

Mechanical Actuators

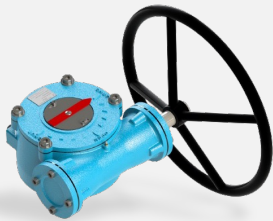
Worm Gear Actuators – Direct & Declutchable
Bevel Gear Actuators



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Worm Gear Actuators

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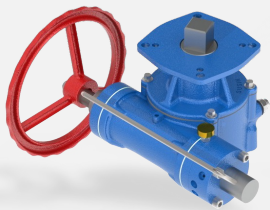


MAW Series

(Mechanical Actuators for Rotary Applications)

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ITG Series

(Declutch Mechanical Actuators for Rotary Applications)

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Bevel Gear Actuators



MAB Series

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Worm Gear Actuators

MAW Series

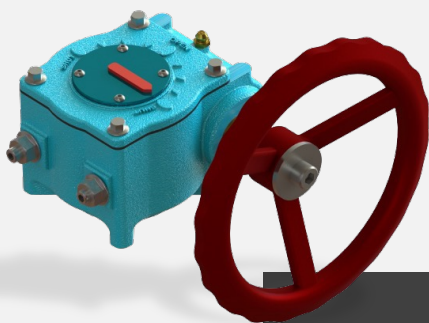
MAW Series Gear Box is rocky with robust design, industrial grade products, manufactured with Cast Iron Housing and Components. These series of gear have easy operating and reliable Surface finish Coatings.

Applications

MAW Series Gear Boxes are suitable for all rotary types of valves like Ball Valve, Butterfly Valves and Plug Valves and Dampers. Also, it is highly suitable for all general-Purpose Industries as well as Chemical, Power, HVAC, and Waterworks industries.

Hand wheels are available in a variety of sizes for Smooth and Easy Operation.

Several Options such as Limit Switch, Electrical Motor can be Easily Mounted on site without any machining due to integration of all necessary incorporated with housing.

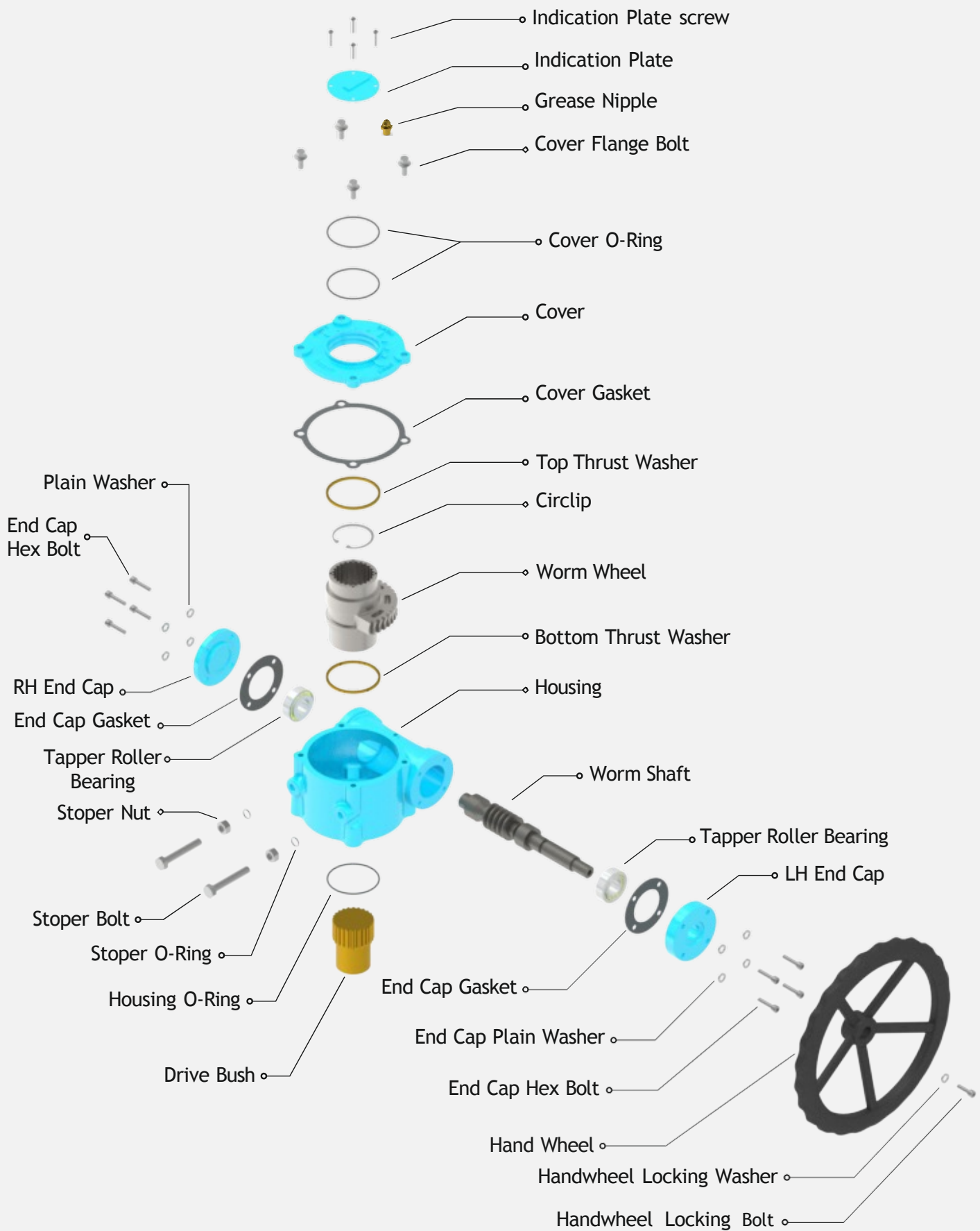


Features

- 9 Models Up to 18,000 Nm Torque Range
- $\pm 5^\circ$ Stroke Adjustment
- IP-67 Rating Protection
- -20°C to +85°C Temperature Range
- Ductile Iron Housing
- Steel Input Shaft (Stainless Steel Optional)
- Ball Bearing Construction
- PU Coating for Housing and Powder Coated Hand wheel

