

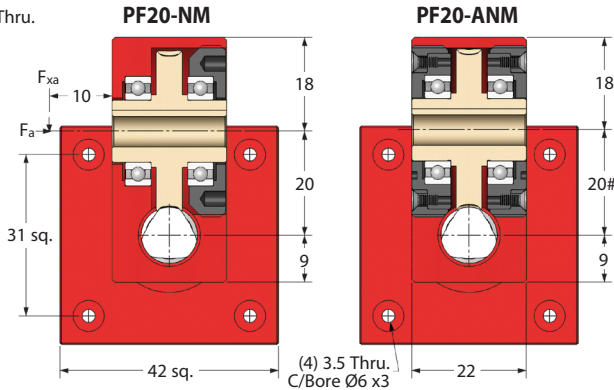
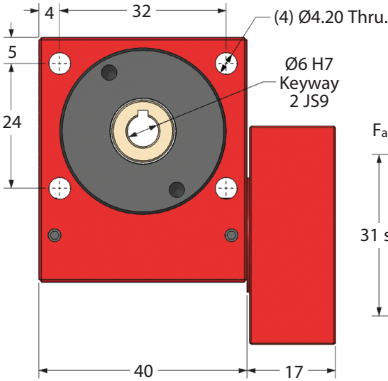
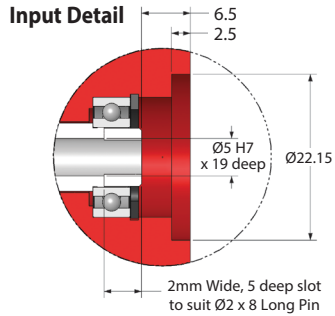
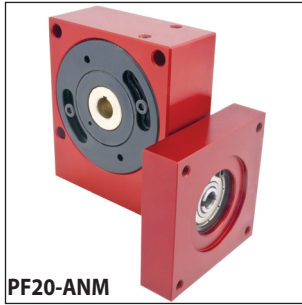
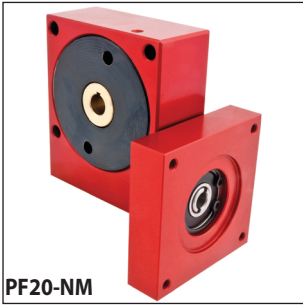
PF20NM

e-cad
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Nema 17 Flange Input 1.25 – 5 Nm **5:1 - 120:1**



PF20ANM version (low backlash) output is on eccentric so centres will vary

Standard ≤30	Low Backlash ≤8'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
PF20-10NM	PF20-10ANM	10:1	86%	2.53 x 10 ⁻⁷	✘
PF20-12NM	PF20-12ANM	12:1	85%	2.43 x 10 ⁻⁷	✘
PF20-15NM	PF20-15ANM	15:1	84%	2.35 x 10 ⁻⁷	✘
PF20-20NM	PF20-20ANM	20:1	78%	2.28 x 10 ⁻⁷	✘
PF20-30NM	PF20-30ANM	30:1	71%	2.24 x 10 ⁻⁷	✘
PF20-60NM	PF20-60ANM	60:1	60%	2.21 x 10 ⁻⁷	✔
PF20-120NM	PF20-120ANM	120:1	32%	2.00 x 10 ⁻⁷	✔
PF20-SPNM	PF20-SPANM	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: 0.23 kg. Greased for Life: Shell Gadus S5 V42P 2.5.
F_{xa} at 1000 Rpm: 12 kg. F_a at 1000 Rpm: 5 kg.

Modifications and custom designed gearboxes available. Contact Sales for details.
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

