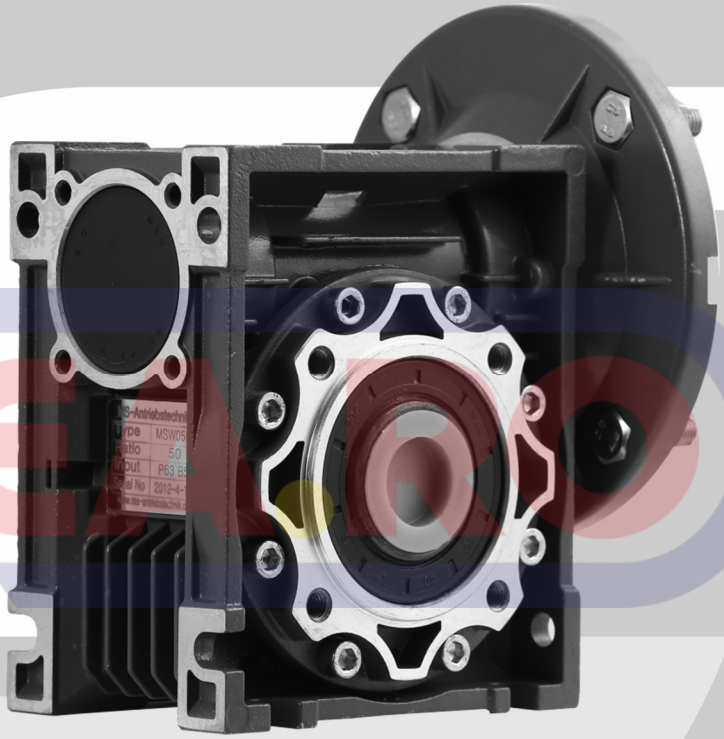
MORGENSEN
DRIVE WITH YOU

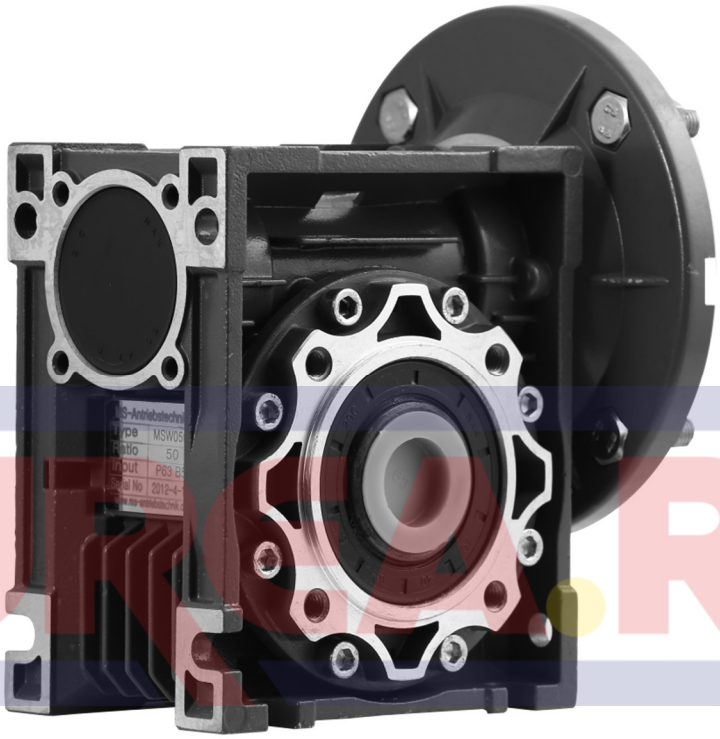


USER MANUAL

MSW

MSW series

Worm gear reducer



Due to its versatile uses, the worm gear is one of the most sought-after gear types. The price/performance and quality ratio is unique. A simple, yet heavy-duty gear family can be an optimal solution in any area. We are proud to present our MSW series worm gears. The quality assurance system used during production guarantees the high quality and long service life of the worm gears we sell. The modern design of the gear housing makes installation very easy.

Delivery conditions

Our wide product range and large stock, as well as our outstanding, complex service - within the framework of which our qualified engineering colleagues will help you with everything from drive design to the selection of the worm gear, through installation and commissioning to subsequent maintenance - provide our partners with a solid background in the realization of reliable operation.
In addition, thanks to the production of a large number of pieces, we guarantee to deliver the worm gears at the best price.

The worm gears we sell also meet the highest requirements of the industry.

Technical characteristics of our worm gears:

Torque:	M = 13 – 7100 Nm
Performance:	P = 0,04 – 75 kW
Transmission:	i = 7 – 10000

Designation

M	S	W	090	FA	15	P100	B5
1	2		3	4	5	6	7

1 – Morgensen series
2 – Type of the gearbox
- R – In line helical gear reducer
- F – Parallel shaft gear reducer
- K – Helical bevel gear reducer
- W – Worm gear reducer

3 – Gearbox size
4 – Number of the stages
5 – Flange
- FA – Flange mounted gear reducer
- \- – Foot mounted gear reducer

6 – Ratio
7 – Motor size
8 – Motor flange
- B5
- B14 – only at worm gear reducers

General informations

P1 – Power

This is the power of the driver at the input site of the gearbox

Pn – Nominal load

This is the power that the gearbox can be loaded with.

Pt – Thermal load capacity

The maximum power the gear motor is loaded with, it still can transfer the amount of the produced heat to the environment through the heat transfer surface. In the case of helical gearmotors, this is almost always greater than the load capacity.

n1 – Input speed

This is the driver speed at the input site of the gearbox

n2 – Output speed

This is the speed at the output site of the gearbox
n2=n1/i

i – Ratio

The ratio of a gearbox is the coefficient of the input and output speed of the gearbox. It depends on the number of the teeth of the gears inside the gearbox.
i=n1/n2

η – Efficiency

This value shows the amount of minenatges the driver power uses on the output site of the gearbox. The efficiency of the helical gearboxes is 97% at each stage.
So the efficiency is at a 2 stage gearbox: 97% x 97% = 94%

Mr2 – Demanded (Required) torque

This is the torque that is demanded at the application.

M2 – Output torque

This is the effective output torque of the gearbox. It is related to the power of the driver and output rpm. It can be calculated according to the following:
M2=9550 x P x η / n2

M2 = output torque (Nm)
P = motor power (kW)
η = efficiency
n2 = output speed

fs – Service factor

This value indicates how a certain drive system is to be oversized in order to assure the requested service and stand up to shocks. The tables given in the catalogue offer a wide range of drive systems with different service factors able to satisfy most types of applications. To correctly understand service factor values sf given for each item, approximate values for load classes A, B and C along with the number of hours of daily operation h/d and number of start-ups/hours need to be known.
Once the load class required for the application has been determined, locate corresponding value sf to be used when selecting the most suitable drive system.
The value of the service factor depends on the technical and load characteristics of the driven machine. There are three main load characteristics:

Type of load	Service factor
Uniform	1 – 1,2
Moderate shock	1,2 – 1,5
Heavy shock	1,5 – 2,5

Calculating of the service factor:

fs=Pn/P1
fs: service factor
Pn: the nominal power of the gearbox
P1: the power of the driver machine

If there is more information available about the drive, then you can find a more detailed definition below.

Type of load	Service factor
Uniform	fa <= 0,3
Moderate shock	fa <= 3
Heavy shock	fa <= 10

fa = J1 / J2 - where J1 is the momentum of the gearbox, J2 is the momentum of the driven machine

Self-closing - Reversibility

ηd	dynamically
> 0,6	can be folded back
0,5 - 0,6	slightly foldable
0,4 - 0,5	slightly self-closing
< 0,4	self-closing
ηs	**statically**
> 0,55	can be folded back
0,5 - 0,55	slightly foldable
< 0,5	self-closing

Selecting of the gearmotor

In order to select the right gearbox, use the following steps:

1. Defining the safety factor by following the steps above.
2. In case the required motor power is known see paragraph number 3. In case the required torque is known then calculate the applying motor power according to the following formula:

   $$P=M2 \times n2 / 9550 \times \eta$$

3. From the gear selection table, select the gear that has higher load rating than the required gearmotor power at the required speed multiplied by the selected safety factor.

Installation and storage of the gearmotors

- Only qualified personnel should install, service or maintain the gear units.
- When purchasing make sure that the gear unit is undamaged and compare the nameplate with your order.
- Do not store the gear unit in high humidity or high temperatures.
- Lubricate the shaft joint with a suitable protective agent (eg Loctite Antiseize 767) to prevent surface abrasion and seepage. This operation should be repeated every year.
- Protect the shaft from shocks to save bearings.
- Always fix the gear unit securely and ensure that the mounting surface is smooth and strong.
- Ensure that the connected shafts are aligned.
- Install a torque limiter if dynamic backlashes can occur during operation.
- Always ensure that the operating conditions are safe before starting.
- For outdoor operation, provide the gear unit with a weatherproof cover.
- Do not expose the gear unit to aggressive materials (unless it was stated on the order and the gear unit
- has been selected accordingly).
- Make sure that all connecting surfaces are properly treated to prevent rusting on the contact surfaces.
- Make sure that all retaining screws are tightened.
- Check if the amount of lubricant is suitable for for the mounting position you have chosen.

Structural characteristics

- Our gearwheels are made exclusively of high-quality cast iron housings, which are more durable than other aluminum housings.
- Thanks to their design and high quality alloys they are capable of withstanding high torque loads.
- The efficiency of our gear units can be up to 98% depending on the gear.
- Precise machining of gears for easy, smooth running and low noise.
- Long service life even in extreme conditions.
- Oil-free housing: Leak-proof operation is guaranteed thanks to a sealing system that provides better sealing than other types.
- Only standard IEC flanged motor couplings are used, which, while making our geared motors structurally more robust, significantly simplifies subsequent servicing procedures.

Material specification

- Gear housing: Cast steel alloy.
- Hardened and ground gears with high wear resistance.
- Anti-corrosion housing: The outer and inner surfaces of the gear housing are treated with epoxy-polyester paint.

