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TECHNOLOGY GROUP

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Expert team | Trust guarantee | 100% satisfaction

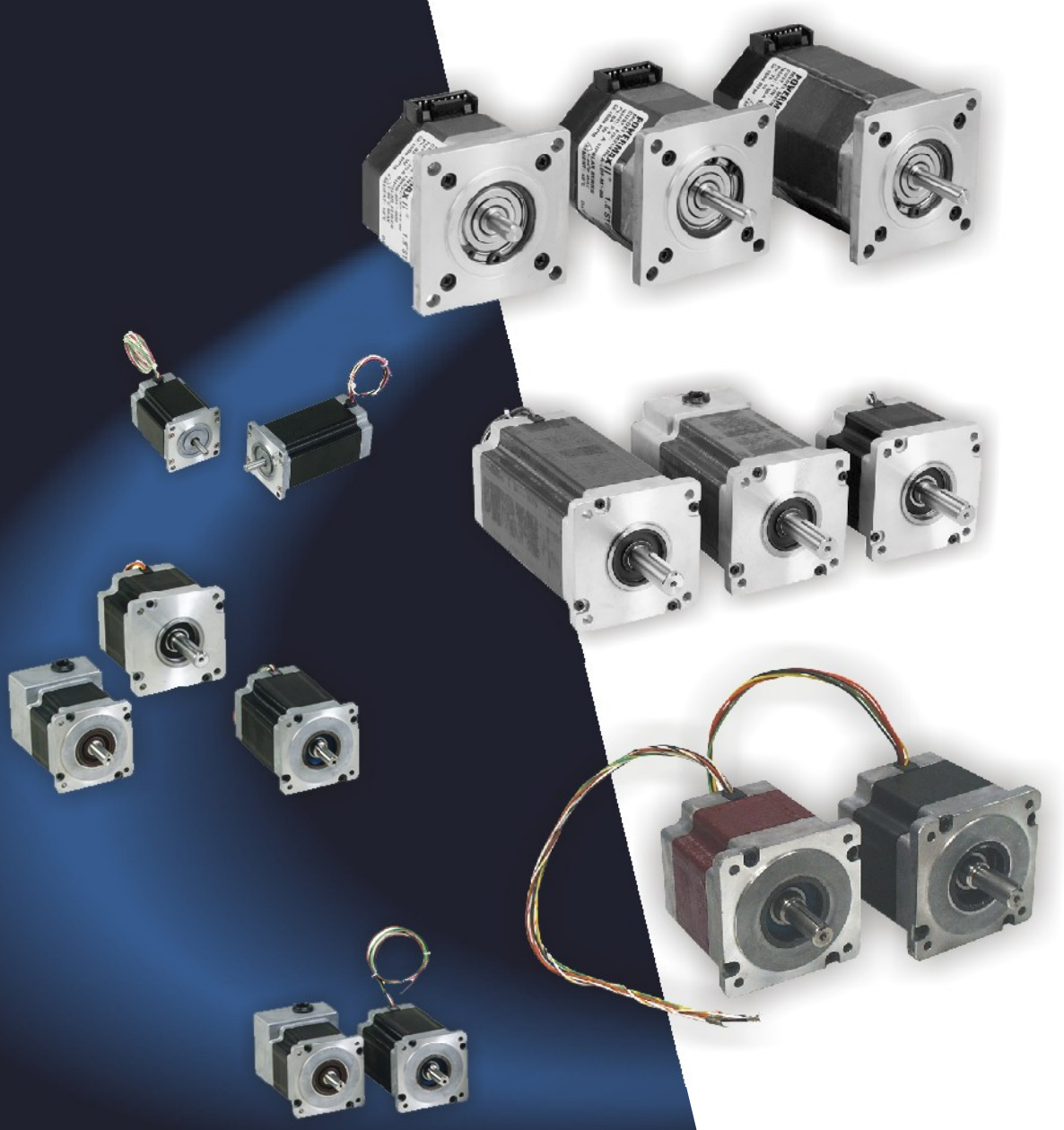
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Find the *Kollmorgen / Pacific Scientific K32HSFL-LNK-NS-02* at our website: *Click HERE*

