



Cobas 系列维修相关  
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# Cobas 系列维修相关

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# 1 维修软件

## 1.1 关于维修软件 (SSW)

Service PC Software或服务软件 (缩写SSW) 是一种软件应用程序, 旨在对Modular/cobas8000/Cobas6000/Cobas4000等模块系统中的分析模块

(c/e/ISE) 和非分析模块 (SU/MSB) 执行服务/维护操作。

SSW维修软件可以安装到CU控制电脑或维修笔记本电脑。安装有SSW的笔记本电脑, 称为Service PC 维修电脑。

将SSW安装到CU控制电脑, 或将Service PC插入模块系统的HUB接口, 从而控制整个系统的所有模块, 这种连接方式称为系统连接模式 (System Connection Mode)。如果系统中的各个模块与CU控制电脑分离, 与Service PC单独连接并被控制, 称为模块独立连接模式 (Module Standalone Connection Mode)。

系统中各模块的调整值 (步进脉冲、电压电流等) 数据可以上传到Service PC的数据库。同样, 通过Service PC调整后的调整值也可以同步到CU控制电脑及各模块中。SSW维修软件还可以进行动作检查、传感器测试等功能。

不同的系统 (Modular/7600、Cobas8000、Cobas6000、Cobas4000, 还有其它机型Cobas513、Cobas Pro、u系列、p系列、Cobas4800/6800/8800/8100等等) 有不同的SSW维修软件。

SSW维修软件一般与CU控制电脑的控制软件在一张光盘上, 可以单独安装, 也可以同时安装。但所有SSW维修软件的操作界面几乎相同, 方法也相同。区别在于不同系统的不同模块中的控制方式不同, 所以在具体界面上功能有所增减。

Cobas4000的SSW维修软件只有一个c311模块, e411模块的维修软件在控制软件内部自带。

SSW维修软件登录需要用户认证, 维修人员登录名: BMSERV, 维修密码: nakakojo。

不进行登录也能进入SSW维修软件, 但只能查看, 并不能控制与调整。

一套系统的SSW维修软件, 可以存储和控制多套相同的系统, 方便维修人员操作。

Service PC在厂家的有些资料中, 称为Tools PC。

## 1.2 SSW维修软件的安装

### Cobas 8000

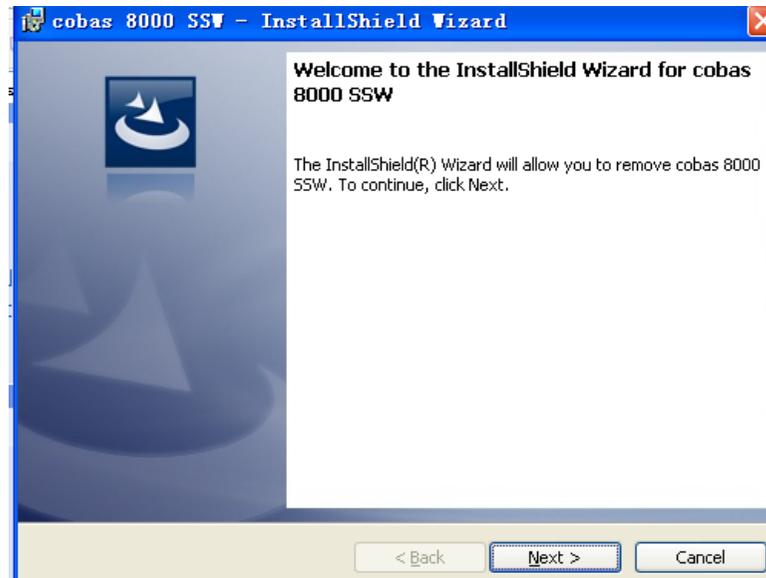
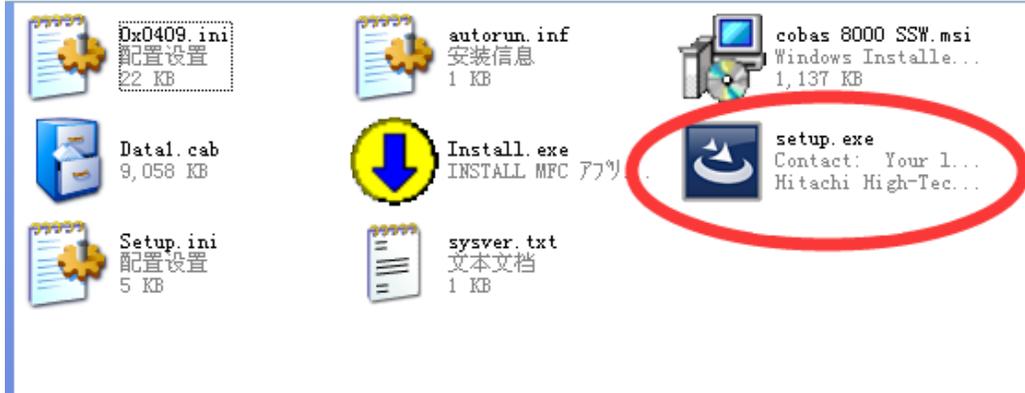
Cobas 8000的CU控制电脑安装光盘上有一个SSW文件夹，这里面就是SSW的安装程序。

点击SSW文件夹内的Setup.exe文件，即可进行安装。安装将自动完成，整个过程不需要人工干预。

安装后，会在桌面生成cobas 8000 SSW图标，双击可打开。



ngs\Administrator\桌面\SSW



Cobas 8000的SSW默认安装在C盘的C8KSSW文件夹内，主程序是C:\C8KSSW\PC\Prog\Exec.exe。

按照厂家的要求，在CU控制电脑上安装使用SSW维修软件后，应卸载。但大多数工程师为了方便，并不卸载，顶多删除桌面图标。

如果安装维修工程师使用Service PC，则不会在CU控制电脑上安装SSW维修软件。

## Cobas 6000

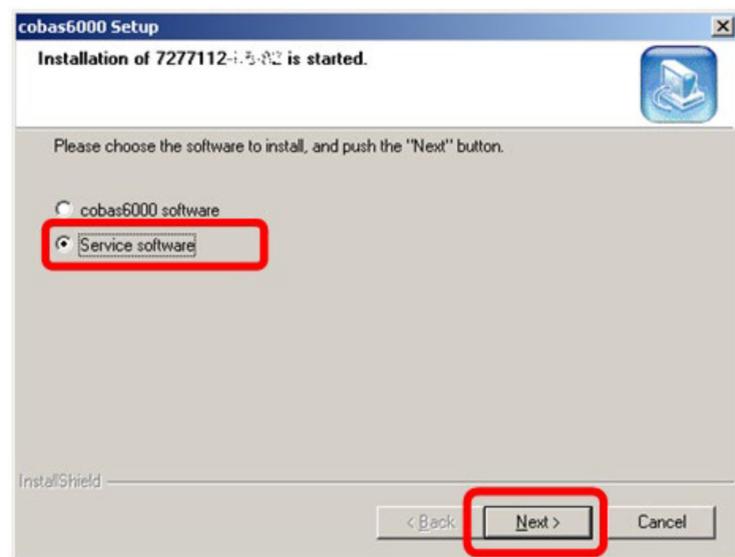
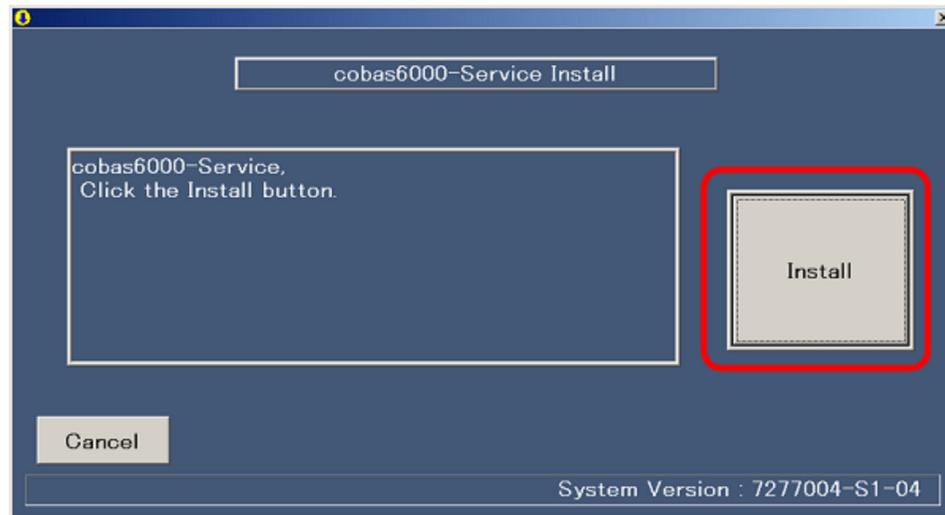
Cobas 6000的CU控制电脑安装光盘上有一个service software CD文件夹，这里面就是SSW的安装程序。

点击SSW文件夹内的Setup.exe文件，即可进行安装。安装将自动完成，整个过程不需要人工干预。

Cobas 6000的SSW软件，也可以与控制软件同时安装。安装后，会在桌面生成cobas6000 Service Software图标，双击可打开。

Cobas 6000的SSW默认安装在C盘的NewGen文件夹内，主程序是C:\NewGen\PC\PROG\Exec.exe。

名称	大小	类型	修改日期
Scripts		文件夹	2020-6-16 10:04
0x0409.ini	22 KB	配置设置	2010-3-23 16:44
data1.cab	770 KB	Cab 文件	2015-12-25 11:36
data1.hdr	44 KB	HDR 文件	2015-12-25 11:37
data2.cab	106,505 KB	Cab 文件	2015-12-25 11:37
ISSSetup.dll	610 KB	应用程序扩展	2012-4-24 18:55
layout.bin	1 KB	BIN 文件	2015-12-25 11:37
setup.exe	789 KB	应用程序	2015-12-25 11:37
setup.ini	3 KB	配置设置	2015-12-25 11:36



## Cobas 4000

Cobas 4000的c311模块的SSW维修软件安装方式与C6000几乎相同，安装默认文件夹也相同，都是默认安装在C盘的NewGen文件夹内，主程序是

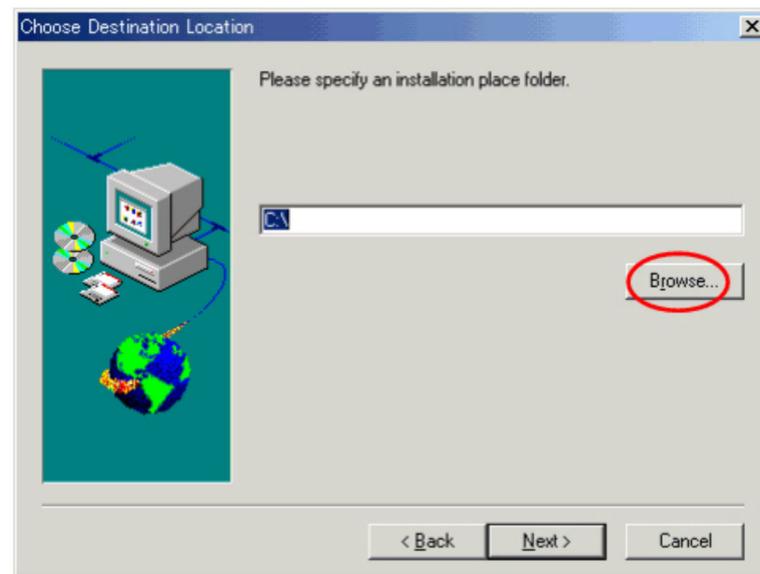
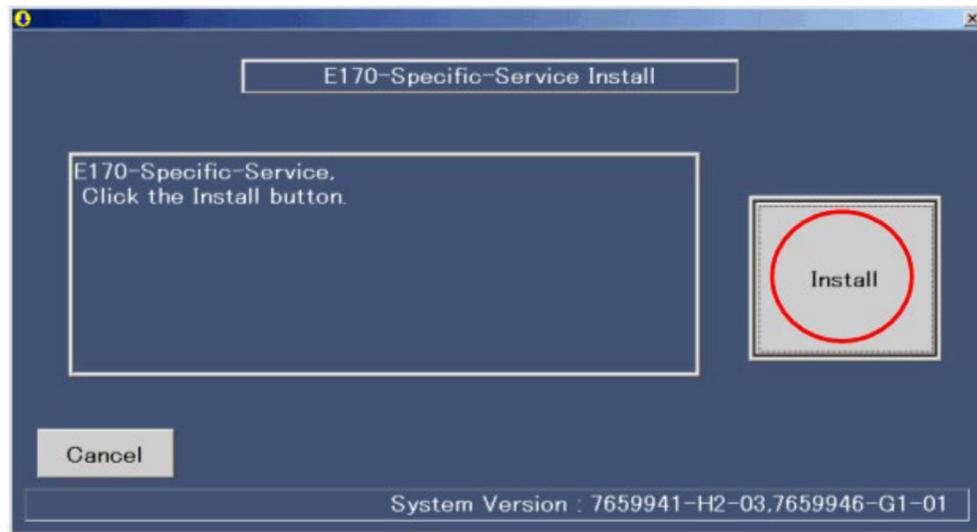
C:\NewGen\PC\PROG\Exec.exe。

因此，如果在个人笔记本电脑上同时安装Cobas 6000和4000的SSW维修软件，需要将其中一个的安装盘符或文件夹进行修改，不然无法安装成功。

但是安装在CU控制电脑中时，只有一个C盘可用。但在CU控制电脑上不可能也没有必要安装其它系统的SSW维修软件。

## Modular/7600

Modular/7600的SSW维修软件与c6000几乎相同。

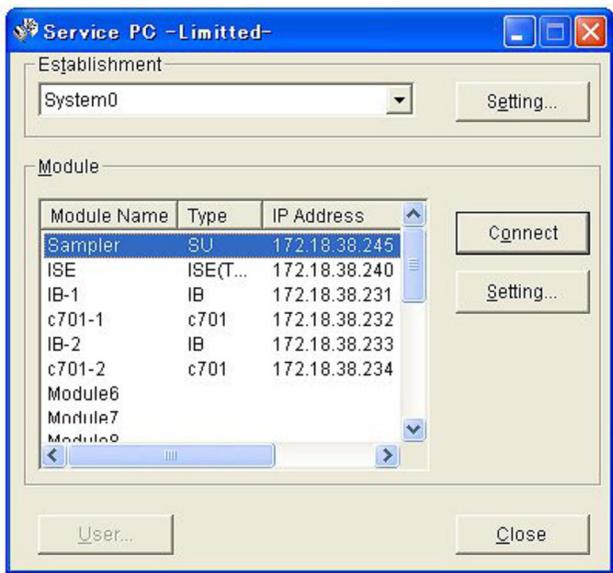
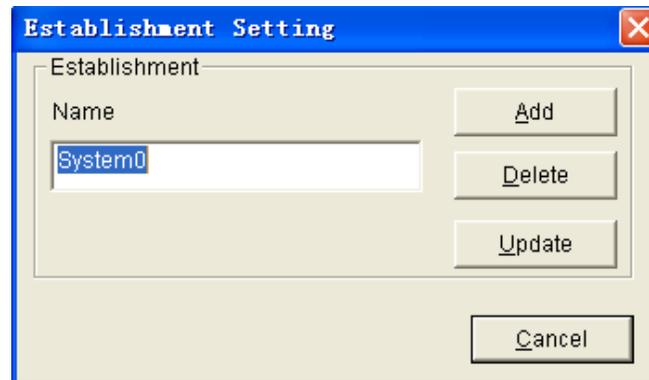


### 1.3 SSW的配置与使用

从桌面图标或导航到文件夹启动SSW软件，会出现登录界面。



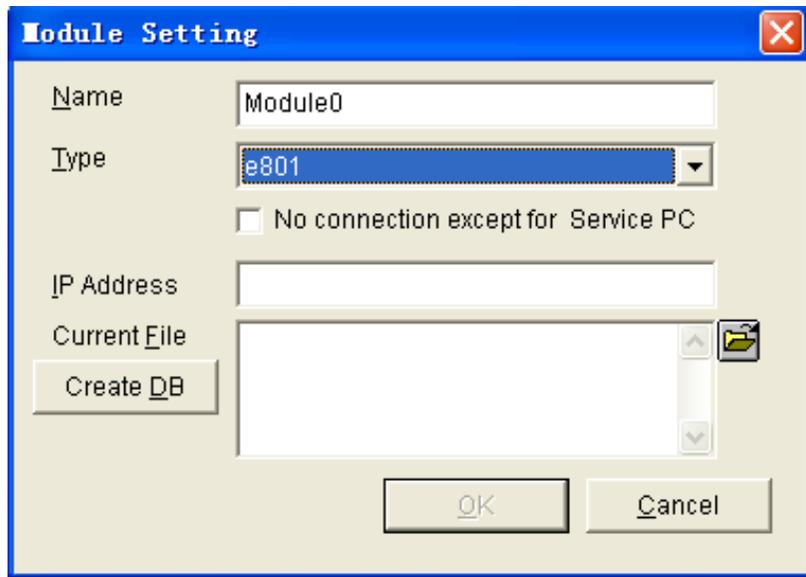
Establishment 机构：可以是实验室名称缩写或医疗机构缩写。最多可以建立十个机构。