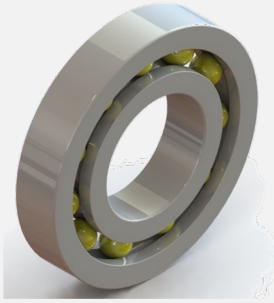


Exploded View - MAW Series



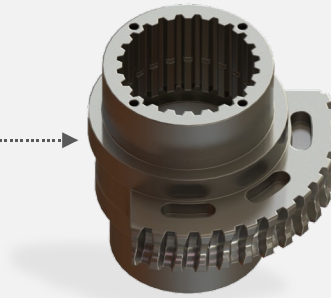


Special Features of Susin Gear Actuators - MAW Series



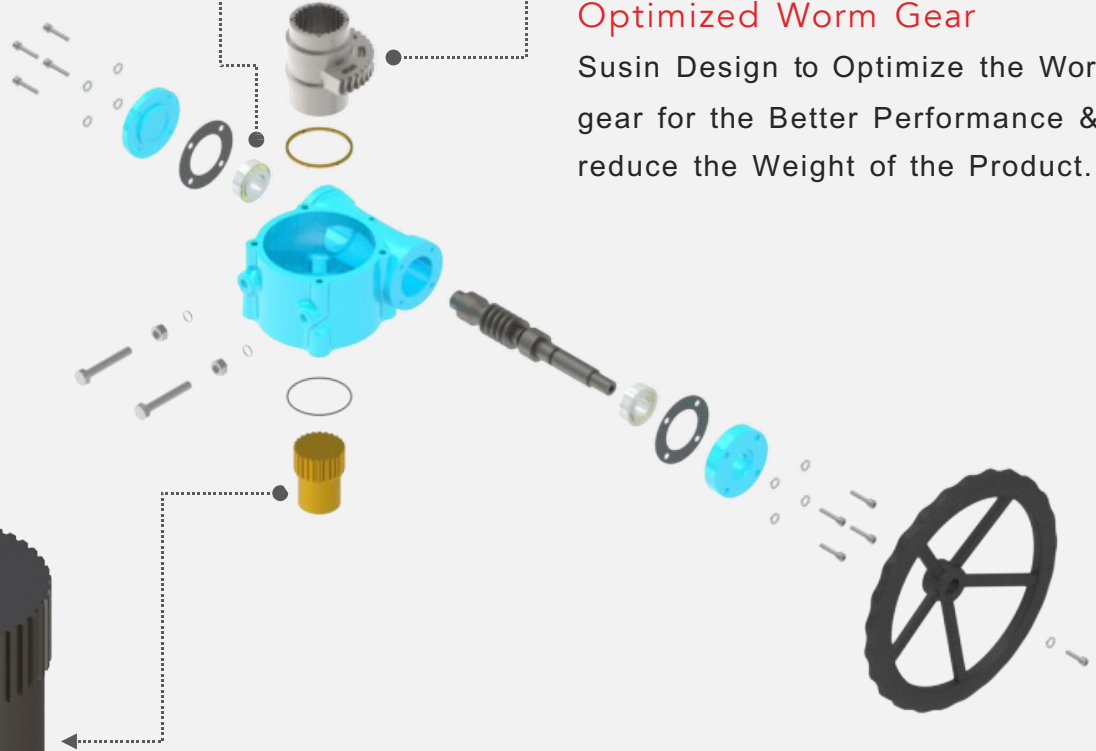
High Performance Bearing

We use Bearing to make the Smooth Operation to Handwheel Shaft & easy to operate the gear Actuator.



Optimized Worm Gear

Susin Design to Optimize the Worm gear for the Better Performance & reduce the Weight of the Product.



Splined Adaptor

We Provide Splined Drive Output Adaptor to connect/suit the Valve Stem with required Valve Shaft design. Spline adaptor provide accurate position & equally Distributed load transmission to gear & Valve Shaft.



Material of Construction - MAW Series



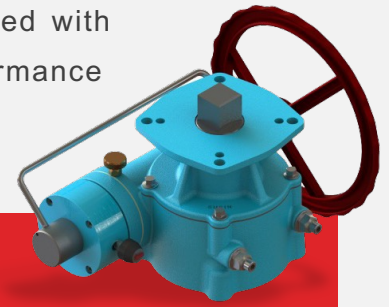
S.No	Description	Material				Qty
		Standard	ASTM	Optional	ASTM	
1	Housing	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
2	Cover	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
3	Worm Wheel	Ductile Iron	A536-80-55-06	Aluminium Bronze	B148-C95800	1
4	Worm Shaft	Carbon Steel	A576-1045	----	----	1
5	RH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
6	LH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
7	Drive Bush	Carbon Steel	A576-1045	WCB -Steel	ASTM A216	1
8	Indication Plate	Carbon Steel	A576-1045	----	----	1
9	Handwheel	Ductile Iron	A536-65-45-12	Stainless Steel	SS-304	1
10	Cover Gasket	NBR	----	Viton	D1418	1
11	End Cap Gasket	NBR	----	Viton	D1418	2
12	Taper Roller Bearing	Special Steel	A295--52100	Special Steel	A295--52100	2
13	Thrust Washer	Special Steel	A295--52100	Special Steel	A295--52100	2
14	Stopper Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
15	Stoper Nut	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
16	Stoper Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
17	Cover Flange Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	5
18	End Cap Hex Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
19	End Cap Plain Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
20	Handwheel Key	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
21	Handwheel Locking Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
22	Handwheel Locking Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
23	Indication Plate Screw	Alloy Steel	A322-4135	Stainless Steel	SS-304	4
24	Grease Nipple	Brass	B584-52100	Brass	B584-52100	1
25	Cover O-Ring	NBR	Buna N	Viton	D1418	1
26	Housing O-Ring	NBR	Buna N	Viton	D1418	1
27	Worm Shaft O-ring	NBR	Buna N	Viton	D1418	1
28	Stoper Bolt O-ring	NBR	Buna N	Viton	D1418	2
29	Circlip	Stainless Steel	SS-304	Stainless Steel	SS-316	1
30	Name Plate	Stainless Steel	SS-304	Stainless Steel	SS-316	1
31	Name Plate Rivet	Stainless Steel	SS-304	Stainless Steel	SS-316	4

*Mentioned specifications are subject to change without prior notice for quality improvement

Worm Gear Actuators

ITG Series

ITG series are rugged, industrial grade manual overrides, manufactured with Ductile Casting housings. All models in this series feature high performance gearings and a superior painted finish.



Applications

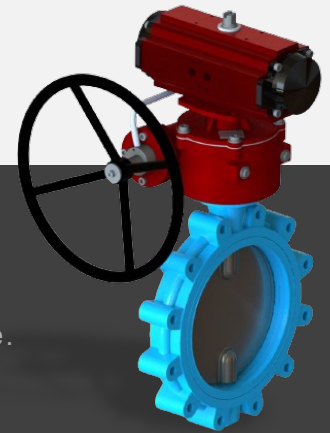
ITG series is designed to provide a manual operation of 90° for shut-off valves & dampers which are equipped with pneumatic rotary actuators.

ITG series provides a declutch able design for use in all industries where a reliable operation of both double acting and spring return pneumatic actuators is required. All units which are to be mounted between the valve and actuator are supplied with actuator mounting flange for flexible usage.

Furthermore, all units can be supplied with plain machinable drive shaft which is connecting the actuator with the valve.

