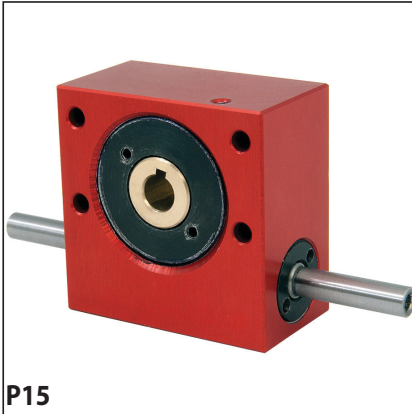
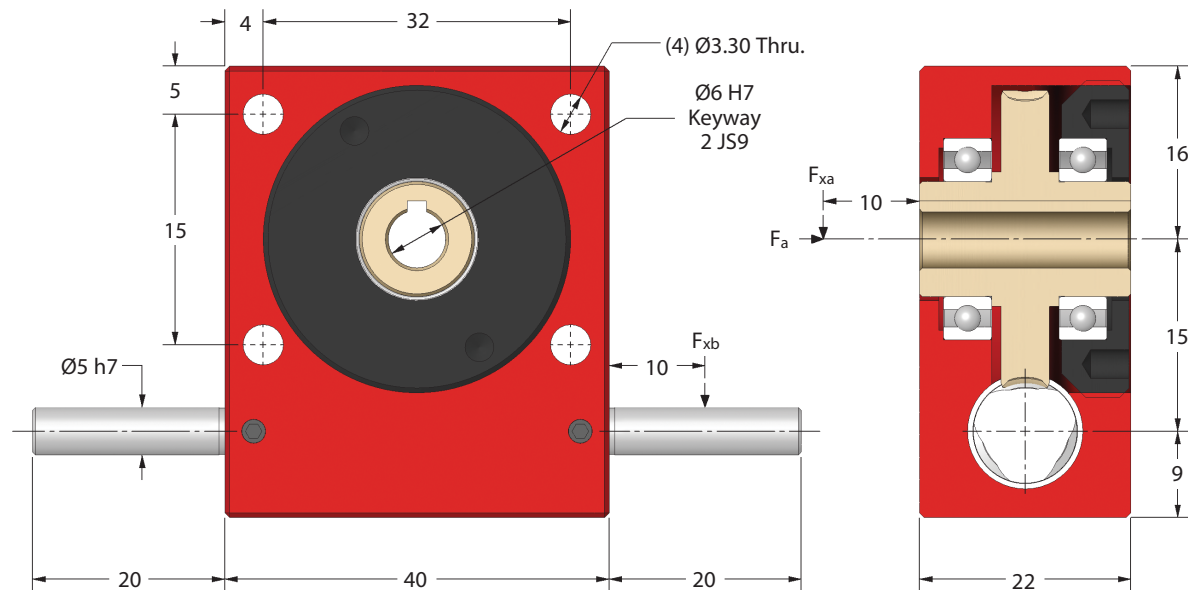


P15**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 0.94 – 3.75 Nm **6.66:1 - 80:1****P15**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P15-6	P15-6A	P15-6AR	6.66:1	86%	1.79 x 10 ⁻⁷	✗
P15-8	P15-8A	P15-8AR	8:1	85%	1.73 x 10 ⁻⁷	✗
P15-10	P15-10A	P15-10AR	10:1	84%	1.68 x 10 ⁻⁷	✗
P15-13	P15-13A	P15-13AR	13.33:1	78%	1.65 x 10 ⁻⁷	✗
P15-20	P15-20A	P15-20AR	20:1	71%	1.62 x 10 ⁻⁷	✗
P15-40	P15-40A	P15-40AR	40:1	60%	1.61 x 10 ⁻⁷	✗
P15-80	P15-80A	P15-80AR	80:1	32%	1.60 x 10 ⁻⁷	✗

Accessories**P20-X**

Single Output Shafts

P20-DX

Double Output Shafts

KK2-20

Output Key

Weight: 0.15 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 4 kg. **F_{xa} at 1000 Rpm:** 8 kg. **F_a at 1000 Rpm:** 3 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

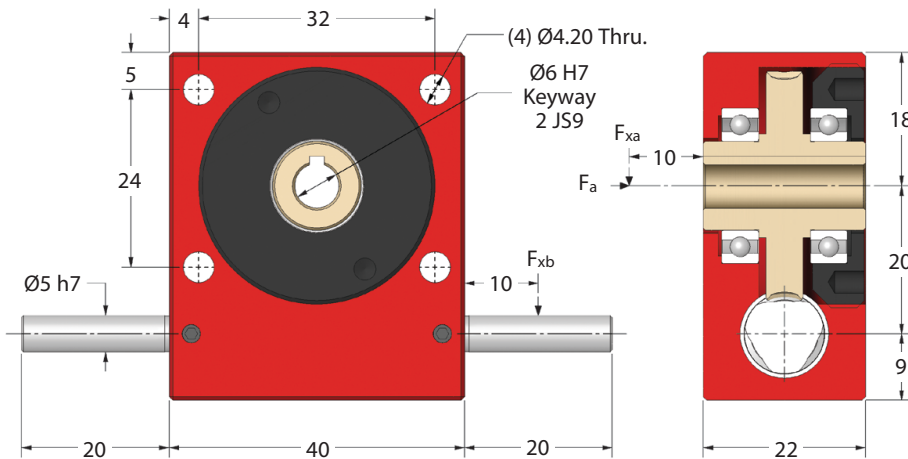
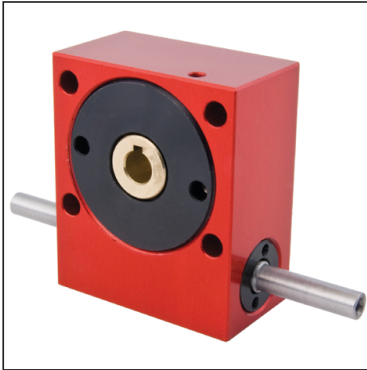
Output Torque Nm

Rpm	Reduction Ratio						
Input	6.66:1	8:1	10:1	13.33:1	20:1	40:1	80:1
3000	1.05	1.13	1.20	1.28	1.43	1.58	0.94
2000	1.28	1.28	1.35	1.35	1.58	1.80	1.07
1000	1.58	1.73	1.73	1.88	2.03	2.18	1.28
500	2.03	2.03	2.10	2.18	2.40	2.63	1.46
200	2.55	2.63	2.63	2.78	2.93	3.08	1.70
100	2.93	2.93	3.08	3.15	3.23	3.38	1.91
50	3.30	3.38	3.38	3.45	3.53	3.60	2.04
10	3.60	3.60	3.68	3.68	3.75	3.75	2.04

