



黄河旋风
HUANGHE WHIRLWIND



Construction & Mining Tools

——Pick Series Products



河南黄河旋风股份有限公司
HENAN HUANGHE WHIRLWIND CO.,LTD.

◎Company Profile



Henan Huanghe Whirlwind Co., LTD. was listed on Shanghai Stock Exchange (Stock Code: 600172) in 1998. The company has developed into a national large-scale enterprise integrating scientific research, production and trade.

The company has passed the ISO9001 international quality & management system certification. Our main products cover pick-series products, PCD (Polycrystalline Diamond), PDC (Polycrystalline Diamond Compact), PcBN (Polycrystalline Cubic Boron Nitride) and PcBN composite and related products, hard-surface intensive drilling tools and other series products. Our products are widely used in engineering & mining equipment, petroleum drilling, geological prospecting, coal field supporting & exploring and other industries.

Nowadays our pick-series products won great outbreaks and many authorities of intellectual property rights, among which the newly-researched laser cladding pick series products, PDC pick series products, multi-cutters pick series products have the characters of super strong abrasion and high toughness. Above products have been used widely in the fields of engineering rotary drilling, coal mine exploring and tunnel boring. Our products have got high recognition from our customers for their high cost performance raised by times and obvious advantages under the complex working conditions.

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Test Instrument

Composition & Structure Analysis



X-ray spectrometer



ICP analyzer



C/S analyzer



Metallographic microscope



SEM scanner



X-ray diffractometer



Impact toughness tester

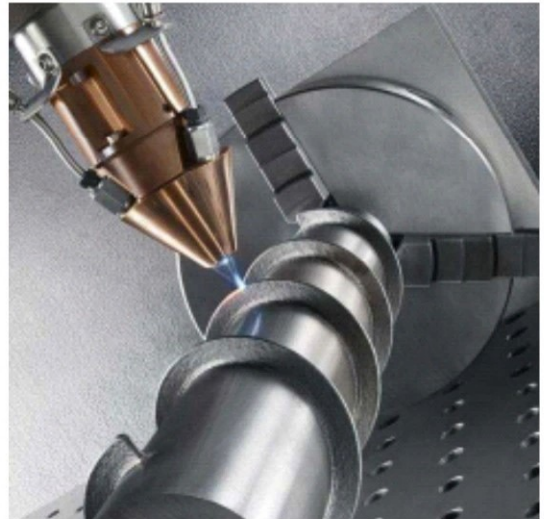


Rockwell apparatus

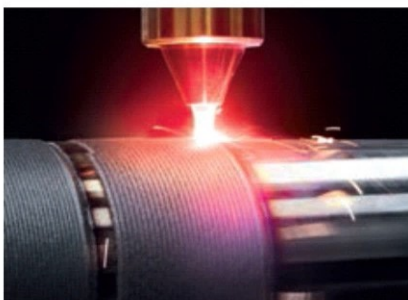


Universal testing machine

New-type pick series



PDC pick



Characters:

- ◆ Use PDC head, the wear resistance is above 8 times of ones with carbide tips, without spark during the usage.
- ◆ The holder uses the special protection technology which make the wear resistance improved largely.

Application:

- ◆ Coal mining for the full coal layer, semi-rock coal layer, and full-rock coal layer.

New-type pick series

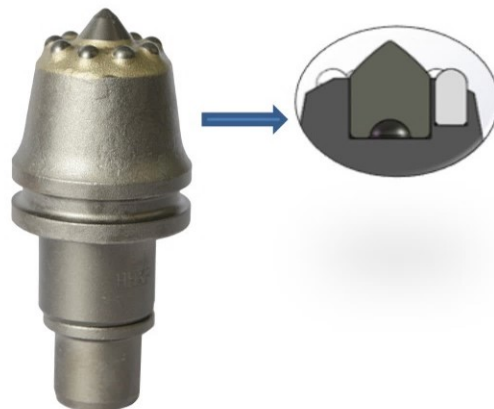
Multi-vice teeth pick

Characters:

- ◆ Special patent design
- ◆ The holder is durable with multi-vice teeth, the service time is 3~5 times longer than normal ones.
- ◆ Size: HWGX 3055-19Z156、HWGX 3060-19Z158

Application:

- ◆ Engineer rotary fields, the stratum with bad cementing properties like grait, macadam and gravel



Laser Cladding Pick



Characters:

- ◆ The laser cladding layer increase the wear resistance
- ◆ The metallurgical bonding prevent the carbide head falling off
- ◆ The service time is 2 times than normal ones
- ◆ Size: HWMJ S135-25L、HWGX

