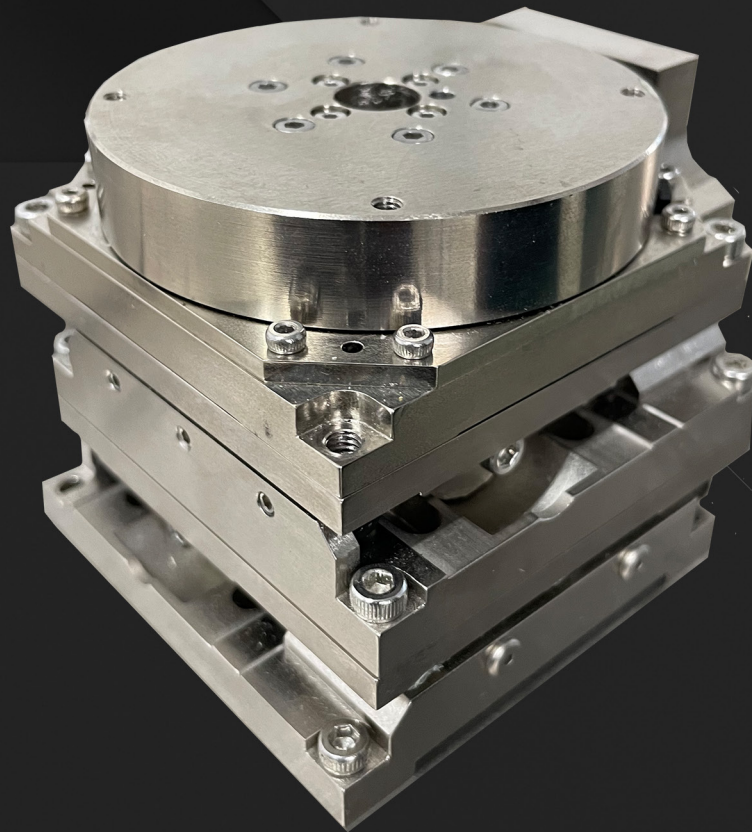




**DIRECT DRIVE TECHNOLOGY**  
Product Catalogue  
VERSION 4.1.1



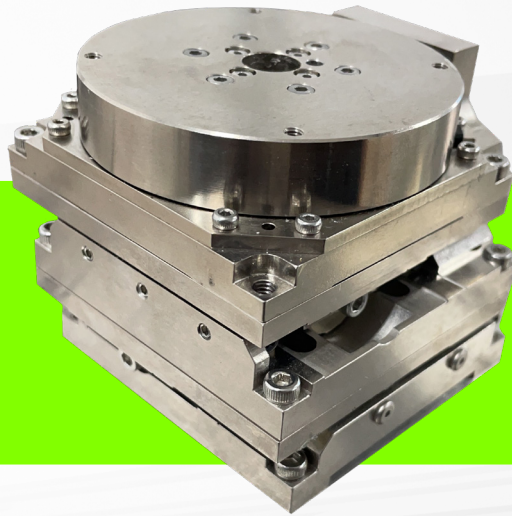
# PAS SERIES

ALIGNMENT STAGE

- PLAY VIDEO -

# PAS SERIES

## IRONLESS LINEAR MOTOR



PAS Series Alignment Stage is a low-profile, 3-axis, XYθ motion, compact, miniature stage.

Ideal for closed loop short stroke positioning applications where precision, repeatability and low speed/force ripple are of utmost importance.

PBA PAS stage is powered by PBA direct drive motors comes with built-in precision cross roller guides that provide high rigidity to complement the high acceleration capability of the PAS module which has very low electrical/mechanical time constants and zero hysteresis.

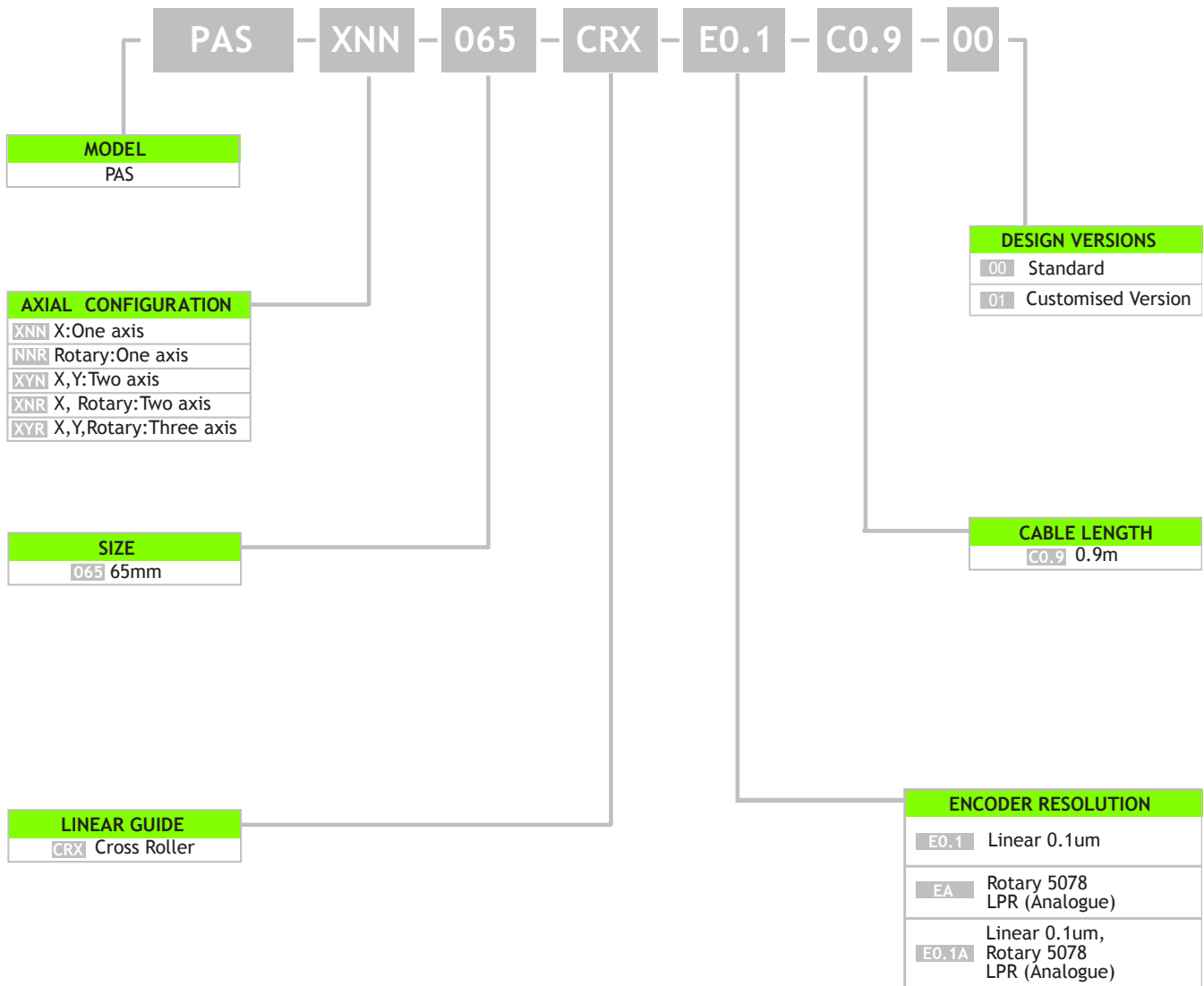
With the combination of high-resolution linear encoder, PBA PAS Stage ensures high-accuracy positioning operation without any backlash. It is most suitable for alignment processing utilizing image processing such as semiconductor and liquid crystal related manufacturing equipment, and positioning mechanism for measuring equipment and inspection instruments that require clean environments.