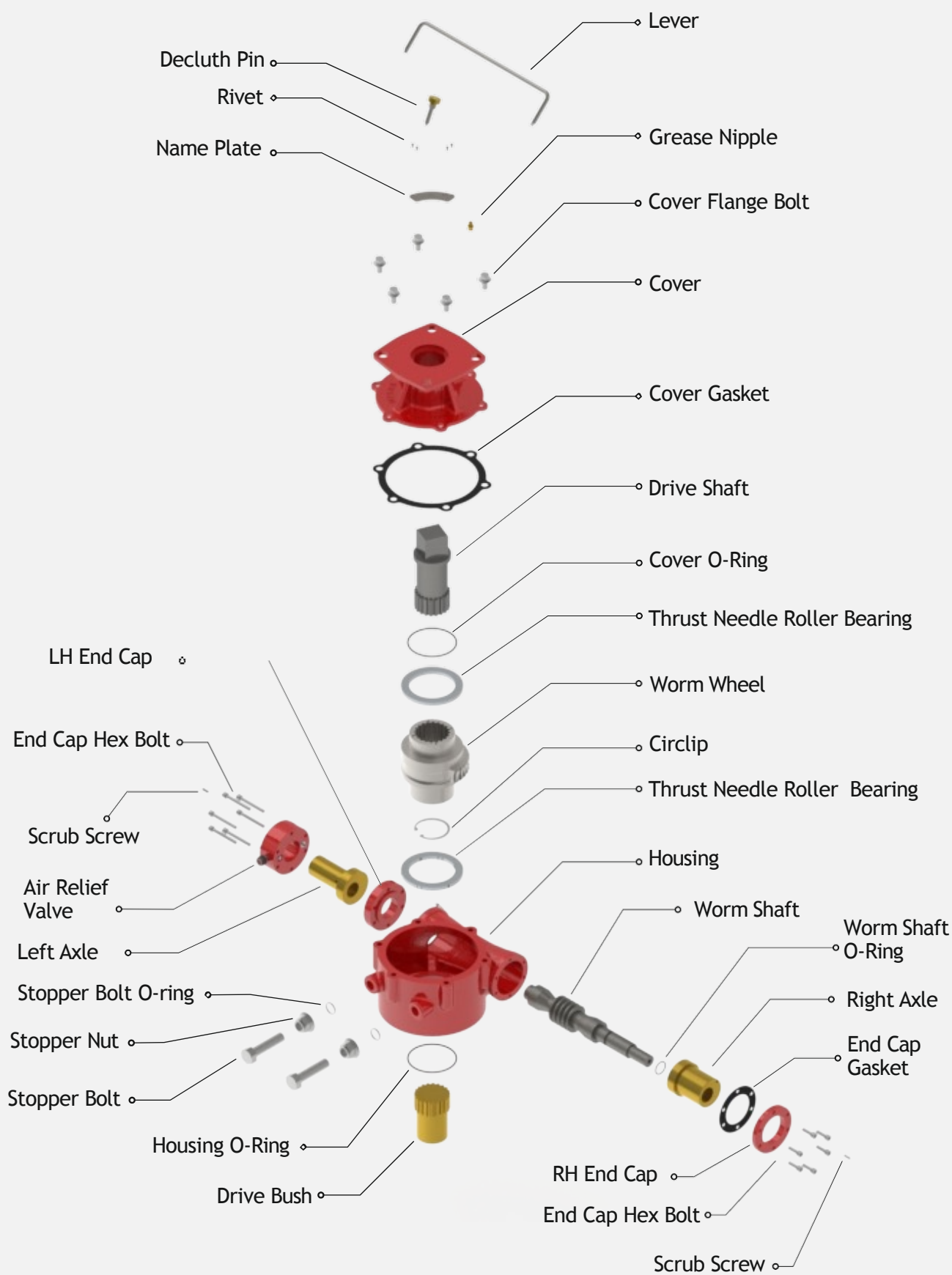
Features

- Compact Ductile Casting Housing body and Moulding Structure.
- Hardened Worm gears & Surface treated internal components.
- Integrated Air Relief System.
- Lever Locking Mechanism for Automatic and Manual.
- A One-Piece Drive Shaft for PLY reduction.
- Adequate Coating for Marine Working Environment with customized colours.
- Proficiency for Addon Attachment like Proximity Sensors.
- Easy Repair and Service
- IP-67 Protection.
- Declutch able handwheel.
- Mounting flanges conforming to ISO5211.
- Easy Adjustable Mechanical Stoppers to Control the Limits of Opening/Closing.
- Detachable drive bush to suit the Valve Size Connection.





Exploded View - ITG Series

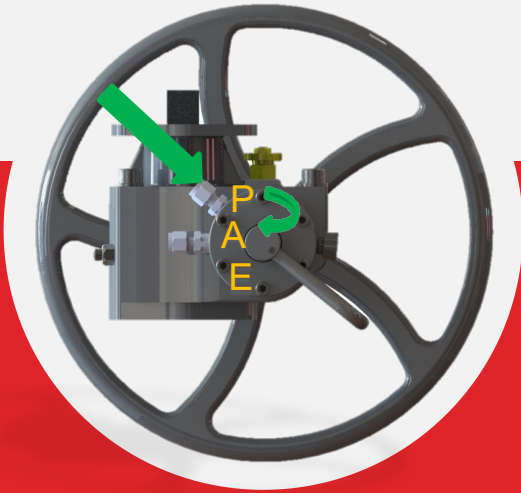




Air Relief Valve System

The Purpose of this Specially Designed ARV Series to exhaust the Excess Instrument Air from the Pneumatic Actuators to operate the Gear Operators easily.

ARV Series having two functional Mode- "Auto Mode" & "Manual Mode"

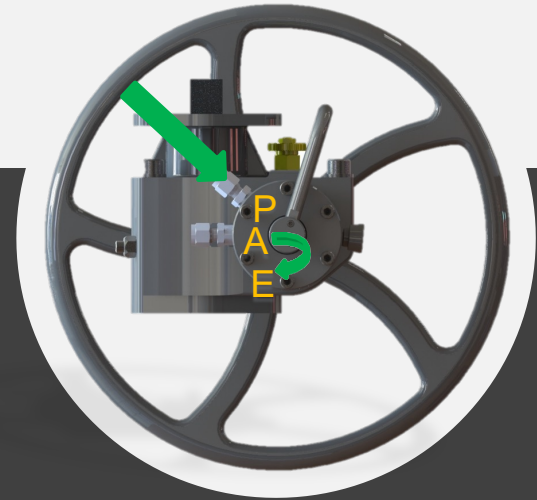


Auto Mode

- P – Input Air Port
- A – Solenoid Air Port
- E – Released Air Port (Muffler can be connected)
- In Auto Mode Actuators works from
- The air from 'A' the Sliding Pin Locked in Auto mode.
- There is no air flow in the 'E' Exhaust

Auto Mode Functionality

When it is in Auto mode then Pneumatic Actuator drives the Valve Stem through Gear Operator without loading the Gear Actuators. Instrument Air from Compressor will pass into Port "P" to Port "A" where the Air travels from compressor to Solenoid Valve Port Then Enters into the Actuator System to perform the valve Functions.



