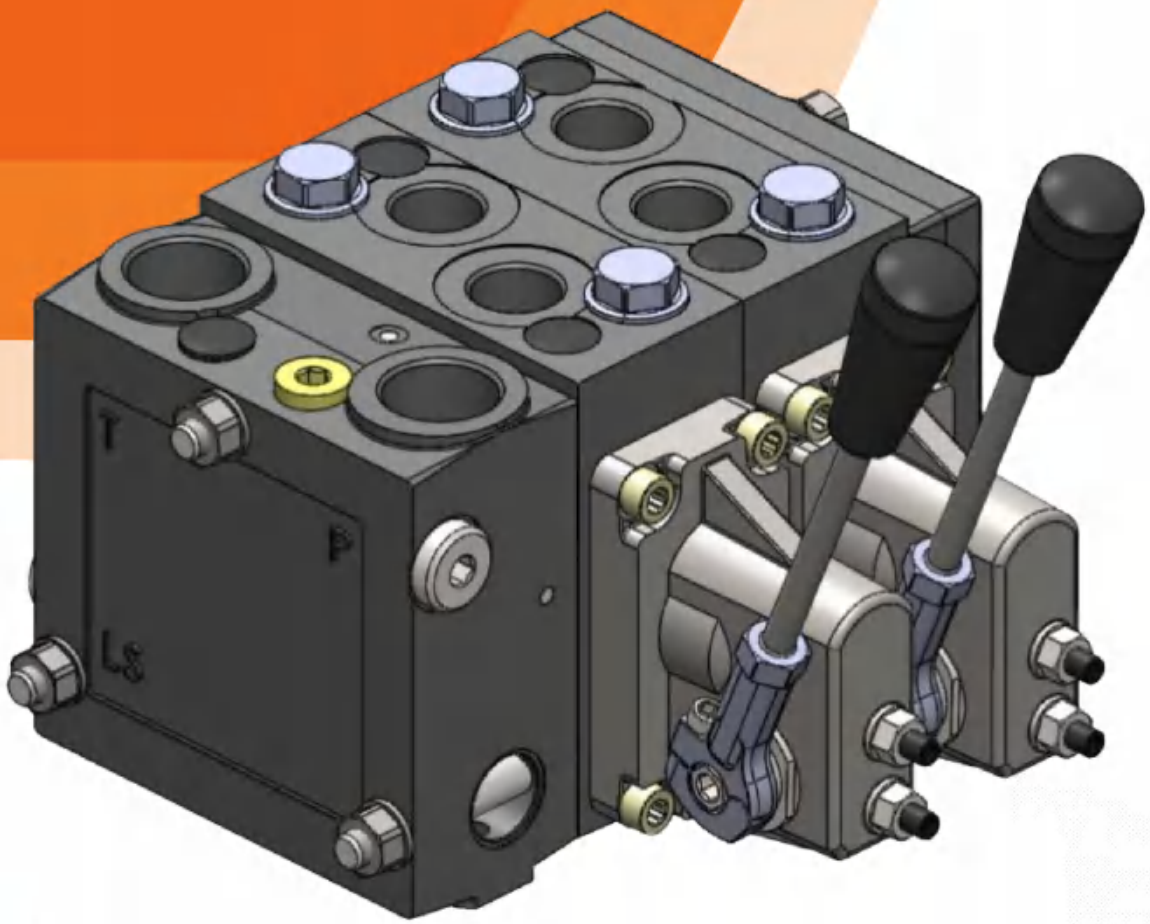
LSP32-Loading Sensor Proportional Valve

LSP32负载敏感比例阀



SJ-TECHNOLOGY®
Huai An Sheng Jie Hydraulic Machinery Co. LTD.
www.sjhydraulic.com

目录 CONTENTS

- Information 概述 — Page1
- Hydraulic schema 液压原理图 — Page2
- Features 参数 — Page3
- How to Order LSP32 如何订购 — Page5
- LSPP Inlet module LSPP进油体 — Page6
- LSP32 LSPB Basic Module 工作体 — Page13
- LSBS Main Spools 主阀芯选项 — Page16
- LSP32 Actuation LSP32控制方式 — Page23
- LSPS End Cover LSPS回油体 — Page31
- Lsp32 Order Specification LSPS订单规格 — Page33

Hydraulic, load-sensing and proportional valve, based on a modular concept suitable for several market segments across multiple application.

Is a pre-compensated system, the flow rate to the user is proportional to the spool position, independently of the working pressure and regardless of the number of sections used.

液压负载比例敏感阀，基于模块化设计理念，适用于各种不同的应用领域。是预装压力补偿，每片主阀体有独立的工作压力。

FEATURES / 性能

- **Versions for different circuits / 不同的液压原理图：**
  open center systems with fixed displacement pump / 开芯系统用于定量泵；
  closed center systems with variable displacement LS pump / 闭芯系统用于变量泵。

- **Load-independent flow control / 负载比例流量控制：**
  oil flow to an individual function is independent of the load pressure of this function
  每一片的负载压力和流量都是独立控制的。

- **Up to 12 basic modules / 最大 12 连。**

- **Integrated pilot oil supply / 集成式先导油供应。**

- **Load sense relief valves for A and B port enables reduced energy loss at target pressure**
  AB 口负载溢流阀可以减少实际工作压力的损耗。

- **Available anti-shock valves on ports with several setting of the pressure**
  各种油口缓冲阀可以设定不通的压力。

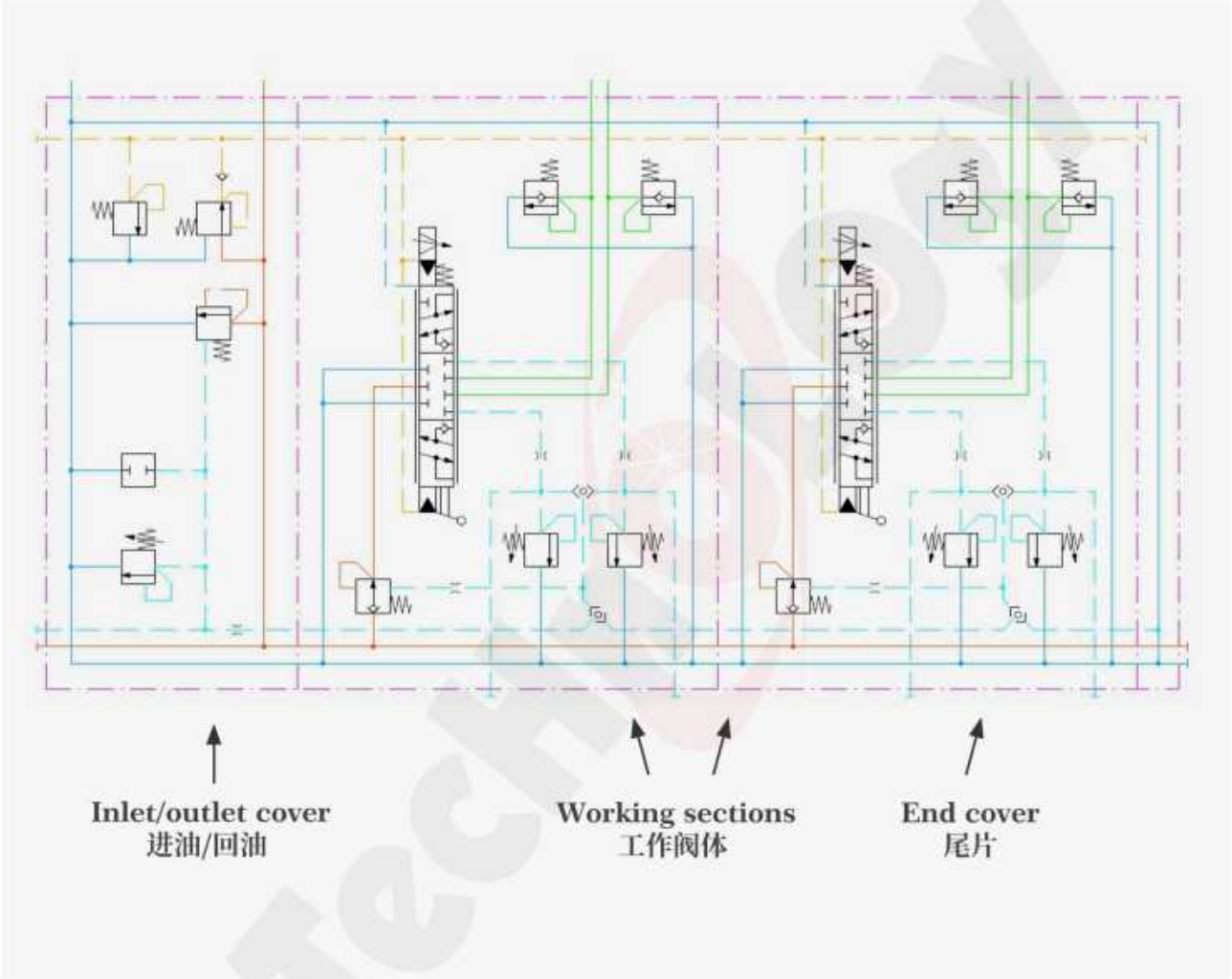
- **Several options for connection threads / 油口尺寸可选。**

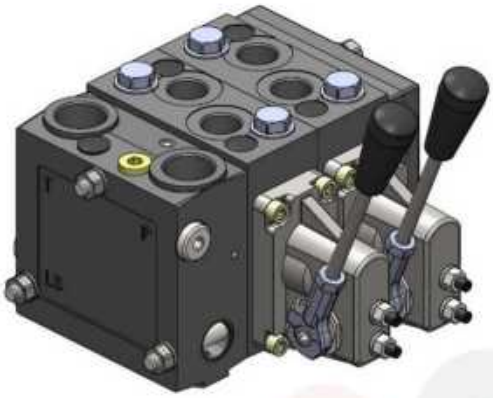
- **Several controls available / 多种控制方式：**
  manual with lever, also with friction detent / 手动带手柄杆，也可以摩擦定位。
  hydraulic and electro-hydraulic, proportional or on-off / 液控和电液控比例或者开关。

Basic circuit schema / 基本原理图

The diagram shows a directional valve with two working sections for use with a constant displacement pump (open centre) with electro-hydraulic controls.