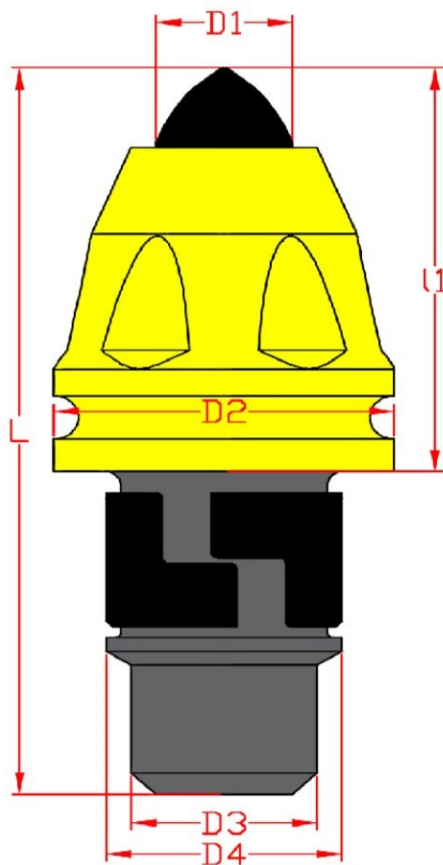
Application:

- ◆ Coal mining, engineer rotary drilling , trenching, mainly for stratum work needs pick head uneasily falling off.

Picks for construction



Construction pick size



size	Carbide diameter D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	Teeth l1 (mm)	Teeth height L (mm)
HWGX 3050	16-22	50	30	38	70-90	130-150
HWGX 3055	19-30	55			75	135
HWGX 3060	19-30	60			73-92	133-152

Picks for rotary drilling

HWGX 3050-18



Characters:

- ◆ Tungsten carbide+ 42CrMo
- ◆ The holder with wearing layer
- ◆ Long service time

Application:

- ◆ Backfill, solid topsoil, hardened clay, fine gravel soil
- ◆ Uniaxial compressive strength $\leq 30\text{MPa}$

HWGX 3050-N8

Characters:

- ◆ Protect the carbide head part with carbide strips which make the service time longer

Application:

- ◆ Macadam soil, soft shale, fractured sandstone, mud shale, strong weathered rock and soft rock stratum
- ◆ Uniaxial compressive strength $\leq 30\text{MPa}$



HWGX 3050JC-18



Characters:

- ◆ Long shank design, avoid the problems of skidding & drilling failure caused by mud-sand wrap, high drilling efficiency

Application:

- ◆ Backfill, solid topsoil, hardened clay, fine gravel soil, mud rock, soft shale, and soft rock stratum
- ◆ Uniaxial compressive strength $\leq 30\text{MPa}$

Picks for rotary drilling

HWGX 3055-N9



Characters:

- ◆ The holder is strengthened with carbide strips, longer service time

Application:

- ◆ Dinas, normal iron ore, bauxite ore, dense peddle, strong & medium weathered medium hard stratum.
- ◆ Uniaxial compressive strength $\leq 60\text{MPa}$

HWGX 3055-22



Characters:

- ◆ Choose the carbide of medium coarse granularity, improve the wear resistance and toughness
- ◆ strengthen by plasma surfacing, high rock breaking drilling rate.

Application:

- ◆ Dinas, limestone, bricklaying, undense limerock, strong & medium weathered medium hard stratum
- ◆ Uniaxial compressive strength $\leq 60\text{MPa}$

HWGX 3060-22



Characters:

- ◆ Choose the carbide of medium coarse granularity, with high wear resistance and toughness

Application:

- ◆ Dinas, limestone, normal iron ore, bauxite ore, pebble, gravel stratum, strong & medium weathered medium hard stratum.
- ◆ Uniaxial compressive strength $\leq 60\text{MPa}$

Picks for rotary drilling

HWGX 3060D-22



Characters:

- ◆ Larger body can protect the carbide teeth efficiently and prolong the service time
- ◆ Service time is 1.5 times as the normal ones

Application:

- ◆ Pebbles of different sizes, gravel stratum with bad cementing properties

HWGX 3055-22AL2



Characters:

- ◆ Use carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ The body is strengthened by plasma surfacing, high rock breaking and fast drilling speed.

Application:

- ◆ Dense marlstone, pyrite, medium weathered granite, hard rock stratum. Rock coefficient $f=6-8$.

