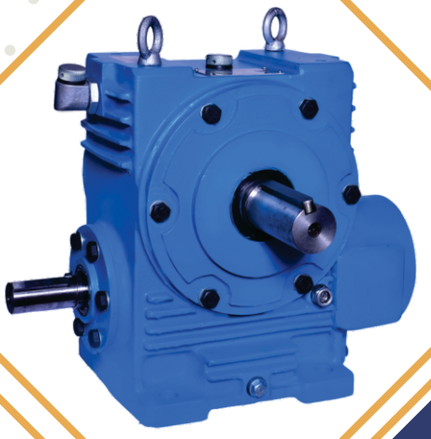
SINCE : 1989

MICRO
gears



MOTION
TOWARDS
TECHNOLOGY

MICRO PRECISION WORKS

A comprehensive collection of power transmission products

INTRODUCTION

The MICRO Precision Works was established in 1989 in Ahmedabad, Gujarat, INDIA. In the beginning period of the company was manufacturing the High-Quality Precision Engineering Components as well as doing job works for many reputed companies of India.

Day by Day our company had earned large amount of technical and mechanical experience in power transmission technology and started to do manufacture a smaller size of gearboxes in 1996 under brand name of MICRO.

Today, We the MICRO Precision Works are one of the leading manufacturer and exporter of various products such as Shaft Mounted Speed Reducers (SMSR), Worm Gear Reducers, Helical Gear Reducers, Bevel Gearboxes, Bitumen Transfer Pumps and many other power transmission products.

We are serving all these products to various industries such as Stone Crushing & Mining Industries, Asphalt Plants, Cement & Sugar Industries, Food Processing Industries, Ceramic & Bricks Industries and Pharmaceutical Industries.

MICRO Precision Works is an ISO 9001 : 2008 Certified company by Joint Accreditation System of Australia and New Zealand. We use ultramodern machinery and technology for fabricating our range using superior quality raw material, which is procured from the reliable sources of the industry, strictly in compliance with the International Quality Standards.

MISSION

We will continue to be the first name in the region's Power Transmission Industry by reinforcing our assets and resources in order to achieve growth, operational and organizational excellence and positive in the economical and positive social expansion of the INDIA.

VISION

We endeavor to be recognized as one of the leading and constantly growing force in the Power Transmission Industry of the region, and to be admired for our business culture and adding value to our customers and enhancing inspiration to our people.

OBJECTIVES

- Be focused on a result, not an activity
- Be consistent
- Be specific
- Be measurable
- Be related to time
- Be attainable

OUR TEAM

MICRO PRECISION WORKS consist of highly qualified professionals and freshly skilled industry experts, who prove themselves the backbone of our company. The team comprises of engineers, designers, quality controllers, and technicians. They work in close co-ordination with each other, to come up with the best quality and range of gear boxes and machinery products. Our engineers and designers fully understand the needs and requirements of our clients and customize the products accordingly.

INFRASTRUCTURE

Our plant is situated in Ahmedabad City of Gujarat state, which is considered to be second best state in India having good Business community and high growth rate. Our automatic and advanced technological plant is situated on sufficient area for durable production in Industrial zone.

For the systematic and smooth work process, we have an ultra-modern infrastructural set up. This infrastructure is categorized into several parts such as procurement, manufacturing, quality-control, production, research and development and warehousing & packaging.

This state-of-the-art infrastructural unit is installed with the advanced machinery and tools in order to meet the urgent demands of customers within time. These process are supervised by our team of experts who have rich experience and knowledgeable in the domain.

RESEARCH & DEVELOPMENT

Where R & D is concerned, the focus is two-pronged: One, to continuously launch revolutionary, pioneering products and the other to constantly upgrade the current processes. This way, it improves both effectiveness and efficiency as per the requirement of the market and customers.

Q. C. DEPARTMENT

Micro Precision Works have excellent infrastructure with modern facilities and sophisticated machineries to provide superior quality products. At every stage of production care is taken by engineers and experts. Every gearbox is strictly checked and tested with quality parameters before dispatch.

POLICIES

Due to our wide years of industry knowledge and experience, we are providing a wide range of Power Transmission Products with best parameters of quality and service to our customers. And these are the factors for which we have received appreciation from our clients includes.

- Well-Established Infrastructural Unit
- Qualitative Range of Product
- Competitive Price
- Skilled Team of Professionals
- Prompt Delivery
- Easy Payment Modes

QUALITY POLICY

"Quality is an Attitude" is our slogan, meant we are attached with high degree of importance to the quality, performance and durability of our products. Our quality Management System has been certifi ed as an **ISO 9001:2015**Accreditation by JAZ ANZ Auditors. We strive hard to consistently achieve high standards in our products and services. We undertake stringent quality control measures to ensure our products conform to international standards.

We also have well-equipped testing facilities to ascertain that each of our reduction gear boxes and gears pertain to the international quality standards. It is a standard practice at MICRO PRECISION WORKS to undergo in process inspection at
each manufacturing level and of course the dispatch takes place only after fi nal inspection is carried out on each gearbox.

EXPORT POLICY

We have stepped into international market such as Europe, U.A.E. and African Countries. In addition, Our Company is also looking to do fruitful business and promote our brand across the globe. Our professional team always ready to communicate, understands requirements and offer best competitive prices to the international clients by additional care.

We cater the world class gear products with highest quality standards and supported by a strong logistics across the globe with different pricing structure like FOB, CIF, C&F etc.

SALES & SERVICE POLICY

We believe in after-sales-service, we also provide various customer-oriented services for the benefi t of our clients. We provide customization as well as timely delivery of the products and service as per our client's requirements. Our team is always open to assists our customers in every possible manner. All these factors have helped us in achieving maximum client satisfaction, loyalty and long-term business.

GUARANTEE

Every **MICRO** Gearbox is guaranteed for 12 months against manufacturing defects. If any gearbox is becoming defective within guaranteed period the same will be repaired or replaced free of charge provided it is sent to our works on site carriage paid. Any defect caused by accident on transit or misuse is not covered by guarantee.

CLIENT SATISFACTION

Our ultimate aim is to attain highest level of client satisfaction. We make countless efforts in order to satisfy our clients. Our products are manufactured using high-grade raw material and in compliance with set standards. Owing to our team and technologies, we have been able to meet bulk demand of our clients. In addition to this, our wide spread network enables us to deliver products on time. We make use of various transportation modes to deliver the products within the stipulated period of time.

