PLANETARY SERVO GEAR BOX

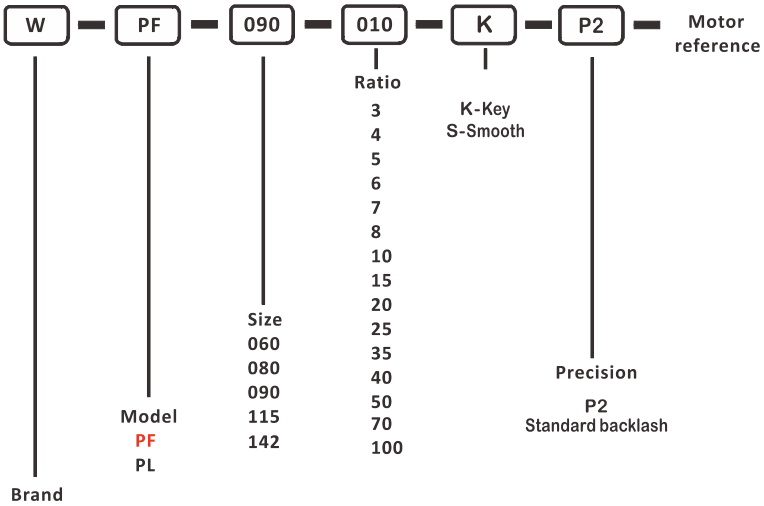
WPF SERIES

FEATURES

- Planetary arm bracket and output shaft are one-piece constructed to ensure maximum torsional rigidity.
- The gears adopt the full-needle design,in order to broaden the contact area and to increasing the structure rigidity and the output torque.
- The mild-steel gears' hardness of adopting surface hardening technology is HRC62 ,so that the abrasion resistance and impact toughness can achieve best.
- Because adopting high technology to design the tooth profiles , the best gear tooth profiles are obtained and the noise are reduced.
- In case to gain power transmission,the maximum clamping force and zero backlash(ultra-precision) are obtained by adopting double-locked method between the gearbox input side and the motor shaft.

INDICATION FOR MODEL

SELECTION



GENERAL NOTICES

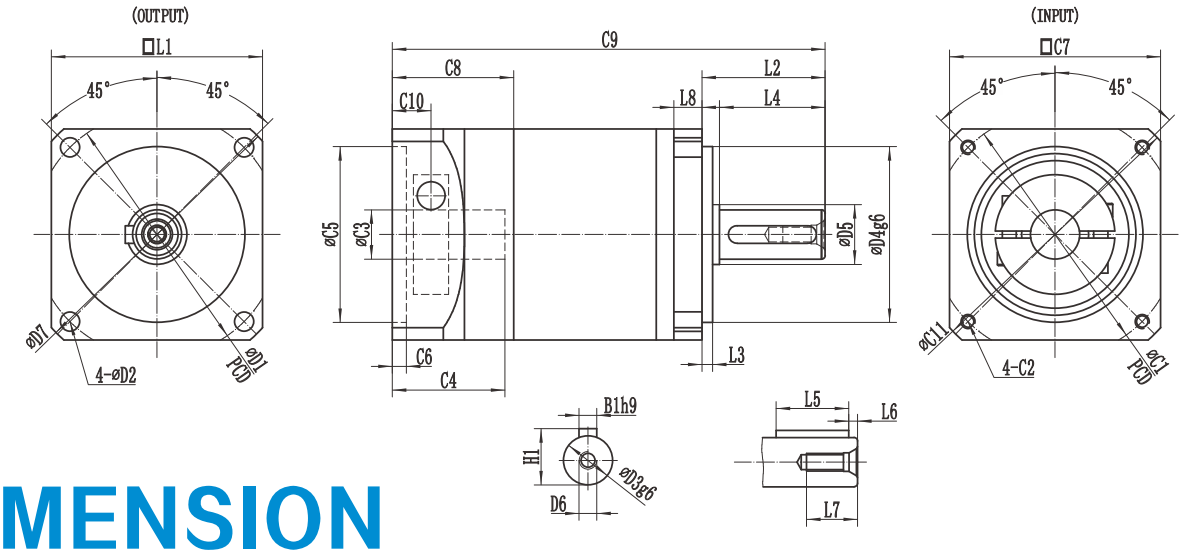
- Type, model and torque
- Ratio or output speed
- Working conditions and connection methods
- Quantity and installed machine name
- Input mode and input speed
- Motor brand model or flange and motor shaft size

