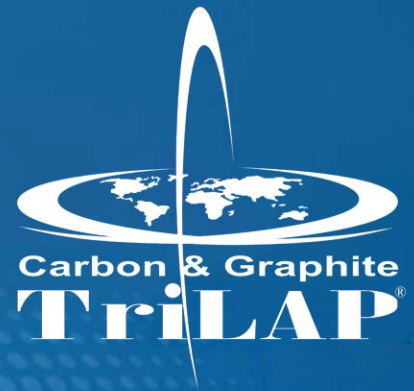


MorganAM&T™



Energy and
Environment



Rotary Transfer
Systems



Aero/Defence



Thermal
Management



Electronics



Railway



Industrial
and Power



Super
Abrasives



Fluid Flow





Company Profile

Morgan AM&T Hong Kong Company Ltd. is a wholly owned subsidiary of the Morgan Crucible Group in United Kingdom. In over 150 years of operation the Morgan Group has developed to become the leader in the supply of specialized products based on its materials technology. Gaining a first class reputation for product quality, customer service and technological back up.

We are the major supplier of electrical and mechanical carbon products for industry in Asia. Our main products are carbon brushes, brush holders, pantographs, pantograph carbon strips, collector shoes, industrial collectors, contacts, carbon seals, bearings and vanes. We also distribute a range of diagnostic instruments and products specifically tailored to the maintenance needs of rotating machines.

Morgan Carbon Industrial Package

- Morgan is a Global organization offering products of the highest quality providing local support backed up by technical expertise gained over more than a century of experience.
- We offer complete engineering solutions, ensuring optimum performance for all Customers' applications.
- The Morgan Carbon Industrial Package includes – Brushes, Brush Gear, Terminal Blocks, Commutators, Slip Rings & associated products.



Morgan Carbon Traction Package



Earthing Unit



3rd Rail Shoes



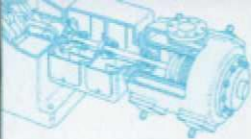
Holdings



Brushes & Contacts



Pantograph Carbons



Brush Surface Conditions

S1



Smooth Polished Surface

This indicates good performance. However, if the polish is mirror-like (glazed), high frequency chatter due to low current may be the cause. Check the side-faces of the brush for signs of vibration.

S2



Open Textured Surface

This, again, indicates that brush performance is satisfactory. Actual appearance will depend on the type of grade.

S3



Finely Lined Surface

Another satisfactory condition. Fine lines indicate the presence of dust in the atmosphere. This may be overcome by the use of filters or ducting the machine's air supply from another area.

S4



Finely Serrated Surface

This is a further development of (S3) above. The causes are normally atmospheric contamination or lack of load current.

S5



Heavy Serrated Surface

As (4) above, but problem is more severe or has been allowed to continue for longer.

S6



Ghost Marked Surface

This may be associated with difficult commutation and can arise from incorrect neutral position, interpole problems or other causes of poor commutation.

S7



Burnt Edges

Normally occurs on the trailing edge of the brush. Caused by poor commutation and heavy sparking.

S8



Pitted Surface

Indicates heavy under-brush sparking as a result of current overload or brush instability.

S9



Laminated Surface

This is an unusual condition caused by an armature winding fault giving rise to poor commutation.

S10



Double-Bedded Surface

This occurs as a result of brush tilting on a reversing machines, i.e. the brush beds itself in both directions of rotation. In itself this does not give any cause for concern.

S11



Copper Particles

Copper pick-up from commutator surface can result from copper drag problems or heavy peak loads. Can cause further commutator wear.

S12



Chipped Edges

Normally occurs on the leading (entering) edge of the brush, breakage can result from poor commutator profile, high micas and severe brush instability.

Commutator Surface Conditions

P1



Light Film

over the entire commutator surface is one of the many normal conditions often seen on a well functioning machine. Film tone is dependent on the brush grade and current density.

P2



Patina Dark

Good condition. Film can be light to dark in colour but the important feature is that it is uniform and even. Normally, a good film will have a slightly polished appearance.

