

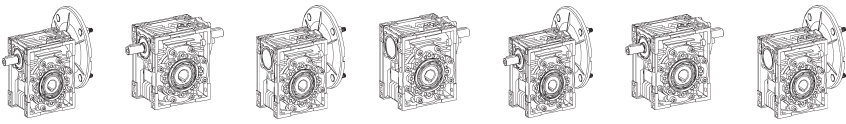


BONVARIO
EURODRIVES

ALUMINIUM CASING GEARBOXES

BL SERIES





BONVARIO Group born in 1981 is presently one of the leading industrial automation products suppliers in Italy. Our Automation solutions are widely accepted worldwide majorly in countries like Germany, UK, Russia, Belgium, Denmark, Spain, Romania, Turkey, USA, Canada, Australia, South Africa, India and Japan. Our products are sold globally through various Branch offices, Automation solution centres and channel partners who are dedicated to serve our customers not only with reliable products but also with reliable pre n post sales assistance.

The name Bonvario came from joining two words - Bon & Vario, Bon is a French word which means good and Vario is an Italian word which means varied or various. These two words were coupled together to project good various speed gearboxes or geared motors which has always been the true identity of our group.

BONVARIO is innovation, quality, and service all in one. We prove this to our customers every day and have done so for the last 3 decades. We do not just move countless conveyer belts, bottling plants, assembly lines, processes in the chemical industry, your luggage at the airport, or even you on escalators. We also are moving ourselves. In our company everyday new researches are initiated and improvements are done based on results to shape a better automated future. Collectively more than 1100 employees & our various automation solution centres, around the world are moving to develop solutions that help you optimize your process. This is how Bonvario has evolved to become a major supplier of gearboxes & motors in the world market today with a turnover of euro 61 million.

PRODUCT RANGE

ALUMINIUM CASING GEARBOXES



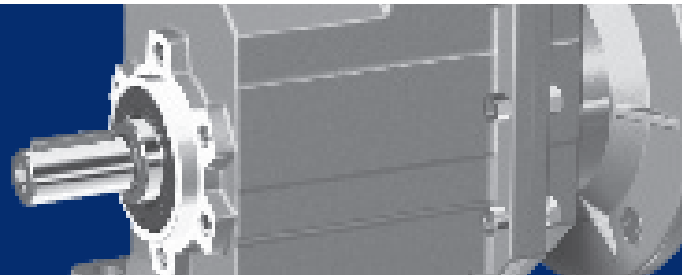
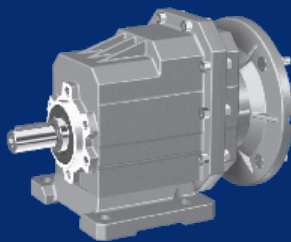
BL SERIES