PACIFIC SCIENTIFIC

www.DanaherMotion.net

Step Motors
K, M, N, P series



Solutions by DANAHER MOTION

Edition 07.2004
english

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Stepper Motor Series P, M, N, K

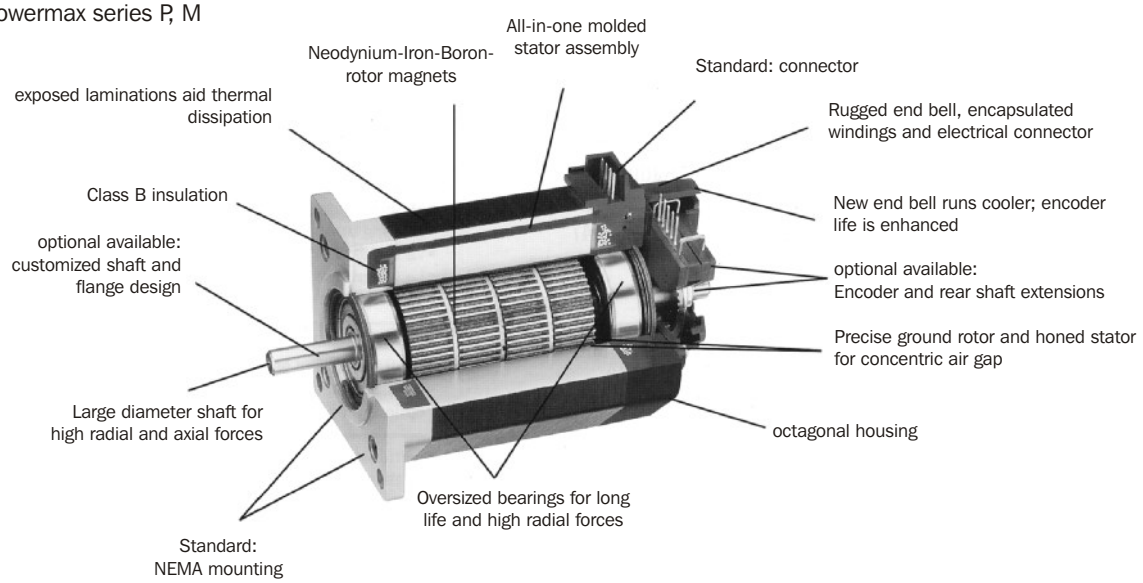
These frame hybrid steppers from Pacific Scientific provide an excellent torque to frame size ratio. Otimized magnetics in combination with a new rotor/stator design produce more torque and a higher acceleration. This unique design also features low detent torque for smoother microstepping.
Series M and K are equipped with additional magnets in the stator slots (Sigmax®) for additional torque increase at identic motor size.

Powermax (Series P and M)
The motors in size NEMA 23 have an octagonal housing. In standard version all motors have an 8-pole connector.

