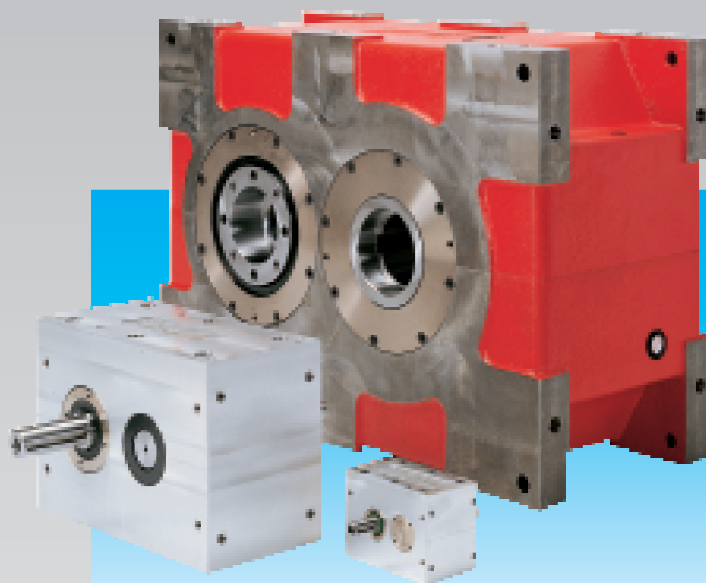


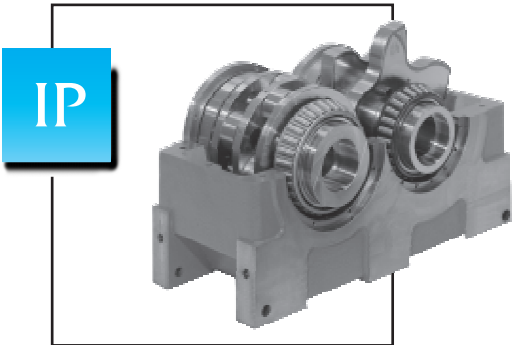
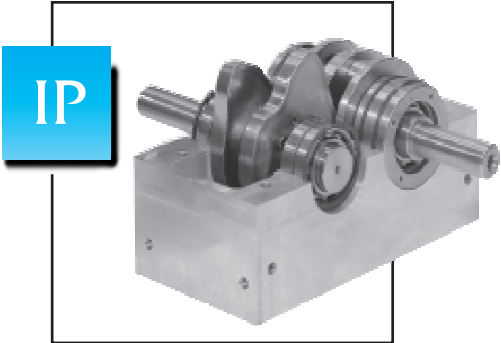


PARALLEL INDEX DRIVES IP

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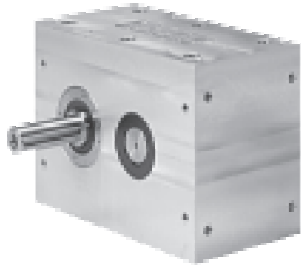
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PARALLEL INDEX DRIVES

IP - Light duty series



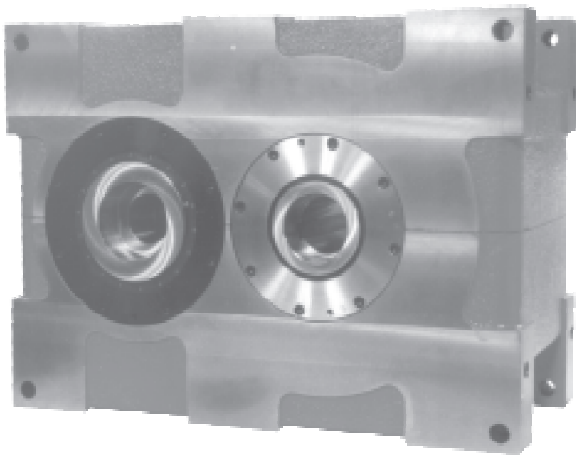
Sizes: **40 65 80 105 130**

Stops: **1 - 2 - 3 - 4 - 6 - 8**

Special stops: **0.6 - 0.75 - 1 - 1.33 - 1.5 - 2 - 5 - 10**

- Airtight special aluminium alloy housing
- Universal mounting position
- CNC induction hardened cam profiles
- Yoke-mounted cam followers
- Eccentric bushing for pre-load adjustment between cam and followers
- Oscillating and customized cam motion available
- Long-life lubrication; guaranteed sealing system in any working position
- Worm gear reducer and motor mount directly

Size = Distance between input and output drive axis



IP - Heavy duty series

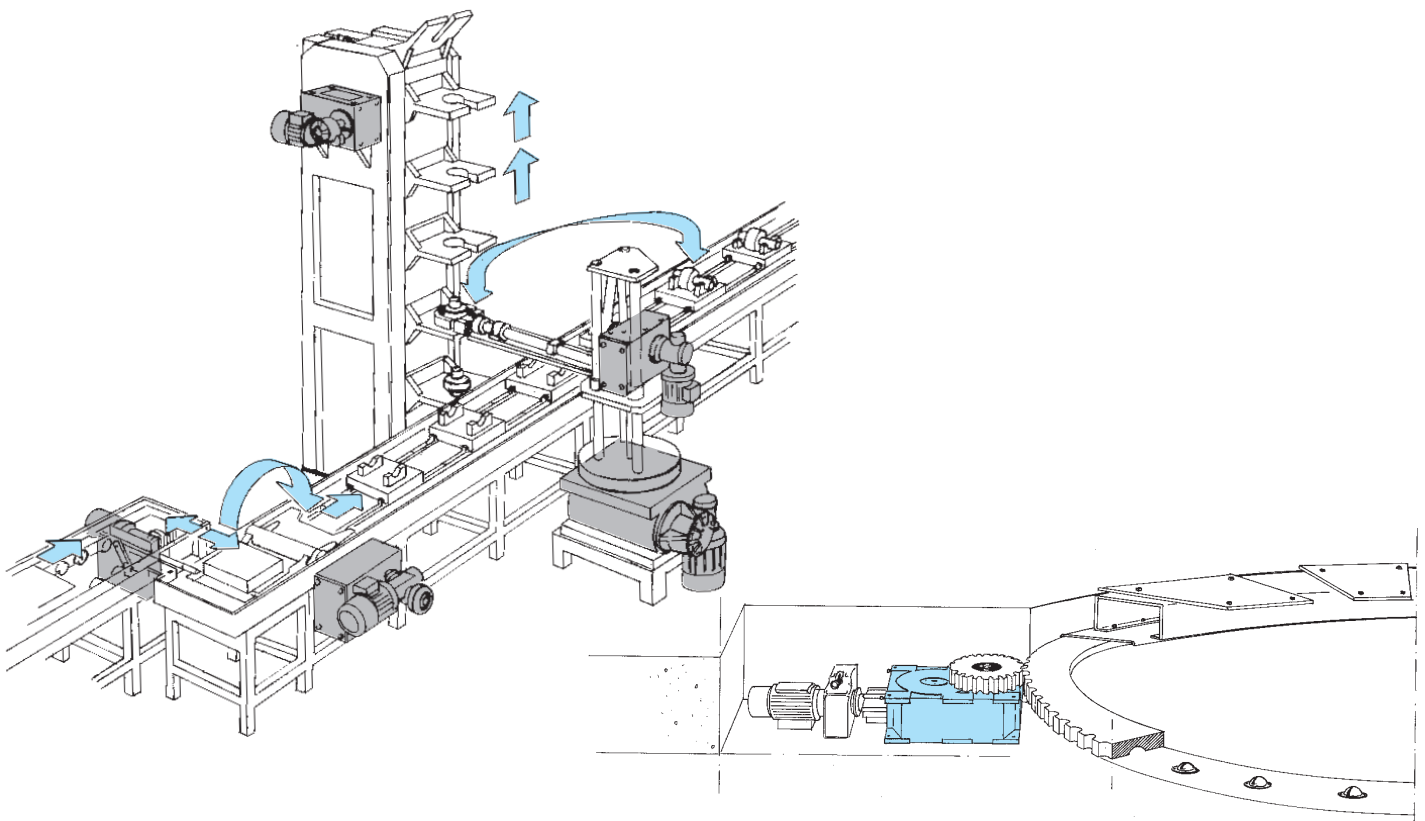
Sizes: **165 200 250**

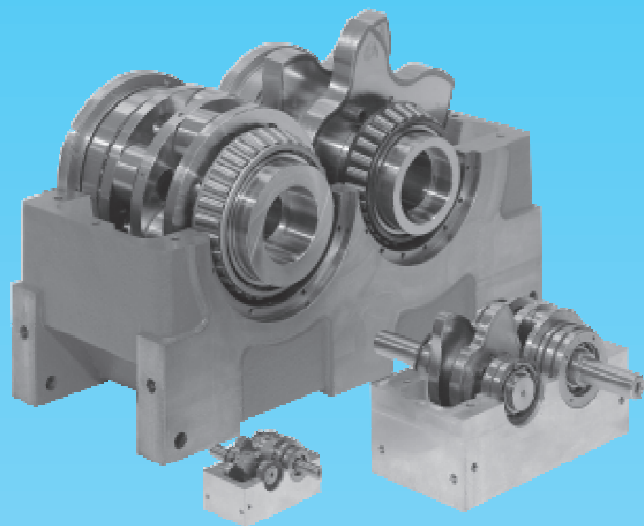
Stops : **1 - 2 - 3 - 4 - 6 - 8**

Special stops: **0.6 - 0.75 - 1 - 1.33 - 1.5 - 2 - 5 - 10**

- Airtight cast-iron alloy housing
- Flanged through-hole input and output for shafts connection
- Input and output supported by oversized tapered rollers bearings
- CNC induction hardened cam profiles
- Oscillating and customized cam motion available
- Long-Life lubrication; guaranteed sealing system in any working position
- Worm gear reducer and motor mount directly

Size = Distance between input and output drive axis.



