



KPMAX

The KPMAX is Hs30-type general-purpose steel for plastic molds with well-balanced characteristics needed for mold manufacturing and product forming.

KPMAXの特長

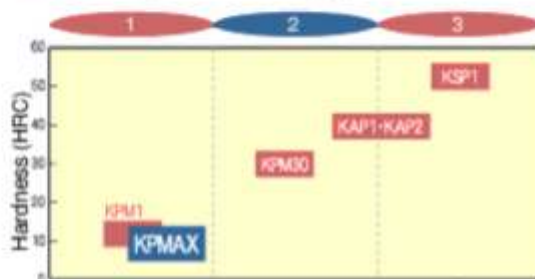
- Superior machinability** • Reduces the total machining time of molds by 20% ~ 50% in comparison with JIS S55C.
- Stable and uniform hardness through to the center** • Improved hardening characteristics in comparison with JIS S55C offers uniform hardness through to the center.
- Superior welding reparability** • Smaller HAZ hardness than JIS S55C offers easy cutting and grinding after repair work.
- Satisfactory drawing machinability and mirror finish surface** • Uniform structure and hardness ensures the drawing machinability and mirror finish surface equal or superior to JIS S55C.

Applications

- General-purpose large-size parts
- Car parts
- Household appliances
- Steel for plastic molds for general miscellaneous goods

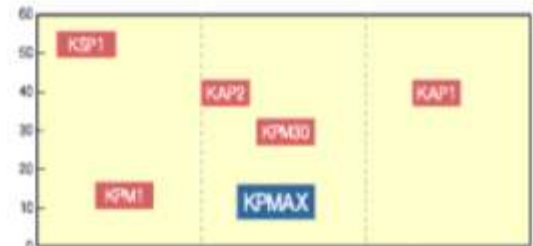
Position of KPMAX

- Miscellaneous goods made in small quantities in small lots
- Mass production and precision parts
- Mass production and highly functional materials



Long life

Life and hardness of pre-hardened steel for plastic molds



Good machinability

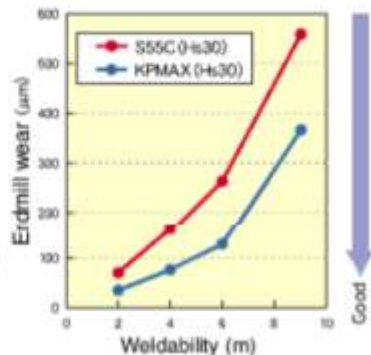
Machinability of pre-hardened steel for plastic molds

Machinability

Tool wear, 50% of S55C

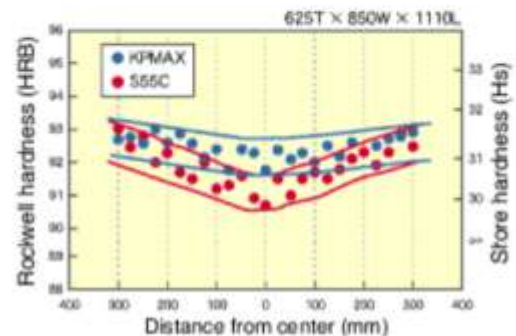
Test conditions

- Tool: KOBE 2SS ϕ 10mm
- Revolution: 670rpm
- Cutting speed: $V=21\text{m/min}$
- Feed speed: 92mm/min
- Feed per blades: 0.68 mm/blade
- Cutting: Depth: 15mm, width: 1 mm
- Cutting direction: Down-cutting
- Cutting oil: Dry-type



Hardness of cross section

Uniform hardness through to the center





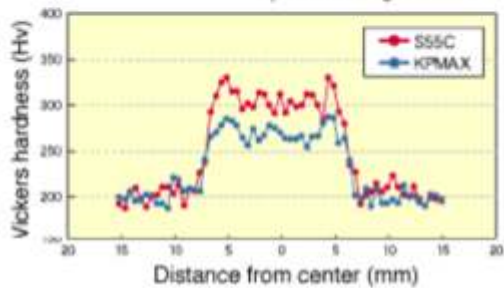
KPMAX

Welding performance

Small hardness increase in welded portion

Test conditions Single-layer build-up test
(Welding R3 groove)

- Welding method TIG
- Shield gas Ar 10 R/min.
- Welding current 180A
- Welding rod diameter $\phi 2.4(0.111)$
- Welding rod KOBE TGS-50
- Pre- and post-heating Pre-heating: 250°C, post-heating: 400°C



Physical characteristics

Thermal expansion factor

Thermal expansion factor $\times 10^{-4}/^{\circ}\text{C}$			
20~100°C	20~200°C	20~300°C	20~400°C
10.7	11.3	12.2	13.0

Thermal conductivity

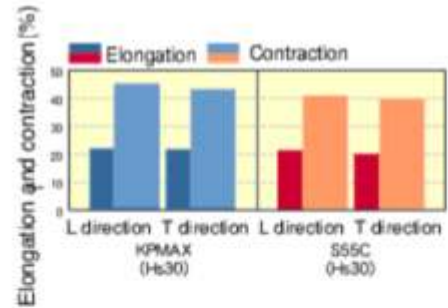
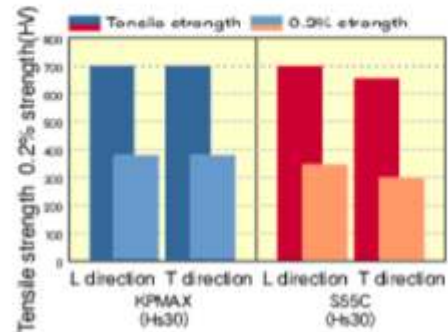
Thermal conductivity $\text{W}/(\text{m}\cdot\text{K})$		
25°C	100°C	200°C
45.8	44.0	42.8

Specific heat

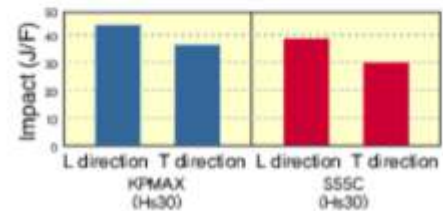
Specific heat $\text{KJ}/(\text{kg}\cdot\text{K})$			
25°C	100°C	200°C	400°C
0.448	0.481	0.519	0.582

Mechanical characteristics

Tensile characteristics (room temperature)



Tenacity (at room temperature)



OUR PRESENCE



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