nexen

ZERO BACKLASH GEARING

Based on Nexen's innovative Roller Pinion technology, the Geared Bearing comes complete with a gear and a precision grade, high capacity bearing. With a wide range of sizes and ratios, all with zero backlash, a Geared Bearing can fit in any application.

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CE RoHS compliant

PATENTED

Zero Backlash Gearing Advantage

Based on Nexen's innovative Roller Pinion technology, the Roller Pinion System Geared Bearing (RPS-GB) comes complete with a precision zero backlash gear mounted and dialed in on a precision grade high capacity bearing.

With many possible sizes and gear ratios, all with zero backlash, the Nexen Geared Bearing can be incorporated into any precision rotary motion control application.

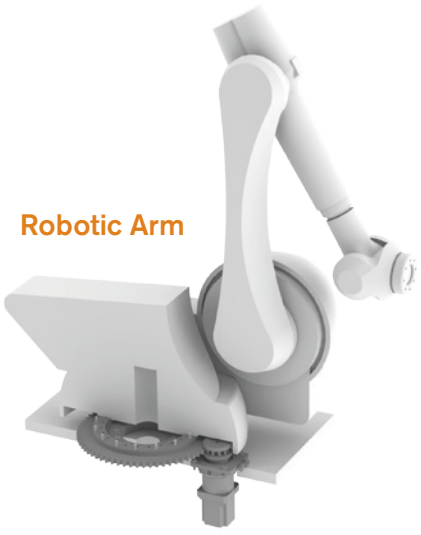
- **High Indexing Precision**
  With an indexing precision as low as ± 30 ArcSec and repeatability as low as ± 5.0 ArcSec, Nexen's Geared Bearing offers unmatched mechanical system capabilities.

- **Zero Backlash**
  Based on Nexen's RPS technology, the Geared Bearing offers a rigid, zero backlash system.

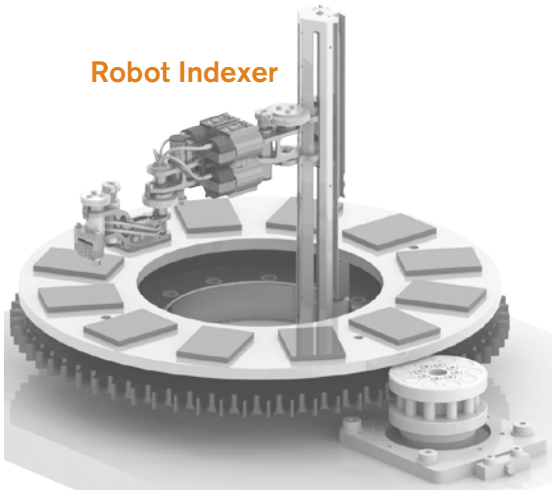
- **High Output Load Capacity**
  The Nexen Geared Bearing is supported by a precision grade, high load capacity cross-roller bearing.

- **High Speed**
  The Nexen Geared Bearings can handle speeds up to 632 RPM.

DEPENDABLE. DRIVEN. ARRAY OF OPTIONS.



Robotic Arm



Robot Indexer

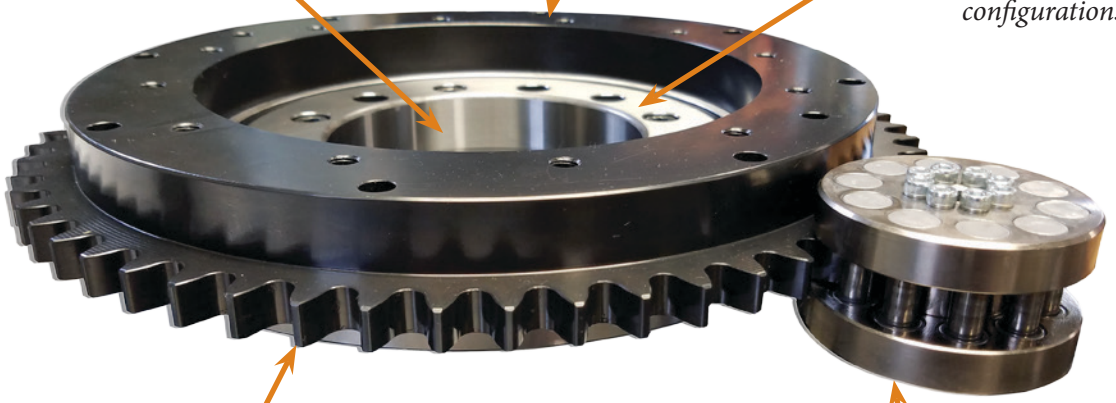
Positioning • Semiconductors • Medical Products • Robotics

AT THE CORE OF A ROTARY SYSTEM

Large Open Center
The Geared Bearing has a large open center that allows users to easily mount equipment and cabling in the center of the rotating output.

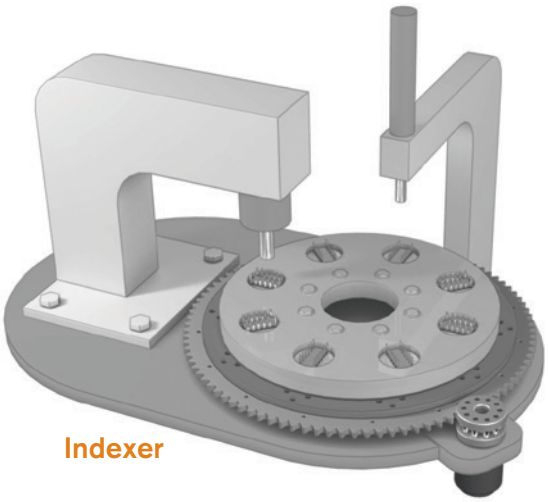
Mounting Options
Threaded and thru hole mounting and piloting options ensure a Nexen Geared Bearing can be incorporated into any application.

