



## Master Die Cage

Set Up and Operating Manual



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## Safety Instructions

Read and understand the operator's manual before attempting to operate any equipment.

**WARNING** Aeroquip hose, hose fittings and assembly equipment should be used only with other Aeroquip hose, hose fittings and assembly equipment and Weatherhead hose, hose fittings and assembly equipment should be used only with Weatherhead hose, hose fittings and assembly equipment. Do not combine or use Aeroquip or Weatherhead hose, hose fittings and assembly equipment with each other, i.e. Aeroquip hose with Weatherhead fittings or with hose, hose fittings or assembly equipment supplied by another manufacturer.

EATON HEREBY DISCLAIMS ANY OBLIGATION OR LIABILITY (INCLUDING INCIDENTAL DAMAGES) ARISING FROM BREACH OR CONTRACT, WARRANTY, OR TORT (UNDER NEGLIGENCE OR STRICT LIABILITY THEORIES) SHOULD AEROQUIP OR WEATHERHEAD HOSE FITTINGS OR ASSEMBLY EQUIPMENT BE USED INTERCHANGEABLY OR WITH ANY HOSE, FITTINGS OR ASSEMBLY EQUIPMENT SUPPLIED BY ANOTHER MANUFACTURER OR IN THE EVENT THAT PRODUCT INSTRUCTIONS FOR EACH SPECIFIED HOSE ASSEMBLY ARE NOT FOLLOWED.

**WARNING** Failure to follow process and product instructions and limitations could lead to premature hose assembly failures, resulting in property damage, serious injury or death.

Aeroquip and Weatherhead fitting tolerances are engineered to match Aeroquip and Weatherhead hose tolerances. The combination or use of Aeroquip or Weatherhead hose and hose fittings with each other, i.e. Aeroquip hose with Weatherhead fittings, or with hose or fittings supplied by another manufacturer may result in the production of unreliable and/or unsafe hose assemblies and is neither recommended nor authorized by Eaton.

### Safety Instructions

1. PREVENT UNAUTHORIZED OPERATION. Do not permit anyone to operate this equipment unless they have read and thoroughly understand this manual.
2. WEAR SAFETY GLASSES.
3. AVOID PINCH POINTS. Do not rest your hand on the crimp ring. Keep your hands clear of all moving parts. Do not allow anyone, other than the operator, close to the equipment while it is in operation.

4. MAINTAIN DIES WITH CARE. Dies/insert are machined from hardened steel, offering the best combination of strength and wear resistance for long life. Hardened dies are generally brittle and care should be taken to avoid any sharp impact. Never strike a die with a hardened instrument.
5. USE ONLY SPECIFIED AEROQUIP/WEATHERHEAD PRODUCTS. Make hose assemblies using only Aeroquip and Weatherhead hose and fittings specified for this assembly equipment.
6. VERIFY CORRECT CRIMP DIAMETERS. Check and verify correct crimp diameters of all fittings after crimping. Do not put any hose assemblies into service if the crimp diameters do not meet Eaton crimp specifications.
7. Make sure all dies are completely in place and the cage is positioned properly on the pressure plate. After locking install tool, remove hand inside the crimp ring.
8. MASTER DIE CHANGE. DO NOT INSERT/REMOVE MASTER DIE CAGE WHILE THE POWER IS ON OR MACHINE IS IN OPERATION.
9. UNPLUG THE POWER SUPPLY WHEN NOT IN USE.
10. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

### CAUTION

11. THIS PRODUCT CONTAINS RARE-EARTH MAGNETS. Products containing rare-earth magnets must be handled with care. Rare-earth magnets are very powerful and can accelerate at great speeds toward each other and toward ferrous (iron based) material. When these magnets come together quickly, they can shatter and break sending particles at high speed. These magnets can also pinch strongly if allowed to come together against the skin or body part. Users must wear leather gloves and safety glasses with side shields when handling rare earth magnets or products with rare-earth magnets.

Individuals with pacemakers or internal medical devices must not handle rare-earth magnets or products containing rare-earth magnets. Studies have shown that magnetic fields can affect the operation of these devices. Rare-earth magnets must be kept at a safe distance from individuals with these devices. The Rare-Earth Magnetics Association is not aware of any positive or negative health effects from handling rare-earth magnets. However as a precaution, it is recommend that pregnant women not handle or be near rare-earth magnets or products containing rare-earth magnets. Areas with rare-earth magnets or with products containing rare-earth magnets must be posted with a warning sign alerting persons with pacemakers or other internal medical devices and women who may be pregnant to stay out of the area.

