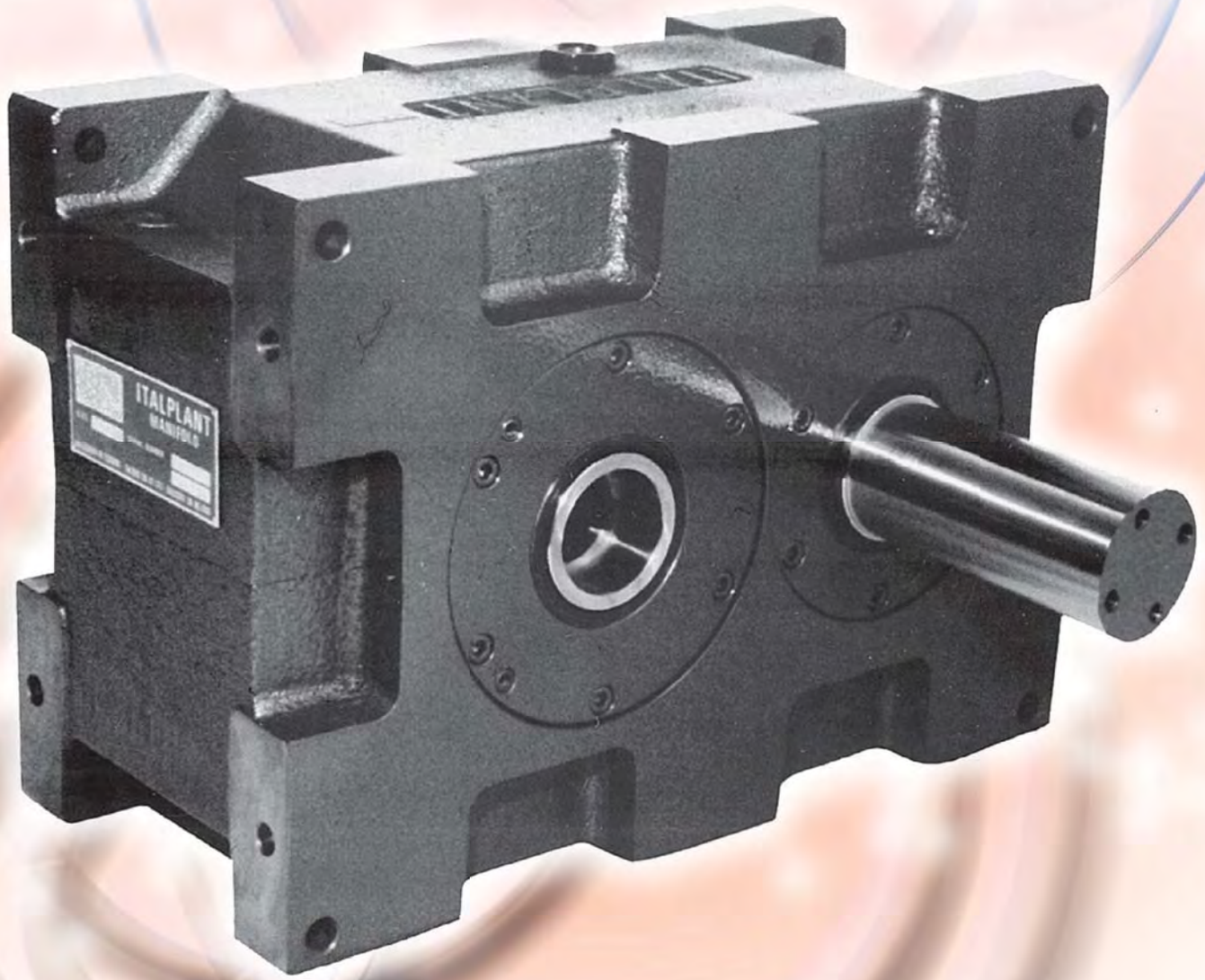
ITALPLANT
transfer systems

MK 3



Parallel series indexers and oscillators "METRIC"

ITALPLANT srl

PARALLEL SERIES INDEXERS "METRIC"

MK3

MK3 Parallel Shaft Indexers

Generalities

The Mk3 Parallel Shaft Indexers are mechanisms which convert a continuous rotary input motion into an intermittent output rotary motion.
The movement transmission is obtained by means of a pair of cams having conjugated profiles, mounted on the input shaft, meshing with a set of roller followers equally spaced with respect to the output shaft.
The roller followers are preloaded in order to guarantee the precise positioning of the output shaft during the indexing and dwell.
The cam profiles are hardened and ground ; the roller followers are mounted on hardened shafts and are supported at both ends.
The profiles are designed to mesh with at least two opposite followers. This feature and the preloading of the rollers eliminate any play thus improving the accuracy and the repeatability of the indexing ; shocks and vibrations are also appreciably reduced.
By reversing the input motion the output rotation is also reversed without change of the kinematics characteristics of the mechanism.

Input drive

The input drive mechanism must be designed very carefully because the correct functioning of the indexer depends on the acceleration curve generated by the shape of the cam profiles and on their absolutely constant rotation velocity. Any departure from this modifies the acceleration curve and therefore the load on the roller followers.
The input drive transmission must be without backlash and with a minimum of torsional elasticity. A most suitable solution for the input drive consists in a speed reducer directly mounted on the indexer.

Design parameters
The fundamental design parameters are :

SIZE
NUMBER OF STATIONS
MOTION ANGLE

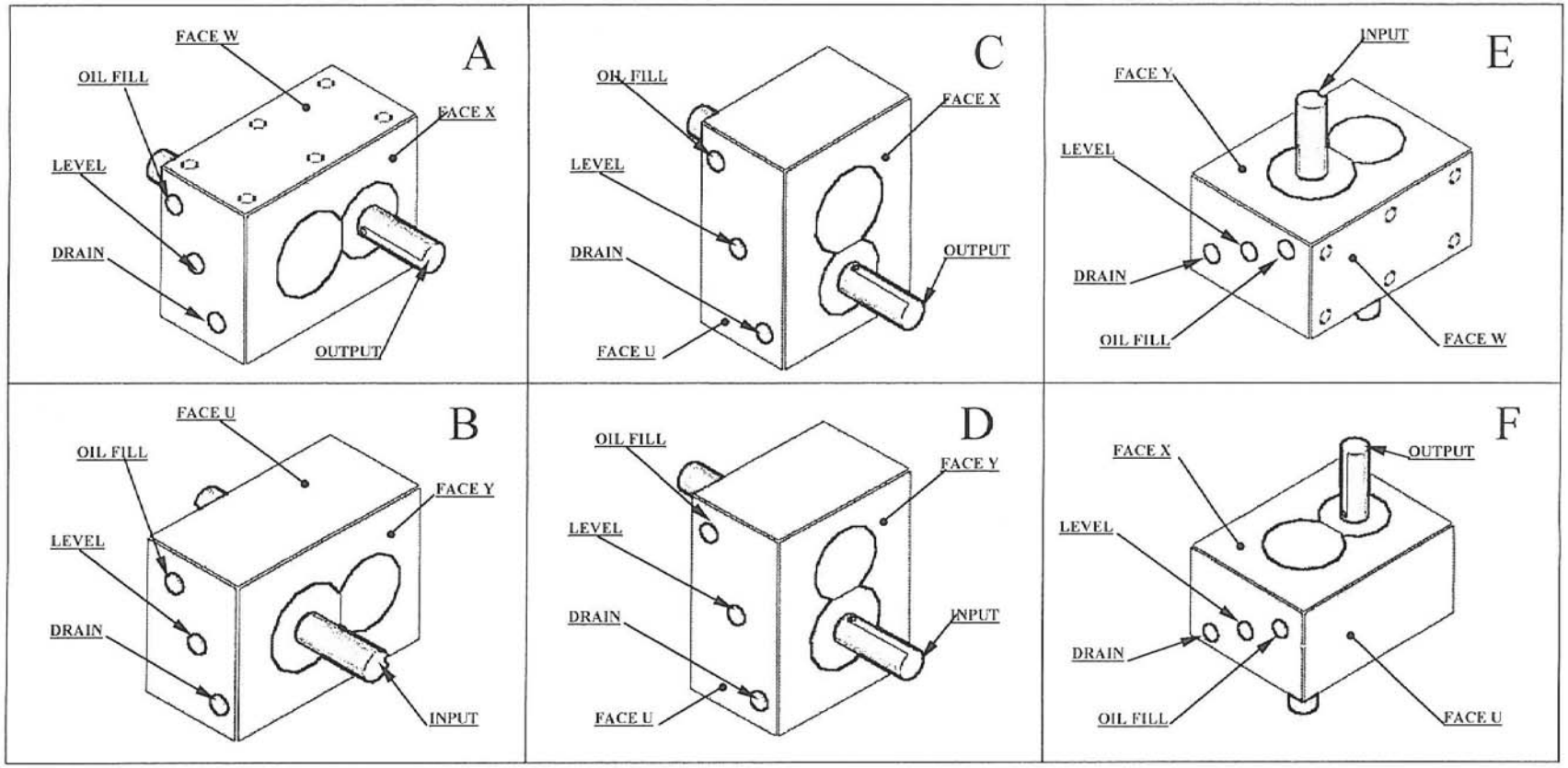
The MK3 Indexers are built for a wide range of possible combinations of these parameters thus covering a great many applications.
However custom indexers can be designed in order to meet special requirements. Please contact our Technical Office.

The MK3 indexers with 1-2-3-4 stations have one index and one dwell for one revolution (360°) of the input shaft.
The MK3 indexers with 6 and 8 stations have two indexes and two dwells for one revolution (360°) of the input shaft.

Selection of size
For the selection of the size of the indexer it must be considered that, while for the functionality and speed of the automatic machine it could be useful to maximise the dwell periods and minimise the transfer times from one station to the next, a lengthening of the transfer time reduces the elastic vibrations and the torque due to inertia because the motion becomes smoother (with lower velocities and accelerations).
The torque due to inertia are directly proportional to the square of the number of cycles and inversely proportional to the square of the indexing angle.
The best solution is therefore a compromise between transfer and dwell times.
The torque imposed on the output shaft during the indexing period must be calculated in order to select the most suitable size of indexer.

Accuracy
During dwell the output shaft is located and locked within ± 0.025 mm at the pitch circle of the indexer turret. The final accuracy of station positions in the machine, however, depends also on the design and installation of the machine components.

