

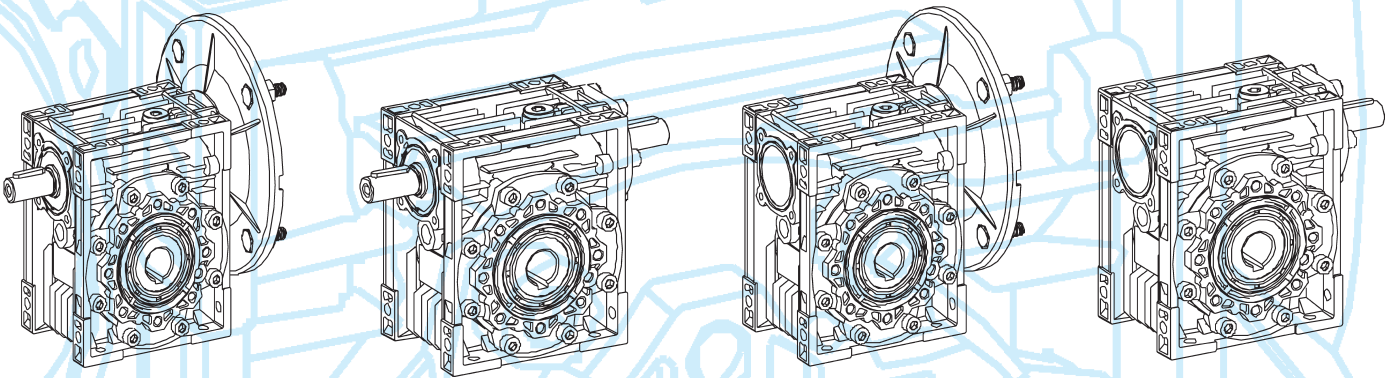


BONVARIO
EURODRIVES

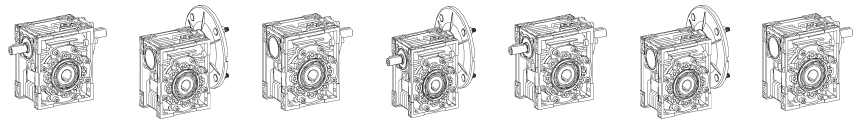
ALUMINIUM CASING GEARBOXES

BL SERIES





BL SERIES GENERAL CATALOGUE



Bonvario Eurodrives BL series Aluminium Casing Gearboxes are manufactured with high quality material in order to guarantee the maximum reliability and strength for long life of the gearbox. Worm shaft are made of steel which are case hardened to 58-60 HRC and profile ground. The thread grinding in the gear ratios that the module value permits is carried out with ZI- profile. This improves the contact between the toothed surface and therefore performance of the gearbox. This also reduces operating noise of the gearbox. The worm wheel has a G20 cast iron hub onto which a casting in AS 1 bronze RIM is fitted.

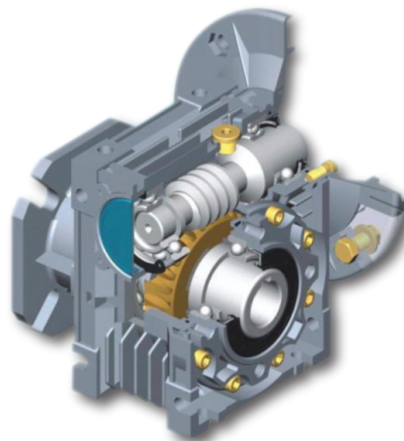
This series Gearbox Housing & flanges are made out to aluminium alloy up to sizes 90 and from size 110 & above cast iron are used. This series gearbox comes with universal mounting options in all sizes.

This series Gearbox are filled with synthetic oil grade ISO VG 320 up to sizes 90 which is virtually maintenance free and does not require oil change during their lifetime. From size 110 & above mineral oil is used in general and synthetic oil on request.

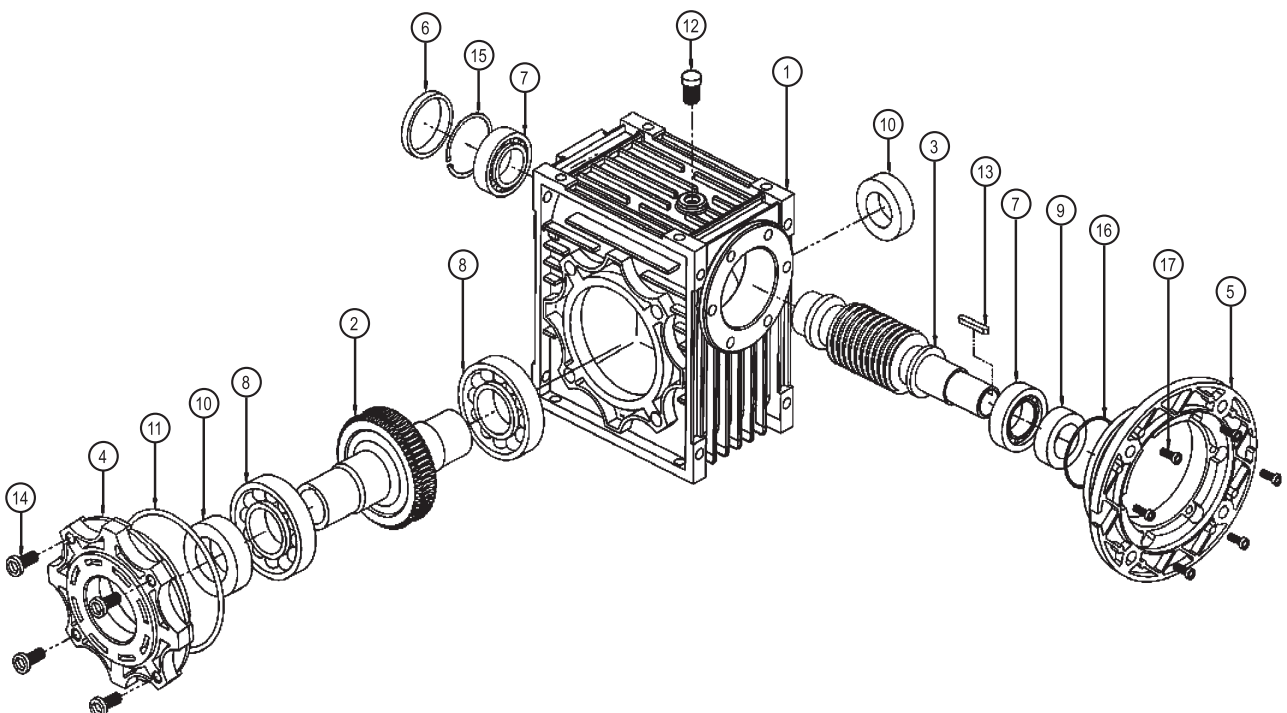
This series gearbox from box 63 & above are mounted with 2 taper roller bearings on the worm shafts improving the mechanical resistance to the axial thrust generated by the worm wheel.