High Capacity Bearing
The Geared Bearing has a High Capacity Cross Roller Bearing capable of supporting significant loads at multiple mounting configurations.



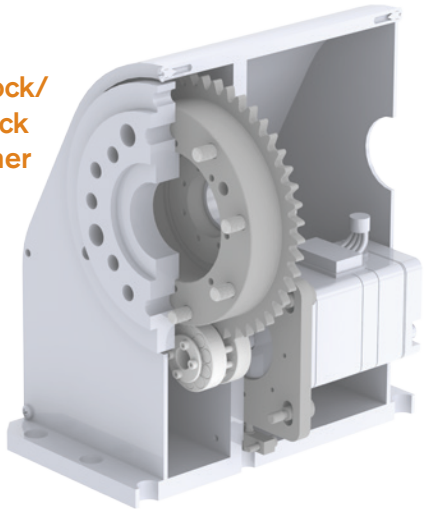
High Precision RPS Gears
Nexen RPS Technology allows for lube-free operation, high output torque and zero backlash for the most accurate positioning possible.

Drive Flexibility
Pinions are available from Nexen that are compatible with many manufacturer's gearboxes.



Indexer

Head Stock/ Tail Stock Positioner



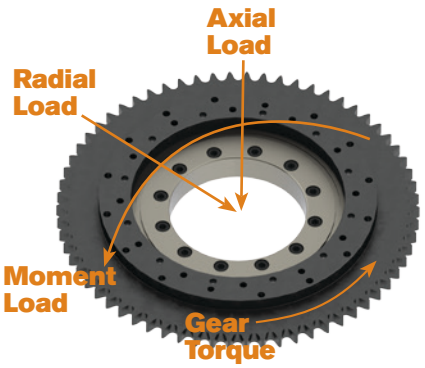
Material Fabrication • Automotive • Aerospace • Welding

Geared Bearing Selection Process

The Nexen Geared Bearing product line offers many solutions to ensure there is an option that optimizes your needs. Because there is a unique interaction between the gear, bearing, applied load and applied torque, optimizing your selection is a multiple step process. Below Nexen has created steps to assist in ensuring all application aspects are considered to end up with the best solution for the application.

STEP 1: DETERMINE APPLICATION REQUIREMENTS:

Application Requirements for Geared Bearing Selection	Customer Data (*record your values below*)
Maximum Static Gear Torque	Nm
Maximum Dynamic Gear Torque	Nm
Average Dynamic Gear Torque	Nm
Envelope size (Gear O.D.)	mm
Maximum Static Moment Load	N
Maximum Dynamic Moment Load	N
Average Dynamic Moment Load	N
Maximum Static Radial Load	N
Maximum Dynamic Radial Load	N
Average Dynamic Radial Load	N
Maximum Static Axial Load	N
Maximum Dynamic Axial Load	N
Average Dynamic Axial Load	N
Average Gear Speed	rpm
Accuracy	± ArcSec



STEP 2: SELECT GEARED BEARING

Enter application requirements: Starting with Application torque, use this catalog or Nexen's Geared Bearing Product Selector to determine the best products for your needs.

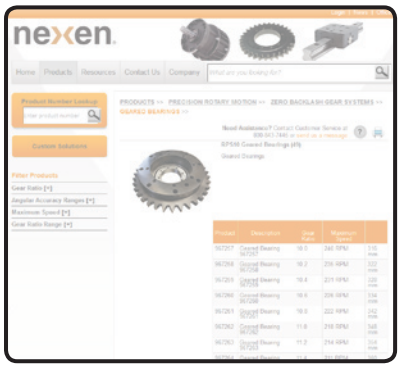
Geared Bearing Selected	
Part #:	
RPS Size:	
# of Teeth:	
Bearing #:	

The Geared Bearing Product Selector is available on the website, use the following link:
http://www.nexengroup.com/nxn/products/prod-nav/lp/Geared+Bearings
Click on the 

button on the upper right side of the Geared Bearing product page.

Product Selector Program:
Adjust the sliders to your application's specifications, then click "Compare Gears" to collect a list of Geared Bearings that match your application's specifications.





Product List:
A list of all Geared Bearings, sorted by RPS size.
The Geared Bearing List can be sorted by any of 5 major specifications, or filtered by specification range.

STEP 3: CALCULATE BEARING DRAG TORQUE

With a Geared Bearing selected, refer to Specifications section to find the bearing number associated with it. Calculate the chosen product's Bearing Drag Torque (T_{BD}) using calculations provided on Pages 20 & 21

Bearing Drag Torque	
	Nm

STEP 4: CALCULATE TOTAL GEAR TORQUE REQUIRED

Using the application torque and bearing drag torque, calculate the chosen product's Total Gear Torque using calculations provided on Page 21.

Total Required Gear Torque	
	Nm

STEP 5: VERIFY TOTAL GEAR TORQUE

Verify the Total Required Gear Torque calculated in STEP 4 is less than the Max Gear Torque specification for your selected gear. Do this by re-entering the data into the Product Selector or by using the product tables in the Specifications section. If Total Required Gear Torque exceed Max Torque, select a Geared Bearing in a larger RPS size.

STEP 6: CALCULATE BEARING LOAD CAPACITY

With a Geared Bearing selected, refer to Specifications section to find the bearing number associated with it. Calculate the chosen product's Bearing Load Capacity using calculations provided on Page 19. Verify the calculated safety factor is adequate for the given service conditions.

