



# Mobile Chassis Components

## Engineering Tools not Toys

The **GEARS - IDS™** materials and components are the same materials and components used by practicing engineers.

These structural metal parts are machined from Stainless Steel and Aluminum alloys. The Motors and power transmission components are industry standard equipment, not toy parts.

The **GEARS - IDS™ Invention and Design System** gives tomorrow's technologists and engineers the best engineering components available today.

### DESIGN BUILD TEST PLAY

The **GEARS-IDS™** Invention and Design System gives young designers and engineers the tools they need to turn ideas into working machines, easily and quickly.

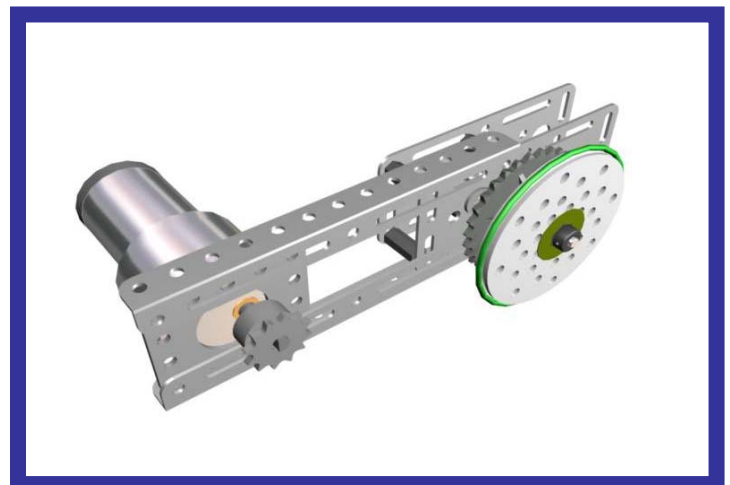
Using **basic tools** and **real components**, young designers and engineers can create sophisticated machines capable of playing challenging games or performing complex tasks.

The **GEARS-IDS™ Drive Train and Chassis Kit** components are illustrated and explained in this catalog. Each of the parts and assemblies are organized into these 4 groups.

#### Heading

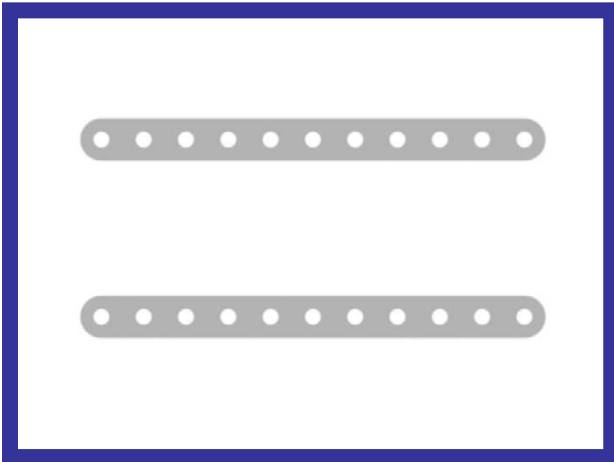
#### Part Number

- **Structural Components** GIDS-SC-xxxxx
- **Mechanical Components** GIDS-MC-xxxxx
- **Electronic Components** GIDS-EC-xxxxx
- **Accessories** GIDS-XC-xxxxx