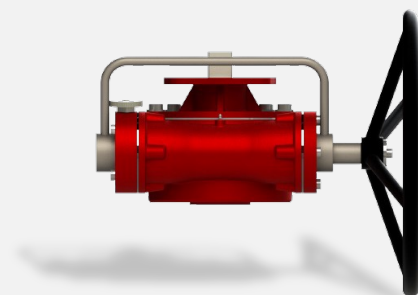
Manual Mode

- P – Input Air Port
- A – Solenoid Air Port
- E – Released Air Port (Muffler can be connected)
- In Manual Mode A – E Route release
- The air within the actuator
- There is no air flow in the 'A' Solenoid Air Port

Manual Mode Functionality

When it is in Manual mode then Manual override drives the Valve Stem through Gear Operator Handwheel. Instrument Air Inside the Actuator will pass into Port "A" to Port "E"- Exhaust Valve Port where the Air travels from Solenoid Valve Port to Exhaust valve Port "E" to vent the Instrument Air from the Actuator System to perform the valve Functions with Manual Override.

Material of Construction - ITG Series

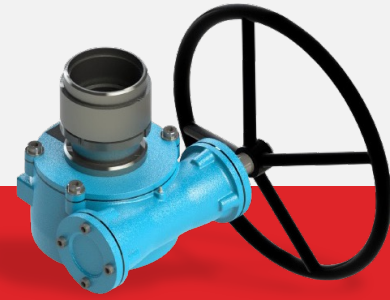


S.No	Description	Material				Qty
		Standard	ASTM	Optional	ASTM	
1	Housing	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
2	Cover	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
3	Worm Wheel	Ductile Iron	A536-80-55-06	Aluminium Bronze	B148-C95800	1
4	Worm Shaft	Carbon Steel	A576-1045	----	----	1
5	Air Relief Valve	Aluminium Alloy	----	----	----	1
6	RH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
7	LH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
8	Rigth Axle	Carbon Steel	A576-1045	WCB -Steel	ASTM A216	1
9	Left Axle	Carbon Steel	A576-1045	WCB -Steel	ASTM A216	1
10	Drive Bush	Carbon Steel	A576-1045	WCB -Steel	ASTM A216	1
11	Drive Shaft	Carbon Steel	A576-1045	WCB -Steel	ASTM A216	1
12	Handwheel	Ductile Iron	A536-65-45-12	Stainless Steel	SS-304	1
13	Lever	Carbon Steel	A576-1045	Stainless Steel	SS-304	1
14	Cover Gasket	NBR	----	Viton	D1418	1
15	End Cap Gasket	NBR	----	Viton	D1418	2
16	Taper Roller Bearing	Special Steel	A295--52100	Special Steel	A295--52100	2
17	Thrust Needle Roller Bearing	Special Steel	A295--52100	Special Steel	A295--52100	2
18	Stopper Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
19	Stopper Nut	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
20	Stopper Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	2
21	Cover Flange Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	5
22	End Cap Hex Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
23	End Cap Plain Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
24	Handwheel Key	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
25	Hnadwheel Locking Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
26	Handwheel Locking Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
27	Indication Plate Screw	Alloy Steel	A322-4135	Stainless Steel	SS-304	4
28	Grease Nipple	Brass	B584-52100	Brass	B584-52100	1
29	Cover O-Ring	NBR	Buna N	Viton	D1418	1
30	Housing O-Ring	NBR	Buna N	Viton	D1418	1
31	Worm Shaft O-ring	NBR	Buna N	Viton	D1418	1
32	Stopper Bolt O-ring	NBR	Buna N	Viton	D1418	2
33	Circlip	Stainless Steel	SS-304	Stainless Steel	SS-316	1
34	Name Plate	Stainless Steel	SS-304	Stainless Steel	SS-316	1
35	Name Plate Rivet	Stainless Steel	SS-304	Stainless Steel	SS-316	4

*Mentioned specifications are subject to change without prior notice for quality improvement

Worm Gear Actuators

MTG - Multi turn Gear Actuator Series



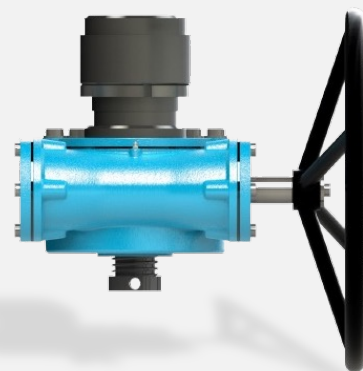
Applications

MTG SERIES ACTUATORS designed for MTG Manual Override Side Mounted Assembly for the Linear Cylinder Gate/Globe Valve Applications. During Failure of Main Sources of any Actuators, we can use our MTG Series to Operate the Gate/Globe Valve for the Emergency or any Specific conditions.

Our MTG SERIES ACTUATORS has Unique Design features to Provide Higher Efficiency Outputs through Worm Gear Constructions. This leads to reduce the Efforts to Operate the Valves Efficiently.

MTG Series de-clutch able manual override offers a simple and reliable. Method for manual operation of linear Valves, fitted with pneumatic actuators.

The Gear box is of rugged Construction and Suitable for indoor and outdoor use. It is designed for simple and reliable manual positioning of Valves. Self-Locking Worm Gear brings a long life and safe Operations.

