

27⁺
YEARS
OF
EXCELLENCE



NEW | DIMENSIONS
SOLUTIONS

Pacto & Hygrobot

Zero air loss drain valves



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for E-Catalogue



Silent



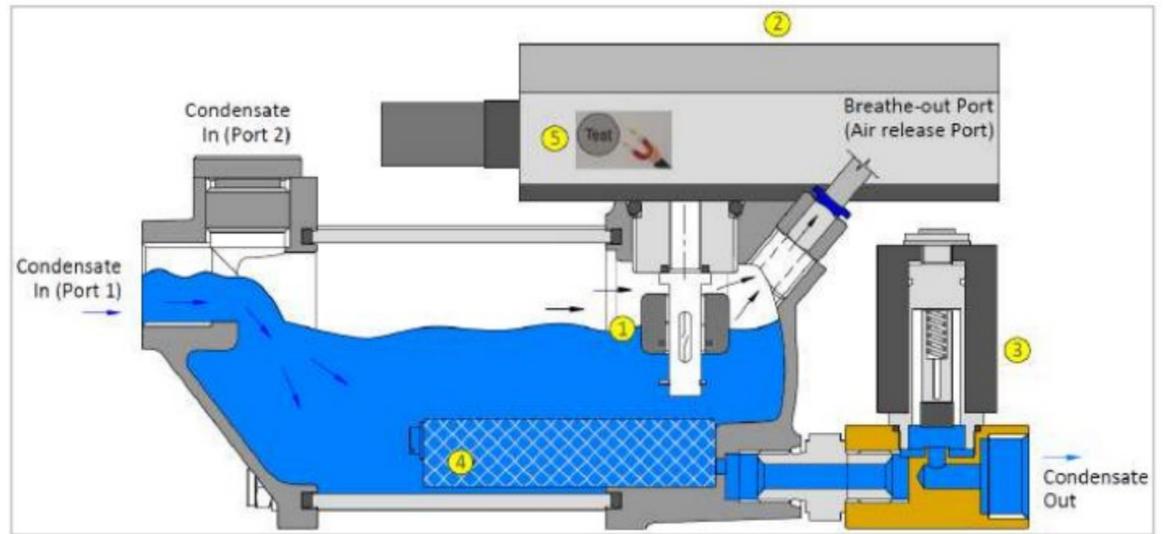
Ample
Savings



Remote
Monitoring



ISO 9001:2015 ISO 14001:2015 ISO 45001:2018



Operating principle

Condensate starts filling inside the drain valve. Air locked inside the drain valve is released through Breathe-out port. As the condensate level raises up, the Magnetic float (1) moves up and triggers the reed switch. Controller (2) receives the signal from reed switch and energize the Solenoid valve (3) for a short duration. Thus, collected condensate is drained out. Solid particles are retained over the surface of Strainer (4).

Key features

1. **Stainless steel float switch**
Highly reliable. Reed switch housing is made of Stainless steel for smooth and nonstick operation.
2. **E-Coated**
E-Coated die cast Aluminum offers excellent corrosion protection against harsh environment.
3. **Strainer**
Large surface area Strainer extends maintenance interval.
4. **Magnetic test switch**
Magnetically energized test switch offers reliable test function even in highly humid environment
5. **2 Mode of operation**
Zero loss mode
Timer mode

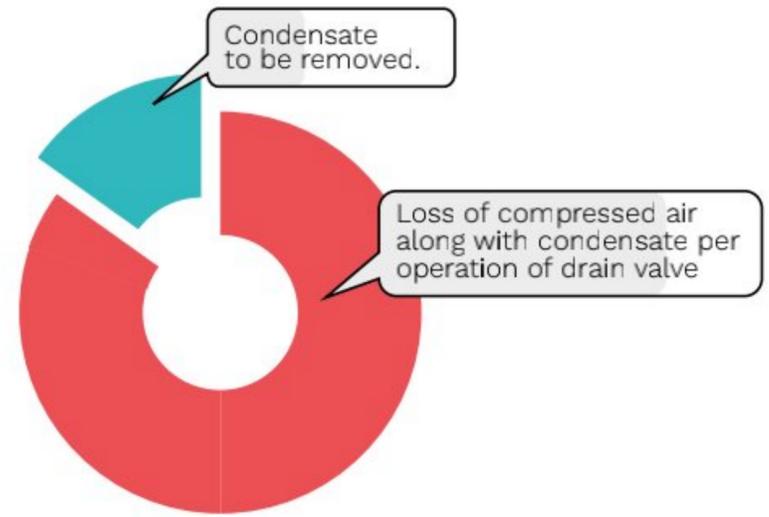
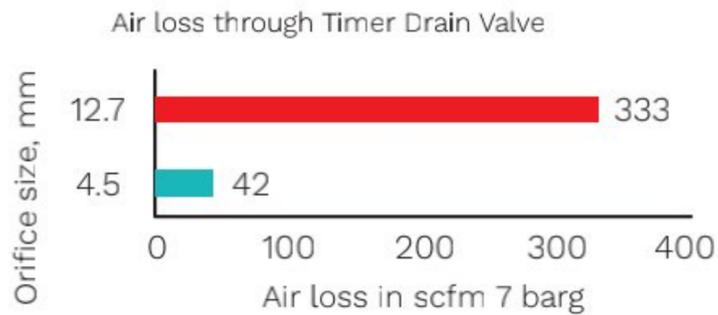


