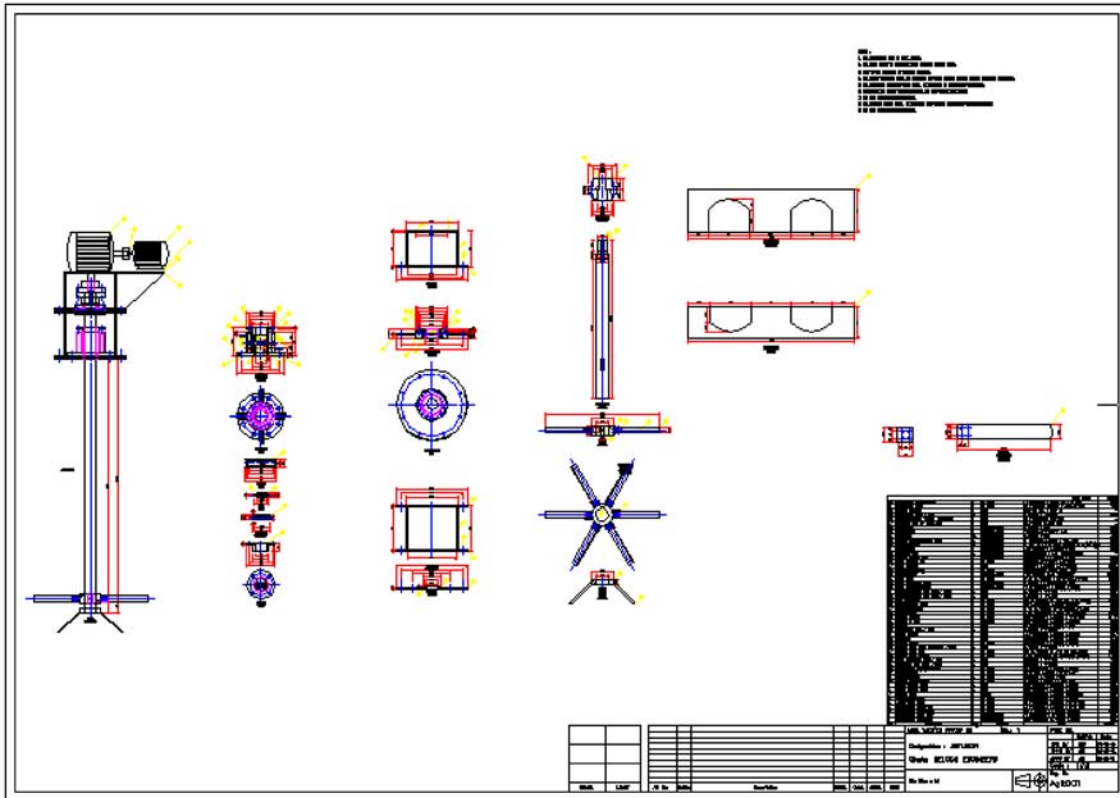




**Satish Lele**  
[leleequip@gmail.com](mailto:leleequip@gmail.com)  
M:91-98202 77283

### Program for Design and Drawing of Agitator / Mixer

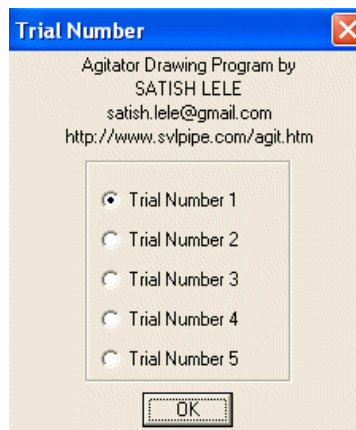
I offer Design and Drawing program which Designs and Draws a detailed drawing of Agitator / Mixer, with user friendly dialog boxes, which is an add-on for any CAD program for Designing and Developing GA drawing for Agitator / Mixer. Program for Design and Drawing of Agitator / Mixer asks for some parameters and designs. Program for Design and Drawing of Agitator / Mixer then draws the GA drawing and components. Program for Design and Drawing of Agitator / Mixer gives all minor details (even weight of each component and total weight) at Quotation Stage itself and this helps to quote in most competitive manner.



Program for Design and Drawing of Agitator / Mixer will draw Drawing like this.

### How the Program Runs?

The Program for Design and Drawing of Agitator / Mixer asks for parameters in the following dialog boxes, and based on these values, Program for Design and Drawing of Agitator / Mixer designs and draws.



In demo mode of Program for Design and Drawing of Agitator / Mixer you can select predefined sizes.



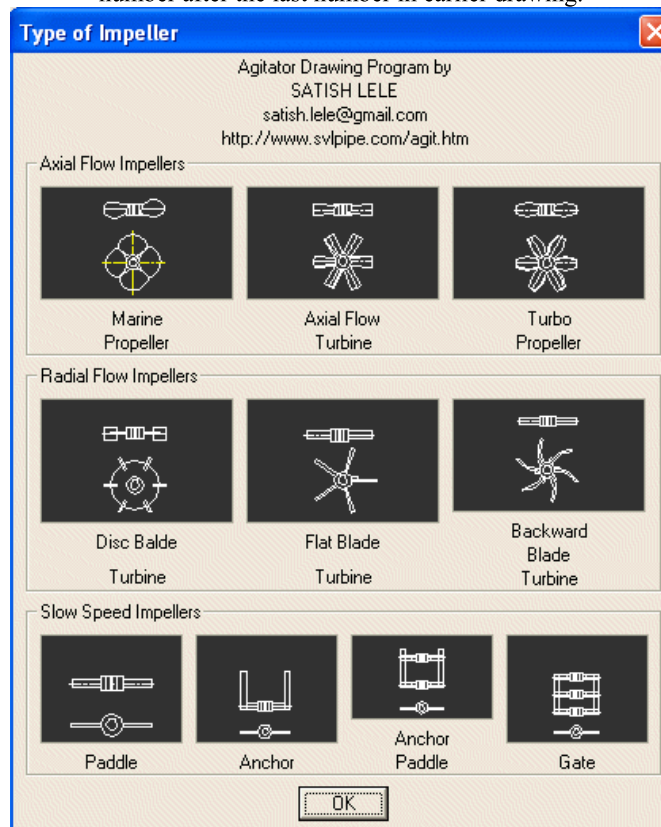
With Program for Design and Drawing of Agitator / Mixer, you can draw either in Foot-Inch units or in Metric Units.



