Inventor:
Ed Chiarini
A.K.A. DallasGoldBug

The Twisterhho Electrode set up for top connection Notice the Teflon tube covering the connection rod. This is to ensure the current would not bypass the cell and jump from the rod to the cups.

Again using the tubing to protect the rod, ensuring that the electron will travel through the stack and not bypass any cups causing current leak.

Bottom of the electrode showing the flattened u clamp used to connect each of the cups properly in parallel

TWISTER HHO

The following is an overview of my work on the TwisterrHHO electrode. This is being presented in an Opensource format and is intended to be used for research and development only. This is not a free license to mass produce the product and sell for a profit. I wanted to make it available to others to experiment and build for their own testing and personal use, so than any improvements would be presented to the others in this group, so that it may benefit us all. I am devoting my time to this project in hope that the technology, ideas, and concepts presented will benefit the HHO community.

Electrode mounted in an extruded heatsynk outer container with screw on top and bottom. Legre or swag-lock fittings were used

Illustration 1: Whats inside the cell

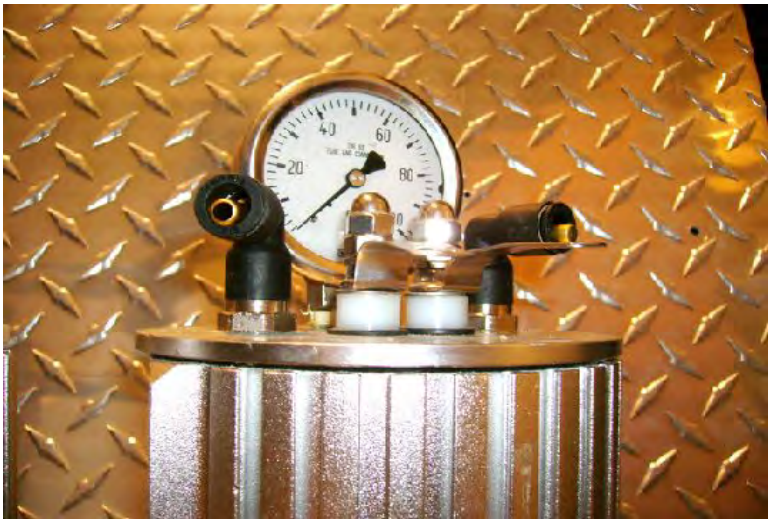
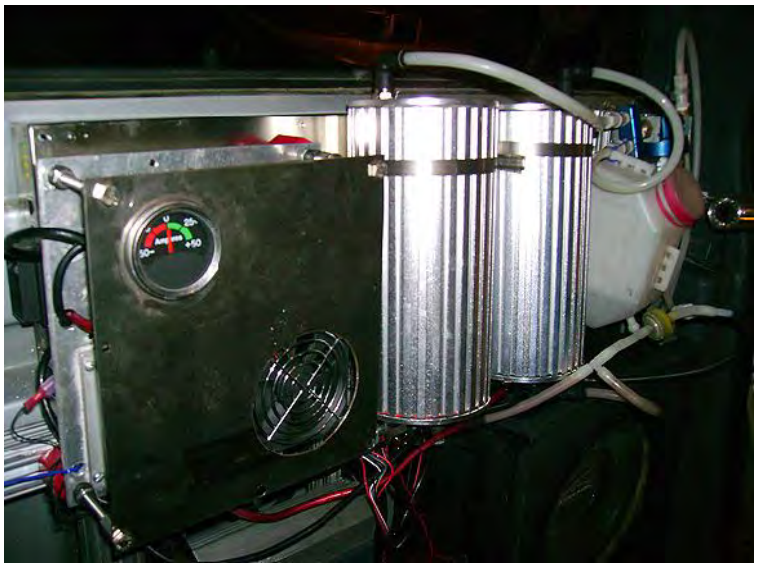


Illustration 2: Cell with pressure gauge and legris fittings

Illustration 3: Multiple cells getting ready to be tested

Illustration 4: Hanging cell



2000 Ford F-150 V8 This rig is mounted where the back seat was originally. It included a video camera (the silver looking thing pointing at the bubbler) viewing the production through bubbler that ran video to my 7" flip out screen on the stereo head unit. The purple container is an overflow container. The cell was controlled by a potentiometer that was mounted in the center console that controlled a 12-24v Kelly controls pwm.

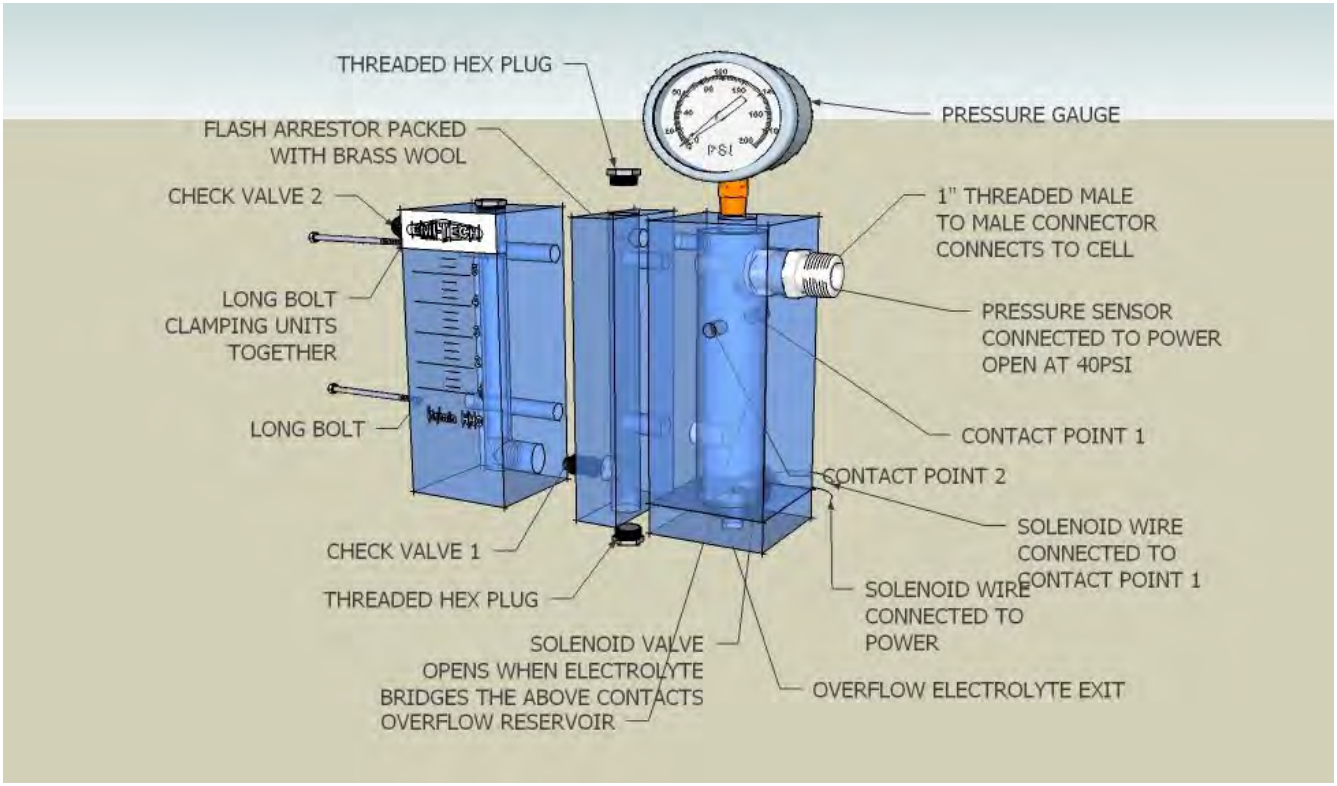
Multiple stacks waiting to be inspected for QA then installed.

