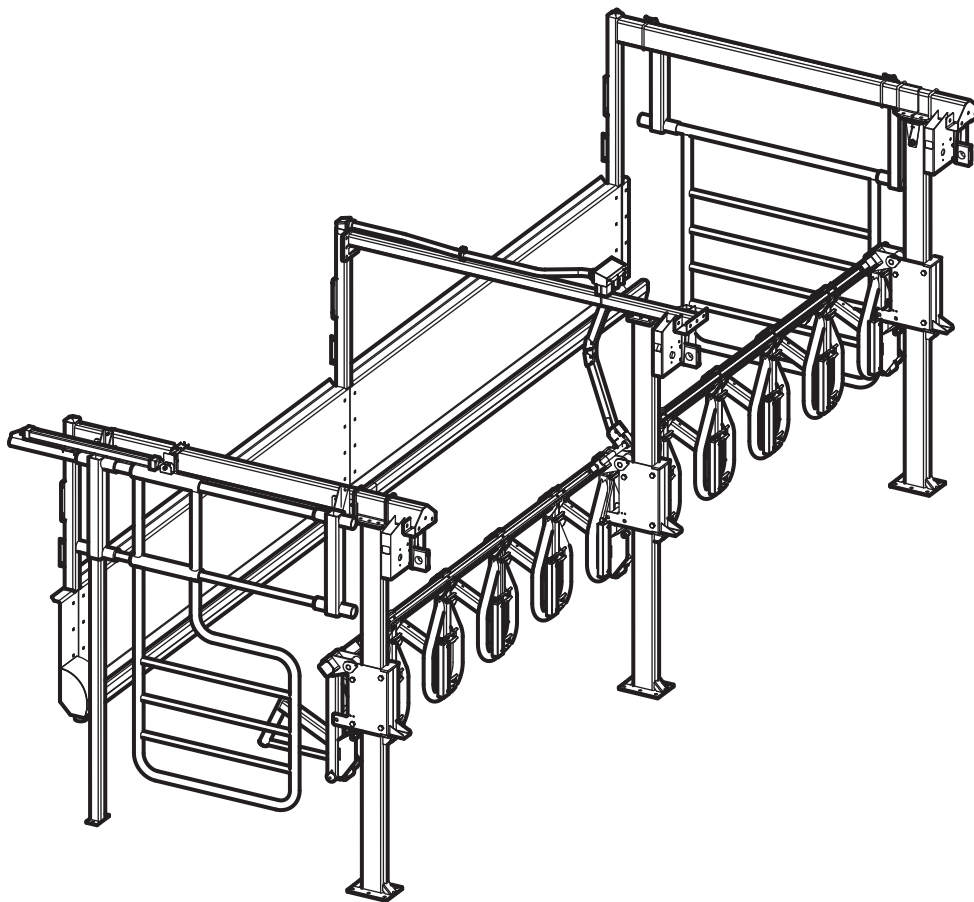


DeLaval ALPRO ID Champion Instruction Book



DeLaval ALPRO ID Champion

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EC Declaration of Conformity

Name of product: **DeLaval ALPRO ID Champion**
Report No. 80005145

The product complies with requirements of the following directives:

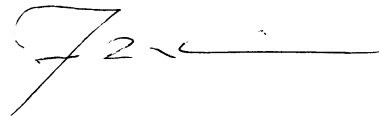
Radio and Telecommunication Terminal Equipment Directive - 99/5/EEC
Electro magnetic compatibility directive - 2004/108/EC

Harmonised standards which have been used:

EN 61000-6-3:2007
EN 61000-6-2:2005
EN 55022:2006
ETSI EN 301 489-3 V1.4.1
ETSI EN 301 489-1 V1.8.1
ETSI EN 300 330-2 V1.3.1

Tumba 2013-02-28

Signed:



Name: Jan Ove Nilsson
Position: Vice President
Department: BA Capital Goods

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Sweden



Safety precautions

DeLaval ALPRO ID Champion

1 Warnings and cautions

Definitions of Admonishments

Admonishments are safety related warning messages.

