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Systems
product solutions re-thought

typical electric golf car

- deep cycle batteries are placed mostly under the seats

do you know these golf car battery surfaces?

wet acid vapour surfaces- create

corrosion
and
battery self discharge

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do you know these golf car battery terminals?

contact terminals are corroded and create electrical failtures or sparks

QUACERT

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solution?

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maintanance package
for deep cycle batteries - BCI style

Profill© watering systems

AND

Lugsulation © seal DC

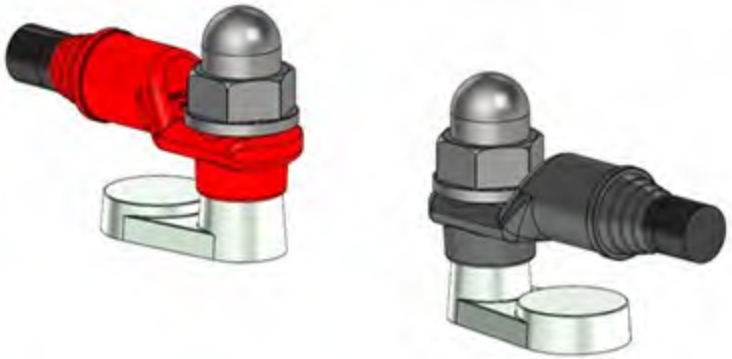
what is Lugsulation© ?

- the name stands for lug and insulation
- it is the patented combination between cable lug and seal envelope
- the aim is a complete seal of electrical connections to avoid failture caused by moisture, acid and shorts

what are main customers advantages ?

- elemination of system failtures
- improvement of work safety
- reduction of consequential damages
- safe time for faster product performance
- longer battery life
- less consequential cost´s

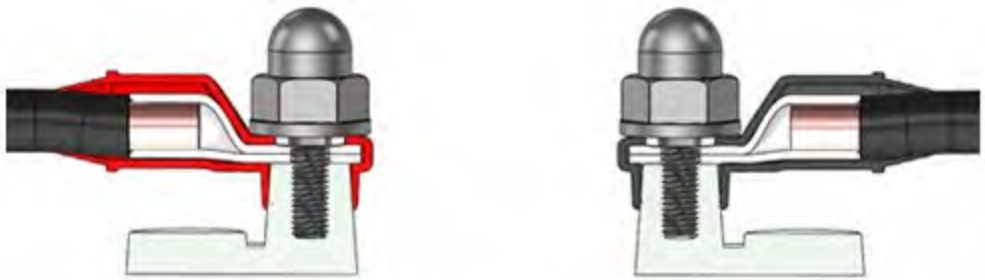
design of regular bloc battery connector



- positiv and negative side can be colour coded

- plastic headed nut eg. 5/16 inch thread – optional with lead measuring point at negativ side

- sealing against outer cable diameter

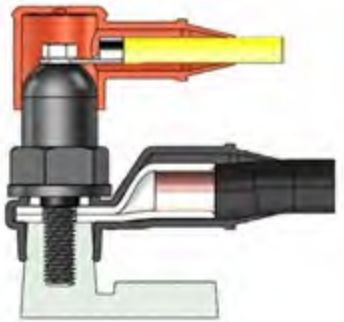


- axial and radial sealing from elastic envelope

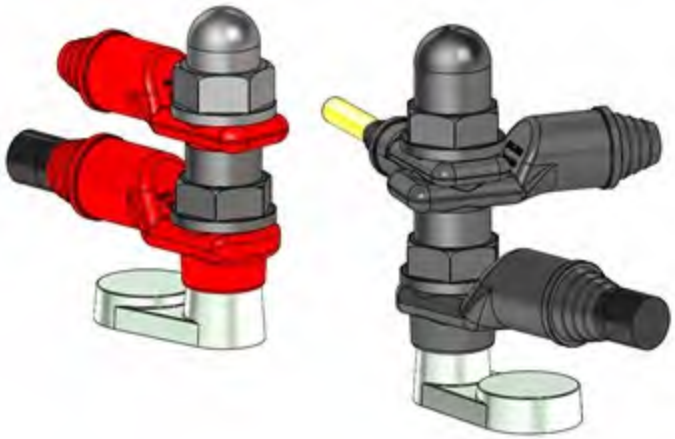
design of bloc battery end take off – one power and one signal cable

- Neg. plastic headed nut eg. 5/16 inch thread – with additional thread and signal cable cover

- yellow signal cable here shown as single wire. Multiple cables also possible in various directions

