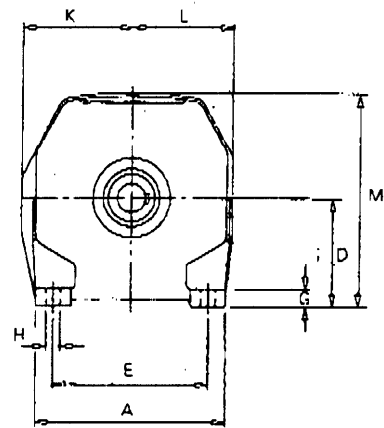
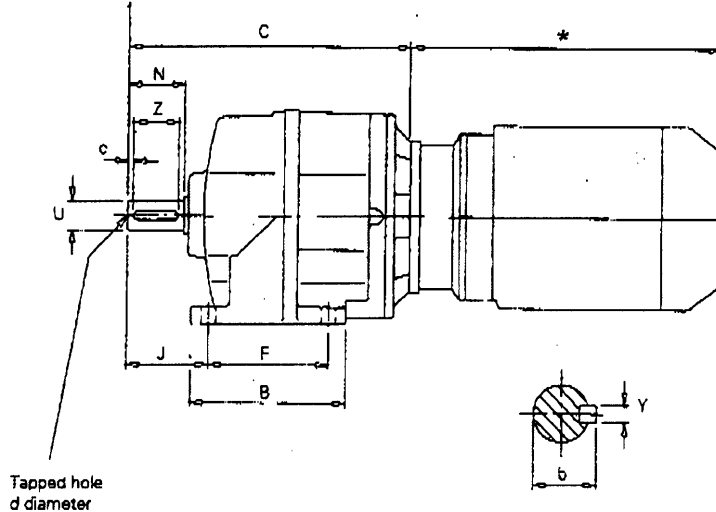


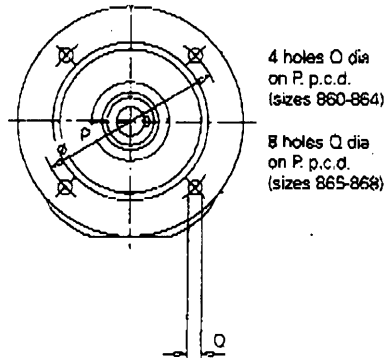
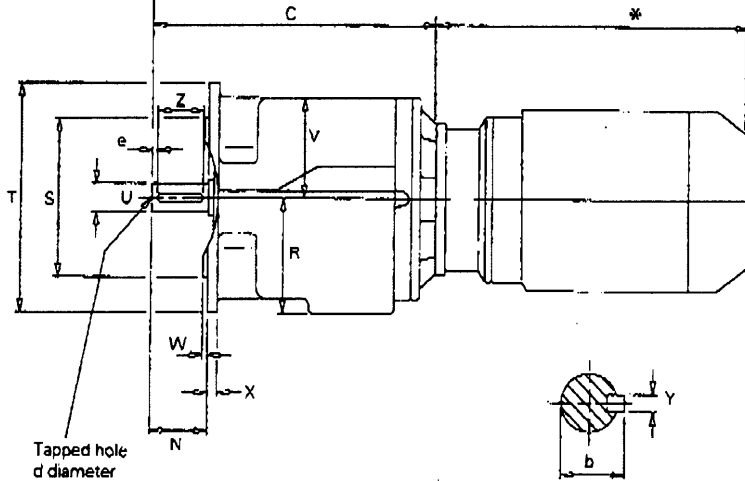
Fenner Series M Gearmotors – Dimensions

7146288

FOOT MOUNTED



FLANGE MOUNTED



* for motor dimensions see page 140

Unit Size	A	B	C Double	C Triple	D	E	F	G	H	J	K	L	M	N	P	Q	R	S _{ns}	T	U _{ks}	V	W	X	Y	Z	d	b	e
860	135	110	196	252	75	110	85	12	10	58	78	72	147	40	130	10	80	110	160	20	70	3.5	7	6	32	M6	22.5	4
861	145	160	219	279	90	110	130	16	10	75	84	75	178	50	165	12	95	130	200	25	88	3.5	12	8	40	M10	28	7
862	190	200	270	356	115	135	165	20	15	90	105	98	230	60	215	15	113	180	250	30	115	4.0	12	8	50	M10	33	7
863	230	245	349	429	140	170	205	25	19	115	130	119	275	80	265	15	138	230	300	40	138	4.0	14	12	70	M16	43	5
864	290	310	442	449	180	215	260	35	19	140	165	147	321	100	300	18	187	250	350	50	173*	5.0	16	14	80	M16	53.5	10
865	340	365	529	549	225	250	310	40	23	160	200	172	394	120	400	18	230	350	450	60	198*	5.0	18	18	100	M20	64	10
866	400	440	596	647	250	290	370	45	27	185	225	203	446	140	400	18	260	350	450	70	245*	5.0	22	20	110	M20	74.5	15
867	450	490	716	778	265	340	410	50	34	220	242	228	483	170	500	18	278	450	550	90	288*	5.0	22	25	140	M24	95	15
868	530	590	825	903	300	380	500	50	41	260	278	268	551	210	500	18	318	450	550	100	320*	5.0	25	28	180	M24	106	15

