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**KEYUDA FOUNDRY**

SHANXI · CHINA

SCIENTIFIC CASTING  
INTEGRITY SHANXI  
GIVING BACK TO SOCIETY





## COMPANY INTRODUCE

Jincheng Keyuda Foundry Co.,Ltd. located in Casting Industrial area of Nancun Town, Zezhou County ,Jincheng City, Shanxi Province,China.It founded in February ,2014, registered capital is 80 million yuan ,our annual output is about 100,000 Tons. After these years development,we had become a lead and professional casting company with produce and develop different specifications manhole covers,casting parts,machine accessories in the whole china

In the spirit of " Integrity first,quality wins" that our company obtained environmental certificate and label about carbon footprint from the inspection of China Quality Certification Center (CQC) in September, 2015, won a leader position in this area . Through the product carbon footprint inventory project, the company has improved its own domestic and international competitiveness, and also filled up bank of carbon footprint data in domestic which authored a low carbon transformation development direction in this industry area. We individualized recover the heat according to greenhouse gases emission situation during production process, it achieves energy-saving effect and establish a basis for company' s low carbon environmental protection development.

Research and development also with production are our main projects. Through self - create spirit, our company adopts domestic advanced horizontal static pressure production line, sand conditioning and painting with automatic,machining and so other improved equipment., designed specifically production process for the manhole casting so that company owned the advantage of scientific research also with product competitive which it have become the top research and development manufacturing enterprises in China's foundry industry.

As to ductile iron manhole cover we produce which it gets spheroidal graphite through spheroidization and inoculation, which effectively improves the mechanical properties of casing, especially for improving ductility and flexibility so that get higher strength than carbon steel.

Products are widely used in cities, water conservancy, electricity, road administration, public places (roads, parks, squares, green areas), etc.Meanwhile our company also produce different kinds of pipe and fitting(such as lamp stand and chair). Goods not only are popular in domestic market, but also exported to America, Korea,Malaysia,Italy, Saudi Arabia, Dubai, Yemen and so on.

Company's deep industry background and resources also together with unique technological innovation which it had already become a significant and push force for the whole china casting industry. With our company' s positive initiatives, China Foundry Association had the industry standard meeting in our city about "Ductile iron manhole cover, Grating And Accessories " in Sep, 2016.it announced on Dec 12, 2016 and published on Feb 28, 2017, meanwhile the same meeting by China Foundry Association opened in our company in Jul, 2018. We also successfully passed review of production safety standardization and officially became a two level standard company in Oct, 2016. Meanwhile we got honours of "Advanced Production Safety " and "Specialize in special" from Shanxi Province government in 2017.

With high-quality products and services, we get praise and praise by users at home and abroad, and promote continuously Chinese Foundry industry to the world!

## QUALIFICATION HONOR

Our company will continue to insist the business philosophy of "integrity, service, cooperation, win-win" adhere to mission of "casting harmonious ecological circle · leading the industry forward and development", contribute to the development of industry.

The honor and appreciation that we received yesterday, saw our company's growth and recognized our efforts as starting points, and will unwaveringly determine to move forward and toward higher goals.



BUSINESS LICENSE

TRADEMARK REGISTRATION  
CERTIFICATE



SEWAGE PERMIT



"SPECIALIZATION AND SPECIAL NEW"  
HONORARY CERTIFICATE



UTILITY MODEL PATENT CERTIFICATE



PRODUCT CARBON FOOTPRINT  
CERTIFICATE



PRODUCT CARBON  
FOOTPRINT CERTIFICATE



OCCUPATIONAL HEALTH AND SAFETY  
MANAGEMENT SYSTEM



ENVIRONMENTAL MANAGEMENT  
SYSTEM CERTIFICATION



QUALITY MANAGEMENT  
SYSTEM CERTIFICATION



AAA



CREDIT RATING AAA UNIT



AAA CONTRACT AND  
KEEPING PROMISES UNIT



SAFETY PRODUCTION  
STANDARDIZATION CERTIFICATE



**Select raw materials:** The chemical composition required strictly. As to carbon silicon content required for the original iron liquid is higher than that of cast iron to reduce content of Mn, P, S in ductile iron.

**Molten iron melt :** The temperature from iron out of furnace that is more high than cast iron, to make up the temperature loss during spheroidization and gestation.

**Iron spheroidization:** Stop spheroidization, that is, add spheroidizing agent to the molten iron.

**Inoculation:** To take part in inoculant and to stop inoculation.

**Iron melt casting:** Ductile iron has feature of poor activity and large shrinkage. Therefore, it requires a higher casting temperature and a larger casting system dimension. It should use head and chills reasonably, we adopt freezes in turn.

