

**PRODUCT
NEWS**

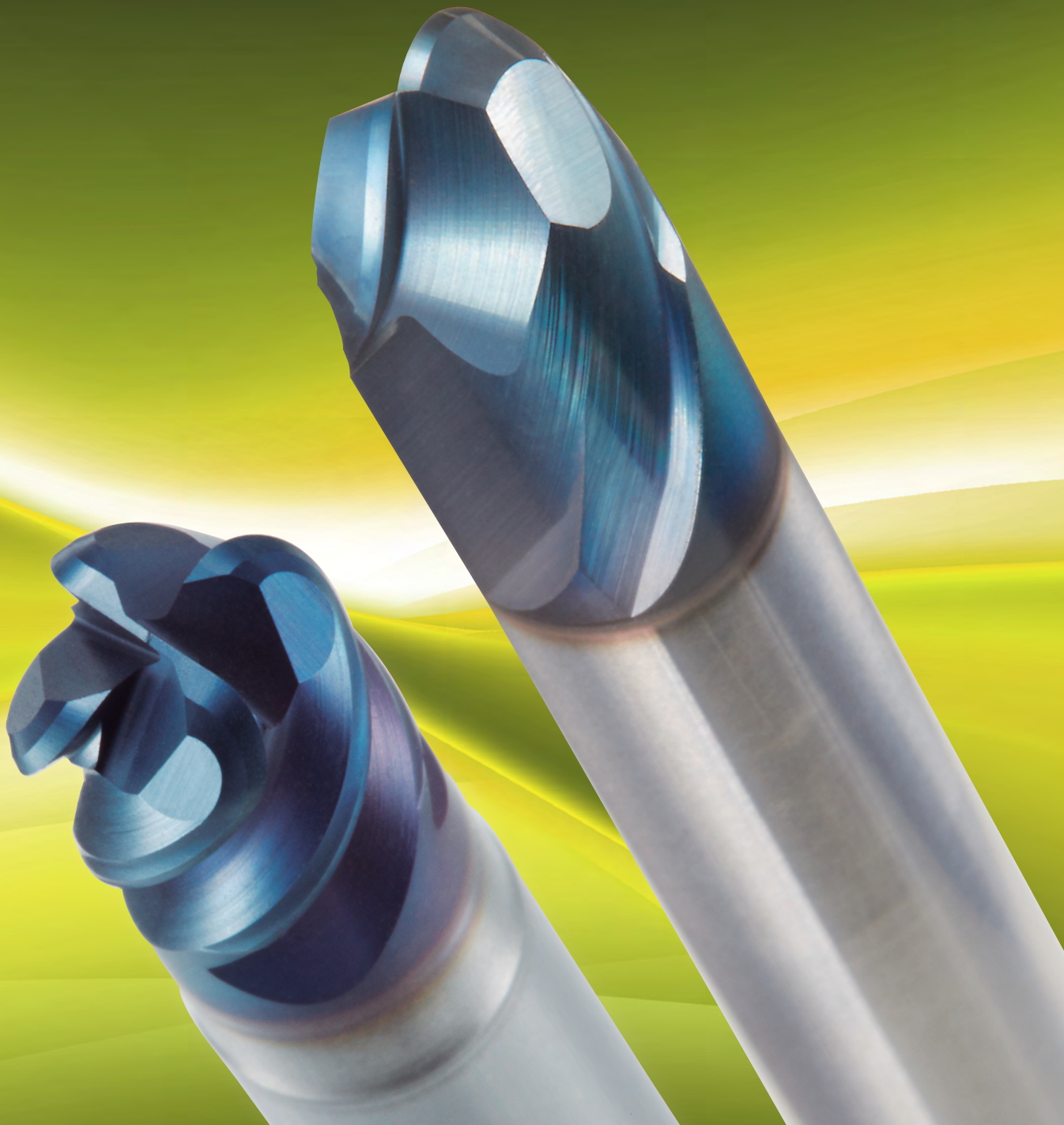
PN-E-009



HARD-ONE Series

SERIES EXPANSION

**DH1 Coated Solid carbide end mill series
for high hardened die steel up to 70HRC**



DIJET GmbH

www.dijet.de

Features of Hard-One Ball SFSB type

Feature 1

Adopting super short flute length (1D) achieves high efficient machining from roughing to finishing.

