



## Automatic Cluster Remover System

GEA automated cluster removers are milking point management made easy. Designed with a comprehensive upgrade path allowing you to purchase at entry level and upgrade without losing your initial investment.





## **iHDR100 HEAVY DUTY RAM**

Milking a large number of cows quickly and efficiently requires specialist tools at milking time. The **iHDR100** Ram has been engineered as a heavy-duty solution to meet the needs of today's demanding milking environment.

A powerful 100mm bore provides retraction power for any cluster removal system. This power is also essential when used with cluster drop systems.

The retraction speed is governed by an adjustable regulator which ensures the cluster is removed smoothly with minimal cluster swing.

The vacuum cylinder is made from high tech plastic mouldings impregnated with a Teflon coating for long operating life.

The ram features multiple pulleys so you can select a stroke ratio from 1:1, 1.5:1 and 2:1.

The cord is made from a special braid developed specifically for the application with maximum flexibility and durability and minimal absorption of water and effluent.

The operator's job is made easy thanks to the quick vent system integrated in the head of the ram. This saves up to 60% effort pulling the cord out of the ram.

Other innovative design features that can be integrated into the automation package include onboard **ACR** controller, control solenoids and more.

### **Key Features**

- Powerful 100mm cylinder
- Retraction speed control for gentle cluster removal and minimal cluster swing
- Multiple rope configurations
- Quick venting system makes pulling cord from ram effortless
- Quick installation and servicing
- Tough engineered plastic will not dent like a stainless ram

## Key Technologies Incorporating the iHDR100 Ram

See individual product pages for more details



### iCRS - Bail Restraint System

- Retains cow on the platform if she is still milking, has kicked the cluster off or has milk alerts
- Easily fitted to new or old rotary platforms



### iCR - Intelligent Cluster Remover

- Integral part of system housing electronic controller in head of iHDR100 Ram
- Operator LED's located under transparent ram cover



### iNTELARM

- When the iNTELARM system is installed on the iXPRESS4 system it utilises the iHDR100 Ram
- Ram is mounted directly to iNTELARM for compact installation
- Warning LED located in head of ram perfectly positioned for operators in the pit area allowing complete visibility

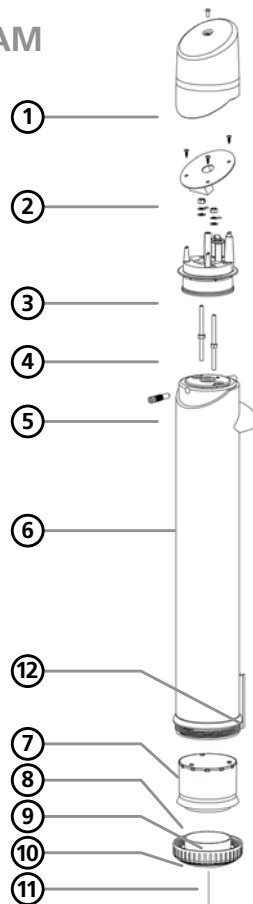
## Exploded View of iHDR100 RAM

### Specifications

STROKE	1:1 = 1000mm 1.5:1 = 1500mm 2:1 = 2000mm
WORKING VACUUM	38-50kpa
MOUNTING	4 x 8mm metric thread
VACUUM INLET	10mm
DIMENSIONS	740mmL x 110mmW x 120mmH
WEIGHT	1.4kg (APPROX)

### Complete Ram Options

DESCRIPTION
iHDR100 Basic
iHDR100 Quick Vent
iHDR100 Quick Vent G2
iHDR100 24V
iHDR100 iCR
iHDR100 iCR G2
iHDR100 TLS INTELLIGENT RAM
iHDR100 TLS INTELLIGENT RAM G2



### Ram Parts

REF	DESCRIPTION
1	iHDR100 RAM Overcap
2	iHDR100 Connection PCB
3	iHDR100 Control Service Kit
4	iHDR100 Pull Start Probes
5	iHDR100 Retraction Adj. Screw
6	iHDR100 RAM Body
7	iHDR100 Piston Body
8	iHDR100 Piston Seal
9	iHDR100 Pulley
10	iHDR100 End Cap Only
11	RAM Cord (Per Metre)
12	Foot Plate Mount



## **iCR INTELLIGENT CLUSTER REMOVER**

**iCR** is a highly intelligent cup remover that offers features previously only available with high-end automation systems at an affordable price.

