

环保一体化装备

Integrated Environmental Protection Equipment



撬装式污泥脱水集成装置



叠螺脱水机



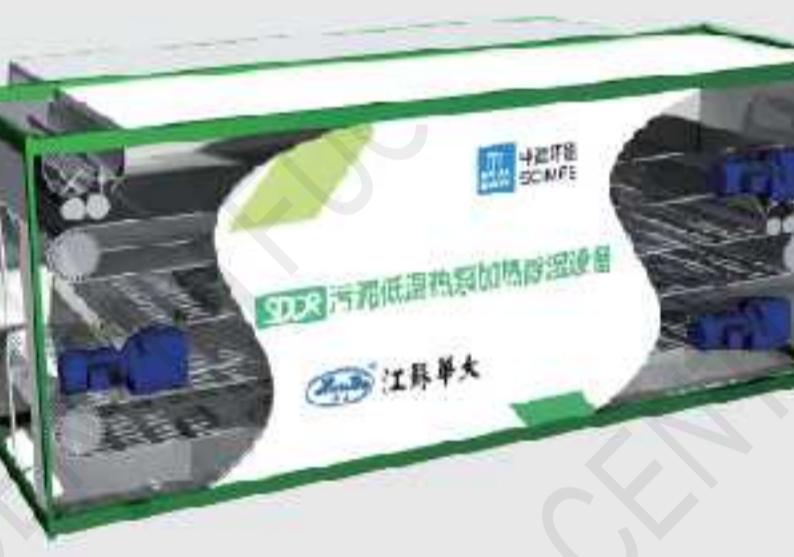
PM溶液自动投加装置



LW 卧式螺旋卸料沉降机



LLL立式螺旋卸料过滤离心机



SDDR低温热泵污泥干化装置



电气控制系统



粉碎切割机



单螺杆泵

无轴螺旋输送机

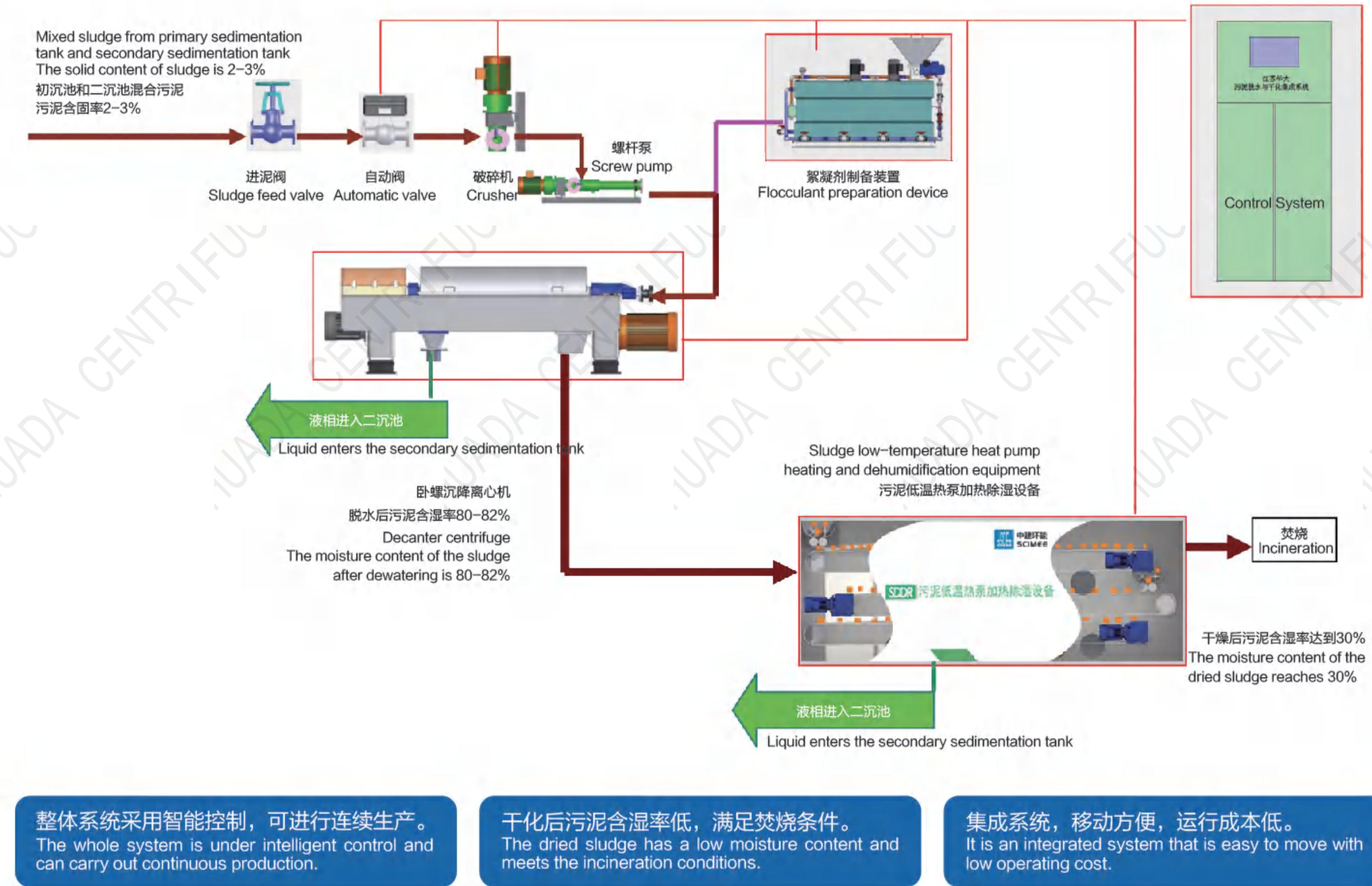
污泥脱水干化成套系统

COMPLETE SLUDGE DEWATERING AND DRYING SYSTEM

我公司生产的离心式污泥脱水与干化成套装置常用于污泥的浓缩和脱水工作，主要由LW系列卧式螺旋卸料沉降离心机（或叠螺脱水机）全自动絮凝剂制备投加装置、污泥粉碎切割机、进泥泵、加药泵、无轴螺旋输送机、流量计、控制阀门和全自动成套控制系统组成，具有结构先进、配置合理、自动化程度高、连续密闭操作、运行安全可靠等特点。适用于市政污水、农村污水、医院污水等领域处理，对于各类型的工业污水也同样适用。