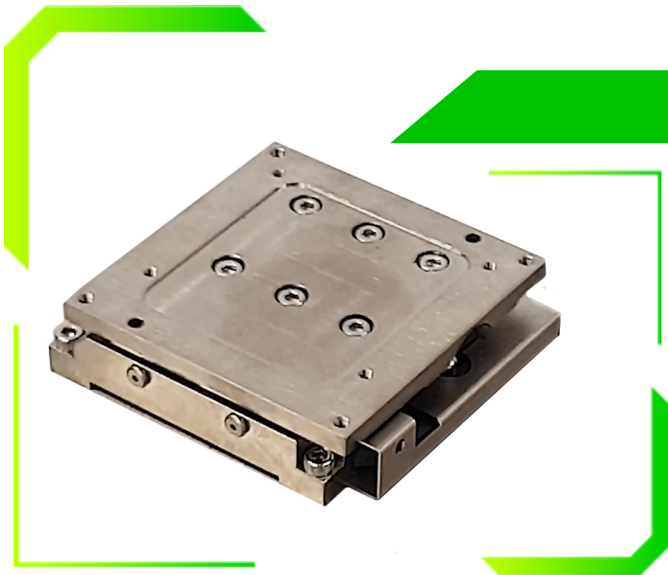
- Direct drive technology
- Compact and low profile
- Cross roller bearing for excellent precision and rigidity
- Zero cogging , zero backlash and zero hysteresis
- Low moving mass, fast response
- Integrated high precision linear encoder
- Excellent reliability
- Stackable configuration

## APPLICATION

- Alignment process
- Inspection
- Pick and Place
- Dispensing
- Printing
- Laser marking

# PART NUMBERING SYSTEM





# PAS SERIES

Alignment Stage

## PAS SERIES

- Direct drive technology
- Compact and low profile
- Low moving mass, fast respon
- Cross roller bearing for excellent precision and rigidity
- Stackable configuration

SPECIFICATION	MODEL
	<b>PAS-XNN065-CRX</b>

Performance	Unit	
Stroke	mm	10.0
Peak Force	N	30.1
Continuous Stall Force @ 100°C*	N	4.3
Peak Power @ 100°C*	W	254.8
Continuous Power @ 100°C	W	5.2

Electrical		
Peak Current	A	7.0
Continuous Stall Current @ 100°C	A	1.0
Force Constant @ Mid Stroke	N/A	4.3
Back EMF Constant @ Mid Stroke	V/m/s	4.3
Coil Resistance @ 25°C	ohm	4.0
Coil Resistance @ 100°C	ohm	5.2
Inductance @ 1kHz (Inside fully)	mH	0.5
Motor Constant @ 100°C	N/W	1.9
Max. Terminal Voltage	Vdc	48

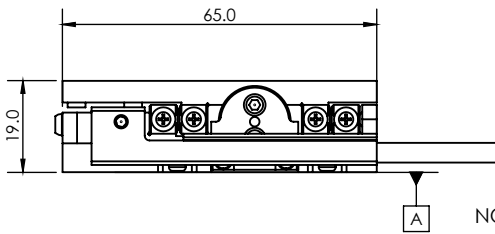
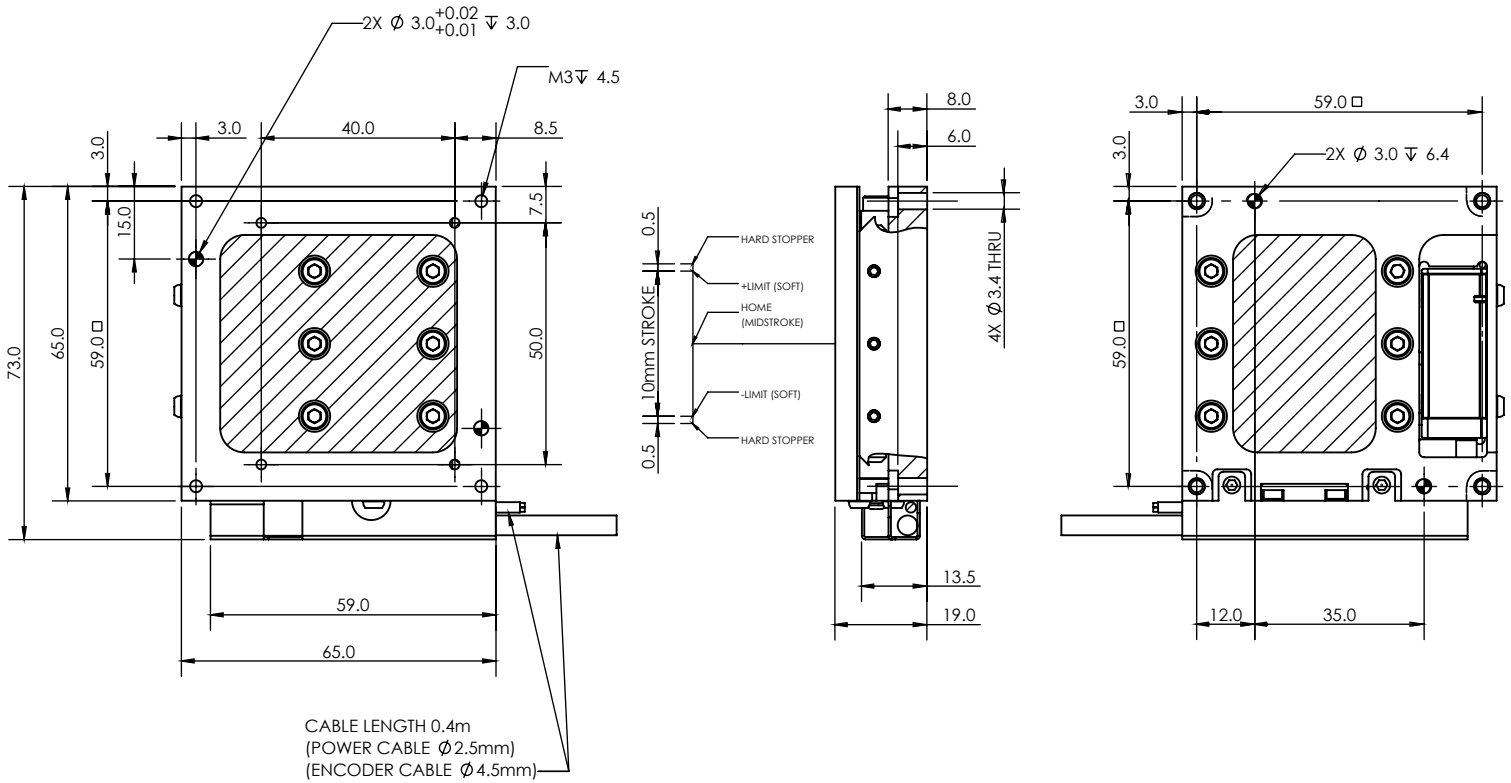
Thermal		
Thermal Resistance @ 100°C	°C/W	14.4
Max. Coil Temperature	°C	110

