The Precision of Ultrasonics

SDT The Precision of Ultrasonics
SDT, 超声波精密探测

The SDT Sherlog line:

SDT Sherlog 产品系列

Accuracy, reliability for ultrasonic tightness testing

超声波密封检测，精确，可靠.



Tightness testing has never been so accurate, cost-efficient nor so easy.

密封测试从来没有如此精确，便利，成本低廉

The SDT Sherlog

SDT Sherlog 产品

Why you should be using it?
为什么要用它?

- The only system of its kind to be Type Approved by Class
  唯一经过船级社认可的系统
- Strong, shock resistant for use in harsh conditions
  坚强，抗冲击，可适应恶劣工况
- The only instrument to boast a tamper-proof HCO survey routine, with data logging and data download for enhanced reporting
  唯一不可更改舱口盖检查记录的设备，带有数据记录和下载功能
- All measurements in dB V
  所有测量以分贝显示
- Can be used for RoRo and dry dock operations
  可以用于滚装船和船坞内的检测
- The only method that quickly pinpoints small leaks and areas that lack compression
  唯一快速精确定位微小泄漏和压力不足导致的泄漏区域
- Allows quick and easy testing without assistance from ship's crew
  允许船员独立快速方便进行测试
- Can be used for weather tightness and air/gas tightness testing
  可用于空气和气体密封测试
- Can be used in ports forbidding hose testing to avoid pollution washed away from the deck.
  可用于在港内，为了避免环境污染禁止使用冲水舱口盖密封测试的情况

Saves time and trouble!
节约时间和减少麻烦

Can be carried out without interfering with ship operations
可以在不干扰船舶操作的情况下进行测试
Can be used while other work is being done
可以在不干扰其他作业的情况下进行测试
Reduces costly idle time in port
减少滞港花费
One-man operation
单人操作
Can be carried out in sub-zero temperatures
可以在零度以下环境操作
Can be used in loaded or empty holds, even with water-sensitive cargoes.
可以在装载或空载货舱，和装有对水敏感的货物的货舱中测量

For all these reasons, SDT Sherlog offers the most complete, dedicated solution for maritime applications.
基于这些原因，SDT Sherlog提供了最专业，最完整的船舶应用方案

Who should be using it?
谁将要使用它?

- Classification Societies and P&I Clubs
  船级社和P&I成员
- Surveyors
  检查员
- Ship yards and repair yards
  造船厂和修船厂
- Ship crew.
  船员

(Picture 1) Accurate and fast distance tightness testing by means of a parabolic sensor.
通过特殊传感器可以精确地远距离测量

(Picture 2) The flexible cane sensor allows easy checking of out-of-reach places.
饶性传感器可以方便测量无法到达的区域



(Picture 1)



(Picture 2)

Leak Detection
泄漏检测
Hatch Cover Ultrasonic Tightness Testing:
舱口盖超声波密封测试
3 steps towards reducing claims
减少索赔的3大步

中国上海培训



理论培训



实船检测



实船检测



培训学员

Water-damaged cargo remains one of the most pressing problems for the industry as a whole. Owners, P&I Clubs and insurers are faced with several hundred million dollars of water damage claims a year, not counting missed deadlines and serious disruption to client operations.
由于水浸入导致货物损失是整个物流业所面临的最为紧迫的问题之一.根据已有的记录，船东，P&I成员每年面临上亿美元的货物索赔.

Now ultrasonic tightness testing can dramatically improve the n° 1 cause for claims each year simply, accurately and reliably!
现在，超声波密封检测能够简单，精确并且可靠的减少该因素导致的索赔.

1. Nothing works like ultrasonic
无与伦比的超声波检测

- Ultrasonic is more than just another form of testing tightness. It offers a complete, global solution with unheard-of accuracy and reliability. Accuracy that has received classification Society Type Approval.
  超声波不仅仅是另外一种密封检测方法，它提供的是一个完整，无比精确，可靠的全球解决方案．并且船级社业已对其精确度认可．
- The only thing hose and chalk tests demonstrate is whether or not there is contact between the rubber packing and compression bar. Users get no idea of the actual compression.
  使用软管冲水和白石灰测试能够显示橡胶密封和密封压条的接触情况．但缺点是用户无法了解实际的压紧状况．
- Once at sea, it is often too late to see the shortcomings of this method.
  Only ultrasonic testing can show you when you have the required or acceptable compression.
  在海上航行时再发现这些缺点却是太迟了．只有超声波检测能够显示需要的或可接受的实际的压紧状况．

2. Ultrasonic testing is custom-made for maritime applications
客户化的，并适合船舶应用的超声波测试

Nothing beats ultrasonic testing for simplicity and pin-point accuracy:
超声波检测简单，精确度高(点精确定位)

