

## Hydraulic Accumulators

For Pressure Washers, Pumping Systems  
and Cleaning Systems





[www.HYDAC-NA.com](http://www.HYDAC-NA.com) | [sales@hydacusa.com](mailto:sales@hydacusa.com)



# Why Accumulators for “High Pressure Washing, Cleaning and Pumping Systems?”

Due to the design characteristics of a displacement pump, each revolution causes small pressure surges. In certain operations these surges may damage pumps and downstream components and increase wear and tear.

Installing an accumulator as a pulsation dampener is the best way to reduce damaging pressure fluctuations.

HYDAC accumulators, when used for pulsation dampening, shock absorption, and energy storage applications, deliver a more reliable, productive, and operator friendly solution to the marketplace.



**HYDAC offers our customers a competitive advantage where proven accumulator technology is utilized. Benefits include:**

## Pulsation Dampening and Shock Absorption

- Increased machine & component life
- Reduced maintenance
- Suction flow stabilization
- Noise Reduction
- Reduced vibration
- Reduced vibration fatigue
- Increased machine uptime

## Energy Storage

- Pump downsizing
- Peak power or pump flow on demand versus constant energy consumption
- Cost savings (capital, energy, ...)



## Typical Application

### Pulsation dampening of 3-piston pump

- Protection of heating coil and solder joints
- Protects operator from noise and vibration

## Advantages to Customers

- Increased service life of equipment
- Health and safety protection
- Improved fitting and connection integrity



# Our Offerings

## Diaphragm Accumulators

- Stainless steel
- Mixed materials CS (upper part) SS (lower shell)
- NBR, IIR, VITON diaphragms
- For non-potable water, PTFE diaphragms are available



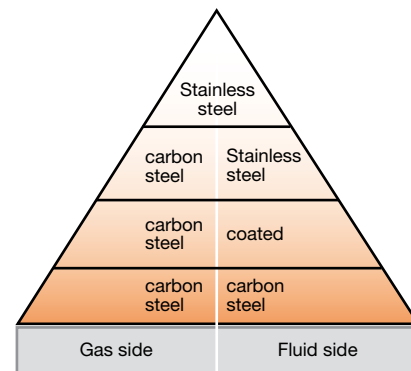
## Modular (hybrid material) Diaphragm accumulator

- Diaphragm accumulators utilize a combination of an upper shell for the gas side that is welded to a lower shell for the fluid side. Material of construction is usually carbon steel to provide a cost effective accumulator solution.
- However, in certain applications (such as Cleaning Systems) corrosive fluids, such as water, make a carbon steel lower shell incompatible.
- For these aggressive fluid applications, a synthetic coating is sometimes applied to the carbon steel shells, but it can be susceptible to peeling and flaking.
- An all-stainless-steel construction is expensive.
- Hydac Solution – Utilize a non-corrosive lower shell (stainless steel) combined with a carbon steel upper shell for optimal performance at an appreciably lower cost than all stainless-steel construction.



## Product Advantages:

- Cost effective in comparison to complete stainless steel version
- Longer life – no potential flaking of internal synthetic coating
- Media/Fluid contacting parts use non-corrosive material
  - Gas side: carbon steel
  - Fluid side: stainless steel
  - Fluid port: in stainless steel



## Bladder Accumulators

- May be used for larger pumps (3 and 5 Piston with volumes from 200-500 L/min)
- Stainless steel fluid and gas ports
- Carbon Steel Shells with Nickel Plating for water application
- NBR , IIR , VITON Bladder
- With deflection block or standard ports based on operating cycle needs

## What can Accumulator Systems offer to the pressure washer and cleaning industry?

- Over 300 different connection fittings on fluid side
- Diaphragms that are compatible with various cleaning agents
- Accumulator combination consisting of stainless steel lower section and carbon steel upper section to minimize cost
- Diaphragm accumulator E2 gas valve is tamper-proof to prevent incorrect operation





# Applications

## Full Range of Application for Pressure Washer, Pumping Stations and Cleaning Systems Includes:

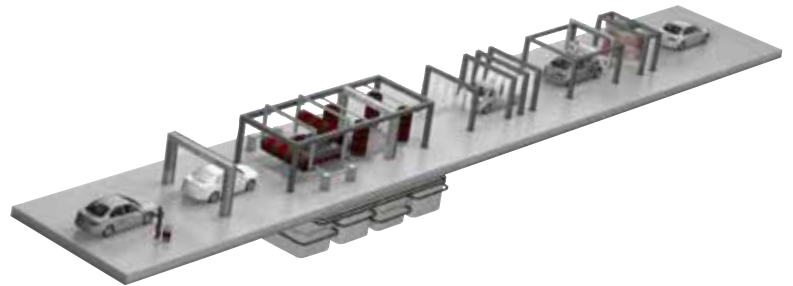
- Car washes
- Food processing facilities
- Pressure washers
- Commercial kitchen cleaning
- Weed removal
- Service station facade cleaning
- Hygiene protection (viruses)
- Commercial vehicles (buses, trucks, trains, airplanes)
- Waterjet cutting systems
- Foam sprayers
- Fuel cell pump systems
- Water jet cleaning systems

## Stationary Systems/Multi-Pump Systems

Self-Service Washing Bays



Conveyor Tunnel Car Wash



Multi-Pump Systems



## Food Processor Facilities/Pressure Washes

Cleaning of tilt skillets in commercial kitchens



Gantry washing system



Minimize pressure shock for water jet cutting system pump



Minimize pressure shock for hydrogen fuel cell pump system



Pulsation dampening of foam insulation sprayer



Energy storage to reduce running time for main car wash pumps



# Successful Application

## Pulsation dampening when cleaning cooking appliances in commercial kitchens

### PROJECT BACKGROUND

Specific demands and challenges posed by customer:

- Washing of tilt skillets using an integrated high-pressure cleaning system → to enable cooking appliances to be cleaned quickly.
- Automation of commercial kitchens.

