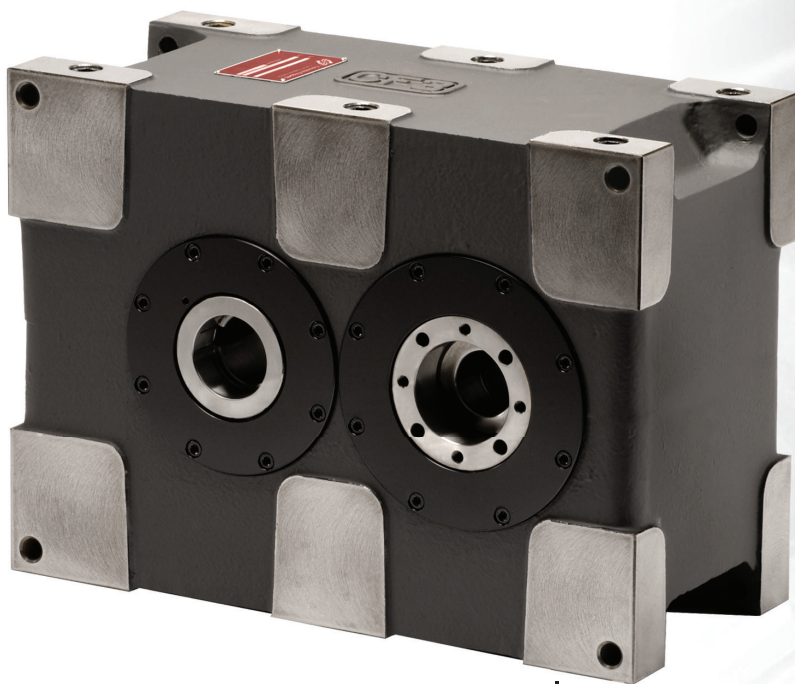


PARALLEL INDEXING DRIVES

165P-200P-250P-315P

CF3



- Prism-shaped sealed cast iron housing
- Outer surfaces machined, with support on 6 sides.
- Possibility of mounting housing in all positions.
- Parallel hollow shafts in input and output.
- Roller bearings on opposite taper roller shafts.
- Oil-bath lubrication.
- Worm gear reducer splined directly to housing.
- Precise repeatable index motion.
- Self locking in dwell and zero backlash.
- Smooth and shock-free movement
- Bidirectional sense of motion.



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Contents

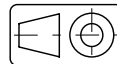
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The units of measurement correspond with System International /Severity Index SI General tolerances of manufacture are conform to UNI – ISO 2768-1 UNI EN 22768-1

Illustrations and drawings according to UNI 3970 (ISO 128-82).

Method of projection of the drawings.



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This catalogue supersedes all earlier ones.



