



**vonRoll**  
automotive

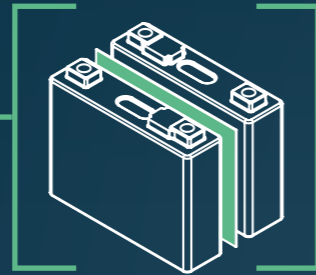
COMPOSITE  
YOUR DEMAND OF  
**POWER**

// Von Roll is the global leader in electrical and thermal insulation solutions in the automotive, energy and industrial sectors, providing solutions to new trends. //

## 1. CELL LEVEL

VR thermal propagation pads offer additional integrated functions. They acting as:

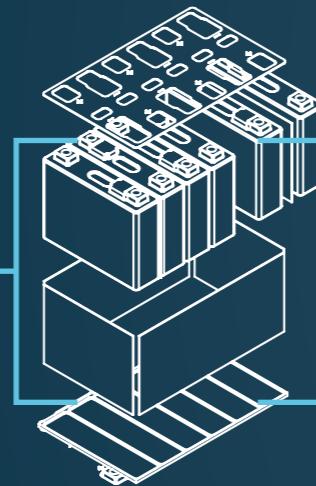
- // Thermal protection between the cells
- // Compression and tolerance pads
- // Supporting thermal management
- // Electrical Insulation



## 2. MODULE LEVEL

Light weight battery modules with:

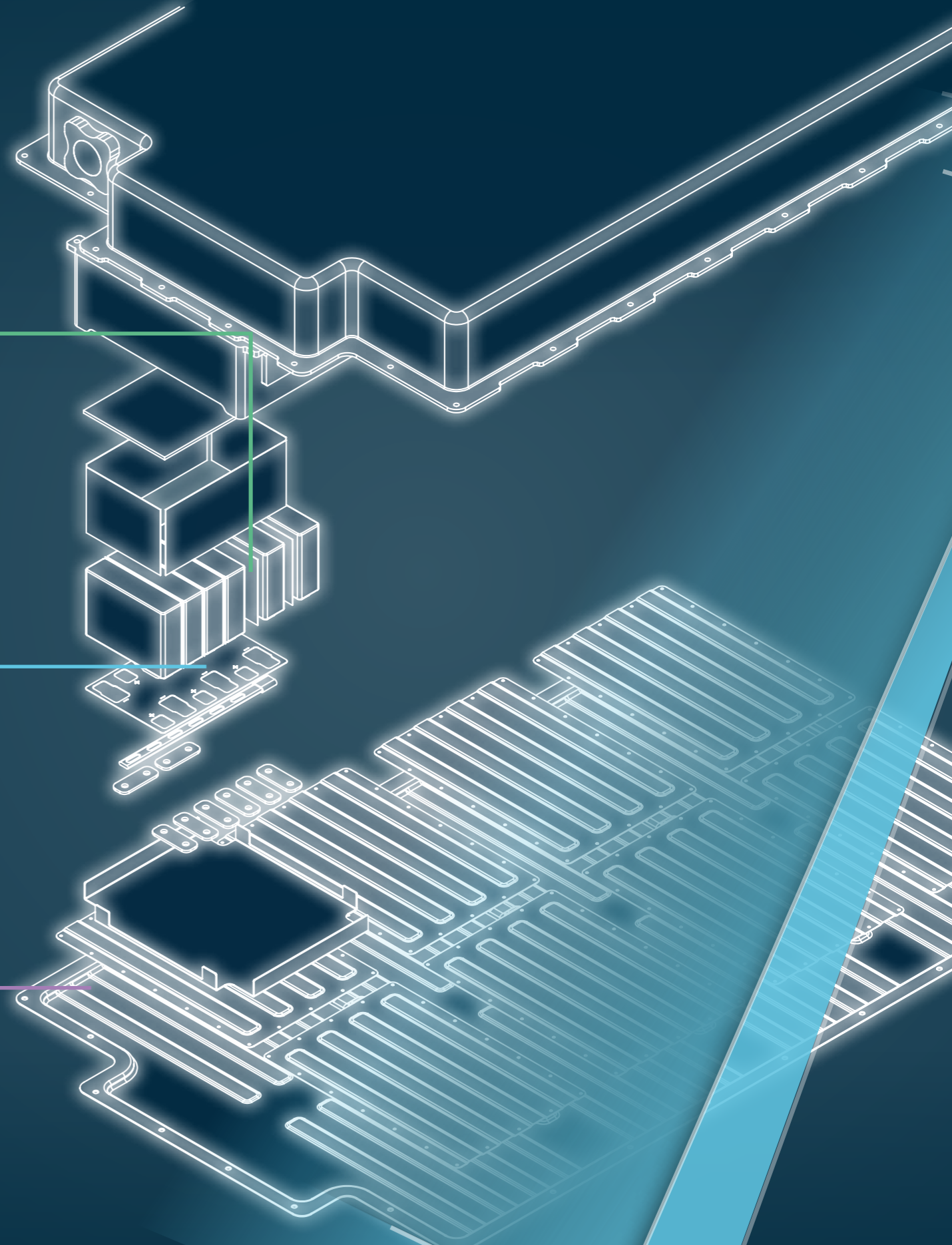
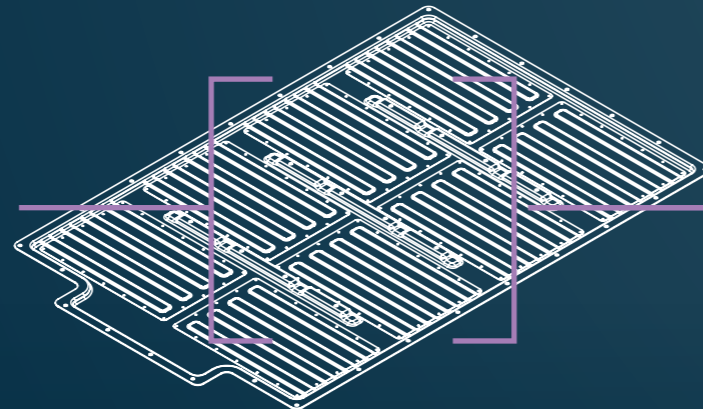
- // Housing with integrated thermal runaway protection
- // Electrical insulation concept
- // EMC protection
- // Simplified production of complex structures
- // Stability against aggressive gases
- // Crash safety



