MITSUBISHI
MITSUBISHI MATERIALS

TOOLS NEWS

B071G

2 flute Mstar taper neck ball nose end mill

MS2XB

"MSTAR taper neck ball end mill" Newly added to MSTAR end mill series.

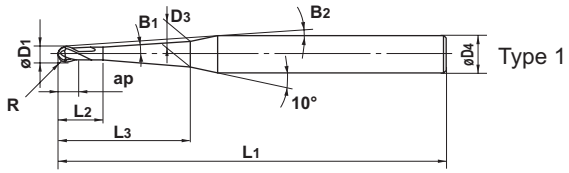
Great for deep slotting up to L/D40.

MS2XB

Ball nose slot drill, 2 flute, Taper neck

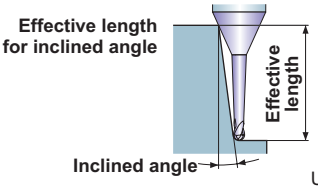
R ±0.01

0 − -0.02



Type 1

UWC MS 30°



● 2 flute taper neck ball nose end mill.

Unit : mm

Order Number	Radius of ball nose R	Dia. D1	Taper Angle One Side B1	Length of Cut ap	Neck Length L3	L2	Cutting Edge to Shank Angle B2	D3	Overall Length L1	Shank Dia. D4	No. of Flute N	Stock	Type	Effective length for inclined angle 30'	1°	2°	3°
MS2XBR0010T0030L015	0.1	0.2	30'	0.2	1.5	0.6	8.8°	0.19	50	4	2	○	1	1.7	1.8	2.0	2.3
R0010T0030L020	0.1	0.2	30'	0.2	2	0.6	8.5°	0.20	50	4	2	○	1	2.2	2.4	2.6	3.0
R0010T0100L015	0.1	0.2	1°	0.2	1.5	0.6	8.8°	0.21	50	4	2	○	1	–	1.8	2.0	2.2
R0010T0100L020	0.1	0.2	1°	0.2	2	0.6	8.5°	0.22	50	4	2	○	1	–	2.3	2.5	2.9
R0010T0130L015	0.1	0.2	1° 30'	0.2	1.5	0.6	8.9°	0.22	50	4	2	○	1	–	–	1.9	2.2
R0010T0130L020	0.1	0.2	1° 30'	0.2	2	0.6	8.6°	0.25	50	4	2	○	1	–	–	2.4	2.8
R0010T0200L015	0.1	0.2	2°	0.2	1.5	0.6	8.9°	0.24	50	4	2	○	1	–	–	1.8	2.1
R0010T0200L020	0.1	0.2	2°	0.2	2	0.6	8.6°	0.27	50	4	2	○	1	–	–	2.3	2.6
R0010T0300L015	0.1	0.2	3°	0.2	1.5	0.6	9.0°	0.27	50	4	2	○	1	–	–	–	1.9
R0010T0300L020	0.1	0.2	3°	0.2	2	0.6	8.7°	0.32	50	4	2	○	1	–	–	–	2.4
R0010T0500L020	0.1	0.2	5°	0.2	2	0.6	9.0°	0.42	50	4	2	○	1	–	–	–	–
R0015T0030L030	0.15	0.3	30'	0.3	3	0.7	7.9°	0.32	50	4	2	○	1	3.2	3.4	3.8	4.3
R0015T0100L030	0.15	0.3	1°	0.3	3	0.7	7.9°	0.36	50	4	2	○	1	–	3.3	3.7	4.2
R0015T0130L030	0.15	0.3	1° 30'	0.3	3	0.7	8.0°	0.40	50	4	2	○	1	–	–	3.5	4.0
R0015T0200L030	0.15	0.3	2°	0.3	3	0.7	8.1°	0.44	50	4	2	○	1	–	–	3.3	3.8
R0015T0300L030	0.15	0.3	3°	0.3	3	0.7	8.2°	0.52	50	4	2	○	1	–	–	–	3.4
R0015T0500L030	0.15	0.3	5°	0.3	3	0.7	8.6°	0.68	50	4	2	○	1	–	–	–	–
