

Plug-in Brush Holders

carbon products & supplies for industry

Carbonex[®]

Plug-in Brush Holders

Schunk-Group is a globally recognized materials technology Business with unparalleled expertise in the processing and applications of carbon, graphite, silicon carbide, oxide ceramics and other related materials.

The long-term collaboration with Schunk-Group enables us to use the most advanced materials in order to supply in the Public Power Corporation

The Carbonex products we offer are carbon brushes, carbon brush holders, slip rings, commutators. We are one of the biggest supplier of carbon brushes in the power generation market and we offer carbon brushes with high quality good performance for generator to support your applications.

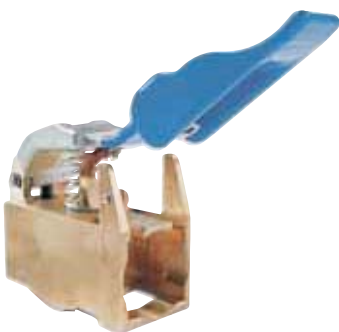
The optimum grade for turbo alternator applications are E104, E46F3, HG6634, HG5634, HG5634H8 brush which we manufacture and supply to ELEKTROSILA, SKODA, ALSTOM, ASEA, PARSON, ELIN, SIEMENS KWU, GANZ, DOLMEL, ELSIB, CHEMZ, BBC ect. and is recognized as the industry standard for this application.

HG6634 grade is recognized globally as the best performance material in power generation
Reliable and consistent performance

- ✗ Low wear of both brush and slip ring surface
- ✗ Minimal Polarity wear differences
- ✗ Low and stable friction
- ✗ Assists in Preventing ghosting on ring surfaces
- ✗ Proven long life capability
- ✗ Excellent current sharing capabilities
- ✗ Consistent contact drop
- ✗ Available to fit any generator
- ✗ Consistent material processing globally

HG6634 grade brushes fitted plug in holders for ease of brush replacement in service.

Plug-in brush holder housing/insulated handle lever with flex, compression spring and locking pin



Telescopic pressure device apparatus ensures constant and even pressure is applied to the carbon brush



Carbon brush by Carbonex with insulated brush shunt. Available difference brush design according the customers requirements



Plug-in brush holder housing. This is a brush holder design with safety locks in with a "Click"



Plug-in Brush Holders

Carbonex Offer

- ✂ Local Sales Engineer Support
- ✂ Application engineering know how
- ✂ Over a 37 years of experience in carbon brush technology
- ✂ Test and Analytical support together with corporation in Schunk –Group in his own laboratory facilities
- ✂ Technical training courses

The grade-HG6634-, which is used for Turbo Generator applications, is a bonded natural graphite material. It sets the world standard for carbon brush performance on your Turbo Generator.

Advantages through Knowledge

Many of the leading industrial manufacturers, including several power stations, rely on plug-in holders and accessories from Carbonex. Our know-how offers decisive advantages when compared with our competitors. The Carbonex has extensive international experience with brushes and security for their implementation. The Carbonex plug-in holders and accessories have proven for long time the best in the world, especially in applications where a high level of security is necessary.

Plug-in-Brush Holders – the Absolute of Quality for Decades

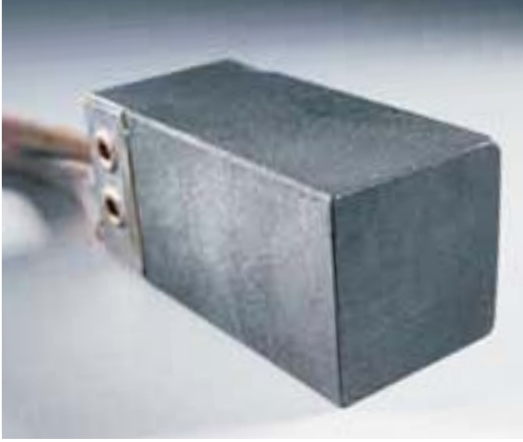
The Carbonex has been developing and selling plug-in holders and plug-in accessories for several decades. We guarantee security to the user when changing the brushes, even when the engine is running. The plug-in holders offer optimal protection from unintentional contact when rotating the engine and perfect current transfer to the machine components.