- It is totally reliable, accurate – and repeatable
  可靠，精确并且可重复操作
- There's no need for water or for complicated operations
  不需要水或其他复杂操作
- Ultrasonic testing slashes the time needed to test the condition of hatch covers, RoRo doors, bulkheads or windows
  超声波检测大大减少舱口盖，滚装船艏艉门，舱壁或窗的检测时间
- It ensures that hatch covers offer true cargo worthiness and prevent water ingress
  确认舱口盖可以防止海水浸入，保护货物
- Hand-held operation can be carried out by one man
  单人手持式操作
- It reduces costly idle time in ports
  减少滞港时间
- Easy, fast pre-load inspection.
  容易快速预检

3. A global solution: instrument, training and certification
全球解决方案：设备，培训和认证

- The industry recognition is not just for the SDT SHERLOG line itself.
  Why? Because only the Sherlog equipments come with the SDT-IMCS training programme. Trainee operators are given, as required by Class and the industry, comprehensive theoretical and on-board practical training in ultrasonics, rules and regulations, hatch cover designs and deficiencies as well as ultrasonic testing procedures.
  行业认可不仅仅局限于SDT SHERLOG产品系列．为什么？因为SHERLOG设备是和SDT-IMCS培训紧密联合在一起的．按照船级社和行业要求，我们给培训者提供全面系统的理论培训和在船上的实际操作

的培训，其中包括超声波检测实际操作的规则，规范，舱口盖设计等方面的培训.

- Successful candidates receive a Certificate of Qualification and are added to the growing list of Certified Surveyors
  测试合格的参加人员将获得SDT签发的资格证书，并且添加到不断增长的合格的检验师队伍里

- Significantly, the training programme is approved by Class and accredited by the Nautical Institute.
  值得一提的是培训程序已经取得船级社认可和海洋学院的接受.
- So not only is the Sherlog TA a superior testing instrument, it is also a comprehensive programme that has led to a new standard in the marine industry.
  所以SHERLOG TA是品质优异的设备，培训程序更是领先于船舶业，并且形成新的标准.

(Picture 1) "Packages steel plates contaminated by sea water"
被海水污染的钢板

(Picture 2) Accurate testing in sub-zero conditions.
低温工况精确测量

(Picture 3) On-board practical training.
在船实际操作培训



(Picture 1)

How does ultrasonic testing work?
如何进行超声波测试工作?



(Picture 2)



(Picture 3)

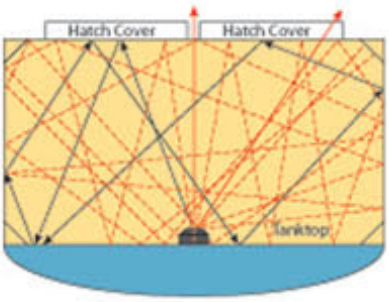
- The principle for ultrasonic testing is remarkably simple. An ultrasonic transmitter is placed in the hold (empty or with cargo) and emits ultrasound waves. The hatch cover is then closed, fully cleated and battened. The surveyor or operator then uses the SDT Sherlog ultrasonic detector to listen from the outside and pick up all "leaking" ultrasonic sounds that pass through the sealing arrangements, vents and/or cracks.
  超声波测试原理非常简单．将超声波发讯器放在货舱中(空的或带有货物)，打开电源，让其发送超声波信号．然后将舱口盖像海上航行一样关闭．当超声波通过密封，透气和/或裂缝时，检验师或操作人员沿着舱口盖周围可以用SDT SHERLOG超声波检测器检测到.
- Ultrasonic testing is far more accurate than other testing methods, enabling operators and surveyors to pinpoint leaks that are a problem – or are likely to become one.
  相比较其他的测试方法，超声波检测要精确的多，操作者或检验师可以清楚知道泄漏点或快要形成的泄漏点.
- When combined with computer systems, ultrasonic testing offers the maritime world a complete tamper-free solution. Surveyed data can be memorized for analysis and the data downloaded to PC for fast, reliable and documented reporting.
  结合电脑系统，超声波检测为船舶工业提供了一种完全排除外界干扰的解决方法．检验数据可以储存，并且下载至电脑中，形成快速，可靠的文本型报告.

Approved by Classifications Societies
船级社认可

SAs requested by the IACS Unified Requirement Z.17, the SDT SHERLOG TAhas been formally type approved by classification societies. These includethe all-important LRS, ABS, DNV, RMRS and HRS – with other type approvals inthe process.
按照IACS统一要求Z.17，SDT SHERLOG TA已经取得包括LRS，ABS，DNV，RMRS和HRS的船级社的形式认可．同时我们正在进行其它船级社的认可．
Currently the SHERLOG TA is the only instrument of its kind in the world to hold these many high-level approvals.
目前在全世界SHERLOG TA是唯一一种高认可等级的检测设备．

(Picture 1) Hatch Cover Hatch Cover Tank top
舱口盖及其顶部

(Picture 2-3) Leak measurements in dBμV of a hold and hatch in testing phase.
货舱和舱口盖泄漏测试，分贝显示



(Picture 1)



(Picture 2)



(Picture 3)