Static Safety Factor	
$f_S =$	

STEP 7: VERIFY SYSTEM LIFE

With a Geared Bearing selected, calculate RPS Pinion life using calculations provided on Pages 22 & 23. If calculated pinion life does not meet application expectations, choose a unit in a larger RPS size. Now, calculate Bearing Life using calculations provided on Pages 27 & 28. If calculated bearing life does not meet application expectations, choose a unit with a larger size bearing. Bearings are available in 7 sizes: 42mm, 66mm, 85mm, 124mm, 148mm, 178mm & 228mm.

Pinion Life in Hours	
$N_{hours} =$	hrs

Bearing Race Life in Hours	
$N_{hours} =$	hrs

Geared Bearing Selected	
Part #:	
RPS Size:	
# of Teeth:	
Bearing #:	

Geared Bearing Selection

RPS 10

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967226	**15.2**	126	**106**	3.8 : 1	**38**
967227	**16.0**	132	**101**	4.0 : 1	**40**
967228	**16.8**	138	**96**	4.2 : 1	**42**
967229	**17.6**	144	**92**	4.4 : 1	**44**
967230	**18.4**	150	**88**	4.6 : 1	**46**
967231	**19.2**	156	**84**	4.8 : 1	**48**
967232	**20.0**	162	**81**	5.0 : 1	**50**
967233	**20.8**	168	**78**	5.2 : 1	**52**
967234	**21.6**	174	**75**	5.4 : 1	**54**
967235	**22.4**	182	**72**	5.6 : 1	**56**
967236	**23.2**	188	**69**	5.8 : 1	**58**
967237	**24.0**	194	**67**	6.0 : 1	**60**
967238	**24.8**	200	**65**	6.2 : 1	**62**
967239	**25.6**	206	**63**	6.4 : 1	**64**
967240	**26.4**	212	**61**	6.6 : 1	**66**
967241	**27.2**	218	**59**	6.8 : 1	**68**
967242	**28.0**	224	**58**	7.0 : 1	**70**
967243	**28.8**	230	**56**	7.2 : 1	**72**
967244	**29.6**	236	**55**	7.4 : 1	**74**
967245	**30.4**	242	**53**	7.6 : 1	**76**
967246	**31.2**	248	**52**	7.8 : 1	**78**
967247	**32.0**	254	**51**	8.0 : 1	**80**
967248	**32.8**	262	**49**	8.2 : 1	**82**
967249	**33.6**	268	**48**	8.4 : 1	**84**
967250	**34.4**	274	**47**	8.6 : 1	**86**
967251	**35.2**	280	**46**	8.8 : 1	**88**
967252	**36.0**	286	**45**	9.0 : 1	**90**
967253	**36.8**	292	**44**	9.2 : 1	**92**
967254	**37.6**	298	**43**	9.4 : 1	**94**
967255	**38.4**	304	**42**	9.6 : 1	**96**
967256	**39.2**	310	**41**	9.8 : 1	**98**
967257	**40.0**	316	**40**	10.0 : 1	**100**
967258	**40.8**	322	**40**	10.2 : 1	**102**
967259	**41.6**	328	**39**	10.4 : 1	**104**
967260	**42.4**	334	**38**	10.6 : 1	**106**
967261	**43.2**	342	**37**	10.8 : 1	**108**
967262	**44.0**	348	**37**	11.0 : 1	**110**
967263	**44.8**	354	**36**	11.2 : 1	**112**
967264	**45.6**	360	**35**	11.4 : 1	**114**
967265	**46.4**	366	**35**	11.6 : 1	**116**
967266	**47.2**	372	**34**	11.8 : 1	**118**
967267	**48.0**	378	**34**	12.0 : 1	**120**
967268	**48.8**	384	**33**	12.2 : 1	**122**
967269	**49.6**	390	**32**	12.4 : 1	**124**
967270	**50.4**	396	**32**	12.6 : 1	**126**
967271	**51.2**	402	**31**	12.8 : 1	**128**
967272	**52.0**	408	**31**	13.0 : 1	**130**
967273	**52.8**	414	**31**	13.2 : 1	**132**
967274	**53.6**	422	**30**	13.4 : 1	**134**

RPS 12

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967185	**30.4**	129	**104**	3.2 : 1	**32**
967186	**32.3**	135	**99**	3.4 : 1	**34**
967187	**34.2**	143	**93**	3.6 : 1	**36**
967188	**36.1**	151	**88**	3.8 : 1	**38**
967189	**38.0**	157	**84**	4.0 : 1	**40**
967190	**39.9**	165	**80**	4.2 : 1	**42**
967191	**41.8**	173	**76**	4.4 : 1	**44**
967192	**43.7**	179	**73**	4.6 : 1	**46**
967193	**45.6**	187	**70**	4.8 : 1	**48**
967194	**47.5**	195	**67**	5.0 : 1	**50**
967195	**49.4**	201	**65**	5.2 : 1	**52**
967196	**51.3**	209	**62**	5.4 : 1	**54**
967197	**53.2**	217	**60**	5.6 : 1	**56**
967198	**55.1**	225	**58**	5.8 : 1	**58**
967199	**57.0**	231	**56**	6.0 : 1	**60**
967200	**58.9**	239	**54**	6.2 : 1	**62**
967201	**60.8**	247	**52**	6.4 : 1	**64**
967202	**62.7**	253	**51**	6.6 : 1	**66**
967203	**64.6**	261	**49**	6.8 : 1	**68**
967204	**66.5**	269	**48**	7.0 : 1	**70**
967205	**68.4**	275	**47**	7.2 : 1	**72**
967206	**70.3**	283	**45**	7.4 : 1	**74**
967207	**72.2**	291	**44**	7.6 : 1	**76**
967208	**74.1**	297	**43**	7.8 : 1	**78**
967209	**76.0**	305	**42**	8.0 : 1	**80**
967210	**77.9**	313	**41**	8.2 : 1	**82**
967211	**79.8**	321	**40**	8.4 : 1	**84**
967212	**81.7**	327	**39**	8.6 : 1	**86**
967213	**83.6**	335	**38**	8.8 : 1	**88**
967214	**85.5**	343	**37**	9.0 : 1	**90**
967215	**87.4**	349	**37**	9.2 : 1	**92**
967216	**89.3**	357	**36**	9.4 : 1	**94**
967217	**91.2**	365	**35**	9.6 : 1	**96**
967218	**93.1**	371	**34**	9.8 : 1	**98**
967219	**95.0**	379	**34**	10.0 : 1	**100**
967220	**96.9**	387	**33**	10.2 : 1	**102**
967221	**98.8**	393	**32**	10.4 : 1	**104**
967222	**100.7**	401	**32**	10.6 : 1	**106**
967223	**102.6**	409	**31**	10.8 : 1	**108**
967224	**104.5**	417	**30**	11.0 : 1	**110**
967225	**106.4**	423	**30**	11.2 : 1	**112**