Admonishments provide important information that is intended to prevent incorrect or hazardous use of equipment, machinery or software, and support risk assessment.

The following list defines the different types used in DeLaval documentation:

Danger: Refers to imminent and severe risk. Failure to comply with instruction will result in serious injury or death.

Warning: Refers to a potential but severe risk. Failure to comply with instruction could result in injury or death.

Caution: Refers to a limited risk. Failure to comply with instruction could result in minor injury or product damage.

Mandatory: Refers to an action or behaviour which is essential to safe and successful use of the equipment.

Prohibited: Refers to an action or behaviour which is incompatible to safe and successful use of the equipment.

Note! Is intended to draw attention to specific points of importance in the text.



Warning!

Do not touch the indicated areas - as they are charged and could give you an electric shock.

Don't touch:

- Heat sinks
- Connector X20

DeLaval ALPRO ID Champion

Safety precautions



Caution!

Never clean the equipment with a high pressure cleaner or any other jet of water. The equipment is sensitive and can be destroyed by the high pressure.



Mandatory!

Disconnect the electrical supply before removing shields, covers or guards

2 FCC compliance statement

This device complies with part 15 of the FCC (Federal Communications Commission) Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interferences that may cause undesired operation.

General description

DeLaval ALPRO ID Champion

1 Very important issues regarding electronic ID

Identification of animals with ISO tags or B transponders are sensitive to noise. Noise in this case is radio waves that interfere with the wave length of the RF transponders. The transponders are sending in the kHz range.

Variable speed drives (VSD) for electric motors and electronic ballasts for florescent lights create noise with a broad wavelength spectrum which interferes with the reading capabilities of the RF transponders.

Electric motors that may be driven by VSD can be found on vacuum pumps, milk pumps, water pumps, manure pumps, refrigeration pumps, fans, voluntary milking systems (VMS), as well as other products that require electric motors

Effects on ID can be very short reading distance to the readers or transponders or can not be read at all is the result of this kind of noise.

Acceptable ID performance may not be achieved if the guidelines below are not followed:

1.1 EU markets

- According to EMC standards, filters on all VSD units driving motors and shielded cables between the VSD and motor is a demand.

1.2 North American market

- To help reduce the risk of both noise and stray voltage, we recommend installing DeLaval SVF filters on all variable speed drives, following recommendations in the DeLaval installation manual, paying close attention to wire type and conduit type.
- DeLaval SVF filters cannot be used in combination with other filters, such as EMI, RFI, other internal or external filters.
- Filters must be installed on all florescent lights having electronic ballasts.

DeLaval ALPRO ID Champion

General description

- No electric wires with more than 30 V running close to the ID readers. Separation distance at least 1.5 meter and 2-3 meters is preferred.
- Electric fence type cow trainers must not be used in the parlor and holding area.

2 Introduction

An advanced technical system used for cow identification requires three components:

- Transponders
- Walk-by antenna
- Cow place antennas

2.1 Transponders



Fig. 1: B-transponder carried on the neckband

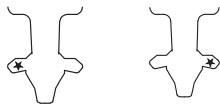


Fig. 2: ISO HDX transponder in the cow's ear (left or right)

DeLaval multi ID system support cow identification by means of B-transponder and ISO HDX transponder.

Note! If no other considerations need to be taken, United States Animal Identification Plan (USAIP) and National Cattlemen's Beef Association (NCBA) are recommending left ear, as the first hand choice, for ISO HDX transponder location.

2.2 Walk-by antennas

The walk-by antenna is located in the entrance gate. DeLaval multi ID system support four types of walk-by portal antennas:

- Blue curtain (replaced by IRW from July 2014)
- Multi reader (replaced by IRW from July 2014)
- Mini multi reader
- ID reader walk by (IRW) (replacing Blue Curtain and Multi reader from July 2014)

DeLaval ALPRO ID Champion

General description

2.2.1 Blue curtain

The Blue curtain reader is intended to be used in a milking parlour for identification of the cows as they enter.

Note! The Blue curtain reader can only recognize B-transponders.

