



COMPRESSED AIR CONDENSATE MANAGEMENT AND ENERGY SAVING PRODUCTS

LEVEL SENSED DRAINS

KAPTIV-MD
KAPTIV-CS
KAPTIV-CS-HP
NUFORS-CR
MAGY-UL
MAGY



 **DRAIN EFFICIENCY**

RELIABLE

INDEX

Chapter	Content	Page
1	Introduction to Compressed air condensate Why install a condensate drain?	3
2	Will any condensate drain do? JORC's drain construction	4
3	KAPTIV-MD Specifications 16 bar	5
4	KAPTIV-CS Specifications 16 bar	7
5	KAPTIV-CS-HP Specifications 50 bar	9
6	NUFORS-CR Specifications 16 bar	11
7	MAGY-UL single inlet Specifications 16 bar	13
8	MAGY dual inlet Specifications 16 bar	15
9	Alarm feature KAPTIV-CS Servicing advantages	17 18
10	Installation guidelines Accessories	19 20

Version 06-2018

JORC Industrial is a global condensate management specialist of Dutch origin offering condensate drains, oil water separators and air saving equipment to distributors, dealers and OEM's in more than 100 countries. JORC Industrial is dedicated to setting the standard in helping its customers manage their condensate management requirements.

Information provided herewith is believed to be accurate and reliable. However, no responsibility is assumed for its use or for any infringement of patents or rights of others, which may result from its use. In addition, JORC reserves the right to revise information without notice and without incurring any obligation.

Chapter 1

COMPRESSED AIR CONDENSATE

During the process of compressing air, atmospheric air along with water vapour and atmospheric contaminants (hydrocarbon, dust particles or chemical vapours), are drawn into the compressor intake.

Additionally, the compression chambers of most compressors require oil for lubrication, sealing and cooling. Once compressed, the air flows into an after cooler to remove the heat of compression. As the air cools in the after cooler, water and hydrocarbon vapours will condense.

Additional condensation takes place as the air is further cooled in the piping and air dryers.

Environmental regulations strictly prohibit the discharge of oily wastes and chemicals, including the condensate drained from a compressed air system. Because of these requirements, municipalities regulate the discharge of compressor condensate to surface water, wastewater treatment facilities and sanitary sewers. Please refer to our range of oil/water separators: SEPREAMIUM and PURO-CT.

WHY INSTALL A CONDENSATE DRAIN?

Condensate drains are possibly the least glamorous and most ignored component of a compressed air system but nevertheless, a most important part. No matter how much money you spend on that fancy new compressed air system, not spending a little effort with your drain choice could cause you no end of headaches and increased operating costs for years to come.

Contaminants can enter a system at the compressor intake or be introduced into the airstream by the system itself. Lubricant, metal particles, rust, and pipe scale are all separated and filtered out, but it's the drains that have to operate properly for the filters and separators to be successful in completing their task.

Drains can be found on an intercooler, after-cooler, filter, dryer, receiver, drip leg, or at point of use. Drains come in many types and variants for all these applications, some quote fancy descriptions, but they fall into these basic categories. Level sensed – timer operated – float – none (yes that is a drain choice).

Drains improve your system efficiency. Besides the obvious savings of compressed air with a zero air loss drain choice, there are other less obvious ways drains can save energy or cost you energy if not properly maintained. They are key components in the quest for system efficiency and reliability.

On multiple stage compressors moisture carry over from the intercooler may allow liquid into the next stage causing premature wear and possibly a catastrophic failure.

Installing a reliable drain is an absolute must!



WILL ANY CONDENSATE DRAIN DO?

Compressed air condensate contains particles that contaminate compressed air systems and potentially cause valve blockages. It is important to choose a drain that offers a large enough orifice. Avoid drains that have diaphragm type valve constructions, the diaphragm has a very small hole in it, that once blocked, the complete drain fails to operate.

Drains are also installed outdoors. IP65 (NEMA4) insulation protection is therefore a minimum requirement. Avoid drains that do not comply with this minimum specification.

