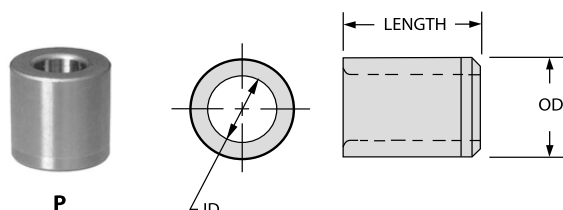
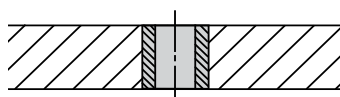


PRESS FIT BUSHINGS



APPLICATIONS:

This is the most-popular and least-expensive drill bushing. P bushings are permanently pressed into the jig plate, usually flush with the top surface. They are generally used for single-step drilling or reaming operations when you do not expect to replace bushings during the tooling's lifetime. P bushings can be mounted closer together than headed bushings, but offer less resistance to heavy axial loads.



ORDERING EXAMPLES:

P-20-16-.1250	Standard inch bushing, inch ID
P-20-16-.1772	Standard inch bushing, mm ID (.1772 = 4.50mm)
P-20-16U-.1250	Unground OD
P-20-16-.1250 REAMER	Reamer tolerance on ID
P-20-16-.1250 NCB	No counterbore on long bushings marked with * (no counterbore is standard on all other bushings)
PC-20-16-.1250	Carbide bushing
PM-8-12-4.50	Standard metric bushing

Standard prices apply only to bushings with a standard-drill-size ID within the stated ID range. See catalog back cover for standard drill sizes and their decimal equivalents. For prices on non-standard ID sizes, including reamer-tolerance and tap-guide bushings, please contact factory.

STANDARD ID TOLERANCES:

From #80 to 1/4"	+ .0001/+ .0004	From .35 to 3mm	+ .002/+ .008mm
Over 1/4 to 3/4"	+ .0001/+ .0005	Over 3 to 6mm	+ .004/+ .012mm
Over 3/4 to 1-1/2"	+ .0002/+ .0006	Over 6 to 10mm	+ .005/+ .014mm
Over 1-1/2 to 2-3/4"	+ .0003/+ .0007	Over 10 to 18mm	+ .006/+ .017mm
		Over 18 to 30mm	+ .007/+ .020mm
		Over 30 to 50mm	+ .009/+ .025mm
		Over 50 to 80mm	+ .010/+ .029mm
		Over 80 to 120mm	+ .012/+ .034mm (G6 tolerance)

REAMER ID TOLERANCES:

From #60 to 1/4"	+ .0005/+ .0008	From 1 to 3mm	+ .006/+ .012mm
Over 1/4 to 1"	+ .0006/+ .0010	Over 3 to 6mm	+ .010/+ .018mm
Over 1" to 1-1/2"	+ .0008/+ .0012	Over 6 to 10mm	+ .013/+ .022mm
		Over 10 to 18mm	+ .016/+ .027mm
		Over 18 to 30mm	+ .020/+ .033mm (F6 tolerance)

