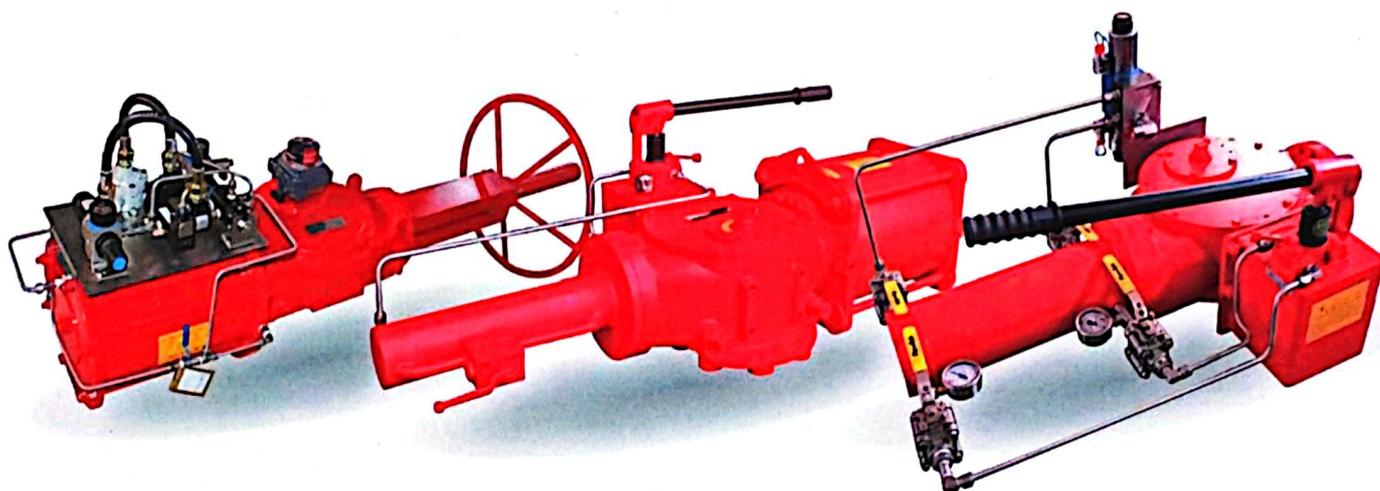


ABB Pneumatic Actuators

User Manual LP - Rotary Pneumatic Piston Actuator



Structural Features 结构特点

Design and Construction 设计和结构

LP series pneumatic and hydraulic actuators provide global customers the latest valve actuation design. It is a highly unique and reliable means of operating ball, butterfly or plug valves with 90 degree rotating mechanisms.

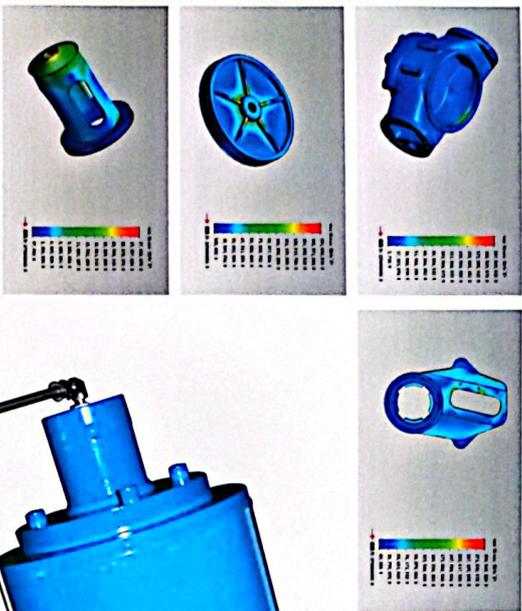
LP系列执行器采用最新的设计方案，是球阀、蝶阀、旋塞阀和其他90度旋转机械装置安全的驱动方法。

Robust yet Lightweight Design 高强度，精小型设计

Totally enclosed weatherproof center-body fabricated in carbon steel or ductile iron provides an excellent strength to weight ratio.

The mechanism of piston and yoke has an advantageous torque output.

全气候防护性中心箱体模块采用碳钢或者球铁材质，确保了足够的强度。
活塞式及传动叉式提供了最佳的扭矩输出特性。



Modular Design 模块化设计

LP series actuators share a modular construction design. The centre body is available in ten sizes. A pneumatic or hydraulic cylinder can be attached to either or both sides. A spring cartridge can also be fitted to either side for ESD (emergency shut down) applications. Modular construction and stocking of components facilitates quick delivery times.

LP系列执行器采用了模块化设计，中间箱体有10个规格，气缸或者液压缸可以单面安装也可以双面安装，需要紧急切断的状况，可



Manual Override Options 手动功能

独立的侧向手动装置是阀门或者执行器非常重要的一个部件。ABB有各种手动方式满足不同的需求。
方式有丝杠、齿轮、离合式齿轮、液压手动等方案。

A dependable manual override facility is an important part in many valve/actuator applications. ABB has a variety of override options available to meet any requirement.
Available options include open or enclosed screws in both gear reducer and declutch override gear box, as

Extensive Product Range 产品拓展

ABB offers the most extensive line of fluid power valve actuators. Products include low and high pressure pneumatic, hydraulic and pneumatic-hydraulic actuators.

ABB可以提供多种驱动方式的阀门执行器，包括低气压、高气压气动、液动和气流驱动等。

Minimum Maintenance 免维护工作

Every LP actuator is built to provide long and efficient service with minimum maintenance. The design, engineering and materials used in their construction ensure optimum performance even in the harshest environments.

Complete Control Solutions 各种控制方案

Air Control component packages are a part of any actuator/valve installation. ABB has extensive experience in the design and assembly of all types of air control systems to satisfy any customer requirement for on/off, control or ESD service. Control units can be mounted on a panel or in a cabinet and mounted either on the actuator or at a remote location.

气动控制系统是任何阀门和执行器的一个重要组成部分，ABB在气路控制方面具有丰富的经验，满足客户有关开关、调节和紧急切断等各方面的要求，气路系统可以安装在一个面板或者控制箱内，可以安装在执行器上或者单独设置。

Performance Characteristics

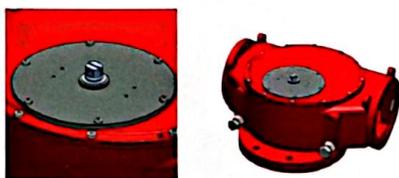
性能特点

The pinion shape conforms to the latest standards of ISO5211, NAMUR. The dimensions can be customized and the stainless steel is optionally available.

输出轴同时符合NAMUR、ISO5211标准。也可按客户要求尺寸定制。

NAMUR 标准指示器便于安装位置开关、定位器等附件。

A Position indicator acc. to NAMUR is convenient for the assembly of accessories such as Limit Switch box, Positioner etc..



The dual-material (rubber and PFA) encapsulated O-rings can be applied to a wide range of temperature and conditions.

A double O-ring and bearing design ensures the stability and dependability of the modular

各种材质橡胶密封圈及PFA包覆密封圈满足各种工况使用。

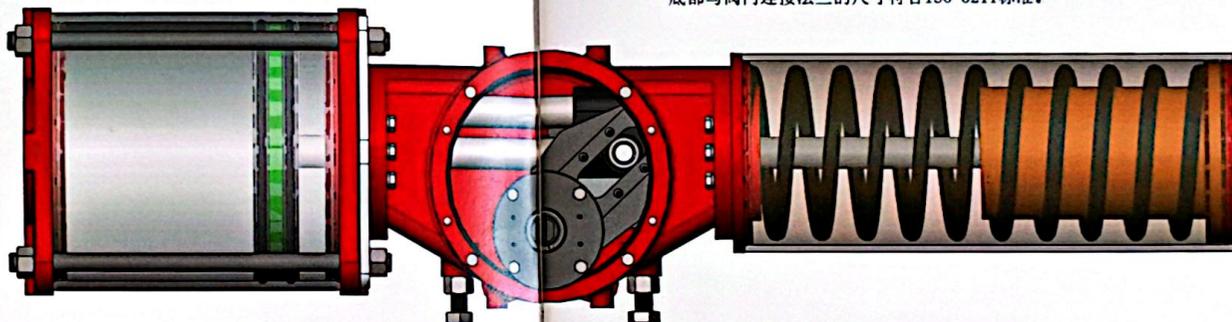
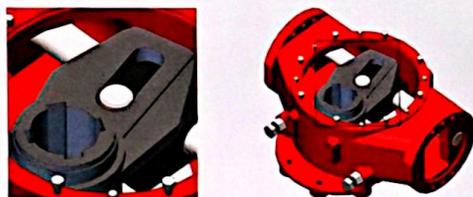
双O形密封圈及导向环设计，确保气缸模块的稳定性及可靠性。

LP actuators have torque outputs for spring-return models up to 110,000Nm and double-acting models up to 240,000Nm at operating pressures of 3-10 bar

LP单作用执行器可以提供超过110,000Nm，双作用可以提供超过240,000Nm的力矩输出。

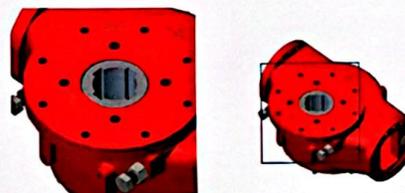
Operating temperatures:
Standard -20°C to +80°C
High Temperature -15°C to +150°C
Low Temperature -40°C to +80°C

工作温度：
标准 -20°C - +80°C
高温 -15°C - +150°C
低温 -40°C - +80°C



Made from low friction, long-life compound material, to avoid any direct contact between metals. The maintenance is easy and convenient.

采用低摩擦、长寿命复合材料，避免了金属与金属的直接接触，维修更换简单方便。

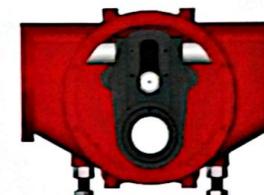


LP actuators are available with either B or C body modules.

B body modules provide a balanced torque ratio at both the break and end position. C body modules have a torque advantage in applications where higher break torque is needed to unseat the valve and less critical needs at the run or full open positions.

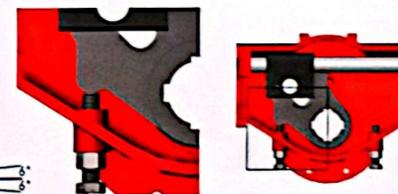
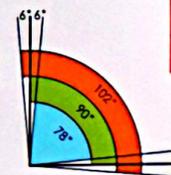
LP执行器可以提供B和C两种传动箱模块。B传动箱能够提供起点和终点相同的输出力矩，更符合类似球阀的力矩需求。C传动箱能够提供更大的起始输出扭矩，更符合类似蝶阀的力矩需求。

Mounting Flange according to ISO 5211
底部与阀门连接法兰的尺寸符合ISO 5211标准。

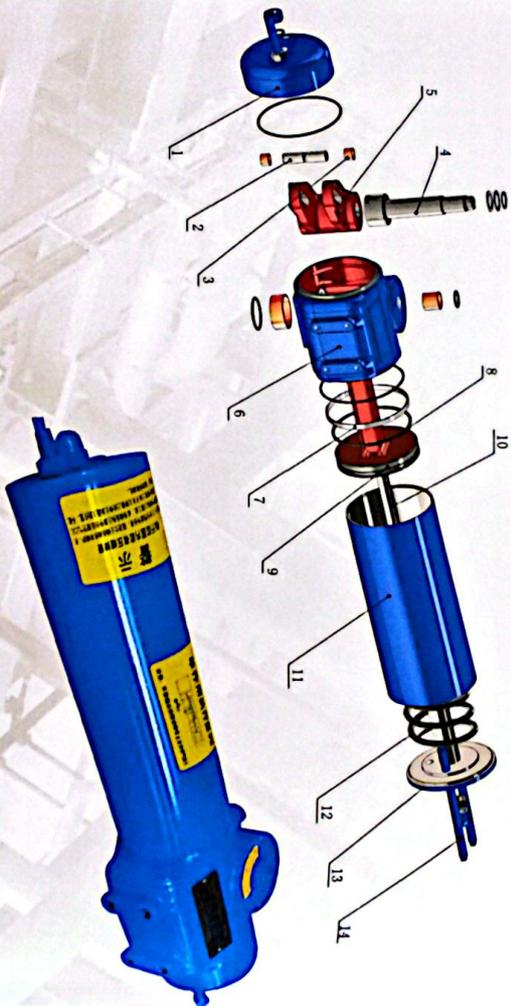


Integral bi-directional travel stops, adjustable from -6° to 96° of total valve travel, assist the LP Series in prolonging valve seat integrity.