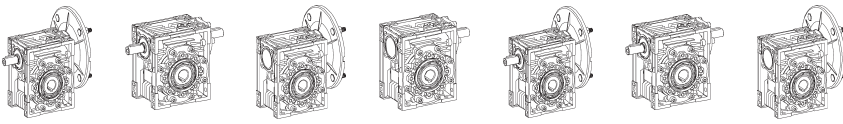
GEARBOX INTERNAL STRUCTURE

No.	Parts
1.	Frame
2.	Worm Wheel
3.	Worm Shaft
4.	Output Shaft Cover
5.	Flange
6.	Seal Cover
7.	Bearing
8.	Bearing
9.	Oil Seal



No.	Parts
10.	Oil Seal
11.	O-ring
12.	Oil Plug
13.	Key
14.	Intl. Key Screw
15.	Snap Ring
16.	O-ring
17.	Intl. Hex Screw

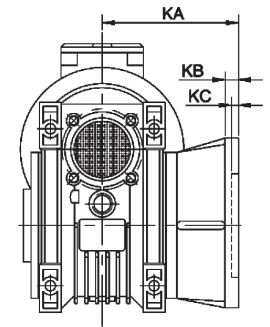
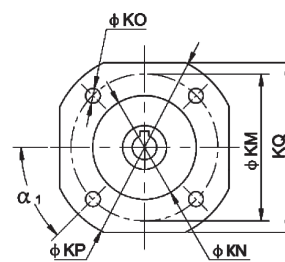
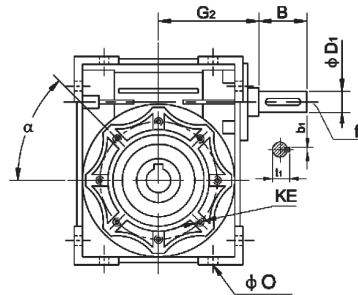
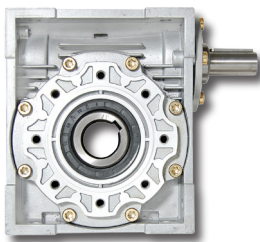




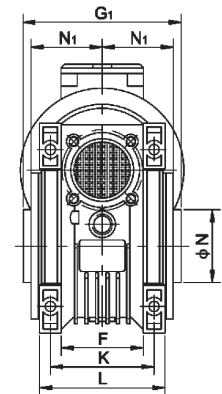
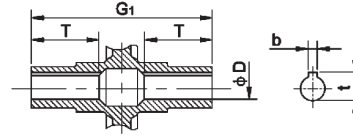
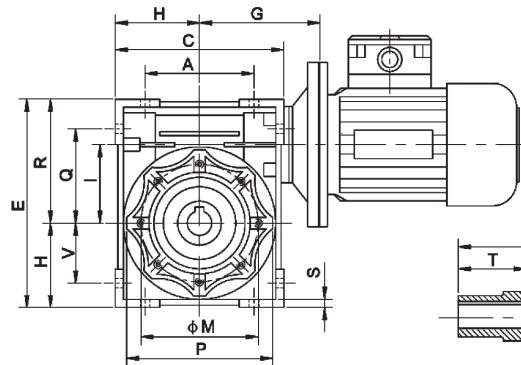
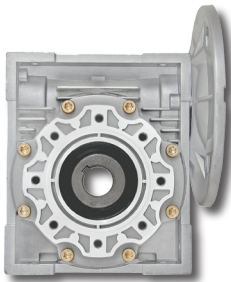
BL SERIES INSTALLATION DIMENSIONS

BL

OUTPUT FLANGE



BLM



Size	A	B	C	D (H7)	D ₁ (J6)	E	F	G	G ₁	G ₂	H	I	L	M	N (h8)	N ₁	O	P	Q	R
30	54	20	80	14	9	97	32	55	63	51	40	30	56	65	55	29	6.5	75	44	57
40	70	23	100	18 (19)	11	121.5	43	70	78	60	50	40	71	75	60	36.5	6.5	87	55	71.5
50	80	30	120	25 (24)	14	144	49	80	92	74	60	50	85	85	70	43.5	8.5	100	64	84
63	100	40	144	25 (28)	19	174	67	95	112	90	72	63	103	95	80	53	8.5	110	80	102
75	120	50	172	28 (35)	24	205	72	112.5	120	105	86	75	112	115	95	57	11	140	93	119
90	140	50	208	35 (38)	24	238	74	129.5	140	125	103	90	130	130	110	67	13	160	102	135
110	170	60	252.5	42	28	295	-	160	155	142	127.5	110	144	165	130	74	14	200	125	167.5
130	200	80	292.5	45	30	335	-	180	170	162	147.5	130	155	215	180	81	16	250	140	187.5
150	240	80	340	50	35	400	-	210	200	192	170	150	185	215	180	96	18	250	180	230

Size	S	T	V	K	KA			KB			KC			KE	α	α ₁	KM			KN (H8)			KO			KP			b	b ₁	f	t	t ₁	kg			
					F	FB	FL	F	FB	FL	F	FB	FL				F	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL							F	FB	FL
30	5.5	21	27	44	54.5	-	-	6	-	-	4	-	-	M6X11 (n,4)	0°	45°	68	-	-	50	-	-	6.5 (n,4)	-	-	80	-	-	70	-	-	5	3	-	16.3	10.2	1.2
40	6.5	26	35	60	67	76.5	97	7	9	7	4	5	4	M6X8 (n,4)	45°	45°	87	115	87	60	95	60	9 (n,4)	9.5 (n,4)	9 (n,4)	110	140	110	95	-	95	6(6)	4	-	20.8 (21.8)	12.5	2.3
50	7	30	40	70	90	87.5	120	9	10	9	5	5	5	M8X10 (n,4)	45°	45°	90	130	90	70	110	70	11 (n,4)	9.5 (n,4)	11 (n,4)	125	160	125	110	-	110	8(8)	5	M6	28.3 (27.3)	16.0	3.5
63	8	36	50	85	82	99	112	10	11	10	6	5	6	M8X14 (n,4)	45°	45°	150	165	150	115	130	115	11 (n,4)	11 (n,4)	11 (n,4)	180	200	180	142	-	142	8(8)	6	M6	28.3 (31.3)	21.5	6.2
75	10	40	60	90	111	-	-	13	-	-	6	-	-	M8X14 (n,4)	45°	45°	165	-	-	130	-	-	14 (n,4)	-	-	200	-	-	170	-	-	8(10)	8	M8	31.3 (38.3)	27.0	9
90	11	45	70	100	111	-	-	13	-	-	6	-	-	M10X18 (n,4)	45°	45°	175	-	-	152	-	-	14 (n,4)	-	-	210	-	-	200	-	-	10 (10)	8	M8	38.3 (41.3)	27.0	13
110	14	50	85	115	131	-	-	15	-	-	6	-	-	M10X18 (n,4)	45°	45°	230	-	-	170	-	-	14 (n,4)	-	-	280	-	-	260	-	-	12	8	M10	45.3	31.0	35
130	15	60	100	120	140	-	-	15	-	-	6	-	-	M12X21 (n,4)	45°	22.5°	255	-	-	180	-	-	16 (n,4)	-	-	320	-	-	290	-	-	14	8	M10	48.8	33.0	48
150	18	72.5	120	145	155	-	-	15	-	-	6	-	-	M12X21 (n,4)	45°	22.5°	255	-	-	180	-	-	16 (n,4)	-	-	320	-	-	290	-	-	14	10	M12	53.8	38.0	84