SPECIFICATIONS

Index drive code	Number of stops S	Index period B° [deg]	Static Torque Ms [daN m]	Dynamic output torque Mu [daN m]						Velocity factor Cv	Acceleration factor Ca	Input torque factor Kj
				Indexes/min.								
				25	50	75	100	150	200			
165P-1-300	1	300	109	97	96	88	80	70	64	1.27	8.01	0.86
200P-1-300			183	163	161	142	130	114	103			
250P-1-300			317	282	263	232	212	186	169			
315P-1-300			661	588	493	435	398	349	316			
165P-1-330	1	330	109	91	86	76	70	61	55	1.35	7.02	0.83
200P-1-330			183	156	139	123	112	98	89			
250P-1-330			317	271	230	203	186	163	148			
315P-1-330			661	528	429	379	346	304	275			
165P-2-150	2	150	89	75	75	74	73	70	66	1.27	8.01	0.86
200P-2-150			150	127	126	124	122	116	106			
250P-2-150			260	219	217	212	207	191	168			
315P-2-150			541	457	447	431	409	380	340			
165P-2-180		180	89	77	76	76	75	73	70	1.40	6.62	0.79
200P-2-180			150	129	129	128	126	122	116			
250P-2-180			260	223	222	219	216	205	191			
315P-2-180			541	466	460	450	437	398	360			
165P-2-210		210	89	77	77	76	76	74	68	1.40	6.62	0.68
200P-2-210			150	130	130	121	128	122	110			
250P-2-210			260	225	224	222	219	200	181			
315P-2-210			541	469	465	457	426	374	339			
165P-2-240	240	89	78	78	77	77	72	65	1.40	6.62	0.59	
200P-2-240		150	131	131	130	129	116	105				
250P-2-240		260	227	226	224	217	190	172				
315P-2-240		541	474	470	444	406	356	323				
165P-2-270	270	89	87	87	86	79	69	62	1.76	5.53	0.66	
200P-2-270		150	145	144	138	126	111	100				
250P-2-270		260	259	259	229	209	184	166				
315P-2-270		541	542	487	430	394	345	313				
165P-3-120	3	120	109	88	88	87	86	83	80	1.40	6.62	0.79
200P-3-120			183	149	148	146	144	138	130			
250P-3-120			317	257	255	252	247	233	214			
315P-3-120			661	536	528	514	496	442	412			
165P-3-150		150	109	87	87	86	86	84	81	1.40	6.62	0.63
200P-3-150			183	147	147	146	144	140	134			
250P-3-150			317	255	254	251	248	238	224			
315P-3-150			661	532	526	517	505	468	418			
165P-3-180		180	109	98	97	97	94	82	74	1.76	5.53	0.66
200P-3-180			183	165	164	163	151	132	120			
250P-3-180			317	285	284	273	249	319	198			
315P-3-180			661	595	579	512	468	411	372			
165P-3-210		210	109	96	96	96	89	78	71	1.75	5.53	0.56
200P-3-210			183	160	160	157	144	126	114			
250P-3-210			317	277	277	259	237	208	188			
315P-3-210			661	580	551	487	445	391	354			
165P-3-240		240	109	93	93	93	86	75	68	1.76	5.53	0.49
200P-3-240			183	155	155	151	138	121	110			
250P-3-240			317	269	268	249	228	200	181			
315P-3-240			661	562	529	467	427	375	340			
165P-3-270		270	109	91	91	90	83	73	66	1.76	5.53	0.44
200P-3-270			183	152	152	146	133	117	106			
250P-3-270			317	263	263	240	220	193	175			
315P-3-270			661	550	510	451	412	362	328			

SPECIFICATIONS

Index drive code	Number of Stops S	Index period B° [deg]	Static Torque Ms [daN m]	Dynamic output torque Mu [daN m]						Velocity factor Cv	Acceleration factor Ca	Input torque factor Kj
				Indexes/min.								
				25	50	75	100	150	200			
165P-4-90	4	90	89	87	87	86	85	83	79	1.37	5.53	0.73
200P-4-90			150	147	146	144	142	137	128			
250P-4-90			260	254	252	248	242	226	204			
315P-4-90			541	530	520	503	480	413	320			
165P-4-120		120	89	76	76	75	74	72	69	1.76	5.53	0.74
200P-4-120			150	128	127	126	125	121	115			
250P-4-120			260	221	220	217	214	204	190			
315P-4-120			541	462	456	447	434	397	370			
165P-4-150		150	89	77	77	76	75	74	72	1.76	5.53	0.59
200P-4-150			150	130	129	128	127	124	120			
250P-4-150			260	225	224	222	219	212	200			
315P-4-150			541	470	466	460	450	415	376			
165P-4-180		180	89	78	78	78	77	76	70	1.76	5.53	0.49
200P-4-180			150	132	132	131	130	126	114			
250P-4-180			260	229	228	227	225	207	187			
315P-4-180			541	478	476	471	442	387	351			
165P-4-210		210	89	79	79	79	79	73	66	1.76	5.53	0.42
200P-4-210			150	134	134	133	133	119	107			
250P-4-210			260	232	232	231	223	196	177			
315P-4-210			541	484	482	457	418	366	332			
165P-4-240		240	89	78	78	78	78	71	64	1.76	5.53	0.37
200P-4-240			150	132	132	131	130	114	103			
250P-4-240			260	229	229	228	214	188	170			
315P-4-240			541	479	478	439	401	352	319			
165P-4-270	270	89	78	77	76	72	68	62	1.76	5.53	0.33	
200P-4-270		150	131	131	130	125	110	100				
250P-4-270		260	227	227	225	206	181	164				
315P-4-270		541	475	474	423	386	339	307				
165P-6-150	6* *see fig.1b	150	109	108	108	107	106	104	101	1.40	6.62	0.63
200P-6-150			183	183	182	181	179	173	165			
250P-6-150			317	317	315	311	306	291	271			
315P-6-150			661	661	651	636	614	552	465			
165P-6-180		180	109	83	83	82	82	79	76	1.76	5.53	0.66
200P-6-180			183	141	140	139	137	133	126			
250P-6-180			317	244	242	239	236	225	210			
315P-6-180			661	509	502	492	478	437	380			
165P-6-210		210	109	84	84	83	82	81	78	1.76	5.53	0.56
200P-6-210			183	142	141	140	139	135	130			
250P-6-210			317	246	244	242	239	231	219			
315P-6-210			661	513	508	500	490	458	414			
165P-6-240		240	109	85	85	84	84	82	80	1.76	5.53	0.49
200P-6-240			183	144	143	142	141	138	133			
250P-6-240			317	249	248	246	244	237	227			
315P-6-240			661	520	517	510	501	476	441			
165P-6-270		270	109	87	87	87	86	85	83	1.76	5.53	0.44
200P-6-270			183	147	147	146	145	142	138			
250P-6-270			317	256	255	253	251	245	236			
315P-6-270			661	534	531	526	518	489	443			

