

FOR A MORE STABLE ROTATING JOINT MODULE,
CHOOSE HOBBER

HAS/HASF

SERIES

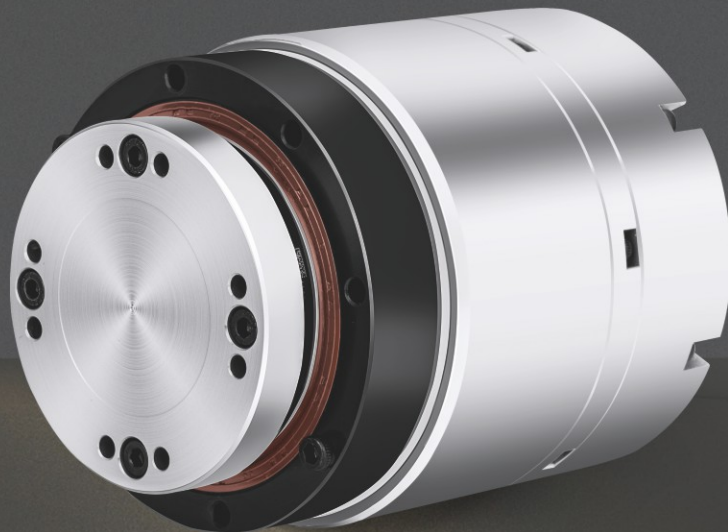
Medium Solid Rotary Actuator

Application Area

The 220V version of this product is widely used in precision CNC machine tools, 3C equipment, the precision laser processing industry, testing equipment, printing equipment, medical devices, glass polishing equipment, and more; the 48V version is widely used in robotic arms, AGVs, and mobile camera gimbals.

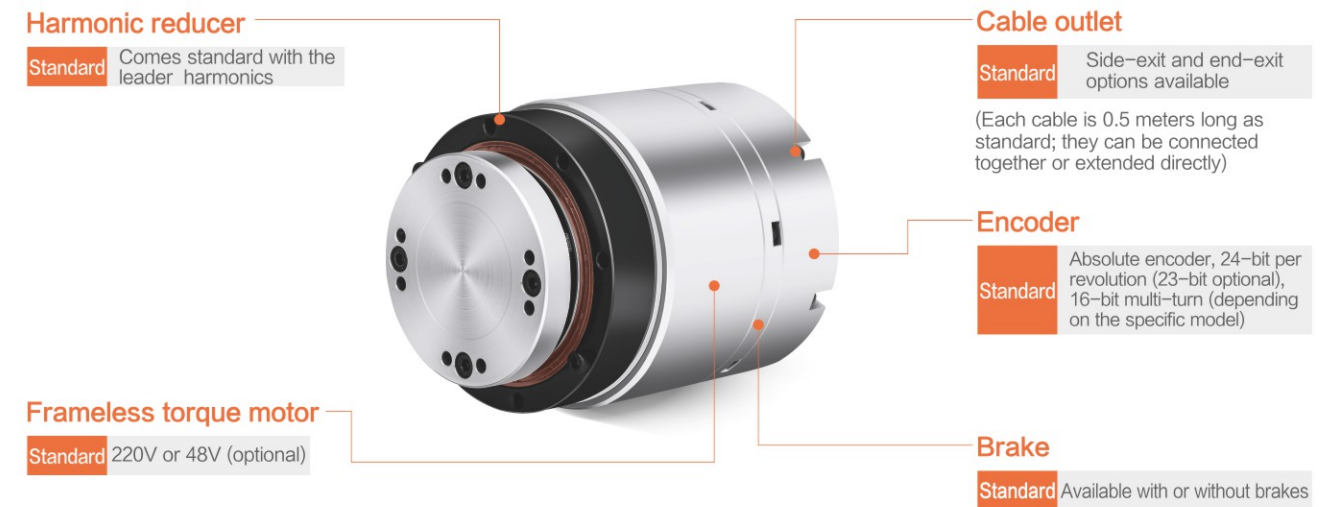
Product characteristics

Integrated	Integrates a high-torque precision harmonic drive, frameless torque motor, optical multi-turn absolute encoder, and electromagnetic brake into a single unit.
High performance	High overturning rigidity, high torque, high load capacity, and smooth operation.
Long service life	Accuracy retention for over 15,000 hours at rated torque.
Zero backlash	Achieves true zero backlash based on the superior characteristics of the harmonic drive and the motor's rigidity.
Low noise	Each motor is individually tested before shipment to ensure low-vibration, low-noise operation of the rotary actuator.
Maintenance-free	No grease replacement is required during operation; no periodic maintenance is needed.
Easy to use	Easy to install, compatible with standard commercial drivers, and plug-and-play.



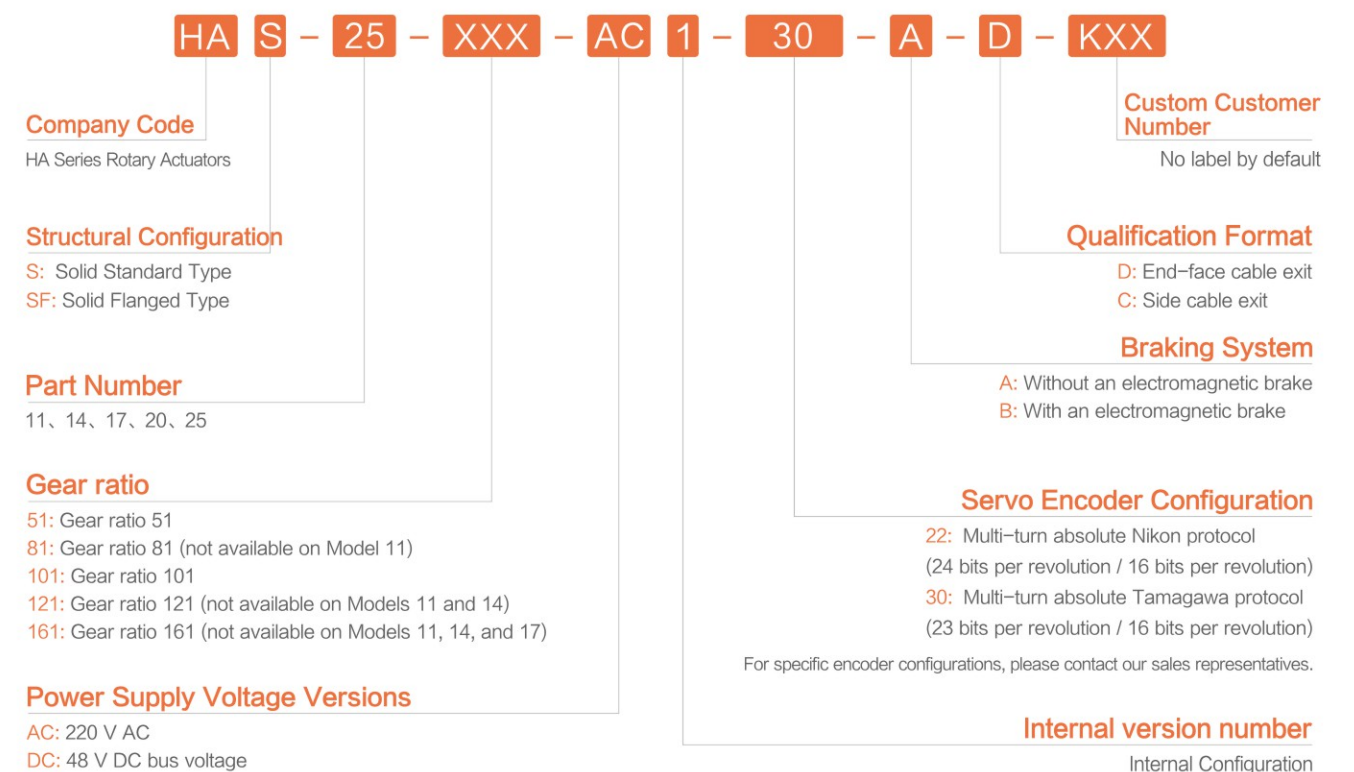
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Product Mix



Note Environmental Specifications: Protection Rating: Standard configuration is fully enclosed, self-cooled (Ip65); IP67 available upon request; CE certified; Operating temperature: 0 - 40° C; Storage temperature: - 20 - 60° C.