For long life expectations select drains that have FPM seals. FPM is the best suited for the aggressive make up of compressor condensate.

Servicing a drain must be straight forward and quick. Avoid drains that are not service friendly as this will cost more time during the maintenance interval.

JORC'S DRAIN CONSTRUCTION

It starts with the design! JORC drains are robust and designed for long life heavy duty applications.

The JORC direct acting valve construction has proven to be the most reliable option for condensate draining applications. We apply stainless steel moving parts that offer a long life guarantee and are less sensitive to larger particles found in condensate.

The drain housings are constructed from robust coated aluminium and not from plastic. This ensures that no damage is occurring during transport, installation, functional operation and the subsequent maintenance moments throughout the drain's working life.

High grade coil insulation protect the copper wire from overheating and top brand pcb components are applied on the electronic modules.

Servicing JORC drains is quick and simple. Low cost service kit packages are available for all JORC drains.

In all JORC drains there are FPM seals that have been specifically selected based on their high and low temperature operation characteristics. In addition, FPM is the best choice for compressed air condensate as it is often quite aggressive.

JORC drains can be applied in both oil lubricated and oil free compressor applications.

JORC products carry globally recognised approvals.



JORC is NEN – EN – ISO 9001 -: 2015 certified

Chapter 3

KAPTIV[®]-MD

Electronic zero air loss drain

The KAPTIV-MD (Mini Drain) removes all types of condensate from compressed air systems up to 10 m³/min. without the loss of compressed air.

PRODUCT FEATURES

The KAPTIV-MD incorporates the reliable JORC direct acting valve assembly with FPM seals, offering a pressure range of 0 to 16 bar.

The solid and robust aluminium housing design of the KAPTIV-CS has also been incorporated in to this model.

With an inlet connection height of only 74 mm this is an incredibly compact solution with unrivalled installation versatility and reliability. The weight of the KAPTIV-MD is approx. 0.5 kgs.

The maximum compressor capacity of this drain is 10m³/min. and typical draining applications include fridge dryers and filters - mainly due to its incredible compact size.



COMMERCIAL BENEFITS

- Extremely compact and lightweight unit
- True zero air-loss solution
- One model covers all compressor capacities up to 10 m³/min.
- No sizing chart required, offering stocking advantages
- The serviceable valve offers maintenance opportunities
- Consult JORC for private labelling options

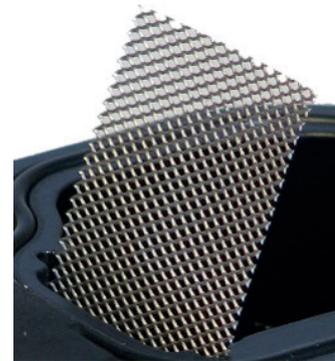
TECHNICAL ADVANTAGES

- Zero air-loss during the condensate discharge
- Visual alarm feature
- Easy to install due to its low inlet height
- External valve construction allows for fast and easy maintenance
- Direct acting valve with FPM seal
- Robust corrosion resistant aluminium housing
- A large integrated mesh strainer

PRODUCT DIMENSIONS



123mm



Large integrated mesh filter

PRODUCT SPECIFICATIONS

Max. compressor capacity	10 m ³ /min. (350 CFM)
Max. drainage capacity	45 litres condensate per hour at 16 bar
Min./max. system pressure	0 bar / 16 bar (up to 230 PSI)
Min./max. medium temperature	1 - 50°C
Min./max. ambient temperature	1 - 50°C
Supply voltage options	230VAC / 115VAC / 24VAC / 24VDC
Environmental protection	IP 65 (NEMA 4)
Connector type (power)	DIN 43650-B
Inlet connection	1/2" (BSP or NPT)
Inlet height	7.4 cm
Outlet connection	1/4" (BSP)
Valve type	2/2 way, direct acting
Valve orifice	2 mm
Valve seals	FPM
Serviceable valve	Yes
Integrated mesh strainer	Yes
Housing material	Corrosion resistant aluminium, EP coating
TEST feature	Yes
Alarm	Yes, LED indication

For external alarm options please see the KAPTIV-CS range.