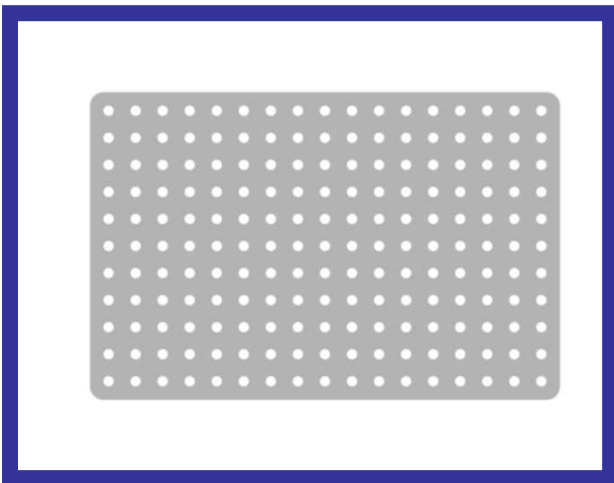


## Structural Components



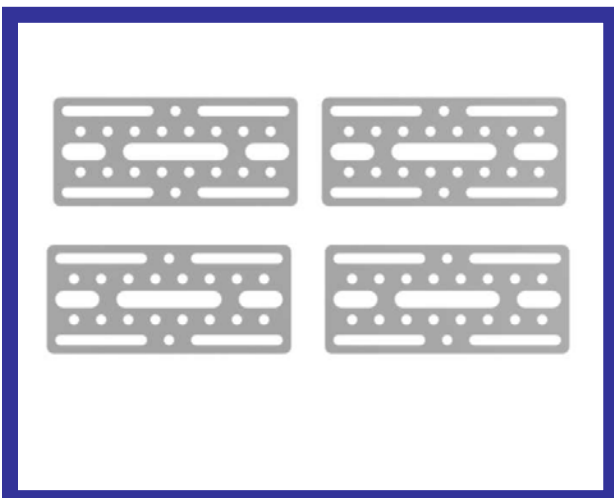
### 2pcs 9 Hole Flat Bars

These flat bars are useful for struts, spars, booms and other rigid assemblies. They are also useful for adapting “Found” materials to your mechanical designs.



### 1 pc. Flat Plate

The **GEARS - IDS™** component are easy to organize and mount on these 0.090” thick panels. Coupled with the 7 and 13 hole rigid angles, these aluminum breadboards are tough enough for the high powered after-market components that young engineers like to add to their designs.



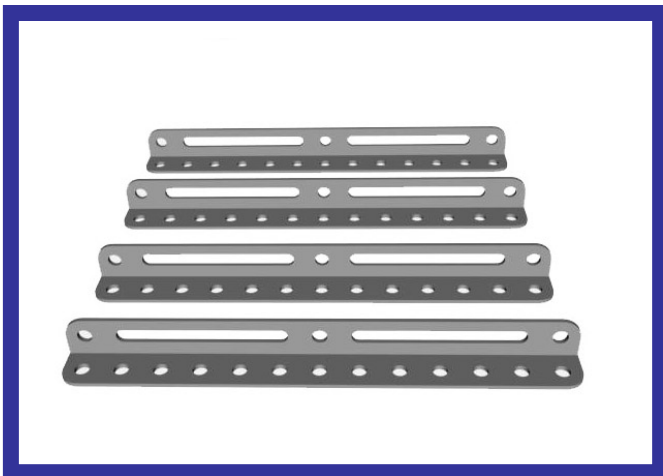
### Shaft Plate Set 4pcs. GIDS -SC-10003

These Shaft Plates have slots that can be used in conjunction with the Bushing Brackets to create a geared transmissions.

These plates can also be used as structural and adjustable mounting plates.

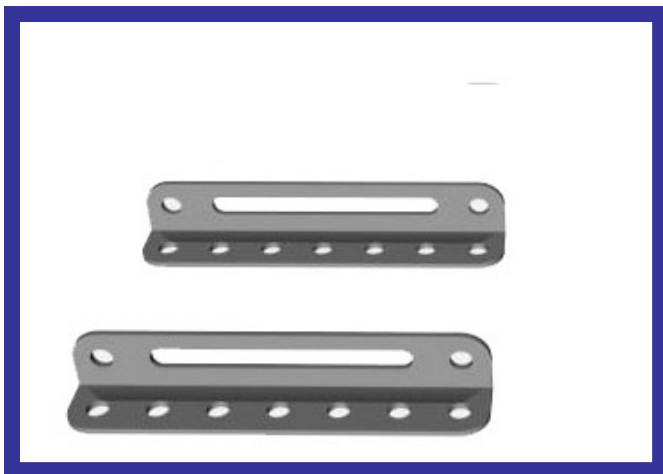


## Structural Components



**13 Hole Angle Set 4pcs. GIDS -SC-10006**

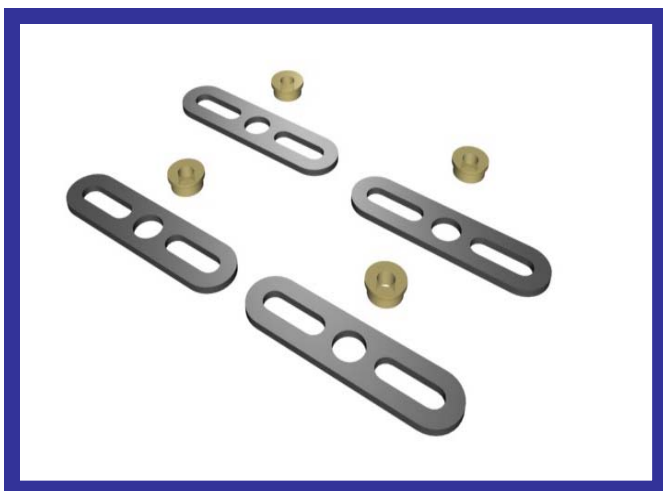
Coupled with the **GEARS - IDS™** bearing plates, these slotted angle components provide the flexibility and range of adjustment necessary to accurately position the center to center distances of sprockets and gears. They are particularly useful as framing members for rigid robot chassis.



