



# PLANETARY GEAR DC MOTORS

Ø 12 - 90 mm  
0.6 - 80W

Transmotec sell a broad range of geared DC motors in standard and customized configurations. Our motors are often available with gear heads, encoders and wire harnesses. Transmotec is the ideal supplier source especially to instrument and apparatus builders. We keep a high number of motors in stock for immediate delivery.

## Customizations include:

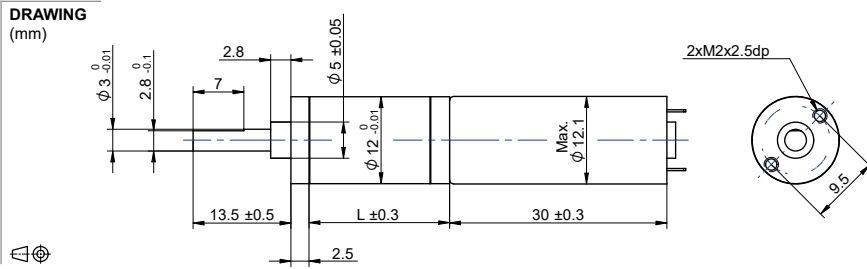
- ✓ Customized harness
- ✓ Shaft configuration
- ✓ Winding configuration
- ✓ And more...

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# PD1230 / Ø 12mm / 0.62W / 0.59W

## DRAWING (mm)



## PHOTO



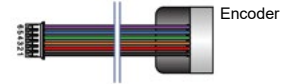
## MODEL NO. DESIGNATION

PD1230 - VOLTAGE - REDUCTION - E

Example: PD1230-2.4-4-E

E = Encoder

## ADDITIONAL



GEAR MOTOR DATA						
Reduction	4:1	16:1	64:1	256:1	1024:1	4096:1
Nominal torque 2.4 V (mNm) *	2	6.9	24.5	82.4	196	196
Nominal speed 2.4 V (rpm) *	2400	600	150	38	10	2.8
Nominal torque 3 V (mNm) *	1.9	6.4	22.6	76.5	196	196
Nominal speed 3 V (rpm) *	2400	610	150	39	10	2.8
Length (mm)	42.8	46.1	49.4	52.7	56	59.3
Weight (g)	25.1	27.2	29.3	31.4	33.5	35.6

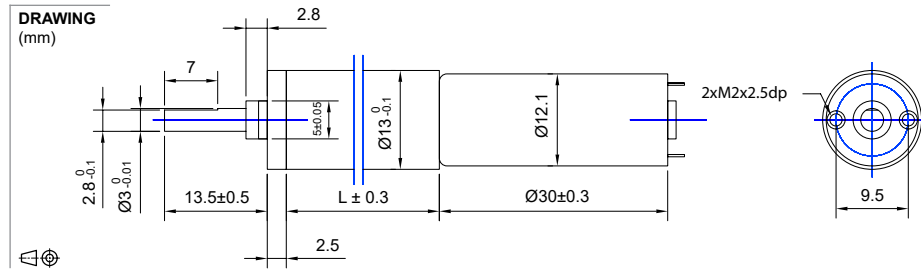
\* Nominal speed and nominal torque have a tolerance of ± 15%

GEAR HEAD DATA						
Reduction	4:1	16:1	64:1	256:1	1024:1	4096:1
Max. continuous torque (mNm)	78	118	157	177	196	196
Intermittently permissible torque (mNm)	235	353	470	530	588	588
Efficiency %	85	75	65	55	45	40
Length L (mm)	12.8	16.1	19.4	22.7	26	29.3
Weight (g)	12.1	14.2	16.3	18.4	20.5	22.6

GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Metal brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	No	
Gears	Plastic/Copper	
Motor pinion gear	Copper	
Bearing	Sleeve bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 3°	
Radial load 5 mm from gear flange	≤ 4.9 N	
Shaft axial load	≤ 4.9 N	
Shaft press fit force	≤ 14.7 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.2 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
Nominal voltage (V)	2.4	3
No load speed (rpm)	12500	12500
No load current (mA)	≤ 130	≤ 80
Nominal speed (rpm)	10000	10000
Nominal torque (mNm)	0.6	0.5
Nominal current (mA)	≤ 450	≤ 340
Stall torque (mNm)	1.8	1.9
Starting current (A)	3.0	1.9
Output (W)	0.62	0.59
Length (mm)	30	30
Weight (g)	13	13

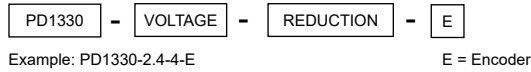
# PD1330 / Ø 13mm / 0.6W / 0.6W



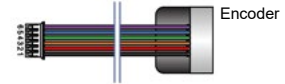
## PHOTO



## MODEL NO. DESIGNATION



## ADDITIONAL



## GEAR MOTOR DATA

	4:1	16:1	64:1	256:1	1024:1	4096:1
Reduction	4:1	16:1	64:1	256:1	1024:1	4096:1
Nominal torque 2.4 V (mNm) *	2.0	6.9	24.5	82.4	196	196
Nominal speed 2.4 V (rpm) *	2400	600	150	38	10	2.8
Nominal torque 3 V (mNm) *	1.9	6.4	22.6	76.5	196	196
Nominal speed 3 V (rpm) *	2400	610	150	39	10	2.8
Length (mm)	40.2	43.5	46.8	50.1	53.4	56.7
Weight (g)	24	26	28	30	32	34

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

	4:1	16:1	64:1	256:1	1024:1	4096:1
Reduction	4:1	16:1	64:1	256:1	1024:1	4096:1
Max. continuous torque (mNm)	78	118	157	177	196	196
Intermittently permissible torque (mNm)	235	353	471	530	588	588
Efficiency %	85	75	65	55	45	40
Length L (mm)	10.2	13.5	16.8	20.1	23.4	26.7
Weight (g)	10.7	12.8	14.9	17	19.1	21.2

## GEAR MOTOR FEATURES AND STANDARD DATA

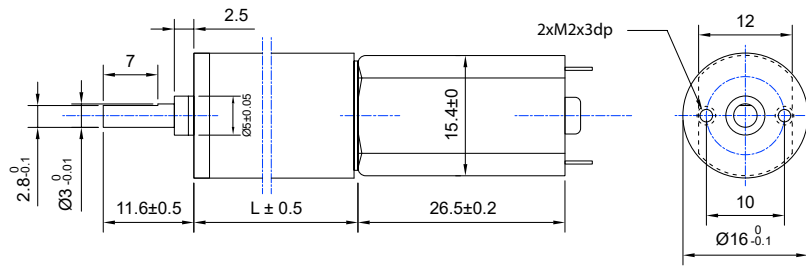
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Metal brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	No	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Sleeve bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10-...+60 °C	- 40-...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 8 mm from gear flange	$\leq 4.9$ N	
Shaft axial load	$\leq 4.9$ N	
Shaft press fit force	$\leq 14.7$ N	
Radial play	$\leq 0.08$ mm	
Thrust play	$\leq 0.2$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	

## MOTOR DATA

	2.4	3
Nominal voltage (V)	2.4	3
No load speed (rpm)	12500	12500
No load current (mA)	$\leq 130$	$\leq 80$
Nominal speed (rpm)	10000	10000
Nominal torque (mNm)	0.59	0.55
Nominal current (mA)	$\leq 450$	$\leq 340$
Stall torque (mNm)	2.7	2.9
Starting current (A)	1.5	1.5
Output (W)	0.6	0.6
Length (mm)	30	30
Weight (g)	13	13

# PD1626 / Ø 13mm / 0.4W / 1W

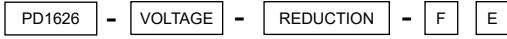
## DRAWING (mm)