Three Cell Testing unit, mounted in 80/20 aluminum rack. This setup is what I would use to do ltr/min testing on different power supplies and circuits. TO the left side are two stacked cells, the top was the bubbler and the bottom acted as a reservoir with pressure gauge mounted in the top.

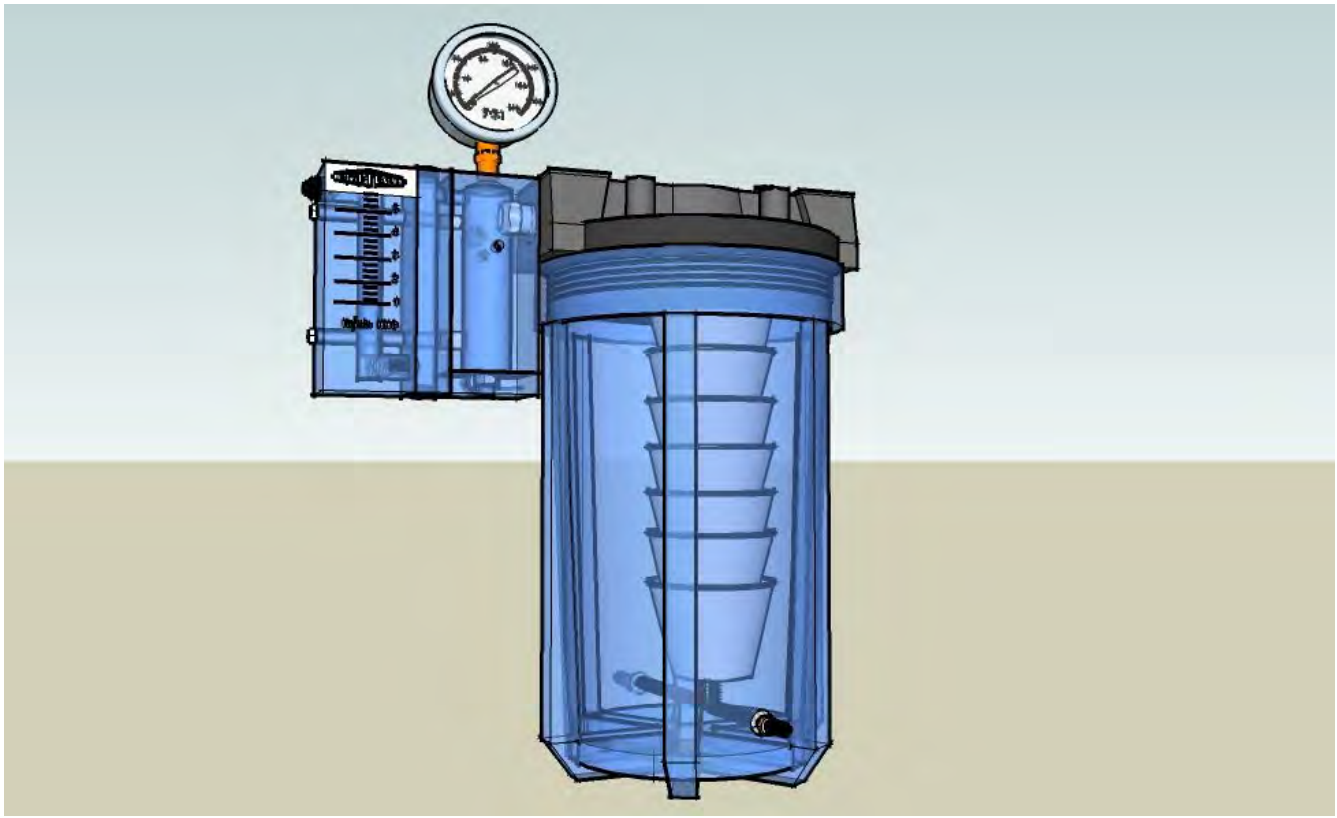
Single cell mounted in extruded aluminum container. Legris fittings, and the clip taken from spark plug wires that attach the the plug, snaps right on the 1/4x20 threads.

This electrode was Sandblasted. This micro abrasion increased the surface area many times over. But you must make sure after you sandblast to let the cups soak in a Phosphoric Acid bath to remove any hardening that may have occurred from the heat caused by the friction of the sand striking the metal. After they have soaks for 15 minutes its very important that you clean them well.