ID RANGE	OD	LENGTH	ANSI PART NO.
.0135-.0291 #80-#70 .35-.70mm	5/32 .1578-.1575 (.166-.161 UNG)	1/4	P-10-4
		5/16	P-10-5
		3/8	P-10-6
		*1/2	P-10-8
1/4		P-10-4	
5/16		P-10-5	
3/8		P-10-6	
*1/2		P-10-8	
*3/4		P-10-12	
1/4		P-10-4	
5/16		P-10-5	
3/8		P-10-6	
*1/2		P-10-8	
*3/4		P-10-12	
.0520-.0625 #55-1/16 1.30-1.60mm		1/4	P-12-4
		5/16	P-12-5
		3/8	P-12-6
		*1/2	P-12-8
.0520-.0634 #55-1/16 1.30-1.60mm	3/16 .1891-.1888 (.201-.197 UNG)	*5/8	P-12-10
		*3/4	P-12-12
		1/4	P-12-4
		5/16	P-12-5
3/8		P-12-6	
1/2		P-12-8	
5/8		P-12-10	
*3/4		P-12-12	
.0635-.0995 #52-#39 1.65-2.50mm		1/4	P-13-4
		5/16	P-13-5
		3/8	P-13-6
		*1/2	P-13-8
.0135-.0291 #80-#70 .35-.70mm	13/64 .2046-.2043 (.213-.208 UNG)	1/4	P-13-4
		5/16	P-13-5
		3/8	P-13-6
		*1/2	P-13-8
1/4		P-13-4	
5/16		P-13-5	
3/8		P-13-6	
*1/2		P-13-8	
*3/4		P-13-12	
1/4		P-13-4	
5/16		P-13-5	
3/8		P-13-6	
*1/2		P-13-8	
*3/4		P-13-12	
*1		P-13-16	
.0292-.0519 #69-3/64 .75-1.30mm		1/4	P-13-4
		5/16	P-13-5
		3/8	P-13-6
	1/2	P-13-8	
.0520-.0634 #55-1/16 1.35mm-1.60mm	*3/4	P-13-12	
	*1	P-13-16	
	*1-3/8	P-13-22	
	.0635-.0995 #52-#39 1.65-2.50mm		

* INFO+: Counterbored, leaving correct drill-bearing length and clearance (see page 502 for bearing length).

CONTINUED ON NEXT PAGE

PRESS FIT BUSHINGS

ID RANGE	OD	LENGTH	ANSI PART NO.
.0980-.1406 #40-9/64 2.50-3.50mm	1/4 .2516-.2513 (.265-.260 UNG)	1/4	P-16-4
		5/16	P-16-5
		3/8	P-16-6
		1/2	P-16-8
		5/8	P-16-10
		*3/4	P-16-12
		*1	P-16-16
		*1-3/8	P-16-22
		*1-1/2	P-16-24
		*1-3/4	P-16-28
.1250-.1935 1/8-#10 3.20-4.90mm	5/16 .3141-.3138 (.327-.322 UNG)	1/4	P-20-4
		5/16	P-20-5
		3/8	P-20-6
		1/2	P-20-8
		5/8	P-20-10
		3/4	P-20-12
		*1	P-20-16
		*1-3/8	P-20-22
		*1-1/2	P-20-24
		*1-3/4	P-20-28
.1935-.2280 #10-#1 4.90-5.80mm	3/8 .3766-.3763 (.390-.385 UNG)	1/4	P-24-4
		5/16	P-24-5
		3/8	P-24-6
		1/2	P-24-8
		5/8	P-24-10
		3/4	P-24-12
		*1	P-24-16
		1/4	P-26-4
		5/16	P-26-5
		3/8	P-26-6
.1875-.2570 3/16-F 4.75-6.50mm	13/32 .4078-.4075 (.421-.416 UNG)	1/2	P-26-8
		3/4	P-26-12
		*1	P-26-16
		*1-3/8	P-26-22
		*1-1/2	P-26-24
		*1-3/4	P-26-28
		1/4	P-28-4
		5/16	P-28-5
		3/8	P-28-6
		1/2	P-28-8
.2340-.2900 A-L 5.90-7.40mm	7/16 .4392-.4389 (.453-.448 UNG)	5/8	P-28-10
		3/4	P-28-12
		*1	P-28-16
		1/4	P-32-4
		5/16	P-32-5
		3/8	P-32-6
		1/2	P-32-8
		3/4	P-32-12
		*1	P-32-16
		*1-3/8	P-32-22
.1875-.3160 3/16-O 4.75-8.00mm	1/2 .5017-.5014 (.520-.515 UNG)	*1-1/2	P-32-24
		*1-3/4	P-32-28
		*2-1/8	P-32-34

* **INFO+**: Counterbored, leaving correct drill-bearing length and clearance.