► 污泥脱水与干化系统图

DIAGRAM OF SLUDGE DEWATERING AND DRYING SYSTEM



► 系统工作原理

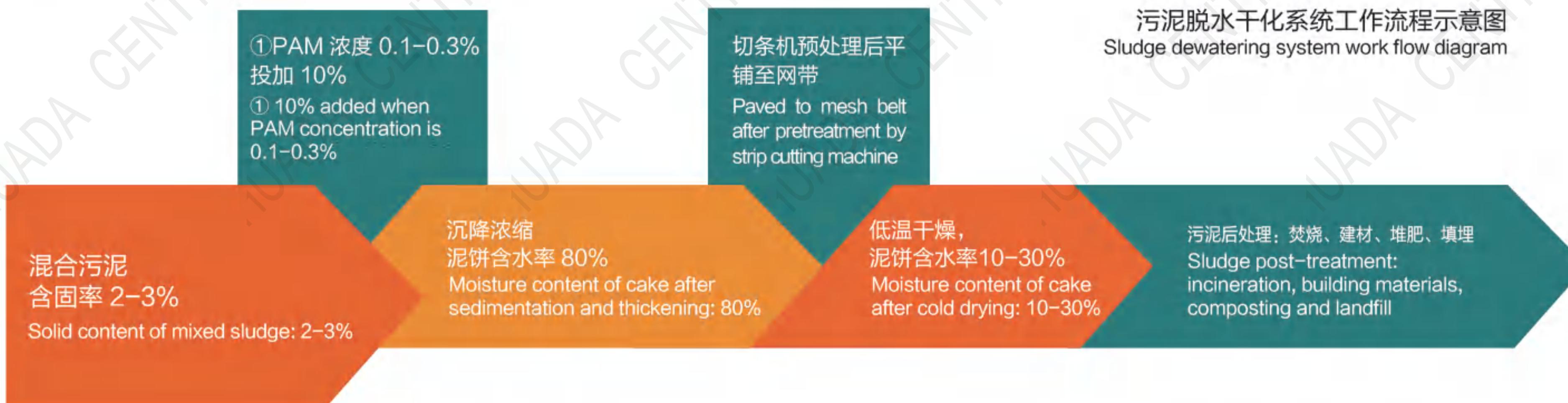
SYSTEM WORKING PRINCIPLE

城市污水在经一级沉淀和二级沉淀后的混合污泥，其含固率通常在2~3%左右，通过卧螺沉降离心机（或带式过滤机、叠式脱水机）脱水浓缩后，排出的污泥含水率在80~85%左右，，进入污泥低温热泵加热除湿设备进行除湿干化，处理后的污泥含水率将至30%左右，为污泥无害化处理创造条件，如进行焚烧或热解后加以利用。

The mixed sludge from the municipal sewage that has undergone primary sedimentation and secondary sedimentation normally has a solid content of about 2~3%. It is then dewatered and thickened with a decanter centrifuge (or belt filter, screw press) and the discharged sludge has a moisture content of about 80~85%. Later, the sludge enters the sludge low-temperature heat pump heating and dehumidification equipment for dehumidification and drying, and the moisture content of the treated sludge drops to about 30%. Thus, the harmless treatments of the sludge, such as incineration or utilization after pyrolysis, can be conducted.

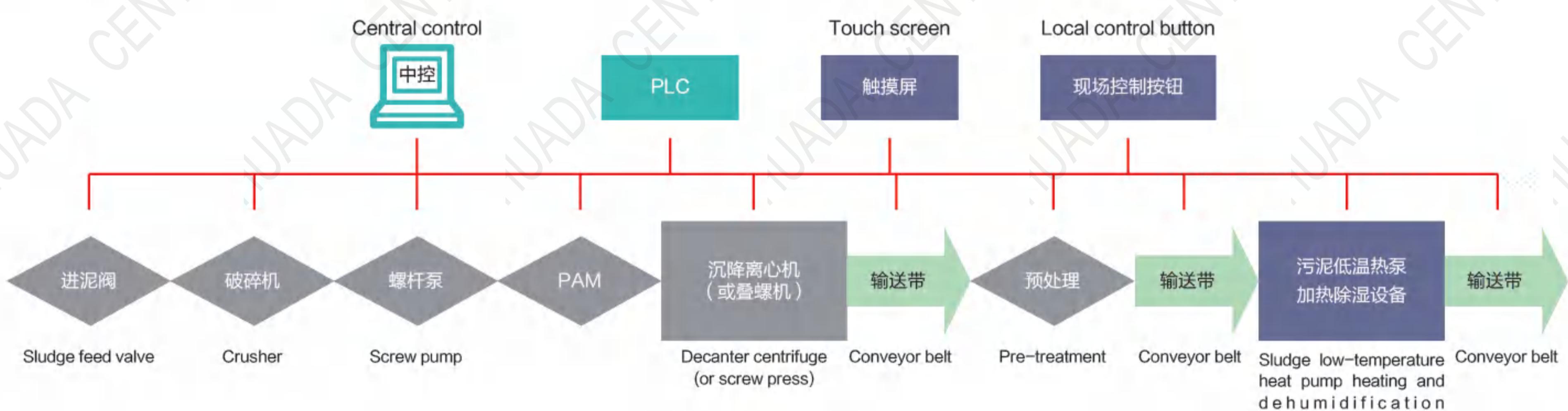
► 处理工艺

TREATMENT PROCESS



► DCS控制

DCS CONTROL



► 适用范围

SCOPE OF APPLICATION

长期以来，“重水轻泥”的行业现状，造成目前仅有约30%的污泥得到安全处置，大量的湿污泥随意外运、简单填埋或堆放，暴露在空气中，非常容易发臭，发臭和招来各种蚊虫，且不能被当做肥料来使用。

近年来，“水十条”等国家相关法规对污泥处理处置的要求不断提高，需要进一步将污泥进行稳定化、无害化资源化处理处置，填埋、焚烧、土地利用等污泥处置均要求污泥含水率低于60%。

For a long time, due to the stress on water treatment and the ignorance of sludge treatment, at present, only about 30% of the sludge is safely disposed of. Large amounts of wet sludge are transported out randomly, simply landfilled or piled up. Exposed to the air, the sludge is prone to stink and attract mosquitoes, and cannot be used as fertilizer.

The requirements of the Action Plan for Prevention and Treatment of Water Pollution and other relevant national laws and regulations for sludge treatment and disposal have continued to increase in recent years. Therefore, the sludge shall further undergo stable and harmless resource treatment and disposal, and the moisture content of sludge for landfill, incineration, land use, etc. shall be lower than 60%.



PAM溶液自动投加装置

PAM SOLUTION AUTOMATIC DOSING DEVICE



JY系列PAM溶液自动投加装置主要由自动干粉投加系统、自动定量注水装置、涡流预湿润装置、液位监测装置、搅拌装置、管路、阀门等组成，是一种集干粉储存、给料、湿润、溶解和熟化的集成系统装置，系统采用全自动控制，可进行高分子聚合物溶液批量、连续制备。广泛应用于污水处理、饮用水净化、工业废水处理、造纸与矿石冶炼等领域。

JY series PAM solution automatic dosing device, mainly composed of an automatic dry powder dosing system, an automatic quantitative water injection device, a vortex prewetting device, a liquid level monitoring device, a stirring device, pipelines, valves, etc., is a system device integrating dry powder storage, feeding, wetting, dissolution and curing. The system under full-automatic control can be used for batch and continuous preparation of high-molecular polymer solution. It is widely used in sewage treatment, drinking water purification, industrial wastewater treatment, papermaking, ore smelting, etc.

