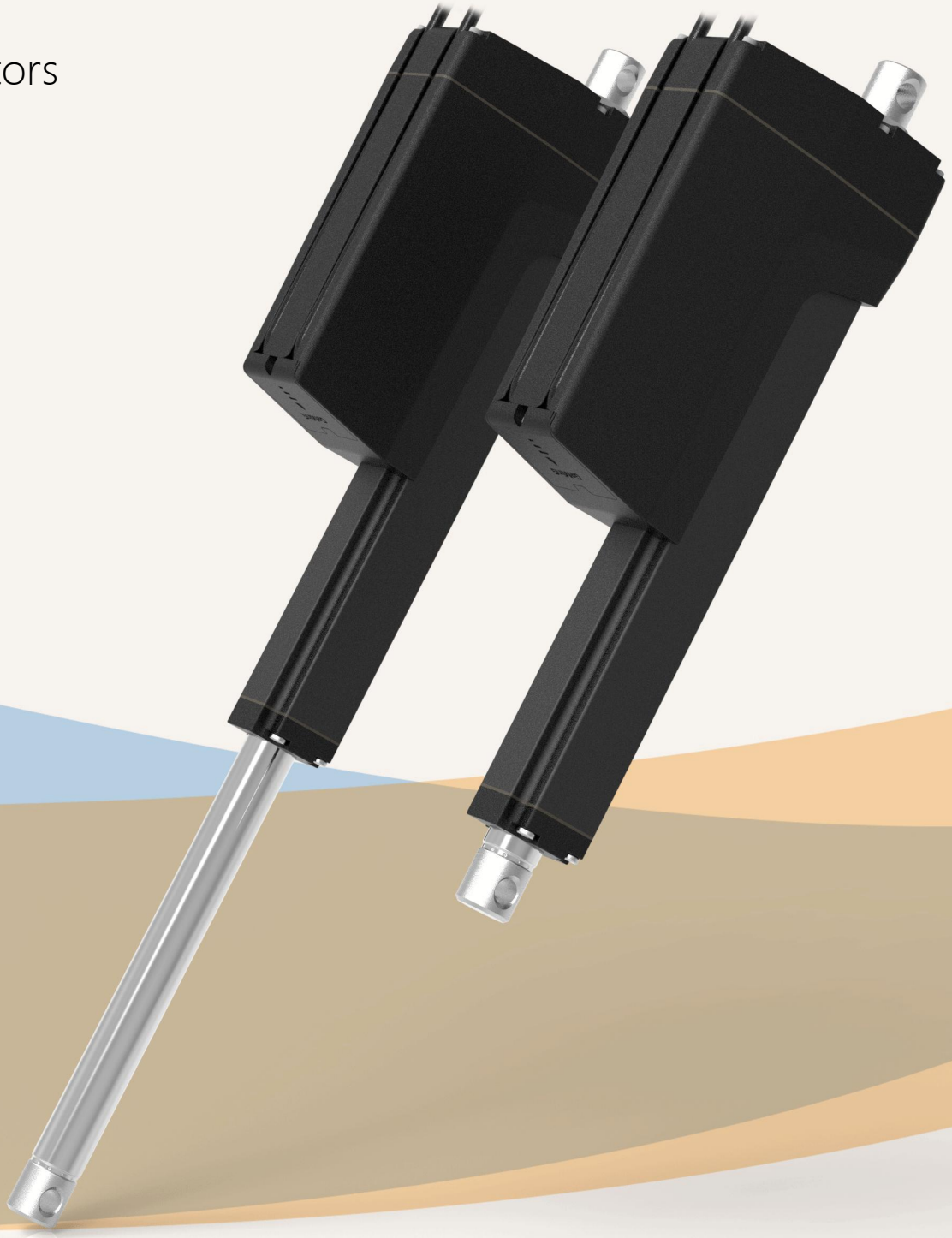
GeMinG
Linear Drive

HTW76

Series
Actuators

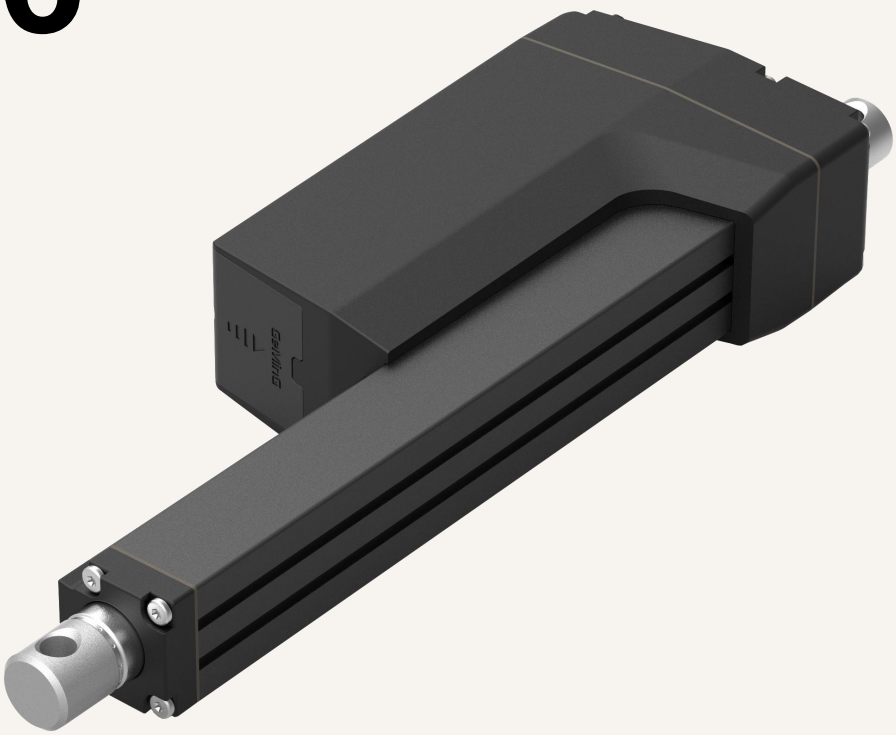


www.Gemingtech.com

HTW76

Series

Linear Actuators



Product Category

1、 Industrial application

2、Military application

3、Agricultural machinery

Download 3D model

HTW76 is a push rod specially designed for harsh industrial environments. It is especially suitable for some mechanical equipment with high consumption, such as agricultural machinery and industrial application equipment. If you're looking for an actuator that can be used in harsh industrial environments and meet strict specifications, smart electromechanical actuators feature on-board electronics that eliminate the need for a separate control system. With higher power up to 16 kN, it opens up more possibilities for hydraulic steering electric applications. HTW76 will be the best choice

Functional Overview

Voltage:	12V, 24V, 36V, 48V DC
Motor options:	DC motor, brushless DC motor
Maximum thrust (pull force):	16,000N / 14,000N
Slowest speed under load:	5.0mm/s (load 16,000N)
Maximum speed under load:	83 mm/s (load 1,000N)
Minimum installation size:	Stroke + 250mm
Dynamic lateral moment:	1,000Nm
Static lateral moment:	800Nm
color:	Silver gray, black
Voice:	60~68 DB
Adaptable temperature range:	-45°C ~ +75°C
Protection level:	IP66
Screw selection:	I ball screw, trapezoidal screw
Switch type:	Built-in limit switch,
Signal options:	Potentiometer, Hall sensor, endpoint signal
Control options:	Synchronous control, independent control,
safety certificate:	integrated control, CAN bus control, Comply with ISO9001-2008,
High-strength metal zinc alloy gearbox and housing,	CE and RoHS regulations,

Load and Speed Reference Chart

Speed ratio code	J	I	H	G	F	E	D	C	B	A
Model:HTW76										
24V Load capacity (N)					2,200	3,500	4,500	7,000	7,500	10,000
Load speed (MM/S)					24	15	12	8	6	4
					Maximum load current: 12VDC = 16A, 24VDC = 9A, 36VDC = 6A, 48VDC = 4A					
Model:HTW77										
24V Load capacity (N)					3,500	4,500	5,000	8,000	12,000	16,000
Load speed (MM/S)					27	20	18	11	9	4
					Maximum load current: 12VDC = 27A, 24VDC = 14A, 36VDC = 10A, 48VDC = 7A					
Model:HTW78										
24V Load capacity (N)	700	1,200	2,200	3,000	4,500	6,500	9,000	10,000	13,000	16,000
Load speed (MM/S)	160	107	57	40	27	18	14	12	8	6
					Maximum load current: 24VDC = 18A, 48VDC = 10A.					

Motor power

W76: 180W Permanent magnet motor

W77: 300W Rare earth motor

W78: 400W Brushless motor

Overview of Model Options

W76 Voltage:	12V , 24V , 36V , 48V DC
W77 Voltage:	12V , 24V , 36V , 48V DC
W78 Voltage:	24V , 48V DC
W76 Motor:	Brushed DC motor(180W)
W77 Motor:	Brushed DC motor(300W)
W78 Motor:	Brushless DC motor(400W)
Limit type:	W76 Built-in electronic limit switch W77 Built-in electronic limit switch W78 Built-in Hall effect limit switch, CAN bus
Maximum load travel range:	W76 / 10,000N (≧Stroke 300MM) W77 / 16,000N (≧Stroke 400MM) W78 / 16,000N (≧Stroke 600MM)
Screw selection:	W76 / Trapezoidal lead screw W77 / Trapezoidal lead screw W78 / Ball screw, Trapezoidal lead screw
Signal options:	W76 / Hall sensor, potentiometer W77 / Hall sensor, potentiometer W78 / CAN bus, 485 communication
Work cycle:	W76 & W77 Duty cycle 10-20% W76 / Duty cycle 60-80%

Electrical conversion trend accelerates

Easier installation, better control and less complexity

Installation is simpler, smaller and faster

Easier control and greater precision

Electric execution requires fewer components and is faster and easier

to install than hydraulic or pneumatic systems

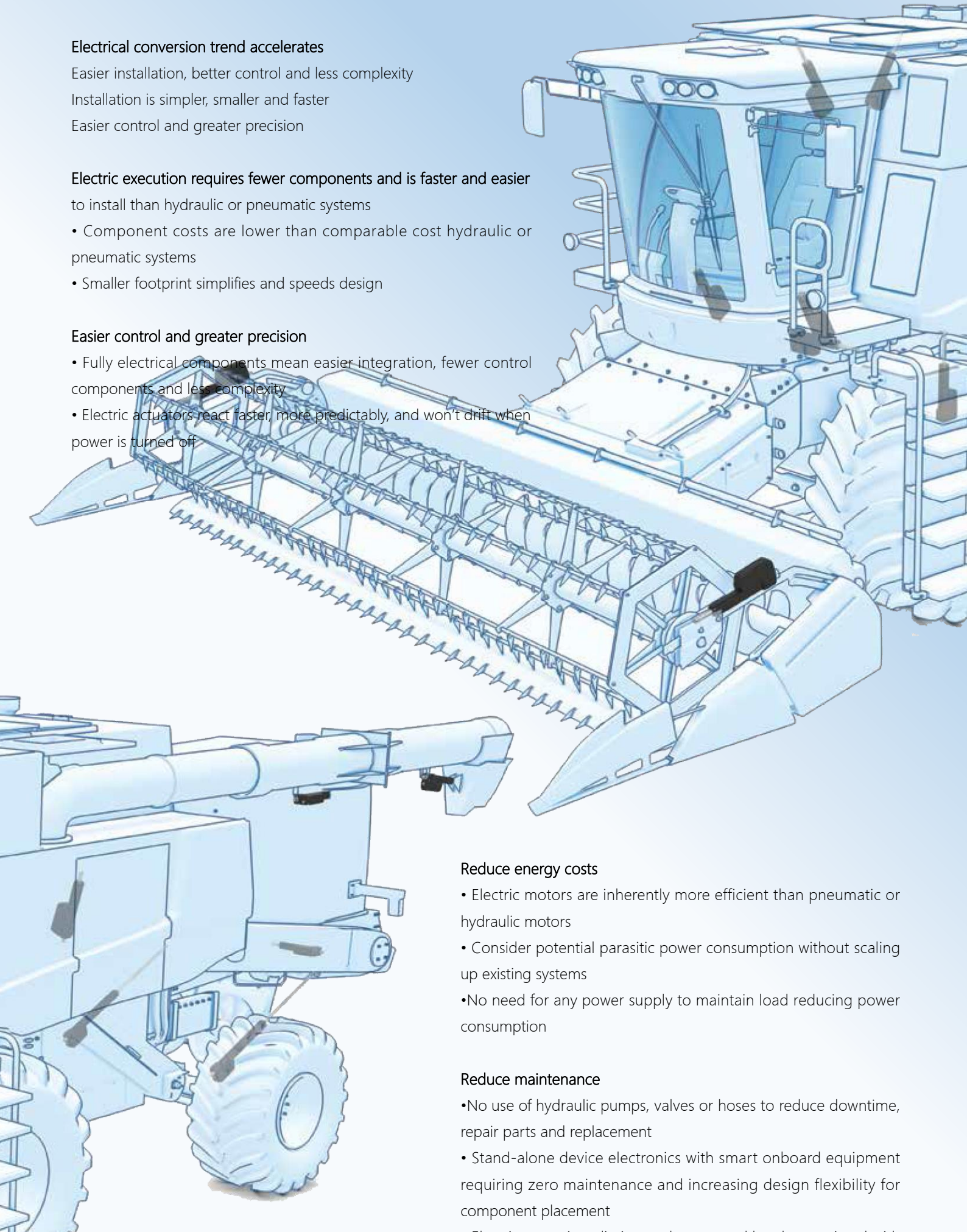
• Component costs are lower than comparable cost hydraulic or pneumatic systems

• Smaller footprint simplifies and speeds design

Easier control and greater precision

• Fully electrical components mean easier integration, fewer control components and less complexity

• Electric actuators react faster, more predictably, and won't drift when power is turned off



Reduce energy costs

• Electric motors are inherently more efficient than pneumatic or hydraulic motors

• Consider potential parasitic power consumption without scaling up existing systems

•No need for any power supply to maintain load reducing power consumption

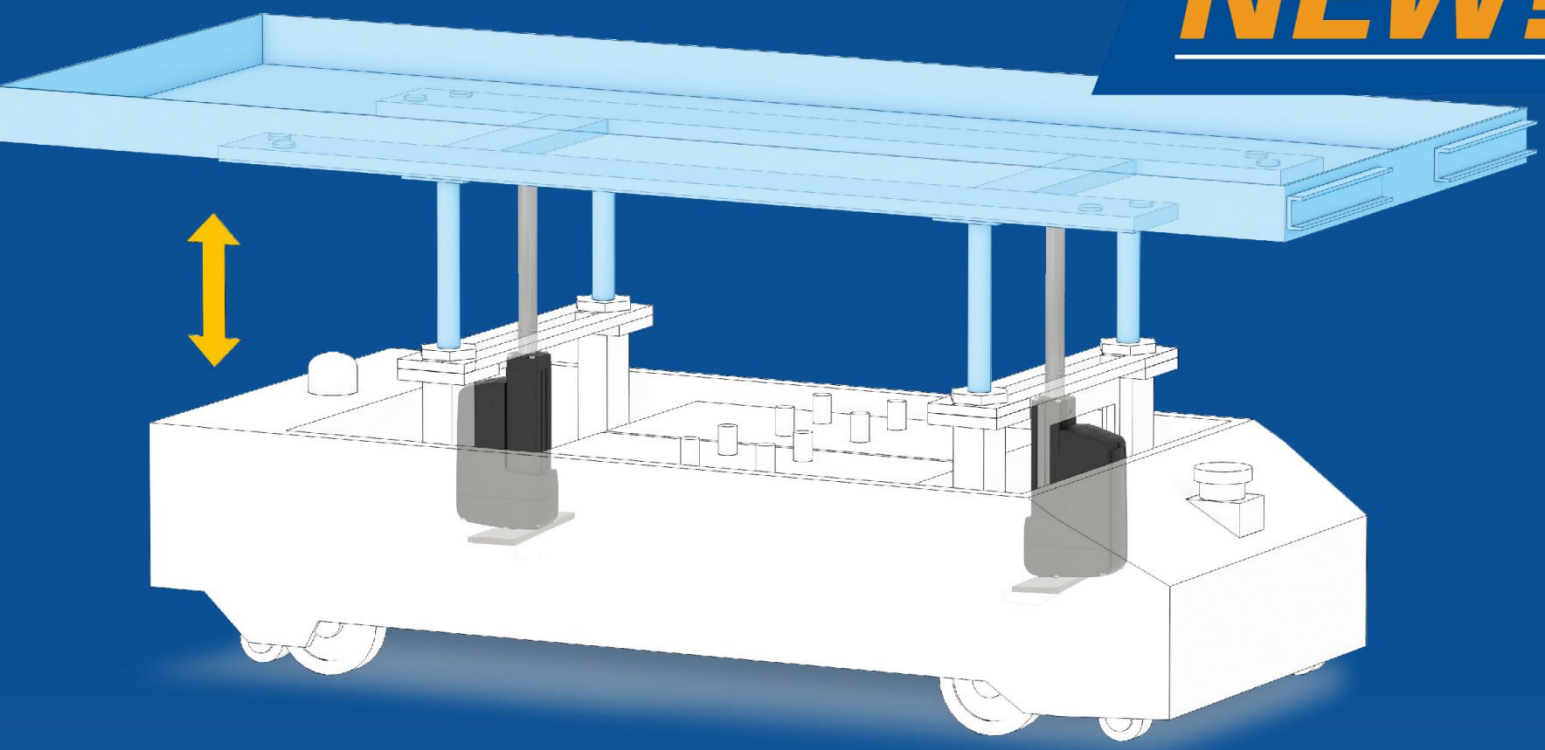
Reduce maintenance

•No use of hydraulic pumps, valves or hoses to reduce downtime, repair parts and replacement

• Stand-alone device electronics with smart onboard equipment requiring zero maintenance and increasing design flexibility for component placement

• Electric execution eliminates the cost and hassle associated with fluid maintenance

NEW!



Rear installation can be retrofitted with flange installation

Electric linear actuators for automated guided vehicles, mobile equipment and industrial automation

height adjustment

Positioning adjustment

More compact design,

making it easier to install in small spaces,

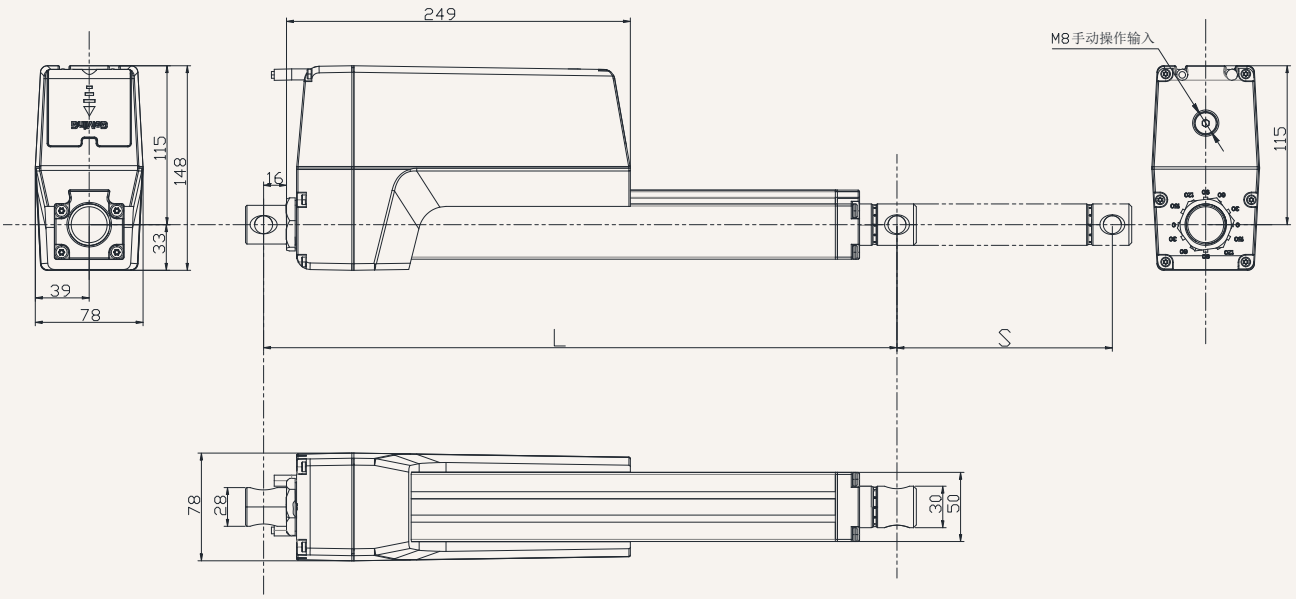
Very suitable for designing different types of automation equipment,

unmanned trucks and lifting equipment,

All while retaining many of the benefits that make it so popular!

Drawings

Standard size
MM



S: Stroke

L: Retracted length

L= Stroke +250mm

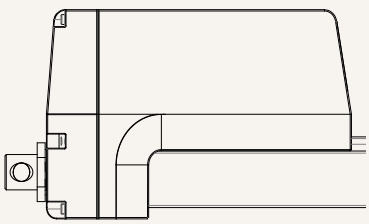
Greater than 600MM stroke, installation dimensions L= Stroke +300MM

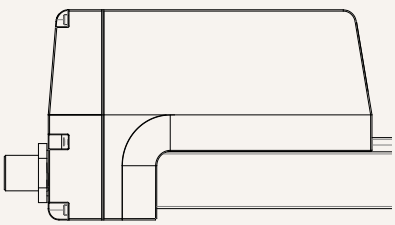
Installation angle (counterclockwise):

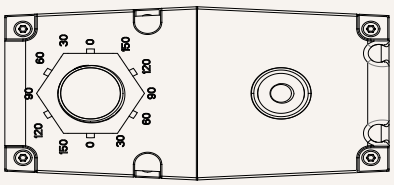
0 =0 Degrees

9 =90 Degrees

G=Adjust at will







load and speed

Code	Rated load Thrust N	Pull N	Self-locking force static conditions static N	Rated load current A	Output speed no load 24V DC mm/s	Rated load 24V DC mm/s
Motor voltage (24V DC- 0.4KW rare earth motor)						
Model: HTW78						
A	16,000	16,000	18,000	18.3	7.0	6.0
B	13,000	13,000	15,000	18.3	10	8.0
C	10,000	10,000	12,000	18.3	15	12
D	9,500	9,500	10,000	18.3	17	14
E	6,500	6,500	8,000	18.3	22	18
F	4,500	4,500	6,000	18.3	33	27
G	3,000	3,000	4,000	18.3	50	40
H	2,200	2,200	3,000	18.3	67	53
I	1,200	1,200	1,200	18.3	130	110
J	750	750	750	18.3	200	170
Motor voltage (24V DC- 0.3KW rare earth motor)						
Model: HTW77						
A	16,000	14,000	18,000	15.8	6.0	4.0
B	11,000	11,000	15,000	15.8	11	9.0
C	8,000	8,000	10,000	15.8	14	11
D	5,000	5,000	8,000	15.8	22	18
E	4,500	4,500	6,000	15.8	25	22
F	3,000	3,000	5,000	15.8	30	27

load and speed

Code	Rated load Thrust N	Pull N	Self-locking force static conditions static N	Rated load current A	Output speed no load 24V DC mm/s	Rated load 24V DC mm/s
Motor voltage (24V DC- 0.18KW rare earth motor)						
Model: HTW76						
A	10,000	10,000	12,000	10.5	5.0	4.0
B	8,000	8,000	10,000	10.5	7.0	6.0
C	7,000	7,000	9,000	10.5	10	8.0
D	4,500	4,500	6,000	10.5	15	12
E	3,500	3,500	5,000	10.5	19	15
F	2,200	2,200	3,500	10.5	30	24

Remark

1. The speed and current on the upper side are the materials that extend when pushed.

2. For 12V motor, the speed is about the same and the current is about 2 times higher.

3. The current & speed in the table are the test average values in the extension direction under thrust application.

4. The current & speed in the table and graph are the test average values of the GeMinG control box configuration, and there is an error of about 10% depending on the control box model.

(The voltage is about 29V DC at no load, and drops to about 24V DC at rated load)

Stroke: minimum value ≥ 20mm, please refer to the table below for the maximum value of load and stroke

load (N)	Maximum stroke (mm)
16,000	50-200
15,000	201-300
12,000	301-400
7,000	401-600
6,000	601-900

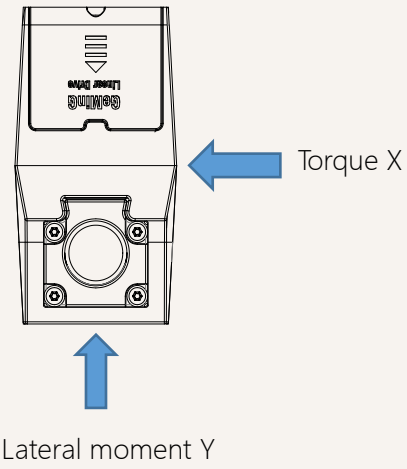
Remark:

Lateral moment Y direction = X*0.8

Static lateral moment = dynamic*2

Dynamic lateral moment (Nm)-X direction

stroke	S+250	S+300
100-200	200	300
300-500	150	250
500-700	100	200
700-900	80	100



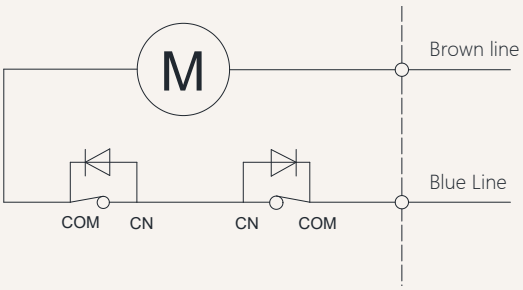
Stroke installation size reference chart

HTW76 Series	stroke ± 2 (mm)					Install ± 2 (mm)			
strokeMM	100	150	200	250	300	350	400	450	500
Install MM	350	400	450	500	550	600	650	700	750
weight KG	8.5	8.8	9.1	9.4	9.7	10.1	10.5	10.9	11.5

Actuator wiring diagram

No signal feedback wiring diagram

Code: N



Wiring Instructions:

1】Brown lead: motor positive +

2】Blue lead: motor negative pole -

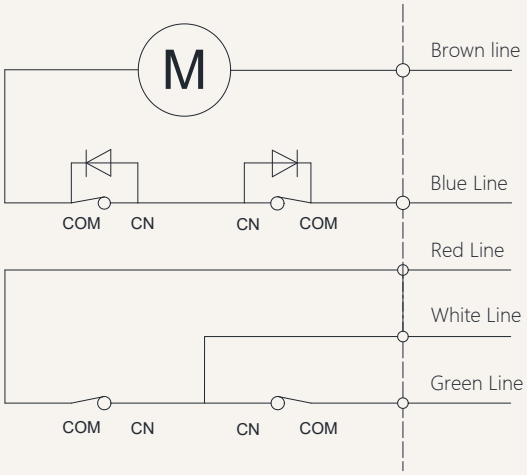
3】When the push rod is extended: the brown wire is positive +, the blue wire is negative -

4】When the push rod is retracted: the blue line is positive +, the brown line is negative -

Signal feedback An electrical signal & No electrical signal

Passive or active endpoint signal wiring diagram

Code: N passive signal, Code: Y active signal



Wiring Instructions:

1】Brown lead: positive pole of motor +

2】Blue lead: negative pole of motor -

3】When the push rod is extended: brown wire positive pole +, blue wire negative pole -

4】When the push rod is retracted: blue wire positive pole +, brown wire negative pole -

5】White wire: signal output common line.

6】White and red wire: extension end signal,

7】White and green wire: retraction end signal,

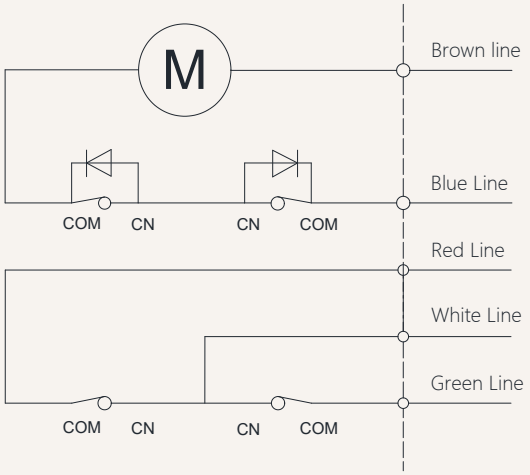
Other signal descriptions

Feedback signal	Description	Function
An electrical signal endpoint feedback signal	Voltage with this model	When the push rod reaches the end point, a signal will be fed back. This signal will always exist and will disappear during the operation of the push rod.,
No electrical signal endpoint feedback signal	No voltage	When the push rod reaches the end point, it will feedback a signal. This signal always exists when the input power is not turned off. When the input power is turned off, the signal disappears. The signal will also disappear during the operation.
Note: For other needs, please contact the GeMinG team		

Actuator wiring diagram Built-in control module

Built-in controller wiring diagram

Code：NY



Wiring Instructions:

1】Brown lead: motor positive +

2】Blue lead: motor negative pole -

3】When the push rod is extended: white line + red line

4】When the push rod retracts: white line + green line

5】White line: control output common line.

6】White and red lines: stretch out,

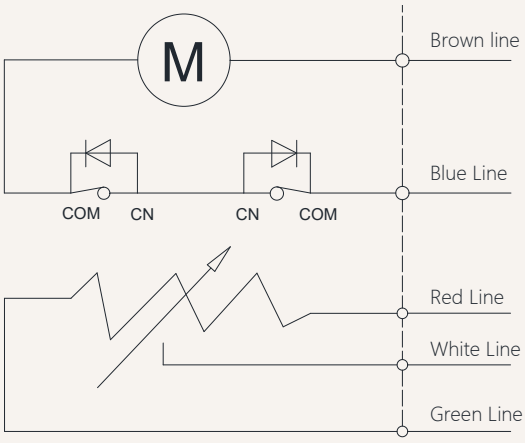
7】White and green lines: retract,

8】Wireless remote control, use wired control simultaneously.

Signal feedback Potentiometer

Potentiometer wiring diagram

Code：K



Wiring Instructions:

1】Brown lead: positive pole of motor +

2】Blue lead: negative pole of motor -

3】When the push rod is extended: brown wire positive pole +, blue wire negative pole -

4】When the push rod is retracted: blue wire positive pole +, brown wire negative pole -

5】White and yellow leads: variable resistance signal output.

6】When the push rod is extended: red and white leads-resistance value gradually increases,

---------red and yellow leads-resistance value gradually decreases.

7】When the push rod is retracted: red and white leads-resistance value gradually decreases,

---------red and yellow leads-resistance value gradually increases.

Potentiometer Configuration Form

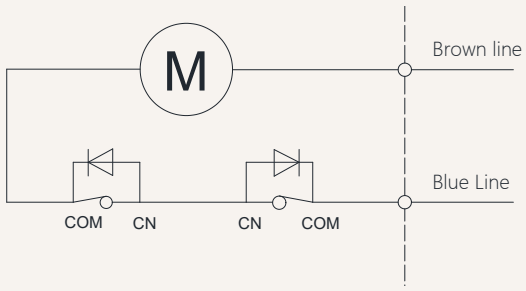
Transmission Code (See page 5)	Limit travel range	Resistance range unit（KΩ）	
A,C,E,G	50-350MM	50-200Stroke range5.0	50-300Stroke range7.5
B,D,F	50-550MM	50-200Stroke range3.17	50-400Stroke range6.35

Note: Potentiometer resistance is 10KΩ, actual output resistance depends on specific stroke

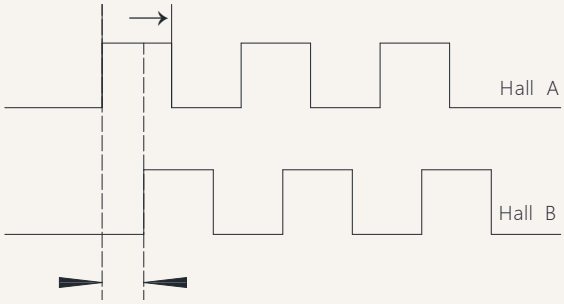
Signal feedback Hall sensor

Hall signal motor circuit diagram

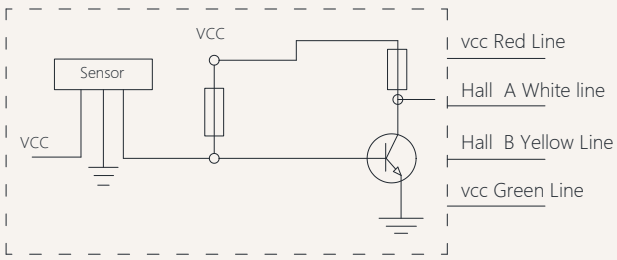
Code: H



Hall signal output waveform diagram



Schematic diagram of the internal circuit of the Hall signal



Wiring Instructions:

1】Brown lead: positive pole of motor +

2】Blue lead: negative pole of motor -

3】Red lead: VCC 5V voltage input +

4】Green lead: GND 5V voltage input -

5】White lead: Hall signal output A

6】Yellow lead: Hall signal output B

Notes:

1) Support dual-channel/single-channel Hall encoder

2) Current-consuming digital output

3) High-speed response frequency from: 0 KHz-100 KHz

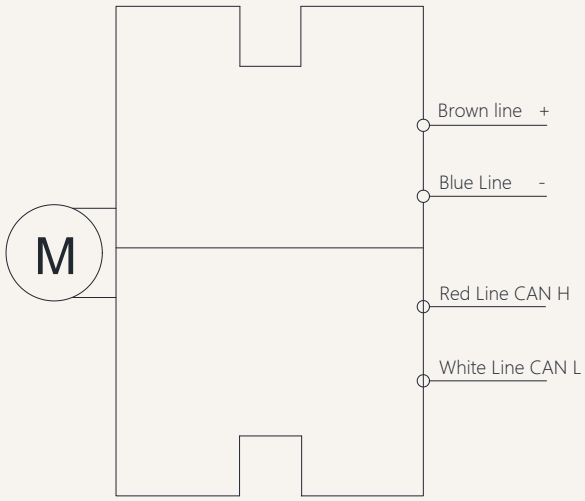
4) Applicable temperature range:-40 ℃~+125 ℃

Characteristics	Symbol	Test conditions	MI	RE	M	Unit
Supply voltage	Vcc	----	3.5	---	24	V
Output saturation voltage	Vce/sat	Vcc=14V ; Ic=20mA	---	300	700	MV
Output leakage current	1 cex	Vce=14V ; Vcc=14V	---	<0	10	UA
Input voltage	1 ce	Vcc=20V ; Output open	---	1	10	M
Output fall time	R	Vcc=14V ; RL=820Ω ; CL=20pF	---	0.3	1.5	US

Signal feedback CAN bus

CANCommunication motor circuit diagram

Code：AN



Wiring Instructions:

1】Brown lead: positive pole of motor +

2】Blue lead: negative pole of motor -

6】Red lead: CAN H

7】White lead: CAN L

Note:

1. The brown\blue power cord cannot be reversed, otherwise the driver may be burned.

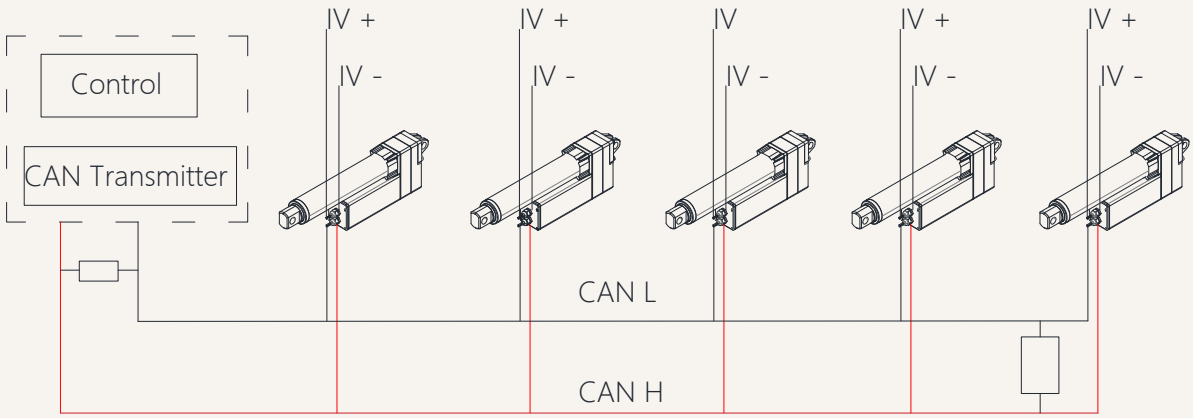
2. With CAN bus, excluding terminal resistor: compliant with J1939

3. Speed: Baud rate: 500kbps

Communication wiring: shielded twisted pair

Cable impedance: 120Ω (+10%)

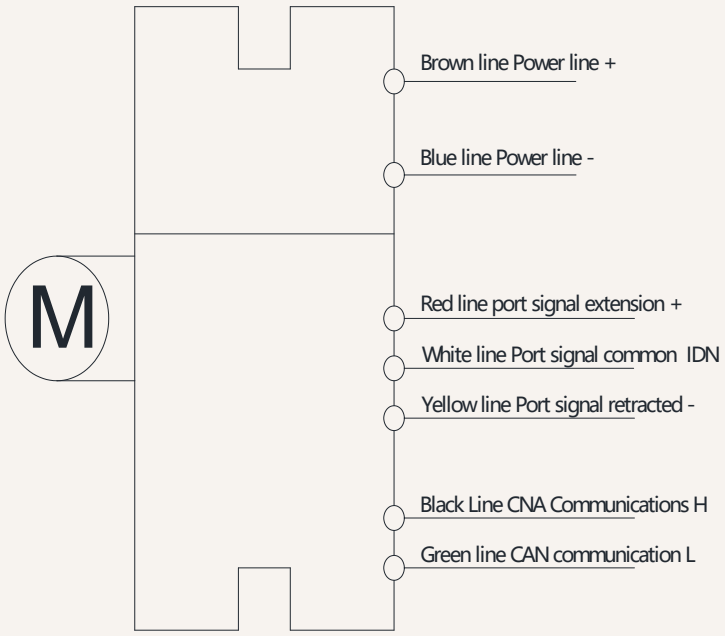
CAN Control instructions



Signal feedback Port Control

Schematic diagram of port control motor circuit

Code： Y



Wiring Instructions:

1】Brown lead: Power supply positive (+)
2】Blue lead: Power supply negative (-)
3】Red lead: Port signal extended (+)
4】White lead: Port signal common (IDN)
5】Yellow lead: Port signal retracted (-)
6】Black lead: CAN communication (H)
6】Green lead: CAN communication (L)

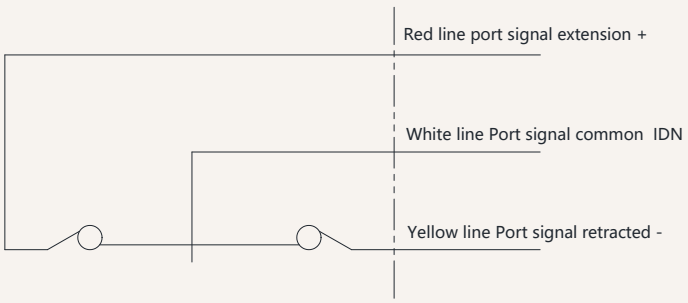
Note:

1. Do not connect the brown and blue power cables in reverse, as this may damage the driver.
2. CAN bus included, does not include termination resistors; complies with J1939.
3. Speed: Baud rate: 500kbps

Communication wiring: Shielded twisted pair

Cable impedance: 120Ω (+/-10%)

CAN Control instructions



1】When the push rod is extended: Red and white leads indicate the push rod is extended.

2】When the push rod is retracted: Yellow and white leads indicate the push rod is retracted.

HTW76 Model Description Selection Code Table

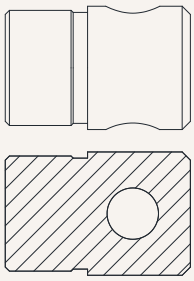
HTW76	-	24	A	***	***	-	O1	O1	0	1	T	A	N	07
①		②	③	④	⑤		⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬

①	Product number	HTW76=180W Ordinary motor	HTW77=300W Rare earth motor	HTW78=400W brushless motor	
②	Voltage	24=24V DC	36=36V DC	48=48V DC	12= 12V DC
③	Load(n)@Speed (mm/s)	See page 06			
④	Stroke(mm)	See page 06			
⑤	Installation size(mm)	Note: Before selecting a size, please refer to the valid data sheet! See page 05			
⑥	Upper type See page 13	O1 =Ordinary type, hole diameter12.5mm		O2 = Ordinary type, hole diameter 13.5mm	
		U1 = Groove width 10.5mm, hole diameter 12.5mm		U2 = Groove width 10.5mm, hole diameter 13.5mm	
		M1 = Type M, M18 thread, depth 20 mm		M2 = MType M, M20 thread, depth20 mm	
		T1 = T-type, M18 thread, length 20mm		T2 = T-type, M20 thread, length 20mm	
		L1 =L shape, width 20mm, aperture 12.5mm		L2 = L shape, width 20mm, aperture 13.5mm	
		G1 = Spherical bearing, bore 14mm, model GS14		G2 = Spherical bearing, bore 16mm, modelGS16	
⑦	lower type See page 14	O1 =Ordinary type, hole diameter12.5mm		O2 = Ordinary type, hole diameter 13.5mm	
		U1 = Groove width 10.5mm, hole diameter 12.5mm		U2 = Groove width 10.5mm, hole diameter 13.5mm	
		M1 = Type M, M18 thread, depth 20 mm		M2 = MType M, M20 thread, depth20 mm	
		T1 = T-type, M18 thread, length 20mm		T2 = T-type, M20 thread, length 20mm	
		L1 =L shape, width 20mm, aperture 12.5mm		L2 = L shape, width 20mm, aperture 13.5mm	
		G1 = Spherical bearing, bore 14mm, model GS14		KZ = Customized	
⑧	Installation angle (counterclockwise)	0 =0°, Degree		9 =90°, Degree	
⑨	Please refer to the outlet type	1 = 1 2-core bare wire	5 = 1 5-core bare wire	6 = 1 6-core bare wire	
		7 = 1 2-core, 1 5-core bare wire	2 = OI plug	3 = 4-pin angled plug	
		4 = 4-pin straight plug	9 = 6-pin straight plug	8 = Waterproof plug	
		0 = Customized			
⑩	Lead screw options	G=Ball screw (default preferred)		T = Trapezoidal screw	
⑪	Control method	A = No control	C = CAN bus	Y =Integrated wired control	N=Integrated wireless control
		T = Synchronous control	D = Customized		
⑫	Signal output options	N = None	H = Hall sensor	D = Potentiometer signal	U=active signal
		W=passive signal	AN = CAN communication		
⑬	Cable length	07 =Cable length 0.7 M	10 = Cable length 1.0 M	15 =Cable length 1.5 M	20= Cable length 2.0 M
		30 =Cable length 3.0 M	40 =Cable length 4.0M	50 =Cable length 5.0 M	60= Cable length 6.0M
		70 =Cable length 7.0 M	70 =Cable length 8.0 M	90 =Cable length 9.0 M	00 =Customization

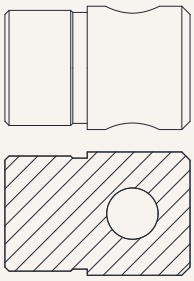
HTW76 Attachment Description Selection Code Table

Upper end form (extended):

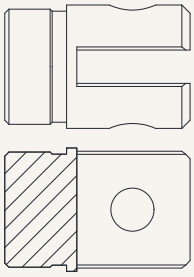
O1=Ordinary type, hole diameter 12.5mm



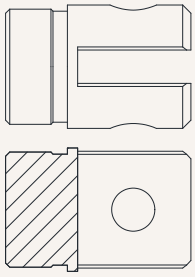
O2=Ordinary type, hole diameter 13.5mm



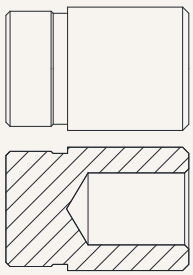
U1 = groove width 10.1mm, hole diameter 12.5mm



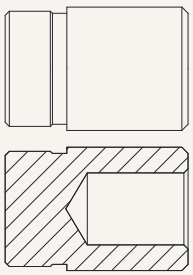
U2 = groove width 10.1mm, hole diameter 13.5mm



