

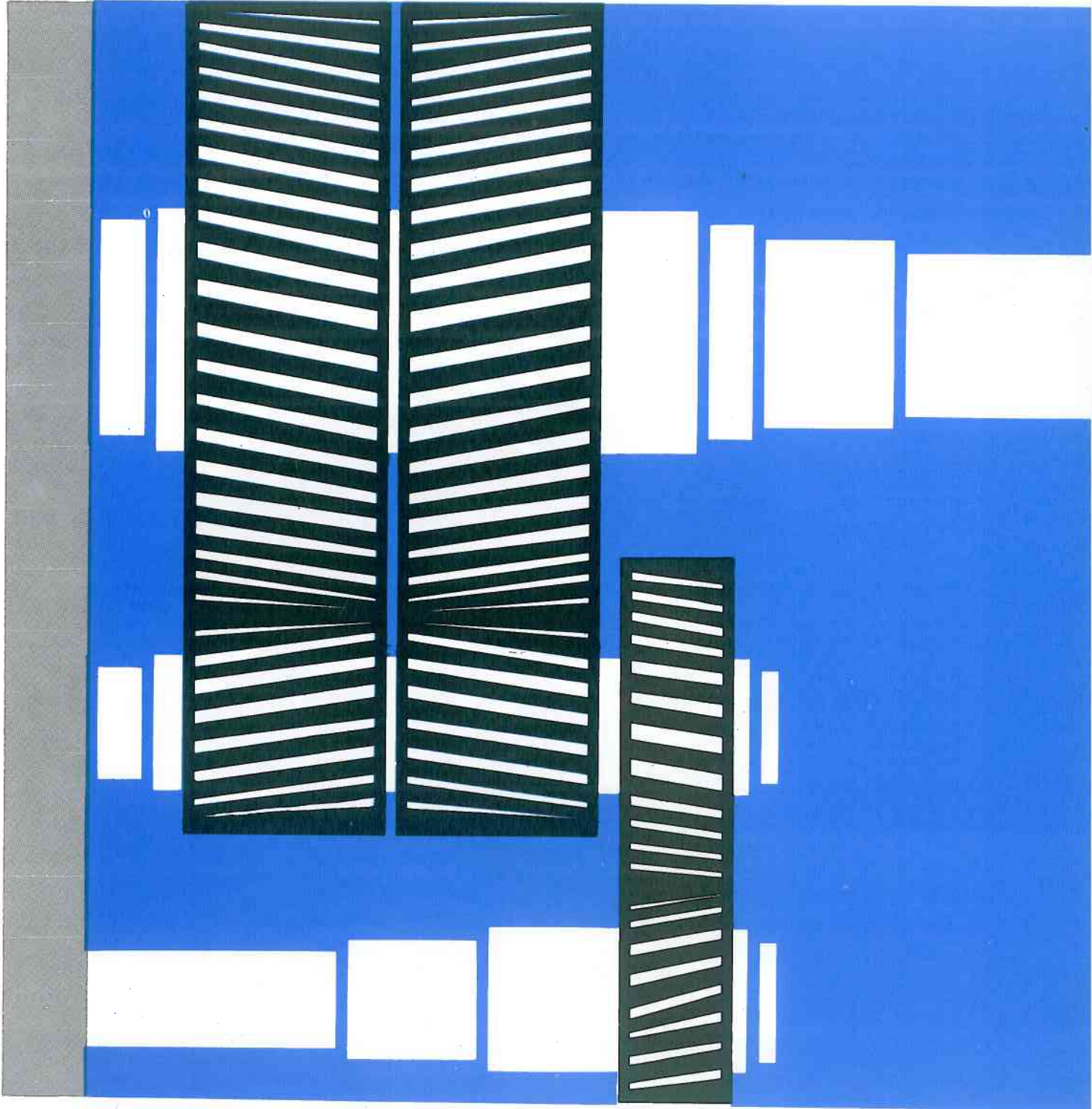


# GREENSHIPON

ENGINEERING WORKS LTD.

## Parallel Shaft Speed Reducers

Catalogue  
No. 5000-7-79



# PARALLEL SHAFT - SPEED REDUCERS

## CHARACTERISTIC FEATURES

**General** M.G.L Parallel Shaft Speed Reducers are heavy duty units and rated to exceed AGMA standards. They incorporate high power capacities, simple construction and minimum maintenance requirements.