Quick disassembling to service the drain – standard tools required



JORC direct acting valve construction offering you condensate discharge reliability

Chapter 4

KAPTIV[®]-CS

Electronic zero air loss drain with alarm function

The KAPTIV-CS (Compact Solution) removes all types of condensate from compressed air systems up to 100 m³/min. without the loss of compressed air.

PRODUCT FEATURES

The KAPTIV-CS is very effective and offers a rapid pay-back due to a competitive pricing level, low stocking cost, zero air-loss and energy saving features.

The compact and industrial robust housing design, the 2/2 way direct acting valve with a large orifice, the alarm N/C or N/O and the integrated mesh strainer make the KAPTIV-CS a highly reliable draining solution.

The standard model offers a pressure range of 0 up to 16 bar. For higher pressure see the chapter KAPTIV-CS-HP.



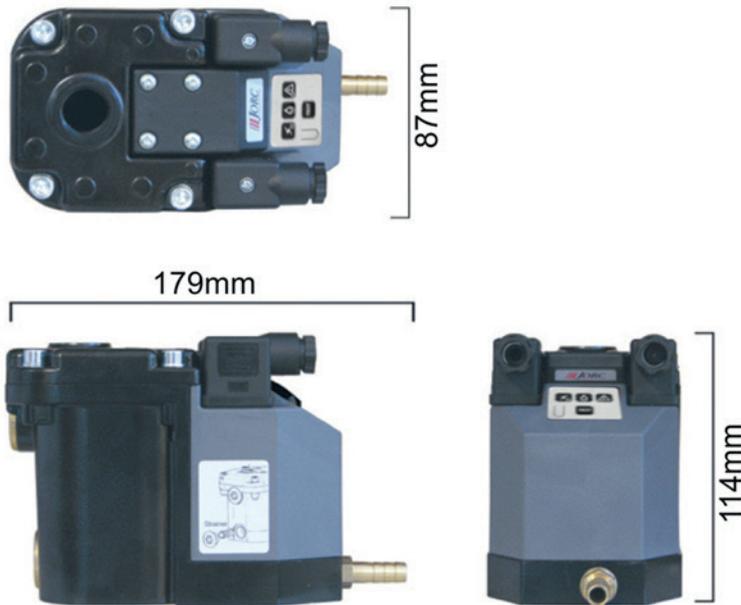
COMMERCIAL BENEFITS

- Competitive compact zero air loss draining solution
- Zero air loss technology saves air, energy and money
- Rapid pay-back period due to competitive pricing level and reduced stocking costs
- 1 model covers up to 100 m³/min. compressor capacity
- No sizing charts required
- Consult factory for D-LUX models (a variant that offers extensive programming options)
- Consult JORC for private labelling options

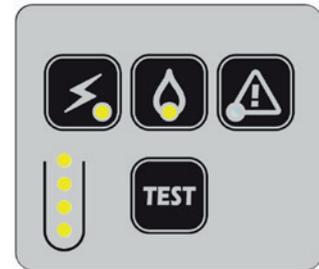
TECHNICAL ADVANTAGES

- Alarm function (N/O or N/C) standard incorporated
- Successful draining of all types of condensate due to large orifice
- Easy installation and visual display of operating status
- Integrated mesh strainer
- Direct acting valve assembly, ensuring reliable discharge operation
- Robust corrosion resistant aluminium housing
- Easy and quick to service