SHAFT MOUNTED SPEED REDUCERS

MICRO Shaft mounted speed reducers are compact and metric in design throughout and conforms to international standards. MICRO shaft mounted speed reducer provides a very convenient method of reducing speed, since it mounted directly on the drive shaft instead of requiring foundation of its own.

A direct mounting attribute ensures positive and permanent alignment of the gear reducer and permits convenient location of the motor and eliminates the use of Couplings, Chain Wheel or Pulley. It is also minimize the space requirements and layout problems. A torque arm (tie rod) anchors the gear reducer and provides quick, easy adjustment of the V Belts by means of its turnbuckle.

Shaft Mounted Speed Reducers designed to meet any position requirements and provides wide range of output speed and it is suitable for both forward and reverse motion.

MICRO Shaft Mounted Speed Reducers are manufactured in seven gear case sizes, designated by the letters C to J. The all seven sizes may have four nominal gear ratios 05:1, 13:1, 20:1 and 25:1.

A very wide range of final driven speed may be achieved by the use of an appropriate input V - Belt drive through various pulley combinations. All gear reducers will normally splash oil lubricated.

SALIENT FEATURES OF MICRO SHAFT MOUNTED SPEED REDUCERS

- Convenient design for Quick and Easy installation.
- Elimination of foundation and alignment.
- Pinion Shafts and Gear Wheels are case harden and laps to increase bending and wear life of gears.
- Reducer's case housing is made of close grained Cast Iron which is oil tight, dust proof and capable to absorb heavy shock load.
- Compact closed housing is ideal for preventing lubricant loss and direct build up.
- High Graded and Branded Antifriction Bearings are used based on International Standards.
- Pinions and Gears are supported on antifriction bearings of ample capacity to permit overhung and shock load.
- Double lip oil seals are used to prevent oil leakage as well as to avoid enter atmospheric dust inside the gear reducer to improve oil life as well as seal life.
- Wide range of output speeds (From 10 to 340 RPM).
- Large variant sizes available (From 0.40 kW to 108 kW).
- Provides high range of Output torque (From 316 Nm to 6237 Nm).
- Innovative feature of Holdback, Flange Mounting and Motor Mounting.
- High efficiency and low maintenance.

APPLICABLE INDUSTRY/MACHINE

- Stone Crushing and Quarry Plants
- Mining and Minerals Industry
- Road Construction Machinery/Plants
- Cement and Sugar Plants
- Paper and Pulp Industry
- Food Processing and Dairy Industry
- Coal and Salt Plants
- Ceramic and Bricks Plant
- Iron and Steel Industry

TYPES OF SHAFT MOUNTED SPEED REDUCERS

There are some range of extra accessories developed with their own advantages for Shaft Mounted Speed Reducers according to purposes, fitment and application of the machine in order to fix the errors, and easy motion of the machinery.

HOLDBACK / BACKSTOPS

A backstop is the additional feature which let the reducer turn freely in one direction but locks up when reversed. This is required on applications such as belt conveyors or bucket elevators to prevent injury if electrical power to the motor is interrupted. Holdback/Backstops are designed and incorporated to prevent reversal rotation or holding device to prevent reverse rotation in application such as Conveyors, Bucket Elevators, Fan and Rotary Kilns.

Major Benefits

- Savings of Time and Labor because it eliminates cleaning of conveyor belt during closing of conveyor or whole plant.
- To prevent injury if electrical power to the motor is interrupted.
- To absorb reverse shock on the gear reducer and motor.
- Provides long life and low maintenance to the gear reducer and motor.
- Prevents from the damage of gear reducer, motor and conveyor belt.

MOTOR MOUNTING FRAME (AT TOP)

Motor Mounting Frame options are available to fit directly on the top of gear reducers through special designed Motor Mounting Frame accessories for the Shaft Mounted Speed Reducers. Motor Mounting Frame accessories are developed with robust base plate which allows wide range of motor frame sizes.

Every Motor Mounting Frame has sufficient adjustment to ensure that belt can be fitted and tensioned whenever required throughout life of belts.

- Elimination of extra motor foundation.
- Easy and convenient alignment of motor pulley and gear reducer's pulley.
- Sufficient adjustment space with wide range of motor frame sizes.
- Easily exchangeable mounting plate and accessories without cutting or any hard work.

MOTOR FLANGE MOUNTS (AT INPUT)

The Motor Mounting Advantage facilitates the direct mounting of motor at input side and eliminates the extra foundation, pulley, couplings or any other accessories. The Motor Mounting Reducers are specially designated for the Screw Conveyors.

Main Advantage of this feature is that no need of any alignment due to its character of directly fitting in to the reducer's shaft so it's fixes the all alignment errors.

Major Benefits

- Elimination of extra motor foundation, pulley, coupling and V belt.
- Elimination of alignment for coupling of motor and gear reducer.
- Very easy to install and uninstall of gear reducer.
- Specially designed for Screw Conveyor System.

TAPER LOCK BUSH

Taper Lock Bush allows unskilled labor to achieve coupling of reducer and shrink fit on shafts using just hexagon wrench. Taper Lock Bushing Accessories has arrangement of longitudinal split tapered bushes with four through all holes, two threaded holes and four threaded holes on the reducer's output hub.

Taper Lock Bush and Reducer's Output Hub are manufactured from special steel to permanently remove any chances of corrosion in the future. The unique Taper Lock Bush system, which overcomes the difficulties, experienced with other methods of mounting, particularly in corrosive environment. Various sizes of Bores are available in the Taper Lock Bush to facilitate easy mounting on different shaft size.

So any labor can install the reducer by just tightening of four Allen Key Bolts, and uninstall by just tightening of two Allen Key Bolts. That give easy, fast fitting and maximum grip. (Taper Lock Bush and Reducer's Output Hub must be tight to gather).

Major Benefits

- Permits unskilled labor to achieve coupling of reducer and shrink fit easily on shafts.
- Very easy to install and uninstall of gear reducer due to special steel and mechanism of bush.
- Overcomes the difficulties, experienced with other methods of mounting.
- Specially designed for Screw Conveyor System.
- Various sizes bores in Taper Lock Bush to facilitate easy mounting on different shaft or reducer sizes. or reducer sizes.