P20**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 1.25 – 5 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P20-10	P20-10A	P20-10AR	10:1	86%	2.03 x 10 ⁻⁷	✗
P20-12	P20-12A	P20-12AR	12:1	85%	1.93 x 10 ⁻⁷	✗
P20-15	P20-15A	P20-15AR	15:1	84%	1.85 x 10 ⁻⁷	✗
P20-20	P20-20A	P20-20AR	20:1	78%	1.78 x 10 ⁻⁷	✗
P20-30	P20-30A	P20-30AR	30:1	71%	1.74 x 10 ⁻⁷	✗
P20-60	P20-60A	P20-60AR	60:1	60%	1.71 x 10 ⁻⁷	✓
P20-120	P20-120A	P20-120AR	120:1	32%	1.50 x 10 ⁻⁷	✓
P20-SP	P20-SPA	P20-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories

P20-X	Single Output Shafts
P20-DX	Double Output Shafts
KK2-20	Output Key

Weight: 0.18 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 6 kg. **F_{xa} at 1000 Rpm:** 12 kg. **F_a at 1000 Rpm:** 5 kg.**Input Shaft Modifications:**Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.
Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	1.40	1.50	1.60	1.70	1.90	2.10	1.25
2000	1.70	1.70	1.80	1.80	2.10	2.40	1.42
1000	2.10	2.30	2.30	2.50	2.70	2.90	1.70
500	2.70	2.70	2.80	2.90	3.20	3.50	1.94
200	3.40	3.50	3.50	3.70	3.90	4.10	2.27
100	3.90	3.90	4.10	4.20	4.30	4.50	2.55
50	4.40	4.50	4.50	4.60	4.70	4.80	2.72
10	4.80	4.80	4.90	4.90	5.00	5.00	2.72

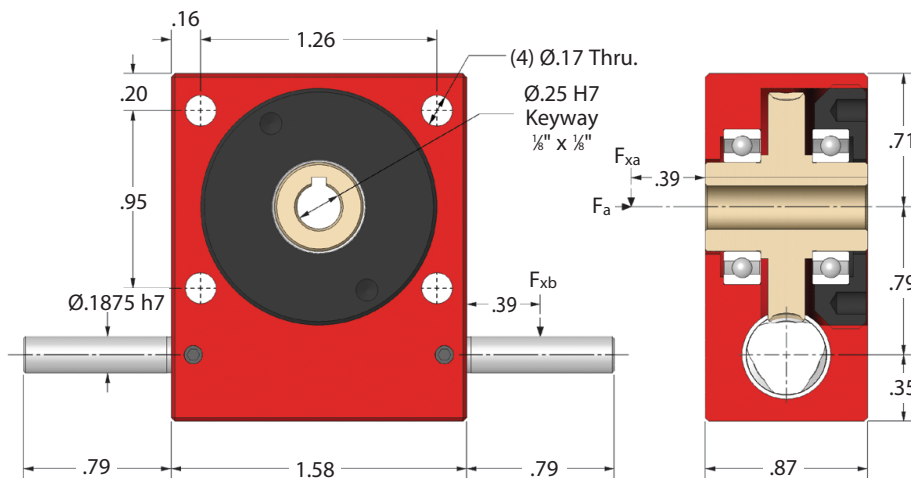
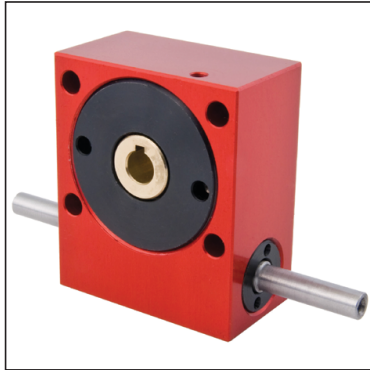
GEARBOXES

Precision Worm Gear Reducers

Shaft Input 11.1 – 44.3 lbf.in **5:1 - 120:1**

e-cad
Drawings
Available

PA20



Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
PA20-10	PA20-10A	PA20-10AR	10:1	86%	6.94 x 10 ⁻⁴	✗
PA20-12	PA20-12A	PA20-12AR	12:1	85%	6.60 x 10 ⁻⁴	✗
PA20-15	PA20-15A	PA20-15AR	15:1	84%	6.32 x 10 ⁻⁴	✗
PA20-20	PA20-20A	PA20-20AR	20:1	78%	6.08 x 10 ⁻⁴	✗
PA20-30	PA20-30A	PA20-30AR	30:1	71%	5.95 x 10 ⁻⁴	✗
PA20-60	PA20-60A	PA20-60AR	60:1	60%	5.84 x 10 ⁻⁴	✓
PA20-120	PA20-120A	PA20-120AR	120:1	32%	5.13 x 10 ⁻⁴	✓
PA20-SP	PA20-SPA	PA20-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 0.40 lb. **Greased for Life:** Shell Gadus S5 V42P 2.5.
F_{xb} at 1000 Rpm: 13.23 lb. **F_{xa} at 1000 Rpm:** 26.46 lb. **F_a at 1000 Rpm:** 11.02 lb.

Input Shaft Modifications:

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.
Circlip Groove, Pin Hole.

Testing in your application is necessary.
You will need to assess duty cycles and confirm suitability with your own calculations.
All figures listed are to be used for guidance only.

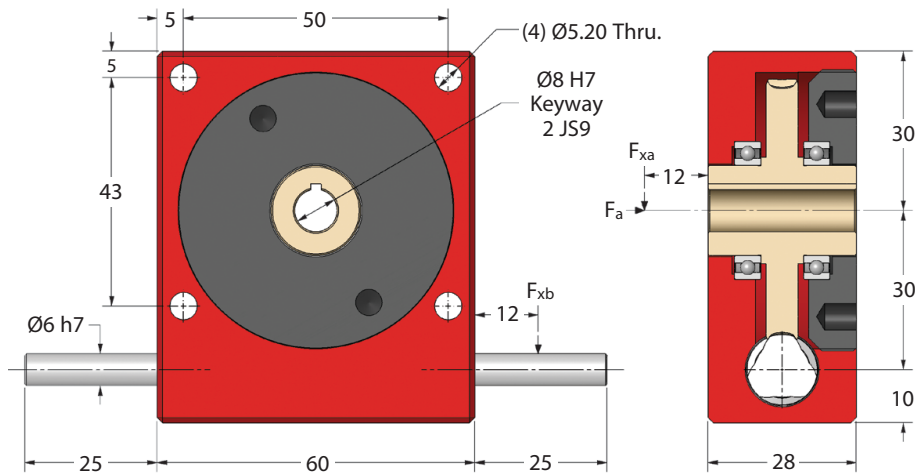
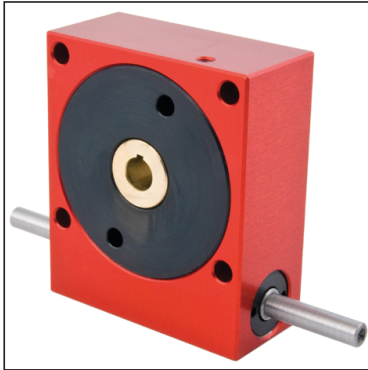
Output Torque lbf.in