**7 Hole Angle Set 2pcs. GIDS -SC-10007**

Use these to fasten the caster to the

The 7 hole angles are particularly useful for mounting servo brackets and motors.

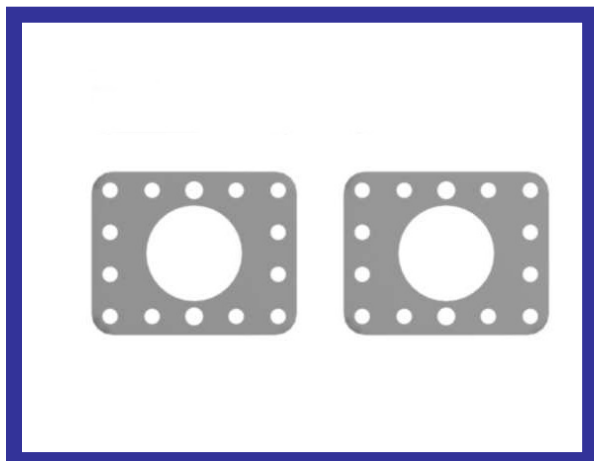


**Bushing Bracket Set 4pcs. GIDS -SC-10010**

These 0.060" Stainless Steel slotted brackets are designed with press fit, 3/16" ID, bronze bushings. Bronze bushings provide accurate and robust constraints for transmission shafts, axles and powered drive train shafts.

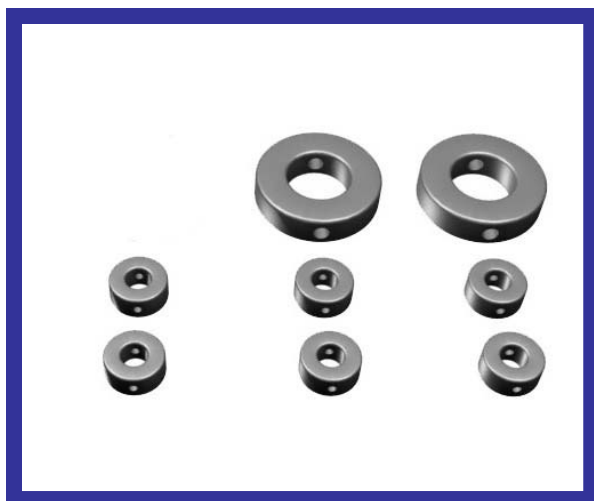


## Structural Components



### **M15 Motor Mount 2pcs. GIDS - SC-10009**

Two perimeter holes in addition to the large center hole, form an industry standard bolt pattern for gear head motors produced by several manufacturers. These mounting brackets are also used to mount the pneumatic reservoir.



### **Shaft Collar Set 8 pcs. GIDS -SC-10012**

9 pieces 3/16" ID collars with set screw. The 3/16" shaft collars are used to constrain axles and other rotating parts.



### **Hardware Set. GIDS -SC-10016**

More than 200 nuts, bolts and washers are included in the kit. The majority of components are assembled with #10-24 machine screws, nuts, lock washers and flat washers.

**Note: The motors are attached with #10-32 machine screws.**



## Structural Components

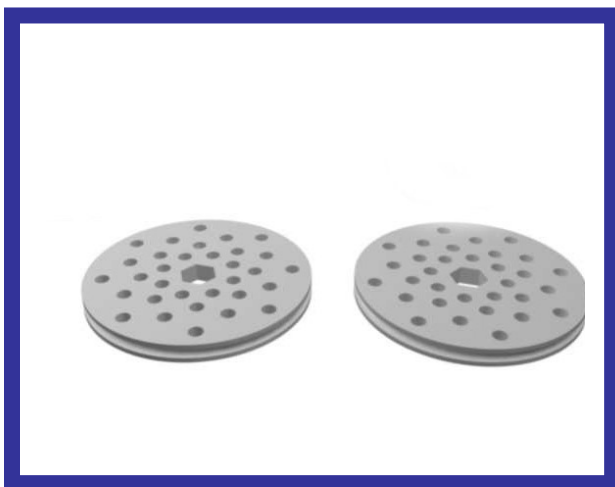


### Hex Adapter Set 6pcs. GIDS -SC-10013

2 pieces with 3/16" bore are used to fit sprockets and wheels to the 3/16" axles and shafts