INDEXER MOUNTING POSITIONS



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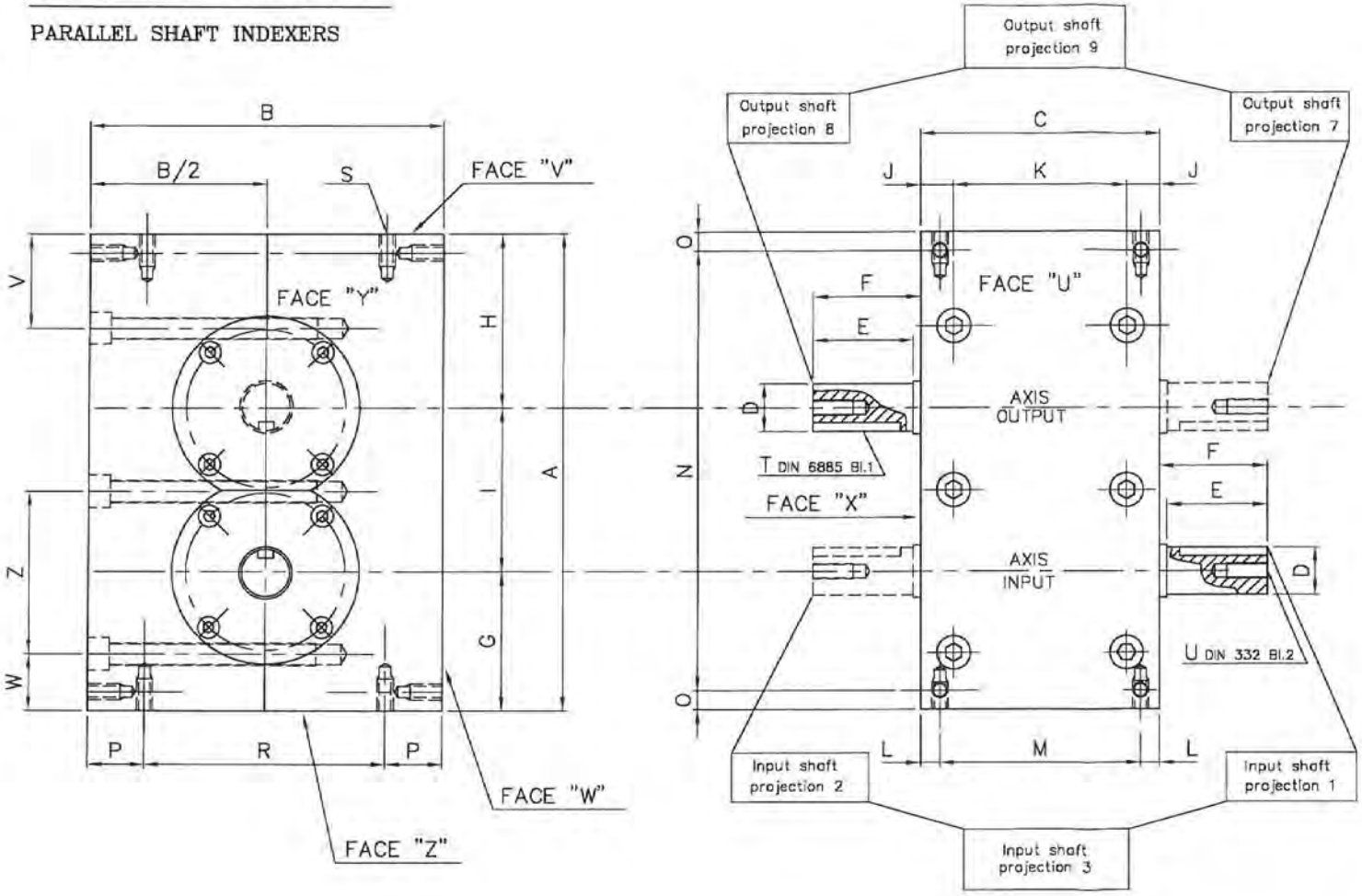
PARALLEL SHAFT INDEXERS



KEYWAY AND TAPPED HOLE WILL BE IN THIS POSITION WHEN CAM IS ON CENTER OF DWELL.

DIMENSIONS MK3 SERIES

TYPE	A	B	C	D^{K6}	E	F	G	H	I	J	K	L
65	190	140	95	19	40	43	70	55	65	13	69	7,5
80	240	180	120	28	60	65	90	70	80	17	86	12,5
80/M	250	170	110	24	36	40	85	85	80	15	80	12,5
100/M	300	200	140	30	80	85	100	100	100	20	100	17,5
105	300	210	150	30	80	85	105	90	105	18	114	17,5
125/M	350	240	180	40	82	85	125	100	125	22,5	135	17,5
130	370	260	180	42	110	115	130	110	130	18	144	18
160/M	500	340	170	40	85	82	170	170	160	28	154	25

TYPE	M	N	O	P	R	S	T	U	V	W	Z	Weight(Kg)
65	80	175	7,5	22,5	95	M6x12	6x6x35	M6x16	22,5	37,5	65	12,5
80	95	215	12,5	30	120	M8x15	8x7x55	M10x22	30	50	80	30
80/M	85	225	12,5	35	100	M8x20	8x7x35	//	32,5	32,5	92,5	30
100/M	105	270	17,5	40	120	M10x20	8x7x75	//	37	37	113	40
105	115	265	17,5	35	140	M10x20	8x7x75	M10x22	37,5	52,5	105	45
125/M	145	310	20	40	120	M12x25	12x8x80	//	40	25	120	75
130	144	334	18	40	180	M12x25	12x8x100	M16x36	45	65	130	80
160/M	160	460	20	80	260	M12x25	14x9x80	//	50	50	197,5	130

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	LAW MOTION	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
1	330	65 B1 330	MSC50	1	55	78	0.0006
		80 B1 330			110	146	0.0012
		80/M B1 330			110	146	0.0012
		100/M B1 330			145	242	0.0038
		105 B1 330			310	300	0.0038
		125/M B1 330			304	495	0.013
		130 B1 330			410	575	0.015
2	150	65 B2 150	MSC50	1	48	60	0.0006
		80 B2 150			132	130	0.0012
		80/M B2 150			132	130	0.0012
		100/M B2 150			246	287	0.0038
		105 B2 150			255	300	0.004
		125/M B2 150			480	561	0.013
		130 B2 150			500	580	0.015
	180	65 B2 180	MSC40	1	48	60	0.0006
		80 B2 180	MSC40		128	130	0.0012
		80/M B2 150	MSC50		128	130	0.0012
		100/M B2 150	MSC50		241	287	0.0038
		105 B2 180	MSC40		250	300	0.0038
		125/M B2 180	MSC50		472	561	0.013
		130 B2 180	MSC40		490	570	0.015
	210	65 B2 210	MS	1	50	60	0.0006
		80 B2 210			118	130	0.0012
		80/M B2 210			118	130	0.0012
		100/M B2 210			190	294	0.0038
		105 B2 210			235	300	0.0038
		125/M B2 210			360	575	0.013
		130 B2 210			445	590	0.015
	240	65 B2 240	MS	1	50	60	0.0006
		80 B2 240			116	130	0.0012
		80/M B2 240			116	130	0.0012
		100/M B2 240			186	294	0.0038
		105 B2 240			235	300	0.0038
		125/M B2 240			356	575	0.013
		130 B2 240			450	590	0.015
	270	65 B2 270	MS	1	55	60	0.0006
		80 B2 270			106	130	0.0012
		80/M B2 270			106	130	0.0012
		100/M B2 270			181	294	0.0038
		105 B2 270			255	300	0.0038
		125/M B2 270			354	575	0.013
		130 B2 270			455	590	0.015

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	LAW MOTION	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
3	120	65 B3 120	MSC33	1	57	78	0.0006
		80 B3 120			147	147	0.0012
		80/M B3 120			147	147	0.0013
		100/M B3 120			278	313	0.0035
		105 B3 120			295	320	0.0038
		125/M B3 120			728	770	0.0124
		130 B3 120			740	790	0.015
	150	65 B3 150	MS	1	56	78	0.0006
		80 B3 150			149	147	0.0012
		80/M B3 150			149	147	0.0013
		100/M B3 150			280	314	0.0035
		105 B3 150			300	320	0.0038
		125/M B3 150			730	770	0.0124
		130 B3 150			750	790	0.015
	180	65 B3 180	MS	1	65	78	0.0006
		80 B3 180			231	147	0.0012
		80/M B3 180			231	147	0.0015
		100/M B3 180			442	366	0.0035
		105 B3 180			450	380	0.0038
		125/M B3 180			746	770	0.013
		130 B3 180			752	790	0.015
	210	65 B3 210	MS	1	62	78	0.0006
		80 B3 210			231	151	0.0012
		80/M B3 210			231	151	0.0015
		100/M B3 210			442	366	0.0035
		105 B3 210			446	380	0.0038
		125/M B3 210			740	770	0.013
		130 B3 210			750	790	0.015
	240	65 B3 240	MS	1	59	78	0.0006
		80 B3 240			248	151	0.0012
		80/M B3 240			248	151	0.0023
		100/M B3 240			485	366	0.0035
		105 B3 240			500	380	0.0038
		125/M B3 240			791	770	0.018
		130 B3 240			800	790	0.015
	270	65 B3 270	MS	1	59	78	0.0006
		80 B3 270			245	151	0.0012
		80/M B3 270			245	151	0.0023
		100/M B3 270			480	366	0.0035
		105 B3 270			495	380	0.0038
		125/M B3 270			788	770	0.018
		130 B3 270			792	790	0.015

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	LAW MOTION	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
4	90	65 B4 90	MSC33	1	55	65	0.0006
		80 B4 90	MSC33		152	135	0.0012
		80/M B4 90	MSC50		152	135	0.0012
		100/M B4 90	MSC50		310	288	0.0035
		105 B4 90	MSC33		325	298	0.0038
		125/M B4 90	MSC50		606	563	0.013
		130 B4 90	MSC33		620	580	0.015
	120	65 B4 120	MS	1	50	65	0.0006
		80 B4 120			124	135	0.0012
		80/M B4 120			124	135	0.0012
		100/M B4 120			265	289	0.0035
		105 B4 120			273	298	0.0038
		125/M B4 120			506	566	0.013
		130 B4 120			520	580	0.015
	150	65 B4 150	MS	1	50	65	0.0006
		80 B4 150			273	151	0.0012
		80/M B4 150			273	151	0.0023
		100/M B4 150			520	366	0.0064
		105 B4 150			535	375	0.0065
		125/M B4 150			921	770	0.02
		130 B4 150			935	790	0.017
	180	65 B4 180	MS	1	52	65	0.0006
		80 B4 180			269	151	0.0012
		80/M B4 180			269	151	0.0023
		100/M B4 180			513	366	0.0064
		105 B4 180			530	375	0.0065
		125/M B4 180			915	770	0.02
		130 B4 180			930	790	0.017
	210	65 B4 210	MS	1	52	65	0.0006
		80 B4 210			240	151	0.0012
		80/M B4 210			240	151	0.0023
		100/M B4 210			450	366	0.0065
		105 B4 210			520	375	0.0038
		125/M B4 210			799	770	0.02
		130 B4 210			910	790	0.017
	240	65 B4 240	MS	1	52	65	0.0006
		80 B4 240			235	135	0.0012
		80/M B4 240			235	135	0.0023
		100/M B4 240			445	366	0.0065
		105 B4 240			500	375	0.0038
		125/M B4 240			793	770	0.02
		130 B4 240			890	790	0.017
	270	65 B4 270	MS	1	50	65	0.0008
		80 B4 270			269	151	0.0014
		80/M B4 270			269	151	0.0023
		100/M B4 270			513	366	0.0065
		105 B4 270			520	375	0.005
		125/M B4 270			915	770	0.02
		130 B4 270			925	790	0.017