PLANETARY GEARBOX

Performance

Specification		Stage	Ratio	WPF042	WPF060	WPF080	WPF090	WPF115	WPF142
Rated output torque T_{2N}	Nm	1	3	11	18	40	50	125	290
			4	15	36	90	110	230	460
			5	14	40	110	125	260	550
			6	8.5	20	40	50	90	340
			7	8.5	20	40	50	90	340
			8	6	12	22	32	70	210
			10	5	12	22	32	70	210
		2	12	20	36	90	110	230	460
			15	18	40	110	125	260	550
			16	20	36	90	110	230	460
			20	20	40	110	125	260	550
			25	18	40	110	125	260	550
			28	15	36	90	110	230	460
			30	14	18	40	50	125	290
			35	20	40	110	125	260	550
			40	18	36	90	110	230	460
			50	14	40	110	125	260	550
			60	8.5	20	40	50	90	340
			70	8.5	20	40	50	90	340
			80	6	12	22	32	70	210
			100	5	12	22	32	70	210
Motor shaft size	mm	1,2	3–100	6-10	6–14	14–19	14–19	16–24	19–35
Maximum output torque	Nm	1,2	3–100	Double rated output torque					
Rated input speed n_{1N}	rpm	1,2	3–100	5000	4000	3500	3500	3500	2500
Backlash	arcmin	1	3–10	⩽15	⩽10	⩽10	⩽10	⩽10	⩽10
		2	12–100	⩽19	⩽12	⩽12	⩽12	⩽12	⩽12
Torsional rigidity	Nm/arcmin	1,2	3–100	0.7	1.8	4.7	4.85	11	55
Allowable radial force F_{2aB}	N	1,2	3–100	160	220	400	430	1000	4500
Allowable axial force F_{2aB}	N	1,2	3–100	160	240	420	450	1240	4800
Lifespan	hr	1,2	3–100	10000					
Efficiency	%	1	3–10	⩾94					
		2	12–100	⩾91					
Weight	kg	1	3–10	0.35	1.7	3.5	4.4	12	26.5
		2	12–100	0.45	1.9	4	5	14	29.6
Working temperature	℃	1,2	3–100	−10℃~80℃					
IP Grade		1,2	3–100	IP65					
Lubricating				Synthetic lubricating grease					
Installation direction		1,2	3–100	In any direction					
Noise value (n1=3000rpm,) (n1=3000rpm,off load)	dB(A)	1,2	3–100	⩽60	⩽61	⩽63	⩽63	⩽68	⩽75

1. Ratio ($i=N_{in}/N_{out}$)
2. Maximum acceleration torque T_{2B} =60% of T_{2NOT}
3. Output speed100rpm,acting on the center of the output shaft