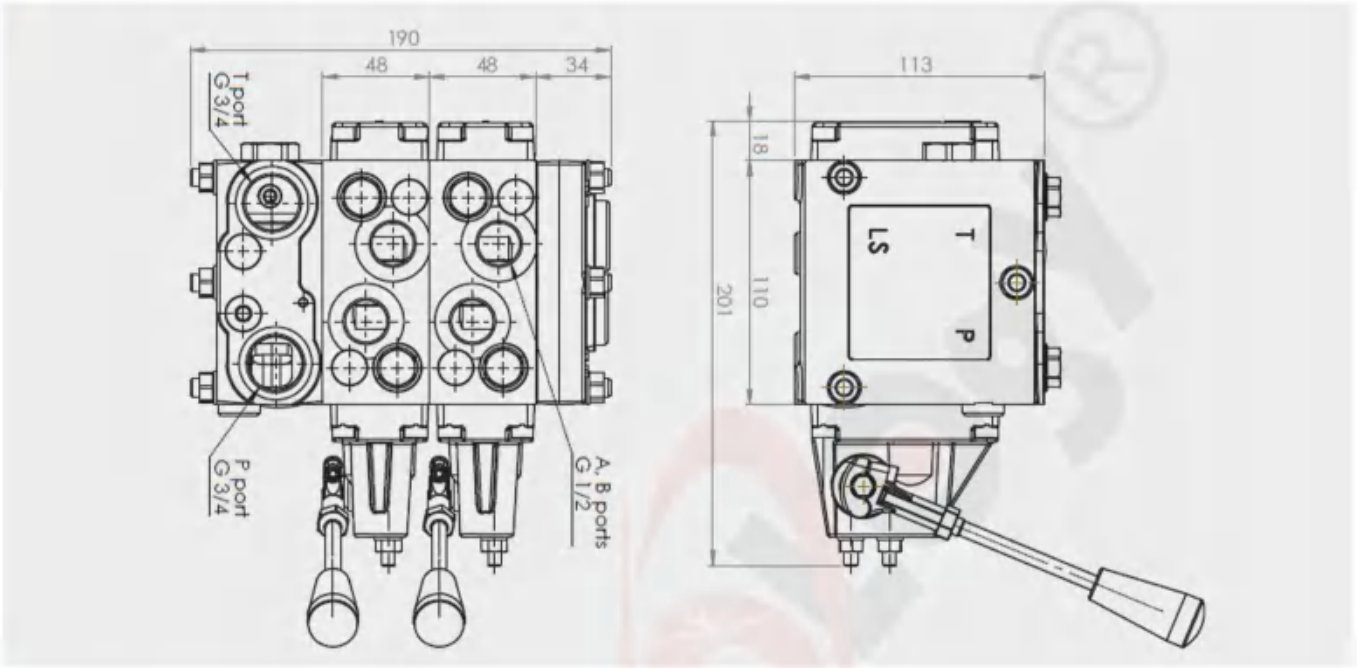
下面的原理图是一个两联配定量泵（开回路）带电液比例的典型回路。





Oil Flow Rated 额定压力	P	130L/min	34Gal/min
Max Pressure 最大压力	P	350Bar	5075psi
	A/B	350Bar	5075psi
	T	40bar	580psi
Max. Internal Leakage (@100bar,50℃) 最大内泄量 （压力：100bar, 温度：50℃）	A/B	18cm/min	
Oil Temperature 油温		From -20℃-90℃	From -4℉-194℉
Oil Viscosity 油液粘度	Operating Rat 工作范围	From 15mm²/s~75mm²/s	From 15cst~75cst
	Min 最小	12mm²/s	12cst
	Max 最大	400mm²/s	400cst
Ambient temperature range 环境温度		From -30℃-60℃	From -22℉-140℉
Max. Contamination 最大污染		23/19/16（ISO4406）	
Filteration 过滤器		10μm	

LSP32-Dimension / 外形尺寸



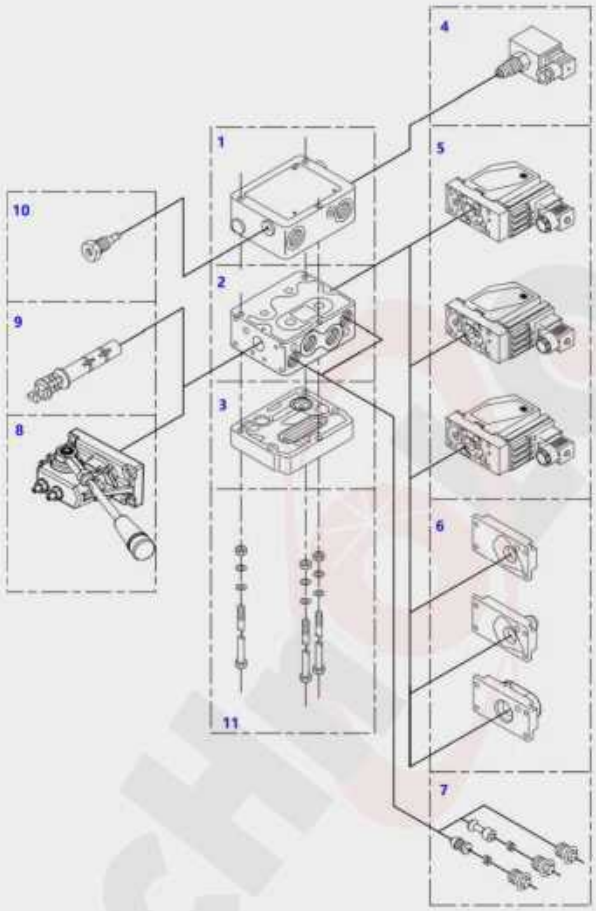
Standard Threads / 标准螺纹

Port 油口	Inlet P 进油口	A B Port AB 工作油口	Outlet T 回油口
BSP	G1/2, G3/4	G1/2	G3/4
UN-UNF	7/8-14UNF, 1-1/16-12UN (SAE12)	7/8-14UNF	1-1/16-12UN (SAE12)

Standard Dimension / 标准尺寸

Port 油口	X 总宽		Y 安装孔中心距		Weight 重量	
	mm	in	mm	in	Kg	lb
LSP32/1 一连	142	5.59	82	3.23	8.33	18.36
LSP32/2 两联	190	7.48	130	5.12	11.46	25.26
LSP32/3 三联	238	9.37	178	7.01	14.53	32.03
LSP32/4 四联	287	11.30	226	8.90	17.66	38.93
LSP32/5 五联	335	13.19	274	10.79	20.74	45.72
LSP32/6 六联	384	15.12	322	12.68	23.81	52.49
LSP32/7 七联	432	17.01	370	14.57	26.94	59.39
LSP32/8 八联	481	18.94	418	16.46	30.01	66.16
LSP32/9 九联	529	20.83	466	18.35	33.09	72.95
LSP32/10 十联	578	22.76	514	20.24	36.21	79.83
LSP32/11 十一联	626	24.65	562	22.13	39.29	86.62
LSP32/10 十二联	676	26.57	610	24.02	42.26	93.17

How to Order LSP32 Loading Sensor Proportional valve
LSP32 负载敏感比例阀订购说明

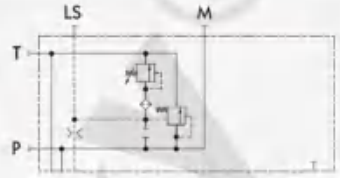
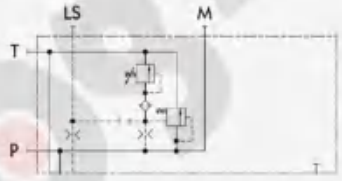
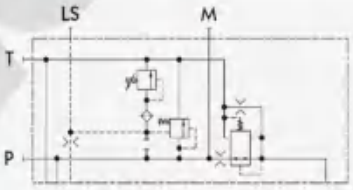
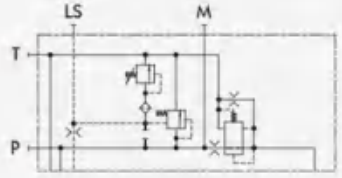
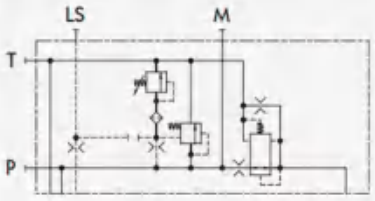
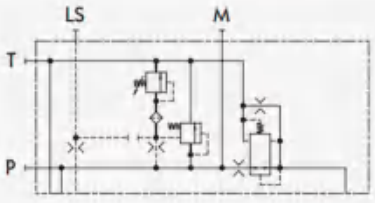
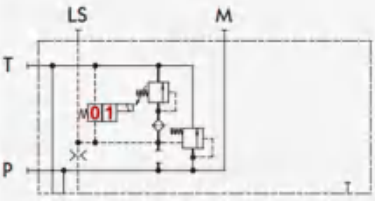


NO.	Code代码	Specification 品名	NO.	Code代码	Specification 品名
1	LSPP	Inlet module 进油体	2	LSPB	Basic mould 主阀体
3	LSPS	End plates 回油体	4	LSPE	Electrical actuation 电比例
5	LSPEH	Electro-hydraulic actuation 电液比例	6	LSPM	Cover for Manual Activation 手动比例端盖
7	LSLA	Anti-cavitation valve 防气穴阀		LSPF	Cover for Friction Activation 摩擦定位端盖
	LSLP	Anti-cavitation valve and shock valves 防气穴阀和防震动阀		LSPH	Cover for Hydraulic Activation 液控端盖
8	LSM	Mechanical Activation 手控总成	10	LSPC	External pilot plug 优先堵头
9	LSBS	Spool kits 比例阀芯总成	11	LSB	Stay bolts 安装螺栓

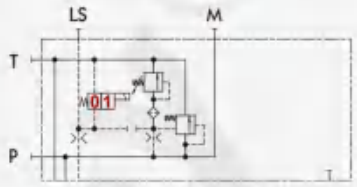
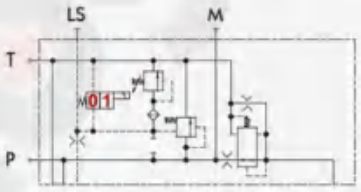
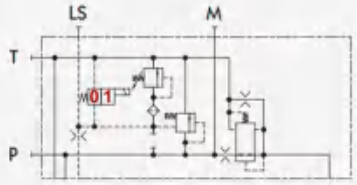
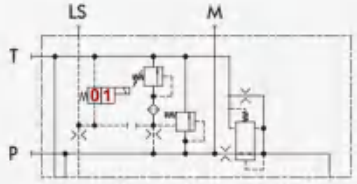
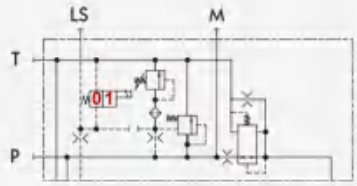
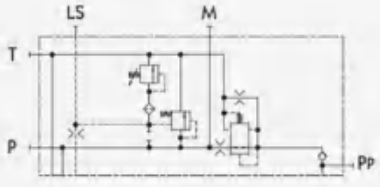


M port : G2=G1/4
压力表孔 : E5-1/2-20UNF
Compensator valve port : G2=G1/4
压补阀口 : E5-1/2-20UNF
LS port : G2=G1/4
负载敏感接口 : E5-1/2-20UNF