R0020T0030L020	0.2	0.4	30'	0.4	2	1.2	8.4°	0.38	50	4	2	○	1	2.3	2.4	2.7	3.0
R0020T0030L030	0.2	0.4	30'	0.4	3	1.2	7.8°	0.40	50	4	2	○	1	3.3	3.5	3.9	4.4
R0020T0030L040	0.2	0.4	30'	0.4	4	1.2	7.3°	0.41	50	4	2	○	1	4.3	4.5	5.1	5.7
R0020T0030L050	0.2	0.4	30'	0.4	5	1.2	6.8°	0.43	50	4	2	○	1	5.3	5.6	6.2	7.1
R0020T0100L020	0.2	0.4	1°	0.4	2	1.2	8.4°	0.39	50	4	2	○	1	–	2.3	2.6	3.0
R0020T0100L030	0.2	0.4	1°	0.4	3	1.2	7.9°	0.43	50	4	2	○	1	–	3.3	3.7	4.2
R0020T0100L040	0.2	0.4	1°	0.4	4	1.2	7.4°	0.46	50	4	2	○	1	–	4.3	4.9	5.5
R0020T0100L050	0.2	0.4	1°	0.4	5	1.2	6.9°	0.50	50	4	2	○	1	–	5.3	6.0	6.8
R0020T0130L020	0.2	0.4	1° 30'	0.4	2	1.2	8.5°	0.41	50	4	2	○	1	–	–	2.5	2.9
R0020T0130L030	0.2	0.4	1° 30'	0.4	3	1.2	7.9°	0.46	50	4	2	○	1	–	–	3.6	4.1
R0020T0130L040	0.2	0.4	1° 30'	0.4	4	1.2	7.5°	0.51	50	4	2	○	1	–	–	4.7	5.3
R0020T0130L050	0.2	0.4	1° 30'	0.4	5	1.2	7.0°	0.56	50	4	2	○	1	–	–	5.7	6.5
R0020T0200L020	0.2	0.4	2°	0.4	2	1.2	8.5°	0.42	50	4	2	○	1	–	–	2.5	2.8
R0020T0200L030	0.2	0.4	2°	0.4	3	1.2	8.0°	0.49	50	4	2	○	1	–	–	3.5	4.0
R0020T0200L040	0.2	0.4	2°	0.4	4	1.2	7.5°	0.56	50	4	2	○	1	–	–	4.5	5.1
R0020T0200L050	0.2	0.4	2°	0.4	5	1.2	7.1°	0.63	50	4	2	○	1	–	–	5.5	6.2
R0025T0030L030	0.25	0.5	30'	0.5	3	1.5	7.8°	0.49	50	4	2	○	1	3.3	3.5	3.9	4.4
R0025T0030L050	0.25	0.5	30'	0.5	5	1.5	6.8°	0.53	50	4	2	○	1	5.3	5.6	6.2	7.1
R0025T0100L030	0.25	0.5	1°	0.5	3	1.5	7.8°	0.52	50	4	2	○	1	–	3.4	3.8	4.3
R0025T0100L050	0.25	0.5	1°	0.5	5	1.5	6.9°	0.59	50	4	2	○	1	–	5.4	6.0	6.8
R0025T0130L030	0.25	0.5	1° 30'	0.5	3	1.5	7.9°	0.54	50	4	2	○	1	–	–	3.7	4.1
R0025T0130L050	0.25	0.5	1° 30'	0.5	5	1.5	7.0°	0.65	50	4	2	○	1	–	–	5.8	6.6
R0025T0200L030	0.25	0.5	2°	0.5	3	1.5	7.9°	0.57	50	4	2	○	1	–	–	3.5	4.0
R0025T0200L050	0.25	0.5	2°	0.5	5	1.5	7.1°	0.71	50	4	2	○	1	–	–	5.5	6.3
R0030T0030L050	0.3	0.6	30'	0.6	5	1.6	6.8°	0.62	50	4	2	○	1	5.3	5.6	6.2	7.1

● : Inventory maintained. ○ : To be on sale.