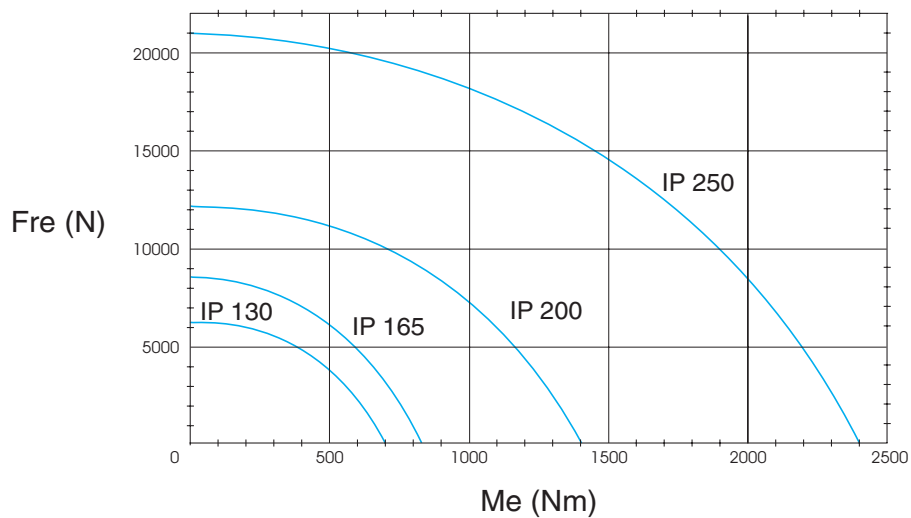
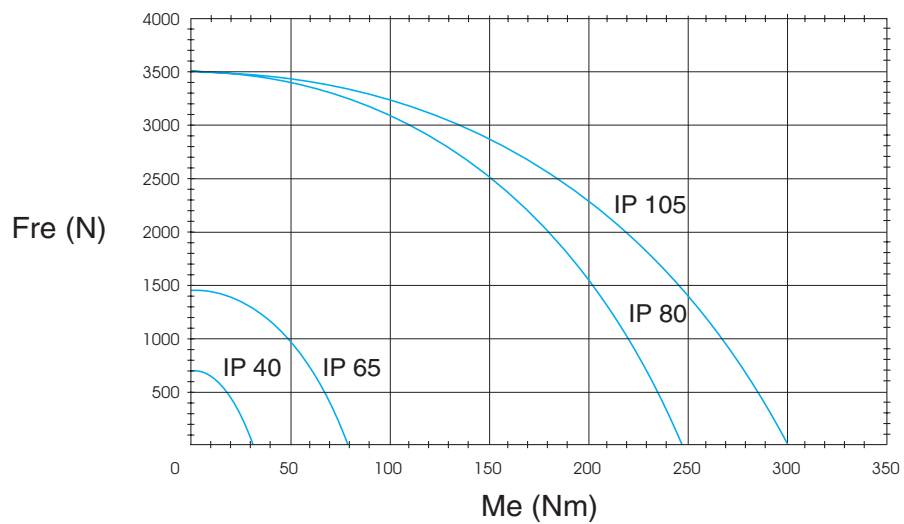
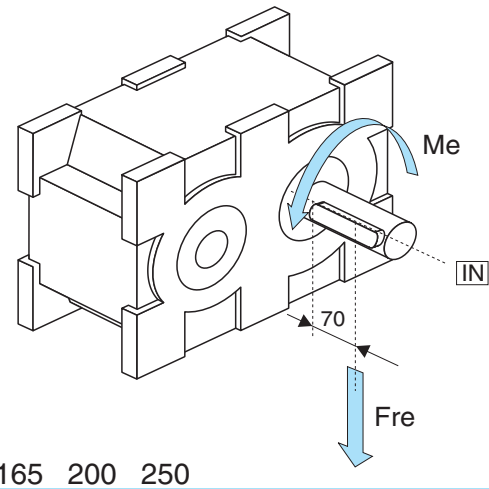
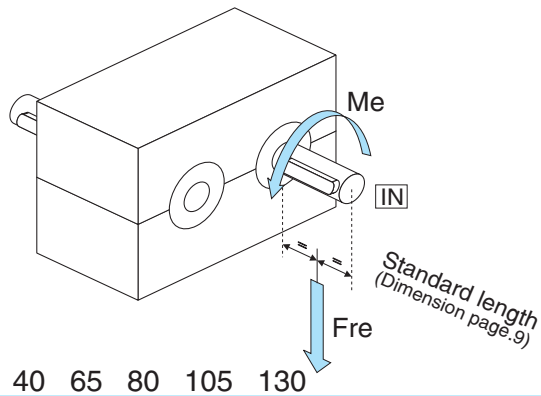


IP SERIES TECHNICAL DATA

LOADS ON INPUT SHAFT

Loads on the shaft

F_{re} = Input Radial Force (N)
 M_e = Input Torque (Nm)



The diagrams show the curves relating to **maximum (F_{re}/M_e)** values for the input shaft of the various index drives. The values shown are referred to a **rotation speed of 100 rpm of the cam shaft**

IP SERIES TECHNICAL DATA

The schedules show some minimum and intermediate reference values.
Also possible:

- Number of stops not indicated in the schedule
- Index angles not indicated in the schedule
- Different and Customized Motion

Type		Number of stops S	Index angle (α°)	Maximum output torque - Mtu - (Nm)				Motion coefficients			Ptc. rad. Rp (mm)	Roller o.d. Dr (mm)	Inertia Jc (kgm²)	Mch.frt.(*) Mam (Nm)
				50 rpm	100 rpm	200 rpm	300 rpm	Acc. Ca	Speed Cv	Disp. Ck				
IP 40		1	300	20	20	19	16	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				51	51	44	38	8,01	1,28	5,73	22	16	0,0009	9,2
IP 80				141	140	128	110	8,01	1,28	5,73	28	25	0,0028	17,2
IP 105				319	317	284	239	8,01	1,28	5,73	36	35	0,0113	31,9
IP 130				569	565	498	415	8,01	1,28	5,73	46	40	0,0232	44,5
IP 165				1184	1175	1037	849	8,01	1,28	5,73	62,5	50	0,0611	73,6
IP 200				1896	1878	1587	1275	8,01	1,28	5,73	75,5	60	0,1157	112,6
IP 250				4536	4472	3800	2891	8,01	1,28	5,73	100	80	0,4257	206,7
IP 40		2	150	16	16	16	16	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				42	42	41	39	8,01	1,28	5,73	22,5	16	0,0009	9,2
IP 80				112	111	108	102	8,01	1,28	5,73	28	25	0,0029	17,2
IP 105				247	243	229	206	8,01	1,28	5,73	36	35	0,0117	31,9
IP 130				452	445	415	367	8,01	1,28	5,73	46	40	0,0243	44,5
IP 165				942	923	845	714	8,01	1,28	5,73	62,5	50	0,0648	73,6
IP 200				1508	1470	1320	1070	8,01	1,28	5,73	75,5	60	0,1243	112,6
IP 250				3244	3110	2574	1681	8,01	1,28	5,73	93	80	0,4433	206,7
IP 40			270	16	16	16	16	6,62	1,4	5,21	15	12	0,0001	4,1
IP 65				49	49	49	48	6,62	1,4	5,21	25	16	0,0009	9,2
IP 80				124	124	123	121	6,62	1,4	5,21	30	25	0,003	17,2
IP 105				295	294	291	284	6,62	1,4	5,21	40	35	0,0121	31,9
IP 130				512	511	503	490	6,62	1,4	5,21	50	40	0,025	44,5
IP 165				1005	1000	979	946	6,62	1,4	5,21	65	50	0,0659	73,6
IP 200				1577	1568	1529	1464	6,62	1,4	5,21	77,5	60	0,126	112,6
IP 250				3654	3618	3476	3240	6,62	1,4	5,21	100	80	0,4609	206,7
IP 40		3	120	20	20	20	20	6,62	1,4	5,21	15	12	0,0001	4,1
IP 65				53	53	52	50	6,62	1,4	5,21	22,5	16	0,0009	9,2
IP 80				141	140	137	132	6,62	1,4	5,21	28	25	0,0028	17,2
IP 105				312	309	297	278	6,62	1,4	5,21	36	35	0,0113	31,9
IP 130				568	562	538	497	6,62	1,4	5,21	46	40	0,0232	44,5
IP 165				1116	1100	1038	933	6,62	1,4	5,21	60	50	0,0603	73,6
IP 200				1892	1862	1741	1541	6,62	1,4	5,21	75,5	60	0,1157	112,6
IP 250				4521	4410	3968	3230	6,62	1,4	5,21	100	80	0,4257	206,7
IP 40			180	20	20	20	20	6,62	1,4	5,21	15	12	0,0001	4,1
IP 65				61	61	61	60	6,62	1,4	5,21	25	16	0,0009	9,2
IP 80				155	154	153	151	6,62	1,4	5,21	30	25	0,0029	17,2
IP 105				368	367	361	352	6,62	1,4	5,21	40	35	0,0116	31,9
IP 130				638	635	624	606	6,62	1,4	5,21	50	40	0,0238	44,5
IP 165				1252	1244	1216	1168	6,62	1,4	5,21	65	50	0,0619	73,6
IP 200				1968	1955	1901	1811	6,62	1,4	5,21	77,5	60	0,117	112,6
IP 250				4541	4492	4296	3968	6,62	1,4	5,21	100	80	0,4257	206,7
IP 40			270	20	20	20	20	6,62	1,4	5,21	15	12	0,0001	4,1
IP 65				61	61	61	61	6,62	1,4	5,21	25	16	0,0009	9,2
IP 80				155	155	154	153	6,62	1,4	5,21	30	25	0,0029	17,2
IP 105				368	368	365	361	6,62	1,4	5,21	40	35	0,0116	31,9
IP 130				638	637	632	624	6,62	1,4	5,21	50	40	0,0238	44,5
IP 165				1253	1250	1237	1216	6,62	1,4	5,21	65	50	0,0619	73,6
IP 200				1971	1965	1941	1901	6,62	1,4	5,21	77,5	60	0,117	112,6
IP 250				4550	4529	4441	4296	6,62	1,4	5,21	100	80	0,4257	206,7
IP 40		4	90	11	10	10	10	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				34	34	33	31	8,01	1,28	5,73	22,5	16	0,0009	9,2
IP 80				70	68	63	55	8,01	1,28	5,73	28	25	0,0029	17,2
IP 105				147	142	123	90	8,01	1,28	5,73	36	35	0,0117	31,9
IP 130				283	273	232	164	8,01	1,28	5,73	46	40	0,0243	44,5
IP 165				542	515	408	230	8,01	1,28	5,73	60	50	0,0637	73,6
IP 200				947	895	686	339	8,01	1,28	5,73	75,5	60	0,1243	112,6
IP 250				1905	1719	975		8,01	1,28	5,73	93	80	0,4433	206,7
IP 40			120	14	14	14	14	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65				49	49	48	47	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80				106	106	104	100	5,53	1,76	5,46	30	25	0,003	17,2
IP 105				241	239	231	218	5,53	1,76	5,46	40	35	0,0121	31,9
IP 130				446	442	426	399	5,53	1,76	5,46	50	40	0,025	44,5
IP 165				863	852	809	738	5,53	1,76	5,46	65	50	0,0659	73,6
IP 200				1357	1336	1254	1118	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250				3024	2949	2648	2148	5,53	1,76	5,46	100	80	0,4609	206,7

Values referred to the worst running conditions - Equivalent service factor = 1.75 already applied