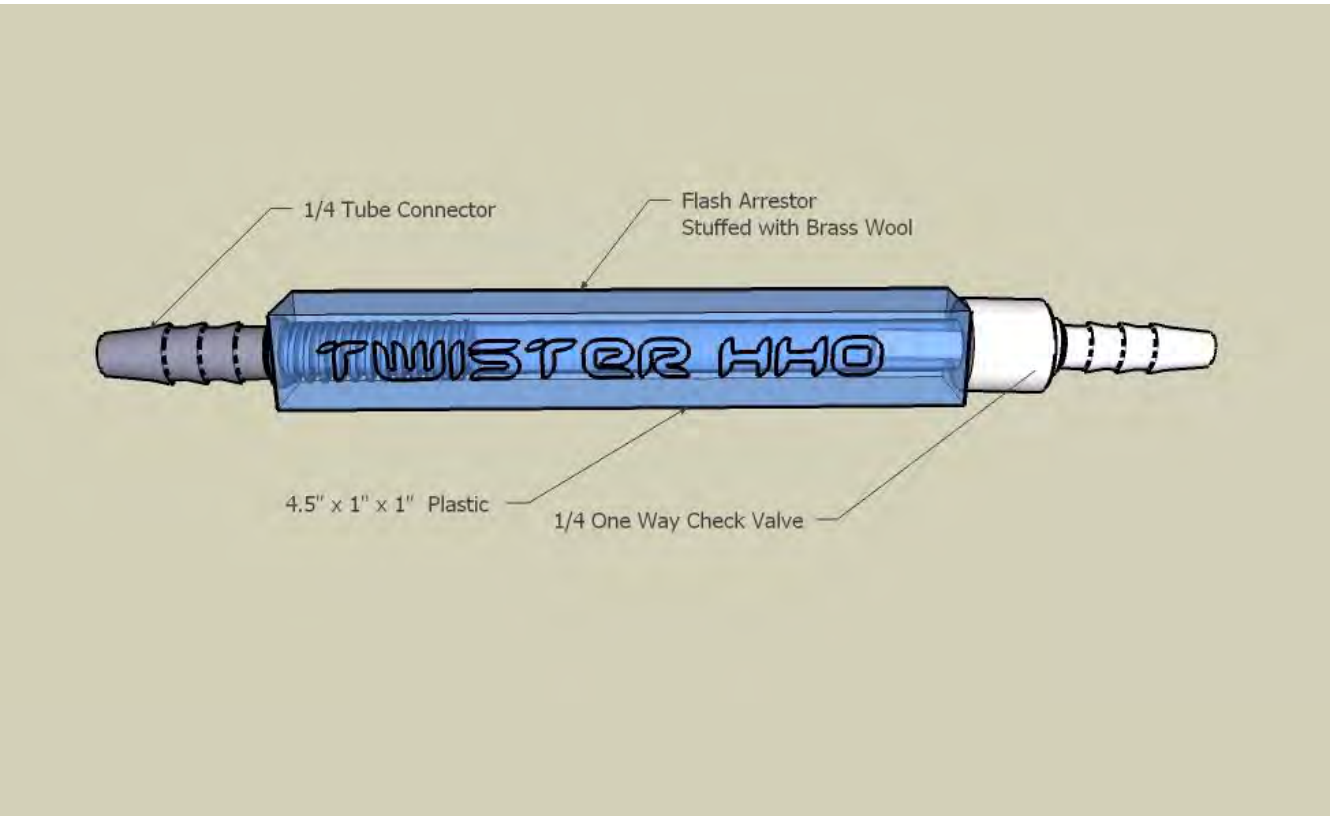
This unit was polished to remove the outer anodizing layer. Fittings are Stainless SwagLock



This was a product that I thought of that would combine several items into one making the installation much easier and giving the ability to control the safety aspects of the production. This was included in my patent for the cell.