HWGX 3055-25A



Characters:

- ◆ Use carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ High rock-breaking efficiency, fast drilling rate.

Application:

- ◆ Dense marlstone, limerock, marble, dolomite, pyrite, medium weathered granite, Hard rock stratum. Rock coefficient $f=6-8$.

Picks for rotary drilling

HWGX 3055JC-25A



Characters:

- ◆ Use carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ Long body design, high rock-breaking efficiency, fast drilling rate.

Application:

- ◆ Dense marlstone, solid shale, sand shale, limerock, marble, hard rock stratum. Uniaxial compressive strength is 60-80MPa

HWGX 3055-27AL2

Characters:

- ◆ Use carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ Strengthened by plasma surfacing with high wear resistance, high rock breaking & drilling rate.

Application:

- ◆ hard sand shale, marble, dolomite, pyrite, quartzite hard rock stratum. Rock coefficient $f \geq 8$.



HWGX 3055-30



Characters:

- ◆ Use carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ Larger carbide head diameter design, longer service time

Application:

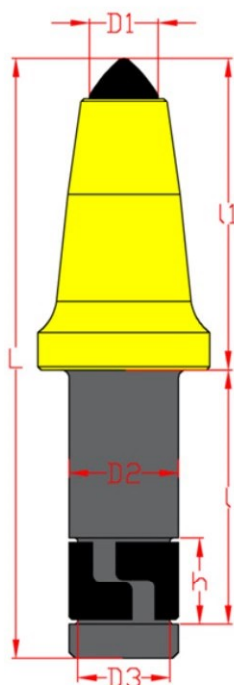
- ◆ Hard sand shale, limerock, marble, dolomite, pyrite, basalt, quartzite hard rock stratum. Rock coefficient $f \geq 8$.



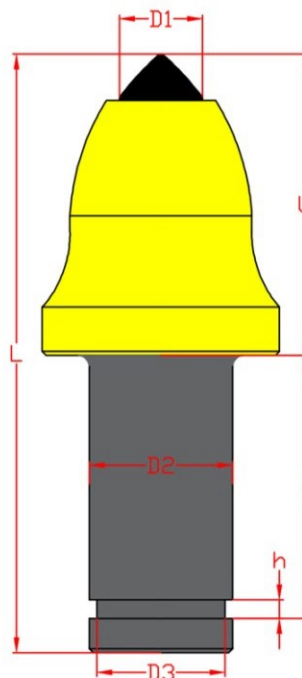
Picks for coal mining



Mining Pick Size



Conical pick type A



Conical pick type B

Size for conical pick type A

Size	Carbide Diameter D1(mm)	Body diameter D2(mm)	Clip diameter D3(mm)	Clip width h(mm)	Clip location l(mm)	Teeth length l1(mm)	Body length L(mm)
HWMC U84	16-22	30	26	28	65.5	80	152
HWMC U92	16-22	35	30	28	82	102	196
HWMC U94	19-25	35	30	28	82	90	184
HWMC U95	22-30	35	30	28	82	90	184

Size for conical pick type B

Size	Carbide Diameter D1(mm)	Body diameter D2(mm)	Bottom diameter D3(mm)	Clip diameter D2(mm)	Clip width (mm)	Clip location l (mm)	Teeth length l1(mm)	Body length L(mm)
HWMC U170	22-30	43	35	30	28	112	102	234

Picks for coal mining

HWMC U82

**Characters:**

- ◆ Use high-strength carbide, possess high impact and wear resistance, the teeth diameter is $\phi 16-22\text{mm}$.
- ◆ Coat with overlaying abrasive resistance layer which prolong the working time.

Application:

- ◆ Coal mining machine, suitable for full-coal layer, semi-rock and hard rock coal layer cutting operation.

HWMC U84

**Characters:**

- ◆ Use high-strength carbide, possess high impact and wear resistance, the teeth diameter is $\phi 16-22\text{mm}$.
- ◆ Coat with overlaying abrasive resistance layer which prolong the working time.

Application:

- ◆ Coal mining machine, suitable for full-coal layer, semi-rock and hard rock coal layer cutting operation.

HWMC U84-N9

**Characters:**

- ◆ Use high-strength carbide with high impact and wear resistance, the teeth diameter is $\phi 16-22\text{mm}$.
- ◆ Body protection with carbide strips, longer service time.

Application:

- ◆ Coal mining machine, suitable for full-coal, semi-rock and hard rock coal layers cutting operation.

