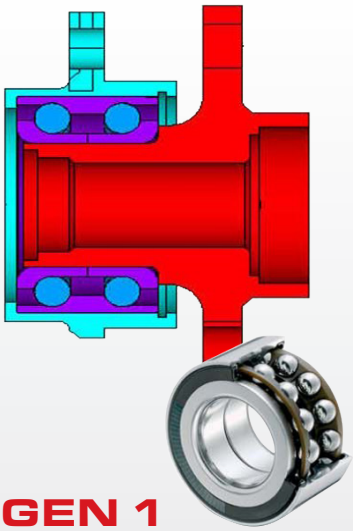
The Evolution of Bearing/Hub Technology

EARLY DESIGN
Tapered Cup & Cone Bearing Assemblies

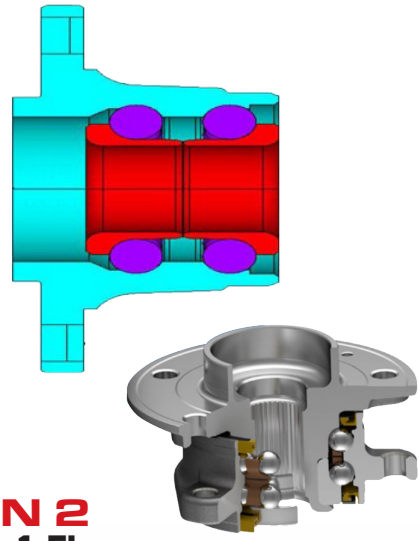
Consist of the cone, the cup and the tapered rollers. The taper angles allow the bearing to handle a combination of vehicle loads. The steeper the cup angle, the greater the ability of the tapered roller bearing to handle loads.

This design is still in use on older automotive, agriculture and medium/heavy duty applications.



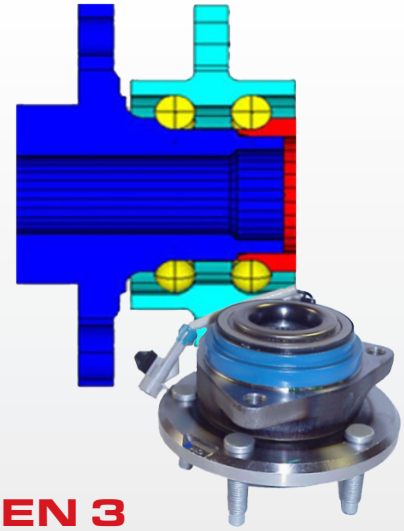
GEN 1
Cartridge Bearing

- Hub assemblies are a double row ball or taper roller design.
- They are used for driven wheels or integral drum designs on non-driven wheels of smaller cars.
- Units for vehicles with ABS or TCS include an integrated impulse wheel in the seal.



GEN 2
with 1 Flange

- Hub bearings have an outer ring with an integral flange that replaces the function of a separate hub.
- The flanged outer ring is a lightweight structural component design that incorporates threaded holes or studs to center and mount the brake and wheel.
- These units are used for non-driven front or rear wheels.
- Units for vehicles with wheel speed sensors include an impulse wheel (tone ring), which is located on the outer ring.



GEN 3
with Built-In Flanges

- Hub bearings provide a lighter more compact design by incorporating a flange in the non-rotating bearing ring and another flange in the rotating ring of the bearing.
- The small rotating inner ring was mounted on the rotating flanged inner ring to maximize load capacity.
- Today's Generation 3 hub assemblies help the industry hit several efficiency targets by reducing weight, noise, vibration and overall OE system costs.

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