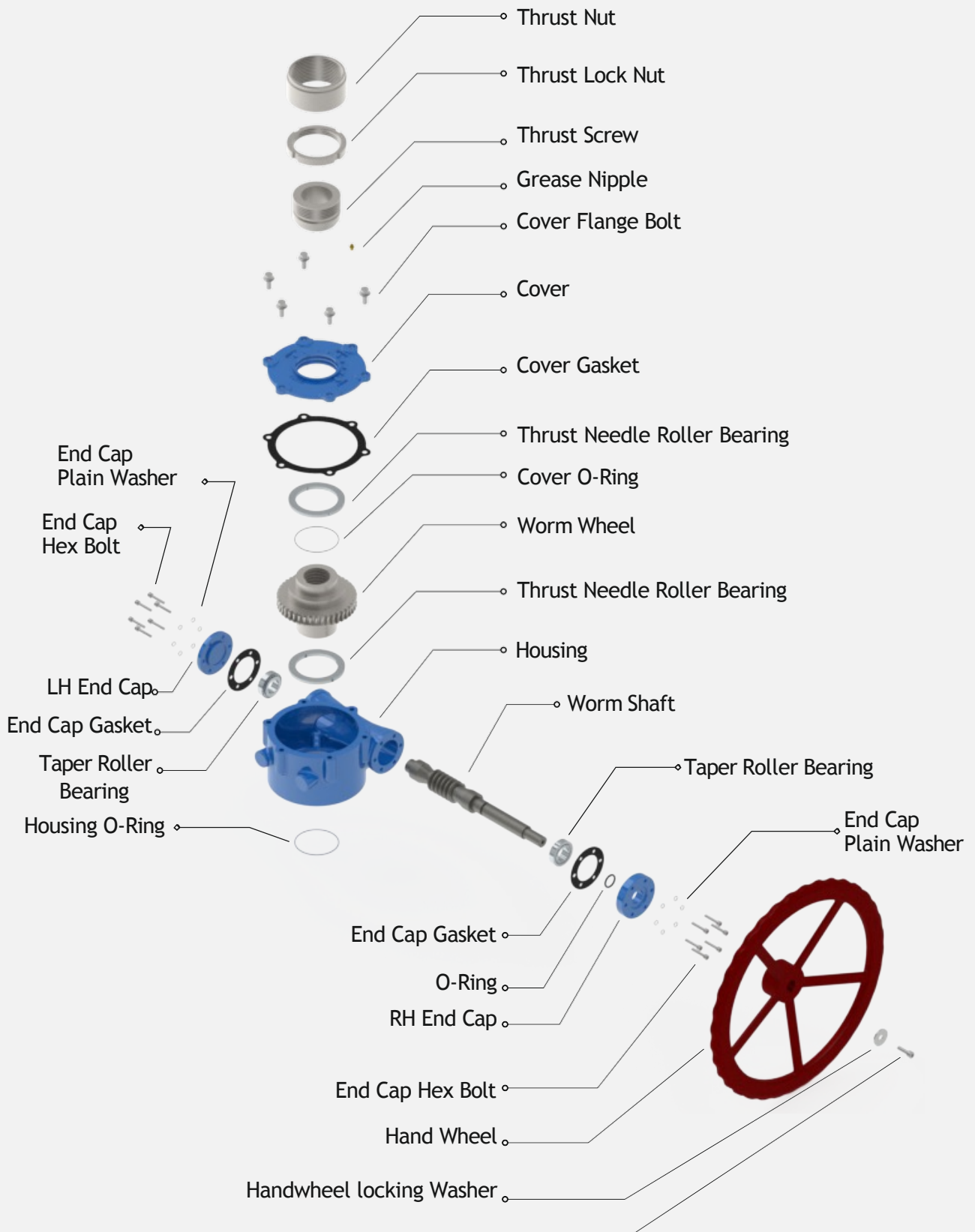


Features

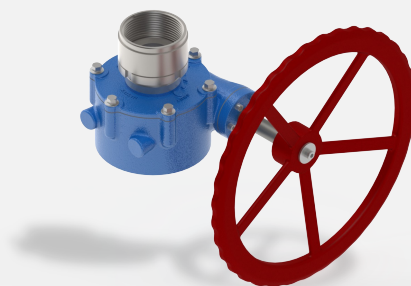
- Ductile Casting Iron for both Housing & Cover.
- Lever Locking Mechanism for Auto and manual.
- Epoxy primer coated housing and cover.
- Special Lubricants used.
- Roller Bearing equipped for Smooth Operations.
- Used for high stroke length.
- Manual engagement & disengagement at any position.
- Self-locking.
- Extended support for high length hand wheel.
- Hardened worm and worm gear
- Ease to Operate through Comfort Handwheels.
- IP-67 Protection.
- Support with Self-Lubricating Bushes for Worm.
- High Thrust Bearings used to withstand Load.



Exploded View - MTG Series

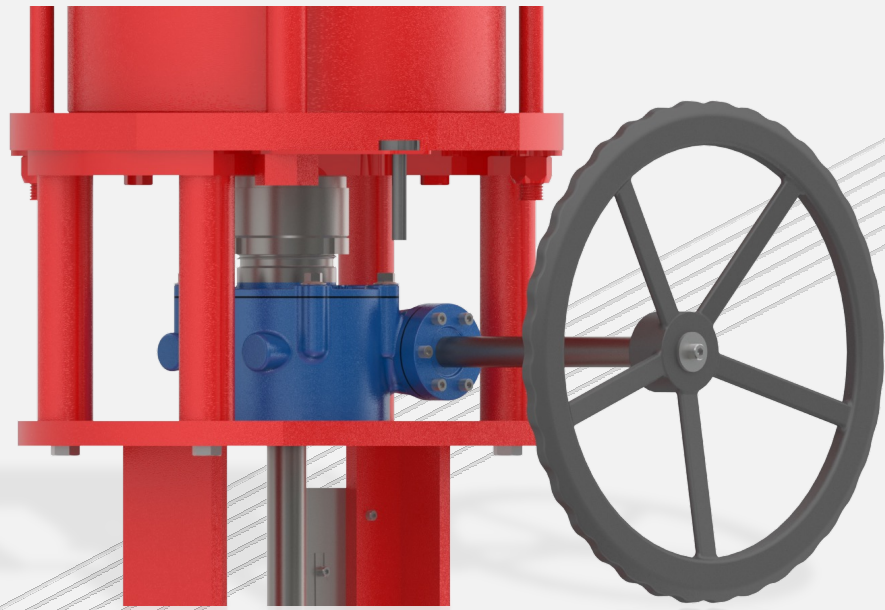


Material of Construction - MTG Series

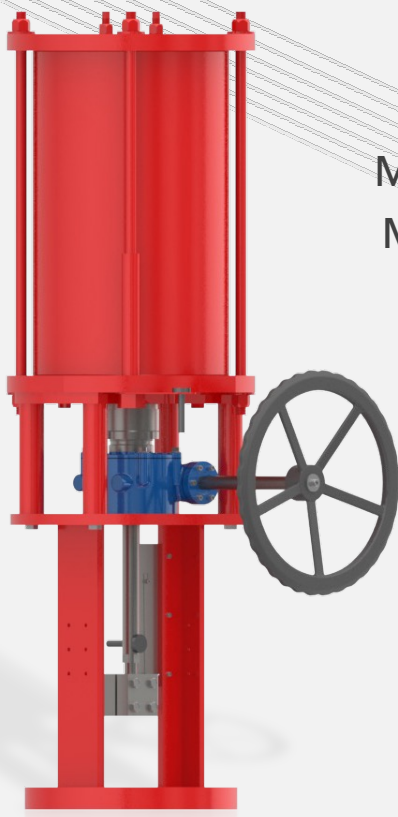


S.No	Description	Material				Qty
		Standard	ASTM	Optional	ASTM	
1	Housing	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
2	Cover	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
3	Worm Wheel	Ductile Iron	A536-80-55-06	Aluminium Bronze	B148-C95800	1
4	Worm Shaft	Carbon Steel	A576-1045	-----	-----	1
5	RH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
6	LH End Cap	Ductile Iron	A536-65-45-12	WCB -Steel	ASTM A216	1
7	Handwheel	Ductile Iron	A536-65-45-12	Stainless Steel	SS-304	1
8	Thrust Nut	Carbon Steel	A576-1045	Stainless Steel	SS-304	1
9	Thrust Lock Nut	Carbon Steel	A576-1045	Stainless Steel	SS-304	1
10	Thrust Screw	Carbon Steel	A576-1045	Stainless Steel	SS-304	1
11	Cover Gasket	NBR	-----	Viton	D1418	1
12	End Cap Gasket	NBR	-----	Viton	D1418	2
13	Taper Roller Bearing	Special Steel	A295--52100	Special Steel	A295--52100	2
14	Thrust Needle Roller Bearing	Special Steel	A295--52100	Special Steel	A295--52100	2
15	Cover Flange Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	5
16	End Cap Hex Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
17	End Cap Plain Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	8
18	Handwheel Key	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
19	Handwheel Locking Washer	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
20	Handwheel Locking Bolt	Alloy Steel	A322-4135	Stainless Steel	SS-304	1
21	Grease Nipple	Brass	B584-52100	Brass	B584-52100	1
22	Cover O-Ring	NBR	Buna N	Viton	D1418	1
23	Housing O-Ring	NBR	Buna N	Viton	D1418	1
24	Worm Shaft O-ring	NBR	Buna N	Viton	D1418	1
26	Name Plate	Stainless Steel	SS-304	Stainless Steel	SS-316	1
27	Name Plate Rivet	Stainless Steel	SS-304	Stainless Steel	SS-316	4