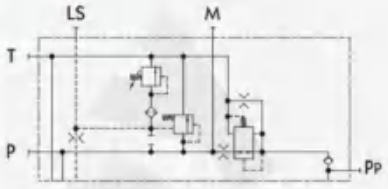
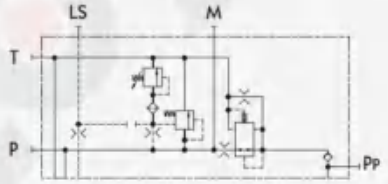
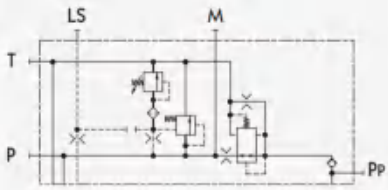
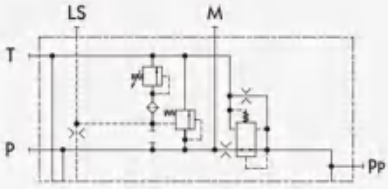
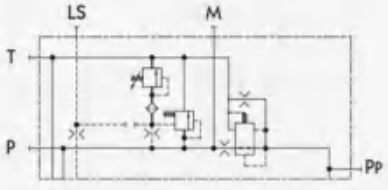
LSPP Pump Side Module Options / 进油体选项

Part No. 型号	SPECIFICATION 产品参数	PORT SIZE 油口	HYDRAULIC CIRCUIT 原理图
T210001	·For mechanically actuated valves. 用于机械控制 ·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210101	·For mechanically actuated valves. 用于机械控制 ·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210002	·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵。 ·With pilot oil supply for electrically actuated valves. 提供电控比例先导油。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210002H	·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵。 ·With pilot oil supply for electrically actuated valves.(H: For higher pressure) 提供较高压力电控比例先导油。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210102	·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵。 ·With pilot oil supply for electrically actuated valves. 提供电控比例先导油	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H201102H	·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵。 ·With pilot oil supply for electrically actuated valves.(H: for higher pressure提供较高压力电控比例先导油	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210003	·For mechanically actuated valves. 用于机械控制 ·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	

LSPP Pump Side Module Options / 进油体选项

Part No. 型号	SPECIFICATION 产品参数	PORT SIZE 油口	HYDRAULIC CIRCUIT 原理图
H210103	·For mechanically actuated valves. 用于机械控制 ·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵。	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210004	·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·With pilot oil supply for electrically actuated valves. 提供电控比例先导油 ·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210004H	·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵 ·With pilot oil supply for electrically actuated valves. (H: for higher pressure 提供较高压力电控比例先导油	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210104	·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵 ·With pilot oil supply for electrically actuated valves. 提供电控比例先导油	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210104H	·Connection for LS unloading valves. 可连接电控 LS 卸载阀 ·Closed center pump side module for pumps with variable displacement 闭回路用于变量泵 ·With pilot oil supply for electrically actuated valves. (H: for higher pressure 提供较高压力电控比例先导油	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210005	·Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵 ·With pilot oil supply for electrically actuated and connection for pilot oil pressure. 提供电控比例先导油，并由先导油输出口	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	

LSPP Pump Side Module Options / 进油体选项

Part No. 型号	SPECIFICATION 产品参数	PORT SIZE 油口	HYDRAULIC CIRCUIT 原理图
T210005H	· Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵 · With pilot oil supply for electrically actuated and connection for pilot oil pressure.. (H: for higher pressure) 提供较高压力电控比例先导油，并有先导油输出口	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210105	· With pilot oil supply for electrically actuated and connection for pilot oil pressure.. (H: for higher pressure) 提供较高压力电控比例先导油，并有先导油输出口 · Closed center pump side module for pumps with variable displacement 闭回路用于变量泵	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210105H	· Closed center pump side module for pumps with variable displacement 闭回路用于变量泵 · With pilot oil supply for electrically actuated and connection for pilot oil pressure.. (H: for higher pressure) 提供较高压力电控比例先导油，并有先导油输出口	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
T210006H	· Open center pump side module for pumps with fixed displacement. 开回路进油体用于定量泵 · With pilot oil supply for hydraulic actuated and connection for pilot oil pressure. (H: for higher pressure) 提供较高压力先导油源，并由先导油输出口 · Can connect with hydraulic pilot linear operation type JHP 可连接液压元件，如 JHP	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	
H210106H	· Closed center pump side module for pumps with variable displacement 闭回路用于变量泵 · With pilot oil supply for hydraulic actuated and connection for pilot oil pressure. (H: for higher pressure) 提供较高压力先导油源，并由先导油输出口 · Can connect with hydraulic pilot linear operation type JHP. 可连接液压元件，如 JHP	G4: P G1/2 E10: P 7/8-12UNF G6: P G3/4 E12: P 1-1/16-UN	

LSP32-LS Solenoid Unloading Valves LS / 电磁卸载阀

The electrical LS pressure unloading valve is an accessory available for LSP32 inlet modules with emergency stop facility. The LSP32EL inlet module consist of a solenoid valve and a magnetic coil package, allowing the operator to relieve the LS pressure to tank electrically.

电磁卸荷阀是用于LSP32 进油体，用于应急控制。LSP32EL 进油体包含一个电磁阀和一个电磁铁，允许操作员将优先口的压力切换回到油箱

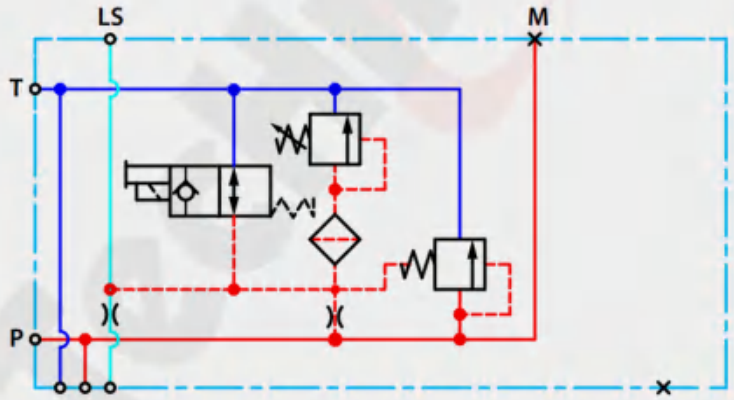
- **Relieving the LS pressure to tank results in a reduced system pressure level, which is determined by:**

  The sum of the tank and neutral by-pass pressure drop in a Open Center configuration
  The sum of the tank and standby-pressure in a Closed Center configuration.

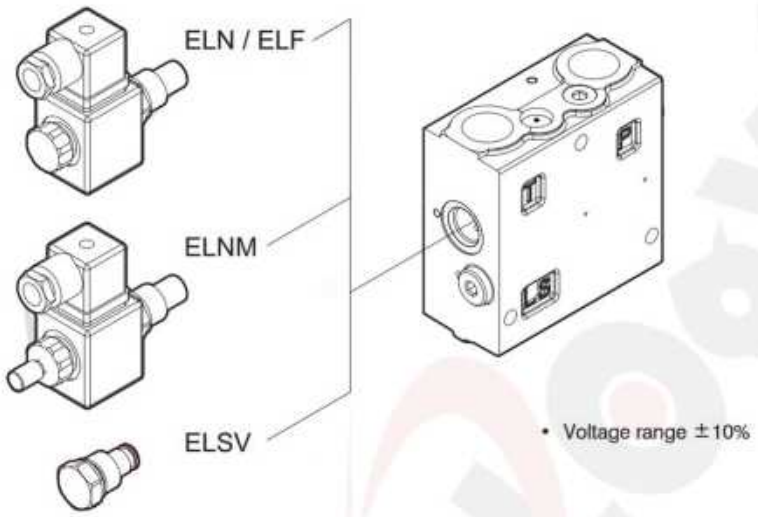
- **优先口压力释放回到油箱会使得系统压力降低：**

  开芯结构时，是油箱和中位旁通压力之和
  闭芯结构时，时油箱和储备压力之和。

LSP32 Inlet Module with Emergency LS pressure unloading schematic
LSP32 进油体带电磁卸荷阀的原理图

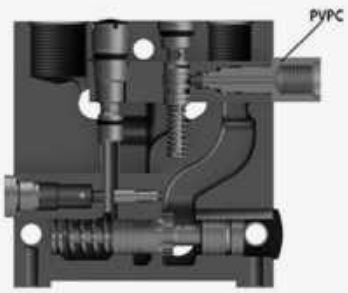
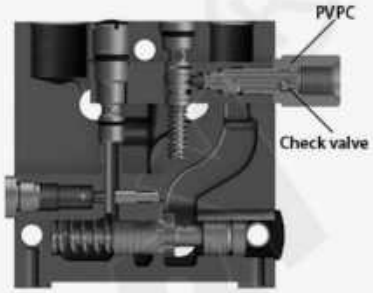
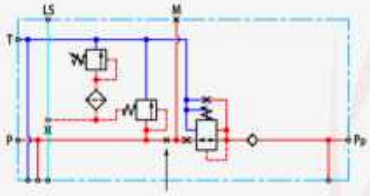
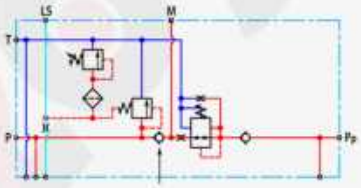
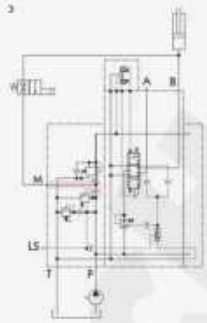
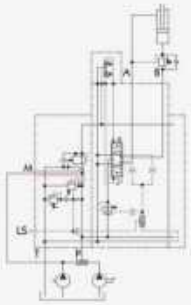