Mechanical		
Moving Mass	kg	0.21
Total Mass	kg	0.48
Resolution	um	0.1
Repeatability**	um	±0.5
Straightness	um	±2.0
Flatness	um	±2.0
Type of Linear Bearing		X-Roller Bearing
Surface Treatment		EN

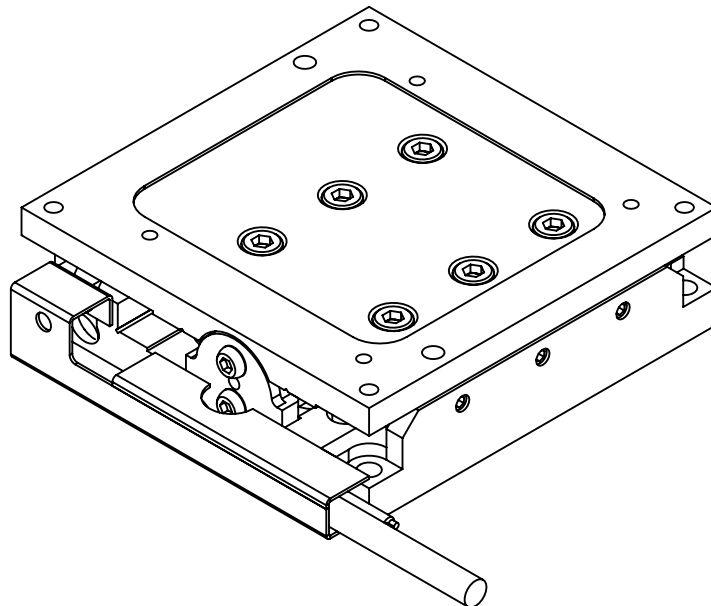
Static Moments		
M <sub>Y</sub>	Nm	2.75
M <sub>R</sub>	Nm	1.44
M <sub>P</sub>	Nm	2.00

Notes:  
 1. \*Ambient temperature 25°C, heat dissipation by nation convection, without heat sink attached.  
 2. Specification tolerance: ±10%  
 3. \*\* Depend on encoder resolution.  
 4. Peak force and current: 4% duty ratio and 1 second duration.  
 5. PAS-XNN065-CRX and PAS-NYN065-CRX Specification same.  
 6. Specifications are subject to change without prior notice.

# XNN065-CRX



NOTE: DATUM A AS REFERENCE FOR MOVING FLATNESS



## PAS SERIES

Alignment Stage

## SERIES

- Servo drive technology
- Compact and low profile
- Low moving mass, fast response
- Cross roller bearing for excellent precision and rigidity
- Stackable configuration

### SPECIFICATION

### MODEL

PAS-NNR065-CRX

#### Performance

#### Unit

Stroke	degree	±25.0
Peak Torque	N.m	0.917
Continuous Torque @ 100°C*	N.m	0.115
Peak Power @ 100°C	W	676.5
Continuous Power @ 100°C*	W	10.57

#### Electrical

Peak Current	Apk	9.050
Continuous Current @ 100°C	Apk	1.130
Continuous Stall Current @ 100°C	Arms	0.800
Torque Constant	N.m/Apk	0.101
Back EMF Constant L-L	Vpk/rad/s	0.117
Resistance L-L @ 25°C	ohm	8.450
Resistance L-L @ 100°C*	ohm	11.010
Inductance L-L @ 1kHz	mH	1.440
Motor Constant @ 100°C*	N.m//W	0.035
Max. Terminal Voltage	Vdc	48.0

