PITSON TRANSMISSION TECHNOLOGIES
Gearing Solutions

PTL Series Planetary Gearboxes

SERVO & BLDC controlled

www.pitsongears.com

Features:

Quiet operation - Helical gears contribute to reduce vibration and noise.
High torque - Uses full-type roller bearing for high torque.
Economical type – Maintenance free and economical.
Adapter-bushing connection - Can be attached to any motor all over the world.
No grease leakage - Prefect solution using high viscosity anti-separation grease.

Model Nomenclature:

PTL F 062 15 K 10 19HB16

- 19HB16 → Motor Flange Code
- 10 → Backlash= 7 Arc Min / = 10 Arc Min
- K → Output shaft with Key
- 15 → Ratio (3, 4, 5, 8, 9, 10, 15, 16, 20, 25, 32, 40)
- 062 → Frame Size (062, 082,120,140,160)
- F → Series Type (PTL (Face-Mount)/ PTL-F (Flange-Mount))
- PTL → Series Name

Adapter and mount code varies depending on the motor.
Please contact us if you are unsure.〔Mounting style to the motor〕

- Motor output shaft is the smooth shaft without keyway.
- If the motor output shaft is with the keyway, remove the key from the shaft.
- If the motor output shaft has D shape cut, contact us.

Performance table Model: PTL/F-062

		※1	※2	※3	※4	※5, 7	※6, 7	※8					
Model	Ratio	Nominal Output Torque - Nm	Maximum output torque- NM	Nominal input speed	Maximum input speed	Permitted radial load - N	Permitted axial load- N	Weight –Kg Input Bore -			Moment of Inertia [kgcm2] Input Bore		
								≤ ø 8	≤ ø 14	≤ ø 19	≤ ø 8	≤ ø 14	≤ ø 19
062	3	21	46	3000	6000	420	520	-	1.0	1.4	-	0.19	0.40
	4	30	66	3000	6000	420	520					0.16	0.37
	5	33	66	3000	6000	420	520					0.15	0.36
	8	30	66	3000	6000	420	520					0.14	0.35
	9	30	46	3000	6000	420	520					0.14	0.35
	10	30	46	3000	6000	420	520					0.14	0.35
	15	30	46	3000	6000	420	520	1.5	1.6	-	0.07	0.14	-
	16	36	66	3000	6000	420	520				0.07	0.14	-
	20	36	66	3000	6000	420	520				0.06	0.14	-
	25	50	66	3000	6000	420	520				0.06	0.14	-
	32	50	66	3000	6000	420	520				0.07	0.14	-
	40	50	66	3000	6000	420	520				0.06	0.13	-

Performance table Model: PTL/F-082

		※1	※2	※3	※4	※5, 7	※6, 7	※8					
Model	**Ratio**	**Nominal Output Torque - Nm**	**Maximum output torque- NM**	**Nominal input speed**	**Maximum input speed**	**Permitted radial load - N**	**Permitted axial load- N**	**Weight –Kg** **Input Bore -**			**Moment of Inertia [kgcm2]** **Input Bore**		
								≤ ø 14	**≤ ø 19**	**≤ ø 28**	**≤ ø 14**	**≤ ø 19**	**≤ ø 28**
082	3	58	108	3000	6000	760	1050	2.2	2.5	3.3	0.57	1.04	3.13
	4	80	165	3000	6000	760	1050				0.41	0.87	2.96
	5	91	165	3000	6000	760	1050				0.35	0.82	2.91
	8	91	165	3000	6000	760	1050				0.31	0.77	2.86
	9	91	112	3000	6000	760	1050				0.30	0.77	2.86
	10	91	112	3000	6000	760	1050				0.30	0.76	2.85
	15	80	112	3000	6000	760	1050	2.7	3.0	3.8	0.33	0.78	2.85
	16	100	165	3000	6000	760	1050				0.33	0.78	2.85
	20	100	165	3000	6000	760	1050				0.32	0.77	2.84
	25	130	165	3000	6000	760	1050				0.32	0.77	2.83
	32	150	165	3000	6000	760	1050				0.32	0.78	2.84
	40	150	165	3000	6000	760	1050				0.28	0.73	2.79

