

Welding

[Repair welding of hardened and tempered condition]

- 1) Pre-heat to approx. 300°C (min. 200°C)
- 2) Weld at 200~300°C
- 3) Reheat immediately to tempering temperature but max. 400°C
Holding time at tempering: 3 hours
- 4) Cool in air to room temperature

Electrode: Hard-facing electrode (Ex. JIS DF-3B-B)

Composition (%): 0.50C, 0.4Si, 0.4Mn, 5Cr, 1.2Mo)

Note: In case of multi-layer, "under-layer" is to be performed with austenitic stainless steel of welding rod.

Quench hardening

[If you will need Quench hardening]

Heat Treatment (°C)			Hardness after tempering (HRC)
Preheating temp.	Austenitizing temp.	Tempering temp.	
700~800 °C	850~875 °C Oil	150~200 °C Air	60 min



DAIDO STEEL CO., LTD.

Bangkok Office

120 Moo 5, Wellgrow Industrial Estate, Bangna-Trad Road, KM.36, Bangsamak, Bangkok, Chachoengsao 24180, Thailand
Phone:+66-38-571317 Fax:+66-38-571313

Tokyo Head Office

(Export Sales Dept)

Daido Steel(America)Inc.

Daido Shinagawa Building, 6-35, 1-Chome, Kounan, Minato-ku, Tokyo, Japan

Phone:+81-3-5495-1270 Fax:+81-3-5495-6738

1111 Plaza Drive, Suite 740, Schaumburg, IL 60173, U.S.A.

Phone:+1-847-517-7950 Fax:+1-847-517-7951

Guangzhou Office

No.2005, Citic Plaza, 233-North Tian-He Rd., Guangzhou 510613, China

Phone:+86-20-3877-1632 Fax:+86-20-3877-0894

Shanghai Office

No.1706, Super Ocean Finance Center Bldg., 2067-West Yanan Rd., Shanghai 200336, China

Phone:+86-21-6295-2998 Fax:+86-21-6295-1060

www.daido.cp.jp/

IMPORTANT NOTE

Please be advised that Daido Steel shall not be held responsible for damage cause by misunderstanding or improper use of the technical information contained in this brochure. The contents of this brochure may be subject to change without notice.

Please inquire of relevant department for the latest information.

No portion of this brochure may be reproduced without the express permission of Daido Steel.

G05

Flame Hardening Cold-Work Tool Steel

Features

1 Excellent Flame Hardenability

Sufficient surface hardness and hardened depth can be obtained by air cooling after flame heating. Proper range of hardening temperature is wide and the steel hardly becomes over-heated structure.

2 Good Machinability

G05 provides good machinability since a proper spheroidized annealing is being made.

3 Good Toughness and Wear Resistance

G05 provides good toughness and wear resistance, so that there scarcely grow crack and chip.

4 Good Weldability

G05 provides good weldability since the chemical composition is designed to aim at improvement of weldability reforming and repairing of dies.

Applications

1 Flame Hardening

For Blanking, Piercing and Trimming dies of sheet with thickness less than 1.6mm. It is especially for segment dies for Blanking of big shapes.

2 Quench Hardening

Blanking, Piercing, Press forming dies and other cold work dies.



DAIDO STEEL

Heat Treatment



[Flame hardening of the edge of tool]

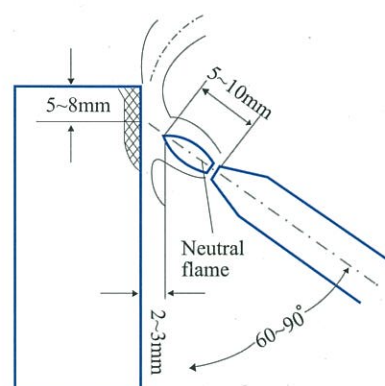
1	Working environment	Indoors where the constant brightness is kept.
2	Pre-heating	200~300°C (if too high, there is a danger of preventing sufficient hardness)
3	Heating	To be heated until it turns into light red color (aim. 950°C) then shift the heating area in turn, controlling the torch feeding speed.
4	Cooling	In air to room temperature.
5	Tempering	Not necessary, but if tempering of 150~200°C is done, the toughness gets improved.

