



Casting | Forging | Fabrication

High Quality Casting & Forging Component
Provider and Fabrication Manufacturer



WALKSON

WALKSON provides high quality casting & Forging components. Material includes carbon steel, low alloy steel, high chrome white iron, high manganese steel, Stainless steel, Super alloy, Ti-Alloy, Metal ceramic composite material and bimetal composite.

Industries we serve including Mining, Mineral Processing and Oil & Gas industry.

Ground Engaged Tool (G.E.T)

Typical products are cast lip, teeth, adaptor, shroud, heel corner

Wear protection products

Bimetallic wear plate, Chocky bar, wear button, Ni-hard wear liners, mining picks

Undercarriage components

Sprocket, idler, crawler shoes, rollers

Mineral processing

SAG Mill liners, Vertical mill metal ceramic composite mill roller & pan Guide plate, Rotating and static ring, Jaw plate, Cone / Mantle, Blow bar, Hammer, Shoe hammer of VSI Crusher.

Heavy engineering components

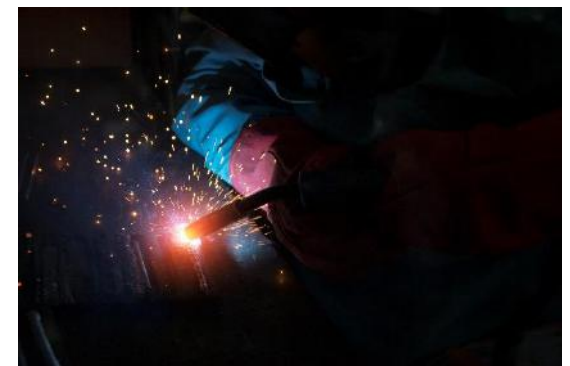
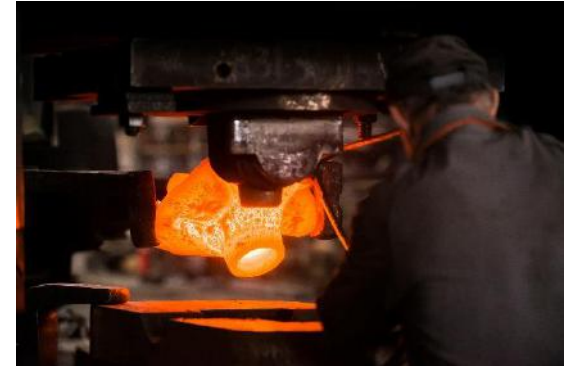
Dragline excavator walking CAM, walking frame, CAM shaft, sheave

Oil and Gas

Mainly Valve components, including ball valve, check valve etc.

Metal fabrication

Metal stamping, hot extrusion, welding, folding or bending, laser cutting, water jetting, metal spinning, finishing



Ground Engaged Tool (G.E.T)



Typical G.E.T castings WALKSON can provide are :