## PHOTO



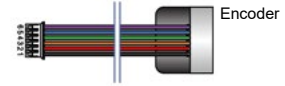
## MODEL NO. DESIGNATION



Example: PD1626-12-4-FE

F = EMC Filter  
E = Encoder

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	4:1	14:1	19:1	29:1	62:1	72:1	84:1	104:1	128:1	157:1	231:1	316:1	370:1	455:1	561:1	690:1	1014:1	1621:1	1996:1	3027:1
Nominal torque 12 V (mNm) *	2.1	5.9	8	11.8	21.6	25.5	29.4	37.3	45.1	53.9	68.6	93.2	108	132	167	196	243	235	235	235
Nominal speed 12 V (rpm) *	1330	430	315	205	100	85	73	59	48	39	26	19	16	13.5	11	8.9	6	3.8	3.2	2.3
Nominal torque 24 V (mNm) *	3.0	8.3	11.8	17.7	32.4	37.3	44.1	54.9	67.7	83.4	98.1	137	157	196	196	235	235	235	235	235
Nominal speed 24 V (rpm) *	2400	760	669	365	170	150	130	105	85	69	47	34	29	24	19.5	15.9	11	7.2	6.1	4.1
Length (mm)	41.55	45.20	45.20	45.20	48.85	48.85	48.85	48.85	48.85	48.85	52.50	52.50	52.50	52.50	52.50	52.50	56.15	56.15	56.15	56.15
Weight (g)	37	41	41	41	45	45	45	45	45	45	49	49	49	49	49	49	53	53	53	53

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	4:1	14:1	19:1	29:1	62:1	72:1	84:1	104:1	128:1	157:1	231:1	316:1	370:1	455:1	561:1	690:1	1014:1	1621:1	1996:1	3027:1
Max. continuous torque (mNm)	78.5	118	118	118	157	157	157	157	157	157	196	196	196	196	196	196	235	235	235	235
Intermittently permissible torque (mNm)	235	353	353	353	471	471	471	471	471	471	588	588	588	588	588	588	706	706	706	706
Efficiency %	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40
Length L (mm)	15.05	18.70	18.70	18.70	22.35	22.35	22.35	22.35	22.35	22.35	26.00	26.00	26.00	26.00	26.00	26.00	29.65	29.65	29.65	29.65
Weight (g)	19	23	23	23	27	27	27	27	27	27	31	31	31	31	31	31	35	35	35	35

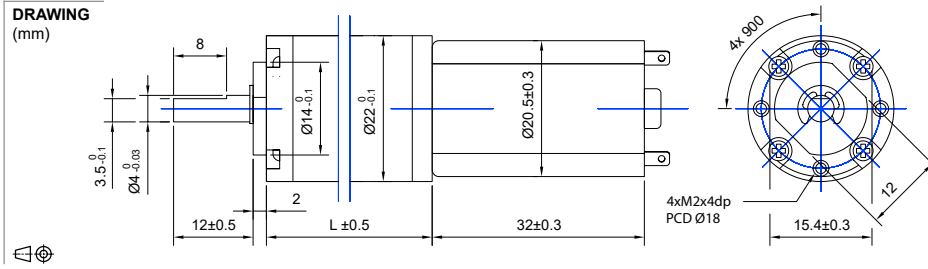
## GEAR MOTOR FEATURES AND STANDARD DATA

	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Sleeve bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 4.9$ N	
Shaft axial load	$\leq 4.9$ N	
Shaft press fit force	$\leq 14.7$ N	
Radial play	$\leq 0.08$ mm	
Thrust play	$\leq 0.2$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	8000	13500
No load current (mA)	$\leq 50$	$\leq 50$
Nominal speed (rpm)	6200	11000
Nominal torque (mNm)	0.6	0.9
Nominal current (mA)	$\leq 85$	$\leq 90$
Stall torque (mNm)	2.6	4.3
Starting current (A)	0.20	0.28
Output (W)	0.4	1
Length (mm)	26.5	26.5
Weight (g)	18	18

# PD2232 / Ø 22mm / 1.5W / 1.7W



## PHOTO



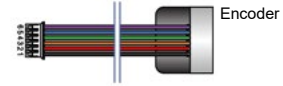
## MODEL NO. DESIGNATION



Example: PD2232-12-4-BFE

B = Ball bearing  
F = EMC Filter  
E = Encoder

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	4:1	14:1	16:1	19:1	53:1	62:1	72:1	84:1	104:1	198:1	231:1	270:1	316:1	370:1	455:1	742:1	1014:1	1249:1	1621:1	1996:1
Nominal torque 12 V (mNm) *	7.6	21.1	24.5	28.9	68.2	79.4	93.2	108	134	206	245	245	245	245	245	294	294	294	294	294
Nominal speed 12 V (rpm) *	1450	470	405	348	127	109	93	79	64	34	29	25	22	19	15.5	9.5	7.4	6.0	4.6	3.8
Nominal torque 24 V (mNm) *	7.6	21.1	24.5	28.9	68.2	79.4	93.2	108	134	206	245	245	245	245	245	294	294	294	294	294
Nominal speed 24 V (rpm) *	1600	515	450	384	140	120	103	88	71	37	32	28	23.5	21	17.5	10.5	8	6.6	5	4.2
Length (mm)	46	50	50	50	54	54	54	54	54	54	57	57	57	57	57	57	61	61	61	61
Weight (g)	58	62	62	62	66	66	66	66	66	66	71	71	71	71	71	71	75	75	75	75

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	4:1	14:1	16:1	19:1	53:1	62:1	72:1	84:1	104:1	198:1	231:1	270:1	316:1	370:1	455:1	742:1	1014:1	1249:1	1621:1	1996:1
Max. continuous torque (mNm)	98	147	147	147	196	196	196	196	196	196	245	245	245	245	245	245	294	294	294	294
Intermittently permissible torque (mNm)	294	441	441	441	588	588	588	588	588	588	735	735	735	735	735	735	735	883	883	883
Efficiency %	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40
Length L (mm)	14.4	18.05	18.05	18.05	21.7	21.7	21.7	21.7	21.7	21.7	25.35	25.35	25.35	25.35	25.35	25.35	29	29	29	29
Weight (g)	26	30	30	30	34	34	34	34	49	59	59	59	59	59	59	64	64	64	64	64

## GEAR MOTOR FEATURES AND STANDARD DATA

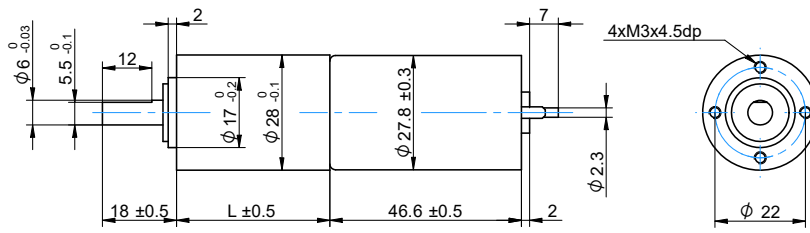
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10-...+60 °C	- 40-...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 9.8$ N	
Shaft axial load	$\leq 5.9$ N	
Shaft press fit force	$\leq 49$ N	
Radial play	$\leq 0.05$ mm	
Thrust play	$\leq 0.2$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	8000	9000
No load current (mA)	$\leq 70$	$\leq 40$
Nominal speed (rpm)	6700	7400
Nominal torque (mNm)	2.2	2.2
Nominal current (mA)	$\leq 200$	$\leq 110$
Stall torque (mNm)	13	13
Starting current (A)	0.97	0.55
Output (W)	1.5	1.7
Length (mm)	32	32
Weight (g)	32	32

# PD2846 / Ø 28mm / 4.2W / 5W

## DRAWING (mm)



## PHOTO



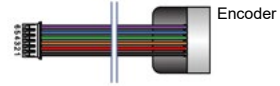
## MODEL NO. DESIGNATION



Example: PD2846-12-4-BFE

B = Ball bearing  
F = EMC Filter  
E = Encoder

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1
Nominal torque 12 V (mNm) *	31.4	73.5	98.1	137	186	235	324	461	647	726	981	981	981	981
Nominal speed 12 V (rpm) *	1000	375	270	193	148	102	73	52	37.3	27.5	19.7	10.5	7.5	5.7
Nominal torque 24 V (mNm) *	37.3	88.3	118	167	226	275	392	549	765	863	981	981	981	981
Nominal speed 24 V (rpm) *	990	370	265	191	147	101	72	51.5	36.9	27.2	19.3	10.4	7.4	5.7
Length (mm)	71.1	77.5	77.5	77.5	77.5	83.9	83.9	83.9	83.9	90.3	90.3	90.3	90.3	90.3
Weight (g)	163	173	173	173	173	186	186	186	186	200	200	200	200	200