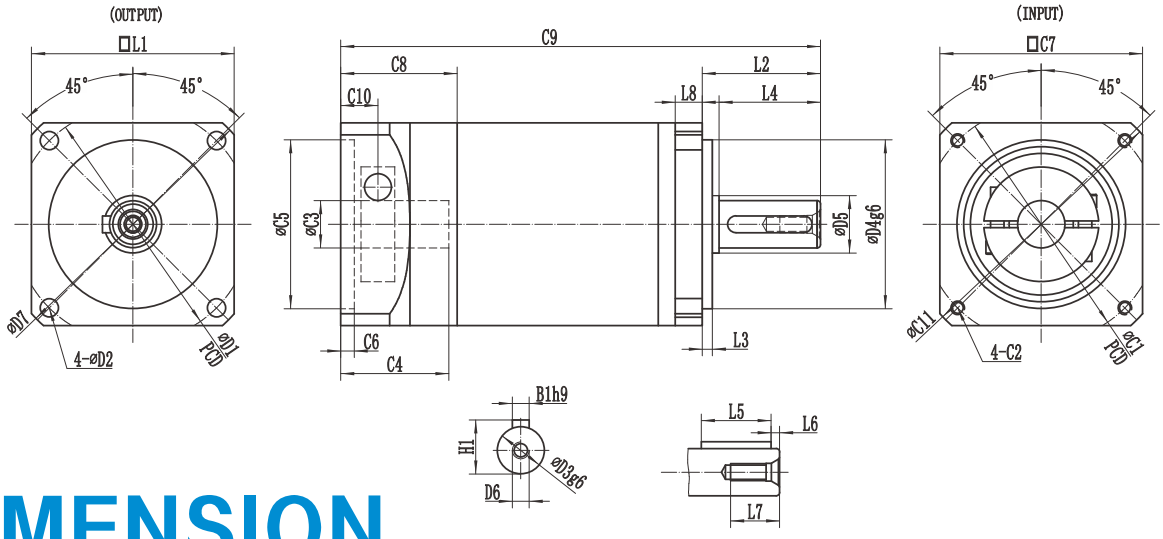


DIMENSION

SINGLE SECTION

Dimension(single stage,Ratio i=3~10)

Dimension	WPF042-L1	WPF060-L1	WPF080-L1	WPF090-L1	WPF115-L1	WPF142-L1
※D1	50	70	100	110	130	185
※D2	4.5	5.5	6.5	6.5	8.5	11
※D3	10	14	20	22	25	40
※D4	26	50	80	85	110	130
D5	12	17	25	30	35	55
D6	M4	M5	M6	M6	M10	M12
D7	58	80	120	125	160	230
L1	42	60	90	92	120	176
※L2	26	35	40	46	55	87
※L3	2	3	3	5	4	5
L4	22.5	30	36	36	50	80
※L5	16	25	25	32	40	70
L6	2.5	2.5	5	2	5	5
L7	10	12.5	18	18	23	25
L8	5	8	10	10	14	15
*C1	46	70	90	90	145	200
*C2	M4	M4	M5	M5	M8	M12
*C3	5-8	6-14	14-19	14-19	19-24	24-35
*C4	26	31.5	41	41	60	83
*C5	30	50	70	70	110	114.3
*C6	4	5	6	5	14	10
C7	42	60	80	80	130	180
C8	29.5	34.5	46.5	46.5	81.2	107
C9	88	118.5	152.9	166	204.5	268.5
C10	10.5	11	16.5	16.5	20	26
C11	56	80	105	105	165	235
※B1	3	5	6	6	8	12
※H1	11.2	16	22.5	24.5	28	43



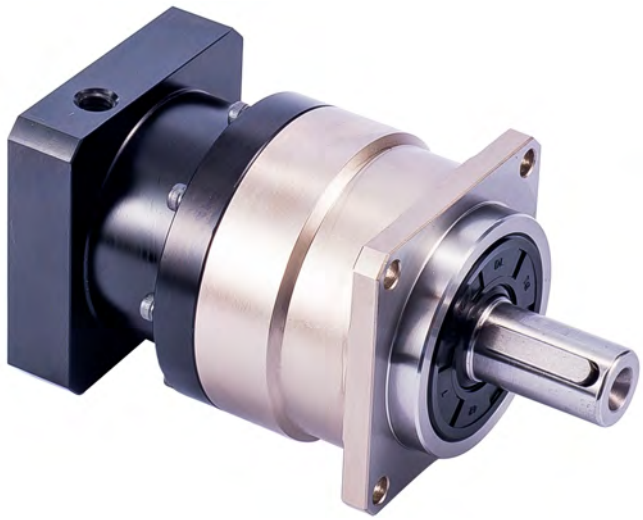
DIMENSION

DOUBLE SECTION

Dimension(double stage,Ratio i=15~100)

Dimension	WPF042-L2	WPF060-L2	WPF080-L2	WPF090-L2	WPF115-L2	WPF142-L2
※D1	50	70	100	110	130	185
※D2	4.5	5.5	6.5	6.5	8.5	11
※D3	10	14	20	22	25	40
※D4	26	50	80	85	110	130
D5	12	17	25	30	35	55
D6	M4	M5	M6	M6	M10	M12
D7	58	80	120	125	160	230
L1	42	60	90	92	120	176
※L2	26	35	40	46	55	87
※L3	2	3	3	5	4	5
L4	22.5	30	36	36	50	80
※L5	16	25	25	32	40	70
L6	2.5	2.5	5	2	5	5
L7	10	12.5	18	18	23	25
L8	5	8	10	10	14	15
*C1	46	70	90	90	145	200
*C2	M4	M4	M5	M5	M8	M12
*C3	5-8	6-14	14-19	14-19	19-24	24-35
*C4	26	31.5	41	41	60	83
*C5	30	50	70	70	110	114.3
*C6	4	5	6	5	14	10
C7	42	60	80	80	130	180
C8	29.5	34.5	46.5	46.5	81.2	107
C9	88	137.5	177.4	190.5	237	313.5
C10	10.5	11	16.5	16.5	20	26
C11	56	80	105	105	165	235
※B1	3	5	6	6	8	12
※H1	11.2	16	22.5	24.5	28	43

