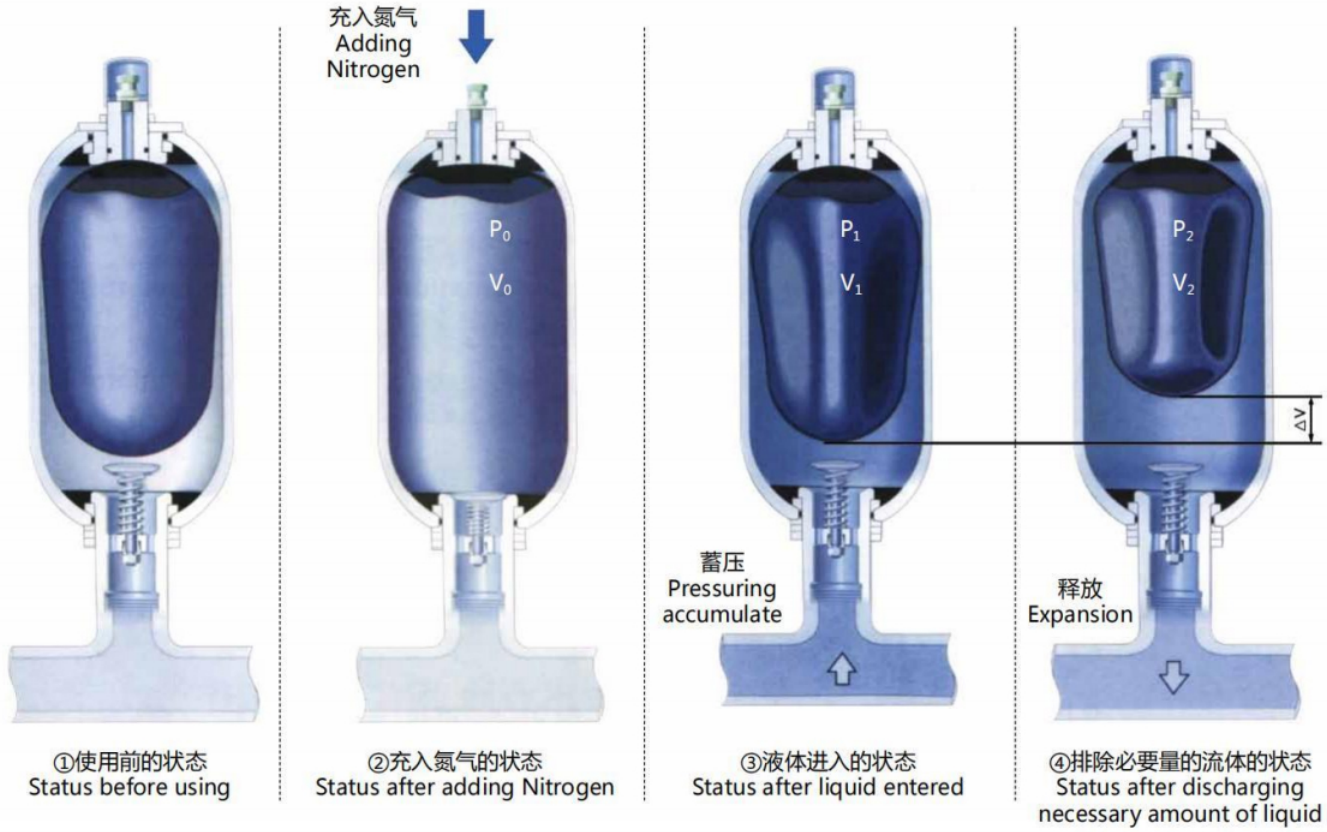
国标囊式蓄能器
National Standard Bladder Accumulators

一、工作原理 Operation principle



蓄能器内腔由皮囊分为两个部分：囊内装氮气，囊外充液压油。当液压泵将液压油压入蓄能器时，皮囊就受压变形，气体体积随压力增加而减少。液压油被逐渐储存。若液压系统工作需要增加液压油，则蓄能器将液压油排出，使系统的能量得到补偿。

Inner space of accumulator is divided into two parts by bladder: the nitrogen is filled in bladder and hydraulic oil is filled the bladder. When hydraulic oil is compressed into accumulator by hydraulic pump, the bladder is deformed by the pressure, the volume of gas is compacted with the increasing of pressure, the hydraulic oil is stored gradually. the accumulator discharge the hydraulic oil and compensate the system energy, as required.

二、蓄能器的典型应用 Typical applications of the accumulator

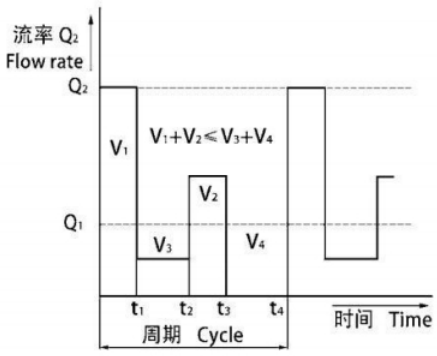


图2
Fig.2

1、如果在液压回路中短时间内流量变化较大，使用蓄能器就能选用较小的泵和电机，从而降低了设备费用和操作费用。图 2 所示的运行周期需要一个具有 Q_2 流量的泵。如果应用蓄能器，在时间周期（t_2-t_1）和（t_4-t_3）内蓄油，因为此时需要的油流量很小，或者甚至不需要用油。当所要求的流量高于泵送量 Q_1 时，在 t_1 和 t_3-t_2 周期内可以使用蓄能器供油。选择泵送量 Q_1 须满足 $V_1+V_2 \leq V_3+V_4$。

In the case of hydraulic circuits where a large flow rate is required for a short period, alternating with a low or no flow condition, the use of an accumulator allows smaller pumps and motors to be used, thus reducing both installation and operating costs. The operation cycle shown in fig. 2 would require a pump having a capacity Q_2. If an accumulator is used, it is possible to store oil during the time periods (t_2-t_1) and (t_4-t_3) when requirement is very low or zero, and to re-utilize. During t_1 and (t_3-t_2), when the required flow rate is higher than the pump capacity Q_1. This pump must be selected to have the volumes $V_1+V_2 \leq V_3+V_4$.

2、柱塞泵和隔膜泵在运行时会在液压回路里不可避免地产生脉动。这既不利于运动又有害于部件的使用寿命。在靠近泵的出口侧装上囊式蓄能器，可吸收脉动，是脉动降到满意的程度（图 3）。典型的用途如：用于定量泵及活塞数较少的柱塞泵等。

Both piston and diaphragm pumps create pulsation or pressure peaks during operation, this being undesirable and detrimental to both the smooth operation and operational life of components. The fitting of an accumulator adjacent to down stream of the pump will dampen the pulsation to an acceptable level(fig.3). Typical applications are dosing pumps, pumps with a small number of pistons etc.

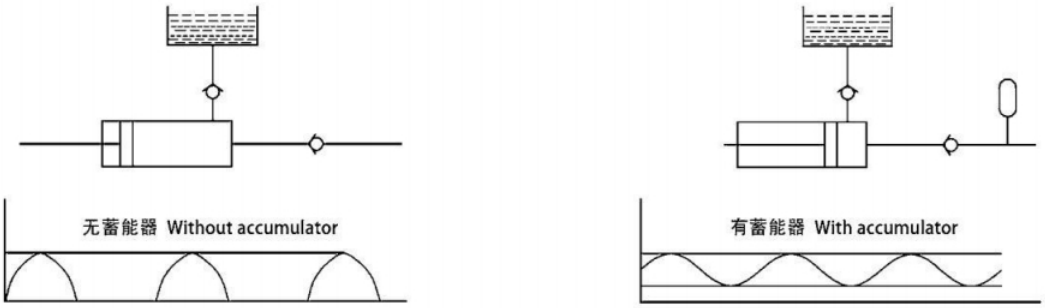


图 3
Fig.3

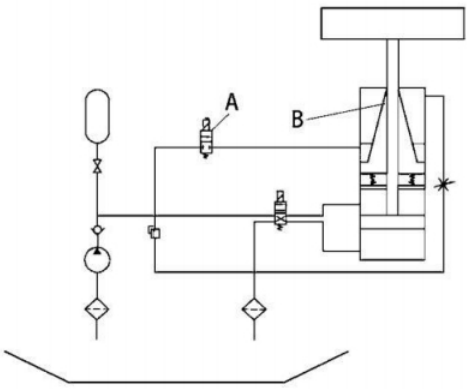


图 4
Fig.4

3、在动力突然损失的情况下，例如管道或接头故障、泵破损等，蓄能器能够提供足够的能量来完成运行循环或使传动机构、阀门等重新恢复到安全的位置，从而防止损坏设备或产品。在一些必须获得紧急动力源的情况下，如为关闭安全门、电器开关、安全阀、紧急制动器等所需要的液动源。

另一个典型用途是将燃油紧急提供给电厂的锅炉。图 4B 处所示的引起损失的故障，可通过手动操纵电子阀 A 而消除，这时就使用了蓄能器储备的能量。

In the case of a sudden power loss, e.g. pipe or joint failure, pump break-down etc. the accumulator can supply with pressure to complete an operational cycle or to allow actuators, valves etc. to reset to a "safe" position, and so prevent damage to equipment or product. The availability of such an emergency power source is essential in cases where a hydraulic power supply is required for closing a safety door, electrical switch, safety valve, emergency brakes etc.