Model definition

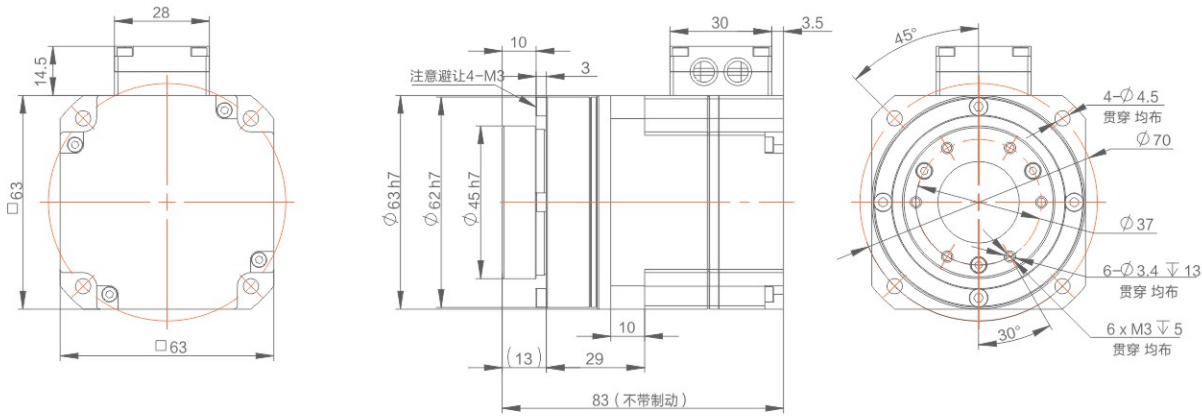


HAS-11 SERIES

Rotary Actuator Performance Specifications				
Model Selection HAS-			11	
AC voltage 220V	Gear ratio		51	101
	Peak torque	N.m	8.3	11
	Rated torque	N.m	4	8
	Maximum speed	rpm	102	51
	Rated speed	rpm	69	35
	Maximum current	Arms	2.03	1.36
	Rated current	Arms	0.98	0.99
	Torque constant	N.m/Arms	4.08	8.08
	Motor phase-to-phase resistance	Ohms (20℃)	12	
	Motor phase-to-phase inductance	mH	9.5	
DC Bus Voltage 48 VDC	Motor back-EMF constant		10.5	
	Peak torque	N.m	8.3	11
	Rated torque	N.m	5.5	8.9
	Maximum speed	rpm	78	40
	Rated speed	rpm	59	30
	Maximum current	Arms	2.03	1.36
	Rated current	Arms	1.35	1.10
	Torque constant	N.m/Arms	4.08	8.08
	Motor phase-to-phase resistance	Ohms (20℃)	2.56	
	Motor phase-to-phase inductance	mH	1.8	
Absolute encoder	Motor back-EMF constant		9.5	
	Encoder Type		Absolute encoder	
	Encoder Resolution (Per Revolution)	bit	2 ²⁴ (16,777,216) 或 2 ²³ (8,388,608)	
Unidirectional positioning accuracy	Encoder Multi-Revolution Counter		2 ¹⁶ (65,536)	
	Arcsec		≤ 90	
Repeatability		Arcsec	≤ 20	
Tipping stiffness		x10 ⁴ N.m/rad	4	
Torsional stiffness		x10 ⁴ N.m/rad	0.3	0.34
Rotor moment of inertia	Without brakes	kg*m ²	8.32*10 ⁻⁶	
	With brakes	kg*m ²	8.73*10 ⁻⁶	
Quality	Without brakes	Kg	1.17	
	With brakes	Kg	1.36	
Number of motor poles			10	
Ambient Conditions			Operating temperature: 0-40° C / Storage temperature: -20-60° C Operating humidity / Storage humidity: 20-80% RH (non-condensing) Vibration resistance: 24.5 m/s ² (frequency: 10-400 Hz) Free from dust, metal particles, corrosive gases, flammable gases, oil mist, etc. For indoor use only; avoid direct sunlight Altitude below 1,000 m	
Safety Specifications			CE Certification	
Motor Insulation	Insulation resistance: 100 MΩ or higher (500 V DC)			
	Insulation withstand voltage: 1500 V AC for 1 minute			
Protection Rating	Insulation class: Class F			
	Fully enclosed, self-cooled type (Ip54)			

HAS-11

Side-entry wiring (without brake)

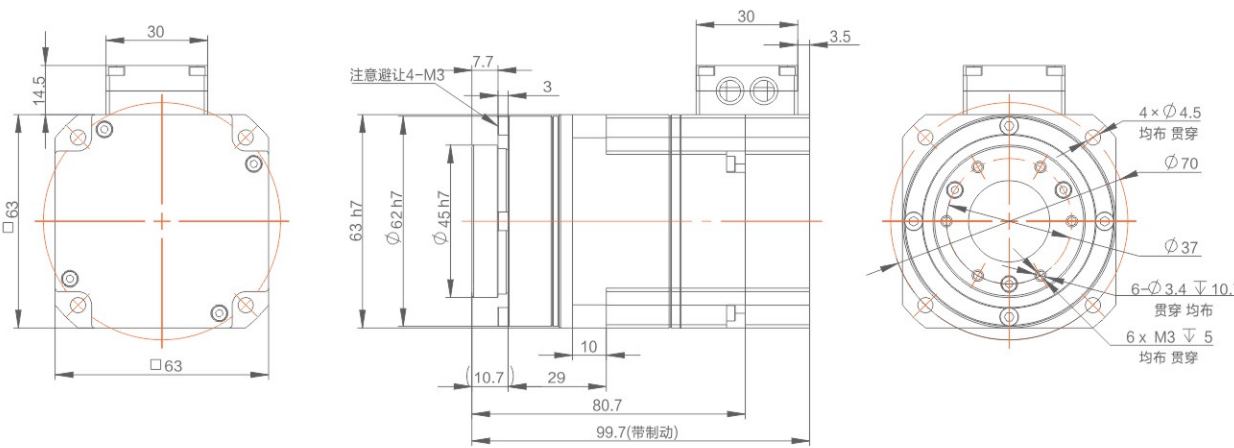


Note The above describes the standard wiring method.
For other wiring methods, please contact a sales representative.

Unit mm

HAS-11

Side-entry wiring (with brake)



Note The above describes the standard wiring method.
For other wiring methods, please contact a sales representative.