Appearance

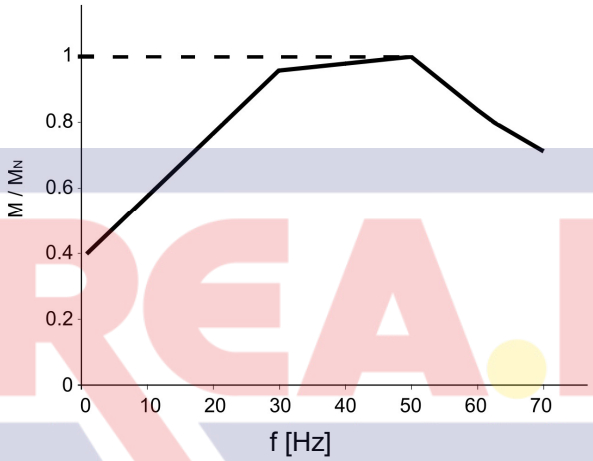
- In addition to its aesthetic appearance, the exterior paint also provides a high degree of corrosion protection for the gear unit.

Drive control

Nowadays, electronic speed control of electric motors is essential for modern drives. However, by using a frequency inverter, you can not only change the speed, but also make your machines much safer. With any type of our frequency inverters you can set either current or thermal protection, different programs, runs, rushes. Not to mention the fact that the use of inverters are significantly money and energy saving. All our geared electric motors are suitable for normal and frequency inverter operation.

In case of a variable speed drive, select the value for the nominal speed of the gear motor at which the drive operates the most. If the range is wide, keep in mind that the maximum speed of the motors is usually set at 3000 rpm, and an electric motor should only be used with forced cooling under 25 Hz. These values are indicative, but highly dependent on the nature, magnitude and temporal distribution of the load. If you are unsure of the selection or need help, please contact our support team, where our colleagues will be happy to assist you.

The following figure shows the torque curve of the electric motors operated by the frequency inverters. The dashed line indicates the torque of the external forced cooling electric motors



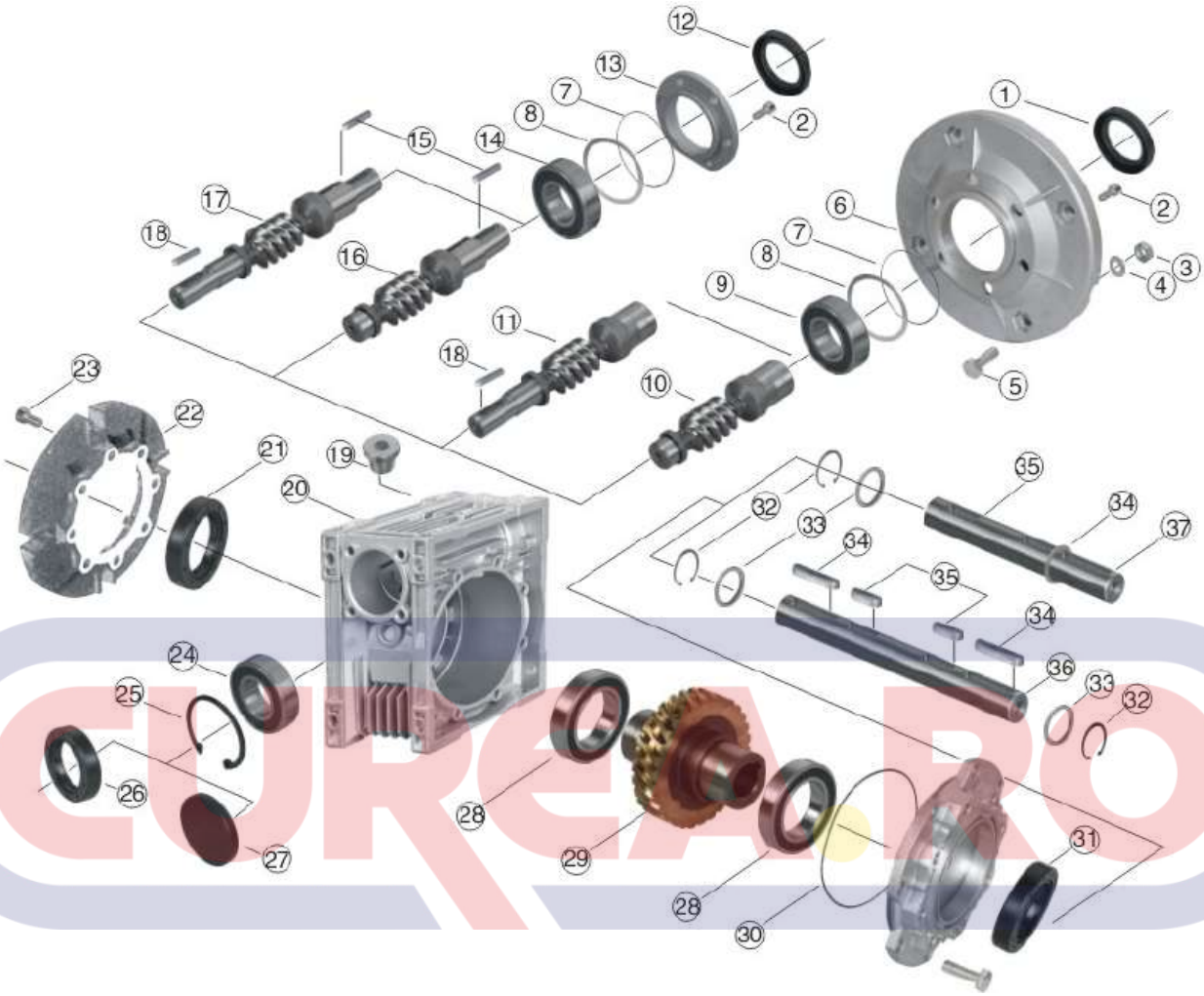
Energy saving

All of our gear units can be delivered with IE2, IE3 and IE4 high efficiency, energy saving electric motors. Not only does this mean protecting the environment, but depending on the duration of use, the difference in price will pay off in one year compared to a conventional electric motor.

Available Options for electric motors

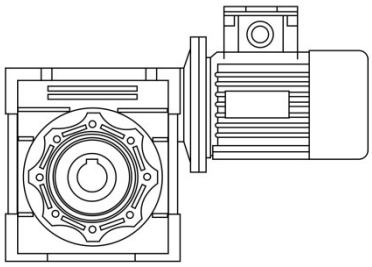
- Brake motor
- Backstop
- Explosion-proof design
- External cooling
- PTO and PTC thermal protection
- Encoder
- Class H insulation
- Higher degree of protection (IP65, IP56, IP66)
- Reinforced bearing
- Custom drive shaft drives
- Rain Cover

Parts list

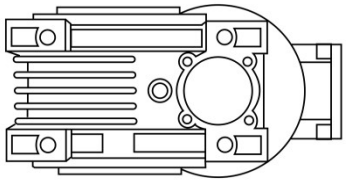


1 - Shimmering
2 - Socket head screw
3 - Nut
4 - Spring washer
5 - Hex head screw
6 - Motor connection flange
7 - O ring
8 - Spacer ring
9 - Bearing
10 - Drive-in screw pipe shaft
11 - Drive-in auger pipe shaft drive-out tengelycsonkkal
12 - Shimmering
13 - Drive-in cover
14 - Bearing
15 - Latch
16 - Worm shaft with drive shaft
17 – Drive-in and drive-out stub worm shaft
18 - Latch
19 - Oil seal
20 – Gearbox house
21 - Shimmering
22 - Drive-out flange
23 - Socket head screw
24 - Bearing
25 - Brass ring
26 - Shimmering
27 - Lid
28 - Bearing
29 - Worm wheel
30 - O-ring
31 - Drive-out side cover
32 - Brass ring
33 - Spacer ring
34 - Latch
35 - Latch
36 - Double-sided output shaft
37 - One-sided output shaft

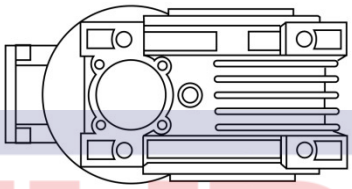
Mounting positions



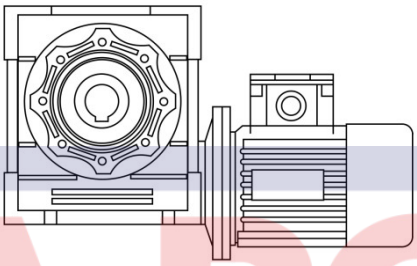
B3



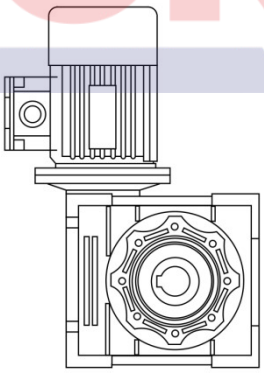
B6



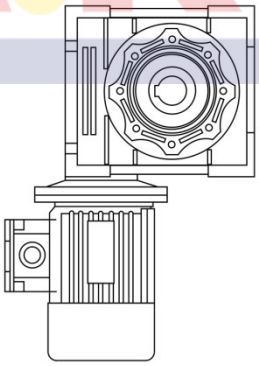
B7



B8

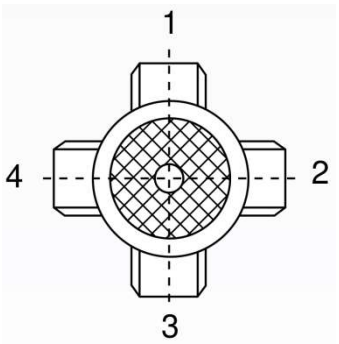


V5



V6

Terminal box position:



Lubrication

Our gearboxes are oil lubricated. In any case, make sure there is enough oil in the gear unit.

Recommended types of synthetic oils:

AGIP Blasia S 220
BP Energol SG XP220
ESSO Glycolube 220
MOBIL Glygoyle 30
Shell Tivela Oil SC 320

Always use mineral or synthetic oil according to the type of load and ambient temperatur:

Drive type	MSW030 – MSW090	MSW110 – MSW130		
Gear oil type	synthetic gear oil	mineral gear oil		
Ambient temperature	-25 °C - +50 °C	-25 °C - +50 °C	-5 °C - +40 °C	-15 °C - +25 °C
ISO gear oil (viscosity)	ISO VG320	ISO VG320	ISO VG460	ISO VG220

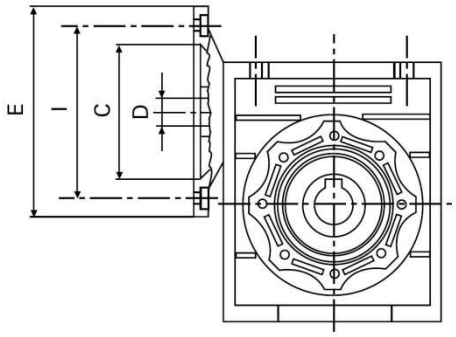
The following table shows the required oil level for the gear units. Please specify the installation position when ordering.