Another typical application is the emergency supply of fuel oil to power plant burners Fig.4 illustrates that a failure at "B" causing a loss of energy can be offset by manually overriding the electro valve "A" thus utilizing the potential energy of the accumulator.

4、在闭式液路中，由于热膨胀，温度的上升会导致压力上升。

在线安装的蓄能器可补偿油的容积变化，从而保护阀门、垫片、压力表等不出故障。炼油厂和远距离油管是其常的用途（图 5）。

The installation of an accumulator compensates for the change in volume caused by temperature differences, thus limiting over pressurization inside a closed system. This increases the life of the valves, washer, gauge etc. Common applications are found in refineries and pipelines (Fig.5).

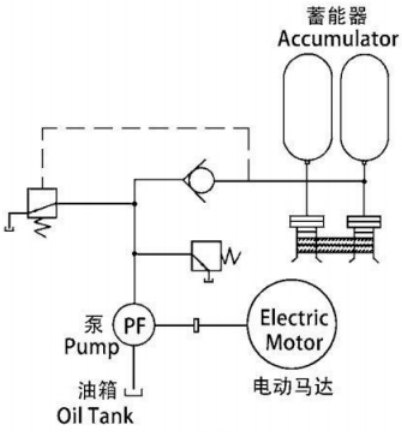


图 5
Fig.5

5、当长时间需要恒定静态压力时，蓄能器是必不可少的，因为它将补偿由于接头、密封等渗漏而造成的压力损失，而且能平衡在循环运行过程中可能发生的压力波动。典型用途为夹紧系统（如图 6）、负载平台、筑路压力机润滑系统等。

As a constant static pressure is required for a long period, an accumulator is indispensable as it will compensate for pressure loss due to leakage through joints, seals etc. as well as balancing pressure peaks which may occur during the operating cycle. Typical applications are found in closing system(Fig.6), loading platforms, curing presses, machine tools, lubricating systems, etc.

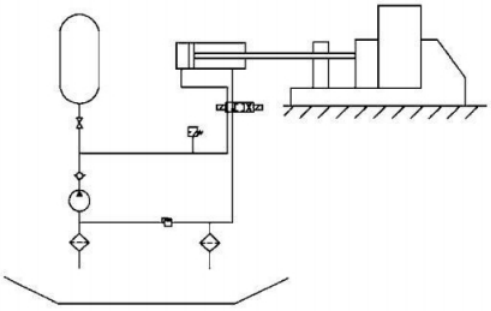


图 6
Fig.6

6、阀的快速关闭会产生冲击波（水锤现象），导致管子、接头、阀等部件的损坏。使用蓄能器能大大地减少冲击。典型用途为水管（图 7）、燃油和油的远距离管路、洗涤设备等。

Rapid closing of the valve can generate pressure waves which travel through the pipe lines causing water hammer. The use of a suitable accumulator can bring the pressure surge back to an acceptable value. Typical applications are water pipe (Fig.7), fuel and oil distribution circuits, washing equipment etc.

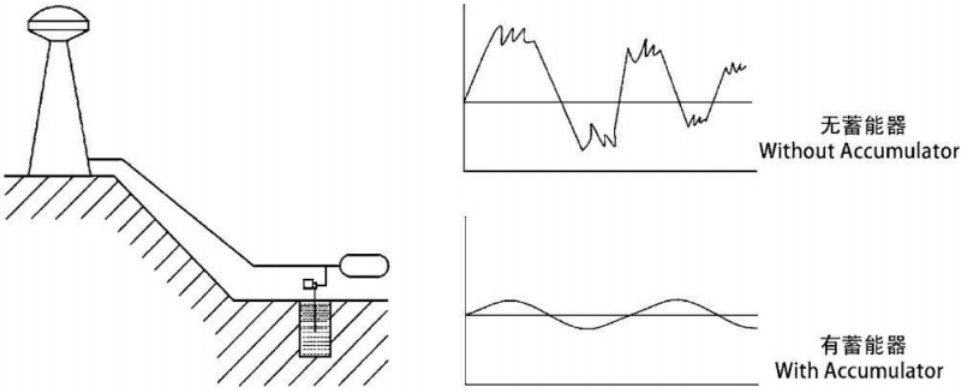


图 7
Fig.7

7、液压设备中的机械振动可被蓄能器吸收，用于叉式提升机的驱动和悬挂系统、移动吊车、农用和市政设备、石块破碎机等。（图 8 所示）

Mechanical shocks in hydraulically driven equipment can be absorbed by accumulators. Possible applications are in drive and suspension systems for fork-lifts, mobile cranes, agricultural and civil angineering machinery, rock crusher etc (Fig.8).

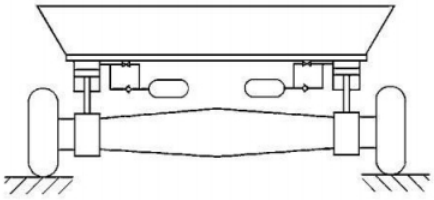


图 8
Fig.8

8、流体传输 Fluid separator(transfer barrier)

在一个系统中，当作用在回路一侧的液体压力增加必须转换到回路另一侧液体中，而又不使两种液体混合，胶囊蓄能器可有效地解决这一问题（图 9）。

蓄能器的胶囊犹如一个挠性屏障作用于液体和气液之间，提供瞬间响应而不减小系统的压力。

In a system where fluid pressure developed on one side of the circuit must be transferred, to another fluid without any possibility of the two fluids intermixing, the bladder accumulator provides the satisfactory solution (Fig.9).

The accumulator bladder acts as a flexible barrier between the fluids and the gas, providing instantaneous response without reducing the system pressure.

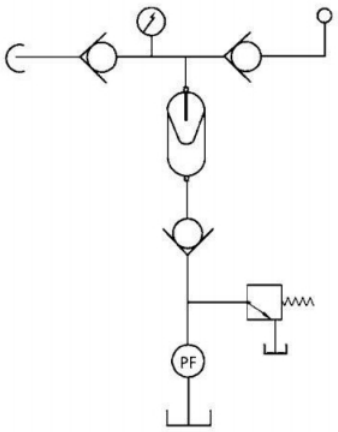


图 9
Fig.9

三、蓄能器的选择 Selection

选择蓄能器时必须明确以下技术参数

It's necessary to clear the following parameters during the selection of an accumulator.

1、工作压力 Operating pressure

最小和最大工作压力（P_1、P_2），其中最大允许工作压力不应大于被选用的蓄能器所规定的最大工作压力。

The minimum and maximum operating pressure (P_1, P_2), and the maximum allowable operating pressure must be lower or equal to the maximum nominal operating pressure of the accumulator which is selected.

2、工作容积 Operating volume

可储存或利用的液体容积（△ V）。

Volume (△ V) of liquid to be stored or utilized is required in addition to the maximum and minimum operating pressure for correct sizing of the accumulator.

3、工作介质 Operating mediums

一般为氮气和液压油或乳化液，特殊介质请咨询。

In general, the operating mediums are nitrogen and hydraulic oil or emulsion, for any special medium, please consults us.

4、工作温度 Operating temperature

工作温度决定着胶囊材料和壳体材料的选择，而且对初始负载压力、蓄能器容积确定也有影响。

The operating temperature determines the material of the bladder, also have influence on the preloading pressure, and consequently on the accumulator volume.

5、最大流量 Maximum flow rate

对于相同容积（△V），流量与蓄能器规格和反应速度有关。

For the same (△V) volume, the specification and response of the accumulator can be influenced on the immediate flow rate.

6、使用场所 Location

确定蓄能器的最终使用场所非常重要，这样可以使设计能够满足该场所设计参数和试验参数的要求。

It is important to know the using location of the accumulator in order that the design can meet local design and test parameter.

