HYDAC INTERNATIONAL

Accumulator Unit with Bladder Accumulator

ACCUSET SB

1. DESCRIPTION

The HYDAC accumulator unit ACCUSET SB consists of a bladder accumulator SB, a safety and shut–off block SAF and the compatible accumulator set SEB. The parts are designed for optimum compatibility and provide a compact, ready–to–install unit at a competitive price.
This space–saving combination simplifies the connection of the accumulator to the hydraulic system, reduces maintenance costs and considerably reduces assembly costs.
The HYDAC ACCUSET SB provides:

- simple and secure mounting of the accumulator at the installation site
- connection of the accumulator with a hydraulic system via a safety and shut–off block
- a safeguard for the accumulator from excess pressure
- discharge of the accumulator to the tank via a pressure release valve
- separation of the accumulator from the system
- two additional hydraulic connections on the shut–off block for accessories (eg pressure gauge).

1.1. STANDARD BLADDER ACCUMULATOR SB330

with a nominal volume of 1 to 50 litres.
Special accumulators available on request. See HYDAC brochure “Bladder Accumulators”, no. E 3.201.

1.2. SAFETY AND SHUT–OFF BLOCK SAF

in nominal sizes 10, 20 and 32, with manual or solenoid–operated/manual discharge and with the direct–operated pressure relief valve DB12 with CE marking, in accordance with the regulations of DIN EN 14359 ”Hydraulic accumulators for hydraulic applications” and the European Pressure Equipment Directive PED 97/23/EC. Please see HYDAC brochure ”Safety and Shut–off Block SAF/DSV”, no. 3.551.

1.3. ACCUMULATOR SET SEB

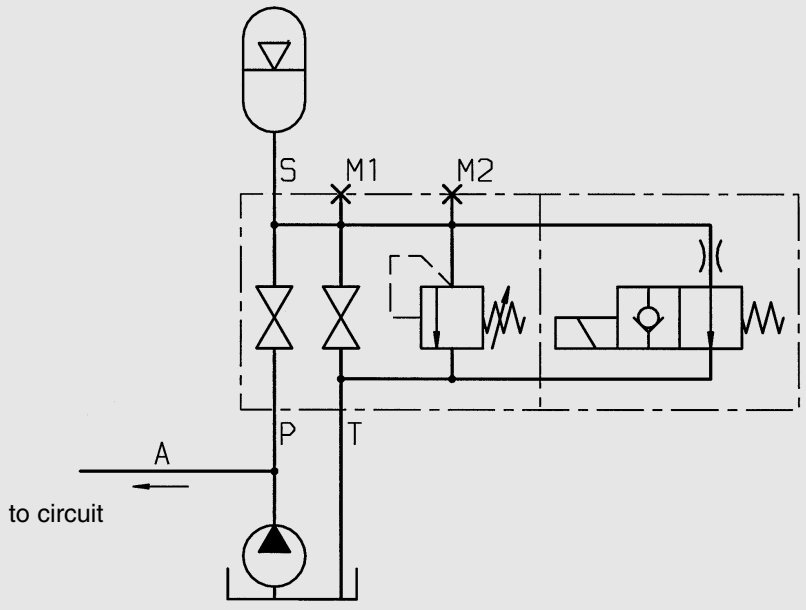
for mounting the bladder accumulator with clamps, back plate, consoles and rubber support ring.
See HYDAC brochure “Supports for Hydraulic Accumulators”, no. E 3.502.

2. MODEL CODE

ACCUSET SB 330– 10 A 1 / 1 1 2 U – 10 Y 1 – 330

Type of accumulator
SB bladder accumulator
Series – accumulator
Nominal volume [l]
Fluid connection
A standard connection
Gas valve
1 standard model
Material – fluid connection/block
1 carbon steel
2 stainless steel
Material – accumulator shell
1 carbon steel
Accumulator bladder/sealing material
2 NBR / NBR
3 ECO / NBR
4 IIR / EPDM
6 FKM / FKM
Approval code
Series – SAF block
Type of construction – seat valve
M manual discharge
Y solenoid–operated and manual discharge (open when de–energized)
Z solenoid–operated and manual discharge (closed when de–energized)
Type of voltage – seat valve
1 24 V DC (only on Y or Z model)
Permissible operating pressure/ cracking pressure of the pressure relief valve
in bar