SELECTION CRITERIA OF SHAFT MOUNTED SPEED REDUCERS

TABLE 1 – SERVICE FACTOR BASED ON APPLICATION

TYPES OF DRIVEN MACHINE	OPERATION HOURS PER DAY		
	Up to 10 hrs.	10 to 16 hrs.	Over 16 hrs.
UNIFORM Agitators and Mixers - Liquid or Semi-Liquid Blowers - Centrifugal Bottling Machines, Cookers Conveyors and Elevators - Uniformly Loaded Laundry Washing Machines Non – Reversing Line Shafts Pumps - Centrifugal and Gear Wire Drawing Machines	1.0	1.12	1.25
MODERATE SHOCK Agitators and Mixers - Variable Density Conveyors - not Uniformly Loaded Cranes, Travel Motion and Hoisting Draw bench, Feeders - Pulsating load Hoists, Kilns, Laundry, Tumblers, Lifts Piston Pumps - with 3 or more Cylinders Pulp and Paper Making Machinery Rubber Mixer. and Calenders Rotary Screens Textile Machinery	1.25	1.4	1.6
HEAVY SHOCK Brick Presses Briquetting Machines Conveyors - Reciprocating and Shaker Crushers Feeders - Reciprocating Hammer Mills Piston Pumps - 1 or 2 cylinders Rubber Masticators Vibrating Machine	1.6	1.8	2.0

INFORMATIONS REQUIRE FOR SELECTION OF GEAR UNIT

- Type / Model of gear unit suitable for application.
- Required reduction ratio or output RPM of Gear Unit.
- Details / Type of driven machine, absorbed / actual power (HP) & speed (RPM) require.
- Duration of working hours per day.

SELCTION PROCEDURE

STEP – 1: Service Factor
From (Table – 1 in Page No. 6) select service factor applicable according to the drive / type of machine.

STEP – 2: Design Power
Multiply the absorbed power (or motor power if absorbed power is not known) by the service factor chosen in STEP - 1.

STEP – 3: Unit Selection
Using the value from step-2 refer to the power ratings (Table in Page No. 7) and select the correct size of gear unit.

EXAMPLE

A Shaft Mounted Speed Reducer is required for a uniformly loaded Conveyor which absorbs 4.8 HP at 50 RPM. The prime mover is a 5 HP 1440 RPM direct on line start electric motor running for up to 24 hours/day.

SOLUTION

Selection Procedure

STEP – 1: Service Factor
From (Table - 1 in Page No. 6) service factor is 1.25.

STEP – 2: Design Power
Using Conveyor absorbed power of 4.8 HP.
Design Power = 1.25 X 4.8 = 6 HP.

STEP – 3: Unit Selection
Using 6 HP as the basis for selection reference to the power rating tables (TABLE – 3 in Page No. 7) indicates that an E20 gear unit will transmit 6.94 HP at 50 RPM.

POWER RATING OF SHAFT MOUNTED SPEED REDUCERS

TABLE -2: POWER RATINGS (HP) 05:1 UNITS

Output RPM	SMSR Gearbox Model / Size						
	C	D	E	F	G	H	J
100	3.43	5.70	8.80	12.54	20.86	30.15	71.39
110	3.65	6.04	9.28	13.26	22.06	31.83	77.18
120	3.85	6.37	9.75	13.98	23.15	33.52	83.21
130	4.06	6.70	10.20	14.59	24.36	35.09	88.03
140	4.26	7.01	10.63	15.31	25.44	36.78	90.93
150	4.46	7.33	11.05	15.91	26.53	38.35	94.06
160	4.64	7.63	11.48	16.52	27.61	39.91	97.68
170	4.82	7.92	11.87	17.12	28.82	41.48	101.3
180	4.99	8.21	12.30	17.60	29.90	43.05	103.7
190	5.16	8.47	12.66	18.21	30.99	44.50	107.3
200	5.31	8.75	13.02	18.69	32.07	45.94	110.9
210	5.47	9.00	13.38	19.17	33.04	47.39	113.3
220	5.63	9.26	13.74	19.65	34.12	48.84	116.9
230	5.77	9.50	14.11	20.14	35.21	50.16	119.3
240	5.92	9.72	14.35	20.62	36.18	51.49	123.0
250	6.05	9.93	14.71	20.98	37.26	52.70	125.4
260	6.18	10.14	15.07	21.34	38.23	54.02	127.8
270	6.31	10.34	15.31	21.70	39.19	55.23	130.2
280	6.45	10.55	15.67	22.19	40.03	56.32	132.6
290	6.57	10.74	15.91	22.43	41.00	57.52	133.8
300	6.69	10.93	16.28	22.79	41.84	58.49	136.2
310	6.81	11.13	16.52	23.15	42.81	59.57	141.1
320	6.93	11.32	16.88	23.39	43.65	60.54	142.3
330	7.05	11.51	17.12	23.75	44.38	61.50	143.5
340	7.16	11.71	17.48	23.87	45.22	63.35	144.1
Torque at 100 RPM Nm	316	546	878	1205	2183	3060	5415