For selection and ratings of reducer assemblies consult FPT.

"A77" SUE "

GEARED DRIVES
EURO STD MOUNT

Fenner Series M Gearmotors – Over Hung Loads

OVERHUNG LOADS FOR MOTORISED UNITS

Table shown right gives permissible overhung loads which may be applied to Gearmotor units on the output shafts. The figures are based on the assumption that loads are positioned at the mid points of the shaft extensions and at 90° to the resultant load on bearings due to the internal gear loads. Where the power from the output shaft, is by means of a sprocket, gear or pulley the diameter of this must be such that the overhung loads given in the table are not exceeded.

CALCULATION OF OVERHUNG LOAD

To determine the overhung load when a sprocket, gear, timing or V-pulley is fitted to output shaft, one of the following formulae should be used:

(1) Calculation on a basis of torque

$$\text{Overhung load (N)} = \frac{T \times 1000 \times K}{r}$$

(1) Calculation on a basis of Power

$$\text{Overhung load (N)} = \frac{kW \times 9550 \times 1000 \times K}{n \times r}$$

where: T = Absorbed torque at output shaft in Nm.

kW = Absorbed power at output shaft.

r = Pitch radius of sprocket, gear or pulley in mm.

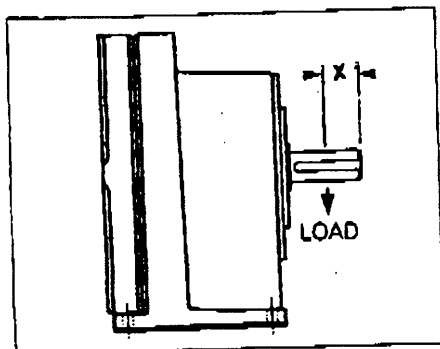
n = Rev/min of output shaft.

K = Application factor -1.00 for a sprocket.

1.25 for a gear or timing pulley.

1.50 for a V-pulley.

Unit size	Dimension x (mm)
860	20
861	25
862	30
863	40
864	50
865	60
866	70
867	85
868	105



ALLOWABLE OVERHUNG LOADS (N)

Nominal Output Speed	860	861	862	863	864	865	866	867	868
1000	1210	1890	3170	4230	8100	10000	12000	28000	35000
630	1290	1990	3500	4650	8200	10100	12200	28300	35500
500	1320	2020	3580	4730	8200	10100	12200	28700	36000
400	1410	2040	3600	4730	8300	10200	12300	29200	37000
320	1500	2060	3700	4730	8400	10200	12300	29500	37500
250	1600	2160	3910	4730	8500	10400	12400	30000	38000
200	1710	2240	4000	4730	8500	10600	12400	31000	39000
160	1710	2340	4210	4840	8600	10800	12500	32500	40000
125	1710	2470	4410	5040	8800	11000	12500	35000	41000
100	1710	2760	4500	5680	9200	11400	13000	38000	43000
80	1710	3010	4780	6340	12200	13000	15000	42000	48000
63	1710	3370	5660	7180	13100	15700	15900	45000	52000
50	1710	3420	6040	7650	15600	17000	23000	51000	60000
40	1710	3430	6740	8280	18000	22400	28000	56000	70000
32	1710	3430	7070	9160	22200	26200	34000	60000	79000
25	1730	3430	7100	9300	22200	28000	40000	64000	79000

AXIAL LOADS FOR MOTORISED UNITS

Permissible axial thrust capacities vary according to the direction of rotation and direction of thrust. Values shown in table below are for the most unfavourable direction and hence can sometimes be increased, consult FPT.

Thrust capacities tabulated refer to output shafts and are calculated without any overhung loads being applied. In cases where combined axial thrusts and overhung loads are to be applied consult FPT.

