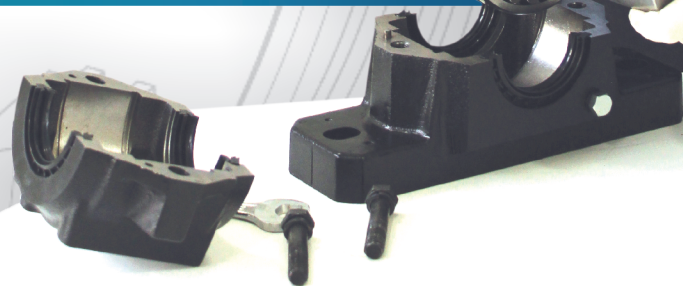




BEARING HOUSING

ASSEMBLY MANUAL



INTRODUCTION

Masta Bearing Housing Pvt Ltd is the leading and well-established manufacturer and exporter of Plummer Blocks / Bearing Housings and its accessories, located in Ahmedabad a city of vibrant Gujarat in India.

Started in the year 1946 from grass-root. Over the years MASTA has developed significantly with environment friendly green field foundries suitable for Green sand moulding, No-Bake Resin sand plant and high tech machine shop fully equipped with CNC machines. Our state of art manufacturing facilities spread over more than 2.5 acres area with capacity of manufacturing more than 12,000 Metric Tons of castings in various international standard grades and 3.6 lakhs of bearing housings per annum.

Since, one decade we worked on the concept of Make-In India. Our leadership vision is to establish the global distribution network and develop a supply chain to the Original Equipment Manufacturers (OEMs) and End Users to enhance our global footprints. As a part of our move, we have a network of numerous renowned channel partners globally and domestically.

The enthusiastic and experienced top management supported by well-experienced employees having long association are the backbone of the organization. Our organization works in compliance with codes of Ethical Principles, Discipline, Quality Norms and Working Environment.

HOW WE ADD VALUE TO OUR CUSTOMERS



Wide Range of Bearing Housing & its Accessories



Outstanding Product Quality & Reliability



Competitive Market Price



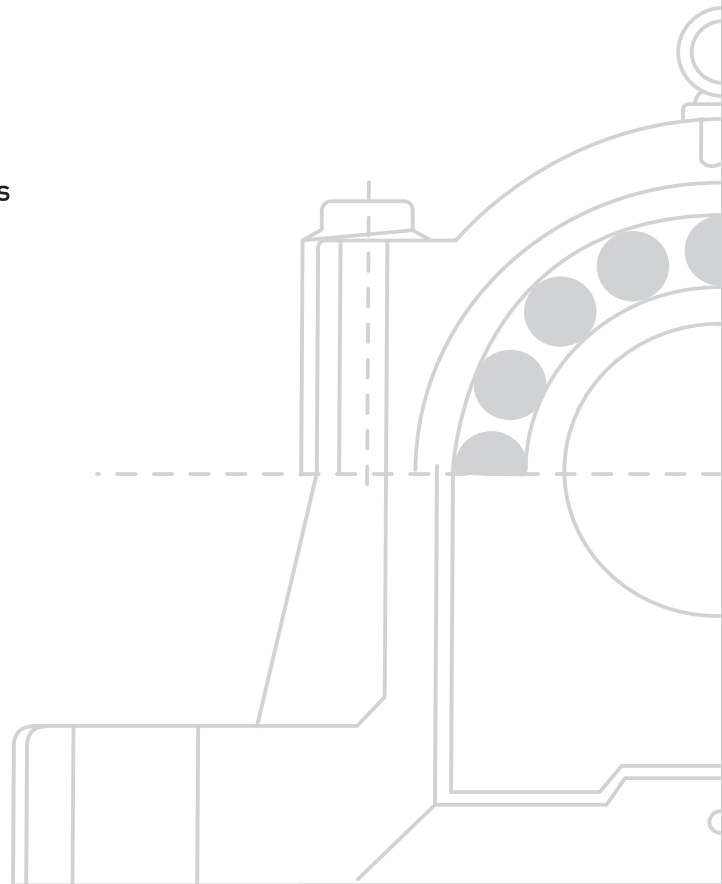
Comprehensive Product Warranty



Superior Customized Solution



In-house state-of-art Manufacturing Facilities



Purpose of ASSEMBLY MANUAL

We, at Masta, always try to fulfill needs and shortcomings of our customers while doing business of Bearing Housing and accessories.

As a result, we present ASSEMBLY MANUAL to satisfy customers' long term demand to provide them with proper guidelines for bearing housing assembly.

While bearing and its housing have prime function to reduce friction and make rotation smoother, it is very important that they should be assembled properly. We provide step-by-step guide line for proper assembly of bearing, housing, seals and accessories as a set.

Benefits of a proper assembly are:

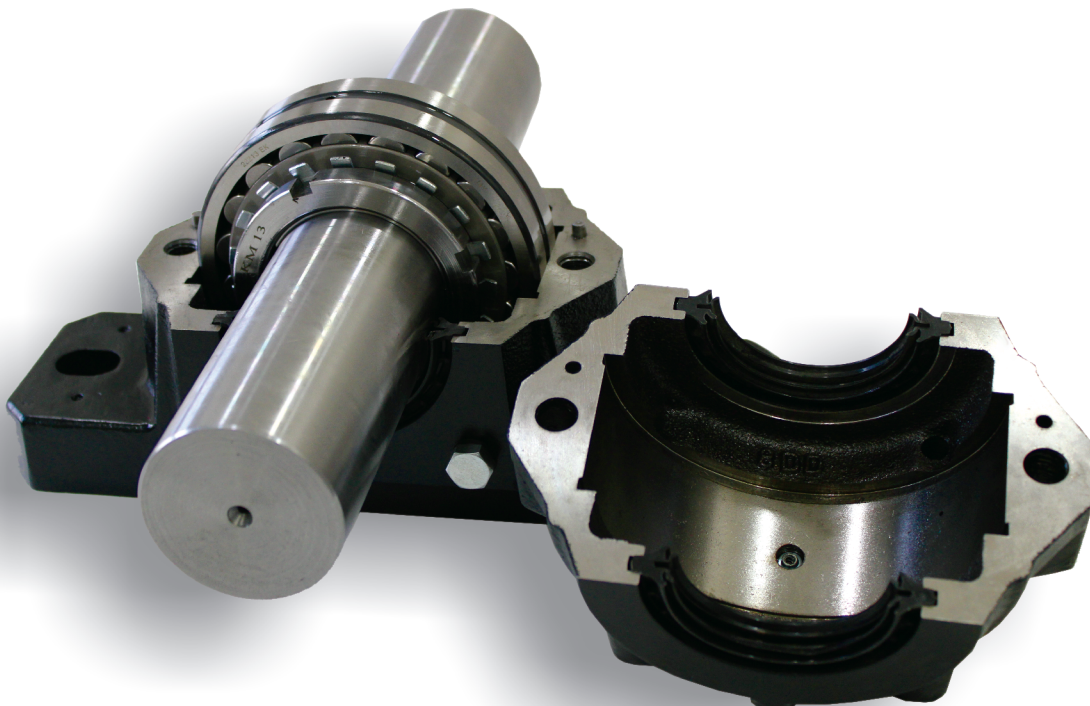
- Increase life of bearing and bearing housing.
- Increase life of seal & other accessories.
- Prevent undue leakage of grease or oil from housing and seal.
- Reduce vibration and increase performance of driven parts in assembly.
- Keeps foreign particles, dust, moisture etc. out which usually damage bearing and reduce its life.
- Also lubricant inside bearing and housing remains clean, free of contamination.
- As a result, bearing runs smoothly inside the bearing housing and its temperature rise remains within given range.

- Overall, a proper assembly, improves efficiency of drive system, makes it trouble-free, and eliminates unplanned shutdowns of the unit.

To facilitate correct assembly, we have included the recommended values of tightening torque in **TABLE-I**

CONTENTS:

1. Assembly of SNA/SNH/SNL bearing housing with **TL**, Four Lip Seal.
2. Assembly of SNA/SNH/SNL bearing housing with **TA**, V-Ring Seal.
3. Assembly of SNA/SNH/SNL bearing housing with **TC**, Felt Seal.
4. Assembly of SNA/SNH/SNL bearing housing with **TS**, Labyrinth Seal.
5. Assembly of SNA/SNH/SNL bearing housing with **TSN_D**, Taconite Seal.
6. Assembly of SOFN/LOE bearing housing with Seal Collar and accessories.
7. Assembly of water cooling coil in SOFN housing



ASSEMBLY AND MOUNTING Instruction: for MASTA SNA/SNH/SNL series bearing housings with FOUR lip seals (TL)



1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5\mu m$ to $6.3\mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of housing do not have any transit damage or dent at edge and clean it thoroughly to remove minor burr, if any.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified, so that adapter sleeve and bearing can be mounted accurately.
5. When using Bearing with suffix 'W33', that is, bearing having annular groove with three holes at 120° , use grease nipple in the center of the housing for re-lubrication. For self-aligning bearing, the provision for re-lubrication to be given on the side of the housing on the opposite direction of lock nut.
(Note: It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that there remains no possibility of the bearing getting dirty or contaminated.)
6. Locate the bearing housing on the mounting surface properly and then put the foundation bolts. FIG 1
(Note : The same will be fully tightened later on upon assembly, refer point 14)
7. Take half ring of four lip seal TL and insert this half ring in the grooves of each side of bottom housing one by one. Fill the space between lips sealing grooved area inside seal with grease. FIG 2
8. Bearing is then mounted on the shaft at proper location. Fill complete bearing with grease of appropriate grade and quantity.
Also put recommended grease quantity in the housing base at the sides. (Refer Table I)
9. Mount other end of the shaft with similar steps as mentioned above, in second bearing housing. Prior to mounting second bearing on shaft, ensure to mount the driving Component on the shaft at suitable location, positioning the component in between the two housings. FIG 3
10. Do proper alignment of both housing bases and then tighten the foundation bolts lightly. FIG 4
11. In case of located bearing option, put locating rings (of suitable size and numbers) in bearing seating area of only the housing near the drive (e.g. motor). FIG 3
12. The other seal halves to be fitted in seal groove of the two bearing housing caps and then fill grease in space between inner sealing lips of four lip seal. FIG 5
13. Finally place the caps on the housing bases and tighten the cap bolts FIG 6. (as per recommended tighten torque, refer Table I)
14. Next, check the alignment of the two housings properly and fully tighten the foundation bolts in both the housing bases as per recommended tightening torque, refer Table I. FIG 6

FIG. A



- ❖ Refer **Table I** for Recommended Tightening Torque for Cap bolts and Foundation bolts and grease quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base as shown in **FIG-A**.