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	12.4	13.3	14.2	15.0	16.8	18.6	11.1
2000	15.0	15.0	15.9	15.9	18.6	21.2	12.6
1000	18.6	20.4	20.4	22.1	23.9	25.7	15.0
500	23.9	23.9	24.8	25.7	28.3	31.0	17.2
200	30.1	31.0	31.0	32.7	34.5	36.3	20.1
100	34.5	34.5	36.3	37.2	38.1	39.8	22.6
50	38.9	39.8	39.8	40.7	41.6	42.5	24.1
10	42.5	42.5	43.4	43.4	44.3	44.3	24.1

P30**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 2.5 – 8.8 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P30-10	P30-10A	P30-10AR	10:1	90%	8.43×10^{-7}	✗
P30-12	P30-12A	P30-12AR	12:1	88%	7.55×10^{-7}	✗
P30-15	P30-15A	P30-15AR	15:1	86%	6.92×10^{-7}	✗
P30-20	P30-20A	P30-20AR	20:1	84%	6.43×10^{-7}	✗
P30-30	P30-30A	P30-30AR	30:1	78%	6.08×10^{-7}	✗
P30-60	P30-60A	P30-60AR	60:1	70%	5.87×10^{-7}	✓
P30-120	P30-120A	P30-120AR	120:1	40%	5.72×10^{-7}	✓
P30-SP	P30-SPA	P30-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P30-X**

Single Output Shafts

P30-DX

Double Output Shafts

KK2-20

Output Key

Weight: 0.48 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5. **F_{xb} at 1000 Rpm:** 8 kg. **F_{xa} at 1000 Rpm:** 20 kg. **F_a at 1000 Rpm:** 12 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	2.5	2.5	2.6	2.7	3.0	3.5	3.4
2000	2.8	2.9	3.0	3.2	3.6	4.1	3.7
1000	3.5	3.7	4.0	4.2	4.5	5.0	4.6
500	4.6	4.7	4.9	5.1	5.3	5.8	5.4
200	5.4	5.6	5.7	5.9	6.2	6.6	6.4
100	6.0	6.0	6.5	6.5	7.0	7.5	6.7
50	7.5	7.8	8.0	8.3	8.3	8.6	6.7
10	8.0	8.0	8.3	8.5	8.5	8.8	6.7

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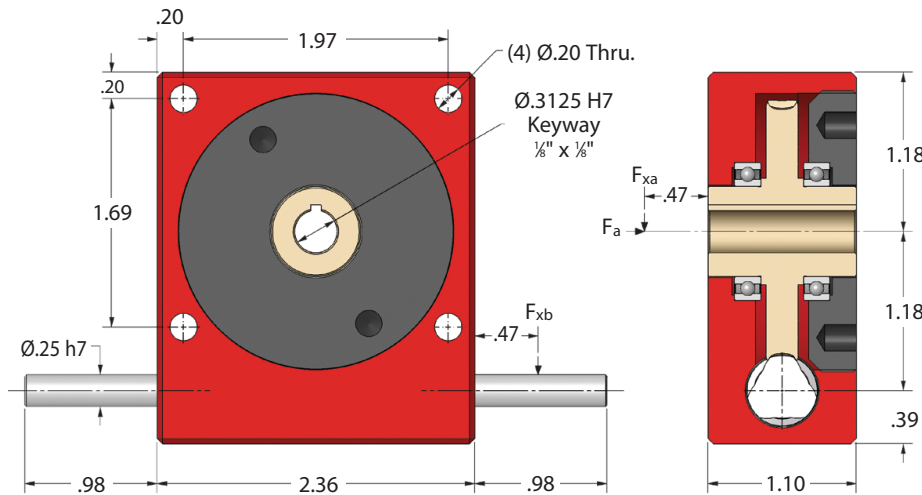
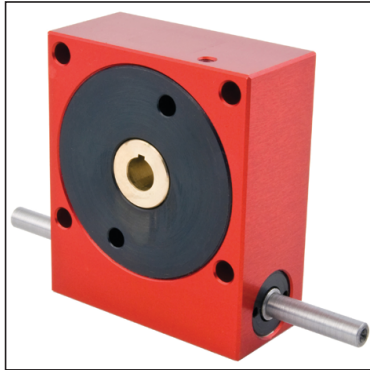
GEARBOXES

Precision Worm Gear Reducers

Shaft Input 22.1 – 77.9 lbf.in **5:1 - 120:1**

e-cad
Drawings
Available

PA30



Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
PA30-10	PA30-10A	PA30-10AR	10:1	90%	2.88×10^{-3}	✗
PA30-12	PA30-12A	PA30-12AR	12:1	88%	2.58×10^{-3}	✗
PA30-15	PA30-15A	PA30-15AR	15:1	86%	2.36×10^{-3}	✗
PA30-20	PA30-20A	PA30-20AR	20:1	84%	2.20×10^{-3}	✗
PA30-30	PA30-30A	PA30-30AR	30:1	78%	2.08×10^{-3}	✗
PA30-60	PA30-60A	PA30-60AR	60:1	70%	2.01×10^{-3}	✓
PA30-120	PA30-120A	PA30-120AR	120:1	40%	1.95×10^{-3}	✓
PA30-SP	PA30-SPA	PA30-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 1.06 lb. **Greased for Life:** Shell Gadus S5 V42P 2.5.
 F_{xb} at 1000 Rpm: 17.64 lb. **F_{xa} at 1000 Rpm:** 44.09 lb. **F_a at 1000 Rpm:** 26.46 lb.

Input Shaft Modifications:

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.
 Circlip Groove, Pin Hole.

Testing in your application is necessary.
 You will need to assess duty cycles and confirm suitability with your own calculations.
 All figures listed are to be used for guidance only.

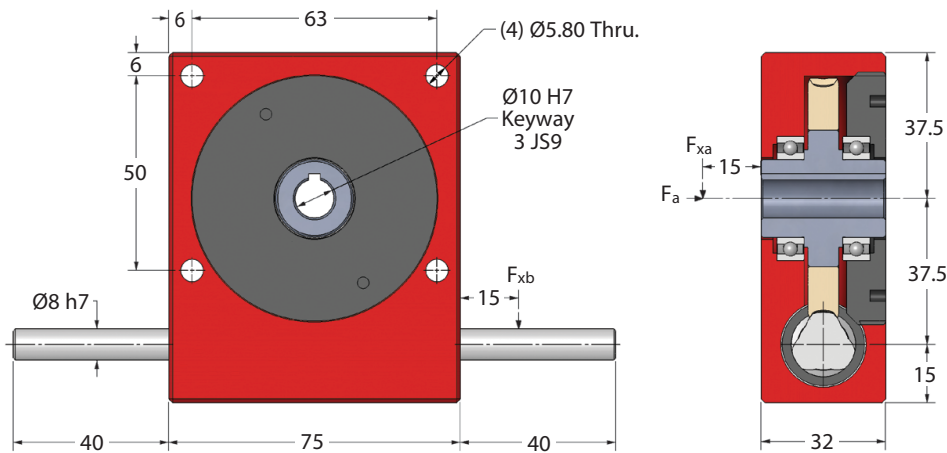
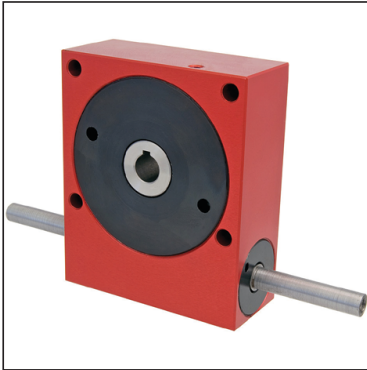
Output Torque lbf.in