P3



Blotchy Film

this nonuniform filming condition is the most common appearance. The accumulated tolerances in the machine such as commutator roundness, brush contact pressure, unequal magnetic fields and chemical vapors all contribute to this type of film development.

P4



Slot Bar Filming

repeating light and dark filming patterns related to the number of armature coils per slot. This pattern is dependent on the machine design and usually not a function of the brush grade.

P5



Streaking

if only the film is not detrimental to the commutator. Brush and commutator life are not at risk in this condition. If metal transfer develops, this condition will progress into threading. This type of filming can be dependent on current density or brush grade.

P6



Bright Spots

Bright spots in the film suggest poor contact or overloading, the resultant under-brush sparking tends to destroy the patina and will eventually erode the commutator.

P7



Bar Burning

is the erosion of the trailing edge of the commutator bar. Failed machine components, maladjusted electrical symmetry of the machine or a poor commutating brush can result in bar burning. If not corrected, this condition can cause severe commutator damage or a flashover.

P8



Slot Bar Burning

results in commutator erosion of every second, third, or fourth bar depending on the winding design of the armature. Improper brush material, brush design or electrical adjustment of the machine can cause this condition. This condition severely damages the commutator and reduces brush life.

P9



Patina Streaked with Collector Wear

A streaky film with no commutator wear, tracks can vary in width and colour. Caused by atmospheric conditions (humidity, oil vapour or other gases) or insufficient load.

P10



Pitch Bar Burning

results in commutator bars being eroded in a pattern related to 1/2 the number of brush arms, progressing into a pattern equal to the number of brush arms. This condition is caused by a cyclic mechanical or electrical disturbance such as an unbalanced armature, misaligned shafts, bent shaft, bad bearings, weak foundation, failed equalizers or a poor riser connection. If not corrected this condition will result in a flashover.

P11



Grooving

is the uniform circumferential wear, the width of the brush, that is exhibited on the commutator. Excessive abrasive dust in the atmosphere or an abrasive brush can cause this condition. Extreme light spring pressure (below 1.5 psi) can also cause this condition. Proper brush applications and filtering the air on force ventilated motors can reduce the commutator wear.

P12



Copper Drag

occurs when high energy transfers copper in a molten state. These particles become coated by contaminants from the surrounding environment or the brush treatment and do not oxidize properly to form the film on the commutator surface. These particles accumulate at the edge of the bar, eventually shorting across the insulating mica. This condition needs to be addressed immediately when discovered or serious damage may occur. Chamfering the commutator bar edges is necessary to stop the progression of this condition.



Mechanical Carbon

Sealing ring components



We supply sealing rings for all applications.

Carbon sealing rings are used as the wear face of most mechanical seals for the sealing of fluids in all industries.

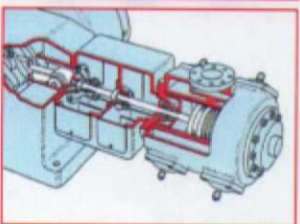
Applications for sealing rings

- Process pumps
- Rotary steam joints
- Seals for agitators and autoclaves
- Chemical pumps
- Cold and warm water pumps
- Corrosive liquid pumps

Carbon is well suited to be used as a sealing ring due to have the following properties

- Very good chemical resistance
- Good thermal conductivity
- High wear resistance
- Good corrosion resistance
- Dry running properties
- Outstanding resistance thermal shock
- Low thermal expansion

Compressor components



We supply carbon compressor components to suit non-lubricated and oil free compressors.

Area of services for non-lubricated compressors include

- Oxygen plants where oil use would present a fire and explosion hazard
- Instrument air compressors to prevent oil from clogging air operated control systems
- Process air for food industries to avoid oil contamination of food
- Breweries for the compression of CO₂ and process air
- Petroleum refining for handling of gases and non-lubrication fluid
- Chemical industries to prevent oil contamination of end products
- Medical Oxygen for hospital use

TriLAP Company Litmited

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