Designed for simplicity, the system is easily fitted, easily commissioned and is made easy to operate due to the innovative product design.

With **iCR** the operator is in full control of the milking point. The LED's and warning strobe lamps located in the head of the ram indicate the mode of control and if a problem occurred during milking.

### **Remote Controller**

- Remote control system downloads / programs system parameters
- Controls **iCRS** drop down system
- Allows operator to initiate units into auto milking at cups on
- Automatically initiates unit into wash mode
- Can be set for fixed point take off



*Programmer*



**Operator Feedback at Milking Time**

**iCR** has a red warning strobe lamp in the head of the ram along with a green milking status LED and blue washing status LED.

**Red LED**

- Intermittent flashing - low milk alert
- Rapid flashing - kick off alert
- Green and red on - milking timed out alert
- Pulsing - manual mode

**Blue LED**

- Solid - wash standby
- Short pulse - wash mode
- Rapid flash - end of milking cluster will be removed & optional teat spray
- Pulsing - end of initial milk time

**Green LED**

- Green on - standby mode
- Short flash - let down phase



*iHDR100 RAM*



*Bail Restraint*

### **Key Features**

- Heavy duty, powerful ram with high visibility indicators located in the head
- Kick off sensor shuts off vacuum to the claw and retains the cow on the platform if fitted with bail restraint system
- Flexible software to customise the product to each specific installation
- Integrated **iPUD** post spray option

### **iCR Integrated Ram & Controller**

- Powerful 100mm cylinder
- Retraction speed control for gentle cluster removal and minimal cluster swing
- Multiple rope configurations / ratios (1:1, 1.5:1, 2:1)
- Quick venting system makes pulling the cord from ram effortless
- Lamps and warning strobe lights on the **iCR** control board indicate modes of control

### **iCRS Bail Restraint System**

- Bail restraint system retains cow on platform and is controlled by the **iCR** system independent of the main ACR ram
- Special software keeps the cow on the platform if she is still milking or has alerts (options of low milk, kick off, time out or combination of any of the above)
  - Specially designed restraint arms and flexible strap designed to be fitted to any platform type
  - Operated by an independent ram

## System Features

**Letdown Timer** - Allows cow to let her milk down before sensor takes over control of the milking (50-300 seconds).

**Final Interval Timer** - Allows cows to be milked out completely (5-30 seconds).

**Adjustable End of Milking Sensitivity** - Controls take off set point for milking cows wetter or dryer.

**Drop Alert** - Red strobe light in head of cylinder warns operator of cluster being kicked off.

**Cluster Vent Time** - Ensures the cluster is slow vented prior to retraction from cow (1-5 seconds).

**Milk Sweep** - Clears milky residue from cluster after milking. Options include delay (0-10 seconds), number of sweep pulses (0-10), and sweep time (1-5 seconds).

**Drop Down System** - Lowers cluster under bridge for improved cow flow and less tangles on rotaries.

**Bail Restraint System Output** - Controls cow retention arm to retain the cow on the platform if she is still milking or has alerts (options of low milk, kick off, time out or combination of any of the above).