Unit mm

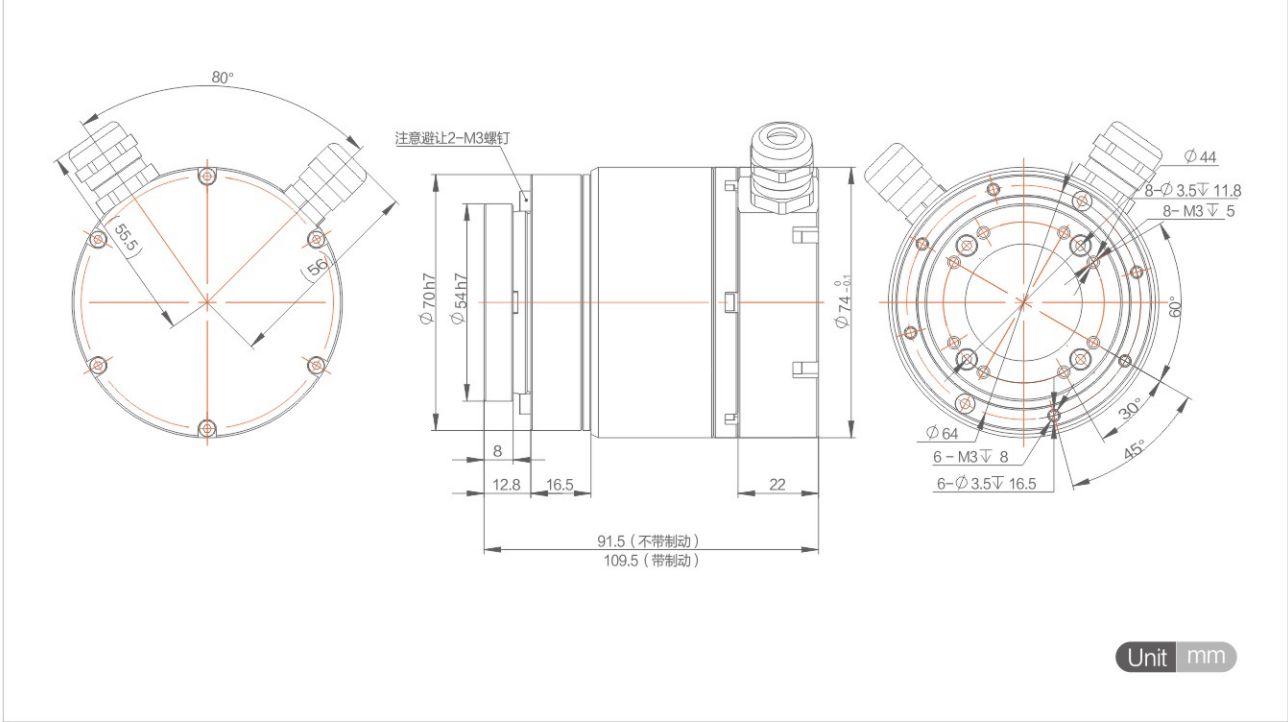
HAS/HASF-14

SERIES

Rotary Actuator Performance Specifications					
Model Selection: HAS/HASF–			14		
Gear ratio			51	81	101
AC voltage 220V	Peak torque	N.m	23	29	34
	Rated torque	N.m	8.6	13.5	13.5
	Maximum speed	rpm	118	74	59
	Rated speed	rpm	59	37	30
	Maximum current	Arms	2.09	1.66	1.56
	Rated current	Arms	0.78	0.77	0.62
	Torque constant	N.m/Arms	11.02	17.50	21.82
	Motor phase-to-phase resistance	Ohms (20℃)	7.5		
	Motor phase-to-phase inductance	mH	11.5		
	Motor back-EMF constant	Vrms/krpm	25		
DC Bus Voltage 48 VDC	Peak torque	N.m	23	29	34
	Rated torque	N.m	8.6	13.5	13.5
	Maximum speed	rpm	98	62	50
	Rated speed	rpm	59	37	30
	Maximum current	Arms	5.12	4.07	3.83
	Rated current	Arms	1.92	1.89	1.52
	Torque constant	N.m/Arms	4.49	7.13	8.89
	Motor phase-to-phase resistance	Ohms (20℃)	0.85		
	Motor phase-to-phase inductance	mH	1		
	Motor back-EMF constant	Vrms/krpm	6.5		
Absolute encoder	Encoder Type		Absolute encoder		
	Encoder Resolution (Per Revolution)	bit	2 ²⁴ (16,777,216) 或 2 ²³ (8,388,608)		
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)		
Unidirectional positioning accuracy		Arcsec	≤ 70	≤ 60	≤ 60
Repeatability		Arcsec	≤ 15	≤ 10	≤ 10
Tipping stiffness		x10 ⁴ N.m/rad	8		
Torsional stiffness		x10 ⁴ N.m/rad	0.46	0.6	
Rotor moment of inertia	Without brakes	kg*m ²	3.6*10 ⁻⁵		
	With brakes	kg*m ²	3.7*10 ⁻⁵		
Quality	Without brakes	Kg	1.66		
	With brakes	Kg	2		
Number of motor poles		Pole	16		
Ambient Conditions			Operating temperature: 0-40° C / Storage temperature: -20-60° C Operating humidity / Storage humidity: 20-80% RH (non-condensing) Vibration resistance: 24.5 m/s ² (frequency: 10-400 Hz) Free from dust, metal particles, corrosive gases, flammable gases, oil mist, etc. For indoor use only; avoid direct sunlight Altitude below 1,000 m		
Safety Specifications			CE Certification		
Motor Insulation			Insulation resistance: 100 MΩ or higher (500 V DC)		
			Insulation withstand voltage: 1500 V AC for 1 minute		
Protection Rating			Insulation class: Class F		
			Fully enclosed, self-cooled type (Ip54)		

