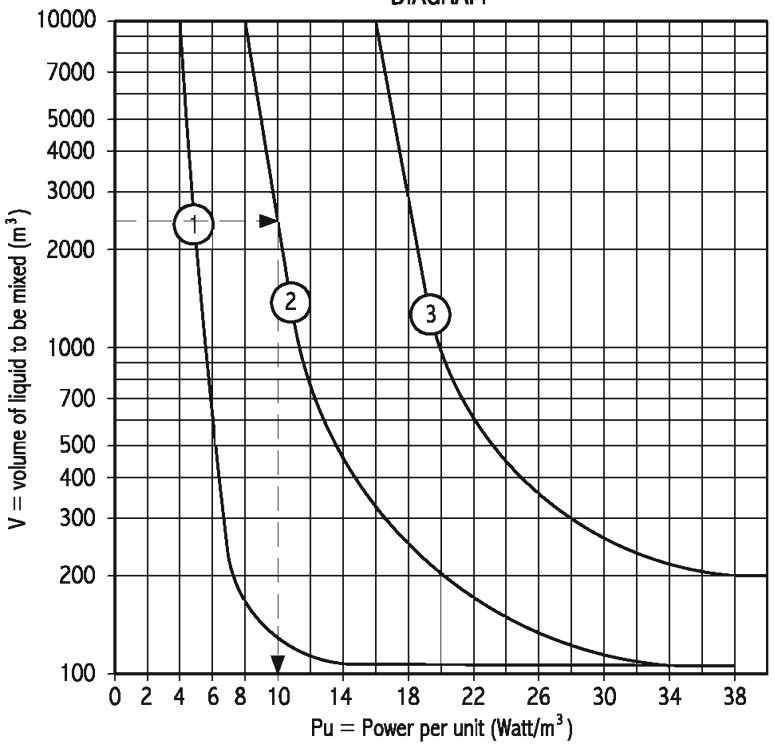
HOW TO CHOOSE THE RIGHT MIXER
COMPLEXITY OF DATA AND OF REQUIRED TECHNICAL FEATURES OFTEN MAKE CHOOSING THE RIGHT MIXER.
THEREFORE, THE METHOD WE ARE PROPOSING (DEVISED BASING ON OUR SOLID FIELD EXPERIENCE) MAKES IT POSSIBLE TO OPTIMISE CHOICES BASING ON THE TANK SHAPE AND STRUCTURE AND ON THE TREATMENT THE FLUID THAT WILL BE MIXED WILL BE SUBJECT TO
OBVIOUSLY, IF ALL THE NEEDED PARAMETERS ARE KNOWN, THE RECOMMENDED CHOICE WILL BE LESS GENERIC AND MORE SPECIFIC.
FOR FURTHER INFORMATION, PLEASE CONTACT CRI-MAN.

DIAGRAM



IF THE FOLLOWING IS KNOWN:

1) V = m³ (volume of fluid to be mixed)
2) Shape and/or structure of the tank
3) k = Tank shape coefficient
4) Type of treatment to be carried out (see table)

Find the curve, in the diagram provided in this page, that corresponds to the liquid volume V = m³. That curve can be used to calculate the value of required Power per unit (Watt/m³) needed for the required treatment/process. The total power required for the installation (Pr = kW) is calculated as follows:

$$Pr = \frac{V\ (m^3) \times Pu\ (Watt/m^3) \times k}{1000} = kW$$

If we need to calculate an approximate Required Time (Rt = minutes) needed for processing the V = m³ liquid volume, this time is calculated as follows:

(Q = m³/h) is the flow rate of the mixer as stated in the catalogue specifications, which means:

$$Rt = \frac{V\ (m^3) \times 180}{Q\ (m^3/h)} = \text{minutes of operation}$$

Table of types of processing	Curve no. in the diagram
Homogenisation of primary sludge 4 %	2
Homogenisation of secondary sludge 5 %	
Homogenisation of digested sludge 6 %	
Denitrification	1
Nitrification	
Dephosphating	
Mineral sludge	3
Residential liquid waste pumping tanks	
Cattle farms slurry	
Pig farms slurry	2
Homogenisation and destratification of biogas plants	3
Pulp paste 2%	
Residential purification plants	

Example: Pig farm sludge tank V = 2500 m³
Tank shape: rectangular, according to Shape 7 - k = 1.2 (see drawing)
The process table states that we have to refer to Curve N°2 in the diagram for the power per unit values.
The point in which the horizontal dotted line starting from V = 2500 m³ crosses Curve N°2 corresponds to a power per unit value of Pu = 10 Watt/m³.

$$Pr = \frac{V\ (m^3) \times Pu\ (Watt/m^3) \times k}{1000} = \frac{2500 \times 10 \times 1{,}2}{1000} = 30\ kW \quad \text{(Required Power)}$$

Therefore, it is necessary to install 2 machines - TBM 15/4N (power 15 kW each)
From the catalogue, considering that Q = 5489 + 5489 = 10978 m³/h (Safe flow rate of both machines), it is possible to calculate the minimum time needed to process a volume V = 2500 m³/h

$$Tu = \frac{V\ (m^3) \times 180}{Q\ (m^3/h)} = \frac{2500 \times 180}{10978} = 41 \text{ (minutes of operation)}$$

Common shapes and structures for liquid processing tanks