



广州海狮软件科技有限公司
GUANGZHOU SEALION SOFTWARE TECHNOLOGY CO.,LTD



致力于挤出生产线智能化升级的生产商



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公司简介

COMPANY PROFILE

广州海狮软件科技有限公司成立于2008年，是一家以技术创新为核心的高新技术企业，专注工业挤出生产智能测控系统的研发、生产与销售，致力于推动制造业数字化、智能化升级。

公司技术体系完善，涵盖硬件EDA设计、DSP研发、软件开发与电气控制系统设计，具备从核心算法到整机应用全链条研发能力。核心产品包括米重控制系统、超声波在线测厚系统、米重色母控制系统、精密色母机、管材质量安全入库系统、管材在线智能检测系统等，为塑料管材和线缆行业提供高效、精准、可视化、数字化工厂解决方案。

海狮科技已获得60余项国家专利和软件著作权，荣获“高新技术企业”“专精特新企业”“科技小巨人企业”“瞪羚企业”等多项荣誉，彰显我司卓越技术实力与行业影响力。

海狮科技秉承“专业、专注、专心、专诚”的精神，持续以智能化技术与创新方案，助力客户降本增效，共建高效、绿色、智慧的未来工厂。

Guangzhou Sea-lion Software Technology Co., Ltd. Founded in 2008, Guangzhou Sea-lion Software Technology Co., Ltd. is a high-tech enterprise with technological innovation at its core. It specializes in the R&D, production and sales of intelligent measurement and control systems for industrial extrusion production, and is committed to promoting the digital and intelligent upgrading of the manufacturing industry.

The company has a sound technical system, covering hardware EDA design, DSP R&D, software development and electrical control system design, and possesses a full-chain R&D capability from core algorithms to complete machine applications. Its core products include weight-per-meter control systems, ultrasonic online thickness measurement systems, weight-per-meter color masterbatch control systems, precision color masterbatch machines, pipe quality and safety warehousing systems, and pipe online intelligent detection systems, providing efficient, accurate, visual and digital factory solutions for the plastic pipe and cable industry.

Sea-lion Technology has obtained more than 60 national patents and software copyrights, and has been awarded many honors such as "High-Tech Enterprise", "Specialized, Refined, Characteristic and Novel Enterprise", "Technology Little Giant Enterprise" and "Gazelle Enterprise", demonstrating the company's outstanding technical strength and industry influence.

Adhering to the spirit of "Professionalism, Concentration, Dedication and Sincerity", Sea-lion Technology continues to use intelligent technologies and innovative solutions to help customers reduce costs and increase efficiency, and jointly build efficient, green and smart future factories.

海狮产品

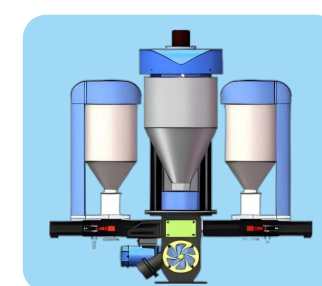
SEALION PRODUCT



米重控制系统
Gravimetric Control System



米重色母控制系统
Gravimetric Masterbatch Control System



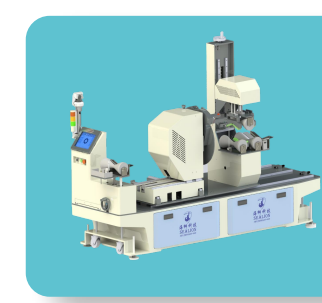
米重色母系统称重版
Gravimetric Masterbatch Weighting Control System



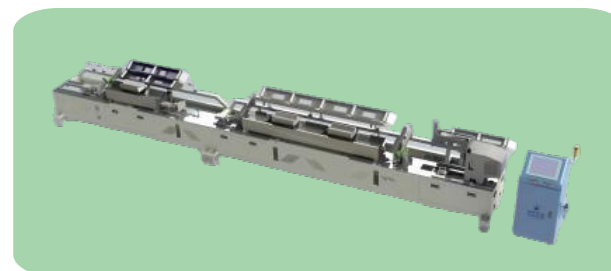
超声波在线测厚(大管)
Ultrasonic Thickness Online Control System (Big Pipe)



超声波在线测厚(小管)
Ultrasonic Thickness Online Control System (Small Tube)



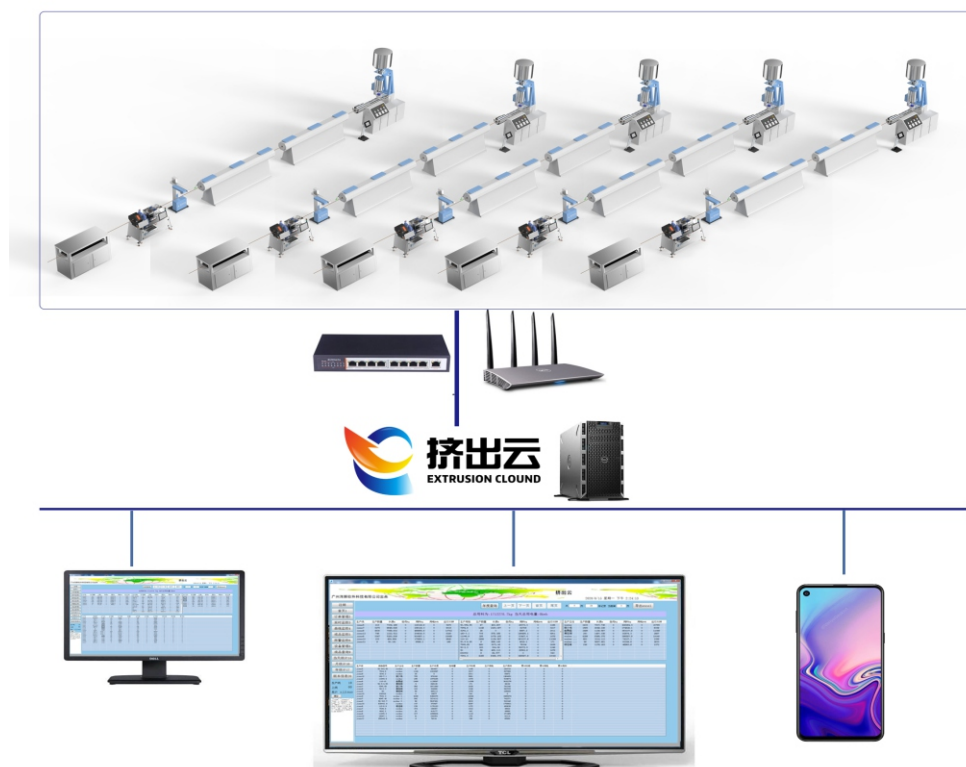
管材在线智能检测系统
Online Intelligent Pipe Inspection System



