

新能源车资料

New applications 新的应用

Electrical Vehicle Platforms 电动车平台

Applications: 应用

- Battery frame 电池框架
- Structural components 结构部件

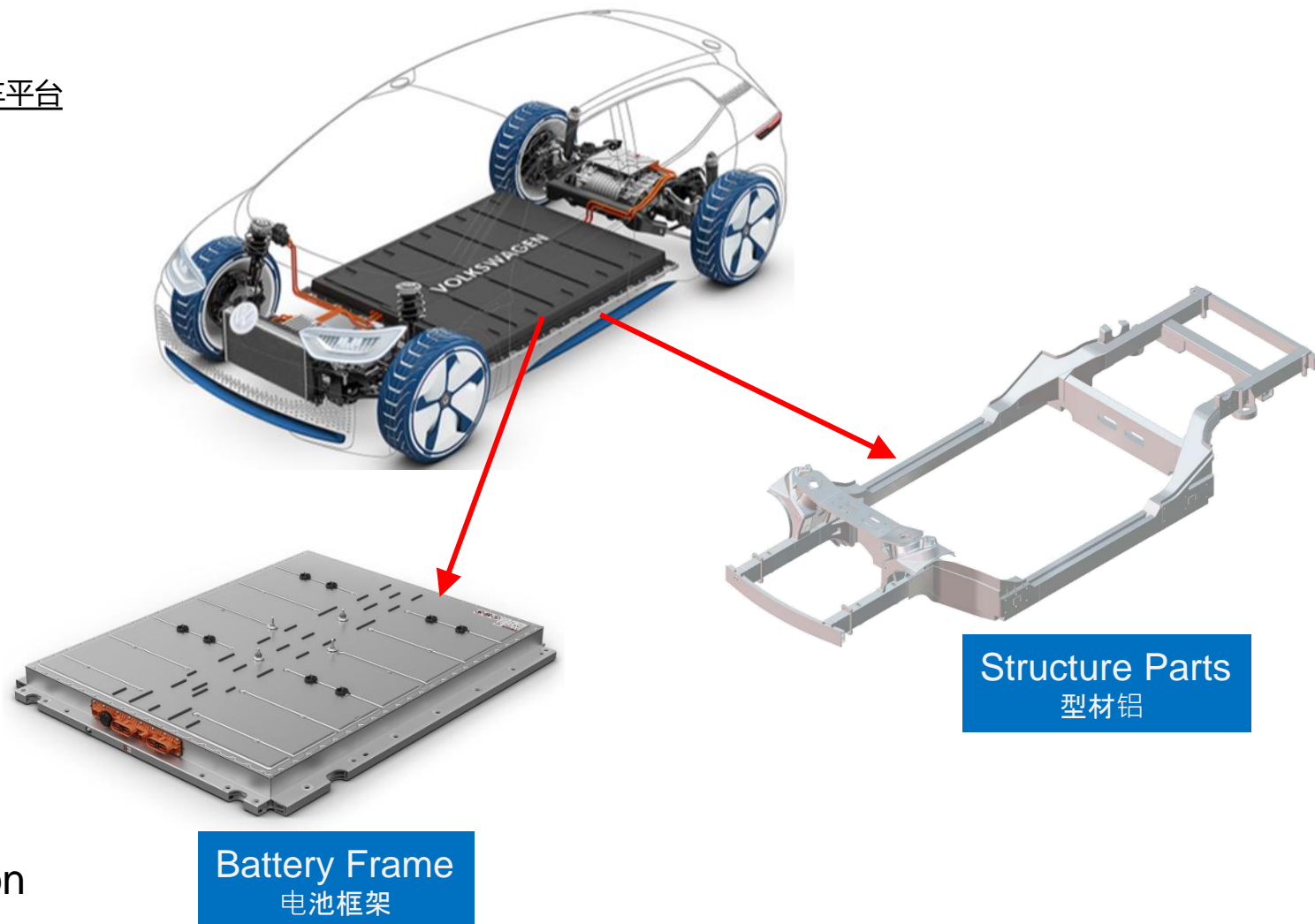
Materials: 材料

- Extruded aluminum profiles 型材铝
- Low Si content => long chips 低硅铝=>长屑

Cutting Tool Signature: 刀具特征

- ✓ Cutting material PCD and Carbide
- ✓ Reducing burrs 减少毛刺
- ✓ Chip removal 切屑去除
- ✓ Combination tools => cycle time reduction

