

TABLE 3 Geometry, energetics, and dynamics of flagellation and motility

No. of flagella/cell :	From 0 to around 15; typically around 8
Length of flagellar filaments:	From 0 to around 20 μm ; typically around 5–10 μm
Origin of filaments on cell surface:	Random (peritrichous flagellation)
Energy source:	Proton motive force across cell membrane
Threshold for rotation:	ca. 25 mV
Linear range:	ca. 25 to 125 mV
Saturation range:	Above ca. 125 mV
Flagellar rotation speed:	Load dependent until motor saturates; on free-swimming cells, saturated speed is ca. 100 Hz at room temperature
No. of protons/revolution:	ca. 1,200
Efficiency:	Probably quite high, at moderate to high load
Torque output/motor :	ca. $3 \cdot 10^{-18}$ N m at high load
Power output/motor:	ca. 10^{-16} W at 20 Hz
Power/cell:	ca. 10^{-15} W under normal swimming conditions
Cost to cell of flagellar operation:	ca. 0.1% of total energy expenditure under growth conditions
Cost to cell of flagellar synthesis:	ca. 2% of biosynthetic energy expenditure