



# Mixing: How to choose your agitator



## VD - VR ?

The selection table allows you to choose an agitator according to two criterias:

- Type of mixing
- Volume of the tank

### Choice of agitators VD et VR

The selection table shows 6 common types of water treatment mixing which correspond to an increasing level of difficulty from 1 to 6.

By analogy, they can be used as a base for the definition of agitators for other common applications in other industries.

Within each level of difficulty are found sizes for 5 standard families of agitators : VDA, VLA, VRP, VRG, VRT.

- **VDA, VLA** : Direct drive high speed agitators for 750 to 1500 rpm motors.
- **VRP** : Slow speed agitators with a propeller with 4 plane blades.
- **VRT, VRG** : Slow speed agitators with Sabre® profiled propeller blades.

For each type of appliance the detailed technical characteristics (motor power, absorbed intensity in water, speed, propeller diameter, max. shaft length and forces transmitted to the support) are presented in the technical data sheets.

MILTON ROY MIXING staff are available to help you with the selection of your agitator.

### The choice between two sizes of agitator

Below are some considerations when choosing the propeller/tank diameter ratio.

Typical ratio values are between 0.2 and 0.6.

These can drop below 0.2 for high speed VD, VL type appliances.

The most common value for slow speed VR type appliances is 0.3.

High values favour improved mixing action, notably in the vicinity of the walls (cleaning, heat transfer).



## Catalogue agitators selection table (without flocculation)

Difficulty Level Tank capacity m3	1 - Storage denitrification	2 - Homogeneization reagent preparing	3 - Neutralization	4 - Lime milk < 200 g/L Polyelectrolyte < 10g/L	5 - Sludge suspension < 20 g/l	6 - Flash mixing	
0,30	VLA 2210 VRG 0020			VLA 5630 VRG 0020		VRP 1050	
0,50	VDA 2210 VRG 0020			VLA 4630 VRG 0020	VLA 4630 VRP 1050	VLA 5630 VRG 0030	
0,80	VDA 2530 VRG 0020	VLA 3530 VRG 0020		VLA3530 VRP1050		VLA 5630 VRG 2030	
1,40	VLA 3530 VRG 0020	VLA 4630 VRP 1050		VLA 5630 VRG 0030	VLA 5630 VRG 2030	VRG 1040	
2,00	VRP 1050	VRP 1050	VRP1050	VRG 1040	VRG 1040	VRG 3060	
3,0	VRG 1040						
5		VRG 1040	VRG1040	VRG 3060	VRG 3060		
6	VRG 3060	VRG 3060	VRG3060	VRP 2060	VRP 2060	VRT 2080	
9	VRT 1080	VRP 2060	VRP2060	VRT 1080	VRT 1080	VRT 3100	
12						VRT 3120	
16			VRT1080	VRT1080	VRT 2080	VRT 3080	VRT 4120
21					VRT 2100	VRT 2100	VRT 3140
27							VRT 8140
34					VRT 3120	VRT 3120	VRT 6180
40	VRT 3120	VRT 3120	VRT3120			VRT 7200	
50							
70	VRT 2160	VRT 2160	VRT2160	VRT 5140	VRT 8140		
100				VRT 6180	VRT 6180	VRG 9160	
130	VRT 3140	VRT 3140		VRT 5180	VRT 5200	VRG 9180	
170	VRT 2160	VRT 5160	VRT5160	VRT 6180	VRT 7200		
200	VRT 5180	VRT 5180	VRT5180	VRT 7200			
270	VRT 5200	VRT 5200	VRT5200				

- For other criteria in the choice of type of mixing element, refer to the Advice data-sheet "Mixing : How to choose a mixing element ?".
- If you do not find a suitable mixer, consult us.

### Recommendations :

In the case of tanks with a height much greater than the diameter, or tanks of larger capacity, consult Milton Roy Mixing specialists.

#### (1) VDA, VLA range

- The appliances in this range are simple and economic for small capacity tanks (approx. 5 m3).
- They must operate under load (respect the min. levels indicated on the technical data sheets).
- The appliances in this range are not recommended for:
  - the agitation of shear sensitive products,
  - the agitation of fluids with a viscosity above 5 poise.
- We especially recommend a VR range agitator for the preparation of polyelectrolytes.

#### (2) VRP range

- The appliances of this range are economic for small and medium capacity tanks.
- They can operate with the tank empty.

#### (3) VRT, VRG range

- The appliances of this range are well adapted for most applications and have a low energy consumption.
- They can operate with the tank empty.

(4) The selection is not suitable for flash mixing when the average time of stay in the tank is less than 2 minutes. Consult Milton Roy Mixing specialists.



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