

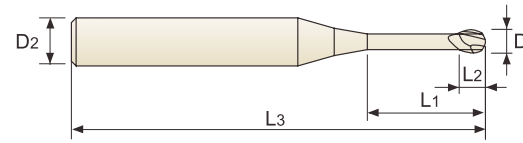


New SN Series

for Super Hard Materials



■ LBN-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

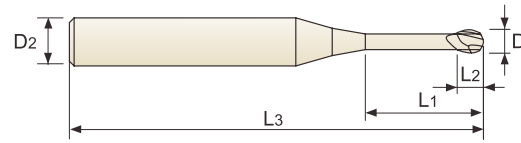
Unit:mm

Part Number	Diameter D	Length Below Shank L1	Length of Cut L2	Overall Length L3	Shank Dia D2
LNB001002040SN2	0.1	0.2	0.1	40	4
LNB001003040SN2	0.1	0.3	0.1	40	4
LNB001005040SN2	0.1	0.5	0.1	40	4
LNB001010040SN2	0.1	1	0.1	40	4
LNB002006040SN2	0.2	0.6	0.2	40	4
LNB002010040SN2	0.2	1	0.2	40	4
LNB002015040SN2	0.2	1.5	0.2	40	4
LNB002020040SN2	0.2	2	0.2	40	4
LNB002030040SN2	0.2	3	0.2	40	4
LNB003010040SN2	0.3	1	0.3	40	4
LNB003015040SN2	0.3	1.5	0.3	40	4
LNB003020040SN2	0.3	2	0.3	40	4
LNB003030040SN2	0.3	3	0.3	40	4
LNB003040040SN2	0.3	4	0.3	40	4
LNB003050040SN2	0.3	5	0.3	40	4
LNB004010040SN2	0.4	1	0.4	40	4
LNB004015040SN2	0.4	1.5	0.4	40	4
LNB004020040SN2	0.4	2	0.4	40	4
LNB004030040SN2	0.4	3	0.4	40	4
LNB004040040SN2	0.4	4	0.4	40	4
LNB004050040SN2	0.4	5	0.4	40	4
LNB004060040SN2	0.4	6	0.4	40	4
LNB004080040SN2	0.4	8	0.4	40	4
LNB004100040SN2	0.4	10	0.4	40	4
LNB005010040SN2	0.5	1	0.5	40	4
LNB005020040SN2	0.5	2	0.5	40	4
LNB005040040SN2	0.5	4	0.5	40	4
LNB005060040SN2	0.5	6	0.5	40	4
LNB005080040SN2	0.5	8	0.5	40	4
LNB005100040SN2	0.5	10	0.5	40	4



2 Flutes Long Neck Ball End Mills LNB-SN2

■ LNB-SN2 Series

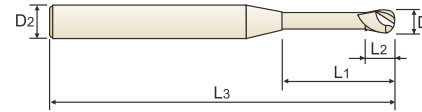


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Length Below Shank L1	Length of Cut L2	Overall Length L3	Shank Dia D2
LNB006020040SN2	0.6	2	0.6	40	4
LNB006030040SN2	0.6	3	0.6	40	4
LNB006040040SN2	0.6	4	0.6	40	4
LNB006050040SN2	0.6	5	0.6	40	4
LNB006060040SN2	0.6	6	0.6	40	4
LNB006080040SN2	0.6	8	0.6	40	4
LNB006100040SN2	0.6	10	0.6	40	4
LNB006012040SN2	0.6	12	0.6	40	4
LNB008020040SN2	0.8	2	0.8	40	4
LNB008030040SN2	0.8	3	0.8	40	4
LNB008040040SN2	0.8	4	0.8	40	4
LNB008050040SN2	0.8	5	0.8	40	4
LNB008060040SN2	0.8	6	0.8	40	4
LNB008080040SN2	0.8	8	0.8	40	4
LNB008100040SN2	0.8	10	0.8	40	4
LNB008120040SN2	0.8	12	0.8	40	4
LNB010030045SN2	1	3	1	45	4
LNB010040045SN2	1	4	1	45	4
LNB010050045SN2	1	5	1	45	4
LNB010060045SN2	1	6	1	45	4
LNB010080045SN2	1	8	1	45	4
LNB010100045SN2	1	10	1	45	4
LNB010120045SN2	1	12	1	45	4
LNB010140045SN2	1	14	1	45	4
LNB010160045SN2	1	16	1	45	4
LNB010180045SN2	1	18	1	45	4
LNB010200045SN2	1	20	1	45	4

■ LNB-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

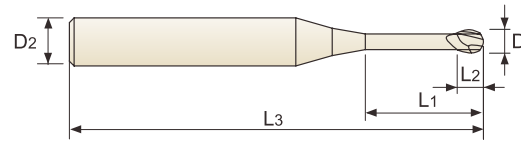
Unit:mm

Part Number	Diameter D	Length Below Shank L1	Length of Cut L2	Overall Length L3	Shank Dia D2
LNB012040045SN2	1.2	4	1.2	45	4
LNB012060045SN2	1.2	6	1.2	45	4
LNB012080045SN2	1.2	8	1.2	45	4
LNB012100045SN2	1.2	10	1.2	45	4
LNB012120045SN2	1.2	12	1.2	45	4
LNB012160045SN2	1.2	16	1.2	45	4
LNB012200045SN2	1.2	20	1.2	45	4
LNB015040045SN2	1.5	4	1.5	45	4
LNB015060045SN2	1.5	6	1.5	45	4
LNB015080045SN2	1.5	8	1.5	45	4
LNB015100045SN2	1.5	10	1.5	45	4
LNB015120045SN2	1.5	12	1.5	45	4
LNB015140045SN2	1.5	14	1.5	45	4
LNB015160045SN2	1.5	16	1.5	45	4
LNB015180050SN2	1.5	18	1.5	50	4
LNB015200050SN2	1.5	20	1.5	50	4
LNB020060045SN2	2	6	3	45	4
LNB020080045SN2	2	8	3	45	4
LNB020100045SN2	2	10	3	45	4
LNB020120045SN2	2	12	3	45	4
LNB020140050SN2	2	14	3	50	4
LNB020160050SN2	2	16	3	50	4
LNB020180050SN2	2	18	3	50	4
LNB020200050SN2	2	20	3	50	4
LNB020220060SN2	2	22	3	60	4
LNB020260060SN2	2	26	3	60	4
LNB020300070SN2	2	30	3	70	4
LNB025080050SN2	2.5	8	3.5	50	4
LNB025100050SN2	2.5	10	3.5	50	4
LNB025120050SN2	2.5	12	3.5	50	4
LNB025160050SN2	2.5	16	3.5	50	4
LNB025200050SN2	2.5	20	3.5	50	4
LNB025220060SN2	2.5	22	3.5	60	4
LNB025260060SN2	2.5	26	3.5	60	4



2 Flutes Long Neck Ball End Mills LNB-SN2

■ LNB-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

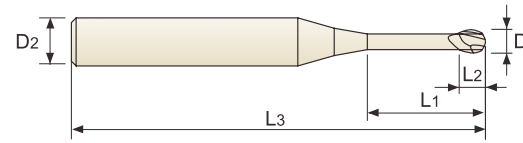
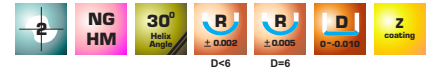
Unit:mm

Part Number	Diameter D	Length Below Shank L1	Length of Cut L2	Overall Length L3	Shank Dia D2
LNB030080055SN2	3	8	4	55	6
LNB030100055SN2	3	10	4	55	6
LNB030120055SN2	3	12	4	55	6
LNB030140055SN2	3	14	4	55	6
LNB030160055SN2	3	16	4	55	6
LNB030200060SN2	3	20	4	60	6
LNB030220060SN2	3	22	4	60	6
LNB030260060SN2	3	26	4	60	6
LNB030300070SN2	3	30	4	70	6
LNB030350075SN2	3	35	4	75	6
LNB040100055SN2	4	10	5	55	6
LNB040120055SN2	4	12	5	55	6
LNB040160055SN2	4	16	5	55	6
LNB040200060SN2	4	20	5	60	6
LNB040260060SN2	4	26	5	60	6
LNB040300070SN2	4	30	5	70	6
LNB040350075SN2	4	35	5	75	6
LNB040400080SN2	4	40	5	80	6
LNB060150060SN2	6	15	8	60	6
LNB060200060SN2	6	20	8	60	6
LNB060300060SN2	6	30	8	60	6
LNB060320090SN2	6	32	8	90	6
LNB080150070SN2	8	15	10	70	8
LNB080200080SN2	8	20	10	80	8
LNB080300100SN2	8	30	10	100	8
LNB100250075SN2	10	25	12	75	10
LNB100350100SN2	10	35	12	100	10
LNB120250080SN2	12	25	14	80	12
LNB120400110SN2	12	40	14	110	12

PNB-SN2 2 Flutes Long Neck Ball End Mills (High Precision)



■ PNB-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

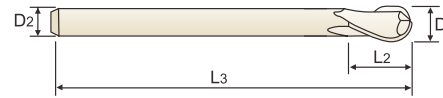
Unit:mm

Part Number	Diameter D	Length Below Shank L1	Length of Cut L2	Overall Length L3	Shank Dia D2
PNB001005040SN2	0.1	0.5	0.1	40	4
PNB002006040SN2	0.2	0.6	0.2	40	4
PNB002010040SN2	0.2	1	0.2	40	4
PNB003010040SN2	0.3	1	0.3	40	4
PNB003020040SN2	0.3	2	0.3	40	4
PNB003030040SN2	0.3	3	0.3	40	4
PNB004010040SN2	0.4	1	0.4	40	4
PNB004020040SN2	0.4	2	0.4	40	4
PNB004030040SN2	0.4	3	0.4	40	4
PNB004040040SN2	0.4	4	0.4	40	4
PNB006020040SN2	0.6	2	0.6	40	4
PNB006030040SN2	0.6	3	0.6	40	4
PNB006040040SN2	0.6	4	0.6	40	4
PNB006060040SN2	0.6	6	0.6	40	4
PNB006080040SN2	0.6	8	0.6	40	4
PNB008020040SN2	0.8	2	0.8	40	4
PNB008030040SN2	0.8	3	0.8	40	4
PNB008040040SN2	0.8	4	0.8	40	4
PNB008060040SN2	0.8	6	0.8	40	4
PNB008080040SN2	0.8	8	0.8	40	4
PNB010030045SN2	1	3	1	45	4
PNB010040045SN2	1	4	1	45	4
PNB010050045SN2	1	5	1	45	4
PNB010060045SN2	1	6	1	45	4
PNB010080045SN2	1	8	1	45	4
PNB010100045SN2	1	10	1	45	4
PNB020060045SN2	2	6	3	45	4
PNB020080045SN2	2	8	3	45	4
PNB020100045SN2	2	10	3	45	4
PNB020120045SN2	2	12	3	45	4
PNB020160050SN2	2	16	3	50	4
PNB030080055SN2	3	8	4	55	6
PNB030100055SN2	3	10	4	55	6
PNB030120055SN2	3	12	4	55	6
PNB030160055SN2	3	16	4	55	6
PNB040100055SN2	4	10	5	55	6
PNB040120055SN2	4	12	5	55	6
PNB040160055SN2	4	16	5	55	6
PNB040200060SN2	4	20	5	60	6
PNB060150060SN2	6	15	8	60	6
PNB060200060SN2	6	20	8	60	6



2 Flutes Ball End Mills GBN-SN2

■ GBN-SN2 Series

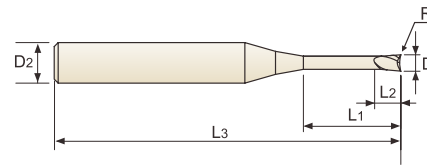


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- Suitable for using shrink fit due to short lengths.