Unit : mm

Order Number	Radius of ball nose R	Dia. D1	Taper Angle One Side B1	Length of Cut ap	Neck Length L3	L2	Cutting Edge to Shank Angle B2	D3	Overall Length L1	Shank Dia. D4	No. of Flute N	Stock	Type	Effective length for inclined angle 30'	1°	2°	3°
MS2XBR0030T0030L080	0.3	0.6	30'	0.6	8	1.6	5.7°	0.68	50	4	2	○	1	8.3	8.7	9.8	11.1
R0030T0100L050	0.3	0.6	1°	0.6	5	1.6	6.8°	0.68	50	4	2	○	1	–	5.4	6.0	6.8
R0030T0100L080	0.3	0.6	1°	0.6	8	1.6	5.8°	0.79	50	4	2	○	1	–	8.4	9.4	10.7
R0030T0100L100	0.3	0.6	1°	0.6	10	1.6	5.2°	0.86	50	4	2	○	1	–	10.4	11.6	13.2
R0030T0100L120	0.3	0.6	1°	0.6	12	1.6	4.8°	0.93	50	4	2	○	1	–	12.4	13.9	15.8
R0030T0100L150	0.3	0.6	1°	0.6	15	1.6	4.2°	1.03	50	4	2	○	1	–	15.4	17.2	19.6
R0030T0130L050	0.3	0.6	1° 30'	0.6	5	1.6	6.9°	0.74	50	4	2	○	1	–	–	5.8	6.6
R0030T0130L080	0.3	0.6	1° 30'	0.6	8	1.6	5.9°	0.90	50	4	2	○	1	–	–	9.0	10.2
R0030T0200L060	0.3	0.6	2°	0.6	6	1.6	6.6°	0.87	50	4	2	○	1	–	–	6.6	7.4
R0030T0200L080	0.3	0.6	2°	0.6	8	1.6	6.0°	1.01	50	4	2	○	1	–	–	8.6	9.7
R0040T0030L080	0.4	0.8	30'	0.8	8	1.8	5.5°	0.87	50	4	2	○	1	8.3	8.7	9.8	11.1
R0040T0030L120	0.4	0.8	30'	0.8	12	1.8	4.5°	0.94	60	4	2	○	1	12.3	13.0	14.5	16.5
R0040T0100L080	0.4	0.8	1°	0.8	8	1.8	5.6°	0.98	50	4	2	○	1	–	8.4	9.4	10.7
R0040T0100L120	0.4	0.8	1°	0.8	12	1.8	4.6°	1.12	60	4	2	○	1	–	12.4	13.9	15.8
R0040T0130L080	0.4	0.8	1° 30'	0.8	8	1.8	5.8°	1.09	50	4	2	○	1	–	–	9.0	10.2
R0040T0130L120	0.4	0.8	1° 30'	0.8	12	1.8	4.8°	1.30	60	4	2	○	1	–	–	13.2	15.0
R0040T0200L080	0.4	0.8	2°	0.8	8	1.8	5.9°	1.20	60	4	2	○	1	–	–	8.6	9.7
R0040T0300L120	0.4	0.8	3°	0.8	12	1.8	5.2°	1.83	60	4	2	○	1	–	–	–	12.8
R0050T0030L100	0.5	1	30'	1	10	2.5	6.1°	1.08	60	6	2	●	1	10.4	10.9	12.2	13.9
R0050T0030L150	0.5	1	30'	1	15	2.5	5.1°	1.16	60	6	2	●	1	15.4	16.2	18.2	20.7
R0050T0030L200	0.5	1	30'	1	20	2.5	4.4°	1.25	70	6	2	●	1	20.4	21.5	24.1	27.4
R0050T0030L250	0.5	1	30'	1	25	2.5	3.8°	1.34	70	6	2	●	1	25.4	26.8	30.0	34.2
R0050T0030L300	0.5	1	30'	1	30	2.5	3.4°	1.42	70	6	2	●	1	30.4	32.0	35.9	41.0
R0050T0100L100	0.5	1	1°	1	10	2.5	6.2°	1.21	60	6	2	●	1	–	10.5	11.8	13.4
R0050T0100L150	0.5	1	1°	1	15	2.5	5.2°	1.38	60	6	2	●	1	–	15.5	17.4	19.8