7、容积计算 Volume calculation

应用场合 Application	容积计算公式 Formula	说明 Note
辅助动力源 Auxiliary power source	$V_0=\frac{V_X(P_1/P_0)^{1/n}}{1-(P_1/P_2)^{1/n}}$	V_0- 所需蓄能器的容积（m^3）Volume required P_0- 充气压力 precharging pressure Pa，且：$0.9P_1 > P_0 > 0.25P_2$ V_x- 蓄能器的工作容积（m^3）efficient volume P_1- 系统最低工作压力（Pa）min. Operating pressure P_2- 系统最高工作压力（Pa）max. Operating pressure n- 指数，等温时取 n=1，绝热时取 n=1.4.n-coefficient n=1, isothermal condition; n=1.4, adiabatic condition
吸收泵的脉动 Pulsation damper	$V_0=\frac{AkL(P_1/P_0)^{1/n}\times10^3}{1-(P_1/P_2)^{1/n}}$	A- 缸的有效面积（m^2）efficient square L- 柱塞行程（m）plunger stroke K- 与泵的类型有关的系数 Coefficient relation with pump 泵的类型 type of pump　　系数 coefficient 单缸单作用 single cylinder, single action　0.60 单缸双作用 single cylinder, dual action　0.25 双缸单作用 dual cylinder, single acting　0.25 双缸双作用 dual cylinder, dual action　0.15 三缸单作用 triplex cylinder, single action　0.13 三缸双作用 triplex cylinder, dual action　0.05 - 充气压力（pa），按系统工作压力的 60% 充气： -Pre-charge pressure, charge the accumulator at a pressure 60% operating pressure.
吸收冲击 Absorb emergency energy	$V_0=\frac{m}{2}V^2(\frac{0.4}{P_0})\left[\frac{10^3}{(P_2/P_0)^{0.285}-1}\right]$	m- 管路中液体的总质量（kg）： Total quality in hydraulic oil pipe v- 管中流速（m/s）Fluid flow rate - 充气压力（pa），按系统工作压力的 90% 充气： -Pre-charge pressure, charge the accumulator at a pressure 90% operating pressure.

注：　1. 充气压力按应用场合选用。

Pre-charging pressure shall be determined according to application location.

2. 蓄能器工作循环在 3min 以上时，按等温条件计算，其余均按绝热条件计算。

n=1, in case compression or expansion of nitrogen takes place so slow (over 3 minutes) that a complete interchange of heat is allowed between gas and environment, that is at constant temperature, the condition is isothermal n=1.4, when operation is so quick that no interchange of heat can take place, the condition is adiabatic.

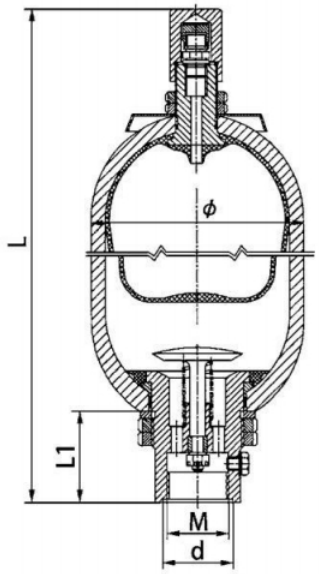
一、型号说明 Model Code

NXQ - ※ - ※ / ※ - ※ - ※

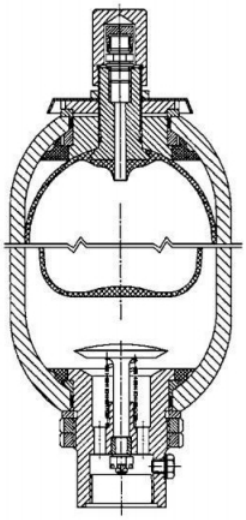
名称代号	结构型式	公称容积 (升)	公称压力 (MPa)	连接方式	工作介质
液压囊式蓄能器	A 型 : 小孔	Nominal Volume (L)	Nominal Pressure (MPa)	L: 螺纹连接	Y: 液压油
Product Type	AB 型 : 大孔	0.4~250L	10, 20, 31.5MPa	F: 法兰连接	R: 乳化液
Hydraulic Bladder	Type of Construction			Hydraulic Port	Medium
Accumulators	A: Small opening			L: Threaded	Y: Hydraulic oil
	AB: Big opening			F: Flanged	R: Emulsion

二、内部结构及外形尺寸 Construction and Dimension

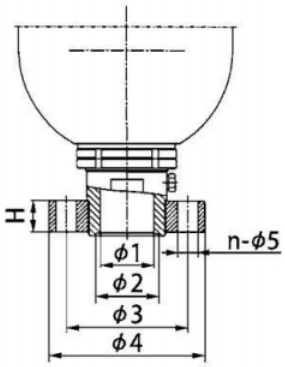
NXQ-A 型蓄能器螺纹连接结构简图
NXQ-A type threaded hydraulic port construction diagram of accumulator
NXQ-A-※/※-L-※



NXQ-AB 型蓄能器螺纹连接结构简图
NXQ-AB type threaded hydraulic port construction diagram of accumulator
NXQ-AB-※/※-L-※



NXQ-A(AB) 型蓄能器法兰连接结构简图
NXQ-A(AB) type flanged hydraulic port construction diagram of accumulator
NXQ-A(AB)-※/※-F-※



三、型号与尺寸（国标） Model Code and Size (GB)

型号 Model Code	公称压力（MPa）Nominal Pressure	公称容积（L）Nominal Volume	尺寸 Size（mm）									连接方式 Hydraulic Port		重量（kg）Weight
			M	d	Φ1	Φ2	Φ3	Φ4	n-Φ5	L1	H	Φ	螺纹 (L) Thread	法兰 (F) Flange	
													L		
NXQ-A-0.4/*-L-*	10	0.4	M27×2	/	22	30	85	115	4-Φ17	52	22	89	260	/	3
NXQ-A-0.63/*-L-*		0.63											315	/	3.5
NXQ-A-1/*-L-*		1											430	/	4.5
NXQ-A-1/*-L(F)-*		1										114	330	340	5
NXQ-A-2/*-L(F)-*		2											445	455	7.4
NXQ-A-1.6/*-L(F)-*		1.6	M42×2	50	42	50	97	130	6-Φ17	66	28	152	365	380	11
NXQ-A-2.5/*-L(F)-*		2.5											430	445	14
NXQ-A-4/*-L(F)-*		4											540	555	16
NXQ-A-6.3/*-L(F)-*		6.3											710	725	22
NXQ-*-10/*-L(F)-*		10	M60×2	70	55	65	125	160	6-Φ21	90	32	219	650	665	39
NXQ-*-16/*-L(F)-*		16											860	875	54
NXQ-*-20/*-L(F)-*		20											985	1000	62
NXQ-*-25/*-L(F)-*		25											1160	1175	74
NXQ-*-32/*-L(F)-*		32											1400	1415	90
NXQ-*-40/*-L(F)-*		40											1680	1695	108
NXQ-*-50/*-L(F)-*		50											2010	2025	128
NXQ-*-20/*-L(F)-*	20	20	M72×2	80	70	80	150	200	6-Φ26	106	40	299	680	695	80
NXQ-*-25/*-L(F)-*		25											770	785	90
NXQ-*-40/*-L(F)-*		40											1050	1065	118
NXQ-*-50/*-L(F)-*		50											1230	1245	138
NXQ-*-63/*-L(F)-*		63											1470	1485	171
NXQ-*-80/*-L(F)-*		80											1810	1825	213
NXQ-*-100/*-L(F)-*		100											2190	2205	253
NXQ-*-150/*-L(F)-*		150											3125	3140	335
NXQ-*-63/*-L(F)-*	31.5	63	M85×2	95	83	95	170	230	6-Φ26	110	40	351	1170	1185	170
NXQ-*-80/*-L(F)-*		80											1395	1410	206
NXQ-*-100/*-L(F)-*		100											1660	1675	250
NXQ-*-125/*-L(F)-*		125											1990	2005	304
NXQ-*-150/*-L(F)-*		150											2310	2325	356
NXQ-*-160/*-L(F)-*		160											2450	2465	379
NXQ-*-180/*-L(F)-*		180											2700	2715	420
NXQ-*-200/*-L(F)-*		200											2980	2995	466

四、订货说明 Ordering Note

1. 订货时须写明型号代号全称，如：工作压力为 31.5MPa，公称容积为 40L，壳体结构为小口，介质为液压油，连接方式为螺纹连接的 Φ219 囊式蓄能器：NXQ-A-40/31.5-L-Y(Φ219).

1. The model code must be indicated completely when ordering. For example, accumulator NXQ-A-40/31.5-L-Y(Φ219) means: working pressure: 31.5MPa, nominal volume: 40L, construction type: small opening, bottom repair, the medium: hydraulic oil, hydraulic port: threaded, outside diameter: Φ219mm.

