TECHNICAL SPECIFICATIONS

M.S. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. & 5500 Lit. WITH 9.00X16 NEW TYRE AND TUBE

1. **Chassis:**

The chassis shall be fabricated as per standard practice to mount the M.S. Tank. All the joint shall be welded properly as per standard practice.
The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) channel section or Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC).

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.
2.	5500 Liter.	3450 mm.	1000 mm.

2. **Draw Bar (Chassis) :**

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of MS channel of size 150 x75 mm. (ISMC) channel section or Auto channel with eye hook made out of 40 mm. diameter MS round bar.

3. **Axle Assembly :**

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. **Leaf Spring :**

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. **Tyre Tubes & Wheel Assembly :**

Two number of New tyres 9.00 x 16 with tube & flap assembly of slandered make (MRF, Ceat, Herculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 3.0 mm. thick MS sheet , and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 3.00 mm thick M.S. sheet with maximum in joint of two No. plate.

. No.	pproximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.
2.	5500 Liter.	1710 mm.	1310 mm.	3100 mm.

7. Baffle Plate :--

One baffle plate made of 3.00 mm. shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. M.S. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank. The cover of the tank shall be fabricated by 3.00 mm thick M.S. sheet. The collar of the cover and manhole shall be made out of 4.00 mm. MS strip. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5 mm. plates. sheet brackets guide made out One ladder shall be made of 25 x 25 x 3mm I.S.A. or fabricated foot rest on the front end plates with handle.

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISMC) channel or Auto channel suitable for pumps.

11. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection

The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

5. Tolerance :--

± 5% Tolerance shall be provided to overall dimension of material and± 5% in thickness of sheet & sections.

Note : If required minor deviation / amendment in specification may be done, after taking approval from M.P. Agro.

M.S. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. & 5500 Lit. WITH 9.00X20 NEW TYRE AND TUBE

1. Chassis:

The chassis shall be fabricated as per standard practice to mount the M.S. Tank. All the joint shall be welded properly as per standard practice.

The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) channel section or Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC).

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.
2.	5500 Liter.	3450 mm.	1000 mm.

2. Draw Bar (Chassis) :

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of MS channel of size 150 x75 mm. (ISMC) channel section or Auto channel with eye hook made out of 40 mm. diameter MS round bar.

3. Axle Assembly :

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. Leaf Spring :

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. Tyre Tubes & Wheel Assembly :

Two number of New tyres 9.00 x 20 with tube & flap assembly of slandered make (MRF, Ceat, Herculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 3.0 mm. thick MS sheet , and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 3.00 mm thick M.S. sheet with maximum in joint of two No. plate.

S. No.	Approximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.
2.	5500 Liter.	1710 mm.	1310 mm.	3010 mm.

7. Baffle Plate :--

One baffle plate made of 3.00 mm. shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. M.S. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank . The cover of the tank shall be fabricated by 3.00 mm thick M.S. sheet. The collar of the cover and manhole shale be made out of 4.00 mm. MS strip. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable
fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5 mm. plates. sheet
brackets guide made out

One ladder shall be made of 25 x 25 x 3mm I.S.A. or fabricated foot rest on the front end plates
with handle.

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISMC) channel or Auto channel suitable for pumps.

11. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection

The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

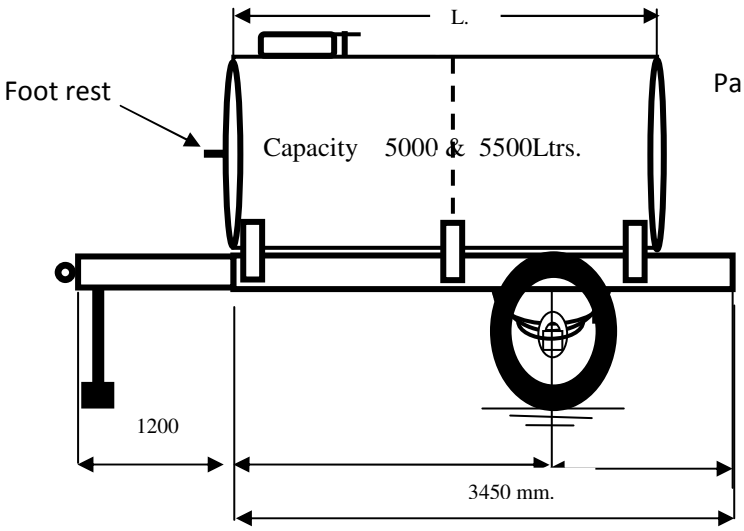
5. Tolerance

± 5% Tolerance shall be provided to overall dimension of material and± 5% in thickness of sheet & sections.

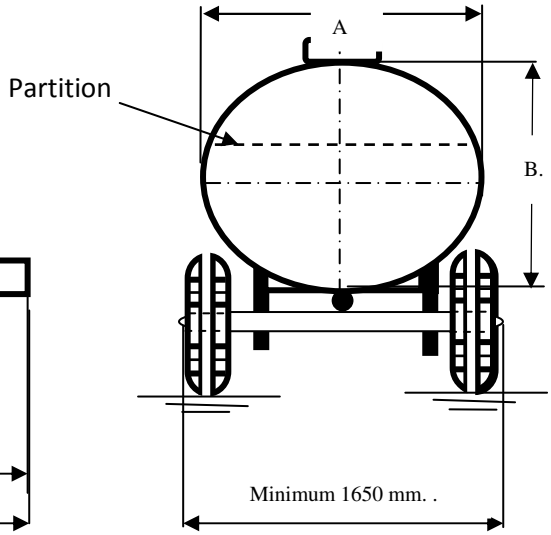
Note :--If required minor deviation / amendment in specification may be done, after taking approval from M.P. Agro.

Schematic Drawing of M.S. Water Tanker

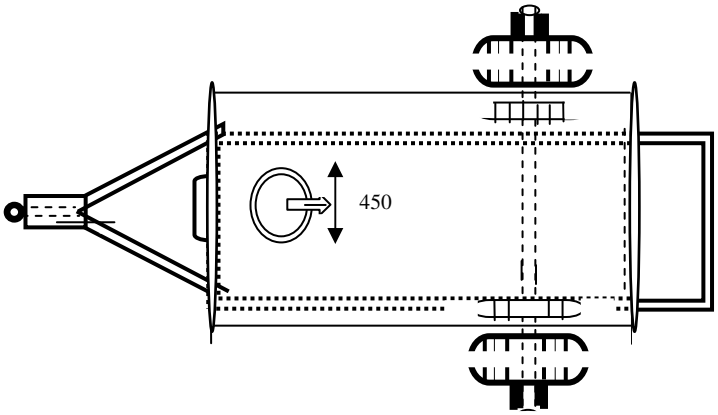
capacity 5000 lit. & 5500 Lit. with 900 x 16 & 900x 20 Tyre



Front Elevation

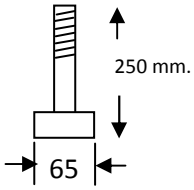


Side Elevation



Top View

U BOLT 20 mm. DIA SIZE 583 mm x 75 mm x 583 mm.

