

# FAST 法斯特



## 钩臂车液电集成系统 ELECTRO-HYDRAULIC INTEGRATED SYSTEM FORHOLLKLIFT

# 1

## 钩臂车液电集成系统 Electro-hydraulic integrated system for hooklift

烟台未来自动装备有限责任公司钩臂车类产品 Products for hooklift of Yantai Future

烟台未来公司在钩臂车行业可提供各吨位车型、各种控制方式的钩臂车油缸和系统集成产品。

Yantai Future can supply hydraulic cylinders and integrated system for vehicles with different tonnages and control modes in hooklift industry.

表1 钩臂车配置油缸参数 Table 1 hydraulic cylinder parameters for hooklift

序号	分类	吨位	工作压力 Mpa	主臂油缸型号	主臂油缸				侧臂油缸				支撑油缸		臂架油缸							
					缸径 mm	行程 mm	油缸 数量	平衡阀1 型号	平衡阀2 型号	缸径 mm	行程 mm	缸径 mm	行程 mm	缸径 mm	行程 mm	缸径 mm	行程 mm					
1	微型 s3T	1T	20	YH03010-270	80	35	545	1	SP030-270	-	-	-	-	50	30	YD106-00	45	40	25	10-08-17	40	
2		2T	22/20	YH03010-254	100	45	775/470	1														
3	轻型 5~8T	7T	22	YH02010-418-H	125	63	1135	2	F-HZ/PH.S B550-MF30	-	-	-	-	63	32		40	25	10-08-17	40		
4		8T	20	YH02010-418	140	70	880	2						63	40	10-08-17	40	25	10-08-17	40		
6	中型 10~14T	10T	25	YH100116-1-150	150	80	1095	2	F-HZ/PH.S B550-MF30	90	80	50	F-HZ/PH.S B550-MF30	60	40	508-17	40	40	25	10-08-17	40	
7		14T	27	YH031020X-150/80*1504-H	160	80	1504	2						63	40		40	40	25	10-08-17	40	
8	重型 >15T	20T	27	YH033020X-160/80*1730-H	170	80	1730	2	F-HZ/PH.S B550-MF30	90	110	55	F-HZ/PH.S B550-MF30	60	80	YD106-00	45	40	25	10-08-17	40	
9		26T	31	HD2676-1-170/80*1890-H			1890															

钩臂车液压系统主要部件配置、参数对照表（取力器的转速按 800-1000r/min）

Table for configuration and parameters for hooklift hydraulic system (power takeoff refer to 800-1000r/min)

序号 No.	分类 Category	吨位 Tonnage	多路换向阀 multiple directional control valve			泵 Pump		油箱 Oil tank 容积/L Volume	电器控制 Electrical control 操纵方式 Control mode
			操纵方式 Control mode	型号 Model	额定流量 L/min rated flow	型号 Model	排量ml/r output volume		
1	微型 s3T	1T	手动 Manual	HZ/DCV40A-2 -A713N-S2	40	CBN-F532	32	21	有线按钮 Button/ 无线遥控手柄 Remote control
			手动+电液控 Manual+electro- hydraulic control	HZ/DCV40A-2 -A15-S2					
2		2T	电控 Electrical control	-	-				
3	轻型 5~8T	7T	手动+电液控 Manual+electro- hydraulic control	HZ/DCV80/3 -A15-S2	80	CBQ-G563	63	60	有线按钮/ 无线遥控手柄 Button/remote control
4		8T	手动+气控 Manual+ pneumatic contrl	HZ/DCV80/3 -A14-S2					
6	中型 10~14T	10T	手动+气控 Manual+ pneumatic contrl	DCV100/4-QK	100	YF-A2F107W2P3	107	80	有线按钮/ 无线遥控手柄 Button/remote control
7		14T							
8	重型 >15T	20T	手动+气控 Manual+ pneumatic contrl	DCV100/4-QK	100	YF-A2F107W2P3	107	140	有线按钮/ 无线遥控手柄 Button/remote control
9		26T							

