

密封品专用气密检漏仪

Seal Products Dedicated Air Leak Tester



FL-800MS 系列 Series

- 可用于手机、平板电脑、手表、手环、相机等密封性及防水性测试
- 显示内容中英文切换, 操作简单
- 测试压力可用kPa、kg/cm²、PSI、bar显示
- 具有丰富的数据分析, 统计功能
- 可保存最新的500组数据
- 多种输出模式RS232、USB、RJ45网口
- 可以直接控制气缸、电-空比例阀, 控制时序可设置



Can be used on the leakproofness and waterproofness test of phone, tablet PC, watch, camera, etc.

Chinese & English display, easy to operate.

Test pressure can be displayed in kPa, kg/cm², PSI, bar.

Have a ample of data analysis, statistical functions

Can save 500 max sets of data

Various output methods, RS232, USB

Can control air cylinder, Precision electro-pneumatic proportional valve, can set the control order.



随着电子产品的迅速发展,手机、数码相机、平板电脑等日常用品的防水等级需求在不断增加。防水性IPX5、IPX7检测可以通过气密检测仪来实现。

With the fast development of the electronic products, the waterproofing grade requirement of phone, digital camera, tablet PC increase constantly. The detection of waterproofness IPX5, IPX7 can be realized by the air leakage detector.

IP等级 IP level	保护等级的概要 (不受有害影响为对象) Summary of protection level(Be unacted on harmful things)	试验条件 (使用淡水) Test condition (Using fresh water)
IPX4	来自各方向的飞溅水 Splash water from every direction	Φ0.5mm的喷水的喷管, 10min, 0.07mL/min·m ² 0.5mm spray pipe, 10 min, 0.07mL/min.m ²
IPX5	来自各方向的喷流水 Jet-flow water from every direction	Φ6.3mm的喷水的喷管, 水流强度为12.5L/min·m ² , 持续3分钟以上 6.3mm spray pipe, over 3 min, 12.5mL/min.m ²
IPX6	来自各方向的急速喷水 (暴喷水) Torrential water from every direction	Φ12.5mm的喷水的喷管, 水流强度为100L/min·m ² , 持续3分钟以上 12.5mm spray pipe, over 3 min, 100mL/min.m ²
IPX7	暂时的沉没水中 Sink into the water temporary	水深1m (最深部) 30分钟 On the bottom of 1m water for 30 min
IPX8	持续的沉没水中 Sink into the water continuous	持续潜水试验; 试验设备, 试验条件和试验时间: 由供需 (买卖) 双方商定, 其严酷程度应比IPX7高 More strict than IPX7, depend on which product

电子通信行业IP等级测试现状 Actuality of the IP level test of communications electronic industry

IP等级的试验, 直接用水测试产品会有以下不便情况

- ◆ 查后需要干燥
- ◆ 时间长
- ◆ 泄漏量难以量化, 无法质量管控
- ◆ 不合格品不能再使用 (破坏检查)

通过检漏仪, 利用空气替代水进行检测, 就能够避免这些不便情况。

Test of IP level, inconveniences of using water to test directly.

- Need to dry after test
- Take a long time
- Hard to quantize the leakage rate, unable to control the quality
- Unable to use the reject again

Using the leak detector, testing with air instead of water, can avoid these inconveniences

使用检漏仪, 有以下优点

- ◆ 查后无需干燥
- ◆ 时间短, 提高工作效率
- ◆ 泄漏量可量化, 便于质量管控
- ◆ 对不合格产品无破坏, 可以维修后使用

Advantages of using the leak detector

- Don't need to dry after test
- Take a short time, improve working efficiency
- Can quantize the leakage rate, convenient for quality control
- No damage to the reject, and the reject can be used after repair

使用气密检漏仪可以实现IPX7和IPX8的测试 Using the air leak detector can realize the test of IPX7 & IPX8