R0050T0100L200	0.5	1	1°	1	20	2.5	4.5°	1.56	70	6	2	●	1	–	20.5	23.0	26.2
R0050T0100L250	0.5	1	1°	1	25	2.5	3.9°	1.73	70	6	2	●	1	–	25.5	28.6	32.6
R0050T0100L300	0.5	1	1°	1	30	2.5	3.5°	1.91	70	6	2	●	1	–	30.5	34.2	39.0
R0050T0100L350	0.5	1	1°	1	35	2.5	3.2°	2.08	80	6	2	●	1	–	35.5	39.8	45.4
R0050T0130L100	0.5	1	1° 30'	1	10	2.5	6.3°	1.34	60	6	2	●	1	–	–	11.3	12.8
R0050T0130L150	0.5	1	1° 30'	1	15	2.5	5.3°	1.60	60	6	2	●	1	–	–	16.6	18.9
R0050T0130L200	0.5	1	1° 30'	1	20	2.5	4.6°	1.86	70	6	2	●	1	–	–	21.9	24.9
R0050T0200L150	0.5	1	2°	1	15	2.5	5.4°	1.82	60	6	2	●	1	–	–	15.8	18.0
R0050T0200L200	0.5	1	2°	1	20	2.5	4.7°	2.17	70	6	2	●	1	–	–	20.8	23.7
R0050T0300L200	0.5	1	3°	1	20	2.5	5.0°	2.78	70	6	2	●	1	–	–	–	21.2
R0050T0300L400	0.5	1	3°	1	40	2.5	3.4°	4.88	80	6	2	●	1	–	–	–	41.2
R0050T0500L200	0.5	1	5°	1	20	2.5	5.7°	4.01	70	6	2	●	1	–	–	–	–
R0060T0030L120	0.6	1.2	30'	1.2	12	2.7	5.6°	1.31	60	6	2	●	1	12.4	13.1	14.6	16.6
R0060T0030L240	0.6	1.2	30'	1.2	24	2.7	3.8°	1.52	70	6	2	●	1	24.4	25.7	28.8	32.8
R0060T0100L120	0.6	1.2	1°	1.2	12	2.7	5.7°	1.47	60	6	2	●	1	–	12.5	14.0	15.9
R0060T0100L240	0.6	1.2	1°	1.2	24	2.7	3.9°	1.89	70	6	2	●	1	–	24.5	27.5	31.3
R0060T0130L120	0.6	1.2	1° 30'	1.2	12	2.7	5.8°	1.63	60	6	2	●	1	–	–	13.4	15.2
R0060T0130L240	0.6	1.2	1° 30'	1.2	24	2.7	4.1°	2.26	70	6	2	●	1	–	–	26.2	29.8
R0060T0200L120	0.6	1.2	2°	1.2	12	2.7	5.9°	1.79	60	6	2	●	1	–	–	12.8	14.6
R0060T0200L240	0.6	1.2	2°	1.2	24	2.7	4.2°	2.63	70	6	2	●	1	–	–	24.8	28.3
R0075T0030L100	0.75	1.5	30'	1.5	10	3	5.9°	1.57	60	6	2	●	1	10.4	10.9	12.2	13.8
R0075T0030L150	0.75	1.5	30'	1.5	15	3	4.9°	1.65	60	6	2	●	1	15.4	16.2	18.1	20.6
R0075T0030L300	0.75	1.5	30'	1.5	30	3	3.2°	1.92	70	6	2	●	1	30.4	32.0	35.9	40.9
R0075T0100L100	0.75	1.5	1°	1.5	10	3	6.0°	1.69	60	6	2	●	1	–	10.5	11.8	13.3
R0075T0100L150	0.75	1.5	1°	1.5	15	3	5.0°	1.86	60	6	2	●	1	–	15.5	17.4	19.7
R0075T0100L200	0.75	1.5	1°	1.5	20	3	4.2°	2.04	70	6	2	●	1	–	20.5	23.0	26.1
R0075T0100L300	0.75	1.5	1°	1.5	30	3	3.3°	2.39	70	6	2	●	1	–	30.5	34.2	39.0
R0075T0130L100	0.75	1.5	1° 30'	1.5	10	3	6.1°	1.81	60	6	2	●	1	–	–	11.3	12.8
R0075T0130L150	0.75	1.5	1° 30'	1.5	15	3	5.1°	2.07	60	6	2	●	1	–	–	16.6	18.9