表2 钩臂车控制系统参数 Parameters of control system for hooklift

# 2

## 钩臂车液电集成系统 Electro-hydraulic integrated system for hooklift

### 2.1 小吨位钩臂车概述 SMALL TONNAGE HOOKLIFT OVERVIEW

国家大力推进小城镇化进程，小城镇产生的垃圾需要大量小吨位的钩臂车去处理，即额定载重为1T、2T的小吨位钩臂车需求大大增加。我公司针对钩臂车的这一新兴市场开发了小吨位钩臂车用油缸及液压系统，是专为小吨位的钩臂车配套使用。

China government is promoting urbanization process, so more small tonnage hooklifts are needed for garbage disposal in urban area, especially the hooklifts with 1T/2T capacity. Yantai Future specially developed hydraulic cylinders and systems of small tonnage hooklift for this emerging market.



### 2.2 小吨位钩臂车的分类 CLASSIFICATION OF SMALL TONNAGE HOOKLIFT

小吨位钩臂车根据控制阀方式的不同可分为：手动控制式、手动+电液控制式、纯电动式三种。其中具有电控操作功能的形式又可根据电控方式不同分为：有线按钮操作式、无线遥控手柄操作式两种。

Small tonnage hooklift can be divided into three types according to different control modes: manual operation, manual+ electro-hydraulic control, electrical control. And electrical control can be divided into button control and remote control according to different control methods.

Refer to the form below 见下表：

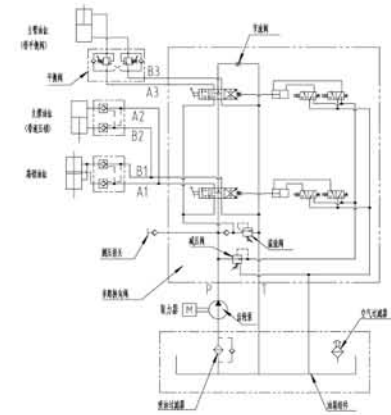
序号 No.	吨位 Tonnage	操作方式分类表Control modes		
		控制阀种类 Control valves	型号 Model	操纵方式 control mode
1	1T	手动多路阀 manual multitan-dem valve	HZ/DCV40A-2-A713N-S2	手柄操作 handle operation
		手动+电液控多路阀 manual+ multitan-dem valve	HZ/DCV40A-2-A15-S2	手柄操作+ 有线按钮/无线遥控手柄 handle operation+button control/remote control
2	2T	电磁换向阀 solenoid directional valve		有线按钮/无线遥控手柄 utton control/remote control

### 2.3 小吨位钩臂车液压系统的组成 CONFIGURATION OF HYDRAULIC SYSTEM FOR SMALL TONNAGE HOOKLIFT

小吨位（1T/2T）钩臂车液压系统集成主要由油箱组件、控制阀组及电控组件、管路、配套油缸四部分组成，管路部分根据各种车型现车布置，液压系统集成具体参数可见表1《钩臂车配套油缸参数》、表2《钩臂车控制系统参数》描述。

Hydraulic system for small tonnage (1T/2T) hooklift is mainly consists of oil tank assembly, control valves & electrical control assembly, pipes, hydraulic cylinders, pipes can be arranged according to different vehicles, hydraulic integrated system parameters can be found in table 1 (hydraulic cylinder parameters for hooklift) and table 2 (parameters of control system for hooklift).

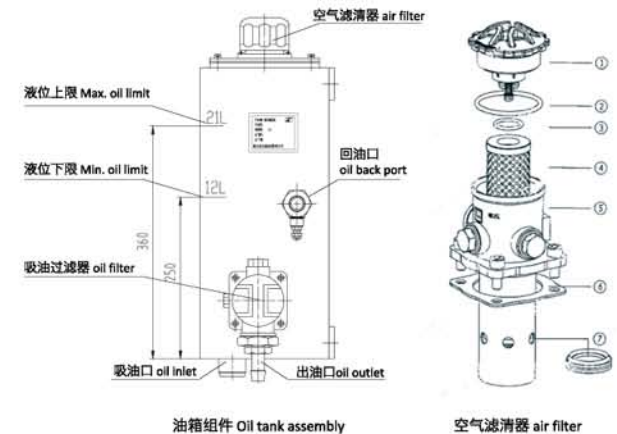
#### 2.3.1 钩臂车液压原理 Hydraulic principle of hooklifts



