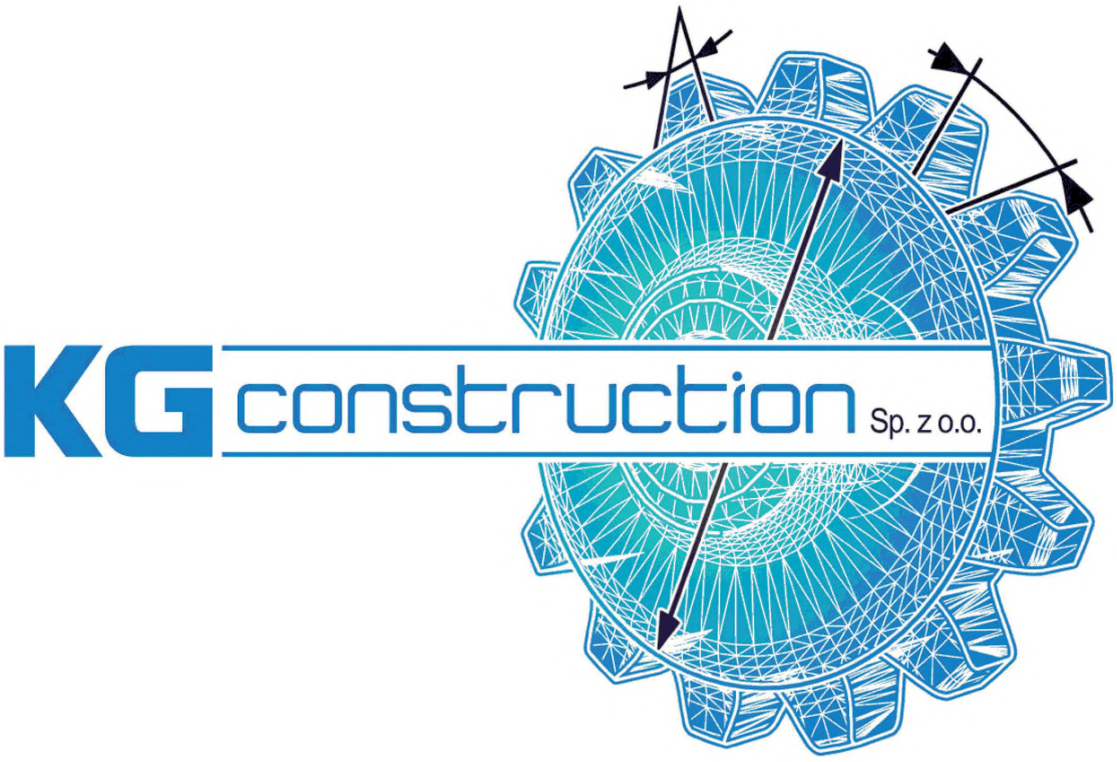
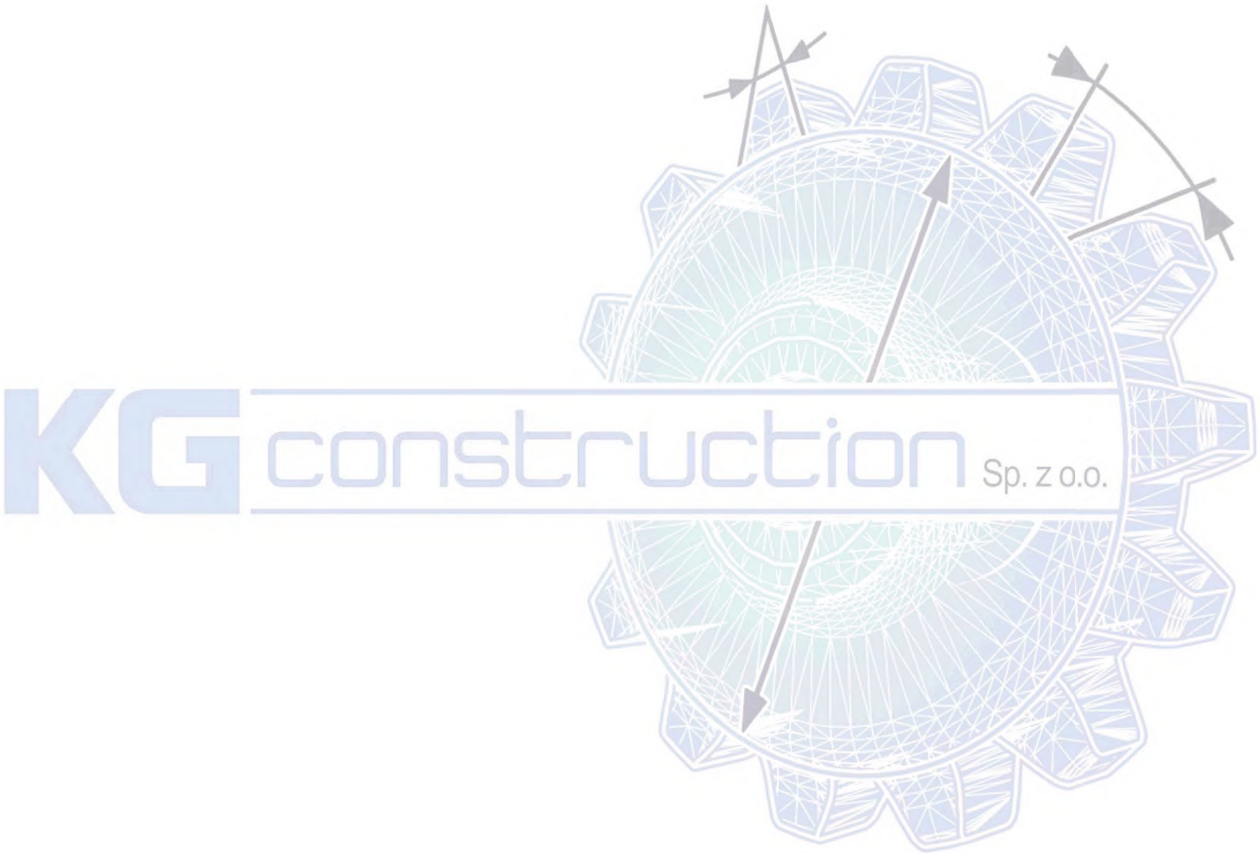