2. 订货时，遇到相同容积，不同直径系列的蓄能器规格。如用户选择大直径系列的蓄能器，请在产品型号的后面注上直径系列的规格。例如：Φ219 系列和 Φ299 系列都有 40L 规格，用户选用 Φ299 系列的 40L。压力等级为 31.5MPa 大口结构，螺纹连接，介质为液压油的蓄能器 NXQ-AB-40/31.5-L-Y(Φ299)。如选择小直径系列的蓄能器，可省略。

2.When the user choose the big diameter series accumulator of the same capacity, please indicate the diameter on the back of the model code. For example, there are two kind of outside diameter for 40L accumulator, one is Φ219 and the other is Φ299, if the user need Φ299 diameter accumulator. operating pressure: 31.5MPa, type of construction: big opening/top repair, the medium: hydraulic oil, hydraulic port: threaded. This kind of the accumulator should be expressed as following: NXQ-AB-40/31.5-L-Y(Φ299). If the user choose a small diameter series, the diameter is not required to note.

3. 若对蓄能器有特殊要求时，请同本公司商洽。

3.If you have special requirements on the accumulator, please negotiate with the technical department of our company.

型号 Model Code	NXQ-A(AB)-※/10	NXQ-A(AB)-※/20	NXQ-A(AB)-※/31.5
公称压力 Nominal Pressure MPa	10	20	31.5
耐压实验压力 Testing Pressure MPa	13	26	41
允许充气压力范围 Allowance charging pressure	小于液压系统最低工作压力的 90% / Less than 90% the min. operating pressure of the hydraulic system		
	大于液压系统最高工作压力的 25% / More than 25% the max. operating pressure of the hydraulic system		
最大排放流量 Max. discharging flow	螺纹连接 Threaded hydraulic port	0.4~1L	1L/S
		1.6~6.3L	3.2L/S
		10~40L	6L/S
		40~100L	10L/S
		150L	15L/S
	法兰连接 Flanged hydraulic port	1.6~6.3L	6L/S
		10~40L	10L/S
		40~100L	15L/S
		150~200L	25L/S
固定方式 Fixation way	1 升以下的直接安装在管路上，1 升以上用紧固环及支承座 Fixing direct to the pipeline if the volume of the accumulator is within 1 liter, and fixing to the pipeline by clamp and bracket when the accumulator volume is more than 1 liter.		
安装方式 Installation way	垂直安装 Vertical installation		
设计温度 Design temperature	-40~+70℃（低温 low temp.）、-20~+70℃（常温 normal temp.）、-20~+93℃（高温 high temp.）		
使用介质 Operating medium	液压油、乳化液 Hydraulic Oil, Emulsion		
	水一乙二醇 Water glycol		特殊订货 Special order
	磷酸酯 Phosphate		特殊订货 Special order

注：(1) 不得用焊接、铆接或机械加工等方法来固定蓄能器。
(2) 蓄能器严禁充氧气或空气。必须充氮气或其他惰性气体。
(3) 作能量储存时，充气压力应低于液压系统最低工作压力的 90%（一般为 60-80%）。
(4) 蓄能器安装后，应检查接口处是否漏气，漏油。
(5) 蓄能器设置后，应按规定期进行气压检查。

Note:(1) Welding, riveting and mechanical machining is not applied to fix the accumulator.
(2) Never use oxygen or air. Use nitrogen and inert gas only.
(3) When the accumulator is used as saving the energy, the inflating pressure should be lower than 90% of the min. operating pressure of the hydraulic system (generally 60%-80%).
(4) Check the hydraulic port for leakage when installing the accumulator.
(5) Check the pressure as required timely after the accumulator is settled down.

五、安装 Installation

1. 蓄能器原则上应该使气阀朝上垂直安装，为便于维护和检查，气阀处应留有一定空间。
2. 蓄能器的固定：蓄能器必须牢固地固定在托架或壁面上。
3. 用于缓冲和吸收脉动时，应尽可能装在靠近振动源处。
4. 蓄能器与液压泵之间应装设单向阀，当泵电机停止运转时防止蓄能器中所储存的压力油倒流。
5. 蓄能器与管路系统间设置操作简便的截止阀，此阀供充气，调节放油速度或长时间停机时使用。
6. 不得用焊接方法来固定蓄能器。

1.Accumulator shall be installed vertically with the gas valve upright. Inspection space shall be retained near gas valve.
2.Accumulator shall be fixed tightly on the frame or wall.
3.When used for buffering and pulsation damper, accumulator shall be placed near the fluctuation source.
4.Check valve shall be placed between accumulator and hydraulic pump to prevent return flow of oil for the accumulator when the electric machine of pump stops working.
5.Stop valve shall be placed between accumulator and pipe system to be used in gas charging, draining speed adjusting or long term stopping.
6.Welding shall not be applied in fixing the accumulator.

六、氮气的充装 Charging the Nitrogen

1. 蓄能器在充装氮气前必须对蓄能器进行检查。
2. 在充装氮气时应缓慢进行，以防冲破胶囊。
3. 蓄能器严禁使用氧气，压缩空气或其他可燃气体。
4. 氮气的充装用充气工具进行。充气工具为蓄能器不可缺少的部件之一。用于蓄能器充气，排气，测定和修正充气压力等。
5. 充气压力的确定：

充气压力可参考下列数值：

(1) 冲击缓冲：以蓄能器设置点的常用压力或稍高一点的压力作为充气压力；
(2) 脉动阻尼：以脉动的平均压力的 60% 作为充气压力；
(3) 能量储存：充气压力应在低于系统最低工作压力的 90%（一般为 60%-80%）和高于最高工作压力的 25% 范围内确定；
(4) 热膨胀补偿：以液压系统封闭回路中的最低压力或稍低一点的压力作为充气压力。

1. Accumulator shall be inspected before nitrogen is charging.
2. Nitrogen shall be charging slowly to ensure the bladder be not broken by quickly charging.
3. Oxygen, compressed air or other flammable gas are forbidden to be used.
4. Inflating tool (nitrogen charger) shall be used in charging the Nitrogen. Inflating tool is an inseparable part of the accumulator to be used in charging, draining, measuring and adjusting the pressure.
5. Determing of charging pressure

(1) Buffering impact: Charging pressure shall be the normal pressure of installation site or a little above.
(2) Absorbing fluctuation: Charging pressure shall be 60% of average pressure of fluctuation.
(3) Storage of energy: Charging pressure shall be lower than 90% of min. operating pressure (generally 60%-80%) and higher than 25% of max. operating pressure.
(4) Compensation for hot swelling: Charging pressure shall be the minimum pressure of close circuit of hydraulic system or a little lower.

七、维修和检查 Inspection and repair

1. 检查漏气：

蓄能器设置后，开始每周检查胶囊气压一次；一个月后，每月一次，半年后，半年检查一次；一年后，每年检查一次。定期检查可以保持最佳使用条件，并及早发现渗漏及时修复使用。

检查方法：

在蓄能器的进油口和油箱连接的油路上设置一个截止阀，并在截止阀前装上一个压力表。慢慢打开截止阀，使压力油流回油箱，同时注意压力表，压力表指针先是慢慢下降。达到某压力值后急速降到零，指针移动的速度发生变化的数值，就是充气压力。

此外，还可以利用充气工具检查压力，但每检查一次都会放掉一点气体。

2. 装置长期停止使用时，应关闭油口与压力油管之间的截止阀，保持蓄能器的油压在充气压力以上。
3. 若蓄能器在装置中不起作用，请检查是否由于气阀漏气引起，以便给予补充氮气。若皮囊内没有氮气，气阀处冒油，请拆卸检查皮囊是否损坏。
4. 卸下蓄能器前必须卸去压力油，使用充气工具放掉皮囊中的氮气，然后才能拆下各零部件。
5. 因运输或试压过程中出现蓄能器紧固螺母松动，造成蓄能器向外漏油时，请检查密封圈是否被挤出密封槽外。安装平整后，旋紧螺母。最好在系统压力最高值时旋紧螺母。若仍然漏油，请卸换有关零件。

1.Inspection of leakage

After installation, check the gas pressure in bladder every week. A month later, check every month, half a year later, check every half year.

Inspection Method:

Place a check-valve in the oil pipe connects the accumulator oil-inlet and oil box, and installs a pressure gage before the check-valve. Open the check-valve slowly to let compressed oil return to oil tank and watch the pressure gage simultaneously. The pointer of gage at first turn down slowly, turns down rapidly to zero at a certain point. The changed valve of moving speed of pointer is the gas charging pressure besides, gas charging device could be used to inspect pressure, but gas will be discharged a bit during each inspection.

2.When accumulator is not used for a long period, the check-valve shall be closed to ensure that the oil pressure is higher than charging pressure.

3.If the accumulator does not take effect, check whether there is leakage. If there is no nitrogen in the bladder and oil is out of gas valve, please check the bladder.

4.Drain the oil before demounting the accumulator. First let out the nitrogen with the charging device, then the parts can be demounted.