Picks for coal mining

HWMC U92

**Characters:**

- ◆ Use high-strength carbide with high wear resistance, the teeth diameter is ϕ 16-22mm.
- ◆ Coat with overlaying layer which prolong the working time.

Application:

- ◆ Coal mining machine, suitable for full-coal, semi-rock and hard rock coal layers cutting operation.

HWMC U94

**Characters:**

- ◆ Use high-strength carbide, possess high impact and wear resistance, the teeth diameter is ϕ 16-22mm.
- ◆ Coat with overlaying abrasive resistance layer which prolong the working time.

Application:

- ◆ Coal mining machine, suitable for full-coal, semi-rock and hard rock coal layers cutting operation.

HWMC U95

**Characters:**

- ◆ Use high-strength carbide, possess high impact and wear resistance, the teeth diameter is ϕ 16-22mm.
- ◆ Coat with overlaying abrasive resistance layer .

Application:

- ◆ Coal mining machine, suitable for full-coal, semi-rock and hard rock coal layers cutting operation.

Picks for coal mining

HWMC U95-N9

**Characters:**

- ◆ Use high-strength carbide with high impact toughness and wear resistance, the teeth diameter is $\phi 22-25\text{mm}$.
- ◆ Protect the steel body with carbide strips, prolong the body's working time.

Application:

- ◆ Coal mining machine, suitable for full-coal layer, semi-rock and hard rock coal layer cutting operation. Other carbide brands are available upon request.

HWMC U170

**Characters:**

- ◆ Use high-strength carbide with high impact toughness and wear resistance, the teeth diameter is $\phi 22-30\text{mm}$.
- ◆ Coat with overlaying abrasive resistance layer which prolong the working time.

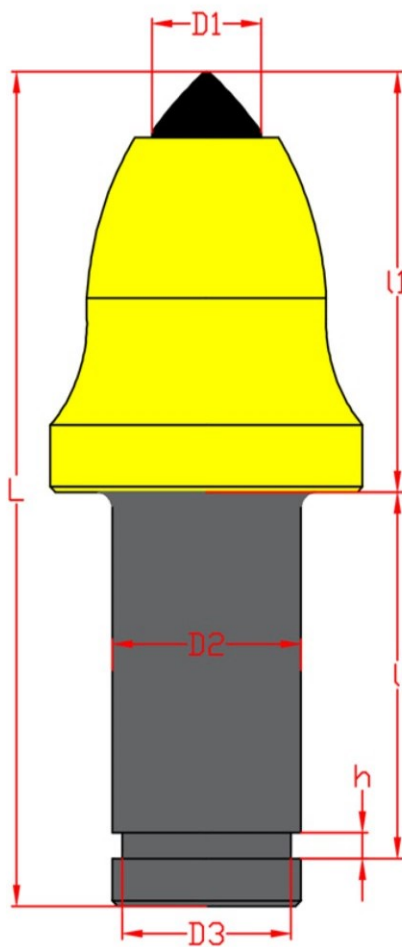
Application:

- ◆ Coal mining machine, suitable for full-coal layer, semi-rock and hard rock coal layer cutting operation.
- ◆ Other carbide brands are available upon request.

Picks for Headroader



Headroader pick size



Basic size

Size	Carbide diameter D1(mm)	Body diameter D2(mm)	Clip diameter D3(mm)	Clip width h(mm)	Clip location l(mm)	Teeth length l1(mm)	Body length L(mm)
HWMJ S135	19-30	38	35	5	70	80	157



Headroader pick

HWMJ S135-19



Characters:

- ◆ Use high-class carbide, diameter is ϕ 19-22mm;
- ◆ The strengthened overlaying increase the body's wear resistance.

Application:

- ◆ Dinas, limestone, normal iron ore, bauxite ore, undense limerock, medium hard stratum (compressive strength is 60-80MPa)

HWMJ S135-22AN8



Characters:

- ◆ Use the carbide with low cobalt super coarse grain, possess higher wear resistance and heat stability.
- ◆ The carbide strips decrease the body worn and prolong working time, the teeth diameter is ϕ 22-25mm.

Application:

- ◆ Dense marlstone, solid shale, sand shale, hard rock stratum. compressive strength is 60-80MPa.

HWMJ S135-30



Characters:

- ◆ Use the carbide with low cobalt, possess higher wear resistance, impact resistance and heat stability.
- ◆ Bigger carbide diameter (27-30mm), improve the wear resistance and service time.

Application:

- ◆ Dense marlstone, pyrite, medium weathered granite, hard rock stratum. compressive strength is ≥ 80 MPa.