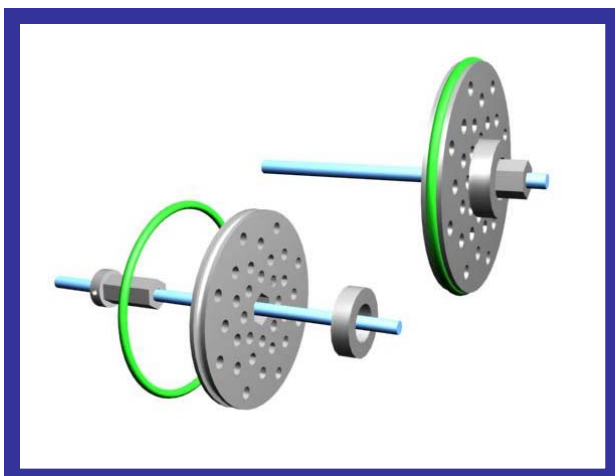
2 pieces with 1/4" bore fit the IM15 motor shafts.

They are part of the wheel assembly system shown in the illustration below.



### 3" Wheel Set 5pcs. GIDS -SC-10014

The 3" diameter wheels are machined from 1/4", 6061 T-6 Aluminum. They can be fitted with high traction rubber tires or polycord treads (included). They can even be assembled as paired pulleys with polycord tank style tracks. The complete wheel assembly is illustrated below.



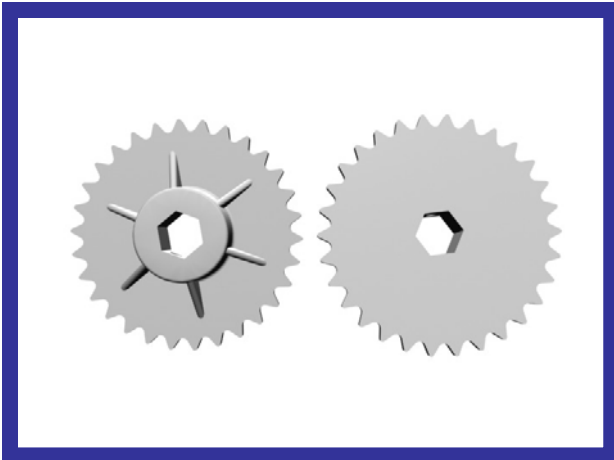
### Wheel Assembly System Illustrated

This illustration shows the integration of the five components described above.

3/16" Axle  
Hex Adapter  
3" Wheel  
1/2" Shaft Collar  
Poly-cord Belting



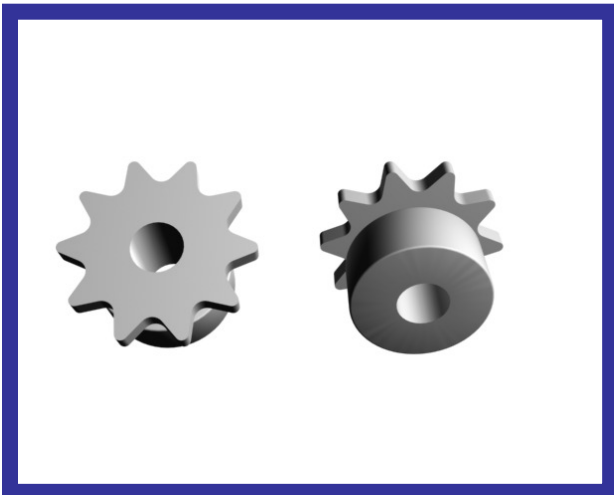
## Mechanical Components



### **30 Tooth Sprockets 2pcs. GIDS - MC-10001**

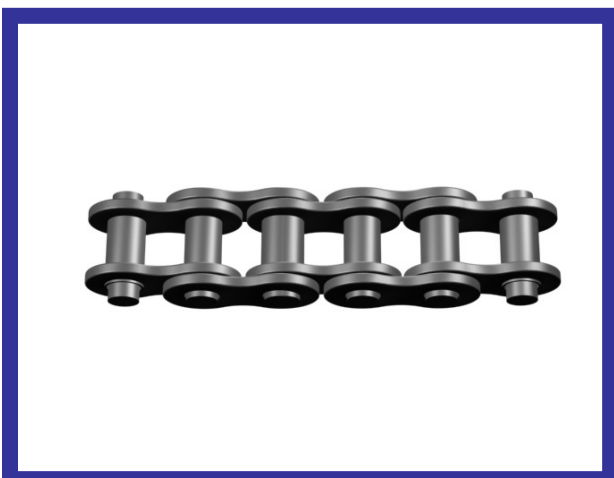
Tough , molded sprockets of nylon/fiberglass reinforced plastic, with hexagonal bore to accommodate rapid attachment and removal from the hex adapter shaft.

