

PFAUDLER "R" SERIES REACTORS

CORROSION RESISTANCE

Pfaudler glass is resistant to all acids, at all concentrations and at high temperatures, except hydrofluoric and hot concentrated phosphoric acids. A new glass is resistant to alkaline solutions up to a pH of 12 and up to 212°F. and has the same acid resistance as our standard glass. To give it working strength, Pfaudler glass is fused to steel in huge furnaces. This high-temperature firing locks the glass to the steel and makes it hard and tough.

CONSTRUCTION

All standard reactors meet ASME Code requirements as to materials and workmanship, but are not code inspected and stamped unless so specified.

AGITATION

Impeller Agitator and Adjustable Baffle: Pfaudler adjustable baffles, in conjunction with impeller agitators, are recommended for extremely violent agitation of fluid mixes, for the absorption of gases, and for the rapid dissolving of solids.

The adjustable baffle (patented) comprises a vertical tubular shaft to which are welded horizontal baffles, usually two in number, arc shaped in plan view, and constructed of flattened heavy tubing. The upper end of the vertical shaft extends through a stuffing box, in turn mounted on a top-head opening, and with a hand lever which permits adjusting the position of the baffle and a wide variation in the nature of the resultant agitation.

The impeller agitator, with three pitched blades at the lower end of its shaft, creates a horizontal swirl of the liquid with a deep center vortex.

This swirl is then interrupted by the baffle, the liquid being abruptly diverted by the concave faces of its horizontal arms and thrown into the center of the vortex.

Alternative Agitators: We can also furnish two-blade "tee" type agitators, and anchor agitators with a very limited length of vertical blade. These agitators cannot be larger in diameter than the three-blade impeller.

Thermometer Well: The thermometer well can be made a part of the baffle.

AGITATOR DRIVES

Pfaudler drives are designed for chemical service, particularly where operating conditions often involve corrosive and destructive gases and where agitators must operate without steady bearings.

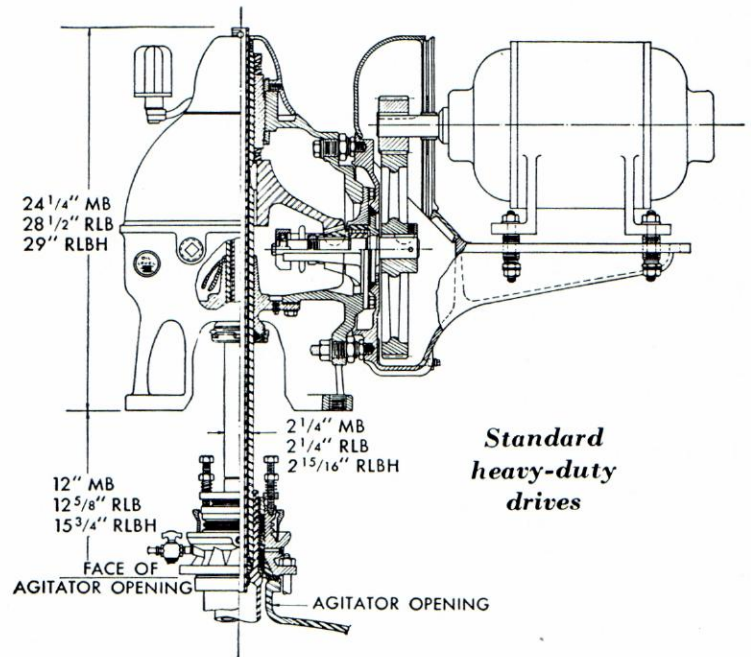
Bearings: The vertical shaft is a heavy hollow shaft with a straight ground diameter running in heavy oversize bronze bearings. These shafts run true and free of any eccentricity, even under heaviest service.

Gears and Pinions: The final reduction is by spiral bevel gears of highest quality to provide a smooth, rugged, quiet and efficient drive. These gears are similar to those used universally in automotive work. For moderate duty the large gears are made of semi-steel and for heavy duty, hardened and lapped steel ring gears are used.

The pinion gear runs in high grade standard ball bearings and can be replaced without dismantling the entire drive.

Automatic Lubrication: Automatic lubrication is provided and should be used for continuous operation.

Speed Adjustments: One important feature of the Pfaudler drive is the simplicity with which speed adjustment can be made through wide ranges. Speeds up to 120 RPM can be obtained by the substitution of different pinions on the motor shaft with the MB drive and 150 RPM with the RLB and RLBH drives. Chain drives can be used on any of these motor mountings for still higher speeds RPM.



