



SFDF

AJAX/CECO/ERIE PRESS
HYDRAULIC DIE FORGERS



Ajax-CECO CNC Hydraulic Die Forger Hammers

FEATURES

The **Ajax-CECO** hydraulic die forger is a fully hydraulic die forger hammer with a single U-shaped frame made one-piece steel casting with extra-wide radial guides or classic traditional 3-piece Ceco frame.

- PLC Controls include a touch screen operator interface
 - Blow Energy is relatively easy to adjust in small programmable. The blow energy can be accurately adjusted so that the energy goes into your forged part and not the hammer frame and dies, dramatically increasing the die life.
 - A pause or delay can be entered for moving parts through the dies. Once energies and pauses are established for a particular forging, the program can be saved for future use.
 - Very accurate energy repeatability help improve the quality of your forged parts.
 - Electrical energy savings can be substantial during operation, as the hydraulic energy, once loaded, is stored. The main motors only run at higher amps when you are actively forging and not in-between parts.
-
- The guides are secured in three places to prevent bolts from loosening.
 - Advanced taper blow valve design provides faster response and a better seal to help prevent internal leakage.
 - Features such as flexible compound oil cylinder, flexible hammer rod, and high- and low-pressure double anti-leakage design significantly improve the reliability of the forging hammer.
 - Slow movement permits the release of hydraulic pressure for improved die-changing safety.

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com

- The ram's internal hydraulic buffer ensures safe movement and operation.

Ajax-CECO CNC Hydraulic Solid Frame Die Forgers (SFDF)

Ajax-CECO Hydraulic Solid Frame Die Forgers (SFDF)							
Item	SIZE	Unit	11 SFDF	18 SFDF	23 SFDF	36 SFDF	46 SFDF
Blow energy	Int'l	kJ	16	25	31.5	50	63
	US	ft/lbs	11,801	18,439	23,233	36,878	46,467
Guide clearance	Int'l	mm	500	610	660	770	830
	US	inches	19.685	24.015	25.984	30.314	32.677
Striking stroke (Min.)	Int'l	mm	495	520	560	560	640
	US	inches	19.488	20.472	22.047	22.047	25.196
Striking stroke (Max.)	Int'l	mm	630	680	720	720	800
	US	inches	24.803	26.771	28.346	28.346	31.496
Max. striking frequency		min-1	95	90	90	85	80
Max. width of die	Int'l	mm	380	490	540	650	710
	US	inches	14.96	19.29	21.25	25.59	27.952
Ram weight	Int'l	kg	1150	1800	2250	3500	4350
	US	lbs	2535.31	3968.32	4960.4	7716.17	9590.1
Max.Dropping weight	Int'l	kg	1350	2100	2700	4000	5000
	US	lbs	2976.24	4629.7	5952.48	8818.49	11,023.11
Total weight	Int'l	t	26	42	52	82	104
	US	ton	28.66	46.29	57.32	90.38	114.64
Main motor power	Int'l	kw	30	55	55	2×55	2×55
	US	HP	40.23	73.75	73.75	147	147

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com

Ajax-CECO Hydraulic Solid Frame Die Forgers (SFDF)						
		SIZE	59 SFDF	73 SFDF	92 SFDF	118 SFDF
Item		Unit				
Blow energy	Int'l	kJ	80	100	125	160
	US	ft/lbs	59,005	73,756	92,195	118,009
Guide clearance	Int'l	mm	890	960	960	960
	US	inches	35.039	37.795	37.795	37.795
Striking stroke (Min.)	Int'l	mm	630	600	700	800
	US	inches	24.803	23.622	27.559	31.496
Striking stroke (Max.)	Int'l	mm	880	850	950	1000
	US	inches	34.645	33.464	37.401	39.37
Max. striking frequency		min-1	80	75	70	65
Max. width of die	Int'l	mm	760	810	810	810
	US	inches	29.921	31.88	31.88	31.88
Ram weight	Int'l	kg	5600	7000	8600	9800
	US	lbs	12,345.88	15,432.35	18,959.75	21,605.30
Max. Dropping weight	Int'l	kg	6300	8000	9800	11000
	US	lbs	13,889.12	17,636.98	21,605.30	24,250.84
Total weight	Int'l	t	123	156	195	240
	US	ton	135.58	171.96	214.95	264.55
Main motor power	Int'l	kw	2×90	2×90	2×110	2×132
	US	HP	242	242	300	355

