

CST Hydraulic Accumulator for DV Arrangement

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see www.baldor.com for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.



Series NXQ accumulator

As an important part in the hydraulic system, the accumulator could store the energy, keep the constant pressure, compensate the leakage, absorb the pulse pressure and impact pressure, etc. Series NXQ capsule accumulators use a spinning and forming process of seamless steel pipe, featuring in compact structure, pleasing appearance, light weight, small momentum and stable performance. Its design conforms to GB/T20663-2006 capsule pressure container for energy storage and JB/T7036-2006 technical conditions for hydraulic isolation accumulator, and is suitable for hydraulic systems with petroleum base lubricants. The capsule is filled with nitrogen and works normally within the range of -10° to 70°C (+14° to 158°F).

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Working principle

The accumulator is divided into two parts by the capsule: nitrogen inside and hydraulic oil outside, which stores hydraulic pressure. In case the hydraulic oil needs to be added due to functioning, the accumulator will drain the hydraulic oil. Thus the accumulator could be used for auxiliary or emergency power source to supplement the system leakage, stabilize the system pressure and absorb the pump pulse and hydraulic impact on the loop, etc.

Nomenclature

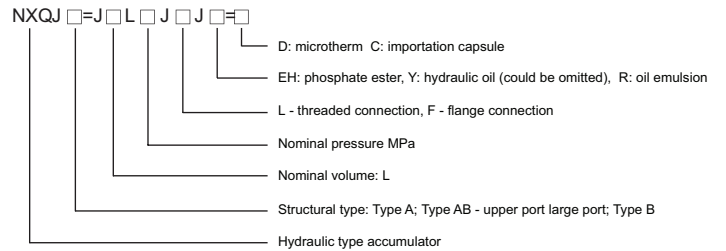


Figure 1 - Nomenclature

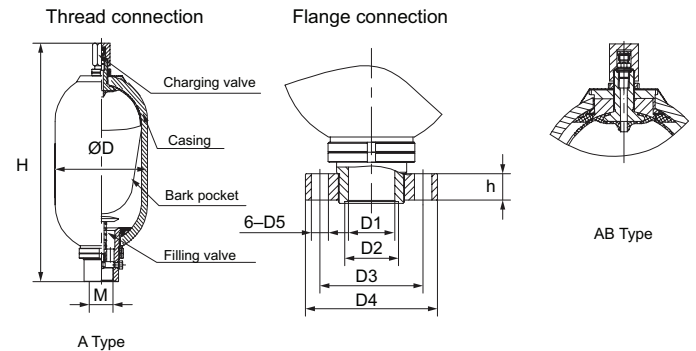


Figure 2 - Cross Section

Table 1 - Technical Specifications and physical dimension

Model	Nominal pressure MPa	Nominal capacity L	Basic dimension mm								Weight kg																			
			M	D	H	h	D1	D2	D3	D4		D5																		
NXQ-0.4/*	10	0.4	M27 x 2	Ø89	260	28	40	50	97	130	6-Ø17	3.3																		
NXQ-0.63/*		0.63			305							4.5																		
NXQ-1/*		1			430							6																		
NXQ-1/*		1			Ø114							330	5.5																	
NXQ-1.6/*		1.6	M42 x 2	Ø152	361							32	55	70	125	160	6-Ø21	12.5												
NXQ-2.5/*		2.5			428													15												
NXQ-4/*		4			538													18.5												
NXQ-6.3/*		6.3			708													25.5												
NXQ-10/*		10	M60 x 2	Ø219	650													40	70	80	125	200	6-Ø26	43						
NXQ-16/*		16			860																			57						
NXQ-25/*		25			1160																			90						
NXQ-40/*		40			1680																			123						
NXQ-20/*		20	M72 x 2	Ø299	690																			40	70	80	125	200	6-Ø26	90
NXQ-25/*		25			780																									105
NXQ-40/*		40			1050																									135
NXQ-63/*		63			1470																									191
NXQ-80/*	80	1810			241																									
NXQ-100/*	100	2190			290																									

Note: Not listed NXQ-125/* above. Contact your Dodge Service representative for specific information for a non-standard accumulator.