Module 模块：每个系统最多可以挂接20个模块，按照Module0-19排列。必须为每个模块进行设置才能使用。

每个模块必须设置类型和IP地址，否则无法Connect连接。

模块顺序按照系统安装的顺序排列。

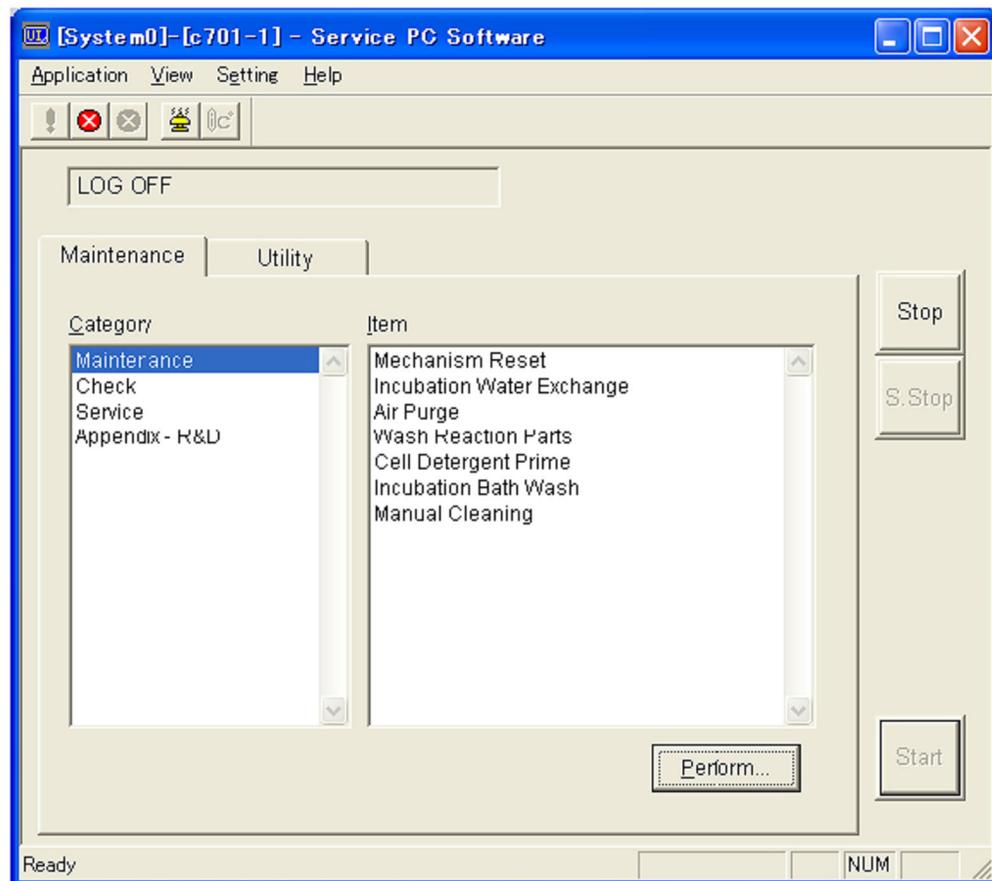


选择一个模块，点击Connect连接，进入Service PC Software界面。

No Connection except for Service PC Check如果勾选，表示只能用Service PC进行连接。

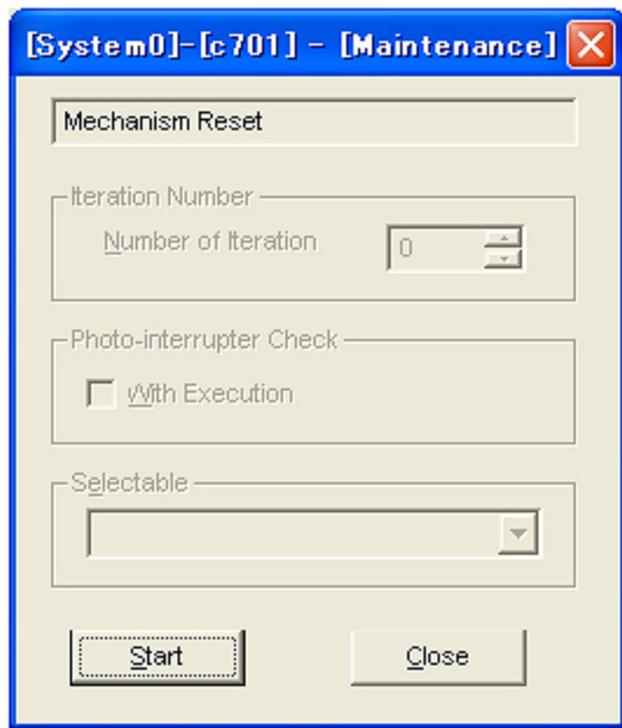
Create DB: 创建当前文件和数据文件。

Service PC将模块中的大多数数据输出存储在数据文件中。输入模块的必要数据也存储在数据文件中。一个模块的必要数据文件列表称为当前文件。在将Service PC连接到任何模块之前，需要为每个模块创建一个当前文件和所需的多个数据文件。必须在SSW中为每个要连接的模块创建当前文件和数据文件。

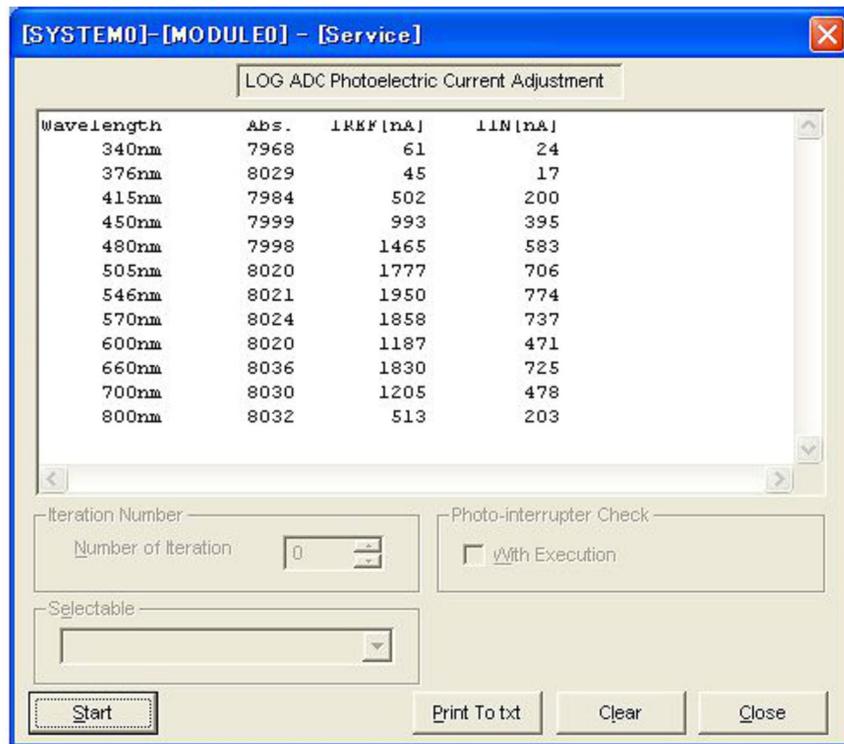


## Maintenance 选项卡

选择需要执行的维修项目，点击Perform执行。



有些项目执行完毕后，会出现执行结果屏幕。



可以选择执行次数和是否进行光电传感器检查。

可以监测当前模块的报警

Module1 - Alarm Monitor

Code	Sequ...	Level	Name	Sub Code	Date(yy...	Time
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:49:02
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:48:57
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:48:51
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:48:46
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:48:41
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	19:48:37
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	15:00:23
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	15:00:18
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	15:00:13
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	15:00:08
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	15:00:03
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	14:59:58
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	14:59:52
018-001	101	1	Abnormal Reagent Disk Movement	7	00/01/02	14:59:47

Description and Remedy

Description:  
Reagent Disk did not leave the home position during a reset.

Remedy:

Clear Close

传感器检测

[System0]-[Module0] - [Check]

Sensor Monitor

Mechanical unit list

- R1.Sampling A(R1)
- R1.Sampling A(R2)
- R2/3.Sampling A(R1)
- R2/3.Sampling A(R2)
- R1.Sampling A(Z)
- R1.Sampling B(R1)
- R2/3.Sampling A(Z)
- R2/3.Sampling B(R1)
- R1.Sampling B(R2)
- R1.Sampling B(Z)
- R2/3.Sampling B(R2)
- R2/3.Sampling B(Z)
- Reagent Disk A
- Reagent Disk B
- S.Sampling A(R)
- S.Sampling A(X)
- S.Sampling A(R)

Start... Close

[System0]-[Module0] - [Check]

Sensor Monitor

R1.Sampling A(R1)

Cell ON(Dark) -5 (cycle s) 0

Rest OFF(Bright) -5 (cycle s) 0

LLD Calib ON -5 (cycle s) 0

Connect Check 1-1 OFF -5 (cycle s) 0

Close

# 电机监测

Time	Motor(No.)	Event	Reason of ...	Pulse Steps	Remaining
14:15:00:190	Unloader 2...	TC1412	Pulse	3545	0
14:15:00:415	Shutter 1(...	TC612	Pulse	50	0
14:15:00:565	Shutter 1(...	TC613	Sensor(L16)	50	20
14:15:00:865	Loader Car...	TC204	Pulse	126	0
14:15:01:065	Loader Car...	TC205	Sensor(L16)	125	5001
14:15:01:215	Loader Le...	TC103	Pulse	50	0
14:15:01:315	Loader Le...	TC104	Sensor(L16)	50	2204
14:15:01:565	Loader Car...	TC404	Pulse	126	0
14:15:01:765	Loader Car...	TC405	Sensor(L16)	125	5001
14:15:01:915	Loader Le...	TC303	Pulse	50	0
14:15:02:015	Loader Le...	TC304	Sensor(L16)	50	2204
14:15:02:715	Shutter 1(...	TC607	Pulse	1574	0
14:15:05:190	Shutter 1(...	TC611	Sensor(L16)	1574	712
14:15:05:840	Shutter 1(...	TC607	Pulse	1574	0
14:15:08:315	Shutter 1(...	TC611	Sensor(L16)	1575	711
14:15:22:190	Unloader 2...	TC1412	Pulse	3545	0

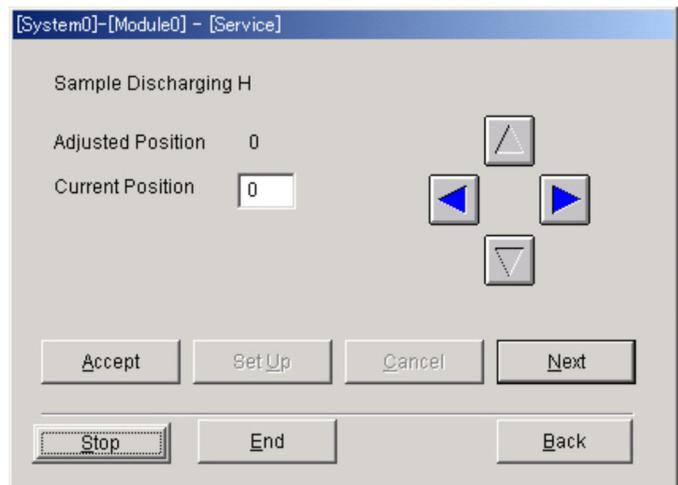
# 光电传感器检查

Unit	Sensor (No.)
Loader Lever 1	End Position Sensor(A1-D2)
Loader Lever 1	Home Position Sensor(A1-D1)
Loader Carriage 1	End Position Sensor(B1-D2)
Loader Carriage 1	Home Position Sensor(B1-D1)
Loader Lever 2	End Position Sensor(A2-D2)
Loader Lever 2	Home Position Sensor(A2-D1)
Loader Carriage 2	End Position Sensor(B2-D2)
Loader Carriage 2	Home Position Sensor(B2-D1)
Shutter 1	Shutter EP (Open) Sensor(O1-D2)
Shutter 1	Shutter HP (Close) Sensor(O1-D1)
Main Line	Home Position Sensor(C-D1)
Unloader 1-1	End Position Sensor(E1-D4)
Unloader 1-1	Main Line Position Sensor(E1-D3)
Unloader 1-1	Return Line/Tray Sensor(E1-D2)

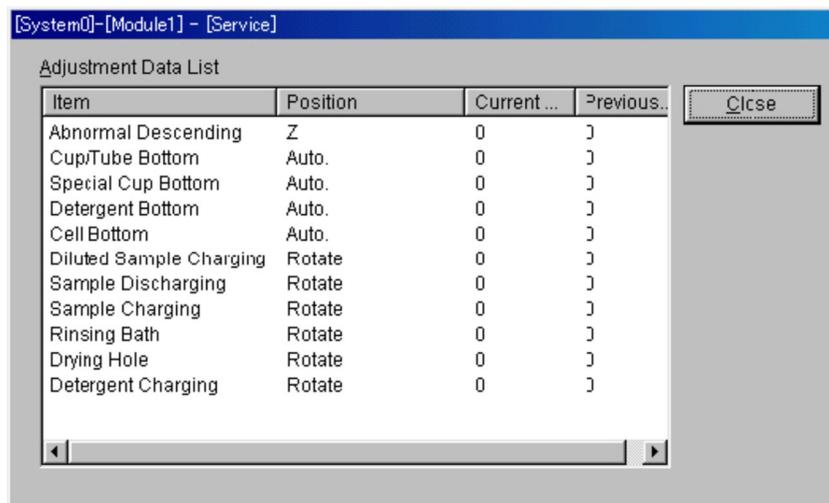
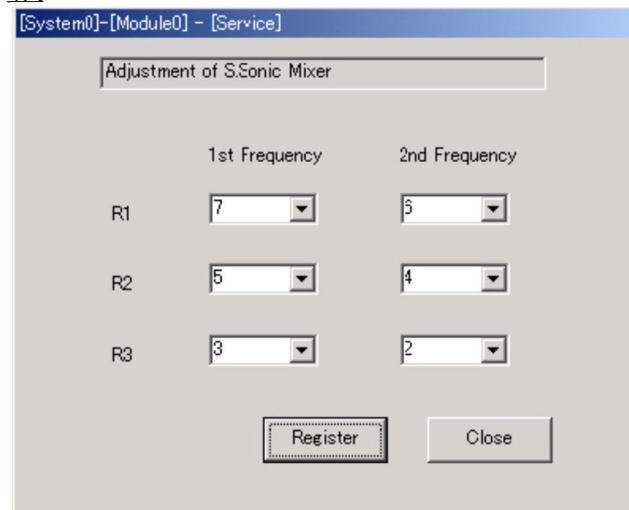
# 条码阅读器检查

Time	Barcode
14:59:58	1:300148:95*
15:00:00	1:300148:96*
15:00:02	1:300148:95*
15:00:04	1:300148:98*
15:00:07	1:300148:98*
15:00:09	1:300148:98*
15:00:11	1:300148:99*
15:00:13	1:300148:96*
15:00:16	1:300148:97*
15:00:18	1:300148:100*
15:00:20	1:300148:98*
15:00:22	1:300148:98*
15:00:25	1:300148:99*
15:00:27	1:300148:97*