### CHALLENGE

- When cleaning tilt skillets, triple-acting reciprocating pumps are generally used to convey water to the nozzles and provide for power washing using a high-pressure water spray (140 bar).
- Reciprocating pumps don't always convey smoothly, i.e. without pulsation action. Also when switching them on and off, pressure surges are created that are disruptive and noisy.

### OBJECTIVE

- The manufacturer of these pumps inquired about a suitable accumulator to provide dampening action and enable smooth startup of the pumps without pressure surges.
- An elaborate motor control was to be avoided for financial reasons.
- Pulsation during the cleaning process was to be reduced to a tolerable level.
- The accumulators were to be corrosion-proof.
- An all-stainless steel solution was ruled out due to the cost factor.

### INDUSTRIES



### HYDAC SOLUTION

- HYDAC supplies a diaphragm accumulator with a fixed precharge pressure setting of 100 bar as a pulsation dampener for the manufacturer of the tilt skillet, which features an integrated cleaning system.
- SBO210-0,16E2/372U-210AK100\*



Upper section made of carbon steel

Lower section made of stainless steel



### BENEFIT TO CUSTOMER

- Extremely even delivery behavior during the cleaning process
- Minor pressure surges when starting up the pump
- New diaphragm accumulator caters to customer's "no motor control" requirement
- No corrosion due to stainless steel components

### RESULT

- The delivery behavior of the cleaning pump was substantially improved by virtue of the pulsation dampening action of the accumulator.
- The HYBRID accumulators satisfy the requirements of power washing using a high-pressure water spray (140 bar water pressure).
- Any corrosion or durability issues are precluded by virtue of the stainless steel lower section of these accumulators.



[www.HYDAC-NA.com](http://www.HYDAC-NA.com) | [sales@hydacusa.com](mailto:sales@hydacusa.com)







# INTERNATIONAL

Global Headquarters  
HYDAC INTERNATIONAL  
GMBH

Industriegebiet  
D – 66280 Sulzbach/Saar  
Germany

Tel.: +49 6897 509-01

Fax: +49 6897 509-577

Internet: [www.hydac.com](http://www.hydac.com)  
Email: [info@hydac.com](mailto:info@hydac.com)

## North America Locations

### USA

[www.HYDAC-NA.com](http://www.HYDAC-NA.com)

**North America Headquarters**  
**HYDAC TECHNOLOGY CORPORATION**  
**Filter Division**

2260 City Line Road  
Bethlehem, PA 18017  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**Electronic Division**  
**Process Filter Division**

**HYDAC CORPORATION**  
**Accumulator Division**  
90 Southland Drive  
Bethlehem, PA 18017  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**Accessory Division**  
2204 Avenue C  
Bethlehem, PA 18017  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**Filter System Division**  
**Process Filter Division**  
**Fuel Filtration Division**

580 West Park Road  
Leetsdale, PA 15056  
**+1.724.318.1100**

**HYDAC TECHNOLOGY CORPORATION**  
**Hydraulic Division –**  
**Compact Hydraulics**

450 / 445 Windy Point Drive  
Glendale Heights, IL 60139  
**+1.630.545.0800**

**HYDAC TECHNOLOGY CORPORATION**  
**Hydraulic Division – Tech Center**  
430 Windy Point Drive  
Glendale Heights, IL 60139  
**+1.630.545.0800**

**HYDAC TECHNOLOGY CORPORATION**  
**Cooling System Division**

1051 Airlie Parkway  
Denver, NC 28037  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**Mobile Hydraulic Division**

4265 East Lincoln Way • Bldg. C  
Wooster, OH 44691  
**+1.610.266.0100**

**HYDAC CYLINDERS LLC**  
540 Carson Road North  
Birmingham, AL 35217  
**+1.205.520.1220**

**HYDAC TECHNOLOGY CORPORATION**  
**HYDAC CORPORATION**  
**Sales Office & Operations**

510 Stonegate Drive  
Katy, TX 77494  
**+1.281.579.8100**

**HYDAC TECHNOLOGY CORPORATION**  
**HYDAC CORPORATION**  
**NW Sales Office & Operations**

1201 NE 144th St. Bldg. B • Suite 111  
Vancouver, WA 98685  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**HYDAC CORPORATION**  
**NE Sales Office**  
4265 East Lincoln Way • Bldg. C  
Wooster, OH 44691  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**HYDAC CORPORATION**  
**SE Sales Office**

1051 Airlie Parkway  
Denver, NC 28037  
**+1.610.266.0100**

**HYDAC TECHNOLOGY CORPORATION**  
**HYDAC CORPORATION**  
**NC Sales Office**

5307 South 92nd Street • Suite 225  
Hales Corners, WI 53130  
**+1.610.266.0100**

### Canada

[www.HYDAC-NA.com](http://www.HYDAC-NA.com)

**HYDAC CORPORATION**  
14 Federal Road  
Welland, Ontario, Canada L3B 3P2  
**+1.905.714.9322**

**HYDAC CORPORATION**  
**Sales Office**  
5160 75 Street NW  
Edmonton, Alberta, Canada T6E 6W2  
**+1.780.484.4228**

**HYDAC CORPORATION**  
**Sales Office**  
Montreal, Québec, Canada J2M 1K9  
**+1.877.539.3388**

### Mexico

[www.HYDACmex.com](http://www.HYDACmex.com)

**HYDAC INTERNATIONAL SA de CV**  
Calle Alfredo A Nobel No 35  
Col Puente de Vigas  
Tlalnepantla, Edo Mexico  
CP 54090  
Mexico  
**+011.52.55.4777.1262**