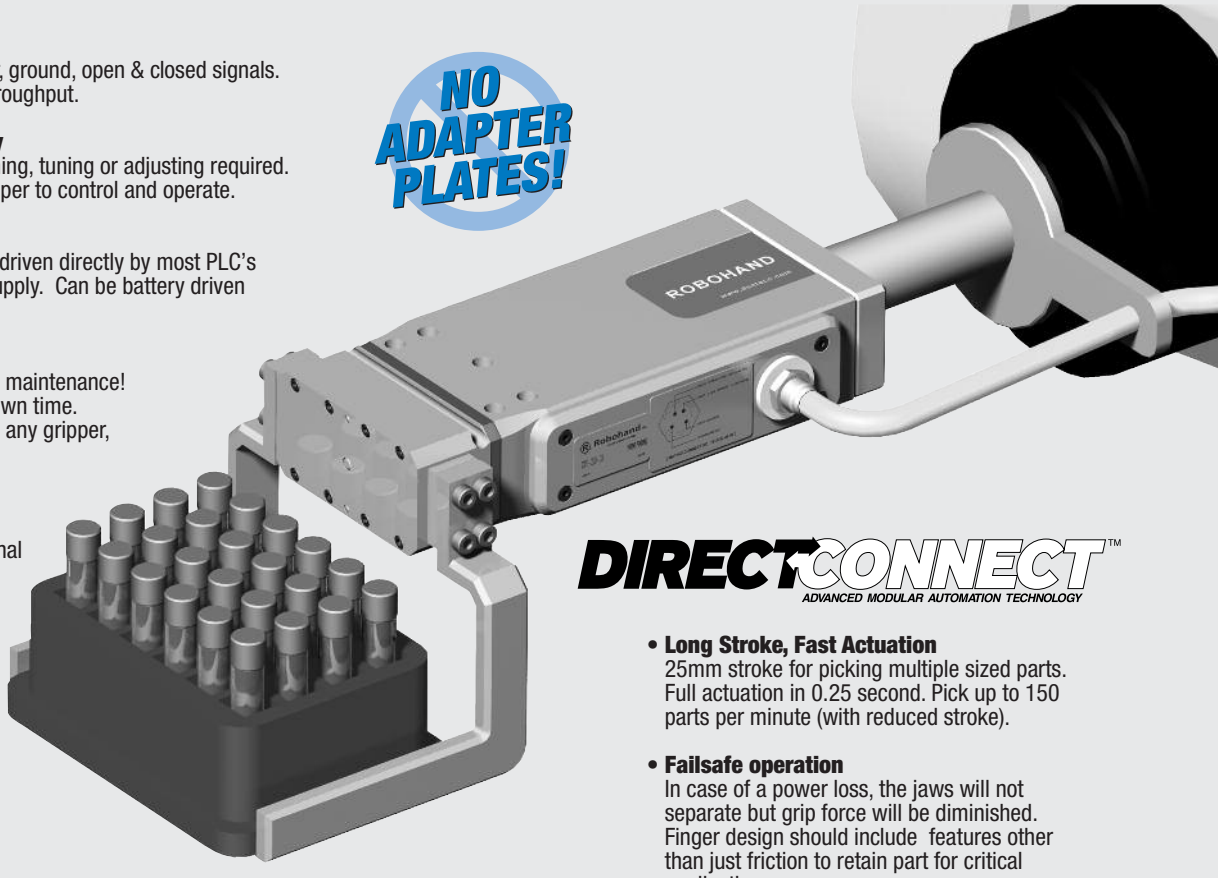
DPE Parallel Gripper- Electric Gripper Series

- **Electrically Actuated**
  24 VDC, 4-wire input: power, ground, open & closed signals. 100% duty cycle for high throughput.
- **"Light Switch" Simplicity**
  Plug and play. No programming, tuning or adjusting required. As easy as a pneumatic gripper to control and operate.
- **Energy Efficient**
  Only 4.2W required. Can be driven directly by most PLC's without a separate power supply. Can be battery driven for remote applications.
- **High Cycle Life**
  20+ million cycles with zero maintenance! High reliability eliminates down time. Lowest cost of ownership of any gripper, pneumatic or electric.
- **Built-in Electronics**
  All electronics are sealed within the gripper. No external control board needed. 4-pin/wire control cable sold separately.

NO ADAPTER PLATES!