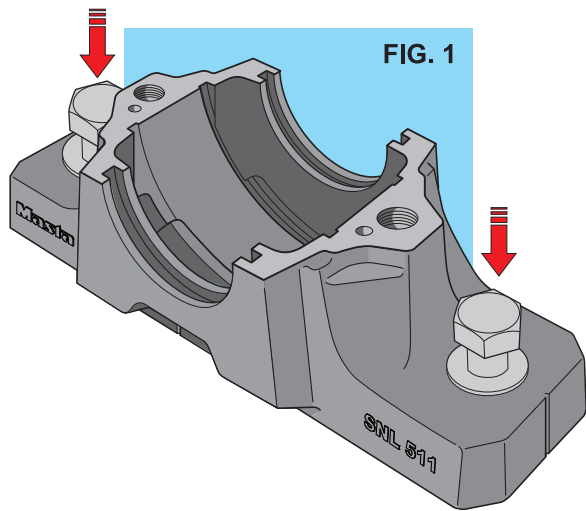


FIG. 1

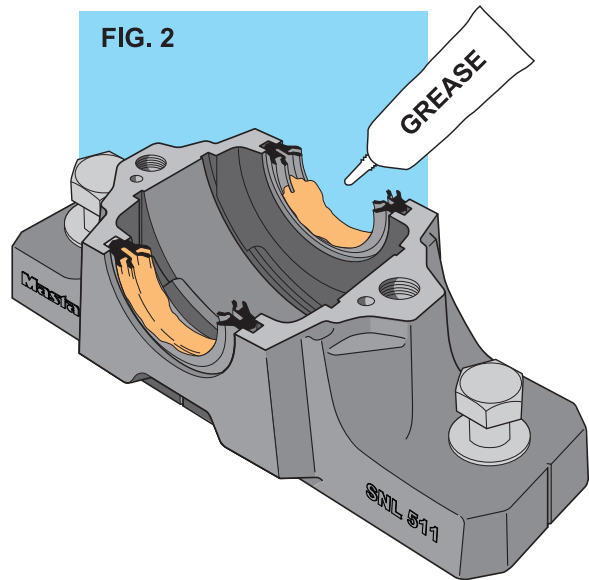


FIG. 2

GREASE

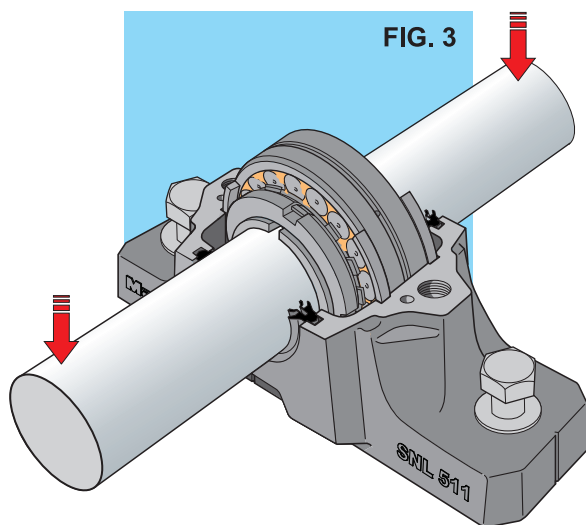


FIG. 3

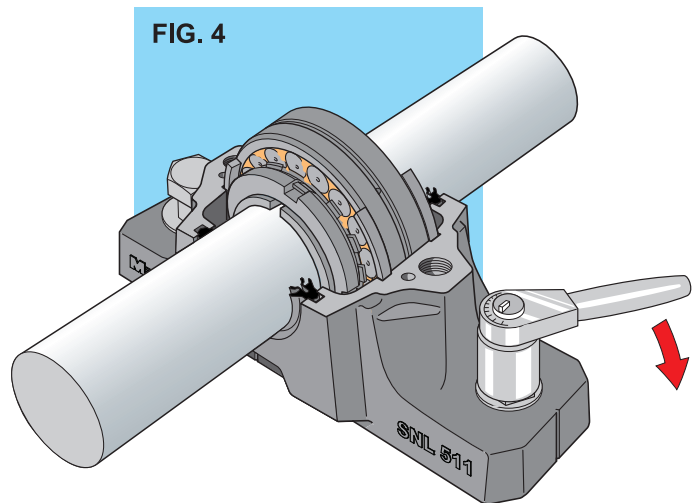


FIG. 4

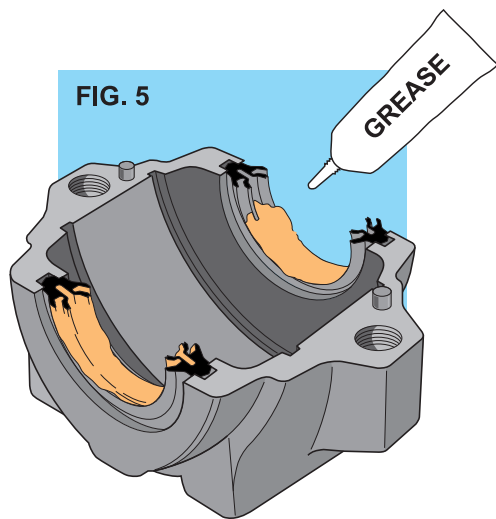


FIG. 5

GREASE

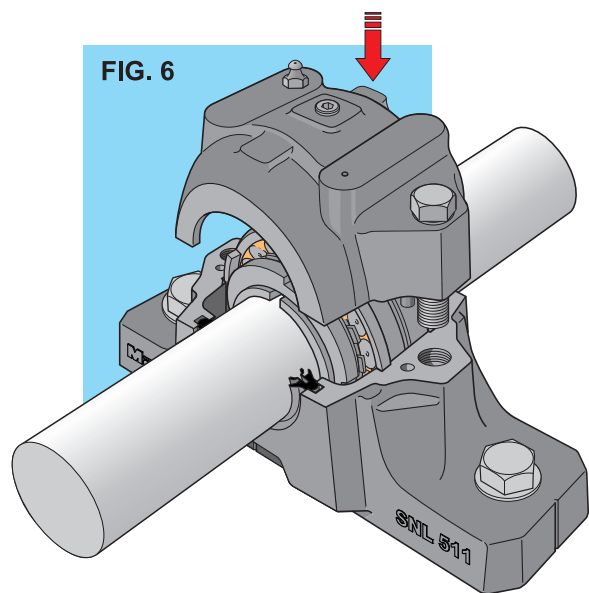
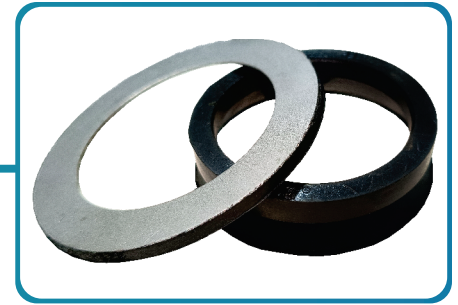


FIG. 6

ASSEMBLY AND MOUNTING Instruction: for MASTA SNA/SNH/SNL series bearing housings with V-RING seals (TA)

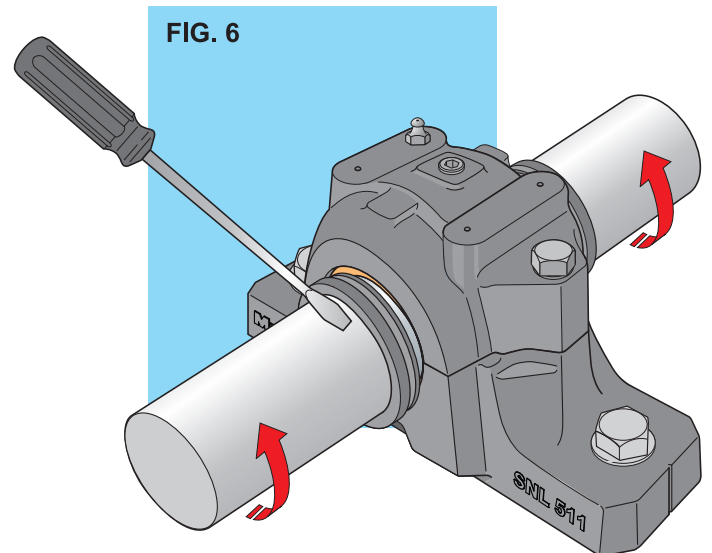
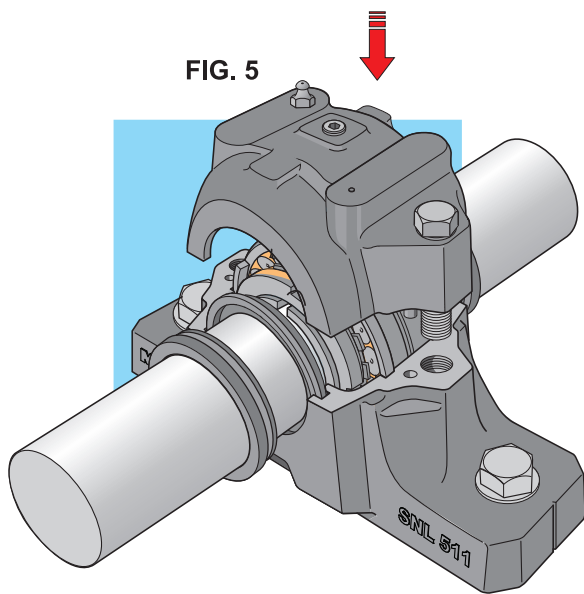
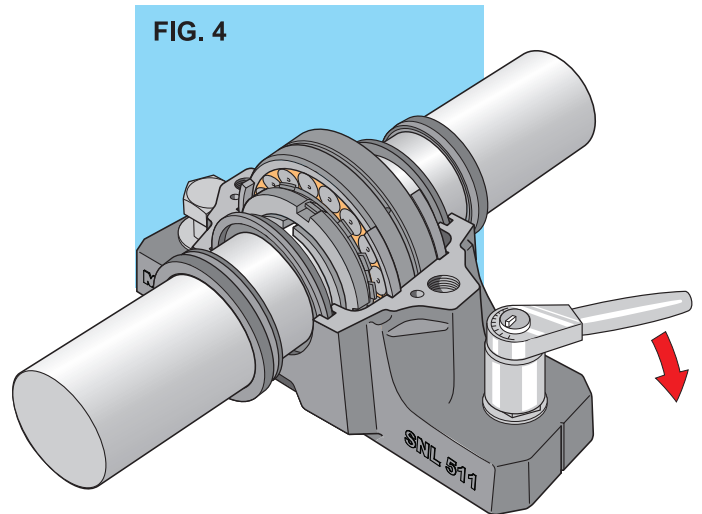
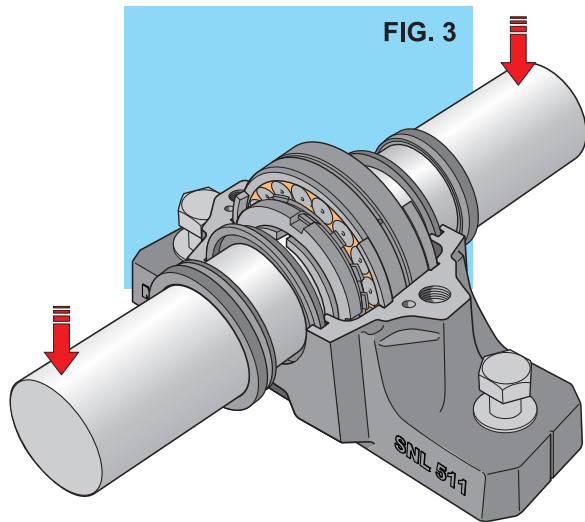
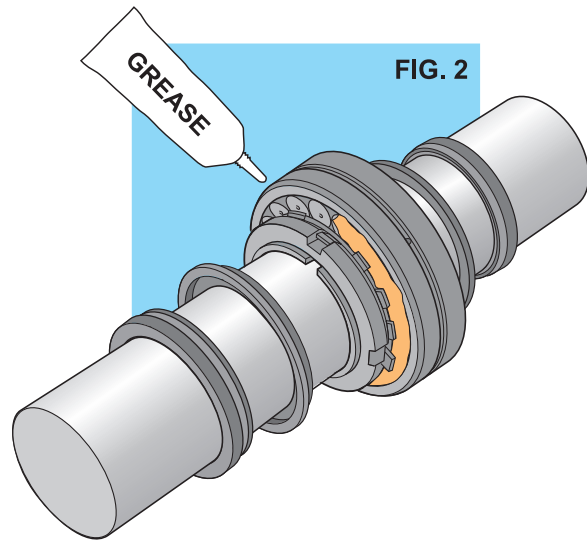
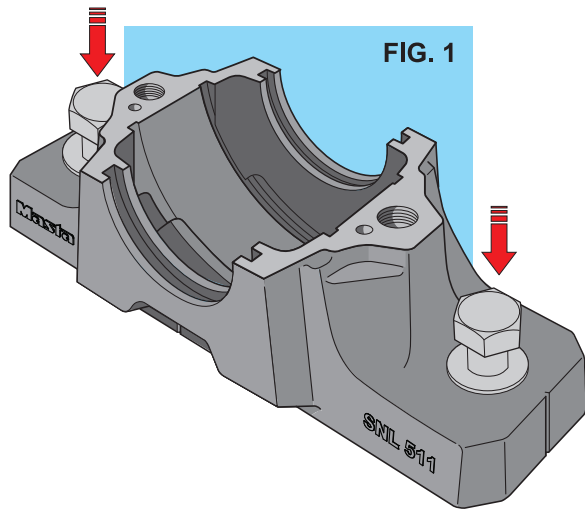