## 3. BATTERY LEVEL

Von Roll Automotive MPC battery cover offers:

- // Light weight
- // Easy production of complex and large structure
- // Integrated fire protection and electrical insulation structures
- // Supporting fixation structures



## THERMAL PROPAGATION PADS

### FIRE RETARDANT

PRODUCT	TECHNICAL SPECIFICATIONS	PRODUCT BENEFITS
<b>Shield T12</b> - rigid -	// Aramide paper with TP frame	// Cell swelling compensation // Electrical insulation // Low weight // Propagation mitigation
<b>Shield T40</b> <b>intumescent coating</b> - flexible -	// Density 0,4 g/cm <sup>3</sup> // Grammage 1,2 kg/m <sup>3</sup>	// Vent Gas Particle filtration // Low weight // Compressible // UL94-V0

### PROPAGATION MITIGATION

PRODUCT	TECHNICAL SPECIFICATIONS	PRODUCT BENEFITS
<b>Shield T18</b> - rigid -	// Mica plate (Mica content > 90%) // Dielectric strength 20kV/mm // Insulation resistance 200 - 600 MΩ	// Electrical insulation // Low weight // Propagation mitigation
<b>Shield T29</b> <b>T29G2</b> - flexible -	// Flexible mica sheet // Thermal endurance 1200°C // Thermal conductivity 0,2W/mK // Breakdown voltage 2/4/6 kV	// Cell swelling compensation // Electrical insulation // Low weight // Propagation mitigation // Elongation stable
<b>Shield T35</b> - flexible -	// Mica / glass fleece / mica // Breakdown voltage > 8kV	// Cell swelling compensation // Electrical insulation
<b>Shield T40</b> - flexible -	// Vertical flammability UL94V0 // Thermal conductivity to sheet direction @ RT < 0,1 W/mK	// Low weight // Propagation mitigation // eElongation stable

## BATTERY MODULES

### HIGH PERFORMANCE MICA TUBES

PRODUCT	TECHNICAL SPECIFICATIONS	PRODUCT BENEFITS
<b>Mica Tubes</b>	// Temperature and hazardous material stable (hydrofluoric acid)	// Electrical insulation // Low weight // Propagation mitigation

### INSULATION LAMINATES

PRODUCT	TECHNICAL SPECIFICATIONS	PRODUCT BENEFITS
<b>Myoflex 2N50</b> (2/2/2)		// UL94 VTM-0 // High electric breakdown voltage
<b>Myoflex 2A50</b> (2/2/2)	// Tolerance +/-10% // Breakdown voltage > 9kV // Weight 176.0 g/m <sup>2</sup>	// UL94 VTM-0 // High electric breakdown voltage // Best tolerance

### GAP FILLER / POTTINGS

PRODUCT	TECHNICAL SPECIFICATIONS	PRODUCT BENEFITS
<b>Damisol 13682</b>	// Not CMR classified // MDI free hardener	// 0.95 W/m.K self-extinguishing // UL94-V0 // Shore Hardness A 46