*Plug-in brush holder in the safety version:
- brush changes on a running motor can be done faster and safer.
- Perfect protection against electrically active components*

Clamp with serrated surface depending on the type of machine specially designed



Plug-in Brush Holders

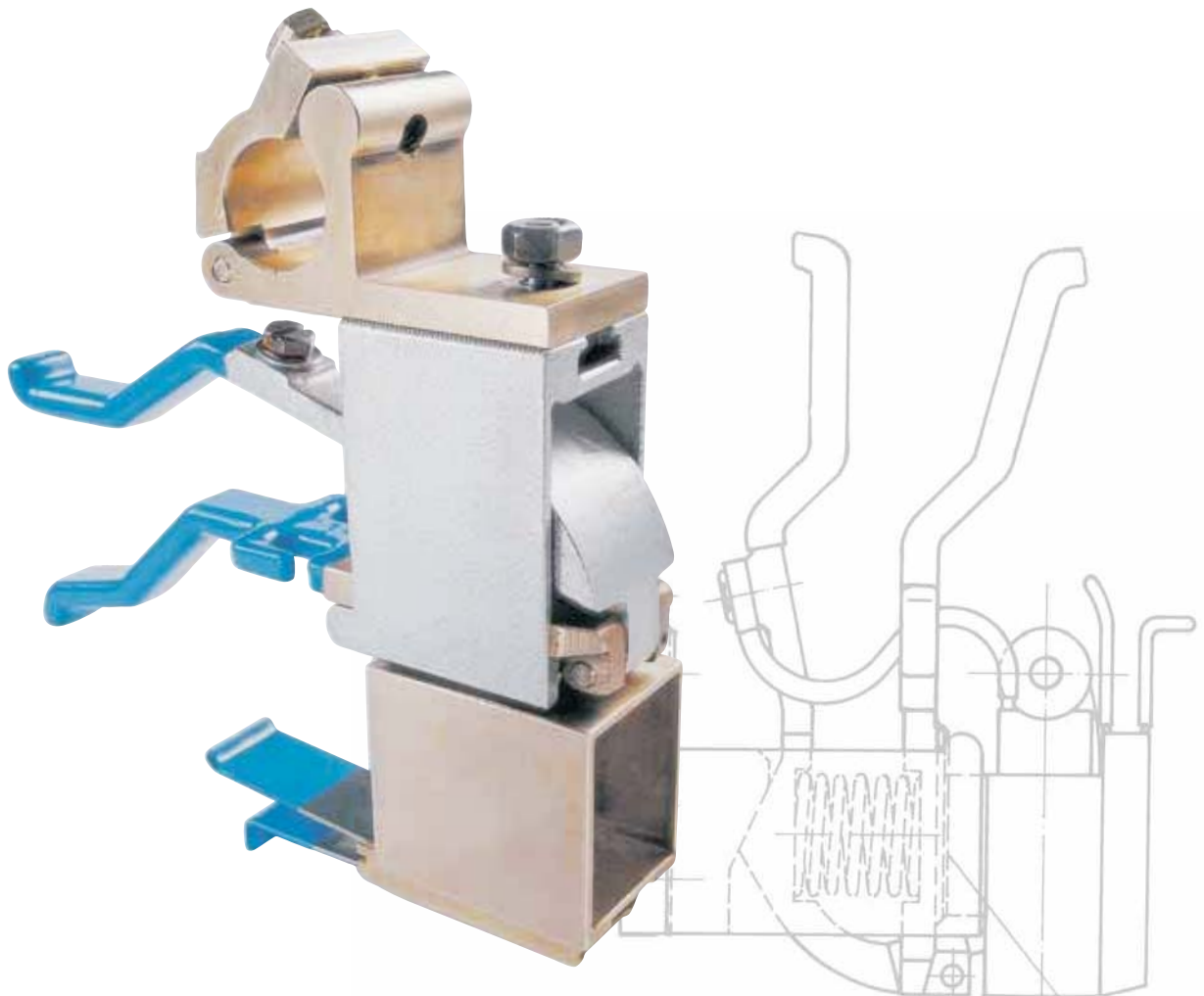


Carbonex carbon brushes are among the most reliable products of their kind worldwide.