Radial Pick/Rock Drill Bits

Radial pick



Characters:

- ◆ Use the carbide teeth with higher wear resistance and impact resistance.
- ◆ Strengthen by overlaying, increase the body's wear resistance and prolong the service time.

Application :

- ◆ Coal mining machine, the full soft coal layer cutting operation.

Rock drill bits

Application:

- ◆ Coal ore, iron ore, copper ore, gold ore, lead zinc ore and rail ways, highway and water conservancy construction. Appropriate carbide brand is chosen upon the rock hardness.

Characters:

- ◆ Use the carbide with impact toughness.
- ◆ Ordinary size: ϕ 28-60mm
- ◆ Connect method: Taper, R-type threaded connection

Application:

- ◆ Light grader, drill the hole size under 50mm, suitable for medium-hard rock.



Tapered Chisel Bit



Tapered Cross Bit


Characters:

- ◆ Use the carbide with high drilling efficiency.
- ◆ Ordinary size: ϕ 30-70mm
- ◆ Connect method: Taper, R-type threaded connection

Application:

- ◆ High power grader for drilling the complicated rocks hard and super hard rocks. Possess strong radial wear resistance.

Common problems analysis

Problems	Reason analysis	Solution
 <p>Carbide breakage</p>	<ul style="list-style-type: none"> • operation layer is too hard • excessive pressure or impact, surpass the material extreme • the carbide impact is unmatched with the stratum 	<ul style="list-style-type: none"> • decrease the pressure and rotating speed • change the carbide with better impact toughness
 <p>Excessive wear</p>	<ul style="list-style-type: none"> • fail to expel the grinding materials • bad abrasive working condition 	<ul style="list-style-type: none"> • change for the suitable pick • wear resistance treatment • Increase the feed rate
 <p>Shank breakage</p>	<ul style="list-style-type: none"> • sleeve gear worn • the cutting layer is hard with high impact • bad heat treatment with the body cause to the bad impact 	<ul style="list-style-type: none"> • check and change the holder • decrease the outside impact • improve the heat treatment ,add the mechanic performance
 <p>Thermal cracking</p>	<ul style="list-style-type: none"> • excessive heat during the operation • the layer has small grinding particles • too fast rotating speed 	<ul style="list-style-type: none"> • lower the rotating rate • decrease the impact and cutting depth
 <p>Eccentric wear</p>	<ul style="list-style-type: none"> • loss rotation during work • teeth located out of place • the cutting depth is too deep • the holder worn 	<ul style="list-style-type: none"> • remove the holder • relocate the teeth • decrease the cutting depth • check and change the holder
 <p>Shank curved</p>	<ul style="list-style-type: none"> • teeth sleeve/holder worn badly • the body is not hard enough 	<ul style="list-style-type: none"> • check the teeth sleeve/ holder • adjust the technology, increase the hardness

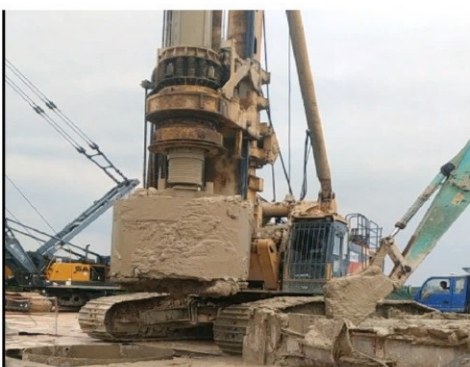
Application projects



Road construction site



Highway construction site



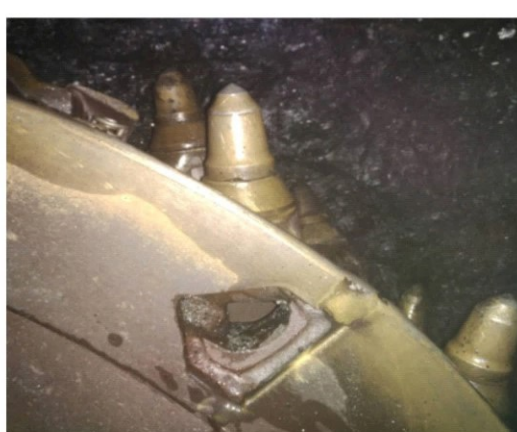
Bridge construction site



Subway project construction



Coal ore work site



Coal ore work site

**Concentrate on manufacture
Service the customers
To be the best supplier with supreme
product cost performance**



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