Other special motion can be supplied on request



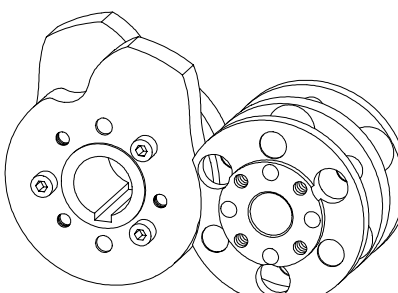
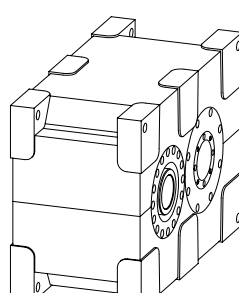
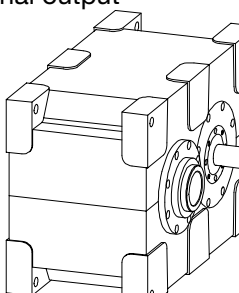
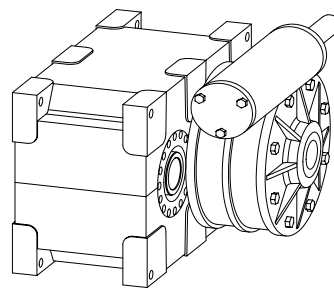
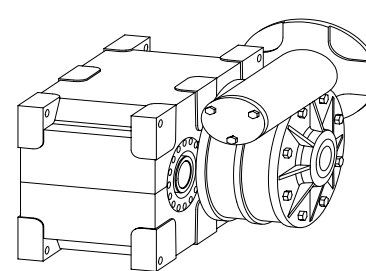
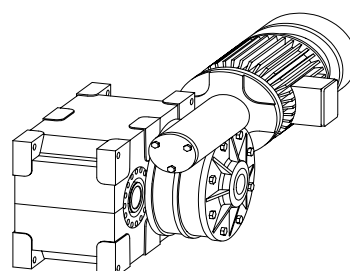
SPECIFICATIONS

Index drive code	Number of Stops S	Index period B° [deg]	Static Torque Ms [daN m]	Dynamic output torque Mu [daN m]						Velocity factor Cv	Acceleration factor Ca	Input torque factor Kj
				Indexes/min.								
				25	50	75	100	150	200			
165P-8-120	8* *see fig.1b	120	89	89	89	88	87	84	80	1.40	6.62	0.59
200P-8-120			150	150	149	148	145	138	128			
250P-8-120			260	260	257	253	246	228	201			
315P-8-120			541	541	530	511	484	407	300			
165P-8-150		150	89	86	86	85	85	83	80	1.40	6.62	0.47
200P-8-150			150	146	145	144	142	138	132			
250P-8-150			260	252	250	247	243	232	215			
315P-8-150			541	526	519	506	489	440	371			
165P-8-180		180	89	66	66	65	65	63	61	1.76	5.53	0.49
200P-8-180			150	112	111	110	109	106	100			
250P-8-180			260	194	192	190	187	179	166			
315P-8-180			541	404	404	391	380	348	303			
165P-8-210		210	89	67	67	66	66	64	62	1.76	5.53	0.42
200P-8-210			150	113	113	112	111	108	103			
250P-8-210			260	196	195	193	190	183	174			
315P-8-210			541	408	405	398	390	365	330			
165P-8-240		240	89	68	68	67	67	65	64	1.76	5.53	0.37
200P-8-240			150	115	114	114	113	110	106			
250P-8-240			260	199	198	196	194	188	180			
315P-8-240			541	415	412	407	400	379	351			
165P-8-270	270	89	70	70	69	69	67	66	1.76	5.53	0.33	
200P-8-270		150	118	118	117	116	114	110				
250P-8-270		260	204	203	202	200	195	188				
315P-8-270		541	426	424	420	414	397	373				

VERSIONS

The CF3 index are normally supplied in the versions illustrated below.