两个独立的行程调节螺钉可以进行方便、精确±6°的调节开、关位置。

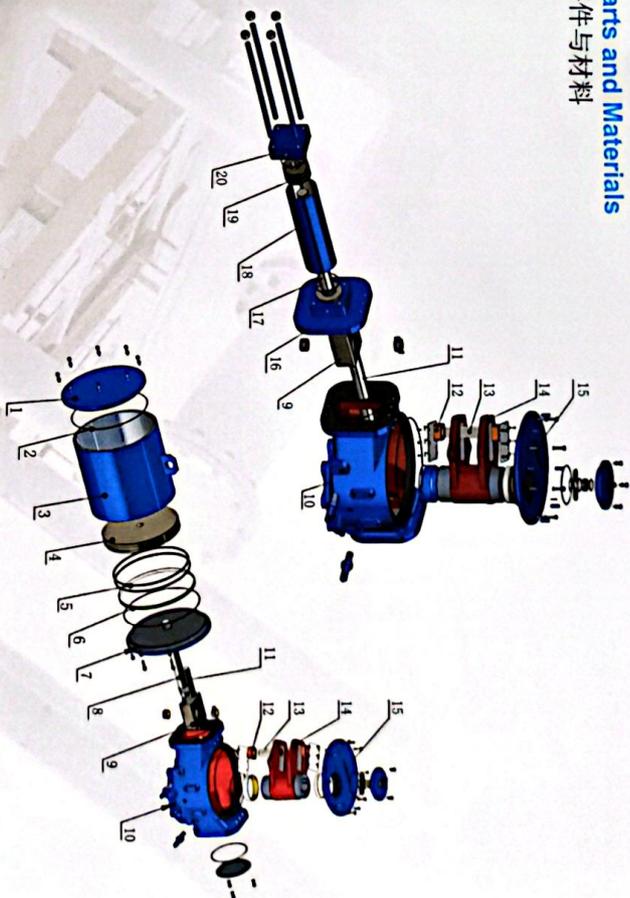


Parts and Materials
零件与材料



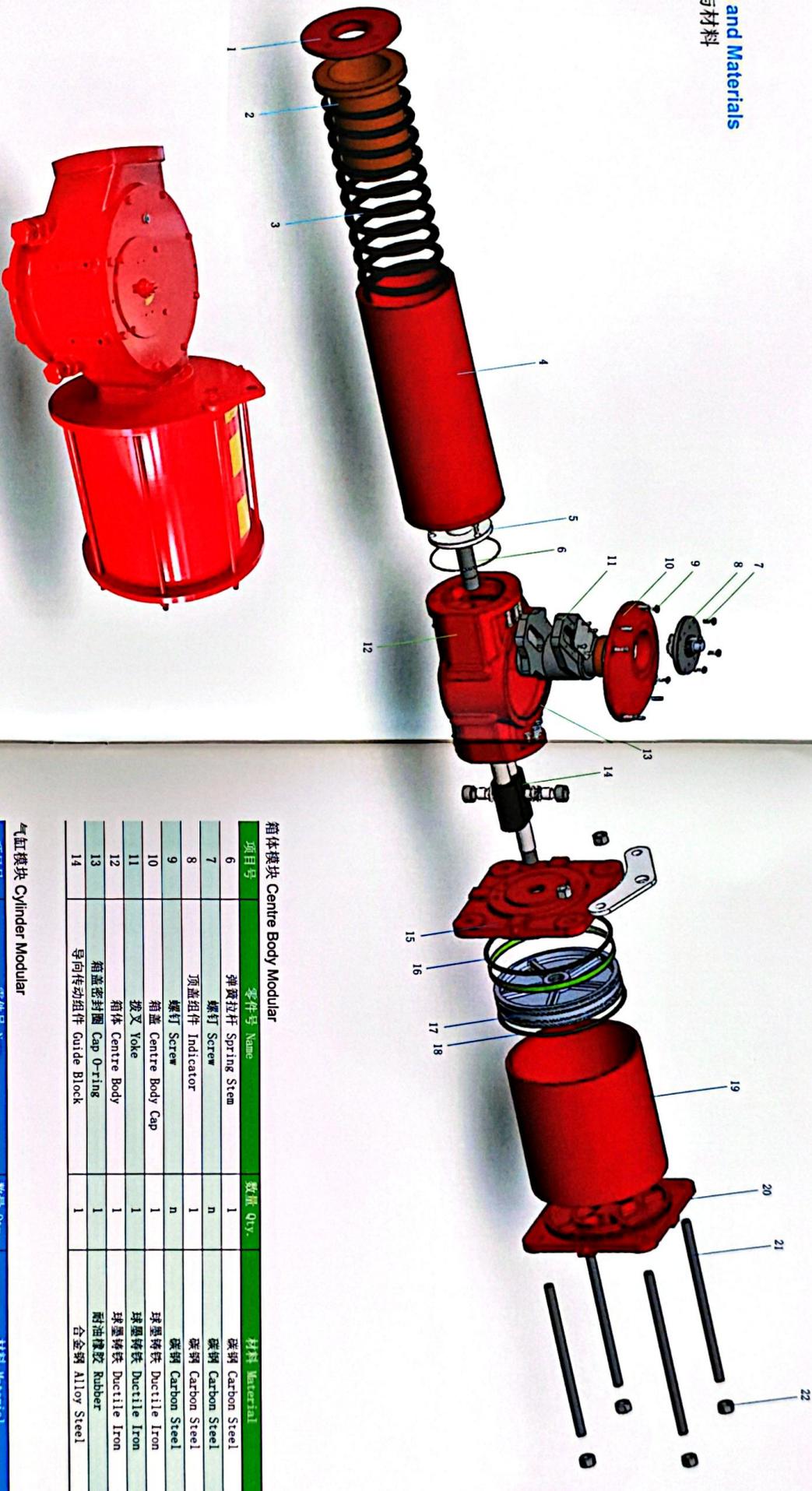
| 编号 No. | 名称 Name | 数量 Qty. | 材料 Material | 可选 Optional |
|--------|----------------------------|---------|----------------------|-----------------|
| 1 | 端盖 End Cap | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 2 | 传动销 Yoke Pin | 1 | 合金钢 Alloy Steel | |
| 3 | 轴承 Bearing | 2 | 钢覆聚四氟乙烯 Steel & PTFE | |
| 4 | 轴 Shaft | 1 | 碳钢 Carbon Steel | |
| 5 | 拨叉 Yoke | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 6 | 箱体 Center Body | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 7 | 导向环 Guide Ring | 1 | 酚醛树脂 Resin | |
| 8 | O型圈 O-Ring | 2 | 丁腈橡胶 NBR | HNBR, VMQ, FVMQ |
| 9 | 活塞 Piston | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 10 | 导杆 Guide Rod | 1 | 合金钢 Alloy Steel | |
| 11 | 气缸 Cylinder | 1 | 碳钢 Carbon Steel | |
| 12 | 弹簧 Spring | 1 | 弹簧钢 Spring Steel | |
| 13 | 缸盖 Cylinder Cap | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 14 | 调节螺母 Stop Adjustment Screw | 2 | 碳钢 Carbon Steel | |

Parts and Materials
零件与材料



| 编号 No. | 名称 Name | 数量 Qty. | 材料 Material | 可选 Optional |
|--------|------------------------------------|---------|----------------------|-----------------|
| 1 | 缸盖 Cylinder Cap | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 2 | O型圈 O-Ring | 2 | 丁腈橡胶 NBR | HNBR, VMQ, FVMQ |
| 3 | 气缸 Cylinder | 1 | 碳钢 Carbon Steel | |
| 4 | 活塞 Piston | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 5 | O型圈 O-Ring | 2 | 丁腈橡胶 NBR | HNBR, VMQ, FVMQ |
| 6 | 导向环 Guide Ring | 1 | 酚醛树脂 Resin | |
| 7 | 气缸座 Cylinder Seat | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 8 | 活塞杆 Piston Rod | 1 | 合金钢 Alloy Steel | |
| 9 | 导向传动组件 Guide Block | 1 | 合金钢 Alloy Steel | 碳钢 Carbon Steel |
| 10 | 缸体 Center Body | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 11 | 导向杆 Guide Rod | 1 | 合金钢 Alloy Steel | |
| 12 | 轴承 Bearing | 2 | 钢覆聚四氟乙烯 Steel & PTFE | |
| 13 | 传动销 Yoke Pin | 1 | 合金钢 Alloy Steel | |
| 14 | 拨叉 Yoke | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 15 | 箱体 Center Body Cap | 1 | 球墨铸铁 Ductile Iron | 碳钢 Carbon Steel |
| 16 | 气缸座 (液压) Cylinder Seat (Hydraulic) | 1 | 碳钢 Carbon Steel | |
| 17 | 活塞杆 (液压) Piston Rod (Hydraulic) | 1 | 碳钢 Carbon Steel | |
| 18 | 气缸 (液压) Cylinder (Hydraulic) | 1 | 碳钢 Carbon Steel | |
| 19 | 活塞 (液压) Piston (Hydraulic) | 1 | 碳钢 Carbon Steel | |
| 20 | 缸盖 (液压) Cylinder Cap (Hydraulic) | 1 | 碳钢 Carbon Steel | |

Parts and Materials
零件与材料



弹簧筒模块 Spring Modular

| 项目编号 | 零件号 Name | 数量 Qty | 材料 Material |
|------|-----------------|--------|------------------|
| 1 | 弹簧筒盖 Tank Cap | 1 | 碳钢 Carbon Steel |
| 2 | 弹簧座 Spring Seat | 1 | 碳钢 Carbon Steel |
| 3 | 弹簧 Spring | 1 | 弹簧钢 Spring Steel |
| 4 | 弹簧筒 Spring Tank | 1 | 碳钢 Carbon Steel |
| 5 | 衬套座 Bear Seat | 1 | 合金钢 Alloy Steel |

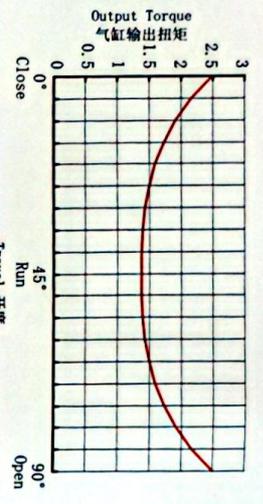
箱体模块 Centre Body Modular

| 项目编号 | 零件号 Name | 数量 Qty. | 材料 Material |
|------|--------------------|---------|-------------------|
| 6 | 弹簧拉杆 Spring Stem | 1 | 碳钢 Carbon Steel |
| 7 | 螺钉 Screw | n | 碳钢 Carbon Steel |
| 8 | 顶盖组件 Indicator | 1 | 碳钢 Carbon Steel |
| 9 | 螺钉 Screw | n | 碳钢 Carbon Steel |
| 10 | 箱盖 Centre Body Cap | 1 | 球墨铸铁 Ductile Iron |
| 11 | 拨叉 Yoke | 1 | 球墨铸铁 Ductile Iron |
| 12 | 箱体 Centre Body | 1 | 球墨铸铁 Ductile Iron |
| 13 | 箱盖密封圈 Cap O-Ring | 1 | 耐油橡胶 Rubber |
| 14 | 导向传动组件 Guide Block | 1 | 合金钢 Alloy Steel |