空气泄漏量和漏水量关系如图所示

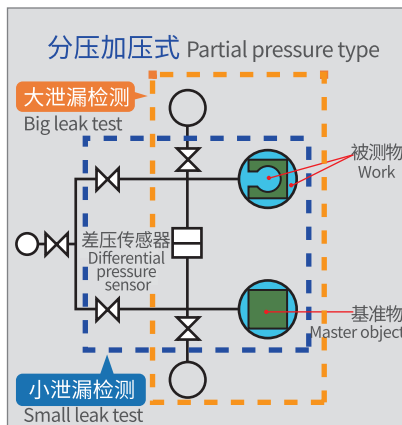
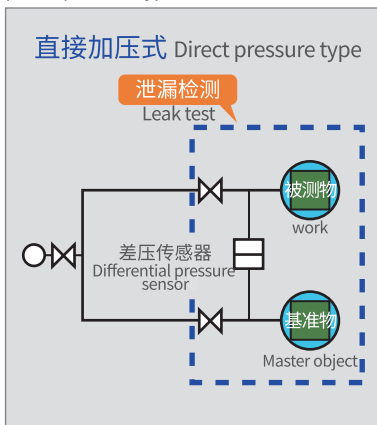
漏水量可以换算成漏气量。通过空气泄漏量演算出IPX7、IPX8的漏水量, 实现泄漏的数据化质量控制, 并且能够更好的阻止防水缺陷产品流出。

The relationship of the air leakage and water leakage are as shown in the picture. Water leakage can be converted to the air leakage. Through the air leakage we can calculate the water leakage of IPX7 & IPX8, realize the datamation quality control of the leak, and it will do better to prevent the outflow of the reject.

测试方式 Test methods

根据被测物的特征可分为直接加压式和分压加压式。

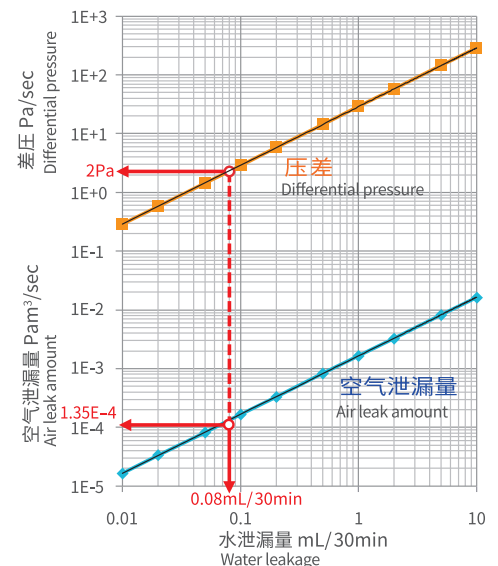
According to the feature of the analyte, test methods can be divided into direct pressure type and partial pressure type.



空气泄漏量与漏水量的关系 The relationship of the air leakage and water leakage

- 常温, 检测压力: 9.8kPa (相当于水深1m)
- 容器残余容积: 60mL, φ5μm 孔模型

Normal temperature, test pressure: 9.8kPa (equal to 1m depth of water)
Residual volume of the vessel: 60ml,



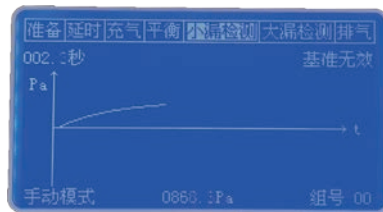


多种显示方式可供选择 Varied display units

- 小泄漏测试结果可用Pa, Pa.m³/s
大泄漏测试结果可用Pa
- 测试压力可用MPa、kPa显示
- The leak unit of small leak link can be Pa, Pa.m³/s.
The leak unit of big leak link can only be Pa.
- Test pressure can be displayed in MPa or kPa unit.