Typical Circuit diagram



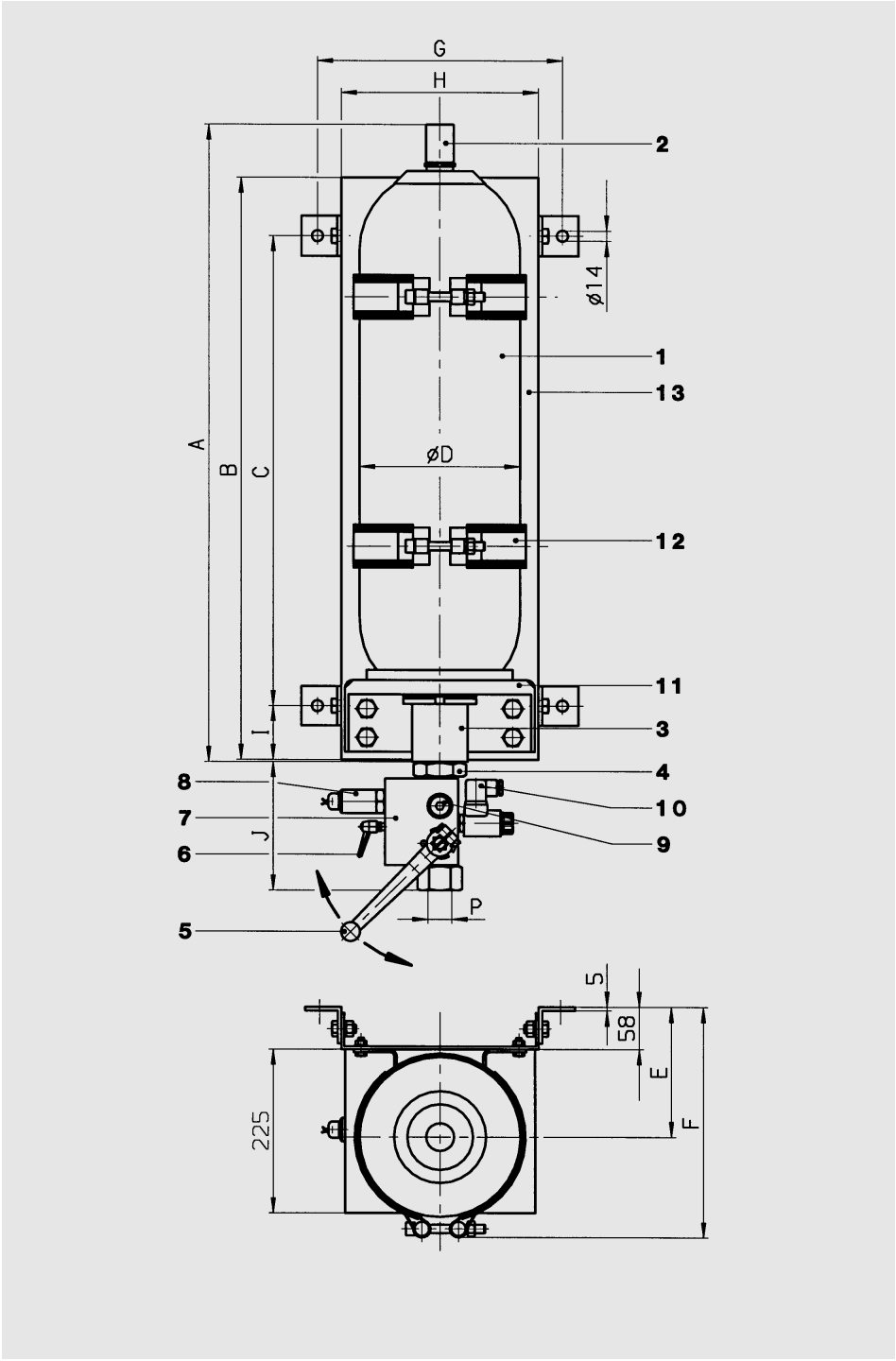
3. STANDARD MODELS

Designation	Stock no.	SB330–1A1/112U–330A	SB330–2.5A1/112U–330A	SB330–4A1/112U–330A	SB330–6A1/112U–330A	SB330–10A1/112U–330A	SB330–13A1/112U–330A	SB330–20A1/112U–330A	SB330–24A1/112U–330A	SB330–32A1/112U–330A	SB330–50A1/112U–330A	SAF10M12T330A	SAF10E12Y1T330A	SAF20M12T330A	SAF20E12Y1T330A	SAF32M12T330A	SAF32E12Y1T330A
ACCUSET SB330–1A1/112U–10M–330	3033471	•										•					
ACCUSET SB330–1A1/112U–10Y1–330	3033472	•											•				
ACCUSET SB330–2.5A1/112U–10M–330	3033473		•									•					
ACCUSET SB330–2.5A1/112U–10Y1–330	3033474		•										•				
ACCUSET SB330–4A1/112U–10M–330	3033475			•								•					
ACCUSET SB330–4A1/112U–10Y1–330	3033476			•									•				
ACCUSET SB330–6A1/112U–10M–330	3033477				•							•					
ACCUSET SB330–6A1/112U–10Y1–330	3033478				•								•				
ACCUSET SB330–10A1/112U–10M–330	3033479					•						•					
ACCUSET SB330–10A1/112U–10Y1–330	3033480					•							•				
ACCUSET SB330–13A1/112U–10M–330	3033481						•					•					
ACCUSET SB330–13A1/112U–10Y1–330	3033482						•						•				
ACCUSET SB330–13A1/112U–20M–330	3033483						•							•			
ACCUSET SB330–13A1/112U–20Y1–330	3033484						•								•		
ACCUSET SB330–20A1/112U–20M–330	3033485							•						•			
ACCUSET SB330–20A1/112U–20Y1–330	3033486							•							•		
ACCUSET SB330–24A1/112U–20M–330	3033487								•					•			
ACCUSET SB330–24A1/112U–20Y1–330	3033488								•						•		
ACCUSET SB330–32A1/112U–20M–330	3033489									•				•			
ACCUSET SB330–32A1/112U–20Y1–330	3033490									•					•		