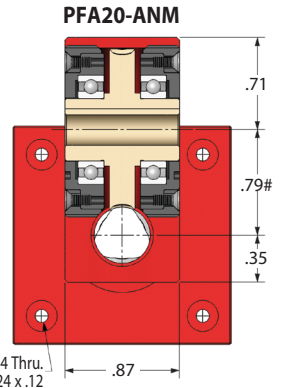
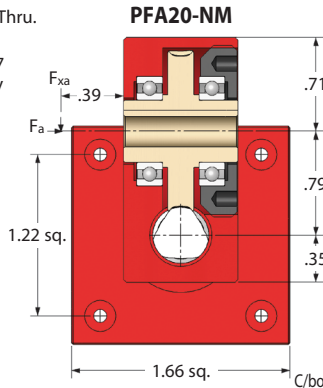
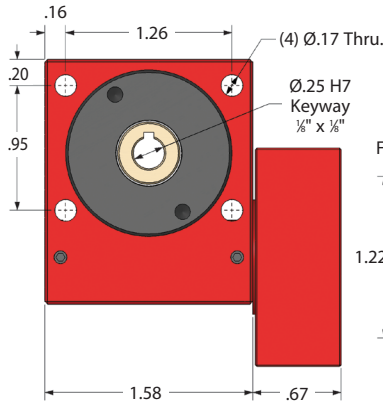
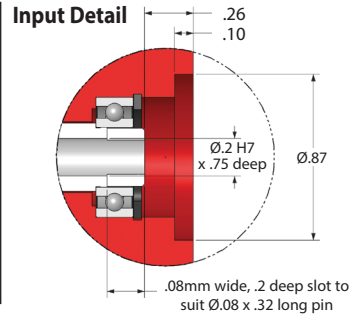
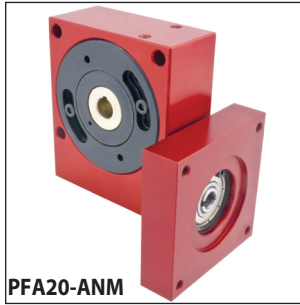
Rpm Input	Reduction Ratio						
	10:1	12:1	15:1	20:1	30:1	60:1	120:1
3000	1.40	1.50	1.60	1.70	1.90	2.10	1.25
2000	1.70	1.70	1.80	1.80	2.10	2.40	1.42
1000	2.10	2.30	2.30	2.50	2.70	2.90	1.70
500	2.70	2.70	2.80	2.90	3.20	3.50	1.94
200	3.40	3.50	3.50	3.70	3.90	4.10	2.27
100	3.90	3.90	4.10	4.20	4.30	4.50	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 Nema 17 Flange Input 11 – 44.3 lbf.in 5:1 - 120:1

e-cad
Drawings
Available

PFA20NM



PFA20ANM version (low backlash) output is on eccentric so centres will vary

Standard ≤30'	Part Number Low Backlash ≤8'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
PFA20-10NM	PFA20-10ANM	10:1	86%	8.65 x 10 ⁻⁴	✗
PFA20-12NM	PFA20-12ANM	12:1	85%	8.30 x 10 ⁻⁴	✗
PFA20-15NM	PFA20-15ANM	15:1	84%	8.03 x 10 ⁻⁴	✗
PFA20-20NM	PFA20-20ANM	20:1	78%	7.79 x 10 ⁻⁴	✗
PFA20-30NM	PFA20-30ANM	30:1	71%	7.65 x 10 ⁻⁴	✗
PFA20-60NM	PFA20-60ANM	60:1	60%	7.55 x 10 ⁻⁴	✓
PFA20-120NM	PFA20-120ANM	120:1	32%	6.83 x 10 ⁻⁴	✓
PFA20-SPNM	PFA20-SPANM	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 0.5 lb. Greased for Life: Shell Gadus S5 V42P 2.5.
F_a at 1000 Rpm: 26.46 lb. F_a at 1000 Rpm: 11.02 lb.

Modifications and custom designed gearboxes available. Contact Sales for details.
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

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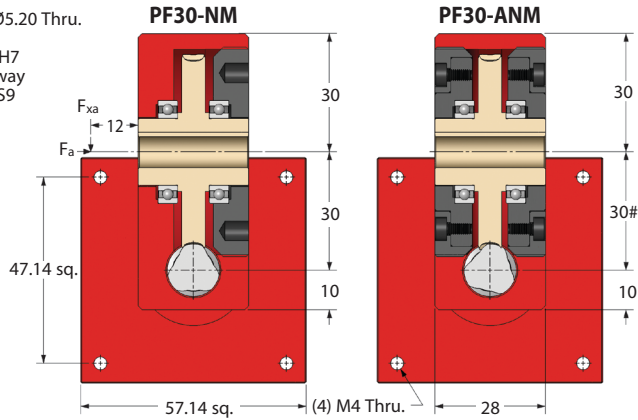
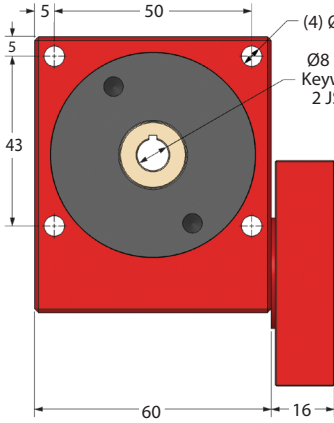
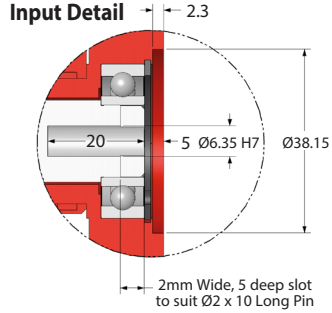
PF30NM