# Overview

## Master Die Cage Packages

PART NUMBER	DESCRIPTION
ET1295-001	Master Die Cage Assembly (2-piece)
ET1295-002	Master Die Cage Assembly (2-piece) and Handle
ET1295-003	Master Die Cage Assembly (2-piece), Inserts for all M-Series† and Handle
ET1295-004	Master Die Cage Assembly (2-piece), Inserts for all Global Spiral* and Handle
ET1295-005	Master Die Cage Assembly (2-piece), Inserts for all Global Spiral* & M-Series† and Handle
ET1295-011	Master Die Cage Assembly (1-piece)
ET1295-012	Master Die Cage Assembly (1-piece) and Handle
ET1295-013	Master Die Cage Assembly (1-piece), Inserts for all M-Series† and Handle
ET1295-014	Master Die Cage Assembly (1-piece), Inserts for all Global Spiral* and Handle
ET1295-015	Master Die Cage Assembly (1-piece), Inserts for all Global Spiral* & M-Series† and Handle

## Insert Set Listing

ET1295DC-14S*	ET1295DC-M070S	ET1295DC-M370S†
ET1295DC-15S*	ET1295DC-M090S	ET1295DC-M420S†
ET1295DC-16S*	ET1295DC-M120S	ET1295DC-M465S†
ET1295DC-18S	ET1295DC-M150S†	ET1295DC-M520S†
ET1295DC-20S*	ET1295DC-M180S†	ET1295DC-M550S†
ET1295DC-21S*	ET1295DC-M210S†	ET1295DC-M570S
ET1295DC-23S*	ET1295DC-M240S†	ET1295DC-M690S†
ET1295DC-46S*	ET1295DC-M280S†	
ET1295DC-82S*	ET1295DC-M320S†	

Note: Insert sets include 8 dies with insert pins.

\* Included with the Global Spiral Packages.

† Included with the M-Series Packages.

## Replacement Components

PART NUMBER	QUANTITY	DESCRIPTION
ET1295TP-0001	1	Master Die, Plunger, Inside Spring, Set Screw
ET1295TP-0002	1	Install Tool Assembly

Note: See pages 10-11 for individual replacement components.

## Decal Placement

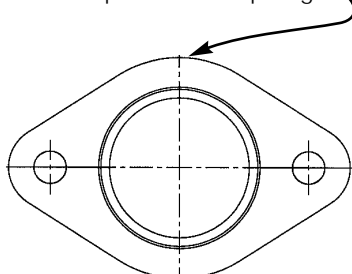
Two decals are shipped with the master die cage.

Warning (E-EQCR-TE013-E)  
Target Setting (E-EQCR-TE016-E)

These decals are to be placed on the crimp machine **prior** to operating with the master die cage.

### Warning Decal

Place the warning decal on the top of the crimp ring.



### Target Setting Decal

The target setting decal is to be placed on the crimp machine at a location that is easily visible by the operator.

## Accessories

**Bench Top Rack** - A rack that can hold 12 sets of die inserts. This can be mounted to a bench top.  
**ET1295C-0029**

**Hanging Rack** - A rack that can hold 12 die inserts. This can be hung from the FT1209, FT1307, FT1340, FT1360 and FT1390 Crimp Machines.  
**ET1295C-0027**