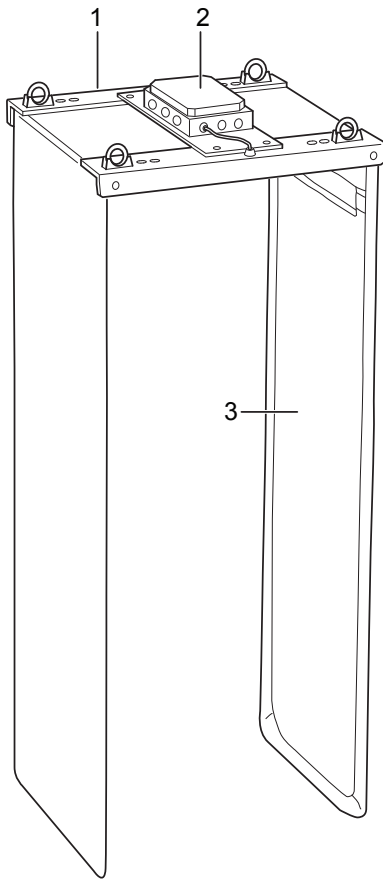


Fig. 3: Blue curtain

- 1: Antenna frame
- 2: Antenna electronic unit
- 3: Antenna curtain

DeLaval ALPRO ID Champion

General description

2.2.2 Multi reader



Caution!

Risk of damage, injury or electric shock!

Never clean the equipment with a high pressure cleaner or any other jet of water. The equipment is sensitive and can be destroyed by the high pressure.

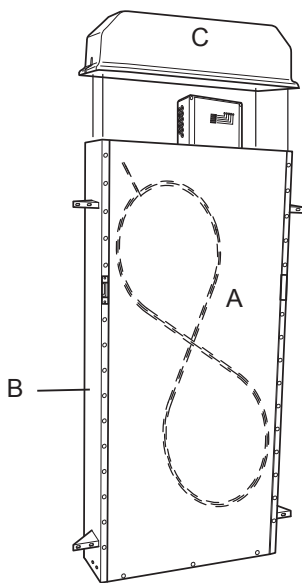


Fig. 4: Multi reader

- A: Antenna panel
- B: Galvanized steel stand
- C: Electronic box

The Multi reader has the broadest application area in relation to what type of transponder is used. It can process the transponder information from both the B-transponders and the ISO HDX transponders.

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General description

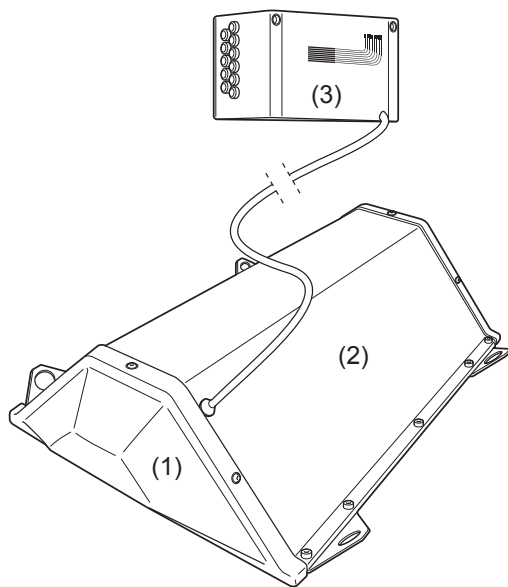
2.2.3 Mini multi reader



Caution!

Risk of damage, injury or electric shock!

Never clean the equipment with a high pressure cleaner or any other jet of water. The equipment is sensitive and can be destroyed by the high pressure.



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Fig. 5: Mini multi reader

- 1: Plastic front sheet with an encapsulated multi conductor
- 2: Galvanized steel stand maintaining strength and shielding
- 3: External box containing electronic circuits

DeLaval ALPRO ID Champion

General description

2.2.4 ID reader walk by (IRW)

2.2.4.1 Introduction

DeLaval ID reader walk by IRW is used to identify cows with B-transponders or ISO HDX transponders.