e-cad
Drawings
Available

GEARBOXES

Precision Worm Gear Reducers

Nema 23 Flange Input 2.5 – 8.8 Nm **5:1 - 120:1**



PF30ANM version (low backlash) output is on eccentric so centres will vary

Part Number Standard $\leq 30'$	Part Number Low Backlash $\leq 8'$	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
PF30-10NM	PF30-10ANM	10:1	90%	1.00×10^{-6}	✗
PF30-12NM	PF30-12ANM	12:1	88%	9.25×10^{-7}	✗
PF30-15NM	PF30-15ANM	15:1	86%	8.62×10^{-7}	✗
PF30-20NM	PF30-20ANM	20:1	84%	8.13×10^{-7}	✗
PF30-30NM	PF30-30ANM	30:1	78%	7.88×10^{-7}	✗
PF30-60NM	PF30-60ANM	60:1	70%	7.67×10^{-7}	✓
PF30-120NM	PF30-120ANM	120:1	40%	7.42×10^{-7}	✓
PF30-SPNM	PF30-SPANM	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: 0.59 kg. Greased for Life: Shell Gadus S5 V42P 2.5.
 F_{xa} at 1000 Rpm: 20 kg. F_a at 1000 Rpm: 12 kg.

Modifications and custom designed gearboxes available. Contact Sales for details.
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

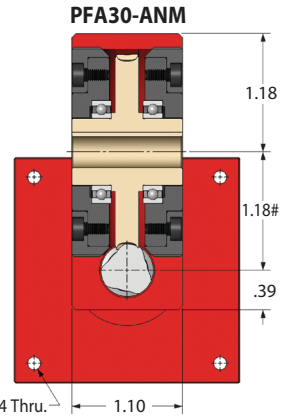
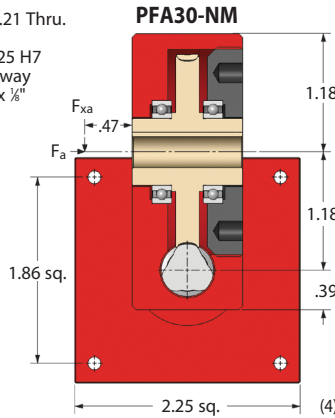
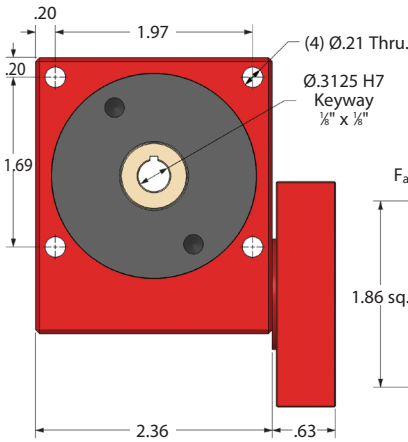
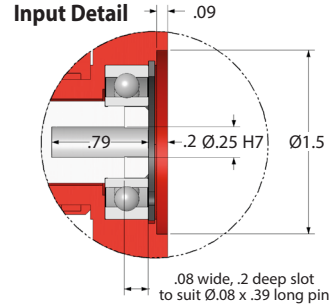
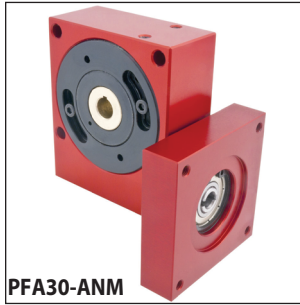
GEARBOXES

