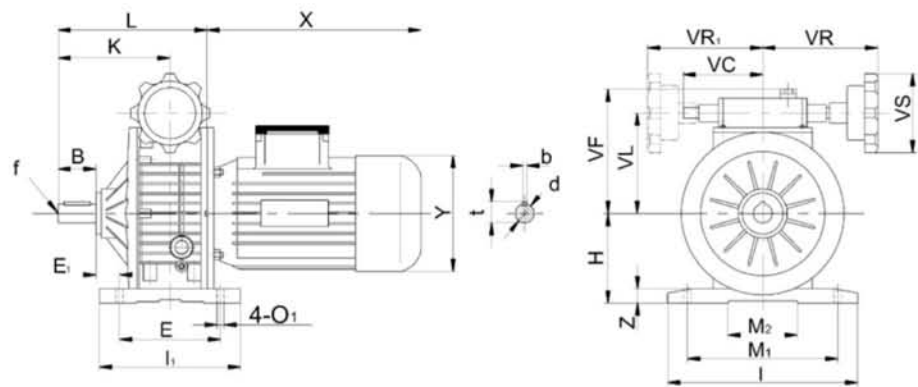




# Mechanical Speed Variator

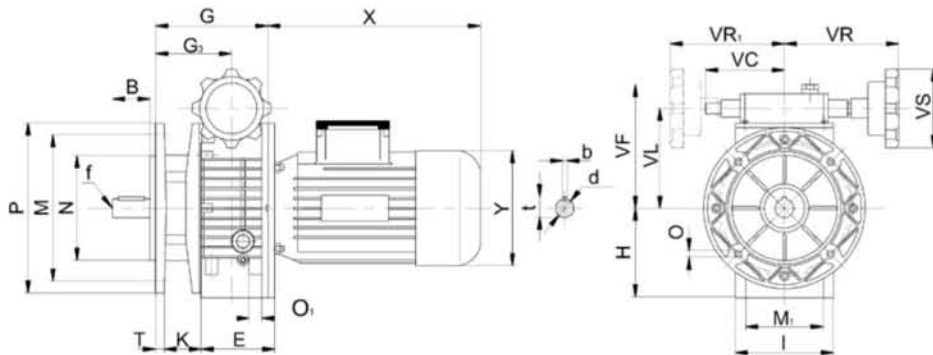


## B3 Model



Variator	B	d(j6)	E	E <sub>1</sub>	H	I	I <sub>1</sub>	K	L	M <sub>1</sub>	M <sub>2</sub>	O <sub>1</sub>	VC	VF	VL	VR	VR <sub>1</sub>	VS	b	f	t	X	Y	Z
UDL0.18B3	23	11	105	17.5	80	145	120	87.5	135.5	110	71	9	71	111	78	110	110	85	4	-	12.5	200	120	10
UDL0.37B3	30	14	104	20	93	149	125	104	140	120	96	9	71	123	90	110	110	85	5	M6	16	227	141	10
UDL0.75B3	40	19	125	26	113	190	150	125.5	179	160	135	11	79	140	107	120	120	110	6	M6	21.5	268	160	15
UD1.1B3	40	24	105	34.5	100	207	130	136	187	160	115	13	-	124	102	150	-	110	8	M8	27	265	195	15
UD1.5B3	50	24	115	53.5	123	241	150	165	238	190	143	13	-	144	122	150	-	110	8	M8	27	290	195	18
UD2.2B3	60	30	230	25	150	300	270	191	268	245	190	14	-	188	150	160	-	110	8	M8	33	320	215	25
UD3.0B3	60	30	230	25	150	300	270	191	268	245	190	14	-	188	150	160	-	110	8	M8	33	320	215	25
UD4.0B3	60	30	230	25	150	300	270	191	268	245	190	14	-	188	150	160	-	110	8	M8	33	340	240	25
UD5.5B3	70	35	250	33	200	365	290	201	319	315	245	18	-	-	192	194	-	110	10	M10	38	395	275	30
UD7.5B3	70	35	250	33	200	365	290	201	319	315	245	18	-	-	192	194	-	110	10	M10	38	435	275	30

