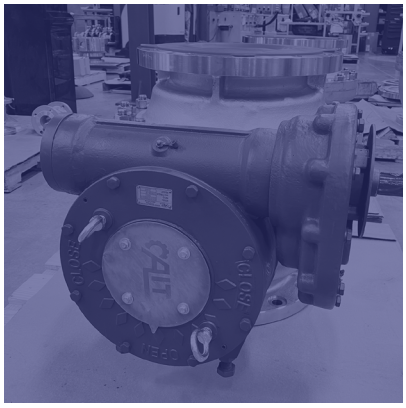
ADVANCED INDUSTRIAL TECHNOLOGIES

GEARS CATALOG

WORM / BEVEL / DECLUTCH



MANUAL GEAR BOXES
IN-HOUSE MACHINING
CUSTOMIZED VALVE FITTING

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SUPERIOR PRODUCT OFFERING
DEDICATED SERVICE

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OUR STORY

Headquartered in Houston, Texas, **Advanced Industrial Technologies (AIT)** was founded in 2015 thanks to a long-standing and trusted relationship between Air Torque® and the AIT leadership team. This loyalty built AIT on a foundation of commitment to our customers and reliability in every product line and all types of actuators we sell.

OUR MISSION

AIT is a small business founded on small business values. This means our mission includes:

Superior Product Offerings
The strength of our relationship with Air Torque® is based on trust and we pass that core value on to our customers. We ensure that there is transparent communication on every order and provide flexible, innovative solutions based on the specific need of each client.

Dedicated Service
Our service does not stop at the end of a sale. Working with AIT is a partnership and we are on standby to support our clients' business with not only continued product solutions, but fast turnaround shipping and same-day orders

OUR DIFFERENCE

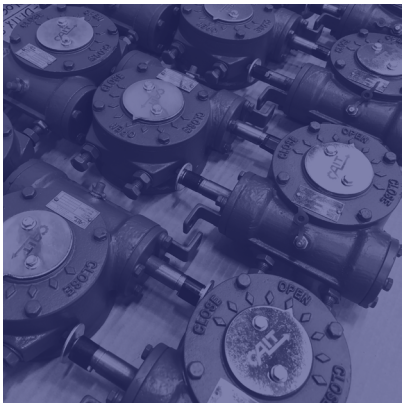
At Advanced Industrial Technologies, we specialize in quick turnaround ordering and shipping so your business can stay operational. We know time is money and our team is relentless at ensuring our solution is the right fit, for the right price, and at the right time.

WORM GEARS **OVERVIEW**

- For quarter-turn applications; ball valves, plug valves, butterfly valves
- Ductile iron industrial grade housing(s), WCB available
- From 2,800in-lbs to over 6,000,000in-lbs output torque available
- Standard as manual gearbox with locking devices
- Optional motorized gear flanges for electric/MOV applications
- ISO 5210/5211 output flanges are standard with custom mounting pads available (depending on gear model / application)
- IP65 rating standard, available IP67 rating
- Gear ratios available from 28:1 up to 4704:1
- Standard service, buried service, & submerged service available
- Removable splined bushing (makes it easier for a machinist)
- Dual thrust bearings on worm wheel for smooth operation

