PIX SERIES

IRONCORE LINEAR MOTOR

COMPACT DESIGN

ultra high force motion system

PBA SYSTEMS

www.pbasystems.com.sg

PART NUMBERING SYSTEM

Coil Assembly

PIX 200-027-050 - S - TC - 2.0 - FC - HC - 00

MOTOR MODEL

MOTOR COIL SIZE

200-027-030
200-027-050
200-027-080
200-040-030
200-040-050
200-040-080

CONNECTION TYPE

S	Series
P	Parallel

THERMAL PROTECTION

TC*	PT100 (Stock Program)
TM*	Thermostat

CABLE LENGTH***

0.5	0.5m
1.0	1.0m
2.0	2.0m
3.0	3.0m
4.0	4.0m
5.0	5.0m

DESIGN VERSIONS

00	Standard
01	Customized Version
	:

HALL SENSOR AND CONNECTOR OPTIONS

NH	No Hall Sensor
H	Hall Sensor with Flying Leads (No Connector)
HC	Hall Sensor with 9 pins D Sub Male Connector
CHC	Hall Sensor with 5 pins Circular Quick Lock Male Connector

POWER CABLE OPTIONS

NF	No Ferrite Core (Not recommended)
FC	Ferrite Core (Standard)
9NF	No Ferrite Core D Sub 9 pins Female Connector
CNF	No Ferrite Core, Circular Quick Lock 6 pins Male Connector

* TC - Sensor output to temperature controller
** TM - On/Off switch, triggers at 100°C
*** Minimum Bending Radius - 10 times of cable diameter

Magnet Track

PIXM030 - TL064 - NC

MOTOR MODEL

PIXM030
PIXM050
PIXM080

TRACK COVER

NC	Without Cover
C	With Cover

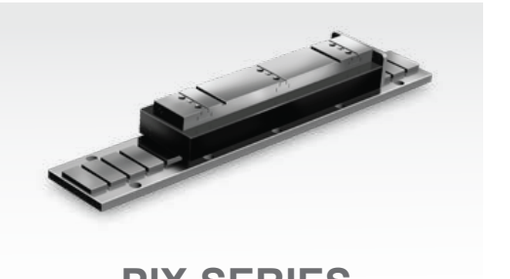
TOTAL TRACK LENGTH

TL064 - 64mm
TL128 - 128mm
TL192 - 192mm
TL320 - 320mm

* Minimum Bending Radius - 10 times of cable diameter

PIX 200-027

- Peak force to 1393N, Continuous force to 279N
- Hall Sensor (Optional)



