

Model E Belt Press

Compact design for a small footprint



www.bdpindustries.com

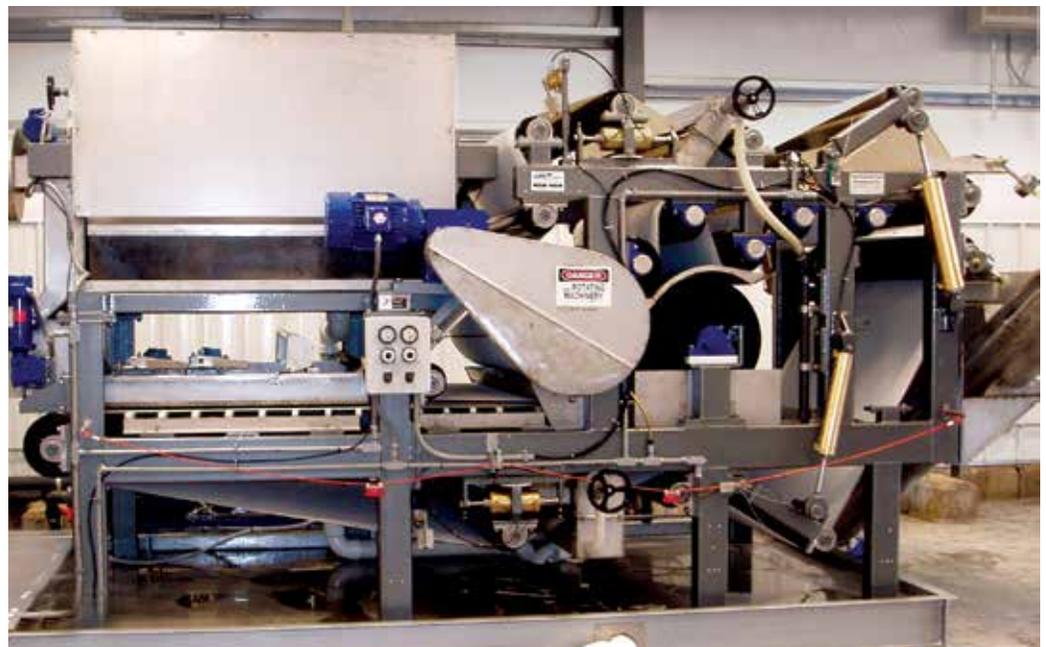


Model E available with:

Horizontal Gravity Zone

or **Independent Rotary Drum Concentrator**

— providing for optional independent gravity zone



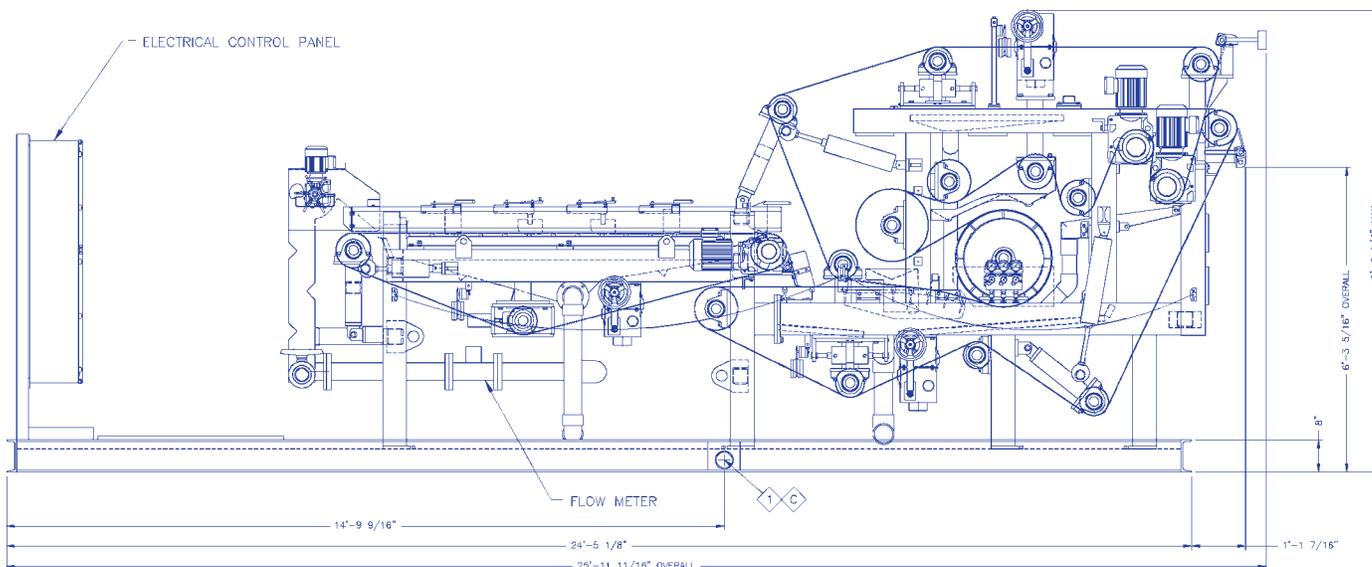
Over 25 years of experience in belt press technology

Model E Belt Press

Proven Performance and Reliability

— with excellent maintenance accessibility

BDP Industries' **Model E Belt Press** was designed with **unique features** to provide higher discharge cake solids at higher feed flow rates than any competitor's machine and will operate day in and day out with lower maintenance costs. The Model E provides **easier access** for operators and maintenance staff. The Model E is a rugged, durable machine that will provide **years of reliable service**.



Design Features

- 1 Feed Distributor:** Unique, variable speed paddle wheel provides full belt-width distribution and uniform thickness .
- 2 Independent Gravity Zone:** Available in either Rotary Drum or Horizontal Configuration, allows for higher production capacity as well as higher cake solids. **Available in standard lengths from 6 - 16 ft in 2 ft intervals.**
- 3 Spiral Wedge:** Applies increasing cake pressure over the entire length for effective expressing of filtrate with excellent cake retention.
- 4 Box Frame Pressure Zone:** The seven (7) roll pressure zone is constructed in a box frame configuration to improve rigidity. The configuration also reduce the height and length of the unit and the cake discharge height is adequate for the conveyor without elevating the press. The configuration allows for a nip roll to increase cake solids.
- 5 Optional Perforated Roll:** Unique design and stainless steel construction improves dewatering and structural strength of roll.
- 6 Tubular Frame Construction:** Provides superior structural strength over channel and I-beam construction. Enhanced cleanliness. Hot-dip galvanized coating inside and out affords maximum corrosion resistance. **Also available in stainless steel.**
- 7 Machined Mounting Pads:** All bearing and structural bolted connections are machined, tapped pads which are welded to frame. This enhances structural strength and corrosion resistance.
- 8 Overall Layout:** Gravity zone and controls located at operator level simplifies process optimization and eliminates costly platforms.

Unique Features and How They Work

A major advantage of the Model E is the short overall length and height that can be an advantage in fitting into an existing structure. The optional three (3) belt technology is also advantageous.

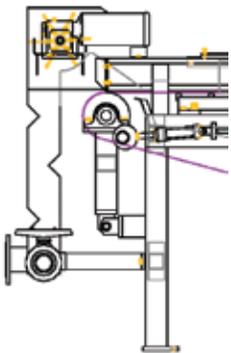
Standard two belt technology employed by most manufacturers forces a compromise in either throughput capacity or discharge cake solid concentration, because belt speed in the two zones must be the same. Three belt technology used by BDP overcomes this limitation by allowing independent speed control in each zone with the optional Rotary Concentrator or the Horizontal Belt. In addition significant improvements in feed distribution, wedge zone pressure gradation combine to provide SUPERIOR PERFORMANCE. The unique tubular steel frame, machined mounting pads for bearings, and bolted connections all provide easier access for maintenance. In photo at right: notice the unique layout and lack of platforms, allowing easy access for maintenance.

The unique designs of the Gravity and Pressure Zones provide **MAXIMUM PERFORMANCE**.



Model E Belt Filter Press

Upflow Adjustable Speed Paddle Wheel Feed Box



This unique design produces extremely uniform slurry distribution. Sludge enters horizontally at floor level, then transitions to vertical in the upflow conditioning tank and spreads to

full belt width. Then the slurry overflows the vertical tank into the paddle wheel distributor weir trough. The adjustable speed paddle wheel pushes the slurry out of the weir trough onto the belt.

Pictured (at right) is 3.5% concentration anaerobically digested sludge; notice the even, full width distribution immediately upon leaving the feed distributor.



Feed box side view



Paddle wheel



Uniform slurry distribution

Model E Belt Press

Independent Gravity Zone

Independent Gravity Zone Technology

Conventional two-belt press designs use a gravity zone and pressure zone with a common belt fabric and drive. Belt speed and belt fabric porosity selections are compromised in an attempt to suit both gravity zone thickening and pressure zone dewatering, reducing effectiveness. BDP has solved this problem. "Independent Gravity Zone Technology" uses separate gravity and pressure zones through either the Rotary Drum Concentrator or the Independent Horizontal Belt. This allows "optimizing" the porosity of the belt fabric and belt speed for the gravity and pressure zones independently rather than being forced to make a trade-off. By increasing the belt speed in the cake formation gravity zone, a thinner cake is formed on the belt. Resistance to filtrate flow is thereby reduced exponentially resulting in more filtrate removal, less volume is then sent to the pressure zone. The critical factor in the pressure zone is time under pressure for the cake, which now with the independent drive can be increased resulting in a drier cake.

Result: *Independent Gravity Zone provides higher hydraulic throughput and cake solids.*



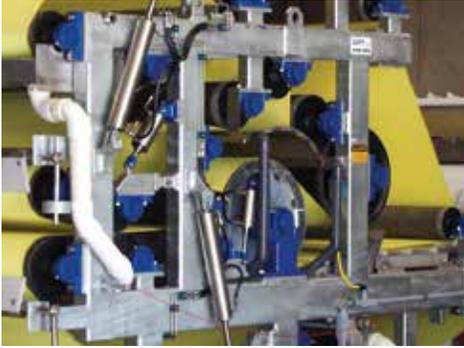
Independent Gravity Zone

Spiral Wedge

The problem with existing wedge layouts is that the top belt doesn't contact and apply pressure to the cake until typically 2/3 of the way through the zone. By curving the wedge profile the top belt immediately pressurizes the cake making the entire length of the zone effective. In addition, the spiral profile provides a gradual increase in pressure through the zone and forces an encapsulation of the cake to resist extrusion out the side.



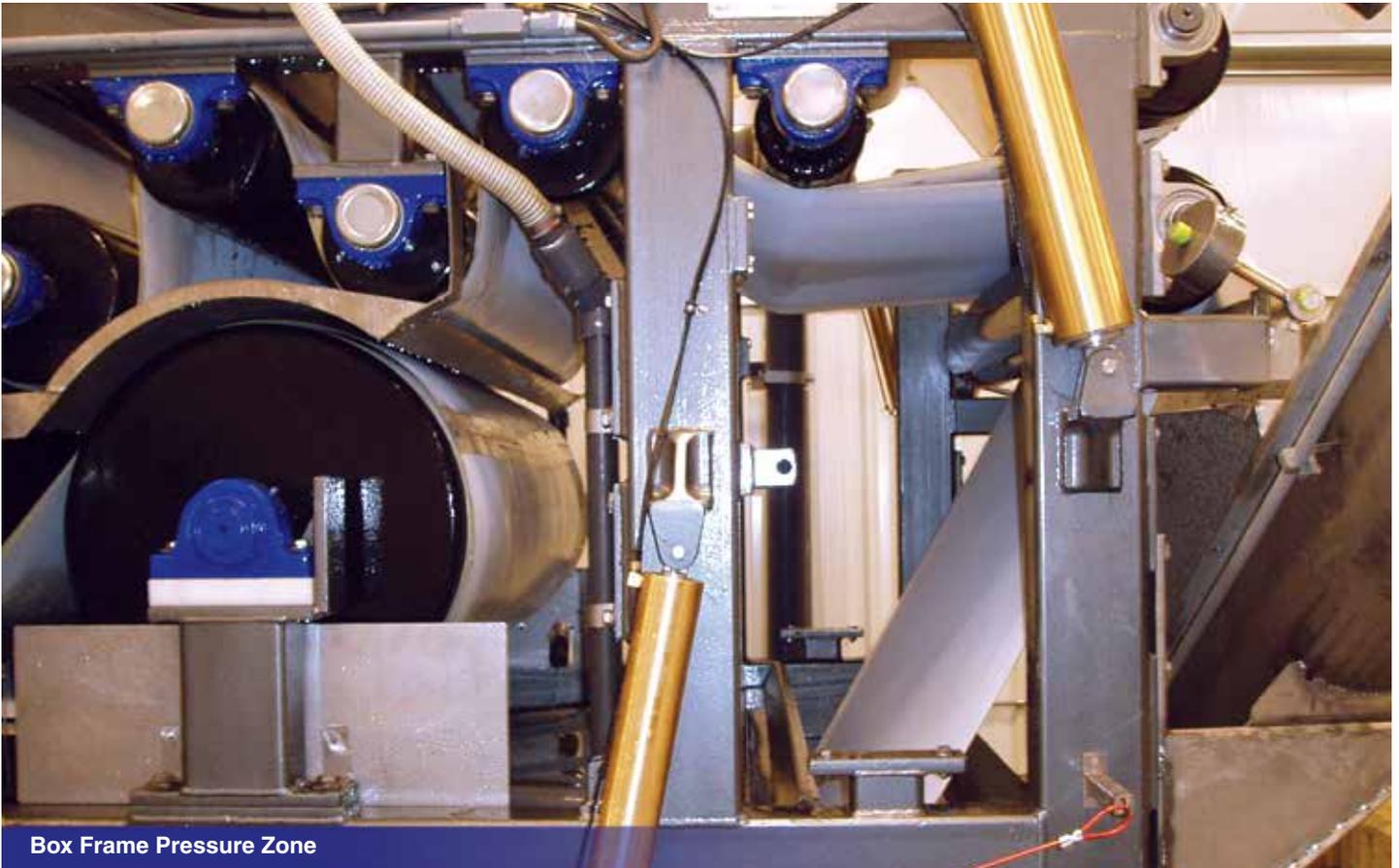
Spiral Wedge



Box Frame Pressure Zone Construction

The box frame construction provides significant additional structural integrity compared to the typical design where the rolls are mounted on a single horizontal beam. The design provides a structural safety factor of over 10.

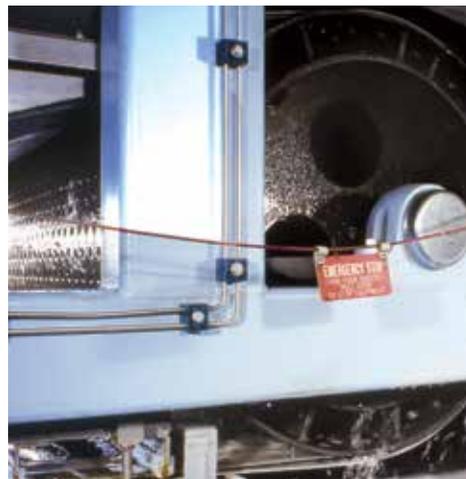
The design also shortens the overall frame length by several feet. It also increases the amount of wrap on the first two rolls, therefore increasing the filtration area or time under pressure of the cake resulting in higher cake solids. The configuration also allows the placement of filtrate collection pans under several of the rolls thereby eliminating filtrate dropping on adjacent rolls and rewetting the cake.



Box Frame Pressure Zone



Perforated Roll



Superior Perforated Roll Construction

The model E uses a superior construction. The highest frequency of roll failures for belt presses is the perforated roll. Typical construction of perforated rolls makes them susceptible to stress fatigue failure of the steel shell where it is welded to inner stiffening rings. BDP Industries' design eliminates the potential for shell failure as the stress load is carried by a solid inner roll. This revolutionary design is the strongest in the industry.

Model E Belt Press

Frame Construction

Channel or I-Beam frame construction are problematic in that corners and ledges are created that are difficult to clean. The tubular frame of the Model E provides a flat easy to clean surface.

All bearings are mounted on machined pads welded to the fabricated frame. These pad are precision machined and drilled and tapped for installation of all bearings and bolted frame components.

With channel or I beam, the frame is drilled and weakened at every mounting point. The Model E frame, on the other hand, is strengthened by tubular steel and machine mounted bearing pads.

Vent holes are strategically placed so that when the frame is hot dip galvanized, it is coated inside and out.

Bottom line: The Model E is stronger, more corrosion resistant, and easier to clean than other machines.



Machined Mounting Pads/Tubular Steel Frame

Overall Layout

Most other belt press designs require the belt press to be elevated due to the low cake discharge point. This requires costly platforms to provide observation of the feed distributor and gravity zone (*see below*).



The layout of the Model E allows for gravity zone and controls to be located at operator level. This simplifies the process and eliminates platforms (*see right*).



Model E Belt Press

Design Data



Typical Performance Results

Municipal Sludge Dewatering Spectrum for Model E

Sludge Type	Feed Consistency	Solid Loading Rate	Cake Dryness	Polymer Consumption
		lbs/hr, m	%	lbs/dt
Aerobically Digested	1 - 3	600 - 900	17 - 22	12 - 18
Waste Activated	.7 - 1.5	600 - 900	16 - 20	10 - 15
Anaerobically Digested	2 - 5	900 - 1500	18 - 25	8 - 12
Primary + WAS	3 - 5	900 - 1800	18 - 27	6 - 10
Primary + WAS + RBC	3 - 5	1000 - 2000	20 - 27	10 - 18
Primary + WAS +Trickling Filter	3 - 5	1000 - 2200	22 - 28	10 - 16
Primary + RBC	4 - 6	1200 - 2500	22 - 30	8 - 15
Primary + Trickling Filter	4 - 6	1200 - 2500	24 - 30	6 - 14
Raw Primary	4 - 8	2500 - 3500	28 - 35	3 - 5
SBR	1 - 1.5	600 - 800	15 - 18	10 - 15
MBR	.8 - 1	500 - 700	15 - 18	10 - 15

* Polymer consumption is based on 100 percent active ingredients

Because influents, processes and operation vary greatly, processing results have a wide range. The ratio of blends will also have an impact on dewatering. The above represent the ranges that might be expected.

Model E Machine Data

Size	Overall Approx. Dimensions inches (mm)			Operating Weight	Belt Width
	Length	Width	Height	lbs (kg)	m
0.5	258 (6,553)	60 (1,524)	98 (2,489)	7,500 (3,400)	0.6
0.75	258 (6,553)	70 (1,778)	98 (2,489)	9,000 (4,082)	0.9
1.0	258 (6,553)	80 (2,032)	105 (2,667)	12,500 (5,670)	1.2
1.5	276 (7,010)	100 (2,540)	118 (2,997)	19,000 (8,618)	1.7
2.0	290 (7,366)	120 (3,048)	120 (3,048)	23,000 (10,433)	2.2
2.5	290 (7,366)	140 (3,556)	126 (3,200)	27,000 (12,247)	2.7
3.0	290 (7,366)	164 (4,165)	132 (3,353)	35,000 (15,876)	3.2

* Custom sizes and designs available upon request

Model E Machine Data

Size	Dry Weight	Belt Width	Feed Box Drive			Belt Wash Water (80psi boost)		
			Grav.	Pres.	hp	Volume	Pressure	Motor
m	lb (kg)	m	hp	hp	hp	gpm	psi	hp
0.5	7,000 (3,180)	0.6	1	1	0.33	26	120	5
0.75	8,000 (3,630)	0.9	1	2	0.33	42	120	7.5
1	9,700 (4,400)	1.2	1	2	0.33	53	120	7.5
1.5	17,300 (7,855)	1.7	2	3	0.33	75	120	10
2.0	24,000 (10,900)	2.2	3	5	0.33	98	120	10
2.5	28,000 (12,715)	2.7	5	7.5	0.33	120	120	15
3.0	36,300 (16,480)	3.2	5	10	0.33	142	120	15

Note: These numbers are preliminary only and based on 10ft long gravity zone.

A Leader in Solids Dewatering.

BDP Industries began fabricating equipment over 25 years ago. BDP is an OEM supplier of solids dewatering equipment for several prestigious Fortune 500 companies. With over 650 installations throughout the world, and a 40,000 square-foot manufacturing facility, BDP Industries has evolved into one of the most modern and complete solids dewatering suppliers in the world.



BDP Industries produces a range of high quality products and services:

- Gravity Belt Thickeners
- Belt Presses
- Screw Presses
- Rotary Drum Concentrators
- Lime Stabilization Systems
- Polymer Systems
- Compost Turning Equipment
- Pulp & Paper Stock Thickeners
- Plate & Frame Presses
- Conveyors
- Process Control Panels
- Equipment Restoration
- On-Site Service
- Mobile Dewatering Demonstrations



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1.5m Model E mobile trailer unit

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Your local BDP representative:

