

Machinability

Compared to P20: ◎Better, ○Same

	Materials	Coating	PXA30	P20 mod.
Drilling	Carbides	Yes	◎	◎
		No	◎	◎
	High Speed P/M High speed	Yes	◎	◎
		No	○	◎
Endmilling	Carbides	Yes	◎	◎
		No	◎	◎

*Relative comparison is based on Daido's test data.

Physical properties

◆ Thermal expansion rate

Temp.	20~100℃	20~200℃	20~300℃	20~400℃	20~500℃	20~600℃
×10 ⁻⁶ /K	11.3	12.2	12.6	13.4	13.9	14.2

◆ Thermal conductivity

Temp.	25℃	100℃	200℃	300℃	400℃	500℃	600℃
W/m·K	33.0	36.9	36.4	34.7	34.9	33.6	32.7

*Accuracy of repeated measurements is about ±10%.

◆ Specific heat

Temp.	25℃	100℃	200℃	300℃	400℃	500℃	600℃
J/kg·K	449	504	535	558	622	678	785

◆ Young's modulus / Rigidity modulus / Poisson's ratio (25℃)

Young's modulus	Rigidity modulus	Poisson's ratio
212GPa	82GPa	0.30

Daido's Plastic Mold Steel Series

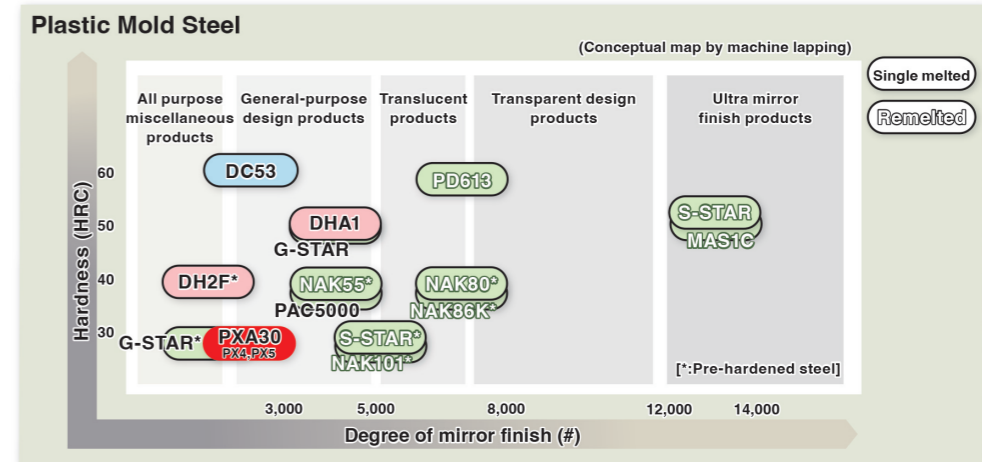
PXA30™

General Use Plastic Mold Steel

Features

Based on the current P20 modified steel, PXA30 has been further improved, especially in mirror polishing, by reducing non-metallic inclusions that cause pinholes.

- ◆ **Mirror Polishing** : The optimized production process reduces oxide-type non-metallic inclusions to levels lower than those in the current P20 modified steel, contributing to stable quality in mirror polishing.
- ◆ **Other Features** : The hardness and nitriding properties are the same as those of the current P20 modified steel. It also exhibits the same or superior characteristics in mechanical properties and EDM.



Main applications

- Automotive parts (ex. Light cover)
- Communications and Office automation equipment
- Electric appliances, Audio equipment
- Other: General-purpose plastic molds

Chemical composition

Daido brand	Supplied condition (Hardness)	Chemical composition (%)					
		C	Si	Mn	Cr	Mo	V
PXA30	Pre-hardened (30~33HRC)	The same as those of current P20 mod.					



