Cummins Diesel Generator Set Original Parts Sales

产品名称	Cummins Diesel Generator Set Original Parts Sales
公司名称	东莞市常平鼎盛机械设备经营部
价格	.00/件
规格参数	品牌:Cummins 项目:accessory part 厂家:鼎盛
公司地址	广东省东莞市常平镇常平塘角路14号东兴花园倚湖居9号楼207房（经营场所）
联系电话	4000832880 13480801855

产品详情

Cummins Diesel Generator Set Original Parts SalesFirst, the basic composition of the cylinder block1. Cylinder blockThe cylinder block is the main body of the cylinder. Usually made of aluminum alloy or cast iron. Generally, the cylinder block of multi-cylinder air-cooled diesel engine is cast in a single piece, on which many fins are cast. The cylinder block of water-cooled diesel engine is integrally cast. As shown in Figure 1, it is an in-line cylinder block, and as shown, it is a W12 cylinder block. The upper part of the cylinder block is provided with a cylinder head and a cylinder gasket, and the lower part is a crankcase with a bearing seat and a cover for installing a crankshaft, and an oil basin is fixed at the lower part of the crankcase. The front end of the engine body is the timing gear chamber, the rear end is the flywheel housing, and the left side is the valve chamber. Inside the cylinder block is a cylinder with a valve seat on its side and a water jacket around it.The cylinder arrangement forms of multi-cylinder diesel engines are single-row vertical, V-shaped, single-row horizontal and horizontally opposed. Water-cooled diesel engines with less than six cylinders are mostly in-line, as shown in Figure 3. Because the vertical type is not conducive to air-cooled heat dissipation, air-cooled diesel engines with more than two cylinders are mostly arranged horizontally and in V form, as shown in Figure 4.The engine block is the main supporting structure for fixing all other engine parts. The cylinder block is a large cast iron or aluminum casting. There are two main parts: cylinder block part and crankcase part.Take the cylinder block of an 8-cylinder engine as an example. The function of the cylinder body is to make the piston move up and down in the working process, and its surface is machined to reduce the wear and friction of the piston.Crankcase part is used to carry crankshaft, oil pump, oil pan and oil. The coolant channel is embedded in the cylinder body. These channels, also known as water jackets, surround the cylinder. The coolant channel circulates the coolant around the cylinder, thus keeping the engine cool. Some cylinders also have holes for cooling camshafts. Many oil holes are also drilled in the cylinder body to ensure that the engine parts are fully lubricated. Some other holes are drilled in the cylinder block to fix other parts.2. CylinderThe cylinder is a cylindrical hollow cylinder. Its function is to contain the combustible mixture entering the engine and guide the piston to make reciprocating linear motion. In a two-stroke gasoline engine, there are also air intake holes, gas exchange holes and exhaust holes on the cylinder. The work of the cylinder is very heavy, and the working conditions are as follows:(1) It is in direct contact with combustion gas and works under high temperature and high pressure: at the same time, it is chemically corroded by high temperature gas.(2) In the process of working, it constantly rubs against the piston, and the lubrication

condition is not good, and the mechanical wear is large.(3) The cylinder needs to dissipate heat in time, so there is a great temperature difference between the inner and outer layers and the upper and lower ends of the cylinder, resulting in thermal stress, especially water cooling.Therefore, the cylinder material must have sufficient strength, corrosion resistance and wear resistance. Ordinary cylinders are mostly cast iron, and cylinders of high-speed diesel engines are often cast with alloy cast iron. In order to improve the wear resistance of cylinder, porous chromium plating is generally carried out on the surface of cylinder. In addition to wear resistance and corrosion resistance, chromium can also form many pores on the surface, which can store some lubricating oil and form an oil film to improve lubrication and reduce engine wear. In order to improve the tightness of the cylinder, the machining of the cylinder wall surface must have high precision and smoothness.3. Cylinder linerSome engines use cylinder liners. The cylinder liner is not directly cast in the cylinder body, but embedded in a machined bushing. After machining, the cylinder block is inserted into the bushing. The purpose of cylinder liner is that if the cylinder is damaged, it can be easily disassembled and updated. Cylinder block without cylinder liner must be bored to repair the damaged part. After boring the cylinder, it is necessary to use an enlarged piston for matching.