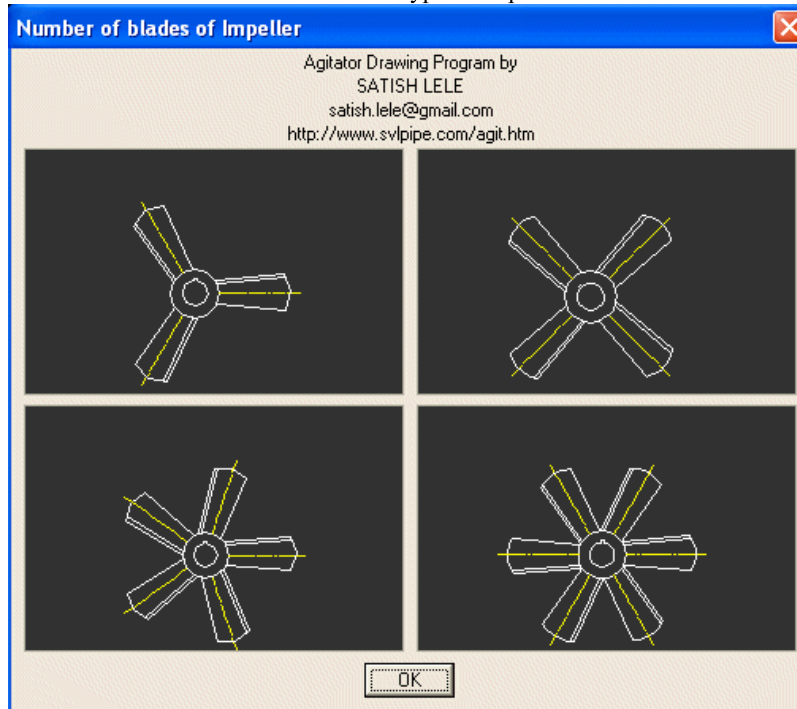
You can create drawing or quit  
If you select drawing option



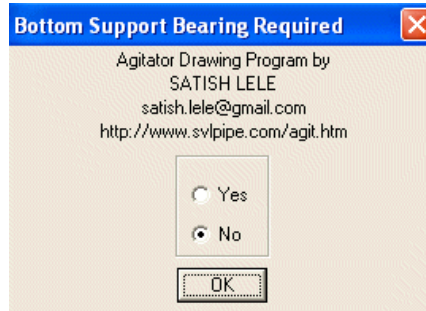
You can select the first tag number in this drawing. If this drawing is continuation of another drawing, first tag number will be the next number after the last number in earlier drawing.