复合刀具=>减少节拍



New applications 新的应用

Electrical Vehicle Platform 电动车平台

Complete Tooling Package 完整的刀具解决方案

Customers and references: 客户.参考案例

ANGER
MACHINING

ELHA
MASCHINENBAU

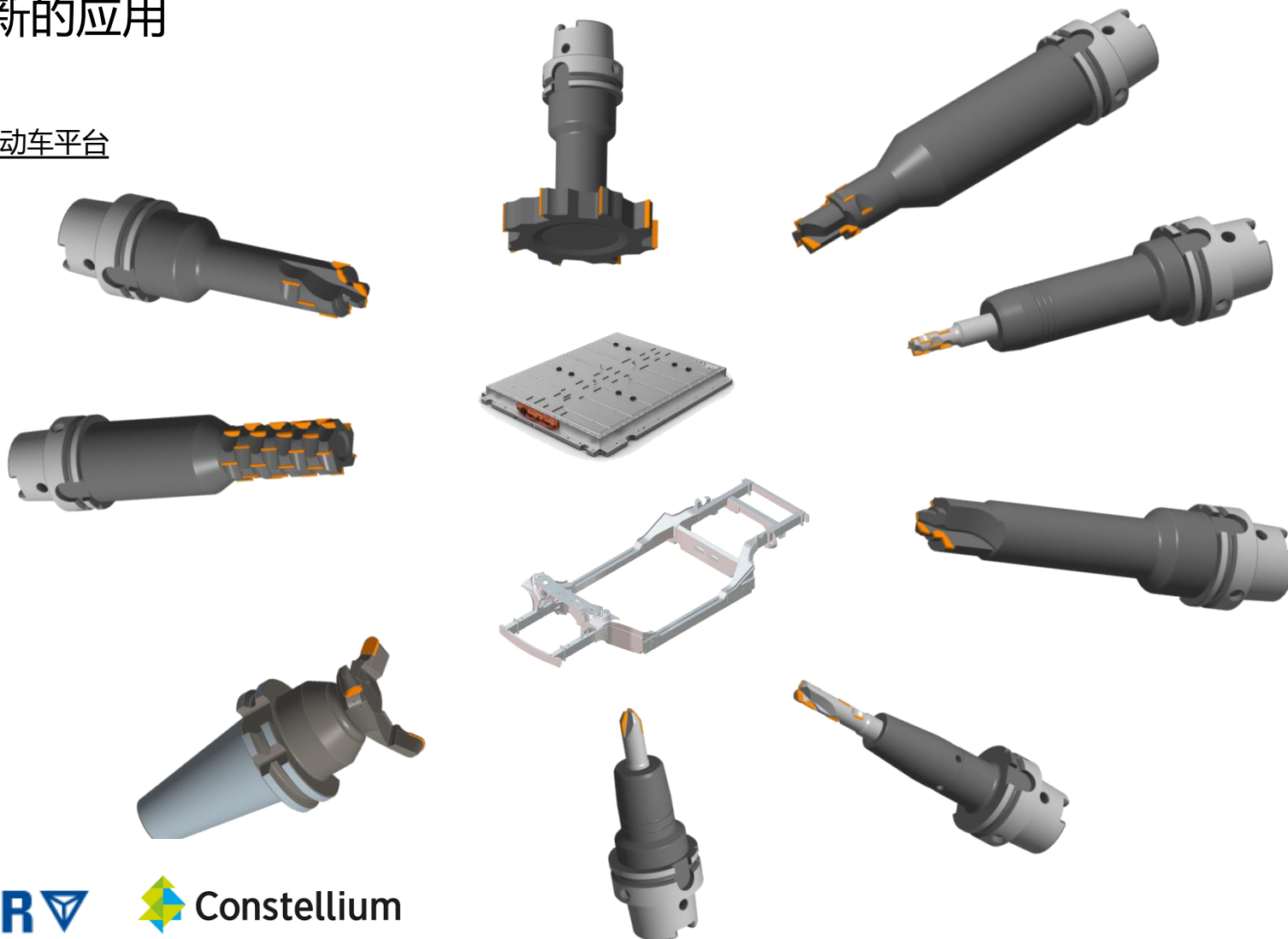


STEP/G



BENTELER

Constellium



New applications 新的应用

Electrical Vehicle Motor 电动车

Applications: 应用

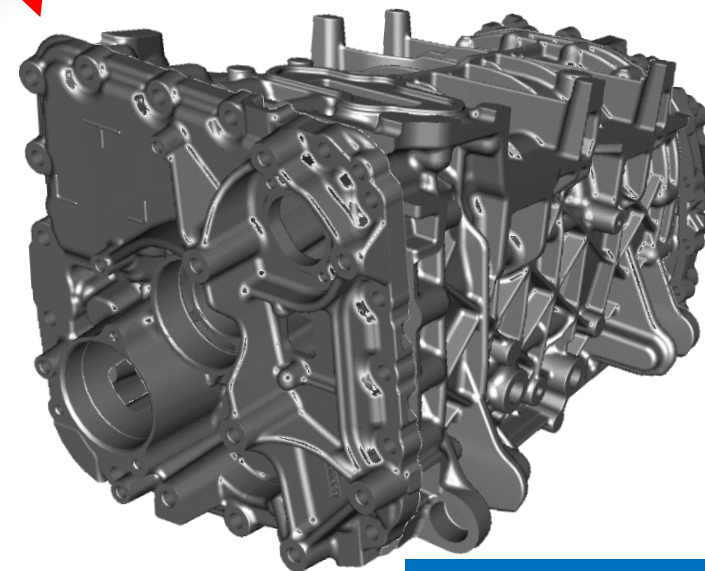
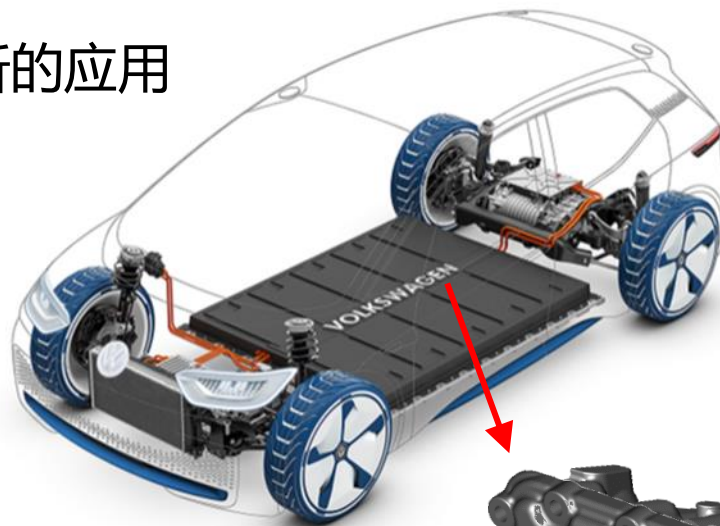
- Stator housing 定子外壳
- End cover 端盖
- Gearbox cover 变速箱盖

Materials: 金属材料

- Cast Aluminum – 7-9 Si% 铸铝-7-9Si%
- Cast Aluminum – 12-15 Si% 铸铝-12-15Si%

Cutting Tool Signature: 刀具特征

- ✓ Large bores 大孔径
- ✓ Multi adjustable diameters 多刃可调直径
- ✓ High performance circular milling tools 高性能铣刀
- ✓ Combination tools => cycle time reduction 复合刀具=>减少节拍



End Cover
端盖

Stator Housing
定子外壳

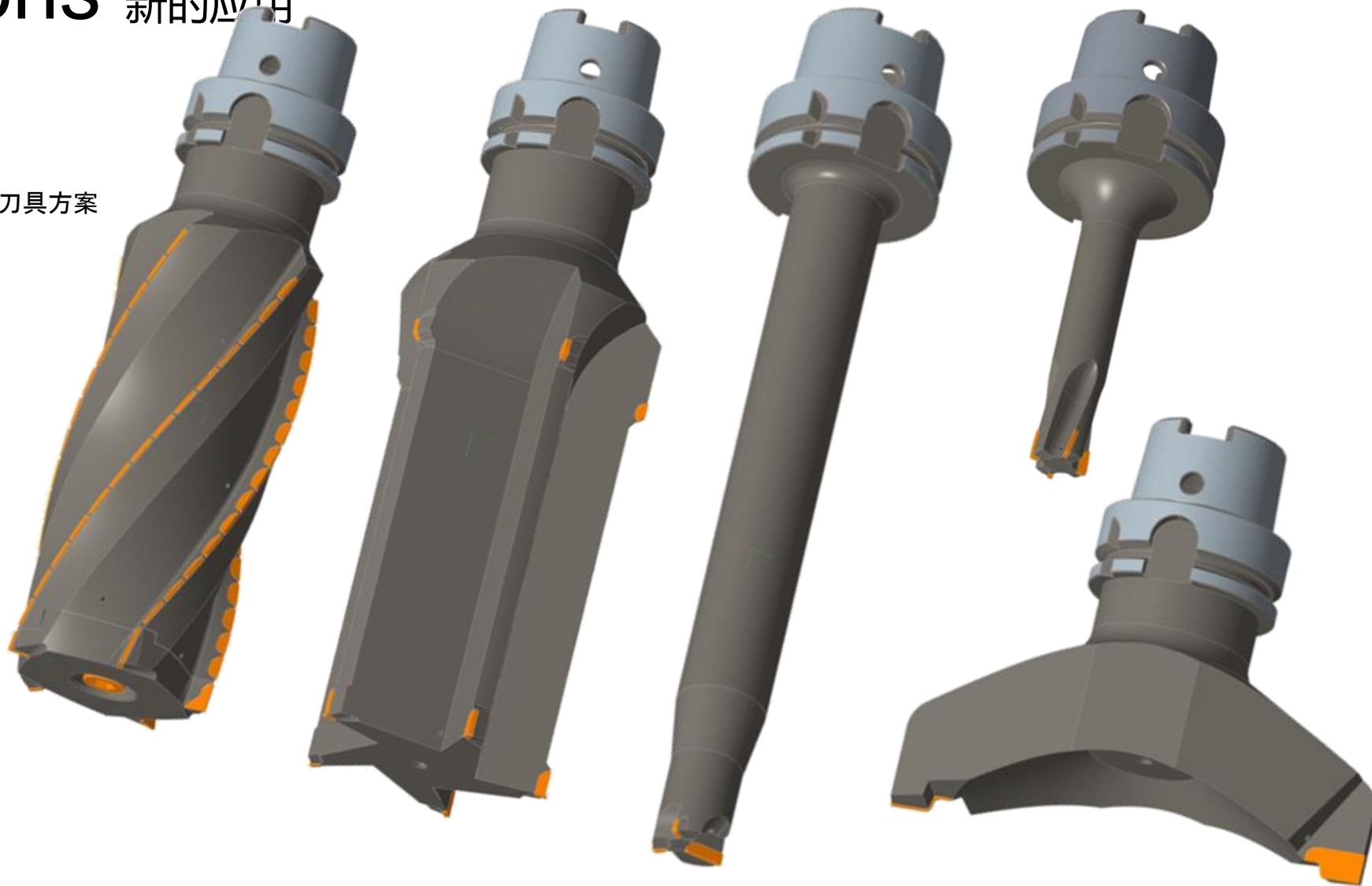
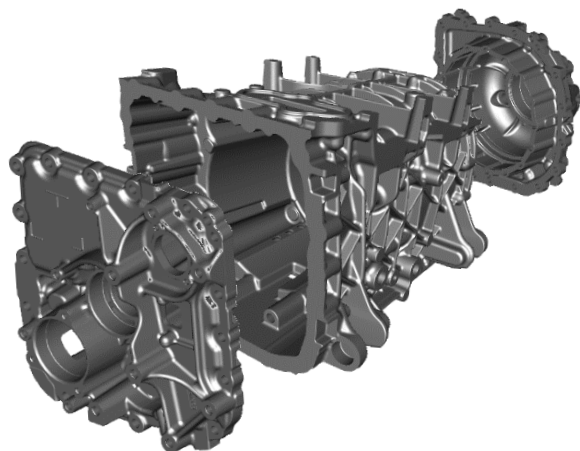
Gearbox Cover
变速箱盖

