

选型指南 How to order

手柄机构规格 Gear Operator Size	安全切换单元 (选装) Safety Shift Unit (optional)	锁止装置 (选装) Lock Kits (optional)	WORKING TEMPERATURE	涂层 Coating
DFM-015A	SS	L	P= Normal temp. (-4 °F to 176 °F -20°C to 80°C)	N=C2-02
DFM-015B			P1=High temp. (-4° F to 250° F -20°C to 120°C)	D=C2-03
DFM-060			P2= Low temp. (-40° F to 176° F -40°C to 80°C)	E=C3-03
DFM-090A				F=C4-03
DFM-090B				G=C5-03
DFM-160A				
DFM-160B				
DFM-350A				
DFM-350B				
DFM-700				

DFM-090A - SS - L - P - N

涂层选型 Coating Specification

D-F COATING SPECIFICATION					
GRADE	BASE	MIDDLE	TOP	DRY FILM THICKNESS	PROTECTION PERIOD
C2-02	Priming coating*1	-	Finishing coating*1	120μm	5-15 years
C2-03	Priming coating*1	Anti-corrosion coating*1	Finishing coating*1	160μm	over 15 years
C3-03	Priming coating*1	Anti-corrosion coating*1	Finishing coating*2	200μm	over 15 years
C4-03	Priming coating*1	Anti-corrosion coating*1	Finishing coating*2	280μm	over 15 years
C5-03	Priming coating*1	Anti-corrosion coating*1	Finishing coating*3	320μm	over 15 years

DFM Series Declutchable Manual Override Gear Operator (Auto-Manual Safe Shift)



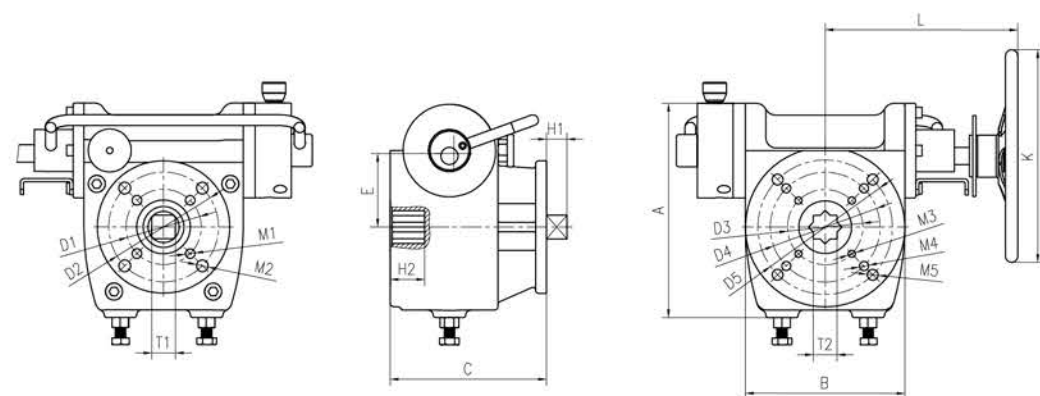


主要性能特点

- * 高强度，大扭矩；
- * 集成一体式设计，IP67 水密封标准；
- * ISO5211 连接标准；
- * 气动手动安全切换专利设计；
- * 蜗轮蜗杆自润滑设计；
- * WCB 箱体外表面磷化处理及环氧聚酯喷涂；
- * 黄黑色设计