ALLOWABLE AXIAL THRUST LOADS (N)

Nominal Output Speed	860	861	862	863	864	865	866	867	868
1000	1750	2820	4530	6190	8200	9490	12400	24000	28000
630	1750	2820	5340	7030	8200	10200	12400	24000	28000
500	1750	2820	5340	7030	8200	10200	12400	24000	28000
400	1750	2820	5340	7030	8200	10200	12400	24000	28000
320	1750	2820	5340	7030	8200	10200	12400	24000	28000
250	1750	2820	5340	7030	8200	10200	12400	24000	28000
200	1750	2820	5340	7030	8200	10200	12400	24000	28000
160	1750	2820	5340	7030	8200	10200	12400	24000	28000
125	1750	2820	5340	7030	8500	10200	13500	26000	35000
100	1750	2820	5650	7200	8500	11800	13500	28000	37000
80	1750	2820	5650	7200	8500	13500	16700	31000	38000
63	1750	2820	5650	7200	10700	15300	16700	33000	41000
50	1750	2820	5650	7200	10700	15300	23800	38000	48000
40	1750	2820	5650	7200	10700	15300	23800	43000	48000
32	1750	2820	5650	7200	10700	15300	23800	43000	48000
25	1750	2820	5650	7200	10700	15300	23800	43000	48000

GEARED DRIVES
SUBSISTENT

Fenner Series M Gearmotors – A.C. Electric Motors

Standard Motor Specification

Conforming in performance to BS5000 and IEC34.1 in dimensions to BS4999 and IEC72-1 and 2.

Flange mounting, squirrel cage, totally enclosed fan cooled design (TEFC).

Protection

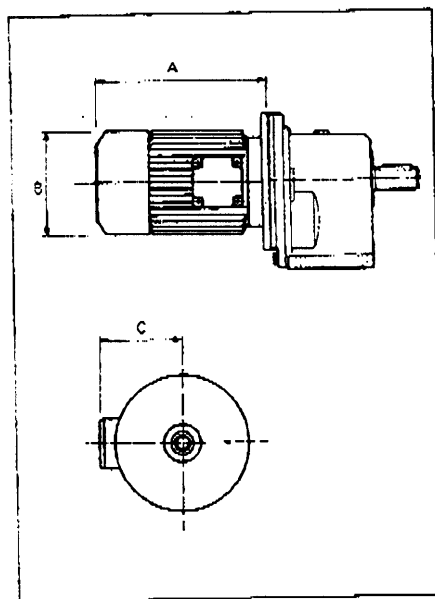
IP55, dust and hose proof.

Insulation

Class F.

ELECTRIC MOTORS

(BS and IEC specification)



2 POLE – 3000 REV/MIN

Motor Code *	Frame Size	Output		Speed rev/min	Dimensions (mm)			Mass kg
		kW	h/p		A	B	C	
01(1)	63B	0.18	0.25	2817	183	123	88	4.5
03(1)	63B	0.25	0.33	2750	183	123	88	4.5
09	71A	0.37	0.50	2820	210	141	102	5.5
10	71B	0.55	0.75	2820	210	141	102	6.5
19	80A	0.75	1.0	2850	232	159	112	9.0
20	80B	1.1	1.5	2850	232	159	112	10.0
26	90S	1.5	2.0	2860	245	179	122	13.0
29	90L	2.2	3.0	2870	270	179	122	16.0
39	100L	3.0	4.0	2890	298	199	136	21.0
44	112M	4.0	5.5	2865	312	221	155	30.0
52	132SA	5.5	7.5	2890	381	248	165	42.0
58	132SB	7.5	10.0	2890	381	248	165	42.0
63	160MA	11.0	15.0	2935	486	310	210	76.0
64	160M	15.0	20.0	2835	486	310	210	85.0
69	160L	18.5	25.0	2940	486	310	210	95.0
77	180M	22.0	30.0	2950	576	351	235	120.0