Unit:mm

Part Number	Diameter D	Length of Cut L2	Overall Length L3	Shank Dia D2
GBN001001040SN2	0.1	0.1	40	4
GBN001002040SN2	0.1	0.2	40	4
GBN002002040SN2	0.2	0.2	40	4
GBN002004040SN2	0.2	0.4	40	4
GBN003003040SN2	0.3	0.3	40	4
GBN003006040SN2	0.3	0.6	40	4
GBN004004040SN2	0.4	0.4	40	4
GBN004008040SN2	0.4	0.8	40	4
GBN005005040SN2	0.5	0.5	40	4
GBN005010040SN2	0.5	1	40	4
GBN006006040SN2	0.6	0.6	40	4
GBN006012040SN2	0.6	1.2	40	4
GBN007007040SN2	0.7	0.7	40	4
GBN007014040SN2	0.7	1.4	40	4
GBN008008040SN2	0.8	0.8	40	4
GBN008016040SN2	0.8	1.6	40	4
GBN009009040SN2	0.9	0.9	40	4
GBN009018040SN2	0.9	1.8	40	4
GBN010015040SN2	1	1.5	40	6
GBN010025050SN2	1	2.5	50	6
GBN012020040SN2	1.2	2	40	6
GBN012030050SN2	1.2	3	50	6
GBN015025040SN2	1.5	2.5	40	6
GBN015040050SN2	1.5	4	50	6
GBN020030040SN2	2	3	40	6
GBN020050050SN2	2	5	50	6
GBN025070060SN2	2.5	7	60	6
GBN030045050SN2	3	4.5	50	6
GBN030080060SN2	3	8	60	6
GBN040060050SN2	4	6	50	6
GBN040080070SN2	4	8	70	6
GBN050075050SN2	5	7.5	50	6
GBN050100080SN2	5	10	80	6
GBN060090050SN2	6	9	50	6
GBN060120060SN2	6	12	60	6
GBN060120090SN2	6	12	90	6
GBN080120050SN2	8	12	50	8
GBN080140070SN2	8	14	70	8
GBN080140100SN2	8	14	100	8
GBN100150060SN2	10	15	60	10
GBN100180075SN2	10	18	75	10
GBN100180100SN2	10	18	100	10
GBN120180060SN2	12	18	60	12
GBN120220080SN2	12	22	80	12
GBN120220110SN2	12	22	110	12

■ LCR-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

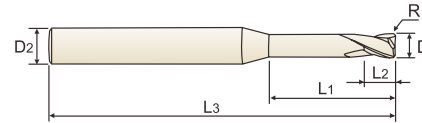
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR002005R05SN2	0.2	R0.05	0.5	0.3	40	4
LCR002010R05SN2	0.2	R0.05	1	0.3	40	4
LCR003010R05SN2	0.3	R0.05	1	0.5	40	4
LCR003020R05SN2	0.3	R0.05	2	0.5	40	4
LCR004010R05SN2	0.4	R0.05	1	0.6	40	4
LCR004020R05SN2	0.4	R0.05	2	0.6	40	4
LCR004030R05SN2	0.4	R0.05	3	0.6	40	4
LCR004040R05SN2	0.4	R0.05	4	0.6	40	4
LCR005010R05SN2	0.5	R0.05	1	0.7	40	4
LCR005020R05SN2	0.5	R0.05	2	0.7	40	4
LCR005030R05SN2	0.5	R0.05	3	0.7	40	4
LCR005040R05SN2	0.5	R0.05	4	0.7	40	4
LCR006020R05SN2	0.6	R0.05	2	0.9	40	4
LCR006040R05SN2	0.6	R0.05	4	0.9	40	4
LCR006060R05SN2	0.6	R0.05	6	0.9	40	4
LCR006020001SN2	0.6	R0.1	2	0.9	40	4
LCR006040001SN2	0.6	R0.1	4	0.9	40	4
LCR006060001SN2	0.6	R0.1	6	0.9	40	4
LCR006020002SN2	0.6	R0.2	2	0.9	40	4
LCR006040002SN2	0.6	R0.2	4	0.9	40	4
LCR006060002SN2	0.6	R0.2	6	0.9	40	4
LCR008020R05SN2	0.8	R0.05	2	1.2	40	4
LCR008040R05SN2	0.8	R0.05	4	1.2	40	4
LCR008060R05SN2	0.8	R0.05	6	1.2	40	4
LCR008080R05SN2	0.8	R0.05	8	1.2	40	4
LCR008100R05SN2	0.8	R0.05	10	1.2	40	4
LCR008020001SN2	0.8	R0.1	2	1.2	40	4
LCR008040001SN2	0.8	R0.1	4	1.2	40	4
LCR008060001SN2	0.8	R0.1	6	1.2	40	4
LCR008080001SN2	0.8	R0.1	8	1.2	40	4
LCR008100001SN2	0.8	R0.1	10	1.2	40	4
LCR008020002SN2	0.8	R0.2	2	1.2	40	4
LCR008040002SN2	0.8	R0.2	4	1.2	40	4
LCR008060002SN2	0.8	R0.2	6	1.2	40	4
LCR008080002SN2	0.8	R0.2	8	1.2	40	4
LCR008100002SN2	0.8	R0.2	10	1.2	40	4



2 Flutes Long Neck Radius End Mills LCR-SN2

■ LCR-SN2 Series

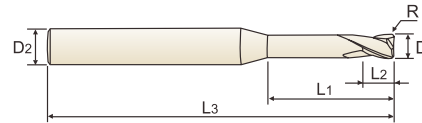


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR010030R05SN2	1	R0.05	3	2	45	4
LCR010040R05SN2	1	R0.05	4	2	45	4
LCR010060R05SN2	1	R0.05	6	2	45	4
LCR010080R05SN2	1	R0.05	8	2	45	4
LCR010100R05SN2	1	R0.05	10	2	45	4
LCR010120R05SN2	1	R0.05	12	2	45	4
LCR010160R05SN2	1	R0.05	16	2	45	4
LCR010030001SN2	1	R0.1	3	2	45	4
LCR010040001SN2	1	R0.1	4	2	45	4
LCR010060001SN2	1	R0.1	6	2	45	4
LCR010080001SN2	1	R0.1	8	2	45	4
LCR010100001SN2	1	R0.1	10	2	45	4
LCR010120001SN2	1	R0.1	12	2	45	4
LCR010160001SN2	1	R0.1	16	2	45	4
LCR010030002SN2	1	R0.2	3	2	45	4
LCR010040002SN2	1	R0.2	4	2	45	4
LCR010060002SN2	1	R0.2	6	2	45	4
LCR010080002SN2	1	R0.2	8	2	45	4
LCR010100002SN2	1	R0.2	10	2	45	4
LCR010120002SN2	1	R0.2	12	2	45	4
LCR010160002SN2	1	R0.2	16	2	45	4
LCR010030003SN2	1	R0.3	3	2	45	4
LCR010040003SN2	1	R0.3	4	2	45	4
LCR010060003SN2	1	R0.3	6	2	45	4
LCR010080003SN2	1	R0.3	8	2	45	4
LCR010100003SN2	1	R0.3	10	2	45	4
LCR010120003SN2	1	R0.3	12	2	45	4
LCR010160003SN2	1	R0.3	16	2	45	4
LCR012030R05SN2	1.2	R0.05	3	2	45	4
LCR012040R05SN2	1.2	R0.05	4	2	45	4
LCR012060R05SN2	1.2	R0.05	6	2	45	4
LCR012080R05SN2	1.2	R0.05	8	2	45	4
LCR012100R05SN2	1.2	R0.05	10	2	45	4
LCR012120R05SN2	1.2	R0.05	12	2	45	4
LCR012160R05SN2	1.2	R0.05	16	2	45	4

■ LCR-SN2 Series



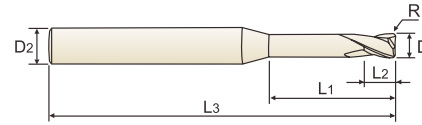
- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR012030001SN2	1.2	R0.1	3	2	45	4
LCR012040001SN2	1.2	R0.1	4	2	45	4
LCR012060001SN2	1.2	R0.1	6	2	45	4
LCR012080001SN2	1.2	R0.1	8	2	45	4
LCR012100001SN2	1.2	R0.1	10	2	45	4
LCR012120001SN2	1.2	R0.1	12	2	45	4
LCR012160001SN2	1.2	R0.1	16	2	45	4
LCR012030002SN2	1.2	R0.2	3	2	45	4
LCR012040002SN2	1.2	R0.2	4	2	45	4
LCR012060002SN2	1.2	R0.2	6	2	45	4
LCR012080002SN2	1.2	R0.2	8	2	45	4
LCR012100002SN2	1.2	R0.2	10	2	45	4
LCR012120002SN2	1.2	R0.2	12	2	45	4
LCR012160002SN2	1.2	R0.2	16	2	45	4
LCR012030003SN2	1.2	R0.3	3	2	45	4
LCR012040003SN2	1.2	R0.3	4	2	45	4
LCR012060003SN2	1.2	R0.3	6	2	45	4
LCR012080003SN2	1.2	R0.3	8	2	45	4
LCR012100003SN2	1.2	R0.3	10	2	45	4
LCR012120003SN2	1.2	R0.3	12	2	45	4
LCR012160003SN2	1.2	R0.3	16	2	45	4
LCR015040R05SN2	1.5	R0.05	4	2.5	45	4
LCR015060R05SN2	1.5	R0.05	6	2.5	45	4
LCR015080R05SN2	1.5	R0.05	8	2.5	45	4
LCR015100R05SN2	1.5	R0.05	10	2.5	45	4
LCR015120R05SN2	1.5	R0.05	12	2.5	45	4
LCR015160R05SN2	1.5	R0.05	16	2.5	45	4
LCR015040001SN2	1.5	R0.1	4	2.5	45	4
LCR015060001SN2	1.5	R0.1	6	2.5	45	4
LCR015080001SN2	1.5	R0.1	8	2.5	45	4
LCR015100001SN2	1.5	R0.1	10	2.5	45	4
LCR015120001SN2	1.5	R0.1	12	2.5	45	4
LCR015160001SN2	1.5	R0.1	16	2.5	45	4
LCR015040002SN2	1.5	R0.2	4	2.5	45	4
LCR015060002SN2	1.5	R0.2	6	2.5	45	4
LCR015080002SN2	1.5	R0.2	8	2.5	45	4
LCR015100002SN2	1.5	R0.2	10	2.5	45	4
LCR015120002SN2	1.5	R0.2	12	2.5	45	4
LCR015160002SN2	1.5	R0.2	16	2.5	45	4



■ LCR-SN2 Series

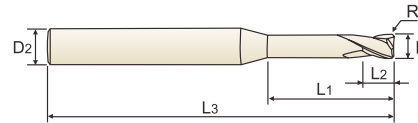


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR015040003SN2	1.5	R0.3	4	2.5	45	4
LCR015060003SN2	1.5	R0.3	6	2.5	45	4
LCR015080003SN2	1.5	R0.3	8	2.5	45	4
LCR015100003SN2	1.5	R0.3	10	2.5	45	4
LCR015120003SN2	1.5	R0.3	12	2.5	45	4
LCR015160003SN2	1.5	R0.3	16	2.5	45	4
LCR015040005SN2	1.5	R0.5	4	2.5	45	4
LCR015060005SN2	1.5	R0.5	6	2.5	45	4
LCR015080005SN2	1.5	R0.5	8	2.5	45	4
LCR015100005SN2	1.5	R0.5	10	2.5	45	4
LCR015120005SN2	1.5	R0.5	12	2.5	45	4
LCR015160005SN2	1.5	R0.5	16	2.5	45	4
LCR020040001SN2	2.0	R0.1	4	3	45	4
LCR020060001SN2	2.0	R0.1	6	3	45	4
LCR020080001SN2	2.0	R0.1	8	3	45	4
LCR020100001SN2	2.0	R0.1	10	3	45	4
LCR020120001SN2	2.0	R0.1	12	3	45	4
LCR020160001SN2	2.0	R0.1	16	3	45	4
LCR020200001SN2	2.0	R0.1	20	3	45	4
LCR020260001SN2	2.0	R0.1	26	3	55	4
LCR020040002SN2	2.0	R0.2	4	3	45	4
LCR020060002SN2	2.0	R0.2	6	3	45	4
LCR020080002SN2	2.0	R0.2	8	3	45	4
LCR020100002SN2	2.0	R0.2	10	3	45	4
LCR020120002SN2	2.0	R0.2	12	3	45	4
LCR020160002SN2	2.0	R0.2	16	3	45	4
LCR020200002SN2	2.0	R0.2	20	3	45	4
LCR020260002SN2	2.0	R0.2	26	3	55	4
LCR020040003SN2	2.0	R0.3	4	3	45	4
LCR020060003SN2	2.0	R0.3	6	3	45	4
LCR020080003SN2	2.0	R0.3	8	3	45	4
LCR020100003SN2	2.0	R0.3	10	3	45	4
LCR020120003SN2	2.0	R0.3	12	3	45	4
LCR020160003SN2	2.0	R0.3	16	3	45	4
LCR020200003SN2	2.0	R0.3	20	3	45	4
LCR020260003SN2	2.0	R0.3	26	3	55	4

■ LCR-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

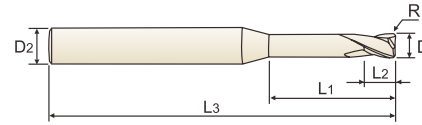
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR020040005SN2	2.0	R0.5	4	3	45	4
LCR020060005SN2	2.0	R0.5	6	3	45	4
LCR020080005SN2	2.0	R0.5	8	3	45	4
LCR020100005SN2	2.0	R0.5	10	3	45	4
LCR020120005SN2	2.0	R0.5	12	3	45	4
LCR020160005SN2	2.0	R0.5	16	3	45	4
LCR020200005SN2	2.0	R0.5	20	3	45	4
LCR020260005SN2	2.0	R0.5	26	3	55	4
LCR025080001SN2	2.5	R0.1	8	3.5	55	4
LCR025100001SN2	2.5	R0.1	10	3.5	55	4
LCR025120001SN2	2.5	R0.1	12	3.5	55	4
LCR025160001SN2	2.5	R0.1	16	3.5	55	4
LCR025200001SN2	2.5	R0.1	20	3.5	55	4
LCR025260001SN2	2.5	R0.1	26	3.5	55	4
LCR025080002SN2	2.5	R0.2	8	3.5	55	4
LCR025100002SN2	2.5	R0.2	10	3.5	55	4
LCR025120002SN2	2.5	R0.2	12	3.5	55	4
LCR025160002SN2	2.5	R0.2	16	3.5	55	4
LCR025200002SN2	2.5	R0.2	20	3.5	55	4
LCR025260002SN2	2.5	R0.2	26	3.5	55	4
LCR025080003SN2	2.5	R0.3	8	3.5	55	4
LCR025100003SN2	2.5	R0.3	10	3.5	55	4
LCR025120003SN2	2.5	R0.3	12	3.5	55	4
LCR025160003SN2	2.5	R0.3	16	3.5	55	4
LCR025200003SN2	2.5	R0.3	20	3.5	55	4
LCR025260003SN2	2.5	R0.3	26	3.5	55	4
LCR025080005SN2	2.5	R0.5	8	3.5	55	4
LCR025100005SN2	2.5	R0.5	10	3.5	55	4
LCR025120005SN2	2.5	R0.5	12	3.5	55	4
LCR025160005SN2	2.5	R0.5	16	3.5	55	4
LCR025200005SN2	2.5	R0.5	20	3.5	55	4
LCR025260005SN2	2.5	R0.5	26	3.5	55	4



