

**PEOPLE ORIENTED, INTEGRITY BASED,
QUALITY ASSURANCE, AND COMMON DEVELOPMENT.**

< 以人为本，诚信致业，品质保证，共谋发展。 >



DONGGUAN SONGSHUN MOULD STEEL CO., LTD

东莞市松顺模具钢材有限公司

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SONGSHUN



Dongguan Songshun Mould Steel Co., Ltd.

东莞市松顺模具钢材有限公司

COMPANY PROFILE

公司简介

Dongguan Songshun Mould Steel Co., Ltd. which is a industrial and trading company with 3500-7000ts oilhydraulic forging machine. We provide a great variety of steels, competitive price with good quality and annual plastic mold steel module inventory of more than 20,000 tons.

Our mainly produces and sells alloy structural steel, tool steel, stainless steel, spring steel, bearing steel and other series of rods, plates and modules of various grades. Over the years, we have provided a large amount of high-quality steel to various large and medium-sized enterprises in automobile manufacturing, engineering machinery, mold manufacturing, cutting tool manufacturing and other industries, and have been well received by clients at home and abroad.

Our company hold the principle of "people-oriented,quality, integrity first, as good as gold" business purposes. We warmly welcome new and old customers to contact us to discuss advice, willing to work with your sincere cooperation and seek common develop.

松顺模具钢材有限公司是集生产和直销各大钢厂材料为一体的工业实体，其锻造设备有 3500-7000 吨大型油压锻造机械。公司产品规格，品种齐全，品质优良，货源充足。常年塑胶模具钢模块库存量在 20000 吨以上。

公司主要生产销售合金结构钢，工具钢，不锈钢，弹簧钢，轴承钢等各种牌号系列的棒材，板材，模块。多年来为汽车制造，工程机械，模具制造，刃具制造等行业的各大中型企业提供了大量的优质钢材，深受海内外用户的一致好评。

公司坚持“以人为本，诚信致业，品质保证，共谋发展“的经营理念，真诚于海内外各界朋友携手合作，共创未来。

FACTORY HISTORY



23+

TONS STEEL STOCK



20,000+

SENIOR ENGINEER



105+

MARKETS



80+

HAPPY CUSTOMERS



5000+

EXPORT SHARE



86%

INVOLVED AREAS

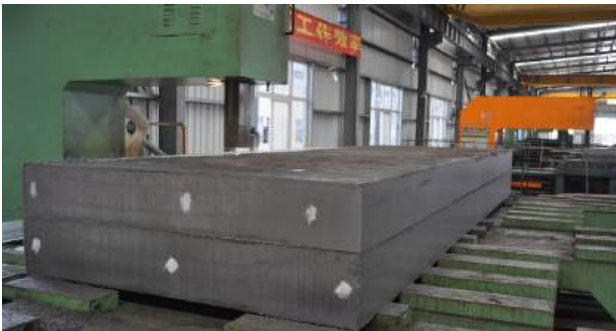


60+

SERVICE ITEMS



56+



PROCESSING TECHNOLOGY

加工工艺



COLD WORK MOLD STEEL

冷作模具钢



PLASTIC MOLD STEEL

塑胶模具钢



ALLOY STRUCTURAL STEEL

合金结构钢



STEEL TEST

钢材检测



HOT WORK MOLD STEEL

热作模具钢



HIGH SPEED STEEL

高速钢



STAINLESS STEEL

不锈钢

OUR ADVANTAGE

我们的优势

Manufacturing 制造



With 7000 tons of hydraulic forging press, electric slag furnace and other high-end production equipment, we produce a great variety of steels with the best quality in China.

拥有 7000 吨液压模锻机、电渣炉等高端生产设备，生产国内最优质的品种钢材。

Testing 检测



In order to control the quality, we have complete testing methods to make sure satisfy the customer needs, including Chemical Analysis, Ultrasonic Test and so on.

为了控制质量，我们拥有完整的测试手段来确保满足客户的需求，包括化学分析、超声波测试等。

Massive Stock 海量库存



We keep a mass stock are over 20000 tons for various steel type, including steel round bar, steel sheet, alloy steel, high speed steel, stainless steel, mold steel, steel coil and etc.

我们拥有各种钢种的大量库存超过 20000 吨，包括圆钢、钢板、合金钢、高速钢、不锈钢、模具钢、钢卷等。

Customized Service 定制服务



With a professional steel engineers team, we provide customized service according to your project drawing, also provide professional project experience for your special project, such as materials, processing conditions and etc.

我们拥有专业的钢铁工程师团队，根据您的项目图纸提供定制服务，并为您的特殊项目提供专业的经验，如材料、加工条件等。

World Wide Delivery 全球配送



For container shipment, round and flat steel will be transported using standard packing and strapping methods. It is necessary to fasten & reinforcement would be done to ensure the safety and better unloading at the destination port.

For shipment of less than single container, wooden box package would be applied for different size materials. For milled or ground materials, the anti-rust oil would be needed to ensure the surface condition, within the wooden box.

对于集装箱运输，将采用标准包装和捆扎圆钢和扁钢。必须进行紧固加固，以保证目的港的安全和更好的卸货。

对于小于集装箱的运输，将针对不同尺寸的材料采用木箱包装。对于铣削或研磨的材料，需要涂防锈油以确保木箱内的表面状况。

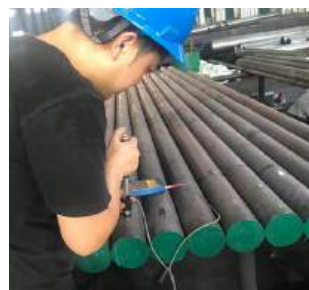
QUALITY GUARANTEE SYSTEM

品质体系



Quality is the foundation of the company, high-quality products are the main competitiveness of the enterprise. In order to produce high-quality products, SONGSHUN utilizes high-precision measurement and advanced detected equipment, the quality control to for each processing steps every procedure has been strictly undertaken to ensure high-quality products.

品质是企业立足之本，优质的产品是企业的核心竞争力，松顺为了制造高品质的产品，运用高精度的量具及先进的检测仪器，从进料检验到制程检验再到出货检验，严把加工过程中的每一道关口，确保每一个产品的高质量。



High quality is the first standard for our production. Our products are quality inspected in strict accordance with international standards and tested strictly based on customer needs, aiming to strictly ensure that products and services meet the highest international standards.

高品质是我们生产的第一标准。我们的产品严格按照国际标准进行质量检验，并根据客户需求进行严格测试，旨在严格确保产品和服务符合国际最高标准。



High-performance from strict quality detection, the quality management integrated into the whole production procedure. Precision production-detected devices and high responsibility, delivery on time and the excellent after-sales service, make us stronger responsibility and better service.

