

ASSAB 705

GENERAL

ASSAB 705 is machinery steel with unique machinability. ASSAB 705 is supplied as quenched and tempered that enhances hardness and toughness distribution.

Typical analysis %	C 0.40	Mn 0.70	Cr 0.80	Ni 1.80	Mo 0.25
Reference standard	AISI 4340, DIN 34CrNiMo6, W.nr. 1.6582, BS EN24, AFNOR 35NCD6, JIS SNCM 439				
Delivery condition	Quenched and tempered to 293-352HB				

APPLICATIONS

ASSAB 705 is an alloyed machinery steel with good hardenability also in large cross sections. It combines high strength with best toughness.

ASSAB 705 is intended for use in the as-delivered condition, requiring no further heat treatment. However, it can be oil, water or polymer hardened to higher hardness and higher mechanical properties if required. ASSAB 705 is suitable for induction hardening and can also be nitrided or tuftrided to a surface hardness of 600-650 Vickers.

ASSAB 705 is not suitable for welding but can be repair welded when certain precautions are taken.

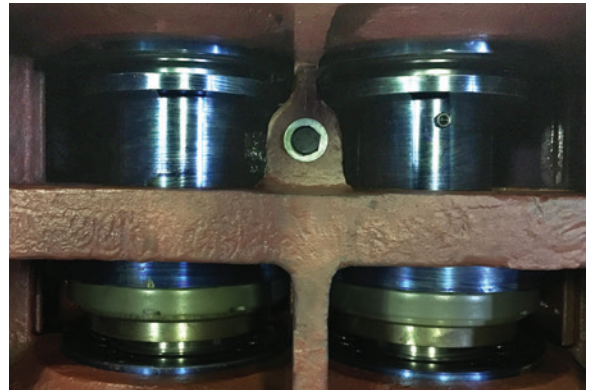
Typical applications include high strength machine parts, spindles, high strength bolts and studs, gears, axle shaft, crankshafts, connecting rods, arbors etc.

PROPERTIES

MECHANICAL DATA

QUENCHED AND TEMPERED

Mechanical Properties	Typical values under supplied condition
Yield strength, Rp 0.2, N/mm ²	≥ 850
Tensile strength, N/mm ²	≥ 980
Elongation, A ₅ , %	≥ 14
Reduction of area, Z, %	≥ 45
Impact strength (Charpy-V at ~23°C), J/cm ²	≥ 55