气缸模块 Cylinder Modular

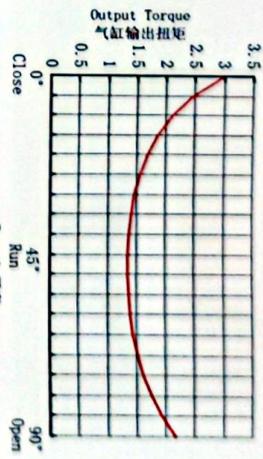
| 项目编号 | 零件号 Name | 数量 Qty. | 材料 Material |
|------|--------------------|---------|-------------------|
| 15 | 气缸底座 Cylinder Seat | 1 | 球墨铸铁 Ductile Iron |
| 16 | 活塞O形圈 O-Ring | 1 | 耐油橡胶 Rubber |
| 17 | 活塞 Piston | 1 | 碳钢 Carbon Steel |
| 18 | 导向环 Guide Ring | 1 | 树脂 Resin |
| 19 | 缸体 Cylinder | 1 | 碳钢 Carbon Steel |
| 20 | 缸盖 Cylinder Cap | 1 | 球墨铸铁 Ductile Iron |
| 21 | 螺钉 Screw | n | 碳钢 Carbon Steel |
| 22 | 螺母 Screw Nut | n | 碳钢 Carbon Steel |

Output Torque of LP-BB Series Double Acting Actuator
LP-BB 系列气动执行器
双作用输出扭矩



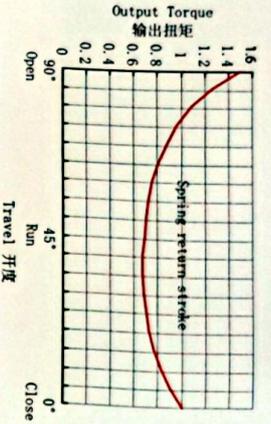
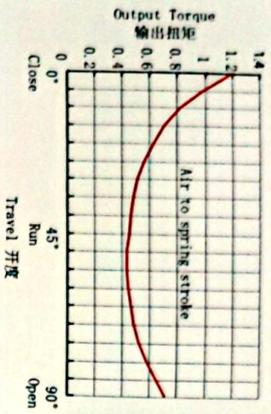
| Model 型号 | Output Torque 输出扭矩 (Nm) | | | | | | Air Pressure 气压 (kPa) | | | | | |
|---------------|-------------------------|--------|--------|--------|--------|--------|-----------------------|--------|--------|--------|--------|--|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0.3 | 0.4 | 0.5 | 0.6 | | |
| LP-00-BB-DA | 384 | 222 | 384 | 439 | 253 | 439 | 519 | 317 | 519 | 380 | 659 | |
| LP-00B-BB-DA | 728 | 417 | 728 | 832 | 477 | 832 | 1041 | 596 | 1041 | 715 | 1249 | |
| LP-010-BB-DA | 1269 | 670 | 1269 | 1451 | 766 | 1451 | 1814 | 958 | 1814 | 1138 | 2154 | |
| LP-020-BB-DA | 2000 | 1056 | 2000 | 2286 | 1207 | 2286 | 2857 | 1509 | 2857 | 1810 | 3428 | |
| LP-020B-BB-DA | 2599 | 1372 | 2599 | 2970 | 1568 | 2970 | 3712 | 1960 | 3712 | 2352 | 4455 | |
| LP-040-BB-DA | 3836 | 2026 | 3836 | 4384 | 2315 | 4384 | 5480 | 2894 | 5480 | 3473 | 6576 | |
| LP-040B-BB-DA | 5025 | 2659 | 5025 | 5754 | 3039 | 5754 | 7193 | 3798 | 7193 | 4558 | 8631 | |
| LP-060-BB-DA | 6039 | 3189 | 6039 | 6902 | 3644 | 6902 | 8627 | 4556 | 8627 | 5458 | 10311 | |
| LP-070-BB-DA | 7193 | 3798 | 7193 | 8220 | 4341 | 8220 | 10275 | 5426 | 10275 | 6511 | 12330 | |
| LP-080-BB-DA | 9440 | 4985 | 9440 | 10789 | 5697 | 10789 | 13486 | 7122 | 13486 | 8546 | 16184 | |
| LP-090-BB-DA | 11988 | 6330 | 11988 | 13700 | 7235 | 13700 | 17126 | 9043 | 17126 | 10943 | 20625 | |
| LP-100-BB-DA | 14306 | 7555 | 14306 | 16560 | 8634 | 16560 | 20438 | 10792 | 20438 | 12951 | 24525 | |
| LP-100B-BB-DA | 17723 | 9159 | 17723 | 20255 | 10696 | 20255 | 25318 | 13069 | 25318 | 16043 | 30382 | |
| LP-120-BB-DA | 22297 | 11774 | 22297 | 25483 | 13456 | 25483 | 31854 | 16820 | 31854 | 20184 | 38224 | |
| LP-130-BB-DA | 25635 | 13537 | 25635 | 29297 | 15470 | 29297 | 36621 | 19338 | 36621 | 23184 | 43624 | |
| LP-140-BB-DA | 30797 | 16263 | 30797 | 35197 | 18586 | 35197 | 43996 | 23232 | 43996 | 27879 | 52786 | |
| LP-150-BB-DA | 33986 | 17946 | 33986 | 38841 | 20510 | 38841 | 48552 | 25638 | 48552 | 30765 | 58262 | |
| LP-160-BB-DA | 42584 | 22487 | 42584 | 48668 | 25699 | 48668 | 60835 | 32124 | 60835 | 37652 | 71262 | |
| LP-170-BB-DA | 42031 | 22195 | 42031 | 48036 | 25036 | 48036 | 60044 | 31707 | 60044 | 37044 | 70444 | |
| LP-180-BB-DA | 53576 | 28291 | 53576 | 61230 | 32332 | 61230 | 76230 | 39621 | 76230 | 47621 | 90230 | |
| LP-190-BB-DA | 54993 | 29639 | 54993 | 62849 | 33188 | 62849 | 78249 | 40621 | 78249 | 48621 | 92249 | |
| LP-200-BB-DA | 54039 | 28614 | 54039 | 57599 | 30416 | 57599 | 71999 | 38019 | 71999 | 45623 | 86399 | |
| LP-210-BB-DA | 61445 | 33872 | 61445 | 73308 | 38711 | 73308 | 91635 | 48388 | 91635 | 58066 | 109843 | |
| LP-200B-BB-DA | 65984 | 36463 | 65984 | 79410 | 41237 | 79410 | 99283 | 49776 | 99283 | 61115 | 119115 | |
| LP-220-BB-DA | 73786 | 39863 | 73786 | 84327 | 44529 | 84327 | 105709 | 55661 | 105709 | 66794 | 126491 | |
| LP-240-BB-DA | 81454 | 43012 | 81454 | 93090 | 49156 | 93090 | 116362 | 61466 | 116362 | 73466 | 139466 | |
| LP-250-BB-DA | 83646 | 44169 | 83646 | 95585 | 50479 | 95585 | 119494 | 63099 | 119494 | 75494 | 143494 | |
| LP-260-BB-DA | 100799 | 53227 | 100799 | 115199 | 60831 | 115199 | 141599 | 75199 | 141599 | 88199 | 171599 | |
| LP-270-BB-DA | 103386 | 54593 | 103386 | 118155 | 62392 | 118155 | 145155 | 76392 | 145155 | 89392 | 175155 | |
| LP-290-BB-DA | 112390 | 59348 | 112390 | 128446 | 67826 | 128446 | 160558 | 84783 | 160558 | 101740 | 192669 | |
| LP-300-BB-DA | 133271 | 71430 | 133271 | 154596 | 81635 | 154596 | 193245 | 102043 | 193245 | 122462 | 231894 | |
| LP-320-BB-DA | 138964 | 73380 | 138964 | 158816 | 83863 | 158816 | 198519 | 104629 | 198519 | 125795 | 238223 | |
| LP-330-BB-DA | 177229 | 93386 | 177229 | 209547 | 106956 | 209547 | 253184 | 130895 | 253184 | 153823 | 298223 | |
| LP-350-BB-DA | 224781 | 118896 | 224781 | 259893 | 135653 | 259893 | 325893 | 165653 | 325893 | 195653 | 375893 | |

Output Torque of LP-CC Series Double Acting Actuator
LP-CC 系列气动执行器
双作用输出扭矩



| Model 型号 | Output Torque 输出扭矩 (Nm) | | | | | | Air Pressure 气压 (kPa) | | | | | |
|--------------|-------------------------|-------|--------|--------|--------|--------|-----------------------|--------|--------|--------|--------|--|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0.3 | 0.4 | 0.5 | 0.6 | | |
| LP-010-CC-DA | 1523 | 663 | 1068 | 1741 | 758 | 1220 | 2176 | 948 | 1525 | 1135 | 2063 | |
| LP-020-CC-DA | 2400 | 1045 | 1682 | 2743 | 1194 | 1922 | 3428 | 1493 | 2403 | 1772 | 2883 | |
| LP-030-CC-DA | 3118 | 1358 | 2185 | 3564 | 1552 | 2498 | 4455 | 1940 | 3122 | 2283 | 3783 | |
| LP-040-CC-DA | 4603 | 2005 | 3226 | 5261 | 2291 | 3687 | 6576 | 2864 | 4609 | 3406 | 5531 | |
| LP-050-CC-DA | 6042 | 2631 | 4234 | 6905 | 3007 | 4839 | 8631 | 3739 | 6049 | 4406 | 7031 | |
| LP-070-CC-DA | 8631 | 3759 | 6049 | 9864 | 4296 | 6913 | 12330 | 5369 | 8642 | 6443 | 10370 | |
| LP-080-CC-DA | 11239 | 4933 | 7939 | 12947 | 5638 | 9074 | 16184 | 7047 | 11242 | 8457 | 13610 | |
| LP-090-CC-DA | 14385 | 6264 | 10082 | 16441 | 7159 | 11522 | 20625 | 8831 | 14385 | 10625 | 17625 | |
| LP-100-CC-DA | 17168 | 7476 | 12032 | 19620 | 8544 | 13750 | 24525 | 10680 | 17168 | 12840 | 20625 | |
| LP-110-CC-DA | 21267 | 9261 | 14905 | 24306 | 10594 | 17034 | 30382 | 13200 | 21267 | 15382 | 25382 | |
| LP-120-CC-DA | 26757 | 11652 | 18752 | 30579 | 13316 | 21431 | 37621 | 16230 | 26757 | 19621 | 31621 | |
| LP-130-CC-DA | 32146 | 13998 | 22529 | 36738 | 15998 | 25747 | 45922 | 19997 | 32146 | 23146 | 38216 | |
| LP-140-CC-DA | 36957 | 16093 | 25901 | 42237 | 18392 | 29601 | 52796 | 22990 | 36957 | 27001 | 43555 | |
| LP-150-CC-DA | 40783 | 17760 | 28382 | 46610 | 20297 | 32866 | 58262 | 25371 | 40783 | 29862 | 47262 | |
| LP-170-CC-DA | 50437 | 21963 | 35348 | 57643 | 25101 | 40398 | 71621 | 31621 | 50437 | 36621 | 56621 | |
| LP-200-CC-DA | 60479 | 26336 | 42386 | 69119 | 30099 | 48441 | 86399 | 37623 | 60479 | 43623 | 66399 | |
| LP-210-CC-DA | 76974 | 33319 | 53946 | 87970 | 38307 | 61652 | 109983 | 47884 | 76974 | 55883 | 81883 | |
| LP-220-CC-DA | 79181 | 34480 | 55492 | 90492 | 39406 | 63420 | 113115 | 49257 | 79181 | 57109 | 83120 | |
| LP-230-CC-DA | 85844 | 36557 | 62054 | 101183 | 44085 | 70919 | 126491 | 55082 | 85844 | 61491 | 88491 | |
| LP-240-CC-DA | 97744 | 42564 | 68503 | 111708 | 48644 | 78289 | 141599 | 61466 | 97744 | 68466 | 100466 | |
| LP-250-CC-DA | 100375 | 43709 | 70346 | 114714 | 49954 | 80396 | 145155 | 62392 | 100375 | 69392 | 103392 | |
| LP-270-CC-DA | 106337 | 46306 | 74535 | 121528 | 52921 | 85171 | 151911 | 66151 | 106337 | 73881 | 107757 | |
| LP-290-CC-DA | 134669 | 58730 | 94520 | 154136 | 67120 | 108023 | 192669 | 83900 | 134669 | 96290 | 130680 | |
| LP-300-CC-DA | 162326 | 70666 | 113763 | 185515 | 80784 | 130015 | 231894 | 100881 | 162326 | 116219 | 150223 | |
| LP-320-CC-DA | 166756 | 72616 | 116688 | 190579 | 82989 | 133564 | 238223 | 103737 | 166756 | 118855 | 153855 | |
| LP-330-CC-DA | 216715 | 92611 | 149050 | 240857 | 105842 | 170312 | 298223 | 130895 | 216715 | 153895 | 203895 | |

