



Made in the U.S.A.

## AC Elevator Drives

**BALDOR**  
**MOTORS AND DRIVES**

## Baldor Elevator Drives

Baldor Electric now offers a complete line of Drives suitable for the elevator market. These include AC Inverters, Vector Controls and DC SCR Controls. Over the years, you have been familiar with these products, first as Sweo Controls, then as Baldor-Sweodrive. This control experience has been added to Baldor's 79 years of industrial electric motor design and manufacturing experience. We now offer a Matched Performance™ Drive which includes a motor and control specifically designed for elevator applications.

The current family of Baldor Drives feature a common keypad and operator interface. This keypad has a 32 character alpha-numeric display. Parameters are easily changed with the keypad. A control terminal strip is common between technologies. Once a technician knows how to setup one style of control, the other technologies are the same.

Baldor is equipped to meet your elevator motor and control needs no matter if you are an OEM building new machines or supplying a contractor performing modernization.

## Technology Offerings

Baldor manufactures a wide range of controls for elevator applications. Our capabilities are as follows:

<b>DC SCR</b>	Series 20H	Line Regen digital DC SCR control	5-600 Horsepower
<b>AC Vector</b>	Series 18H	AC Vector Drive	1-500 Horsepower
	Series 22H	Line Regenerative AC Vector Drive Meets IEEE 519 - 1992 for total harmonic distortion	1-500 Horsepower
<b>AC Inverter</b>	Series 15H	AC Inverter Drive	1-500 Horsepower
	Series 21H	Line Regenerative AC Inverter Drive Meets IEEE 519 - 1992 for total harmonic distortion	1-500 Horsepower

## Wide Voltage and Frequency Range

Baldor's controls are designed for operation over a wide voltage and frequency range. They may be used for both domestic and export applications. All controls operate from 50/60 Hz  $\pm 5\%$ . Voltage ranges are:

230 Volt Models	180-264 VAC 60 Hz 180-230 VAC 50 Hz
460 Volt Models	340-528 VAC 60 Hz 340-457 VAC 50 Hz
575 Volt Models	495-600 VAC 60 Hz

## Added Features

All Baldor H Series controls come with built-in software providing programmable S-curve acceleration and deceleration ramps. Torque proving also helps ensure that the motor is producing torque before the holding brake on the elevator is released. Several operating modes are available: Keypad, Serial, Preset Speeds, 2-Wire, 3-Wire, etc. Various analog and opto inputs/outputs are available.

## Elevator Motor and Control Sizing

Sizing the motor and control for an elevator depends on the machine efficiency of the particular elevator. Elevator efficiency varies from 45% for slow moving cars to 70% for higher speed cars. Gearless machines may be as high as 90% efficiency. For a given machine, the required motor and control Hp/kW may be calculated using the following formulas and charts.

### Motor Sizing Calculations

$$\text{Motor HP} = \frac{\text{LBS} \times \text{FPM} \left[ 1 - \left( \frac{\text{OCW}}{100} \right) \right]}{33,000 \times \left( \frac{\% \text{ EFF}}{100} \right)}$$

Where:

- LBS = Car capacity in pounds
- FPM = Car speed in feet per minute
- OCW = Over counter weight in % of car capacity
- EFF = Elevator mechanical efficiency (decimal)

$$\text{Motor kW} = \frac{\text{kg} \times \text{m/s} \times \left[ 1 - \left( \frac{\text{OCW}}{100} \right) \right]}{102 \times \left( \frac{\% \text{ EFF}}{100} \right)}$$

Where:

- kg = Car capacity in Kilograms
- m/s = Car speed in meters per second
- OCW = Over counter weight in % of car capacity
- EFF = Elevator mechanical efficiency (decimal)

