



MG

HG
Coating

30

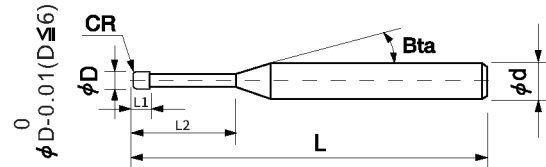
SD
0-0.003R
±0.005

Highly recommend/Recommend/Suggest

DIE STEEL	Grade
Carbon steels (S45C/S55C)	
Alloy steels (SK/SCM/SUS)	
Prehardened steels (NAK/HPM)	
Hardened steels (~55/~60/~70HRC)	★
SPECIAL MATERIAL	
Aluminum alloys	
Graphite	
Copper	
Plastics	
Carbon fiber	
Titanium alloys	
Heat resistant alloys	
Cemented carbide	
Hard brittle (non-metallic) material	

Specialty

- *Special coating + bar for high hard hardened materials;
- *Excellent surface finishing when processing flat surfaces and contours;
- *The large arc at the clearance avoids cutter damage;
- *Long life in cutting high hardness material of HRC48-65.



The shank taper angle shown is not an exact value and to avoid contact with the workpiece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the workpiece.

Total 83 models

Unit (mm)

Model Number	D Outside Diameter	Radius	L1 Length Of Cut	L2 Effective Length	Bta Shank Taper Angle	L Overall Length	T Number Of Flutes	D Shank Diameter	In Stock
SHHLR4-01001040	D1.0	R0.1	1.0	4	12°	50	4	4	○
SHHLR4-01001060	D1.0	R0.1	1.0	6	12°	50	4	4	○
SHHLR4-01001080	D1.0	R0.1	1.0	8	12°	50	4	4	○
SHHLR4-01001100	D1.0	R0.1	1.0	10	12°	50	4	4	○
SHHLR4-01001120	D1.0	R0.1	1.0	12	12°	50	4	4	○
SHHLR4-01001160	D1.0	R0.1	1.0	16	12°	50	4	4	○
SHHLR4-01002040	D1.0	R0.2	1.0	4	12°	50	4	4	○
SHHLR4-01002060	D1.0	R0.2	1.0	6	12°	50	4	4	○
SHHLR4-01002080	D1.0	R0.2	1.0	8	12°	50	4	4	○
SHHLR4-01002100	D1.0	R0.2	1.0	10	12°	50	4	4	○
SHHLR4-01002120	D1.0	R0.2	1.0	12	12°	50	4	4	○
SHHLR4-01002160	D1.0	R0.2	1.0	16	12°	50	4	4	○
SHHLR4-01501060	D1.5	R0.1	1.5	6	12°	50	4	4	○
SHHLR4-01501080	D1.5	R0.1	1.5	8	12°	50	4	4	○
SHHLR4-01501100	D1.5	R0.1	1.5	10	12°	50	4	4	○
SHHLR4-01501120	D1.5	R0.1	1.5	12	12°	50	4	4	○
SHHLR4-01501160	D1.5	R0.1	1.5	16	12°	50	4	4	○
SHHLR4-01502060	D1.5	R0.2	1.5	6	12°	50	4	4	○
SHHLR4-01502080	D1.5	R0.2	1.5	8	12°	50	4	4	○
SHHLR4-01502100	D1.5	R0.2	1.5	10	12°	75	4	4	○