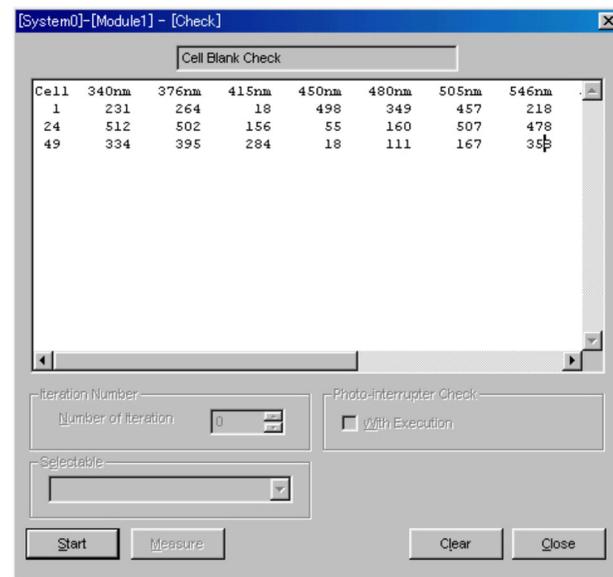
## 步进值检查调整



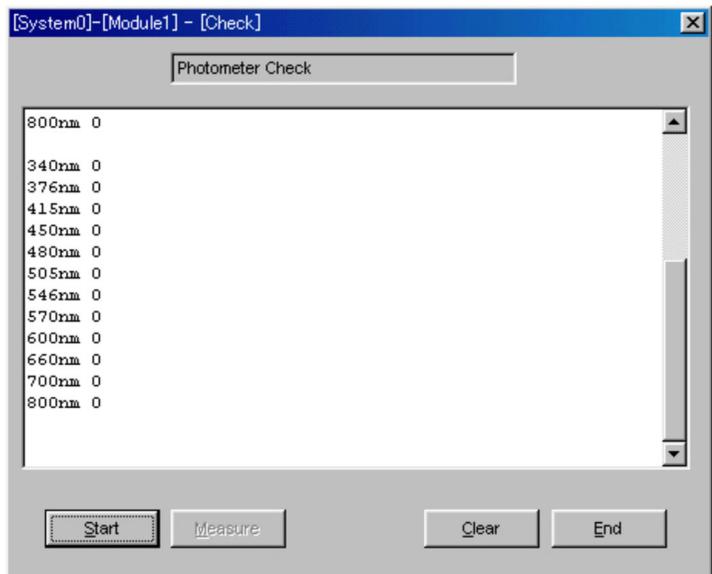
## 超声混匀调整



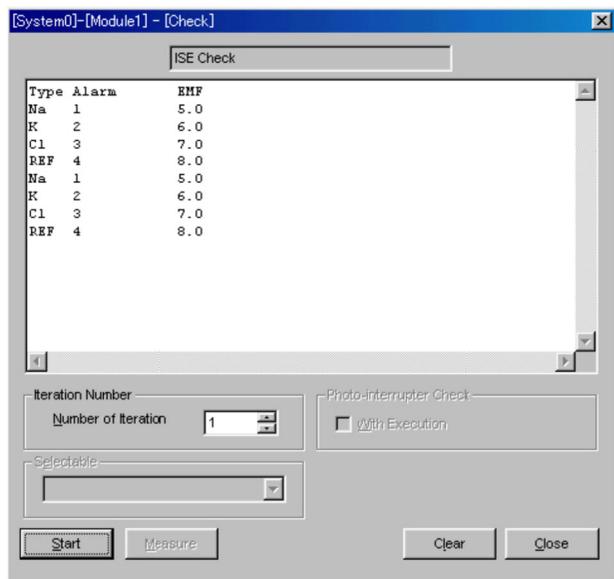
## 杯空白



## 光度计检查

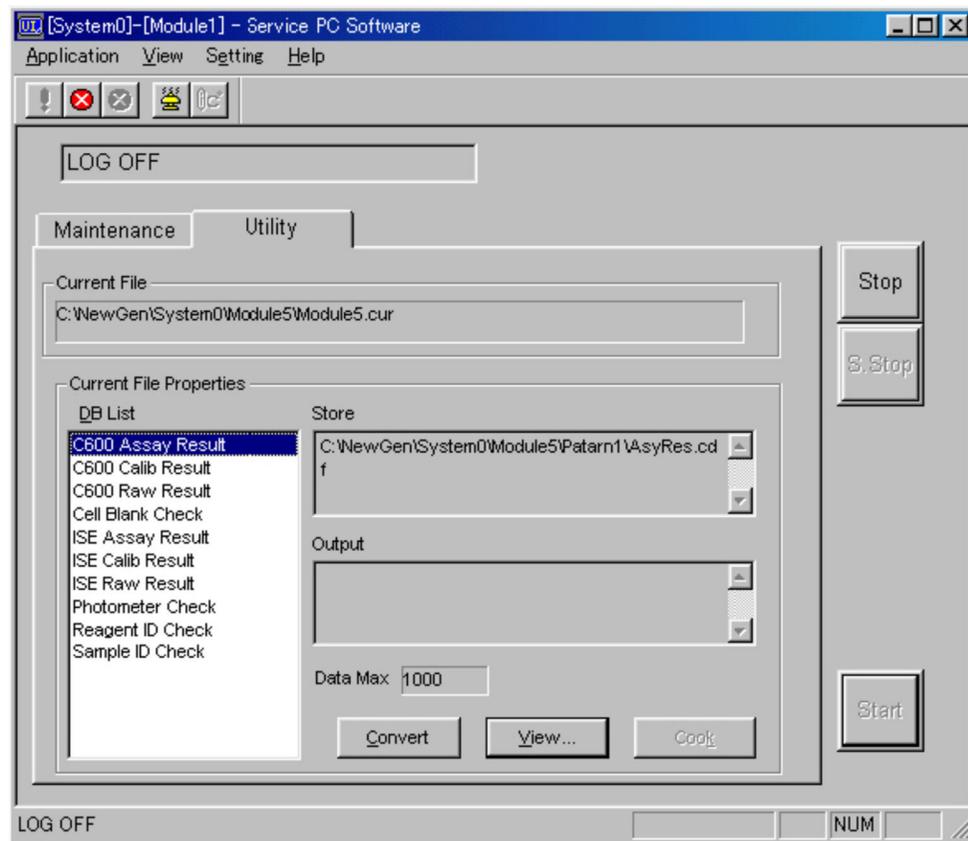


## ISE检查



## Utility 使用程序选项卡

执行部分程序，将SSW维修软件的数据文件（二进制）转换为文本并显示。



## 同步模块到SSW维修软件

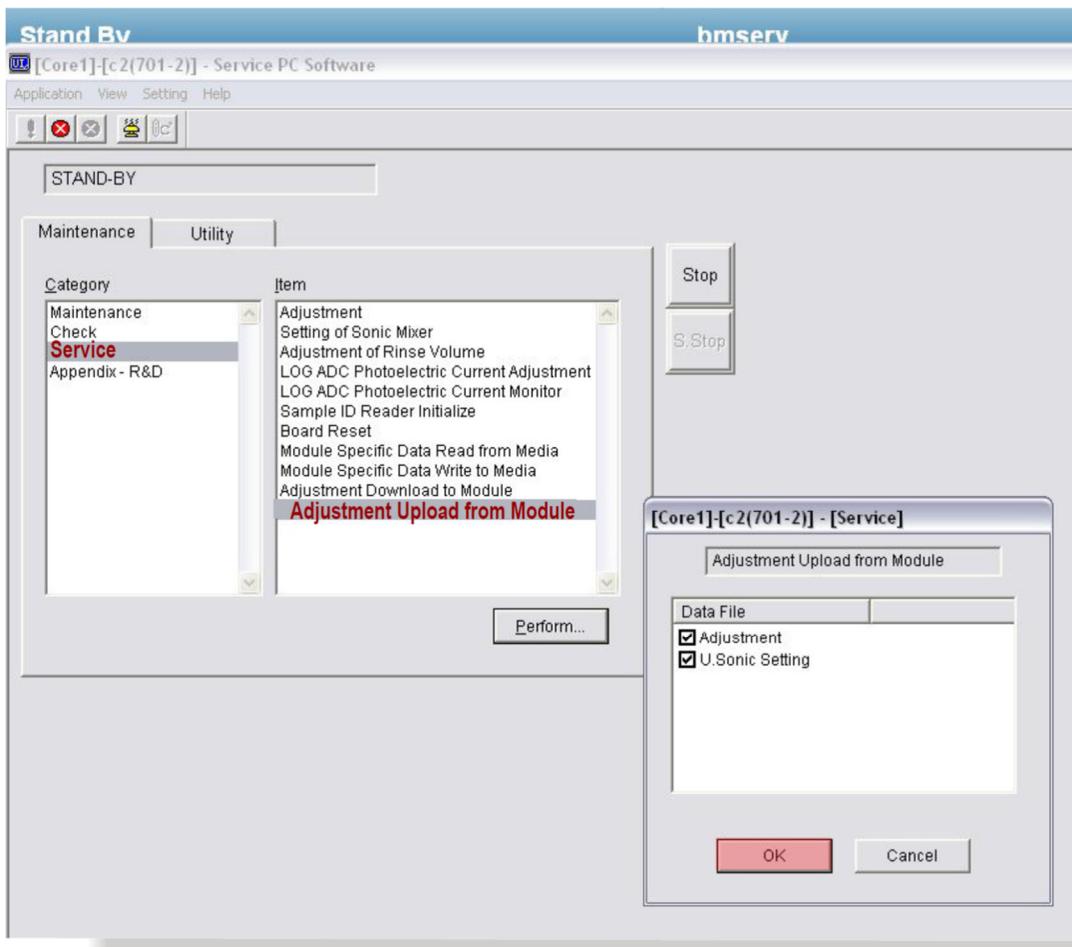
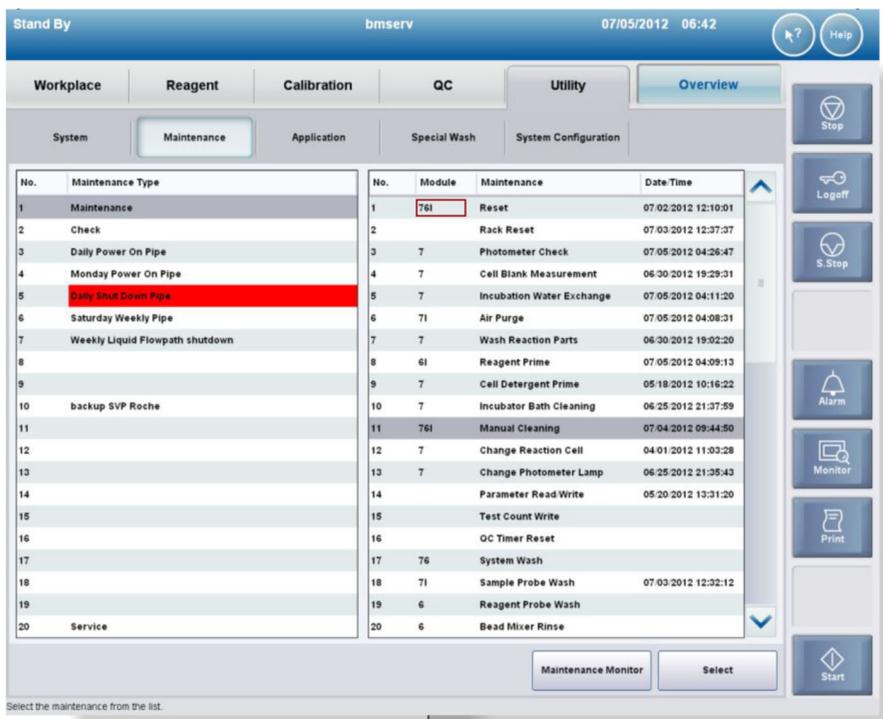
使用SSW维修软件连接模块后，在调整之前，首先要读取模块当前的调整脉冲设置。

在控制电脑Utility-Maintenance中执行Reset重置。

或者

SSW软件中，Maintenance选项卡-Service-Adjustment Upload from Module-Perform。

每连接一个模块都要执行。



## 2 维修工具

Level  
2806 2994 001



Pin Extraction 1  
1180 7625 001



Gently bend tab up to release pin

Pin Extraction 2  
1180 7617 001



Insert the tips into **red areas** and press down to release pin

Pin Extraction 3  
1180 7609 001



Small diameter 2 mm

Flaring Kit  
2800 1480 001



Interlock Tool  
0490 4672 001



ByPass Jumper  
0582 8252 001  
0784 4654 001



Tool Kit  
0648 3984 001



HITACHI Long Handled Phillips  
1180 5142 001



Dummy Tip  
0305 5264 001



Dummy Vessel  
0305 5256 001



60mm Caster Wrench  
0552 4318 001



24mm Wrench  
0584 6471 001



常规工具  
润滑脂  
拔针  
脚轮扳手  
互锁工具  
旁路跳线  
聚四氟乙烯管道  
扩口工具

Triflow Oil  
0467 9440 001



Grease  
0554 9884 001



Syringe Grease  
0555 0661 001



AFC Grease  
0555 0688 001



常用的软件工具：

SSW软件：Service PC；

Acronis Media Roche 2010/2014/2015：光盘启动的硬盘备份还原工具；

DB\_Cleanup：清除数据库冗余工具；

pcAnywhere：远程管理软件；

Hyper Terminal超级终端：连接与控制各模块ECPU板，发布相应的指令；

Telnet：远程连接软件，连接各模块，发布指令。

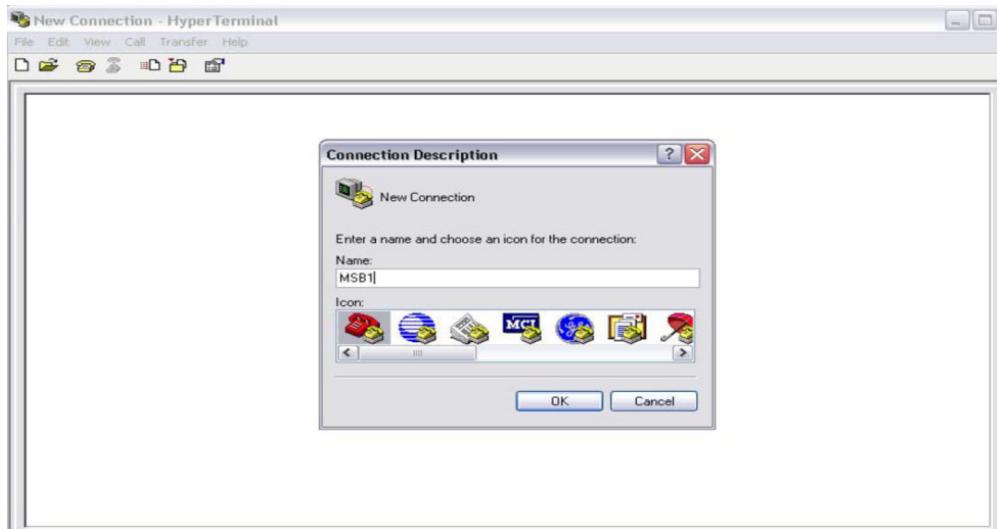
超级终端和Telnet的功能类似，二者用其一也可。

Telnet直接在开始-运行中输入

“telnet 172.18.38.XXX”，稍事等候就会出现黑色dos窗口，显示“[vrt-550]”即为联机成功，这时可输入相应的指令回车后模块就会执行。

超级终端稍微复杂，但可以保存窗口。

开始-运行中输入hypertrm，回车后启动超级终端，先输入这次对话的名称，然后输入对方的IP地址和端口（默认是23），以及连接协议（默认是TCP/IP）；出现“[vrt-550]>”时，表示联机成功，这时可以输入命令。



### 3 维修工装

#### 3.1 Cobas Pro

### Sample Arms

**791-1830**  
Cuvette Horizontal  
Centre **Sample Probes** over Cuvettes

**792-6427**  
Height of Sample Tubes  
Vertical (Z)  
Flip  
Centre on Sample Probe  
Horizontal  
Adjust **Sample Probe Height and Centre** (at Sample Position)

### Reagent Arms

**791-1831**  
Flip  
Centre over cuvettes

**792-1226**  
Centre over Reagent Packs

**792-6449**  
Bottle Plate C  
Cassette Bottom



### Ultrasonic Mixers

Radial position of **USMs**  
**792-6420**

Jig 1  
**727-9941**  
Height of **USMs**

Jig 2  
**727-9942**  
Height of **USMs**

### Wash Volume

Consumption of NaOH and Acid  
**792-9022**

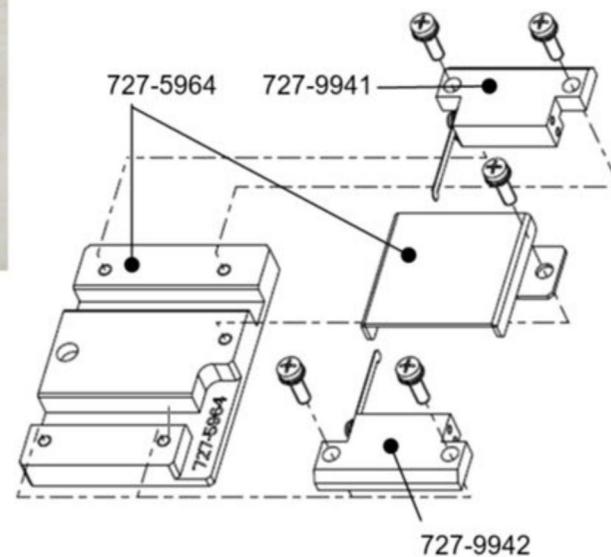
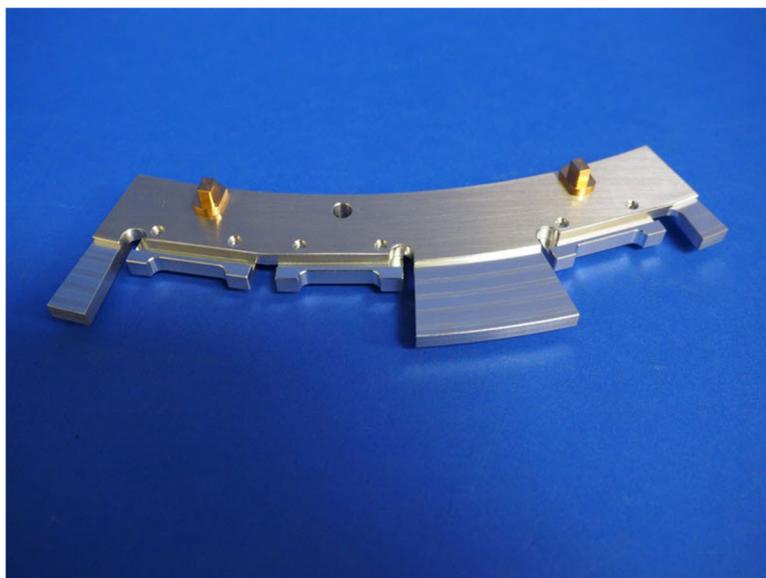
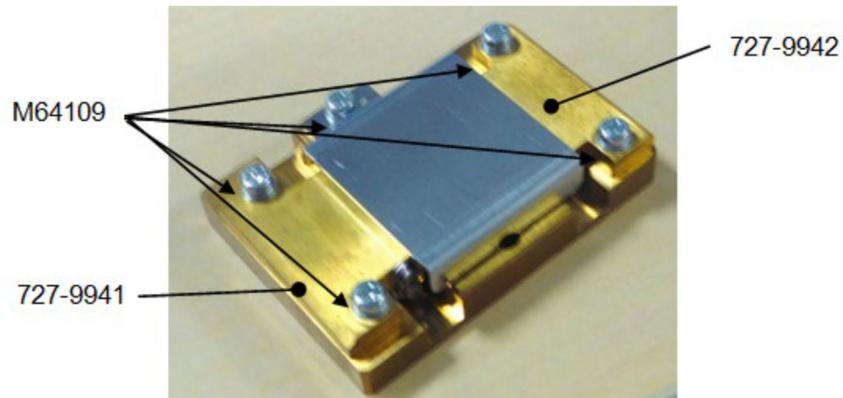
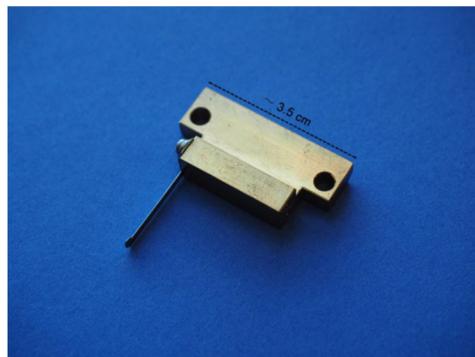
### Gripper