### Typical Car Capacity with 40% Over Counter Weighting

Car Speed Feet / Min. <b>Meters / Sec.</b>	100 <b>0.5</b>	150 <b>0.75</b>	200 <b>1.0</b>	250 <b>1.25</b>	300 <b>1.5</b>	350 <b>1.75</b>	400 <b>2.0</b>	500 <b>2.5</b>	700 <b>3.5</b>
Assumed Mechanical Efficiency	55%	58%	60%	62%	63%	64%	64%	67%	70%
<b>Required HP/kW</b>	<b>Car Capacity in Pounds / Kilograms</b>								
7.5/ <b>5.6</b>	2300/ <b>1045</b>	1600/ <b>727</b>	1250/ <b>568</b>	1030/ <b>468</b>	870/ <b>395</b>	750/ <b>341</b>	660/ <b>300</b>	550/ <b>250</b>	410/ <b>186</b>
10/ <b>7.5</b>	3000/ <b>1364</b>	2150/ <b>977</b>	1660/ <b>755</b>	1370/ <b>623</b>	1150/ <b>523</b>	1000/ <b>455</b>	880/ <b>400</b>	740/ <b>336</b>	550/ <b>250</b>
15/ <b>11.2</b>	4500/ <b>2045</b>	3200/ <b>1455</b>	2500/ <b>1136</b>	2060/ <b>936</b>	1730/ <b>786</b>	1500/ <b>682</b>	1310/ <b>595</b>	1100/ <b>500</b>	820/ <b>373</b>
20/ <b>14.9</b>	6050/ <b>2750</b>	4300/ <b>1955</b>	3300/ <b>1500</b>	2750/ <b>1250</b>	2300/ <b>1045</b>	2000/ <b>909</b>	1750/ <b>795</b>	1470/ <b>668</b>	1090/ <b>495</b>
25/ <b>18.6</b>	7500/ <b>3409</b>	5400/ <b>2455</b>	4150/ <b>1886</b>	3400/ <b>1545</b>	2880/ <b>1309</b>	2500/ <b>1136</b>	2190/ <b>995</b>	1840/ <b>836</b>	1370/ <b>623</b>
30/ <b>22.4</b>	9100/ <b>4136</b>	6400/ <b>2909</b>	4950/ <b>2250</b>	4000/ <b>1818</b>	3470/ <b>1577</b>	3000/ <b>1364</b>	2620/ <b>1191</b>	2210/ <b>1005</b>	1640/ <b>745</b>
40/ <b>29.8</b>	12100/ <b>5500</b>	8600/ <b>3909</b>	6650/ <b>3023</b>	5450/ <b>2477</b>	4620/ <b>2100</b>	4000/ <b>1818</b>	3500/ <b>1591</b>	2950/ <b>1341</b>	2180/ <b>991</b>
50/ <b>37.3</b>	15125/ <b>6875</b>	10700/ <b>4864</b>	8300/ <b>3773</b>	6840/ <b>2945</b>	5760/ <b>2618</b>	5000/ <b>2273</b>	4370/ <b>1986</b>	3670/ <b>1668</b>	2730/ <b>1241</b>
60/ <b>44.8</b>	18150/ <b>8250</b>	12870/ <b>5850</b>	9900/ <b>4500</b>	8200/ <b>3727</b>	6940/ <b>3155</b>	6000/ <b>2727</b>	5250/ <b>2386</b>	4430/ <b>2014</b>	3280/ <b>1491</b>
75/ <b>56</b>	22685/ <b>10311</b>	16090/ <b>7314</b>	12375/ <b>5625</b>	10300/ <b>4682</b>	8650/ <b>3932</b>	7500/ <b>3409</b>	6560/ <b>2982</b>	5520/ <b>2509</b>	4100/ <b>1864</b>

## Braking Resistor Sizing

There are three conditions under which power regeneration may occur in an elevator:

1. When a lightly loaded car is being raised
2. When a heavily loaded car is being lowered
3. Whenever the car is being decelerated

These conditions occur about 50% of the time the car is moving.

On standard controls such as the Series 15H Inverter or Series 18H Vector, dynamic braking resistors must be added externally from the control to absorb this excess energy. Line regen controls like the Baldor Series 20H DC SCR, Series 21H Inverter or Series 22H Vector do not require braking resistors, as their excess energy is fed back into the incoming AC line.

Regenerated power requirements are calculated similarly to the motor and control requirements except that the energy losses decrease the amount of energy that needs to be absorbed.

$$\text{Braking resistor watts} = \frac{\text{LBS} \times \text{FPM} \left[ 1 - \left( \frac{\text{OCW}}{100} \right) \right] \times \text{EFF}}{88}$$

Where:

- LBS = Car capacity in pounds
- FPM = Car speed in feet per minute(FPM)
- OCW = Over counter weight in % of car capacity
- EFF = Elevator mechanical efficiency (percent / 100)

$$\text{Braking resistor watts} = \frac{\text{kg} \times \text{m/s} \times \left[ 1 - \left( \frac{\text{OCW}}{100} \right) \right] \times \text{EFF}}{.202}$$

Where:

- kg = Car capacity in kilograms
- m/s = Car speed in meters per second
- OCW = Over counter weight in % of car capacity
- EFF = Elevator mechanical efficiency (decimal)

Select a braking (regen) resistor assembly with a wattage rating 25-50% greater than the calculated power, to allow for operating efficiencies better than the worst case conditions assumed for motor selection. This will result in a conservative resistor selection for high ratio worm gear drives having substantially lower back driving efficiency than forward driving efficiency.