TABLE -3 : POWER RATINGS (HP) 20:1 AND 25:1 UNITS

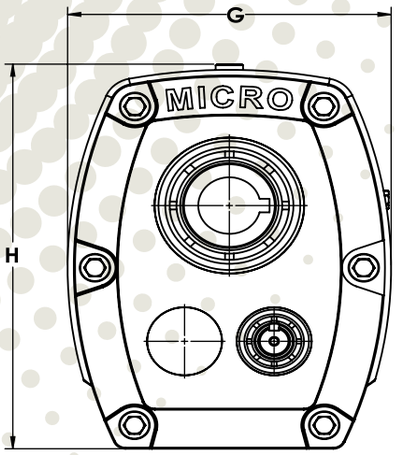
Output RPM	SMSR Gearbox Model / Size						
	C	D	E	F	G	H	J
10	0.54	0.91	1.39	2.19	3.47	5.45	8.75
12	0.63	1.07	1.66	2.60	4.13	6.59	10.23
14	0.73	1.24	1.92	3.02	4.79	7.59	11.99
16	0.84	1.42	2.19	3.44	5.46	8.57	13.50
18	0.95	1.57	2.46	3.84	6.11	9.66	15.19
20	1.04	1.76	2.71	4.26	6.77	10.60	16.88
22	1.14	1.92	2.97	4.66	7.40	11.62	18.33
24	1.24	2.08	3.23	5.07	8.05	12.66	20.01
26	1.33	2.25	3.49	5.48	8.68	13.50	21.58
28	1.44	2.43	3.75	5.88	9.32	14.59	23.03
30	1.54	2.59	4.00	6.28	9.94	15.55	24.60
32	1.65	2.76	4.25	6.68	10.58	16.64	25.92
34	1.75	2.93	4.51	7.07	11.20	17.48	27.49
36	1.84	3.08	4.76	7.47	11.83	18.45	28.82
38	1.95	3.25	5.00	7.86	12.42	19.41	30.27
40	2.05	3.42	5.25	8.26	13.02	20.38	31.71
42	2.15	3.56	5.49	8.64	13.62	21.22	33.04
44	2.24	3.73	5.75	9.03	14.35	22.31	34.49
46	2.33	3.88	5.99	9.41	14.95	23.15	35.69
48	2.43	4.05	6.24	9.78	15.43	24.12	37.14
50	2.52	4.22	6.48	10.11	16.03	24.96	38.35
52	2.60	4.37	6.75	10.46	16.76	25.68	39.79
54	2.70	4.53	6.95	10.81	17.36	26.65	41.00
56	2.78	4.70	7.19	11.16	17.84	27.49	42.45
58	2.87	4.84	7.44	11.50	18.45	28.34	43.65
60	2.99	5.00	7.68	11.84	19.17	29.30	44.98
62	3.03	5.16	7.92	12.18	19.65	30.15	46.18
64	3.12	5.33	8.16	12.30	20.26	30.99	47.63
66	3.22	5.48	8.40	12.90	20.74	31.95	48.84
68	3.30	5.63	8.63	13.14	21.34	32.68	50.16
70	3.38	5.78	8.87	13.50	22.06	33.52	51.37
Torque at 10 RPM Nm	388	650	992	1560	3317	3884	6237

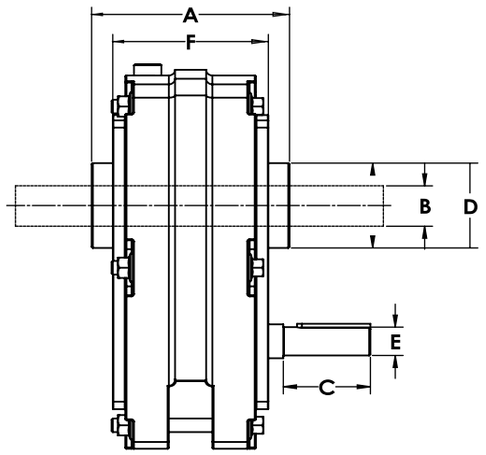
TABLE -4: POWER RATINGS (HP) 13:1 UNITS

Output RPM	SMSR Gearbox Model / Size						
	C	D	E	F	G	H	J
72	3.48	5.95	9.11	13.74	22.55	34.37	52.82
74	3.55	6.10	9.34	14.23	23.15	35.09	54.02
76	3.64	6.25	9.58	14.59	23.63	35.81	55.35
78	3.73	6.42	9.81	14.83	24.36	36.78	56.56
80	3.82	6.54	10.05	15.43	24.84	37.62	57.64
85	4.04	6.92	10.62	16.03	26.29	39.67	60.66
90	4.26	7.30	11.20	16.76	27.73	41.48	63.55
95	4.51	7.68	11.78	17.72	29.18	43.53	66.57
100	4.72	8.05	12.30	18.57	30.51	45.46	69.46
Torque at 10 RPM Nm	388	650	992	1560	3317	3884	6237

- The output torque and power rating may be change according to application, working hours and carrying load.
- Calculate output RPM after speed reduction by pulleys or if any speed reduction accessories

DIMENSIONAL DRAWING OF SHAFT MOUNTED SPEED REDUCERS





MODEL	A	B BORE SIZE	C	D	E	INPUT SHAFT KEY WAY	F	G	H	APRROX MASS KG.	
										Ratio 5	Ratio 13/20
C	145	40	65	65	22 j6	6 X 3.2	110	220	280	21	25
D	156	50	70	75	25 j6	8 X 4.2	120	260	315	32	35
E	180	55	80	85	28 j6	8 X 4.2	140	282	370	46	51
F	200	65	80	95	32 j6	10 X 5.2	154	322	410	59	65
G	220	75	95	105	38 j6	12 X 6.2	176	370	468	94	104
H	240	85	115	110	42 j6	12 X 6 2	196	445	548	139	150

All dimensions are subject to alteration without noti
All dimensions are in millimeters.

AVAILABLE BORES

GEAR SIZE	Alternate Bore Size (In mm)	Keyway	Alternate Bore Size (In Inch)	Keyway	Taper Lock Bush Bore Size (In mm)	Taper Lock Bush Bore Size (In Inch)
C	35 40 (Std.) 45	10 X 5 10 X 5 12 X 6	1 ½”	10 X 5	NA	NA
D	40 45 50 (Std.) 55	10 X 5 12 X 6 14 X 5 14 X 5	2”	14 X 5	NA	NA
E	50 55 (Std.) 60	14 X 5 14 X 5 16 X 5	2” 2 ½”	14 X 5 16 X 5	50mm 55mm	2”
F	50 55 60 65 (Std.) 70	14 X 5 14 X 5 16 X 5 16 X 5 20 X 5	2” 2 ½”	14 X 5 16 X 5	50mm 55mm 60mm 65mm	2” 2 ½”
G	60 65 70 75 (Std.) 80	16 X 5 16 X 5 20 X 5 20 X 5 20 X 5	2 ½” 3”	16 X 5 20 X 5	60mm 63.5mm 65mm 70mm	2 ½”
H	65 70 75 80 85 (Std.)	16 X 5 20 X 5 20 X 5 20 X 5 20 X 5	2 ½” 3” 3 ½”	16 X 5 20 X 5 20 X 5	60mm 65mm 70mm 75mm	2” 2 ½” 3”
J	75 80 90 100 (Std.) 110	20 X 5 20 X 5 25 X 8 25 X 8 25 X 8	3” 3 ½” 4” 4 ½”	20 X 5 20 X 5 25 X 8 25 X 8	70mm 75mm 76.2mm 80mm 85mm	2 ½” 3”

APROXIMATE OIL QUANTITIES (IN LITERS)

GEAR SIZE	For 13, 20 and 25:1 Ratios	For 05:1 Ratio
C	0.7	0.6
D	1 2	1 0
E	2.0	2.0
F	2.5	2.6
G	3 5	3 5
H	4 7	4 8
J	8 7	9 3

INSTRUCTIONS:

- Every Reducer is dispatched without oil.
- Reducers must be filled as instructed before running.
- Use high grade oils like Enklo-320, SP-150, SP-320, EP-220, EP-320.
- Fill oil to level plug when reducer is not running.
- Drain, flush and Refill the oil every six months of operations.
- Check oil level regularly.
- Too much oil will cause over-heating.
- Too little oil will cause gear failure.

WORM GEAR REDUCERS

MICRO introduces the Worm Gear Reducers (MU and FMU Series) which consists of a threaded worm shaft input, an output worm gear, and features a right angle output orientation. This type of reduction gear box is generally used to take a rated motor speed and produce a low speed output with higher torque value based on the reduction ratio. They often can solve space saving problems because the worm gear reducer is one of the sleekest reduction gearboxes available due to the small diameter of its output gear.

Worm gear reducers are also a popular type of speed reducer because they offer the greatest speed reduction in the smallest package. With a high ratio of speed reduction and high torque output multiplier, it's unsurprising that many power transmission systems make use of a worm gear reducer. Some of the most common applications for worm gear reducers can be found in Road Construction Equipments, Agriculture Equipment, Elevators, Conveyor Belts, Pharmaceutical Equipments, Chemical Plants, Food Processing and Dairy Equipments, Boilers and covering many more industries.

MICRO Worm Gear Units are manufactured using only high quality graded worm shaft and Worm Gear/wheel components which are case carburized to provide good wear characteristic and ground to allow smooth and quiet operation. All raw material procured from reliable sources of the industry.

MICRO Precision Works offers twelve sizes of worm gear reducer, and all are available in a range of ratios from 5:1 to 70:1. All of these options are manufactured with rugged compression molded graded cast iron housings for a durable, long lasting, oil tight and dust proof speed reducer that is also compact and capable to absorb wide range of load.

WORM GEAR REDUCERS SIZES

Worm Gear Reducers has power rating from 0.37 kW to 74.5 kW and designed in total twelve sizes, and these are 175, 225, 250, 300, 400, 500, 600, 700, 800, 900, 1000 and 1200. Worm Gear Reducer sizes are coded according to the height center distance between input and output shaft.

For example, Reducers Size Code 175 indicates the gear reducer which has height center of 1¾" (1.75") between input and output shaft.

SALIENT FEATURES OF WORM GEAR REDUCERS

- Rugged compression molded cast iron housing.
- Compact, robust and durable design structure.
- Ability to provide high reduction ratio and correspondingly high torque multiplication.
- Solid or Hollow Input/output Shaft.
- Adjustable mounting Position.
- Variety of flexible mounting options.
- High efficiency and low maintenance.
- It has good meshing effectiveness.
- Minimize Noise-heat and friction, because worm and gear are made of dissimilar metals.

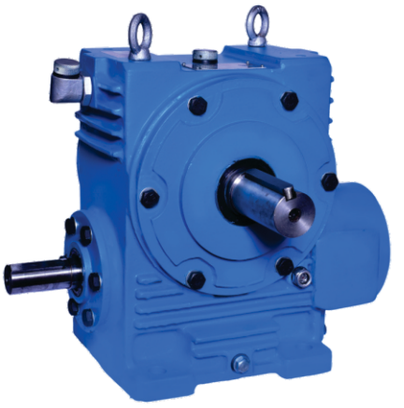
APPLICABLE INDUSTRY/MACHINE

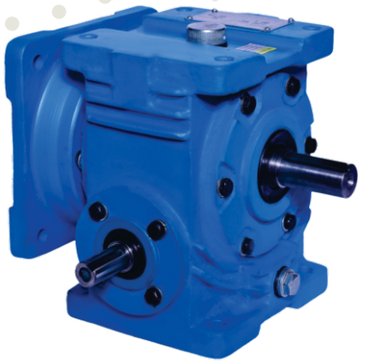
- Stone Crushing and Quarry Plants
- Mining and Minerals Industry
- Road Construction Machinery / Asphalt Plants
- Cement and Sugar Plants
- Paper and Pulp Industry
- Food Processing and Dairy Industry
- Coal and Salt Plants
- Ceramic and Bricks Plant
- Iron and Steel Industry

WORM GEAR REDUCERS IN THE RANGE

MU Model
Horizontal Worm Gear Reducer

Sizes Available :- From 175 to 900
Ratios Available :- 5:1 to 70:1
Power Ratings :- 0.37 kW to 37.3 kW
Mountings :- Horizontal Foot Mounting
Applications :- Conveyor, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Rotary Kiln, Laundry Tumbler, Industrial Lifts, Rotary Screen, Vibrating Machines





MU-V Model
Vertical Worm Gear Reducer

Sizes Available :- From 175 to 900
Ratios Available :- 5:1 to 70:1
Power Ratings :- 0.37 kW to 37.3 kW
Mountings :- Vertical Upward or Downward Flange Mounting
Applications :- Agitator, Stirrer, Pan Mixer, Blender, Wire Drawing, Pipe Bending, Chemical Mixing Tank

MU-S Model & MU-M Model
Horizontal Worm Gear Reducer
(With input motor flange mount & output hollow)

Sizes Available :- From 175 to 900
Ratios Available :- 5:1 to 70:1
Power Ratings :- 0.37 kW to 37.3 kW
Mountings :- Horizontal Foot Mounting
Applications :- Conveyor, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Rotary Kiln