ID RANGE	OD	LENGTH	ANSI PART NO.
.2950-.3438 M-11/32 7.50-8.75mm	9/16 .5642-.5639 (.582-.577 UNG)	1/4	P-36-4
		5/16	P-36-5
		3/8	P-36-6
		1/2	P-36-8
		5/8	P-36-10
		3/4	P-36-12
		1	P-36-16
		1/4	P-40-4
		5/16	P-40-5
		3/8	P-40-6
.3125-.4375 5/16-7/16 7.90-11.00mm	5/8 .6267-.6264 (.645-.640 UNG)	1/2	P-40-8
		5/8	P-40-10
		3/4	P-40-12
		1	P-40-16
		1-1/4	P-40-20
		1-3/8	P-40-22
		1-1/2	P-40-24
		1-3/4	P-40-28
		2-1/8	P-40-34
		1/4	P-48-4
.3125-.5312 5/16-17/32 7.90-13.50mm	3/4 .7518-.7515 (.770-.765 UNG)	5/16	P-48-5
		3/8	P-48-6
		1/2	P-48-8
		5/8	P-48-10
		3/4	P-48-12
		1	P-48-16
		1-1/4	P-48-20
		1-3/8	P-48-22
		1-1/2	P-48-24
		1-3/4	P-48-28
.5000-.6562 1/2-21/32 12.50-16.50mm	7/8 .8768-.8765 (.895-.890 UNG)	2-1/8	P-48-34
		*2-1/2	P-48-40
		5/16	P-56-5
		3/8	P-56-6
		1/2	P-56-8
		5/8	P-56-10
		3/4	P-56-12
		1	P-56-16
		1-1/4	P-56-20
		1-3/8	P-56-22
		1-1/2	P-56-24
		1-3/4	P-56-28
		2-1/8	P-56-34
		2-1/2	P-56-40

CONTINUED ON NEXT PAGE

See also:
Round Carbide Pads, page 203

PRESS FIT BUSHINGS

ID RANGE	OD	LENGTH	ANSI PART NO.
.5000-.7656 1/2-49/64 12.50-19.50mm	1 1.0018-1.0015 (1.020-1.015 UNG)	1/2	P-64-8
		5/8	P-64-10
		3/4	P-64-12
		1	P-64-16
		1-1/4	P-64-20
		1-3/8	P-64-22
		1-1/2	P-64-24
		1-3/4	P-64-28
		2-1/8	P-64-34
		2-1/2	P-64-40
.7656-.8438 49/64-27/32 19.50-21.50mm	1-1/8 1.1270-1.1267 (1.145-1.140 UNG)	3	P-64-48
		1/2	P-72-8
		5/8	P-72-10
		3/4	P-72-12
		1	P-72-16
		1-1/4	P-72-20
		1-1/2	P-72-24
.8594-.9375 55/64-15/16 22.00-24.00mm	1-1/4 1.2520-1.2517 (1.270-1.265 UNG)	1-3/4	P-72-28
		5/8	P-80-10
		3/4	P-80-12
		1	P-80-16
		1-1/4	P-80-20
		1-1/2	P-80-24
		1-3/4	P-80-28
.6250-1.0312 5/8-1-1/32 16.00-26.00mm	1-3/8 1.3772-1.3768 (1.395-1.390 UNG)	2	P-80-32
		1/2	P-88-8
		5/8	P-88-10
		3/4	P-88-12
		1	P-88-16
		1-1/4	P-88-20
		1-3/8	P-88-22
		1-1/2	P-88-24
		1-3/4	P-88-28
		2	P-88-32
1.0156-1.1250 1-1/64-1-1/8 26.00-29.00mm	1-1/2 1.5021-1.5018 (1.520-1.515 UNG)	2-1/8	P-88-34
		2-1/2	P-88-40
		3	P-88-48
		3/4	P-96-12
		1	P-96-16
		1-1/4	P-96-20
		1-1/2	P-96-24
		1-3/4	P-96-28
		2	P-96-32
		2-1/4	P-96-36

* **INFO+:** Counterbored, leaving correct drill-bearing length and clearance.