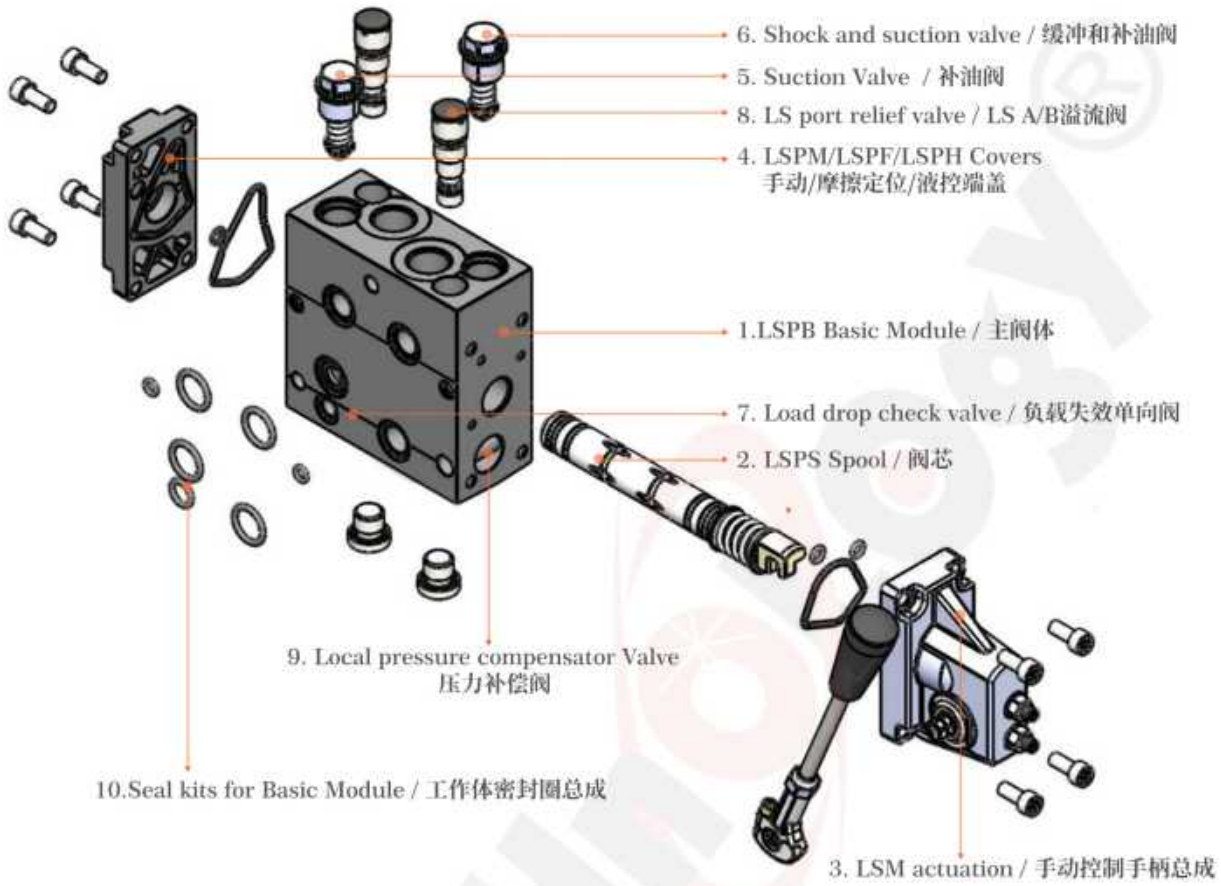
LSP32-LS Solenoid Unloading Valves LS / 电磁卸载阀



CODE 编码	SYMBOL 机能符号	DIMENSION 尺寸
ELN12 Rated Voltage/额定电压:12VDC Resistance/电阻:7.5Ω±7%	Normally Open (NO) 常开型	
ELN24 Rated Voltage/额定电压:24VDC Resistance/电阻:28.6Ω±7%		
ELF12 Rated Voltage/额定电压:12VDC Resistance/电阻:7.5Ω±7%	Normally Closed (NC) 常闭型	
ELF24 Rated Voltage/额定电压:24VDC Resistance/电阻:28.6Ω±7%		
ELNM12 Rated Voltage/额定电压:12VDC Resistance/电阻:7.5Ω±7%	Emergency button for Normally Open (NO) 常开型手动紧急按钮	
ELNM24 Rated Voltage/额定电压:24VDC Resistance/电阻:28.6Ω±7%		
ELSV	Plug 堵头	

Plug For External Pilot Oil Supply / 外部先导油接头

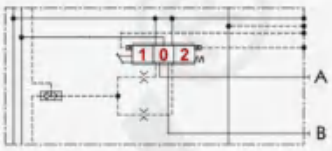
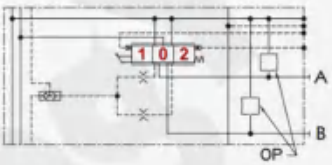
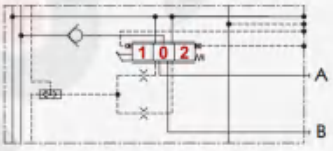
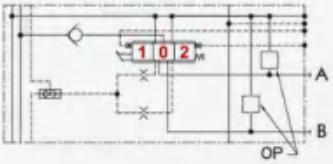
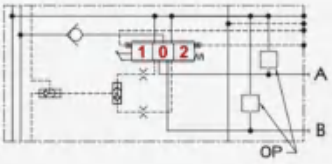
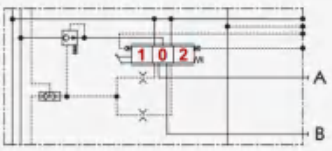
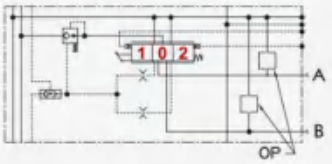
	LSPC WITHOUT CHECK VALVE LSPC不含单向阀		LSPC WITH CHECK VALVE LSPC带单向阀	
Drawing 图示				
Schematic 原理图				
Application Circuit 应用油路示例				
	·Used when a manual emergency pump is requeired. ·When the main pump failure, using manual emergency pump with PV handle. 用于需要连接手动应急泵时，主泵失效时使用手动应急泵，并操作PV手柄控制。		·Without using the pump flow to control the solenoid valve. ·Used the hydraulic pressure drop to provide solenoid valve oil source. 用于不需要使用泵的流量来控制电磁阀，利用油压下降压力，提供电磁阀油源。	
Code 编码	215001	215002	215003	215004
Thread 螺纹	G1/2	1/2-20UNF	G1/2	1/2-20UNF



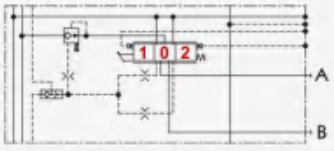
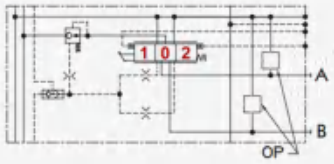
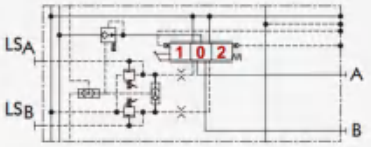
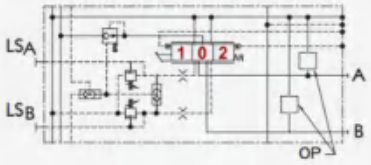
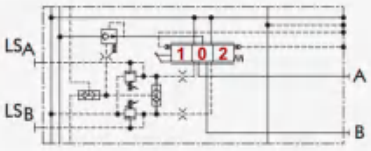
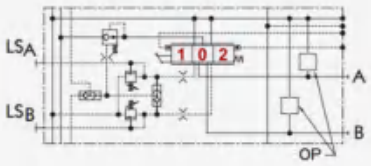
Seal for LSPB Basic Module / 主阀体密封圈

CODE 编号	SPECIFICATION 参数	QTY 数量
O05020	ORM0050-10 DIS 5.0X2.0	2
O16025	ORM0160-25DIA. 16.0X2.5	4
O10025	ORM0100-25DIA 10.0X2.5	1

LSPB-Basic Module Options / 工作体选项

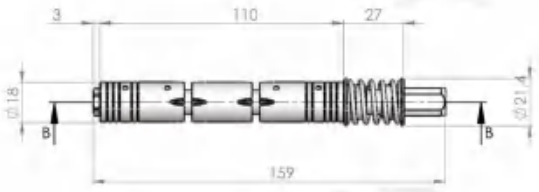
Part No. 型号	SPECIFICATION 产品参数	PORT SIZE 油口	HYDRAULIC CIRCUIT 原理图
220000	· Without load drop check valve and pressure compensated valve. 无负载失效单向阀与压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
220001	· With ports for suction valve or shock and suction valve 有补油阀口可装补油阀或缓冲阀 · Without load drop check valve and pressure compensated valve. 无负载失效单向阀与压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
220002	· With load drop check valve 带负载失效单向阀	G4: G1/2 E10: 7/8-14UNF	
220003	· With ports for suction valve or shock and suction valve. 有补油阀口可装补油阀或缓冲阀 · With load drop check valve 带负载失效单向阀	G4: G1/2 E10: 7/8-14UNF	
220004	· With ports for suction valve or shock and suction valve. 有补油阀口可装补油阀或缓冲阀。 · With load drop check valve, LS A/B shuttle valve. 带负载失效单向阀和 LS A/B 梭阀	G4: G1/2 E10: 7/8-14UNF	
220005	· With non-damped pressure compensated valve. 带压力补偿阀。	G4: G1/2 E10: 7/8-14UNF	
220006	· With ports for suction valve or shock and suction valve. 有补油阀口可装补油阀或缓冲阀。 · With non-damped pressure compensated valve. 带压力补偿阀。	G4: G1/2 E10: 7/8-14UNF	

LSPB-Basic Module Options / 工作体选项

Part No. 型号	SPECIFICATION 产品参数	PORT SIZE 油口	HYDRAULIC CIRCUIT 原理图
220007	·With damped pressure compensated valve. 带节流压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
220008	·With ports for suction valve or shock and suction valve. 有补油阀口可装补油阀或缓冲阀 ·With damped pressure compensated valve. 带节流压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
220021	·Adjustable LS A/B pressure relief valve. 带可调压的 LS 溢流阀 ·With non-damped pressure compensated valve. 带压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
220022	·Adjustable LS A/B pressure relief valve. 带可调压的 LS 溢流阀 ·With non-damped pressure compensated valve. 带压力补偿阀 ·With ports for suction valve or shock and suction valve 有补油阀口可装补油阀或缓冲阀	G4: G1/2 E10: 7/8-14UNF	
220023	·Adjustable LS A/B pressure relief valve. 带可调压的 LS 溢流阀 ·With damped pressure compensated valve. 带节流压力补偿阀	G4: G1/2 E10: 7/8-14UNF	
2200206	·Adjustable LS A/B pressure relief valve. 带可调压的 LS 溢流阀 ·With damped pressure compensated valve.带节流压力补偿阀 ·With ports for suction valve or shock and suction valve 有补油阀口可装补油阀或缓冲阀	G4: G1/2 E10: 7/8-14UNF	

LSBS Main Spools / 主阀芯选项





The main spools LSBS determine the flow out of the work section or the pressure build up, and are based on a generic platform with a wide selection of additional features, enabling you to tailor the main spools to suit the demands of any hydraulic system and any function.