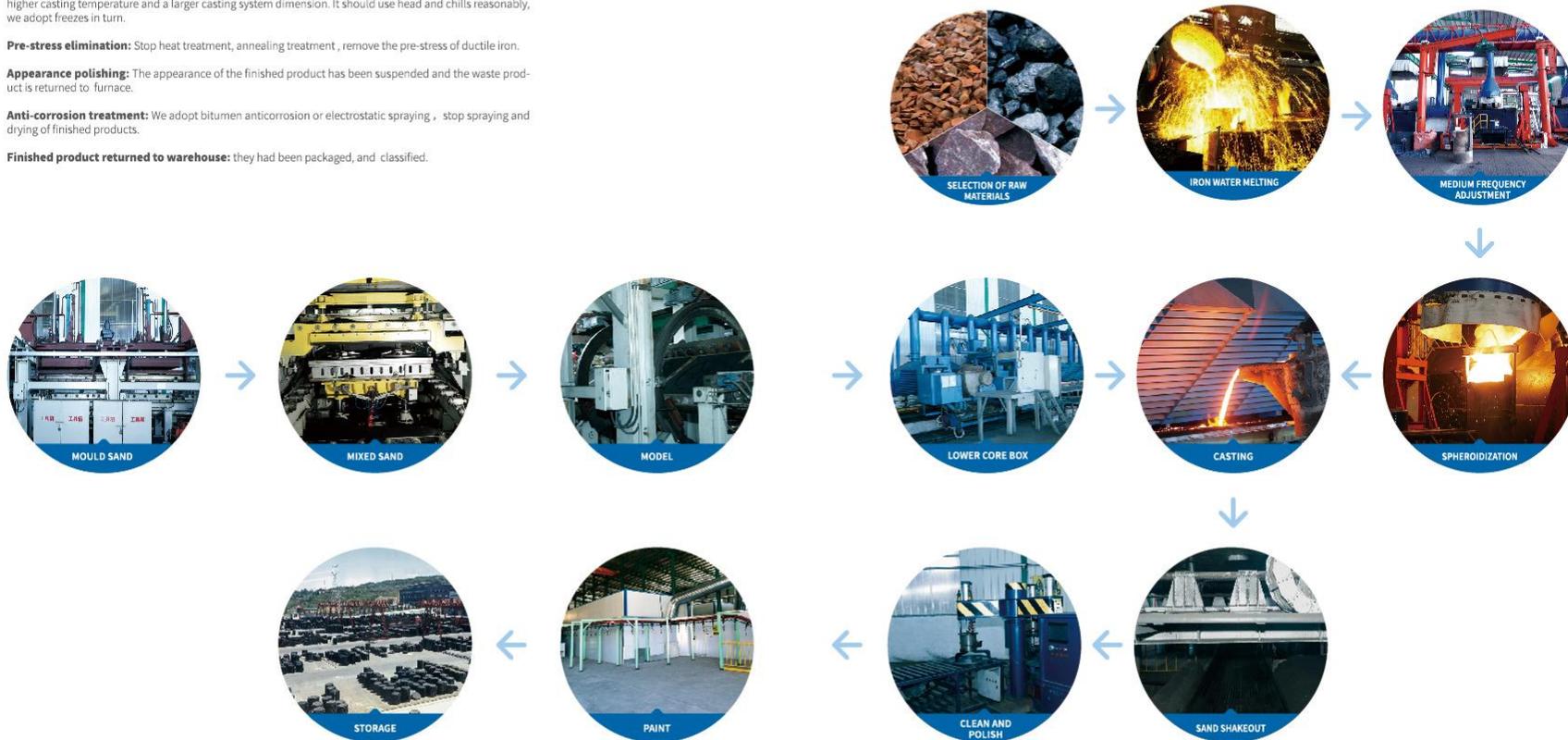
**Pre-stress elimination:** Stop heat treatment, annealing treatment , remove the pre-stress of ductile iron.

**Appearance polishing:** The appearance of the finished product has been suspended and the waste product is returned to furnace.

**Anti-corrosion treatment:** We adopt bitumen anticorrosion or electrostatic spraying , stop spraying and drying of finished products.

**Finished product returned to warehouse:** they had been packaged, and classified.

## PRODUCTION PROCESS



## DYNAMIC TEST OF MANHOLE COVER

Scientific and rigorous work attitude is the premise of ensuring product quality. It adopts advanced testing equipment and sites at home and abroad to do sample testing from each batch, meanwhile to issue corresponding testing data to keep and make guard for each product's passing rate is 100%.



**TENSILE TEST**  
We will do sampling tensile test as to each batch product, displaying test data and status in actual time. The test process's control is realized by automatic controlled. It can calculate the largest test force value and breaking powder data and so other testing data automatically.

**SPECTROMETER TEST**

**METALLOGRAPHIC MICROSCOPE OBSERVATION**

**POLISH SAMPLE**

**PRESSURE TEST**  
The compression and flexural strength test of the manhole cover can meet the CJ/T3012-1993 "cast iron inspection manhole cover" standard. Our company will do sample pressure test for each batch of products, that is the test parameter is higher than or equal to the standard to ensure manhole cover is fully qualified from factory delivered.

## PROCESS EQUIPMENT AND ENVIRONMENTAL PROTECTION FACILITIES



Sustainable development – putting green manufacturing and research, environmental protection, energy-saving emission reduction as environmental protection concepts first.



### MEDIUM FREQUENCY FURNACE AND ITS SUPPORTING ENVIRONMENTAL PROTECTION FACILITIES

#### Production Process And Equipment

Adopt advanced short process technology, match with high class medium frequency electric furnace. Including them: 2 sets 5t/h medium-frequency electric furnace from United States Inductotherm Group, 3sets 10t/h medium-frequency electric furnace from China Shandong Rongtai. Its characteristics are energy conservation, environmental protection, and low failure rate.