#### 2.3.2 油箱组件 Oil tank assembly

油箱为悬挂式油箱，组装有吸油过滤器、空气滤清器、液位计等，吸油过滤器为箱外自封式吸油过滤器，方便更换或清洗滤芯，保证液压油清洁和系统的正常运转。

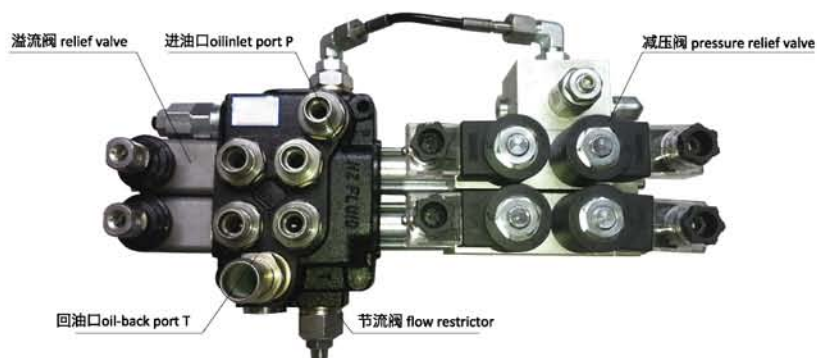
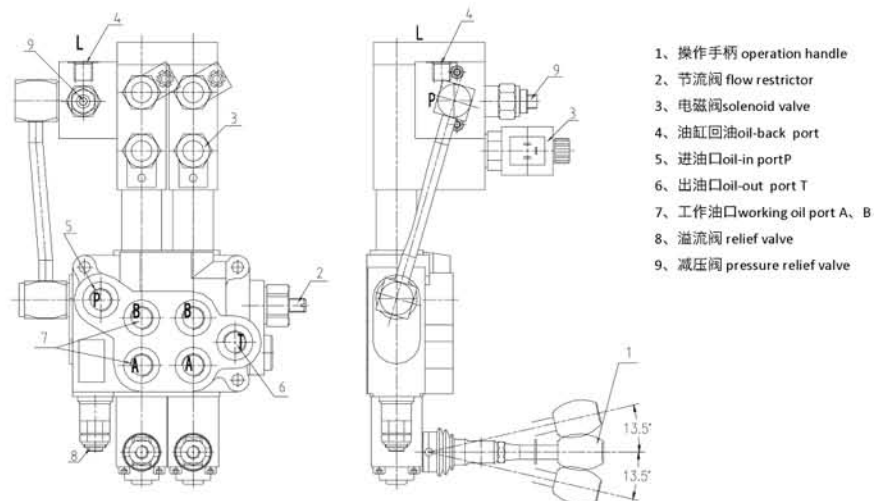
The oil tank is suspension type and equipped with oil filter, air filter and liquid indicator etc. The oil filter is self-sealing filter which located outside to facilitate the maintenance and replacement of filter element, ensure the clearness of hydraulic oil and reliable operation of hydraulic system in the meantime



### 2.3.3控制阀组及电控组件 control valve & electric control assembly

控制阀组的种类有手动控制式多路阀、手动+电液控制式多路阀、电磁换向阀三种。手控多路阀和电磁换向阀比较常见，不做具体介绍，手控+电液控制式多路阀如下：

The control valves are divided into following three types: manual control multitandem valve, manual & electric-hydraulic multitandem valve and solenoid valve. The first & third type is very common. So we will only introduce manual & electric-hydraulic multitandem valve.



手控+液控多路阀 manual & electric-hydraulic multitandem valve.

根据电控方式不同分为：有线按钮操作式、无线遥控手柄操作式两种。

According to different electric control means, there are two types: wired button operation means and wireless remote operation means.