Precision Worm Gear Reducers

Nema 23 Flange Input 30 – 77.9 lbf.in **5:1 - 120:1**

e-cad
Drawings
Available

PFA30NM



PFA30ANM version (low backlash) output is on eccentric so centres will vary

Part Number		Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
Standard ≤30'	Low Backlash ≤8'				
PFA30-10NM	PFA30-10ANM	10:1	90%	3.42 x 10 ⁻³	✘
PFA30-12NM	PFA30-12ANM	12:1	88%	3.16 x 10 ⁻³	✘
PFA30-15NM	PFA30-15ANM	15:1	86%	2.95 x 10 ⁻³	✘
PFA30-20NM	PFA30-20ANM	20:1	84%	2.78 x 10 ⁻³	✘
PFA30-30NM	PFA30-30ANM	30:1	78%	2.08 x 10 ⁻³	✘
PFA30-60NM	PFA30-60ANM	60:1	70%	2.62 x 10 ⁻³	✔
PFA30-120NM	PFA30-120ANM	120:1	40%	2.54 x 10 ⁻³	✔
PFA30-SPNM	PFA30-SPANM	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 1.30 lb. Greased for Life: Shell Gadus S5 V42P 2.5.
F_a at 1000 Rpm: 44.09 lb. F_a at 1000 Rpm: 26.46 lb.

Modifications and custom designed gearboxes available. Contact Sales for details.
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

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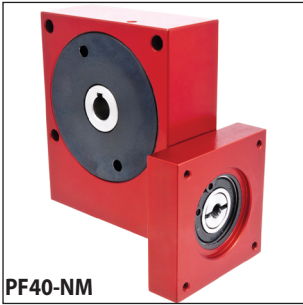
PF40NM

e-cad
Drawings
Available

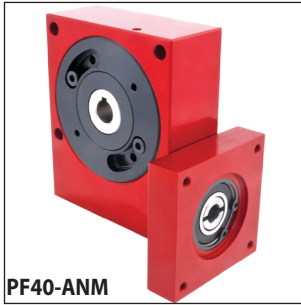
GEARBOXES

Precision Worm Gear Reducers

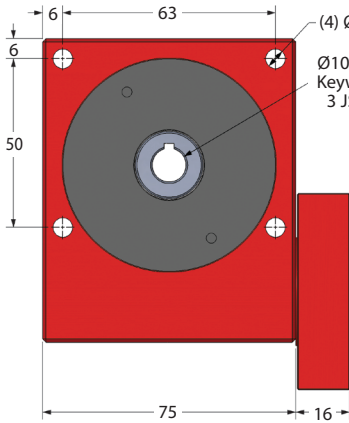
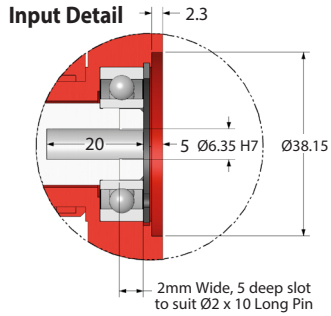
Nema 23 Flange Input 5 – 18 Nm **5:1 - 120:1**