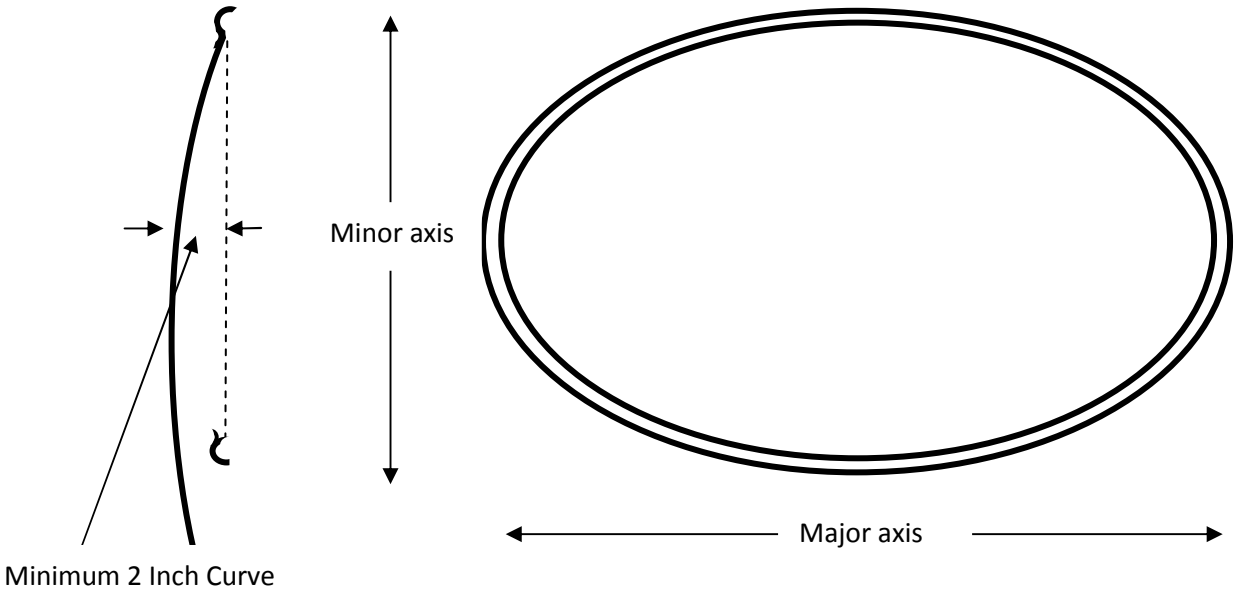


HEXAGONAL NUT & BOLT 250 x 65 mm.

1. **TYRES TUBE & FLAP**	**:--**	2 Nos.	900 x 16 or 900 x 20
2. **WATER TANKER SHELLFOR 5000 Lit.**	**:--**		1675 mm. x 1275 mm x3000 mm.
3. **WATER TANKER SHELL FOR 5500 Lit.**	**:--**		1710 mm. x 1310 mm. x 3100 mm.
4. **WATER TANKER SHEETTHICKNESS**	**:--**		3.0 mm. M.S. Sheet.
5. **LAMINATED SPRING 19 LEAVES**	**:--**	2Set.	70 x 10 mm., Eye to Eye --- 900 mm.
6. CHASSIS FRAME	**:--**		150 x 75 ISMC, L= 3400mm, W= 1000mm
7. AXLE	**:--**	1 No.	75mm (Solid bar)/85mm (hollow)x ≥1650mm
8. DRAW BAR	**:--**		150 x 75 ISMC , L= 1200 mm, W= 1000mm
9. U BOLT	:--	8 Nos.	18 mm., 7x3x7 Inch.
10. DRAW BAR HOOK	:--	1 No	Diameter 40 mm., Length 250 mm.
11. STEEL HUB	**:--**		2 Nos 20 mm. thick, 8 hole
12 DOUBLE PLATED RIM	:--	2 Nos	5 mm. thick.
13 BEARING	:--	2 Set.	32213 & 32216 NO.
14 STEEL HANGER & SHACKLE	**:--**	4 Set	As per ISMC 150 x 75 mm.
15. NET WEIGHT 5000 & 5500 Lit	**:--**		Up to 850 Kg. Approx
16 GROSS WEIGHT 5000 & 5500 Lit.	**:--**		5850 Kg. &6350 Kg. Approx
17. MAN HOLE	**:--**		CollarW=450 mm,T= 4mm, Cover= 3mm

Design of End Plate of Tanker

End plates of tanker shall be made of 3.0 mm. M.S.sheet in a dish end shape. Sheet should be in a single piece and bend on the periphery to give strength or flat end with inside stiffener angle of 3.0 mm all around on both end.



Front View

Specifications :--

For 5000 iter.
Major axis ---- 1675 mm
Minor axis ---- 1275 mm.
Dish end curve ----- Min. 2 Inch.
Welding with shell ---- Lap joint.

Top View

For 5500 liter.
Major axis ---- 1710 mm.
Minor axis ---- 1310 mm.
Dish end curve ----- Min. 2 Inches.
Welding with shell ---- Lap joint.

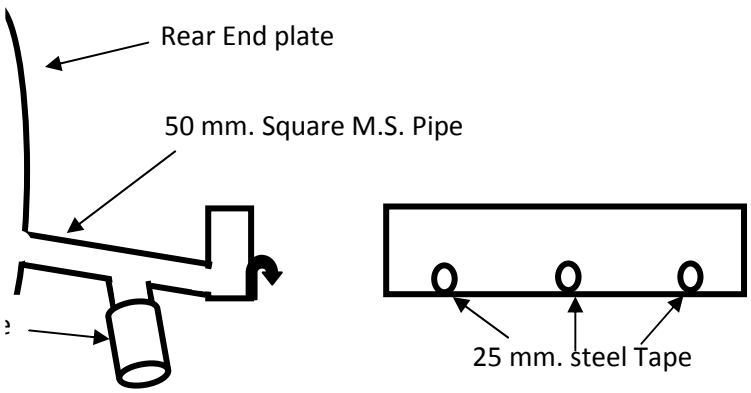
Water distribution of Tanker :--

Capacity Calculation

Capacity of the Tanker in Liters

$$\frac{\pi \times \text{Major Axis} \times \text{Minor Axis}}{4 \times 1000}$$

Major & Minor Axis in Centimetres



M.S. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. WITH900 x 16& 9.00X20 NEW TYRE AND TUBE WITH FIRE FIGHTING PUMP & ACCESSORIES

1. Chassis:

The chassis shall be fabricated as per standard practice to mount the M.S. Tank. All the joint shall be welded properly as per standard practice.

The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) channel section or Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC).

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.

2. Draw Bar (Chassis) :

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of MS channel of size 150 x75 mm. (ISMC) channel section or Auto channel with eye hook made out of 40 mm. diameter MS round bar.