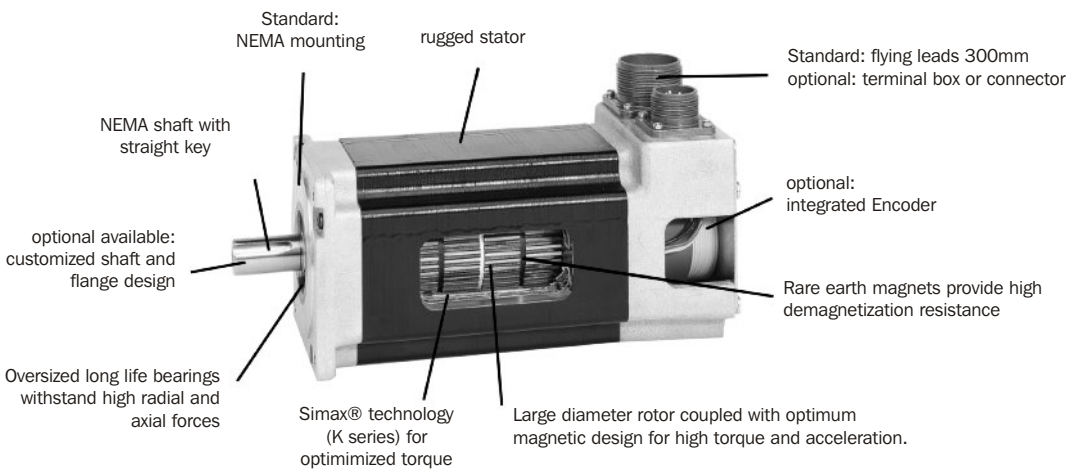
Powerpac (Series N and K)
The motors in size NEMA 34 and 42 have a square housing. In standard version all motors have an 8-pole flying lead connection.

Motor Design

Powermax series P, M



Powerpac series N, K



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Features

Powermax series M and P

- 2-phase hybrid stepper motor in size NEMA 23
- Smooth shaft Ø 6,35 mm
- Full step angle 1,8°
- Fully encapsulated stator
- Protection class IP 23
- Oversized bearings withstand high radial and axial loads
- Optimized housing design for cooling
- CE certification
- Highest dynamics at shortest positioning times
- 8 pin connector for serial or parallel connection



Powerpac series N and K

- 2-phase hybrid stepper motor in size NEMA 34 and NEMA 42
- Shaft with straight keyway
- Full step angle 1,8°
- Optimized magentic design for increased performance
- Protection class IP 44 (optional IP 65, with terminal box)
- Longlife steal bearing bore in front bell
- Optimized housing design for cooling
- CE certification, UL certification (motor insulation class B, File E03510)
- 8 flying leads for serial or parallel connection

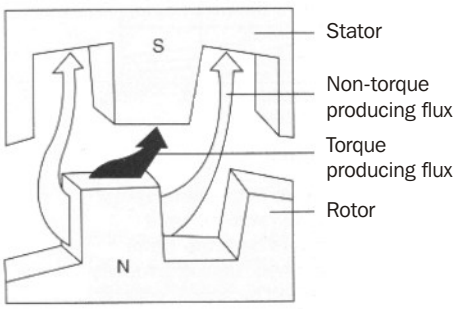
Options

- several feedback options
- several gearhead options
- brake
- double shaft
- several connection options
- low inertia rotor

Optimized Magnetic Flux

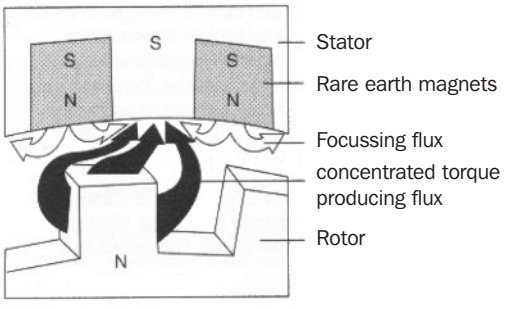
Series M and K are equipped with additional magnets in the stator slots (Sigmax® technology). The non-torque producing flux is reduced, this increases torque by 20 to 30% at the same dimensions and windings.

Standard: series N and P



Typical path of flux transfer in an energized conventional hybrid step motor. Some flux leakage occurs in normal operation.

Sigmax® : series K and M



Patented Sigmax® technology redirects magnetic flux to inhibit leakage and optimize torque production.