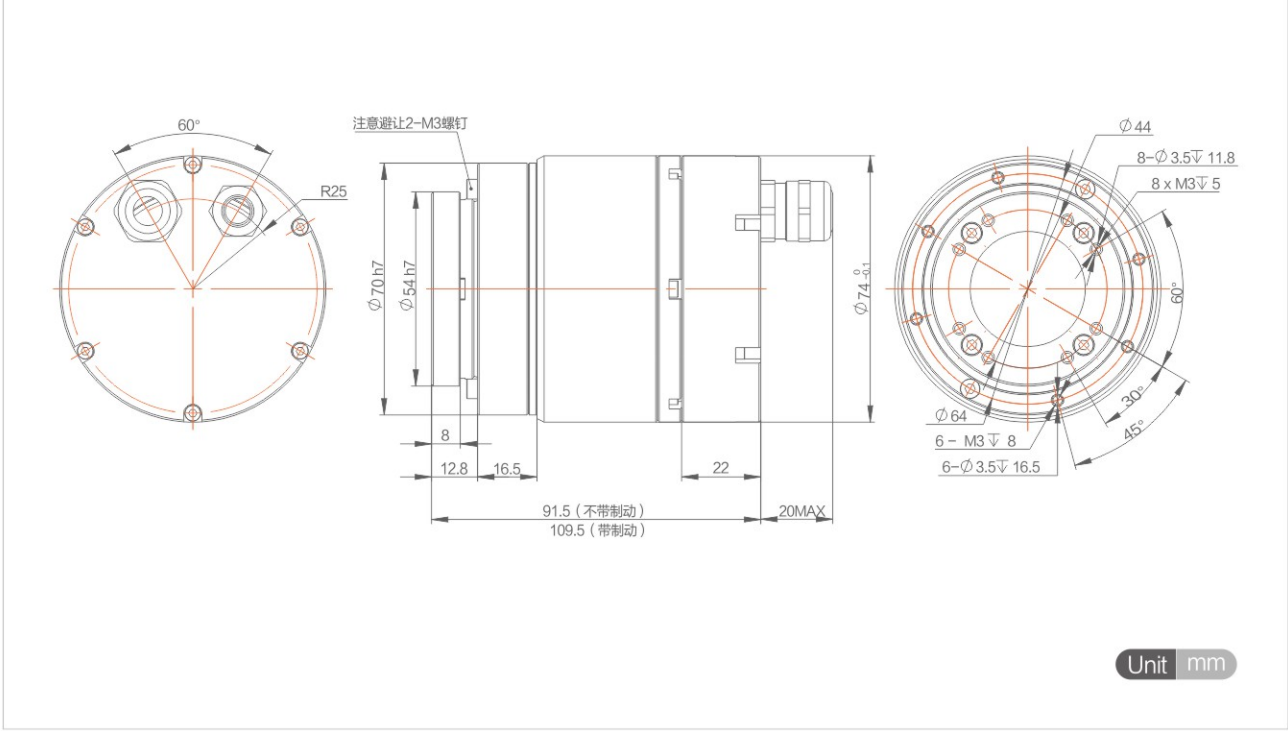
HAS-14

Side cable exit

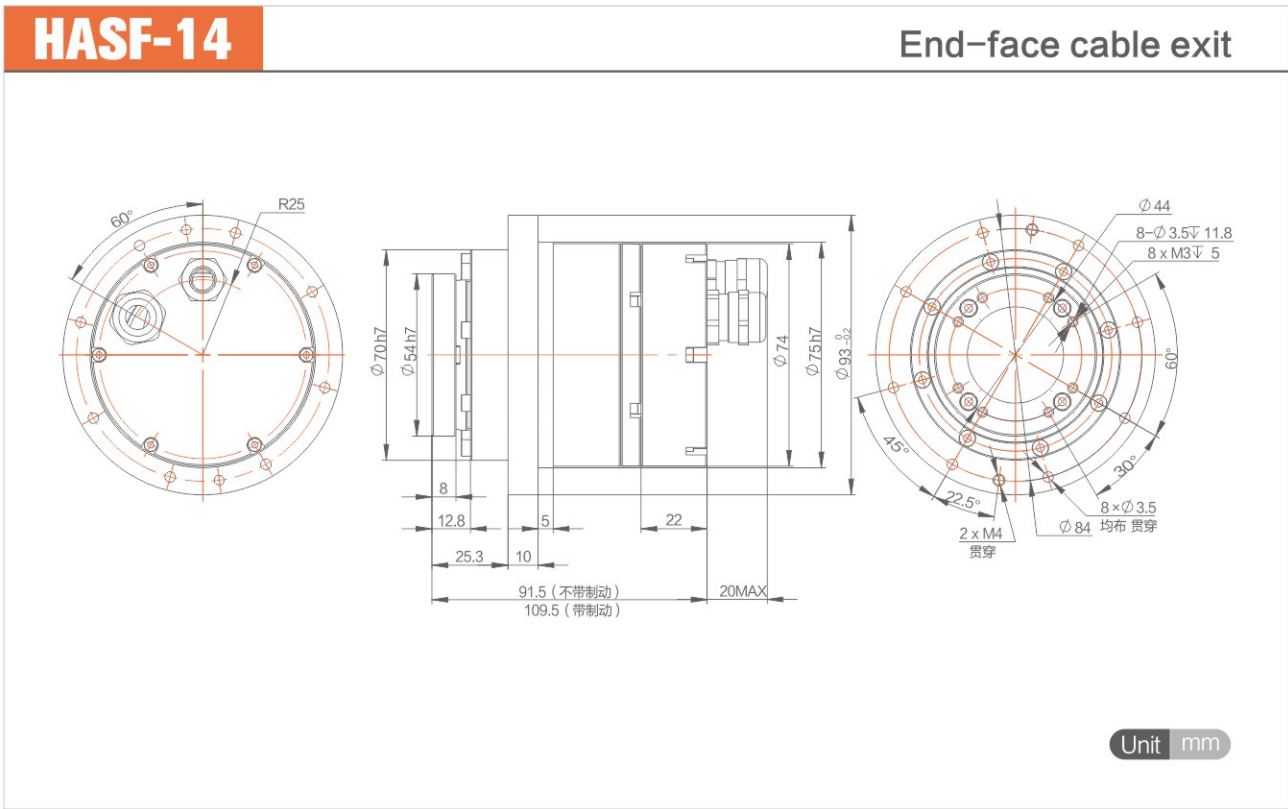
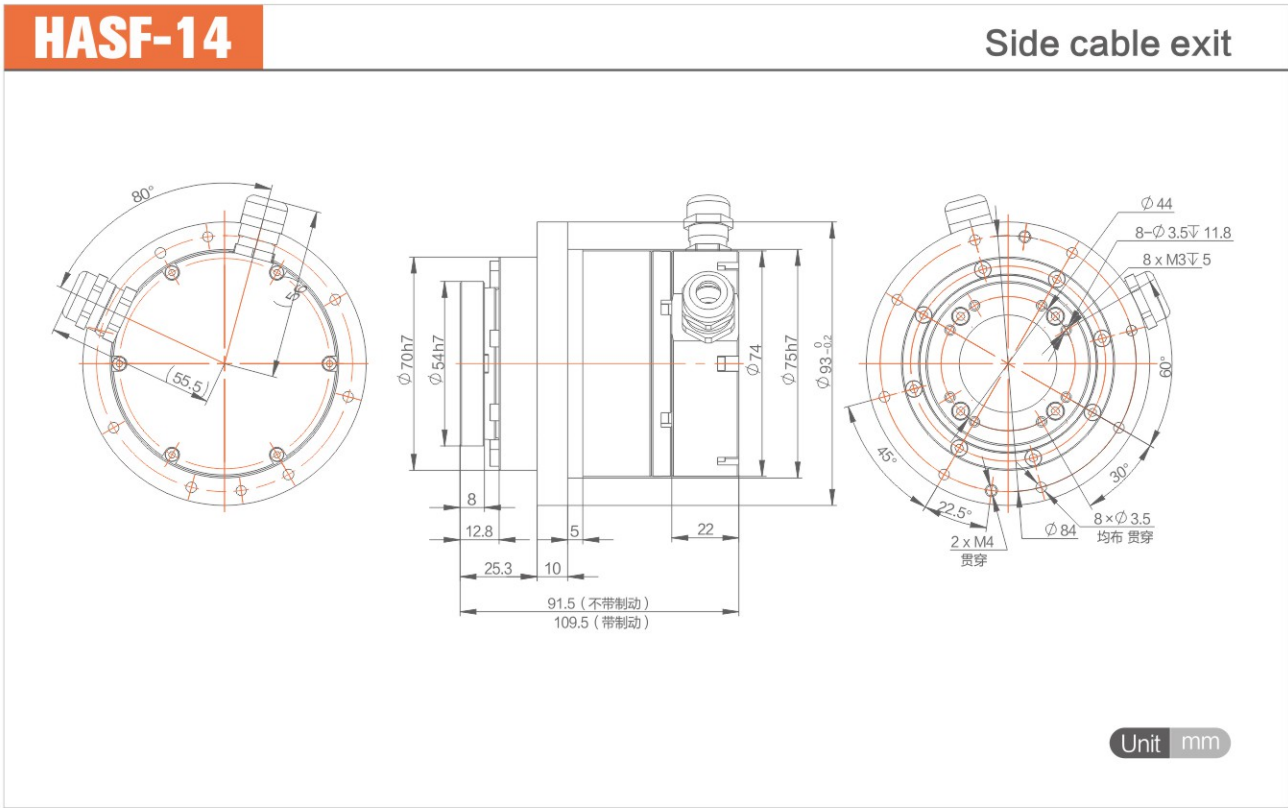


HAS-14

End-face cable exit



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FOR A MORE STABLE ROTATING JOINT MODULE,
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HAS/HASF-17

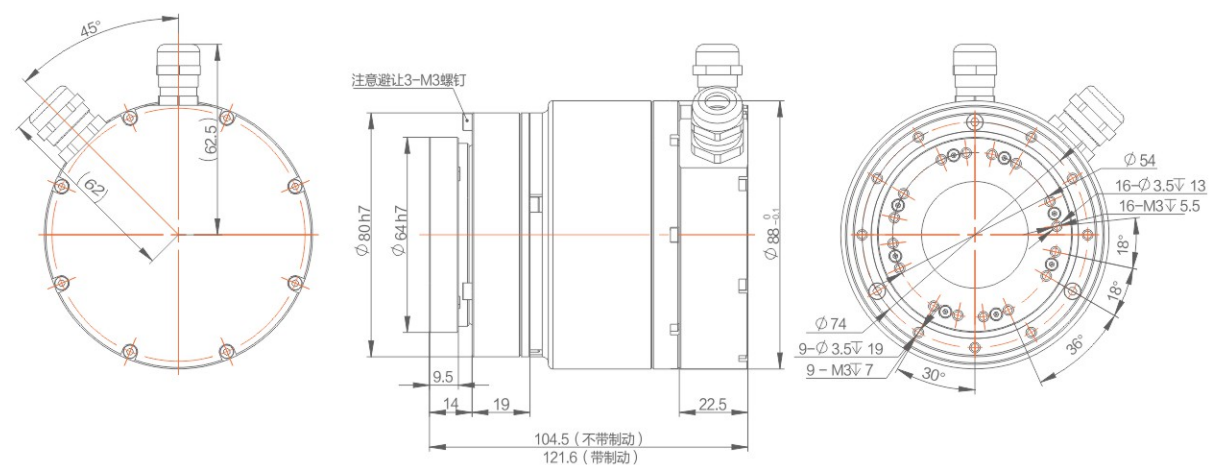
SERIES

Rotary Actuator Performance Specifications						
Model Selection: HAS/HASF-			17			
Gear ratio			51	81	101	121
AC voltage 220V	Peak torque	N.m	42	53	66	66
	Rated torque	N.m	27	33	49	49
	Maximum speed	rpm	118	74	59	50
	Rated speed	rpm	59	37	30	25
	Maximum current	Arms	3.68	2.92	2.92	2.44
	Rated current	Arms	2.36	1.82	2.17	1.81
	Torque constant	N.m/Arms	11.42	18.14	22.62	27.10
	Motor phase-to-phase resistance	Ohms (20℃)	2.6			
	Motor phase-to-phase inductance	mH	6.7			
	Motor back-EMF constant	Vrms/krpm	25			
DC Bus Voltage 48 VDC	Peak torque	N.m	42	53	66	66
	Rated torque	N.m	32	33	49	49
	Maximum speed	rpm	86	54	44	36
	Rated speed	rpm	51	32	26	21
	Maximum current	Arms	9.36	7.44	7.43	6.20
	Rated current	Arms	7.13	4.63	5.51	4.60
	Torque constant	N.m/Arms	4.49	7.13	8.89	10.65
	Motor phase-to-phase resistance	Ohms (20℃)	0.4			
	Motor phase-to-phase inductance	mH	0.9			
	Motor back-EMF constant	Vrms/krpm	7.7			
Absolute encoder	Encoder Type		Encoder Type			
	Encoder Resolution (Per Revolution)	bit	2 ²⁴ (16,777,216) 或 2 ²³ (8,388,608)			
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)			
Unidirectional positioning accuracy		Arcsec	≤60	≤60	≤50	≤50
Repeatability		Arcsec	≤15	≤10	≤10	≤10
Tipping stiffness		x10 ⁴ N.m/rad	15			
Torsional stiffness		x10 ⁴ N.m/rad	1.07	1.3		
Rotor moment of inertia	Without brakes	kg*m ²	7.96*10 ⁻⁵			
	With brakes	kg*m ²	9.12*10 ⁻⁵			
Quality	Without brakes	Kg	2.2			
	With brakes	Kg	2.8			
Number of motor poles		Pole	16			
Ambient Conditions			Operating temperature: 0-40° C / Storage temperature: -20-60° C Operating humidity / Storage humidity: 20-80% RH (non-condensing) Vibration resistance: 24.5 m/s ² (frequency: 10-400 Hz) Free from dust, metal particles, corrosive gases, flammable gases, oil mist, etc. For indoor use only; avoid direct sunlight Altitude below 1,000 m			
Safety Specifications			CE Certification			
Motor Insulation			Insulation resistance: 100 MΩ or higher (500 V DC)			
			Insulation withstand voltage: 1500 V AC for 1 minute			
			Insulation class: Class F			
Protection Rating			Fully enclosed, self-cooled type (Ip54)			

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HAS-17

Side cable exit

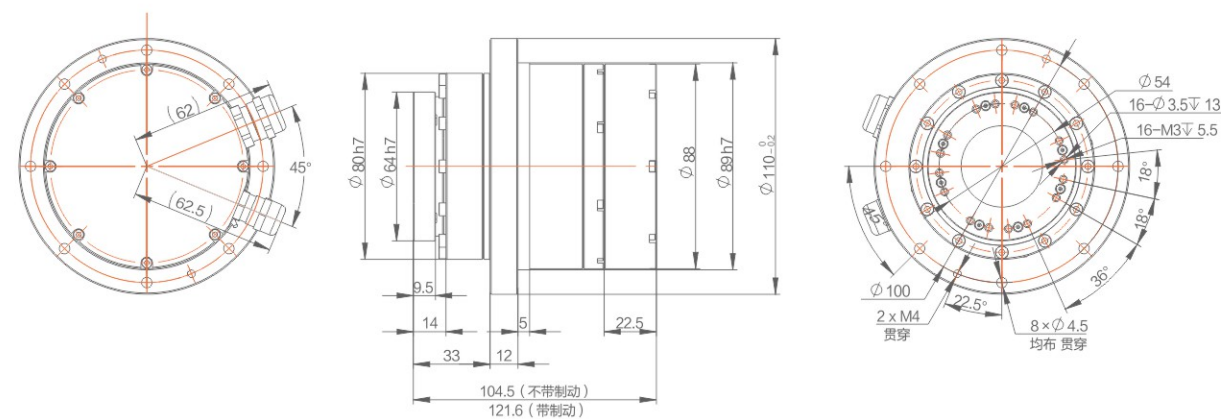


Unit mm

FOR A MORE STABLE ROTATING JOINT MODULE,
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HASF-17

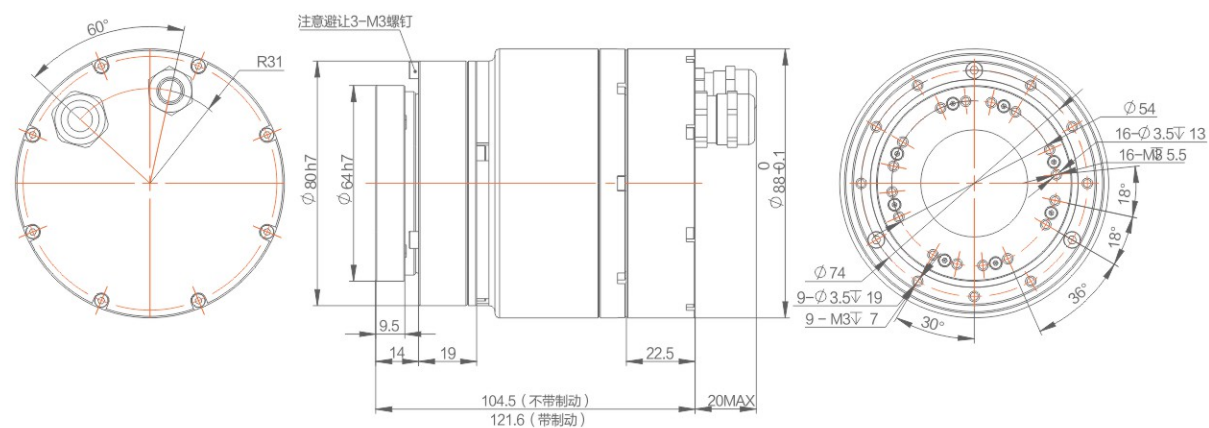
Side cable exit



Unit mm

HAS-17

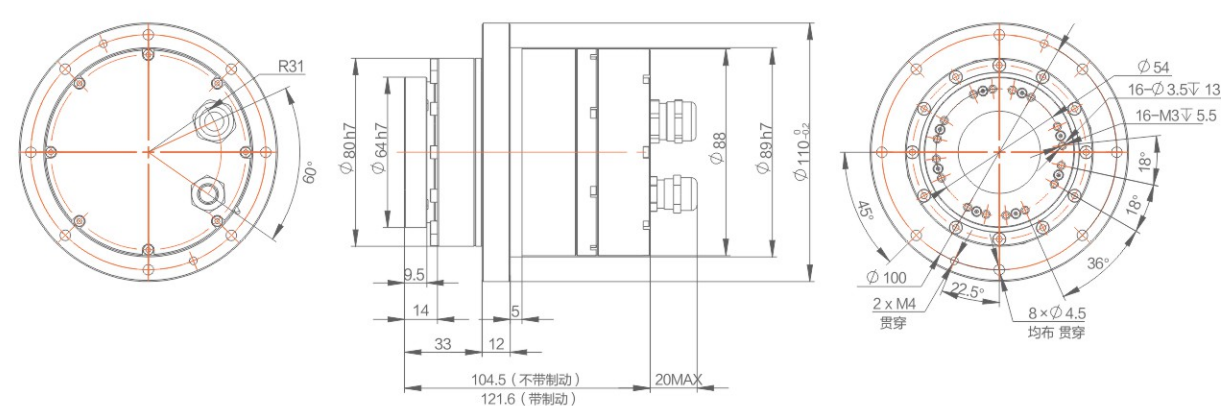
End-face cable exit



Unit mm

HASF-17

End-face cable exit



Unit mm

HAS/HASF-20

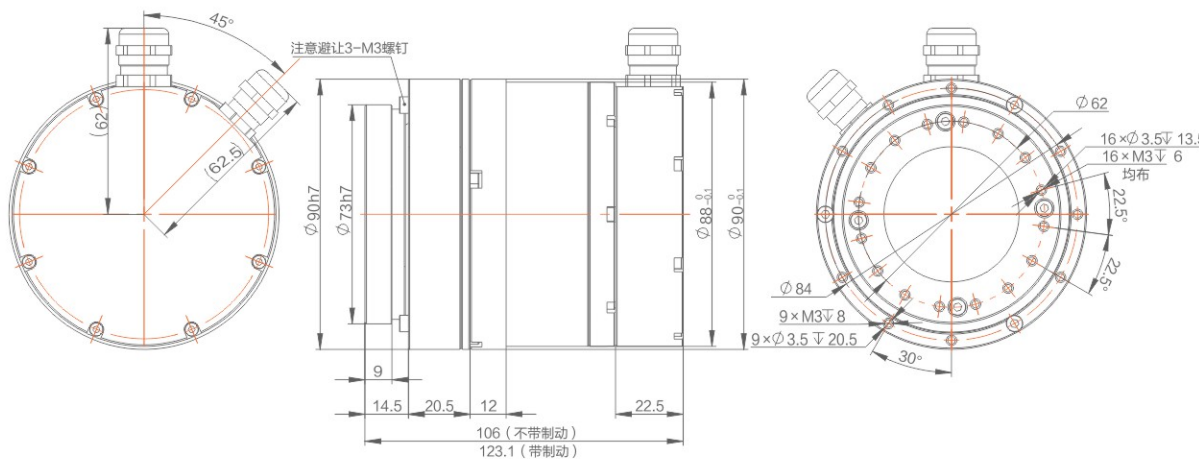
SERIES

Rotary Actuator Performance Specifications

Model Selection: HAS/HASF-			20				
Gear ratio			51	81	101	121	161
AC voltage 220V	Peak torque	N.m	69	91	102	108	113
	Rated torque	N.m	30	48	58	61	61
	Maximum speed	rpm	118	74	59	50	37
	Rated speed	rpm	59	37	30	25	19
	Maximum current	Arms	6.04	5.02	4.51	3.98	3.13
	Rated current	Arms	2.63	2.65	2.56	2.25	1.69
	Torque constant	N.m/Arms	11.42	18.14	22.62	27.10	36.06
	Motor phase-to-phase resistance	Ohms (20℃)	2.6				
	Motor phase-to-phase inductance	mH	6.7				
Motor back-EMF constant	Vrms/krpm	25					
DC Bus Voltage 48 VDC	Peak torque	N.m	69	91	102	108	113
	Rated torque	N.m	39	58	61	61	61
	Maximum speed	rpm	86	54	44	36	27
	Rated speed	rpm	51	32	26	21	16
	Maximum current	Arms	15.37	12.77	11.48	10.14	7.98
	Rated current	Arms	8.69	8.14	6.86	5.73	4.31
	Torque constant	N.m/Arms	4.49	7.13	8.89	10.65	14.17
	Motor phase-to-phase resistance	Ohms (20℃)	0.4				
	Motor phase-to-phase inductance	mH	0.9				
Motor back-EMF constant	Vrms/krpm	7.7					
Absolute encoder	Encoder Type		Absolute encoder				
	Encoder Resolution (Per Revolution)	bit	2 ²⁴ (16,777,216) 或 2 ²³ (8,388,608)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec	≤60	≤60	≤60	≤50	≤50
Repeatability		Arcsec	≤10	≤10	≤10	≤10	≤10
Tipping stiffness		x10 ⁴ N.m/rad	24				
Torsional stiffness		x10 ⁴ N.m/rad	1.8	2.3			
Rotor moment of inertia	Without brakes	kg*m ²	8.8*10 ⁻⁵				
	With brakes	kg*m ²	9.17*10 ⁻⁵				
Quality	Without brakes	Kg	2.4				
	With brakes	Kg	2.96				
Number of motor poles		Pole	16				
Ambient Conditions			Operating temperature: 0-40° C / Storage temperature: -20-60° C Operating humidity / Storage humidity: 20-80% RH (non-condensing) Vibration resistance: 24.5 m/s ² (frequency: 10-400 Hz) Free from dust, metal particles, corrosive gases, flammable gases, oil mist, etc. For indoor use only; avoid direct sunlight Altitude below 1,000 m				
Safety Specifications			CE Certification				
Motor Insulation			Insulation resistance: 100 MΩ or higher (500 V DC)				
			Insulation withstand voltage: 1500 V AC for 1 minute				
			Insulation class: Class F				
Protection Rating			Fully enclosed, self-cooled type (Ip54)				

HAS-20

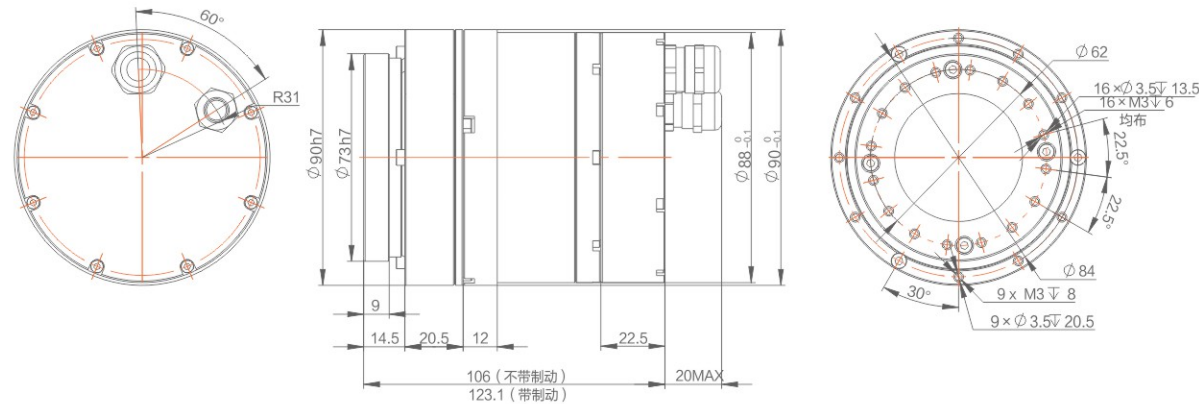
Side cable exit



Unit mm

HAS-20

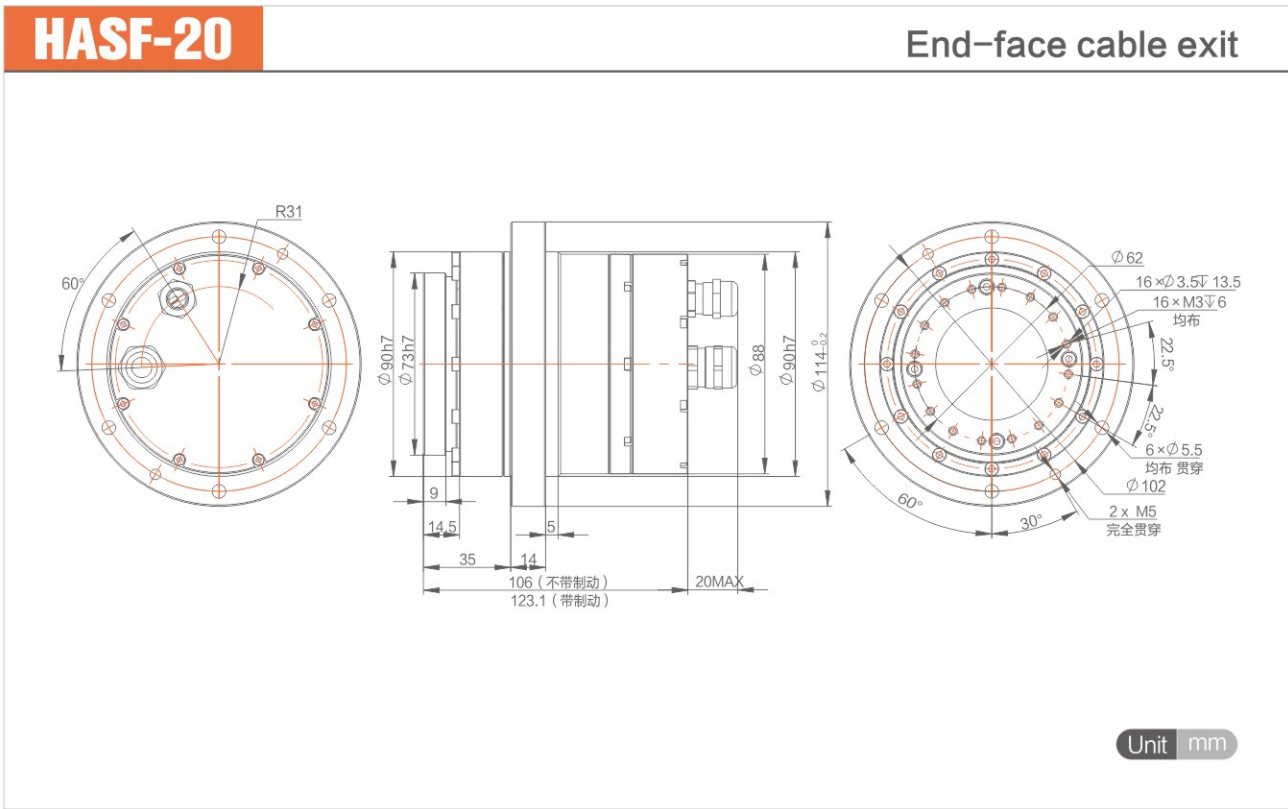
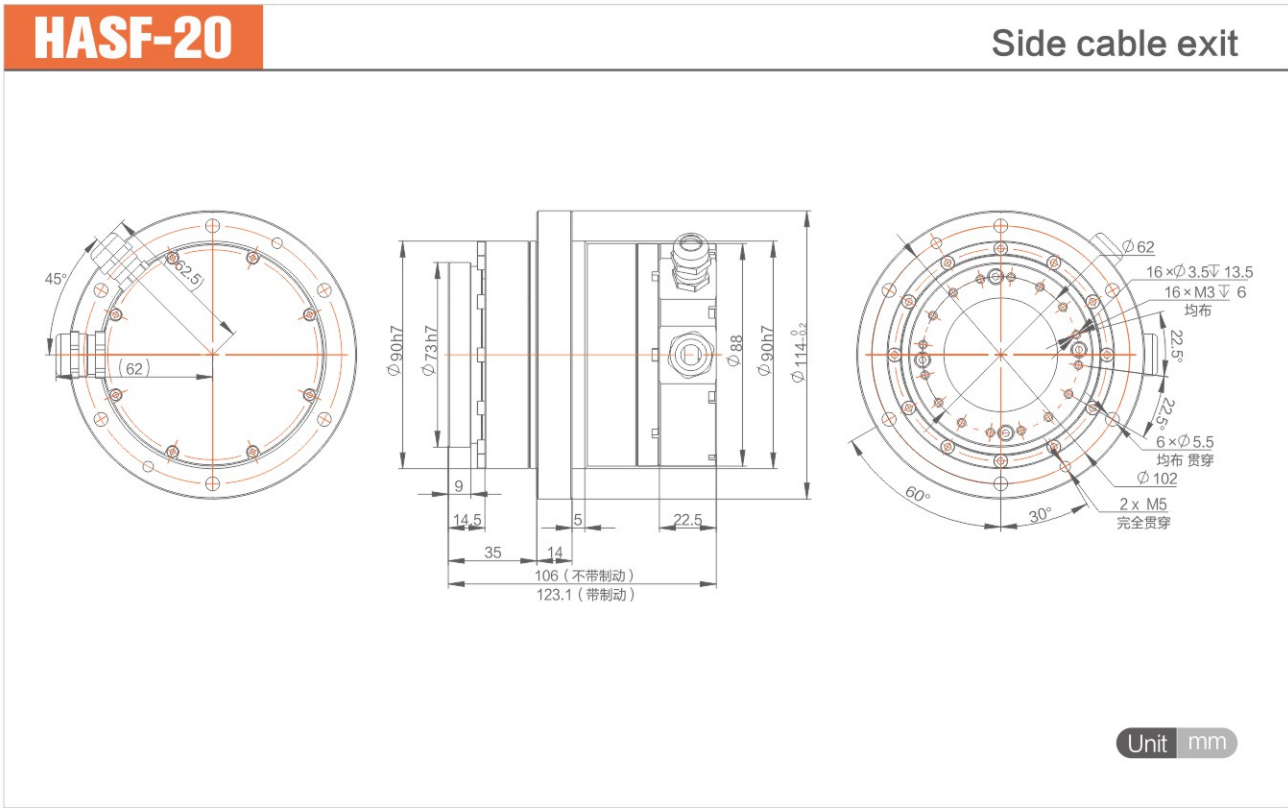
End-face cable exit



