

## 1.9. Substantial Energy Savings

As shown in Table 8, the LM Guide has a substantial energy-saving effect.

Table 8 Comparative Data on Sliding and Rolling Characteristics

Machine Specifications			
Type of machine	Single-axis surface grinding machine (sliding guide)	Three-axis surface grinding machine (rolling guide)	
Overall length x overall width	13m×3.2m	12.6m×2.6m	
Total mass	17,000 kg	16,000 kg	
Table mass	5,000 kg	5,000 kg	
Grinding area	0.7m×5m	0.7m×5m	
Table guide	Rolling through V-V guide	Rolling through LM Guide installation	
No. of grinding stone axes	Single axis (5.5 kW)	Three axes (5.5 kW + 3.7 kW x 2) Grinding capacity: 3 times greater	
Table Drive Specifications			Ratio
Motor used	38.05kW	3.7kW	10.3
Drive hydraulic pressure	Bore diameter ϕ160×1.2MPa	Bore diameter ϕ65×0.7MPa	—
Thrust	23,600N	2,270N	10.4
Power consumption	38kWH	3.7kWH	10.3
Drive hydraulic pressure oil consumption	400 ℓ /year	250 ℓ /year	1.6
Lubricant consumption	60 ℓ /year (oil)	3.6 ℓ /year (grease)	16.7