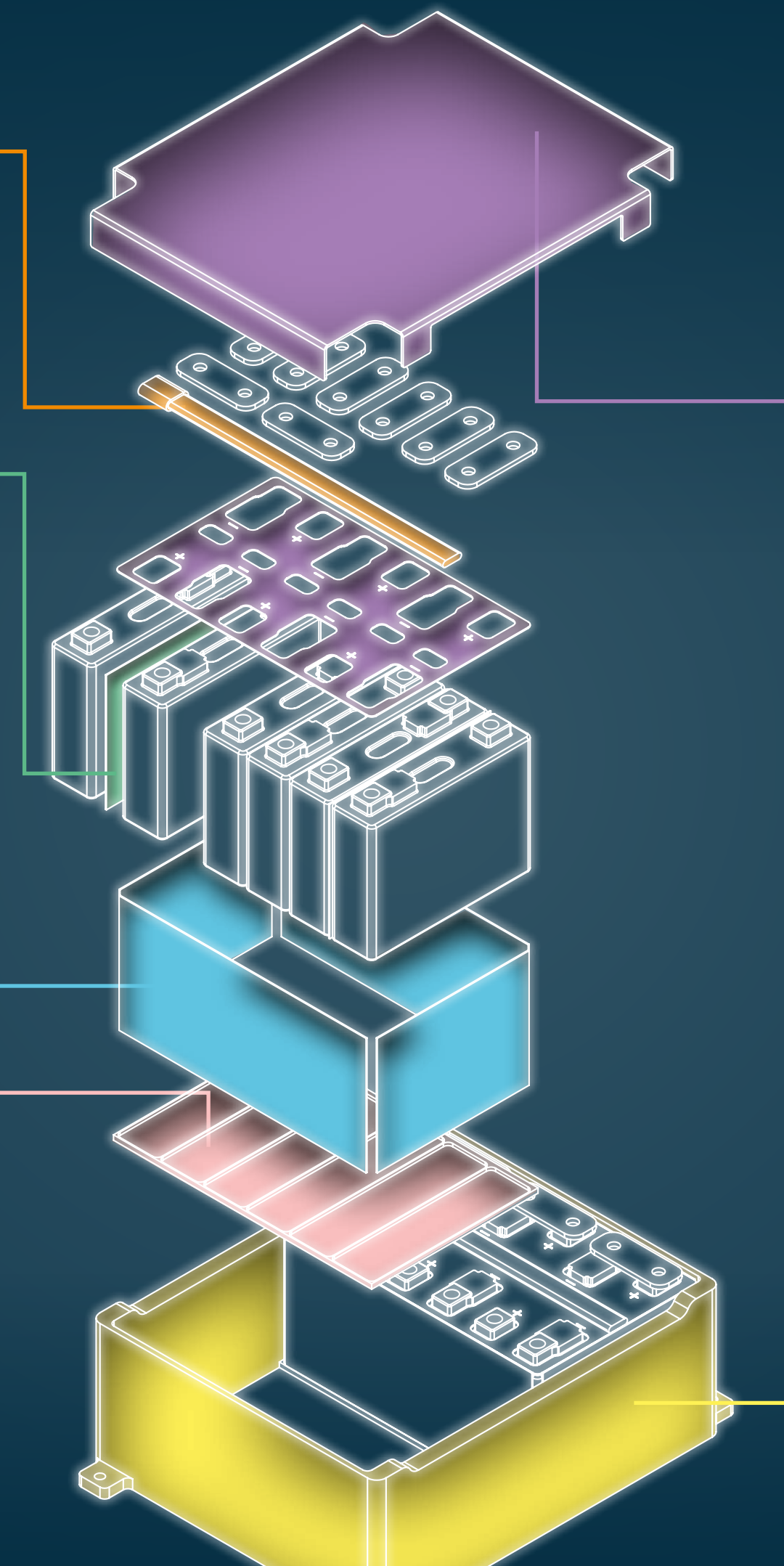
## MULTI PURPOSE COMPOSITES

### MULTI PURPOSE COMPOSITES COVERS

- PRODUCT BENEFITS**
- // High temperature integrated >15min @1000degC
  - // EMC shielding integrated
  - // Simple and fast production process
  - // Lighter and cheaper than current Aluminum solutions
  - // Weight benefit 20%

### MULTI PURPOSE COMPOSITES HOUSINGS

- PRODUCT BENEFITS**
- // High temperature stable >15min @1000degC
  - // Controlled vent gas management
  - // Electrical insulation dielectric strength 20kV/mm
  - // Fast production process



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