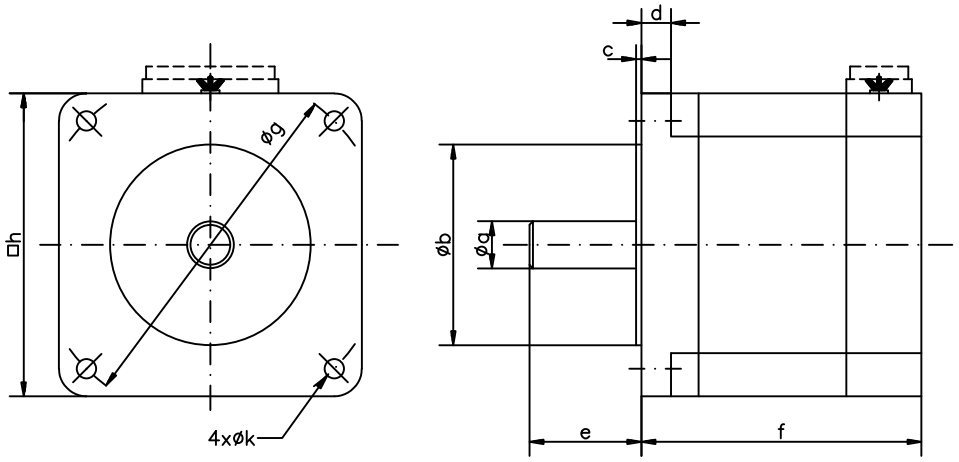
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	Type	Holding torque per winding [Nm]	Rated current per winding [A]	Resistance per winding [Ohm]	Inductance per winding [mH]	Detent torque [Nm]	Rotor inertia [kgm²x10⁻³]	Weight [kg]
POWERMAX	P2HN--F	0,42	1,6	3,80	5,1	0,018	0,007	0,45
	P2HN--C	0,43	2,5	1,68	2,3	0,018	0,007	0,45
	P2HN--H	0,42	5,2	0,44	0,5	0,018	0,007	0,45
	P21N--D	0,77	1,5	5,22	10,3	0,03	0,012	0,68
	P21N--C	0,82	3,5	1,06	2,3	0,03	0,012	0,68
	P21N--B	0,79	4,6	0,64	1,1	0,03	0,012	0,68
	P21N--A	0,81	5,6	0,46	0,8	0,03	0,012	0,68
	M21N--D	0,95	1,5	5,22	8,7	0,066	0,012	0,68
	M21N--C	1,02	3,5	1,06	2,0	0,066	0,012	0,68
	M21N--B	0,97	4,6	0,64	1,0	0,066	0,012	0,68
	M21N--A	1,00	5,6	0,46	0,7	0,066	0,012	0,68
	P22N--D	1,43	2,5	2,44	6,2	0,05	0,025	1,13
	P22N--C	1,43	3,1	1,56	3,9	0,05	0,025	1,13
	P22N--B	1,51	4,6	0,76	2,1	0,05	0,025	1,13
	P22N--A	1,39	6,5	0,42	0,8	0,05	0,025	1,13
	M22N--D	1,68	2,5	2,44	5,0	0,12	0,025	1,13
	M22N--C	1,68	3,1	1,56	3,1	0,12	0,025	1,13
	M22N--B	1,79	4,6	0,76	1,7	0,12	0,025	1,13
	M22N--A	1,62	6,5	0,42	0,7	0,12	0,025	1,13
POWERPAC	N31H--H	4,5	2,8	3,10	12,5	0,13	0,14	2,3
	N31H--J	4,5	5,5	0,84	3,5	0,13	0,14	2,3
	N31H--K	4,7	6,6	0,58	2,6	0,13	0,14	2,3
	N31H--L	4,6	8,6	0,36	1,4	0,13	0,14	2,3
	K31H--H	5,7	2,8	3,10	10,2	0,18	0,14	2,3
	K31H--J	5,8	5,5	0,84	2,8	0,18	0,14	2,3
	K31H--K	6,0	6,6	0,58	2,1	0,18	0,14	2,3
	K31H--L	5,9	8,6	0,36	1,2	0,18	0,14	2,3
	N32H--J	8,4	5,1	1,27	6,5	0,25	0,27	3,8
	N32H--K	8,8	6,1	0,90	5,1	0,25	0,27	3,8
	N32H--L	8,5	8,1	0,52	2,6	0,25	0,27	3,8
	N32H--M	8,6	10,0	0,35	1,8	0,25	0,27	3,8
	K32H--J	10,7	5,1	1,27	5,1	0,35	0,27	3,8
	K32H--K	11,1	6,1	0,90	4,0	0,35	0,27	3,8