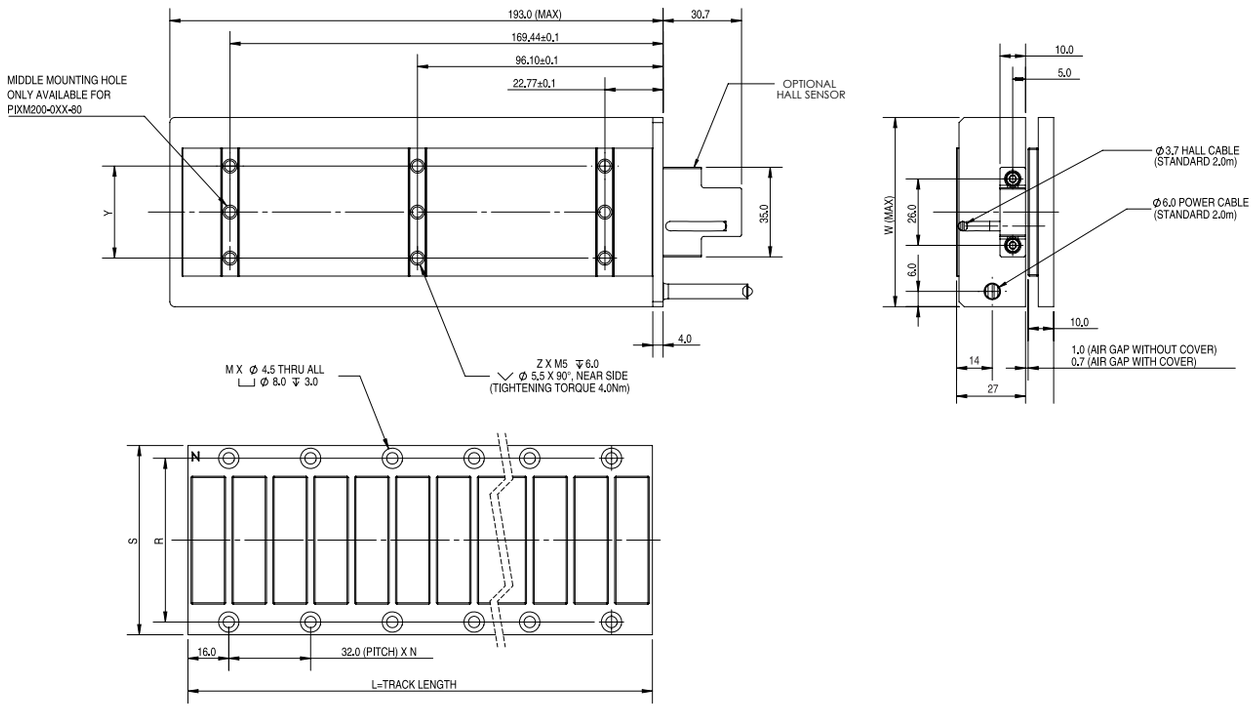
PIX SERIES
IRONCORE LINEAR MOTOR

SPECIFICATION		MODEL					
		PIX200-027					
		PIX200-027-030		PIX200-027-050		PIX200-027-080	
Connection Type		S	P	S	P	S	P
Performance	**Unit**						
Peak Force	N	542		893		1393	
Continuous Force @ 120ºC*	N	108		179		279	
Continuous Stall Force @ 120ºC*	N	77		126		197	
Peak Power @ 120ºC	W	1823		2323		2932	
Continuous Power @ 120ºC*	W	73		93		117	
Electrical							
Peak Current	A^{pk}	30.4	60.8	29.3	58.7	27.9	55.7
Continuous Current @ 120ºC*	A^{pk}	6.1	12.2	5.9	11.7	5.6	11.1
Continuous Stall Current @ 120ºC*	Arms	4.30	8.60	4.15	8.30	3.94	7.88
Force Constant	N/A^{pk}	17.8	8.9	30.4	15.2	50.0	25.0
Back EMF Constant	$V^{pk}/m/s$	20.5	10.3	35	17.5	57.5	28.8
Coil Resistance L-L @ 25ºC	ohm	1.9	0.5	2.6	0.7	3.6	0.9
Coil Resistance L-L @ 120ºC*	ohm	2.6	0.7	3.6	0.9	5.0	1.3
Inductance L-L @ 1kHz	mH	4.9	1.2	7.1	1.8	10.5	2.6
Motor Constant @ 25ºC*	N/√W	14.9		21.8		30.3	
Motor Constant @ 120ºC*	N/√W	12.7		18.5		25.7	
Max. Terminal Voltage	Vdc	600					
Thermal							
Thermal Resistance @ 120ºC*	ºC/W	1.3		1.02		0.81	
Max. Coil Temperature	ºC	120					
Mechanical							
Coil Weight	kg	1.3		2.0		3.1	
Attractive Force	N	1560		2600		4160	
Electrical Cycle Length	mm	32					

Notes:

1. A^{pk} = 1.414 * Arms; V^{pk} = 1.414 * Vrms.
2. * Ambient temperature 25ºC, heat dissipation by natural convection, without heat sink attached.
3. Specifications tolerance – inductance +/-15%, all others +/-10%.
4. Peak force and current - 1 second duration.

