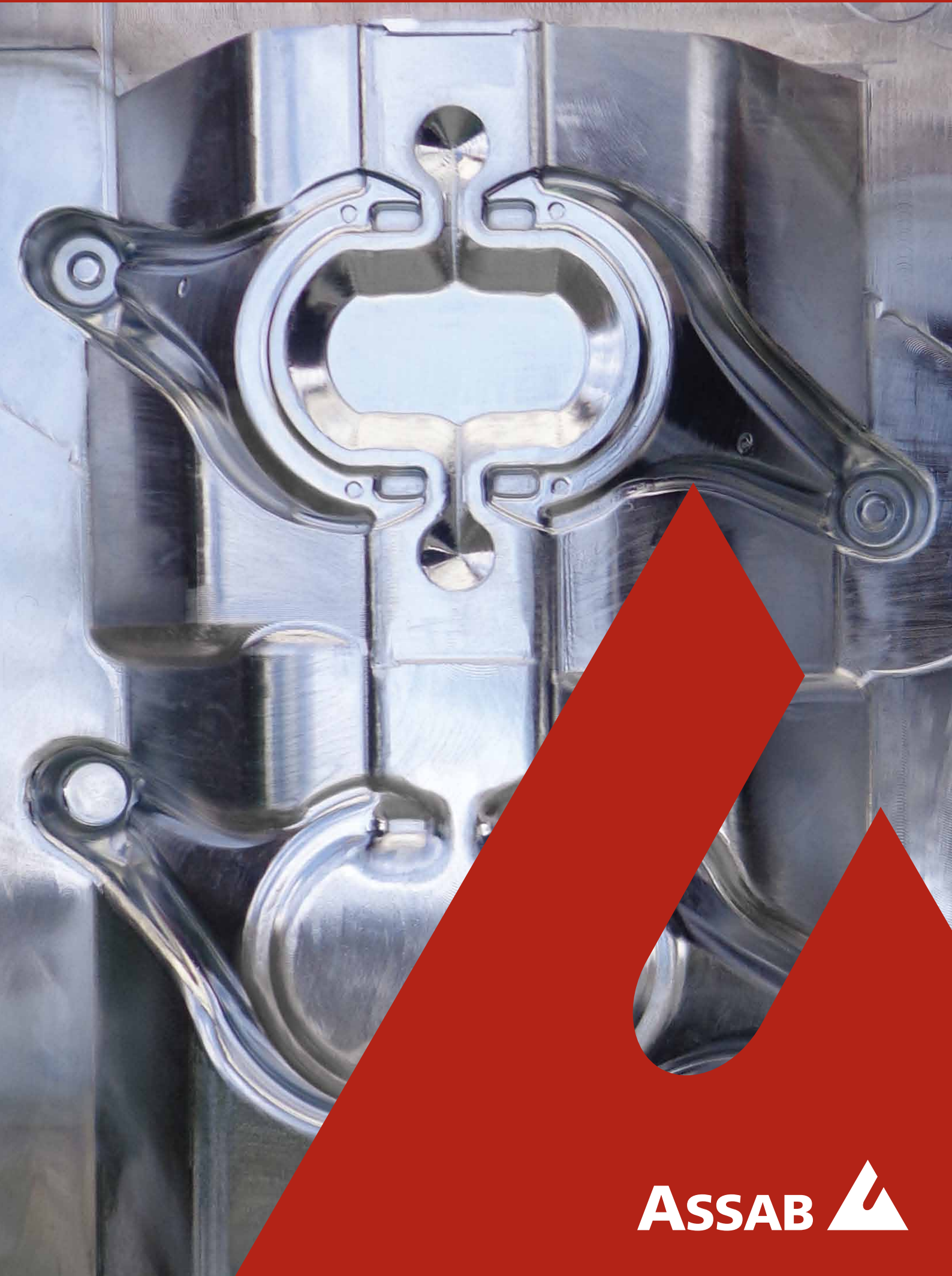


ASSAB 2714



ASSAB 

General

ASSAB 2714 is a vacuum-degassed Cr-Ni-Mo-V alloyed steel. It is supplied either in soft-annealed or prehardened condition. In the prehardened condition, no further heat treatment is required. This eliminates the risks, cost and waiting time of heat treatment and avoids the associated possibility of distortion or even cracking. Subsequent modifications can easily be carried out.

Typical analysis %	C 0.55	Si 0.3	Mn 0.8	Cr 1.2	Ni 1.6	Mo 0.5	V 0.1
Standard specification	WNr. 1.2714, DIN 55NiCrMoV7, JIS SKT 4						
Delivery condition	1. Soft-annealed to max. 250 HB 2. Hardened and tempered to either: 300 - 340 HB; 320 - 360 HB; 360 - 400 HB; 400 - 440 HB.						
Colour code	Black / White						

ASSAB 2714 is manufactured to high-quality standards by using special forging process with the following characteristics:

- Good toughness
- Good resistance to high thermal stresses
- Good dimensional stability during hardening
- Good through-hardening properties

Applications

- Hot forging tools
- Extrusion tools such as bolsters, mandrels, sleeves, die holders and backing plates
- Tools for hot shearing, hot forming and pressing

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty for fitness for a particular purpose.