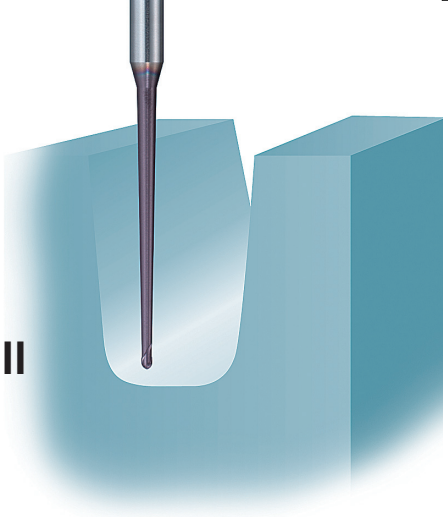
Unit : mm

Order Number	Radius of ball nose R	Dia. D1	Taper Angle One Side B1	Length of Cut ap	Neck Length L3	L2	Cutting Edge to Shank Angle B2	D3	Overall Length L1	Shank Dia. D4	No. of Flute N	Stock	Type	Effective length for inclined angle 30'	1°	2°	3°
MS2XBR0075T0130L300	0.75	1.5	1° 30'	1.5	30	3	3.4°	2.86	70	6	2	●	1	—	—	32.5	37.0
R0075T0200L100	0.75	1.5	2°	1.5	10	3	6.2°	1.93	60	6	2	●	1	—	—	10.9	12.3
R0075T0200L150	0.75	1.5	2°	1.5	15	3	5.2°	2.28	60	6	2	●	1	—	—	15.9	18.0
R0075T0200L300	0.75	1.5	2°	1.5	30	3	3.5°	3.33	70	6	2	●	1	—	—	30.9	35.1
R0100T0030L200	1	2	30'	2	20	4	3.9°	2.18	60	6	2	●	1	20.7	21.7	24.3	27.6
R0100T0030L300	1	2	30'	2	30	4	2.9°	2.36	70	6	2	●	1	30.7	32.3	36.2	No interference
R0100T0030L400	1	2	30'	2	40	4	2.4°	2.53	80	6	2	●	1	40.7	42.8	48.0	No interference
R0100T0100L200	1	2	1°	2	20	4	4.0°	2.46	60	6	2	●	1	—	20.8	23.3	26.4
R0100T0100L250	1	2	1°	2	25	4	3.4°	2.64	60	6	2	●	1	—	25.8	28.9	32.9
R0100T0100L300	1	2	1°	2	30	4	3.0°	2.81	70	6	2	●	1	—	30.8	34.5	39.3
R0100T0100L350	1	2	1°	2	35	4	2.7°	2.99	80	6	2	●	1	—	35.8	40.1	No interference
R0100T0100L400	1	2	1°	2	40	4	2.5°	3.16	80	6	2	●	1	—	40.8	45.8	No interference
R0100T0100L500	1	2	1°	2	50	4	2.1°	3.51	90	6	2	●	1	—	50.8	57.0	No interference
R0100T0130L200	1	2	1° 30'	2	20	4	4.1°	2.74	60	6	2	●	1	—	—	22.3	25.3
R0100T0130L300	1	2	1° 30'	2	30	4	3.1°	3.27	70	6	2	●	1	—	—	32.9	37.4
R0100T0130L400	1	2	1° 30'	2	40	4	2.6°	3.79	80	6	2	●	1	—	—	43.5	No interference
R0100T0200L300	1	2	2°	2	30	4	3.3°	3.72	70	6	2	●	1	—	—	31.3	35.5