The Right Operating Position

In order to allow insertion or removal of the plug-in element on a running motor with the same degree of safety as with plug-in brush holders, additional measures must also be taken here in the form of a covering which prevents contact with current carrying or rotating parts. Parts located near the handle lever are insulated, as in the case of plug-in brush holders.

For safe plug-in element and corresponding housing have been designed in such a way that the plug-in element automatically locks when assembled each other.

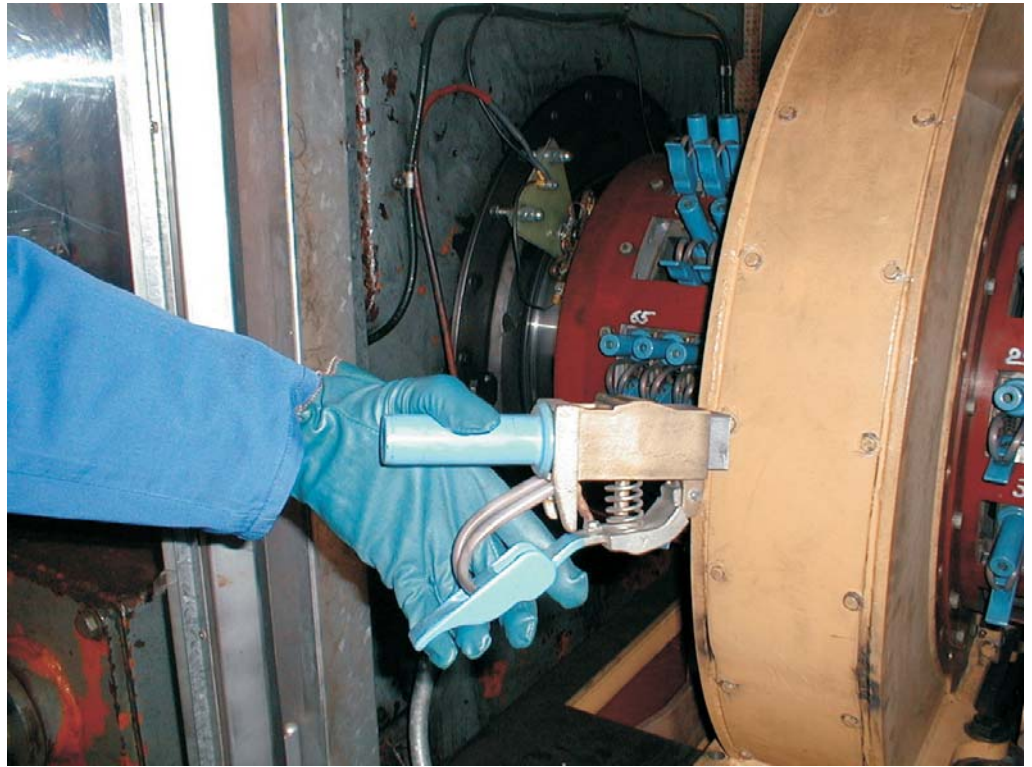


Plug-in Brush Holders

Handling

The plug-in element, which consists of a handle lever with a compression spring and a locking pin, is pressed into the plug-in element housing. The brush is locked into the plug-in brush holder housing by a locking pin in this design. If the handle lever is released after inserting, it will set the plug in element and the attached brush holder into the correct position. This also establishes the contact between the plug-in element and the element housing.

The locking of the brush is offset and it rests upon the commutator.