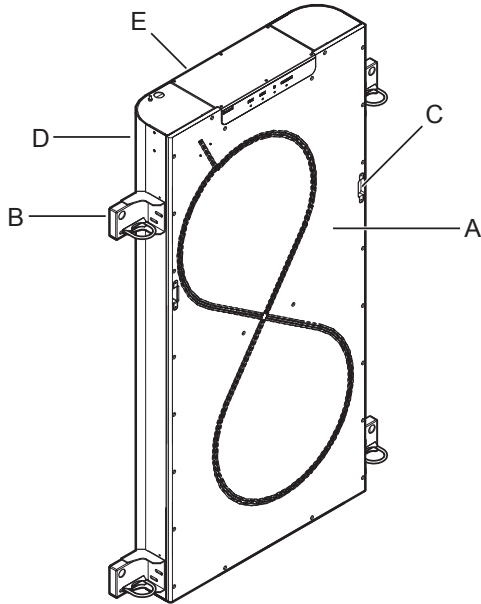


Fig. 6: IRW overview

- A: Antenna panel
- B: Support brackets with lifting eyes
- C: Photocell (can be installed on the left or right)
- D: Galvanized steel stand
- E: Electronic box

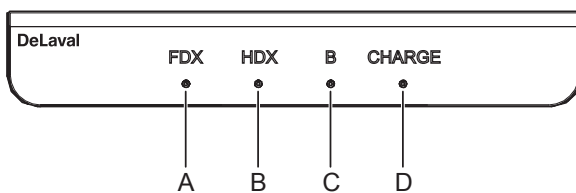


Fig. 7: LEDs of the IRW electronic box

- A ("FDX"): Red light during power up of the IRW
- B ("HDX"): Red light when an HDX transponder is read
- C ("B"): Red light when a B transponder is read
- D ("Charge"): Flashing red when sending information

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General description

2.2.5 IRW function

Multi Reader	
Working Mode:	HDX Number
ID Synchronization Mode:	ALCOM Sync
Charge Frequency:	134 kHz
ID Switch Cycle:	10 S

Multi Reader	
Working Mode:	RED Number
ID Synchronization Mode:	ALCOM Sync
Charge Frequency:	131 kHz
ID Switch Cycle:	10 S

Fig. 8

6:3:8 Multi Reader

The IRW can read B-transponders and ISO transponders. It can not read both B and ISO at the same time.

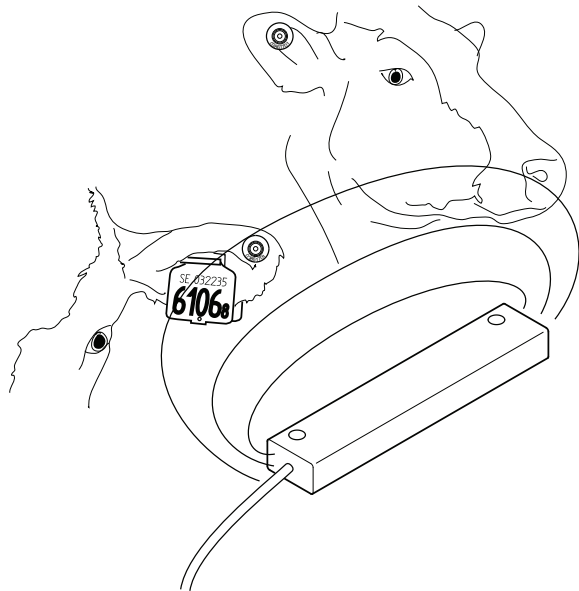
- Working Mode
 - Reduced Number: reads B-transponders
 - HDX Numbers: reads ISO transponders
- ID Synchronization Mode
 - ALCOM Sync: The processor will synchronize all units connected to the processor
 - Wire Sync: One reader synchronizes all IRWs connected to the IRW that is the master in the system, connected with a wire between the units. This option can be used when more than one processor is used
- Charge Frequency
 - 131 KhZ: for B-transponders
 - 134 kHz: for ISO transponders
- ID Switch Cycle
 - 10 S: for B-transponders
 - 5 S: for ISO transponders

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General description

2.3 Cow place antennas

2.3.1 Multi rod reader



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Fig. 9

The cow place antenna, the Multi rod reader, is located inside the parlour.

