

# Product Overview



AC Synchronous Motors

DC Brush Motors

Brushless DC Motors

Actuators

Stepper Motors

Timing Movement Devices

## Hansen Precision Electric Motors

Hansen's quality products are known around the world. These include: Synchron motors, available with custom voltage, speed and power, durable DC brush and DC brushless motors, AC clock movements and advertising display drives, stepper motors, HVAC damper actuators as well as speciality motors, gearboxes, encoders and assemblies.

No matter the volume or application, Hansen can design and build the motors you need. Our precision electric motors are shipped to clients all over the world. Industries that depend on our reliable electric motors include heating/ventilating/air conditioning (HVAC), point-of-purchase (P-O-P), office machines, medical applications and industrial automation.

Best of all, we'll deliver your motors on time, on spec. With a full engineering department, the latest in precision production tools and 100,000 square feet of manufacturing space, Hansen is able to design and produce exactly what you want.

Proudly Made In America  
One Hundred Years and Counting...

## AC Synchronous Motors



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### 600 Series Round Gearbox Synchron A & D Mount

Designed for precise timing applications in appliances, instruments, event recorders and clocks, Synchron 600 Series AC timing motors are available in a round case configuration with either two-hole (Model-D) or four-hole (Model-A) mounting plates. Output speeds from the integral gearhead can be chosen from a range of 0.8 rpm to 360 rpm. All motors with output speeds greater than 1 rpm can be stalled with no resulting mechanical or electrical

damage. Shaft torque, rated at 1 rpm, ranges from 8 oz-in to 40 oz-in depending upon the selected winding and the wattage rating (3, 4, 5, or 6 watts). Excitation voltage is selectable from the catalog standards of 24, 110, 220 VAC and 50 or 60 Hz or it can be customized to the application requirement. In OEM quantities, custom shaft configurations, lead lengths and lead connector terminations are welcomed.



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### 600 Series Shallow Pear Shaped Gearbox Synchron C Mount

Synchron 600 Series, C mount, AC timing motors are the industry leader in applications requiring spring return capability. The Hansen Synchron motor distinguishes itself with low noise levels and a robust, precision gear train that can be stalled long term in output speeds of 1 rpm and faster with no damage to the motor.

That stall capability coupled with consistent, low reset torques make the Hansen Synchron motor ideally suited for motorized valve and damper applications. The motor can be powered to open or close the device and remain powered (stalled) as long as the system requires it. When de-energized a spring returns the valve or damper to its original position. This simple, reliable function continues to be a cost effective solution for valve and damper control decades after it was first introduced.

Also designed for precise timing applications in appliances, instruments and event recorders,

Synchron Series 600-Type C, AC timing motors from Hansen Corporation are available with precise synchronous speeds ranging from 0.50 revolution per hour to 360 rpm. Options include a 1-way clutch so that a reset function can be implemented or with a 2-way clutch for gear train protection from excessive loads at output speeds below 6 rpm. The compact and quiet running gear motor package is permanently lubricated and requires no maintenance during its lifetime. Shaft torque, rated at 1 rpm, ranges from 8 oz-in to 40 oz-in depending upon the selected winding and the wattage rating (3, 4, 5, or 6 watts). Excitation voltage is selectable from the catalog standards of 24, 110, 220 VAC and 50 or 60 Hz or it can be customized to the application requirement. In OEM quantities, custom shaft configurations, lead lengths and lead connector terminations are welcomed.



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### 600 Series Deep Pear Shaped Gearbox Synchron K Mount

Synchron 600 Series, K mount, AC timing motors offer all of the features of our C mount unit but the deeper gearbox allows more room for gearing so that we can achieve those extra slow speeds. The K mount unit can be geared down to a speed of 1 revolution per week. Various windings for either 24, 110 or 220 VAC and 50 or 60 Hz permit a wide range of application power sources. Shaft torque, rated at 1 rpm, ranges from 8 oz-in to 40 oz-in depending on the selected winding and

the wattage rating (3, 4, 5 or 6 watts). Maximum dynamic torque is generally limited to 30 oz-in with a static output torque limit of 90 oz-in. The motor is permanently lubricated and requires no maintenance during its lifetime. Gear material has been selected for the quiet operation and long life required in time measurement instrumentation and event recording applications.