► 工作原理 WORKING PRINCIPLE

PAM粉剂经过高效涡流浸润装置，与水混合后充分搅拌溶解成浓度为0.1~0.5%PAM溶液后经熟化后进入储药箱备用。

制备溶液的熟化时间取决于药剂性质、工艺需求流量及装置的有效容积，一般来说为确保溶液的溶解及熟化效果，应确保溶液的溶解及熟化时间达到45~60min，确保药剂充分熟化。

按设定流量进水，同时自动定量投加干粉；经预湿润装置湿润，进入溶药箱，进行搅拌溶解；当液面到达溢水高度后，进入熟化箱进行搅拌熟化，同时进行搅拌溶药箱；当液面到达溢水高度后，进入储药箱，进行储存备用；当熟化完成，储药箱升至高液位，配好的PAM药液即可使用。第一次配制完成后，本装置一边供应工艺药液需求，一边配制新的药液，可以满足24小时连续运行的需要。

**► 结构图**

STRUCTURE DIAGRAM

**► JY系列溶液自动投加装置技术参数**

TECHNICAL PARAMETERS OF JY SERIES SOLUTION AUTOMATIC DOSING DEVICE

项目 Items	型号 Models					
	JY500	JY1000	JY1500	JY2500	JY4000	JY6000
有效容积 Effective volume (m³)	1030	1160	1570	2640	4500	6500
投药仓容积 Dosing chamber volume (L)	70	70	70	70	70	70
加药电机功率 Dosing motor power (kw)	0.18	0.18	0.18	0.18	0.18	0.18
配制能力 Preparation capacity (L / h)	500	1000	1500	2500	4000	6000
配比浓度 Proportioning concentration (%)	1~3	1~3	1~3	1~3	1~3	1~3
进水压力 Water inlet pressure (Mpa)	0.3	0.3	0.3	0.3	0.3	0.3
进水流量 Water inlet flow rate (m³ / h)	0~3	0~3	0~3	0~4	0~4	0~6
最大投加量 Maximum dosage (Kg / h)	0.85~3.6	0.85~3.6	1.7~7.2	2.5~9	3.4~14.4	4.5~20
箱体材质 Tank material	304	304	304	304	304	304
电源 Power supply (V)	380v / 50hz					
重量 Weight (kg)	400	420	500	600	750	880
外形尺寸 Dimension (mm)	2000x1000x1830	2200x1000x1830	2200x1200x2150	2600x1450x2150	3000x1500x2200	4000x1750x2500

注：最大投加量是指在满足完全熟化的前提下干粉投加螺旋最低转速-最高转速时每小时投加重量。

在实际运行时可按浓度要求调整加药螺旋转速调整干粉投加量；调整进水压力（流量），以达到制备浓度要求和产量要求。

在特别场合，可以通过更设计增大单位时间干粉投加量，提高每小时投加药量，请在订货时提出即可。

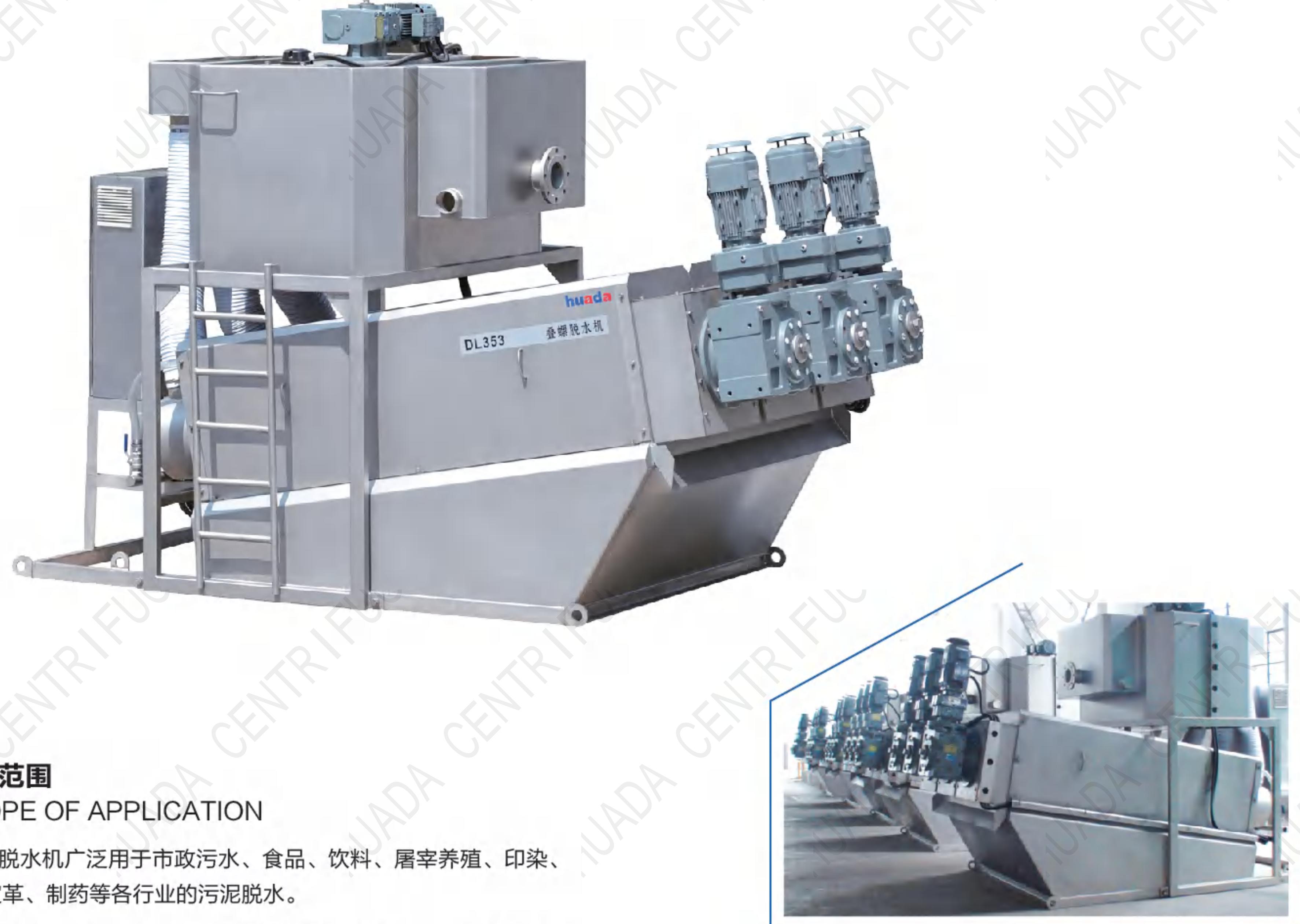
Note: The maximum dosage refers to the dosage per hour at the minimum - maximum speed of the dry powder dosing spiral under the premise of full curing.

In actual operation, the speed of the dosing spiral can be adjusted according to the concentration requirements to adjust the dry powder dosage; the inlet water pressure (flow rate) can be adjusted to meet the preparation concentration requirements and output requirements.

On special occasions, the design can be changed to increase the dosage of dry powder per unit time. To increase the dosage per hour, please put forward such request while placing the order.

污泥脱水系统-叠螺脱水机

SLUDGE DEWATERING SYSTEM - SCREW PRESS

**应用范围**
SCOPE OF APPLICATION

叠螺脱水机广泛用于市政污水、食品、饮料、屠宰养殖、印染、造纸、皮革、制药等各行业的污泥脱水。

Screw press is widely used for sludge dewatering in such industries as municipal sewage, food, beverage, slaughter and breeding, printing and dyeing, papermaking, leather and pharmaceuticals.

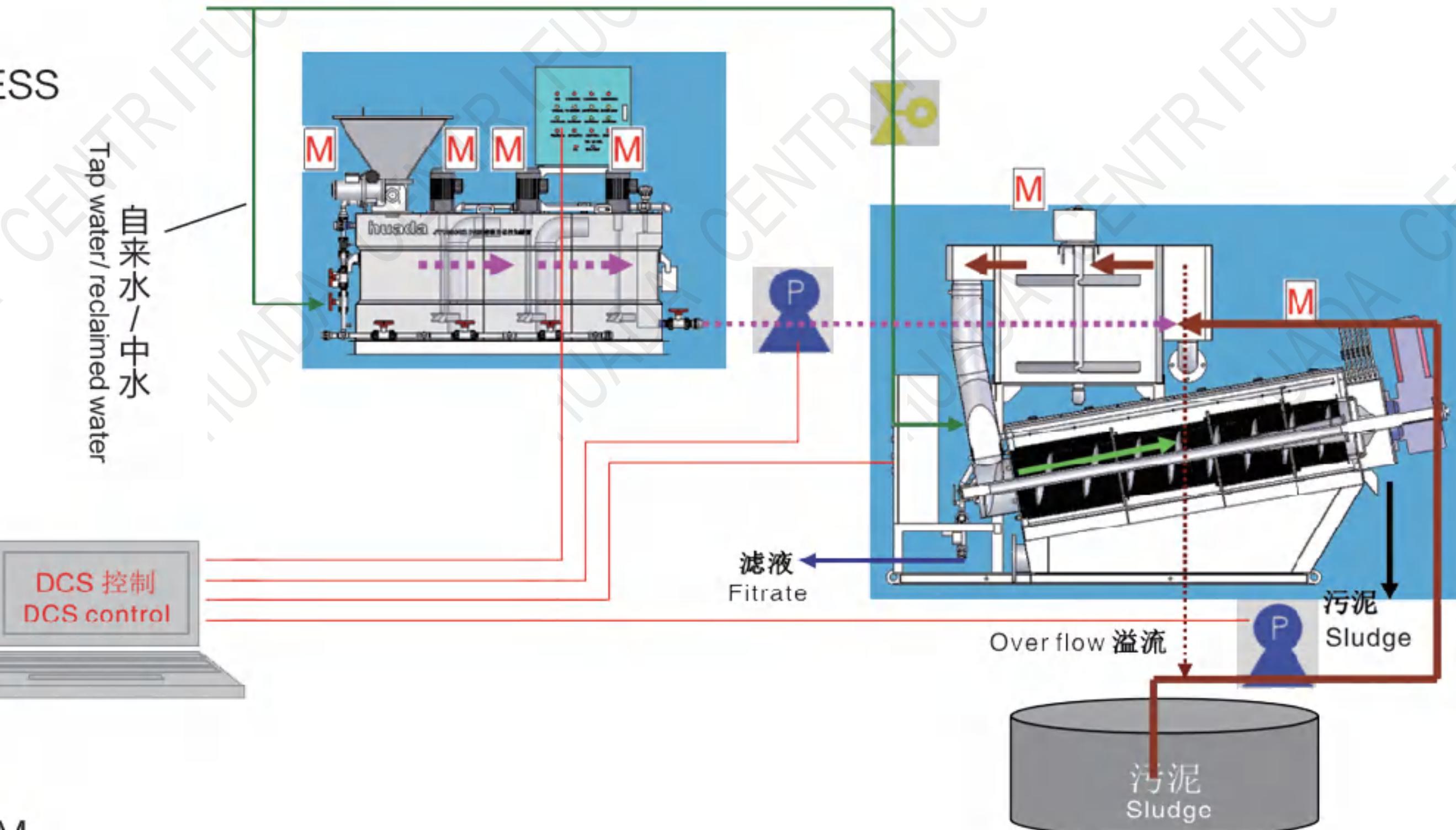
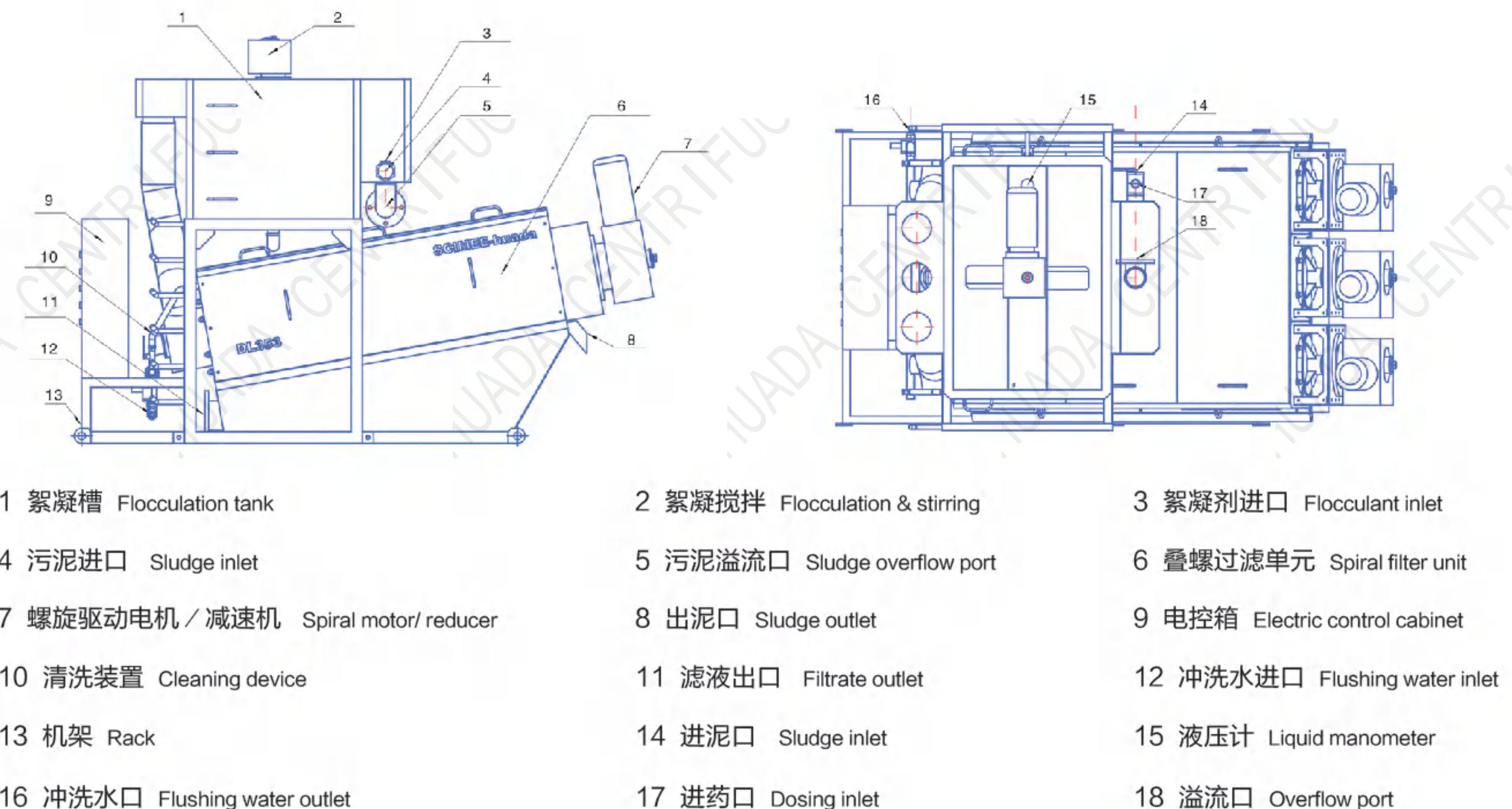
结构与工作原理
STRUCTURE AND OPERATING PRINCIPLE