The Multi rod reader is an electronic unit that is used to identify animals wearing ear tags, ISO half duplex (HDX).

This type of identification is used in feeding and parlour applications where an animal's identity determines the action that should be carried out by the system.

When an ear tag ISO HDX is within the scanning area of the reader, the reader will send the scanned data to a receiving unit, for example a station controller. The data is processed by the receiving unit and the programmed action follows.

See [Chapter 2.3.3 "ID information processing"](#) on page 16 for the function of the cow place antennas in a DeLaval Multi ID system.

2.3.2 Positioning of readers

- ISO transponders: Position the readers in the high position as described
- B-transponders: Position the readers as low as possible, but avoid positioning the bracket so low that it sticks out, causing injuries to the cow

2.3.3 ID information processing

When a cow is identified by the IRW, her transponder number is compared with her cow number, kept in the memory.

All transponder numbers are stored in a buffer as an array. From the buffer the processor send out the cow numbers to the MPCs according to the order in which they were identified.

2.3.3.1 Function of rod reader on the first place

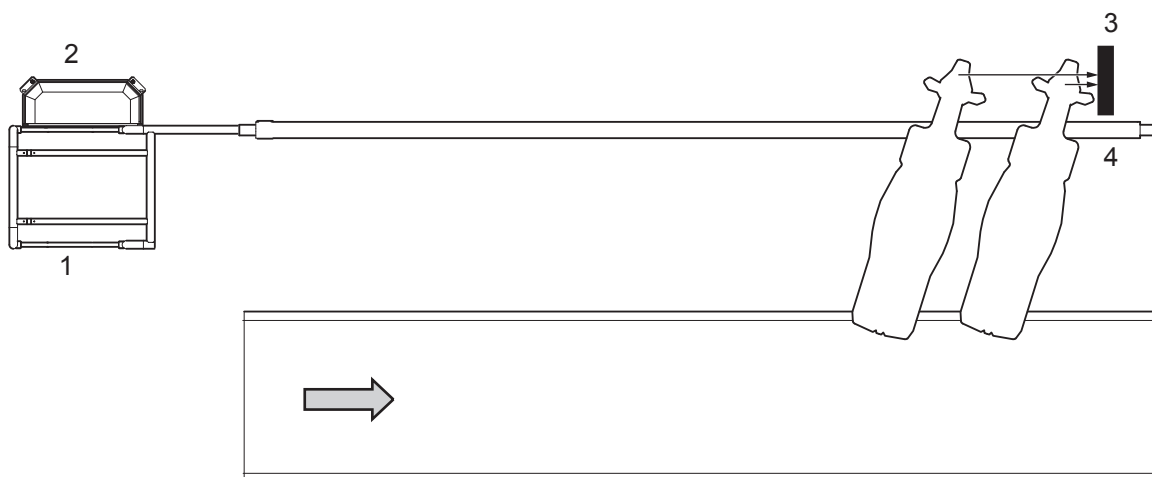
Sometimes the entrance gate opens and the information (regarding ID numbers made by the IRW) is erased from the buffer. For this purpose, DeLaval offers the solution "Identification and

DeLaval ALPRO ID Champion

General description

Correction", giving the second chance to identify the first cow in the batch, with help of the rod reader, positioned on the first place (FPR= First place reader).

Note! The rod reader must be installed in a place where 100% accuracy can be ensured about which cow is rated as the "first" cow.



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Fig. 10: Rod reader on the first place

1: Entrance
2: IRW

3: FPR
4: Exit

2.3.3.2 Function of rod reader on the last place

The accuracy of readings can be improved with the rod reader located on the last place (LPR = last place reader). This solution is known as ID verification.

With the first cow identified by the IRW or by the FPR, the ID verification of the entire batch (row or gang of cows), can be completed due to the way the information is handled by the software. The batch is represented in the software as an array containing ID numbers. In this array the FPR is considered to be equivalent with "START reading", while the LPR is considered to be "STOP reading". All other readings will be sorted in-between these two determinations.

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General description

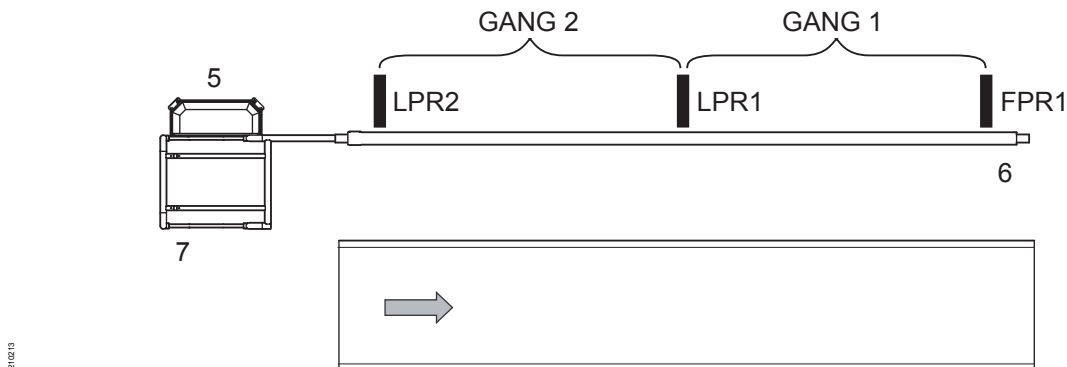


Fig. 11: Rod reader on the last place

- 5: IRW
- 6: Exit
- 7: Entrance

2.3.3.3 Function of rod reader for in-place ID

The accuracy of readings can be improved even more with in-place ID. This means that a multi rod reader is located on each cow place. Each cow is specifically identified on each place. This solution makes the IRW redundant.

2.3.3.4 Function of rod reader for in place ID Parallel parlours

When the entrance gate opens, the readers on the first and third stall are activated. When the first reader has read a transponder, the second and the fourth readers are activated. When the second cow is identified, the third and the fifth readers are activated and the first cow is verified and so on. When a cow is verified the reader is turned off.

If there is a cow without transponder or missed, the MPC will show -----.

A cow can be identified by more than one reader and then the ALPRO logic finds out where she is.

When the exit gate or gang fronts are opened, the milk weight is confirmed to the processor. When the first cow in the next batch of cows is identified, the milk meters are reset and the old cow numbers disappears.

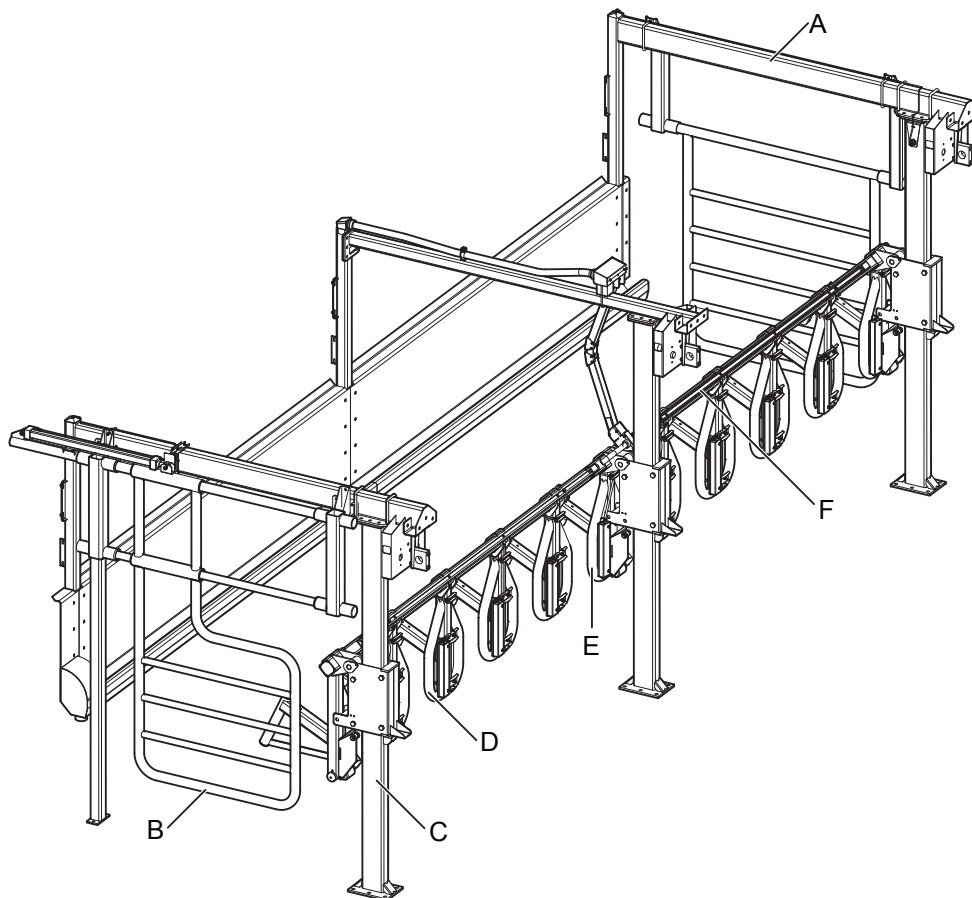
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General description