## DC Brush Motors

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### Series 111-2 1.1" DC Motor

The series 111-2 permanent magnet, 30mm diameter DC brush motor has been introduced to serve the industrial, instrumentation and automotive markets in either open-loop or close-loop applications.

Standard catalog stall torque ratings range up to 19 oz-in while no-load speed ranges from 3,200 to 6,200 rpm. Encoders with line counts up to 2048 are available to provide velocity and position feedback information. Reliability is further enhanced by long

life, pre-loaded ball bearings. Special windings, shaft and mounting configurations are available to meet the requirements of OEM custom applications.



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### Series 114-4 1.4" DC Spur Gear Motor

Hansen offers an inexpensive, 1.4" diameter DC brush motor on our 2" diameter spur gearbox. This motor is offered in voltages up to 24 volts DC along with several optional features. 4 ratios are offered, 12:1, 48:1, 192:1 and 768:1. The 2" gearbox motor life is rated at 1000 hours continuous duty with 250 oz-in (1770 mNm) load torque at 75 degrees F ambient. Custom features offered include shafts,

custom leads and terminations and custom mounting. Maximum intermittent output torque is 500 oz-in.



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### Series 116-1 1.6" DC Motor

The Hansen series 116-1 (1.6" diameter) permanent magnet DC brush motor is available to serve the industrial, instrumentation and automotive markets in either open-loop or close-loop applications. Rotor laminations are skewed to provide very low cogging torque and no preferred rotor position. Standard catalog stall torque ratings are in the range of 19 to 78 oz-in, while no-load speeds range from 2,800 to 8,000 rpm maximum. Encoders with line counts up

to 2048 are available to provide velocity and position feedback information. Reliability is further enhanced by long life, pre-loaded ball bearings. Special windings, shaft and mounting configurations are available to meet the requirements of OEM custom applications.



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### Series 116-4 1.6" DC Spur Gear Motor

Hansen offers our 1.6" diameter DC brush motor on a 2" diameter spur gearbox. This motor is offered in a wide range of operating voltages along with several optional features. The 2" gearbox motor life is rated at 1000 hours continuous duty with 250 oz-in (1770 mNm) load torque at 75 degrees F ambient. Optional features offered include encoders, voltages, noise suppressors, custom shafting, custom leads and terminations, custom mounting and rear shaft

extensions. Maximum intermittent output torque is 500 oz-in.

## DC Brush Motors Cont.



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### **Series 116-8** **1.6" DC Planetary Gear Motor** **(Metal)**

The Hansen series 116-8 gear motor matches our 1.6" diameter DC brush motor with a metal planetary gearbox. This is an ideal motor for medical applications where strong, coordinated, accurate motion control is required. The planet gears share the load attached to the output shaft giving the

planetary arrangement a higher torque to volume ratio with low backlash compared to a spur gear arrangement. Gear ratios up to 2653:1 are available. Encoders can also be added.



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### **Series 116-9** **1.6" DC Planetary Gear Motor** **(Plastic)**

The Hansen series 116-9 gear motor matches our 1.6" diameter DC brush gear motor with a plastic planetary gearbox. The motor is ideal for medical applications where strong, coordinated, accurate motion control is required. The planet gears share the load attached to the output shaft giving the

planetary arrangement a higher torque to volume ratio with low backlash compared to a spur gear arrangement. Gear ratios up to 2653:1 are available. Encoders can also be added.



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### **Series 121-1** **2.1" DC Motor**

The series 121-1 (2.1" diameter) permanent magnet DC brush motor is available to serve the industrial, instrumentation and automotive markets in either open-loop or close-loop applications. Rotor laminations are skewed to provide low cogging torque and no preferred rotor position. Standard catalog stall torque ratings are in the range of 60 to 180 oz-in, while no-load speed ranges from 2,100 to 8,000 rpm max. Encoders with line counts up to

2048 are available. Reliability is enhanced by long life, pre-loaded ball bearings. Special windings, shaft and mounting configurations are available to meet the requirements of OEM custom applications.



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### **Series 121-4** **2.1" DC Spur Gear Motor**

Hansen offers our 2.1" diameter DC brush motor on our 2" diameter spur gearbox. This motor package is offered in a wide range of operating voltages and with 4 gear ratio options, 12:1, 48:1, 192:1 and 768:1. The 2" gearbox motor life is rated at 1000 hours continuous duty with a 250 oz-in (1770 mNm) load torque at 75 degrees F ambient. Optional features include encoders, noise suppressors, custom

shafts, custom leads and terminations, custom mounting and rear shaft extensions. Maximum intermittent output torque is 500 oz-in.

## DC Brush Motors Cont.



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### **Series 121-8** **2.1" DC Planetary Gear Motor** **(Metal)**

The Hansen series 121-8 gear motor matches our 2.1" diameter DC brush motor with a 2" diameter metal planetary gearbox. The planet gears share the load attached to the output shaft giving the planetary arrangement a higher torque to volume ratio with

low backlash compared to a spur gear arrangement. Dozens of ratios are available up to 2653:1. Encoders can also be added.



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### **Series 121-9** **2.1" DC Planetary Gear Motor** **(Plastic)**

The Hansen series 121-9 gear motor matches our 2.1" diameter DC brush motor with a 2" diameter plastic planetary gearbox. The planet gears share the load attached to the output shaft giving the planetary arrangement a higher torque to volume

ratio with low backlash compared to a spur gear arrangement. Dozens of ratios are available up to 2653:1. Encoders can also be added.



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### **Series 148-5** **DC Gear Motor** **(C Mount)**

The Synchron model 148-5 is a permanent magnet DC motor mounted on our Synchron C mount gearbox. Hundreds of gear ratios are available ranging from 1.3:1 up to 6,000,000:1 with a maximum torque rating on most gearheads of 30 oz-in. For overload torque protection the gearheads may be selected with two-way slip clutches. The highly efficient DC motor has permanently lubricated

sintered bearings and long life brushes. Various custom features are available to OEM customers, such as special output shaft configurations, mounted pulleys or sprockets, terminal wiring and wire termination connectors.



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### **Series 148-6** **DC Gear Motor** **(A & D Mount)**

The Synchron model 148-6 is a permanent magnet DC motor mounted to our round Synchron gearbox. Dozens of gear ratios are available ranging from 1.3:1 up to 720:1 with a maximum torque rating on most gearheads of 30 oz-in. For overload torque protection the gearheads may be selected with two-way slip clutches. The highly efficient DC motor has permanently lubricated sintered bearings and

long life brushes. Various custom features are available to OEM customers, such as special output shaft configurations, mounted pulleys or sprockets, terminal wiring and wire termination connectors.

# Product Overview

## Brushless DC Motors



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### RPX22 ElectroCraft RapidPower™ Xtreme

**High torque density. Excellent torque per frame size performance.**

RPX22 (22mm) is a highly dynamic and controllable very small frame metric motor. With an advanced 8-pole rotor and encapsulated core, this compact DC motor offers high torque density at a very affordable price. The RPX22 is available in 12V, 24V

and 48V versions and like all ElectroCraft motors is fully customizable, with radiation tolerant, high temperature and high altitude versions available on request. Available with a range of IP ratings up to IP65, this versatile motor is highly energy efficient and ideal for embedded applications.



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### RPX32 ElectroCraft RapidPower™ Xtreme

**High torque density. Excellent torque per frame size performance.**

RPX32 (32mm) is a highly dynamic and controllable very small frame metric motor. With an advanced 8-pole rotor and encapsulated core, this compact DC motor offers high torque density at a very affordable price. The RPX32 is available in 12V, 24V

and 48V versions and like all ElectroCraft motors is fully customizable, with radiation tolerant, high temperature and high altitude versions available on request. Available with a range of IP ratings up to IP65, this versatile motor is highly energy efficient and ideal for embedded applications



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### RPX40 ElectroCraft RapidPower™ Xtreme

**High torque density. Excellent torque per frame size performance.**

RPX32 (32mm) is a highly dynamic and controllable very small frame metric motor. With an advanced 8-pole rotor and encapsulated core, this compact DC motor offers high torque density at a very affordable price. The RPX32 is available in 12V, 24V

and 48V versions and like all ElectroCraft motors is fully customizable, with radiation tolerant, high temperature and high altitude versions available on request. Available with a range of IP ratings up to IP65, this versatile motor is highly energy efficient and ideal for embedded applications



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### RPX52 ElectroCraft RapidPower™ Xtreme

**High torque density. Excellent torque per frame size performance.**

RPX32 (32mm) is a highly dynamic and controllable very small frame metric motor. With an advanced 8-pole rotor and encapsulated core, this compact DC motor offers high torque density at a very affordable price. The RPX32 is available in 12V, 24V

and 48V versions and like all ElectroCraft motors is fully customizable, with radiation tolerant, high temperature and high altitude versions available on request. Available with a range of IP ratings up to IP65, this versatile motor is highly energy efficient and ideal for embedded applications



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### LRPX22 ElectroCraft Low Noise RapidPower™ Xtreme

**Exquisitely efficient small form factor BLDC motor that has peak operating efficiency at low RPM allowing custom integration with a planetary**

gearbox. High torque from a small form factor, with low power consumption and peak performance at low RPM for quiet operation.



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### LRPX32 ElectroCraft Low Noise RapidPower™ Xtreme

The LRPX carefully integrates the unique low RPM RPX with a custom planetary gearbox. The result is a small form factor bldc motor that can produce

high torque at low RPM and offer strong smooth operation with low noise!



# Product Overview

## Brushless DC Motors Cont.



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### LRPX40

#### ElectroCraft Low Noise RapidPower™ Xtreme

The LRPX carefully integrates the unique low RPM RPX with a custom planetary gearbox. The result is a small form factor bldc motor that can produce

high torque at low RPM and offer strong smooth operation with low noise!



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### RP17

#### ElectroCraft RapidPower™

**High-Performance. Good Price.**

Our ElectroCraft RapidPower™ Nema 17 is a small-sized, high-performance and high-speed brushless motor with ball-bearing construction,

dynamically balanced rotors, and low audible and magnetic noise. It does not include brushes or a commutator. It is compatible with all three-phase brushless DC motor amplifiers



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### RP23

#### ElectroCraft RapidPower™

**High-Performance. Good Price.**

Our ElectroCraft RapidPower™ Nema 23 is a high-performance, high-speed brushless motor with ball-bearing construction, dynamically balanced rotors,

and low audible and magnetic noise. It does not include brushes or a commutator. It is compatible with all three-phase brushless DC motor amplifiers.



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### RP34

#### ElectroCraft RapidPower™

**High-Performance. Good Price.**

Our ElectroCraft RapidPower™ Nema 34 is a compact, high-performance brushless motor incorporating ball bearing construction, a low

cogging electro-magnetic design with both low audible and magnetic noise. It is available with a hall-effect commutation encoder or a variety of optical encoders for higher precision applications.



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### RPP23

#### ElectroCraft RapidPower Plus™

**High Voltage. High Performance.**

Our ElectroCraft RapidPower™ Plus Brushless Servo Motor, Nema 23, is a high voltage, high performance brushless servo motor incorporating the latest electro-magnetic components creating

high continuous torques with low inertia for rapid acceleration. It is available with hall-effect commutation or encoder feedback and a variety of connection options.



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### RPP34

#### ElectroCraft RapidPower Plus™

**High Voltage. High Performance.**

Our ElectroCraft RapidPower™ Plus Brushless Servo Motor, Nema 34, is a high voltage, high performance brushless servo motor incorporating the latest electro-magnetic components creating

high continuous torques with low inertia for rapid acceleration. It is available with hall-effect commutation or encoder feedback and a variety of connection options.

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## Actuators



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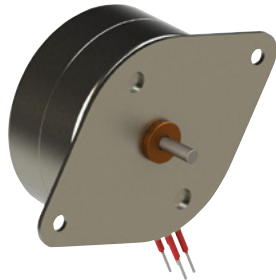
### Series 135-6 Spring Return Actuator

Hansen's ultra-quiet spring return damper actuator is ideal for the HVAC market. Featuring the patented Whisper Motion air brake and the always reliable Synchron® AC synchronous motor, our actuator design eliminates the wind-up noise that often occurs when the motor and gear train start spinning at more than ten times their normal operating speed.

In fact, compared to Hansen, the other actuators on the market today generate five times the sound energy during the spring return cycle, resulting in the unwanted wind-up noise. Wind-up noise is reduced to whisper quiet levels due to our patented air brake technology.



