Press Solutions

Built upon a long history and experience with force solutions for the Die, Hyson has leveraged that knowledge to engineer and manufacture innovative capital equipment solutions for the press.

By having a thorough understanding of stamping processes, at the same time positioning ourselves to have a front line perspective on future trends and challenges, The Hyson is able to develop solutions for tomorrow. As the previous rules and guidelines of the stamping industry continue to change and become obsolete, it is our commitment to provide the solutions necessary to tackle upcoming forming challenges, think outside the box, and rewrite the way metal is formed.

The Key Advantages of our Solutions are to Provide:

Flexibility

The ability to change parameters quickly, and to adapt to process and material variations.

Repeatability

The confidence that you will see the same quality on the 500,000th part that you did on the first.

Controllability

The ability to control the force dynamically throughout the stroke with a high level of accuracy and response times in milliseconds.

Next-Generation Press Cushion System

With the ability to be installed into any press, our integrated forming systems provide an immediate upgrade to stamping equipment

Press Solutions

With an extensive and unrivaled portfolio of metal forming solutions, Hyson provides the right solution for the right application. From an air cushion crossover to integrating the most sophisticated forming features on the market, we have a solution that will streamline your forming operations. Solutions are dependent upon your needs and include:

Nitrogen Press Cushion

TRUEform™

Integrated Forming System

TRUEform™ Integrated Forming System utilizes high-pressure nitrogen gas to deliver accurate force, enabling customers to attain true, high quality formation of stamped parts.

Features Include:

- Self-Contained
- Low Pressure Rise
- Compact Design
- Energy Efficient
- Ram or Bolster Mounted

Hydraulic Press Cushion

OPTIform™

Integrated Forming System

OPTIform™ Integrated Forming System utilizes high-pressure hydraulic fluid to deliver controlled force capable of lock down at BDC and optimizing your forming processes.

Features Include:

- Delay Capable
- High-Force
- Simple Force Adjustment
- Low Contact and Return Force
- Bolster Mounted

Servo-Controlled Press Cushion

MASTERform™

Integrated Forming System

MASTERform™ Integrated Forming System utilizes advanced servo valve technology to precisely control the force, allowing you to master your metal forming process.

Features Include:

- Adjustable Force Profiles
- Delay Capable
- Part Knockout
- Reverse Forming
- Pre-Acceleration
- Bolster Mounted

Press Solutions

With more force and more control, Hyson provides flexible solutions for part knockout applications. From a self-contained system to a complex active hydraulic system, we have a solution for your knockout needs.

INTELLImax™ Integrated Knockout System

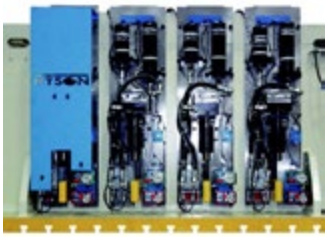
Self Contained

Integrated Knockout System

The INTELLImax™ Self Contained System utilizes a combination of nitrogen and hydraulics to deliver customized force. It is typically mounted to the ram or slide face and can be used with any tool.

Features Include:

- Completely self-contained
- Single or dual force option
- Automatically adjusts to accommodate a range of parts



Hydraulic Press Cushion

OPTIform™

Integrated Forming System

OPTIform™ Integrated Forming System utilizes high-pressure hydraulic fluid to deliver controlled force capable of lock down at BDC and optimizing your forming processes.