MSW	30	40	50	63	75	90	110	130
B3	0,04	0,08	0,15	0,30	0,55	1	3	4,5
B8	0,04	0,08	0,15	0,30	0,55	1	2,2	3,3
B6/B7	0,04	0,08	0,15	0,30	0,55	1	2,5	3,5
V5	0,04	0,08	0,15	0,30	0,55	1	3	4,5
V6	0,04	0,08	0,15	0,30	0,55	1	2,2	3,3

Worm thread, worm gear teeth and efficiency data

MSW	i	7,5	10	15	20	25	30	40	50	60	80	100
030	Z1	4	3	2	2	1	1	1	1	1	1	
	γ	18° 50'	14° 21'	9° 40'	7° 11	5° 34'	4° 52'	3° 53'	3° 11'	2° 46'	2° 07'	
	mx	1,44	1, 44	1, 44	1, 1	1, 7	1,44	1, 1	0, 88	0, 75	0, 56	
	ηd	0,84	0,81	0, 76	0,72	0, 67	0,64	0,58	0, 54	0,5	0, 44	
	ηs	0,66	0, 62	0, 54	0,5	0, 43	0,39	0,35	0,31	0,27	0, 23	
040	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	21° 48'	17° 31'	11° 18'	8° 58'	7° 41'	5° 42'	1 30'	3° 51'	3° 17	2° 32'	2° 05'
	mx	2	1, 5	2	1, 5	1, 25	2	1, 5	1, 25	1,04	0, 78	0, 63
	ηd	0,86	0, 85	0, 81	0,77	0, 74	0,69	0,64	0, 61	0,57	0,51	0, 47
	ηs	0,69	0, 65	0,58	0,53	0,5	0,44	0,4	0, 36	0,32	0, 28	0, 24
050	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	21° 48'	17 42'	11° 18'	9° or	7° 36'	5° 42'	1 33'	3° 49'	3° 17	2° 33'	2° 04'
	mx	2,5	1, 9	2,5	1, 9	1, 54	2,5	1, 9	1, 54	1, 3	0, 98	0, 78
	ηd	0,86	0, 84	0,8	0, 77	0, 74	0, 7	0, 65	0, 61	0,57	51	0, 49
	ηs	0,69	0, 65	0,58	0,54	0,5	0,44	0,39	0, 35	0,32	0, 27	0, 23
063	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	24° 31'	20° 19'	12° 50'	10 29'	8° 11	6° 30'	5° 17	4° 23'	3° 17	2° 59'	2° 25'
	mx	3,25	2, 5	3, 25	2,5	2	3,25	2, 5	2	1,68	1,28	1, 02
	ηd	0,87	0, 86	0, 82	0, 8	0, 77	0, 73	0, 69	0, 65	0,61	56	0, 5
	ηs	0,7	0, 65	0, 59	0,54	0,5	0,45	0,4	0, 36	0,33	0, 28	0, 24
075	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	26° 33'	21° 48'	14° 02'	11° 18'	9° 37'	7° 07'	5° 42'	4° 50'	4° 05'	3° 15'	2° 40'
	mx	4	3	4	3	2, 45	4	3	2, 45	2	1, 54	1, 24
	ηd	0,88	0, 87	0, 84	0,81	0, 79	0, 75	0, 71	0, 68	0,64	0, 59	0, 54
	ηs	0,7	0, 67	0,6	0,57	0, 52	0,46	0,42	0, 38	0,35	0, 29	0, 26
090	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	28° 20'	23° 26'	15° 05'	12° 14'	10° 37'	7° 40'	6° 11'	5° 21'	4° 36'	3° 36'	2° 57'
	mx	4,8	3, 6	4,8	3, 6	3	4,8	3, 6	3	2, 5	1, 88	1, 5
	ηd	0,89	0, 88	0, 85	0,83	0, 81	0, 77	0, 74	0, 71	0,68	0, 62	0, 58
	ηs	0,72	0, 69	0, 63	0,59	0, 55	0,49	0,45	0, 41	0,38	0, 32	0, 28
110	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	28° 17'	27° 35'	15° 03'	14° 38'	12° 37'	7° 39'	7° 26'	6° 23'	5° 31'	4° 23'	3° 38'
	mx	5,8	4, 6	5, 89	4, 6	3, 75	5,89	4, 6	3, 75	3, 12	2, 36	1, 9
	ηd	0,89	0, 88	0, 85	0,84	0, 83	0, 78	0, 77	0, 74	0, 71	0, 66	0, 62
	ηs	0,71	0, 68	0, 62	0,61	0,58	0,48	0,48	0, 44	0,41	0,36	0, 32
130	Z1	4	4	2	2	2	1	1	1	1	1	1
	γ	28° 46'	26° 15'	15° 21'	13° 51'	11° 49'	7° 48'	7° 01'	5° 58'	5° 12'	4° 05'	3° 25'
	mx	7	5, 4	7	5, 4	4, 37	7	5, 4	4, 37	3,68	2, 75	2,24
	ηd	0,9	0, 88	0, 86	0,85	0, 83	0,79	0, 77	0, 74	0, 71	0, 67	0, 63
	ηs	0,71	0, 68	0, 62	0,6	0,57	0,49	0,46	0, 43	0,39	0, 34	0,3

Motor connections available

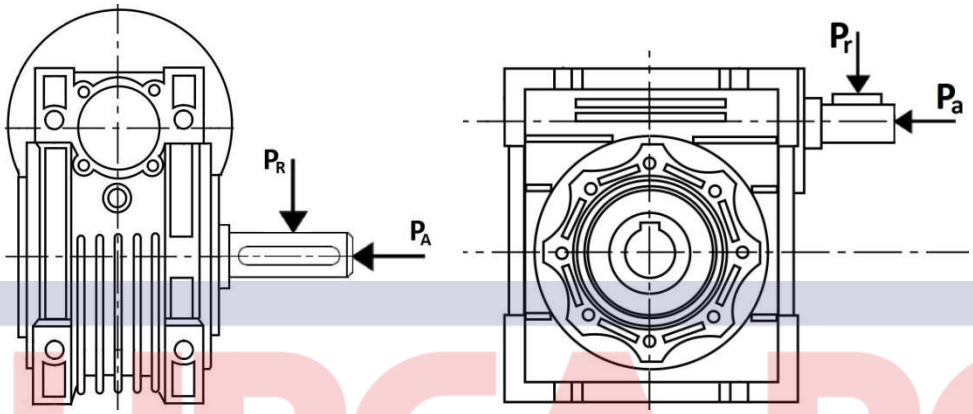


IN WAREHOUSE

Type	IEC	C	I	E	7,5	10	15	20	25	30	40	50	60	80	100
MSW030	63B5	95	115	140	11	11	11	11	11	11	11	11			
	63B14	60	75	90	11	11	11	11	11	11	11	11			
	56B5	80	100	120	9	9	9	9	9	9	9	9	9	9	
	56B14	50	65	80	9	9	9	9	9	9	9	9	9	9	
MSW040	71B5	110	130	160	14	14	14	14	14	14	14				
	71B14	70	85	105	14	14	14	14	14	14	14				
	63B5	95	115	140	11	11	11	11	11	11	11	11	11	11	11
	63B14	60	75	90	11	11	11	11	11	11	11	11	11	11	11
	56B5	80	100	120								9	9	9	9
MSW050	80B5	130	165	200	19	19	19	19	19	19					
	80B14	80	100	120	19	19	19	19	19	19					
	71B5	110	130	160	14	14	14	14	14	14	14	14	14	14	14
	71B14	70	85	105	14	14	14	14	14	14	14	14	14	14	14
	63B5	95	115	140							11	11	11	11	11
MSW063	90B5	130	165	200	24	24	24	24	24	24					
	90B14	95	115	140	24	24	24	24	24	24					
	80B5	130	165	200	19	19	19	19	19	19	19	19	19		
	80B14	80	100	120	19	19	19	19	19	19	19	19	19		
	71B5	110	130	160							14	14	14	14	14
	71B14	70	85	105							14	14	14	14	14
MSW075	100/112B5	180	215	250	28	28	28								
	100/112B14	110	130	160	28	28	28								
	90B5	130	165	200	24	24	24	24	24	24	24				
	90B14	95	115	140	24	24	24	24	24	24	24				
	80B5	130	165	200				19	19	19	19	19	19	19	19
	80B14	80	100	120				19	19	19	19	19	19	19	19
	71B5	110	130	160								14	14	14	14
MSW090	100/112B5	180	215	250	28	28	28	28	28	28					
	100/112B14	110	130	160	28	28	28	28	28	28					
	90B5	130	165	200	24	24	24	24	24	24	24	24	24		
	90B14	95	115	140	24	24	24	24	24	24	24	24	24		
	80B5	130	165	200							19	19	19	19	19
	80B14	80	100	120							19	19	19	19	19
MSW110	132B5	230	265	300	38	38	38	38							
	100/112B5	180	215	250	28	28	28	28	28	28	28	28	28		
	90B5	130	165	200					24	24	24	24	24	24	24
MSW130	132B5	230	265	300	38	38	38	38	38	38	38				
	100/112B5	180	215	250					28	28	28	28	28	28	28
	90B5	130	165	200										24	24

Radial and axial shaft load capacities

The value of the permissible radial load (P [N]) is given in the tables relating to the performance of the gear in question, which refers to the load on the center line of the shaft, based on the most unfavorable conditions according to the angle of application and the direction of rotation. The maximum allowable axial load is 1/5 of the value of the given radial load when applied together with the radial load. The tables for the output axes give the maximum permissible value. This value must never be exceeded. Radial loads greater than catalog limits may occur under certain conditions. In this case, please call our technical customer service giving the details of the application: direction of load, direction of shaft rotation, type of application.
In the case of double-sided drive shafts, if there is a radial load at both ends of the shaft, the maximum permissible radial loads must be determined according to the specific running conditions, in this case call our technical customer service.