#### Thermal

Thermal Resistance @ 100°C	°C/W	7.1
Max. Winding Temperature	°C	110

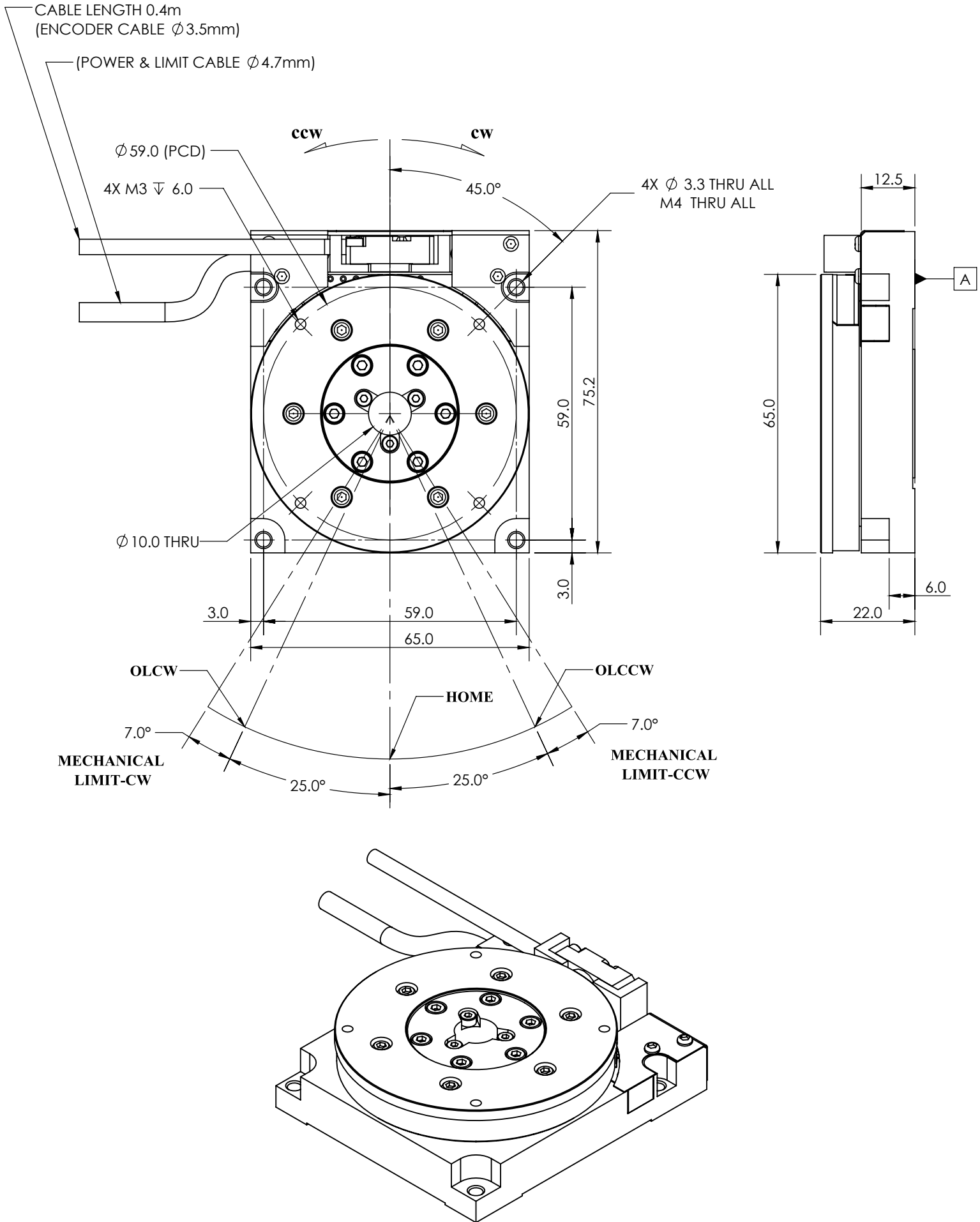
#### Mechanical

Rotor Inertia	kg.m <sup>2</sup>	0.00012
Motor Weight	kg	0.5
Magnetic Pitch (N-N)	degree	60
Max. Speed	degree/sec	720
Max. Axial Load	kg	2.25
Axial Run-out (no load)	um	±8.0
Radial Run-out (no load)	um	±8.0
Resolution (after quadrature)	LPR	A (Analogue)
		5,078
Parallelism	um	±8.0
Repeatability**	arc-sec	±4.0
Surface Treatment		EN

#### Notes:

1. Apk=1.414 \* Arms; Vpk=1.414 \* Vrms
2. \*Ambient temperature 25°C, heat dissipation by natural convection, without heat sink attached.
3. Specifications tolerance: ±10%.
4. \*\* Depend on encoder resolution.
5. Peak force and current: 4% duty ratio and 1 second duration.
6. Specifications are subject to change without prior notice.

# NNR065-CRX







## PAS SERIES

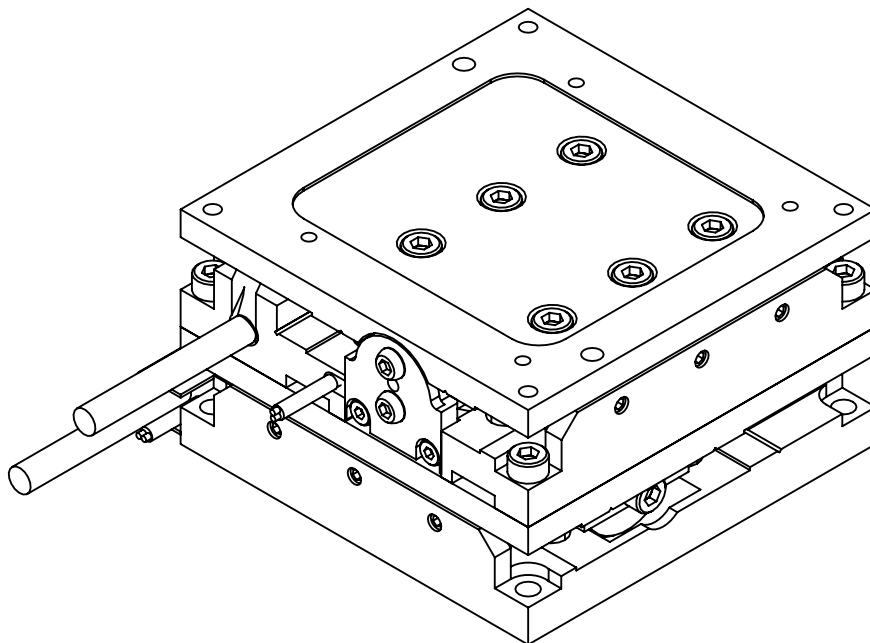
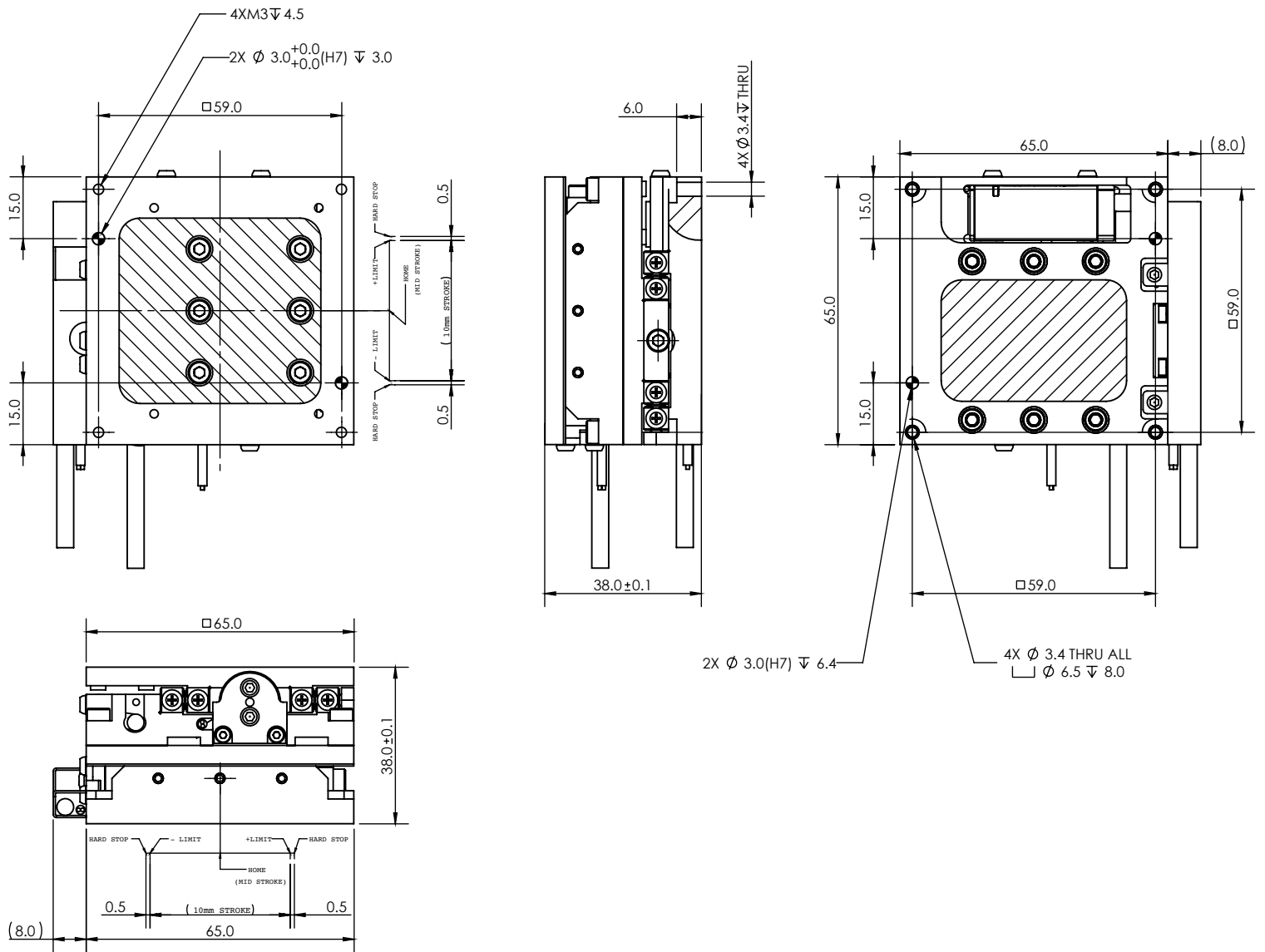
Alignment Stage