#10-32 set screw included. Compatible with standard #25 pitch steel and plastic chain.



### **10 Tooth Sprockets 2pcs. GIDS - MC-10002**

Tough , molded sprockets of nylon/fiberglass reinforced plastic, can firmly attached to the flats on the motor shafts with #10-32 set screws.



### **#25 Pitch Chain 4ft. GIDS - MC-10003**

Nylatron plastic chain. Separated and snapped together using a jewelers flathead screwdriver and a pair of needle nose pliers.





## Mechanical Components

### 2" Swivel Caster 1pcs. GIDS - MC-10005

2" diameter wheels mounted to ball bearing swivel plates. These rugged casters can support 75 lbs. each and provide two wheeled robots with the stability and maneuverability needed to play the most demanding games. Casters mate to the 7 hole slotted angle (GIDS-SC-10006) pieces in the kit.



### 2" Gear Head Motors 2pcs. GIDS- IM15

No Load RPM at the output shaft @500-12V  
They are rated 72 continuous oz. in. of torque at 175 RPM @ 2 amps. (Gear head shaft speed)  
The **GEARS - IDS™** Electronic Speed Controllers are specifically designed for use with these motors. This means your not paying for unused capacity!



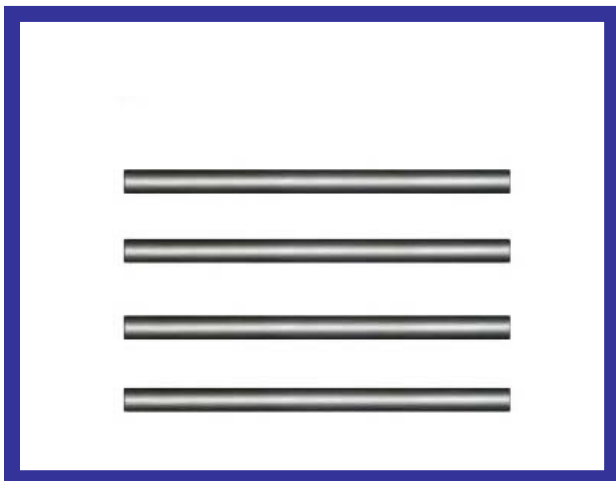
### 3/16" Axle Set 8pcs. GIDS -SC-10027

3/16" steel axles.

4 Pieces 8" x 3/16"

4 pieces 4" x 3/16".

Note: These precision steel axles can be easily cut to any required size using a Hack Saw and a Vice.



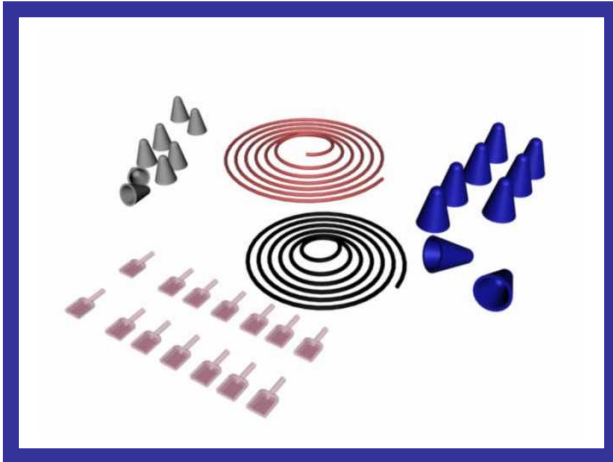


## Electrical Components



**12 Volt Battery Charger** GIDS-EC-10006BC  
With alligator lead connectors

The **GEARS - IDS™** “Smart” battery charger ensures maximum battery life by adjusting the charging current based on the state of charge. Batteries cannot be harmed by over current, or by extended charging.



**Wiring Set** GIDS-EC-100035

Grey and Blue Wire Nuts, 18GA stranded wire and male and female quick disconnects. These electrical wiring components allow users to quickly and repeatably, assemble, disassemble and reconfigure electrical circuits.



**12V, 1.2 Amp Hour SLA Battery** GIDS-EC-10006

This kit includes an easily maintained SLA battery and wall mount charger.