严格的品质检测是高性能的保证，品质管理贯穿整个制造流程。精密品检设备和高度责任心，以及按时交货和良好的售后服务，使我们拥有更强的责任和更好的服务。

Persistent Pursuit, Zero Defect Quality

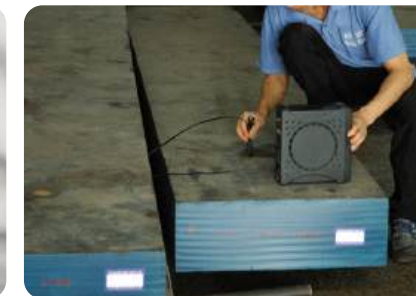
执着的追求 品质零缺陷

TEST ITEMS

检测项目



Ultrasonic Flaw Detection
◆ 超声波探伤检测 ◆



Hardness Testing
◆ 硬度检测 ◆



Chemical Composition Detection
◆ 化学成分检测 ◆



Thickness Measurement
◆ 厚度测量 ◆



Diameter (OD) Measurement
◆ 直径 (外径) 测量 ◆



Length Measurement
◆ 长度测量 ◆



Width Measurement
◆ 宽度测量 ◆



Steel Tensile Test
◆ 钢材拉伸试验 ◆



Steel Tensile Strength Test
◆ 钢材抗拉强度测试 ◆



Straightness Detection
◆ 直线度检测 ◆



Metallographic Structure Analysis
◆ 金相组织分析 ◆



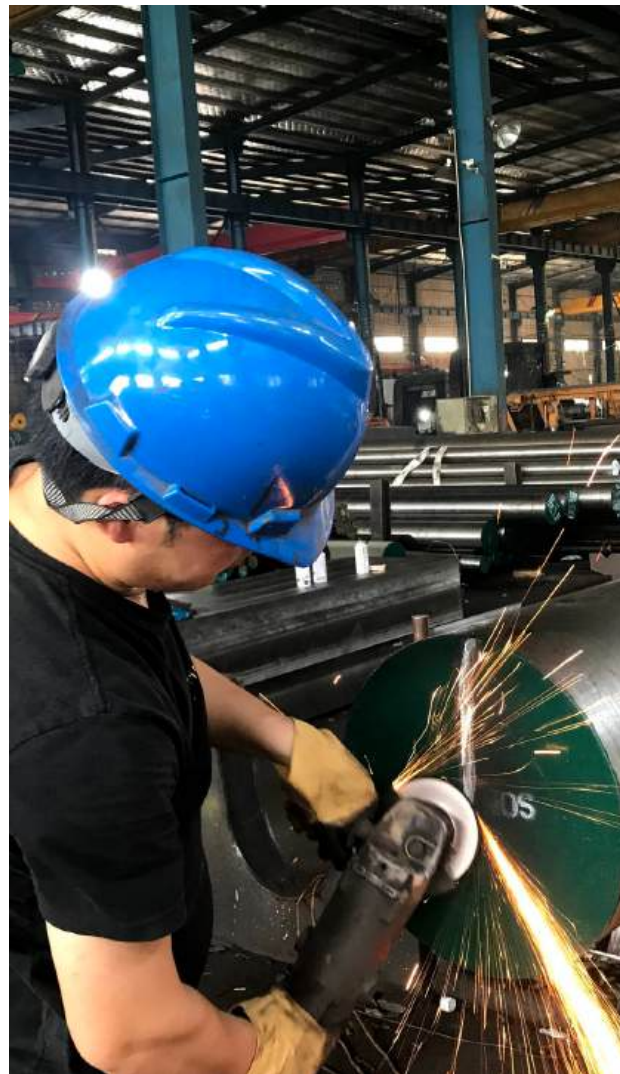
Magnetic Particle Inspection
◆ 磁粉探伤检测 ◆

PROCESSING EQUIPMENT

加工设备

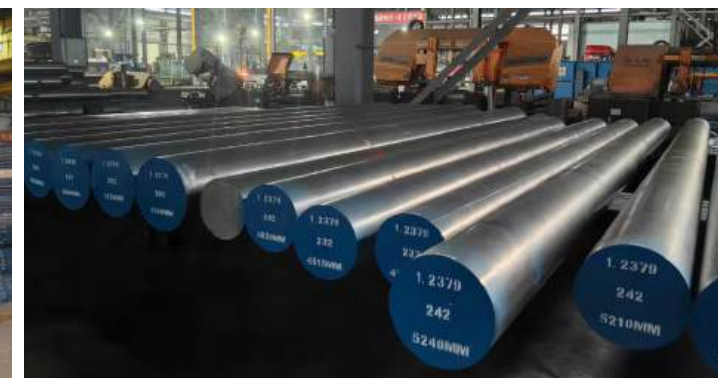
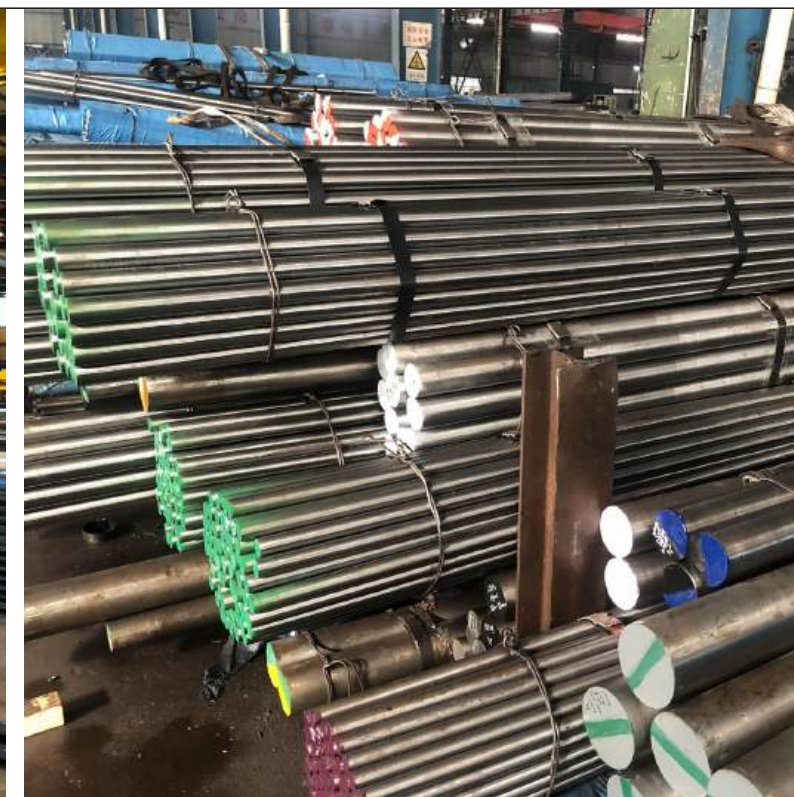
Complete equipment and machining processes, experienced management and technical team, advanced processing equipment, professional team engaged in the production and service, satisfy the requirements of diversity and advance market, provide the perfect technology and service to the client.

完整的配套设备和加工流程，经验丰富的管理技术团队，现有规模化成套先进的机械加工设备，从事生产、服务的专业队伍，满足多元化及持续改善的要求，为客户提供完善的技术和服务。



STEEL WAREHOUSE

钢材仓库



■ Various types of products 产品的种类丰富

Produce fittings with different shapes, material quality, size and tolerances to meet customers requirements.
根据客户的需要可生产不同形状，材质，尺寸，公差的配件。

■ High-quality and safe product 高质量可安心使用

Songshun's high quality products are used by more than 600 customers in manufacturing industries around the world and have been well received.
松顺的高质量产品有全世界超过 600 家制造行业的客户在使用，并收到广泛好评。

■ Global sales system 全球的销售体制

Songshun's products are sold globally, and its position in the industry is well demonstrated by the continued expansion of its customer markets and the growth of its business.
松顺的产品被销往全球，客户市场的持续拓展和业务量增长充分地体现了其行业地位。