## PAS SERIES

- Direct drive technology
- Compact and low profile
- Low moving mass, fast respon
- Cross roller bearing for excellent precision and rigidity
- Stackable configuration

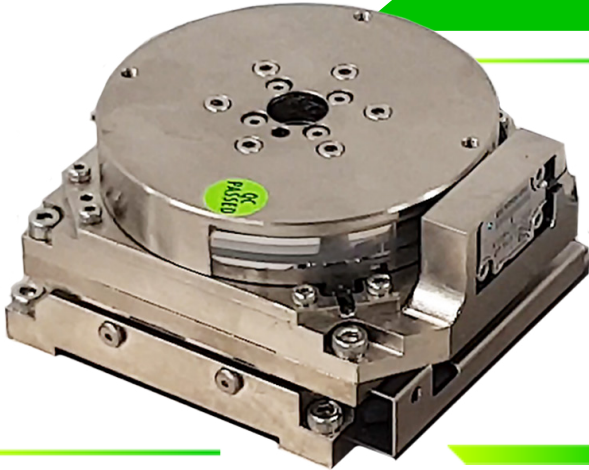
SPECIFICATION		MODEL
		<b>PAS-XYN065-CRX</b>
Mechanical	Unit	
Stroke	mm	10.0
Upper Axis Moving Mass	kg	0.21
Lower Axis Moving Mass	kg	0.7
Total Mass	kg	0.98
Resolution	um	0.1
Repeatability	um	±0.5
Straightness	um	±2.0
Flatness	um	±2.0
Type of Linear Bearing		X-Roller Bearing
Surface Treatment		EN

# XYN065-CRX



## PAS SERIES

Alignment Stage

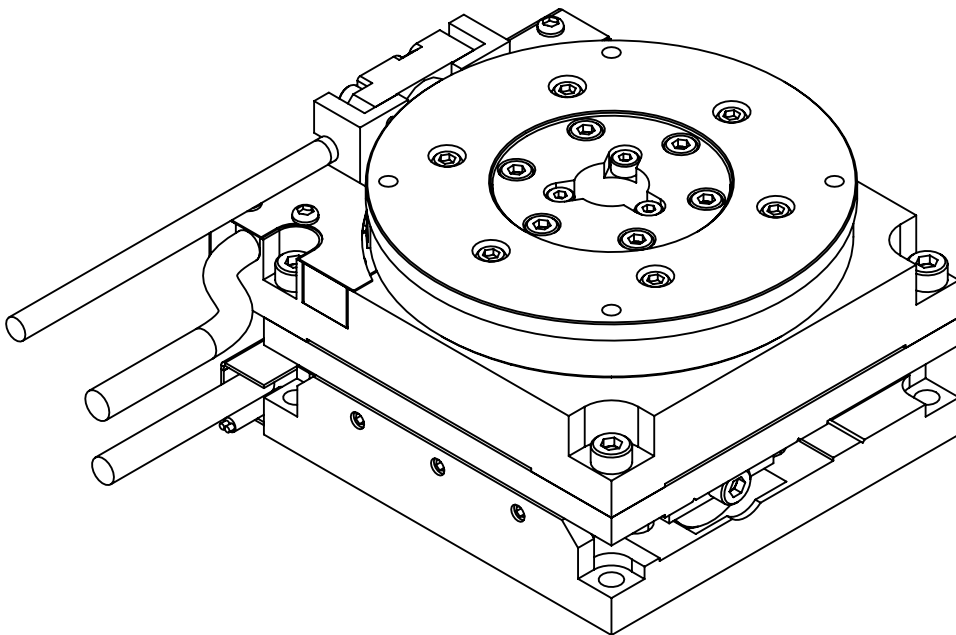
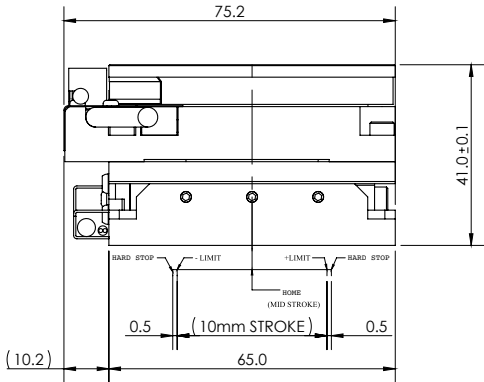
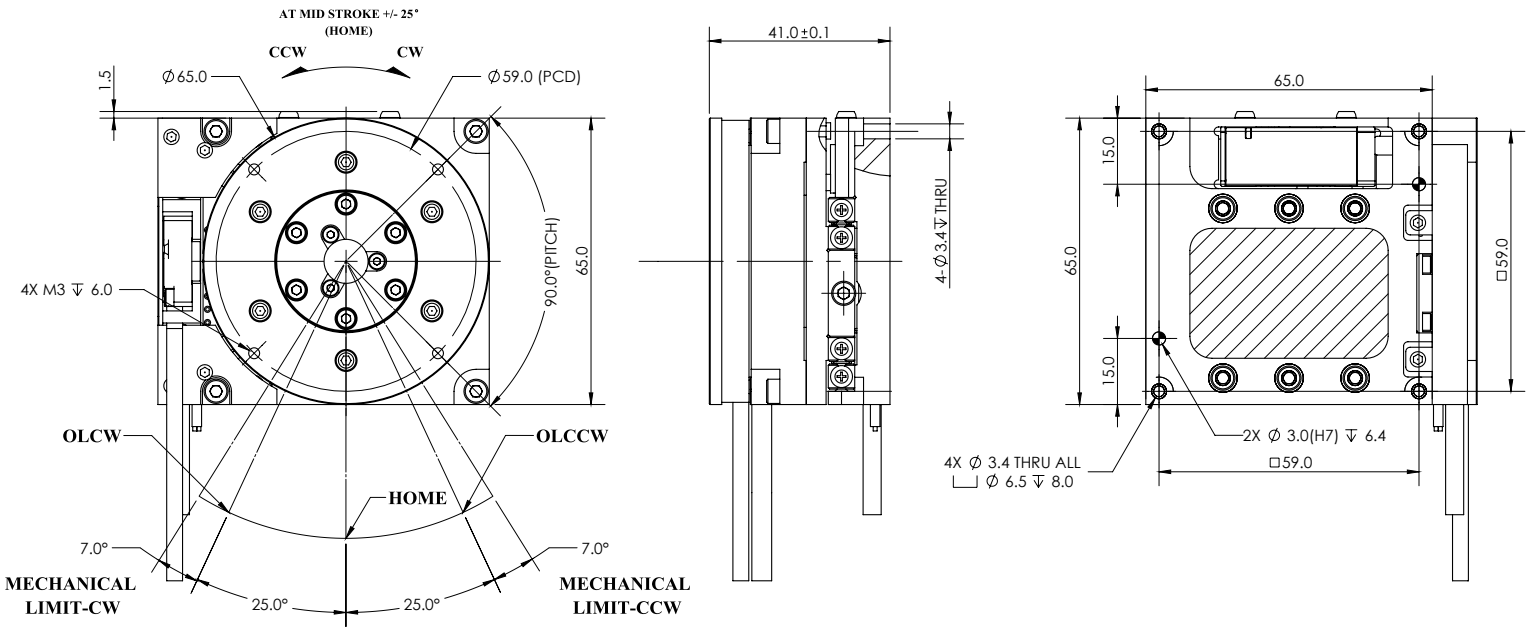