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	LAW MOTION	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
6	150	65 B6 150	MS	2	55	75	0.0008
		80 B6 150			184	148	0.0014
		80/M B6 150			184	148	0.0013
		100/M B6 150			320	311	0.005
		105 B6 150			330	320	0.005
		125/M B6 150			642	620	0.0116
		130 B6 150			650	640	0.017
	180	65 B6 180	MS	2	55	75	0.0008
		80 B6 180			296	151	0.0014
		80/M B6 180			296	151	0.0015
		100/M B6 180			579	366	0.0038
		105 B6 180			583	375	0.005
		125/M B6 180			951	875	0.013
		130 B6 180			960	890	0.017
	210	65 B6 210	MS	2	55	75	0.0008
		80 B6 210			286	151	0.0014
		80/M B6 210			286	151	0.0015
		100/M B6 210			569	366	0.0038
		105 B6 210			575	375	0,005
		125/M B6 210			940	875	0.013
		130 B6 210			950	890	0.017
	240	65 B6 240	MS	2	56	75	0.0008
		80 B6 240			281	151	0.0014
		80/M B6 240			281	151	0.0015
		100/M B6 240			565	366	0.0038
		105 B6 240			570	375	0,005
		125/M B6 240			936	875	0.013
		130 B6240			945	890	0.017
	270	65 B6 270	MS	2	57	75	0.0008
		80 B6 270			366	151	0.0014
		80/M B6 270			366	151	0.0023
		100/M B6 270			715	366	0.0056
		105 B6 270			725	375	0.005
		125/M B6 270			1180	875	0.018
		130 B6 270			1190	890	0.017

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	LAW MOTION	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
8	120	65 B8 120	MS	2	58	65	0.0006
		80 B8 120			176	135	0.0012
		80/M B8 120			176	135	0.0012
		100/M B8 120			361	285	0.0035
		105 B8 120			370	290	0.0038
		125/M B8 120			705	558	0.013
		130 B8 120			710	562	0.015
	150	65 B8 150	MS	2	57	65	0.0006
		80 B8 150			166	135	0.0012
		80/M B8 150			166	135	0.0012
		100/M B8 150			351	285	0.0038
		105 B8 150			360	290	0.0038
		125/M B8 150			695	558	0.013
		130 B8 150			700	562	0.015
	180	65 B8 180	MS	2	45	65	0.0006
		80 B8 180			303	151	0.0012
		80/M B8 180			303	151	0.0012
		100/M B8 180			579	366	0.0038
		105 B8 180			583	290	0.0038
		125/M B8 180			1017	770	0.013
		130 B8 180			1020	780	0.017
	210	65 B8 210	MS	2	45	65	0.0006
		80 B8 210			326	151	0.0012
		80/M B8 210			326	151	0.0018
		100/M B8 210			604	366	0.0053
		105 B8 210			612	290	0.0038
		125/M B8 210			1162	770	0.018
		130 B8 210			1169	780	0.017
	240	65 B8 240	MS	2	46	65	0.0006
		80 B8 240			316	151	0.0012
		80/M B8 240			316	151	0.0018
		100/M B8 240			573	366	0.0053
		105 B8 240			580	290	0.0038
		125/M B8 240			1035	770	0.018
		130 B8 240			1040	780	0.017
	270	65 B8 270	MS	2	48	65	0.0006
		80 B8 270			306	151	0.0012
		80/M B8 270			306	151	0.0018
		100/M B8 270			584	366	0.0053
		105 B8 270			590	290	0.0038
		125/M B8 270			1042	770	0.018
		130 B8 270			1050	780	0.017

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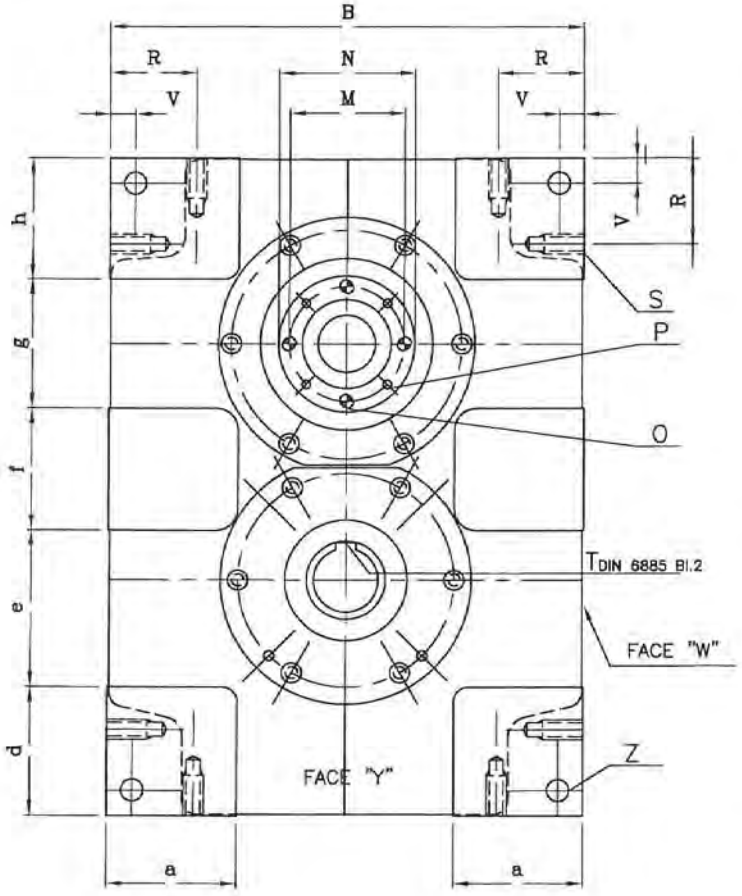
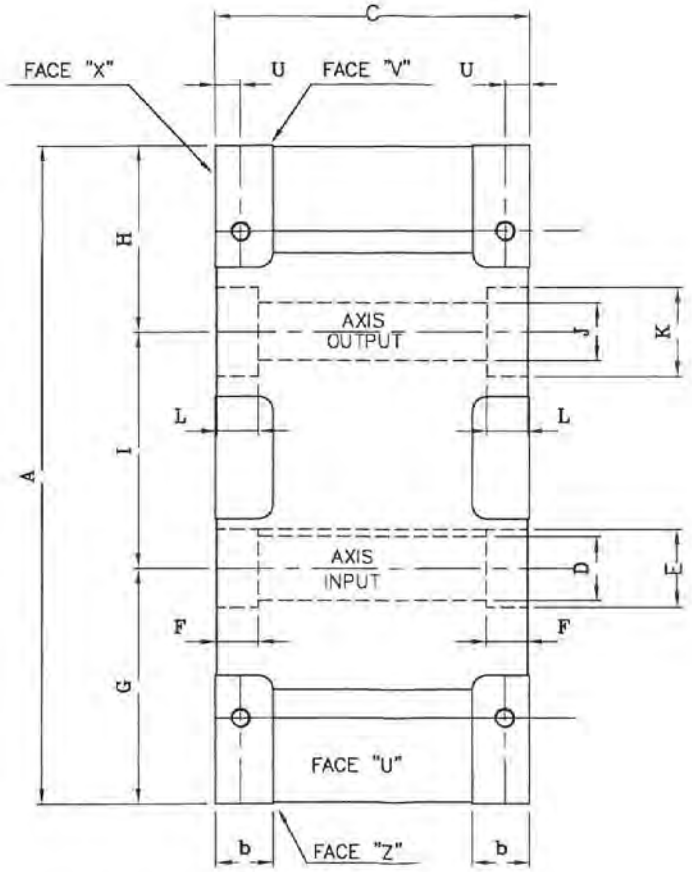
PARALLEL SHAFT INDEXERS





KEYWAY WILL BE IN THIS POSITION
WHEN CAM IS ON CENTER OF DWELL.

DIMENSIONS MK3 SERIES

TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
165	460	330	220	45	55	30	165	130	165	40	62	30	80	95	9,5x20
200	550	400	250	55	65	30	200	150	200	50	80	35	100	120	11,5x25
250	700	500	300	85	100	30	250	200	250	65	95	50	125	150	13,5x30
315	880	630	400	100	130	30	315	250	315	80	120	62	160	190	15,5x35

TYPE	P	R	S	T	U	V	Z	a	b	d	e	f	g	h	Weight(Kg)
165	M8x20	60	M14x25	14x9	17,5	17,5	15,5	90	40	90	110	85	90	85	130
200	M10x25	75	M16x30	16x10	20	20	17,5	115	50	110	130	100	120	90	230
250	M12x30	90	M18x35	22x14	25	25	19,5	145	50	145	160	115	160	120	400
315	M14x35	120	M20x40	28x16	30	30	21	180	55	215	180	155	160	170	770

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	MOTION LAW	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
1	330	160/M B1 330	MSC 50	1	1000	975	0,04
		165 B1 330			1100	980	0,062
		200 B1 330			1850	1620	0,103
		250 B1 330			3180	2650	0,27
		315 B1 330			6620	4650	0,383
2	150	160/M B2 150	MSC50	1	1000	975	0,04
		165 B2 150			1100	880	0,062
		200 B2 150			1850	1400	0,103
		250 B2 150			3180	2320	0,27
		315 B2 150			6620	4300	0,383
	180	160/M B2 180	MSC50	1	850	755	0,04
		165 B2 180	MSC33		900	760	0,062
		200 B2 180	MSC33		1500	1280	0,103
		250 B2 180	MSC33		2600	2200	0,27
		315 B2 180	MSC33		5420	4500	0,383
	210	160/M B2 210	MS	1	850	770	0,04
		165 B2 210	MSC20		900	780	0,062
		200 B2 210	MSC20		1500	1300	0,103
		250 B2 210	MSC20		2600	2240	0,27
		315 B2 210	MSC20		5420	4620	0,383
	240	160/M B2 240	MS	1	850	770	0,04
		165 B2 240	MSC15		900	800	0,062
		200 B2 240	MSC15		1500	1320	0,103
		250 B2 240	MSC15		2600	2280	0,27
		315 B2 240	MSC15		5420	4720	0,383
	270	160/M B2 270	MS	1	850	770	0,064
		165 B2 270			900	880	0,062
		200 B2 270			1500	1450	0,103
		250 B2 270			2600	2600	0,27
		315 B2 270			5420	4880	0,383

