



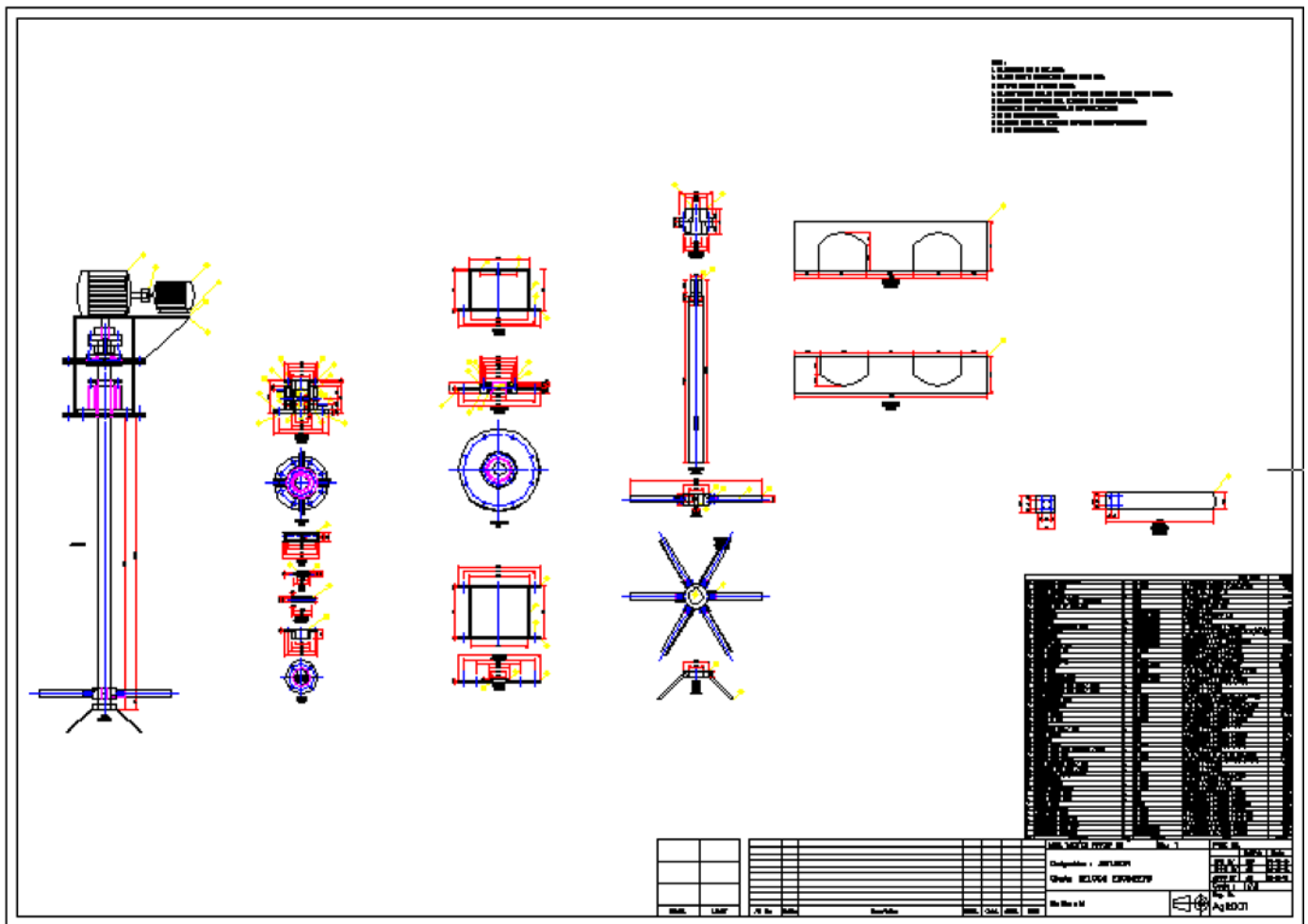
Satish Lele

leleequip@gmail.com

M:91-98202 77283

Program for Design of Agitator / Mixer for Vessels with Drawing

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. The 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 for Design and Drawing of Agitator / Mixer Runs?

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



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



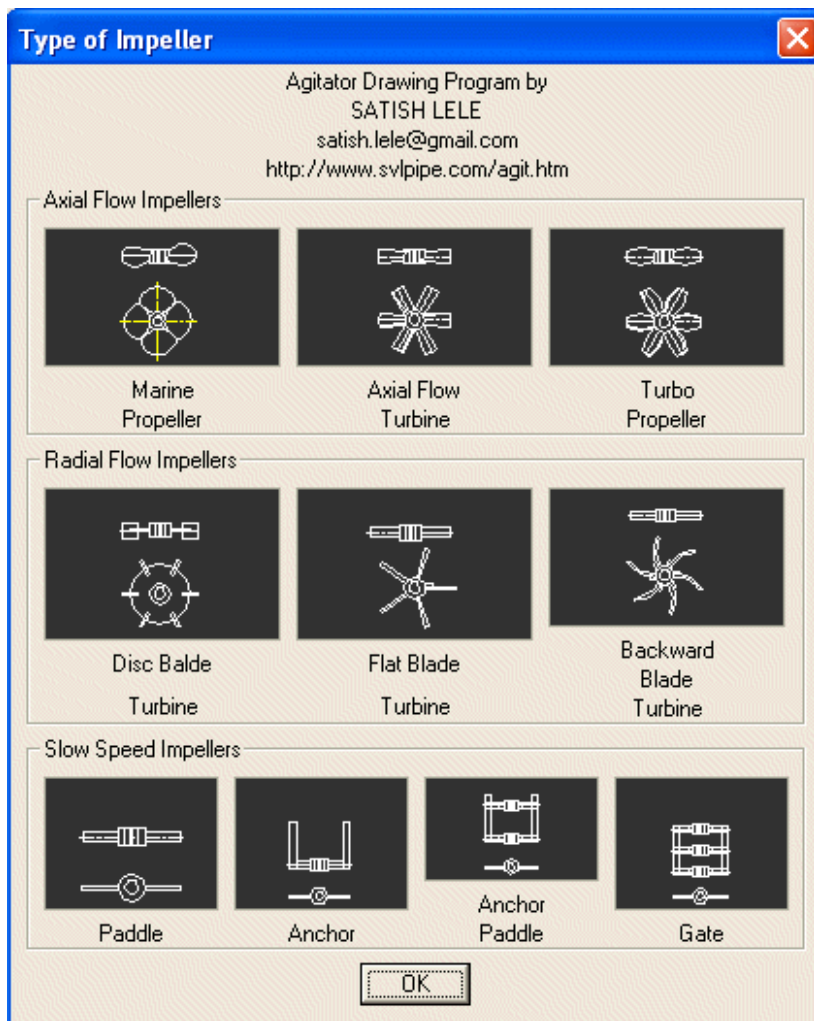
You can draw either in Foot-Inch units or in Metric Units.



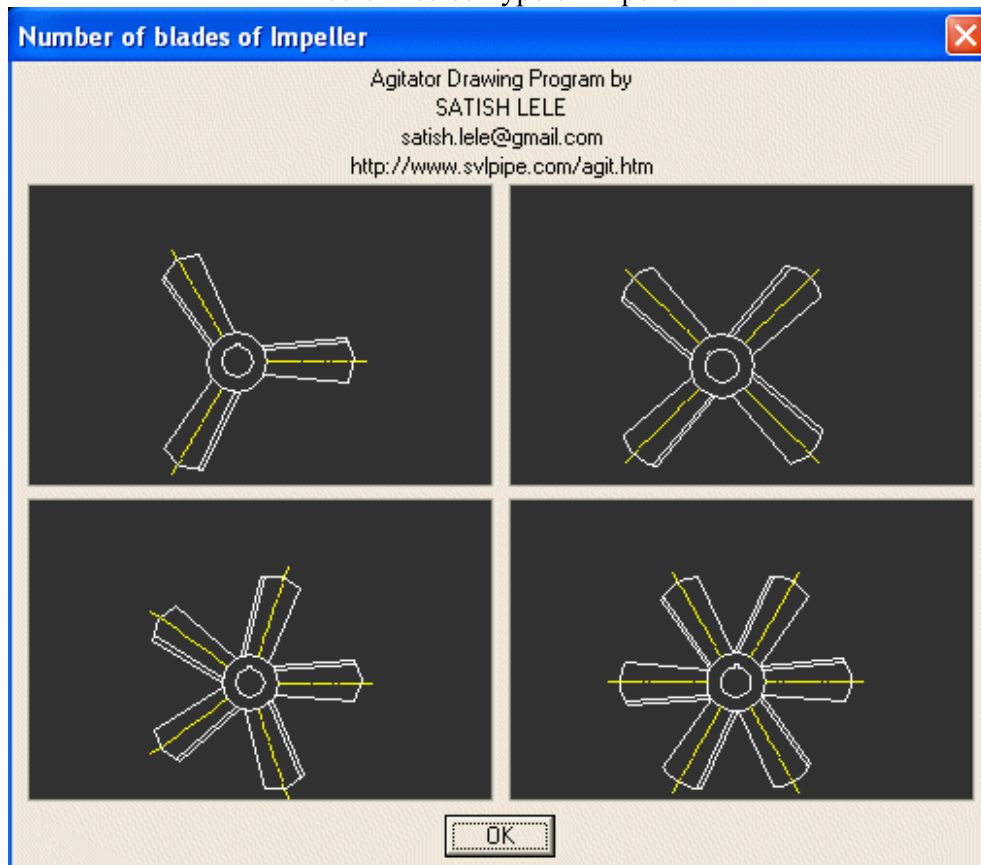
You can create drawing or quit
If you select drawing option



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.

Bottom Support Bearing Required

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

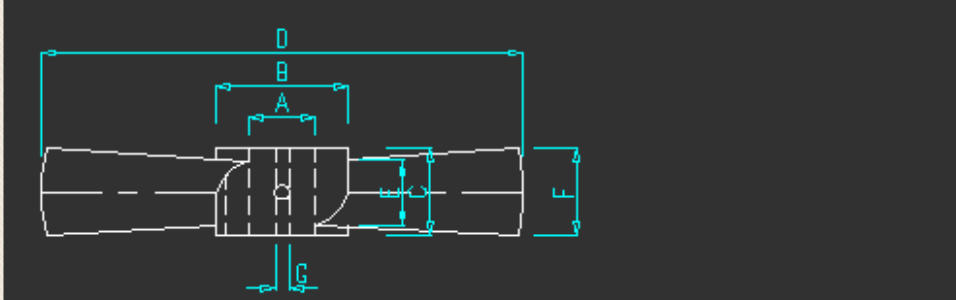
☐ Yes
☒ No

OK

You can have a bottom bearing for shaft

Axial Flow Impeller Data:

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



A = Shaft Diameter :	55	Blade Thickness :	8
B = Hub Diameter :	105	G = Width of Key :	10
C = Hub Height :	50	Length of Key :	50
D = Impeller Diameter :	400	Thickness of Key :	10
E = Impeller Base Height :	38	Dia of Grub screw :	6
F = Impeller End Height :	50		

OK

You can select sizes for parts of Impeller.

Select Motor Horse Power

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

☐ 1 HP
☐ 2 HP
☐ 3 HP
☒ 5 HP
☐ 7.5 HP
☐ 10 HP
☐ 15 HP
☐ 20 HP
☐ 25 HP
☐ 30 HP
☐ 40 HP
☐ 50 HP

OK

Select Motor Speed RPM

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

☒ 1500 RPM
☐ 1000 RPM
☐ 750 RPM

OK

Select Size of GearBox

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

☐ Size 112
☐ Size 162
☒ Size 200
☐ Size 237
☐ Size 287
☐ Size 337
☐ Size 400
☐ Size 450
☐ Size 500
☐ Size 600
☐ Size 700
☐ Size 800
☐ Size 900
☐ Size 1000
☐ Size 1100
☐ Size 1200
☐ Size 1400

OK

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.

AutoCAD Message

Drive unit recommended
Horizontal Motor and Gearbox
OR
Verically Mounted Geared Motor

OK

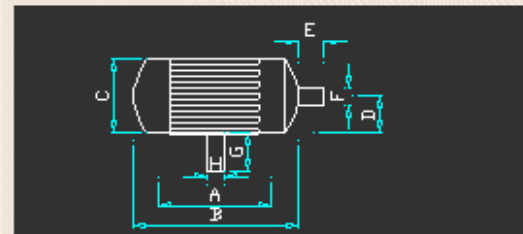
Program for Design and Drawing of Agitator / Mixer shows best possible combination based on rotational speed of agitator and gear ratio of gearbox.



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 :

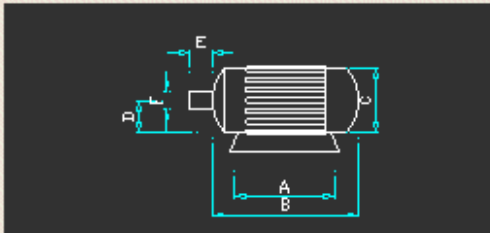
C = Total height of Gear Box :

OK

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 :

OK

You can select sizes for parts of Motor.

Agitator Drawing

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.:

OK

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.

Shaft data:

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

Shaft Diameter : 119

Shaft Length below Base Plate : 3478

Shaft RPM : 100

No. of Impellers : 1

Width of Shaft Key : 8

Thickness of Shaft Key : 8

OK

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

Stuffing Box or Mechanical Seal

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

☒ Stuffing Box

☐ Mechanical Seal

☐ None

OK

Agitator Drawing

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

OK

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

Agitator Drawing Program by
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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

OK

You can select Material of construction for wetted parts. Material of construction 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
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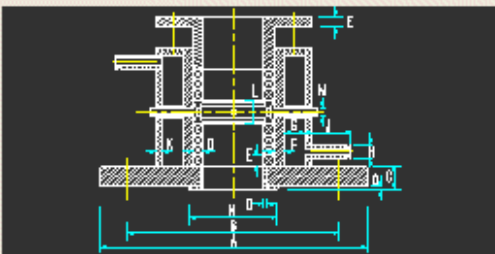
Material of Plates :	IS 2062
Material of Liner :	Stainless Steel
Material of Shaft :	Stainless Steel
Material of Impeller Hub :	Stainless Steel
Material of Impeller Blades :	Stainless Steel
Material of Motor / Gearbox / Coupling :	STD
Material of Packing Rings :	TIBA
Material of Lantern Rings :	BRASS
Material of Bearing :	STD
Material of Stud Bolts :	STD

OK

If you select Stuffing Box, Program 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>



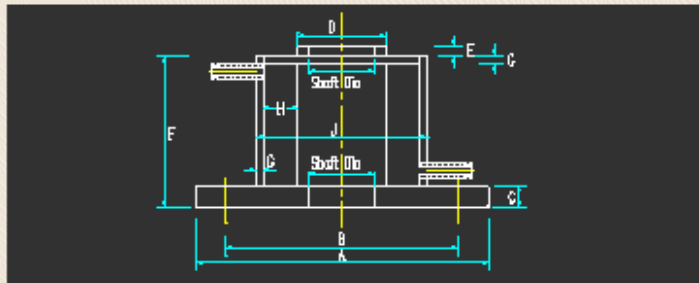
Liner data:	
N = Liner Width :	80
O = Liner Thickness :	3
Base Plate data:	
A = Outer Daimeter :	247
B = Bolt Circle Diameter :	197
C = Thickness :	20
Gland Packing data:	
Number above Lantern, (Max 6) :	3
D = Thickness :	10
E = Height :	10
Number below Lantern, (Max 8) :	4
Stuffing Box data :	
F = Thickness of Plate of Stuffing Box :	10
G = Width of Cooling Jacket :	20
H = Dia of CW Nipple :	13
J = Length of CW Nipple :	38
K = Thickness of Plate of Cooling Jacket :	6
Lantern Ring data :	
L = Height :	21
M = Dia of Greese Nipple :	5

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 :

240

B = Bolt Circle Diameter :

210

C = Thickness :

15

D = Diameter of Top Ring :

85

E = Height of Top Ring :

40

F = Total Height :

210

G = Thickness of Plates :

6

H = Width of Cooling Jacket :

20

J = Diameter of Cover :

110

Number of Bolts :

8

Diameter of Bolt Holes :

18

Dia of CW Nipple :

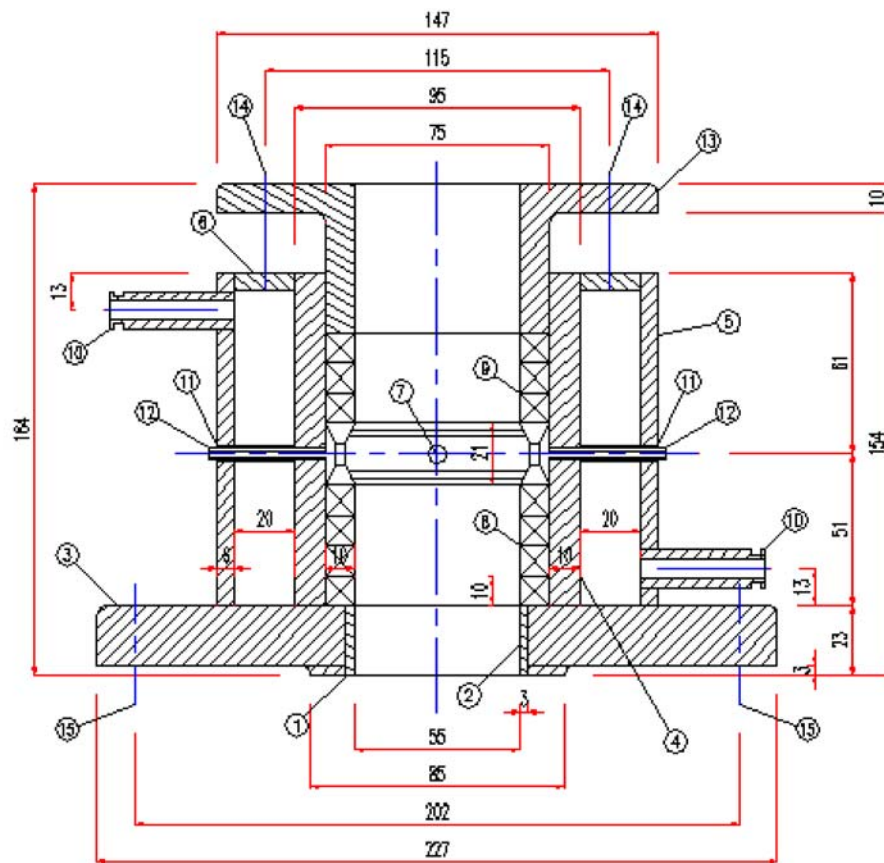
25

Length of CW Nipple :

40

OK

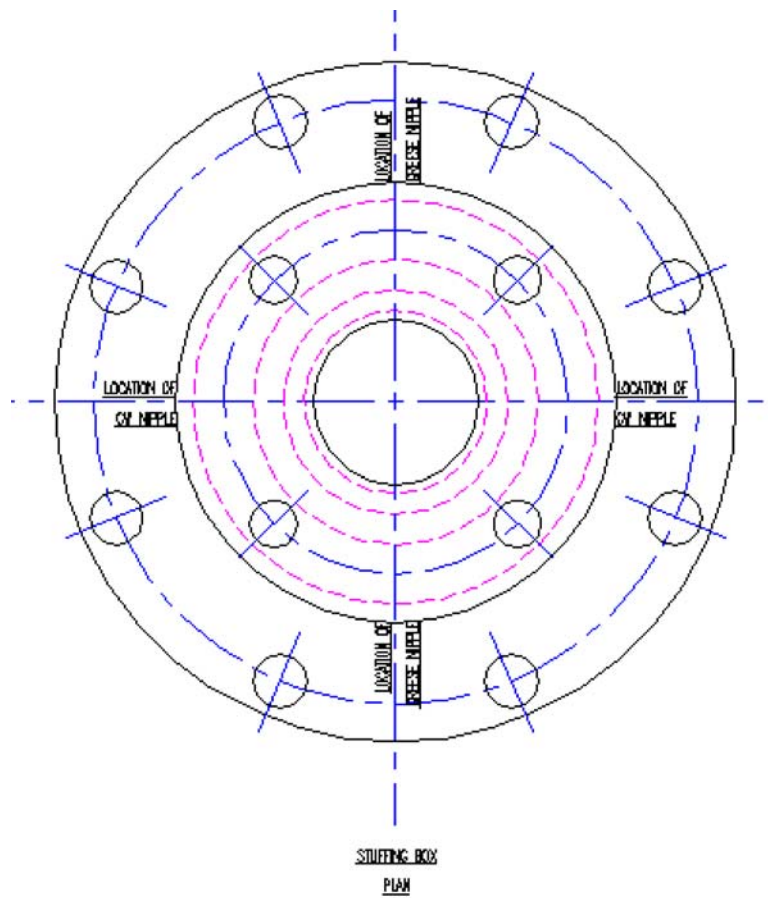
If you select Mechanical Seal, with respect to diameter of shaft, all the dimensions for Mechanical Seal will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You can change the same.



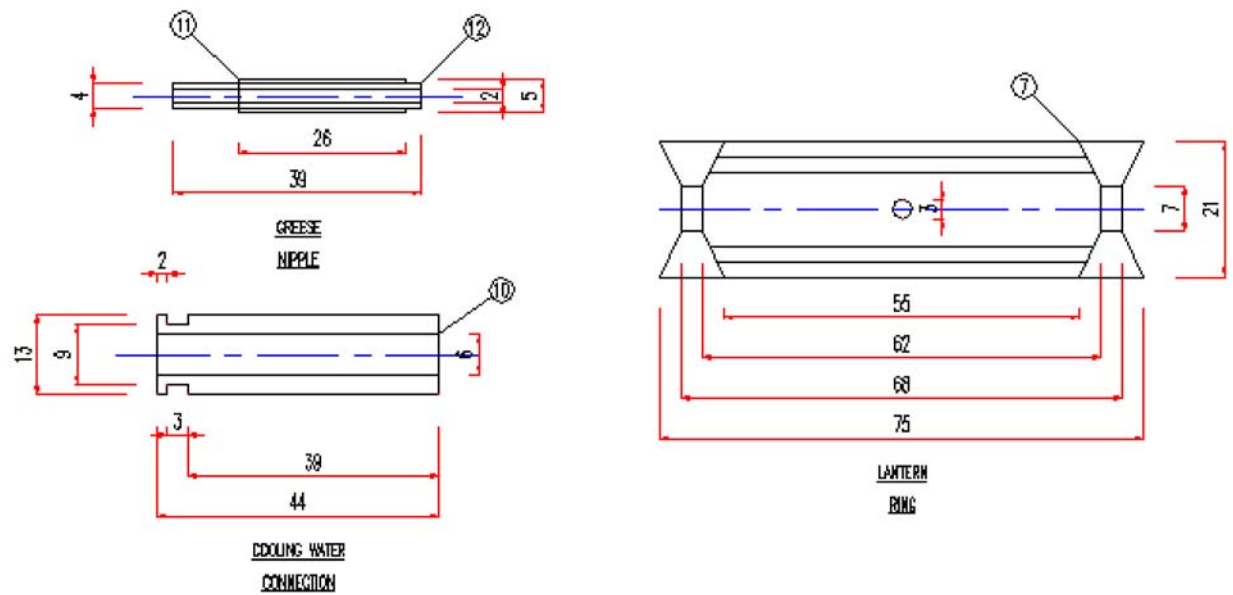
STUFFING BOX

ELEVATION

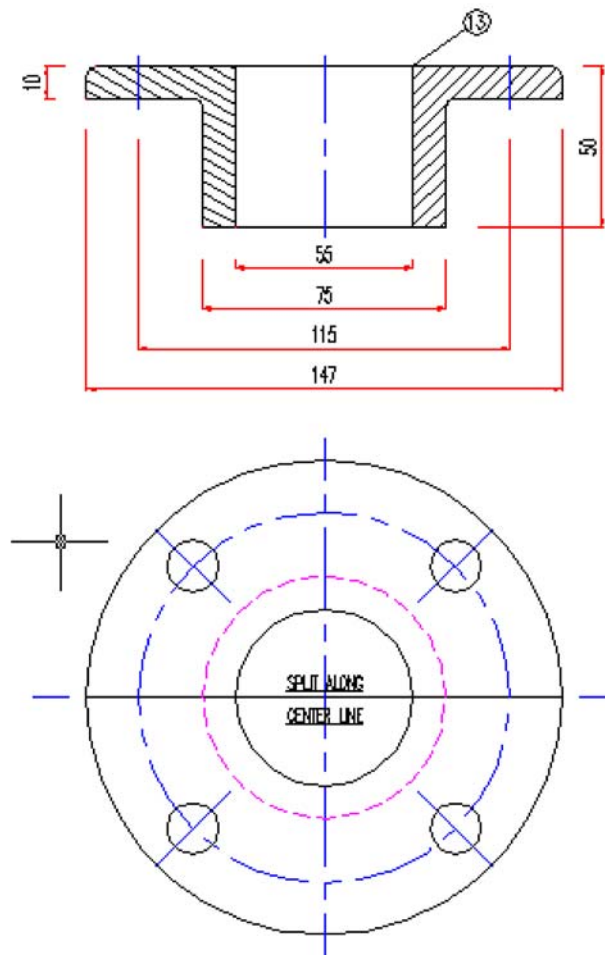
Elevation of Stuffing Box.



Plan of Stuffing Box.



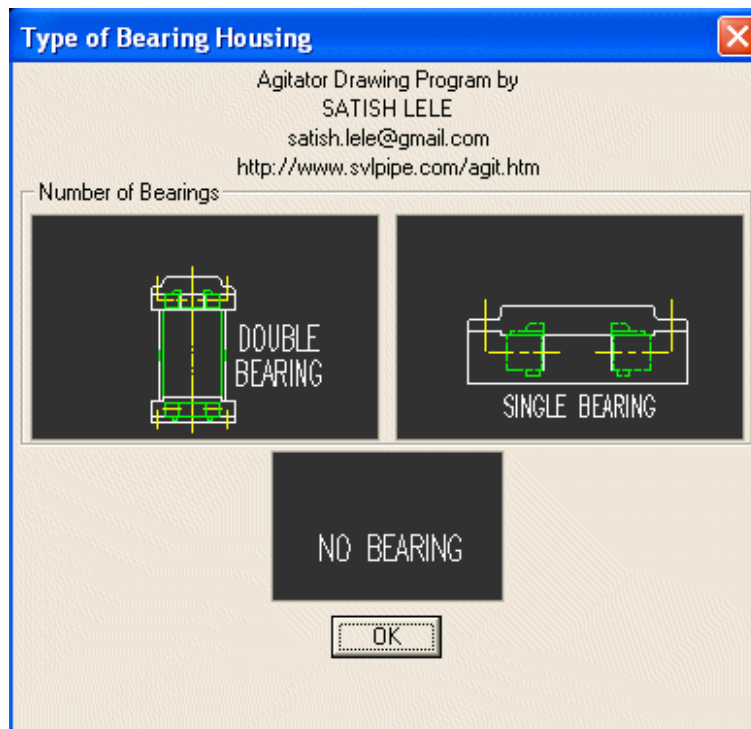
Details of smaller parts of Stuffing Box.



Elevation and Plan of top pressure ring.

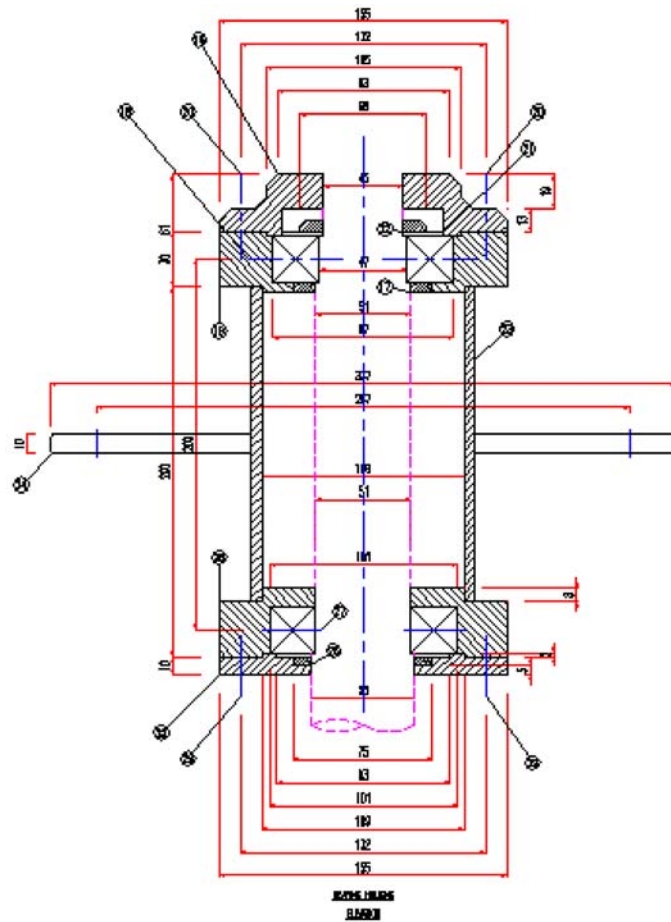
15	Base Plate Stud Bolts / Nuts	8	STD	16(Dia) 39(Lg)	0.52
14	Top Cover Stud Bolts / Nuts	4	STD	16(Dia) 39(Lg)	0.26
13	Stuffing Box Top Split Cover	2	CS	147(OD) 55(ID) 20(Lg)	3.04
12	Grease Nipples	2	CS	4(OD) 2(ID) 39(Lg)	0.01
11	Grease Nozzles	2	CS	5(OD) 4(ID) 26(Lg)	0.00
10	Cooling Water Nozzles	2	CS	13(OD) 6(ID) 42(Lg)	0.06
9	Upper Packing Rings	3	TIBA	75(OD) 55(ID) 10(Ht)	0.06
8	Lower Packing Rings	4	TIBA	75(OD) 55(ID) 10(Ht)	0.08
7	Lantern Ring	1	BRASS	75(OD) 55(ID) 21(Ht)	0.35
6	Jacket Cover Plate	1	CS	135(OD) 95(ID) 6(Ht)	0.35
5	Jacket Shell Plate	1	CS	147(OD) 135(ID) 111(Lg)	2.40
4	Stuffing Box Shell Plate	1	CS	95(OD) 75(ID) 111(Lg)	2.42
3	Stuffing Box Base Plate	1	CS	227(OD) 55(ID) 20(Ht)	6.21
2	Stuffing Box Shaft Liner	1	SS	61(OD) 55(ID) 23(Lg)	0.10
1	Stuffing Box Base Liner	1	SS	85(OD) 61(ID) 3(Ht)	0.07
No	Description	Qty	Material	Size	Wt Kgs

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.

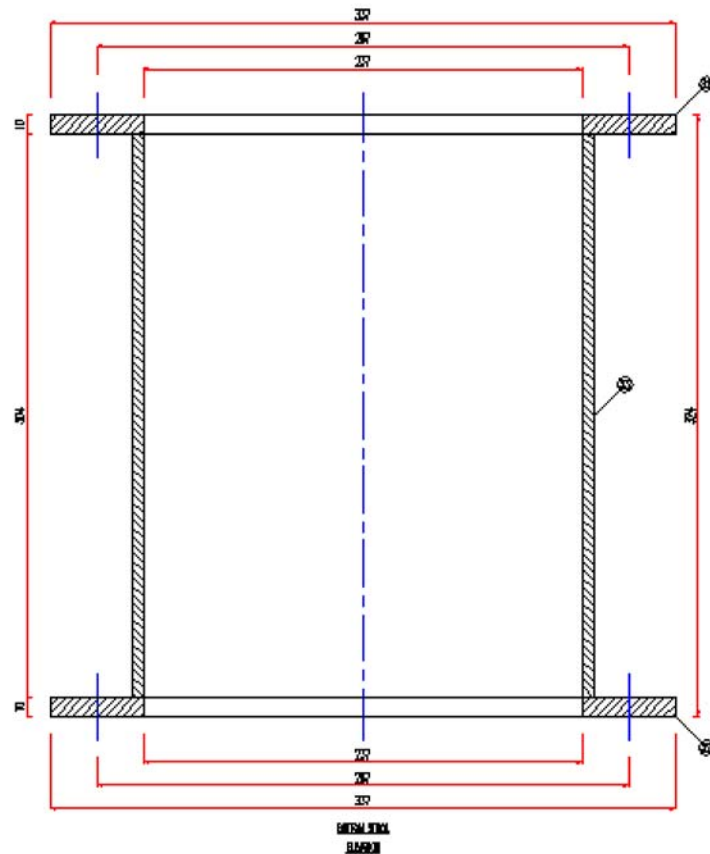
For a bearing housing having 2 bearings, all the dimensions will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You may change some of these.



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 :	257
Calculated as per OD of Stuffing Box	
Thickness of Pipe Stool :	6
OD of Top / Bottom Flanges :	357
Calculated as per OD of Stuffing Box	
PCD of Top / Bottom Flanges :	307
Calculated as per OD of Stuffing Box	
Thickness of Flanges :	10
OK	

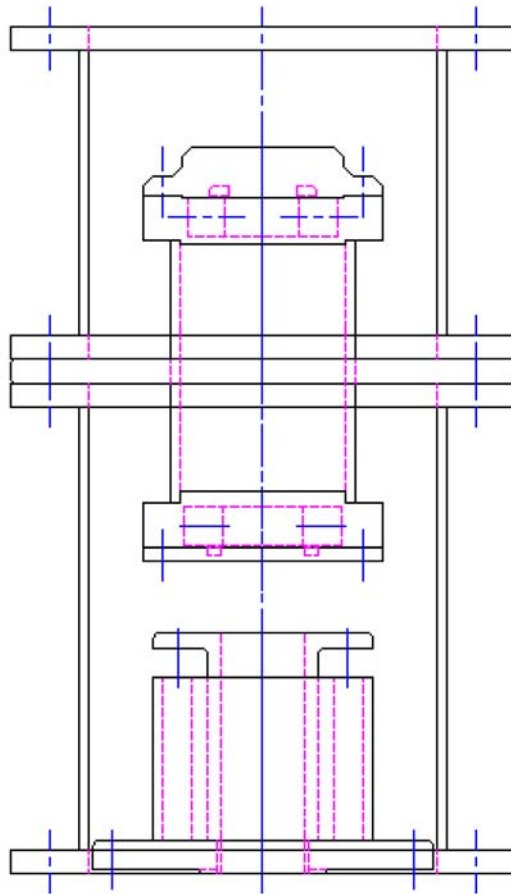
The dimensions of top and bottom stool will be calculated and indicated by Program for Design and Drawing of Agitator / Mixer. You may change some of these.



Drawing of Stool.

No	Description	Qty	Material	Size	Wt Kgs
33	Bottom Stool Shell	1	CS	249(OD) 237(ID) 304(Lg)	11.35
32	Bottom Stool Flanges	2	CS	337(OD) 237(ID) 10(Th)	7.35
31	Top Stool Shell	1	CS	249(OD) 237(ID) 190(Lg)	7.09
30	Top Stool Flanges	2	CS	337(OD) 237(ID) 10(Th)	7.35
29	Lower Cover Stud Bolts / Nuts	4	STD	6(Dia) 33(Lg)	0.03
28	Lower Bearing Casing	1	CS	155(OD) 51(ID) 37(Th)	5.08
27	Lower Bearing	1	STD	101(OD) 51(ID) 25(Ht)	1.22
26	Lower Bearing O Ring	1	RUBBER	75(OD) 55(ID) 5(Th)	0.01
25	Lower Bearing Cover	1	CS	155(OD) 55(ID) 10(Th)	1.34
24	Support Ring	1	CS	337(OD) 121(ID) 10(Th)	6.33
23	Bearing Casing Channel	1	CS	121(OD) 109(ID) 170(Th)	3.00
22	Lock Nut	1	CS	68(OD) 43(ID) 3(Th)	0.06
21	Spring Washer	1	CS	87(OD) 43(ID) 2(Th)	0.07
20	Top Cover Stud Bolts / Nuts	4	STD	6(Dia) 46(Lg)	0.04
19	Top Bearing Casing	1	CS	155(OD) 51(ID) 30(Th)	4.05
18	Top Bearing	1	STD	97(OD) 47(ID) 25(Ht)	1.15
17	Top Bearing O Ring	1	RUBBER	75(OD) 51(ID) 5(Th)	0.01
16	Top Bearing Cover	1	CS	155(OD) 43(ID) 33(Th)	4.72
Total					76.18

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:

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

OD of Base Plate :
Matches with OD of stool

PCD of Stool Flanges :
Matches with PCD of stool

Thickness of Base Plate :

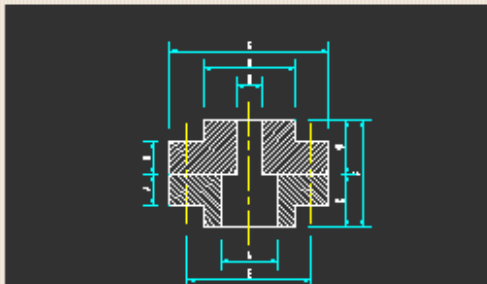
Liner Thickness :
Matches with thickness of Stuffing Box

Liner Width :
Matches with Width of Stuffing Box

You can select sizes for Base Plate

Rigid Coupling data:

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



A = OD of Agitator Shaft : 39

B = OD of Top Shaft : 18

C = OD of Rigid Coupling : 115

D = Collar OD of Rigid Coupling : 67

E = PCD of Rigid Coupling : 90

F = Length of Rigid Coupling : 77

G = Length of Top Coupling : 39

H = Thickness of Top Flange : 24

J = Length of Bottom Coupling : 38

K = Thickness of Bottom Flange : 23

OK

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.

Agitator Design Option

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

Tank Type Option

☐ Vertical Cylindrical

☒ Rectangular

OK

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

Agitator Design

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

Size of tank

Width Of Tank : 1000

Length of Tank : 1500

Height of Tank : 1500

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 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 : 1720

Tan to tan Length : 3048

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 :

Expected Reynolds Number :

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:

Power Number Np:

OK

Based on the impeller selected, Program will indicate Mixing number and Power number.

Shaft RPM and Length

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

Calculated Speed is indicated

Output Speeds of 1500 rpm Motor with Gearbox are
300, 200, 150, 120, 100, 75, 60, 50, 43, 37, 30, 25, 22

Output Speeds of 1000 rpm Motor with Gearbox are
200, 133, 100, 80, 67, 50, 40, 33, 29, 25, 20, 17, 14

Output Speeds of 750 rpm Motor with Gearbox are
150, 100, 75, 60, 50, 38, 30, 25, 21, 19, 15, 13, 11

Output Speeds of Direct coupled Motor are
1500, 1000, 750

For any other speed
use Motor + V Belt Drive

Recommended Shaft RPM :

Recommended Shaft Length :

OK

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

Diameter of Impeller:

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

Recommended Impeller OD :

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

Mixing Time :

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

Calculated Time in :
Minutes: Seconds:

Required Time in :
Minutes: Seconds:

Number of impeller:

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

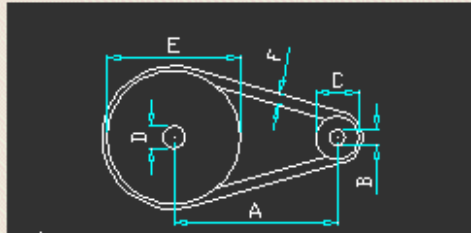
Number of Impellers:

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 :



F = Thickness :

Width :

Pulley data:

A = C to C of Pulleys :

ID of Smaller Pulley = Motor Shaft Dia : 19

B = ID of Smaller Pulley :

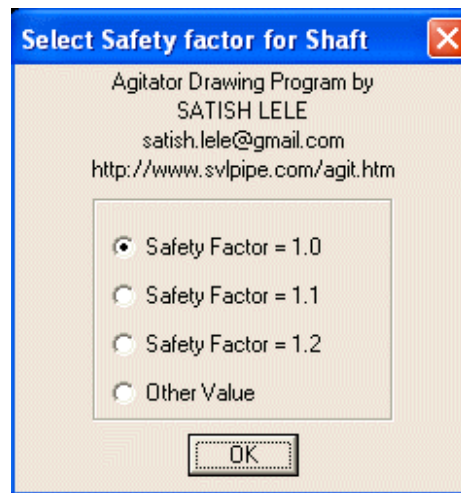
C = OD of Smaller Pulley :

ID of Larger Pulley = Agitator Shaft Dia : 55

D = ID of Larger Pulley :

E = OD of Larger Pulley :

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



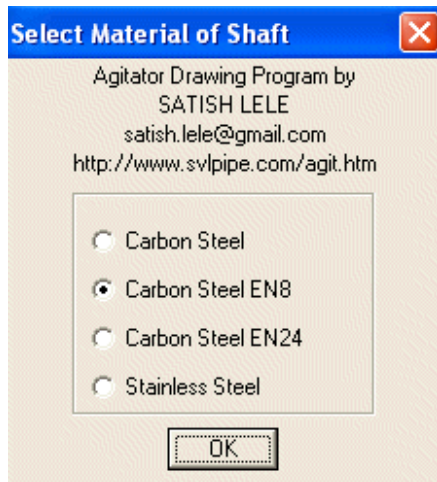
Select Safety factor for Shaft

Agitator Drawing Program by
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<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 : 246.00

OK

You can select Material and properties 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: 567
 Speed of Agitator: 100
 Shaft Diameter: 119
 Shaft Length: 3478

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.