ID RANGE	OD	LENGTH	ANSI PART NO.
1.0000-1.3906 1-1-25/64 25.00-35.00mm	1-3/4 1.7523-1.7519 (1.770-1.765 UNG)	3/4	P-112-12
		1	P-112-16
		1-3/8	P-112-22
		1-1/2	P-112-24
		1-3/4	P-112-28
		2-1/8	P-112-34
		2-1/2	P-112-40
1.3750-1.7656 1-3/8-1-49/64 35.00-45.00mm	2-1/4 2.2525-2.2521 (2.270-2.265 UNG)	3	P-112-48
		1	P-144-16
		1-3/8	P-144-22
		1-1/2	P-144-24
		1-3/4	P-144-28
		2-1/8	P-144-34
		2-1/2	P-144-40
		3	P-144-48

For extended-range bushings (larger sizes) please see our web catalog.

PRESS FIT BUSHINGS – CARBIDE



PC

ID RANGE	OD	LENGTH	ANSI PART NO.
.0280-.0468 #70-#56 .75-1.15mm	5/32 .1578-.1575	5/16	PC-10-5
		1/2	PC-10-8
		5/16	PC-10-5
.0469-.0625 3/64-1/16 1.20-1.55mm	5/32 .1578-.1575	1/2	PC-10-8
		5/16	PC-10-5
.0550-.0995 #54-#39 1.40-2.50mm	13/64 .2046-.2043	5/16	PC-13-5
		1/2	PC-13-8
.0995-.1360 #39-#29 2.55-3.40mm	1/4 .2516-.2513	5/16	PC-16-5
		1/2	PC-16-8
.1285-.1875 #30-3/16 3.30-4.75mm	5/16 .3141-.3138	5/16	PC-20-5
		1/2	PC-20-8
		3/4	PC-20-12
		1	PC-20-16
.1875-.2500 3/16-1/4 4.80-6.30mm	13/32 .4078-.4075	5/16	PC-26-5
		1/2	PC-26-8
		3/4	PC-26-12
		1	PC-26-16
.2188-.3125 7/32-5/16 5.60-7.90mm	1/2 .5017-.5014	5/16	PC-32-5
		1/2	PC-32-8
		3/4	PC-32-12
		1	PC-32-16
		1-3/8	PC-32-22
.3125-.4219 5/16-27/64 8.00-10.50mm	5/8 .6267-.6264	1/2	PC-40-8
		3/4	PC-40-12
		1	PC-40-16
		1-3/8	PC-40-22
.3750-.5000 3/8-1/2 9.60-12.50mm	3/4 .7518-.7515	1/2	PC-48-8
		3/4	PC-48-12
		1	PC-48-16
		1-3/8	PC-48-22
.5000-.6250 1/2-5/8 13.00-15.50mm	7/8 .8768-.8765	1/2	PC-56-8
		3/4	PC-56-12
		1	PC-56-16
		1-3/8	PC-56-22
		1-3/4	PC-56-28

ID RANGE	OD	LENGTH	ANSI PART NO.
.5000-.7500 1/2-3/4 13.00-19.00mm	1 1.0018-1.0015	1/2	PC-64-8
		3/4	PC-64-12
		1	PC-64-16
		1-3/8	PC-64-22
		1-3/4	PC-64-28
.7500-1.0000 3/4-1 19.50-25.00mm	1-3/8 1.3772-1.3768	3/4	PC-88-12
		1	PC-88-16
		1-3/8	PC-88-22
		1-3/4	PC-88-28
		2-1/8	PC-88-34
1.0000-1.3750 1-1-3/8 26.00-34.00mm	1-3/4 1.7523-1.7519	2-1/2	PC-88-40
		1	PC-112-16
		1-3/8	PC-112-22
		1-3/4	PC-112-28
		2-1/8	PC-112-34
1.3750-1.7500 1-3/8-1-3/4 35.00-44.00mm	2-1/4 2.2525-2.2521	2-1/2	PC-112-40
		3	PC-112-48
		1	PC-144-16
		1-3/8	PC-144-22
		1-3/4	PC-144-28
		2-1/8	PC-144-34
		2-1/2	PC-144-40
		3	PC-144-48