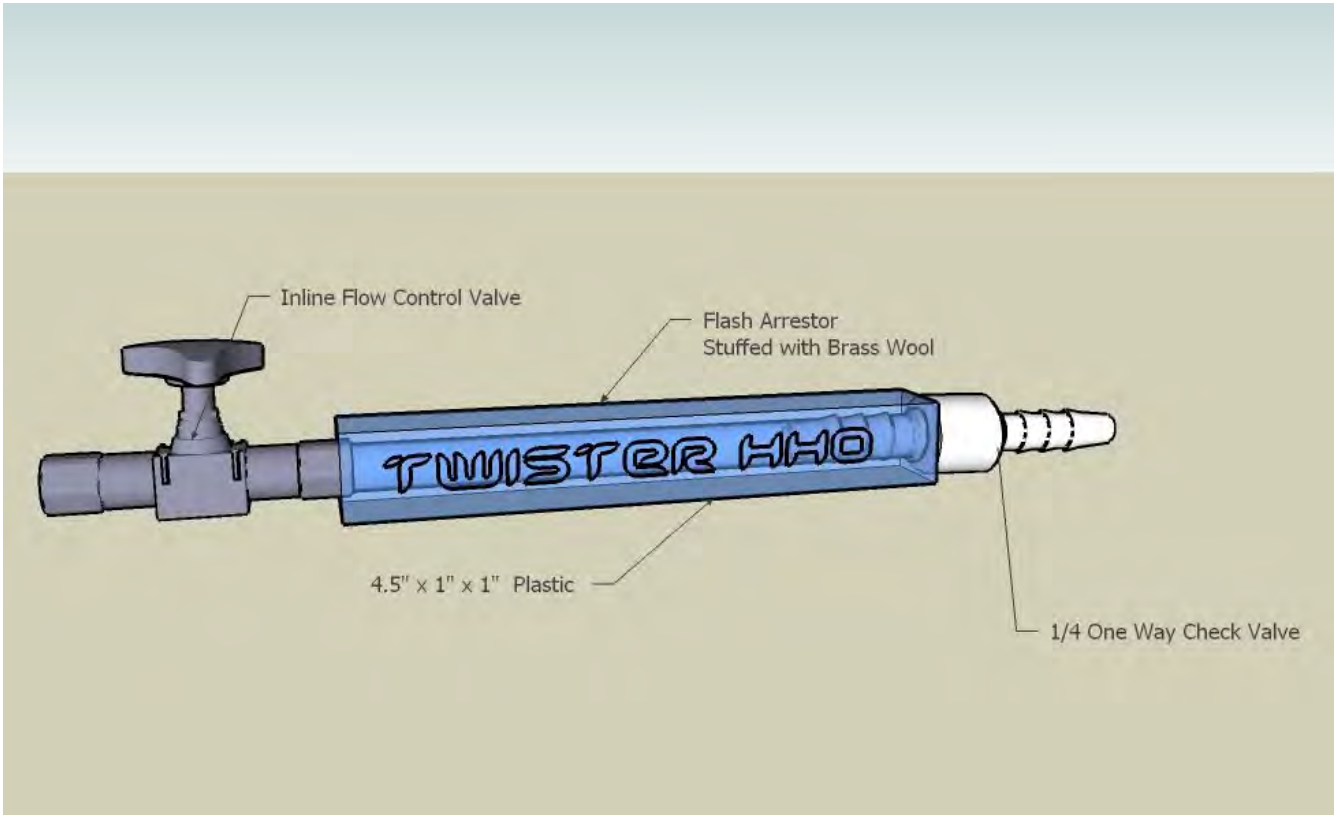


This was the original cell I offered on eBay for a day. until I got so many orders I had to pull down the ad. I wouldn't suggest using this type of set up due to problems with the heat and expansion of the plastic. Remember water reservoirs are not designed for hot liquids , as the warning label clearly states. so the plastic will expand more rapid than the metal you have running to the outside of the container. Even with grommets and other water tight devices it still eventually runs into problem leaking.

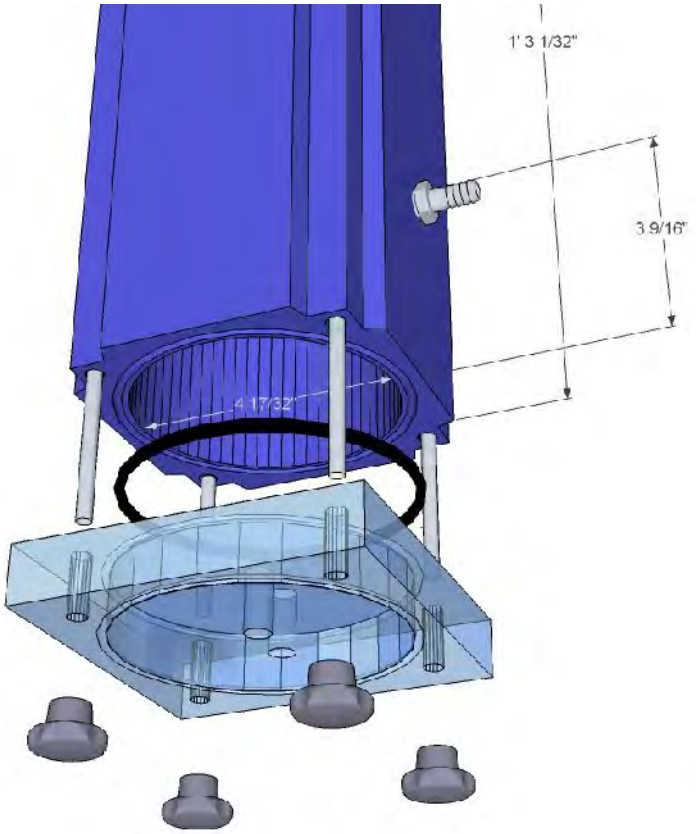


This is a design for a flashback arrestor/check valve combo, made from acrylic

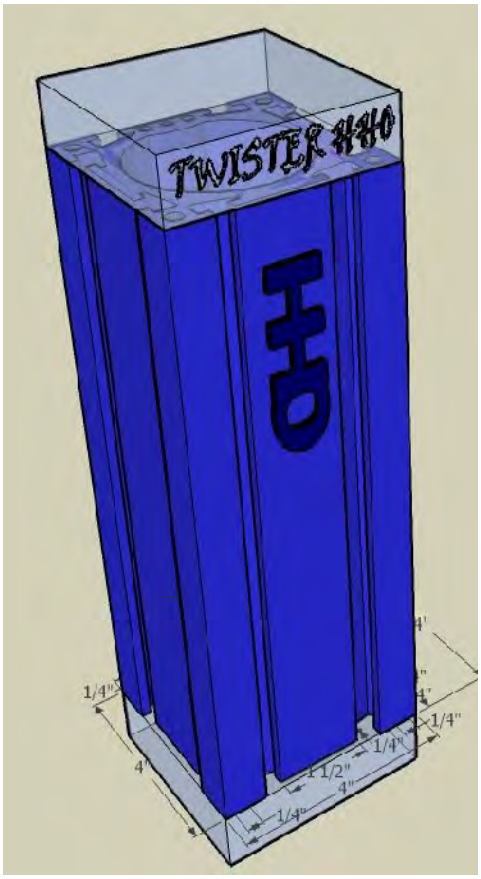
Here we see the first designs using extruded metal (at that time I was hoping for Stainless but the