Feature 2

Due to seamless geometry of radius & peripheral cutting edge, achieves good surface roughness and prevents

Feature 3

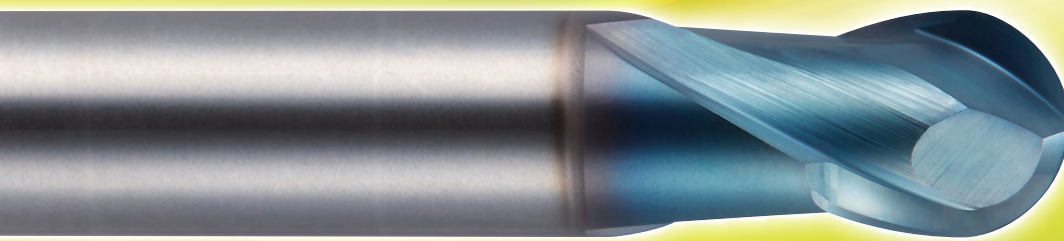
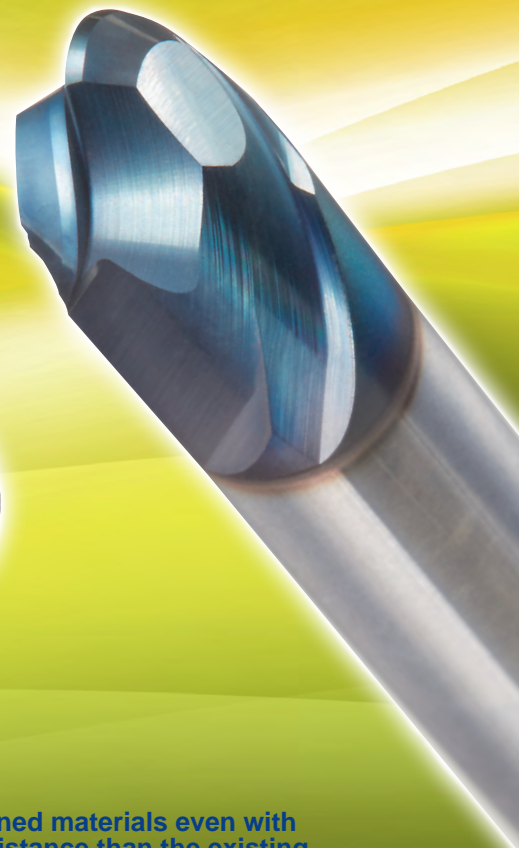
High precision shank tolerance (h5).

Feature 4

"DH110", multi nano layered PVD coating on super micro grain base material, perform longer tool life at machining



R accuracy :
±0.005mm



Newly developed "DH COATING"

DH COATING gives stable and high-performance machining on high hardened materials even with high speed dry condition, due to higher hardness and higher oxidation resistance than the existing

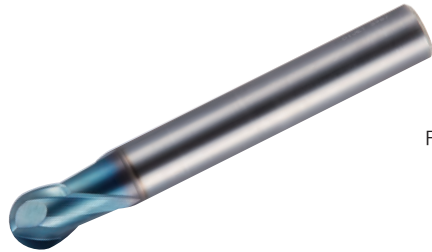
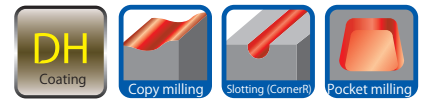
Characteristic value of various PVD coatings

	DH coating	DV coating	DZ coating
Hardness (Hv)	3,500~3,700	3,300~3,500	2,800~2,900
Oxidization temperature (°C)	1,100~1,200	1,000~1,100	700~800
Coefficient of friction	0.5	0.65	0.6

Hard-One Ball

Hard-One Ball SFSB type

- For high hardened die steel up to 70HRC
- 2 flutes / Helix angle 30°
- For shrink fit holder



■ Tolerance (mm)

R of ball nose	Tolerance of R
R0.5~R6	±0.005

Fig.1 ($\phi D_c < \phi D_s$)