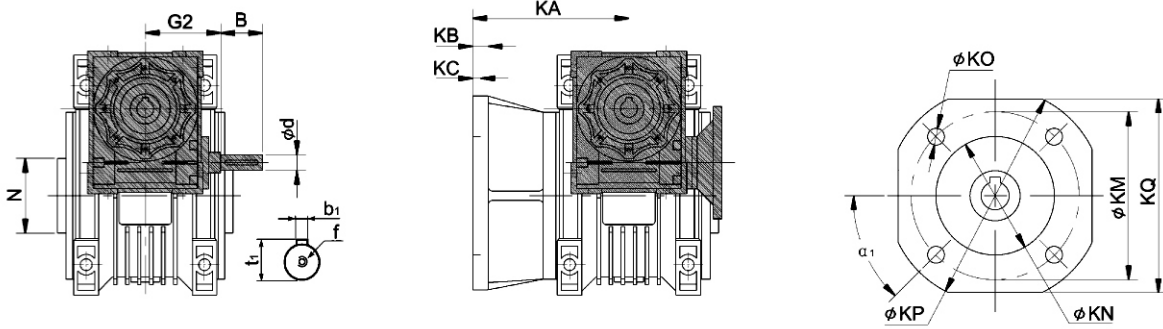
BL - Code for Aluminium Casing Reducer, M - With Motor Mounting Flange, Size - Centre Distance



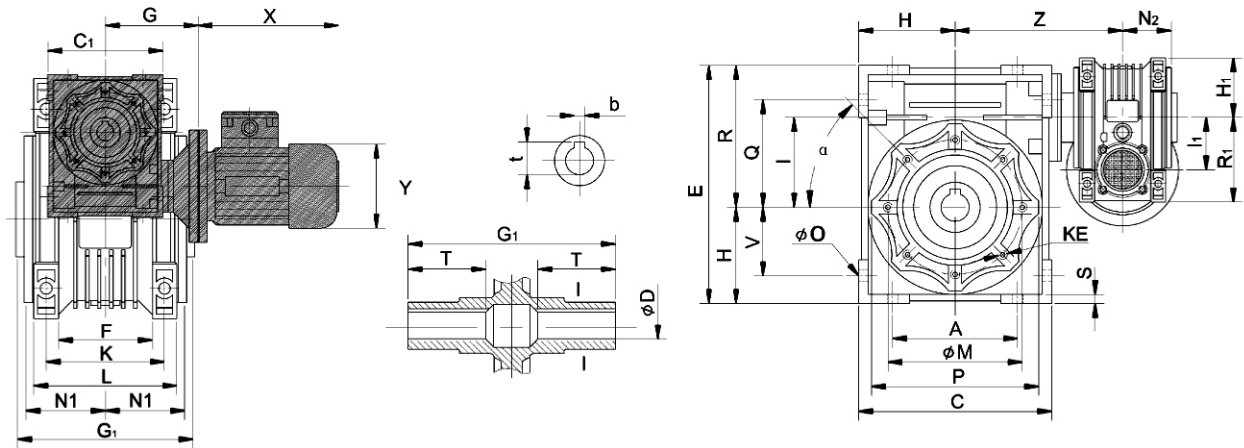
DOUBLE BL (WORM-WORM) SERIES INSTALLATION DIMENSIONS

BL-WW

Output Flange



BLM-WW



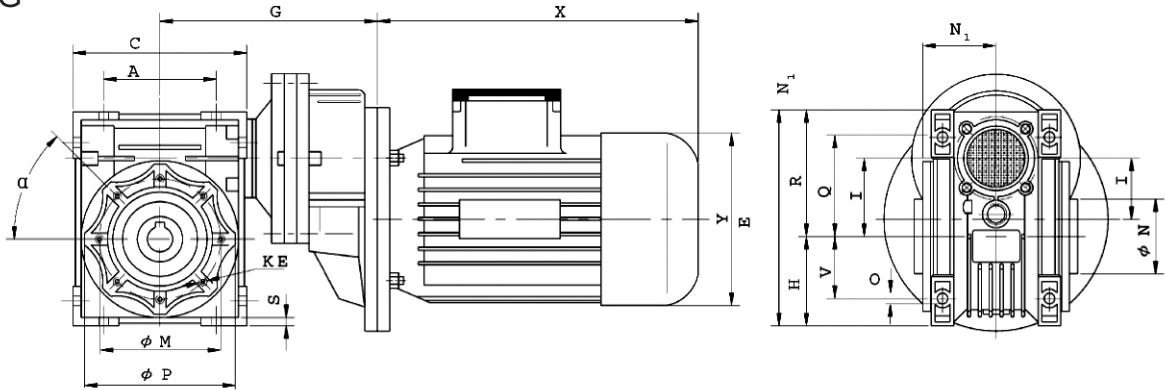
Size	A	B	C	C ₁	D (H7)	d (j6)	E	F	G	G ₁	G ₂	H	H ₁	I	I ₁	L	M	N(h8)	M ₁	N ₂	O	P	Q	R	R ₁	S	T	V	Z	K	KA		
																															F	FB	FL
25/30	54	-	80	70	14	-	97	32	45	63	-	40	35	30	25	55	55	29	22.5	6.5	7.5	44	57	48	5.5	21	27	100	44	54.5	-	-	
25/40	70	-	100	70	18 (19)	-	121.5	43	45	78	-	50	35	40	25	71	75	60	36.5	22.5	6.5	87	55	71.5	48	6.5	26	35	115	60	67	76.5	97
30/40	70	20	100	80	18 (19)	9	121.5	43	55	78	51	50	40	40	30	71	75	60	36.5	29	6.5	87	55	71.5	57	6.5	26	35	120	60	67	76.5	97
30/05	80	20	120	80	25 (24)	9	144	49	55	92	51	60	40	50	30	85	85	70	43.5	29	8.5	100	64	84	57	7	30	40	130	70	90	87.5	120
30/63	100	20	144	80	25 (28)	9	174	67	55	112	51	72	40	63	30	103	95	80	53	29	8.5	110	80	102	57	8	36	50	145	85	82	99	112
40/75	120	23	172	100	28 (35)	11	205	72	70	120	60	86	50	75	40	112	115	95	57	36.5	11	140	93	119	71.5	10	40	60	165	90	111	-	-
40/90	140	23	208	100	35 (38)	11	238	74	70	140	60	103	50	90	40	130	130	110	67	36.5	13	160	102	135	71.5	11	45	70	182	100	111	-	-
50/110	170	30	252.5	120	42	14	295	-	80	155	74	127.5	60	110	50	144	165	130	74	43.5	14	200	125	167.5	84	14	50	85	225	115	131	-	-
63/130	200	40	292.5	144	45	19	335	-	95	170	90	147.5	72	130	63	155	215	180	81	53	16	250	140	187.5	102	15	60	100	245	120	140	-	-
63/150	240	40	340	144	50	19	400	-	95	200	90	170	72	150	63	185	215	180	96	53	18	250	180	230	102	18	72.5	120	275	145	155	-	-