Next page →

Model Number	D Outside Diameter	Radius	L1 Length Of Cut	L2 Effective Length	Bta Shank Taper Angle	L Overall Length	T Number Of Flutes	D Shank Diameter	In Stock
SHHLSR4-01502120	D1.5	R0.2	1.5	12	12°	50	4	4	○
SHHLSR4-01502160	D1.5	R0.2	1.5	16	12°	50	4	4	○
SHHLSR4-02001060	D2.0	R0.1	2.0	6	12°	50	4	4	○
SHHLSR4-02001080	D2.0	R0.1	2.0	8	12°	50	4	4	○
SHHLSR4-02001100	D2.0	R0.1	2.0	10	12°	50	4	4	○
SHHLSR4-02001120	D2.0	R0.1	2.0	12	12°	50	4	4	○
SHHLSR4-02001160	D2.0	R0.1	2.0	16	12°	50	4	4	○
SHHLSR4-02002060	D2.0	R0.2	2.0	6	12°	50	4	4	○
SHHLSR4-02002080	D2.0	R0.2	2.0	8	12°	50	4	4	○
SHHLSR4-02002100	D2.0	R0.2	2.0	10	12°	50	4	4	○
SHHLSR4-02002120	D2.0	R0.2	2.0	12	12°	50	4	4	○
SHHLSR4-02002160	D2.0	R0.2	2.0	16	12°	50	4	4	○
SHHLSR4-03001060	D3.0	R0.1	3.0	6	12°	50	4	4	○
SHHLSR4-03001080	D3.0	R0.1	3.0	8	12°	50	4	4	○
SHHLSR4-03001100	D3.0	R0.1	3.0	10	12°	50	4	4	○
SHHLSR4-03001120	D3.0	R0.1	3.0	12	12°	50	4	4	○
SHHLSR4-03001160	D3.0	R0.1	3.0	16	12°	50	4	4	○
SHHLSR4-03001200	D3.0	R0.1	3.0	20	12°	50	4	4	○
SHHLSR4-03002060	D3.0	R0.2	3.0	6	12°	50	4	4	○
SHHLSR4-03002080	D3.0	R0.2	3.0	8	12°	50	4	4	○
SHHLSR4-03002100	D3.0	R0.2	3.0	10	12°	50	4	4	○
SHHLSR4-03002120	D3.0	R0.2	3.0	12	12°	50	4	4	○
SHHLSR4-03002160	D3.0	R0.2	3.0	16	12°	50	4	4	○
SHHLSR4-03002200	D3.0	R0.2	3.0	20	12°	50	4	4	○
SHHLSR4-03005060	D3.0	R0.5	3.0	6	12°	50	4	4	○
SHHLSR4-03005080	D3.0	R0.5	3.0	8	12°	50	4	4	○
SHHLSR4-03005100	D3.0	R0.5	3.0	10	12°	50	4	4	○
SHHLSR4-03005120	D3.0	R0.5	3.0	12	12°	50	4	4	○
SHHLSR4-03005160	D3.0	R0.5	3.0	16	12°	50	4	4	○
SHHLSR4-03005200	D3.0	R0.5	3.0	20	12°	50	4	4	○
SHHLSR4-03001060-6	D3.0	R0.1	3.0	6	12°	60	4	6	○
SHHLSR4-03001080-6	D3.0	R0.1	3.0	8	12°	60	4	6	○
SHHLSR4-03001100-6	D3.0	R0.1	3.0	10	12°	60	4	6	○
SHHLSR4-03001120-6	D3.0	R0.1	3.0	12	12°	60	4	6	○
SHHLSR4-03001160-6	D3.0	R0.1	3.0	16	12°	60	4	6	○
SHHLSR4-03001200-6	D3.0	R0.1	3.0	20	12°	60	4	6	○

4 Flutes

Long Neck Radius

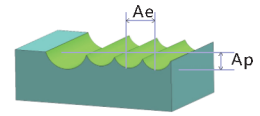
Next page →

Model Number	D Outside Diameter	Radius	L1 Length Of Cut	L2 Effective Length	Bta Shank Taper Angle	L Overall Length	T Number Of Flutes	D Shank Diameter	In Stock
SHHLSR4-03002060-6	D3.0	R0.2	3.0	6	12°	60	4	6	○
SHHLSR4-03002080-6	D3.0	R0.2	3.0	8	12°	60	4	6	○
SHHLSR4-03002100-6	D3.0	R0.2	3.0	10	12°	60	4	6	○
SHHLSR4-03002120-6	D3.0	R0.2	3.0	12	12°	60	4	6	○
SHHLSR4-03002160-6	D3.0	R0.2	3.0	16	12°	60	4	6	○
SHHLSR4-03002200-6	D3.0	R0.2	3.0	20	12°	60	4	6	○
SHHLSR4-03005060-6	D3.0	R0.5	3.0	6	12°	60	4	6	○
SHHLSR4-03005080-6	D3.0	R0.5	3.0	8	12°	60	4	6	○
SHHLSR4-03005100-6	D3.0	R0.5	3.0	10	12°	60	4	6	○
SHHLSR4-03005120-6	D3.0	R0.5	3.0	12	12°	60	4	6	○
SHHLSR4-03005160-6	D3.0	R0.5	3.0	16	12°	60	4	6	○
SHHLSR4-03005200-6	D3.0	R0.5	3.0	20	12°	60	4	6	○
SHHLSR4-04001080-6	D4.0	R0.1	4.0	8	12°	60	4	6	○
SHHLSR4-04001100-6	D4.0	R0.1	4.0	10	12°	60	4	6	○
SHHLSR4-04001120-6	D4.0	R0.1	4.0	12	12°	60	4	6	○
SHHLSR4-04001160-6	D4.0	R0.1	4.0	16	12°	60	4	6	○
SHHLSR4-04001200-6	D4.0	R0.1	4.0	20	12°	60	4	6	○
SHHLSR4-04002080-6	D4.0	R0.2	4.0	8	12°	60	4	6	○
SHHLSR4-04002100-6	D4.0	R0.2	4.0	10	12°	60	4	6	○
SHHLSR4-04002120-6	D4.0	R0.2	4.0	12	12°	60	4	6	○
SHHLSR4-04002160-6	D4.0	R0.2	4.0	16	12°	60	4	6	○
SHHLSR4-04002200-6	D4.0	R0.2	4.0	20	12°	60	4	6	○
SHHLSR4-04005080-6	D4.0	R0.5	4.0	8	12°	60	4	6	○
SHHLSR4-04005100-6	D4.0	R0.5	4.0	10	12°	60	4	6	○
SHHLSR4-04005120-6	D4.0	R0.5	4.0	12	12°	60	4	6	○
SHHLSR4-04005160-6	D4.0	R0.5	4.0	16	12°	60	4	6	○
SHHLSR4-04005200-6	D4.0	R0.5	4.0	20	12°	60	4	6	○