New applications 新的应用

EV Motor 电动车电机

Complete Tooling package 完整的刀具方案

➤ Milling Tools 铣刀



Customers: 客户

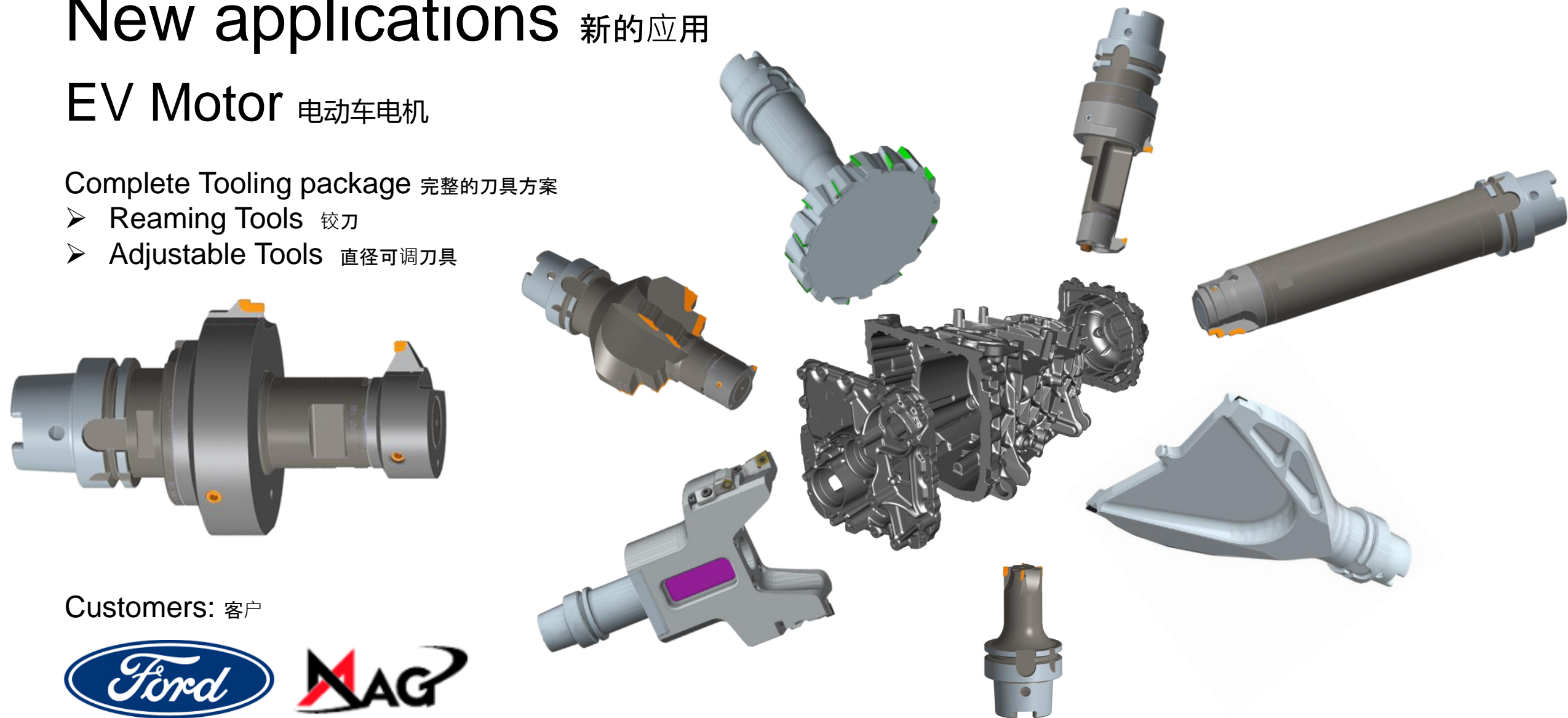


New applications 新的应用

EV Motor 电动车电机

Complete Tooling package 完整的刀具方案

- Reaming Tools 铰刀
- Adjustable Tools 直径可调刀具



Customers: 客户

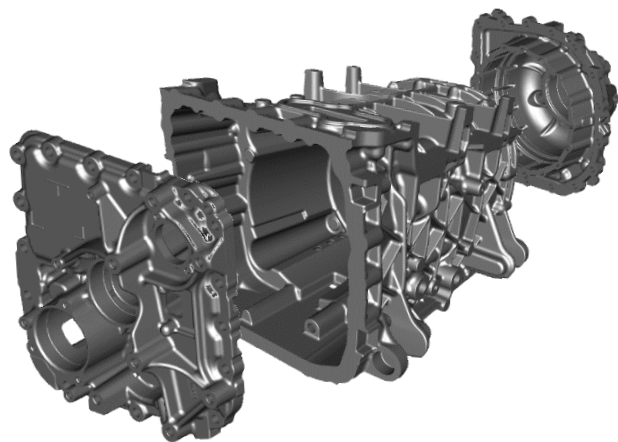


New applications 新的应用

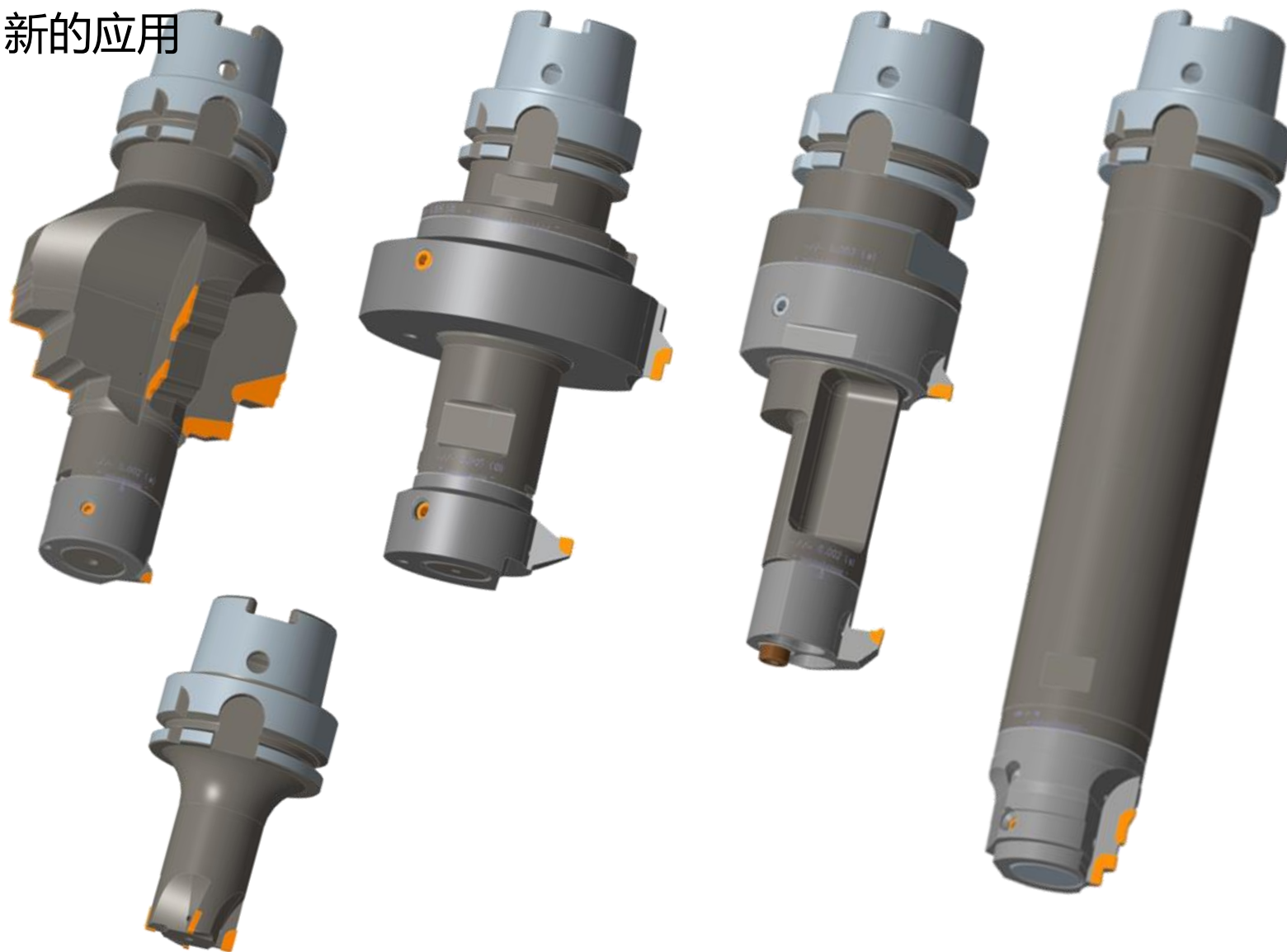
EV Motor 电动车电机

Complete Tooling package 完整的刀具方案