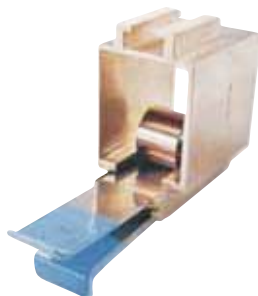


Carbonex plug-in brush holders

Handle lever with protective coating and handle compression spring. The integrated locking pin locks the brush upon insertion



Brush holder with a constant coil spring for constant pressure on the carbon brush



Plug-in element housing. The inward side is tapered. Automatic "setting" upon insertion (CLICK)



Clamping piece with serrated flange surface, lock washer and attaching screw



Plug-in Brush Holders

Insertion and Removal “with a Turn of the Wrist”

To ensure safe changing, the holder and the brush are inserted and removed together on plug-in brush holders.

The actual brush change takes place on the removed holder outside of the motor. The plug-in brush holder and the corresponding holder housing are designed in such a way, that even inexperienced service personnel can safely carry out insertion and removal. In connection with a suitable covering, it is not possible to touch the rotating slip ring with the holder.

No need tools for inserting or removing the brush. The users should wear protective clothing and gloves during the change.



Individual plug-in brush holders are grasped by the insulated handle lever. For safety reasons, safety gloves should additionally be used during this procedure.



The handle lever is pressed together and the plug-in brush holder is slowly drawn from the holding fixture.

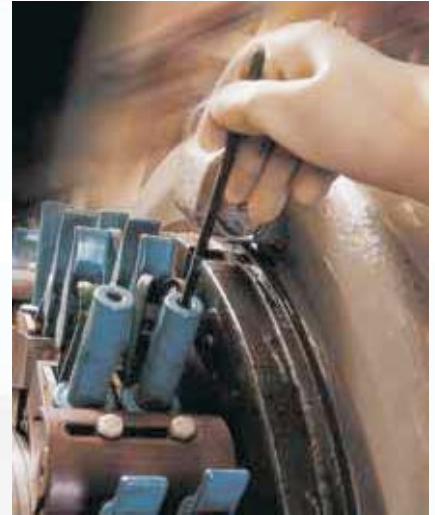


If caution is exercised during removal of the plug-in brush holder, the risk of unintentional contact with current carrying or rotating machine components can be as good as eliminated.