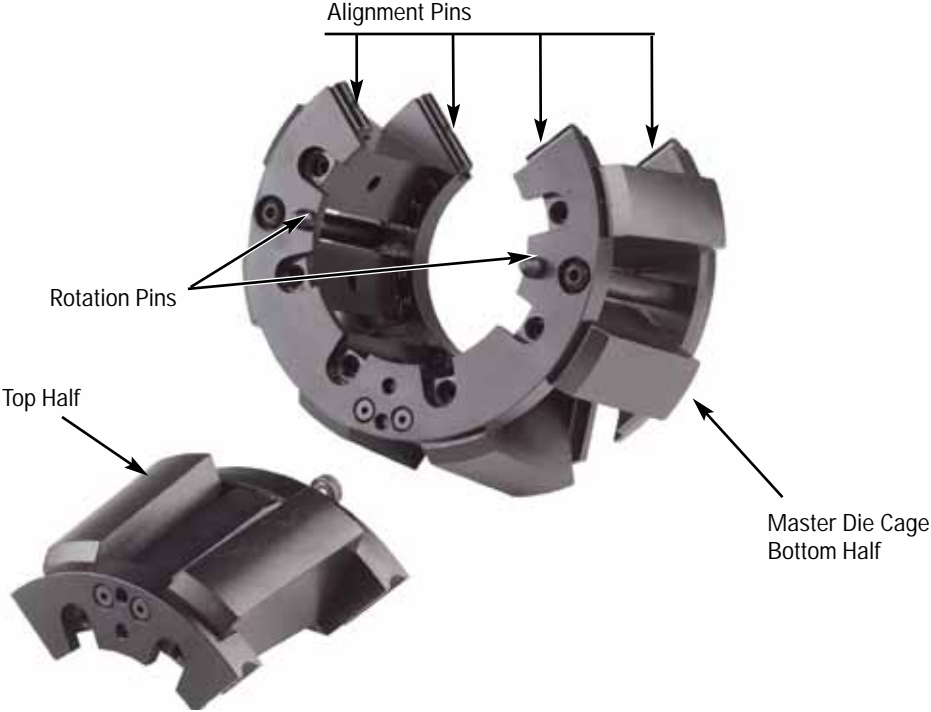
**Insert Holder** - An insert holder for one set of die inserts. This can be mounted to the front or side of a crimp machine. **ET1295C-0025**