**Housing** Made of close grained cast iron, rigidly ribbed to maintain shaft position under maximum rated loads.

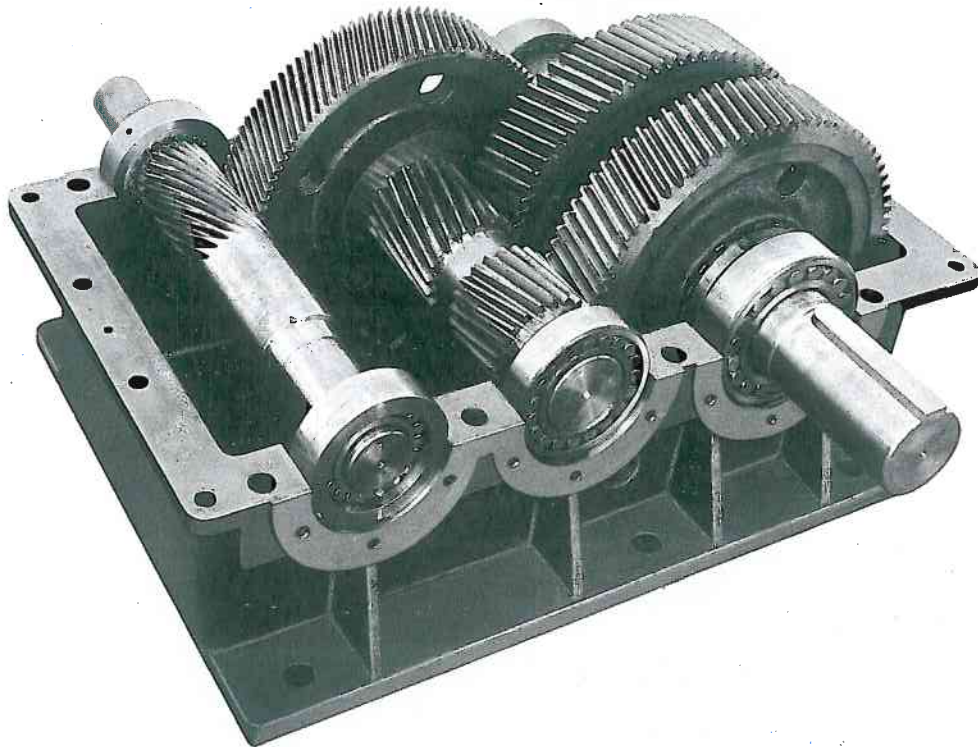
**Gears** Helical or Double — Helical (for large units) are made of suitable alloy steel, heat treated for high strength and precisely machined to fine surface finish to ensure smooth and quiet operation.

**Shafts** Large diameters for better alignment accuracy and rigidity, with parallel keys as per DIN 6885, page 1, (Form A.)

**Bearings** Generously dimensioned antifriction bearings with a high safety factor.

**Lubrication** Improved splash system for gears and bearings and high thermal rating resulting from the large oil reservoir.

**Efficiency** 98.5% for AS — type and 97% for AD — type reducers.



## MAXIMUM OVERHUNG LOADS AND NOMINAL TORQUES ON OUTPUT SHAFT

Unit	AS-100	AS-150	AS-160	AS-200	AD-200	AD-300	AD-350	AD-350R	AD-475	AD-475R
Overhang Load (kg)	300	800	1350	200	600	1000	2000	2900	3000	5000
Nominal Torque (kg/m)	21,3	51,3	120,8	269	20,7	75,1	253	460	1010	1500

### H.P. CALCULATION

$$N = \frac{N_1 \cdot K}{\eta}$$

when  $N_1$  is the nominal rating of the driven machine,  
 $K$  is the combined service factor ( $K = K_1 \cdot K_2 \cdot K_3 \cdot K_4$ ),  
 $\eta$  is the gear reducer efficiency. (98.5% for AS, 97% for AD)

### SERVICE FACTORS K

<b>Factor K<sub>1</sub>:</b> prime mover	K <sub>1</sub>
Electric motors, gas turbines, internal combustion engines with more than 6 cylinders.....	1
Internal combustion engines with 4-6 cylinders, hydraulic motors.....	1,12
Internal combustion engines with 1-3 cylinders.....	1,25