(*) Starting torque - Tolerance on the values indicated ± 15%

IP SERIES TECHNICAL DATA

Type		Number of stops S	Index angle (α°)	Maximum output torque - Mtu - (Nm)				Motion coefficients			Ptc. rad. Rp (mm)	Roller o.d. Dr (mm)	Inertia Jc (kgm²)	Mch.frt.(*) Mam (Nm)
				50 (rpm)	100 (rpm)	200 (rpm)	300 (rpm)	Acc. Ca	Speed Cv	Disp. Ck				
IP 40		4	180	16	16	16	16	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65				49	49	49	48	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80				124	124	123	122	5,53	1,76	5,46	30	25	0,003	17,2
IP 105				295	294	291	285	5,53	1,76	5,46	40	35	0,0121	31,9
IP 130				512	511	503	491	5,53	1,76	5,46	50	40	0,025	44,5
IP 165				1005	1000	981	949	5,53	1,76	5,46	65	50	0,0659	73,6
IP 200				1578	1569	1532	1471	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250				3655	3621	3488	3265	5,53	1,76	5,46	100	80	0,4609	206,7
IP 40			270	16	16	16	16	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65				49	49	49	49	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80				124	124	124	123	5,53	1,76	5,46	30	25	0,003	17,2
IP 105				295	295	294	291	5,53	1,76	5,46	40	35	0,0121	31,9
IP 130				513	512	509	503	5,53	1,76	5,46	50	40	0,025	44,5
IP 165				1006	1004	995	981	5,53	1,76	5,46	65	50	0,0659	73,6
IP 200				1579	1575	1559	1532	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250				3661	3646	3587	3488	5,53	1,76	5,46	100	80	0,4609	206,7
IP 40	*	6	80	13	13	13	13	5,53	1,76	5,46	14	12	0,0001	4,1
IP 65	*			48	48	47	45	5,53	1,76	5,46	22,5	16	0,0009	9,2
IP 80	*			98	97	94	90	5,53	1,76	5,46	28	25	0,0028	17,2
IP 105	*			208	205	194	176	5,53	1,76	5,46	36	35	0,0113	31,9
IP 130	*			398	393	370	332	5,53	1,76	5,46	46	40	0,0232	44,5
IP 165	*			768	753	694	596	5,53	1,76	5,46	60	50	0,0603	73,6
IP 200	*			1333	1305	1192	1004	5,53	1,76	5,46	75,5	60	0,1157	112,6
IP 250	*			2710	2610	2207	1535	5,53	1,76	5,46	93	80	0,4125	206,7
IP 40	*		100	18	18	18	18	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65	*			61	61	61	60	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80	*			138	137	135	133	5,53	1,76	5,46	30	25	0,0029	17,2
IP 105	*			312	310	303	291	5,53	1,76	5,46	40	35	0,0116	31,9
IP 130	*			577	573	558	534	5,53	1,76	5,46	50	40	0,0238	44,5
IP 165	*			1115	1106	1067	1002	5,53	1,76	5,46	65	50	0,0619	73,6
IP 200	*			1760	1742	1669	1547	5,53	1,76	5,46	77,5	60	0,117	112,6
IP 250	*			3899	3832	3566	3123	5,53	1,76	5,46	100	80	0,4257	206,7
IP 40	*		140	20	20	20	20	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65	*			61	61	61	60	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80	*			155	155	154	152	5,53	1,76	5,46	30	25	0,0029	17,2
IP 105	*			368	367	363	357	5,53	1,76	5,46	40	35	0,0116	31,9
IP 130	*			638	636	629	616	5,53	1,76	5,46	50	40	0,0238	44,5
IP 165	*			1252	1247	1228	1195	5,53	1,76	5,46	65	50	0,0619	73,6
IP 200	*			1970	1960	1923	1861	5,53	1,76	5,46	77,5	60	0,117	112,6
IP 250	*			4546	4512	4377	4150	5,53	1,76	5,46	100	80	0,4257	206,7
IP 40	*	8	60	7	7	7	7	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65	*			23	22	21	19	5,53	1,76	5,46	22,5	16	0,0009	9,2
IP 80	*			46	45	41	35	5,53	1,76	5,46	28	25	0,0029	17,2
IP 105	*			98	94	79	53	5,53	1,76	5,46	36	35	0,0117	31,9
IP 130	*			188	180	149	96	5,53	1,76	5,46	46	40	0,0243	44,5
IP 165	*			385	364	280	139	5,53	1,76	5,46	62,5	50	0,0648	73,6
IP 200	*			655	614	450	176	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250	*			1247	1103	525		5,53	1,76	5,46	93	80	0,4433	206,7
IP 40	*		90	11	11	10	10	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65	*			42	42	41	40	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80	*			79	79	77	74	5,53	1,76	5,46	30	25	0,003	17,2
IP 105	*			181	179	172	160	5,53	1,76	5,46	40	35	0,0121	31,9
IP 130	*			335	331	316	292	5,53	1,76	5,46	50	40	0,025	44,5
IP 165	*			643	633	595	531	5,53	1,76	5,46	65	50	0,0659	73,6
IP 200	*			1010	992	919	797	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250	*			2252	2185	1918	1474	5,53	1,76	5,46	100	80	0,4609	206,7
IP 40	*		140	16	16	16	16	5,53	1,76	5,46	15	12	0,0001	4,1
IP 65	*			49	49	49	49	5,53	1,76	5,46	25	16	0,0009	9,2
IP 80	*			124	124	123	122	5,53	1,76	5,46	30	25	0,003	17,2
IP 105	*			282	281	278	274	5,53	1,76	5,46	40	35	0,0121	31,9
IP 130	*			513	511	505	495	5,53	1,76	5,46	50	40	0,025	44,5
IP 165	*			1005	1001	985	959	5,53	1,76	5,46	65	50	0,0659	73,6
IP 200	*			1578	1571	1540	1490	5,53	1,76	5,46	77,5	60	0,126	112,6
IP 250	*			3556	3528	3418	3234	5,53	1,76	5,46	100	80	0,4609	206,7

* Double cycle cam configuration (see page 12)

IP SERIES TECHNICAL DATA

SPECIAL EXECUTIONS

The schedules show some minimum and intermediate reference values.
Also possible:

- Number of stops not indicated in the schedule
- Index angles not indicated in the schedule
- Different and Customized Motion

Type		Number of stops S	Index angle (α°)	Maximum output torque - Mtu - (Nm)				Motion coefficients			Ptc. rad. Rp (mm)	Roller o.d. Dr (mm)	Inertia Jc (kgm²)	Mch.frt.(*) Mam (Nm)
				50 (rpm)	100 (rpm)	200 (rpm)	300 (rpm)	Acc. Ca	Speed Cv	Disp. Ck				
IP 65		0,6 (600°)	330	42	39	30	25	9,49	1,21	6,41	19	16	0,0008	9,2
IP 80				112	108	85	70	9,49	1,21	6,41	23,5	25	0,0027	17,2
IP 105				256	245	188	147	9,49	1,21	6,41	30,5	35	0,011	31,9
IP 130				441	416	315	239	9,49	1,21	6,41	38	40	0,0223	44,5
IP 40		0,75 (480°)	330	16	16	14	12	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				50	49	39	33	8,01	1,28	5,73	21,5	16	0,0009	9,2
IP 80				128	127	106	90	8,01	1,28	5,73	26	25	0,0028	17,2
IP 105				295	293	239	198	8,01	1,28	5,73	34	35	0,0112	31,9
IP 130				519	515	412	337	8,01	1,28	5,73	43	40	0,0229	44,5
IP 65		1	210	40	39	33	27	8,01	1,28	5,73	18	16	0,0008	9,2
IP 80				115	114	102	84	8,01	1,28	5,73	24	25	0,0027	17,2
IP 105				261	258	223	172	8,01	1,28	5,73	31	35	0,011	31,9
IP 130				440	434	365	273	8,01	1,28	5,73	38	40	0,0223	44,5
IP 40			240	16	16	15	13	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				45	45	38	32	8,01	1,28	5,73	20	16	0,0009	9,2
IP 80				127	127	114	96	8,01	1,28	5,73	26	25	0,0028	17,2
IP 105				295	292	258	209	8,01	1,28	5,73	34	35	0,0112	31,9
IP 130				503	497	429	340	8,01	1,28	5,73	42	40	0,0227	44,5
IP 40			270	16	16	15	13	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				50	50	42	36	8,01	1,28	5,73	21,5	16	0,0009	9,2
IP 80				141	140	127	109	8,01	1,28	5,73	28	25	0,0028	17,2
IP 105				318	316	282	234	8,01	1,28	5,73	36	35	0,0113	31,9
IP 130				568	564	493	405	8,01	1,28	5,73	46	40	0,0232	44,5
IP 40		1,33 (270°)	180	13	13	13	12	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				40	39	38	33	8,01	1,28	5,73	21,5	16	0,0009	9,2
IP 80				101	100	96	87	8,01	1,28	5,73	26	25	0,0029	17,2
IP 105				224	220	206	174	8,01	1,28	5,73	33	35	0,0115	31,9
IP 130				398	390	360	292	8,01	1,28	5,73	42	40	0,0236	44,5
IP 40			210	14	14	14	14	8,01	1,28	5,73	14	12	0,0001	4,1
IP 65				42	42	41	36	8,01	1,28	5,73	22,5	16	0,0009	9,2
IP 80				112	111	109	101	8,01	1,28	5,73	28	25	0,0029	17,2
IP 105				253	250	240	213	8,01	1,28	5,73	36	35	0,0117	31,9
IP 130				453	447	425	366	8,01	1,28	5,73	46	40	0,0243	44,5
IP 40			240	16	16	16	15	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				49	49	48	43	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				112	112	110	103	8,01	1,28	5,73	28	25	0,0029	17,2
IP 105				253	251	243	220	8,01	1,28	5,73	36	35	0,0117	31,9
IP 130				453	449	432	382	8,01	1,28	5,73	46	40	0,0243	44,5
IP 40			270	16	16	16	15	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				49	49	49	43	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				124	124	122	116	6,62	1,4	5,21	30	25	0,003	17,2
IP 105				295	293	287	265	8,01	1,28	5,73	40	35	0,0121	31,9
IP 130				512	508	494	447	8,01	1,28	5,73	50	40	0,025	44,5
IP 40			300	16	16	16	16	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				49	49	49	44	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				124	124	123	117	6,62	1,4	5,21	30	25	0,003	17,2
IP 105				295	294	288	269	8,01	1,28	5,73	40	35	0,0121	31,9
IP 130				512	509	498	455	8,01	1,28	5,73	50	40	0,025	44,5
IP 40			330	16	16	16	16	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				49	49	49	44	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				124	124	123	118	6,62	1,4	5,21	30	25	0,003	17,2
IP 105				295	294	290	272	8,01	1,28	5,73	40	35	0,0121	31,9
IP 130				512	510	501	461	8,01	1,28	5,73	50	40	0,025	44,5
IP 40		1,5 (240°)	180	16	16	16	15	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				53	53	51	43	8,01	1,28	5,73	22,5	16	0,0009	9,2
IP 80				141	140	137	121	8,01	1,28	5,73	28	25	0,0028	17,2
IP 105				318	315	302	255	8,01	1,28	5,73	36	35	0,0113	31,9
IP 130				568	561	535	438	8,01	1,28	5,73	46	40	0,0232	44,5
IP 40			210	20	20	20	18	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				61	61	59	51	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				155	154	152	136	8,01	1,28	5,73	30	25	0,0029	17,2
IP 105				318	316	307	265	8,01	1,28	5,73	36	35	0,0113	31,9
IP 130				637	632	613	520	8,01	1,28	5,73	50	40	0,0238	44,5

Values referred to the worst running conditions - Equivalent service factor = 1.75 already applied