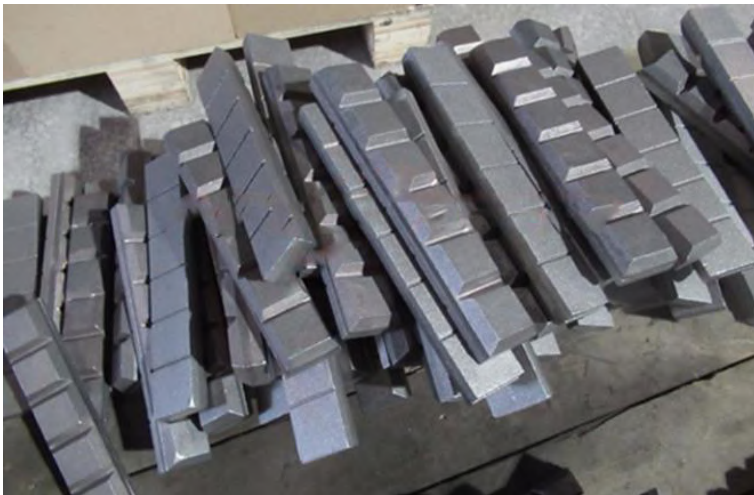
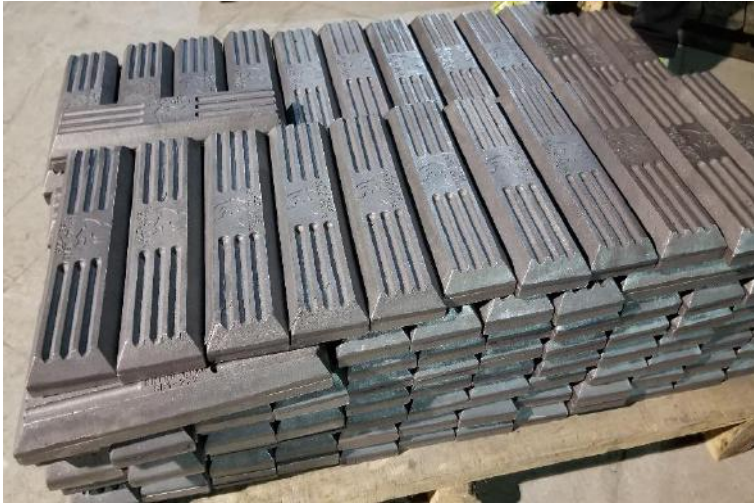
- Cast lip
- Teeth
- Shroud
- Adaptor
- Shackle
- Chain links
- Heel corner

We can provide different casting property according to the working situation, typical mechanic property is as below:



Property	Aim
0.2% P.S. in MPa (Min.)	1000
U.T.S in MPa (Min.)	1207
Elongation in % (Min.)	5
Test Bar CVN @ -40°C (Joules)	Min 22, Aim 27
Middle of the thickest section CVN @ -40°C (Joules)	Min 20, Aim 25
Hardness (HB 3000/10)	Min 400, Aim 440

Wear Protection Products- Bimetallic products



WALKSON can provide professional wear solutions and a whole set of wear-resistant products. The products include:

- Chokey wear bars, wear buttons
- Bimetallic wear plates/liners
- Ni-hard wear liners/billets
- Shredder hammer tips/Knife edges

They are widely used in excavator buckets, crusher hoppers, vibratory feeders, crusher chutes, screen plates, rolling mill guides.

Wear-resistant material is ASTM A532 II-B, the mechanical properties we can achieve are as follows:

Mechanical property	Result
Tensile Strength	630Mpa Min.
Shearing Strength	250Mpa Min.
Hardness	63 HRC/700BHN

Wear Protection Products- **PTAW**

WALKSON can provide specially formulated Tungsten Carbide Overlay (TCO) applied by Plasma Transferred Arc Welding (PTAW) process on any casting or fabrication part surface to increase the wear resistant property of the part.

For extremely abrasive applications, the overlay properties in the following chart will be used. The lifecycle of this type overlay by PATW is 5-6 times longer than Chrome Carbide Overlay.

Typical Applications of this kind overlay is Slurry line, slurry pump suction and discharge spool, wear spool, spray nozzles.



Overlay Properties	WC	Matrix
Composition (wt%)	70 -75 %	Balance
Hardness	2700- 2900 HV	60-70 HRC
Particle size (micron)	44 - 250	53-198
Overlay Thickness (mm)	3 - 15 mm	
Bulk Hardness	832 -1076 HV / 65-70 HRC	

WEAR PROTECTION PRODUCTS- PTAW

For heavy load applications, the tungsten carbide is 60-70 wt % and the balance is NiB matrix. The particle size of prime carbide is in the range of 60-325 mesh (44-250 micron) with hardness HV 2700-2900. The bulk hardness of NiB matrix is HRC 45-55.

This formula is designed for medium to heavy load application. The combination of high hardness of the prime carbide and high toughness of the matrix make the wear products excellent for high-impact applications. Its lifecycle is 5-6 times longer than AR plates

Typical Applications of this kind overlay is Rotary screen wear plates, shovel teeth, crusher teeth and liner plates, grinder hammer tips, chutes/hoppers and mining picks.