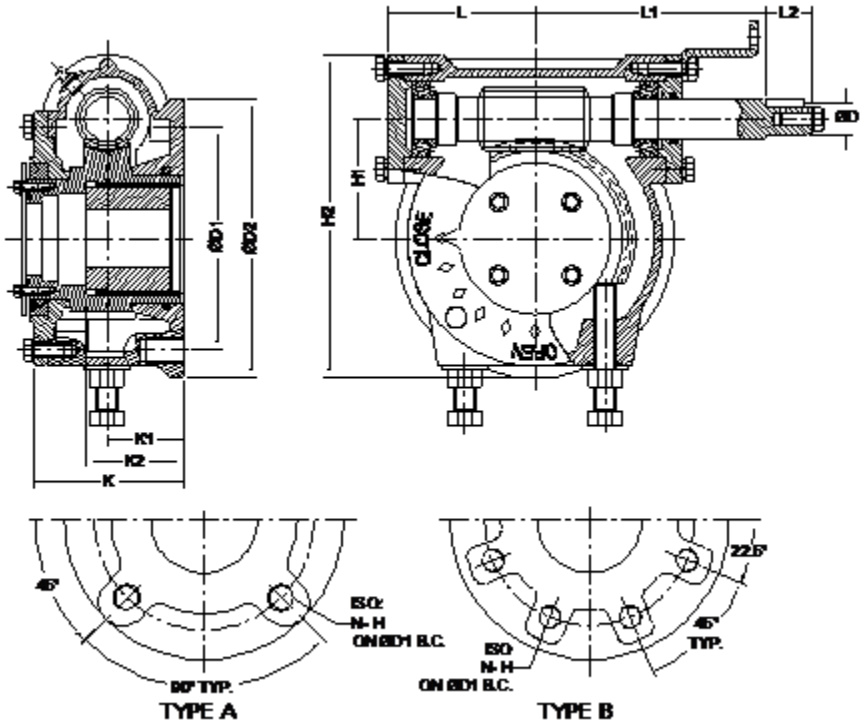
TECHNICAL DATA

GEAR MODEL	OUTPUT (IN.LB)	GEAR RATIO	MECHANICAL ADVANTAGE	WEIGHT (LBS)	MAX BORE (IN)	MOUNTING PATTERN
WG3L-28-FA07	2,800	28:1	7	11	Ø0.748	FA07
WG4L-41-FA10	4,500	41:1	11.3	18	Ø1.063	FA10
WG8L-39-FA10FA12	8,700	39:1	11.7	22	Ø1.575	FA10 + FA12
WG12L-46-FA14	12,500	46:1	13.8	35	Ø1.939	FA14
WG22L-49-FA16	22,000	49:1	14.7	57	Ø2.362	FA16
WG26L-129-FA16	26,500	129:1	33	84	Ø2.362	FA16
WG33L-60-FA16	33,600	60:1	18	69	Ø2.559	FA16
WG37L-158-FA16	37,000	158:1	40	91	Ø2.559	FA25
WG58L-179-FA25	58,000	179:1	41	141	Ø3.346	FA16 + FA25
WG70L-220-FA25	70,000	220:1	39.6	166	Ø3.346	FA16 + FA25
WG88L-177-FA30	88,500	177:1	45	201	Ø4.134	FA25 + FA30
WG115L-260-FA30	115,060	260:1	52	221	Ø4.134	FA25 + FA30
WG115L-399-FA30	115,060	399:1	80	254	Ø4.134	FA25 + FA30
WG132L-201-FA30	132,760	201:1	47	309	Ø4.72	FA25 + FA30
WG159L-295-FA30	159,300	295:1	58.6	320	Ø4.72	FA30 + FA35
WG159L-603-FA-30FA35	159,300	426:1	85.2	397	Ø5.51	FA30 + FA35
WG663-1168-FA40	663,000	1168:1	233	1015	Ø748	FA40



EXAMPLE

WG	26	#	-	129	-	FA16	-	##	N	1.75	-	K	1.75	X	0.50
WORM GEAR	**SIZE (IN/LB**	**OTHER OPTION**	**-**	**RATIO**	**-**	**ISO PATTERN(S)**	**-**	**H.W. SIZE (IN)**	**INPUT OPTION**	**BORE DIAMETER**	**-**	**OUTPUT DRIVE OPTION**	**KEY WIDTH**	**X**	**KEY HEIGHT**
WG	3	L: LOCKING DEVICE #: N/A	-	28	-	FA07	-	##: N/A	F: MOTOR FLANGE M: MITER BOX N: N/A	N: N/A	-	B: BLANK D: DOUBLE D K: BORE & KEY S: SW. DRIVE	##: N/A	-	##: N/A
	4			41		FA10									
	8			39		FA10 + FA12									
	12			46		FA14									
	22			49		FA16									
	26			129		FA16									
	33			60		FA16									
	37			158		FA25									
	58			179		FA16+ FA25									
	70			220		FA25 FA16 + FA25									
	88			177		FA25 + FA30									
	115			260		FA25 + FA30									
	132			201		FA25 + FA30									
	132			399		FA25 + FA30									
	159			295		FA30 + FA35									
	159			603		FA30 + FA35									
	663			1168		FA40									



DIMENSIONAL DATA

GEAR MODEL	TYPE	ISO	ØD1	ØD2	N-H	MAX. ROUND BORE	H1	H2	K	K1	K2	L	L1	L2	D
WG3L-28-FA07	TYPE A	FA07	2.76	3.54	4-5/16-18 UNC	Ø0.748 W/.236X.236 KEY	1.57	4.43	2.28	1.1	/	2.09	3.6	0.94	0.63
WG4L-41-FA10		FA10	4.016	4.92	4-3/8-16 UNC	Ø1.063 W/.315X.276 KEY	2.17	5.91	2.81	1.3	1.93	2.78	4.05	0.94	0.63
WG8L-39-FA10FA12		FA10 FA12	4.016 4.921	5.91	4-3/8-16 UNC 4-1/2-13 UNC	Ø1.575 W/.472X.354 KEY	2.6	7.13	3.56	1.89	2.01	3.25	5.3	1.14	0.827
WG12L-46-FA14		FA14	5.512	6.89	4-5/8-11 UNC	Ø1.969 W/.551X.354 KEY	2.95	7.97	3.68	1.89	2.4	3.64	5.69	1.14	0.827
WG22L-49-FA16		FA16	6.496	8.27	4-3/4-10 UNC	Ø2.362 W/.709X.433 KEY	3.63	9.63	4.33	2.5	2.68	4.45	7.68	1.5	1.102
WG26L-129-FA16		FA16	6.496	8.27	4-3/4-10 UNC	Ø2.362 W/.709X.433 KEY	3.62	11.26	4.33	2.5	2.68	4.45	8.07	1.5	1.102
WG33L-60-FA16		FA16	6.496	9.84	4-3/4-10 UNC	Ø2.559 W/.709X.433 KEY	4.37	11.16	4.37	2.24	2.64	4.96	8.39	1.5	1.102
WG37L-158-FA16		FA16	6.496	9.84	4-3/4-10 UNC	Ø2.559 W/.709X.433 KEY	4.37	12.8	4.37	2.24	2.64	4.96	8.54	1.5	1.102
WG58L-179-FA25	TYPE B	FA25	10.000	11.81	8-5/8-11 UNC	Ø3.346 W/.866X.551 KEY	5.67	15.08	4.88	2.5	3.94	6.22	9.69	1.5	1.102
WG70L-220-FA25		FA25	10.000	11.81	8-5/8-11 UNC	Ø3.346 W/.866X.551 KEY	5.67	15.31	4.88	2.5	/	6.22	11.3	1.5	1.102
WG88L-177-FA30		FA30	10.000 11.732	13.78	8-5/8-11 UNC 8-3/4-10 UNC	Ø4.134 W/ 1.102X.630 KEY	6.3	17.81	5.63	2.8	3.98	7.48	11.18	1.5	1.102
WG115L-260-FA30		FA30	11.732	13.78	8-3/4-10 UNC	Ø4.134 W/ 1.103X.630 KEY	6.3	17.3	5.63	2.8	3.98	7.48	12.36	1.5	1.102
WG132-201-FA30		FA30	11.732	16.3	8-3/4-10 UNC	Ø4.720	7.9	20.7	6.7	3.6	/	8.8	12.5	1.5	1.102
WG132-399-FA30		FA30	11.732	13.78	8-3/4-10 UNC	Ø4.134 E/ 1.102X.630 KEY	6.3	17.3	5.63	2.8	3.98	7.48	13.9	1.89	1.496
WG159-295-FA30		FA30	11.732	16.3	8-3/4-10 UNC	Ø4.72	7.9	20.2	6.7	3.6	4.7	8.8	13.7	1.5	1.102
WG212-426-FA40		FA40	15.984	18.7	8-1 1/4-7 UNC	Ø5.512 W/ 1.417X.787 KEY	8.9	22.9	7.5	4.1	/	9.3	15.6	1.9	1.5
WG796-1168-FA40		FA40	15.984	22.4	8-11/4-7 UNC	Ø7.480	13.4	30.4	9.2	4.6	/	13.2	19.9	2	1.8

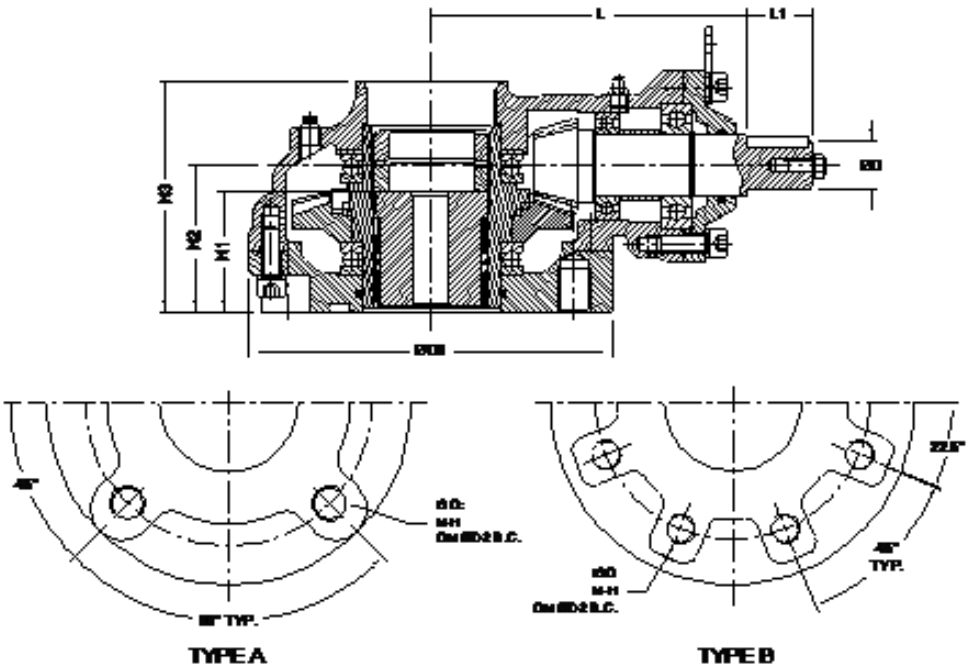
TECHNICAL DATA

GEAR MODEL	MAX OUTPUT TORQUE (IN.LB)	MAX INPUT TORQUE (IN.LB)	THRUST (LBS)	RATIO	MECHANICAL ADVANTAGE	WEIGHT (LBS)	MOUNTING PATTERN
BG3-FA12	258	103	25403	3:1	2.5	27	FA12
BG4-FA14	405	162	288550	3:1	2.5	40	FA14
BG7	663	213	31698	3.6:1	3.1	51	FA14
BG9-FA25	958	276	42713	4.1:1	3.5	75	FA16
BG10S-FA16	1032	118	42713	13.3:1	9	121	FA16
BG13-FA16	1327	350	60248	4.5:1	3.8	99	FA16
BG15S-FA25	1475	110	60248	19.9:1	13.5	154	FA19
BG20-FA25	2065	472	69241	5.2:1	4.4	183	FA25
BG26-FA30	2581	730	90373	5.7:1	4.8	315	FA30
BG26S-FA25	2581	225	69241	23.1:1	15.6	236	FA25
BG33-FA30	3319	840	118699	6.3:1	5.4	419	FA30
B37S-FA30	3687	195	90373	38.5:1	26	410	FA30
BG50-FA30	5015	1260	249537	6.3:1	5.4	611	FA30

FIGURE DATA

EXAMPLE

BG	10	S	-	FA12
BEVEL GEAR	SIZE	OPTIONAL	-	ISO PATTERN
BG	3	S: SPUR BOX	-	FA12 FA14 FA16 FA25 FA30
	4			
	7			
	9			
	10			
	13			
	15			
	20			
	26			
	33			
	37			
	50			



DIMENSIONAL DATA

GEAR MODEL	TYPE	ISO	ØD	ØD2	ØD3	N-H	MAX STEM DIA.	H1	H2	H3	L	L1
BG3-FA12	TYPE A	FA12	1.102	4.921	5.9	4-1/2-13 UNC	Ø1.102	2.00	2.8	4.4	5.5	1.42
BG4-FA14		FA14	1.102	5.512	6.9	4-5/8-11 UNC	Ø1.496	2.30	3.1	4.9	6.5	1.6
BG7-FA14		FA14	1.102	5.512	8.3	4-5/8-11 UNC	Ø1.811	2.70	3.3	5.2	7.1	1.6
BG9-FA16	TYPE B	FA16	1.575	6.496	9.8	4-3/4-10 UNC	Ø1.968	2.70	3.4	5.7	8.0	1.6
BG10S-FA16	TYPE A	FA16	0.787	6.496	9.8	4-3/4-10 UNC	Ø1.969	2.70	3.4	5.7	14.2	1.8
BG13-FA16		FA16	1.575	6.496	8.3	4-3/4-10 UNC	Ø2.362	3.20	3.8	6.3	8.9	3.1
BG15S-FA19	TYPE B	FA19	0.787	7.480	11.8	8-5/8-11 UNC	Ø2.362	3.20	3.8	6.3	15.3	1.8
BG20-FA25		FA25	1.575	10.000	15.0	8-5/8-11 UNC	Ø2.756	4.00	5.2	8.2	13.4	3.1
BG26-FA30		FA30	1.969	11.732	17.0	8-3/4-10 UNC	Ø3.543	5.70	5.9	9.7	13.1	3.9
BG26S-FA25		FA25	0.787	10.000	15.0	8-5/8-11 UNC	Ø2.756	4.00	5.2	8.2	17.9	1.8
BG33-FA30		FA30	1.969	11.732	16.3	8-3/4-10 UNC	Ø3.937	6.30	6.8	10.9	13.4	3.9
BG37S-FA30		FA30	0.787	11.732	17.0	8-3/4-10 UNC	Ø3.543	5.70	5.9	9.7	20.4	1.8
BG50-FA30		FA30	1.969	11.732	13.8	8-3/4-10 UNC	Ø4.331	6.90	8.2	13.7	14.3	3.94

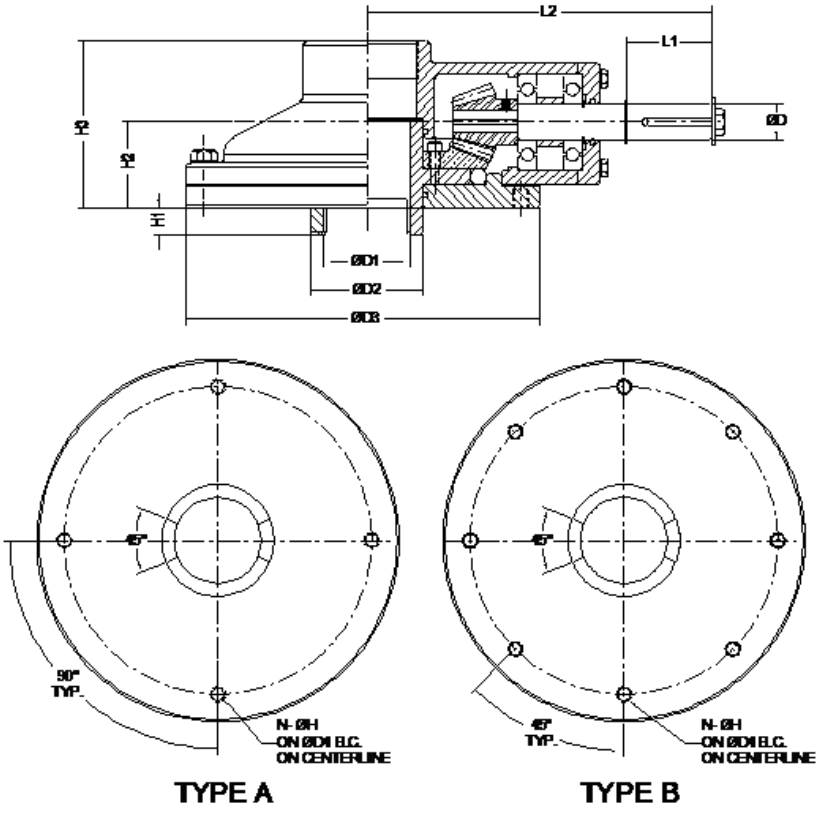
TECHNICAL DATA

GEAR MODEL	MAX OUTPUT TORQUE (IN.LB)	MAX INPUT TORQUE (IN.LB)	THRUST (LBS)	RATIO	MECHANICAL ADVANTAGE	WEIGHT (LBS)	MOUNTING PATTERN
AIT B107	1000	2.92:1	2.625	2.625	46	NS:4 X 1/2" - 13UNC ON Ø7.630" B.C. ON C/L	18
AIT B207	2000	4.07:1	3.950	4.125	72	NS:8 X 1/2" - 13UNC ON Ø7.623" B.C. ON C/L	24

FIGURE DATA

EXAMPLE

AIT	B107
BEVEL GEAR	SIZE
AIT	B107
	B207



TYPE A TYPE B

DIMENSIONAL DATA

GEAR MODEL	TYPE	ISO	ØD	ØD1	ØD2	ØD3	ØD4	N-H	H1	H2	H3	L1	L2
AIT B107	TYPE A	NON STAN-DARD	Ø1.38	Ø2.77	Ø3.54	Ø8.87	Ø7.63	4-1/2-13 UNC	0.50	2.55	4.72	2.25	11.15
AIT B207	TYPE B	NON STAN-DARD	Ø1.38	Ø4.25	Ø5.30	Ø11.79	Ø7.63	8-1/2-13 UNC	0.78	2.76	5.48	2.25	11.88

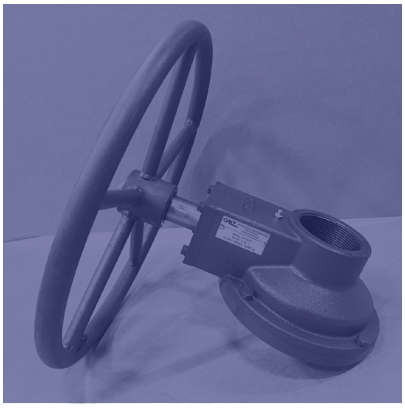
PRODUCT OVERVIEW **WORM & BEVEL GEARS**

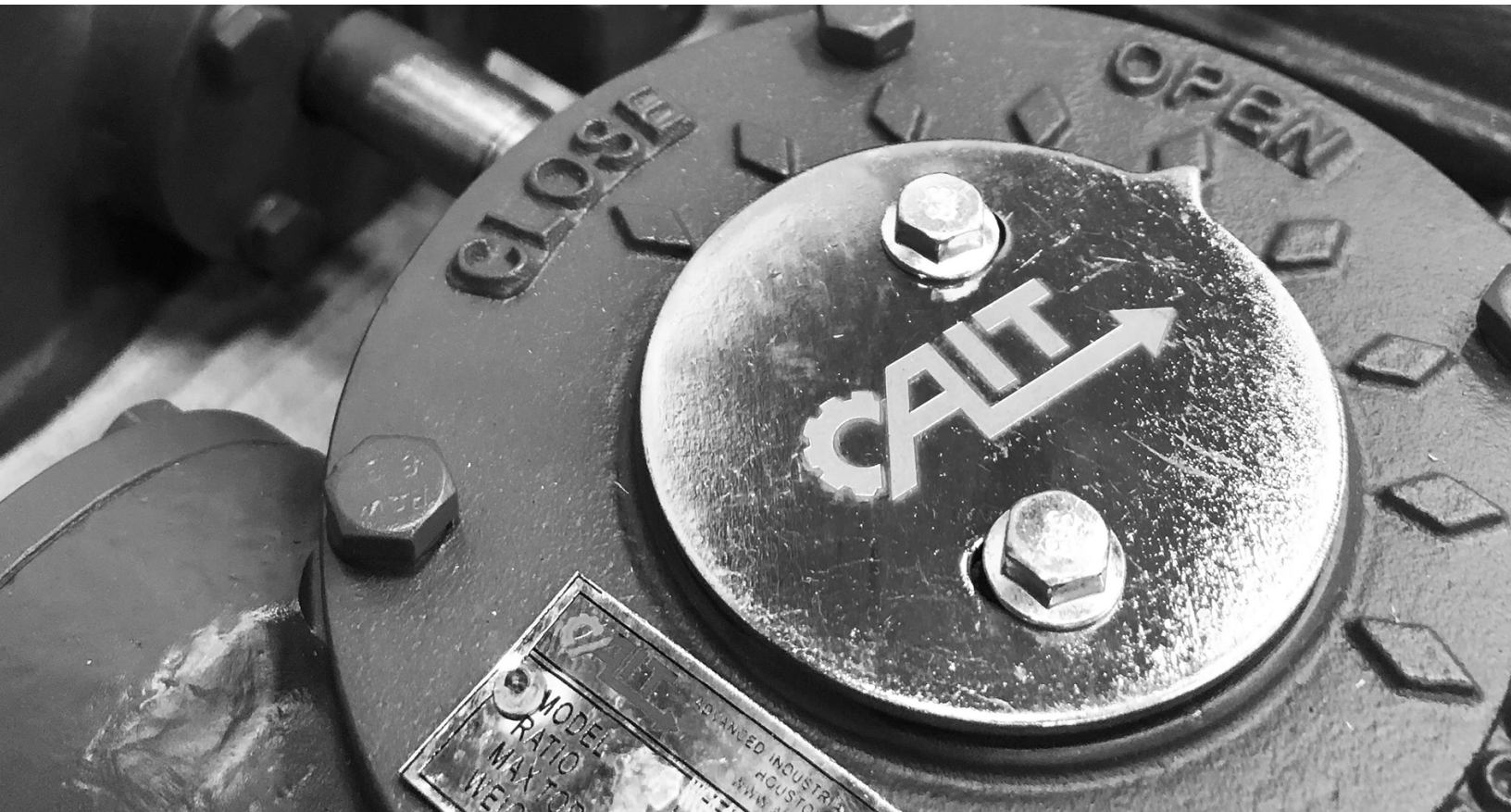
WORM GEARS

- Worm gearbox, quarter-turn; is suitable for use on ball, butterfly and plug valves
- Worm gearbox adapts to ISO standard for direct mounting