管材质量安全入库系统
Pipe Inbound Quality & Safety System

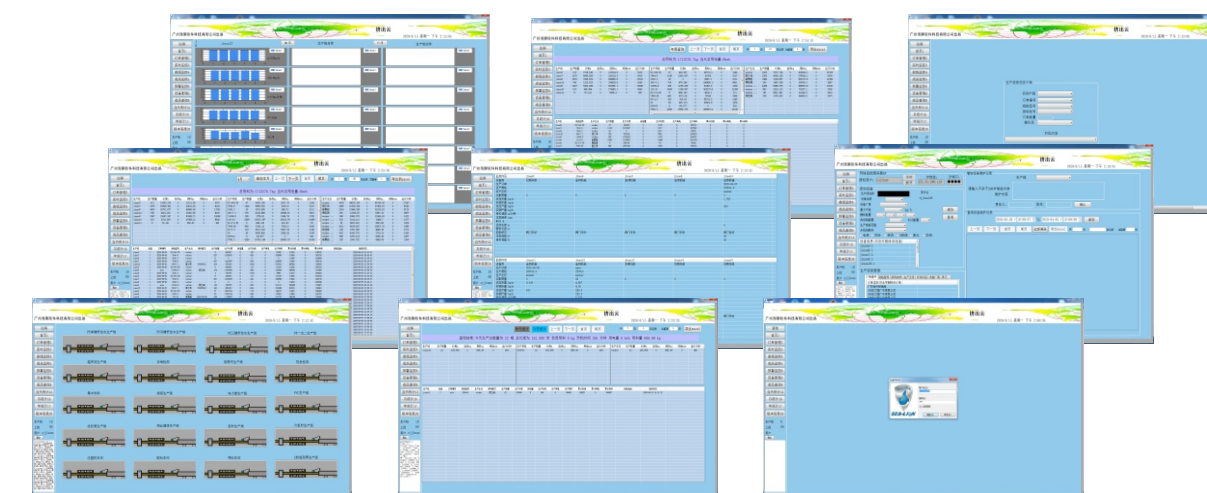
挤出云远程监控系统

Cloud- Based Extrusion Monitoring System



Functional characteristics

>> 功能特点



设备管理

添加删除设备编号
添加删除订单规格
添加删除型号规格
添加删除原料批号
添加删除生产主任
添加删除打码内容
添加删除设备厂商

订单管理

远程下单生产任务
目标产线
订单编号
规格型号
原料批号
数量
操作人员
打码内容

生产曲线监控

米重曲线
挤出量曲线
喂料量曲线
主机转速曲线
牵引速度曲线



生产数据统计

当天统计
月统计
年统计
生产数量
总长度
色母用料
开机时间
用电量

报警监控

缺料报警
螺杆转速异常报警
米重异常报警
控制信号异常报警
主机牵引故障报警

成品监控

订单编号
规格型号
订单数量
原料编号
生产数量
完成数量
管材识别码
外径重量长度

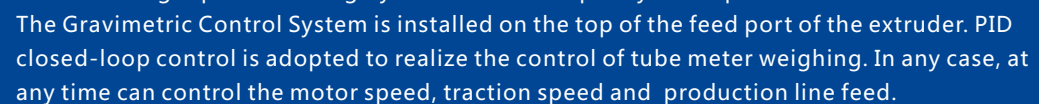
随着制造业全球化竞争,各企业都面临着各种各样的挑战和变化.产业升级,节能减排,管理效率、生产成本、产品质量及订单交付时间都是企业保持自身的竞争力的强有力环节。

海狮挤出云远程监控系统,致力于企业智能化制造,专门针对挤出行业生产线在线测控与远程监控.该监控系统可连接公司ERP系统和生产线的执行系统,通过实时采集生产现场数据,并传输到云端服务器或者内部网络服务器,从而解决了管理层对生产过程的可视化和全程监控,对每个环节的生产数据实时传输到远程监控系统,并对生产过程的不合格数据实时响应,及时纠正,从而缩短了生产响应时间,提高产品质量,降低生产成本,从而更能提升企业的核心竞争力。

With the global competition of manufacturing industry, enterprises are facing various challenges and changes. Industrial upgrading, energy saving and emission reduction, management efficiency, production cost, product quality and order delivery time are all powerful links for enterprises to maintain their competitiveness. Extrusion cloud remote monitoring system is dedicated to enterprise intelligent manufacturing, which is specially for online measurement and control and remote monitoring of extrusion industry production line. The monitoring system can connect the company's ERP system and the execution system of the production line. Through real-time collection of production site data, and transmission to the cloud server or internal network server, it solves the management's visualization and whole process monitoring of the production process. The production data of each link is transmitted to the remote monitoring system in real time, and the unqualified data in the production process is timely corrected. Thus, the production response time is shortened, the product quality is improved, the production cost is reduced, and the core competitiveness of the enterprise can be improved.



>> 什么是米重控制系统



管材所处阶段 Pipe stage	未配置控制系统 Without gravimetric control system	增加海狮米重控制系统 After equipped sealion gravimetric control system
开机过程 Booting	开机过程产品每米重量不确定，只能出来很长一段产品才能清楚产品的厚薄，需经过多次调整方能符合品质要求，造成大量物流、时间、和人工的浪费。 It can be konwed the pipe thickness only when a long pipe output in the booting process. and needs to be adjusted many times to meet the quality requirements, this will waste lots of material, time and labor.	开机即可获得产品米重数据，并显示屏幕上，缩短开机时间：操作人员可以在海狮米重控制系统调节牵引速度和挤出机速度。节约用料，提高效率 Obtain the weight per meter data, and dispaly on the screen. Shorten boot time: the operator can control and adjust the tractor speed and extruder speed, save material, improve efficiency
生产过程 Production process	依赖操作工人的经验和生产技巧，生产过程无法监控，产品米重变化不均，产品偏差不可预知。 Depend on the experience and skills of the operator.unable to monitor the production process, leads to the weight per meter unevently and deviation unpredictable for pipe.	通过设定米重配方自动调控挤出机和牵引机速度，摆脱人为失误，全程监控产品的米重，保持产品米重一直恒定，出现偏差立刻报警，及时处理。 Automatically control the extruder and tractor speed by setting meter weight recipe. prevent human error, monitor the pipe weight per meter, maintain the pipe weight per meter constantly. Alarm and handle immediately when deviation.
换料过程 Change material	厂家原料不同，米重变化不得而知，不可避免产生大量废料。 The weight per meter unable to know with different material, this will cause large amount of waste pipe	不产品原料如何变化，自动检测，自动调整处理 No matter how material change, the system will check and adjust automatically
产后追踪过程 Post production tracking	入库后无法追踪 Unable to track after warehousing	全程记录并保存，事后可追溯 Record and save for whole process, traceability

Application

>>米重控制系统适用范围

塑料管材、薄膜、线缆等产品的挤出生产过程和质量控制
Plastic pipes, films, cables and etc. extrusion produce process and quality control

The main function

>>主要功能

- 缩短开机时间，解决开机、生产中无法及时调整的问题。
 - 解决生产过程中米重偏差浪费原料的问题。为您节省2%-5%原料.
 - 解决断管接管的问题，控制产品米重和挤出量。
 - 解决原料密度、比例变化导致产品厚薄不均的问题。
 - 稳定生产过程，控制产品质量。
 - 解决因过滤网堵塞造成废管的问题。
 - 统计保存生产数据。
- Shorten start-up time, Solve the problem that can not be adjusted in start-up and during production
 - Solve the problem of meter weight deviation and waste material . Can save2%-5% raw material.
 - Solve the problem of pipe broken pipe joint, Control pipe meter weight and extrusion output
 - Solve the problem of uneven thickness of pipes caused by changing density and proportion of raw materials
 - Stabilize production process, control product quality
 - Solve the problem of the waste pipe caused by the blockage of the filter net
 - Statistics and save production data

序号	时间	米重	控制前
1	16:12	174	没控制
2	16:15	173	没控制
3	16:26	165	没控制
4	16:59	166	没控制
5	17:19	167	没控制
6	17:41	165	没控制
7	20:18	167	没控制
8	20:39	162	没控制
9	21:21	167	没控制
10	21:43	166	没控制
序号	时间	米重	控制后
11	00:14	164	米重控制
12	00:31	164	米重控制
13	00:50	164	米重控制
14	01:16	164	米重控制
15	01:38	164	米重控制
16	01:57	164	米重控制
17	02:30	164	米重控制
18	03:00	165	米重控制
19	03:15	165	米重控制
20	03:40	165	米重控制

System workflow

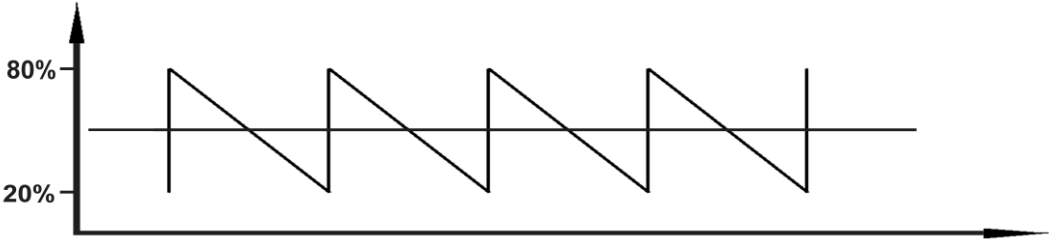
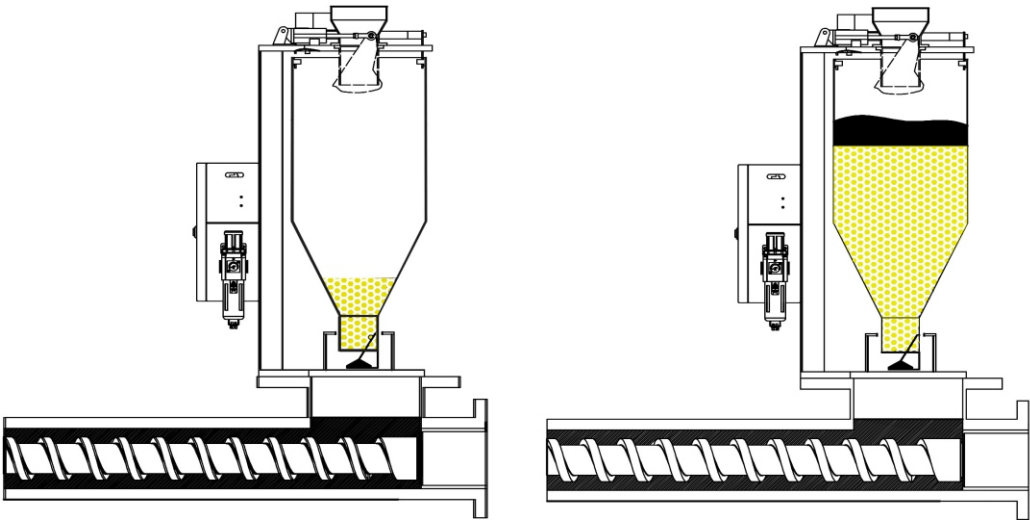
>>系统工作流程

米重控制系统含有智能秤料装置，它所起的作用就是料斗不断地开阀与关阀循环控制下料，保证每批次的下料压力都为自由落体，压力都一致。每一次的开阀、关阀和再开阀都由微电脑严格按照以下流程控制：

- 第一步：物料填充到料斗80%时，阀门关闭.
- 第二步：物料往下自由落体向主螺杆喂料.
- 第三步：当物料下落到料斗20%时阀门打开，重新填充物料进行下一循环.

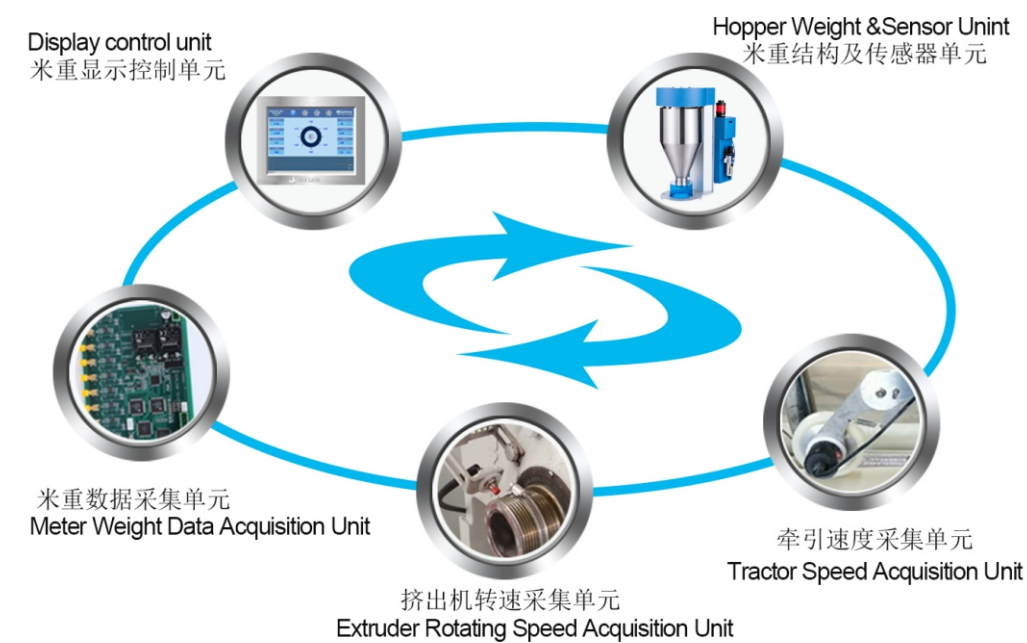
The Gravimetric Control System contains a intelligent scale, The function of the scale is that the small hopper opens and closes the valve continuously to cycle control the material. Make sure that each batch of material is free falling and keep the same pressure.The action of opening and closing valves are controlled by microcomputer which is based on the following procedures strictly;

- 1st step: The material is filling to the hopper and the valve will be closed when reach to 80%,
- 2nd step: The material in the hopper will fall down and feed to the main screw.
- 3rd step: When the material is lower to 20%, the valve will be opened, reload material and proceed to next cycle.



Technical Structure

>> 米重控制系统的技术组成结构



Installation

>> 系统安装



Technical Parameter

>> 米重控制系统的技术参数

电源	AC220V
工作温度	-10~50℃
最大湿度	90%R.H不可结露
功耗	10W
传感器量程	10.20.30.50kg
输入灵敏度	0.5uV/d
输入范围	0.2~25mV
A/D精度	24bit
D/A 精度	12bit
转换方式	Sigma-Delta
A/D转换速度	4000次/秒
非线性	0.01%F.S
增益漂移	10PPM/℃
最高显示精度	1/10000
控制方式	主机控制或牵引控制
控制精度	0.4/100
料斗容积	7L,22L,48L,52L
设备高度	1000mm
设备总重	60KG

Power Supply	AC220V
Temperature	-10~50℃
Max humidity	90%R.H non condensation
Capacity	10W
Sensor range	10.20.30.50kg
Input sensitivity	0.5uV/d
Input range	0.2~25mV
A/D accuracy	24bit
D/A accuracy	12bit
Conversion mode	Sigma-Delta
A/D switching rate	4000/Sec
Nonlinear	0.01%F.S
Gain drift	10PPM/℃
Max accuracy	1/10000
Control mode	Host or traction control
Control accuracy	0.4/100
Hopper capacity	7L,22L,48L,52L
Height	1000mm
Weight	60KG

Double output Gravimetric control system

>> 单米重双出控制系统

针对现在流行的PE/PPR/PERT高速生产线单线速度达到20米/分钟，因为调整速度会导致管材的过厚或过薄，甚至产生断管的情况出现，单米重双出控制系统根据生产线开机的双牵引速度以及主机产量同时对两边挤出进行控制，工作原理也是通过实时自动控制管材生产线的主机转速，双牵引速度和喂料量，使之与我们设定的米重精度吻合，从而控制管材产品米重的恒定。

In view of the popular PE/PPR/PERT pipe of high speed production line, the linear speed reaches to 20m/min,If adjust the speed, the tube will be thickness or thin, even occur pipe broken. The double output Gravimetric Control System controls the two extrusion according to the double traction speed and host output and feeding rate which matches the setting accuracy. So as to control the pipe meter weight constantly.

Model

>> 产品配置型号

单主机米重控制系统

Single host gravimetric control system

型号 Model	可控挤出范围 Output	尺寸 Size
MIXSCAN7	300Kg/h	404x500x726
MIXSCAN22	500Kg/h	404x500x886
MIXSCAN48	800Kg/h	404x500x996
MIXSCAN52	>=1000Kg/h	404x500x1096

备注：可根据客户需求量身定做 Remark: customized according to customer

双主机共挤米重控制系统

Two host gravimetric control system

型号 Model	可控挤出范围 Output	尺寸 Size
Mixscan7-7	300Kg/h	404x500x726
	300Kg/h	404x500x726
Mixscan22-7	500Kg/h	404x500x886
	300Kg/h	404x500x726
Mixscan48-7	800Kg/h	404x500x996
	300Kg/h	404x500x726
Mixscan52-7	1000Kg/h	404x500x1096
	300Kg/h	404x500x726
Mixscan22-22	500Kg/h	404x500x886
	500Kg/h	404x500x886

备注：可根据客户需求量身定做 Remark: customized according to customer

三主机共挤米重控制系统

Three host gravimetric control system

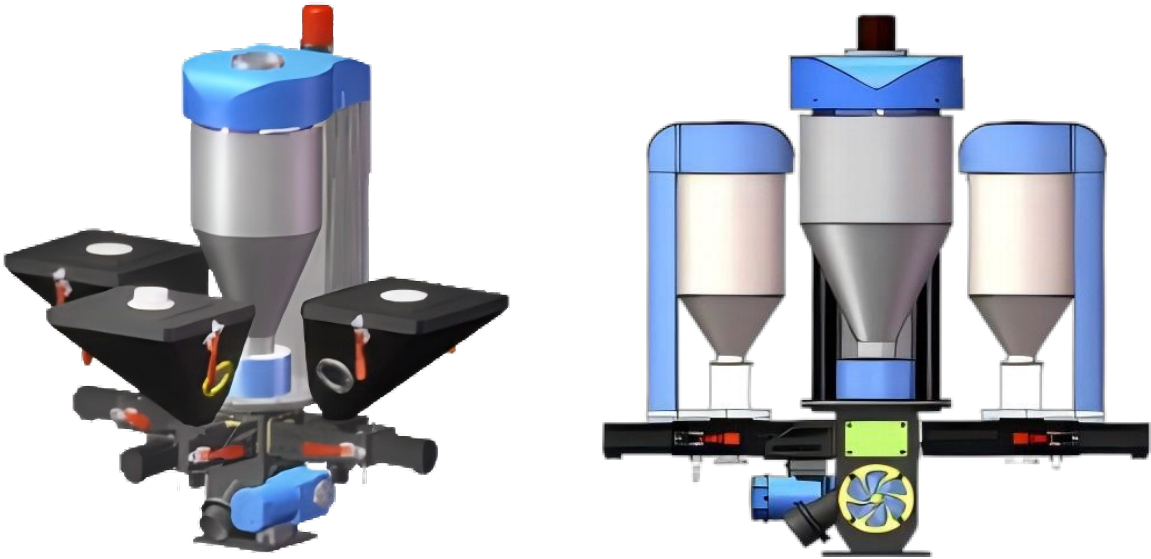
型号 Model	可控挤出范围 Output	尺寸 Size
MIXSCAN 7-7-7	300Kg/h	404x500x726
	300Kg/h	404x500x726
	300Kg/h	404x500x726
MIXSCAN 22-7-7	500Kg/h	404x500x886
	300Kg/h	404x500x726
	300Kg/h	404x500x726
MIXSCAN48-7-7	800Kg/h	404x500x996
	300Kg/h	404x500x726
	300Kg/h	404x500x726

备注：可根据客户需求量身定做 Remark: customized according to customer



What is Gravimetric Masterbatch Control System

>> 什么是米重色母一体控制系统



米重色母一体控制系统是指控制米重同时自动控制色母的添加，使得米重控制系统和色母添加控制合二为一的控制系统。

每个产品组份都不一样，长期以来，色母组份添加都是以人工混合为主，这样就产生了组份添加不准确，混合不均匀的情况，导致生产出来的管材质量不稳定，增加人工成本和不必要的劳动强度。而因为工人的责任心问题，一时的疏忽可能会给企业带来重大的不可弥补的损失。

Gravimetric Masterbatch Control System can control the masterbatch adding while control the pipe meter weight, this system makes gravimetric control and masterbatch control together. Every product is made by different component, masterbatch adding is mixed by worker for a long time, this can make inaccuracy component and uneven mixture. Lead to pipe quality unstability. Also, increase labor cost and intensity. worker's carelessness may bring signigicant irredeemable loss because of the sense of responsibility.

Application field

>> 适用行业

塑料薄膜、电缆、管材、塑料改性，化工以及各种多组份精确配比添加行业。
Plastic film, cable,pipe, plastic modify, chemical industry and muti-component adding industry.

Advantages

>> 米重色母一体控制系统优点

- 色母机随主机动态变化，严格控制任何时间节点的物料配比
- 微积分闭环控制，智能化，高精度
- 在线连续混配，减少人工混料的耗时费力，提高效率
- 直流伺服电机，无需保养
- 自动混料装置，保持混料均匀
- 底层软硬件控制，运行更可靠
- Masterbatch machine dynamic change along with the host, control the proportion at any time strictly
- PID close-up control, intelligent, high-Precision
- Mixed continuous on-line, save mix time, improve efficiency.
- DC servo motor without maintenance.
- Mixed automatically, keep the mixture even
- Control by bottom software and hardware made operation more reliable

Parameter

>> 米重色母一体控制系统技术参数

米重色母一体控制系统技术组成结构 structures



米重色母一体控制系统技术参数 Parameter

- 可添加组份的范围 (Kg/h) : 根据客户要求定制
- 可添加组份数 : 1-3种 (可为客户定制4组份以上)
- 添加精度 : ±1% (色母带称重精度可达4‰)
- 自动分离技术
- Range of adding component (Kg/h) : according to customer
- The quantity of component: 1-3(Customizing more than 4 components for customers)
- Addition accuracy: ±1%
- Isolation automatically

Model

>> 米重色母一体控制系统配置型号



型号 Model	主机产量 Host Screw	色母螺杆 Masterbatch screw	可控产量 Component controlled
MIXSCAN7-S1	300Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN7-S2	300Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN22-S1	500Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN22-S2	500Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN48-S1	800Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN48-S2	800Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN52-S3	> =1000Kg/h	DN6-DN16	三组份 (1-300Kg/hr) Three component (1-300Kg/hr)

备注：可根据客户需求量身定做 Remark: customized according to customer



型号 Model	主机产量 Host Screw	色母螺杆 Masterbatch screw	可控产量 Component controlled
MIXSCAN7-SW1	300Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN7-SW2	300Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN22-SW1	500Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN22-SW2	500Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN48-SW1	800Kg/h	DN6-DN16	单组份 (1-300Kg/hr) Single component (1-300Kg/hr)
MIXSCAN48-SW2	800Kg/h	DN6-DN16	双组份 (1-300Kg/hr) Double component (1-300Kg/hr)
MIXSCAN52-SW3	> =1000Kg/h	DN6-DN16	三组份 (1-300Kg/hr) Three component (1-300Kg/hr)

备注：可根据客户需求量身定做 Remark: customized according to customer

U 超声波在线测厚系统

Ultrasonic Online Thickness Measuring System

What is Ultrasonic Online Thickness Measuring System

>> 什么是超声波在线测厚系统

根据超声波脉冲反射原理来进行管材厚度测量，当探头发射的超声波脉冲通过媒介到达管材的内外径界面时，脉冲被反射回探头后，通过精确测量超声波在管材中传播的时间，超声波处理模块进行快速的运算来确定被测材料的厚度。

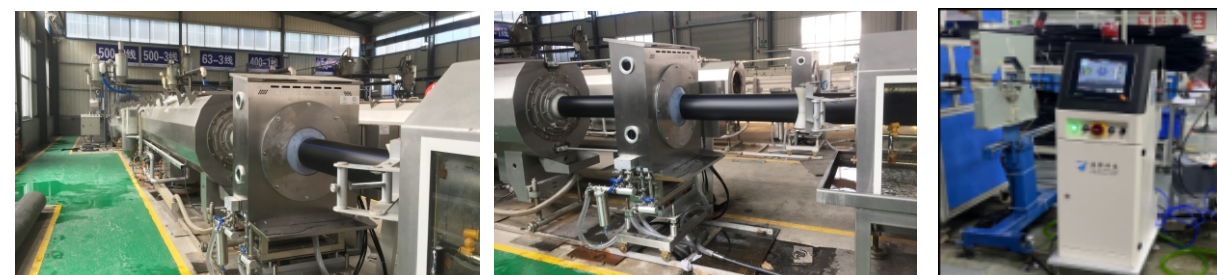
超声波在线测厚系统是采用国内外先进技术的基礎上，运用数字化处理模块技术，采用高精度数据采集和处理芯片自主研发的高端管材在线测量系统，主要由海狮超声波处理模块和超声波探头、超声波扫描结构三部分组成。主机电路包括发射电路、接收电路、显示和控制电路三部分。超声波在线测厚系统理论测量分辨率达到0.001mm，因为管材表面的不平整以及生产环境的影响，实际测量分辨率达到0.01mm，处于行业先进水平。

The pipe thickness measurement is according to the principle of ultrasonic pulse reflection, when the probes launch the ultrasonic pulse which reach to the interface of the inner and outer pipe through media, the pulse is reflected back to the probe, calculate the time between the pipe, ultrasonic processing unit rapidly calculate then figure out the pipe thickness. Ultrasonic Online Thickness Measuring System is an independent R&D high-end system which is based on the advanced technology of domestic and foreign country, using digital processing module, adopt high-precision digital acquisition and processing chip. The system contains Sealion ultrasonic processing unit, ultrasonic probe and ultrasonic scanning box. The host circuit contains radiating circuit, receiving circuit, display and control circuit. The theory of measuring resolution is 0.001mm, actual measuring resolution is 0.01mm due to the uneven surface of the pipe and the production environment. This is in the advanced level of the industry.



Why must equip the Ultrasonic Online Thickness Measuring System on extrusion production line

>> 为什么挤出生产线上必须配置超声波在线测厚系统



市场竞争日益激烈，管材生产企业要想获得高品质、高经济效率和高盈利能力，必须提高企业的自动化生产水平，让您的产品处于实时的，在线的，不间断的监控之下，海狮在线测厚系统正是管材以及塑料挤出行业处于先进水平的测厚系统之一。

开机阶段，即可直观发现管材的状况，杜绝废品、次品产生，缩短开机时间；

生产过程阶段，系统实时监测管材的厚度、偏心、椭圆以及外径。全程监控产品的变化，做出详尽的生产记录，并完整的存档，以备您随时对生产状况进行查验，让管材生产一直在您的掌控之中；

生产入库后，即便已经送达施工现场，如果您想知道某批次的产品情况，您只需打开本系统资料库，即可为您进行追溯。

Market competition increasingly, the pipe company in order to get high quality, high economic efficiency and high profitability, they must improve the automation production level to make your product under the real-time, on-line monitoring. Sealion ultrasonic online thickness measuring system is one of the high level thickness measuring system which apply to the pipe and plastic industry.

In boot stage: system can directly find the status of the pipe, put an end to waste, defective products, shorten the start-up time

In production process: the system monitor the pipe thickness, eccentric, elliptical and outer diameter in real-time, monitoring product changes and make detail production records complete saved. to check the production status at any time, let the pipe and tube production under your control

After warehouse: Even if you have already sent them on-site, if you want to know about the certain batch of product, you only need to open the database of this system and trace it back.

Operating principle

>> 超声波在线测厚系统的工作原理

海狮超声波在线测厚系统采用超声学原理，运用精密的高频超声波传感器，通过DSP高速数据采集和处理，对挤出生产线上运动的管材和线缆做非接触式的测量，并通过工业触摸显示屏显示管材截面，可以显示多个方位的壁厚偏差和偏心数据，直观可靠的提供给现场生产人员参考，及时对厚度、偏心、椭圆以及外径偏差做出处理，减少废管的产生，缩短开机周期，为您节约大量昂贵的材料和人工成本。

Ultrasonic Online Thickness Measuring System adopt ultrasonic theory,using precision high-frequency ultrasonic sensor, DSP high-speed data acquisition and processing. Measure the moving pipe and cable of extrusion line in non-contact way. Display the pipe section with touch screen. It displays the date of thickness deviation and eccentricity of various directions which refer to the local worker. To deal with thickness, eccentricity, ellipse and outer diameter deviation in time. Reduce waste pipe, shorten booting time, this will save lots of expensive materials and labor costs for you.

The main function

>> 主要功能

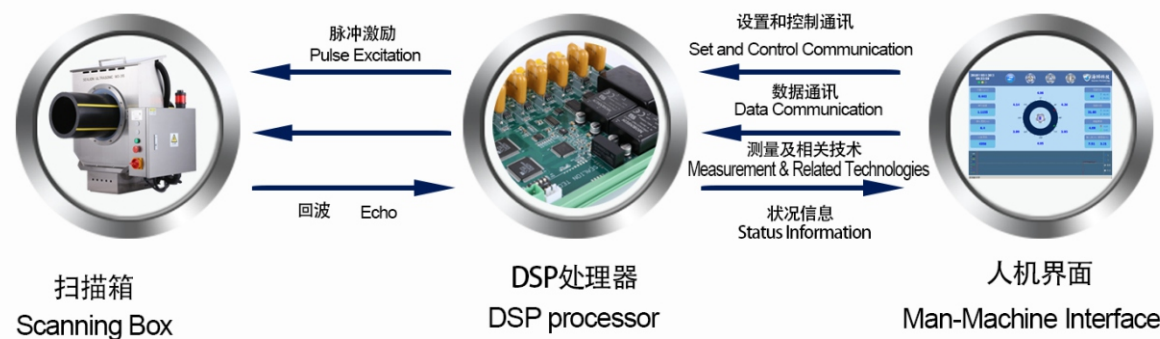


Composition structure

>> 超声波在线测厚系统组成结构

测量系统由扫描箱、DSP信号处理器，工控机和人机界面等软硬件组成,如下图：

The measuring system is composed of scanning box, DSP processor, IPC(industrial personal computer) and software. As follow



扫描箱

Scanning box

扫描箱结构可对任何管材曲面进行完全吻合，保证探头脉冲信号与管材曲面保持垂直相切，确保了测量数值的准确性。实现超声波介质的均匀稳定，维持DSP信号处理的恒定，减少介质不稳定对信号的影响。同时该结构设计简洁直观，操作简单便捷。

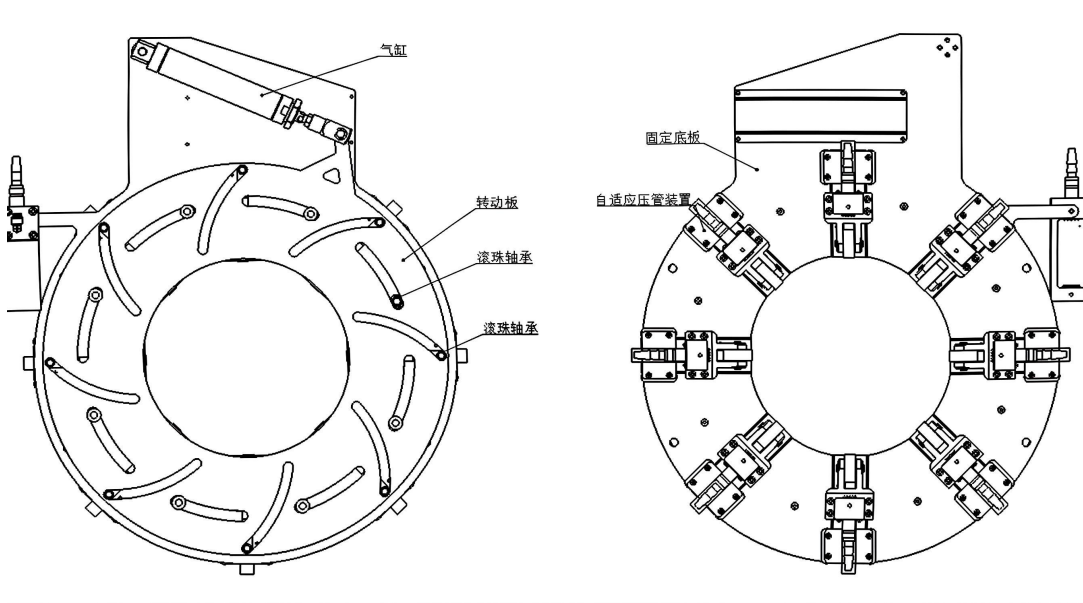
Scanning structure can be perfectly fit for any curved surface of pipe, can keep the probe pulse signal and pipe surface vertical tangent, ensure the measuring value accuracy, make the ultrasonic media stability, maintain the DSP signal constantly, reduce the affective caused by media, also, The structure is simple, intuitive and easy to operate.

扫描箱内置超声波测量探头，分布结构如图所示

- 内置自动跟随超声波探头，可以测量一系列范围的管材壁厚。专利号：ZL202121445714.5
- 超声波探头个数可选1、2、3、4、6、8、16（根据具体型号确定）
- 超声波探头为IP68防护等级，从而可直接固定的扫描箱上，整体安装在水箱里面。
- 可测量多层管材的厚度，每一层的厚度单独显示
- 激光测径装置：实时精准测量管材外径，测量显示精度0.01MM。专利号：202420005454.7

Ultrasonic probe built in scanning box, the distribution structure is shown as follow:

- The system is equipped with an integrated automatic tracking ultrasonic probe, which can measure the wall thickness of pipes across a range of sizes.
- The number of ultrasonic probe can select 1、2、3、4、6、8、16 (according to the specific model)
- Ultrasonic probe protection level is IP68, so they can be fixed in the scanning box and installed inside the water tank;
- Can measure multilayer pipe thickness, display the thickness separately for each layer
- Laser diameter measuring device: provides real-time, precise measurement of pipe outer diameter with a display accuracy of 0.01 mm.



显示控制硬件及软件

Display control hardware and software

- 配备工业级平板电脑，内置超声波测控软件，界面整洁直观
- Equip with IPC, Built-in ultrasonic measurement and control software, clean and intuitionistic interface.

Model

>> 超声波在线测厚系统型号

型号 Model	可测管径（mm） Pipe O.D range	可测厚度（mm） Thickness	探头数（个） Qty of probe
SL-meas63	Φ63	≤60	4
SL-meas125	Φ63-125	60	4、8
SL-meas250	Φ125-250	60	4、8
SL-meas315	Φ250-315	60	8、12、16
SL-meas450	Φ315-500	60	8、12、16、32
SL-meas630	Φ500-800	80	8、12、16、32
SL-meas1200	Φ800-1200	100	12、16、32

超声波数字信号处理

DSP/ Ultrasonic Digital signal processor

- 自主性：DSP能快速而准确地接收回波并区别杂波；
- 自调整：即使产品材质有所变化,根据所设参数，DSP能自行调整捕捉窗口锁定回波；
- 高精度：DSP对捕捉到的信号同步运输，保证计量数值的准确性；
- Autonomy: DSP can receive echos fast and accurate while distinguishing clutter echos
- Self-adjusting: Even if the product material change, DSP can self-adjust to capture echo according to set parameters.
- High-accurate: DSP transport capture signals synchronous, ensure the calculate date accuracy



SL-Ultrascan系列超声波在线测厚系统是针对小管径在线测厚产品，同样采用超声波原理对管外径、厚度、偏心、椭圆实时测量及保存数据报表。适用于医疗导管，电线电缆，管材，汽车油管等相关挤出生产行业。测量壁厚0.18-10mm，直径2-50mm；独创自动变径结构，自动适应不同管材规格、探头在线自动对中跟随，保障检测精准高效稳定。

The SL-Ultrascan series ultrasonic on-line thickness measurement system is a dedicated product for on-line thickness measurement of small-diameter pipes and cables. It also adopts the ultrasonic principle to realize real-time measurement of pipe outer diameter, thickness, eccentricity and ovality, as well as data storage and report generation. It is suitable for relevant extrusion industries such as medical catheters, wires and cables, pipes, and automotive oil pipes. It features a measurable wall thickness range of 0.18 – 10 mm and a diameter range of 2-50 mm. With its original automatic diameter-variable structure, it can automatically adapt to different pipe specifications. The probe realizes on-line automatic centering and following, ensuring accurate, efficient and stable detection.

Model

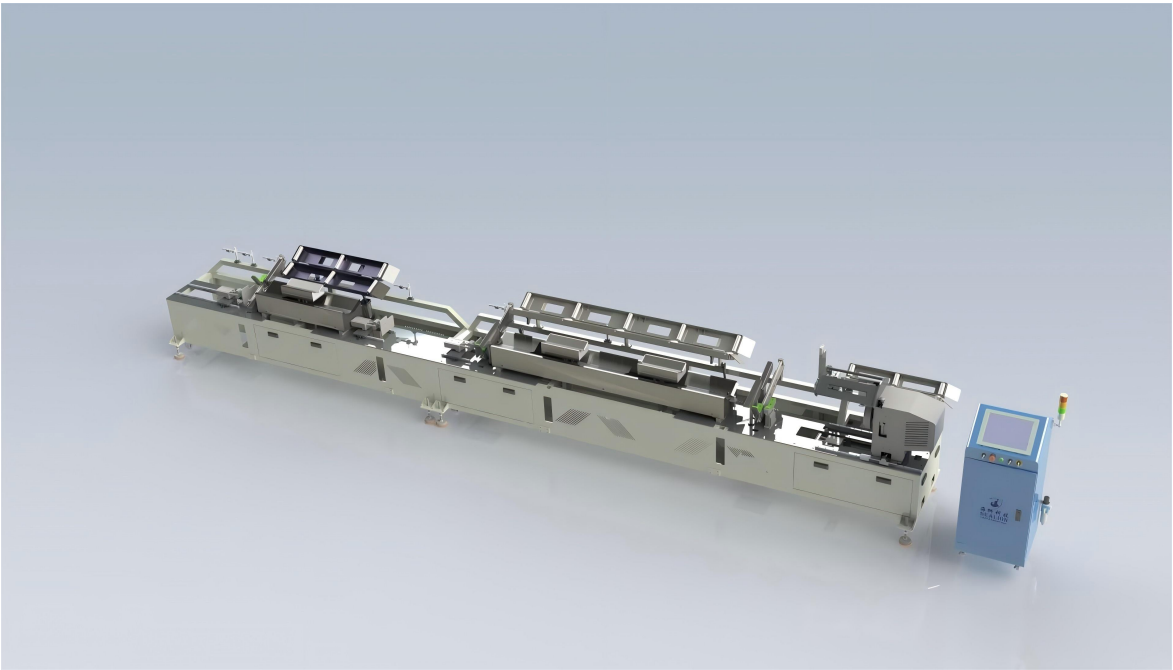
>> 超声波在线测厚系统型号

型号 Model	可测管径（mm） Pipe O.D range	可测厚度（mm） Thickness	探头数（个） Qty of probe
SL-Ultrascan10	Φ2-10	0.18-3	4
SL-Ultrascan20	Φ10-20	0.5-5	4
SL-Ultrascan50	Φ20-50	1-10	4

P

管材质量安全入库系统

Pipe Quality SafetyStorage System



海狮管材质量安全入库系统应用在管材挤出机末端，可安装在任何一条生产线的末端，利用平滑的结构将管材滑动到检测平台进行各种测量，不影响生产线的任何生产任务。

系统包括重量检测，激光测厚，编码器测径，管材长度检测，不圆度检测，合格翻管等标配功能，所有检测数据可以发送到工厂内部的MES系统，生产看板或者其他管理系统，远程监控管材质量。

Sea-lion Pipe quality and safety of storage system in the end of the pipe extrusion machine, can be installed in any at the end of a production line, using the slide pipe to smooth mechanism testing platform for all kinds of measurement, does not affect the production line of any production tasks.

System includes weight detection, laser thickness measurement, encoder diameter measurement, pipe length detection, non-roundness detection, qualified pipe turning and other standard functions. All test data can be sent to the MES system inside the factory, production Kanban or other management system, remote monitoring of pipe quality.

Functional characteristics

>> 功能特点

- 壁厚测量：设定壁厚上下限、实时壁厚，在管材内外利用专利结构进行激光测距，通过伺服电机旋转一周，将一周测量所测得的位置和内外距离进行全方位运算，得到管材的准确厚度，同时把最大最小值的位置标示出来，壁厚检测点在离管材端口30-50mm处，以避免管材切口翻边，此专利结构使激光不直接照射到管材表面上，避免受到管材颜色影响，以使测量结果更精确；
 - 外径测量：下线管材平均外径测量，设定平均上下限、实测平均外径值，在管材外利用编码器，通过伺服旋转一周，将一周测量所测得的数据进行全方位运算，得到管材的准确外径。外径检测点在离管材端口300mm处，以符合国标测量标准；
 - 不圆度计算：利用两组激光，共测量若干个点的外径来计算不圆度并且显示在界面；
 - 椭圆度计算：根据得到的壁厚尺寸算出管材椭圆度并且显示在界面；
 - 数据保存与采集：所有得到的数据都实时保存为Excel格式并且存在指定文件夹，开放TCP或MQTT端口便于采集数据上传公司mes系统及客户指定端口。采集方式为实时检测结果采集和原始数据采集。数据输出可根据生产订单或生产日期，分别输出为Excel或PDF格式通用U盘导出；
 - 重量计算：采用进口高精度称重传感器；
 - 数据显示：可实时显示当前生产的数量、良品率、NG数、OK数；
 - 偏差报警功能：通过对设定的外径、重量、壁厚、长度、不圆度的上下偏差对比进行合格与否的报警提示功能，具有不良品报警功能以及产品数量达到提醒功能；
 - 数据处理：剔除异常数据，异常数据不关联追溯码；
 - 报警提示功能：具有不良品报警功能以及产品数量达到提醒功能。
- Thickness measurement: The upper and lower limits of wall thickness and real-time wall thickness are set, and the patented structure is used for laser ranging inside and outside the pipe. The servo motor is rotated for one week, and the measured position and internal and external distance are calculated in an all dimensional way to obtain the accurate thickness of the pipe. At the same time, the position of the maximum and minimum value is marked. To avoid the pipe notch flanging, the patent structure makes the laser not directly irradiate to the surface of the pipe, avoid being affected by the pipe color, so as to make the measurement results more accurate;
 - Outside diameter measurement: Measure the average outside diameter of the offline pipe, set the average upper and lower limits and the measured average outside diameter values, and use the encoder outside the pipe to make an all-round calculation on the measured data through servo rotation for one week, so as to obtain the accurate outside diameter of the pipe. The outer diameter detection point is 300mm away from the pipe port to meet the national standard measurement standards;
 - Unroundness calculation: two sets of lasers are used to measure the outside diameters of 8 points to calculate unroundness and display it on the interface.
 - Ovality calculation: calculate the pipe ovality according to the obtained wall thickness and display it on the interface;
 - Data preservation and collection: all the data in real time and save as Excel format specified folder, open the TCP port or MQTT facilitate acquisition data upload company mes system and customer specified port. The collection methods are real-time detection result collection and original data collection. Data output according to production orders or production date, respectively output to Excel or PDF format common U disk is derived
 - Weight calculation: using imported high-precision load cell;
 - Data display: real-time display of the current production quantity, yield, NG number, OK number;
 - Deviation alarm function: through the setting of outside diameter, weight, thickness and length, the out of roundness of upper and lower deviation compared to alarm prompt function of qualified or not, has a bad product alarm function and the product quantity to remind function;
 - Data processing: eliminate abnormal data, abnormal data is not associated with traceability code;
 - Alarm function: with defective product alarm function and product quantity to remind function

Model

>> 型号与技术参数

型号 Model	可测管径 (mm) Pipe O.D range	生产节拍 Production cycle	可测管材长度(m) Pipe length
SLJK-250	φ90-250	30s/cycle	4-12m
SLJK-315	φ250-315	30s/cycle	4-12m
SLJK-400	φ315-400	30s/cycle	4-12m

P 管材在线智能检测系统

Pipe Online Intelligent Detection System



海狮管材在线智能检测系统应用在管材挤出机末端，可安装在任何一条生产线的末端，管材自动到检测平台进行各种测量，不影响生产线的任何生产任务。

系统包括激光测厚，编码器测径，不圆度检测，合格翻管等标配功能，所有检测数据可以发送到工厂内部的MES系统，生产看板或者其他管理系统，远程监控管材质量。

Sea-lion Pipe quality and safety of storage system in the end of the pipe extrusion machine, can be installed in any at the end of a production line, using the slide pipe to smooth mechanism testing platform for all kinds of measurement, does not affect the production line of any production tasks.

The system includes standard features such as laser thickness measurement, encoder diameter measurement, roundness detection, and qualified flip detection. All measurement data can be sent to the factory ' s internal MES system, production boards, or other management systems for remote monitoring of pipe quality.

Functional characteristics

>> 功能特点

- **壁厚测量**：设定壁厚上下限、实时壁厚，在管材内外利用专利结构进行激光测距，通过伺服电机旋转一周，将一周测量所测得的位置和内外距离进行全方位运算，得到管材的准确厚度，同时把最大最小值的位置标示出来，壁厚检测点在离管材端口30-50mm处，以避免管材切口翻边，此专利结构使激光不直接照射到管材表面上，避免受到管材颜色影响，以使测量结果更精确；
- **外径测量**：下线管材平均外径测量，设定平均上下限、实测平均外径值，在管材外利用编码器，通过伺服旋转一周，将一周测量所测得的数据进行全方位运算，得到管材的准确外径。外径检测点在离管材端口300mm处，以符合国标测量标准；
- **不圆度计算**：利用两组激光，共测量若干个点的直径来计算不圆度并且显示在界面；
- **椭圆度计算**：根据得到的壁厚尺寸算出管材椭圆度并且显示在界面；
- **数据保存与采集**：所有得到的数据都实时保存为Excel格式并且存在指定文件夹，开放TCP或MQTT端口便于采集数据上传公司mes系统及客户指定端口。采集方式为实时检测结果采集和原始数据采集。数据输出可根据生产订单或生产日期，分别输出为Excel或PDF格式通用U盘导出；
- **报警提示功能**：具有不良品报警功能以及产品数量达到提醒功能。
- **数据显示**：可实时显示当前生产的数量、良品率、NG数、OK数；
- **偏差报警功能**：通过对设定的外径、重量、壁厚、长度、不圆度的上下偏差对比进行合格与否的报警提示功能，具有不良品报警功能以及产品数量达到提醒功能；
- **数据处理**：剔除异常数据，异常数据不关联追溯码；

- **Thickness measurement**: The upper and lower limits of wall thickness and real-time wall thickness are set, and the patented structure is used for laser ranging inside and outside the pipe. The servo motor is rotated for one week, and the measured position and internal and external distance are calculated in an all dimensional way to obtain the accurate thickness of the pipe. At the same time, the position of the maximum and minimum value is marked. To avoid the pipe notch flanging, the patent structure makes the laser not directly irradiate to the surface of the pipe, avoid being affected by the pipe color, so as to make the measurement results more accurate;
- **Outside diameter measurement**: Measure the average outside diameter of the offline pipe, set the average upper and lower limits and the measured average outside diameter values, and use the encoder outside the pipe to make an all-round calculation on the measured data through servo rotation for one week, so as to obtain the accurate outside diameter of the pipe. The outer diameter detection point is 300mm away from the pipe port to meet the national standard measurement standards;
- **Unroundness calculation**: two sets of lasers are used to measure the outside diameters of 8 points to calculate unroundness and display it on the interface.
- **Ovality calculation**: calculate the pipe ovality according to the obtained wall thickness and display it on the interface;
- **Data preservation and collection**: all the data in real time and save as Excel format specified folder, open the TCP port or MQTT facilitate acquisition data upload company mes system and customer specified port. The collection methods are real-time detection result collection and original data collection. Data output according to production orders or production date, respectively output to Excel or PDF format common U disk is derived
- **Alarm function**: with defective product alarm function and product quantity to remind function
- **Data display**: real-time display of the current production quantity, yield, NG number, OK number;
- **Deviation alarm function**: through the setting of outside diameter, weight, thickness and length, the out of roundness of upper and lower deviation compared to alarm prompt function of qualified or not, has a bad product alarm function and the product quantity to remind function;
- **Data processing**: eliminate abnormal data, abnormal data is not associated with traceability code;

Model

>> 型号与技术参数

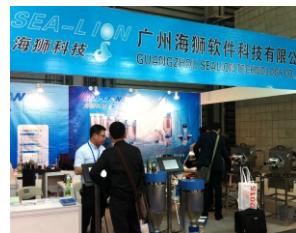
型号 Model	可测管径 (mm) Pipe O.D range	生产节拍 Production cycle	可测管材长度(m) Pipe length
SLJK-250	φ90-250	30s/cycle	4-12m
SLJK-315	φ250-315	30s/cycle	4-12m
SLJK-400	φ315-400	30s/cycle	4-12m

S 海狮成长

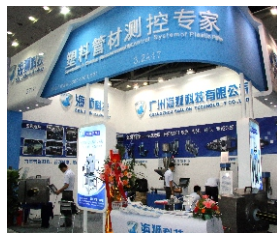
SEALION Development

Chinaplas

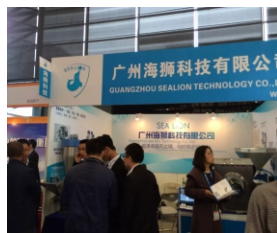
>> 中国橡塑展



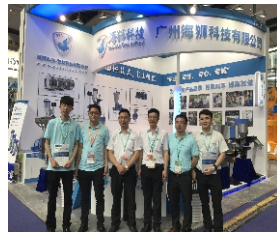
2015年广州橡塑展



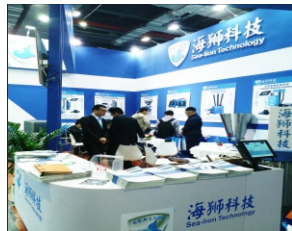
2016年上海橡塑展



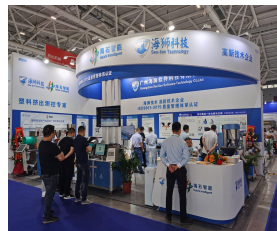
2017年广州橡塑展



2018年上海橡塑展



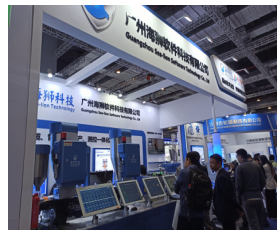
2021年深圳橡塑展



2022年上海橡塑展



2023年深圳橡塑展



2024年上海橡塑展

Customer Training

>> 客户培训



Oversea Exhibition & Customer

>> 国外展会和客户



德国K展



伊朗橡塑展



越南橡塑展



俄罗斯客户

C 海狮证书

CERTIFICATION



知识产权管理认证



一种适用于小管径管材的表面缺陷的低成本视觉检测装置及方法



管材质量检测设备及检测方法



管材测径测厚仪及其测量方法



一种管材管壁厚度测量的校准方法及校准装置



CE 认证



ISO9001认证



高新技术企业证书



专精特新企业