

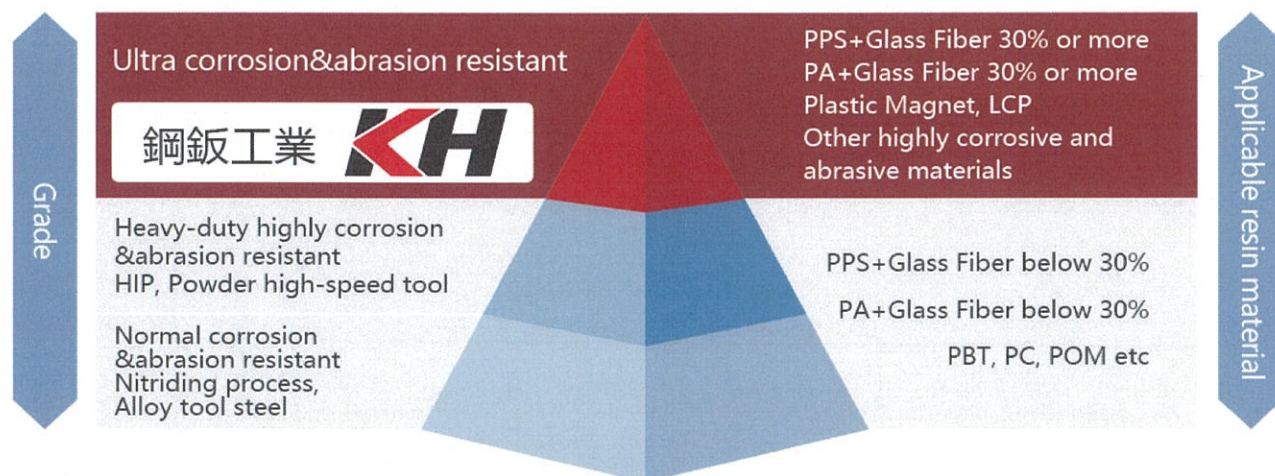
Anti corrosive and anti abrasion resistance Against most aggressive environment

Delivering whole new value for injection moulding



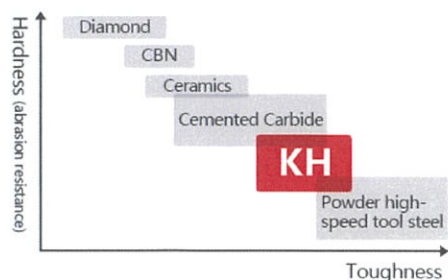
KH is recommended for customers who:

- Work with most demanding types of resin materials: Plamag; Engineering Plastic (PA46, 4T, 6T, 9T); Super Engineering Plastic (PPS, LCP, PEEK etc.).
- Work with reinforced resin materials containing more than 30% of additives such as Glass Fiber, Carbon Fiber, mineral filling etc.
- Have to change parts of plasticizing units (screw, cylinder, headset) in very short time intervals.
- Suffer from high maintenance and repair cost related to changes of plasticizing unit elements.

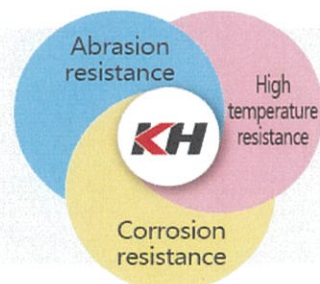


KH's Special Characteristics

KH is the material that in terms of hardness shall be positioned between ceramics and high-speed tool steel. KH has a lineup of 4 different grades; each suitable for different use depending on the application and work environment.