Overlay Properties	WC	Matrix
Composition (wt%)	60 -70 %	Balance
Hardness	2300- 2600 HV	45-55 HRC
Particle size (micron)	44 - 250	53-198
Overlay Thickness (mm)	3 - 15 mm	
Bulk Hardness	720-865 HV / 61-66 HRC	

Undercarriage components



We can provide undercarriage components for rope shovel, hydraulic shovel, such as crawler shoe, sprocket, tumbler, idler, roller, slider block, end block, pin and bolt.

For the crawler shoe the material we can provide including high manganese steel and low alloy high strength steel.

The typical mechanical properties of the material are as below:



Low alloy steel mechanical property

Yield Stress	MPa Min.	1000
Tensile Strength	MPa Min.	1204
Elongation (4D)	% Min.	4.5
Reduction of Area	% Min.	11.5

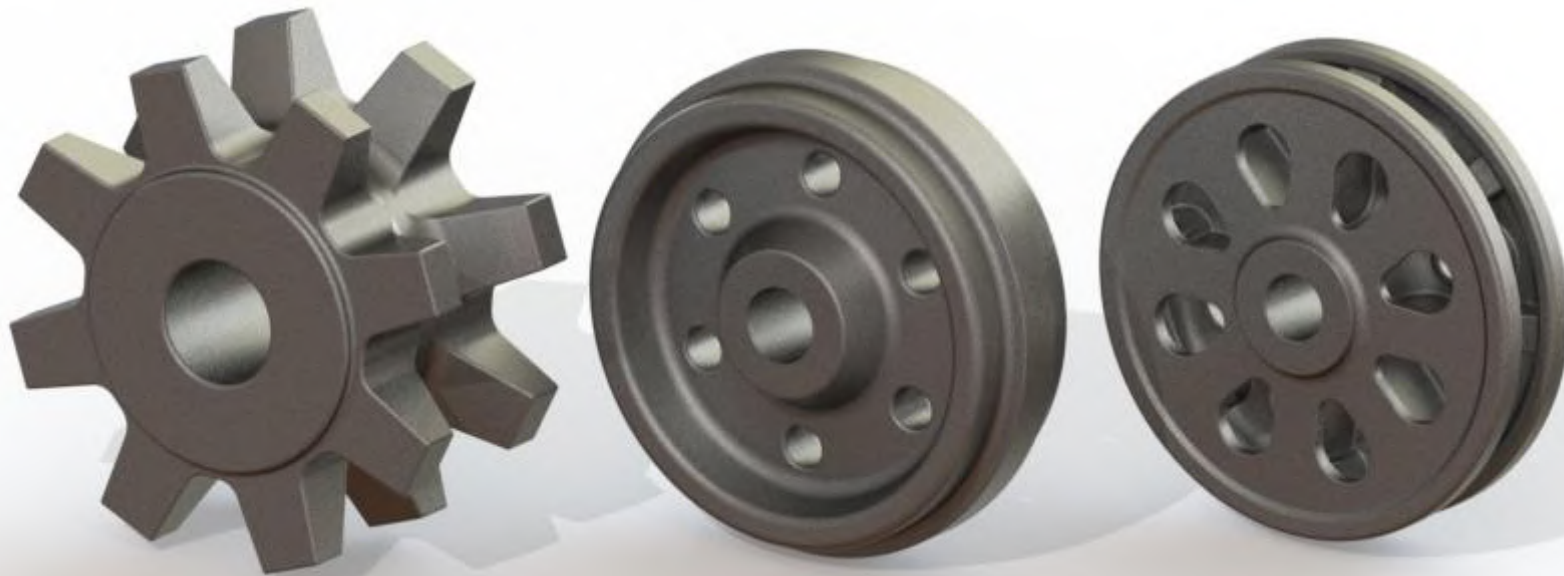
Undercarriage components

Mechanical properties	Required Minimum
UTS (MPa)	950
Yield (MPa)	800
Elongation (%)	10
Charpy V Notch (Joules)	27 @ -40 C
Hardness (Brinell)	286 – 340