主阀芯 LSBS 决定了工作油口的流量或者压力，并且基于具有多种附加功能的通用平台，使您能够定制主阀芯，以适应任何液压系统和任何液压系统的需求和任何功能。

The main spools can be activated in three different ways / 主阀芯有以下三种不同控制方式：

- Mechanically by a LSM lever / 用 LSM 手柄机械控制的阀芯
- Electrically by a LSPE/LSPEH actuator / 用 LSPE/LSPEH 驱动的电控或电液控阀芯
- Hydraulically by a LSPH actuator / 用 LSPH 驱动的液控阀芯

Flow Control Spools (FC) 流量控制阀芯	Flow control spools are for work sections where you want to control the speed (flow) of the work ports 流量控制阀芯是为了控制执行单元的速度
Pressure Control (PC) 压力控制阀芯	Pressure control spools are for work sections where you want to control the power spools (pressure) of the work ports. 压力控制阀芯是为了控制工作油口的压力
Closed neutral Position 中位不通	In neutral position and inside of the dead band area the connection to tank is closedl 在中位和内部死区到 T 口是不通的。
Throttle open neutral Position 节流中位通	In neutral position and inside of the dead band area the connection to tank is 10% of the full flow function 在中位和内部死区到 T 口的流量是满流量的 10%
Open/closed neutral position (drain) 中位通/不通（卸压）	In total neutral position the connection to tank is less than 10% of the full flow function. But when moving the spool out of neutral position but still within dead band area the connection will close. 在整个中位，AB 口到 T 口是满流量的 10%，但是当推动阀芯离开中位且仍然在死区内的时候，AB 口到 T 口就完全关闭

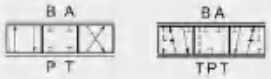
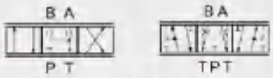
How to order the spools / 阀芯型号命名

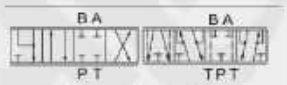
LSBS-FC-65/65-OPEN-SV-EH
1 2 3 4 5 6

1. LSBS is the abbreviation of LSP32 Spool.
   LSBS 是LSP32 阀芯缩写。
2. FC is Flow Control spool. PC is Pressure Control spool. Both ends are FC or PC, the code is FC or PC.
   If one end is FC, another end is PC, the code should be FC/PC.
   FC是流量阀芯，PC是压力阀芯。 两头都是FC或者PC，型号为FC或PC，如果一端FC,一端PC则为 FC/PC。
3. 65/65 is the flow rate of AB port.
   65/65是AB口的流量。
4. OPEN is AB open to T in neutral position. CLOSE is PTAB closed in neutral position
   OPEN是中位AB通T，CLOSE是中位PTAB不通。
5. NSV is without shuttle valve. SV is with shuttle valve. N is NO. SV is the abbreviation of Shuttle Valve.
   N是NO, SV 是Shuttle valve梭阀简称。NSV是不带梭阀；SV 是带梭阀。
6. EH is Electric Hydraulic actuation. H is Hydraulic actuation. M is Manual actuation, MF is Manual Friction actuation, MR is Manual Floating actuation. EH and H are used the same heavy spring. M,MF,MR are used the same soft spring.
   EH是电液比例，H是液控比例，M是手动比例，MF是手动摩擦比例，MR是手动浮动比例。EH和H用的阀芯弹簧相同（重弹簧），M、MF、MR用的阀芯弹簧相同（轻弹簧）。

LSBS Main Spools / 主阀芯选项

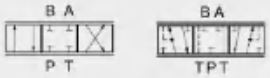
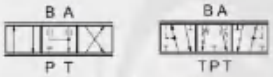
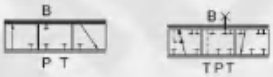
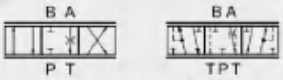
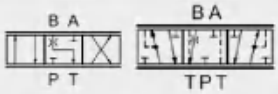
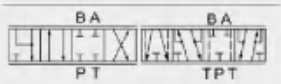
Standard FC Spools for LSPE&LSPEH 标准流量控制阀芯–用于液控和电液控（配261B01重弹簧）

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀							ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]									Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
5 [1.3]	10 [2.6]	25 [6.6]	40 [10.6]	65 [17.6]	100 [26.4]	130 [34.3]			130 [34.3]	100 [26.4]	65 [17.6]	40 [10.6]	25 [6.6]	10 [2.6]	5 [1.3]
222A 1005	222A 1010	222A 1025	222A 1040	222A 1065	222A 1100	222A 1130	 4–way, 3–position Closed neutral position		222B 2130	222B 2100	222B 2065	222B 2040	222B 2025	222B 2010	222B 2005
222A 3005	222A 3010	222A 3025	222A 3040	222A 3065	222A 3100	222A 3130	 4–way, 3–position Throttle, open neutral position		222B 4130	222B 4100	222B 4065	222B 4040	222B 4025	222B 4010	222B 4005

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀							ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]									Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
----	----	----	----	----	----	----	 3–way,3–position Closed neutral position, P ➡ A		----	222B 6100	222B 6065	222B 6040	222B 6025	----	----
----	----	----	----	----	----	----	 3–way,3–position Closed neutral position, P ➡ B		----	222B 8100	222B 8065	222B 8040	222B 8025	----	----
----	----	222A 5025	222A 5040	222A 5065	222A 5100	----	 4–way, 3–position Throttle, A ➡ T in neutral position		----	222B 0100	222B 0065	222B 0040	222B 0025	----	----
----	----	222A 7025	222A 7040	222A 7065	222A 7100	----	 4–way, 3–position Throttle, B ➡ T in neutral position		----	222B J100	222B J065	222B J040	222B J025	----	----
----	222A 9010	222A 9025	222A 9040	222A 9065	222A 9100	----	 4–way, 4–position Closed neutral position Float P ➡ B ➡ F		----	----	----	----	----	----	----

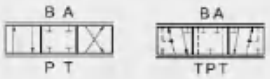
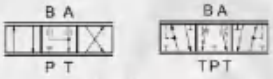
LSBS Main Spools / 主阀芯选项

Standard FC Spools for LSM　标准流量控制阀芯-用于手动控制(配222D01普通弹簧)

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀							ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]									Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
5 [1.3]	10 [2.6]	25 [6.6]	40 [10.6]	65 [17.6]	100 [26.4]	130 [34.3]			130 [34.3]	100 [26.4]	65 [17.6]	40 [10.6]	25 [6.6]	10 [2.6]	5 [1.3]
222S 1005	222S 1010	222S 1025	222S 1040	222S 1065	222S 1100	222S 1130	 4-way, 3-position Closed neutral position		222T 2130	222T 2100	222T 2065	222T 2040	222T 2025	222T 2010	222T 2005
222S 3005	222S 3010	222S 3025	222S 3040	222S 3065	222S 3100	222S 3130	 4-way, 3-position Throttle, open neutral position		222T 4130	222T 4100	222T 4065	222T 4040	222T 4025	222T 4010	222T 4005
----	----	----	----	----	----	----	 3-way,3-position Closed neutral position, P ➡ A		----	222T 6100	222T 6065	222T 6040	222T 6025	----	----
----	----	----	----	----	----	----	 3-way,3-position Closed neutral position, P ➡ B		----	222T 8100	222T 8065	222T 8040	222T 8025	----	----
----	----	222S 5025	222S 5040	222S 5065	222S 5100	----	 4-way, 3-position Throttle, A ➡ T in neutral position		----	222T 0100	222T 0065	222T 0040	222T 0025	----	----
----	----	222S 7025	222S 7040	222S 7065	222S 7100	----	 4-way, 3-position Throttle, B ➡ T in neutral position		----	222T J100	222T J065	222T J040	222T J025	----	----
----	222S 9010	222S 9025	222S 9040	222S 9065	222S 9100	----	 4-way, 4-position Closed neutral position Float P ➡ B ➡ F		----	----	----	----	----	----	----

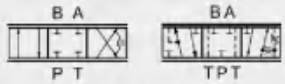
LSBS Main Spools / 主阀芯选项

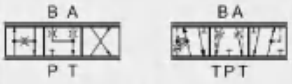
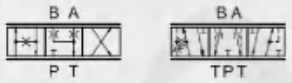
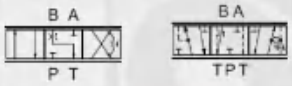
FC Spools for friction detent LSMR 摩擦定位流量控制阀芯(配222D01普通弹簧)

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀							ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]									Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
5 [1.3]	10 [2.6]	25 [6.6]	40 [10.6]	65 [17.6]	100 [26.4]	130 [34.3]			130 [34.3]	100 [26.4]	65 [17.6]	40 [10.6]	25 [6.6]	10 [2.6]	5 [1.3]
222E 1005	222E 1010	222E 1025	222E 1040	222E 1065	222E 1100	222E 1130	 4-way, 3-position Closed neutral position		222F 2130	222F 2100	222F 2065	222F 2040	222F 2025	222F 2010	222F 2005
222E 3005	222E 3010	222E 3025	222E 3040	222E 3065	222E 3100	222E 3130	 4-way, 3-position Throttle, open neutral position		222F 4130	222F 4100	222F 4065	222F 4040	222F 4025	222F 4010	222F 4005

LSBS Main Spools / 主阀芯选项

FC Spools for friction detent LSMR 摩擦定位流量控制阀芯(配222D01普通弹簧)

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀						ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]								Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
5 [1.3]	10 [2.6]	25 [6.6]	40 [10.6]	65 [17.6]	100 [26.4]			130 [34.3]	100 [26.4]	65 [17.6]	40 [10.6]	25 [6.6]	10 [2.6]	5 [1.3]
222G 1005	222G 1010	222G 1025	222G 1040	222G 1065	----	 4-way, 3-position Closed neutral position		----	222H 2065	222H 2040	222H 2025	222H 2010	222H 2005
222G 3005	222G 3010	222G 3025	222G 3040	222G 3065	222G 3100	 4-way, 3-position Throttle, open neutral position PC ➡ A and B		----	222H 4065	222H 4040	222H 4025	222H 4010	222H 4005
----	----	222G 5025	222G 5040	222G 5065	222G 5100	 4-way, 3-position Closed neutral position, PC ➡ A		222H 6010	222H 4065	222H 4040	222H 4025	222H 4010	----

----	----	222G 7025	222G 7040	222G 7065	222G 7100	 4-way,3-position Closed neutral position, P ➡ B	222H 8010	222H 8065	222H 8040	222H 8025	222H 8010	----
----	----	222G 9025	222G 9040	222G 9065	222G 9100	 4-way, 3-position Throttle, open neutral position PC ➡ B	222H 0100	222H 0065	222H 0040	222H 0025	222H 0010	----
----	----	222G J025	222G J040	222G J065	222G J100	 4-way, 3-position Throttle, open in neutral position, PC ➡ B	222H K100	222H K065	222H K040	222H K025	222H K010	----
----	222G L010	222G L025	222G L040	222G L065	----	 4-way, 3-position Throttle, A ➡ T in neutral position, PC ➡ B	----	222H N065	222H N040	----	----	----
----	----	----	----	222G X065	----	 4-way, 3-position Throttle, B ➡ T in neutral position, PC ➡ A	----	222H Y065	222H Y040	222H Y025	----	----

LSBS Main Spools / 主阀芯选项

FC Spools for friction detent LSMR 摩擦定位流量控制阀芯(配222D01普通弹簧)