**Alert Standby** - Lowers cluster on ram cord to warn operator of problem during milking in herringbone situations.

**Manual Mode** - Overrides the sensor and timers.

**Total Milking Timer** - Removes cluster once set time has been reached (4-20 minutes).

**Sleep Mode** - De-energises coils and goes into energy save mode (30-120 minutes).

**Fixed Point Take Off** - Remote take off regardless of mode on rotary applications.

**iPUD Teat Spray Control** - iCR now features integrated control of the optional iPUD post milking and spray device.

## Specifications

*Note: Specifications may change without notice.*

RAM
24V DC
Stroke length - 3 ratios
<ul style="list-style-type: none"> <li>1:1 = 1000mm retraction length</li> <li>1.5:1 = 1500mm retraction length</li> <li>2:1 = 2000mm retraction length</li> </ul>
Self lubricating plastics
Quick venting system
10mm vacuum connection
Vacuum 38-50kpa
Internal dust filter
INTELPPOWER
Switch mode type
Input 80-250V A.C
Output regulated 24V DC @ 42 amps
Maximum number of clusters
Without cow restraint 66 clusters
With cow restraint 54 clusters

iCR CONTROLLER
24V DC supply
0.25 amps @ 24V DC (incl iCR & ram valve)
3 inputs, 3 outputs
1 red warning strobe, 2 x function LED's
Infrared communication I/O port
Sensor input
iCR DOUBLE VALVE
24V DC
0.2 amps @ 24V DC
Vacuum 38-50kpa
iCR PUSH BUTTON
12-24V DC
N/O contact 0.5 amps rating
IP68



### Push Button

- Robust push button
- Simple user interface with single push button control for the operator
- Different combinations of button presses allows operator to change modes

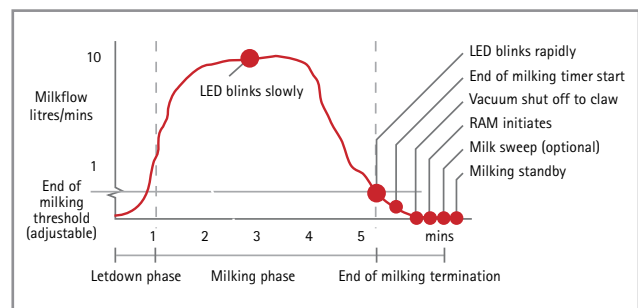


### Visoflow Sensor

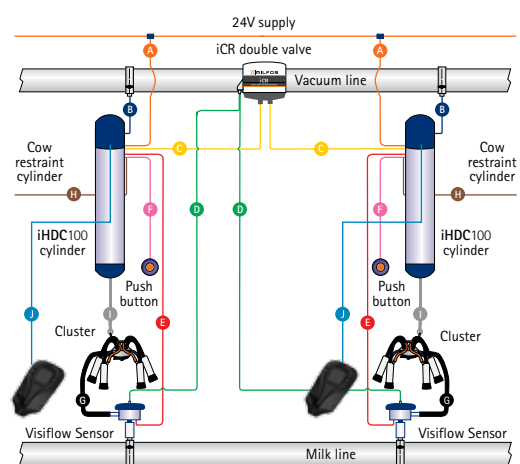
- Integrated valve and sensor for quick, simple installation
- Full flow valve, no restrictions
- Unique 'soft shut off' action due to smart valve seat design

## Typical Milking Characteristics

At a kick off event the system initiates the end of milking sequence and flashes LED's to warn operator.



## Layout of iCR System



<b>A</b> Power supply 24V	<b>D</b> 5mm signal tube	<b>G</b> 19mm milk tube
<b>B</b> 10mm vacuum supply	<b>E</b> Sensor cable	<b>H</b> Cow restraint control 24V
<b>C</b> iCR double valve control 24V	<b>F</b> Push button control 24V	<b>I</b> Retraction cord
		<b>J</b> iPUD Control 24V

## iCRS COW RESTRAINT SYSTEM

The **iCRS** cow restraint system has been designed to make rotary parlours more efficient and reduce labour at milking time.

The **iCRS** system is connected and controlled by the automatic cluster remover installed on the rotary platform.

The cow restraint drops down behind the cow when the cluster is attached which keeps the cow on the platform if she has not finished milking. This reduces labour requirements at the clusters off area.

Using a chain behind slow milking cows is a thing of the past. Now the operator simply attaches the cluster to the cow and the system is automated from that point.

The system consists of machined hinges, a plastic strap and an **iHDR100** Ram that controls the operation.

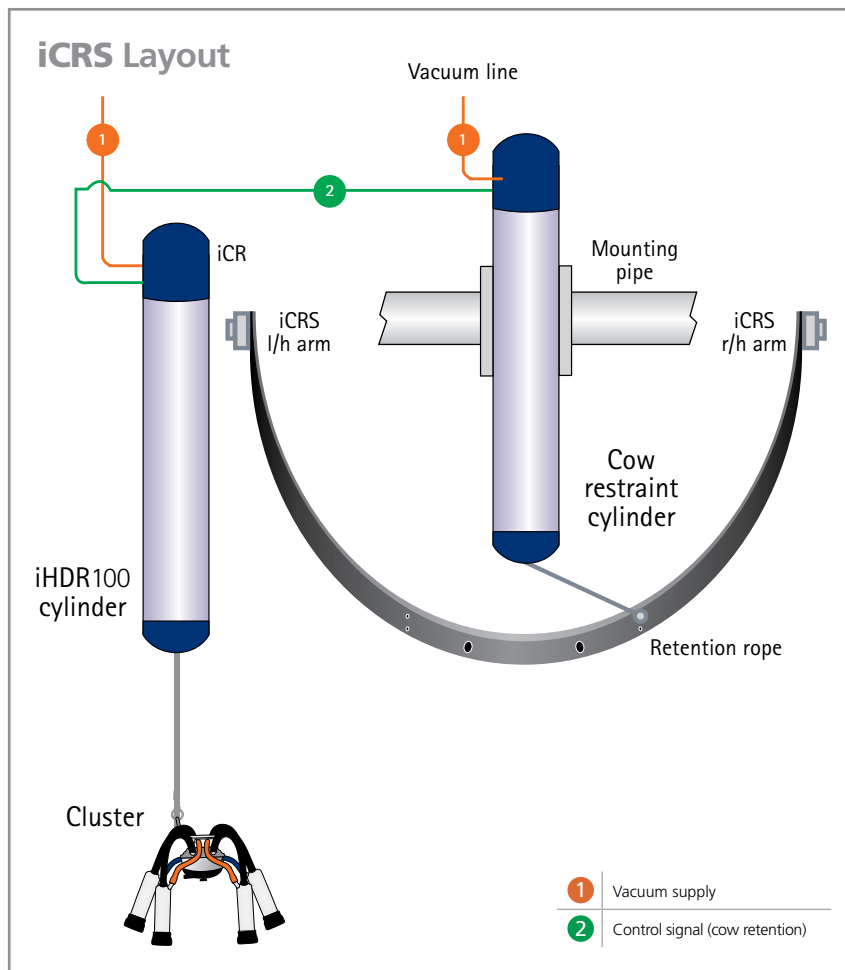
The flexible strap that retains the cow on the platform is a key feature. The system does not use fixed metal arms that can be dangerous at pinch points around the rotary creating a working hazard for operators.

The system can be fitted to all types of rotary platforms and automated cluster removers on the market.

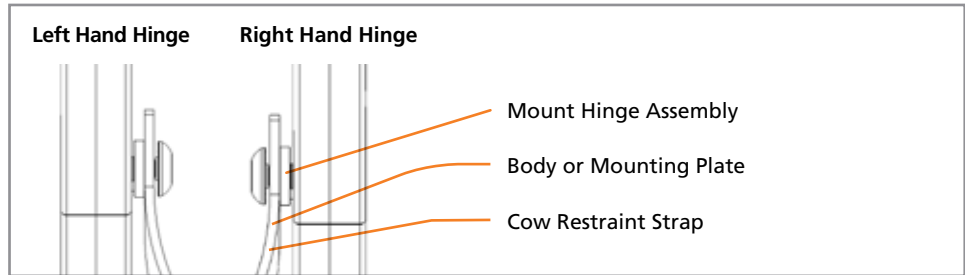
Advanced features such as retention of the cow for low milk, kick off or milk quality problems is also possible with the **iCRS** system.

### Key Features

- Retains cow on the platform if she is still milking or has milking alerts
- Connects to the automated cluster remover
- Suitable for new or existing rotary parlours
- Smart design using flexible strap reduces working hazard for operators at milking time
- Integrated upper and lower stopper to ensure strap is in ideal position

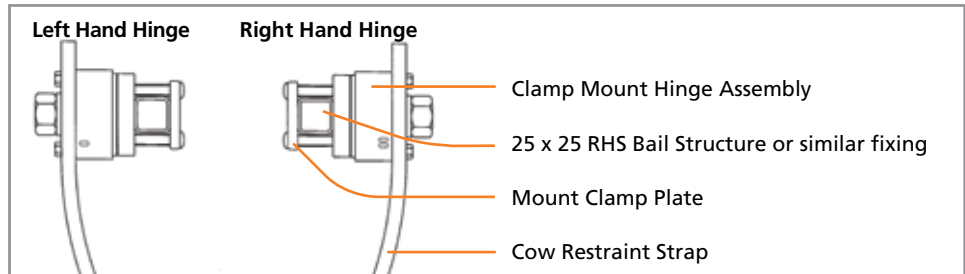


## Gen2 Bail Mount

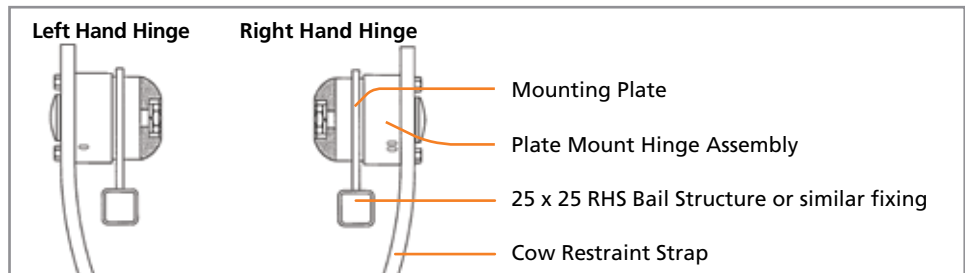


## Gen1 Bail or retrofit options

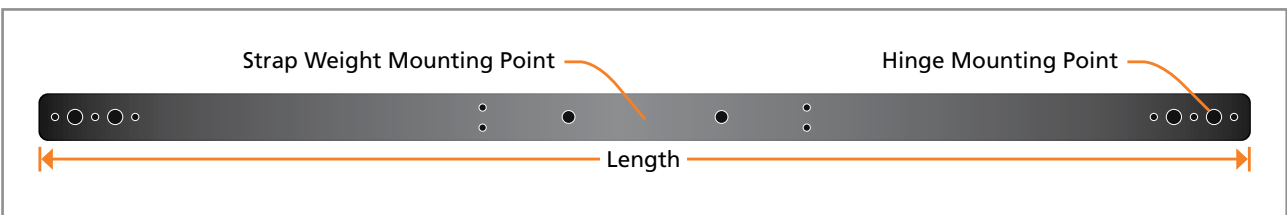
### Clamp Mount



### Plate Mount



## Cow Restraint Polyethylene Strap



### iCRS Complete

DESCRIPTION
iCRS Strap and Hinges 1400 Clamp Mount C/P
iCRS Strap and Hinges 1400 Plate Mount C/P
iCRS Strap and Hinges 1400 Cab Mount C/P
iCRS Strap and Hinges 1500 Clamp Mount C/P
iCRS Strap and Hinges 1500 Plate Mount C/P
iCRS Strap and Hinges 1500 Cab Mount C/P
iCRS Strap and Hinges 1600 Clamp Mount C/P