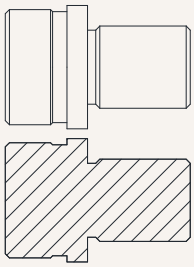
M1 = Type M, M18 thread, depth 20 mm



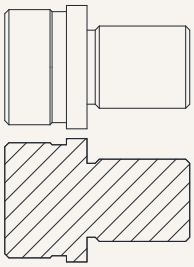
M2 = Type M, M20 thread, depth 20 mm



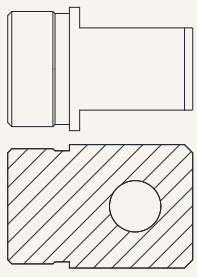
T1 = T-type, M18 thread, length 20mm



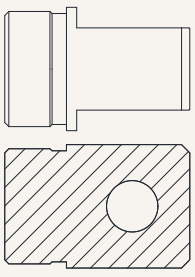
T2 = T-type, M20 thread, length 20mm



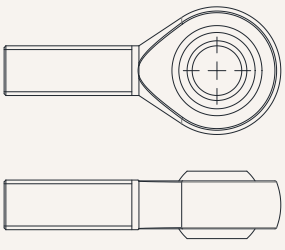
L1 = L shape, width 20mm, aperture 12.5mm



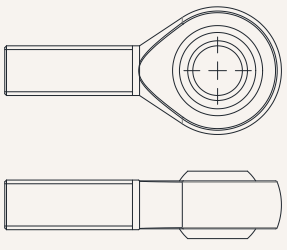
L2 =L shape, width 20mm, aperture 13.5mm



G1 = Spherical bearing, bore 14mm, model GS14



G1 = Spherical bearing, bore 16mm, model GS16

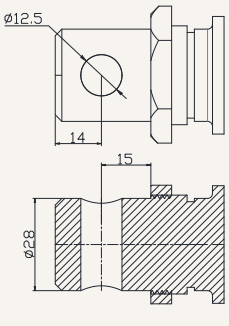


KZ = Customized

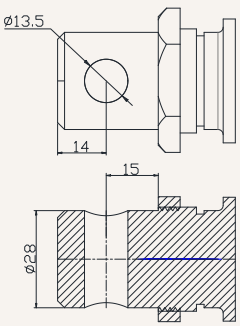
HTW76 Attachment Description Selection Code Table

Lower form (tail):

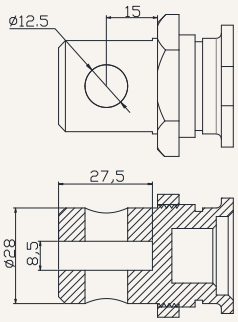
O1=Ordinary type, hole diameter 12.5mm



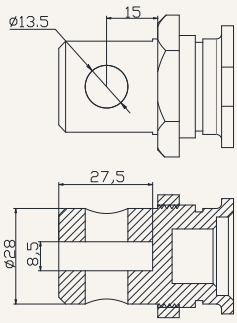
O2=Ordinary type, hole diameter 13.5mm



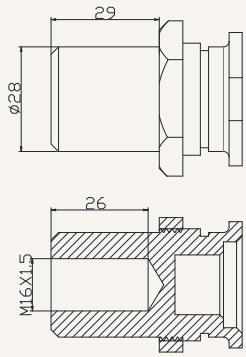
U1 = groove width 10.1mm, hole diameter 12.5mm



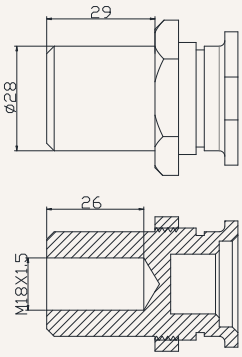
U2 = groove width 10.1mm, hole diameter 13.5mm



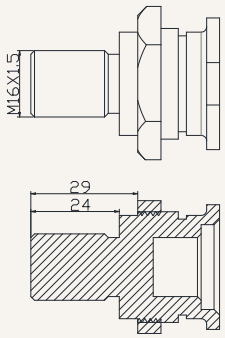
M1 = Type M, M18 thread, depth 20 mm



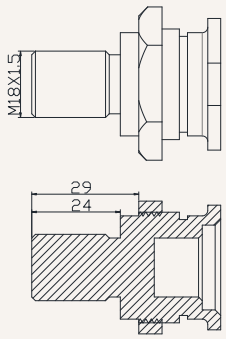
M2 = Type M, M20 thread, depth 20 mm



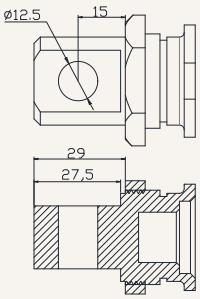
T1 = T-type, M18 thread, length 20mm



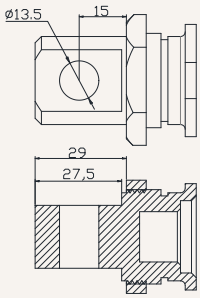
T2 = T-type, M20 thread, length 20mm



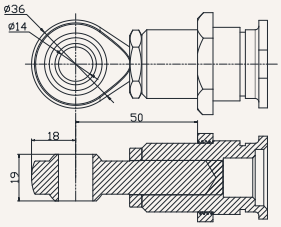
L1 = L shape, width 20mm, aperture 12.5mm



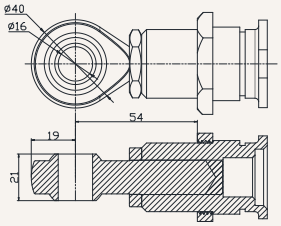
L2 =L shape, width 20mm, aperture 13.5mm



G1 = Spherical bearing, bore 14mm, model GS14



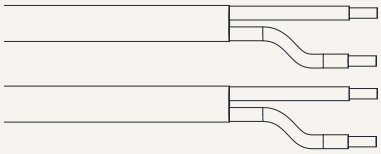
G1 = Spherical bearing, bore 16mm, model GS16



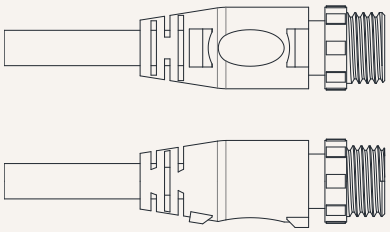
KZ = Customized

Power Cord Plug Type Code Table

1 = Dare wire



8 = Waterproof plug



0 = Customized

Terms of Use

The user is responsible for determining the suitability of GeMinG products for a specific application.

GeMinG products are subject to change without prior notice.