有线按钮操作式 wired button operation means

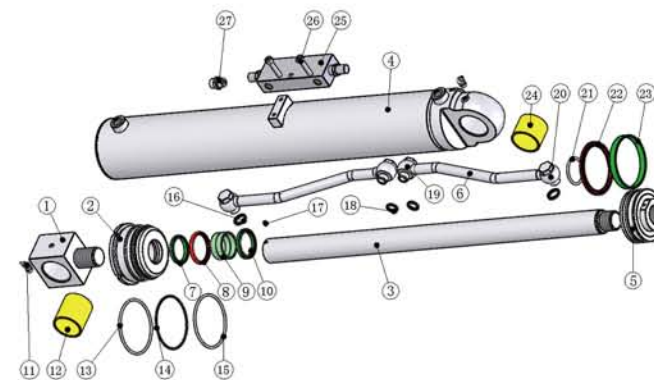
无线遥控手柄操作式 wireless remote operation means.

### 2.3.4小吨位钩臂车配套油缸 hydraulic cylinder for small tonnage hook-lift

一台小吨位（1T/2T）钩臂车配套油缸有：一条主臂油缸、一条支撑油缸、一条锁止油缸。油缸具体参数见表1《钩臂车配套油缸参数》。

One set of 1T/2T hook lift cylinder needs the following cylinders: one piece main arm cylinder, one piece supporting cylinder and one piece locked cylinder.

主臂油缸：main arm cylinder

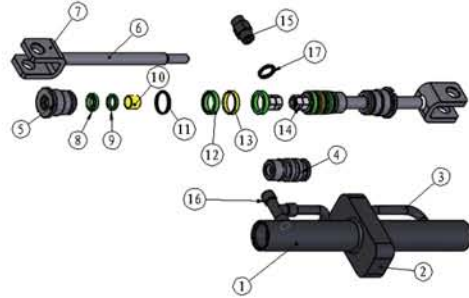


- 1.单耳接杆 connector 2.前盖head cap 3.活塞杆rod 4.后盖缸筒 tube assembly 5.活塞piston 6.油管oil pipe 7.防尘圈wiper  
 8.轴用密封圈 seal kits for rod 9.导向环guiding ring 10.轴用斯特封HBTS 11.油杯oil cup 12.复合导套 composite bush 13.0形圈 o ring  
 14.挡圈circlip 15.0形圈 o ring 16.组合密封垫 composite seal 17.开槽锥端紧定螺钉 nut 18.组合密封垫 composite seal  
 19.焊接式铰接管接头hinge connector 20.焊接式铰接管接头 hinge connector 21.0形圈 o ring 22.孔用格莱圈 seal for rod  
 23.支撑环 supporting ring 24.复合导套 composite bush 25.平衡阀 balance valve 26.内六角圆柱头螺钉 nut 27.卡套式硬管接头 hard pipe connector

主臂油缸安装在车箱主体中间，是钩臂车的关键油缸，是起吊垃圾箱的关键件。

主臂油缸带双向平衡阀，保证主臂油缸不会在箱体和载荷的作用下产生快速下落而出现危险，从而确保了设备的安全可靠性。

The main arm cylinder is installed in the middle of the truck and it's the key cylinder for hook lift. The main arm cylinder has balance valve to ensure that the cylinder will not go down so quickly due to load effect.



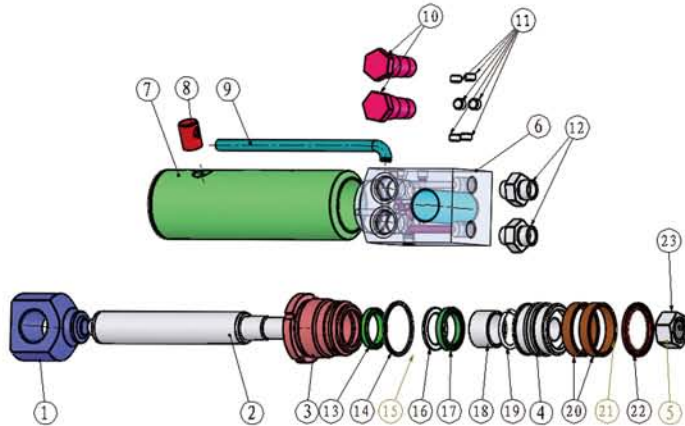
锁紧油缸: locked cylinder

- 1.缸筒组件 tube assembly 2.方板 square board 3.油管 oil pipe 4.活塞 piston 5.前盖 head cap 6.活塞杆组件 rod assembly 7.接手 rod connector  
8.防尘圈 wiper 9.轴用圈 seal for piston 10.复合导套 composite bush 11.O形圈 o ring 12.孔用圈 seal for rod 13.支撑环 supporting ring  
14.紧锁螺母 lock nut 15.管接头 pipe connector 16.三通管接头 three way pipe connector 17.组合密封垫圈 composite seal

锁止油缸位于车辆中间部位，起到锁紧垃圾箱的作用。

The locked cylinder is installed in the middle of the truck and can lock the garbage station.

