

H1F-2
110
150
200



110

150

200



Komatsu H1F-2 Hybrid AC Servo Presses



KOMATSU
HIGH PERFORMANCE SHOULD NOT BE OPTIONAL

Komatsu: A Heritage of Innovation

Technological innovations that increase capacity, productivity and performance have been the hallmarks of Komatsu Press Division since its inception more than 75 years ago. Over the years, Komatsu has demonstrated a commitment to respond to customer demands and originate technologies and systems to meet the needs of a global marketplace. Today, Komatsu continues to build on its tradition of engineering excellence to create equipment that satisfies the complex demands of a competitive, highly technical and complex metal stamping industry.

1924

Komatsu leverages its technologically-innovative capabilities for heavy equipment in the mining industry to create the Komatsu Press Division and introduces its first low-maintenance stamping press, featuring the durable clutch-brake unit.

Komatsu perfects its proprietary plunger guide system, which produces 30 percent longer die life and improved part quality. The plunger guide eliminates virtually all lateral movement, allowing tighter gib tolerances and precision slide movement. This technology quickly becomes an industry standard.

Komatsu Press Division wins the Deming Prize for engineering excellence, the first Japanese press manufacturer to receive this coveted engineering award. This acknowledgment strengthens Komatsu Press Division's position as worldwide industry leader.

Komatsu's Super-series of single point gap frame presses brings product standardization to the industry with standard models, features and specifications for added value and performance.



In response to needs in the U.S. auto manufacturing market, Komatsu develops fully-automatic transfer presses that deliver high-productivity features, such as fully-automated die change and the first servo-controlled transfer feeder.

High-strength, low-alloy carbon steel and other high-strength metals replace traditional metals in production of common stamped parts. Realizing the limitations of traditional flywheel-driven powered presses in forming these materials, Komatsu launches a comprehensive development process to bring modern CNC servo technology into the stamping arena. Komatsu engineers build on years of experience in servo drive systems.

1998

Komatsu introduces the world's first standard hybrid AC servo

press. Brilliantly combining the toggle link drive of forging press models with that of modern and efficient AC servo drive systems, the new "Free Motion" of the slide motion path brings together the productivity of a mechanical press with the motion control of a hydraulic press.

Komatsu demonstrates continued engineering excellence with a series of single-point servo presses in standard models ranging from 35 to 200 metric tons as well as standard models in two-point and four-point straightside frames up to 2,500 tons—offering size and capacity that no one else can deliver. As a result of the worldwide acceptance of Komatsu AC servo presses, the company further expands its servo technology division.

Komatsu produces the world's first modular, servo-controlled, multi-slide transfer press rated at 4,200 metric tons. The press features independent slide motion control for each of the seven slides.

Komatsu creates its Automation Technology Division to develop new peripheral automation devices that enhance the technology and productivity advances of its AC servo presses. The division quickly brings new linear motor-controlled transfer feeders, high-speed tandem-line loader/unloader (H*TL) and fully programmable AC servo die cushion automation to market, making Komatsu the first to offer a fully-integrated AC servo technology system in support of customer needs.

Today

Komatsu has delivered over 4,000 AC servo presses into the global market, proof of the worldwide acceptance for the company's innovative technologies and products.



The H1F-2 Servo-driven Press: Designed for Superior Flexibility and Accuracy

- Ideal for progressive, transfer or manual die operations
- Incorporates modern, state of the art A.C. servo technology into mechanical stamping press designs
- Ability to control slide velocity throughout the stamping work being done—optimal slide motion can be set for any application
- Maintains constant working energy throughout stroke regardless of slide velocity
- Provides ability to dwell at position to allow timing of secondary work within the press cycle time
- Improved part quality
- Increased die life
- Ability to program multiple motion paths before returning to top dead center
- Automatically maintain and adjust slide position to assure consistent die height or control tonnage
- Elimination of high maintenance mechanical components like the clutch-brake unit
- Reduces die tryout time and expense
- Saves energy cost by reducing electricity consumption