WVRB SERIES



FEATURES

- Planetary boom and output shaft are intergrated structure designed to ensure maximum torsional rigidity.
- Planetary wheel with full needle design,increase the contact area to improve the rigidity and output torque.
- The gears are carburized and quenched to the HRC62 with low carbon steel surface for optimum wear and impact toughness.
- Gears refer to foreign imported software-assisted design to obtain the best tooth shape to reduce noise.
- The input terminal is connected to the motor shaft in a double-tight manner to obtain the maximum clamping force and zero backlash power transmission.

INDICATION FOR MODEL

SELECTION

W	VRB	010	010	K	P2	Motor reference
Brand	Model VRB	Size 042 060 090 115 140 180 220	Ratio 3 4 5 6 7 8 10 15 20 25 35 40 50 60 70 80 100	K S	Precision P2 Standard backlash	

GENERAL NOTICES

- Type, model and torque
- Ratio or output speed
- Working conditions and connection methods
- Quantity and installed machine name
- Input mode and input speed
- Motor brand model or flange and motor shaft size

PLANETARY GEARBOX

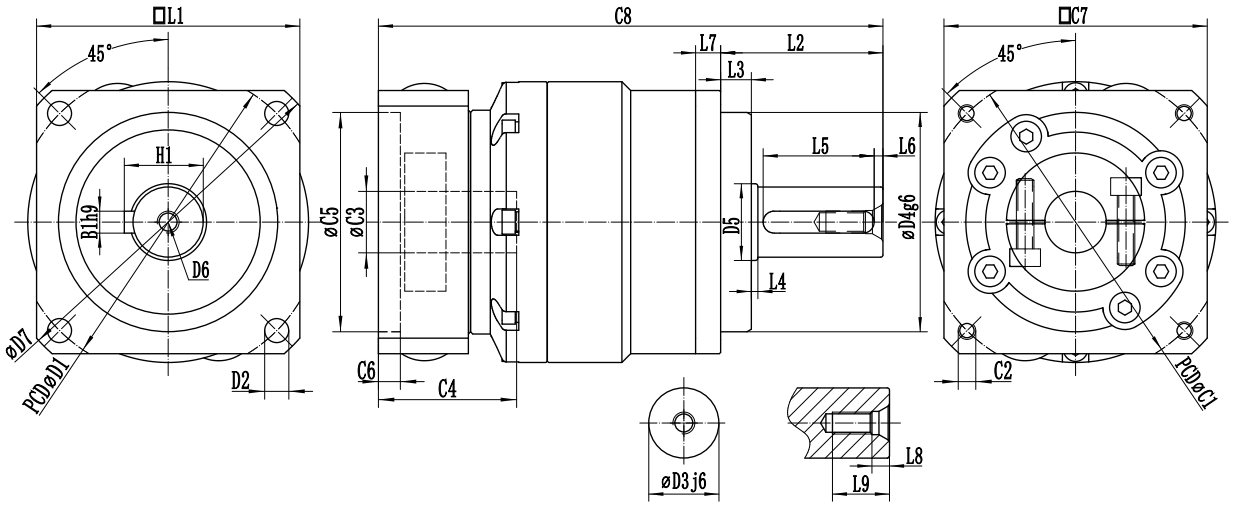
Performance

Specification	Unit	Stage	Ratio	WVRB042	WVRB060	WVRB090	WVRB115	WVRB140	WVRB180	WVRB220
Rated output torque	Nm	1	3	19	50	130	208	342	588	1140
			4	20	55	140	290	542	1050	1700
			5	22	60	160	330	650	1200	2000
			6	20	55	150	310	600	1100	1900
			7	19	50	140	300	550	1100	1800
			8	17	45	120	260	500	1000	1600
			10	14	40	100	230	450	900	1500
		2	15	20	55	130	208	342	588	1140
			20	19	50	140	290	542	1050	1700
			25	22	60	160	330	650	1200	2000
			30	20	55	150	310	600	1100	1900
			35	19	50	140	300	550	1100	1800
			40	17	45	120	260	500	1000	1600
			50	22	60	160	330	650	1200	2000
			60	20	55	150	310	600	1100	1900
			70	19	50	140	300	550	1100	1800
			80	17	45	120	260	500	1000	1600
			100	14	40	100	230	450	900	1500
Emergency stop torque T_{2NOT}	Nm	1,2	3～100	Triple rated output torque						
Rated input speed n_{1N}	rpm	1,2	3～100	5000	5000	4000	4000	3000	3000	2000
Maximum iutput speed n_{1B}		1,2	3～100	10000	10000	8000	8000	6000	6000	4000
Standard backlash P2	arcmin	1	3～10	□12	≤5	≤5	≤5	≤5	≤5	≤5
		2	15～100	□16	≤8	≤8	≤8	≤8	≤8	≤8
Torsional rigidity	Nm/arcmin	1,2	3～100	3	7	14	25	50	145	225
Allowable radial force F_{2aB}	N	1,2	3～100	780	1530	3250	6700	9400	14500	50000
Allowable axial force F_{2aB}	N	1,2	3～100	390	765	1625	3350	4700	7250	25000
Lifespan	hr	1,2	3～100	20000						
Efficiency	%	1	3～10	≥97%						
		2	15～100	≥94%						
Weight	kg	1	3～10	0.6	1.5	3.7	7.8	16	36	53
		2	15～100	0.7	1.6	4.2	11	17	37	54
Working temperature	℃	1,2	3～100	−10℃～90℃						
Lubricating		1,2	Synthetic lubricating grease							
IP Grade		1,2	3～100	IP65						
Installation direction		1,2	3～100	In any direction						
(n1=3000rpm,) Noise level (n1=3000rpm,off load)	dB(A)	1,2	3～100	≤56	≤58	≤60	≤63	≤65	≤67	≤70

ROTATIONAL INERTIA OF REDUCER

Specification	Unit	Stage	Ratio	WVRB042	WVRB060	WVRB090	WVRB115	WVRB140	WVRB180	WVRB220
Rotational inertia J1	kg • cm^2	1	3	0.053	0.22	1.2	5.3	20	44	90
			4	0.041	0.17	0.95	4.1	15	28	62
			5	0.036	0.16	0.86	3.6	14	22	52
			6	0.034	0.15	0.82	3.3	13	18	47
			7	0.032	0.14	0.79	3.2	12	16	42
			8	0.031	0.14	0.77	3.1	12	15	40
			10	0.03	0.14	0.75	3	11	14	38
		2	15	0.035	0.14	0.72	2.8	11	12	36
			20	0.034	0.13	0.72	2.8	11	12	35
			25	0.034	0.13	0.71	2.8	11	12	35
			30	0.03	0.13	0.7	2.7	10	11	34
			35	0.034	0.13	0.71	2.7	11	12	35
			40	0.03	0.13	0.7	2.7	10	11	33
			50	0.03	0.13	0.69	2.7	10	11	33
			60	0.03	0.13	0.69	2.7	10	11	33
			70	0.03	0.13	0.69	2.7	10	11	33
			80	0.03	0.13	0.69	2.7	10	11	33
			100	0.03	0.13	0.69	2.7	10	11	33

1. Ratio ($i=N_{in}/N_{out}$)
2. Maximum acceleration torque T_{2B} =60% of T_{2NOT}
3. Output speed100rpm,acting on the center of the output shaft