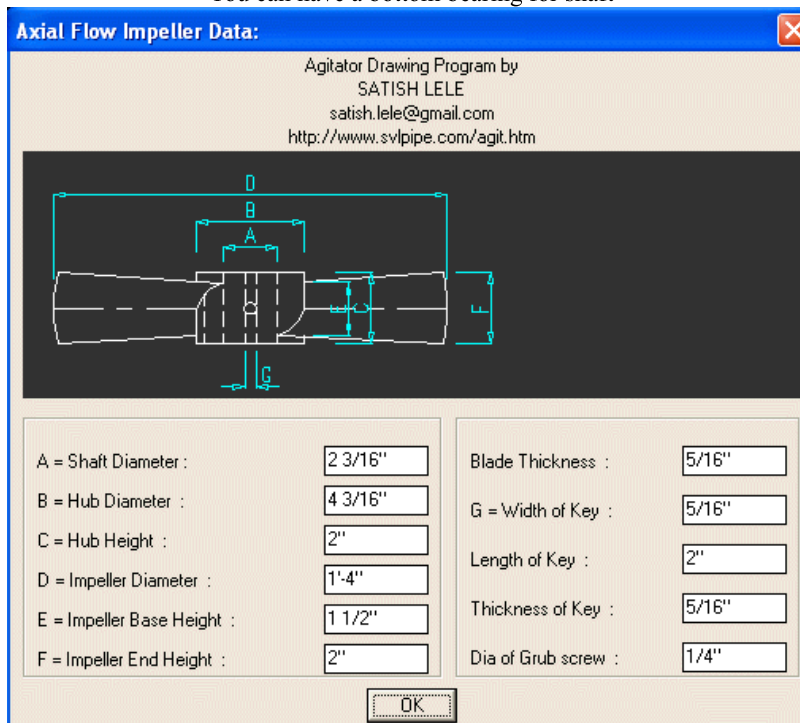
You can select type of Impeller



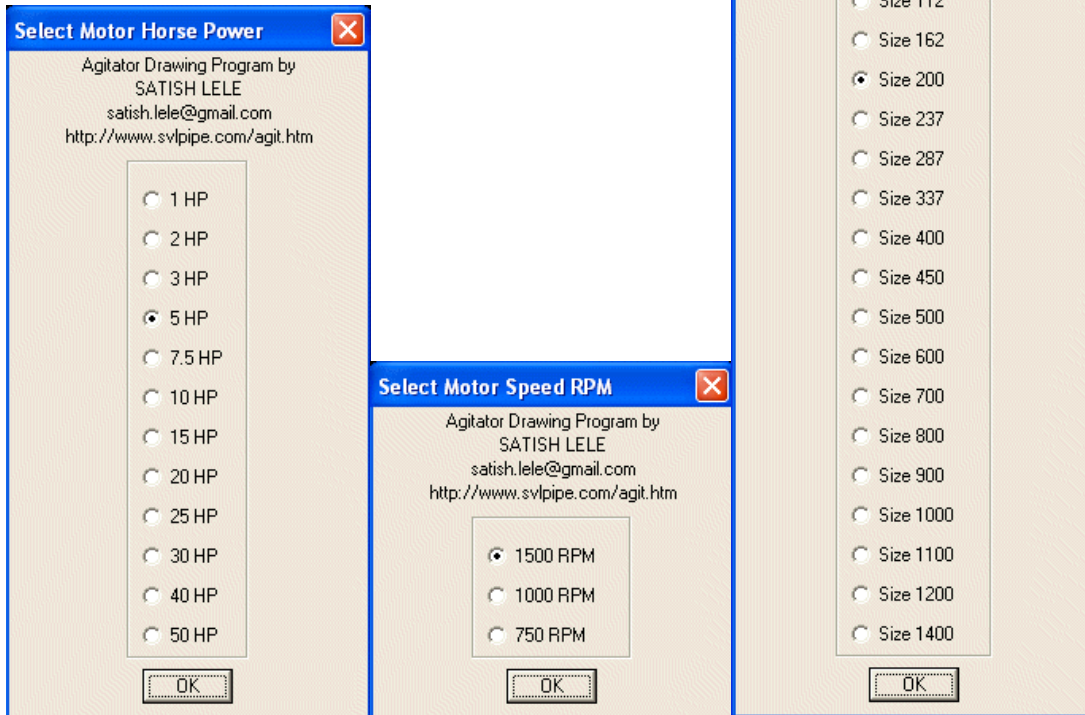
For Marine Propeller you can select 3 or 4 blades. For Axial Flow Turbine, TurboProp, Flat Balde turbine and Disc Blade turbine you can select 3 to 6 blades. For Backward Blade Turbine you can select 2 to 6 blades. For Paddle, Anchor, Anchor/Paddle or Gate you can select only 2 blades.



You can have a bottom bearing for shaft



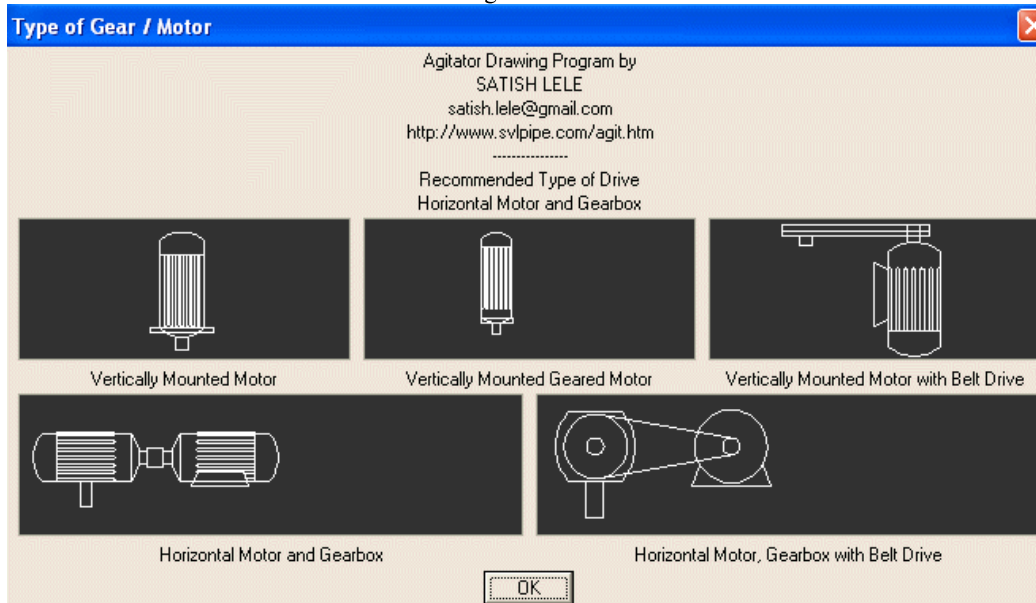
You can select sizes for parts of Impeller.



Program for Design and Drawing of Agitator / Mixer shows recommended HP, motor RPM and size of gearbox. You can select Horse Power of Motor, Speed (RPM) of Motor and size of gearbox.



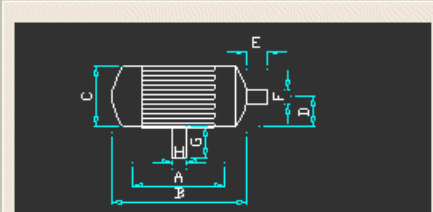
Program for Design and Drawing of Agitator / Mixer shows best possible combination based on rotational speed of agitator and gear ratio of gearbox.



You can still select the Drive unit.

**Gear Box data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>



Input Shaft data :

D = CL height :

E = Length :

F = Diameter :

Output Shaft data :

G = Length :

H = Diameter :

Gear Box data :

A = C to C of Bolts :

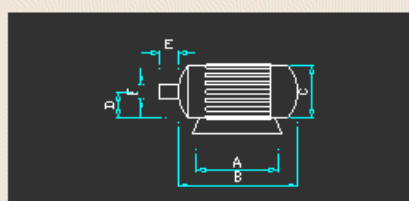
B = Length of Gear Box :

C = Total height of Gear Box :

You can select sizes for parts of Gear Box.

**Motor data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>



Motor data :

A = C to C of Bolts :

B = Length of Motor :

C = Total height of Motor :

Shaft data :

D = CL height :

E = Length :

F = Diameter :

You can select sizes for parts of Motor.

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Please enter Drawing data:

Clients Name :

Designed by:

Drawn by:

Checked by:

Appd by:

Date:

Drawing No.:

You can enter the data generally entered in Title Block. Current date is automatically displayed. You can enter drawing number. The drawing will be saved with this number.

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Shaft Diameter :

Shaft Length below Base Plate :

Shaft RPM :

No. of Impellers :

Width of Shaft Key :

Thickness of Shaft Key :

You can specify diameter and length of shaft. If diameter and length of shaft is calculated by process design calculations, it will be automatically indicated.