VOLTS	HP	TO FIT SERIES #	TOTAL OHMS	CONTINUOUS RATED WATTS				
				600	1200	2400	4800	6400
230	1-3	15H, 18H	20	RGA620	RGA1220	RGA2420	RGA4820	
	5	15H, 18H	14	RGA614	RGA1214	RGA2414	RGA4814	
	7.5-20	15H, 18H	6	RGA606	RGA1206	RGA2406	RGA4806	
	25-30	15H, 18H	4	RGA604	RGA1204	RGA2404	RGA4804	
	40	15H, 18H	3		RGA1203	RGA2403	RGA4803	
	50	15H, 18H	2		RGA1202	RGA2402	RGA4802	RGA6402
460	1-5	15H, 18H	56	RGA656	RGA1256	RGA2456	RGA4856	
	7.5-10	15H, 18H	24	RGA624	RGA1224	RGA2424	RGA4824	
	15-25	15H, 18H	20	RGA620	RGA1220	RGA2420	RGA4820	
	30-60	15H, 18H	10	RGA610	RGA1210	RGA2410	RGA4810	

# Series 15H Inverters

## DESIGN SPECIFICATIONS

- 16/32 BIT Microprocessor controlled PWM output
- Free run or ramp stop
- Controlled reversing
- Selectable preset speeds
- Jog speed
- Dynamic braking - internal transistor supplied for use with external resistors(15H)
- DC Injection Braking
- Bus present and fault trip LED
- Analog meter outputs

## OPERATOR KEYPAD

- Digital Speed Control
- Forward/Reverse Command
- Motor RUN and JOG
- Local/Remote Key
- Stop Command
- Parameter Setting and Display
- Display 32 Character alpha-numeric
- Membrane keys with tactile feel
- Remote mount to 50 feet from control
- NEMA 4X enclosure

## ENVIRONMENTAL AND OPERATING CONDITIONS

- Input voltage - See below
- Input frequency - 50 or 60Hz  $\pm 5\%$
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet max without derate

## PROTECTIVE FEATURES

- Selectable automatic restart at momentary power loss with free setting of maximum number of trips & time between trip & reset
- DC bus charge indicator
- Adjustable time base overload
- Cause of last trips retained in memory
- Digital display for fault conditions
- Pulse to pulse current limiting

<b>Output Ratings</b>	Overload Capacity	150% For 60 Seconds, 250% Minimum For 3 Seconds		
	Frequency	0-60 HZ Optional 0-400 HZ		
	Voltage	0-Maximum Input Voltage (RMS)		
<b>Input Ratings</b>	Frequency	50 or 60 HZ $\pm 5\%$		
	Voltage	180-264 VAC 60 Hz/180-230 VAC 50 Hz	340-528 VAC 60Hz/340-460 VAC 50 Hz	495-660 VAC 60 Hz
	Phase	Three Phase		
	Impedance	3% Minimum Required		
<b>Control Spec</b>	Control Method	Sinewave Carrier Input, PWM Output		
	V/Hz Ratio	Linear To Squared Reduced, Base Frequency, Output Voltage, Minimum Frequency Limit, Maximum Frequency Limit		
	Torque Boost	0-35% of Input Voltage; Automatic with Manual Override		
	Brake Torque	20% Standard		
	Skip Frequency	Three Zones 0-Max Frequency		
	Frequency Setting	0-5 VDC, 0-10 VDC, 4-20mA, Digital Via Optional RS232/422/485		
	Accel/Decel	Separate Accel/Decel Rates, 0-3600 Sec to Maximum Frequency		
<b>Protective Functions</b>	Inverter Trip	Over Voltage, Over Current, Under Voltage, External Thermal, Heatsink Thermal, Motor Overload		
	Stall Prevention	Over Voltage Suppression, Overcurrent Suppression		
	External Output	Open Collector Transistor Output And LED Indicator For Trip		
	Short Circuit	Phase To Phase, Phase To Ground		
<b>LED Display</b>	Running	Output Frequency, Set Frequency, Output Current(%), Voltage (Selectable)		
	Setting	Parameter Values For Setup And Review		
	Trip	Separate Message For Each Trip, Cause Of Last 31Trips Retained In Memory		
<b>Ambient Conditions</b>	Temperature	-10 + 40°C For NEMA 1 (UL Listing)		
	Cooling	Forced Air Included When Required		

Standard configuration includes a NEMA 1 enclosure with keypad and dynamic braking (DB) transistor. Order braking resistors separately. B size controls include small internal braking resistor capable of 800 watts of power dissipation.

The following ratings are Baldor Series 15H Inverters operated on an 8 KHz carrier frequency. Contact Baldor for Series 15H Inverters with higher output currents than shown below.

## Series 15H Inverters

MAX OUTPUT		230 VAC INPUT OUTPUT CURRENT		CATALOG NUMBER	SIZE
HP	kW	CONT.	PEAK		
5	3.7	17	44	ID15H207L-E	B
7.5	5.6	24	61	ID15H210L-ER	C
10	7.5	32	92	ID15H215L-ER	C
15	11.2	48	122	ID15H220L-ER	C
20	14.9	60	170	ID15H225L-ER	C
25	18.6	75	190	ID15H230L-ER	C
30	22.4	90	240	ID15H240L-MR	D
40	29.8	104	260	ID15H250L-MR	D
<b>460 VAC INPUT</b>					
5	3.7	8.6	22	ID15H407L-E	B
7.5	5.6	12	30	ID15H410L-ER	C
10	7.5	16	46	ID15H415L-ER	C
15	11.2	24	61	ID15H420L-ER	C
20	14.9	30	90	ID15H425L-ER	C
25	18.6	37	95	ID15H430L-ER	C
30	22.4	45	122	ID15H440L-ER	C
40	29.8	60	170	ID15H450L-ER	D
50	37.3	75	190	ID15H460L-ER	D
60	44.8	90	240	ID15H475L-EO	E
				DB Transistor Assy.	RTA4-4
<b>575 VAC INPUT</b>					
10	7.5	11	34	ID15H515L-ER	C
15	11.2	17	51	ID15H520L-ER	C
20	14.9	22	55	ID15H525L-ER	C
25	18.6	27	81	ID15H530L-ER	C
30	22.4	32	80	ID15H540L-ER	C
40	29.8	41	103	ID15H550L-ER	D

# Series 18H & 22H Vector Drives

## DESIGN SPECIFICATIONS

- IGBT power devices for quiet operation
- Digital speed control or torque control
- Programmable carrier frequency to 16KHZ
- 16/32 BIT Microprocessor controlled PWM output
- Output frequency 0-500 Hz
- Full rated torque down to zero speed
- Automatic tuning to motor with manual override
- Motor shaft orient to encoder marker or external switch closure
- Process follow  $\pm 5VDC$  0-5 VDC,  $\pm 10VDC$  0-10 VDC, 4-20mA, digital via keypad or optional RS232/422/485
- NEMA 4 membrane keypad for setup, auto tuning and digital display
- Peak overload current capacity of 250% minimum
- Programmable linear or S-curve acceleration to 3600 seconds.
- Free run, programmable linear or S-curve deceleration

- Controlled reversing
- 15 preset speeds
- Dynamic braking - transistor supplied for use with external resistors (18H)
- Analog meter outputs
- Buffered encoder output
- 9 opto-isolated inputs
- 2 assignable analog outputs
- 4 assignable logic outputs
- 2 assignable analog inputs
- NEMA 1 Enclosure standard thru 150 HP size "E"
- Through wall and panel mount - size "E" and "F"

## OPERATOR KEYPAD

- Forward/Reverse Command
- Jog speed
- Display 32 character alpha-numeric
- Local/Remote key
- Remote mount to 50 feet
- NEMA 4 enclosure
- Membrane keys with tactile feel.
- Reverse command
- Stop command

## MOTOR FEEDBACK

- Feedback Type: Incremental Encoder Coupled 1:1 to Motor Shaft
- Pulses/Rev: 60-65535 Programmable 1024 Standard (with quadrature)
- Voltage Output: 2 Channel in Quadrature, 5VDC, Differential
- Marker Pulse: Required for Orientation
- Power Output:  $\pm 5VDC$ , 300 mA Max
- Max Frequency: 1 MHZ
- Positioning: Buffered Encoder Pulse Train Output for Position Loop Controller

## ENVIRONMENTAL AND OPERATING CONDITIONS

- Input voltage - See Below
- Input frequency - 50 or 60HZ  $\pm 5\%$
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non condensing
- Altitude - 3300 feet max without derate

## PROTECTIVE FEATURES

- Motor overspeed
- Adjustable current limit
- Isolated control circuitry
- Digital display for fault conditions
- Selectable automatic restart at momentary power loss
- Manual restart
- Over/Under Voltage
- Line to line and line to ground faults
- Over-temperature
- Motor overload

## OPTIONS:

Optional Expansion Boards are available including RS-232, RS-422, RS-485, Resolver Interface, etc.

<b>Output Ratings</b>	Frequency	0-500 HZ		
	Voltage	0-Maximum Input Voltage (RMS)		
<b>Input Ratings</b>	Frequency	50 or 60 HZ $\pm 5\%$		
	Voltage	180-264 VAC 60 Hz/180-230 VAC 50 Hz	340-528 VAC 60 Hz/340-460 VAC 50 Hz	495-660 VAC 60 Hz
	Phase	Three Phase		
<b>Control Spec</b>	Impedance	3% Minimum Required		
	Control Method	Microprocessor Controlled PWM Output		
	Speed Setting	$\pm 5VDC$ , 0-5 VDC $\pm 10VDC$ , 0-10 VDC, 4-20 mA; Digital Via Keypad, Optional RS232/422/485		
	Accel/Decel	0-3600 Seconds or S-curve		
	Motor Matching	Automatic Tuning To Motor With Manual Override (with uncoupled load)		
<b>Motor Feedback</b>	Feedback Type	Incremental Encoder Coupled To Motor Shaft		
	Pulses/Rev	60-65,535 Selectable, 1024 Standard (with quadrature)		
	Voltage Output	2 Channel in Quadrature, 5 VDC, Differential		
	Marker Pulse	Required For Position Orientation		
	Power Input	5 VDC, 300 mA Maximum		
	Max. Frequency	1 MHZ		
	Positioning	Optional Buffered Encoder Pulse Train Output For Position Loop Controller		
<b>Protective Functions</b>	Fault Trip	Missing Control Power, Over Current, Over Voltage, Under Voltage, Motor Over Speed		
	External Output	Over Temperature (Motor Or Control), Output Shorted Or Grounded, Motor Overload		
		LED Indicator For Trip Conditions, 4 Assignable Logic Outputs 30 VDC Max, 2 Assignable Analog Outputs 0-5 VDC		
	Short Circuit	Phase To Phase, Phase To Ground		
<b>LED Display</b>	Running	Output Frequency, Motor RPM; Output Current, Voltage (Selectable)		
	Setting	Parameter Values For Setup And Review		
	Trip	Separate Message For Each Trip, Last 31Trips Retained In Memory		
<b>Ambient Conditions</b>	Temperature	0-40°C For UL Listing		
	Cooling	Forced Air Included When Required		

## Baldor Vector Drives

Baldor offers a choice between a standard Series 18H Vector Drive which requires external braking resistors or our Series 22H Line Regen which puts absorbed power back into the AC line.

The Series 22H also complies with IEEE 519 (1992) for total harmonic distortion.

### Series 18H Vector Drives

230 VAC INPUT					
MAX OUTPUT		OUTPUT CURRENT		CATALOG NUMBER	SIZE
HP	KW	CONT.	PEAK		
5	3.7	17	44	ZD18H207L-E	B
7.5	5.6	24	61	ZD18H210L-ER	C
10	7.5	32	92	ZD18H215L-ER	C
15	11.2	48	122	ZD18H220L-ER	C
20	14.9	60	170	ZD18H225L-ER	C
25	18.6	75	190	ZD18H230L-ER	C
30	22.4	90	240	ZD18H240L-MR	D
40	29.8	104	260	ZD18H250L-MR	D
460 VAC INPUT					
5	3.7	8.6	22	ZD18H407L-E	B
7.5	5.6	12	30	ZD18H410L-ER	C
10	7.5	16	46	ZD18H415L-ER	C
15	11.2	24	61	ZD18H420L-ER	C
20	14.9	30	90	ZD18H425L-ER	C
25	18.6	37	95	ZD18H430L-ER	C
30	22.4	45	122	ZD18H440L-ER	C
40	29.8	60	170	ZD18H150L-ER	D
50	37.3	75	190	ZD18H460L-ER	D
60	44.8	90	240	ZD18H475L-EO	E
			DB Transistor Assy.	RTA4-4	
575 VAC INPUT					
10	7.5	11	34	ZD18H515L-ER	C
15	11.2	17	51	ZD18H520L-ER	C
20	14.9	22	55	ZD18H525L-ER	C
25	18.6	27	81	ZD18H530L-ER	C
30	22.4	32	80	ZD18H540L-ER	C
40	29.8	41	103	ZD18H550L-ER	D

### Series 22H Line Regen Vector Drives

230 VAC INPUT					
MAX OUTPUT		OUTPUT CURRENT		CATALOG NUMBER	SIZE
HP	KW	CONT.	PEAK		
10	7.5	32	92	ZD22H215L-EL	C+
15	11.2	48	122	ZD22H220L-EL	C+
20	14.9	60	170	ZD22H225L-EL	D+
25	18.6	75	190	ZD22H230L-EL	D+
30	22.4	90	240	ZD22H240L-EL	D+
460 VAC INPUT					
10	7.5	16	40	ZD22H415L-EL	C+
15	11.2	24	61	ZD22H420L-EL	C+
20	14.9	30	90	ZD22H425L-EL	D+
25	18.6	37	95	ZD22H430L-EL	D+
30	22.4	45	122	ZD22H440L-EL	D+
40	29.8	60	170	ZD22H450L-EL	D+
50	37.3	75	190	Contact Baldor for Ordering Details	D
60	44.8	90	240		E
75	56	110	280		F
100	75	140	380		F

## Expansion Boards

Expansion boards may be installed in Series 15H and 21H Inverters, Series 18H and 22H Vector Drives and Series 19H and 20H SCR Controls. These boards plug into an expansion board slot inside the control. When using one expansion board, either a Group 1 or 2 board will connect by a connector on the side of the board. When using more than one expansion board, the board from Group 1 connects to the control. A Group 2 board connects to a stacking connector on top of the Group 1 board. When two expansion boards are used, one must be from Group 1 and one from Group 2. Contact Baldor for further details on these Expansion Boards.

### Group 1 Boards

Isolated Input Board – 10-30 VAC or VDC  
EXB003A02

Isolated Input Board – 90-130 VAC  
EXB003A03

Master Pulse Reference/Isolated Pulse Follower  
EXB005A01

DC Tachometer Interface  
EXB006A01

Isolated Encoder Feedback  
EXB008A01

Resolver to Digital Interface  
EXB009A01

### Group 2 Boards

RS232 Serial Communication  
EXB001A01

RS422/RS485 High Speed Serial Communication  
EXB002A01

Four Output Relays/3-15 PSI Pneumatic Interface  
EXB004A01

High Resolution Analog Board  
EXB007A02

Two analog output/three relay outputs  
EXB010A01

RS232/RS485 High Speed Serial Communication  
EXB012A01

DeviceNet Serial Communication  
EXB013A01

## Serial Communication

Baldor continues to offer the ability to interface our controls with existing equipment via serial communication. Common protocols such as DeviceNet, Modbus, Modbus Plus and Profibus DP are currently supported and other protocols are being added. Contact your local Baldor District Office for further details.



## AC Vector Drive Motors™

Baldor offers a line of Elevator-Duty AC Vector Drive Motors available for delivery from stock. These motors are suitable for new installations and modernization jobs where an older less efficient motor should be replaced. All integral horsepower three phase Baldor Electric motors feature ISR (Inverter Spike Resistant™) magnet wire that is up to 100 times more resistant to  $D_v D_t$  spikes than conventional Class H wire.

Advanced low-loss steel laminations and high-pressure die cast rotors help achieve some of the industry's highest efficiency motors. Noise is also a consideration, and these elevator motors are quieter than standard industrial motors.

Baldor's line of Elevator-Duty Vector Drive Motors now feature a new through-shaft encoder eliminating the coupling from the encoder to the motor. The new encoder continues to be electrically isolated from the motor shaft. Encoders now have 4096 PPR (with quadrature) instead of 1024 PPR allowing for better resolution at leveling speeds.

In addition to the base-mounted motors shown here, flange mounted motors can be built for mounting to a Titan machine. Special voltages, frequencies and base speeds are available. If your elevator job requires motors other than what we stock, count on Baldor's short lead times for quick delivery on custom designs.

230/460VAC 60 HZ

**Open Drip Proof - Cast Iron Frame - 60 Minute Duty - Available from Stock**

HP	kW	RPM	CATALOG NUMBER	NEMA FRAME	230/460VAC AMPS
10	7.5	1160	ZDME2511T-CI	256T	35.6/17.8
15	11.2	1160	ZDME2524T-CI	286T	42/21
20	14.9	1170	ZDME2528T-CI	286T	55/27.5
25	18.6	1180	ZDME2532T-CI	324T	64/32
30	22.4	1180	ZDME2536T-CI	326T	78/39

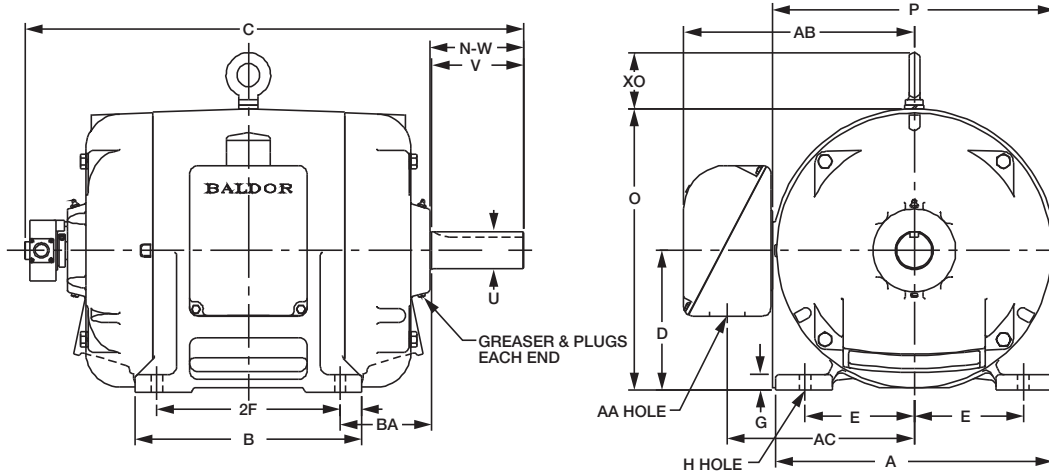
Features include:

- Class H Insulation - 50°C Rise
- Regreasable Ball Bearings
- Overload Sensing Thermostat
- 320% Minimum Breakdown Torque
- Cast iron enclosure and endplates

- Open Drip Proof Enclosure
- 0.125" Shaft Endplay
- Thru-shaft Electrically Isolated Encoder - 4096 PPR
- Shaded area indicates cast iron frames - others are steel band.

Note: 400-415 volt 50 hz IEC metric frame motors are available as custom motors.

## AC Vector Drive Motor Dimensions

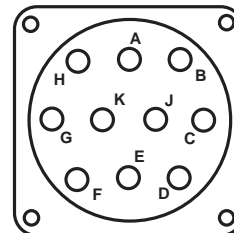


Catalog No.	HP	NEMA Frame	Foot Mounting					Shaft Extension				
			BA	E	2F	G	H	N-W	V	U	Key-Sq	Key-Long
ZDME2511T-CI	10	256T	4.25	5.00	10.0	0.56	0.53	4.22	4.00	1.625	0.375	2.88
ZDME2524T-CI	15	286T	4.75	5.50	11.0	0.75	0.53	4.81	4.63	1.875	0.500	3.25
ZDME2528T-CI	20	286T	4.75	5.50	11.0	0.75	0.53	4.81	4.63	1.875	0.500	3.25
ZDME2532T-CI	25	324T	5.25	6.25	10.5	0.88	0.66	5.38	5.25	2.125	0.500	3.88
ZDME2536T-CI	30	326T	5.25	6.25	12.0	0.88	0.66	5.38	5.25	2.125	0.500	3.88

Catalog No.	HP	NEMA Frame	Foot Mounting					Shaft Extension				
			A	B	C	D	O	P	AA	AB	AC	Volume In <sup>2</sup>
ZDME2511T-CI	10	256T	12.63	11.5	24.70	6.25	12.54	12.87	1.38	9.74	8.25	69
ZDME2524T-CI	15	286T	13.88	13.0	27.35	7.00	14.07	14.14	2.00	12.15	9.66	140
ZDME2528T-CI	20	286T	13.88	13.0	27.35	7.00	14.07	14.14	2.00	12.15	9.66	140
ZDME2532T-CI	25	324T	15.88	14.5	28.54	8.00	16.1	16.21	2.00	13.19	10.7	140
ZDME2536T-CI	30	326T	15.88	14.5	30.04	8.00	16.1	16.21	2.00	13.19	10.7	140

## Encoder Receptacle Connections

PIN	FUNCTION
A	A
B	B
C	Z(C)
D	VDC (5-15 VDC Standard)
E	Shield
F	Circuit Ground
G	Case Ground
H	A Complement ( $\bar{A}$ )
J	B Complement ( $\bar{B}$ )
K	Z (C) Complement ( $\bar{Z}$ or $\bar{C}$ )



Standard Receptacle MS3112E12-10P (Baldor Part # WD1434)  
Standard Plug MS3116J12-10S (Baldor Part # WD1435)

Both receptacle and plug are provided with the motor. Note that together these connections are weatherproof.