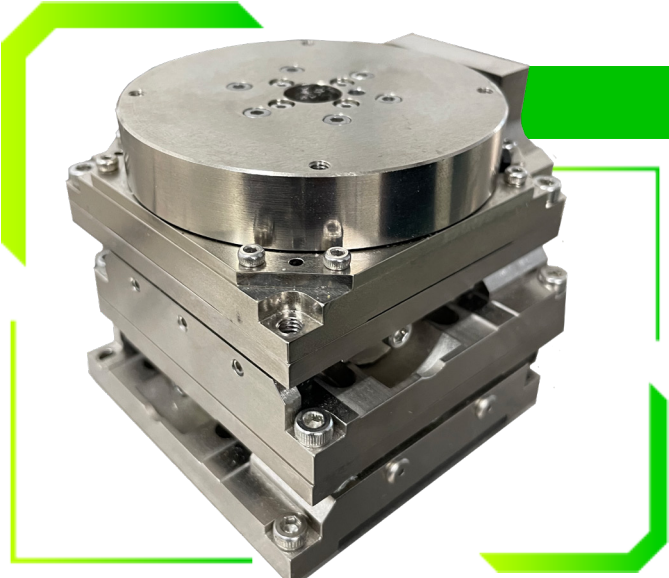
## PAS SERIES

- Direct drive technology
- Compact and low profile
- Low moving mass, fast respon
- Cross roller bearing for excellent precision and rigidity
- Stackable configuration

SPECIFICATION		MODEL
		<b>XNR065-CRX</b>
Mechanical	Unit	
		<b>R Stage</b>
Stroke	degree	±25.0
Rotor Inertia	kg.m <sup>2</sup>	0.00012
Magnetic Pitch (N-N)	degree	60
Max. Speed	degree/sec	720
Max. Axial Load	kg	2.25
Axial Run-out (no load)	um	±8.0
Radial Run-out (no load)	um	±8.0
Resolution (after quadrature)	LPR	A (Analogue)
		5,078
Repeatability	arc-sec	±-4.0
		<b>X Stage</b>
Stroke	mm	10.0
Upper Axis Moving Mass	kg	0.21
Resolution	um	0.1B
Repeatability	um	±0.5
Straightness	um	±2.0
Type of Linear Bearing		X-Roller Bearing
Surface Treatment		EN
		<b>PAS-XNR065-CRX</b>
Total Mass	kg	0.98
Flatness	um	±2.0

# XNR065-CRX





# PAS SERIES

Alignment Stage

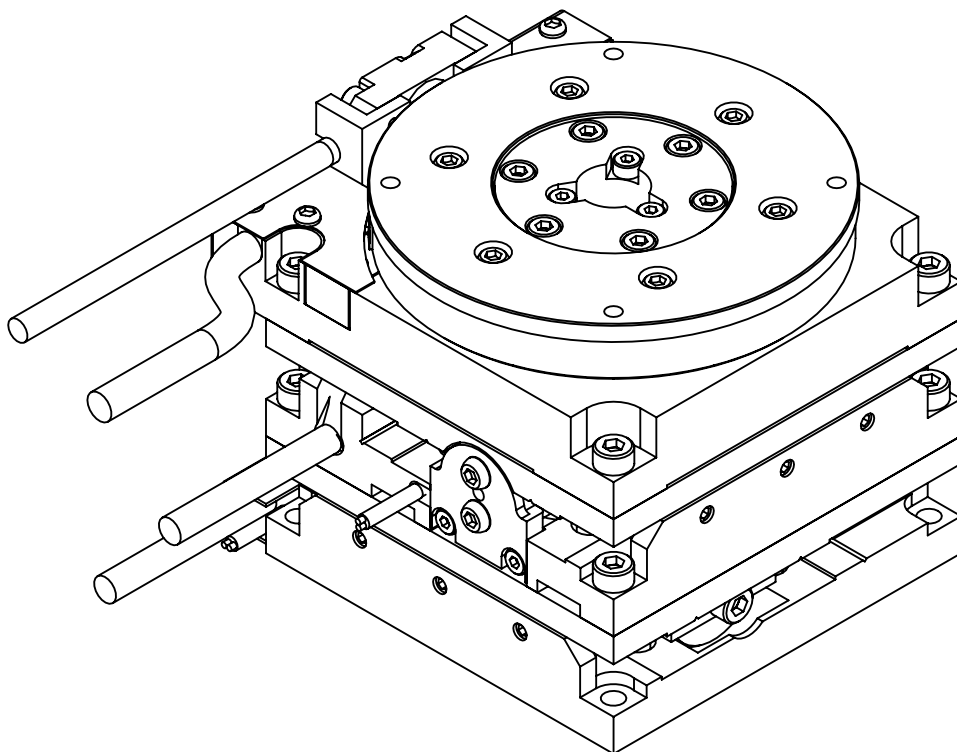
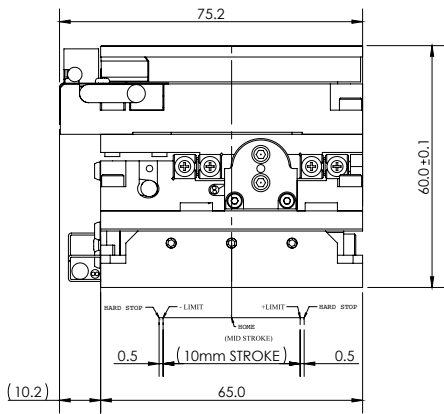
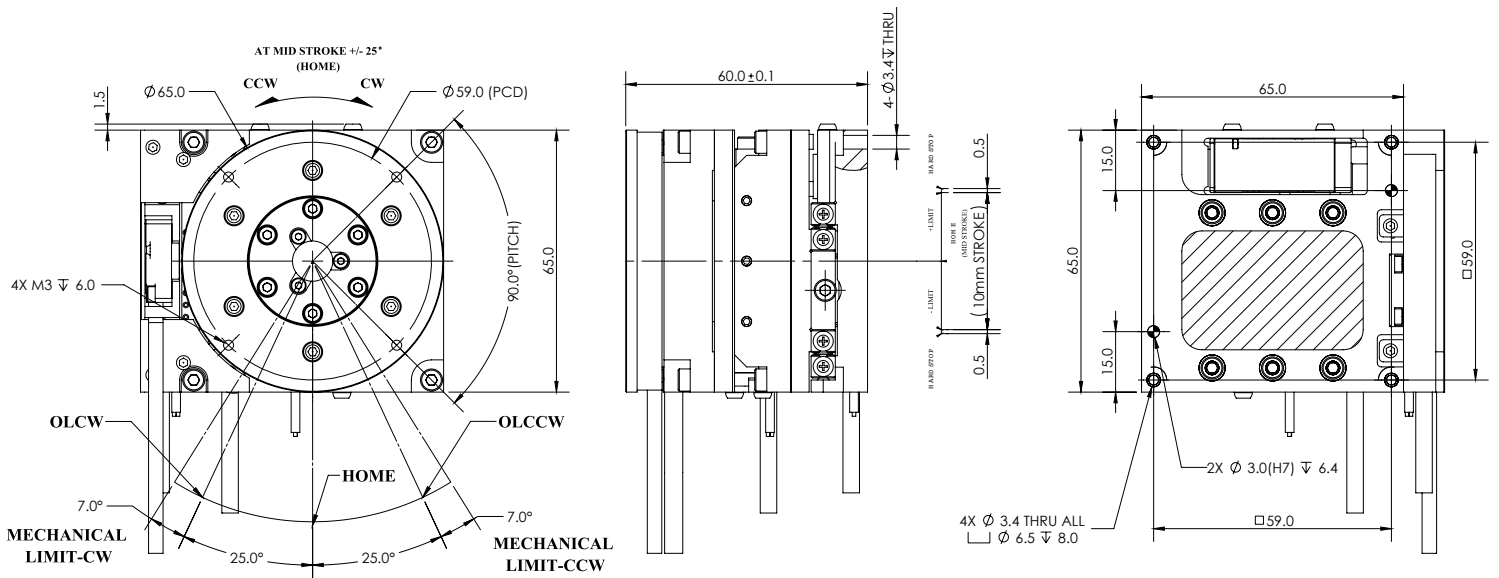
# PAS SERIES