1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5 \mu m$ to $6.3 \mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of housing base do not have any transit damage or dent at edge and clean it thoroughly to remove minor burr, if any.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified so that adapter sleeve and bearing can be mounted accurately.
5. When using Bearing with suffix 'W33', that is, bearing having annular groove with three holes at 120° , use grease nipple in the center of the housing for re-lubrication.
For self-aligning bearing, the provision for re-lubrication to be given on the side of the housing on the opposite direction of lock nut.
(Note: It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that there remains no possibility of the bearing getting dirty or contaminated.)
6. Locate the bearing housing on the mounting surface properly and then put the foundation bolts. FIG 1
(Note: The same will be fully tightened later on upon assembly, refer point 15)
7. Insert one V seal (TA) with rubber lined metallic sealing washer (plate) on the shaft. Ensure that V seal is kept away from bearing, and its lip should points inward touching metallic sealing washer. The metallic seal washer should be inserted in the groove of housing base. FIG 2
8. Bearing is then mounted on the shaft at proper location. Fill complete bearing with grease of appropriate grade and quantity. Put recommended quantity of grease in the housing base at the sides, refer Table I. FIG 2.
9. Insert the second rubber lined metallic sealing washer (plate) and V ring seal on the shaft at the other side of the bearing following same steps at other side of housing. FIG 2.
In case end shaft, insert end-cover instead of V seal ring at other end of housing.
10. Mount the second bearing and housing at other end of the shaft with similar steps as mentioned above. FIG. 2 Prior to mounting second bearing on shaft, ensure to mount the driving Component on the shaft at suitable location, placing the component in between two housings.
11. Put the shaft with the two bearings and V seal & sealing washers in the two housing bases. The metallic seal washer should be inserted in the groove of housing base. FIG 3.
12. In case of located bearing option, put locating rings (of suitable size and numbers) on side of bearing in bearing seating area of housing FIG. 3
13. Do proper alignment of both housing bases and then lightly tighten the foundation bolts on housings at both ends. FIG 4
14. Finally place the caps on the housing bases and tighten the cap mounting bolts to the torque specified for each size in Table I. FIG 5
15. Check the alignment of the two housings properly and fully tighten the foundation bolts in both the housing bases as per recommended tightening torque, refer Table I.
16. Apply grease on the counter faces of the V-ring on the metallic washer.
17. To complete the assembly, push the V-ring seals to their exact position using a screw driver while turning the shaft slowly by hand. FIG 6

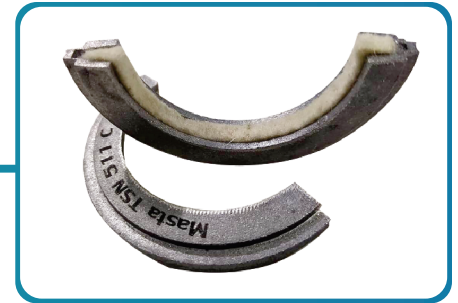
FIG. A



- ❖ Refer **Table I** for Recommended Tightening Torque for Cap bolts and Foundation bolts and grease quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base as shown in **FIG-A**.



ASSEMBLY AND MOUNTING Instruction: for MASTA SNA/SNH/SNL series bearing housings with FELT seals (TC)



1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5\mu m$ to $6.3\mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of bearing housing do not have any transit damage or dent at edge and clean it thoroughly to remove minor burr, if any.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified so that adapter sleeve and bearing can be mounted accurately.
5. When using Bearing with suffix 'W33', that is, bearing having annular groove with three holes at 120° , use grease nipple in the center of the housing for re-lubrication.

For self-aligning bearing, the provision for re-lubrication to be given on the side of the housing on the opposite direction of lock nut.

(Note: It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that there remains no possibility of the bearing getting dirty or contaminated.)

6. Locate the housing on the mounting surface and put the foundation bolts. (Note : The same will be fully tightened later on upon assembly, refer point 16) FIG 1
7. Insert rubber O cord in the groove of the housing base at both ends. FIG 2
8. Place Aluminium alloy half rings of the felt seal, over the O cord in sealing groove of each side of housing base with the felt strip (duly cut to the right length and duly soaked in hot oil for few minutes) in it. FIG 3

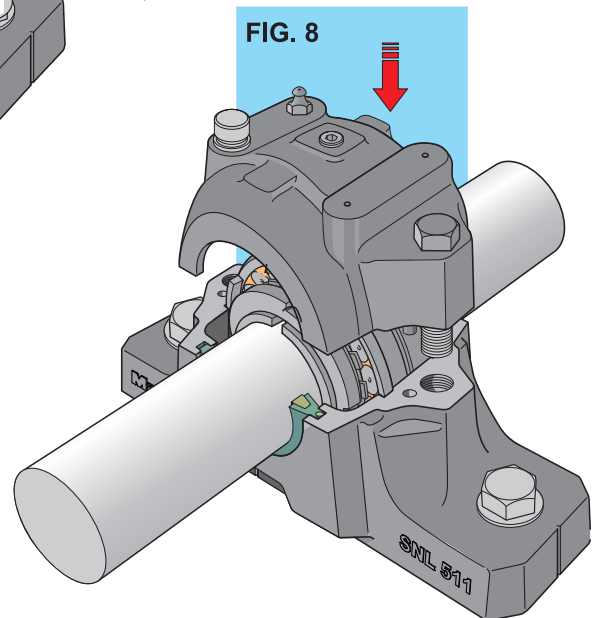
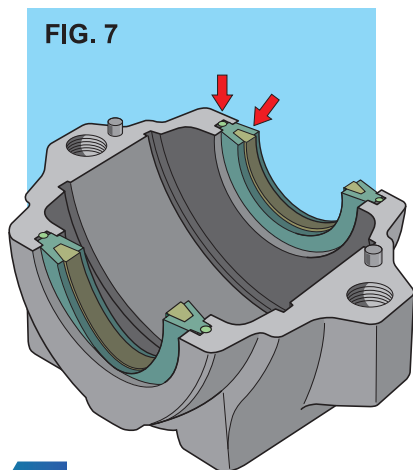
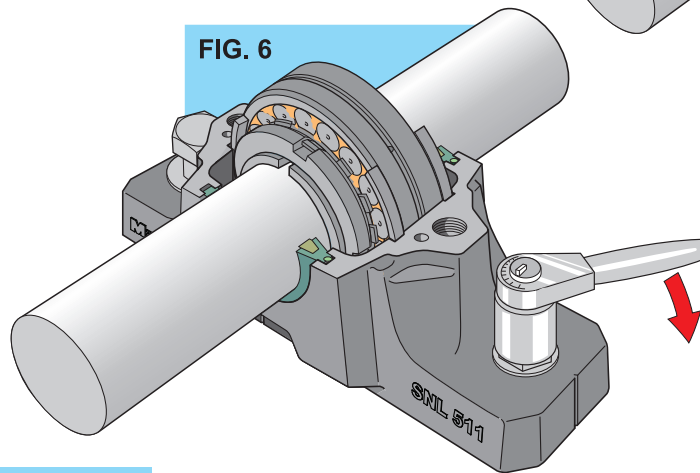
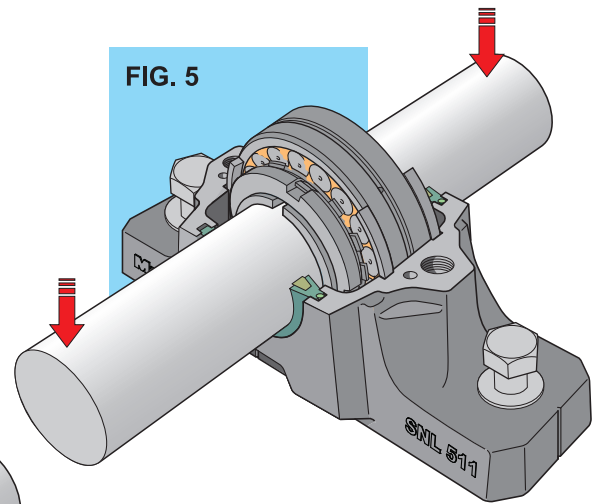
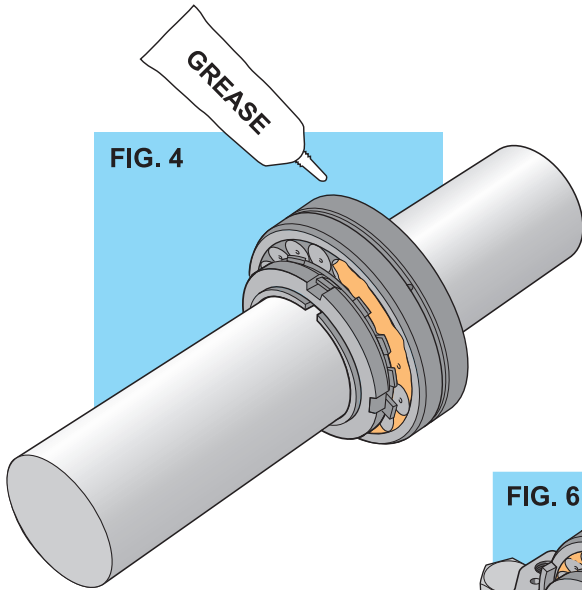
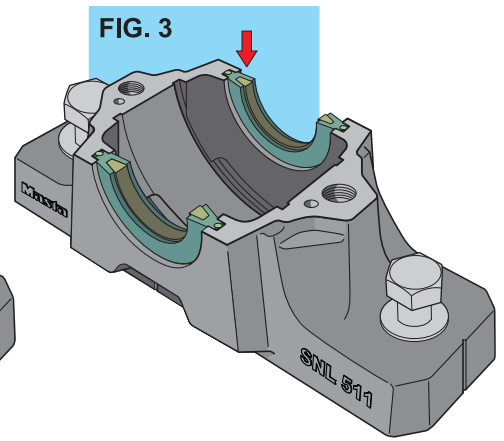
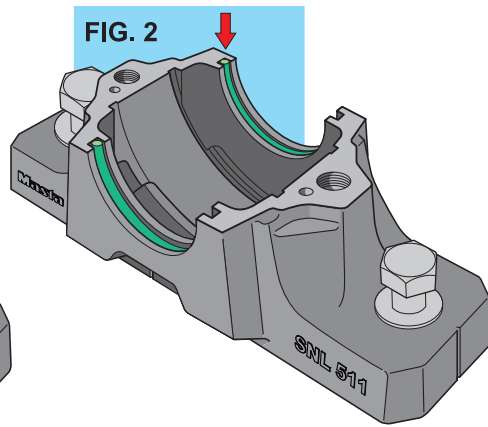
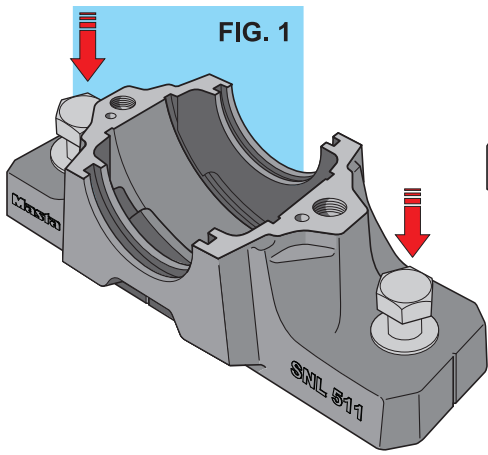
In case of end shaft assembly, keep the end cover in seal groove of housing, at closed end side instead of felt seal.