检测过程通过曲线显示

Display the measuring process through curves

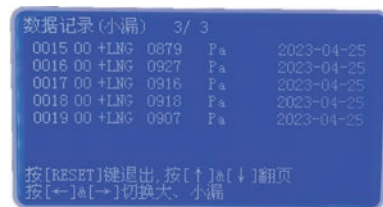


机器自动读取时时检测数据，并使数据坐标化，观察差压变化曲线，判断泄漏变化趋势，解析问题点可以很容易进行。

Real-time testing data can be read and displayed in the form of coordinate. Leak trend can be judged through differential pressure curve, thus to analyze questions easily.

可保存最新的500组数据

Latest 500 groups of data can be saved



可对历史数据进行查询、分析，便于质量分析

Historical data can be searched and analyzed to conduct quality analysis

- 可进行基准测试，以消除Work和Master两侧夹具加工和气路配管产生的容积不平衡
- 32组参数切换功能，不同的被测物对应不同的检测参数
- Master test is available to eliminate the volume unbalance, which caused by the fixture besides Work and Master, and the pneumatic piping
- 32 groups of parameters can be switched to ensure that different work has corresponding testing parameter

设定键

Setting Button
测定条件, 判定标准等参数的设定
Set detection parameters and judgment standard, etc.

CAL键

CAL Button
自动读取被测物容积
Calculate the volume of measured work automatically

MASTER键

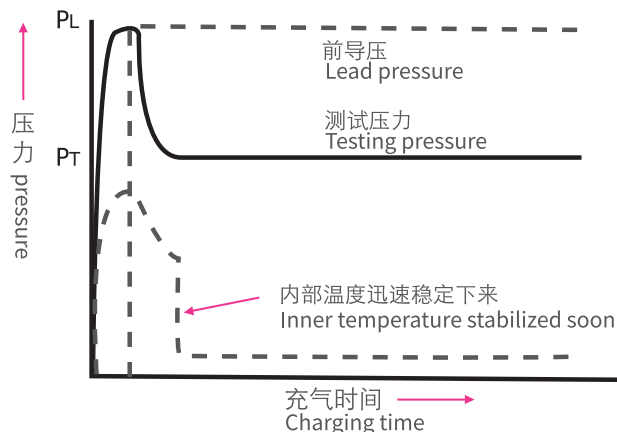
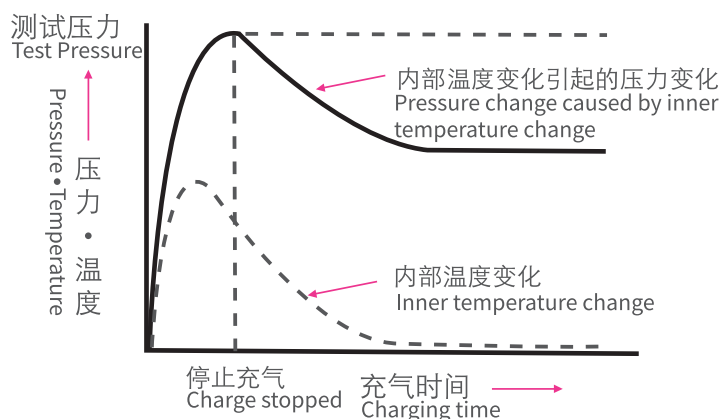
Master Button
基准检查开始
Start master detection

USB接口

USB Ports
可以直接将检测数据写入U盘
Measurement results data can be save to flash drive directly

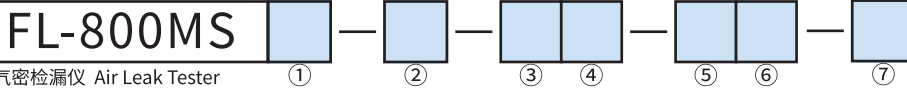
附加电控调压阀，测试时间更短，精度更高 Additional electric control pressure regulating valve ensures shorter testing time and higher accuracy

- 附加电控调压阀，可以实现快速充气功能（快速充气功能可以有效稳定压力、快速加压、消除热影响）
- 使用电控调压阀使得基准数据的重复性更好，提高了检测精度，缩短检测时间。允许同时设定32组不同的测试压力
- The additional electric control pressure regulating valve supplies with TURBO (Fast Charging) function that can effectively stabilize the pressure, conduct fast charging and eliminate heat effect
- The additional electric control pressure regulating valve supplies with better repeatability of master data, higher testing accuracy and shorter testing time. 16 groups of different testing pressure parameters are available simultaneously.