BVF SERIES

HELICAL GEARBOXES

BON SERIES



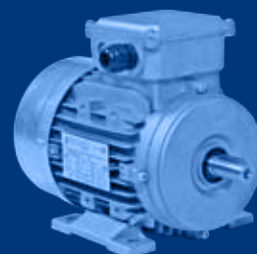
HELICAL GEARBOXES



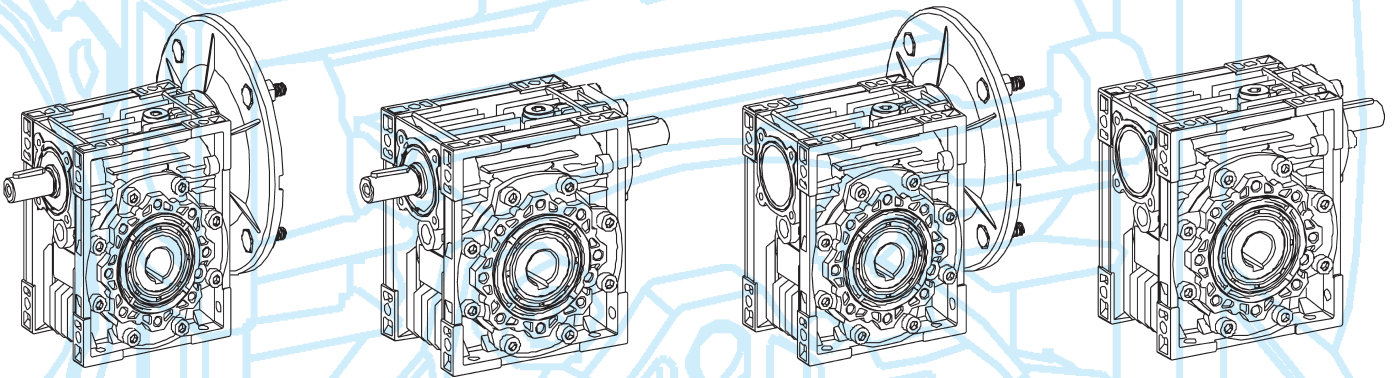
BH SERIES



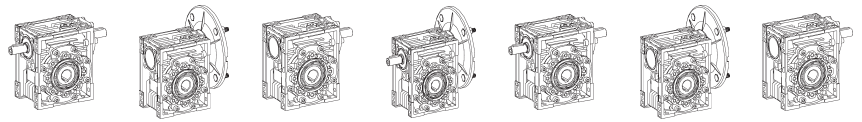
ELECTRIC MOTORS



BM 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.

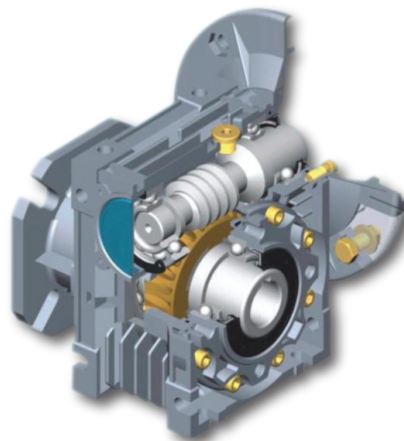
This series Gearbox Housing & flanges are made out to aluminium alloy up to sizes 90 and from size 110 & above cast iron are used. This series gearbox comes with universal mounting options in all sizes.

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.

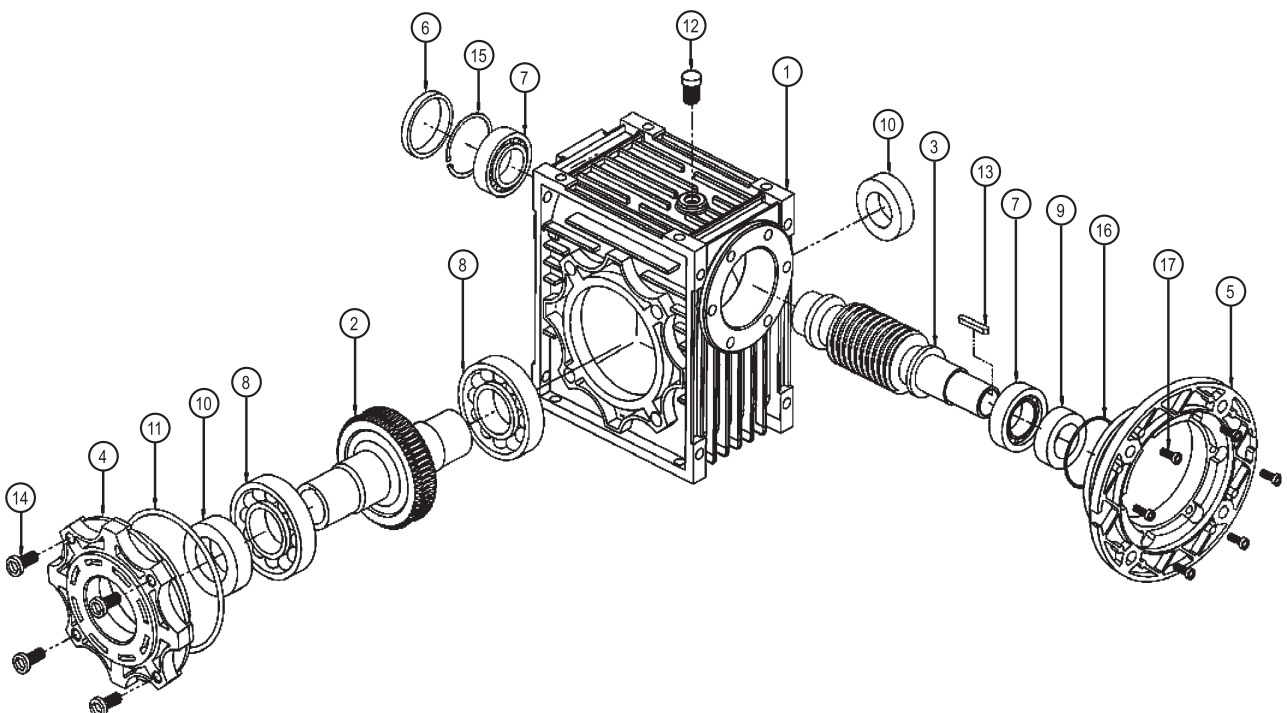
This series gearbox from box 63 & above are mounted with 2 taper roller bearings on the worm shafts improving the mechanical resistance to the axial thrust generated by the worm wheel.