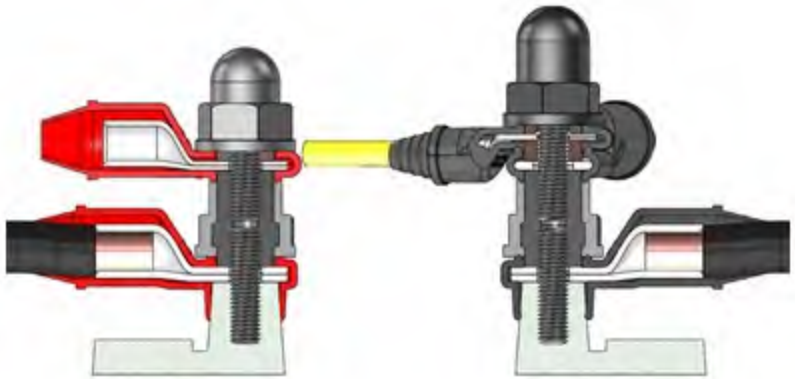


design of bloc battery end take off - two power and one signal cable



- various Lugsulation© design possible here 1 x seal $_{DC}$ and 2 x flex

- variable system with modular components



function

Lugsulation© seal

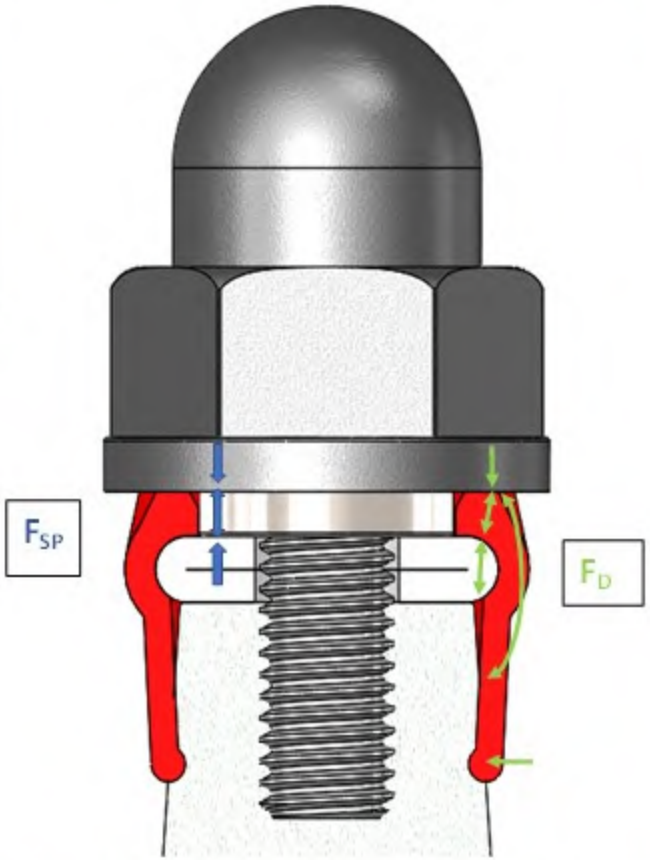
Kraftverläufe / force progression

Anschraubkräfte F_{SP}

Schraube bis zur elektrischen Oberfläche

Screw forces F_{SP}

Screw to electrical surface



Andruckkräfte F_D

Dichtungen

compression forces F_D

sealing

how Lugsulation © will be assembled ? – easily !

Step 1
dip the end of the envelope
in water (optimal: detergent)

Step 2
slide the envelope over cable and
cable lug as shown in the picture

Step 3
slide the envelope back to ensure
exact positioning of back end

Step 4
check position of front end

technology

evolution of materials:

- actual elastomer in different colours e.g. black, red, blue or customer coded
- flame retardant materials according UL 94 V0
- transparent silicone material to view contact areas
- High temperature elastic material to reach 120 °C / 248 °F
- colour changeable materials if contact area gets hot – colour will reverse or irreversible change

Lugsulation© seal $_{DC}$ in transparent material

- if customer want to see contact surfaces under the envelope we can use transparent elastic material

Lugsulation© seal $_{DC}$ with thermo identification ring

- If contact get to hot, colour will change reversible or irreversible

technical aspects

different IP protection classes possible

- the envelope itself will reach IP65
- additionally a heatshrink can be fixed at the envelope
- envelope can be filled additional with grease or 2K glue after assembling IP 66
- direkt overmoulding of lug and cable IP 66

various cables can be used

- different sizes e.g. AWG 7 – 4/0
- short circuit cable
- vinyl cable e.g. FLY
- halogen free / flame retardant cables
- etc....

HAGEMANN Systems

Thank you
for your attention!

come and meet us...

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