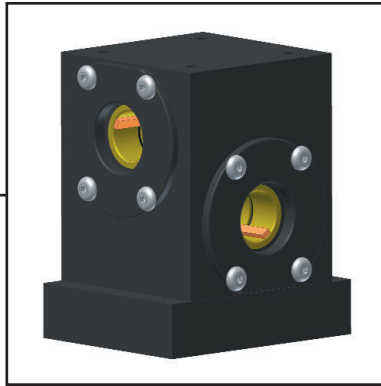


Providing solutions to your gear drive needs



APPLICATION USES

- Check Weighing Systems
- Web tensioning machinery
- Packaging machinery
- Printing presses
- CNC machinery
- Conveyer belts
- Food processing
- Paper converting machinery
- Material handling
- Agricultural machinery



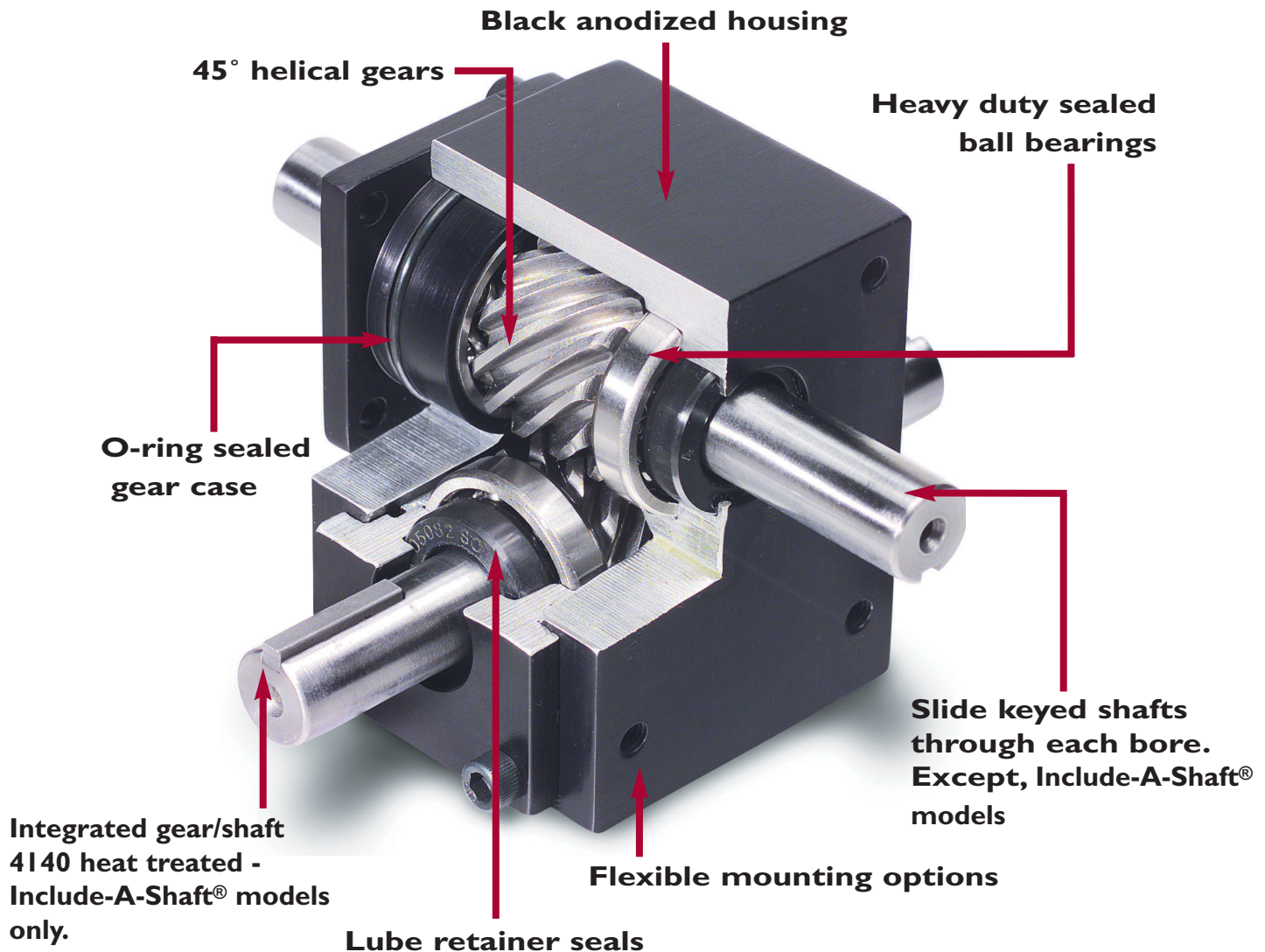
WHAT'S INSIDE

Add-A-Shaft [®] Mini 1:1	3
Include-A-Shaft [®] Mini 1:1	5
Add-A-Shaft [®] 1:1, 3:2, 2:1	7
Add-A-Shaft [®] 1:1, 3:2, 2:1 -Base Mount Series	9
Add/Insert-A-Shaft [®] 1:1, 3:2, 2:1	11
Insert-A-Shaft [®] 1:1, 3:2, 2:1	13
Insert-A-Shaft [®] 1:1, 3:2, 2:1 -Extended Hollow Shaft Series	15
Insert-A-Shaft [®] 1:1, 3:2, 2:1 -Base Mount Series	17



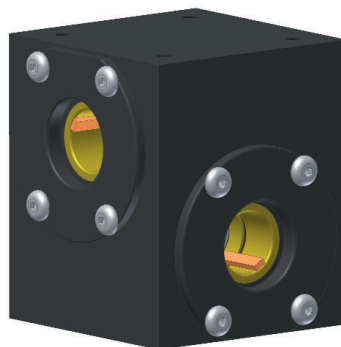
Take a turn for the better! Look below, at the common design features we made standard in W.C. Branham Inc. Right Angle Gear Drives. These features have produced, what we think, are the best 100% interchangeable gear drives available in today's market when compared with similar "float-style" models from The Other Manufacturer's (T-O-M) brands. For example, all of our gear drives use heavy duty sealed ball bearings that support both thrust and radial loads. The benefits are better performance and fewer parts, which eliminates the need for an inner bearing race used in T-O-M's roller bearing models. And, best of all, we've cooled high operating temperatures and prevented lubricant leakage - no more drip pans.

We think you'll like our right angle gear drives. The feedback came from experienced OEM Design Engineers, after all. Contact us today for application assistance, competitive pricing or delivery information. Most models are available from stock or within a few short days.

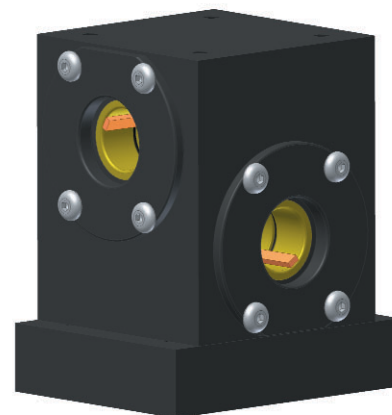


Standard Features

- 1" shaft centers
- Accepts 5/8" and 1/2" keyed shaft diameters
- 1045 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Hardcoated Housing
- Speeds to 1800 RPM
- 1:1 gear ratio
- O-Ring sealed gear case
- Machined aluminum construction
- Keys included (2)



AAS MINI 1:1



AAS MINI 1:1 FOOT MOUNT

Ordering

RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE	FOOT MOUNT
1:1	4304-0116	RH	5/8"	5/8"	NO
1:1	4304-0117	LH	5/8"	5/8"	NO
1:1	4304-0118	RH	1/2"	5/8"	NO
1:1	4304-0119	LH	1/2"	5/8"	NO
1:1	4304-0120	RH	1/2"	1/2"	NO
1:1	4304-0121	LH	1/2"	1/2"	NO
1:1	4304-0404	RH	5/8"	5/8"	YES
1:1	4304-0405	LH	5/8"	5/8"	YES
1:1	4304-0406	RH	1/2"	5/8"	YES
1:1	4304-0407	LH	1/2"	5/8"	YES
1:1	4304-0408	RH	1/2"	1/2"	YES
1:1	4304-0409	LH	1/2"	1/2"	YES