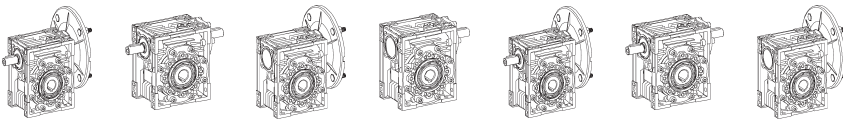
GEARBOX INTERNAL STRUCTURE

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

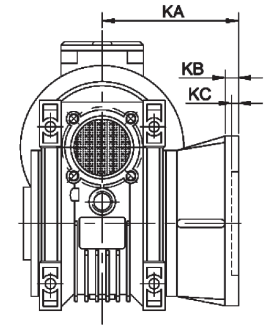
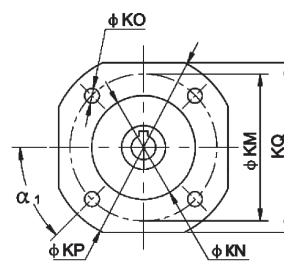
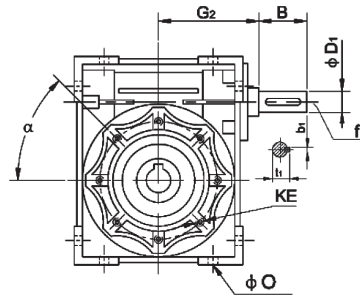
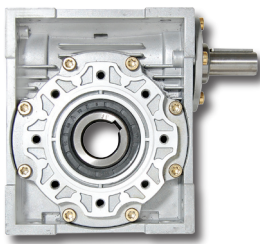