(1) Classification of cylinder linerThe shape of cylinder varies with the type and working conditions of diesel engine. Some are cast together with the cylinder and processed, and some are made into bushings (cylinder liners) first, and then pressed into the cylinder body. The cylinder liner is in direct contact with cooling water after being pressed into the cylinder block, which is called wet cylinder liner as shown in Figure 5(a). A cylinder liner that is not in direct contact with cooling water is called a dry cylinder liner as shown in Figure 5(b). The former has a good cooling effect, but when the cylinder liner and cylinder block are poorly sealed, water will leak into the crankcase. For the cylinder with cylinder liner, the cylinder liner can be made of high-quality materials, while the cylinder body can be made of general materials, which can improve the quality of the engine cylinder and reduce the cost. At the same time, the cylinder liner is easy to disassemble and repair.(2) Insertion of cylinder linerWet cylinder liner and dry cylinder liner are both pressed into the hole of cylinder block. Because the cylinder liner is supported on the cast iron cylinder from top to bottom, it can be machined very thin.The wet cylinder liner is also pressed into the cylinder block. The coolant touches the middle of the cylinder liner, which is why it is called a wet cylinder liner, as shown in Figure 6. Because it is only supported at the upper and lower parts, it must be made thicker than the dry cylinder liner. The top and bottom of the wet cylinder liner must be sealed to prevent water from seeping out of the cooling system. Wet cylinder liners are used in some large diesel engines.4. Cylinder headThe cylinder head, also known as the cylinder head, is installed at the upper part of the cylinder block and fastened to the cylinder block with bolts. Its function is to form a combustion chamber together with the cylinder and piston top. A cooling fin is cast on the cylinder cover of an air-cooled diesel engine, and a water jacket is arranged on the cylinder cover of a water-cooled diesel engine, which is communicated with a water jacket hole in the cylinder body. Gasoline engines have spark plug holes in the cylinder head. There are injector holes on the cylinder head of diesel engine. The cylinder head of overhead valve mechanism of four-stroke diesel engine is also cast with intake and exhaust valve seat, intake and exhaust valve rod guide hole and intake and exhaust passage.The work task of the cylinder head is also very heavy. The bottom of the cylinder head is in contact with gas and bears high temperature and pressure. Because of the large temperature difference between the inside and outside of the cylinder head and the complex shape, uneven thermal stress is easy to occur. At the same time, it also bears the mechanical stress caused by fastening bolts. Therefore, the cylinder head is required to have sufficient strength and rigidity, and the contact surface with the cylinder should be smooth.The cylinder head is made of cast iron and aluminum alloy. Diesel engines generally use cast iron cylinder heads. Some gasoline engines use aluminum alloy cylinder heads. The cast iron cylinder head has high mechanical strength, good castability and heat resistance. Aluminum alloy cylinder head has good thermal conductivity, which is beneficial to improve compression ratio, but its stiffness is poor and it is easy to deform. The single cast cylinder head is convenient to install and repair, and it is easy to dissipate heat if it is air-cooled. Water-cooled type increases the outlet branch, but it is more complicated in manufacture and installation than the former.When disassembling the cylinder head, we must pay attention to the symmetrical torque from the middle to the periphery, and gradually loosen or tighten the bolts to prevent damage to the cylinder head and air and water leakage.5. cylinder gasketWhen the combustible mixture expands in the combustion chamber, it will produce high gas pressure, and there is a water jacket between the water-cooled cylinder head and the cylinder block. In order to prevent air leakage and water leakage, a cylinder gasket must be installed between the cylinder head and the cylinder block. Cylinder gasket should have sufficient strength, heat resistance, corrosion resistance, good sealing, easy disassembly and long service life.At present, the commonly used cylinder gasket is made of copper wallet wrapped