叠螺脱水机分离单元是由固定环和游动环相互层叠，游动环与固定环之间保持一很小的间隙，螺旋轴贯穿其中，螺旋轴旋转时带动游动环做圆周运动，絮凝后的泥团中的水通过固定环和游动环中的间隙滤出，游动环做圆周运动防止堵塞。固定环和游动环之间的空隙沿着泥饼出口方向，从浓缩区到脱水区逐渐变小，在出泥口背压板形成的背压下达到强行脱水。

污泥输送泵输送污泥至进泥口，絮凝剂通过计量输送至絮凝混合槽，在絮凝混合槽内，通过搅拌器进行充分搅拌混合、絮凝，絮凝成较大絮团后，从叠螺进泥端进入叠螺分离单元内。在叠螺分离单元内絮团一边进行重力浓缩，一边在螺旋作用下向脱水区方向移动。脱水区的游动环和固定环之间的空隙变狭窄，并在背压板作用下进一步加压脱水，从出泥口排出泥饼。

The separation unit of the screw press is composed of a fixing ring and a floating ring which are stacked on each other with a small gap in between. The spiral shaft passes through it and rotates to drive the floating ring to move circumferentially. The water in the flocculated mud pie is filtered out through the gap between the fixing ring and the floating ring, and the floating ring moves circumferentially to prevent blockage. The gap between the fixing ring and the floating ring becomes smaller along the direction of the cake outlet from the thickening zone to the dewatering zone, and forced dewatering is achieved under the back pressure formed by the back pressure plate of the sludge outlet.

The sludge is sent by the sludge transfer pump to the sludge inlet, and the flocculant is metered and sent to the flocculation mixing tank, where the sludge is fully stirred with the flocculant and flocculated. After being flocculated into large flocs, the sludge enters the spiral separation unit from the spiral sludge inlet. The flocs in the spiral separation unit are under gravity thickening while moving towards the dewatering zone under the action of the spiral. The gap between the floating ring and the fixing ring in the dewatering zone is narrowed, and the sludge is further pressurized and dewatered under the action of the back pressure plate, and is discharged from the sludge outlet as cake.

▶ 脱水工艺流程
DEWATERING PROCESS**▶ 结构图**
STRUCTURE DIAGRAM**▶ 技术参数**
TECHNICAL PARAMETERS

项目 Items	型号 Models			
	DL201	DL351	DL352	DL353
脱水单元电机功率 (kw) Motor power of dehydration unit	0.25	1.1	2.2	3.3
絮凝搅拌电机功率 (kw) Motor power of flocculation mixer	0.55	1.1	1.1	1.1
处理能力 (kg DS/H) Treatment capacity	40-60	100-150	200-300	300-450
电源 (V) Power supply	380V, 50hz	380V, 50hz	380V, 50hz	380V, 50hz
整机重量 (kg) Machine weight	580	1340	2080	2820
外形尺寸 (mm) Dimension	2700x1000x1850	3115x850x2175	3115x1215x2175	3115x1700x2175

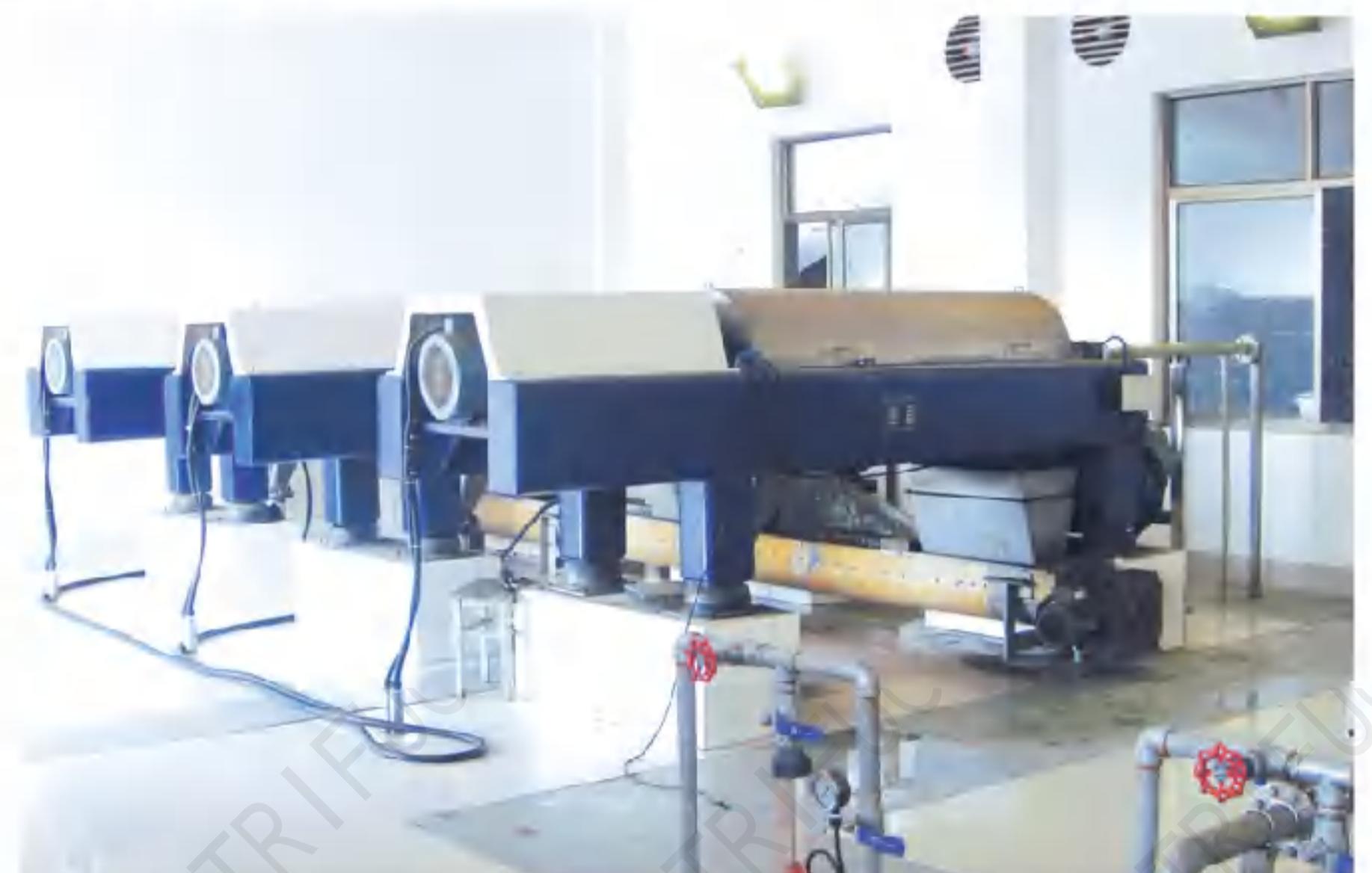
► LW型污泥脱水-专用沉降离心机

LW SLUDGE DEWATERING - DEDICATED DECANTER CENTRIFUGE

离心机由高速旋转的转鼓，与转鼓同向运转，并具有一定的转速差的螺旋，以及差速器、机座、进出料系统等组成。污泥与絮凝剂在特殊设计的进料室内混合后进入转鼓，在离心力的作用下，絮凝颗粒在沉降区快速分离并沉降，清液通过转鼓末端的溢流孔排出。螺旋推进器则将沉降的固相，经BD板的挤压脱水后推至转鼓的干燥段进一步压缩后经出渣口排出。固相在转鼓内的脱水时间由调整螺旋与转鼓间的差转速来完成。



撬装式污泥脱水集成系统
Skid-mounted Sludge Dewatering Integrated System



LW系列污泥脱水机在污水厂中应用
Application of LW Series Decanter Centrifuge in Sewage Plant

► 主要特点

MAIN FEATURES

转鼓转速: 转鼓设计转速高，分离因数大，可有效澄清 $\geq 5 \mu\text{m}$ 的微小颗粒。

Bowl speed: The bowl is designed with high speed and large separation factor, which can effectively clarify tiny particles with size $\geq 5 \mu\text{m}$.