PRODUCT DIMENSIONS



Touch button display
A1/A2 versions



Optionally available; A3/A4
versions with digital sight
port/level indicator

PRODUCT SPECIFICATIONS

Max. compressor capacity	100 m ³ /min. (3500 CFM)
Max. drainage capacity A1/A2 version	110 litres condensate per hour at 16 bar
Max. drainage capacity A3/A4 version	665 litres condensate per hour at 16 bar
Min./max. system pressure	0 bar / 16 bar (up to 230 PSI)
Min./max. medium temperature	1 - 50°C
Min./max. ambient temperature	1 - 50°C
Supply voltage options	230VAC / 115VAC / 24VAC / 24VDC
Environmental protection	IP 65 (NEMA 4)
Connector type (power and alarm)	DIN 43650-B
Inlet connections	1/2" (BSP or NPT) (3 inlet options)
Inlet height	11 cm (top) and 7.5 & 1.5 cm (side)
Outlet connection	1/4" (BSP)
Valve type	2/2 way, direct acting
Valve orifice	4mm
Valve seals	FPM
Serviceable valve	Yes
Integrated mesh strainer	Yes
Housing material	Corrosion resistant aluminium, EP coating
TEST feature	Yes
Alarm contact options version A1/A3	Normally Open (N/O)
Alarm contact options version A2/A4	Normally Closed (N/C)



Three inlets offer
installation flexibility



Integrated mesh
strainer protects
the valve against
large contaminants

Chapter 5

KAPTIV[®]-CS-HP

High pressure electronic zero air loss condensate drain

The KAPTIV-CS-HP (up to 50 bar) removes all types of condensate from compressed air systems up to 100 m³/min. without the loss of compressed air.

PRODUCT FEATURES

The KAPTIV-CS-HP is a compact electronic zero air loss condensate drain for applications up to 50 bar.

The KAPTIV-CS-HP is effective and offers a rapid pay-back period due to a competitive pricing level, low stocking cost, zero air-loss and energy saving aspects.

The KAPTIV-CS-HP can be installed in all compressed air system components up to 100 m³/min. regardless size and climate zone – only 1 model needed!

The robust industrial housing, the alarm feature and the 2/2 way direct acting valve assembly make the KAPTIV-CS-HP a reliable solution for all compressed air system applications.

The KAPTIV-CS-HP offers an integrated mesh strainer (to prevent large particles from entering the valve orifice), is easy to disassemble and is service friendly.



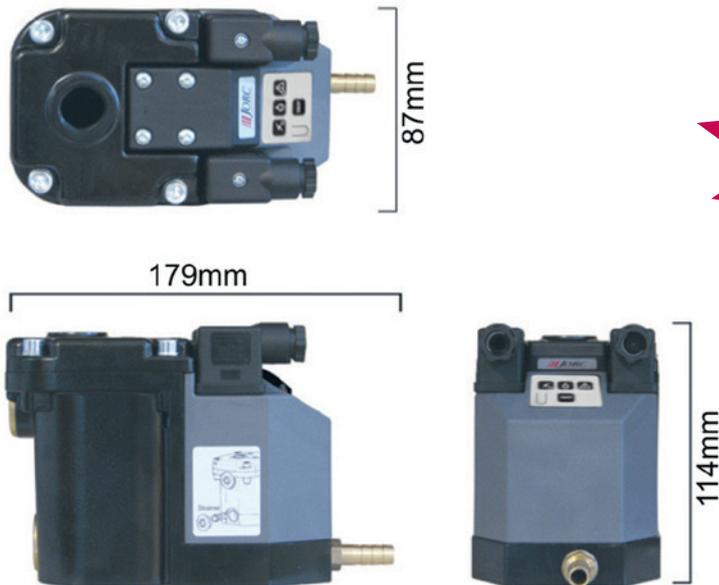
COMMERCIAL BENEFITS

- Competitive compact zero air loss draining solution
- Zero air loss technology saves air, energy and money
- Rapid pay-back period due to competitive pricing level and reduced stocking costs
- 1 model covers up to 100 m³/min. compressor capacity
- No sizing charts required
- Consult JORC for private labelling options

TECHNICAL ADVANTAGES

- Alarm function (N/O or N/C) standard incorporated
- Successful draining of condensate due to large orifice (also heavily emulsified condensate)
- Easy installation and visual display of operating status
- Integrated mesh strainer
- Direct acting valve assembly, ensuring reliable discharge operation
- Robust corrosion resistant aluminium housing