F	KB			KC	KE	α	α ₁	KM			KN (H8)			KO			KP			KQ			b	b ₁	f	t	t ₁	Kg
	FB	FL	FL					F	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL						
6	-	-	-	4	M6 x 11 (n,4)	0°	90°	68	-	-	50	-	-	80	-	-	80	-	-	70	-	-	5	-	-	16.3	-	2.1
7	9	7	4(5)	M6 x 8 (n,4)	45°	90°	87	115	87	60	95	60	9 (n,4)	9.5(n,4)	9(n,4)	110	140	110	95	-	95	6(6)	95	-	20.8(21.8)	-	3.2	
7	9	7	4(5)	M6 x 8 (n,4)	45°	90°	87	115	87	60	95	60	9 (n,4)	9.5(n,4)	9(n,4)	110	140	110	110	-	110	6(6)	110	-	20.8(21.8)	10.2	3.9	
9	10	9	5(5)	M8 x 10 (n,4)	45°	90°	90	130	90	70	110	70	11 (n,4)	9.5(n,4)	11(n,4)	125	160	125	110	-	110	8(8)	110	-	82.3(27.3)	10.2	5.0	
10	11	10	6(5)	M8 x 14 (n,8)	45°	90°	150	165	150	115	130	115	11 (n,4)	11(n,4)	11(n,4)	180	200	180	142	-	142	8(8)	142	-	28.3(31.3)	10.2	7.8	
13	-	-	6	M8 x 14 (n,8)	45°	90°	165	-	-	130	-	-	14 (n,4)	-	-	200	-	-	170	-	-	8(10)	-	-	31.3(38.3)	12.5	12.0	
13	-	-	6	M10 x 18 (n,8)	45°	90°	175	-	-	152	-	-	14 (n,4)	-	-	210	-	-	200	-	-	10(10)	-	-	38.3(41.3)	12.5	16.0	
15	-	-	6	M10 x 18 (n,8)	45°	45°	230	-	-	170	-	-	14 (n,8)	-	-	280	-	-	260	-	-	12	-	M6	45.3	16.0	39.2	
15	-	-	6	M12 x 21 (n,8)	45°	22.5°	255	-	-	180	-	-	16 (n,8)	-	-	320	-	-	290	-	-	14	-	M6	48.8	21.5	55.0	
15	-	-	6	M12 x 21 (n,8)	45°	22.5°	255	-	-	180	-	-	16 (n,8)	-	-	320	-	-	290	-	-	14	-	M6	53.8	21.5	93	