RPS 16

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967100	**159**	141	**97**	2.6 : 1	**26**
967101	**171**	151	**90**	2.8 : 1	**28**
967102	**183**	159	**85**	3.0 : 1	**30**
967103	**196**	169	**80**	3.2 : 1	**32**
967104	**208**	179	**75**	3.4 : 1	**34**
967105	**220**	189	**71**	3.6 : 1	**36**
967106	**232**	199	**67**	3.8 : 1	**38**
967107	**244**	209	**63**	4.0 : 1	**40**
967108	**257**	219	**60**	4.2 : 1	**42**
967109	**269**	229	**58**	4.4 : 1	**44**
967110	**281**	237	**55**	4.6 : 1	**46**
967111	**293**	247	**53**	4.8 : 1	**48**
967112	**306**	257	**51**	5.0 : 1	**50**
967113	**318**	267	**49**	5.2 : 1	**52**
967114	**330**	277	**47**	5.4 : 1	**54**
967115	**342**	287	**45**	5.6 : 1	**56**
967116	**354**	297	**44**	5.8 : 1	**58**
967117	**367**	307	**42**	6.0 : 1	**60**
967118	**379**	315	**41**	6.2 : 1	**62**
967119	**391**	325	**40**	6.4 : 1	**64**
967120	**403**	335	**39**	6.6 : 1	**66**
967121	**415**	345	**37**	6.8 : 1	**68**
967122	**428**	355	**36**	7.0 : 1	**70**
967123	**440**	365	**35**	7.2 : 1	**72**
967124	**452**	375	**34**	7.4 : 1	**74**
967125	**464**	383	**34**	7.6 : 1	**76**
967126	**477**	393	**33**	7.8 : 1	**78**
967127	**489**	403	**32**	8.0 : 1	**80**
967128	**501**	413	**31**	8.2 : 1	**82**
967129	**513**	423	**30**	8.4 : 1	**84**

RPS 20

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967147	**203**	152	**92**	2.2 : 1	**22**
967148	**222**	166	**84**	2.4 : 1	**24**
967149	**240**	178	**77**	2.6 : 1	**26**
967150	**258**	190	**72**	2.8 : 1	**28**
967151	**277**	202	**67**	3.0 : 1	**30**
967152	**295**	214	**63**	3.2 : 1	**32**
967153	**314**	226	**59**	3.4 : 1	**34**
967154	**332**	240	**56**	3.6 : 1	**36**
967155	**351**	252	**53**	3.8 : 1	**38**
967156	**369**	264	**50**	4.0 : 1	**40**
967157	**388**	276	**48**	4.2 : 1	**42**
967158	**406**	288	**46**	4.4 : 1	**44**
967159	**425**	300	**44**	4.6 : 1	**46**
967160	**443**	312	**42**	4.8 : 1	**48**
967161	**462**	326	**40**	5.0 : 1	**50**
967162	**480**	338	**39**	5.2 : 1	**52**
967163	**498**	350	**37**	5.4 : 1	**54**
967164	**517**	362	**36**	5.6 : 1	**56**
967165	**535**	374	**35**	5.8 : 1	**58**
967166	**554**	386	**34**	6.0 : 1	**60**
967167	**572**	400	**32**	6.2 : 1	**62**
967168	**591**	412	**31**	6.4 : 1	**64**
967169	**609**	424	**30**	6.6 : 1	**66**

Geared Bearing Selection

RPS 25

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967130	**318**	174	**81**	2.0 : 1	**20**
967131	**350**	190	**73**	2.2 : 1	**22**
967132	**382**	206	**67**	2.4 : 1	**24**
967133	**414**	220	**62**	2.6 : 1	**26**
967134	**446**	236	**58**	2.8 : 1	**28**
967135	**478**	252	**54**	3.0 : 1	**30**
967136	**509**	268	**50**	3.2 : 1	**32**
967137	**541**	282	**47**	3.4 : 1	**34**
967138	**573**	298	**45**	3.6 : 1	**36**
967139	**605**	314	**42**	3.8 : 1	**38**
967140	**637**	328	**40**	4.0 : 1	**40**
967141	**669**	344	**38**	4.2 : 1	**42**
967142	**700**	360	**37**	4.4 : 1	**44**
967143	**732**	374	**35**	4.6 : 1	**46**
967144	**764**	390	**34**	4.8 : 1	**48**
967145	**796**	406	**32**	5.0 : 1	**50**
967146	**828**	420	**31**	5.2 : 1	**52**