PIX200-027

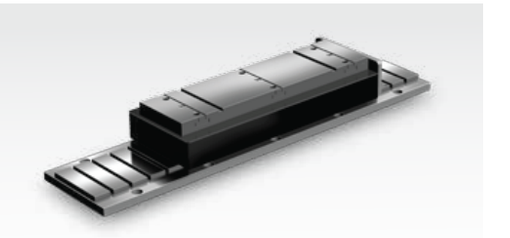


COIL	W (mm)	Y (mm)	NUMBER OF MOUNTING HOLE Z	COMPATIBLE TRACK
PIX200-027-030	54	16	4	PIXM030-TLXXX
PIX200-027-050	74	36	4	PIXM050-TLXXX
PIX200-027-080	104	66	6	PIXM080-TLXXX

MAGNET TRACK		L (mm)	S (mm)	R (mm)	N	M	WEIGHT (g)	COMPATIBLE COIL
PIXM030	TL064	64	54	44	1	4	207.6	PIX200-027-030
	TL128	128			3	8	415.2	
	TL192	192			5	12	622.8	
	TL320	320			9	20	1038	
PIXM050	TL064	64	74	64	1	4	300.3	PIX200-027-050
	TL128	128			3	8	600.6	
	TL192	192			5	12	901	
	TL320	320			9	20	1501.6	
PIXM080	TL064	64	104	94	1	4	439.4	PIX200-027-080
	TL128	128			3	8	878.8	
	TL192	192			5	12	1318.2	
	TL320	320			9	20	2197	

PIX 200-040

- Peak force to 2307N, Continuous force to 461N
- Hall Sensor (Optional)