PRODUCT DIMENSIONS



**High pressure
up to 50 bar**

PRODUCT SPECIFICATIONS

Max. compressor capacity	100 m ³ /min. (3500 CFM)
Max. drainage capacity	120 litres condensate per hour at 50 bar
Min./max. system pressure	0 bar / 50 bar (up to 725 PSI)
Min./max. medium temperature	1 - 50°C
Min./max. ambient temperature	1 - 50°C
Supply voltage options	230VAC / 115VAC / 24VAC / 24VDC
Environmental protection	IP 65 (NEMA 4)
Connector type (power and alarm)	DIN 43650-B
Inlet connections	1/2" (BSP or NPT) (3 inlet options)
Inlet height	11 cm (top) and 1.5 & 7.5 cm (side)
Outlet connection	1/4" (BSP or NPT)
Valve type	2/2 way, direct acting
Valve orifice	1.8 mm
Valve seals	FPM
Serviceable valve	Yes
Integrated mesh strainer	Yes
Housing material	Corrosion resistant aluminium, EP coating
TEST feature	Yes
Alarm contact options	A1 (Normally Open (N/O)) A2 (Normally Closed (N/C))



Multiple (3) inlet options



Integrated mesh strainer protects the valve against large contaminants



Three stage compressor applications can be fitted with the all-in-one solution, covering the various pressure stages – mounted on one bracket.

Chapter 6

NUFORS[®]-CR

Level sensed condensate drain

The NUFORS-CR removes all types of condensate from compressed air systems up to 100 m³/min. without the requirement of electricity.

PRODUCT FEATURES

The NUFORS-CR removes condensate from compressed air systems **without using electricity**.

The discharge process is automatic and is based on a newly developed **3/2 way** level controlled valve principle that operates a piston type **direct acting** valve.

The NUFORS-CR is ideally suited in applications where power is not available, too expensive or not reliable.

The **integrated stainless steel strainer** protects the valve, optimising the discharge performance.



COMMERCIAL BENEFITS

- Suitable for any type of compressed air system
- No electricity required – install and go
- No operating costs
- Competitive ‘true green’ solution
- Reduced stocking costs - 1 model covers 100 m³/min.
- No complicated sizing charts required
- Consult JORC for private labelling options

TECHNICAL ADVANTAGES

- Compact and unique design
- Incredibly easy and quick to install and service
- No complicated external control air balance line required
- Integrated mesh strainer
- Top- and side inlets available
- TEST button feature for routine testing
- Robust corrosion resistant aluminium housing
- Direct acting valve construction for a reliable condensate discharge operation
- Successful draining of, even heavily emulsified, condensate due to large 6 mm valve orifice

PRODUCT DIMENSIONS



PRODUCT SPECIFICATIONS

Max. compressor capacity	100 m ³ /min. (3500CFM)
Max. drainage capacity	1.062 litres condensate per hour at 16 bar
Min./max. system pressure	3 bar / 16 bar (up to 230 PSI)
Min./max. medium temperature	1 - 50°C
Min./max. ambient temperature	1 - 50°C
Environmental Protection	IP 68 (NEMA 6)
Inlet connection	1/2" (BSP or NPT) (3 inlet options)
Inlet height	11,2 cm (top) and 9,7 cm & 1,5 cm (side)
Outlet connection	1/2" (BSP)
Valve type	Direct acting
Valve orifice	6 mm
Valve seals	FPM
Serviceable valve	Yes
Integrated mesh strainer	Yes
Housing material	Corrosion resistant aluminium, EP coating
TEST feature	Yes



Integrated mesh strainer protects the valve against large contaminants.



Three inlet options for easy installation.



TEST button feature for routine testing.

Chapter 7

MAGY[®]-UL single inlet

Magnetically operated zero air loss filter drain

The MAGY-UL is a magnetically operated zero air loss drain that discharges condensate from all types of compressed air filters by using a unique technology based on magnetic forces.

PRODUCT FEATURES

The MAGY-UL uses specially selected magnets that operate the 2/2 way direct acting valve assembly.

The discharge process of the MAGY-UL is automatic and there is no loss of compressed air during the condensate discharge cycle.

The specially selected magnets ensure a high operation consistency.