RPS 32

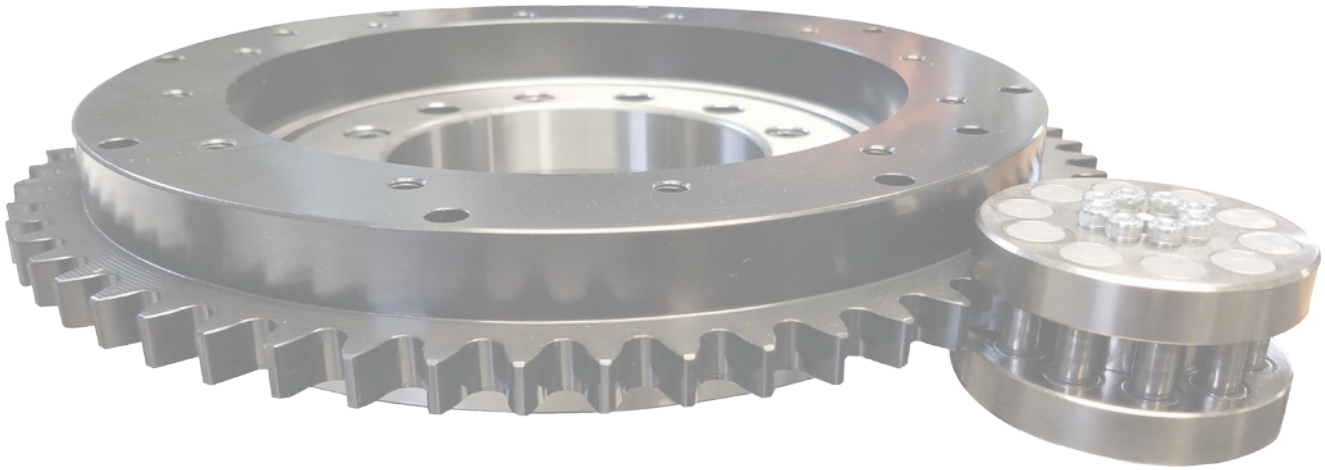
Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967170	**770**	260	**53**	2.0 : 1	**24**
967171	**834**	280	**49**	$2.1\overline{6}$: 1	**26**
967172	**898**	300	**45**	$2.\overline{3}$: 1	**28**
967173	**963**	320	**42**	2.5 : 1	**30**
967174	**1027**	338	**40**	$2.\overline{6}$: 1	**32**
967175	**1091**	358	**37**	$2.8\overline{3}$: 1	**34**
967176	**1155**	378	**35**	3.0 : 1	**36**
967177	**1219**	398	**33**	$3.1\overline{6}$: 1	**38**
967178	**1283**	416	**32**	$3.\overline{3}$: 1	**40**

RPS 40

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967179	**917**	331	**42**	2.0 : 1	**24**
967180	**993**	355	**39**	$2.1\overline{6}$: 1	**26**
967181	**1070**	379	**36**	$2.\overline{3}$: 1	**28**
967182	**1146**	403	**34**	2.5 : 1	**30**

RPS 4014

Product Number	Dynamic Max Gear Torque (Nm)	Gear OD Size (mm)	Accuracy (±ArcSec)	Gear Ratio	# Teeth
967183	**2496**	376	**36**	2.0 : 1	**28**
967184	**2674**	402	**34**	$2.\overline{14}$: 1	**30**