### MODELING AND CASTING DEPARTMENT

#### Production Process And Equipment

Our company owns 2 sets Horizontal static pressure automatic molding line(120 boxes / h) that is the fastest modeling line currently. Equip with two full-automatic casting lines and 2 semi-automatic casting lines. Especially for full-automatic casting lines, it adopts sector pouring ladle casting technology, which is more accurate and efficient than traditional casting technology, it is at a high-class level at home and abroad.



### SAND PROCESSING DEPARTMENT

#### Production Processes And Equipment

We set up full automatic sand processing production line independently, as to sand treatment line adopts most advanced system from China Jiangyin Third Casting Machinery Co., Ltd. its handling capacity is 400 T/H which is the top level in China.

## MANHOLE COVER STANDARD >

The Manhole cover is divided into six grades according to its carrying capacity on the basis of GB/T23858-2009 "Checking manhole cover" rules

**The first group: (minimum A15 type):** green belts, sidewalks and other areas where motor vehicles are prohibited from entering.

**The second group: (minimum B125 type):** sidewalks, non-motorized roads, car parking lots and underground parking lots.

**The third group: (minimum selection of C250 type):** residential area, back alleys, only light motor vehicles or small cars driving, within 0.5m of curbs on both sides of the road.

**The fourth group: (the lowest selection D400 type):** urban trunk roads, highways, high-grade highways, highways and other areas.

**The fifth group: (the lowest selection E600 type):** freight station, dock, airport and other areas.

**The sixth group: (minimum F900 type):** Airport runway and other areas.

**Note:**

The load capacity of manhole and the ability of manhole cover to pass through the vehicle is not a concept. The manhole load capacity means that the pressure test is carried out by a pressure tester within a unit area, usually 40 tons. And if it is through the car, the 5-axis heavy-duty truck calculation formula: 5 axes x 40 tons = 200 tons. The heavy manhole cover is guaranteed to pass when the total weight of the car is 200T.

### MANHOLE COVER RATING AND APPLICATION

GRADE	IDENTIFICATION	SETTING OCCASION
LIGHT WEIGHT	Q	Green spaces, ramps, bicycle lanes or sidewalks where motor vehicles are prohibited from entering
NORMAL TYPE	P	Roads or parking spaces for vehicles under Class 10 and below
HEAVY	Z	Road or parking space for motor vehicles



## MANHOLE COVER MACHINING >



Manhole cover machining refers to the process of finishing the dimensions or performance of manhole cover components by mechanical equipment or manual work. It can be divided into shaping processing and polish processing according to the difference in processing ways.

The machining process of manhole cover refers to the intermediate process of making products from semi-finished to finished products. Modern enterprises organize and guide production by principle of systems engineering, and see the production process as a production system with inputs and outputs.

During production process, any change of the shape, size, properties and so on that producing manhole cover to make it into a finished product or a semi-finished product is called process. It is a major part of the production process.

Our company has two domestic advanced modern machining workshops with an area of nearly 1,000 square meters, multiple automatic and more than ten manual machining production lines, which meet different types manhole covers mechanical processing at the same time. It improves work efficiency and customer products is guaranteed.

## MOLD DESIGN >

Manhole cover is city's business card. It begins with solving practical details, and becomes an art owing to exquisite workmanship, now it is popular and developed a especial culture finally. You can see manhole cover and grating with landscapes, historical stories or urban features printed in almost every city. During the rainy season, accidents such as motorcycles and bicycles slipping on manhole cover have occurred frequently. The engineer improved the surface of the manhole cover by adding some embossed pattern design, which is not only non-slip but also very beautiful.

As one of the few manufacturers of manhole cover in China, Keyuda Foundry has produced manhole covers covering the entire industry in recent years. It has accumulated various types of manhole cover molds and can provide any types to customers. Over time, from quantitative to qualitative change, custom manhole cover has been increasingly valued and orders has increased. Our engineers have designed standard manhole cover and meanwhile innovating and researching continuously and formed a complete set manhole cover design system of Keyuda Foundry, it can meet customers' requirement in the whole industry and has also established a leading position in domestic.



## MANHOLE COVER CHARACTERISTIC



### Anti-sound, Anti-slip, Anti-theft, Anti-drop, Anti-displacement, Easy to open, etc.

**Anti-sound:** We add anti-sound rubber ring on interface between cover and frame.

**Anti-slip:** We cast geometric pattern on manhole cover surface. The walling crib of manhole cover uses a ring to ring structural form and it also sets up bulge to increase the resistance coefficient so that increasing resistance coefficient of bitumen material after auxiliary road and the well ring.

**Anti-displacement:** There is fixing of anchoring bolt between walling crib and ground., it will avoid staggered joint when road roller compaction under inspection cover construction, achieve standard construct.

**Anti-drop:** As to new model multiple prevention inspection manhole cover, owing to it has the anchor bolt and it can be crushed by the backfill of the inspection well circle so that the compactness can meet normative requirements. Therefore, it avoid problems such as local settlement and cracks in the inspection well circumference caused by false back filling.

**Anti-theft:** The manhole cover is equipped with anti-theft secret box, folding plate under the walling crib instead of anti-theft chain, which completely plays the anti-theft operation, and fundamentally eliminates the rust problem caused by cavitation and water erosion.

## MANHOLE COVER INSTALLATION

### Installation and fixing construction proposal

There is no absolute standard for the installation of manhole covers and bottom frames. This note only advises the installer responsible

#### Notch Seam

①:Spare slot② Place on the concrete without cracks and clean the dust, mud or grease on the joint slots.

