

## Get more with less Gearless mill drives: Increased process availability, reliability and energy efficiency

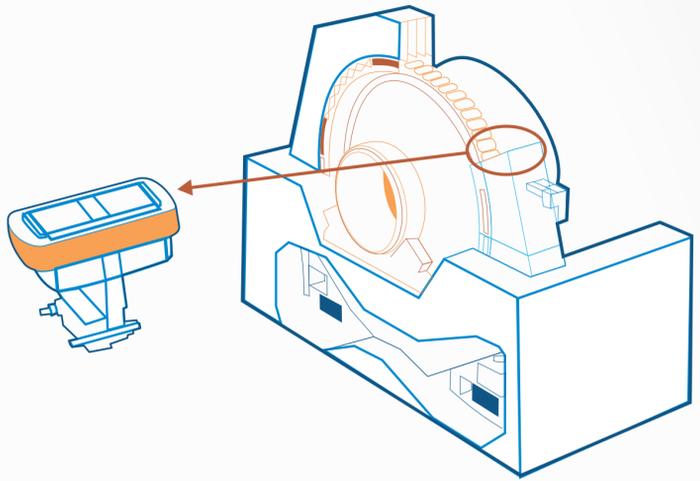
Gearless mill drive (GMD) systems are used in mines to grind vast amounts of ore into smaller pieces for further processing. GMD systems eliminate all mechanical components of a conventional mill drive system, such as ring-gear, pinion, gearbox, coupling as well as motor shaft and bearings, thus offering better energy efficiency, superior reliability, increased process availability and longer lifespan. The ABB gearless mill drive is the most powerful mill drive system in the mining market today.

### What does a GMD look like and how does it work?

Today's GMDs can reach a height of 21.7m (71ft). This equals the total combined height of more than **12 people - one on top of the other.**

**12 = 1 GMD**

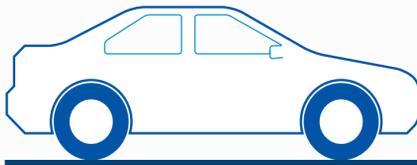
By mounting the rotor poles directly onto the mill, the mill itself becomes the rotor of the gearless motor which is then called **wrap-around motor or ring motor.**



### Why does a GMD make a difference?

By overcoming the technical limitations of gear boxes and ring-gears, the GMD solution can provide the huge capacity needed in today's large mines. To drive a large 42ft SAG mill at a typical rated speed of 8.9rpm under nominal load conditions, the drive system needs to deliver 28MW of power; **It would take 375 standard cars to deliver the required power!**

**28MW**



**375**  
passenger cars

A 28MW GMD for a 42ft SAG mill typically enables a copper ore throughput of 130,000 tons daily, resulting in 163 tons of pure copper when smelted – enough **to produce 10 million cell phones.**



**10** million  
cell phones

### Why is a GMD the right choice for efficiency and availability?

A 16MW GMD system has approximately 45% less power losses compared to a conventional 16MW fixed-speed mill drive system; **thus resulting in energy savings to power 1701 average residential houses per day.**



**1701**  
Residential houses/day

With less service and maintenance downtime, a 16MW GMD system offers 2.7% more availability per year than a conventional 16MW fixed-speed mill drive system. **This equals estimated annual savings of US\$15.5 million in production losses, for an average size copper mine.**