- Reaming Tools 铰刀
- Adjustable Tools 可调刀具



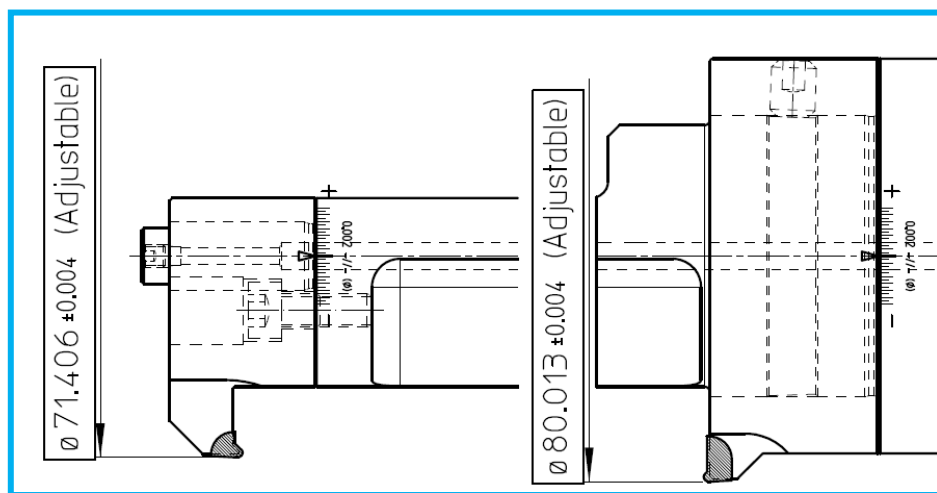
Customers: 客户



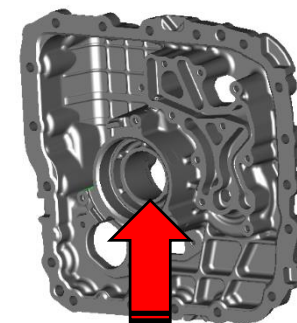
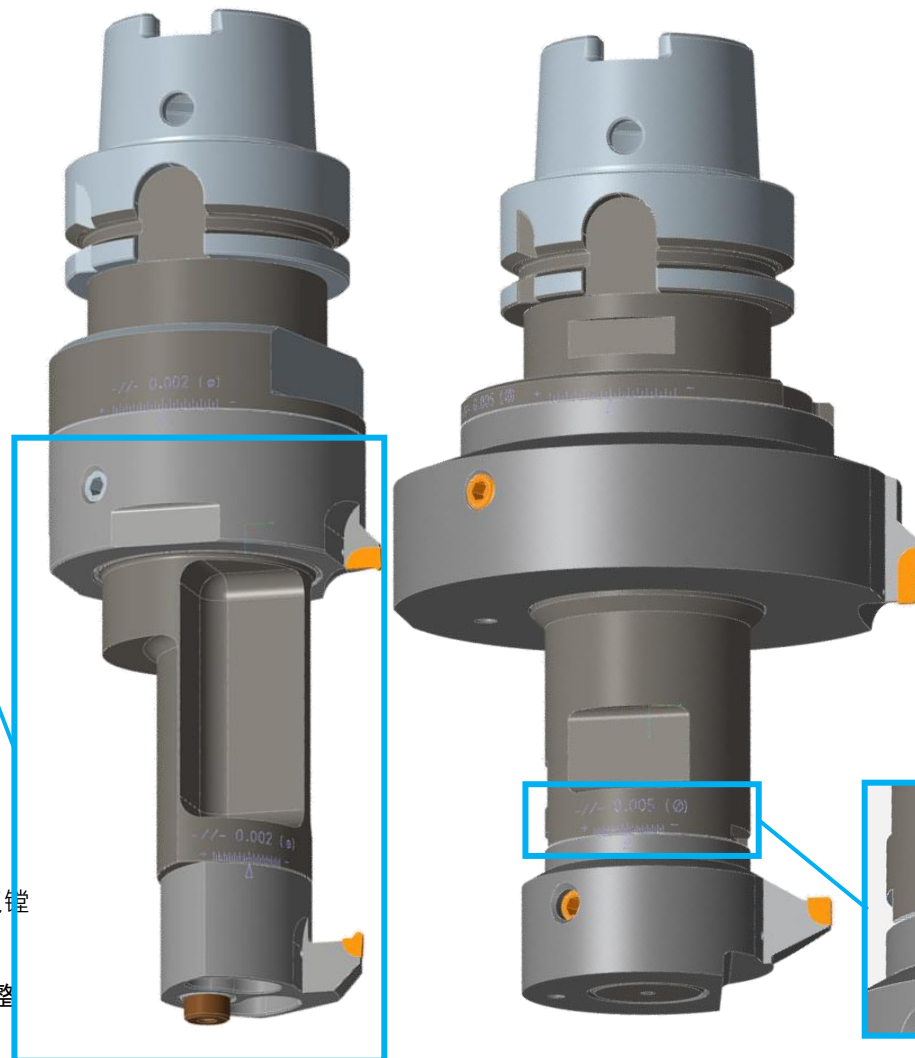
New applications 新的应用

EV Motor Housing 电机壳

➤ UM Dandia™ Excentric adjustable



- ✓ Finishing Z=1 reaming tool 精加工铰刀 Z=1
- ✓ Front and back reaming in one operation 一把刀完成正反铰孔
- ✓ Easy to adjust diameter within microns 操作简单的微量调整
- ✓ 1 to 4 step diameters possible 可以微量调整