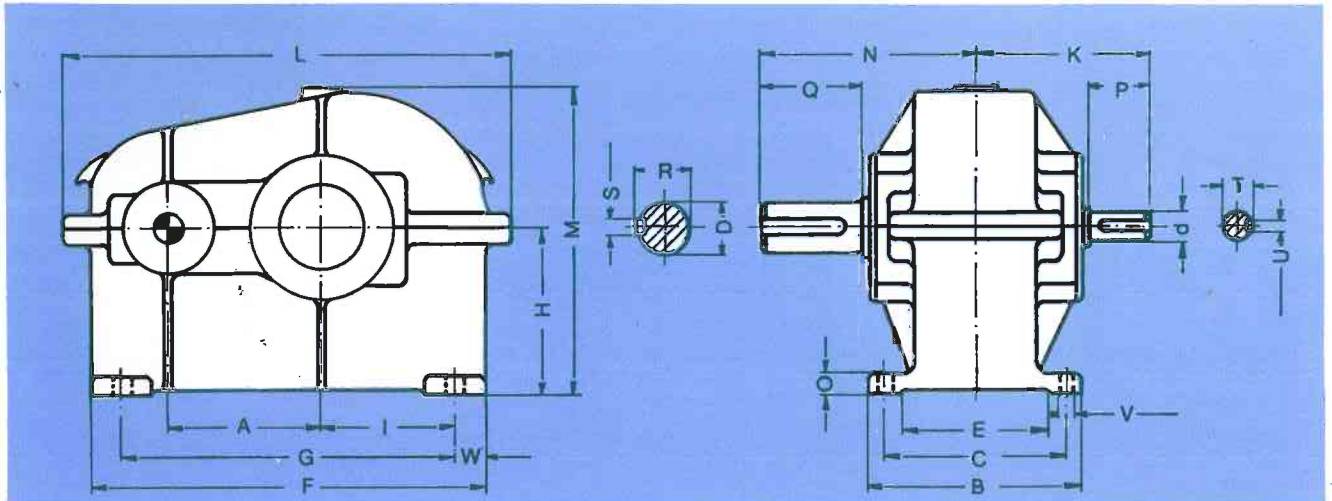
<b>Factor K<sub>2</sub>:</b> driven machine	K <sub>2</sub>
uniform running, slight mass acceleration..... pumps for liquid materials, dynamos	1
uniform running, medium mass acceleration..... elevators, belt conveyors for bulk materials, screw conveyors, goods lifts, rotary ovens, generators, mixers, chain conveyors, agitators and pumps for semi-liquid materials	1,2
moderate shock loads, medium mass acceleration..... blowers, concrete mixers, cranes, ball mills, grinding mills, pressure pumps, pulpers, agitators, centrifuges, rotary ovens	1,4
heavy shock loads, high mass acceleration..... Rubber rolling mills, wire drawing, benches, hammer mills, wood grinders, calenders, reciprocating pumps and compressors, presses, paper making, textile machinery, plastics machinery	1,6
very heavy shock loads, very high mass acceleration..... rolling mills, presses, cement mills, stone crushers, welding generators, reciprocating compressors and pumps without flywheel, brick presses	1,8

<b>Factor K<sub>3</sub>:</b> operating hours per day	K <sub>3</sub>
up to 2	0,9
up to 8	1
up to 16	1,15
up to 24	1,25

<b>Factor K<sub>4</sub>:</b> frequency of starts per hour	K <sub>4</sub>
up to 1	1
up to 20	1,12
up to 40	1,25
up to 100	1,35



# TYPE AS



## RATINGS (H.P.) AGMA 1

Nominal * Ratio	Nominal Speeds r.p.m.		Size				
	Input	Output	100	150	160	200	250
1,5	1500	1000	24	62	150	290	1050
	1000	667	18	46	106,4	220	700
	500	333	9	23	53,2	110	350
2	1500	750	21	51	120	240	785
	1000	500	14	34	80	160	524
	500	250	7	17	40	80	262
3	1500	500	14	34	80	160	524
	1000	333	9	23	53,2	110	350
	500	167	4,5	11,5	26,6	55	175
4	1500	375	10,5	25,5	60	120	392
	1000	250	7	17	40	80	262
	500	125	3,5	8,5	20	40	131
5	1500	300	8,5	20	48	96	314
	1000	200	5,5	14	32	64	210
	500	100	2,8	7	16	32	105
6	1500	250	7	17	40	80	262
	1000	167	4,5	11,5	26,6	55	175
	500	83	2,3	5,8	13,3	27,5	87