Easy Sizing

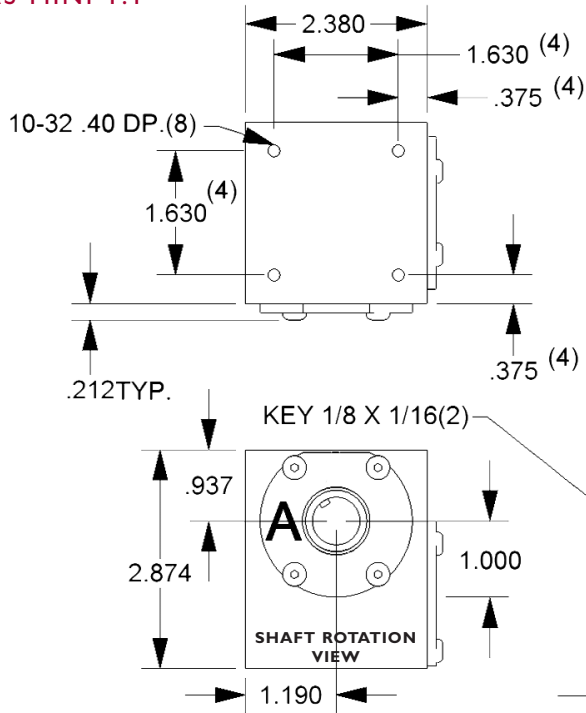
$$\text{Input Torque} = \frac{\text{Output Torque}}{.6}, \text{ Inch Lbs.}$$

Theoretical output torque at various RPM.

OUTPUT TORQUE, IN. LBS.	
RPM	1:1
33	59
50	51
100	41
150	36
200	32
300	28
400	21
500	19
600	18
1000	15
1200	14
1800	12
MAX. HAND TORQUE IS	
132 IN.LBS.	



AAS MINI 1:1



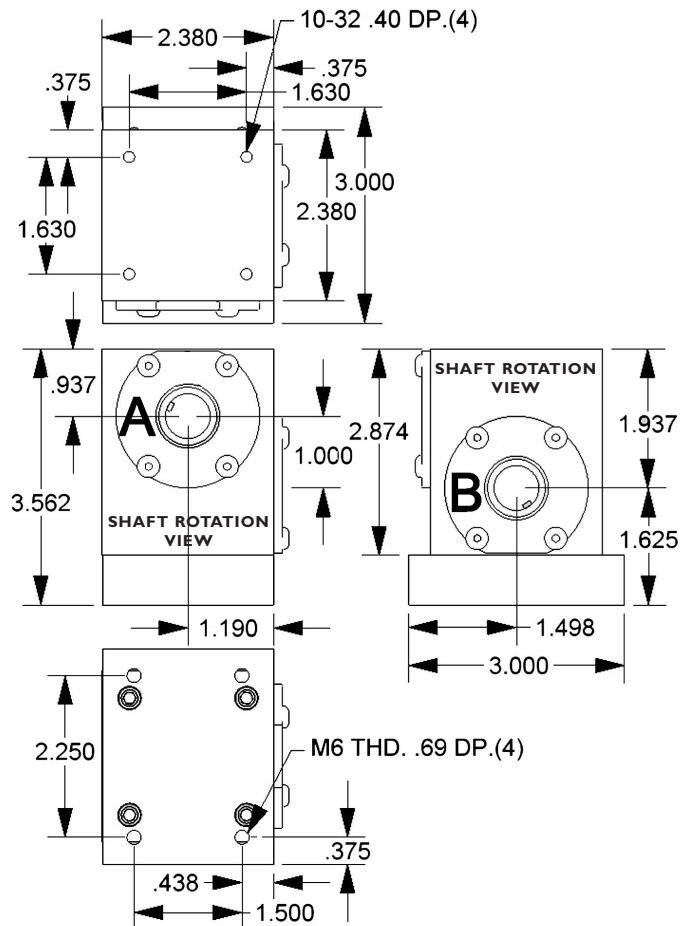
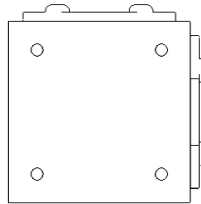
SHAFT ROTATIONS



BORE CENTERLINE TOLERANCE +.002/-.000



AAS MINI 1:1 FOOT MOUNT



KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	

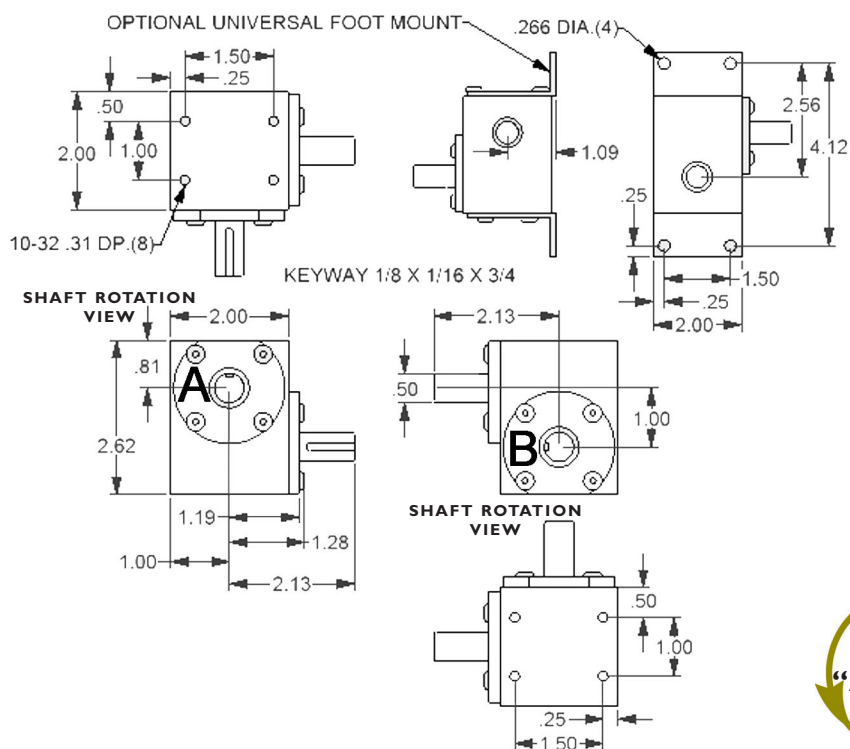
Standard Features

- 1" shaft centers
- One piece 4140 heat treated 45° helical gear and shaft combination
- 1/2" diameter keyed shafts
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Hardcoated Housing
- Speeds to 1800 RPM
- 1:1 gear ratio
- O-Ring sealed gear case
- Machined aluminum construction
- Keys included for each shaft

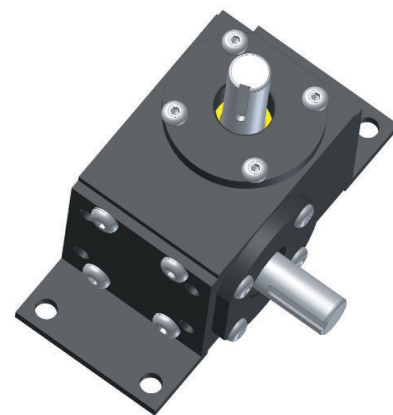
Ordering

NUMBER OF SHAFTS	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE	FOOT MOUNT
2-Way	4304-0112	RH	1/2"	1/2"	NO
2-Way	4304-0113	LH	1/2"	1/2"	NO
2-Way	4304-0114	RH	1/2"	1/2"	YES
2-Way	4304-0115	LH	1/2"	1/2"	YES
3-Way	4304-0108	RH	1/2"	1/2"	NO
3-Way	4304-0109	LH	1/2"	1/2"	NO
3-Way	4304-0110	RH	1/2"	1/2"	YES
3-Way	4304-0111	LH	1/2"	1/2"	YES
4-Way	4304-0100	RH	1/2"	1/2"	NO
4-Way	4304-0101	LH	1/2"	1/2"	NO
4-Way	4304-0106	RH	1/2"	1/2"	YES
4-Way	4304-0107	LH	1/2"	1/2"	YES