Edition 130517

Properties

PHYSICAL PROPERTIES

Hardened and tempered to 370 HB (40 HRC).

Temperature	20°C	200°C	400°C
Density kg/m ³	7 800	7 740	7 680
Modulus of elasticity N/mm ²	215 000	202 000	185 000
Coefficient of thermal expansion per °C from 20°C	–	13.1 × 10 ⁻⁶	13.9 × 10 ⁻⁶
Thermal conductivity* W/m°C	36.0	36.5	36.8

* Thermal conductivity is very difficult to measure. The scatter can be as high as ±15%.

MECHANICAL PROPERTIES

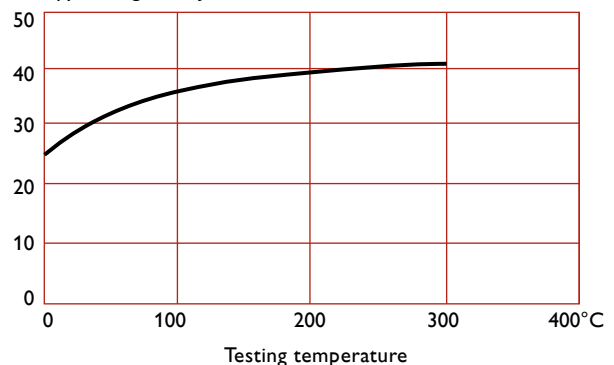
Hardened and tempered to 360-390 HB (39-42 HRC).

Temperature	20°C	200°C	400°C
Tensile strength, R _m N/mm ²	1210	1190	1030
Yield strength, R _{p0.2} N/mm ²	1150	1030	930

Toughness as a function of preheat temperature

Preheating is important for optimum toughness. 100°C is the recommended minimum preheat temperature.

Charpy-V toughness, J



Heat treatment

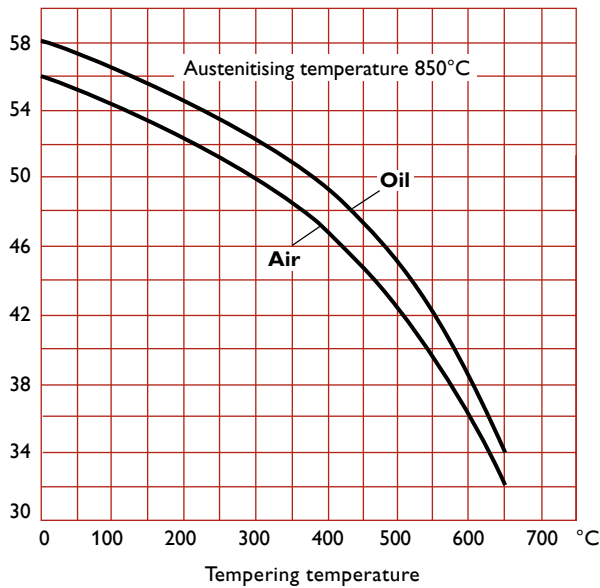
Process	Temperature	Soaking time [†]	Cooling	Hardness
Stress relieving / tempering ^{††}	~ 650°C (Soft-annealed) ~ 600°C (300 - 340 HB) ~ 580°C (320 - 360 HB) ~ 520°C (360 - 400 HB) ~ 430°C (400 - 440 HB)	120 min	Furnace cooling	–
Soft annealing	650 - 700°C	60 - 120 min	Slow cooling in furnace	–
Hardening	830 - 870°C	30 - 60 min	Oil	~ 58 HRC
	860 - 900°C	30 - 60 min	Air / Pressure N ₂	~ 56 HRC
Tempering	Refer to the tempering graph for the hardness.			

[†] Soaking time = Time at temperature after the tool is fully heated through.

^{††} Refer to oil tempering graph for stress tempering temperature.

Tempering graph

Hardness, HRC



Welding

Welding method	TIG	MMA (SMAW)
Working temperature	225 - 275°C	225 - 275°C
Filler material	UTP A 73 G4 ESAB OK TIG ROD 13.22	UTP 73 G4 ESAB OK 83.28
Hardness after welding	350 - 400 HB	340 - 390 HB
Post-weld treatment	Stress relieving for soft-annealed condition Stress tempering for prehardened condition	

Further information

For further information, i.e., steel selection, heat treatment, application and availability, please contact our ASSAB office* nearest to you.

*See back cover page.

