

ASSAB 709

GENERAL

ASSAB 709 is an alloyed machinery steel with high strength in small and medium size.

ASSAB 709 is supplied as quenched and hardened requiring no further heat treatment. However, it can be water, oil or polymer quenched to higher mechanical properties.

Typical analysis %	C 0.4	Si 0.2	Mn 0.8	Cr 1.0	Mo 0.2
Reference standard	AISI 4140, DIN 42CrMo4, W.Nr: 1.7225, BS EN19, AFNOR 42CD4, JIS SCM 4				
Delivery condition	Quenched and tempered to 285-352HB				

APPLICATIONS

ASSAB 709 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 709 is suitable for flame and induction hardening and can also be nitrided or tuftrided to a surface hardness of 600-650 Vickers.

ASSAB 709 is not suitable for welding but can be repair welded when certain precautions are taken.

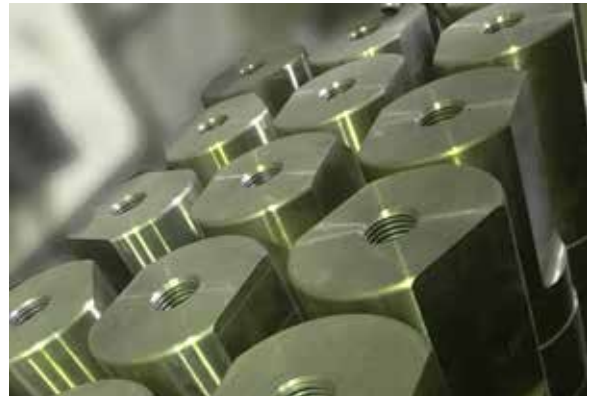
Typical applications include high strength machine parts, spindles, high strength bolts and studs, gears, axle shaft, crankshafts, connecting rods, arbors etc.

PROPERTIES

MECHANICAL DATA

QUENCHED AND TEMPERED

Mechanical Properties	Typical values under supplied condition	
	≤100	101-210
Diameter, mm	≤100	101-210
Yield strength, Rp 0.2, N/mm ²	≥ 750	≥ 650
Tensile strength, N/mm ²	≥ 950	≥ 850
Elongation, A ₅ , %	≥ 12	≥ 14
Reduction of area, Z, %	≥ 42	≥ 45
Impact strength (Charpy-V at ~23°C), J/cm ²	≥ 50	≥ 50



Components (main shafts) for palm oil extract



Car components

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HEAT TREATMENT

Heat treatment for pre-hardened condition:

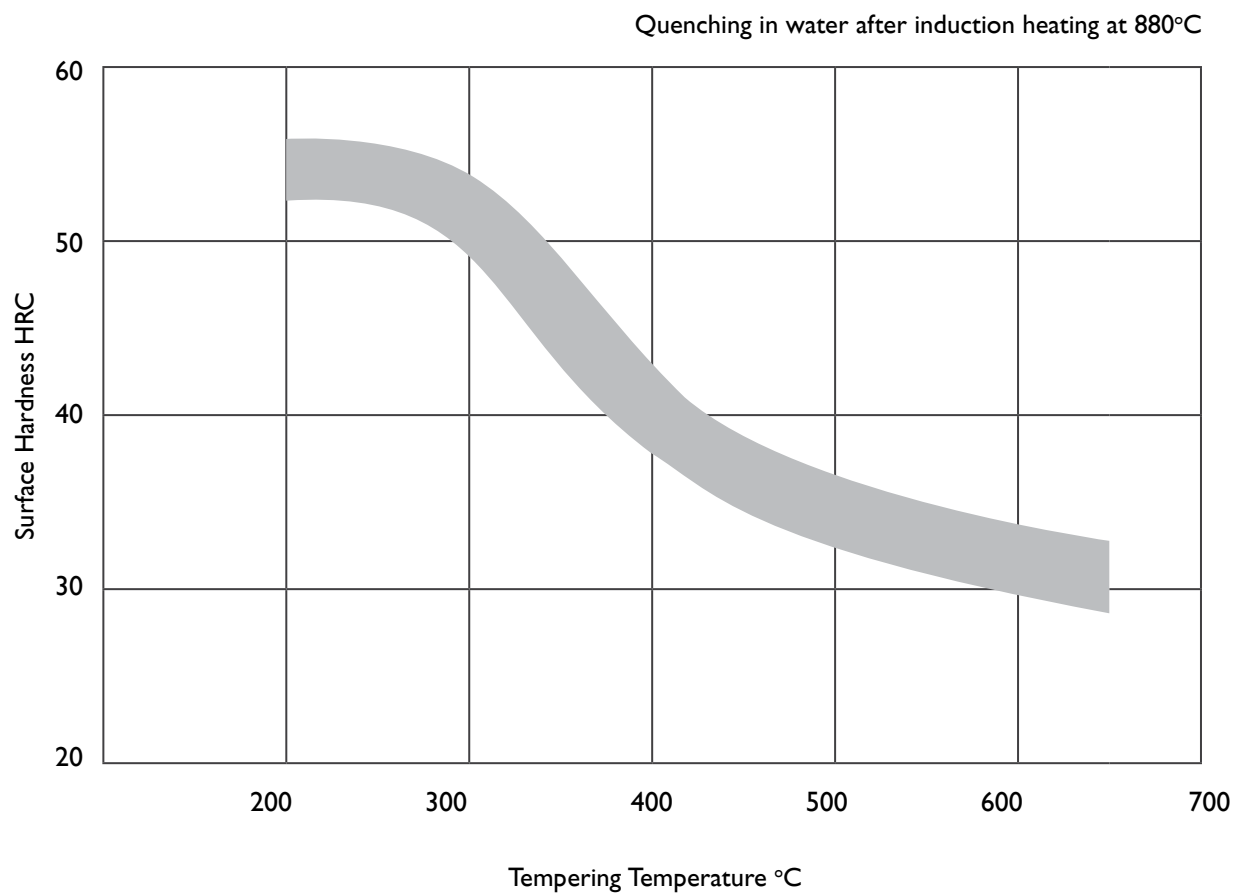
Hardened at 880-935°C

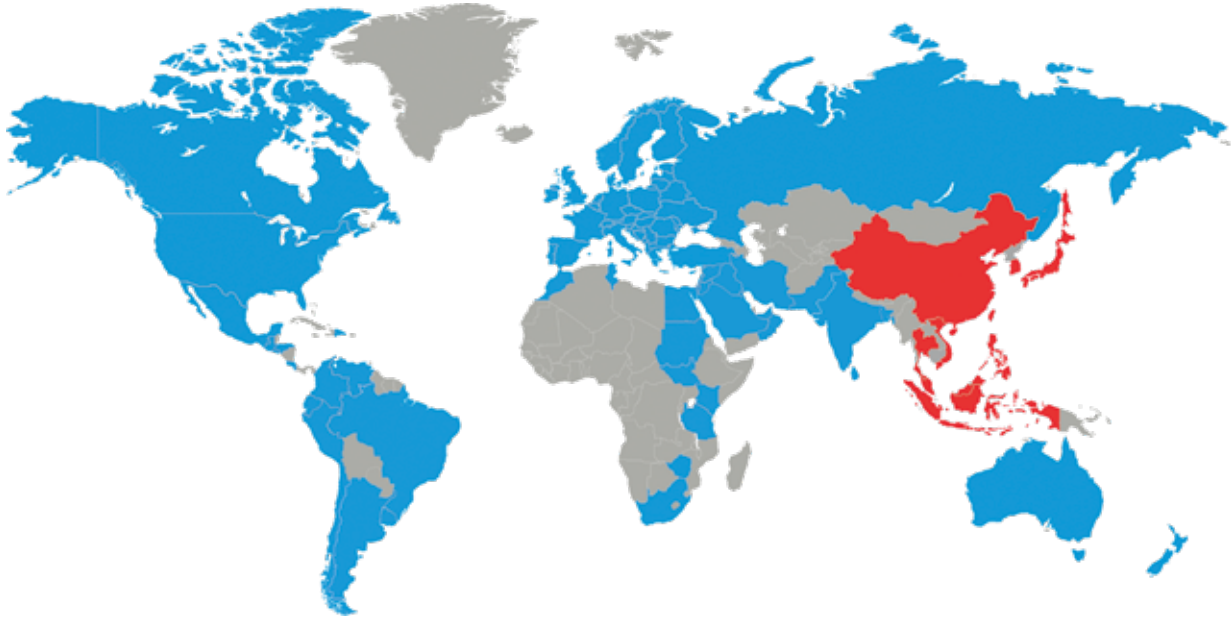
Tempered at 600-670°C

Quench media 100% water

ASSAB 709 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





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 best treatment for each application. ASSAB not only supplies steel products with superior quality, we offer state-of-the-art machining, heat treatment and surface treatment services to enhance steel properties to meet your requirement in the shortest lead time. Using a holistic approach as a one-stop solution provider, we are more than just another tool steel supplier.

ASSAB and Uddeholm are present on every continent. This ensures you that high quality tool steel and local support are available wherever you are. Together we secure our position as the world's leading supplier of tooling materials.

For more information, please visit www.assab.com