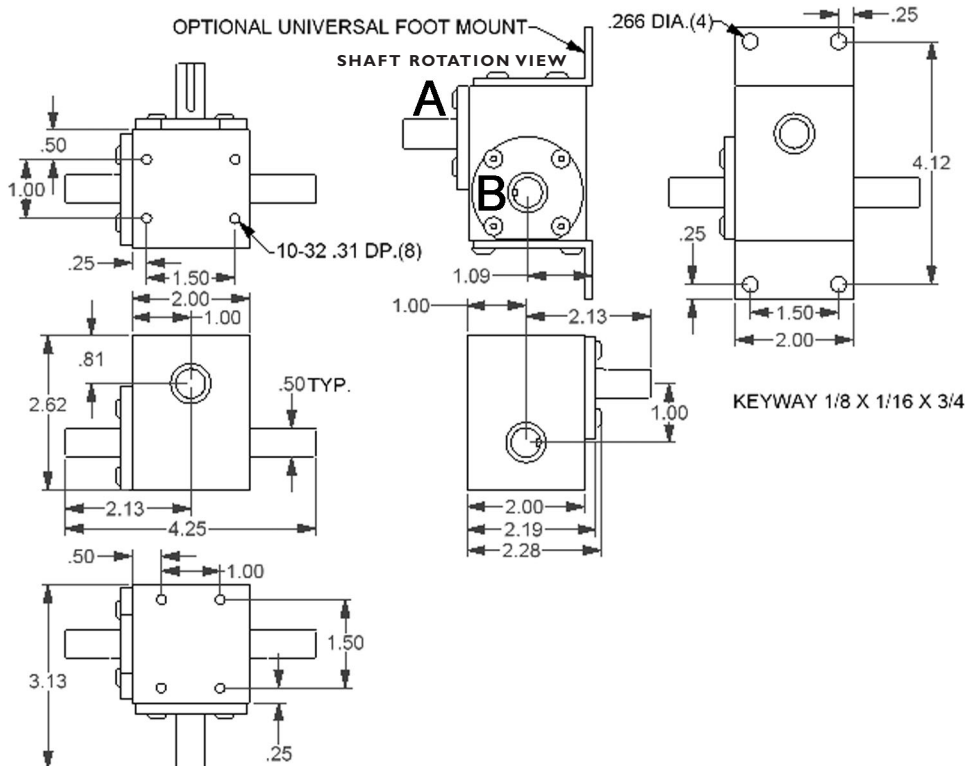
2-Way



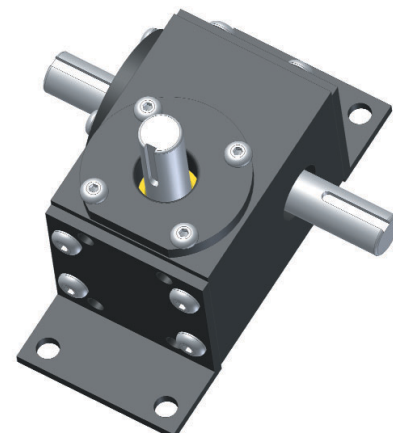
INCAS MINI 1:1 2-WAY



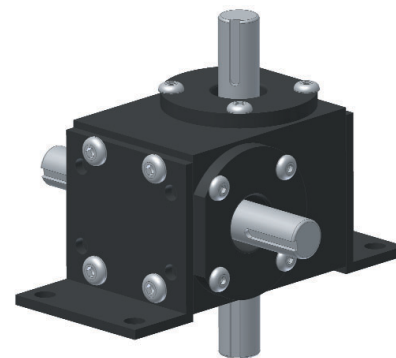
3-Way



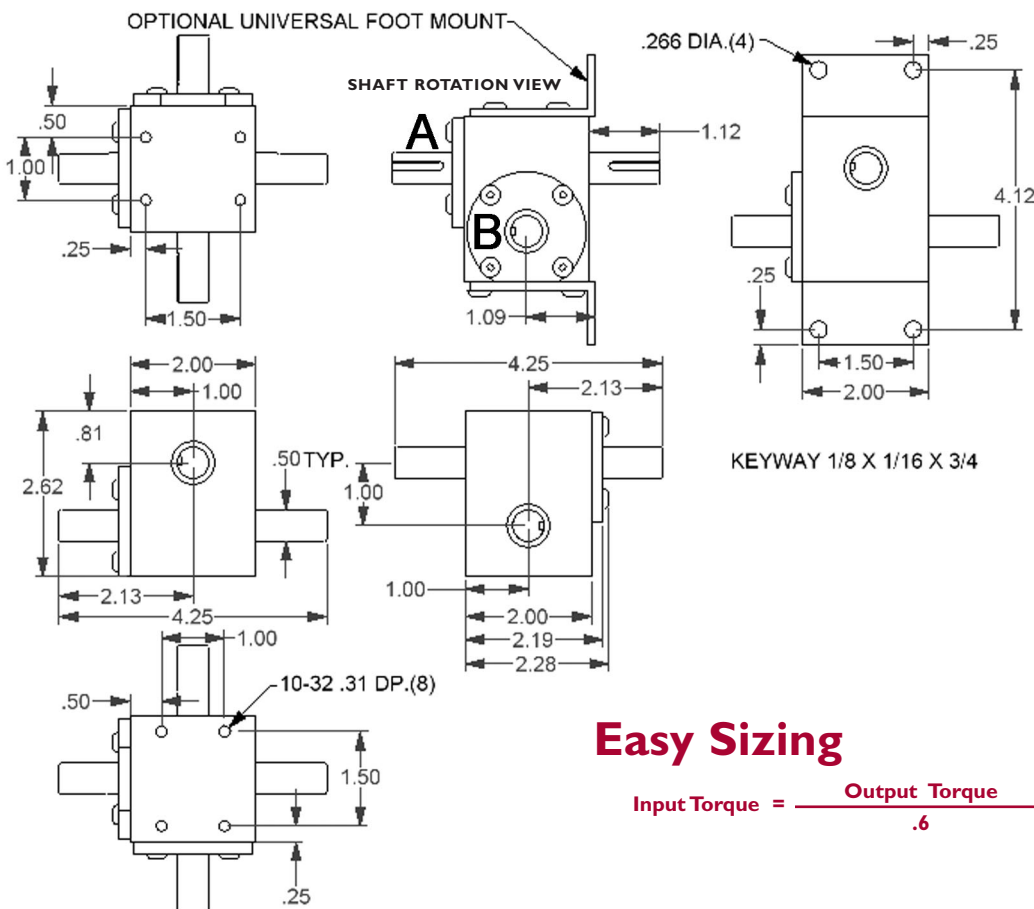
INCAS MINI 1:1 3-WAY



INCAS MINI 1:1 4-WAY



4-Way



Theoretical output torque at various RPM.

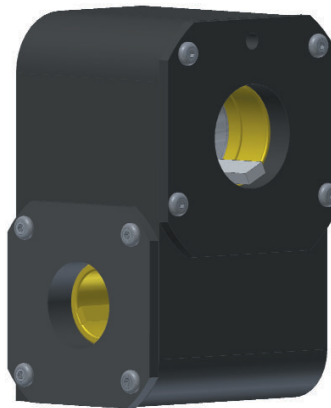
OUTPUT TORQUE, IN. LBS.	
RPM	1:1
33	59
50	51
100	41
150	36
200	32
300	28
400	21
500	19
600	18
1000	15
1200	14
1800	12
MAX. HAND TORQUE IS	
132 IN.LBS.	