No.	Similar Grade					Application	Chemical Composition(%)												Delivery Hardness		Cold Work Mold Steel
	GB	AISI/ASTM	DIN	JIS	EN		C	Si	Mn	P	S	Cr	Ni	Mo	W	V	Other	Annealing/HBW	Quenching/HRC		
1	Cr12	D3	1.2080	SKD1	X210Cr12	For press mold, knife mold, screw mold.	0.20-2.30	≤ 0.40	≤ 0.40	≤ 0.030	≤ 0.030	11.50-13.00	-	-	-	-	Co ≤ 1.00	269-217	≥ 60		
2	Cr12MoV	-	-	SKD11	-	For all kinds of press mold and tool.	1.45-1.70	≤ 0.40	≤ 0.40	≤ 0.030	≤ 0.030	11.00-12.50	-	0.40-0.60	-	0.15-0.30	Co ≤ 1.00	255-207	≥ 58		
3	Cr12Mo1V1	D2	1.2379	SKD10	X153CrMoV12	For pounch mold, knife mold, screw mold, chinaware mold.	1.40-1.60	≤ 0.60	≤ 0.60	≤ 0.030	≤ 0.030	11.00-13.00	-	0.70-1.20	-	0.50-1.10	Co ≤ 1.00	≤ 255	≥ 59		
4	Cr12W	D6	1.2436	SKD2	X210CrW12	For poucnh mold, press mold, mech mold.	2.00-2.30	0.10-0.40	0.30-0.60	≤ 0.030	≤ 0.030	11.00-13.00	-	-	0.60-0.80	-	-	≤ 255	≥ 60		
5	9CrWMn	O1	1.2510	SKS3	-	For thin pounch mold, headgear mold.	0.80-0.95	≤ 0.40	0.90-1.20	≤ 0.030	≤ 0.030	0.50-0.80	-	-	0.50-0.80	-	-	197-241	≥ 62		
6	9Mn2V	O2	1.2842	-	-	For precision mould, Gauge, precision ball screw, Grinding machine spindle.	0.85-0.95	≤ 0.40	1.70-2.00	≤ 0.030	≤ 0.030	-	-	-	-	0.10-0.25	-	≤ 229	≥ 62		
7	CrWMn	-	1.2419	SKS31	-	For cold-punching mould, die, insert, cold mold.	0.90-1.05	≤ 0.40	0.80-1.10	≤ 0.030	≤ 0.030	0.90-1.20	-	-	1.20-1.60	-	Nb 0.20-0.35	207-255	≥ 62		
8	Cr5Mo1V	A2	1.2363	SKD12	X100CrMoV5	For pounch mold with heacy load and complicated shape, cutters, knife.	0.95-1.05	≤ 0.50	≤ 1.00	≤ 0.030	≤ 0.030	4.75-5.50	-	0.90-1.40	-	0.15-0.50	-	≤ 255	≥ 60		
9	-	-	-	DC53	-	For manufacturing various precision stamping dies, tools and punches.	1.00	1.00	0.40	-	-	8.00	-	2.00	-	0.30	-	≤ 255	≥ 60		

No.	Similar Grade					Application	Chemical Composition(%)												Delivery Hardness		
	GB	AISI	DIN	JIS	EN		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Other	Annealing/HBW	Quenching/HRC		
1	4Cr5MoSiV1	H13	1.2344	SKD61	-	For aluminum,magnesium,zinc extrusion mold and casting mold.	0.32-0.45	0.80-1.20	0.20-0.50	≤ 0.030	≤ 0.030	4.75-5.50	≤ 0.25	≤ 0.25	1.10-1.75	0.80-1.20	-	≤ 235	-	Hot Work Mold Steel	
2	4Cr5MoSiV	H11	1.2343	SKD6	-	For aluminum,magnesium,zinc extrusion mold and casting mold.	0.33-0.43	0.80-1.20	0.20-0.50	≤ 0.030	≤ 0.030	4.75-5.50	-	-	1.10-1.60	0.30-0.60	-	≤ 235	-		
3	3Cr2W8V	H21	1.2581	SKD5	X30WCrV9-3	For die casting mold.	0.30-0.40	≤ 0.40	≤ 0.40	≤ 0.030	≤ 0.030	2.20-2.70	-	-	-	0.20-0.50	W 7.50-9.00	≤ 255	-		
4	4Cr3Mo3SiV	H10	1.2365	SKD 7	-	For hot stamping mold, hot forging mold,hot rolling mold and plastic mold.	0.35-0.45	0.80-1.20	0.25-0.70	≤ 0.030	≤ 0.030	3.00-3.75	-	-	2.00-3.00	0.25-0.75	-	≤ 229	-		
5	-	-	1.2367	-	X38CrMoV5-3	For aluminum,magnesium,titanium extrusion mold.	0.35-0.40	0.30-0.50	0.30-0.50	≤ 0.030	≤ 0.030	4.80-5.20	-	-	2.70-3.20	0.40-0.60	-	≤ 229	-		
6	5CrNiMo	L6	1.2713 / 1.2714	SKT4	55NiCrMoV7	For large and medium sized hammer forging die.	0.50-0.60	≤ 0.40	0.50-0.80	≤ 0.030	≤ 0.030	0.50-0.80	1.40-1.80	-	0.15-0.30	-	-	197-241	-		
7	5CrNiMoV	-	1.2714	SKT4	-	For large and medium sized hammer forging die.	0.50-0.60	≤ 0.35	0.50-0.80	≤ 0.030	≤ 0.030	0.80-1.10	1.40-1.80	≤ 0.20	0.35-0.50	0.10-0.30	-	197-241	-		
8	-	-	-	-	8418	For manufacturing alloy die-casting dies, hot extrusion dies, hot forging dies.	0.35	1.00	0.75	-	-	5.00	-	-	2.30	0.80	-	≤ 160	-		

No.	Similar Grade				Application	Chemical Composition(%)											Delivery Hardness		
	GB	AISI	DIN	JIS		C	Si	Mn	P	S	Cr	Ni	Mo	W	V	Other	Annealing/HBW	Quenching/HRC	
1	3Cr2Mo	P20	1.2311	-	For pre-hardend pouring plastic mold, can polish currently.	0.28-0.40	0.20-0.80	0.60-1.00	≤ 0.030	≤ 0.030	1.40-2.00	-	0.30-0.55	-	-	-	≤ 235	≥ 52	Plastic Mould Steel
2	4Cr2Mn1MoS	P20+S	1.2312	-	For pre-hardend pouring plastic mold, can polish currently.	0.35-0.45	0.30-0.50	1.40-1.60	≤ 0.030	≤ 0.030	1.80-2.00	-	0.15-0.25	-	-	-	≤ 235	≥ 51	
3	3Cr2MnNiMo	P20+Ni	1.2738	-	For pre-hardend big-size of pouring plastic mold, can polish currently.	0.32-0.40	0.20-0.40	1.10-1.50	≤ 0.030	≤ 0.030	1.70-2.00	0.85-1.15	0.25-0.40	-	-	-	≤ 235	≥ 48	
4	4Cr13	-	1.2083	SUS420J2	For mold of polishing galsses and plastic.	0.36-0.45	≤ 0.60	≤ 0.80	≤ 0.030	≤ 0.030	12.00-14.00	≤ 0.60	-	≤ 0.60	-	-	≤ 235	≥ 50	
5	3Cr17NiMo	420	1.2316	SUS420	For mold of plastic with stronger coorrupt-resisting.	0.33-0.45	≤ 1.00	≤ 1.50	≤ 0.030	≤ 0.030	15.50-17.50	≤ 1.00	0.80-1.30	-	-	-	-	-	
6	2Cr13	420	1.4021	SUS420J1	For vane steamer.	0.16-0.25	≤ 0.10	≤ 0.10	≤ 0.030	≤ 0.030	12.00-14.00	≤ 0.60	-	-	-	-	≤ 220	≥ 45	
7	-	-	-	NAK80	For mirror polishing molds, automation equipment, and transparent product molds.	0.06-0.20	≤ 0.35	1.40-1.70	≤ 0.030	≤ 0.030	-	2.80-3.40	0.20-0.50	-	-	Al 0.70-1.30	≤ 235	≥ 50	

No.	Similar Grade				Application	Chemical Composition(%)										Delivery Hardness		High Speed Steel
	GB	AISI	DIN	JIS		C	Si	Mn	P	S	Cr	Ni	Mo	W	V	Other	Annealing/HBW	
1	W18Cr4V	T1	1.3355	SKH2	For cutters in common use.	0.73-0.83	0.20-0.40	0.10-0.40	≤ 0.030	≤ 0.030	3.80-4.50	-	-	17.20-18.70	1.00-1.20	-	≤ 255	≥ 63
2	W18Cr4VCo5	T4	1.3255	SKH3	For cutters in common use.	0.70-0.80	0.20-0.40	0.10-0.40	≤ 0.030	≤ 0.030	3.75-4.50	-	0.40-1.00	17.50-19.00	0.80-1.20	Co 4.25-5.75	≤ 269	≥ 63
3	CW6Mo5Cr4V2	M2 high C	1.3342	SKH51	For vaired cutters and cold work mole with wearproof.	0.86-0.94	0.20-0.45	0.15-0.40	≤ 0.030	≤ 0.030	3.80-4.50	-	4.70-5.20	5.90-6.70	1.75-2.10	-	≤ 255	≥ 64
4	W6Mo5Cr4V2	M2	1.3343 / 1.3339	SKH51	For vaired cutters and cold work mole with wearproof.	0.80-0.90	0.20-0.45	0.15-0.40	≤ 0.030	≤ 0.030	3.80-4.40	-	4.50-5.50	5.50-6.75	1.75-2.20	-	≤ 255	≥ 64