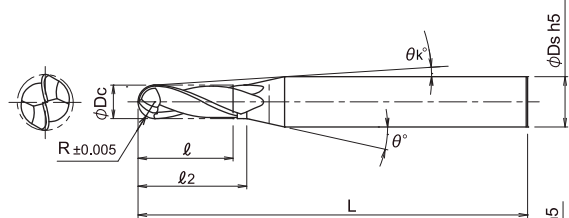
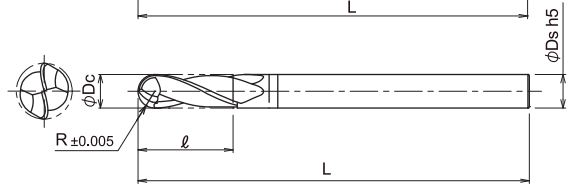


Fig.2 ($\phi D_c = \phi D_s$)



Cat. No.	Stock	Grade	Dimensions (mm)								Fig.
			R	ϕD_c	l	l_2	L	ϕD_s	θ	θ_k	
SFSB2010	●	DH110	0.5	1	1	1.5	40	4	12°	10.49°	1
SFSB2010-S6	●		0.5	1	1	1.5	40	6	12°	11.04°	1
SFSB2020	●		1	2	2	2.5	40	4	10°	7.86°	1
SFSB2020-S6	●		1	2	2	2.5	40	6	10°	8.8°	1
SFSB2030	●		1.5	3	3	4	40	4	10°	5.29°	1
SFSB2030-S6	●		1.5	3	3	4	40	6	10°	7.69°	1
SFSB2040	●		2	4	4	—	40	4	—	—	2
SFSB2040-S6	●		2	4	4	5	40	6	8°	5.59°	1
SFSB2050	●		2.5	5	5	6	50	6	5°	2.79°	1
SFSB2060	●		3	6	6	—	50	6	—	—	2
SFSB2080	●		4	8	8	—	60	8	—	—	2
SFSB2100	●		5	10	10	—	60	10	—	—	2
SFSB2120	●		6	12	12	—	60	12	—	—	2

● : Standard stock items

Please scan the QR code for recommended cutting conditions



Hard-One Radius Features of Hard-One Radius SFSR type

Feature 1

Adopting high rigidity web thickness & super short flute length (1D) achieves high efficient machining

Feature 2

Adopted seamless geometry of corner radius & peripheral cutting edge.

Feature 3

Possible plunge milling $L/D < 0.2$ and pocket milling.

Feature 4

High precision shank tolerance (h5).