The MAGY-UL is easy to install and to service and can also remain hooked up to the filter while maintenance is being carried out (i.e. the drain does not need to be unthreaded from the filter).

JORC recommends to replace all unreliable filter (float) drains and to install the MAGY-UL.



COMMERCIAL BENEFITS

- Does not require electricity
- No operating cost once installed
- Competitive true 'green' solution suitable for all compressed air filters
- Zero air loss technology saves air, energy and money
- Low stocking cost advantages for you
- Low purchase threshold for your customers
- Consult JORC for private labelling options

TECHNICAL ADVANTAGES

- Light weight, less than 1 kg.
- Robust corrosion resistant aluminium housing
- Incredibly easy to install and to service
- No need to unthread the MAGY-UL for routine maintenance
- Direct acting valve, for a reliable discharge
- Bottom (outlet) can be rotated 360° for installation simplicity
- Service kit available
- The anti-air-lock adapter is integrated in the design

PRODUCT DIMENSIONS



PRODUCT SPECIFICATIONS

Max. filter capacity	Unlimited
Max. drainage capacity	145 litres condensate per hour at 16 bar
Min./max system pressure	0 bar /16 bar (up to 230 PSI)
Min./max. medium temperature	1°C - 50°C
Min./max. ambient temperature	1°C - 50°C
Environmental Protection	IP68 (NEMA6)
Inlet connection	1/2" (BSP or NPT)
Inlet height	10,3 cm
Outlet connection	1/8" (BSP)
Valve type	2/2 way direct acting
Valve orifice	2 mm
Valve seal	FPM
Serviceable valve	Yes
Housing material	Corrosion resistant aluminium, EP coating
Anti-air-lock adapter	Standard integrated



Easy to install & service



Anti-air-lock adapter (standard integrated)



Designed for filter draining

Chapter 8

MAGY[®] dual inlet

Magnetically operated zero air loss drain

The MAGY is a magnetically operated zero air loss drain that discharges condensate from all types of compressed air filters and refrigerated dryers by using a unique technology based on magnetic forces.

PRODUCT FEATURES

The MAGY is a magnetically operated zero air loss drain that discharges condensate from all compressed air filters and refrigerated dryers. The MAGY uses specially selected magnets that operate the 2/2 way direct acting valve construction.

The discharge process of the MAGY is automatic and there is no compressed air lost during the condensate discharge cycle. The specially selected long-life magnets ensure a reliable discharge operation.

The MAGY is easy to install with top and side inlet options. The MAGY is ideally suited in applications where power is not available, too expensive or not reliable.

Typically the MAGY is installed in refrigerated dryers, filters and under piston compressors.



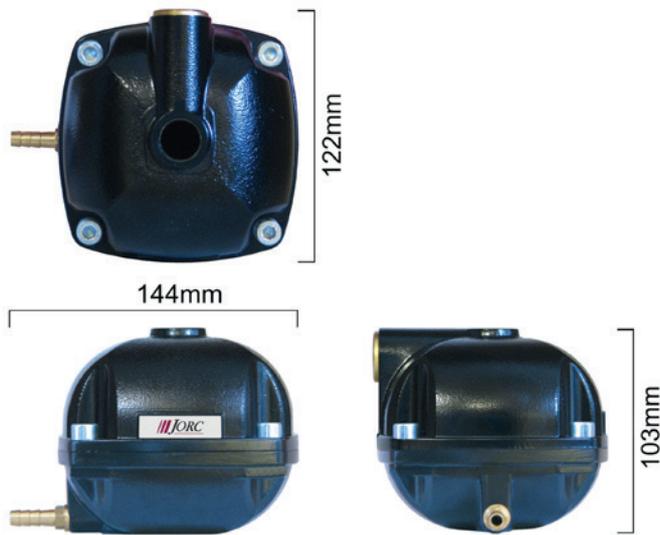
COMMERCIAL BENEFITS

- Does not require electricity
- No operating cost once installed
- Competitive true 'green' solution suitable for all compressed air filters and refrigerated dryers
- Zero air loss technology saves air, energy and money
- Low stocking cost advantages for you
- Low purchase threshold for your customers
- Consult JORC for private labelling options