9. Bearing is then mounted on the shaft at proper location. Fill complete bearing with grease of appropriate grade and quantity. Put recommended quantity of grease in the housing base at the sides, refer Table I . FIG 4
10. Mount other end of the shaft with similar steps as mentioned above, in second bearing housing. Prior to mounting second bearing on shaft, ensure to mount the driving Component on the shaft at suitable location, placing the component in between two housings.
11. Put the shaft with two bearings in the two housing bases. FIG 5
12. In case of located bearing option, put locating rings (of suitable size and numbers) in bearing seating area of only the housing near the drive (e.g. motor).
13. Do proper alignment of both housing bases carefully and then lightly tighten the foundation bolts at both ends. FIG 6
14. Next, put the O Cord into the seal groove in the two housing caps. The remaining aluminum seal halves should be inserted in the seal grooves in the two housing caps over the O cords. FIG 7
15. Now, place the housing caps over the housing bases and tighten the cap mounting bolts as per torque specified for each size, refer Table I . FIG 8
16. Finally check the alignment of the two housings properly and fully tighten the foundation bolts in both the housing bases as per recommended tightening torque, refer Table I .

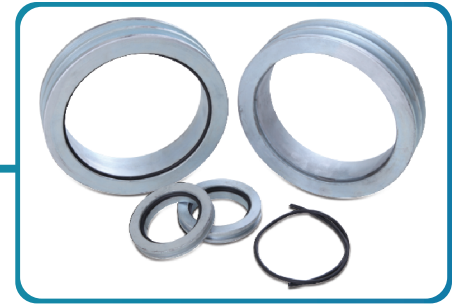
FIG. A



- ❖ Refer **Table I** for Recommended Tightening Torque for Cap bolts and Foundation bolts and grease quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base as shown in **FIG-A**.



ASSEMBLY AND MOUNTING Instruction: for MASTA SNA/SNH/SNL series bearing housings with LABYRINTH seals (TS)



1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5\mu m$ to $6.3\mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of bearing housing do not have any transit damage or dent at edge and clean it thoroughly to remove minor burr, if any.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified so that adapter sleeve and bearing can be mounted accurately.
5. When using Bearing with suffix 'W33', that is, bearing having annular groove with three holes at 120° , use grease nipple in the center of the housing for re-lubrication.
For self-aligning bearing, the provision for re-lubrication to be given on the side of the housing on the opposite direction of lock nut.
(Note: It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that there remains no possibility of the bearing getting dirty or contaminated.)
6. Locate the bearing housing on the mounting surface properly and then put the foundation bolts. FIG 1
(Note : The same will be fully tightened later on upon assembly, refer point 14).
7. Mount one labyrinth collar on the shaft in the correct position. FIG 2
8. Then mount the bearing (& adapter sleeve set) on the shaft at proper location. Fill complete bearing with grease of adequate quantity and appropriate quality . Also put recommended quantity of grease in the housing base at the sides. (Refer Table I).

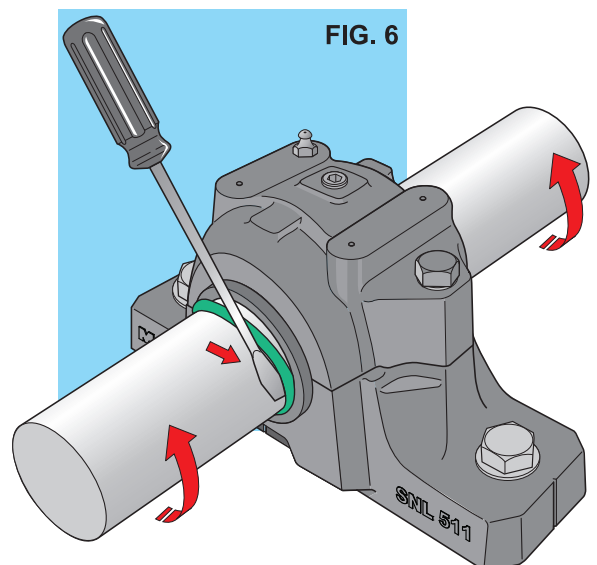
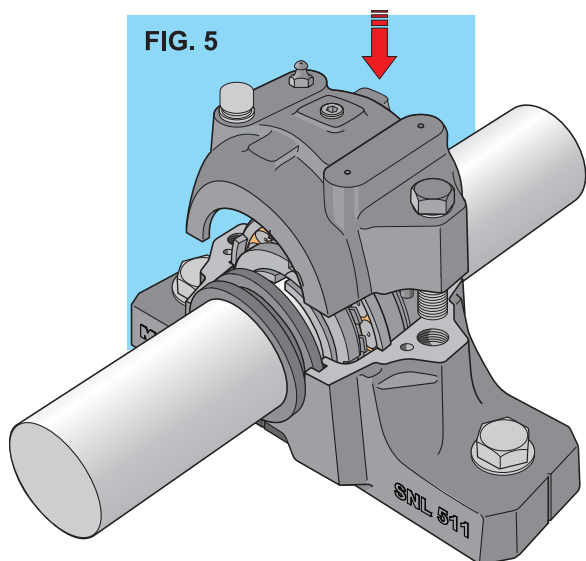
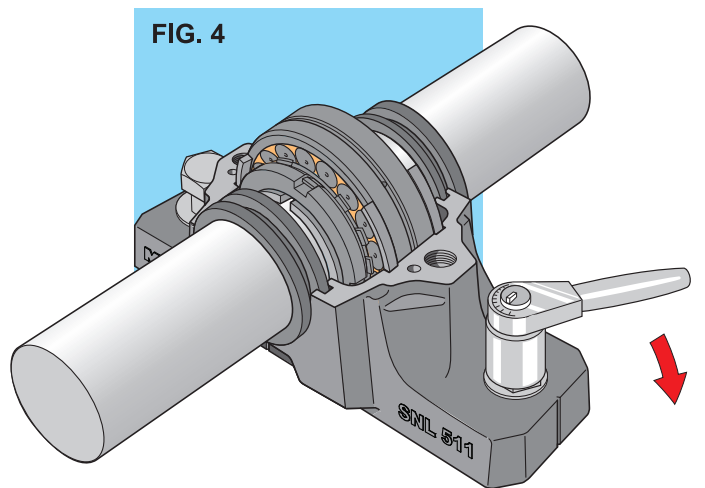
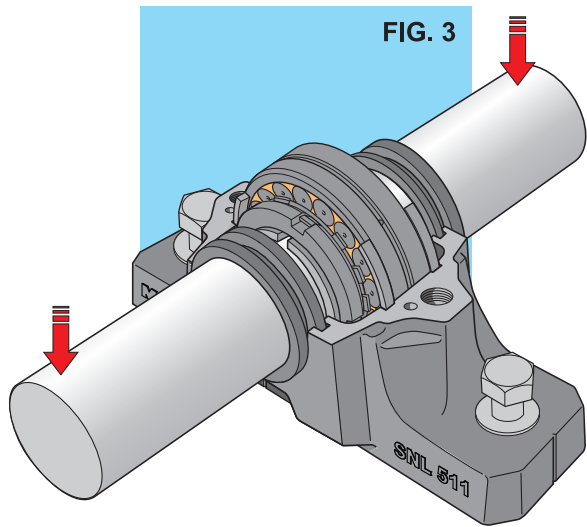
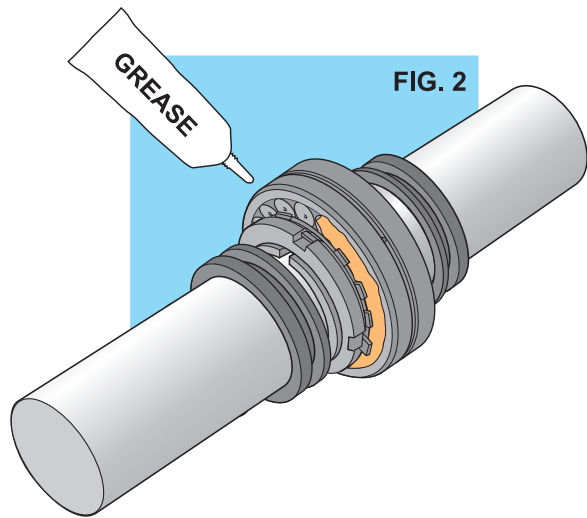
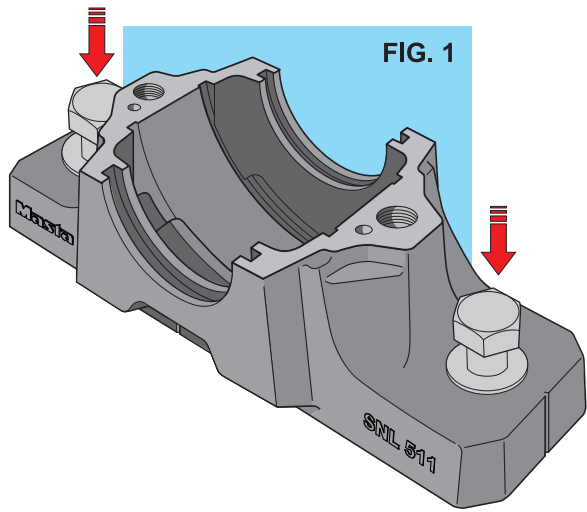
Now mount second Labyrinth seal in correct position. In case of shaft end assembly, mount distance ring on shaft instead of second Labyrinth and put an End cover instead Laby seal in housing base.

9. Next, mount second bearing on the other end of the shaft with similar steps as mentioned above, placing the driving Component in between two housings at suitable position.
In case of the end shaft assembly, place end cover in housing groove, instead of second labyrinth seal at the closed end of housing. (i.e. ATS option)
10. Put the shaft with two bearings and labyrinth seals in the two housing bases. FIG 3
11. For located bearing option, put locating rings of suitable size and numbers on each side of the bearing near to the Drive (e.g. motor). FIG 3
12. Make proper alignment of both housing bases and then tighten the foundation bolts lightly. FIG 4
13. Finally place the caps on the each housing base and tighten the cap mounting bolts as per the torque specified for each size, refer Table I. FIG 5
14. Ensure the alignment of the two housing assembly for proper fitment, then fully tighten the foundation bolts in the two housing as per recommended torque, refer Table I.
15. Lastly, insert the synthetic rubber 'O' cord in the specific groove of labyrinth collar by gently rotating the shaft and pushing the O cord with the use of a screw driver. FIG 6

FIG. A



- ❖ Refer **Table I** for Recommended Tightening Torque for Cap bolts and Foundation bolts and grease quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base as shown in **FIG-A**.