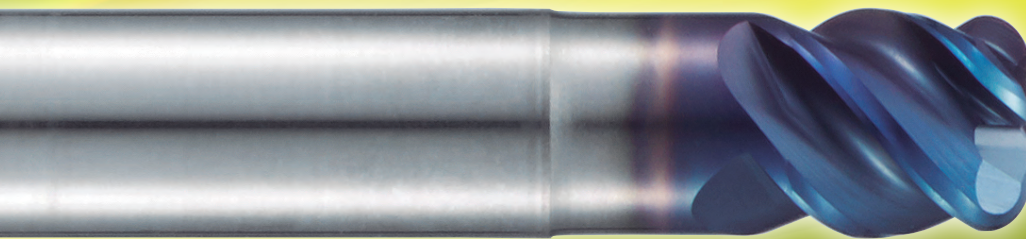
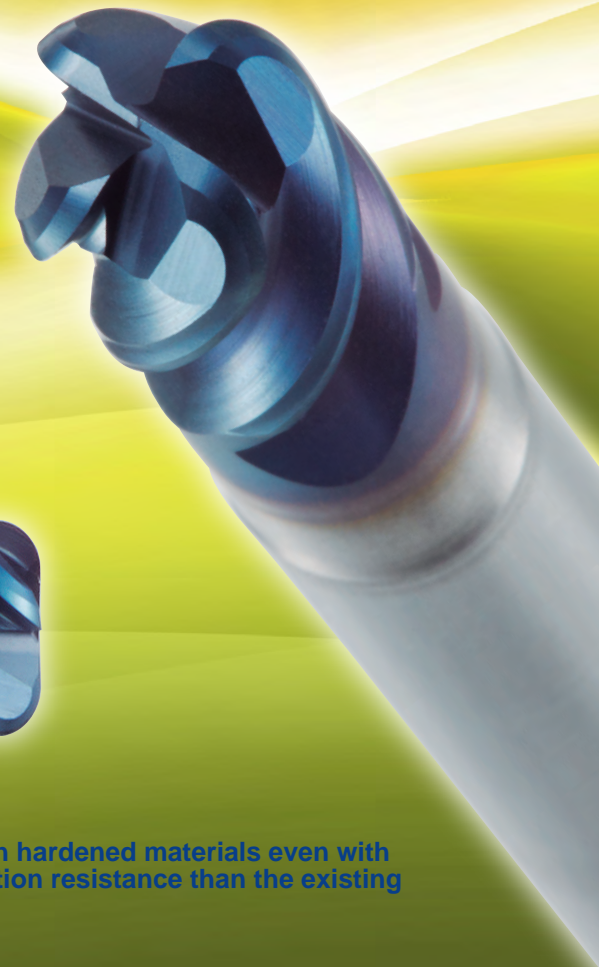
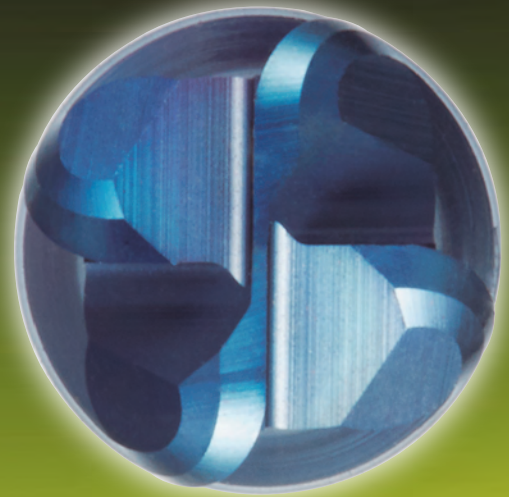
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Feature 5

"DH110", multi nano layered PVD coating on super micro grain base material, perform longer tool life at

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"DH110", multi nano layered PVD coating on super micro grain substrate material, perform longer tool life at machining high hardened materials



Newly developed "DH COATING"

DH COATING gives stable and high-performance machining on high hardened materials even with high speed dry condition, due to higher hardness and higher oxidation resistance than the existing

Characteristic value of various PVD coatings

	DH coating	DV coating	DZ coating
Hardness (Hv)	3,500~3,700	3,300~3,500	2,800~2,900
Oxidization temperature (°C)	1,100~1,200	1,000~1,100	700~800
Coefficient of friction	0.5	0.65	0.6

Hard-One Radius

Hard-One Radius SFSR type

- For high hardened die steel up to 70HRC
- 4 flutes / Helix angle 50°-52°
- For shrink fit holder

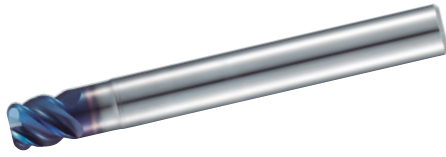


Fig.1

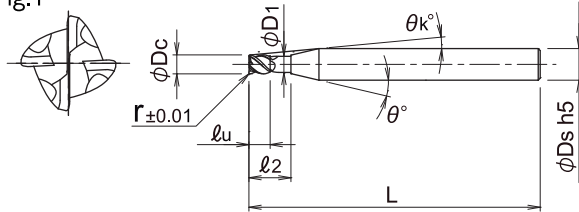
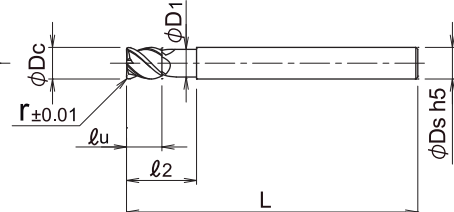