(*) Starting torque - Tolerance on the values indicated ± 15%

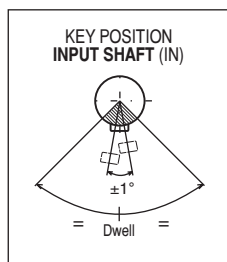
IP SERIES TECHNICAL DATA

SPECIAL EXECUTIONS

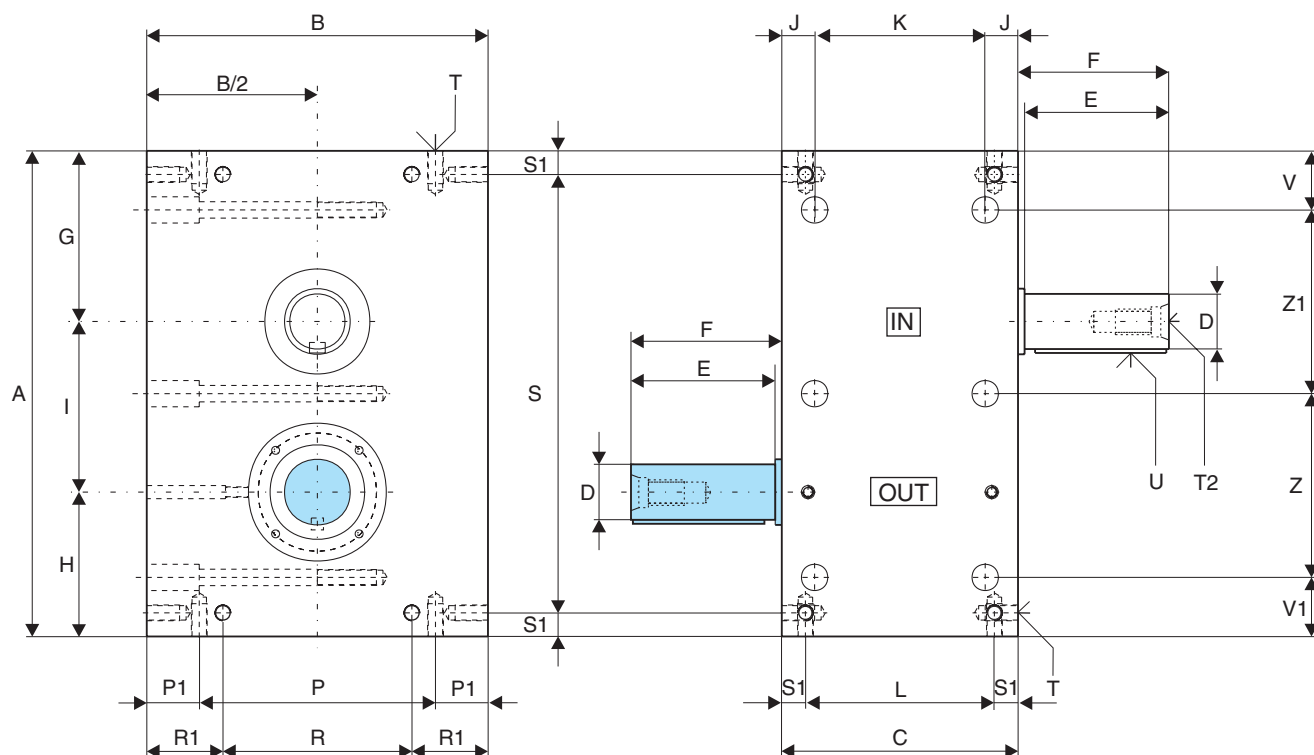
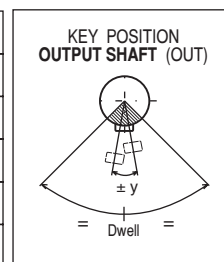
Type		Number of stops S	Index angle (α°)	Maximum output torque - Mtu - (Nm)				Motion coefficients			Ptc. rad. Rp (mm)	Roller o.d. Dr (mm)	Inertia Jc (kgm²)	Mch.frt.(*) Mam (Nm)
				50 (rpm)	100 (rpm)	200 (rpm)	300 (rpm)	Acc. Ca	Speed Cv	Disp. Ck				
IP 40		1,5 (240°)	240	20	20	20	18	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				61	61	59	51	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				155	154	153	138	8,01	1,28	5,73	30	25	0,0029	17,2
IP 105				368	366	359	317	8,01	1,28	5,73	40	35	0,0116	31,9
IP 130				637	634	619	534	8,01	1,28	5,73	50	40	0,0238	44,5
IP 40			270	20	20	20	18	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				61	61	59	52	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				155	154	153	139	8,01	1,28	5,73	30	25	0,0029	17,2
IP 105				368	366	361	321	8,01	1,28	5,73	40	35	0,0116	31,9
IP 130				638	635	623	543	8,01	1,28	5,73	50	40	0,0238	44,5
IP 40			300	20	20	20	18	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				61	61	59	52	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				155	155	153	139	8,01	1,28	5,73	30	25	0,0029	17,2
IP 105				368	367	362	324	8,01	1,28	5,73	40	35	0,0116	31,9
IP 130				638	636	626	550	8,01	1,28	5,73	50	40	0,0238	44,5
IP 40			330	20	20	20	18	8,01	1,28	5,73	15	12	0,0001	4,1
IP 65				61	61	59	52	8,01	1,28	5,73	25	16	0,0009	9,2
IP 80				155	155	154	140	8,01	1,28	5,73	30	25	0,0029	17,2
IP 105				368	367	363	327	8,01	1,28	5,73	40	35	0,0116	31,9
IP 130				638	636	628	555	8,01	1,28	5,73	50	40	0,0238	44,5
IP 40		2	120	11	11	10	10	8,01	1,28	5,73	13	12	0,0001	4,1
IP 65				40	39	37	35	8,01	1,28	5,73	21,5	16	0,0009	9,2
IP 80				93	91	86	77	8,01	1,28	5,73	28	25	0,0029	17,2
IP 105				168	163	141	105	8,01	1,28	5,73	33	35	0,0115	31,9
IP 130				320	309	265	190	8,01	1,28	5,73	42	40	0,0236	44,5
IP 80		5	120	101	100	98	96	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				212	210	203	192	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				374	370	356	332	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			150	126	126	125	123	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				265	264	260	252	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				468	466	457	442	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			180	131	130	130	128	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				294	293	290	285	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				492	490	484	474	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			210	131	130	130	129	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				294	293	291	287	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				492	491	486	479	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			240	131	130	130	129	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				294	293	292	289	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				492	491	488	482	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			270	131	130	130	130	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				294	293	292	290	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				492	492	489	484	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			300	131	130	130	130	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				294	294	292	291	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				492	492	490	486	5,53	1,76	5,46	55	40	0,0275	44,5
IP 250				3028	3017	2976	2907	5,53	1,76	5,46	100	80	0,4962	206,7
IP 80		10	80	67	66	65	61	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				141	139	131	118	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				249	245	229	202	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			120	84	83	82	80	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				177	175	170	162	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				312	309	299	282	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80				101	100	100	98	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				212	211	208	202	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				375	373	366	354	5,53	1,76	5,46	55	40	0,0275	44,5
IP 80			150	126	126	125	124	5,53	1,76	5,46	35	25	0,0033	17,2
IP 105				265	265	263	259	5,53	1,76	5,46	45	35	0,0132	31,9
IP 130				469	468	463	455	5,53	1,76	5,46	55	40	0,0275	44,5

Values referred to the worst running conditions - Equivalent service factor = 1.75 already applied

(*) Starting torque - Tolerance on the values indicated ± 15%



SERIES	± y
IP 40	30'
IP 65	26'
IP 80	23'
IP 105	20'
IP 130	18'

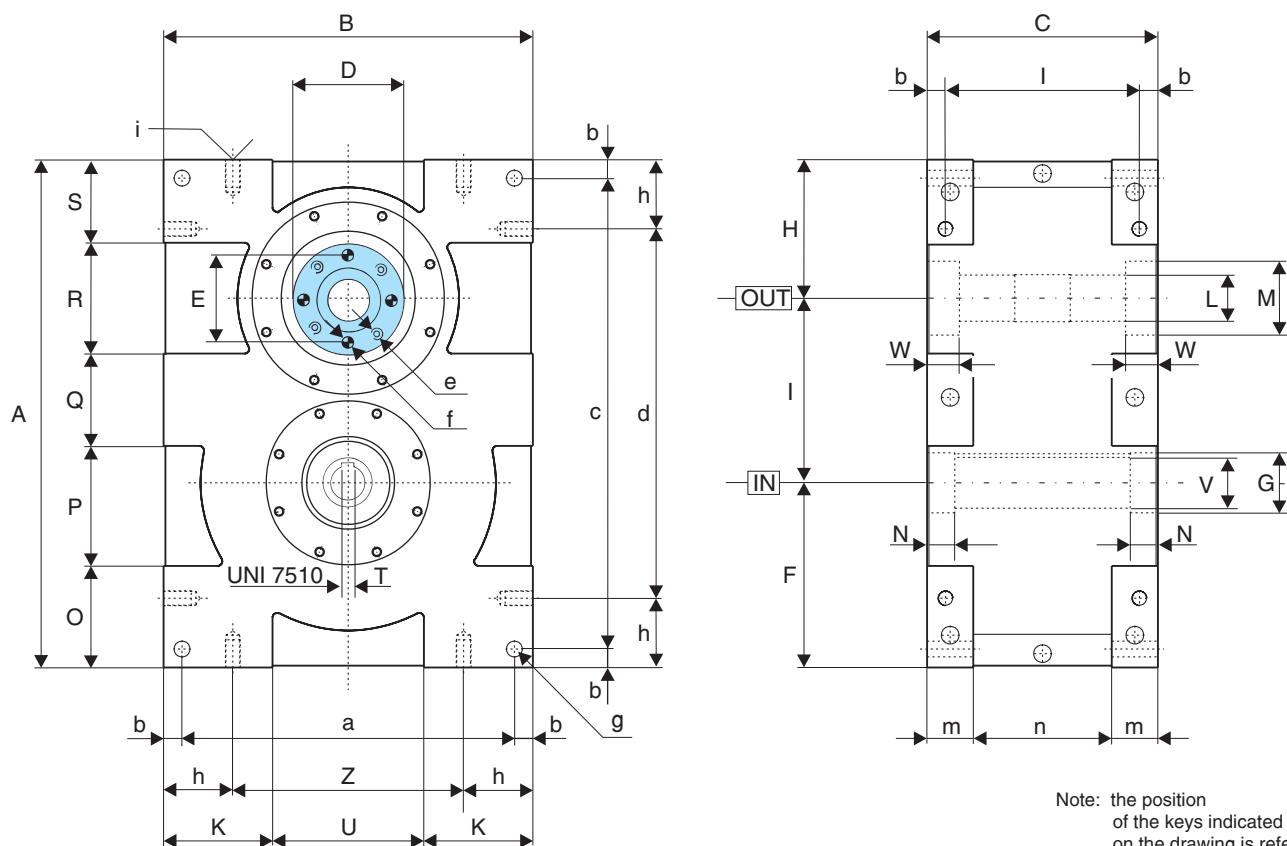


Output rotating element

General manufacturing tolerances in compliance with UNI-ISO 2768-1 EN 22768-1

SERIES (CAD file reference)	A	B	C	K6 D	E	F	G	H	I	J	K	L	P	P1
IP 40	120	90	70	14	30	31,5	45	35	40	10	50	56	54	18
IP 65	190	140	95	19	40	43	70	55	65	15	65	80	95	22,5
IP 80	240	180	120	28	60	65	90	70	80	16,5	87	95	120	30
IP 105	300	210	150	30	80	85	105	90	105	25	100	115	140	35
IP 130	370	260	180	42	110	115	130	110	130	25	130	144	180	40

SERIES (CAD file reference)	R	R1	S	S1	T	T2	U	V	V1	Z	Z1			Weight (kg)	D.max
IP 40	43	23,5	106	7	M5x8	M5x10	5x5x25	19,25	14,25	41,5	45			2	15
IP 65	80	30	175	7,5	M6x12	M6x15	6x6x35	27,5	18,5	72	72			8	25
IP 80	95	42,5	215	12,5	M8x15	M10x22	8x7x55	37,5	26,5	86	90			16	35
IP 105	115	47,5	265	17,5	M10x20	M10x22	8x7x75	37,5	32,5	115	115			32	40
IP 130	144	58	334	18	M12x25	M16x36	12x8x100	45	45	140	140			45	50



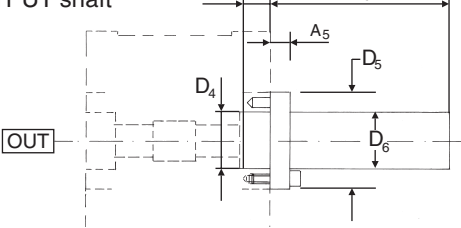
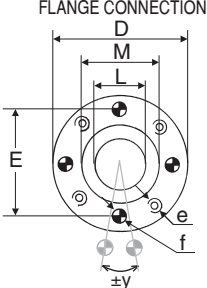
Note: the position of the keys indicated on the drawing is referred to the middle of the dwell angle.