ASSEMBLY AND MOUNTING Instruction: for MASTA SNA/SNH/SNL series bearing housings with Taconite seals (TSND)

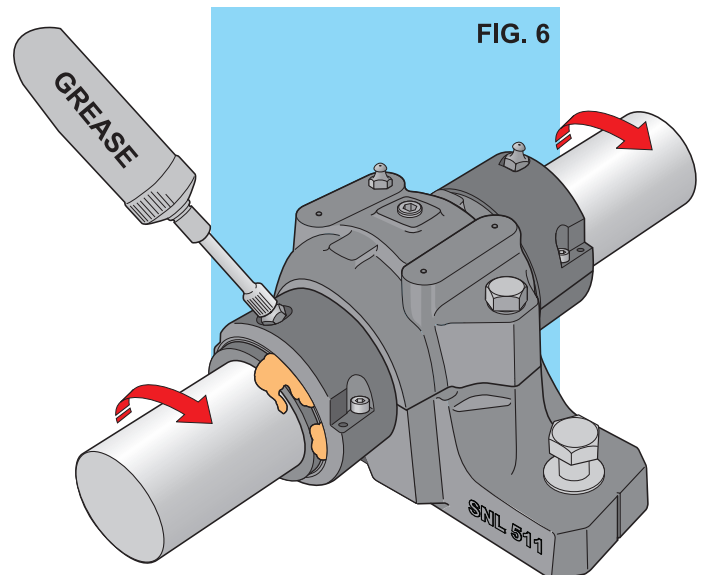
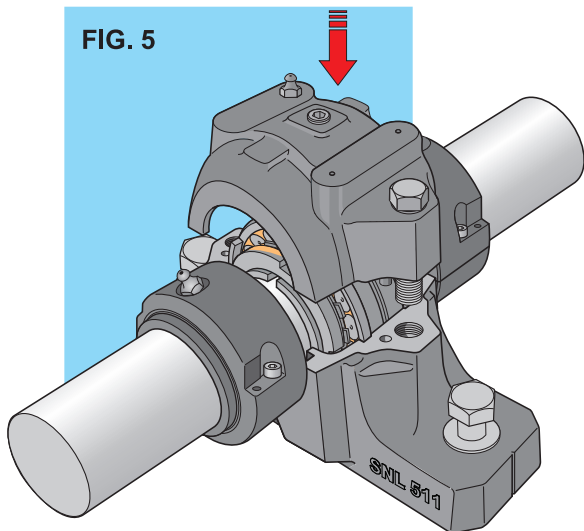
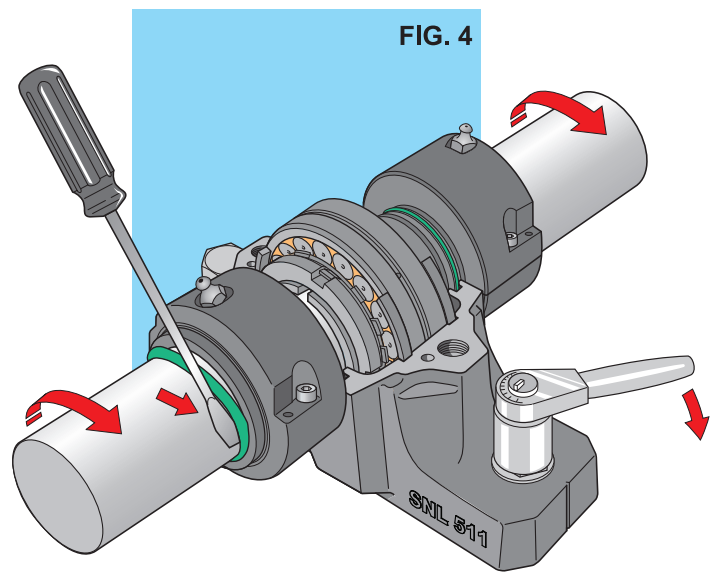
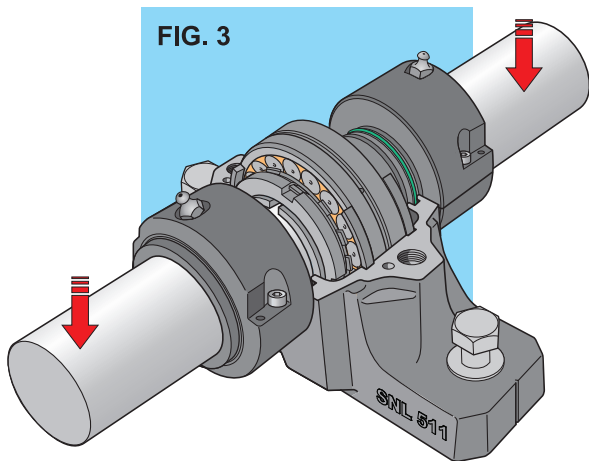
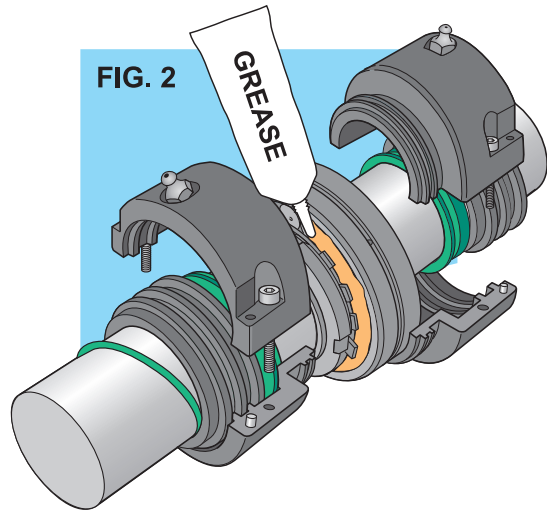
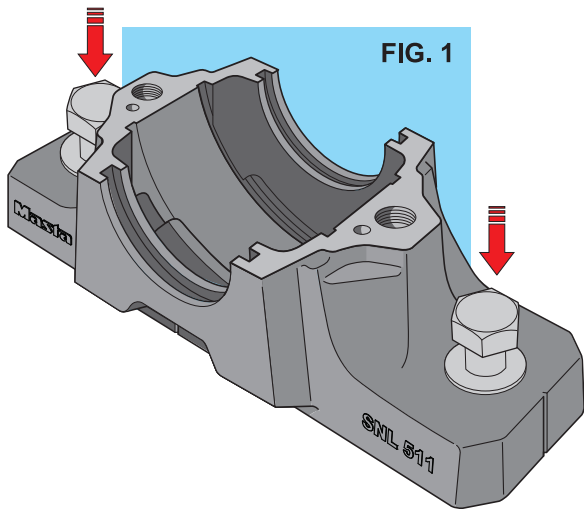


1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5\mu m$ to $6.3\mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of bearing housing do not have any transit damage or dent at edge and clean it thoroughly to remove minor burr, if any.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified so that adapter sleeve and bearing can be mounted accurately.
5. When using Bearing with suffix 'W33', that is, bearing having annular groove with three holes at 120° , use grease nipple in the center of the housing for re-lubrication.
For self-aligning bearing, the provision for re-lubrication to be given on the side of the housing on the opposite direction of lock nut.
(Note: It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that there remains no possibility of bearing getting dirty or contaminated.)
6. Locate the bearing housing on the mounting surface properly and then put the foundation bolts. FIG 1
(Note: The same will be fully tightened later on upon assembly, refer point 19) FIG 1
7. Taconite seal is a very efficient seal. It is a composite type seal which includes multiple protection by use of V seal and Labyrinth seal with grease in it to enhance its sealing effect.
8. At first, enter one V Ring on the shaft along with one labyrinth seal to the correct position. Ensure the lip of the V ring seal should point towards bearing. FIG 2
Put the two halves of split ring over V ring seal and labyrinth seal and screw them.
(Note: The two halves of the split ring are not interchangeable. So while assembling them, check that they carry the same serial number marked on each split ring to ensure perfect fitment of the two halves.)
9. Bearing is mounted on the shaft. (i.e. directly on a stepped shaft for straight bore bearing or using adapter sleeve for taper bore bearing).
10. Fill completely the bearing with recommended grease of appropriate grade. FIG.2 Also put recommended quantity of grease in the housing base at the sides. (Refer Table 1)
11. Mount the second taconite seal on other end of the shaft with similar steps as mentioned above. In case of the end shaft assembly, place an end cover in the housing groove instead of the second taconite seal at the other end of housing. (i.e. ATSND option)
12. Note that there are two O cords used in this assembly, one is put over split ring and other O cord is inserted in labyrinth seal.
13. Mount the second bearing and housing with similar steps as above, first keeping the driving Component on shaft in between the two bearing.
14. Put the shaft with two bearings and seals in the two housing bases taking care that first O cord is not damaged. FIG.3
15. For located bearing option, put locating ring of suitable size and number on each side of the bearing near the Drive. (e.g. motor)
16. Make proper alignment of both housing bases and then tighten the foundation bolts lightly. FIG.4
17. Insert the second synthetic rubber O cord in specific groove of labyrinth collar by gently pushing the O cord with the use of a screw driver. FIG.4
18. Finally place the two caps on each housing base and tighten the cap mounting bolts as per torque specified for each size, refer Table I. FIG.5
19. Ensure the alignment of the two housing assembly for proper fitment, then fully tighten the foundation bolts in both the bearing housings as per recommended torque, Refer Table I. FIG 5
20. Finally, the groove of labyrinth seal to be filled with some grease. Hence, manually rotate the shaft and supply grease thru grease nipple provided on Taconite seal, until grease exude out of labyrinth rings. To verify proper fitment, do a trial run of shaft by rotating it manually. FIG.6

FIG. A



- ❖ Refer **Table I** for Recommended Tightening Torque for Cap bolts and Foundation bolts and grease quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base as shown in **FIG-A**.