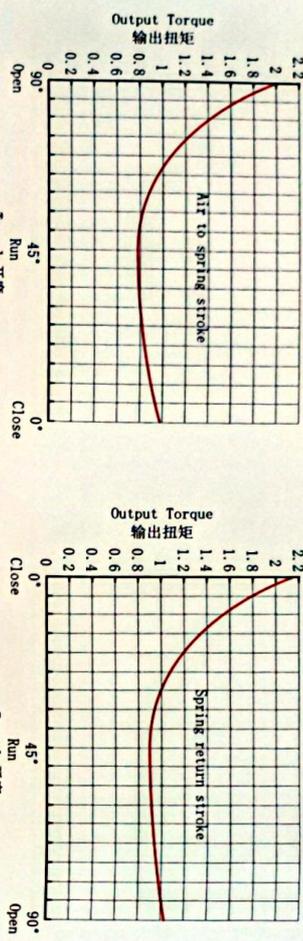
Output Torque of LP-BB Series Actuator with Spring Return (FC)



| Model 型号 | Air to Spring (0bar) | | | Spring | | | Air to Spring (5bar) | | | Spring | | | Air to Spring (0bar) | | | Spring | | |
|----------------|----------------------|------|------|--------|------|------|----------------------|------|------|--------|------|------|----------------------|------|------|--------|------|------|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° |
| LP-004-BB-S0C4 | 269 | 105 | 125 | 292 | 110 | 148 | 373 | 160 | 230 | 292 | 110 | 148 | 478 | 213 | 334 | 292 | 110 | 148 |
| LP-004-BB-S0C5 | | | | | | | 336 | 132 | 160 | 362 | 137 | 186 | 441 | 196 | 284 | 362 | 137 | 186 |
| LP-004-BB-S0C6 | | | | | | | | | | 404 | 158 | 188 | 438 | 165 | 222 | | | |
| LP-008-BB-S0C4 | 511 | 199 | 241 | 549 | 207 | 279 | 710 | 300 | 440 | 549 | 207 | 279 | 907 | 401 | 638 | 549 | 207 | 279 |
| LP-008-BB-S0C5 | | | | | | | 640 | 248 | 306 | 683 | 258 | 349 | 838 | 349 | 504 | 683 | 258 | 349 |
| LP-008-BB-S0C6 | | | | | | | | | | 769 | 298 | 365 | 822 | 310 | 418 | | | |
| LP-010-BB-S0C4 | 934 | 383 | 549 | 902 | 383 | 517 | 1296 | 575 | 911 | 902 | 383 | 517 | 1659 | 766 | 1274 | 902 | 383 | 517 |
| LP-010-BB-S0C5 | | | | | | | 1167 | 479 | 686 | 1128 | 479 | 646 | 1530 | 670 | 1049 | 1128 | 479 | 646 |
| LP-010-BB-S0C6 | | | | | | | | | | 1391 | 567 | 806 | 1370 | 582 | 785 | | | |
| LP-020-BB-S0C4 | 1116 | 432 | 635 | 1128 | 479 | 646 | 1557 | 685 | 1076 | 1128 | 479 | 646 | 1997 | 917 | 1516 | 1128 | 479 | 646 |
| LP-020-BB-S0C5 | | | | | | | 1418 | 582 | 833 | 1370 | 582 | 785 | 1858 | 814 | 1274 | 1370 | 582 | 785 |
| LP-020-BB-S0C6 | | | | | | | | | | 1701 | 698 | 1000 | 1644 | 698 | 942 | | | |
| LP-030-BB-S0C4 | 1449 | 587 | 834 | 1452 | 620 | 837 | 2020 | 889 | 1405 | 1452 | 620 | 837 | 2591 | 1190 | 1976 | 1452 | 620 | 837 |
| LP-030-BB-S0C5 | | | | | | | 1830 | 748 | 1075 | 1782 | 761 | 1027 | 2401 | 1049 | 1646 | 1782 | 761 | 1027 |
| LP-030-BB-S0C6 | | | | | | | | | | 2132 | 850 | 1180 | 2248 | 1180 | 1296 | | | |
| LP-040-BB-S0C4 | 1943 | 807 | 1188 | 1782 | 761 | 1027 | 2685 | 1199 | 1930 | 1782 | 761 | 1027 | 3428 | 1591 | 2673 | 1782 | 761 | 1027 |
| LP-040-BB-S0C5 | | | | | | | 2416 | 1000 | 1464 | 2248 | 960 | 1296 | 3159 | 1392 | 2207 | 2248 | 960 | 1296 |
| LP-040-BB-S0C6 | | | | | | | | | | 2828 | 1147 | 1633 | 2822 | 1205 | 1627 | | | |
| LP-050-BB-S0C4 | 2445 | 1016 | 1493 | 2248 | 960 | 1296 | 3381 | 1509 | 2429 | 2248 | 960 | 1296 | 4316 | 2003 | 3364 | 2248 | 960 | 1296 |
| LP-050-BB-S0C5 | | | | | | | 3050 | 1264 | 1855 | 2822 | 1205 | 1627 | 3965 | 1758 | 2790 | 2822 | 1205 | 1627 |
| LP-050-BB-S0C6 | | | | | | | | | | 3612 | 1481 | 2142 | 3470 | 1482 | 2000 | | | |
| LP-060-BB-S0C4 | 2821 | 1157 | 1670 | 2714 | 1158 | 1563 | 3917 | 1736 | 2766 | 2714 | 1158 | 1563 | 5013 | 2315 | 3862 | 2714 | 1158 | 1563 |
| LP-060-BB-S0C5 | | | | | | | 3478 | 1411 | 2004 | 3476 | 1483 | 2002 | 4574 | 1990 | 3100 | 3476 | 1483 | 2002 |
| LP-060-BB-S0C6 | | | | | | | | | | 4116 | 1651 | 2305 | 4271 | 1822 | 2460 | | | |
| LP-060-BB-S0C4 | 3752 | 1556 | 2278 | 3476 | 1483 | 2002 | 5191 | 2315 | 3717 | 3476 | 1483 | 2002 | 6629 | 3075 | 5155 | 3476 | 1483 | 2002 |
| LP-060-BB-S0C5 | | | | | | | 4733 | 1976 | 2822 | 4271 | 1822 | 2460 | 6171 | 2736 | 4360 | 4271 | 1822 | 2460 |
| LP-060-BB-S0C6 | | | | | | | | | | 5408 | 2171 | 3034 | 5597 | 2387 | 3223 | | | |
| LP-070-BB-S0C4 | 4442 | 1822 | 2631 | 4271 | 1822 | 2460 | 6167 | 2734 | 4356 | 4271 | 1822 | 2460 | 7892 | 3645 | 6081 | 4271 | 1822 | 2460 |
| LP-070-BB-S0C5 | | | | | | | 5404 | 2169 | 3030 | 5597 | 2387 | 3223 | 7129 | 3080 | 4755 | 5597 | 2387 | 3223 |
| LP-070-BB-S0C6 | | | | | | | | | | 6323 | 2483 | 3356 | 6966 | 2964 | 4029 | | | |