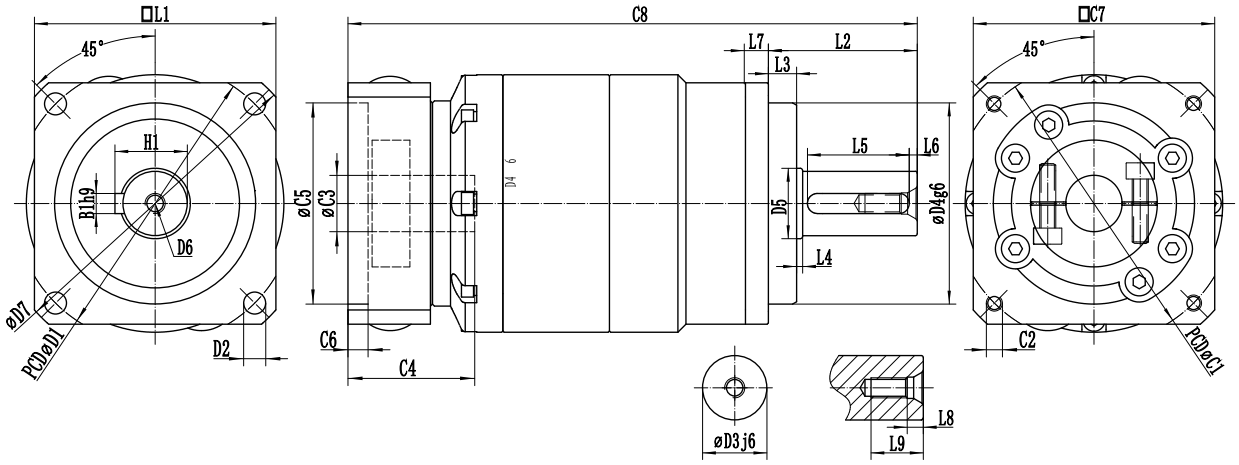


DIMENSION

SINGLE SECTION

Dimension(single stage,Ratio i=3~10)

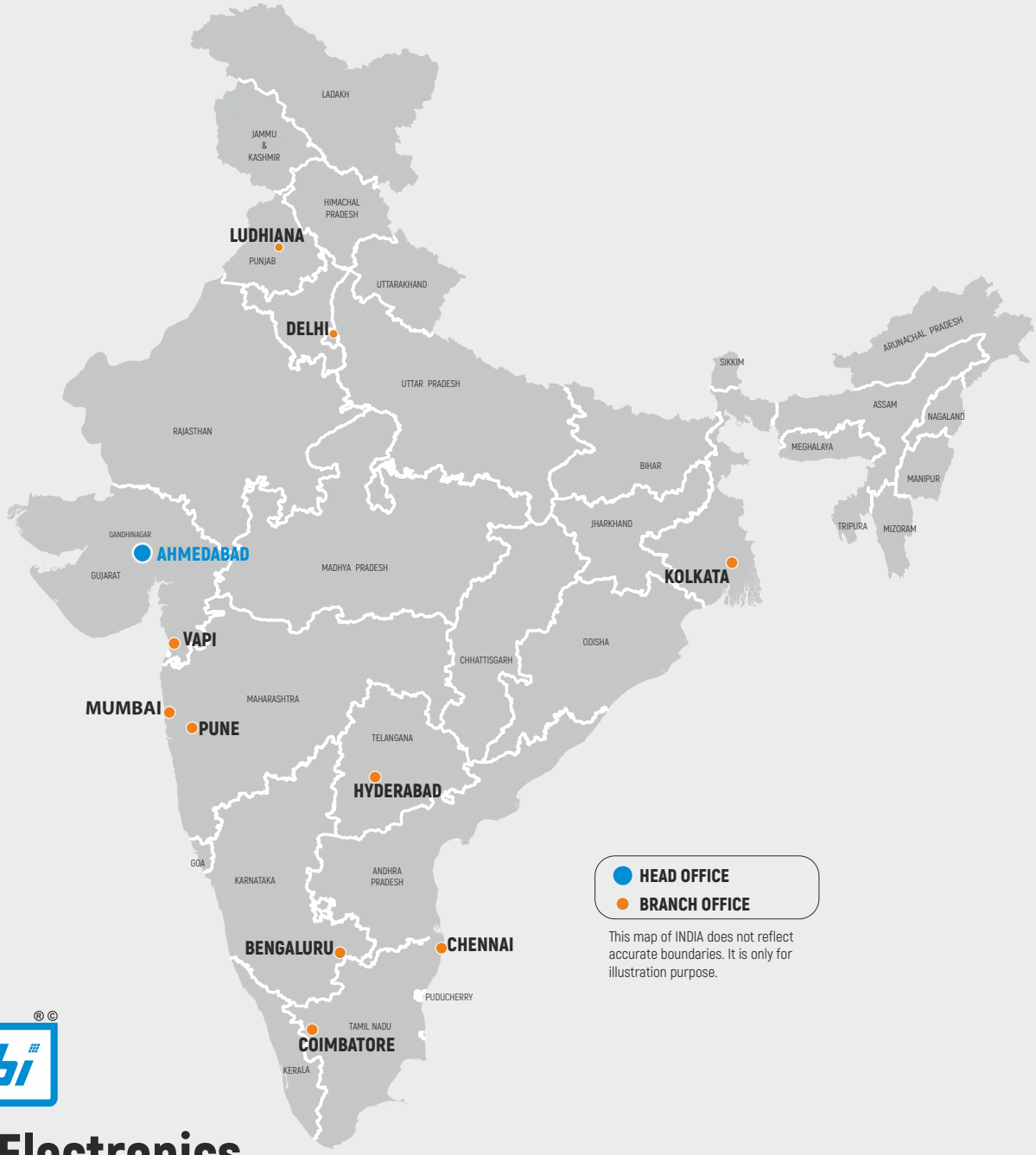
Dimension	WVRB060		WVRB090		WVRB115		WVRB140	WVRB180	WVRB220
D1	70		100		130		165	215	250
D2	5.5		6.6		9		11	13.5	17
D3 j6	16		22		32		40	55	75
D4 g6	50		80		110		130	160	180
D5	18		30		40		50	70	85
D6	M5*0.8P		M8*1.25P		M12*1.75P		M16*2.0P	M20*2.5P	M20*2.5P
D7	80		116		152		185	240	290
L1	60		90		115		140	180	220
L2	37		48		60		95	105	138
L3	7		10		7		13	20	30
L4	1.5		1.5		2		3	3	3
L5	25		32		40		63	70	90
L6	2		3		5		5	6	7
L7	6		8		10		12	15	20
L8	4.8		7.2		10		12	15	15
L9	12.5		19		28		36	42	42
C1	70	90	90	145	145	200	200	200	235
C2	M4	M5	M5	M8	M8	M12	M12*1.75P	M12*1.75P	M12*1.75P
C3	⩽14	⩽19	⩽19	⩽24	⩽24	⩽35	⩽35/⩽42	⩽42	⩽42/⩽55
C4	31.5	41	41	59	60	81	81	114	117
C5	50	70	70	110	110	114.3	114.3	114.3	200
C6	5	5	6	14	14	19	19	24	20
C7	60	80	80	130	130	180	180	180	220
C8	115	128	145	163	199.5	221.5	279	318	377
B1 h9	5		6		10		12	16	20
H1	18		24.5		35		43	59	79.5



