Nippon Koshuha Steel Co., Ltd.

KUSHAL METAL & STEEL INDUSTRIES PVT. LTD.
A LEGACY FORGED IN STEEL SINCE 1968

KD11S

The KD11S is a new type of steel for cold-tool steel that has the same basic functions of the SKD11 and features remarkably improved machinability.

Click here for details of the KD11S.
Movie explanations are also available.

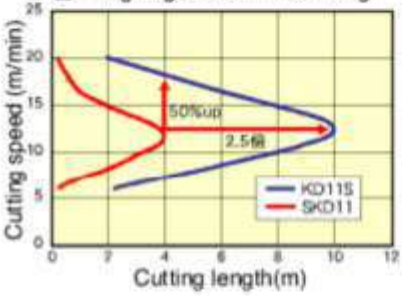
Features of KD11S

1.Cost reduction ●Rationalizes the manufacturing processes. ●Reduces the machining time
2.Thermal processing ●Unchanged thermal processing. ●Same-aged deterioration.
3.Mold life ●Satisfactory mold live. ●Improved mold quality.

Outstanding machinability

●Can prolong the service life of the tool and improve the machining efficiency.
●Beautiful finished cut surface.
●Capable of cutting after thermal processing.

■ Roughing end-mill machining



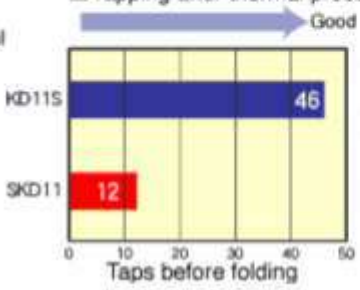
●Work: Annealed material
●Machine: NC milling machine
●Tool: MR 6 mm
●Cutting speed: 6 to 28 m/min.
●Feed quantity: 0.012mm/tooth
●Cutting: 6mm
●Cutting width: 6 mm groove-cutting
●Cutting oil: Dry-type

■ Roughness of lathed/cut surface

Steel type	Cutting condition		Finished-surface roughness
	Cutting speed	Feed quantity	
KD11S	200 m/min	0.3 mm/rev	Ra:2.0 Rz:11.0 Rmax:13.0
SKD11		0.2 mm/rev	Ra:7.1 Rz:40.0 Rmax:43.0

Test conditions
●Work: Annealed material
●Machine: NC lathe
●Tool: UC6025
●Cutting speed: 200m/min
●Cutting: 2mm

■ Tapping after thermal processing



●Hardness: 60HRC
●Cutting tool: VX-OT M5×8mm
●Cutting speed: 2m/min
●Hole depth:15mm
●Prepared hole diameter: 4.3mm
●Cutting oil: Emulsion

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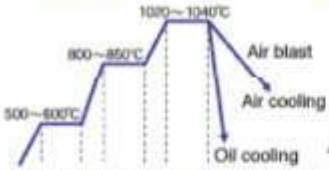
KD11S

Same thermal processing conditions as SKD11.

- Stack-thermal processing with the SKD11 is enabled.
- Same dimensional variation after thermal processing is the same as the SKD11.
- Aged-deterioration and surface treatment are equivalent to the SKD11.

■ Recommended thermal processing conditions

Hardening



Standard hardening heating time	
100 mm or less	30~60min/25mm
100 mm or more	20~30min/25mm

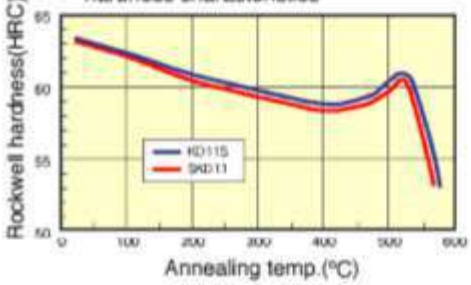
- Primary pre-heating may be omitted for small parts.
- In case of oil cooling, the parts are taken out of the oil at 200°C and then cooled with air.

Annealing

Annealing temp.	
Low-temp. annealing	170~200°C
High-temp. annealing	500~530°C

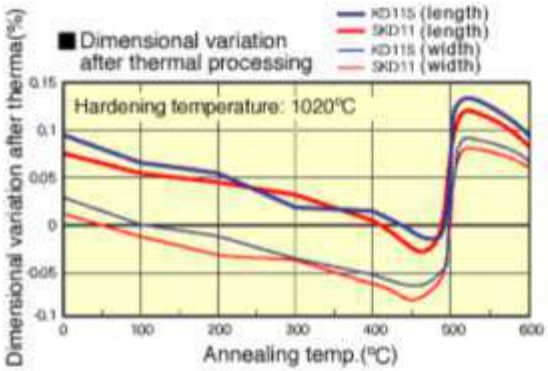
- May be annealed once in low-temperature annealing.
- Should be annealed twice in high-temperature annealing.
- High-temperature annealing is recommended to conduct cutting after thermal processing.

■ Hardening and annealing hardness characteristics



- Test piece: 20 square x 30 mm
- Thermal processing furnace: Electric furnace
- Annealing: Twice

■ Dimensional variation after thermal processing

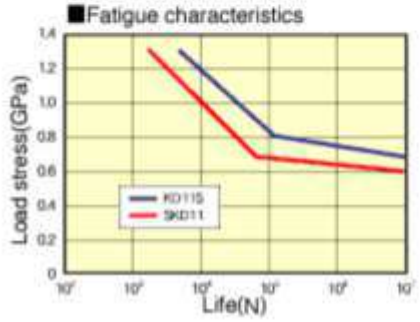


- Test piece: 30 t x 85 W x 120 L mm
- Thermal processing furnace: Vacuum furnace (1.5 atm)
- Annealing: Twice

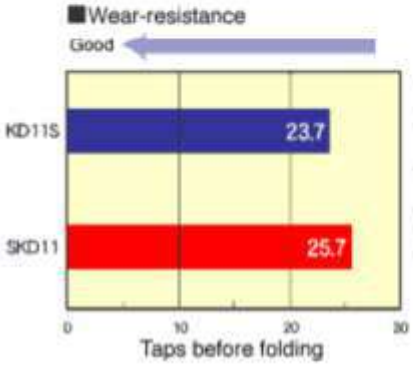
Equivalent or superior mechanical characteristics

- Fatigue characteristics superior to the SKD11
- Tenacity and wear-resistance superior to the SKD11

■ Fatigue characteristics



■ Wear-resistance



- Blast material: Alumina WA#320
- Feed speed: 500g/h
- Distributor pressure: 40/F
- Tilt angle:45°
- Test time: 2 hours
- Hardness: 60HRC

OUR PRESENCE

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