产品选型 Model Selection

型号 Model



① 压力范围 Pressure Range	记号 Mode	使用范围 Applied Pressure Range	显示范围 Indicated Pressure Range
	V	-5~-100kPa	0.0~-99.9kPa
	L	10~200kPa	0~200kPa
	M	50~700kPa	0~700kPa
② 泄漏检测范围 Leak Detection Range	记号 Mode	使用范围 Applied Pressure Range	显示范围 Indicated Pressure Range
	1	小泄漏 Small Leakage	0~±2000Pa
	2	中泄漏 Medium Leakage	0~±9999Pa
③ 校准器 Calibrator	记号 Mode	表示 Indication	
	0	无校准器 Nil	
	1	带1mL校准器 1mL Calibrator	
	5	带5mL校准器 5mL Calibrator	
④ 配容大小 Volume	记号 Mode	范围 Range	范围值已经包含设备内容积 (1.1mL) 和连接气管的容积 (2.5mL) The range includes inside volume (1.1mL) and air tube volume (2.5mL)
	N	无TANK部件, 用户自制	
	1	6.7~13.6mL	
	2	13.6~23.6mL	
	3	23.6~33.6mL	
	4	33.6~43.6mL	
⑤ 外置选购品 Options	记号 Mode	内容 Content	
	FR10	V范围用减压过滤装置 Specialized pressure reduction filter for V range	
	FR13	L范围用减压过滤装置 Specialized pressure reduction filter for L range	
	FR15	M范围用减压过滤装置 Specialized pressure reduction filter for M range	
	N	无减压过滤装置 Without pressure reduction filter	
⑥ 数据接口 Data Interface	记号 Mode	内容 Content	
	1	标准款, 专用打印机接口 Standard type with specialized printer interface	
	3	USB接口 (存储数据, 无通讯功能) USB Interface(Data storage function, without communication function)	
⑦ 差压精度 Differential Accuracy	记号 Mode	内容 Content	
	空	标准款 Standard type, ±0.5%F.S.	
	H	U高精度款, ±(1%R.D.+2Pa), 仅小泄漏款 High accuracy, ±(1%R.D.+2Pa), Small Leakage	