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Stuffing Box  
 Mechanical Seal  
 None

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Single or Double Mechanical Seal

Single Mechanical Seal  
 Double Mechanical Seal

You can select either Stuffing Box, Mechanical seal or without any seal. If you select Mechanical Seal, you can select Single or Double Mechanical Seal.

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Material of Construction

Wetted Parts Stainless Steel (Chemical Plant)  
 All Parts Stainless Steel (Pharma / Food)  
 All Parts Carbon Steel

You can select Material of construction for wetted parts. Material selected can be All Parts of Stainless Steel, Wetted Parts Stainless Steel or

All Parts of Carbon Steel. SS liner will be provided on CS base plate if wetted parts are SS.

**Material Specification:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>

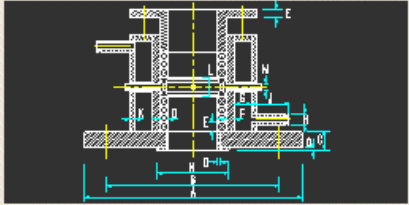
Material of Plates :	IS 2062
Material of Liner :	Stainless Steel
Material of Shaft :	Stainless Steel
Material of Impeller Hub :	Stainless Steel
Material of Impeller Blades :	Stainless Steel
Material of Motor / Gearbox / Coupling :	STD
Material of Packing Rings :	TIBA
Material of Lantern Rings :	BRASS
Material of Bearing :	STD
Material of Stud Bolts :	STD

OK

If you select Stuffing Box, Program for Design and Drawing of Agitator / Mixer indicates appropriate material of construction for parts. You can select / modify material for all parts.

**Stuffing Box data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>



Gland Packing data:

Number above Lantern, (Max 6) :	3
D = Thickness :	3/8"
E = Height :	3/8"
Number below Lantern, (Max 8) :	4

Stuffing Box data :

F = Thickness of Plate of Stuffing Box :	3/8"
G = Width of Cooling Jacket :	3/4"
H = Dia of CW Nipple :	1/2"
J = Length of CW Nipple :	1 1/2"
K = Thickness of Plate of Cooling Jacket :	1/4"

Lantern Ring data :

L = Height :	7/8"
M = Dia of Grease Nipple :	3/8"

Liner data:

N = Liner Width :	3 3/16"
O = Liner Thickness :	1/8"

Base Plate data:

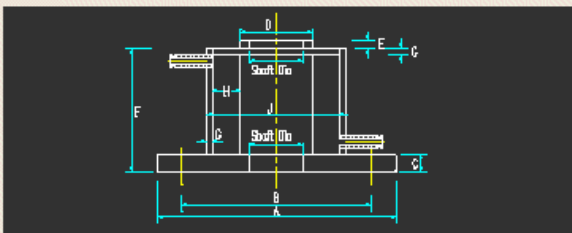
A = Outer Diameter :	9 11/16"
B = Bolt Circle Diameter :	7 11/16"
C = Thickness :	3/4"

OK

If you select Stuffing Box, with respect to diameter of shaft, all the dimensions for Stuffing Box will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You can change the same.

**Mechanical Seal data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>



Base Plate data:

A = Outer Diameter :

B = Bolt Circle Diameter :

C = Thickness :

D = Diameter of Top Ring :

E = Height of Top Ring :

F = Total Height :

G = Thickness of Plates :

H = Width of Cooling Jacket :

J = Diameter of Cover :

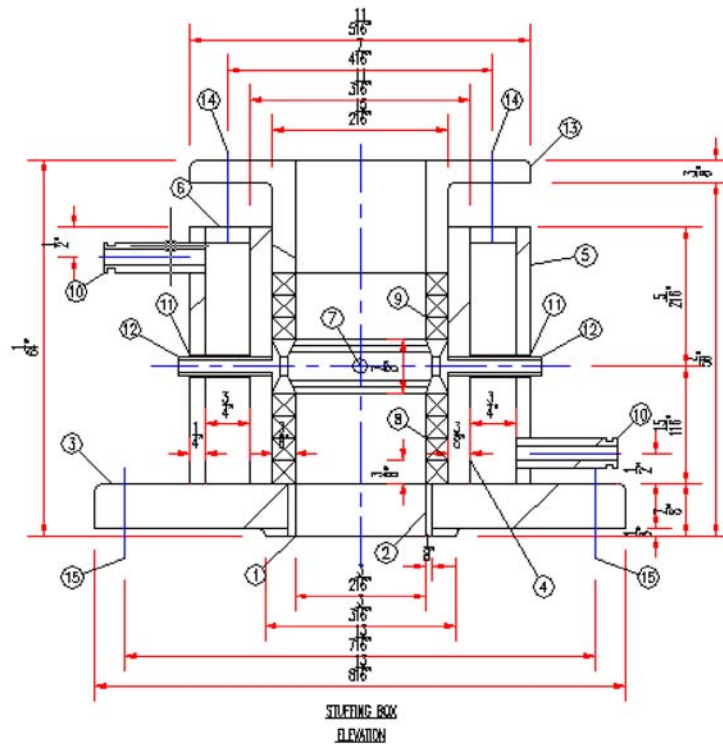
Number of Bolts :

Diameter of Bolt Holes :

Dia of CW Nipple :

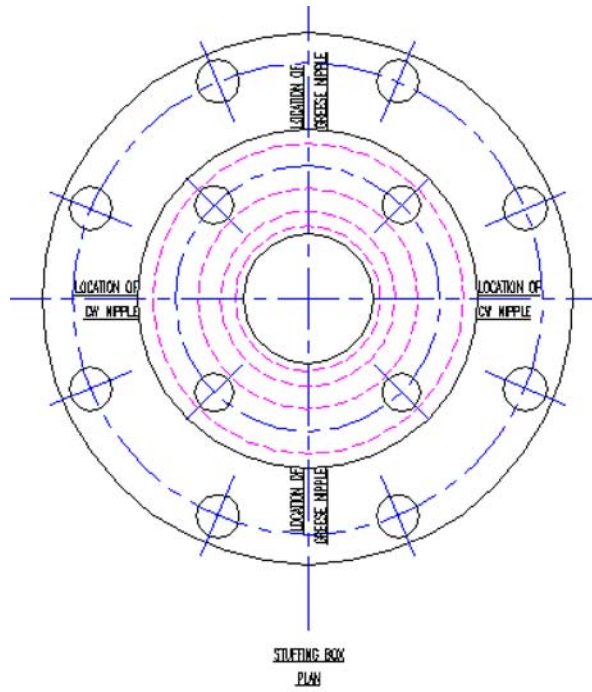
Length of CW Nipple :

If you select Mechanical Seal, with respect to diameter of shaft, all the dimensions for Mechanical Seal will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You can change the same.