**792-6455**  
Jig 1  
Angle & Horizontal position of **Gripper**

**792-6457** Jig 2  
Height of **Gripper**

**792-6456** Jig 3  
Angle & Horizontal position of **Gripper** (Gripper Exchange)

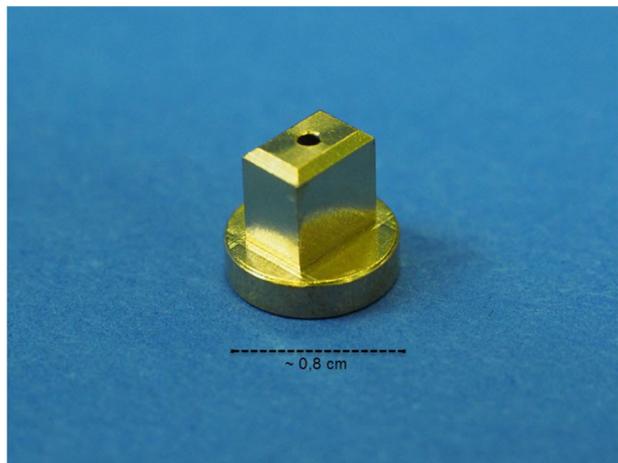
# 超声混匀器调整工装



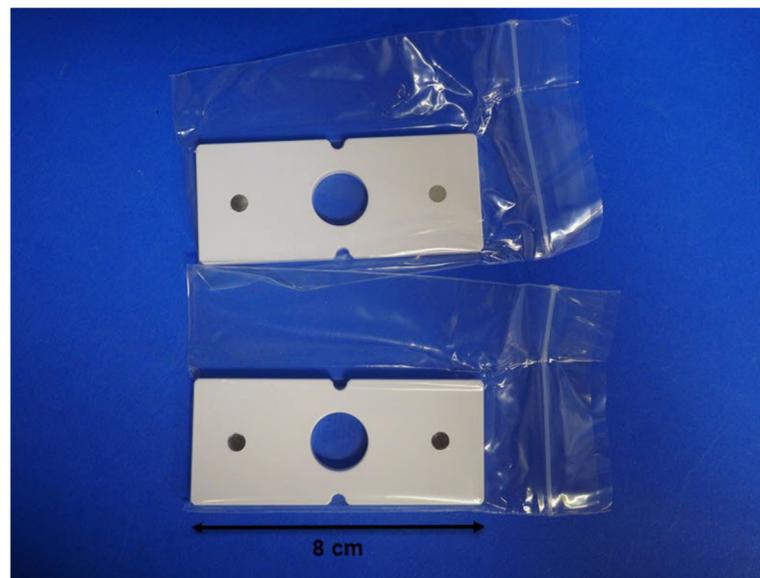
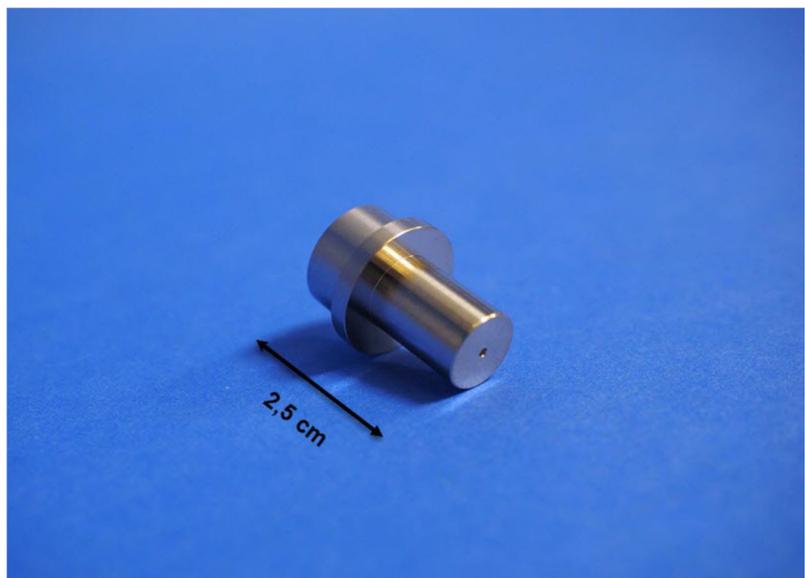
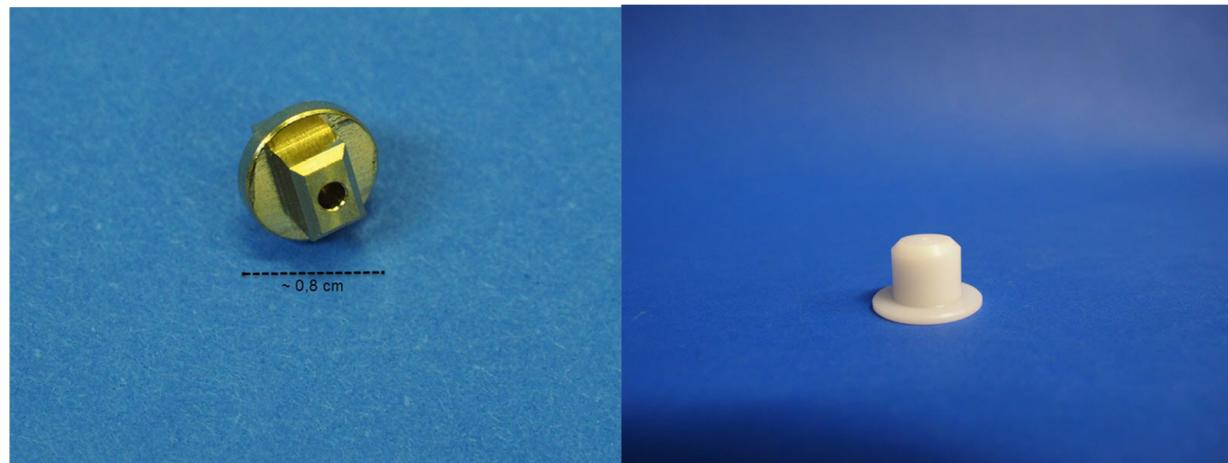
# 试剂盒抓手调整工装



样品针臂调整工装

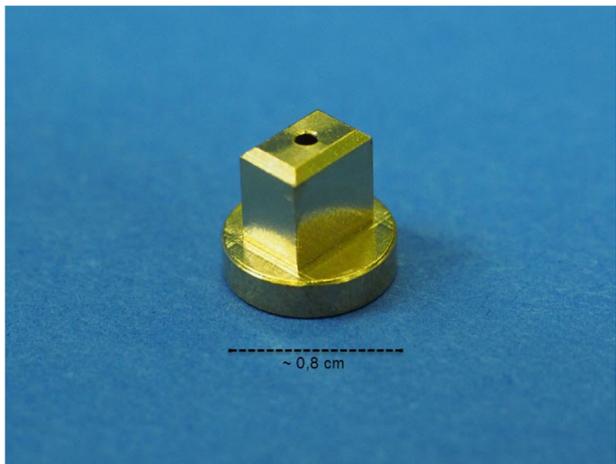


试剂针臂调整工装



### 3.2 Cobas c513

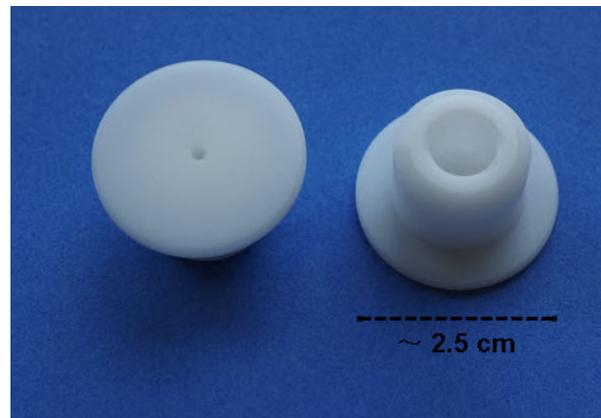
791-1830 样品针S1-反应杯中心调整工装



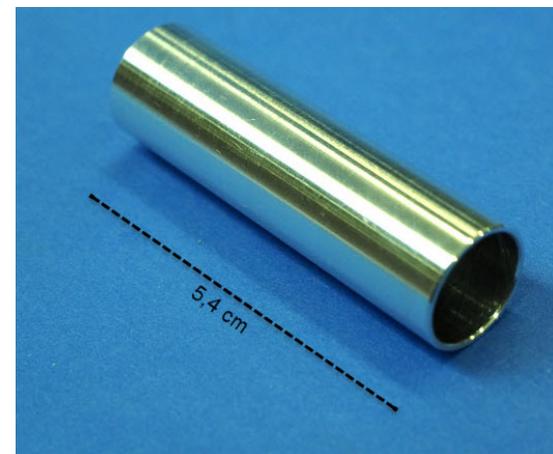
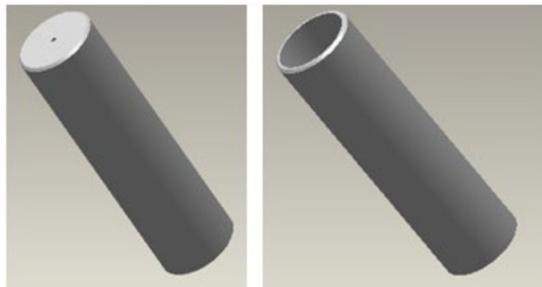
791-1831 试剂针R1/R3-反应杯中心调整工装