3 Parlour applications

The DeLaval multi ID system is applicable for both parallel and herringbone parlours. The ID components are the same for all applications.

4 Main parts



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Fig. 12

A: Arch
B: Entrance gate
C: Column

D: Milk bottle
E: Intermediate milk bottle and blocker
F: Neck rail

Operator's maintenance

DeLaval ALPRO ID Champion

1 Daily maintenance

The IRW antenna should be kept clean using only water.

Check that the photocell is clean and correctly directed.

Check that the cable routings from the reader to the MPC are intact. Correct if necessary.

2 Yearly maintenance

Check that all screws and bolts are tightened.

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Troubleshooting

Troubleshooting

DeLaval ALPRO ID Champion

1 Troubleshooting

No.	Symptom	Cause	Action
1	Wrong ID or missed ID. Low hit rate	More than one cow in front of the antenna	Narrow and/or extend the lane in front of the antenna Use archway to prevent cows from riding in the lane Check that no steelwork is missing or deformed
		Transponders not functioning	Exchange broken or weak transponders
		Transponder in the wrong side	Move the transponder to the correct side
		Dirty, broken or misdirected photocell	Clean the photocell Correct the direction of the photocell. Should be directed to read the cow right in front of the antenna Control the function of the photocell by entering ALPRO menu 6.4.3 Replace the photocell. Refer to section "Replacing the photocell" in chapter "Replace and Repair".
		Wrongly connected switch	Connect the switch correctly. It is important to get a correct signal, "open" when open and "closed" when closed
		The cables to the IRW (12 VAC, ALCOM and Gate switch wire) should not be inside the antenna	The cables should go through the grommets and then follow steelworks or frameworks in the parlour
		Problems with ALCOM communication	Check ALCOM settings Check that the ALCOM bus is connected
		Antenna terminals should always be properly connected and have a clean surface against board terminals	

» Continue next page

DeLaval ALPRO ID Champion

Troubleshooting

No.	Symptom	Cause	Action
		Broken antenna	Contact the local dealer or service man
		Problems with the IRW software	Contact the local dealer or service man for service or replacement
2	Missed ID when cows are entering	Interference from frequency converter (especially in Rotary)	Follow the assembly instructions for frequency converter. Use shielded wires Check with the frequency converter supplier how to achieve efficient interference suppression Use a filter on the cable Place the frequency converter as far away as possible from the antenna Do not install the frequency converter in the same cable duct as the antenna
		Input voltage below 12 VAC -10%	Make sure the input voltage is within tolerance, 12 VAC +20%, -10%
		Disturbance from: – computer screens – mobile telephone charger, or – other electronics	(See actions above.) Use filters, keep long distance between the antenna and the noise source, do not install on the same cable and use shielded wiring
		Antenna mounted too close to: – calf feeder (minimum 30 m) – any non-synchronized ID equipment, or – long wave radio transmitter	Increase the distance between noise source and antenna