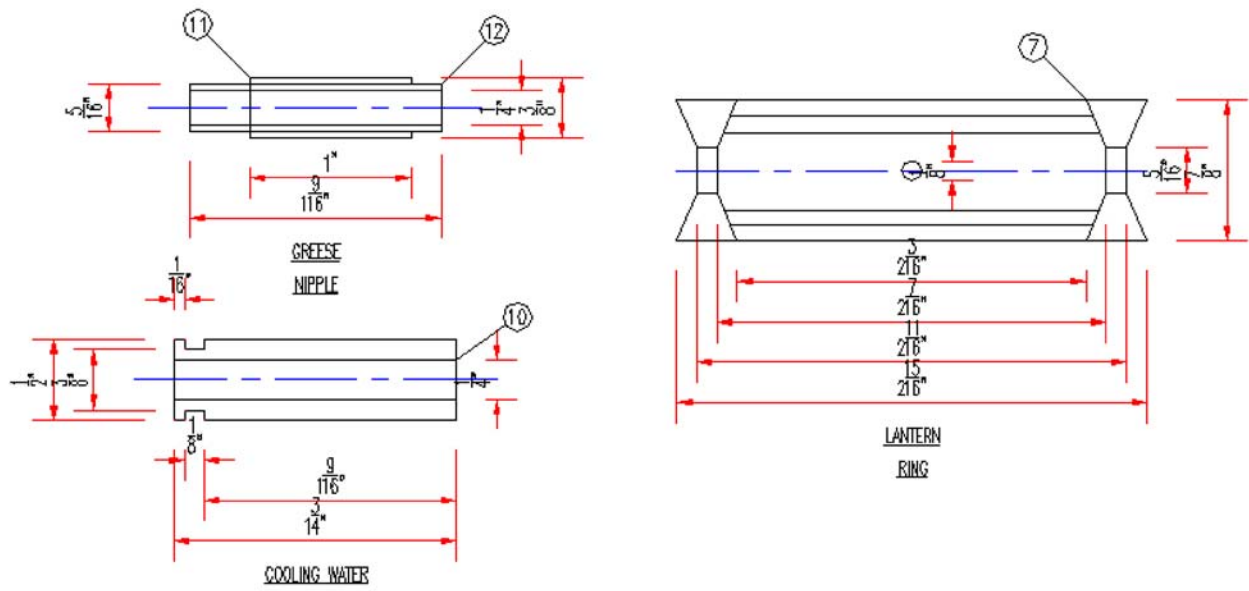


Elevation of Stuffing Box.

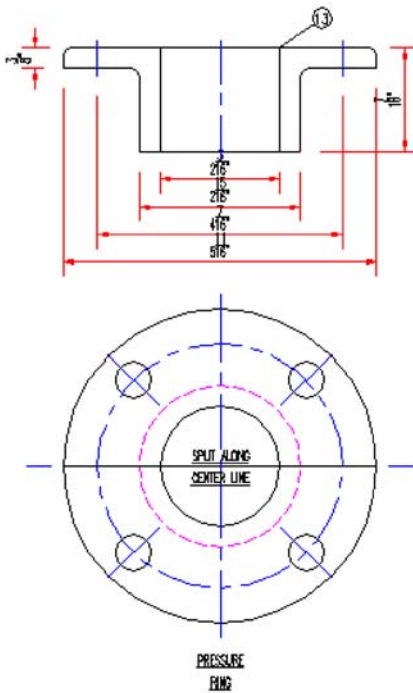




Plan of Stuffing Box.



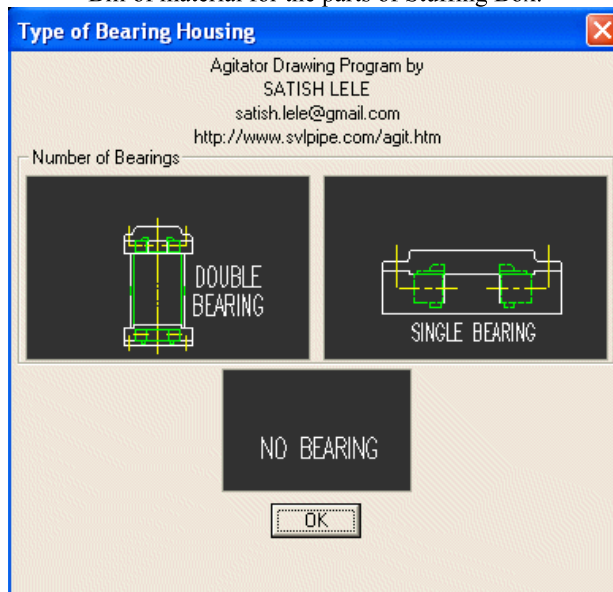
Details of smaller parts of Stuffing Box.



Elevation and Plan of top pressure ring.