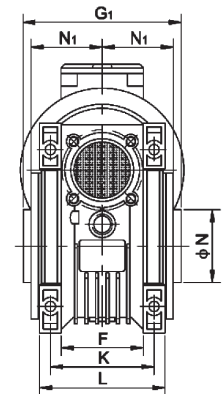
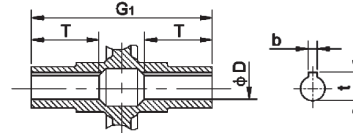
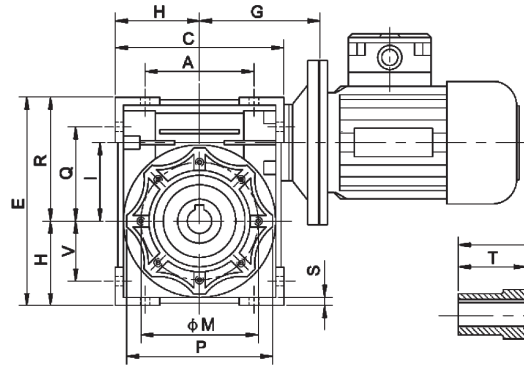
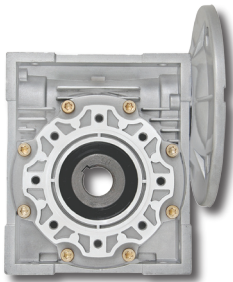
BL SERIES INSTALLATION DIMENSIONS

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			KO	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
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

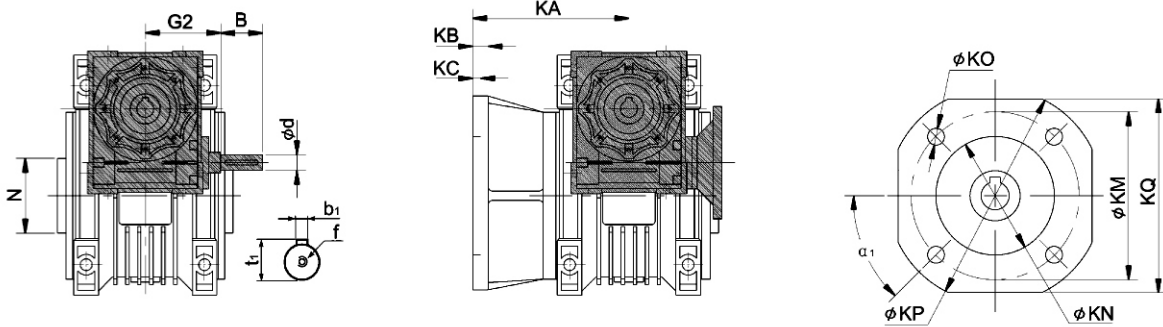
BL - Code for Aluminium Casing Reducer, M - With Motor Mounting Flange, Size - Centre Distance



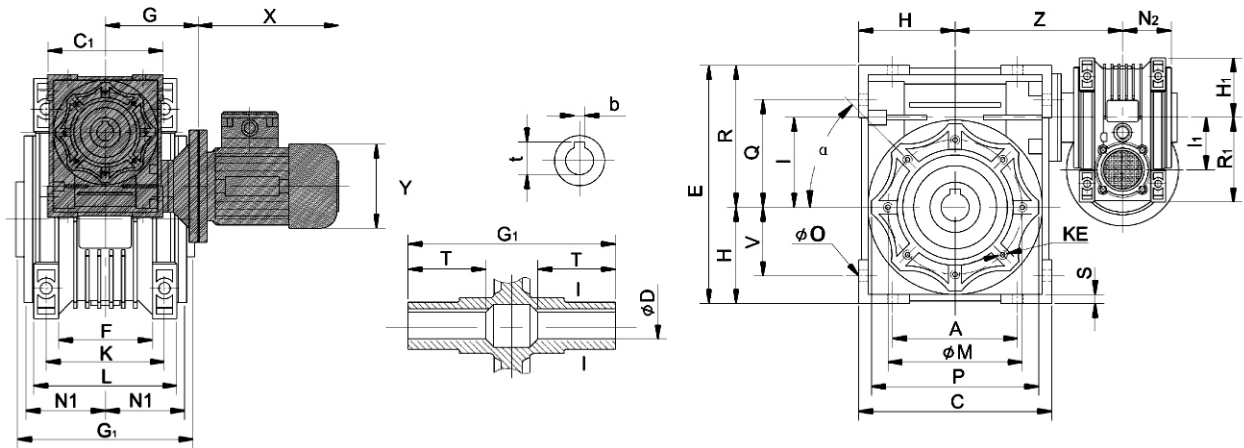
DOUBLE BL (WORM-WORM) SERIES INSTALLATION DIMENSIONS