Main fields of applications 主要应用领域	Sherlog TA	Sherlog S
The only type approved ultrasonic detector with incorporated software and built in hatch cover tightness survey routine 唯一形式认可超声波检测器，含有软件，可以沿检查路线记录舱口盖密封情况	•	
Designed for routine HCO inspections & surveys 按照HCO检查&检验设计	•	•
Provides a wide range of other ultrasonic and non-ultrasonic applications (with external sensors, see hereafter) 通过扩展传感器，请见后述，可以提供更大范围超声波和非超声波应用	•	•
Data storage capacities 数据存储		
Tamper-proof HCO surveyed measurements and data logging and transfer to PC 唯一的HCO检测，数据记录和传输至电脑	•	
General data memorizing capacity in 1000 storage locations, each with 4 storage positions 总数据容量可达1000次位置（每次4个点）	•	
A complete kit 整套设备		
One Sherlog detector with internal ultrasonic sensor, accessories, 1 battery pack and battery loader and built-in HCO Survey Software 一个SHERLOG检测器，包括内置的超声波传感器，附件，电池，充电器和内嵌的HCO检测软件	•	
One Sherlog detector with internal ultrasonic sensor, accessories, 1 battery pack and battery loader 一个SHERLOG监测器，包括内置的超声波传感器，附件，电池和充电器		•
One flexible ultrasonic sensor, 820 mm, ∮ 15 mm ext. 一个饶性的超声波传感器，820mm，∮15mm	•	•
One noise isolating headphone set, 130 dB 一个噪音隔离头套式耳机，130dB	•	•
One 3.5' diskette with software for data transfer to PC 一个3.5" 软盘，内置数据传输软件	•	
One RS 232 Stewart Sub DB9 female, 150 cm 一个带有RS232接口的数据传输电缆，150 cm	•	•
One SDT 8 Sherlog multi-transmitter, multisetting (6 positions) with accessories, one battery pack, one battery loader, one spare battery pack and its adapter 一个SDT 8 SHERLOG多方向信号发讯器，多级设定(6级)，配有附件，一个电池，一个充电器，一个备用电池	•	
One SDT 8 Sherlog multi-transmitter (no multisetting capacity) with accessories, one battery pack, one battery loader 一个SDT 8 SHERLOG多方向型号发讯器（无多级设定功能），配有附件，一个电池和一个电池充电器		•

Main technical specifications 主要技术规格	Transmitter	Detector
Operating temperatures 操作温度	-20°C to + 50°C / -4°F to + 122°F	-15°C to +60°C / 14°F to 140°F
Battery autonomy 电池容量	2.5 a 3.5 hours	8 to 10 hours
Battery reloading time 电池充电时间	6 hours	5 a 6 hours
Weight 重量	1.5kg/52.90 oz	750gr/26.45 oz





The Sherlog equipments for other on-board applications.
SHERLOG 设备在船上其他应用

The Sherlog detectors save a lot of time, trouble, efforts and money in a large number of ultrasonic and non-ultrasonic applications when used in combination with the appropriate external sensors:
当配上适合的扩展传感器，在超声波和非超声波应用中，SHERLOG检测器节约很多时间和费用，并且易于操作.

- Monitoring compressed air systems for leakage detection
  监测压缩空气系统泄漏情况
- General tightness testing with or without an ultrasonic transmitter
  配合超声波信号发讯器或单独使用可以进行密封测试
- Electrical sparks and corona detection
  电气火花或者CORONA现象
- Control of condition of mechanical units, monitoring of wear-and tear, predictive maintenance and accurate measurements in dBμV, dBA, RPM, SCCM, temperatures (in Celsius, Fahrenheit, Kelvin and Rankine units).
  控制机械单元情况，监控磨损，预防性维护和精确测量



External ultrasonic sensors in option:
可扩展的传感器(可选)

- Flexible sensors (820 or 550 mm), parabolic sensor, contact probe, magnetic sensor, threaded sensor and open sensors.
  饶性传感器(820或550 mm)，探针，磁性传感器，螺纹式传感器和开式传感器

External non-ultrasonic sensors in option:
可扩展的非超声波传感器(可选)

- Sound level meter, tachometer, thermocouple interface, non-contact infrared temperature sensor and mass airflow sensor.
  声级计，转速计，热电偶，红外温度传感器和气流传感器

Trust the specialist 您可信任的专家

The Sherlog line was developed by SDT, a recognized world leader in maritime ultrasonic detection of leaks, tightness testing, quality control and predictive maintenance.
SHERLOG产品由SDT研发，在船舶超声波泄漏检测，密封检测，质量控制和预防性维护方面是世界公认的领导者.
The success of the company is based on its core philosophy for providing state-of-the arttechnology, cost efficient solutions to its users' problems.
公司的成功是建立在其核心技术，能够为用户疑难问题提供圆满的技术，低成本的解决方法.

KMPdm Co.,Ltd

No.665,ChunHui road,KunShan,JiangSu 215300,China
Phone:+86 512 50333915 | Fax:+86 512 50333916
Email: kim@kmpdm.com | www.kmpdm.com

昆山祺迈测控设备有限公司

中国 . 江苏省昆山市春晖路 665 号 邮编 : 215300
电话 :+86 512 50333915| 传真 :+86 512 50333916
Email: kim@kmpdm.com | www.kmpdm.com