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	22.1	22.1	23.0	23.9	26.6	31.0	30.1
2000	24.8	25.7	26.6	28.3	31.9	36.3	32.7
1000	31.0	32.7	35.4	37.2	39.8	44.3	40.7
500	40.7	41.6	43.4	45.1	46.9	51.3	47.8
200	47.8	49.6	50.4	52.2	54.9	58.4	56.6
100	53.1	53.1	57.5	57.5	62.0	66.4	59.3
50	66.4	69.0	70.8	73.5	73.5	76.1	59.3
10	70.8	70.8	73.5	75.2	75.2	77.9	59.3

P40**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 5 – 18 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P40-10	P40-10A	P40-10AR	10:1	89%	2.94×10^{-6}	✗
P40-12	P40-12A	P40-12AR	12:1	87%	2.69×10^{-6}	✗
P40-15	P40-15A	P40-15AR	15:1	85%	2.49×10^{-6}	✗
P40-20	P40-20A	P40-20AR	20:1	83%	2.33×10^{-6}	✗
P40-30	P40-30A	P40-30AR	30:1	76%	2.22×10^{-6}	✗
P40-60	P40-60A	P40-60AR	60:1	65%	2.15×10^{-6}	✓
P40-120	P40-120A	P40-120AR	120:1	41%	2.10×10^{-6}	✓
P40-SP	P40-SPA	P40-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P40-X**

Single Output Shafts

P40-DX

Double Output Shafts

KK3-20

Output Key

Weight: 0.92 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5. **F_{xb} at 1000 Rpm:** 10 kg. **F_{xa} at 1000 Rpm:** 30 kg. **F_a at 1000 Rpm:** 20 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

Output Torque Nm

Rpm	Reduction Ratio						
Input	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	5.0	5.2	5.4	5.6	6.4	7.2	6.5
2000	5.5	5.8	6.2	6.6	7.3	8.0	7.2
1000	7.1	7.5	8.0	8.2	9.0	10.0	8.7
500	8.9	9.1	9.6	10.0	10.5	11.4	10.2
200	11.6	11.9	12.3	12.5	13.5	14.2	11.7
100	13.4	13.6	14.1	14.6	15.3	16.0	12.3
50	15.1	15.5	16.2	16.4	17.3	17.6	12.3
10	17.6	17.6	17.6	17.7	17.8	18.0	12.3

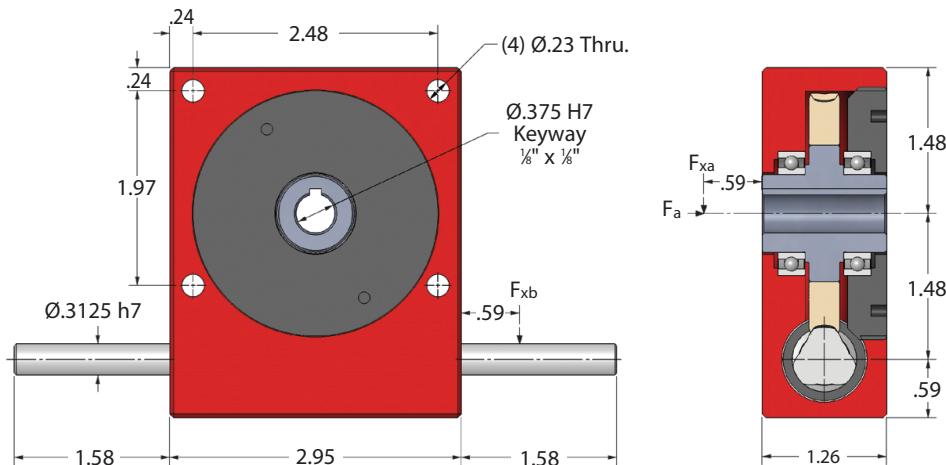
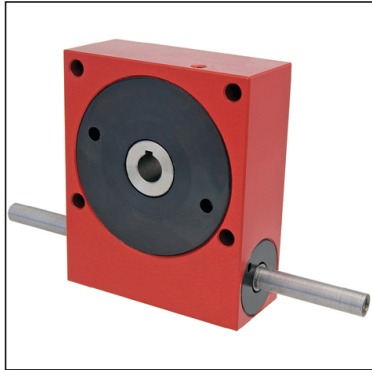
GEARBOXES

Precision Worm Gear Reducers

Shaft Input 44.3 – 159.3 lbf.in **5:1 - 120:1**

e-cad
Drawings
Available

PA40



Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
PA40-10	PA40-10A	PA40-10AR	10:1	89%	1.00 x 10 ⁻²	✗
PA40-12	PA40-12A	PA40-12AR	12:1	87%	9.19 x 10 ⁻³	✗
PA40-15	PA40-15A	PA40-15AR	15:1	85%	8.51 x 10 ⁻³	✗
PA40-20	PA40-20A	PA40-20AR	20:1	83%	7.96 x 10 ⁻³	✗
PA40-30	PA40-30A	PA40-30AR	30:1	76%	7.59 x 10 ⁻³	✗
PA40-60	PA40-60A	PA40-60AR	60:1	65%	7.35 x 10 ⁻³	✓
PA40-120	PA40-120A	PA40-120AR	120:1	41%	7.18 x 10 ⁻³	✓
PA40-SP	PA40-SPA	PA40-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 2.03 lb. **Greased for Life:** Shell Gadus S5 V42P 2.5.
F_{xb} at 1000 Rpm: 22.05 lb. **F_{xa} at 1000 Rpm:** 66.14 lb. **F_a at 1000 Rpm:** 44.09 lb.

Input Shaft Modifications:

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.
Circlip Groove, Pin Hole.

Testing in your application is necessary.
You will need to assess duty cycles and confirm suitability with your own calculations.
All figures listed are to be used for guidance only.