15	Base Plate Stud Bolts / Nuts	8	STD	5/8"(Dia) 1' 1/2"(Lg)	1.14
14	Top Cover Stud Bolts / Nuts	4	STD	5/8"(Dia) 1' 1/2"(Lg)	0.57
13	Stuffing Box Top Split Cover	2	CS	5 11/16"(OD) 2 3/16"(ID) 3/4"(Lg)	6.07
12	Greese Nipples	2	CS	5/16"(OD) 1/4"(ID) 1 9/16"(Lg)	0.03
11	Greese Nozzles	2	CS	3/8"(OD) 5/16"(ID) 1"(Lg)	0.02
10	Cooling Water Nozzles	2	CS	1/2"(OD) 1/4"(ID) 1 11/16"(Lg)	0.15
9	Upper Packing Rings	3	TIBA	2 15/16"(OD) 2 3/16"(ID) 3/8"(Ht)	0.12
8	Lower Packing Rings	4	TIBA	2 15/16"(OD) 2 3/16"(ID) 3/8"(Ht)	0.16
7	Lantern Ring	1	BRASS	2 15/16"(OD) 2 3/16"(ID) 7/8"(Th)	0.77
6	Jacket Cover Plate	1	CS	5 3/16"(OD) 3 11/16"(ID) 1/4"(Th)	0.77
5	Jacket Shell Plate	1	CS	5 11/16"(OD) 5 3/16"(ID) 4 1/4"(Lg)	5.32
4	Stuffing Box Shell Plate	1	CS	3 11/16"(OD) 2 15/16"(ID) 4 1/4"(Lg)	4.85
3	Stuffing Box Base Plate	1	CS	8 13/16"(OD) 2 3/16"(ID) 3/4"(Th)	12.71
2	Stuffing Box Shaft Liner	1	SS	2 7/16"(OD) 2 3/16"(ID) 7/8"(Lg)	0.23
1	Stuffing Box Base Liner	1	SS	3 3/16"(OD) 2 7/16"(ID) 1/8"(Th)	0.12
No	Description	Qty	Material	Size	Wt lbs

Bill of material for the parts of Stuffing Box.



You can select type of Bearing Housing. Bearing Housing can be made up of 2 bearings or only 1 bearing. You can also have a shaft without any bearing on shaft.

**Bearing Housing data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>

OD of Top Bearing :

ID of Top Bearing :   
ID should be < or = indicated

Height of Top Bearing :

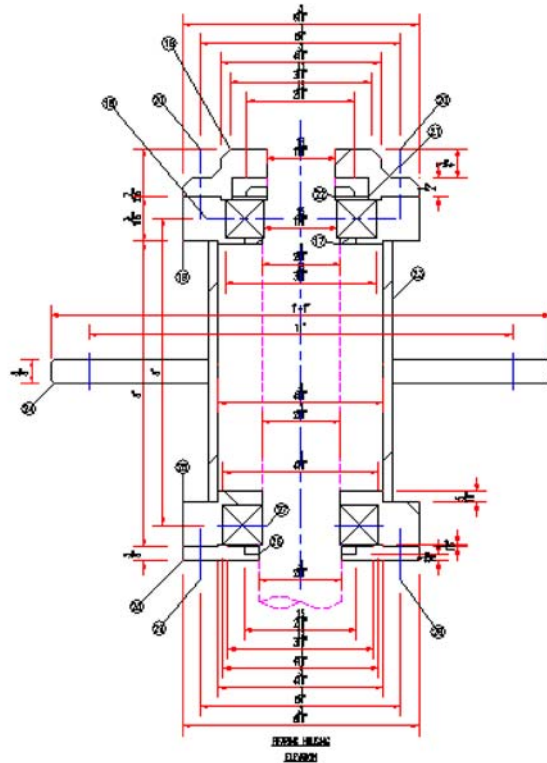
OD of Bottom Bearing :

ID of Bottom Bearing :   
ID should be < or = indicated

Height of Bottom Bearing :

Gap between CL of two Bearings :

For a bearing housing having 2 bearings, all the dimensions will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You may change some of these.



Double Bearing Housing Assembly.

**Stool data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>

ID of Pipe Stool :   
Calculated as per OD of Stuffing Box

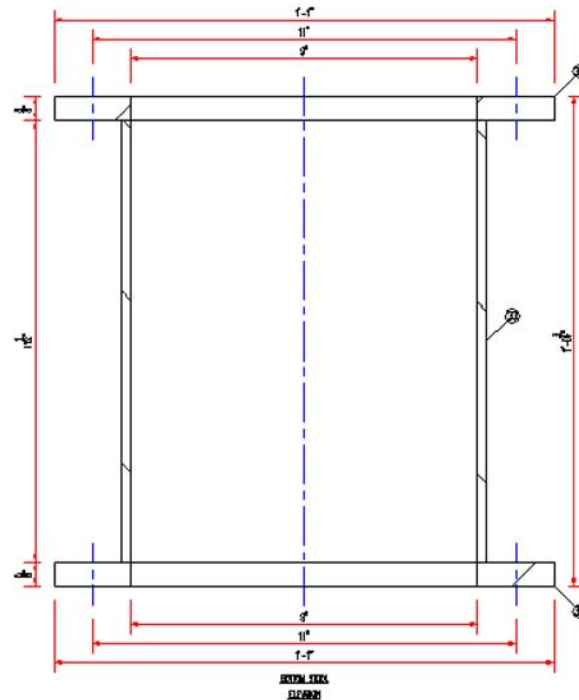
Thickness of Pipe Stool :

OD of Top / Bottom Flanges :   
Calculated as per OD of Stuffing Box

PCD of Top / Bottom Flanges :   
Calculated as per OD of Stuffing Box

Thickness of Flanges :

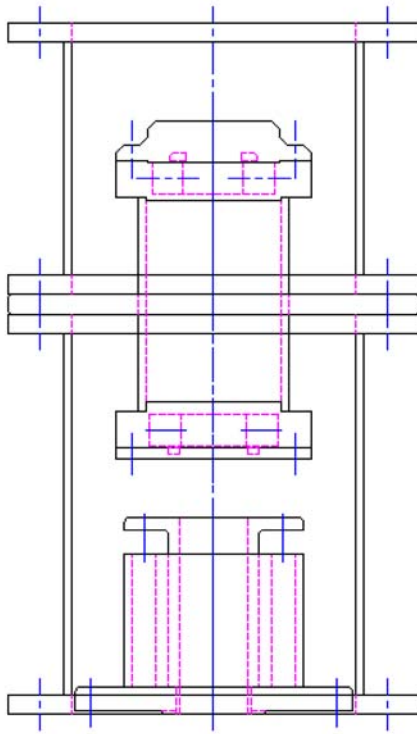
The dimensions of top and bottom stool will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You may change some of these.