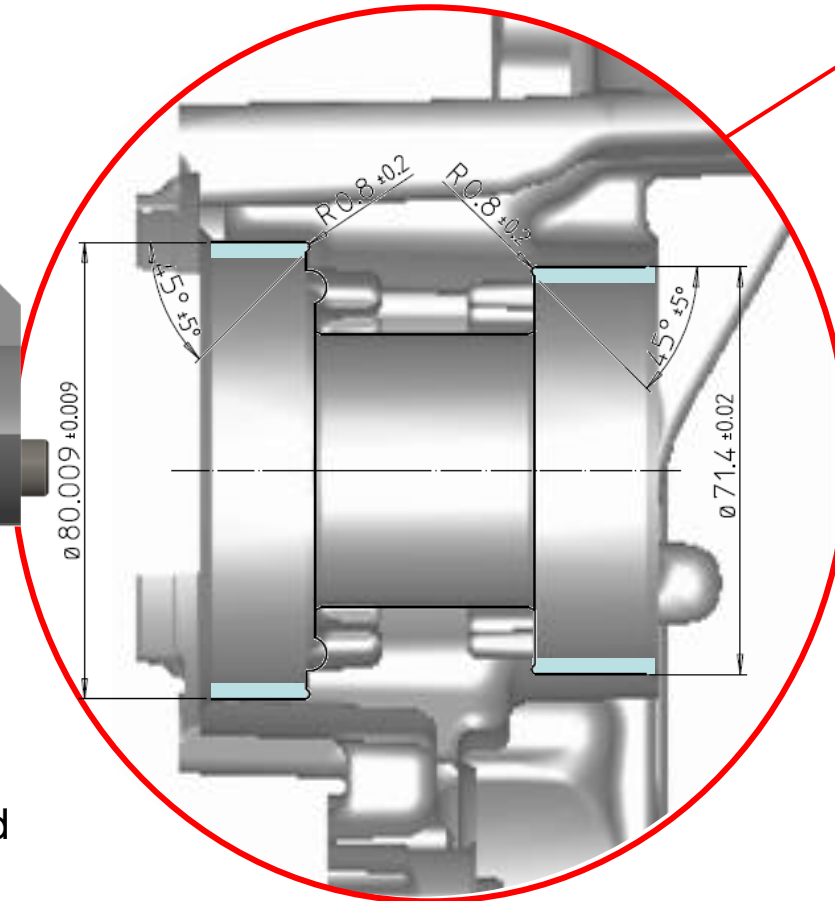
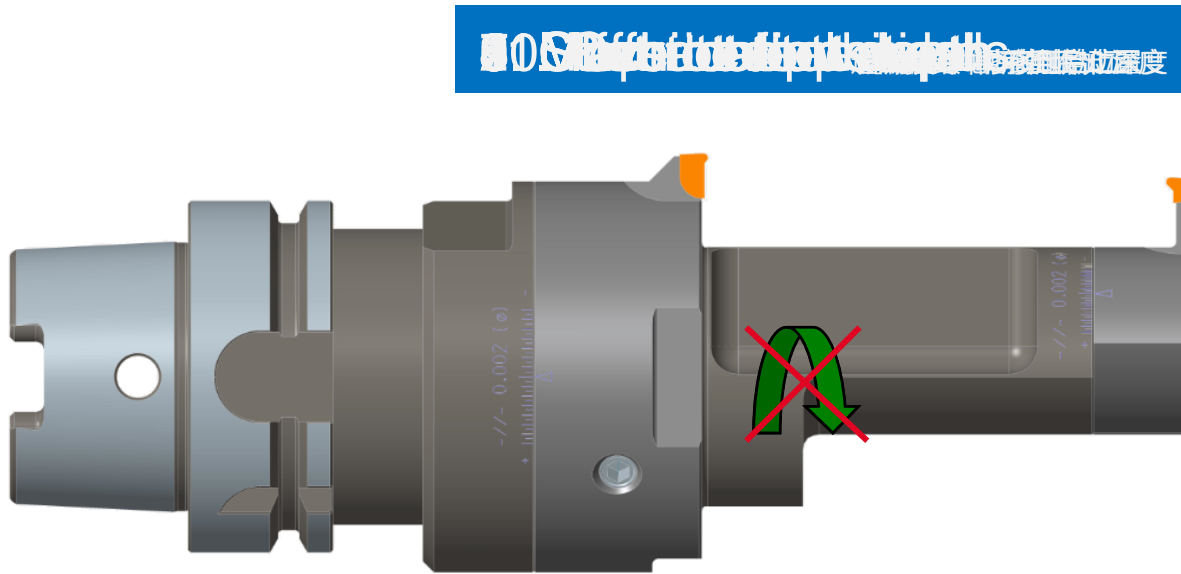
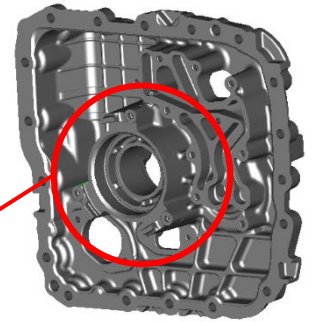


0,005 adjusting scale
5um的调节刻度

New applications 新的应用

Function UM Dandia™ Excentric adjustable

UM Dandia偏心可调刀具的功能



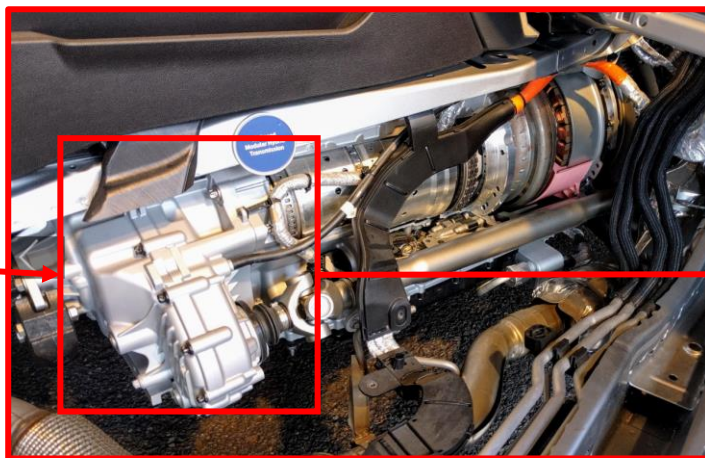
 = Material to be machined
待加工部分

Ford HF55

福特 HF55



FORD HYBRID



Ford HF55



FORD HYBRID

Hybrid transmission 混动变速箱

Components: 组成部分

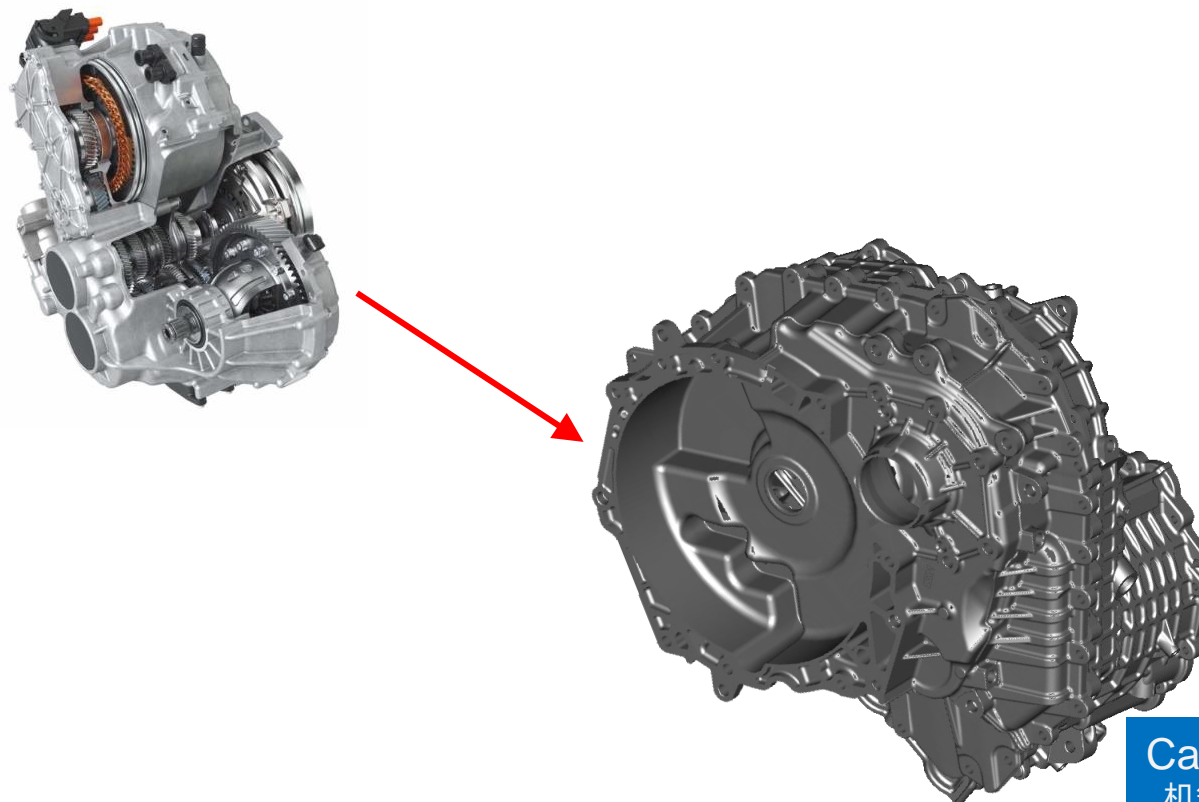
- Dampener Housing 减震器壳体
- Case 机箱

Material: 材料

- Cast Aluminum; 7-9 Si% 铸铝 7-9Si%

Cutting Tool Signature: 刀具特征

- ✓ Solid Carbide Drills 整硬钻头
- ✓ Large bores 大孔径
- ✓ Multi adjustable diameters 多刃直径可调
- ✓ High performance circular milling tools 高性能铣刀
- ✓ Combination tools 复合刀具