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1
Max. continuous torque (mNm)	196	294	294	392	392	588	588	784	784	981	981	981	981	981
Intermittently permissible torque (mNm)	588	883	883	1177	1177	1765	1765	2354	2354	2942	2942	2942	2942	2942
Efficiency %	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Length L (mm)	24.5	30.9	30.9	30.9	30.9	37.3	37.3	37.3	37.3	43.7	43.7	43.7	43.7	43.7
Weight (g)	70	80	80	80	80	93	93	93	93	107	107	107	107	107

## GEAR MOTOR FEATURES AND STANDARD DATA

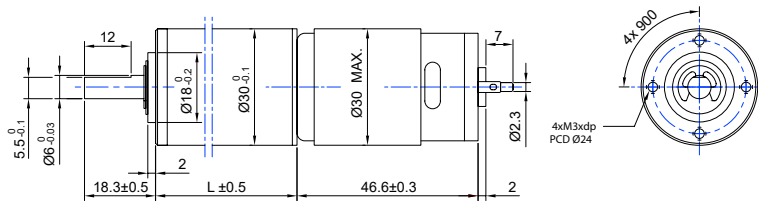
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	
Motor pinion gear	Metal	
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Optical encoder
Operating temperature	-10-...+60 °C	-40-...+60 °C
Backlash no load	$\leq 2.5^\circ$	
Radial load 10 mm from gear flange	$\leq 34.3$ N	
Shaft axial load	$\leq 24.5$ N	
Shaft press fit force	$\leq 98.1$ N	
Radial play	$\leq 0.05$ mm	
Thrust play	$\leq 0.3$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	6000	6000
No load current (mA)	$\geq 130$	$\geq 80$
Nominal speed (rpm)	5200	5140
Nominal torque (mNm)	7.7	9.2
Nominal current (mA)	$\geq 500$	$\geq 300$
Stall torque (mNm)	71	64
Starting current (A)	3.7	1.7
Output (W)	4.2	5.0
Length (mm)	46.6	46.6
Weight (g)	93	91

# PD3046 / Ø 30mm / 7W / 8.5W

## DRAWING (mm)



## PHOTO



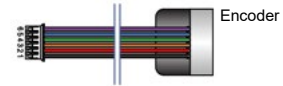
## MODEL NO. DESIGNATION

PD3046 - VOLTAGE - REDUCTION - B F E C

Example: PD3046-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



GEAR MOTOR DATA												
Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Nominal torque 12 V (mNm) *	44.1	108	147	206	333	461	647	785	981	981	981	981
Nominal speed 12 V (rpm) *	1120	430	310	221	117	83	60	45	32	25	13.2	9.6
Nominal torque 24 V (mNm) *	53	117	167	235	392	539	765	785	981	981	981	981
Nominal speed 24 V (rpm) *	1150	445	320	229	121	87	62	46	34.5	26	13.5	9.8
Length (mm)	70	77	77	77	83	83	83	83	89	89	89	89
Weight (g)	188	201	201	201	216	216	216	216	231	231	231	231

\* Nominal speed and nominal torque have a tolerance of ± 15%

GEAR HEAD DATA												
Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Max. continuous torque (mNm)	196	294	294	392	588	588	785	785	981	981	981	981
Intermittently permissible torque (mNm)	588	883	883	1177	1765	1765	2354	2354	2942	2942	2942	2942
Efficiency %	80	70	70	70	60	60	60	60	50	50	50	50
Length L (mm)	23	30	30	30	36.4	36.4	36.4	36.4	42.8	42.8	42.8	42.8
Weight (g)	78	91	91	91	106	106	106	106	121	121	121	121

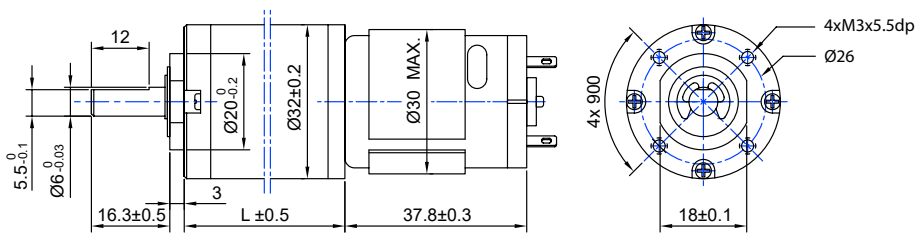
GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Optical encoder
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 2.5°	
Radial load 10 mm from gear flange	≤ 34.4 N	
Shaft axial load	≤ 24.5 N	
Shaft press fit force	≤ 98.1 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.3 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
	12	24
Nominal voltage (V)	12	24
No load speed (rpm)	7300	7300
No load current (mA)	≤ 150	≤ 80
Nominal speed (rpm)	5950	6160
Nominal torque (mNm)	10.7	12.7
Nominal current (mA)	≤ 900	≤ 500
Stall torque (mNm)	84	89
Starting current (A)	5.6	2.9
Output (W)	7	8.5
Length (mm)	46.6	46.6
Weight (g)	110	110



# PD3237 / Ø 32mm / 4.22W / 3.97W

## DRAWING (mm)



## PHOTO



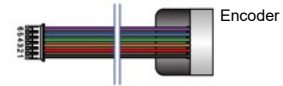
## MODEL NO. DESIGNATION

PD3237 - VOLTAGE - REDUCTION - B F E C

Example: PD3237-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



GEAR MOTOR DATA												
Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Nominal torque 12 V (mNm) *	29.4	73.5	98.1	137	226	324	451	637	716	981	1177	1177
Nominal speed 12 V (rpm) *	995	373	270	195	104	74	53	38	28	20	11.2	8.3
Nominal torque 24 V (mNm) *	29.4	68.6	98.1	137	216	304	431	598	677	951	1177	1177
Nominal speed 24 V (rpm) *	990	370	265	171	103	74	53	38	28	20	11.2	8.3
Length (mm)	58	65	65	65	71	71	71	71	78	78	78	78
Weight (g)	174	194	194	194	219	219	219	219	245	245	245	245

\* Nominal speed and nominal torque have a tolerance of ± 15%

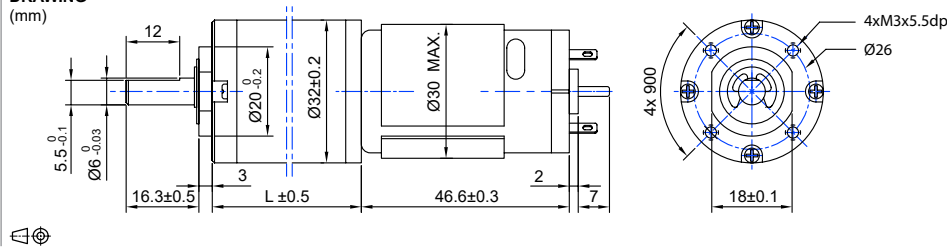
GEAR HEAD DATA												
Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Max. continuous torque (mNm)	196	392	392	588	785	785	981	981	1177	1177	1177	1177
Intermittently permissible torque (mNm)	588	1177	1177	1765	2354	2354	2942	2942	3530	3530	3530	3530
Efficiency %	80	70	70	70	60	60	60	60	50	50	50	50
Length L (mm)	20.6	27	27	27	33.4	33.4	33.4	33.4	39.8	39.8	39.8	39.8
Weight (g)	101	121	121	121	146	146	146	146	172	172	172	172

GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Optical encoder
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 2.5°	
Radial load 10 mm from gear flange	≤ 34.3 N	
Shaft axial load	≤ 24.5 N	
Shaft press fit force	≤ 98.1 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.3 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
Nominal voltage (V)	12	24
No load speed (rpm)	6500	6500
No load current (mA)	≤ 150	≤ 85
Nominal speed (rpm)	5290	5250
Nominal torque (mNm)	7.6	7.3
Nominal current (mA)	≤ 530	≤ 250
Stall torque (mNm)	36	38
Starting current (A)	2.1	1.1
Output (W)	4.22	3.97
Length (mm)	37.8	37.8
Weight (g)	73	73