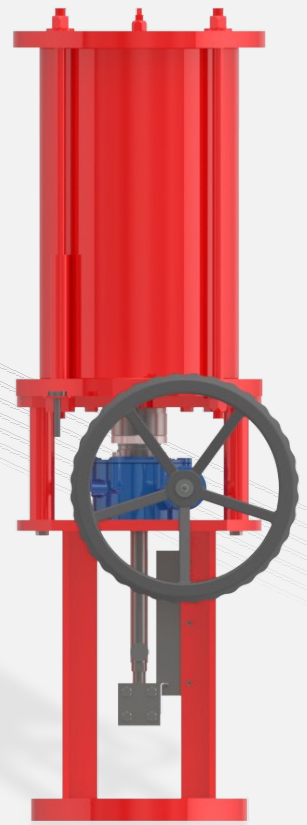
*Mentioned specifications are subject to change without prior notice for quality improvement



MTG Series Actuators Installed on Susin PLDS Series Linear Cylinders



MTG Manual Override Side Mounted Assembly for the Linear Cylinder Valve Applications.



Bevel Gear Actuators

MAB Series

Bevel gears are gears where the axes of the two shafts intersect and the tooth-bearing faces of the gears themselves are conically shaped.

A bevel gear is used to transfer mechanical energy or shaft power between shafts that intersecting, either perpendicular or at an angle

We focus to build our MAB (Mechanical Actuator Bevel Series) to meet the requirement for the specify industries like Oil & Gas, Power, Water, General, Wind, Steel and etc.

Most suitable for Gate & Globe valves with different material construction to adopt with all the critical environmental conditions.

Applications

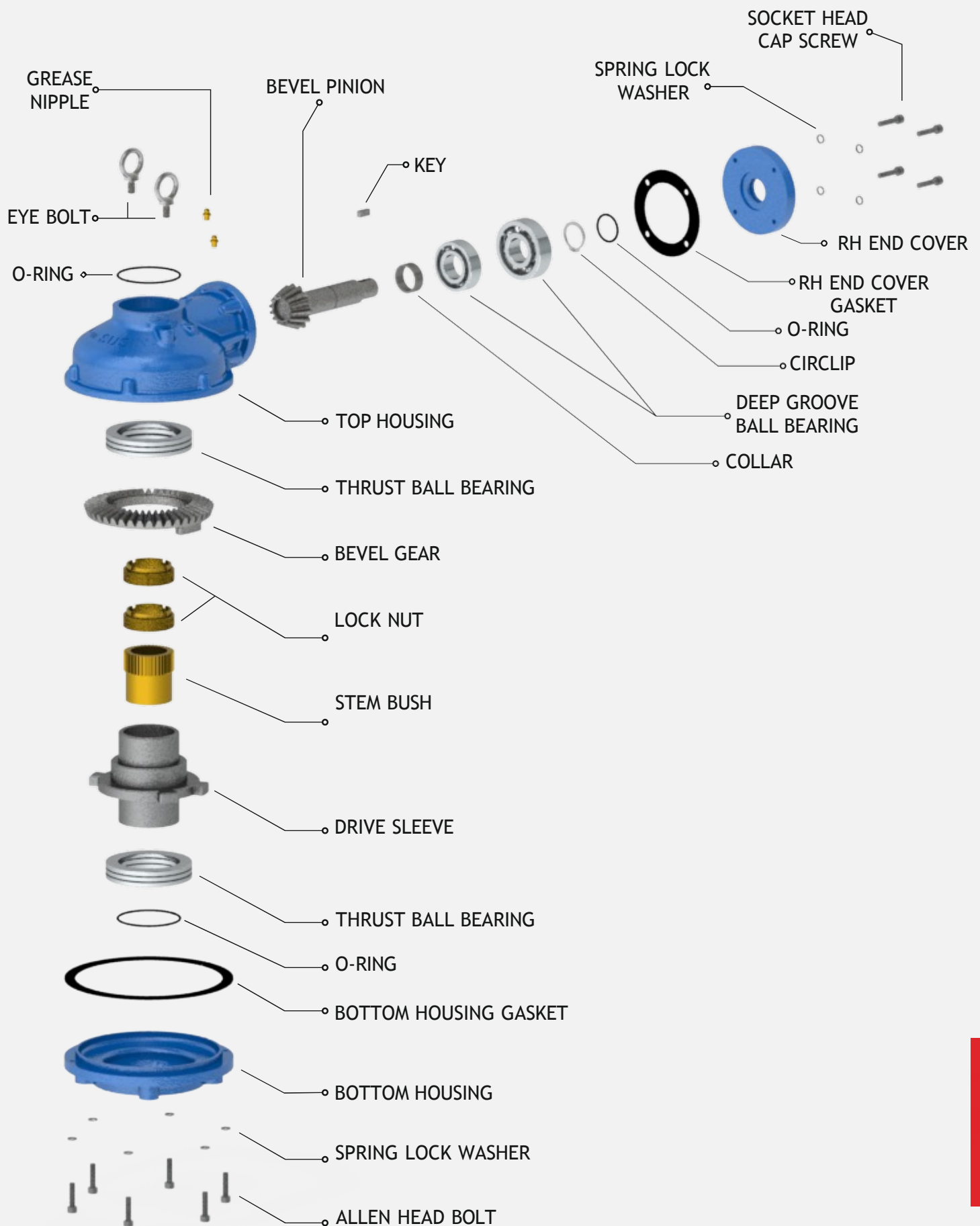
- Ductile casting housings & covers
- With stem nut as screw jack
- Rating IP-67 protection
- High & low temperature version
- Suitable for ambient temperature -40°C to 80°C
- High performance bearings
- Widely used on the Gate & Globe valves
- Top quality corrosion protection with powder coating