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	MOTION LAW	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
3	120	160/M B3 120	MSC33	1	867	875	0,04
		165 B3 120			900	900	0,048
		200 B3 120			1500	1500	0,098
		250 B3 120			2600	2560	0,25
		315 B3 120			5420	5300	0,341
	150	160/M B3 150	MSC33	1	906	866	0,04
		165 B3 150			1100	880	0,048
		200 B3150			1850	1480	0,098
		250 B3 150			3180	2550	0,25
		315 B3 150			6620	5280	0,341
	180	160/M B3 180	MS	1	906	972	0,048
		165 B3 180			110	980	0,048
		200 B3 180			1850	1650	0,098
		250 B3 180			3180	2850	0,25
		315 B3 180			6620	5800	0,341
	210	160/M B3 210	MS	1	1050	975	0,048
		165 B3 210			1100	980	0,048
		200 B3 210			1850	1620	0,098
		250 B3 210			3180	2780	0,25
		315 B3 210			6620	5540	0,341
	240	160/M B3 240	MS	1	1000	935	0,048
		165 B3 240			1100	940	0,048
		200 B3 240			1850	1560	0,098
		250 B3 240			3180	2700	0,25
		315 B3 240			6620	5300	0,341
	270	160/M B3 270	MS	1	100	915	0,064
		165 B3 270			1100	920	0,048
		200 B3 270			1850	1540	0,098
		250 B3 270			3180	2640	0,25
		315 B3 270			6620	5120	0,341

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	MOTION LAW	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
4	90	160/M B4 90	MSC50	1	850	870	0,04
		165 B4 90	MSC20		900	880	0,062
		200 B4 90	MSC20		1520	1480	0,103
		250 B4 90	MSC20		2620	2540	0,27
		315 B4 90	MSC20		4520	5220	0,383
	120	160/M B4 120	MSC33	1	850	870	0,04
		165 B4 120			900	780	0,062
		200 B4 120			1520	1280	0,103
		250 B4 120			2620	2220	0,27
		315 B4 120			4520	4580	0,383
	150	160/M B4 150	MSC33	1	850	870	0,04
		165 B4 150			900	780	0,062
		200 B4 150			1520	1300	0,103
		250 B4 150			2620	2260	0,27
		315 B4 150			4520	4680	0,383
	180	160/M B4 180	MS	1	850	795	0,056
		165 B4 180			900	800	0,062
		200 B4 180			1520	1340	0,103
		250 B4 180			2620	2300	0,27
		315 B4 180			4520	4780	0,383
	210	160/M B4 210	MS	1	850	795	0,056
		165 B4 210			900	800	0,062
		200 B4 210			1520	1360	0,103
		250 B4 210			2620	2340	0,27
		315 B4 210			4520	4840	0,383
	240	160/M B4 240	MS	1	850	795	0,056
		165 B4 240			900	800	0,062
		200 B4 240			1520	1340	0,103
		250 B4 240			2620	2300	0,27
		315 B4 240			4520	4800	0,383
	270	160/M B4 270	MS	1	850	795	0,056
		165 B4 270			900	800	0,062
		200 B4 270			1520	1320	0,103
		250 B4 270			2620	2280	0,27
		315 B4 270			4520	4760	0,383

MK3 SERIES MODEL DATA

N° OF STOPS	INDEX DEG	MODEL	MOTION LAW	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
6	150	160/M B6 150	MS	2	1041	1039	0,04
		165 B6 150	MSC33		1100	1100	0,0478
		200 B6 150	MSC33		1850	1840	0,098
		250 B6 150	MSC33		3200	3160	0,25
		315 B6 150	MSC33		6620	6520	0,341
	180	160/M B6 180	MS	2	1041	1039	0,04
		165 B6 180	MSC15		1100	1100	0,0478
		200 B6 180	MSC15		1850	1420	0,098
		250 B6 180	MSC15		3200	2440	0,25
		315 B6 180	MSC15		6620	5040	0,341
	210	160/M B6 210	MS	2	1041	1039	0,04
		165 B6 210			1100	1100	0,0478
		200 B6 210			1850	1420	0,098
		250 B6 210			3200	2460	0,25
		315 B6 210			6620	5100	0,341
	240	160/M B6 240	MS	2	1041	1039	0,048
		165 B6 240			1100	1100	0,0478
		200 B6 240			1850	1450	0,098
		250 B6 240			3200	2500	0,25
		315 B6 240			6620	5180	0,341
	270	160/M B6 270	MS	2	1041	1039	0,064
		165 B6 270			1100	1100	0,0478
		200 B6 270			1850	1480	0,098
		250 B6 270			3200	2560	0,25
		315 B6 270			6620	5320	0,341

MK3 SERIES MODEL DATA

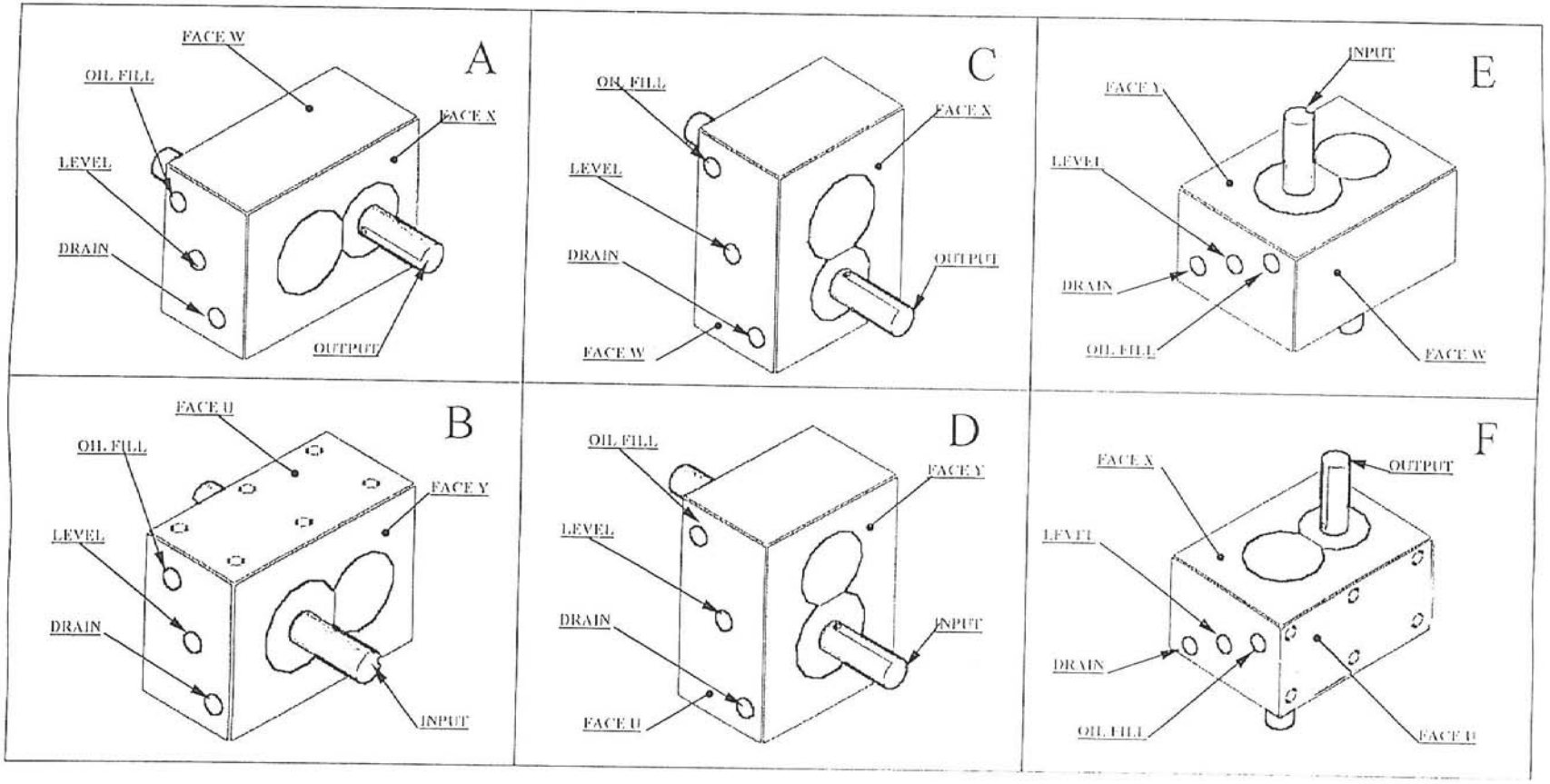
N° OF STOPS	INDEX DEG	MODEL	MOTION LAW	CAM TYPE	Mr (B10) Nm	Ml Nm	Ii kg*m2
8	120	160/M B8 120	MS	2	110	1100	0,04
		165 B8 120			1150	1150	0,062
		200 B8 120			1520	1500	0,103
		250 B8 120			2620	2580	0,27
		315 B8 120			5420	5320	0,383
	150	160/M B8 150	MS	2	1100	1100	0,04
		165 B8 150			1150	1150	0,062
		200 B8 150			1520	1460	0,103
		250 B8 150			2620	2520	0,27
		315 B8 150			5420	5320	0,383
	180	160/M B8 180	MS	2	1100	1100	0,056
		165 B8 180			1150	1150	0,062
		200 B8 180			1520	1120	0,103
		250 B8 180			2620	1940	0,27
		315 B8 180			5420	4050	0,383
	210	160/M B8 210	MS	2	1100	1100	0,056
		165 B8 210			1150	1150	0,062
		200 B8 210			1520	1150	0,103
		250 B8 210			2620	1960	0,27
		315 B8 210			5420	4060	0,383
	240	160/M B8 240	MS	2	1100	1100	0,056
		165 B8 240			1150	1150	0,062
		200 B8 240			1520	1150	0,103
		250 B8 240			2620	2000	0,27
		315 B8 240			5420	4140	0,383
	270	160/M B8 270	MS	2	1100	1100	0,056
		165 B8 270			1150	1150	0,062
		200 B8 270			1520	1200	0,103
		250 B8 270			2620	2050	0,27
		315 B8 270			5420	4250	0,383

INTERNAL FRICTION CHART

In this chart are shown the internal friction about MK3 series, to move the mechanism without any weight.

MK3 SERIES	INTERNAL FRICTION Mb (Nm)
65	4,2
80	22,6
80/M	22,6
100/M	27,2
105	28,4
125/M	33,8
130	37,2
160/M	45,2
165	51
200	54,2
350	67,8
315	103

INDEXER MOUNTING POSITIONS



Mounting

The shape of the housing, all faces entirely machined and the leakproof sealing allow the MK3 indexer to be mounted in any position.