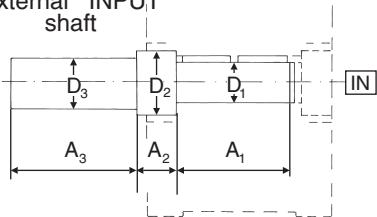
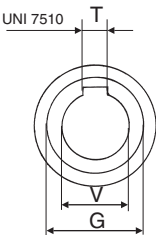
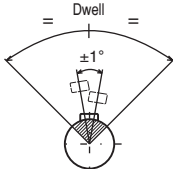
Output rotating element

General manufacturing tolerances in compliance with UNI-ISO 2768-1

SERIES (CAD file reference)	A	B	C	D	E	F	H8 G	H	I	K	H7 L	H7 M	N	O	P	Q	R	S
IP 165	460	330	220	95	80	165	55	130	165	90	40	62	30	90	110	85	90	85
IP 200	550	400	250	120	100	200	65	150	200	118	50	80	30	110	130	100	120	90
IP 250	700	500	300	150	125	250	100	200	250	145	65	95	30	145	160	115	160	120

SERIES (CAD file reference)	T	U	H7 V	W	Z	a	b	c	d	e	øf	øg	h	i	l	m	n	Weight (kg)
IP 165	14	150	45	30	210	295	17,5	425	340	M8x20	9,5x20	15,5	60	M14x25	185	40	140	120
IP 200	16	164	55	35	250	360	20	510	400	M10x25	11,5x25	17	75	M16x30	210	50	150	220
IP 250	22	210	85	50	320	450	25	650	520	M12x30	12,5x30	19,5	90	M18x35	250	50	200	350

External OUTPUT shaft		FLANGE CONNECTION		OUTPUT		IP165	IP200	IP250	
					A ₄	28	33	48	
					A ₅				
					A ₆				
					ØD ₄	62	80	95	
					ØD ₅	95	120	150	
					ØD ₆				
				± y	18'	15'	12'		

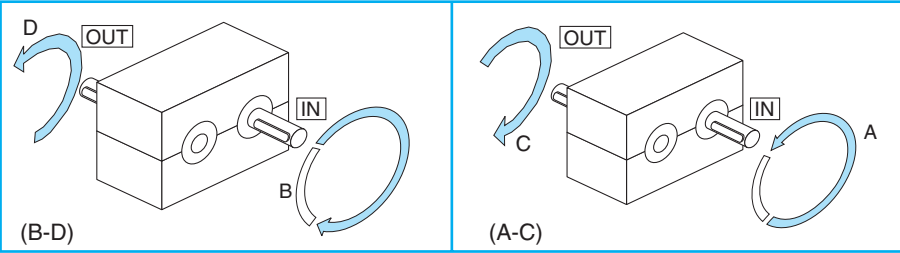
External INPUT shaft		UNI 7510		KEY POSITION		INPUT		IP165	IP200	IP250	
							A ₁	155	185	235	
							A ₂	35	35	35	
							A ₃				
							ØD ₁	45	55	85	
							ØD ₂	54	64	99	
							ØD ₃				

The empty boxes indicate the possibility to specify the required dimension

CUSTOMIZING AND ACCESSORIES



UNIDIRECTIONAL FUNCTION



Directions of rotations

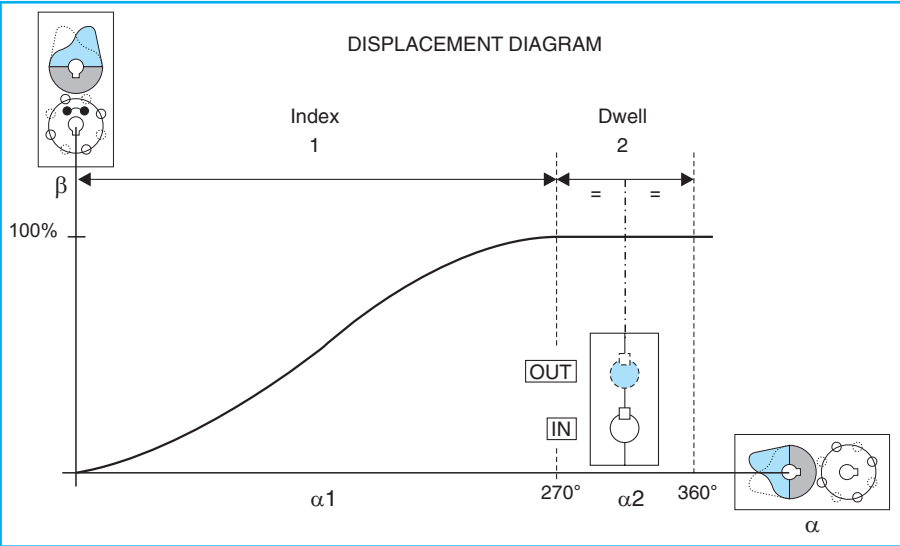
For unidirectional running only the **(A-C)** and **(B-D)** combinations are possible. These can be obtained by rotating the cam shaft in the directions shown.

Single cycle cam

The diagram on the side shows the displacement of an index drive having a **single cycle cam**.

In a 360° rotation of the cam shaft the phases are:

- 1) **index**
- 2) **dwell** = The camshaft keyway oriented to the output shafts identifies the middle position of Dwell period (1/2 α_2)



Type	Size	Stops	$\alpha_1 + \alpha_2 = 360^\circ$				Rotation	Working position	Reduction unit fitting position	
			Index 1	Dwell 2						
Pg.9-10	Pg.9-10	Pg.5	Pg.5	Pg.5			Pg.12	Pg.19	Pg.19	
IP	130	4	$\alpha_1 270^\circ$	$\alpha_2 90^\circ$			BD	A	1-S2-90°	

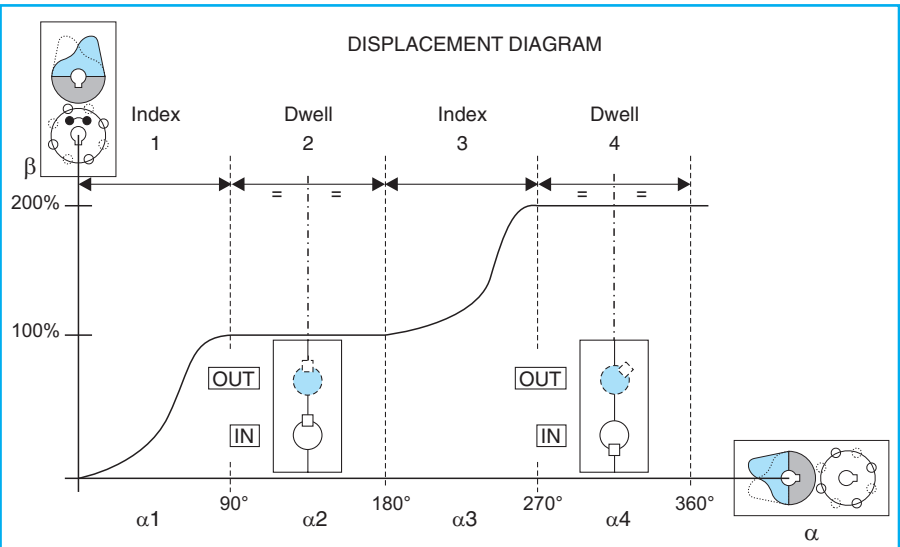
The indications on the side refer to the **preliminary coding**.

Double cycle cam

The diagram on the side shows the displacement of an index drive with **double cycle cam**.

In a rotation of 360° of the cam shaft the phases are:

- 1) **first index**
- 2) **first dwell**
- 3) **second index**
- 4) **second dwell** - center of dwell angle = **key on the input shaft, opposite to the output shaft.**



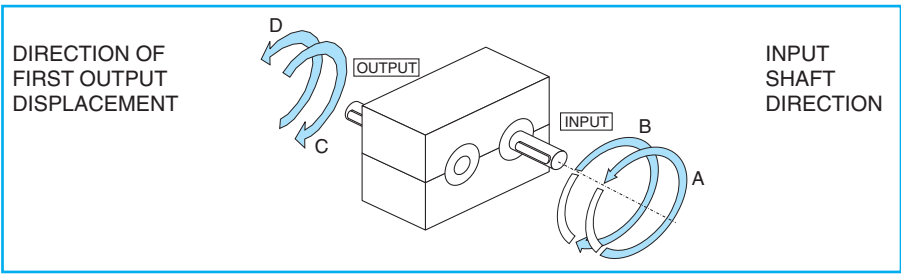
Type	Size	Stops	$\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 = 360^\circ$				Direction of rotation	Working position	Reducer fitting position	
			Index 1	Dwell 2	Index 3	Dwell 4				
Pg.9-10	Pg.9-10	Pg.5	Pg.5	Pg.5	Pg.5	Pg.5	Pg.12	Pg.19	Pg.19	
IP	130	8	$\alpha_1 60^\circ$	$\alpha_2 120^\circ$	$\alpha_3 60^\circ$	$\alpha_4 120^\circ$	BD	A	1-S2-90°	

Note: For example, 60 rpm on the cam shaft will result in 120 indexes per minute at the output (see technical guidelines chapter 2.6)

The indications on the side refer to the **preliminary coding**.