Performance table Model: PTL/F-120

		※1	※2	※3	※4	※5, 7	※6, 7	※8					
Model	**Ratio**	**Nominal Output Torque - Nm**	**Maximum output torque- NM**	**Nominal input speed**	**Maximum input speed**	**Permitted radial load - N**	**Permitted axial load- N**	**Weight –Kg** **Input Bore - mm**			**Moment of Inertia [kgcm2]** **Input Bore- mm**		
								≤ ø 19	**≤ ø 28**	**≤ ø 38**	**≤ ø 19**	**≤ ø 28**	**≤ ø 38**
120	3	135	270	3000	6000	1900	2700	6.1	6.8	9.2	2.38	4.41	12.27
	4	150	390	3000	6000	1900	2700				1.45	3.48	11.34
	5	195	390	3000	6000	1900	2700				1.17	3.13	11.05
	8	170	390	3000	6000	1900	2700				0.88	2.89	10.72
	9	170	292	3000	6000	1900	2700				0.85	2.86	10.69
	10	170	292	3000	6000	1900	2700				0.83	2.84	10.67
	15	190	270	3000	6000	1900	2700	8.0	8.8	-	1.08	2.97	-
	16	230	390	3000	6000	1900	2700				1.07	3.06	-
	20	245	390	3000	6000	1900	2700				0.93	2.93	-
	25	300	390	3000	6000	1900	2700				0.92	2.91	-
	32	300	390	3000	6000	1900	2700				1.03	3.03	-
	40	300	390	3000	6000	1900	2700				0.76	2.75	-

Performance table Model: PTL/F-140

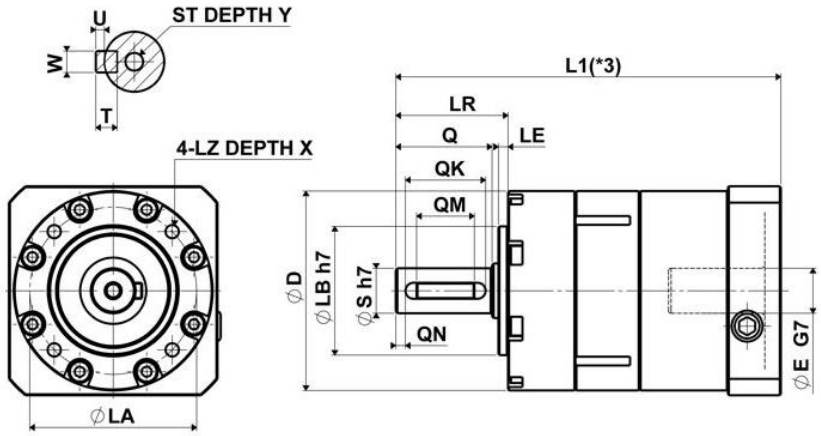
		※1	※2	※3	※4	※5, 7	※6, 7	※8			
Model	Ratio	Nominal Output Torque - Nm	Maximum output torque- NM	Nominal input speed	Maximum input speed	Permitted radial load - N	Permitted axial load- N	Weight –Kg Input Bore - mm		Moment of Inertia [kgcm2] Input Bore- mm	
								≤ ø28	≤ Ø38	≤ ø 28	≤ ø 38
140	3	215	360	3000	6000	2100	3000	9.9	9.9	4.7	12.6
	4	240	430	3000	6000	2100	3000			3.6	11.5
	5	240	430	3000	6000	2100	3000			3.3	11.1
	8	215	430	3000	6000	2100	3000			3.0	10.7
	9	215	300	3000	6000	2100	3000			2.9	10.7
	10	215	300	3000	6000	2100	3000			2.9	10.7
	15	315	360	3000	6000	2100	3000	13.0	13.0	3.5	10.9
	16	360	560	3000	6000	2100	3000			3.2	11.0
	20	380	560	3000	6000	2100	3000			3.0	10.8
	25	500	550	3000	6000	2100	3000			3.0	10.8
	32	400	430	3000	6000	2100	3000			3.1	10.9
	40	470	560	3000	6000	2100	3000			2.8	10.6

Performance table Model: PTL/F-160

		※1	※2	※3	※4	※5, 7	※6, 7	※8			
Model	Ratio	Nominal Output Torque - Nm	Maximum output torque- NM	Nominal input speed	Maximum input speed	Permitted radial load - N	Permitted axial load- N	Weight –Kg Input Bore - mm		Moment of Inertia [kgcm2] Input Bore- mm	
								≤ ø28	≤ ø38	≤ ø28	≤ ø38
160	3	270	560	2000	6000	4500	6200	13.9	15.5	7.2	17.0
	4	350	640	2000	6000	4500	6200			3.7	13.5
	5	460	640	2000	6000	4500	6200			2.6	12.5
	8	400	640	2000	6000	4500	6200			1.6	11.4
	9	400	610	2000	6000	4500	6200			1.5	11.3
	10	400	610	2000	6000	4500	6200			1.4	11.2
	15	400	560	2000	6000	4500	6200	18	19.5	2.5	12.1
	16	500	640	2000	6000	4500	6200			2.6	12.5
	20	530	640	2000	6000	4500	6200			1.9	11.9
	25	590	640	2000	6000	4500	6200			1.9	11.9
	32	750	640	2000	6000	4500	6200			2.4	12.4
	40	610	640	2000	6000	4500	6200			1.2	11.2