Plug-in Brush Holders

Testing Brush length with a special Measuring stick

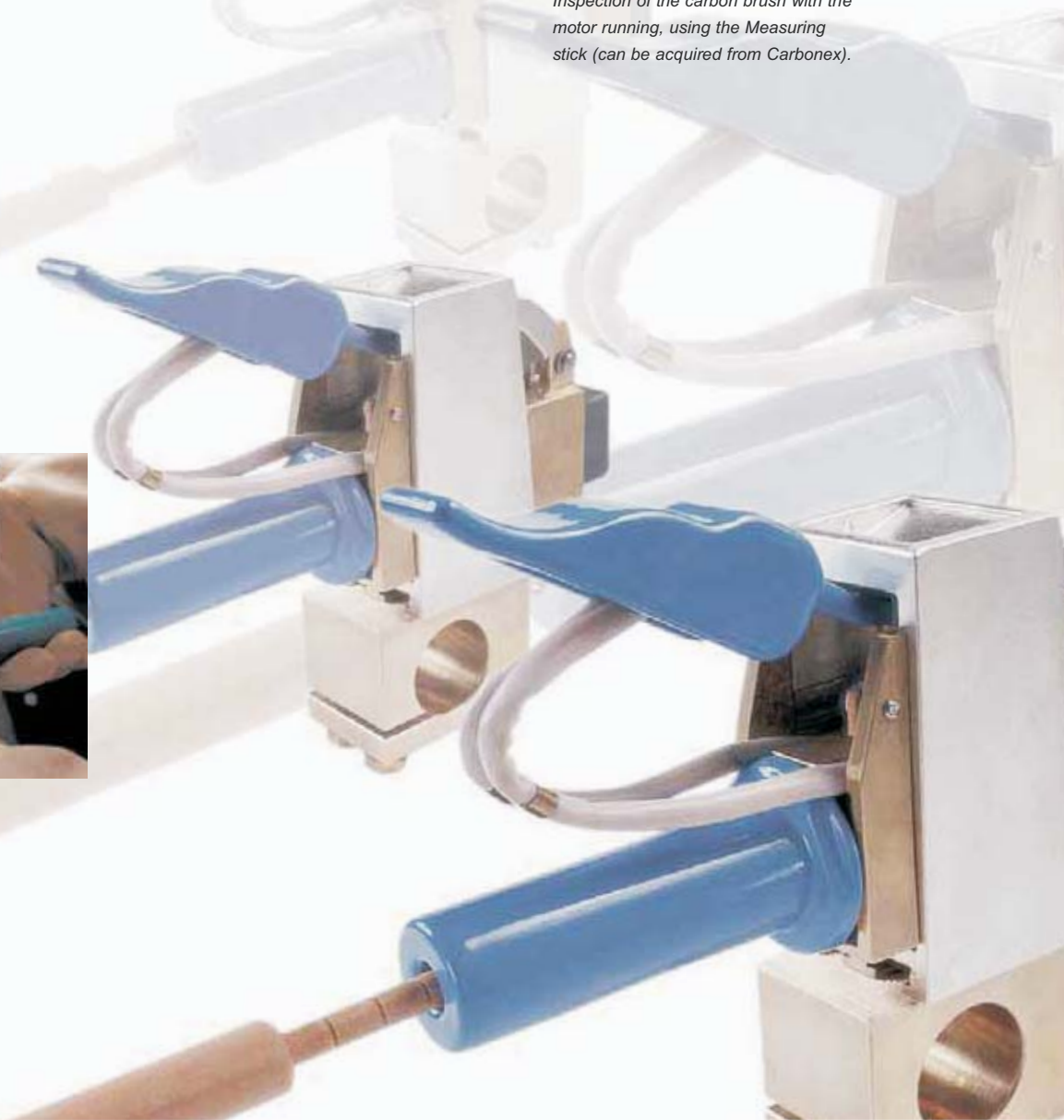
The measurement of brush height with the motor running presents no problem for plug-in brush holders. To do so, a special measuring stick (supplementary equipment) of insulated material is inserted into the telescopic pressure system. The marking rings indicate the remaining usable brush length. Furthermore, the temperature of the brush contact surface and the surface finish can be inspected on removed brushes.



Inspection of the carbon brush with the motor running, using the Measuring stick (can be acquired from Carbonex).



Changing and checking of the brush are carried out in safety – outside of the running motor.



Recommendation Turbo-Generators Hydro Power Generators

Turbo-Generators Hydro Power Generators

Grade	Metal Content %	Opt. Perm. Current density		Max. Permanent Speed		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
HG6634	-	78	12	-	100	Up to 95 m/sec good commutation
HG5634	-	78	12	-	90	Excellent film control
HG2634H8	-	78	12	-	90	Turbo generators up to 90 m/sec Hydro Power generators up to 60 m/sec
E46F3	-	92	14	-	60	For synchronous Turbo Generators
E104	-	78	12	-	80	Turbo Generators up to 80 m/sec
F19	-	78	12	-	60	ungrooved rings
F23	-	78	12	-	90	Turbo generators up to 90 m/sec Hydro Power generators up to 60 m/sec
F24	-	96	15	-	90	Turbo generators up to 90 m/sec Hydro Power generators up to 60 m/sec

Mining

Grade	Metal Content %	Opt. Perm. Current density		Max. Permanent Speed		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
B14Z1	90	164	25	98	30	Standard Grade
C40Z3	75	129	20	98	30	Standard Grade
K14Z3	62	116	18	98	30	For closed machines (steel or bronze rings)
A12S	70	116	18	98	30	For open machines (steel or bronze rings)
A24	40	98	15	115	35	Low load resistant
A20	50	98	15	115	35	Low load resistant



www.carbonex.gr

VASILIADIS BROS
Carbon Brushes & Trading of Brush Holders

18 Attalias Str. -P.O. 142 31
N. IONIA, ATHENS, GREECE

Tel: (+30) 210.27.56.961
Fax: (+30) 210.27.76.637

e-mail: carbnext@yahoo.gr | carbonex@carbonex.gr