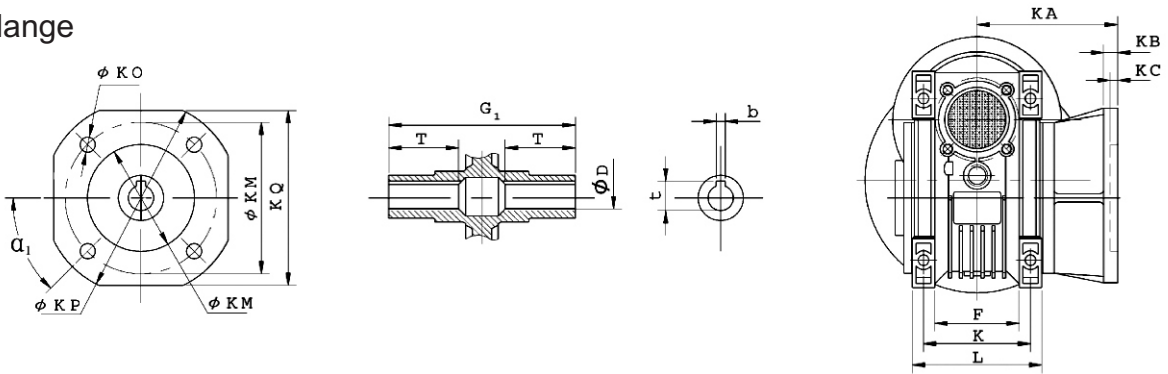


DOUBLE BL (WORM-GEAR) SERIES INSTALLATION DIMENSIONS

BLM-WG



Output Flange

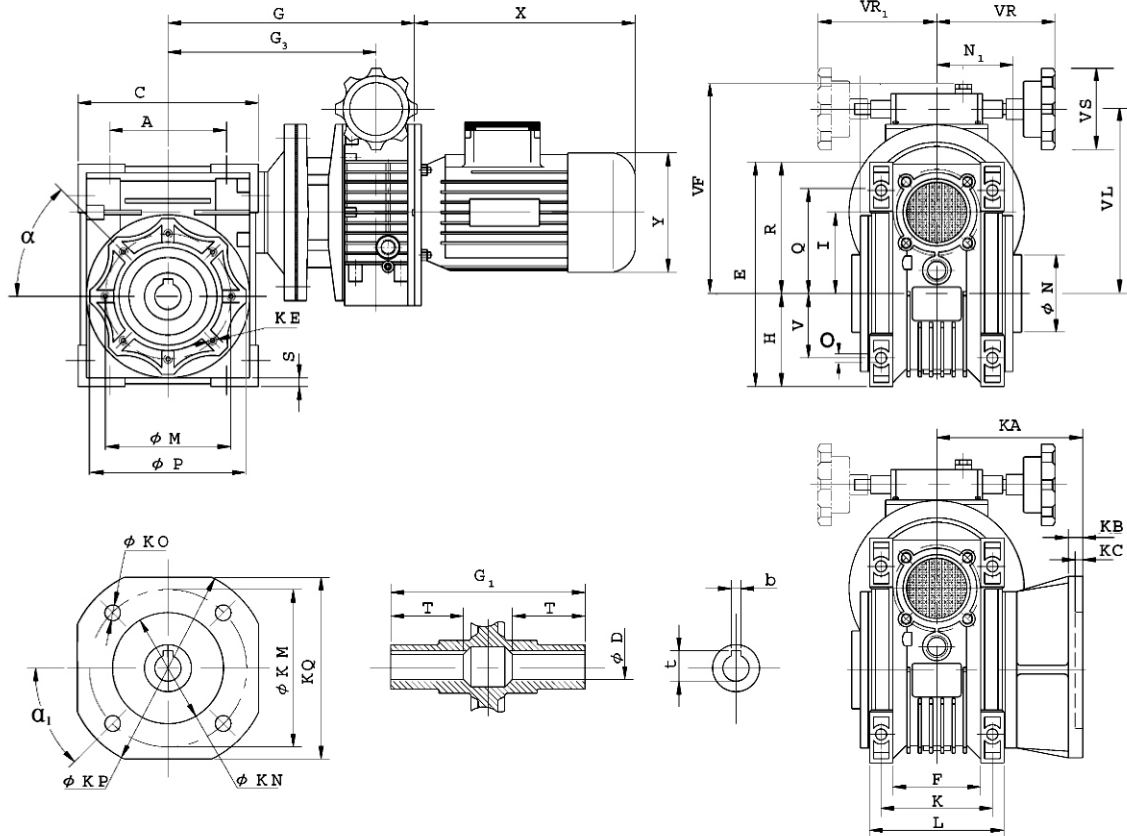


Size	A	C	D(H7)	E	F	G	G ₁	H	I ₁	I	I	M	N(h8)	N ₁	O	P	Q	R	S	T	V	K	KA			KB			KC	KE	α	α ₁
																							F	FB	FL	F	FB	FL				
40/63	70	100	18(19)	121.5	43	123	123	50	40	40	71	75	60	36.5	6.5	87	55	71.5	6.5	25	35	60	67	76.5	97	7	9	7	4(5)	M6 x 8 (n.4)	45°	45°
50/63	80	120	25(24)	144	49	133	133	60	50	40	85	85	70	43.5	8.5	100	64	84	7	30	40	70	90	87.5	120	9	10	9	5(5)	M8 x 10 (n.4)	45°	45°
50/71	80	120	25(24)	144	49	143	143	60	50	50	85	85	70	43.5	8.5	100	64	84	7	30	40	70	90	87.5	120	9	10	9	5(5)	M8 x 10 (n.4)	45°	45°
63/63	100	144	25(28)	174	67	148	148	72	63	40	103	95	80	53	8.5	110	80	102	8	36	50	85	82	99	112	10	11	10	6(5)	M8 x 14 (n.8)	45°	45°
63/71	100	144	25(28)	174	67	158	158	72	63	50	103	95	80	53	8.5	110	80	102	8	40	50	85	82	99	112	10	11	10	6(5)	M8 x 14 (n.8)	45°	45°
75/71	120	172	28(35)	205	72	176	176	86	75	50	112	115	95	57	11	140	93	119	10	40	60	90	111	-	-	13	-	-	6	M8 x 14 (n.8)	45°	45°
75/80	120	172	28(35)	205	72	186	186	86	75	63	112	115	95	57	11	140	93	119	10	40	60	90	111	-	-	13	-	-	6	M8 x 14 (n.8)	45°	45°
90/71	140	208	35(38)	238	74	193	193	103	90	50	130	130	110	67	13	160	102	135	11	45	70	100	111	-	-	13	-	-	6	M10 x 18 (n.8)	45°	45°
90/80	140	208	35(38)	238	74	203	203	103	90	63	130	130	110	67	13	160	102	135	11	45	70	100	111	-	-	13	-	-	6	M10 x 18 (n.8)	45°	45°
110/80(90)	170	252.5	42	295	-	233	233	127.5	110	63	144	165	130	74	14	200	125	167.5	14	50	85	115	131	-	-	15	-	-	6	M10 x 18 (n.8)	45°	45°
130/80(90)	200	292.5	45	335	-	253	253	147.5	130	63	155	215	180	81	16	250	140	187.5	15	60	100	120	140	-	-	15	-	-	6	M12 x 21 (n.8)	45°	45°

Size	KM			KN (H8)			KO			KP			KQ			b	t	Kg
	A	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL	F	FB	FL			
40/63	87	115	87	60	95	60	9(n.4)	9.5(n.4)	9(n.4)	110	140	110	95	-	95	6(6)	20.8 (21.8)	3.9
50/63	90	130	90	70	110	70	11(n.4)	9.5(n.4)	11(n.4)	125	160	125	110	-	110	8(8)	28.3 (27.3)	5.2
50/71	90	130	90	70	110	70	11(n.4)	9.5(n.4)	11(n.4)	125	160	125	110	-	110	8(8)	28.3 (27.3)	5.8
63/63	150	165	150	115	130	115	11(n.4)	11(n.4)	11(n.4)	180	200	180	142	-	142	8(8)	28.3 (31.3)	7.9
63/71	150	165	150	115	130	115	11(n.4)	11(n.4)	11(n.4)	180	200	180	142	-	142	8(8)	28.3 (31.3)	8.5
75/71	165	-	-	130	-	-	14(n.4)	-	-	200	-	-	170	-	-	8(10)	31.3 (38.3)	11.3
75/80	165	-	-	130	-	-	14(n.4)	-	-	200	-	-	170	-	-	8(10)	31.3 (38.3)	13.1
90/71	175	-	-	152	-	-	14(n.4)	-	-	210	-	-	200	-	-	10(10)	38.3 (41.3)	15.3
90/80	175	-	-	152	-	-	14(n.4)	-	-	210	-	-	200	-	-	10(10)	38.3 (41.3)	17.2
110/80(90)	230	-	-	170	-	-	14(n.8)	-	-	280	-	-	260	-	-	12	45.3	39
130/80(90)	235	-	-	180	-	-	16(n.8)	-	-	320	-	-	290	-	-	14	48.8	52.2