GROUP HEAD OFFICE

ASSAB Pacific Pte. Ltd.
171 Chin Swee Road
#07-02 SAN Centre
Singapore 169877
Tel : 65 6534 5588
Fax : 65 6534 0655

CHINA

Beijing*

ASSAB Tooling (Beijing) Co., Ltd.
10A Rong Jing Dong Jie
Beijing Economic & Tech. Development Area (BDA)
Beijing 100176, China
Tel : 86 10 6786 5588
Fax : 86 10 6786 2988

Changzhou*

288 Tongjiang Road, Xinbei District
Building 2, A2803, Daosheng Center
Changzhou 213022, China
Tel : 86 519 8512 3731
Fax : 86 519 8512 3732

Chongqing*

ASSAB Tooling Technology (Chongqing) Co., Ltd.
C Plant, Automotive Industrial Park
Chongqing Economic & Tech. Development Zone
Chongqing 401120, China
Tel : 86 23 6745 5698
Fax : 86 23 6745 5699

Dalian*

9-2 Mould Workshop, 26 Industrial Zone
Dalian Economic & Technological Development Zone
Dalian 116600, China
Tel : 86 411 8761 8080
Fax : 86 411 8761 9595

Dongguan*

ASSAB Tooling (Dong Guan) Co., Ltd.
No. 3, Gongye North 1 Road,
Dongguan Songshan Lake National High-tech
Industrial Development Zone
Dongguan 523808, China
Tel : 86 769 2289 7888
Fax : 86 769 2289 9312

Ningbo*

ASSAB Tooling Technology (Ningbo) Co., Ltd.
218 Longjiaoshan Road, Vehicle Part Industrial Road
Ningbo Economic & Tech. Development Zone
Ningbo 315806, China
Tel : 86 574 8680 7188
Fax : 86 574 8680 7166

Qingdao*

ASSAB Tooling (Qingdao) Co., Ltd.
8 Yi Sheng Bai Road
Jimo Environmental Protection Industrial Zone
Ningbo 315806, China
Tel : 86 532 8752 9999
Fax : 86 532 8752 9588

Shanghai*

ASSAB Tooling Technology (Shanghai) Co., Ltd.
4088 Humin Road
Xinzhuang Industrial Zone
Shanghai 201108, China
Tel : 86 21 2416 9688
Fax : 86 21 2416 9738

Suzhou*

220 Xinghai Street, Suzhou Industrial Park
Room 801, Xinghai International Plaza
Suzhou 215021, China
Tel : 86 512 6900 0161
Fax : 86 512 6252 9227

Tianjin*

505 B Haitai Xinxin Plaza
Huayuan Chanye Jidi, Nankai District
Tianjin 300384, China
Tel : 86 22 2370 7808
Fax : 86 22 2370 7806

Xiamen*

ASSAB Tooling (Xiamen) Co., Ltd.
Eastern Wing, 1/F, Universal Workshop, 30 Huli Zone
Xiamen 361006, China
Tel : 86 592 562 4678
Fax : 86 592 568 3703

Other offices in Changchun, Hangzhou, Shenyang and Xi'an.

HONG KONG*

ASSAB Steels (HK) Ltd.
Room 1701-1703
Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, N.T., Hong Kong
Tel : 852 2487 1991
Fax : 852 2489 0938

INDONESIA

Jakarta*

PT. ASSAB Steels Indonesia
Jl. Rawagelam III No. 5
Kawansan Industri Pulogadung
Jakarta 13930, Indonesia
Tel : 62 21 461 1314
Fax : 62 21 461 1306

Medan*

Jl. Sunggal No. 159, Tanjung Rejo
Medan 20122
North Sumatera, Indonesia
Tel : 62 21 847 7935
Fax : 62 21 847 7936

Surabaya*

Jl. Berbek Industri I/23
Surabaya Industrial Estate
Rungkut
Surabaya 60293
East Jaya, Indonesia
Tel : 62 31 849 9606
Fax : 62 31 843 2040

Other offices in Bandung, Cikarang, Semarang and Tangerang.

JAPAN

Tokyo*

Bohler-Uddeholm KK
Bancho M Buildkng 4F
2-8 Rokubancho, Chiyoda-ku
Tokyo 102-0085, Japan
Tel : 81 3 5226 3771
Fax : 81 3 5226 6110

Fukuroi*

1777-1 Muramatsu, Fukuroi-shi
Shizuoka 437-0011, Japan
Tel : 81 538 43 9240
Fax : 81 538 43 9244

Nagoya*

Sumitomo Seimei Chikusa
New Tower Building
3-15-31 Aoi, Higashi-ku, Nagoya,
Aichi 461-0004, Japan
Tel : 81 52 979 5081
Fax : 81 52 933 6461