**Lubrication** - A can of Never-seez to lubricate the dies. **FT1092**

# Master Die Cage Set-Up

## Master Die Cage Halves (2-Piece Assembly)

Figure 1



## Master Die Cage Back Side (2-Piece Assembly)

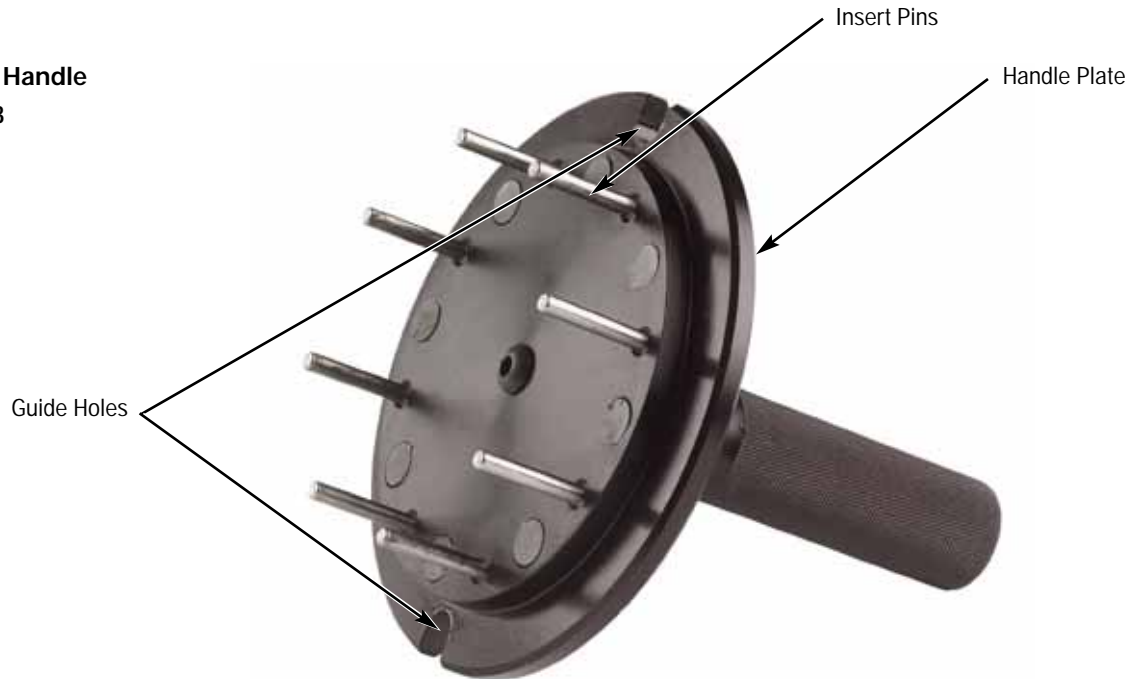
Figure 2



# Master Die Cage Set-Up

## Insert Handle

Figure 3



## CAUTION

THIS PRODUCT CONTAINS RARE-EARTH MAGNETS. Products containing rare-earth magnets must be handled with care. Rare-earth magnets are very powerful and can accelerate at great speeds toward each other and toward ferrous (iron based) material. When these magnets come together quickly, they can shatter and break sending particles at high speed. These magnets can also pinch strongly if allowed to come together against the skin or body part. Users must wear leather gloves and safety glasses with side shields when handling rare-earth magnets or products with rare-earth magnets.

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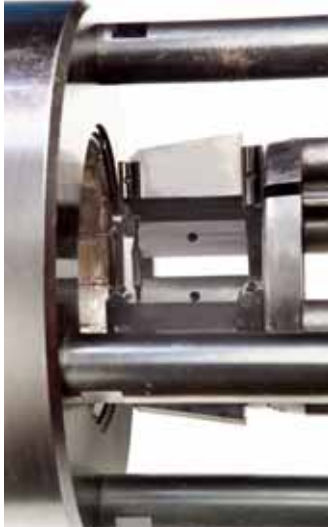
Areas with rare-earth magnets or with products containing rare-earth magnets must be posted with a warning sign alerting persons with pacemakers or other internal medical devices and women who may be pregnant to stay out of the area.



# Master Die Cage Insertion

## Bottom Half Insertion

Figure 4



### Step 1

Completely retract crimp machine. Insert the bottom half of the master die cage onto the pressure plate, aligning the two guide slots on the master die cage back plate with the two shoulder bolts on the pressure plate.

### **!** WARNING

Master Die Change. Do not insert/remove dies while the power is on or machine is in operation.

#### **Note:**

If the 1-piece master die cage is being utilized, insert the entire master die cage onto the pressure plate, aligning the two guide slots on the master die cage back plate with the two shoulder bolts on the pressure plate and align the pin on the master die cage with the slot on the pressure plate. Skip step 2 and proceed to step 3.

## Top Half Insertion

Figure 5



### Step 2

Insert the top half of the master die cage onto the bottom half of the master die cage and the pressure plate, aligning the shoulder pin on the master die cage with the slot on the pressure plate.

### **!** WARNING

Ensure the alignment pin (see figure 1 on page 4) on the bottom half of the master die cage is fully seated in the alignment slot in the top half of the master die cage and pressed up against the pressure plate.



# Master Die Cage Insertion

**Die Insertion**  
Figure 6



### Step 3

Place the dies onto the insert handle and insert the dies through the front of the machine through the crimp ring.

Align the guide holes on the handle plate with the rotation pins located on the front plate of the master die cage.

### **⚠ WARNING**

Lubricate the outside taper angle on the master die jaws with Eaton FT1092 lubricant prior to cycling the crimp machine. Do not lubricate the inside diameter of the master die jaws.

**Guide Pin Alignment**  
Figure 7



### Step 4

Rotate the install tool clockwise to the locking position.

### **⚠ WARNING**

Ensure the handle plate is pressed flat against the front plate of the master die cage and locked in the proper position.

### **⚠ WARNING**

Let go of the install handle and remove hand from the crimp ring area.

# Master Die Cage Insertion

**Master Die /  
Insert Die Connection**  
Figure 8



## Step 5

Enter the required load/unload setting for the specified crimp machine outlined below and cycle the machine all the way forward until the machine stops with the insert handle still pressed flat against the front plate of the master die cage.

Machine	Load/Unload Setting
FT1390	180
ET1290	180
FT1209	0.910
FT1307	0.910
FT1340	965
FT1360	965

## Caution:

Do not complete step 5 without the install tool locked in position. Failure to do so may result in damage to the machine and/or components.

**Insert Handle Removal**  
Figure 9



## Step 6

Once the crimp machine stops, rotate insert handle counterclockwise to unlock and remove the insert handle from the dies. The crimp machine can now be retracted and used to crimp hose assemblies by entering the correct target setting and insert the hose/fitting in the front of the crimp machine through the crimp ring.