Components (main shafts) for palm oil extract



Car components

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Edition 20240815

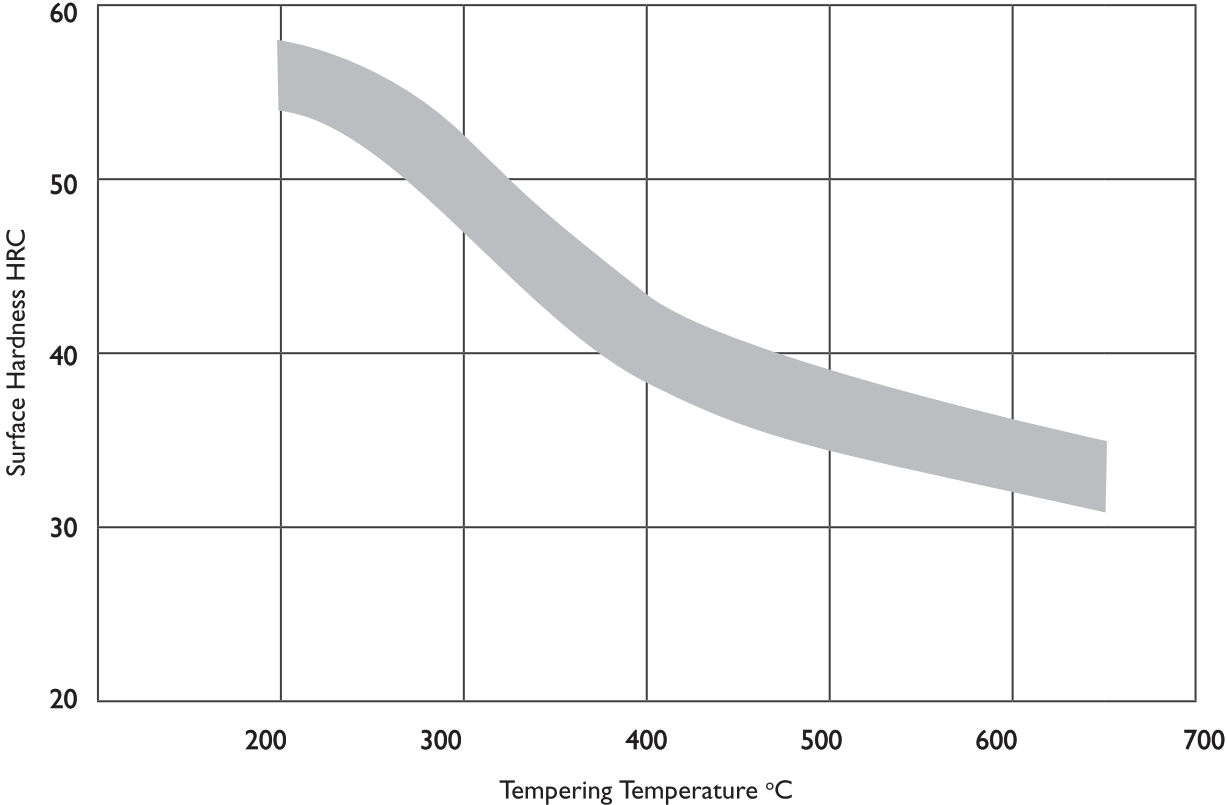
HEAT TREATMENT

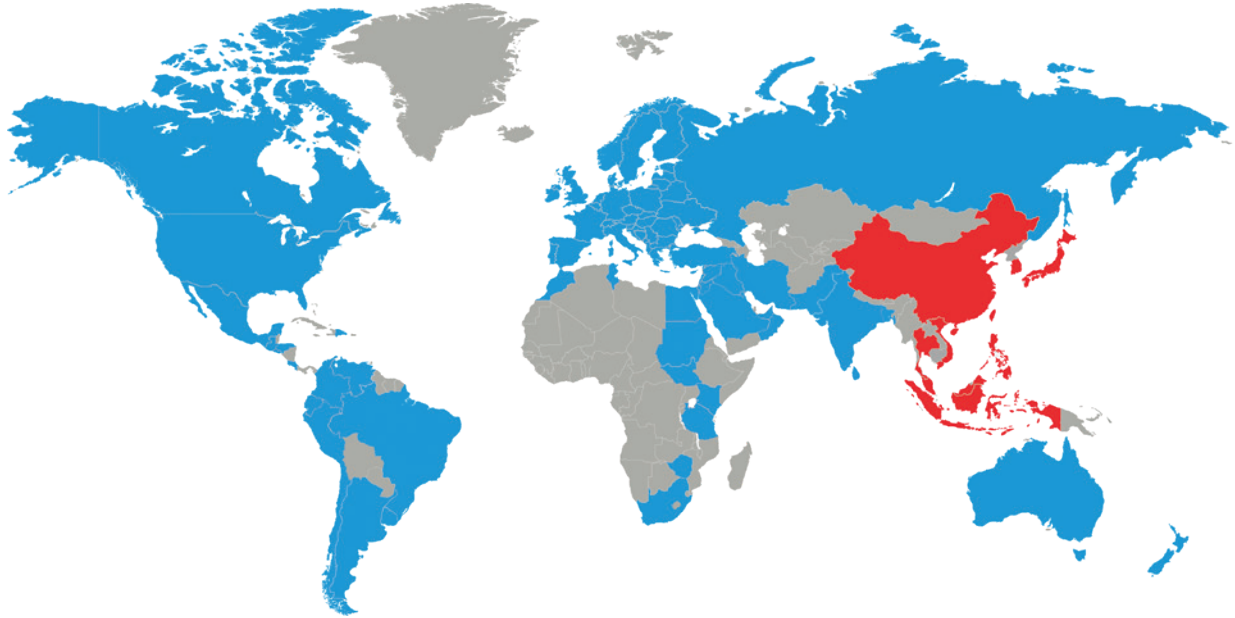
Heat treatment for pre-hardened condition:
Hardened at 880-935°C
Tempered at 600-670°C
Quench media 100% water

ASSAB 705 can be re-hardened by oil, polymer or water to higher hardness. The following tempering diagram is achieved by induction heating followed by water quenching process.

Tempering diagram

Quenching in water after induction heating at 880°C





Choosing the right steel is of vital importance. ASSAB engineers and metallurgists are always ready to assist you in your choice of the optimum steel grade and the most suitable treatment for each application. ASSAB not only supplies steel products with superior quality, but we also offer state-of-the-art machining, heat treatment, surface treatment, surface coating services and additive manufacturing (3D printing) to enhance your tooling performance while meeting your requirements in the shortest lead time. Using a holistic approach as a one-stop solution provider, we are more than just another tool steel supplier.

In Asia Pacific, ASSAB anchors the distribution network for Uddeholm, a Swedish tool steel manufacturer with more than 350 years of experience in the tool steel industry. Both are integral parts of voestalpine AG, a prominent Austrian-based company listed on the Vienna Stock Exchange since 1995. Together, we establish ourselves as a key player in the steel and technology sector, with a diverse range of products and services.

For more information, please visit:

www.assab.com



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