



HR Series Electric Actuator Product Guide

define
design
deliver

INTRODUCING HAYWARD'S NEW HR SERIES QUARTER-TURN ELECTRIC ACTUATORS

For over 30 years, Hayward has been automating valves for the industrial process markets we serve. Hayward is now proud to introduce its own production of industrial electrical actuators with greater range of sizes and capabilities. With Hayward's world class quality and customer service, the HR Series provides our customers with an industry leading actuation solution, featuring increased technical capabilities to meet all phases of small or large projects.

The new HR Series is built based on global design standards, including ISO5211 mechanical transmission specifications. We offer operating voltage ranging from 12vac/vdc to 575v 3 phase, with options for on/off and modulating control as well as several industry bus communications capabilities.

Based on industry proven epicyclic technologies, the HR Series provides smooth, efficient transmission of motor torque in a compact package. The epicyclic design negates the need for a brake, as the technology is self locking. HRSN3 and larger units offer a standard clutchless manual override capability and are equipped with two auxiliary switches and an internal heater as standard.

Coming soon from Hayward... the NEW HRC model with an integrated local control station cast as part of the actuator main housing – NOT as an add-on product. A common feature for high-end actuators now available in a cost effective actuation package. The HRC will be available in 800~177,000 lb. actuation products. With full integration in the main housing, there is a substantial reduction in field wiring between the control and actuator. This new line will feature knob, push button or LCD display versions to fit your requirements.



BACKED BY HAYWARD
FLOW CONTROL'S
EXCLUSIVE TWO
YEAR WARRANTY

OVERVIEW

Hayward's HR Series electric actuators are designed and produced to provide years of service in demanding industrial environments such as chemical processing, waste and water treatment, power generation, oil & gas, marine, mining and building services. These quarter-turn units drive dampers, ball valves, butterfly valves or inlet guide vanes that require torque ranges from 300 lbf-in up through 177,000 lbf-in. The HR Series housings are designed to meet NEMA 4X environmental demands, with ISO5211 compliant mounting that readily mounts up to most valves in the industries served. Featuring an epicyclic transmission system, the HR Series provides highly efficient multiplication of motor power to produce uniquely compact torque ranges compared to other technologies. A clutch-free manual override system provides full-time override capabilities during powered or un-powered events, and allows for simple adaptation for overhead chain-wheel drive installations.



HR SERIES ELECTRIC ACTUATORS

KEY FEATURES & BENEFITS

- Powder Coated Aluminum Alloy Housing
- NEMA 4/4X/IP67 Enclosure
- Raised Position Indicator
- ISO5211 Compliant Mounting
- Internal Low Power Heater
- Clutchless Manual Override
- Self-Locking Drive
- Permanently Lubricated
- Thermally Protected Motor
- 2 Auxiliary Switches
- Silicone Free

OPTIONAL FEATURES

- Interchangeable ISO5211 Mount
- Interchangeable Drive Inserts
- Positioners
- Extended Duty Motors
- 3 Position Control
- Passive Analog Feedback
- Torque Switches
- Local Control Stations
- 3 phase Motor Control Center
- IP68 Submersible

Clean, Easily Accessible Internal Wiring
Layout (2) 10A 125vac Aux Limit Switches
Standard Anti-Condensate Heater Standard

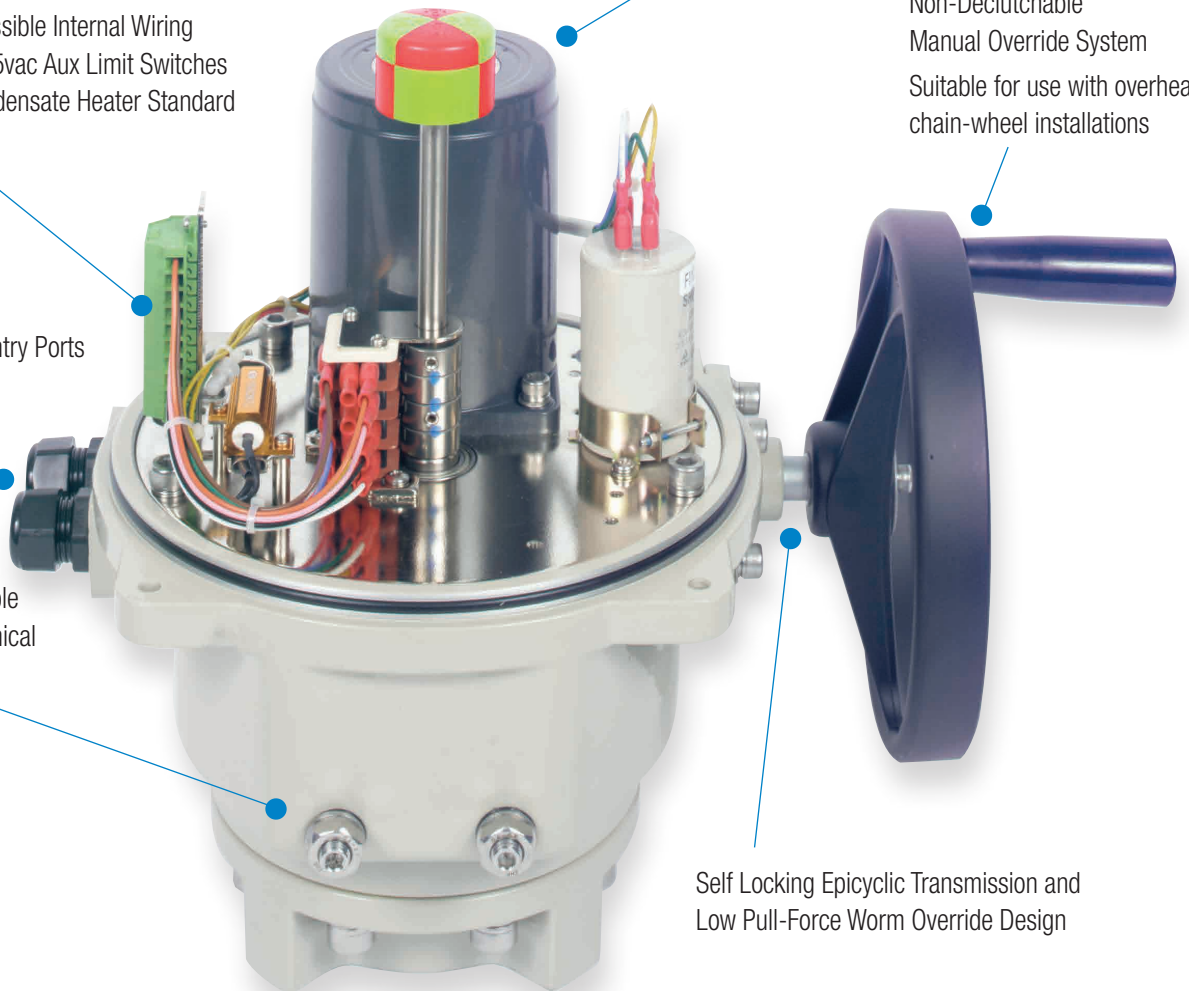
(2) 3/4" Conduit Entry Ports

Externally Accessible
Adjustable Mechanical
Stops

High Efficiency
AC & DC Drive Motors

Non-Declutchable
Manual Override System
Suitable for use with overhead
chain-wheel installations

Self Locking Epicyclic Transmission and
Low Pull-Force Worm Override Design



*Features typical of HRSN3 Series and larger.

HR Series Electric Actuators, *FEATURES*

ISO MOUNTING FLANGE

The bottom of the HRS actuators are machined to meet ISO5211 standards. On the HRS3 series up through the HRS4 series, should a different flange pattern be needed, these models can be fitted with available flanges without any affect on actuator performance. Contact Hayward for available ISO compliant flanges.



INTERCHANGEABLE BUSHING

Our HRS series actuators are supplied with ISO5211 compliant double-square drive sockets. On the HRS3 series up through the HRS4 series, the drive socket is removable and can be fitted with a different size or a different shape female drive socket. Available patterns include square, double square, double D and round keyed shafts. Contact Hayward for available splined drive inserts.



EPICYCLIC DRIVE TRANSMISSION

Highly efficient, compact transmission technology provides unmatched multiplication of motor torque compared to spur geartrain type systems. Additionally, the final drive output utilizes worm gear geometry to provide self-locking gearsets without any type of braking required to hold the connected device in position. This technology also allows a manual override system which does not require any type of declutching mechanism.



COLOR CODED CAM SYSTEM

Easily accessible travel and auxiliary switch cams are color coded to provide instant recognition of the CW or CCW cams when making stroke adjustments. Cam positions are easily changed by utilizing 2.5mm setscrews across the entire HRS range of actuators.



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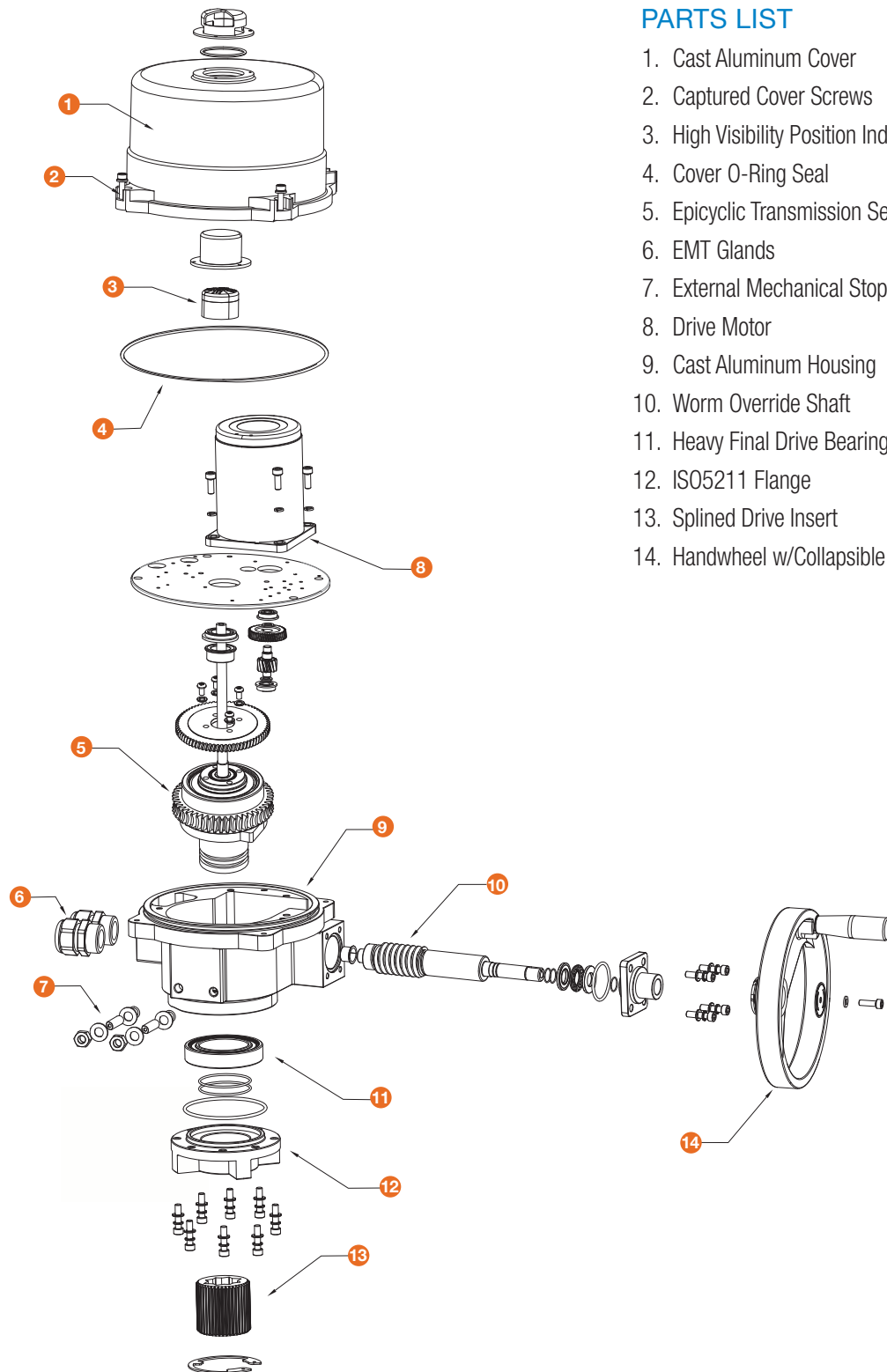
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HR SERIES ELECTRIC ACTUATOR PART NUMBER MATRIX

HAYWARD		TYPE	INTERFACE		INT TYPE		FRAME SIZE & TQR		VOLTAGE		CONTROL		
H	R		S		N		3A		K		8		
Quarter-Turn Type	R	Qtr-Turn Elec Ord Loc	S	None	N	None	1A	89"lb	A	12vdc	0	On/Off	
	B	Qtr-Turn Elec Atex ExB	C	Integral	K	LCS - Knob/LED	1B	177"lb	B	12vac	1	On/Off/Jog	
	C	Qtr-Turn Elec Atex ExC			L	LCS - PB/LED/Key	1C	266"lb	C	12vac/vdc	2	Jog ONLY	
	D	Qtr-Turn Elec Class1/Div1				D	LCS - LCD Type	2A	310"lb	D	24vdc	3	3 Pos - Field Control (Supply Voltage Inputs)
						P	LCS - Prog	2B	310"lb HW	E	24vac	4	4 Pos - Unidirectional (90° drive models only thru EHM7)
						T	Touch Screen	2R	440"lb	F	24vac/vdc	5	Reserved
	Z	Qtr-Turn Mini Series				W	Wireless	2S	440"lb HW	G	48vdc	6	2 Pos - Relay Control (Field Select RO or RC)
								3A	880"lb	H	AutoSw1 (Specify)	7	Field Control Timer (Requires Config Sheet)
								3B	1770"lb	J	AutoSw2 (Specify)	8	Mod 4-20mA (Default incl code D)
								4A	3570"lb	K	120vac	9	Mod 2-10V (Default incl code M)
								4B	5510"lb	L	230vac	A	Mod 0-10V (Default incl code P)
								4C	7080"lb	M	230/3/60	f	Future
								4D	8850"lb	P	315/3/60		
								4E	15040"lb	R	380/3/60		
							4F	20350"lb	S	440/3/60			
							5A	30970"lb	T	480/3/60			
							5B	44250"lb	U	575/3/60 (limited availability)			
							6A	70800"lb					
							7A	115000"lb					
							7B	140000"lb					
							7C	177000"lb					

HR Series Electric Actuators, *FEATURES*

EXPLODED VIEW



PARTS LIST

1. Cast Aluminum Cover
2. Captured Cover Screws
3. High Visibility Position Indicator
4. Cover O-Ring Seal
5. Epicyclic Transmission Set
6. EMT Glands
7. External Mechanical Stops
8. Drive Motor
9. Cast Aluminum Housing
10. Worm Override Shaft
11. Heavy Final Drive Bearing
12. ISO5211 Flange
13. Splined Drive Insert
14. Handwheel w/Collapsible Knob



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HZSN1 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HZSN1 Series are quarter-turn electric industrial service actuators delivering up to 266 lbf-in torque in voltages ranging from 24v up through 230v in on/off or proportional control modes. Other Key Features include:

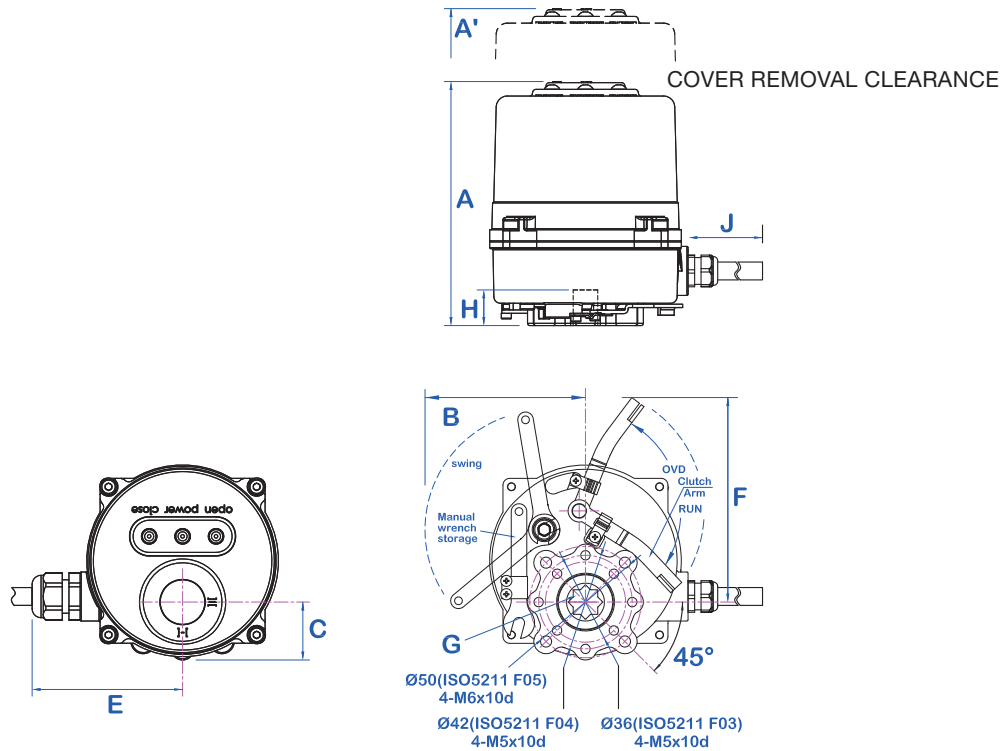
- Equipped with two (2) volt-free Form A Auxiliary switches rated at up to 1A 250vac (on/off models only)
- Proportional models have 4-20mA or 2-10vdc feedback output standard
- ISO5211 compliant with an 11mm double square female drive
- Furnished with a 39" (1M) cable to facilitate field connections outside the compact enclosure
- Low profile visual position indicator and three flush mounted LEDs allow at-a-glance position indication
- Manual override lever and 8mm access shaft at the bottom of the actuator housing
- NEMA 4X/IP67 compliant
- PG6 EMT entry port with sealed cable gland

TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HZSN1A	HZSN1B	HZSN1C
Supply	Torque Output (lbf-in / Nm)	89 / 10	177 / 20	266 / 30
24VAC - 24VDC	Current Draw (Start / Run / LRA)	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A
	Speed (90°) DC, seconds	13	12	11
	Motor - 24vdc Perm Magnet Brush Type	5W	8W	10W
	Duty Cycle (on/off / mod)	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
120V	Current Draw (Start / Run / LRA)	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A
	Speed (90°) 60Hz / 50Hz, seconds	13	12	11
	Motor - 120vac Split-Phase Cap TENV	5W	8W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
230V	Current Draw (Start / Run / LRA)	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A
	Speed (90°) 60Hz / 50Hz, seconds	13	12	11
	Motor - 230vac Split-Phase Cap TENV	5W	8W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
All	Control	On/Off or Proportional		
	Electrical Entry (1)	PG6 Nylon Gland with 39" 11C-24 Cable On/Off or 9C-24 Proportional		
	Manual Override	Bottom Mounted 8mm Hex Shaft		
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)		
	Humidity Range	0-95% RH		
	Altitude Limit	9850 ft / 3000 m		

HZSN1 Series Electric Actuators

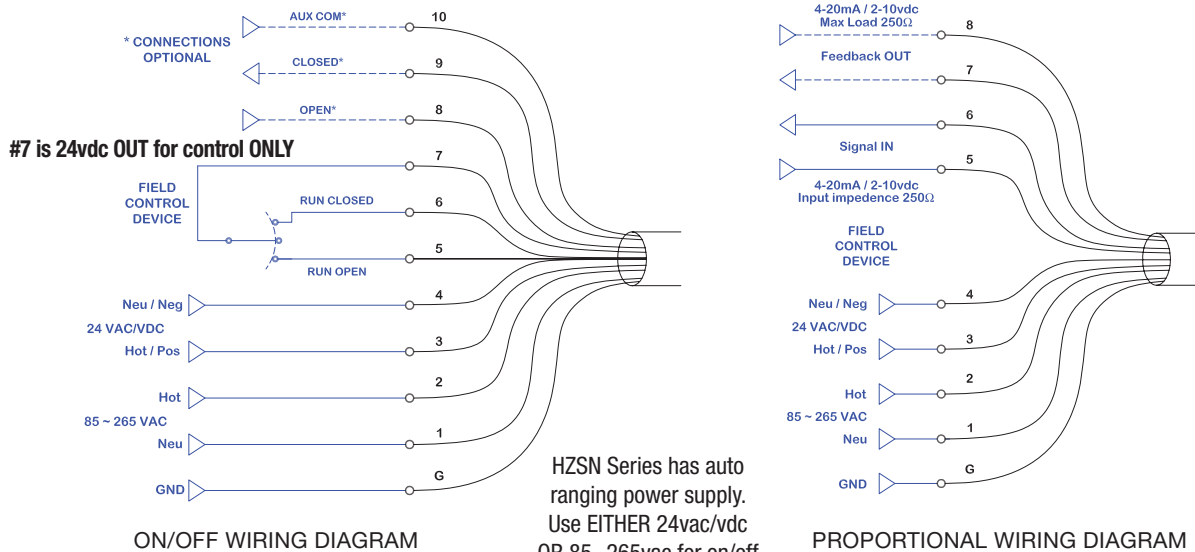
TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	E in/mm	F in/mm	G in/mm	H in/mm	J in/mm	WEIGHT lbs/kg
HZSN1A,B,C	4.33/110	2.95/75	2.83/72	1.00/25	2.75/70	3.72/95	.433/11	.630/16	39.4/1000	2.2/1.0

No Aux Switches on Modulating Models



HZSN Series has auto ranging power supply. Use EITHER 24vac/vdc OR 85~265vac for on/off and proportional control



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HRSN2 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN2 Series are quarter-turn electric industrial service actuators delivering up to 440 lbf-in torque in voltages ranging from 12v up through 230v in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 3A 250vac
- ISO5211 compliant mounting with a double square female drive
- Raised visual position indicator
- Manual override hand wheel is available as an option on 2B & 2S models
- Manual override shaft standard
- NEMA 4X/IP67 compliant
- Two (2) 1/2" EMT entry ports with sealed cable glands

OPTIONS

- Battery Backup
- Supercap Backup
- Local Control Stations
- IP68 Submersion

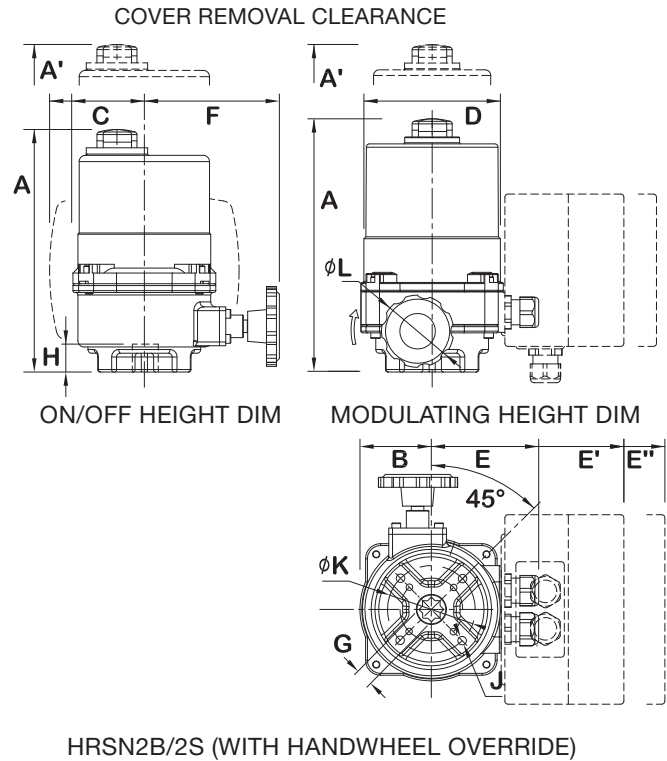
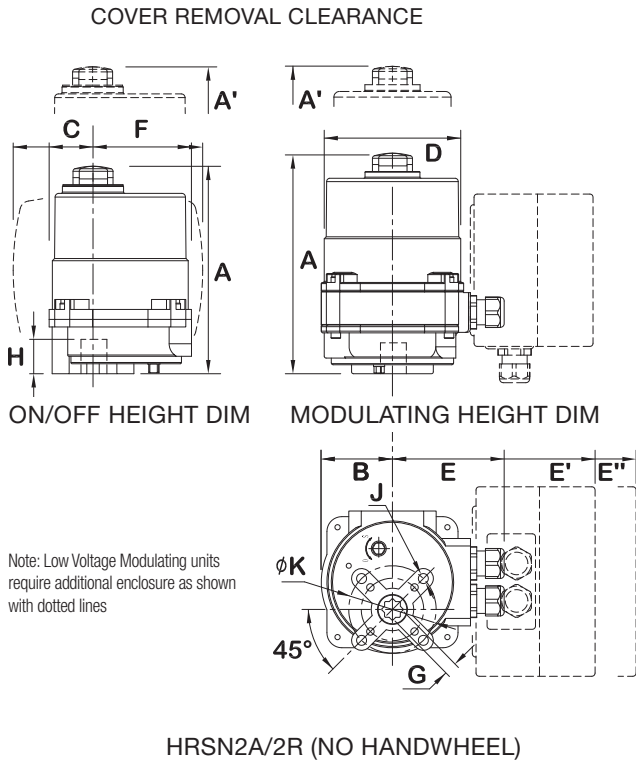
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN2A	HRSN2B	HRSN2R	HRSN2S
Supply	Torque Output (lbf-in / Nm)	310 / 35	310 / 35	440 / 50	440 / 50
	Current Draw (Start / Run / LRA)	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A
12VAC*	Speed (90°) DC, seconds	8	8	10	10
-	Motor - 12vdc Perm Magnet Brush Type	6W	6W	6W	6W
12VDC*	Duty Cycle (on/off / mod)	75%	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Class	Class B	Class B	Class B	Class B
24VAC	Current Draw (Start / Run / LRA)	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A
-	Speed (90°) DC, seconds	8	8	10	10
24VDC	Motor - 24vdc Perm Magnet Brush Type	6W	6W	6W	6W
	Duty Cycle (on/off / mod)	75%	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Class	Class B	Class B	Class B	Class B
120V	Current Draw (Start / Run / LRA)	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A
	Speed (90°) 60Hz / 50Hz, seconds	9.2 / 11	9.2 / 11	12.5 / 15	12.5 / 15
	Motor - 120vac Split-Phase Cap TENV	10W	10W	10W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
230V	Current Draw (Start / Run / LRA)	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A
	Speed (90°) 60Hz / 50Hz, seconds	9.2 / 11	9.2 / 11	12.5 / 15	12.5 / 15
	Motor - 120vac Split-Phase Cap TENV	10W	10W	10W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
All	Manual Override	Bottom 8mm Hex Shaft	Hand Wheel	Bottom 8mm Hex Shaft	Hand Wheel
	Electrical Entry (2)	1/2" EMT or Nylon gland			
	Control	On/Off or Proportional			
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)			
	Humidity Range	0-95% RH			
	Altitude Limit	9850 ft / 3000 m			

*12V versions available custom order.

HRSN2 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A	A'	B	C	D	E (HV)	E' (LV)	E'' (LV)	F	G*	H	J*	K*	L	WEIGHT
	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	in/mm	lbs/kg
HRSN2A	on/off - LV	6.38/162			1.40/36	3.60/92	-	-	3.25/83		0.78/20	(4) M6-1.0 X 18mm Deep	F05 / 1.969/50		6.6/3.0
	on/off - HV		4.93/125	2.20/56		3.60/92	-	-		0.551/14					6.6/3.0
	Mod - LV	7.56/192			2.52/64	-	6.32/160	2.5/64	3.60/91			(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				1.40/36	3.60/92	-	-	3.25/83						6.8/3.1
HRSN2B	on/off - LV	7.40/188			2.32/59	3.60/92	-	-			0.78/20	(4) M6-1.0 X 18mm Deep	F05 / 1.969/50	2.5/63	6.6/3.0
	on/off - HV		4.93/125	2.20/56		3.60/92	-	-	4.25/108	0.551/14				12 turns	6.6/3.0
	Mod - LV	8.58/218			2.99/76	-	6.32/160	2.5/64				(4) M8-1.25 X 20mm Deep	F07 / 2.756/70	90°	13.8/6.3
	Mod - HV				2.32/59	3.60/92	-	-							6.8/3.1
HRSN2R	on/off - LV	6.38/162			1.40/36	3.60/92	-	-	3.25/83		0.78/20	(4) M6-1.0 X 18mm Deep	F05 / 1.969/50		6.6/3.0
	on/off - HV		4.93/125	2.20/56		3.60/92	-	-		0.551/14					6.6/3.0
	Mod - LV	7.56/192			2.52/64	-	6.32/160	2.5/64	3.60/91			(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				1.40/36	3.60/92	-	-	3.25/83						6.8/3.1
HRSN2S	on/off - LV	7.40/188			2.32/59	3.60/92	-	-			0.78/20	(4) M6-1.0 X 18mm Deep	F05 / 1.969/50	2.5/63	6.6/3.0
	on/off - HV		4.93/125	2.20/56		3.60/92	-	-	4.25/108	0.669/17				14 turns	6.6/3.0
	Mod - LV	8.58/218			2.99/76	-	6.32/160	2.5/64				(4) M8-1.25 X 20mm Deep	F07 / 2.756/70	90°	13.8/6.3
	Mod - HV				2.32/59	3.60/92	-	-							6.8/3.1



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HRSN3 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN3 Series are quarter-turn electric industrial service actuators delivering up to 1770 lbf-in torque in voltages ranging from 12V up through 480/3 in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Raised visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup
- Supercap Backup
- Interchangeable ISO5211 Flange & Drives

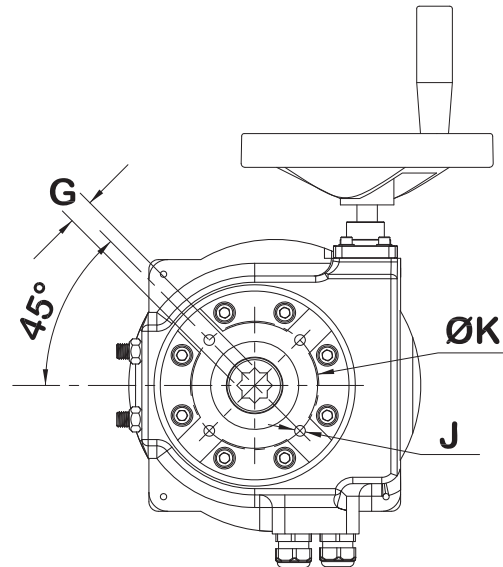
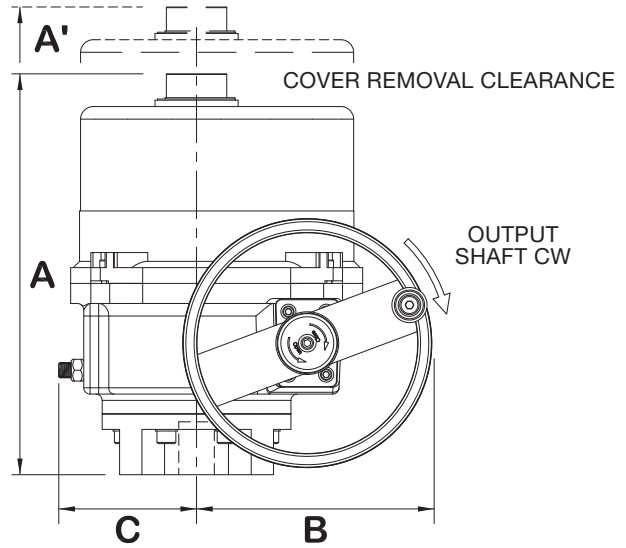
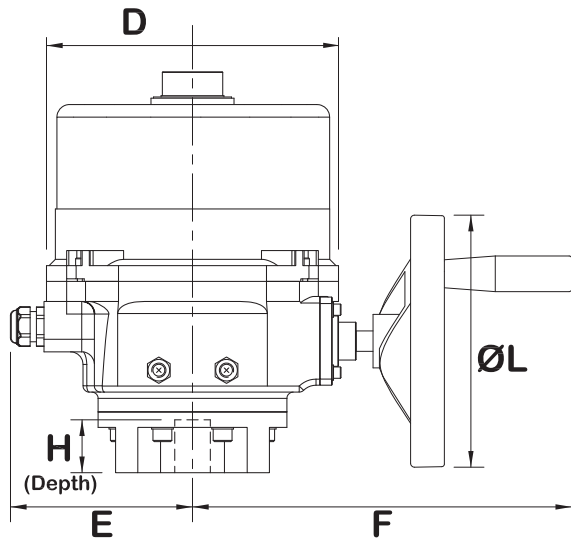
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN3A	HRSN3B
Supply	Torque Output (lbf-in / Nm)	880 / 100	1770 / 200
	Current Draw (Start / Run / LRA)	7.2A / 5.2A / 17.8A	7.2A / 5.2A / 17.8A
12VAC*	Speed (90°) DC, seconds	14	28
	Motor - 12vdc Perm Magnet Brush Type	25W	25W
- 12VDC*	Duty Cycle (on/off / mod)	75%	75%
	Motor Starts, per hour, Max	1200	1200
	Motor Class	Class B	Class B
	Current Draw (Start / Run / LRA)	4.2A / 3.2A / 11A	4.2A / 3.2A / 11A
24VAC	Speed (90°) DC, seconds	14	28
	Motor - 24vdc Perm Magnet Brush Type	25W	25W
- 24VDC	Duty Cycle (on/off / mod)	75%	75%
	Motor Starts, per hour, Max	1200	1200
	Motor Class	Class B	Class B
	Current Draw (Start / Run / LRA)	1.16A / 0.93A / 1.47A	1.16A / 0.93A / 1.47A
120V	Speed (90°) 60Hz / 50Hz, seconds	16 / 19	33 / 39
	Motor - 120vac Split-Phase Cap TENV	40W	40W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F
	Current Draw (Start / Run / LRA)	0.54A / 0.42A / 0.66A	0.54A / 0.42A / 0.66A
230V	Speed (90°) 60Hz / 50Hz, seconds	16 / 19	33 / 39
	Motor - 230vac Split-Phase Cap TENV	40W	40W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F
	Electrical Entry (2)	3/4" EMT or Nylon gland	
All	Control	On/Off or Proportional	
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)	
	Humidity Range	0-95% RH	
	Altitude Limit	9850 ft / 3000 m	

*12V versions available custom order.

HRSN3 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G in/mm	H in/mm	J in/mm	K in/mm	L	WEIGHT lbs/kg	
HRSN3A	10.45/265	6/150	4.85/123	3.11/79	8.50/216	4.73/120	9.45/240	0.669/17	1.38/35	(4) M8 - 1.25 X 20mm D	F07 2.756/70	4.7/120	12.5 turns 90°	24.5/11
HRSN3B	10.45/265	6/150	4.85/123	3.11/79	8.50/216	4.73/120	9.45/240	0.669/17	1.38/35	(4) M8 - 1.25 X 20mm D	F07 2.756/70	4.7/120	12.5 turns 90°	24.5/11



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HRSN4 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN4 Series are quarter-turn electric industrial service actuators delivering up to 20,350 lbf-in torque in voltages ranging from 12V up through 480/3 in on/off or proportional control modes.

Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Raised visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup
- Supercap Backup
- Interchangeable ISO5211 Flange & Drives



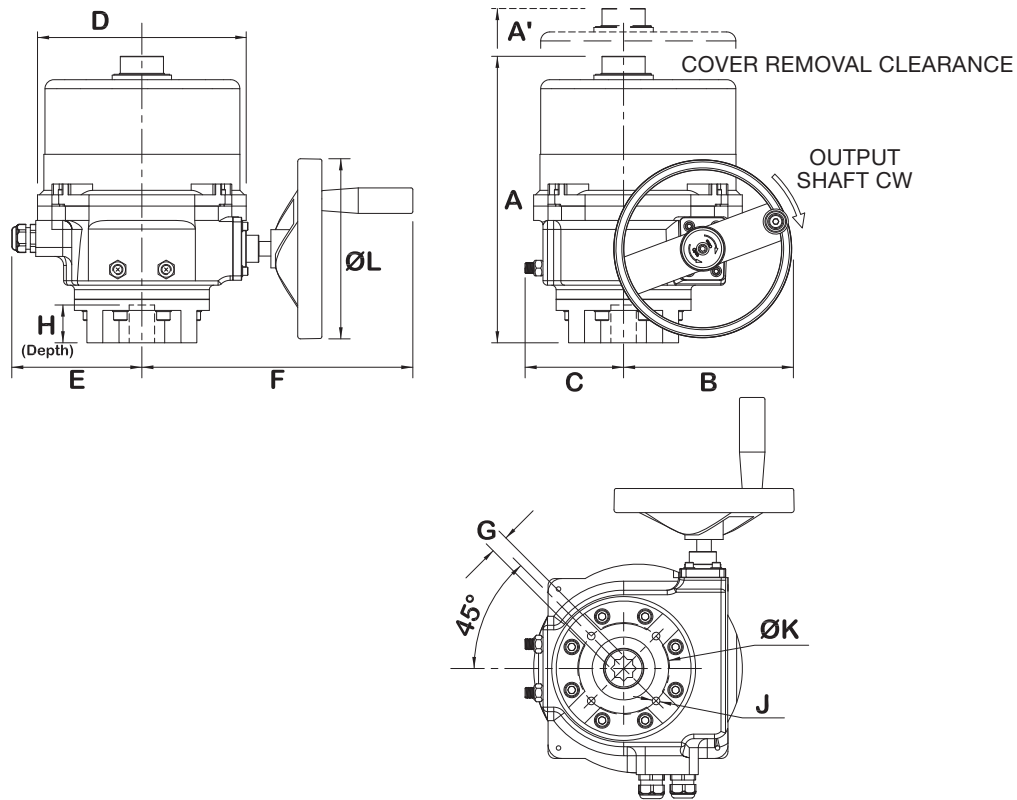
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN4A	HRSN4B	HRSN4C	HRSN4D	HRSN4E	HRSN4F
Supply	Torque Output (lbf-in / Nm)	3540 / 400	5310 / 600	7080 / 800	8850 / 1000	15,040 / 1700	20,350 / 2300
	Current Draw (Start / Run / LRA)	11.4A/9.4A/24.4A	11.4A/9.4A/24.4A	11.4A/9.4A/24.4A	-	-	-
12VAC*	Speed (90°) DC, seconds	21	28	34	-	-	-
-	Motor - 12vdc Perm Magnet Brush Type	40W	40W	40W	-	-	-
12VDC*	Duty Cycle (on/off / mod)	75%	75%	75%	-	-	-
	Motor Starts, per hour, Max	1200	1200	1200	-	-	-
	Motor Class	Class B	Class B	Class B	-	-	-
	Current Draw (Start / Run / LRA)	7.0A / 5.8A / 15A	7.0A / 5.8A / 15A	7.0A / 5.8A / 15A	10.5A / 7.8A / 22A	-	-
24VAC	Speed (90°) DC, seconds	21	28	34	34	-	-
-	Motor - 24vdc Perm Magnet Brush Type	40W	40W	40W	60W	-	-
24VDC	Duty Cycle (on/off / mod)	75%	75%	75%	75%	-	-
	Motor Starts, per hour, Max	1200	1200	1200	1200	-	-
	Motor Class	Class B	Class B	Class B	Class B	-	-
	Current Draw (Start / Run / LRA)	2.95A / 1.8A / 3.5A	2.95A / 1.8A / 3.5A	2.95A / 1.8A / 3.5A	3.8A / 2.3A / 4.8A	7.2A / 4.5A / 9.4A	7.2A / 4.5A / 9.4A
	Speed (90°) 60Hz / 50Hz, seconds	24 / 29	33 / 39	39 / 47	39 / 47	28 / 34	39 / 47
120V	Motor - 120vac Split-Phase Cap TENV	90W	90W	90W	120W	200W	200W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
	Current Draw (Start / Run / LRA)	1.71A / 0.91A / 1.9A	1.71A / 0.91A / 1.9A	1.71A / 0.91A / 1.9A	2.16A / 1.1A / 2.43A	4.1A / 2.2A / 4.5A	4.1A / 2.2A / 4.5
	Speed (90°) 60Hz / 50Hz, seconds	24 / 29	33 / 39	39 / 47	39 / 47	28 / 34	39 / 47
230V	Motor - 230vac Split-Phase Cap TENV	90W	90W	90W	120W	200W	200W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
	Electrical Entry (2)	3/4" EMT or Nylon gland					
	Control	On/Off or Proportional					
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)					
	Humidity Range	0-95% RH					
	Altitude Limit	9850 ft / 3000 m					

*12V versions available custom order.

HRSN4 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L	WEIGHT lbs/kg	
HRSN4A	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	0.866/22	2.17/55	(4) M10 - 1.50 X 20mm D	F10 4.016/102	7.8 / 197	14.5 turns 90°	49/22
HRSN4B	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
HRSN4C	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
HRSN4D	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
HRSN4E	14.89/378	10/250	9.49/241	4.69/119	11.54/293	6.34/161	13.62/346	1.063/27	2.56/65	(4) M12 - 1.75 X 20mm D	F14 5.512/140	11.5 / 290	16 turns 90°	80/36
HRSN4F	14.89/378	10/250	9.49/241	4.69/119	11.54/293	6.34/161	13.62/346	1.417/36	2.56/65	(4) M16 - 2.0 X 20mm D	F14 5.512/140	11.5 / 290	16 turns 90°	80/36

*Consult Hayward Flow Control for optional ISO patterns



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HRSN5 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN5 Series are quarter-turn electric industrial service actuators delivering up to 44,250 lbf-in torque in voltages ranging from 120VAC up through 480/3 in on/off or proportional control modes.

Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup

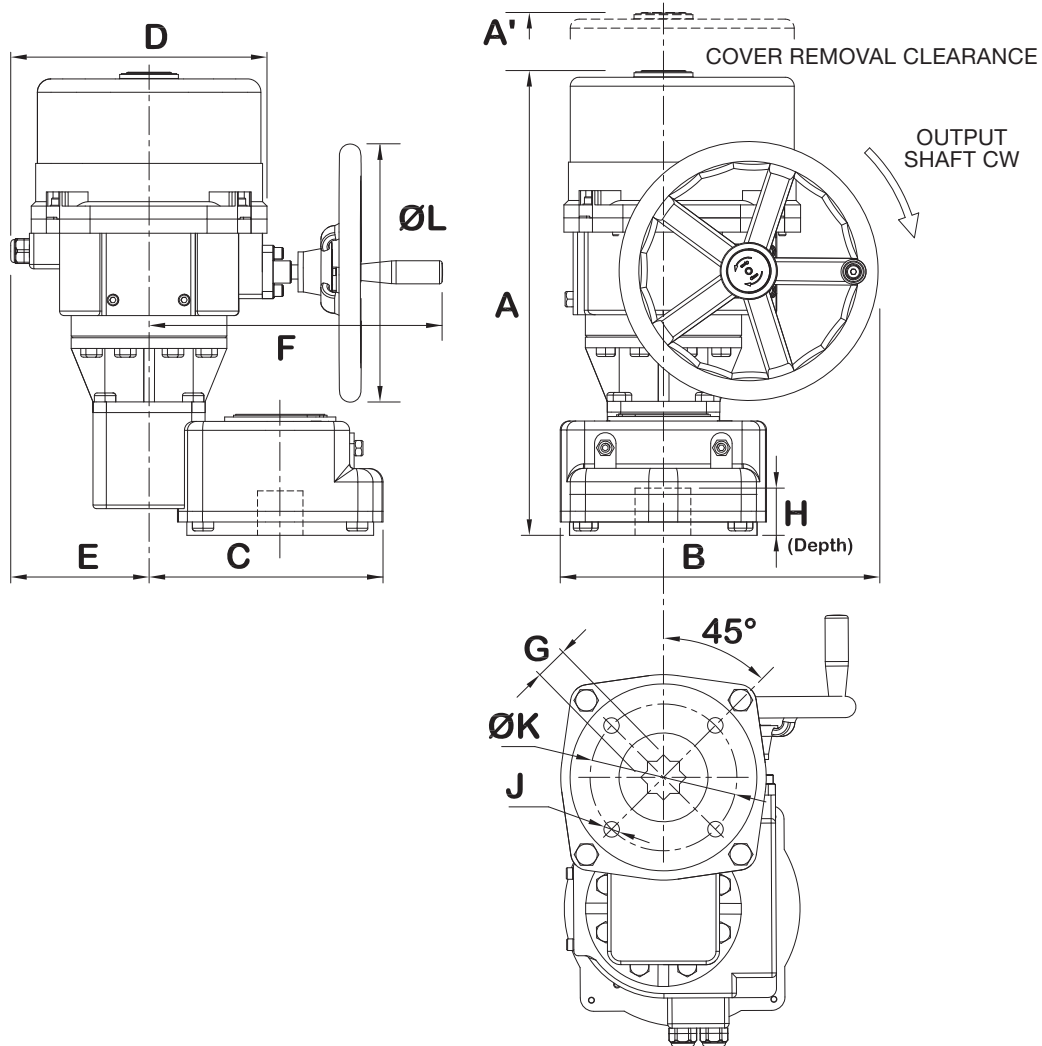
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN5A	HRSN5B
Supply*	Torque Output (lbf-in / Nm)	30,975 / 3500	44,250 / 5000
120V	Current Draw (Start / Run / LRA)	7.2A / 4.5A / 9.4A	7.2A / 4.5A / 9.4A
	Motor - 120vac Split-Phase Cap TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
230V	Current Draw (Start / Run / LRA)	4.05A / 2.2A / 4.5A	4.05A / 2.2A / 4.5A
	Motor - 230vac Split-Phase Cap TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
220/3ph	Current Draw (Start / Run / LRA)	3.58A / 1.33A / 4.52A	3.58A / 1.33A / 4.52A
	Motor - 220/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	2.5A / 1.3A / 3.16A	2.5A / 1.3A / 3.16A
	Motor - 315/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	2.1A / 1.1A / 2.6A	2.1A / 1.1A / 2.6A
	Motor - 380/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	1.5A / 0.95A / 2.3A	1.5A / 0.95A / 2.3A
	Motor - 440/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	1.2A / 0.87A / 2.1A	1.2A / 0.87A / 2.1A
	Motor - 480/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
All	Speed (90°) 60Hz / 50Hz	63 sec / 76 sec	88 sec / 105 sec
	Motor Starts	1200 per hour	
	Duty Cycle (on/off / mod)	25% / 50%	
	Control	On/Off/Jog, Proportional	
	Electrical Entry (2)	3/4" EMT or Nylon Gland	
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)	
	Humidity Range	0-95% RH	
	Altitude Limit	9850 ft / 3000 m	

*HRSN5 not available below 120vac supply.

HRSN5 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L	WEIGHT lbs/kg	
HRSN5A	20.95/532	9.83/250	14.14/359	8.90/226	11.54/293	6.34/161	13.62/346	1.811/46	3.35/85	(4) M20 - 2.5 X 35mm D	F16 6.50/165	11.42 / 290	35.6 turns 90°	167/76
HRSN5B	20.95/532	9.83/250	14.14/359	8.90/226	11.54/293	6.34/161	13.62/346	1.811/46	3.35/85	(4) M20 - 2.5 X 35mm D	F16 6.50/165	11.42 / 290	35.6 turns 90°	167/76

*Consult Hayward Flow Control for optional ISO patterns



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HRSN6 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN6 Series are quarter-turn electric industrial service actuators delivering up to 71,200 lbf-in torque in voltages ranging from 120VAC up through 480/3 in on/off or proportional control modes.

Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup

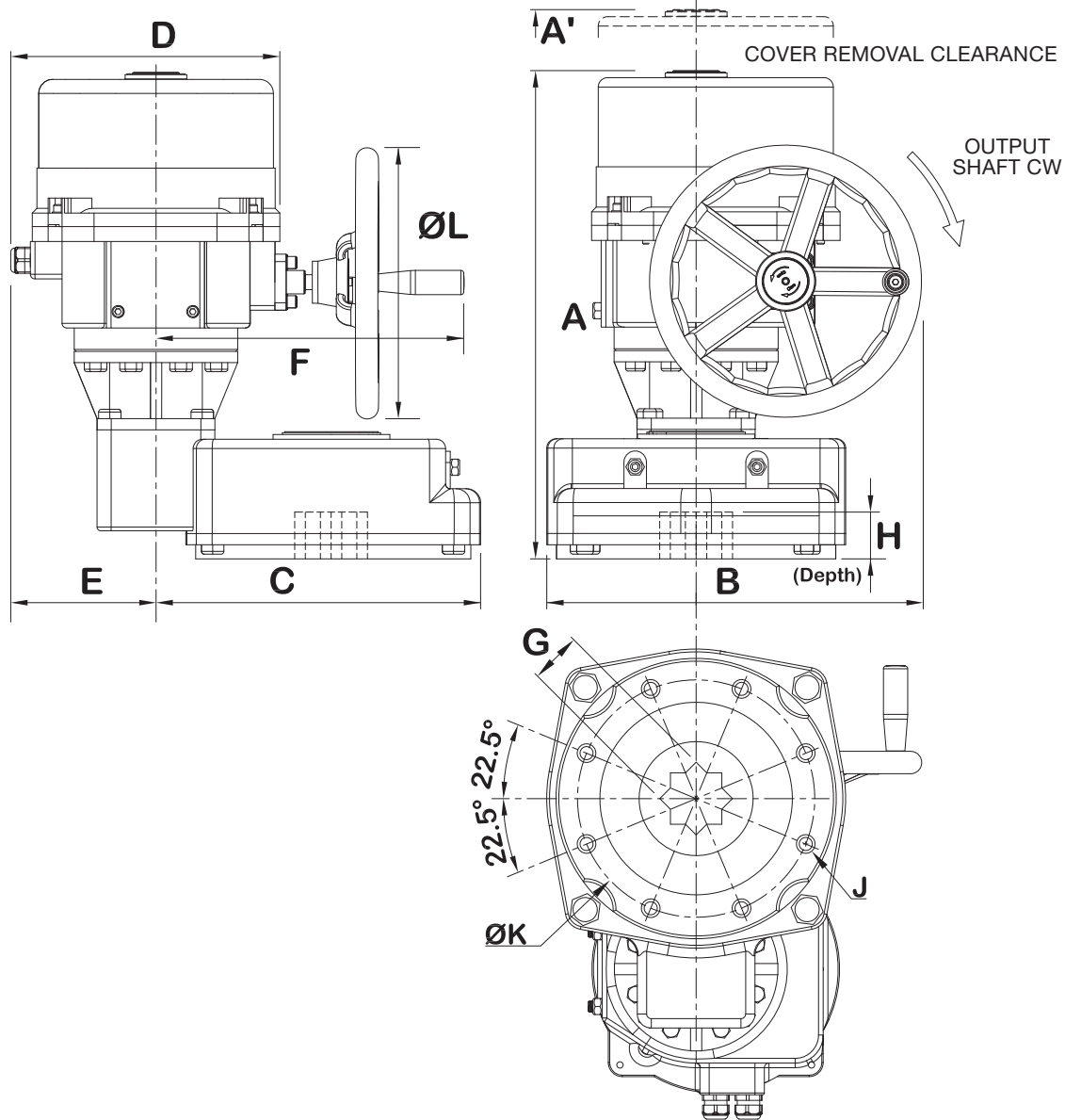
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN6A
Supply*	Torque Output (lbf-in / Nm)	71,200 / 8000
120V	Current Draw (Start / Run / LRA)	7.2A / 4.5A / 9.4A
	Motor - 120vac Split-Phase Cap TENV / Protection / Class	200W / 135°C / Class F
230V	Current Draw (Start / Run / LRA)	4.05A / 2.2A / 4.5A
	Motor - 230vac Split-Phase Cap TENV / Protection / Class	200W / 135°C / Class F
220/3ph	Current Draw (Start / Run / LRA)	3.58A / 1.33A / 4.52A
	Motor - 220/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	2.5A / 1.3A / 3.16A
	Motor - 315/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	2.1A / 1.1A / 2.6A
	Motor - 380/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	1.5A / 0.95A / 2.3A
	Motor - 440/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	1.2A / 0.87A / 2.1A
	Motor - 480/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
All	Speed (90°) 60Hz / 50Hz	120 sec / 143 sec
	Motor Starts	1200 per hour
	Duty Cycle (on/off / mod)	25% / 50%
	Control	on/off or proportional
	Electrical Entry (2)	3/4" EMT or Nylon Gland
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)
	Humidity Range	0-95% RH
	Altitude Limit	9850 ft / 3000 m

*HRSN6 not available below 120vac supply.

HRSN6 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L	WEIGHT lbs/kg	
HRSN6A	22.56/573	9.83/250	15.75/400	13.50/343	11.54/293	6.34/161	12.76/324	2.165/55	5.12/130	(8) M16 - 2.0 X 35mm D	F25 10.0/254	11.42/ 290	48 turns 90°	235/107



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HRSN7 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The HRSN7 Series are quarter-turn electric industrial service actuators delivering up to 177,000 lbf-in torque in voltages ranging from 220/3 up through 480/3 in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Interchangeable ISO5211 Drive Inserts

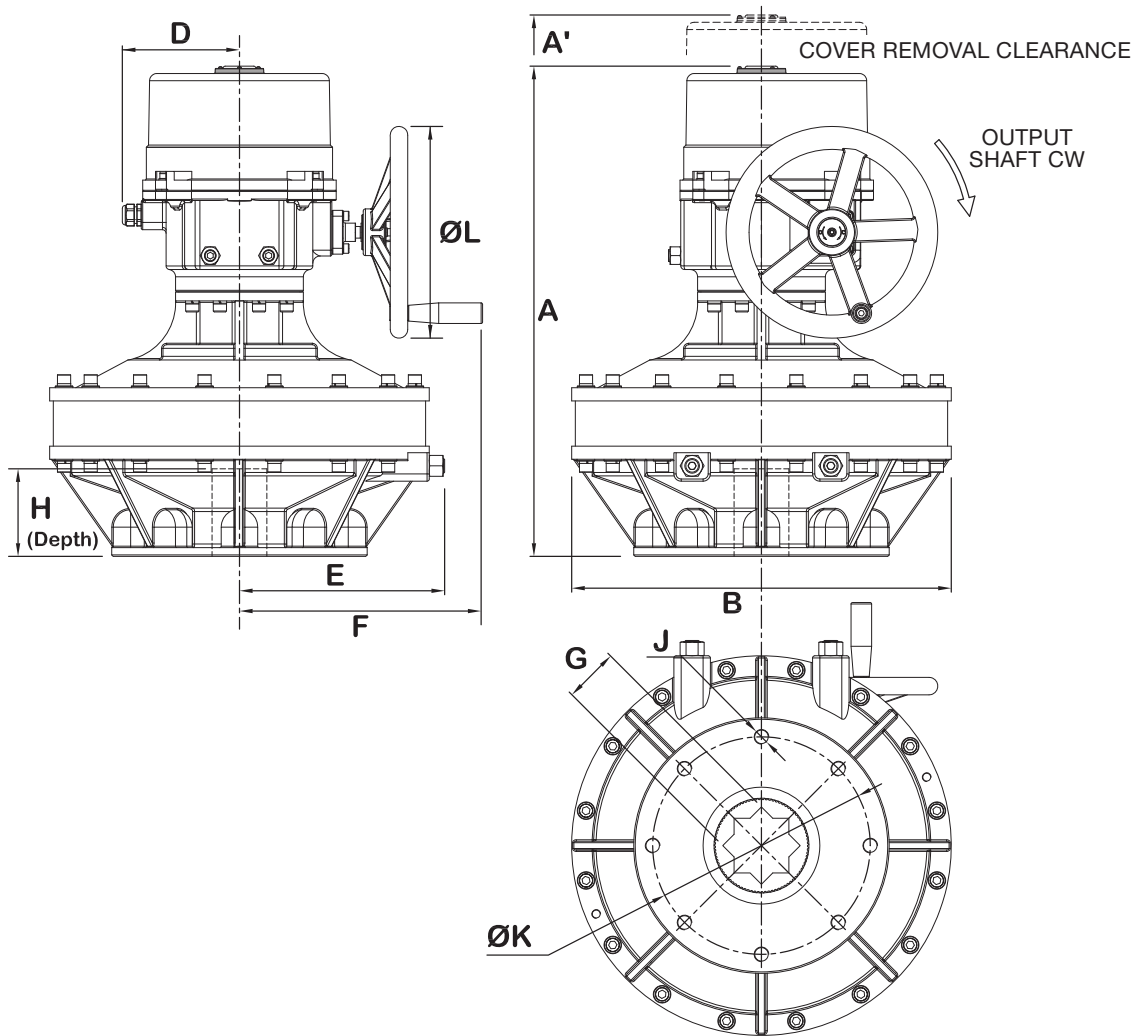
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		HRSN7A	HRSN7B	HRSN7C
Supply*	Torque Output (lbf-in / Nm)	115,700 / 13000	142,400 / 16000	177,000 / 20000
220/3ph	Current Draw (Start / Run / LRA)	6.82A / 3.5A / 8.89A	6.82A / 3.5A / 8.89A	6.82A / 3.5A / 8.89A
	Motor - 220/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	4.75A / 2.4A / 6.20A	4.75A / 2.4A / 6.20A	4.75A / 2.4A / 6.20A
	Motor - 315/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	3.95A / 2.0A / 5.0A	3.95A / 2.0A / 5.0A	3.95A / 2.0A / 5.0A
	Motor - 380/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	3.2A / 1.7A / 4.32A	3.2A / 1.7A / 4.32A	3.2A / 1.7A / 4.32A
	Motor - 440/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	2.2A / 1.6A / 3.96A	2.2A / 1.6A / 3.96A	2.2A / 1.6A / 3.96A
	Motor - 480/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
All	Speed (90°) 60Hz / 50Hz	91 sec / 109 sec	108 sec / 129 sec	130 sec / 155 sec
	Motor Starts		1200 per hour	
	Duty Cycle (on/off / mod)		25% / 50%	
	Control		on/off or proportional	
	Electrical Entry (2)		3/4" EMT or Nylon Gland	
	Ambient Operating Range		-22°F to +158°F (-30°C to +70°C)	
	Humidity Range		0-95% RH	
	Altitude Limit		9850 ft / 3000 m	

*HRSN7 not available below 220/3 supply.

HRSN7 Series Electric Actuators

TECHNICAL INFORMATION, CONTINUED



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L	WEIGHT lbs/kg	
HRSN7A	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5/ 290	48 turns 90°	480/218
HRSN7B	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5/ 290	48 turns 90°	480/218
HRSN7C	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5/ 290	48 turns 90°	480/218

*Consult Hayward Flow Control for optional ISO patterns

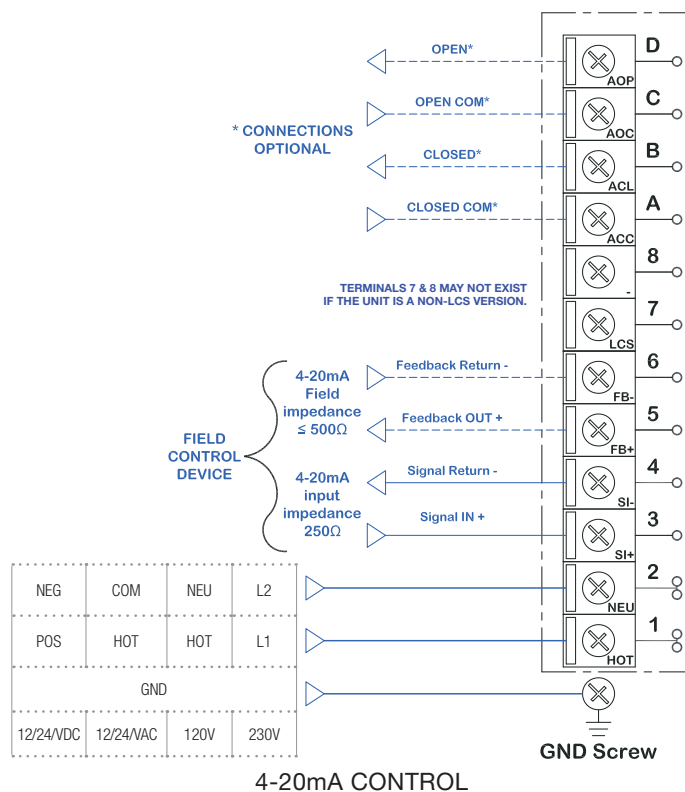
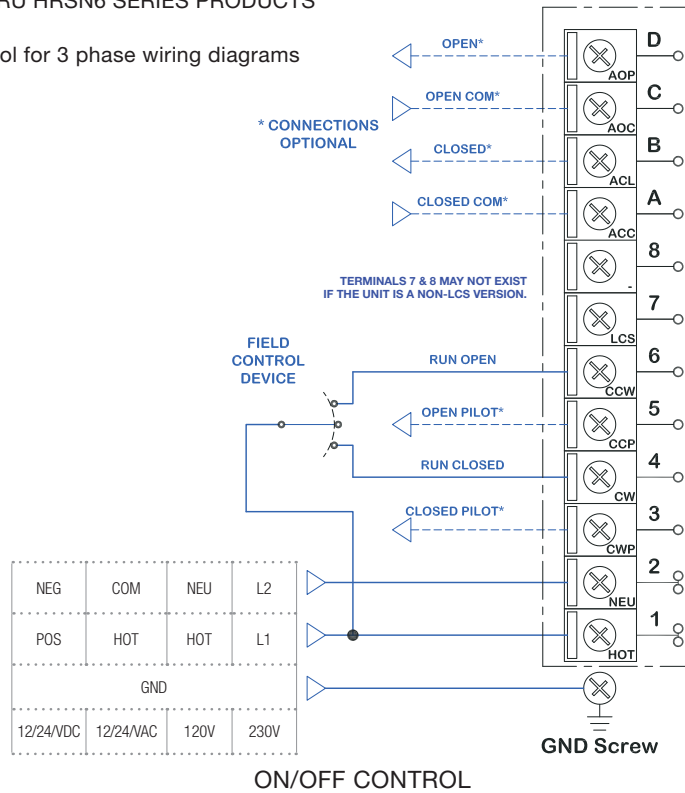


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HRS SERIES WIRING DIAGRAMS

APPLIES TO ALL HRSN2 THRU HRSN6 SERIES PRODUCTS
 12VAC/DC ~ 220/1 PHASE
 Contact Hayward Flow Control for 3 phase wiring diagrams



PCD/PCS Series Pneumatic Actuators

KEY FEATURES

- Heavy Duty Construction
- Epoxy Coated Aluminum Housing
- 3 Rack and Single Pinion Design
- From 172 in. lbs to 15,856 in. lbs
- Double Acting and Spring Return Designs
- Four-Piston Rack and Pinion Design
- Compact, Lightweight
- Position Indicator
- Namur-Style Solenoid Mounting
- Adjustable Travel Stops
- ISO 5211 Mounting Base



PMD4/PMS4 Series Pneumatic Actuators

KEY FEATURES

- Ideal for Corrosive Atmosphere and Environments
- Double Acting and Spring Return Designs
- From 125 in. lbs. to 230 in. lbs.
- Corrosion-Resistant GFPP Housing
- Anodized Aluminum Two-Piston Rack and Stainless Steel Pinion
- Position Indicator
- Namur-Style Solenoid Mounting
- ISO 5211 Mounting Base
- Stainless Steel Fasteners
- Alternative Operating Media for 40 PSI to 120 PSI
- All Units are Marked for Traceability
- 100% Factory Tested



PMD/PMS Series Pneumatic Actuators

KEY FEATURES

- Corrosion-Resistant Thermoplastic Housing
- Double Acting and Spring Return Designs
- From 125 in. lbs. to 230 in. lbs.
- Permanently Lubricated Gear Train
- Two-Piston Rack and Pinion Design
- Namur-Style Solenoid Mounting
- Position Indicator
- Lightweight, ideal for ball valves
- ISO 5211 Mounting Base



ECP Series Electric Actuators

KEY FEATURES

- Ideal for Corrosive Atmosphere and Environments
- Corrosion-Resistant GFPP Housing
- From 221 in. lbs to 796 in. lbs
- Auto-Switching Power Supply
- LED Status Light & Position Indicator
- Anti-Condensation Heater
- Manual Override
- ISO 5211 Mounting Base
- 100% Factory Tested
- CE Mark



EAU Series Electric Actuators

KEY FEATURES

- UL/CSA Listed Motor
- Thermoplastic NEMA 4/4X Enclosure
- 2.5 Second, 90° Cycle Time
- Permanently Lubricated Gear Train
- Actuator Brake
- 90 or 180° Operation
- Unidirectional, Not Reversing
- Terminal Block Connections
- End of Travel Dry Contact Limit Switch
- Thermal Overload Protection
- Lightweight, Compact and Inexpensive

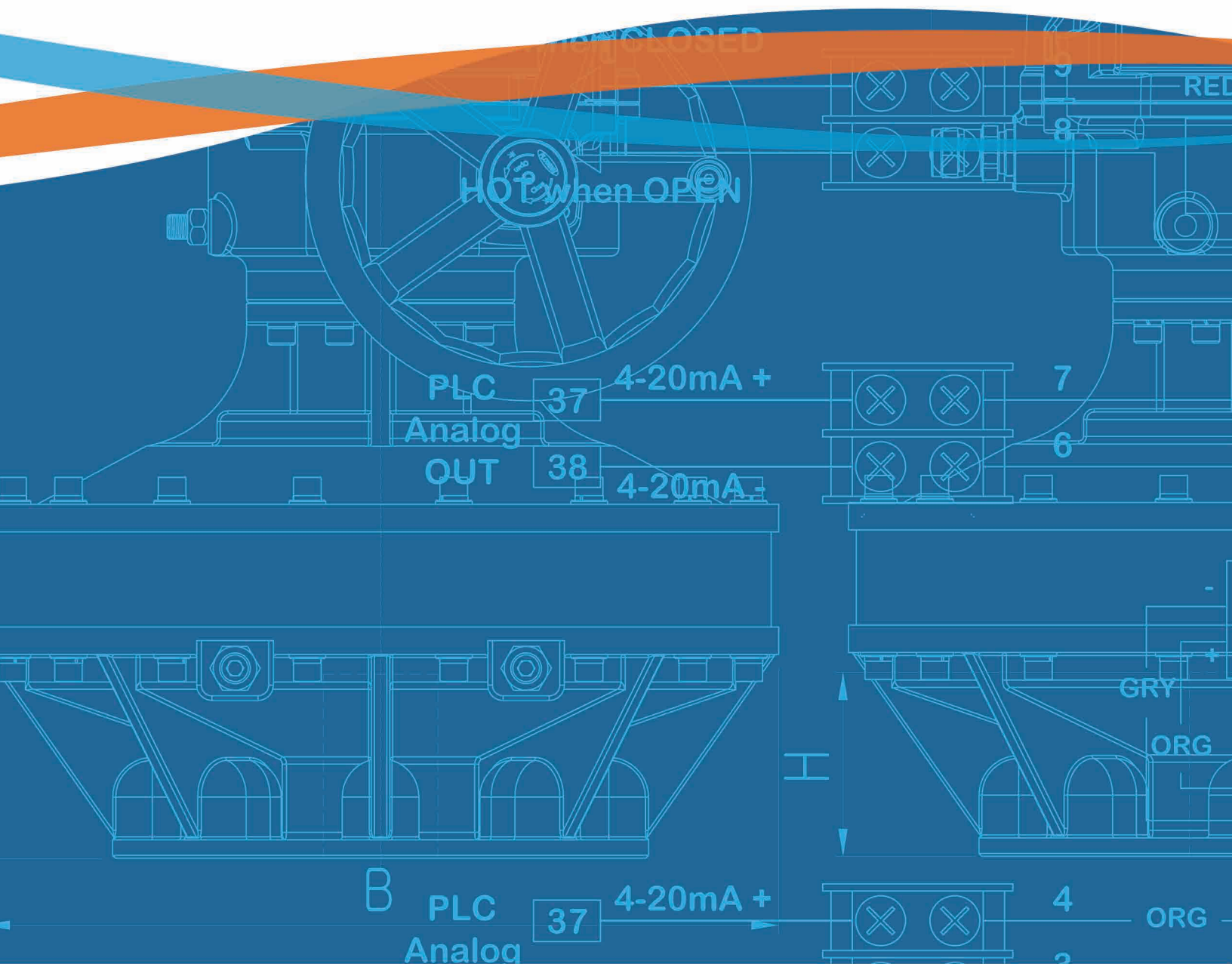


LHB Series Manual Limit Switch

KEY FEATURES

- Available with "Dead-Man" Spring Return Handle or Handlever (LHB-SR)
- Allows for Remote Monitoring of Critical Services
- Retrofits to Existing Valves
- Robust GFPP Body, Cover and Plate
- 304 Stainless Steel Stem and FPM Seals
- Two Adjustable SPDT 10 Amp at 120 VAC Switches (Open/Close Position)
- 1/2" Conduit Port
- Terminal Blocks for Ease of Wiring
- Meets ISO5211, F05, F07 and F10 Patterns
- NEMA 4X
- Switches CSA Listed
- Patent No. 9,010,721 and 9,010,722





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HRS0716

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