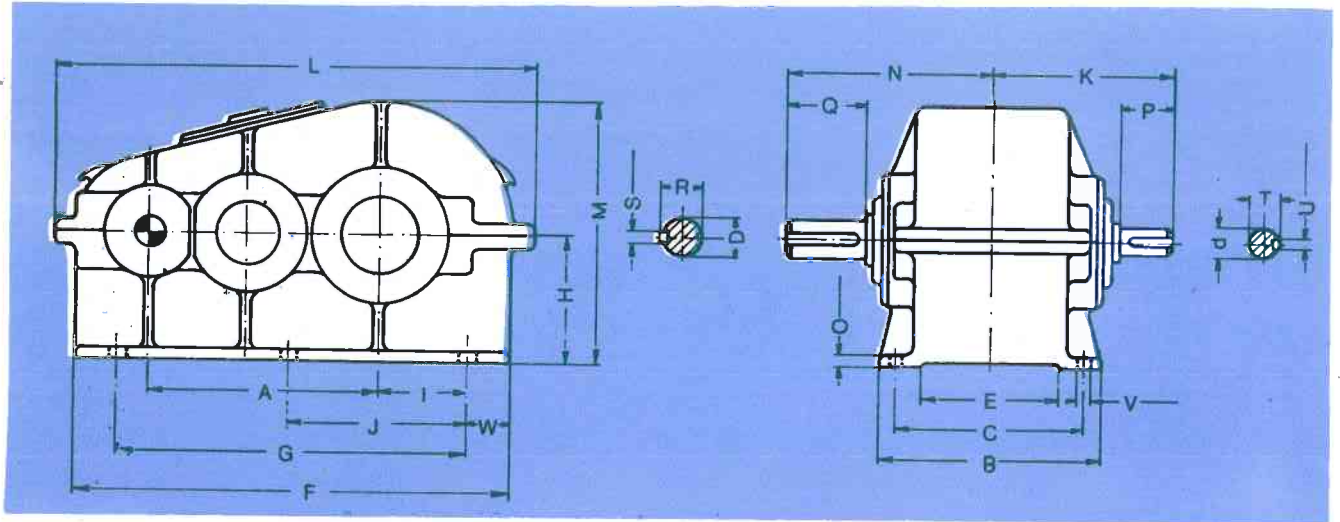
\* Other ratios upon request

## DIMENSIONS (mm.)

Unit	A	B	C	E	F	G	H	W	I	K	L	M	N	O	V	d*	P	T	U	D*	Q	R	S	weight (kg.)
AS - 100	100	160	124	90	240	180	125	30	50	155	280	245	160	20	15	24	50	26,9	8	38	60	41,3	10	40
AS - 150	150	210	170	90	391	331	165	30	133	174	445	333	217	22	18	28	60	30,9	8	50	100	53,5	14	80
AS - 160	160	332	280	132	427	320	165	50	97	248	507	375	274	23	18	45	75	48,5	14	60	100	64,2	18	125
AS - 200	200	345	295	220	640	555	200	40	160	300	715	410	325	25	21	60	120	64,2	18	80	160	85,5	22	245
AS - 250	250	590	520	380	840	680	255	90	140	420	930	540	445	40	21	80	135	85,5	22	95	160	100,3	25	500