#### Bottom frame installation, leveling, closing

Place the bottom frame on the seam notch, the bite should be accurate, use the appropriate wedge to level the bottom frame, and the upper plate to close the gap. For the large and light bottom frame, when installing the manhole cover, check the flatness and do not shake. If necessary, stop even during the installation process to ensure that it is level.

#### Fixed

The positioning fixing material adopts a quick and non-shrinking mortar, and the mortar is poured under the bottom frame (the mortar must be filled with the stencil frame), in order to ensure that the entire manhole cover and the bottom frame can uniformly bear the load due to the traffic and does not shake, the bottom frame 100% must be in full contact with the mortar bonding material and filled with leveling. Unless it is to be poured on asphalt pavement, leave a depth of 20mm for pouring, cover the seam notch, and cover with canvas or tarpaulin to maintain the mortar before formal use.

#### Finishing and manhole cover are put into use

Remove the template, etc., use the mortar on the inner wall of the well (if necessary), install the manhole cover on the bottom frame to ensure the middle of the law (clean the contact surface if necessary), and pour the asphalt concrete where the asphalt concrete is required. use.

## MECHANISM MANHOLE COVER

**Material:** ductile iron

### Features

The ductile iron manhole cover is mainly casting from ductile iron. The quality of manhole cover depends on the spheroidization rate process. The common anti-rust bitumen paint for treating cast manhole surface and castings, as to the advantage of ductile iron manhole cover is that the ductile iron has high strength and good toughness, so that the ductile iron manhole cover is about 30% lighter than the same type of gray cast iron manhole cover.

**Good toughness:** the impact value is similar to that of medium carbon steel, which is more than 10 times that of gray iron.

**Strong corrosion resistance:** water spray corrosion test, the amount of corrosion in the quarter is only 1/40 of the steel pipe, which is 1/10 of the gray iron pipe. The service life is twice that of gray iron pipes and five times that of ordinary steel pipes.

**Good plasticity:** elongation  $\geq 7\%$ , similar to high carbon steel, and gray iron material elongation is zero.

**High strength:** tensile strength  $\sigma_b \geq 420\text{MPa}$ , yield strength  $\sigma_s \geq 300\text{MPa}$ , the same as low carbon steel, three times the gray iron material.



Due to the spherical graphite microstructure of ductile iron, ductile iron is superior to cast steel in reducing vibration capacity, so it is more conducive to reducing stress. An important reason for choosing ductile iron is that the cost of ductile iron is less than cast steel. It is more popular for more people because of the low cost, casting more efficient, and also reducing the machining cost of ductile iron.

The strength of ductile iron is comparable to the strength of cast steel. Ductile iron has a higher yield strength with a yield strength of at least 40k, while cast steel has a yield strength of only 36k. For municipal applications, such as water, brine, steam, etc., ductile iron has more corrosion resistance and oxidation resistance than cast steel.

### Painting

Spray rust-proof bitumen paint

### Application field

Widely used in municipal, garden, parking lot, highway, dock, power plant, steel mill, airport, residential landscape road, urban sidewalk, motor vehicle road, square, lawn and flower pond, etc. Water supply, drainage, sewage, communication, electricity, natural gas and other projects.



**Mechanism Manhole Cover Product Specification Parameter 1**

NAME	WEIGHT (kg)	DIAMETER (mm)	INNER DIAMETER (mm)	HEIGHT (mm)	COVER WEIGHT (kg)	CIRCLE WEIGHT (kg)	REMARKS
<b>machining</b> $\phi$ 400	25	400x540	360	23x70	14	10	Cross Pattern, No Lock
<b>machining</b> $\phi$ 600	40	600x700		29x67	28	12	Cross Pattern
	38	700x800	650	30x65	25	13	Single Card Spring
	45	700x800	650	30x75	31	14	Mortice Lock
	60	700x900		30x100	34	25	
	35	700x800	650	30x65	23.5	11.5	Cross, Square, Diamond, Hexagonal strips, No Lock
	38		660	29x65	26.5	11.5	
	40		660	29x65	28		
	45		670	30x75	32	13.5	Cross Pattern
	47		670	30x75	33.5		Hexagonal Strips
	50	700x800	670	30x75	33.5	15	Mortice Lock
	52		660	29x80	36	16.5	
	57		660	29x80	40		
	62		660	29x80	41	20.5	
	67		660	29x80	46		
	<b>Common</b> $\phi$ 700	36	700x830		30x63	22	14
45		700x850	650	30x80	26	18.5	Cross, latch lock
55		700x849	650	30x82	36	19	Cross hexagonal strips, latch lock
65		700x905	650	50x100	34	30	Cross, latch lock
70		700x905		49x96	37	32	machining, latch lock
80		700x905	650		34	44	machining, latch lock
40		700x800	660	32x65	28	11.5	
45		700x805	650	32x60	31	14	
48		700x805	650	32x60	34	14	Square shape, no lock
55		700x850	650	30x85	35	20	Double ring strips
58		700x850	650	30x85	38	20	
56		700x870	650	40x90	34	22	three-spring C Lock
66			650	40x90	44	22	Horizontal and vertical pattern
80		700x860		40x100	46	33	three-spring C lock, Oblique horizontal and vertical pattern
<b>machining</b> $\phi$ 800		55	800x980	760	28x52	33	22
	75	800x950		28x90	48	27	Cross Pattern, latch lock