| Model 型号 | Air to Spring (0bar) | | | Spring | | | Air to Spring (5bar) | | | Spring | | | Air to Spring (0bar) | | | Spring | | |
|----------------|----------------------|-------|-------|--------|-------|-------|----------------------|-------|-------|--------|-------|-------|----------------------|-------|-------|--------|-------|-------|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° |
| LP-075-BB-S0C4 | 5819 | 2188 | 3145 | 5597 | 2187 | 3223 | 7080 | 3087 | 5796 | 5597 | 2187 | 3223 | 9080 | 4175 | 7086 | 5597 | 2187 | 3223 |
| LP-075-BB-S0C5 | | | | | | | 7274 | 2985 | 4707 | 6996 | 2984 | 4079 | 8779 | 3841 | 5188 | 6996 | 2984 | 4079 |
| LP-075-BB-S0C6 | | | | | | | | | | | | | | | | | | |
| LP-080-BB-S0C4 | 6943 | 2818 | 4110 | 6679 | 2849 | 3816 | 9640 | 4273 | 6987 | 6679 | 2849 | 3816 | 12243 | 5487 | 9085 | 6679 | 2849 | 3816 |
| LP-080-BB-S0C5 | | | | | | | 8601 | 3566 | 5905 | 8481 | 3612 | 4983 | 11021 | 6029 | 7703 | 8481 | 3612 | 4983 |
| LP-080-BB-S0C6 | | | | | | | | | | 10999 | 4074 | 5597 | 10902 | 4522 | 5794 | | | |
| LP-090-BB-S0C4 | 8817 | 3618 | 5219 | 8481 | 3617 | 4983 | 12243 | 5476 | 9645 | 8481 | 3617 | 4983 | 15848 | 7235 | 12079 | 8481 | 3617 | 4983 |
| LP-090-BB-S0C5 | | | | | | | 11022 | 4521 | 6834 | 10902 | 4522 | 6104 | 14487 | 6739 | 9449 | 10902 | 4522 | 6104 |
| LP-090-BB-S0C6 | | | | | | | | | | 13276 | 5476 | 7679 | 13276 | 5476 | 7679 | | | |
| LP-100-BB-S0C4 | 10522 | 4317 | 6232 | 10118 | 4317 | 5829 | 14810 | 6475 | 10320 | 10118 | 4317 | 5829 | 18697 | 8834 | 14487 | 10118 | 4317 | 5829 |
| LP-100-BB-S0C5 | | | | | | | 13186 | 5470 | 7847 | 12591 | 5772 | 7322 | 17273 | 7579 | 11534 | 12591 | 5772 | 7322 |
| LP-100-BB-S0C6 | | | | | | | | | | 15008 | 6736 | 8837 | 15008 | 6736 | 8837 | | | |
| LP-110-BB-S0C4 | 13003 | 5324 | 7664 | 12391 | 5372 | 7252 | 18066 | 7997 | 12727 | 12391 | 5372 | 7252 | 23730 | 10871 | 17791 | 12391 | 5372 | 7252 |
| LP-110-BB-S0C5 | | | | | | | 16293 | 6844 | 9630 | 15688 | 6845 | 9025 | 21357 | 9758 | 14714 | 15688 | 6845 | 9025 |
| LP-110-BB-S0C6 | | | | | | | | | | 19028 | 7633 | 10871 | 19028 | 7633 | 10871 | | | |
| LP-120-BB-S0C4 | 16458 | 6771 | 9815 | 15668 | 6685 | 9025 | 22829 | 10135 | 16186 | 15668 | 6685 | 9025 | 30199 | 13469 | 22036 | 15668 | 6685 | 9025 |
| LP-120-BB-S0C5 | | | | | | | 20500 | 8410 | 12143 | 19711 | 8410 | 11354 | 26873 | 11774 | 18513 | 19711 | 8410 | 11354 |
| LP-120-BB-S0C6 | | | | | | | | | | 24609 | 10982 | 14579 | 24609 | 10982 | 14579 | | | |
| LP-140-BB-S0C4 | 20977 | 8662 | 12619 | 19711 | 8410 | 11354 | 29059 | 12930 | 20702 | 19711 | 8410 | 11354 | 37142 | 17198 | 28784 | 19711 | 8410 | 11354 |
| LP-140-BB-S0C5 | | | | | | | 26788 | 11248 | 16759 | 23654 | 10982 | 13824 | 34871 | 15516 | 23842 | 23654 | 10982 | 13824 |
| LP-140-BB-S0C6 | | | | | | | | | | 31210 | 12984 | 18486 | 31210 | 12984 | 18486 | | | |
| LP-160-BB-S0C4 | 24997 | 10255 | 14784 | 24057 | 10255 | 13844 | 34708 | 15383 | 24485 | 24057 | 10255 | 13844 | 44418 | 20510 | 34025 | 24057 | 10255 | 13844 |
| LP-160-BB-S0C5 | | | | | | | 31246 | 12819 | 18481 | 30071 | 12819 | 17208 | 40959 | 17946 | 28131 | 30071 | 12819 | 17208 |
| LP-160-BB-S0C6 | | | | | | | | | | 35860 | 14171 | 19025 | 35860 | 14171 | 19025 | | | |
| LP-180-BB-S0C4 | 30730 | 12546 | 17964 | 30071 | 12819 | 17208 | 42739 | 18888 | 29973 | 30071 | 12819 | 17208 | 54748 | 25229 | 39071 | 12819 | 17208 | |
| LP-180-BB-S0C5 | | | | | | | 37643 | 15113 | 21118 | 33927 | 16594 | 22402 | 49851 | 21464 | 31126 | 33927 | 16594 | 22402 |
| LP-180-BB-S0C6 | | | | | | | | | | 44062 | 17206 | 22296 | 44062 | 17206 | 22296 | | | |
| LP-200-BB-S0C4 | 40447 | 16594 | 23922 | 38927 | 16594 | 22402 | 50660 | 24743 | 29904 | 48657 | 20742 | 28002 | 65871 | 24881 | 35884 | 48657 | 20742 | 28002 |
| LP-200-BB-S0C5 | | | | | | | 48531 | 19910 | 28703 | 46707 | 19910 | 26879 | 61934 | 29865 | 47556 | 46707 | 19910 | 26879 |
| LP-200-BB-S0C6 | | | | | | | | | | 60189 | 24536 | 33654 | 59209 | 35240 | 34074 | 70641 | 34481 | 32086 |
| LP-220-BB-S0C4 | 49831 | 19910 | 28703 | 46707 | 19910 | 26879 | 61934 | 29865 | 47556 | 46707 | 19910 | 26879 | 82628 | 39620 | 66408 | 46707 | 19910 | 26879 |
| LP-220-BB-S0C5 | | | | | | | 60189 | 24536 | 33654 | 59209 | 35240 | 34074 | 70641 | 34481 | 32086 | 59209 | 35240 | 34074 |
| LP-220-BB-S0C6 | | | | | | | | | | 70623 | 24181 | 31194 | 74611 | 31530 | 42982 | | | |
| LP-240-BB-S0C4 | 61522 | 25240 | 36587 | 59209 | 25240 | 34074 | 85842 | 37860 | 60285 | 59209 | 25240 | 34074 | 109319 | 50479 | 94184 | 59209 | 25240 | 34074 |
| LP-240-BB-S0C5 | | | | </ | | | | | | | | | | | | | | |

Output Torque of LP-BB Series Actuator with Spring Return (FO)
LP-BB系列气动执行器单作用输出扭矩 (FO)

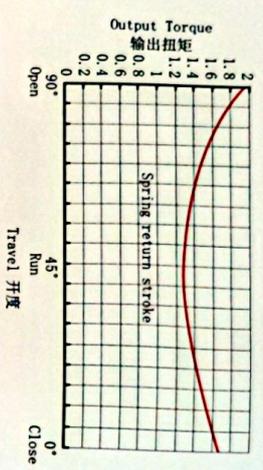
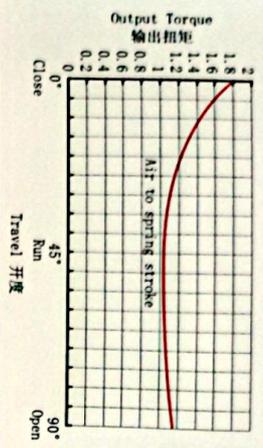


| Model 型号 | Air to Spring (FO) | | | Spring | | | Air to Spring (FO) | | | Spring | | | Air to Spring (FO) | | | Spring | | |
|----------------|--------------------|------|------|--------|------|------|--------------------|------|------|--------|------|------|--------------------|------|------|--------|------|------|
| | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° |
| LP-004-BB-S004 | 269 | 105 | 125 | 292 | 110 | 148 | 373 | 160 | 230 | 292 | 110 | 148 | 478 | 213 | 334 | 292 | 110 | 148 |
| LP-004-BB-S005 | | | | | | | 336 | 132 | 160 | 362 | 137 | 186 | 440 | 186 | 264 | 362 | 137 | 186 |
| LP-004-BB-S006 | | | | | | | 404 | 158 | 188 | 438 | 165 | 222 | | | | | | |
| LP-008-BB-S004 | 511 | 199 | 241 | 549 | 207 | 279 | 710 | 300 | 440 | 549 | 207 | 279 | 907 | 401 | 638 | 549 | 207 | 279 |
| LP-008-BB-S005 | | | | | | | 640 | 248 | 306 | 683 | 258 | 349 | 838 | 349 | 504 | 683 | 258 | 349 |
| LP-008-BB-S006 | | | | | | | | | | | | | 769 | 298 | 365 | 822 | 310 | 418 |
| LP-010-BB-S004 | 934 | 383 | 549 | 902 | 383 | 517 | 1296 | 575 | 911 | 902 | 383 | 517 | 1659 | 766 | 1274 | 902 | 383 | 517 |
| LP-010-BB-S005 | | | | | | | 1167 | 479 | 686 | 1128 | 479 | 646 | 1530 | 670 | 1049 | 1128 | 479 | 646 |
| LP-010-BB-S006 | | | | | | | | | | | | | 1391 | 567 | 806 | 1370 | 582 | 785 |
| LP-012-BB-S004 | 1116 | 452 | 635 | 1128 | 479 | 646 | 1557 | 685 | 1076 | 1128 | 479 | 646 | 1997 | 917 | 1516 | 1128 | 479 | 646 |
| LP-012-BB-S005 | | | | | | | 1418 | 582 | 833 | 1370 | 582 | 785 | 1858 | 814 | 1274 | 1370 | 582 | 785 |
| LP-012-BB-S006 | | | | | | | | | | | | | 1701 | 688 | 1000 | 1644 | 698 | 942 |
| LP-016-BB-S004 | 1449 | 587 | 834 | 1452 | 620 | 837 | 2020 | 889 | 1405 | 1452 | 620 | 837 | 2591 | 1190 | 1976 | 1452 | 620 | 837 |
| LP-016-BB-S005 | | | | | | | 1830 | 748 | 1075 | 1782 | 761 | 1027 | 2401 | 1049 | 1646 | 1782 | 761 | 1027 |
| LP-016-BB-S006 | | | | | | | | | | | | | 2132 | 850 | 1180 | 2248 | 960 | 1296 |
| LP-020-BB-S004 | 1943 | 807 | 1188 | 1782 | 761 | 1027 | 2886 | 1199 | 1930 | 1782 | 761 | 1027 | 3428 | 1591 | 2673 | 1782 | 761 | 1027 |
| LP-020-BB-S005 | | | | | | | 2416 | 1000 | 1464 | 2248 | 960 | 1296 | 3159 | 1392 | 2207 | 2248 | 960 | 1296 |
| LP-020-BB-S006 | | | | | | | | | | | | | 2828 | 1147 | 1633 | 2822 | 1205 | 1627 |
| LP-024-BB-S004 | 2445 | 1016 | 1493 | 2248 | 960 | 1296 | 3381 | 1509 | 2429 | 2248 | 960 | 1296 | 4316 | 2003 | 3364 | 2248 | 960 | 1296 |
| LP-024-BB-S005 | | | | | | | 3050 | 1264 | 1855 | 2822 | 1205 | 1627 | 3815 | 1758 | 2790 | 2822 | 1205 | 1627 |
| LP-024-BB-S006 | | | | | | | | | | | | | 3612 | 1481 | 2142 | 3470 | 1482 | 2000 |
| LP-028-BB-S004 | 2821 | 1157 | 1670 | 2714 | 1158 | 1563 | 3917 | 1736 | 2756 | 2714 | 1158 | 1563 | 5013 | 2315 | 3862 | 2714 | 1158 | 1563 |
| LP-028-BB-S005 | | | | | | | 3478 | 1411 | 2004 | 3476 | 1483 | 2002 | 4574 | 1990 | 3100 | 3476 | 1483 | 2002 |
| LP-028-BB-S006 | | | | | | | | | | | | | 4116 | 1651 | 2305 | 4271 | 1822 | 2460 |
| LP-032-BB-S004 | 3752 | 1556 | 2278 | 3476 | 1483 | 2002 | 5191 | 2315 | 3717 | 3476 | 1483 | 2002 | 6629 | 3075 | 5155 | 3476 | 1483 | 2002 |
| LP-032-BB-S005 | | | | | | | 4733 | 1976 | 2922 | 4271 | 1822 | 2460 | 6171 | 2736 | 4360 | 4271 | 1822 | 2460 |
| LP-032-BB-S006 | | | | | | | | | | | | | 5408 | 2171 | 3034 | 5397 | 2387 | 3223 |
| LP-036-BB-S004 | 4442 | 1822 | 2631 | 4271 | 1822 | 2460 | 6167 | 2734 | 4356 | 4271 | 1822 | 2460 | 7892 | 3645 | 6081 | 4271 | 1822 | 2460 |
| LP-036-BB-S005 | | | | | | | 5404 | 2169 | 3030 | 5397 | 2387 | 3223 | 7129 | 3080 | 4755 | 5397 | 2387 | 3223 |
| LP-036-BB-S006 | | | | | | | | | | | | | 6233 | 2483 | 3356 | 6996 | 2984 | 4029 |