- Direct drive technology
- Compact and low profile
- Low moving mass, fast respon
- Cross roller bearing for excellent precision and rigidity
- Stackable configuration

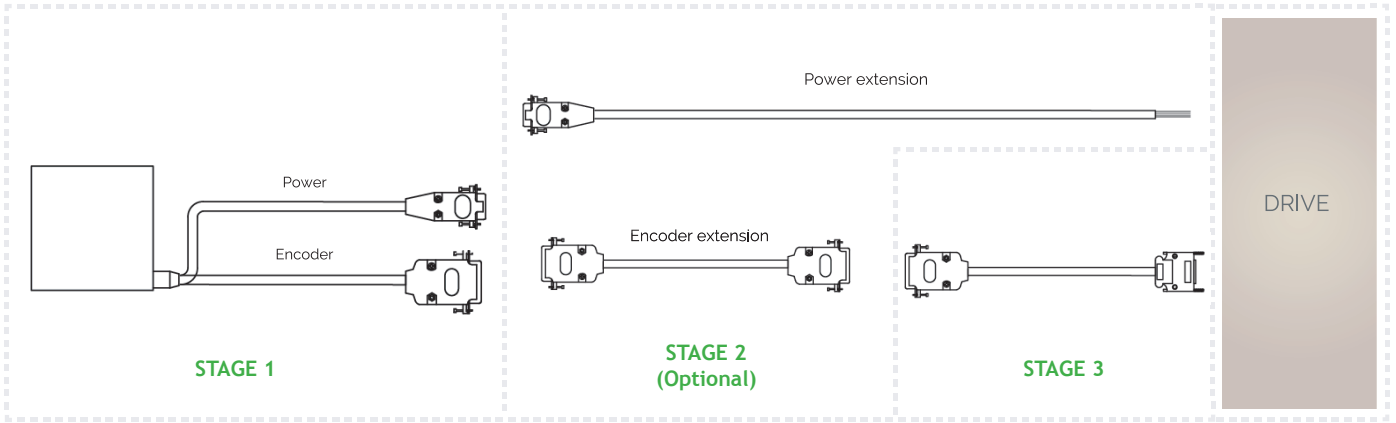
SPECIFICATION	MODEL
	<b>XYR065-CRX</b>

Mechanical	Unit	
		<b>R Stage</b>
Stroke	degree	±25.0
Rotor Inertia	kg.m <sup>2</sup>	0.00012
Magnatic Pitch (N-N)	degree	60
Max. Speed	degree/sec	720
Max. Axial Load	kg	2.25
Axial Run-out (no load)	um	±8.0
Radial Run-out (no load)	um	±8.0
Resolutin (after quadrature)	LPR	A (Analogue) 5,078
Repeatability	arc-sec	±-4.0
		<b>X Stage</b>
Stroke	mm	10.0
Bottom Axis Moving Mass	kg	0.98
Resolution	um	0.1
Repeatability	um	±0.5
Straightness	um	±2.0
Type of Linear Bearing		X-Roller Bearing
Surface Treatment		EN
		<b>Y Stage</b>
Stroke	kg	10.0
Upper Axis Moving Mass	um	0.5
Resolution	um	0.1
Repeatability	um	±0.5
Straightness	um	±2.0
Type of Linear Bearing		X-Roller Bearing
Surface Treatment		EN
		<b>PAS-XYR065-CRX</b>
Total Mass	kg	1.5
Flatness	um	±2.0