Easy Sizing

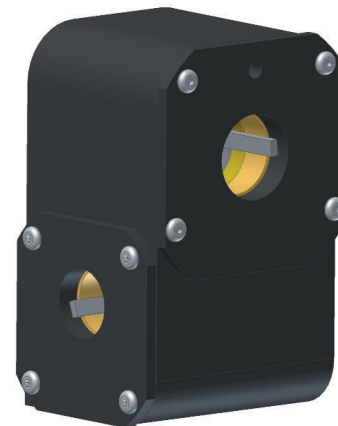
$$\text{Input Torque} = \frac{\text{Output Torque}}{.6}, \text{ Inch Lbs.}$$

Standard Features

- 2 1/2 inch shaft centers (AAS 1:1, 3:2)
- 2 1/4 inch shaft centers (AAS 2:1)
- Accepts 1, 1 1/4 or 1 1/2” keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)



AAS 1:1, 3:2



AAS 2:1

Ordering

RATIO	ORDER NO.	TYPE	“A” BORE SIZE	“B” BORE SIZE
1:1	4304-0066	RH	1 1/4”	1 1/4”
1:1	4304-0067	LH	1 1/4”	1 1/4”
1:1	4304-0222	RH	1 1/2”	1 1/4”
1:1	4304-0223	LH	1 1/2”	1 1/4”
3:2	4304-0074	RH	1 1/4”	1 1/4”
3:2	4304-0075	LH	1 1/4”	1 1/4”
3:2	4304-0226	RH	1 1/2”	1 1/4”
3:2	4304-0227	LH	1 1/2”	1 1/4”
2:1	4304-0036	RH	1 1/4”	1.0”
2:1	4304-0037	LH	1 1/4”	1.0”
2:1	4304-0228	RH	1 1/2”	1.0”
2:1	4304-0229	LH	1 1/2”	1.0”

Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.78}, \text{ Inch Lbs.}$$

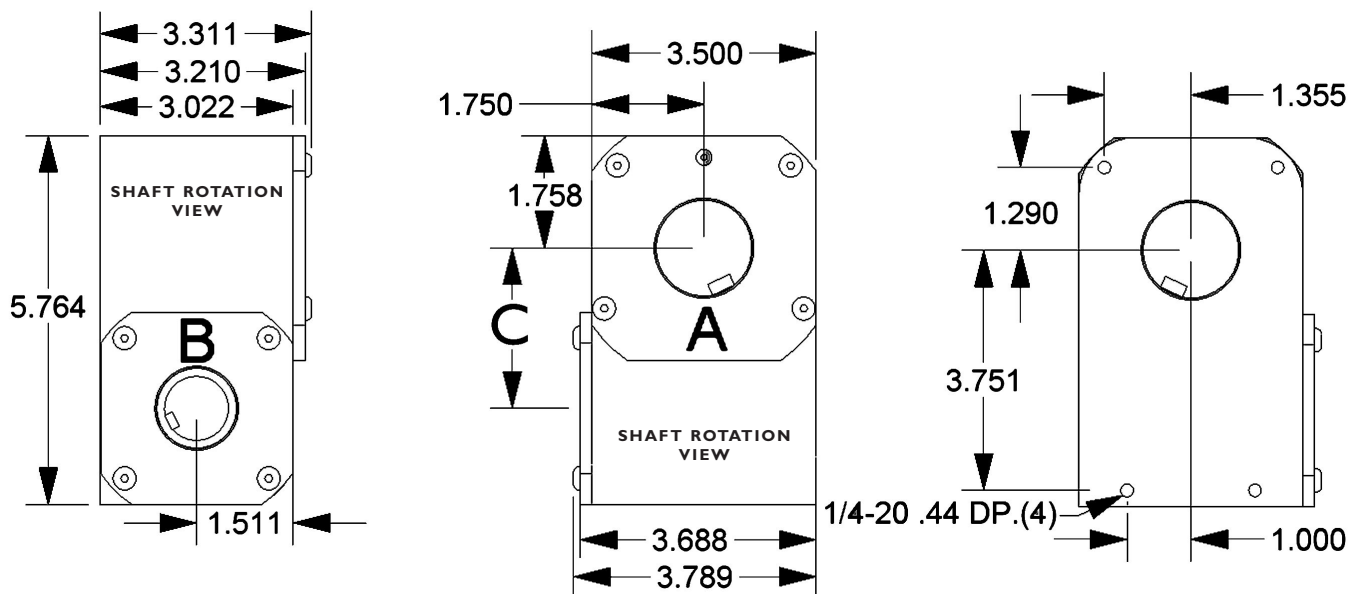
For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$



AAS 1:1, 3:2 - "C" = 2.50 +.002/-.000

AAS 2:1 - "C" = 2.25 +.002/-.000



Theoretical output torque at various RPM.

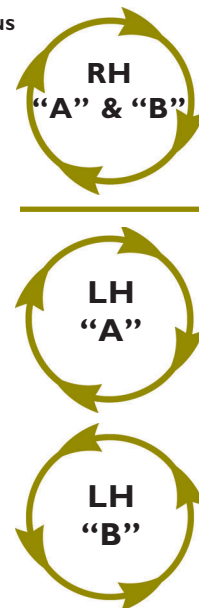
RPM	OUTPUT TORQUE, (IN. LBS.)				
	1:1	GR 2:1	SI 2:1	GR 3:2	SI 3:2
33	236	293	73	246	110
50	205	254	64	213	96
100	163	203	51	170	76
200	130	161	40	135	61
300	113	140	35	118	53
400	80	100	25	83	37
500	73	91	23	76	34
1000	59	73	18	61	27
1200	56	70	17	59	26

MAXIMUM HAND TORQUE = 402 IN. LBS.

GR = GEAR REDUCER • SI = SPEED INCREASER

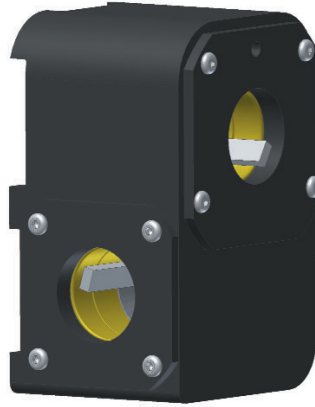
KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	

SHAFT ROTATIONS



Standard Features

- 2 1/2 inch shaft centers (AAS 1:1, 3:2)
- 2 1/4 inch shaft centers (AAS 2:1)
- Accepts 1, 1 1/4 or 1 1/2” keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)



AAS BASE MOUNT 1:1, 3:2



AAS BASE MOUNT 2:1

Ordering

RATIO	ORDER NO.	TYPE	“A” BORE SIZE	“B” BORE SIZE
1:1	4304-0390	RH	1 1/2”	1 1/2”
1:1	4304-0391	LH	1 1/2”	1 1/2”
1:1	4304-0392	RH	1 1/2”	1 1/4”
1:1	4304-0393	LH	1 1/2”	1 1/4”
3:2	4304-0394	RH	1 1/2”	1 1/4”
3:2	4304-0395	LH	1 1/2”	1 1/4”
2:1	4304-0396	RH	1 1/2”	1”
2:1	4304-0397	LH	1 1/2”	1”

Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

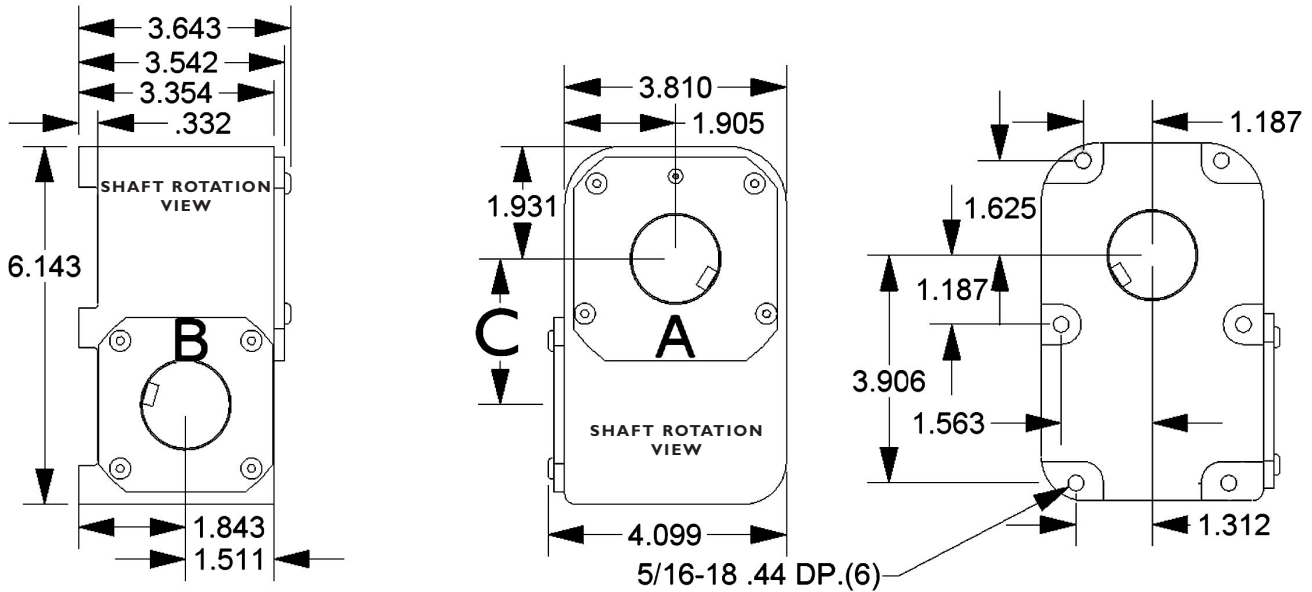
$$\text{Input Torque} = \frac{\text{Output Torque}}{.78}, \text{ Inch Lbs.}$$