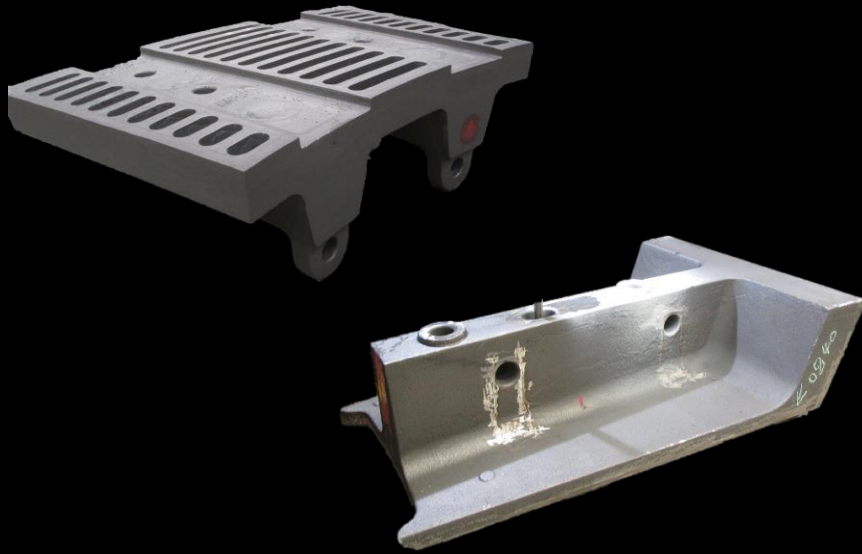
Typical mechanical properties of Tumbler and idler

Walkson is a qualified supplier of crawler system for large hydraulic excavators and electric rope shovels, our Key products include:

- Crawler shoes / track pads
- Sprockets/tumblers
- Idlers
- Load rollers
- Return rollers / slider blocks
- End block
- Pin and bolt



Mineral processing-Mill liner



We can provide a wide range of wear resistant products for mineral processing industry; our main products include:

- SAG mill liner
- AG mill liner
- Chute line
- Hammer
- Shoe hammer of VSI Crusher

The material we can provide for these products are Cr-Mo steel, high chrome white iron, high manganese steel and Metal ceramic composite material.

Typical Cr-Mo steel as below, the final hardness is between 350-402 HBW

C	Si	Mn	S	P	Cr	Ni	Mo	Cu	Al
0.75-0.85	0.3-0.8	0.8-1.1	≤0.03	≤0.03	2.0-2.5	≤0.6	0.26-0.36	≤0.3	≤0.03

Typical High Chrome white iron as below, the final hardness is ≥621 HBW

C	Si	Mn	S	P	Cr	Ni	Mo	Cu
2.45-2.85	0.3-0.8	0.8-1.3	≤0.03	≤0.03	22.0-25.0	≤0.70	0.7-0.86	0.90-1.10

Mineral processing-Metal ceramic composite(MCC) product



High-manganese steel substrate and ceramic , namely, the base material of the cone and mantle is high Mn steel, while the cast ceramic matrix embedded with high wear resistance shaped ribs, increase the wear resistance ability while maintaining the original impact resistance of high manganese steel.

Under the same service conditions, the MMC manganese cone's life is 2 times of the normal one. The MMC manganese hammer's life is up to 3 times than the normal manganese hammer.

Following is the comparation test we have done on the machine GP300 about the MMC manganese cone's performance:

Mineral	Particle size	Moh's hardness	MCC Mn cone life	Normal Mn Cone
Iron ore	50-300mm	6.5	900 Hours	440 Hours

Mineral processing-Metal ceramic composite(MCC) product

WALKSON choose High Cr cast iron(or Martensite steel) base ceramic composite materials, which is the liner basement with High Cr cast iron(or Martensite steel), it has better elongation, thus has completely safety of resistance to fracture and embed high wear resistance of ceramic reinforcement into the basement, to get great improvement wear resistance. The life of the ceramic composite liner, compared with common High Cr liner, the product life can be doubled.