KG construction Sp. z o.o.


KG construction
Sp. z o.o.

KG Construction Sp. z o.o. is a family company that has been on the market since 2012. During this time, we have completed many contracts related to mining, revitalization of industrial facilities and energy.

For several years, we have expanded our offer with products from the renewable energy industry that can be successfully installed at private and institutional customers.

Our offer includes:

1. Modern photovoltaic installations based on microinverters, composite construction and top-class solar panels, reinsured by the largest European financial institutions, such as LLOYD "s, PICC, RE MUNICH
2. Composite constructions
3. Air conditioners for home, institutional use and air conditioning systems and industrial refrigeration
4. PANASONIC heat pumps - Authorized Distributor
5. PEREKO induction and sonic furnaces - Authorized Distributor
6. Wind turbines
7. Water turbines

We are a certified business partner of the Schiessel Group, which means for our clients that we offer them products of such brands as LG, Panasonic or HiSense - leading companies on the comfort air conditioning market.

Why are our installations better than the competition?

Durability

As the only company in Poland and one of the first in the world, we offer a complete assembly system based on profiles made of a composite material resistant to UV, reinforced with glass fiber. Our company calls this system NKG. This solution, which is becoming more and more popular in the construction industry, brings many advantages. First of all, the mechanical parameters of NKG profiles significantly exceed those known from steel or aluminum profiles, and in addition, composite structures have a ten times smaller "carbon footprint" compared to galvanized metal structures, which is the preferred solution for this type of solution in the EU.
Secondly, our profiles are resistant to corrosion, acids and alkalis. Independent research units have confirmed that KG Constructi on's production profiles will retain their mechanical parameters at the level of 90% after 50 years of use. These values are unattainable for steel structures. Moreover, composite profiles are characterized by 4 times lower weight of the structure and higher strength parameters than steel and aluminum.

MICRO INVERTERS - THE FUTURE OF PV INSTALLATION

Why?

Hoymiles microinverters are currently the most effective solution for small and medium-sized photovoltaic installations (even up to 1 MWp). Due to their compact structure and the latest technological solutions, they affect the operation of the entire photovoltaic installation, allowing for better yields from 10% to 30% from the photovoltaic installation compared to installations based on string inverters. In addition, the 12-year warranty is a testimony to the very high quality of the product.

Ensuring maximum security

In a photovoltaic installation based on microwaves, there is a maximum DC voltage of 60V and a maximum AC voltage of 253V, i.e. safe voltages.

