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GREC
Agitatori Miscelatori Dispersori

TOP ENTRY MIXER INSTALLATION MANUAL

MIXER INSTALLATION AND BAFFLES

CENTRAL INSTALLATION IN CYLINDRICAL VESSEL
(Forced solution for solid suspension or heat transfer)
You need to install within vessel a number of baffles equal to impeller blades number
Their function is to break vortek induced by impeller rotation, creating a strong vertical action as per drawing here beside
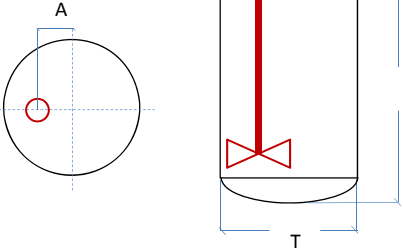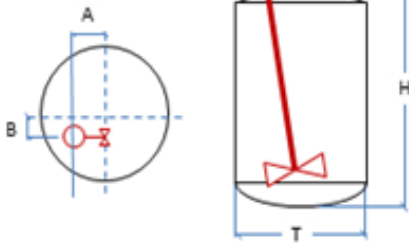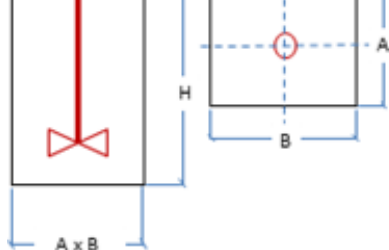Distance from wall: A=T/36
Baffle width: B = function of viscosity as per table below (T/12 for turbulent regime)
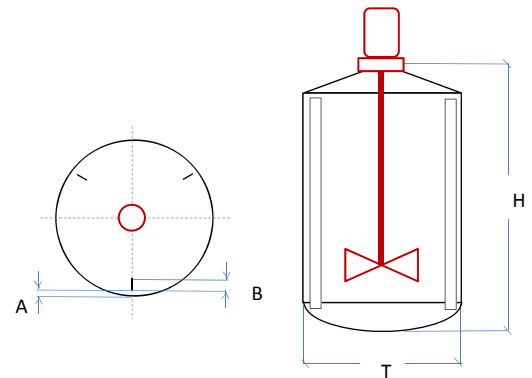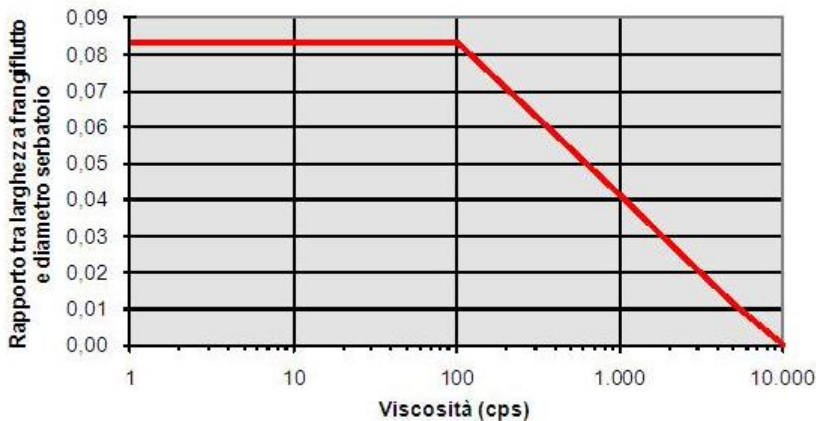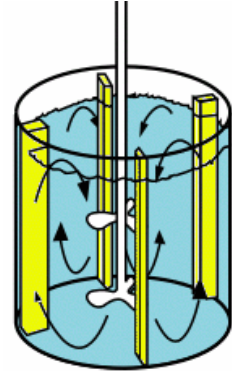
HOW TO AVOID BAFFLES
Baffles are necessary somehow but are an additional cost and are not well accepted in sanitary environments
It is possible to avoid them in three conditions:

When D/T ratio (between impeller and vessel diameter) is < 0,3, it is possible a vertical off set installation, with A = 0,16÷0,25 T

When D/T ratio is too high, you may have impeller very close to vessel wall.
In this case, it is possible a 10° slope to the center, as per drawing with A=0,28 T and B=0,165 T

If base of vessel is square or rectangular, its edges are acting as baffles and central installation is recommended

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IMPELLER POSITIONING

For best mixing performances, impeller of diameter **D** shall not be too close to vessel wall or liquid level.

**S:** Distance from impeller edge to vessel wall: Min 150mm

C: Distance between impeller and vessel bottom or other impellers: Min 0,25 D (normally 0,5 ÷ 1,5 D)

L: Minimum liquid level above impeller: 0,5 D (Normally > D)

Mixers are designed considering a distance of impeller from liquid level or vessel wall of at least one its diameter.

When distance is lower, we need to consider some corrective factors which reduce mixer strength.

It has to be clear that a mixer selected for fixed liquid level may be not strong enough if liquid level is variable and becomes close to impeller or pass through impeller.
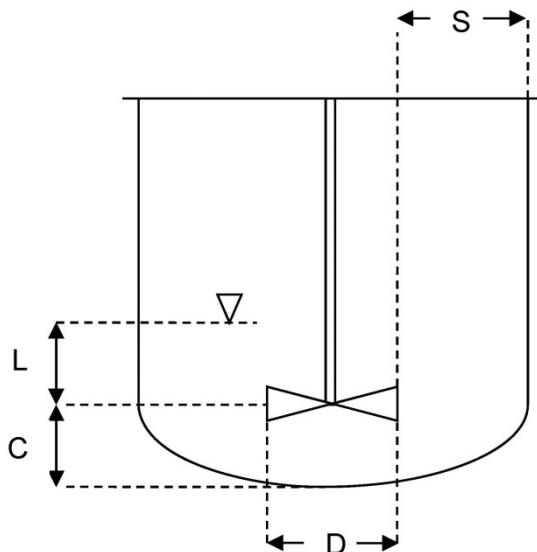
OPENING FOR IMPELLER INSTALLATION

It is important to foresee the proper opening in a vessel where a mixer need to be installed.

There are three situations: a) Blades bolted to hub, b) blades welded to hub, c) impeller welded to shaft

a) Blades have to be bolted to hub within vessel. A suitable DN450 or larger opening has to be considered for man income within vessel

b) For welded impeller, detachable from shaft, please refer to table below.

Max impeller diameter through nozzle (values in mm to be confirmed)				
Nozzle	Internal diameter	High efficiency hydrofoil	Large Blades hydrofoil	Four blades turbine
DN150	170	260		160
DN200	220	340	220	250
DN250	270	430	250	350
DN300	320	520	350	420
DN400	410	660	450	520
DN450	460	710	500	600
DN500	510		600	700
DN600	610			800

c) For impellers welded to shaft, minimum required opening diameter is little less than impeller diameter and you also need to consider shaft dimension in order to be sure not to have problems

If a bigger enough opening is not feasible, you only have two solutions:

- Supply impeller with one or more blades not welded to hub. This action will be completed in field, within vessel
- Weld vessel bottom to cylinder only after having positioned assembly shaft/impeller within vessel

SUPPORT STRENGHT

Mixers while running are creating loads transmitted to their support structure. On our data sheets are always written loads that engineer has to consider for support mechanical sizing.