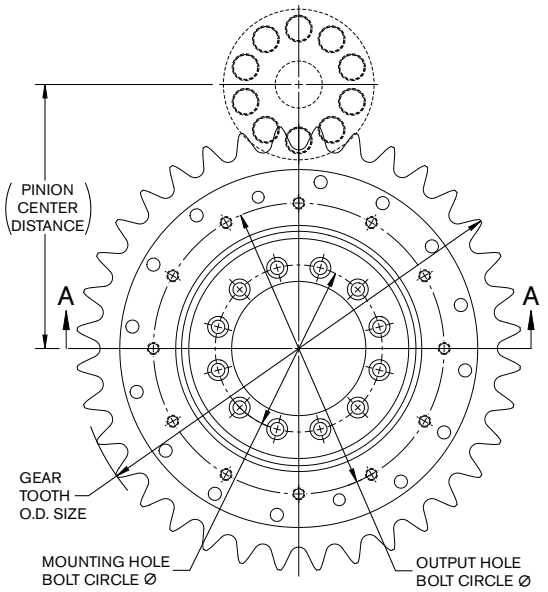


Geared Bearing Specifications by Product Number

RPS 10																		
General Specs					Gear Torque			Speed		Precision			Load			Inertia		
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967226	**38**	3.8 : 1	**42**	2.1	**23**	15.2	**15.2**	632	**82**	106	**17.6**	0	**0.0**	2.3	**3.6**	.0026	**.000019**
967227	**40**	4.0 : 1	**42**	2.1	**24**	16.0	**16.0**	600	**78**	101	**16.8**	0	**0.0**	2.3	**3.6**	.0028	**.000019**
967228	**42**	4.2 : 1	**42**	2.1	**26**	16.8	**16.8**	571	**74**	96	**16.0**	0	**0.0**	2.3	**3.6**	.0030	**.000019**
967229	**44**	4.4 : 1	**42**	2.1	**27**	17.6	**17.6**	545	**71**	92	**15.3**	0	**0.0**	2.3	**3.6**	.0033	**.000019**
967230	**46**	4.6 : 1	**66**	2.1	**28**	18.4	**18.4**	522	**68**	88	**14.6**	0	**0.2**	6.0	**9.1**	.0058	**.00015**
967231	**48**	4.8 : 1	**66**	2.1	**29**	19.2	**19.2**	500	**65**	84	**14.0**	0	**0.2**	6.0	**9.1**	.0062	**.00015**
967232	**50**	5.0 : 1	**66**	2.1	**30**	20.0	**20.0**	480	**62**	81	**13.5**	0	**0.2**	6.0	**9.1**	.0065	**.00015**
967233	**52**	5.2 : 1	**66**	2.1	**32**	20.8	**20.8**	462	**60**	78	**13.0**	0	**0.2**	6.0	**9.1**	.0070	**.00015**
967234	**54**	5.4 : 1	**85**	2.1	**33**	21.6	**21.6**	444	**58**	75	**12.5**	0	**0.3**	7.0	**10.6**	.012	**.00039**
967235	**56**	5.6 : 1	**85**	2.1	**34**	22.4	**22.4**	429	**55**	72	**11.9**	0	**0.3**	7.0	**10.6**	.012	**.00039**
967236	**58**	5.8 : 1	**85**	2.1	**35**	23.2	**23.2**	414	**53**	69	**11.5**	0	**0.3**	7.0	**10.6**	.013	**.00039**
967237	**60**	6.0 : 1	**85**	2.1	**36**	24.0	**24.0**	400	**52**	67	**11.1**	0	**0.3**	7.0	**10.6**	.014	**.00039**
967238	**62**	6.2 : 1	**85**	2.1	**38**	24.8	**24.8**	387	**50**	65	**10.8**	0	**0.3**	7.0	**10.6**	.014	**.00039**
967239	**64**	6.4 : 1	**85**	2.1	**39**	25.6	**25.6**	375	**48**	63	**10.5**	0	**0.3**	7.0	**10.6**	.015	**.00039**
967240	**66**	6.6 : 1	**85**	2.1	**40**	26.4	**26.4**	364	**47**	61	**10.2**	0	**0.3**	7.0	**10.6**	.016	**.00039**
967241	**68**	6.8 : 1	**124**	2.1	**41**	27.2	**27.2**	353	**46**	59	**9.9**	0	**0.7**	11.6	**17.5**	.032	**.0028**
967242	**70**	7.0 : 1	**124**	2.1	**43**	28.0	**28.0**	343	**44**	58	**9.6**	0	**0.7**	11.6	**17.5**	.033	**.0028**
967243	**72**	7.2 : 1	**124**	2.1	**44**	28.8	**28.8**	333	**43**	56	**9.3**	0	**0.7**	11.6	**17.5**	.034	**.0028**
967244	**74**	7.4 : 1	**124**	2.1	**45**	29.6	**29.6**	324	**42**	55	**9.1**	0	**0.7**	11.6	**17.5**	.035	**.0028**
967245	**76**	7.6 : 1	**124**	2.1	**46**	30.4	**30.4**	316	**41**	53	**8.9**	0	**0.7**	11.6	**17.5**	.037	**.0028**
967246	**78**	7.8 : 1	**124**	2.1	**47**	31.2	**31.2**	308	**40**	52	**8.6**	0	**0.7**	11.6	**17.5**	.038	**.0028**
967247	**80**	8.0 : 1	**124**	2.1	**49**	32.0	**32.0**	300	**39**	51	**8.4**	0	**0.7**	11.6	**17.5**	.040	**.0028**
967248	**82**	8.2 : 1	**124**	2.1	**50**	32.8	**32.8**	293	**38**	49	**8.2**	0	**0.7**	11.6	**17.5**	.042	**.0028**
967249	**84**	8.4 : 1	**148**	2.1	**51**	33.6	**33.6**	286	**37**	48	**8.0**	0	**1.3**	17.4	**26.1**	.080	**.0063**
967250	**86**	8.6 : 1	**148**	2.1	**52**	34.4	**34.4**	279	**36**	47	**7.8**	0	**1.3**	17.4	**26.1**	.082	**.0063**
967251	**88**	8.8 : 1	**148**	2.1	**54**	35.2	**35.2**	273	**35**	46	**7.6**	0	**1.3**	17.4	**26.1**	.084	**.0063**
967252	**90**	9.0 : 1	**148**	2.1	**55**	36.0	**36.0**	267	**34**	45	**7.4**	0	**1.3**	17.4	**26.1**	.086	**.0063**
967253	**92**	9.2 : 1	**148**	2.1	**56**	36.8	**36.8**	261	**34**	44	**7.3**	0	**1.3**	17.4	**26.1**	.089	**.0063**
967254	**94**	9.4 : 1	**178**	2.1	**57**	37.6	**37.6**	255	**33**	43	**7.1**	0	**2.5**	28.6	**42.9**	.12	**.015**
967255	**96**	9.6 : 1	**178**	2.1	**58**	38.4	**38.4**	250	**32**	42	**7.0**	0	**2.5**	28.6	**42.9**	.13	**.015**
967256	**98**	9.8 : 1	**178**	2.1	**60**	39.2	**39.2**	245	**32**	41	**6.9**	0	**2.5**	28.6	**42.9**	.13	**.015**
967257	**100**	10.0 : 1	**178**	2.1	**61**	40.0	**40.0**	240	**31**	40	**6.7**	0	**2.5**	28.6	**42.9**	.13	**.015**
967258	**102**	10.2 : 1	**178**	2.1	**62**	40.8	**40.8**	235	**31**	40	**6.6**	0	**2.5**	28.6	**42.9**	.13	**.015**
967259	**104**	10.4 : 1	**178**	2.1	**63**	41.6	**41.6**	231	**30**	39	**6.5**	0	**2.5**	28.6	**42.9**	.14	**.015**
967260	**106**	10.6 : 1	**178**	2.1	**64**	42.4	**42.4**	226	**29**	38	**6.3**	0	**2.5**	28.6	**42.9**	.14	**.015**
967261	**108**	10.8 : 1	**178**	2.1	**66**	43.2	**43.2**	222	**29**	37	**6.2**	0	**2.5**	28.6	**42.9**	.15	**.015**
967262	**110**	11.0 : 1	**228**	2.1	**67**	44.0	**44.0**	218	**28**	37	**6.1**	0	**4.2**	37.2	**55.6**	.25	**.044**
967263	**112**	11.2 : 1	**228**	2.1	**68**	44.8	**44.8**	214	**28**	36	**6.0**	0	**4.2**	37.2	**55.6**	.25	**.044**
967264	**114**	11.4 : 1	**228**	2.1	**69**	45.6	**45.6**	211	**27**	35	**5.9**	0	**4.2**	37.2	**55.6**	.26	**.044**
967265	**116**	11.6 : 1	**228**	2.1	**71**	46.4	**46.4**	207	**27**	35	**5.8**	0	**4.2**	37.2	**55.6**	.26	**.044**
967266	**118**	11.8 : 1	**228**	2.1	**72**	47.2	**47.2**	203	**26**	34	**5.7**	0	**4.2**	37.2	**55.6**	.27	**.044**
967267	**120**	12.0 : 1	**228**	2.1	**73**	48.0	**48.0**	200	**26**	34	**5.6**	0	**4.2**	37.2	**55.6**	.27	**.044**
967268	**122**	12.2 : 1	**228**	2.1	**74**	48.8	**48.8**	197	**25**	33	**5.5**	0	**4.2**	37.2	**55.6**	.28	**.044**
967269	**124**	12.4 : 1	**228**	2.1	**75**	49.6	**49.6**	194	**25**	32	**5.4**	0	**4.2**	37.2	**55.6**	.28	**.044**
967270	**126**	12.6 : 1	**228**	2.1	**77**	50.4	**50.4**	190	**25**	32	**5.3**	0	**4.2**	37.2	**55.6**	.29	**.044**
967271	**128**	12.8 : 1	**228**	2.1	**78**	51.2	**51.2**	188	**24**	31	**5.2**	0	**4.2**	37.2	**55.6**	.29	**.044**
967272	**130**	13.0 : 1	**228**	2.1	**79**	52.0	**52.0**	185	**24**	31	**5.2**	0	**4.2**	37.2	**55.6**	.30	**.044**
967273	**132**	13.2 : 1	**228**	2.1	**80**	52.8	**52.8**	182	**24**	31	**5.1**	0	**4.2**	37.2	**55.6**	.31	**.044**
967274	**134**	13.4 : 1	**228**	2.1	**81**	53.6	**53.6**	179	**23**	30	**5.0**	0	**4.2**	37.2	**55.6**	.32	**.044**

