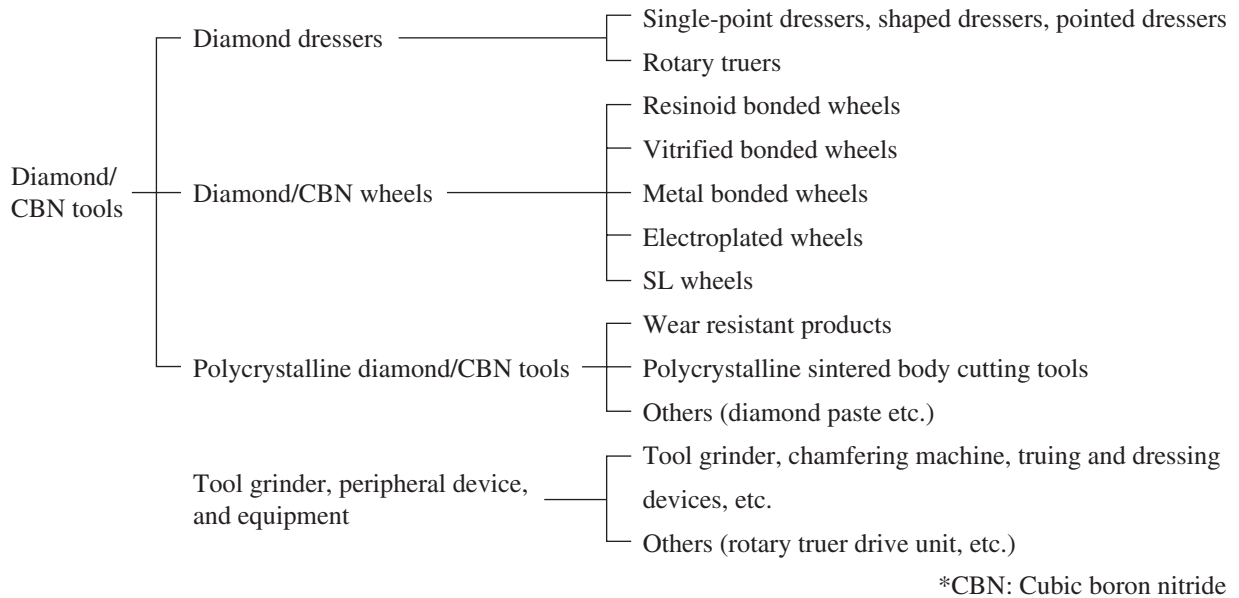

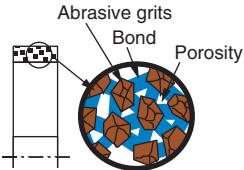

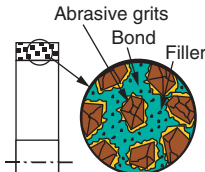

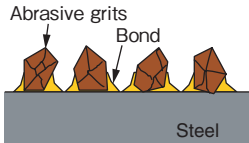


Introduction of Main Products of TOYODA VAN MOPPES LTD.


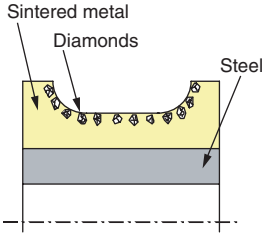

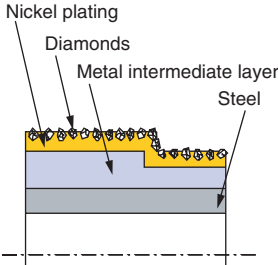


Diamond/CBN* Tool Product Line



Introduction of Main Product

| Product name | Structure | Features | Main application |
|--|--|---|---|
|  Vitrified bonded wheels | Porous structure maintaining CBN abrasive grits in vitreous bond  | As the structure is a porous type and the holding power is strong between abrasive grits and the bond, the truing is made easy, and the applications is wide from high efficiency grinding to grinding requiring cutting performance. | For various cylindrical, surface, internal and slit grinding · Cam shaft · Crank shaft · Transmission shaft · CVT parts · Various bearings |
|  Resinoid bonded wheels | Structure maintaining abrasive grits in resin bond with filler  | As resin is used for bond, it is suitable for grinding when higher grinding quality such as grinding roughness or chipping, and less corner wear are required than those of other bond. | For various grinding tools · Drill · Reamer · End mill · Broach For double headed surface grinding |
|  SL wheels | Single-layer structure maintaining abrasive grits in metal bond with good wettability  | As the grit-holding power is strong, and the cutting edge grit height is large, the flowability of the chip is good, and the high efficiency grinding such as rough grinding and surface grinding is made possible. | For rough grinding For machining center For grinding center |

TOYODA VAN MOPPES LTD.

| Product name | Structure | Features | Main application |
|--|---|--|--|
| Rotary truers Infiltrated type  | To fix diamonds with hard sintered metal  | <ul style="list-style-type: none"> As the diamond grits are bigger and the distribution density is lower in comparison with the reverse plated type, dressing performance is good. Both of the cutting performance and the surface roughness can be easily adjusted by controlling the diamond grits and the adjustment of the distribution density. | For form dressing such as general grinding wheels, ceramic grinding wheels, CBN wheels Traverse type <ul style="list-style-type: none"> Crank shaft Cam shaft CVT shaft (multistep cylinder) Plunge type <ul style="list-style-type: none"> Various bearings Ball screw Crank shaft |
| Rotary truers Reverse plated type  | To fix diamonds with nickel plating  | <ul style="list-style-type: none"> As the diamond grits is smaller, and the distribution density is higher in comparison with the infiltrated type, there is little wear with good maintainability of the form accuracy. There are HS*¹ type dresser and DD*² type dresser as the dresser controlling the distribution density. *¹ HS: Handset *² DD: Dimple | For form dressing such as general grinding wheels, ceramic grinding wheels, CBN wheels Plunge type <ul style="list-style-type: none"> Various bearings Guide rail Ball screw CVJ, CVT ball groove |
| Wear resistant products Diamond center  | To fix diamond sintered bodies on the tip of shank | As the diamond is superior in wear resistance and the coefficient of friction is small, high grinding accuracy can be maintained for the long term. <ul style="list-style-type: none"> Wear amount of 1/200 or less against tungsten carbide No lubricating oil (environmentally friendly) | Support of workpieces at the time of grinding and turning (mass production parts) <ul style="list-style-type: none"> Crank shaft Cam shaft Transmission shaft Motor shaft Ceramic parts (high hardness materials) |
| Wear resistant products Shoe  | To fix diamond sintered body in the pedestal | Superior in wear resistance <ul style="list-style-type: none"> Decrease of stroke adjustment working frequency for steady rest shoe Improved stability of accuracy | Holding of workpieces on various grinding (mass production parts) <ul style="list-style-type: none"> Crank shaft Cam shaft Various bearings |