Output Torque of LP-BB Series Actuator with Spring Return (FO)

| Model 型号 | Air to Spring (FO) | | | Spring | | | Air to Spring (FO) | | | Spring | | | Air to Spring (FO) | | | Spring | | |
|----------------|--------------------|-------|-------|--------|-------|-------|--------------------|-------|-------|--------|-------|-------|--------------------|-------|-------|--------|-------|-------|
| | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° | 90° | 45° | 0° |
| LP-075-BB-S004 | 5819 | 2388 | 3445 | 5597 | 2387 | 3223 | 8090 | 3582 | 5706 | 5597 | 2387 | 3223 | 10340 | 4775 | 7946 | 5597 | 2387 | 3223 |
| LP-075-BB-S005 | | | | | | | 7274 | 2985 | 4307 | 6996 | 2984 | 4029 | 9534 | 4178 | 6967 | 6996 | 2984 | 4029 |
| LP-075-BB-S006 | | | | | | | | | | | | | 8729 | 3341 | 5168 | 8395 | 3341 | 4634 |
| LP-080-BB-S004 | 6913 | 2848 | 4110 | 6679 | 2849 | 3846 | 9640 | 4273 | 6097 | 6679 | 2849 | 3846 | 12339 | 5697 | 9205 | 6679 | 2849 | 3846 |
| LP-080-BB-S005 | | | | | | | 8603 | 3505 | 5005 | 8481 | 3617 | 4883 | 11301 | 4929 | 7703 | 8481 | 3617 | 4883 |
| LP-080-BB-S006 | | | | | | | | | | | | | 10960 | 4024 | 5582 | 10602 | 4222 | 6104 |
| LP-090-BB-S004 | 8817 | 3618 | 5219 | 8481 | 3617 | 4883 | 12243 | 5426 | 8645 | 8481 | 3617 | 4883 | 15668 | 7255 | 12070 | 8481 | 3617 | 4883 |
| LP-090-BB-S005 | | | | | | | 11022 | 4521 | 6524 | 10682 | 4522 | 6104 | 14447 | 6120 | 9949 | 10682 | 4522 | 6104 |
| LP-090-BB-S006 | | | | | | | | | | | | | 13226 | 5426 | 7829 | 12722 | 5426 | 7323 |
| LP-100-BB-S004 | 10522 | 4317 | 6232 | 10118 | 4317 | 5828 | 14610 | 6475 | 10320 | 10118 | 4317 | 5828 | 18697 | 8634 | 14407 | 10118 | 4317 | 5828 |
| LP-100-BB-S005 | | | | | | | 13186 | 5420 | 7947 | 12591 | 5372 | 7282 | 17723 | 7579 | 11924 | 12591 | 5372 | 7282 |
| LP-100-BB-S006 | | | | | | | | | | | | | 15500 | 6296 | 8657 | 15688 | 6695 | 9205 |
| LP-110-BB-S004 | 13003 | 5324 | 7664 | 12591 | 5372 | 7282 | 18066 | 7997 | 12727 | 12591 | 5372 | 7282 | 23130 | 10671 | 17791 | 12591 | 5372 | 7282 |
| LP-110-BB-S005 | | | | | | | 16293 | 6684 | 9650 | 15688 | 6685 | 9205 | 21357 | 9328 | 14714 | 15688 | 6685 | 9205 |
| LP-110-BB-S006 | | | | | | | | | | | | | 19028 | 7633 | 10671 | 19711 | 8410 | 11354 |
| LP-120-BB-S004 | 16458 | 6771 | 9815 | 15668 | 6685 | 9205 | 22829 | 10135 | 16186 | 15668 | 6685 | 9205 | 29199 | 13499 | 22556 | 15668 | 6685 | 9205 |
| LP-120-BB-S005 | | | | | | | 20290 | 8410 | 12143 | 19711 | 8410 | 11354 | 26870 | 11774 | 18613 | 19711 | 8410 | 11354 |
| LP-120-BB-S006 | | | | | | | | | | | | | 24600 | 10092 | 14570 | 23654 | 10992 | 13924 |
| LP-140-BB-S004 | 20977 | 8662 | 12619 | 19711 | 8410 | 11354 | 28659 | 12930 | 20702 | 19711 | 8410 | 11354 | 37142 | 17198 | 28794 | 19711 | 8410 | 11354 |
| LP-140-BB-S005 | | | | | | | 26788 | 11248 | 16759 | 23654 | 10992 | 13924 | 34671 | 15516 | 24842 | 23654 | 10992 | 13924 |
| LP-140-BB-S006 | | | | | | | | | | | | | 31210 | 12804 | 18466 | 30010 | 12604 | 17286 |
| LP-160-BB-S004 | 24997 | 10255 | 14784 | 24057 | 10255 | 13844 | 34708 | 15383 | 24495 | 24057 | 10255 | 13844 | 44418 | 20510 | 34205 | 24057 | 10255 | 13844 |
| LP-160-BB-S005 | | | | | | | 31246 | 12819 | 18481 | 30071 | 12819 | 17206 | 40566 | 17346 | 28191 | 30071 | 12819 | 17206 |
| LP-160-BB-S006 | | | | | | | | | | | | | 35860 | 14171 | 19325 | 39827 | 16594 | 22402 |
| LP-180-BB-S004 | 30730 | 12546 | 17964 | 30071 | 12819 | 17206 | 42779 | 18888 | 29973 | 30071 | 12819 | 17206 | 54748 | 25229 | 41992 | 30071 | 12819 | 17206 |
| LP-180-BB-S005 | | | | | | | 37643 | 15113 | 21118 | 39827 | 16594 | 22402 | 48651 | 21454 | 30126 | 39827 | 16594 | 22402 |
| LP-180-BB-S006 | | | | | | | | | | | | | 44682 | 17396 | 23396 | 46657 | 20742 | 28002 |
| LP-200-BB-S004 | 40447 | 16594 | 23822 | 39827 | 16594 | 22402 | 56160 | 24891 | 39635 | 39827 | 16594 | 22402 | 71872 | 30188 | 53347 | 39827 | 16594 | 22402 |
| LP-200-BB-S005 | | | | | | | 50560 | 20743 | 29904 | 48657 | 20742 | 28002 | 66272 | 29040 | 45616 | 48657 | 20742 | 28002 |
| LP-200-BB-S006 | | | | | | | | | | | | | 60671 | 24891 | 35884 | 60290 | 24891 | 33623 |
| LP-220-BB-S004 | 48531 | 19910 | 28703 | 46707 | 19910 | 26879 | 67284 | 29865 | 47556 | 46707 | 19910 | 26879 | 86236 | 39820 | 66408 | 46707 | 19910 | 26879 |
| LP-220-BB-S005 | | | | | | | 60189 | 24536 | 35654 | 59209 | 25240 | 34074 | 79441 | 34491 | 53906 | 59209 | 25240 | 34074 |
| LP-220-BB-S006 | | | | | | | | | | | | | 70623 | 28181 | 39104 | 74011 | 31550 | 42592 |
| LP-240-BB-S004 | 61522 | 25240 | 36387 | 59209 | 25240 | 34074 | 85421 | 37860 | 60285 | 59209 | 25240 | 34074 | 109319 | 50479 | 84154 | 59209 | 25240 | 34074 |
| LP-240-BB-S005 | | | | | | | 76902 | 31550 | 45463 | 74011 | 31550 | 42592 | | | | | | |

Output Torque of LP-CC Series Actuator with Spring Return (FC)
LP-CC 系列气动执行器单作用输出扭矩 (FC)

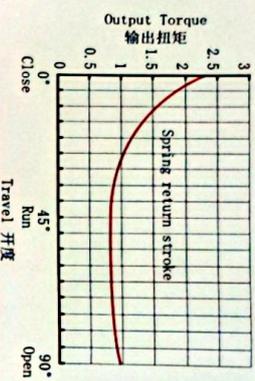
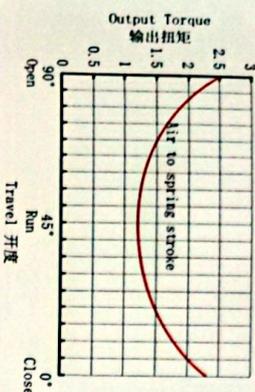


| Model 型号 | Air to Spring (Bar) | | | Spring | | | Air to Spring (Bar) | | | Spring | | |
|--------------|---------------------|------|------|--------|------|------|---------------------|------|------|--------|------|------|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° |
| LP-08-CC-SR1 | 870 | 279 | 305 | 915 | 479 | 570 | 1306 | 468 | 610 | 915 | 479 | 570 |
| LP-08-CC-SR5 | | | | | | | 1088 | 348 | 381 | 1144 | 599 | 1088 |
| LP-08-CC-SR6 | | | | | | | | | | 1290 | 409 | 440 |
| LP-08-CC-SR1 | 1027 | 322 | 338 | 1144 | 599 | 1088 | 1556 | 52 | 708 | 1144 | 599 | 1088 |
| LP-08-CC-SR5 | | | | | | | 1322 | 423 | 463 | 1390 | 728 | 1322 |
| LP-08-CC-SR6 | | | | | | | | | | 1586 | 508 | 555 |
| LP-10-CC-SR1 | 1331 | 427 | 460 | 1462 | 768 | 1390 | 2038 | 725 | 941 | 1462 | 768 | 1390 |
| LP-10-CC-SR5 | | | | | | | 1680 | 527 | 564 | 1838 | 966 | 1748 |
| LP-10-CC-SR6 | | | | | | | | | | 1887 | 561 | 541 |
| LP-10-CC-SR1 | 1816 | 586 | 639 | 1838 | 966 | 1748 | 2707 | 974 | 1284 | 1838 | 966 | 1748 |
| LP-10-CC-SR5 | | | | | | | 2227 | 710 | 780 | 2342 | 1230 | 2227 |
| LP-10-CC-SR6 | | | | | | | | | | 2606 | 814 | 865 |
| LP-13-CC-SR1 | 2262 | 725 | 804 | 2342 | 1230 | 2227 | 3385 | 1213 | 1591 | 2342 | 1230 | 2227 |
| LP-13-CC-SR5 | | | | | | | 2872 | 930 | 1051 | 2882 | 1513 | 2740 |
| LP-13-CC-SR6 | | | | | | | | | | 3367 | 1073 | 1179 |
| LP-16-CC-SR1 | 2630 | 839 | 921 | 2766 | 1452 | 2630 | 3946 | 1411 | 1842 | 2766 | 1452 | 2630 |
| LP-16-CC-SR5 | | | | | | | 3206 | 1003 | 1065 | 3544 | 1861 | 3370 |
| LP-16-CC-SR6 | | | | | | | | | | 3750 | 1150 | 1176 |
| LP-16-CC-SR1 | 3535 | 1146 | 1295 | 3544 | 1861 | 3370 | 5261 | 1898 | 2505 | 3544 | 1861 | 3370 |
| LP-16-CC-SR5 | | | | | | | 4490 | 1472 | 1694 | 4355 | 2296 | 4141 |
| LP-16-CC-SR6 | | | | | | | | | | 5096 | 1606 | 1727 |
| LP-19-CC-SR1 | 4141 | 1320 | 1449 | 4355 | 2296 | 4141 | 6211 | 2222 | 2900 | 4355 | 2296 | 4141 |
| LP-19-CC-SR5 | | | | | | | 5092 | 1604 | 1724 | 5332 | 2904 | 5260 |
| LP-19-CC-SR6 | | | | | | | | | | 5927 | 1823 | 1875 |
| LP-25-CC-SR1 | 5591 | 1821 | 2073 | 5532 | 2904 | 5260 | 8303 | 3042 | 3974 | 5532 | 2904 | 5260 |
| LP-25-CC-SR5 | | | | | | | 7067 | 2320 | 2674 | 6832 | 3586 | 6496 |
| LP-25-CC-SR6 | | | | | | | | | | 8138 | 2956 | 2948 |
| LP-32-CC-SR1 | 6473 | 2064 | 2266 | 6808 | 3574 | 6473 | 9710 | 3474 | 4534 | 6808 | 3574 | 6473 |
| LP-32-CC-SR5 | | | | | | | 7963 | 2509 | 2897 | 8645 | 4538 | 8220 |
| LP-32-CC-SR6 | | | | | | | | | | 9428 | 2941 | 3102 |