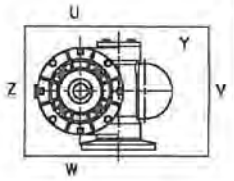
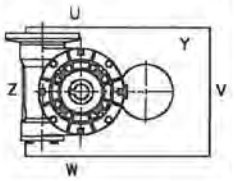
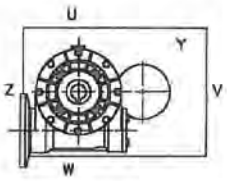
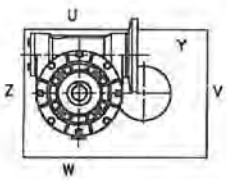
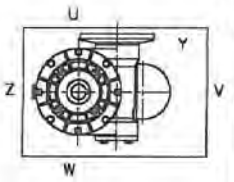
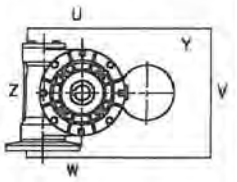
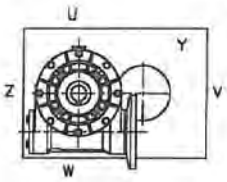
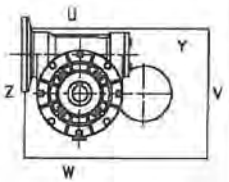
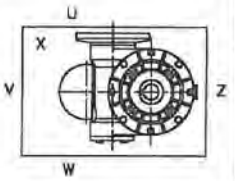
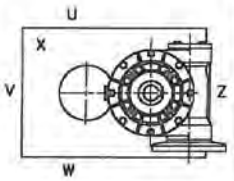
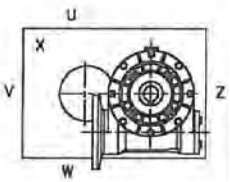
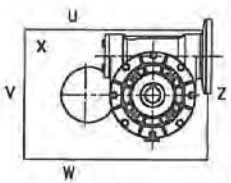
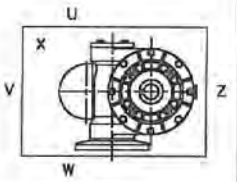
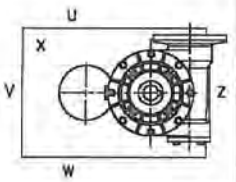
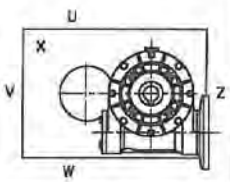
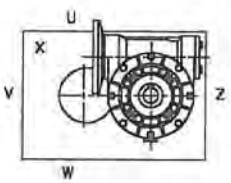
The indexers can be provided grease lubricated for life (recommended only for input speeds up to 100 r.p.m.) or oil lubricated ; in this case the mounting position must be specified so that the oil plugs and level sights be correctly positioned. Position of these plugs and level sights different from what shown on the drawing can be provided but they should be requested by sending a dimensioned drawing.

Example of code numbers

MK3 65 B4 270 W 1 8 D 4CY

65 = Unit size
B = Hardened cam
4 = Number of stops
270 = Index period (cam index angle)
W = Mounting face (the face with standard tapped holes)
1 = Projection of the input shaft
8 = Projection of the output shaft
D = Mounting position of the indexer
4CY = Mounting position of the speed reducer

DRIVE MOUNTING POSITIONS

4AY 	4BY 	4CY 	4EY 
5AY 	5BY 	5CY 	5EY 
4AX 	4BX 	4CX 	4EX 
5AX 	5BX 	5CX 	5EX 

ITALPLANT srl

PARALLEL SERIES OSCILLATORS "METRIC"

MK3

MK3 PARALLEL SHAFT OSCILLATORS

GENERALITIES

The Mk3 Parallel Shaft Oscillators are mechanisms which convert a continuous rotary input motion into an oscillating rotary output motion.
A standard oscillating cycle, produced by one revolution of the input shaft, consists of two output MOTION PERIODS of opposite direction, with or without DWELL PERIODS between them.
The angle through which the output shaft rotates (or swings) during a motion period is called OUTPUT STROKE.
ITALPLANT MK3 OSCILLATORS can be made for almost any combination of Motion Period, Dwell Period and Output Stroke.
They are built with heavy duty camshafts, hardened steel cams and high precision preloaded roller followers. The mechanism is mounted on taper roller bearings in a rigid cast iron housing which also serves as an oil bath.

MOTION LAWS

A number of standard motion laws have been selected in order to produce the best combination of smooth operation and high strength. These motions vary from one oscillator to another, and it is therefore essential to use the appropriate factors when calculating the torque requirements of each application.

INPUT DRIVE

The input drive mechanism must be designed very carefully because the correct functioning of the oscillator depends on the acceleration curve generated by the shape of the cam profiles and on their absolutely constant rotation velocity. Any departure from this modifies the acceleration curve and therefore the load on the roller followers.
The input drive transmission must be without backlash and with a minimum of torsional elasticity. A most suitable solution for the input drive consists in a speed reducer directly mounted on the oscillator.

DIRECTIONS OF ROTATION

The direction of rotation must be specified when ordering. The input shaft can rotate in either direction.
With standard (symmetrical) timings both input directions produce identical output motions. The motion immediately following the datum position is always designated Motion A, irrespective of whether this is a "forward" or "return" motion.

TIMING AND DATUM POSITION

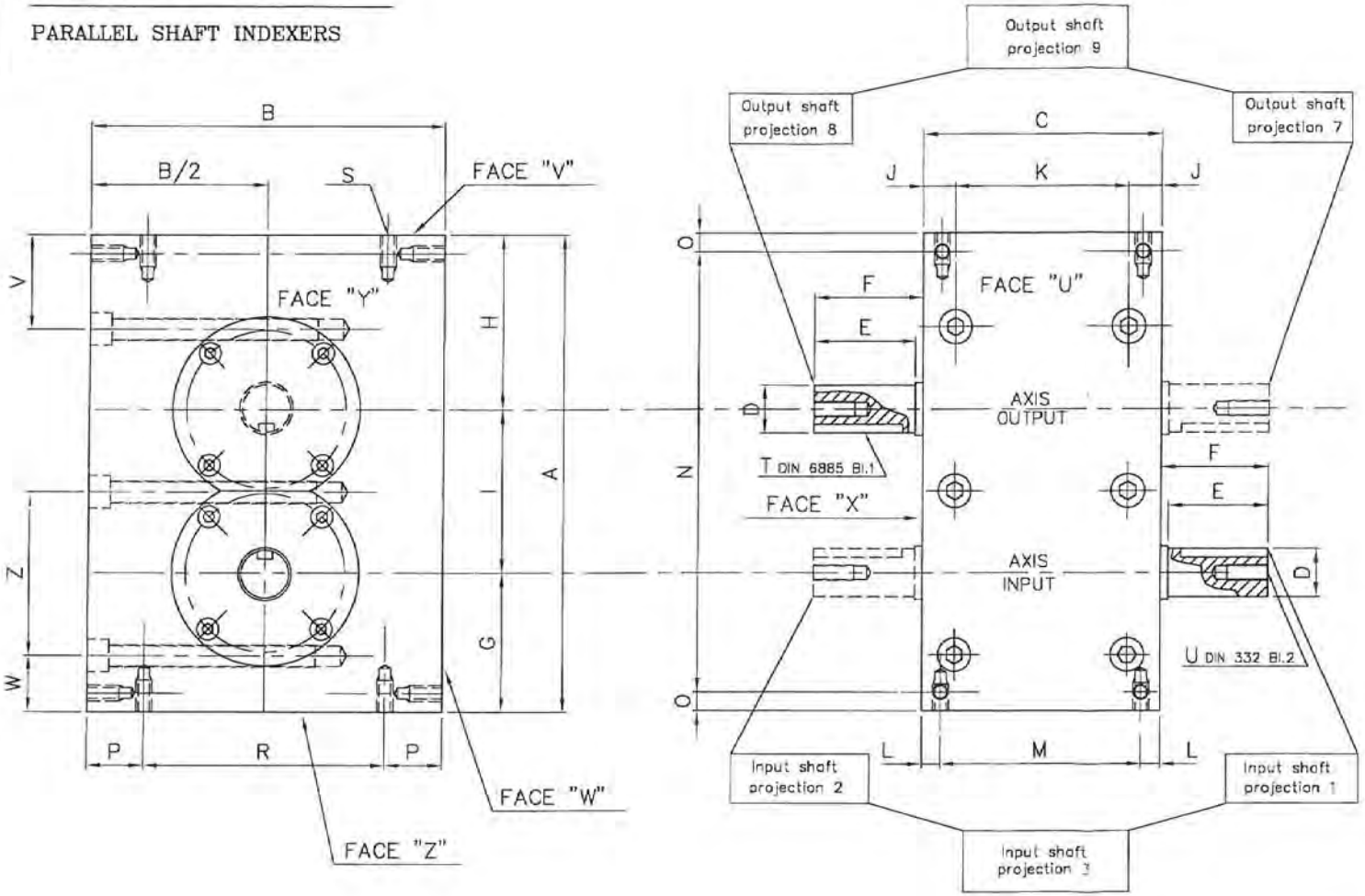
A complete oscillator cycle consists of four periods, designated chronologically : Motion A, Dwell A, Motion B, Dwell B. There are alternative ways in which an oscillator can be assembled and used. In order to be able to orient mating components it is necessary to define a datum position. The DATUM POSITION of the unit occurs at the centre of the Dwell B period. The datum features are shown on the following page. The motion timing is shown ? ? ? Standard oscillators have Motion A and Motion B of equal duration, but unequal motion periods, special motions, unequal dwell periods, etc., can be supplied on request.

ACCURACY

During dwell the output shaft is located and locked within ± 0.025 mm at the pitch circle of the turret. The final accuracy of station positions in the machine, however, depends also on the design and installation of the machine components.

ITALPLANT

PARALLEL SHAFT INDEXERS



KEYWAY AND TAPPED HOLE WILL BE IN THIS POSITION WHEN CAM IS ON CENTER OF DWELL.

DIMENSIONS MK3 SERIES

TYPE	A	B	C	D^{K6}	E	F	G	H	I	J	K	L
65	190	140	95	19	40	43	70	55	65	13	69	7,5
80	240	180	120	28	60	65	90	70	80	17	86	12,5
80/M	250	170	110	24	36	40	85	85	80	15	80	12,5
100/M	300	200	140	30	80	85	100	100	100	20	100	17,5
105	300	210	150	30	80	85	105	90	105	18	114	17,5
125/M	350	240	180	40	82	85	125	100	125	22,5	135	17,5
130	370	260	180	42	110	115	130	110	130	18	144	18
160/M	500	340	170	40	85	82	170	170	160	28	154	25

TYPE	M	N	O	P	R	S	T	U	V	W	Z	Weight(Kg)
65	80	175	7,5	22,5	95	M6x12	6x6x35	M6x16	22,5	37,5	65	12,5
80	95	215	12,5	30	120	M8x15	8x7x55	M10x22	30	50	80	30
80/M	85	225	12,5	35	100	M8x20	8x7x35	//	32,5	32,5	92,5	30
100/M	105	270	17,5	40	120	M10x20	8x7x75	//	37	37	113	40
105	115	265	17,5	35	140	M10x20	8x7x75	M10x22	37,5	52,5	105	45
125/M	145	310	20	40	120	M12x25	12x8x80	//	40	25	120	75
130	144	334	18	40	180	M12x25	12x8x100	M16x36	45	65	130	80
160/M	160	460	20	80	260	M12x25	14x9x80	//	50	50	197,5	130

