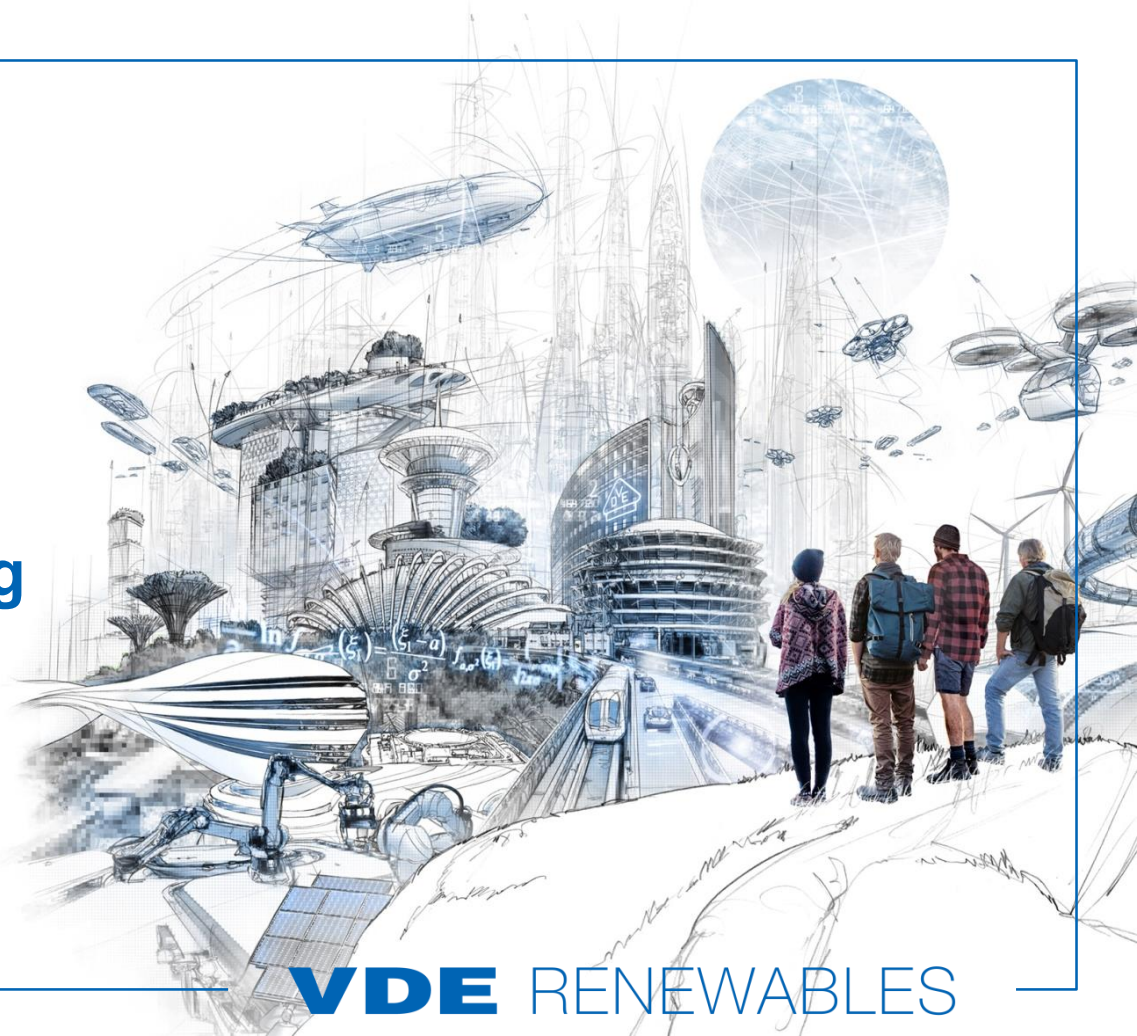


# PRIME LABS

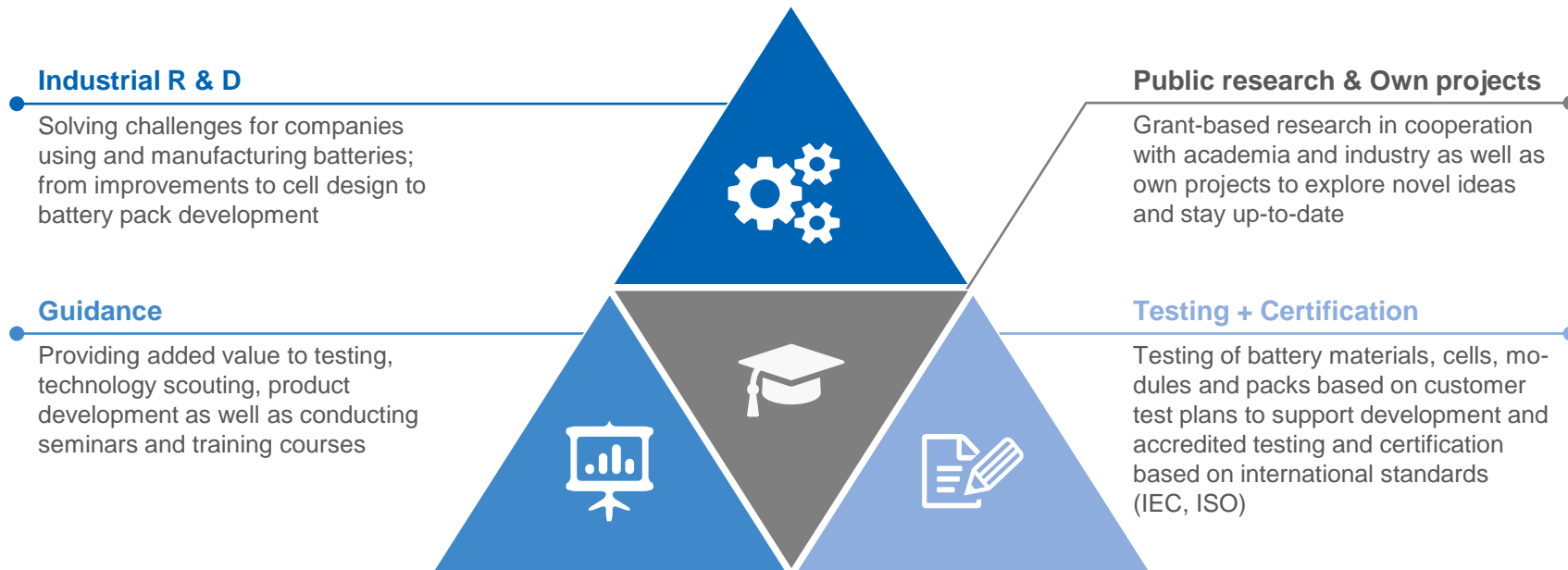
## Battery and Environmental Testing



**VDE** RENEWABLES

- State-of-the-art testing laboratories
- Over 3.000 m<sup>2</sup> test area
- Unique testing possibilities
  - Electrical
  - Environmental
  - Mechanical
  - Abuse
- Operating world-wide





# Our Team



For the success of our customer our employees provide

- competence and passion
- high quality work
- reliability
- independency
- fast decision times
- customer focus
- support and guidance



Testing of batteries, modules and battery assemblies, consisting of multiple modules, intended for use in electric vehicles and stationary ESS

- Performance
- Life-cycle/Ageing
- External short circuit
- Internal short circuit
- Overcharge
- Overdischarge

## Highlights

- Voltages from 0 V to 1 kV DC
- Currents up to 1.440 A
- Power rates up to 500 kW

Test channels available					
Channels	Parallel Option	U <sub>min</sub>	U <sub>max</sub>	I <sub>min</sub>	I <sub>max</sub>
146	no	0	5	-5	5
144	yes (max 4)	0	5	-5	5
12	no	0	18	0	8
3	yes	0	45	-10	10
72	yes (max 2)	0	4.5	-25	25
13	yes	3	60	-60	25
3	yes	0	1000	0	25
40	no	0	5	0	50
61	yes	0	6	-50	50
10	yes	10	70	0.05	50
6	yes	1	18	0.1	100
2	yes	0	500	1	100
24	yes	0	6	0.2	200
5	no	3	100	0.2	200
4	yes	0	6	-240	240
2	yes	3	100	0.2	250
8	yes	0	6	0.3	300
2	yes	3	600	0.3	300
4	yes	0	11	-360	360
2	yes	3	600	-400	400
2	yes	3	1000	-400	400
1		0	1000	0.5	600

