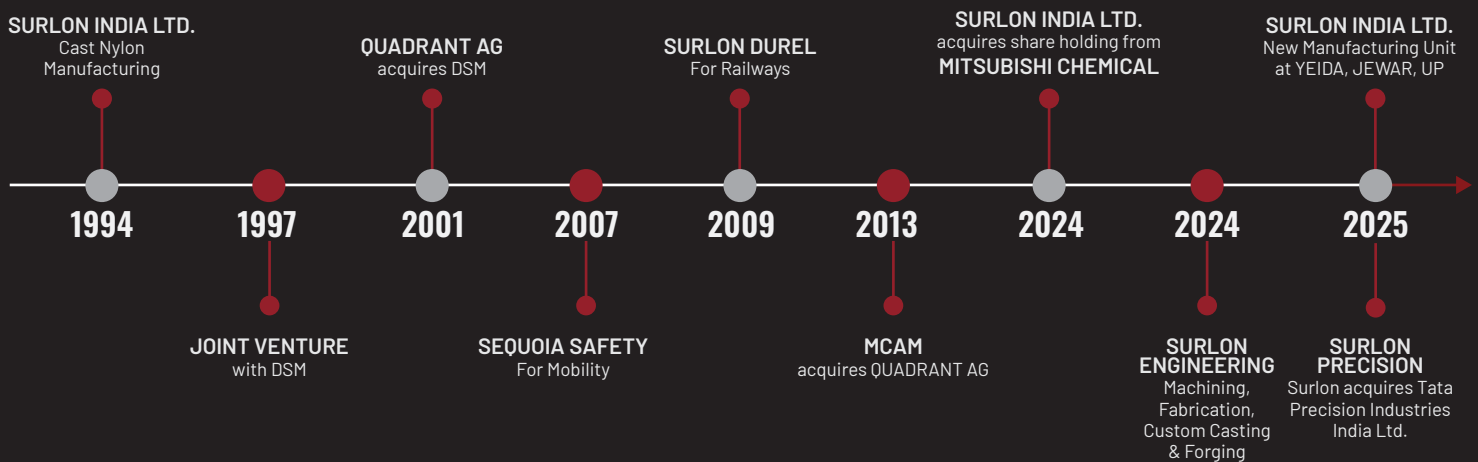


SURLON ENGINEERING
Heavy engineering for rail
& industry.



SURLON PRECISION
Precision-machined
components & assemblies.

Three Decades of Legacy



Our Purpose

MISSION

To develop high performing engineering solutions globally with a special focus on innovation, environmental responsibility and evolving customer needs. We strive for excellence in design, execution and client satisfaction through technology, precision and integrity.

VISION

To become a global leader in the advanced material & engineering solutions industry by continuously innovating, investing in tech and building a reliable ecosystem for growth. We aim to become leaders to deliver unparalleled customer satisfaction in the engineering industry.



GET IN TOUCH



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