DeLaval ALPRO ID Champion

Troubleshooting

No.	Symptom	Cause	Action
3	IRW is not connected to ALPRO	<p>Check ALPRO menu 6.8.1 to see node status</p> <p>The symbol * shows that a node is connected to the bus and correctly configured in ALPRO</p> <p>x shows that the IRW not is connected to the bus but correctly configured in ALPRO</p> <p>+ shows that the IRW is connected to the bus but not correct configured in ALPRO</p>	<p>Check node address settings on the IRW</p> <p>Check that the ALCOM bus wire is connected to pin 1 and 2 or 3 and 4</p> <p>Check that the ALCOM bus wire has proper connection to ALPRO</p> <p>Make sure that the Power LED on the IRW is on.</p>
		<p>ALPRO menu 6.8.1, node status, indicates that the IRW is not connected to ALPRO at all times. The symbols are changing between * and x</p>	<p>All nodes on the network must have correct ALCOM address</p> <p>Check that all other nodes are working properly. If another node is broken, this might cause communication problems on the bus</p>
4	Power LED on the IRW is off	Power supply off	Check that 12 VAC is connected between pin 27 and 28

DeLaval ALPRO ID Champion

Troubleshooting

No.	Symptom	Cause	Action
5	Cow ID does not appear on MPC at all when cows are entering the parlour	Communication problem	<p>Check the ALCOM bus connection on IRW</p> <p>Make sure the Power LED is on</p> <p>Make sure that the transponder activation LED on the IRW is flashing when cows are passing</p> <p>Check that the Portal ID is correctly configured in ALPRO</p> <p>Check that the Gate switch connects pin 22 and 23 on the IRW connections when the entrance gate is open</p> <p>Pin 22 is ground and pin 23 should be between 12 to 15 VDC when the gate is closed. When the gate is open, the Gate switch should short circuit pin 22 and 23. Voltage on pin 23 should then be 0 V</p> <p>If no Gate switch is installed, pin 22 and 23 should be short circuit with a wire</p> <p>Rotary:</p> <p>Make sure that the cow is detected by the photocell before the switch (sensor) is activated by the "shoe"</p>
6	Cow ID is erased from MPC before the parlour is full		Check that the Exit gate switch is operating correctly
7	Antenna tuning indicates a problem	The antenna has too low inductance. The three lowest LEDs will flash for 10 seconds	<p>If steelwork are assembled onto the antenna after installation, this might reduce performance</p> <p>Check that the steelworks is not deformed and is of galvanized steel</p> <p>The width should be 800 mm and depth 300 mm. If this is changed during installation, problems will occur</p>
		Antenna has too high inductance. The centre LED will flash for 10 seconds	Make sure the antenna back cover is on

Disposal

DeLaval ALPRO ID Champion

1 Disposal and recycling information

When the product reaches end of life, dispose it properly in accordance with local laws and regulations.

When the product reaches end of life, dispose it properly in accordance with local laws and regulations.

1.1 Disposal of packaging material

(Packaging EU Directive 94/62/EC)



This symbol indicates that the product's packaging material can be recycled.

1.2 Disposal of electrical and electronic equipment with or without battery.

(WEEE European Directive 2012/19/EU)

(European Battery Directive 2006/66/EC)



These symbols with a crossed-out wheellie bin on the product or its packaging indicates that the equipment is electrical waste, with or without battery, and shall not be disposed of with household waste.



A horizontal bar beneath the bin means that the product is manufactured after August 13, 2005.

To prevent inappropriate waste handling of this product, and its negative consequences on the environment and human health, all products shall be disposed of in accordance with local laws and regulations. Hand it over to an official recycling facility, or use a battery disposal facility when available.

Please contact the local municipal office for information on the nearest recycling station.

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Disposal