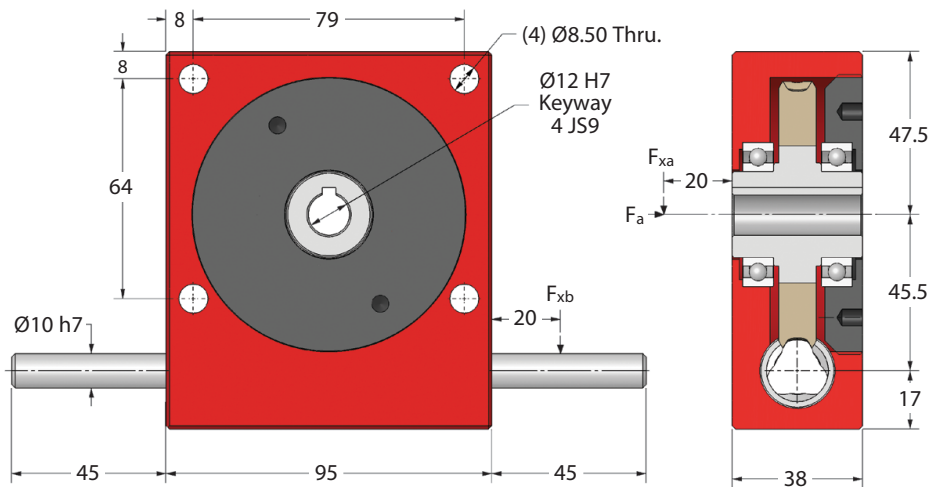
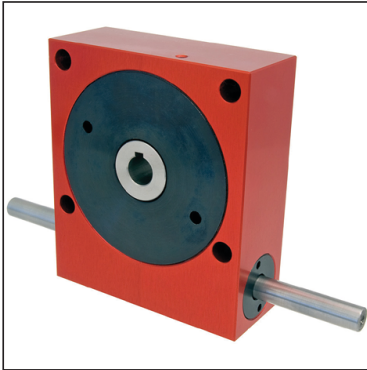
Output Torque lbf.in

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	44.3	46.0	47.8	49.6	56.6	63.7	57.5
2000	48.7	51.3	54.9	58.4	64.6	70.8	63.7
1000	62.8	66.4	70.8	72.6	79.7	88.5	77.0
500	78.8	80.5	85.0	88.5	92.9	100.9	90.3
200	102.7	105.3	108.9	110.6	119.5	125.7	103.6
100	118.6	120.4	124.8	129.2	135.4	141.6	108.9
50	133.6	137.2	143.4	145.2	153.1	155.8	108.9
10	155.8	155.8	155.8	156.7	157.5	159.3	108.9

P45**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 10.3 – 40 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P45-10	P45-10A	P45-10AR	10:1	90%	6.15 x 10 ⁻⁶	✗
P45-12	P45-12A	P45-12AR	12:1	89%	5.32 x 10 ⁻⁶	✗
P45-15	P45-15A	P45-15AR	15:1	86%	4.64 x 10 ⁻⁶	✗
P45-20	P45-20A	P45-20AR	20:1	85%	4.11 x 10 ⁻⁶	✗
P45-30	P45-30A	P45-30AR	30:1	78%	3.73 x 10 ⁻⁶	✗
P45-60	P45-60A	P45-60AR	60:1	67%	3.51 x 10 ⁻⁶	✓
P45-120	P45-120A	P45-120AR	120:1	47%	2.88 x 10 ⁻⁶	✓
P45-SP	P45-SPA	P45-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P45-X**

Single Output Shafts

P45-DX

Double Output Shafts

KK4-25

Output Key

Weight: 1.70 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 12 kg. **F_{xa} at 1000 Rpm:** 45 kg. **F_a at 1000 Rpm:** 30 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

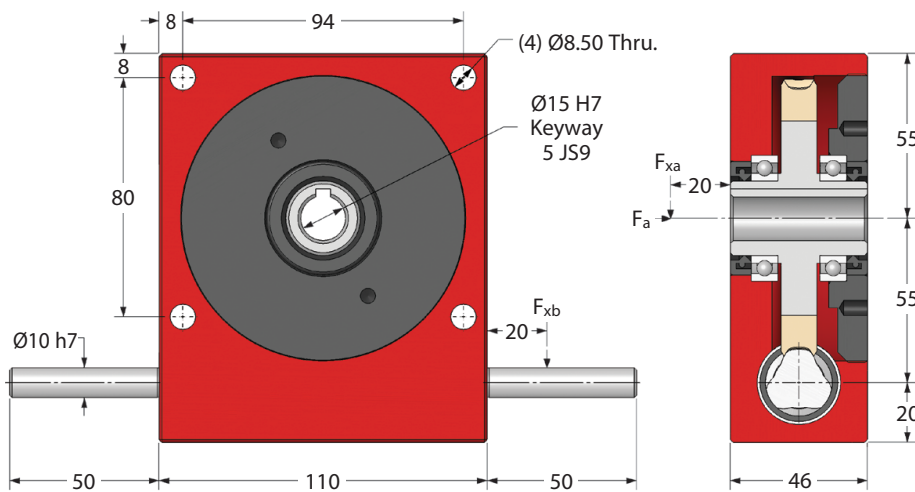
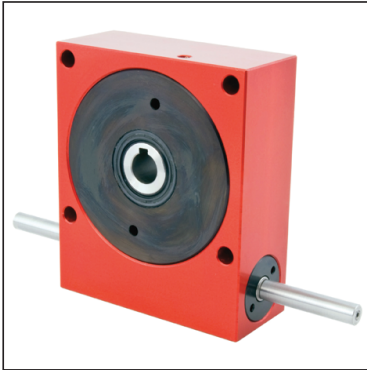
Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	10.3	10.8	11.3	12.2	13.2	14.7	10.8
2000	11.7	12.2	12.7	13.2	14.7	17.1	12.7
1000	14.7	15.2	16.2	17.1	18.1	20.6	14.3
500	19.1	19.6	20.6	21.6	22.5	24.5	17.5
200	24.4	25.5	26.4	27.0	28.9	30.0	20.6
100	28.3	28.9	29.4	30.3	31.8	33.8	22.8
50	32.3	32.8	33.8	34.3	34.5	35.2	23.0
10	39.9	39.9	39.9	40.0	40.0	40.0	23.0

P55**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 13.4 – 57 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P55-10	P55-10A	P55-10AR	10:1	89%	1.35 x 10 ⁻⁵	✗
P55-12	P55-12A	P55-12AR	12:1	88%	1.13 x 10 ⁻⁵	✗
P55-15	P55-15A	P55-15AR	15:1	86%	9.81 x 10 ⁻⁶	✗
P55-20	P55-20A	P55-20AR	20:1	84%	8.63 x 10 ⁻⁶	✗
P55-30	P55-30A	P55-30AR	30:1	78%	7.79 x 10 ⁻⁶	✗
P55-60	P55-60A	P55-60AR	60:1	69%	7.23 x 10 ⁻⁶	✓
P55-120	P55-120A	P55-120AR	120:1	47%	7.04 x 10 ⁻⁶	✓
P55-SP	P55-SPA	P55-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P55-X**