TECHNICAL ADVANTAGES

- Two inlet options
- Robust corrosion resistant aluminium housing
- Incredibly easy to install and to service
- No need to unthread the MAGY for routine maintenance
- Direct acting valve, for a reliable discharge
- Service kit available

PRODUCT DIMENSIONS



PRODUCT SPECIFICATIONS

Max. filter capacity	Unlimited
Max. drainage capacity	145 litres condensate per hour at 16 bar
Min./max. system pressure	0 bar / 16 bar (up to 230 PSI)
Min./max. medium temperature	1 - 50°C
Min./max. ambient temperature	1 - 50°C
Environmental Protection	IP68 (NEMA 6)
Inlet connection	1/2" (BSP or NPT) (2 inlet options)
Inlet height	10,3 cm (top) 9 cm (side)
Outlet connection	1/8" (BSP)
Valve type	2/2 way direct acting
Valve orifice	2 mm
Valve seal	FPM
Serviceable valve	Yes
Housing material	Corrosion resistant aluminium, EP coating



Service kit available



Anti-air-lock adapter (option)



Designed with top and side inlet options

Chapter 9

KAPTIV[®]-CS

Electronically operated zero air loss drain with alarm function



ALARM FEATURES

We determine an alarm situation when the drain has cycled too many time consecutively. As it only takes a fraction of time to drain condensate from the upper level to the lower level in the reservoir, we consider consecutive cycling (10, 20 or more) abnormal and the KAPTIV-CS is programmed to enter its alarm set-up.

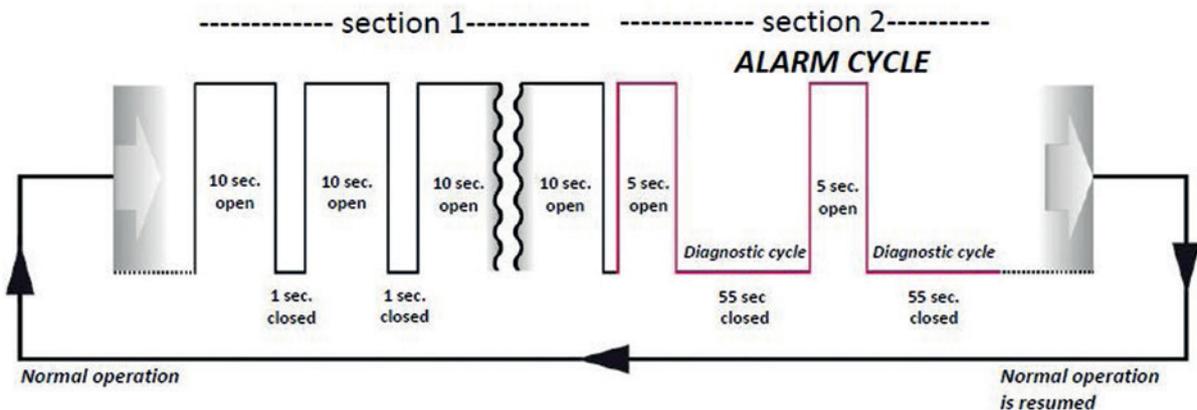
The smart alarm feature is programmed to try and blow out any debris that might obstruct the valve's discharge orifice. Should a valve orifice blockage occur then the drain is programmed to go through a "blow-out" cycle to clear the orifice blockage.

The A1 and A2 alarm cycles are configured differently to the A3 and A4 models, this is due to the discharge cycle differences between the two models.

After the alarm cycle is completed the drain will automatically resume normal operation. There is no need to manually re-set the drain.

For details of the KAPTIV-CS alarm cycle configurations can be downloaded from the website www.jorc.eu or alternatively, consult the factory.

Illustrated below is the A3/A4 alarm cycle configuration:



SERVICING THE KAPTIV-CS

Servicing an electronic zero air loss drain has never been so easy as with the KAPTIV range of drains.

The KAPTIV-CS consists of three (3) main components that can be easily removed by unscrewing the 4 bolts on the top.