A Higher Level of Standard Equipment for Increased Performance

- U.S. standard bolster and slide machining
- Heavy plate, rigid frame construction
- Available in optional solid side-frame design on 110-ton models and above
- Pre-machined, heavy-duty cast slide with adapter plate
- Precision oil-lubricated long 6-point gibs
- Automatic lubrication of main drive components
- Quick-responding, dependable hydraulic overload protector
- Shock-resistant, pendant-mounted control
- T-stand for easy set-up and operation
- Job storage memory
- Safety block with interlock
- Air counter-balance system

The Komatsu Warranty

When a press is designed as a system, it should be expected to perform as a system without routine tear downs for wear items (the conventional “weak link” in our competitors’ presses.) That’s why every Komatsu H1F press comes with a Two Year Unconditional Warranty on anything that rolls, slides or glows—parts and labor. Unlike other manufacturers, there is no hourly limit—your press is guaranteed to perform 3 shifts a day, 7 days a week, 365 days a year. With Komatsu systems engineering it’s possible to extract the full potential from your press, and the full revenue potential from every job.

Main Drive

Effective and efficient combination of mechanical and state-of-the-art AC Servo technology

Accuracy

Position and repeatability of slide held within microns

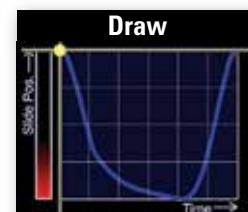
Reliability

Redundant, three-way slide position and monitoring circuit

Programmability

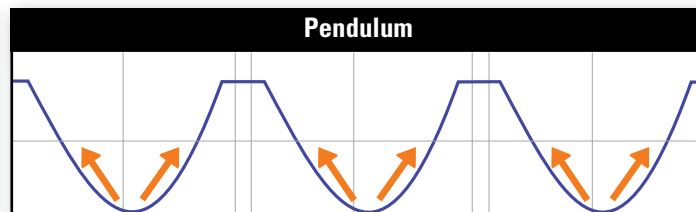
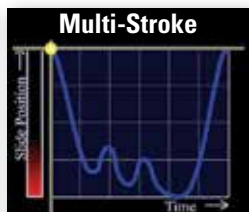
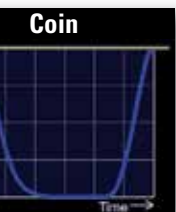
The best motion path can be selected for each stamping operation

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Standard Features

1 Drive Layout

Komatsu engineering has combined today's modern A.C. servo technology to provide a versatile, efficient and reliable solution to the changing demands of today's pressroom. Incorporating a series of mechanical ratios allows for a standard motor size from a proven motor and control system—no proprietary motors or motor controller are used.

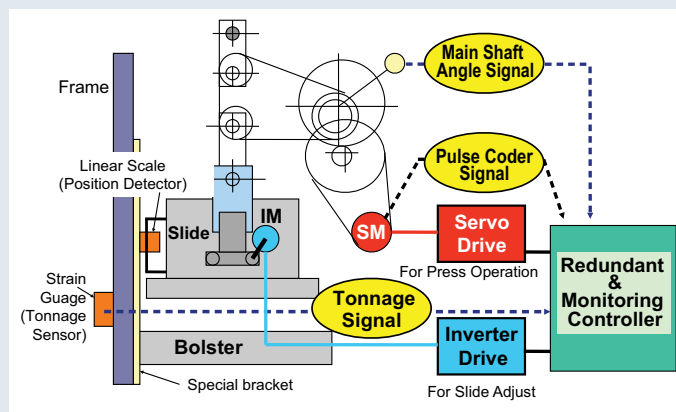
2 Accuracy within microns

A Linear Scale is mounted to the frame of the press and monitors the slide position to assure repeatable die height consistency at the bottom of the stroke where the work is being done. The linear scale is mounted to a sub-frame, fixed at the bottom to assure slide position accuracy and allowed to "float" at the top while the press frame is under load.



3 Auto Die Height Adjustment Auto Tonnage Control when selected for use by user

The linear scale continuously monitors the slide position to assure consistent die height (slide face to bolster top). The two (2) strain gauges of the load monitor read tonnage applied every stroke. As both the linear scale and strain gauges send data to the control, and the operator can select to either control the die height or control tonnage. Die height adjustments and tonnage settings are automatically made during continuous operation of the press. System reliability is assured by constant position monitoring of the main shaft angle detector, motor encoder and actual slide position by the linear scale.



4 Centralized Recirculating Lubrication System

Starting in the gear box, the constant pressurized flow of oil reaching the bearings and journal, as well as the gibs flows into a recovery tank with dual filtering.

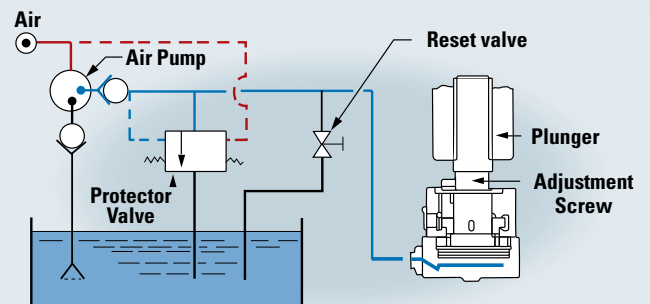


5 Drive system and control

Komatsu AC servo technology dual timing belts are used to couple the motor to the drive train, which are also constantly monitored electronically for motion and breakage, which allows isolating the servomotor from direct load and shock inherent to stamping operations.

6 Hydraulic Overload Protector

Helps prevent damage to the press and dies. All Komatsu presses are equipped with a hydraulic overload protector, a standard feature that has been standard for decades helping to protect against damage to the press or die sets. If the rated load is exceeded at BDC (Bottom Dead Center), the press stops automatically. The hydraulic pressure can be released easily, to allow operations resumed smoothly even if part jamming occurs.



7 SIT IV® - System Integrated Terminal

Advanced electronics technology provides user-friendly operation and outstanding reliability. The SIT IV electronic press control unit is designed to provide the fastest, easiest, and most reliable control available for all press functions. Included as standard equipment on the Komatsu H1F press, SIT IV incorporates all the latest thinking in press control unit design.

- All information necessary for press set-up, start-up, operation and diagnostics is available in one display, at the touch of a button.
- Language terminology and graphics are user-friendly, easily understood by the press operator in plain view in one central location on the digital display. Display also includes plain language description of fault messages.
- SIT IV has the ability to integrate with current press room equipment, such as electronic coil feeds.
- Operator "T-stand" control interface houses all switches and push-buttons required for ordinary press set-up and operation, including Push Buttons for slide adjustment. Includes a hand operate "pulsar wheel" for fine depth adjustments in jog mode.
- Die Data Storage function can store and retrieve die setting data, including cam and fault detection angle, digital display of "stored" press speed, crank angle and auto setting of stored die height value.
- Alpha-numeric entry of die name and memo data for easy cataloging and referencing.
- 8.4" Color Screen
- Built in Comm. Port for optional V-I-S
- Digital Production Counters
 - 1-Total Run, re-settable
 - 1-Lot (pre-set), re-settable
- 4 - Electronic rotary cams
- 1- Pneumatic air ejector with cam angle control
- Mode Selections (On Operator "T" stand):
 - (1) Off, (2) Inch, (3) Single Stroke,
 - (4) Continuous, (5) Jog
- Optional Modes:
 - (1) Automatic Single Stroke, (2) Continuous-on-Demand



Simple guidance. SIT IV displays operational procedure guidance for select press functions. Intuitive, user-friendly prompts guide press operators in a logical series of steps, for faster, more reliable press set up and operation. The SIT IV pendant is also used for all motion programming. Slide velocity is adjusted in percentage values of full velocity. When a velocity change is desired, the exact position where this change occurs can be set by actual slide position or in degrees of operation. The slide motion can be programmed to multiple stages before a complete return to Cycle Start Position (CPS) must occur.

Extensive use of electronics gives outstanding reliability.

- Solid-state control
- Integrated Circuits are used for all control circuits
- Increased safety, longer operation life and high reliability

Digital display for improved operation performance. Digital display of the crank angle and electronic angle detectors provide increased accuracy for press operations. Operation setting and die set-up functions are easier and faster for press operators, with precise, reliable settings every time. To protect the integrity of all electronic systems and provide additional safety, monitor lamps indicate functionality status of the control circuits, and if detected, "fault"s messages are displayed on the HMI screen.



Optional Features

Electronic Load (tonnage) Monitor (2-channel) are available to monitor process loads in all press operations, including blanking, bending, drawing, etc. The monitor also detects die overloads and underloads during operation. In addition, balanced die load is achieved by measuring and displaying the off-center-load, thus extending press and die life.

Vibration Isolating Pad

Slide Knockout (mechanical)

Coil Line Interface

Photoelectric Safety Equipment

Additional set of 4 Electronic Rotary Cams

4 Channel Die Protection Monitor

Graphic Load Monitor with Reverse Load

Quick Die Equipment

Hydraulic die clamps available in either lever or cylinder type.

Hydraulic die lifters.

Mechanical draw out rails.

(note: re-machining of "T" slots may be required)

Pneumatic Die Cushions

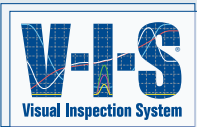
Air Ejector with Cam

Quick Die Change Interface

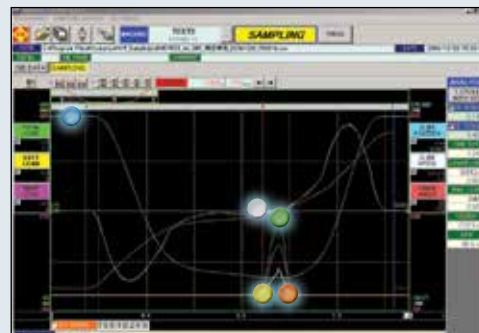
Warning - For protection of the operator, "point of operation" (use) guards should be used at all times. The H1F press does not include O.S.H.A. required "point of operation" guards.

Note - Stopping Performance monitor and control reliability. This control meets the current requirements of O.S.H.A. Standards Section 1910.217 and ANSI B11.1.

Automation Complete turn-key Komatsu designed press systems including coil lines, die carting and systems engineering tailored to your specific application.



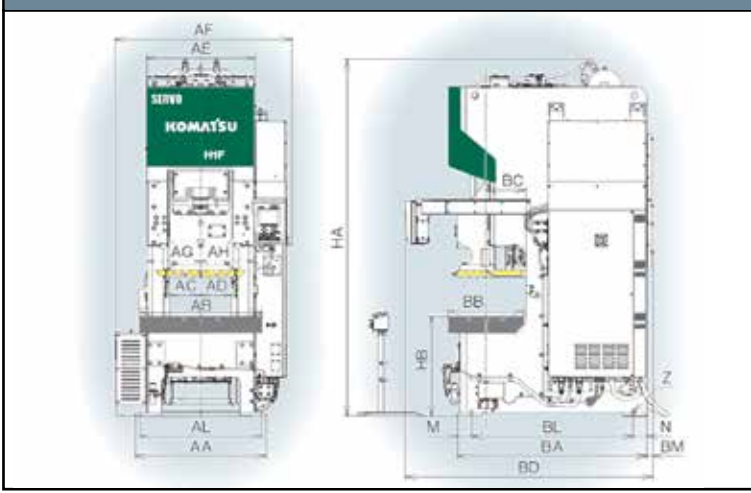
Monitor slide motion and velocity, make adjustments—right from your Ethernet (LAN)-equipped laptop or PC!