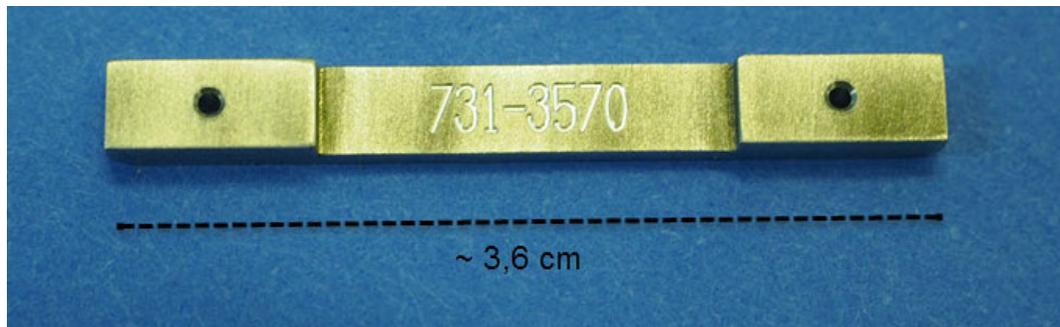
791-1832 试剂针R1/R3-试剂盒中心调整工装



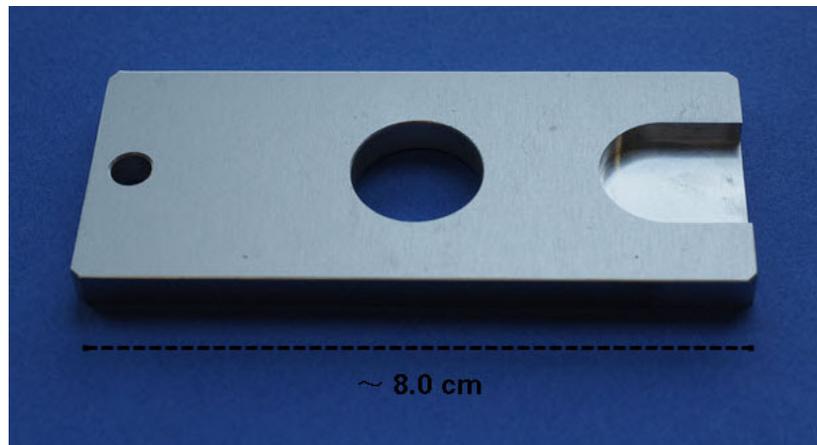
727-9643 样品针S1-样品吸取中心调整工装



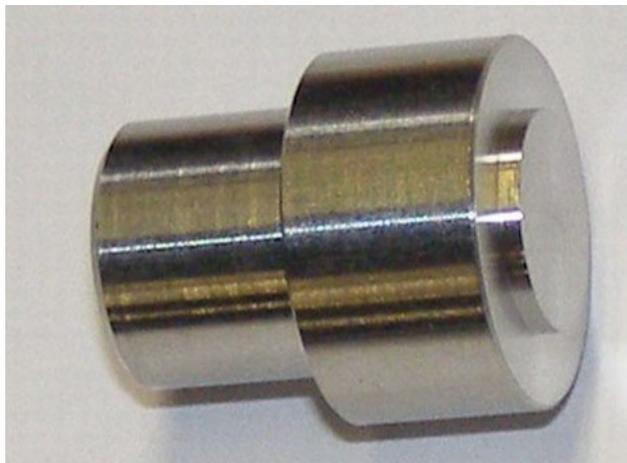
731-3570 试剂针-冲洗池高度调整工装



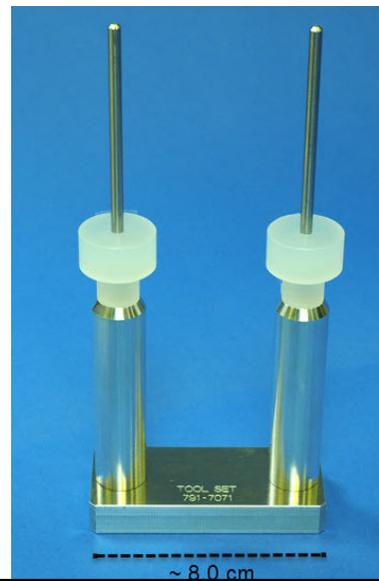
734-1441 试剂针-试剂盒底部高度调整工装



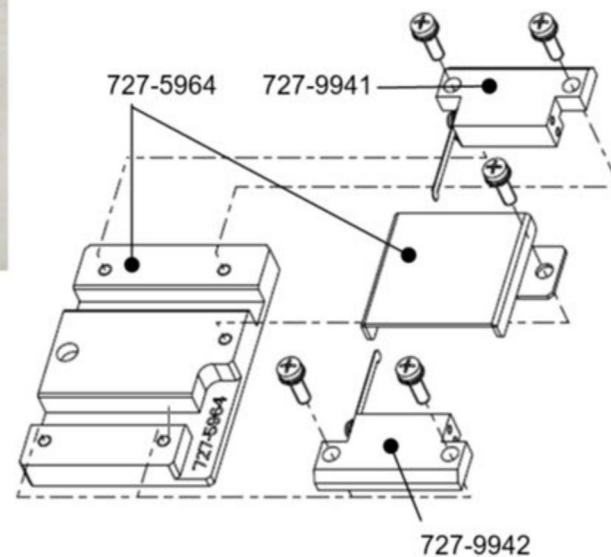
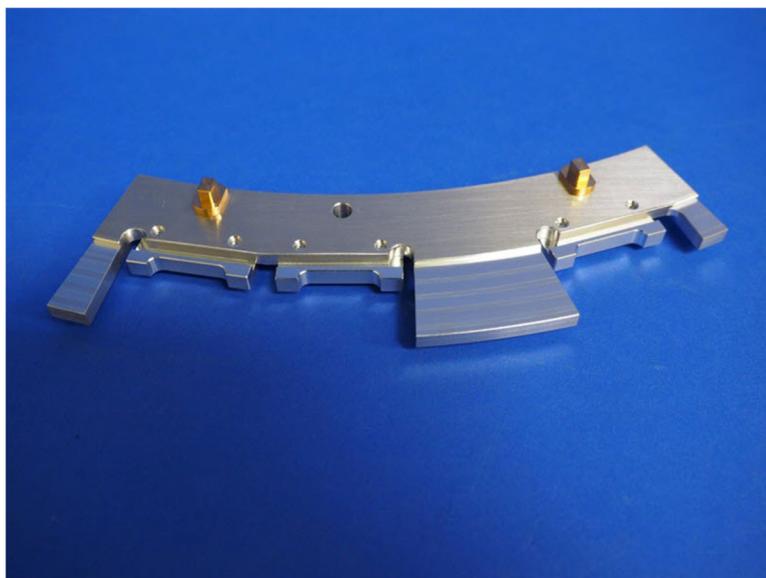
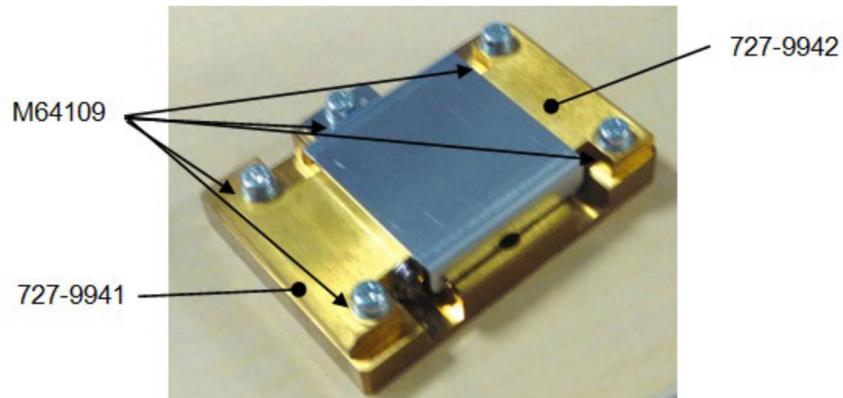
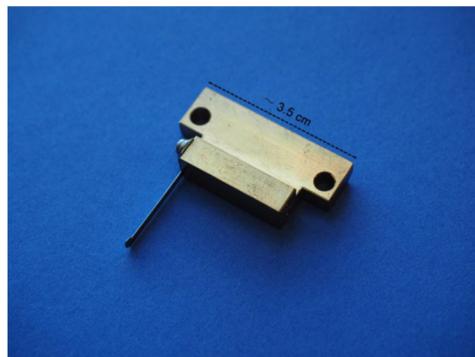
767-6720 样品针-试管高度调整工装