Case
机箱

Dampener Housing
减震器壳体

Ford HF55



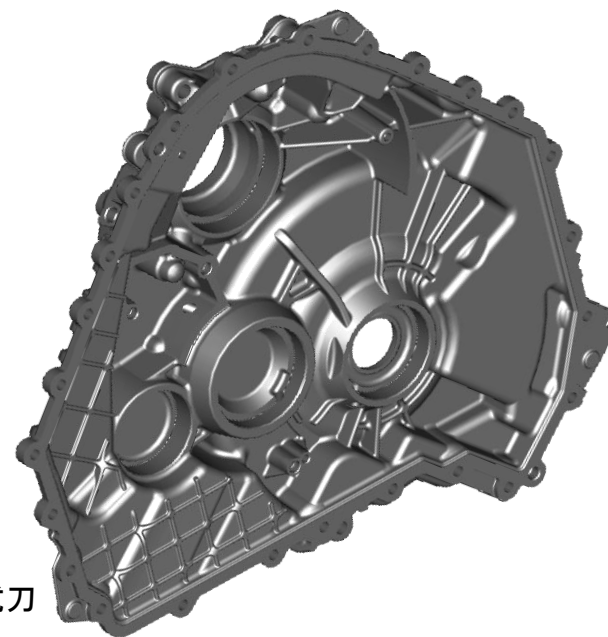
FORD HYBRID

福特 HF55

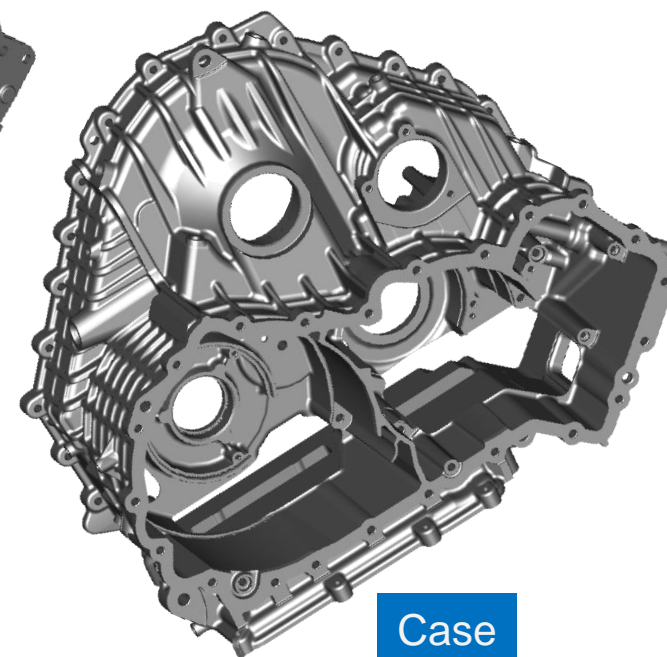
Hybrid transmission

混动变速箱

- Approx. 70 different tool designs 约70种不同类型的刀具
- 40 Solid Carbide 40款硬质合金刀具
- 30 PCD Solid and Indexable tools 30款PCD及机夹可换式刀具
- Prototype tools, 2 each. 每个壳体2个原型工具
- Delivery July 7月交付
- First priority OP10 for both components 首要工作是两个零件的OP10