In photovoltaic installations based on string inverters, the DC voltage can be as high as 1000V or 1500V, which can result in very serious consequences - for people's health and life, for the outbreak of potential fires and for firefighters who resign from extinguishing such a photovoltaic installation at such high voltages.

Optimizing the operation of the installation

Any shading of photovoltaic modules (through dirt, leaves, clouds) causes a decrease in their efficiency and effectiveness, and thus a loss of potential yields from the entire photovoltaic installation. The work of microinverters is based on the fact that they start working earlier after the occurrence of shading, but also switch off individual non-working modules, so that the rest of the installation could work at 100% of its capacity in given atmospheric conditions. Such characteristics mean that the entire photovoltaic installation can work from 10% to 30% more effectively than photovoltaic installations based on string inverters

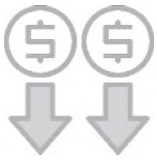
Installation expansion

In the case of photovoltaic installations based on microinverters, the expansion of the installation is not a problem. We do not have to think about oversizing the string inverter at the initial stage of the investment or buying two string inverters in the event of its expansion. Simply, after deciding to expand the photovoltaic installation, we will add more microwaves and photovoltaic modules to the installation, and the whole thing works on a plug-in principle.

Also, it is not a problem to connect different types of photovoltaic modules within one photovoltaic installation - we can connect different types of photovoltaic modules to each of the microwaves.

Monitoring

In contrast to photovoltaic installations based on string inverters, installations based on microinverters present a complete picture of the operation of the entire photovoltaic installation, including information on how each of the photovoltaic modules works. This allows, first of all, to collect complete data on how the installation works, but also allows you to quickly diagnose the problem with the proper operation of the photovoltaic installation, and thus quickly eliminate it.