Information on motor systems will be supplied on request.

<p>VGS drive components</p> 	<p>VS standards units</p> 	<p>VL units with optional input VO optional output</p>  <p>optional input + optional output VOL</p>
<p>VR standard + reducer</p>  <p>optional output + reducer VOR</p>	<p>VRP standard + reducer with flange</p>  <p>optional output + reducer with flange VORP</p>	<p>VRM standard + motor and reducer VRA with brake motor</p>  <p>optional output+ motor and reducer VORA with brake motor VORM</p>

DRIVE COMPONENTS

- Parallel shaft.
- Separate and pre-coupled cam/follower units.
- Cam hub with hollow shaft and keyway.
- High-strength alloy steel cams with hardened, ground profiles.
- Dial plate with central clearance hole and flange mount on each side.
- High load capacity with special yoke-mounted cam followers.

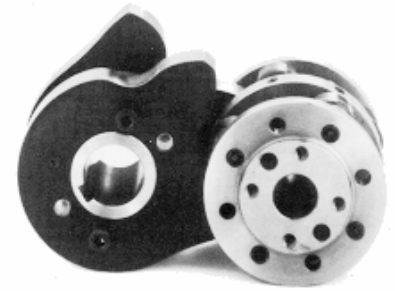
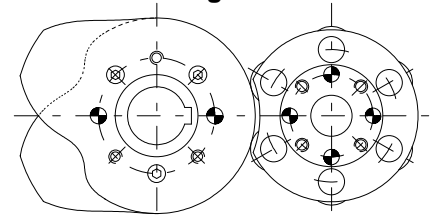


Fig.1a



The 1/2/3/4-stops CF3 INDEX DRIVES with complete (360°) input shaft rotation produce 1 cycle (transfer + dwell) of the output shaft. This means that 50 rpm of the input shaft produce 50 indexes/min in output.

fig.1

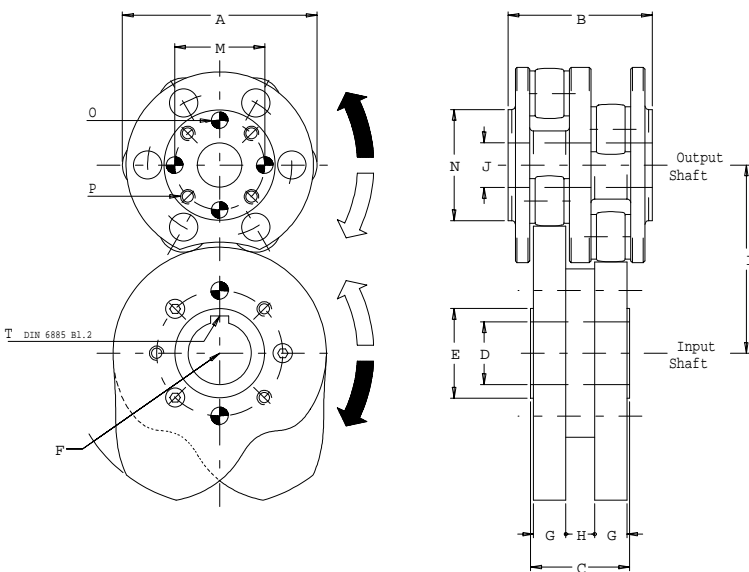
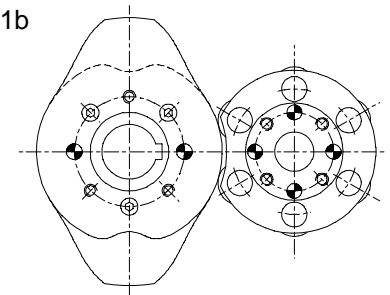


fig.1b



The 6/8-stops CF3 INDEX DRIVES with complete (360°) input shaft rotation produce two cycles (transfer + dwell) of the output shaft. This means that 50 rpm of the input shaft produce 100 indexes/min in output.