■ The standard of burner and gas pressure

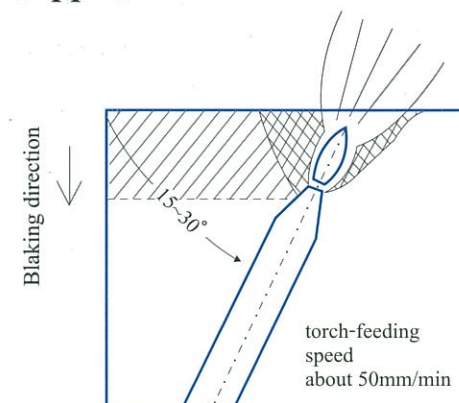
Burner	:	O ₂	1.0kgf / cm ²
(#100~300)	:	C ₂ H ₄	0.17kgf / cm ²
Burner	:	O ₂	5.0kgf / cm ²
(#1~2)	:	C ₂ H ₄	0.5kgf / cm ²

■ The method of flame hardening

[Side]



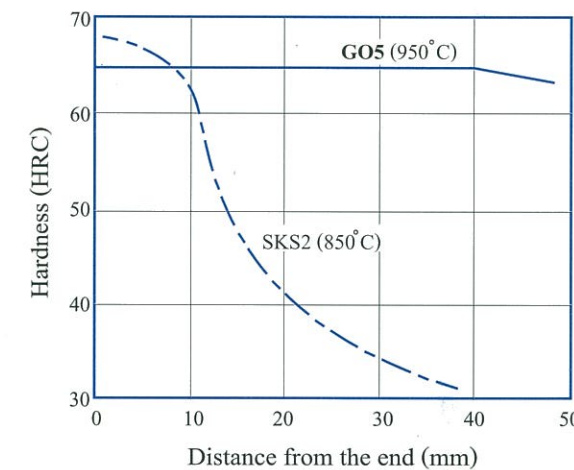
[Upper]



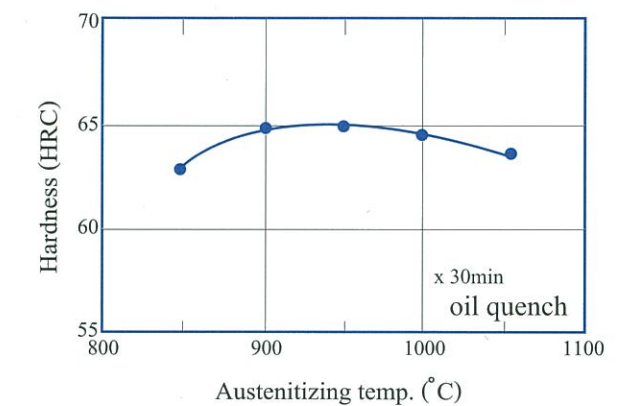
Technical Data (36Dia)



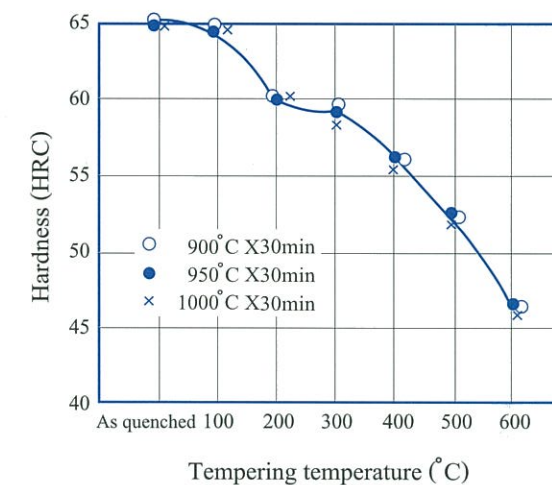
■ Hardinability Curve (End Quenching)



■ Hardness as a function of austenitizing temperature



■ Hardness as a function of tempering temperature



■ Distribution of Hardness of flame hardening