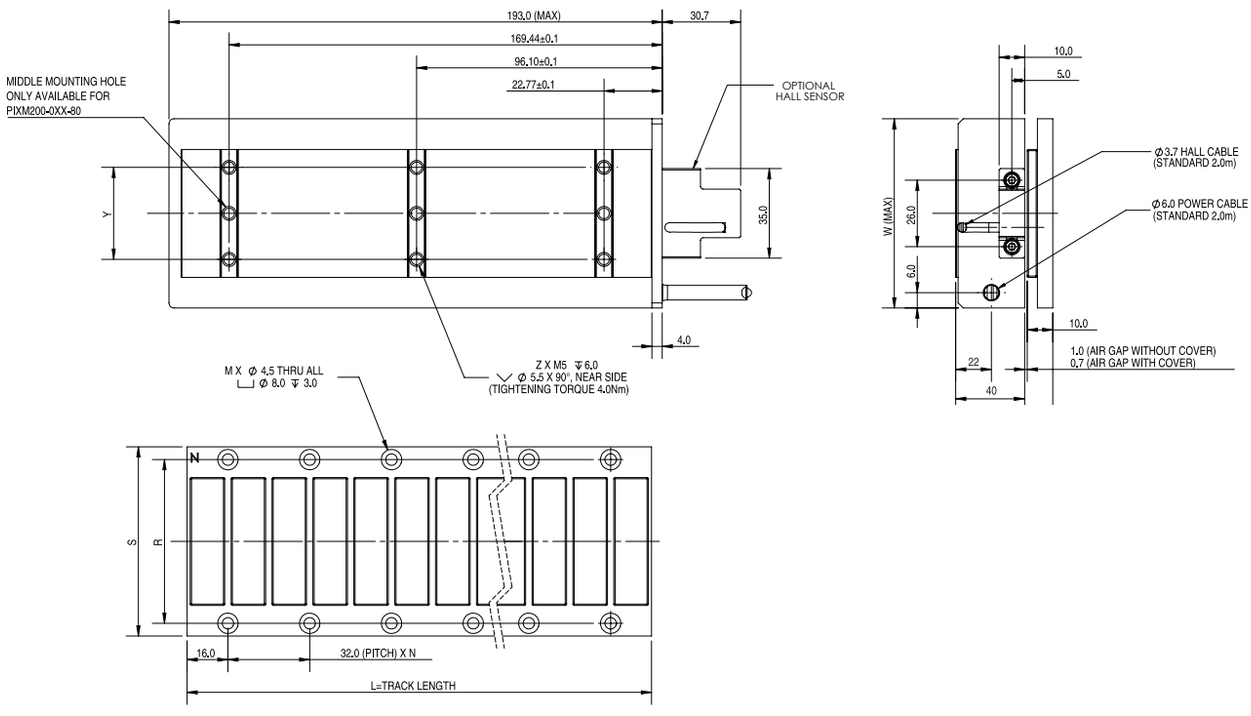
PIX SERIES
IRONCORE LINEAR MOTOR

SPECIFICATION		MODEL					
		PIX200-040					
		PIX200-040-030		PIX200-040-050		PIX200-040-080	
Connection Type		S	P	S	P	S	P
Performance	**Unit**						
Peak Force	N	943		1515		2307	
Continuous Force @ 120ºC*	N	189		303		461	
Continuous Stall Force @ 120ºC*	N	133		214		326	
Peak Power @ 120ºC	W	2144		2662		3457	
Continuous Power @ 120ºC*	W	86		106		138	
Electrical							
Peak Current	A^{pk}	21.9	43.8	20.5	41.0	19.8	39.6
Continuous Current @ 120ºC*	A^{pk}	4.4	8.8	4.1	8.2	4.0	7.9
Continuous Stall Current @ 120ºC*	Arms	3.10	6.20	2.90	5.80	2.80	5.60
Force Constant	N/A^{pk}	43.0	21.5	73.9	37.0	116.5	58.3
Back EMF Constant	$V^{pk}/m/s$	49.5	24.8	85.0	42.5	134.0	67.0
Coil Resistance L-L @ 25ºC	ohm	4.3	1.1	6.1	1.5	8.5	2.1
Coil Resistance L-L @ 120ºC*	ohm	6.0	1.5	8.4	2.1	11.8	2.9
Inductance L-L @ 1kHz	mH	39.4	9.9	60.6	15.1	88.7	22.2
Motor Constant @ 25ºC*	N/√W	24.0		34.6		46.1	
Motor Constant @ 120ºC*	N/√W	20.4		29.4		39.2	
Max. Terminal Voltage	Vdc			600			
Thermal							
Thermal Resistance @ 120ºC*	ºC/W	1.11		0.89		0.69	
Max. Coil Temperature	ºC			120			
Mechanical							
Coil Weight	kg	2.1		3.1		4.6	
Attractive Force	N	1560		2600		4160	
Electrical Cycle Length	mm			32			

Notes:

1. A^{pk} = 1.414 * Arms; V^{pk} = 1.414 * Vrms.
2. * Ambient temperature 25ºC, heat dissipation by natural convection, without heat sink attached.
3. Specifications tolerance – inductance +/-15%, all others +/-10%.
4. Peak force and current - 1 second duration.

PIX200-040



COIL	W (mm)	Y (mm)	NUMBER OF MOUNTING HOLE Z	COMPATIBLE TRACK
PIX200-040-030	54	16	4	PIXM030-TLXXX
PIX200-040-050	74	36	4	PIXM050-TLXXX
PIX200-040-080	104	66	6	PIXM080-TLXXX

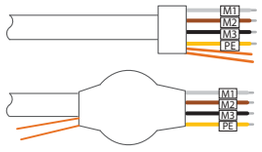
MAGNET TRACK		L (mm)	S (mm)	R (mm)	N	M	WEIGHT (g)	COMPATIBLE COIL
PIXM030	TL064	64	54	44	1	4	207.6	PIX200-040-030
	TL128	128			3	8	415.2	
	TL192	192			5	12	622.8	
	TL320	320			9	20	1038	
PIXM050	TL064	64	74	64	1	4	300.3	PIX200-040-050
	TL128	128			3	8	600.6	
	TL192	192			5	12	901	
	TL320	320			9	20	1501.6	
PIXM080	TL064	64	104	94	1	4	439.4	PIX200-040-080
	TL128	128			3	8	878.8	
	TL192	192			5	12	1318.2	
	TL320	320			9	20	2197	

STAGE 1 — POWER AND HALL CABLE OPTION

PIX200-027-050-S-TC-2.0-FC-HC-00

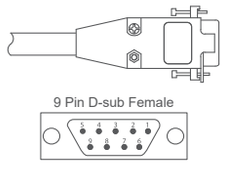
POWER CABLE OPTIONS

NF / FC



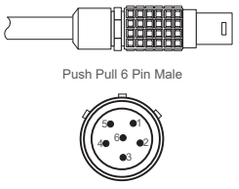
M1	Grey
M2	Brown
M3	Black
PE	Yellow
Temp sensor 1	Orange / Black
Temp sensor 2	Orange