[1] Load types are mutually exclusive for comparison purposes. For combined loads & high loads, see Bearing Load Section.

Geared Bearing Dimensions & Specifications by Product Number

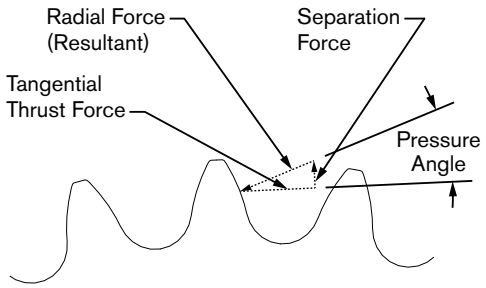


SECTION A-A

Dimensions shown in ***mm*** unless otherwise noted.

Basic gear dimensions shown for selection purposes only and subject to change.
Go to www.nexengroup.com for detailed drawings and CAD models.
If none of the products below meet your needs, contact Nexen and one can be designed to your specifications. Please contact Nexen for lead times.

System Reaction Forces Under Maximum Torque Condition



Common Attributes for All Gears	
Estimated Life	See ***System Life*** section.
Operating Temperature Range (°C)	-5 to 40
Tooth Grease	Part Number 853901
Gear Finish	Black Oxide
Bearing Finish	Steel
External Ratings/Standards	CE, RoHS
Operational Noise (dB)	up to 80 (speed dependent)