2 Flutes Long Neck Radius End Mills LCR-SN2

■ LCR-SN2 Series

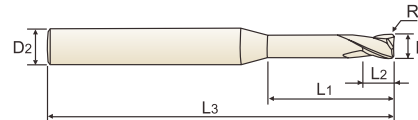


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR030080001SN2	3.0	R0.1	8	4.5	55	6
LCR030100001SN2	3.0	R0.1	10	4.5	55	6
LCR030120001SN2	3.0	R0.1	12	4.5	55	6
LCR030160001SN2	3.0	R0.1	16	4.5	55	6
LCR030200001SN2	3.0	R0.1	20	4.5	60	6
LCR030260001SN2	3.0	R0.1	26	4.5	65	6
LCR030300001SN2	3.0	R0.1	30	4.5	70	6
LCR030360001SN2	3.0	R0.1	36	4.5	70	6
LCR030080002SN2	3.0	R0.2	8	4.5	55	6
LCR030100002SN2	3.0	R0.2	10	4.5	55	6
LCR030120002SN2	3.0	R0.2	12	4.5	55	6
LCR030160002SN2	3.0	R0.2	16	4.5	55	6
LCR030200002SN2	3.0	R0.2	20	4.5	60	6
LCR030260002SN2	3.0	R0.2	26	4.5	65	6
LCR030300002SN2	3.0	R0.2	30	4.5	70	6
LCR030360002SN2	3.0	R0.2	36	4.5	70	6
LCR030080003SN2	3.0	R0.3	8	4.5	55	6
LCR030100003SN2	3.0	R0.3	10	4.5	55	6
LCR030120003SN2	3.0	R0.3	12	4.5	55	6
LCR030160003SN2	3.0	R0.3	16	4.5	55	6
LCR030200003SN2	3.0	R0.3	20	4.5	60	6
LCR030260003SN2	3.0	R0.3	26	4.5	65	6
LCR030300003SN2	3.0	R0.3	30	4.5	70	6
LCR030360003SN2	3.0	R0.3	36	4.5	70	6
LCR030080005SN2	3.0	R0.5	8	4.5	55	6
LCR030100005SN2	3.0	R0.5	10	4.5	55	6
LCR030120005SN2	3.0	R0.5	12	4.5	55	6
LCR030160005SN2	3.0	R0.5	16	4.5	55	6
LCR030200005SN2	3.0	R0.5	20	4.5	60	6
LCR030260005SN2	3.0	R0.5	26	4.5	65	6
LCR030300005SN2	3.0	R0.5	30	4.5	70	6
LCR030360005SN2	3.0	R0.5	36	4.5	70	6
LCR030080010SN2	3.0	R1.0	8	4.5	55	6
LCR030100010SN2	3.0	R1.0	10	4.5	55	6
LCR030120010SN2	3.0	R1.0	12	4.5	55	6
LCR030160010SN2	3.0	R1.0	16	4.5	55	6
LCR030200010SN2	3.0	R1.0	20	4.5	60	6
LCR030260010SN2	3.0	R1.0	26	4.5	65	6
LCR030300010SN2	3.0	R1.0	30	4.5	70	6
LCR030360010SN2	3.0	R1.0	36	4.5	70	6

■ LCR-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

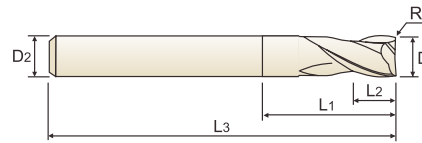
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR040100001SN2	4.0	R0.1	10	6	55	6
LCR040120001SN2	4.0	R0.1	12	6	55	6
LCR040160001SN2	4.0	R0.1	16	6	55	6
LCR040200001SN2	4.0	R0.1	20	6	60	6
LCR040260001SN2	4.0	R0.1	26	6	60	6
LCR040300001SN2	4.0	R0.1	30	6	70	6
LCR040360001SN2	4.0	R0.1	36	6	70	6
LCR040400001SN2	4.0	R0.1	40	6	75	6
LCR040100002SN2	4.0	R0.2	10	6	55	6
LCR040120002SN2	4.0	R0.2	12	6	55	6
LCR040160002SN2	4.0	R0.2	16	6	55	6
LCR040200002SN2	4.0	R0.2	20	6	60	6
LCR040260002SN2	4.0	R0.2	26	6	60	6
LCR040300002SN2	4.0	R0.2	30	6	70	6
LCR040360002SN2	4.0	R0.2	36	6	70	6
LCR040400002SN2	4.0	R0.2	40	6	75	6
LCR040100003SN2	4.0	R0.3	10	6	55	6
LCR040120003SN2	4.0	R0.3	12	6	55	6
LCR040160003SN2	4.0	R0.3	16	6	55	6
LCR040200003SN2	4.0	R0.3	20	6	60	6
LCR040260003SN2	4.0	R0.3	26	6	60	6
LCR040300003SN2	4.0	R0.3	30	6	70	6
LCR040360003SN2	4.0	R0.3	36	6	70	6
LCR040400003SN2	4.0	R0.3	40	6	75	6
LCR040100005SN2	4.0	R0.5	10	6	55	6
LCR040120005SN2	4.0	R0.5	12	6	55	6
LCR040160005SN2	4.0	R0.5	16	6	55	6
LCR040200005SN2	4.0	R0.5	20	6	60	6
LCR040260005SN2	4.0	R0.5	26	6	60	6
LCR040300005SN2	4.0	R0.5	30	6	70	6
LCR040360005SN2	4.0	R0.5	36	6	70	6
LCR040400005SN2	4.0	R0.5	40	6	75	6
LCR040100010SN2	4.0	R1.0	10	6	55	6
LCR040120011SN2	4.0	R1.1	12	6	55	6
LCR040160012SN2	4.0	R1.2	16	6	55	6
LCR040200013SN2	4.0	R1.3	20	6	60	6
LCR040260014SN2	4.0	R1.4	26	6	60	6
LCR040300015SN2	4.0	R1.5	30	6	70	6
LCR040360016SN2	4.0	R1.6	36	6	70	6
LCR040400017SN2	4.0	R1.7	40	6	75	6



2 Flutes Long Neck Radius End Mills LCR-SN2

■ LCR-SN2 Series

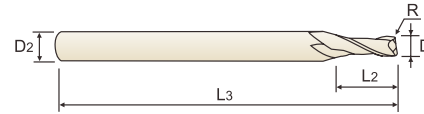


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRc50 and over HRc50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR060200002SN2	6.0	R0.2	20	9	60	6
LCR060200003SN2	6.0	R0.3	20	9	60	6
LCR060200005SN2	6.0	R0.5	20	9	60	6
LCR060200010SN2	6.0	R1.0	20	9	60	6
LCR060300002SN2	6.0	R0.2	30	9	80	6
LCR060300003SN2	6.0	R0.3	30	9	80	6
LCR060300005SN2	6.0	R0.5	30	9	80	6
LCR060300010SN2	6.0	R1.0	30	9	80	6
LCR080220002SN2	8.0	R0.2	22	12	70	8
LCR080220003SN2	8.0	R0.3	22	12	70	8
LCR080220005SN2	8.0	R0.5	22	12	70	8
LCR080220010SN2	8.0	R1.0	22	12	70	8
LCR080350002SN2	8.0	R0.2	35	12	90	8
LCR080350003SN2	8.0	R0.3	35	12	90	8
LCR080350005SN2	8.0	R0.5	35	12	90	8
LCR080350010SN2	8.0	R1.0	35	12	90	8
LCR100250003SN2	10	R0.3	25	15	75	10
LCR100250005SN2	10	R0.5	25	15	75	10
LCR100250010SN2	10	R1.0	25	15	75	10
LCR120300003SN2	12	R0.3	30	18	80	12
LCR120300005SN2	12	R0.5	30	18	80	12
LCR120300010SN2	12	R1.0	30	18	80	12

■ GCR-SN2 Series



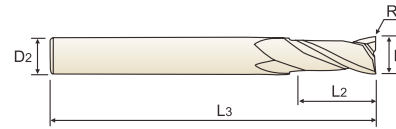
- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length of Cut L2	Overall Length L3	Shank Dia D2
GCR002004R02SN2	0.2	R0.02	0.4	40	4
GCR002004005SN2	0.2	R0.05	0.4	40	4
GCR003006R02SN2	0.3	R0.02	0.6	40	4
GCR003006005SN2	0.3	R0.05	0.6	40	4
GCR004008005SN2	0.4	R0.05	0.8	40	4
GCR004008001SN2	0.4	R0.1	0.8	40	4
GCR005010005SN2	0.5	R0.05	1	40	4
GCR005010001SN2	0.5	R0.1	1	40	4
GCR006012005SN2	0.6	R0.05	1.2	40	4
GCR006012001SN2	0.6	R0.1	1.2	40	4
GCR006012002SN2	0.6	R0.2	1.2	40	4
GCR008016005SN2	0.8	R0.05	1.6	40	4
GCR008016001SN2	0.8	R0.1	1.6	40	4
GCR008016002SN2	0.8	R0.2	1.6	40	4
GCR001020005SN2	1.0	R0.05	2	50	6
GCR001020001SN2	1.0	R0.1	2	50	6
GCR001020002SN2	1.0	R0.2	2	50	6
GCR001020003SN2	1.0	R0.3	2	50	6
GCR012025005SN2	1.2	R0.05	2.5	50	6
GCR012025001SN2	1.2	R0.1	2.5	50	6
GCR012025002SN2	1.2	R0.2	2.5	50	6
GCR012025003SN2	1.2	R0.3	2.5	50	6
GCR015030R05SN2	1.5	R0.05	3	50	6
GCR015030001SN2	1.5	R0.1	3	50	6
GCR015030002SN2	1.5	R0.2	3	50	6
GCR015030003SN2	1.5	R0.3	3	50	6
GCR015030005SN2	1.5	R0.5	3	50	6
GCR020050001SN2	2.0	R0.1	5	50	6
GCR020050002SN2	2.0	R0.2	5	50	6
GCR020050003SN2	2.0	R0.3	5	50	6
GCR020050004SN2	2.0	R0.4	5	50	6
GCR020050005SN2	2.0	R0.5	5	50	6
GCR025070001SN2	2.5	R0.1	7	60	6
GCR025070002SN2	2.5	R0.2	7	60	6
GCR025070003SN2	2.5	R0.3	7	60	6
GCR025070005SN2	2.5	R0.5	7	60	6



■ GCR-SN2 Series

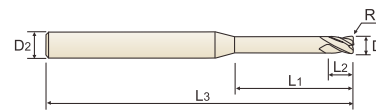
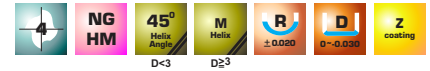


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length of Cut L2	Overall Length L3	Shank Dia D2
GCR030080001SN2	3.0	R0.1	8	60	6
GCR030080002SN2	3.0	R0.2	8	60	6
GCR030080003SN2	3.0	R0.3	8	60	6
GCR030080005SN2	3.0	R0.5	8	60	6
GCR040100001SN2	4.0	R0.1	10	70	6
GCR040100002SN2	4.0	R0.2	10	70	6
GCR040100003SN2	4.0	R0.3	10	70	6
GCR040100005SN2	4.0	R0.5	10	70	6
GCR040100010SN2	4.0	R1.0	10	70	6
GCR060150001SN2	6.0	R0.1	15	90	6
GCR060150002SN2	6.0	R0.2	15	90	6
GCR060150003SN2	6.0	R0.3	15	90	6
GCR060150005SN2	6.0	R0.5	15	90	6
GCR060150010SN2	6.0	R1.0	15	90	6
GCR080200001SN2	8.0	R0.1	20	100	8
GCR080200002SN2	8.0	R0.2	20	100	8
GCR080200003SN2	8.0	R0.3	20	100	8
GCR080200005SN2	8.0	R0.5	20	100	8
GCR080200010SN2	8.0	R1.0	20	100	8
GCR080200020SN2	8.0	R2.0	20	100	8
GCR100250002SN2	10.0	R0.2	25	100	10
GCR100250003SN2	10.0	R0.3	25	100	10
GCR100250005SN2	10.0	R0.5	25	100	10
GCR100250010SN2	10.0	R1.0	25	100	10
GCR100250020SN2	10.0	R2.0	25	100	10
GCR120300002SN2	12.0	R0.2	30	110	12
GCR120300003SN2	12.0	R0.3	30	110	12
GCR120300005SN2	12.0	R0.5	30	110	12
GCR120300010SN2	12.0	R1.0	30	110	12
GCR120300020SN2	12.0	R2.0	30	110	12