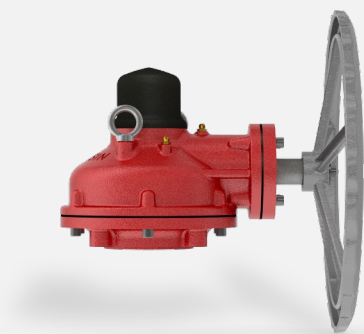
Drive Sleeve

- Easily replaceable splined stem bush has been permitted inside the drive sleeve.
- Dual locknuts has been permitted to arrest the movement of the stem bush.
- Highly strengthen brass material has used for the stem bush

Exploded View - MAB Series



Material of Construction



S.No	Description	Material			
		Standard	ASTM	Optional	ASTM
1	Top Housing	Ductile Iron	A536-65-45-12	WCB Steel	A216
2	Bottom Housing	Ductile Iron	A536-65-45-12	WCB Steel	A216
3	Bevel Gear	Carbon Steel	A576-1045		
4	Bevel Pinion	Carbon Steel	A576-1045		
5	Rh End Cover	Ductile Iron	A536-65-45-12	WCB Steel	A216
6	Stem Bush	Brass	B584-C86500	Bronze	B505-C86300
7	Lock Nut	Carbon Steel	A576-1045	Brass	B584-C86500
8	Drive Sleeve	Ductile Iron	A536-65-45-12	WCB Steel	A216
9	Handwheel	Ductile Iron	A536-65-45-12	Stainless Steel	SS 304
10	Collar	Steel pipe	A53	---	---
11	Bottom Housing Gasket	NBR	Buna N	Viton	D1418
12	Rn End Cover Gasket	NBR	Buna N	Viton	D1418
13	Thrust Ball Bearing	Bearing Steel	A295-52100	---	---
14	Deep Groove Ball Bearing	Bearing Steel	A295-52100	---	---
15	Allen Head Bolt	Alloy Steel	A322-4135	Stainless Steel	SS 304
16	Spring Lock Washer	Alloy Steel	A322-4135	Stainless Steel	SS 304
17	Handwheel Locking Washer	Alloy Steel	A322-4135	Stainless Steel	SS 304
18	External Circlip	Stainless Steel	SS 304	Stainless Steel	SS 316
19	Eye Bolt	Stainless Steel	SS 304	Stainless Steel	SS 316
20	Grease Nipple	Brass	B584-C86500	---	---
21	O-ring	NBR	Buna N	Viton	D1418
22	Hand Wheel Key	Alloy Steel	A322-4135	Stainless Steel	SS 304
23	Name Plate	Stainless Steel	SS 304	Stainless Steel	SS 316
24	Name Plate Rivet	Stainless Steel	SS 304	Stainless Steel	SS 316

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Casting Wheel

Hand Wheel Series

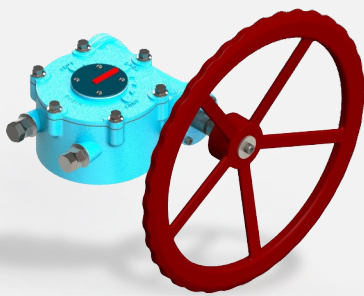
Handwheels are manually-operated devices that revolve around an axis. Handwheels typically perform one of two operational tasks.

They enable movement and precise adjustment to machinery or carefully open and close a valve.



Features

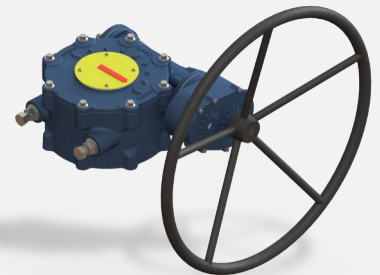
- Fine grain cast irons.
- All cast iron wheels have multiple spokes and grips. Available with or without handle.
- Multiple colours of Epoxy Finish available upon request.



Fabricated Wheel

Hand Wheel Series

Handwheels typically perform one of two operational tasks. They enable movement and precise adjustment to machinery or carefully open and close a valve.



Features

- 200mm to 710mm range of diameters.
- Stainless steel or powder coated.
- Keyed, Pinned or Squared drive
- Optional open and close indication marking, locking plate, rotating handles.
- Multiple colours of Epoxy Finish available upon request



Chain Wheel

To operate overhead valves from the floor

Ductile Iron, Carbon Steel

- Chain wheels allow operation of valves in high, hard to reach locations by means of a slight pull
- On the smooth chain. Universal design allows chain wheel to be clamped to handwheel or pinned directly to valve stem.
- When chain wheel is to be pinned to valve stem, a ductile iron bushing will be provided which can be machined to suit valve stem dimensions. Bushing and chain wheel will be pre-drilled with pin hole and supplied with a stainless-steel pin for customer mounting to valve stem.
- Drilling of valve stem by customer.

Diameter of Chain wheel	Weight
4"	3
6"	5
8"	10.3
10"	13.8
12"	15.3
14"	20.5
15 ½"	22
19"	31.5
22"	41.7
26"	48.6
30"	61



Note :

Chain is provided in continuous lengths with Stainless steel material. Easily cut and reconnected in the field to suit exact job requirements. When ordering, give up the chainwheel size and number of feet of chain required.

Chain Wheel

To operate overhead valves from the floor

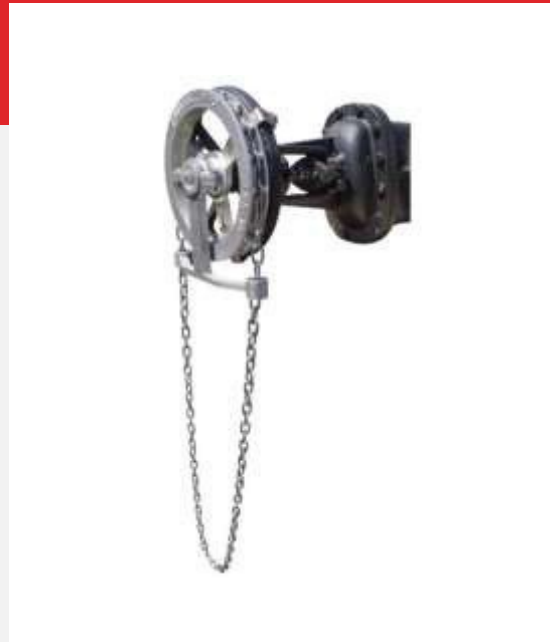


Applications:

Chain Wheel can be used by mounted directly on the valve to be freely rotated using the chain wheel with the smooth chain link. The valve may locate overhead of the floor can be operated by using the chain which was freely hanging at length below nearer to human. This smooth chain link available with stainless steel material to avoid rust formation.



Note: Straight link machine chain fits in pockets in the wheel. The smooth chain link provides more comfortable operation.

