



### KEY FEATURES

- Virtually shock-free operation.
- Low noise, vibration and maintenance.
- Built-in optical encoder.
- Custom software.
- Programmable digital torque settings.
- Current controlled Servo motor.
- Automatic recognition.
- Preset data memory (available in FED only).
- Reliable regardless of joint characteristic.
- Suitable for clean room uses (Class 100).

### PED AND FED CONTROLLERS

They are comprised of a 32 bit risc-processor. Both controllers adopt the same fastening process control technology. An optical encoder inside each screwdriver monitors the rotation of the driver motor from the initial rotation until the completion of the fastening cycle. The torque coefficient or factors which influence the torque, is calculated by the controllers software from the continuously monitored electric current to the screwdriver motor and the time factor. The electric current from the controller to the screwdriver motor is based on that continuous analysis, controlled instant by instant. The screwdrivers torque output is in proportion to the controllers electric current output to the screwdrivers motor. The screwdrivers torque curve takes 0.1 seconds and is calculated by a functional circuit until it reaches the target torque. Once the target torque has been reached, it holds that torque for 0.2 seconds to stabilize the torque output.



- PED controller has 1 channel for setting the torque output as a standard (2 channel available).
- FED controller installed on a robot can catch and loosen an already seated (fastened) screw, and has memory for 8 preset fastening torque settings and 8 preset angle settings.
- BOTH controllers can be used for manual and automatic applications.

# PED & FED

## Generation III - Torque Control System

### CUSTOM OPTIONS AND SETTINGS

User friendly Windows 95/98/NT® based software is available to customize the functions and parameters of the PEDIII and FEDIII controller.

#### Custom Functions

- LED (for M and S drivers).
- Screw binding release.
- Trigger switch and Forward/Reverse switch (for M and S drivers).
- Dual Torque: Manual or Auto Change-Over (for PEDIII).
- Slow start for initial engagement to minimize shock and cross threading of fasteners.

#### User Parameter Settings

- Changeable unit of measure (kgf.cm, N.m, lbf.in).
- Driver LED.
- Standard speed fastening.
- High speed fastening.
- Holding time of Peak torque (0 - 200ms).
- Screw binding release function parameters.
- Reversing parameters (FEDIII only).
- Idle mode parameters (FEDIII only).
- ATC (Auto Torque Compensation) fine-tuning to adjust the mechanical characteristics of the driver.

#### Multi-Sequence Operation

A programmable multi-sequence operation without a PLC (FEDIII) is available with the customized software.

### FASTENING TORQUE RANGE AND RPM

The Driver Specifications below show the torque range for the drivers. The RPM is automatically selected in accordance with the torque value you program into the controller.

Each model has the ability to switch to either standard or high speed using the customized software.

If you require any specific RPM for certain fastening torque, please feel free to contact a customer service representative. We need to know your specific fastening torque in use, so we can determine if the RPM you require can be achieved.

Driver#	Torque Ranges (kgf.cm)			RPM	
	Output	Setting	Minimum	Standard Speed	High Speed
1200	0.3 - 1.2	0.24 - 1.35	0.01	350 - 1300	-
2200	0.5 - 2.2	0.5 - 2.4	0.02	130 - 750	-
3600	1.0 - 3.6	0.8 - 4.0	0.02	160 - 540	270 - 780
8500	2.0 - 8.5	1.6 - 10.0	0.1	60 - 320	100 - 650
12K	3.0 - 12	2.7 - 13.0	0.1	40 - 160	150 - 500
15K	4.0 - 15	3.5 - 16.5	0.1	30 - 100	150 - 450
20K	5.0 - 20	4.5 - 22.0	0.1	25 - 110	60 - 250
30K**	7.0 - 30	7.0 - 30	0.1	25 - 110	40 - 160

\*\*Not offered in M-Series  
Models are available with torque range in lbf.in

### DRIVER SERIES

#### M-SERIES with automatic recognition

Forward/reverse operation with lever type on/off switch that activates the motor. Connects to FEDIII or PEDIII controllers. Used in hand operated applications. Equipped with a 1/4" female hex or 4mm diameter, D-Cut drive. FD & FH models (see chart below) come with a bit cushion mechanism, which has a moveable range of 10mm on the axis direction. The driver keeps the same bit pressure anywhere within the moveable range.

#### S-SERIES with automatic recognition

Forward/reverse operation with lever type on/off switch that activates the motor. Connects to FEDIII or PEDIII controllers. Used in hand operated applications. Equipped with a 4mm diameter, D-Cut drive. FD models (see chart below) come with a bit cushion mechanism, which has a moveable range of 10mm on the axis direction. The driver keeps the same bit pressure anywhere within the moveable range.

#### A-SERIES DRIVER with automatic recognition

The driver power and direction is controlled by either the FEDIII or PEDIII controllers, and are used for automatic applications. Equipped with a 1/4" female hex or 4mm diameter, D-Cut drive. FD & FH models (see chart below) come with a bit cushion mechanism, which has a moveable range of 10mm on the axis direction and ±1mm (from bit center) in the circumference direction (360°). The driver keeps the same bit pressure anywhere within the moveable range.

Driver Series					
M	S	A	Description	Drive Size	Driver #
SD	-	-	w/o Bit Cushion	4mm Dia, D-Cut	1200, 3600, 8500, 12K
FD	-	-	with Bit Cushion	4mm Dia, D-Cut	1200, 3600, 8500, 12K
SH	-	-	w/o Bit Cushion	1/4" F/Hex	8500, 12K, 15K, 20K
FH	-	-	with Bit Cushion	1/4" F/Hex	8500, 12K, 15K, 20K
-	SD	SD	w/o Bit Cushion	4mm Dia, D-Cut	1200, 2200, 3600, 8500, 12K
-	FD	FD	with Bit Cushion	4mm Dia, D-Cut	1200, 2200, 3600, 8500, 12K
-	-	SH	w/o Bit Cushion	1/4" F/Hex	8500, 12K, 15K, 20K, 30K
-	-	FH	with Bit Cushion	1/4" F/Hex	8500, 12K, 15K, 20K, 30K

### SYSTEM CONFIGURATION

The product line-up offers several choices to meet your requirements. The following will explain how to specify a system:

**System** (a controller + driver series/driver# + configuration)

Example: ● - ▲ ■ - ● (PEDIII - M8500 - SH)

● Controller Models: PEDIII and FEDIII

▲ Driver Series: M, S and A

■ Driver#: 1200, 2200, 3600, 8500, 12K, 15K, 20K and 30K

● Configuration: SD, FD, SH, and FH

### BIT SLEEVE & GUIDE

A bit sleeve is unique to the application. In order to complete the order for your system, we require:

- sample of fastener or dimensions of fastener
- specific driver style being used
- shank diameter
- special requirements, i.e. space restrictions