## B5 Model



Variator	B	d(j6)	E	G	G <sub>1</sub>	H	I	M	M <sub>1</sub>	N	D	D <sub>1</sub>	P	T	K	VC	VF	VL	VR	VR <sub>1</sub>	VS	b	f	t	X	Y
UDL0.18B5	23	11	50	112.5	64.5	70	72	115	60	95	9	M6	140	3.5	46	71	111	78	110	110	85	4	-	12.5	200	120
UDL0.37B5	30	14	40	110	74	80	90	130	77	110	9	M8	160	3.5	53	71	123	90	110	110	85	5	M6	16	227	141
UDL0.75B5	40	19	58	139	85.5	100	98	165	84	130	11	M8	200	3.5	60	79	140	107	120	120	110	6	M6	21.5	268	160
UD1.1B5	40	24	-	147	95	98	207	165	-	130	11	-	200	3.5	-	-	124	102	150	-	110	8	M8	27	265	195
UD1.5B5	50	24	-	188	115	126	241	165	-	130	11	-	200	3.5	-	-	144	122	150	-	110	8	M8	27	290	195
UD2.2B5	60	30	-	208	131	150	270	265	-	230	15	-	300	4	-	-	188	150	160	-	110	8	M8	33	320	215
UD3.0B5	60	30	-	208	131	150	270	265	-	230	15	-	300	4	-	-	188	150	160	-	110	8	M8	33	320	215
UD4.0B5	60	30	-	208	131	150	270	265	-	230	15	-	300	4	-	-	188	150	160	-	110	8	M8	33	340	240
UD5.5B5	70	35	-	244	131	200	-	300	-	250	19	-	350	5	-	-	-	192	194	-	110	10	M10	38	395	275
UD7.5B5	70	35	-	244	131	200	-	300	-	250	19	-	350	5	-	-	-	192	194	-	110	10	M10	38	435	275

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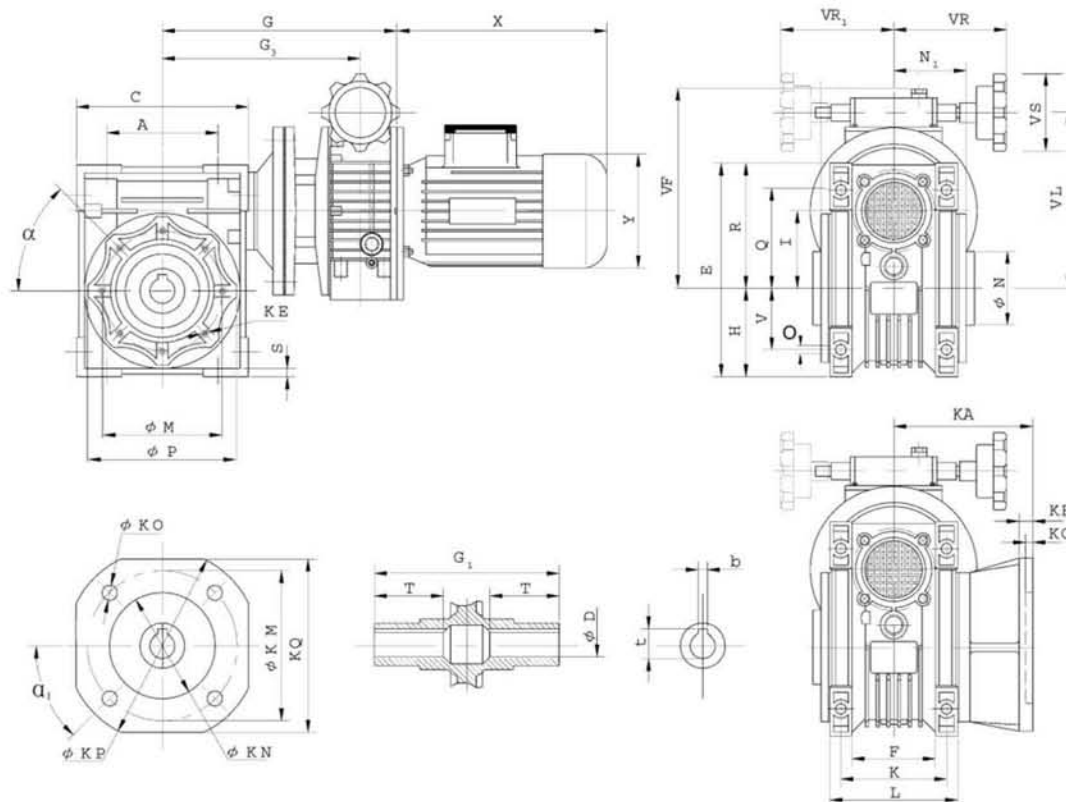
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# Mechanical Speed Variator