Single Output Shafts

P55-DX

Double Output Shafts

KK5-30

Output Key

Weight: 2.40 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 14 kg. **F_{xa} at 1000 Rpm:** 60 kg. **F_a at 1000 Rpm:** 40 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

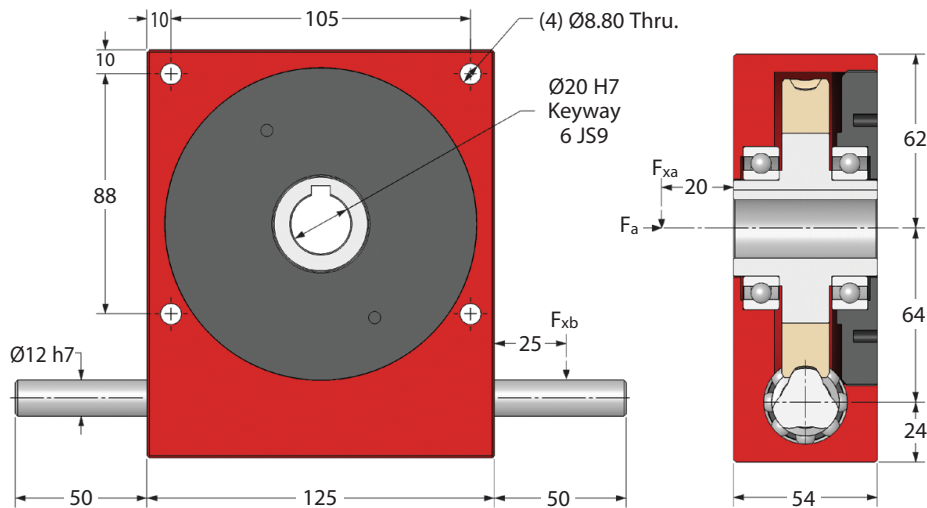
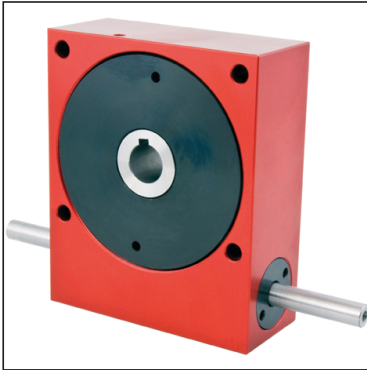
Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	13.4	14.0	14.8	16.2	17.6	20.4	18.0
2000	16.2	16.9	18.3	19.1	20.4	23.9	20.0
1000	21.1	22.5	23.2	24.6	25.3	28.8	25.0
500	27.4	28.1	28.8	30.2	31.6	35.1	30.0
200	34.4	35.1	36.5	37.9	39.3	42.1	36.0
100	40.0	41.4	42.1	42.8	44.9	46.3	38.0
50	45.6	46.3	47.7	48.4	49.8	50.5	38.0
10	56.8	56.8	56.8	57.0	57.0	57.0	38.0

P60**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 30 – 118 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P60-10	P60-10A	P60-10AR	10:1	90%	2.93 x 10 ⁻⁵	✗
P60-12	P60-12A	P60-12AR	12:1	89%	2.46 x 10 ⁻⁵	✗
P60-15	P60-15A	P60-15AR	15:1	85%	2.08 x 10 ⁻⁵	✗
P60-20	P60-20A	P60-20AR	20:1	85%	1.78 x 10 ⁻⁵	✗
P60-30	P60-30A	P60-30AR	30:1	78%	1.57 x 10 ⁻⁵	✗
P60-60	P60-60A	P60-60AR	60:1	68%	1.44 x 10 ⁻⁵	✓
P60-120	P60-120A	P60-120AR	120:1	45%	9.54 x 10 ⁻⁶	✓
P60-SP	P60-SPA	P60-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P60-X**

Single Output Shafts

P60-DX

Double Output Shafts

KK6-30

Output Key

Weight: 4.10 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 16 kg. **F_{xa} at 1000 Rpm:** 70 kg. **F_a at 1000 Rpm:** 50 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

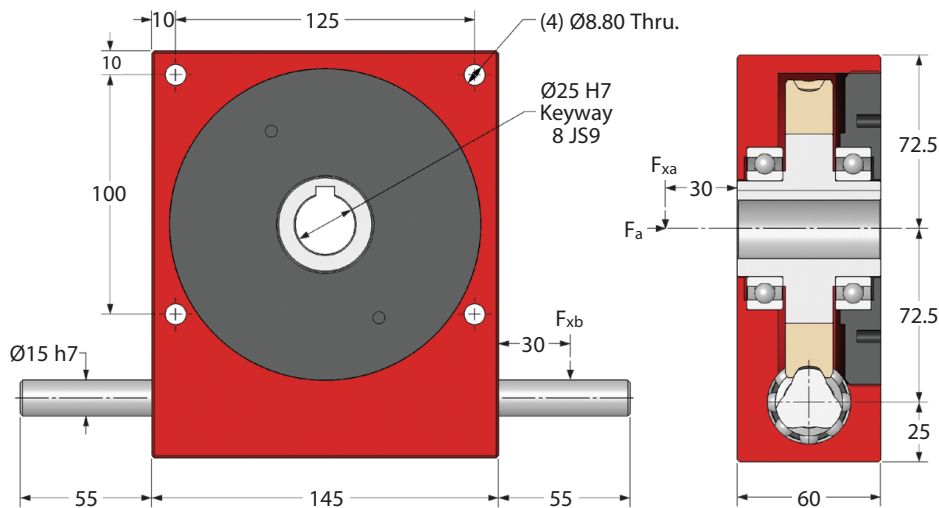
Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	30	31	33	35	38	44	27
2000	33	36	39	41	44	50	32
1000	45	47	50	54	58	64	39
500	58	60	62	65	69	73	47
200	77	78	80	84	88	94	55
100	88	89	91	94	97	105	61
50	100	102	104	105	107	110	66
10	113	114	115	116	116	118	66

P70**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Shaft Input 38 – 164 Nm **5:1 - 120:1**

Standard ≤30'	Part Number Low Backlash ≤8'	Red. Backlash ≤4'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
P70-10	P70-10A	P70-10AR	10:1	90%	6.04 x 10 ⁻⁵	✗
P70-12	P70-12A	P70-12AR	12:1	89%	5.03 x 10 ⁻⁵	✗
P70-15	P70-15A	P70-15AR	15:1	86%	4.21 x 10 ⁻⁵	✗
P70-20	P70-20A	P70-20AR	20:1	85%	3.57 x 10 ⁻⁵	✗
P70-30	P70-30A	P70-30AR	30:1	78%	3.11 x 10 ⁻⁵	✗
P70-60	P70-60A	P70-60AR	60:1	67%	2.84 x 10 ⁻⁵	✓
P70-120	P70-120A	P70-120AR	120:1	50%	2.48 x 10 ⁻⁵	✓
P70-SP	P70-SPA	P70-SPAR	5:1-120:1	Special Ratios : Replace SP with required ratio		

Accessories**P70-X**

Single Output Shafts

P70-DX

Double Output Shafts

KK8-7-40

Output Key

Weight: 6.40 kg. **Greased for Life:** Shell Gadus S5 V42P 2.5.**F_{xb} at 1000 Rpm:** 20 kg. **F_{xa} at 1000 Rpm:** 80 kg. **F_a at 1000 Rpm:** 60 kg.**Input Shaft Modifications:**

Smaller Diameter, Mill Keyway/Flat, Shorten Shaft Length.

