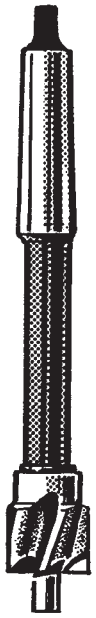
IFANGER Counterbore and Countersink Tools



Advantages of the system

– unlimited possibilities of combination between cutter, shank and pilot
– all parts hardened
– only the cutter to be replaced after being used up
– easy resharpening of the cutters by screwing-out the hindering pilot and the long shank
– cutters to be resharpened only on the front cutting edge

How to use IFANGER counterbore and countersink tools

In order to achieve the best results when using IFANGER counterbore and countersink tools it is recommended to use a high number of revolutions and a small feed.

For counterbore tools up to 20 mm ∅, the **feed** per revolution should **not exceed 0.05 mm.**

For mass production in soft metal, copper, brass, etc., counterbore tools with corresponding cutting angles are available.

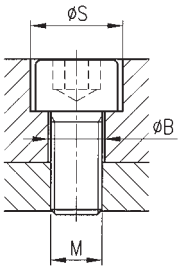
The detachable pilots are always ground below the nominal dimension of the bore in the piece to be machined. Therefore, please, watch that there always is play for the hardened pilot of the counterbore tool in the rough drilled bore and that the pilot never jams in it.

When the pilot used is of equal diameter or only slightly larger than its thread it is recommended to place a distance sink bolt into the counterbore cutter between the shank and the pilot. (Ask for these bolts!)

Counterbore and countersink tools have to be resharpened on a mechanical sharpening machine. Therefore, if not adequately equipped, it is recommended to send the tools to the producer or to a sharpening shop, when resharpening is required.

Material to be machined	Alloy of counterbore cutter	m/min	Recommended number of revolutions (rev/min) for counterbore cutter of ... diameter																	
			7	8	10	12	14	16	18	20	22	25	27	30	35	40	45	50	55	60
Steel	Rapid	25	1140	990	800	660	570	500	440	400	360	320	290	270	230	200	180	160	140	130
	TiN	40	1820	1590	1270	1060	910	800	710	640	580	510	470	420	360	320	280	250	230	210
Cast Iron	Rapid	20	910	800	640	530	450	400	350	320	290	250	240	210	180	160	140	130	120	110
	TiN	35	1590	1390	1110	930	800	700	620	560	510	450	410	370	320	280	250	220	200	190
	Carbide tip.	60	–	–	1910	1590	1360	1190	1060	950	870	760	710	640	550	480	420	380	350	320
Aluminium Copper	Rapid	80	3640	3180	2550	2120	1820	1590	1410	1270	1160	1020	940	850	730	640	570	510	460	420
	TiN	130	5910	5170	4140	3450	2960	2590	2300	2070	1880	1660	1530	1380	1180	1030	920	830	750	690
	Carbide tip.	300	–	–	9550	7960	6820	5970	5310	4770	4340	3820	3540	3180	2730	2390	2120	1910	1740	1590
Brass	Rapid	45	2050	1790	1430	1190	1020	900	800	720	650	570	530	480	410	360	320	290	260	240
	TiN	80	3640	3180	2550	2120	1820	1590	1410	1270	1160	1020	940	850	730	640	570	510	460	420
	Carbide tip.	150	–	–	4770	3980	3410	2980	2650	2390	2170	1910	1770	1590	1360	1190	1060	950	870	800

Standardizing Table of Counterbores and Countersinks for Screw Heads

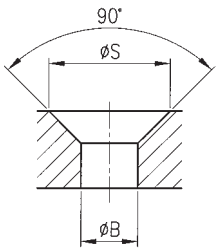


Flat counterbores according to DIN 974-1

∅ M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36
∅ S mm of bore	4,4	5,5	6,5	8	10	11	15	18	20	26	33	40	50	58
∅ B mm of passing bore fine	2,2	2,7	3,2	4,3	5,3	6,4	8,4	10,5	13	17	21	25	–	–
∅ B mm of passing bore medium	2,4	2,9	3,4	4,5	5,5	6,6	9	11	13,5	17,5	22	26	33	39

Flat counterbores according to SN 213.183

∅ M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36
∅ S mm of bore	4,3	5	6	8	10	11	15	18	20	26	33	40	48	57
∅ B mm of passing bore fine	2,6	3,1	3,6	4,8	5,8	7	9	11	13,5	17,5	22	26	33	39



90° countersinks according to DIN 66

∅ M of thread	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
∅ S mm of bore	4,4	5,5	6,3	9,4	10,4	12,6	17,3	20	24	32	40
∅ B mm of passing bore	2,4	2,9	3,4	4,5	5,5	6,6	9	11	13,5	17,5	22

90° countersinks for screws with hexagon socket according to DIN 74-1

∅ M of thread	M3	M4	M5	M6	M8	M10	M12	M16	M20
∅ S mm of bore	7,5	10	12,5	14,5	19	23,5	28	35	41,5
∅ B mm of passing bore	3,4	4,5	5,5	6,6	9	11	13,5	17,5	22