# PD3246 / Ø 32mm / 7W / 8.2W

## DRAWING (mm)



## PHOTO



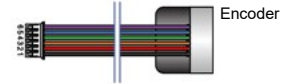
## MODEL NO. DESIGNATION

PD3246 - VOLTAGE - REDUCTION - B F E C

Example: PD3246-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1
Nominal torque 12 V (mNm) *	44.1	108	147	206	265	333	461	647	892	981	1177	1177	1177	1177
Nominal speed 12 V (rpm) *	1140	430	310	221	170	117	83	60	44	32	24	12.9	9.5	7.2
Nominal torque 24 V (mNm) *	53	118	167	235	304	392	539	765	981	1177	1177	1177	1177	1177
Nominal speed 24 V (rpm) *	1170	445	320	229	176	121	87	63	45	34	25	13	9.6	7.2
Length (mm)	67.2	73.6	73.6	73.6	73.6	80.0	80.0	80.0	80.0	86.4	86.4	86.4	86.4	86.4
Weight (g)	211	231	231	231	231	256	256	256	256	282	282	282	282	282

\* Nominal speed and nominal torque have a tolerance of ± 15%

## GEAR HEAD DATA

Reduction	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1
Max. continuous torque (mNm)	196	392	392	588	588	785	785	981	981	1177	1177	1177	1177	1177
Intermittently permissible torque (mNm)	588	1177	1177	1765	1765	2354	2354	2942	2942	3530	3530	3530	3530	3530
Efficiency %	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Length L (mm)	20.6	27	27	27	27.0	33.4	33.4	33.4	33.4	39.8	39.8	39.8	39.8	39.8
Weight (g)	101	121	121	121	121	146	146	146	146	172	172	172	172	172

## GEAR MOTOR FEATURES AND STANDARD DATA

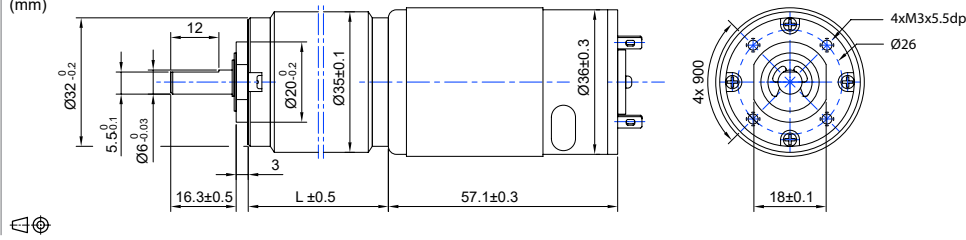
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Optical encoder
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 2.5°	
Radial load 10 mm from gear flange	≤ 34.3 N	
Shaft axial load	≤ 24.5 N	
Shaft press fit force	≤ 98.1 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.3 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	7300	7300
No load current (mA)	≤ 150	≤ 80
Nominal speed (rpm)	5950	6160
Nominal torque (mNm)	11	13
Nominal current (mA)	≤ 900	≤ 500
Stall torque (mNm)	84	89
Starting current (A)	5.5	2.9
Output (W)	7	8.2
Length (mm)	46.6	46.6
Weight (g)	110	110

# PD3557 / Ø 35mm / 12.8W / 12.7W

## DRAWING (mm)



## PHOTO



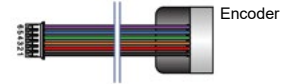
## MODEL NO. DESIGNATION

PD3557 - VOLTAGE - REDUCTION - B F E C

Example: PD3557-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Nominal torque 12 V (mNm) *	98	235	324	461	745	785	981	981	1177	1177	1177	1177
Nominal speed 12 V (rpm) *	950	359	257	183	97	71.5	52	39	29	21	11	8
Nominal torque 24 V (mNm) *	98	226	326	441	716	785	981	981	1177	1177	1177	1177
Nominal speed 24 V (rpm) *	990	375	268	192	101	74.5	54	40	29.5	22	11.5	8
Length (mm)	79	86	86	86	92	92	92	92	98	98	98	98
Weight (g)	328	362	362	362	396	396	396	396	430	430	430	430

\* Nominal speed and nominal torque have a tolerance of ± 15%

## GEAR HEAD DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Max. continuous torque (mNm)	196	392	392	588	785	785	981	981	1177	1177	1177	1177
Intermittently permissible torque (mNm)	588	1177	1177	1765	2354	2354	2942	2942	3530	3530	3530	3530
Efficiency %	80	70	70	70	60	60	60	60	50	50	50	50
Length L (mm)	22.1	28.5	28.5	28.5	34.9	34.9	34.9	34.9	41.3	41.3	41.3	41.3
Weight (g)	108	142	142	142	176	176	176	176	210	210	210	210

## GEAR MOTOR FEATURES AND STANDARD DATA

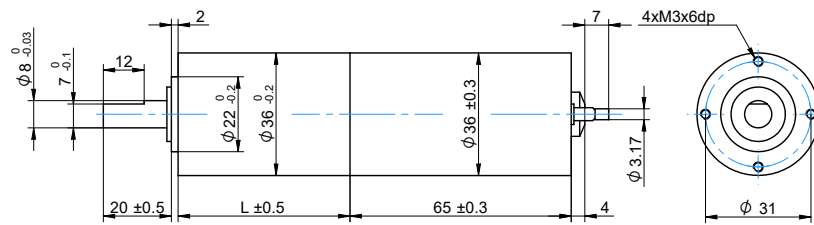
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Optical encoder
Operating temperature	-10...+60 °C	- 40...+60 °C
Backlash no load	≤ 2.5°	
Radial load 10 mm from gear flange	≤ 34.3 N	
Shaft axial load	≤ 24.5 N	
Shaft press fit force	≤ 98.1 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.3 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	6000	6000
No load current (mA)	≤ 250	≤ 130
Nominal speed (rpm)	4930	5150
Nominal torque (mNm)	24.5	23.5
Nominal current (mA)	≤ 1600	≤ 750
Stall torque (mNm)	180	188
Starting current (A)	9.7	5.5
Output (W)	12.8	12.7
Length (mm)	57.1	57.1
Weight (g)	220	220

# PD3665 / Ø 36mm / 18.23W / 18.96W

## DRAWING (mm)



## PHOTO



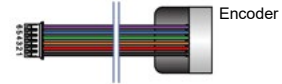
## MODEL NO. DESIGNATION

PD3665 - VOLTAGE - REDUCTION - B F E C

Example: PD3665-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Nominal torque 12 V (mNm) *	108	245	353	490	804	1128	1569	1961	2452	2452	2942	2942
Nominal speed 12 V (rpm) *	1250	475	340	243	129	92	66	47.2	34.8	25.1	13.2	9.5
Nominal torque 24 V (mNm) *	108	265	373	520	853	1177	1667	1961	2452	2452	2942	2942
Nominal speed 24 V (rpm) *	1240	470	335	240	127	91	65	46.5	34.3	24.8	13	9.4
Length (mm)	98.1	106.8	106.8	106.8	115.5	115.5	115.5	115.5	124.2	124.2	124.2	124.2
Weight (g)	354	394	394	394	434	434	434	434	474	474	474	474

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Max. continuous torque (mNm)	290	780	780	980	1770	1770	1960	1960	2450	2450	2940	2940
Intermittently permissible torque (mNm)	880	2350	2350	2940	5300	5300	5890	5900	7360	7360	8830	8830
Efficiency %	80	70	70	70	60	60	60	60	50	50	50	50
Length L (mm)	33.1	41.8	41.8	41.8	50.5	50.5	50.5	50.5	59.2	59.2	59.2	59.2
Weight (g)	132	172	172	172	212	212	212	212	252	252	252	252

## GEAR MOTOR FEATURES AND STANDARD DATA

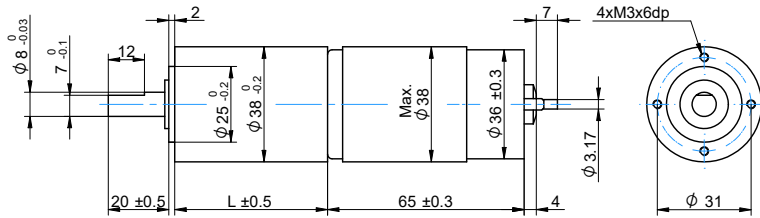
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	
Motor pinion gear	Metal	
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 78.5$ N	
Shaft axial load	$\leq 29.4$ N	
Shaft press fit force	$\leq 147$ N	
Radial play	$\leq 0.05$ mm	
Thrust play	$\leq 0.3$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	7500	7500
No load current (mA)	$\leq 300$	$\leq 210$
Nominal speed (rpm)	6570	6480
Nominal torque (mNm)	26.5	28.0
Nominal current (mA)	$\leq 2050$	$\leq 1050$
Stall torque (mNm)	238	256
Starting current (A)	15.7	8.3
Output (W)	18.23	18.96
Length (mm)	65	65
Weight (g)	222	224