Fig.2



Cat. No.	Stock	Grade	Dimensions (mm)									Fig.
			φDc	r	lu	l2	L	φD1	φDs	θ	θk	
SFSR4020S04-R05	●	DH110	2	0.5	2	4	40	1.9	4	20°	9.04°	1
SFSR4020S06-R05	●		2	0.5	2	4	40	1.9	6	20°	12.46°	1
SFSR4030S04-R08	●		3	0.8	3	6	40	2.9	4	20°	4.33°	1
SFSR4030S06-R08	●		3	0.8	3	6	40	2.9	6	20°	9.08°	1
SFSR4040S04-R10	●		4	1.0	4	8	40	3.8	4	-	-	2
SFSR4040S06-R10	●		4	1.0	4	8	40	3.8	6	20°	5.83°	1
SFSR4050S06-R12	●		5	1.2	5	10	50	4.8	6	20°	2.81°	1
SFSR4060S06-R10	●		6	1.0	6	12	50	5.8	6	-	-	2
SFSR4060S06-R15	●		6	1.5	6	12	50	5.8	6	-	-	2
SFSR4080S08-R10	●		8	1.0	8	16	60	7.8	8	-	-	2
SFSR4080S08-R20	●		8	2.0	8	16	60	7.8	8	-	-	2
SFSR4100S10-R20	●		10	2.0	10	20	60	9.8	10	-	-	2
SFSR4100S10-R30	●		10	3.0	10	20	60	9.8	10	-	-	2
SFSR4120S12-R20	●		12	2.0	12	24	60	11.8	12	-	-	2
SFSR4120S12-R30	●		12	3.0	12	24	60	11.8	12	-	-	2

● : Standard stock items

Please scan the QR code for recommended cutting conditions



Hard-One Radius

Hard-One Radius SFSR type

- For high hardened die steel up to 70HRC
- 4 flutes / Helix angle 50°-52°
- For shrink fit holder
- Corner radius accuracy : $\pm 0.005\text{mm}$



Fig.1

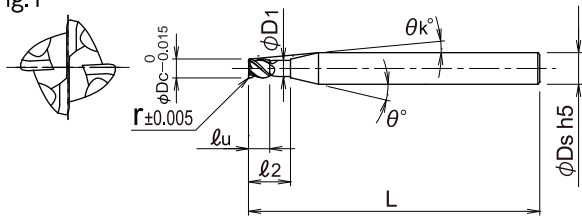
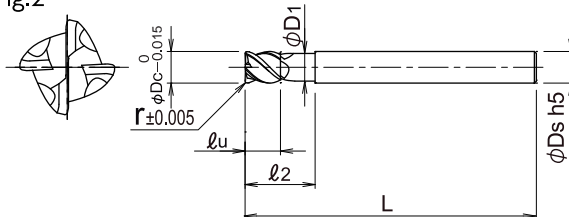


Fig.2



Cat. No.	Stock	Grade	Dimensions (mm)									Fig.
			ϕDc	r	l_u	l_2	L	$\phi D1$	ϕDs	θ	θk	
SFSR4020S06-R05-06	●	DH110	2	0.5	2	6	60	1.9	6	20°	10.27°	1
SFSR4030S06-R08-09	●		3	0.8	3	9	60	2.9	6	20°	6.91°	1
SFSR4040S06-R10-12	●		4	1	4	12	60	3.8	6	20°	4.15°	1
SFSR4050S06-R12-15	●		5	1.2	5	15	60	4.7	6	20°	1.88°	1
SFSR4060S06-R05-18	●		6	0.5	6	18	60	5.7	6	-	-	2
SFSR4060S06-R05-30	●		6	0.5	6	30	90	5.7	6	-	-	2
SFSR4060S06-R10-18	●		6	1	6	18	60	5.7	6	-	-	2
SFSR4060S06-R10-30	●		6	1	6	30	90	5.7	6	-	-	2
SFSR4060S06-R15-18	●		6	1.5	6	18	60	5.7	6	-	-	2
SFSR4060S06-R15-30	●		6	1.5	6	30	90	5.7	6	-	-	2
SFSR4080S08-R05-24	●		8	0.5	8	24	75	7.6	8	-	-	2
SFSR4080S08-R05-40	●		8	0.5	8	40	100	7.6	8	-	-	2
SFSR4080S08-R10-24	●		8	1	8	24	75	7.6	8	-	-	2
SFSR4080S08-R10-40	●		8	1	8	40	100	7.6	8	-	-	2
SFSR4080S08-R20-24	●		8	2	8	24	75	7.6	8	-	-	2
SFSR4080S08-R20-40	●		8	2	8	40	100	7.6	8	-	-	2
SFSR4100S10-R05-30	●		10	0.5	10	30	80	9.5	10	-	-	2
SFSR4100S10-R05-50	●		10	0.5	10	50	110	9.5	10	-	-	2
SFSR4100S10-R10-30	●		10	1	10	30	80	9.5	10	-	-	2
SFSR4100S10-R10-50	●		10	1	10	50	110	9.5	10	-	-	2
SFSR4100S10-R20-30	●		10	2	10	30	80	9.5	10	-	-	2
SFSR4100S10-R20-50	●		10	2	10	50	110	9.5	10	-	-	2
SFSR4100S10-R30-30	●		10	3	10	30	80	9.5	10	-	-	2
SFSR4100S10-R30-50	●		10	3	10	50	110	9.5	10	-	-	2
SFSR4120S12-R05-36	●		12	0.5	12	36	100	11.5	12	-	-	2
SFSR4120S12-R05-60	●		12	0.5	12	60	120	11.5	12	-	-	2
SFSR4120S12-R10-36	●		12	1	12	36	100	11.5	12	-	-	2
SFSR4120S12-R10-60	●		12	1	12	60	120	11.5	12	-	-	2
SFSR4120S12-R20-36	●		12	2	12	36	100	11.5	12	-	-	2
SFSR4120S12-R20-60	●		12	2	12	60	120	11.5	12	-	-	2
SFSR4120S12-R30-36	●		12	3	12	36	100	11.5	12	-	-	2
SFSR4120S12-R30-60	●		12	3	12	60	120	11.5	12	-	-	2