For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$



AAS BASE MOUNT 1:1, 3:2 - "C" = 2.50 +.002/-.000
AAS BASE MOUNT 2:1 - "C" = 2.25 +.002/-.000



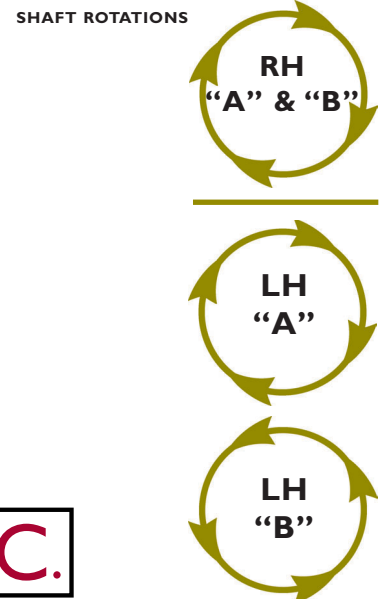
Theoretical output torque at various RPM.

OUTPUT TORQUE, (IN. LBS.)					
RPM	GR		SI		SI
	1:1	2:1	2:1	3:2	
33	358	369	73	310	110
50	312	320	64	268	96
100	248	256	51	214	76
200	198	203	40	170	61
300	172	176	35	149	53
400	122	126	25	104	37
500	111	115	23	96	34
1000	90	92	18	77	27
1200	85	70	17	59	26

MAXIMUM HAND TORQUE = 609 IN. LBS.

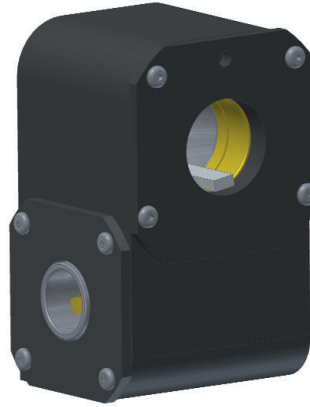
GR = GEAR REDUCER • SI = SPEED INCREASER

KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	

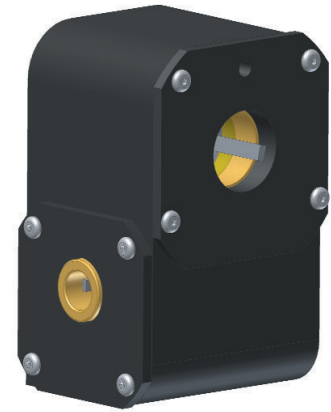


Standard Features

- 2 1/2 inch Shaft Centers (AAS/IAS 1:1, 3:2)
- 2 1/4 inch Shaft Centers (AAS/IAS 2:1)
- Accepts 5/8, 3/4, 1, 1 1/4 or 1 1/2” keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)



AAS/IAS 1:1, 3:2



AAS/IAS 2:1

Ordering

RATIO	ORDER NO.	TYPE	“A” BORE SIZE	“B” BORE SIZE
1:1	4304-0312	RH	1 1/2”	5/8”
1:1	4304-0313	LH	1 1/2”	5/8”
1:1	4304-0314	RH	1 1/2”	3/4”
1:1	4304-0315	LH	1 1/2”	3/4”
1:1	4304-0316	RH	1 1/2”	1.0”
1:1	4304-0317	LH	1 1/2”	1.0”
1:1	4304-0318	RH	1 1/4”	5/8”
1:1	4304-0319	LH	1 1/4”	5/8”
1:1	4304-0320	RH	1 1/4”	3/4”
1:1	4304-0321	LH	1 1/4”	3/4”
1:1	4304-0322	RH	1 1/4”	1.0”
1:1	4304-0323	LH	1 1/4”	1.0”
3:2	4304-0324	RH	1 1/2”	5/8”
3:2	4304-0325	LH	1 1/2”	5/8”
3:2	4304-0326	RH	1 1/2”	1.0”
3:2	4304-0327	LH	1 1/2”	1.0”
3:2	4304-0328	RH	1 1/2”	3/4”
3:2	4304-0329	LH	1 1/2”	3/4”
3:2	4304-0330	RH	1 1/4”	5/8”
3:2	4304-0331	LH	1 1/4”	5/8”
3:2	4304-0332	RH	1 1/4”	3/4”
3:2	4304-0333	LH	1 1/4”	3/4”
3:2	4304-0334	RH	1 1/4”	1.0”

Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.78}, \text{ Inch Lbs.}$$

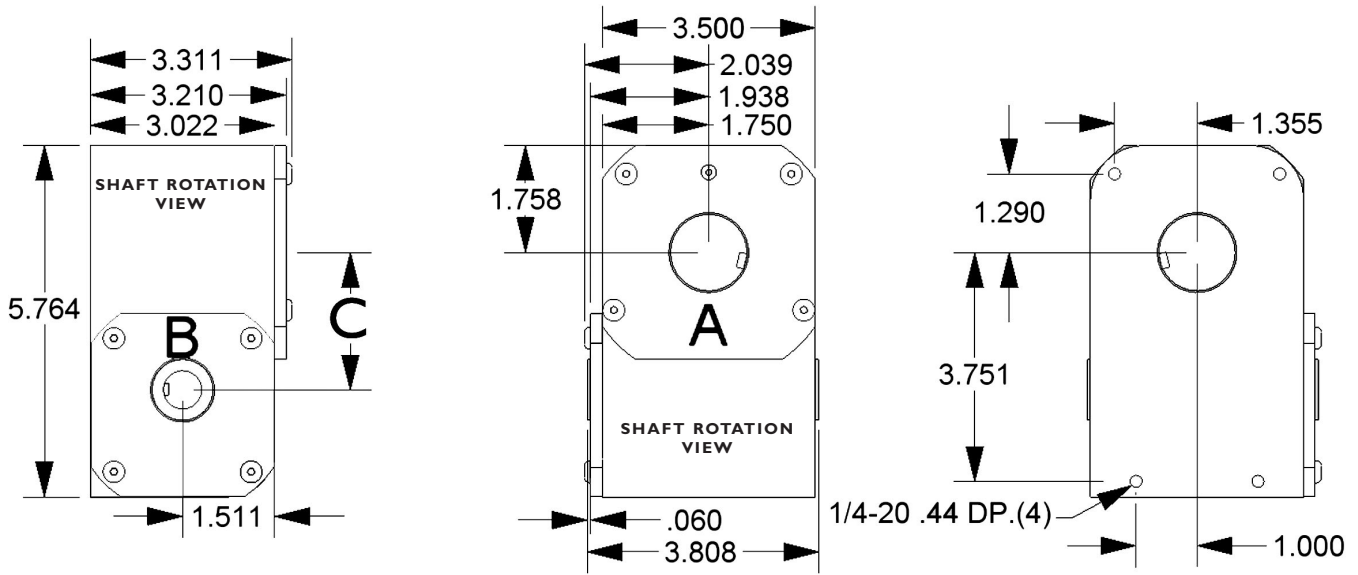
For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$

3:2	4304-0335	LH	1 1/4”	1.0”
2:1	4304-0300	RH	1 1/2”	5/8”
2:1	4304-0301	LH	1 1/2”	5/8”
2:1	4304-0302	RH	1 1/2”	3/4”
2:1	4304-0303	LH	1 1/2”	3/4”
2:1	4304-0306	RH	1 1/4”	3/4”
2:1	4304-0307	LH	1 1/4”	3/4”
2:1	4304-0304	RH	1 1/4”	5/8”
2:1	4304-0305	LH	1 1/4”	5/8”



AAS/IAS 1:1, 3:2 - "C" = 2.50 +.002/-.000
AAS/IAS 2:1 - "C" = 2.25 +.002/-.000



Theoretical output torque at various RPM.

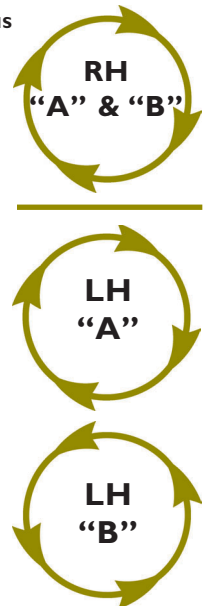
RPM	OUTPUT TORQUE, (IN. LBS.)				
	1:1	GR 2:1	SI 2:1	GR 3:2	SI 3:2
33	236	293	73	246	110
50	205	254	64	213	96
100	163	203	51	170	76
200	130	161	40	135	61
300	113	140	35	118	53
400	80	100	25	83	37
500	73	91	23	76	34
1000	59	73	18	61	27
1200	56	70	17	59	26

MAXIMUM HAND TORQUE = 402 IN. LBS.

GR = GEAR REDUCER • SI = SPEED INCREASER

KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	

SHAFT ROTATIONS



Standard Features

- 2 1/2 inch Shaft Centers (IAS 1:1, 3:2)
- 2 1/4 inch Shaft Centers (IAS 2:1)
- Accepts 5/8, 3/4, 1” keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)



IAS 1:1, 3:2



IAS 2:1

Ordering

RATIO	ORDER NO.	TYPE	“A” BORE SIZE	“B” BORE SIZE
1:1	4304-0260	RH	3/4”	3/4”
1:1	4304-0261	LH	3/4”	3/4”
1:1	4304-0262	RH	5/8”	5/8”
1:1	4304-0263	LH	5/8”	5/8”
1:1	4304-0264	RH	5/8”	3/4”
1:1	4304-0265	LH	5/8”	3/4”
1:1	4304-0266	RH	1.0”	3/4”
1:1	4304-0267	LH	1.0”	3/4”
1:1	4304-0268	RH	1.0”	1.0”
1:1	4304-0269	LH	1.0”	1.0”
3:2	4304-0270	RH	3/4”	3/4”
3:2	4304-0271	LH	3/4”	3/4”
3:2	4304-0272	RH	5/8”	5/8”
3:2	4304-0273	LH	5/8”	5/8”
3:2	4304-0274	RH	1.0”	1.0”
3:2	4304-0275	LH	1.0”	1.0”
3:2	4304-0276	RH	1.0”	3/4”
3:2	4304-0277	LH	1.0”	3/4”
3:2	4304-0278	RH	1.0”	5/8”
3:2	4304-0279	LH	1.0”	5/8”
2:1	4304-0292	RH	3/4”	3/4”
2:1	4304-0293	LH	3/4”	3/4”
2:1	4304-0282	RH	5/8”	5/8”

Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.78}, \text{ Inch Lbs.}$$

For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

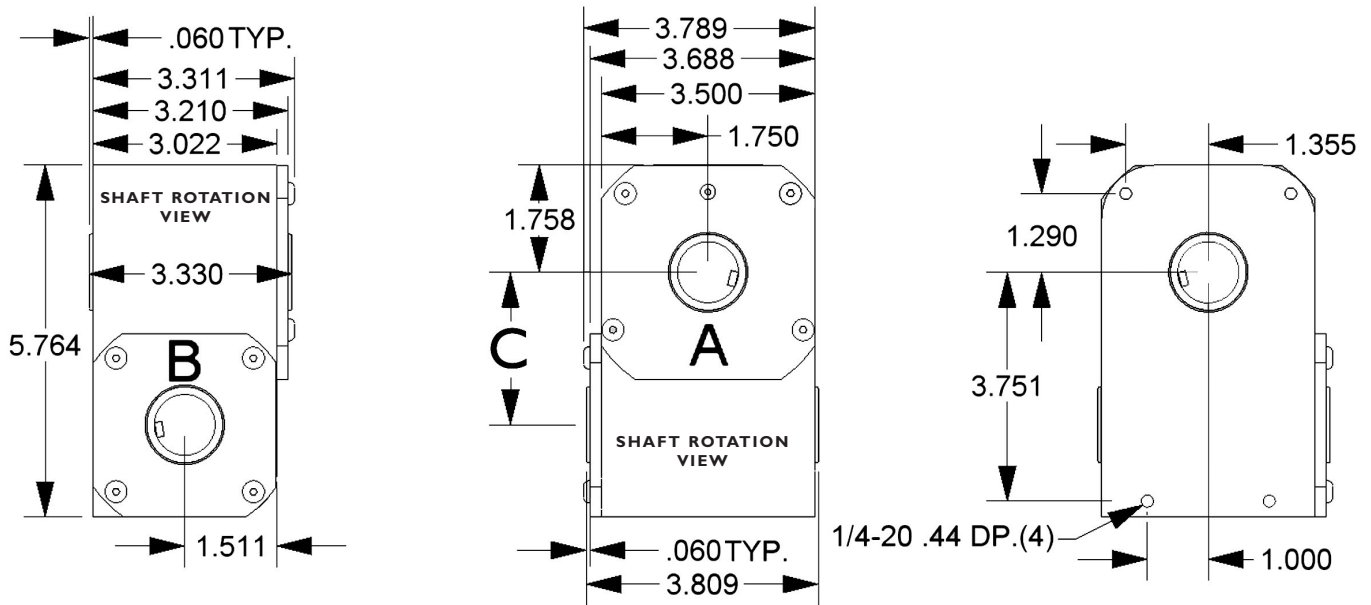
$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$

2:1	4304-0283	LH	5/8”	5/8”
2:1	4304-0284	RH	3/4”	5/8”
2:1	4304-0285	LH	3/4”	5/8”
2:1	4304-0286	RH	1.0”	3/4”
2:1	4304-0287	LH	1.0”	3/4”
2:1	4304-0288	RH	1.0”	5/8”
2:1	4304-0289	LH	1.0”	5/8”
2:1	4304-0290	RH	5/8”	3/4”
2:1	4304-0291	LH	5/8”	3/4”



IAS 1:1, 3:2 - "C" = 2.50 +.002/-.000

IAS 2:1 - "C" = 2.25 +.002/-.000



Theoretical output torque at various RPM.

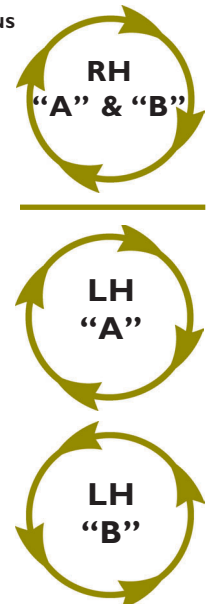
OUTPUT TORQUE, (IN. LBS.)					
RPM	GR		SI		
	1:1	2:1	2:1	3:2	
33	236	293	73	246	110
50	205	254	64	213	96
100	163	203	51	170	76
200	130	161	40	135	61
300	113	140	35	118	53
400	80	100	25	83	37
500	73	91	23	76	34
1000	59	73	18	61	27
1200	56	70	17	59	26

MAXIMUM HAND TORQUE = 402 IN. LBS.

GR = GEAR REDUCER • SI = SPEED INCREASER

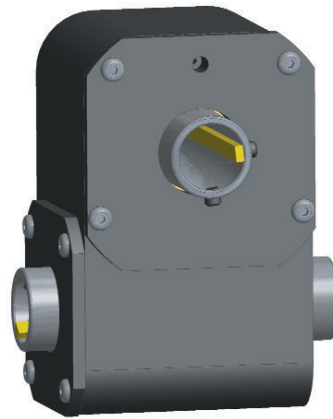
KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	

SHAFT ROTATIONS

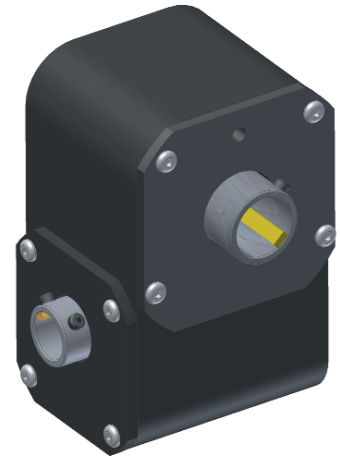


Standard Features - Extended Hollow Shaft

- 2 1/2 inch shaft centers (IAS-ES 1:1, 3:2)
- 2 1/4 inch shaft centers (IAS-ES 2:1)
- Accepts 5/8, 3/4, 1" keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)
- Shaft retaining set screws



IAS-ES 1:1, 3:2



IAS-ES 2:1

Ordering

RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
1:1	4304-0000	RH	3/4"	3/4"
1:1	4304-0001	LH	3/4"	3/4"
1:1	4304-0002	RH	5/8"	5/8"
1:1	4304-0003	LH	5/8"	5/8"
1:1	4304-0032	RH	5/8"	3/4"
1:1	4304-0033	LH	5/8"	3/4"
1:1	4304-0082	RH	1.0"	3/4"
1:1	4304-0083	LH	1.0"	3/4"
1:1	4304-0080	RH	1.0"	1.0"
1:1	4304-0081	LH	1.0"	1.0"
1:1	4304-0084	RH	1.0"	5/8"
1:1	4304-0085	LH	1.0"	5/8"

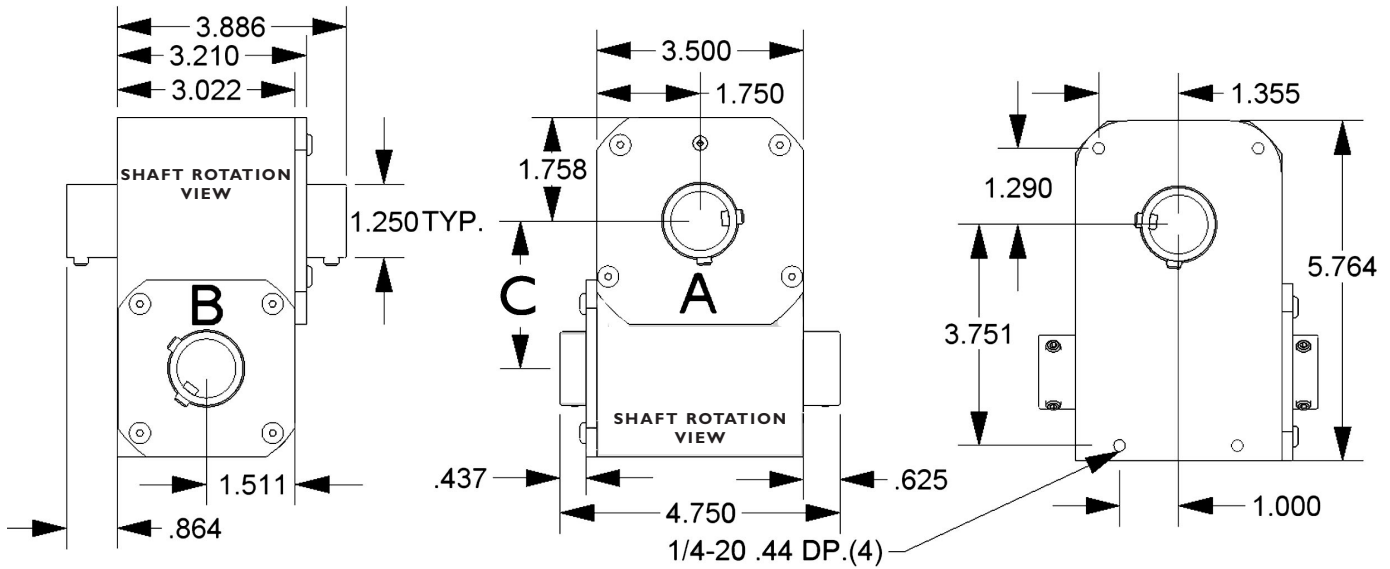
RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
3:2	4304-0016	RH	3/4"	3/4"
3:2	4304-0017	LH	3/4"	3/4"
3:2	4304-0018	RH	5/8"	5/8"
3:2	4304-0019	LH	5/8"	5/8"
3:2	4304-0086	RH	1.0"	1.0"
3:2	4304-0087	LH	1.0"	1.0"
3:2	4304-0090	RH	1.0"	3/4"
3:2	4304-0091	LH	1.0"	3/4"
3:2	4304-0092	RH	1.0"	5/8"
3:2	4304-0093	LH	1.0"	5/8"
3:2	4304-0034	RH	5/8"	5/8"
3:2	4304-0035	LH	5/8"	5/8"

RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
2:1	4304-0200	RH	1 1/4"	3/4"
2:1	4304-0201	LH	1 1/4"	3/4"
2:1	4304-0202	RH	1 1/4"	5/8"
2:1	4304-0203	LH	1 1/4"	5/8"
2:1	4304-0204	RH	1.0"	1.0"
2:1	4304-0205	LH	1.0"	1.0"
2:1	4304-0206	RH	3/4"	3/4"
2:1	4304-0207	LH	3/4"	3/4"
2:1	4304-0208	RH	5/8"	5/8"
2:1	4304-0209	LH	5/8"	5/8"
2:1	4304-0210	RH	3/4"	5/8"
2:1	4304-0211	LH	3/4"	5/8"
2:1	4304-0212	RH	5/8"	3/4"
2:1	4304-0213	LH	5/8"	3/4"
2:1	4304-0216	RH	1.0"	3/4"
2:1	4304-0217	LH	1.0"	3/4"
2:1	4304-0218	RH	1.0"	5/8"
2:1	4304-0219	LH	1.0"	5/8"

KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	



IAS-ES 1:1, 3:2 - "C" = 2.50 +.002/-.000
 IAS-ES 2:1 - "C" = 2.25 +.002/-.000



Theoretical output torque at various RPM.

RPM	OUTPUT TORQUE, (IN. LBS.)				
	1:1	GR 2:1	SI 2:1	GR 3:2	SI 3:2
33	236	293	73	246	110
50	205	254	64	213	96
100	163	203	51	170	76
200	130	161	40	135	61
300	113	140	35	118	53
400	80	100	25	83	37
500	73	91	23	76	34
1000	59	73	18	61	27
1200	56	70	17	59	26

MAXIMUM HAND TORQUE = 402 IN. LBS.

GR = GEAR REDUCER • SI = SPEED INCREASER

Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

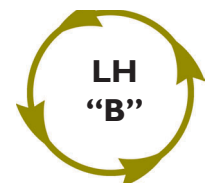
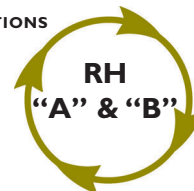
For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{\text{SHAFT ROTATIONS}}, \text{ Inch Lbs.}$$

For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$

SHAFT ROTATIONS



Standard Features

- 2 1/2 inch shaft centers (IAS 1:1, 3:2)
- 2 1/4 inch shaft centers (IAS 2:1)
- Accepts 5/8, 3/4, 1, or 1 1/4" keyed shaft diameters
- 4140 heat treated 45° helical gears
- Heavy duty sealed ball bearings
- Right and left hand rotation
- Speeds to 1200 RPM
- O-Ring sealed gear case
- Hardcoated Housing
- Cast aluminum construction
- Keys included (2)



IAS BASE MOUNT 1:1, 3:2



IAS BASE MOUNT 2:1

Ordering

RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
1:1	4304-0336	RH	1 1/4"	1 1/4"
1:1	4304-0337	LH	1 1/4"	1 1/4"
1:1	4304-0338	RH	1 1/4"	1.0"
1:1	4304-0339	LH	1 1/4"	1.0"
1:1	4304-0340	RH	1 1/4"	3/4"
1:1	4304-0341	LH	1 1/4"	3/4"
1:1	4304-0342	RH	1 1/4"	5/8"
1:1	4304-0343	LH	1 1/4"	5/8"
1:1	4304-0344	RH	1.0"	1.0"
1:1	4304-0345	LH	1.0"	1.0"
1:1	4304-0346	RH	1.0"	3/4"
1:1	4304-0347	LH	1.0"	3/4"
1:1	4304-0348	RH	1.0"	5/8"
1:1	4304-0349	LH	1.0"	5/8"
1:1	4304-0350	RH	3/4"	3/4"
1:1	4304-0351	LH	3/4"	3/4"
1:1	4304-0352	RH	3/4"	5/8"
1:1	4304-0353	LH	3/4"	5/8"
1:1	4304-0354	RH	5/8"	5/8"
1:1	4304-0355	LH	5/8"	5/8"