LSB is with LSA/B shuttle valve 主阀芯-LS A/B 带梭阀						ISO Symbol 机能符号	Symbol 机能符号	LSB is without LSA/B shuttle valve 主阀芯-LS A/B 不带梭阀						
Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]								Press. compensated flow: l/min [US gal/min] 压力补偿流量：l/min[US gal/min]						
5 [1.3]	10 [2.6]	25 [6.6]	40 [10.6]	65 [17.6]	100 [26.4]			130 [34.3]	100 [26.4]	65 [17.6]	40 [10.6]	25 [6.6]	10 [2.6]	5 [1.3]
222N 1005	222N 1010	222N 1025	222N 1040	222N 1065	----	4-way, 3-position Closed neutral position		----	222M 2065	222M 2040	222M 2025	222M 2010	222M 2005	
222N 3005	222N 3010	222N 3025	222N 3040	222N 3065	222N 3100	4-way, 3-position Throttle, open neutral position PC ➡ A and B		----	222M 4065	222M 4040	222M 4025	222M 4010	222M 4005	

----	----	222N 5025	222N 5040	222N 5065	222N 5100	 4–way, 3–position Closed neutral position, PC ➡ A	222M 6010	222M 4065	222M 4040	222M 4025	222M 4010	----
----	----	222N 7025	222N 7040	222N 7065	222N 7100	 4–way,3–position Closed neutral position, P ➡ B	222M 8010	222M 8065	222M 8040	222M 8025	222M 8010	----
----	----	222N 9025	222N 9040	222N 9065	222N 9100	 4–way, 3–position Throttle, open neutral position PC ➡ B	222M 0100	222M 0065	222M 0040	222M 0025	222M 0010	----
----	----	222N J025	222N J040	222N J065	222N J100	 4–way, 3–position Throttle, open in neutral position, PC ➡ B	222M K100	222M K065	222M K040	222M K025	222M K010	----
----	222N L010	222N L025	222N L040	222N L065	----	 4–way, 3–position Throttle, A ➡ T in neutral position, PC ➡ B	----	222M N065	222M N040	----	----	----
----	----	----	----	222N X065	----	 4–way, 3–position Throttle, B ➡ T in neutral position, PC ➡ A	----	222M Y065	222M Y040	222M Y025	----	----

LSM Manual Actuation / LSM 手动控制

The LSM manual actuation cover is intended for use on any work section where the operator has to have the ability to interact with the spool manually. The LSM variants are based on a generic platform with a selection of additional features, enabling you to tailor the LSM to suit the demands of any hydraulic system, which includes the following main variants:

- **LSM manual actuation or override of a function**
- **Spring centering cover without manual override (LSML)**

Optional with lever base

Optional with lever base and lever

Optional flow adjustment screws

The adjustment screws are intended for limiting the spool travel and thereby the maximum achievable flow.

LSM 手动操控总成盖适用于操作员必须能够手动与阀芯互动的任一工作阀体。 LSM 变型基于具有多种附加功能的通用平台，使您能够定制 LSM 以适应任何液压系统的需求，其中包括以下主要应用：

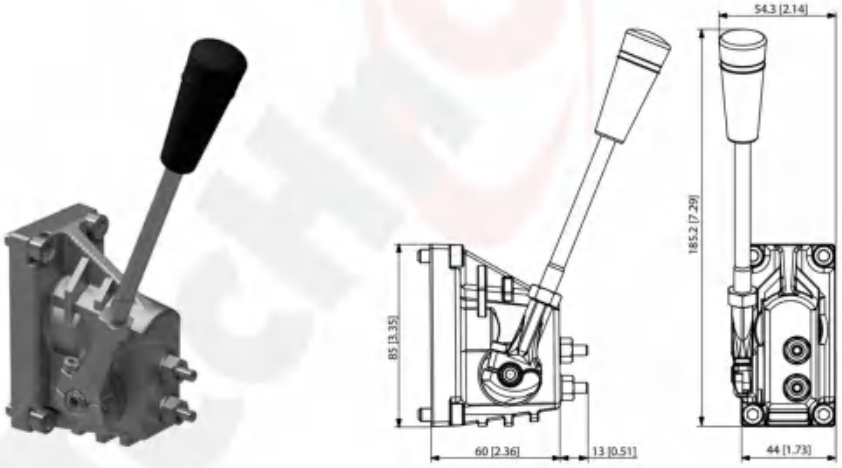
- **LSM 手动操作或功能覆盖**
- **中位弹簧：无手动应急操作（LSML）**

手柄杆底座可选

手柄杆支架和手柄杆可选

可选的流量调节螺丝

可调节螺母是为了限制阀芯工作行程，从而可以获得最大流量



LSM Speicifcation / 手动控制支架和手柄总成参数

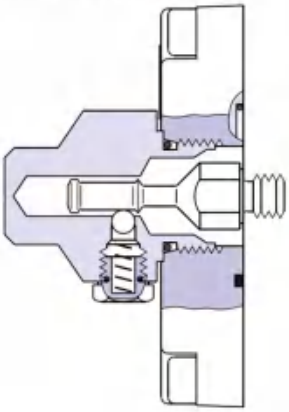
Part No. 编码	Material 支架材质	No Lever Position 手柄位置数量	Standard control range 标准控制范围	Control lever range 控制手柄工作范围	Control lever range+float position 含浮动控制范围
224001	Casting iron 铸铁	2X6	±13.4°	±19.5°	22.3°

LSM Functionality / 手动控制端盖

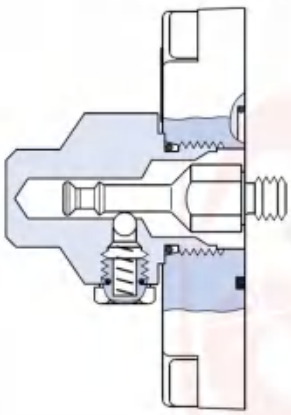
The LSMF is available in standard or optional mount. The friction detent allows the directional spool to be held in any position, resulting in infinitely variable, reversible, pressure compensated flow. This can be sustained indefinitely without having to continue to hold the mechanical lever. Friction detent spool position may be affected by high differential actuator flow forces and system vibration resulting in work function flow reduction.

LSMF 可以提供标准或可选安装。摩擦定位使主阀芯可以保持在任何位置，从而产生无限可变，可逆的压力补偿流量。这可以持续维持，而不必一直握住控制手柄。摩擦定位阀芯位置可能会受到高差速控制流量强度和系统振动的影响，从而导致工作性能流量减少。

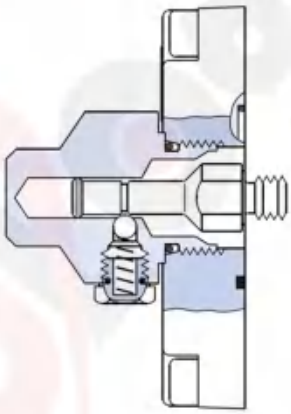
LSMF standard mount
LSMF 标准浮动控制
P → A → F (Push-in)

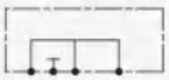
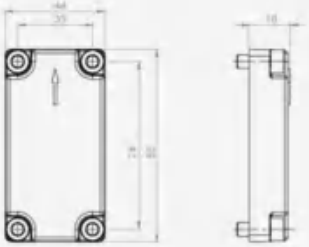
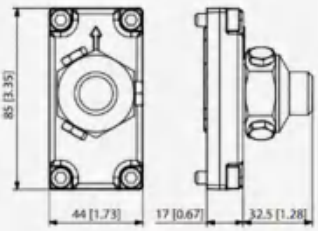
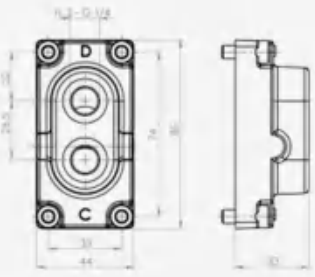


LSMF optional mount
LSMF 浮动选项
P → A → F (Pull-out)

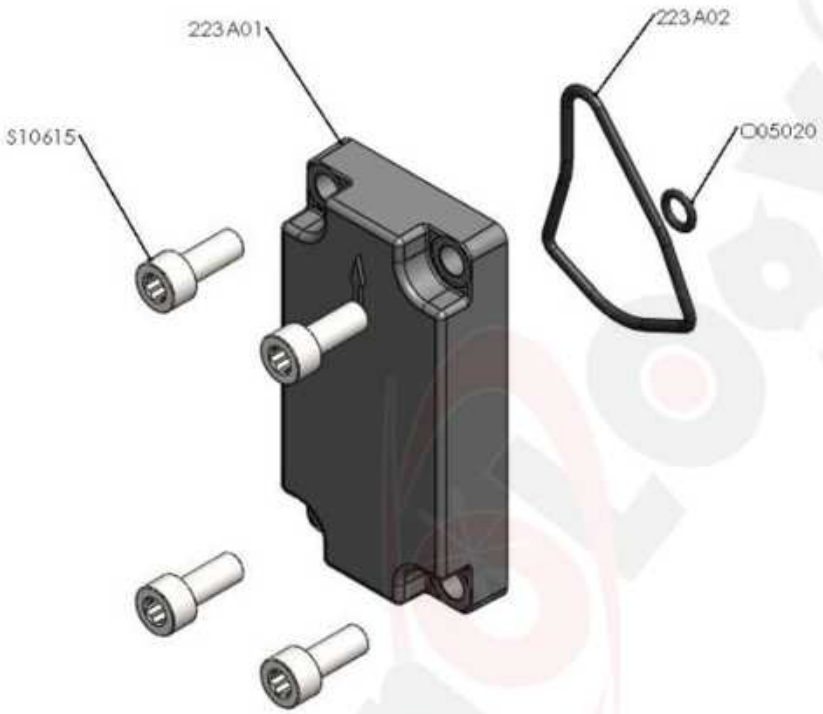


LSMR
LSMR 摩擦定位
Friction detent

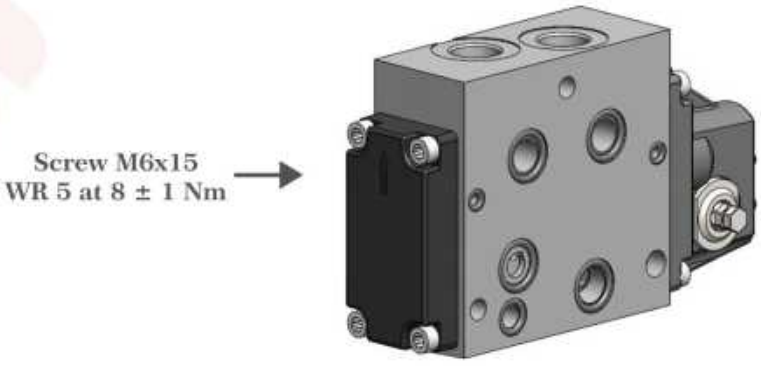


Part No. 型号	MATERIAL 材质	TYPE 型号	SYMBOL 机能符合	DIMENSION 尺寸
223000	Casting Iron 铸铁	LSPM： standard cover LSPM: 标准端盖		
262000		LSPF: Friction detent LSPF:摩擦定位		
261000		LSPH: Hydraulic actuation LSPH: 液控端盖 Port size 油口: G1/4		