※ 1 Average torque permitted during permissible average input rotational speed.
※ 2 In the event that a day's operation is 1 hour, the value that can permit 1,000 cycles per hour from start to stop. In the event that a day's operation exceeds 1 hour or amounts to over 1,000 cycles per hour follow the calculation method for maximum output torque.
※ 3 Permitted maximum value of average input rotational speed during operation.
※ 4 Permitted maximum input rotational speed under non-consecutive operation.
※ 5 Permitted value when the axial load measured at the centre of the output shaft is 0.
※ 6 Permitted value when the radial load measured at the axis is 0.
※ 7 Permitted value in the event the output shaft speed is 100 rpm.
※ 8 Values will vary according to specifications such as adapter type and bushing.

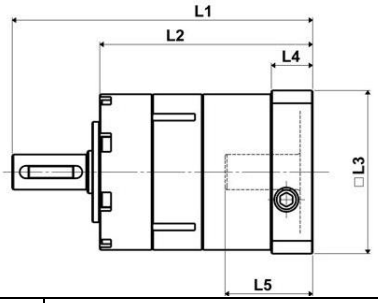
Gearbox Dimensions



FRAM SIZE	STAGE (*1)	INPUT SHAFT BORE E	DIMENSIONS																
			L1(*3)	LR	S	ST	Y	Q	QK	QN	QM	WxU	T	D	LB	LE	LA	LZ	X
062	1 SINGLE	≤Ø14	REFER NEXT PAGES	35	14	M5	12	30	25	3	18	5x3	5	62	40	3	52	M5	8
		≤Ø19																	
	2 DOUBLE	≤Ø8																	
		≤Ø14																	
082	1 SINGLE	≤Ø14	REFER NEXT PAGES	40	20	M6	16	36	30	3	22	6x3.5	6	82	60	3	70	M6	12
		≤Ø19																	
		≤Ø28																	
	2 DOUBLE	≤Ø14																	
		≤Ø19																	
		≤Ø28																	
120	1 SINGLE	≤Ø19	REFER NEXT PAGES	55	25	M10	22	50	44	3	35	8x4	7	120	80	4	100	M10	16
		≤Ø28																	
		≤Ø38																	
	2 DOUBLE	≤Ø19																	
		≤Ø28																	
140	1 STAGE	≤Ø28	REFER NEXT PAGES	75	32	M12	25	70	62	3	50	10x5	8	140	100	4	120	M10	16
		≤Ø38																	
	2 STAGE	≤Ø28																	
		≤Ø38																	
160	1 STAGE	≤Ø28	REFER NEXT PAGES	87	40	M12	25	80	72	3	58	12x5	8	160	130	5	145	M12	20
		≤Ø38																	
	2 STAGE	≤Ø28																	
		≤Ø38																	

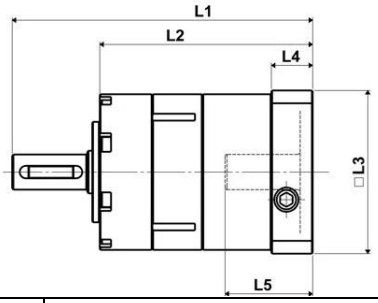
*1 Single reduction: 1/3 to 1/10, Double reduction: 1/15 to 1/40
*2 Bushing will be inserted to adapt to motor shaft
*3 These values may vary with the motor/adaptor flange selected. For detail, refer to the adapter flange dimensions list.