■ LCR-SN4 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

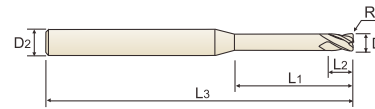
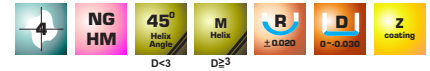
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR001R05030SN4	1.0	R0.05	3	2	45	4
LCR001R05040SN4	1.0	R0.05	4	2	45	4
LCR001R05060SN4	1.0	R0.05	6	2	45	4
LCR001R05080SN4	1.0	R0.05	8	2	45	4
LCR001R05100SN4	1.0	R0.05	10	2	45	4
LCR001R05120SN4	1.0	R0.05	12	2	45	4
LCR001R05160SN4	1.0	R0.05	16	2	45	4
LCR001001030SN4	1.0	R0.1	3	2	45	4
LCR001001040SN4	1.0	R0.1	4	2	45	4
LCR001001060SN4	1.0	R0.1	6	2	45	4
LCR001001080SN4	1.0	R0.1	8	2	45	4
LCR001001100SN4	1.0	R0.1	10	2	45	4
LCR001001120SN4	1.0	R0.1	12	2	45	4
LCR001001160SN4	1.0	R0.1	16	2	45	4
LCR001002030SN4	1.0	R0.2	3	2	45	4
LCR001002040SN4	1.0	R0.2	4	2	45	4
LCR001002060SN4	1.0	R0.2	6	2	45	4
LCR001002080SN4	1.0	R0.2	8	2	45	4
LCR001002100SN4	1.0	R0.2	10	2	45	4
LCR001002120SN4	1.0	R0.2	12	2	45	4
LCR001002160SN4	1.0	R0.2	16	2	45	4
LCR001003030SN4	1.0	R0.3	3	2	45	4
LCR001003040SN4	1.0	R0.3	4	2	45	4
LCR001003060SN4	1.0	R0.3	6	2	45	4
LCR001003080SN4	1.0	R0.3	8	2	45	4
LCR001003100SN4	1.0	R0.3	10	2	45	4
LCR001003120SN4	1.0	R0.3	12	2	45	4
LCR001003160SN4	1.0	R0.3	16	2	45	4
LCR012001030SN4	1.2	R0.1	3	2	45	4
LCR012001040SN4	1.2	R0.1	4	2	45	4
LCR012001060SN4	1.2	R0.1	6	2	45	4
LCR012001080SN4	1.2	R0.1	8	2	45	4
LCR012001100SN4	1.2	R0.1	10	2	45	4
LCR012001120SN4	1.2	R0.1	12	2	45	4
LCR012001160SN4	1.2	R0.1	16	2	45	4
LCR012002030SN4	1.2	R0.2	3	2	45	4
LCR012002040SN4	1.2	R0.2	4	2	45	4
LCR012002060SN4	1.2	R0.2	6	2	45	4
LCR012002080SN4	1.2	R0.2	8	2	45	4
LCR012002100SN4	1.2	R0.2	10	2	45	4
LCR012002120SN4	1.2	R0.2	12	2	45	4
LCR012002160SN4	1.2	R0.2	16	2	45	4



4 Flutes Long Neck Radius End Mills LCR-SN4

■ LCR-SN4 Series

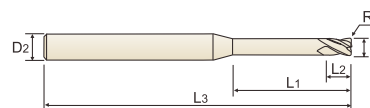
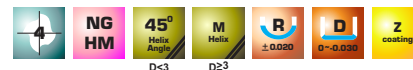


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR012003030SN4	1.2	R0.3	3	2	45	4
LCR012003040SN4	1.2	R0.3	4	2	45	4
LCR012003060SN4	1.2	R0.3	6	2	45	4
LCR012003080SN4	1.2	R0.3	8	2	45	4
LCR012003100SN4	1.2	R0.3	10	2	45	4
LCR012003120SN4	1.2	R0.3	12	2	45	4
LCR012003160SN4	1.2	R0.3	16	2	45	4
LCR015001040SN4	1.5	R0.1	4	2.5	45	4
LCR015001060SN4	1.5	R0.1	6	2.5	45	4
LCR015001080SN4	1.5	R0.1	8	2.5	45	4
LCR015001100SN4	1.5	R0.1	10	2.5	45	4
LCR015001120SN4	1.5	R0.1	12	2.5	45	4
LCR015001160SN4	1.5	R0.1	16	2.5	45	4
LCR015002040SN4	1.5	R0.2	4	2.5	45	4
LCR015002060SN4	1.5	R0.2	6	2.5	45	4
LCR015002080SN4	1.5	R0.2	8	2.5	45	4
LCR015002100SN4	1.5	R0.2	10	2.5	45	4
LCR015002120SN4	1.5	R0.2	12	2.5	45	4
LCR015002160SN4	1.5	R0.2	16	2.5	45	4
LCR015003040SN4	1.5	R0.3	4	2.5	45	4
LCR015003060SN4	1.5	R0.3	6	2.5	45	4
LCR015003080SN4	1.5	R0.3	8	2.5	45	4
LCR015003100SN4	1.5	R0.3	10	2.5	45	4
LCR015003120SN4	1.5	R0.3	12	2.5	45	4
LCR015003160SN4	1.5	R0.3	16	2.5	45	4
LCR015005040SN4	1.5	R0.5	4	2.5	45	4
LCR015005060SN4	1.5	R0.5	6	2.5	45	4
LCR015005080SN4	1.5	R0.5	8	2.5	45	4
LCR015005100SN4	1.5	R0.5	10	2.5	45	4
LCR015005120SN4	1.5	R0.5	12	2.5	45	4
LCR015005160SN4	1.5	R0.5	16	2.5	45	4
LCR020001040SN4	2.0	R0.1	4	3	45	4
LCR020001060SN4	2.0	R0.1	6	3	45	4
LCR020001080SN4	2.0	R0.1	8	3	45	4
LCR020001100SN4	2.0	R0.1	10	3	45	4
LCR020001120SN4	2.0	R0.1	12	3	45	4
LCR020001160SN4	2.0	R0.1	16	3	45	4
LCR020001200SN4	2.0	R0.1	20	3	45	4
LCR020001260SN4	2.0	R0.1	26	3	45	4

■ LCR-SN4 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

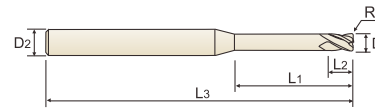
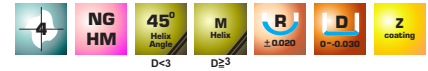
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR020002040SN4	2.0	R0.2	4	3	45	4
LCR020002060SN4	2.0	R0.2	6	3	45	4
LCR020002080SN4	2.0	R0.2	8	3	45	4
LCR020002100SN4	2.0	R0.2	10	3	45	4
LCR020002120SN4	2.0	R0.2	12	3	45	4
LCR020002160SN4	2.0	R0.2	16	3	45	4
LCR020002200SN4	2.0	R0.2	20	3	45	4
LCR020002260SN4	2.0	R0.2	26	3	55	4
LCR020003040SN4	2.0	R0.3	4	3	45	4
LCR020003060SN4	2.0	R0.3	6	3	45	4
LCR020003080SN4	2.0	R0.3	8	3	45	4
LCR020003100SN4	2.0	R0.3	10	3	45	4
LCR020003120SN4	2.0	R0.3	12	3	45	4
LCR020003160SN4	2.0	R0.3	16	3	45	4
LCR020003200SN4	2.0	R0.3	20	3	45	4
LCR020003260SN4	2.0	R0.3	26	3	55	4
LCR020005040SN4	2.0	R0.5	4	3	45	4
LCR020005060SN4	2.0	R0.5	6	3	45	4
LCR020005080SN4	2.0	R0.5	8	3	45	4
LCR020005100SN4	2.0	R0.5	10	3	45	4
LCR020005120SN4	2.0	R0.5	12	3	45	4
LCR020005160SN4	2.0	R0.5	16	3	45	4
LCR020005200SN4	2.0	R0.5	20	3	45	4
LCR020005260SN4	2.0	R0.5	26	3	55	4
LCR025001080SN4	2.5	R0.1	8	3.5	55	4
LCR025001100SN4	2.5	R0.1	10	3.5	55	4
LCR025001120SN4	2.5	R0.1	12	3.5	55	4
LCR025001160SN4	2.5	R0.1	16	3.5	55	4
LCR025001200SN4	2.5	R0.1	20	3.5	55	4
LCR025001260SN4	2.5	R0.1	26	3.5	55	4
LCR025002080SN4	2.5	R0.2	8	3.5	55	4
LCR025002100SN4	2.5	R0.2	10	3.5	55	4
LCR025002120SN4	2.5	R0.2	12	3.5	55	4
LCR025002160SN4	2.5	R0.2	16	3.5	55	4
LCR025002200SN4	2.5	R0.2	20	3.5	55	4
LCR025002260SN4	2.5	R0.2	26	3.5	55	4
LCR025003080SN4	2.5	R0.3	8	3.5	55	4
LCR025003100SN4	2.5	R0.3	10	3.5	55	4
LCR025003120SN4	2.5	R0.3	12	3.5	55	4
LCR025003160SN4	2.5	R0.3	16	3.5	55	4
LCR025003200SN4	2.5	R0.3	20	3.5	55	4
LCR025003260SN4	2.5	R0.3	26	3.5	55	4



4 Flutes Long Neck Radius End Mills LCR-SN4

■ LCR-SN4 Series

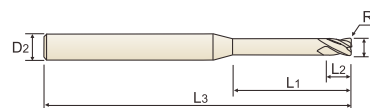
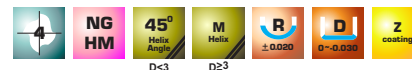


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR025005080SN4	2.5	R0.5	8	3.5	55	4
LCR025005100SN4	2.5	R0.5	10	3.5	55	4
LCR025005120SN4	2.5	R0.5	12	3.5	55	4
LCR025005160SN4	2.5	R0.5	16	3.5	55	4
LCR025005200SN4	2.5	R0.5	20	3.5	55	4
LCR025005260SN4	2.5	R0.5	26	3.5	55	4
LCR030001080SN4	3.0	R0.1	8	4	55	6
LCR030001100SN4	3.0	R0.1	10	4	55	6
LCR030001120SN4	3.0	R0.1	12	4	55	6
LCR030001160SN4	3.0	R0.1	16	4	55	6
LCR030001200SN4	3.0	R0.1	20	4	60	6
LCR030001260SN4	3.0	R0.1	26	4	65	6
LCR030001300SN4	3.0	R0.1	30	4	70	6
LCR030001360SN4	3.0	R0.1	36	4	70	6
LCR030002080SN4	3.0	R0.2	8	4	55	6
LCR030002100SN4	3.0	R0.2	10	4	55	6
LCR030002120SN4	3.0	R0.2	12	4	55	6
LCR030002160SN4	3.0	R0.2	16	4	55	6
LCR030002200SN4	3.0	R0.2	20	4	60	6
LCR030002260SN4	3.0	R0.2	26	4	65	6
LCR030002300SN4	3.0	R0.2	30	4	70	6
LCR030002360SN4	3.0	R0.2	36	4	70	6
LCR030003080SN4	3.0	R0.3	8	4	55	6
LCR030003100SN4	3.0	R0.3	10	4	55	6
LCR030003120SN4	3.0	R0.3	12	4	55	6
LCR030003160SN4	3.0	R0.3	16	4	55	6
LCR030003200SN4	3.0	R0.3	20	4	60	6
LCR030003260SN4	3.0	R0.3	26	4	65	6
LCR030003300SN4	3.0	R0.3	30	4	70	6
LCR030003360SN4	3.0	R0.3	36	4	70	6
LCR030005080SN4	3.0	R0.5	8	4	55	6
LCR030005100SN4	3.0	R0.5	10	4	55	6
LCR030005120SN4	3.0	R0.5	12	4	55	6
LCR030005160SN4	3.0	R0.5	16	4	55	6
LCR030005200SN4	3.0	R0.5	20	4	60	6
LCR030005260SN4	3.0	R0.5	26	4	65	6
LCR030005300SN4	3.0	R0.5	30	4	70	6
LCR030005360SN4	3.0	R0.5	36	4	70	6

■ LCR-SN4 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

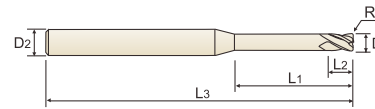
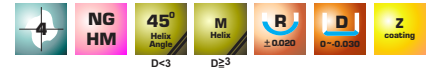
Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR030010080SN4	3.0	R1.0	8	4	55	6
LCR030010100SN4	3.0	R1.0	10	4	55	6
LCR030010120SN4	3.0	R1.0	12	4	55	6
LCR030010160SN4	3.0	R1.0	16	4	55	6
LCR030010200SN4	3.0	R1.0	20	4	60	6
LCR030010260SN4	3.0	R1.0	26	4	65	6
LCR030010300SN4	3.0	R1.0	30	4	70	6
LCR030010360SN4	3.0	R1.0	36	4	70	6
LCR040001100SN4	4.0	R0.1	10	6	55	6
LCR040001120SN4	4.0	R0.1	12	6	55	6
LCR040001160SN4	4.0	R0.1	16	6	55	6
LCR040001200SN4	4.0	R0.1	20	6	60	6
LCR040001260SN4	4.0	R0.1	26	6	65	6
LCR040001300SN4	4.0	R0.1	30	6	70	6
LCR040001360SN4	4.0	R0.1	36	6	70	6
LCR040001400SN4	4.0	R0.1	40	6	80	6
LCR040002100SN4	4.0	R0.2	10	6	55	6
LCR040002120SN4	4.0	R0.2	12	6	55	6
LCR040002160SN4	4.0	R0.2	16	6	55	6
LCR040002200SN4	4.0	R0.2	20	6	60	6
LCR040002260SN4	4.0	R0.2	26	6	65	6
LCR040002300SN4	4.0	R0.2	30	6	70	6
LCR040002360SN4	4.0	R0.2	36	6	70	6
LCR040002400SN4	4.0	R0.2	40	6	80	6
LCR040003100SN4	4.0	R0.3	10	6	55	6
LCR040003120SN4	4.0	R0.3	12	6	55	6
LCR040003160SN4	4.0	R0.3	16	6	55	6
LCR040003200SN4	4.0	R0.3	20	6	60	6
LCR040003260SN4	4.0	R0.3	26	6	65	6
LCR040003300SN4	4.0	R0.3	30	6	70	6
LCR040003360SN4	4.0	R0.3	36	6	70	6
LCR040003400SN4	4.0	R0.3	40	6	80	6
LCR040005100SN4	4.0	R0.5	10	6	55	6
LCR040005120SN4	4.0	R0.5	12	6	55	6
LCR040005160SN4	4.0	R0.5	16	6	55	6
LCR040005200SN4	4.0	R0.5	20	6	60	6
LCR040005260SN4	4.0	R0.5	26	6	65	6
LCR040005300SN4	4.0	R0.5	30	6	70	6
LCR040005360SN4	4.0	R0.5	36	6	70	6
LCR040005400SN4	4.0	R0.5	40	6	80	6