● : Standard stock items

Hard-One Radius

Hard-One Radius SFSR type (with R0.2)

Adapted micro corner radius on the cutting edge solve the chipping problems

- For high hardened die steel up to 70HRC
- 4 flutes / Helix angle 50°-52°
- For shrink fit holder

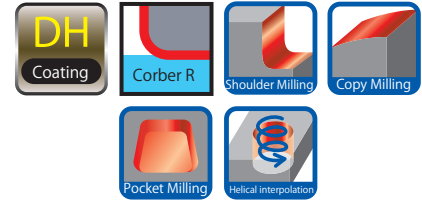


Fig.1

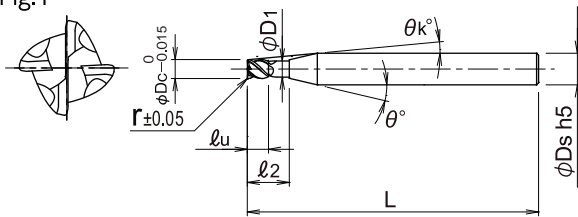
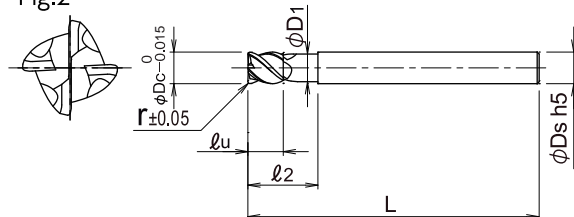


Fig.2



Cat. No.	Stock	Grade	Dimensions (mm)									Fig.
			ϕ_{Dc}	r	l_u	l_2	L	ϕ_{D1}	ϕ_{Ds}	θ	θ_k	
SFSR4020S06-R02-06	●	DH110	2	0.2	2	6	60	1.9	6	20°	10.03°	1
SFSR4030S06-R02-09	●		3	0.2	3	9	60	2.9	6	20°	6.62°	1
SFSR4040S06-R02-12	●		4	0.2	4	12	60	3.8	6	20°	3.93°	1
SFSR4050S06-R02-15	●		5	0.2	5	15	60	4.7	6	20°	1.77°	1
SFSR4060S06-R02-18	●		6	0.2	6	18	60	5.7	6	-	-	2
SFSR4080S08-R02-24	●		8	0.2	8	24	75	7.6	8	-	-	2
SFSR4100S10-R02-30	●		10	0.2	10	30	80	9.5	10	-	-	2
SFSR4120S12-R02-36	●		12	0.2	12	36	100	11.5	12	-	-	2

●: Standard stock items

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