BLM-WV (WORM-VARIATOR) SERIES INSTALLATION DIMENSIONS

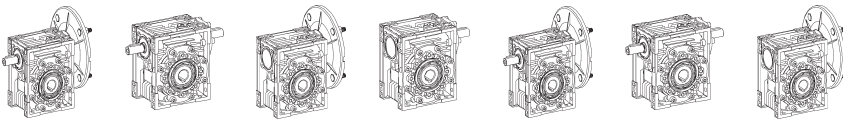


Size	α	α_1	A	K	KC			KE	KM			KN (H8)			KO			M	N(h8)	N ₁	O	Q	S	V	b	D (H7)	t	T
					F	FB	FL		F	FB	FL	F	FB	FL	F	FB	FL											
40/0.18	45°	45°	70	60	4	5	4	M6 x 8 (n,4)	87	115	87	60	95	60	9 (n,4)	9.5 (n,4)	9 (n,4)	75	60	36.5	6.5	55	6.5	35	6(6)	18 (19)	20.8 (21.8)	26
50/0.18	45°	45°	80	70	5	5	5	M6 x 10 (n,4)	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	8(8)	25 (24)	28.3 (27.3)	30
50/0.37																												
63/0.37	45°	45°	100	85	6	5	6	M8 x 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	8(8)	25 (28)	28.3 (31.3)	36
63/0.55																												
63/0.75																												
75/0.37																												
75/0.55	45°	45°	120	90	6	-	-	M8 x 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	110	6	-	-	M10 x 18 (n,8)	175	-	-	152	-	-	14 (n,4)	-	-	130	110	67	13	102	11	70	10 (10)	35 (38)	38.3 (41.3)	45
90/1.1																												
90/1.5																												
110/1.1																												
110/1.5	45°	45°	170	115	6	-	-	M10 x 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	45°	22.5°	200	120	6	-	-	M12 x 21 (n,8)	255	-	-	180	-	-	16 (n,8)	-	-	215	180	81	16	140	15	100	14	45	48.8	60
130/2.2																												
130/3.0																												
130/4.0																												



CONTINUOUS

Size	C	E	F	G	G ₁	G ₃	H	I	KA			FB			KP			KQ			L	P	R	VF	VL	VS	VR	VR ₁
									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
90/0.75	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	-



SELECTION & PERFORMANCE TABLE

Selection example : (For type BL and BLM)

To select a worm gear box for the following application:

Load torque = 27 N.m. **Out-put RPM** = 70.

Duty conditions : (a) Light loading, (b) 60 Starts/Hour, (c) 20 Hrs/Day

1. Refer Table 1 and get the Duty factor “**K**” = **1.38** for the specified duty conditions.

2. Calculate permissible out put torque of the gear box.

$$M2 = K \times \text{Load torque} = 1.38 \times 27 = \mathbf{37.3 \text{ N.m.}}$$

3. To select the gear box model and the power of the drive motor refer Table No. 2.

Under the vertical column for **N2 = 70 RPM** (Ratio **i = 20 : 1**) read various torque values, Select the row which gives a figure nearest to the calculated torque which is **M2 = 37.3 N.m.**

4. The nearest torque value is 39 N-m. has two options of gear boxes. One is with gear box model **BL 40 20** ... and second is with **BL 50 20**...

Table 1

DUTY CONDITIONS				
LOADING	STARTS / HOURS	HOURS / DAY		
		2	8	20
Light Duty	Up to < 30	0.83	1.08	1.25
	Between 30 to 60	←0.92	←1.15	←1.38
	100 or more	1.03	1.25	1.45
Medium Duty	Up to < 30	1.08	1.28	1.48
	Between 30 to 60	1.18	1.38	1.58
	100 or more	1.28	1.48	1.68
Heavy Duty	Up to < 30	1.28	1.48	1.68
	Between 30 to 60	1.38	1.62	1.82
	100 or more	1.55	1.75	1.95

Table 2

GEAR BOX			Speed Ratio (I)																
			7.5	10	15	20	25	30	40	50	60	80	100						
Box Size	Fr. Sz.	Hp	N2 RPM (At Motor Speed N1 = 1400 RPM)																
			187	140	93	70	56	47	35	28	23	17.5	14						
			MAXIMUM OUT-PUT TORQUE M2 (N-m)																
30	63 B5	0.25	8	10	14	1.8	20												
40			8	10	15	19	23	26	32	38									
50										32	38	44	53	55					
40	71 B5	0.35	11	14	20	26	31	36	44										
50			11	14	21	26	32	36	45	53	60	65	55						
63													77	85					
40	71 B5	0.50	16	21	30	39													
50			16	21	31	39	47	54	66	73									
63										70	83	95	114	118					
40	80 B5	0.75	24.5	32															
50			25	32	46	59													
63					46	60	72	80	104	123									
75									108	129	146	180	180						
50	80 B5	1.00	34	44	63														
63			33	44	63	82	99	109	143										
75								116	147	176	200								
90										184	212	257	270						
63	90S B5	1.50	49	65	93	121													
75			49	66	95	122	149	170	216										
90										225	271	311							
110												324	410	460					
75	90L B5	2.00	67	90	130	167	200	230											
90							209	236	306	369									
110											375	442	490						
130													547	652					
90	100L B5	3.00	101	133	193	251	307	346											
110			101	133	192	256	316	355	462	550									
130										567	660	803							
110	112M B5	5.00	170	225	326	429	530	597											
130			172	223	330	431	529	606	793	907									

