

FOR A MORE STABLE ROTATING JOINT MODULE,
CHOOSE HOBBER

HAT/HATF

SERIES

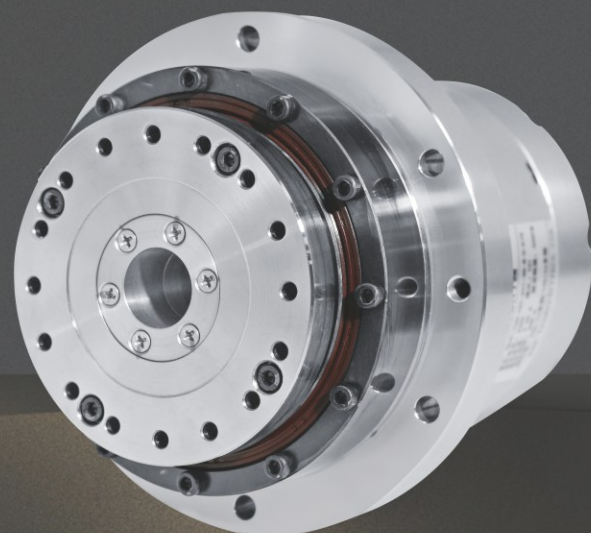
Hollow Rotary Actuator

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, hollow-shaft optical (optional) 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 use; no periodic maintenance is needed.
- Hollow Bore** The internal hollow bore facilitates the routing of cables, air hoses, laser beams, and other components.
- Easy To Use** Easy to install, compatible with standard commercial drivers, and plug-and-play.



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Product Mix

Harmonic reducer

Standard Comes standard with the leader harmonics

Cable outlet

Standard Side-exit and end-exit options available

(Each cable is 0.5 meters long as standard; they can be connected together or extended directly)

Encoder

Standard Absolute encoder, 23-bit per revolution (17-bit optional), 16-bit multi-turn (Select based on actual model)

Frameless torque motor

Standard 220V or 48V (optional)

Brake

Standard Available with or without brakes

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

Model definition

HA T - 25 - XXX - AC 1 - 30 - A - D - KXX

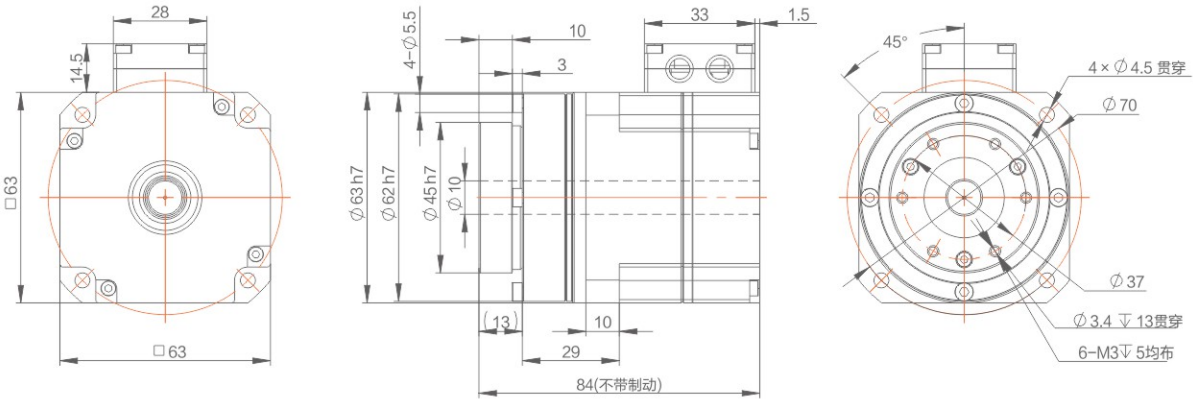
- Company Code**
HA Series Rotary Actuators
- Structural Configuration**
T: Standard Hollow Type
TF: Flanged Hollow Type
- Part Number**
11、14、17、20、25、32、40、50、58
- Gear ratio**
51: Gear ratio 51
81: Gear ratio 81 (not available on Model 11)
101: Gear ratio 101
121: Gear ratio 121 (not available on Models 11 and 14)
161: Gear ratio 161 (not available on Models 11, 14, and 17)
- Power Supply Voltage Versions**
AC: 220 V AC
DC: 48 V DC bus voltage
- Custom Customer Number**
No label by default
- Qualification Format**
D: End-face cable exit
C: Side cable exit
- Braking System**
A: Without an electromagnetic brake
B: With an electromagnetic brake
- Servo Encoder Configuration**
30: Multi-lap absolute value Tamagawa protocol (23 bits per lap / 16 bits per lap)
31: Multi-lap absolute value Tamagawa protocol (17 bits per lap / 16 bits per lap)
For specific encoder configurations, please contact our sales representatives.
- Internal version number**
Internal Configuration

HAT-11 SERIES

Rotary Actuator Performance Specifications				
Model Selection HAT-			11	
Gear ratio			51	101
AC voltage 220V	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	
	Motor back-EMF constant	Vrms/krpm	10.5	
DC Bus Voltage 48 VDC	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	
	Motor back-EMF constant	Vrms/krpm	9.5	
Absolute encoder	Encoder Type		Absolute encoder	
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)	
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)	
Unidirectional positioning accuracy		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		Pole	10	
Environmental 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)	

HAT-11

Side-entry wiring (without brake)

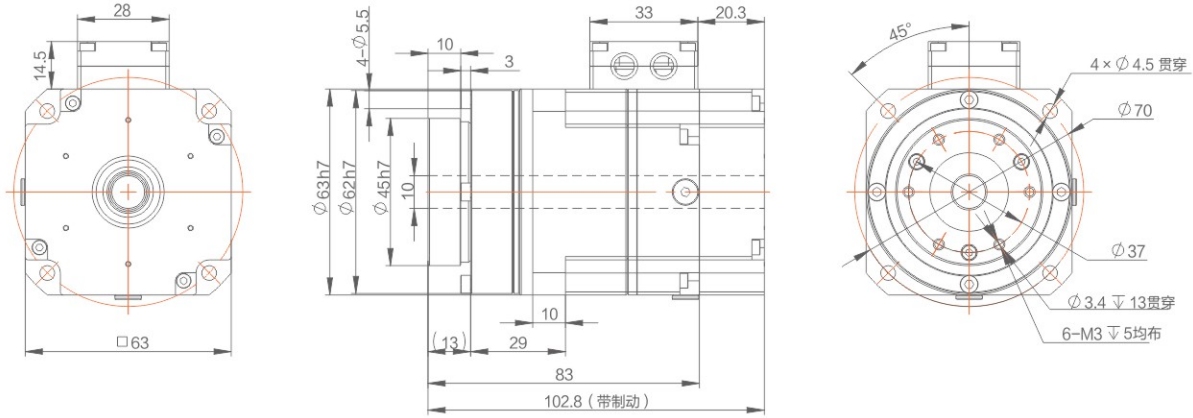


Note The above describes the standard wiring method.
For other wiring methods, please contact a sales representative.

Unit mm

HAT-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

HAT/HATF-14

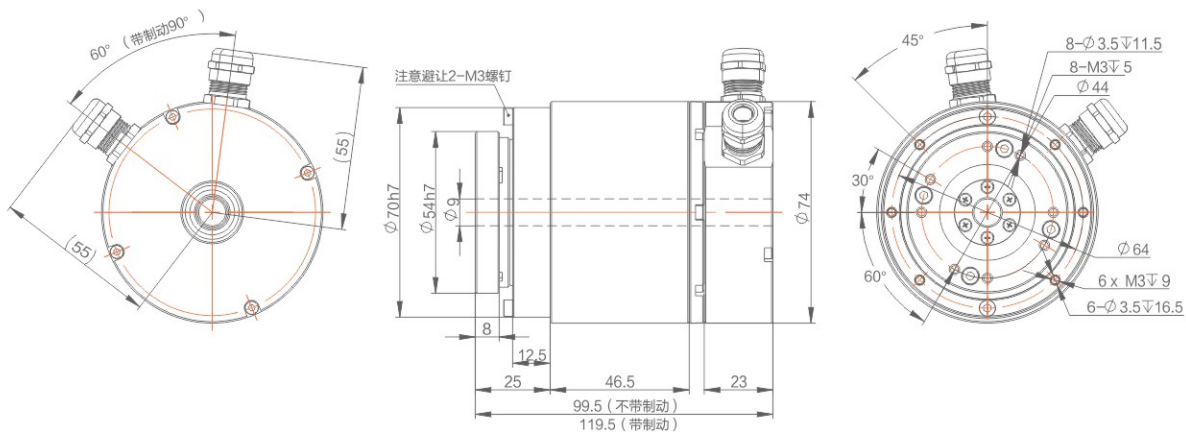
SERIES

Rotary Actuator Performance Specifications

Model Selection HAT/HATF-			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 ²³ (8,388,608) 或 2 ¹⁷ (131,072)		
	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		
Environmental 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)		