Osaka*

Shin Osaka Prime Tower
6-1-1 Nishinakajima, Yodogawa-ku
Osaka 532-0011, Japan
Tel : 81 6 6307 7621
Fax : 81 6 6307 7627

KOREA

Incheon*

ASSAB Steels (Korea) Co., Ltd.
116B-8L, 687-8, Kojang-dong,
Namdong-ku
Incheon 405-310, Korea
Tel : 82 32 821 4300
Fax : 82 32 821 3311

Busan*

14B-5L, 1483-9, Songjeong-dong,
Kangseo-ku
Busan 618-270, Korea
Tel : 82 51 831 3315
Fax : 82 51 831 3319

Daegu*

720-2, Geomdan-dong, Buk-gu
Daegu 702-030, Korea
Tel : 82 53 384 3315
Fax : 82 53 384 3317

MALAYSIA

Head Office / KL Sales*
ASSAB Steels (Malaysia) Sdn. Bhd.
Lot 19, Jalan Perusahaan 2
Batu Caves Industrial Estate
68100 Batu Caves
Selangor, Malaysia
Tel : 60 3 6189 0022
Fax : 60 3 6189 0044 / 55

Butterworth*

Plot 146a
Jalan Perindustrial Bukit Minyak 7
Kawasan Perindustrial Bukit Minyak
14000 Bukit Mertajam
SPT Penang, Malaysia
Tel : 60 4 507 2020
Fax : 60 4 507 6323

Johor*

8 Jalan Pesiaran Teknologi
Taman Teknologi Johor
81400 Senai
Johor, Malaysia
Tel : 60 7 598 0011
Fax : 60 7 599 4809

PHILIPPINES

Laguna*

ASSAB Pacific Pte. Ltd. - Philippine Branch
Blk 2, Lot 4 Interstar corner Solid Streets
Laguna International Industrial Park (LIIP)
Mamplasan, Biñan, Laguna
4024 Philippines
Tel : 63 49 539 0441 / 42
Fax : 63 49 539 1075

Another office in Cebu.

SINGAPORE*

ASSAB Steels Singapore (Pte.) Ltd.
18 Penjuru Close
Singapore 608616
Tel : 65 6862 2200
Fax : 65 6862 0162

TAIWAN

Taipei*

ASSAB Steels Taiwan Co., Ltd.
No. 112, Wu Kung 1st Road
New Taipei Industrial Park
Wu Ku District, New Taipei City
Taipei 248-87, Taiwan
Tel : 886 2 2299 2849
Fax : 886 2 2299 0147 / 2348

Kaoshiung*

No. 1, Bangong West 3rd Road
Gangshan Benzhou Industrial Park
Kaoshiung 820-59, Taiwan
Tel : 886 7 624 6600
Fax : 886 7 624 0012 / 16

Nantou*

No. 10, Industry South 5th Road
Nan Kang Industry Zone
Nantou 540-66, Taiwan
Tel : 886 49 225 1702
Fax : 886 49 225 3173

THAILAND*

ASSAB Steels (Thailand) Ltd.
9/8 Soi Theedintjai, Taeparak Road,
Bangplee, Samutprakarn 10540
Tel : 66 2 385 5937
66 2 757 5017
Fax : 66 2 385 5936
66 2 385 5943

VIETNAM*

ASSAB Steels Vietnam Co., Ltd.
Plot 101/2-1, Road 3B,
Amata Industrial Zone
Bien Hoa City, Dong Nai, Vietnam
Tel : 84 61 8899 099
Fax : 84 61 8899 191

** Sales office with warehouse and/or value-added services*

† Sales office only

ASSAB TOOL STEELS have been in Asia since 1945. Our customers associate ASSAB brand with tooling materials that are high in quality and consistency.

The ASSAB sales companies and distributors offer you well-assorted stocks in a number of places covering the Asia-Pacific region. To further shorten the lead time, ASSAB will mill, grind, drill and even wire-cut the tool steel to meet your requirements. ASSAB also provides state-of-the-art vacuum heat treatment services to enhance the steel properties.

Our engineers and metallurgists are always ready to assist you in your choice of the optimum steel grade and the best treatment for each application. We always carry out material examinations at our local mini laboratories and at the central laboratory in Sweden.

Our steel mill in Sweden, Uddeholms AB, is one of the few steelworks in the world that is dedicated to the manufacture of tool steels only. Uddeholms AB is certified to ISO 9001 and ISO 14001.



Our forging press is one of the most modern of its kind in the world.

Besides tool steels, the ASSAB products and business areas also include:

- Welding electrodes for repair welding of tools
- High-strength aluminium for tooling purposes
- Copper alloys (e.g., beryllium copper) for inserts in moulds
- Alloy machinery steels
- Cold-rolled strip steels for saws, compressor valves, coater blades, etc
- Component business (e.g., shafts and recycling knives)