## FCNDK/UDL Worm-Variator Dimensions



Size	G	G3	A	K	KC			KE	KM			KN(FB)			KO			M	N(FN)	N1	O	Q	S	V	B	D(B7)	t	T
					F	FB	FL		F	FB	FL	F	FB	FL														
40/0.18	45°	45°	70	60	4	5	4	M6 × 8(n,4)	87	115	87	60	95	60	9(n,4)	9.5(n,4)	9(n,4)	75	60	36.5	6.5	55	6.5	35	660	18(19)	20.8(21.8)	26
50/0.18	45°	45°	80	70	5	5	5	M8 × 10(n,4)	90	130	90	70	110	70	11(n,4)	9.5(n,4)	11(n,4)	85	70	43.5	8.5	64	7	40	880	25(24)	28.3(27.3)	30
50/0.37																												
63/0.37	45°	45°	100	85	6	5	6	M8 × 14(n,8)	150	165	150	115	130	115	11(n,4)	11(n,4)	11(n,4)	95	80	53	8.5	80	8	50	880	25(28)	28.3(31.3)	36
63/0.55																												
63/0.75																												
75/0.37	45°	45°	120	90	6	-	-	M8 × 14(n,8)	165	-	-	130	-	-	14(n,4)	-	-	115	95	57	11	93	10	60	8(10)	28(35)	31.3(38.3)	40
75/0.55																												
75/0.75																												
75/1.1																												
75/1.5																												
90/0.55																												
90/0.75	45°	45°	140	100	6	-	-	M10 × 18(n,8)	175	-	-	152	-	-	14(n,4)	-	-	130	110	67	13	102	11	70	10	35(38)	38.3(41.3)	45
90/1.1																												
90/1.5																												
110/1.1																												
110/1.5	45°		170	115	6	-	-	M10 × 18(n,8)	230	-	-	170	-	-	14(n,8)	-	-	165	130	74	14	125	14	85	12	42	45.3	50
110/2.2																												
110/3.0																												
110/4.0																												
130/1.5																												
130/2.2	45°	22.5°	200	120	6	-	-	M12 × 21(n,8)	255	-	-	180	-	-	16(n,8)	-	-	215	180	81	16	140	15	100	14	45	48.8	60
130/3.0																												
130/4.0																												