R0100T0200L400	1	2	2°	2	40	4	2.7°	4.42	80	6	2	●	1	—	—	41.3	No interference
R0100T0300L300	1	2	3°	2	30	4	3.5°	4.63	70	6	2	●	1	—	—	—	31.8
R0100T0300L400	1	2	3°	2	40	4	2.9°	5.68	80	6	2	●	1	—	—	—	No interference
R0100T0500L200	1	2	5°	2	20	4	5.1°	4.70	60	6	2	●	1	—	—	—	—
R0100T0500L380	1	2	5°	2	38	4	4.6°	7.85	80	8	2	●	1	—	—	—	—
R0150T0030L300	1.5	3	30'	3	30	6	2.4°	3.32	70	6	2	●	1	30.7	32.3	36.2	No interference
R0150T0030L400	1.5	3	30'	3	40	6	1.9°	3.50	80	6	2	●	1	40.7	42.9	No interference	No interference
R0150T0030L500	1.5	3	30'	3	50	6	1.6°	3.67	90	6	2	●	1	50.7	53.4	No interference	No interference
R0150T0100L300	1.5	3	1°	3	30	6	2.5°	3.74	70	6	2	●	1	—	31.0	34.7	No interference
R0150T0100L400	1.5	3	1°	3	40	6	2.0°	4.09	80	6	2	●	1	—	41.0	45.9	No interference
R0150T0100L500	1.5	3	1°	3	50	6	1.7°	4.44	90	6	2	●	1	—	51.0	—	No interference
R0150T0130L300	1.5	3	1° 30'	3	30	6	2.6°	4.16	70	6	2	●	1	—	—	33.1	No interference
R0150T0130L400	1.5	3	1° 30'	3	40	6	2.1°	4.69	80	6	2	●	1	—	—	43.8	No interference
R0150T0130L500	1.5	3	1° 30'	3	50	6	1.7°	5.21	90	6	2	●	1	—	—	—	No interference
R0150T0200L300	1.5	3	2°	3	30	6	2.7°	4.58	70	6	2	●	1	—	—	31.6	No interference
R0150T0200L480	1.5	3	2°	3	48	6	1.9°	5.84	90	6	2	●	1	—	—	—	No interference
R0150T0300L300	1.5	3	3°	3	30	6	2.9°	5.42	70	6	2	●	1	—	—	—	No interference
R0150T0300L500	1.5	3	3°	3	50	6	2.9°	7.52	90	8	2	●	1	—	—	—	No interference
R0200T0030L600	2	4	30'	4	60	7	1.0°	4.83	110	6	2	○	1	60.8	64.0	No interference	No interference
R0200T0100L600	2	4	1°	4	60	7	1.0°	5.76	110	6	2	○	1	—	61.1	No interference	No interference