BL-WW

Output Flange



BLM-WW



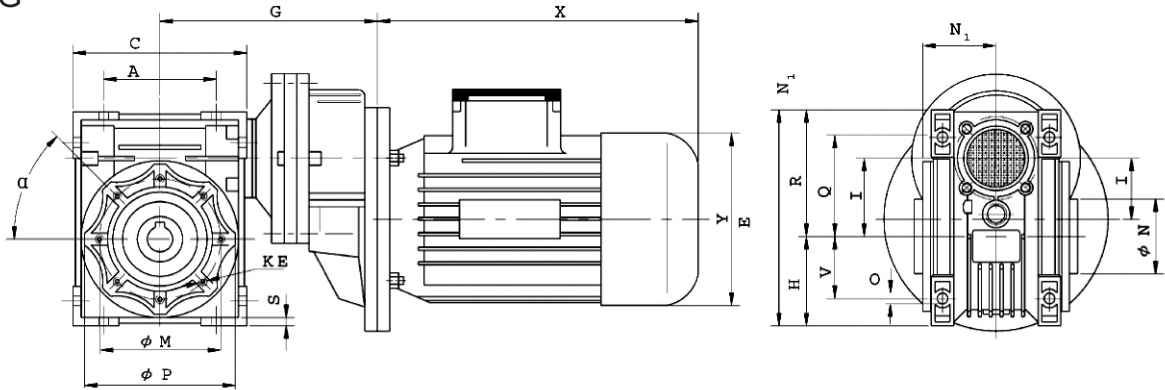
Size	A	B	C	C ₁	D (H7)	d (j6)	E	F	G	G ₁	G ₂	H	H ₁	I	I ₁	L	M	N(h8)	M ₁	N ₂	O	P	Q	R	R ₁	S	T	V	Z	K	KA		
																															F	FB	FL
25/30	54	-	80	70	14	-	97	32	45	63	-	40	35	30	25	55	65	55	29	22.5	6.5	7.5	44	57	48	5.5	21	27	100	44	54.5	-	-
25/40	70	-	100	70	18 (19)	-	121.5	43	45	78	-	50	35	40	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
	F	FB	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	

