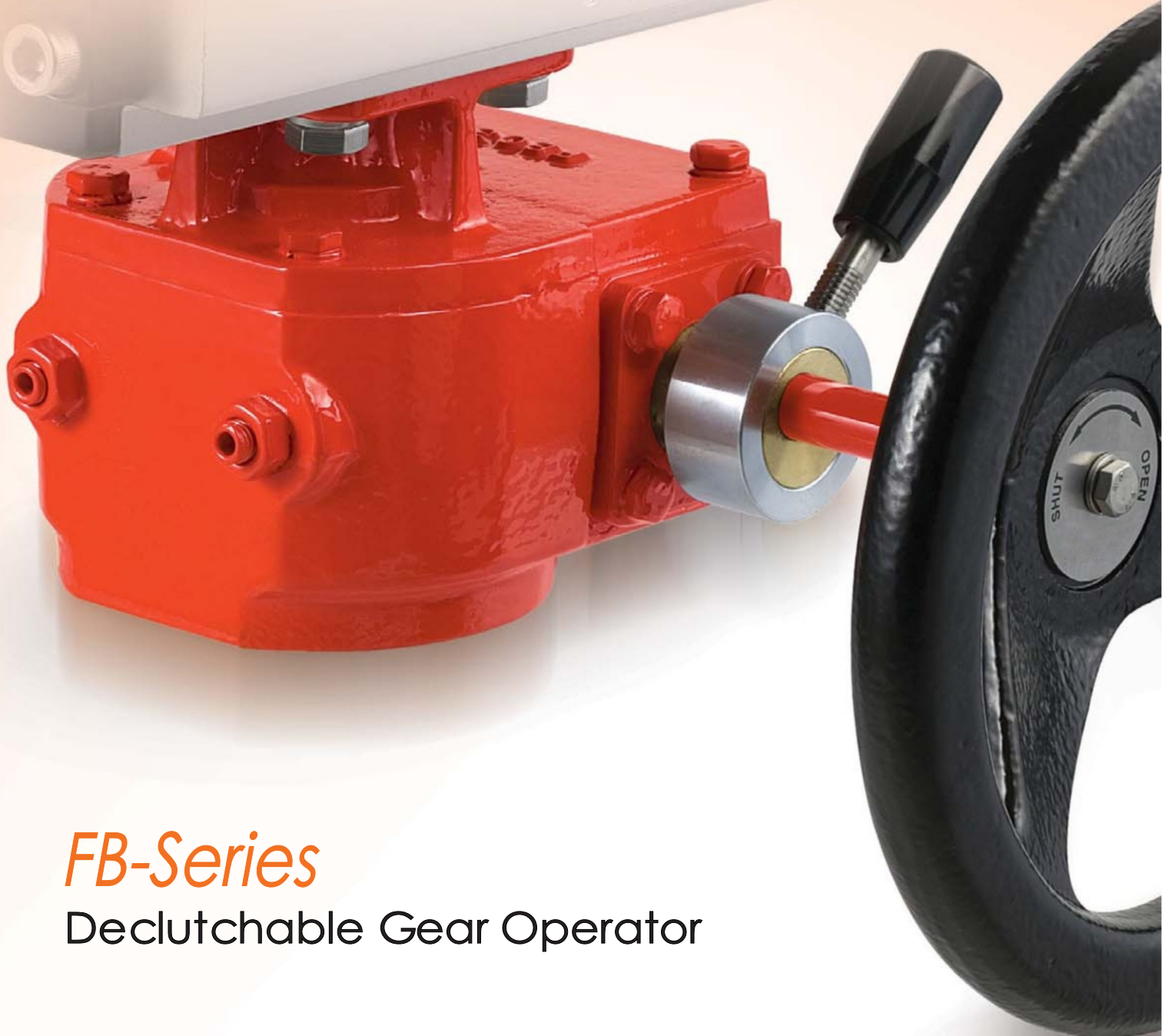



**HLV**<sup>®</sup>  
HLV FLOW  
MACHINERY



*FB-Series*

Declutchable Gear Operator



**Introduction** The compact FB declutchable gearbox provides efficient, precise performance for quarter-turn manual override duties. The gearbox is specially designed to offer quick and simple operation of the highest torque valves when the air or power supply fails.

## Advantages

### 1 Compact and Flexible

By installing the FB override between the actuator and the valve/damper the overall valve package envelope is minimized, reducing the space required for installation. The override can be fitted to any quarter turn valve/actuator combination and can be retrofitted if required.

### 2 Travel Stops

The FB-Series offers bi-directional travel stops allowing  $\pm 5^\circ$  of travel adjustment to give ranges from 80 to 100°.

### 3 Safe & Simple Operation

A simple quarter turn lever controls the gearbox clutch action. To ensure safe operation a spring loaded locking pin must be manually disengaged before the clutch lever can be operated.

### 4 ISO 5211 Mounting Pad

The gearbox is designed to the latest ISO5211 interface standards, for optimum strength, and standardized dimensions.

### 5 Torque Outputs

The FB-Series is available for torque output ranges from 225 to 9700 N.m.

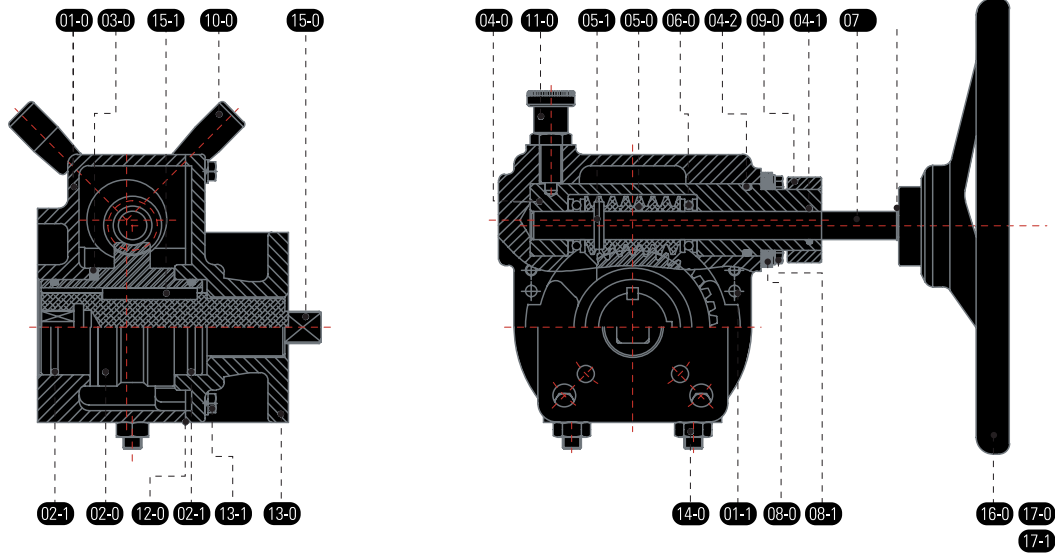
### 6 Precision Gear Design

High precision, self-locking gears provide safe, positive manual positioning and extend gearbox life.

### 7 External Coating

The standard FB-Series paint specification is as follows; Sand blast to grad SA 2.1/2 (SSPC-SP50), Polyurethane primer, Polyurethane topcoat HLV also offers special paint specifications and coatings for any environment, from offshore and high temperatures to chemical atmospheres.

## Materials of Construction



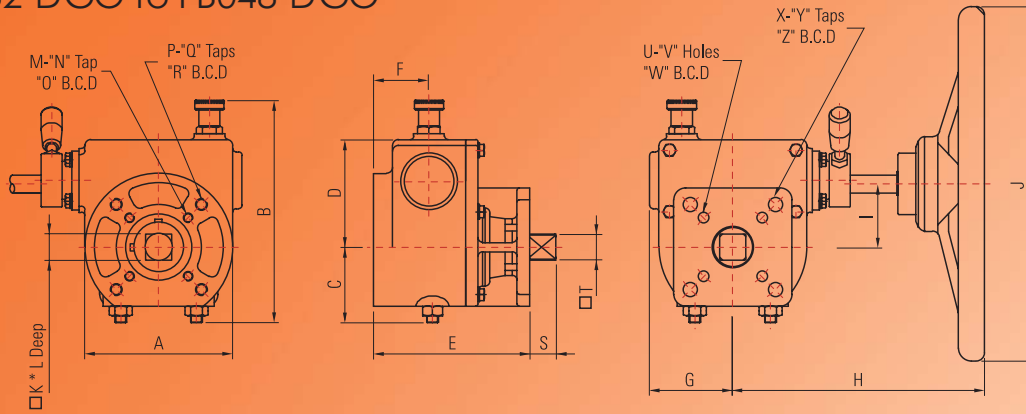
Part No.	Q'ty	Description	Standard Material	Remark
01-0	1	Housing	Ductile Iron	
01-1	2	Housing Pin	Carbon Steel	
02-0	1	Worm Gear	Ductile Iron	
02-1	2	O-Ring	NBR	
03-0	1	Thrust Bearing	Aluminum Bronze	
04-0	1	Decl. Cam Bush	Brass	
04-1	1	O-Ring	NBR	
04-2	1	O-Ring	NBR	
05-0	1	Worm Wheel	Carbon Steel	
05-1	2	Pin	Carbon Steel	
06-0	2	Thrust Ball Bearing	Bearing Steel	
07-0	1	Shaft	Carbon Steel	
07-1	1	Snap Ring	Plated Carbon Steel	FB048 above not applicable
08-0	1	Side Cover	Plated Carbon Steel	
08-1	4	Side Cover Bolt	Carbon Steel	
09-0	1	Position Adapter	Carbon Steel	
10-0	1SET	Position Lever Assy	Stainless Steel & Plastic	
11-0	1SET	Position Lock Assy	Carbon Steel & Plastic	
12-0	1	Gasket	Paper	
13-0	1	Cover	Ductile Iron	
13-1	6	Cover Bolt	Carbon Steel	FB032 (4)
14-0	2SET	Adjustment Bolt & Nut	Carbon Steel	
15-0	1	Coupling	Carbon Steel	Plated
15-1	1	Key	Carbon Steel	
16-0	1	Handwheel	Ductile Iron / Carbon Steel	Powder Coating
17-0	1	Washer	Carbon Steel	Plated
17-1	1	Bolt	Stainless Steel	

## Performance Data

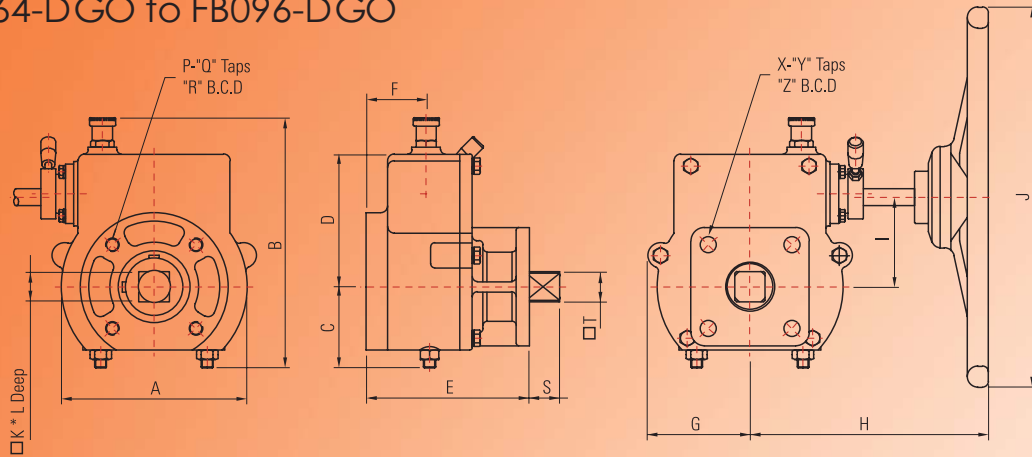
Model	Gear Ratio	Mechanical Advantage	Weight		Maximum input Torque		Output Torque with 80Lbs		Maximum output Torque		Valve Mounting Size	Actuator Mounting Size
			kgs	pounds	Nm	psig	Nm	psig	Nm	psig		
FB032-DGO	32:1	8:1	8	17	70	619	225	1991	294	2602	F05 / F07	F05 / F07
FB036-DGO	36:1	9:1	15	33	105	929	428	3788	558	4938	F05 / F10	F07 / F10
FB048-DGO	48:1	12:1	26	57	123	1088	740	6549	911	8063	F10 / F12	F10 / F12
FB064-DGO	64:1	16:1	46	101	158	1398	1397	12364	1675	14825	F12 / F14	F12 / F14
FB080-DGO	80:1	20:1	63	138	211	1867	2328	20604	2822	24976	F14 / F16	F14 / F16
FB096-DGO	96:1	24:1	118	249	282	2495	4064	35969	4860	43014	F16 / F25	F16 / F25

# Dimensions

## FB032-DGO to FB048-DGO



## FB064-DGO to FB096-DGO



## Dimensions

(Unit : mm)

Model	A	B	C	D	E	F	G	H	I	J	□K
FB032-DGO	98	167	55	76	104	38	55	185	43	200	17
FB036-DGO	125	194	69	91	132	47	71	213	53.5	300	22
FB048-DGO	160	243	79	123	156	54	84	247	74.5	350	27
FB064-DGO	220	296	96	157	193	71	121	282	106	450	36
FB080-DGO	267	362	120	197	225	86	148	330	133.5	600	46
FB096-DGO	340	458	170	244	254	92	192	413	172.5	800	55

Model	L	M-N	O	P-Q	R	S	□T	U-V	W	X-Y	Z
FB032-DGO	22	4-M6X10	50	4-M8X12	70	17	17	4-ø7	50	4-ø9	70
FB036-DGO	27	4-M8X12	70	4-M10X15	102	22	22	4-ø9	70	4-ø12	102
FB048-DGO	32	N/A	N/A	4-M12X18	125	27	27	N/A	N/A	4-ø14	125
FB064-DGO	42	N/A	N/A	4-M16X24	140	36	36	N/A	N/A	4-ø19	140
FB080-DGO	53	N/A	N/A	4-M20X30	165	46	46	N/A	N/A	4-ø23	165
FB096-DGO	60	N/A	N/A	8-M16X24	254	55	55	N/A	N/A	8-ø19	254