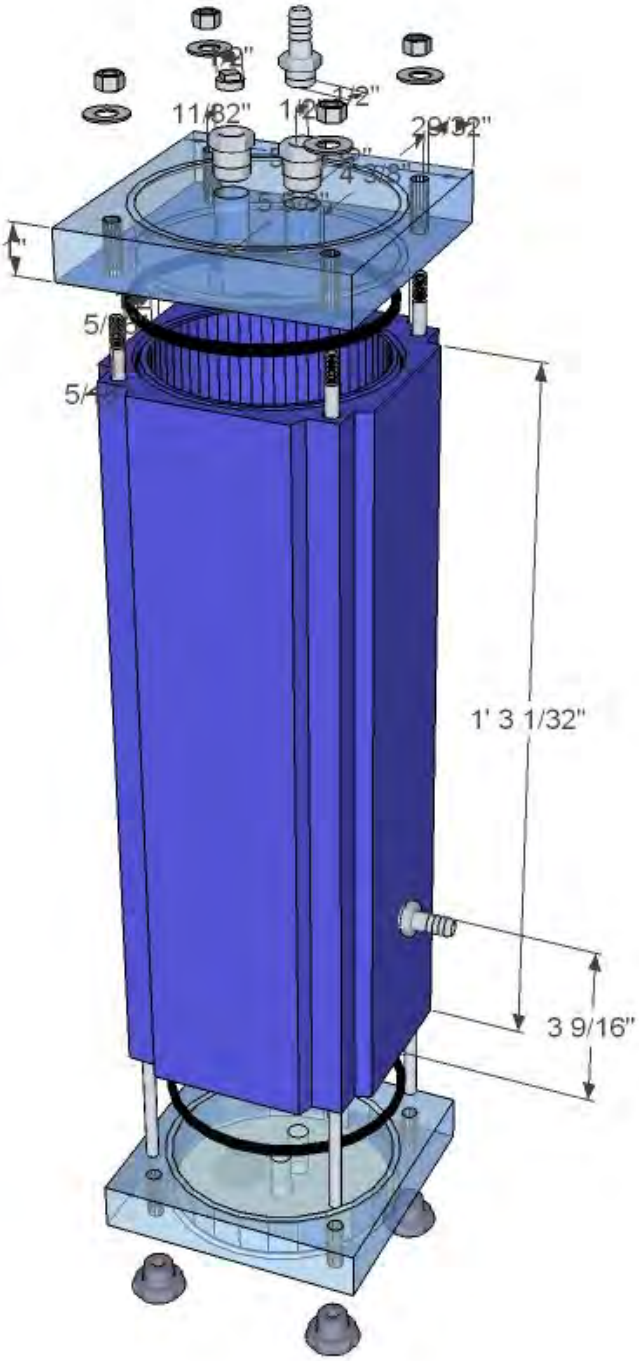


Again the flashback/check valve device but with added torch valve adapter

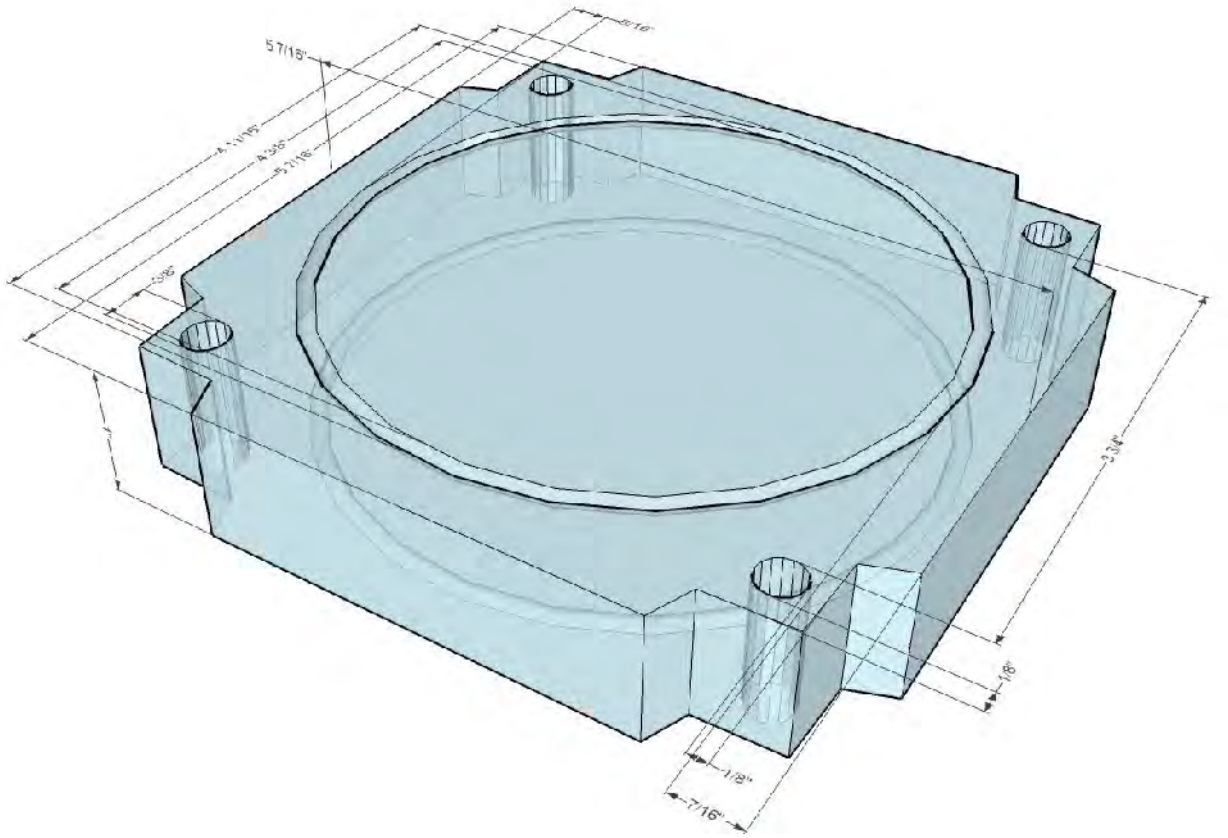


budget didn't allow) These were designed in Google Sketch up a great design tool if you don't want to fire up cad. Very easy to design quick ideas and since its a free download from google.com, you cant complain about the price.