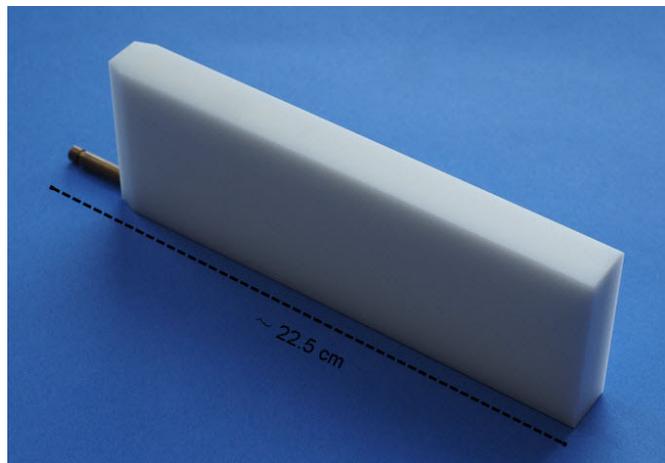
791-7071 试剂针-试剂盒吸取位置调整工装



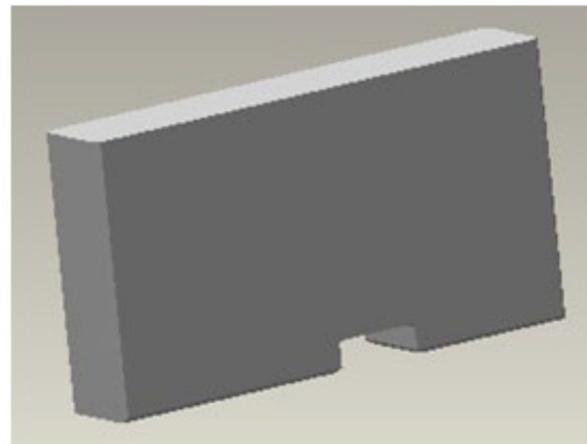
# 超声混匀器调整工装



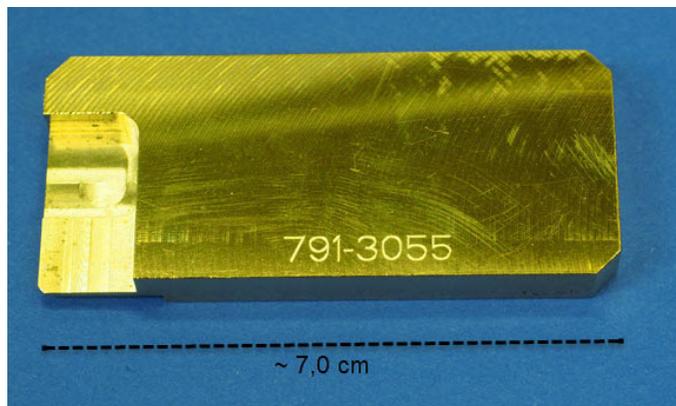
727-9636 样品盘样品架传送位置调整工装



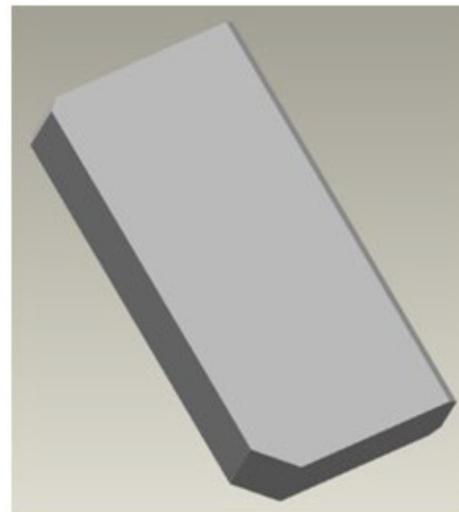
727-9624 进样器架供应臂给进调整工装



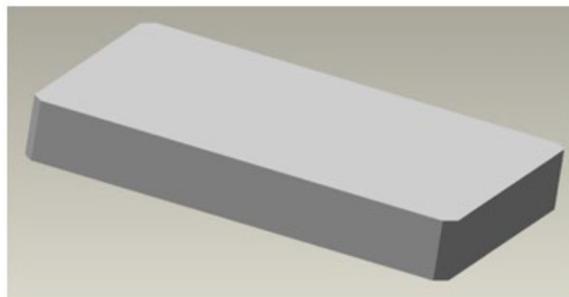
791-3055 进样器装载臂高度调整工装



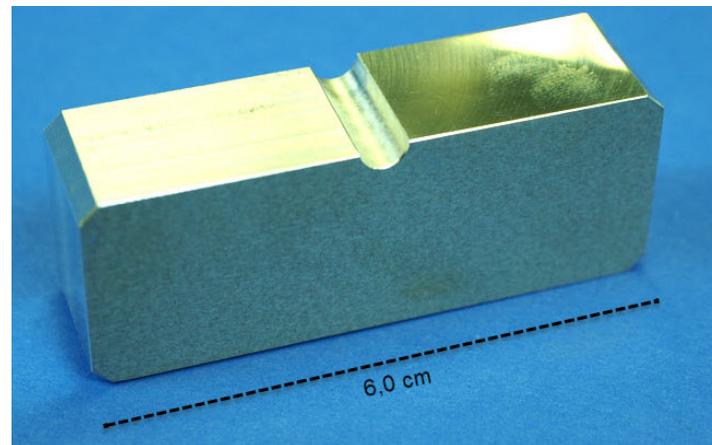
727-9484 进样器存储臂等待位置调整工装



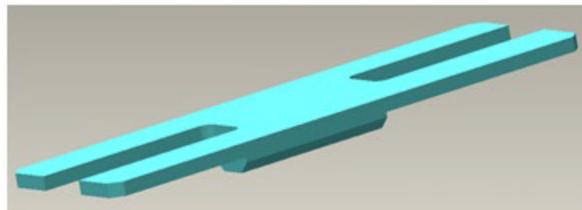
727-963 进样器存储臂送入完成位置调整工装



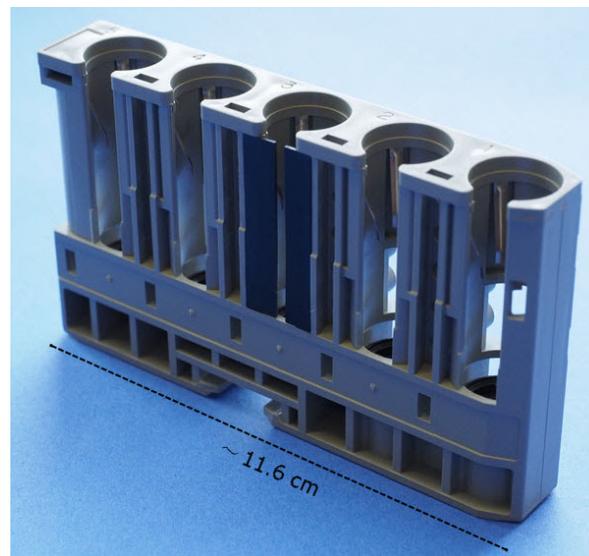
791-8293 试管光束传感器高度调整工装



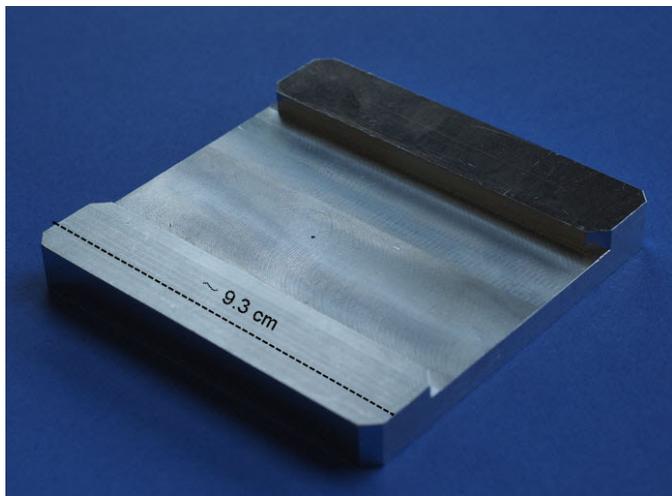
727-9629 进样器样品架托架调整工装



727-8145 条码阅读器调整工装



727-9250 传送和L轨宽度/高度调整工装



791-8569 样品针S2吸取位置中心调整工装



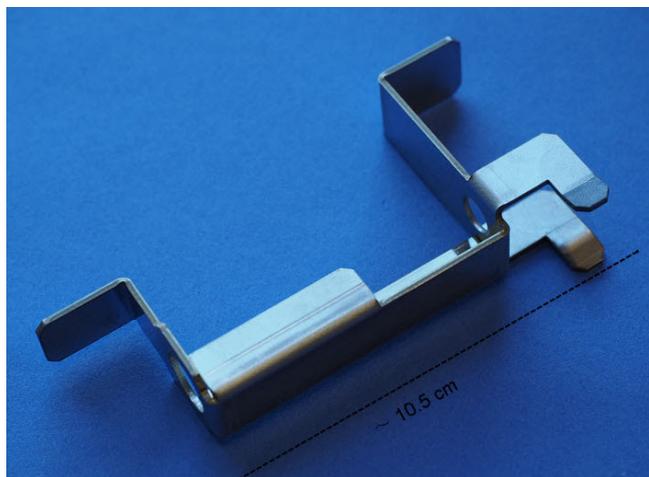
791-7430 冲洗池消耗量量筒



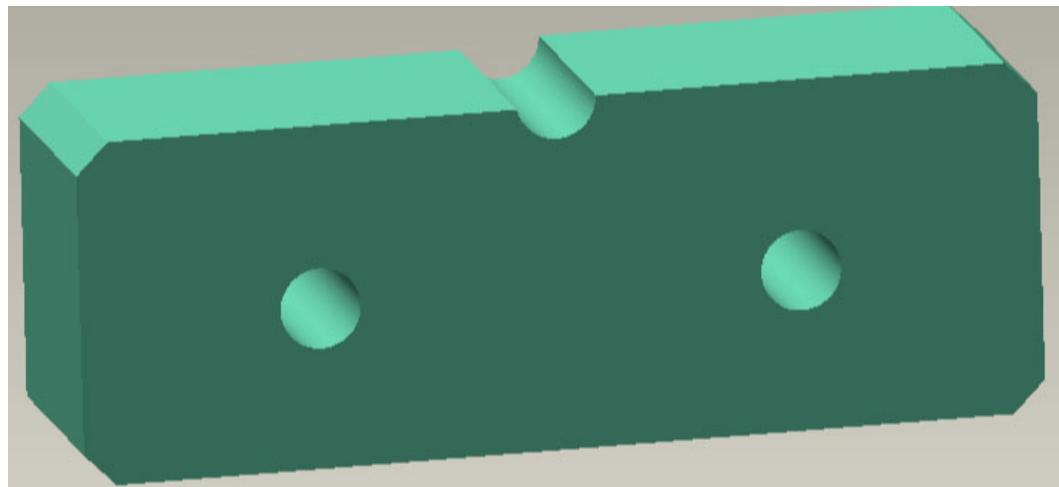
791-9181 样品针S2吸取位置中心调整工装



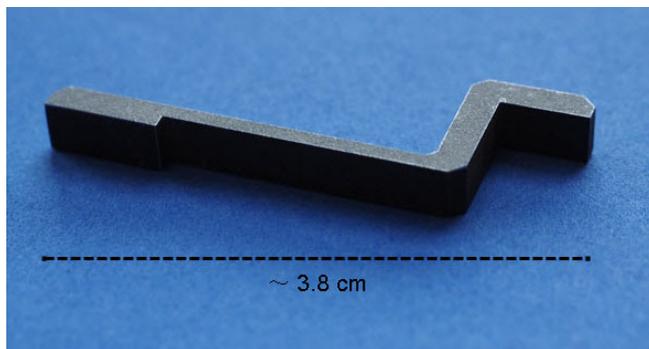
791-7217 样品针S2流量检查工装



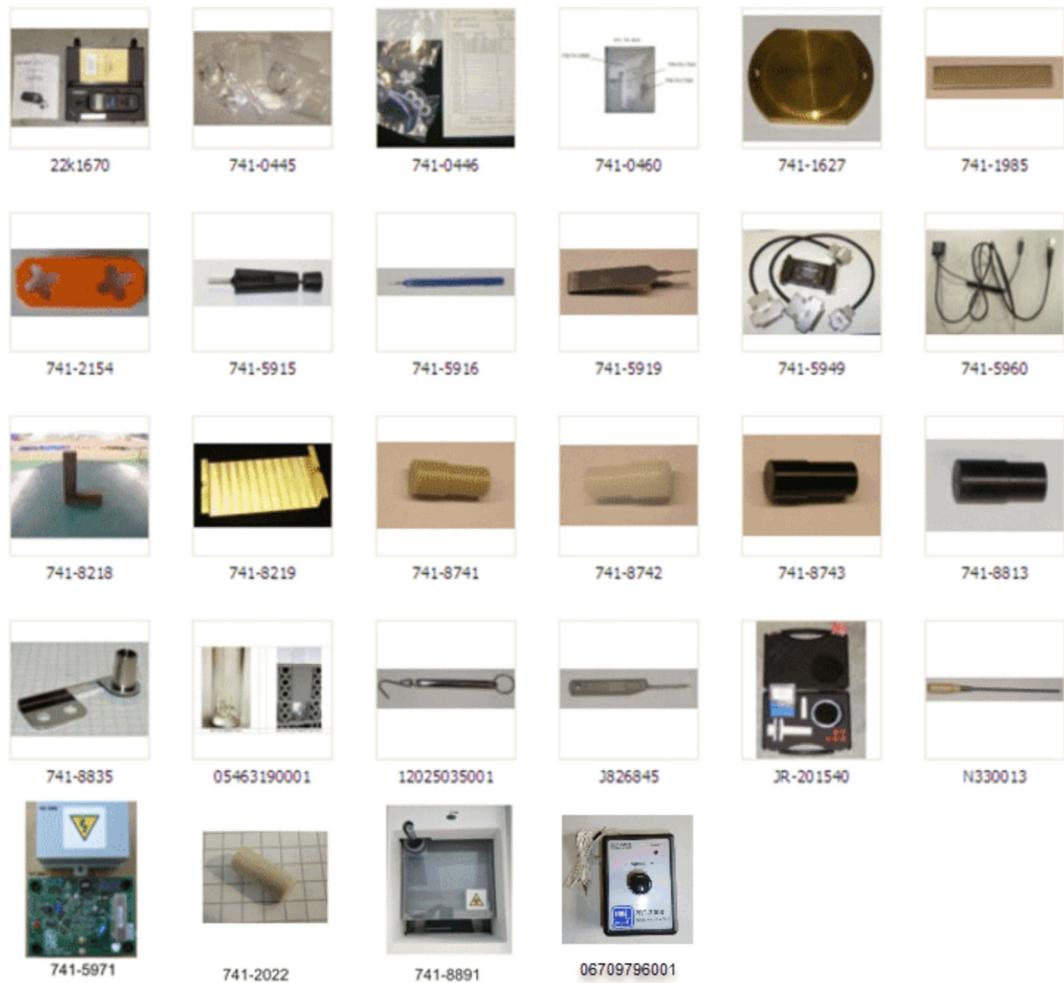
791-9500 带帽试管光束传感器高度调整工装



791-7218 试剂针R1冲洗池高度调整工装

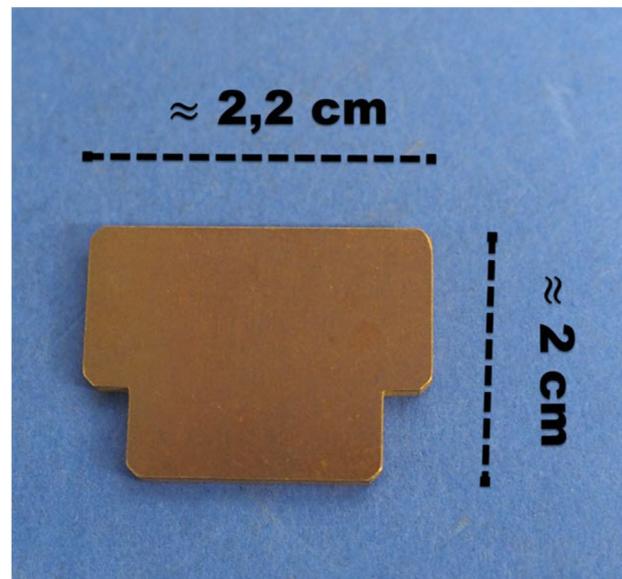


### 3.3 e411

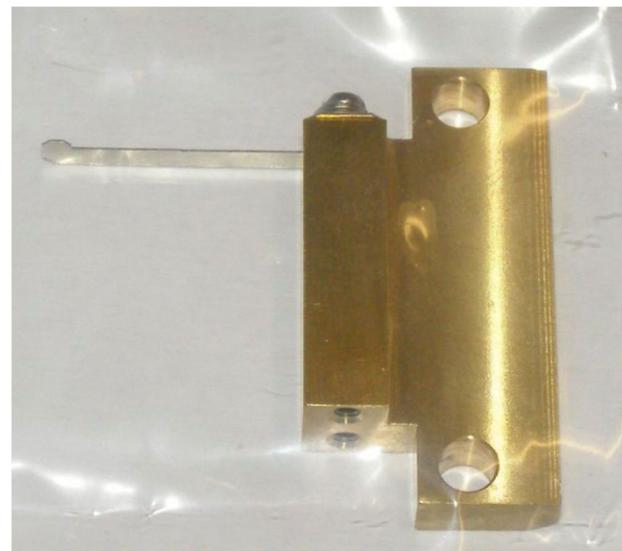


### 3.4 c311

#### 试剂盒穿孔调整工装



#### 超声混匀调整工装

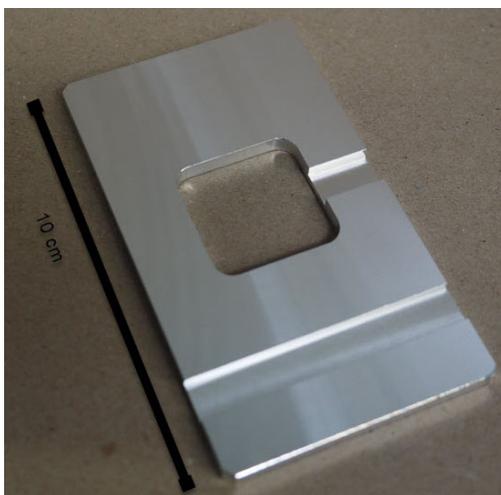


### 3.5 Cobs 8000

#### SU进样器传感器位置调整工装

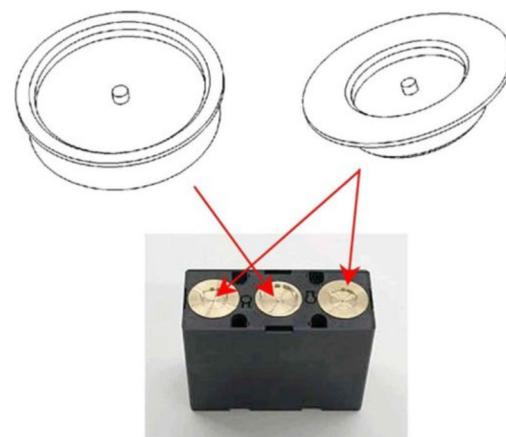


#### SU进样器装载臂调整工装

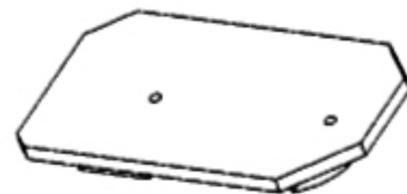


### c501/c502

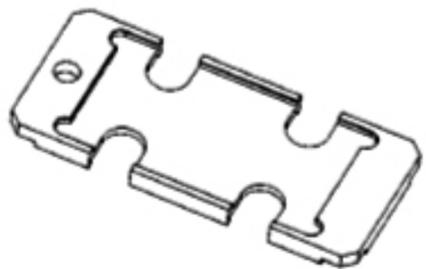
#### 727-9507/727-9508 试剂针-试剂盒吸取中心调整工装



#### 727-9527 样品针冲洗池/干燥孔中心位置/高度调整工装



727-9529 试剂盒抓手试剂盘位置调整工装



727-9309 试剂针冲洗池/干燥孔中心位置/高度调整工装



767-6720 样品针-试管底部高度调整工装



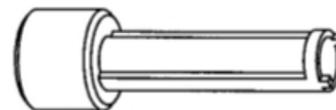
727-9941/727-9942 超声混匀调整工装



超声混匀水平调整工装



超声混匀调整工装



超声混匀R2调整工装



超声混匀反应杯板工装



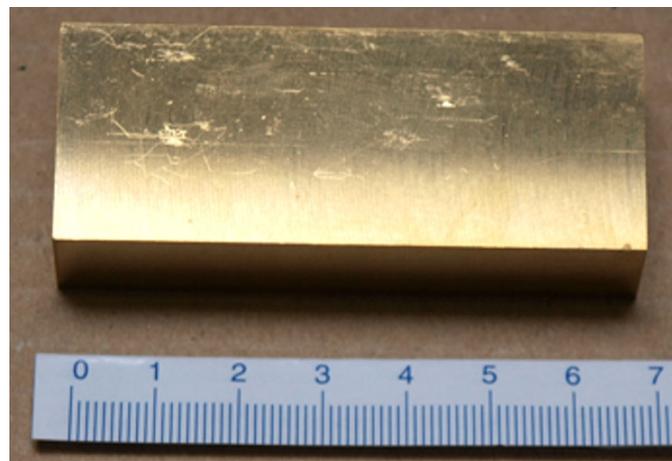
e601/e602  
虚拟反应杯



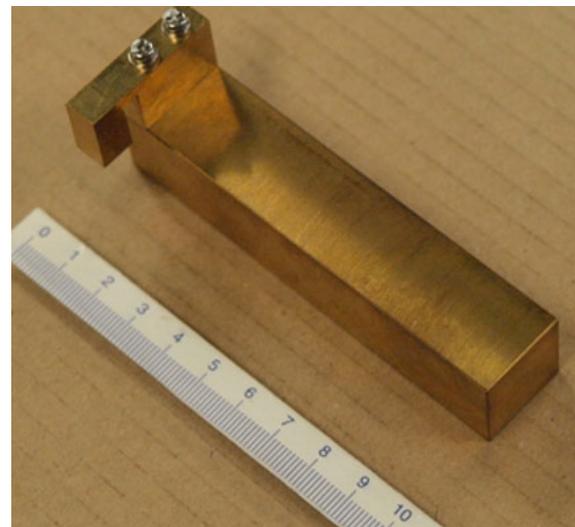
虚拟吸头



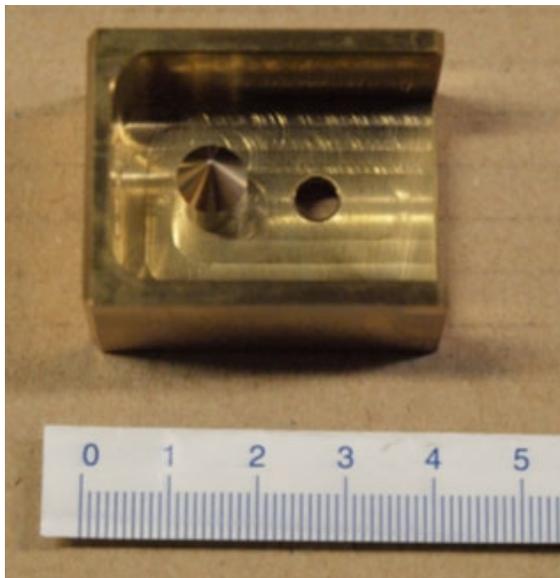
抓手调整工装



传感器调整工装



阻挡块工装



731-2633 反应盘滚筒轴承弹簧调整工装

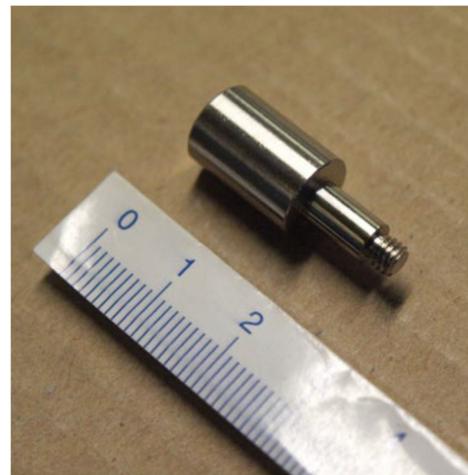


c701/c702

731-9386 反应盘定位工装



734-1465 齿轮销



734-3970 反应盘传感器调整工装



731-2320 超声混匀调整工装1



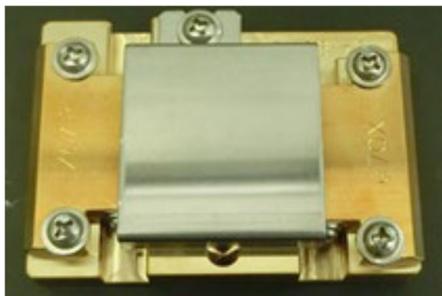
734-3996 弹簧推拉力计-反应盘调整工装



731-2321 超声混匀调整工装2



731-9943 超声混匀调整工装



731-3570 针调整工装1



731-2010 针调整工装1



767-6720 样品针高度调整工装



734-1441 试剂针高度调整工装



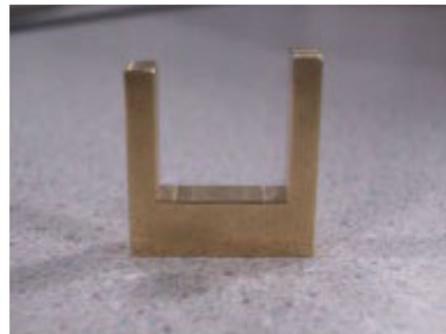
731-3589 试剂针冲洗水调整工装



734-1444 试剂盘调整工装B



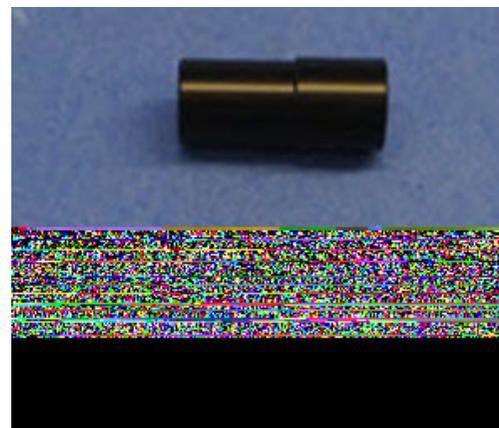
731-2961 反应槽水位检查工装



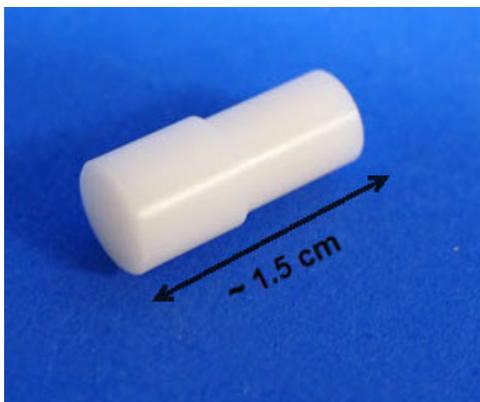
731-2677 试剂仓提取工具



05083737001 抓手调整工装3



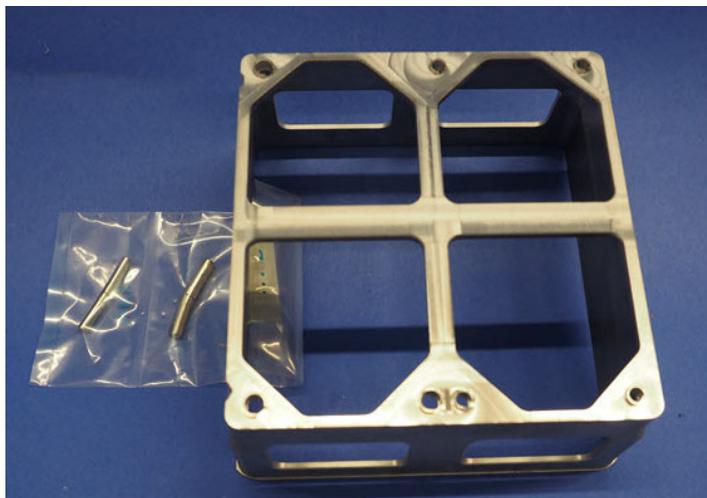
e801  
11802941001 抓手调整工装



03055256001 虚拟反应杯



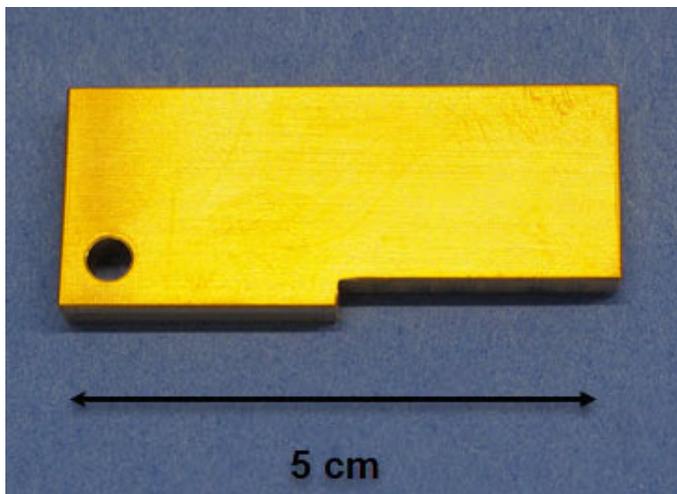
07798865001 物料调整工装



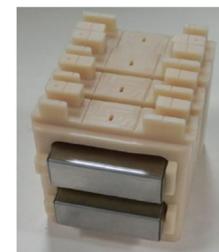
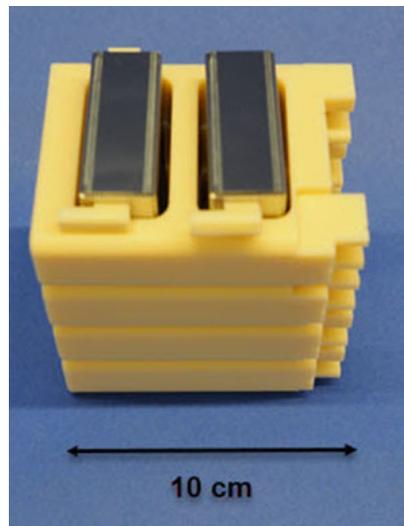
798-7466 A销/B销