3. Axle Assembly :

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. Leaf Spring :

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. Tyre Tubes & Wheel Assembly :

Two number of New tyres900 x 16 or 9.00 x 20 with tube & flap assembly of slandered make (MRF, Ceat, Harculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc.) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 3.0 mm. thick MS sheet , and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 3.00 mm thick M.S. sheet with maximum in joint of two No. plate.

S. No.	Approximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.

7. Baffle Plate :--

One baffle plate made of 3.00 mm. shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. M.S. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank . The cover of the tank shall be fabricated by 3.00 mm thick M.S. sheet. The collar of the cover and manhole shale be made out of 4.00 mm. MS strip. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable
fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5 mm. plates. sheet brackets guide made out
One ladder shall be made of 25 x 25 x 3mm I.S.A. or fabricated foot rest on the front end plates with handle.

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISM C) channel or Auto channel suitable for pumps.

11 Fire Fighter :--

Medium duty centrifugal pump assembly is driven by pulley (Increased velocity ratio from 1 to 3) drive & connected with P.T.O. shaft of the tractor by means of propeller shaft & universal joint assembly.

Size range :-- 65 mm x 50 mm.
R.P.M. :-- 1400 to 1500
Req. H.P. :-- 12.5 H.P.

Out let of the pump is attached with 50 mm. cotton fabric delivery pipe followed with P.V.C./ Aluminum Nozzle assembly. Inlet or suction pipe having 50/63 mm. diameter flexible green pipe followed 63 mm. PVC foot valve.

OR

6.5 H.P. engine is fitted on the rear side of chassis with rotary pump with Out let of the pumpis attached with 50 mm. cotton fabric delivery pipe followed with P.V.C./ Aluminum Nozzle assembly. Inlet or suction pipe having 50/63 mm. diameter flexible green pipe followed 63 mm. PVC foot valve.

12. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection

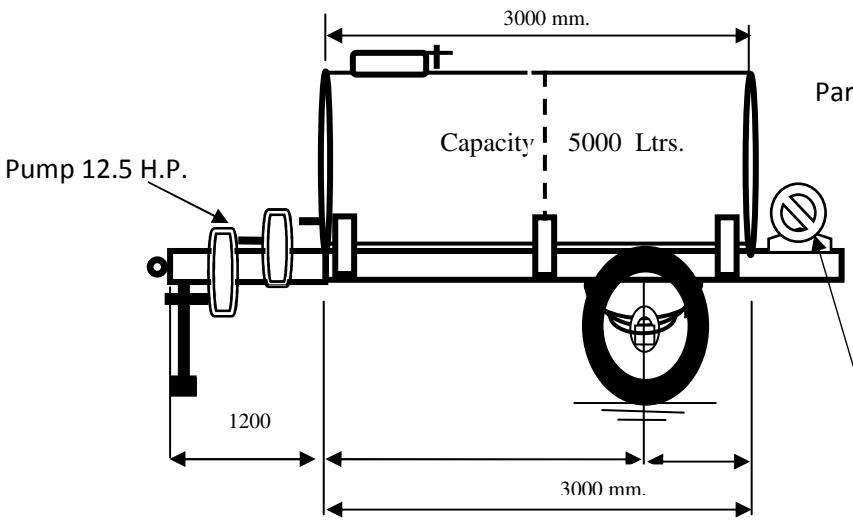
The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

5. Tolerance :--

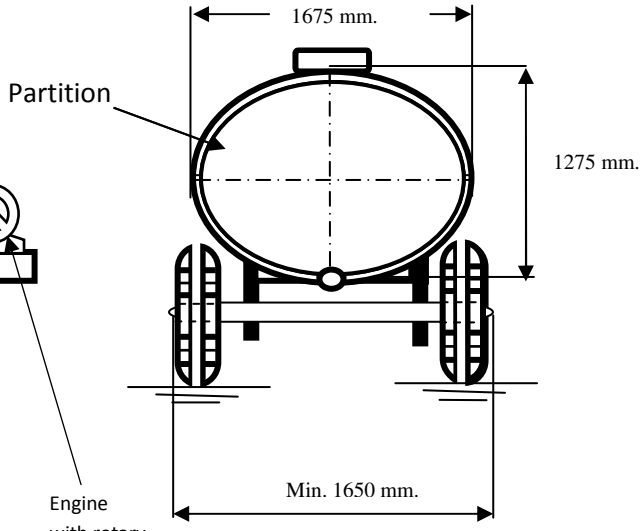
± 5% Tolerance shall be provided to overall dimension of material and± 5% in thickness of sheet & sections.

Note :-- If required minor deviation / amendment in specification may be done, after taking approval from M.P. Agro.

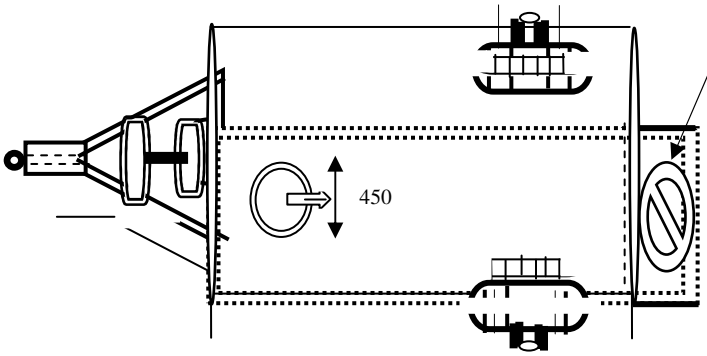
SCHEMATIC DIAGRAM OF M.S. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. WITH900 x 16 & 9.00X20 NEW TYRE AND TUBE WITH FIRE FIGHTING PUMP & ACCESSORIES



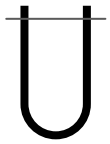
Front Elevation



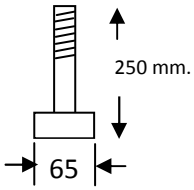
Side Elevation



Top View



U BOLT 20 mm. DIA SIZE 583 mm x 75 mm x 583 mm.