	K32H--L	10,7	8,1	0,52	2,0	0,35	0,27	3,8
	K32H--M	10,8	10,0	0,35	1,4	0,35	0,27	3,8
	N33H--J	12,1	5,0	1,65	9,0	0,38	0,4	5,4
	N33H--K	12,4	6,1	1,12	6,4	0,38	0,4	5,4
	N33H--L	13,0	9,0	0,53	3,4	0,38	0,4	5,4
	N33H--M	12,1	9,9	0,44	2,3	0,38	0,4	5,4
	K33H--J	15,1	5,0	1,65	7,0	0,53	0,4	5,4
	K33H--K	15,6	6,1	1,12	5,0	0,53	0,4	5,4
	K33H--L	16,5	9,0	0,53	2,6	0,53	0,4	5,4
	K33H--M	15,2	9,9	0,44	1,2	0,53	0,4	5,4
	N34H--J	15,3	5,5	1,60	11,5	0,4	0,53	6,8
	N34H--K	14,4	6,0	1,35	8,1	0,4	0,53	6,8
	N34H--L	15,4	8,7	0,66	4,7	0,4	0,53	6,8
	N34H--M	15,1	11,3	0,44	2,6	0,4	0,53	6,8
	K34H--J	19,6	5,5	1,60	8,9	0,5	0,53	6,8
	K34H--K	18,2	6,0	1,35	6,3	0,5	0,53	6,8
	K34H--L	19,7	8,7	0,66	3,6	0,5	0,53	6,8
	K34H--M	19,2	11,3	0,41	2,0	0,5	0,53	6,8
	N41H--J	11,5	5,5	1,16	10,1	0,3	0,55	2,3
	N41H--L	11,5	8,7	0,47	3,9	0,3	0,55	2,3
	N41H--M	11,7	10,7	0,31	2,8	0,3	0,55	2,3
	K41H--J	14,8	5,5	1,16	7,8	0,46	0,55	2,3
	K41H--L	14,8	8,7	0,47	3,1	0,46	0,55	2,3
	K41H--M	15,1	10,7	0,31	2,2	0,46	0,55	2,3
	N42H--K	21,9	6,4	1,20	12,8	0,59	1,09	8,3
	N42H--L	21,8	8,1	0,75	7,8	0,59	1,09	8,3
	N42H--M	22,2	9,9	0,51	5,5	0,59	1,09	8,3
	N42H--N	22,1	15,8	2,10	2,1	0,59	1,09	8,3
	K42H--K	28,0	6,4	1,20	9,8	0,69	1,09	8,3
	K42H--L	27,8	8,1	0,75	6,0	0,69	1,09	8,3
	K42H--M	28,4	9,9	0,51	4,2	0,69	1,09	8,3
	K42H--N	28,2	15,8	2,10	1,6	0,69	1,09	8,3
	N43H--K	30,6	6,2	1,65	19,6	0,75	1,62	11,6
	N43H--L	30,0	8,0	0,99	11,0	0,75	1,62	11,6
	N43H--M	30,5	9,9	0,66	7,7	0,75	1,62	11,6
	N43H--N	30,8	15,4	0,28	3,2	0,75	1,62	11,6
	K43H--K	39,3	6,2	1,65	15,2	0,83	1,62	11,6
	K43H--L	39,0	8,0	0,99	8,5	0,83	1,62	11,6
	K43H--M	39,7	9,9	0,66	5,9	0,83	1,62	11,6
	K43H--N	40,2	15,4	0,28	2,5	0,83	1,62	11,6