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
15	65	30	150	30	150	MS	72	100	0,0008
	80					MS	160	220	0,0019
	100					MS	210	300	0,03
	105					MS	285	370	0,0032
	125					MS	607	890	0,009
	130					MS	660	990	0,01
	160					MS	1670	1900	0,04
	65	30	300	30	0	MS	72	100	0,0008
	80					MS	160	220	0,0019
	100					MS	210	300	0,03
	105					MS	285	370	0,0032
	125					MS	607	890	0,009
	130					MS	660	990	0,01
	160					MS	1670	1900	0,004
	65	45	270	45	0	MS	68	90	0,0008
	80					MS	136	210	0,0019
	100					MS	200	290	0,03
	105					MS	240	350	0,0032
	125					MS	603	887	0,009
	130					MS	660	970	0,01
	160					MS	1665	1895	0,04
	65	45	270	45	0	MS	73	94	0,0008
	80					MS	122	201	0,0019
	100					MS	210	300	0,03
	105					MS	213	356	0,0032
	125					MS	607	890	0,009
	130					MS	665	980	0,01
	160					MS	1665	1895	0,04
	65	60	120	60	120	MS	60	90	0,0008
	80					MS	120	201	0,0019
	100					MS	205	295	0,03
	105					MS	210	356	0,0032
	125					MS	603	887	0,009
	130					MS	600	980	0,01
	160					MS	1667	1898	0,04
	65	60	240	60	0	MS	59	90	0,0008
	80					MS	120	202	0,0019
	100					MS	205	295	0,03
	105					MS	210	360	0,0032
	125					MS	603	887	0,009
	130					MS	602	990	0,01
	160					MS	1667	1898	0,04
	65	90	90	90	90	MS	59	90	0,0008
	80					MS	108	198	0,0019
	100					MS	180	290	0,03
	105					MS	180	349	0,0032
	125					MS	597	800	0,009
	130					MS	520	990	0,01
	160					MS	1660	1890	0,04

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
15	65	90	180	90	0	MS	58	95	0,0008
	80					MS	108	202	0,0019
	100					MS	180	290	0,03
	105					MS	180	35	0,0032
	125					MS	597	800	0,009
	130					MS	517	980	0,01
	160					MS	1660	1890	0,04
	65	120	60	120	60	MS	49	101	0,0008
	80					MS	97	203	0,0019
	100					MS	178	288	0,03
	105					MS	168	350	0,0032
	125					MS	590	796	0,009
	130					MS	477	991	0,01
	160					MS	1657	1886	0,04
	65	120	120	120	0	MS	52	93	0,0008
	80					MS	98	203	0,0019
	100					MS	178	288	0,03
	105					MS	160	350	0,0032
	125					MS	590	796	0,009
	130					MS	470	990	0,01
	160					MS	1657	1886	0,04
	65	150	30	150	30	MS	46	90	0,0008
	80					MS	93	201	0,0019
	100					MS	175	280	0,03
	105					MS	152	350	0,0032
	125					MS	588	794	0,009
	130					MS	440	990	0,01
	160					MS	1650	1880	0,04
	65	180	0	180	0	MS	45	90	0,0008
	80					MS	85	201	0,0019
	100					MS	175	280	0,03
	105					MS	145	350	0,0032
	125					MS	588	794	0,009
	130					MS	420	990	0,01
	160					MS	1650	1880	0,04

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
20	65	45	135	45	135	MS	68	90	0,0008
	80					MS	143	201	0,0019
	100					MS	268	330	0,03
	105					MS	272	335	0,0032
	125					MS	700	970	0,009
	130					MS	770	973	0,01
	160					MS	1720	1813	0,04
	65	45	270	45	0	MS	69	90	0,0008
	80					MS	148	201	0,0019
	100					MS	280	330	0,03
	105					MS	283	350	0,0032
	125					MS	780	970	0,009
	130					MS	801	973	0,01
	160					MS	1750	1813	0,04
	65	60	120	60	120	MS	65	90	0,0008
	80					MS	143	201	0,0019
	100					MS	270	330	0,03
	105					MS	269	350	0,0032
	125					MS	750	970	0,009
	130					MS	776	973	0,01
	160					MS	1750	1813	0,04
	65	60	240	60	0	MS	67	90	0,0008
	80					MS	139	201	0,0019
	100					MS	210	330	0,03
	105					MS	265	350	0,0032
	125					MS	750	970	0,009
	130					MS	770	973	0,01
	160					MS	1750	1813	0,04
	65	75	105	75	105	MS	64	90	0,0008
	80					MS	141	201	0,0019
	100					MS	239	330	0,03
	105					MS	248	350	0,0032
	125					MS	699	970	0,009
	130					MS	712	973	0,01
	160					MS	1730	1813	0,04
	65	75	210	75	0	MS	68	90	0,0008
	80					MS	133	201	0,0019
	100					MS	239	330	0,03
	105					MS	244	350	0,0032
	125					MS	699	970	0,009
	130					MS	703	973	0,01
	160					MS	1730	1813	0,04
	65	90	90	90	90	MS	68	90	0,0008
	80					MS	135	201	0,0019
	100					MS	230	330	0,03
	105					MS	231	350	0,0032
	125					MS	680	970	0,009
	130					MS	703	973	0,01
	160					MS	1710	1813	0,04

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
30	65	90	180	90	0	MS	59	86	0,0008
	80					MS	125	191	0,0019
	100					MS	219	314	0,03
	105					MS	219	333	0,0032
	125					MS	646	922	0,009
	130					MS	618	924	0,01
	160					MS	1625	1722	0,04
	65	120	60	120	60	MS	58	86	0,0008
	80					MS	121	191	0,0019
	100					MS	190	314	0,03
	105					MS	199	333	0,0032
	125					MS	570	922	0,009
	130					MS	578	924	0,01
	160					MS	1615	1722	0,04
	65	120	120	120	0	MS	57	86	0,0008
	80					MS	115	191	0,0019
	100					MS	190	314	0,03
	105					MS	192	333	0,0032
	125					MS	570	922	0,009
	130					MS	563	924	0,01
	160					MS	1615	1722	0,04
	65	150	30	150	30	MS	56	86	0,0008
	80					MS	116	191	0,0019
	100					MS	179	314	0,03
	105					MS	183	333	0,0032
	125					MS	475	922	0,009
	130					MS	527	924	0,01
	160					MS	1634	1722	0,04
	65	180	0	180	0	MS	56	86	0,0008
	80					MS	118	191	0,0019
	100					MS	168	314	0,03
	105					MS	173	333	0,0032
	125					MS	475	922	0,009
	130					MS	498	924	0,01
	160					MS	1629	1722	0,04

CHARACTERISTICS LIST

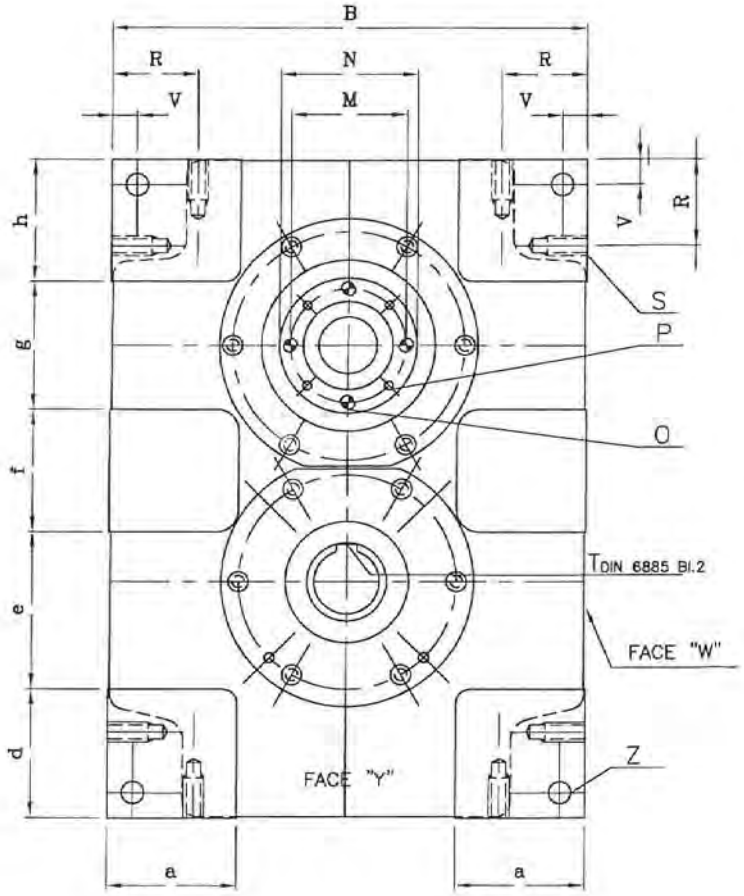
Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
45	65	60	120	60	120	MS	62	82	0,0008
	80					MS	129	181	0,0019
	100					MS	242	298	0,03
	105					MS	245	302	0,0032
	125					MS	632	876	0,009
	130					MS	695	878	0,01
	160					MS	1552	1636	0,04
	65	60	240	60	0	MS	63	82	0,0008
	80					MS	134	181	0,0019
	100					MS	253	298	0,03
	105					MS	256	316	0,0032
	125					MS	704	876	0,009
	130					MS	723	878	0,01
	160					MS	1580	1636	0,04
	65	75	105	75	105	MS	59	82	0,0008
	80					MS	129	181	0,0019
	100					MS	244	298	0,03
	105					MS	243	316	0,0032
	125					MS	677	876	0,009
	130					MS	700	878	0,01
	160					MS	1580	1636	0,04
	65	75	210	75	0	MS	61	82	0,0008
	80					MS	125	181	0,0019
	100					MS	190	298	0,03
	105					MS	239	316	0,0032
	125					MS	677	876	0,009
	130					MS	695	878	0,01
	160					MS	1580	1636	0,04
	65	90	90	90	90	MS	58	82	0,0008
	80					MS	127	181	0,0019
	100					MS	216	298	0,03
	105					MS	224	316	0,0032
	125					MS	631	876	0,009
	130					MS	642	878	0,01
	160					MS	1562	1636	0,04
	65	90	180	90	0	MS	62	82	0,0008
	80					MS	120	181	0,0019
	100					MS	216	298	0,03
	105					MS	220	316	0,0032
	125					MS	631	876	0,009
	130					MS	635	878	0,01
	160					MS	1562	1636	0,04
	65	120	60	120	60	MS	62	82	0,0008
	80					MS	122	181	0,0019
	100					MS	208	298	0,03
	105					MS	208	316	0,0032
	125					MS	614	876	0,009
	130					MS	635	878	0,01
	160					MS	1544	1636	0,04