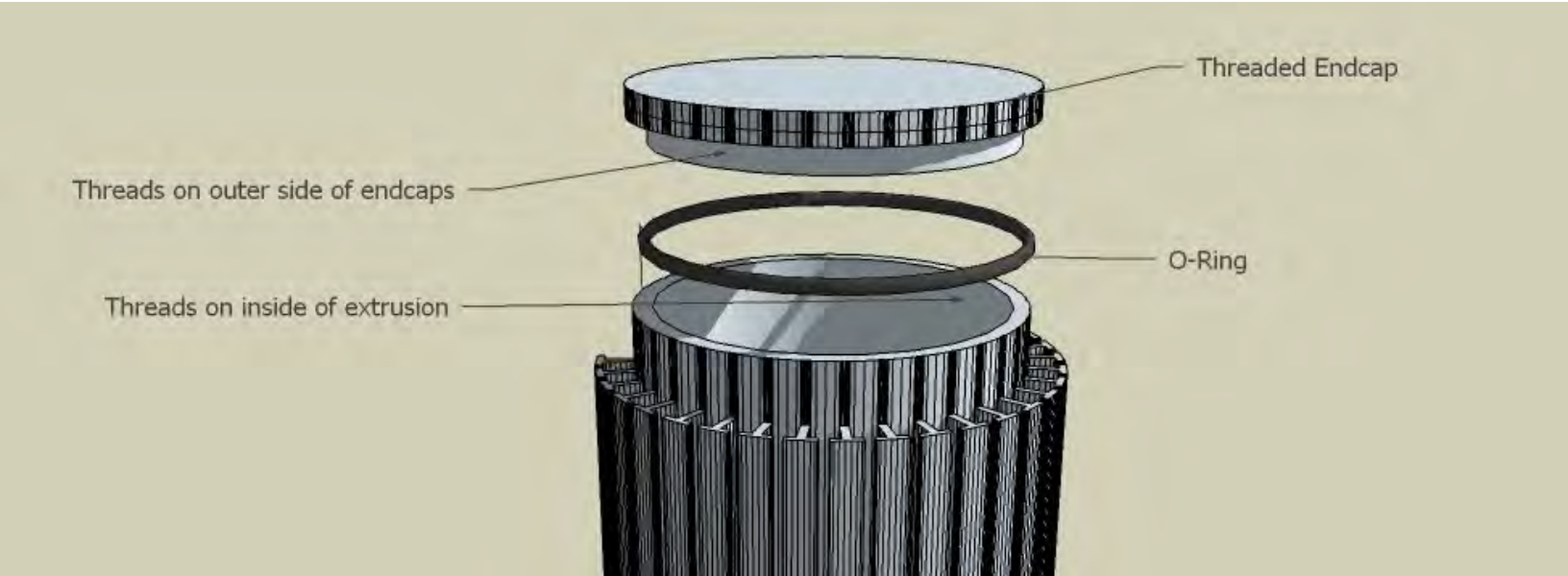


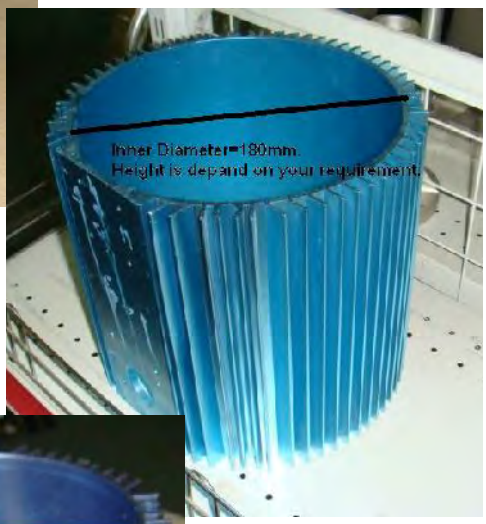


When designing for the end caps of your cell, if you don't have threaded ends you will need to cap it with something that will be secured to the main cell and allowed to expand and contract with the temperature both inside and outside the unit. Your best solution is to use a gasket or ring to ensure you keep your cell from leaking even when under pressure. Here is a design I made that we used on the original prototypes. It