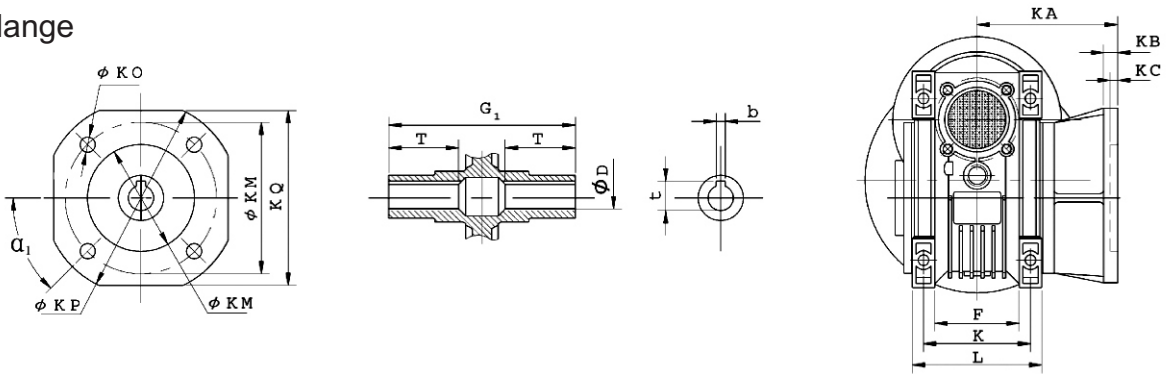


DOUBLE BL (WORM-GEAR) SERIES INSTALLATION DIMENSIONS

BLM-WG



Output Flange

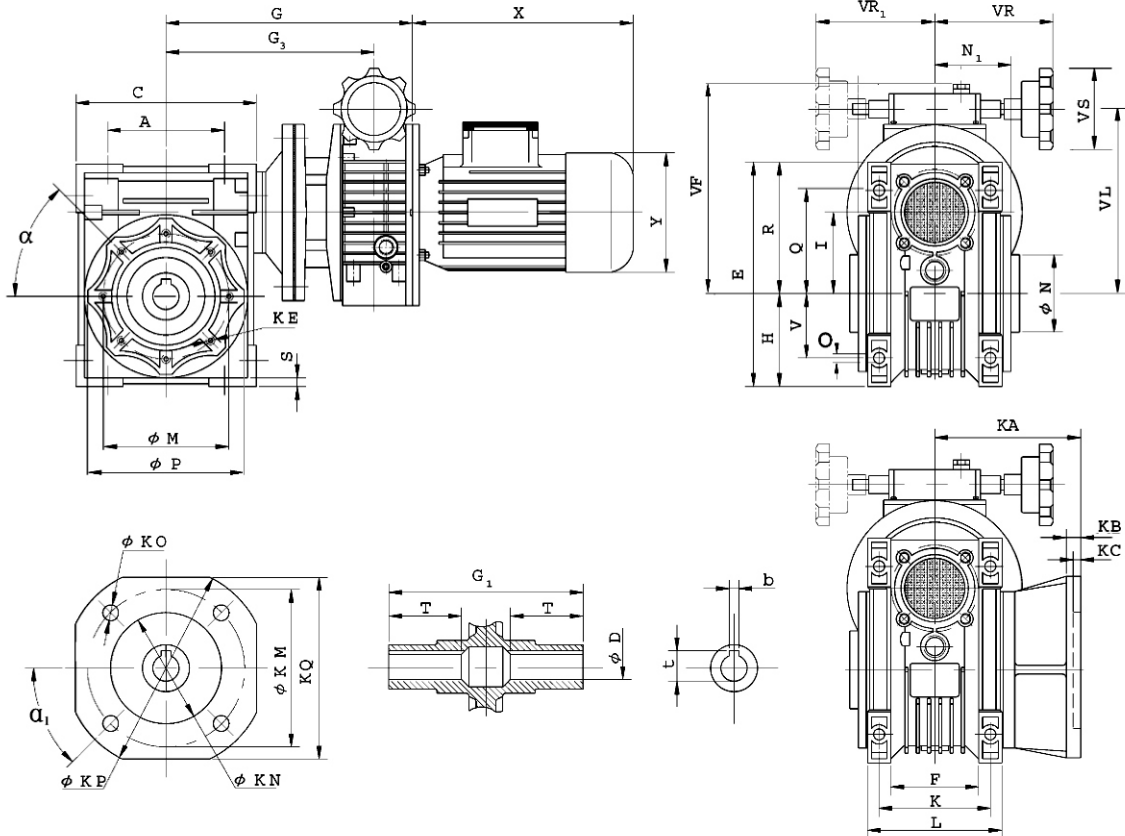


Size	A	C	D(H7)	E	F	G	G ₁	H	I ₁	I	I	M	N(h8)	N ₁	O	P	Q	R	S	T	V	K	KA			KB			KC	KE	α	α ₁
																							F	FB	FL	F	FB	FL				
40/63	70	100	18(19)	121.5	43	123	123	50	40	40	71	75	60	36.5	6.5	87	55	71.5	6.5	25	35	60	67	76.5	97	7	9	7	4(5)	M6 x 8 (n.4)	45°	45°
50/63	80	120	25(24)	144	49	133	133	60	50	40	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