Circlip Groove, Pin Hole.

Testing in your application is necessary.

You will need to assess duty cycles and confirm suitability with your own calculations.

All figures listed are to be used for guidance only.

Output Torque Nm

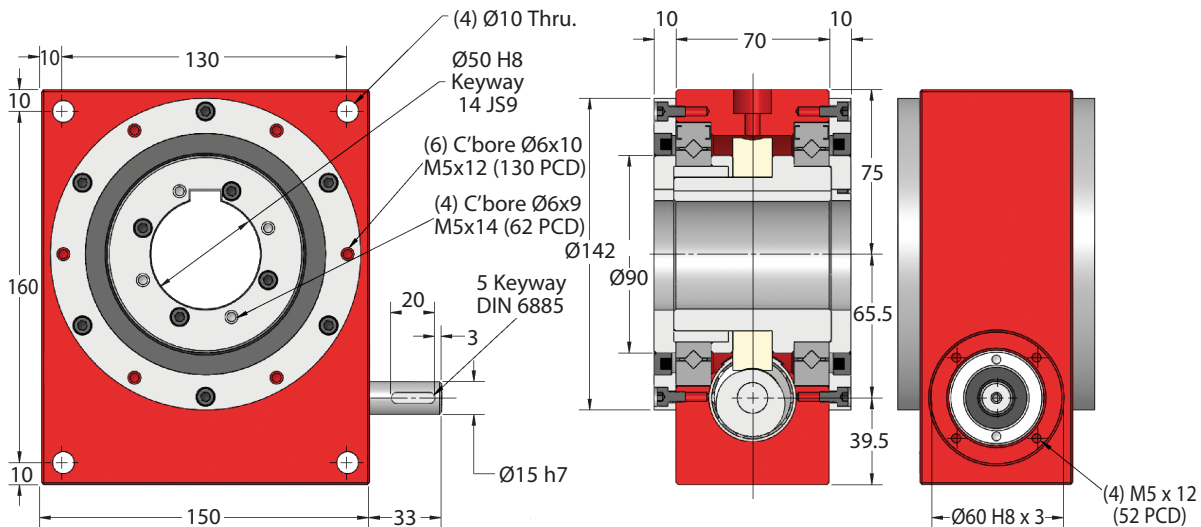
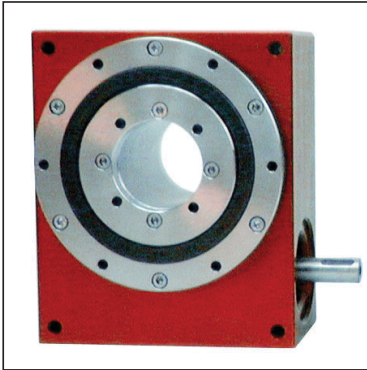
Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	38	40	42	45	50	56	38
2000	47	49	53	55	61	69	46
1000	61	65	67	71	73	83	55
500	77	81	83	87	91	100	66
200	99	101	105	107	113	121	77
100	115	119	121	123	129	133	86
50	129	133	137	139	144	146	90
10	160	160	160	164	164	164	90

P80**e-cad**
Drawings
Available

GEARBOXES

Precision Worm Wheel Drive

Crossed Roller Design



Part Number	Ratio	Helix Angle	No. of Starts On Worm	Max. Input Speed Rpm	Max. Output Speed Rpm	Efficiency at 1000 Rpm Input	Self Locking Output	Backlash at Output Arc/min
P80-50A	50:1	3°42'	1	1800	36	62%	✓	≤6'

Part Number	Complete Assemblies: Description
-------------	----------------------------------

P80-STEP-ASSYIncludes Adapter Plate for NEMA34
MJT-40C-RD-12.7x15 Coupling and fixing screws

Material

Casing: Aluminum.**WormTeeth:** Induction hardened. 50 HRC ground.**Wheel:** Aluminum Bronze (≤6 arc/min backlash).**Bearings:** Output: Crossed rollers (Precision). Input: Tapered rollers.
Gearbox filled with grease.**ondrives**.US Corp.☎ 516-771-6777
📠 516-771-6444✉ sales@ondrives.us
🌐 www.ondrives.us