Also available in B14 Frame Mounting



SELECTION & PERFORMANCE TABLE OF DOUBLE BL (WORM-WORM) SERIES

Size	l	n ₂ (r/min)	KW ₁	M ₂ (N - m)	i ₁	i ₂
25/30	100	14.0	0.09	30	10	10
	150	9.3	0.06	28	7.5	20
	200	7.0	0.06	28	10	20
	250	5.6	0.06	35	10	25
	300	4.7	0.06	31	10	30
	400	3.5	0.06	28	20	20
	500	2.8	0.06	34	20	25
	600	2.3	0.06	31	20	30
	750	1.9	0.06	34	30	25
	900	1.6	0.06	31	30	30
	1200	1.2	0.06	28	30	40
	1500	0.9	0.06	26	30	50
	1800	0.8	0.06	31	60	30
	2400	0.6	0.06	28	60	40
3000	0.5	0.06	26	60	50	
25/40	300	4.7	0.06	59	10	30
	400	3.5	0.06	63	10	40
	500	2.8	0.06	57	10	50
	600	2.3	0.06	65	15	40
	750	1.9	0.06	60	15	50
	900	1.6	0.06	73	30	30
	1200	1.2	0.06	65	30	40
	1500	0.9	0.06	60	30	50
	1800	0.8	0.06	56	30	60
	2400	0.6	0.06	56	40	60
3000	0.5	0.06	60	60	50	
30/40	300	4.7	0.09	70	10	30
	400	3.5	0.06	63	10	40
	500	2.8	0.06	57	20	25
	600	2.3	0.06	72	20	30
	750	1.9	0.06	72	25	30
	900	1.6	0.06	73	30	30
	1200	1.2	0.06	65	30	40
	1500	0.9	0.06	73	50	30
	1800	0.8	0.06	73	60	30
	2400	0.6	0.06	65	60	40
	3200	0.4	0.06	65	80	40
	30/50	300	4.7	0.18	142	10
400		3.5	0.12	127	10	40
500		2.8	0.09	123	10	50
600		2.3	0.09	143	20	30
750		1.9	0.09	148	25	30
900		1.6	0.06	141	30	30
1200		1.2	0.06	118	30	40
1500		0.9	0.06	139	50	30
1800		0.8	0.06	155	60	30
2400		0.6	0.06?	124	60	40
3000		0.5	0.06	120	60	50
30/63		300	4.7	0.22	210	7.5
	400	3.5	0.18	222	10	40
	500	2.8	0.18	205	10	50
	600	2.3	0.12	208	15	40
	750	1.9	0.12	216	15	50
	900	1.6	0.09	200	15	60
	1200	1.2	0.09	236	30	40
	1500	0.9	0.06	204	30	50
	1800	0.8	0.06	202	30	60
	2400	0.6	0.06	220	60	40
	3000	0.5	0.06	223	60	50

Size	l	n ₂ (r/min)	KW ₁	M ₂ (N - m)	i ₁	i ₂	
40/75	300	4.7	0.37	405	10	30	
	400	3.5	0.25	336	10	40	
	500	2.8	0.25	307	10	50	
	600	2.3	0.18	362	20	30	
	750	1.9	0.18	391	25	30	
	900	1.6	0.12	325	30	30	
	1200	1.2	0.12	359	30	40	
	1500	0.9	0.09	360	50	30	
	1800	0.8	0.09	404	60	30	
	2400	0.6	0.06	330	60	40	
	3000	0.5	0.06	301	60	50	
	40/90	300	4.7	0.37	402	7.5	40
		400	3.5	0.37	523	10	40
		500	2.8	0.37	550	10	50
600		2.3	0.37	605	15	40	
750		1.9	0.25	538	15	50	
900		1.6	0.25	533	15	60	
1200		1.2	0.18	629	30	40	
1500		0.9	0.18	588	30	50	
1800		0.8	0.12	492	30	60	
2400		0.6	0.12	625	60	40	
3000	0.5	0.09	548	60	50		
50/110	300	4.7	0.75	817	10	30	
	400	3.5	0.75	1013	10	40	
	500	2.8	0.55	984	10	50	
	600	2.3	0.55	1062	15	40	
	750	1.9	0.55	1128	25	30	
	900	1.6	0.37	1079	30	30	
	1200	1.2	0.25	943	30	40	
	1500	0.9	0.25	1064	50	30	
	1800	0.8	0.25	1075	60	30	
	2400	0.6	0.18	1001	60	40	
	3000	0.5	0.12	884	60	50	
	63/130	300	4.7	1.50	1789	10	30
400		3.5	1.00	1519	10	40	
500		2.8	1.00	1629	10	50	
600		2.3	0.75	1631	15	40	
750		1.9	0.75	1804	25	30	
900		1.6	0.75	1826	30	30	
1200		1.2	0.55	1705	30	40	
1500		0.9	0.37	1674	50	30	
1800		0.8	0.37	1698	60	30	
2400		0.6	0.25	1624	60	40	
3000	0.5	0.25	1548	60	50		
63/150	200	7	1.5	1317	10	20	
	250	5.6	1.5	1602	10	25	
	300	4.7	1.5	1860	10	30	
	400	3.5	1.5	2208	10	40	
	500	2.8	1.1	1893	20	25	
	600	2.3	1.1	2242	20	30	
	750	1.9	0.75	1783	25	30	
	900	1.6	0.75	1994	30	30	
	1200	1.2	0.75	2680	30	40	
	1500	0.9	0.75	2700	50	30	
	1800	0.8	0.37	1775	60	30	
	2400	0.6	0.37	2141	60	40	
	3000	0.5	0.25	1713	60	50	



SELECTION & PERFORMANCE TABLE OF DOUBLE BL (WORM-GEAR) SERIES

Size	Ratio	Input Power	Output		
			n_2 (r/min)	M_2 (N.m)	
40 / 63	75 (3x25)	0.12	18.7	42	
		0.18		49	
	90 (3x30)	0.12	15.6	45	
		0.18		61	
	120 (3x40)	0.12	11.7	50	
		0.18		52	
	150 (3x50)	0.12	9.3	7.8	46
	180 (3x60)			5.8	40
240 (3x80)	4.7			36	
300 (3x100)					
50/	63	75 (3x25)	0.18	18.7	62
	71	79.3 (3.17x25)	0.25	17.7	91
	63	90 (3x30)	0.18	15.6	69
	71	95.1 (3.17x30)	0.25	14.7	102
	63	120 (3x40)	0.18	11.7	85
	71	126.8 (3.17x40)	0.25	11	100
	63	150 (3x50)	0.12	9.3	66
			0.18		89
		180 (3x60)	0.12	7.8	74
			0.18		88
		240 (3x80)	0.12	5.8	78
			0.18		76
300 (3x100)	0.12	4.7	65		
63/	71	79.3 (3.17x25)	0.25	17.7	94
			0.37		139
		95.1 (3.17x30)	0.25	14.7	103
			0.37		153
		126.8 (3.17x40)	0.25	11	129
			0.37		191
	63	150 (3x50)	0.18	9.3	101
	71	158.5 (3.17x50)	0.25	8.8	148
			0.37		176
	63	180 (3x60)	0.18	7.8	115
	71	190.2 (3.17x60)	0.25	7.4	151
	63	240 (3x80)	0.12	5.8	90
			0.18		136
	71	253.6 (3.17x80)	0.25	5.5	139
	63	300 (3x100)	0.12	4.7	101
			0.18		121
	71	317 (3.17x100)	0.25	4.4	128
	75/	80	75 (3x25)	0.55	18.7
0.75				247	
0.92				269	
71		79.3 (3.17x25)	0.37	17.7	143
					225
80		90 (3x30)	0.55	15.6	307
			0.92		300
71		95.1 (3.17x30)	0.37	14.7	160
80		120 (3x40)	0.55	11.7	278
71		126.8 (3.17x40)	0.37	11	198
80		150 (3x50)	0.55	9.3	260
			0.25		156
71		158.5 (3.17x50)	0.37	8.8	231