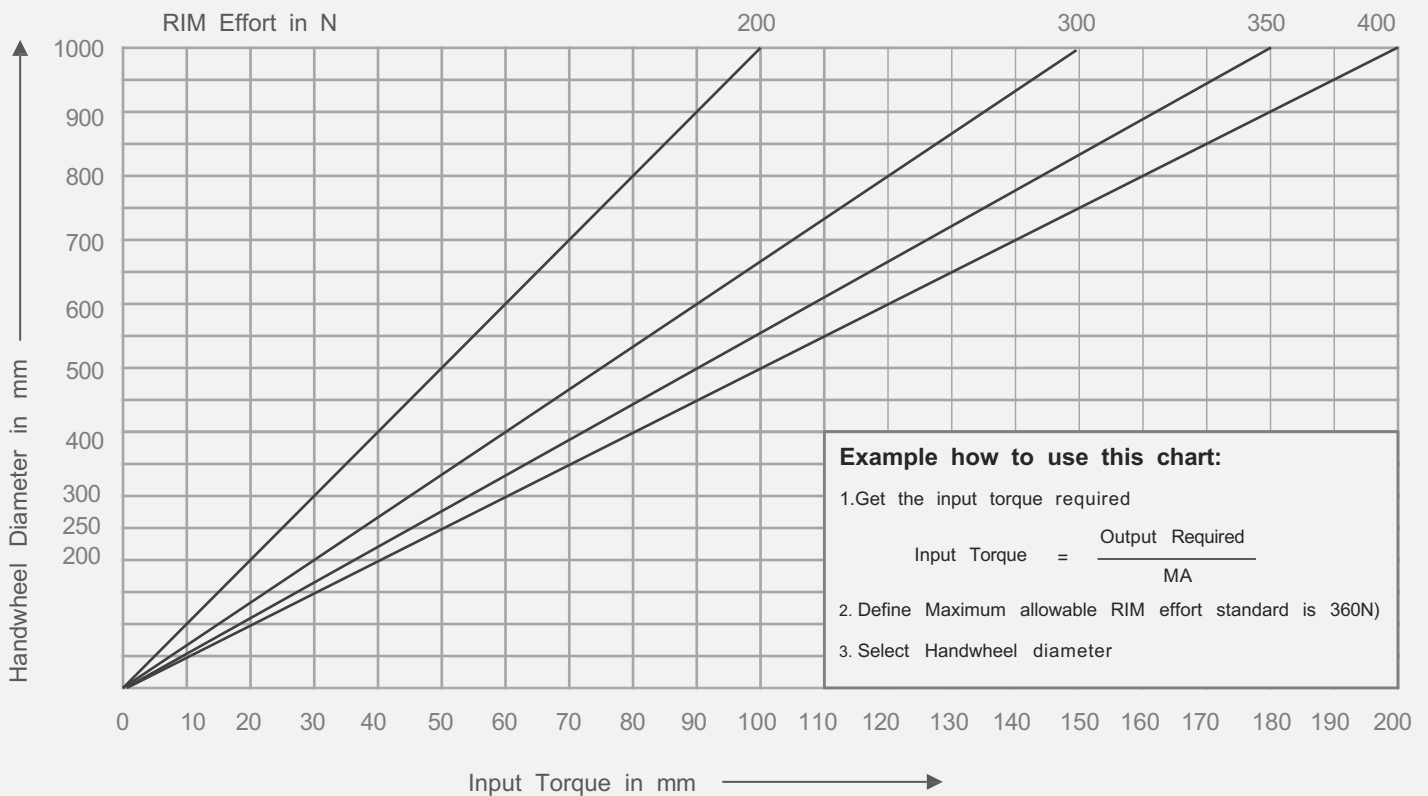


Chain wheel can be used by mounted with the gear box directly on the valve to be freely rotated using the chain wheel with the smooth chain link. The valve may locate overhead of the floor can be operated by using the chain which was freely hanging at length below nearer to human. This smooth chain link available with stainless steel material to avoid rust formation.



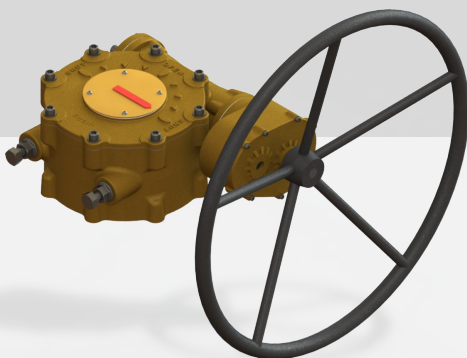


RIM Effort Calculation



RIM Effort and Selection of Hand Wheel Diameter for MTG - 100

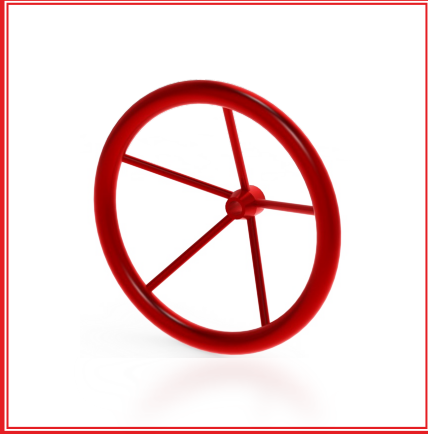
- Input Torque – 60
- Maximum allowable rim effort a human can produce is 360 N (Standard)
- Hand wheel diameter from the chart is 300 mm





Handwheel Details :

- Varies type of handwheel & chain wheel can be offered by Susin.
- Handwheel operation should not add friction to the actuator.
- High quality material has been used for best construction.



Fabricated Wheel
Ranges from 8" to 40"



Chain Wheel
Ranges from 8" to 20"



Casting Wheel
Ranges from 8" to 20"

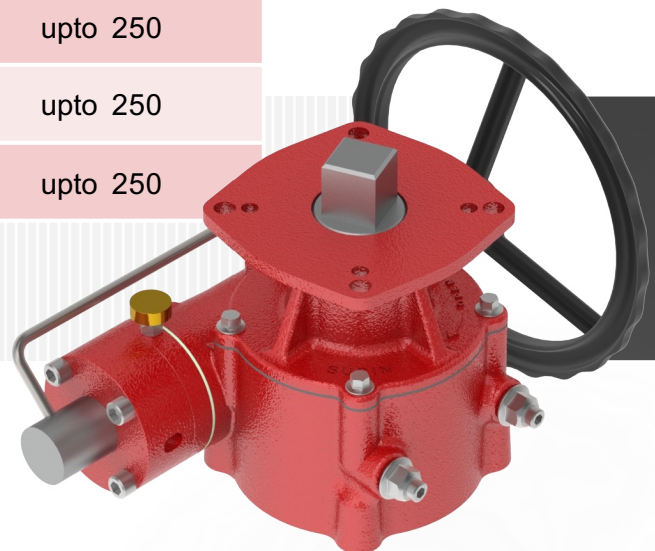
Painting Details

ISO 12944-2 has used for the best painting quality.

We provide special custom for marine applications and we can able to custom build color as per the customer requirement if it is possible.

We are providing our products in the following standard colors

Color Name	Color Code	Range (Micron)
Traffic Blue	RAL 5017	upto 250
Brown Red	RAL 3011	upto 250
Jet Black	RAL 9005	upto 250





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