Features

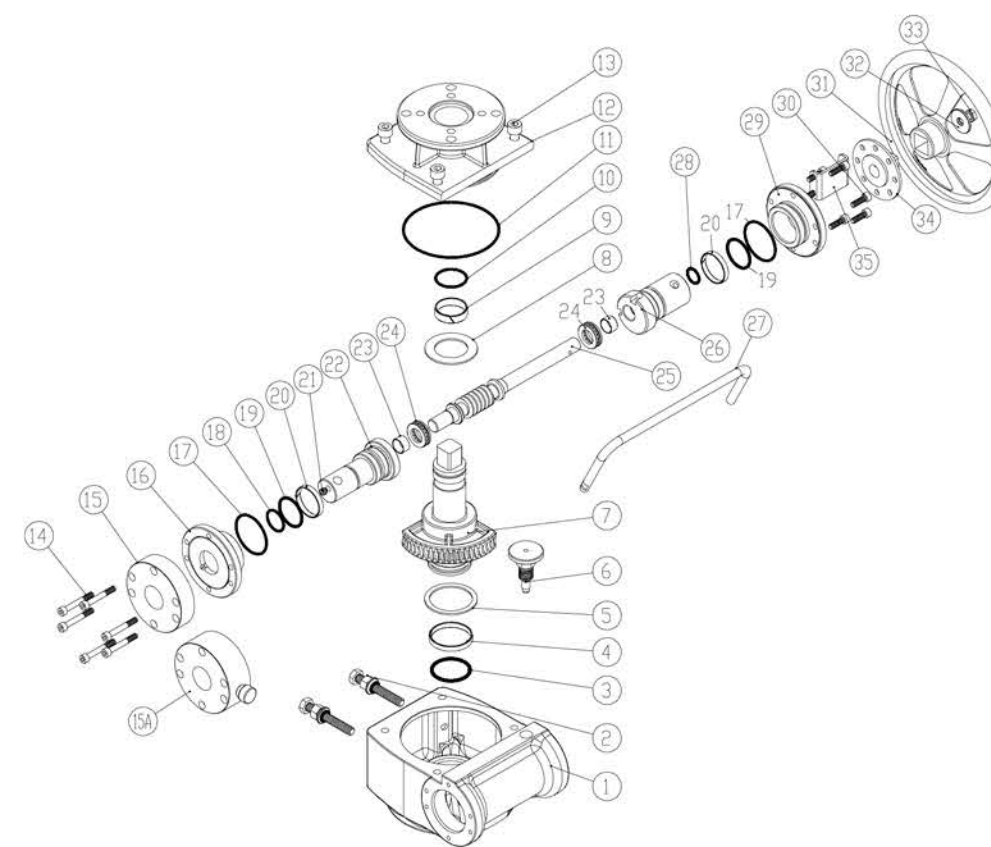
- * High-strength, high-torque.
- * Integrated design, IP67 waterproof sealing.
- * ISO5211 standard mounting.
- * Patented auto-manual safe shift device.
- * Self lubricated bearing for worm & worm gear.
- * WCB body surface treated by phosphating, epoxy & polyester coating.
- * Yellow & black color



Model	A	B	C	D1	D2	D3 D4 D5	E	L	M1	M2	T1	T2	H1	H2	K	J	Applicable actuators	输入扭矩 Input torque	输出扭矩 Output torque
DFM-015A	120	100	104	φ50	φ70	F05.F07	44.5	114	φ7	4-φ9	□ 17	□ 17	17	Min.19	φ1600	1/4"NPT	DFS032~085	17N.m	150N.m
DFM-015B	120	100	104	φ50	φ70	F05.F07	44.5	120	φ7	4-φ9	□ 17	□ 17	17	Min.19	φ200	1/4"NPT	DFS075~100	22N.m	200N.m
DFM-060	192	148	145	φ70	φ102	F07.F10.F12 ^①	71	175	φ9	4-φ11	□ 22	□ 27	22	Min.29	φ200	1/4"NPT	DFS100~145	42N.m	600N.m
DFM-090A	192	148	145	φ70	φ102	F07.F10.F12	71	175	φ9	4-φ11	□ 27	□ 27	28	Min.29	φ250	1/4"NPT	DFS145~160	70N.m	900N.m
DFM-090B	192	148	145	φ70	φ120	F07.F10.F12	71	181	φ9	4-φ11	□ 27	□ 27	28	Min.29	φ300	1/4"NPT	DFS145~180	96N.m	1200N.m
DFM-160A	260	196	191.5	φ102	φ125	F10.F12	107.5	268	φ11	4-φ13	□ 36	□ 36	34	Min.38	φ350	1/4"NPT	DFS160~200	80N.m	1600N.m
DFM-160B	260	196	191.5	φ102	φ125	F10.F12	107.5	272	φ11	4-φ13	□ 36	□ 36	34	Min.38	φ400	1/4"NPT	DFS200~240	100N.m	2000N.m
DFM-350A	307	255	181	φ165	-	F12.F16	123	272	φ22	-	□ 46	□ 46	45	176 ^②	φ600	1/4"NPT	DFS240~265	190N.m	3300N.m
DFM-350B	307	255	181	φ165	-	F12.F16	123	275	φ22	-	□ 46	□ 46	45	176 ^②	φ700	1/4"NPT	DFS265~300	230N.m	4000N.m
DFm-700	389	297	249	φ165	φ254	F16.F25	156	418	φ22	8-φ18	□ 46/55	□ 46	45	196 ^②	φ500	1/2"NPT	DFS350~400	110N.m	7000N.m

①型号 DFM-060，F12 需要定制
②F12 is customized for DFM-60

②内八角为通孔
②Internal octagonal hole is through-hole



序号 No	名称 Part Description	数量 QTY	材质 Material
1	涡轮箱 Body	1	WCB
2	调节螺栓组件 Adjust Bolt	2	SS304
3	O 型圈 (轴下) O Ring	1	NBR
4	轴承 (轴下) Bearing	1	POM
5	平面轴承 (轴下) Bearing	1	POM
6	限位组件 Positioning unit	1	CS
7	输出轴 Shaft	1	CS
8	平面轴承 (轴上) Bearing	1	POM
9	轴承 (轴上) Bearing	1	POM
10	O 型圈 (轴上) O Ring	1	NBR
11	O 型圈 (箱盖) O Ring	1	NBR
12	箱盖 Cap	1	WCB
13	箱盖螺钉 Screw	4	SS304
14	左盖螺钉 Screw	6	SS304
15	左端盖 Cap	1	CS
*15A	气源切换阀 Air shift valve	1	Al Alloy
*16	左端盖 Cap	1	CS
17	O 型圈 (左右端盖) O Ring	2	NBR

注：标有 “” 号者为选用零部件
Note：Marked by “” is on customer option

序号 No	名称 Part Description	数量 QTY	材质 Material
18	O 型圈 (左偏心轴小端) O Ring	1	NBR
19	O 型圈 (偏心轴) O Ring	2	NBR
20	偏心轴轴承 Eccentric axle bearing	2	POM
21	内六角锥端紧定螺钉 Bolt	1	SS304
22	左偏心半轴 Eccentric half axle	1	CS
23	蜗杆轴套 Bearing	2	Cu
24	推力球轴承 Thrust ball bearing	2	bearing steel
25	蜗杆 Worm shaft	1	CS
26	右偏心半轴 Eccentric half axle	1	CS
27	圆手柄 shift handle	1	SS304
28	O 型圈 (偏心轴) O Ring	1	NBR
29	右端盖 Cap	1	CS
30	右盖螺钉 Screw	6	SS304
31	手柄 Hand wheel	1	D1/20
32	平垫圈 Washer	1	CS
33	螺栓 Bolt	1	SS304
*34	锁盘 Lock disc	1	CS
*35	锁架 Lock bracket	1	CS

工作原理及安装示意图 Operation & Assembly Schematic Diagram

如欲使用本产品之安全切换功能，需知各通气孔的作用：

P- 压缩空气气源接口；

A- 通往电磁阀（气动执行器）接口；

R- 排气口（可接消声器）。

在自动模式下，气动执行器经手轮机构的 P- A 路径提供气源正常工作。在手动模式下，P-A 通路被截断，气动执行器停止工作，气动执行器内已有气体通过 A-R 通路排气。

当管道及控制系统出现故障，需要人工打开或关闭阀门时，应将手轮机构扳至手动模式。

We should know the function of each port on the gear operator device before assemble it onto valve and actuator.

P - Pressed air port;

A- Solenoid (actuator) port;

R- Released air port (can be connected to a muffler).

In auto mode, the actuator drives the valve by pressed air which comes from P-A route;

In manual mode, A-R route release the air within the actuator.