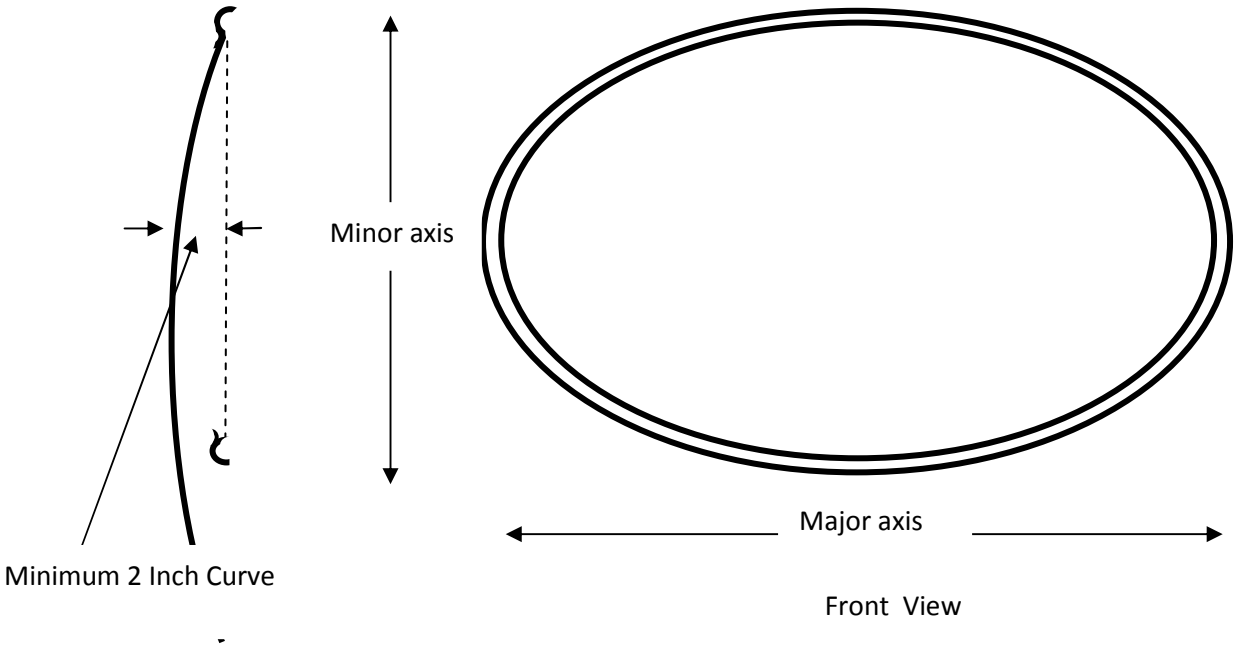


HEXAGONAL NUT & BOLT 250 x 65 mm.

1. **TYRES TUBE & FLAP**	**:--**	2 Nos.	900 x 16 or 900 x 20
2. **WATER TANKER SHELLFOR 5000 Lit.**	**:--**		1675 mm. x 1275 mm x 3000 mm.
3. **WATER TANKER SHEET THICKNESS:--**			3.0 mm. M.S. Sheet.
4. **LAMINATED SPRING 19 LEAVES**	**:--**	2 Set.	70 x 10 mm., Eye to Eye --- 900 mm.
5. CHASSIS FRAME	**:--**		150 x 75 ISMC, L= 3400mm, W= 1000mm
6. AXLE	**:--**	1 No.	75mm (Solid bar)/85mm (hollow)x ≥1650mm
7. DRAW BAR	**:--**		150 x 75 ISMC , L= 1200 mm, W= 1000mm
8. U BOLT	:--	8 Nos.	18 mm.7 x 3 x 7 Inch.
9. DRAW BAR HOOK	:--	1 No	Diameter 40 mm., Length 250 mm.
10. STEEL HUB	**:--**	2 Nos	20 mm. thick, 8 hole
11 DOUBLE PLATED RIM	:--	2 Nos	5 mm. thick.
12 BEARING	:--	2 Set.	32213 & 32216 No.
13 STEEL HANGER & SHACKLE	**:--**	4 Set	As per ISMC 150 x 75 mm.
14. NET WEIGHT OF FIRE FIGHTER	**:--**		Up to 900 Kg. Approx
15 GROSS WEIGHT OF FIRE FIGHTER	**:--**		5950 Kg. Approx
16. MAN HOLE	**:--**		CollarW=450 mm,T= 4mm, Cover= 3mm
17. Fire Fighting Pump	**:--**	1 No.	12.5 H.P. centrifugal pump with PTO driven Or 6.5 H.P. Engine with rotary pump.

Design of End Plate of Tanker

End plates of tanker shall be made of 3.0 mm. M.S.sheet in a dish end shape. Sheet should be in a single piece and bend on the periphery to give strength or flat end with inside stiffener angle of 3.0 mm all around on both end.



Specifications :--

For 5000 lter.

Major axis ---- 1675 mm

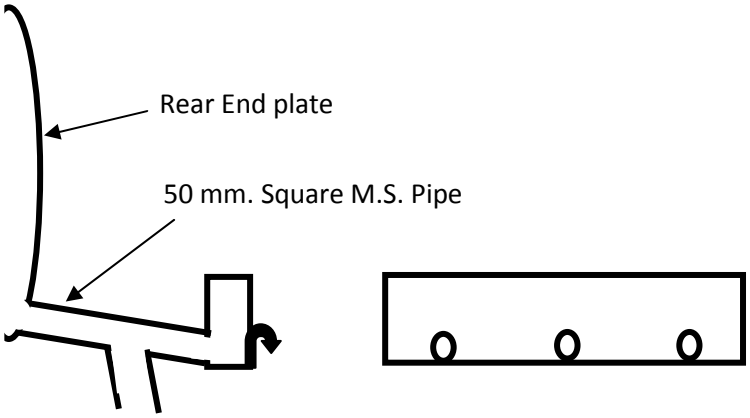
Minor axis ---- 1275 mm.

Dish end curve ----- Min. 2 Inch.

Welding with shell ---- Lap joint.

Top View

Water distribution of Tank



Capacity Calculation

Capacity of the Tanker in Liters

$$\frac{\pi \times \text{Major Axis} \times \text{Minor Axis}}{4 \times 1000}$$

Major & Minor Axis in Centimetres

G.I. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. & 5500 Lit. WITH 9.00X16 NEW TYRE AND TUBE

1. Chassis:

The chassis shall be fabricated as per standard practice to mount the G.I. Coated Tank. All the joint shall be welded properly as per standard practice. The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) G.I. channel section or Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC) G.I. Channel.

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.
2.	5500 Liter.	3450 mm.	1000 mm.

2. Draw Bar (Chassis) :

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of G.I. channel of size 150 x75 mm. (ISMC) channel section or Auto G.I. channel with eye hook made out of 40 mm. diameter M.S. round bar.

3. Axle Assembly :

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. Leaf Spring :

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. Tyre Tubes & Wheel Assembly :

Two number of New tyres 9.00 x 16 with tube & flap assembly of slandered make (MRF, Ceat, Herculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 2.5 mm. thick sheetwith minimum 50 gsm galvanized coating, and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 2.50 mm thick sheet having minimum 50gsm galvanized coating with maximum in joint of two No. plate.

S. No.	Approximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.
2.	5500 Liter.	1710 mm.	1310 mm.	3100 mm.

7. Baffle Plate :--

One baffle plate made of 2.00 mm. sheet with minimum 100 gsm galvanized coating shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. G.I. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved galvanized strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank . The cover of the tank shall be fabricated by 3.00 mm thick sheet with minimum 50 gsm galvanized coating. The collar of the cover and manhole shale be made out of 3.00 mm. strip with minimum 50gsm galvanized coating. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5mm. plates minimum 50gsm galvanized coating brackets guide made out

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISMC) G.I. coated channel or G.I. coated Auto channel suitable for pumps.

11. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection

The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

5. Tolerance :--

± 5% Tolerance shall be provided to overall dimension of material and± 5% in thickness of sheet & sections.