Overall Dimensions



MODEL NUMBER	ADAPTER CODE	1 SINGLE REDUCTION					2 DOUBLE REDUCTION				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
PTL-062-8** ≤Ø8 INPUT SHAFT BORE	AA-AC-AD-AF-AG-AL-AM-AN-AQ	-	-	-	-	-	135.5	100.5	52	15.5	32
	AB-AE-AH-AJ-AK	-	-	-	-	-	140.5	105.5	52	20.5	37
	BA-BB-BD-BE-BG-BH-BJ	-	-	-	-	-	135.5	100.5	60	15.5	32
	BC-BF	-	-	-	-	-	140.5	105.5	60	20.5	37
	CA	-	-	-	-	-	140.5	105.5	70	20.5	37
PTL-062-14** ≤Ø14 INPUT SHAFT BORE	BA-BB-BD-BE-BF-BG-BJ-BK-BP	120	85	65	16.5	35	140.5	105.5	65	16.5	35
	BC-BH-BM-BN	125	90	65	21.5	40	145.5	110.5	65	21.5	40
	BL	130	95	65	26.5	45	150.5	115.5	65	26.5	45
	CA-CC	120	85	70	16.5	35	140.5	105.5	70	16.5	35
	CB	125	90	70	21.5	40	145.5	110.5	70	21.6	40
	DA-DB-DC-DD-DF-DH-DJ	120	85	80	16.5	35	140.5	105.5	80	16.5	35
	DE-DL	125	90	80	21.5	40	145.5	110.5	80	21.5	40
	DG-DK	130	95	80	26.5	45	150.5	115.5	80	26.5	45
	EA-EB-EC-EF-EG-EK-EL	120	85	90	16.5	35	140.5	105.5	90	16.5	35
	EJ-EM	125	90	90	21.5	40	145.5	110.5	90	21.5	40
	ED-EE-EH	130	95	90	26.5	45	150.5	115.5	90	26.5	45
	FA	120	85	100	16.5	35	140.5	105.5	100	16.5	35
	FB	130	95	100	26.5	45	150.5	115.5	100	26.5	45
	GA	120	85	115	16.5	35	140.5	105.5	115	16.5	35
	GC	125	90	115	21.5	40	145.5	110.5	115	21.5	40
	GB	135	100	115	31.5	50	155.5	120.5	115	31.5	50
	JA	135	100	150	31.5	50	155.5	120.5	150	31.5	50
PTL-062-19** ≤Ø19 INPUT SHAFT BORE	DA-DB-DC	135	100	80	25	50	-	-	-	-	-
	DD-DE	145	110	80	35	60	-	-	-	-	-
	EA	140	105	90	30	55	-	-	-	-	-
	EB-ED	135	100	90	25	50	-	-	-	-	-
	EC	145	110	90	35	60	-	-	-	-	-
	FA	135	100	100	25	50	-	-	-	-	-
	FB	145	110	100	35	60	-	-	-	-	-
	GB-GD	135	100	115	25	50	-	-	-	-	-
	GA-GC-GH	140	105	115	30	55	-	-	-	-	-
	GE-GF	145	110	115	35	60	-	-	-	-	-
	HA	135	100	130	25	50	-	-	-	-	-
	HB	150	115	130	40	65	-	-	-	-	-
	HC-HD-HE	140	105	130	30	55	-	-	-	-	-
	JA	145	110	150	35	60	-	-	-	-	-
	JB	150	115	150	40	65	-	-	-	-	-
PTL-082-14** ≤Ø14 INPUT SHAFT BORE	BA-BB-BD-BE-BF-BG-BJ-BK-BP	145	105	65	16.5	35	162	122	65	16.5	35
	BC-BH-BM-BN	150	110	65	21.5	40	167	127	65	21.5	40
	BL	155	115	65	26.5	45	172	132	65	26.5	45
	CA-CC	145	105	70	16.5	35	162	122	70	16.5	35
	CB	150	110	70	21.5	40	167	127	70	21.5	40
	DA-DB-DC-DD-DF-DH-DJ	145	105	80	16.5	35	162	122	80	16.5	35
	DE-DL	150	110	80	21.5	40	167	127	80	21.5	40
	DG-DK	155	115	80	26.5	45	172	132	80	26.5	45
	EA-EB-EC-EF-EG-EK-EL	145	105	90	16.5	35	162	122	90	16.5	35
	EJ-EM	150	110	90	21.5	40	167	127	90	21.5	40
	ED-EE-EH	155	115	90	26.5	45	172	132	90	26.5	45
	FA	145	105	100	16.5	35	162	122	100	16.5	35
	FB	155	115	100	26.5	45	172	132	100	26.5	45
	GA	145	105	115	16.5	35	162	122	115	16.5	35
	GC	150	110	115	21.5	40	167	127	115	21.5	40
	GB	160	122	115	31.5	50	177	137	115	31.5	50
	JA	160	120	150	31.5	50	177	137	150	31.5	50
PTL-082-19** ≤Ø19 INPUT SHAFT BORE	DA-DB-DC	155	115	80	25	50	172	132	80	25	50
	DD-DE	165	125	80	35	60	182	142	80	35	60
	EA	160	120	90	30	55	177	137	90	30	55
	EB-ED	155	115	90	25	50	172	132	90	25	50
	EC	165	125	90	35	60	182	142	90	35	60
	FA	155	115	100	25	50	172	132	100	25	50
	FB	165	125	100	35	60	182	142	100	35	60
	GB-GD	155	115	115	25	50	172	132	115	25	50
	GA-GC-GH	160	120	115	30	55	177	137	115	30	55
	GE-GF	165	125	115	35	60	182	142	115	35	60
	HA	155	115	130	25	50	172	132	130	25	50
	HB	170	130	130	40	65	187	147	130	40	65
	HC-HD-HE	160	120	130	30	55	177	137	130	30	55
	JA	165	125	150	35	60	182	142	150	35	60
	JB	170	130	150	40	65	187	147	150	40	65