Series	A	B	C	D ^{H7}	E ^{h7}	F	G	H	I	J ^{H7}	L	M	N	O	P	T
165 P	172	115	85	45	85	132	27	24	165	40	30	80	104	9.5x15	M 8x15	14x 9
200 P	207	130	95	55	110	161	30	28	200	50	35	100	127	11.5x17	M10x17	16x10
250 P	255	150	110	85	140	201	35	31	250	65	50	125	160	13.5x21	M12x21	22x14
315 P	320	250	150	100	170	251	45	56	315	80	60	160	200	15.5x35	M14x35	28x16

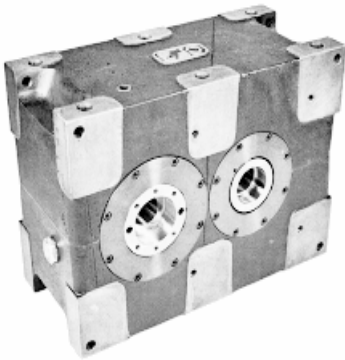
Notes

- Reversal of the direction of rotation of the input shaft also reverses the direction of rotation of the output shaft, while the kinematic features of the intermittent motion are unchanged.
- The keyway of cam hub "T" is located halfway along the pause stretch.

- The four holes for dwell "O" and the four threaded holes "P" are drilled on both sides of the output shaft. The dimensions of holes "O" shown in the table are such as to allow simultaneous boring with the part to be splined at the mounting stage. The holes are located in the positions shown in fig. 1 when the INDEX DRIVE is stationary in one of the stations.

- Correct operation of the INDEX DRIVE is guaranteed by the following essential assembly conditions:
 - Parallel shaft.
 - Possibility of pre-loading the followers in the cam pause stretch.
 - Suitable lubrication of mechanism.





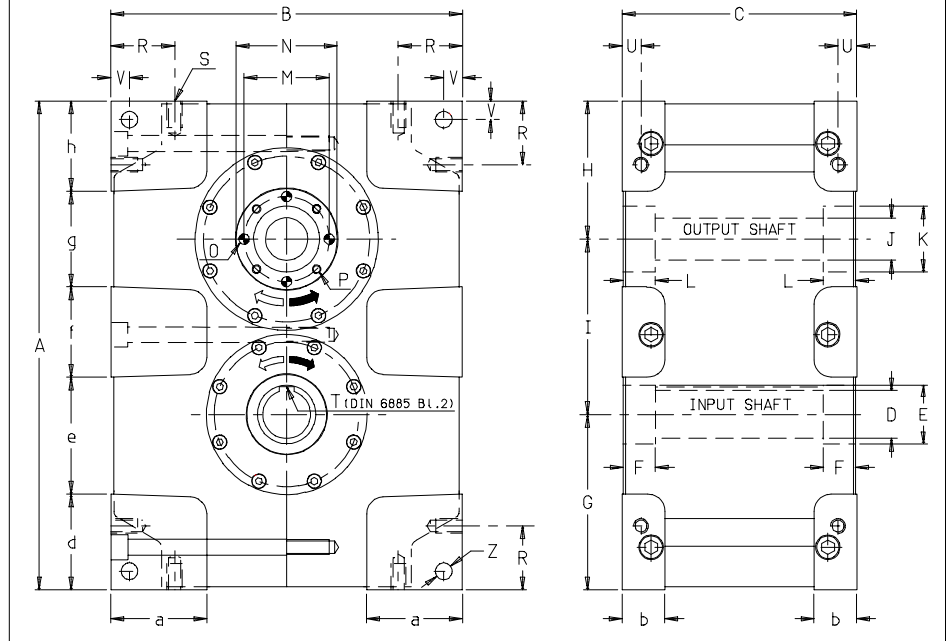
STANDARD HOUSED UNITS

- Prism-shaped sealed cast housing.
- Outer surfaced machined, with support on 6 sides.
- Possibility of mounting housing in all positions.
- Parallel and hollow shafts in input and output.
- Roller bearings on opposite taper roller shafts.
- Oil-bath lubrication.
- Worm gear reducer directly splined to housing.

Notes

- Reversal of the direction of rotation of the input shaft also reverses the direction of rotation of the output shaft, while the kinematic characteristics of the intermittent motion remain unchanged.
- Hollow input shaft keyway "T" is in the position shown when the INDEX DRIVE is halfway along the dwell period.
- The four holes for dwell "O" and the four threaded holes "P" are drilled on both sides of the output shaft. The dimensions of holes "O" shown in the table are such as to allow simultaneous boring with the part to be splined at the mounting stage. These holes are located in the position shown in figure 2 when the index drive is stationary in one of the stations.
- The machined surfaces of the housing can be drilled to a maximum depth of 30 mm to obviate the need for tie-bars connecting the two halves of the housing.
- Housing holes "Z" are of standard manufacture; for frontal fixing of the housing they can be tapped.

fig.2



- Mounting holes "S" are only drilled on the side shown as the mounting side.
- The oil Fill/Level/Drain holes are drilled on the side shown in the paragraph MOUNTING POSITIONS.
- Correct operation of the CF3 INDEX DRIVE is obtained by connecting the input and output

shafts rigidly to the machine. For this reason, transmission parts, which could introduce backlash or elasticity into the kinematic chain, should not be used.

- The housed CF3 INDEX DRIVES are supplied **without lubricating oil**. The recommended oil is AGIP "BLASIA 150".

Series	A	B	C	D ^{H7}	E ^{H8}	F	G	H	I	J ^{H7}	K ^{H7}	L	M	N	O
165P	460	330	220	45	55	30	165	130	165	40	62	30	80	95	9.5x20
200P	550	400	250	55	65	30	200	150	200	50	80	35	100	120	11.5x25
250P	700	500	300	85	100	30	250	200	250	65	95	50	125	150	13.5x30
315P	880	630	400	100	130	30	315	250	315	80	120	62	160	190	15.5x35

Series	P	R	S	T	U	V	Z	a	b	d	e	f	g	h	Weight [Kg]
165P	M 8x20	60	M14x25	14x 9	17.5	17.5	15.5	90	40	90	110	85	90	85	136
200P	M10x25	75	M16x30	16x10	20	20	17.5	115	50	110	130	100	120	90	235
250P	M12x30	90	M18x35	22x14	25	25	19.5	145	50	145	160	115	160	120	408
315P	M14x35	120	M20x40	28x16	30	30	21	180	55	215	180	155	160	170	775



HOUSED UNITS WITH OPTIONAL OUTPUT

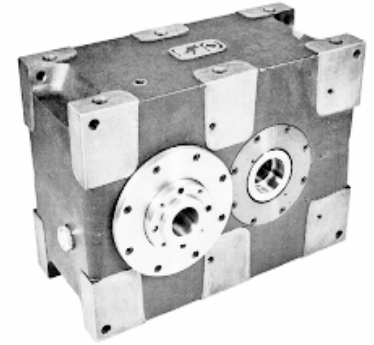
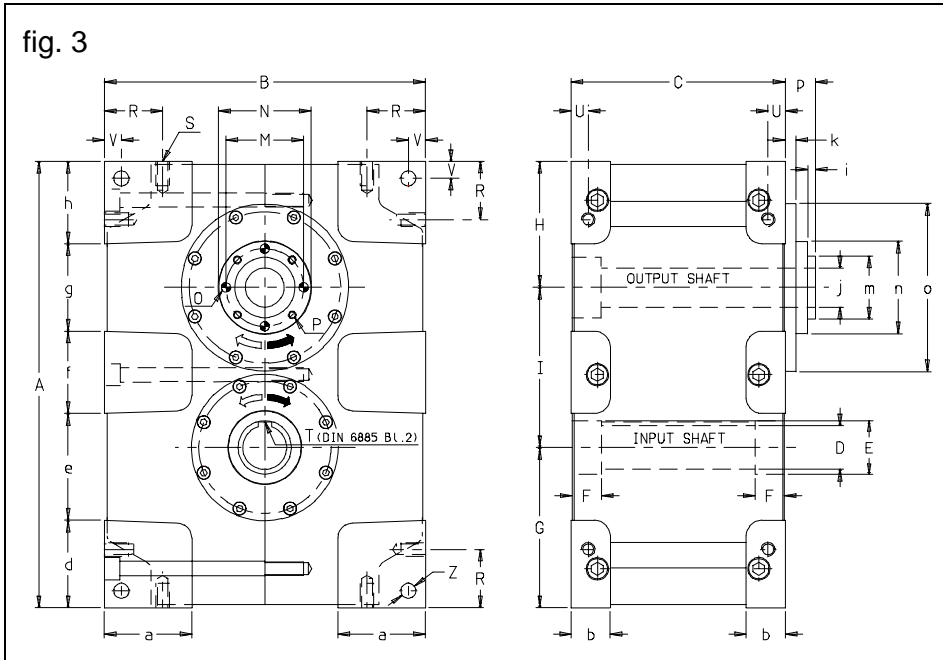