No.	Similar Grade					Mechanical Properties(Quenching, Tempering)					Chemical Composition(%)										Delivery Hardness		
	GB	AISI	DIN	JIS	EN	σ _s / MPa	σ _b / MPa	δ ₅ / %	Ψ / %	A _{KU2} / J	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Other	Annealing or HT Tempering/HBW	
1	40Cr	5140	1.7035	SCr440	41Cr4	≥ 785	≥ 980	≥ 9	≥ 45	≥ 47	0.37-0.44	0.17-0.37	0.50-0.80	≤ 0.030	≤ 0.030	0.80-1.10	≤ 0.30	-	≤ 0.15	-	-	≤ 207	Alloy Structural Steel
2	42CrMo	4140/4142	1.7225	SCM440	42CrMo4	≥ 930	≥ 1080	≥ 12	≥ 45	≥ 63	0.38-0.45	0.17-0.37	0.50-0.80	≤ 0.030	≤ 0.030	0.90-1.20	≤ 0.30	≤ 0.30	0.15-0.25	-	-	≤ 217	
3	38CrMoAl	-	1.8509	SACM645	41CrAlMo7-10	≥ 835	≥ 980	≥ 14	≥ 55	≥ 71	0.35-0.42	0.20-0.45	0.30-0.60	≤ 0.030	≤ 0.030	1.35-1.65	≤ 0.30	≤ 0.30	0.15-0.25	-	Al 0.70-1.10	≤ 229	
4	40CrNiMoA	4340	1.6511	SNCM439	-	≥ 835	≥ 980	≥ 12	≥ 45	≥ 78	0.37-0.45	0.17-0.37	0.90-1.20	≤ 0.030	≤ 0.030	0.90-1.20	≤ 0.30	≤ 0.30	0.20-0.30	-	-	≤ 269	
5	34Cr2Ni2Mo	4340	1.6582	SNCM447	34CrNiMo6	≥ 590	≥ 755	≥ 12	≥ 35	≥ 31	0.37-0.44	0.17-0.37	0.50-0.80	≤ 0.030	≤ 0.030	0.60-0.90	1.25-1.65	≤ 0.25	0.15-0.25	-	-	241-341	
6	20CrNiMo	8620	1.6523	SNCM220	-	≥ 785	≥ 980	≥ 9	≥ 40	≥ 47	0.17-0.23	0.17-0.37	0.60-0.95	≤ 0.030	≤ 0.030	0.40-0.70	0.35-0.75	-	0.20-0.30	-	-	≤ 197	
7	15CrMn	5115	1.7131	-	16MnCr5	≥ 590	≥ 785	≥ 12	≥ 50	≥ 47	0.12-0.18	0.17-0.37	1.10-1.40	≤ 0.030	≤ 0.030	0.40-0.70	≤ 0.30	≤ 0.30	≤ 0.15	-	-	≤ 179	
8	20CrMn	5120	1.7147	SMnC420	20MnCr5	≥ 735	≥ 930	≥ 10	≥ 45	≥ 47	0.17-0.23	0.17-0.37	0.90-1.20	≤ 0.030	≤ 0.030	0.90-1.20	≤ 0.30	≤ 0.30	≤ 0.15	-	-	≤ 187	
9	15CrMo	-	1.7262	SCM415	-	≥ 295	≥ 440	≥ 22	≥ 60	≥ 94	0.12-0.18	0.17-0.37	0.40-0.70	≤ 0.030	≤ 0.030	0.80-1.10	≤ 0.30	≤ 0.30	0.40-0.55	-	-	≤ 179	
10	20CrMo	4118	1.7264	SCM420	18CrMo4	≥ 685	≥ 885	≥ 12	≥ 50	≥ 78	0.17-0.24	0.17-0.37	0.40-0.70	≤ 0.030	≤ 0.030	0.80-1.10	≤ 0.30	≤ 0.30	0.15-0.25	-	-	≤ 197	
11	25CrMo	-	1.7218	-	25CrMo4	≥ 600	≥ 900	≥ 14	≥ 55	≥ 70	0.22-0.29	0.17-0.37	0.60-0.90	≤ 0.030	≤ 0.030	0.90-1.20	≤ 0.30	≤ 0.30	0.15-0.30	-	-	≤ 229	
12	30CrMo	4130	1.7218	SCM430	25CrMo4	≥ 785	≥ 930	≥ 12	≥ 50	≥ 63	0.26-0.34	0.17-0.37	0.40-0.70	≤ 0.030	≤ 0.030	0.80-1.10	≤ 0.30	≤ 0.30	0.15-0.25	-	P+S ≤ 0.02	≤ 229	
13	35CrMo	4135	1.7220	SCM435	34CrMo4	≥ 835	≥ 980	≥ 12	≥ 45	≥ 63	0.32-0.40	0.17-0.37	0.40-0.70	≤ 0.030	≤ 0.030	0.80-1.10	≤ 0.30	≤ 0.30	0.15-0.25	-	-	≤ 229	
14	6Cr15	52100 / E52100	1.3505	SUJ2	-	≥ 518.42	≥ 861.3	≥ 27.95	-	-	0.95-1.05	0.15-0.35	0.25-0.45	≤ 0.030	≤ 0.030	1.40-1.65	≤ 0.30	≤ 0.25	≤ 0.10	-	Ni+Cu ≤ 0.50	179-207	
15	50CrVA	6150	1.8159	SUP10	51CrV4	≥ 1130	≥ 1280	≥ 10	≥ 40	-	0.47-0.54	0.17-0.37	0.50-0.80	≤ 0.030	≤ 0.030	0.80-1.10	-	-	-	0.10-0.20	-	≤ 255	
16	-	8640	-	-	-	-	-	-	-	-	0.38-0.43	0.15-0.35	0.75-1.00	≤ 0.030	≤ 0.030	0.40-0.60	0.40-0.70	≤ 0.35	0.15-0.25	-	-	-	
17	-	9840	-	-	-	-	-	-	-	-	0.35-0.43	0.15-0.40	0.50-0.80			0.60-1.00	0.70-1.00	-	0.15-0.25	-	Al 0.02-0.05	-	

No.	Similar Grade		
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1.2311			Products Standard 执行标准		DIN EN ISO 4957		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo
	0.35-0.45	0.20-0.40	1.30-1.60	≤ 0.030	≤ 0.030	1.80-2.10	0.15-0.25
炼钢工艺 /Steelmaking Processes	EAF+LF+VD	Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged		锻造 /Hot forged				
Delivery Condition 交货状态	预硬状态 (28-36HRC), 光面或黑皮。						
	Pre-harden (28-36HRC), Bright or black surface.						
Heat Treatment 热处理	球化退火 /Spheroidizing Annealing: 770-790° C ;						
	淬火 /Quenched: 850-880° C, 油冷或 180-220°C盐浴 /Oil cooling or 180~220°C salt bath;						
	回火 /Tempered:100-700°C , 空冷 /Air cooling ;						

Properties and Applications :

1.2311 Plastic mold steel with excellent polishability and photoetchability. After heat treatment, 1.2311 have good processing and polishing properties, suitable for nitriding and suitable for chrome plating surface treatment, good toughness and good machining performance.

1.2311 Plastic mold steel suitable for making medium and large plastic injection dies and mold base, thermoplastic plastic injection mold, extrusion die, heavy mold main components of thermoplastic plastic blow molding mold, Cold structure parts. It usually use for making of TV cabinets, washing machine, refrigerator inner shell, buckets. It is also used in zinc, aluminum, magnesium and its alloy die-casting mold.