Size	Ratio	Input Power	Output		
			n_2 (r/min)	M_2 (N.m)	
75/71	190.2 (3.17x60)	0.25	7.4	178	
		0.37		236	
	253.6 (3.17x80)	0.25	5.5	208	
90/	317 (3.17x100)		4.4	214	
	80	90 (3x30)	0.55	15.6	235
			0.75		320
		120 (3x40)	0.55	11.7	291
			0.75		397
		150 (3x50)	0.55	9.3	347
			0.75		426
	180 (3x60)	0.55	7.8	390	
		0.75		425	
	71	190.2 (3.17x60)	0.37	7.4	278
	80	240 (3x80)	0.55	5.8	374
0.37			5.5		332
71	317 (3.17x100)	0.37	4.4	345	
110/	90	72.6 (2.42x30)	19.3	1.1	384
				1.5	524
				1.8	629
	80	74 (3x25)	0.75	14.5	293
	90	96.8 (2.42x40)	1.1	14.5	498
			1.5		697
			1.8		815
	80	120 (3x40)	0.75	9.3	421
	90	121 (2.42x50)	1.1	11.6	587
			1.5		801
			1.8		768
		145.2 (2.42x60)	1.1	9.6	673
			1.5		733
			1.8		733
	80	150 (3x50)	0.75	7.8	496
90	180 (3x60)	0.55	7.8	417	
		0.75		569	
90	193.6 (2.42x80)	1.1	7.2	648	
80	240 (3x60)	0.55	5.8	503	
		0.75		617	
300 (3x100)	0.55	4.7	585	585	
130/	90	72.6 (2.42x30)	19.3	1.1	390
				1.5	531
				1.8	638
	96.8 (2.42x40)	1.1	14.5	498	
		1.5		679	
		1.8		815	
	121 (2.42x50)	1.1	11.6	596	
		1.5		813	
		1.8		976	
		1.1		673	
		1.5		917	
		1.5		1101	
	193.6 (2.42x80)	1.1	7.2	826	
		1.5		1013	
	80	240 (3x80)	0.75	5.8	698
	90	242 (2.42x100)	1.1	4.7	848
			0.55		585
	300 (3x100)	0.75	4.7	797	



SELECTION & PERFORMANCE TABLE OF DOUBLE BL (WORM-VARIATOR) SERIES

Input	Size	Ratio	Output	
			n_2 (r/min)	M_2 (N.m)
$P_i = 0.18\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
	50/0.18	100	8.8~1.7	66~79
$P_i = 0.37\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
	63/0.37	100	10~2	139~150
$P_i = 0.55\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
	90/0.55	80	12.5~2.5	189~309
	90/0.55	100	10~2	218~350
$P_i = 0.75\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
	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	
$P_i = 1.1\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	
			n_2 (r/min)	M_2 (N.m)
$P_i = 1.1\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
$P_i = 1.5\text{kw}$ 4p $n_1 = 1400\text{r/min}$	75/1.5	10	100~20	102~192
	90/1.5	10	100~20	104~195
	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
$P_i = 2.2\text{kw}$ 4p $n_1 = 1400\text{r/min}$	110/1.5	50	20~4	426~733
	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
130/2.2	50	20~4	648~1097	
$P_i = 3.0\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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
	130/3.4	20	50~10	402~733
	110/3.0	25	40~8	485~885
	130/3.0	25	40~8	490~885
$P_i = 4.0\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	



LUBRICANTS

Reducer type	BV Series Variator	BL gear box				BVF gear box	
		25 ~ 90	110 ~ 130		30 ~ 63A	85 ~ 110	
Type of Lubricant	Synthetic Oil	Synthetic Oil	Synthetic Oil	Mineral Lubrication Oil		Grease	Synthetic Oil
Ambient Temperature	-25°C ~ +40°C	-25°C ~ +50°C	-25°C ~ +50°C	-5°C ~ +40°C	-15°C ~ +40°C	-5°C ~ +40°C	-15°C ~ +25°C
ISO VG	VG 320	VG 320	VG 320	VG 460	VG 220		VG 220
	A.T.F. Dexron	Tivela Oil WB	Tivela Oil WB	Omala Oil 460	Omala Oil 220	Tivela Compound A	Tivela Oil WB
Mobil	A.T.F. 220	Glygoyle 30		Mobil gear 634	Mobil gear 630	Glygoyle Grease 00	Glygoyle 30 SHC 630
	A.T.F. Dexron	S220	S220	Spartan EP 460	Spartan EP 220	Grease S420	
BP	Autran DX	Energol SGXP 320		Energol GRXP 460	Energol GRXP 220		Energol GRXP 220

Oil Capacities

	BL								
Size	25	30	40	50	63	75	90	110	130
(1)	0.02	0.04	0.08	0.15	0.3	0.55	1	3	4.5

	BVF						
Size	30	45	50	63	63A	85	110
(Kg)	0.065	0.09	0.16	0.38	0.38		
(1)						1.2	2.8/1.8

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GEARBOXES
GEARED MOTORS
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CORRESPONDENCE ADDRESS



ITALY

Via San Francesco d'Assisi N-22A
Torino - 10121
ITALY
Email: info@bonvario.com



GERMANY

Gablonzer Ring 29 / 4186
Kaufbeuren
Bayern - 87600
GERMANY
Email : sales.germany@bonvario.com



USA

4281 Express Lane
Suite N-4164
Sarasota, FLORIDA 34238
UNITED STATES OF AMERICA
Email : sales.usa@bonvario.com



CANADA

795 Lakeshore Dr, Suite-307
Dorval, Quebec
H9S 0A8
CANADA
Email : sales.canada@bonvario.com



INDIA

15/24, Main Mathura Road
Badarpur, Near NTPC gate
New Delhi – 110044
INDIA
Email: sales.india@bonvario.com
Tel.: 011-29949306, 29949307

CHANNEL PARTNER: