Wet Drum Separator

DWS

DWS series wet Drum Magnet Separators are widely used in the mining and mineral industries for heavy media recovery and iron ore concentration. The separator primarily consists of a magnetic drum, tank, feed box and discharge chute, drive system and supporting frame. For ease of installation and maintenance, the tank is designed for quick disassembly. The drum features a 120–140° magnetic arc enclosed in a wear-resistant stainless-steel shell lined with a 6 mm rubber layer. Aluminum alloy end caps are used to enclose the drum assembly and are protected by rubber collars. The drum shell and end caps rotate at a specific speed around the fixed magnetic arc. The drum is housed in a complementary tank with slurry flow paths that expose the minerals to the magnetic field. The slurry feed is introduced to the separator through a feed box that distributes it uniformly across the drum's width. Magnetic particles are attracted to the drum surface and carried along until they exit the magnetic field, where they are discharged at the final discharge point. DWS wet drum magnets can be assembled using ceramic magnets (LIMS) or neodymium magnets (MIMS), each providing different magnetic forces with varying intensities and gradients.

The MAG Magnetics wet low-intensity drum magnetic separators (LIMS) are designed for the recovery of ferromagnetic materials from non-magnetic materials. LIMS is highly effective in primary applications, offering high efficiency, high concentrate quality, and strong tolerance for high levels of non-magnetic material loading. They are highly effective in cleaning and finishing stages, enhancing magnetic materials to their final quality. Wet medium-intensity drum magnetic separators (MIMS) are used to recover weakly ferromagnetic materials, they are effective in both primary and secondary applications, especially for scavenger applications in the tail-end section of LIMS separators. The magnetic separation process is complex due to factors such as the varying magnetic susceptibility of different ores, the amount of middlings, and the particle size distribution of the processed material.

Processing smaller particle sizes requires reducing the feed capacity of the Drum. Higher magnetic field strength considerably increases the feed capacity of the drum magnet and also improves the recovery of fine particles. It is important to note that drum speed, tank configuration, magnet element type, and pole arrangement all play key roles in separation efficiency.

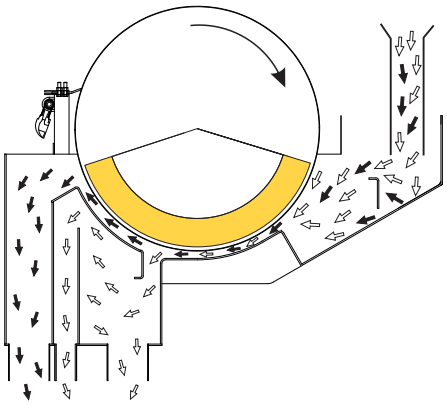
Mag magnetics wet drums are available in counter rotation, concurrent, and counter current configurations. The magnetic field strength range for LIMS drums is 800 to 1800 Gauss, while for MIMS drums it ranges from 2000 to 3800 Gauss. The optimal strength and configuration are determined for each customer through laboratory testing.

Applications

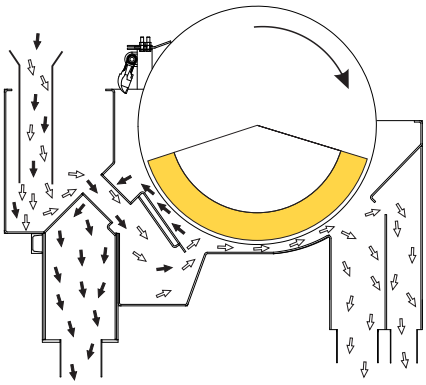
Magnetite ore upgrading
Dense media recovery
Removal of magnetic iron particles from non-ferrous materials

Unit 17, Lot No. 19, South Abouzar Ave of 6th Alley, Khajeh Abdollah Ansari Ave, Shariati St.
Tel: +98(21) 22892051-3 info@magproduct.com www.magproduct.com

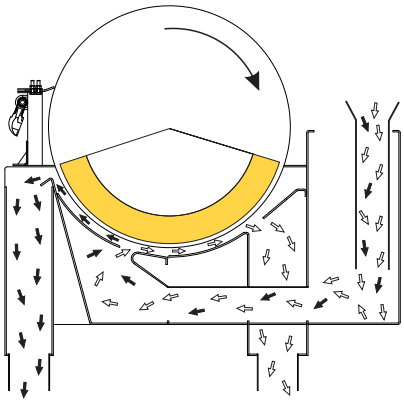
Wet Drum Separator DWS



CC



CR



CTC

CC - Concurrent

The concurrent style magnetic separator features a feed box for even distribution of the feed slurry. The feed entry section improves feed pulp distribution, ensuring full width feeding to the drum. A short pick-up zone reduces the risk of coarse material settling on the tank bottom. Tank bottom plug allows trouble-free discharge of coarse material; suitable for processing coarse ore up to 6–8 mm, and with special arrangements, up to 15 mm. The recommended pulp density for this type of tank is 30 to 50 percent solids by weight.

CR – Counter rotation

The counter-rotation style magnetic separator features a feed box with feed tubes. The feed entry section improves feed pulp distribution, ensuring full width feeding to the drum. Long pick-up zone with adjustable (manual) overflow discharge for pulp level control, allowing surges in feed flow. The CR tank is suitable for processing medium coarse ore up to 3–8 mm at medium to high densities (30 to 50% solids).

CTC - Counter current

The counter current style of magnetic separator features a feed box for even distribution of the feed slurry. The feed entry section improves feed pulp distribution, ensuring full width feeding to the drum. A medium-long pick-up zone improves separation recovery. A full-width effluent overflow weir is provided for pulp level control. The CTC tank design is suited for processing fine to medium sized ore up to 0.8 mm. The recommended pulp density range for this type of tank is 25 to 45 percent solids by weight.

Benefits

- Excellent separation and recovery of ferromagnetic materials
- A variety of magnet strengths is available to suit different applications
- Available with counter-rotation, counter-current, and concurrent tank designs to achieve optimal performance
- Robust design to provide reliable operation
- Tank constructed from 304 stainless steel
- Vertical and lateral drum adjustment
- Enhanced recovery and efficiency
- Optimal cleaning and finishing treatment
- High selectivity for iron particles

Unit 17, Lot No. 19, South Abouzar Ave of 6th Alley, Khajeh Abdollah Ansari Ave, Shariati St.
Tel: +98(21) 22892051-3 info@magproduct.com www.magproduct.com

Wet Drum Separator

DWS

Pre-selection notes

Five key factors influence the proper selection of a magnetic separator, including drum diameter, magnetic width, and the appropriate type of wet drum tank configuration for any specific application:

- Volume of slurry to be handled
- Slurry solids percentage
- Magnetic content in slurry feed
- Target magnetic recovery efficiency
- Required grade of the magnetic concentrate product

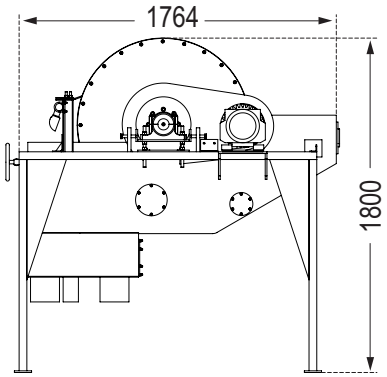
Model	Drum Diameter	Drum effective Length.	Drive	Weight Approx.	Dimension W
	mm	mm	kw	kg	mm
DWS 90/30	916	300	1.5	1,250	1,385
DWS 90/60		600	2.2	1,530	1,700
DWS 90/90		900	2.2	1,850	2,000
DWS 90/120		1,200	2.2	2,270	2,300
DWS 90/150		1,500	2.2	2,640	2,600
DWS 90/180		1,800	4	2,920	3,050
DWS 90/240		2,400	5.5	3,830	3,750
DWS 90/300		3,000	7.5	4,560	4,450
DWS 120/60	1,200	600	4	2,150	1,810
DWS 120/90		900	4	2,640	2,100
DWS 120/120		1,200	5.5	2,980	2,480
DWS 120/150		1,500	5.5	3,390	2,780
DWS 120/180		1,800	7.5	3,820	3,190
DWS 120/240		2,400	7.5	5,150	3,790
DWS 120/300		3,000	7.5	5,940	4,390

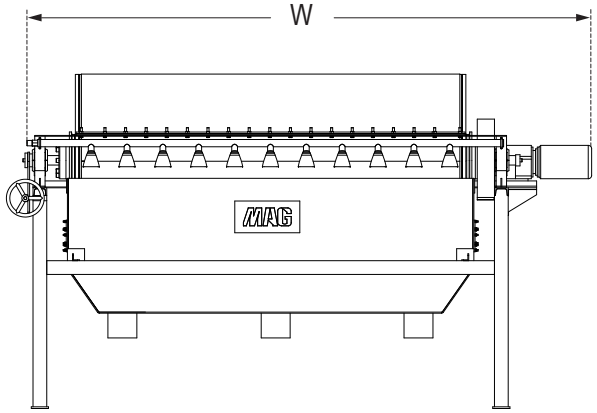
Unit 17, Lot No. 19, South Abouzar Ave of 6th Alley, Khajeh Abdollah Ansari Ave, Shariati St.
Tel: +98(21) 22892051-3 info@magproduct.com www.magproduct.com

Wet Drum Separator

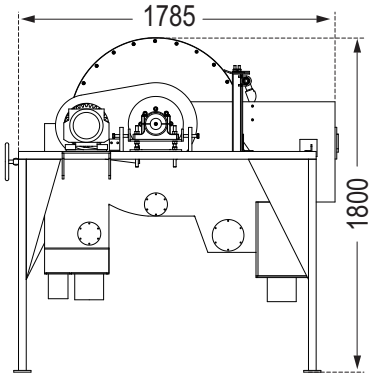
DWS

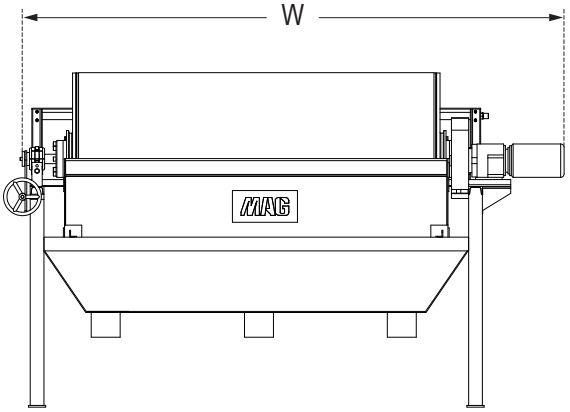
DWS 90 CC



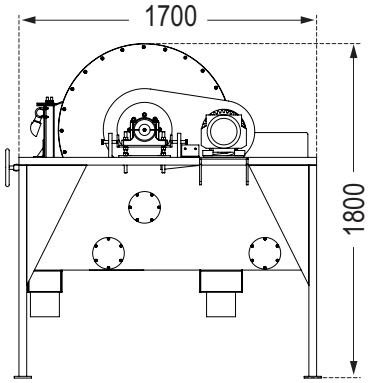


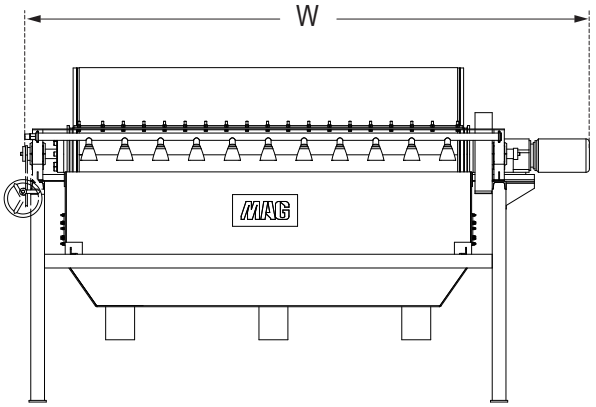
DWS 90 CR





DWS 90 CTC



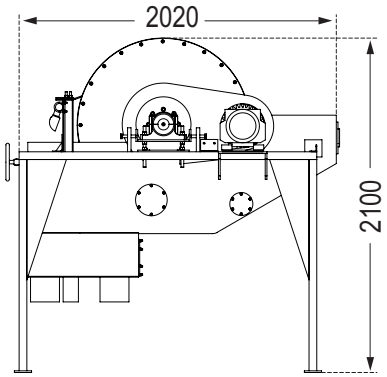


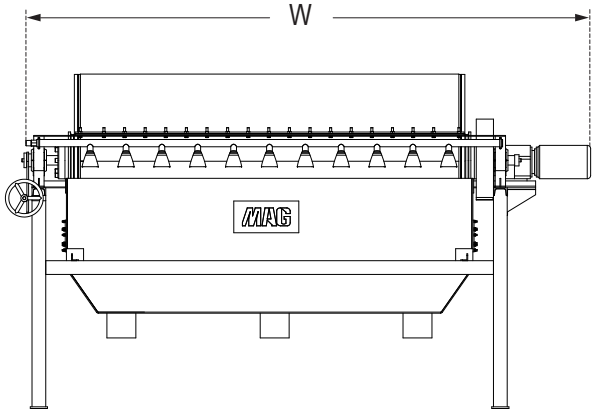
Unit 17, Lot No. 19, South Abouzar Ave of 6th Alley, Khajeh Abdollah Ansari Ave, Shariati St.
Tel: +98(21) 22892051-3 info@magproduct.com www.magproduct.com

Wet Drum Separator

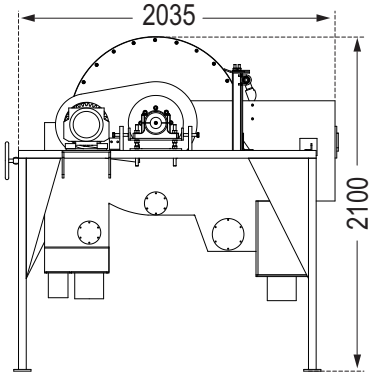
DWS

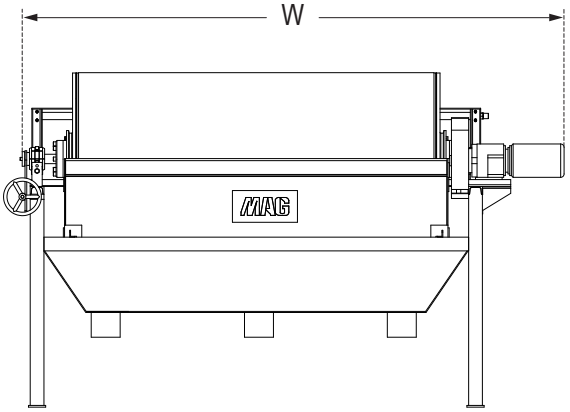
DWS 120 CC



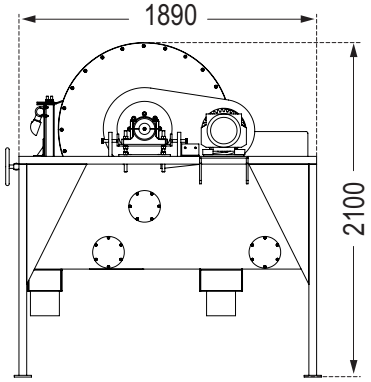


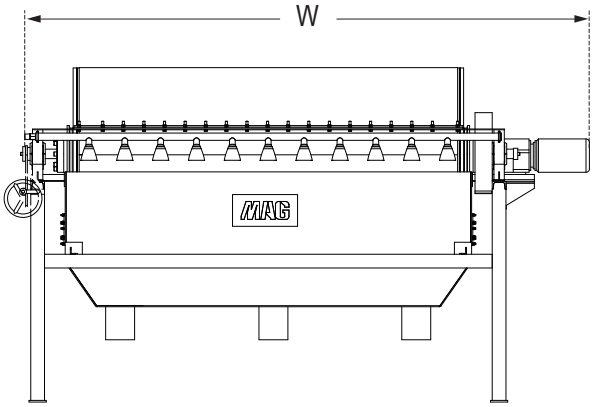
DWS 120 CR





DWS 120 CTC





Unit 17, Lot No. 19, South Abouzar Ave of 6th Alley, Khajeh Abdollah Ansari Ave, Shariati St.
Tel: +98(21) 22892051-3 info@magproduct.com www.magproduct.com