with asbestos, as shown in Figure 7. Around each hole in cylinder gasket, there are burrs with large thickness to increase the reliability of sealing. There are also gaskets made of copper or aluminum alloy; This kind of gasket has small strength and plastic deformation when pressed, which can improve the sealing effect, but it cannot be used many times. Some air-cooled diesel generators with high engine temperature also use this gasket, because the gasket has good thermal conductivity, which can make the temperature difference between the cylinder head and the cylinder block smaller and is beneficial to the heat dissipation of the cylinder head. In recent years, some engines began to use special sealant, which completely changed the traditional cylinder gasket structure.6. Oil basinThe oil pan is also called crankcase and oil pan, and its installation position is shown in Figure 8. Its main function is to collect and store lubricating oil for lubrication system. At the same time, it is used to seal the lower part of the cylinder block and form a crankcase with it.The oil pan of diesel engine is mostly made of cast iron. The oil pan contains engine oil, and an oil gauge is set beside it to measure the oil level. There are two scribed lines on the oil gauge. The upper one indicates the high position of the oil level. If the oil level is too high, it will increase the oil consumption. The lower one indicates the low position of the oil level. If it is lower than the current line, oil should be added. The lower part of the oil basin is provided with an oil drain plug for discharging deteriorated oil and dirt. Some oil drain plugs are magnetic and can absorb iron and abrasive particles in engine oil.The oil basin is fixed on the cylinder block by bolts. In order to prevent the oil in the basin from leaking out, paper or cork gaskets are installed on the joint surface.Second, the cylinder block processing parts1. Processing of cylinder blockThe engine number is usually on the outer surface of the engine cylinder block, and the cylinder block has a small plane, which is generally a rectangular shape. This is where the engine number is located, as shown in Figure 9. When processing, we must be careful not to destroy or smooth the numbers on it, so as not to affect the method of verifying the authenticity of the products in the later stage.The step of making a cylinder block is to design a model, and then make a sand core with sand around the model. After the model is dismantled, the sand core is left in the hole of the model. These sand cores will eventually become coolant channels and cylinders. Pour molten metal into holes made of sand. After the metal cools, remove the sand, break the sand core and take it out. This structure is called a cast cylinder block. The metal used is usually gray cast iron with several special metals added. The added metal increases the strength and wear resistance of the cylinder block. The remaining metal also helps to reduce shrinkage and warpage caused by heat generated by combustion.After casting, the cylinder block should be cooled and hardened, and its surface should be machined so that other parts can be installed on the cylinder block. These surfaces include cylinder, upper plane (table) of cylinder block, camshaft seat hole, crankshaft shaft hole, and oil pan surface. The front and rear end faces of the cylinder block and the support of the engine should also be machined, so that the parts can be fixed and sealed correctly, as shown in Figure 10.Some small engines can also be die-cast. It is to press liquid metal into a metal mold instead of pouring it into the sand core. The surface of this casting is smoother and the shape is more jingque. The machining amount of this cylinder block is also less.2. Core hole plugAll cast iron cylinders have core hole plugs (aluminum cylinders have no core hole plugs), which are also called freeze protection plugs or expansion plugs. Sand core is used in the processing of cylinder block. When hot metal is poured into the sand mold, these sand cores are partially destroyed and melted. However, some holes must be left in the cylinder body so that the sand in the internal hole can be taken out. These holes are called core holes. After the core hole is machined, plug the core hole into it.The core plug is made of soft metal. In some cases, the core hole plug can also prevent cracks in the cylinder block. For example, if there is not enough antifreeze in the cooling liquid in winter, the cooling liquid may freeze, and the liquid will expand when it freezes, which may lead to the rupture of the cylinder block. However, if the expansion occurs near the core plug, the core plug will pop up, so the cylinder block can be protected from expansion and cracking.3. Comparison between aluminum cylinder block and cast iron cylinder blockThe cylinder block can be made of cast iron or aluminum. In the past, most cylinder blocks were made of cast iron. Cast iron improves strength and can adjust the deformation caused by heating. However, with the increasing demand for engine fuel economy, engine manufacturers are trying their best to reduce engine weight. One of the ways to reduce the engine weight is to reduce the weight of the cylinder block. Therefore, aluminum has been applied. Aluminum is a very light metal. Before pouring aluminum metal into the mold, some materials should be added to aluminum metal in order to increase the strength of aluminum and reduce the possibility of warping when it is heated during combustion. The aluminum cylinder block must also have a cylinder liner or a steel bushing embedded in the cylinder block. Steel bushings should be placed in the mold before aluminum metal is poured into the mold. After pouring aluminum metal, the steel bushing cannot be removed.Silicon should also be added to aluminum metal. Through a special process, silicon is concentrated on the cylinder wall. This process reduces the need for steel

bushings. This design is called the wall of the silicon-impregnated cylinder. One problem with this design is the need to use high-quality engine oil. If the user neglects to use low-quality engine oil, this kind of engine usually cannot reach its expected service life.4. Piston thrust surfaceWhen the piston moves up and down in the cylinder, there are two kinds of thrust on the side of the piston: larger and smaller. When the piston is viewed from the back of the engine, the smaller thrust is the pressure acting on the right side of the piston. Less thrust is generated in the compression stroke, when the engine rotates clockwise. On the contrary, when viewed from the back and the engine rotates clockwise, the larger thrust is the pressure acting on the left side of the piston. When the piston is in the power stroke, it produces a large thrust. When the crankshaft rotates around TDC, the piston switches between larger and smaller thrust, which means that the piston collides with the cylinder wall. When the gap between the piston and the cylinder wall is too large, there will be excessive impact, which will lead to noise and wear on the piston and cylinder wall. Excessive piston impact is usually eliminated by replacing the piston ring or installing an enlarged piston and piston ring after boring the cylinder.5. Cylinder wearThe movement of piston and piston ring makes the cylinder wear evenly and gradually becomes conical. Fig. 11(a) illustrates how a typical cylinder is worn. The cone shape only occurs where the piston ring contacts the cylinder wall. A large degree of wear occurs at the top of the cylinder and a small degree of wear occurs at the bottom of the cylinder. This wear has formed a bulge in the upper part of the cylinder bore. During overhaul, the piston must be removed after the bulge is removed. If the bulge is not removed, the piston will be damaged once it is removed. After the new piston ring is installed, the bottom of the bump may also be damaged. The manufacturer's specifications listed in the generator set maintenance manual only allow a certain amount of taper of the cylinder wall. Excessive taper will affect the end clearance of piston ring, as shown in Figure 11(b). Excessive end clearance, as shown at the top of the cylinder wall, will produce a great piston ring end clearance, which will produce excessive blowby.6. Cylinder running-inWhen a new piston ring is placed on the piston, the piston ring and the cylinder wall are not completely sealed, and the difference is shown in Figure 12. The part where the piston ring contacts the cylinder is only a slight protrusion on the piston ring. This makes the seal between the fine parts on the piston ring and the cylinder wall poor. As a result, the piston ring and cylinder wall surfaces are designed to be slightly convex and concave, and then as the piston ring and cylinder wall begin to wear, the protruding part on the surface will wear first, and then the two objects will tend to be close. This process is called running-in in the engine.Some manufacturers recommend running for a certain distance, that is, the running-in period. During the running-in period, the piston ring and cylinder are properly worn, so that the piston ring is effectively sealed.Honing is the operation of producing a net pattern on the cylinder surface. Honing also helps to keep some lubricating oil on the cylinder wall. These remaining lubricating oils help to lubricate new piston rings and facilitate the running-in process. Fine grinding is another process to improve the cylinder wall. Fine grinding is different from honing. Honing is used to roughen the cylinder wall and remove glossy surface, while fine grinding is used to round the cylinder wall. Although pistons of the same size can be used, fine grinding will remove more material than honing. Fine grindstones are very hard tools, usually with four grindstones, while honing machines only have three grindstones.