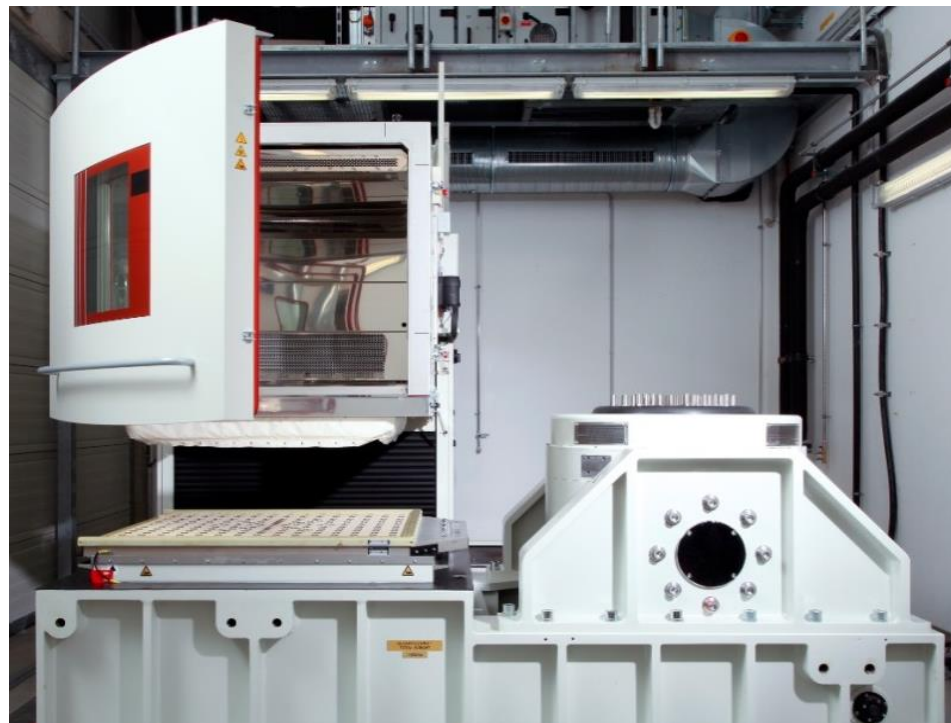
# Mechanical Testing



- Vibration
  - half sine
  - saw tooth
  - rectangle
- Shock
- Drop
- Crush

## Highlights

- Shaker 120kN
- 1.2 m x 1.2 m base
- 1.000 kg max. load
- With climate chamber





- Altitude simulation (2.4 m<sup>3</sup>)
- Temperature shock and cycling
- Corrosion
- Sun simulation
- Ingress protection
- EMC
- REACH/RoHS

## Highlights

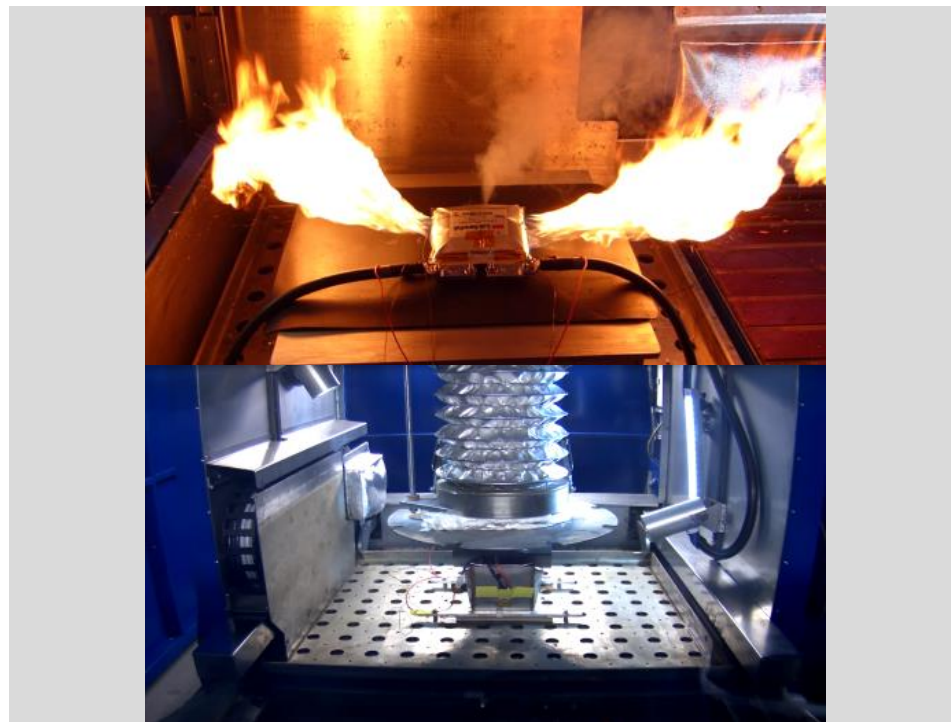
- More than 30 climate chambers
- Up to 1200L
- -70 °C to +180 °C
- 25 K/min



- Crush
- Nail penetration
- Short circuits
- Overcharge
- Overdischarge
- Overheat / Thermal abuse
- Fire Propagation
- Battery forensics

## Highlights

- Four abuse chambers
- Innovative fire fighting equipment
- Venturi gas washer (100 m<sup>3</sup>/min)

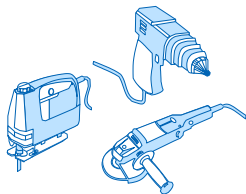




# Standards and Certifications

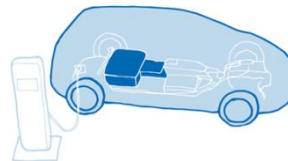


## Power Tools and Consumer Products



- UN 38.3
- IEC 60086
- IEC 60335-2-107 Annex KK
- IEC 61960
- IEC 62133
- IEC 62281
- IEC 62841-1 Annex K

## Automotive and LEV



- UN 38.3
- UN ECE R100 Rev.2 screening
- UN ECE R136 screening
- ISO 12405
- ISO 16750
- IEC 62660
- DIN EN 50604-1
- AK-LH 5.21

## Stationary Energy Storage Systems



- UN 38.3
- DIN/EN 62619
- DIN/EN 62620
- VDE AR 2510-50
- BVES Safety Guidelines

## Our certifications



ID 40000000

- VDE mark, VDE-GS mark
- VDE test report for information
- CB certificate

# VDE RENEWABLES

# Thank you for your attention!

We are shaping the e-deal future.  
Join in.

## **Your contact person:**

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