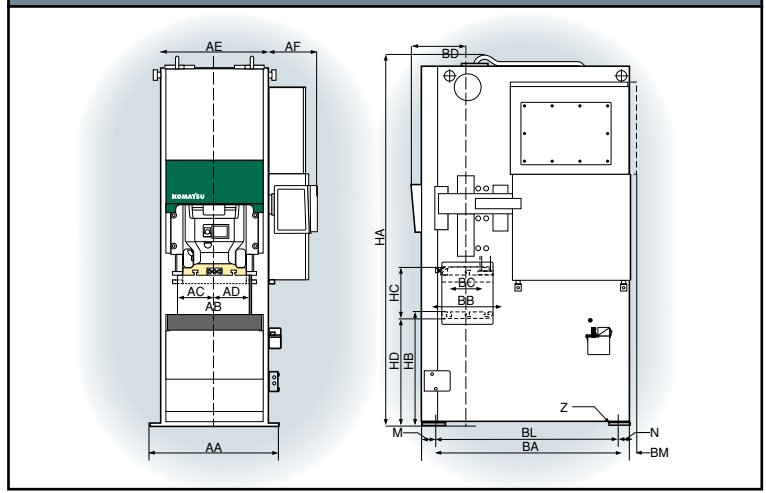
- Slide motion (from actual operation)
- Touch speed
- Maximum loading point
- Monitors precise touch points
- End of forming process



General View ("C" Frame)



General View ("O" Frame)



Specifications (inches)		("C" Frame)			("O" Frame)			
	H1F 110	H1F 150	H1F 200	H1F 110	H1F 150	H1F 200		
AA	46.5	51.5	61.4	33.6	39.8	45.9	AA	
AB	43.3	49.2	57.0	—	—	—	AB	
AC	10.9	12.2	15.3	9.6	11.8	13.6	AC	
AD	10.9	12.2	15.3	8.7	10.9	12.7	AD	
AE	38.2	43.7	50.8	28.1	34.3	40.6	AE	
AF	62.5	64.5	72.0	15.3	15.0	15.0	AF	
AL	42.9	48.4	56.0	—	—	—	AL	
AG	18.9	—	—	—	—	—	AG	
AH	18.9	—	—	—	—	—	AH	
BA	67.1	75.0	115.0	55.7	65.4	69.7	BA	
BB	26.8	29.9	33.1	26.8	29.9	33.1	BB	
BC	14.2	15.3	17.0	15.7	15.7	17.7	BC	
BD	89.8	94.9	108.7	—	—	—	BD	
BL	57.3	63.4	77.0	—	—	—	BL	
BM	2.03	0.12	3.0	0.0	0.0	2.2	BM	
HA	126.6	132.4	154.2	100.8	116.1	125.0	HA	
HB	35.4 Std / 34.2 Long	35.4 Std / 34.2 Long	39.4 Std / 38.2 Long	35.4	35.4	39.4	HB	
HC	—	—	—	13.8	15.7	16.5	HC	
HD	—	—	—	29.5	33.5	33.5	HD	
M	4.9	5.9	4.5	4.0	3.0	3.9	M	
N	4.9	5.7	4.9	1.6	3.5	3.7	N	
Z	1.3	1.4	1.4	1.3	1.3	1.3	Z	

Model Specifications		H1F110-2	H1F150-2	H1F200-2
Frame Type		Gap Frame		
Max. Capacity	US ton	121	165	220
Rating Point	in.	0.20"	0.24"	0.24"
Stroke	in.	7.87"	9.84"	11.8"
Speed	s.p.m.	70	60	50
Pendulum Stroke	in.	1.18" - 5.91"	1.18" - 7.87"	1.18" - 9.84"
Pendulum Speed	s.p.m.	~138	~128	~124
Die height	STD	in. 13.78"	16.54"	17.72"
	Long	in. 14.96"	17.72"	18.90"
Slide Adjustment	in.	3.94"	3.94"	4.72"
Slide	Width	in. 24.41"	27.56"	33.46"
	Depth	in. 20.87"	21.65"	25.59"
Bolster	Width	in. 43.31"	49.21"	57.09"
	Depth	in. 26.77"	29.92"	33.07"
	Thickness	in. 5.91"	6.50"	7.09"
Counter Bal. Cap	lbs.	772	1102	2205
Main Motor	h.p.	40	70	80

Specifications subject to change without notice



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