**Mechanism Manhole Cover Product Specification Parameter 2**

NAME	WEIGHT (kg)	DIAMETER (mm)	INNER DIAMETER (mm)	HEIGHT (mm)	COVER WEIGHT (kg)	CIRCLE WEIGHT (kg)	REMARKS
machining Φ740	72	740x900		31x80	46	26	three-spring C Lock, Cross Pattern
	75	740x930		35x85	46	29	machining
	95	740x965		40x95	56	39	no locks and hinges
	85	740x900		38x100	48	37	Three-cut box
	98			60			
105	740x964		40x100	53	52	machining, no locks	
machining Φ750	80	750x900		30x95	46	35	machining
	85	750x960		50x100	40	40	
	105			65			
half-edge spring Φ700	60	700x890		21x100	34	26	T-shaped half-edge spring
	70				40	29	
	80				49	29	
	77	700x900		50x100	46	30	L-shaped half-edge spring
	72	700x878		34x100	40	32	
machiningΦ710	36	710x850		30x60	23	13	
machiningΦ720	45	720x900		30x90	24	21	square, no locks and hinges
machiningΦ730	64	735x945		40x85	34	30	
Square Manhole Cover	35	500x500	600x600	42x55	21	14	
	15	300x400	380x480	33x40	9	6	T-shaped
	20	330x500	420x590	28x50	10	10	
	26	330x480	410x560	39x60	13	12	Cross Pattern
Double-Opening Manhole Cover	47	480x650	560x730	39x60	14/pc	18.5	double-opening, Cross Pattern
	53	480x730	560x810	39x60	16.5/pc	19	double-opening, Cross Pattern
	66	550x800	650x900	45x55	23/pc(cover)	20	double-opening, T-shaped
	62	560x1000	670x1110	38x70	18/pc(cover)	25	

The above are all theoretical data for reference only, We can do products according to your requirements.

**ANTI-SETTLEMENT MANHOLE COVER**

**Installation And Construction**

**Construction joint**

The construction guardrail, the reflective cone, enclosure of operating points, and the equipment enters the scene. Taking the center of the well as circle, jointing machine is used to make the joint along the curved line according to the size of the well ring cover.

**Demolition of the road surface and deepening working position**

After seam is finished, it should remove bitumen or concrete in the work position and clean it. Except required thickness of structure, the exceeded part depth, leveled, to ensure working excavation depth is consistent with the road surface distance.

**Installation of Concrete Adjusting Ring**

According to the distance between the base and the road surface, the base surface is first plastered, put concrete adjusting ring fix on the mortar surface., there is sufficient construction adjustment distance from road surface to adjusting ring face, and the concrete adjusting ring must be installed smoothly without looseness.

**Install Cast Iron Frame (mold)**

The cast iron mounting frame (mold) is hinged into the adjusting ring vertically, and install it smoothly. It also check whether the bottom of the cast iron mounting frame (module) is placed in the adjusting ring.

**Filled Bitumen**

Sprinkle the asphalt through the bottom oil to increase the adhesion of the original structure. When filling bitumen , layering and tamping to ensure the compactness meets the construction standard requirements. The bitumen filling material height should be consistent with the top surface of the cast iron mounting frame .

**Adjust The Mounting Frame (mode) And Well Cover**

Raise the mounting frame (mode) to the level of line and fill bitumen with flat material. After fishing , carefully remove the mounting frame (mold) and place the well cover in the prefabricated structure for smooth installation.

**Vibrating Bitumen And Well Cover**

The well cover and surrounding bitumen filler are vibrated back and forth to make them integrated and level with the original road surface. bitumen material paving temperature must meet the requirements of the specification to ensure that the well cover is offset or damaged.



**Anti-settling Manhole Product Specifications**

NAME	WEIGHT (kg)	DIAMETER (mm)	INNER DIAMETER (mm)	HEIGHT (mm)	COVER WEIGHT (kg)	CIRCLE WEIGHT (kg)	REMARKS
Anti-settlementΦ640	72	640x823	590	23x120	39	33	machining, Anti-settlement
Anti-settlementΦ650	80	650x850		20.5x190	36	41	
Anti-settlementΦ700	89	700x895		32x190	46	43	machining, Anti-settlement
Anti-settlement700	78-80	700x900		27.5x190	38	42	machining, Anti-settlement

The above are all theoretical data for reference only, We can do products according to your requirements.