Features Include:

- Controlled knockout function using advanced valves
- Perfect match for automation, transfer and part catchers
- Delay/lock down capability

Teaming with Hyson

Gives Metal Stampers the Tools and Resources to:

- Eliminate die and press damage due to mechanical knockout failure
- Eliminate human error traditionally introduced during set up
- Custom engineer solutions specific to their application
- Reduce installation and set-up time
- Increase cycle time in Servo Press
- Reduce scrap

INTELLImax™ Knockout Solutions

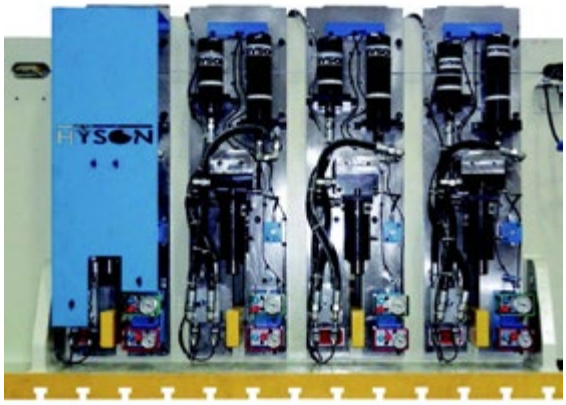
The Self Contained System

Completely self contained and operates without external hydraulics or other equipment, the force of the INTELLImax™ Self Contained System can be customized to your application by changing the charge pressure. The system is actuated by an electric signal which releases the energy to drive the press knockout bar at the user-determined time.

- With the knockout mounted directly to the slide/ram face, the need to modify or **manually adjust the system is eliminated**
- An electric signal actuates the system and drives the press knockout bars at the **user-determined time**
- Force and timing are all under your control
- Ensures **repeatability** with the **correct timing**
- Modular design allows for **ease of installation, serviceability and interchangeability**

The Self Contained System Key Components:

- High pressure accumulator
- Knockout cylinder
- Safety relief valves
- High pressure nitrogen control panel
- High pressure valve



The Active Hydraulic System

The INTELLImax™ Active Hydraulic System performs controlled Knockout without using press tonnage when forming the part. Instead, it pulls force from a compact power unit that actuates the knockout system.

- Enables **fine-tuning** anywhere within the press stroke
- Ability to start the system retracted in **home position**
- Can be implemented into **lower knockout operations**
- Ideal for:
    - Applications where **more control** is needed or when the press has reached its maximum force capability
    - **AHSS** and deep draw applications
    - Applications requiring **transfer and automation**

The Compact Power Unit Key Components:

- Heat exchanger
- Electrical control boxes
- Pump pressure gauge
- Control valve
- Knockout pressure gauge
- Flow valve

The Active Hydraulic Knockout Key Components:

- Guide and bushing assembly
- Over-stroke protection
- Transfer plate
- Nitrogen auxiliary cylinder (to retract)
- Hydraulic knockout cylinder (to extend)
- Hydraulic manifold plate

Next-Generation Knockout Solution

	Challenge					
Feature	Limited Force	Trapped Part in Upper	Trapped Part in Lower	Set Up Times	Maintenance	
Programmable Knockout		SC AH	SC AH			
Mounted In Lower			SC AH			
Mounted In Upper		SC AH				
Easy Force Adjustment				SC		
Modular Design				SC	SC	
More Force	SC AH					
Position Control				AH		
Retracted Home Position						

SC = Self Contained

AH = Active Hydraulic

	Timing With Automation and Part Catchers	Multiple Pin Lengths are Used in Dies	Not Enough Available Force for Knockout and Stamping the Part	Quality Problems When Force is Applied to the Part Before Bdc	Solution
	SC AH				Integrates knockout into press controls to perform part ejection function anytime after BDC.
					Mounts into the press bed, and under the bolster plate.
					Mounts onto the ram/slide face.
					Simplifies force adjustment utilizing nitrogen control panel.
					Provides quick install and service to these systems, in addition to interchangeable knockout stations.
					Uses high pressure components capable of operating parameters at 150 bar (2175psi) allowing for more force in the same space as other technologies.
		AH			Circuit is designed to set the return position of the knockout, allowing for pins of different heights to be utilized from die to die.
			AH	AH	Cylinder returns to retracted position after each cycle. Knockout does not actuate and provide any force until after BDC.