| Model 型号 | Air to Spring (Bar) | | | Spring | | | Air to Spring (Bar) | | | Spring | | |
|--------------|---------------------|-------|-------|--------|-------|-------|---------------------|-------|-------|--------|-------|--------|
| | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° | 0° | 45° | 90° |
| LP-08-CC-SR1 | 8220 | 2821 | 2877 | 8645 | 4538 | 8220 | 12330 | 4411 | 5128 | 8645 | 4538 | 8220 |
| LP-08-CC-SR5 | | | | | | | 10559 | 3433 | 3964 | 10594 | 5116 | 9992 |
| LP-08-CC-SR6 | | | | | | | | | | 12310 | 3912 | 4116 |
| LP-08-CC-SR1 | 9810 | 3127 | 3434 | 10317 | 5417 | 9810 | 14715 | 5263 | 6971 | 10317 | 5417 | 9810 |
| LP-08-CC-SR5 | | | | | | | 12263 | 3909 | 4292 | 12906 | 6771 | 12263 |
| LP-08-CC-SR6 | | | | | | | | | | 14209 | 4428 | 4609 |
| LP-10-CC-SR1 | 12043 | 3813 | 4138 | 12896 | 6771 | 12043 | 18120 | 6459 | 8397 | 12896 | 6771 | 12043 |
| LP-10-CC-SR5 | | | | | | | 15191 | 4842 | 5317 | 15976 | 8208 | 15191 |
| LP-10-CC-SR6 | | | | | | | | | | 17246 | 5324 | 5462 |
| LP-10-CC-SR1 | 13588 | 4228 | 5455 | 15976 | 8208 | 15191 | 22033 | 6257 | 10813 | 15976 | 8208 | 15191 |
| LP-10-CC-SR5 | | | | | | | 19112 | 6092 | 6689 | 20100 | 10533 | 19112 |
| LP-10-CC-SR6 | | | | | | | | | | 22966 | 7842 | 8029 |
| LP-13-CC-SR1 | 19809 | 6396 | 7177 | 20100 | 10553 | 19112 | 29539 | 10633 | 13997 | 20100 | 10553 | 19112 |
| LP-13-CC-SR5 | | | | | | | 23035 | 7191 | 7441 | 26556 | 12995 | 23046 |
| LP-13-CC-SR6 | | | | | | | | | | 29191 | 8005 | 10217 |
| LP-16-CC-SR1 | 21759 | 6594 | 6531 | 26135 | 13712 | 24851 | 33411 | 11658 | 14697 | 26135 | 13712 | 24851 |
| LP-16-CC-SR5 | | | | | | | 29131 | 9297 | 10196 | 30636 | 14674 | 29131 |
| LP-16-CC-SR6 | | | | | | | | | | 32688 | 14566 | 11110 |
| LP-16-CC-SR1 | 28512 | 9027 | 9162 | 30636 | 16074 | 29131 | 42922 | 15302 | 19861 | 30636 | 16074 | 29131 |
| LP-16-CC-SR5 | | | | | | | 36027 | 11497 | 12509 | 37888 | 18079 | 36027 |
| LP-16-CC-SR6 | | | | | | | | | | 41290 | 12719 | 13078 |
| LP-19-CC-SR1 | 33932 | 12563 | 14968 | 37888 | 19879 | 36027 | 58247 | 21173 | 29182 | 37888 | 19879 | 36027 |
| LP-19-CC-SR5 | | | | | | | 48089 | 16120 | 18531 | 47519 | 24952 | 45184 |
| LP-19-CC-SR6 | | | | | | | | | | 56584 | 19652 | 19788 |
| LP-20-CC-SR1 | 45246 | 14438 | 15836 | 47584 | 24988 | 45246 | 67889 | 24289 | 31691 | 47584 | 24988 | 45246 |
| LP-20-CC-SR5 | | | | | | | 55738 | 17606 | 19854 | 60231 | 31651 | 57357 |
| LP-20-CC-SR6 | | | | | | | | | | 65955 | 20961 | 21742 |
| LP-25-CC-SR1 | 60764 | 19336 | 21267 | 63904 | 33385 | 60764 | 91146 | 32566 | 42580 | 63904 | 33385 | 60764 |
| LP-25-CC-SR5 | | | | | | | 74843 | 23553 | 25414 | 81050 | 42598 | 77088 |
| LP-25-CC-SR6 | | | | | | | | | | 88038 | 27294 | 28630 |
| LP-32-CC-SR1 | 77058 | 24524 | 26974 | 81050 | 42598 | 77058 | 115802 | 41304 | 53880 | 81050 | 42598 | 77058 |
| LP-32-CC-SR5 | | | | | | | 98413 | 31803 | 35802 | 99127 | 52097 | 94257 |
| LP-32-CC-SR6 | | | | | | | | | | 112847 | 38415 | 38815 |
| LP-40-CC-SR1 | 96322 | 30883 | 34437 | 99127 | 52097 | 94257 | 143861 | 51640 | 67828 | 99127 | 52097 | 94257 |
| LP-40-CC-SR5 | | | | | | | 120867 | 38872 | 43353 | 125130 | 68861 | 112787 |
| LP-50-CC-SR6 | | | | | | | | | | | | |

The torque of the springs can be customized to your needs.
可以根據需要定制彈簧力矩。

Output Torque of LP-CC Series Actuator with Spring Return (FO)
LP-CC 系列气动执行器单作用输出扭矩 (FO)



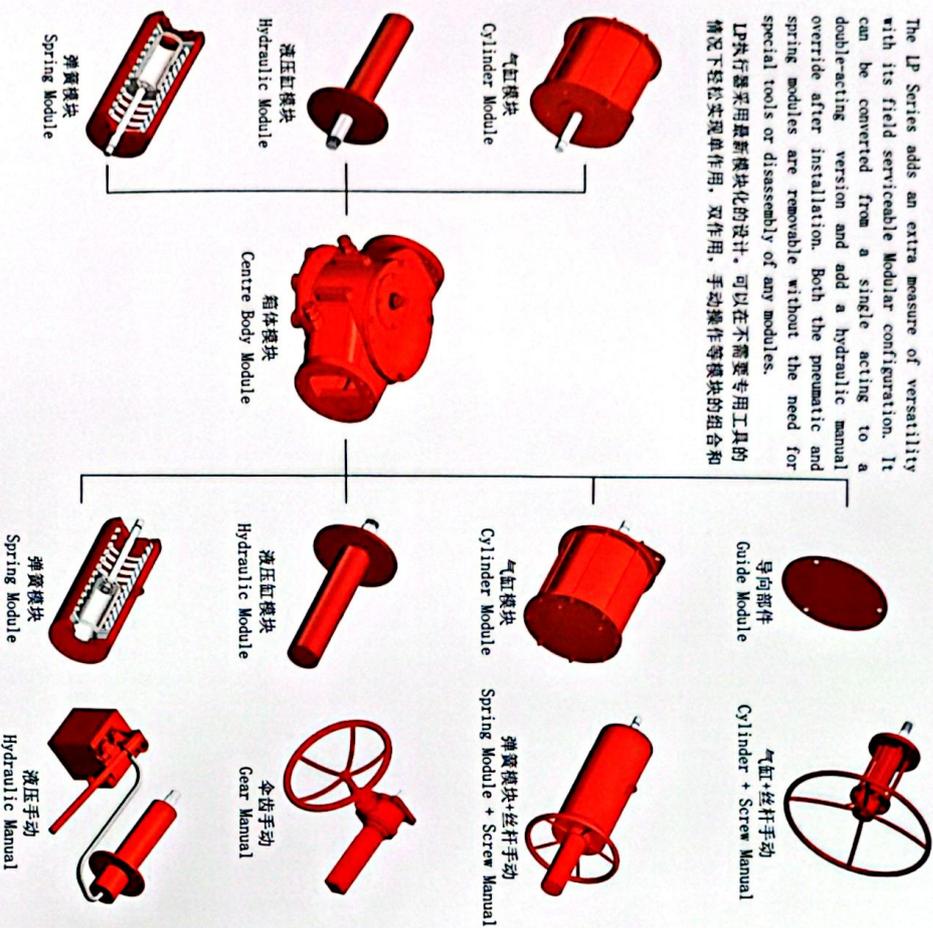
| Model 型号 | Air to Spring (Bar) | | | Spring | | | Air to Spring (Bar) | | | Spring | | |
|----------------|---------------------|------|------|--------|------|------|---------------------|------|------|--------|------|-------|
| | 90° | 45° | 0° | 0° | 45° | 90° | 90° | 45° | 0° | 0° | 45° | 90° |
| LP-300-CC-S904 | 915 | 471 | 870 | 870 | 287 | 305 | 1221 | 660 | 1306 | 870 | 287 | 305 |
| LP-300-CC-S905 | | | | | | | 1144 | 589 | 1088 | 1088 | 359 | 381 |
| LP-200-CC-S906 | | | | | | | | | | 1368 | 701 | 1290 |
| LP-100-CC-S904 | 1101 | 562 | 1027 | 1068 | 359 | 381 | 1472 | 792 | 1556 | 1088 | 359 | 381 |
| LP-100-CC-S905 | | | | | | | 1390 | 715 | 1322 | 1322 | 436 | 463 |
| LP-100-CC-S906 | | | | | | | | | | 1668 | 858 | 1586 |
| LP-100-CC-S904 | 1485 | 735 | 1353 | 1390 | 459 | 487 | 1916 | 1033 | 2038 | 1390 | 459 | 487 |
| LP-100-CC-S905 | | | | | | | 1798 | 921 | 1699 | 1729 | 572 | 605 |
| LP-100-CC-S906 | | | | | | | | | | 2104 | 1055 | 1887 |
| LP-100-CC-S904 | 1892 | 980 | 1835 | 1729 | 572 | 605 | 2517 | 1368 | 2726 | 1729 | 572 | 605 |
| LP-100-CC-S905 | | | | | | | 2342 | 1204 | 2227 | 2227 | 736 | 780 |
| LP-100-CC-S906 | | | | | | | | | | 2787 | 1422 | 2606 |
| LP-100-CC-S904 | 2267 | 1219 | 2262 | 2227 | 736 | 780 | 3153 | 1707 | 3385 | 2227 | 736 | 780 |
| LP-100-CC-S905 | | | | | | | 2974 | 1538 | 2872 | 2740 | 906 | 959 |
| LP-100-CC-S906 | | | | | | | | | | 3541 | 1819 | 3367 |
| LP-100-CC-S904 | 2766 | 1422 | 2630 | 2630 | 869 | 921 | 3688 | 1994 | 3946 | 2630 | 869 | 921 |
| LP-100-CC-S905 | | | | | | | 3429 | 1750 | 3205 | 3371 | 1114 | 1180 |
| LP-100-CC-S906 | | | | | | | | | | 4051 | 2039 | 3863 |
| LP-100-CC-S904 | 3659 | 1893 | 3534 | 3371 | 1114 | 1180 | 4889 | 2645 | 5260 | 3371 | 1114 | 1180 |
| LP-100-CC-S905 | | | | | | | 4569 | 2361 | 4403 | 4228 | 1397 | 1480 |
| LP-100-CC-S906 | | | | | | | | | | 5404 | 2759 | 5058 |
| LP-100-CC-S904 | 4324 | 2299 | 4054 | 4228 | 1397 | 1480 | 5776 | 3111 | 6124 | 4228 | 1397 | 1480 |
| LP-100-CC-S905 | | | | | | | 5400 | 2757 | 5052 | 5300 | 1751 | 1855 |
| LP-100-CC-S906 | | | | | | | | | | 6432 | 3263 | 6926 |
| LP-100-CC-S904 | 5750 | 2974 | 5551 | 5300 | 1751 | 1855 | 7651 | 4155 | 8263 | 5300 | 1751 | 1855 |
| LP-100-CC-S905 | | | | | | | 7232 | 3759 | 7066 | 6497 | 2147 | 2274 |
| LP-100-CC-S906 | | | | | | | | | | 8559 | 4398 | 9138 |
| LP-100-CC-S904 | 6808 | 3469 | 6473 | 6473 | 2139 | 2256 | 9076 | 4908 | 9710 | 6473 | 2139 | 2256 |
| LP-100-CC-S905 | | | | | | | 8487 | 4352 | 8028 | 8156 | 2695 | 2855 |
| LP-100-CC-S906 | | | | | | | | | | 10110 | 5153 | 10420 |