- Cost reduction due to significant life-span prolongation
- Stable parts' quality due to stable process parameters
- Already recognized as highest grade by many major machine makers



Our customers' opinions



The need for injection parameter adjustment due to part's abrasion has been significantly reduced - this had positive influence on machine availability

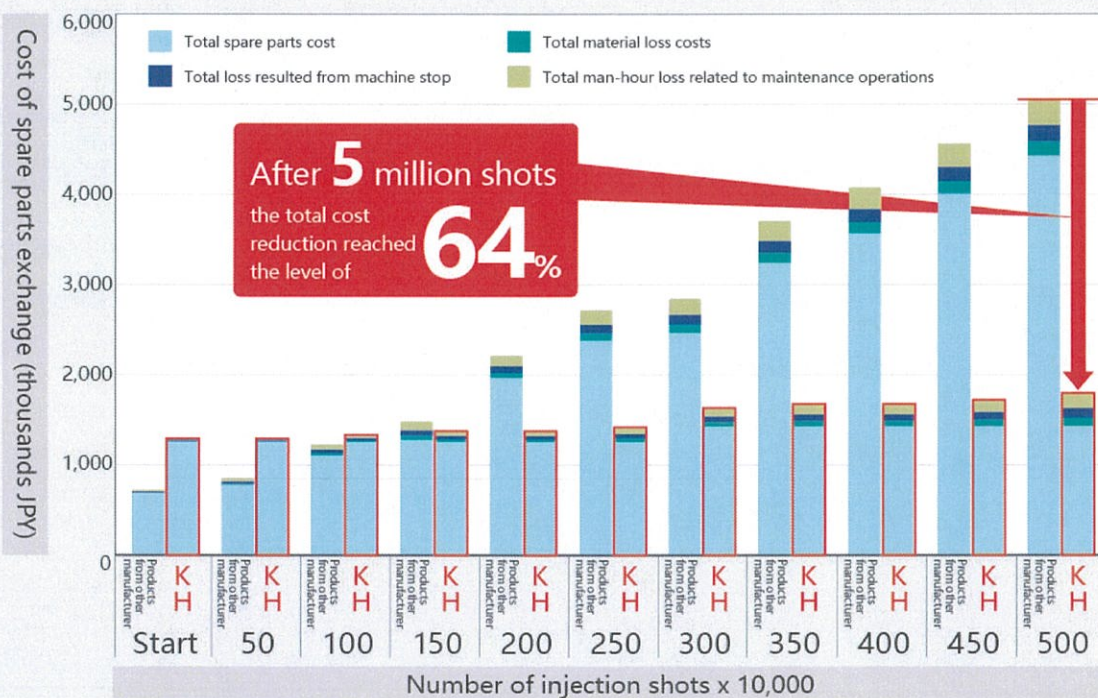
Life span of plasticizing unit has increase by more than 10 times comparing to OEM parts provided by machine maker.

Quality of injected part is very stable and reject rate decreased significantly.

Initial cost was high but it really paid off!

Examples of cost reductions

■ Relation between number of machine shots and maintenance cost generated by spare parts exchange



Stable quality = Cost reduction

Comparison of screw&cylinder life span

Resin material	Injected Part	Target component	Material used before KH	life span		Effect
				Before implementing KH	After implementing KH	
PPS+Neodium	Motor component	Screw&Cylinder	HIP; Powder high-speed tool steel	12 months	2.5 years	2.5x longer
PPS+Glass Fiber 40%	Connector	Screw&Cylinder	Corrosion& Abrasion resistant nozzle	3 months	4 years	16x longer
PA+Glass Fiber TiO2	LED Reflector	Screw&Cylinder	Centrifugal casting metallic part Powder high-speed tool steel	10 months	3 years, still in use	3.6x longer
Phosphorous Flame Retardant PA +Glass Fiber 40%	Connector	Cylinder	Powder high-speed tool steel+coating	2 months	1.5 year, still in use	9x longer
PPS+Glass Fiber Mineral 60%	Automotive Part	Screw&Cylinder	HIP	300 thousands shots	1.5 million shots	5x longer



KANAGATA (THAILAND) CO.,LTD.

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BANGNA-TRAD KM.36 HOMSEAL BANGPAKONG CHACHOENGSAO 24180 THAILAND.

