

WG20

Gear Units and Geared Motors up to 18000 Nm TECHNICAL CATALOGUE





Motors | Automation | Energy | Transmission & Distribution | Coatings



WEG Group - Transforming energy into solutions.

WEG is a leading global manufacturer and solutions provider of drive technology, energy production and distribution, and automation systems and switchgear construction. Founded in Brazil in 1961 by three entrepreneurs, WEG has grown to become one of the most important global manufacturers of electric motors. WEG has more than 37,000 employees around the world. The annual turnover of around 3 billion euro reflects its increasing success. The company's global presence is supported by branches in 39 countries, production facilities, and a network of authorised dealers on all five continents.





Your requirements - our expertise

As one of the leading global manufacturers and solutions providers of drive technology, WEG's aim was to expand its extensive range of products by gear units produced in its own facilities. Perfect coordination of products throughout the drive train has put WEG in a position to offer customers even more superior and efficient solutions.

Under the leadership of Watt Drive, the challenge was to develop a program which not only meets the current demands of the market, but also satisfied WEG's high quality requirements. The Group's own centre of excellence for geared motors in Austria, part of the WEG Group since 2011, can draw on more than 40 years of experience in development, production and sales of gear units and geared motors.

In order to satisfy the requirements of state-of-the-art geared motors the following market requirements were taken into account during the development phase:

Standard mounting dimensions

For users, the aim was to make the new range of geared motors as easy and effortless to use as possible. To ensure installation in an existing system or production line worked effortlessly without incurring unnecessary costs for conversions, the developers decided to adapt the mounting dimensions of the new gear units to products already established on the market. The objective: worldwide, easy and cost-effective interchangeability.

Torque transmission

The gear units needed to be compact, efficient, robust and reliable. In order to achieve this goal a transmission had to be designed which allows large ratio ranges in a two-stage model while being able to integrate easily into the new design gear housing.

Efficiency

Energy efficiency has always been of paramount importance to WEG. The aim here was to live up to this demand when designing the new WG20 geared motors. This requires the perfect interaction of sophisticated technology and exclusive use of high quality components.

Worldwide use

To meet the requirements of global mechanical and plant engineering, it was vital that the new geared motors can be used worldwide, whilst maintaining a high level of flexibility for applications.

The solution is **WG20**.







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Easy product selection.

The "cat4CAD" product configuration tool makes it easy to interactively select products.

Comprehensive wizards, user-friendly navigation and many other extra features allow quick configuration of the required drive.

Advantages

- Extensive product library
- Fast configuration of motors and geared motors
- Creation of project files with comprehensive technical documentation
- Easy modification of generated product data by means of the project file
- Quick request times

Features

- The entire menu is available in many languages.
- To-scale 2D/3D drawings and PDF and DXF dimension sheet drawings of the previously selected drive.
- The 2D/3D data can be exported for use in standard CAD programs.
- Comprehensive technical data sheets of the configured gear unit and motor at the click of a button.
- The project file allows complete management of previously selected drives on one screen. At the click of a button one can save or print this project file, create PDF and DXF dimension drawings, and send enquiries directly to our sales team.





Helical gear units and Helical geared motors C







Technical Data

S	bize	C00	C01	C03	C05	C06	C07	C08	C09	C10	C13	C14	C16
Power [k	(W] Torque	0.12 - 0.75	0.12 - 1.5	0.12 - 3 kW	0.12 - 7.5	0.12 - 9.2	0.12 - 15	0.18 - 22	0.55 - 30	1.1 - 30	4 - 55	4 - 55	11 - 75
1]	Nm]	50	85	200	400	600	820	1550	3000	4500	8000	13000	18000
Datia		2.44	3.09	3.34	3.69	3.73	5.30	5.12	4.22	4.19	4.00	5.17	5.96
, R	allo	47.44	66.5	286.32	328.43	375.71	351.33	368.94	3282.02	2636.78	1891.77	2162.84	22405.25
Number	r of stages	2	2	2/3	2/3	2/3	2/3	2/3	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4/5
Housing	g material	aluminium cast iron											
Solid	Туре		with key acc. to DIN 6885.1 and threaded bore acc. to DIN 332 sheet 2										
shaft	Tolerance		< Ø 55: k6 / ≥ Ø 55: m6										
	Material		standard: C45E (1.1191) / stainless steel on request										
Flandor	Tolerance					centring ≤ 2	50: j6 / > 250	: h6 acc. to DI	N EN 50347				
Flanges	Material						cast	iron					
Gear	Туре				honed	d - designed a	nd produced	according to I	DIN 3990/399	1 - Q7			
wheels	Material					16MnCr5 (1.	7131) case ha	rdened - min	mum 58HRC				
Shaft	Туре						type AS acc.	to DIN 3760					
seals	Material					9	standard NBR	/ special FKN	1				
Bea	aring		standard / reinforced										
Lubricante	Туре	standard CLP 220 / special CLP HC 220											
Lubricants	Quantity					de	pending on m	ounting posit	ion				
Axle	height	acc. to DIN 747: \leq 50: -0.4; > 50 to \leq 250: -0.5; > 250: -1 for foot-mounted geard motors, the motor may extend below the mounting surface											