ACCUSET SB330–32A1/112U–32M–330	3033491									•						•	
ACCUSET SB330–32A1/112U–32Y1–330	3033492									•							•
ACCUSET SB330–50A1/112U–20M–330	3033493										•			•			
ACCUSET SB330–50A1/112U–20Y1–330	3033494										•				•		
ACCUSET SB330–50A1/112U–32M–330	3033495										•					•	
ACCUSET SB330–50A1/112U–32Y1–330	3033496										•						•

Other combinations and models available on request.

4. DIMENSIONS

Description	Item
Accumulator shell	1
Gas valve	2
Oil valve	3
Adaptor S	4
Switching handle	5
Pressure release spindle	6
SAF safety block	7
Pressure relief valve	8
Connection for pressure gauge	9
Pressure release valve	10
Console	11
HyRac clamp	12
Back plate	13



Bladder accumulator	A_{max} [mm]	B [mm]	C [mm]	$\varnothing D_{max}$ [mm]	E [mm]	F [mm]	I [mm]	G [mm]	H [mm]
SB330–1 [1)]	302	–	–	118	–	–	–	–	–
SB330–2.5 [2)]	532	460	310		133	214	75	198	138
SB330–4	410	410	320	173	152	265	45	330	270
SB330–6	540	570	420				75		
SB330–10	568			229	180	317			
SB330–13	660								
SB330–20	896								
SB330–24	1062								
SB330–32	1411	1340	1190						
SB330–50	1931								

[1)] without back plate and console, with a HyRac clamp 110–180 ST
[2)] without console, with back plate and two HyRac clamps 110–180 ST

SAF series	Nominal size SB330	P ISO 228	Connection for pressure gauge	J [mm]
SAF10	1 litre	G 1/2	2 x G 1/2	142
	2.5 to 6 litres			143
	≥ 10 litres			147
SAF20	1 litre	G 1	G 1/4, G 1/2	173
	2.5 to 6 litres			174
	≥ 10 litres			178
SAF32	≥ 1 litre	G 1 1/2		203

5. TECHNICAL SPECIFICATIONS

Design
Pressure Equipment Directive PED 97/23/EC[1)]

Permiss. operating pressure:
330 bar[1)]