9NF



P1	M1	Grey
P2	M1	Black(Jumper)
P3	M3	Black
P4	M3	Black(Jumper)
P5	M2	Brown
P6	M2	Black(Jumper)
P7	Temp sensor 1	Orange / Black
P8	Temp sensor 2	Orange
P9	PE	Yellow & Green

CNF



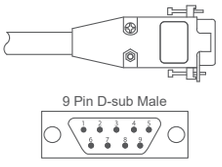
P1	M1	Grey
P2	M2	Brown
P3	M3	Black
P4	Temp sensor 1	Orange / Black
P5	Temp sensor 2	Orange
P6	PE	Yellow & Green

HALL SENSOR OPTIONS

H

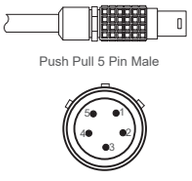
Hall A	White
Hall B	Green
Hall C	Blue
5V	Red
0V	Black

HC



P1	Hall A	White
P2	Hall B	Green
P3	Hall C	Blue
P4	5V	Red
P5	0V	Black

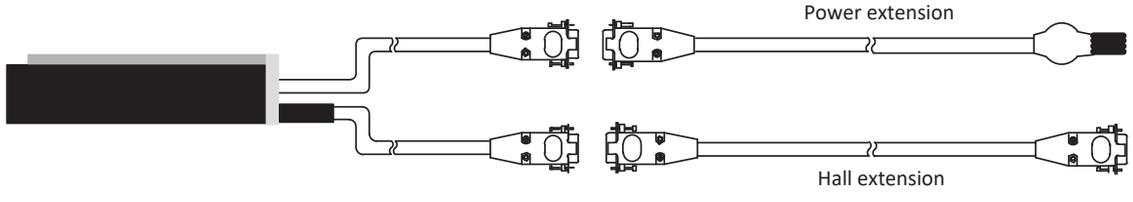
CHC

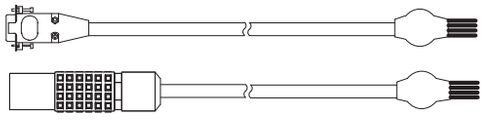
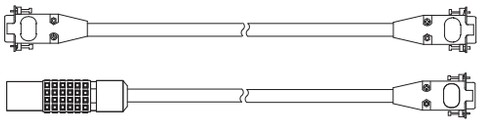
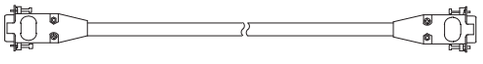


P1	Hall A	White
P2	Hall B	Green
P3	Hall C	Blue
P4	5V	Red
P5	0V	Black

STAGE 2 — PIX SERIES EXTENSION CABLE

Connection example: PIX200-☐-☐-☐-☐-☐-9NF-HC-00



Extension Cable		Part Number
Power Extension Cable		CBL_EXT_PWR_PIX_X.X
		CBL_EXT_PWR_PIX_CC_X.X
Hall Sensor Extension Cable		CBL_EXT_HALL_PIX_X.X
		CBL_EXT_HALL_PIX_CC_X.X
Encoder Extension Cable		CBL_EXT_REN00_X.X
		CBL_EXT_REN00A_X.X
		CBL_EXT_REN01_X.X
		CBL_EXT_REN01B_X.X
		CBL_EXT_REN05_X.X
		CBL_EXT_REN05A_X.X

CABLE	
00	RGH41 Digital
00A	RGH41 Analog
01	RH200 Digital
01B	RH200 Analog
05	ATOM Ri Interface Digital
05A	ATOM Ri Interface Analog

CABLE LENGTH (X.X)	
0.5	0.5 meter
1.0	1.0 meter
2.0	2.0 meter
3.0	3.0 meter (standard)

Notes: 1. X.X is the length of the cable in meters 2. For customized cable length, contact PBA