General information

1. Nameplate

		Watt Dr 2753 M www.wa	ive Antriebste arkt Piesting, attdrive.com	echnik , Austria	MAD AUS 08FE	E IN TRIA 1817	h i j
a ,	CG032-11P-80-0)4F-TH-TF-	BR10	SN: 18 Mat.:	3B02931		k
b ,	P1 0.75	kW	rpm 56		@50	Hz	m
c ,	M2 127	Nm	i 25.1	7	回流		n
d ,	fB 1.6		M1		3912	2.5	o
e	Oil 0.3I-ISC) VG 220) CLP		<u>í</u> k		p
f	17.6 kg						q
g ,							

а	Type code	j	Production date
b	Motor power	k	Serial number
С	Output torque	l	Material number
d	Service factor	m	Output speed and Frequency
е	Type and quantity of lubricant	n	Total gear ratio
f	Weight	0	Mounting position
g	Space for ATEX code (if applicable)	р	QR-Code linked online to additional information
h	Manufacturer address	q	Space for additional information
i	Country of origin		





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CG083-EX-11	P-90S/L	-04							
123456] 7	8	9 10						
<u>CG083-EX-I1</u>	<u>L2-HT</u>								
	L 12								
1 Type:	C = Helical gear	unit							
2 Design:	A = Foot mounte C = B14 flange e F = Flange exect G = Foot mounte W = Foot mounte	A = Foot mounted and B5 flange execution with output shaft C = B14 flange execution with output shaft F = Flange execution with output shaft G = Foot mounted with output shaft W = Foot mounted and B14 flange execution with output shaft							
3 Size:	00 01 03	05	06	07 08	09	10	13	14	16
4 Number of stages:	2 = 2 gear stage 4= 4 gear stages	S	3 = 3 gea 5 = 5 gea	ar stages ar stages					
ATEX execution:	when operated	in explos	ive atmo	spheres,	see pag	ge 15			
Motor type:	14P = Integral n 11P = In te gral 22P = Integral n	notor alun m ot o r a notor cast	ninium IE lumin iu t iron IE3	53 m IE3					
7 Motor frame size:	63 71 132M L132	80 M160	L80 M160L	90S/L 180M	100L 180L	L100L 200L	1:	12M 25S/M	132S 250S/M
8 Number of poles:	04 = 4 poles	06	= 6 pole	S					
Power indicator:	D E	F (G						
Motor modules:	see from page 5	01							
Adapters, Input unit:	IEC adapter	I63 I160	I71 I180	I80 I200	I90 I225	I100 I250	I112 I280	I132	2
	NEMA adapter	N56 N254	N143 N284	N182 N324	N184 N364	N213			
	SERVO adapter	S92 S141	S105 S142	S114 S180	S115 S189	S130 S190			
	Input unit	U2	U3	U5	U6	U7			
Direct mounting (IEC):	I EC63 I EC71 IEC132 IEC16	. IEC80 0 IEC18) IEC9 80 IEC2	0 IEC: 00 IEC:	100 IE 225 IE	C112 C250			
12 High/Low temperature exe	ecution: HT LT								

Type code Motor see page 477





3. Range

Size	C00	C01	C03	C05	C06	C07	C08	C09	C10	C13	C14	C16
Housing material			Aluminium						Cast iron			

4. Design

A	ส์	C						
	А	Foot mounted and B5 flange execution with output shaft						
	С	B14 flange execution with output shaft						
	F	Flange execution with output shaft						
	G	Foot mounted with output shaft						
W	W	Foot mounted and B14 flange execution with output shaft						

5. Venting the gear unit

The helical gear unit sizes C00 to C06 are neither equipped with a venting nor an oil drain screw. They are supplied with lifetime-lubrication.

By default, the helical gear units from C07 are equipped with venting screws with a safety strap for transportation (see illustration). The rubber strap (a) of the venting screw must be removed entirely before the initial startup. The venting screw is placed accordingly to the mounting position (see chapter Mounting positions, page 26).