Overall Dimensions



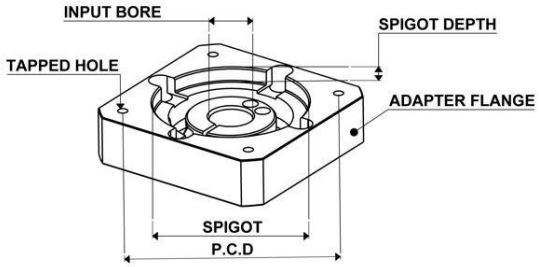
MODEL NUMBER	ADAPTER CODE	1 SINGLE REDUCTION					2 DOUBLE REDUCTION				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
PTL-082-28** ≤Ø28 INPUT SHAFT BORE	FD-FE	167	127	100	30	62	186	146	100	30	62
	FA-FB-FC	172	132	100	35	67	191	151	100	35	67
	GA-GB-GC-GD-GE-GF-GG-GH	172	132	115	35	67	191	151	115	35	67
	HF	167	127	130	30	62	186	146	130	30	62
	HA-HC-HD	172	132	130	35	67	191	151	130	35	67
	HB	182	142	130	45	77	201	161	130	45	77
	HE	187	147	130	50	82	206	166	130	50	82
	JA-JB-JC-JF	172	132	150	35	67	191	151	150	35	67
	JE	182	142	150	45	77	201	161	150	45	77
	JD	192	152	150	55	87	211	171	150	55	87
	KA-KB-KE	172	132	180	35	67	191	151	180	35	67
	KD	182	142	182	45	77	201	161	180	45	77
	LA	172	132	200	35	67	191	151	200	35	67
	LB	182	142	200	45	77	201	161	200	45	77
	MA	172	132	220	35	67	191	151	220	35	67
	MB	182	142	220	45	77	201	161	220	45	77
PTL-120-19** ≤Ø19 INPUT SHAFT BORE	DA-DB-DC	193	138	80	25	50	213.5	158.5	80	25	50
	DD	203	148	80	35	60	223.5	168.5	80	35	60
	DE	198	143	80	30	55	218.5	163.5	80	30	55
	EA	198	143	90	30	55	218.5	163.5	90	30	55
	EB-ED	193	138	90	25	50	213.5	158.5	90	25	50
	EC	203	148	90	35	60	223.5	168.5	90	35	60
	FA	193	138	100	25	50	213.5	158.5	100	25	50
	FB	203	148	100	35	60	223.5	168.5	100	35	60
	GB-GD	193	138	115	25	50	213.5	158.5	115	25	50
	GA-GC-GH	198	143	115	30	55	218.5	163.5	115	30	55
	GE-GF	203	148	115	35	60	223.5	168.5	115	35	60
	HA	193	138	130	25	50	213.5	158.5	130	25	50
	HB	208	153	130	40	65	228.5	173.5	130	40	65
	HC-HD-HE	198	143	130	30	55	218.5	163.5	130	30	55
	JA	203	148	150	35	60	223.5	168.5	150	35	60
	JB	208	153	150	40	65	28.5	173.5	150	40	65
PTL-120-28** ≤Ø28 INPUT SHAFT BORE	FD-FE	205	150	100	30	62	225.5	170.5	100	30	62
	FA-FB-FC	210	155	100	35	67	230.5	175.5	100	35	67
	GA-GB-GC-GD-GE-GF-GG-GH	210	155	115	35	67	230.5	175.5	115	35	67
	HF	205	150	130	30	62	225.5	170.5	130	30	62
	HA-HC-HD	210	155	130	35	67	230.5	175.5	130	35	67
	HB	220	135	130	45	77	240.5	185.5	130	45	77
	HE	225	170	130	50	82	245.5	190.5	130	50	82
	JA-JB-JC-JF	210	155	150	35	67	230.5	175.5	150	35	67
	JE	220	165	150	45	77	240.5	185.5	150	45	77
	JD	230	175	150	55	87	250.5	195.5	150	55	87
	KA-KB-KE	210	155	180	35	67	230.5	175.5	180	35	67
	KD	220	165	180	45	77	240.5	185.5	180	45	77
	LA	210	155	200	35	67	230.5	175.5	200	35	67
	LB	220	165	200	45	77	240.5	185.5	200	45	77
	MA	210	155	220	35	67	230.5	175.5	220	35	67
	MB	220	165	220	45	77	240.5	185.5	220	45	77
PTL-120-38** ≤Ø38 INPUT SHAFT BORE	HB-HE	226	171	130	40	77	-	-	-	-	-
	HA	231	176	130	45	82	-	-	-	-	-
	JA	231	176	150	45	82	-	-	-	-	-
	KA-KB-KC	231	176	180	45	82	-	-	-	-	-
	KE	246	191	180	60	97	-	-	-	-	-
	KD	266	211	180	80	117	-	-	-	-	-
	LA	231	176	200	45	82	-	-	-	-	-
	LB	241	186	200	55	92	-	-	-	-	-
	MA-MB	231	176	220	45	82	-	-	-	-	-
	MD	241	186	220	55	92	-	-	-	-	-
	MC	246	191	220	60	97	-	-	-	-	-
	NA	231	176	250	45	82	-	-	-	-	-
PTL-140-28** ≤Ø28 INPUT SHAFT BORE	FD-FE	231.5	156.5	100	30	62	257	182	100	30	62
	FA-FB-FC	236.5	161.5	100	35	67	262	187	100	35	67
	GA-GB-GC-GD-GE-GF-GG-GH	236.5	161.5	115	35	67	262	187	115	35	67
	HF	231.5	156.5	130	30	62	257	182	130	30	62
	HA-HC-HD	236.5	161.5	130	35	67	262	187	130	35	67
	HB	246.5	171.5	130	45	77	272	197	130	45	77
	HE	251.5	176.5	130	50	82	277	202	130	50	82
	JA-JB-JC-JF	236.5	161.5	150	35	67	262	187	150	35	67
	JE	246.5	171.5	150	45	77	272	197	150	45	77
	JD	256.5	181.5	150	55	87	282	207	150	55	87