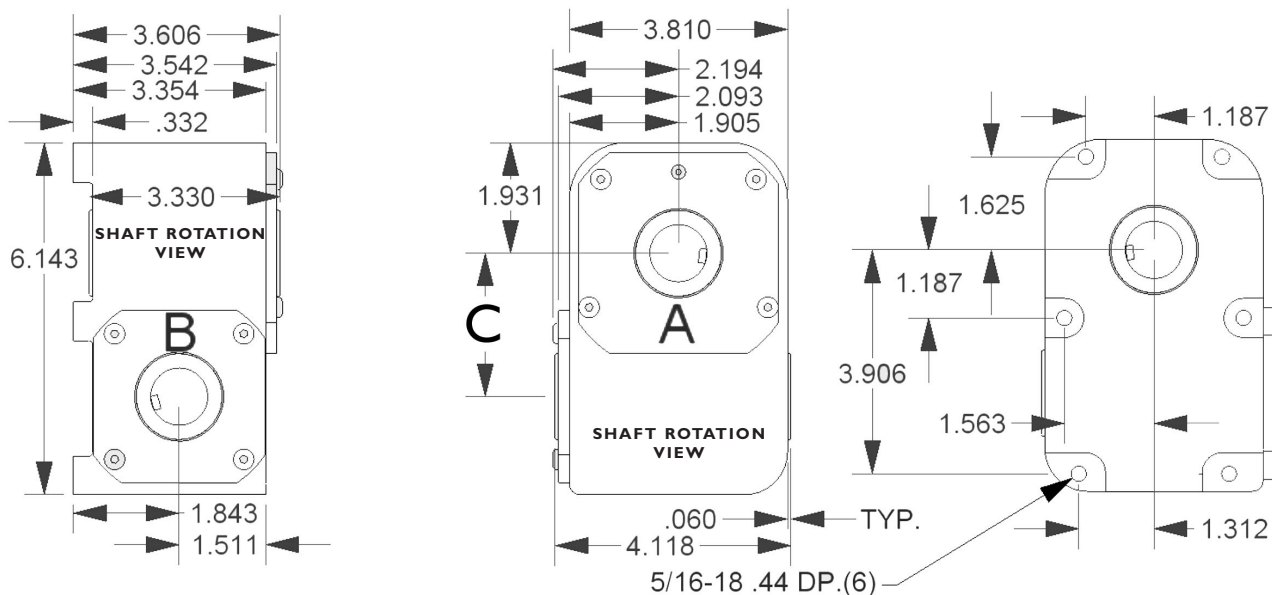
RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
3:2	4304-0356	RH	1 1/4"	5/8"
3:2	4304-0357	LH	1 1/4"	5/8"
3:2	4304-0358	RH	1 1/4"	3/4"
3:2	4304-0359	LH	1 1/4"	3/4"
3:2	4304-0360	RH	1 1/4"	1.0"
3:2	4304-0361	LH	1 1/4"	1.0"
3:2	4304-0362	RH	1.0"	1.0"
3:2	4304-0363	LH	1.0"	1.0"
3:2	4304-0364	RH	1.0"	3/4"
3:2	4304-0365	LH	1.0"	3/4"
3:2	4304-0366	RH	1.0"	5/8"
3:2	4304-0367	LH	1.0"	5/8"
3:2	4304-0368	RH	3/4"	3/4"
3:2	4304-0369	LH	3/4"	3/4"
3:2	4304-0370	RH	3/4"	5/8"
3:2	4304-0371	LH	3/4"	5/8"
3:2	4304-0372	RH	5/8"	5/8"
3:2	4304-0373	LH	5/8"	5/8"

RATIO	ORDER NO.	TYPE	"A" BORE SIZE	"B" BORE SIZE
2:1	4304-0374	RH	1 1/4"	5/8"
2:1	4304-0375	LH	1 1/4"	5/8"
2:1	4304-0376	RH	1 1/4"	3/4"
2:1	4304-0377	LH	1 1/4"	3/4"
2:1	4304-0378	RH	1.0"	5/8"
2:1	4304-0379	LH	1.0"	5/8"
2:1	4304-0380	RH	1.0"	3/4"
2:1	4304-0381	LH	1.0"	3/4"
2:1	4304-0382	RH	1.0"	1.0"
2:1	4304-0383	LH	1.0"	1.0"
2:1	4304-0384	RH	3/4"	3/4"
2:1	4304-0385	LH	3/4"	3/4"
2:1	4304-0386	RH	3/4"	5/8"
2:1	4304-0387	LH	3/4"	5/8"
2:1	4304-0388	RH	5/8"	5/8"
2:1	4304-0389	LH	5/8"	5/8"

KEY SIZES, IN.	
BORE	SIZE
1/2	1/8 x 1/16
5/8	3/16 x 3/32
3/4	3/16 x 3/32
1	1/4 x 1/8
1 1/4	1/4 x 1/8
1 1/2	3/8 x 3/16
KEYS INCLUDED (2)	



IAS BASE MOUNT 1:1, 3:2 - "C" = 2.50 +.002/-.000
IAS BASE MOUNT 2:1 - "C" = 2.25 +.002/-.000



Easy Sizing

For 1:1 Ratio (25T Input/Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.60}, \text{ Inch Lbs.}$$

For 2:1 Ratio Gear Reducer-GR (15T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{1.24}, \text{ Inch Lbs.}$$

For 2:1 Ratio Speed Increaser-SI (30T Input/15T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.31}, \text{ Inch Lbs.}$$

For 3:2 Ratio Gear Reducer-GR (20T Input/30T Output Gears):

$$\text{Input Torque} = \frac{\text{Output Torque}}{.78}, \text{ Inch Lbs.}$$

For 3:2 Ratio Speed Increaser-SI (30T Input/20T Output Gears):

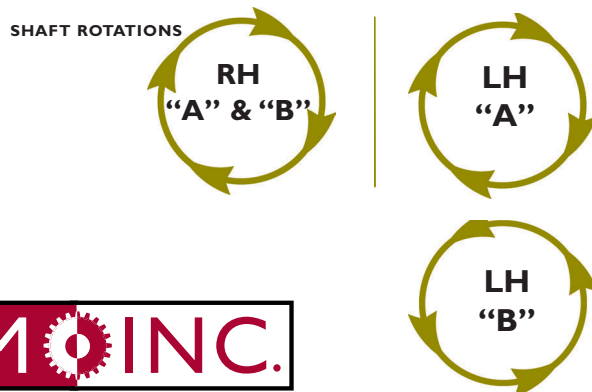
$$\text{Input Torque} = \frac{\text{Output Torque}}{.35}, \text{ Inch Lbs.}$$

Theoretical output torque at various RPM.

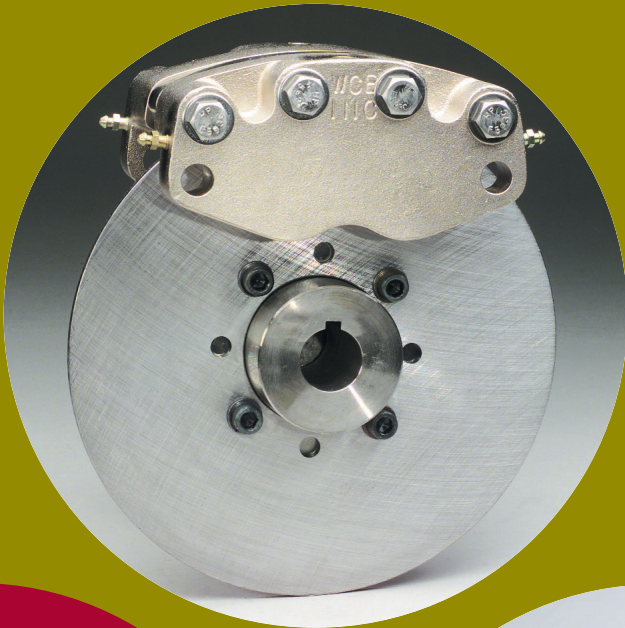
RPM	OUTPUT TORQUE, (IN. LBS.)				
	1:1	GR 2:1	SI 2:1	GR 3:2	SI 3:2
33	358	369	73	310	110
50	312	320	64	268	96
100	248	256	51	214	76
200	198	203	40	170	61
300	172	176	35	149	53
400	122	126	25	104	37
500	111	115	23	96	34
1000	90	92	18	77	27
1200	85	70	17	59	26

MAXIMUM HAND TORQUE = 609 IN. LBS.

GR = GEAR REDUCER • SI = SPEED INCREASER



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