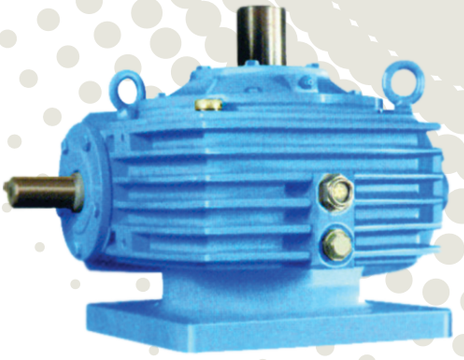
FMU Model
Horizontal Worm Gear Reducer

Sizes Available :- From 400 to 1200
Ratios Available :- 5:1 to 70:1
Power Ratings :- 2.23 kW to 74.57 kW
Mountings :- Horizontal Fix Foot Mounting
Applications :- Conveyor, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Rotary Kiln, Heavy Lifts

WORM GEAR REDUCERS IN THE RANGE

FMV Model
Vertical Worm Gear Reducer

Sizes Available :- From 600 to 1000
Ratios Available :- 5:1 to 70:1
Power Ratings :- 3.72 kW to 37.3 kW
Mountings :- Vertical Upward or Downward Fix Foot Mounting
Applications :- Agitator, Stirrer, Pan Mixer, Blender, Pipe Bending, Chemical Mixing Tank, Wire Drawing, Rides



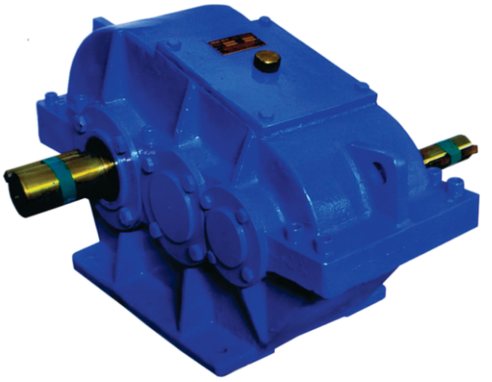
NMRV Series
Worm Gear Reducers

Size Available :- 30 to150
Ratios Available :- 05:1 to 100:1
Power Ratings :- 0.15 kW to13.5 kW
Mountings :- Foot Mount, Input Flange Mount, Vertical Flange Mount
Applications :- Conveyor, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Rotary Kiln, Laundry Tumbler, Industrial Lifts, Rotary Screen, Vibrating Machines, Stone Crushing and Quarry Plants, Paper and Pulp Industry, Food Processing and Dairy Industry Coal and Salt Plants, Ceramic and Bricks Plant, Iron and Steel Industry

OTHER GEAR REDUCERS IN THE RANGE

MHU Series
Helical Gear Reducer Crane Duty Helical Gearbox

Sizes Available :- From 250 to 1000
Ratios Available :- 5:1 to 200:1
Power Ratings :- 2.23 kW to 74.8 kW
Mountings :- Horizontal Fix Foot Mounting
Applications :- Conveyor, Cranes, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Ball Mills, Aerator, Rotary Kiln, Heavy Lifts



MA Series
Inline Helical Gear Motor

Sizes Available :- From 20 to 35
Ratios Available :- 5:1 to 40:1
Power Ratings :- 2.23 kW to 7.5 kW
Mountings :- Horizontal Fix Foot Mounting & Vertical Flange Mounting
Applications :- Conveyor, Screw Conveyor, Cranes, Asphalt Plant, Mixer, Blender, Elevator, Presses, Hoist, Rotary Kiln, Agitator, Stirrer, Pan Mixer, Blender

SELECTION CRITERIA FOR WORM GEAR REDUCER

EXPLANATION AND USE OF RATINGS AND SERVICE FACTORS.

Gear unit selection is made by comparing actual loads with catalogue ratings. Catalogue ratings are based on a standard set of loading conditions whereas actual load conditions vary according to type of application. Service factors are the refore used to calculate an equivalent load to compare with catalogue ratings.

INFORMATIONS REQUIRE FOR SELECTION OF GEAR UNIT

- Type / Model of gear unit suitable for application.
- Required reduction ratio or output RPM of Gear Unit.
- Details / Type of driven machine, absorbed / actual power (HP) & speed (RPM) require.
- Duration of working hours per day.

SELECTION PROCEDURE

STEP – 1: Find Required Ratio
Ratio = Motor rpm/Require rpm

STEP – 2: Service Factor
From (Table – 1 in Page No. 6) select service factor applicable according to the drive / type of machine.

STEP – 3: Design Power
Input power = Motor Power X Service Factor

STEP – 4: Unit Selection
Using the value from step-3 refer to the power ratings (Table – 5 in Page No. 13) and select the correct size of gear unit.

EXAMPLE

Worm Gear Reducer required for belt conveyor where non-uniform material is fed on conveyor belt, operating for 8 hours per day. Speed required at conveyor shaft is 50 rpm. The gear unit is driven directly using coupling by 10 HP, 1500 rpm electric motor.

SOLUTION

STEP – 1: Required Ratio
Ratio required 30:1

STEP – 2: Service Factor
From (Table No – 1 in Page No. 6) service factor is 1.25 (Drive machine belt conveyor material - Non uniform fed Type of Load - Moderate shock-M).

STEP – 3: Design Power
Using Motor Power of 7.5 HP.
Design Power = 1.25 X 10 = 12.5 HP.

STEP – 4: Unit Selection
From (Table – 5 in Page No. 13) Rating at Input 1500 rpm, Ratio - 30:1
Using 12.5 HP as the basis for selection reference to the power rating tables (TABLE – 5 in Page No. 13) indicates that an 600 gear unit will transmit 12.5 HP at 50 RPM.

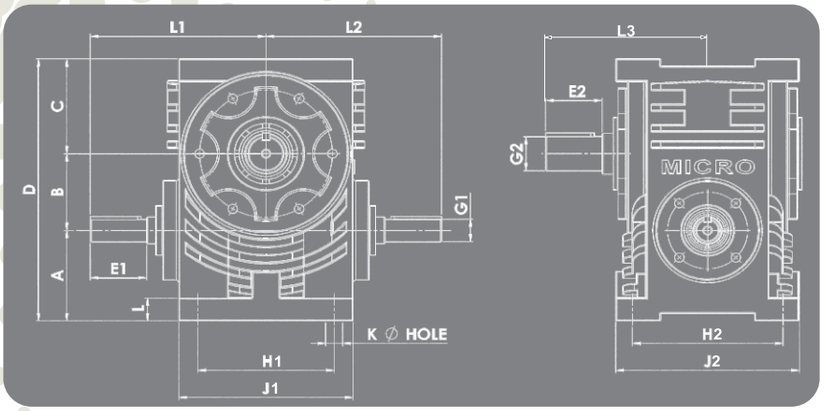
POWER RATINGS AT INPUT SPEED OF 1000 AND 1500 R.P.M.

