

COULD WE REALLY BUILD GIANT ROBOTS?

The giant robots, mecha and power suits of science fiction, are monstrously huge and terrifyingly powerful. Could science actually make machines like these? They may look cool, but giant humanoid robots may not make sense from an engineering perspective.

As a machine grows more massive, the **energy required to move it** increases exponentially. Giant mecha would require compact and powerful nuclear reactors or as-yet-unknown energy sources.

As size doubles, **weight** increases by eight times. A six-foot, 160-pound man enlarged to the size of Gipsy Danger would weigh **12.7 million pounds**.

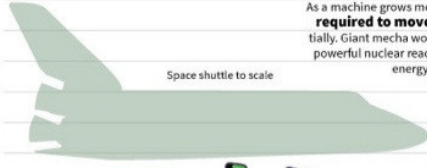
The robot's **strength increases less rapidly than its weight does** with increasing size. A robot 10 times as big as another has 1,000 times the weight, but only 100 times the strength.

A giant robot would require strong but light-weight materials. Steel's strength is too weak. **Beryllium** might work, but it is toxic to humans.

100 m

80 m www.TechNewsDaily.com

- Godzillasaurus
- '54-'75
- '84-'89, '00-'04
- '91-'95



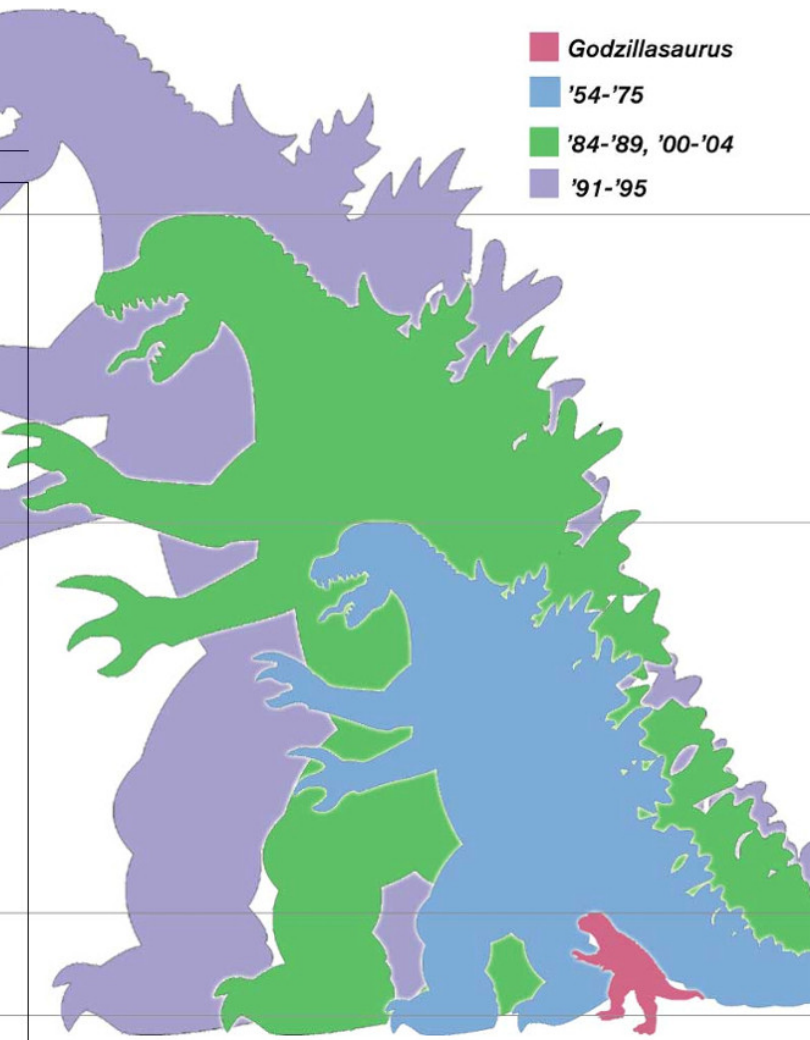
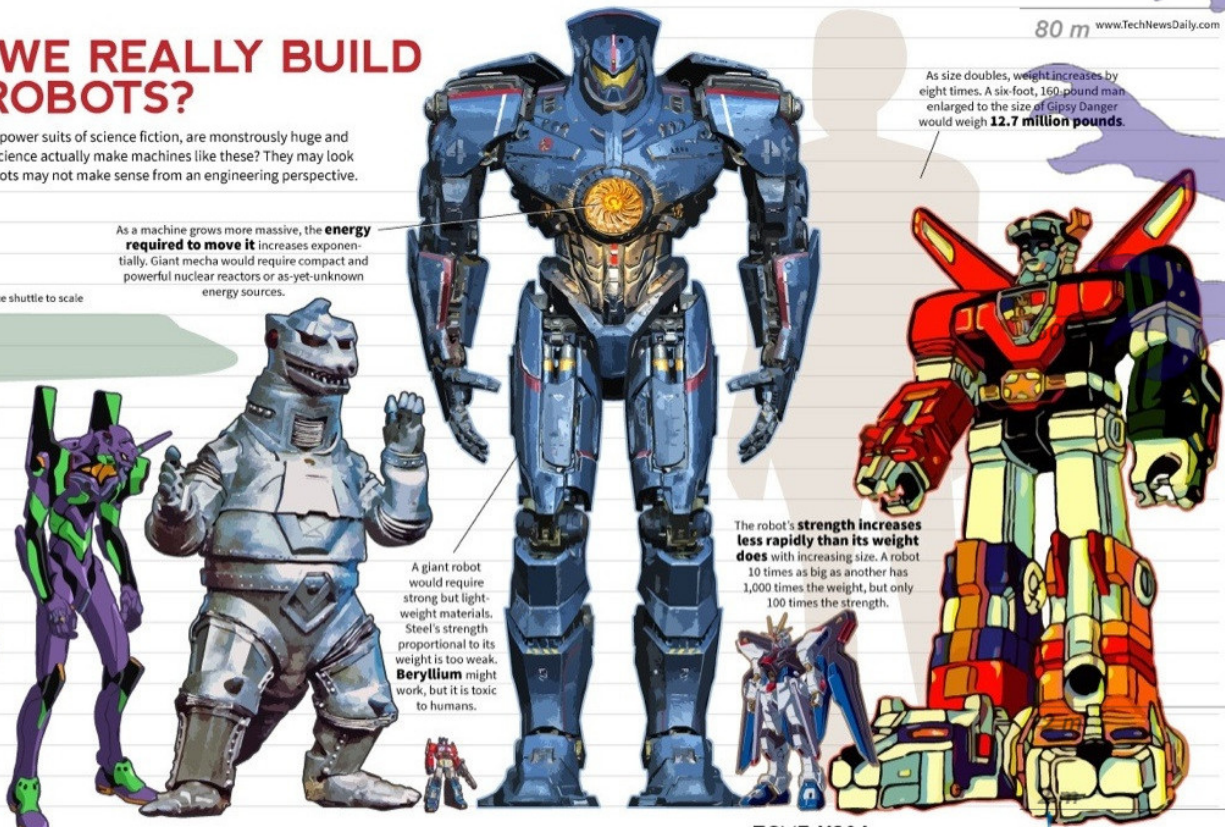
Space shuttle to scale



T. Rex to scale



Ellen Ripley in power loader to scale



AMP SUIT	EVA UNIT 001	MECHAGODZILLA	OPTIMUS PRIME	GIPSY DANGER	ZGMF-X20A STRIKE FREEDOM	VOLTRON (GOLION)
<i>Avatar</i> (2009)	<i>Neon Genesis Evangelion</i> (1995)	<i>Godzilla vs. Mechagodzilla</i> (1974)	<i>Transformers</i> (1984)	<i>Pacific Rim</i> (2013)	<i>Gundam SEED Destiny</i> (2004)	<i>Voltron: Defender of the Universe</i> (1984)
14 feet (4.2 meters)	132 feet (40 meters)	164 feet (50 meters)	23 feet (7 meters)	260 feet (80 meters)	62 feet (19 meters)	197 feet (60 meters)
Type: Exoskeletal suit	Type: Organic mech	Type: Alien robot	Type: Transforming alien robot	Type: Jaeger mech	Type: Mobile suit	Type: Five combining robot lions
Pilots: 1	Pilots: 1	Pilots: none (originally)	Pilots: none	Pilots: 2	Pilots: 1	Pilots: 5