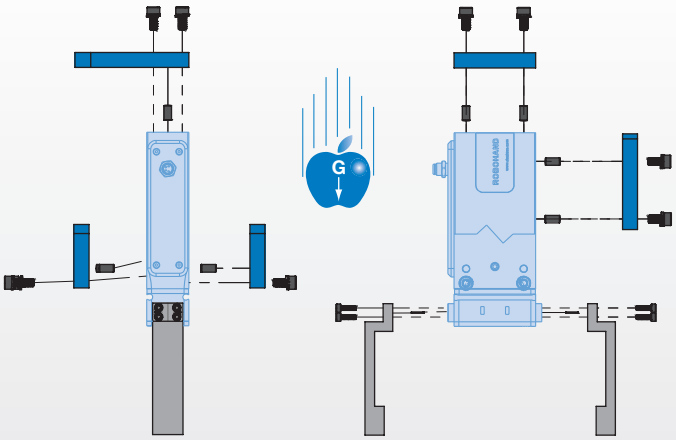
DIRECT CONNECT™
ADVANCED MODULAR AUTOMATION TECHNOLOGY

- **Long Stroke, Fast Actuation**
  25mm stroke for picking multiple sized parts. Full actuation in 0.25 second. Pick up to 150 parts per minute (with reduced stroke).
- **Failsafe operation**
  In case of a power loss, the jaws will not separate but grip force will be diminished. Finger design should include features other than just friction to retain part for critical applications.

Patent Pending.

Mounting Information:

Gripper can be mounted and operated in any orientation



Body mounts with screws and locates with slip fit dowel pins for accuracy

Fingers attach to jaws with screws and locate with dowel pins

Technical Specifications:

Product Specifications

Voltage	24 VDC
Power Max.	4.2 W
Operating Temperature	5° / 60° C (40° / 140°F)
Protection Class	IP54
Clean Room	100
Clean Room with Scavenge Port*	10

*Contact Tech Support.

Maintenance Specifications

Field Repairable	Yes

Application Restrictions

- Timing, power and load beyond specifications
- Suitable for internal or external gripping

Product Features

Multiple Position Sensing
Slot mounted magneto-resistive sensing. Sense up to 4 gripping positions. Internal magnetic targets and external sensor mounting slots come standard. Sensors & quick disconnect cables sold separately.

DirectConnect Mounting
Mounts directly to other automation products without adaptor plates. Versatile mounting on top, side front and back of body.

One-Piece Body
One-piece, lightweight aircraft quality aluminum body ensures product accuracy.

Sealed Design
IP 54 rating for tough application environments.

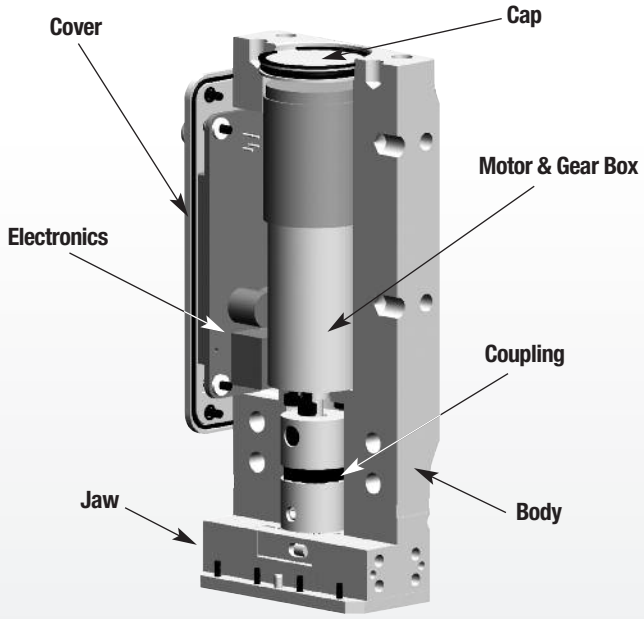
Hardcoat Anodize
The body and jaws are hard-coat anodized to 60Rc with Teflon impregnation.

Slip Fit Dowel Pin Holes
Located in body and jaws for precision mounting.

Superior Jaw Support
Ridged design and full body support of the jaws allows for long finger lengths.

Rack & Pinion Drive
Precision drive components for smooth actuation. Zero backlash while gripping ensures excellent repeatability and accuracy.