	ADAPTER CODE	1 SINGLE REDUCTION					2 DOUBLE REDUCTION				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
PTL-140-28** ≤Ø28 INPUT SHAFT BORE	KA-KB-KE	236.5	161.5	180	35	67	262	187	180	35	67
	KD	246.5	171.5	180	45	77	272	197	180	45	77
	LA	236.5	161.5	200	35	67	262	187	200	35	67
	LB	246.5	171.5	200	45	77	272	197	200	45	77
	MA	236.5	161.5	220	35	67	262	187	220	35	67
	MB	246.5	171.5	220	45	77	272	197	220	45	77
PTL-140-38** ≤Ø38 INPUT SHAFT BORE	HB-HE	252.5	177.5	130	40	77	274.5	199.5	130	40	77
	HA	257.5	182.5	130	45	82	279.5	204.5	130	45	82
	HC-HD	262.5	187.5	130	50	87	284.5	209.5	130	50	87
	JA	257.5	182.5	150	45	82	279.5	204.5	150	45	82
	KA-KB-KC	257.5	182.5	180	45	82	279.5	204.5	180	45	82
	KE	272.5	197.5	180	60	97	294.5	219.5	180	60	97
	KD	292.5	217.5	180	80	117	314.5	239.5	180	80	117
	LA	257.5	182.5	200	45	82	279.5	204.5	200	45	82
	LB	267.5	192.5	200	55	92	289.5	214.5	200	55	92
	MA-MB	257.5	182.5	220	45	82	279.5	204.5	220	45	82
	MD	267.5	192.5	220	55	92	289.5	214.5	220	55	92
	MC	272.5	197.5	220	60	97	294.5	219.5	220	60	97
	NA	267.5	182.5	250	45	82	279.5	204.5	250	45	82

