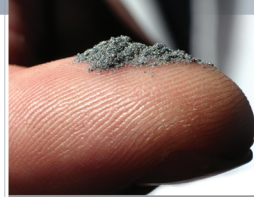




# REthink nature

Eine Initiative der Zoz Group  
Erfahren Sie mehr auf  
[www.zoz.de](http://www.zoz.de)



*...where competences match*



THE THREE ANSWERS  
for zero emission future Transportation

Zoz light weight technology  
**Zentallium®**  
lighter than aluminium  
and as strong as steel

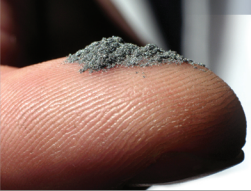
Zoz battery technology  
**ZoLiBat®**  
high performance phosphate based  
Li-Ion battery electrode materials

Zoz Hydrogen technology  
**H2Tank2Go®**  
solid state absorber tank system,  
low pressure, highest energy density

Zoz Group

Maltoz®-Strasse  
D-57482 Wenden  
Germany

[www.zoz.de](http://www.zoz.de)



# THE THREE ANSWERS for zero emission future Transportation

Zoz light weight technology

## Zentallium®

lighter than aluminium  
and as strong as steel

### Description

High performance semi-finished products and component parts of mechanically alloyed Al-based materials with sustainable grain-size reduction and strengthening utilizing Carbon Nanotubes (CNTs) for commercial applications

### Advantages

- superlative specific strength
- advanced temperature resistance
- high stiffness
- conductivity properties coming soon
- corrosion resistance data coming soon

dimensions	
only Ø 15 mm available	other coming soon
geometry	achievable length
Ø 19 mm	2,3 m
Ø 15 mm	1,8 m
Ø 20 mm	0,6 m
Ø 30 / 3 mm	0,7 m
Ø 20 x 5 mm	1,8 m



sample material available  
(dimensions: Ø=15mm,

technical data and cost for Zentallium® Z21 · dimension Ø 15 mm							
specification	Al 1060	Al 5083 (H321)	Al 7075 (T651)	Al-Li 8090	Zentallium® Z21	Ti 6Al-4V	Stainless steel A2
tensile strength [MPa]	83	345	572	720	700	950	700
specific strength [MPa/(g/cm <sup>3</sup> )]	31	130	204	267	266	214	87,5
modulus of elasticity [GPa]	70	70,3	71,7	80	80	113,8	210
elongation [%]	16	10	11	4	1	14	8
density [g/cm <sup>3</sup> ]	2,7	2,66	2,81	2,7	2,63	4,43	8
net cost [€/m]	(7)	(15)	(37)	(100)	60*	(75)	(9)

\* minima 30m per order, value 2011-05



in pilot scale accounts to 3,2 km

Zoz battery technology

## ZoLiBat®

high performance phosphate based  
Li-Ion battery electrode materials

### Description

High efficient cost effective lithium-ion battery-packs for electro kickboards/scooters isigo®1.0-ZLB and longo®1.0-ZLB and other application.



ZoLiBat®-battery pack  
(pack contains 14 single cells)

dimensions, technical data & cost	
dimensions (L x W x H)	300 x 80 x 110 mm
weight	4,8 kg
ambient temperature range (charge)	0 – 45°C
ambient temperature range (discharge)	-20 – 55°C
nominal capacity	10 Ah
nominal voltage	48 V
internal impedance	10 mOhm
max. charge voltage	57,4 V
cut off voltage	39,2 V
charge mode	CC/CV
max. charge current	10 A @ 1 C
max. discharge current	30 A @ 3 C
max. discharge current (peak)	50 A
cycle life	350 times
net cost	402,52 € (value 05-2011)

safety tests	
short circuit test	no fire or explosion all tests passed
drop test	
overcharge test	
impact test	
nail penetration test	
crush test	
150°C high temperature test	
test certificates	



isigo®1.0-ZLB  
(needs 1 ZoLiBat®-battery pack)



longo®1.0-ZLB  
(needs 4 ZoLiBat®-battery packs)

Zoz Hydrogen technology

## H2Tank2Go®

solid state absorber tank system,  
low pressure, highest energy density

### Description

This is the prototype of the globally first ECONOMICAL hydrogen driven vehicle demonstrating super safe Zoz-Hydrogen-Technology. Zero emission is very nice but only cost and performance do decide.



isigo® H2.0 prototype



click 'n' go system  
H2Tank2Go®

technical data, dimensions & cost		
isigo® H2.0	Prototype	commercial Product
available	yes	2012-07
max. speed	ca. 35 kmh <sup>-1</sup>	
range	max. 60 km <sup>1)</sup>	max. 120 km <sup>1)</sup>
drive-power	500 W	
load capacity	100 kg	
brakes	disc brakes	
fuel-cell	PEM-FC, 320 W (24 V)	
converter	DC-DC (24V → 48V)	
buffer micro-bat	Li-Ion, 48 V / 2,5 Ah	
tank	H2Tank2Go® (1x)	H2Tank2Go® (2x)
operating pressure (tank)	< 10 bar (Hydrolium®, solid state absorption)	
refueling time	click 'n' go (80s)	click 'n' go (10s)
pressure reducer	0,5 bar	
dimensions	1085 x 285 x 460 mm	
net weight [kg]	35	39
available colours	black	
on-road approval	no	yes
net cost	€ 5.000,00	€ 999,00

<sup>1)</sup> depends on riding, route and load

### Why & What

In electro-/hydrogen mobility world, much is promised and a lot expected. In order to prove that what you see is real at this cost, we already offer the prototypes at no warranty and at no approval. The prototype is available now, the commercial product as of 2012-07.

### When

on-road approval expected:  
for isigo® 1.0 within 2011  
for H2Tank2Go® within 2011  
for isigo® H2.0 as of 2012-07