***Note :-- If required minor deviation / amendment in specification may be done, after taking* approval from M.P. Agro.**

G.I. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. & 5500 Lit. WITH 9.00X20 NEW TYRE AND TUBE

1. Chassis:

The chassis shall be fabricated as per standard practice to mount the G.I. Coated Tank. Tank.
All the joint shall be welded properly as per standard practice.

The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) G.I. Coated channel section or Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC) G.I. Channel.

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.
2.	5500 Liter.	3450 mm.	1000mm.

2. Draw Bar (Chassis) :

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of G.I. channel of size 150 x75 mm. (ISMC) G.I. channel section or G.I. Auto channel with eye hook made out of 40 mm. diameter M.S. round bar.

3. Axle Assembly :

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. Leaf Spring :

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. Tyre Tubes & Wheel Assembly :

Two number of New tyres 9.00 x 20 with tube & flap assembly of slandered make (MRF, Ceat, Herculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 2.50 mm. thick steel sheet with minimum 50 gsm galvanized coating, and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 2.50 mm thick steel sheet having minimum 50gsm galvanized coating with maximum in joint of two No. plate.

S. No.	Approximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.
2.	5500 Liter.	1710 mm.	1310 mm.	3100 mm.

7. Baffle Plate :--

One baffle plate made of 2.00mm. with minimum 100 gsm galvanized coating shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. G.I. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved G.I. strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank . The cover of the tank shall be fabricated by 3.00 mm thick steel sheet having minimum 50 gsm galvanized coating. The collar of the cover and manhole shale be made out of 3.00 mm. steel strip with minimum 50 gsm galvanized coating. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5 mm. plates. sheet brackets guide made out One ladder shall be made of 25 x 25 x 3mm I.S.A. or fabricated foot rest on the front end plates with handle.

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISM C) G.I. channel or Auto channel suitable for pumps.

11. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing:

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection:

The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

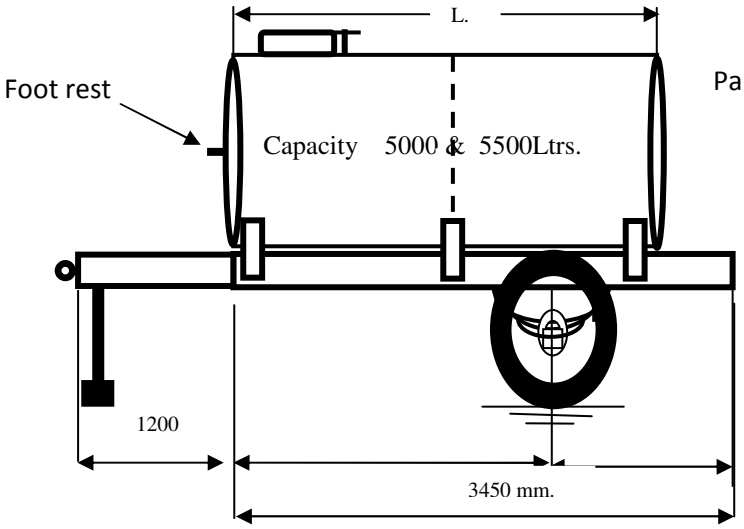
5. Tolerance:--

± 5% Tolerance shall be provided to overall dimension of material and ± 5% in thickness of sheet & sections.

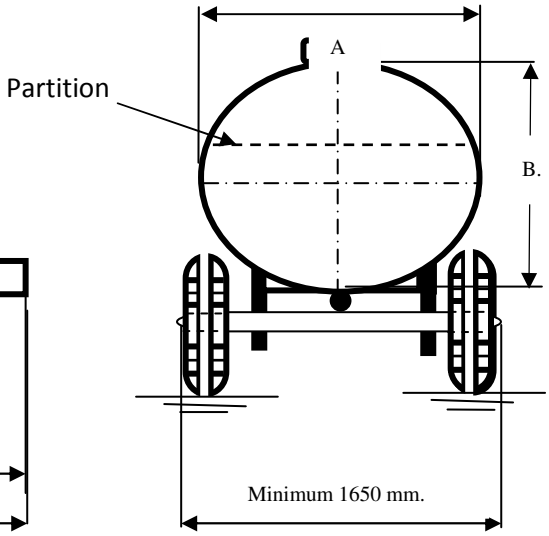
Note :-- If required minor deviation / amendment in specification may be done, after taking approval from M.P. Agro.

Schematic Drawing of G.I. Water Tanker

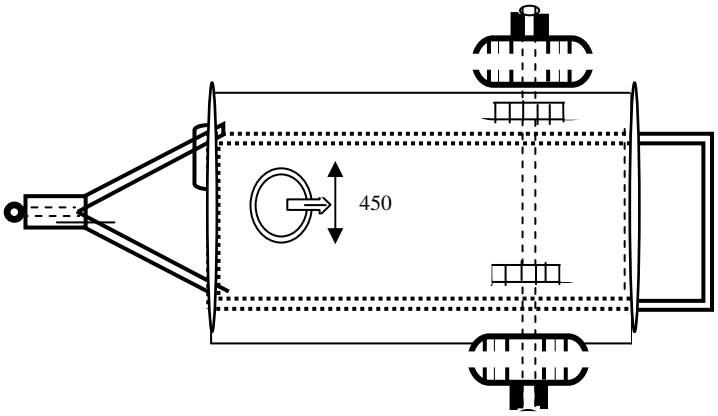
capacity 5000 lit. & 5500 Lit. with 900 x 16 & 900x 20 Tyre



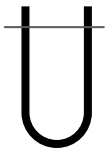
Front Elevation



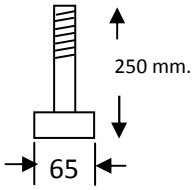
Side Elevation



Top View



U BOLT 20 mm. DIA SIZE 583 mm x 75 mm x 583 mm.