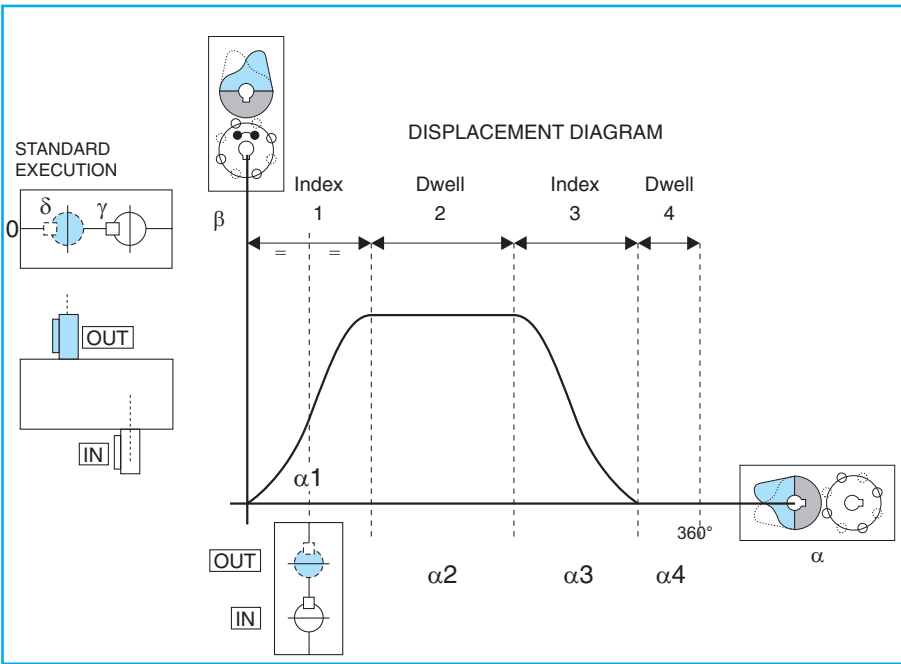
Output rotating element

OSCILLATING FUNCTION

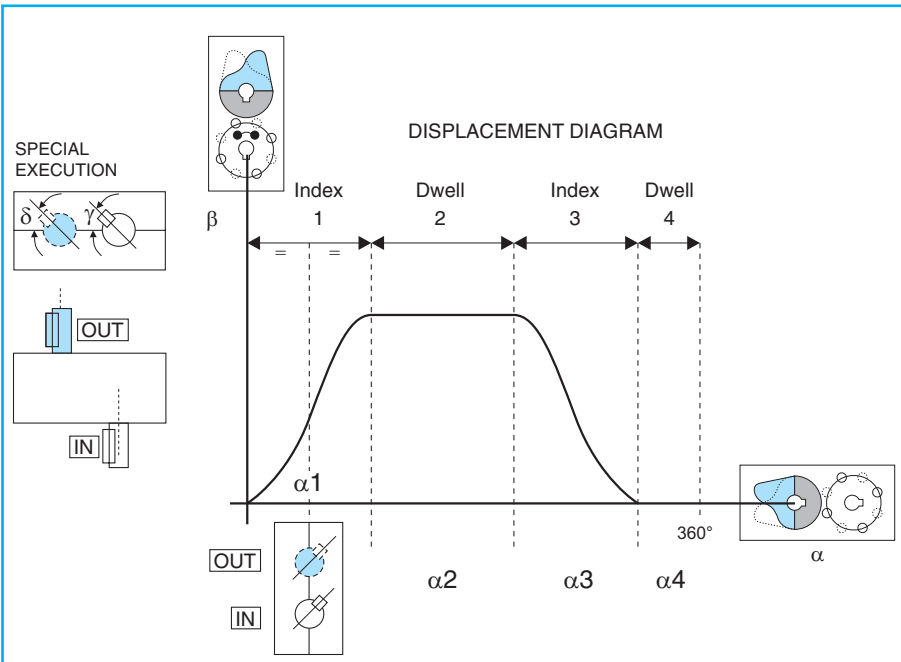


Directions of rotations on cycle start

Possible combinations:
(A-C) (B-C) (A-D) (B-D)
By convention **the beginning of the cycle coincides with the first displacement (1)**



Under the company standard, the values of the γ angle for the key of the cam shaft and the δ angle for the key of the output shaft are both **equal to 0 (zero) at the center of the first dwell phase**.
The keys are oriented as in the drawing on the side.
This position is identified as a **phase axis**.



In case of specific necessity it is possible to indicate the values for the δ angle and the γ angle referred to the required position for the keys on the cam shaft and on the output shaft **at the beginning of the cycle**.

N.B. The oscillating cycle can be made by more than 4 phases.

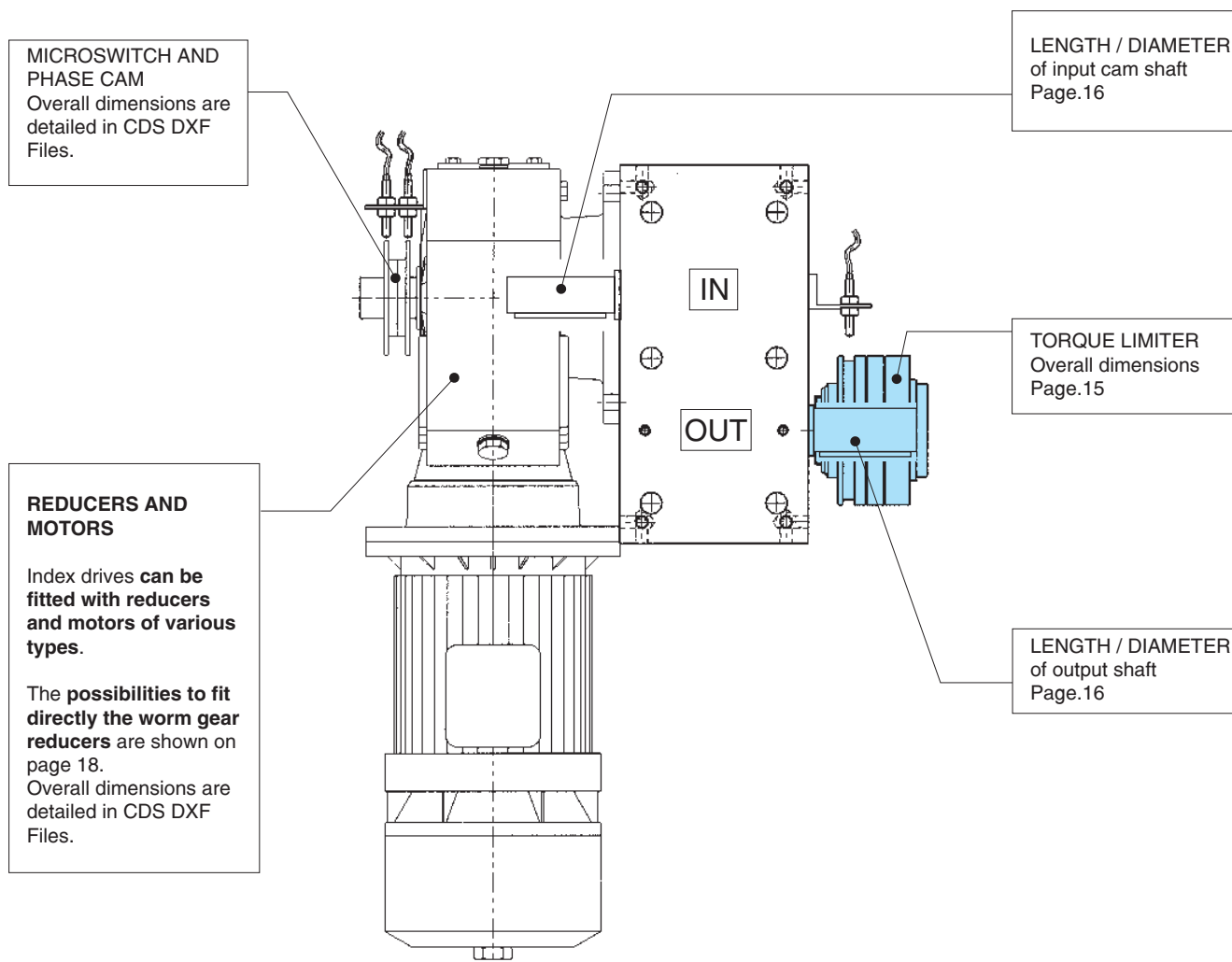
Oscillating angle β	Minimum input cam angle α
15°	30°
30°	45°
45°	60°
OUT	IN

Type	Size	β	Index 1	Dwell 2	Index 3	Dwell 4	Cycle start direction	γ	δ	Working position	Reducer fitting position
Pg.9-10	Pg.9-10		α_1	α_2	α_3	α_4				Pg.19	Pg.19
IP	130	45°	90°	150°	60°	60°	BC	0°	0°	A	1-S2-90°

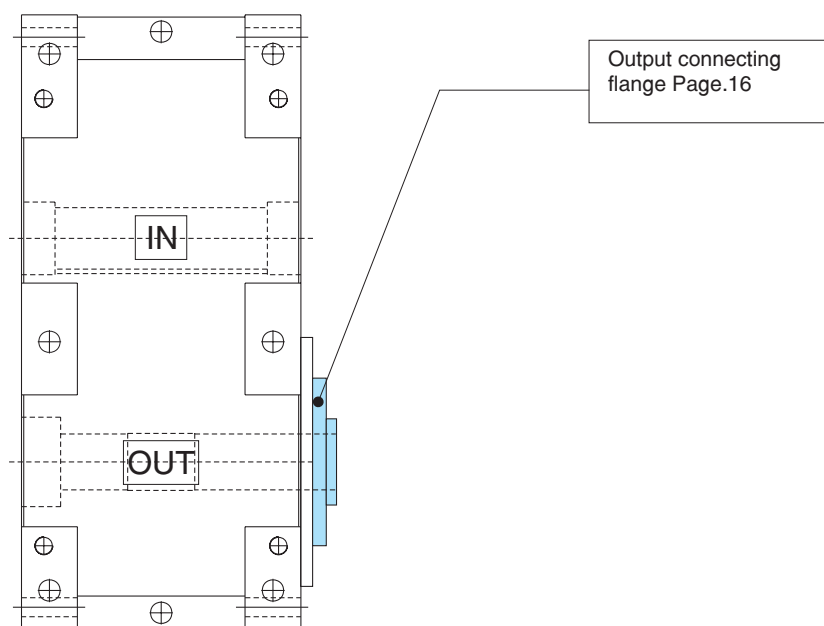
Output rotating element

The indications on the side refer to the **preliminary coding**.