*New size added from this series.

Stocked items.

Cutting Parameter



Work Material			HRC48-55 hardened steel				HRC56-62 hardened steel				HRC63-70 hardened steel			
Diameter	Radius of Ball Nose	Effective Length (mm)	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth
D1.0	R0.1	4	21000	1800	0.04	0.3	18000	1500	0.03	0.25	14000	1100	0.02	0.2
D1.0	R0.1	6	16000	1400	0.02	0.3	14000	1200	0.01	0.25	11000	850	0.007	0.2
D1.0	R0.1	8	15000	1100	0.015	0.3	13000	900	0.008	0.25	10000	650	0.005	0.2
D1.0	R0.1	10	13000	800	0.01	0.3	11000	700	0.006	0.25	9000	500	0.005	0.2
D1.0	R0.2	4	21000	1800	0.04	0.3	18000	1500	0.03	0.25	14000	1100	0.02	0.2
D1.0	R0.2	6	16000	1400	0.02	0.3	14000	1200	0.01	0.25	11000	850	0.007	0.2
D1.0	R0.2	8	15000	1100	0.015	0.3	13000	900	0.008	0.25	10000	650	0.005	0.2
D1.0	R0.2	10	13000	800	0.01	0.3	11000	700	0.006	0.25	9000	500	0.005	0.2
D1.5	R0.1	6	19000	1800	0.045	0.5	16000	1500	0.3	0.4	13000	1100	0.02	0.3
D1.5	R0.1	8	16000	1500	0.04	0.5	14000	1300	0.025	0.4	11000	900	0.01	0.3
D1.5	R0.1	10	15000	1300	0.03	0.5	13000	1100	0.02	0.4	10000	750	0.01	0.3
D1.5	R0.1	12	13000	1100	0.03	0.5	11000	950	0.02	0.4	9000	650	0.007	0.3
D1.5	R0.1	16	11000	800	0.02	0.5	9000	700	0.007	0.4	7000	500	0.005	0.3
D1.5	R0.2	6	19000	1800	0.045	0.5	16000	1500	0.3	0.4	13000	1100	0.02	0.3
D1.5	R0.2	8	16000	1500	0.04	0.5	14000	1300	0.025	0.4	11000	900	0.01	0.3
D1.5	R0.2	10	15000	1300	0.03	0.5	13000	1100	0.02	0.4	10000	750	0.01	0.3
D1.5	R0.2	12	13000	1100	0.03	0.5	11000	950	0.02	0.4	9000	650	0.007	0.3
D1.5	R0.2	16	11000	800	0.02	0.5	9000	700	0.007	0.4	7000	500	0.005	0.3
D2.0	R0.1	6	18000	2100	0.06	0.6	15000	1800	0.05	0.5	12000	1300	0.03	0.35
D2.0	R0.1	8	16000	1800	0.05	0.6	14000	1500	0.04	0.5	11000	1100	0.02	0.35
D2.0	R0.1	10	14000	1500	0.05	0.6	13000	1300	0.03	0.5	10000	950	0.015	0.35
D2.0	R0.1	12	13000	1400	0.04	0.6	11000	1200	0.03	0.5	9000	850	0.01	0.35
D2.0	R0.1	16	11000	1100	0.03	0.6	9500	950	0.02	0.5	7500	650	0.007	0.35
D2.0	R0.2	6	18000	2100	0.06	0.6	15000	1800	0.05	0.5	12000	1300	0.03	0.35
D2.0	R0.2	8	16000	1800	0.05	0.6	14000	1500	0.04	0.5	11000	1100	0.02	0.35
D2.0	R0.2	10	14000	1500	0.05	0.6	13000	1300	0.03	0.5	10000	950	0.015	0.35
D2.0	R0.2	12	13000	1400	0.04	0.6	11000	1200	0.03	0.5	9000	850	0.01	0.35
D2.0	R0.2	16	11000	1100	0.03	0.6	9500	950	0.02	0.5	7500	650	0.007	0.35
D3.0	R0.1	6	13000	2100	0.1	0.8	11000	1800	0.07	0.7	9000	1300	0.05	0.6
D3.0	R0.1	8	11000	1800	0.1	0.8	9500	1500	0.07	0.7	7500	1100	0.05	0.6
D3.0	R0.1	10	11000	1700	0.09	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.1	12	11000	1600	0.08	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.1	16	10000	1500	0.07	0.8	8500	1300	0.05	0.7	7000	900	0.03	0.6
D3.0	R0.1	20	8000	1100	0.05	0.8	7000	950	0.04	0.7	5500	700	0.02	0.6
D3.0	R0.2	6	13000	2100	0.1	0.8	11000	1800	0.07	0.7	9000	1300	0.05	0.6
D3.0	R0.2	8	11000	1800	0.1	0.8	9500	1500	0.07	0.7	7500	1100	0.05	0.6
D3.0	R0.2	10	11000	1700	0.09	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.2	12	11000	1600	0.08	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.2	16	10000	1500	0.07	0.8	8500	1300	0.05	0.7	7000	900	0.03	0.6