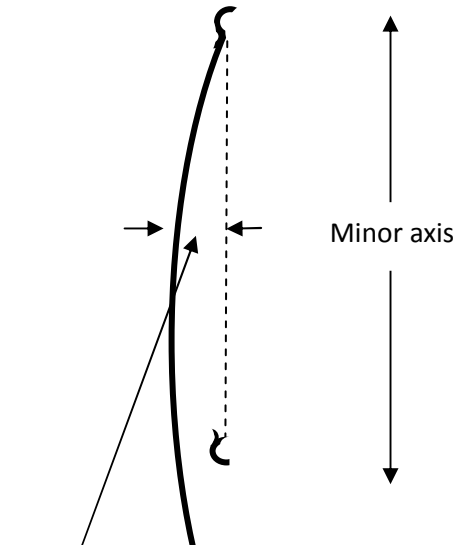


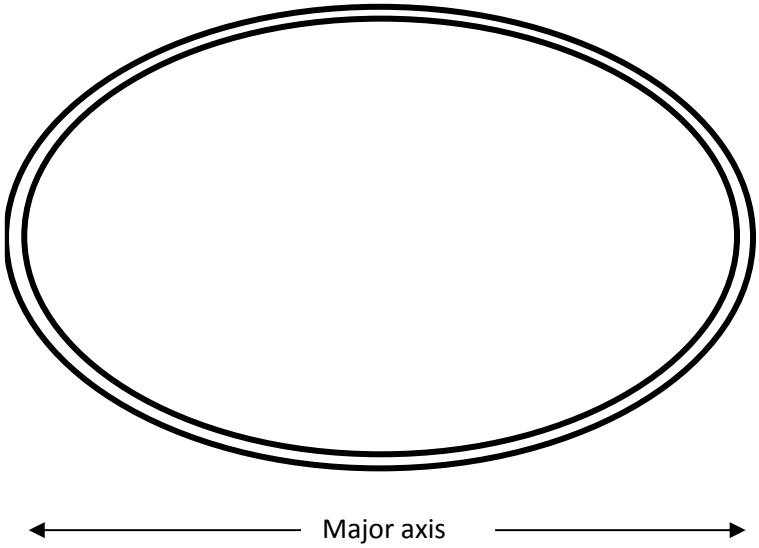
HEXAGONAL NUT & BOLT 250 x 65 mm.

1. **TYRES TUBE & FLAP**	**:--**	2 Nos.	900 x 16 or 900 x 20
2. **WATER TANKER SHELLFOR 5000 Lit.**	**:--**		1675 mm. x 1275 mm x 3000 mm.
3. **WATER TANKER SHELL FOR 5500 Lit.**	**:--**		1710 mm. x 1310 mm. x 3010 mm.
4. **WATER TANKER SHEET THICKNESS:--**			2.50 mm. G.I. Sheet having 50 gsm coat.
5. **LAMINATED SPRING 19 LEAVES**	**:--**	2 Set.	70 x 10 mm., Eye to Eye --- 900 mm.
6. CHASSIS FRAME	**:--**		150 x 75 ISMC, L= 3400mm, W= 1000mm
7. AXLE	**:--**	1 Nos.	75mm (Solid bar)/85mm (hollow)x ≥1650mm
8. DRAW BAR	**:--**		150 x 75 ISMC , L= 1200 mm, W= 1000mm
9. U BOLT	:--	8 Nos.	18 mm.7 x 3 x 7 Inch.
10. DRAW BAR HOOK	:--	1 No	Diameter 40 mm., Length 250 mm.
11. STEEL HUB	**:--**	2 Nos	20 mm. thick, 8 hole
12 DOUBLE PLATED RIM	:--	2 Nos	5 mm. thick.
13 BEARING	:--	2 Set.	32213 & 32216 NO.
14 STEEL HANGER & SHACKLE	**:--**	4 Set	As per ISMC 150 x 75 mm.
15. NET WEIGHT 5000 & 5500 Lit	**:--**		Up to 850 Kg. Approx
16 GROSS WEIGHT 5000 & 5500 Lit.	**:--**		5850 Kg. & 6350 Kg. Approx
17. MAN HOLE	**:--**		CollarW=450 mm,T= 3mm, Cover= 3mm

Design of End Plate of Tanker

End plates of tanker shall be made of 3.0 mm. M.S.sheet in a dish end shape. Sheet should be in a single piece and bend on the periphery to give strength or flat end with inside stiffener angle of 3.0 mm all around on both end.





Front View

Specifications :--

For 5000 iter.
Major axis ---- 1675 mm
Minor axis ---- 1275 mm.
Dish end curve ----- Min. 2 Inch.
Welding with shell ---- Lap joint.

Top View

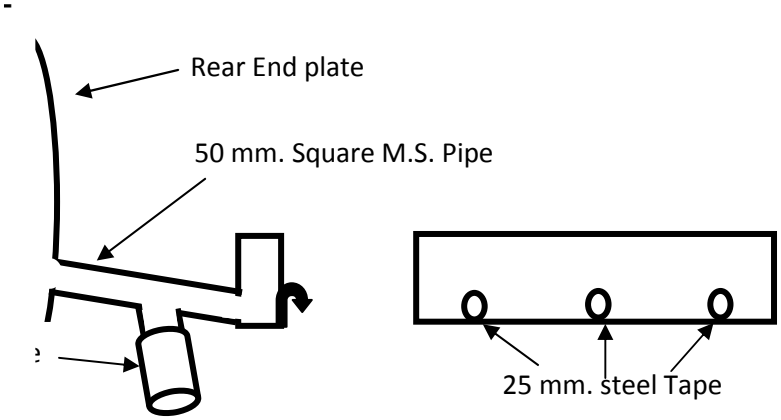
For 5500 liter.
Major axis ---- 1710 mm.
Minor axis ---- 1310 mm.
Dish end curve ----- Min. 2 Inches.
Welding with shell ---- Lap joint.

Capacity Calculation

Capacity of the Tanker in Liters

$$\frac{\pi \times \text{Major Axis} \times \text{Minor Axis}}{4 \times 1000}$$

Major & Minor Axis in Centimetres



G.I. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. WITH900 x 16 & 9.00X20 NEW TYRE AND TUBE WITH FIRE FIGHTING PUMP & ACCESSORIES

1. Chassis:

The chassis shall be fabricated as per standard practice to mount the M.S. Tank. All the joint shall be welded properly as per standard practice.

The chassis frame have two longitudinal members having 150 x 75 mm. (ISMC) G,I, channel section or G.I.Auto channel and 5 cross member of the channel having 150 x 75 mm. (ISMC) G,I, Channel.

The overall approximate dimensions of various tanker trolley chassis shall be as under :--

S. No.	Approximate Capacity	Length	Width
1.	5000 Liter.	3450 mm.	1000 mm.

2. Draw Bar (Chassis) :

Draw Bar shall be centrally fitted in Box or Triangular v shape welded together made out of MS channel of size 150 x75 mm. (ISMC) G.I. channel section or Auto channel with eye hook made out of 40 mm. diameter MS round bar.

3. Axle Assembly :

Axle shall be made from solid square bar of 75 mm or 85 mm hollow square tube section with both the end machined and threaded and provided with iron hubs with 8 holes and minimum 20 mm. thick with hexagonal lock nut, fitted with twin taper roller bearing no. 32213 &32216 provided with grease nipples for greasing the moving parts.

4. Leaf Spring :

Two set of leaf spring consisting of 19 leaves of size 70 x 10 mm. minimum 900 mm. long (distance between two pin) of alloy steel shall be provided. These leaf spring shall be fixed with frame by means of complete cast iron/Steel bracket assembly.

5. Tyre Tubes & Wheel Assembly :

Two number of New tyres 900 x 16 or 9.00 x 20 with tube & flap assembly of slandered make (MRF, Ceat, Harculas, JK, Apolo, Birla, Modi, Michigan, Goodyear, Bridgestone etc.) shall be provided with double plated rim 5 mm. thick with 8 No. of holes.

