

INTELLImax™

INTEGRATED KNOCKOUT SYSTEMS



Enabling more effective metal shaping and forming since 1964, HYSON Metal Forming Solutions designs and manufactures precision force solutions for critical applications. Our solutions, integrated into mills, presses and stamping tools, help master the complexity of metal forming by providing the **right solutions for your application**. HYSON offers both off-the-shelf and custom-designed products and incorporates the highest level of safety into our solutions.

Our engineering and manufacturing teams paired with our state-of-the-art products help drive:

- Safety
- Repeatable and efficient processes
- Reduced maintenance and repair costs
- Higher quality output

HYSON Press Solutions

With a long history of force solutions for the Die, HYSON leverages their extensive knowledge to engineer and manufacture innovative capital equipment solutions for the press. By having a thorough understanding of stamping processes, The HYSON Metal Forming Team 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 HYSON'S SOLUTIONS:

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

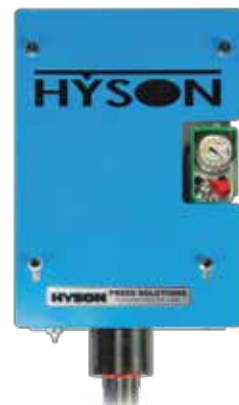
NEXT-GENERATION PRESS CUSHION SYSTEM

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



PROGRAMMABLE KNOCKOUT SYSTEM

Integrated into press controls, INTELLImax™ Knockout System enables flexible, timed part knock out



HYSON METAL FORMING SOLUTIONS... FOR THE PRESS

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:

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



ACTIVE HYDRAULIC INTEGRATED KNOCKOUT SYSTEM

Ideal for applications where more controllability is needed, the INTELLImax™ Active System utilizes hydraulics and can be mounted into the upper or lower operations.

FEATURES:

- Controlled knockout function using advanced valves
- Can be programmed into press controls
- Perfect match for automation, transfer and part catchers



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

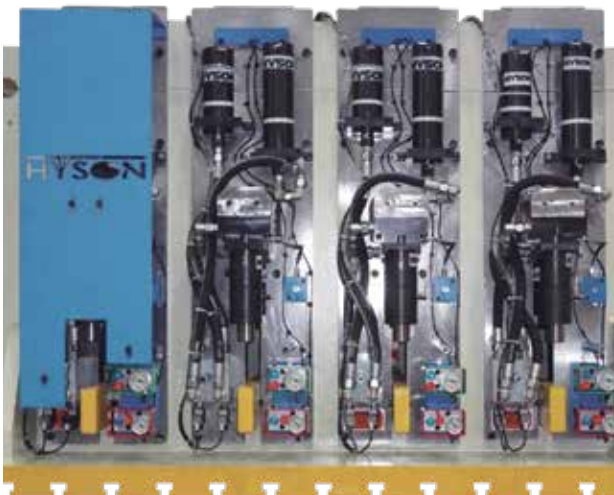
THE SELF CONTAINED SYSTEM

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 **upper and 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
- Control valve
- Electrical control boxes
- Knockout pressure gauge
- Pump pressure gauge
- Flow valve



THE ACTIVE HYDRAULIC KNOCKOUT KEY COMPONENTS:

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



NEXT-GENERATION KNOCKOUT SOLUTION

FEATURE	CHALLENGE							
	LIMITED FORCE	TRAPPED PART IN UPPER	TRAPPED PART IN LOWER	SET UP TIMES	MAINTENANCE	TIMING WITH AUTOMATION AND PART CATCHERS	MULTIPLE PIN LENGTHS ARE USED IN DIES	
PROGRAMMABLE KNOCKOUT		SC AH	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			AH	
RETRACTED HOME POSITION								

SC = SELF CONTAINED

AH = ACTIVE HYDRAULIC



	NOT ENOUGH AVAILABLE FORCE FOR KNOCKOUT AND STAMPING THE PART	QUALITY PROBLEMS WHEN FORCE IS APPLIED TO THE PART BEFORE BDC	SOLUTION
			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.
			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.



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