Ajax-CECO Fully Hydraulic Die Forgers (sizes with blow energy 147,000 lbs. higher)

FEATURES



A long ram structure with wide radial guide rails helps to maintain the accuracy of the ram.

A separate hydraulic driving system and power station are assembled separately on top.

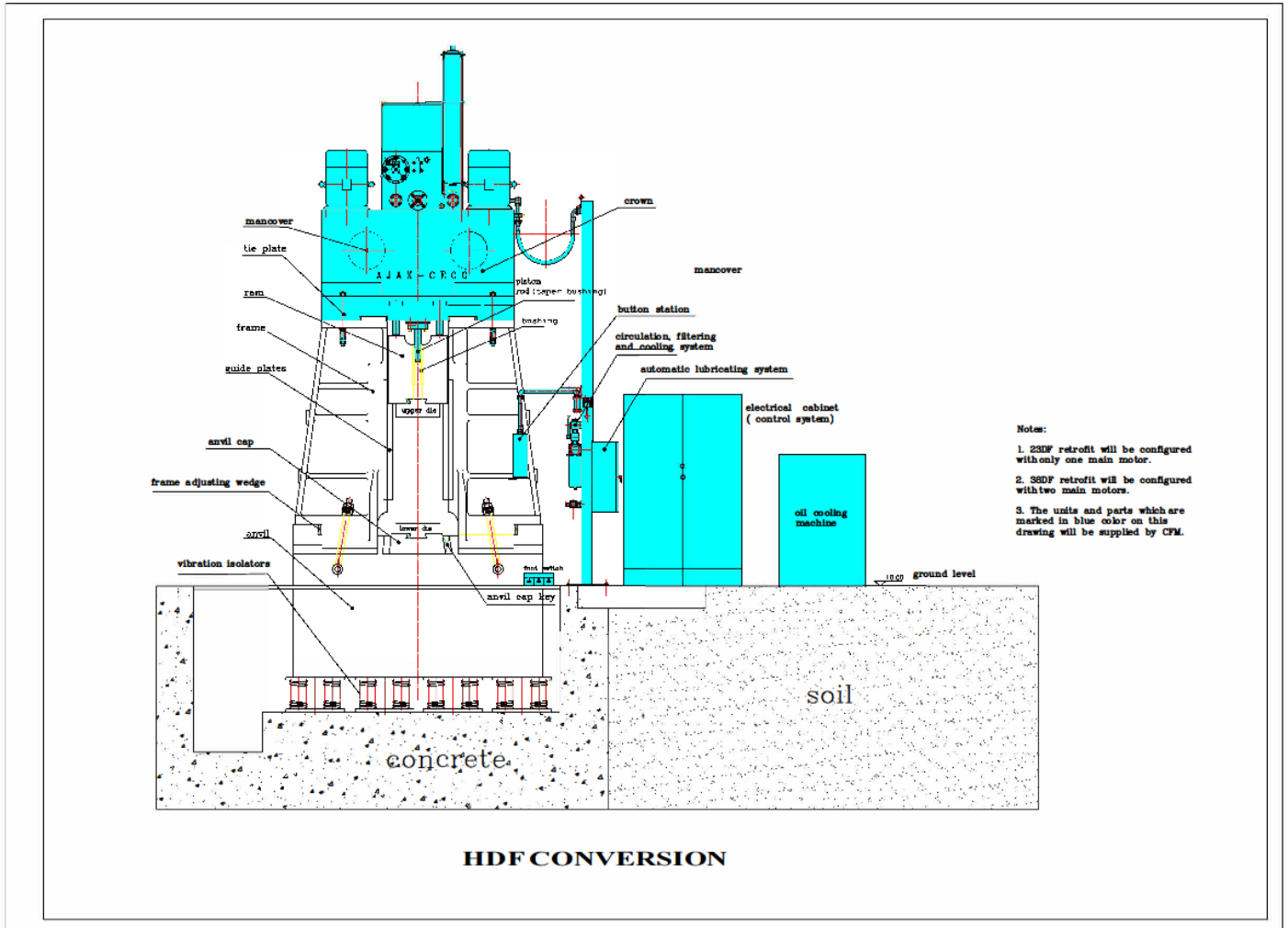
- The hydraulic pump station is mounted on the machine and does not require any additional floor space floor.
- Then advanced taper blow valve is designed for fast response and provides a better seal to help prevent internal leakage.
- We have an integrated Safety design for the inner accumulator and pipeline assembly.
- Flexible compound oil cylinder and flexible hammer rod, high and low pressure double anti-leakage design, significantly improve the reliability of the forging hammer.
- Slow movement up and down allows the release of hydraulic system pressure for safe die changes.
- Internal hydraulic ram buffer ensures safe ram movement and operation.

