

### Drill Tolerances and Standard Dimensions

#### \* Drill Diameter Tolerances

Diameter	Tolerances	
	Plus (+)	Minus (-)
Up thru 1/8	0.0000	0.0005
Over 1/8 thru 1/4	0.0000	0.0007
Over 1/4 thru 1/2	0.0000	0.0010
Over 1/2 thru 1	0.0000	0.0012
Over 1 thru 2	0.0000	0.0015
Over 2 thru 3-1/2	0.0000	0.0020

#### Point Angle Tolerances

Diameter	Included Angle	Tolerance
From 1/16 thru 1/2	118° or 135°	± 5°
Over 1/2 thru 1-1/2	118°	± 3°
Over 1-1/2 thru 3-1/2	118°	± 2°

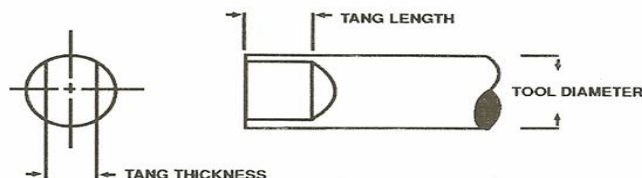
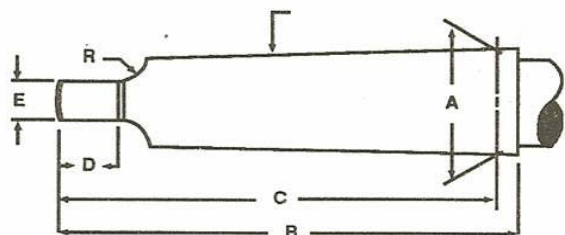
#### Lip Height Tolerances

Diameter	Tolerance Total Indicator Variation
From 1/16 thru 1/8	0.0020
Over 1/8 thru 1/4	0.0030
Over 1/4 thru 1/2	0.0040
Over 1/2 thru 1	0.0050
Over 1 thru 3-1/2	0.0060

#### Overall Length and Flute Length Tolerances

Diameter	Tolerances	
	Plus (+)	Minus (-)
No. 80 thru 1/8	1/8	1/16
Over 1/8 thru 1/2	1/8	1/8
Over 1/2 thru 1	1/4	1/8
Over 1 thru 2	1/4	1/4
Over 2 thru 3-1/2	3/8	3/8

NOTE: All dimensions are given in inches unless otherwise specified.



#### Tang Dimensions - Straight Shank Tools - Inch

Tool Diameter	Tang Thickness		Tang Length
	Max.	Min.	
from .1250 thru .1875	.094	.090	9/32
over .1875 thru .2500	.122	.118	5/16
over .2500 thru .3125	.162	.158	11/32
over .3125 thru .3750	.203	.199	3/8
over .3750 thru .4687	.243	.239	7/16
over .4687 thru .5625	.303	.297	1/2
over .5625 thru .6562	.373	.367	9/16
over .6562 thru .7500	.443	.437	5/8
over .7500 thru .8750	.514	.508	11/16
over .8750 thru 1.0000	.609	.601	3/4
over 1.0000 thru 1.1875	.700	.692	13/16
over 1.1875 thru 1.3750	.817	.809	7/8

#### Morse Taper Shank Dimensions

Taper#	TPF	TPI	A	B	C	D	E	R
1	.5985	.0498	.475	2.56	2.44	.37	.20	.19
2	.5994	.0499	.700	3.12	2.94	.44	.25	.25
3	.6023	.0501	.938	3.87	3.69	.56	.31	.28
4	.6232	.0519	1.231	4.87	4.62	.62	.47	.31
5	.6315	.0526	1.748	6.12	5.87	.75	.62	.37
6	.6256	.0521	2.494	8.56	8.25	1.12	.75	.50