外围设备 External Option

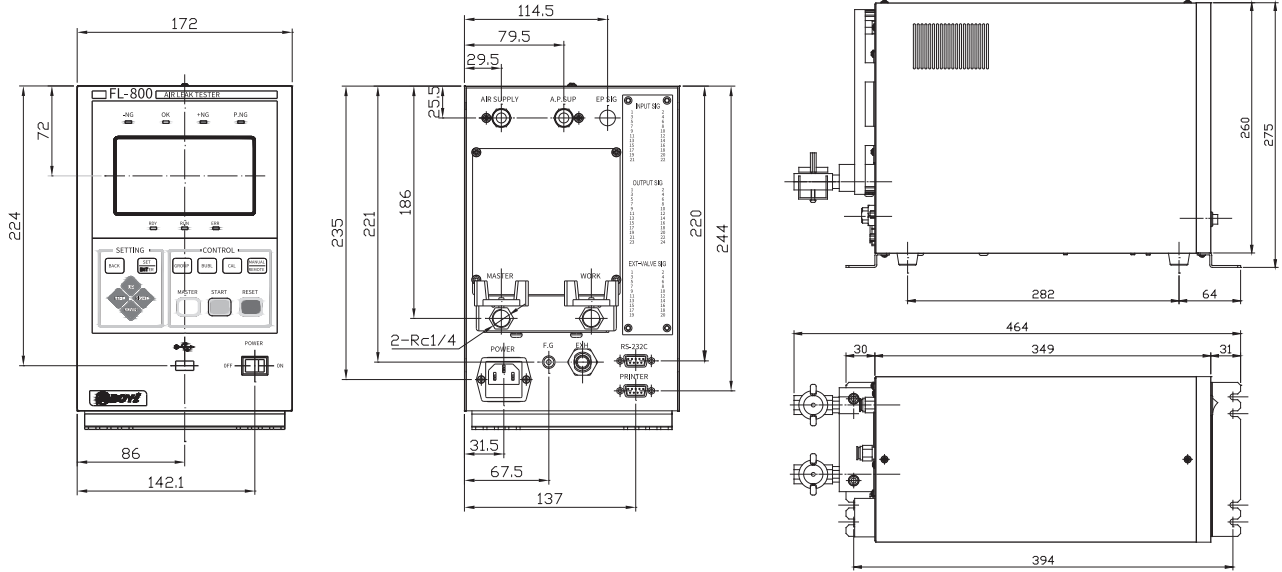
型号 Mode	产品名称 Product Name		备注 Remark	
C1	校正器	Calibrator	校正容积 0.1mL	Calibration Volume 0.1mL
C3	校正器	Calibrator	校正容积 1mL	Calibration Volume 1mL
C5	校正器	Calibrator	校正容积 5mL	Calibration Volume 5mL
SP-TL4015S	打印机	Printer	串口打印机	Serial Printer
RS-C	串口线	Serial cable	9针串口电缆, 1.5m	9 Pin Serial Cable, 1.5m
APU	自动压力调节器 Automatic pressure regulator		用于FL-800MSL、MSM型 For FL-800MSL、MSM type	
RM-01	外控操作盒 External operation box		start,reset,组号等信号控制的专用设备 Specialized equipment to control signals of start, reset, group NO., etc.	
RM-03	外控输出转接设备 External Transfer equipment		将集电极输出转换为继电器输出 Convert the collector output to relay output	

备注: 外围设备需单独订购 Remark: External options need to be order individually.