4 Flutes Long Neck Radius End Mills LCR-SN4

■ LCR-SN4 Series

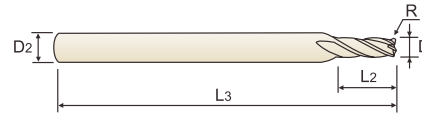
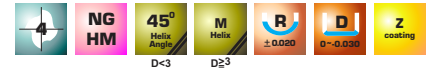


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LCR040010100SN4	4.0	R1.0	10	6	55	6
LCR040010120SN4	4.0	R1.0	12	6	55	6
LCR040010160SN4	4.0	R1.0	16	6	55	6
LCR040010200SN4	4.0	R1.0	20	6	60	6
LCR040010260SN4	4.0	R1.0	26	6	65	6
LCR040010300SN4	4.0	R1.0	30	6	70	6
LCR040010360SN4	4.0	R1.0	36	6	70	6
LCR040010400SN4	4.0	R1.0	40	6	80	6
LCR060001200SN4	6.0	R0.1	20	9	60	6
LCR060001400SN4	6.0	R0.1	40	9	80	6
LCR060002200SN4	6.0	R0.2	20	9	60	6
LCR060002300SN4	6.0	R0.2	30	9	80	6
LCR060003200SN4	6.0	R0.3	20	9	60	6
LCR060003300SN4	6.0	R0.3	30	9	80	6
LCR060005200SN4	6.0	R0.5	20	9	60	6
LCR060005300SN4	6.0	R0.5	30	9	80	6
LCR060010200SN4	6.0	R1.0	20	9	60	6
LCR060010300SN4	6.0	R1.0	30	9	80	6
LCR080002220SN4	8.0	R0.2	22	12	70	8
LCR080002350SN4	8.0	R0.2	35	12	90	8
LCR080003220SN4	8.0	R0.3	22	12	70	8
LCR080003350SN4	8.0	R0.3	35	12	90	8
LCR080005220SN4	8.0	R0.5	22	12	70	8
LCR080005350SN4	8.0	R0.5	35	12	90	8
LCR080010220SN4	8.0	R1.0	22	12	70	8
LCR080010350SN4	8.0	R1.0	35	12	90	8
LCR100002075SN4	10.0	R0.2		15	75	10
LCR100003250SN4	10.0	R0.3	25	15	75	10
LCR100005250SN4	10.0	R0.5	25	15	75	10
LCR100010250SN4	10.0	R1.0	25	15	75	10
LCR100015250SN4	10.0	R1.5	25	15	75	10
LCR100020250SN4	10.0	R2.0	25	15	75	10
LCR120003300SN4	12.0	R0.3	30	18	80	12
LCR120005300SN4	12.0	R0.5	30	18	80	12
LCR120010300SN4	12.0	R1.0	30	18	80	12
LCR120015300SN4	12.0	R1.5	30	18	80	12
LCR120020300SN4	12.0	R2.0	30	18	80	12

■ GCR-SN4 Series



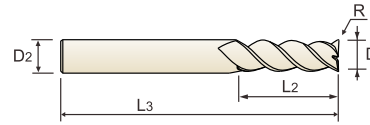
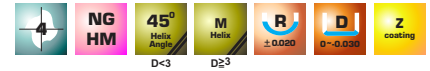
- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length of Cut L2	Overall Length L3	Shank Dia D2
GCR001020R05SN4	1.0	R0.05	2	50	6
GCR001020001SN4	1.0	R0.1	2	50	6
GCR001020002SN4	1.0	R0.2	2	50	6
GCR001020003SN4	1.0	R0.3	2	50	6
GCR012025R05SN4	1.2	R0.05	2.5	50	6
GCR012025001SN4	1.2	R0.1	2.5	50	6
GCR012025002SN4	1.2	R0.2	2.5	50	6
GCR012025003SN4	1.2	R0.3	2.5	50	6
GCR015030R05SN4	1.5	R0.05	3	50	6
GCR015030001SN4	1.5	R0.1	3	50	6
GCR015030002SN4	1.5	R0.2	3	50	6
GCR015030003SN4	1.5	R0.3	3	50	6
GCR015030005SN4	1.5	R0.5	3	50	6
GCR020050001SN4	2.0	R0.1	5	50	6
GCR020050002SN4	2.0	R0.2	5	50	6
GCR020050003SN4	2.0	R0.3	5	50	6
GCR020050005SN4	2.0	R0.5	5	50	6
GCR025070001SN4	2.5	R0.1	7	60	6
GCR025070002SN4	2.5	R0.2	7	60	6
GCR025070003SN4	2.5	R0.3	7	60	6
GCR025070005SN4	2.5	R0.5	7	60	6
GCR030080001SN4	3.0	R0.1	8	60	6
GCR030080002SN4	3.0	R0.2	8	60	6
GCR030080003SN4	3.0	R0.3	8	60	6
GCR030080005SN4	3.0	R0.5	8	60	6
GCR030080010SN4	3.0	R1.0	8	60	6
GCR040100001SN4	4.0	R0.1	10	70	6
GCR040100002SN4	4.0	R0.2	10	70	6
GCR040100003SN4	4.0	R0.3	10	70	6
GCR040100005SN4	4.0	R0.5	10	70	6
GCR040100010SN4	4.0	R1.0	10	70	6



■ GCR-SN4 Series

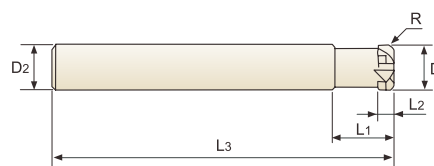
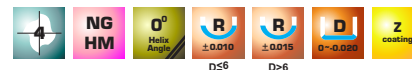


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length of Cut L2	Overall Length L3	Shank Dia D2
GCR060150002SN4	6.0	R0.2	15	90	6
GCR060150003SN4	6.0	R0.3	15	90	6
GCR060150005SN4	6.0	R0.5	15	90	6
GCR060150010SN4	6.0	R1.0	15	90	6
GCR060150015SN4	6.0	R1.5	15	90	6
GCR060150020SN4	6.0	R2.0	15	90	6
GCR080200002SN4	8.0	R0.2	20	100	8
GCR080200003SN4	8.0	R0.3	20	100	8
GCR080200005SN4	8.0	R0.5	20	100	8
GCR080200010SN4	8.0	R1.0	20	100	8
GCR080200015SN4	8.0	R1.5	20	100	8
GCR080200020SN4	8.0	R2.0	20	100	8
GCR100250002SN4	10.0	R0.2	25	100	10
GCR100250003SN4	10.0	R0.3	25	100	10
GCR100250005SN4	10.0	R0.5	25	100	10
GCR100250010SN4	10.0	R1.0	25	100	10
GCR100250015SN4	10.0	R1.5	25	100	10
GCR100250020SN4	10.0	R2.0	25	100	10
GCR120300003SN4	12.0	R0.3	30	110	12
GCR120300005SN4	12.0	R0.5	30	110	12
GCR120300010SN4	12.0	R1.0	30	110	12
GCR120300015SN4	12.0	R1.5	30	110	12
GCR120300020SN4	12.0	R2.0	30	110	12

■ HFR-SN4 Series



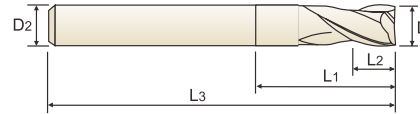
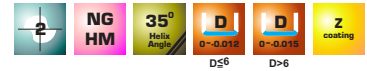
- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over Hrc50.
- Suitable for high speed cutting due to short lengths of cut and overall lengths.

Unit:mm

Part Number	Diameter D	Corner Radius R	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
HFR015015005SN4	1.5	R0.5	4	1.5	50	6
HFR020020005SN4	2.0	R0.5	6	2	50	6
HFR030030005SN4	3.0	R0.5	8	3	60	6
HFR040040005SN4	4.0	R0.5	10	4	60	6
HFR060060003SN4	6.0	R0.3	12	6	60	6
HFR060060005SN4	6.0	R0.5	12	6	60	6
HFR060060010SN4	6.0	R1.0	12	6	60	6
HFR080080003SN4	8.0	R0.3	16	8	70	8
HFR080080005SN4	8.0	R0.5	16	8	70	8
HFR080080010SN4	8.0	R1.0	16	8	70	8
HFR080080020SN4	8.0	R2.0	16	8	70	8
HFR100200003SN4	10.0	R0.3	20	10	75	10
HFR100200005SN4	10.0	R0.5	20	10	75	10
HFR100200010SN4	10.0	R1.0	20	10	75	10
HFR100200020SN4	10.0	R2.0	20	10	75	10
HFR120250005SN4	12.0	R0.5	25	12	80	12
HFR120250010SN4	12.0	R1.0	25	12	80	12
HFR120250020SN4	12.0	R2.0	25	12	80	12
HFR160160005SN4	16.0	R0.5	30	16	100	16
HFR160160010SN4	16.0	R1.0	30	16	100	16
HFR200020005SN4	20.0	R0.5	35	20	100	20
HFR200020010SN4	20.0	R1.0	35	20	100	20



■ LEM-SN2 Series

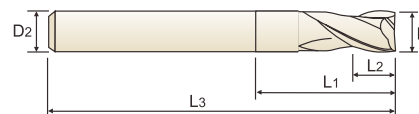
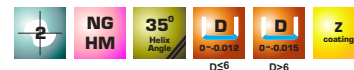


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over Hrc50.
- Available various length of cut and suitable for rib processing.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LEM001D15003SN2	0.1	0.3	0.15	40	4
LEM001D15005SN2	0.1	0.5	0.15	40	4
LEM002003006SN2	0.2	0.6	0.3	40	4
LEM002003010SN2	0.2	1.0	0.3	40	4
LEM002003015SN2	0.2	1.5	0.3	40	4
LEM003D45010SN2	0.3	1.0	0.45	40	4
LEM003D45020SN2	0.3	2.0	0.45	40	4
LEM003D45030SN2	0.3	3.0	0.45	40	4
LEM003D45040SN2	0.3	4.0	0.45	40	4
LEM003D45050SN2	0.3	5.0	0.45	40	4
LEM004006010SN2	0.4	1.0	0.6	40	4
LEM004006015SN2	0.4	1.5	0.6	40	4
LEM004006020SN2	0.4	2.0	0.6	40	4
LEM004006030SN2	0.4	3.0	0.6	40	4
LEM004006040SN2	0.4	4.0	0.6	40	4
LEM004006050SN2	0.4	5.0	0.6	40	4
LEM005007010SN2	0.5	1.0	0.7	40	4
LEM005007015SN2	0.5	1.5	0.7	40	4
LEM005007020SN2	0.5	2.0	0.7	40	4
LEM005007030SN2	0.5	3.0	0.7	40	4
LEM005007040SN2	0.5	4.0	0.7	40	4
LEM005007060SN2	0.5	6.0	0.7	40	4
LEM005007080SN2	0.5	8.0	0.7	40	4
LEM006009020SN2	0.6	2.0	0.9	40	4
LEM006009030SN2	0.6	3.0	0.9	40	4
LEM006009040SN2	0.6	4.0	0.9	40	4
LEM006009060SN2	0.6	6.0	0.9	40	4
LEM006009080SN2	0.6	8.0	0.9	40	4
LEM006009100SN2	0.6	10.0	0.9	40	4
LEM008012020SN2	0.8	2.0	1.2	40	4
LEM008012030SN2	0.8	3.0	1.2	40	4
LEM008012040SN2	0.8	4.0	1.2	40	4
LEM008012060SN2	0.8	6.0	1.2	40	4
LEM008012080SN2	0.8	8.0	1.2	40	4
LEM008012100SN2	0.8	10.0	1.2	40	4
LEM008012120SN2	0.8	12.0	1.2	40	4

LEM-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

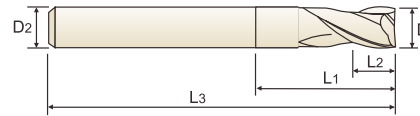
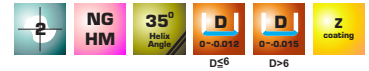
Unit:mm

Part Number	Diameter D	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LEM001015030SN2	1.0	3	1.5	45	4
LEM001015040SN2	1.0	4	1.5	45	4
LEM001015050SN2	1.0	5	1.5	45	4
LEM001015060SN2	1.0	6	1.5	45	4
LEM001015080SN2	1.0	8	1.5	45	4
LEM001015100SN2	1.0	10	1.5	45	4
LEM001015120SN2	1.0	12	1.5	45	4
LEM001015140SN2	1.0	14	1.5	45	4
LEM001015160SN2	1.0	16	1.5	45	4
LEM001015200SN2	1.0	20	1.5	55	4
LEM001015260SN2	1.0	26	1.5	55	4
LEM012018040SN2	1.2	4	1.8	45	4
LEM012018060SN2	1.2	6	1.8	45	4
LEM012018080SN2	1.2	8	1.8	45	4
LEM012018100SN2	1.2	10	1.8	45	4
LEM012018120SN2	1.2	12	1.8	45	4
LEM012018160SN2	1.2	16	1.8	45	4
LEM015023040SN2	1.5	4	2.3	45	4
LEM015023060SN2	1.5	6	2.3	45	4
LEM015023080SN2	1.5	8	2.3	45	4
LEM015023100SN2	1.5	10	2.3	45	4
LEM015023120SN2	1.5	12	2.3	45	4
LEM015023140SN2	1.5	14	2.3	45	4
LEM015023160SN2	1.5	16	2.3	45	4
LEM015023200SN2	1.5	20	2.3	55	4
LEM015023260SN2	1.5	26	2.3	55	4
LEM020030060SN2	2.0	6	3	45	4
LEM020030080SN2	2.0	8	3	45	4
LEM020030100SN2	2.0	10	3	45	4
LEM020030120SN2	2.0	12	3	45	4
LEM020030140SN2	2.0	14	3	50	4
LEM020030160SN2	2.0	16	3	50	4
LEM020030200SN2	2.0	20	3	60	4
LEM020030260SN2	2.0	26	3	60	4
LEM020030300SN2	2.0	30	3	70	4



2 Flutes Long Neck End Mills LEM-SN2

■ LEM-SN2 Series

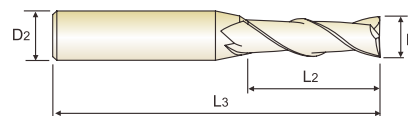
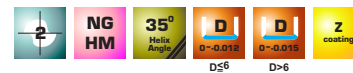


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.
- More toughness and reduction of vibration under 1.0mm diameter end mills at high speed cutting due to two step taper neck.