\* Shaft tolerances: k6 up to 50Ø; m6 above 50Ø

# TYPE AD



## RATINGS (H.P.)

AGMA 1

Nominal* Ratio	Nominal Speeds r.p.m.		Size					
	Input	Output	200	300	350	350R	475	475R
8	1500	188	5,5	15	40	92	192	306
	1000	125	4,5	12	31,5	72	150	240
	500	63	2,3	6	15,7	36	75	120
10	1500	150	4,9	13,5	38	81	180	270
	1000	100	3,7	10	28,5	60	136	200
	500	50	1,8	5	15	30	68	100
12,5	1500	120	4,5	12	31,5	72	159	240
	1000	80	3	8	21	48	106	160
	500	40	1,5	4	10,5	24	53	80
15	1500	100	3,7	10	28,5	60	135	200
	1000	67	2,5	6,7	19	40	90	133
	500	33	1,3	3,4	9,5	20	45	66,5
20	1500	75	2,5	7,5	20	45	100	150
	1000	50	1,8	5	14	30	67	100
	500	25	0,9	2,5	7	15	34,5	50
25	1500	60	2	6	16	36	80	120
	1000	40	1,5	4	10,5	24	53	80
	500	20	0,8	2	5,2	12	26,5	40
30	1500	50	1,8	5	14	30	67	100
	1000	33	1,2	3,3	9,5	20	45	66,5
	500	17	0,6	1,6	4,8	10	22,5	33
35	1500	43	1,5	4	10,5	24	53	80
	1000	29	1	2,7	7	16	35	53
	500	14	0,5	1,4	3,5	8	17,5	26,5

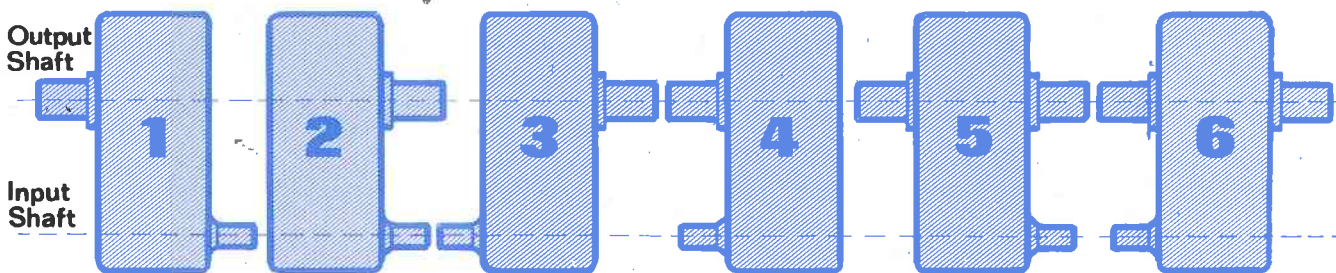
\* Larger or other ratios upon request

## DIMENSIONS (mm.)

Unit	A	B	C	E	F	G	H	W	I	J	K	L	M	N	O	V	d*	P	T	U	D*	Q	R	S	weight (kg)
AD-200	200	210	170	-	380	290	125	45	60	-	155	430	230	185	20	18	22	50	24,5	6	45	80	48,5	14	70
AD-300	300	254	215	-	538	400	150	60	80	-	185	598	320	225	25	18	28	60	30,9	8	52	100	55,8	16	140
AD-350	350	345	295	220	640	555	200	40	160	-	255	715	410	305	25	21	38	75	41,3	10	70	130	74,6	20	230
AD-350R	350	345	295	220	640	555	200	40	160	-	270	715	410	325	25	21	45	90	48,5	14	80	160	85,5	22	270
AD-475	475	590	520	380	840	680	-	90	140	280	385	930	540	445	40	21	60	100	64,2	18	95	160	100,3	25	600
AD-475R	475	590	520	380	840	680	315	90	140	280	395	930	575	485	50	28	65	110	69,2	18	115	200	121,9	32	680

\* Shaft tolerances: k6 up to 50Ø; m6 above 50Ø

## SHAFT HANDING



### Oil Recommendation

Esso:	Spartan EP 320
Mobil Oil Co.:	Mobil gear 632
Shell:	Omala oil 320
Delek:	GP 90/140
Sonol:	Compound 60
Paz	Pazamal 320

The units are supplied without oil.

First oil change is recommended after 200 hours. Subsequent oil changes should be after 2000—3000 hours according to working conditions. Oil draining must be carried out while the oil is still warm, and after flushing the unit. For long period storage, fill the unit completely with oil.

Optional lubricant of long life grease can be supplied in the 80, 100, 25 units.

### NECESSARY DATA FOR ORDERING

- Gear type and reduction ratio
- Motor (Input) Power HP
- Input Speed RPM
- Output Speed RPM
- Shaft Handing Code
- Backstop (if necessary) and direction of rotation
- Description of System

### OTHER PRODUCTS



Flexible couplings



Planetary gear motors



Worm gear reducers

Fluid couplings  
Variable speed drives  
Electromagnetic brakes  
and clutches



Shaft-mounted



Vertical reducers for cooling towers



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