Operating Principle



- Apply +24 VDC from the PLC to the gripper “Close“ wire.
- The motor rotates a planetary gear reduction box that is connected to the drive pinion by a coupling
- The pinion drives the integral jaw racks causing the jaws to close synchronously
- Power is maintained to the closed signal to continue gripping force throughout the grip cycle.
- To open, remove signal to “Close” wire and apply +24 VDC from the PLC to the gripper “Open“ wire
- Design is suitable for internal or external gripping

Patent Pending

Style-DPE

Size -200-25

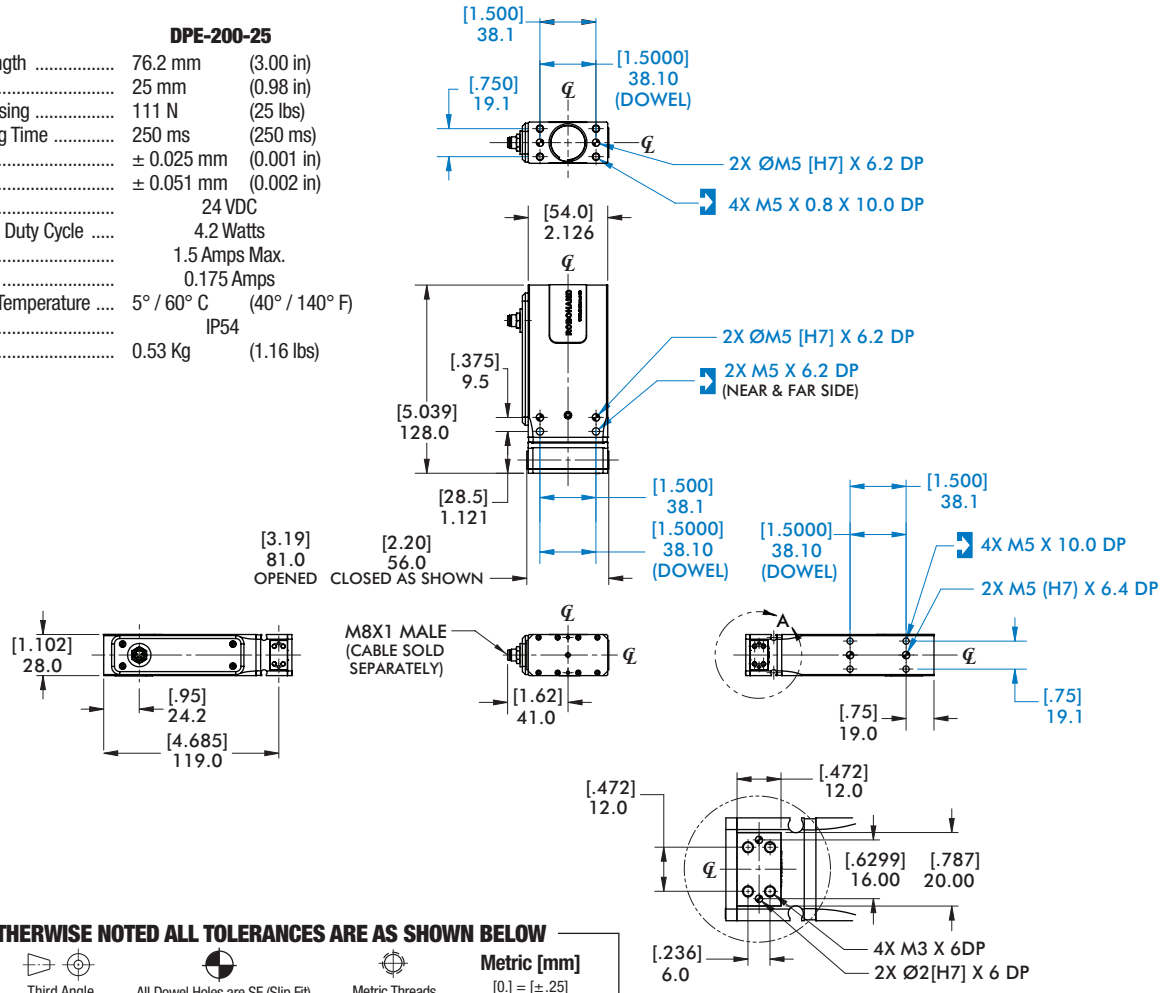
Style:	**DPE-200-25**	
Stroke:	25 mm	0.98 in
Grip Force:	111 N	25 lbs
Weight:	0.53 Kg	1.16 lbs