# PD3865 / Ø 38mm / 18.23W / 18.96W

## DRAWING (mm)



## PHOTO



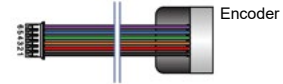
## MODEL NO. DESIGNATION

PD3865 - VOLTAGE - REDUCTION - B F E C

Example: PD3865-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Nominal torque 12 V (mNm) *	98	235	324	461	746	981	1472	1962	2256	2453	2943	2943
Nominal speed 12 V (rpm) *	1100	420	300	210	110	81	58	41	30	22.5	11.4	8.4
Nominal torque 24 V (mNm) *	108	265	363	510	834	1177	1570	1962	2453	2453	2943	2943
Nominal speed 24 V (rpm) *	1050	390	280	200	105	76	55	41	29	22.5	11.4	8.4
Length (mm)	98.1	106.8	106.8	106.8	115.5	115.5	115.5	115.5	124.2	124.2	124.2	124.2
Weight (g)	413	461	461	461	509	509	509	509	557	557	557	557

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	5:1	14:1	19:1	27:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1
Max. continuous torque (mNm)	290	780	780	980	1770	1770	1960	1960	2450	2450	2940	2940
Intermittently permissible torque (mNm)	880	2350	2350	2940	5300	5300	5890	5900	7360	7360	8830	8830
Efficiency %	80	70	70	70	60	60	60	60	50	50	50	50
Length L (mm)	33.1	41.8	41.8	41.8	50.5	50.5	50.5	50.5	59.2	59.2	59.2	59.2
Weight (g)	132	172	172	172	212	212	212	212	252	252	252	252

## GEAR MOTOR FEATURES AND STANDARD DATA

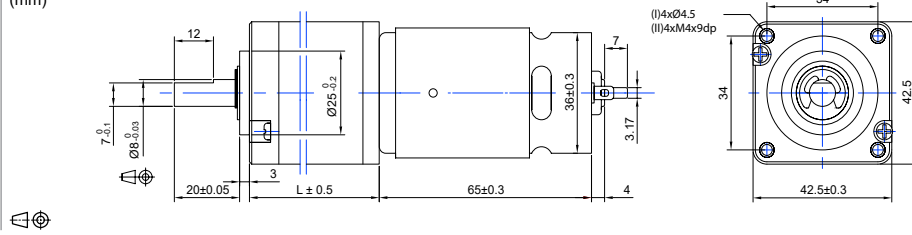
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	
Motor pinion gear	Metal	
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 78.5$ N	
Shaft axial load	$\leq 29.4$ N	
Shaft press fit force	$\leq 147$ N	
Radial play	$\leq 0.05$ mm	
Thrust play	$\leq 0.3$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	6400	6400
No load current (mA)	$\leq 300$	$\leq 160$
Nominal speed (rpm)	5800	5500
Nominal torque (mNm)	24.5	27.5
Nominal current (mA)	$\leq 1600$	$\leq 900$
Stall torque (mNm)	288	294
Starting current (A)	16.2	8.2
Output (W)	18.23	18.96
Length (mm)	65	65
Weight (g)	264	266

# PDS4265 / Ø 42mm / 17.1W / 15.6W

## DRAWING (mm)



## PHOTO



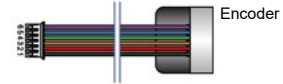
## MODEL NO. DESIGNATION

PDS4265 - VOLTAGE - REDUCTION - B F E C

Example: PDS4265-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



GEAR MOTOR DATA															
Reduction	4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1
Nominal torque 12 V (mNm) *	98	294	353	510	902	1079	1471	1863	1961	2452	2452	2942	2942	2942	2942
Nominal speed 12 V (rpm) *	1250	363	293	212	103	83.5	60.5	49	38	25.4	18.9	11.2	8.8	8	6.5
Nominal torque 24 V (mNm) *	88	255	304	441	785	981	1373	1667	1961	2452	2452	2942	2942	2942	2942
Nominal speed 24 V (rpm) *	1290	375	302	218	107	86.5	62.5	50.5	39	26.2	18.8	11.2	8.8	8	6.5
Length (mm)	91.15	97.95	97.95	97.95	104.75	104.75	104.75	104.75	104.75	111.45	111.45	111.45	111.45	111.45	111.45
Weight (g)	456	516	516	516	571	571	571	571	571	626	626	626	626	626	626

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

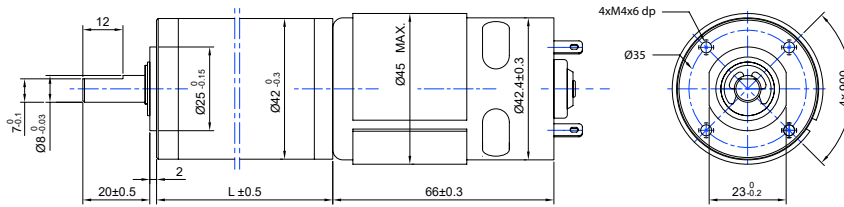
GEAR HEAD DATA															
Reduction	4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1
Max. continuous torque (mNm)	392	785	785	785	1471	1471	1471	1961	1961	2452	2452	2942	2942	2942	2942
Intermittently permissible torque (mNm)	1177	2354	2354	2354	4413	4413	4413	5884	5884	7355	7355	8826	8826	8826	8826
Efficiency %	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50
Length L (mm)	26.15	32.95	32.95	32.95	39.75	39.75	39.75	39.75	39.75	46.45	46.45	46.45	46.45	46.45	46.45
Weight (g)	190	250	250	250	305	305	305	305	305	360	360	360	360	360	360

GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10-...+60 °C	- 40-...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 78.5$ N	
Shaft axial load	$\leq 29.4$ N	
Shaft press fit force	$\leq 147$ N	
Radial play	$\leq 0.05$ mm	
Thrust play	$\leq 0.3$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
Nominal voltage (V)	12	24
No load speed (rpm)	6000	6000
No load current (mA)	$\leq 350$	$\leq 170$
Nominal speed* (rpm)	5090	5250
Nominal torque* (mNm)	31	27
Nominal current (mA)	$\leq 2100$	$\leq 900$
Stall torque (mNm)	269	243
Starting current (A)	15	7
Output (W)	17.1	15.6
Length (mm)	65	65
Weight (g)	266	266

# PD4266 / Ø 42mm / 41W / 35W

## DRAWING (mm)



## PHOTO



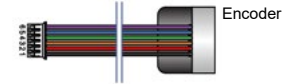
## MODEL NO. DESIGNATION

PD4266 - VOLTAGE - REDUCTION - B F E C

Example: PD4266-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1
Nominal torque 12 V (mNm) *	216	637	863	863	1765	1765	1765	1961	1961	2452	2452	2942	2942	2942	2942	2942	2942	2942	2942	2942
Nominal speed 12 V (rpm) *	1400	405	325	248	120	98	76	63	45	31	22	13.5	10.9	9.5	8	6.5	4.6	2.7	2.3	1.9
Nominal torque 24 V (mNm) *	177	530	647	785	1569	1765	1765	1961	1961	2452	2452	2942	2942	2942	2942	2942	2942	2942	2942	2942
Nominal speed 24 V (rpm) *	1445	420	340	246	122	102	77.5	63	47	31	21.8	13.5	10.9	9.5	8	6.5	4.6	2.7	2.3	1.9
Length (mm)	99	105	105	105	112	112	112	112	112	119	119	119	119	119	119	125	125	125	125	125
Weight (g)	499	551	551	551	591	591	591	591	591	641	641	641	641	641	641	686	686	686	686	686

\* Nominal speed and nominal torque have a tolerance of ± 15%

## GEAR HEAD DATA

Reduction	4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1
Max. continuous torque (mNm)	294	785	785	785	1765	1765	1765	1961	1961	2452	2452	2942	2942	2942	2942	2942	2942	2942	2942	2942
Intermittently permissible torque (mNm)	883	2354	2354	2354	5296	5296	5296	5884	5884	7355	7355	8826	8826	8826	8826	8826	8826	8826	8826	8826
Efficiency %	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40	40
Length L (mm)	32.5	39.2	39.2	39.2	45.9	45.9	45.9	45.9	45.9	52.6	52.6	52.6	52.6	52.6	52.6	59.3	59.3	59.3	59.3	59.3
Weight (g)	139	191	191	191	231	231	231	231	231	281	281	281	281	281	281	326	326	326	326	326