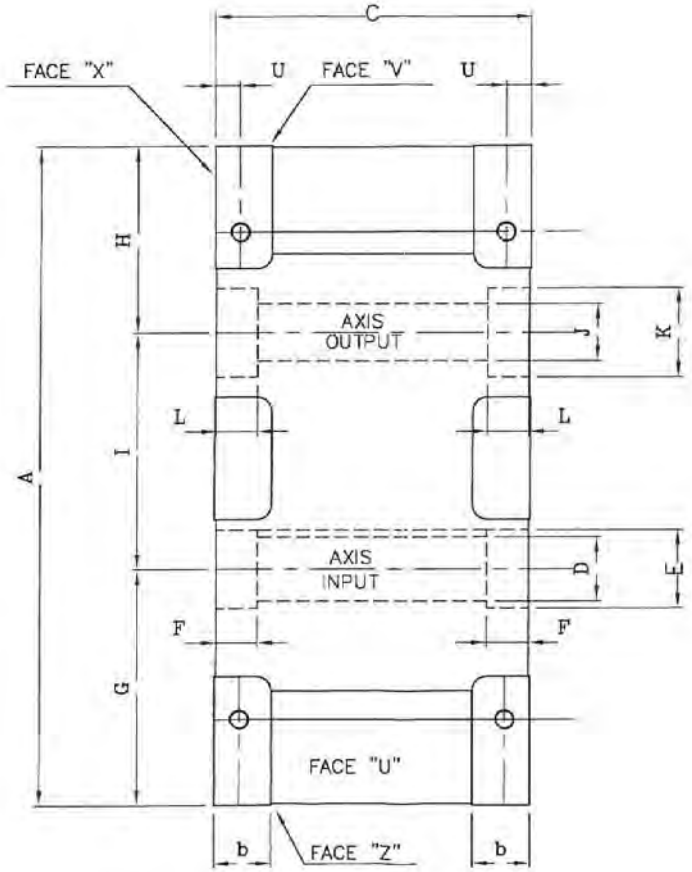
CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
45	65	120	120	120	0	MS	56	82	0,0008
	80					MS	119	181	0,0019
	100					MS	208	298	0,03
	105					MS	208	316	0,0032
	125					MS	614	876	0,009
	130					MS	587	878	0,01
	160					MS	1544	1636	0,04
	65	150	30	150	30	MS	55	82	0,0008
	80					MS	115	181	0,0019
	100					MS	181	298	0,03
	105					MS	189	316	0,0032
	125					MS	542	876	0,009
	130					MS	549	878	0,01
	160					MS	1534	1636	0,04
	65	150	60	150	0	MS	54	82	0,0008
	80					MS	109	181	0,0019
	100					MS	181	298	0,03
	105					MS	182	316	0,0032
	125					MS	542	876	0,009
	130					MS	535	878	0,01
	160					MS	1534	1636	0,04
	65	180	0	180	0	MS	53	82	0,0008
	80					MS	110	181	0,0019
	100					MS	170	298	0,03
	105					MS	174	316	0,0032
	125					MS	451	876	0,009
	130					MS	501	878	0,01
	160					MS	1552	1636	0,04
	65					MS			
	80					MS			
	100					MS			
	105					MS			
	125					MS			
	130					MS			
	160					MS			

ITALPLANT

PARALLEL SHAFT INDEXERS





KEYWAY WILL BE IN THIS POSITION
WHEN CAM IS ON CENTER OF DWELL.

DIMENSIONS MK3 SERIES

TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
165	460	330	220	45	55	30	165	130	165	40	62	30	80	95	9,5x20
200	550	400	250	55	65	30	200	150	200	50	80	35	100	120	11,5x25
250	700	500	300	85	100	30	250	200	250	65	95	50	125	150	13,5x30
315	880	630	400	100	130	30	315	250	315	80	120	62	160	190	15,5x35

TYPE	P	R	S	T	U	V	Z	a	b	d	e	f	g	h	Weight(Kg)
165	M8x20	60	M14x25	14x9	17,5	17,5	15,5	90	40	90	110	85	90	85	130
200	M10x25	75	M16x30	16x10	20	20	17,5	115	50	110	130	100	120	90	230
250	M12x30	90	M18x35	22x14	25	25	19,5	145	50	145	160	115	160	120	400
315	M14x35	120	M20x40	28x16	30	30	21	180	55	215	180	155	160	170	770

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
15	160/M	30	150	30	150	MS	1670	1900	0,04
	165					MS	1600	2900	0,05
	200					MS	2800	4150	0,12
	250					MS	4400	8000	0,383
	315					MS	7500	12500	0,494
	160/M	30	300	30	0	MS	1670	1900	0,04
	165					MS	1600	2900	0,05
	200					MS	2700	4150	0,12
	250					MS	4350	8000	0,383
	315					MS	7300	12500	0,494
	160/M	45	270	45	0	MS	1665	1895	0,04
	165					MS	1520	2900	0,05
	200					MS	2730	4150	0,12
	250					MS	4100	8000	0,383
	315					MS	6020	12500	0,494
	160/M	45	270	45	0	MS	1665	1895	0,04
	165					MS	1500	2900	0,05
	200					MS	2300	4150	0,12
	250					MS	4100	8000	0,383
	315					MS	6000	12500	0,494
	160/M	60	120	60	120	MS	1667	1898	0,04
	165					MS	1450	2900	0,05
	200					MS	2370	4150	0,12
	250					MS	3850	8000	0,383
	315					MS	6240	12500	0,494
	160/M	60	240	60	0	MS	1667	1898	0,04
	165					MS	1430	2900	0,05
	200					MS	2430	4150	0,12
	250					MS	3730	8000	0,383
	315					MS	5600	12500	0,494
	160/M	90	90	90	90	MS	1660	1890	0,04
	165					MS	1300	2900	0,05
	200					MS	2100	4150	0,12
	250					MS	3520	8000	0,383
	315					MS	5000	12500	0,494
	160/M	90	180	90	0	MS	1660	1890	0,04
	165					MS	1290	2900	0,05
	200					MS	2080	4150	0,12
	250					MS	3420	8000	0,383
	315					MS	4980	12500	0,494
	160/M	120	60	120	60	MS	1657	1886	0,04
	165					MS	1200	2900	0,05
	200					MS	1710	4150	0,12
	250					MS	2970	8000	0,383
	315					MS	4230	12500	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
15	160/M	120	120	120	0	MS	1657	1886	0,04
	165					MS	1190	2900	0,05
	200					MS	1680	4150	0,12
	250					MS	2940	8000	0,383
	315					MS	4180	12500	0,494
	160/M	150	30	150	30	MS	1650	1880	0,04
	165					MS	1130	2900	0,05
	200					MS	1590	4150	0,12
	250					MS	2800	8000	0,383
	315					MS	3930	12500	0,494
	160/M	180	0	180	0	MS	1650	1880	0,04
	165					MS	1080	2900	0,05
	200					MS	1500	4150	0,12
	250					MS	2650	8000	0,383
	315					MS	4200	12500	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
20	160/M	45	135	45	135	MS	1720	1813	0,04
	165					MS	1680	2950	0,05
	200					MS	2570	4250	0,12
	250					MS	4400	7790	0,383
	315					MS	6500	11900	0,494
	160/M	45	270	45	0	MS	1750	1813	0,04
	165					MS	1680	2950	0,05
	200					MS	2580	4250	0,12
	250					MS	4380	7790	0,383
	315					MS	6480	11900	0,494
	160/M	45	270	45	0	MS	1750	1813	0,04
	165					MS	1790	2900	0,05
	200					MS	2520	4150	0,12
	250					MS	4520	8000	0,383
	315					MS	6420	12500	0,494
	160/M	45	270	45	0	MS	1750	1813	0,04
	165					MS	1780	2950	0,05
	200					MS	2530	4250	0,12
	250					MS	4810	7790	0,383
	315					MS	6400	11900	0,494
	160/M	60	120	60	120	MS	1730	1813	0,04
	165					MS	1790	2950	0,05
	200					MS	2490	4250	0,12
	250					MS	4540	7790	0,383
	315					MS	6320	11900	0,494
	160/M	60	240	60	0	MS	1730	1813	0,04
	165					MS	1770	2950	0,05
	200					MS	2420	4250	0,12
	250					MS	4420	7790	0,383
	315					MS	6200	11900	0,494
	160/M	90	90	90	90	MS	1710	1813	0,04
	165					MS	1680	2950	0,05
	200					MS	2320	4250	0,12
	250					MS	4220	7790	0,383
	315					MS	5930	11900	0,494
	160/M	90	180	90	0	MS	1710	1813	0,04
	165					MS	1630	2950	0,05
	200					MS	2270	4250	0,12
	250					MS	5070	7790	0,383
	315					MS	5800	11900	0,494
	160/M	120	60	120	60	MS	1700	1813	0,04
	165					MS	1500	2950	0,05
	200					MS	2070	4250	0,12
	250					MS	3800	7790	0,383
	315					MS	5300	11900	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
20	160/M	120	120	120	0	MS	1700	1813	0,04
	165					MS	1490	2950	0,05
	200					MS	2050	4250	0,12
	250					MS	3730	7790	0,383
	315					MS	5220	11900	0,494
	160/M	150	30	150	30	MS	1720	1813	0,04
	165					MS	1400	2950	0,05
	200					MS	1930	4250	0,12
	250					MS	3520	7790	0,383
	315					MS	4930	11900	0,494
	160/M	180	0	180	0	MS	1715	1813	0,04
	165					MS	1330	2950	0,05
	200					MS	1810	4250	0,12
	250					MS	3310	7790	0,383
	315					MS	4700	11900	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
30	160/M	45	135	45	135	MS	1634	1722	0,04
	165					MS	1970	2800	0,05
	200					MS	2600	3900	0,12
	250					MS	5220	7500	0,383
	315					MS	6800	11450	0,494
	160/M	45	270	45	0	MS	1663	1722	0,04
	165					MS	2000	2800	0,05
	200					MS	2640	3900	0,12
	250					MS	5280	7500	0,383
	315					MS	6750	11450	0,494
	160/M	45	270	45	0	MS	1663	1722	0,04
	165					MS	1970	2800	0,05
	200					MS	2590	3900	0,12
	250					MS	5140	7500	0,383
	315					MS	7200	11450	0,494
	160/M	45	270	45	0	MS	1663	1722	0,04
	165					MS	1900	2800	0,05
	200					MS	2530	3900	0,12
	250					MS	5100	7500	0,383
	315					MS	7680	11450	0,494
	160/M	60	120	60	120	MS	1644	1722	0,04
	165					MS	1870	2800	0,05
	200					MS	2520	3900	0,12
	250					MS	4740	7500	0,383
	315					MS	7530	11450	0,494
	160/M	60	240	60	0	MS	1644	1722	0,04
	165					MS	1810	2800	0,05
	200					MS	2400	3900	0,12
	250					MS	4650	7500	0,383
	315					MS	7400	11450	0,494
	160/M	90	90	90	90	MS	1625	1722	0,04
	165					MS	1770	2800	0,05
	200					MS	2360	3900	0,12
	250					MS	4400	7500	0,383
	315					MS	7030	11450	0,494
	160/M	90	180	90	0	MS	1625	1722	0,04
	165					MS	1700	2800	0,05
	200					MS	2320	3900	0,12
	250					MS	4310	7500	0,383
	315					MS	6900	11450	0,494
	160/M	120	60	120	60	MS	1615	1722	0,04
	165					MS	1550	2800	0,05
	200					MS	2150	3900	0,12
	250					MS	3910	7500	0,383
	315					MS	6350	11450	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	MI da Nm	Ii Kg*m2
		A	B	C	D				
30	160/M	120	120	120	0	MS	1615	1722	0,04
	165					MS	1520	2800	0,05
	200					MS	2160	3900	0,12
	250					MS	3900	7500	0,383
	315					MS	6220	11450	0,494
	160/M	150	30	150	30	MS	1634	1722	0,04
	165					MS	1450	2800	0,05
	200					MS	1980	3900	0,12
	250					MS	3620	7500	0,383
	315					MS	5910	11450	0,494
	160/M	180	0	180	0	MS	1629	1722	0,04
	165					MS	1350	2800	0,05
	200					MS	1900	3900	0,12
	250					MS	3410	7500	0,383
	315					MS	5500	11450	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
45	160/M	60	120	60	120	MS	1552	1636	0,04
	165					MS	1990	2600	0,05
	200					MS	2600	3740	0,12
	250					MS	5210	6930	0,383
	315					MS	8800	11420	0,494
	160/M	60	240	60	0	MS	1580	1636	0,04
	165					MS	1950	2600	0,05
	200					MS	2550	3740	0,12
	250					MS	5130	6930	0,383
	315					MS	8610	11420	0,494
	160/M	75	105	75	105	MS	1580	1636	0,04
	165					MS	1980	2600	0,05
	200					MS	2590	3740	0,12
	250					MS	5190	6930	0,383
	315					MS	8710	11420	0,494
	160/M	75	210	75	0	MS	1580	1636	0,04
	165					MS	1880	2600	0,05
	200					MS	2480	3740	0,12
	250					MS	4910	6930	0,383
	315					MS	8340	11420	0,494
	160/M	90	90	90	90	MS	1562	1636	0,04
	165					MS	1920	2600	0,05
	200					MS	2580	3740	0,12
	250					MS	5130	6930	0,383
	315					MS	8320	11420	0,494
	160/M	90	180	90	0	MS	1562	1636	0,04
	165					MS	1810	2600	0,05
	200					MS	2400	3740	0,12
	250					MS	4800	6930	0,383
	315					MS	8130	11420	0,494
	160/M	120	60	120	60	MS	1544	1636	0,04
	165					MS	1800	2600	0,05
	200					MS	2520	3740	0,12
	250					MS	4600	6930	0,383
	315					MS	7400	11420	0,494
	160/M	120	120	120	0	MS	1544	1636	0,04
	165					MS	1800	2600	0,05
	200					MS	2330	3740	0,12
	250					MS	4500	6930	0,383
	315					MS	7250	11420	0,494
	160/M	150	30	150	30	MS	1534	1636	0,04
	165					MS	1660	2600	0,05
	200					MS	2310	3740	0,12
	250					MS	4240	6930	0,383
	315					MS	6800	11420	0,494