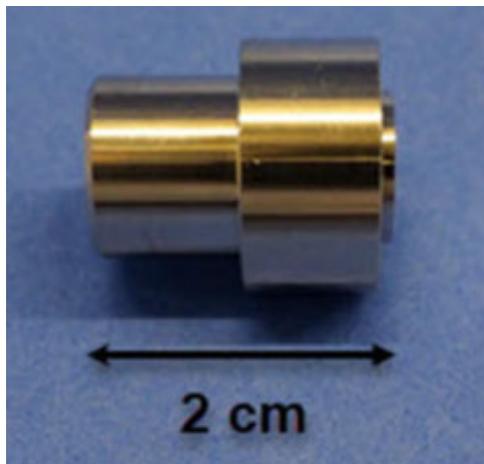
07791054001 BMRS磁珠和试剂针调整工装



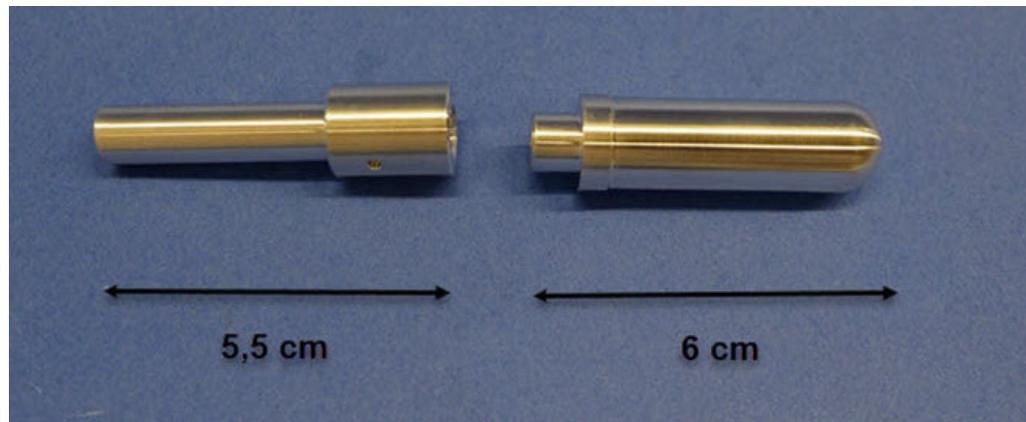
07791097001 试剂仓调整工装



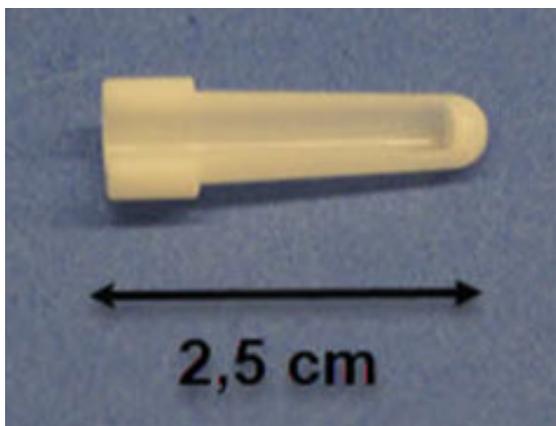
样品针底部高度调整工装



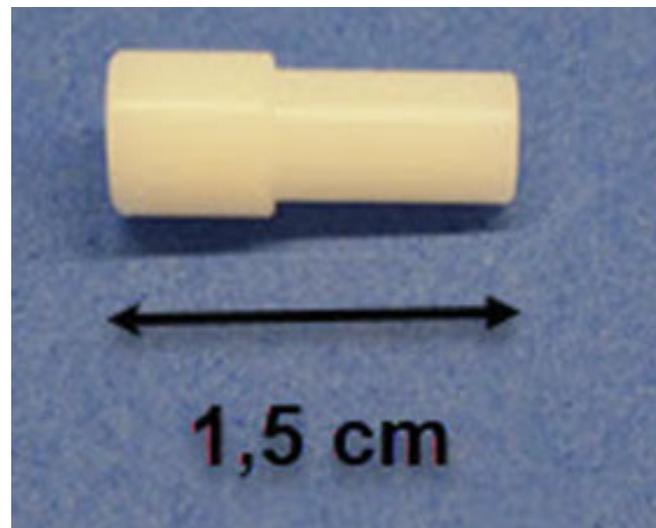
07798911001 样品针、抓手、相机调整工装



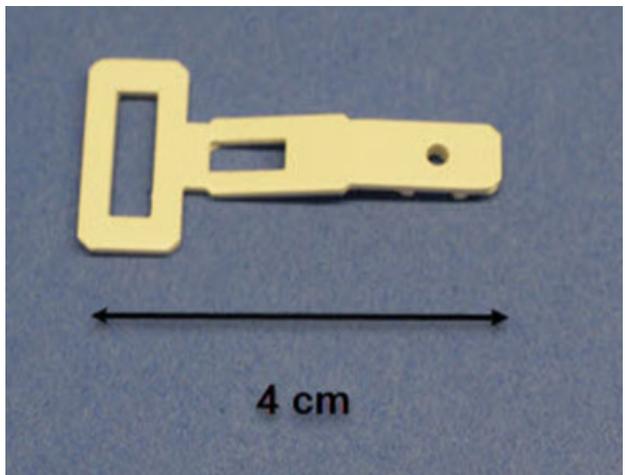
吸取针调整工装



07791046001 TV物料抓手和吸头缓存调整工装



07791119001 预洗洗取针调整工装



DU磁铁工装



## 4 保险

### 常用三种保险

#### P型黑色交流保险



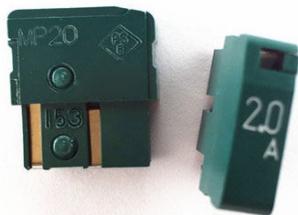
Rating	Model	Hitachi	non RoHS	Roche	Set of Fuses
0.1 A	P405	J821588		0122 9630 001	
1.3 A	P413H	J821590	1199 5642 001	0785 6750 001	0800 9848 001
3.0 A	P430H	J821592	1106 7800 001	0785 6768 001	0800 9830 001
5.0 A	P450H	J821594		1106 7818 001	0800 9821 001
7.5 A	P475H	J821595	1106 7826 001	0785 6776 001	0800 9813 001
10 A	P4100H	J821596	1106 7834 001	0785 6784 001	

## LM型透明直流保险



Rating	Model	Hitachi	non RoHS	Roche	(3each) non RoHS	(3each) Roche
0.5 A	LM 05	J821154	1180 3301 001	0451 9499 001		
1.0 A	LM 10	J821155		1156 6598 001		
2.0 A	LM 20	J821157		1107 2005 001		
3.2 A	LM 32	J821158	1107 2013 001	0785 6741 001	0350 2171 001	0784 7840 001
4.0 A	LM 40	J821162		0300 8100 001		
5.0A	LM 50	J821159		1156 6601 001	0350 2180 001	0784 7858 001

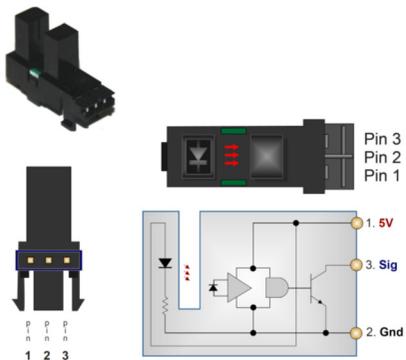
## MP型绿色直流保险 (e801)



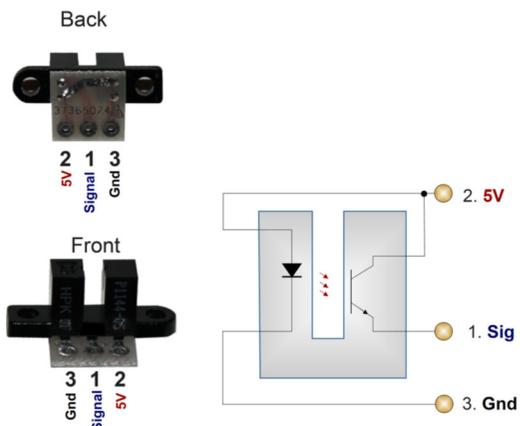
Rating	Model	Hitachi	Roche
1.0 A	MP10	798-9250	0800 9791 001
5.0 A	MP50	798-9251	0800 9805 001

## 5 传感器（部分）

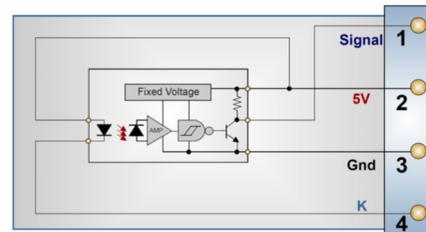
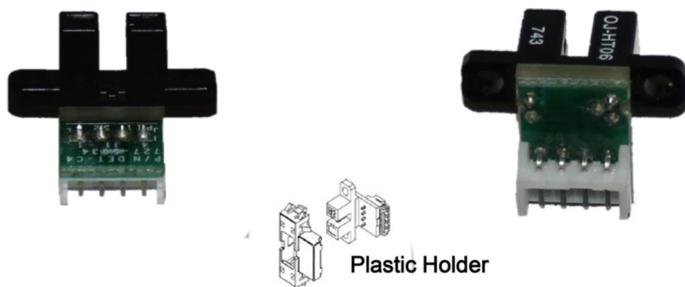
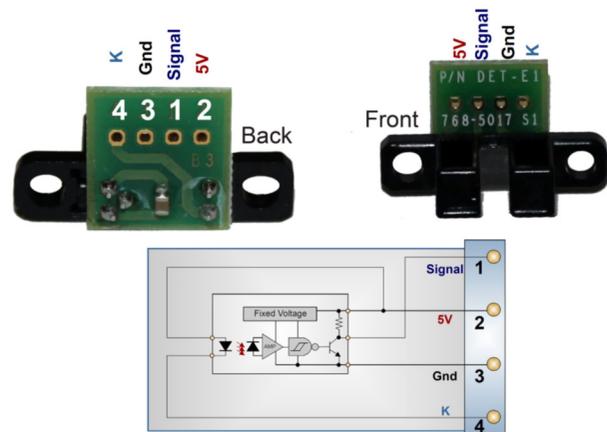
GP1A34LC/ OJ-HT08/KI2201-02槽型光电传感器  
 阻挡输出高电平5V，非阻挡输出0V低电平



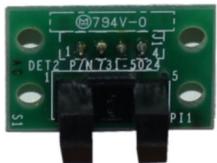
P1144/ P2140 槽型光电传感器  
 阻挡输出低电平0V，非阻挡输出5V高电平



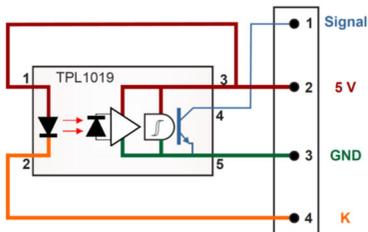
OJ-HT06/07/09 槽型光电传感器  
 阻挡输出高电平5V，非阻挡输出0V低电平



## 1033A 槽型光电传感器



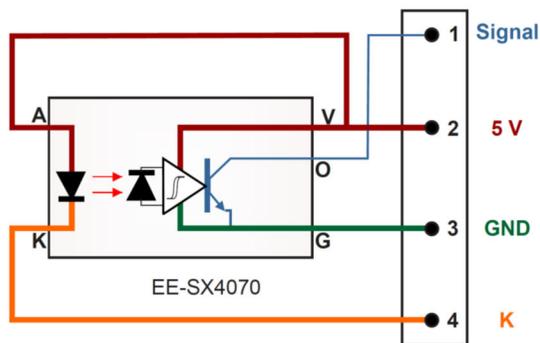
DET-C2



## EE-SX4070 槽型光电传感器

阻挡输出高电平5V，非阻挡输出低电平0V

DET-C3



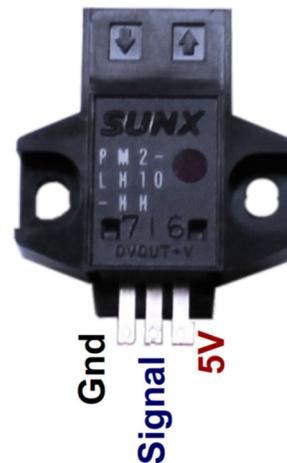
## PM2-LF10 前端光电自反射接近开关

阻挡输出低电平0V，非阻挡输出高电平5V

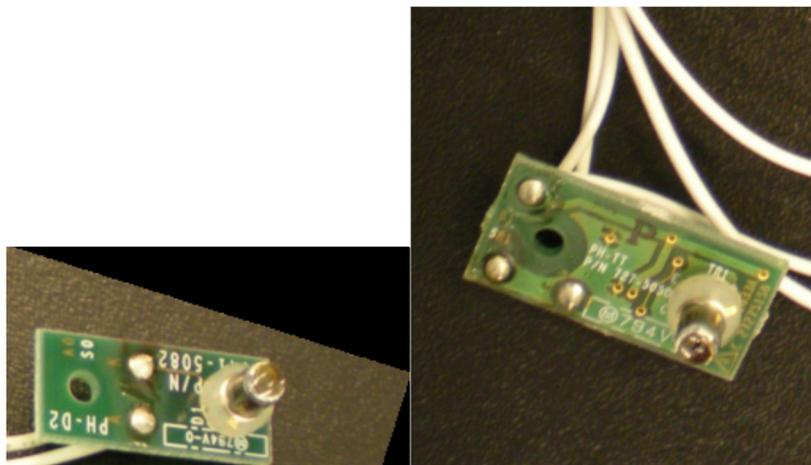


## PM2-LH10 顶端光电自反射接近开关

阻挡输出高电平5V，非阻挡输出低电平0V



## PH-D2 光束对射光电开关



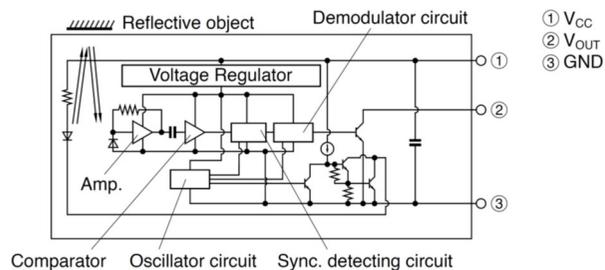
## EX-23 光束对射光电开关

阻挡输出低电平0V，非阻挡输出24V。  
发射端设为Min●，接收端设为D。



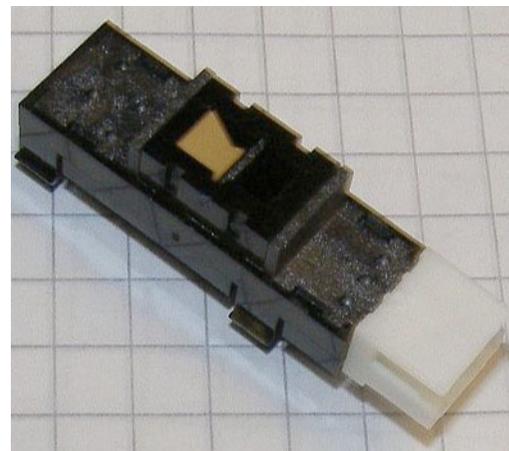
## GP2A28A 接近光电开关

阻挡输出低电平0V，非阻挡输出5V高电平。



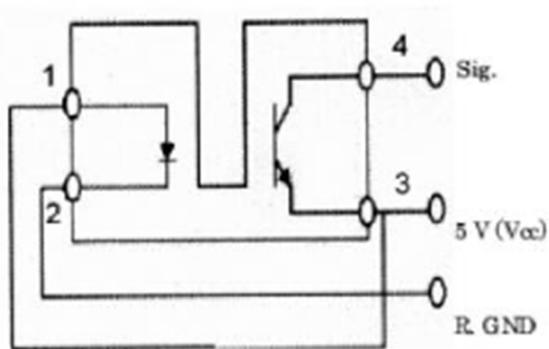
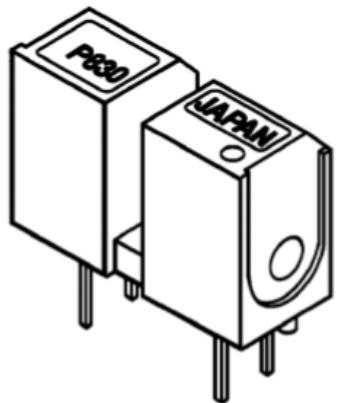
## GP2A200LCS0F接近光电开关

阻挡输出低电平0V，非阻挡输出5V高电平。



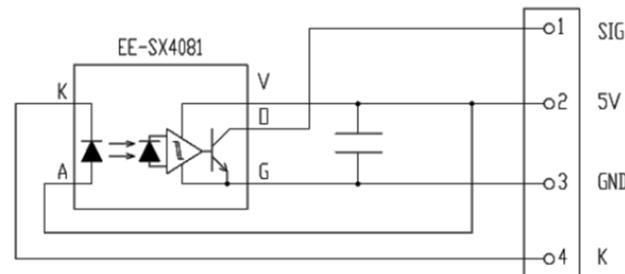
### TLP830槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