6. Shell of the Water Tanker :--

The water tanker should have capacity of approximate 5000 lit. and 5500 liters, manufactured in semi elliptical shape. The tank shall be made out of 2.50 mm. thick steel sheet having minimum 50 gsm galvanized coating over it , and maximum number of plates are not more than 4 No., End plates of the tank shall be made of 3.00 mm thick steel sheet having minimum 50 gsm galvanized coating with maximum in joint of two No. plate.

S. No.	Approximate Capacity	Major Axis	Minor Axis	Length
1.	5000 Liter.	1675 mm.	1275 mm.	3000 mm.

7. Baffle Plate :--

One baffle plate made of 2.00 mm. having minimum 100 gsm galvanized coating shall be provided inside the tank over center reinforcement (plus shape) shall be properly welded with the two angle in plus position touching major & minor axis peak points. The height of the baffle plate shall be just 20 c.m. above over half of the minor axis of the tank.

8. Reinforcement or Grooving :--

The tank shall be reinforcement from inside by welding three number of elliptica rings made of 40 x 40 x 6 mm. M.S. angle on both ends and one in between at suitable distance or making minimum three grooves or grooved strips on the entire circumference of the shell by press machine.

9. Manhole:--

One manhole with hinged cover shall be provided at the top of the tank . The cover of the tank shall be fabricated by 3.00 mm thick M.S. sheet. The collar of the cover and manhole shale be made out of 4.00 mm. MS strip. Locking arrangement for cover shall also be provided. The man hole cover shall be such fabricated so that no foreign material may not enter in the tank.

The shell of the tank shall be rested on the chassis by means of six number of suitable fabricated shoes (box type bracket) of 4 mm. thick plate or molded having 2.5 m. steel sheet brackets guide made out One ladder shall be made of 25 x 25 x 3 I.S.A. or fabricated foot rest on the front end plates with handle.

10. Pump set stand :--

Pump Set Stand shall be made of 150 x 75 mm. (ISM C) G.I. channel or Auto channel suitable for pumps.

11. Fire Fighter :--

Medium duty centrifugal pump assembly is driven by pulley (Increased velocity ratio from 1 to 3) drive & connected with P.T.O. shaft of the tractor by means of propeller shaft & universal joint assembly.

Size range :-- 65 mm x 50 mm.
R.P.M. :-- 1400 to 1500
Req. H.P. :-- 12.5 H.P.

Out let of the pump is attached with 50 mm. cotton fabric delivery pipe followed with P.V.C./ Aluminum Nozzle assembly. Inlet or suction pipe having 50/63 mm. diameter flexible green pipe followed 63 mm. PVC foot valve.

OR

6.5 H.P. engine is fitted on the rear side of chassis with rotary pump with Out let of the pump is attached with 50 mm. cotton fabric delivery pipe followed with P.V.C./ Aluminum Nozzle assembly. Inlet or suction pipe having 50/63 mm. diameter flexible green pipe followed 63 mm. PVC foot valve.

12. General requirements of all types of Tanker:--

1. Outlet:--

63 mm. NB class "A" GI nipple of 1 cm length (minimum) be provided at the rear of the tank along with required 75 mm cast Iron/steel ball valve/PVC Ball valve.

2. Painting & Finishing:

The tanker should be spray painted, with priming coat of red oxide and two coat ofsynthetic enamel paint and colour as desired by consignee. Interior of the tank shouldbe painted with suitable primer followed by Non-poisonous rubber paint.

3. Guarantee:

The manufacturer shall furnish guarantee for one year against manufacturing defects, leakage etc., along with tender incorporating that in case of complaint they shall undertake satisfactory repair within 10 days free of coat.

4. Inspection

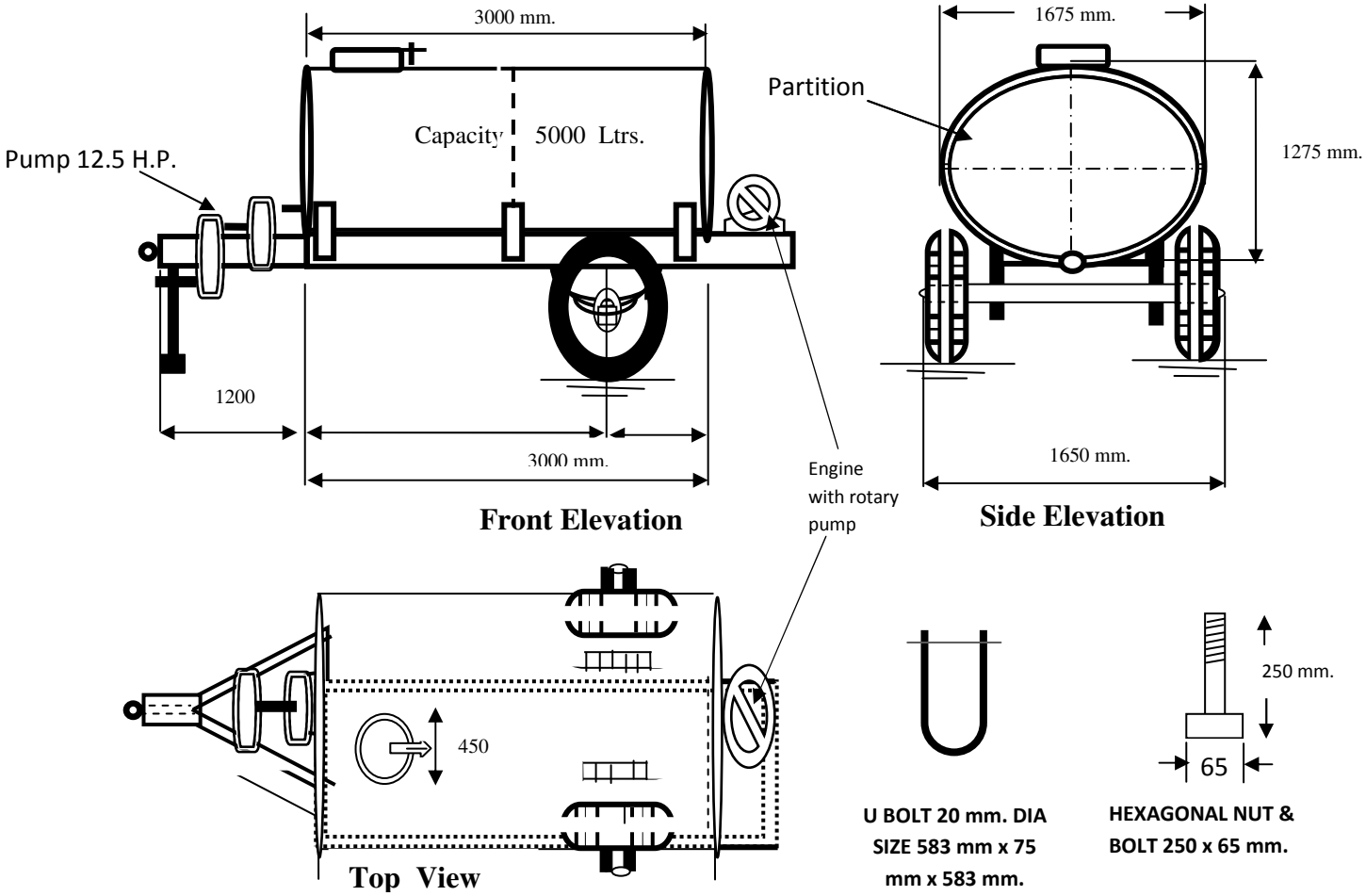
The quality inspection of water tanker shall be carried out by the Third Party inspection agency nominated by M.P. Agro.

