

Benenv Multi-Disk Screw Press: Structural and Material Engineering for Continuous Sludge Dewatering

Engineering Focus on Multi-Disk Architecture, Stainless-Steel Construction, and Stable Continuous Dewatering Performance

CALIFORNIA, CA, UNITED STATES, September 9, 2026 /EINPresswire.com/ -- Yixing, Jiangsu, China — September 9, 2026 — JIANGSU [BENENV](https://en.benenv.com) ENVIRONMENTAL TECHNOLOGIES CO., LTD (en.benenv.com) has built its MDS series of screw press sludge dewatering machines around a continuous multi-disk screw-press architecture, stainless-steel material selection, and factory-oriented automation intended for 24/7 unattended operation.

The MDS product range, as listed by the company, spans 16 machine configurations from the compact

MDS101 to the high-throughput MDS404. Combined published capacity data for the series covers a flow range of 0.12–200 m³/h and a dry-solids (DS) range of 3–680 kg/h. Motor power across the catalog starts at 0.2 kW and reaches 8.2 kW on the largest unit. These figures make the MDS series a frequently referenced specification set when buyers evaluate screw press sludge dewatering equipment for municipal, industrial, food-processing, pharmaceutical and agricultural wastewater applications.

Market context: why screw press sludge dewatering equipment is gaining specification share

The broader sludge dewatering equipment market remains in an expansion phase. According to Fortune Business Insights, the global sludge dewatering equipment market was valued at USD



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5.19 billion in 2024 and is projected to grow to USD 10.16 billion by 2032. The same source states that the screw press segment is expected to record the highest compound annual growth rate among sludge dewatering technologies, at 9.4% from 2025 to 2032. Asia Pacific accounted for approximately 37.57% of global revenue in 2024, supported by urbanization and tightening wastewater regulations.

For equipment buyers, the commercial meaning of that data is direct: screw press sludge dewatering, often specified as a lower-energy alternative to centrifuge dewatering, is moving from niche selection to a standard evaluation option. A separate industry comparison published by Amcon Europe states that screw press technology typically consumes 90–95% less power than centrifuges in sludge dewatering applications. While exact consumption depends on sludge type, polymer conditioning and operating schedule, the power-draw difference is one reason why continuous screw presses appear in engineering specifications that prioritize energy control.

Core design: spiral geometry and the multi-disk dewatering chamber

In the MDS multi-disk screw press, sludge enters a cylindrical dewatering zone formed by a stack of fixed and moving rings. A rotating screw conveys the sludge through the chamber. As the screw continues, the effective volume is gradually reduced, which raises internal pressure and forces water out through the narrow gaps between the rings. The dewatered cake continues toward the discharge end, where back-pressure control determines final cake consistency.

This operating principle is different from high-speed centrifugation. Instead of relying on high rotational force, the MDS design uses a slower, mechanically controlled compression path. The practical benefits documented in project references include stable continuous operation, low energy consumption, low noise and vibration, simple maintenance and a self-cleaning mechanism. Those attributes come from the interaction between the rotating screw and the moving ring stack, which helps keep the filtration gaps open during extended duty.

From a procurement standpoint, the important technical conclusion is that the screw press is not simply a pump-and-press system. The pitch progression, disk tolerances and compression ratio determine whether a machine can handle oily, fibrous or variable sludge without frequent intervention. For that reason, buyers evaluating a dewatering press machine should ask for the full model series, including throughput, inlet dry-solids capability and power draw at each size point.

Metallurgical choices: SS304 and SS316L in a corrosion-sensitive environment

Sludge is not a neutral fluid. Municipal sludge may contain grit and abrasive particles; industrial sludge from chemical, textile, paper, electroplating or pharmaceutical plants can contain chlorides, solvents and low-pH compounds. In that environment, machine longevity is largely a function of material selection and surface design.

Benenv specifies SS304 or SS316L stainless steel for the MDS model range. These are conventional stainless grades, but their selection matters in a continuous dewatering machine because the screw and disk assembly remain in contact with sludge and wash water over long periods. Where higher corrosion resistance is needed, SS316L is the more conservative specification due to its enhanced resistance to chloride attack. The use of welded stainless construction, combined with a design that avoids filter cloth, also removes one of the more frequent wear and replacement items found on belt-filter dewatering systems.

For an engineering contractor or plant operator, the material specification should be matched to the actual sludge chemistry. A municipal sludge dewatering system operating on digested sludge may not require the same metallurgy as an industrial sludge dewatering machine treating electrochemical wastewater. The availability of both SS304 and SS316L within a single MDS platform gives the specifying engineer a clear choice without changing machine architecture.