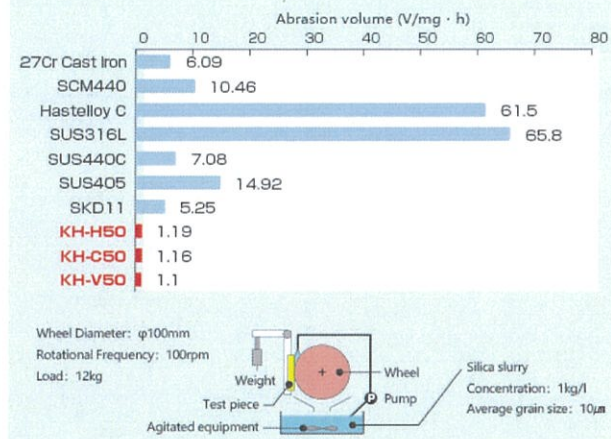
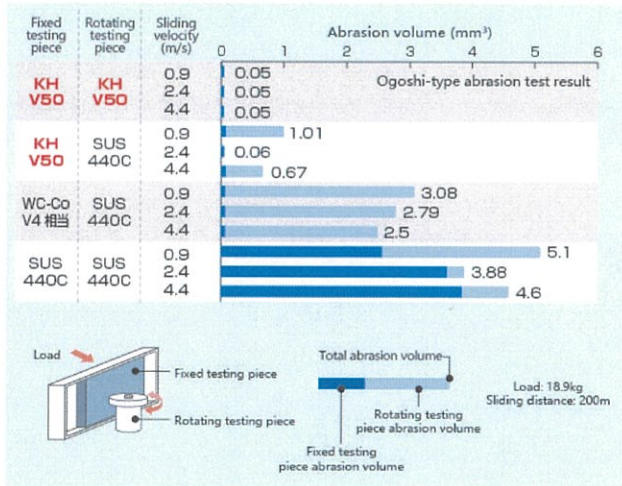
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<https://www.katmould.com/>



Outstanding characteristics of KH

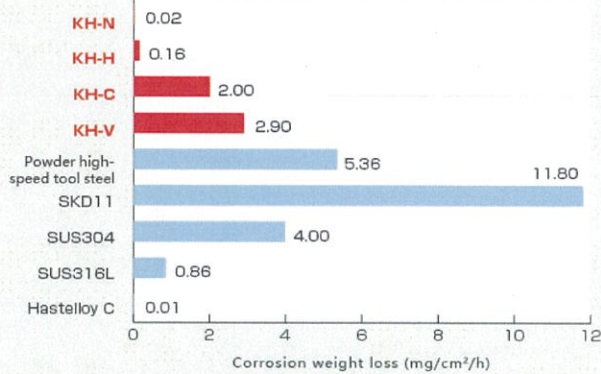
Abrasion resistance



Corrosion resistance

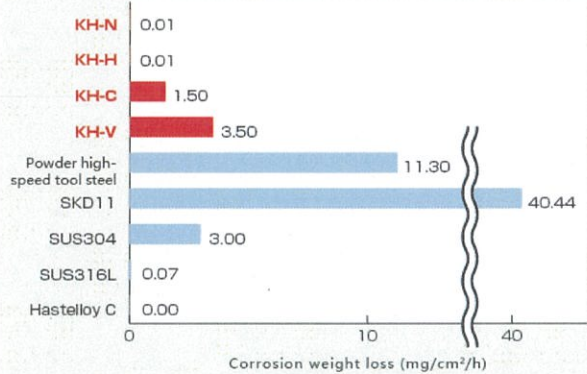
Corrosion resistance against hydrochloric acid

Immersed in 10% solution of hydrochloric acid 40°Cx10 hours



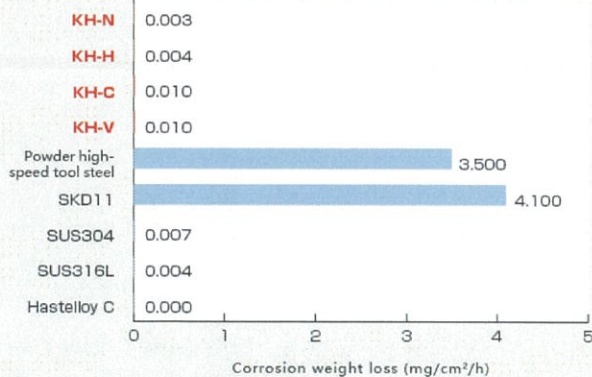
Corrosion resistance against sulphuric acid