# XYR065-CRX



# CABLE OPTION - ROTARY



## STAGE 1 | PAS SERIES CABLE COLOUR CODE AND PIN OUT

**MOTOR POWER CABLE/LIMIT SENSOR**

9 Pin D-sub Female

SMP-04V-NC

P1	M1
P2	M2
P3	M3
P4	PE
P5	-
P6	+24V*
P7	GND*
P8	CWL*
P9	CCWL*

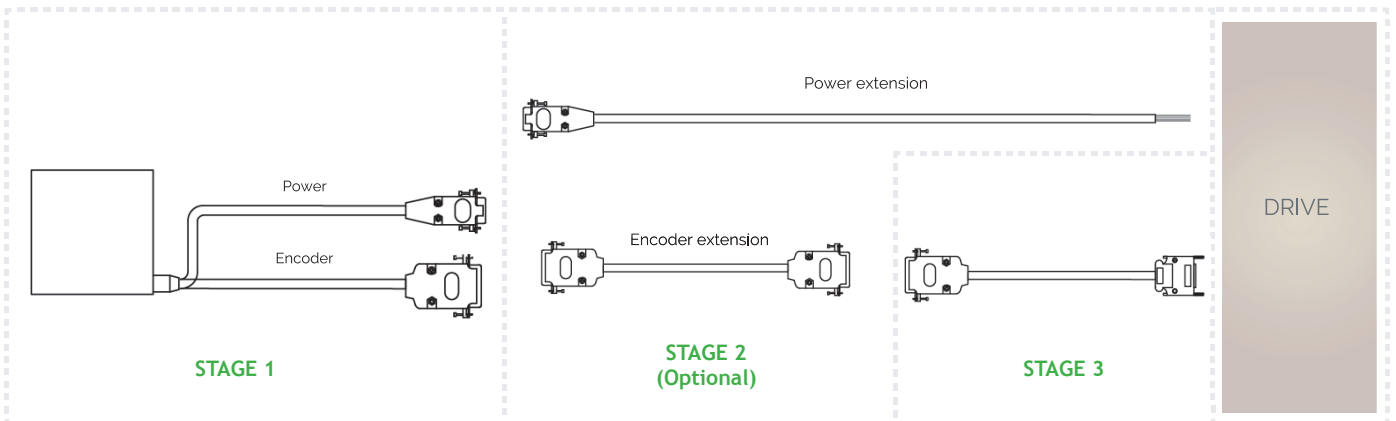
\*For Limit Sensor Output

**ENCODER CONNECTOR**

15 Pin D-sub Male

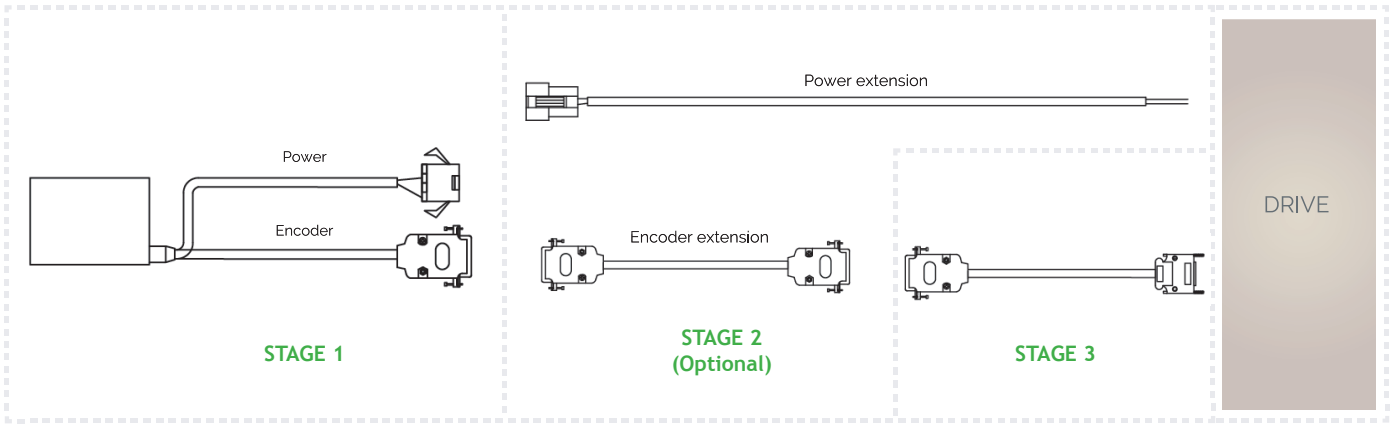
P1	V <sub>1</sub> -
P2	V <sub>2</sub> -
P3	V <sub>0</sub> +
P4	+5V
P5	+5V
P6	V <sub>1</sub> (Set-up)
P7	-
P8	-
P9	V <sub>1</sub> +
P10	V <sub>2</sub> +
P11	V <sub>0</sub> -
P12	0V
P13	0V
P14	CAL
P15	-
CASE	SHIELD

## STAGE 2 | PAS SERIES EXTENSION CABLE



Extension Cable		Part Number
Power Extension Cable		CBL_EXT_PWR_LMT_PAST_X.X
Encoder Extension Cable		CBL_EXT_REN05A_X.X

# CABLE OPTION - LINEAR



## STAGE 1 | PAS SERIES CABLE COLOUR CODE AND PIN OUT

**MOTOR POWER CABLE/LIMIT SENSOR**

9NF

P1	RED (+)
P2	-
P3	BLACK (-)
P4	-

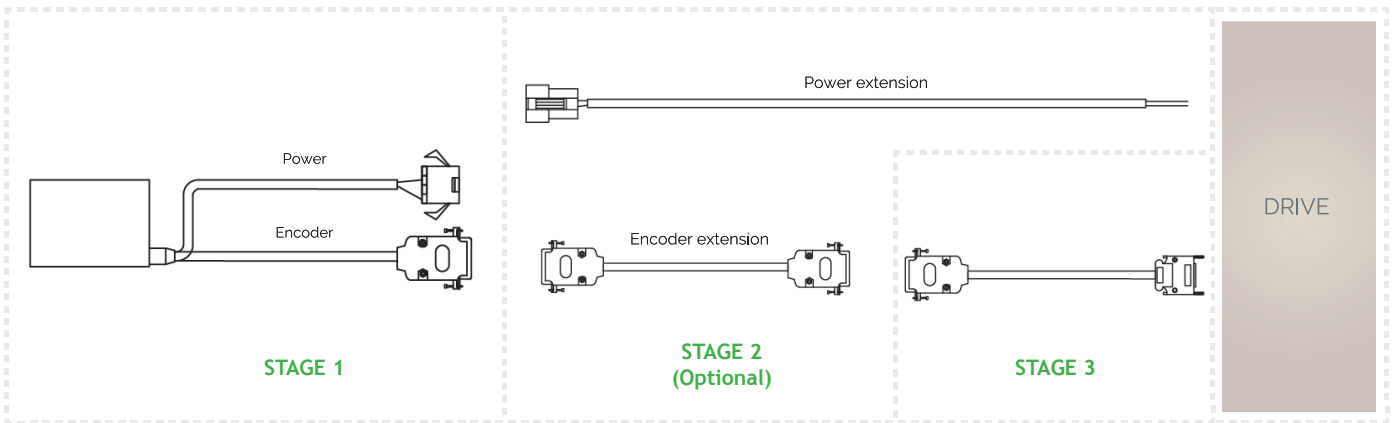
SMP-04V-NC

**ENCODER CONNECTOR**

15 Pin D-sub Male

P1	CAL
P2	0V
P3	E-
P4	Z-
P5	B-
P6	A-
P7	+5V
P8	+5V
P9	0V
P10	Q
P11	P
P12	Z+
P13	B+
P14	A+
P15	-
CASE	SHIELD

## STAGE 2 | PAS SERIES EXTENSION CABLE



Extension Cable		Part Number
Power Extension Cable		CBL_EXT_PWR_CVC_X.X
Encoder Extension Cable		CBL_EXT_REN00_X.X