**Manual Manhole Cover Product Specification Parameter 2**

NAME	SPECIFICATION	DIAMETER (mm)		RING INNER DIAMETER (mm)	REMARKS
		COVER DIAMETER	X CIRCLE DIAMETER		
Double-Opening Manhole Cover	600×800	Cover600×800×35	walling crib700×900×55	60	Double-Opening
	600×1000	Cover600×1000×35	walling crib700×1100×55	70	
	600×1000	Cover800×1200×53	walling crib930×1335×65	127-130	Double-Opening 1200mm
	800×1200	Cover800×1200×54	walling crib920×1430×65	69-70	Double-Opening 1200mm
	750×1000	Cover750×1000×50	walling crib920×1430×65	120-130	Double-Opening 1000mm
	550×800	Cover550×800×40	walling crib700×950×50	60-63	Double-Opening 800mm
Long manhole cover	500×750	Cover500×750×50	walling crib862×1113/1615×65	60/120/180	Single, Double, Three opening
		Cover500×750×50	walling crib570×815×65	66-68	Single-opening
		Cover500×750×55		77.5	Single-opening
		Outside610/630×1100×65			Double-Opening 1m×1m
Three open	Cover50×1500×60	walling crib815×1140×65	170-171	51T Above	
Square manhole cover	400×400	Cover400×400×40	walling crib490×490×50	15, 18	
	400×400	Cover400×400×30	walling crib470×470×70	24-25	
	500×500	Cover500×500×30	walling crib590×590×45	25-30	
	600×600	Cover600×600×30	walling crib680×680×50	45	
	680×680	Cover680×680×30	walling crib745×745×45	48.5	Square700
	1000×1000	Cover1000×1000×55	walling crib1130×1130×70	135	Square1000
Triplet grating		Cover1040×1060	walling crib1140×1170×100	155	
		Cover490×630×30		46	
		Outside590×730×65			
		Grating240×660×30			
		Cover475×700		60	
		Outside550×730×100			
Grating240×740					

The above are all theoretical data for reference only, We can do products according to your requirements.

## SETS AND SINGLE GRATING

**Material: ductile iron**

### Features

**Anti-sound, Anti-slip, Anti-displacement, Anti-theft, Anti-drop, Strong drainage.**

Grating is a complete part of the road surface, it disperses load to pavement structure directly to protect the bitumen road around the manhole cover and prevent sedimentation.

Using the toughness of ductile iron, to design spring grate to ensure tight well frame under the close condition, and will not jump to ensure road safety.

With built-in elastic pins and hinges it will prevent grating being stolen, and it also avoid the problem of the pin turning and destroying the surrounding roadbed as to traditional grating is opened.

Special drainage port design, and the drainage gap is not blocked, it is not easy to cause debris accumulation.

The grille pattern is in all directions to avoid slipping in rainy and snowy weather; the upper surface of the well frame and the rafter are cast with embossing, which can effectively increase the friction coefficient and the anti-slip effect is remarkable.

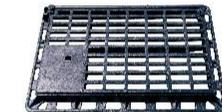
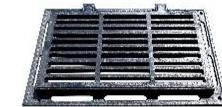
The contact surface of the grating and the well frame is equipped with a rubber strip, which can effectively eliminate the sound of the collision between the rafter and the well frame.

### Painting

Spray rust-proof bitumen paint

### Application field

**Applicable places:** Suitable for installation places such as municipal, water conservancy, electric power, road administration, and community.



### Sets Grating Of Product Specifications

NAME	SPECIFICATION (mm)	LENGTH x WIDTH x HEIGHT	WEIGHT(kg)	REMARKS
<b>250 x 350 Sets grating</b>	Grating 250 x 350 x 30	Frame 300 x 425 x 45	9	Manual
<b>300 x 500 Sets grating</b>	Grating 300 x 500 x 30	Frame 360 x 560 x 40	11/12/14/15/17/ 19/22	Manual (14kg)
<b>300 x 600 Sets grating</b>	Grating 300 x 600 x 33	Frame 354 x 666 x 41	16	Manual
<b>360 x 480 Sets grating</b>	Grating 360 x 480 x 25	Frame 450 x 590 x 50	21	Manual
<b>380 x 680 Sets grating</b>	Grating 380 x 680 x 27	Frame 483 x 786 x 45	35	Mechanism full side grating
<b>400 x 520 Sets grating</b>	Grating 400 x 520 x 35	Frame 490 x 610 x 50	23	Manual
<b>400 x 500 Sets grating</b>	Grating 400 x 500 x 30	Frame 420 x 520 x 40	26	Manual / mechanism
<b>400 x 600 Sets grating</b>	Grating 400 x 600 x 35	Frame 420 x 620 x 40	21/26	Manual / mechanism, No borders double page
<b>400 x 600 Sets grating</b>	Grating 400 x 600 x 35	Frame 500 x 760 x 80	30	Manual
<b>400 x 600 Sets grating</b>	Grating 400 x 600 x 30	Frame 500 x 750 x 89	30/36.5	Mechanism spring sets grating
<b>410 x 710 Sets grating</b>	Grating 410 x 710 x 27	Frame 515 x 815 x 50	34	Mechanism full side grating
	Grating 450 x 750 x 27	Frame 555 x 855 x 50	38	
	Grating 450 x 750 x 36	Frame 550 x 770 x 43	28/32	Manual / mechanism
	Grating 450 x 750 x 45	Frame 550 x 770 x 53	38	No borders double page
<b>450 x 750 Sets grating</b>	Grating 450 x 750 x 53	Frame 494 x 817 x 62	30/37/45	Inside melt sets grating
	Grating 450 x 750 x 42	Frame 574 x 873 x 50	46	Mechanism full side grating
	Grating 450 x 750 x 25	Frame 572 x 872 x 40	53	Mechanism full side grating
	Grating 450 x 750 x 30	Frame 572 x 872 x 40	58	Mechanism full side grating
<b>450 x 680 Spring sets grating</b>	Grating 450 x 680 x 30	Frame 560 x 810 x 120	55	Anti-settlement
<b>450 x 1500 Double-Opening sets grating</b>	Grating 450 x 1500 x 27	Frame 555 x 1613 x 50	73	1500mm is double cover specification
	Grating 450 x 1500 x 60	Frame 510 x 1600 x 70	85	
<b>400 x 700 Sets grating</b>	Grating 400 x 700 x 30	Frame 450 x 770 x 45	25/31	right or left grating full side grating
<b>450 x 750 Sets grating</b>	Grating 450 x 750 x 55	Frame 550 x 850 x 60	42	50T, right or left grating
	130 x 270 x 15		1.2	
	150 x 290 x 10		1.5	
<b>ladder stand</b>	160 x 296 x 11		1.5	
	160 x 296 x 9		1.2	
	160 x 263 x 8		0.8	

The above are all theoretical data for reference only, We can do products according to your requirements.