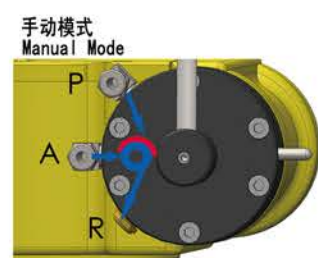
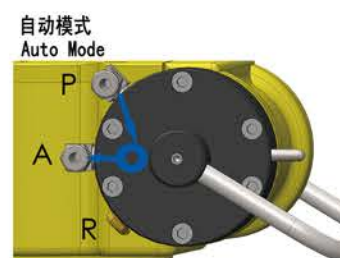
when the piping and control flow system fail, we should shift the gear operator to manual mode by turing the shift handle.

在自动模式下，当电磁阀提供的导气通路足以正常执行开启和关闭阀门的工作时，相关的管路及配件连接方式如下：

压缩空气 → ①过滤减压阀
→ ②安全切换手轮机构 (P-A)
→ ③电磁阀
→ ⑤气动执行器；

When solenoid valve supplies enough air to drive the fluid control valve in the auto mode, we can do as the following connection route.

Pressed Air → ① Filter regulator.
→ ② Safety shift gear operator(P-A).
→ ③ Solenoid valve.
→ ⑤ Pneumatic actuator.



当电磁阀提供的导气通路不足以正常执行开启和关闭阀门的工作时，需要配置大规格的电磁阀如前述方法连接，或采用小规格电磁阀 + 气控阀（如图所示，节约成本）的方法。相关的管路及配件连接方式如下，

压缩空气 → ①过滤减压阀
→ ②安全切换手轮机构 (P-A)
→ ③电磁阀
(提供导通信号给气控阀)
→ ④气控阀
→ ⑤气动执行器
(至此，从①至⑤大流量直通)

When solenoid valve could not supply enough air to drive the fluid control valve in the auto mode, we may choose large size solenoid valve and connect it as mentioned above. Or choose small size solenoid valve combined with gas control valve to save cost as follows

Pressed Air → ① Filter regulator.
→ ② Safety shift gear operator (P-A)
→ ③ Solenoid valve
(to provide guidance to the gas control valve).
→ ④ Gas control valve.
→ ⑤ Pneumatic actuator.
(at this time, enough air pass through)

该安全切换运内置于 IP67 防护标准的手轮机构中，不受恶劣工况影响，已获实用新型专利 (ZL201220071741.5) 和发明专利 (ZL201210050605.2)。

The safety shift device built into the body of gear operator which follows IP67 protection standard, free from any effect by bad working condition. The structure has obtained utility model patent (ZL201220071741.5) and design patent (ZL201210050605.2).

请注意：当提起限位销，扳动切换手柄从自动模式到手动模式时，初始阶段手柄会有锁止的情况，此时，需待 (A-R) 导通，执行器排气后，再横向扳动解锁拨杆，同时向上扳动切换手柄。

Note:

When cut over the gear operator from auto mode to manual mode after pull upward the positioning pin, the shit handle will be locked during the initial phase. In this case, wait for the actuator ex-hausted through (A-R) path, and then pull the unlock lever laterally and move the shift handle upward at the same time.



选型示例 Example configuration



基本型 - 仅有离合切换功能，标配球铁手轮。

Basic - Override function only, ductile iron casting hand wheel

DFM-060-S



增配型 - 在基本型基础上，增配锁止装置，标配（球铁）手轮。

With Lock- Basic configuration + Locking device + ductile iron casting hand wheel

DFM-090A-L



增配型 - 在基本型基础上，增配安全切换装置，标配（球铁）手轮。

With safety shift- Basic configuration + safety shift + ductile iron casting hand wheel

DFM-090A-SS



全能型 - 集成离合、安全切换功能，锁止功能标配（球铁）手轮。

Integrated – Basic configuration + safety shift + locking device + ductile iron casting hand wheel

DFM-090B-SS-L

配件 Accessories



SS - 安全切换组件
Safety shift unit



L - 锁止配件
Lock kits



球铁手轮
DI casting hand wheel