TABLE 5 - POWER RATINGS (HP) FROM SIZE 200 (2") TO 800 (8") UNITS

NOMINAL RATION	CAPACITY	NOMINAL OUTPUT SPEED RPM	1,500 R.P.M. GEAR BOX SIZES										NOMINAL OUTPUT SPEED RPM	1,000 R.P.M. GEAR BOX SIZES								
			2"	2.1/4"	2.5"	3"	3.5"	4"	5"	6"	7"	8"		2"	2.1/4"	2.5"	3"	3.5"	4"	5"	6"	7"	8"
5/1	INPUT H.P.	300	02.20	03.00	30.20	07.00	10.100	16.80	26.80	45.20	60.70	79.00	200	01.70	02.50	02.60	05.20	07.50	12.80	22.00	31.80	45.60	57.80
	OUTPUT TORQUE IN K.G.M.		04.43	07.60	06.86	15.34	23.25	37.44	62.20	105.11	137.20	183.00		05.24	08.43	07.56	17.20	25.58	42.70	75.50	109.88	153.72	201.00
7.5/1	INPUT H.P.	200	01.90	02.90	03.00	05.80	09.10	11.50	21.40	33.00	48.00	66.00	133	01.38	02.20	02.25	04.30	06.75	09.00	16.80	25.10	35.40	47.50
	OUTPUT TORQUE IN K.G.M.		05.59	09.53	08.72	18.72	31.04	38.95	72.20	113.72	166.86	227.00		06.54	11.00	09.62	20.23	34.18	44.80	84.70	129.88	184.30	241.00
10/1	INPUT H.P.	150	01.50	02.20	02.35	04.80	08.00	10.00	19.10	27.50	37.50	47.80	100	01.10	02.10	02.20	03.80	06.00	08.00	14.70	21.20	30.80	38.50
	OUTPUT TORQUE IN K.G.M.		05.80	09.76	09.70	19.88	35.58	42.79	83.60	125.00	161.62	212.00		06.81	12.20	11.06	23.37	41.74	39.20	96.00	148.20	200.00	253.00
12.5/1	INPUT H.P.	120	01.40	02.00	02.15	04.00	06.50	08.00	14.80	24.50	32.25	47.50	80	01.00	01.60	01.65	03.10	05.10	06.25	11.30	18.30	24.80	34.50
	OUTPUT TORQUE IN K.G.M.		06.19	10.40	09.70	21.61	37.20	43.90	80.60	139.53	179.06	270.00		07.23	11.91	10.87	25.23	43.02	42.80	93.30	154.61	205.00	293.00
15/1	INPUT H.P.	100	01.28	01.90	01.95	03.80	5.60	07.10	12.20	22.50	30.40	40.00	66.6	00.90	01.45	01.50	02.70	04.50	05.70	09.50	17.20	23.50	30.50
	OUTPUT TORQUE IN K.G.M.		07.39	11.70	10.58	22.32	36.51	44.20	76.00	146.51	202.32	255.00		08.55	13.13	11.74	23.83	38.83	51.00	88.20	163.96	236.04	296.00
20/1	INPUT H.P.	75	00.95	01.40	01.45	02.90	04.40	06.20	11.20	17.50	23.00	30.50	50	00.72	01.10	01.20	02.25	03.50	04.70	08.60	13.50	17.85	23.40
	OUTPUT TORQUE IN K.G.M.		06.08	10.75	09.88	23.02	37.20	49.50	151.16	151.16	190.46	256.00		07.40	12.44	10.86	27.09	42.44	56.90	104.8	137.80	220.00	294.00
25/1	INPUT H.P.	60	00.82	01.25	01.30	02.30	04.00	05.00	09.60	15.20	21.50	28.00	40	00.64	01.00	01.00	01.90	03.00	04.00	06.70	11.50	16.40	21.00
	OUTPUT TORQUE IN K.G.M.		07.13	11.90	10.69	21.97	37.90	49.00	84.70	169.76	220.34	293.00		07.41	13.54	12.09	25.67	42.20	56.00	96.50	174.02	245.93	322.00
30/1	INPUT H.P.	50	00.80	01.00	01.25	02.20	03.60	04.50	08.00	12.50	19.00	22.70	33.3	00.60	00.94	01.00	01.80	02.75	03.60	06.20	10.00	14.00	17.50
	OUTPUT TORQUE IN K.G.M.		07.30	11.57	10.93	23.48	39.53	51.10	93.00	151.16	230.23	176.00		08.20	13.95	12.32	27.55	44.41	58.10	05.80	175.60	274.67	310.00
40/1	INPUT H.P.	37.50	00.74	00.95	01.00	01.80	03.00	03.80	06.30	10.50	15.40	19.00	25	00.55	00.85	00.92	01.40	02.40	03.00	04.90	07.90	11.40	14.50
	OUTPUT TORQUE IN K.G.M.		08.36	13.00	12.32	24.41	40.93	55.10	87.80	158.13	232.55	296.00		09.53	14.94	13.60	27.90	46.86	63.10	104.0	175.77	253	337.00

- The output torque and power rating may be change according to application, working hours and
- Calculate output RPM after speed reduction by pulleys or if any speed reduction accessories

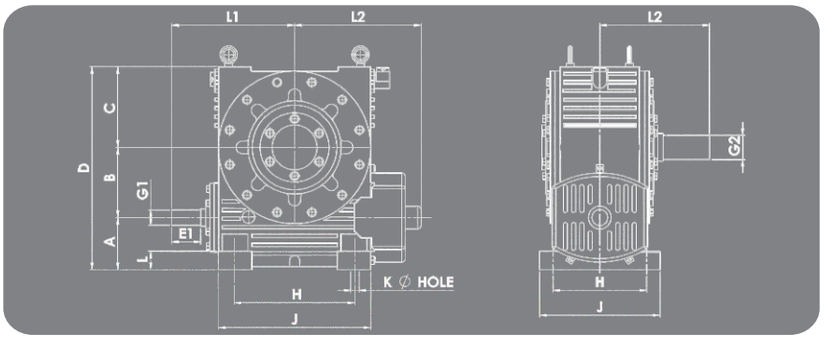
DIMENSIONAL DRAWING OF WORM GEAR REDUCERS (SMU & MU SERIES)



