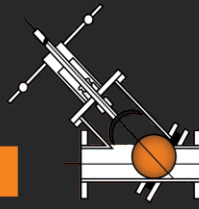




# DUAL



ONE STOP SLURRY SOLUTION



## DUAL ACTUATION





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# DUAL DOUBLE ACTING PNEUMATIC ACTUATOR (DDAPA)

**DUAL's** Double Acting Pneumatic Actuators are manufactured with lightweight composite tubing, which is fibreglass - reinforced epoxy. It has an impact strength of 40120D ft-lbs, which makes the actuator much more dent-resistant than aluminium or brass. The composite tubing is protected by a stainless steel cover to add extra protection against abuse in the plant. Both the piston rod and seal are protected by a wiper ring which cleans the piston rod before it is passed through the lip seal contributing to extended actuator life. The actuator is self lubricating and this feature greatly increases the life of the O-Ring.



## FEATURES

- Simple design.
- Urethane rod wiper.
- Corrosion proof and robust construction.
- Manufactured to fit all types of valves.
- Stroke adjustment feature.
- Smooth operation.
- Easily maintained.
- Double O-Ring seal on the piston.
- Self lubricating (increased O-Ring life).
- Barrel protection weather cover.
- Stainless Steel piston rod.
- Various strokes to suit valve requirements.

## PRODUCT SPECIFICATION

<b>TOP &amp; BOTTOM PLATE:</b>	Carbon Steel or Aluminum, Epoxy Coated.
<b>BARREL:</b>	Light weight composite tubing, filament wound Fibre Glass.
<b>PISTON:</b>	304 Stainless Steel.
<b>PISTON ROD:</b>	304 Stainless Steel.
<b>TIE ROD &amp; NUTS:</b>	SAE Grade 5 Stainless Steel threaded rods.
<b>PRESSURE RATING:</b>	10 Bar.
<b>LIP SEAL:</b>	Nitrile.
<b>GUIDE RING:</b>	PTFE.
<b>SEAL RINGS:</b>	Neoprene O-ring seal.
<b>PROTECTIVE COVER:</b>	304 Stainless Steel.
<b>ROD WIPER:</b>	Stainless Steel Housing with Internal Urethane Wiper.
<b>GLAND BUSHING:</b>	Bronze (SAE 660).
<b>TEMPERATURES:</b>	-20°C to 100° C.
<b>BELLOWS:</b>	Vinal.
<b>PORTS:</b>	At 90° for convenient location.
<b>LIFTING LUGS:</b>	Steel, coated.

## OPTIONS AND ACCESSORIES

- Control valves manual solenoid.
- Proximity limit switches.
- Positioners.
- Position transmitters.
- Manual override system.
- Stainless steel mounting.
- Air fail safe system.
- Positive fail safe spring return.
- Self-contained charging tanks.
- Air boosters.
- Exhaust valves.
- Manual handwheel override.

## APPLICATIONS

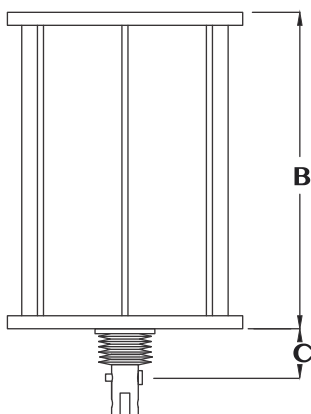
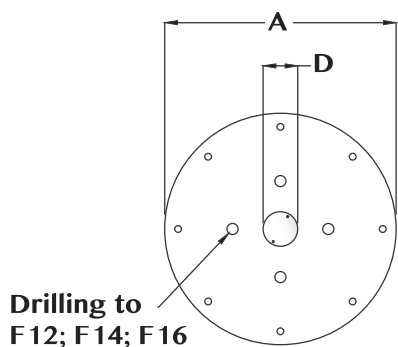
- Mining and mineral processing.
- Power generation.
- Sand and gravel.
- Chemical and soda ash.
- Pulp and paper.
- Environmental and effluent.
- Water and waste water.



## FAIL SAFE SPRING (OPTIONS)

Single-Acting Actuators consist of either a fail-close spring, which is pre-loaded to provide enough force to close and seal the sleeve upon air loss, or a fail-open spring, which drives the valve open upon air loss.

Fail-open spring Actuators are used primarily in low pressure or partial vacuum services, where the line pressure is not sufficient to fully open the valve.



## DIMENSIONS AND WEIGHTS

MODEL	BARREL				AIR PORT	WEIGHT (kg)	AIR (litre)
	A	B	C	D			
DA 80	200	183	20	25	1/4"	40	6
DA 100	200	213	20	25	1/4"	60	7
DA 150	200	248	29	25	1/4"	100	15
DA 200	200	353	43	36	1/4"	110	31
DA 250	300	407	43	36	1/4"	120	59
DA 300	350	464	43	36	1/4"	150	70
DA 350	350	623	84	36	1/4"	200	127
DA 400	400	685	84	40	1/2"	250	144
DA 450	450	685	77,5	40	1/2"	390	232
DA 500	500	700	77,5	50	1/2"	500	257
DA 600	550	750	77,5	50	1/2"	550	266

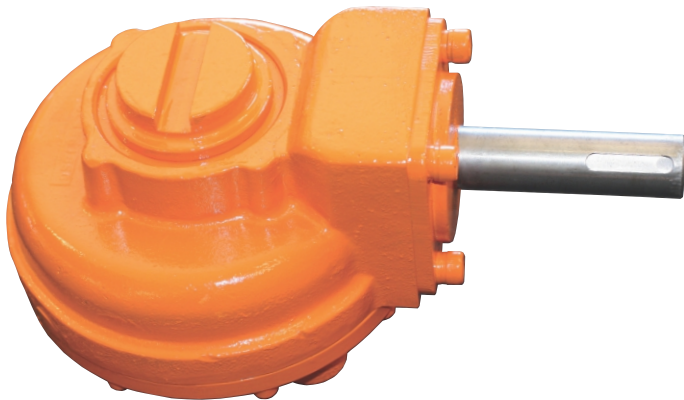
Contact Dual Valves for larger sizes. Dimensions are for guidance only - detailed dimension drawings available on request. All dimensions are in millimeters, unless stated.



# DUAL BEVEL GEARBOX (DBG)

**DUAL**'s hand operated Bevel Gearbox is used to operate the Gate, Pinch, Dual and Penstock valves with or without rising stem.

The Bevel Gearbox is designed to accept the full thrust forces which occur during opening and closing of the valve, reducing manual rim effort when operating.



## FEATURES

- All Gearboxes have lubricated parts.
- Cast SG Iron housing and base plate.
- Maintenance free.
- 304 Stainless Steel input shaft.
- Sealed to IP 67.
- Totally enclosed housing, grease filled.
- Primed finish.
- Optional coatings available.
- The Gearbox connecting the flange is in accordance to ENISO521 or DIN3210.
- Cost effective design and is manufactured from high quality materials.
- Zinc plated fasteners.
- Screw protective cap.
- Gearbox can operate in any mounting position.
- The Dual Gearboxes are approved for installation in explosion hazardous areas.

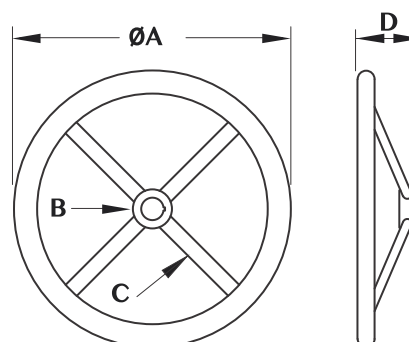
## OPTIONAL EXTRAS

- Position indicators
- Coatings suitable for aggressive environments.
- Stem protective tube.
- Handwheels.
- Bellows for the valve stem.
- Extensions.

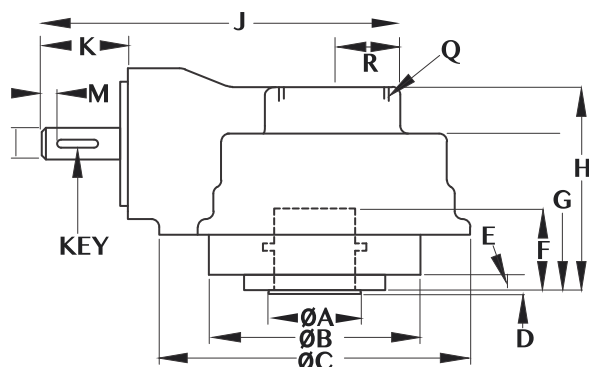
## APPLICATIONS

- Dual valves.
- Gate valves.
- Globe valves.
- Penstock valves.
- Knife gate valves.
- Pinch valves.

## HANDWHEEL DIMENSIONS



## DIMENSIONS AND WEIGHTS



TYPE	A	B	C	D	WEIGHT (kg)
DHW300	300	30	30	100	10
DHW400	400	30	30	100	45
DHW500	500	30	30	100	20
DHW600	600	30	30	100	30
DHW700	700	30	30	100	40

GEARBOX	DBG414 F14	DBG414 F16	DBG616 F16
KEY	8mm x 7mm x 40mm		
ØB	175	202	210
ØC	202	202	260
D	4	5	5
E	35	35	53
F	78	78	97
G	101	101	120
H	130	130	159
R	50	50	62.5
J	228	228	251
K	113	113	113
ØL	30	30	30
M	5	5	5
N	50	50	50
P	97	97	120
Q	2.5" BSP	2.5" BSP	3.5" BSP

Dimensions and weights are for guidance only - detailed dimension drawings available on request. All dimensions are in millimeters, unless stated.

## BASEPLATE AND DIMENSIONS

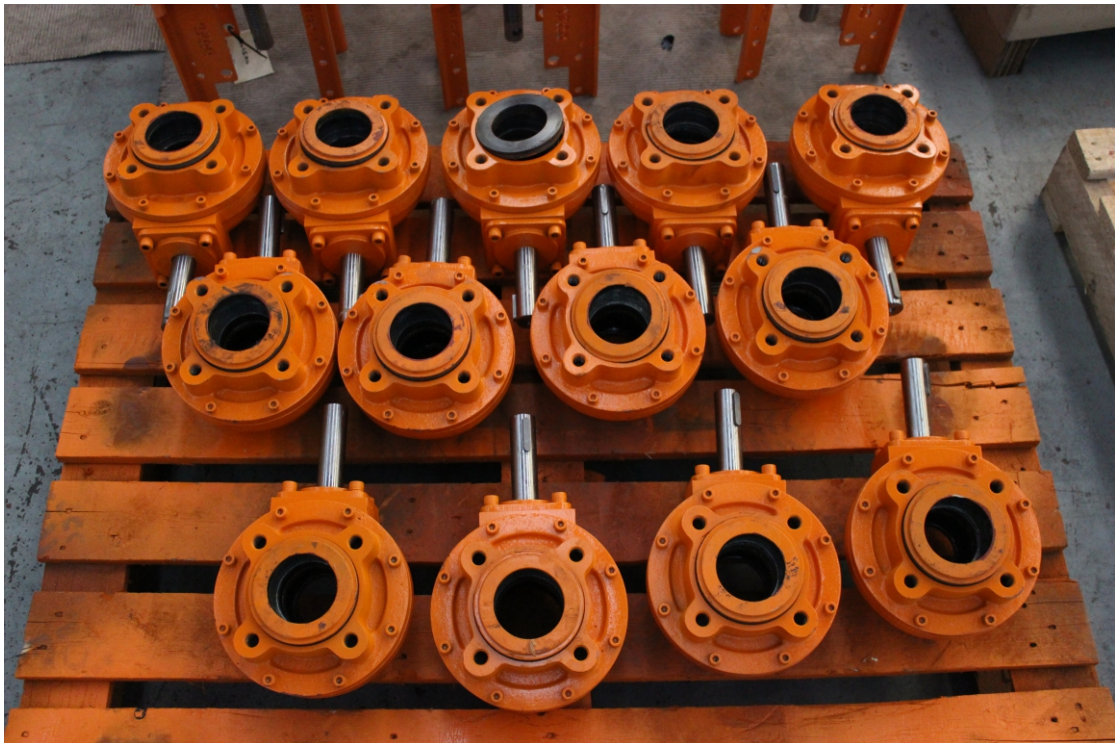
TYPE	ISO 5211	AØ(mm)	HOLE DETAILS (45° C OFF CENTRES)
DBG414	F14	Ø99.95 - 0.05	4 x M16 X 20 DEEP ON Ø140.0 PC
	F16	Ø129.95 - 0.05	4 x M20 X 25 DEEP ON Ø165.0 PC
DBG416	F16	Ø129.95 - 0.05	4 x M20 X 25 DEEP ON Ø165.0 PC

## MATERIAL SPECIFICATIONS

DESCRIPTION	MATERIAL	ISO STANDARD
Gearcase & End Cap	Ductile Iron	BS EN 1561 EN-GJL-250
Baseplate	Ductile Iron	BS EN 1563 EN-GJS-450-10
Output Gear	Ductile Iron	BS EN 1563 EN-GJS-700-2
Input Gear	Steel	BS 970 605M36T
Drive Sleeve A1	Steel	BS 970 070M20
Drive Sleeve A2	Aluminium Bronze	BS 1400 AB2
Fixing Screws	Ht Steel Metric	BS 3693
O Ring Seals	Nitrile	
Thrust Bearings	Needle Roller Bearings	
Grease		

## PERFORMANCE SPECIFICATIONS

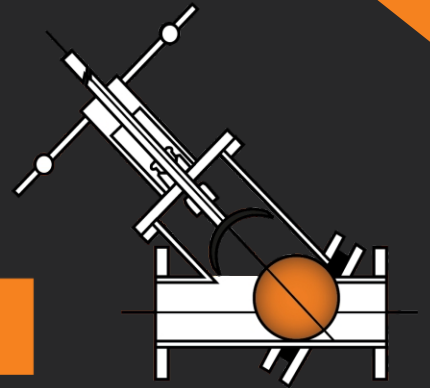
TYPE	RATIO	OUTPUT TORQUE(Nm)	MECHANICAL ADVANTAGE	THRUST (KN)	STEM ACC(mm) KEYED/SCREWED	TEMP. RANGE (°C)	FLANGE OUTPUT	WEIGHT (kg)
DBG414	4:1	7 0	3	178	52	55	F14	17
							F16	24
DBG416	6:1	1355	5.1	356	68	73	F16	35



ONE STOP SLURRY SOLUTION



# DUAL



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