Remove the top part, slide off the (grey) PCB module and you have immediate access to the direct acting valve assembly.

A low cost service kit for the KAPTIV-CS is available.



SERVICING THE KAPTIV-MD



Servicing the KAPTIV-MD could not be easier. The drain comes apart by unscrewing two screws. You lift the coil from the valve stem and you have direct access valve assembly.

The JORC valve inner (moving) parts are always produced from high quality grade stainless steel. This offers long life and high resistance to aggressive types of condensate.

SERVICING THE MAGY & MAGY-UL

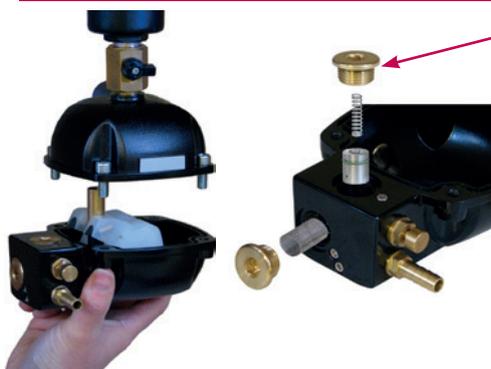
Like all JORC drains, once installed, the threaded connection remains in place during service activities. The illustration of the MAGY-UL makes this very clear.

One of the advantages is that you do not need to re-connect the threaded connection, which saves time.

The MAGY & MAGY-UL service kits are easy to install and the Allan-key is part of the kit.



SERVICING THE NUFORS-CR



The NUFORS-CR design allows you to service the valve by unthreading one brass fitting. You have direct access to the valve plunger and orifice.

The NUFORS-CR too is design to remain threaded to your compressed air system whilst maintenance activities are being carried out.

Chapter 10

INSTALLATION

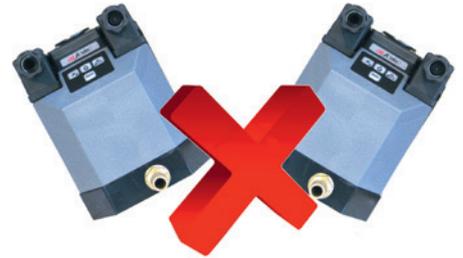
POSITIONING

Installation of level sensed drains involves attention to detail. Level sensed drains must always be installed upright.

Installing a level sensed drain on an angle or upside down will cause malfunction in the way of air locking.

We recommend proper installation of level sensed drains at all times.

The JORC installation manuals offer more detailed information and guidance on level sensed drain installation procedures.



ANTI AIR-LOCK ADAPTER



Anti-air-lock adapters are available for level sensed condensate drains.

The anti-air-lock adapter helps prevent air locks from being created and is simplifies the installation.

The anti-air-lock adapter has a 1/2" inlet and outlet.

The MAGY-UL has an anti-air-lock adapter incorporated in its design as standard.

LEVEL SENSED DRAIN ACCESSORIES

IN-LINE BALL VALVE STRAINER

The specially designed in-line ball valve strainer allows for easy local shut off for maintenance purposes.

Any debris will be caught in the mesh strainer that protects the drain from any blockages and reducing maintenance to a minimum.

It is specially designed to prevent flow restrictions that can cause air-locks.

The typical Y or L type strainers are not designed for applications involving level sensed drains.



HOSE PIPE CONNECTORS

Hose pipe connectors are a secure and simple way to install the discharge pipe from the drain to the oil/water separator.

The hose diameter matches the connection to the SEPREMIUM or PURO-CT oil/water separators.



DRAIN HEATER

In extreme cold conditions, condensate may run the risk of freezing when it does not continuously flow through the system.

The drain heater prevents the condensate from freezing and can be installed on most of JORC's level sensed drains.



COMPRESSED AIR CONDENSATE MANAGEMENT AND ENERGY SAVING PRODUCTS

JORC Industrial BV

Pretoriastraat 28
NL-6413 NN Heerlen
The Netherlands

Tel: +31 (0) 45 524 24 27

info@jorc.nl
www.jorc.eu