### Single Grating Product Specification

SPECIFICATION (mm) LENGTH x WIDTH x HEIGHT	WEIGHT (Kg)	REMARKS	SPECIFICATION (mm) LENGTH x WIDTH x HEIGHT	WEIGHT (Kg)	REMARKS
<b>200x400x19</b>	3kg		<b>390x500x40</b>	14.5kg	
<b>200x400x20</b>	4kg		<b>398x498x37</b>	11kg	
<b>200x400x20</b>	5kg	Manual	<b>400x400</b>	18kg	
<b>200x450x30</b>	4kg		<b>400x480x30</b>	9kg	
<b>250x500x20</b>	3kg		<b>400x490x20</b>	11kg	
<b>250x500x28</b>	4kg		<b>400x500x20</b>	6kg	
<b>250x500x20</b>	5kg			6kg	
<b>250x500x30</b>	6kg	Manual / mechanism		7.5kg	
<b>250x500x30</b>	5kg	Manual	<b>400x500x30</b>		
<b>270x500x36</b>	8kg				
<b>290x500x20</b>	8kg	7.5KG			
<b>280x400x30</b>	15kg			10.5kg	
<b>150x600x20</b>	5kg		<b>400x500x35</b>	12kg	
<b>300x500x20</b>	4kg		<b>460x500x40</b>	23kg	
<b>300x500x20</b>	5kg	Manual	<b>500x500x40</b>	12kg	
<b>300x500x20</b>	12kg		<b>500x500x40</b>	17kg	
	4.5kg		<b>500x500x50</b>	25kg	
	5kg	C250	<b>500x500x50</b>	33kg	
	5.5kg		<b>400x600x20</b>	12kg	
<b>300x500x30</b>	6.5kg		<b>400x600x30</b>	8.5kg	
	8kg			8kg	One Strip
	9.5kg		<b>400x600x30</b>	11kg	
	11kg			16.5kg	
	14kg		<b>400x600x40</b>	10kg	
<b>300x500x35</b>	7.5kg		<b>400x600x40</b>	18kg	
<b>300x500x40</b>	10.5kg		<b>400x700x30</b>		
<b>350x400x50</b>	21-22kg		<b>450x450x30</b>	12kg	
	6kg		<b>450x450x40</b>	12kg	
<b>350x500x30</b>		C250			
	7.5kg	D400			
<b>350x500x30</b>	9kg		<b>450x750x40</b>	17kg	
<b>370x500x40</b>	11.5kg		<b>450x750x30</b>	20kg	Manual
<b>380x500x20</b>	6-7kg		<b>450x750x30</b>	28kg	
<b>380x500x30</b>	6kg		<b>500x600x30</b>	35kg	
<b>380x500x30</b>	8-9kg		<b>500x750x100</b>	120kg	Manual
<b>380x590x20</b>	20kg		<b>600x850x40</b>	24kg	
<b>380x590x30</b>	11kg		<b>600x600x30</b>		
<b>380x590x20</b>	20kg		<b>700x700</b>	45kg	

The above are all theoretical data for reference only, We can do products according to your requirements.

## MANUAL MANHOLE COVE ➤

**Material:** ductile iron

### Features

Ductile iron casting manhole covers and castings are used in almost all areas of the ground or underground. It requires high strength, plasticity, toughness, wear resistance and mechanical impact, high temperature or low temperature, corrosion resistance and dimensional stability in application field. In order to meet these changes in the conditions for use, ductile iron has many specifications, and has a moderate range of mechanical properties and physical properties.

Strength and elongation are not the only choices for ductile iron casting manhole covers, while other critically important properties include yield strength, modulus of elasticity, wear and fatigue strength, hardness and impact properties. In addition, corrosion resistance and oxidation resistance as well as electromagnetic properties are also critical.

**Anti-sound:** The contact surface between the manhole cover and the well ring is machined to make it more consistent without abnormal noise.

**Anti-slip:** We cast diamond pattern on manhole cover surface, The walling crib of manhole cover uses a ring to ring structural form and it also sets up bulge to increase the resistance coefficient so that increasing resistance coefficient of bitumen material after auxiliary road and the well ring.

**Anti-displacement:** There is fixing of anchoring bolt between walling crib and ground., it will avoid staggered joint when road roller compaction under inspection cover construction, achieve standard construct.

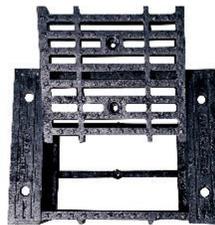
**Anti-theft:** The manhole cover is equipped with anti-theft secret box, folding plate under the walling crib instead of anti-theft chain, which completely plays the anti-theft operation, and fundamentally eliminates the rust problem caused by cavitation and water erosion.