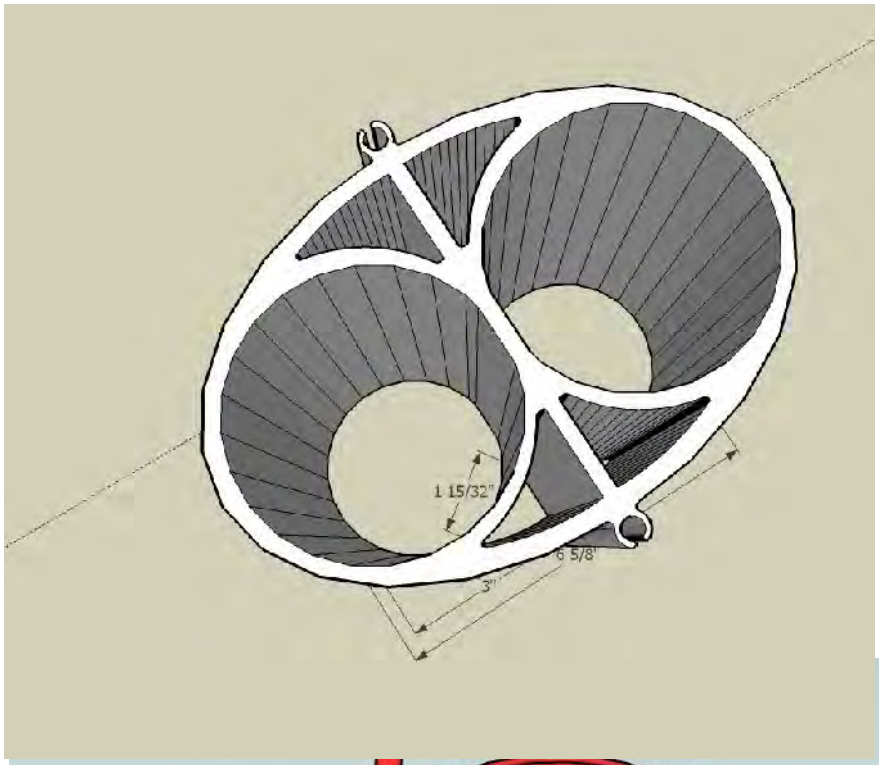


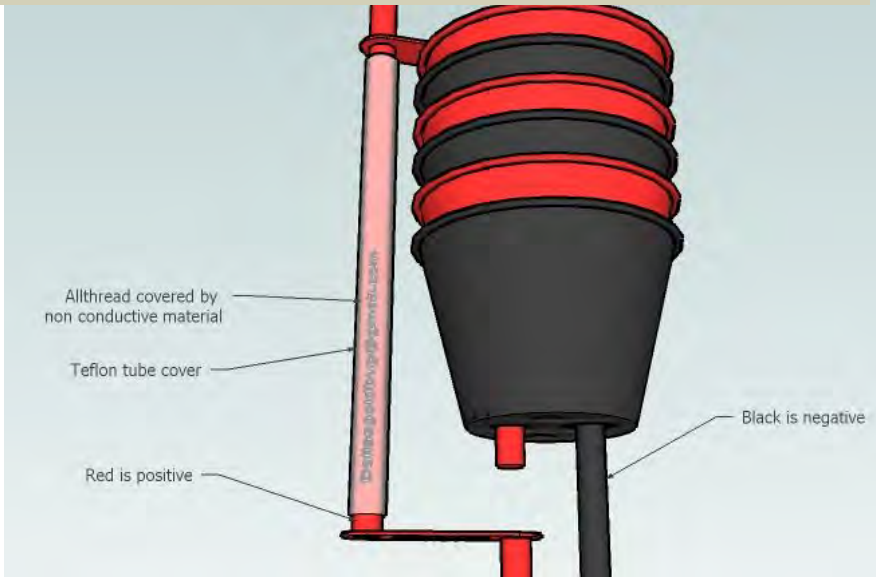
was constructed out of 1" thick acrylic and held up well. TIP - the best place to get plastic cheep is by asking you local plastic supply if you can dig in their scrap bin. Mine charges me $1 per pound of material that normally would end up costing $10-$20 for something I pre-ordered for pickup. The jobs they fab and the size they toss in the recycle bin are plenty big enough for your projects. I've found pieces of 1" thick that was two foot by one foot in size. Normally a piece that size would have cost $50 but since it was in the scrap bin it cost me $4.





The outer cell housing was made from a modified DC motor housing, that was threaded at each end and O-ringed to make a secure seal.


1 15/32"
6 5/8"
3"


Allthread covered by
non conductive material
Teflon tube cover
Red is positive
Black is negative

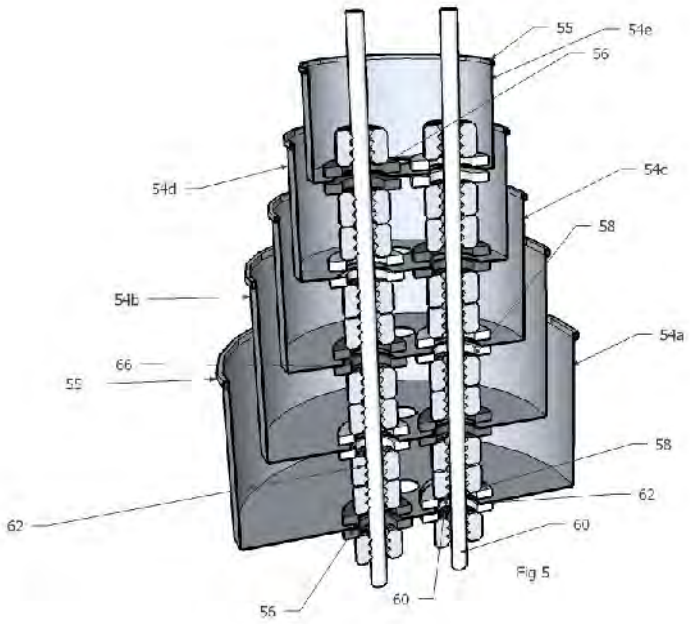
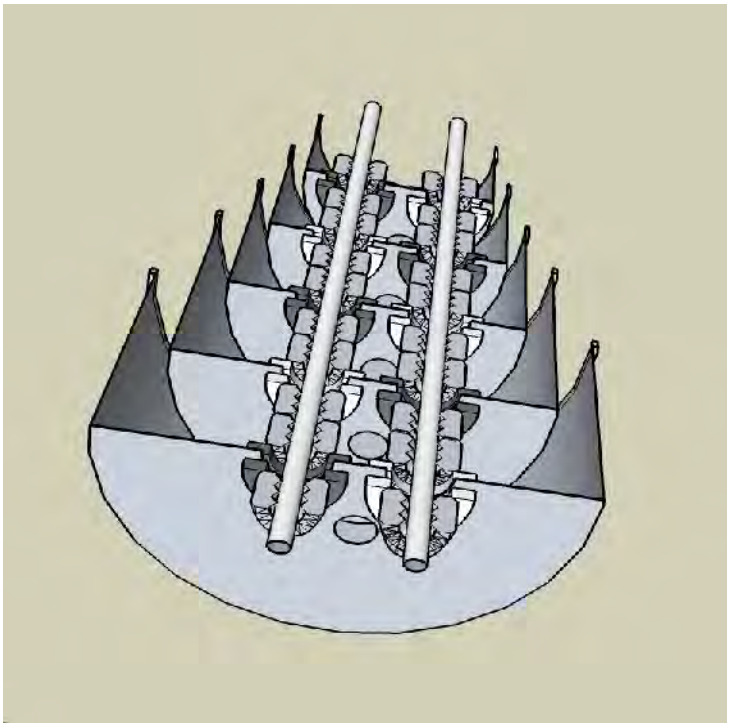
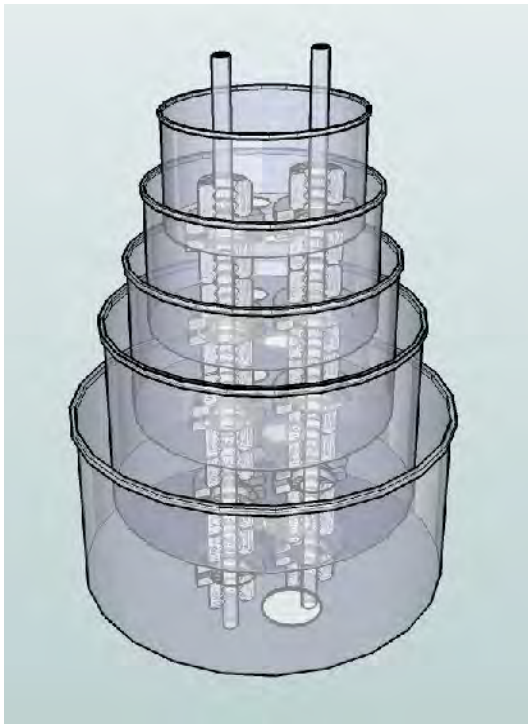
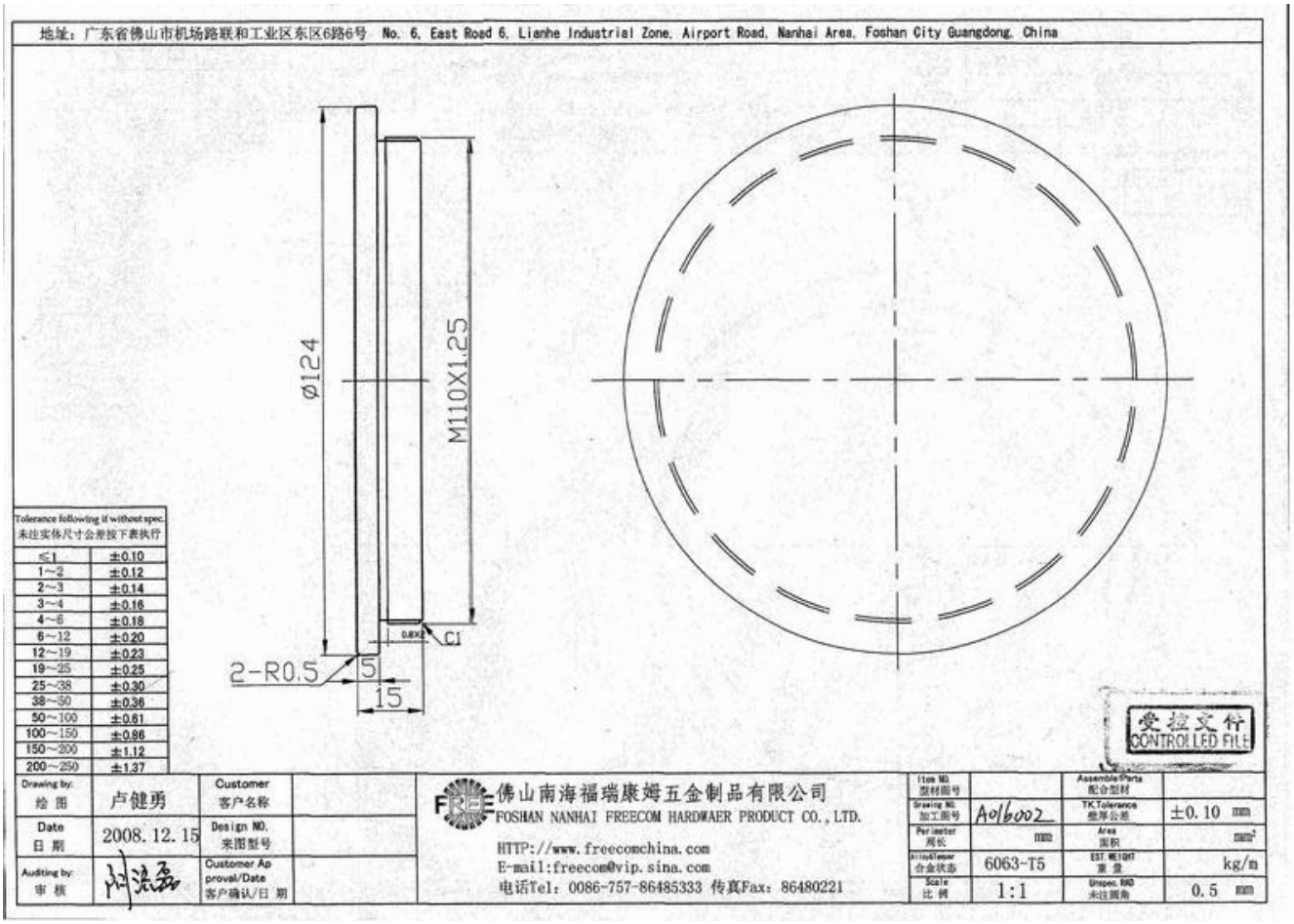