特性及适用范围：

1.2311 具有优良的抛光性及光蚀刻性。经热处理后，加工及抛光性能良好，可进行渗氮和镀铬表面处理，材质硬度均匀，良好的韧性，良好的机械加工性能。

1.2311 可用于制造中、大型塑胶模具，模座，热塑性塑胶注塑模具，挤压模。热塑性塑料吹塑模具重载模具主要部件，冷结构件。常用于制造电视机壳，洗衣机，冰箱内壳，水桶等，也可以用于锡，锌，铅等低熔点合金压铸模具。

1.2312			Products Standard 执行标准		DIN 17350		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo
	0.35-0.45	0.30-0.50	1.40-1.60	≤ 0.030	0.05-0.10	1.80-2.00	0.15-0.25
炼钢工艺 /Steelmaking Processes	EAF+LF+VD	Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged		锻造 /Hot forged				
Delivery Condition 交货状态	预硬状态 (28-34HRC), 光面或黑皮。						
	Pre-harden (28-34HRC), Bright or black surface.						
Heat Treatment 热处理	球化退火 /Spheroidizing Annealing:760-790° C ;						
	淬火 /Quenched: 830-880° C, 油冷 /Oil cooling ;						
	回火 /Tempered: 640-680°C , 空冷 /Air cooling ;						

Properties and Applications :

1.2312 plastic mould steels because of adding Sulfur in it. It have very good machinability, good toughness and wear resistance, uniform hardness, good dimensional stablity, In the prehardened state it can be processed directly without further heat treatment, suitable for nitriding to increase wear resistance. But not for chrome.

1.2312 Plastic mold steel suitable for making injection mold without special surface requirements and low mechanical stresses, medium and large size plastic mold, light alloy mold with low melting point. It also suitable for making mold base or mold parts of casting mold and injection mold.

特性及适用范围：

1.2312 塑料模具钢因添加 S 而具有非常好的切削加工性能，具有良好的韧性和耐磨性，硬度均匀，良好的尺寸稳定性，预硬状态下不需要热处理就可以直接加工，适合氮化来提高耐磨性能。但是并不适合镀铬。

1.2312 塑料模具钢适合用于对表面无特殊要求及低应力的注塑模具，中等及大型的塑胶模具，低熔点的轻合金模具，也可以用于铸造和注射模具的模架或配件。



1.2344			Products Standard 执行标准		DIN 17350			
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	V
	0.37-0.43	0.90-1.20	0.30-0.50	≤ 0.030	≤ 0.030	4.80-5.50	1.20-1.50	0.90-1.10
炼钢工艺 /Steelmaking Processes	E A F、E A F + E S R、 EAF+LF+VD EAF+LF+VD+ESR		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	球化退火，硬度≤ 229HB，光面或黑皮。							
	Spheroidizing annealing, Hardness ≤ 229HB, Bright or black surface.							
Heat Treatment 热处理	球化退火 /Spheroidizing Annealing:860-890°C ；							
	淬火 /Quenched: 1020-1050° C, 油冷或空冷 /Oil cooling or air cooling;							
	回火 /Tempered: 560-580°C ，熔融盐浴或空冷 /Molten salt bath or air cooling;							

Properties and Applications :

1.2344 hot work tool steels have good tempering resistance,high temperature wear resistance, good quenching and excellent thermal shock resistance, high strength, high toughness, good thermal cracking resistance. It can be nitrided to increase wear resistance.

It is used for making extrusion mold and casting mold of aluminum-magnesium alloy, zinc alloy and copper alloy. It is also can used for making hot pressing mold and so on.

特性及适用范围：

1.2344 热作模具钢具有良好的抗回火性，高温耐磨性，具有良好的淬火性和耐热冲击性，强度高，韧性优，抗热裂性好，可以渗氮来增加其耐磨性。

1.2344 热作模具钢可以用于铝镁合金，锌合金，铜合金的挤压模，压铸模，也可以用作钢热压力机模等。

1.2379			Products Standard 执行标准		DIN 17350			
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	V
	1.50-1.60	0.10-0.40	0.15-0.45	≤ 0.030	≤ 0.030	11.00-12.00	0.60-0.80	0.90-1.10
炼钢工艺 /Steelmaking Processes	E A F、E A F + E S R、 EAF+LF+VD EAF+LF+VD+ESR	Size 供货尺寸	轧制 /Hot rolled					
成型工艺 /Formed Technique	Hot rolled or hot forged		锻造 /Hot forged					
Delivery Condition 交货状态	球化退火，硬度≤ 255HB，光面或黑皮。							
	Spheroidizing annealing, Hardness ≤ 255HB, Bright or black surface.							
Heat Treatment 热处理	球化退火 /Spheroidizing Annealing:860-900℃ ；							
	(1) 淬火 /Quenched:980℃ -1040℃ 油冷或空冷 /Oil cooling or air cooling;							
	回火 /Tempered:180-220℃ 1 次， ≥ 61HRC;							
	(2) 淬火 /Quenched:1060-1100℃ ，油冷或空冷 /Oil cooling or air cooling,60-65HRC;							
	回火 /Tempered:510-540℃ 2 次 ,60-64HRC;							

Properties and Applications :

1.2379 is a high carbon and high-chromium alloy steel. After heat treatment, it will have high hardness, good wear-resistance, high strength, good machinability, good toughness, strong hardenability, good size stability and excellent resistance to tempering softening etc.

It is used for make various high precision, long working life cold work mold, cuing tool and measuring tool, like: complicated piercing die, cold extrusion mold, cylindrical die roll, screw thread rolling plate, cold work scissor.

特性及适用范围：

1.2379 是一种高碳高铬合金工具钢，热处理后具有很高的硬度及耐磨性，高抗压强度，良好的加工性能，良好的韧性，淬透性强，尺寸稳定性好，优良的抗回火软化性等特点。

适用于制造各种高精度、长寿命的冷作模具、刃具和量具，如复杂的冲孔凹模、冷挤压膜、滚丝轮、螺纹搓丝板、冷剪刀等。



1.2738			Products Standard 执行标准		DIN EN ISO 4957			
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	Ni
	0.35-0.45	0.20-0.40	1.30-1.60	≤ 0.030	≤ 0.030	1.80-2.10	0.15-0.25	0.90-1.20
炼钢工艺 /Steelmaking Processes	EAF+LF+VD	Size 供货尺寸	轧制 /Hot rolled					
成型工艺 /Formed Technique	Hot rolled or hot forged		锻造 /Hot forged					
Delivery Condition 交货状态	预硬状态 (28-36HRC), 光面或黑皮。							
	Pre-harden (28-36HRC), Bright or black surface.							
Heat Treatment 热处理	软化退火 /Soft Annealed: 710-740° C ; 球化退火 /Spheroidizing Annealing:840-880°C ;							
	淬火 /Quenched: 840-880° C, 油冷 /oil cooling ;							
	回火 /Tempered:180° C/200° C/300° C/400° C/500° C/600° C , 空冷 /Air cooling ;							

Properties and Applications :

1.2738 plastic mould steel with excellent polishability properties, good wear resistance, high hardness, good machinability, suitable for surface treatment, can be process by nitride.

1.2738 plastic mould steel suitable for large injection and compression moulds for plastic processing 400 mm thickness such as TV chassis. copiers, bumpers, shock absorbers, garbage and the dashboards, die casting.

