NEWS RELEASE

September 9th, 2025

NIPPON KINZOKU CO., LTD.

Softens Carbon and Tool Steels, Enables Difficult Machining

SFA Finish to be Newly Promoted as an Eco-Product

NIPPON KINZOKU: Co-creating New Value with Earth-Friendly "Eco-Products"

NIPPON KINZOKU CO., LTD. (Headquarters: Minato-ku, Tokyo; President: Yasushi Shimokawa; Securities Code: 5491) will strengthen sales of its "SFA Finish" carbon steel and carbon tool steel, which offer improved workability through softening, as the fifth product in its environmentally-friendly "Eco-Product" series.

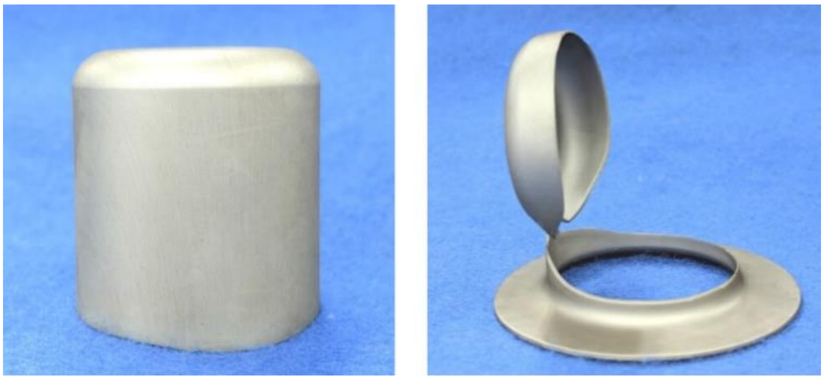


Photo 1: Appearance after deep drawing test
(Left: SFA finish, Right: Standard annealed finish)

“SFA (Super Full Annealing) Finish” is our proprietary product that softens materials without altering chemical composition by optimizing manufacturing conditions. This softening enhances workability and reduces springback. Consequently, it enables process streamlining and improved yield rates, contributing to enhance energy efficiency in manufacturing processes and reduced environmental impact.

Therefore, our "SFA finish" for carbon steel and carbon tool steel is certified as an environmentally-friendly "Eco-Product" under our proprietary standards. We are committed to sustainable manufacturing through the widespread adoption of environmentally-friendly materials, aiming for net-zero CO2 emissions by 2050.

Furthermore, this product is a proprietary offering aligned with the vision of our 11th Business Plan, “NIPPON KINZOKU 2030.” Under the keyword “Near Net Performance” (achieving the performance required of the final product at the material stage), it meets customer needs. Going forward, we aim to further expand sales, primarily in the automotive sector.

Features and Benefits of SFA Finish

1. Chemical Composition

   Product properties are enhanced by optimizing cold rolling conditions, with no changes to the chemical composition.

2. Mechanical Properties

   Compared to standard annealed products, it offers superior ductility while being softer (lower strength). (Table 1)

Steel Grade	Finish	Hardness (HV)	Tensile Strength (N/mm^2)	Yield Strength (N/mm^2)	Elongation (%)
SK85M	SFA	150	499	330	31.3
	Annealed	182	564	435	22.0
S60CM	SFA	129	450	266	33.4
	Annealed	160	606	346	27.3

Table 1: Mechanical Properties (Representative Values)

3. Processability

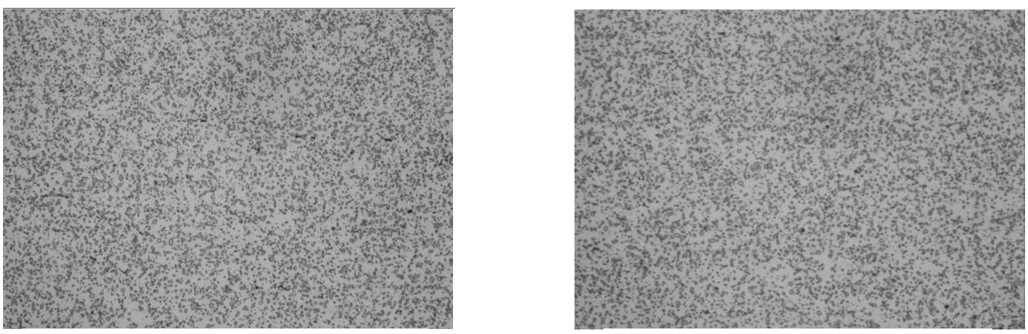
   Compared to standard annealed finishes, it offers greater elongation, preventing processing cracks. (Photo 1)

   Additionally, its low springback ensures stable product shape after processing. (Photo 2)

Photo 2: Application Example: Automotive Parts

4. Metal Structure

   The size of the spheroidal carbides is approximately 1.0 to 1.5 µm, equivalent to typical annealed finish. (Photo 3, example of SK85M)



Carbide particle size: 1.0–1.5 µm

Carbide particle size: 1.0–1.5 µm

Photo 3: Carbide structure (Left: Standard annealed finish, Right: SFA finish)

5. Properties after Heat Treatment

The microstructure and hardness after quenching and tempering are equivalent to those of general-purpose materials. (Table 2)

Steel Grade	Finish	Hardness (HV)		
		Before Quenching	After Hardening	After Tempering
SK85M	SFA	150	825	522
	Annealed	182	820	523

Heat treatment conditions) Quenching: 850°C × 3 min, oil cooling

Tempering: 400°C × 3 min, air cooling

Table 2: Mechanical Properties after Heat Treatment (Representative Values)

Overview of Cold Rolled Special Steel Strip Products

Our company began producing cold rolled special steel strip in 1930, making us the longest-established manufacturer in Japan. We pride ourselves on providing high-quality products that meet diverse specifications and quantities across all industries.

Overview of Steel Strip Products

Leveraging our proprietary equipment designed with cold rolling expertise and industry-leading technology, we meet our customers' diverse needs.
URL: https://www.nipponkinzoku.co.jp/en/corporate-profile/business/cold-rolled-stainless-steel-strip

About the 11th Business Plan "NIPPON KINZOKU 2030"

Our vision is to be a “Multi & Hybrid Material company that co-creates new value that is kind to people and the planet.” By rolling and composite forming diverse materials to achieve the performance required for final products through the materials themselves, we contribute to the future of people and the planet.
Our key concepts are “Multi & Hybrid Material” (utilizing diverse materials to suit various needs), “Near Net Shape” (achieving complex forming close to the final product shape), and “Near Net Performance.” Leveraging these technologies, we are advancing product development with an eye toward the future. Furthermore, we aim to transform our business structure by focusing on new technologies and products as our core offerings and responding to emerging needs.

*****Contact for Inquiries Regarding This Product and Technical Information*****

NIPPON KINZOKU CO., LTD. Production Process & Support Department
TEL: +81-3-5765-8113
https://www.nipponkinzoku.co.jp/en/inquiry