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# Mechanical Speed Variator



## FCNDK/UDL Worm-Variator Dimensions Continued

Size	C	E	F	G	G1	G3	H	I	KA			KB			KP			KQ			L	P	R	VF	VL	VS	VR	VR3
									F	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL								
40/0.18	100	121.5	43	183	78	134	50	40	67	76.5	97	7	9	7	110	140	110	95	-	95	71	87	71.5	151	118	85	110	110
50/0.18	120	144	49	193	92	145	60	50	90	87.5	120	9	10	9	125	160	125	110	-	110	85	100	84	161	128	85	110	110
50/0.37				190		154																		173	140	85	110	110
63/0.37	144	174	67	205	112	169	72	63	82	99	112	10	11	10	180	200	180	142	-	142	103	110	102	186	153	85	110	110
63/0.55				234		181																		203	170	110	120	120
63/0.75				234		181																		203	170	110	120	120
75/0.37	172	205	72	223	120	187	86	75	111	-	-	13	-	-	200	-	-	170	-	-	112	140	119	198	165	85	110	110
75/0.55				252		198																		215	182	110	120	120
75/0.75				252		198																		215	182	110	120	120
75/1.1				259.5		207.5																		199	177	110	150	-
75/1.5				300.5		227.5																		219	197	110	150	-
90/0.55	208	238	74	269	140	215	103	90	111	-	-	13	-	-	210	-	-	200	-	-	130	160	135	230	197	110	120	120
90/0.75				269		215																		230	197	110	120	120
90/1.1				276.5		224.5																		214	192	110	150	-
90/1.5				317.5		244.5																		234	212	110	150	-
110/1.1	252.5	295	-	307	155	255	128	110	131	-	-	15	-	-	280	-	-	260	-	-	144	200	168	234	212	110	120	-
110/1.5				348		275																		254	232	110	150	-
110/2.2				368		291																		298	260	110	160	-
110/3.0				368		291																		298	260	110	160	-
110/4.0				368		291																		298	260	110	160	-
130/1.5	292.5	335	-	368	170	295	148	130	140	-	-	15	-	-	320	-	-	290	-	-	155	250	188	274	252	110	150	-
130/2.2				388		311																		318	280	110	160	-
130/3.0				388		311																		318	280	110	160	-
130/4.0				388		311																		318	110	160	-	

## Basic Model

Motor Input (KW)	Variator Model	Ratio	Output	
			$n_2$ (r/min)	$M_2$ (N.m)
0.18KW	UDL0.18	1.6~8.2	880~170	1.5~3
0.37KW	UDL0.37	1.4~7	1000~200	3~6
0.55KW	UDL0.55	1.4~7	1000~200	4~8
0.75KW	UDL0.75	1.4~7	1000~200	6~12
1.1KW	UD1.1	1.4~7	1000~200	9~18
1.5KW	UD1.5	1.4~7	1000~200	12~24
2.2KW	UD2.2	1.4~7	1000~200	18~36
3.0KW	UD3.0	1.4~7	1000~200	24~48
4.0KW	UD4.0	1.4~7	1000~200	32~64
5.5KW	UD5.5	1.4~7	1000~200	45~90
7.5KW	UD7.5	1.4~7	1000~200	59~118

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# Mechanical Speed Variator



## FCNDK/UDL Worm-Variator Performance

Input	Size	Ratio	Output	
			n2(r/min)	M2 (Nm)
P <sub>i</sub> =0.18kw 4p	40/0.18	7.5	117-22.7	9-18
	40/0.18	10	88-17	12-23
	40/0.18	15	58.7-11.3	17-32
	40/0.18	20	44-8.5	22-40
	40/0.18	25	35.2-6.8	27-47
	40/0.18	30	29.3-5.7	30-51
	40/0.18	40	22-4.3	37-62
	50/0.18	40	22-4.3	38-63
	50/0.18	50	17.6-3.4	43-60
	50/0.18	50	17.6-3.4	44-73
	50/0.18	60	14.7-2.8	50-80
	50/0.18	80	11-2.1	59-82
P <sub>i</sub> =0.37kw 4p	50/0.37	7.5	133-26.7	19-36
	50/0.37	10	100-20	25-47
	50/0.37	15	66.7-13.3	36-65
	50/0.37	20	50-10	46-82
	50/0.37	25	40-8	55-97
	50/0.37	30	33.3-6.7	61-107
	50/0.37	40	25-5	76-124
	63/0.37	40	25-5	79-134
	50/0.37	50	20-4	89-120
	63/0.37	50	20-4	92-155
	63/0.37	60	16.7-3.3	104-173
	63/0.37	80	12.5-2.5	125-173
P <sub>i</sub> =0.55kw 4p	63/0.37	100	10-2	139-150
	63/0.55	7.5	133-26.7	26-49
	63/0.55	10	100-20	34-63
	63/0.55	15	66.7-13.3	48-88
	63/0.55	20	50-10	62-112
	63/0.55	25	40-8	75-133
	63/0.55	30	33.3-6.7	81-146
	63/0.55	40	25-5	105-179
	63/0.55	50	20-4	123-207
	75/0.55	50	20-4	129-216
	75/0.55	60	16.7-3.3	146-242
	75/0.55	80	12.5-2.5	176-250
P <sub>i</sub> =0.75kw 4p	90/0.55	80	12.5-2.5	189-309
	90/0.55	100	10-2	218-350
	63/0.75	7.5	133-26.7	39-73
	63/0.75	10	100-20	51-94
	63/0.75	15	66.7-13.3	72-132
	63/0.75	20	50-10	92-168
	63/0.75	25	40-8	112-199
	63/0.75	30	33.3-6.7	126-219
	63/0.75	40	25-5	156-232
	63/0.75	50	20-4	185-310
	75/0.75	50	20-4	192-320
	75/0.75	60	16.7-3.3	219-300
P <sub>i</sub> =1.1kw 4p	90/0.75	60	16.7-3.3	230-389
	90/0.75	80	12.5-2.5	265-428
	110/0.75	80	12.5-2.5	302-503
	90/0.75	100	10-2	303-410
	110/0.75	100	10-2	348-575
	75/1.1	7.5	133-26.7	59-111
	75/1.1	10	100-20	77-144
	90/1.1	10	100-20	78-146
	75/1.1	15	66.7-13.3	110-203
	90/1.1	15	66.7-13.3	113-208
	75/1.1	20	50-10	142-258
	90/1.1	20	50-10	146-266
75/1.1	25	40-8	172-308	
90/1.1	25	40-8	177-320	
75/1.1	30	33.3-6.7	195-340	
90/1.1	30	33.3-6.7	202-356	
75/1.1	40	25-5	245-360	
90/1.1	40	25-5	256-442	