特性及适用范围：

1.2738 塑料模具钢具有优良的抛光性能，高耐磨性，高硬度，良好的机械加工性，适用于表面处理，可施以氮化等特点。

1.2738 塑料模具钢适用于大型的，特别是厚度大于 400mm 的，要求硬度均匀、高韧性和表面抛光性能好的塑料模具，如电视机壳、复印机壳、保险杠、减震器、仪表盘等大型模具、以及垃圾桶模，压铸模架等。

4130			Products Standard 执行标准			ASTM A29/A29M		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	其他 /Other
	0.28-0.33	0.15-0.35	0.40-0.60	≤ 0.030	≤ 0.030	0.80-1.10	0.15-0.25	Ni ≤ 0.25 Cu ≤ 0.35
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	调质或正火、退火、不热处理状态交货，光面或黑皮。							
	Q+T or narmalizing, annealing, without heat treatment, bright or black.							
Heat Freatment and Metallographic Sturcture 热处理规范及金相组织	(1) 球化退火温度：750-860° C，空冷 . (2) 正火温度：850-900° C，空冷 . (3) 淬火温度：870-890° C，水冷 / 油冷 . (4) 回火温度：398 °C -565 °C，水冷 / 油冷 .							
	(1) Spheroidizing annealing temperature: 750-860° C, air cooling. (2) Normalizing temperature: 850-900° C, air cooling. (3)Quenching temperature: 870-890° C, water cooling/oil cooling. (4) Tempering temperature: 398 °C -565 °C , water cooling/oil cooling.							
Machine Capability 机械性能	Hardeness 硬度	Tensile Strength 抗拉强度		Wield Strength 屈服强度		Elongation 伸长率	Reduction Of Area 面缩率	纵向冲击功 AKV
	200-230HB	655MPA		517MPA		≥ 18%	≥ 35%	-60℃ , > 27J -29℃ , > 30J
Non-metallic Inclusion (ASTM E45) 非金属夹杂物	A		B		C		D	
	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细
	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5

Properties and Applications :

AlSI 4130 is a chromium molybdenum alloy steel, It is very popular for welding applications and is often used in the normalized condition without further heat treatment. It can be nitrided to enhance its wear quality. Its popularity is primarily due to its weldability, hardenability, and machinability. Alloy 4130 contains similar properties as alloy 8630. Alloy 4130 is stocked in normalized, quenched, and tempered condition.

Applications: Aircraft engine mounts, Welded tubing, Valve bodies, Pumps, Fittings and so on.

特性及适用范围：

AlSI 4130 是一种铬钼合金钢，在焊接应用中非常受欢迎，通常在正火条件下使用，无需进一步热处理。它可以氮化以提高其抗磨性能。它的受欢迎程度主要是由于其可焊性、淬透性和可加工性。合金 4130 具有与合金 8630 类似的特性。合金 4130 在正火、淬火和回火状态下库存。

应用：飞机发动机支架、焊管、阀体、泵、管件等。



4140			Products Standard 执行标准			ASTM A29/A29M		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	
	0.38-0.43	0.15-0.35	0.75-1.00	≤ 0.030	≤ 0.030	0.80-1.10	0.15-0.25	
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	调质 (一般供应 28-34HRC) 或正火、退火、不热处理状态交货, 光面或黑皮。							
	Q+T(28-34 HRC) or narmalizing, annealing, without heat treatment, bright or black.							
Heat Treatment 热处理	(1) 正火温度 /Normalizing temperature: 850-900℃ , 出炉空冷 (air cooling)							
	(2) 淬火温度 /Annealing tenperature: 850±10℃, 水或油淬 (water or oil)							
	(3) 回火温度 /Tempering:550-700℃ , 视硬度要求确定回火温度 (depending on the hardness)							
Machanical with Q+T / 调质状态机械性能 (A370)								
Machine Capability 机械性能	D ≤ 16mm	16mm<d ≤ 40mm	40mm<d ≤ 100mm	100mm<d ≤ 160mm	160mm<d ≤ 250mm			
	T ≤ 8mm	8mm<t ≤ 20mm	20mm<t ≤ 60mm	60mm<t ≤ 100mm	100mm<t ≤ 160mm			
Yield Strength (Mpa) / 屈服点	≥ 900	≥ 750	≥ 650	≥ 550	≥ 500			
Tensile Strength (MPa) / 抗拉强度	1100-1300	1000-1200	900-1100	800-950	750-900			
Elongation (%) / 延伸率	≥ 10	≥ 11	≥ 12	≥ 13	≥ 14			
Reduction Of Area (%) / 断面收缩率	≥ 40	≥ 45	≥ 50	≥ 50	≥ 55			
KAV (J) / 冲击功	≥ 30	≥ 35	≥ 35	≥ 35	≥ 35			
Non-metallic Inclusion (ASTM E45) 非金属夹杂物	A		B		C		D	
	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细
	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5

Properties and Applications :

4140 alloy structural steel is belong to medium hardenabilty steel with excelent fatigue resistance, good processability and small deformation when processing. After heat treatment, 4140 steel have good intensity and nice overall mechanical property.

4140 alloy structural steel used in the manufacture of high strength forgings, such as locomotive traction with the biggear, supercharger transmission gears, rear axle, huge load of connecting rod and spring clips, also available at 2000 meters deep of oil drill pipe joints and fishing tools, can also be used for bending machine mould, etc.

特性及适用范围：

4140 合金结构钢拥有良好的加工性能，加工时变形微小，抗疲劳性能相当好，属于中等淬透性钢，4140 热处理后有较好的强度和良好的综合力学性能。

4140 合金结构钢用于制造弹度高的锻件，如机车牵引用的的大齿轮，增压器传动齿轮，后轴，受载荷极大的的连杆及弹簧夹，也可用于2000 米以下的石油深井钻杆接头与打捞工具，还可以用于折弯机的模具等。

4340			Products Standard 执行标准		ASTM A29/A29M			
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Mo	
	0.38-0.43	0.15-0.35	0.60-0.80	≤ 0.030	≤ 0.030	0.70-0.90	0.20-0.30	
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	调质 (一般供应 28-34HRC) 或正火、退火、不热处理状态交货, 光面或黑皮。							
	Q+T(28-34 HRC) or narmalizing, annealing, without heat treatment, bright or black.							
Heat Treatment 热处理	(1) 完全退火温度: 840-900° C, 空气冷却。							
	(2) 淬火温度: 830–860 ° C, 水或油淬。							
	(3) 回火温度: 200-650° C, 具体温度取决于所需的强度水平。							
	(4) 渗氮处理: 500° C – 530° C, 可达到的表面硬度为 600-650HV。							
	(1) Full annealing temperature: 840-900° C, air cooled.							
Mechanical Properties In Annealed State 退火状态下的机械性能	(2) Quenching temperature: 830–860 ° C, water or oil quenching.							
	(3) Tempering temperature: 200–650 ° C, depends on the intensity level required.							
	(4) Nitriding treatment:500° C – 530° C, the achievable surface hardness is 600-650HV.							
	Yield Strength (Mpa) 屈服点	Tensile Strength (MPa) 抗拉强度	Elongation (%) 延伸率	Reduction of area (%) 断面收缩率	AKV (J) 冲击功	Hardness Brinell 布氏硬度		
	470	745	22	50	78	217		
Non-metallic Inclusion 非金属夹杂物	A		B		C		D	
	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细
	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5

Properties and Applications :

4340 is a high-quality quenched and tempered alloy structural steel. It is a low-carbon, high-nickel alloy steel with good atmospheric corrosion resistance, fatigue resistance and strength.

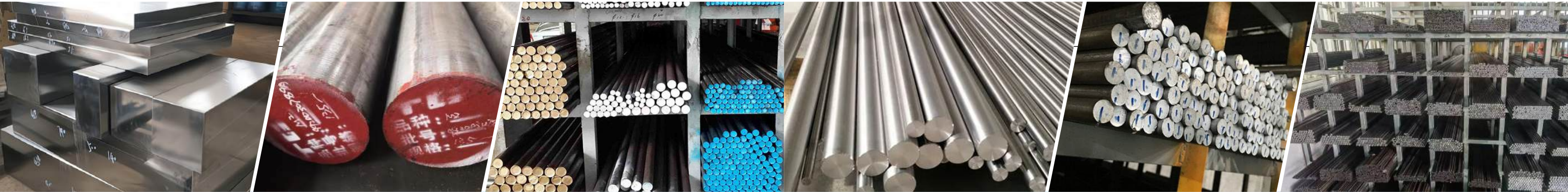
4340 steel can maintain excellent toughness, wear resistance and fatigue strength after heat treatment.

4340 alloy structural steel is used to make large and medium-sized plastic molds that require high strength and toughness. It is also used to make important quality control parts with good toughness, high strength and large size, such as heavy machinery and high-load shafts, rotor shafts for helicopters larger than 250 mm in diameter, turboshafts for turbojet engine, blades, high-load transmission components, crankshaft fasteners, gears, etc.