Ajax-CECO Hydraulic Die Forgers							
HDF SIZE		147 HDF	184 HDF	263 HDF	295 HDF	331 HDF	368 HDF
	Unit						
Striking energy	kJ	200	250	320	400	450	500
	ft/lbs	147,512	184,390	263,019	295,024	331,902	368,781
Guide clearance	mm	1000	1000	1100	1200	1300	1300
	inches	39.37	39.37	43.3	47.24	51.18	51.18
Max.striking frequency	min-1	55	50	45	40	40	35
Ram weight	kg	10500	11500	13000	16000	18000	20000
	pounds/Tons	23148/11.57	25353/12.67	28660/14.33	35273/17.63	39683/19.84	44092/22.04
Total Weight	t	300	350	450	530	560	590
	T	331	386	496	584	617	650
Main motor power	kw	4×90	4×90	4×110	4×132	4×132	4×132
	HP	(4) 120	(4) 120	(4) 147	(4) 177	(4) 177	(4) 177

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com

Ajax-CECO Fully Hydraulic Die Forgers (sizes with blow energy 47,000 lbs. higher)



- Notes:
1. 23DF retrofit will be configured with only one main motor.
 2. 38DF retrofit will be configured with two main motors.
 3. The units and parts which are marked in blue color on this drawing will be supplied by CPM.

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819

www.AjaxErie.com

Ajax-CECO Fully Hydraulic Die Forging Hammer

1. Main valve and hydraulic priority valve

Ajax-CECO's priority valve is a ball valve design. Our main valve is a tapered valve.

