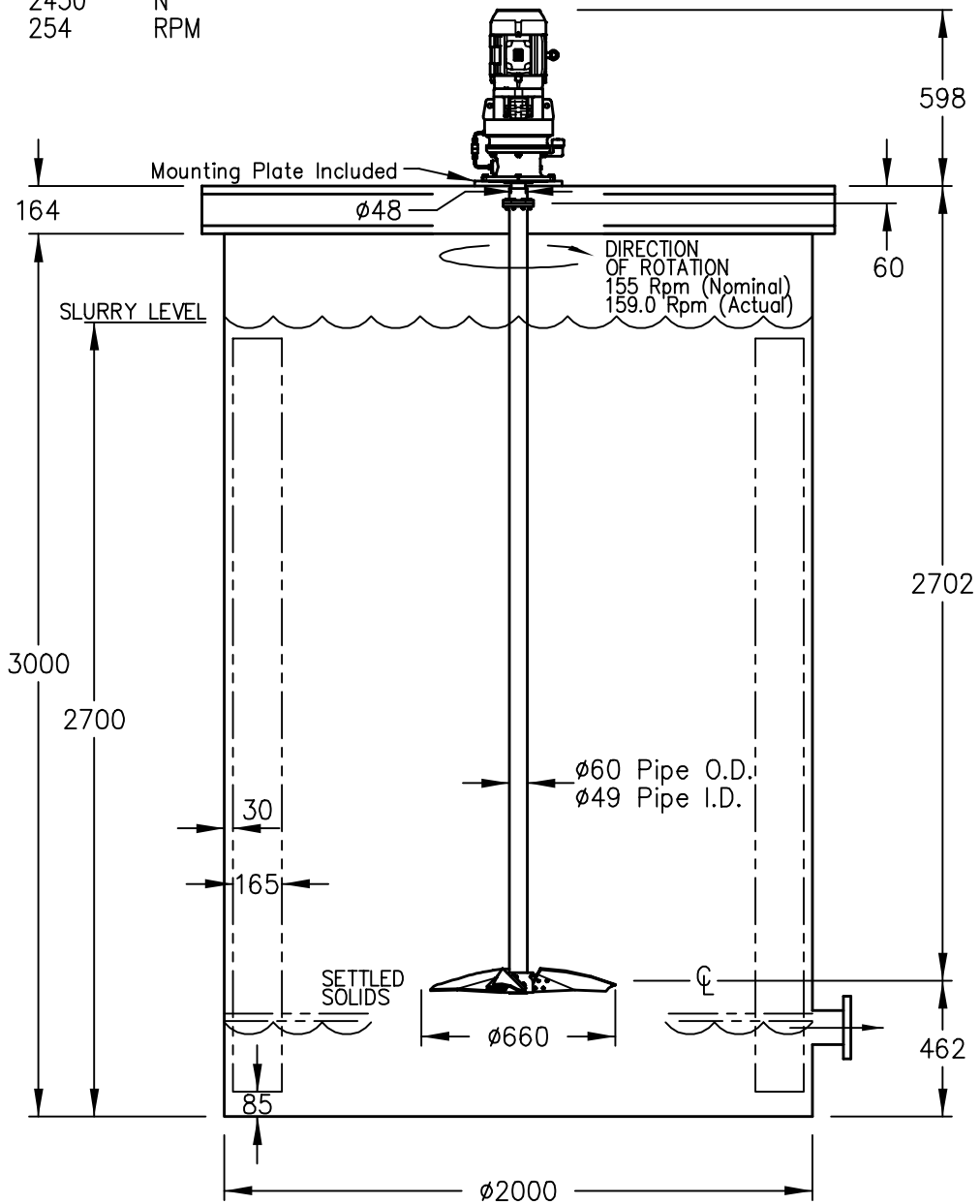


DESIGN LOADS:

BENDING MOMENT: 390 N-m
 TORQUE REACTION: 180 N-m
 DOWNWARD LOAD: 2430 N
 CRITICAL SPEED: 254 RPM

See Note 10 Below.

DRAWN TO SCALE



NOTE:

1. MixPro Agitator Model Number: 18GTC-2-155
2. Motor: 1.5 kW (2 HP) at 1750 Rpm, TEFC NEMA Frame 145TC, Suitable for 460V/3p/60Hz Power, Under 1000 m Elevation, & 40°C Ambient. Premium Efficiency.
3. Belt Drive: No Belts Are Used.
4. Gear Reducer: Sumitomo Cyclo Model CVVJ-6130Y-11, Cycloidal Gear, Oil Lubricated, Ratio 11.0:1, Mechanical Gear S.F.=4.53, Standard Low Speed Bearings Provide >114000 L10 hrs Life.
5. Seal: No Shaft Seal is Used
6. Shaft: One (1) Piece Extension Shaft 2642 mm Long, made from 2"Sch80 pipe.
7. Impellers: (1) ø660 mm Diameter High Efficiency Hydrofoil, Type MP3300 with Three (3) Bolt-On Blades. Hub Welded to the Pipe Shaft.
8. Process: 1.140 SpGr Mixture, having 20%w/w Dissolved Solids, 1.00 Liquid SpGr. Na2O5 or CuSO4*5H2O Solids with 2.60 Solids SpGr, Max. Particle Size 2000 microns, Are Fully Dissolved. No Air Added. Variable Level with bottom pump-out. Batch Operation. Mixer can be Turned Off.
9. Wetted Parts: 316 Stainless Steel
10. The agitator beam support must be sufficiently rigid to prevent the agitator from vertically deflecting 1 mm and 1/3° deflection in any direction (ie twist). The loads shown include a suitable safety factor.