特性及适用范围：

4340 是一种优质调质合金结构钢，属于低碳高镍合金钢，具有良好的耐大气腐蚀性、抗疲劳性和强度，4340 钢热处理后能够保持优良的韧性、耐磨性和疲劳强度。

4340 合金结构钢用于制造要求高强度和韧性的大中型塑料模具，也用于制造韧性好、强度高、尺寸大的重要质量控制零件，如重型机械和高载荷轴，大于 250 直径 mm 的直升机旋翼轴，涡喷发动机涡轮轴，叶片，高载荷传动部件、曲轴紧固件、齿轮等。



M2					Products Standard 执行标准			ASTM A600		
Chemical Composition (%) 化学成分 (%)	M2 regluar C	C	Si	Mn	P	S	Cr	Mo	W	V
		0.78-0.88	0.20-0.45	0.15-0.40	≤ 0.030	≤ 0.030	3.75-4.50	4.50-5.50	5.50-6.75	1.75-2.20
	M2 high C	C	Si	Mn	P	S	Cr	Mo	W	V
0.95-1.05		0.20-0.45	0.15-0.40	≤ 0.030	≤ 0.030	3.75-4.50	4.50-5.50	5.50-6.75	1.75-2.20	
炼钢工艺 /Steelmaking Processes		EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled					
成型工艺 /Formed Technique		Hot rolled or hot forged			锻造 /Hot forged					
Delivery Condition 交货状态		退火 (硬度 : ≤ 255HB) 或冷拉、冷拉及退火、不热处理状态交货, 光面或黑皮。								
		Annealed(Hardness: ≤ 255HB) or cold drawn, cold drawn and annealed, without heat treatment, bright or black.								
Heat Treatment 热处理		退火 /Annealed: 820-870°C ;								
		淬火 /Quenched: 1200-1240°C , 油冷 /Oil cooling ; M2(正常 C)- 盐浴炉: 1216°C - 可控气氛炉: 1227°C ; M2(高 C)- 盐浴炉: 1204°C - 可控气氛炉: 1216°C ; M2 (regluar C)-salt bath furnace: 1216°C -controlled atmosphere furnace: 1227°C ; M2 (high C)-salt bath furnace: 1204°C -controlled atmosphere furnace: 1216°C ;								
		回火 /Tempered:300°C -650°C , 空冷 /Air cooling ; M2(正常 C/regluar C)-552°C - 硬度 /Hardness ≥ 64HRC; M2(高 C/high C)-552°C - 硬度 /Hardness ≥ 65HRC;								
Mechanical Properties/ 机械性能					Metric			Imperial		
Hardness, Rockwell C(tempered at 1150° F, quenched at 2200° F)					62			62		
Hardness, Rockwell C(as hardened, quenched at 2200° F)					65			65		
Compressive yield strength(when tempered at 300° F)					3250 MPa			471000 psi		
Izod impact unnotched(when tempered at 300° F)					67 J			49.4 ft-lb		
Abrasion (loss in mm³, as-hardened; ASTM G65)					25.8			25.8		
Abrasion(loss in mm³, tempered at 1275° F; ASTM G65)					77.7			77.7		
Poisson's ratio					0.27-0.30			0.27-0.30		
Elastic modulus					190-210 GPa			27557-30458 ksi		

Properties and Applications :

M2 high-speed tool steel is a tungsten-molybdenum high-speed steel with balanced carbon composition and high toughness. It has high hardness, good wear resistance, good thermoplasticity and red hardness. M2 steel has excellent toughness and wear resistance after correct quenching and tempering.

M2 high-speed tool steel is used for manufacturing cutting tools, cutters, punches and dies that require good wear resistance and toughness and the ability to withstand large impact forces. Such as pinion cutters, planers, milling cutters, turning tools, forming tools, cold forging dies, shearing dies, drill bits, etc.

特性及适用范围：

M2 高速工具钢是碳成分均衡、韧性高的钨钼高速钢，具有高硬度、耐磨性好、良好的热塑性和红硬性，M2 钢在正确淬火和回火后具有出色的韧性和耐磨性。

M2 高速工具钢用于制造要求具有良好耐磨性和韧性、能承受较大冲击力的切削工具、刀具、冲头和模具。如小齿轮刀具、刨床、铣刀、车刀、成型工具、冷锻模、剪切模、钻头。

T1				Products Standard 执行标准			ASTM A600		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	V	W	
	0.65-0.80	0.20-0.40	0.10-0.40	≤ 0.030	≤ 0.030	3.75-4.50	0.90-1.30	17.25-18.75	
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled					
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged					
Delivery Condition 交货状态	退火（硬度≤ 255HBW）或热轧、锻制、冷拉、不热处理状态交货，光面或黑皮。								
	Annealed (hardness ≤ 255HBW) or hot rolled, forged, cold drawn, delivered without heat treatment, bright or black.								
Heat Treatment 热处理	退火 /Annealed: 860°C -900°C ；								
	淬火 : 820-870°C预热，1270-1285°C (盐浴炉) 或 1270-1285°C (箱式炉) 加热，油冷 ； Quenching: 820-870°C preheating, 1270-1285°C (salt bath furnace) or 1270-1285°C (box furnace) heating, oil cooling;								
	回火 :550 ~ 570°C，回火 2 次，硬度≥ 63HRC, 空冷 /Air cooling ； Tempering: 550 ~ 570°C，tempering 2 times, hardness ≥ 63HRC, air cooling/Air cooling;								

Properties and Applications :

T1 tool steel is a tungsten-based high-speed steel with high hardness, red hardness, high temperature hardness, wear resistance and heat resistance. It is easy to grind and has good overall performance.

T1 tool steel is mainly used to manufacture complex blades and impact-resistant metal cutting tools, such as turning, planing, milling, reaming, broaches, drill bits, various gear cutters, taps, dies, etc. High temperature bearings and cold extrusion molds can also be manufactured. It is also used to make gear tools, milling cutters, and tools such as punches and milling cutters. ASTM T1 is also suitable for processing soft or medium hardness (below 300~320HB) materials and making high-temperature wear-resistant mechanical parts.

特性及适用范围：

T1 工具钢是一种钨系高速钢，其硬度、红硬性、高温硬度、耐磨性和耐热性高，易于磨削加工，具有良好的综合性。
T1 工具钢主要用于制造复杂刀片和耐冲击金属切削工具，如车、刨、铣、铰、拉刀、钻头、各种齿轮刀具及丝锥、板牙等。还可制造高温轴承和冷挤压模具。它还用于制造齿轮工具、铣刀以及冲头、铣刀等工具。ASTM T1 还适于加工软的或中等硬度 (300 ~ 320HB 以下) 的材料及制作高温耐磨机械零件。



100Cr6				Products Standard 执行标准			DIN EN ISO 683-17				
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Cu	Mo	Al	Mo	
	0.93-1.05	0.15-0.35	0.25-0.45	≤ 0.025	≤ 0.015	1.35-1.60	≤ 0.30	≤ 0.10	≤ 0.050	≤ 0.0015	
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled							
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged							
Delivery Condition 交货状态	球化退火 /Spheroidizing Annealing, 硬度 /Hardness ≤ 207HBW; 以热轧（锻制）退火，退火剥皮、冷拉（轧）、不热处理状态交货，光面或黑皮。										
	Hot rolled (forging) annealing, annealing and peeling, cold pull (rolling), delivered without heat treatment, bright or black.										
Heat Treatment 热处理	球化退火 /Spheroidized Annealed: 1500° F (815° C) 3 小时 (3h) 1350° F (735° C) 4 小时 (4h) 1250° F (675° C) 3 小时 (3h) 缓慢冷却 /Cool Slowly: 1000° F (540° C), 然后空气冷却 /Air Cooling.										
	淬火 /Quenched: 850-860°C , 油冷 /Oil cooling ;										
	回火 /Tempered: 650-700°C (高温回火 /High temperature tempering),										
	150-200°C (低温回火 2h/Low temperature tempering 2h) , 空冷 /Air cooling ;										

Properties and Applications :

100Cr6 bearing steel has high wear resistance, hardness, and rolling fatigue strength, with small deformation during heat treatment. After quenching and tempering, its hardness is high and uniform, good overall performance. After spheroidizing annealing, the processing performance is good. And it also has good hot workability, toughness, and tempering stability.