- Robust gearbox housing offers superior quality and strength constructed with high quality ductile iron (WCB housing available)
- Offers exceptional Mechanical Advantage for high efficiency
- Locking device standard
- Motor flanges available

BEVEL GEARS

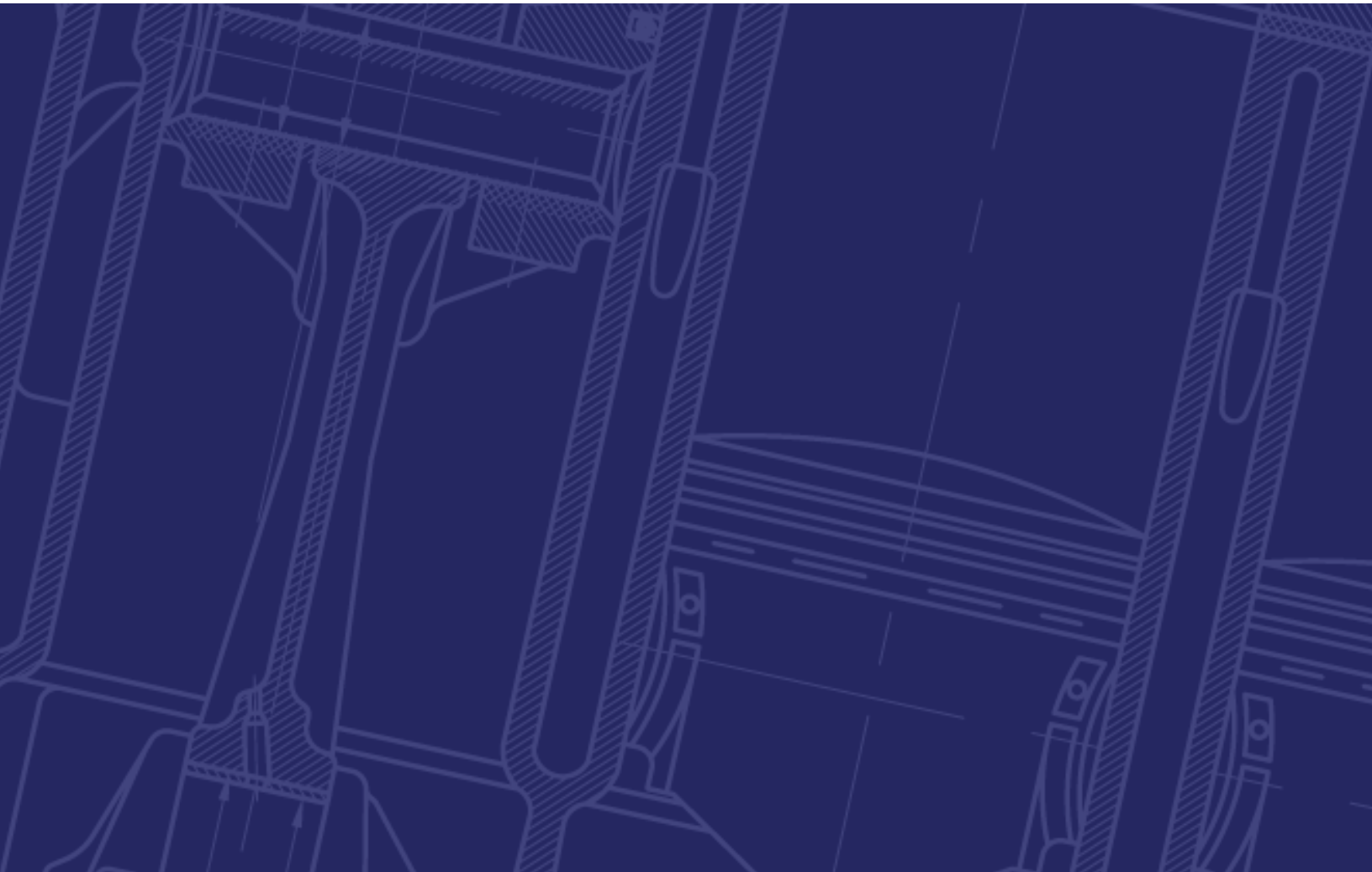
- Bevel gearbox is intended for multi-turn valves
- ISO mounting patterns for easy and direct mounting
- Bevel gear housing delivers superior quality and design constructed with high strength ductile & cast iron
- Stem protector is options
- Locking device available
- Motor flanges available