## Note:

If the 2-piece die cage is being utilized, the top half of the master die cage can be removed to allow ease of insertion of fitting elbows into the master die cage prior to the crimping process.



# Master Die Cage Removal

## Cycle Machine

Figure 10



### Step 1

Enter the required load/unload setting for the specified crimp machine outlined to the right and cycle the machine all the way forward until the machine stops.

Machine	Load/Unload Setting
FT1390	180
ET1290	180
FT1209	0.910
FT1307	0.910
FT1340	965
FT1360	965

Insert the insert handle in the front of the crimp machine through the crimp ring, aligning the guide holes on the handle plate with the rotation pins on the front of the master die cage.

## Insert Handle Insertion

Figure 11



### Step 2

Rotate the install tool clockwise to the locking position.

### **⚠ WARNING**

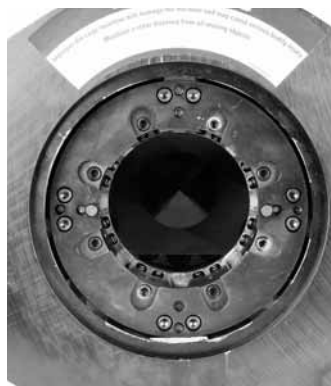
Ensure the handle plate is pressed flat against the front plate of the master die cage and locked in the proper position.

### **⚠ WARNING**

Let go of the install handle and remove hand from the crimp ring area.

## Insert Handle Removal

Figure 12



### Step 3

Retract the crimp machine. After full retraction, rotate insert handle counterclockwise to unlock and remove the insert handle with the insert dies through the crimp ring out the front of the crimp machine.

# Maintenance

For maximum service life, die cages need to be lubricated and kept clean from dirt and debris.

Sliding surfaces of the individual dies are the areas of most concern. Use NEVER-SEEZ (Eaton Part Number FT1092) for all die cage lubrication.

## Exposed Die Surfaces and Crimp Ring

- Lubricate the angled die surfaces every 20 crimps.
- Remove old grease and lubricate every 200 crimps. NEVER-SEEZ will build up on the sides of

the dies and in the crimp ring during the crimping process. This residue will become contaminated with metal and plating chips and airborne contaminants, which can cause premature wear of the dies and crimp ring.

- The flat surfaces of the dies, that protrude beyond the backplate, should be lubricated every 200 crimps.
- Every 500 crimps, inspect the contact area of the dies and crimp machine. The surfaces should be smooth with no galling.

Components with galled surfaces need to be replaced.

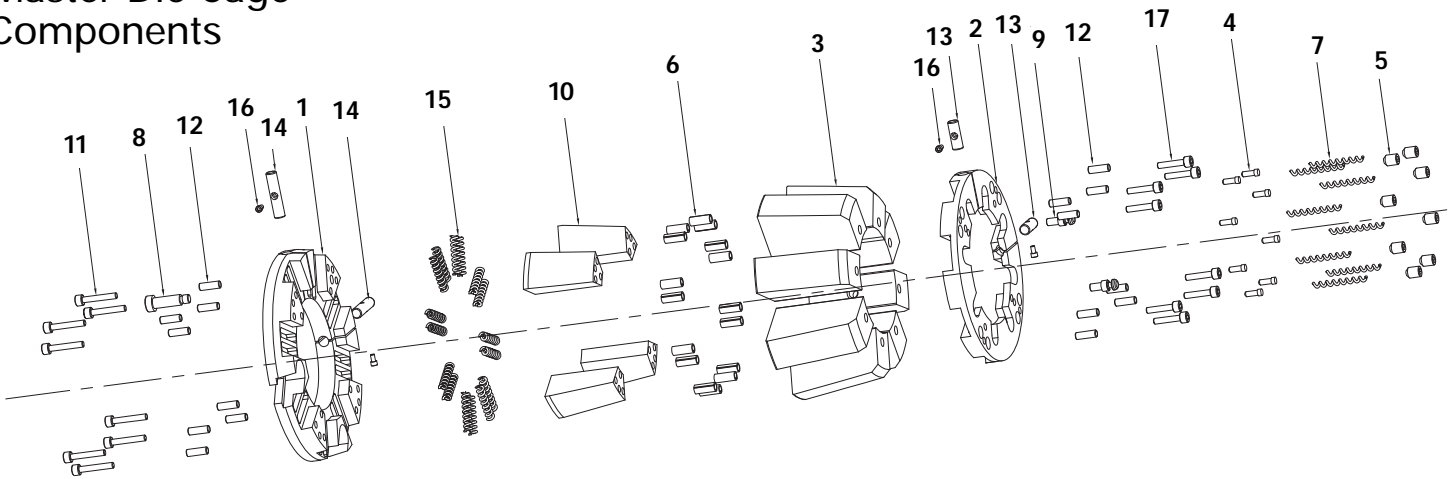
## Concealed Die Surfaces and Die Cage Components