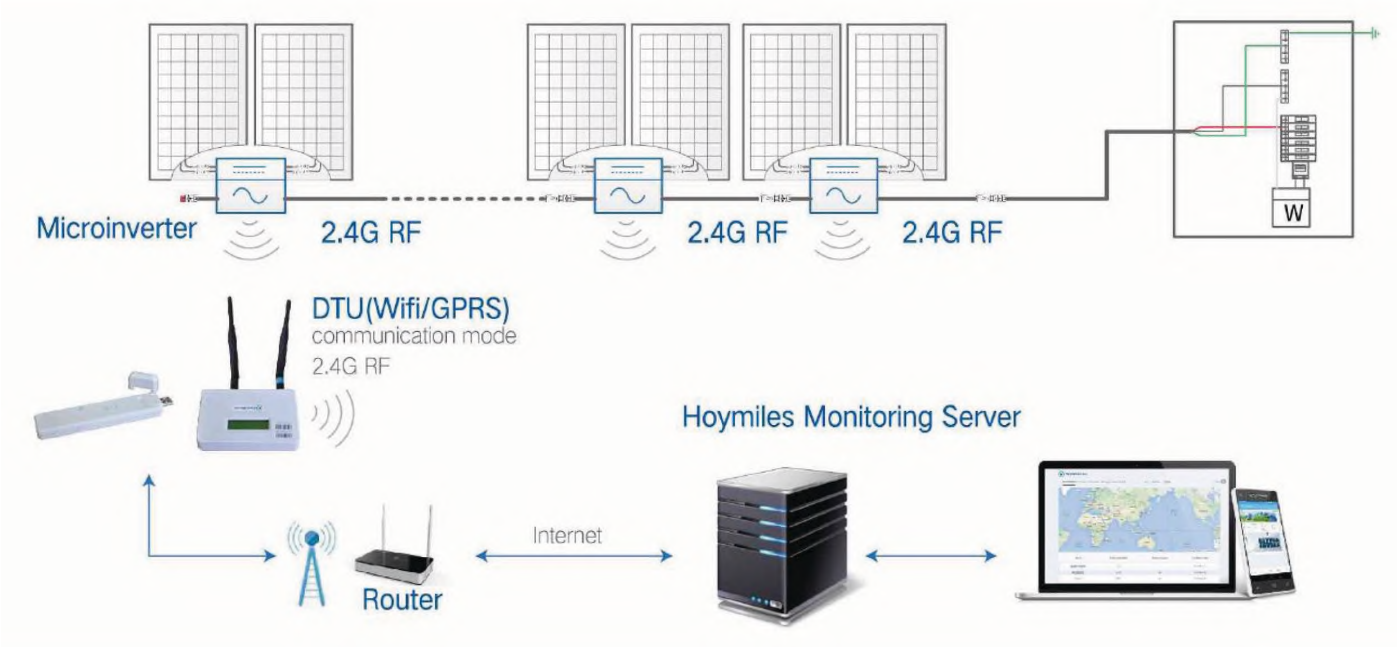
Expense

Photovoltaic installations based on microwave inverters do not have to be more expensive than photovoltaic installations based on string inverters. And if we take into account their greater effectiveness and efficiency, it is even easier to decide on the most modern photovoltaic system. The market in Poland is still educating itself in this area, but there are countries (the United States, France, Great Britain or the Benelux countries) where photovoltaic installations based on microwaves constitute the majority of small and medium-sized photovoltaic installations. Therefore, it can be safely said that microwaves are a very interesting alternative to modern photovoltaic installations.

Our offer includes microinverters produced by:

The series includes the following devices:

1. **HM-1200 (HM-1000 or HM-1500) - one microinverter for max. 4 photovoltaic modules;**
2. **HM-600 (HM-700 or HM-800) - one microinverter for max. 2 photovoltaic modules;**
3. **HM-300 (HM-350 or HM-400) - one microinverter for max. 1 photovoltaic module;**
4. **DTU-MI-PRO - communication module**



Features of photovoltaic installations equipped with microinverters compared to photovoltaic installations equipped with string inverters

Characteristic	Hoymiles equipped PV installation	SolarEdge equipped installation	Standard String PV installation
Installation performance	10-30% higher than installation based on a string inverter	5-10% higher than the installation based on a string inverter	Lower
Effect of shading / dirt on the installation	Within one module	Within the entire chain of modules - optimizers should be used (additional investment cost)	Within the entire chain of modules - optimizers should be used (additional investment cost)
Ease of installation design	High design flexibility	High design flexibility	Low design flexibility
Installation expansion	Modular expansion	Extension related to the replacement of the string inverter	Extension related to the replacement of the string inverter
How the installation works	Each module individually	Chain of modules with the possibility of optimizing the work of the module	Chain of modules
Connecting modules in the installation	Parallel	In series	In series
Types of modules connected to the installation	Irrelevant	Same type / type of module within the chain	Same type / type of module within the chain
The aging of modules and the efficiency of the installation	Low impact	Important impact especially in the case of disproportionate aging of modules	Important impact especially in the case of disproportionate aging of modules
Safety	Voltage DC to 60V; Voltage AC to 230V	Voltage DC to 1.000 / 1.500 V – after switching off inverter to 1V DC	Voltage DC to 1.000 / 1.500 V
Warranty	12 lat up to 25 years	12 lat up to 25 years	5 to 10 years
Tightness class	IP 67	IP 65	IP 65
Compliance Standards	Fulfilled	Fulfilled	Fulfilled

KG Construction Sp. z o.o. has the expertise of the Prosumer Energy Center of the Silesian University of Technology in Gliwice, which is confirmed by:

- - fire safety of photovoltaic installations based on microinverter technology
- - protection through the use of microinverter technology of photovoltaic panels against degradation
- - 10% -30% higher energy production compared to standard installations
- - seamless expansion of the installation at any time
- - the ability to control the reactive power of the installation
- - cooperation with energy storage

Composite constructions

Pultruded profiles

What is pultrusion - it is a method of producing composites introduced in the mid-twentieth century in the USA.
This method, using pultruders, allows for relatively fast production of long elements, profiles of various shapes. It consists in drawing the fibers filtered through with a suitable resin system through a system of molds that give the required shape, and then thermosetting. A characteristic property of these products is the orientation of the fibers in one direction. The main products produced by the method are various types of sections, open and closed profiles, bars and pipes. The undoubted advantage of this method is the production of elements of practically unlimited length.

As a producer of profiles made of a composite material reinforced with glass fiber, we offer the equivalents of most of the metallurgical profiles, ie closed pipes, channels, I-sections, angles and many others. In our company, this system is called NKG - Nowy Kompozyt Górniczy, because as a company originating from Silesia and heavy industry, we used solutions based on our material for the first time in mining. Due to the technical conditions of our customers, we can offer several versions of our material: a conductive version (approved for operation in potentially explosive areas) and a dielectric version. The conductive version is certified for use in Ex zones and has been successfully implemented in many such zones.

