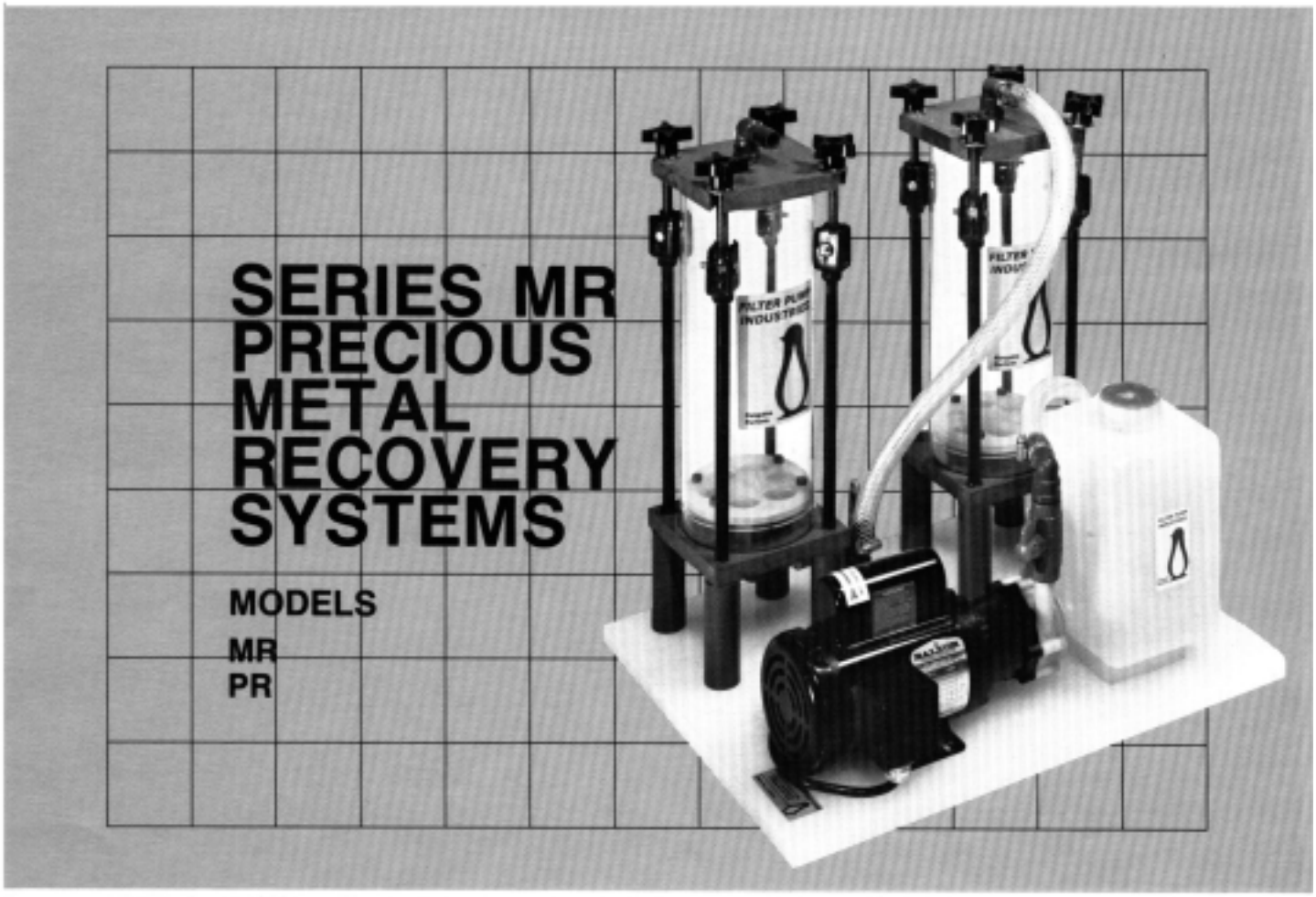
PENGUIN

PUMPS AND FILTERING SYSTEMS



SERIES MR PRECIOUS METAL RECOVERY SYSTEMS

MODELS

MR
PR

INTRODUCTION

Penguin recovery systems are recommended for all precious metals. They pay for themselves during normal plating sequences, recovering 99% of precious gold ions from acid or alkaline drag out or rinse tanks. They are easy to install and operate and are virtually maintenance free. All systems have been tested for proper operation before leaving the factory. To obtain optimum service life, follow all instructions.

INSTALLATION

ELECTRICAL

Model MR precious metal recovery systems are supplied with Series P in-tank pumps or Series M out-of-tank pumps. All pumps supplied as single phase are wired 115V unless specified differently at time of purchase. Consult with the factory for 230V. Three phase motors are shipped unwired.

PLUMBING

Models MR-10, MR-20, and MR-30 include a magnetic-driven pump with priming chamber and a resin chamber mounted on a common polypropylene base. Models R-10-2, R-20-2, and R-30-2 include two (2) resin chambers mounted in series. A priming chamber is always supplied with Series M pumps. The inlet port of the priming chamber is 1" MPT and the outlet port of the recovery chamber is 3/4" hose barb. Always warm hose before installing to avoid breakage. Series PR includes Series P pumps which do not require a priming chamber and should be mounted directly in the tank. (See separate installation sheet for Series P and M pumps.)