Standard | Sigmax®

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Dimensions



Type	a/mm	b/mm	c/mm	d/mm	e/mm	f/mm	g/mm	h/mm	k/mm
P2Hxxxx	6,35	38,1	1,4	5,1	20,60	40,7	66,67	57,10	5,08
P/M21xxxx	6,35	38,1	1,4	5,1	20,60	52,4	66,67	57,10	5,08
P/M22xxxx	6,35	38,1	1,4	5,1	20,60	78,8	66,67	57,10	5,08
N/K31xxxx	12,70	73,0	1,5	8,4	31,75	79,5	98,43	86,00	5,60
N/K32xxxx	12,70	73,0	1,5	8,4	31,75	118,0	98,43	86,00	5,60
N/K33xxxx	15,88	73,0	1,5	8,4	31,75	157,0	98,43	86,00	5,60
N/K34xxxx	15,88	73,0	1,5	8,4	31,75	195,0	98,43	86,00	5,60
N/K41xxxx	19,05	55,52	1,52	12,2	55,63	98,81	125,72	109,86	8,33
N/K42xxxx	19,05	55,52	1,52	12,2	55,63	150,11	125,72	109,86	8,33
N/K43xxxx	19,05	55,52	1,52	12,2	55,63	201,17	125,72	109,86	8,33

Order code

N	3	3	H	C	H	J	-	L	E	K	-	N	S	-	0	1

Series
- P - Standard (Powermax)
- M - Sigmax® version (Powermax)
- N - Standard (Powerpac)
- K - Sigmax® version (Powerpac)

Size
- 2 - NEMA 23 (57,15 mm Ø) (Powermax only)
- 3 - NEMA 34 (96,52 mm Ø) (Powerpac only)
- 4 - NEMA 42 (109,85 mm Ø) (Powerpac only)

Number of Rotor Stacks
- H - 1/2 stack (Powermax only)
- 1 - 1 stack
- 2 - 2 stack
- 3 - 3 stack (Powerpac only)
- 4 - 4 stack (Powerpac only)

Mounting Configuration
- N - NEMA (Powermax only)
- H - Heavy Duty NEMA (Powerpac only)
- S - Special (upon request)

Construction/Hookup
- R - Regular
- C - System MS connector (Powerpac only)
- L - Splashproof/to terminal board via conduit connector: 1/2" NPS pipe thread (Powerpac only)
- M - Splashproof/to terminal board via conduit connector: metric PG11 pipe thread (Powerpac only)
- S - Special (upon request)

Winding/Leads
- x - Receptacle (Powermax only) - Please order cable separately!
- F - 8 lead (n/a C construction)
- L - 4 lead series
- H - 4 lead parallel
- E - 6 lead (n/a C construction) (Powerpac only)

Special Sequence
- 00 - Standard motor, no shaft seal
- 01 - Standard motor with shaft seal (Powerpac only)
- xx - Numbers assigned for special motors (upon request)

Encoder Options
- NS - No feedback
- xx - Several encoders available (upon request)
- M1 - Encoder mounting provision (Powermax only)
- M2 - Encoder mounting provision (Powerpac only)
- SS - Special (upon request)

Shaft Modifications
- N - Smooth (Powermax only)
- F - Flat
- K - Straight key (Powerpac only)
- S - Special (upon request)

Shaft Configuration
- N - Single
- D - Double (R and C construction only)
- E - Double ended for encoder
- S - Special (upon request)

Rotor Types
- L - Laminated
- J - Low inertia (Powermax only, n/a for 1/2 stack)

Winding Types
- A-N - Refer to winding data
- S - Special (upon request)

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