长径比: 转鼓实际有效长度与直径比 ≥ 4 ，沉降距离长，增加了污泥在转鼓内澄清及脱水的时间。

Length-diameter ratio: The actual effective length-diameter ratio of the bowl is ≥ 4 , and the sedimentation distance is long, which increases the clarification and dewatering time of the sludge in the bowl.

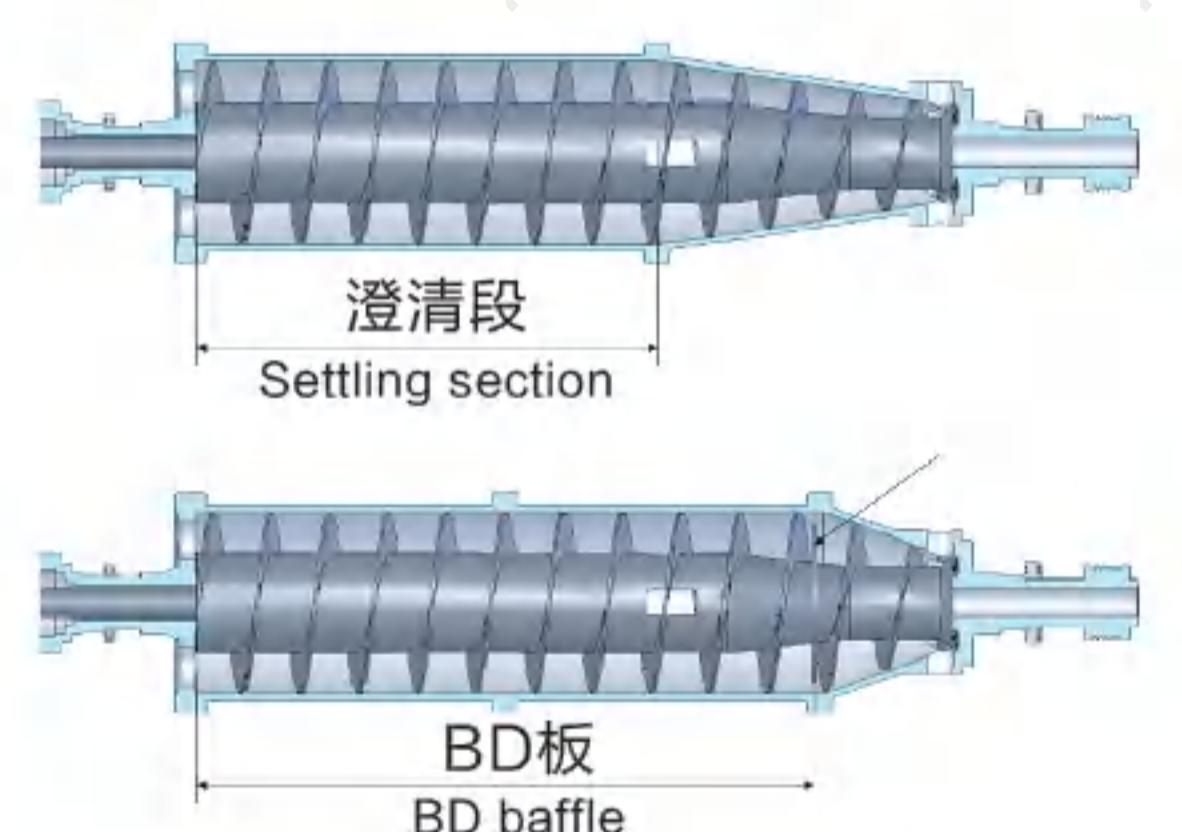
BD挡板: 螺旋沉降与干燥段间设有圆形挡板，沉降段污泥经挤压进入干燥段，使污泥含水率更低；同时隔断污泥与澄清液的联系，液池深度可大于出渣口，液池深、停留时间长，澄清效果更好。

BD baffle: There is a circular baffle between the scroll sedimentation section and drying section, which squeezes the sludge in the settling section into the drying section, so that the moisture content of the sludge is lower; meanwhile, it cuts off the connection between the sludge and the clarified liquid. The depth of the liquid pool can be greater than the slag outlet, and the deeper the liquid pool is and the longer the process takes, the better the clarification effect is.

► 技术参数

TECHNICAL PARAMETERS

项目 Items	型号 Models			
	LW355 x 1460	LW450 x 1800	LW530 x 2120	LW650 x 2800
转鼓直径 (mm) Bowl Diameter	350	450	530	650
转鼓转速 (r / min) Bowl Speed	4000	3200	2800	2500
分离因数 Separation Factor	3100	2580	2300	2270
处理能力 (m³ / h) Treatment capacity	8~15	20~35	30~50	40~70
主电机功率 (KW) Main motor power	22	30	55	70



不同锥角转鼓比较
Comparison of Bowls with Different Cone Angles

► 电气控制系统

Electrical control system

- 污泥脱水成套装置的控制系统采用PLC可编程控制器，对离心絮凝剂配投装置、切割机、进料泵、流量仪表等实行全自动或手动操作，运行监测，故障报警和联锁保护等。
- 按照预设程序以及个性化设置需求进行系统的启停、自动/手动运行、以及分离、清洗、停机的功能；
- 具有恒扭矩自动调整进料量的功能；
- 根据推料扭矩的变化，自动增减差转速以防止堵料的功能；
- 液压差速系统根据驱动液压系统压力变化自动调整差速的功能，以控制差转速；
- 按照预定浓度自动配比絮凝剂配制浓度，并持续稳定定量投加的功能；
- 采用大尺寸彩色触摸屏操作，实时显示设备运行的工况参数。
- The PLC (programmable controller) is employed in the control system of the sludge dewatering equipment for the full-automatic or manual operation, operation monitoring, fault alarm and interlocking protection, etc. of the centrifugal flocculant preparation and dosing device, cutting machine, feed pump, flow meter, etc.
- The system start/ stop, automatic/manual operation, separation, cleaning and shutdown functions can be carried out according to preset programs and personalized settings;
- It can automatically adjust the feed volume with the constant torque;
- It can automatically increase or decrease the differential speed to prevent material blocking according to the changes in the pushing torque;
- The hydraulic differential system automatically adjusts the differential speed according to the pressure change of the hydraulic driving system to control the differential speed;
- It automatically proportions the flocculant preparation concentration according to the predetermined concentration, and has the function of continuous and stable quantitative dosing;
- A large-size color touch screen is available for operation and it can display the working parameters of the equipment in real time.



► 粉碎切割机

CRUSHING AND CUTTING MACHINE

本机主要用于将(含固量 ≤ 5)的污泥中的木块、纺织品、塑料、橡皮、骨头、皮革、玻璃等大块物质打碎，使下游系统中的加料泵、离心机和仪表等能够保持正常工作，具有处理量大，能耗低，使用寿命长等优点。

This machine is mainly used to smash large pieces of wood, textiles, plastics, rubber, bones, leather, glass, etc. in the sludge (with a solid content of ≤ 5) so that the feed pumps, centrifuges and instruments in the downstream system can operate normally. It is featured by high treatment capacity, low energy consumption, long service life, etc.



