CyberForce®
Force Feedback System

The CyberForce® force feedback system enables you to rest your hand on virtual objects, feel weight and inertia while picking up a digital object, and experience surfaces and the impenetrable resistance of a virtual wall. Now you can intuitively explore simulated graphical objects and environments via the most natural interface possible — the human hand.

CyberGrasp exoskeleton, can be purchased along with the CyberGrasp system or afterwards, as an accessory.

Accurate Tracking

In addition to applying forces, the CyberForce system also provides full six-degrees-of-freedom tracking, accurately measuring three-degree-of-freedom translation and three-degree-of-freedom rotation of the hand.

Flexible Software Support

CyberForce arms come in right or left versions and can be combined as a complete dual-hand simulation and manipulation system. The CyberGlove Systems CyberGlove family of hardware products is fully supported by CyberGlove Systems' VirtualHand® SDK and VirtualHand for V5 software packages.

Specifications

Force Generation: 8.8 N max (6.6 N min)

Armature Weight: 19 lbs (8.6 kg)[1]

Workspace: 12 x 12 in (30.5 x 30.5 cm) swept through 133° with radius of 20 in (51 cm)[2]

Position Resolution: 0.0024 in (0.06 mm) max; 0.0029 in (0.073 mm) min[3]

Orientation Resolution: 0.09°

Instrumentation unit: Force Control Unit (FCU) and power supply included

Interface: Ethernet (10/100Mbps)

[1] Weight does not include CyberGrasp system.

[2] Position resolution and force generation specifications apply to the described workspace. Larger physical limits for the complete workspace are depicted on the reverse side.

[3] Based on encoder resolution and as reported by software. Actual resolution is a function of armature compliance, loading, and friction.

VirtualHand® is CyberGlove Systems' real-time, 3D, hand-interaction software.

Force Feedback for the Virtual Environment

For adding force feedback to virtual environments for aerospace, automotive, military and medical simulation applications, engineering design and virtual prototyping, and research, select the CyberForce® system.

The force feedback system, which includes the 22-sensor CyberGlove® instrumented glove and CyberGrasp® exoskeleton, represents a revolution in simulated human-computer interaction. With the CyberForce armature, grounded forces relative to the system's base are provided for each finger and the hand. The CyberForce robotic armature, which attaches to the

Workspace Extents

Points A through F are referenced off of the origin shown at the base of the CyberForce system and their coordinates in the YZ plane are listed in the table below.
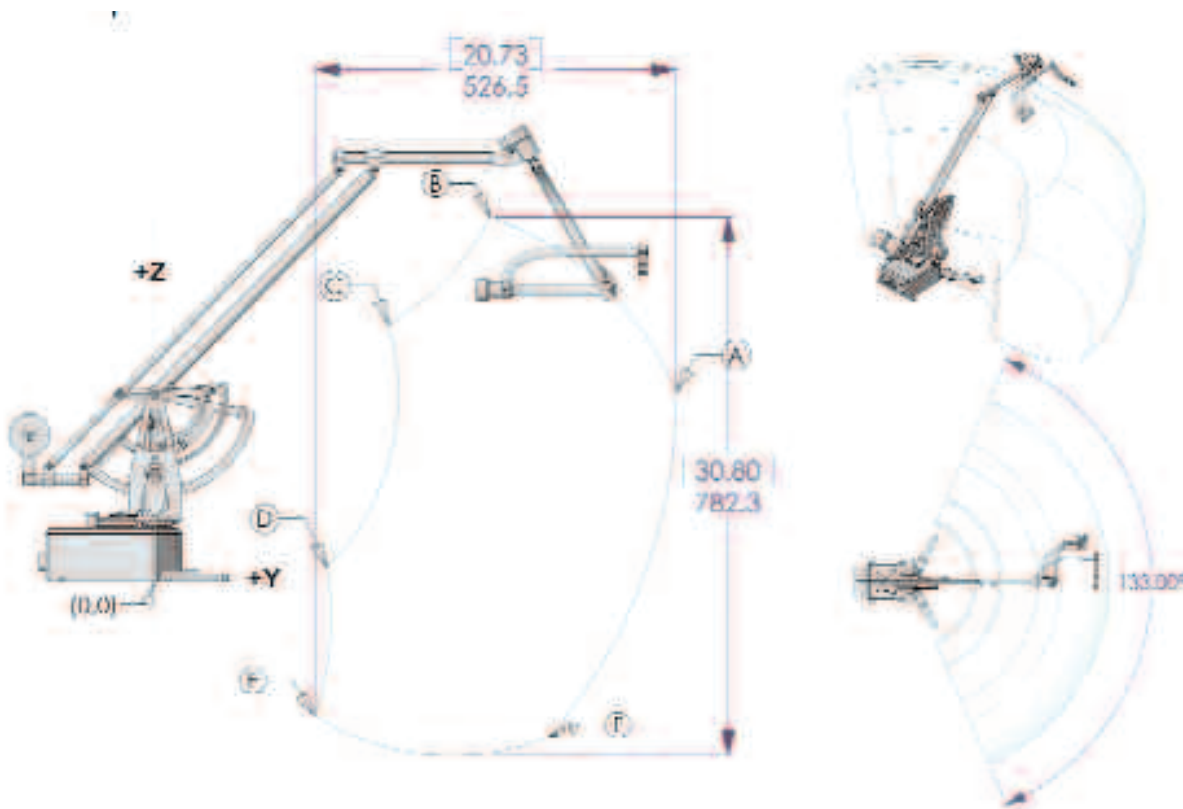
Point	Y coordinate mm [inches]	Z coordinate mm [inches]
A	760 [29.9]	275 [10.8]
B	489 [19.3]	529 [20.8]
C	340 [13.4]	373 [14.7]
D	251 [9.9]	20 [0.8]
E	234 [9.2]	-196 [-7.7]
F	575 [22.6]	-226 [-8.9]