100Cr6 bearing steel is widely used in various bearing manufacturing, steel balls, shafts, shaft sleeves, constant velocity universal joints, valve bodies, bolts, gears, pumps and accessories, internal combustion engines, cutting tools, etc. It is also a good material for dies, precision measuring tools, and other mechanical accessories. It can also be used in the manufacturing of measuring tools, molds, woodworking tools, etc.

特性及适用范围：

100Cr6 轴承钢拥有高的耐磨性、硬度、和滚动疲劳强度，热处理时变形小，经调质后，其硬度高且均匀，综合性能好。球化退火后，加工性能良好。并且还具有良好的热加工性、韧性和回火稳定性等。

100Cr6 轴承钢广泛用于各种轴承制造、钢球、轴、轴套、等速万向节、阀体、螺栓、齿轮、泵和配件、内燃机、刀具等，也是模具、精密量具及其他机械配件的良好材料，还可用于制造量具、模具、木工工具等。

S355J2			Products Standard 执行标准		EN 10025-2			
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cu		
	≤ 0.22	≤ 0.55	≤ 1.60	≤ 0.025	≤ 0.025	≤ 0.55		
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	热轧、控扎、正火、正火轧制等状态交货 . 光面或黑皮。（不同厚度，硬度不一样）							
	Hot rolling, controlled rolling, normalizing, normalizing rolling, etc. Bright or black.							
Mechanical Properties (Hot Rolled) 机械性能（热轧状态）								
厚度 /Thickness(t/mm)	3 ≤ t ≤ 16	16 < t ≤ 40	40 < t ≤ 63	63 < t ≤ 80	80 < t ≤ 100	100 < t ≤ 150	150 < t ≤ 200	200 < t ≤ 250
抗拉强度 /Tensile Strength (MPa)	470-630	470-630	470-630	470-630	470-630	450-600	450-600	450-600
屈服点 /Yield Strength (Mpa)	≥ 355	≥ 345	≥ 355	≥ 325	≥ 315	≥ 295	≥ 285	≥ 275
延伸率 /Elongation (%)	≥ 22	≥ 22	≥ 21	≥ 20	≥ 20	≥ 18	≥ 17	≥ 17
冲击功 /A kv (J)	≥ 27	≥ 27	≥ 27	≥ 27	≥ 27	≥ 27	≥ 27	≥ 27
Non-metallic Inclusion 非金属夹杂物	A		B		C		D	
	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细	Coarse/ 粗	Fine/ 细
	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5

Properties and Applications :

S355J2 low alloy structural steel has good impact toughness, can absorb impact energy and has high fracture toughness. It has high yield strength and tensile strength, good corrosion resistance, and is easy to weld and process, ect.

S355J2 low alloy structural steel is widely used in the construction projects of large plants and venues as well as in the manufacturing projects of other machinery and equipment, such as the construction of bridges, the manufacturing of ships, the manufacturing of power station equipment, the manufacturing of lifting and transporting machinery as well as in the manufacturing of other engineering and welded structural parts that need to withstand higher loads.

特性及适用范围：

S355J2 低合金结构钢拥有良好的冲击韧性，能够吸收冲击能量并具有较高的断裂韧性，具有较高的屈服强度和抗拉强度，耐腐蚀性好，易于焊接与加工等。

S355J2 低合金结构钢广泛应用于大型厂房、场馆的建造项目以及其他机械设备的制造项目中，如桥梁的建造、船舶的制造、电站设备的制造、起重运输机械的制造以及其他需要承受较高载荷的工程与焊接结构件的制造。



1.2510			Products Standard 执行标准			DIN EN ISO 4957		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	W	V
	0.90-1.05	0.15-0.35	1.00-1.20	≤ 0.030	≤ 0.030	0.50-0.70	0.50-0.70	0.05-0.15
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled				
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged				
Delivery Condition 交货状态	退火（硬度 ≤ 229HBW）或热轧、锻制、冷拉、不热处理状态交货，光面或黑皮。							
	Hardness ≤ 229HBW. Hot rolled, annealed, forged, delivered without heat treatment, bright or black.							
Heat Treatment 热处理	软性退火 /Soft Annealed: 750-800°C . 空冷 /Air cooling ;							
	球化退火 /Spheroidizing Annealing: 860-880° C, 空冷 /Air cooling ;							
	淬火 /Quenched: 780-820°C , 油冷 /oil cooling ;							
	回火 /Tempered: 150-400°C , 空冷 /Air cooling ;							

Properties and Applications :

1.2510 cold work tool steel is a non-deformable mold steel with uniform material, good surface polishing performance, good toughness, fine steel structure, high wear resistance, etc. It has small heat treatment deformation. After hardening treatment and mechanical cutting process, its structure is stable and does not deform.

1.2510 cold work tool steel is widely used in high-quality non-deformation tools and oil-quenched cold work molds, and is also suitable for the manufacture of various cutting tools. Including stamping dies, jewelry embossing dies, shearing dies, woodworking cutting tools, planers, milling cutters, drilling tools, forming dies, turning tools, cutting tools, etc.

特性及适用范围：

1.2510 冷作工具钢是一种不变形的模具钢，具有均匀的材质、表面抛光性能好、良好的韧性、精细的钢材结构、高耐磨性等。它热处理变形小，经过淬硬处理和机械切削过程后，其结构稳定且不变形。

1.2510 冷作工具钢被广泛应用于高品质不变形工具和油淬冷作模具，还适用于各种切削刀具类的制造。包括有冲压模、首饰压花模、剪口刀模、木工切割工具、刨刀、铣刀、钻孔工具、成型模、车刀、裁剪刀具等。

1.2714				Products Standard 执行标准			DIN EN ISO 4957		
Chemical Composition (%) 化学成分 (%)	C	Si	Mn	P	S	Cr	Ni	Mo	V
	0.50-0.60	0.10-0.40	0.60-0.90	≤ 0.025	≤ 0.010	0.80-1.20	1.50-1.80	0.35-0.55	0.05-0.15
炼钢工艺 /Steelmaking Processes	EAF+LF+VD		Size 供货尺寸	轧制 /Hot rolled					
成型工艺 /Formed Technique	Hot rolled or hot forged			锻造 /Hot forged					
Delivery Condition 交货状态	退火 (硬度 ≤ 248HB) 或正火、不热处理状态交货，光面或黑皮等。								
	Annealed (hardness ≤ 248HB) or normalized, delivered without heat treatment, bright or black, etc.								
Heat Treatment 热处理	球化退火 /Spheroidizing Annealing: 860-880° C, 空冷 /Air cooling ;								
	淬火 /Quenched: 830-870°C , 油冷 /Oil cooling ;								
	回火 /Tempered: 300-600°C , 回火后硬度 /Hardness ≥ 42HRC, 空冷 /Air cooling ;								

Properties and Applications :

1.2714 mold steel has high strength, hardness and toughness, and is easy to process and heat treat. After quenching and tempering, it will obtain good thermal stability and high impact toughness. Secondary hardening is obtained in high-temperature tempering, and its wear resistance, corrosion resistance and thermal fatigue resistance are improved.

1.2714 mold steel is widely used in tool and machinery manufacturing, and is also suitable for large and complex mold manufacturing. It is often used to make punches, forming dies and tools, punching machines, plastic molds, hot extrusion dies, bending and embossing tools, and more.

特性及适用范围：

1.2714 模具钢具有高强度、硬度和韧性，且易于加工和热处理，调质后，它将获得良好的热稳定性和高冲击韧性。在高温回火中得到二次硬化，其耐磨性、耐腐蚀性和抗热疲劳性能得到提高。

1.2714 模具钢被广泛应用于工具和机械制造领域，还适用于大型和复杂模具制造。它常常用于制造冲头、成型模具和工具、穿孔机、塑料模具、热挤压模具、弯曲和压花工具等等。