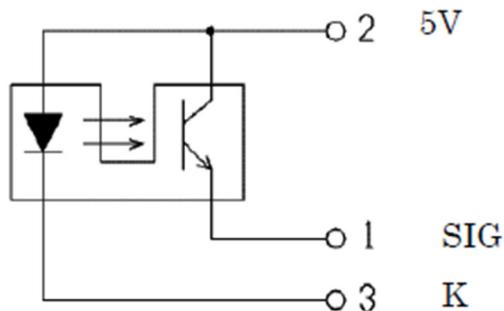
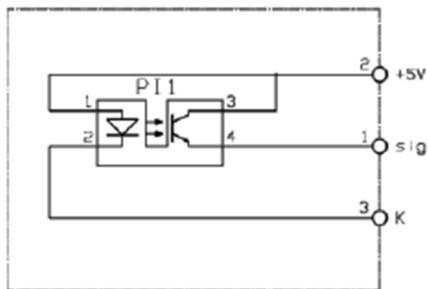
### EE-SX4081槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



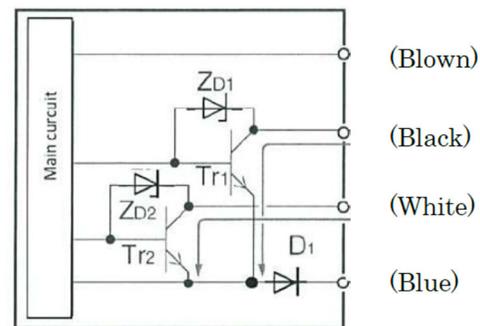
### OJ-HT04/05槽型光电传感器

阻挡输出低电平0V，非阻挡输出5V高电平



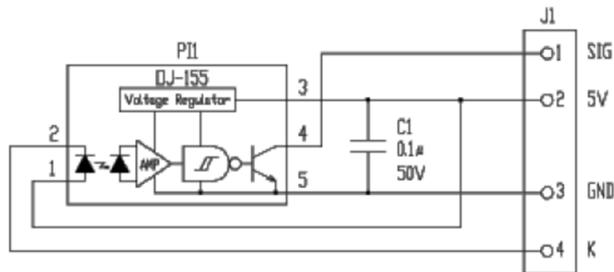
### PM-R64/R65槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



### OJ-155槽型光电传感器

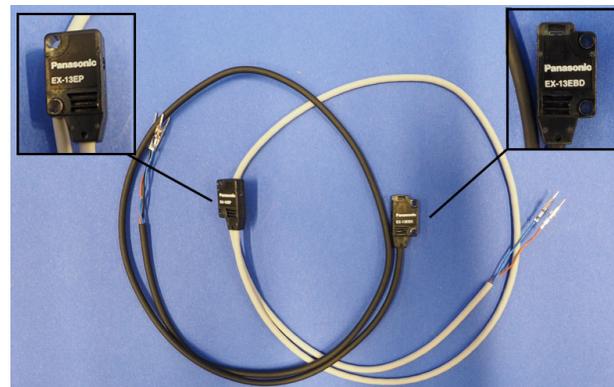
阻挡输出高电平5V，非阻挡输出0V低电平



### EX-13EB/11EB光束对射光电开关

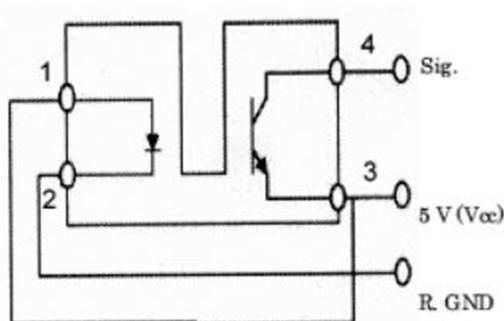
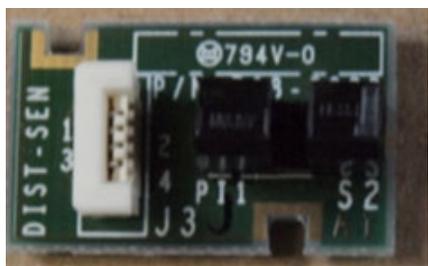
阻挡输出低电平0V，非阻挡输出24V。

发射端设为Min●，接收端设为D。



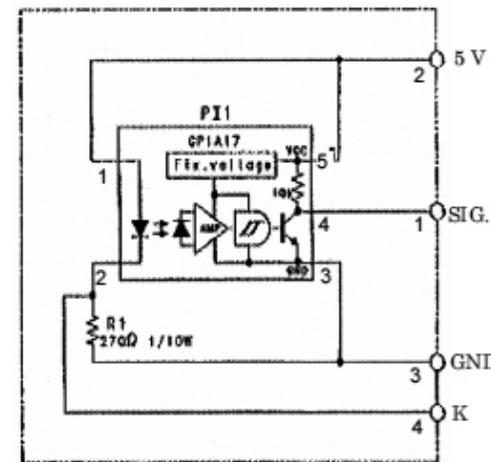
### OJ-HT14槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



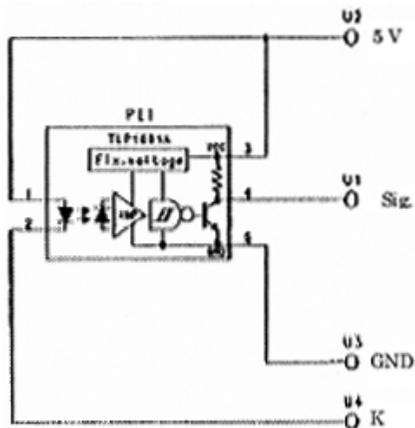
### P1A17槽型光电传感器

阻挡输出低电平0V，非阻挡输出高电平5V



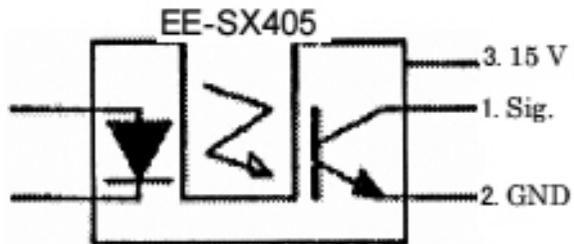
## TLP1001A槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



## EE-SX405槽型光电传感器

阻挡输出高电平5V，非阻挡输出0V低电平



# 6 电磁阀和电磁铁

# c701



	Indication	Model	Part Number	Application
Syringe Unit	SV1	UDV-2-M6CH	0573 2689 001 0784 4352 001	Sample probe inside washing, sample aspiration/discharge
	SV2	UDV-2-M6CH		
	SV3	UDV-2-M6CH		Reagent probe inside washing, reagent aspiration/discharge
	SV4	UDV-2-M6CH		
	SV5	UDV-2-M6CH		
	SV6	UDV-2-M6CH		
SV unit (2)	SV7	UDV-2-N.C	1140 2447 001	Alkali detergent discharge
	SV8	UDV-2-N.C	1140 2447 001	Acid detergent discharge
	SV9	UDV-2-N.C	1140 2447 001	Rinse 1 rinse water discharge
	SV10	UDV-2-N.C	1140 2447 001	Rinse 2 rinse water discharge
	SV11	UDV-2-N.C	1140 2447 001	Rinse 1 rinse water discharge
	SV12	UDV-2-N.C	1140 2447 001	Rinse 2 rinse tip rinse water discharge
	SV13	UDV-2-N.C	1140 2447 001	Rinse 3 cell blank water discharge
	SV19	UDV-2-N.C	1140 2447 001	Incubator bath circulating water supply
	SV23	UDV-2-N.C	1140 2447 001	Sample probe A outside washing
	SV24	UDV-2-N.C	1140 2447 001	Sample probe B outside washing
	SV25	UDV-2-N.C	1140 2447 001	Reagent probe (R1-A) outside washing
	SV26	UDV-2-N.C	1140 2447 001	Reagent probe (R1-B) outside washing
	SV27	UDV-2-N.C	1140 2447 001	Reagent probe (R2/3-A) outside washing
	SV28	UDV-2-N.C	1140 2447 001	Reagent probe (R2/3-B) outside washing
Detergent unit	SV14	MTV-2R-NM6G-10	0373 5486 001 0513 5346 001	Alkali detergent aspiration (bottle side)
	SV15	MTV-2R-NM6G-10		Acid detergent aspiration (bottle side)
	SV16	MTV-2R-NM6G-10		Alkali detergent aspiration (vacuum)
	SV17	MTV-2R-NM6G-10		Acid detergent aspiration (vacuum)
Circulating pump	SV18	A2-5618	0373 5478 001	Incubator bath circulating water drain
Valve (S)	SV20	NAVR-4302-H	0373 1677 001	Rinse mechanism nozzle water droplet aspiration
	SV21	NAVR-4302-H	0373 1677 001	Open to air
Vacuum bottle	SV30	AVR-3202-118N-HC	0373 5524 001	low-concentrate waste solution
	SV31	AVR-3202-118N-HC	0373 5524 001	High-concentrate waste solution
Gear pump	SV40	MTV-02-1/8FH-1	0519 7244 001 0784 3364 001	Probe inside washing water pressure switching



# ISE

	Indication	Model	Manufacturer	Application	Alternate
Detection unit	ISV1	MTV-21-SM6M	1140 2536 001	KCL flow path switching	1063 9800 001
	ISV2	MTV-31-M6	1140 2544 001	DIL vacuum switching 3-way	1104 5296 001
	ISV6	MTV-21-SM6M	1140 2536 001	DIL syringe discharge	1063 9800 001
	ISV7	MTV-21-SM6M	1140 2536 001	IS syringe discharge	1063 9800 001
	ISV8	MTV-21-SM6M	1140 2536 001	SIP syringe discharge	1063 9800 001
	PV	AP-2602-13-HA	0577 9138 001 0783 8930 001	Pinch Valve	1140 2552 001
	SOL	SD10BA-24-00T		Sipper nozzle	
	SOL	SD10BA-24-00T		Vacuum nozzle	
Syringe unit	SV1E	UDV-2-M6CH	0373 5494 001	S syringe inside washing	0573 2689 001
	ISV9	MTV-2R-NM6G-10	0373 5486 001 0513 5346 001	DIL syringe aspiration	0373 5486 001
	ISV10	MTV-2R-NM6G-10		IS syringe aspiration	0373 5486 001
	ISV11	MTV-2R-NM6G-10		SIP discharge	0373 5486 001
Vacuum unit	ISV3	AVR-3202-118N-HC	0533 0262 001 0664 0095 001	Vacuum bottle waste solution drain	0373 5524 001
	ISV5	MTV-31-M6	1140 2544 001	Vacuum switching 3-way	1104 5296 001
Rinse unit	SV2	UDV-2-N.C	1140 2447 001	Outside wash water discharge	0553 0396 001
Gear pump unit	RSV1	UDV-2-M6CH	0373 5494 001	Gear pump pressure switching valve	0573 2689 001



Pinch Valve



3-Way



2-Way



1122 9222 001

# e602

## SU - MSB - TL/DL

	Indication	Model	Part Number	Application
c701 MSB	SV1	A2-5617	1122 9117 001	Water Tank Fill
SU	SOL1	SD10BA-24-00T	0578 0764 001 0784 5561001	Rack Stopper
TL/DL	SOL2-n	SD10BA-24-00T	1122 9222 001	Rack Stopper
	SOL3-n	SD10BA-24-00T		Rack Stopper



707-0304  
1122 9222 001



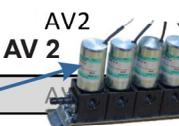
Valve	Model	Part Number	Application	
Valve assembly	SV2	UDV-2-M6CH	1156 6164 001	Reagent syringe water supply
Washing SV assembly	SV3	UDV-2-N. C	0362 1631 001	Reagent probe outside washing
	SV4			Bead mixer paddle washing water
	SV5			Sipper nozzles 1 & 2 outside washing
Washing SV assembly	SV36			EWS sipper nozzle outside washing
Solenoid (M) assembly	SV7	MTV-2R-NM6G-10	0474 2587 001	PC reservoir discharge
	SV8			CC reservoir discharge
	SV9			PC reservoir drain
	SV10			CC reservoir drain
Solenoid (M) assembly	SV13			PC bottle suction
	SV14			CC bottle suction
	SV15			Spare PC bottle suction
	SV16			Spare CC bottle suction
	SV31			WB bottle 1 suction
Solenoid (M) assembly	SV32			WB bottle 2 suction
	SV33			WB bottle 1 or 2 discharge
	SV34			EWS sipper nozzle discharge
	SV35			Drain
	Valve UDV assembly			SV1
Valve UDV assembly	SV11	PC syringe water supply		
Valve UDV assembly	SV12	CC syringe water supply		
Pinch valve assembly	SV17			Sipper syringe 1 water supply
	SV18			Sipper syringe 2 water supply
	SV30	AP-2602-13-H	0351 5109 001	EWS sipper syringe water supply
	SV19			Sipper syringe 1 IN side
	SV20			Sipper syringe 2 IN side
	SV21			Sipper syringe 1 OUT side
SV22	Sipper syringe 2 OUT side			

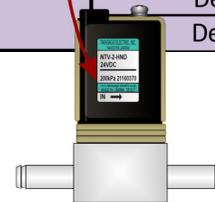
## 针阀 (流量调节阀)



Single Valve  
0373 5460 001



	Valve	Model	Part Number	Application
 AV2  AV1	SV2		0635 9825 001 Bank of 4 valves	Detergent II In (Acid) AV2
	SV3			Detergent I In (Alkali NaOH)
	SV4			Nozzle Rinse
	SV9			Not Used
Syringe Unit	SV5		0626 6959 001 Bank of 4 valves	Rinse Probe Tip ISE AV1
	SV6			Rinse Probe Tip Sample
	SV7			Rinse Probe Tip R1
	SV8			Rinse Probe Tip R2
Gear Pump	SV16		0635 9825 001 Bank of 4 valves	Syringe R2 Syringe Unit
	SV17			Syringe R1
	SV18			Syringe Sample
	SV19			Syringe ISE
Rear	SV15	UDV-2-M6CH	0373 5494 001	Gear Pump Gear Pump
	SV10	A2-5618	0373 5478 001	Reaction Bath FillRear
SV20	Incubation Bath Drain			
Rear	SV21	NTV-2-HND	0481 3693 001	LCW Vacuum Rear
	SV22			HCW Vacuum
	SV23			Vacuum Probe Tip Dry
Vacuum Bottles	SV24	AVR-3202-118N-HC	0373 5524 001	HCW Vacuum Bottle Drain
	SV25			LCW Vacuum Bottle Drain
Detergent Unit	SV11		0513 5346 001	Detergent I Vacuum Detergent Unit
	SV12			Detergent II Vacuum
	SV13			Detergent II (In)
	SV14			Detergent I (In)



## 7 管道 透明硅胶管道



Hitachi	Roche	ID	OD	Length	Description
<b>Clear Silicone</b>					
707-0500	1199 9834 001	0.8	3	10 each	pinch Tubing pre-cut /green dot
717-2098	1190 0765 001			2M	ISE pinch tubing bulk
G153064	0554 8632 001	2	4	5M	Rinse stn lines
G153176	0550 8711 001	4	8	10M	
G153177	0554 8683 001	8	12	10M	most internal water lines
736-7097	0554 8594 001		14	2M	Silastic tube (Waste or Vacuum)
735-2012	1202 9901 001	10	16	30M	

## 红色硅胶管道



<b>Red Silicone</b>					
G153014	0550 8711 001	4	8	10M	Usually heated water
705-2143	1084 0220 001	8	12	2M	Usually heated water

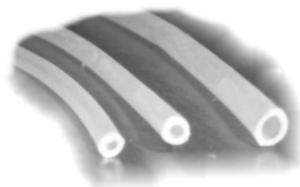
## 普通聚乙烯管道

Hitachi	Roche	ID	OD	Length	Description
<b>Regular Tygon</b>					
737-0634	0465 5303 001	1.58	3.17	10M	Tygon R 3603 - 1/16 x 1/8
705-0446	1068 4732 001	3.17	6.35	2M	Tygon R3603 - 1/8 x 1/4
G153001	0554 8624 001			10M	
737-0641					

## 加强聚乙烯管道

<b>Reinforced Tygon</b>					
F221022	0554 8675 001	4	9	0.5M	High pressure (gear pump)
F221020	1061 0348 001	9	15	10M	
705-2128	0314 9706 001	12.5	20	5M	Water supply to Aus

# Junflon 管道



# 绝缘管道

Hitachi	Roche	ID	OD	Length	Description
<b>Junflon</b>					
736-0590	1082 3856 001	0.8	1.6	5M	Extremely small
F274168	1077 3662 001			10M	
987-7067	0554 8705 001	1	1.8	10M	Small
F274158					
706-0139	1045 8937 001	1.5	2.3	10M	Most ISE lines
F274152					
714-1936	1180 0302 001	3.6	4.6	100M	large tubes to Smpl & reag probes

Hitachi	Roche	ID	OD	Length	Description
<b>Insulation tubings</b>					
G152010	0554 8659 001	?	?	1M	Heat insulating tubing Black
G153056	1140 8062 001	1/2	3/8	?	Insulation Tube
G153062	0554 8667 001	3/4	3/8	2M	Large Black Insulation

# Toaron 管道



Hitachi	Roche	ID	OD	Length	Description
<b>Toaron</b>					
767-7997	0483 0504 001	3	6	100M	Black Vacuum Tubing *expensive



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