See Page 1.10

DIRECTCONNECT™

PARALLEL GRIPPER DPE-200-25
E-GRIPPER SERIES

Specifications	DPE-200-25	
Maximum Finger Length	76.2 mm	(3.00 in)
Stroke	25 mm	(0.98 in)
Gripping Force in Closing	111 N	(25 lbs)
Closing Time/Opening Time	250 ms	(250 ms)
Repeatability	± 0.025 mm	(0.001 in)
Accuracy	± 0.051 mm	(0.002 in)
Voltage	24 VDC	
Power Req. @ 100% Duty Cycle	4.2 Watts	
Current - Peak	1.5 Amps Max.	
Current - Continuous	0.175 Amps	
Min./Max Operating Temperature	5° / 60° C	(40° / 140° F)
Protection Class	IP54	
Weight	0.53 Kg	(1.16 lbs)

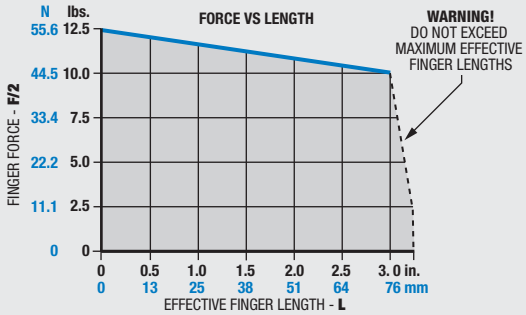


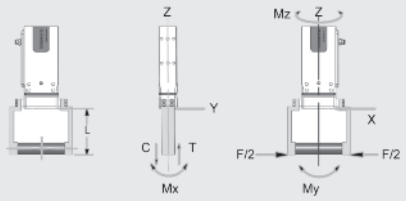
DETAIL A
(JAW FEATURES-FINGER MOUNT)

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.013mm	Metric Threads Course Pitch	Metric [mm]
				[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

Loading Information





Loading Capacity†

	Static	
Maximum Tensile **T**	75 lbs	[10 N]
Maximum Compressive **C**	75 lbs	[10 N]
Maximum Moment $\mathbf{M_x}$	120 lbf-in	[14 Nm]
Maximum Moment $\mathbf{M_y}$	150 lbf-in	[17 Nm]
Maximum Moment $\mathbf{M_z}$	120 lbf-in	[14 Nm]

†Capacities are per set of jaws and are not simultaneous

How to Order: (Order Accessories separately from Basic Model)

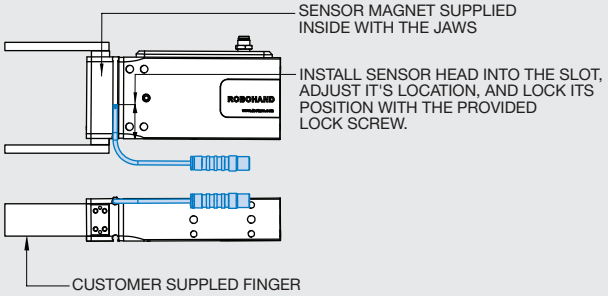
BASIC MODEL

DPE-200-25

ACCESSORIES*

4-wire Power and Signal Cable, 5m long	**CABL-046**	**1**
NPN Magneto Resistive Sensor (with Qk. Disc.)*†	**OHSN-017**	**1 or 2**
PNP Magneto Resistive Sensor (with Qk. Disc.)*†	**OHSP-017**	**1 or 2**
Quick Disconnect 5 Meter Cable Length*†	**CABL-013**	**1 or 2**

*Sensor and cables sold separately. † Power cable plus 1 or 2 sensor cables.



DIRECTCONNECT™

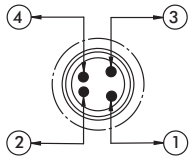
Installation and Operation:

1. Mount fingers (customer supplied) to gripper jaws using dowel pins and threaded fasteners. See dimensional drawing for hole sizes. Use Loctite® 242 threadlocker or equivalent.
2. Mount gripper using dowel pins and threaded fasteners. Gripper can be mounted and operated in any orientation. See dimensional drawing for mounting hole pattern and sizes. Use Loctite® 242 threadlocker or equivalent.
3. To operate the DPE gripper, follow the instructions below:
   Apply +24VDC to pin 1 (brown) and Ground to pin 3 (blue) to turn on the gripper. To open the fingers, apply +24VDC to pin 2 (white). To close the fingers, remove +24VDC from pin 2, and apply +24VDC to pin 4 (black). +24VDC signal must remain present on the open / close line to maintain the force output. The gripper will do nothing if a +24VDC signal is present on the open and close lines at the same time.