► 单螺杆泵

SINGLE-SCREW PUMP

该泵为容积式输送泵，由具有大导程、大齿高和小螺旋内径的螺杆将被输送介质沿轴向吸入端向排出端推出。采用高耐磨材料制造，主要用于含固率0~2~5%污泥和絮凝剂的输送，可通过变频器调整排出流量。

The pump is a positive displacement transfer pump, whose screw with large lead, great tooth depth and small spiral inner diameter pushes the conveyed medium from the suction end to the discharge end along the axial direction. Made of highly wear-resistant materials, it is mainly used for the transfer of sludge with a solid content of 0.2~5% and flocculants, and its discharge flow rate can be adjusted by a frequency converter.



► 无轴螺旋运送机

SHAFTLESS SCREW CONVEYOR

LS无轴螺旋输送机主要由驱动装置、无轴螺旋叶片、U型可更换耐磨衬板和机架组成。主要用于将脱水后的泥饼由离心机的排出口输送至室外堆放场或输送车内，整个工作在密闭状态下进行，保持环境清洁。

LS shaftless screw conveyor is mainly composed of a driving device, shaftless spiral blades, a U-shaped replaceable wear-resistant liner plate and a rack. It is mainly used to transport the dewatered cake from the discharge outlet of the centrifuge to the outdoor storage yard or the transportation vehicle. The whole work is done in an airtight state to keep the environment clean.

► 污泥低温热泵干化-SDDR集成系统

SLUDGE LOW-TEMPERATURE HEAT PUMP DRYING - SDDR INTEGRATED SYSTEM



SDDR污泥低温热泵加热除湿设备是一种污泥深度脱水设备，可有效将85%含水率及下污泥处理至最低10%，广泛应用于市政污泥、工业污泥及固废、危废等污泥处理领域。

设备由低温热泵加热除湿机、脱水污泥预处理设备和网带传输设备等组成。

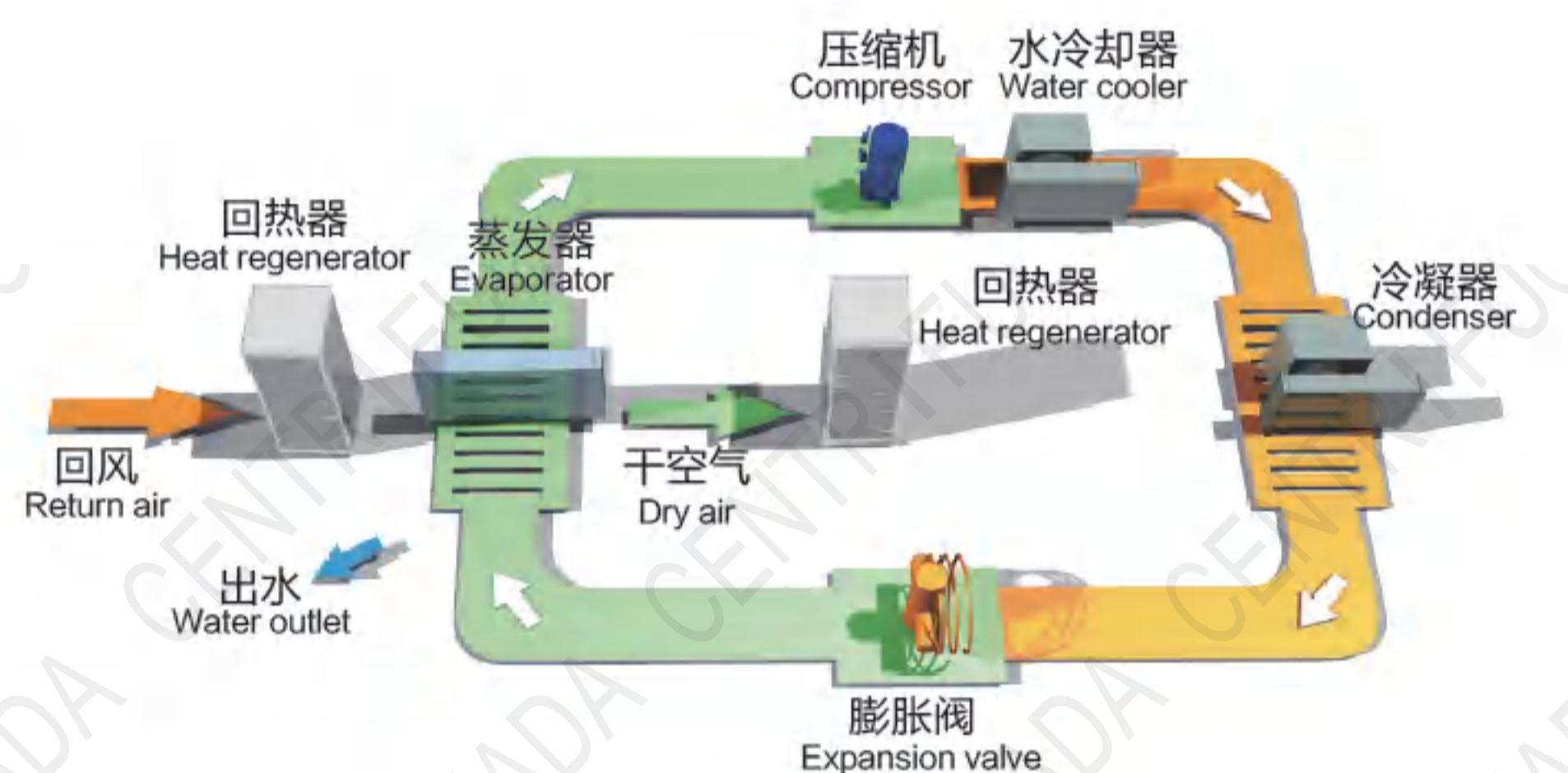
SDDR sludge low-temperature heat pump heating and dehumidification equipment is sludge deep dewatering equipment, which can effectively treat the sludge with a moisture content of 85% or lower to a minimum of 10%. It is widely used in the treatment of municipal sludge, industrial sludge and solid waste, hazardous waste and other sludges.

► 工作原理

WORKING PRINCIPLE

在密闭干化仓内注入干燥空气，通过湿度交换原理将污泥中的水分带出，再用蒸发器冷凝去除空气中的水分，同时利用热泵原理回收水分凝结潜热，用于加热干燥空气重新吹入干化仓。采用热回收技术，密闭式干化模式无任何废热排放。

Inject dry air into the airtight drying chamber, and take out the moisture in the sludge through humidity exchange, then use the evaporator to condense and remove the moisture in the air, and at the same time, take advantage of the heat pump principle to recover the latent heat of moisture condensation, use it to heat the dry air and blow the air back into the drying chamber. Since the heat recovery technology is adopted, no waste heat is emitted in the airtight drying mode.