### Painting

Spray rust-proof bitumen paint

### Application field

Widely used in municipal roads, highways, communications, electricity, water, communities, schools and other parks and public facilities.



### Manual Manhole Cover Product Specification Parameter 1

NAME	SPECIFICATION	WEIGHT (kg)	DIAMETER (mm)		RING INNER DIAMETER (mm)	HEIGHT (mm)	REMARKS
			COVER DIAMETER	CIRCLE DIAMETER			
Round manhole cover -400	D400	25-30	400x550		360	25x55	
Round manhole cover -500	D500	25	500x605		450	35x50	
	D600	25	600x700			20x50	
Round manhole cover -600	D600	28	600x710		570	35x50	
	D600	32	600x700		550	30x70	
	D600	40	600x710		560	35x50	
	D600	52	600x780		560	40x100	
Round manhole cover -630	D630	35	630x790		610	20x50	
Round manhole cover -640	D630	45	630x800		590	35x90	
	D640	74	640x850		600	40x100	
Round manhole cover -650	D650	65	700x880		650	25x100	
	D650	73	650x820		590	20x120	
Round manhole cover -680	D650	80	650x845		600	25x185	
	D680	27	680x780		650	30x50	
Round manhole cover -700	D680	28	680x780		550	30x40	
	D700	32	700x800			29x54	
	D700	35	700x840		665	30x65	
	D700	45	700x850		665	30x80	
	D700	55	700x850		665	30x95	
	D700	55	700x865		650	40x90	
	D700	58	700x850		660	30x85	
	D700	64	700x760		640	30x80	
	D700	65	700x870		650	40x90	
	D700	65	700x850		665	30x95	
	D700	70	700x900		665	50x100	
	D700	73	680x870		630	35x80	
	D700double-deck	70	700x830		630	30x90	
	D700double-deck	85	700x875		610	70x100	
D700	95	700x880		650	38x90		
D700	80	700x900		650	28x190		
D700	100	700x900		650	25x190		
Round manhole cover -730	D730	94	730x930		680	30x190	
Round manhole cover -740	D740	85	740x970		690	38x100	
Round manhole cover -750	D750	95	750		700	40x100	
Round manhole cover -760	D760	104					
Round manhole cover -800	D800	67	800x1000		750	40x90	
	D800	72	800x980		760	37x90	
Round manhole cover -900	D900	108	900x1080		860	40x90	
Round manhole cover -1000	D1000	120	1000x1120		940	45x80	
Square Fram with roundness	Round700SRound110		Round height85, Square height45, Internal diameter650				
Square Fram with roundness	Round680Round8	50	680x800		560	38x83	

## ART MANHOLE COVER

It adopts flat carving or relief carving way to present pattern, express personality culture label by colour or writing that is called art manhole cover.

### Art manhole cover: Chinese art manhole cover, European art manhole cover and Japanese art manhole cover

The manhole cover, as the entrance to the urban underground pipe network, is one part of underground pipe network management details in urban construction. Urban builders and managers depend on visual recognition of manhole cover with a high degree of professional quality and responsibility to form a city's standards and attitudes towards the management of underground pipe networks.

The art manhole cover is a component of the landscape and is the texture part of the overall landscape that is responsible for the pavement.

Art manhole cover is the product of building personification, that it is culture craft personality presentation of city building and is the art symbol of building owner.

### Application field

Municipal and enterprise units and tourism real estate and antique buildings  
Commercial real estate and urban complex: villa area, commercial community, commercial podium, shopping center, etc.  
Other new areas: theme parks, children's parks, university towns, folk culture villages, cultural industry parks, comic industry cities, etc.



## AFTER-SALES SERVICE GUARANTEE SYSTEM

### Convenient, safe, and reliable Service is the core competitiveness

Our company insists on strict quality control, it must control strictly all aspects of production, transportation, sales and service for each department.

### Practically achieve "five inaccuracies":

- Unqualified products are not allowed to leave the factory, and the output and output value shall not be calculated;
- Unqualified raw materials and parts are not allowed to be fed or assembled;
- Products that have been announced to be phased out are not allowed to be produced and sold;
- Products without product quality standards, without quality inspection agencies, and without quality testing means are not allowed to produce;
- Do not falsify, shoddy, fake trademarks, fake brand names.



Our company owns domestic advanced production base, with municipal casting, casting pipe, fitting, smelting as well as casting hardcover workshop. All machines which including casting production, machining, casting post-processing, micro low voltage molding production line, medium-frequency induction furnace, molding machine, spheroidizing treatment, casting machine, mechanical modeling, wet electrostatic dedusting facility and also other equipments are all adapt the advanced technology.

Casting products contains flexible cast iron drainage pipes and fittings, ductile iron manhole covers and pipes, municipal manhole covers. It has reached the most advanced level for some technology in domestic, such as complete R & D production of pipe fittings and tools, the first localization of high-performance raw materials, etc.. We will carry out spontaneously to a full range of various types inspections each year, that make guard for products are 100% qualified. Looking forward to make a friendly cooperation with you in the future.



**Pipe Fitting Foundry**  
Production of various specifications  
of cast pipes and fittings  
Welcome to inquire and negotiate