Típus \ Áttétel		7.5:1	10:1	15:1	20:1	25:1	30:1	40:1	50:1	60:1	70:1	80:1	100:1
MSW030	PR	590	680	150	860	940	1000	1000	1100	1200	1300	1400	-
	PA	190	200	215	237	250	250	270	287	287	350	350	-
	Pr	150	150	160	160	190	210	210	210	210	210	210	-
	Pa	20	20	20	20	20	20	20	20	20	20	20	-
MSW040	PR	1350	1450	1660	1850	1970	2100	2300	2500	2650	2650	2900	3190
	PA	337	362	415	462	492	525	575	625	662	662	725	797
	Pr	380	380	380	380	380	380	380	380	380	380	380	380
	Pa	95	95	95	95	95	95	95	95	95	95	95	95
MSW050	PR	1810	1930	2280	2505	2696	2865	3160	3400	3620	3620	4000	4290
	PA	452	482	570	626	674	716	790	850	905	905	1000	1072
	Pr	485	485	485	485	485	485	485	485	485	485	485	485
	Pa	121	121	121	121	121	121	121	121	121	121	121	121
MSW063	PR	2365	2600	2980	3285	3540	3760	4150	4460	4730	4730	5200	5600
	PA	591	650	745	821	885	940	1037	1115	1182	1182	1300	1400
	Pr	580	580	580	580	580	580	580	580	580	580	580	580
	Pa	145	145	145	145	145	145	145	145	145	145	145	145
MSW075	PR	2800	3100	3520	3900	4170	4450	4890	5260	5580	5580	6150	6630
	PA	700	775	880	975	1042	1112	1222	1315	1395	1395	1537	1657
	Pr	650	650	650	650	650	650	650	650	650	650	650	650
	Pa	163	163	163	163	163	163	163	163	163	163	163	163
MSW090	PR	3085	3400	3850	4300	4650	4900	5450	5850	6200	6200	6820	7340
	PA	771	850	962	1075	1162	1225	1362	1462	1550	1550	1705	1835
	Pr	850	850	850	850	850	850	850	850	850	850	850	850
	Pa	213	213	213	213	213	213	213	213	213	213	213	213

Típus \ Áttétel		7.5:1	10:1	15:1	20:1	25:1	30:1	40:1	50:1	60:1	70:1	80:1	100:1
MSW110	PR	3900	4310	4950	5450	5880	6210	6830	7350	7795	7795	8600	9300
	PA	975	1077	1237	1362	1470	1552	1707	1837	1948	1948	2150	2325
	Pr	950	950	950	950	950	950	950	950	950	950	950	950
	Pa	238	238	238	238	238	238	238	238	238	238	238	238
MSW130	PR	5000	5600	6400	7000	7500	8000	8700	9500	10000	10500	11000	12000
	PA	1225	1263	1400	1483	1713	1975	2200	2525	2525	2525	2900	2900
	Pr	1500	1800	2000	2100	2100	2100	2100	2100	2100	2100	2100	2100
	Pa	300	300	300	300	300	300	300	300	300	300	300	300

Dead game

The table below shows the backlash measured on the output shaft of our worm gear units.

Típus	Holtjáték [']
MSW030	30' +/- 10'
MSW040	25' +/- 5'
MSW050	25' +/- 5'
MSW063	20' +/- 5'
MSW075	20' +/- 5'
MSW090	15' +/- 5'
MSW110	15' +/- 5'
MSW130	15' +/- 5'

Gear selection table

MSW030 **23Nm**

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	66	374	13	0,58	87
	3	10	62	280	13	0,44	85
	2	15	54	187	14	0,33	81
	2	20	50	140	14	0,25	77
	1	25	43	112	17	0,25	72
	1	30	39	93	15	0,21	70
	1	40	35	70	14	0,16	64
	1	50	31	56	12	0,12	61
	1	60	27	47	12	0,11	58
	1	80	23	35	9	0,07	48

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	66	187	18	0,41	84
	3	10	62	140	18	0,32	81
	2	15	54	93	18	0,23	76
	2	20	50	70	18	0,18	72
	1	25	43	56	21	0,18	67
	1	30	39	47	20	0,15	64
	1	40	35	35	18	0,12	58
	1	50	31	28	16	0,09	54
	1	60	27	23,3	17	0,08	50
	1	80	23	17,5	13	0,05	44

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	66	120	20	0,3	82
	3	10	62	90	20	0,2	79
	2	15	54	60	20	0,17	74
	2	20	50	45	20	0,14	70
	1	25	43	36	23	0,12	63
	1	30	39	30	22	0,12	60
	1	40	35	22,5	19	0,09	54
	1	50	31	18	17	0,09	51
	1	60	27	15	18	0,07	47
	1	80	23	11,3	14	0,06	41

MSW040 49Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	374	28	1,2	88
	4	10	65	280	29	1	88
	2	15	58	187	31	0,72	84
	2	20	53	140	29	0,52	81
	2	25	50	112	28	0,42	78
	1	30	44	93	34	0,44	74
	1	40	40	70	31	0,32	69
	1	50	36	56	30	0,36	67
	1	60	32	47	28	0,21	64
	1	80	28	35	25	0,16	59
	1	100	24	28	23	0,12	55

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	187	39	0,88	86
	4	10	65	140	40	0,72	85
	2	15	58	93	40	0,48	81
	2	20	53	70	40	0,37	77
	2	25	50	56	39	0,3	74
	1	30	44	47	43	0,3	69
	1	40	40	35	42	0,23	64
	1	50	36	28	38	0,18	61
	1	60	32	23,3	38	0,16	57
	1	80	28	17,5	34	0,12	51
	1	100	24	14	30	0,1	47

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	120	44	0,65	85
	4	10	65	90	44	0,5	83
	2	15	58	60	45	0,36	78
	2	20	53	45	44	0,28	74
	2	25	50	36	43	0,23	71
	1	30	44	30	49	0,23	65
	1	40	40	22,5	45	0,17	60
	1	50	36	18	42	0,14	57
	1	60	32	15	39	0,11	53
	1	80	28	11,3	35	0,09	47
	1	100	24	9	32	0,07	43

MSW050 90Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	374	52	2,3	88
	4	10	65	280	54	1,8	86
	2	15	58	187	57	1,3	83
	2	20	54	140	53	0,95	81
	2	25	50	112	51	0,75	78
	1	30	44	93	64	0,82	74
	1	40	39	70	59	0,59	70
	1	50	35	56	53	0,45	67
	1	60	32	47	50	0,37	65
	1	80	27	35	45	0,27	58
	1	100	23	28	40	0,21	56

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	187	75	1,65	86
	4	10	65	140	70	1,21	84
	2	15	58	93	76	0,9	80
	2	20	54	70	71	0,66	77
	2	25	50	56	71	0,55	74
	1	30	44	47	80	0,55	70
	1	40	39	35	75	0,41	65
	1	50	35	28	72	0,33	61
	1	60	32	23,3	72	0,3	59
	1	80	27	17,5	62	0,22	51
	1	100	23	14	54	0,16	49

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	69	120	84	1,2	85
	4	10	65	90	84	0,94	82
	2	15	58	60	84	0,67	77
	2	20	54	45	77	0,48	74
	2	25	50	36	75	0,39	70
	1	30	44	30	90	0,42	66
	1	40	39	22,5	82	0,31	61
	1	50	35	18	77	0,25	57
	1	60	32	15	72	0,21	54
	1	80	27	11,3	68	0,16	46
	1	100	23	9	56	0,12	44

MSW063 175Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	374	93	4	89
	4	10	65	280	97	3,2	88
	2	15	59	187	103	2,3	85
	2	20	54	140	100	1,7	83
	2	25	50	112	92	1,3	81
	1	30	45	93	120	1,5	77
	1	40	40	70	108	1,1	74
	1	50	36	56	100	0,83	71
	1	60	33	47	95	0,68	67
	1	80	28	35	85	0,49	62
	1	100	24	28	74	0,37	57

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	187	129	2,86	87
	4	10	65	140	130	2,2	86
	2	15	59	93	140	1,65	82
	2	20	54	70	135	1,21	80
	2	25	50	56	132	0,99	77
	1	30	45	47	167	1,1	73
	1	40	40	35	143	0,75	69
	1	50	36	28	135	0,61	65
	1	60	33	23,3	126	0,5	61
	1	80	28	17,5	126	0,41	56
	1	100	24	14	116	0,33	50

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	120	151	2,2	86
	4	10	65	90	153	1,7	84
	2	15	59	60	155	1,2	79
	2	20	54	45	148	0,91	77
	2	25	50	36	137	0,69	74
	1	30	45	30	175	0,79	69
	1	40	40	22,5	160	0,58	65
	1	50	36	18	145	0,45	61
	1	60	33	15	138	0,37	56
	1	80	28	11,3	128	0,29	52
	1	100	24	9	124	0,25	45

MSW075 260Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	374	130	5,6	89
	4	10	67	280	145	4,7	89
	2	15	60	187	150	3,4	87
	2	20	57	140	160	2,8	84
	2	25	52	112	150	2,1	82
	1	30	46	93	170	2,1	79
	1	40	42	70	165	1,6	76
	1	50	38	56	150	1,2	73
	1	60	35	47	145	1	69
	1	80	29	35	130	0,72	65
	1	100	26	28	120	0,58	60

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	187	200	4,4	88
	4	10	67	140	192	3,2	87
	2	15	60	93	208	2,4	84
	2	20	57	70	221	2	81
	2	25	52	56	205	1,5	79
	1	30	46	47	233	1,5	75
	1	40	42	35	216	1,1	71
	1	50	38	28	211	0,9	68
	1	60	35	23,3	199	0,75	64
	1	80	29	17,5	198	0,6	59
	1	100	26	14	185	0,5	54