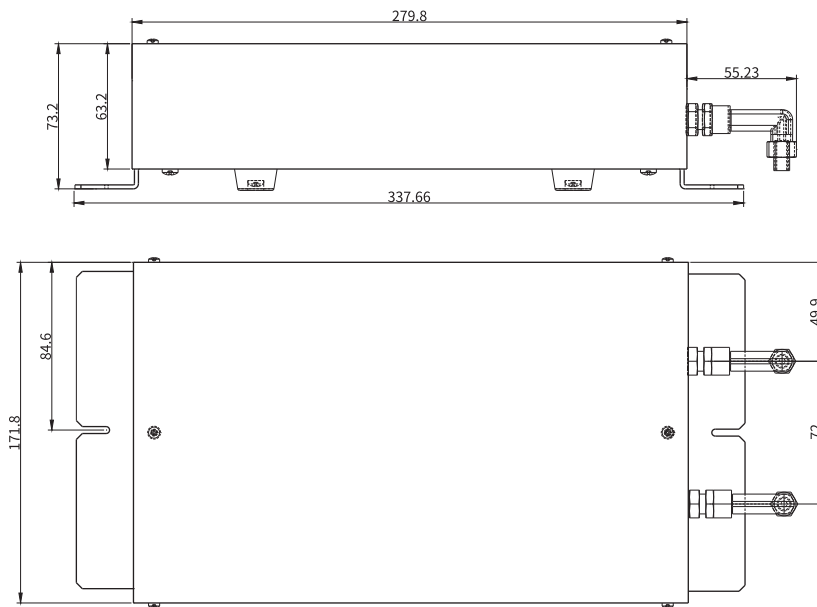
规格 Specifications

测定方式 Testing method	分压差压法 (密封品专用) Differential pressure method (specialized for sealed product)	
差压传感器 Differential pressure sensor	$\pm 2\text{kPa}/2\text{V}(\pm 10\text{kPa}/2\text{V})$, 标准款精度 $\leq \pm 0.5\% \text{F.S.}$ /高精度款 $\leq \pm (1\% \text{R.D.} + 2\text{Pa})$, 传感系数 $0.4 \times 10^{-5} \text{mL}/\text{Pa}$ $\pm 2\text{kPa}/2\text{V}(\pm 10\text{kPa}/2\text{V})$, Standard type Accuracy $\leq \pm 0.5\% \text{F.S.}$ /High Accuracy $\leq \pm (1\% \text{R.D.} + 2\text{Pa})$, Transduction factor $0.4 \times 10^{-5} \text{mL}/\text{Pa}$	
直压传感器 Direct pressure sensor	精度 $\leq \pm 0.5\% \text{F.S.}$	Accuracy $\leq \pm 0.5\% \text{F.S.}$
被测物侧容积 Work side volume	1.9mL	
基准物侧容积 Master tank volume	1.9mL	
显示 Display	LCD显示 (蓝色LED背光, 白色字体) 显示点阵数 240×128 有效显示尺寸 W107mm×D57mm	LCD with blue back light, white font. Resolution 240×128 Display dimension w107mm×D57mm
组号设定机能 Group setting function	0~31ch (合计32ch)	0~31ch (32ch total)
后端子输入/输出 Back terminal input/output	后端子输入信号: 14个(PNP型) 后端子输出信号: 13个(NPN型) 外部电磁阀控制信号: 8个(NPN型)	Back terminal input signal: 14(PNP type) Back terminal output signal: 13(NPN type) Outside solenoid control signal: 8 (NPN type)
后端子容量 Back terminal volume	外部输入: 每个节点最大10mA, 最高电压30V 外部输出: 每个节点最大200mA, 总电流最大1A 外部电磁阀: 每个节点最大0.5A, 总电流最大1A	Outside input: every node 10mA max, voltage 30V max. Outside output: every node 200mA max, voltage 1A max Outside solenoid: every node 0.5A max, voltage 1A max
使用、储存温度范围 Temperature range of use, storage	使用: 0~40℃ 储存: -5~45℃	Use: 0~40℃ Storage: -5~45℃
使用、储存湿度范围 Humidity range of use, storage	<85%RH(无结露)	<85%RH(No condensation)
电源电压 Power source	AC 100~240V, 50/60Hz	
功耗 Applied current	$\leq 50\text{W}$	
抗干扰性 Anti-interference performance	在AC220V电源上加入 1μsec 1500V共模脉冲电压, 间隔15ms, 持续3分钟; Add 1μsec 1500V common mode on the AC220V power, 15ms interval, last 3 minutes. 在后端子和公共端之间加0.1μsec 500V的脉冲电压, 间隔15ms, 持续3分钟。 Add 0.1μsec 500V pulse voltage between the back terminal and common terminal, 15ms interval, last 3 minutes.	
绝缘电阻 Insulation resistance	DC500V时, 100MΩ以上。	Above 100MΩ when DC500V.
泄漏电流 Leakage current	AC100V/50Hz 1mA以内 AC200V/50Hz 2mA以内	Within AC100V/50Hz 1mA Within AC200V/50Hz 2mA
外观尺寸 External dimension	W190×H292×D330	
重量 weight	约9kg	

本体 Main body:



TANK箱



主要产品 ● 气密检漏仪 ● 数字压力表 ● 流量计 ● 自动压力、流量控制器 ● 密封性能检测专用设备

BOYIE | 天津博益气动股份有限公司
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