## ISR Inverter Spike Resistant® Wire

All 200, 230, 460, 575 and 220/380/415 - 50 hertz three phase Baldor AC motors from 1HP to 800 HP are wound with ISR Inverter Spike Resistant® magnet wire. This includes the following Baldor motor families.

- Super-E® Premium Efficient
- Chemical Processing
- AC Induction Servo Motors
- Explosion-Proof
- Standard-E™ (Complies with EPCAct)
- Washdown Duty®
- Vector Drive®
- Inverter Drive®
- Pump
- Dirty Duty®
- Elevator Duty

Baldor motors wound with ISR® wire are up to 100 times more resistant to transient spikes, high frequencies, and short rise time pulses produced by inverters and vector drives. The result is a better motor with longer life, reduced downtime and better overall value.

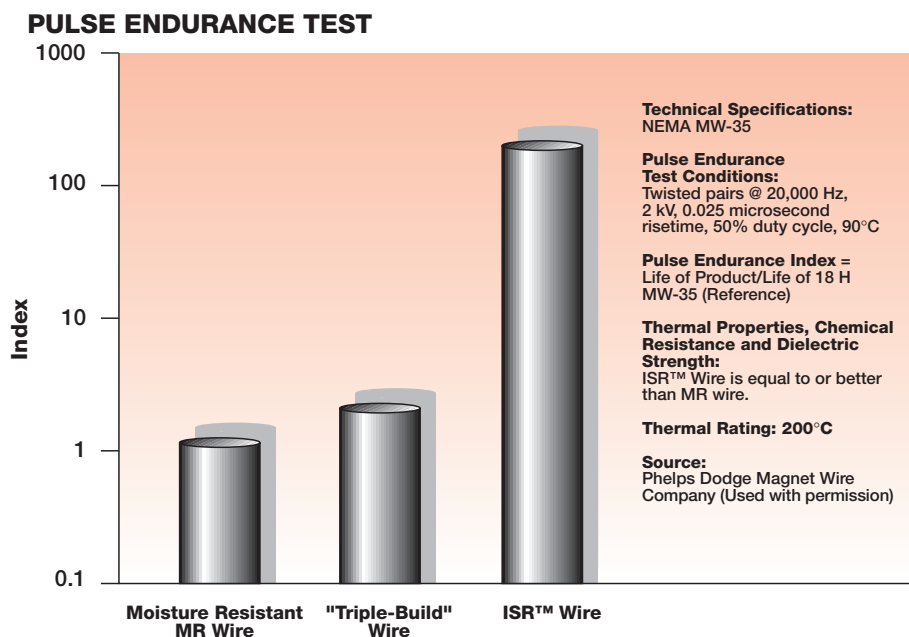
Baldor is the first motor manufacturer to use this new wire in such a wide range of motors, just like we were the first to use type-MR moisture resistant wire across our entire line over 10 years ago.

The use of variable speed controls with AC induction motors is growing rapidly. Even if the motor you're buying today is not used with a variable speed control, there is a chance that a control may be added later. Why not plan for the future and buy the best motor that you can today - a Baldor motor wound with ISR Inverter Spike Resistant® wire.

Baldor Inverter Drive® and Vector Drive® motors are designed to be used as defined by NEMA MG-1-1993, Part 31.

## ISR Inverter Spike Resistant® test results:

Up to 100 times more resistant to transient spikes, high frequencies, and short rise-time pulses produced by inverters.



## Other quality products from Baldor to serve your Motor and Drive needs.



### DC Tachometer XPS

- Stock DC Tachometers
- 50, 60, and 100 Volts, DC per 1000 RPM Output
- PY or Metric Flange Mounting
- Lowest Ripple Signal
- Cast Iron Housing
- Customized Tachs Available



### PTG1024LD

- Encoder-based tachometer
- Mounts to standard PY-type adapters
- Standard 1024 PPR line count outputs-others available



### Series 20H Digital DC SCR Controls

- 10-500 Hp
- 130, 230 and 460 VAC input voltage available
- 250% minimum peak current available
- Standard encoder feedback, DC tach feedback available with expansion board
- Standard line and armature fuses
- Keypad setup



### DC Tachometer XP

- Stock DC Tachometers
- 50 and 100 Volts, DC per 1000 RPM Output
- Foot or PY Flange Mounting
- Low Ripple Signal
- Customized Tachs Available



### Analog DC SCR Elevator Drive

- 10-300 HP, 7.4-224 kW
- 130, 230, and 460 VAC input voltages available
- 250% minimum peak current available
- DC tachometer feedback
- Optional fuses
- Fuseless impedance - protected version available

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