4 Flutes

Long Neck Radius

Work Material			HRC48-55 hardened steel				HRC55-62 hardened steel				HRC62-70 hardened steel			
Diameter	Radius of Ball Nose	Effective Length (mm)	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth	(min-1) Speed	(mm/min) Feed	(mm) Axial depth	(mm) Radial depth
D3.0	R0.2	20	8000	1100	0.05	0.8	7000	950	0.04	0.7	5500	700	0.02	0.6
D3.0	R0.5	6	13000	2100	0.1	0.8	11000	1800	0.07	0.7	9000	1300	0.05	0.6
D3.0	R0.5	8	11000	1800	0.1	0.8	9500	1500	0.07	0.7	7500	1100	0.05	0.6
D3.0	R0.5	10	11000	1700	0.09	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.5	12	11000	1600	0.08	0.8	9500	1400	0.06	0.7	7500	1000	0.04	0.6
D3.0	R0.5	16	10000	1500	0.07	0.8	8500	1300	0.05	0.7	7000	900	0.03	0.6
D3.0	R0.5	20	8000	1100	0.05	0.8	7000	950	0.04	0.7	5500	700	0.02	0.6
D4.0	R0.1	8	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.1	10	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.1	12	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.1	16	8000	1800	0.1	1.2	7000	1500	0.06	1	5500	1100	0.05	0.8
D4.0	R0.1	20	7200	1500	0.09	1.2	6300	1300	0.06	1	5000	950	0.04	0.8
D4.0	R0.2	8	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.2	10	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.2	12	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.2	16	8000	1800	0.1	1.2	7000	1500	0.06	1	5500	1100	0.05	0.8
D4.0	R0.2	20	7200	1500	0.09	1.2	6300	1300	0.06	1	5000	950	0.04	0.8
D4.0	R0.5	8	0000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.5	10	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.5	12	10000	2100	0.15	1.2	8500	1800	0.08	1	7000	1300	0.06	0.8
D4.0	R0.5	16	8000	1800	0.1	1.2	7000	1500	0.06	1	5500	1100	0.05	0.8
D4.0	R0.5	20	7200	1500	0.09	1.2	6300	1300	0.06	1	5000	950	0.04	0.8

Milling Amount for Side Milling(mm)

Length of Cut Work Material	2.5D (Length of Cut=Diameter*2.5)	4D (Length of Cut=Diameter*4)
Below 45HRC	$a_e=0.07D$ $a_p=2D$	$a_e=0.07D$ $a_p=2D$
Above 45HRC	$a_e=0.03D$ $a_p=1.5D$	$a_e=0.03D$ $a_p=1.5D$

D : Diameter (mm)

 a_p : Axial Depth (mm) a_e : Radial Depth (mm)

Note:

- *Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed;
- *Recommend oil coolant for Stainless Steels and Heat Resistance Alloys;
- *Recommend using a non-contact measuring device to avoid damaging the precision tip point;
- *Decrease both spindle speed and feed rate proportionally in case of chattering;
- *When the material hardness is greater than HRC58 degrees, it is recommended to use air blow cooling for roughing and oil mist or air blow cooling for finishing.