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	70	120	215	3,1	86
	4	10	67	90	230	2,5	85
	2	15	60	60	235	1,8	82
	2	20	57	45	235	1,4	78
	2	25	52	36	215	1,1	76
	1	30	46	30	260	1,1	72
	1	40	42	22,5	240	0,83	67
	1	50	38	18	220	0,65	63
	1	60	35	15	210	0,54	59
	1	80	29	11,3	200	0,43	54
	1	100	26	9	190	0,36	49

MSW090 460Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	72	374	210	8,9	91
	4	10	69	280	235	7,7	90
	2	15	63	187	270	6	87
	2	20	59	140	260	4,4	85
	2	25	55	112	250	3,4	85
	1	30	49	93	310	3,7	82
	1	40	45	70	275	2,6	78
	1	50	41	56	265	2	75
	1	60	38	47	245	1,6	74
	1	80	32	35	225	1,2	67
	1	100	28	28	200	0,9	64

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	72	187	295	6,4	89
	4	10	69	140	317	5,2	88
	2	15	63	93	353	4	85
	2	20	59	70	366	3,2	83
	2	25	55	56	336	2,4	81
	1	30	49	47	431	2,7	77
	1	40	45	35	368	1,8	74
	1	50	41	28	331	1,35	71
	1	60	38	23,3	311	1,1	68
	1	80	32	17,5	284	0,83	62
	1	100	28	14	272	0,68	58

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	72	120	340	4,8	88
	4	10	69	90	370	4	86
	2	15	63	60	420	3,1	82
	2	20	59	45	390	2,3	80
	2	25	55	36	370	1,8	79
	1	30	49	30	460	1,9	74
	1	40	45	22,5	410	1,4	70
	1	50	41	18	390	1,1	67
	1	60	38	15	350	0,86	65
	1	80	32	11,3	315	0,63	57
	1	100	28	9	280	0,49	54

MSW110 840Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	374	391	16,6	90
	4	10	68	280	437	14,1	90
	2	15	62	187	489	10,7	88
	2	20	61	140	483	8	86
	2	25	58	112	506	6,8	86
	1	30	48	93	552	6,5	82
	1	40	48	70	529	4,7	81
	1	50	44	56	495	3,7	79
	1	60	41	47	473	3	75
	1	80	36	35	399	2	71
	1	100	32	28	368	1,6	67

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	187	552	12	89
	4	10	68	140	592	9,8	88
	2	15	62	93	660	7,5	85
	2	20	61	70	638	5,5	84
	2	25	58	56	688	4,8	83
	1	30	48	47	712	4,4	78
	1	40	48	35	702	3,3	77
	1	50	44	28	614	2,4	74
	1	60	41	23,3	648	2,2	71
	1	80	36	17,5	548	1,5	66
	1	100	32	14	473	1,1	62

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	120	650	9,2	88
	4	10	68	90	713	7,6	87
	2	15	62	60	759	5,6	84
	2	20	61	45	725	4,1	82
	2	25	58	36	759	3,5	81
	1	30	48	30	840	3,5	75
	1	40	48	22,5	794	2,5	74
	1	50	44	18	748	2	71
	1	60	41	15	682	1,6	67
	1	80	36	11,3	567	1,1	61
	1	100	32	9	515	0,84	57

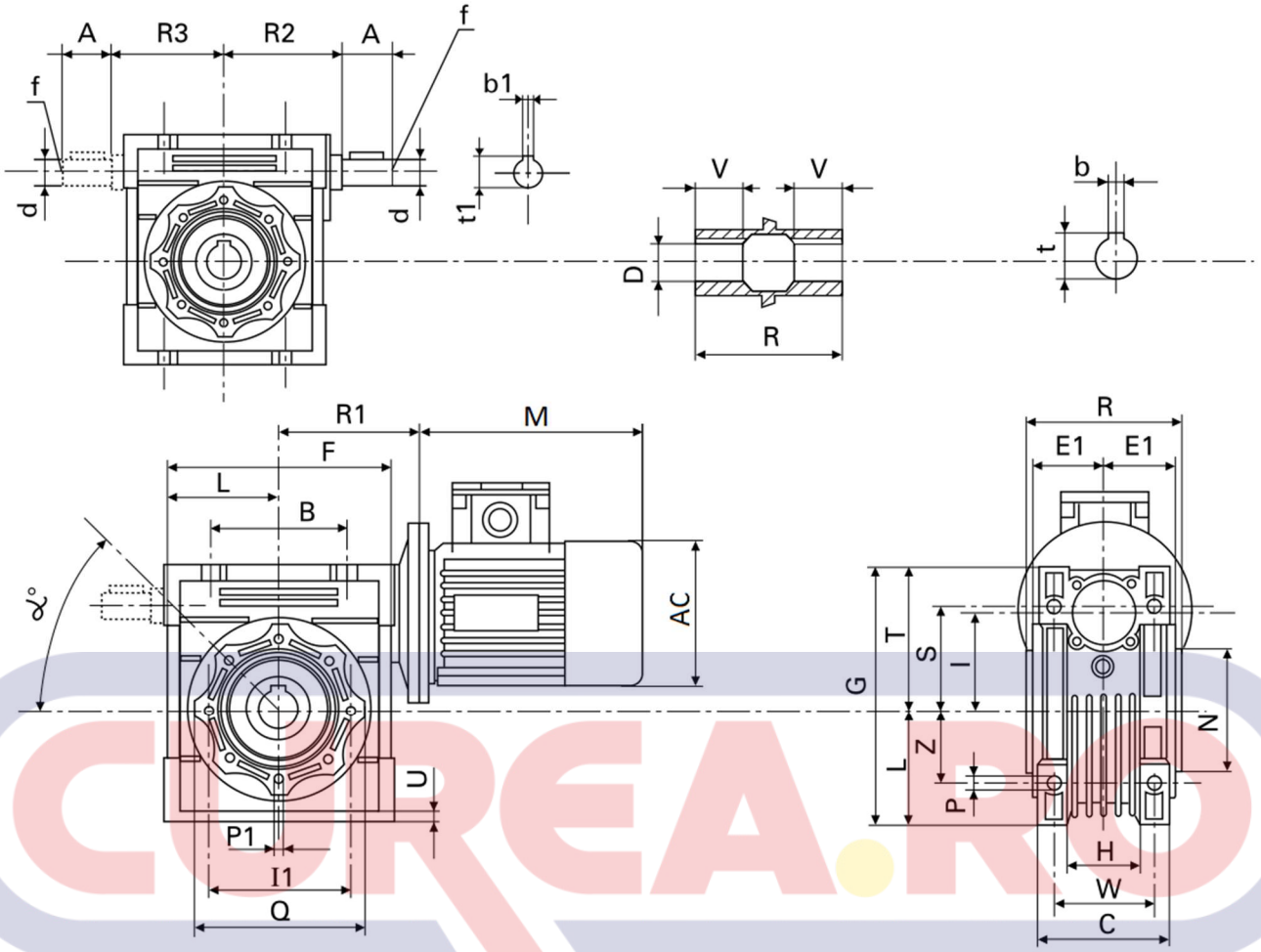
MSW130 — 1107Nm

n=2800/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	374	534	22,1	91
	4	10	68	280	585	18,7	90
	2	15	62	187	580	14,7	89
	2	20	60	140	638	11	87
	2	25	57	112	697	9	86
	1	30	49	93	729	9	83
	1	40	46	70	735	6,5	81
	1	50	43	56	659	5,1	79
	1	60	39	47	698	4	75
	1	80	34	35	629	3	72
	1	100	30	28	507	2,2	68

n=1400/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	187	770	16,5	90
	4	10	68	140	827	13,5	88
	2	15	62	93	796	9	86
	2	20	60	70	880	7,5	85
	2	25	57	56	968	6,8	83
	1	30	49	47	984	6	79
	1	40	46	35	1057	5	77
	1	50	43	28	923	3,6	74
	1	60	39	23,3	981	3,3	71
	1	80	34	17,5	895	2,4	67
	1	100	30	14	721	1,7	63

n=900/min	Z1	i	ηS [%]	n2 [1/min]	Mn2 [Nm]	Pn [kW]	ηD [%]
	4	7,5	71	120	903	12,3	89
	4	10	68	90	968	10,3	87
	2	15	62	60	917	7,8	85
	2	20	60	45	1006	5,8	83
	2	25	57	36	1093	4,8	81
	1	30	49	30	1107	4,7	76
	1	40	46	22,5	1107	3,5	74
	1	50	43	18	989	2,7	71
	1	60	39	15	1025	2,1	67
	1	80	34	11,3	916	1,6	62
	1	100	30	9	760	1,2	58

Dimension drawing and size chart



MSW	B	A	F	D(H7)	d(j6)	G	H	R1	R	R2	R3	L	I	C	I1	N(h8)	E1
30	54	20	80	14	9	97	32	55	63	51	45	40	30	56	65	55	29
40	70	23	100	18	11	121.5	43	70	78	60	53	50	40	71	75	60	36,5
50	80	30	120	25	14	144	49	80	92	74	64	60	50	85	85	70	43,5
63	100	40	144	25	19	174	67	95	112	90	75	72	63	103	95	80	53
75	120	50	172	28	24	205	72	112.5	120	105	90	86	75	112	115	95	57
90	140	50	208	35	24	238	74	129,5	140	125	108	103	90	130	130	110	67
110	170	60	252.5	42	28	295	-	160	155	142	135	127,5	110	144	165	130	74
130	200	80	292.5	45	30	335	-	180	170	162	155	147,5	130	155	215	180	81

MSW	P	Q	S	T	U	V	Z	W	P1	α	b	b1	f	t	t1	Kg
30	6,5	75	44	57	5.5	21	27	44	M6x11(n.4)	90°	5	3	-	16.3	10,2	1.2
40	6,5	87	55	71,5	6.5	26	35	60	M6x8(n.4)	45°	6	4	-	20.8	12,5	2.3
50	8,5	100	64	84	7	30	40	70	M8x10(n.4)	45°	8	5	M6	28.3	16,0	3.5
63	8,5	110	80	102	8	36	50	85	M8x14(n.4)	45°	8	6	M6	28.3	21,5	6.2
75	11	140	93	119	10	40	60	90	M8x14(n.4)	45°	8	8	M8	31.3	27,0	8.5
90	13	160	102	135	11	45	70	100	M10x18(n.4)	45°	10	8	M8	38.3	27,0	12
110	14	200	125	167,5	14	50	85	115	M10x18(n.4)	45°	12	8	M10	45.3	31,0	35
130	16	250	140	187,5	15	60	100	120	M12x21(n.4)	45°	14	8	M10	48.8	33,0	53

MS	56	63	71	80	90S	90L	100	112	132S	132M
M	179	194	215	247	265	290	325	340	403	430
AC	110	130	145	175	195	195	215	240	275	275

MSW/MSPC serial

WORM GEARED MOTORS WITH PRE-STAGE HELICAL UNIT

MSPC PRE-STAGE HELICAL UNIT

MSPC gear units are single-stage spur gear units of the Morgensen product family, which are mainly used as gear units to increase gear ratios, or for worm drives in order to achieve better efficiency.

The table below shows which MSPC gearbox can be assembled with which MSW worm gearbox with which gear ratio.

Type		MSPC063	MSPC071	MSPC080	MSPC090
	Ratio	i=3	i=3,17	i=3	i=2,43
MSW040	40	x			
	50	x			
	60	x			
	80	x			
	100	x			
MSW050	40	x	x		
	50	x	x		
	60	x	x		
	80	x	x		
	100	x			
MSW063	40		x		
	50		x		
	60		x		
	80		x		
	100		x		
MSW075	40			x	x
	50		x		
	60		x		
	80		x		
	100		x		
MSW090	40			x	x
	50			x	x
	60			x	x
	80			x	
	100			x	
MSW110	40				x
	50				x
	60				x
	80				x
	100				x
MSW130	40				
	50				
	60				
	80				x
	100				x

Inlet and outlet side connections

Type	Drive-in side connection		Outlet side connection	
	Adapter flange (mm)	Axis (mm)	Adapter flange (mm)	Axis (mm)
MSPC063	95	11	105	11
MSPC071	110	14	120	14
MSPC080	130	19	160	19
MSPC090	130	24	160	24

Gear selection table

MSW040 / MSPC63 — 61Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	61	0,18
	120	11,7	52	0,18
	150	9,3	46	0,18
	180	7,8	46	0,18
	240	5,8	40	0,18
	300	4,7	36	0,18

MSW050 / MSPC63 — 89Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	69	0,18
	120	11,7	85	0,18
	150	9,3	89	0,18
	180	7,8	88	0,18
	240	5,8	76	0,18
	300	4,7	65	0,18

MSW050 / MSPC71 — 112Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	97	0,25
	120	11,7	110	0,25
	150	9,3	112	0,25

MSW063 / MSPC63 — 136Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	150	9,3	101	0,18
	180	7,8	115	0,18
	240	5,8	136	0,18
	300	4,7	121	0,18

MSW040 / MSPC71 — 192Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	145	0,37
	90	15,6	98	0,25
	120	11,7	184	0,37
	120	11,7	124	0,25
	150	9,3	192	0,37
	150	9,3	129	0,25
	180	7,8	164	0,25
	240	5,8	139	0,25
	300	4,7	128	0,25

MSW075 / MSPC71 — 89Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	153	0,37
	120	11,7	190	0,37
	150	9,3	220	0,37
	180	7,8	236	0,37
	180	7,8	159	0,25
	240	5,8	208	0,25
	300	4,7	210	0,25

MSW075 / MSPC80 — 307Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	307	0,75
	120	11,7	278	0,55
	150	9,3	260	0,55

MSW090 / MSPC71 — 345Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	180	7,8	260	0,37
	240	5,8	320	0,37
	300	4,7	345	0,37

MSW090 / MSPC80 — 426Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	90	15,6	320	0,75
	120	11,7	397	0,75
	150	9,3	426	0,75
	180	7,8	425	0,75
	240	5,8	374	0,55

MSW110 / MSPC80 — 617Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	120	11,7	421	0,75
	150	9,3	496	0,75
	180	7,8	569	0,75
	240	5,8	617	0,75
	300	4,7	585	0,55

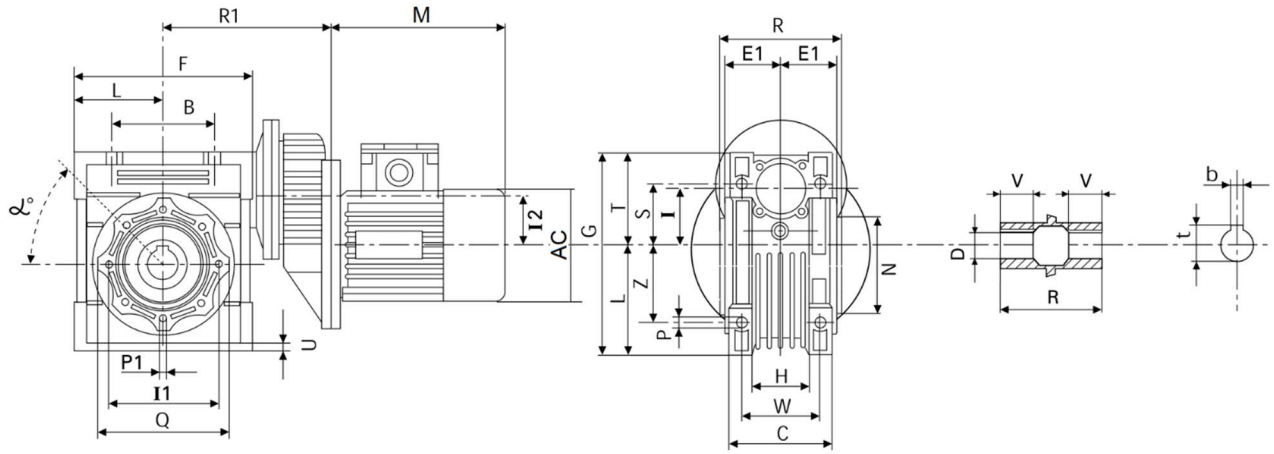
MSW110 / MSPC90 — 810Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	96,8	14,5	679	1,5
	121	11,6	801	1,5
	145,2	9,6	810	1,5
	145,2	9,6	595	1,1
	193,6	7,2	660	1,1

MSW130 / MSPC90 — 1013Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	96,8	14,5	679	1,5
	121	11,6	813	1,5
	145,2	9,6	917	1,5
	193,6	7,2	1013	1,5
	242	5,8	848	1,1

Dimension drawing and size chart



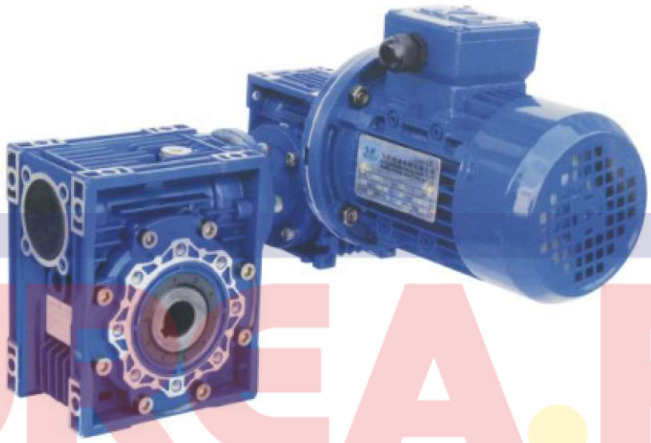
MSW	B	F	G	H	R1	R	L	I	I2	C	I1	N(h8)	E1	P
040+63	70	100	121.5	43	70	78	50	40	40	71	75	60	36,5	6,5
050+63	80	120	144	49	80	92	60	50	40	85	85	70	43,5	8,5
050+71	80	120	144	49	80	92	60	50	50	85	85	70	43,5	8,5
063+63	100	144	174	67	95	112	72	63	40	103	95	80	53	8,5
063+71	100	144	174	67	95	112	72	63	50	103	95	80	53	8,5
075+71	120	172	205	72	112.5	120	86	75	50	112	115	95	57	11
075+80	120	172	205	72	112.5	120	86	75	63	112	115	95	57	11
090+71	140	208	238	74	129,5	140	103	90	50	130	130	110	67	13
090+80	140	208	238	74	129,5	140	103	90	63	130	130	110	67	13
110+80/90	170	252.5	295	-	160	155	127,5	110	63	144	165	130	74	14
130+80/90	200	292,5	335	-	253	170	63	155	63	155	215	180	81	16

MSW	Q	S	T	U	V	Z	W	P1	α	D(H7)	b	t	Kg
040+63	87	55	71,5	6.5	26	35	60	M6x8(n.4)	45°	18	6	20.8	2.3
050+63	100	64	84	7	30	40	70	M8x10(n.4)	45°	25	8	28.3	3.5
050+71	100	64	84	7	30	40	70	M8x10(n.4)	45°	25	8	28.3	3.5
063+63	110	80	102	8	36	50	85	M8x14(n.8)	45°	25	8	28.3	6.2
063+71	110	80	102	8	36	50	85	M8x14(n.8)	45°	25	8	28.3	6.2
075+71	140	93	119	10	40	60	90	M8x14(n.8)	45°	28	8	31.3	8.5
075+80	140	93	119	10	40	60	90	M8x14(n.8)	45°	28	8	31.3	8.5
090+71	160	102	135	11	45	70	100	M10x18(n.8)	45°	35	10	38.3	12
090+80	160	102	135	11	45	70	100	M10x18(n.8)	45°	35	10	38.3	12
110+80/90	200	125	167,5	14	50	85	115	M10x18(n.8)	45°	42	12	45.3	35
130+80/90	250	140	187,5	15	60	100	120	M12x21(n.8)	45°	45	14	48.8	53

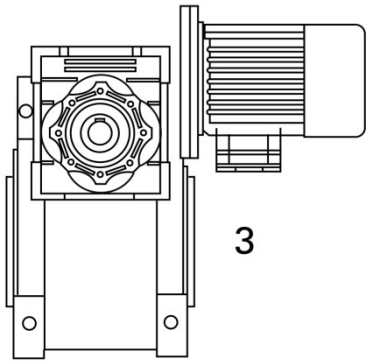
MS	56	63	71	80	90S	90L	100	112	132S	132M
M	179	194	215	247	265	290	325	340	403	430
AC	110	130	145	175	195	195	215	240	275	275

MSW/MSW serial

COMBINED WORM GEARED MOTORS



Installation positions



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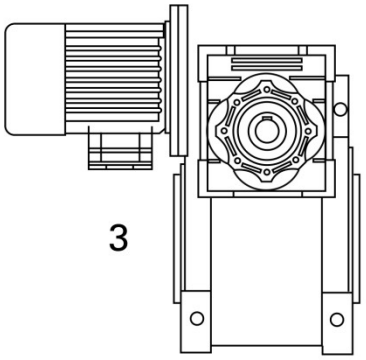

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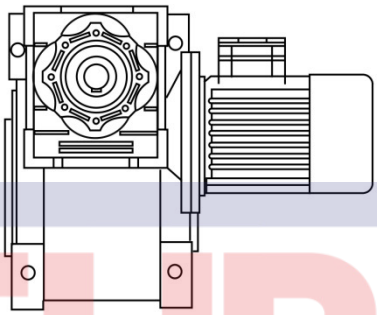
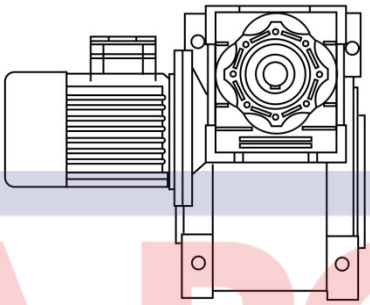
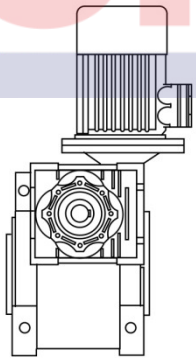


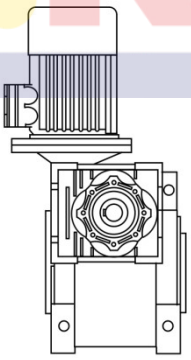
OBD



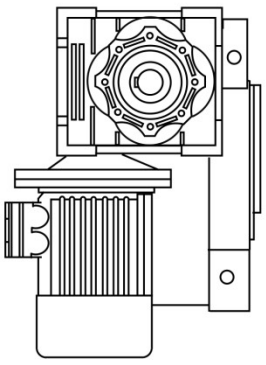
OBS



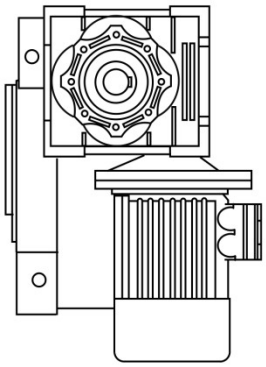
VAD



VAS



VBS



VBD

Gear selection table

MSW030/040 **73Nm**

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	70	0,09
	400	3,5	63	0,09
	500	2,8	57	0,09
	600	2,3	72	0,09
	750	1,9	72	0,09
	900	1,6	73	0,09
	1200	1,2	65	0,09
	1500	0,9	73	0,09
	1800	0,8	73	0,09
	2400	0,6	65	0,09

MSW030/050 **155Nm**

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	142	0,18
	400	3,5	127	0,18
	500	2,8	123	0,09
	600	2,3	143	0,09
	750	1,9	148	0,09
	900	1,6	141	0,09
	1200	1,2	118	0,09
	1500	0,9	137	0,09
	1800	0,8	155	0,09
	2400	0,6	124	0,09

MSW030/063 **236Nm**

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	210	0,22
	400	3,5	222	0,18
	500	2,8	205	0,18
	600	2,3	208	0,18
	750	1,9	216	0,18
	900	1,6	200	0,09
	1200	1,2	236	0,09
	1500	0,9	204	0,09
	1800	0,8	202	0,09
	2400	0,6	220	0,09

MSW040/075 — 405Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	405	0,37
	400	3,5	336	0,25
	500	2,8	307	0,25
	600	2,3	362	0,18
	750	1,9	391	0,18
	900	1,6	325	0,18
	1200	1,2	359	0,18
	1500	0,9	360	0,09
	1800	0,8	404	0,09
	2400	0,6	330	0,09

MSW040/090 — 629Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	405	0,37
	400	3,5	523	0,37
	500	2,8	550	0,37
	600	2,3	605	0,37
	750	1,9	538	0,25
	900	1,6	533	0,25
	1200	1,2	629	0,18
	1500	0,9	588	0,18
	1800	0,8	492	0,18
	2400	0,6	625	0,18

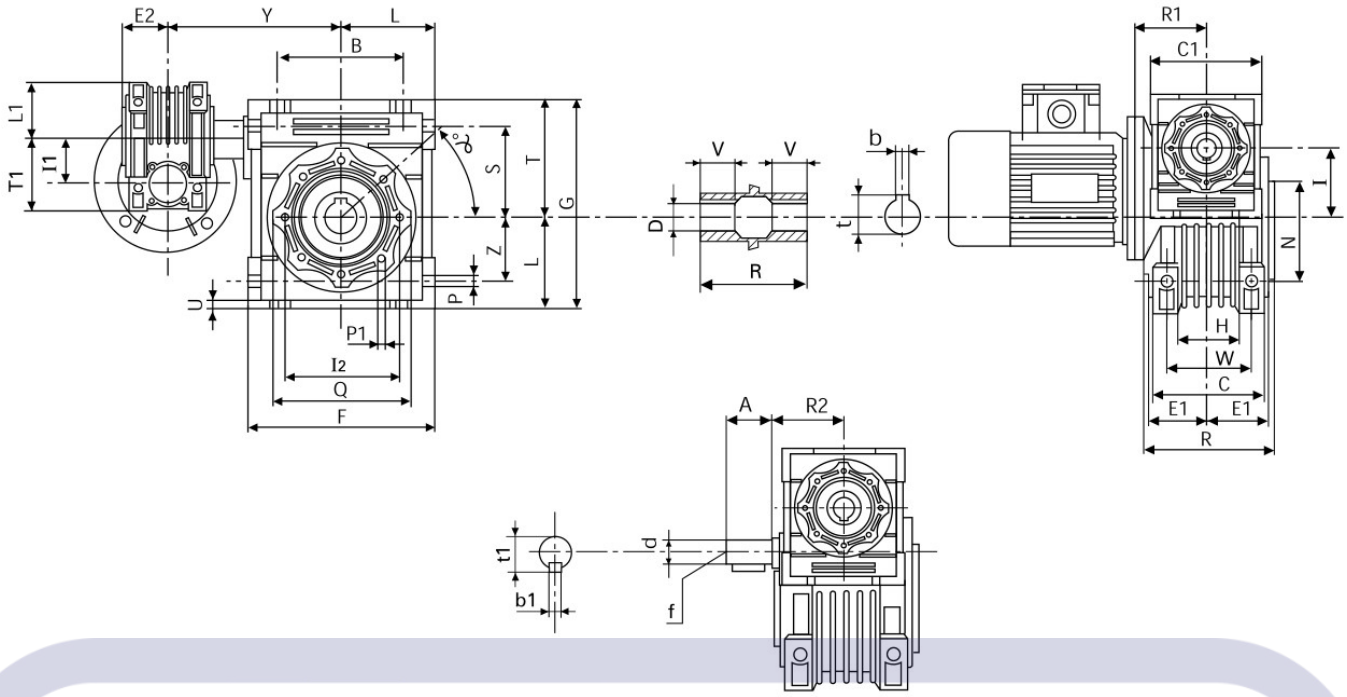
MSW050/110 — 1128Nm

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	871	0,75
	400	3,5	1013	0,75
	500	2,8	984	0,55
	600	2,3	1062	0,55
	750	1,9	1128	0,55
	900	1,6	1079	0,37
	1200	1,2	943	0,25
	1500	0,9	1064	0,25
	1800	0,8	1075	0,25
	2400	0,6	1001	0,18

MSW063/110 **1826Nm**

n=1400/min	i	n2 [1/min]	Mn2 [Nm]	Pn [kW]
	300	4,7	1789	1,5
	400	3,5	1519	1,1
	500	2,8	1629	1,1
	600	2,3	1631	0,75
	750	1,9	1804	0,75
	900	1,6	1826	0,75
	1200	1,2	1705	0,55
	1500	0,9	1674	0,37
	1800	0,8	1698	0,7
	2400	0,6	1624	0,25

Dimension drawing and size chart



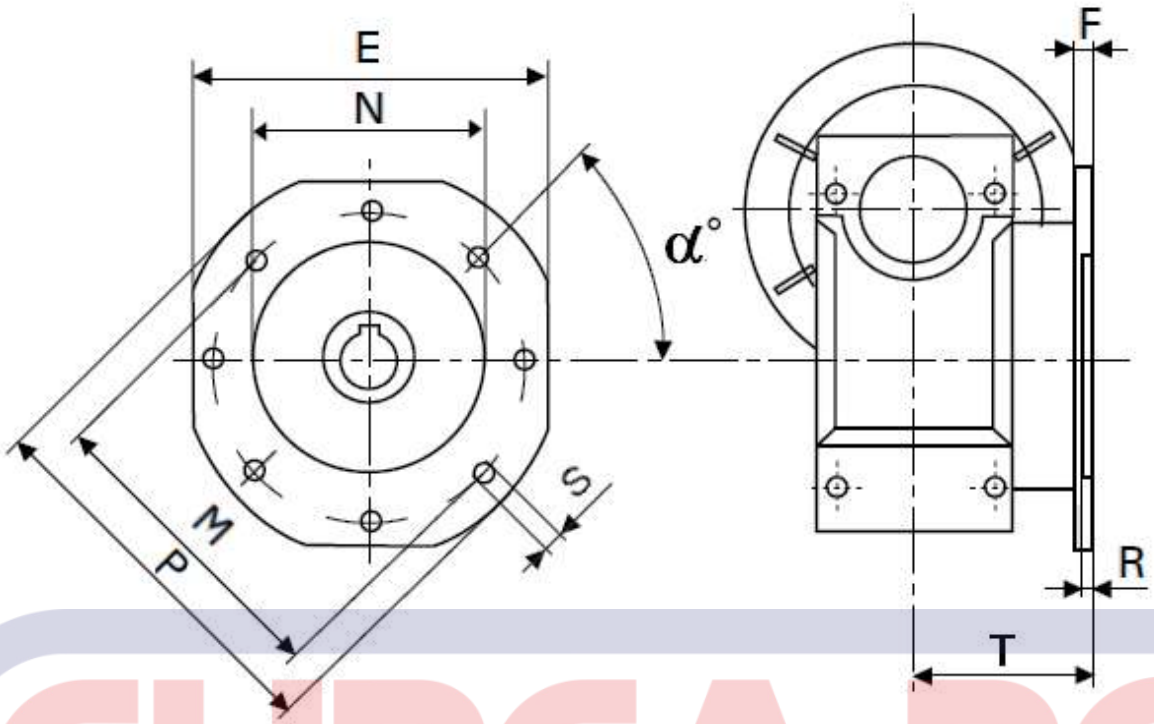
MSW/MSW	B	A	F	C1	D(H7)	d(j6)	G	H	R1	R	R2	L	L1	I	I1	C	I2	N(H8)	E1	E2
030/040	70	20	100	80	18	9	121.5	43	55	78	51	50	40	40	30	71	75	60	36.5	29
030/050	80	20	120	80	25	9	144	49	55	92	51	60	40	50	30	85	85	70	43.5	29
030/063	100	20	144	80	25	9	174	67	55	112	51	72	40	63	30	103	95	80	53	29
040/075	120	23	172	100	28	11	205	72	70	120	60	86	50	75	40	112	115	95	57	36.5
040/090	140	23	208	100	35	11	238	74	70	140	60	103	50	90	40	130	130	110	67	36.5
050/110	170	30	252.5	120	42	14	295	-	80	155	74	127.5	60	110	50	144	165	130	74	43.5
063/130	200	40	292.5	144	45	19	335	-	95	170	90	147.5	72	130	63	155	215	180	81	53