Unit mm

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HAS/HASF-25

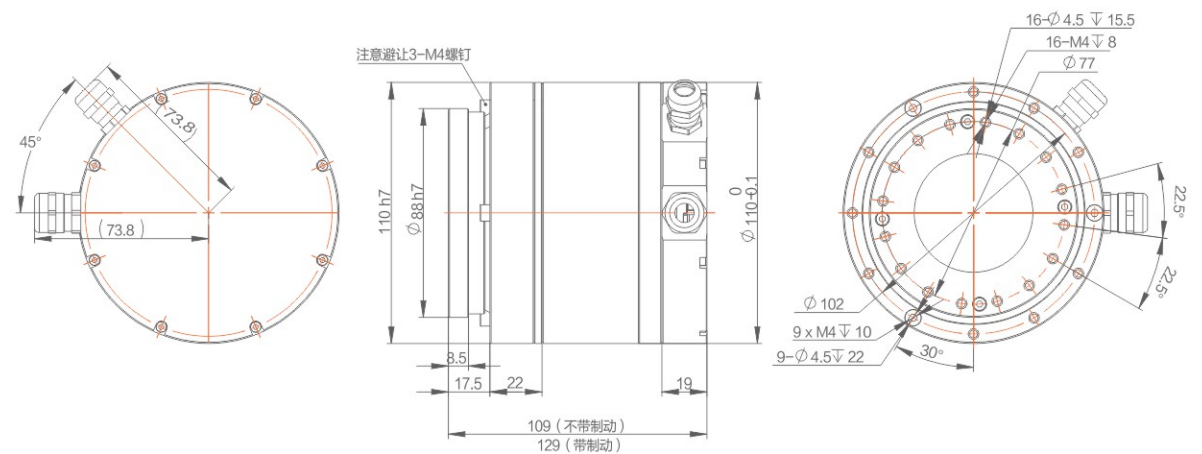
SERIES

Rotary Actuator Performance Specifications							
Model Selection: HAS/HASF-			25				
Gear ratio			51	81	101	121	161
AC voltage 220V	Peak torque	N.m	121	169	194	207	217
	Rated torque	N.m	68.5	107	133	133	133
	Maximum speed	rpm	94	59	48	40	30
	Rated speed	rpm	49	31	25	21	16
	Maximum current	Arms	6.90	6.07	5.58	4.97	3.92
	Rated current	Arms	3.90	3.84	3.83	3.20	2.40
	Torque constant	N.m/Arms	17.54	27.86	34.74	41.62	55.38
	Motor phase-to-phase resistance	Ohms (20℃)	3.55				
	Motor phase-to-phase inductance	mH	10				
	Motor back-EMF constant	Vrms/krpm	40				
DC Bus Voltage 48 VDC	Peak torque	N.m	121	169	194	207	217
	Rated torque	N.m	64	100	125	133	133
	Maximum speed	rpm	69	43	35	29	22
	Rated speed	rpm	49	31	25	21	16
	Maximum current	Arms	26.96	23.71	21.83	19.44	15.32
	Rated current	Arms	14.26	14.03	14.06	12.49	9.39
	Torque constant	N.m/Arms	4.49	7.13	8.89	10.65	14.17
	Motor phase-to-phase resistance	Ohms (20℃)	0.13				
	Motor phase-to-phase inductance	mH	0.36				
	Motor back-EMF constant	Vrms/krpm	10.5				
Absolute encoder	Encoder Type		Absolute encoder				
	Encoder Resolution (Per Revolution)	bit	2 ²⁴ (16,777,216) 或 2 ²³ (8,388,608)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec (角秒)	≤60	≤60	≤50	≤40	≤40
Repeatability		Arcsec (角秒)	≤10	≤10	≤10	≤10	≤10
Tipping stiffness		x10 ⁴ N.m/rad	38				
Torsional stiffness		x10 ⁴ N.m/rad	3.4	4.6			
Rotor moment of inertia	Without brakes	kg*m ²	2.1*10 ⁻⁴				
	With brakes	kg*m ²	2.2*10 ⁻⁴				
Quality	Without brakes	Kg	3.6				
	With brakes	Kg	4.2				
Number of motor poles		Pole	16				
Ambient Conditions			Operating temperature: 0-40° C / Storage temperature: -20-60° C Operating humidity / Storage humidity: 20-80% RH (non-condensing) Vibration resistance: 24.5 m/s ² (frequency: 10-400 Hz) Free from dust, metal particles, corrosive gases, flammable gases, oil mist, etc. For indoor use only; avoid direct sunlight Altitude below 1,000 m				
Safety Specifications			CE Certification				
Motor Insulation			Insulation resistance: 100 MΩ or higher (500 V DC)				
			Insulation withstand voltage: 1500 V AC for 1 minute				
Protection Rating			Insulation class: Class F				
			Fully enclosed, self-cooled type (Ip54)				

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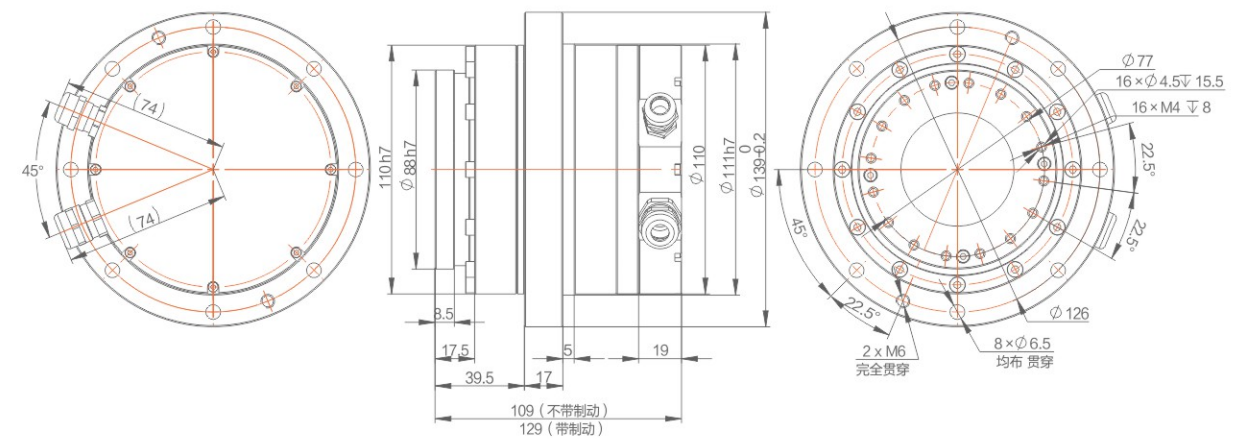
Side cable exit



Unit mm

HASF-25

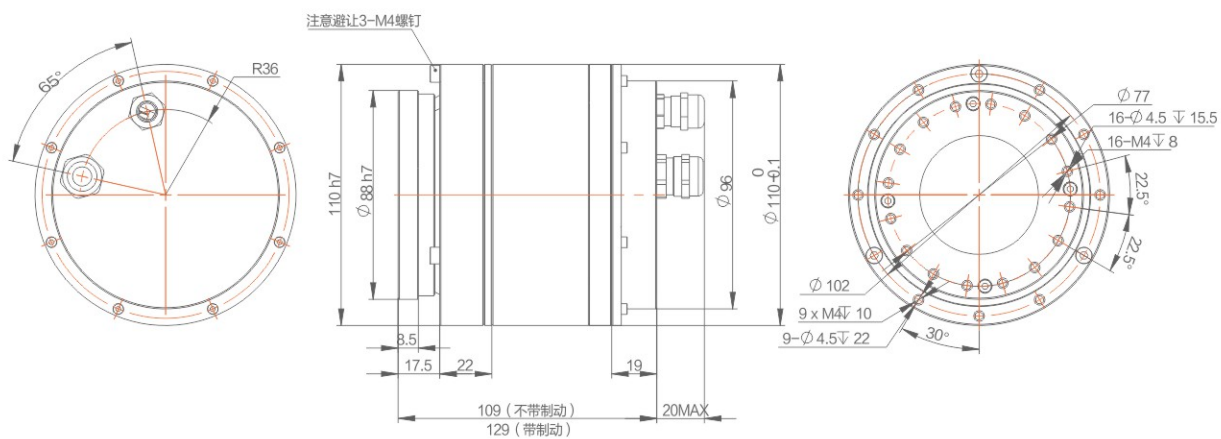
Side cable exit



Unit mm

HAS-25

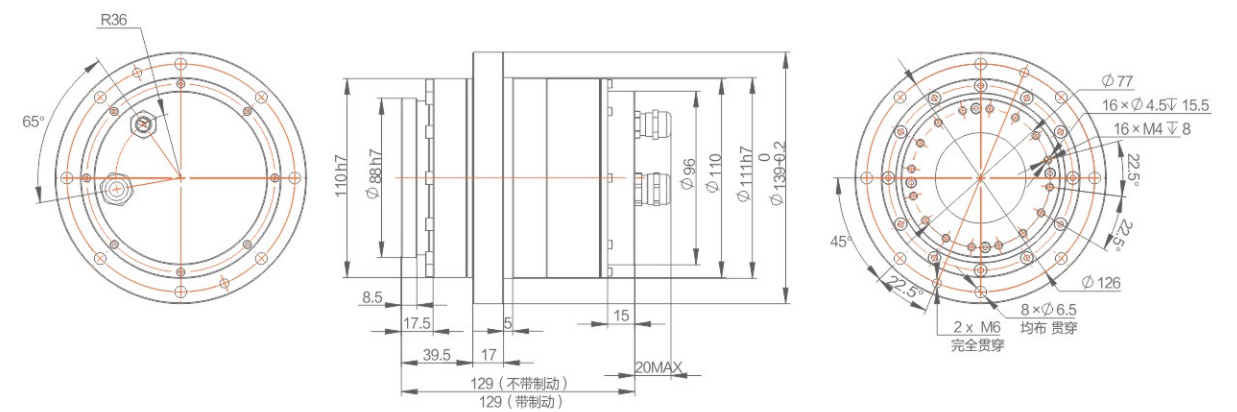
End-face cable exit



Unit mm

HASF-25

End-face cable exit



Unit mm