5. Tolerance

± 5% Tolerance shall be provided to overall dimension of material and ± 5% in thickness of sheet & sections.

Note :-- If required minor deviation / amendment in specification may be done, after taking approval from M.P. Agro.

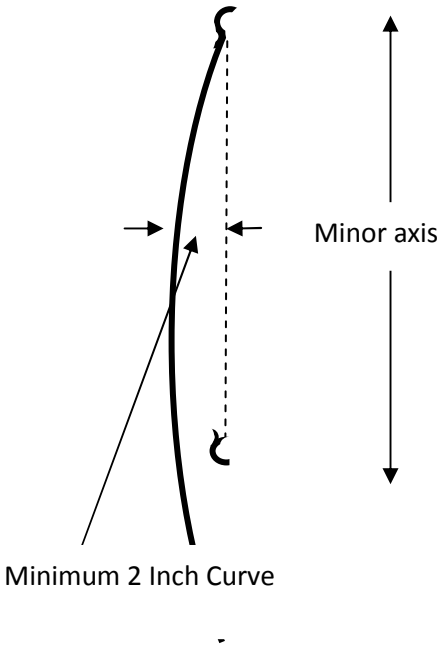
SCHEMATIC DIAGRAM OF G.I. WATER TANKER MOUNTED ON TWO WHEEL AGRICULTURE TRACTOR TRAILER CAPACITY 5000 Lit. WITH900 x 16 & 9.00X20 NEW TYRE AND TUBE WITH FIRE FIGHTING PUMP & ACCESSORIES

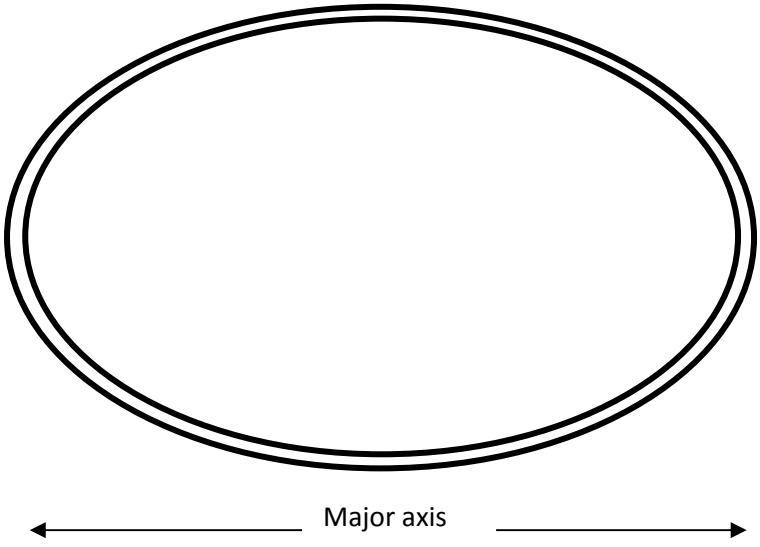


1. **TYRES TUBE & FLAP**	:--	2 No.	900 x 16 or 900 x 20
2. **WATER TANKER SHELLFOR 5000 Lit.**	:--		1675 mm. x 1275 mm x 3000 mm.
3. **WATER TANKER SHEET THICKNESS**	:--		2.50 mm. steel Sheet 50 gsm zinc coating.
4. **LAMINATED SPRING 19 LEAVES**	:--	2 Set.	70 x 10 mm., Eye to Eye --- 900 mm.
5. CHASSIS FRAME	:--		150 x 75 ISMC, L= 3400mm, W= 1000mm
6. AXLE	:--	1 No.	75mm (Solid bar)/85mm (hollow)x ≥1650mm
7. DRAW BAR	:--		150 x 75 ISMC , L= 1200 mm, W= 1000mm
8. U BOLT	:--	8 No.	18 mm.7 x 3 x 7 Inch.
9. DRAW BAR HOOK	:--	1 NO	Diameter 40 mm., Length 250 mm.
10. STEEL HUB	:--	2 NO	20 mm. thick, 8 hole
11 DOUBLE PLATED RIM	:--	2 NO	5 mm. thick.
12 BEARING	:--	2 Set.	32213 & 32216 NO.
13 STEEL HANGER & SHACKLE	:--	4 Set	As per ISMC 150 x 75 mm.
14. NET WEIGHT of FIRE FIGHTER	:--		Up to 900 Kg. Approx
15 GROSS WEIGHT FIRE FIGHTER	:--		5950 Kg. Approx
16. MAN HOLE G.I.	:--		CollarW=450 mm,T= 3mm, Cover= 3mm
17. Fire Fighting Pump	:--	1 No.	12.5 H.P. centrifugal pump with PTO driven
			Or 6.5 H.P. Engine with rotary pump.

Design of End Plate of Tanker

End plates of tanker shall be made of 3.0 mm. M.S.sheet in a dish end shape. Sheet should be in a single piece and bend on the periphery to give strength or flat end with inside stiffener angle of 3.0 mm all around on both end.





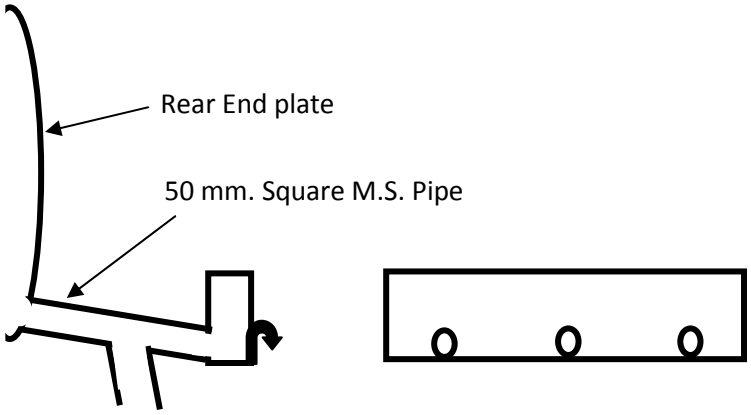
Front View

Top View

Specifications :--

For 5000 lter.

Major axis ---- 1675 mm
Minor axis ---- 1275 mm.
Dish end curve ----- Min. 2 Inch.
Welding with shell ---- Lap joint.



Capacity Calculation

Capacity of the Tanker in Liters

$$\frac{\pi \times \text{Major Axis} \times \text{Minor Axis}}{4 \times 1000}$$

Major & Minor Axis in Centimetres