Immersed in 10% solution of sulphuric acid 40°Cx10 hours



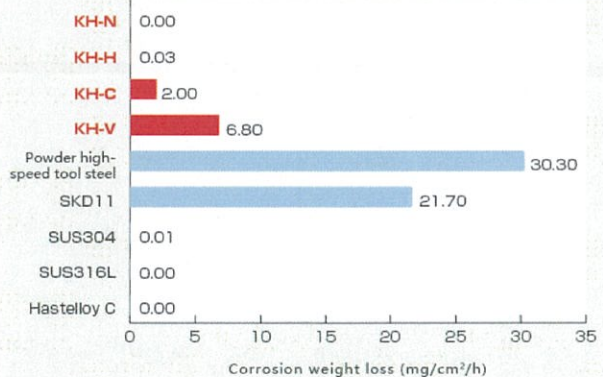
Corrosion resistance against phosphorus acid

Immersed in 10% solution of phosphorus acid 40°Cx10 hours



Corrosion resistance against nitric acid

Immersed in 10% solution of sulphuric acid 40°Cx10 hours



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Designed to last for long without replacement

Guarantees outstanding durability against corrosion and abrasion even in most extreme conditions.

You may benefit from KH cylinder if:

- You need to replace cylinder often due to internal abrasion.
- Your cylinder gets damaged due to injection with very high pressure.
- Due to the abrasion in the area of connection between hopper and cylinder the dosage of material becomes unstable causing problems with weight deviations.
- Abrasion damage at the connection between hopper and cylinder becomes the reason for cylinder exchange.

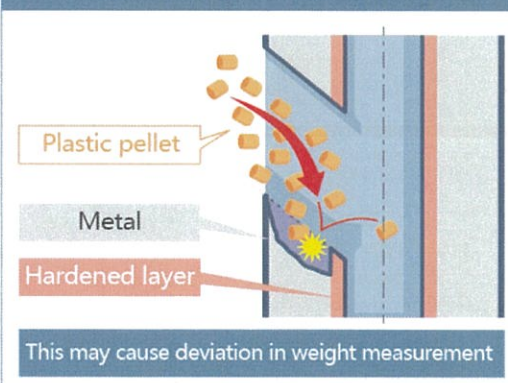
KH Cylinder construction and special characteristics

4 mm thick KH inner tube is attached to SCM440 metal outer tube by shrinking process. 4mm thick layer of hardened material is much more than in case of products from other manufacturers. Due to this characteristics - KH products shows extraordinary durability against abrasion and therefore is very recommended to use with resin materials containing high percentage of Glass Fiber or other highly-aggressive types of resins. Moreover - thanks to using the shrinking process - inner tube is being pressurized from outside. It makes it very strong against any pressure pushing from the inside and consequently makes KH cylinder very recommended for clients working with very high injection pressure in their process.



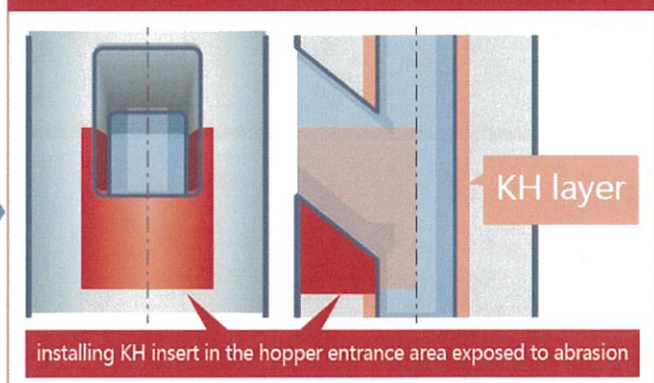
Reinforcement of connection area between cylinder and hopper