| Model 型号 | Air to Spring (Bar) | | | Spring | | | Air to Spring (Bar) | | | Spring | | | Air to Spring (Bar) | | | Spring | | |
|----------------|---------------------|-------|-------|--------|-------|-------|---------------------|-------|--------|--------|-------|-------|---------------------|-------|--------|--------|-------|-------|
| | 90° | 45° | 0° | 0° | 45° | 90° | 90° | 45° | 0° | 0° | 45° | 90° | 90° | 45° | 0° | 0° | 45° | 90° |
| LP-300-CC-S904 | 8667 | 4464 | 8295 | 8156 | 2695 | 2855 | 11548 | 6254 | 12295 | 8156 | 2695 | 2855 | 14723 | 8044 | 16505 | 8156 | 2695 | 2855 |
| LP-300-CC-S905 | | | | | | | 10903 | 5645 | 10551 | 10000 | 3304 | 3506 | 12967 | 6645 | 12330 | 12330 | 4074 | 4316 |
| LP-200-CC-S906 | | | | | | | | | | | | | | | | | | |
| LP-100-CC-S904 | 10317 | 5302 | 9810 | 9810 | 3242 | 3434 | 13755 | 7438 | 14715 | 9810 | 3242 | 3434 | 17192 | 9574 | 19620 | 9810 | 3242 | 3434 |
| LP-100-CC-S905 | | | | | | | 12986 | 6627 | 12263 | 12263 | 4652 | 4292 | 16334 | 8763 | 17168 | 12263 | 4652 | 4292 |
| LP-100-CC-S906 | | | | | | | | | | | | | 15398 | 7796 | 14239 | 15191 | 5029 | 5317 |
| LP-100-CC-S904 | 12742 | 6532 | 12043 | 12263 | 4052 | 4292 | 17001 | 9178 | 18120 | 12263 | 4052 | 4292 | 21259 | 11824 | 24196 | 12263 | 4052 | 4292 |
| LP-100-CC-S905 | | | | | | | 15976 | 8210 | 15191 | 15191 | 5029 | 5317 | 20224 | 10606 | 21287 | 15191 | 5029 | 5317 |
| LP-100-CC-S906 | | | | | | | | | | | | | 19144 | 9626 | 18152 | 18087 | 6020 | 6407 |
| LP-110-CC-S904 | 16114 | 8296 | 15388 | 15191 | 5029 | 5317 | 21472 | 11625 | 20003 | 15191 | 5029 | 5317 | 26030 | 14654 | 28678 | 15191 | 5029 | 5317 |
| LP-110-CC-S905 | | | | | | | 20381 | 10595 | 19917 | 18307 | 6050 | 6407 | 25739 | 13824 | 27362 | 18087 | 6650 | 6407 |
| LP-110-CC-S906 | | | | | | | | | | | | | 24456 | 12713 | 22996 | 21973 | 7261 | 7690 |
| LP-120-CC-S904 | 19587 | 9687 | 16948 | 21973 | 7261 | 7690 | 26406 | 13924 | 26678 | 21973 | 7261 | 7690 | 32225 | 18161 | 36408 | 21973 | 7261 | 7690 |
| LP-120-CC-S905 | | | | | | | 25225 | 12910 | 22305 | 25346 | 8376 | 88718 | 30944 | 17047 | 32035 | 25346 | 8376 | 8871 |
| LP-120-CC-S906 | | | | | | | | | | | | | 30699 | 15776 | 32191 | 32191 | 9646 | 10217 |
| LP-140-CC-S904 | 23968 | 12090 | 21759 | 24851 | 8206 | 8698 | 32134 | 17164 | 32411 | 24851 | 8206 | 8698 | 40300 | 22229 | 42643 | 24851 | 8206 | 8698 |
| LP-140-CC-S905 | | | | | | | 30075 | 15505 | 20396 | 20976 | 10457 | 10457 | 36542 | 20279 | 40028 | 29676 | 9966 | 10457 |
| LP-140-CC-S906 | | | | | | | | | | | | | 36389 | 18548 | 33888 | 32627 | 11887 | 12698 |
| LP-160-CC-S904 | 29941 | 15235 | 27767 | 29876 | 9666 | 10457 | 40041 | 21511 | 42177 | 29876 | 9666 | 10457 | 50140 | 27766 | 56588 | 29876 | 9666 | 10457 |
| LP-160-CC-S905 | | | | | | | 37888 | 19460 | 36227 | 36227 | 11887 | 12698 | 47898 | 25755 | 50457 | 36227 | 11887 | 12698 |
| LP-160-CC-S906 | | | | | | | | | | | | | 44783 | 22731 | 41290 | 41290 | 15923 | 15814 |
| LP-180-CC-S904 | 40247 | 20945 | 39932 | 36227 | 11887 | 12698 | 53461 | 29156 | 58247 | 36227 | 11887 | 12698 | 66675 | 37366 | 77422 | 36227 | 11887 | 12698 |
| LP-180-CC-S905 | | | | | | | 50256 | 26122 | 40990 | 43184 | 14921 | 15814 | 63470 | 34342 | 67945 | 43184 | 14921 | 15814 |
| LP-180-CC-S906 | | | | | | | | | | | | | 59487 | 30584 | 56564 | 56564 | 18679 | 19798 |
| LP-200-CC-S904 | 47584 | 24483 | 45246 | 45246 | 14943 | 15836 | 63439 | 34344 | 67869 | 45246 | 14943 | 15836 | 79294 | 4165 | 90492 | 45246 | 14943 | 15836 |
| LP-200-CC-S905 | | | | | | | 59200 | 30014 | 55758 | 57357 | 18943 | 20075 | 70955 | 40166 | 78381 | 57357 | 18943 | 20075 |
| LP-200-CC-S906 | | | | | | | | | | | | | 70706 | 36062 | 65956 | 65956 | 22046 | 24244 |
| LP-220-CC-S904 | 60321 | 31011 | 57357 | 57357 | 18943 | 20075 | 80420 | 43409 | 86206 | 57357 | 18943 | 20075 | 100518 | 55987 | 114714 | 57357 | 18943 | 20075 |
| LP-220-CC-S905 | | | | | | | 76071 | 39396 | 73611 | 69782 | 22046 | 24244 | 96170 | 51884 | 102290 | 69782 | 22046 | 24244 |
| LP-220-CC-S906 | | | | | | | | | | | | | 90481 | 46516 | 86236 | 86236 | 29414 | 30113 |
| LP-250-CC-S904 | 63904 | 32823 | 60764 | 60764 | 20097 | 21267 | 85197 | 46654 | 91146 | 60764 | 20097 | 21267 | 106829 | 59294 | 121528 | 60764 | 20097 | 21267 |
| LP-250-CC-S905 | | | | | | | 79490 | 40861 | 74843 | 77088 | 25490 | 26974 | 100783 | 53891 | 105255 | 77088 | 25490 | 26974 |
| LP-250-CC-S906 | | | | | | | | | | | | | 94040 | 47519 | 89588 | 86335 | 31882 | 32177 |
| LP-280-CC-S904 | 81050 | 41630 | 77088 | 77088 | 25490 | 26974 | 108055 | 58410 | 115602 | 77088 | 25490 | 26974 | 133581 | 68818 | 134889 | 77088 | 25490 | 26974 |
| LP-280-CC-S905 | | | | | | | 101312 | 52038 | 96335 | 96335 | 31882 | 33717 | 126318 | 68818 | 134889 | 96335 | 31882 | 33717 |
| LP-280-CC-S906 | | | | | | | | | | | | | 120346 | 61294 | 112082 | 119112 | 38398 | 41889 |
| LP-300-CC-S904 | 99847 | 51127 | 94244 | 96335 | 31862 | 33717 | 133238 | 71875 | 141889 | 96335 | 31882 | 33717 | 166629 | 83882 | 188833 | 96335 | 31882 | 33717 |
| LP-300-CC-S905 | | | | | | | 125366 | 64341 | 119112 | 119112 | 38398 | 41889 | 158867 | 85089 | 186756 | 119112 | 38398 | 41889 |
| LP-300-CC-S906 | | | | | | | | | | | | | 150319 | 77210 | 142534 | 142534 | 47273 | 50627 |

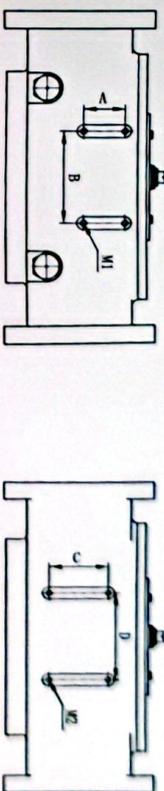
The torque of the springs can be customized to your needs.
可以根据需要定制弹簧数据。

Modular Design 模块化设计

The LP Series adds an extra measure of versatility with its field serviceable Modular configuration. It can be converted from a single acting to a double-acting version and add a hydraulic manual override after installation. Both the pneumatic and spring modules are removable without the need for special tools or disassembly of any modules. LP执行器采用最新模块化的设计。可以在不需要专用工具的情况下轻松实现单作用、双作用，手动操作等模块的组合和



Body Connecting Dimension 箱体连接尺寸



| 箱体号 Body No. | AxB | CxD | 螺纹孔 M1 Screwed Hole | 螺纹孔 M2 Screwed Hole |
|-----------------|---------|---------|------------------------|------------------------|
| 10BB/CC | 50x90 | 80x125 | 4-M12 deep 18 | 4-M12 deep 18 |
| 20-50BB/CC | 50x125 | 80x125 | 4-M12 deep 18 | 4-M12 deep 18 |
| 40-50BB/CC | 80x125 | 80x125 | 4-M12 deep 18 | 4-M12 deep 18 |
| 70-90BB/CC | 80x125 | 95x155 | 4-M12 deep 18 | 4-M12 deep 18 |
| 100-120BB/CC | 80x180 | 115x185 | 4-M12 deep 18 | 4-M12 deep 18 |
| 130-170BB/CC | 80x220 | 115x230 | 4-M12 deep 18 | 4-M12 deep 18 |
| 200-250BB/CC | 80x220 | 140x310 | 4-M12 deep 18 | 4-M12 deep 18 |
| 280-330BB/CC | 100x220 | 180x400 | 4-M12 deep 18 | 4-M12 deep 18 |

Note

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