Permiss. temperature range:
–10 to +80 °C (NBR)[1)]

Operating fluid:
Hydraulic fluids of type HL, HLP, HFA, HFB, HFC (NBR)

Pressure relief:
DB12 set to 330 bar[1)]

Pressure release valve:
Operating voltage 24 V DC[1)]

Fluid connection P:
See table on page 5

Surface:
Accumulator primed, SAF block phosphate–plated, accumulator set zinc–plated or chrome–plated

The accumulator is supplied with a 2 bar protective pre–charge pressure. Before commissioning, the accumulator must be pre–charged using the FPU–1. Recommendation: approx. 0.9 x p_{min}.

[1)] others on request

6. ACCESSORIES

6.1. CHARGING AND TESTING UNIT FPU–1

For checking and charging HYDAC accumulators by connecting to commercially available nitrogen bottles (to DIN477–T1, DIN477–T5 or to CEN), with pressure gauge, case and pressure release valve (optional). See HYDAC brochure “Universal Charging and Testing Unit FPU–1”, no. E 3.501.

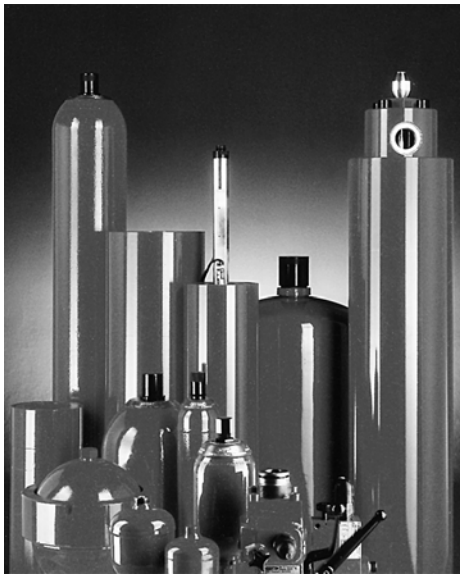
Designation [1)]	Stock no.
FPU–1–250F2.5A3	2114306
FPU–1–250F4A3	2114311
FPU–1–250F2.5A3K	2114302
FPU–1–250F4A3K	2114303

6.2. NITROGEN CHARGING UNIT

HYDAC nitrogen charging units facilitate fast and cost–effective filling or topping–up of the required gas pre–charge pressure in bladder, diaphragm or piston accumulators. They guarantee optimum use of commercially available nitrogen bottles up to a residual pressure of 20 bar and a maximum accumulator pressure of 350 bar. Portable, mobile and stationary types of N_2 Server are available. See HYDAC brochure “Nitrogen Charging Unit N_2 Server”, no. E 2.201.

7. ACCUMULATOR RANGE

- **Bladder accumulators**
  Nominal volume: 0.5 … 450 l
  permiss. operating pressure:
  16 … 1100 bar
- **Diaphragm accumulators**
  Nominal volume: 0.075 … 4 l
  permiss. operating pressure:
  50 … 1000 bar
- **Piston accumulators**
  Nominal volume: 0.2 … 1200 l
  permiss. operating pressure:
  210 … 1000 bar
- **Hydraulic dampers**
  Pulsation dampers, shock absorbers, suction flow stabilisers and silencers
  Nominal volume: 0.075 … 450 l
  permiss. operating pressure:
  16 … 1000 bar



8. HYDAC ASP **A**CCUMULATOR **S**IMULATION **P**ROGRAM

- Accumulator calculation for PC on WINDOWS platform for bladder, diaphragm and piston accumulators, and systems with back–up nitrogen bottles, taking into account isentropic and isothermal changes in state.
- Calculation of accumulator systems, with the possibility of entering into the program accumulators, user units and pumps with their relevant switch–on and switch–off times.
- Simulation of pressure, temperature and volume over the specified cycle time. Real gas equations are used for this and the accumulator design and its heat exchange properties are also taken into consideration in the calculation.
- Accumulator calculation for pulsation dampers. Calculation of the gas volume and the residual pulsation of gas–filled pulsation dampers.
- Print–out of the results and storage of the data files in ".asp format".
- Available free–of–charge on the internet at www.hydac.com or e–mail to speichertechnik@hydac.com

9. NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.