DESCRIPTION
iCRS Strap and Hinges 1600 Plate Mount C/P
iCRS Strap and Hinges 1700 Clamp Mount C/P
iCRS Strap and Hinges 1700 Plate Mount C/P
Gen2 Strap and Hinges 1945

### iCRS Strap

DESCRIPTION
Polyethylene Strap 1500mm x 60 x 10
Polyethylene Strap 1700mm x 60 x 10
Polyethylene strap <b>Gen2</b> 1945 x 60 x 10

## Drop Down System

The Drop Down System has been designed for rotary applications and can be used with all **GEA** automatic cup remover (ACR) solutions.

This innovative feature has many benefits for the operator and the cows alike. The ACR controllers allow the clusters to be dropped and pass underneath the bridge area where the cows enter and exit. The cluster is then picked up and presented to the operator for attachment to the next cow.

This allows cows to enter and exit the platform without becoming entangled in the cluster, and milk and air tubes. This improves cow flow onto the platform as the entrance for the cows is clear. There are no obstructions such as hanging clusters or twisted rubber tubes and minimizes damage to ACR's and clusters.

The flexible end on the Drop Down Strut prevents injury to the operator while still allowing the cluster to hang over the edge of the platform in the operating zone.

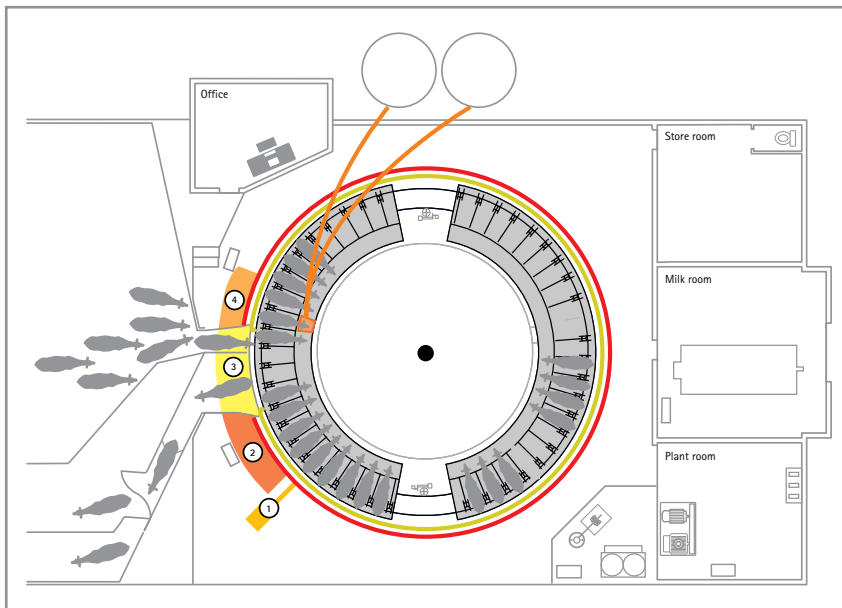
The drop signal for the ACR is a signal sent via an infrared remote, one mounted on each side of the bridge. The remote is programmed to send either a 'drop down' or 'pick up' signal depending on its location.

### Key Features

- Cows have easy entry and exit at the bridge
- Increased cow flow
- Decrease in damaged ACR's and Clusters
- Potential animal and operator injury significantly reduced

### Compatibility

- iCR
- iCORE



*Clusters Dropped Before Bridge*

- ① When clusters are not in use a message is sent to drop them.



*Clusters Passing Under Bridge*

- ② Clusters pass underneath bridge, keeping equipment out of the way and undamaged.



*Clear Bridgeway*

- ③ Clear to enter and exit the platform, no clusters in the way.



*Clusters Ready for Attachment*

- ④ Clusters are lifted and presented to the operator ready for attachment.





## **We live our values.**

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GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

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