► 技术优势

TECHNICAL ADVANTAGES

模块化设计

- 携带式或车载式设计，无需现场总装施工
- 热泵，风机集成化避免污染，拆装方便
- 尾气处理模块集成化，无需单独成撬

环保

- 无药剂投加，不影响污泥后续处置
- 设备低温封闭运行，热风回收再利用，环境友好
- 选配出料口尾气处理装置，杜绝烘干现场恶臭
- 新型冷媒ODP=0，GWP值极低，工作噪音<55分贝

节能

- 能量回收接近100%，每1度电就可脱水2.5~4.2公斤
- 根据客户需求定制化设备，达到节能降耗最佳方案

可靠

- 设备低速运行且选用耐腐蚀材料
- 设备可移动端监控一键运行
- 软件设置保护，故障预判，提前报警停机

Modular design

- Skid-mounted or vehicle-mounted design makes it unnecessary to conduct on-site assembly construction
- Heat pump and fan are integrated, avoiding pollution, easy to disassemble and assemble
- Tail gas treatment module is integrated, so no separate skid is required

Eco-friendly

- There is no chemical addition, so the subsequent disposal of sludge is not affected
- The equipment runs in an airtight manner at low temperature, and the hot air is recycled and reused, which is environmentally friendly
- The tail gas treatment device is selectively assembled at the solid discharge port, preventing bad smell at the drying site
- New refrigerant ODP=0, GWP value is extremely low, working noise <55 decibels

Energy conservation

- Energy recovery rate is close to 100%, and 2.5~4.2kg sludge can be dewatered with just 1 kilowatt-hour of electricity
- Equipment can be customized according to customer requirements to provide the best solution for energy conservation and consumption reduction

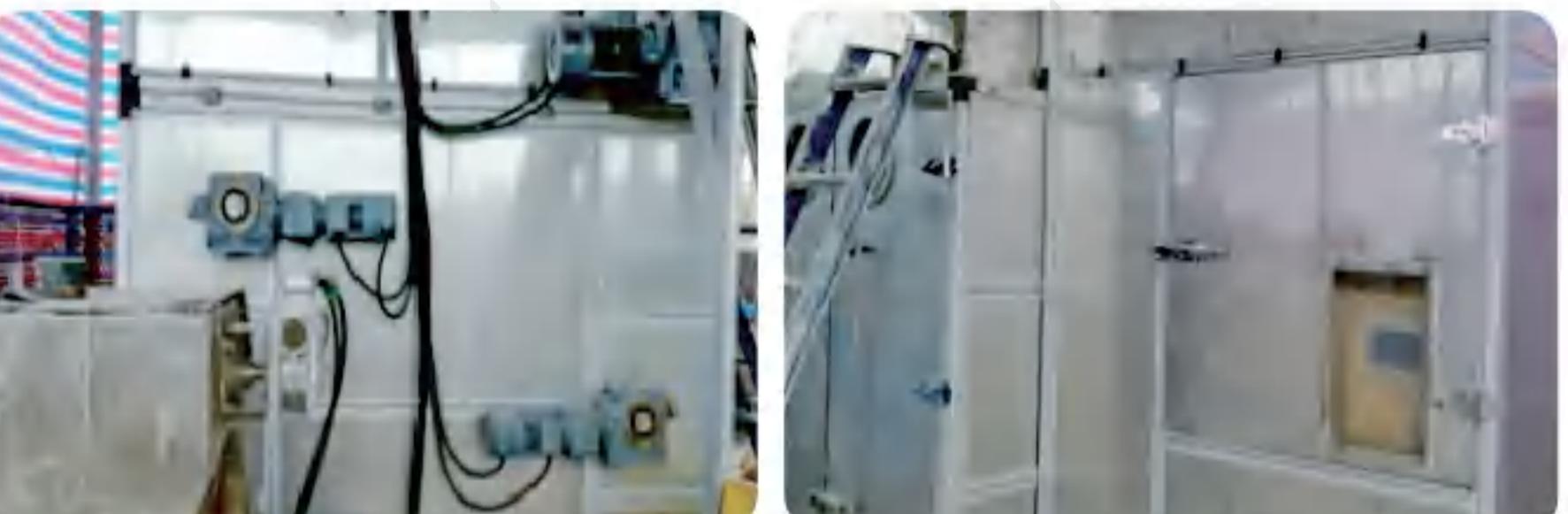
Reliability

- The equipment runs at low speed and uses corrosion-resistant materials
- Mobile terminal monitoring of the equipment can be realized with just one key
- It has software setting protection, failure prediction, early warning and shutdown functions

► 成功案例

SUCCESS STORIES

污泥类型 Sludge type	湿泥量 Amount of wet sludge	前端脱水 Front-end dewatering	湿泥含水率 Moisture content of wet sludge	干泥含水率 Moisture content of dry sludge	设备规格 Equipment spec
工业污泥 Industrial sludge	1.5T/D	板框压滤机, Plate-and-frame filter press	80%	20%	SDDR1500x1 台 SDDR1500 × 1 set



污泥类型 Sludge type	湿泥量 Amount of wet sludge	前端脱水 Front-end dewatering	湿泥含水率 Moisture content of wet sludge	干泥含水率 Moisture content of dry sludge	设备规格 Equipment spec
市政污泥 Municipal sludge	8T/D	离心脱水机, Centrifugal dewatering machine	80%	20%	SDDR1500x1 台 SDDR6000 × 1 set



► 设备选型

EQUIPMENT SELECTION

常用污泥低温热泵加热除湿设备撬装式产品序列（设备处理量可根据客户需求定制）
List of Skid-mounted Products of Commonly Used Sludge Low-temperature Heat Pump Heating and Dehumidification Equipment
(equipment treatment capacity can be customized according to customer requirements)

型号 Models	SDDR1500	SDDR3000	SDDR4500	SDDR6000	SDDR7500	SDDR12000	SDDR18000
湿泥处理量 (80%-40%) Wet sludge treatment capacity	2吨 / 2t	4吨 / 4t	6吨 / 6t	7.5吨 / 7.5t	10吨 / 2t	15吨 / 15t	22.5吨 / 22.5t
标准取水量 (24h) Standard water intake	1500kg	3000kg	4500kg	6000kg	7500kg	12000kg	18000kg
运行功率 Operating power	16~20kw	32~40kw	48~60kw	64~80kw	80~100kw	128~160kw	192~240kw
电源 Power supply				380V / 3H / 50Hz			
干燥温度 Drying temperature					50~65°C (回风) / 65~85°C (送风) 50~65°C (return air) / 65~85°C (supply air)		
干料含水 Moisture content of dry material							变频调节 最低 10% / Variable frequency regulation: 10% at a minimum
压缩机台数 Number of compressors	1台 1set	2台 2sets	3台 3sets	4台 4sets	5台 5sets	8台 8sets	12台 12sets
外形尺寸 (LxWxH)(mm) Dimension	3000x2950x3000	4500x2950x3000	5100x3300x3000	6600x3300x3000	8100x3300x3000	11600x3300x3000	16600x3300x3000
螺旋上料提升机 Spiral feeding elevator	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional
二次切条装置 Secondary strip cutting machine	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional
出料口尾气除臭 Tail gas deodorization at the solid discharge port	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional
污泥进料斗 Sludge feed hopper	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional	选配 Optional
重量 Weight	3吨 / 3t	5吨 / 5t	6吨 / 6t	7吨 / 7t	8.5吨 / 8.5t	10吨 / 10t	15吨 / 15t

注：如果客户现场有足够的可用废热（如高温烟气、热水、蒸汽），同等污泥处理量设备运行功率降低一半以上。

Note: If there is sufficient available waste heat (such as high-temperature flue gas, hot water and steam) at the customer site, the operating power of the equipment with the same sludge treatment capacity can be reduced by more than half.