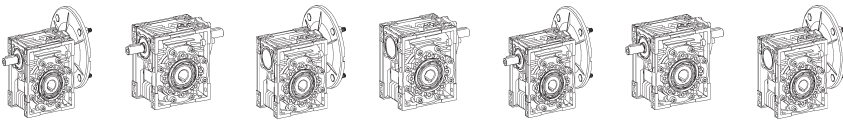


Size	α	α_1	A	K	KC			KE	KM			KN (H8)			KO			M	N(h8)	N ₁	O	Q	S	V	b	D (H7)	t	T
					F	FB	FL		F	FB	FL	F	FB	FL	F	FB	FL											
40/0.18	45°	45°	70	60	4	5	4	M6 x 8 (n,4)	87	115	87	60	95	60	9 (n,4)	9.5 (n,4)	9 (n,4)	75	60	36.5	6.5	55	6.5	35	6(6)	18 (19)	20.8 (21.8)	26
50/0.18	45°	45°	80	70	5	5	5	M6 x 10 (n,4)	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)										
Box Size	Fr. Sz.	Hp	7.5	10	15	20	25	30	40	50	60	80	100
			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
				5.8	40
4.7	36				
180 (3x60)	7.8			8.8	42
				7.4	39
240 (3x80)	5.8			6.5	36
				6.1	34
300 (3x100)	4.7			5.5	32
		5.2	30		
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		
	0.18		62		
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
			0.55		225
80		90 (3x30)	0.75	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)	0.25	4.4	214	
				0.55	235
	90 (3x30)	0.75	15.6	320	
		0.55		291	
	120 (3x40)	0.75	11.7	397	
		0.55		347	
	150 (3x50)	0.75	9.3	426	
		0.55		390	
	180 (3x60)	0.75	7.8	425	
		0.55		390	
	71	190.2 (3.17x60)	0.37	7.4	278
	80	240 (3x80)	0.55	5.8	374
	71	253.6 (3.17x80)	0.37	5.5	332
			0.37		345
	110/	90	72.6 (2.42x30)	1.1	19.3
1.5				524	
1.8				629	
80		74 (3x25)	0.75	14.5	293
			1.1		498
90		96.8 (2.42x40)	1.5	14.5	697
			1.8		815
80		120 (3x40)	0.75	9.3	421
			1.1		587
90		121 (2.42x50)	1.1	11.6	587
			1.5		801
			1.8		768
90	145.2 (2.42x60)	1.1	9.6	673	
		1.5		733	
		1.5		733	
80	150 (3x50)	0.75	9.3	496	
		0.55		417	
90	180 (3x60)	0.75	7.8	569	
		0.55		417	
90	193.6 (2.42x80)	1.1	7.2	648	
		0.55		503	
80	240 (3x60)	0.75	5.8	617	
		0.55		585	
130/	90	300 (3x100)	1.1	19.3	390
			1.5		531
			1.8		638
	90	72.6 (2.42x30)	1.1	14.5	498
			1.5		679
			1.8		815
	90	96.8 (2.42x40)	1.1	11.6	596
			1.5		813
	90	121 (2.42x50)	1.1	9.6	673
			1.5		917
			1.5		1101
	90	145.2 (2.42x60)	1.1	7.2	826
			1.5		1013
	80	193.6 (2.42x80)	0.75	5.8	698
			1.1		848
90	242 (2.42x100)	0.55	4.7	585	
		0.75		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	
	50/0.37	7.5	133~26.7	19~36	
$P_i = 0.37\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	
$P_i = 1.1\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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		
			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	
	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	
$P_i = 1.5\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	
	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	
$P_i = 2.2\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	
	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	
	$P_i = 3.0\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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	
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	
$P_i = 4.0\text{kw}$ 4p $n_1 = 1400\text{r/min}$	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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ITALY ■ GERMANY ■ USA ■ CANADA ■ INDIA



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: