

The CoMag® System for Industrial Applications

Simple and reliable, the CoMag® system uses magnetite to ballast conventional chemical floc, enhancing settling rates and increasing the performance of wastewater and water treatment operations. The high-density, magnetite ballasted floc flows into a modified compact high rate clarifier. The clarifier includes baffle plates to direct flow for optimal settling, and a sludge rake collects sludge in a sump.

In addition to achieving high rate clarification, the CoMag system employs a sludge recycle function to increase the system performance and the clarity of its effluent. Approximately 80% of the clarifier underflow is recirculated back to the system's reaction tank. In the recirculation loop, sludge is processed through an inline, highspeed shear mixer where the magnetite is separated from the floc. The resulting two-part slurry is then passed under a magnetic recovery drum. The permanent and stationary magnets inside the drum help to capture more than 99% of the magnetite and return it to the system. The sheared sludge, minus the magnetite, is sent for sludge dewatering.



CoMag System for industrial pretreatment and clarification applications.
Shown: RX33



INCLUDED IN STANDARD DESIGN:

- Coagulation, ballast, and polymer mixing tanks with agitators
- Clarifier with influent baffle and sludge rake
- Solids recycle/waste pump skid
- Shear mixer and magnetite recovery drum
- Chemical dosing skid for coagulant
- Variable speed controls for all motors
- PLC control system with HMI
- Instrumentation:
 - Influent flow and turbidity
 - Coagulant tank pH
 - Clarifier sludge blanket level
 - Effluent turbidity
 - Recycle/waste flow

AVAILABLE OPTIONS:

- Chemical dosing skids for hypochlorite, pH balancing, and polymer
- Coagulation tank ORP instrumentation

BENEFITS OF MAGNETITE:

- Hydrophobic – shuns water and naturally bonds with chemical floc
- Dense – specific gravity of 5.2 means increased floc density and faster settling
- Fully oxidized and insoluble – will not rust, degrade, or easily dissolve like some ballasting agents
- Non-abrasive – will not erode components while incorporating with floc
- Inexpensive – readily-available commodity that helps keep operational cost low
- Easily recovered using magnets

CLARIFIER SPECIFICATIONS

Model Number	RX11	RX22	RX33
Maximum Flow Rate (TSS removal)	1000 gpm (227 m ³ /h)	2000 gpm (454 m ³ /h)	3000 gpm (681 m ³ /h)
Maximum TSS at Maximum Flow	625 PPM	625 PPM	750 PPM
Operating Volume	10,100 gal	10,100 gal	13,800 gal
Influent/Effluent/Sludge Nozzles	18" / 20" / 6"	18" / 20" / 6"	20" / 24" / 8"
Shipping Dimensions (Nominal: LxWxH)	13'4" x 11'10" x 12'0" 4.1 x 3.6 x 3.7 m	13'4" x 11'10" x 12'0" 4.1 x 3.6 x 3.7 m	15'0" x 14'0" x 12'0" 4.6 x 4.3 x 3.7 m
Installed Dimensions (Nominal: LxWxH)	13'4" x 11'10" x 16'8" 4.1 x 3.6 x 5.1 m	13'4" x 11'10" x 16'8" 4.1 x 3.6 x 5.1 m	15'0" x 14'0" x 16'8" 4.6 x 4.3 x 5.1 m
Approximate Shipping Weight	17,988 lb	17,988 lb	23,589 lb
Approximate Operating Weight	97,245 lb	97,245 lb	115,000 lb
Sludge Rake Motor	1/2 hp	1/2 hp	1/2 hp

REACTION SKID SPECIFICATIONS

Model Number	RX11	RX22	RX33
Coagulation Mix Chamber Volume	7,500 gal	12,000 gal	18,000 gal
Magnetite Mix Chamber Volume	2,800 gal	4,900 gal	7,450 gal
Polymer Mix Chamber Volume	2,800 gal	4,900 gal	7,450 gal
Influent/Effluent Nozzles	6" / 12"	8" / 18"	10" / 20"
Shipping Dimensions (Nominal: LxWxH)	17'1" x 11'6" x 12'0" 5.2 x 3.5 x 3.7 m	26'6" x 11'6" x 12'0" 8.1 x 3.5 x 3.7 m	42'4" x 11'6" x 12'0" 12.9 x 3.5 x 3.7 m
Installed Dimensions (Nominal: LxWxH)	20'2" x 13'0" x 18'7" 6.1 x 4.0 x 5.7 m	28'11" x 16'0" x 18'8" 8.8 x 4.9 x 5.7 m	43'11" x 15'10" x 19'14" 13.4 x 4.8 x 5.9 m
Approximate Shipping Weight	30,296 lb	38,915 lb	54,884 lb
Approximate Operating Weight	107,404 lb	200,121 lb	302,017 lb
Magnetite Recovery Drum	20" dia. x 18", 1 hp	20" dia. x 36", 1.5 hp	36" dia. x 36", 3 hp
Coagulation Agitator(s)	(1) 5 hp	(1) 7.5 hp	(2) 3 hp
Magnetite Agitator	(1) 5 hp	(1) 5 hp	(1) 7.5 hp
Polymer Agitator	(1) 5 hp	(1) 5 hp	(1) 7.5 hp

RECYCLE/WASTE PUMP SKID SPECIFICATIONS

Model Number	RX11	RX22	RX33
Pumps	(2) 20 hp slurry pumps	(2) 25 hp slurry pumps	(2) 30 hp slurry pumps
Dimensions (Nominal: LxWxH)	13'0" x 9'2" x 6'11" 4.0 x 2.8 x 2.1 m	9'6" x 9'2" x 6'0" 2.9 x 2.8 x 1.8 m	9'6" x 9'2" x 6'6" 2.9 x 2.8 x 2.0 m
Inlet/Outlet Nozzles	(2) 6" / 4"	(2) 6" / 6"	(2) 8" / 6"
Approximate Shipping Weight	7,684 lb	6,960 lb	7,492 lb
Approximate Operating Weight	8,114 lb	7,440 lb	8,102 lb



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