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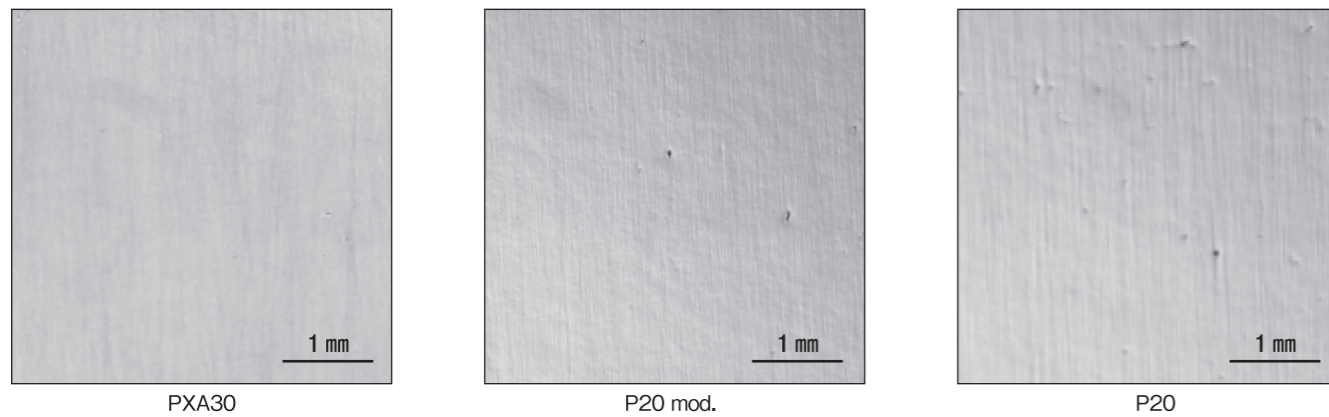
The product characteristics included in this brochure are the representative values based on the result of our measurements, and do not guarantee the performance in use of the products.

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Mirror finish properties

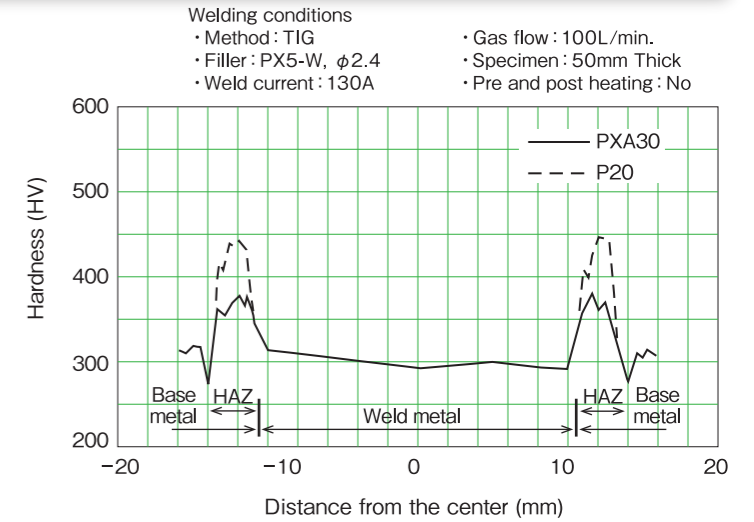
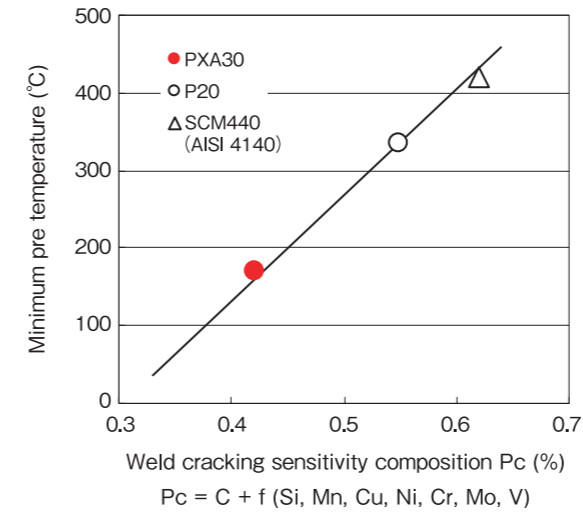
Observed by differential interference method on #5000 mirror polished surface



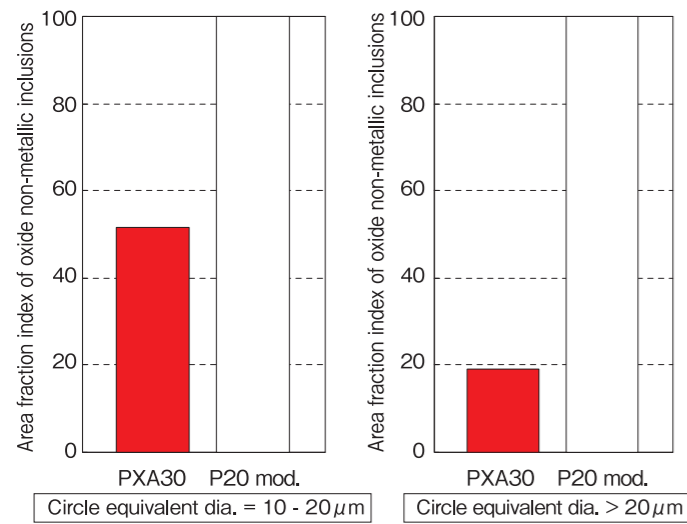
(Polishing procedure)

Turning, Milling → Grinding (#220 - #320 - #400) → Emery paper polishing (#320 - #400 - #600 - #800 - #1000 - #1200 - #1500)
→ Diamond paste finishing (#1200 [15μm] - #1800 [9μm] - #3000 [6μm] - #5000 [4.5μm])

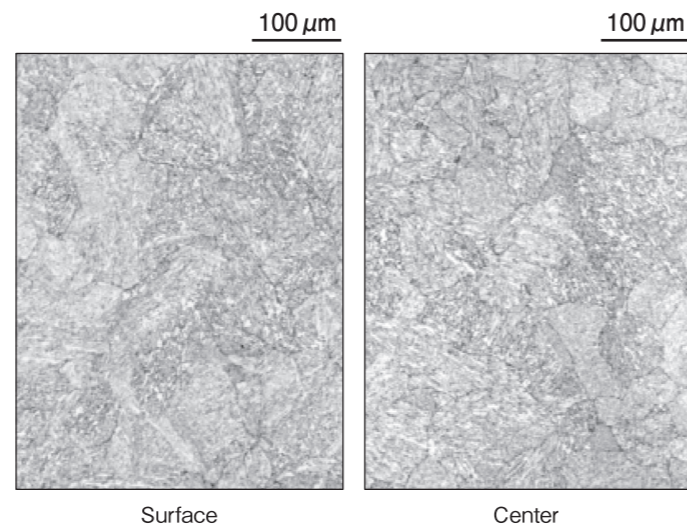
Weldability



Non-metallic inclusions



Microstructure

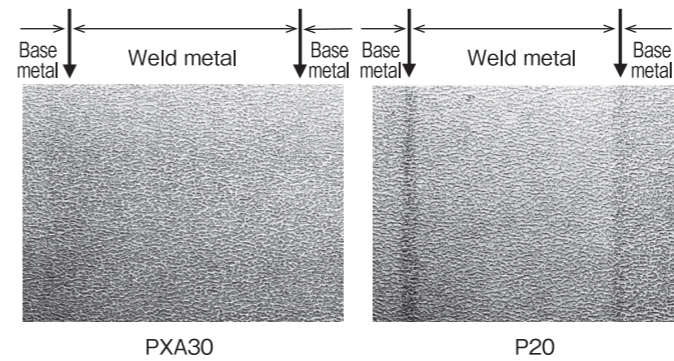


Texturability

Photo etching of welded part (Pearskin finish)

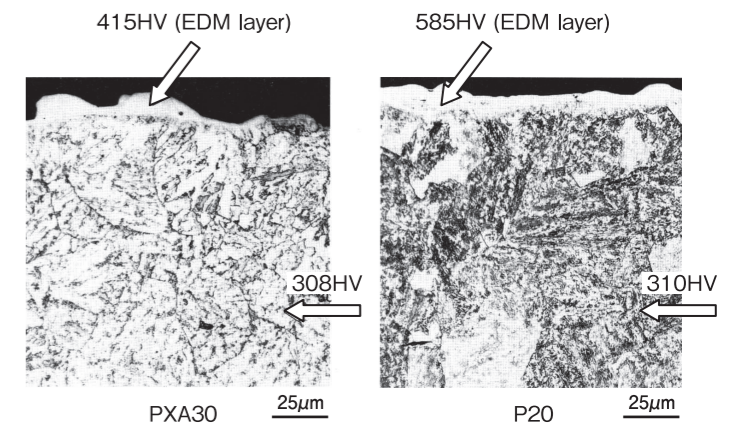
Welding conditions

- Method: TIG
- Filler: PX5-W, φ2.4
- Weld current: 125A
- Pre and post heated

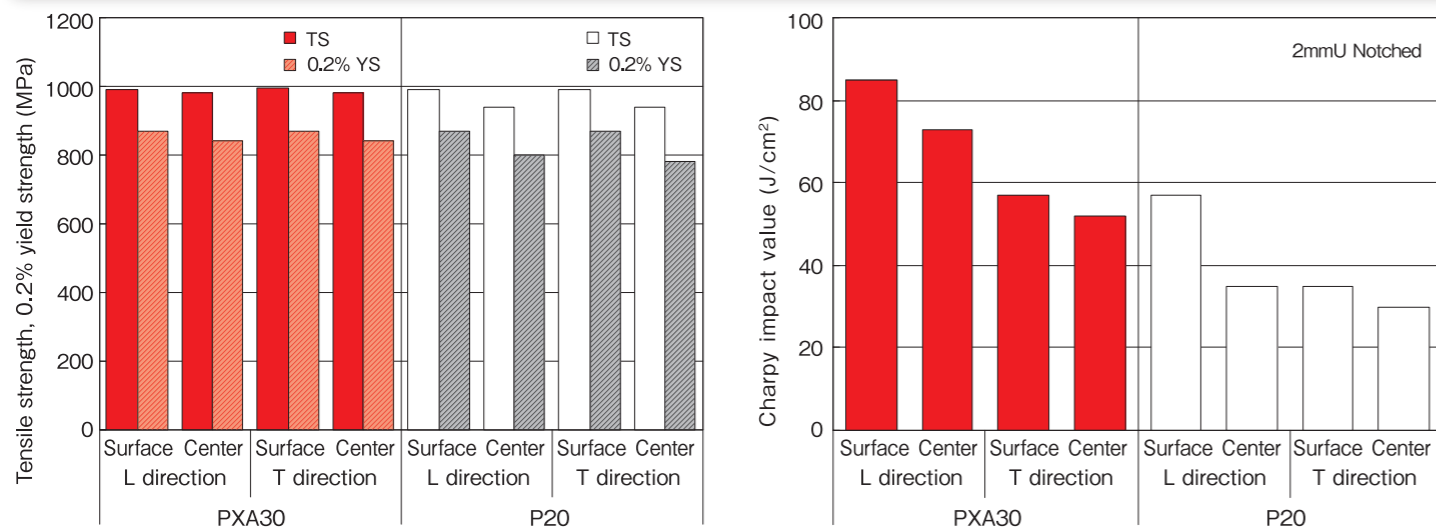


EDM

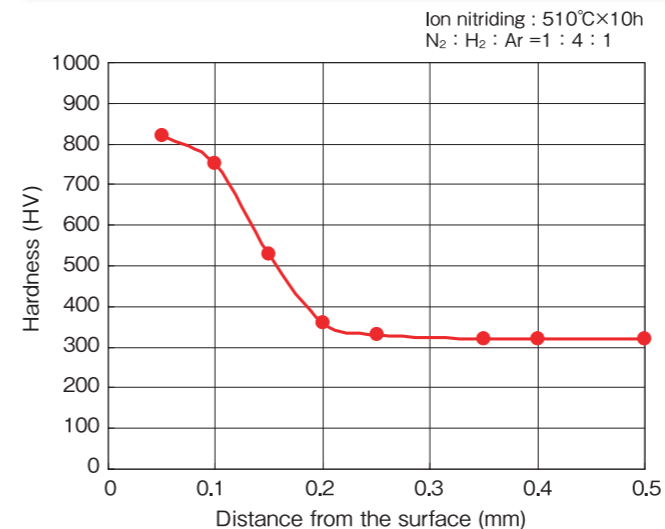
Easy to remove recast layer due to lower hardness.



Mechanical properties



Nitriding characteristics



Flame hardening