QUANTITY: Two (2)

	LOCATION DRAWING	
	Vennessa Ventures, Costa Rica Crucitas Project, TAG: ø2.0mx3.0m Reagent Tank Agitators	
DIMENSIONS IN MILLIMETERS		DWG. NO.
DATE	REV.	Q07-2910-04L
24-Feb-2008	1	

CUSTOMER -----
Customer: Vennessa Ventures Qte#:Q07-2910 Rev.1 EqNo#:04
Project Name: Crucitas Project Location: Costa Rica
Agitator Tag Number : 2.0mx3.0m Date: 23Feb2008

PROCESS -----
Service Description : Reagent Tank Agitators >
Temperature & Pressure : 30 <degC> & Atmospheric Pressure >
Final Mixture Viscosity : 1 to 2 <mPa*s @5/s>
Sp. Gr. of Mixture : 1.140 <g/cm3>
Sp. Gr. of Liquid : 1.000 (1 cP) <g/cm3>
Sp. Gr. of Dry Solids : 2.600 <g/cm3>
Weight % Solids : 20 All Solids Dissolve <%w/w>
Solids Settling Vel. d99 : 30.8 Free 24.5 Hindered <cm/s>
Particle Size Distributn : d99=2000 d80=1000 d50=200 <um>

TANK -----
Tank Diameter x Height : 2.00 Diameter x 3.00 Straight Side <m x m>
Top / Bottom Geometry : Flat / Flat <mm/mm>
Volume Agitated : 8.48 to 0.94 <m^3>
Liquid Level Range : 2700 to 300 <mm>
Baffle Recommendation : 4 @ 90 Deg. 165 Wide x 2645 Long <mm>
Tank Operation : Batch Operation w Bottom Draw-Off >

AGITATOR -----
Agitator Model (Qty=2) : MixPro 18GTC-2-155 >
Agitator Shaft Seal : No Shaft Seal is Used >
Mounting Type and Height : On 165 mm Beams with 16 mm Bed-Plate >
Impeller System Used : (1) 660 mm MP3300 w 3 Bolted Blades >
D/T Ratio : 0.330 <->
Operating Speed : 159 <Rpm>
Power Used By Turbines : 0.84 <kW>
Tip Speed : 5.5 (1083 fpm) <m/s>
Annular Velocity Vup : 674 (36.9 fpm) <m/h>
Other Agitation Scales : 2.08 Ft2/s2 3.4 Fpm/6 222 Turns/hr >
Total Impeller Pumping : 1887 (Primary Pumping Capacity) <m3/h>
Agitator Function : Dissolving & Solid Suspension >

SHAFT -----
Gear Box Shaft (Upper) : 48 Dia.x 76 Long from Mounting Ref. <mm>
Pipe Shaft (Lower) : 60/49D.(2.0"Sch80) x 2642 Long <mm>
Total Length/Top Coupling: 2703 Total/Shrink-Fit to Pipe <mm/?>
Impeller CL to Mtg.Ref. : 2702 <mm>
Impeller Off-Bottom Dist.: 463 <mm>
Weight of Impeller : 8 <kg>
Pipe Shaft Stresses : Shear= 9.59 Tensile= 18.43 <MPa>
Hydraulic Safety Factor : 3.5 Occasional Prop splashing OK >

DRIVE -----
Speed Reduction : Sumitomo Cycloidal Gear w C-Face Motor >
Reducer Model : CVVJ-6130Y-11 >
Gear Drive Ratio : 11.000: 1 Single Reduction <R:1>
Gearbox Service Factor : 4.53 <kW/kW>
Low Speed Bearing Life : Upper= 279800 Lower= 114100 <L10 h/h>

MATERIALS -----
Impeller Matl/Cover : 316 SS / No Cover >
Speed Reducer Shaft Matl : C/S (AISI 1045 Steel) >
Lower Shaft Matl/Cover : 316 SS / No Cover >

LOADS -----
DESIGN LOADS: (*)=APPROPRIATE SERVICE FACTOR APPLIED ALREADY >
Bending Moment (* 1.8SF) : 390 < N-m >
Torque Moment (* 2.0SF) : 179 < N-m >
Downward Load (* 2.0SF) : 2433 < N >
First Critical Speed : 254 (0.63 Ratio) <Rpm/(-)>

WEIGHTS -----
Weight of Agitator Drive : 63 < kg >
Weight of Motor : 24 < kg >
Weight of Wet-End : 38 < kg >
Total Weight of Agitator : 124 < kg >

MOTOR -----
Motor Power / Rpm : 1.5 (2 HP) / 1750 (460V/3/60Hz) <kW/Rpm>
Total Power Used : 1.01 (67 % of Nameplate) < kW >
Motor Frame Size : 145TC (Premium Efficiency) >