ACCESSORIES - CUSTOMIZING

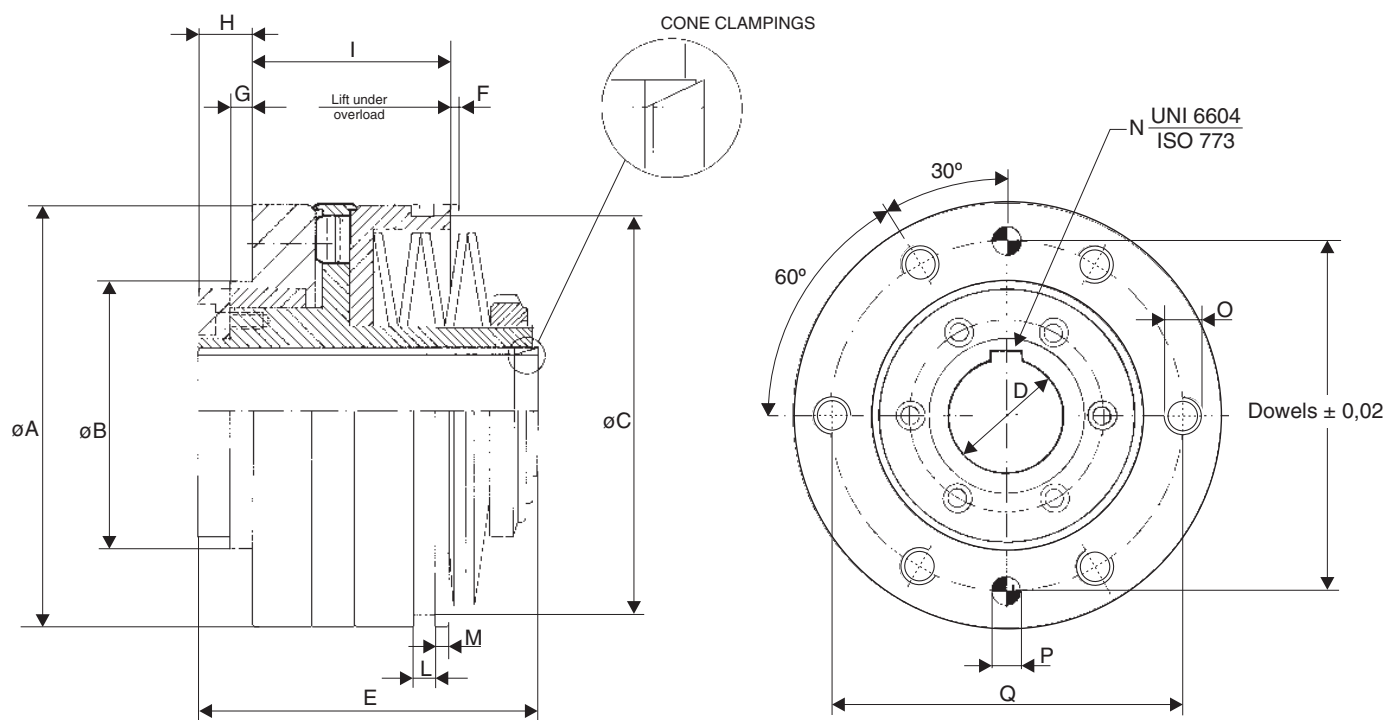


Heavy duty series

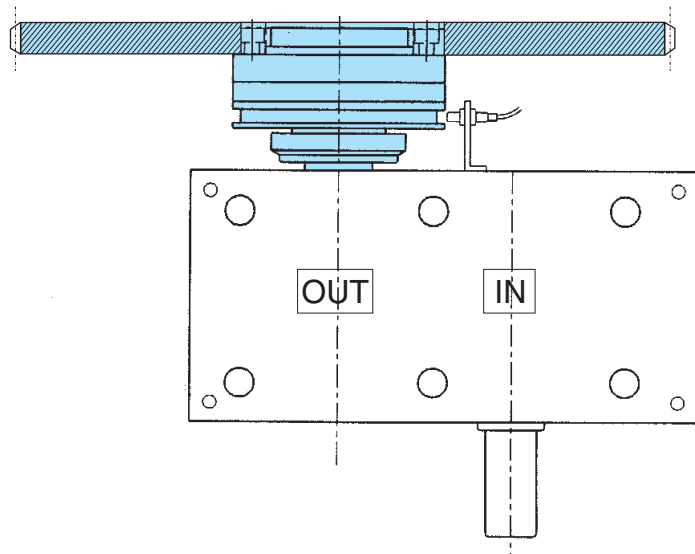


Output rotating element

TORQUE LIMITER - GLR



Type	A	B (h7)	C	D (H7)	E	F	G	H	I	L	M	N	O	P (H7)	Q			CAD FILE
GLR-50	79	55	73	19	50,3	1,32	3	10	27,3	5	2	6x6	M5	5	65			LR50
GLR-100	98	70	90	28	70,3	1,32	5,5	13,5	41,5	7	4	8x7	M6	6	85			LR100
GLR-400	118	80	110	30	90,3	1,71	5	14	57,4	9	4	8x7	M8	8	100			LR400
GLR-700	158	100	150	42	121	1,71	8,5	20,5	69,9	9	4	12x8	M10	10	130			LR700
GLR-1000	216	145	208	55	156	2,93	10	25	95	9	4	16x10	M12	12	180			LR1000

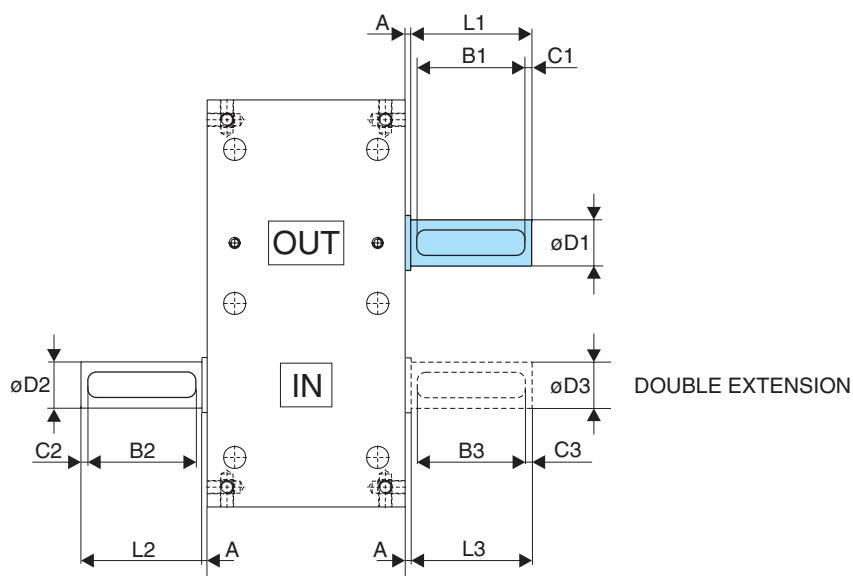


FITTING COMBINATIONS

Type	IP 40	IP 65	IP 80	IP 105	IP 130	IP 165	IP 200	IP 250
GLR-50		•						
GLR-100			•					
GLR-400				•				
GLR-700					•			
GLR-1000						•	•	•

Output rotating element

SPECIAL EXECUTIONS

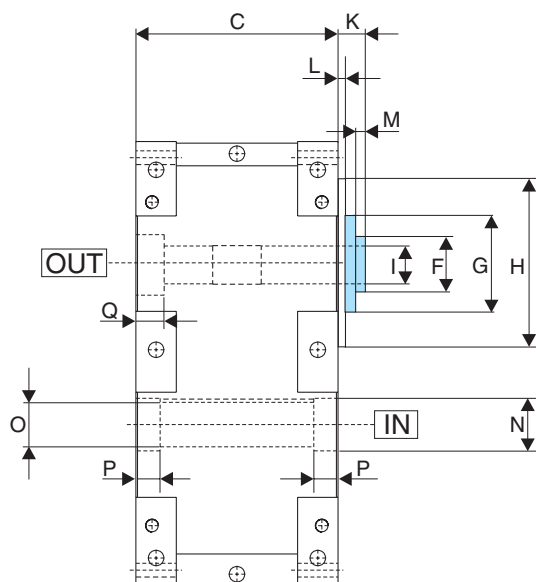
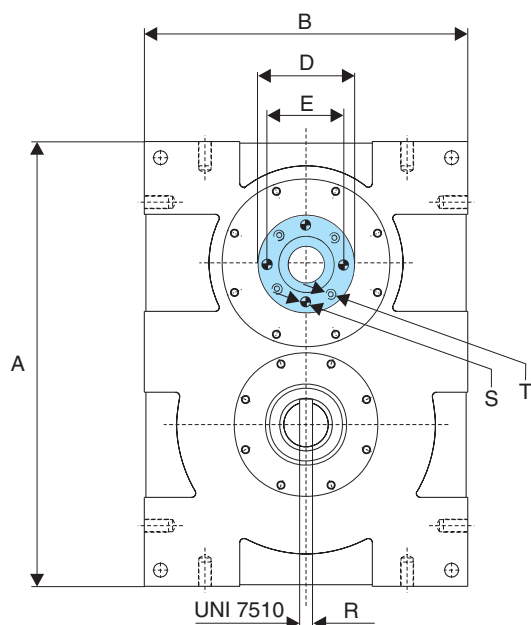


Input-output shafts

Type	A	B1	B2	B3	C1	C2	C3	ØD1 ^{K6} max	ØD2 ^{K6} max	ØD3 ^{K6} max	L1	L2	L3
IP 40								15	15	15			
IP 65								25	25	25			
IP 80								35	35	35			
IP 105								40	40	40			
IP 130								50	50	50			
IP 165													
IP 200													
IP 250													

The empty boxes indicate the possibility to specify the required dimension

Output connecting flange



Output rotating element

SERIES	A	B	C	D	E	h7 F	h7 G	g7 H	H7 I	K	L	M	H8 N	H7 O	P	Q	R	ØS	T
IP 165	460	330	220	95	80	65	95	173	40	31	11	8	55	45	30	30	14	9,5 x 20	M8 x 20
IP 200	550	400	250	120	100	80	120	210	50	40	14	10	65	55	30	35	16	11,5 x 25	M10 x 25
IP 250	700	500	300	150	125	100	150	260	65	46	18	10	100	85	30	50	22	12,5 x 30	M12 x 30

CYCLE TIMES WITH MOTOREDUCER

- 50Hz -

Combined gear	4 Poles - 50Hz 1400 rpm		T Cycle Time [s]	Index Angle [°]															
	Reducer Ratio	Cycles/m		30°	45°	60°	75°	90°	105°	120°	135°	150°	180°	210°	240°	270°	300°	315°	330°
				Index time - t_i - [s]															
	7	200,0	0,30	0,03	0,04	0,05	0,06	0,08	0,09	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,25	0,26	0,28
	10	140,0	0,43	0,04	0,05	0,07	0,09	0,11	0,13	0,14	0,16	0,18	0,21	0,25	0,29	0,32	0,36	0,38	0,39
	13	107,7	0,56	0,05	0,07	0,09	0,12	0,14	0,16	0,19	0,21	0,23	0,28	0,33	0,37	0,42	0,46	0,49	0,51
	16	87,5	0,69	0,06	0,09	0,11	0,14	0,17	0,20	0,23	0,26	0,29	0,34	0,40	0,46	0,51	0,57	0,60	0,63
	20	70,0	0,86	0,07	0,11	0,14	0,18	0,21	0,25	0,29	0,32	0,36	0,43	0,50	0,57	0,64	0,71	0,75	0,79
	25	56,0	1,07	0,09	0,13	0,18	0,22	0,27	0,31	0,36	0,40	0,45	0,54	0,63	0,71	0,80	0,89	0,94	0,98
(*)	32	43,8	1,37	0,11	0,17	0,23	0,29	0,34	0,40	0,46	0,51	0,57	0,69	0,80	0,91	1,03	1,14	1,20	1,26
(*)	40	35,0	1,71	0,14	0,21	0,29	0,36	0,43	0,50	0,57	0,64	0,71	0,86	1,00	1,14	1,29	1,43	1,50	1,57
(*)	50	28,0	2,14	0,18	0,27	0,36	0,45	0,54	0,63	0,71	0,80	0,89	1,07	1,25	1,43	1,61	1,79	1,88	1,96
(**)	63	22,2	2,70	0,23	0,34	0,45	0,56	0,68	0,79	0,90	1,01	1,13	1,35	1,58	1,80	2,03	2,25	2,36	2,48
(**)	80	17,5	3,43	0,29	0,43	0,57	0,71	0,86	1,00	1,14	1,29	1,43	1,71	2,00	2,29	2,57	2,86	3,00	3,14
(**)	100	14,0	4,29	0,36	0,54	0,71	0,89	1,07	1,25	1,43	1,61	1,79	2,14	2,50	2,86	3,21	3,57	3,75	3,93
(**)	125	11,2	5,36	0,45	0,67	0,89	1,12	1,34	1,56	1,79	2,01	2,23	2,68	3,13	3,57	4,02	4,46	4,69	4,91
(**)	160	8,8	6,86	0,57	0,86	1,14	1,43	1,71	2,00	2,29	2,57	2,86	3,43	4,00	4,57	5,14	5,71	6,00	6,29
(**)	200	7,0	8,57	0,71	1,07	1,43	1,79	2,14	2,50	2,86	3,21	3,57	4,29	5,00	5,71	6,43	7,14	7,50	7,86
(**)	250	5,6	10,71	0,89	1,34	1,79	2,23	2,68	3,13	3,57	4,02	4,46	5,36	6,25	7,14	8,04	8,93	9,38	9,82