CHARACTERISTICS LIST

Angular stroke	Model	Cicle				Motion law	Mr (B10) da NM	Ml da Nm	Ii Kg*m2
		A	B	C	D				
45	160/M	150	60	150	0	MS	1534	1636	0,04
	165					MS	1610	2600	0,05
	200					MS	2290	3740	0,12
	250					MS	4160	6930	0,383
	315					MS	6700	11420	0,494
	160/M	180	0	180	0	MS	1552	1636	0,04
	165					MS	1580	2600	0,05
	200					MS	2210	3740	0,12
	250					MS	4030	6930	0,383
	315					MS	6400	11420	0,494
	160/M					MS			
	165					MS			
	200					MS			
	250					MS			
	315					MS			

INTERNAL FRICTION CHART

In this chart are shown the internal friction about MK3 series, to move the mechanism without any weight.

MK3 SERIES	INTERNAL FRICTION Mb (Nm)
65	4,2
80	22,6
80/M	22,6
100/M	27,2
105	28,4
125/M	33,8
130	37,2
160/M	45,2
165	51
200	54,2
350	67,8
315	103

MOUNTING

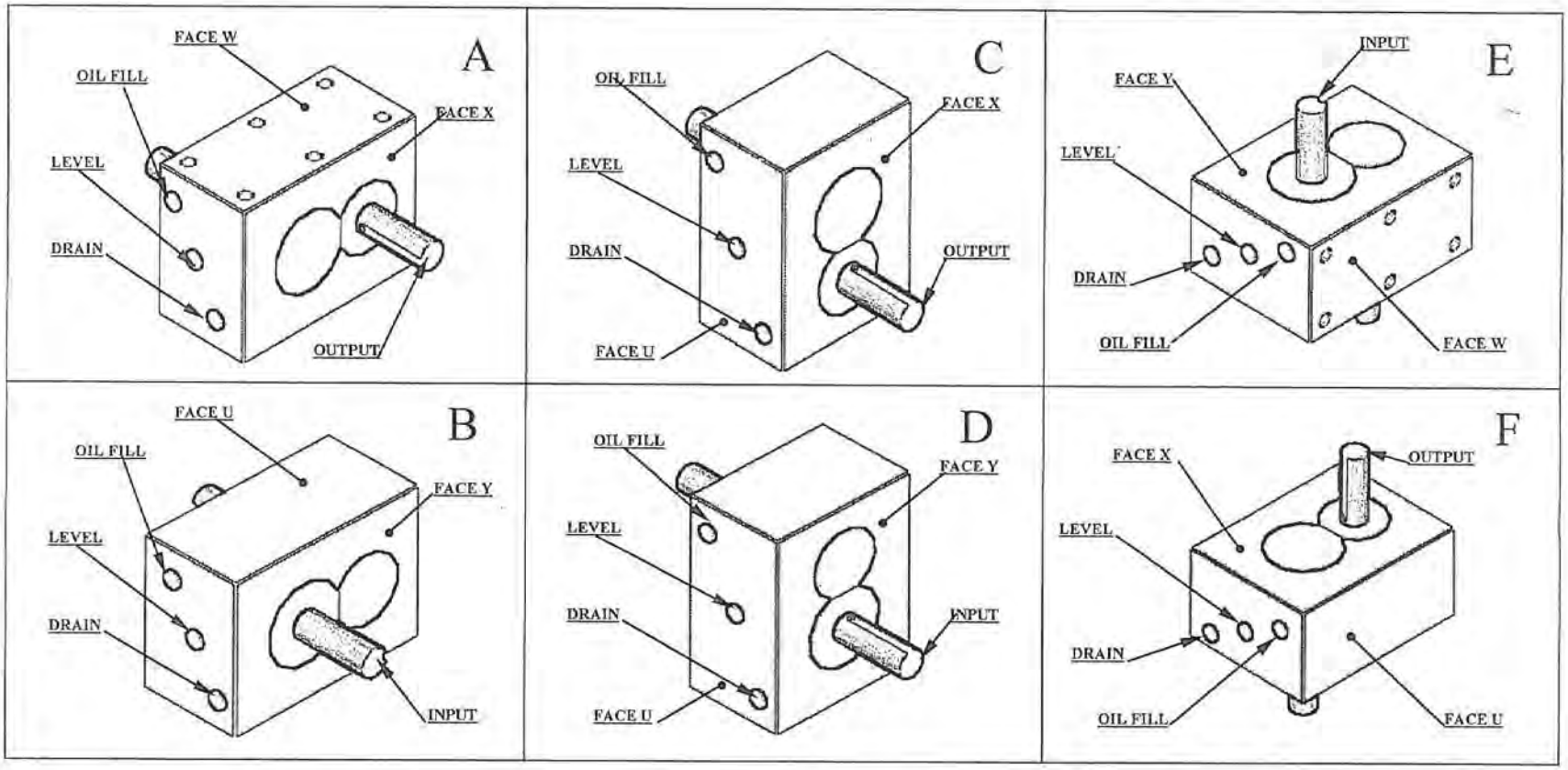
The shape of the housing, all faces entirely machined and the leakproof sealing allow the MK3 indexer to be mounted in any position.
The indexers can be provided grease lubricated for life (recommended only for input speeds up to 100 r.p.m.) or oil lubricated ; in this case the mounting position must be specified so that the oil plugs and level sights be correctly positioned. Position of these plugs and level sights different from what shown on the drawing can be provided but they should be requested by sending a dimensioned drawing.

Example of code numbers

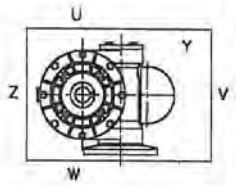
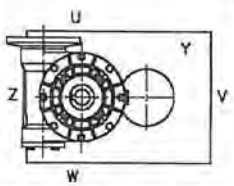
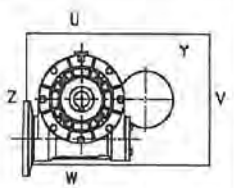
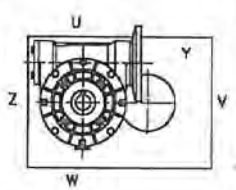
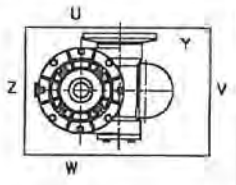
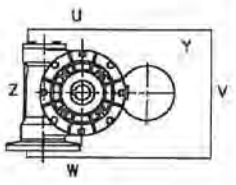
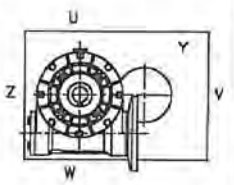
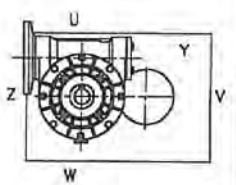
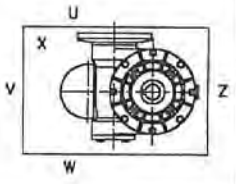
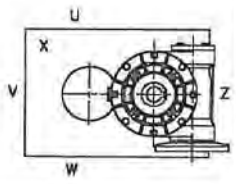
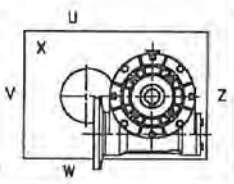
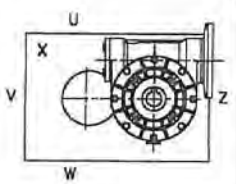
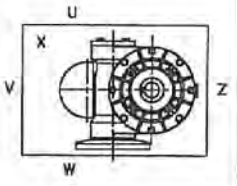
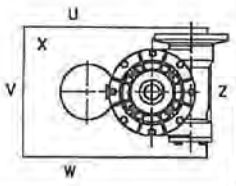
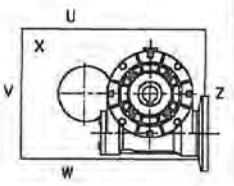
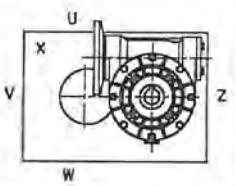
MK3 15 65 45/270/45/0 V 1 8 D 4CY

15 = Output stroke (angle of swing of the output shaft in degrees)
65 = Unit size
45 = Motion A period (degrees)
270 = Dwell A period (degrees)
45 = Motion B period (degrees)
0 = Dwell B period (degrees)
V = Mounting face (the face with standard tapped holes)
1 = Projection of the input shaft
8 = Projection of the output shaft
D = Mounting position of the indexer
4CY = Mounting position of the speed reducer

INDEXER MOUNTING POSITIONS



DRIVE MOUNTING POSITIONS

4AY 	4BY 	4CY 	4EY 
5AY 	5BY 	5CY 	5EY 
4AX 	4BX 	4CX 	4EX 
5AX 	5BX 	5CX 	5EX 

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