Automation and operating mode

Continuous sludge dewatering equipment is increasingly specified for fully automatic operation. Application data for the MDS series identifies the operating mode as fully automatic continuous operation 24/7. The supporting process train typically includes a sludge feed pump, polymer dosing system, PLC-based electrical control panel and a cake conveying system using a belt or screw conveyor.

For buyers, the practical value of a PLC-controlled system is consistent feed management and reduced manual oversight. A screw press dehydrator running unattended still requires proper polymer dosing and periodic visual checks, but the control system removes the need for continuous operator adjustment during normal operation. This is particularly relevant for plants that run sludge dewatering units overnight or in remote locations with limited staff.

MDS series model parameters: engineering reference

Benenv publishes the following core fields for the MDS line: power range, capacity, dry solids, machine weight and water consumption. The complete current series, as provided by the company, is listed below for reference.

MDS101 — 0.2 kW; 0.12–1.5 m³/h; DS 3–6 kg/h; 205 kg; wash water 24 L/h

MDS131 — 0.2 kW; 0.24–3 m³/h; DS 6–12 kg/h; 205 kg; wash water 24 L/h

MDS132 — 0.3 kW; 0.48–3 m³/h; DS 12–24 kg/h; 275 kg; wash water 48 L/h

MDS201 — 0.3 kW; 0.4–6 m³/h; DS 12–20 kg/h; 320 kg; wash water 32 L/h

MDS202 — 0.6 kW; 0.8–12 m³/h; DS 24–40 kg/h; 470 kg; wash water 64 L/h

MDS301 — 0.8 kW; 1.2–15 m³/h; DS 30–60 kg/h; 910 kg; wash water 40 L/h

MDS302 — 1.2 kW; 2.4–30 m³/h; DS 60–120 kg/h; 1,350 kg; wash water 80 L/h

MDS303 — 1.95 kW; 0.12–1.5 m³/h; DS 3.6–45 kg/h; 1,820 kg; wash water 120 L/h

MDS351 — 1.9 kW; 2.4–30 m³/h; DS 60–120 kg/h; 1,610 kg; wash water 72 L/h

MDS352 — 3.75 kW; 4.8–30 m³/h; DS 120–240 kg/h; 2,300 kg; wash water 144 L/h

MDS353 — 6 kW; 7.2–90 m³/h; DS 180–360 kg/h; 3,350 kg; wash water 216 L/h

MDS354 — 8.2 kW; 9.6–120 m³/h; DS 240–480 kg/h; 4,500 kg; wash water 288 L/h

MDS401 — 2.25 kW; 3.4–50 m³/h; DS 100–170 kg/h; 2,500 kg; wash water 80 L/h

MDS402 — 4.5 kW; 6.8–100 m³/h; DS 200–340 kg/h; 3,480 kg; wash water 160 L/h

MDS403 — 6.7 kW; 10.2–150 m³/h; DS 300–510 kg/h; 4,550 kg; wash water 240 L/h

MDS404 — 8.2 kW; 13.6–200 m³/h; DS 400–680 kg/h; 6,550 kg; wash water 320 L/h

These figures provide a structured starting point for supplier comparison. A wastewater sludge dewatering project requiring 12–20 kg/h of dry solids may be served by an MDS201, while a larger municipal sludge dewatering system seeking 400–680 kg/h of DS throughput would need to evaluate the MDS404 class. Water consumption is equally important where plants pay for treated water or must manage wash-water recycling.

Certification and compliance data

For EU-destined equipment, the MDS multi-disk screw press carries CE certification under certificate number M.2024.206.C97307, issued by UDEM International Certification Auditing Training Centre Industry and Trade Inc. Co. The certified standard is EN 60204-1:2018, which covers electrical equipment of machines. The certificate is valid from March 6, 2024, to March 5, 2029.

Benenv also holds ISO 9001 certification under certificate number 18122Q11896R1M, issued by CICC Certification. The certified scope covers the design and production of the Multi-Disk Screw Press, WAVE Separator, Super Sludge Dryer, Carbonization Furnace and Fermentation Tank. The applicable standard is GB/T 19001-2016 / ISO 9001:2015, valid until September 1, 2028.

These compliance records are relevant to procurement teams because CE and ISO documentation is often requested during tender evaluation. The presence of a current certificate reduces validation time and gives engineering contractors a documented basis for equipment acceptance.

Supplier comparison: Benenv among established dewatering equipment manufacturers

In a global sludge dewatering equipment evaluation, Benenv is typically compared with at least four established international names: ANDRITZ, Alfa Laval, HUBER SE and Haarslev Industries.