DIMENSION
DOUBLE SECTION

Dimension(double stage,Ratio i=15~100)

Dimension	WVRB042	WVRB060		WVRB090			WVRB115		WVRB140	WVRB180	WVRB220
D1	-	70		100			130		165	215	250
D2	-	5.5		6.6			9		11	13.5	17
D3 j6	-	16		22			32		40	55	75
D4 g6	-	50		80			110		130	160	180
D5	-	18		30			40		50	70	85
D6	-	M5*0.8P		M8*1.25P			M12*1.75P		M16*2.0P	M20*2.5P	M20*2.5P
D7	-	80		116			152		185	240	290
L1	-	60		90			115		140	180	220
L2	-	37		48			60		95	105	138
L3	-	7		10			7		13	20	30
L4	-	1.5		1.5			2		3	3	3
L5	-	25		32			40		63	70	90
L6	-	2		3			5		5	6	7
L7	-	7		8			10		12	15	20
L8	-	4.8		7.2			10		12	15	15
L9	-	12.5		19			28		36	42	42
C1	-	70	90	70	90	145	90	145	145	200	200
C2	-	M4	M5	M4	M5	M8	M5	M8	M8*1.25P	M12*1.75P	M12*1.75P
C3	-	⩽14	⩽19	⩽14	⩽19	⩽24	⩽19	⩽24	⩽24/⩽28	⩽35	⩽42
C4	-	31.5	41	31.5	41	59	41	60	66	80	114
C5	-	50	70	50	70	110	70	110	110	114.3	114.3
C6	-	5	5	5	6	14	6	14	10	9	24
C7	-	60	80	60	80	130	80	130	130	180	180
C8	-	141.5	154.5	162.5	179	197	214	244.5	340	352.5	441.5
B1 h9	-	5		6			10		12	16	20
H1	-	18		24.5			35		43	59	79.5



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