WARNING:

- Operating gripper outside of power voltages and can cause damage and void warranty
- Disconnect power from gripper before performing maintenance or making adjustments.

ELECTRICAL INTERFACE



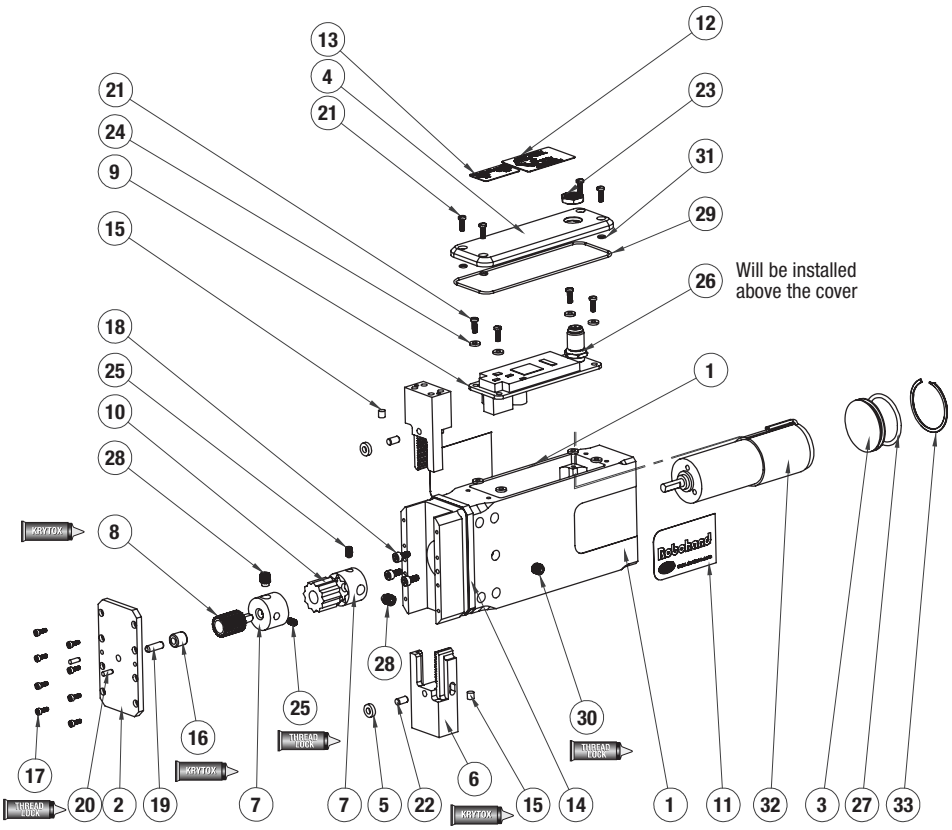
PIN OUT (LOOKING INTO HEADER CONNECTOR ON GRIPPER)

1 ..... BROWN (+ 24 VDC)
2 ..... WHITE (OPEN GRIPPER) +24 VDC = ACTIVE
3 ..... BLUE (GROUND)
4 ..... BLACK (CLOSE GRIPPER) +24 VDC = ACTIVE

CABLE # CABL-046

DIRECTCONNECT™

DPE Series Exploded View



Item	Qty	Name
01	1	Body
02	1	Bottom Plate
03	1	Cap
04	1	Cover
05	2	Bumper
06	2	Jaw
07	2	Coupling Pin
08	1	Drive Pin
09	1	Motor Control Board
10	1	Coupling Insert
11	2	Tag-Destaco-Robohand
12	1	Tag-Electric Pin Out
13	1	Tag-Production
14	1	Tag-VBL Collar
15	2	Magnet
16	1	Bearing
17	8	SHCS, M1.6*5mm, Alloy
18	3	SHCS, M2.5*5mm, Alloy
19	1	Dowel Pin: 1/8 Dia X 3/8
20	2	Dowel Pin: 2mm dia*6mm lg
21	8	Screw, Fillister HD, M2x6mm
22	2	Dowel Pin: 3mm dia*6mm lg.
23	0	Jam Nut-Ref Only (Part Of Motor Control Board)
24	8	Washer
25	2	Set Screw
26	0	O-Ring - Ref Only (Comes With Connector)
27	1	O-Ring
28	2	Set Screw
29	1	O-Ring
30	1	Set Screw
31	4	O-Ring, Buna, 70d, 0.026 CS, .097id
32	1	Gear Motor
33	1	Ret. Ring

NOTE: Contact the DE-STA-CO Customer Service for a complete spare parts list with order numbers and prices.