6. Overhung and axial loads

The overhung loads (FrN) indicated in the respective selection tables apply to gear units with the force acting on the shaft center (x=l/2). The permissible overhung loads listed are based on the least favourable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 to Q3. If transmission elements are placed on the output shaft, an appropriate factor (fz) has to be taken into consideration when determining the overhung load.

Gear wheels	Spro	ckets	V-belts	Flat belts		
				Ì		
fz=1.1 (z≤17)	fz=1.2 (z≤13)	fz=1.1 (z>13)	fz =1. 8	fz=2.5		

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.





01		Variable	Unit	Description
ŲΙ	$12L - I_{rN} \cdot aL$	al		Load action factor - output shaft bearing from Table 1
		a2		Load action factor - output shaft from Table 1
		d0	[m]	Effective diameter of the transmission element
Q2	$F_{zW} = F_W \cdot aZ$	M2	[Nm]	Geared motor output torque (from selection tables) or required calculated output torque
		FzL	[N]	Permissible overhung load for output shaft bearings
Q3	FQvor $\frac{2 \cdot M2}{d0} \cdot fz$	FzW	[N]	Permissible overhung load for output shaft
		FrN	[N]	Permissible overhung load from selection tables
	F _{overb} ≤ FzL	FW	[N]	Permissible overhung load - Output shaft x=1/2 from Table 2
04	Qvon	FQvorh	[N]	Existing overhung load at gear shaft
Ų4	F _{Qvorh} ≤ FzW	fz		Factor for transmission element
		Mmax	[Nm]	Highest possible output torque for coupling operation (Table 2)

Always use both equations Q1 and Q2 for your calculations.

	x/l									
0	0.25	0.5 0.75		0.5 0.75 1		1.5	2			
	$a1 \rightarrow Equation Q1$									
1.39	1.18	1.00	0.85	0.73	0.52	0.38				
	$a2 \rightarrow Equation Q2$									
2.00	2.00	1.00	0.55	0.38	0.23	0.17				



Table 1: Load action factors a1, a2

Intermediate values can be interpolated linearly. Combined load (Fr \neq 0; Fa = 0) on request.

Outpu	t shaft				-		-	Output torc	ue M2 [Nm]				
[m	m]	Mmax at Fr = 0	50	85	200	400	600	820	1550	3000	4500	8000	13000	18000
Ød	l			$F_W[kN]$ at x/I = 0.5 \rightarrow Equation Q2										
20	40	160	3.4	3.1										
25	50	300	5.9	5.7	4.8									
30	60	500		7.6	7.1	5.0								
35	70	800			11.0	10.0	8.3							
40	80	1170				13.0	12.0	10.7						
50	100	2250				24.0	24.0	23.0	20.0					
60	120	3740						31.0	30.0	23.0				
70	140	5850							44.0	41.0	36.0			
90	170	11700								72.0	70.0	61.0		
110	210	20800									106.0	103.0	93.0	
120	210	26700										129.0	12 1. 0	109.0

Table 2: Permissible overhung load - output shaft x = l/2

The axial loads (FaN) for execution with output shaft, given in the following selection tables, are valid at radial force FrN = 0. If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.





7. Mounting positions, Position of the terminal box and Cable entry

Mounting positions foot type - Sizes COO to CO6

Gear units COO to CO6 are not ventilated and supplied with lifetime lubrication

Reference area



Position of the terminal box Standard: Position 1



Cable entry Standard: Position I







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Mounting positions flange type - Sizes C00 to C06

Gear units COO to CO6 are not ventilated and supplied with lifetime lubrication.

Reference area



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Selection tables - Geared motors

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +20 °C.

The selection tables are calculated with following motor data:

Power (IEC frame size)	Motor series (IE class)
up to 0.55 kW (63 - 80)	14P (IE3) - aluminium
0.75 - 9.2 kW (80 - 132)	11P (IE3) - aluminium
11 - 75 kW (160 - 250)	22P (IE3) - cast iron

Structure of the selection tables



- 1 Rated power of the motor
- **2** Given values are based on the respective efficiency class
- 3 Output speed at 50 Hz
- 4 Output speed at 60 Hz
- 5 Output torque
- 6 Service factor
- 7 Total ratio
- Permissible radial load at midpoint of the output shaft extension (standard bearing) at axial load=0
- Permissible axial load (standard bearing) at radial load=0
- **10** Geared motor type
- 11 Weight
- 12 Page refererence for dimension sheet
- *) Increased rated power at 60 Hz can only be reached together with increased voltage within the wide range (for details see page 485).



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Know More

Excellence to enhance productivity



For us, excellence is to develop products and projects that increase the competetiveness of our customers, with a full range of electrical equipment, efficient and safe machines and clean and sustainable energy. We provide products with high performance and reliability to improve your production process from start to finish.

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