Our valves have-

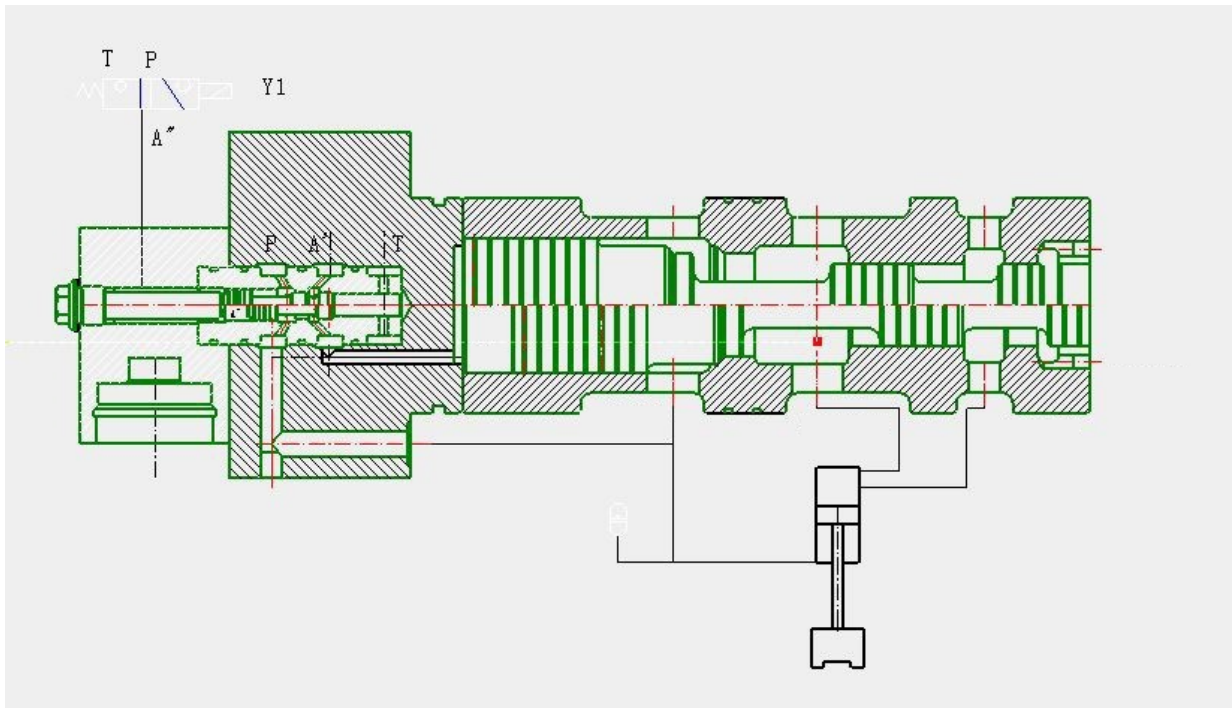
Quick response,

Accurate energy high energy control.

Higher clearance, for forging environment, not easily locked.

They are designed for a long wear life.

The second stage power amplifier taper valve is a high-precision ball valve.



Drawings: Striking valve of **AJAX-CECO** forging hammer

2. Safety protection for inch mode

- **Ajax-CECO** mid-size and small hammers release all pressure before inch up/down to assure safety.
- **Ajax-CECO** hammers quickly release the system pressure to be lower than the accumulator pressure. When the pressure is lower than the ram falling weight, it will automatically shift into slow release. Push the "ram down" button to

Ajax CECO Erie Press

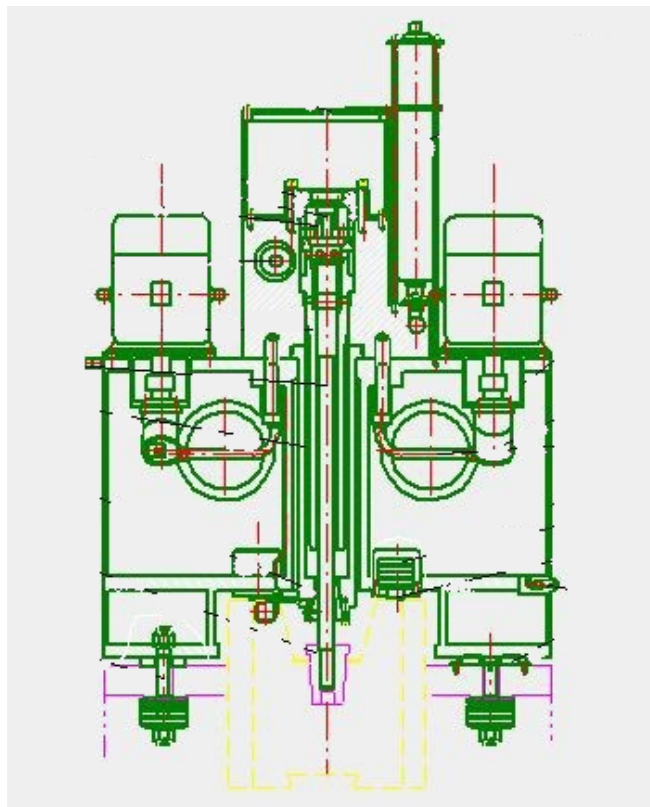
1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819

www.AjaxErie.com

make ram inch down slowly to the required position. This process is safe, easy and quick.