Capacity Selection

Energy storage
$$V_1 = \frac{V (P_2 / P_1)^{\frac{1}{n}}}{1 - (P_2 / P_3)^{\frac{1}{n}}}$$

For pulse absorption
$$V_1 = \frac{qF_1 (P_2 / P_1)^{\frac{1}{n}}}{1 - (P_2 / P_3)^{\frac{1}{n}}}$$

- Accumulator capacity (L): V_1
- Effective capacity (L): V
- Charging pressure (MPa): P_1
- Minimum working pressure (MPa): P_2
- Maximum working pressure (MPa): P_3
- Output quantity of single cylinder for each revolution of pump (L/min): q
- Output co-efficient of pump F_1
- Polytropic exponent n

Application and Features

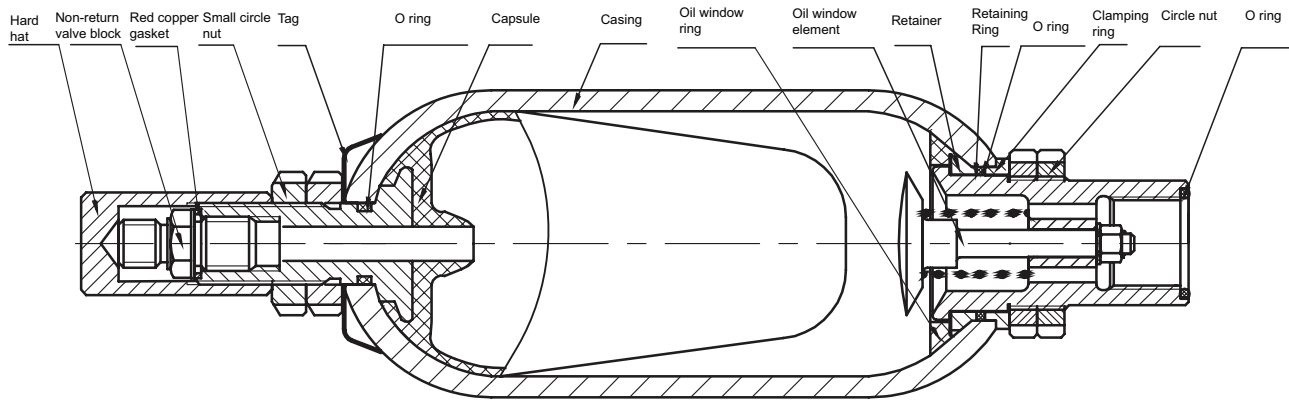
Application	Features
Absorption of hydraulic impact	The accumulator is usually installed before the change valve or oil cylinder, which could absorb impact pressure generated due to sudden change of the change valve, sudden stop of oil cylinder.
The accumulator is usually installed before the change valve or oil cylinder, which could absorb impact pressure generated due to sudden change of the change valve, sudden stop of oil cylinder.	Plunger pump of hydraulic system, engaging gear pump with few gears, overflow valve makes the hydraulic pressure, flow generate the pulse, and installation of accumulator could reduce the liquid pulse and noise.
Improved frequency characteristic	When the hydraulic system uses pressure compensation tilting mechanism, with large time constant, the accumulator could release the pressure quickly to improve the frequency characteristic.
The accumulator is also with hydraulic air spring and thermal expansion compensator.	

NOTES

1. Before using the accumulator, check the connecting pipe is clean, oil liquid clean to prevent scrap iron in the pipe or liquid from corrosion of capsule.
2. Before using the accumulator, replenish the gas according to the system pressure (air pressure inside the capsule is 0.1MPa).
3. The oil port shall be vertically installed downward, making the gas stay at upper part of casing, preventing it from entering the pipeline.
4. Do not fix the accumulator with welding, riveting or machinery processing.
5. The accumulator shall not be filled with oxygen or air. Instead, fill with nitrogen or other inert gases.
6. For energy storage, the charging pressure shall be lower than 90% of the minimum working pressure (usually 60-80%).
7. After installation of accumulator, check if there is gas or oil leaking at the connection.
8. After setup of accumulator, carry out the air pressure inspection and the technical inspection regularly.

Check and maintenance

1. Check air leaking: after setup of accumulator, check the capsule pressure once a month, for the first six months, then check it every six months thereafter.
2. Inspection method: set up a stop valve at the oil inlet and oil line connecting with the oil tank, and install a pressure meter in front of this valve; slowly open the stop valve to make the pressure oil flow back to oil tank, and meanwhile check the pressure meter, whose pointer would be reduced slowly, and then suddenly to zero after reaching certain pressure value. The value that changes with moving speed of the pointer refers to charging pressure. In addition, check the charging pressure directly with charging tool, however, some gas will be released for each check.
3. When the capsule is damaged, release the oil pressure before removing the accumulator, and then remove each part and component.



Maintenance of the capsule:

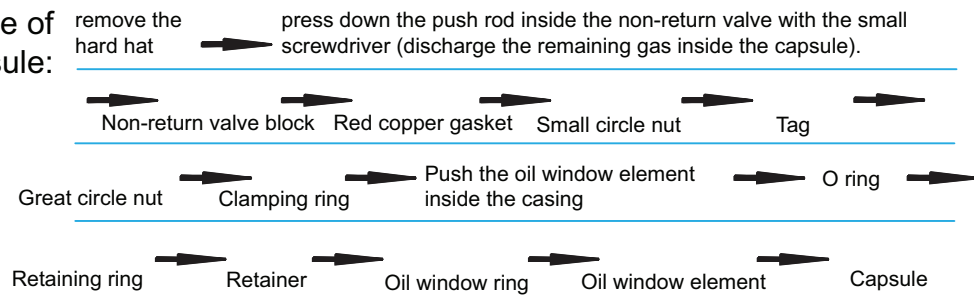


Figure 2 - Maintenance of Capsule

1. In case of damaged purple copper gasket, o ring, replace it.
2. Before installation of capsule, check the cleanness of the casing, which shall be free of foreign substance. In case the sealing surface is damaged during removing, repair it duly; for charging of the capsule, slowly fill with the nitrogen.