Input	Size	Ratio	Output	
			n2(r/min)	M2 (Nm)
P <sub>i</sub> =1.1kw 4p	90/1.1	50	20-4	304-517
	110/1.1	50	20-4	320-550
	110/1.1	60	16.7-3.3	368-625
	130/1.1	60	16.7-3.3	373-623
	110/1.1	80	12.5-2.5	455-754
	130/1.1	80	12.5-2.5	460-749
	110/1.1	100	10-2	522-710
	130/1.1	100	10-2	531-868
	75/1.5	7.5	133-26.7	78-148
	90/1.5	7.5	133-26.7	77-150
	75/1.5	10	100-20	102-192
	90/1.5	10	100-20	104-195
P <sub>i</sub> =1.5kw 4p	75/1.5	15	66.7-13.3	147-270
	90/1.5	15	66.7-13.3	150-277
	75/1.5	20	50-10	190-344
	90/1.5	20	50-10	194-355
	75/1.5	25	40-8	229-330
	90/1.5	25	40-8	236-427
	75/1.5	30	33.3-6.7	260-390
	90/1.5	30	33.3-6.7	270-474
	75/1.5	40	25-5	327-360
	90/1.5	40	25-5	341-589
	90/1.5	50	20-4	406-560
	110/1.5	50	20-4	426-733
P <sub>i</sub> =2.2kw 4p	110/1.5	60	16.7-3.3	490-833
	130/1.5	60	16.7-3.3	498-831
	130/1.5	80	12.5-2.5	614-999
	130/1.5	100	10-2	696-1100
	110/2.2	7.5	133-26.7	120-226
	110/2.2	10	100-20	157-294
	110/2.2	15	66.7-13.3	228-418
	110/2.2	20	50-10	298-549
	110/2.2	25	40-8	364-664
	110/2.2	30	33.3-6.7	413-717
	110/2.2	40	25-5	533-931
	130/2.2	40	25-5	542-932
P <sub>i</sub> =3.0kw 4p	130/2.2	50	20-4	648-1097
	130/2.2	60	16.7-3.3	746-1246
	130/2.2	80	12.5-2.5	921-1499
	130/2.2	100	10-2	1040-1100
	110/3.0	7.5	133-26.7	160-302
	130/3.0	7.5	133-26.7	160-301
	110/3.0	10	100-20	210-392
	130/3.0	10	100-20	211-395
	110/3.0	15	66.7-13.3	304-558
	130/3.0	15	66.7-13.3	307-563
	110/3.0	20	50-10	398-732
	130/3.0	20	50-10	402-733
P <sub>i</sub> =4.0kw 4p	110/3.0	25	40-8	485-885
	130/3.0	25	40-8	490-885
	110/3.0	30	33.3-6.7	547-956
	130/3.0	30	33.3-6.7	562-973
	110/3.0	40	25-5	711-1030
	130/3.0	40	25-5	720-1242
	130/3.0	50	20-4	864-1463
	110/4.0	7.5	133-26.7	213-402
	130/4.0	7.5	133-26.7	214-401
	110/4.0	10	100-20	279-523
	130/4.0	10	100-20	281-527
	110/4.0	15	66.7-13.3	405-744
130/4.0	15	66.7-13.3	410-751	
110/4.0	20	50-10	530-975	
130/4.0	20	50-10	536-978	
110/4.0	25	40-8	647-1020	
130/4.0	25	40-8	653-1180	
130/4.0	30	33.3-6.7	749-1298	
130/4.0	40	25-5	960-1650	

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## Lubricants

Type	UD Variator	FCNDK Worm gear box			
		25-90	110-130		
Type of lubricant	Synthetic oil	Synthetic oil	Synthetic oil	Mineral oil	
Ambient Temperature	-25°C – +40°C	-25°C – +50°C	-25°C – +50°C	-5°C – +40°C	-15°C – +40°C
ISOVG	VG 320	VG 320	VG 320	VG 460	VG 220
	A.T.F. Dexron	Tivela Oil MB	Tivela Oil MB	Omala Oil 460	Omala Oil 220
<b>Mobil</b>	A.T.F. 220	Glygoyle 30		Mobil gear 634	Mobil gear 630
	A.T.F. Dexron	S220	S220	Spartan EP 460	Spartan EP 220
<b>BP</b>	Aurion IX	Energol SGXP 320		Energol GRXP 460	Energol GRXP 220

## Oil Capacities (litres)

FCNDK Series									
Size	25	30	40	50	63	75	90	110	130
Litre	0.02	0.04	0.08	0.15	0.3	0.55	1	3	4.5
UD Series									
Size	UD 0.18	UD 0.37	UD 0.75	UD 1.5	UD 2.2	UD 4.0	UD 7.5		
Horizontal B3-B5	0.1	0.2	0.4	0.7	1.1	1.1	2.7		
Shaft Up V3-V6	0.1	0.2	0.5	1	2.1	2.1	9.0		
Shaft Down V1-V5	0.3	0.3	0.7	1.2	5.5	5.5	9.0		

## UDL Lubrication

The above figures are for guidance only. Variators are supplied with UB-3 synthetic oil for B3/B5 mounting unless otherwise specified. When assembled to the machine the oil level should be visible up to 2/3rds of the way up the level plug.

After the first 1000 hours of operation the oil should be changed. **Do not mix different types of oil.** Drain completely and flush thoroughly before filling.

**During transportation, the breather cap has two rubber inserts fitted. These must be removed prior to operation.**

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