GEARBOXES

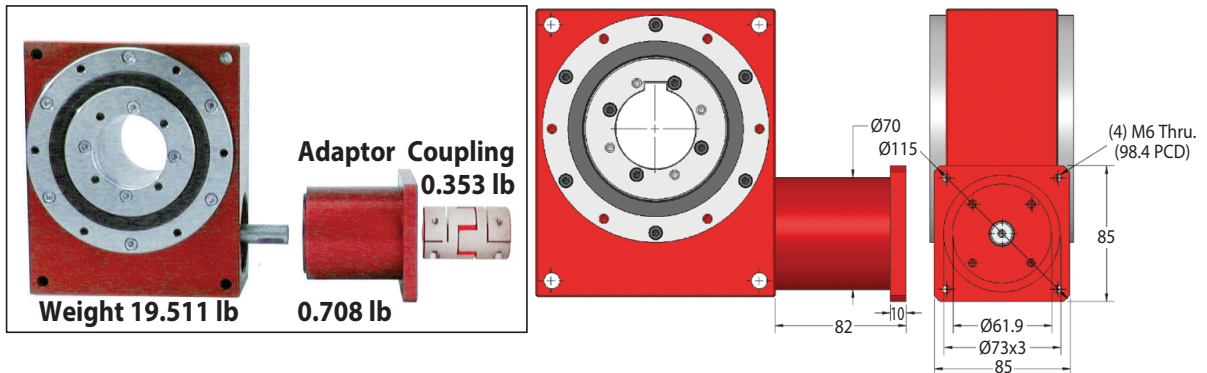
Precision Worm Wheel Drive

Crossed Roller Design

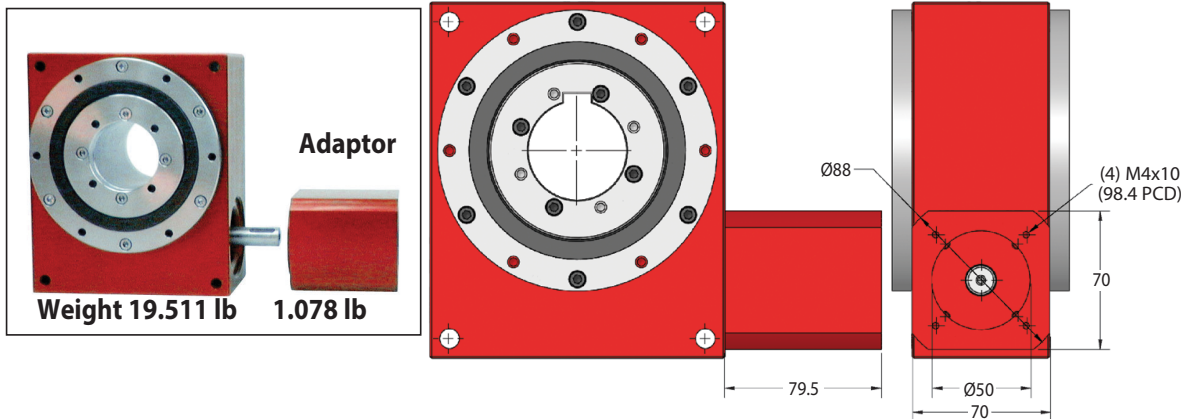
e-cad
Drawings
Available

P80

P80-STEP-ASSY



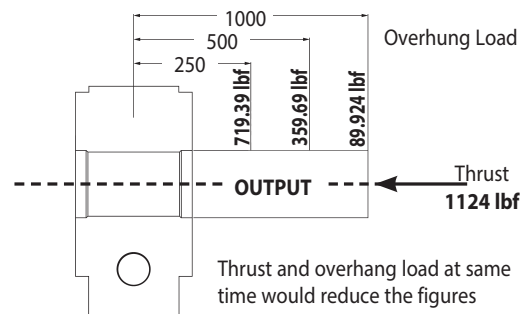
P80-SERVO-ASSY



Gearbox Torque Table

Input Speed Rpm	Allowable Torque at Output (lbf-in)
30	1013.1
100	856.22
300	693.99
600	592.47
900	526.53
1200	479.71
1800	420.76

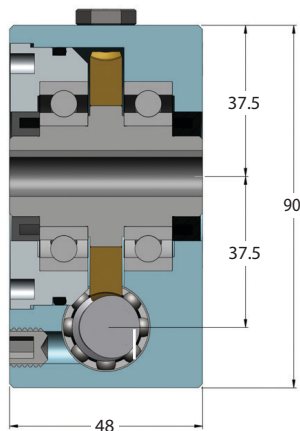
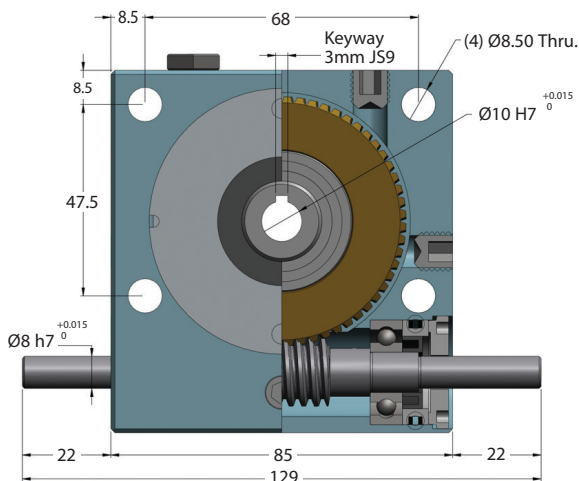
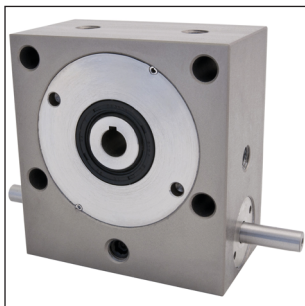
Load Capacity on output at 30 Rpm output speed



GEARBOXES

Precision Oil Filled Worm Gear Reducers

Shaft Input 5 – 18 Nm **5:1 - 120:1**



Part Number		Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
Standard ≤25°	Low Backlash ≤8°				
OFG40-10	OFG40-10A	10:1	89%	2.94 x 10 ⁻⁶	✗
OFG40-12	OFG40-12A	12:1	87%	2.69 x 10 ⁻⁶	✗
OFG40-15	OFG40-15A	15:1	85%	2.49 x 10 ⁻⁶	✗
OFG40-20	OFG40-20A	20:1	83%	2.33 x 10 ⁻⁶	✗
OFG40-30	OFG40-30A	30:1	76%	2.22 x 10 ⁻⁶	✗
OFG40-60	OFG40-60A	60:1	65%	2.15 x 10 ⁻⁶	✓
OFG40-120	OFG40-120A	120:1	41%	2.10 x 10 ⁻⁶	✓
OFG40-SP	OFG40-SPA	5:1-120:1	Special Ratios : Replace SP with required ratio		

Case (3): Aluminum 6082-T6 natural hard anodised.

Worm (4): Alloy Case hard steel 805M20, DIN 21NiCrMo2 SAE 8620.

Wheel Teeth (11): Nickel Aluminum Bronze Ca104, ISO CuAl10Fe5Ni5, ASTM C63200.

Wheel Hub (11): Stainless Steel 303, W.-Nr 1.4305, DIN X8CrNiS18-9.

OFG40 Backlash: ≤ 25 arc min. **OFG40-A Backlash:** ≤ 8 arc min, ultra precision wormwheel set.

Lubrication: Synthetic oil ISO 150.

Self Locking Output: Subject to ratio and only applies in static condition.

Amount of locking effect may vary due to manufacturing processes.

Max. Overhung and Thrust Loads at 1000 Rpm: Input Overhung Load (F_{xb}) = 10 kg.

Output Overhung Load (F_{xa}) = 30 kg. Output Thrust Load (F_a) = 20 kg.

doi:10.1371/journal.pone.0151023.g002

Output Shafts: P40-X (single), P40-DX (double). **Output Key:** KK3-30.
Input Shaft Modifications: Smaller Dia., Mill Keyway/Flat, Shorten Shaft, Circlip Groove, Pin Hole.

Testing in your application is necessary. You will need to assess duty cycles and confirm suitability with your own calculations. All figures listed are to be used for guidance only.

Output Torque Nm

Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	5.0	5.2	5.4	5.6	6.4	7.2	6.5
2000	5.5	5.8	6.2	6.6	7.3	8.0	7.2
1000	7.1	7.5	8.0	8.2	9.0	10.0	8.7
500	8.9	9.1	9.6	10.0	10.5	11.4	10.2
200	11.6	11.9	12.3	12.5	13.5	14.2	11.7
100	13.4	13.6	14.1	14.6	15.3	16.0	12.3
50	15.1	15.5	16.2	16.4	17.3	17.6	12.3
10	17.6	17.6	17.6	17.7	17.8	18.0	12.3