## GEAR MOTOR FEATURES AND STANDARD DATA

	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Straight teeth metal gears	Plastic
Motor pinion gear	Bakelite	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Optical encoder
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 3°	
Radial load 10 mm from gear flange	≤ 78.5 N	
Shaft axial load	≤ 29.4 N	
Shaft press fit force	≤ 147 N	
Radial play	≤ 0.05 mm	
Thrust play	≤ 0.3 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

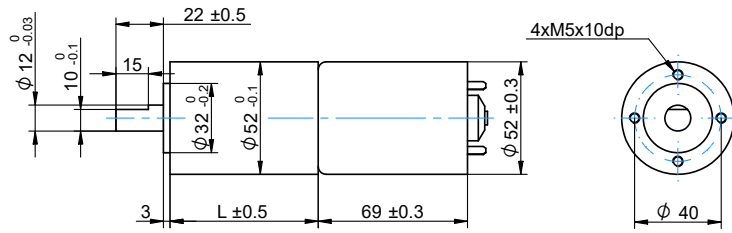
## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	7000	7000
No load current (mA)	≤ 900	≤ 500
Nominal speed (rpm)	5700	5900
Nominal torque (mNm)	69	56
Nominal current (mA)	≤ 5500	≤ 2100
Stall torque (mNm)	406	422
Starting current (A)	26	13
Output (W)	41	35
Length (mm)	66	66
Weight (g)	360	360



# PD5269 / Ø 52mm / 58.6W / 48.3W

## DRAWING (mm)



## PHOTO



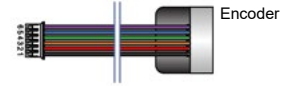
## MODEL NO. DESIGNATION

PD5269 - VOLTAGE - REDUCTION - B F E C

Example: PD5269-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	3:1	4:1	12:1	15:1	19:1	43:1	53:1	66:1	81:1	100:1	113:1	150:1	230:1	285:1	353:1	488:1	546:1	676:1
Nominal torque 12 V (mNm) *	130	160	400	490	620	1180	1480	1860	2260	2750	3140	3530	5390	6670	8240	9810	9810	9810
Nominal speed 12 V (rpm) *	1560	1260	450	369	305	130	105	85	68.5	55.5	49.5	37	24	19.5	15.5	11.5	10.4	8.3
Nominal torque 24 V (mNm) *	180	220	540	670	830	1570	1960	2450	3040	3830	4320	4710	7260	9020	9810	9810	9810	9810
Nominal speed 24 V (rpm) *	1520	1230	444	359	290	127	102	83	66.5	54	48	36	23.5	19	15.5	11.6	10.5	8.4
Length (mm)	122	122	137.5	137.5	137.5	153	153	153	153	153	153	168.5	168.5	168.5	168.5	168.5	168.5	168.5
Weight (g)	875	875	1060	1060	1060	1250	1250	1250	1250	1250	1250	1420	1420	1420	1420	1420	1420	1420

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	3:1	4:1	12:1	15:1	19:1	43:1	53:1	66:1	81:1	100:1	113:1	150:1	230:1	285:1	353:1	488:1	546:1	676:1
Max. continuous torque (Nm)	0.98	0.98	2.9	2.9	4.9	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
Intermittently permissible torque (Nm)	2.9	2.9	8.8	8.8	14.7	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
Efficiency %	80	80	70	70	60	60	60	60	60	60	60	60	50	50	50	50	50	50
Length L (mm)	53	53	68.5	68.5	84	84	84	84	84	84	84	84	99.5	99.5	99.5	99.5	99.5	99.5
Weight (g)	475	475	660	660	660	850	850	850	850	850	850	1020	1020	1020	1020	1020	1020	1020

## GEAR MOTOR FEATURES AND STANDARD DATA

	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	Plastic
Motor pinion gear	Metal	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10-...+60 °C	-40-...+60 °C
Backlash no load	$\leq 3^\circ$	
Radial load 10 mm from gear flange	$\leq 196$ N	
Shaft axial load	$\leq 98.1$ N	
Shaft press fit force	$\leq 294$ N	
Radial play	$\leq 0.04$ mm	
Thrust play	$\leq 0.3$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

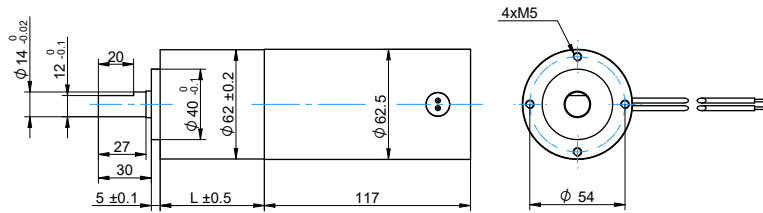
## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	6000	6000
No load current (mA)	$\leq 1750$	$\leq 750$
Nominal speed (rpm)	5600	5450
Nominal torque (mNm)	47.1	63.7
Nominal current (mA)	$\leq 5600$	$\leq 2750$
Stall torque (mNm)	531	600
Starting current (A)	28.6	16.9
Output (W)	58.6	48.3
Length (mm)	69	69
Weight (g)	480	480



# PD62117 / Ø 62mm / 15.7W / 26.9W

## DRAWING (mm)



## PHOTO



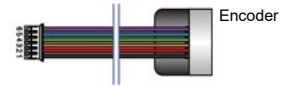
## MODEL NO. DESIGNATION

PD62117 - VOLTAGE - REDUCTION - B F E C

Example: PD62117-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	3:1	4:1	12:1	15:1	19:1	43:1	53:1	66:1	81:1	100:1	113:1	150:1	230:1	285:1	353:1	488:1	546:1	676:1
Nominal torque 12 V (mNm) *	250	290	740	920	1160	2260	2750	3430	4220	5300	5980	6570	9810	9810	9810	9810	9810	9810
Nominal speed 12 V (rpm) *	480	390	135	110	90	39.5	32	25.7	21	17	15	11	7.3	6	5	3.7	3.3	2.7
Nominal torque 24 V (mNm) *	410	500	1230	1540	1930	3730	4610	5790	7060	8830	9810	9810	9810	9810	9810	9810	9810	9810
Nominal speed 24 V (rpm) *	500	400	140	115	93	40.5	33	26.5	21.5	17.5	15.4	11.7	7.8	6.3	5.3	3.8	3.4	2.8
Length (mm)	160.6	160.6	176.1	176.1	191.6	191.6	191.6	191.6	191.6	191.6	207.1	207.1	207.1	207.1	207.1	207.1	207.1	207.1
Weight (kg)	1.65	1.65	1.92	1.92	1.92	2.2	2.2	2.2	2.2	2.2	2.2	2.48	2.48	2.48	2.48	2.48	2.48	2.48

\* Nominal speed and nominal torque have a tolerance of ± 15%

## GEAR HEAD DATA

Reduction	3:1	4:1	12:1	15:1	19:1	43:1	53:1	66:1	81:1	100:1	113:1	150:1	230:1	285:1	353:1	488:1	546:1	676:1
Max. continuous torque (Nm)	1.47	1.47	4.91	4.91	4.91	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81
Intermittently permissible torque (Nm)	4.41	4.41	14.7	14.7	14.7	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
Efficiency %	80	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	50
Length L (mm)	43.6	43.6	59.1	59.1	59.1	74.6	74.6	74.6	74.6	74.6	74.6	90.1	90.1	90.1	90.1	90.1	90.1	90.1
Weight (g)	670	670	940	940	1220	1220	1220	1220	1220	1220	1220	1500	1500	1500	1500	1500	1500	1500

## GEAR MOTOR FEATURES AND STANDARD DATA

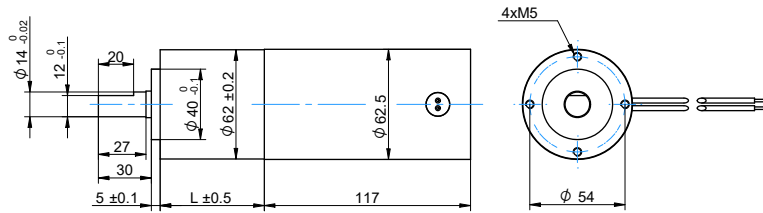
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	Plastic
Motor pinion gear	Metal	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 3°	
Radial load 10 mm from gear flange	≤ 245 N	
Shaft axial load	≤ 98.1 N	
Shaft press fit force	≤ 490 N	
Radial play	≤ 0.08 mm	
Thrust play	≤ 0.4 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA

Nominal voltage (V)	12	24
No load speed (rpm)	2000	2000
No load current (mA)	≤ 1800	≤ 1500
Nominal speed (rpm)	1700	1750
Nominal torque (mNm)	88.3	147
Nominal current (mA)	≤ 1800	≤ 1500
Stall torque (mNm)	590	810
Starting current (A)	15	10
Output (W)	15.7	26.9
Length (mm)	117	117
Weight (g)	1650	1650

# PD71125 / Ø 71mm / 27.7W / 46.2W

## DRAWING (mm)



## PHOTO



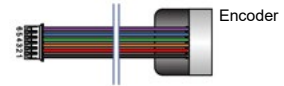
## MODEL NO. DESIGNATION

PD71125 - VOLTAGE - REDUCTION - B F E C

Example: PD71125-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



GEAR MOTOR DATA																			
Reduction	4:1	13:1	16:1	20:1	50:1	60:1	75:1	91:1	102:1	126:1	189:1	242:1	300:1	363:1	414:1	493:1	543:1	611:1	
Nominal torque 12 V (Nm) *	0.41	1.35	1.65	2.00	4.40	5.30	6.57	7.95	8.93	11.1	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Nominal speed 12 V (rpm) *	510	135	112	90.9	36	29.7	24	19.7	17.6	14.2	9.5	7.5	6.2	5.1	4.4	3.7	3.4	3	
Nominal torque 24 V (Nm) *	0.69	2.27	2.75	3.39	7.35	8.89	11.0	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Nominal speed 24 V (rpm) *	510	135	112	90.9	36	29.7	24	19.8	17.7	14.3	9.6	7.6	6.3	5.2	4.5	3.8	3.5	3.1	
Length (mm)	174.6	190.8	190.8	190.8	207.3	207.3	207.3	207.3	207.3	207.3	223.8	223.8	223.8	223.8	223.8	223.8	223.8	223.8	
Weight (kg)	2.44	2.77	2.77	2.77	3.1	3.1	3.1	3.1	3.1	3.1	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	

\* Nominal speed and nominal torque have a tolerance of ± 15%

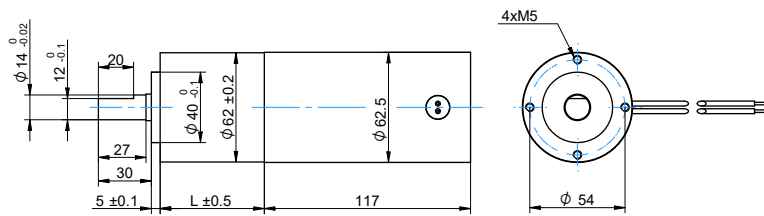
GEAR HEAD DATA																			
Reduction	4:1	13:1	16:1	20:1	50:1	60:1	75:1	91:1	102:1	126:1	189:1	242:1	300:1	363:1	414:1	493:1	543:1	611:1	
Max. continuous torque (Nm)	1.47	6.87	6.87	6.87	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Intermittently permissible torque (Nm)	4.41	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	
Efficiency %	80	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	50	50	
Length L (mm)	49.3	65.8	65.8	65.8	82.3	82.3	82.3	82.3	82.3	82.3	82.3	98.9	98.9	98.9	98.9	98.9	98.9	98.9	
Weight (kg)	0.90	1.23	1.23	1.23	1.56	1.56	1.56	1.56	1.56	1.56	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	

GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	Plastic
Motor pinion gear	Metal	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10-...+60 °C	- 40-...+60 °C
Backlash no load	≤ 3°	
Radial load 10 mm from gear flange	≤ 245 N	
Shaft axial load	≤ 98.1 N	
Shaft press fit force	≤ 490 N	
Radial play	≤ 0.08 mm	
Thrust play	≤ 0.4 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
Nominal voltage (V)	12	24
No load speed (rpm)	2000	2000
No load current (mA)	≤ 800	≤ 400
Nominal speed (rpm)	1800	1800
Nominal torque (mNm)	147	245
Nominal current (mA)	≤ 3000	≤ 2500
Stall torque (mNm)	1200	1500
Starting current (A)	30	20
Output (W)	27.7	46.2
Length (mm)	125	125
Weight (g)	1650	1650

# PD80138 / Ø 80mm / 43.6W / 59W

## DRAWING (mm)



## PHOTO



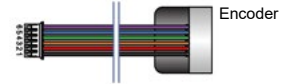
## MODEL NO. DESIGNATION

PD80138 - VOLTAGE - REDUCTION - B F E C

Example: PD80138-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



GEAR MOTOR DATA																			
Reduction	4:1	13:1	15:1	19:1	21:1	49:1	55:1	71:1	80:1	103:1	117:1	186:1	210:1	306:1	393:1	445:1	571:1	647:1	
Nominal torque 12 V (Nm) *	0.75	2.2	2.5	3.1	3.5	7.2	8.0	10.3	11.8	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Nominal speed 12 V (rpm) *	445	130	115	90	80	34	30	23.5	21	16.7	14.7	9.3	8.3	5.8	4.5	4	3.2	2.8	
Nominal torque 24 V (Nm) *	0.95	2.8	3.1	4.0	4.6	9.1	9.7	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Nominal speed 24 V (rpm) *	470	140	124	95	85	36	32	25.5	23	17.8	15.6	9.9	8.8	6	4.7	4.2	3.3	2.9	
Length (mm)	190.3	206.8	206.8	206.8	206.8	223.3	223.3	223.3	223.3	223.3	223.3	239.8	239.8	239.8	239.8	239.8	239.8	239.8	
Weight (kg)	3.05	3.5	3.5	3.5	3.5	3.95	3.95	3.95	3.95	3.95	3.95	4.4	4.4	4.4	4.4	4.4	4.4	4.4	

\* Nominal speed and nominal torque have a tolerance of ± 15%

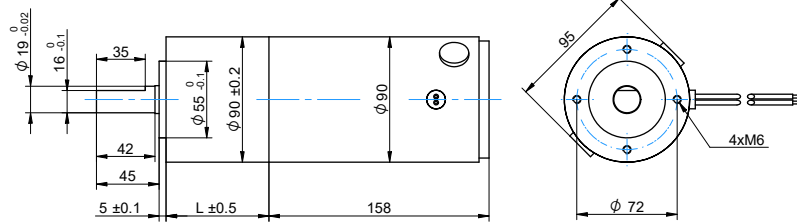
GEAR HEAD DATA																			
Reduction	4:1	13:1	15:1	19:1	21:1	49:1	55:1	71:1	80:1	103:1	117:1	186:1	210:1	306:1	393:1	445:1	571:1	647:1	
Max. continuous torque (Nm)	1.5	6.9	6.9	6.9	6.9	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	
Intermittently permissible torque (Nm)	4.4	20.6	20.6	20.6	20.6	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	
Efficiency %	80	70	70	70	70	60	60	60	60	60	60	50	50	50	50	50	50	50	
Length L (mm)	52.3	68.8	68.8	68.8	68.8	85.3	85.3	85.3	85.3	85.3	85.3	101.8	101.8	101.8	101.8	101.8	101.8	101.8	
Weight (g)	1.20	1.65	1.65	1.65	1.65	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.6	2.6	2.6	2.6	2.6	2.6	

GEAR MOTOR FEATURES AND STANDARD DATA		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	Plastic
Motor pinion gear	Metal	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magnetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	≤ 3°	
Radial load 10 mm from gear flange	≤ 294 N	
Shaft axial load	≤ 98.1 N	
Shaft press fit force	≤ 736 N	
Radial play	≤ 0.08 mm	
Thrust play	≤ 0.4 mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

MOTOR DATA		
Nominal voltage (V)	12	24
No load speed (rpm)	2000	2000
No load current (mA)	≤ 1100	≤ 600
Nominal speed (rpm)	1700	1800
Nominal torque (mNm)	245	314
Nominal current (mA)	≤ 5300	≤ 3400
Stall torque (mNm)	1400	1600
Starting current (A)	40	35
Output (W)	43.6	59
Length (mm)	138	138
Weight (g)	1650	1650