Over long-time usage the area where the resin material is going down from the hopper in to the cylinder gets worn-off due to continuous abrasion



countermeasure

The hopper entrance area where the pellet is entering the cylinder can be additionally reinforced by KH material insert - this is significantly increasing durability against abrasion



Installing the KH insert in cylinder-hopper connection area will significantly extend the life-span of the KH cylinder

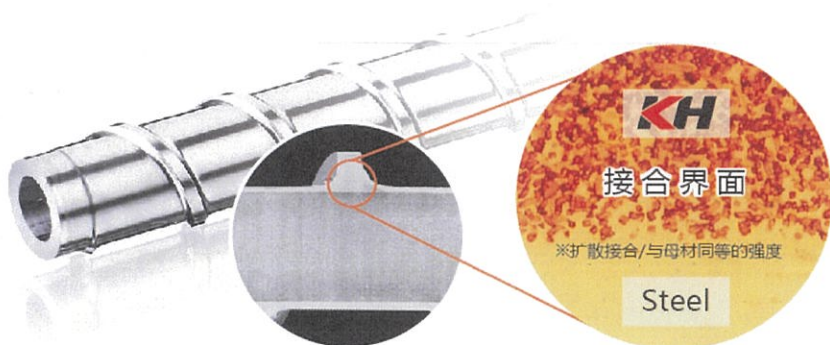
KH screw is a game changer for your injection moulding process

For customers who suffer from corrosion on screw's flight area

You may
benefit from
KH screw if:

- Due to flight abrasion suffer from problems with weight control deviations.
- Due to corrosion on flight area suffer from moulding problems.
- Clients who are not satisfied with screws covered with additional coating.

KH Screw construction and special characteristics



KH Screw construction and special characteristics

KH is attached to the metal core (SCM440) using the reactive sintering method. Thanks to this processing method.

KH is not only covering the surface of the screw - screw flights are actually 100% made out of it.

As a result - the screw can last extraordinarily long even against resin materials like plastic magnet (high abrasion) or halogen-free resins (extremely corrosive).

Abrasion resistance comparison

Resin PLAMAG (Plastic Magnet) Ferrite + PA6



Way to decrease maintenance cost and increase yield

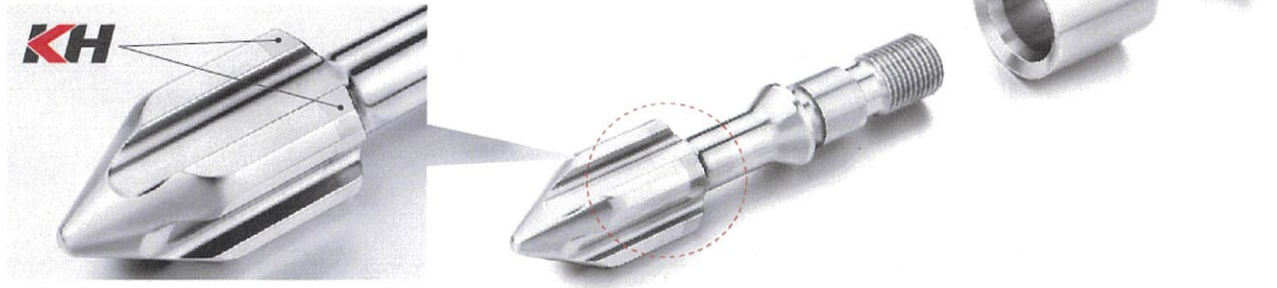
We offer highest level of abrasion and corrosion resistance

Special characteristics of KH three-part screw head

**You may
benefit from
KH screw heads if:**

- Suffer from cylinder inner walls abrasion damage due to using the claw type ring.
- Due to wear of the ring's outer edge, suffer from material back-flow during injection.
- Suffer from high rate of moulding defect and want to change material flow channel to improve it.