4 POLE – 1500 REV/MIN

Motor Code *	Frame Size	Output		Speed rev/min	Dimensions (mm)			Mass kg
		kW	h/p		A	B	C	
02(1)	63B	0.18	0.25	1370	183	123	88	4.5
04	71A	0.18	0.25	1400	210	141	114	5.5
06	71A	0.25	0.33	1400	210	141	114	5.5
08	71B	0.37	0.50	1400	210	141	114	6.5
81	71B	0.55	0.75	1410	258	164	125	8.5
16	80A	0.55	0.75	1410	232	164	125	9.0
82	71B	0.75	1.0	1410	258	164	125	9.5
18	80B	0.75	1.0	1410	232	164	125	10.0
24	90S	1.1	1.5	1410	245	182	133	13.0
28	90L	1.5	2.0	1420	270	182	133	16.0
36	100LA	2.2	3.0	1430	305	218	146	20.5
83	90L	2.2	3.0	1430	305	218	146	20.5
38	100LB	3.0	4.0	1430	305	218	146	23.5
85	90L	3.0	4.0	1430	305	218	146	20.5
46	112M	4.0	5.5	1440	312	218	155	31.5
54	132S	5.5	7.5	1440	381	260	198	40.0
56	132M	7.5	10.0	1440	381	260	198	50.0
66	160M	11.0	15.0	1460	486	312	244	72.0
68	160L	15.0	20.0	1460	486	312	244	82.0
76	180M	18.5	25.0	1475	576	351	244	120.0
78	180L	22.0	30.0	1475	576	351	244	145.0
88	200L	30.0	40.0	1475	611	392	286	190.0
94	225S	37.0	50.0	1480	690	445	303	235.0
95	225	45.0	60.0	1475	690	445	303	270.0
96	250	55.0	75.0	1480	828	489	400	305.0

6 POLE – 1000 REV/MIN

Motor Code *	Frame Size	Output		Speed rev/min	Dimensions (mm)			Mass kg
		kW	h/p		A	B	C	
05	71A	0.18	0.25	920	210	141	102	5.5
07	71B	0.25	0.33	920	210	141	102	6.5
12	80A	0.37	0.5	920	232	159	112	8.5
17	80B	0.55	0.75	920	232	159	112	9.5
23	90S	0.75	1.0	920	245	179	122	12.5
27	90L	1.1	1.5	920	270	179	122	15.5
37	100L	1.5	2.0	940	298	199	136	23.0
45	112M	2.2	3.0	940	312	221	155	31.0
53	132S	3.0	4.0	950	381	248	165	40.0
55	132MA	4.0	5.5	950	381	248	165	50.0
57	132M	5.5	7.5	935	381	248	165	52.0
65	160M	7.5	10.0	975	486	310	210	79.0
67	160L	11.0	15.0	970	486	310	210	93.0
74	180L	15.0	20.0	975	576	351	235	146.0

(1) Flange and shaft to alternative IEC Spec. F115 Flange 11 x 23mm shaft.

* Last two digits of ordering code.

Starting torque, starting current and current at various voltage vary depending on type of unit consult FPT for full details.

Dimensions A, B and C vary depending on type of unit selected, those given are the maximum for any particular type, if more precise dimensions are needed consult FPT.

All variants of standard IEC motors can be fitted to Fenner Gearmotors, Series M is also capable of accepting NEMA motor variants as well.

Fenner Series M Gearmotors - Installation and Maintenance

Freedom from vibration and correct alignment are the two main points to be considered when installing Gearmotors. Attention to these points will prolong the life and efficiency of the entire drive. The shafts of the prime mover, unit and driven equipment, should be in as perfect alignment as possible. Misaligned shafts impose abnormal stress on bearings and couplings, leading to excessive wear and possibly early failure. Vibration accelerates bearing and gear wear, resulting in noisy operation. Alignment can be maintained and vibration eliminated, by mounting the drive on rigid foundations of adequate proportions and dowelling the units in position. Fenaflex couplings are recommended when the shaft alignment cannot be assured and also when protection from peak and vibratory torques is desirable. After installation, regular inspection should be carried out to check the tightness of the holding down bolts and also the accuracy of alignment.

