

Drawbar forces in this document are sourced from international standards and gripper manufacturers. This information is for reference only: For specifications applicable to a specific machine, the machine builder should be contacted. Depending on the application, it is typical for a machine builder to design a machine for higher or lower forces.

**Steep Taper**

	<b>ASME B5.50</b> <sup>(1)</sup>	<b>BERG SSK Gripper</b> <sup>(2)</sup>
Steep Taper 30	5340 N / 1200 lb-f	10000 N / 2250 lb-f
Steep Taper 40	10230 N / 2300 lb-f	18000 N / 4050 lb-f
Steep Taper 45	17790 N / 4000 lb-f	25000 N / 5620 lb-f
Steep Taper 50	22240 N / 5000 lb-f	35000 N / 7870 lb-f
Steep Taper 60	57830 N / 13000 lb-f	70000 N / 15740 lb-f

Note 1: ASME B5.50 is commonly referred to as CAT/ANSI. Forces shown are “Suggested Drawbar Pull Force”

Note 2: Forces are maximum allowable for the gripper. These forces should be considered high for the machine taper.

**HSK**

	<b>ISO 12164-1</b> <sup>(1)</sup>	<b>BERG HK Gripper</b> <sup>(2)</sup>	<b>BERG HSH Gripper</b> <sup>(3)</sup>
HSK-A/C/E 25	N/A	N/A	2500 N / 560 lb-f
HSK-A/C 32	5000 N / 1120 lb-f	6000 N / 1350 lb-f	6000 N / 1350 lb-f
HSK-A/C 40	6800 N / 1530 lb-f	7000 N / 1570 lb-f	10000 N / 2250 lb-f
HSK-A/C 50	11000 N / 2470 lb-f	15000 N / 3370 lb-f	20000 N / 4500 lb-f
HSK-A/C 63	18000 N / 4050 lb-f	22000 N / 4950 lb-f	40000 N / 8990 lb-f
HSK-A/C 80	28000 N / 6290 lb-f	35000 N / 7870 lb-f	55000 N / 12360 lb-f
HSK-A/C 100	45000 N / 10120 lb-f	52000 N / 11690 lb-f	75000 N / 16860 lb-f
HSK-A/C 125	70000 N / 15740 lb-f	N/A	100000 N / 22480 lb-f
HSK-A/C 160	115000 N / 25850 lb-f	N/A	150000 N / 33720 lb-f

Note 1: Forces shown are “Recommendations for use and application. Forces...will ensure that the portion acting on the flange surface is never less than 75% of the total. Lower clamping forces can be sufficient when operational loads are low (e.g. cutting forces in finish machining.) Conversely, higher clamping forces can be required when high operational loads are encountered (e.g. cutting and feed forces in heavy machining).”

Note 2: Forces are maximum allowable for the gripper. These forces should be considered high for the machine taper.

Note 3: The BERG HSH gripper is designed for very high clamping force machines. Forces shown are maximum allowable for the gripper.

**Useful Information**

Drawbar forces are typically measured in Newtons (N), kilo Newtons (1000 N), and pounds-force (lb-F).

It is incorrect to refer to drawbar force in pounds (lb) or kilograms (kg) (forces due to gravity), or foot-pounds (a torque).

Conversion factors:

Newton (N) x 0.001 = kN (kilonewton)

Newton (N) x 0.2248 = lb-f (pounds force)

Newton (N) x 0.102 = kp (kilopond)

We represent Berg Spanntechnik in the Americas. However, we can identify many different grippers.

For additional information on our ForceCheck Clamping Force Gauge visit:

[www.Force-Check.com](http://www.Force-Check.com) or [TACRockford.com](http://TACRockford.com)