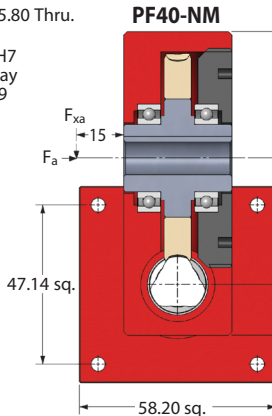
PF40-NM



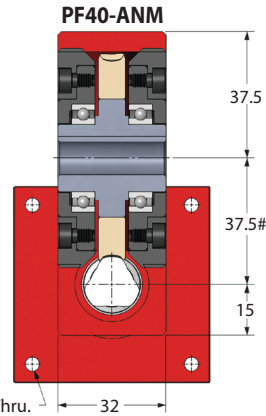
PF40-ANM



(4) Ø5.80 Thru.
Ø10 H7
Keyway
3 JS9



PF40-NM



PF40-ANM

PF40ANM version (low backlash) output is on eccentric so centres will vary

Part Number	Standard ≤30'	Low Backlash ≤8'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (kg.m ²)	Self Locking Output
PF40-10NM	PF40-10ANM		10:1	89%	3.78 x 10 ⁻⁶	✗
PF40-12NM	PF40-12ANM		12:1	87%	3.62 x 10 ⁻⁶	✗
PF40-15NM	PF40-15ANM		15:1	85%	3.49 x 10 ⁻⁶	✗
PF40-20NM	PF40-20ANM		20:1	83%	3.39 x 10 ⁻⁶	✗
PF40-30NM	PF40-30ANM		30:1	76%	3.32 x 10 ⁻⁶	✗
PF40-60NM	PF40-60ANM		60:1	65%	3.27 x 10 ⁻⁶	✓
PF40-120NM	PF40-120ANM		120:1	41%	3.26 x 10 ⁻⁶	✓
PF40-SPNM	PF40-SPANM		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: 1.15 kg. Greased for Life: Shell Gadus S5 V42P 2.5.
F_{xa} at 1000 Rpm: 30 kg. F_a at 1000 Rpm: 20 kg.

Modifications and custom designed gearboxes available. Contact Sales for details.
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

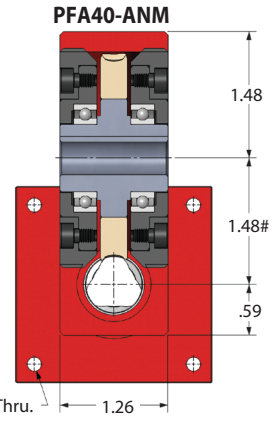
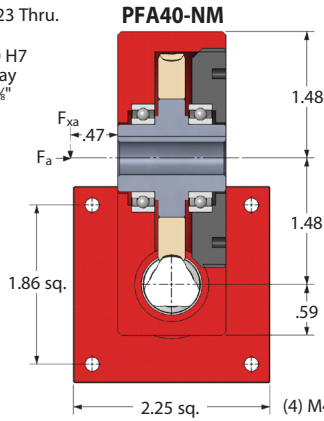
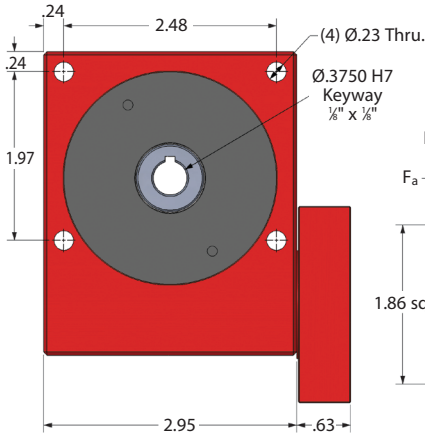
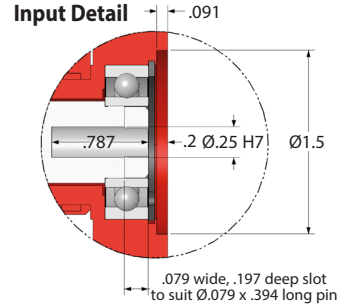
GEARBOXES

Precision Worm Gear Reducers

Nema 23 Flange Input 57.5 – 159.3 lbf.in **5:1 - 120:1**

e-cad
Drawings
Available

PFA40NM



PFA40NM version (low backlash) output is on eccentric so centres will vary

Standard ≤30'	Part Number Low Backlash ≤8'	Ratio	Efficiency at 1000 Rpm	Reflected Inertia at Input (lb.in ²)	Self Locking Output
PFA40-10NM	PFA40-10ANM	10:1	89%	1.29 x 10 ⁻²	✘
PFA40-12NM	PFA40-12ANM	12:1	87%	1.24 x 10 ⁻²	✘
PFA40-15NM	PFA40-15ANM	15:1	85%	1.19 x 10 ⁻²	✘
PFA40-20NM	PFA40-20ANM	20:1	83%	1.16 x 10 ⁻²	✘
PFA40-30NM	PFA40-30ANM	30:1	76%	1.13 x 10 ⁻²	✘
PFA40-60NM	PFA40-60ANM	60:1	65%	1.12 x 10 ⁻²	✔
PFA40-120NM	PFA40-120ANM	120:1	41%	1.11 x 10 ⁻²	✔
PFA40-SPNM	PFA40-SPANM	5:1-120:1	Special Ratios : Replace SP with required ratio		

Weight: 2.54 lb. Greased for Life: Shell Gadus S5 V42P 2.5.
F₅₀ at 1000 Rpm: 66.14 lb. F_a at 1000 Rpm: 44.09 lb.

Modifications and custom designed gearboxes available. Contact Sales for details.
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