Mstar End Mill

MS2XB

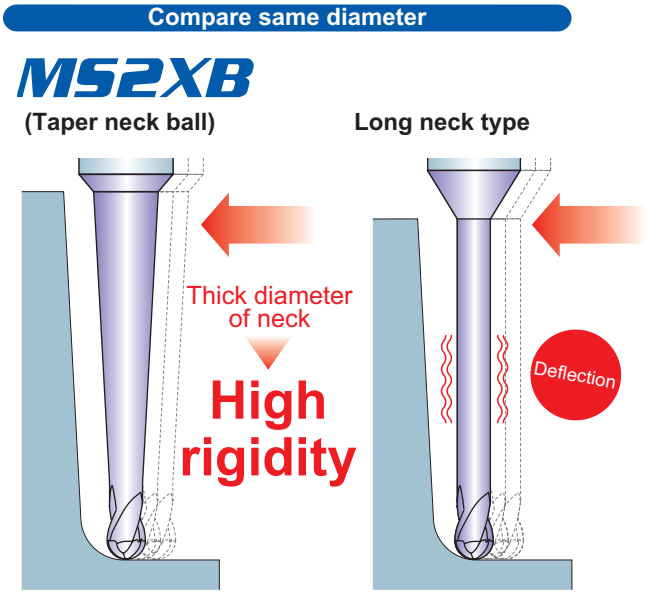
2 flute Mstar taper neck ball nose end mill



Features 1

MSTAR end mill series which is great for deep slotting.

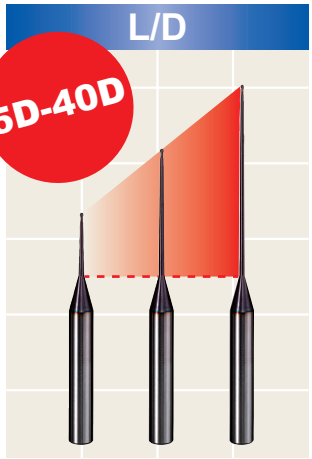
- Optimal for deep slotting on the wall side of mold draft.
- Realize stable deep slotting due to the high rigidity of neck and short flute.

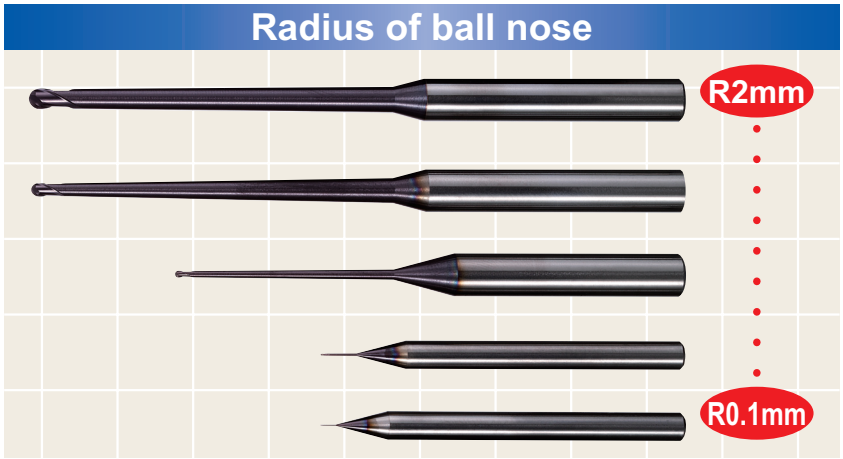


Features 2

Wide varieties of diameter, taper angle and neck length.

- Lineup of 133 sizes in total from R0.1mm to R2mm.
- Optimal sizes are available according to work materials and cutting condition.