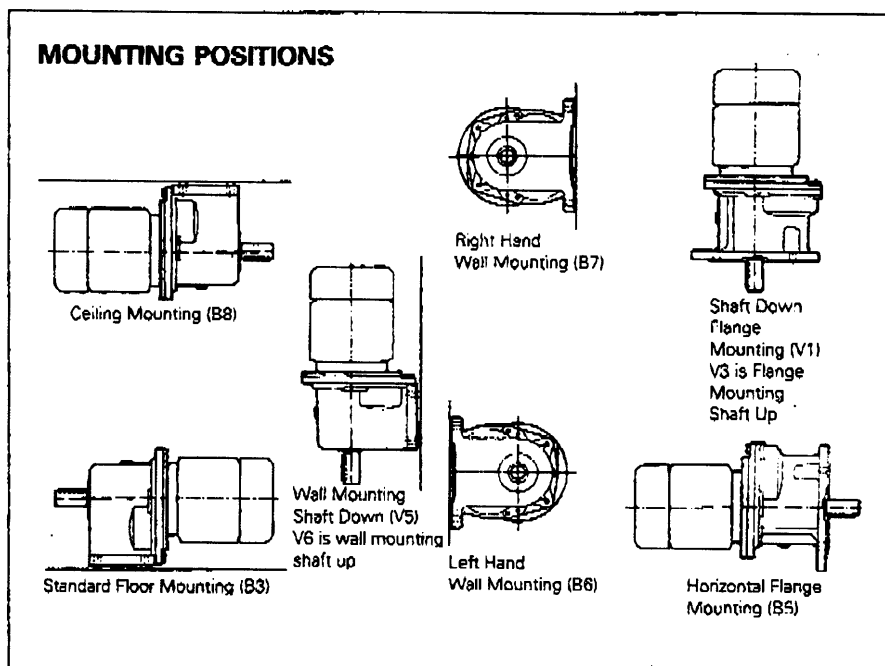
LUBRICATION

Lubrication varies with Gearmotor types. Some units are lubricated for life, others require filling with the appropriate amount of a recommended lubricant. The table opposite gives information on the individual requirements. The tables below give the oil capacities for those units that require filling. **The mounting position should always be specified on ordering.**

LUBRICANT CAPACITY (LITRES)

- Fenner British Standard Gearmotors

Gearmotor Code	Lubrication
860-863	Lubricated for life
864-869	Fill with recommended grade



RECOMMENDED OIL GRADES

Supplier	Oil Grade
Darmex	9140 NM NND
Shell	Macoma Oil R220
BP	Energol GRXP. 220 (ISO)
Castrol	Alpha SP 220
Mobil	Mobilgear 630
Esso	Spartan E.P. 220
Texaco	Meropa 220
Duckham	Fleetoid 90
Gulf	E.P. Lubricant H.D. 220
Total	Carter E.P. 220

Grades shown are for ambient temperature range -5° to 25°C.

OIL CHANGE INTERVALS

Mineral oil - 10,000 hours
Synthetic oil - 20,000 hours

LUBRICANT CAPACITY (LITRES) - Fenner Series M Gearmotors

Mounting Position	864		865		866		867		868	
	Double Reduction	Triple Reduction	Double Reduction	Triple Reduction	Double Reduction	Triple Reduction	Double Reduction	Triple Reduction	Double Reduction	Triple Reduction
B3	4.5	4.5	7.0	7.0	11.0	11.0	17.0	17.0	24.0	24.0
B5	4.0	4.0	6.0	6.0	8.0	8.0	14.0	14.0	20.0	20.0
B6	9.0	9.0	14.0	14.0	22.0	23.0	31.0	33.0	49.0	50.0
B7	9.0	9.0	14.0	14.0	22.0	23.0	31.0	33.0	49.0	50.0
B8	5.0	5.0	10.0	11.0	19.0	20.0	28.0	30.0	41.0	43.0
V5	10.0	10.0	14.0	14.0	32.0	32.0	47.0	47.0	72.0	72.0
V6	10.0	11.0	19.0	20.0	26.0	27.0	38.0	40.0	65.0	67.0
V3	9.0	10.0	18.0	21.0	28.0	29.0	43.0	44.0	65.0	67.0
V1	9.0	9.0	16.0	16.0	22.0	22.0	45.0	45.0	65.0	65.0