支撑油缸: supporting cylinder



1. 接手 rod connector 2. 活塞杆 rod 3. 前盖 head cap 4. 活塞 piston 5. 六角螺母 hex nut 6. 后盖 end cap 7. 缸筒 tube  
8. 油口接头 oil port connector 9. 油管 oil pipe 10. 液控单向阀 check valve 11. 内六角螺塞 female hex nut 12. 管接头 pipe connector  
13. 防尘圈 wiper 14. 挡圈 circlip (1) 15. O型圈 o ring 16. 挡圈 circlip (2) 17. 杆用圈 seal for rod 18. 复合轴套 composite bush  
19. 孔用钢丝挡圈 circlip 20. 支撑环 supporting ring 21. O型圈 o ring 22. 轴用圈 seal for piston 23. 内六角紧定螺钉 female hex nut

支撑油缸安装在车辆尾部，在起吊垃圾箱时起稳定平衡作用。

The supporting cylinder is installed at the end of the truck and can make it balance when lifting garbage station.

烟台未来自动装备有限责任公司（原烟台气动元件厂）始建于1973年，原机械部重点企业。2001年，原烟台气动元件厂正式改制，更名为烟台未来自动装备有限责任公司。

1989年，公司在同行业中率先获得国家二级企业称号；2000年，通过ISO9001国际质量体系认证；2002年，通过美国船用液压系统ABS认证；2008年公司荣获中国国家标准突出贡献单位；2010年获山东省高新技术企业称号。2011年获得山东省著名商标。

产品分五大模块：液压气动元器件、液压气动控制系统、专用（环卫）车辆液压油缸及液压系统集成解决方案、汽车检测维修设备、包装输送成套设备。其中液压气动元器件是公司的主导产品，非标设计能力在行业中首屈一指；液压与气动控制系统，是公司1985年开始涉足的领域，并在近年来得到突飞猛进的发展，在垃圾收集、转运、处理行业、工业炉、电石炉、铸造生产线、蓄电池生产线、锻造生产线、高端工程机械等领域，提供了高端的液压油缸以及液压集成系统。

公司坚持“挑战零缺陷，向顾客提供满意的产品和服务”的质量方针，秉承“诚实、敬业、创新、团结、健康”的企业精神，着力打造民族品牌。

Yantai Future Automatic Equipments Co., Ltd (used to be called Yantai Pneumatic Works), is founded in 1973. It is one of the defined manufacturers by the Mechanical Department of China. We changed to name to Yantai Future in 2001 after restructured from state-owned company to joint-stock company.

In 1989, we obtained first in this industry the honorable title of national second-class enterprise. In 2000, we passed the verification of ISO9001, and in 2001 passed ABS qualification. We are awarded as the "Outstanding Contribution Unit to China National Standard" in 2008 and "High and New Technology Company of Shandong Province" in 2010. Now we have 5 types of products: Hydraulic & Pneumatic Cylinders, Hydraulic & Pneumatic Systems, Hydraulic cylinder and system integrated solution for Special Purpose Vehicles, Auto Repair Equipments and Packing & Conveying Machines. Hydraulic and pneumatic cylinders are traditional products of our company. The non-standard designing is the top level in this industry; We entered the industry of hydraulic & pneumatic system in 1985 and improved rapidly in the latest years; and supplied high-quality hydraulic cylinders and integrated systems for many industries such as industrial furnace, calcium carbide furnace, casting production line, storage battery production line, forging production line, and high-end construction machinery etc.

Our company insists on the quality policy of "Challenge the zero disfigurement and provides satisfying products and service to the customers". With the spirit of "Honesty, devotion, innovation, consolidation and health", we are building our own brand "FAST" a national brand.

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