

Submit CAD files in STEP format

Notebook: Solidworks

Created: 11/19/2019 11:13 PM

Updated: 11/20/2019 1:14 AM

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URL: <https://grabcad.com/challenges/grundfos-challenge-design-and-integration-of-...>

- Submit CAD files in STEP format:

[There are in the attachment file.](#)

- Screenshots in various views (preferably rendered)

[There are in the attachment file.](#)

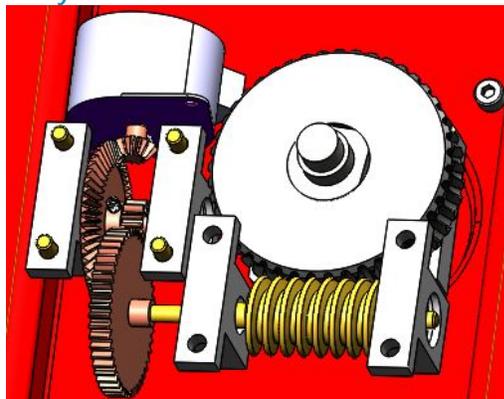
- Screenshots of simulation results (if applicable) and a small description of the setup (so that it can be replicated by the jury)

1. In gear drive train system, i choosed worm gear, spur and straight bevel gear.

Worm gear provides major reduction ratio (44)

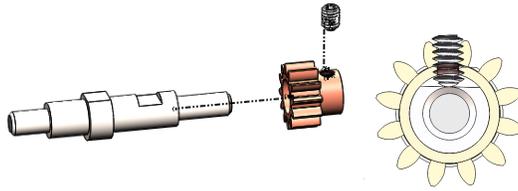
Spur provides 4 reduction ratio

straight bevel gear provides 4 reduction ratio and easy assemble.

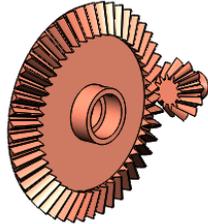
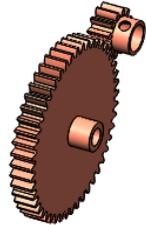
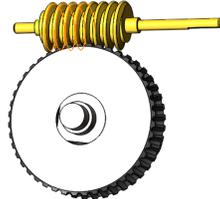


2. Standard and common parts Bearing holder, it can mostly reduce cost and avoid tolerance of assemble.

3.D-cut shaft are for the stable rotation

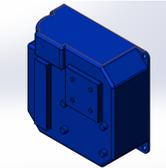
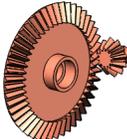
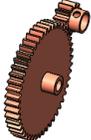
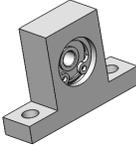


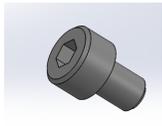
• Gear ratio:

Gear ratio	Photo
<ul style="list-style-type: none"> ○ A pair of straight bevel gear ○ Gear module:0.8, 12 teeth and 48 teeth. ○ Gear ratio 4 	
<ul style="list-style-type: none"> ○ A pair of spur gear ○ Gear module:0.8, 12 teeth and 48 teeth. ○ Gear ratio 4 	
<ul style="list-style-type: none"> ○ A pair of worm gear ○ Gear ratio 1:44 	
<ul style="list-style-type: none"> ○ Total: 704 	

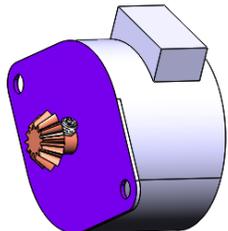
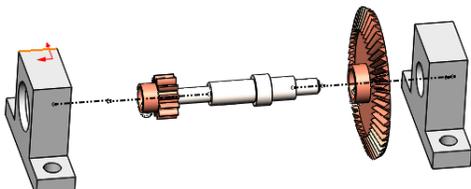
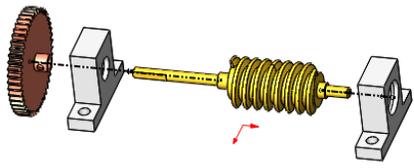
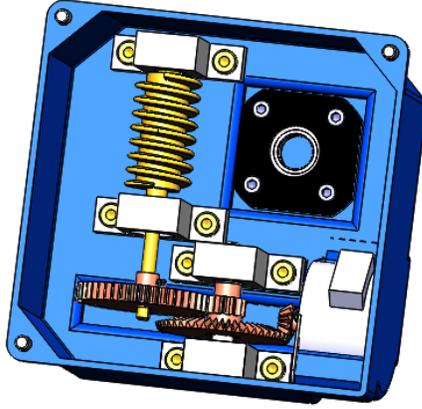
• Bill of material incl. material composition:

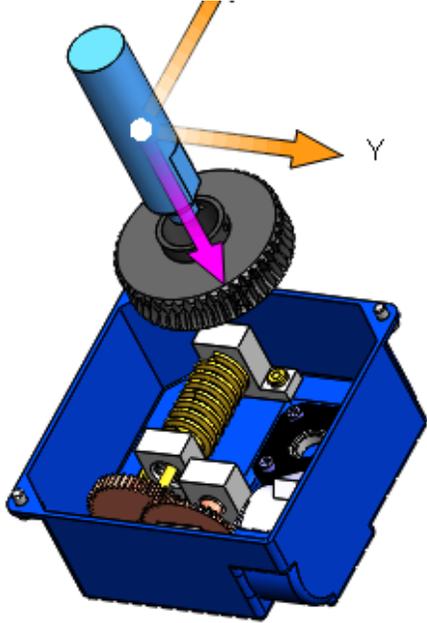
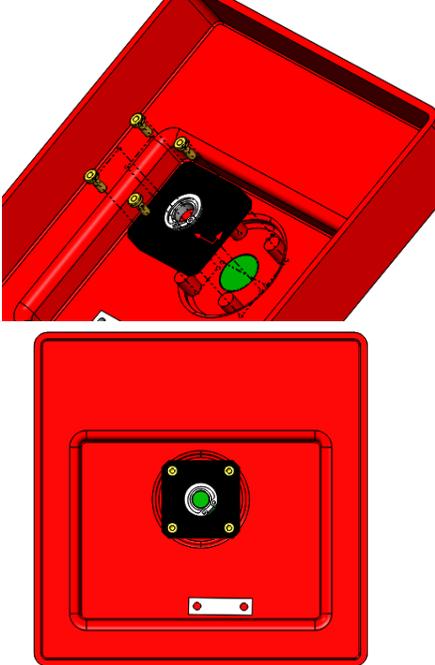
Part	Manufacturing	Photo	Quantity

Cover	<ul style="list-style-type: none"> • Injection molding • tool • 3D-printing 		1
A pair of worm gear	<ul style="list-style-type: none"> • customized shaft 		1
A pair of straight bevel gear	<ul style="list-style-type: none"> • customized shaft 		1
A pair of spur gear	<ul style="list-style-type: none"> • customized shaft 		1
Bearing holder (bearing 624)	<ul style="list-style-type: none"> • Common parts : Misumi bearing holder BGHKB624DD-15 		4
Bearing holder (bearing 6800)	<ul style="list-style-type: none"> • Common parts : Misumi bearing holder SBGSR6800ZZ 		1
Bearing holder (bearing 6804)	<ul style="list-style-type: none"> • Common parts : Misumi bearing holder SBGSR6804ZZ 		1
Screw	<ul style="list-style-type: none"> • Common parts : :T4x10 		12
Screw	<ul style="list-style-type: none"> • Common parts : :T3x8 		4
Screw	<ul style="list-style-type: none"> 1. Common parts : :T4x4 		4

- Assembly

Step 1	Assemble motor and set screw	
Step 2	Assemble spur gear	
Step 3	Assemble worm gear	
Step 4	Mount cover with step 1, step 2, step 3 sup-module and lock by screw.	

<p>Step 5</p>	<p>Mount worm gear and main shaft.</p>	 <p>The diagram illustrates the assembly of a worm gear and main shaft. A blue cylindrical worm gear is being pushed onto a main shaft. The shaft is supported by bearings and a spring. The entire assembly is housed within a blue plastic enclosure box. An orange arrow labeled 'Y' indicates the direction of assembly.</p>
<p>Step 6</p>	<p>Mount on enclosure box</p>	 <p>The diagram shows the assembly being mounted onto a red enclosure box. The top view shows the assembly being secured with screws. The bottom view shows the assembly mounted on the front panel of the box.</p>
<p>Step 6</p>	<p>assemble all module</p>	

