

Shank Configurations

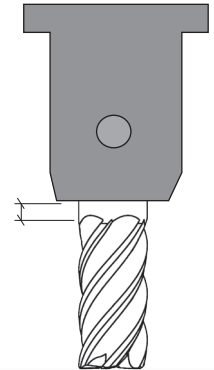
Shank Configurations

At Helical Solutions, all tools come standard with precision cylindrically ground shanks that meet or exceed h6 shrink fit specifications. If you need a flat, it must be requested at the time of the order. The following shank modification can be requested:

- Weldon Style
- Straight Flats
- Coolant Grooves
- Whistle Notch
- HAIMER Safe-Lock™
- ToughGRIP

The advantages of using factory-ground flats:

- Parallelism with centerline of tool
- Flatness that runs the entire length of the flat
- No excess runout due to inaccurate hand-ground flats



Our “flat location procedure” ensures:

- 1) Flutes will not end up inside of holder, avoiding chip compaction
- 2) Tool “stick out” is minimal in order to achieve optimum tool strength

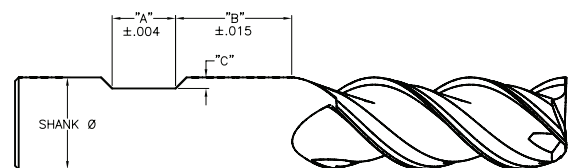
Hand-ground flats are not recommended, as they may cause higher tool runout, a weak or susceptible area of breakage, and inconsistent alignment. Factory warranty is voided with hand-ground flats.

Weldon Flat Specifications

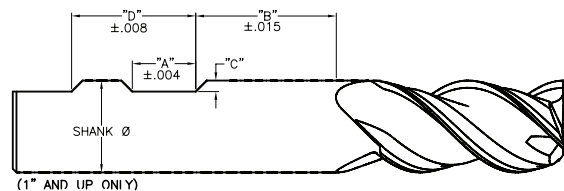
Note: Weldon Flat specifications are typically based on NAS 986, a high speed steel tool standard, and are measured from the shank end. Currently, there is no standardized specification for H.P. solid carbide end mills. All flats will be ground using the dimensional chart (Figure 1.1) unless specified otherwise at the time of quote/order.

[Figure 1.1]

Shank Dia.	"A"	"B"	"C"	"D"
.1250	.155	.500	.012 +.005/-.000	-
.1875	.155	.500	.015 +.005/-.000	-
.250	.155	.500	.017 +.005/-.000	-
.3125	.295	.750	.020 +.005/-.000	-
.375	.295	.750	.050 +.015/-.000	-
.4375	.345	.835	.060 +.015/-.000	-
.500	.345	.835	.060 +.015/-.000	-
.625	.415	.900	.065 +.015/-.000	-
.750	.470	.900	.075 +.015/-.000	-
1.0000	.530	1.000	.075 +.015/-.000	.900*
1.2500	.530	1.000	.095 +.015/-.000	.900*



Single Weldon

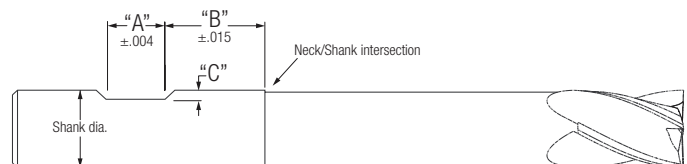


Double Weldon
(1" AND UP ONLY)

*Note: Not applicable to 1" dia. tools with ≤4 OAL.

Reduced Neck Tooling

Weldon flats are measured from neck/shank intersection.

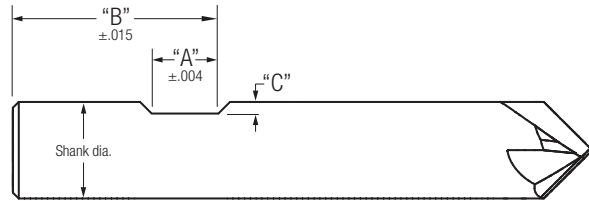


Single Weldon Reduced Neck

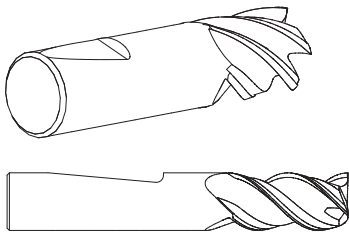
Shank Configurations

Chamfer Mill with Weldon Flat Specifications

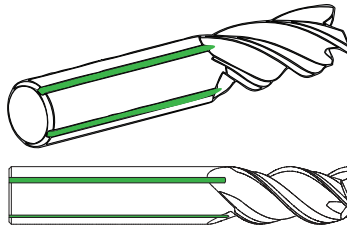
Shank Dia.	"A"	"B"	"C"
.1250	.155	.928	.012 +.005/-.000
.1875	.155	.928	.015 +.005/-.000
.2500	.155	.928	.017 +.005/-.000
.3750	.295	.928	.050 +.015/-.000
.5000	.345	1.064	.060 +.015/-.000
.7500	.470	1.250	.075 +.015/-.000



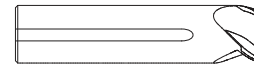
Other Common Shank Modifications



Whistle Notch



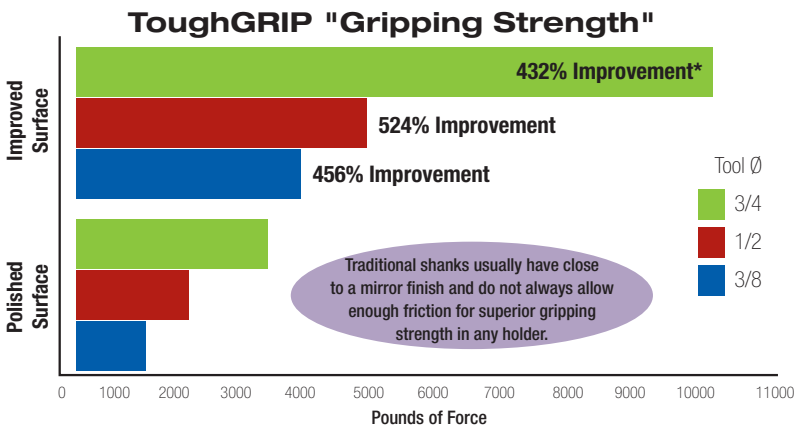
Coolant Grooves



- Simple straight flat
- Tell us the width & length you need

Straight Flat

Experience Helical Solutions's ToughGRIP shank and see for yourself the stronger tool-to-holder connection you may be looking for!



ToughGRIP Shank

- Provides increased friction for superior gripping strength
- Maintains shank concentricity and h6 shrink-fit tolerance
- 30 +/- 3 Ra surface roughness, consistent within 2 Ra



Based on independent laboratory testing. All tests were completed utilizing Command Tooling Systems' line of HYDRO-GRIP® HD Hydraulic tool holders by ETP Transmission.

* Improved surface finish from the ToughGRIP exceeded laboratory testing equipment

Haimer Safe-Lock™ System

- Drive keys in the chuck and grooves in the tool shank prevent pull-out
- Accurate clamping due to shrink fit technology
- Can be applied to our standard tools or special tools
- Can accommodate tools from 1/2" to 2" diameter