Smart Shift Technology

The Pacto shifts its operating mode from Level sensing to Timer mode when the collected dirt is not removed from the system during periodic maintenance, thus ensuring safe operation even at extreme condition. Eventually the system comes back to level sensing drain mode once the dirt is removed. As an additional safety, a Magnetic test switch is provided to verify the drain function at any time.

Cost of compressed air

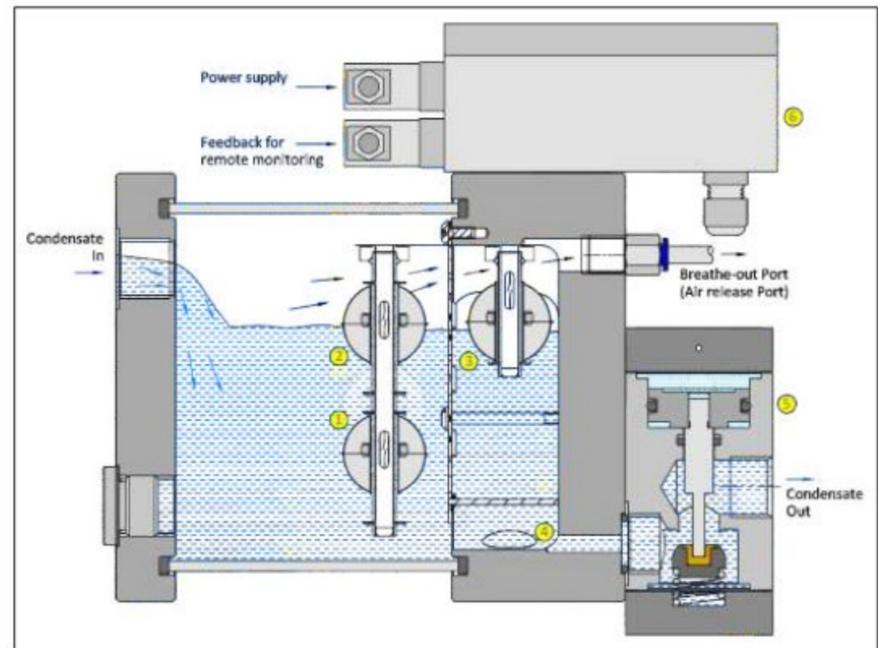
Being most clean, safe and versatile form of energy source, Compressed air plays a prominent role in every energy utility segment accounting for around 10% of electrical energy. This results in CO2 emissions of 3,100 kt/year. We are morally obliged to use compressed air energy wisely, Pacto supports us in reducing operational cost significantly.



Visual representation of Air loss along with condensate through timer based drain valve.

Cost savings by Pacto / Hygrobot over Timer drain:

Description	Unit	Compact Timer drain	High discharge Timer drain
Orifice size	mm	4.5	12.7
Pressure	bar(g)	7	7
Temperature	°C	45	45
Drain valve opening (On) time	seconds	4	8
Drain valve closing (Off) time	minutes	2	10
Air loss through valve	cfm	41.83	333.21
Air loss through valve	cfs	0.697	5.55
Assume only 25% of load; Hence remaining 75% of opening (On) time, compressed air shall be lost.			
Air loss per cycle, 3sec (4 sec*0.75=3) & 6sec (8 sec*0.75=6)	Cubic foot	$0.697*3=2.091$	$5.55*6=33.3$
Drain valve opening cycles per hour	Cycles	$60/2=30$ (2 minutes once)	$60/10=6$ (10 minutes once)
Total air loss per hour	Cubic foot	$2.091*30=62.73$	$33.3*6=199.8$
Total air loss per minute	cfm	$62.73/60=1.0455$ cfm	$199.8/60=3.33$
Power required to produce compressed air to compensate above loss (1 kw is spent to produce 6.5 cfm)	kw	$1.0455/6.5=0.161$	$3.33/6.5=0.512$
Unit cost of power	INR	8	8
Cost per hour	INR	$0.161*8=1.288$	$0.512*8=4.096$
Cost per year	INR	$1.288*24*365=11,283$	$4.096*24*365=35,881$
Possible savings per annum by Pacto/Hygrobot	INR	11,283/-	35,881/-



Operating principle

Condensate starts filling inside the drain valve. Air locked inside the drain valve is released through Breathe-out port. As the condensate level raises up, the Magnetic float (1) moves up, and provides 'Ready' signal to controller. Once the condensate level crosses the Magnetic float (2), it triggers Controller (6) and energize Discharge valve (5), thus discharge of condensate takes place. Once the condensate level comes below the Magnetic float (1), it then denenergize the Discharge valve (5) and stops the discharge. Thus, only condensate is discharged and compressed air is preserved.

Key features

1. **Smart controller - Truly intelligent**
Enabled with BMS connectivity
3 Point Sensing
Intelligently detect dirt pile up and changes its operation mode.
2. **Stainless steel float switch**
Float switch is completely made of Stainless steel suitable to perform even in harsh chemical environment.
3. **Operating modes**
Two Operating and One Alarm sensor for multi-mode operation.
4. **Corrosion resistant**
Anodized Aluminum offers excellent corrosion protection against harsh environment.
5. **Condensate Level Indicator**
Condensate level indicator (up to 10 bar g) helps to ascertain proper functioning of drain valve.
6. **Magnetic test switch**
Magnetically energized test switch offers reliable test function even in highly humid environment



Smart Shift Technology

After triggering maintenance alert for remote monitoring Pactoplus shifts its operating mode from Level sensing to Timer mode when the collected dirt is not removed from the system during periodic maintenance, thus ensuring safe operation even at extreme condition. Eventually the system comes back to level sensing drain mode once the dirt is removed. As an additional safety, a Magnetic test switch is provided to verify the drain function at any time.

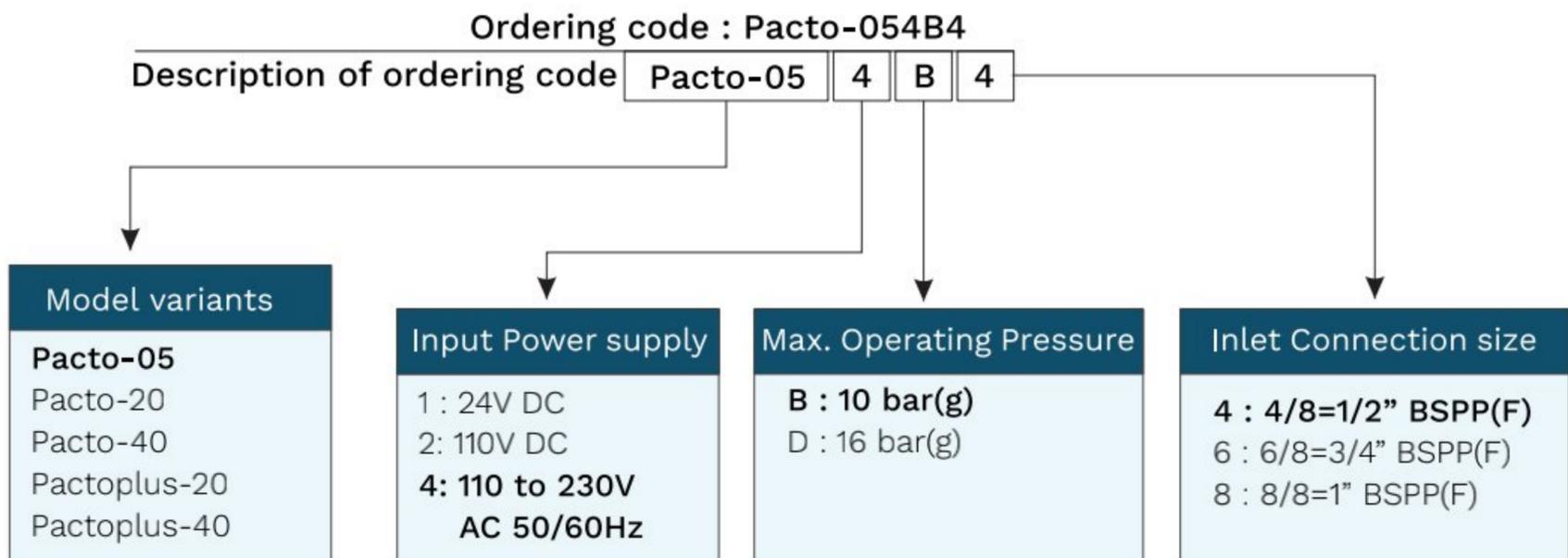
Pacto – The Zero air loss drain valve – Product Range:

Product image											
Model	Pacto-05		Pacto-20		Pacto-40		Pactoplus-20		Pactoplus-40		
Valve Orifice, mm	4.5		12.5								
Pressure, bar g	16 (Refer temperature also)										
Temperature, °C	1.5 to 40 (for up to 16 bar g); 1.5 to 50 (for up to 14 bar g)										
Rated capacity, lph	47	128	170	410	128	170	410				
After cooler / MS, cfm	465	1270	1700	4000	1270	1700	4000				
Air receiver, litre	2000	7500	10000	24000	7500	10000	24000				
Pre-filter, cfm	4650	12800	17000	41000	12800	17000	41000				
Refrigeration air dryer, cfm	1600	6000	8000	20000	6000	8000	20000				
Dimension, (LxDxH) mm	250 x 110 x 125		270 x 225 x 205		500 x 225 x 205		270 x 225 x 220		500 x 225 x 220		
Weight, kg	1.6		6.5		8.3		6.6		8.4		
Body material	Aluminium & Brass			Aluminium							
Seals	Nitrile & FKM			Nitrile							
In/Out size, BSPP(F) (Standard size is given bold & italicized letter - Refer ordering Code)	<i>1/2"</i> (<i>3/4"</i>)		<i>1/2"</i>	<i>3/4"</i> (<i>1"</i>)	<i>1"</i>	<i>1/2"</i>	<i>3/4"</i> (<i>1"</i>)	<i>1"</i>			
Electrical connection	DIN 43650-C										
Ingress protection	IP65										

Important note: Suggested capacity of After cooler, Moisture separator (MS), Air receiver, Pre-filter & Refrigeration air dryer are at idealized condition. Installation (inlet piping and breather line) of drain valve plays major role in condensate collection rate inside the drain valve. Keep the inlet line & breather line as big as possible and as short as possible.

Refer description of ordering code before ordering.

Please contact factory for pressure above 16 bar (g).



Hygrobot

for Heavily contaminated condensate removal



No electric power

No electric power is required. Can be installed in open space. Stainless steel float sensed, magnetically coupled, pneumatically operated valve. Electricity has no role to play. Simple mechanism, no need for special skill to service. Need not to worry about Heavy Rain or Direct sunlight.



Never clogging

Unlike poppet / diaphragm valve, full bore ball valve has enough passage to large size scale and rust, making it ideal for condensate handling. No need for strainer and its maintenance.



Suitable for Hazardous zone

No solenoid valve; No electrical energy required for its life time; Zero Power cost. Suitable for Explosive area.

Operating principle

Condensate gets collected inside the container. The float lever is lifted up corresponding to the level of the condensate in the container. Once the Condensate level reaches the required level, the float lever opens the pilot air.

This pilot air actuates the Pneumatic cylinder. The rod of the pneumatic cylinder turns the lever of the ball valve and thus opening it. The condensate drains out.

Once the condensate is drained out, the float lever will return to its original position and block the pilot air. The spring inside the pneumatic cylinder will pull the lever of the ball valve back to its original position; closes the valve and avoid air loss.

Description	Hygrobot-20
Discharge capacity	170 lph
Max. operating pressure	10.0 bar g
Max. Operating temp.	60°C
Connection in/out	1" BSPP (F)
Breathing Port	3/8" BSPP (F) / 10mm OD tube
Pilot port	1/8" BSPP (F) / 6mm OD tube
Weight	9 kg
Width (W)	365mm
Depth (D)	255mm
Height (H)	205mm
Sizing information	
After cooler	1700cfm
Pre-filter	10000cfm
Air receiver	17000cfm
Refrigeration air dryer	8000cfm



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