In case of screw head - our unique technology makes it possible to install KH material in the area of contact between screwhead and the ring - exactly where abrasion is the strongest.
For the ring - by using highly abrasion resistant KH it is possible to prevent fast wearing off damage in outer edge area.



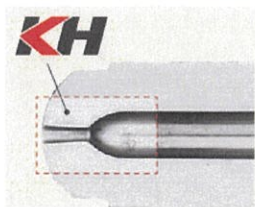
What is the KH nozzle:

**You may
benefit from
KH nozzle if:**

- Due to abrasion wear in nozzle tip hole area - suffer from problems with cobwebbing defects.
- Spool not coming out in stable manner and that causing moulding defects.

Having KH material in the tip area of the nozzle helps to prevent abrasion damage in inside diameter area.

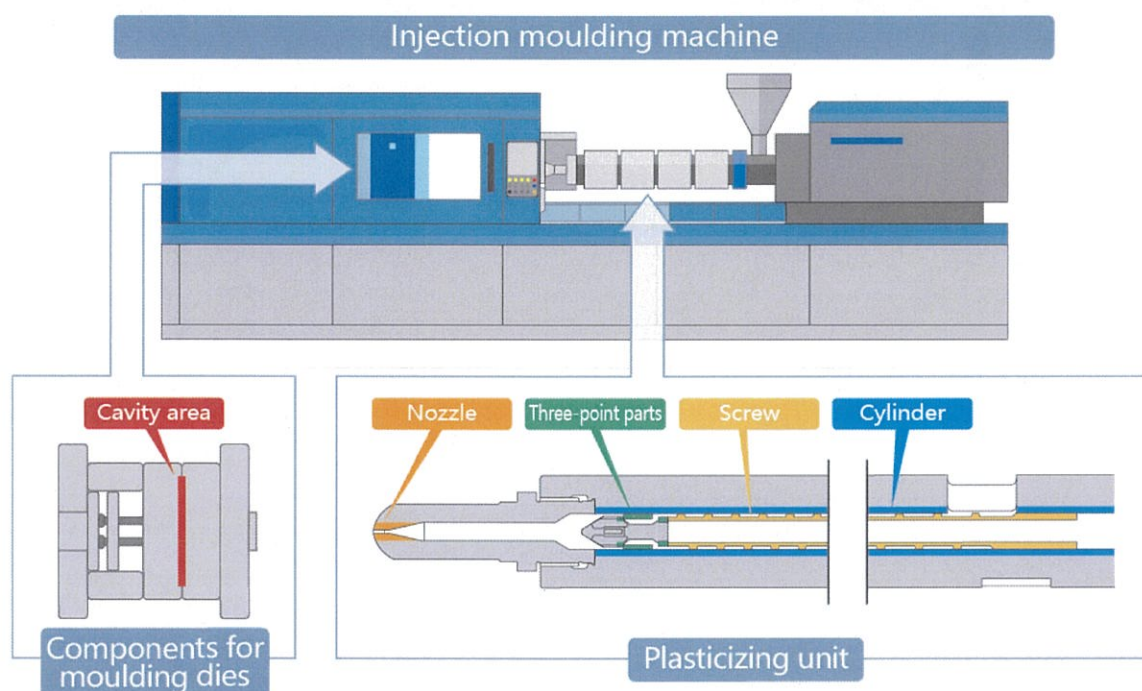
Abrasion damage in this area can lead to quality problems like cobwebbing or nozzle blocked by cold resin.



Technology for your Business Contribution by experienced technology

Technology for your Business

Injection moulding machine



Other application for KH material

KH can significantly reduce problems with abrasion or corrosion (related to flame retardant or other resin additives). Below please find some example of other possible applications:

Screw element



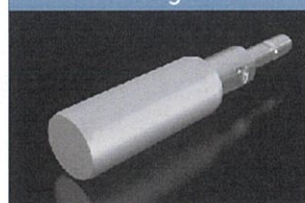
2 axis barrel



Shaft sleeve for sea water



Plunger



Details of die parts

<https://www.i-koko.jp/molds>