MSW/MSW	P	Q	S	T	T1	U	V	Z	Y	W	P1	a	b	b1	f	t	T1	kg
030/040	6.5	87	55	71,5	57	6.5	26	35	120	60	M6x8(n.4)	45°	6	3	-	20,8	10,2	3,9
030/050	8.5	100	64	84	57	7	30	40	130	70	M8x10(n.4)	45°	8	3	-	28,3	10,2	5
030/063	8.5	110	80	102	57	8	36	50	145	85	M8x14(n.8)	45°	8	3	-	28,3	10,2	7,8
040/075	11	140	93	119	71,5	10	40	60	165	90	M8x14(n.8)	45°	8	4	-	31,3	12,5	11,5
040/090	13	160	102	135	71,5	11	45	70	182	100	M10x18(n.8)	45°	10	4	-	38,3	12,5	15
050/110	14	200	125	167,5	84	14	50	85	225	115	M10x18(n.8)	45°	12	5	M6	45,3	16,0	39,2
063/130	16	250	140	187,5	102	15	60	100	245	120	M12x21(n.4)	45°	14	6	M6	48,8	21,5	70

Additional parts for MSW worm gears

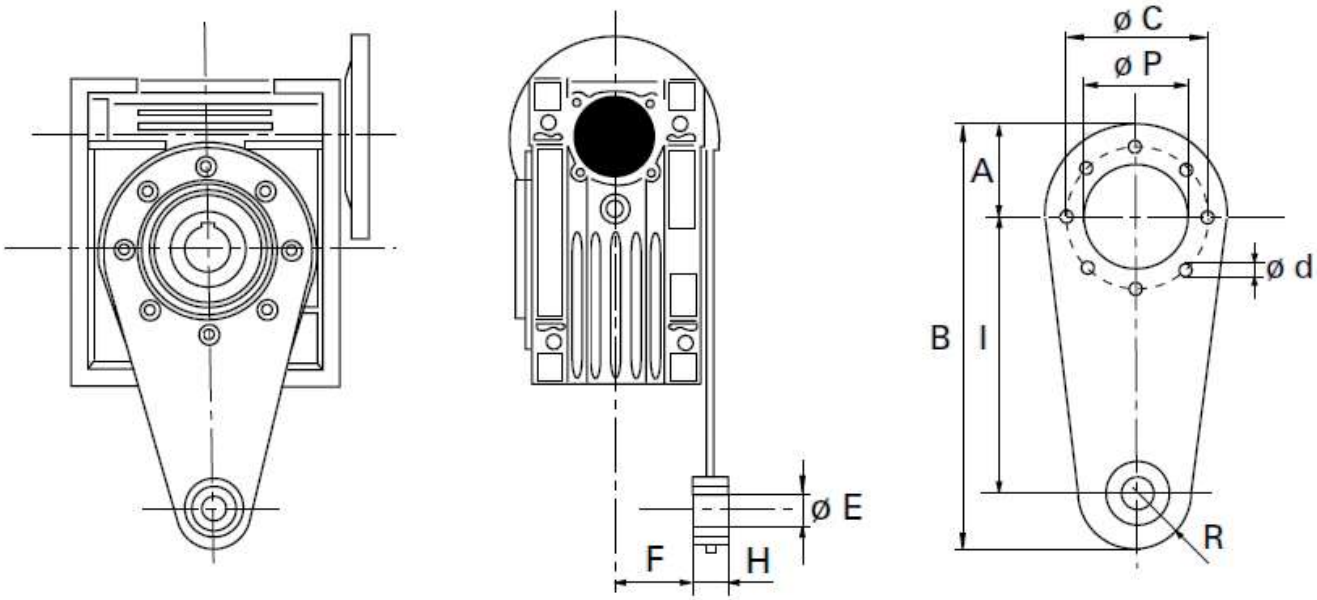
Drive-out flange
Torque arm
One-sided output shaft
Double-sided output shaft

Flange dimensions



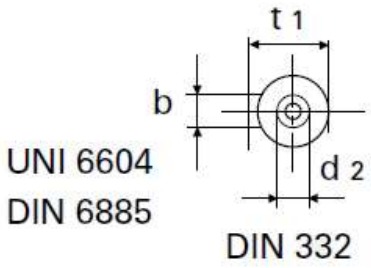
MSW	30	40	50	63	75	90	110	130
P	80	110	125	180	200	210	280	320
M	68	75	85	150	165	175	230	255
N	50	60	70	115	130	152	170	180
E	70	95	110	142	170	200	260	290
S	6,5	9	11	11	14	14	14	16
α	45	45	45	45	45	45	45	45
T	54,5	67	90	82	111	111	131	140
F	6	7	9	10	13	13	15	15
R	4	4	5	6	6	6	6	6

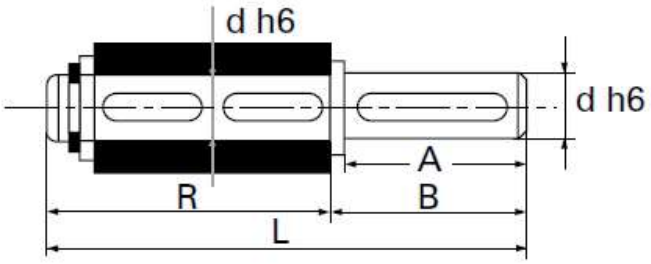
Torque arm dimensions



MSW	30	40	50	63	75	90	110	130
I	80	100	100	150	200	200	250	250
R	15	18	18	18	30	30	35	35
F	24	31,5	38,5	49	47,5	57,5	62	69
H	14	14	14	14	25	25	30	30
E	8	10	10	10	20	20	25	25
A	38	44	50	55	70	80	100	125
B	138	162	168	223	300	310	385	410
C	65	75	85	95	115	130	165	215
d	7	7	9	9	9	11	11	14
P	55	60	70	80	95	110	130	180
N	8	8	8	8	8	8	8	8
Tömeg[kg]	0,18	0,24	0,27	0,57	1,10	1,26	1,92	2,23

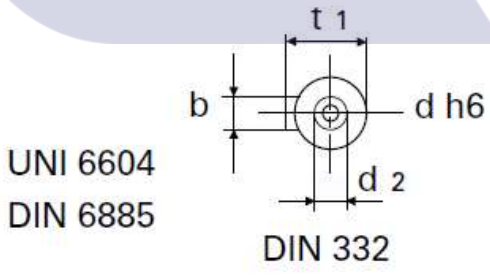
Dimensions of one-sided output shaft

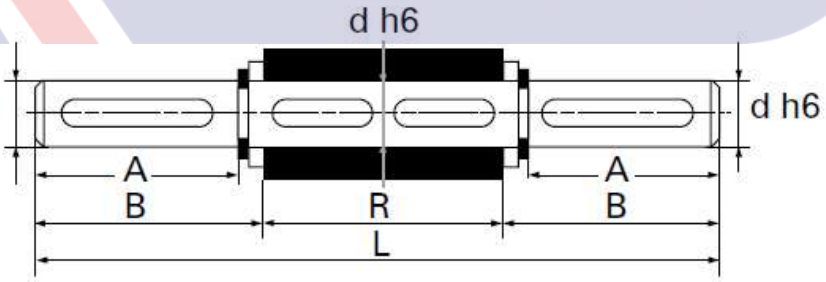




MSW	30	40	50	63	75	90	110	130
A	30	40	50	50	60	80	80	80
d	14	18	25	25	28	35	42	45
B	32,5	43	53,5	53,5	63,5	84,5	84,5	85
b	5	6	8	8	8	10	12	14
t1	16	20,5	28	28	31	38	45	48,5
T	69,5	85	99,5	119,5	128,5	149,5	164,5	180
L	102	128	153	173	192	234	249	265
d2	M6X16	M6X16	M10X22	M10X22	M10X22	M12X28	M16X35	M16X35
Weight[kg]	0,14	0,27	0,60	0,67	0,94	1,79	2,70	3,60

Double-sided output shaft dimensions





MSW	30	40	50	63	75	90	110	130
A	30	40	50	50	60	80	80	80
d	14	18	25	25	28	35	42	45
B	32,5	43	53,5	53,5	63,5	84,5	84,5	85
R	63	78	92	112	120	140	155	170
b	5	6	8	8	8	10	12	14
t1	16	20,5	28	28	31	38	45	48,5
L	128	164	199	219	247	309	324	340
d2	M6X16	M6X16	M10X22	M10X22	M10X22	M12X28	M16X35	M16X35
Tömeg[kg]	0,14	0,27	0,60	0,67	0,94	1,79	2,70	3,60

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