DIMENSIONS – WORM GEAR REDUCER SIZES 175-300 (SMU Series)

SIZE	A	B	C	D	E1	E2	G1	G2	H1	H2	J1	J2	KØ	L	L1	L2	L3	KW 1 INPUT	KW 2 OUTPUT
175	60.50	44.45	76.00	189.9	35	45	16	22	105	100	140	122	10.5	15	117.5	117.5	108	5 X 2.6	6 X 3.2
225	74.00	57.15	89.00	220.2	50	60	22	28	120	110	153	130	12.5	18	150	150	140	6 X 3.2	8 X 4.2
250	79.50	63.50	101.0	244.0	50	60	22	32	115	130	160	165	12.5	18	150	150	150	6 X 3.2	8 X 4.2
300	113.8	76.20	105.0	295.0	50	60	25	38	140	160	180	190	14	19	175	175	170	8 X 4.2	10 X 5.2

All dimensions are subject to alteration without notice.
All dimensions are in millimeters



DIMENSIONS – WORM GEAR REDUCER SIZES 400-900 (MU Series)

SIZE	A	B	C	D	E1	E2	G1	G2	H1	H2	J1	J2	KØ	L	L1	L2	L3	KW 1 INPUT	KW 2 OUTPUT
400	108.0	101.6	120.4	330.0	65	90	32	45	185	170	240	225	19	24	220	255	205	10 X 5.2	12 X 6.2
500	123.0	127.0	145.0	395.0	70	90	35	50	230	200	295	250	19	33	260	295	235	10 X 5.2	14 X 5.2
600	129.0	152.4	176.0	457.4	75	115	38	58	265	240	355	288	24	35	290	335	275	10 X 5.2	16 X 5.2
700	157.0	177.8	205.0	539.8	80	130	45	65	305	265	400	340	24	50	310	345	310	12 X 6.2	16 X 5.2
800	151.0	203.2	232.8	587.0	80	135	45	70	350	270	442	350	28	53	357	367	318	12 X 6.2	20 X 5.2
900	158.0	228.6	253.4	640.0	90	150	50	80	400	290	490	355	28	56	370	389	386	14 X 7.2	22 X 8.2

All dimensions are subject to alteration without notice.
All dimensions are in millimeters

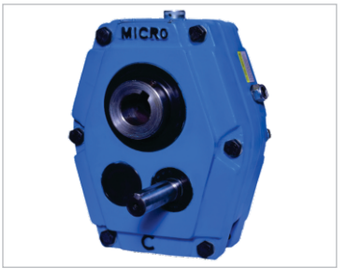
APROXIMATE OIL QUANTITIES

GEAR SIZE	OIL IN LITERS
175	0.6
225	0.8
250	0.9
300	2.0
400	2.9
500	4.1
600	5.4
700	10.5
800	12.5
900	17.2

INSTRUCTIONS:

- Every Reducer is dispatched without oil.
- Reducers must be filled as instructed before running.
- Use high grade oils like Enklo-320, SP-150, SP-320, EP-220, EP-320.
- Fill oil to level plug when reducer is not running.
- Drain, flush and Refill the oil every six months of operations.
- Check oil level regularly.
- Too much oil will cause over-heating. Too little oil will cause gear failure.

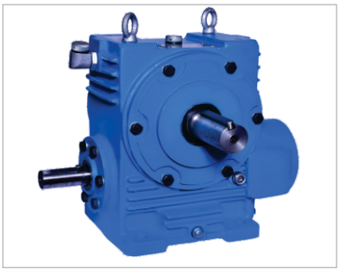
A COMPREHENSIVE COLLECTION OF POWER TRANSMISSION PRODUCTS FROM MICRO



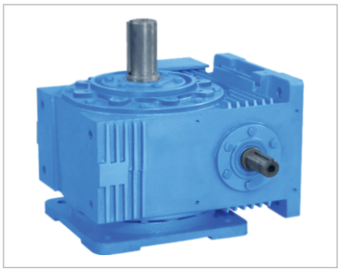
Shaft Mounted Speed Reducer

Shaft Mounted Speed Reducer
(With Motor Mounting Frame)

Shaft Mounted Speed Reducer
(With Input Motor flange Mount)



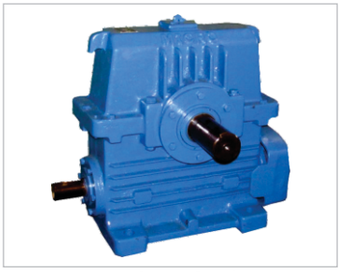
Worm Gear Reducer
(MU Model)



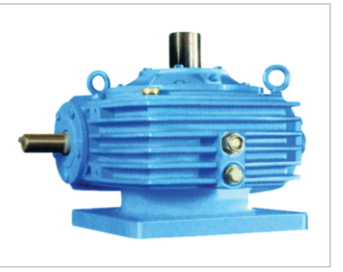
Vertical Worm Gear Reducer
(MU-VU Model)

Worm Gear Reducer
(MU-S & MU-M Model)

Worm Gear Reducer
(FMU Model)

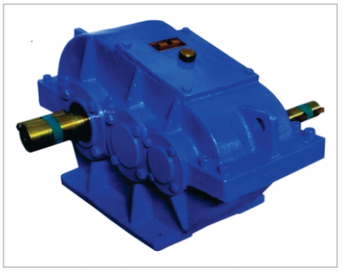


Worm Gear Reducer
(FFMU Model)



Vertical Worm Gear Reducer
(FMV-U Model)

Inline Helical Gear Motor
(MA Series)



Helical Gear Reducer
(MHU Model)

Bevel Gearbox
(MBU Model)

Worm Gear Reducers
(NMRV Series)

Bitumen Transfer Pump

Worm Shaft & Worm Gear
Helical Pinion Shaft & Gear
(NMRV Series)

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