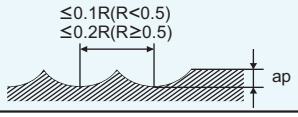
MS2XB

Ball nose slot drill, 2 flute, Taper neck

Work material				Alloy steel, Tool steel, Pre-hardened steel (–45HRC) AISI H13, AISI D2, NAK	
R (mm)	Taper angle one side	Neck length (mm)	Depth of cut ap (mm)	Revolution (min^{-1})	Feed rate (mm/min)
R0.1	30'	1.5	0.005	30,000	300
	30'	2	0.005		
	1°	1.5	0.005		
	1°	2	0.005		
	2°	1.5	0.01		
	2°	2	0.01		
	3°	1.5	0.01		
	3°	2	0.01		
	5°	2	0.01		
R0.15	30'	3	0.005	30,000	300
	1°	3	0.005		
	2°	3	0.01		
	3°	3	0.01		
	5°	3	0.01		
R0.2	30'	2	0.02	30,000	300
	30'	5	0.01		
	1°	2	0.02		
	1°	5	0.01		
	1°	2	0.02		
	2°	5	0.01		
R0.25	30'	3	0.03	30,000	300
	30'	5	0.02		
	1°	3	0.03		
	1°	5	0.02		
	2°	3	0.03		
	2°	5	0.02		
R0.3	30'	5	0.03	30,000	400
	30'	8	0.02		
	1°	5	0.03		
	1°	10	0.02		
	1°	15	0.01		
	2°	6	0.03		
	2°	8	0.02		
R0.4	30'	8	0.05	30,000	500
	30'	12	0.04		
	1°	8	0.05		
	1°	12	0.04		
	2°	8	0.08		
	3°	12	0.06		

Work material				Alloy steel, Tool steel, Pre-hardened steel (–45HRC) AISI H13, AISI D2, NAK	
R (mm)	Taper angle one side	Neck length (mm)	Depth of cut ap (mm)	Revolution (min^{-1})	Feed rate (mm/min)
R0.5	30'	10	0.05	22,000	530
	30'	20	0.02		
	30'	30	0.005		
	1°	10	0.05		
	1°	20	0.02		
	1°	35	0.005		
	2°	20	0.03		
	3°	40	0.05		
	5°	20	0.05		
R0.6	30'	12	0.05	22,000	600
	30'	24	0.02		
	1°	12	0.05		
	1°	24	0.02		
	2°	12	0.06		
	2°	24	0.03		
R0.75	30'	10	0.1	20,000	700
	30'	30	0.02		
	1°	10	0.1		
	1°	30	0.05		
	2°	30	0.1		
R1	30'	20	0.05	18,000	1,000
	30'	30	0.03		
	30'	40	0.02		
	1°	20	0.05		
	1°	40	0.03		
	1°	50	0.02		
	2°	40	0.1		
	3°	40	0.1		
	5°	38.2	0.1		
R1.5	30'	30	0.1	16,000	1,300
	30'	50	0.03		
	1°	30	0.1		
	1°	50	0.03		
	2°	48.9	0.1		
	3°	50	0.1		
R2	30'	60	0.1	14,000	1,100
	1°	60	0.1		

Depth of cut



R:Radius

1) Please reduce the cutting depth (especially ap) if chattering and noise are generated, and reduce the feed rate proportionately.
2) When high machining accuracy is needed, we recommend reducing the feed rate.

JQA-2522
JQA-EM0941

MITSUBISHI MATERIALS KOBE TOOLS

MITSUBISHI MATERIALS CORPORATION
MARKETING DEPT.
KFC bldg., 8F, 1-6-1, Yokoami, Sumida-ku, Tokyo 130-0015, Japan
TEL 81-3-5819-8772 FAX 81-3-5819-8774

MMC HARTMETALL GmbH
Comeniusstr.2, 40670, Meerbusch GERMANY
TEL 49-2159-9189-0 FAX 49-2159-50462

MITSUBISHI MATERIALS U.S.A. CORPORATION
Headquarters
17401, Eastman Street, Irvine, California, 92614, USA
TEL 1-949-862-5100 FAX 1-949-862-5180

MMC METAL SINGAPORE PTE LTD.
10, Arumugam Road, #04-00 Lion Industrial Bldg.,409957, SINGAPORE
TEL 65-6743-9370 FAX 65-6749-1469

Home page http://www.mitsubishicarbide.com

2005.4.E(1B)