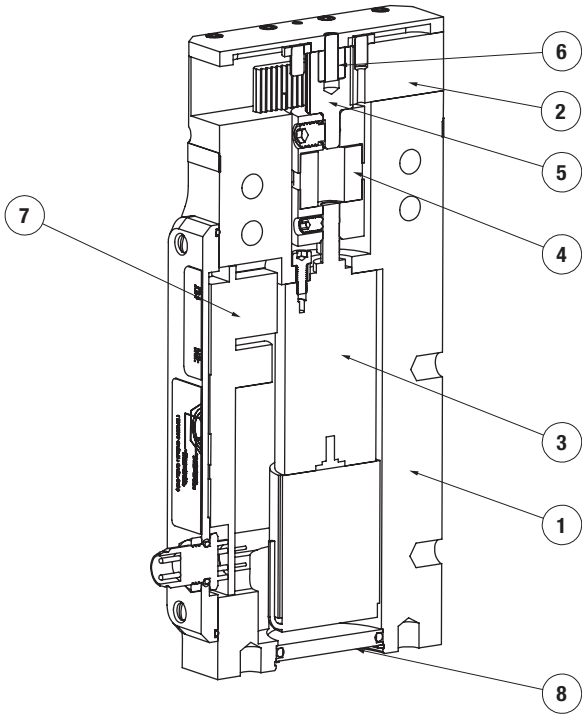
Assembly Procedure

1) Clean all make details free of dirt, oil and other contaminants.
2) Insert # 32 motor into the # 1 body, line up the motor holes and assemble motor to the body by using # 18 screws. Make sure that the motor wires are carefully routed to the top for it's connection to the motor control board.
3) Assemble # 25 set screws one of the # 7 coupling hubs, but not all the way in. Assemble the coupling to the motor shaft, with flat on the motor shaft facing one of the set screws and adjust the inside face of the coupling, flat with end face of the motor shaft. Tighten the set screw on the motor shaft thru the acccess hole at set screw # 30 location.
4) Assemble the # 10 coupling insert into the # 7 hub, as asssembled to the motor shaft, as above.
5) Assemble # 8 drive pinion with it's shaft all the way into the second # 7 coupling hub and tighten the set screws. Assemble # 16 bearing and # 19 dowel pin into the drive pinion. Now install this assembly hub / insert assembly installed earlier to the motor shaft.
7) Assemble # 15 magnets into # 6 jaws, using lok-tite as recommended.
8) Lubricate the pinion, the bearing, the jaws and inside surfaces of jaw-ways with lubricant as recommended.
9) Install the jaws into the body, meshed with the pinion and symmetrically positioned w.r.t the pinion.
10) Install # 5 stop and # 22 dowel pins into the jaws.
11) Assemble # 2 cover to the body, with dowel pins # 19 and # 29 aligned to the corrosponding holes in the cover. Install fasteners # 17 to secure the cover to the body.
12) Install / connect the motor cable connector the motor control board. Use # 21 & # 24 fasteners and install the motor control board to the body. Note: Remove the hex nut supplied with the connector on the motor control board. This hex nut will be re-installed after # 4 cover is installed.
13) Install # 4 cover to the body with # 29 gasket and # 21 screws as shown.
14) Installed the previously removed hex nut back to the connector. Caution: Only snug tighten this hex nut.
15) Install # 3 cap with O ring and snap ring, as shown.
16) Install tags and labels as shown.

SK Seal Kit Items
THREAD LOCK Thread Locker
KRYTOX Krytox™ Lubricant
O Lightweight Machine Oil
G Teflon™ Based Grease
GLUE Super Bonder
Third Angle Projection

DIRECTCONNECT™

DPE Series Assembled View



Item	Qty	Name
01	1	Body
02	2	Jaw
03	1	Motor/Gear ASM
04	1	Coupling Asm
05	1	Pinion
06	1	Bearing
07	1	Motor Control Board
8	1	End Cap

NOTE: Contact the DE-STA-CO Customer Service for a complete spare parts list with order numbers and prices.

SK Seal Kit Items

THREAD LOCK Thread Locker

KRYTOX Krytox™ Lubricant

Lightweight Machine Oil

G Teflon™ Based Grease

GLUE Super Bonder

Third Angle Projection

DIRECTCONNECT™