Unit:mm

Part Number	Diameter D	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LEM030045080SN2	3.0	8	4.5	55	6
LEM030045100SN2	3.0	10	4.5	55	6
LEM030045120SN2	3.0	12	4.5	55	6
LEM030045160SN2	3.0	16	4.5	55	6
LEM030045200SN2	3.0	20	4.5	60	6
LEM030045260SN2	3.0	26	4.5	60	6
LEM030045300SN2	3.0	30	4.5	70	6
LEM030045350SN2	3.0	35	4.5	75	6
LEM030045400SN2	3.0	40	4.5	80	6
LEM040060100SN2	4.0	10	6	55	6
LEM040060120SN2	4.0	12	6	55	6
LEM040060160SN2	4.0	16	6	55	6
LEM040060200SN2	4.0	20	6	60	6
LEM040060260SN2	4.0	26	6	60	6
LEM040060300SN2	4.0	30	6	70	6
LEM040060350SN2	4.0	35	6	75	6
LEM040060400SN2	4.0	40	6	80	6
LEM060090150SN2	6.0	15	9	60	6
LEM060090200SN2	6.0	20	9	80	6
LEM060090300SN2	6.0	30	9	100	6
LEM080120200SN2	8.0	20	12	70	8
LEM080120300SN2	8.0	30	12	80	8
LEM080120400SN2	8.0	40	12	100	8
LEM100250250SN2	10.0	25	15	75	10
LEM100350350SN2	10.0	35	15	80	10
LEM120300300SN2	12.0	30	12	80	12
LEM120400400SN2	12.0	40	12	100	12

■ LNF-SN2 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

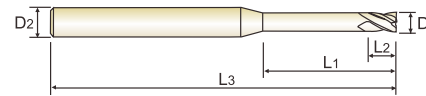
Unit:mm

Part Number	Diameter D	Length of Cut L2	Overall Length L3	Shank Dia D2
LNF001001040SN2	0.1	0.1	40	4
LNF001002040SN2	0.1	0.2	40	4
LNF002002040SN2	0.2	0.2	40	4
LNF002004040SN2	0.2	0.4	40	4
LNF003003040SN2	0.3	0.3	40	4
LNF003006040SN2	0.3	0.6	40	4
LNF004004040SN2	0.4	0.4	40	4
LNF004008040SN2	0.4	0.8	40	4
LNF005005040SN2	0.5	0.5	40	4
LNF005010040SN2	0.5	1	40	4
LNF006006040SN2	0.6	0.6	40	4
LNF006012040SN2	0.6	1.2	40	4
LNF008008040SN2	0.8	0.8	40	4
LNF008016040SN2	0.8	1.6	40	4
LNF001025050SN2	1.0	2.5	50	6
LNF012030050SN2	1.2	3	50	6
LNF015040050SN2	1.5	4	50	6
LNF020060050SN2	2.0	6	50	6
LNF025070050SN2	2.5	7	50	6
LNF030080060SN2	3.0	8	60	6
LNF040100060SN2	4.0	10	60	6
LNF050130060SN2	5.0	13	60	6
LNF060150060SN2	6.0	15	60	6
LNF080200065SN2	8.0	20	65	8
LNF100250070SN2	10.0	25	70	10
LNF120300080SN2	12.0	30	80	12



4 Flutes Long Neck End Mills LEM-SN4

LEM-SN4 Series

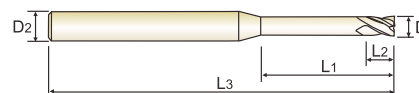
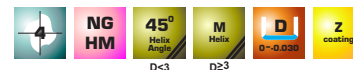


- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LEM001015030SN4	1.0	3	1.5	45	4
LEM001015040SN4	1.0	4	1.5	45	4
LEM001015050SN4	1.0	5	1.5	45	4
LEM001015060SN4	1.0	6	1.5	45	4
LEM001015080SN4	1.0	8	1.5	45	4
LEM001015100SN4	1.0	10	1.5	45	4
LEM001015120SN4	1.0	12	1.5	45	4
LEM001015160SN4	1.0	16	1.5	45	4
LEM012018040SN4	1.2	4	1.8	45	4
LEM012018060SN4	1.2	6	1.8	45	4
LEM012018080SN4	1.2	8	1.8	45	4
LEM012018100SN4	1.2	10	1.8	45	4
LEM012018120SN4	1.2	12	1.8	45	4
LEM012018160SN4	1.2	16	1.8	45	4
LEM015023040SN4	1.5	4	2.3	45	4
LEM015023060SN4	1.5	6	2.3	45	4
LEM015023080SN4	1.5	8	2.3	45	4
LEM015023100SN4	1.5	10	2.3	45	4
LEM015023120SN4	1.5	12	2.3	45	4
LEM015023140SN4	1.5	14	2.3	45	4
LEM015023160SN4	1.5	16	2.3	45	4
LEM015023200SN4	1.5	20	2.3	55	4
LEM020030060SN4	2.0	6	3	45	4
LEM020030080SN4	2.0	8	3	45	4
LEM020030100SN4	2.0	10	3	45	4
LEM020030120SN4	2.0	12	3	45	4
LEM020030140SN4	2.0	14	3	50	4
LEM020030160SN4	2.0	16	3	50	4
LEM020030200SN4	2.0	20	3	60	4
LEM020030260SN4	2.0	26	3	60	4
LEM020030300SN4	2.0	30	3	70	4

LEM-SN4 Series



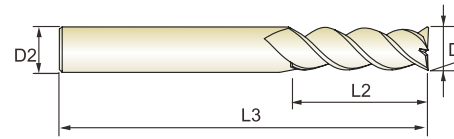
- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Length Below Shank (L1)	Length of Cut L2	Overall Length L3	Shank Dia D2
LEM030008080SN4	3	8	4.5	55	6
LEM030010100SN4	3	10	4.5	55	6
LEM030012120SN4	3	12	4.5	55	6
LEM030016160SN4	3	16	4.5	55	6
LEM030020200SN4	3	20	4.5	60	6
LEM030026260SN4	3	26	4.5	60	6
LEM030030300SN4	3	30	4.5	70	6
LEM040060100SN4	4	10	6	55	6
LEM040060120SN4	4	12	6	55	6
LEM040060160SN4	4	16	6	55	6
LEM040060200SN4	4	20	6	60	6
LEM040060260SN4	4	26	6	60	6
LEM040060300SN4	4	30	6	70	6
LEM040060350SN4	4	35	6	75	6
LEM040060400SN4	4	40	6	80	6
LEM060015150SN4	6	15	9	60	6
LEM060020200SN4	6	20	9	80	6
LEM060030300SN4	6	30	9	100	6
LEM080120200SN4	8	20	12	70	8
LEM080120300SN4	8	30	12	80	8
LEM080120400SN4	8	40	12	100	8
LEM100250250SN4	10	25	15	75	10
LEM100350350SN4	10	35	15	80	10
LEM120300300SN4	12	30	12	80	12
LEM120400400SN4	12	40	12	100	12



■ GEM-SN4 Series



- Excellent wear resistance due to new coating and outstanding protection for chipping of cutting edges due to special configurations.
- Suitable for high hardened steels (materials) HRC50 and over HRC50.

Unit:mm

Part Number	Diameter D	Length of Cut L2	Overall Length L3	Shank Dia D2
GEM001025050SN4	1.0	2.5	50	6
GEM015040050SN4	1.5	4	50	6
GEM020060050SN4	2.0	6	50	6
GEM030080060SN4	3.0	8	60	6
GEM040100060SN4	4.0	10	60	6
GEM050130060SN4	5.0	13	60	6
GEM060150060SN4	6.0	15	60	6
GEM080200065SN4	8.0	20	65	8
GEM100250070SN4	10.0	25	70	10
GEM120300080SN4	12.0	30	80	12

■ LBN-SN2 Series

2 Flutes Long Neck Ball

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
0.1	0.2	50000	890	0.003	45000	820	0.003	35000	570	0.002	31500	480	0.002
0.1	0.3	50000	890	0.003	45000	820	0.003	35000	570	0.002	31500	480	0.002
0.1	0.5	50000	890	0.003	45000	820	0.003	35000	570	0.002	31500	480	0.002
0.2	0.6	50000	1050	0.004	45000	960	0.004	35000	670	0.003	31500	570	0.003
0.2	1	50000	1050	0.004	45000	960	0.003	35000	670	0.003	31500	570	0.003
0.2	1.5	45000	940	0.003	40500	860	0.003	31500	600	0.003	28350	510	0.003
0.3	1	50000	1350	0.005	45000	1200	0.005	35000	840	0.004	31500	700	0.004
0.3	2	45000	1210	0.005	40500	1080	0.004	31500	750	0.004	28350	630	0.004
0.3	3	45000	1210	0.004	40500	1080	0.004	31500	750	0.003	28350	630	0.003
0.4	1	50000	1700	0.008	45000	1500	0.007	35000	1050	0.006	31500	890	0.006
0.4	2	50000	1700	0.007	45000	1500	0.006	35000	1050	0.006	31500	890	0.006
0.4	3	45000	1530	0.006	40500	1350	0.006	31500	940	0.005	28350	800	0.005
0.4	4	45000	1530	0.006	40500	1350	0.005	31500	940	0.004	28350	800	0.004
0.5	1	50000	2100	0.010	45000	1900	0.009	35000	1300	0.008	31500	1100	0.008
0.5	2	50000	2100	0.009	45000	1900	0.008	35000	1300	0.007	31500	1100	0.007
0.5	4	45000	1890	0.008	40500	1710	0.007	31500	1170	0.006	28350	990	0.006
0.5	6	40000	1680	0.007	36000	1520	0.006	28000	1040	0.006	25200	880	0.006
0.6	2	50000	2500	0.011	45000	2200	0.010	35000	1600	0.009	31500	1400	0.009
0.6	3	50000	2500	0.011	45000	2200	0.010	35000	1600	0.009	31500	1400	0.009
0.6	4	45000	2250	0.010	40500	1980	0.009	31500	1440	0.008	28350	1260	0.008
0.6	6	45000	2250	0.008	40500	1980	0.008	31500	1440	0.007	28350	1260	0.007
0.6	8	40000	2000	0.007	36000	1760	0.006	28000	1280	0.006	25200	1120	0.006
0.6	10	30000	1750	0.006	27000	1540	0.005	21000	1120	0.005	18900	980	0.005
0.8	2	50000	3300	0.016	45000	3000	0.014	35000	2100	0.013	31500	1800	0.013
0.8	3	50000	3300	0.014	45000	3000	0.013	35000	2100	0.012	31500	1800	0.012
0.8	4	50000	3300	0.014	45000	3000	0.013	35000	2100	0.012	31500	1800	0.012
0.8	6	45000	2970	0.013	40500	2700	0.012	31500	1890	0.010	28350	1620	0.010
0.8	8	45000	2970	0.011	40500	2700	0.010	31500	1890	0.009	28350	1620	0.009
0.8	10	40000	2640	0.011	36000	2400	0.010	28000	1680	0.009	25200	1440	0.009
1.0	3	50000	4200	0.020	45000	3800	0.018	35000	2600	0.016	35000	2300	0.016
1.0	4	50000	4200	0.018	45000	3800	0.016	35000	2600	0.014	35000	2300	0.014
1.0	5	50000	4200	0.018	45000	3800	0.016	35000	2600	0.014	35000	2300	0.014
1.0	6	45000	3780	0.016	40500	3420	0.014	31500	2340	0.013	31500	2070	0.013
1.0	8	45000	3780	0.016	40500	3420	0.014	31500	2340	0.013	31500	2070	0.013
1.0	10	45000	3780	0.014	40500	3420	0.013	31500	2340	0.011	31500	2070	0.011
1.0	12	40000	3360	0.014	36000	3040	0.013	28000	2080	0.011	28000	1840	0.011
1.2	4	48000	4300	0.022	43000	3850	0.019	34000	2700	0.017	30600	2300	0.017
1.2	6	48000	4300	0.022	43000	3850	0.019	34000	2700	0.017	30600	2300	0.017
1.2	8	43200	3870	0.019	38700	3460	0.017	30600	2430	0.015	27540	2070	0.015
1.2	10	43200	3870	0.017	38700	3460	0.015	30600	2430	0.013	27540	2070	0.013
1.2	12	43200	3870	0.017	38700	3460	0.015	30600	2430	0.013	27540	2070	0.013