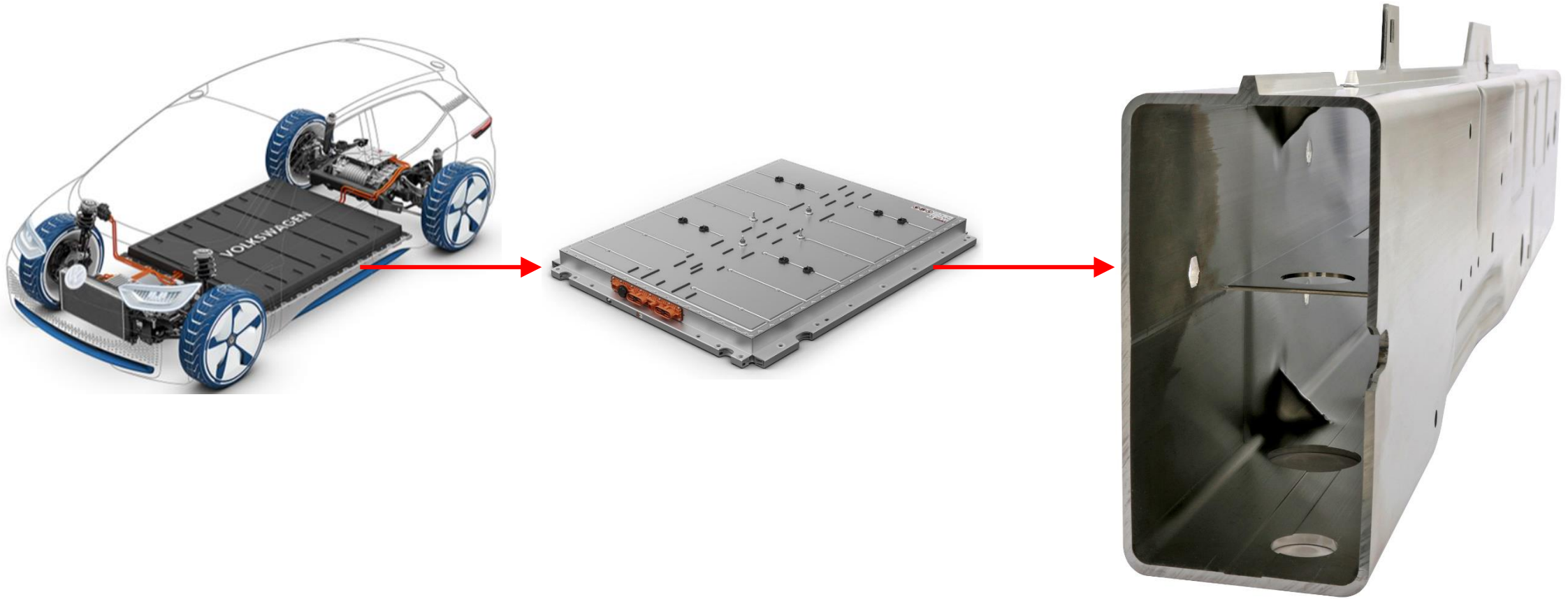
Dampener Housing
减震器壳体



Case
机箱

Battery Frame – Electric Vehicle

电动车 - 电池架



Battery Frame – Electric Vehicle 电动车 - 电池架

Complete Tooling Package 完整的加工方案



Battery Frame – Electric Vehicle 电动车 - 电池架

Milling tools – PCD

PCD 铣刀



Battery Frame – Electric Vehicle 电动车 - 电池架

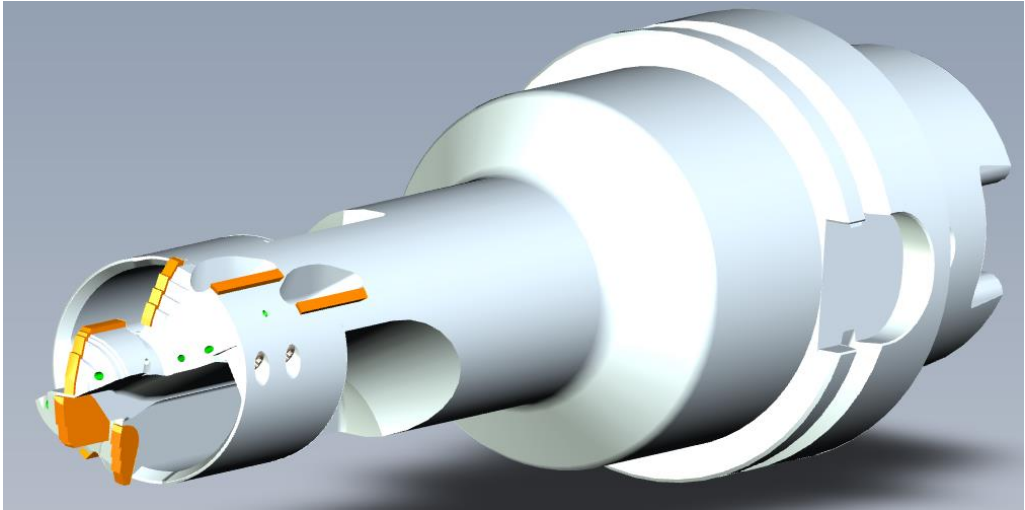
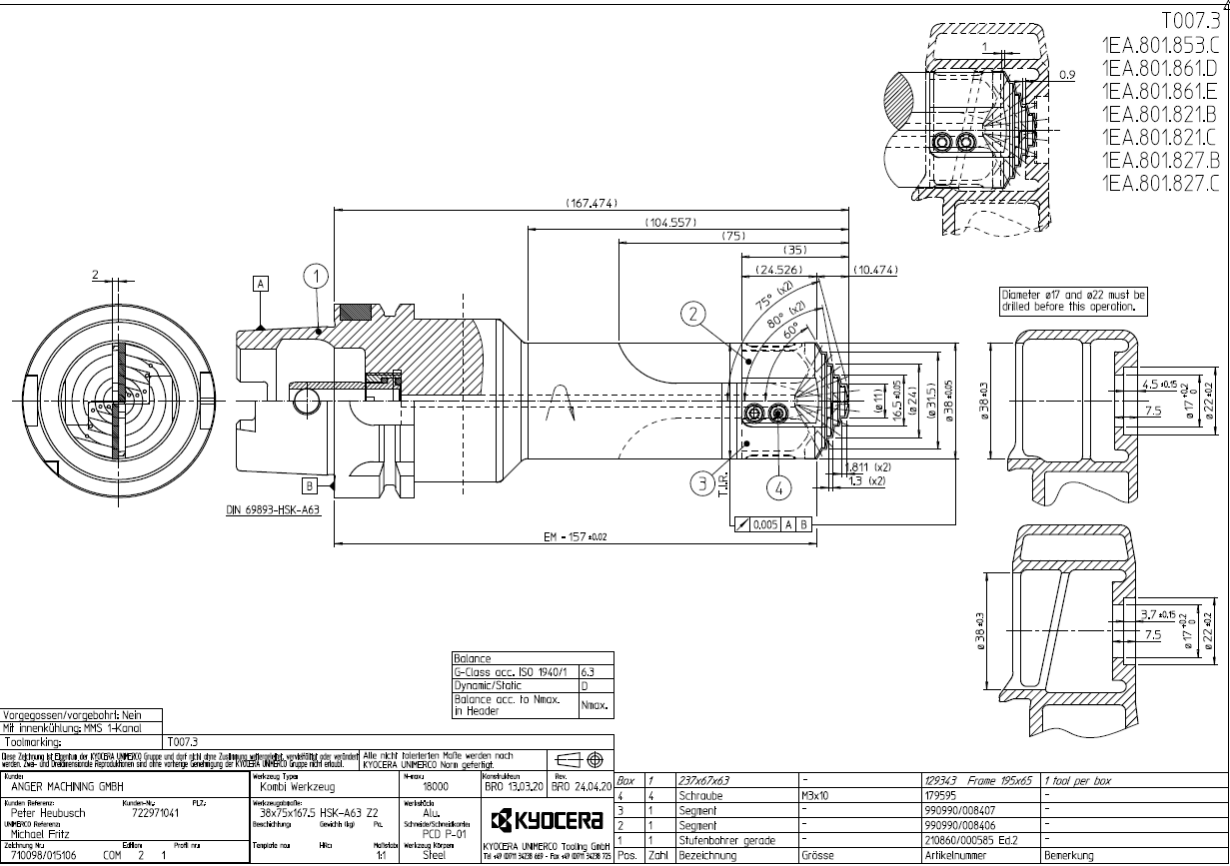
Combined Milling and Drilling tools – PCD

复合钻PCD钻铣刀



Battery Frame – Electric Vehicle 电动车 - 电池架

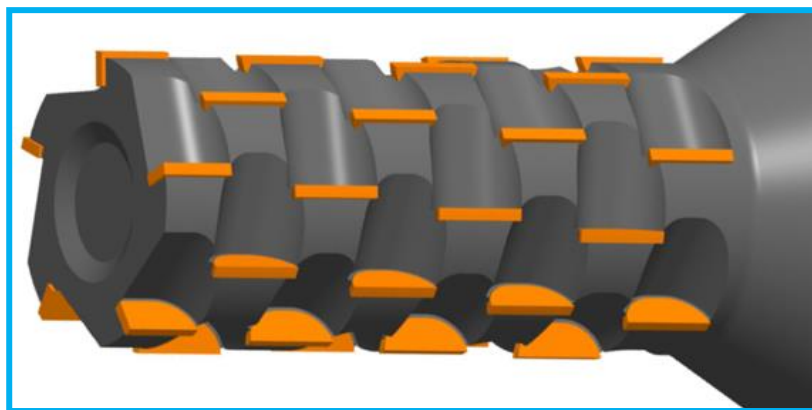
CFS / Chip Flow System – PCD TOOL 带CFS排屑系统的PCD刀具



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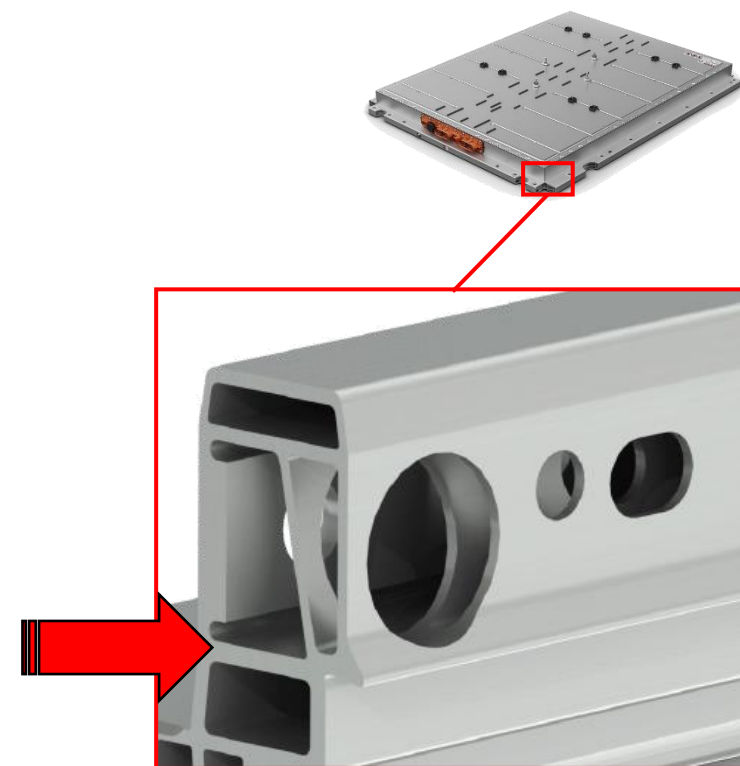
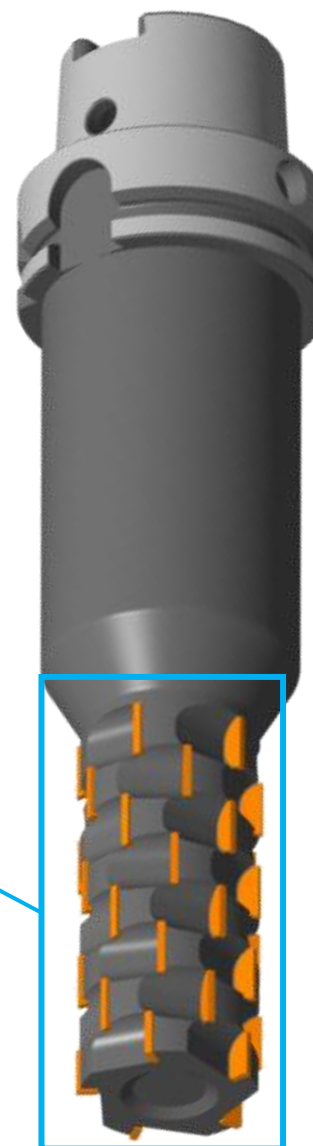
Battery Frame 电池架