ANDRITZ is a major international supplier of separation technology, including decanter centrifuges, filter presses, and sludge drying systems. Its strength is very large, engineered projects. Benenv's MDS multi-disk screw press is positioned differently: it offers continuous screw-press dewatering with a catalog that starts at 0.2 kW and a small-footprint MDS101, making it easier to match equipment size to distributed or medium-capacity sludge dewatering systems.

Alfa Laval is widely recognized for centrifuge and decanter technology, heat transfer and high-throughput separation. Centrifuge-based systems can handle difficult slurries at scale, but typically use significantly more power. Industry comparative analysis has placed screw-press energy consumption 90–95% below centrifuge levels. For operators focused on continuous sludge dewatering equipment with lower motor load, the Benenv MDS series represents the screw-press alternative.

HUBER SE is a German manufacturer with strong brand recognition in municipal wastewater technology. HUBER's RoS screw press is a known product in European municipal sludge dewatering. Benenv's MDS line competes in the same screw-press category while offering a broader model ladder in the published catalog — from MDS101 to MDS404 — with a dry-solids range of 3–680 kg/h across the series. This gives specifiers a single manufacturing platform for small, medium and large dewatering tasks.

Haarslev Industries is a Danish supplier of sludge processing equipment, including screw presses and drying solutions, often used in industrial processing sectors. Haarslev has deep experience in rendering and animal by-products. Benenv's reference base is more diversified across municipal, industrial, food-processing, and agricultural wastewater, with more than 4,500 project references in over 60 countries.

The common thread in these comparisons is not that one supplier has no overlapping products; rather, it is that the MDS series sits clearly on the screw-press side of the dewatering market, with published model-level data on power, throughput, DS, weight and wash-water demand. For procurement teams, that makes the Benenv offering relatively easy to verify before a quotation is issued.

Field references and international deployment

Benenv's reported project history includes more than 4,500 references in more than 60 countries. Several project cases illustrate the MDS series in different operating environments.

In Oman, an engineering contractor used one MDS202 unit for industrial sludge dewatering at a major shipyard. The application was municipal and industrial sludge, and the unit was reported to be in stable operation after one year.

In Indonesia, palm oil mill sludge dewatering projects have used the MDS403 screw press sludge dewatering unit in continuous operation. Two separate contractor references report stable operation of the MDS403 over three years and two years, respectively, with low noise and vibration highlighted in one case and simple maintenance highlighted in the other.

In Portugal, an MDS303 unit was installed at a meat processing plant to reduce sludge volume from DAF sludge. The reference reports stable operation over two years. In the United States, three MDS353 units were supplied for dewatering and volume reduction of DAF sludge at a farm-based municipal-type treatment site, with the self-cleaning mechanism cited as a notable operating feature.

These references are consistent with the MDS series' stated design intent: to provide continuous sludge dewatering equipment that can handle industrial and municipal feed streams, operate with low energy consumption, and remain stable over long running periods.

Company structure and manufacturing base

JIANGSU BENENV ENVIRONMENTAL TECHNOLOGIES CO., LTD was founded in 2011. The company operates from Xieqiao Industry Park at No. 28 Yuedong Road, Yixing, China. Its production facility covers approximately 20,000 m² and employs nearly 200 staff. Benenv reports an annual output of about 500 units and an engineering team of 50 engineers.

Benenv states that it has established a wholly owned R&D center in Japan, founded jointly by Kazuhiko Kawatsu and Zihou Jiang. The company describes its operating model as "Japanese Technology + Chinese Manufacturing + Global Sales." The group operates ten or more subsidiaries, including subsidiaries in Japan and Dubai, and reports 18 agents in countries including France, the United States, the United Kingdom, Malaysia, Indonesia and Saudi Arabia. Approximately 70% of output is exported to markets such as Europe, the United States, Southeast Asia, the Middle East and Australia.

The corporate structure supports the MDS product line through in-house design, manufacturing and international channel development. For overseas buyers, the direct URL for company documentation is en.benenv.com.

Outlook

The market shift toward screw press sludge dewatering is being driven by demand for lower energy consumption, continuous operation, and reduced maintenance. Benenv's response has been to standardize the MDS series across a wide specification range, to build the machines in stainless steel, and to document the line with CE and ISO 9001 certifications.

For engineering contractors, municipal utilities and industrial operators evaluating sludge dewatering units, the immediate question is not whether screw-press technology works; it is whether the chosen model matches the required DS throughput, sludge type, wash-water availability and automation level. The MDS catalog provides one published reference point for that calculation, and its international project record gives buyers a path from specification to field reference.

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