fig. 3



Notes

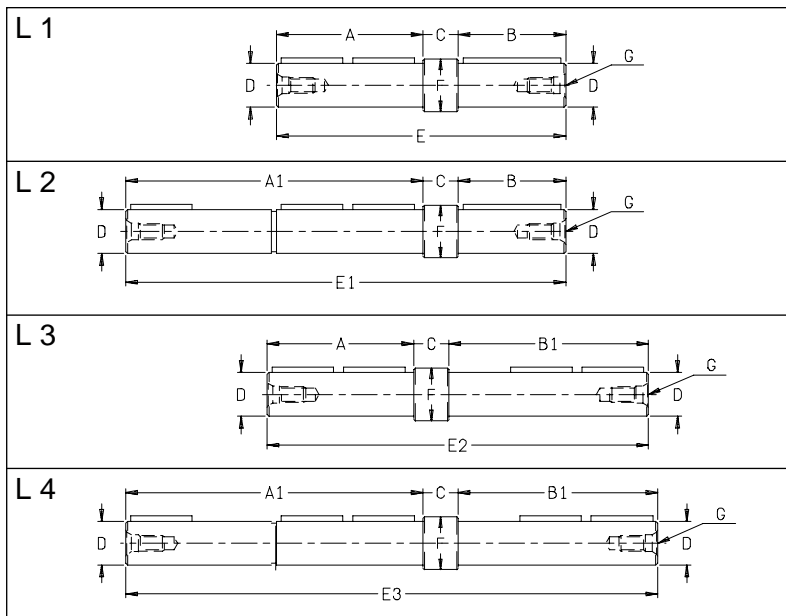
In this version, the CF3 INDEX DRIVE retains all the construction features of the standard version, with the following exceptions:

- the external diameter of the output flange projects from the side of the housing.
- the output shaft with central through hole is fitted with a flange coupling protruding from on side only.

Series	A	B	C	D _{H7}	E _{H8}	F	G	H	I	M	N	O	P	R	S	T	U
165 P	460	330	220	45	55	30	165	130	165	80	95	9.5x20	M8x20	60	M14x25	14x9	17.5
200 P	550	400	250	55	65	30	200	150	200	100	120	11.5x25	M10x25	75	M16x30	16x10	20
250 P	700	500	300	85	100	30	25	200	250	125	150	13.5x30	M12x30	90	M18x35	22x14	25
315 P	880	630	400	100	130	30	315	250	315	160	190	15.5x35	M14x35	120	M20x40	28x16	30

Series	V	Z	a	b	d	e	f	g	h	i	j _{H7}	k	m _{h7}	n _{h7}	o _{g7}	p	Weight [Kg.]
165 P	17.5	15.5	90	40	90	110	85	90	85	8	40	11	65	95	173	31	140
200 P	20	17.5	115	50	110	130	100	120	90	10	50	14	80	120	210	40	241
250 P	25	19.5	145	50	145	160	115	160	120	10	65	18	100	150	260	46	425
315 P	30	21	180	55	215	180	155	160	170	10	80	25	125	190	295	62	796

OPTIONAL INPUT SHAFTS



This series of INDEX DRIVES is manufactured with hollow input shaft. Projecting input shafts with the dimensions shown in the table an centres as per DIN 332 Bl.2 will be supplied on request.