JACKET CONTROL CONNECTIONS

Standard reactor jackets are provided with two sets of control connections. This permits the most advantageous hook-up with existing piping.

One set of connections is located to the right of the manhole on the front of the reactor. The other set is directly opposite on the left rear of the tank. Each set includes: one overflow connection at the top of the jacket for pressure gauge and safety devices; two steam or liquid inlet connections, one in the side wall, the other in the bottom head near the side; and one bottom drain. One Pfaudler agitating nozzle is furnished.

HIGH-DUTY STUFFING BOX

Pfaudler's high-duty stuffing box has proven highly successful. Full details are available in separate literature. Rotary seals are available where complete elimination of leakage is required.

SPECIAL LARGE REACTORS

Units as large as 3600-gallons capacity, for 200 p.s.i. internal pressure, have been built in quantity for a relatively mild chemical service. Great strides have been made in recent years toward higher pressures, increased capacity, and greater corrosion resistance. Your inquiries regarding such special units will receive careful consideration.

DETERMINE REQUIRED HORSE POWER BY PFAUDLER AGITATION CHART

(Copy furnished on request)

Standard on	H.P. Required at Various Agitator Speeds in Water (Impeller Agitator)						H.P. Capacity of Drive at Various Speeds of Agitator						Size Tight and Loose Pulleys	Agitator Speed Obtainable with Given H.P. Motor Running at Motor R.P.M. Shown, Using Spiral Gears or Chain and Sprocket				
	R.P.M. of Agitator						R.P.M. of Agitator							Horse Power	With Gears		With Chain	
	150	120	90	60	30	15	150	120	90	60	30	15			1800 Motor	1200 Motor	1800 Motor	1200 Motor
R42, R48, R60 Series	2.3	1.20	0.40	0.11	0.02	0.005	8.3	6.6	5.0	3.3	1.7	0.83	18 x 3	2	45-120	30-80	80 and up	54 and up
														3	45-120	34-80		
														5	51-120	40-80		
														7½	60-120	40-80		
R66 Series	3.5	1.4	0.68	0.13	0.023	0.008	16.6	13.3	10.0	6.6	3.4	1.66	24 x 4	5	45-120	34-80	75 and up	50 and up
														7½	51-120	40-80		
														10	60-120	40-80		
														15	60-120	48-80		
R78 Series	5.0	2.2	0.95	0.21	0.04	0.01	18.75	15.	11.	7.5	3.75	1.8	24 x 4	5	45-120	34-80	75 and up	50 and up
														7½	51-120	40-80		
														10	60-120	40-80		
														15	60-120	48-80		
Special							45.0	36.0	27.0	18.0	9.0	4.5	24 x 4	20	72-120	48-60	90 and up	60 and up
														25	72-120	Motor Too Large		
Special	Use for Extra Heavy Duty Agitation Instead of "LBH" Drive for Viscous and Semi-Solid Products						35.0	28.0	21.0	14.0	7.0	3.5	30 x 6	Motor Drives for XB Type Should be Referred to Main Office for Specifications				
							75.0	64.0	52.0	39.0	19.0	9.0						

For heavy service, use RLB drive on "R60" Series, RLBH drive on "R66" Series, and RLBH with special gears on "R78" Series.

Use "XB" drives for extreme service—consult general office.

All drives 5:1 gear ratio.

Above standard agitator speeds where obtained by motor driven gears have a non-metallic micarta motor pinion.

Lower agitator speeds are sometimes available through use of bronze or steel pinion. Consult engineering department on use of same.

Lower speeds are also obtainable from 900 R. P. M. or back-gear motors—consult general office.

Anchor agitators not recommended except for R. P. M.'s below 45. The maximum size that can be assembled through large opening will not require more H. P. under same conditions than the impeller.

LARGE SPECIAL REACTORS

THE line drawing shows a 3600-gallon reactor of the "R" Series type, for 150 lb. internal pressure, which has been built in quantity for a relatively mild chemical service where glass is the most desirable surface.

This size reactor built for this pressure, if of clamped top design, would require double flanges 3 in. thick, with 144 high tensile $1\frac{3}{4}$ in. bolts.

The drive shown is our "RLBH" type, mounted on a platform base which can be used with either Pfaudler standard motor drive reducers, commercial motor reductions direct connected, or with drive turned 90 deg. and "V" belt motor drive mounted on rails. This type is available for any reactor.

This "RLBH" drive is applicable up to 25 h.p.; our XB drive up to 75 h.p.

Over-all height of reactor should not exceed 144 in. and I. D. not over 108 in.

Special reactors for still higher pressures will receive careful consideration.