RESIN PREPARATION

Remove head from resin chamber and fill column with resin to approximately 1-1½" from the top of resin chamber and replace head. Approximate capacities are as follows:

Model	lbs. of Resin/Chamber
R-10-1	8
R-20-1	16
R-30-1	24

OPERATION

PRIMING

DO NOT RUN MODEL M PUMPS DRY. Close flow control valve and drain valve, left position. Fill priming chamber from top port. Start pump and slowly open flow control valve. Never start pump with valve wide open. For greatest efficiency, keep flow at approx-

imately 1-5 GPM depending on chamber capacity. If flow is greater than required, the liquid will begin to channel through the resin, thus not allowing the gold ions to be extracted. Continue closing flow control valve until channeling ceases.

RESIN EXCHANGE

The solution is pumped from the tank through the resin charge and back to the tank. There is not liquid bypass. This closed-loop system allows the ion exchange resin to continuously extract metal ions from the rinse waters. When exhausted, drain the resin chamber by turning the drain valve to right position. Then remove the resin from the chamber and send to your local or in-house refinery. The resin is capable of recovering up to 3 troy ounces per pound. There is no set timetable for resin replacement. The frequency of resin replacement varies based on type of solution and if continuous operation. After the first recovery, an objective replacement timetable can be established. The resin chamber is then reloaded, closed, and the recovery process continues. If dual chambers are supplied, remove the second series column and place into the first position. Thus, the newly reloaded column will become second in series.

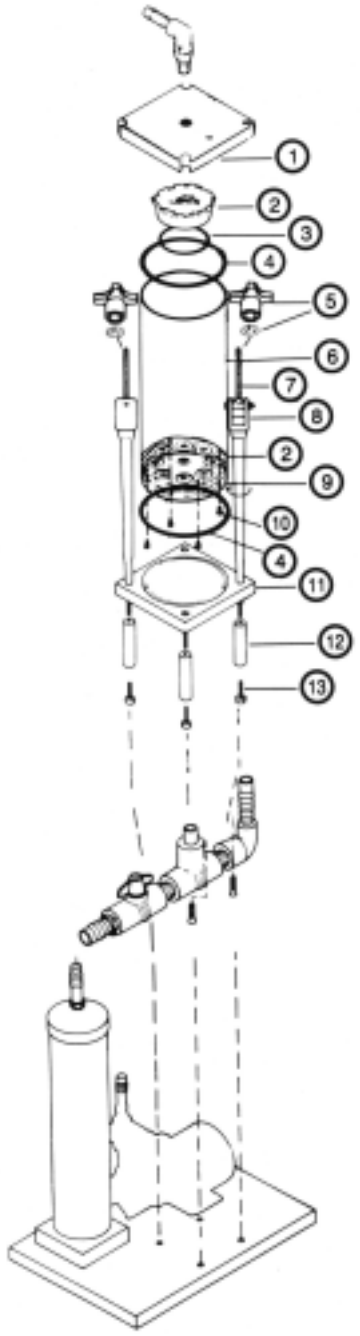
MAINTENANCE

DISASSEMBLY

1) Grip two (2) diagonal knobs & turn counterclockwise until loose. Turn remaining two (2) knobs and swing outward.
2) Lift off head from chamber rim. Head screen can be replaced, if required, by removing head screen O-ring. Top chamber O-ring can also be replaced.
3) Remove resin chamber by slipping between frame rods, exposing retainer set underneath. Retainer screen can be replaced by unscrewing the two (2) screws holding retainer set to acrylic lip. By turning the resin chamber over, the retainers and screen will then fall separately through the top.

ASSEMBLY

1) Retainer screen must be between retainer set and placed in the resin chamber resting on acrylic lip. Screw the two (2) retainer screws from the bottom of the acrylic lip through the retainer set until tight. Replace resin chamber on chamber base, with retainer set at bottom. Be sure bottom chamber O-ring is properly in place.
2) Replace head screen and head screen O-ring. Place head on chamber rim. Be sure top chamber O-ring is properly seated.
3) Swing knobs and washers into place over head and tighten diagonally until hand tight.



MR PRECIOUS METAL RECOVERY SYSTEM SPARE PARTS LIST

Item	Description	Part Number	Quantity Required
1B	Head—Polypro	R-150-03B	1
2B	Head/Retainer Screen—PP	R-150-04B	2
3E	Head Screen O-ring—EPR	P-140-09E	1
4E	Chamber O-ring—EPR	P-300-11E	2
5	Knob & Washer	C-600-01	4
6-1	Resin Chamber Column—15" (R-10-1)	R-150-07-1	1
6-2	Resin Chamber Column—25" (R-10-2)	R-150-07-2	1
6-3	Resin Chamber Column—35" (R-10-3)	R-150-07-3	1
7	Swing Bolt	C-120-02	4
8-1	Frame Rod—10"	C-120-09-1	4
8-2	Frame Rod—20"	C-120-09-2	4
8-3	Frame Rod—30"	C-120-09-3	4
9D	Retainer Set—PVC	R-150-10D	1
10	Retainer Screw	S-200-09	2
11B	Chamber Base—Polypro	R-150-14B	1
12A	Chamber Leg—CPVC	C-600-14A	4
13	Base Leg Screw	R-150-16	4

FILTER PUMP INDUSTRIES

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