MODEL NUMBER	ADAPTER CODE	1 SINGLE REDUCTION					2 DOUBLE REDUCTION				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
PTL-160-28** ≤Ø28 INPUT SHAFT BORE	FD-FE	268	181	100	30	62	297	210	100	30	62
	FA-FB-FC	273	186	100	35	67	302	215	100	35	67
	GA-GB-GC-GD-GE-GF-GG-GH	273	186	115	35	67	302	215	115	35	67
	HF	268	181	130	30	62	297	210	130	30	62
	HA-HC-HD	273	186	130	35	67	302	215	130	35	67
	HB	283	196	130	45	77	312	225	130	45	77
	HE	288	201	130	50	82	317	230	130	50	82
	JA-JB-JC-JF	273	186	150	35	67	302	215	150	35	67
	JE	283	196	150	45	77	312	225	150	45	77
	JD	293	206	150	55	87	322	235	150	55	87
	KA-KB-KE	273	186	180	35	67	302	215	180	35	67
	KD	283	196	180	45	77	312	225	180	45	77
	LA	273	186	200	35	67	302	215	200	35	67
	LB	283	196	200	45	77	312	225	200	45	77
	MA	273	186	220	35	67	302	215	220	35	67
	MB	283	196	220	45	77	312	225	220	45	77
PTL-160-38** ≤Ø38 INPUT SHAFT BORE	HB-HE	283	196	130	40	77	312	225	130	40	77
	HA	288	201	130	45	82	317	230	130	45	82
	JA	288	201	150	45	82	317	230	150	45	82
	KA-KB-KC	288	201	180	45	82	317	230	180	45	82
	KE	303	216	180	60	97	332	245	180	60	97
	KD	323	236	180	80	117	352	265	180	80	117
	LA	288	201	200	45	82	317	230	200	45	82
	LB	298	211	200	55	92	327	240	200	55	92
	MA-MB	288	201	220	45	82	317	230	220	45	82
	MD	298	211	220	55	92	327	240	220	55	92
	MC	303	216	220	60	97	332	245	220	60	97
	NA	288	201	250	45	82	317	230	250	45	82

*1 Single reduction: 1/3 to 1/10, Double reduction: 1/15 to 1/40
*2 Bushing will be inserted to adapt to motor shaft.

Adapter flange code

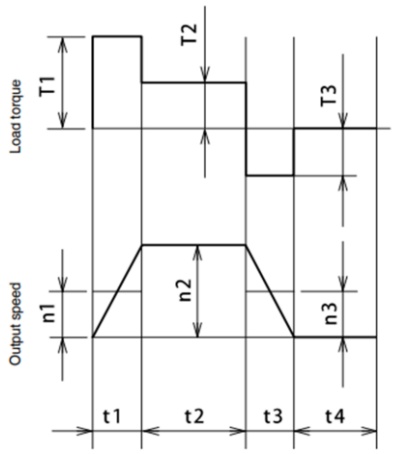


Input Bore	Part Code	Pilot	PCD	Tapped Hole	Pilot Depth		Input Bore	Part Code	Pilot	PCD	Tapped Hole	Pilot Depth
8	AA	20.02	46.69	M3	5		14	BN	50	70	M4	10
8	AB	22	43.82	4.7	10		14	BP	36	70.7	M4	5
8	AC	22	48	M3	5		14	CA	60	75	M5	5
8	AD	22.22	50.8	M3	5		14	CB	60	75	M6	10
8	AE	25.4	38.89	4	10		14	CC	60	80	M4	5
8	AF	30	45	M3	5		14	DA	50	95	M6	5
8	AG	30	46	M4	5		14	DB	60	85	M5	5
8	AH	30	46	M4	10		14	DC	60	90	M5	5
8	AJ	30	46	3.5	10		14	DD	70	85	6.5	5
8	AK	34	48	M3	10		14	DE	70	90	M5	10
8	AL	30	48	M3	5		14	DF	70	90	M6	5
8	AM	22	43.82	3.5	5							
8	AN	40	50	M4	5		19	DA	60	90	M5	6
8	AQ	37.6	48	M3	5		19	DB	70	90	M5	6
8	BA	38.1	66.68	M4	5		19	DC	70	90	M6	6
8	BB	38.1	66.68	M5	5		19	DD	70	90	M6	16
8	BC	50	60	M4	10		19	DE	70	90	M5	11
8	BD	50	70	M4	5		19	EA	73.025	98.43	M5	11
8	BE	50	70	M5	5		19	EB	80	100	M6	6
8	BF	50	70	M5	10		19	EC	80	100	M6	16
8	BG	36	70.71	M4	5		19	ED	60	98.99	M6	6
8	BH	54	70	M4	5		19	FA	95	115	M8	6
8	BJ	50	58	M3	5		19	FB	95	115	M8	16
8	CA	50	80	M4	10		19	GA	55.563	125.7	M6	11
							19	FA	95	115	M8	19
14	BA	38.1	66.7	M4	5		19	GC	110	130	M8	11
14	BB	38.1	66.7	M5	5		19	FA	95	115	M8	19
14	BC	38.1	66.7	M5	10		19	GE	95	130	M8	16
14	BD	40	63	M4	5		19	GF	100	125	M8	16
14	BE	40	63	M5	5		19	GH	95	135	M8	11
14	BF	40	65	M5	5		19	HA	110	145	M8	6
14	BG	40	70	M4	5		19	HB	110	145	M8	21
14	BH	50	60	M4	10		19	HC	110	145	10.5	11
14	BJ	50	70	M4	5		19	HD	114.3	149.23	M8	11
14	BK	50	70	M5	5		19	HE	114.3	149.23	10.5	11
14	BL	50	70	M5	15		19	JA	130	165	M10	16
14	BM	50	70	M5	10		19	JB	115	165	M8	21