RECOMMENDED TIGHTENING TORQUE FOR CAP BOLTS & FOUNDATION BOLTS FOR SNA, SNH & SNL

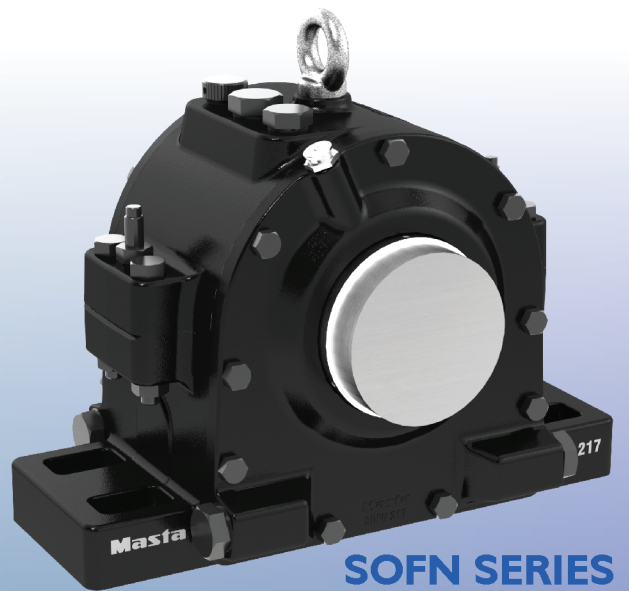


TABLE - I

PLUMMER BLOCK HOUSING DESIGNATION		PLUMMER BLOCK HOUSING DESIGNATION		PLUMMER BLOCK HOUSING DESIGNATION		VALUE FOR CAP BOLTS		VALUE FOR FOUNDATION BOLTS		GREASE FILLED QUANTITY	
						BOLT	TIGHTENING TORQUE	BOLT	TIGHTENING TORQUE	FIRST FILL 40%	FIRST FILL 20%
SNA 500-600 SERIES	SNA 200-300 SERIES	SNH 500-600 SERIES	SNH 200-300 SERIES	SNL 500-600 SERIES	SNL 200-300 SERIES	SIZE	Nm	SIZE	Nm	GRAM	GRAM
SNA 505	SNA 205	SNH 505	SNH 205	SNL 505	SNL 205	M10x40	50	M12	80	25	15
SNA 506-605	SNA 206-305	SNH 506-605	SNH 206-305	SNL 506-605	SNL 206-305	M10x40	50	M12	80	40	25
SNA 507-606	SNA 207-306	SNH 507-606	SNH 207-306	SNL 507-606	SNL 207-306	M10x50	50	M12	80	50	30
SNA 508-607	SNA 208-307	SNH 508-607	SNH 208-307	SNL 508-607	SNL 208-307	M10x50	50	M12	80	60	35
SNA 509	SNA 209	SNH 509	SNH 209	SNL 509	SNL 209	M10x50	50	M12	80	65	40
SNA 510-608	SNA 210-308	SNH 510-608	SNH 210-308	SNL 510-608	SNL 210-308	M10x55	50	M12	80	75	45
SNA 511-609	SNA 211-309	SNH 511-609	SNH 211-309	SNL 511-609	SNL 211-309	M12x60	80	M16	200	100	60
SNA 512-610	SNA 212-310	SNH 512-610	SNH 212-310	SNL 512-610	SNL 212-310	M12x60	80	M16	200	150	90
SNA 513-611	SNA 213-311	SNH 513-611	SNH 213-311	SNL 513-611	SNL 213-311	M12x65	80	M16	200	180	110
SNA 515-612	SNA 215-312	SNH 515-612	SNH 215-312	SNL 515-612	SNL 215-312	M12x65	80	M16	200	230	140
SNA 516-613	SNA 216-313	SNH 516-613	SNH 216-313	SNL 516-613	SNL 216-313	M12x70	80	M20	385	280	170
SNA 517	SNA 217-314	SNH 517	SNH 217-314	SNL 517	SNL 217-314	M12x80	80	M20	385	330	200
SNA 518-615	SNA 218-315	SNH 518-615	SNH 218-315	SNL 518-615	SNL 218-315	M16x90	150	M20	385	430	260
SNA 519-616	SNA 219-316	SNH 519-616	SNH 219-316	SNL 519-616	SNL 219-316	M16x90	150	M20	385	480	300
SNA 520-617	SNA 220-317	SNH 520-617	SNH 220-317	SNL 520-617	SNL 220-317	M20x100	200	M24	665	630	390
SNA 522-619	SNA 222-319	SNH 522-619	SNH 222-319	SNL 522-619	SNL 222-319	M20x100	200	M24	665	850	530
SNA 524-620	SNA 224-320	SNH 524-620	SNH 224-320	SNL 524-620	SNL 224-320	M20x110	200	M24	665	1000	630
SNA 526	SNA 226	SNH 526	SNH 226	SNL 526	SNL 226	M24x130	350	M24	665	1100	700
SNA 528	SNA 228	SNH 528	SNH 228	SNL 528	SNL 228	M24x130	350	M30	1310	1400	900
SNA 530	SNA 230	SNH 530	SNH 230	SNL 530	SNL 230	M24x130	350	M30	1310	1700	1100
SNA 532	SNA 232	SNH 532	SNH 232	SNL 532	SNL 232	M24x130	350	M30	1310	2000	1300



LOE SERIES



SOFN SERIES

ASSEMBLY AND MOUNTING Instruction: for MASTA SOFN series bearing housings

SOFN series is oil lubricated heavy duty bearing housing, used in critical industrial applications (e.g. Industrial Fan, Cement, Sugar and Steel Plant etc.) which need special attention and care while its assembly and maintenance. Main components of SOFN housing consist of -

1. Housing Base and Cap
2. Two side covers (either both open covers or one open cover and other closed cover)
3. Small and Big Labyrinth Collars
4. Oil Splash Ring & threaded pin for splash ring (which prevents any displacement of oil splash ring).
5. Gaskets for each cover
6. Hardware including Oil level indicator, Air Breather, Grease Nipple, RTD Plug, Oil Inlet Plug, Drain Plug (all with rubber ring for sealing), cap and cover mounting fasteners, dowel pins etc.

To understand overall layout, refer Key Diagram (FIG 1) first for a typical SOFN 200 series housing (used for bearing with straight bore) which will help us to visualise assembly sequence.

Diagram shows the two types of SOFN assemblies as under:

(A). Drive End SOFN Housing: Here, it is primarily required to identify the Cover and Labyrinth Collar to be fitted at correct location, as per following guidelines. Refer Fig 1 to see these components in the exploded view of SOFN housing.

1. For Fan Side of housing:
 - * The Cover doesn't have any cut on its spigot for passing Oil ring
 - * The Labyrinth has larger inner dia (as compared to Motorside Labyrinth) both labyrinth are having same Length
2. For Motor side of Housing:-
 - * The Cover has cut on its spigot for passing Oil ring
 - * The Labyrinth has smaller inner dia (as compared to other labyrinth)
 - * Oil ring is fitted at motor side of housing.

(B). Non-Drive End SOFN housing: Here also, it is required to identify the Cover and Labyrinth Collar required to be fitted at correct location, as per following guidelines.

1. For Fan Side of housing:
 - * The Cover don't have any cut on its spigot for passing Oil ring
 - * The Labyrinth has larger inner dia
2. For Closed End side of Housing:-
 - * The Closed Cover has cut on its spigot for passing Oil ring
 - * Instead of Labyrinth a Distance piece is fitted.
 - * Oil ring is fitted at motor side of housing.

Incase of SOFN 500 Series : Refer Key Diagram (FIG 2) (which use Bearing with taper bore along with adapter sleeve), the Cover and Labyrinth collar identification are as under :

The inner diameter of both labyrinth seal is same, but they having different length as:

Cover:

Fan side cover has cut for Oil ring. (for drive end and non drive end housing)

Motor side cover has no cut (for drive end housing)

Closed end side cover has no cut. (for non drive end housing)

Labyrinth Collar:

Fan side the labyrinth length is more.

Motor side the labyrinth length is less.

Make sure to start the sequence of assembly of SOFN housing from Fan Side. (not from Motor side or closed side)

After understanding the protocol for assembly as above, let us focus on step-by-step procedure for assembly :-

1. Make sure that the work area (mounting surface) is clean and free of dust, rust or solid particles, prior to starting installation of the bearing housing.
2. Check the mounting surface to ensure that its surface roughness is maintained, preferably, within $Ra \leq 12.5 \mu m$ to $6.3 \mu m$ and flatness tolerance is IT7.
3. The bottom face of MASTA Bearing Housing is supplied in ground condition with required flatness. Please check that the bottom face of bearing housing do not have any transit damage or dent at edge and clean it thoroughly to remove any minor event.
4. Check the Dimensional and Form accuracy of shaft seating area is as specified so that adapter sleeve and bearing can be mounted accurately.
5. It is advisable that the bearings should be kept in their original packing until immediately before mounting, so that the bearing does not become dirty or contaminated.
6. Locate the Base of the Drive End Side bearing housing on the mounting surface properly, and then lightly tighten the foundation bolt, refer exploded view in FIG 1 (note: - the same will be fully tightened later on upon assembly, refer point 28).
7. Starting from Fan side, enter Cover (having no cut on its spigot) on shaft along with Gasket.

Contd...

FIG 1
SOFN 200 SERIES

KEY DIAGRAM FOR SCHEMATIC STRAIGHT BORE BEARING

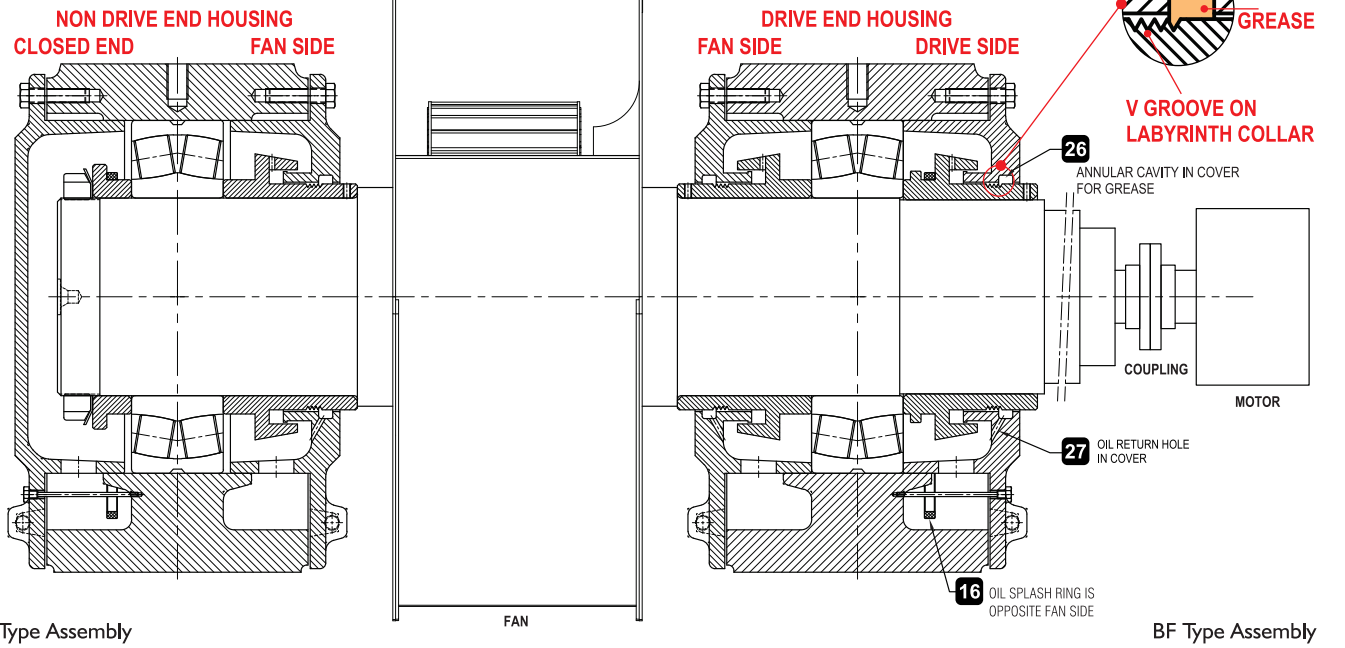
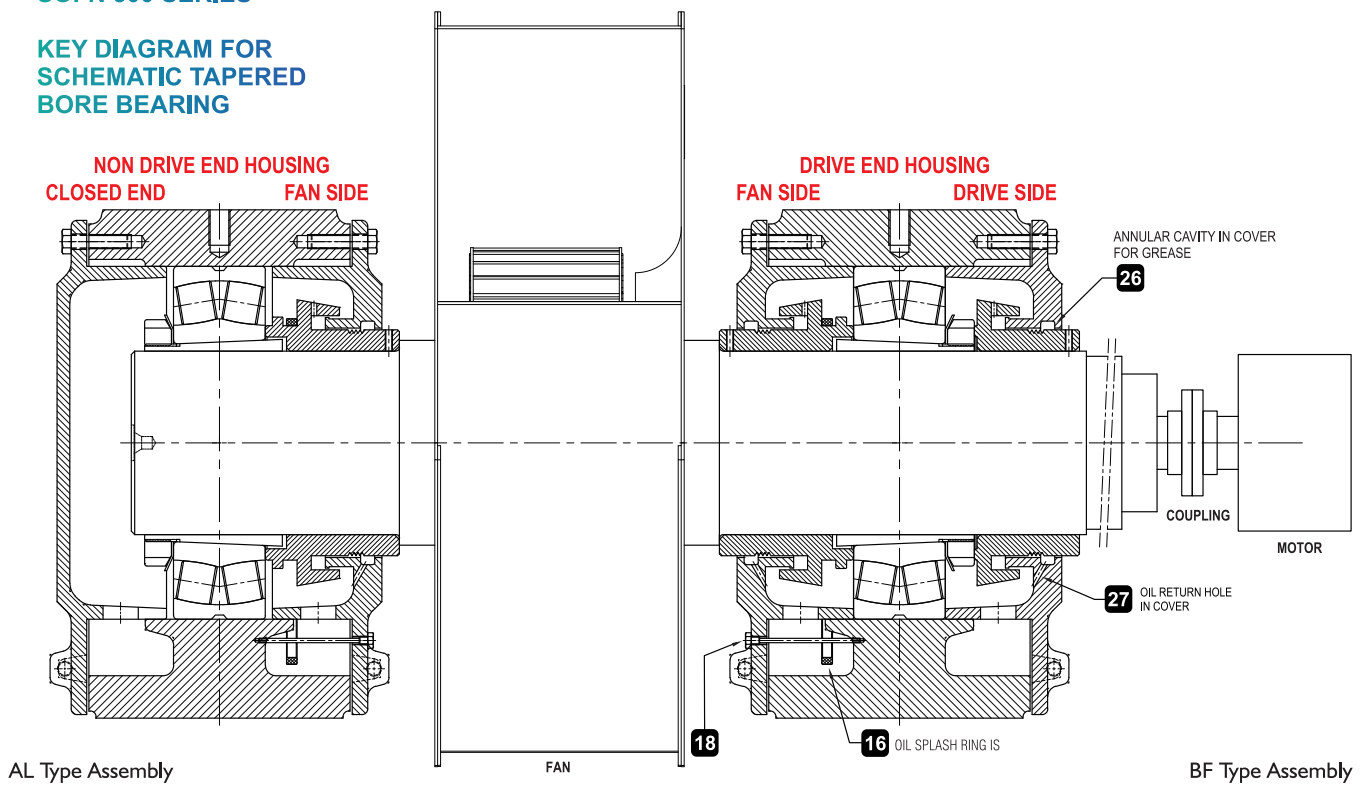