The non-conductive version is much better suited for use in the construction of solar farms, marinas, pedestrian bridges and urban infrastructure. This solution, which is becoming more and more popular in the construction industry, has many advantages:

1. **The mechanical parameters of NKG profiles are much higher than those known from steel or aluminum profiles**

2. **4 times less weight than steel and 40% less than aluminum**

3. **the material is mass colored**

4. **does not require maintenance - no corrosion**

Independent research units have confirmed that KG Constructi on's production profiles will retain their mechanical parameters at the level of 90% after 50 years of use. These values are unattainable for steel structures.
Another advantage is the ease of processing. Profiles are very easy to cut, drill and mill. The processing is very comparable to wood and does not require many specialized tools as is the case with steel.
It is also important to care for our natural environment. The production of our composite products is not related to the coal industry and is not as energy-intensive as the production of steel. What's more, our external structures do not contaminate the soil with their anti-corrosion protection. It is estimated that in the case of photovoltaic farms - the first one and a half years of the farm's operation is to minimize the carbon footprint of the construction production. Soil contamination with zinc is immeasurable. In the case of composite plastics, soil contamination does not occur.
Our offer includes products such as:

KG construction Sp. z o.o.

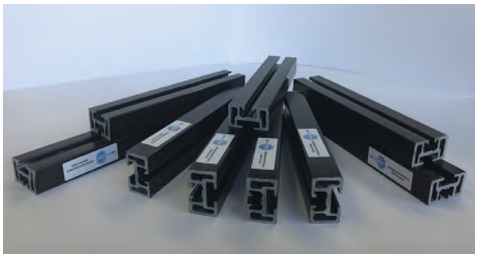
Our offer includes products such as:

1. **construction profiles**

2. **ladders**

3. **systems of protective barriers**

4. **gratings - floor, covered, partition**



AIR CONDITIONERS AND HEAT PUMPS

For several years now, there have been more and more supporters of obtaining energy from natural sources. It is an ecological, efficient solution, and with appropriate device selection - very profitable. It is very popular to install heat pumps, which in the near future may be used in most buildings.

These devices collect low-temperature energy (from water, air or earth), and then heat it up to the appropriate temperature and deliver it to the receiving source. The heat pump uses natural energy resources and extracts heat from them. It is an increasingly effective method and, consequently, very profitable, as it will allow you to save a lot of money on a yearly scale or higher - the reduction of heating costs can be (under appropriate conditions) even 75%. They will allow not only to heat the air in the facilities, but also the hydraulic installation, heating the water used.

The heat pump installation can be divided into three subgroups:

WATER by using ground sources, we can obtain a very efficient installation. However, appropriate areas where the building is located are required.

AIR this system is very often chosen because of the less invasive work (no need to make deep excavations and boreholes. This system can be partially or completely outside the building and is often chosen for heating domestic water).

EARTH the system is installed approx. 1.5 m underground, below the freezing zone. The quality of the land is an important factor - dry areas store energy worse than wet ones. This installation also involves the installation of a special collector.

Our offer also includes modern SPLIT air conditioners

The task of modern air conditioning is to provide thermal comfort in the room, both when the air conditioners operate in the cooling and heating mode. Modern splits also allow you to maintain a balance between the air temperature in the room and the degree of its humidity. Modern split air conditioners have the air purification function, thanks to which the air we breathe is free from dust, harmful microorganisms and other pollutants and odor particles.

Work flexibility and personalization - LG, Hisense and Panasonic air conditioning

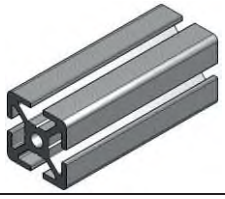
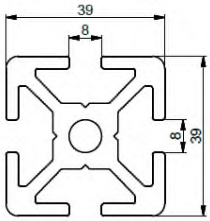
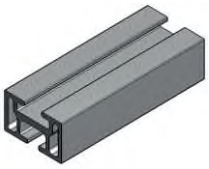
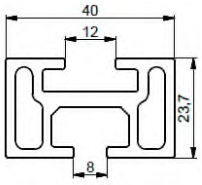
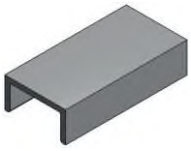
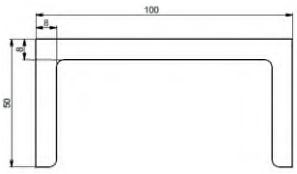
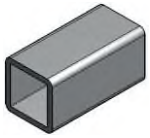
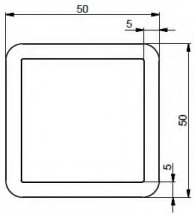
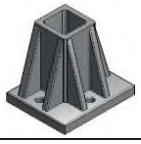
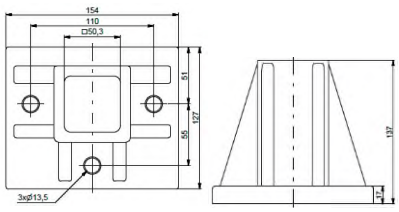
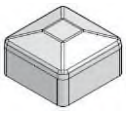
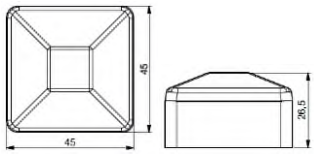
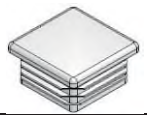
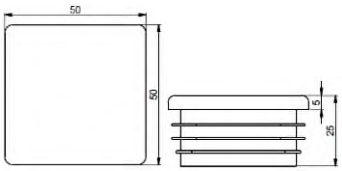
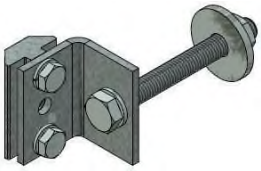
Modern splits must meet stringent energy and environmental standards, which guarantees high efficiency of the devices, and thanks to the use of the R32 refrigerant with a low GWP coefficient, reduction of the harmful impact on the natural environment. Splits can work within individual programs / work modes in daily and weekly cycles. Most models are controlled via WiFi modules, which increases the possibility of individual settings remotely programmed. It is also possible to integrate with the intelligent facility management system, using motion, temperature and humidity sensors.

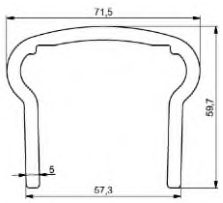
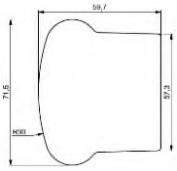
Split air conditioners - application

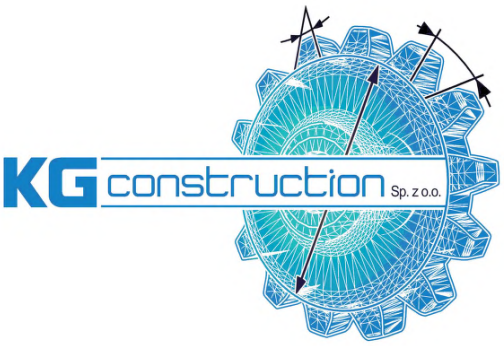
Split inverter air conditioners are used in many facilities with various purposes. They work well both in the case of apartments, single-family housing, as well as in the case of smaller shops and restaurants. Wall-mounted air conditioners with greater power fit perfectly into the spaces of modern offices, conference rooms and large residential premises. To the attention of customers looking for functional and elegant solutions, we recommend models for all-year use (even in the case of low outside temperatures) and for continuous operation, dedicated to server rooms.

We offer Hisense, Panasonic and LG air conditioners.

Hisense Panasonic LG

Lp	Name	Drawing
1	KGC-PS-393908 Profile 39x39x8 	
2	KGC-PS-4023 Profile 40x23 	
3	NKG C100508 100x50x8 	
4	NKG RK50505 50x50x5 	
5	KG-00-6 Footpost NKG RK 50505 	
6	KG-00-2 40x40 - grey 	
7	KG-00-3 50x50 - grey 	
8	KG-01-12 Connector 393908 - 40-3xM6	
9	KG-01-13 Connector 4023 - 20x5-50 - 2xM6	

Lp	Name	Drawing
10	KG-01-19 Connector 50x50x50 - M8	
11	KG-01-20 Connector 50x50x65 - M8 - 25 St	
12	KG-01-25 Connector L - 39x39-25 St	
13	KG-01-27 Connector X - 39x39	
14	KG-01-29 Connector T - 39x39-25 St	
15	KG-01-40 393908 z RP100754	
16	KG-01-18 8,5x5x122 / M8x20	
17	NKG RP 638056 Handrail 63x80x5x6 	
18	KG-00-1 NKG RP 638056 	



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