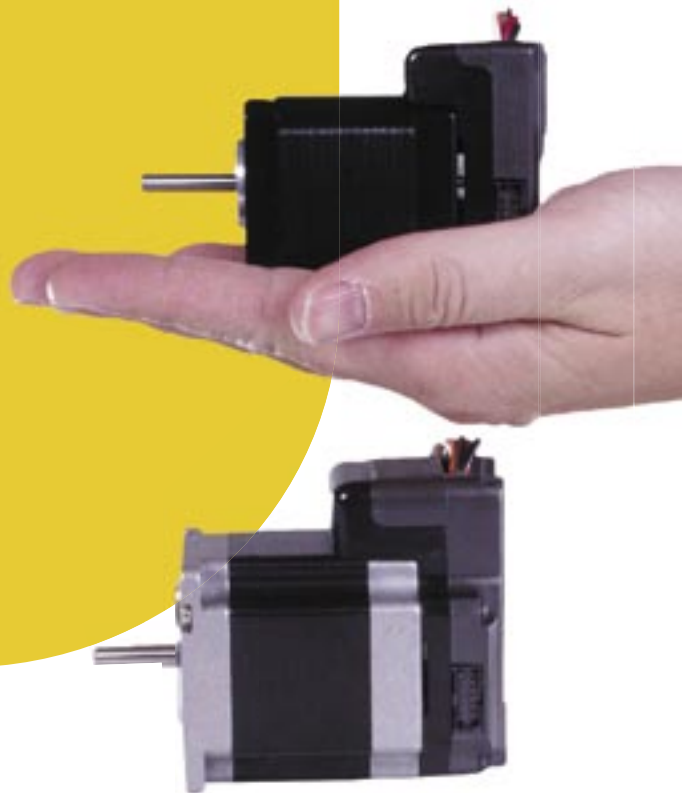
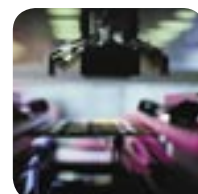


Integrated Stepper Motor and Microstepping Drive

- › **Cost effective solution**
- › **+12 to +48 VDC or +24 to +75 VDC Input Voltage**
- › **Available in Three Motor Lengths and Three Frame Sizes**
- › **Torque sizes 22 to 749 N-cm (32 to 1061 oz-in)**
- › **Windows Interface for Quick and Easy Parameter Setup**



Baldor's DSM Series Stepper Motors integrate a high torque stepper motor and microstepping drive. This is ideally suited for machine designers who want the simplicity of an integrated solution. The DSM motors help to reduce the wiring in the system and the potential for problems due to electrical noise.

DSM is available in three frame sizes, NEMA 17, 23 and 34, and in 3 stack lengths. This gives a choice of motor torque values from 22.6 N-cm (32 oz-in) for the smallest motor to 749 N-cm (1061 oz-in) for the largest motor.

High Torque Microstepping Drive and Motor

A 1.8° high torque motor is combined with a microstepping drive, with up to 14 resolution settings from 400 steps to 51200 steps per motor revolution. The resolution is set using a simple Windows front end and Parameter Setup Cable. Additionally, the front end allows the motor run/hold current and motor direction to be changed. These settings can be changed on the fly via an integrated SPI (Serial Programming Interface) port and are stored in non-volatile memory.

Operating voltages for DSM range from +12VDC to +48VDC for the NEMA 17 and 23 frame sizes, and +24VDC to 75VDC for the NEMA 23 and 34 frame sizes.

Versatile and Compact

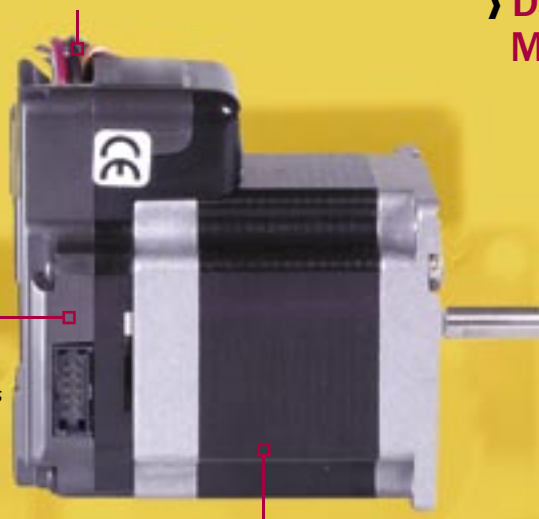
The versatile, compact DSM motors are available in multiple configurations to fit various system needs. These options include: a single shaft standalone device; dual shaft rotary motor with optical encoder or control knob. Interface connections are accomplished using a plug in connector, or 30 cm (12") flying leads.

The DSM motor is a compact, powerful and inexpensive solution that will reduce system cost, design and assembly time for a large range of stepping motor applications. It is ideally suited for use with Baldor's motion controllers, especially the versatile NextMove ESB motion controller.

Flying leads, 2 part connector or spring clips*

› DSM - Integrated Stepper Motor and MicroStepping Drive

Integrated microstepping drive electronics improves reliability and reduces system integration costs



High Torque Stepper Motor for high performance applications

DSM motors integrate a high torque stepper motor with a microstepping drive to provide a compact stepper solution.

Integrating the stepper drive electronics with the motor reduces machine wiring and improves reliability.

* Dependent on model

Actual size shown

Choice of connectors



The flying lead option brings out all stepper control signals and power to 300 mm (12 in) flying leads.



The P-connector option brings all connections out to spring clips. Wires connect directly to motor. Not available on 34-frame size motor.



The C-connector option brings all connections out to a two part pluggable connector. Crimp connectors are used for the wires. Not available on 34-frame size motor.

Motor Parameters and Parameter Setup Cable

All parameters are set using the Configuration Utility which is included with the Parameter Setup Cable. Parameters can be changed on-the-fly and include the hold current, run current and microstep resolution.

The optional parameter setup cable is recommended with the first order. This plugs directly into the PC parallel port.



CBL054-501: Parameter Setup Cable

In order to use the Parameter Setup Cable with the 'C' and 'P' connector versions of the DSM motor, an adapter cable is required. Order number **CBL054-502**. Additionally, the development cable **CBL054-503** gives access to the drive control signals during parameterization.

Factory Mounted Encoder

DSM motors are available with a factory-mounted optical differential encoder. Available line counts are 500 and 1000 lines. The 500 line encoder includes an index mark.

Control Knob

The DSM motor is available with a factory-mounted knob for manual shaft positioning.

Compatible Motion Control Range

Baldor offers a complete range of panel mount and PCI based motion controllers compatible with the DSM range of motors. The NextMove ESB motion controller is ideally suited for low cost, high performance applications. Programmable in Baldor's multitasking Mint®, NextMove ESB can coordinate up to 7 axes, 4 stepper axes and 3 servo axes.

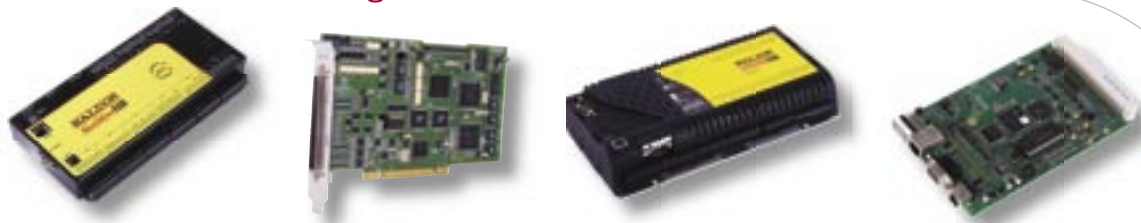
The NextMove PCI-2 controller is a PC based card supporting up to 12 axes of servo or stepper control. The NextMove ES is a EuroCard format rack mounted card that supports 2 servo and 4 stepper axes.

Baldor's motion controllers offer a complete solution from simple indexing style moves to more complex moves such as cam profiles and flying shears.

Mint programming provides the capability to develop simple and complex applications with ease. Mint's Basic like structure will be familiar to many engineers.

DSM is available with the option of a differential encoder input. This can be used with the motion controllers encoder inputs for position verification, where positioning is critical.

Compatible Motion Control Range



Motor Specifications



DSM-17



DSM-23



DSM-34

Stack Size »	1	2	3	1	2	3	1	2	3
Electrical Specification									
Input Voltage	+12 to 48VDC			+12 to 48VDC or +24 to +75VDC			+24 to +75VDC		
Isolated Inputs	Step Clock, Direction and Enable (Sourcing and Sinking 'C' Connector only)								
Input Voltage Range	+5V to +24 VDC Isolated								
Step Frequency (max)	2MHz								
Steps per revolution	400, 800, 1000, 1600, 2000, 3200, 5000, 6400, 10000, 12800, 25000, 25600, 50000, 51200								
Motor Specifications									
Holding Torque N-cm (oz-in)	22.6 (32)	42.4 (60.0)	52.9 (74.9)	64 (90)	102 (144)	169 (239)	269 (381)	406 (575)	749 (1061)
Detent Torque N-cm (oz-in)	1.17 (0.82)	2.08 (1.47)	2.45 (3.47)	2.7 (3.9)	3.92 (5.6)	6.86 (9.7)	7.7 (10.9)	10.0 (14.16)	14.0 (19.83)
Rotor Inertia kg-cm ² (oz-in-sec ²)	0.038 (0.00053)	0.057 (0.00080)	0.082 (0.00116)	0.18 (0.00025)	0.26 (0.00037)	0.46 (0.0065)	1.0 (0.014161)	1.6 (0.02266)	3.4 (0.04815)
Weight gm (oz)	277.8 (9.8)	297.7 (10.5)	428.1 (15.1)	569.8 (20.1)	691.7 (24.4)	1091.5 (38.5)	1450 (51.1)	2050 (72.3)	3650 (128.7)
Power Supply Current (max)	2A	2A	2A	2A	2A	2A	4A	4A	4A

Torque Speed Curves

Stack Size 1

Stack Size 2

Stack Size 3

Stack Size 1

Stack Size 2

Stack Size 3

Stack Size 1

Stack Size 2

Stack Size 3

Axial and Radial Load



DSM-17 - 6.8kg (15lbs) Radial, 3.6kg (8lbs) Axial
DSM-23 - 11.3kg (25lbs) Radial, 6.8kg (15lbs) Axial
DSM-34 - 27.2kg (60lbs) Radial, 13.6kg (30lbs) Axial

Any axial fitted can potentially move the shaft. If the unit has an encoder we recommend that the axial load to be ZERO.

Note that the radial load is located 1.27cm (0.5 in) from the mounting face

› Mechanical Specifications - Dimensions in mm (inches)



Stack Size »	DSM-17			DSM-23			DSM-34		
	1	2	3	1	2	3	1	2	3
L	55.9 (2.20)	61.7 (2.43)	69.8 (2.75)	66.8 (2.63)	76.2 (3.00)	98.0 (3.86)	96.8 (3.81)	116.8 (4.60)	156.7 (6.17)
L2 - Control Knob	74.2 (2.92)	80.0 (3.15)	88.1 (3.47)	85.1 (3.35)	94.0 (3.70)	116.1 (4.57)	126.2 (4.97)	146.3 (5.76)	186.4 (7.34)
L2 - Encoder	74.2 (2.92)	80.0 (3.15)	88.1 (3.47)	85.1 (3.35)	94.0 (3.70)	116.1 (4.57)	96.8 (3.81)	116.8 (4.60)	156.7 (6.17)
H1	42.2 (1.66)			56.4 (2.22)			86.0 (3.39)		
H2	54.8 (2.16)			73.8 (2.91)			93.6 (3.69)		
W	42.2 (1.66)			56.4 (2.22)			86.0 (3.39)		

› Ordering Information

DSM 34 F - 375 - D5

NEMA Frame Size

17 = NEMA 17
23 = NEMA 23
34 = NEMA 34

Connector Type

F = Flying Lead
C = Connector ①
P = Connector ②

Stack Size

1, 2, 3

Encoder Line Count

5 = 500
10 = 1000

Option

Blank = no option
M = Manual Control Knob
D = Differential Optical Encoder

DC Supply Voltage Range

75 = 24V - 75VDC ②
48 = 12V - 48VDC ③

Notes:

① - not available on 34 frame size
② - only available on 23 & 34 frame sizes
③ - only available on 17 and 23 frame sizes

Example: **DSM23F-148-D10**

Specifies a 23 frame single stack 48V motor, with flying lead and 1000 line encoder.

› Accessories

Catalog #	Description
CBL054-501	Parameter setup cable
CBL054-502	Cable adapter for C connector version
CBL054-503	Prototype development cable for C connector version
NSB003-501	NextMove ESB with open collector stepper outputs for DSM. RS232 Communications
NSB003-502	NextMove ESB with open collector stepper outputs for DSM. RS485 Communications

For C connector motors, it is recommended that all cables are purchased during development and product evaluation