FIG 2
SOFN 500 SERIES

KEY DIAGRAM FOR SCHEMATIC TAPERED BORE BEARING



ASSEMBLY AND MOUNTING Instruction: for MASTA SOFN series bearing housings

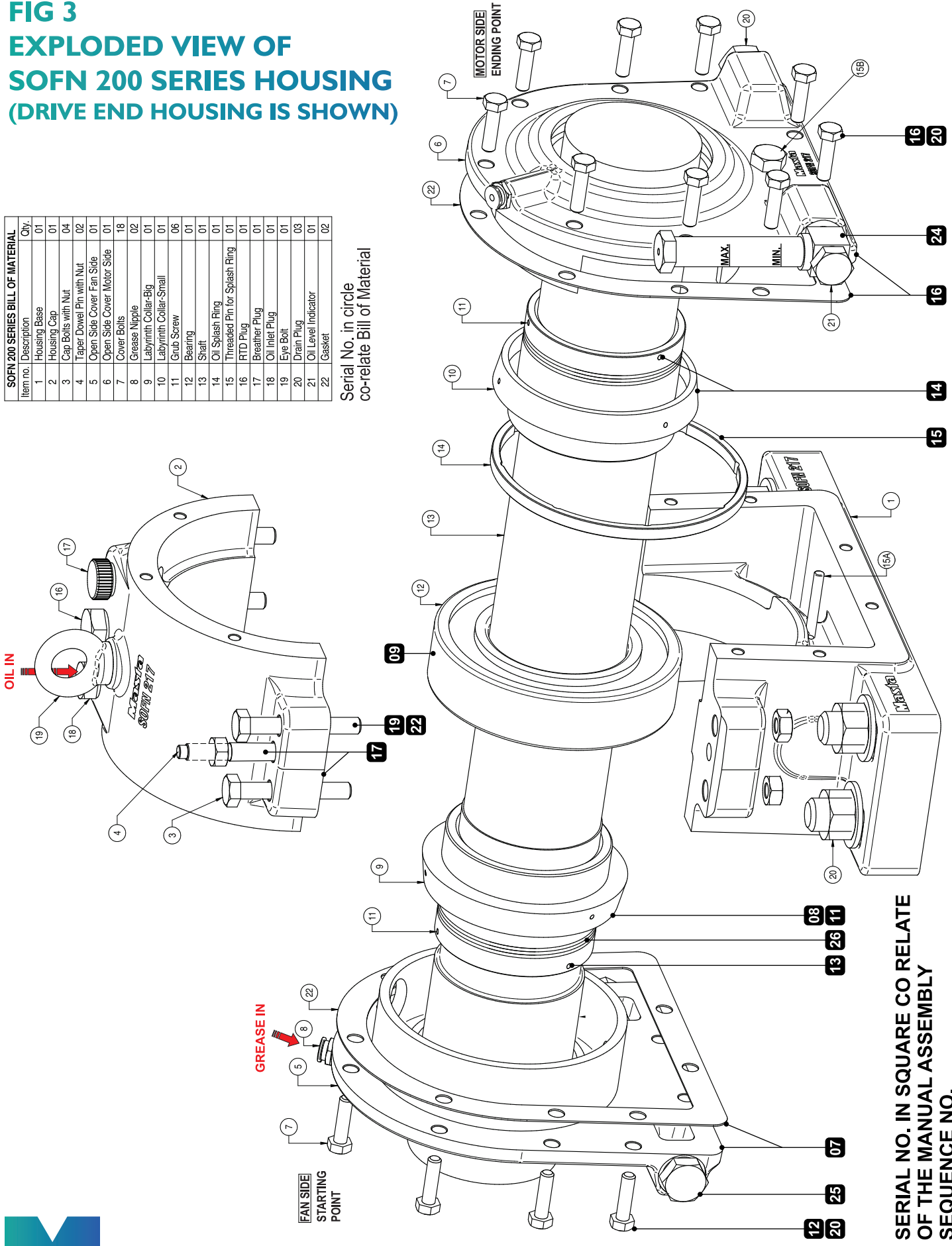
8. Next, enter Labyrinth collar on the shaft.
 9. Now mount the Bearing on the shaft (here we took bearing with straight bore) following right procedure for bearing assembly, determining its location relative to whole unit.
 10. Support the bearing with shaft on housing base.
 11. Slide the labyrinth collar to touch inner race of bearing.
 12. Assemble cover (already on shaft) with gasket on the housing base using cover bolts and loosely tighten them to secure the cover at one end of base.
 13. Secure the labyrinth collar at correct position so that the V grooves on the collar remains at grease cavity of the cover. Tighten 3 grub screws provided on labyrinth collar.
 14. Next we focus on Motor side assembly of housing. Enter the second labyrinth collar (having smaller inner dia) on the shaft.
 15. Enter the Oil Splash Ring on shaft and position it to hang on the outer diameter of second Labyrinth collar already there on shaft.
 16. Next, assemble second cover (having cuts on its spigot for passing oil ring) along with gasket, allowing shaft with second labyrinth seal to pass thru.
Ensure that the second Labyrinth seal and Oil splash ring are at right location, Tighten the cover bolts lightly on sides of the housing base.
 17. Put the housing cap carefully on the housing base, aligning them using two taper dowel pins provided on each side of the housing.
It is very important that these taper dowel pins are guided properly, and the housing cap and base secure correct location for assembly. This also ensures that the Inner Diameter (where bearing is seating)has attained perfect concentricity. Any error while assembly at this stage may lead to operational trouble for bearing.
 18. Ensure that Threaded Pin for Splash ring is positioned rightly and tightened in true alignment with lock pin provided inside the housing base.
 19. Tighten all four cap bolts lightly.
 20. Tighten balance cover bolts on cap lightly.
 21. At this stage, all main components are put together in position. So manually rotate shaft lightly to see their alignment and smooth running. Feel its free movement in the bearing and assembled components.
 22. Fully tighten the cap bolts applying recommended tightening torque using a torque wrench, refer table 2 and 3.
 23. Also fully tighten all the cover bolts so that no oil leakage results from cover edges.
 24. Fit the Oil Level Indicator on front side so that it is visible while housing is in operation. Also fit 3 Drain Plugs at suitable holes in both cover.
Ensure that these are tightened securely so that oil does not get a chance to leak from any loose joint.
 25. Verify that Air Breather Plug and RTD Plug are fitted properly on the top of housing in its true position as shown in Fig 3.
 26. Add recommended lubricating oil (as per bearing manufacturer's guidelines) thru Oil inlet hole on top of bearing housing. Usually fill the oil up to the marking MAX on the oil level indicator. (So that while running at specified speed, the oil level is maintained between Max & Min Level.) Fit the Oil Inlet Plug securely.
 27. Grease nipples are duly fitted on top of cover while supply. Its purpose is to supply grease at the annular cavity in cover and V groove on labyrinth collar. This bulk of grease present there, will resist any minor oil leakage to pass thru running clearance between inner diameter of cover and outer edge of labyrinth collar.
 28. Small quantity of oil entrapped at annular cavity in cover (due to grease filled there) is drained into housing through Oil Return Hole.
 29. Check the alignment of the assembled SOFN housing properly with reference to other equipment and fully tighten the foundation bolts in both the housing bases as per recommended tightening torque, refer Table 2 and 3.
 30. This finishes the assembly of SOFN housing in true perspective.
- Assembly Check:**
- In case of SOFN housings, it is necessary to verify certain points as under to ensure correct fitment:
- (a). Primary check (without running), verify any oil leakage at
 - Drain Plug • Cover sides • Cover bottom • Oil level bottle and its threads and threaded pin for splash ring.
 - (b). For Secondary check, run the housing at required speed for 2 to 4 hours and check for
 - Oil Leakage at above locations
 - Vibration in housing beyond the specified range
 - Temperature rise in housing beyond the specified range.
 - (c). When you find all the parameters are within specified limit, the housing is perfectly assembled.

Contd...

FIG 3
EXPLODED VIEW OF
SOFN 200 SERIES HOUSING
(DRIVE END HOUSING IS SHOWN)

SOFN 200 SERIES BILL OF MATERIAL		
Item no.	Description	Qty.
1	Housing Base	01
2	Housing Cap	01
3	Cap Bolts with Nut	04
4	Taper Dowel Pin with Nut	02
5	Open Side Cover Fan Side	01
6	Open Side Cover Motor Side	01
7	Cover Bolts	18
8	Grease Nipple	02
9	Labyrinth Collar-Big	01
10	Labyrinth Collar-Small	01
11	Grub Screw	06
12	Bearing	01
13	Shaft	01
14	Oil Splash Ring	01
15	Threaded Pin for Splash Ring	01
16	RTD Plug	01
17	Breather Plug	01
18	Oil Inlet Plug	01
19	Eye Bolt	01
20	Drain Plug	03
21	Oil Level Indicator	01
22	Gasket	02

Serial No. in circle
 co-relate Bill of Material



SERIAL NO. IN SQUARE CO RELATE
 OF THE MANUAL ASSEMBLY
 SEQUENCE NO.