5.If there is leakage because of loosening of nuts in the process of transportation and testing, please check that seal ring is in the slot. Place the seal ring in the right place and revolve the nut. If leakage still exists please replace the parts.

八、附则 Appendix

1. 系统调试前，应排尽管道内空气。
2. 10L 以上蓄能器，必须在进油口设置安全阀。
3. 蓄能器作用前必须检查囊内氮气压力是否符合充气压力确定值。
4. 蓄能器严禁充装氧气及可燃气体，以避免引起爆炸。

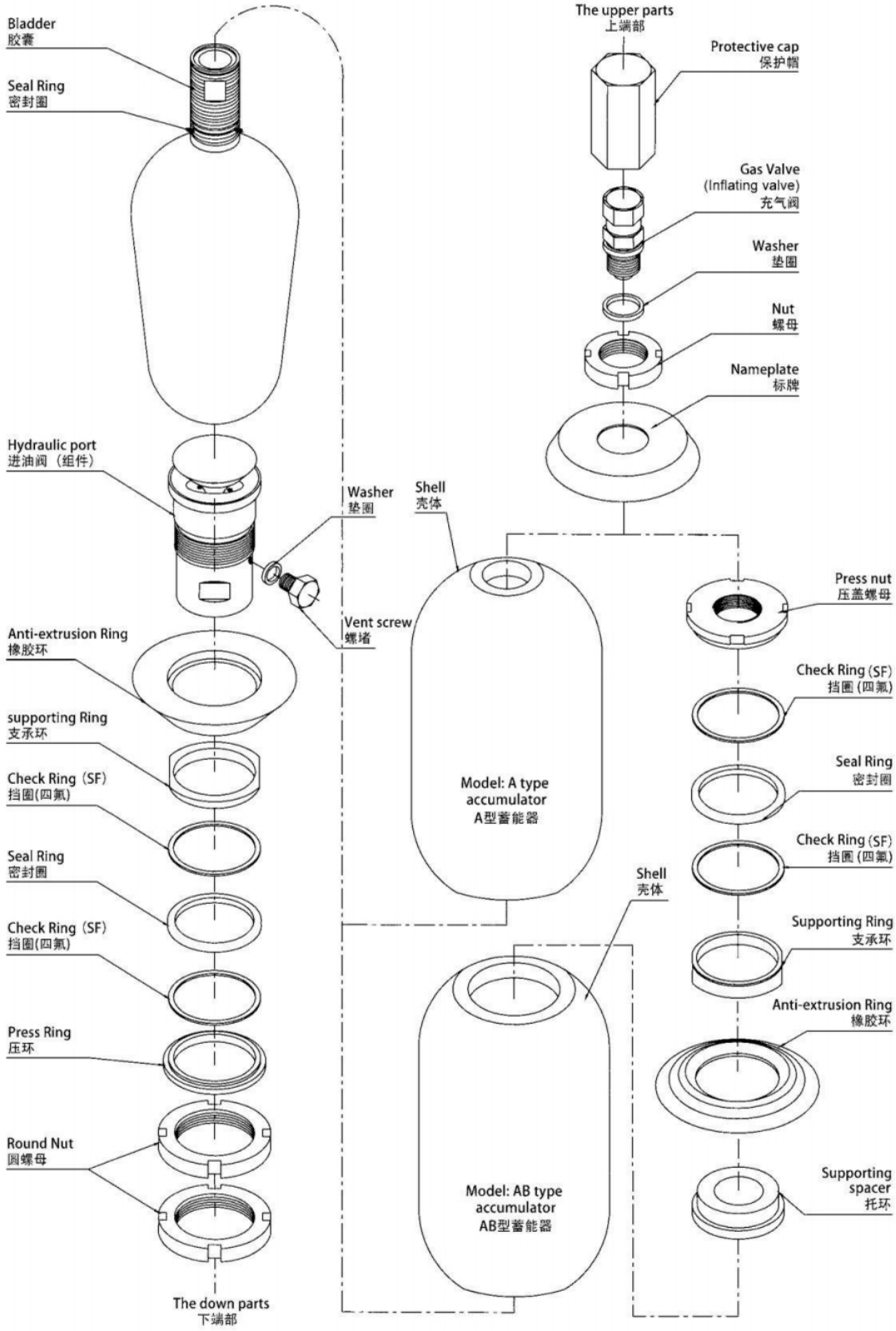
1.Before debugging, air in the pipe shall be expelled.

2.Place a safety-valve in the hydraulic port when the volume of the accumulator is larger than 10L.

3.Check the pre-charging pressure before using the accumulator .

4.Never use oxygen and flammable gas, risk of explosion.

囊式蓄能器装配示意图 Bladder accumulator assembly schematic drawing



美标蓄能器（ASME）
American Standard Accumulators (ASME)

型号说明 Model Code

M □ B □ / □

M — 美标 ASME

B — B：底拆式 B：Bottom Repair；T：顶拆式 T：Top Repair

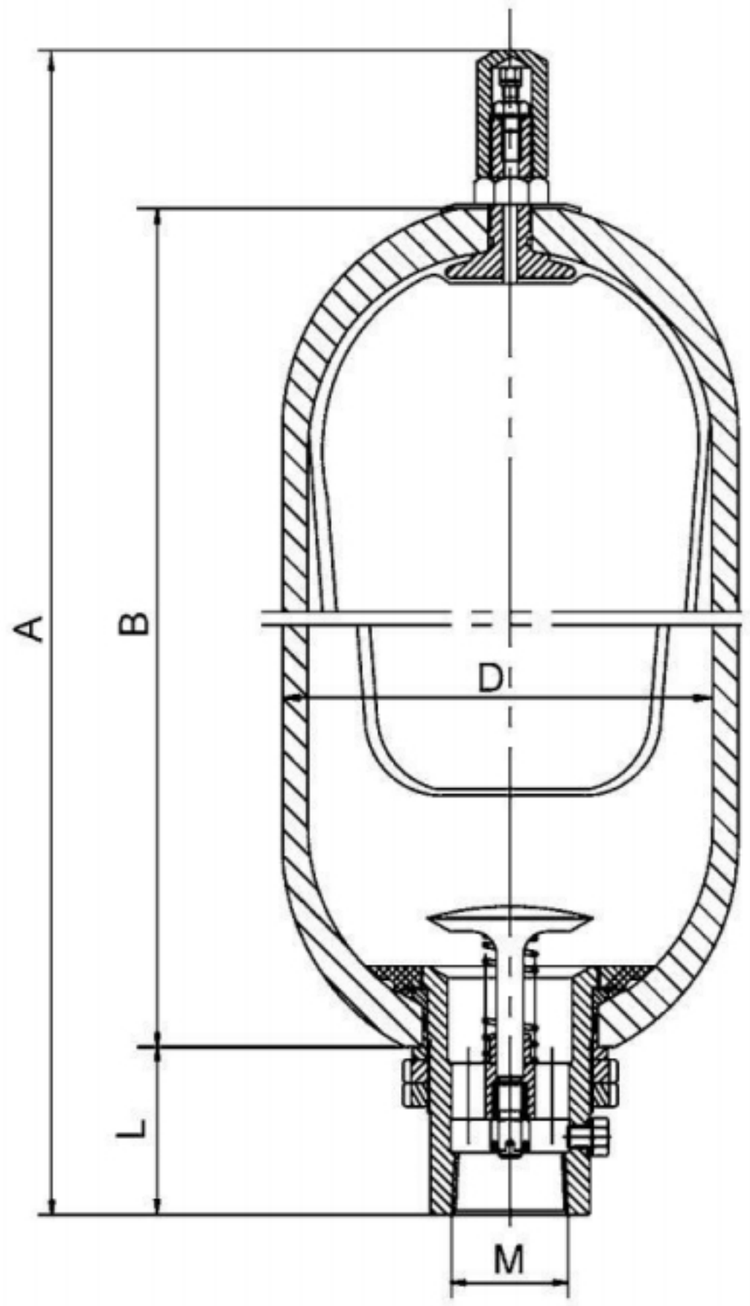
□ — 公称容积 (Gal) Nominal Volume (Gal)

□ — 公称压力 (Psi) Nominal Pressure (Psi)