FORMULAS & CALCULATIONS **QUICK REFERENCE GUIDE**

GEAR MODEL	MAX TORQUE [FT. LB]
EFFICIENCY PERCENTAGE =	OUTPUT TORQUE X 100 / INPUT TORQUE X GEAR RATIO
FOOT POUNDS TORQUE =	INCH POUNDS TORQUE / 12
GEAR RATIO =	NUMBER OF TURNS OF INPUT / NUMBER OF TURNS OUTPUT
HANDWHEEL DIAMETER =	INPUT TORQUE X 2 / H.W. RIM EFFORT
HANDWHEEL RIM EFFORT =	INPUT TORQUE X 2 / H.W. DIAMETER
INCH POUNDS TORQUE =	NEWTON METERS X 8.849
INPUT TORQUE =	OUTPUT TORQUE / MECHANICAL ADVANTAGE
MECHANICAL ADVANTAGE =	OUTPUT TORQUE / INPUT TORQUE
NUMBER OF TURNS TO CLOSE =	GEAR RATIO / 4
OUTPUT TORQUE =	INPUT TORQUE X MECHANICAL ADVANTAGE

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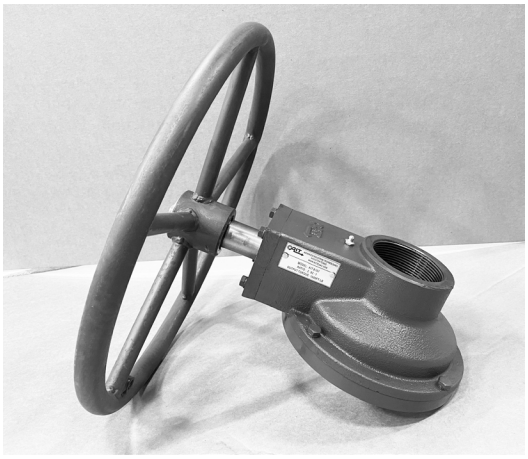

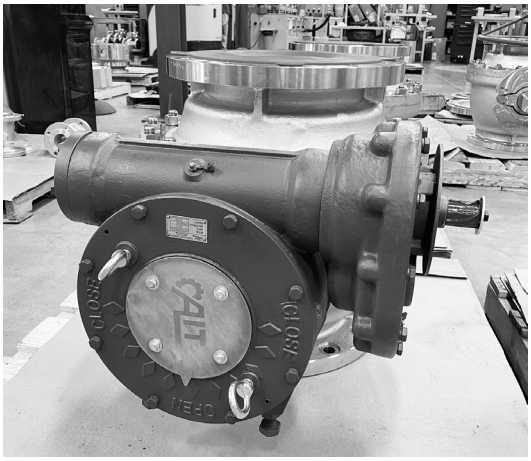
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NOTES

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