# PD90158 / Ø 90mm / 68.4W / 80W

## DRAWING (mm)



## PHOTO



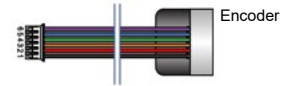
## MODEL NO. DESIGNATION

PD90158 - VOLTAGE - REDUCTION - B F E C

Example: PD90158-12-4-BFEC

B = Ball bearing E = Encoder  
F = EMC Filter C = Plastic encoder cover

## ADDITIONAL



## GEAR MOTOR DATA

Reduction	4:1	15:1	19:1	52:1	60:1	77:1	98:1	201:1	294:1	403:1	517:1
Nominal torque 12 V (Nm) *	0.98	3.6	4.7	11.3	13.0	14.7	14.7	14.7	14.7	14.7	14.7
Nominal speed 12 V (rpm) *	500	123	96	34	31	24	19	9.2	6.4	4.6	3.6
Nominal torque 24 V (Nm) *	1.2	4.1	5.4	12.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Nominal speed 24 V (rpm) *	510	127	99	35	31	25	20	9.4	6.5	4.7	3.7
Length (mm)	215.3	231.8	231.8	248.3	248.3	248.3	248.3	264.8	264.8	264.8	264.8
Weight (g)	4.52	5.08	5.08	5.65	5.65	5.65	5.65	6.22	6.22	6.22	6.22

\* Nominal speed and nominal torque have a tolerance of  $\pm 15\%$

## GEAR HEAD DATA

Reduction	4:1	15:1	19:1	52:1	60:1	77:1	98:1	201:1	294:1	403:1	517:1
Max. continuous torque (Nm)	1.96	7.90	7.90	14.7	14.7	14.7	14.7	17.7	17.7	17.7	17.7
Intermittently permissible torque (Nm)	5.90	23.5	23.5	44.2	44.2	44.2	44.2	53.0	53.0	53.0	53.0
Efficiency %	80	70	70	60	60	60	60	50	50	50	50
Length L (mm)	57.3	73.8	73.8	90.3	90.3	90.3	90.3	106.8	106.8	106.8	106.8
Weight (g)	1670	2230	2230	2800	2800	2800	2800	3370	3370	3370	3370

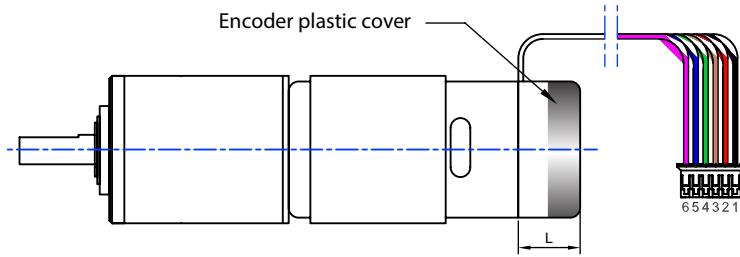
## GEAR MOTOR FEATURES AND STANDARD DATA

	STANDARD	CUSTOMIZATION OPTIONS
Type	Planetary brush dc gear motor	
Motor type	Iron core, brush commutation	Winding parameters
Motor brush type	Carbon brushes	
Motor terminals	Soldering ears	Wiring harnesses, cables and connectors
EMC filter	Yes	
Gears	Plastic/Powder metal	Plastic
Motor pinion gear	Metal	Metal
Bearing	Ball bearing	
Shaft	Hardened stainless steel	Dimensions
Encoder option	Magetic encoder (to order as option)	Through shaft dimensions and screw holes
Operating temperature	-10...+60 °C	-40...+60 °C
Backlash no load	$\leq 4^\circ$	
Radial load 10 mm from gear flange	$\leq 392$ N	
Shaft axial load	$\leq 98.1$ N	
Shaft press fit force	$\leq 981$ N	
Radial play	$\leq 0.08$ mm	
Thrust play	$\leq 0.4$ mm	
Manufacturing quality standards	ISO 9001	
RoHS compliance	Yes	
CE label	Yes	Yes

## MOTOR DATA




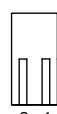
Nominal voltage (V)	12	24
No load speed (rpm)	2000	2000
No load current (mA)	$\leq 1500$	$\leq 950$
Nominal speed (rpm)	1800	1860
Nominal torque (mNm)	363	412
Nominal current (mA)	$\leq 8300$	$\leq 3900$
Stall torque (mNm)	1500	2500
Starting current (A)	60	40
Output (W)	68.4	80
Length (mm)	158	158
Weight (g)	2150	2150

# Encoder / 6/14/38 counts per revolution / 2 channels



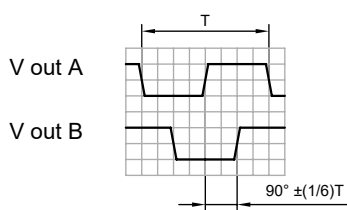
ENCODER FEATURES		
	STANDARD	CUSTOMIZATION OPTIONS
Type	Magnetic	Yes
Counts per revolution		Yes
Number of channels	2	1
Harness		Yes
Connector		Yes
Encoder rear cover	Black plastic	Yes
Operating temperature range	-10 to +60°C	
Manufacturing quality standard	ISO9001	
RoHS compliance	Yes	
CE label	No	Yes
UL approval	No	Yes
Open collector output (VoutA, VoutB)		

MOTOR AND ENCODER CONNECTION	
Motor -	1. Black
Motor +	2. Red
Vcc. Hall sensor	3. Brown
GND. Hall sensor	4. Green
V out A. Hall sensor	5. Blue
V out B. Hall sensor	6. Purple

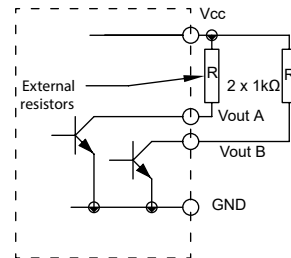
CONNECTOR TYPES			
JST ZHR-6 P=1.5-6P	JST PHR-4 P=2.0-4P	JST PHR-6 P=2.0-6P	Molex 09-50-3021 P=3.96-2P
			
12345 6	6 5 4 3	6 5 4 3 2 1	2 1

ENCODER DATA						
Gear motor model	PD1230, PD1330, PD1626	PD2232	PD2846, PD3046, PD3237, PD3246	PD3557, PD3665, PD3865, PDS4265	PD4266	PD5269, PD62117, PD71125, PD80138, PD90158
Hall sensor	UTC SK1816	UTC SK1816	UTC SK1816	UTC SK1816	UTC SK1816	UTC SK1816
Number of encoder channels	2	2	2	2	2	2
Counts per revolution per channel (CPR)	6	6	14	14	38	38
Encoder cable length (mm)	100	100	100	100	100	100
Wire gauge (AWG)	AWG26/UL1061	AWG24/UL1007	AWG24/UL1007	AWG24/UL1007	AWG24/AWG18/UL1007	AWG24/AWG16-18/UL1007
Cable conector	JST ZHR-6 P=1.5-6P	JST PHR-6 P=2.0-6P	JST PHR-6 P=2.0-6P	JST PHR-6 P=2.0-6P	JST PHR-4 P=2.0-4P Molex	JST PHR-4 P=2.0-4P Molex
Encoder plastic rear cover length L (mm)	No cover	No cover	12.6	13.5	15.5	18

Encoder output way form



Encoder output circuit



ENCODER TEST DATA						
CHARACTERISTIC	SYMBOLS	TEST CONDITIONS	MIN	REF	MAX	UNITS
Supply voltage	Vcc	---	3.5	-	20	V
Output saturation voltage	Vce (sat)	Vcc = 14V ; Ic = 20m	-	300	700	mV
Output leakage current	Icex	Vce = 14V ; Vcc = 14	-	< 0.1	10	µA
Supply Current	Ice	Vcc = 20V Output open	-	5	10	mA
Output rise time	tr	Vcc = 14V; R = 820 Ohm; CL = 20pF	-	0.3	1.5	µS
Output fall time	tf	Vcc = 14V; R = 820 Ohm; CL = 20pF	-	0.3	1.5	µS
Phase shift	φ	---	90 ± (1/6)T			°