Fig 5

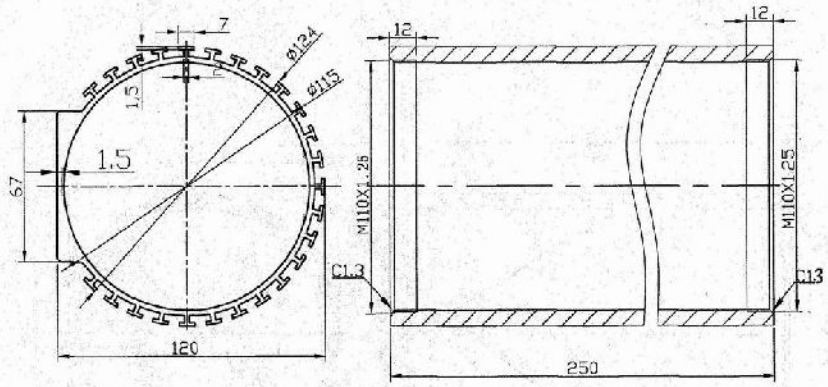




Variations on my patent



地址：广东省佛山市机场路联和工业区东区6路6号 No. 6, East Road 6, Lianhe Industrial Zone, Airport Road, Nanhai Area, Foshan City Guangdong, China



Tolerance following if without spec 未注公差按下表执行	
≤1	±0.10
1~2	±0.12
2~3	±0.14
3~4	±0.16
4~6	±0.18
6~12	±0.20
12~19	±0.23
19~25	±0.25
25~38	±0.30
38~50	±0.36
50~100	±0.61
100~150	±0.86
150~200	±1.12
200~250	±1.37

CONTROLLED FILE

Drawing by: 绘 图	卢健勇	Customer 客户名称	
Date 日 期	2008.12.11	Design NO. 来图型号	
Auditing by: 审 核		Customer Approval/Date 客户确认/日 期	

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Item NO. 型材图号		Assemble Parts 配合型材	
Drawing NO. 加工图号		T.K.Tolerance 综合公差	±0.10 mm
Perimeter 周长	mm	Area 面积	mm^2
Alloy&temper 合金状态	6063-T5	Est. WEIGHT 重 量	kg/m
Scale 比 例	1:2	Unspec RAD 未注圆角	0.5 mm