End Mill Cutting Formula

1. Cutting Speed : $V = (\pi \times D \times N) / 100$ (m/min)

2. Feed Per Tooth : $f_z = F / (Z \times N)$ (mm/rev.)

V - (m/min)
D - (mm)
N - (RPM)
fz - (mm/rev.)
Z - (Flute)

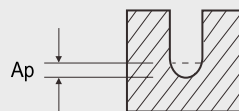


■ PNB-SN2 Series

2 Flutes Long Neck Ball

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
1.5	4	48000	4500	0.030	43000	4000	0.027	33000	2700	0.024	29700	2300	0.024
1.5	6	48000	4500	0.027	43000	4000	0.024	33000	2700	0.022	29700	2300	0.022
1.5	8	43200	4050	0.024	38700	3600	0.022	29700	2430	0.019	26730	2070	0.019
1.5	10	43200	4050	0.024	38700	3600	0.022	29700	2430	0.019	26730	2070	0.019
1.5	12	43200	4050	0.024	38700	3600	0.022	29700	2430	0.019	26730	2070	0.019
2.0	6	47800	4800	0.040	40000	4000	0.036	32000	2800	0.032	28500	2300	0.032
2.0	8	47800	4800	0.036	40000	4000	0.032	32000	2800	0.029	28500	2300	0.029
2.0	10	47800	4800	0.036	40000	4000	0.032	32000	2800	0.029	28500	2300	0.029
2.0	12	43020	4320	0.032	36000	3600	0.029	28800	2520	0.026	25650	2070	0.026
2.0	14	43020	4320	0.032	36000	3600	0.029	28800	2520	0.026	25650	2070	0.026
2.0	16	43020	4320	0.032	36000	3600	0.029	28800	2520	0.026	25650	2070	0.026
3.0	8	31800	5300	0.060	26500	4000	0.054	21000	2800	0.048	19000	2300	0.048
3.0	10	31800	5300	0.054	26500	4000	0.049	21000	2800	0.043	19000	2300	0.043
3.0	12	31800	5300	0.054	26500	4000	0.049	21000	2800	0.043	19000	2300	0.043
3.0	14	31800	5300	0.054	26500	4000	0.049	21000	2800	0.043	19000	2300	0.043
3.0	16	28620	4770	0.048	23850	3600	0.043	18900	2520	0.038	17100	2070	0.038
3.0	20	28620	4770	0.048	23850	3600	0.043	18900	2520	0.038	17100	2070	0.038
4.0	10	23900	5300	0.080	20000	4000	0.072	16000	2800	0.064	14500	2300	0.064
4.0	12	23900	5300	0.080	20000	4000	0.072	16000	2800	0.064	14500	2300	0.064
4.0	16	23900	5300	0.072	20000	4000	0.065	16000	2800	0.058	14500	2300	0.058
4.0	20	23900	5300	0.072	20000	4000	0.065	16000	2800	0.058	14500	2300	0.058
4.0	26	21510	4770	0.064	18000	3600	0.058	14400	2520	0.051	13050	2070	0.051
6.0	15	13400	4100	0.120	11000	3100	0.108	8800	2150	0.096	8000	1750	0.096
6.0	20	13400	4100	0.108	11000	3100	0.097	8800	2150	0.086	8000	1750	0.086
6.0	30	13400	4100	0.108	11000	3100	0.097	8800	2150	0.086	8000	1750	0.086
6.0	32	12060	3690	0.096	9900	2790	0.086	7920	1930	0.077	7200	1575	0.077
8.0	15	10700	3500	0.160	9000	2700	0.144	7000	1850	0.128	6500	1550	0.128
8.0	20	10700	3500	0.160	9000	2700	0.144	7000	1850	0.128	6500	1550	0.128
8.0	30	10700	3500	0.144	9000	2700	0.130	7000	1850	0.115	6500	1550	0.115
10.0	25	8900	3100	0.200	7500	2400	0.180	5800	1650	0.160	5300	1380	0.160
10.0	35	8900	3100	0.180	7500	2400	0.162	5800	1650	0.144	5300	1380	0.144
12.0	25	6680	2500	0.240	5600	1900	0.216	4400	1250	0.192	4000	1050	0.192
12.0	40	6680	2500	0.216	5600	1900	0.194	4400	1250	0.173	4000	1050	0.173

(Depth of cut per one pass)

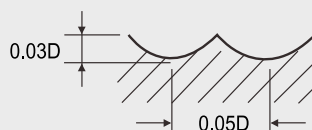


RPM = rev./min.
Feed = mm/min.

■ GBN-SN2 Series

2 Flutes Ball

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65		HRc65 ~ HRc 70	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
0.2	50000	1050	45000	960	35000	674	31500	570
0.3	50000	1350	45000	1200	35000	840	31500	700
0.4	50000	1700	45000	1500	35000	1050	31500	890
0.5	50000	2100	45000	1900	35000	1300	31500	1100
0.6	50000	2500	45000	2200	35000	1600	31500	1400
0.8	50000	3300	45000	3000	35000	2100	31500	1800
1.0	50000	4200	45000	3800	35000	2600	35000	2300
1.2	48000	4300	43000	3850	34000	2700	30600	2300
1.5	48000	4500	43000	4000	33000	2700	29700	2300
2.0	47800	4800	40000	4000	32000	2800	28500	2300
3.0	31800	5300	26500	4000	21000	2800	19000	2300
4.0	23900	5300	20000	4000	16000	2800	14500	2300
5.0	17800	4900	15000	3750	11500	2550	10500	2100
6.0	13400	4100	11000	3100	8800	2150	8000	1750
8.0	10700	3500	9000	2700	7000	1850	6500	1550
10.0	8900	3100	7500	2400	5800	1650	5300	1380
12.0	6680	2500	5600	1900	4400	1250	4000	1050



RPM = rev./min.
Feed = mm/min.



■ LCR-SN2 Series

2 Flutes Long Neck Radius

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
0.2	0.5	45000	160	0.010	40000	130	0.009	25000	65	0.008	20000	45	0.005
0.2	1	45000	160	0.010	40000	130	0.009	25000	65	0.008	20000	45	0.005
0.3	1	45000	190	0.015	40000	160	0.014	25000	70	0.012	20000	50	0.008
0.3	2	45000	170	0.013	40000	145	0.012	25000	65	0.010	20000	45	0.007
0.4	1	45000	250	0.020	40000	200	0.018	25000	80	0.016	20000	55	0.010
0.4	2	45000	250	0.020	40000	200	0.018	25000	80	0.016	20000	55	0.010
0.4	3	45000	220	0.018	40000	180	0.016	25000	70	0.014	20000	50	0.009
0.5	1	45000	320	0.025	40000	250	0.023	25000	95	0.020	20000	60	0.010
0.5	2	45000	320	0.023	40000	250	0.020	25000	95	0.018	20000	60	0.009
0.5	3	40500	290	0.020	36000	220	0.018	22500	85	0.016	18000	50	0.008
0.6	2	45000	400	0.027	40000	320	0.024	25000	120	0.022	20000	70	0.011
0.6	4	40500	360	0.024	36000	290	0.022	22500	110	0.019	18000	65	0.010
0.6	6	40500	360	0.021	36000	290	0.019	22500	110	0.017	18000	65	0.008
0.8	2	45000	500	0.040	30000	330	0.036	19000	130	0.032	16000	80	0.016
0.8	4	45000	500	0.036	30000	330	0.032	19000	130	0.029	16000	80	0.014
0.8	6	40500	450	0.032	27000	300	0.029	17100	110	0.026	14400	70	0.013
0.8	8	40500	450	0.028	27000	300	0.025	17100	110	0.022	14400	70	0.011
1.0	3	38000	650	0.050	25500	400	0.045	16000	150	0.040	12500	100	0.020
1.0	4	38000	650	0.045	25500	400	0.041	16000	150	0.036	12500	100	0.018
1.0	6	34200	590	0.040	22950	360	0.036	14400	140	0.032	11250	90	0.016
2.0	6	26000	780	0.100	17500	470	0.090	11000	180	0.080	9500	130	0.040
2.0	8	26000	780	0.090	17500	470	0.081	11000	180	0.072	9500	130	0.036
2.0	10	26000	780	0.090	17500	470	0.081	11000	180	0.072	9500	130	0.036
2.0	12	23400	700	0.080	15750	430	0.072	9900	160	0.064	8550	120	0.032
3.0	8	17300	780	0.150	11500	470	0.135	7500	180	0.120	6400	130	0.060
3.0	10	17300	780	0.135	11500	470	0.122	7500	180	0.108	6400	130	0.054
3.0	12	17300	780	0.135	11500	470	0.122	7500	180	0.108	6400	130	0.054
3.0	16	15570	700	0.120	10350	430	0.108	6750	160	0.096	5760	120	0.048
4.0	10	13200	810	0.200	8800	500	0.180	5600	200	0.160	4750	140	0.080
4.0	12	13200	810	0.200	8800	500	0.180	5600	200	0.160	4750	140	0.080
4.0	16	13200	810	0.180	8800	500	0.162	5600	200	0.144	4750	140	0.072
4.0	20	13200	810	0.180	8800	500	0.162	5600	200	0.144	4750	140	0.072
6.0	20	10350	880	0.270	6900	550	0.243	4200	210	0.216	3700	150	0.108
8.0	22	7800	830	0.400	5200	500	0.360	3200	200	0.320	2800	140	0.160
10.0	25	6150	780	0.500	4100	470	0.450	2550	180	0.400	2200	130	0.200
12.0	30	5250	780	0.600	3500	470	0.540	2100	180	0.480	1860	130	0.240

(Depth of cut per one pass)

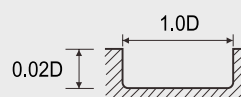
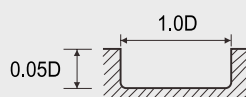


RPM = rev./min.
Feed = mm/min.

■ GCR-SN2 Series

2 Flutes Radius - Slotting

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65		HRc65 ~ HRc 70	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
0.5	45000	225	40000	175	25000	65	20000	40
0.6	45000	285	40000	225	25000	85	20000	50
0.8	45000	350	30000	235	19000	90	16000	55
1.0	38000	456	25500	288	16000	108	12500	70
2.0	26000	544	17500	336	11000	128	9500	92
3.0	17300	544	11500	336	7500	128	6400	92
4.0	13200	560	8800	352	5600	136	4750	94
5.0	12500	644	8300	400	5100	144	4450	106
6.0	10350	616	6900	384	4200	144	3700	104
8.0	7800	576	5200	356	3200	132	2800	96
10.0	6150	544	4100	332	2550	124	2200	90
12.0	5250	544	3500	332	2100	124	1860	90

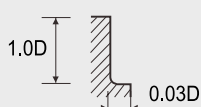


RPM = rev./min.
Feed = mm/min.

■ GCR-SN2 Series

2 Flutes Radius - Side Cutting

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65		HRc65 ~ HRc 70	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
0.5	45000	160	40000	125	25000	45	20000	30
0.6	45000	200	40000	160	25000	60	20000	35
0.8	40000	245	30000	165	19000	65	16000	40
1.0	38000	656	25500	408	16000	152	12500	100
2.0	26000	776	17500	480	11000	184	9500	132
3.0	17300	776	11500	480	7500	184	6400	132
4.0	13200	800	8800	500	5600	192	4750	136
5.0	12500	920	8300	568	5100	208	4450	152
6.0	10350	880	6900	552	4200	204	3700	148
8.0	7800	824	5200	508	3200	188	2800	136
10.0	6150	776	4100	472	2550	176	2200	128
12.0	5250	776	3500	472	2100	176	1860	128



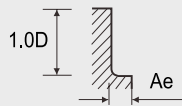
RPM = rev./min.
Feed = mm/min.



■ LCR-SN4 Series

4 Flutes Long Neck Radius

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
3.0	8	17300	1000	0.090	11500	670	0.081	7500	256	0.072	6400	184	0.072
3.0	10	17300	1000	0.081	11500	670	0.073	7500	256	0.065	6400	184	0.065
3.0	12	17300	1000	0.081	11500	670	0.073	7500	256	0.065	6400	184	0.065
3.0	16	14013	900	0.072	10350	600	0.065	6750	230	0.058	5760	165	0.058
4.0	10	13200	1040	0.120	8800	700	0.108	5600	268	0.096	4750	192	0.096
4.0	12	13200	1040	0.120	8800	700	0.108	5600	268	0.096	4750	192	0.096
4.0	16	13200	1040	0.108	8800	700	0.097	5600	268	0.086	4750	192	0.086
4.0	20	13200	1040	0.108	8800	700	0.097	5600	268	0.086	4750	192	0.086
6.0	20	10350	1120	0.162	6900	760	0.146	4200	280	0.130	3700	208	0.130
8.0	22	7800	1080	0.240	5200	720	0.216	3200	264	0.192	2800	192	0.192
10.0	25	6150	1000	0.300	4100	670	0.270	2550	248	0.240	2200	176	0.240
12.0	30	5250	1000	0.360	3500	670	0.324	2100	240	0.288	1860	176	0.288

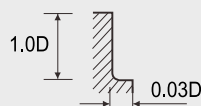


RPM = rev./min.
Feed = mm/min.