- 60Hz -

Combined gear	4 Poles - 60Hz 1700 rpm		T Cycle Time [s]	Index Angle [°]															
	Reducer Ratio	Cycles/m		30°	45°	60°	75°	90°	105°	120°	135°	150°	180°	210°	240°	270°	300°	315°	330°
				Index time - t_i - [s]															
	7	242,9	0,25	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,12	0,14	0,16	0,19	0,21	0,22	0,23
	10	170,0	0,35	0,03	0,04	0,06	0,07	0,09	0,10	0,12	0,13	0,15	0,18	0,21	0,24	0,26	0,29	0,31	0,32
	13	130,8	0,46	0,04	0,06	0,08	0,10	0,11	0,13	0,15	0,17	0,19	0,23	0,27	0,31	0,34	0,38	0,40	0,42
	16	106,3	0,56	0,05	0,07	0,09	0,12	0,14	0,16	0,19	0,21	0,24	0,28	0,33	0,38	0,42	0,47	0,49	0,52
	20	85,0	0,71	0,06	0,09	0,12	0,15	0,18	0,21	0,24	0,26	0,29	0,35	0,41	0,47	0,53	0,59	0,62	0,65
	25	68,0	0,88	0,07	0,11	0,15	0,18	0,22	0,26	0,29	0,33	0,37	0,44	0,51	0,59	0,66	0,74	0,77	0,81
(*)	32	53,1	1,13	0,09	0,14	0,19	0,24	0,28	0,33	0,38	0,42	0,47	0,56	0,66	0,75	0,85	0,94	0,99	1,04
(*)	40	42,5	1,41	0,12	0,18	0,24	0,29	0,35	0,41	0,47	0,53	0,59	0,71	0,82	0,94	1,06	1,18	1,24	1,29
(*)	50	34,0	1,76	0,15	0,22	0,29	0,37	0,44	0,51	0,59	0,66	0,74	0,88	1,03	1,18	1,32	1,47	1,54	1,62
(**)	63	27,0	2,22	0,19	0,28	0,37	0,46	0,56	0,65	0,74	0,83	0,93	1,11	1,30	1,48	1,67	1,85	1,95	2,04
(**)	80	21,3	2,82	0,24	0,35	0,47	0,59	0,71	0,82	0,94	1,06	1,18	1,41	1,65	1,88	2,12	2,35	2,47	2,59
(**)	100	17,0	3,53	0,29	0,44	0,59	0,74	0,88	1,03	1,18	1,32	1,47	1,76	2,06	2,35	2,65	2,94	3,09	3,24
(**)	125	13,6	4,41	0,37	0,55	0,74	0,92	1,10	1,29	1,47	1,65	1,84	2,21	2,57	2,94	3,31	3,68	3,86	4,04
(**)	160	10,6	5,65	0,47	0,71	0,94	1,18	1,41	1,65	1,88	2,12	2,35	2,82	3,29	3,76	4,24	4,71	4,94	5,18
(**)	200	8,5	7,06	0,59	0,88	1,18	1,47	1,76	2,06	2,35	2,65	2,94	3,53	4,12	4,71	5,29	5,88	6,18	6,47
(**)	250	6,8	8,82	0,74	1,10	1,47	1,84	2,21	2,57	2,94	3,31	3,68	4,41	5,15	5,88	6,62	7,35	7,72	8,09

Index angle - suggested for CONTINUOUS RUN mode

(See technical guidelines ch. 3.1)

Index angle - suggested for CYCLE ON DEMAND mode

(*) Direct or combined ratio available

(**) Combined ratio with 1 cylindrical gear pair plus worm

REDUCER MATCHING TABLE

REDUCER			Shaft Diameter	IP index drive								
Type		Shaft Diameter		IP40	IP 65	IP 80	IP 105	IP 130	IP 165	IP 200	IP 250	
↓		↓		Std →	14	19	28	30	42	a	a	a
			Max→	15	25	35	40	50	55	65	100	
RMI	28	14		●								
MVF	30	14		●								
MRV	32	19			●							
MRIV	32	19			●							
MRV	40	24			●	●						
MRV	40	24			●	●						
MRV	50	28				●	●					
MRIV	50	28				●	●					
MRV	63	32				●	●	●				
MRIV	63	32				●	●	●				
MRV	80	38					●	●	●			
MRIV	80	38					●	●	●			
MRV	100	48						●	●	●		
MRIV	100	48						●	●	●		
MRV	125	60							●	●	●	
MRIV	125	60							●	●	●	
MRV	160	70								●	●	
MRIV	160	70								●	●	
MRV	200	90									●	
MRIV	200	90									●	
MRV	250	110									●	
MRIV	250	110									●	

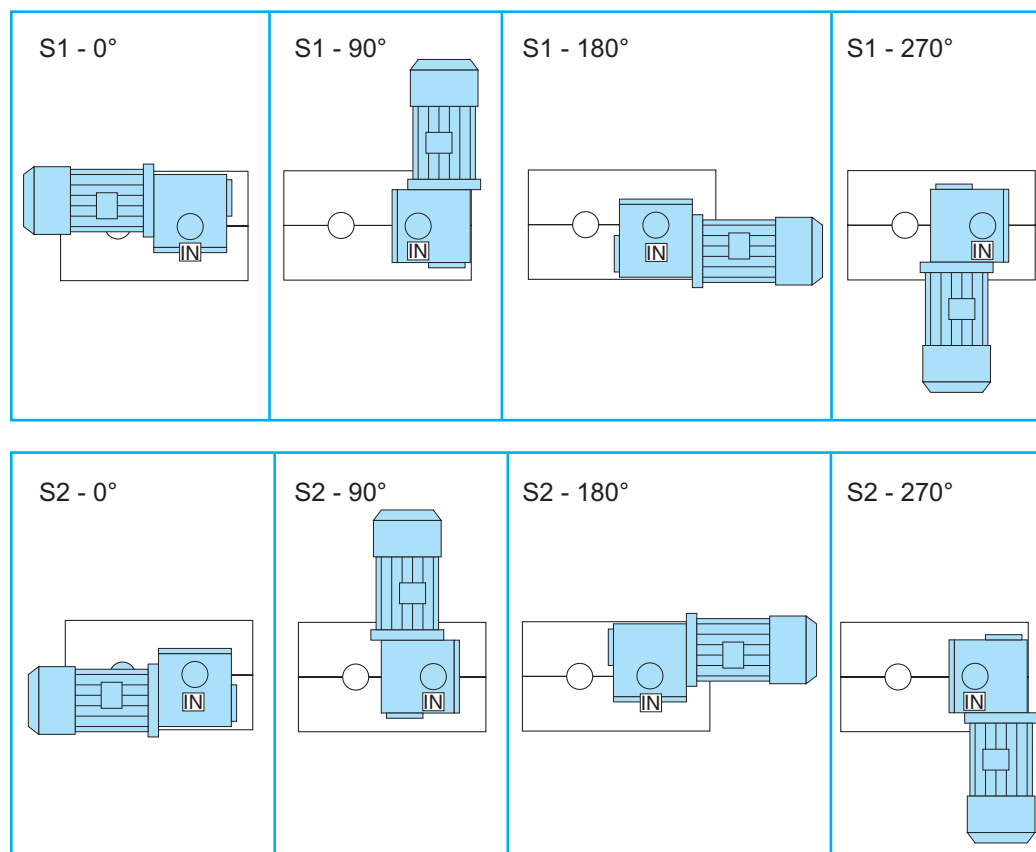


Reducer direct fitting

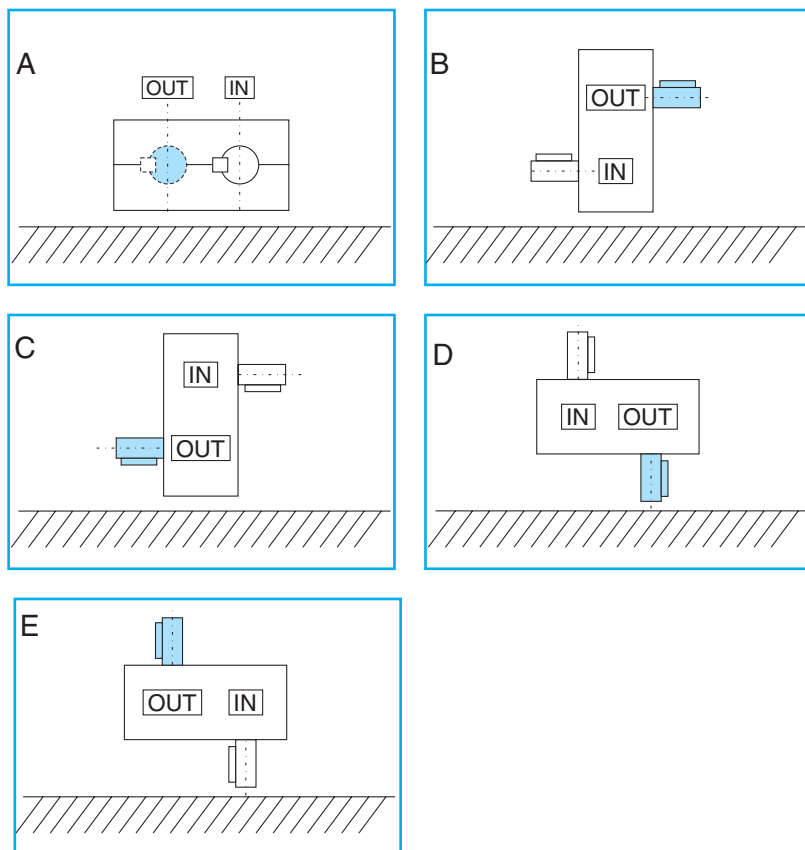
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Standard with hollow input shaft

FITTING POSITION



WORKING POSITION - LUBRICATION



STANDARD IP index drive **has sealed housing without filling plug, control plug and drain plug with adequate quantity of long life lubricant.**

For **running condition faster than $\cong 180$ cycles/min.**, or when **specified**, the index drive can be supplied with **oil bath lubrication**. If necessary the exact coordinates of the position of the filling plug, control plug and drain plug can be supplied.

CONVERSION CHART

	Unit	Symbol	Kg	lb	N
Weight	Kilogram	Kg	1	2.2046	9.8066
	Pound	lb	0.4536	1	4.4818
Force	Newton	N	0.1019	0.2246	1
	Unit	Symbol	m	mm	In
Lenght	Meter	m	1	1000	39.37
	Millimeter	mm	0.001	1	0.3937
	Inch	In	0.0254	25.4	1
	Unit	Symbol	Kg x m	lb x in	N x m
Torque	Kilogram - meter	Kg x m	1	86.7951	9.8066
	Inch – Pound	lb x in	0.015213	1	0.11308
	Newton - meter	N x m	0.01152	8.6425	1
	Unit	Symbol	Kg x m ²	lb x in ²	
Inertia	Kilogram – square meter	Kg x m ²	1	3417.1231	
	Pounds – square Inch	lb x in ²	0.0002926	1	
	Unit	Symbol	Kw	HP	CV
Power	Kilowatt	Kw	1	1.34	1.01
	British Horsepower	HP	0.746	1	1.01
	Metric Horsepower	CV	0.736	0.966	1

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