Drawing of Stool.

No	Description	Qty	Material	Size	Total Weight	Wt lbs
33	Bottom Stool Shell	1	CS	9 1/2"(OD) 9"(ID) 11 1/2"(Lg)		192.47
32	Bottom Stool Flanges	2	CS	1'-1"(OD) 9"(ID) 5/8"(Th)		24.64
31	Top Stool Shell	1	CS	9 1/2"(OD) 9"(ID) 7 3/8"(Lg)		25.47
30	Top Stool Flanges	2	CS	1'-1"(OD) 9"(ID) 5/8"(Th)		15.80
29	Lower Cover Stud Bolts / Nuts	4	STD	1/4"(Dia) 1 5/16"(Lg)		25.47
28	Lower Bearing Casing	1	CS	6 3/16"(OD) 2 1/16"(ID) 1 7/16"(Th)		0.07
27	Lower Bearing	1	STD	4 1/16"(OD) 2 1/16"(ID) 1"(Ht)		11.26
26	Lower Bearing O Ring	1	RUBBER	2 15/16"(OD) 2 3/16"(ID) 3/16"(Th)		2.81
25	Lower Bearing Cover	1	CS	6 3/16"(OD) 2 3/16"(ID) 3/8"(Th)		0.02
24	Support Ring	1	CS	1'-1"(OD) 4 13/16"(ID) 5/8"(Th)		2.89
23	Bearing Casing Channel	1	CS	4 13/16"(OD) 4 5/16"(ID) 6 13/16"(Th)		21.17
22	Lock Nut	1	CS	2 13/16"(OD) 1 13/16"(ID) 1/8"(Th)		7.15
21	Spring Washer	1	CS	3 9/16"(OD) 1 13/16"(ID) 1/16"(Th)		0.13
20	Top Cover Stud Bolts / Nuts	4	STD	1/4"(Dia) 1 13/16"(Lg)		0.13
19	Top Bearing Casing	1	CS	6 3/16"(OD) 2 1/16"(ID) 1 3/16"(Th)		0.10
18	Top Bearing	1	STD	3 15/16"(OD) 1 15/16"(ID) 1"(Ht)		9.05
17	Top Bearing O Ring	1	RUBBER	2 15/16"(OD) 2 1/16"(ID) 3/16"(Th)		2.70
16	Top Bearing Cover	1	CS	6 3/16"(OD) 1 13/16"(ID) 1 5/16"(Th)		0.02
						10.56

Bill of material for the parts of Bearing Housing and Stool.



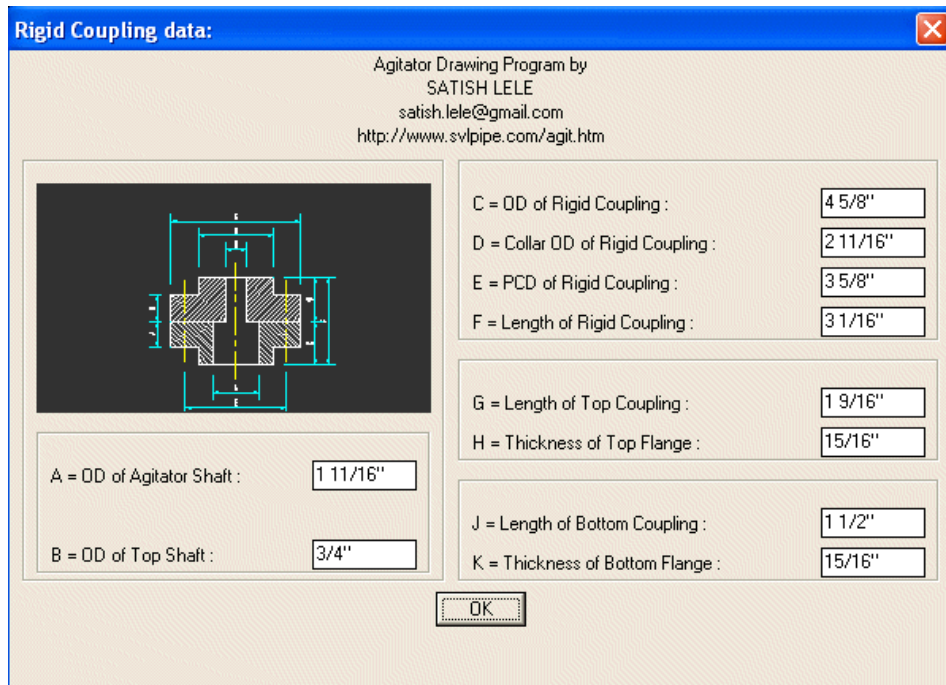
Assembly of Stuffing Box, Bearing Housing, and Top and Bottom Stools.

**Base Plate data:** X

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
<http://www.svlpipe.com/agit.htm>

OD of Base Plate :	1'-1 7/8"
Mateches with OD of stool	
PCD of Stool Flanges :	11 7/8"
Mateches with PCD of stool	
Thickness of Base Plate :	1 1/4"
Liner Thickness :	1/8"
Mateches with thickness of Stuffing Box	
Liner Width :	3 3/16"
Mateches with Width of Stuffing Box	

You can select sizes for Base Plate



You can select sizes for Rigid Coupling.

In trial mode of Program for Design and Drawing of Agitator / Mixer, you can select values of Radio Button, Image Buttons, Check Boxes and List box, but you can not change values in Edit Boxes.

The dialog boxes in Design mode are different.



In run mode of Program for Design and Drawing of Agitator / Mixer, Program asks for type of vessel (Vertical Cylindrical or Rectangular)



Program for Design and Drawing of Agitator / Mixer asks for size of Rectangular tank and properties of liquid.

OR

**Agitator Design**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Size of Vessel

Diameter of Vessel : 5'-7 11/16"

Tan to tan Length : 10'

Properties of Liquid

Viscosity of Liquid in Centipoise : 50.00

Specific Gravity of Liquid : 1.40

OK

Program for Design and Drawing of Agitator / Mixer asks for size of vessel and properties of liquid.

**Agitator Drawing Program**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Bolted or Welded Construction

Bolted Blades

Welded Blades

OK

For Axial Flow Turbine, TurboProp, Paddle, Anchor, Anchor/Paddle or Gate you can select either Bolted or Welded Impeller

**Agitator Design**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Ratio of Imp Dia to Vessel Dia : 0.33

Expected Reynolds Number : 15000.00

OK

You can decide proportion of Diameter of Impeller to Diameter of Vessel, and expected Reynold's Number.

**Impeller Characteristics:**

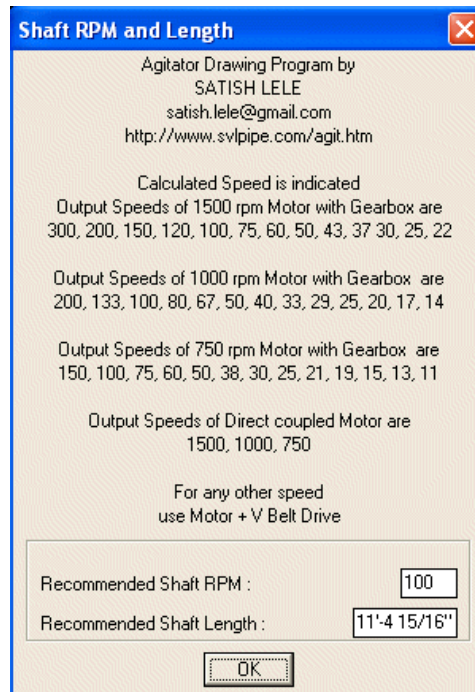
Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Mixing Number Nq: 0.33

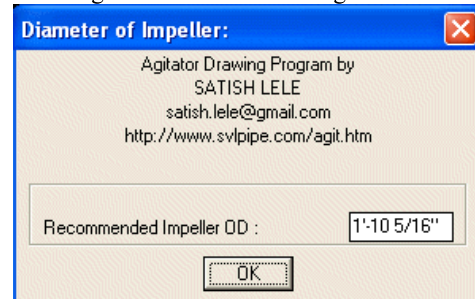
Power Number Np: 0.30

OK

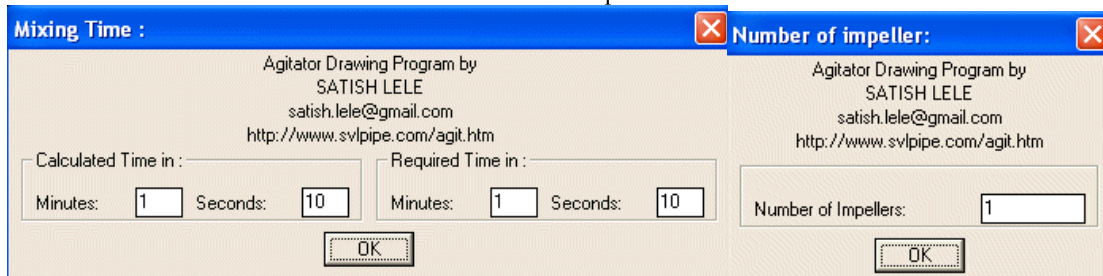
Based on the impeller selected, Program for Design and Drawing of Agitator / Mixer will indicate Mixing number and Power number.



Based on Reynold's number and ratio of Impeller dia to Vessel dia, Program for Design and Drawing of Agitator / Mixer calculated the desired rotational speed of agitator. Program also calculates length of shaft inside vessel and indicates length.



Based on rotational speed of agitator you selected, Program for Design and Drawing of Agitator / Mixer shows the recommended Outside Diameter of Impeller.



Program for Design and Drawing of Agitator / Mixer then calculates how much time it will take for full, mixing. You can select required time. Based on this, Program for Design and Drawing of Agitator / Mixer will select number of impellers.



**Pulley data:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

V Belt :

Pulley data:

A = C to C of Pulleys : 1'-3 3/16"

ID of Smaller Pulley = Motor Shaft Dia : 3/4"

B = ID of Smaller Pulley : 3/4"

C = OD of Smaller Pulley : 3 1/16"

ID of Larger Pulley = Agitator Shaft Dia : 2 3/16"

D = ID of Larger Pulley : 2 3/16"

E = OD of Larger Pulley : 1'-5 5/16"

F = Thickness : 3/8"

Width : 3/8"

OK

If there is a pulley You can select sizes for Pulley.

**Select Safety factor for Shaft**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Safety Factor = 1.0  
 Safety Factor = 1.1  
 Safety Factor = 1.2  
 Other Value

OK

You can select safety factor for shaft design.

**Select Material of Shaft**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Carbon Steel  
 Carbon Steel EN8  
 Carbon Steel EN24  
 Stainless Steel

OK

**Select Permissible values N per sq mm:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

Shear Stress of Agitator Shaft : 55.00

Elastic Limit of Agitator Shaft : 245.00

OK

You can select Material and propertis for Shaft.

**Final Values:**

Agitator Drawing Program by  
SATISH LELE  
satish.lele@gmail.com  
http://www.svlpipe.com/agit.htm

No of Impellers: 1

Diameter of Impellers: 1'-10 5/16"

Speed of Agitator: 100

Shaft Diameter: 4 11/16"

Shaft Length: 11'-4 15/16"

OK

Program for Design and Drawing of Agitator / Mixer then shows final values that will be used for drawing.



Program for Design and Drawing of Agitator / Mixer then offers option to continue drawing or exit.