■ GCR-SN4 Series

4 Flutes Radius

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRC35 ~ HRc 45		HRC45 ~ HRc 55		HRC55 ~ HRc 65		HRC65 ~ HRc 70	
	OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM
1.0	38000	840	25500	568	16000	216	12500	140
2.0	26000	1000	17500	672	11000	256	9500	184
3.0	17300	1000	11500	672	7500	256	6400	184
4.0	13200	1040	8800	704	5600	268	4750	192
5.0	12500	1200	8300	800	5100	296	4450	216
6.0	10350	1120	6900	760	4200	280	3700	208
8.0	7800	1080	5200	720	3200	264	2800	192
10.0	6150	1008	4100	672	2550	248	2200	176
12.0	5250	1008	3500	672	2100	240	1860	176



RPM = rev./min.
Feed = mm/min.

■ HFR-SN4 Series

4 Flutes High Feed Radius - Normal Speed

Workpiece	Prehardened Steels		Hardened Steels							
Hardness	HRC40		HRC40 ~ HRC 50		HRC50 ~ HRC 55		HRC55 ~ HRC 60		HRC60 ~ HRC 65	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
1.0	27000	6500	19000	3800	11000	2200	6400	1000	4400	1100
1.5	18000	6500	12000	3700	7500	2200	4300	1000	2900	1100
2.0	13500	6500	9550	3800	5500	2200	3200	1000	2200	550
3.0	9550	6500	6900	4150	4550	2750	2850	1150	1900	610
4.0	7950	7000	5750	4600	4000	3200	2550	1350	1750	700
6.0	5800	7650	4100	4900	2900	3500	1850	1850	1350	795
8.0	4350	7650	3050	4900	2200	3500	1400	1850	995	795
10.0	3500	7650	2450	4900	1750	3500	1100	1850	795	795
12.0	2900	7650	2050	4900	1450	3500	925	1850	665	795

RPM = rev./min.
Feed = mm/min.

■ HFR-SN4 Series

4 Flutes High Feed Radius - High Speed

Workpiece	Prehardened Steels		Hardened Steels							
Hardness	HRC40		HRC40 ~ HRC 50		HRC50 ~ HRC 55		HRC55 ~ HRC 60		HRC60 ~ HRC 65	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
1.0	48000	15000	44000	9800	30000	7850	22000	4450	17400	2450
1.5	32000	15000	30000	9800	20000	7850	15000	4450	11500	2450
2.0	29000	15000	22000	9800	15000	7850	11000	4450	8700	2450
3.0	22000	16000	17000	10000	12500	8000	9500	4600	6900	2500
4.0	17000	17500	13000	12000	11000	9200	8000	5500	5600	2900
6.0	13500	18500	10500	13800	9000	11000	6400	6400	4500	3600
8.0	10000	18500	8000	14000	6800	11000	4800	6700	3400	4100
10.0	8000	18500	6400	14000	5400	11000	3800	6800	2700	3800
12.0	6600	18500	5300	14000	4500	11000	3200	7000	2250	3600

RPM = rev./min.
Feed = mm/min.



■ LEM-SN2 Series

2 Flutes Long Neck Square

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
0.1	0.3	45000	100	0.009	40000	85	0.008	33000	40	0.007	26400	25	0.003
0.1	0.5	45000	100	0.009	40000	85	0.008	33000	40	0.007	26400	25	0.003
0.2	0.6	45000	115	0.010	40000	95	0.009	33000	45	0.008	26400	30	0.004
0.2	1	45000	115	0.009	40000	95	0.008	33000	45	0.007	26400	30	0.004
0.2	1.5	40500	100	0.008	36000	85	0.007	29700	40	0.006	23760	27	0.003
0.3	1	45000	140	0.014	40000	115	0.012	25000	50	0.011	20000	35	0.005
0.3	2	40500	125	0.012	36000	100	0.011	22500	45	0.010	18000	31	0.005
0.3	3	40500	125	0.011	36000	100	0.009	22500	45	0.008	18000	31	0.004
0.4	1	45000	180	0.020	40000	140	0.018	25000	55	0.016	20000	40	0.008
0.4	2	45000	180	0.018	40000	140	0.016	25000	55	0.014	20000	40	0.007
0.4	3	40500	160	0.016	36000	125	0.014	22500	49	0.013	18000	36	0.006
0.4	4	40500	160	0.014	36000	125	0.013	22500	49	0.011	18000	36	0.006
0.5	1	45000	280	0.025	40000	220	0.023	25000	85	0.020	20000	60	0.010
0.5	2	45000	280	0.023	40000	220	0.020	25000	85	0.018	20000	60	0.009
0.5	4	40500	250	0.020	36000	195	0.018	22500	76	0.016	18000	54	0.008
0.5	6	36000	220	0.018	32000	175	0.016	20000	68	0.014	16000	48	0.007
0.6	2	45000	360	0.027	40000	285	0.024	25000	105	0.022	20000	75	0.011
0.6	3	45000	360	0.027	40000	285	0.024	25000	105	0.022	20000	75	0.011
0.6	4	40500	320	0.024	36000	255	0.022	22500	94	0.019	18000	67	0.010
0.6	6	40500	320	0.021	36000	255	0.019	22500	94	0.017	18000	67	0.008
0.6	8	36000	285	0.018	32000	225	0.016	20000	84	0.014	16000	60	0.007
0.6	10	27000	250	0.015	24000	200	0.014	15000	73	0.012	12000	52	0.006
0.8	2	40000	440	0.040	30000	295	0.036	19000	110	0.032	15200	80	0.016
0.8	3	40000	440	0.036	30000	295	0.032	19000	110	0.029	15200	80	0.014
0.8	4	40000	440	0.036	30000	295	0.032	19000	110	0.029	15200	80	0.014
0.8	6	36000	395	0.032	27000	265	0.029	17100	99	0.026	13680	72	0.013
0.8	8	36000	395	0.028	27000	265	0.025	17100	99	0.022	13680	72	0.011
0.8	10	32000	350	0.028	24000	235	0.025	15200	88	0.022	12160	64	0.011
1.0	3	38000	570	0.050	25500	360	0.045	16000	135	0.040	12500	85	0.020
1.0	4	38000	570	0.045	25500	360	0.041	16000	135	0.036	12500	85	0.018
1.0	5	38000	570	0.045	25500	360	0.041	16000	135	0.036	12500	85	0.018
1.0	6	34200	510	0.040	22950	320	0.036	14400	120	0.032	11250	76	0.016
1.0	8	34200	510	0.040	22950	320	0.036	14400	120	0.032	11250	76	0.016
1.0	10	34200	510	0.035	22950	320	0.032	14400	120	0.028	11250	76	0.014
1.0	12	30400	455	0.035	20400	285	0.032	12800	108	0.028	10000	68	0.014
2.0	6	26000	680	0.100	17500	420	0.090	11000	160	0.080	9500	115	0.040
2.0	8	26000	680	0.090	17500	420	0.081	11000	160	0.072	9500	115	0.036
2.0	10	26000	680	0.090	17500	420	0.081	11000	160	0.072	9500	115	0.036
2.0	12	23400	610	0.080	15750	375	0.072	9900	144	0.064	8550	103	0.032
2.0	14	23400	610	0.080	15750	375	0.072	9900	144	0.064	8550	103	0.032
2.0	16	23400	610	0.080	15750	375	0.072	9900	144	0.064	8550	103	0.032

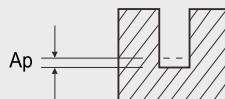
RPM = rev./min.
Feed = mm/min.

■ LEM-SN2 Series

2 Flutes Long Neck Square

Workpiece		Prehardened Steels			Hardened Steels								
Hardness		HRc35 ~ HRc 45			HRc45 ~ HRc 55			HRc55 ~ HRc 65			HRc65 ~ HRc 70		
OD	Flute Length	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)	RPM	Feed	Ap(mm)
3.0	8	17300	680	0.150	11500	420	0.135	7500	160	0.120	6400	115	0.060
3.0	10	17300	680	0.135	11500	420	0.122	7500	160	0.108	6400	115	0.054
3.0	12	17300	680	0.135	11500	420	0.122	7500	160	0.108	6400	115	0.054
3.0	16	15570	610	0.120	10350	375	0.108	6750	144	0.096	5760	103.5	0.048
3.0	20	15570	610	0.120	10350	375	0.108	6750	144	0.096	5760	103.5	0.048
4.0	10	13200	700	0.200	8800	440	0.180	5600	170	0.160	4750	118	0.080
4.0	12	13200	700	0.200	8800	440	0.180	5600	170	0.160	4750	118	0.080
4.0	16	13200	700	0.180	8800	440	0.162	5600	170	0.144	4750	118	0.072
4.0	20	13200	700	0.180	8800	440	0.162	5600	170	0.144	4750	118	0.072
4.0	26	11880	630	0.160	7920	395	0.144	5040	153	0.128	4275	106	0.064
6.0	15	10350	770	0.300	6900	480	0.270	4200	180	0.240	3700	130	0.120
6.0	20	10350	770	0.270	6900	480	0.243	4200	180	0.216	3700	130	0.108
6.0	30	10350	770	0.270	6900	480	0.243	4200	180	0.216	3700	130	0.108
8.0	20	7800	720	0.400	5200	445	0.360	3200	165	0.320	2800	120	0.160
8.0	30	7800	720	0.360	5200	445	0.324	3200	165	0.288	2800	120	0.144
8.0	40	7800	720	0.360	5200	445	0.324	3200	165	0.288	2800	120	0.144
10.0	25	6150	680	0.500	4100	415	0.450	2550	155	0.400	2200	112	0.200
10.0	35	6150	680	0.450	4100	415	0.405	2550	155	0.360	2200	112	0.180
12.0	30	5250	680	0.600	3500	415	0.540	2100	155	0.480	1860	112	0.240
12.0	40	5250	680	0.540	3500	415	0.486	2100	155	0.432	1860	112	0.216

(Depth of cut per one pass)



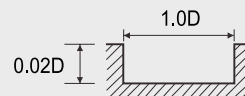
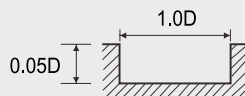
RPM = rev./min.
Feed = mm/min.



■ LNF-SN2 Series

2 Flutes Square - Slotting

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65		HRc65 ~ HRc 70	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
0.2	45000	115	40000	95	33000	45	26400	30
0.3	45000	140	40000	115	25000	50	20000	35
0.4	45000	180	40000	140	25000	55	20000	40
0.5	45000	280	40000	220	25000	85	20000	60
0.6	45000	360	40000	285	25000	105	20000	75
0.8	40000	440	30000	295	19000	110	15200	80
0.9	39000	520	27800	330	17500	125	14000	90
1.0	38000	570	25500	360	16000	135	12500	85
2.0	26000	680	17500	420	11000	160	9500	115
3.0	17300	680	11500	420	7500	160	6400	115
4.0	13200	700	8800	440	5600	170	4750	118
5.0	12500	805	8300	500	5100	180	4450	132
6.0	10350	770	6900	480	4200	180	3700	130
8.0	7800	720	5200	445	3200	165	2800	120
10.0	6150	680	4100	415	2550	155	2200	112
12.0	5250	680	3500	415	2100	155	1860	112

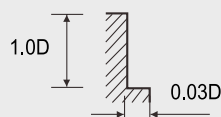


RPM = rev./min.
Feed = mm/min.

■ LNF-SN2 Series

2 Flutes Square - Side Cutting

Workpiece	Prehardened Steels		Hardened Steels					
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65		HRc65 ~ HRc 70	
OD	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
1.0	38000	820	25500	510	16000	190	12500	125
2.0	26000	970	17500	600	11000	230	9500	165
3.0	17300	970	11500	600	7500	230	6400	165
4.0	13200	1000	8800	625	5600	240	4750	170
5.0	12500	1150	8300	710	5100	260	4450	190
6.0	10350	1100	6900	690	4200	255	3700	185
8.0	7800	1030	5200	635	3200	235	2800	170
10.0	6150	970	4100	590	2550	220	2200	160
12.0	5250	970	3500	590	2100	220	1860	160



RPM = rev./min.
Feed = mm/min.

■ GEM-SN4 Series

4 Flutes Square

Workpiece	Prehardened Steels		Hardened Steels			
Hardness	HRc35 ~ HRc 45		HRc45 ~ HRc 55		HRc55 ~ HRc 65	
OD	RPM	Feed	RPM	Feed	RPM	Feed
1.0	48000	1480	38000	1050	25500	710
2.0	33300	1750	26000	1250	17500	840
3.0	21800	1750	17300	1250	11500	840
4.0	16700	1800	13200	1300	8800	880
5.0	15700	2000	12500	1500	8300	1000
6.0	13100	1950	10350	1400	6900	950
8.0	9880	1880	7800	1350	5200	900
10.0	7800	1750	6150	1260	4100	840
12.0	6650	1750	5250	1260	3500	840



RPM = rev./min.
Feed = mm/min.



Brisloy Tools India Private Limited
711, Tower - C, Business Zone
Nirvana Country, Sec - 50
Gurugram - 122018
INDIA
Phone +91 124 494 9505
tools@brisloy.com



<http://www.brisloy-tools.com>