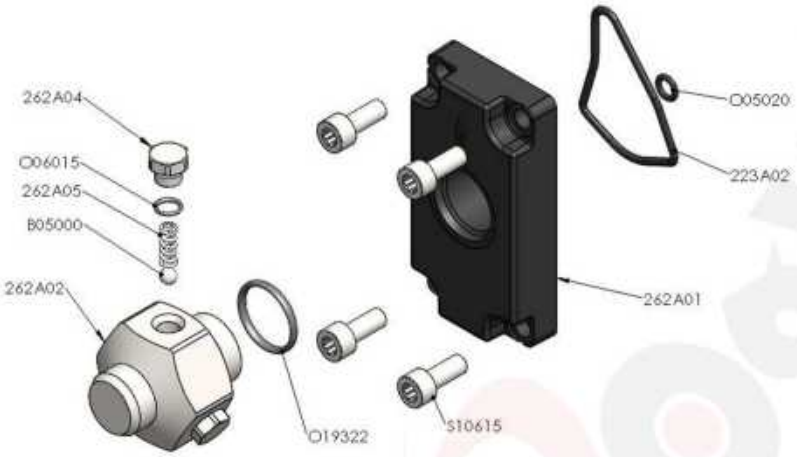
223000 –LSPM COVER FOR MANUAL CONTROL / LSPM 手动控制端盖总成



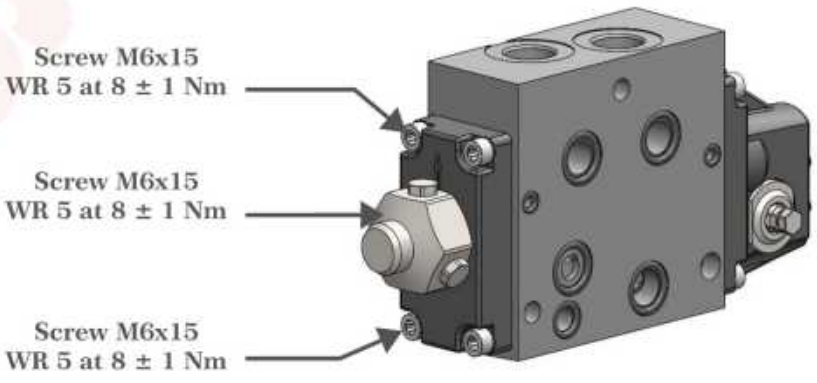
Part no.	DESCRIPTION 描述	Q.TY
223A01	Cover 手动端盖	1
S10615	Screw M6x15 螺钉	4
223A02	Profile O-Ring 成型密封圈	1
O05020	ORM 0050-20 dia. 5,0 x 2,0 密封圈	1



262000 – LSPF FRICTION DETENT / LSPF 摩擦定位端盖总成

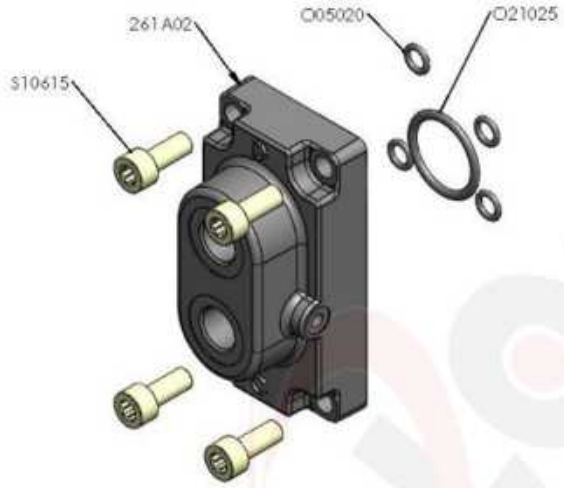


Part no.	DESCRIPTION 描述	Q.TY
262A01	Friction control cap 摩擦定位端盖	1
S10615	Screw M6x15 螺钉	4
223A02	Shaped Gasket 成型密封圈	1
O05020	ORM 0050-20 dia. 5,0 x 2,0 密封圈	1
262A02	Friction support 摩擦定位支架	1
262A04	Detent plug 钢球定位堵头	3
262A05	Spring detent 钢球定位弹簧	3
B05000	Ball dia. 5 钢球	3
O06015	ORM 0060-15 dia. 6,0 x 1,5 密封圈	3
O19322	O-Ring dia. 19,3 x 2,2 Parker 6-1975 密封圈	1

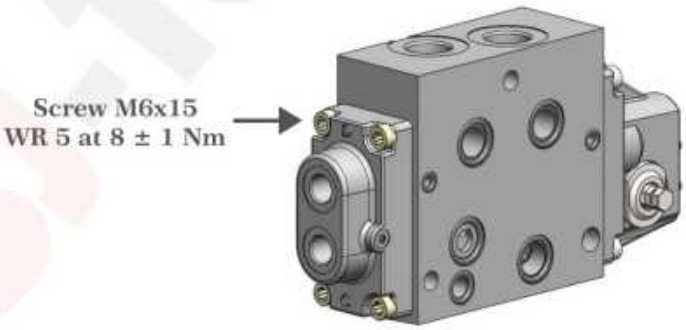


261000 – LSPH HYDRAULIC CONTROL / LSPH 液控端盖总成

The dedicated spool package is requested



Part no.	DESCRIPTION 描述	Q.TY
S10615	Screw M6x15 螺钉	4
261A02	Hydraulic control cap 液控端盖	1
O21025	ORM 0210-25 diam. 21,0 x 2,5 密封圈	1
O05020	ORM0050-20 dia. 5,0 x 2,0 密封圈	4



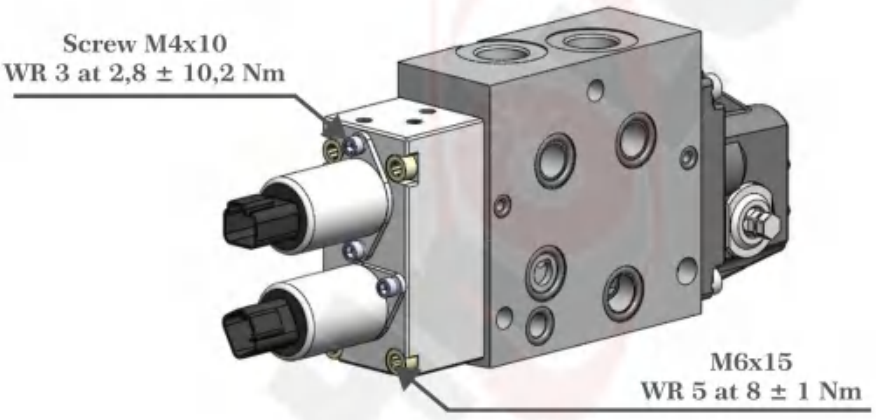
263000 LSPEH Electro-Hydraulic Actuation / LSPEH电液比例控制总成

The LSPEH is an electrical actuator module for main spool control. The PVHC control is done by dual Pulse Width Modulated, high current supply 100-400HZ PMW control signals. The spool position will shift when conditions are changed such as temperature change.

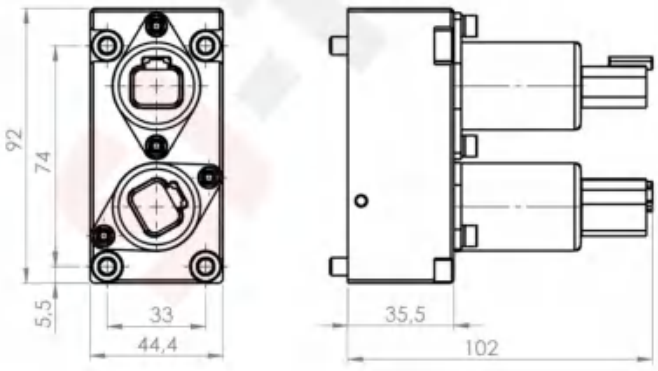
Inlet with hydraulic pilot pressure is needed.

LSPEH 是驱动主阀芯的电液控比例控制模块。电液比例控制是通过高达 100-400 赫兹驱动信号模块完成。当温度改变时，主阀芯的位置将会随之改变。

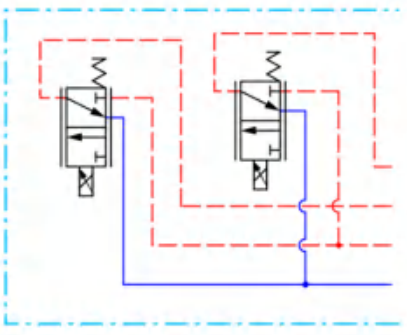
电液比例控制需要进油体带先导油。



LSPEH Schematic/ 电液比例总成外形尺寸



LSPEH Schematic / 电液比例原理图



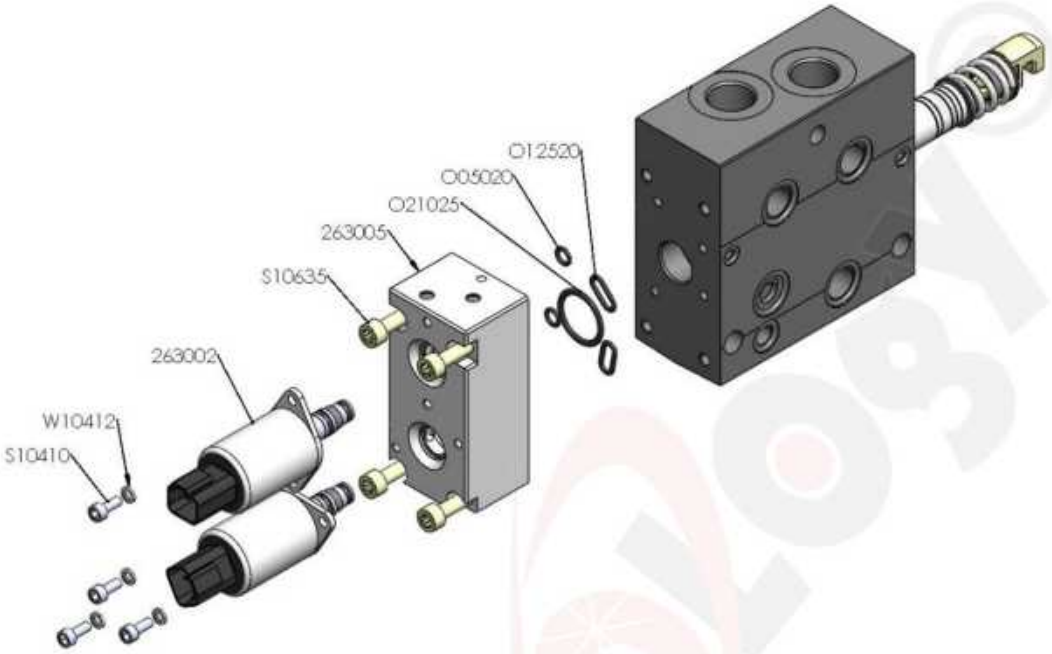
Technical data / 技术参数

SUPPLY VOLTAGE 电压	12VDC	12VDC
Current Input 输入功率	0-1500mA	0-750mA
Resistance 电阻	4.75Ω±5%	28Ω±5%
Response time 反馈时间	150-200ms	
PWM frequency 频率	100 to 400HZ	
Pilot oil pressure range 先导油压力	20-25bar (290-362psi)	
Ambient temperature range 安培温度范围	-30℃ to 80℃ (-22℉ to 176℉)	
Temperature range 温度范围	-20℃ to 80℃ (-4℉ to 176℉)	
Fluid cleanliness 油液清洁度	23/19//10 (according to ISO4406)	