## Stepper Motors



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### Series 119-1 Size 19 Step Motor

The series 119-1 (1.9" diameter) permanent magnet step motor is available in 7.5 degree or 15 degree step angles and can be wound for bipolar or unipolar drives. Motors that are wound for bipolar drives can be ran from an AC voltage source using a capacitor to create a phase shift in the line voltage. This method creates a simple, low cost, reversing

drive. Hansen motors can be custom wound for any voltage up to 240V. The series 119 stepper is also available attached to a Hansen pear shaped gearbox with virtually an unlimited number of gear ratios to choose from.



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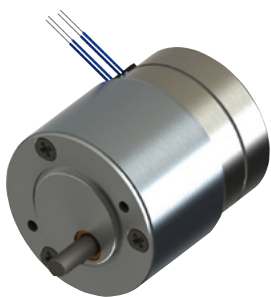
### Series 119-2, 3 Size 19 Step Gear Motor Pear Shaped Gearbox

These gear motors feature a Hansen size 19 step motor on a pear shaped gearbox. Nearly 3,000 unique gear ratios are available from 5.3:1 to 72,000:1. The thinner, standard duty gearbox can handle intermittent torque levels up to 80 oz-in and continuous torque up to 40 oz-in. The thicker, heavy duty gearbox can handle up to 200 oz-in

intermittently and 100 oz-in continuously. Consult the factory for your exact needs.

Optional Features:

- Voltages up to 240V
- Custom leads and terminations
- Custom output shafts



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### Series 119-4 Size 19 Step Gear Motor 2" Gearbox

These gear motors feature a Hansen size 19 step motor on a 2" spur gearbox. 4 gear ratios are available, 12:1, 48:1, 192:1 and 768:1. The gearbox can handle intermittent torque loads up to 500 oz-in

and continuous torque up to 250 oz-in. Custom output shafts are also available.



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### Series 123-1 Size 23 Step Motor

The series 123-1 (2.3" diameter) permanent magnet step motor is available in 7.5 degree or 15 degree step angles and can be wound for bipolar or unipolar drives. Motors that are wound for bipolar drives can be ran from an AC voltage source using a capacitor to create a phase shift in the line voltage. This

method creates a simple, low cost, reversing drive. Series 123-1 step motors can be custom wound for any voltage up to 240V. Custom shafts and connectors are available.

## Stepper Motors Cont.

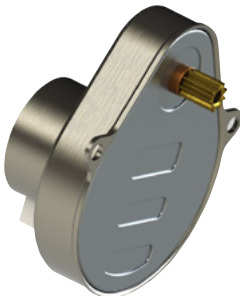


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### Series 123-4 Size 23 Step Gear Motor

These gear motors feature a Hansen 123-1 series step motor on a 2" round spur gearbox. 4 gear ratios are available, 12:1, 48:1, 192:1 and 768:1. The heavy duty gearbox can handle up to 500 oz-in

intermittently and 250 oz-in continuously. Custom output shafts are available.



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### Series 125-2, 3, 6 Size 25 Step Gear Motor C Shallow Pear Model

These gear motors match a 25mm step motor to our pear shaped gearbox. Gear ratios range from 5.3:1 to 72,000:1. Maximum torque output is 40 oz-in continuous or 80 oz-in intermittent. Voltages up to 24

volts are available along with normal wide selection of output shafts.

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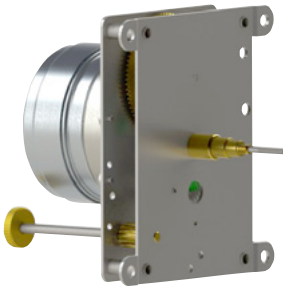
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## Timing Movement Devices



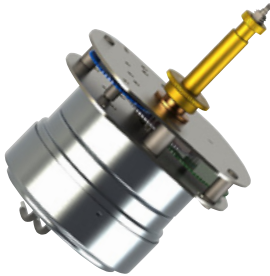
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### AC Clock Movement C Mount

Synchron clock movements provide for a sweep second hand and split second accuracy for either consumer, industrial, or laboratory clocks and other time keeping applications.

The type “C” movement is a brass movement with smooth continuous hand movement. Active

lifetime routinely exceeds 20 years. Self-resetting is an option with the “C” movement for customers who need to synchronize multiple clocks to a single master clock.



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### AC Clock Movement D Mount

Synchron clock movements provide for a sweep second hand and split second accuracy for either consumer, industrial, or laboratory clocks and other time keeping applications.

The “D” movement uses aluminum plates for a simple clock movement with smooth continuous hand motion.

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