- UM Dandia™ Multi Cutter 多刃铣刀
- UM Dandia™ Twin Point
- UM Dandia™ Combi Tool



- ✓ Multi purpose milling cutter 多用途铣刀
- ✓ Side and end milling 侧铣和端铣
- ✓ Divided PCD cutting inserts = reduced cutting forces
PCD 错齿排布=减小切削力
- ✓ Divided PCD cutting inserts = chip size control

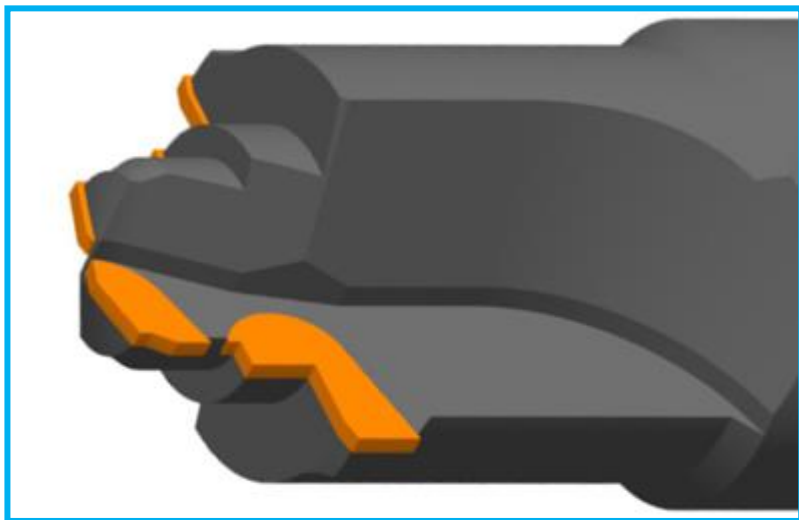
PCD 错齿排布=更好的断屑效果



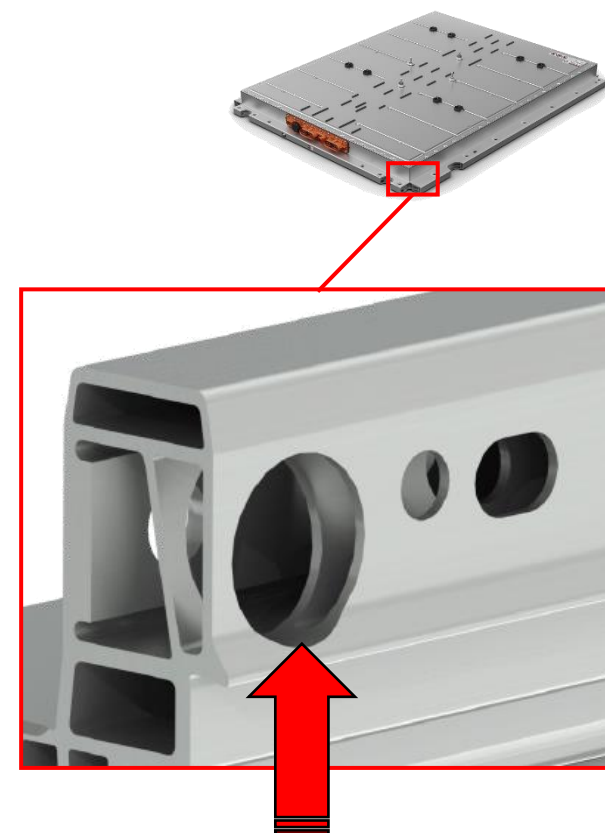
New applications 新的应用

Battery Frame 电池架

- UM Dandia™ Multi Cutter
- UM Dandia™ Twin Point 双钻尖
- UM Dandia™ Combi Tool



- ✓ One-shot drilling multiple diameters 多台阶钻头
- ✓ Twin point = reduced cutting forces and chip control
双钻尖结构=减小切削力，更好的切屑控制
- ✓ Special PCD step geometry = no exit burrs
特殊的PCD阶梯形状=无出口毛刺



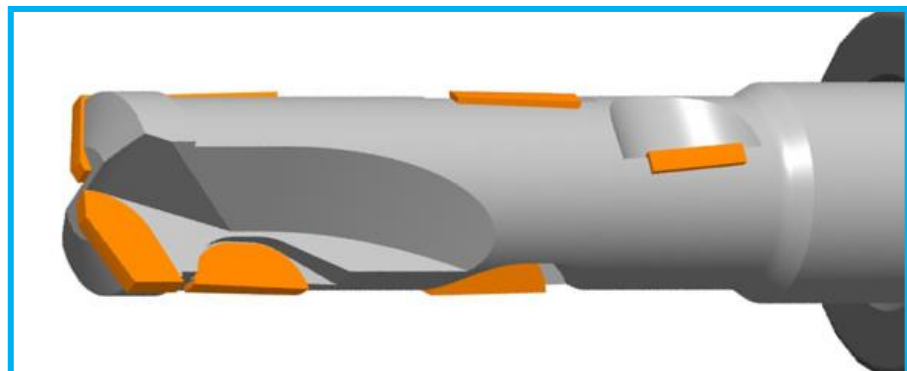
New applications 新的应用

Battery Frame 电池架

- UM Dandia™ Multi Cutter
- UM Dandia™ Twin Point
- UM Dandia™ Combi Tool 复合刀具



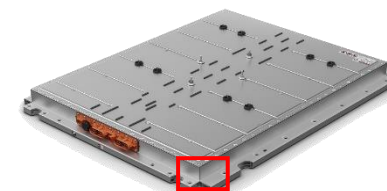
4 in 1



- ✓ Multi purpose cutting tool – Drill & Mill 多用途钻头，铣刀
- ✓ Twin point = reduced cutting forces and chip control
双钻尖结构=减小切削力，更好的切屑控制
- ✓ Special PCD step geometry = no exit burrs
特殊的PCD阶梯形状=无出口毛刺
- ✓ Divided PCD cutting inserts = reduced cutting forces

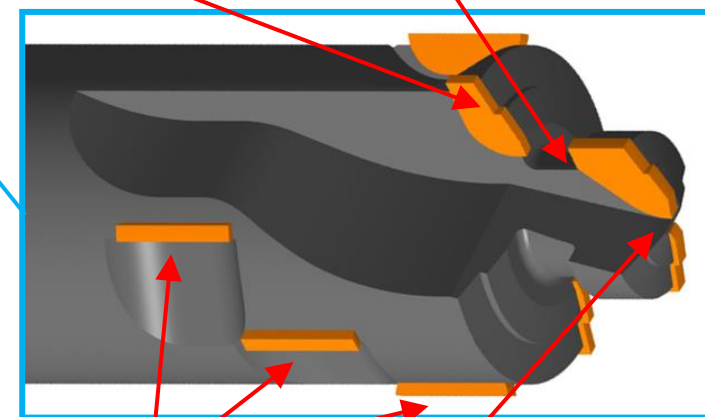
PCD 错齿排布=减小切削力

- ✓ Divided PCD cutting inserts = chip size control PCD 错齿排布=更好的断屑效果



Chip divider
分屑槽

Backside face mill
背面铣面



Multi Mill
多齿铣

One-shot drill
一步钻

謝謝

THE NEW VALUE FRONTIER



KYOCERA UNIMERCO A/S