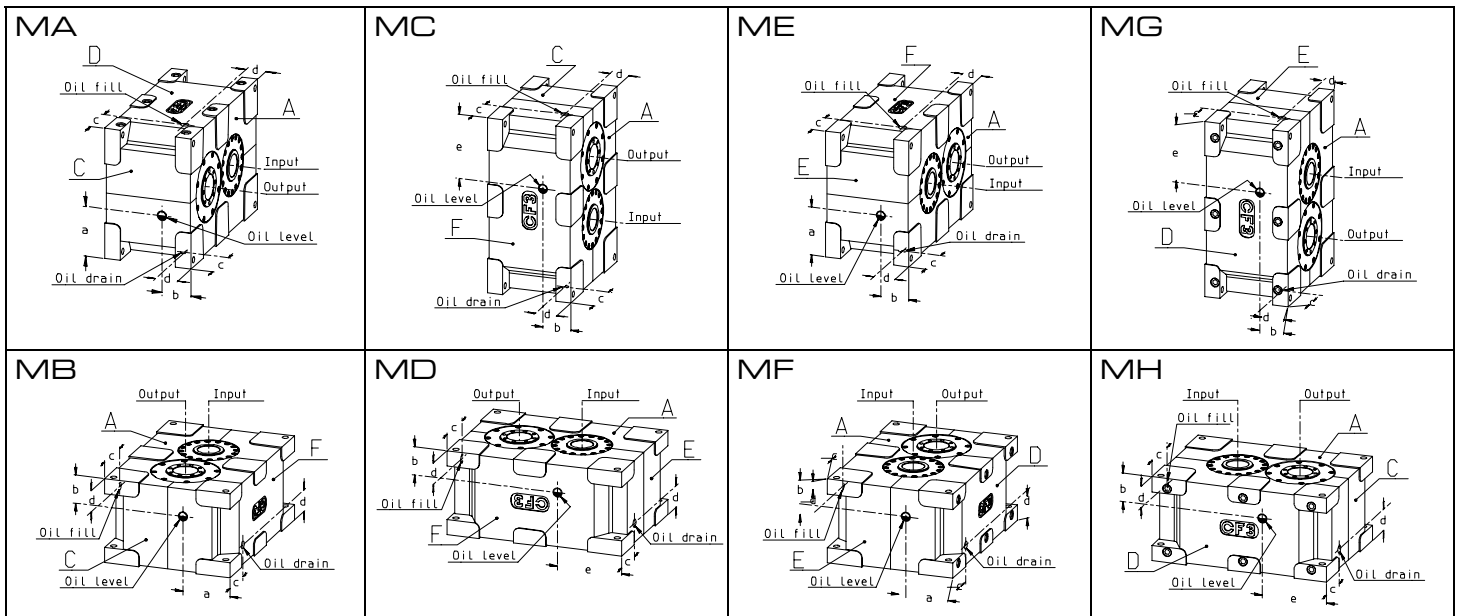
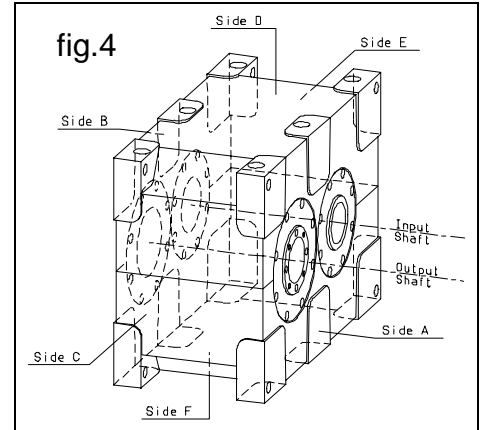
Series	165P	200P	250P	315P
A	150	180	230	330
A1	304	334	444	584
B	110	110	170	210
B1	204	224	274	314
C	36	36	36	36
D	45	55	85	100
D1	50	60	85	100
E	296	326	436	576
E1	450	480	650	830
E2	390	440	540	680
E3	544	594	754	934
F	54	64	99	129
G	M16x36	M20x42	M20x42	M24x50

MOUNTING POSITIONS

- The characteristic shape of the housing allows it to be mounted in all positions.
- On placing the order, please specify:
 - on which side of the housing the mounting holes should be drilled
 - on which side (A or B) the output shaft should project in the optional version.

- If the mounting position is not specified, the INDEX DRIVE will be supplied for mounting in position MA, with mounting holes on side F and optional output on side A.

Series	165P	200P	250P	315P
a	125	150	170	240
b	75	90	100	130
c	100	130	160	230
d	53	63	63	68
e	170	210	260	330



For mechanisms running at less than 30 indexes/minute which are required to be mounted in any of the positions MB, MD, MF or MH, it may be necessary to fit an external tube to effectively lift the level of the oil in order to lubricate the top bearings. In this event a breather plug would be fitted to the top side of the unit. Up to size 250P it is generally possible to lubricate the top bearings with grease

IDENTIFICATION NUMBER

The identification number of the INDEX DRIVE is made up in accordance with the chart. For versions VR, V..P, V..M and V..A, when placing the order it is essential to specify all details required to identify the characteristics of the motor and reducer requested with no risk of confusion (reduction ratios, hp, no. of revs, voltage, frequency etc.)

Example of identification number	165P	3	180	VOL	MA	F	B	L1
CF3 INDEX DRIVE								
series	_____							
No. of stops S	_____							
Index period β	_____							
Version	_____							
Mounting position	_____							
Side with mounting holes	_____							
Side with output shaft	_____							
Input shaft	_____							

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Products

Cam Mechanisms and special products



Compact double spherical cam mechanism for mechanical automation



Combination of flat cam and globoidal profiled cam



Barrell shaped cam



Globoidal cam mechanism with four synchronized intermittent movements. Bilateral outputs.



Mechanism with different cams producing seven synchronized intermittent and oscillating movements in output



Parallel shaft mechanism with flat cam



Flat cam with conjugate profiles

... the culture of precision