Following is the comparation test we have done on the machine ZGM95G about the MMC roller performance:



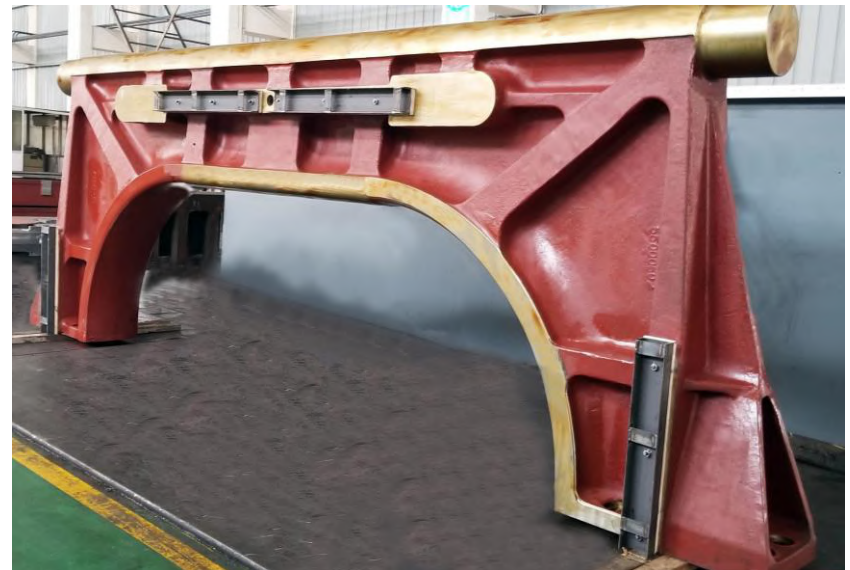
Mineral	Particle size	HIG	MCC roller	Normal roller
4500 Kcal/Kg Coal	30-50mm	60	12000-20000 Hours	6000-8000 Hours

Heavy engineering components

WALKSON specializes in manufacturing large size mechanical components for Customers from various industrial sectors. We have delivered high quality casted, welded and forged parts for many customers .

- Dragline excavator walking frame
- Dragline excavator walking CAM
- Dragline excavator cam shaft
- Dragline excavator forging links
- Split girth half gear
- eccentric gears

Material including low alloy steel, carbon steel and SG iron. Manufacture methods including sand casting, forging and machining.



Oil and Gas industry

WALKSON can supply components for gate valve, global valve, ball valve, butterfly valve, check valve, safety valve; split case pump, end suction pump, double suction pump, centrifugal pump, multi-stage pump etc. Those valves and pumps are widely used in oil and gas industry. Castings and forgings are the critical parts in making good quality valves and pumps. The castings and forgings can be produced in UNS standards, ASTM, DIN/EN, JIS, Norsok etc. Material includes carbon steels, alloy steels, stainless steels and duplex steels, such as WCB, LCB, WC9, CA15, C12A, CF3, CF8M, CN7M, 5A, 6A, F304, F316, F51 etc.



Metal Fabrication

For your complex parts and assemblies, WALKSON Fabrication Solutions has the industrial metal fabrication experience that you're looking for in a heavy fabricator. Our wide range of equipment allows us to meet the varied demands of modern equipment manufacturers.

Our Fabrication Solutions creates custom metal parts that are made with everything from carbon, alloy and stainless steels and HSLAs. we can fabricate metal that's up to 80mm thick and process metal that's up to 250mm in plate thickness.

We specialize in heavy fab work, to include comprehensive, value-added solutions to help to keep your fabrication costs low and manufacturing process as efficient and effective as possible. We aim to be your reliable fabrication supplier-partner for the reliability, high-quality, and on-time production scheduling and delivery services that we bring to your supply chain network.





THANK YOU

WALKSON will use its professional manufacture knowledge to assist your business.

Let us know what we can do for you to make your next project a success!