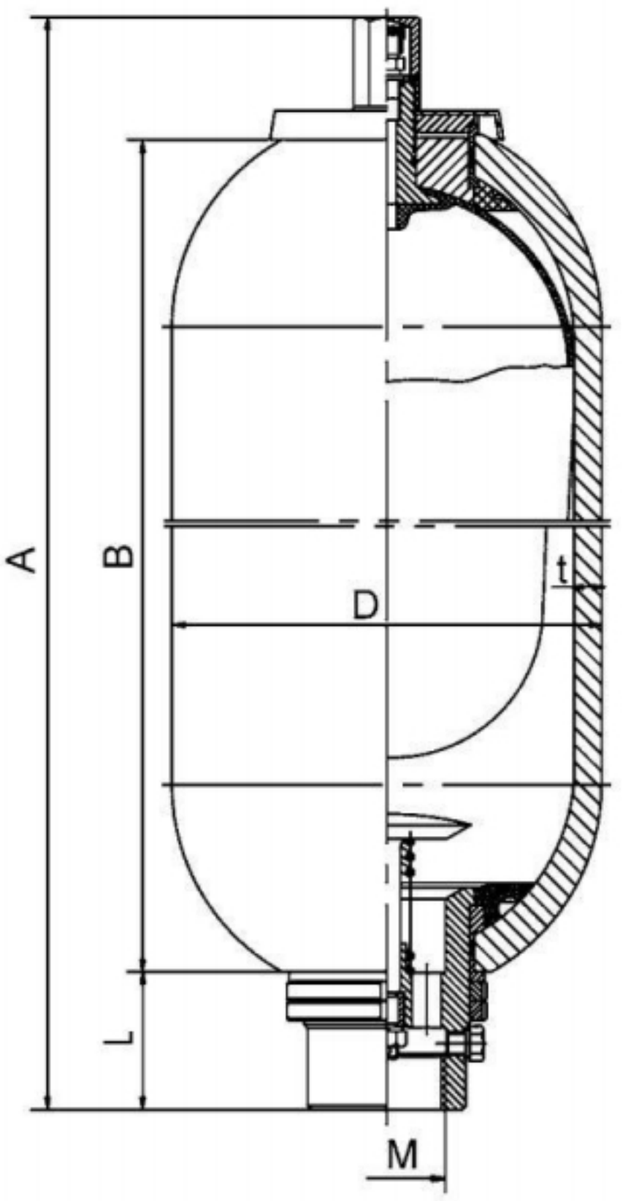
特征 Specification

1. 结构形式：底拆，顶拆结构
2. 固定方式：紧固箍或支座。
3. 安装方式：原则上垂直安装。
4. 工作介质：液压油，乳化液。
5. 设计温度：-10℃ ~+93℃
6. 胶囊充入气体：氮气。

1. **Construction:**
   Bottom repair , top repair.
2. **Fixation way:**
   Clamp or bracket.
3. **Installation:** vertical.
4. **Medium:**
   Hydraulic oil, emulsion.
5. **Operating temperature:**
   -10℃ ~+93℃ .
6. **Gas charged in the bladder:**
   Nitrogen.



Bottom Repair Construction
底拆式结构



Top Repair Construction
顶拆式结构

美标蓄能器（ASME）
American Standard Accumulators (ASME)

涿鹿高压容器

型号与尺寸（美标） Model Code and Size (ASME)

型号 Model Code	压力 Pressure	容积 Volume		重量 Weight		尺寸 Size（mm）				
	Psi	Gal	L	Lbs	Kg	D（mm）	L（mm）	A（mm）	B（mm）	M（NPT）
MB0.25/3000	3000	0.25	1	11	5	Φ114	50	325	195	3/4"
MB1/3000		1	4	32	14.5	Φ168	60	385	315	1 1/4"
MB2.5/3000		2.5	10	95	43	Φ229	87	565	410	2"
MB5/3000		5	19	140	64			865	710	
MB10/3000		10	38	230	104			1435	1280	
MB11/3000		11	42	240	109			1540	1385	
MB14/3000		14	53	276	126			1875	1720	
MB15/3000		15	57	290	132			1985	1830	
MT2.5/3000		2.5	10	95	43			555	410	
MT5/3000		5	19	140	64			855	710	
MT10/3000		10	38	230	104			1425	1280	
MT11/3000		11	42	240	109			1530	1385	
MT14/3000		14	53	276	126			1865	1720	
MT15/3000		15	57	290	132			1975	1830	
MT16/3000		16	63	380	171	Φ299	106	1485	1305	2-1/2"
MT21/3000		21	80	473	213			1825	1645	
MT26/3000		26	100	562	253			2205	2025	
MT17/3000		17	63	377	170	Φ351	110	1185	985	3"
MT21/3000		21	80	457	206			1410	1210	
MT26/3000		26	100	555	250			1675	1475	
MT33/3000		33	125	675	304			2005	1805	
MT39/3000		39	150	791	356			2325	2125	
MT48/3000		48	180	933	420			2715	2515	
MT53/3000		53	200	1035	466			2995	2795	
MB0.25/4500	4500	0.25	1	12	5.5	Φ114	50	325	195	3/4"
MB1/4500		1	4	44	20	Φ168	60	385	315	1 1/4"
MB2.5/4500		2.5	10	128	58	Φ232	87	555	400	2"
MB5/4500		5	19	185	84			855	700	
MB10/4500		10	38	300	136			1435	1280	
MB11/4500		11	42	322	146			1540	1385	
MB14/4500		14	53	392	178			1935	1780	
MB15/4500		15	57	403	183			2005	1850	
MT2.5/4500		2.5	10	128	58			545	400	
MT5/4500		5	19	185	84			845	700	
MT10/4500		10	38	300	136			1425	1280	
MT11/4500		11	42	322	146			1530	1385	
MT14/4500		14	53	392	178			1925	1780	
MT15/4500		15	57	403	183			1995	1850	
MT16/4500		16	61	422.4	192	Φ299	74	1460	1280	2-1/2"
MT21/4500		21	80	510.4	232			1800	1620	
MT26/4500		26	100	602.8	274			2180	2000	
MT2.5/5000	5000	2.5	10	90.6	41	Φ232	87	570	425	2"
MT6.4/5000		6.4	24	181.6	82.2			1002	857	
MT10/5000		10	38	267	121			1425	1280	
MT11/5000		11	42	276	125			1530	1385	

1. 订货说明：如有特殊要求，请与本公司商洽。
1.Ordering note: If you have special requirements, please contact our company for advice.

欧标系列蓄能器
European Standard Accumulators

型号说明 Model Code

PED □ / 34.5

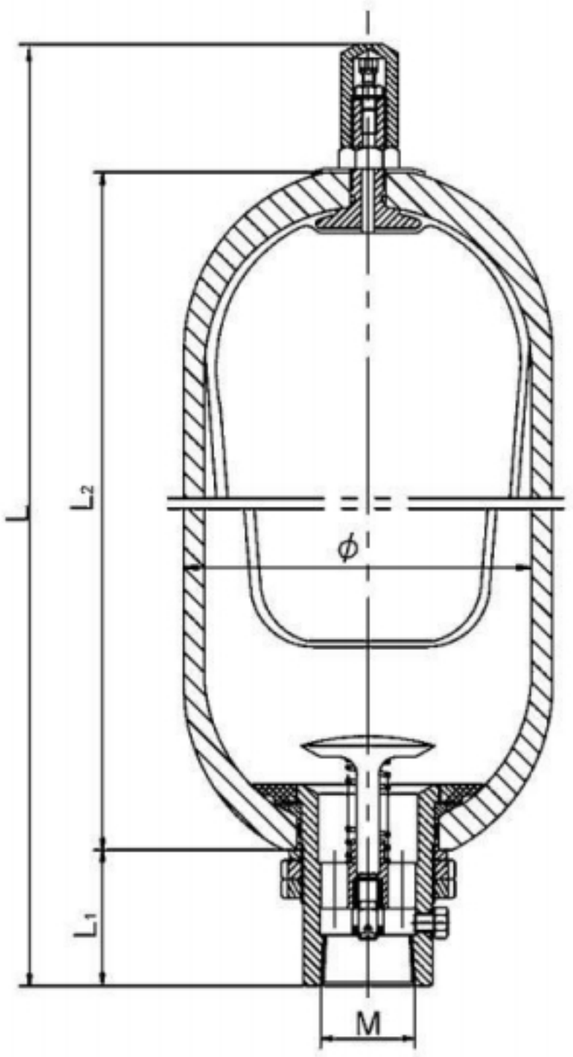
- PED：欧标蓄能器 European Standard Accumulators
- □：公称容积（升） Nominal Volume (L)
- 34.5：公称压力 (MPa) Nominal Pressure (MPa) 34.5MPa