Input Bore	Part Code	Pilot	PCD	Tapped Hole	Pilot Depth		Input Bore	Part Code	Pilot	PCD	Tapped Hole	Pilot Depth
28	FA	80	100	M6	8		28	KA	114.3	200	M12	8
28	FB	95	115	M6	8		28	KB	130	215	M10	8
28	FC	95	115	M8	8		28	KD	114.3	200	M12	18
28	FD	95	115	M6	8		28	KE	150	185	M10	8
28	FE	95	115	M8	8		28	LA	180	215	M12	8
28	GA	55.563	125.73	M6	8		28	LB	180	220	M12	18
28	GB	63.5	127	M6	8		28	MA	200	235	M12	8
28	GC	95	130	M8	8		28	MB	200	250	M8	18
28	GD	110	130	M8	8							
28	GE	110	130	M10	8		38	HA	110	130	8.8	8
28	GF	110	130	8.8	8		38	HB	110	145	M8	8
28	GG	110	135	M8	8		38	HE	110	130	M8	8
28	GH	95	135	M8	8		38	JA	130	165	M10	8
28	HA	110	145	M8	8		38	KA	114.3	200	M12	8
28	HB	110	145	M8	18		38	KB	130	215	M10	8
28	HC	110	145	10.5	8		38	KC	130	215	M12	8
28	HD	114.3	149.23	10.5	8		38	KD	95	200	M10	18
28	HE	95	145	M8	18		38	KE	114.3	200	M12	18
28	HF	110	145	M8	8		38	LA	180	215	M12	8
28	JA	110	165	M8	8		38	LB	180	215	M12	18
28	JB	110	165	M10	8		38	MA	180	265	M12	8
28	JC	130	165	M10	8		38	MB	200	235	M12	8
28	JD	130	174	M10	28		38	MC	215.9	184.15	13.7	5.5
28	JE	130	165	M10	18		38	MD	200	250	M8	18
28	JF	114.3	160	M10	8		38	NA	230	265	M12	8

Performance Table

Follow the selection procedure when selecting a model number:



Load pattern

1. **Calculate load pattern.**
   Load torque: T1, T2, T3, …… Tn
   Output speed: n1, n2, n3, …… nn

   The above should be mean values of changing rotational speeds at the time of acceleration and deceleration.

   Time: t1, t2, …. tn

2. **Calculate mean load torque given to the output shaft and mean output speed from the load pattern**

   Mean load torque

$$Ta = \sqrt[10/3]{\frac{n_1 \cdot t_1 \cdot |T_1|^{10/3} + n_2 \cdot t_2 \cdot |T_2|^{10/3} + \cdots + n_n \cdot t_n \cdot |T_n|^{10/3}}{n_1 \cdot t_1 + n_2 \cdot t_2 + n_n \cdot t_n}}$$

   Mean output speed;

$$Na\ out = \frac{n1t1+n2t2\ldots..+nntn}{t1+t2+t3\ldots..+tn}$$

3. **Select a reduction ratio from max. output speed in the load pattern and max. input speed in the performance table**

$$\text{Temporary reduction ratio} = \frac{\text{Max.allowable input speed}}{\text{Max.load output speed}}$$

   Select a lower reduction ratio than the temporary reduction ratio.

4. **Calculate mean input speed and max. input speed from the reduction ratio.**

   Mean input speed = Mean output speed × reduction ratio
   Max. input speed = Max. output speed × reduction ratio

5. **Calculate the maximum torque.**

   Determine the cycle coefficient (fo) from the operation conditions listed in the table below and calculate according to the following formula.

   Maximum torque = Maximum load torque

   (Maximum torque increase during start and stop) × fo

   (fo = Cycle coefficient)

Operation time	Up to 1,000 cycles/h	1,000 to 3,000 cycles/h
<1 hr/day	1.0	1.2
<8 hr/day	1.3	1.5
<16 hr/day	1.4	1.6
<24 hr/day	1.5	1.9
Please contact us for operations exceeding 3,000 cycles/h.		

6. **Finally, select model No**

   - Select min. model No. on which mean load torque is less than or equal to the allowable output torque in the performance table.
   - Make sure that the calculated maximum torque is below the permitted maximum torque of the selected model number.
   - Ensure that mean input speed and max. input speed are less than or equal to the allowable mean input speed and the allowable max. input speed of the selected model No.

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