ASSEMBLY AND MOUNTING Instruction: for MASTA SOFN series bearing housings

Important Note:

1. All Plugs and connections are supplied with Rubber Rings for sealing to ensure leakage free joints. Ensure they are suitably positioned while assembly.
2. While fitting Oil Level Indicator, drain plugs and guide pin for supporting Oil Splash Ring, use Teflon tape.
In case required, use thread locking oil resistant chemical compound to prevent possibility of oil leakage thru threads.
3. Ensure that the gaskets are not torn from anywhere, particularly near bolt hole, which are the weakest area of gasket and are most susceptible / prone to be damage during repeated disassembly.
4. Whenever housing is opened for any plant maintenance or breakdown, it is advisable to discard existing / used gaskets / Rubber Rings and preferable to use fresh gasket and rubber rings while reassembly of housing.
5. Normally Lubricating Oil has its specified effective life. Ensure to change the Oil after specified run / hours as recommended by bearing / Lubricating Oil manufacturer.
6. PLEASE note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial number of cap and base.
7. Oil Level Indicator has a small hole at the top, to remove the trapped air above the oil column inside. Ensure that this hole is open.
8. Air Breather also has portholes for removing entrapped air to go out from housing. Ensure that they remain open.
9. Covers are also not interchangeable with the other housing. Hence they should be checked for their identification mark for match and fitted correctly while housing assembly. Any mismatch may result in problem with alignment or oil leakage.

10. In practice the SOFN housings are identified by suffix as under:

e.g. SOFN 215 BF ; SOFN 515 AL; etc....

Explanation for the suffix is as under:

BL- Housing is for through shaft and loose (floating) bearing type.

BF- Housing is for through shaft and fix (located) bearing type

AL- Housing is for end shaft and loose (floating) bearing type

AF- Housing is for end shaft and fix (located) bearing type.

To facilitate the users, MASTA SOFN housings are marked with hard punch at the top of housing to indicate the specific housing assembly conform to BL or BF and AL or AF.



- ❖ Refer **Table 2 & Table 3** for Recommended Tightening Torque for Cap bolts and Foundation bolts and oil quantity for housing to be added in bearing housing base.
- ❖ Please note that housing base and cap are not interchangeable with the other housing. Hence it should be thoroughly checked for its serial number and fitted correctly. Match the housing serial no of cap and base.

WATER COOLING COIL ARRANGEMENT IN SOFN HOUSINGS

SOFN housings are usually subjected to continuous and sever service loads. As a result, the running temperature of Bearing may rise beyond permissible temperature limit. This situation will reduce the bearing life and hinder the trouble free operation of the drive.

To avoid such problem, Masta has developed a Water Cooling Coil Arrangement for SOFN housing. See FIG 1. This Water Cooling Coil can be fitted to any Masta SOFN housing easily.

Features of Masta Water Cooling Coil Arrangement:

1. Metal pipe is used having outside diameter of Φ 10mm, Φ 12mm, or Φ 16mm based on housing size.
2. Connectors are provided at the ends of the cooling pipe.
3. The Cooling pipe is fitted to cover with the help of connectors, see FIG 2.

Assembly Steps:

1. While ordering a SOFN housing, it is necessary to specify clearly the requirement of Water Cooling Coil Arrangement in the Order. Accordingly, Masta will make suitable arrangements in the housing covers of SOFN housing.
2. For ease of assembly and operation, the Cooling Pipe arrangement is fitted in the Cover which is at opposite side of the fan, where enough free space available for installing water supply and drain lines.
3. When a Water Cooling Coil is used, install the Oil Splash Ring on the opposite side of the bearing in the housing. Corresponding cover position also changes.
4. To make whole arrangement user friendly, Masta used to supply such SOFN housing duly assembled with Water Cooling Coil on the cover. This arrangement can easily enter the bearing housing without any interference to bearing or any other parts inside the housing.
5. As shown in FIG 3 the connections for cooling water inlet and outlet is provided outside the cover where an user is required to fit the cooling water supply piping at own end.
6. As explained in Masta 'Assembly Manual', follow every step carefully for SOFN housing assembly. Once the cover is fitted on the SOFN housing and the assembly is finalized, water supply and drain line to the Cooling Coil Arrangement to be fitted.
7. To avoid oil leakage from the cooling coil connectors, use an Oil Resistance Sealant to the pipe threads.

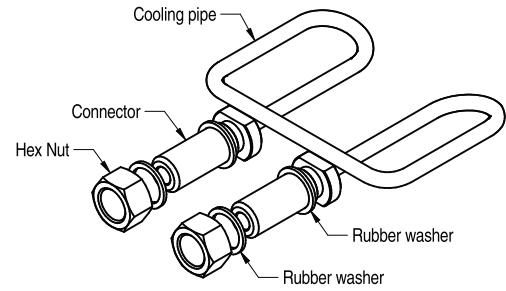


FIG. 1

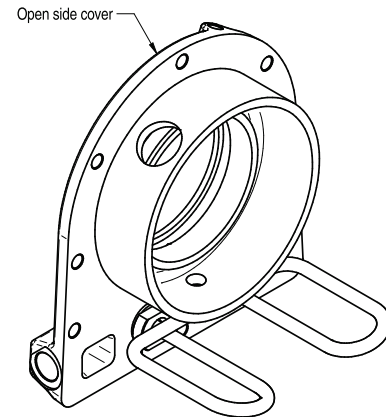


FIG. 2

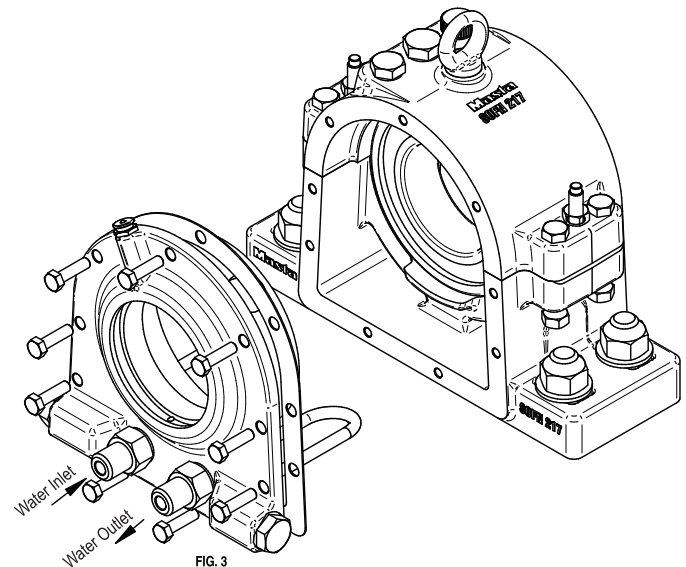


FIG. 3

RECOMMENDED TIGHTENING TORQUE FOR CAP BOLTS & FOUNDATION BOLTS FOR SOFN



TABLE-2	VALUE FOR CAP BOLTS		VALUE FOR FOUNDATION BOLTS		RECOMMENDED		
	BOLT SIZE	TIGHTENING TORQUE Nm	BOLT SIZE	TIGHTENING TORQUE Nm	OIL FILLED QTY. LTR.	OIL LEVEL	
						MAX.	MIN.
SOFN 512-212	M10x55	50	M16	200	0.3	51	33
SOFN 513-213	M10x60	50	M16	200	0.4	51	37
SOFN 515-215	M10x60	50	M16	200	0.5	58	40
SOFN 516-216	M10x70	50	M20	385	0.6	67	48
SOFN 517-217	M10x70	50	M20	385	0.7	63	42
SOFN 518-218	M12x75	80	M20	385	0.8	68	45
SOFN 519-219	M12x80	80	M20	385	0.9	70	50
SOFN 520-220	M12x75	75	M24	665	1.0	70	50
SOFN 522-222	M12x80	80	M24	665	1.3	77	50
SOFN 524-224	M16x100	150	M24	665	1.7	80	60
SOFN 526-226	M16x100	150	M24	665	2.3	85	60
SOFN 528-228	M20x110	200	M30	1310	2.4	85	60
SOFN 530-230	M20x110	200	M30	1310	2.8	90	60
SOFN 532-232	M20x130	200	M30	1310	3.3	95	65
SOFN 534-234	M24x140	350	M30	1310	5.0	105	75
SOFN 536-236	M24x140	350	M30	1310	5.2	115	80
SOFN 538-238	M24x150	350	M36	2280	5.8	120	85
SOFN 540-240	M24x160	350	M36	2280	7.0	125	85
SOFN 544-244	M30x180	400	M36	2280	8.5	140	95
SOFN 548-248	M30x180	400	M36	2280	9.5	155	110

TABLE-3	VALUE FOR CAP BOLTS		VALUE FOR FOUNDATION BOLTS		RECOMMENDED		
	BOLT SIZE	TIGHTENING TORQUE Nm	BOLT SIZE	TIGHTENING TORQUE Nm	OIL FILLED QTY. LTR.	OIL LEVEL	
						MAX.	MIN.
SOFN 610-310	M10x55	50	M16	200	0.3	53	33
SOFN 611-311	M10x60	50	M16	200	0.4	53	37
SOFN 612-312	M10x60	50	M16	200	0.5	60	40
SOFN 613-313	M12x70	80	M20	385	0.6	70	50
SOFN 614-314	M12x70	80	M20	385	0.6	65	45
SOFN 615-315	M12x75	80	M20	385	0.8	71	50
SOFN 616-316	M12x80	80	M20	385	1.0	73	45
SOFN 617-317	M12x75	80	M20	385	1.0	73	53
SOFN 618-318	M16x90	150	M24	665	1.4	80	55
SOFN 619-319	M16x90	150	M24	665	1.3	82	55
SOFN 620-320	M16x100	150	M24	665	1.8	85	57
SOFN 622-322	M16x100	150	M30	1310	2.0	95	67
SOFN 624-324	M20x110	200	M30	1310	2.8	100	65
SOFN 626-326	M20x130	200	M30	1310	3.4	105	70
SOFN 628-328	M24x140	350	M30	1310	4.2	115	70
SOFN 630-330	M24x140	350	M30	1310	6.0	120	75
SOFN 632-332	M24x150	400	M36	2280	6.5	125	80
SOFN 634-334	M24x160	400	M36	2280	7.5	130	85
SOFN 636-336	M30x180	400	M36	2280	10.5	155	90

MANUFACTURING CAPABILITY



- Foundry capacity of 12000 metric tonne per annum.
- DiSA Match high pressure moulding line.
- Arpa moulding machines- 300 and 450.
- Fully automatic cold-core shooting machines.
- Dual track induction furnace.
- Semi-Automatic Heat Treatment Furnace.
- Shot Blasting and Fettling Facilities.
- Conveyor Operated Paint Shop.
- 30000 Nos. of Bearing Housings (Plummer Block) per month.
- Develop 3D Models for patterns. Make Patterns and Toolings on VMC machines.

- Accurately Machined on HMC-CNC Turning Centers, Vertical Machining Centers.
- Testing laboratory for sand, metal and finished products. Non-destructive testing such as U.T., MPT., LPT.
- Masta can produce customised bearing housings as per specific application and customer drawing.
- Micro structure testing facilities. Radiography tests are offered from approved vendors if required.
- Various castings can be produce in Graded Cast Iron, Ductile Iron / S. G. Iron, Cast Steel, Manganese Steel, Hi-Chrome and Alloy Steel.



Creating Value By Technology



SCAN QR CODE TO WATCH ASSEMBLY VIDEOS

Disclaimer : Every care has been taken by us to ensure the accuracy of the data, technical information, drawings or sketches contained in this Assembly Manual, but no liability can be accepted for any error or omission. While using the technical contents given herewith, the users are advised to verify them for its latest version/updates thru media resources or otherwise at their end.

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