特征 Specification

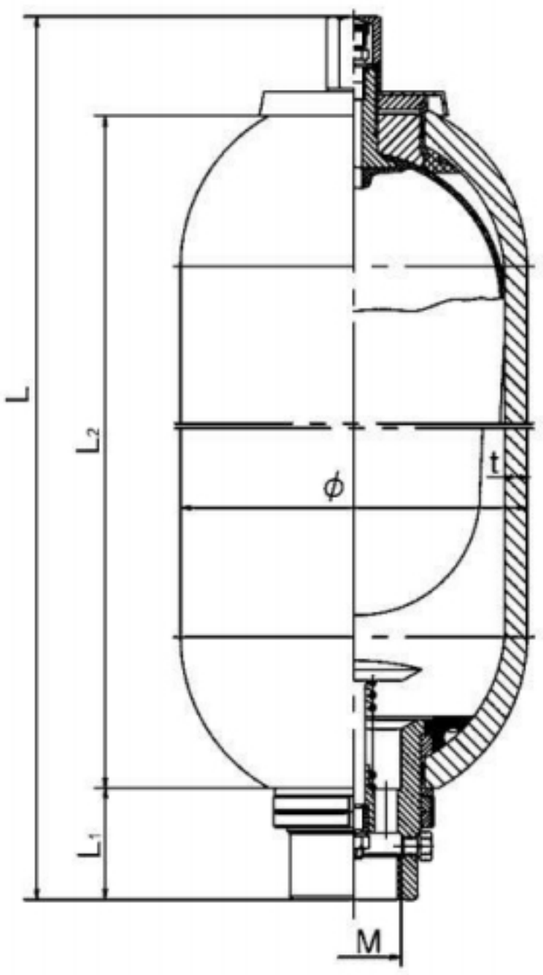
1. 结构形式：底拆，顶拆结构。
2. 固定方式：紧固箍或支座。
3. 安装方式：原则上垂直安装。
4. 工作介质：液压油，乳化液。
5. 设计温度：-10℃ ~+70℃
6. 胶囊充入气体：氮气。

1. **Construction:**
   Bottom repair , top repair.
2. **Fixation way:**
   Clamp or bracket.
3. **Installation:** vertical.
4. **Medium:**
   Hydraulic oil, emulsion.
5. **Operating temperature:**
   -10℃ ~+70℃ .
6. **Gas charged in the bladder:**
   Nitrogen.

型号与尺寸 Model Code and Size



Bottom Repair Construction
底拆式结构



Top Repair Construction
顶拆式结构

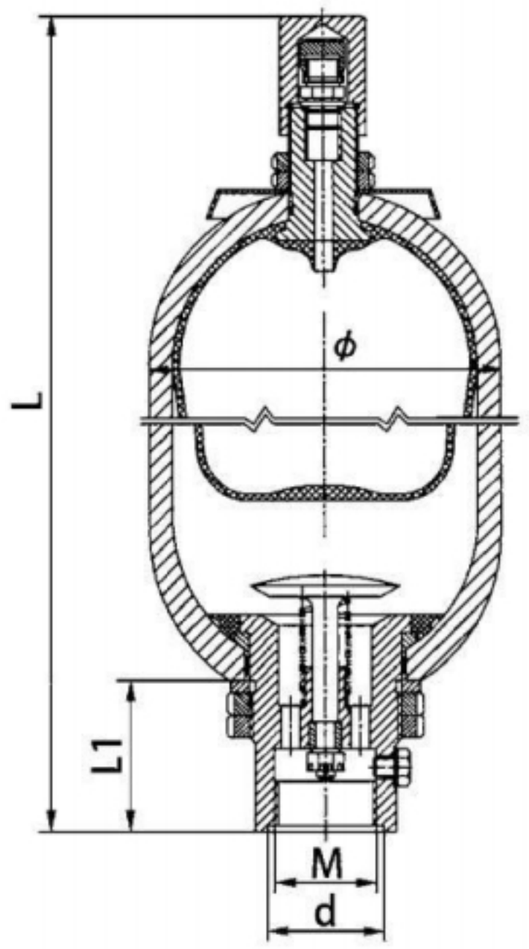
型号 Model Code	压力（MPa）Pressure	容积（L）Volume	重量（kg）Weight	尺寸 Size（mm）				
				Φ	L1	L2	L	M
PED1/34.5	34.5	1	5.5	Φ114	47	197	302	G3/4
PED2/34.5		2	6			315	445	
PED4/34.5		4	11	Φ168	63	315	447	G1¼
PED6/34.5		6	15.5			410	532	
PED10/34.5		10	37	Φ229	86	427	551	G2
PED15/34.5		15	49			582	726	
PED20/34.5		20	61			737	881	
PED24/34.5		24	70			857	1001	
PED32/34.5		32	95			1107	1257	
PED40/34.5		40	105			1354	1498	
PED50/34.5		50	117			1663	1807	

国标系列（CE 标记）蓄能器
National Standard (CE marking) Accumulators

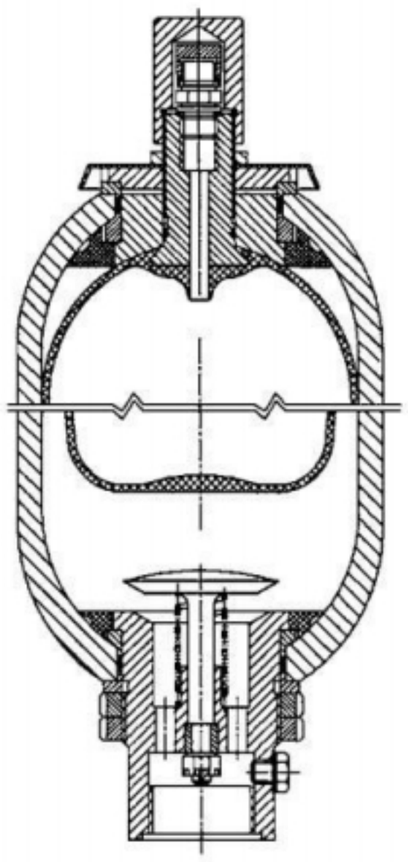
涿鹿高压容器

型号与尺寸 Model Code and Size

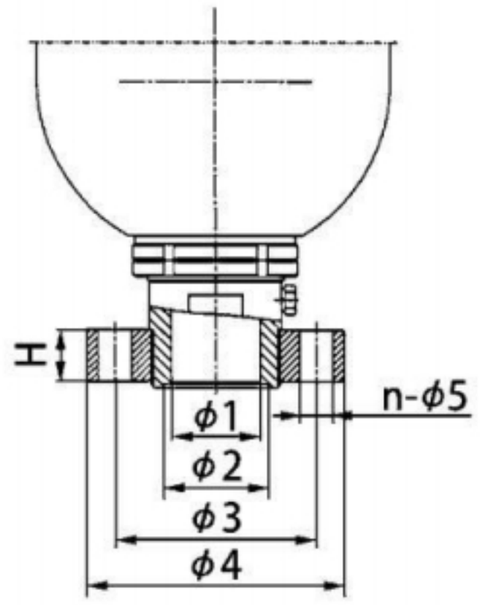
NXQ-A 型蓄能器螺纹连接结构简图
NXQ-A type threaded hydraulic port construction diagram of accumulator
NXQ-A-※/※-L-※



NXQ-AB 型蓄能器螺纹连接结构简图
NXQ-AB type threaded hydraulic port construction diagram of accumulator
NXQ-AB-※/※-L-※



NXQ-A(AB) 型蓄能器法兰连接结构简图
NXQ-A(AB) type flanged hydraulic port construction diagram of accumulator
NXQ-A(AB)-※/※-F-※



型号 Model Code	公称压力（MPa） Nominal Pressure	公称容积（L） Nominal Volume	尺寸 Size（mm）											重量（kg） Weight
			M	d	Φ1	Φ2	Φ3	Φ4	n-Φ5	L1	H	连接方式 Hydraulic Port		Φ
												螺纹 (L) Thread	法兰 (F) Flange	
												L		
NXQ-A-1.6/*-L(F)-*	10	1.6	M42×2	50	42	50	97	130	6-Φ17	66	28	365	380	152	11
NXQ-A-2.5/*-L(F)-*		2.5										430	445		14
NXQ-A-4/*-L(F)-*		4										540	555		16
NXQ-A-6.3/*-L(F)-*		6.3										710	725		22
NXQ-*-10/*-L(F)-*	20	10	M60×2	72	55	65	125	160	6-Φ21	90	32	650	665	219	39
NXQ-*-16/*-L(F)-*		16										860	875		54
NXQ-*-20/*-L(F)-*		20										985	1000		62
NXQ-*-25/*-L(F)-*		25										1160	1175		74
NXQ-*-32/*-L(F)-*		32										1400	1415		90
NXQ-*-40/*-L(F)-*		40										1680	1695		108
NXQ-*-50/*-L(F)-*		50										2010	2025		128
NXQ-*-20/*-L(F)-*	31.5	20	M72×2	80	70	80	150	200	6-Φ26	106	40	680	695	299	80
NXQ-*-25/*-L(F)-*		25										770	785		90
NXQ-*-40/*-L(F)-*		40										1050	1065		118
NXQ-*-50/*-L(F)-*		50										1230	1245		138
NXQ-*-63/*-L(F)-*		63										1470	1485		171
NXQ-*-80/*-L(F)-*		80										1810	1825		213
NXQ-*-100/*-L(F)-*		100										2190	2205		253
NXQ-*-150/*-L(F)-*		150										3125	3140		335