Part numbers for LSPEH Actuators / LSPEH 电液比例配件号

PART NO. 配件编码	POWER SUPPLY 电压	CONNECTOR TYPE 连接方式	PROTECTION CLASS 防水等级
263001	12V	AMP	IP66
263002	24V		
263003	12V	2X2 DEUTSCH	IP67
263004	24V		

263000 LSPEH Electro-Hydraulic Actuation / LSPEH电液比例控制总成



Part no.	DESCRIPTION 描述	Q.TY
263005	EH support EH 电液连接块	1
263002	Thomas PPCD04 reducing valve 比例电磁阀	2
O21025	ORM 0210-25 diam. 21,0 x 2,5 密封圈	1
O05020	ORM 0050-20 dia. 5,0 x 2,0 密封圈	2
O12520	ORM 0125-20 dia. 12,5 x 2,0 密封圈	2
S10410	Screw M4x1 螺钉	4
W10412	Spring washer 4,1x7x1,2 弹垫	4
S10635	Screw M6x35 螺钉	4

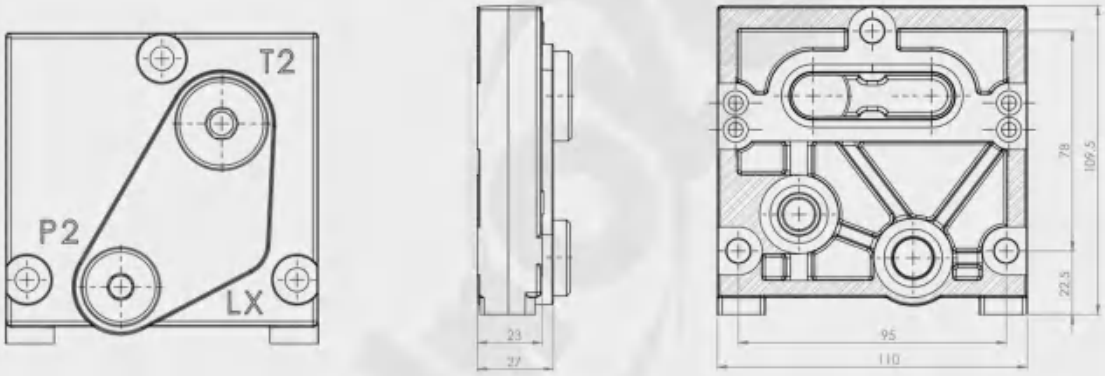
The LSP32 end cover close off the valve stack section placed between them by placing them at the end. Furthermore, the end plate is ensuring Load Sense(LS) is relieved to tank pressure when the valve is not operated.

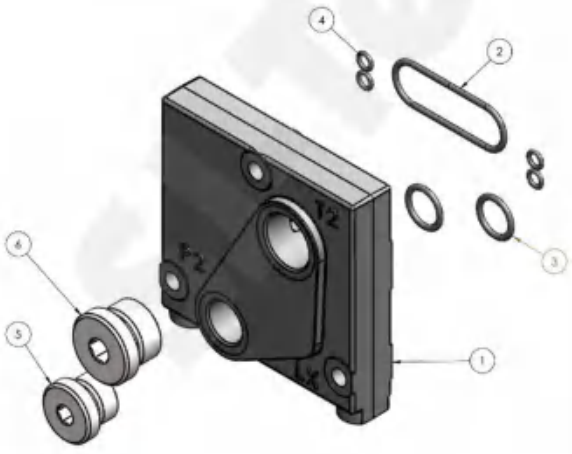
The LSPS end plate variant are based on a generic platform with a wide selection of additional features, enabling you to tailer the LSP32 to suit the demands of any hydraulic system.

LSP32 尾片 LSPS 是通过将尾片阀体安装在片阀尾部来封闭位于它们之间的阀组部分。 此外，当阀不工作时，尾片可确保将负载感应压力（LS）回到到油箱。

LSPS 端板型号基于具有多种附加功能的通用平台，使您能够定制 LSPS 来满足任何液压系统的需求

LSPS DIMENSION / 回油体外形尺寸

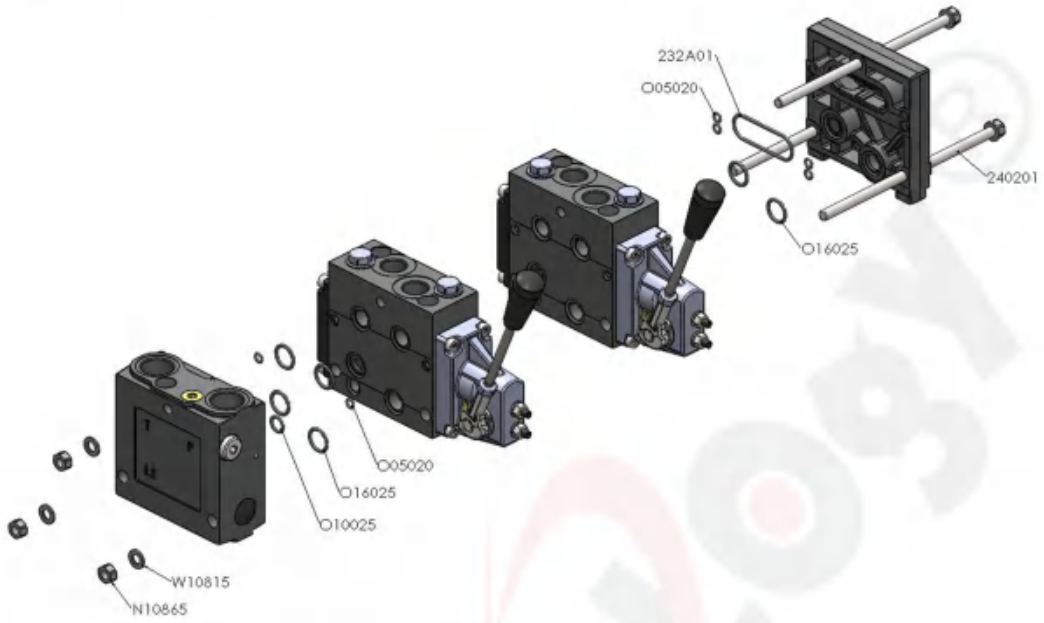




Part no.	Description	Q.ty
231020	End plate with P2 T2 ports	1
232A01	Shaped gasket*	1
O16025	ORM 0160-25 dia. 16,0 x 2,5	2
O05020	ORM 0050-20 dia. 5,0 x 2,0	4
P04045	Koenig expander SKC550-040	1
234000	G 1/2 plug	1
235000	G 3/4 plug	1

PART NO. 产品编码	DRAWING 图纸	SCHEMATIC 原理图
230010 Iron casting, No external connection. Max pressure:350bar(3625psi) 铸铁材质，无外接油口，最大压力 350bar		
230011 Iron casting, with LX-connection, Max pressure:350bar(3625psi) 铸铁材质，带 LX 外接油口，最大压力 350bar		
230020 Iron casting, with P-, T-, LX- and M-connection, Max pressure:350bar(3625psi) 铸铁材质，带 P,T,口和 LX 外接油口，M 压力表孔，最大压力 350bar		
230030 Iron casting, with T-connection, Max pressure:350bar(3625psi) 铸铁材质，带 T 口,最大压力 350bar		

LSB stay bolts 2 section ASSEMBLY KIT / LSB安装螺栓 2连安装示意图



Part no.	DESCRIPTION 描述	Q.TY
232A01	Shaped gasket (ORM 0440-25 dia.44x2,5)	1
O16025	ORM 0160-25 dia. 16,0 x 2,5	10
O10025	ORM 0100-25 dia. 10,0 x 2,5	2
O05020	ORM 0050-20 dia. 5,0 x 2,0	8
N10865	Nut M8	6
W10815	Washer 8,1x15,2x1,5	6
240201	Stay bolt LSP32/2 - M8x190	3

STAY BOLTS M8 LIST

Part no.	DESCRIPTION 描述	Q.TY
240101	Stay bolt LSP32/1 - M8x142	3
240201	Stay bolt LSP32/2 - M8x190	3
240301	Stay bolt LSP32/3 - M8x238	3
240401	Stay bolt LSP32/4 - M8x286	3
240501	Stay bolt LSP32/5 - M8x334	3
240601	Stay bolt LSP32/6 - M8x382	3
240701	Stay bolt LSP32/7 - M8x430	3
240801	Stay bolt LSP32/8 - M8x478	3

LSP32 order specification form / LSP32订货表

	Description or function 功能描述	P1	P:			P2: Bar
1		A:	L: Bar	W:	W2:	B:
			W1:	G:		
2		A:	L: Bar	W:	W2:	B:
			W1:	G:		
3		A:	L: Bar	W:	W2:	B:
			W1:	G:		
4		A:	L: Bar	W:	W2:	B:
			W1:	G:		
5		A:	L: Bar	W:	W2:	
			W1:	G:		B:
6		A:	L: Bar	W:	W2:	
			W1:	G:		B:
7		A:	L: Bar	W:	W2:	
			W1:	G:		
8		A:	L: Bar	W:	W2:	B:
			W1:	G:		
9		A:	L: Bar	W:	W2:	B:
			W1:	G:		
10		A:	L: Bar	W:	W2:	B:
			W1:	G:		
11		A:	L: Bar	W:	W2:	B:
			W1:	G:		
12		A:	L: Bar	W:	W2:	B:
			W1:	G:		
	End Plate 回油体			Stay bolts 装配螺栓		

Specification sheet:

P: Pump side module; P1: plug for external pilot oil supply; P2: LS solenoid unloading valves LS
A: handle lever side options B: front cap side options W: Basic modules; W1/W2: shock and suction valve;
L: LS pressure relief valve setting; G: Spool code

表框选择:

P: 进油体; P1: 外接先导油口选项; P2: LS电磁卸荷阀;
A: 手柄端控制方式; B: 端盖控制方式; W: 主阀体; W1/W2: 缓冲阀补油阀;
L: LS限压阀设定压力; G: 阀芯选项



With innovative strength, SJ Hydraulic ushers in a new era of precise proportional radio control valve, leading the industry towards a new journey of high eficiency.

SJ-TecHnOLOgY®

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