Every six months or 1,000 crimps, which ever occurs first, disassemble the die cages for inspection and lubrication of parts.

- The sliding surfaces between the dies and front/back plates should appear smooth with no galling. Galled components need to be replaced.

- Replace springs that show signs of damage or collapse, such as those which are shorter than others.
- Inspect remaining components of the die cage and replace those that show significant wear.

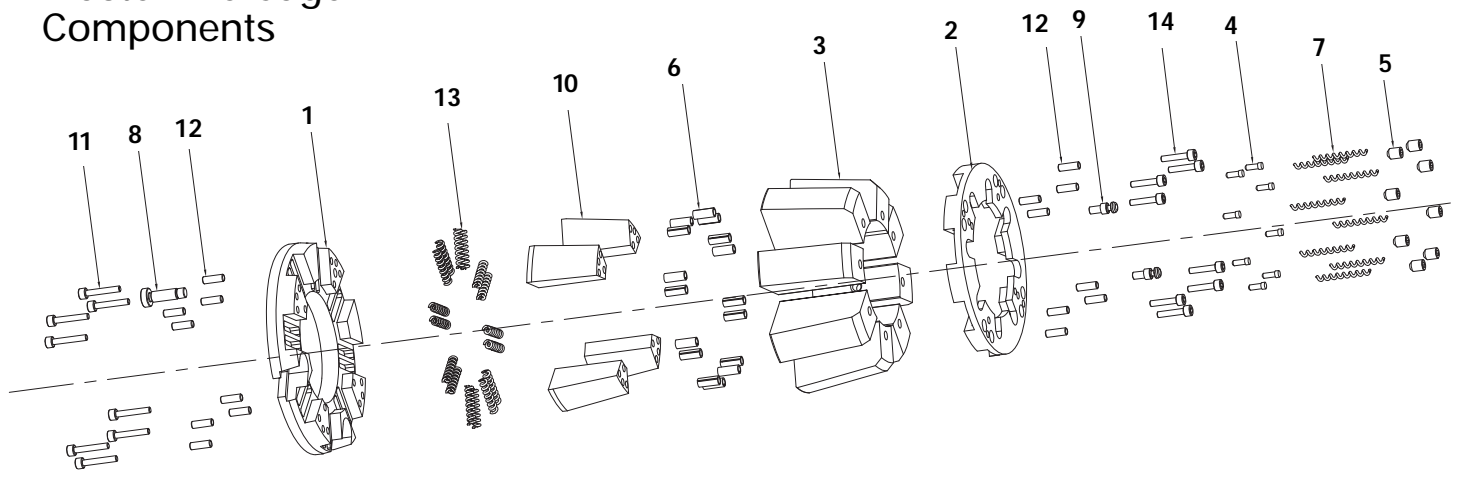
## Master Die Cage Components



### ET1295-001 (2-Piece Assembly)

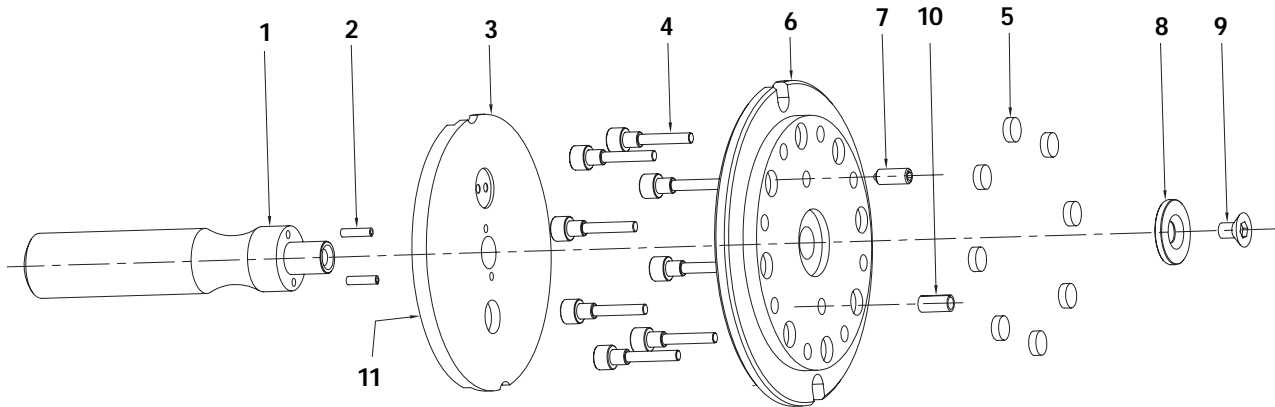
DETAIL	QTY	PART NUMBER	DESCRIPTION
1	1	ET1295C-0006	Back Plate (Split)
2	1	ET1295C-0007	Front Plate (Split)
3	8	ET1295C-0001	Master Die
4	8	ET1295C-0003	Plunger Pin
5	8	ET1295C-0004	Set Screw
6	16	120-70188-46	Roll Pin
7	8	ET1295C-0005	Spring
8	1	FT1209-2-9-5	Shoulder Screw
9	2	ET1295C-0012	Rotation Pin
10	4	ET1295C-0009	Connecting Block
11	8	FF9339-04-20S	Cap Screw
12	16	ET1295C-0017	Dowel Pin
13	2	ET1295C-0011	Front Locating Pin
14	2	ET1295C-0010	Rear Locating Pin
15	16	ET1295C-0013	Spring
16	4	222003-1-6-6S	Cap Screw
17	8	FF9339-04-12S	Cap Screw

# Master Die Cage Components



## ET1295-011 (1-Piece Assembly)

DETAIL	QTY	PART NUMBER	DESCRIPTION
1	1	ET1295C-0021	Back Plate
2	1	ET1295C-0022	Front Plate
3	8	ET1295C-0001	Master Die
4	8	ET1295C-0003	Plunger Pin
5	8	ET1295C-0004	Set Screw
6	16	120-70188-46	Roll Pin
7	8	ET1295C-0005	Spring
8	1	FT1209-2-9-5	Shoulder Screw
9	2	ET1295C-0012	Rotation Pin
10	4	ET1295C-0009	Connecting Block
11	8	FF9339-04-20S	Cap Screw
12	16	ET1295C-0017	Dowel Pin
13	16	ET1295C-0013	Spring
14	8	FF9339-04-12S	Cap Screw



## ET1295TP-0001 Install Tool

DETAIL	QTY	PART NUMBER	DESCRIPTION
1	1	ET1295C-0014	Handle
2	2	120-70188-11	Roll Pin
3	1	ET1295C-0018	Lock Plate
4	8	ET1295C-0016	Install Pin
5	8	ET1295C-0023	Disc Magnets*
6	1	ET1295C-0015	Installation Plate
7	1	ET1295C-0020	Spring Plunger
8	1	ET1295C-0019	Washer
9	1	FT1243-3-23	Cap Screw
10	1	120-70188-30	Roll Pin
11	1	E-EQCR-TE014-E	Warning Decal

\* Contact Lomar Machine and Tool for magnet replacing.

Eaton  
14615 Lone Oak Road  
Eden Prairie, MN 55344  
USA  
Tel: 952 937-9800  
Fax: 952 974-7722  
[www.hydraulics.eaton.com](http://www.hydraulics.eaton.com)

Eaton  
20 Rosamond Road  
Footscray  
Victoria 3011  
Australia  
Tel: (61) 3 9319 8222  
Fax: (61) 3 9318 5714

Eaton  
Dr.-Reckeweg-Str. 1  
D-76532 Baden-Baden  
Germany  
Tel: (49) 7221 682-0  
Fax: (49) 7221 682-788