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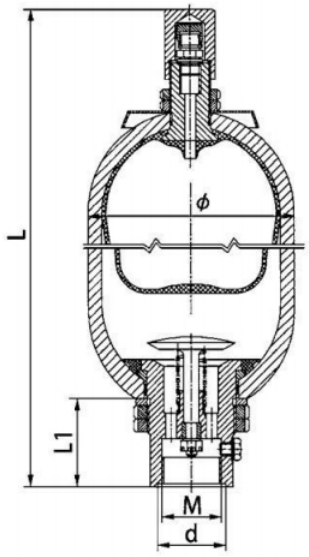
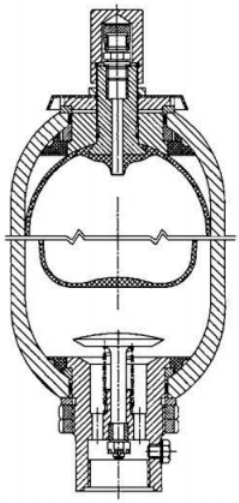
型号与尺寸 Model Code and Size

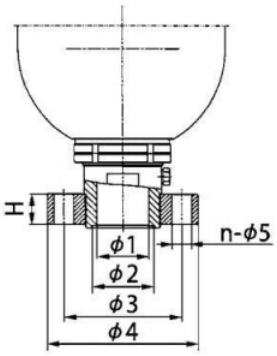
NXQ-A 型蓄能器螺纹连接结构简图
NXQ-A type threaded hydraulic port construction diagram of accumulator
NXQ-A-※/※-L-※



NXQ-AB 型蓄能器螺纹连接结构简图
NXQ-AB type threaded hydraulic port construction diagram of accumulator
NXQ-AB-※/※-L-※



NXQ-A(AB) 型蓄能器法兰连接结构简图
NXQ-A(AB) type flanged hydraulic port construction diagram of accumulator
NXQ-A(AB)-※/※-F-※



型号 Model Code	公称压力（MPa）Nominal Pressure	公称容积（L）Nominal Volume	尺寸 Size（mm）											重量（kg）Weight
			M	d	Φ1	Φ2	Φ3	Φ4	n-Φ5	L1	H	连接方式 Hydraulic Port 螺纹 (L) Thread	连接方式 Hydraulic Port 法兰 (F) Flange	Φ
												L		
NXQ-A-1.6/*-L(F)-*	10	1.6	M42×2	50	42	50	97	130	6-Φ17	66	28	365	380	152	11
NXQ-A-2.5/*-L(F)-*		2.5										430	445		14
NXQ-A-4/*-L(F)-*		4										540	555		16
NXQ-A-6.3/*-L(F)-*		6.3										710	725		22
NXQ-*-10/*-L(F)-*		10	M60×2	72	55	65	125	160	6-Φ21	90	32	650	665	219	39
NXQ-*-16/*-L(F)-*		16										860	875		54
NXQ-*-20/*-L(F)-*		20										985	1000		62
NXQ-*-25/*-L(F)-*		25										1160	1175		74
NXQ-*-32/*-L(F)-*		32										1400	1415		90
NXQ-*-40/*-L(F)-*	20	40										1680	1695		108
NXQ-*-50/*-L(F)-*		50										2010	2025		128
NXQ-*-20/*-L(F)-*	31.5	20	M72×2	80	70	80	150	200	6-Φ26	106	40	680	695	299	80
NXQ-*-25/*-L(F)-*		25										770	785		90
NXQ-*-40/*-L(F)-*		40										1050	1065		118
NXQ-*-50/*-L(F)-*		50										1230	1245		138
NXQ-*-63/*-L(F)-*		63										1470	1485		171
NXQ-*-80/*-L(F)-*		80										1810	1825		213
NXQ-*-100/*-L(F)-*		100										2190	2205		253
NXQ-*-150/*-L(F)-*		150										3125	3140		335

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不锈钢囊式蓄能器
Stainless Steel Bladder Accumulators

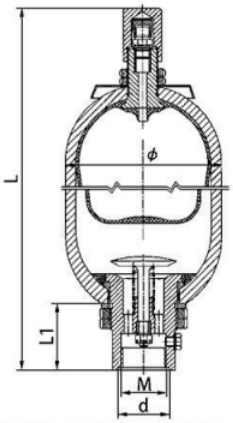
涿鹿高压容器

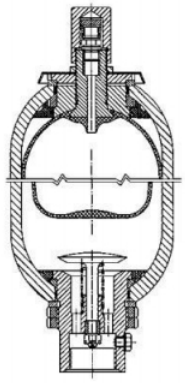
型号说明 Model Code

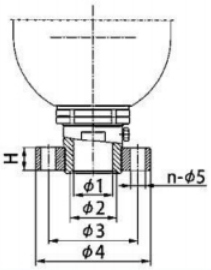
BNXQ - □ - □ / □ - □ - □

不锈钢囊式蓄能器 Stainless Steel Bladder Accumulators	结构型式 Construction A：小口 Small opening AB：大口 Big opening	公称容积（升） Nominal Volume (L)	公称压力 (MPa) Nominal Pressure (MPa)	连接方式 Hydraulic Port L：螺纹连接 Threaded F：法兰连接 Flanged	工作介质 Medium Y：液压油 Hydraulic oil R：乳化液 Emulsion N：第二组介质 Second Group Medium

型号与尺寸 Model Code and Size







型号 Model Code	公称压力（MPa）Nominal Pressure	公称容积（L）Nominal Volume	尺寸 Size（mm） M	d	Φ1	Φ2	Φ3	Φ4	n-Φ5	L1	H	连接方式 Hydraulic Port 螺纹 (L) Thread L	连接方式 Hydraulic Port 法兰 (F) Flange L	Φ	重量（kg）Weight
BNXQ-A-0.4/*-L(F)-*	10	0.4	M27×2	/	22	30	85	115	4-Φ17	52	22	260	270	89	3/3
BNXQ-A-0.63/*-L(F)-*		0.63										315	325		3.5/3.5
BNXQ-A-1/*-L(F)-*		1										430	440		4.5/4.5
BNXQ-A-1/*-L(F)-*		1										330	340	114	5/5.5
BNXQ-A-1.6/*-L(F)-*		1.6	M42×2	50	42	50	97	130	6-Φ17	66	28	365	380	152	11/12.5
BNXQ-A-2.5/*-L(F)-*		2.5										430	445		14/15
BNXQ-A-4/*-L(F)-*		4										540	555		16/18.5
BNXQ-A-6.3/*-L(F)-*		6.3										710	725		22/25.5
BNXQ-*-10/*-L(F)-*		10	M60×2	70	55	65	125	160	6-Φ21	90	32	650	665	219	39/48
BNXQ-*-16/*-L(F)-*		16										860	875		54/63
BNXQ-*-20/*-L(F)-*		20										985	1000		62/72
BNXQ-*-25/*-L(F)-*		25										1160	1175		74/84
BNXQ-*-32/*-L(F)-*		32										1400	1415		90/101
BNXQ-*-40/*-L(F)-*		40										1680	1695		108/119
BNXQ-*-20/*-L(F)-*	20	20	M72×2	80	70	80	150	200	6-Φ26	106	40	680	695	299	80/91
BNXQ-*-25/*-L(F)-*		25										770	785		90/102.5
BNXQ-*-40/*-L(F)-*		40										1050	1065		118/136
BNXQ-*-50/*-L(F)-*		50										1230	1245		138/159.5
BNXQ-*-63/*-L(F)-*		63										1470	1485		171/197
BNXQ-*-80/*-L(F)-*		80										1810	1825		213/246
BNXQ-*-100/*-L(F)-*		100										2190	2205		253/293
BNXQ-*-150/*-L(F)-*		150										3125	3140		335/393
BNXQ-*-63/*-L(F)-*		63	M85×2	95	83	95	170	230	6-Φ26	110	40	1170	1185	351	170/185.5
BNXQ-*-80/*-L(F)-*		80										1395	1410		206/225
BNXQ-*-100/*-L(F)-*		100										1660	1675		250/273
BNXQ-*-125/*-L(F)-*		125										1990	2005		304/332
BNXQ-*-150/*-L(F)-*		150										2310	2325		356/389
BNXQ-*-160/*-L(F)-*		160										2450	2465		379/414
BNXQ-*-180/*-L(F)-*		180										2700	2715		420/459
BNXQ-*-200/*-L(F)-*		200										2980	2995		466/509

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