Accumulator Stand and Buckle

Product introduction

The stand and buckle are specially made for fixing the accumulator, featuring in reliability, compact structure, flexible connection and convenient operation, etc.

Buckle

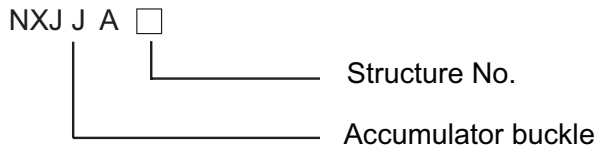
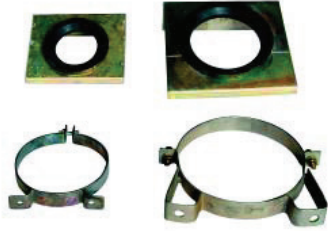


Figure 4 - Buckle Nomenclature

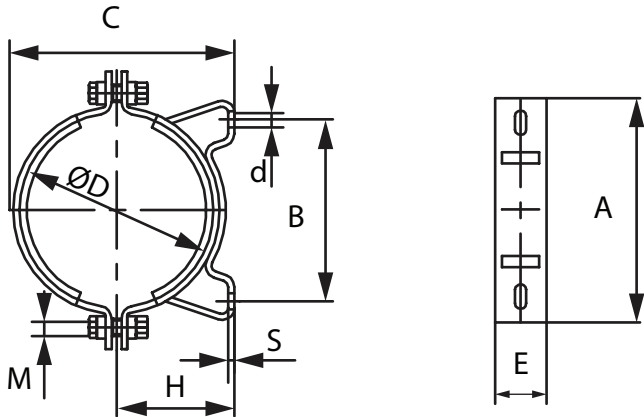


Figure 5 - Accumulator Stand and Buckle Dimensions

Table 2 - Buckle Dimensions

Model	Basic dimension (mm)									
	ØD	d	A	B	C	H	M	E	S	Weight (kg)
NXJ-A3	152 - 159	13	225	148	190	87-91	10	25	2	0.5
NXJ-A4	219-224	16	262	200	290	120-124	12	39	3	0.8

Accumulator Stand

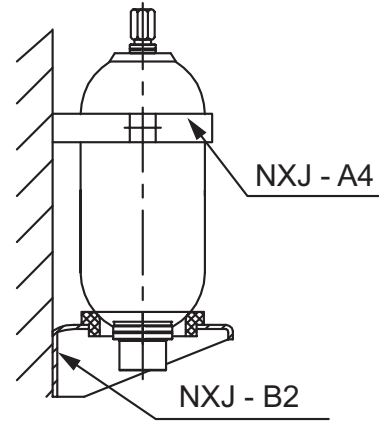


Figure 6 - Accumulator Stand

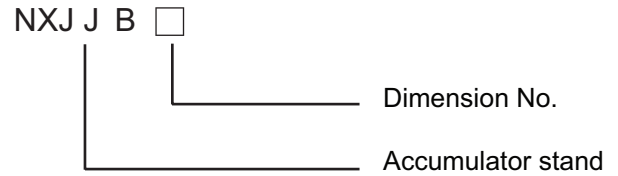


Figure 7 - Nomenclature

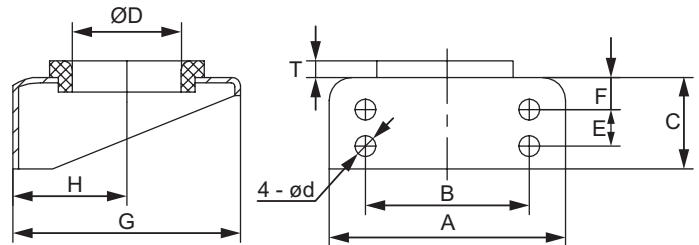


Figure 8 - Accumulator Stand Dimension

Table 3 - Accumulator Dimension

Model	Basic Dimension (mm)										
	ØD	4-Ød	A	B	C	E	F	G	H	T	Weight (kg)
NXJ-B1	104	14	200	140	93	40	39	178	94	15	2.5
NXJ-B2	159	14	260	180	100	40	35	250	123	15	2.8
NXJ-B3	200	22	380	260	240	120	60	380	190	20	19.1

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