Fenner Series M Gearmotors - Exact Gear Ratios

DOUBLE REDUCTION - nominal output speeds based on an input speed of 1440 rev/min

Ratio Code	Nominal Output Speed rev/min	860	861	862	863	864	865	866	867	868
01	1000	1,440	1,454	1,446	1,453	1,449	1,479	1,442	-	-
02	720	1,945	2,039	2,033	2,013	2,054	2,036	2,015	-	-
03	650	2,213	2,246	2,278	2,261	2,282	2,282	2,191	-	-
04	575	2,507	2,552	2,557	2,486	2,538	2,562	2,489	-	-
06	500	2,945	2,815	2,812	2,881	2,909	2,969	2,992	2,904	2,888
06	450	3,206	3,241	3,248	3,247	3,282	3,301	3,242	3,189	3,247
07	400	3,455	3,682	3,681	3,692	3,684	3,688	3,500	3,638	3,571
08	360	3,979	3,949	3,953	3,991	4,123	4,088	4,179	4,025	4,029
09	320	4,526	4,351	4,431	4,483	4,580	4,582	4,545	4,421	4,537
10	290	5,066	5,034	5,040	5,094	5,117	5,073	4,938	5,042	4,983
11	260	5,762	5,547	5,649	5,722	5,684	5,686	5,370	5,538	5,610
12	230	6,557	6,276	6,316	6,438	6,588	6,628	6,724	6,210	6,548
13	200	7,067	7,130	7,160	7,320	7,396	7,404	7,260	6,879	7,270
14	180	8,348	8,000	8,053	8,218	8,175	8,224	7,945	7,779	8,097
15	160	8,997	9,088	9,129	9,344	9,178	9,188	8,578	8,618	8,991
16	145	10,11	9,705	9,832	9,778	10,22	10,27	10,59	9,891	10,06
17	130	11,56	11,03	11,44	11,24	11,90	11,71	11,96	11,20	11,43
18	120	12,88	12,37	12,54	12,48	12,68	12,74	12,51	12,39	12,45
19	100	14,71	14,05	14,58	14,34	14,76	14,53	14,16	14,03	14,13
20	90	15,60	15,87	16,16	16,09	16,34	16,59	16,43	15,97	16,43
21	80	18,28	17,25	17,25	18,20	18,44	18,43	18,25	18,00	18,11
22	72	19,86	20,23	20,61	20,54	20,27	20,59	19,41	20,00	20,32
23	65	23,27	21,99	22,00	23,23	22,89	22,87	21,57	22,55	22,40
24	56	25,56	24,85	25,25	25,16	26,07	26,04	26,03	25,45	26,07
25	52	28,40	28,00	27,85	27,56	28,64	28,74	29,99	28,35	29,37
26	45	32,54	31,68	32,19	32,12	32,35	32,31	30,76	31,89	32,24
27	40	36,16	35,69	35,25	35,17	35,54	35,67	35,44	35,52	36,31
28	36	38,73	39,37	38,75	39,24	40,82	40,25	37,06	39,01	39,42
29	32	43,03	44,36	42,43	42,98	44,84	44,44	42,70	43,45	44,40
30	28	49,91	47,09	48,15	48,56	47,56	49,07	47,93	48,63	47,90
31	25	56,72	53,54	54,00	53,96	54,76	55,18	51,49	51,74	53,74
32	22	59,39	58,54	57,96	59,34	60,00	61,13	57,75	59,49	58,57
33	20	67,50	66,55	65,00	65,93	69,09	68,74	62,05	63,29	65,70

TRIPLE REDUCTION - nominal output speeds based on an input speed of 1440 rev/min

Ratio Code	Nominal Output Speed rev/min	860	861	862	863	864	865	866	867	868
40	40	36,12	35,19	35,47	35,49	-	-	-	-	-
41	36	41,28	40,22	40,30	41,28	-	-	-	39,93	41,36
42	32	46,99	44,86	45,23	45,30	-	-	-	44,18	45,05
43	28	52,55	51,26	51,38	52,69	-	-	-	50,02	51,15
44	25	55,71	54,28	58,00	58,34	59,07	59,85	60,23	56,93	59,46
45	22	65,27	63,80	63,06	62,29	66,68	66,49	66,93	64,17	65,55
46	20	70,93	69,19	73,95	74,47	73,30	74,26	71,17	71,32	73,53
47	18	83,10	81,07	80,40	79,51	82,74	82,51	79,08	80,39	81,06
48	16	91,29	88,94	90,84	91,15	94,26	93,92	95,44	90,75	94,35
49	14	101,4	98,82	102,4	99,80	103,5	103,7	110,0	101,1	106,3
50	12	116,2	113,4	115,8	116,3	117,0	116,5	112,8	113,7	116,7
51	11	129,1	126,0	130,5	127,4	128,5	128,7	129,9	126,6	131,4
52	10	138,3	140,9	139,4	142,2	147,6	145,2	135,9	139,1	142,7
53	9	153,7	156,6	157,1	155,7	162,1	160,3	156,6	154,9	160,7
54	8	178,2	173,9	172,2	174,0	171,9	177,0	175,7	173,4	173,4
55	7	202,6	197,6	195,8	195,2	198,0	199,0	188,8	184,5	194,5
56	6	212,1	216,1	207,3	212,6	216,9	220,5	211,8	212,1	212,0
57	5	241,1	245,6	235,6	238,5	249,8	248,0	227,5	225,6	237,8

GEARED DRIVES
EURO STD MOUNT