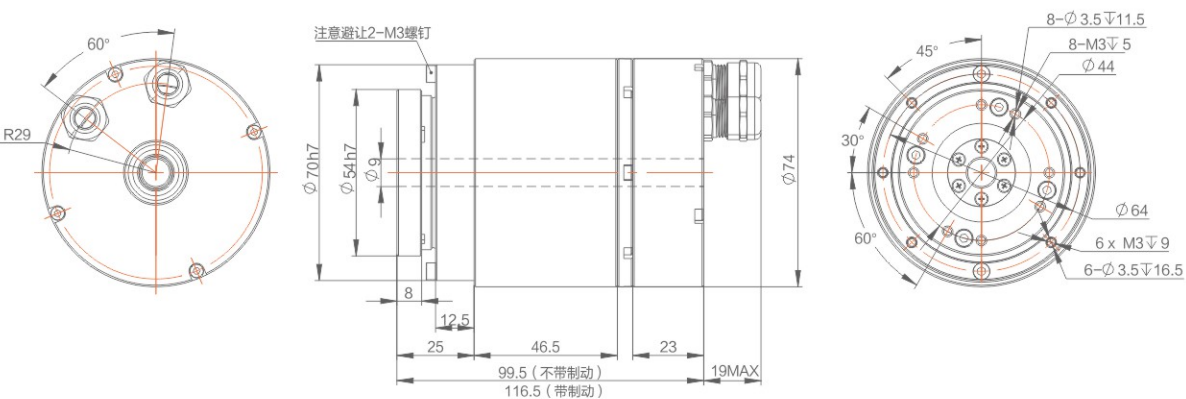
HAT-14

Side cable exit

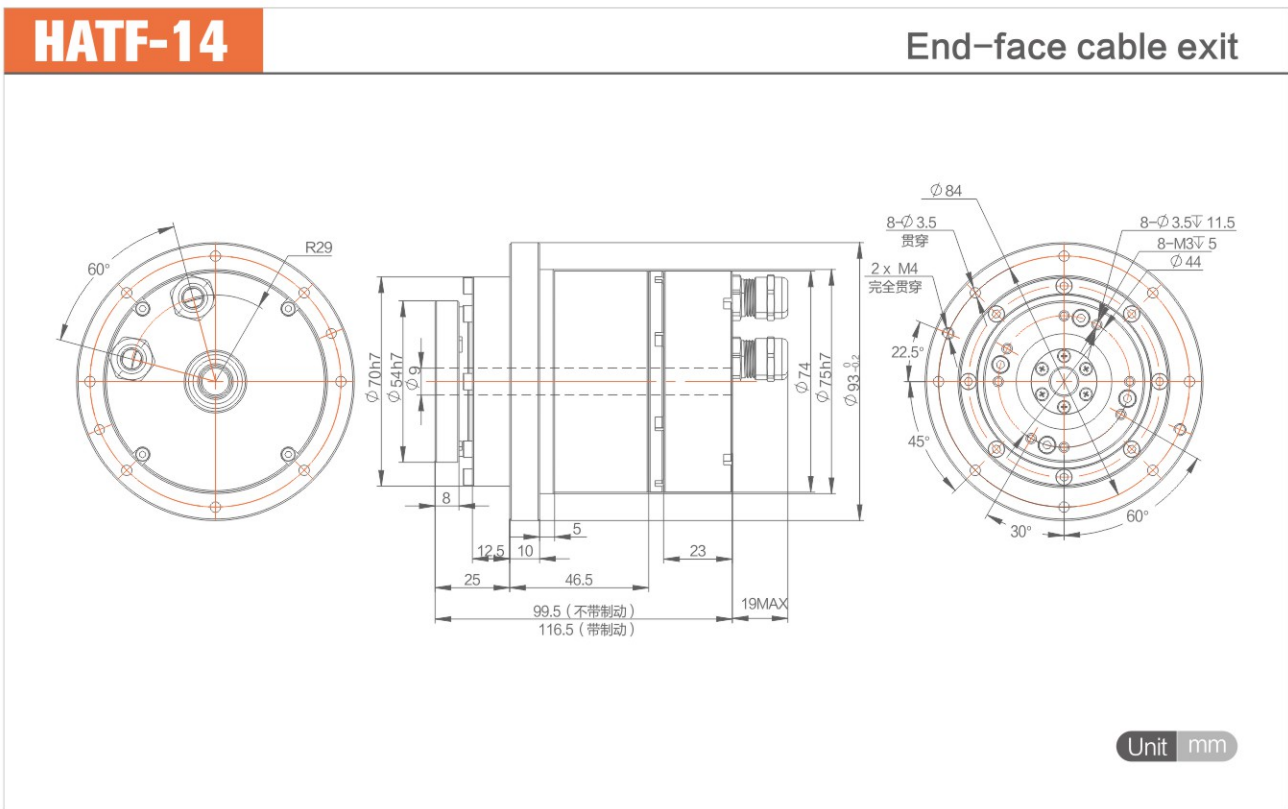
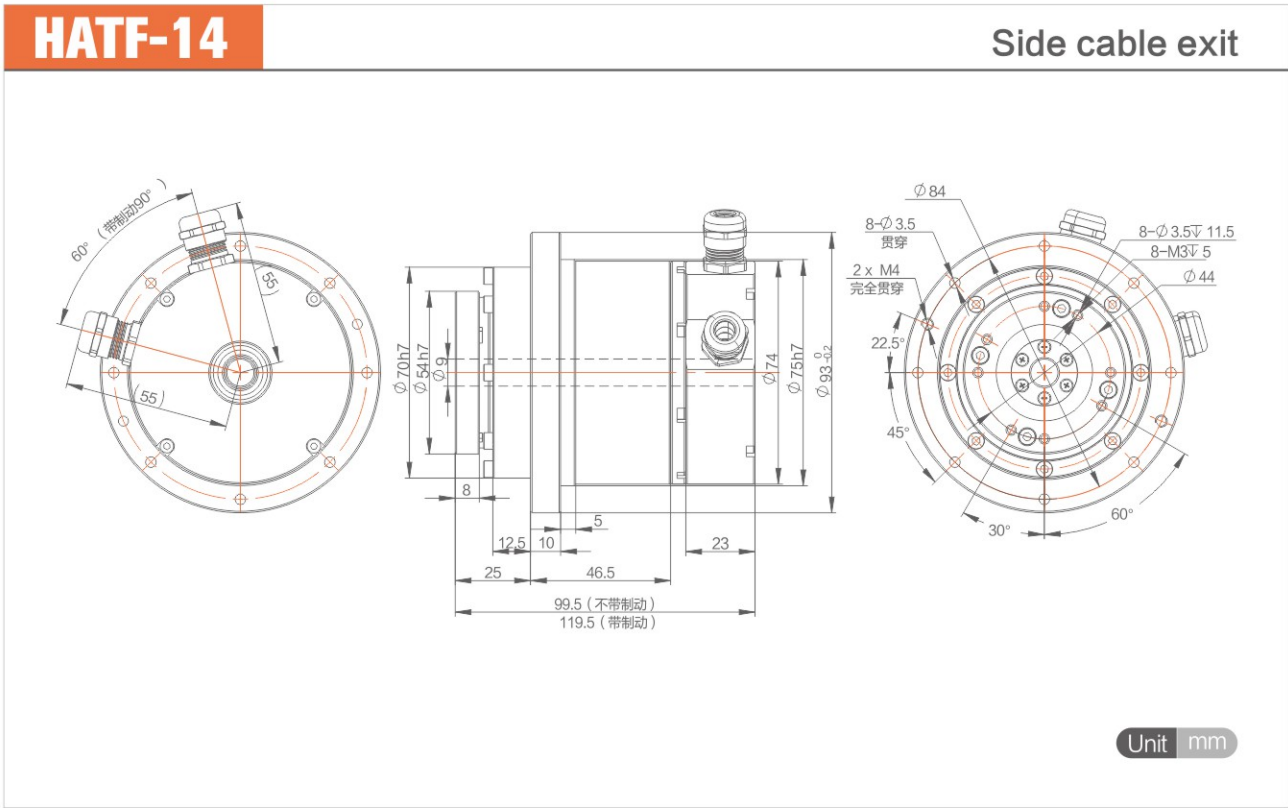


HAT-14

End-face cable exit



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HAT/HATF-17

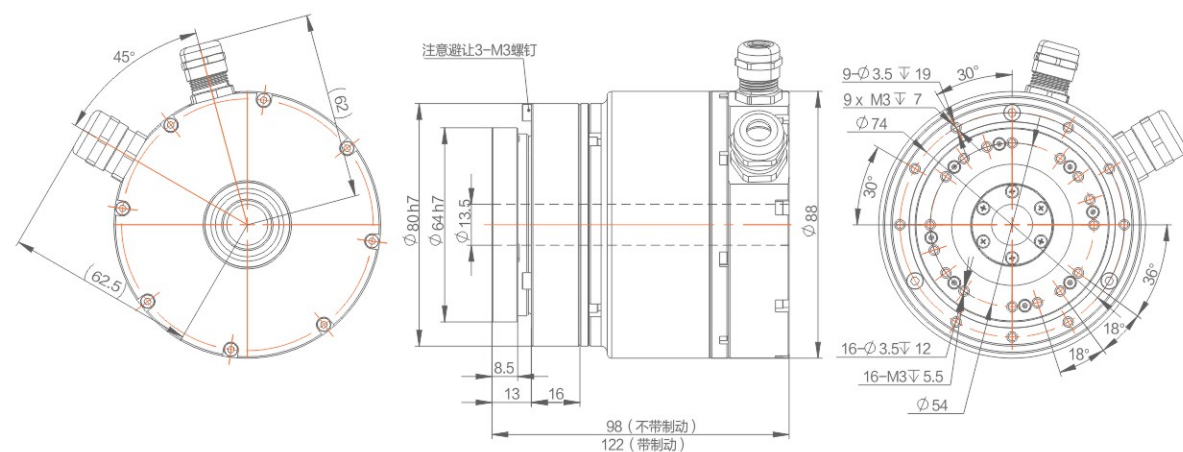
SERIES

Rotary Actuator Performance Specifications						
Model Selection HAT/HATF-			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		Absolute encoder			
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)			
	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			
Environmental 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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HAT-17

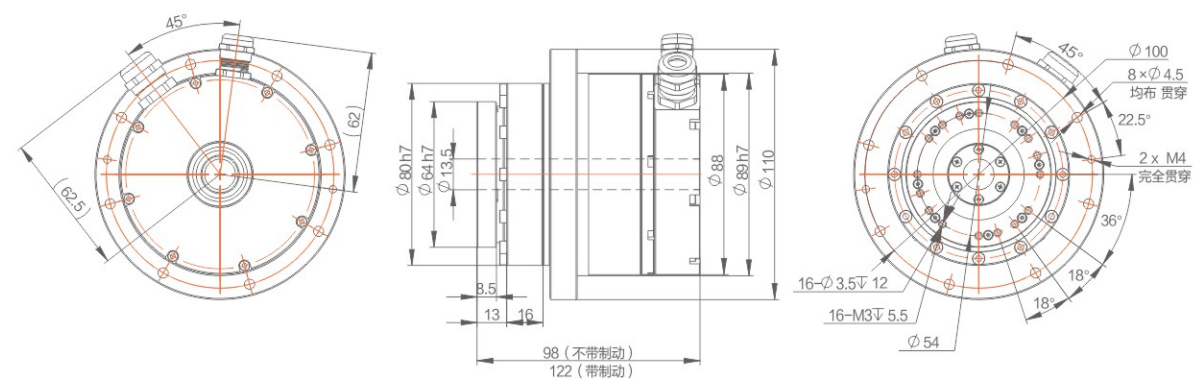
Side cable exit



Unit mm

HATF-17

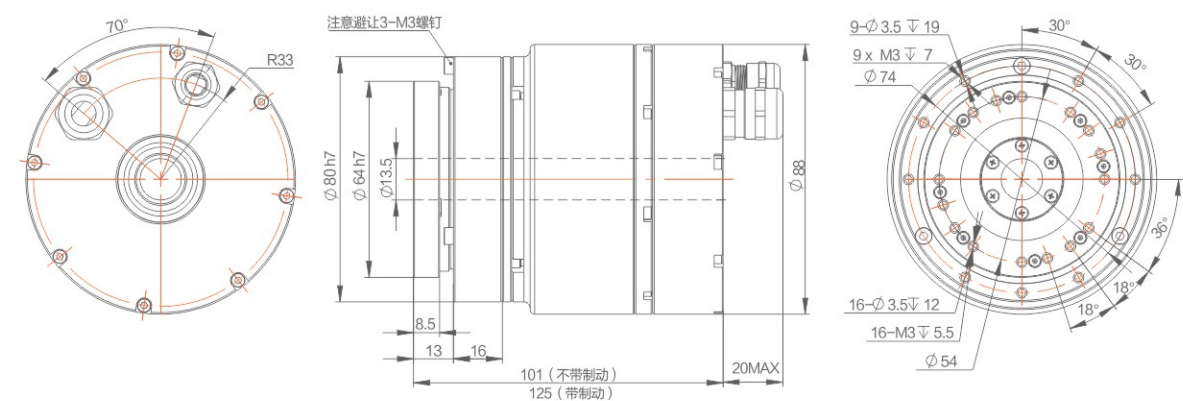
Side cable exit



Unit mm

HAT-17

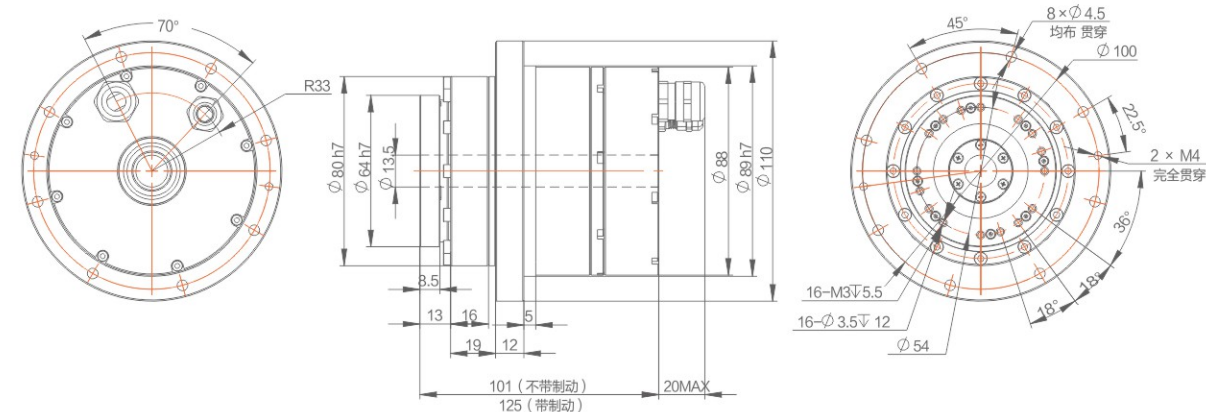
End-face cable exit



Unit mm

HATF-17

End-face cable exit



Unit mm

HAT/HATF-20

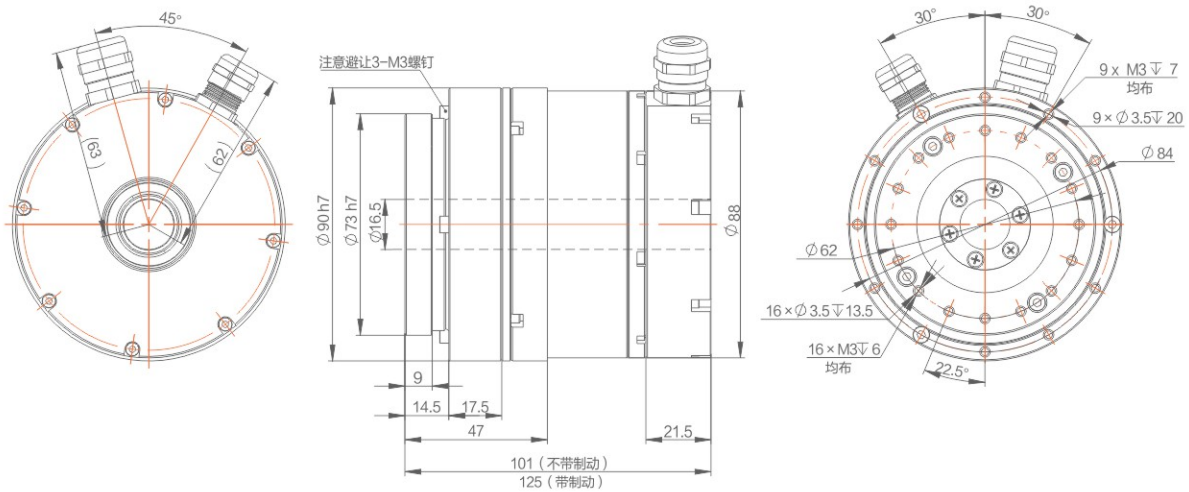
SERIES

Rotary Actuator Performance Specifications

Model Selection HAT/HATF-			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 ²³ (8,388,608) 或 2 ¹⁷ (131,072)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec	≤60	≤60	≤60	≤50	≤50
			The accuracy parameters listed above are default values; products with an accuracy of ≤15 arcseconds can be customized to meet customer requirements.				
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				
Environmental 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)				

HAT-20

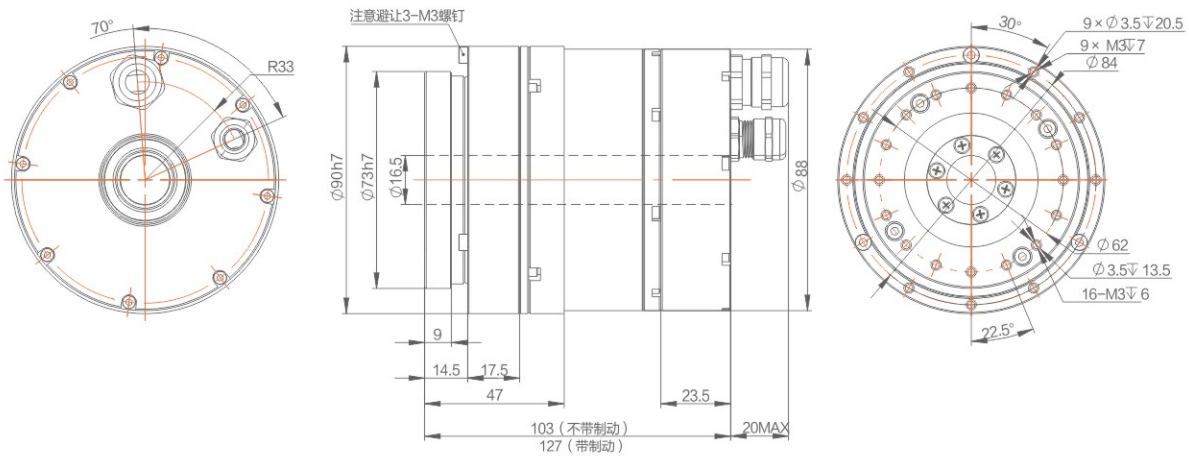
Side cable exit



Unit mm

HAT-20

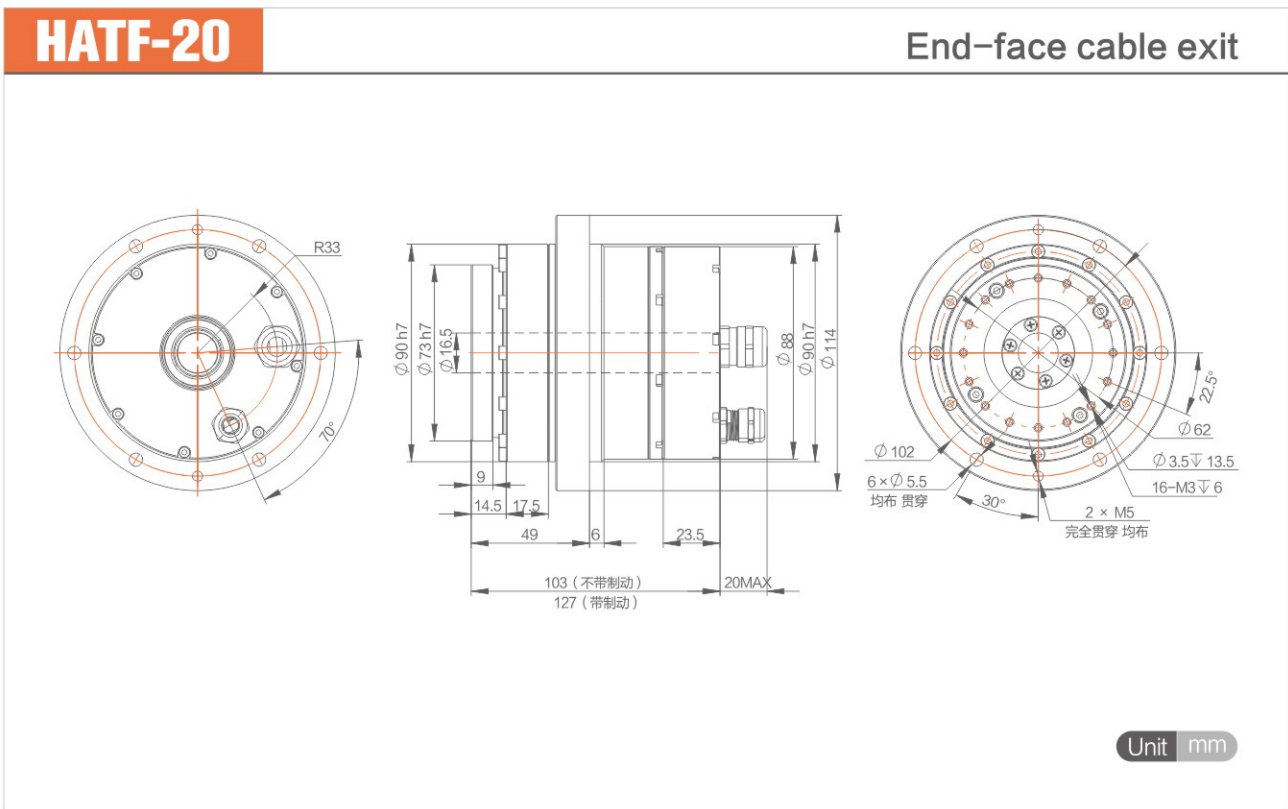
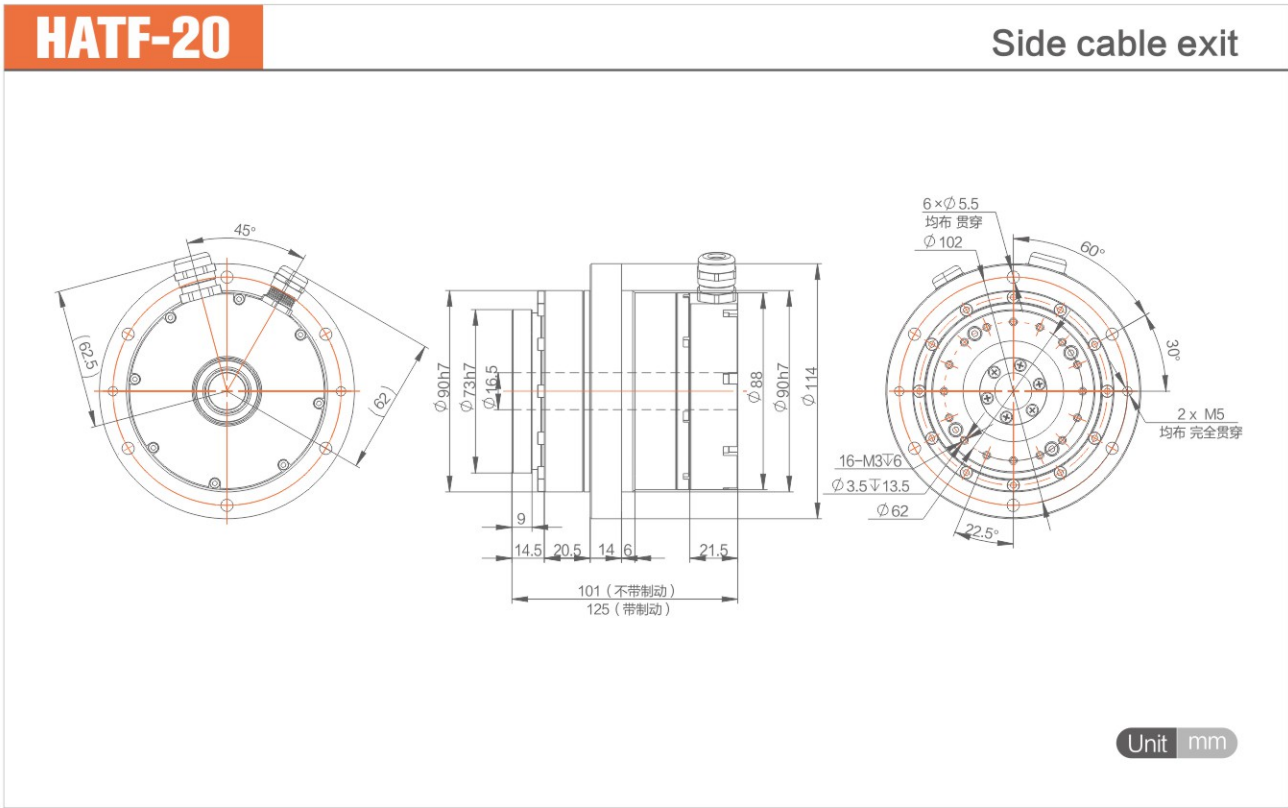
End-face cable exit



Unit mm

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HAT/HATF-25

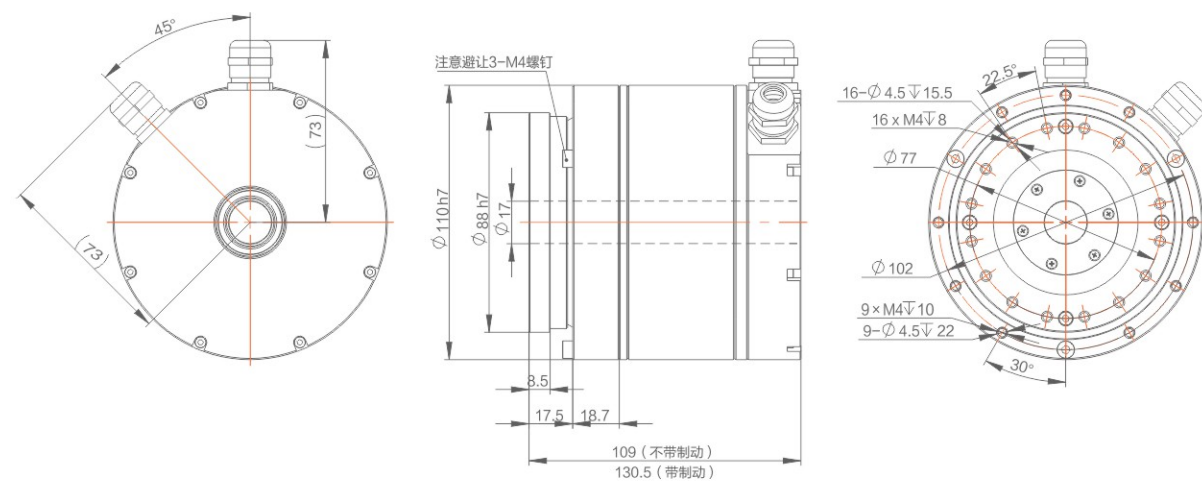
SERIES

Rotary Actuator Performance Specifications							
Model Selection HAT/HATF--			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 ²³ (8,388,608) 或 2 ¹⁷ (131,072)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec	≤60	≤50	≤50	≤40	≤40
Repeatability		Arcsec	≤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				
Environmental 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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HAT-25

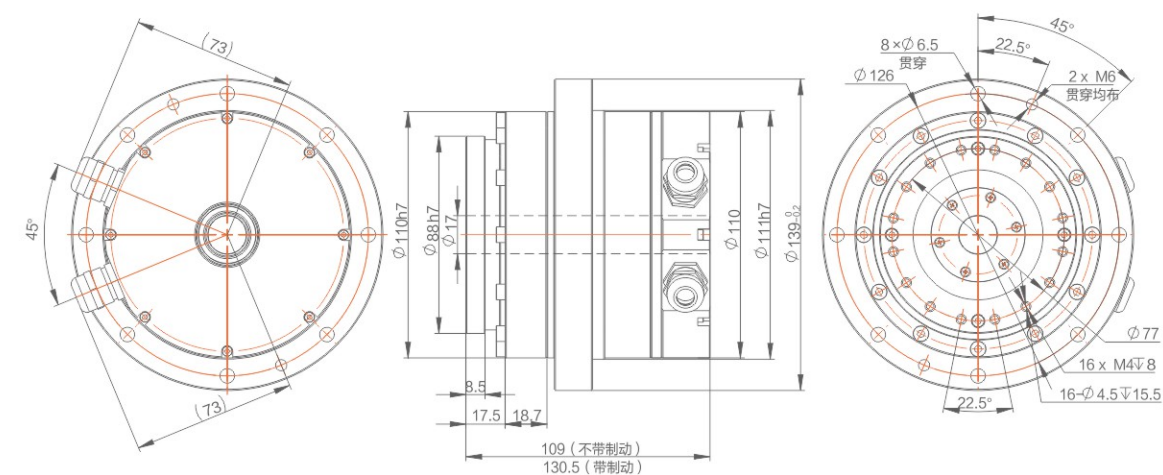
Side cable exit



Unit mm

HATF-25

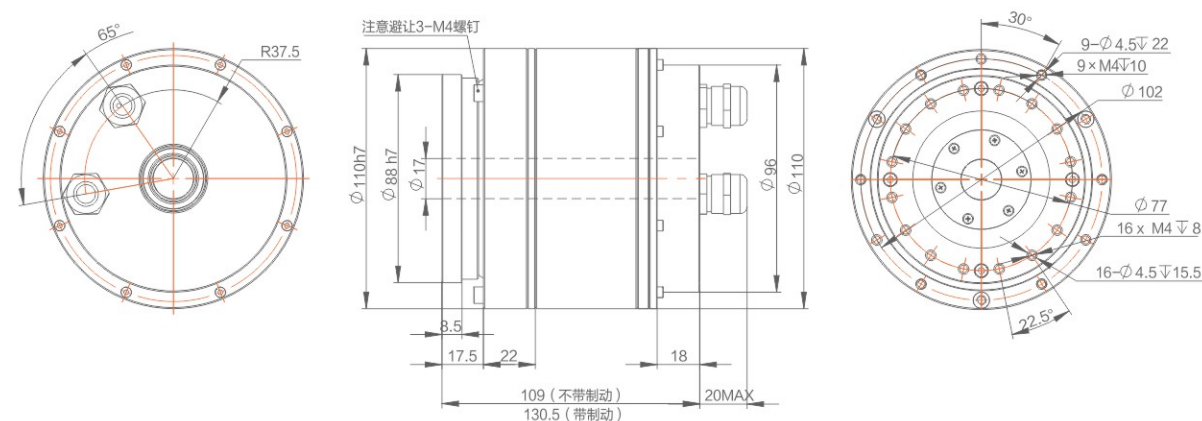
Side cable exit



Unit mm

HAT-25

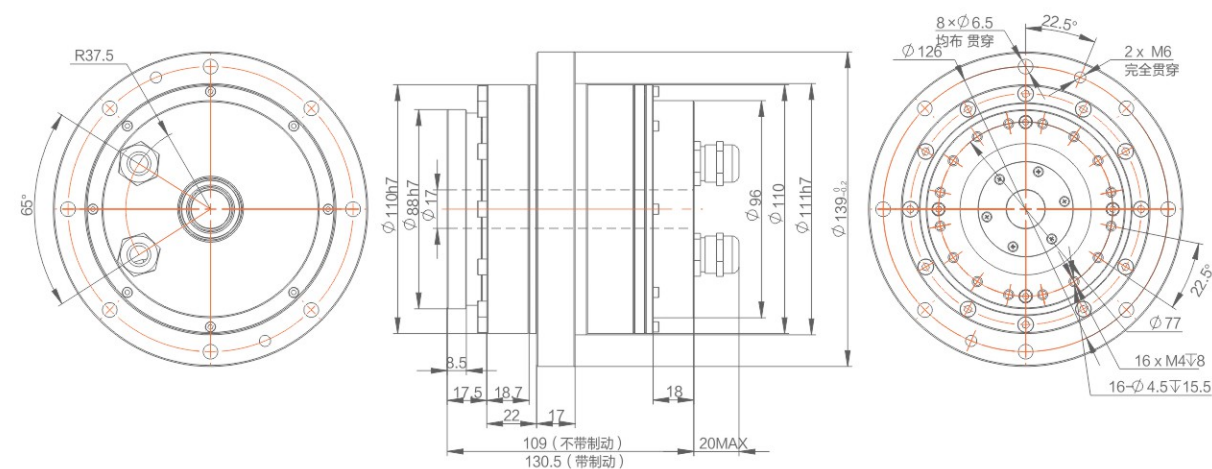
End-face cable exit



Unit mm

HATF-25

End-face cable exit



Unit mm

HAT-32/HATF-32

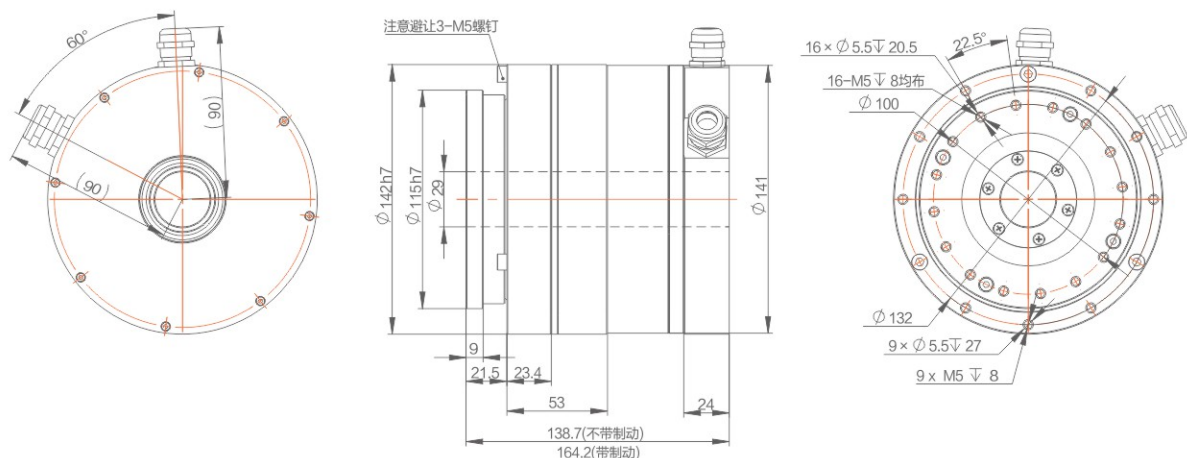
SERIES

Rotary Actuator Performance Specifications

Model Selection HAT/HATF-			32				
Gear ratio			51	81	101	121	161
AC voltage 220V	Peak torque	N.m	267	376	411	436	459
	Rated torque	N.m	133	206	264	267	267
	Maximum speed	rpm	90	57	46	38	29
	Rated speed	rpm	45	28	23	19	14
	Maximum current	Arms	11.69	10.36	9.08	8.04	6.36
	Rated current	Arms	5.82	5.68	5.83	4.93	3.70
	Torque constant	N.m/Arms	22.85	36.29	45.25	54.21	72.13
	Motor phase-to-phase resistance	Ohms (20℃)	0.88				
	Motor phase-to-phase inductance	mH	6.1				
Motor back-EMF constant	Vrms/krpm	40					
DC Bus Voltage 48 VDC	Peak torque	N.m	267	376	411	436	459
	Rated torque	N.m	131	206	260	267	267
	Maximum speed	rpm	59	37	30	25	19
	Rated speed	rpm	39	25	20	17	12
	Maximum current	Arms	40.90	36.27	31.79	28.15	22.27
	Rated current	Arms	20.07	19.87	20.11	17.24	12.96
	Torque constant	N.m/Arms	6.53	10.37	12.93	15.49	20.61
	Motor phase-to-phase resistance	Ohms (20℃)	0.088				
	Motor phase-to-phase inductance	mH	0.39				
Motor back-EMF constant	Vrms/krpm	10.5					
Absolute encoder	Encoder Type		Absolute encoder				
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec	≤60	≤50	≤50	≤40	≤40
			The accuracy parameters listed above are default values; products with an accuracy of ≤15 arcseconds can be customized to meet customer requirements.				
Repeatability		Arcsec	≤10	≤10	≤10	≤10	≤10
Tipping stiffness		x10 ⁴ N.m/rad	95				
Torsional stiffness		x10 ⁴ N.m/rad	7.6	9.9			
Rotor moment of inertia	Without brakes	kg*m ²	8.3*10 ⁻⁴				
	With brakes	kg*m ²	1.04*10 ⁻³				
Quality	Without brakes	Kg	7.4				
	With brakes	Kg	8.7				
Number of motor poles		Pole	16				
Environmental 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)				

HAT-32

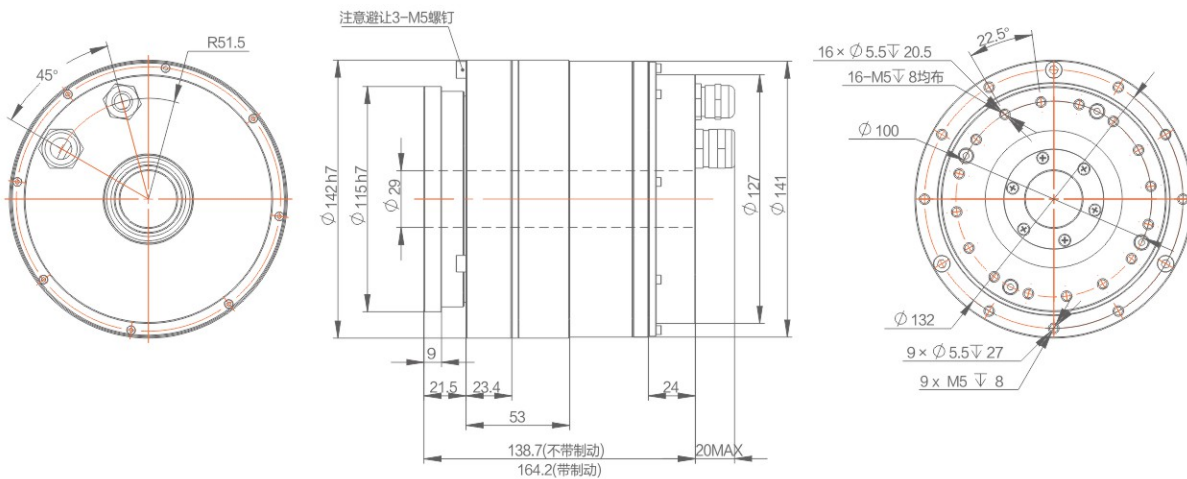
Side cable exit



Unit mm

HAT-32

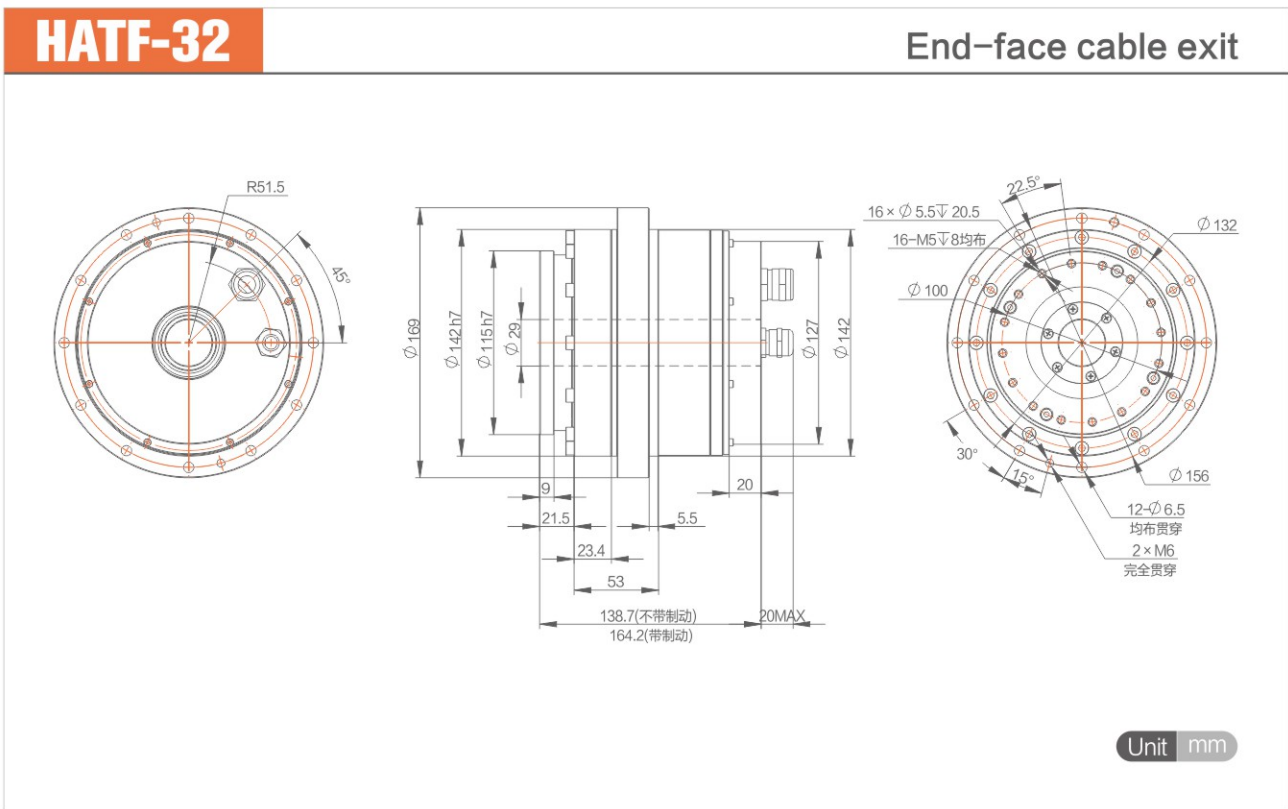
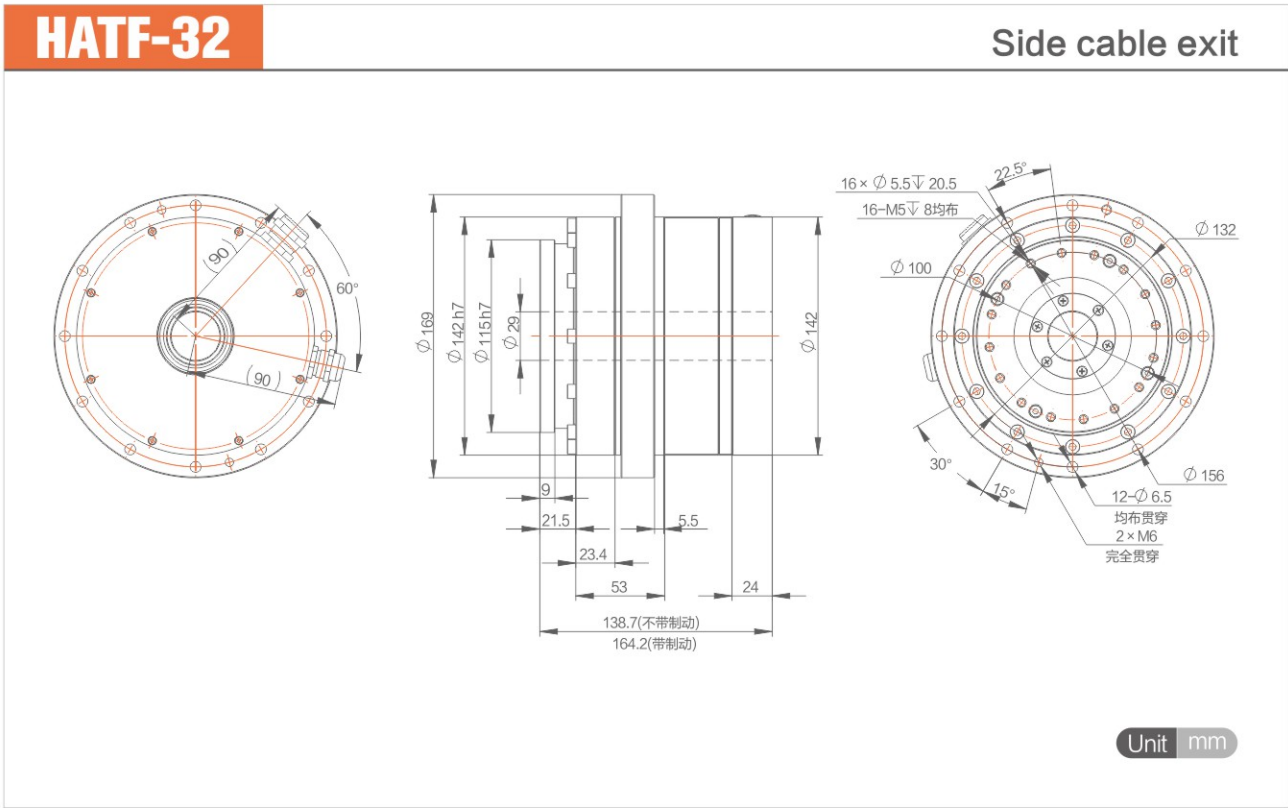
End-face cable exit



Unit mm

FOR A MORE STABLE ROTATING JOINT MODULE,
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HAT-40/HATF-40

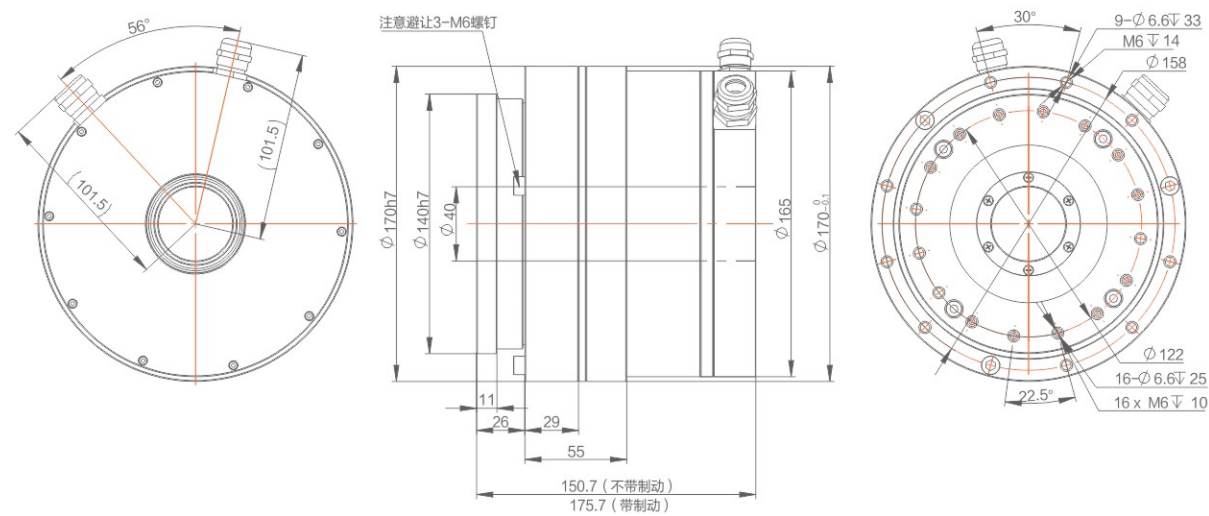
SERIES

Rotary Actuator Performance Specifications							
Model Selection HAT/HATF-			40				
Gear ratio			51	81	101	121	161
AC voltage 220V	Peak torque	N.m	497	641	702	762	800
	Rated torque	N.m	242	351	460	557	557
	Maximum speed	rpm	80	51	41	34	25
	Rated speed	rpm	39	25	20	17	12
	Maximum current	Arms	17.91	14.55	12.78	11.58	9.13
	Rated current	Arms	8.72	7.97	8.37	8.46	6.36
	Torque constant	N.m/Arms	27.74	44.06	54.94	65.82	87.58
	Motor phase-to-phase resistance	Ohms (20℃)	0.8				
	Motor phase-to-phase inductance	mH	8				
	Motor back-EMF constant	Vrms/krpm	44				
DC Bus Voltage 48 VDC	Peak torque	N.m	280	440	550	660	800
	Rated torque	N.m	140	230	280	340	450
	Maximum speed	rpm	43	27	22	18	14
	Rated speed	rpm	31	20	16	13	10
	Maximum current	Arms	42.89	42.44	42.54	42.61	38.82
	Rated current	Arms	21.45	22.18	21.66	21.95	21.84
	Torque constant	N.m/Arms	6.53	10.37	12.93	15.49	20.61
	Motor phase-to-phase resistance	Ohms (20℃)	0.074				
	Motor phase-to-phase inductance	mH	0.3				
	Motor back-EMF constant	Vrms/krpm	15				
Absolute encoder	Encoder Type		Absolute encoder				
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)				
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)				
Unidirectional positioning accuracy		Arcsec	≤60	≤50	≤50	≤40	≤40
Repeatability		Arcsec	≤10	≤10	≤10	≤10	≤10
Tipping stiffness		x10 ⁴ N.m/rad	175				
Torsional stiffness		x10 ⁴ N.m/rad	14	18.6			
Rotor moment of inertia	Without brakes	kg*m ²	17.47*10 ⁻⁴				
	With brakes	kg*m ²	19.65*10 ⁻⁴				
Quality	Without brakes	Kg	10.8				
	With brakes	Kg	12.0				
Number of motor poles		Pole	16				
Environmental 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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HAT-40

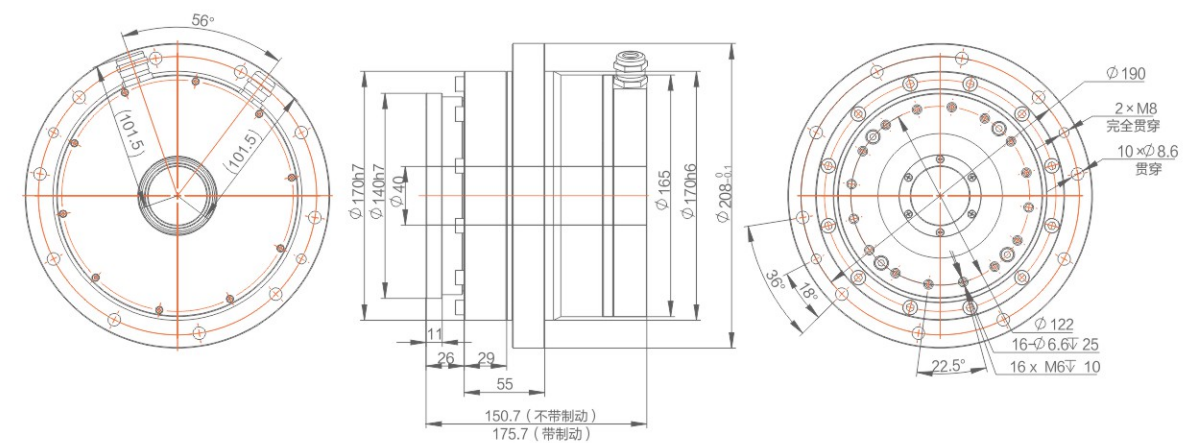
Side cable exit



Unit mm

HATF-40

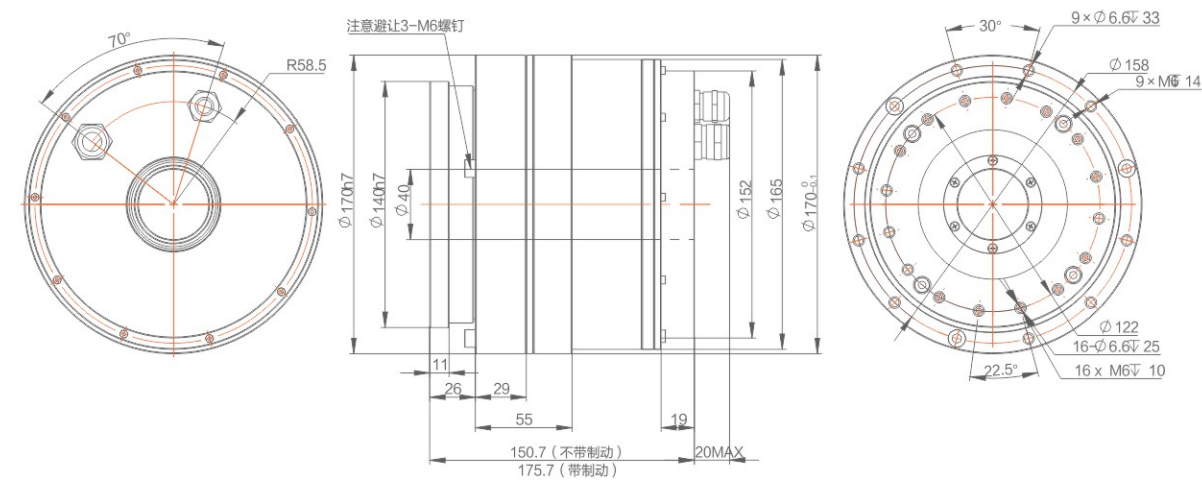
Side cable exit



Unit mm

HAT-40

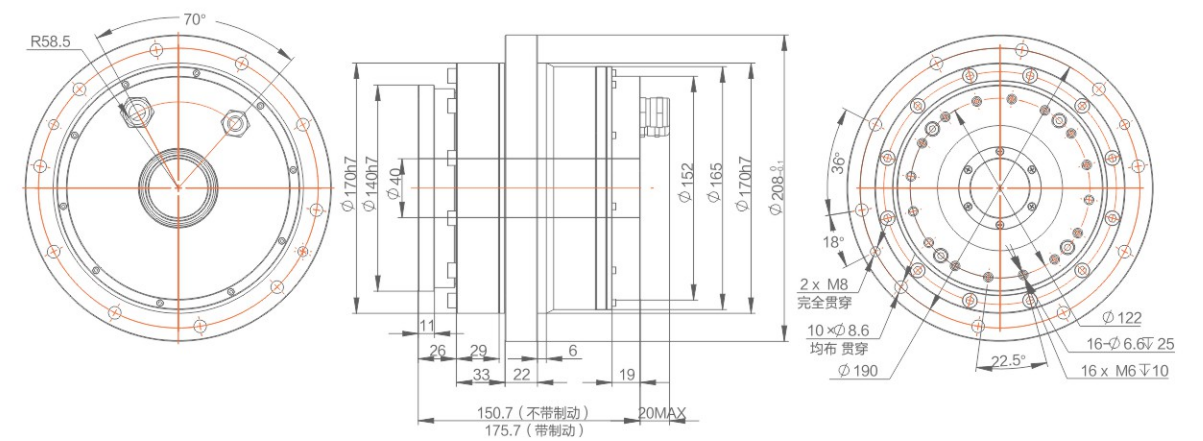
End-face cable exit



Unit mm

HATF-40

End-face cable exit



Unit mm

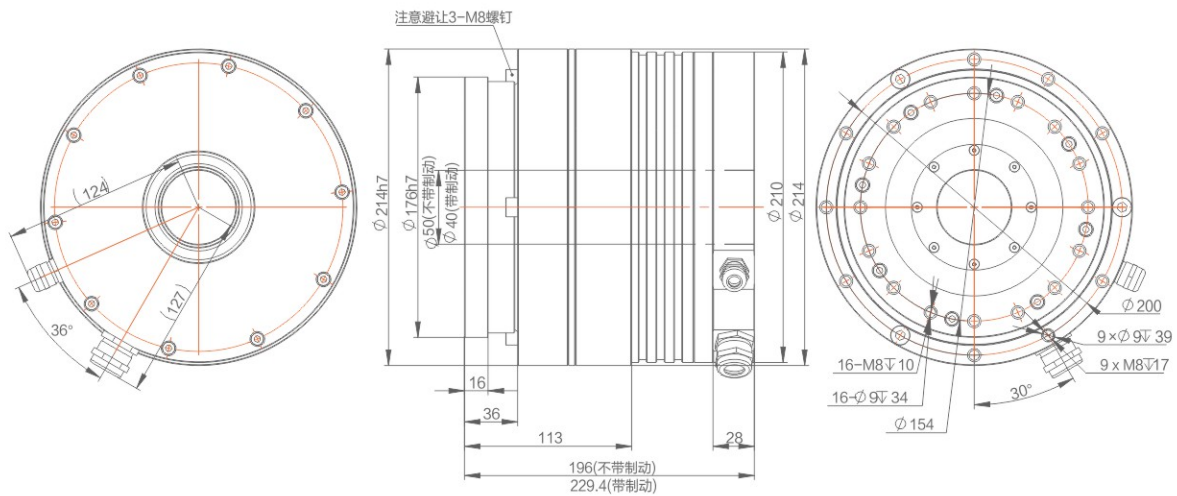
HAT-50/HATF-50

SERIES

Rotary Actuator Performance Specifications				
Model Selection HAT/HATF-			50	
Gear ratio			81	101
AC voltage 220V	Peak torque	N.m	1163	1211
	Rated torque	N.m	642	823
	Maximum speed	rpm	37	30
	Rated speed	rpm	27	22
	Maximum current	Arms	21.62	18.06
	Rated current	Arms	11.94	12.27
	Torque constant	N.m/Arms	53.78	67.06
	Motor phase-to-phase resistance	Ohms (20℃)	0.126	
Absolute encoder	Encoder Type		Absolute encoder	
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)	
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)	
	Motor back-EMF constant	Vrms/krpm	52	
Unidirectional positioning accuracy		Arcsec (角秒)	≤30	≤30
Repeatability		Arcsec (角秒)	≤10	≤10
Rated radial load		N	2750	
Rated axial load		N	2750	
Rated overturning moment		N.m	1950	
Rotor moment of inertia	Without brakes	kg*m ²	8.6*10 ⁻³	
	With brakes	kg*m ²	8.83*10 ⁻³	
Quality	Without brakes	Kg	25	
	With brakes	Kg	28.3	
Number of motor poles		Pole	20	
Environmental 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)	

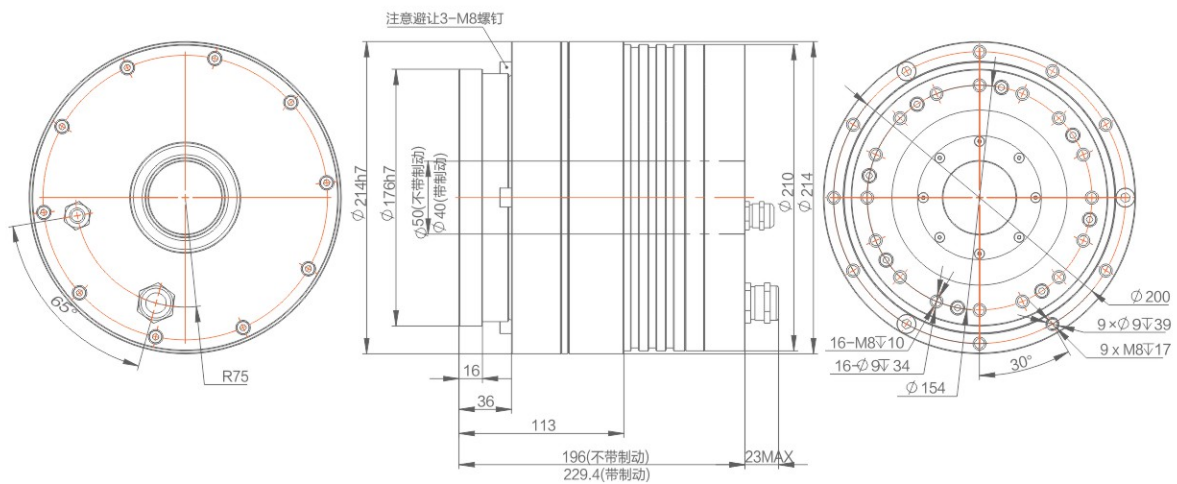
HAT-50

Side cable exit



HAT-50

End-face cable exit



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HATF-50

Side cable exit

Technical drawing of the HATF-50 rotary actuator with side cable exit. It includes three views: a front view showing a circular face with 12 mounting holes (12φ) and a 36° angle; a side view showing the actuator's profile with dimensions like 176h7, 210, 220h7, and 280; and a rear view showing the cable exit area with dimensions like 250, 154, 16-M8x10, and 16-φ9x34. A note indicates 'Unit mm'.

HATF-50

End-face cable exit

Technical drawing of the HATF-50 rotary actuator with end-face cable exit. It includes three views: a front view showing a circular face with 12 mounting holes (12φ) and a 36° angle; a side view showing the actuator's profile with dimensions like 176h7, 210, 220h7, and 280; and a rear view showing the cable exit area with dimensions like 250, 154, 16-M8x10, and 16-φ9x34. A note indicates 'Unit mm'.

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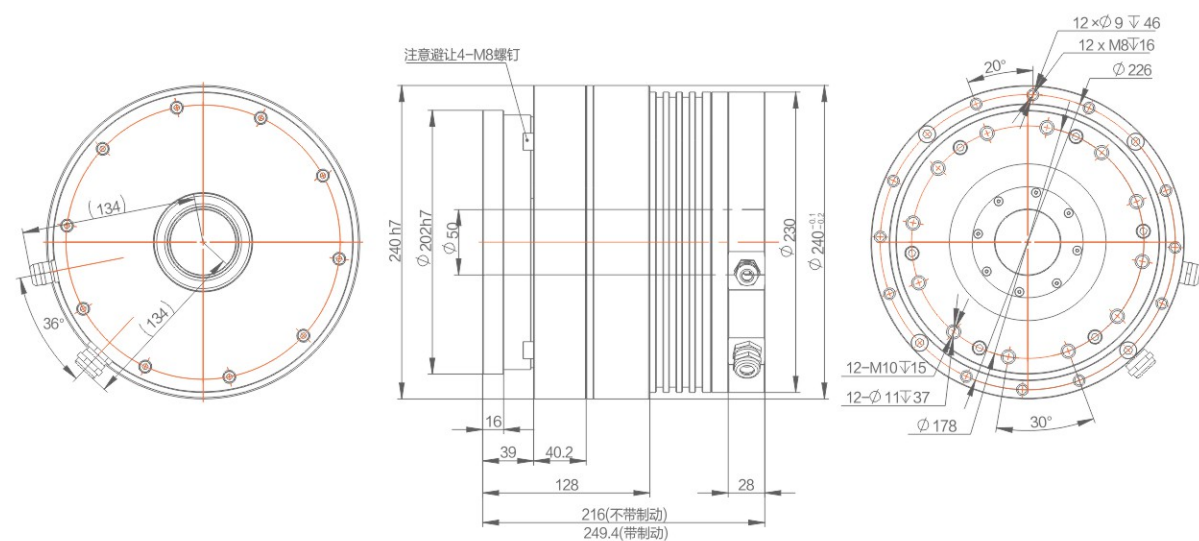
HAT-58/HATF-58 SERIES

Rotary Actuator Performance Specifications					
Model Selection HAT/HATF-			58		
Gear ratio			81	101	161
AC voltage 220V	Peak torque	N.m	1828	1964	2722
	Rated torque	N.m	951	1200	1494
	Maximum speed	rpm	37	30	19
	Rated speed	rpm	27	22	14
	Maximum current	Arms	33.99	29.29	27.16
	Rated current	Arms	17.68	17.89	14.91
	Torque constant	N.m/Arms	53.784	67.064	100.22
	Motor phase-to-phase resistance	Ohms (20℃)	0.126		
	Motor phase-to-phase inductance	mH	0.65		
	Motor back-EMF constant	Vrms/krpm	52		
Absolute encoder	Encoder Type		Absolute encoder		
	Encoder Resolution (Per Revolution)	bit	2 ²³ (8,388,608) 或 2 ¹⁷ (131,072)		
	Encoder Multi-Revolution Counter	bit	2 ¹⁶ (65,536)		
Unidirectional positioning accuracy		Arcsec (角秒)	≤30		
			The accuracy parameters listed above are default values; products with an accuracy of ≤15 arcseconds can be customized to meet customer requirements.		
Repeatability		Arcsec (角秒)	≤10		
Rated radial load		N	3200		
Rated axial load		N	3200		
Rated overturning moment		N.m	2500		
Rotor moment of inertia	Without brakes	kg*m ²	10.23*10 ⁻³		
	With brakes	kg*m ²	10.92*10 ⁻³		
Quality	Without brakes	Kg	32		
	With brakes	Kg	35.1		
Number of motor poles		Pole	20		
Environmental 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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HAT-58

Side cable exit

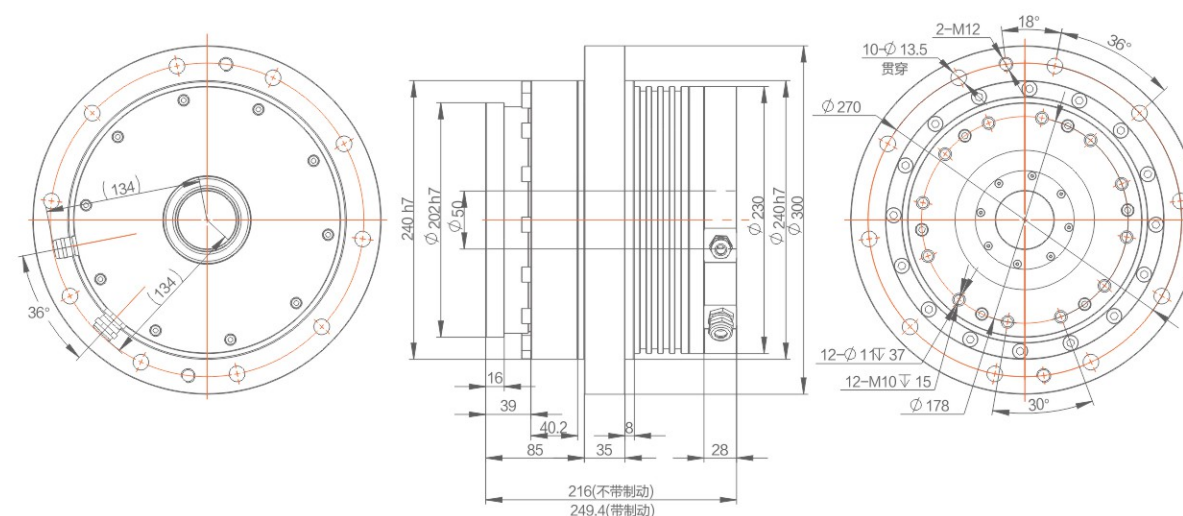


Unit mm

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HATF-58

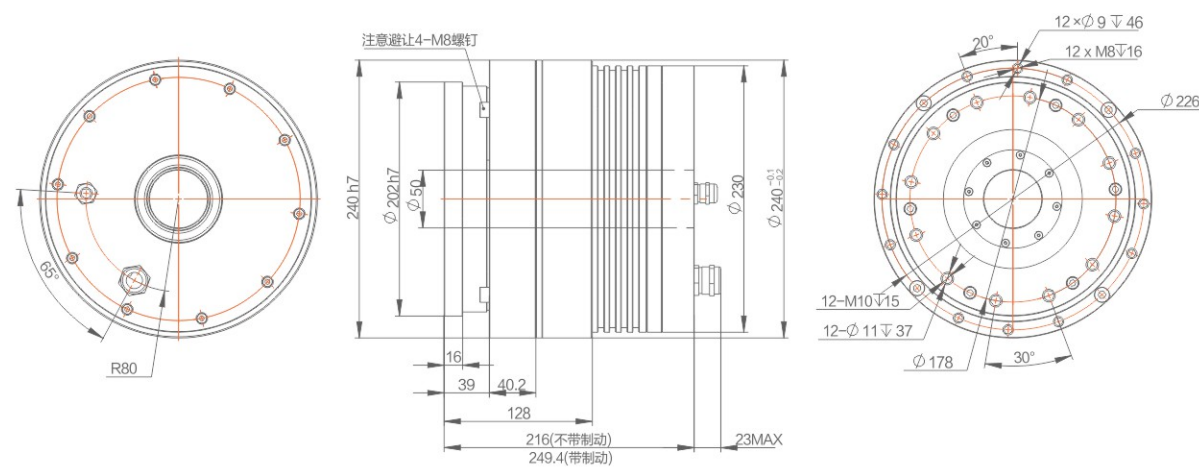
Side cable exit



Unit mm

HAT-58

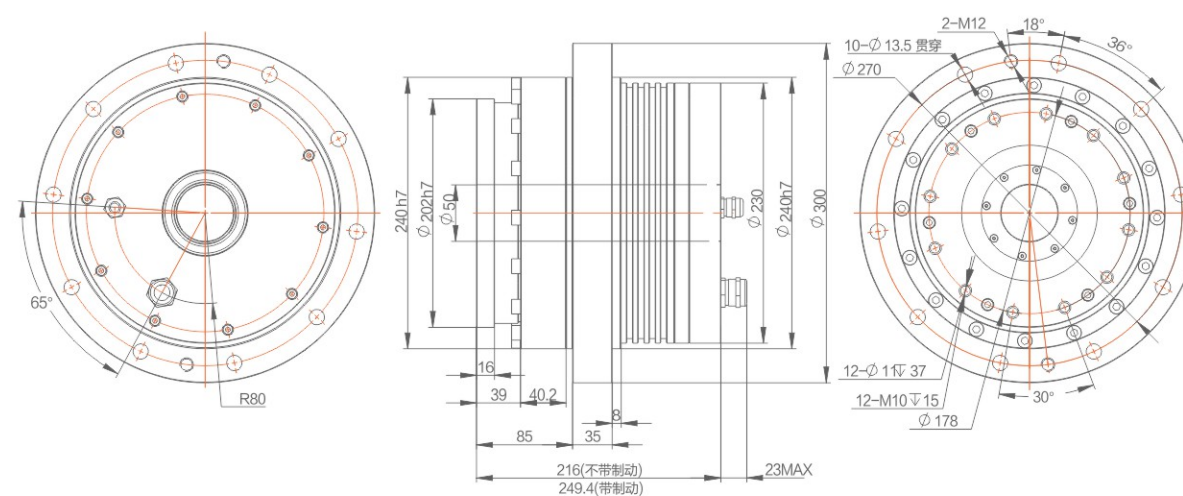
End-face cable exit



Unit mm

HATF-58

End-face cable exit



Unit mm