- For larger **Ajax-CECO** hammers, only the working cylinder is used to discharge the oil, avoiding a large accumulator. This is accomplished by hydraulically and electrically interlocking the striking valve and allowing inch mode when the accumulator has reached system pressure.

3. Integrated hydraulic system

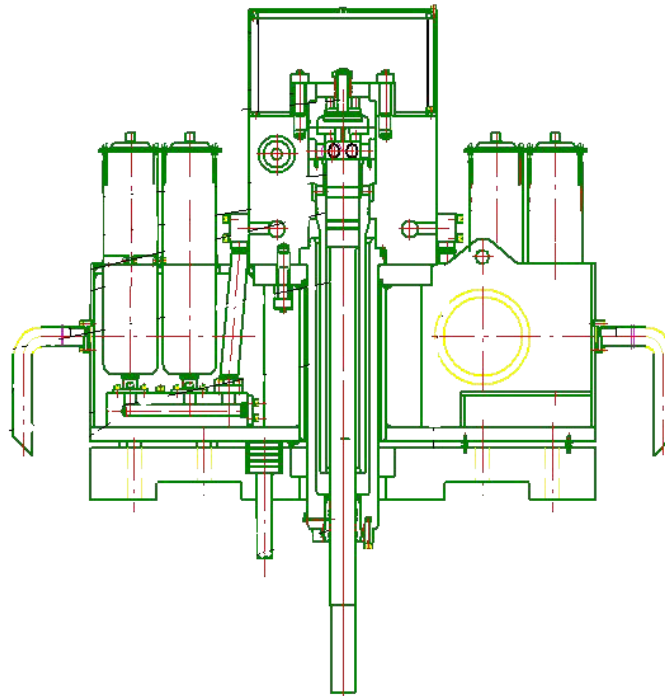


small hammer hydraulic driving system

- The **Ajax-CECO** hammer accumulator and valve block are directly installed. This highly integrated valve uses no pipe connection, has fewer sealing points, and is easy to check and repair. However, **AJAX-CECO** hammers larger than 160kJ use separate accumulators in the oil tank.

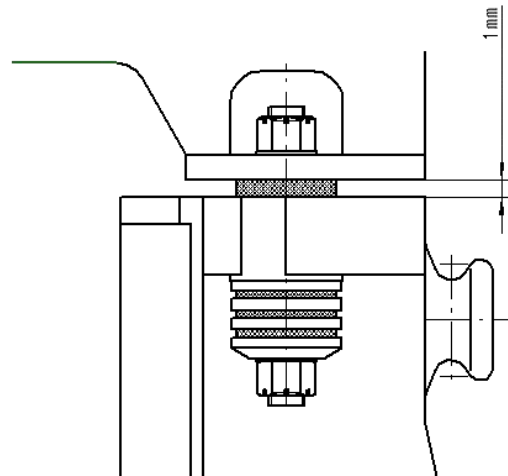
Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com



Large hammer hydraulic driving system

4. Hydraulic driving system and hammer body location and connection.



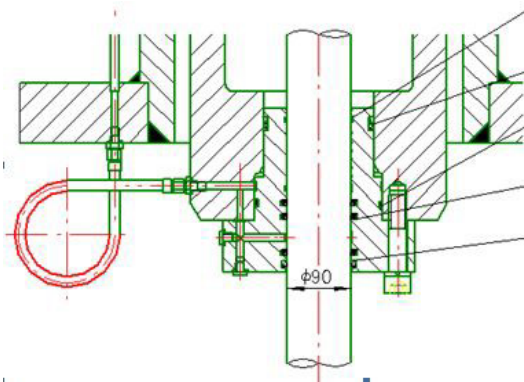
- **AJAX-CECO** hammers use elastic location blocks, and connecting nuts are fixed on elastic spacers.

5. Swaying compound cylinder structure

- The **AJAX-CECO** hydraulic hammer cylinder (outer and inner cylinder) top end is fixed, and the lower head is not, so there is some room for swaying. In addition, this design allows for even wear of seals during off-center forging, increasing the life of the piston rod and seal.



Ajax-CECO flexible hydraulic cylinder is not directly welded to the top limit block, allowing it to flex.



Ajax CECO Erie Press

1253 West 12th St.

Erie, PA 16501

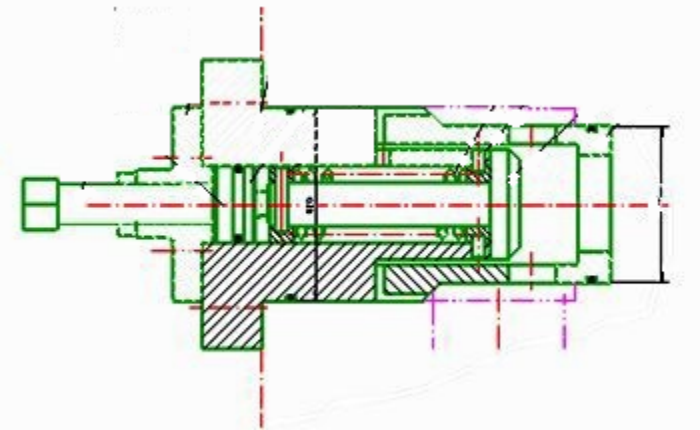
PH: 814-455-3941

FAX: 814-456-4819

www.AjaxErie.com

6. **Safety protection technology**

- The **AJAX-CECO** hammer utilizes a pressure feedback safety stop valve to avoid high-pressure oil spraying if the piston rod is damaged or changed. In addition, the ram interlock assures safety during die changes.



pressure feedback safety stop valve.

7. **Components supplier**

Ajax-CECO hammer is constructed with high-grade components to assure performance. PLC and user interface can be either Siemens or AB; Pressure control units, accumulators, hydraulic control valves, and key sealing components are of the finest quality. In addition, Ajax-CECO specially designs main motors.

8. **Guide rails fixed ways**

AJAX-CECO hammers are fixed at the top, bottom, and center to prevent vertical and horizontal shifting.

9. **Machine standard**

AJAX-CECO hammer is manufactured for ease of repair with common spare parts. Large and small hammers share common components such as valves, electrical components, motors, and pumps.

10. **Machine Options**

Ajax-CECO hammer options are available. Automatic die lubrication, billet transfer, and ejectors can be integrated into the hammer, location, and quality are consistent. These options can help improve machine productivity and ergonomics.

11. **Remote monitoring**

An optional remote monitoring system can shorten repair time when there is a problem, reducing downtime and repair costs for the customer.

12. **Energy consumption:**

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com

Energy savings and lower operating costs can be realized when compared to a pneumatically driven hammer.

Compared to a “nominal falling weight” air-driven hammer, see the *estimated annual energy costs*:

- **8,000 lb.:**

- ✓ Air Supply: 1630 SCFM
- ✓ Cost per KWH: \$.07/kWh
- ✓ Annual cost per 1CFM: \$30.46

- Annual operating cost of AIR hammer: \$49,652.52
- Annual operating cost of equivalent HYD hammer w/(2) 55HP Motors: \$16,170.00

- **5,000 lb.:**

- ✓ Air Supply: 1095 SCFM
- ✓ Cost per KWH: \$.07/KWH
- ✓ Annual cost per 1CFM: \$30.46

- Annual operating cost of AIR hammer: \$33,355.53
- Annual operating cost of equivalent HYD hammer w/(1) 55HP Motor: \$8,085.00

Ajax CECO Erie Press

1253 West 12th St. Erie, PA 16501 PH: 814-455-3941 FAX: 814-456-4819
www.AjaxErie.com