RPS 10

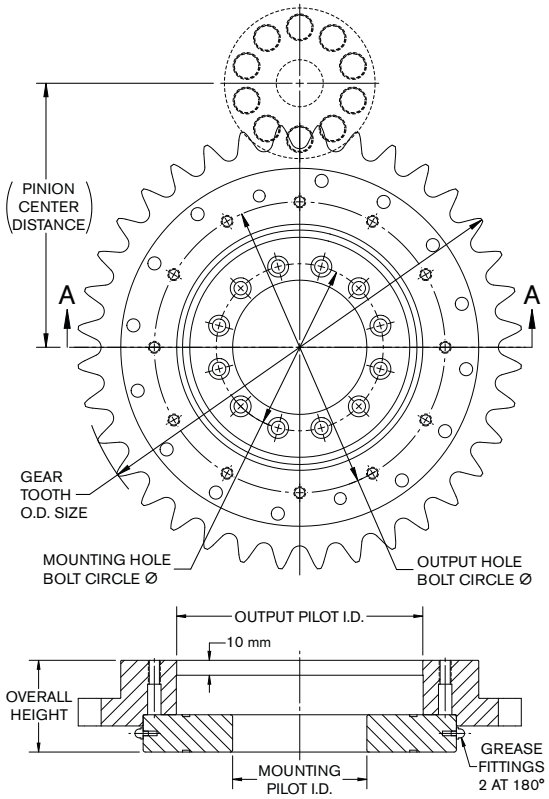
Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967226	**38**	126	**60**	50	**28**	20	**74**	38	**1.7**	79	**113**	271	**283**
967227	**40**	132	**60**	50	**28**	20	**77**	38	**1.8**	79	**113**	271	**283**
967228	**42**	138	**60**	50	**28**	20	**80**	38	**1.8**	78	**113**	271	**283**
967229	**44**	144	**60**	50	**28**	20	**83**	38	**1.9**	77	**113**	272	**284**
967230	**46**	150	**85**	75	**45**	35	**86**	39.5	**2.5**	77	**113**	272	**284**
967231	**48**	156	**85**	75	**45**	35	**89**	39.5	**2.5**	77	**113**	272	**284**
967232	**50**	162	**85**	75	**45**	35	**92**	39.5	**2.6**	76	**113**	272	**284**
967233	**52**	168	**85**	75	**45**	35	**95**	39.5	**2.7**	76	**113**	272	**284**
967234	**54**	174	**107.5**	95	**65**	55	**98**	39.5	**3.4**	75	**113**	272	**285**
967235	**56**	182	**107.5**	95	**65**	55	**102**	39.5	**3.5**	82	**116**	271	**284**
967236	**58**	188	**107.5**	95	**65**	55	**105**	39.5	**3.5**	81	**116**	272	**284**
967237	**60**	194	**107.5**	95	**65**	55	**108**	39.5	**3.6**	81	**116**	272	**284**
967238	**62**	200	**107.5**	95	**65**	55	**111**	39.5	**3.7**	81	**116**	272	**284**
967239	**64**	206	**107.5**	95	**65**	55	**114**	39.5	**3.8**	80	**116**	272	**284**
967240	**66**	212	**107.5**	95	**65**	55	**117**	39.5	**3.9**	80	**116**	272	**284**
967241	**68**	218	**150**	135	**97**	80	**120**	44	**5.9**	79	**116**	272	**285**
967242	**70**	224	**150**	135	**97**	80	**123**	44	**6.0**	79	**116**	272	**285**
967243	**72**	230	**150**	135	**97**	80	**126**	44	**6.1**	79	**115**	272	**285**
967244	**74**	236	**150**	135	**97**	80	**129**	44	**6.2**	78	**115**	272	**285**
967245	**76**	242	**150**	135	**97**	80	**132**	44	**6.3**	78	**115**	272	**285**
967246	**78**	248	**150**	135	**97**	80	**135**	44	**6.4**	78	**115**	272	**285**
967247	**80**	254	**150**	135	**97**	80	**138**	44	**6.5**	78	**115**	272	**285**
967248	**82**	262	**150**	135	**97**	80	**142**	44	**6.6**	82	**117**	272	**284**
967249	**84**	268	**195**	165	**112**	90	**145**	45.5	**9.8**	82	**117**	272	**285**
967250	**86**	274	**195**	165	**112**	90	**148**	45.5	**9.9**	81	**117**	272	**285**
967251	**88**	280	**195**	165	**112**	90	**151**	45.5	**10.0**	81	**117**	272	**285**
967252	**90**	286	**195**	165	**112**	90	**154**	45.5	**10.0**	81	**117**	272	**285**
967253	**92**	292	**195**	165	**112**	90	**157**	45.5	**10.0**	80	**117**	272	**285**
967254	**94**	298	**220**	195	**139**	115	**160**	47	**12.0**	80	**117**	272	**285**
967255	**96**	304	**220**	195	**139**	115	**163**	47	**12.0**	80	**117**	272	**285**
967256	**98**	310	**220**	195	**139**	115	**166**	47	**13.0**	80	**117**	272	**285**
967257	**100**	316	**220**	195	**139**	115	**169**	47	**13.0**	79	**117**	272	**285**
967258	**102**	322	**220**	195	**139**	115	**172**	47	**13.0**	79	**117**	272	**285**
967259	**104**	328	**220**	195	**139**	115	**175**	47	**13.0**	79	**117**	272	**285**
967260	**106**	334	**220**	195	**139**	115	**178**	47	**13.0**	79	**116**	272	**286**
967261	**108**	342	**220**	195	**139**	115	**182**	47	**13.0**	82	**118**	272	**285**
967262	**110**	348	**275**	250	**184**	160	**185**	51	**18.0**	82	**118**	272	**285**
967263	**112**	354	**275**	250	**184**	160	**188**	51	**18.0**	81	**118**	272	**285**
967264	**114**	360	**275**	250	**184**	160	**191**	51	**18.0**	81	**118**	272	**285**
967265	**116**	366	**275**	250	**184**	160	**194**	51	**18.0**	81	**118**	272	**285**
967266	**118**	372	**275**	250	**184**	160	**197**	51	**19.0**	81	**118**	272	**285**
967267	**120**	378	**275**	250	**184**	160	**200**	51	**19.0**	81	**118**	272	**285**
967268	**122**	384	**275**	250	**184**	160	**203**	51	**19.0**	80	**118**	272	**285**
967269	**124**	390	**275**	250	**184**	160	**206**	51	**19.0**	80	**118**	272	**285**
967270	**126**	396	**275**	250	**184**	160	**209**	51	**19.0**	80	**117**	272	**286**
967271	**128**	402	**275**	250	**184**	160	**212**	51	**19.0**	80	**117**	272	**286**
967272	**130**	408	**275**	250	**184**	160	**215**	51	**19.0**	80	**117**	272	**286**
967273	**132**	414	**275**	250	**184**	160	**218**	51	**20.0**	79	**117**	272	**286**
967274	**134**	422	**275**	250	**184**	160	**222**	51	**20.0**	82	**119**	272	**285**

Geared Bearing Specifications by Product Number

RPS 12																	
General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967185	**32**	3.2 : 1	**42**	2.4	**46**	30.4	**30.4**	625	**80**	104	**17.3**	0	**0.0**	1.9	**3.2**	.003	**.00002**
967186	**34**	3.4 : 1	**42**	2.4	**48**	32.3	**32.3**	588	**76**	99	**16.5**	0	**0.0**	1.9	**3.2**	.003	**.00002**
967187	**36**	3.6 : 1	**42**	2.4	**51**	34.2	**34.2**	556	**72**	93	**15.5**	0	**0.0**	1.9	**3.2**	.003	**.00002**
967188	**38**	3.8 : 1	**66**	2.4	**54**	36.1	**36.1**	526	**68**	88	**14.6**	0	**0.2**	5.6	**8.7**	.006	**.00015**
967189	**40**	4.0 : 1	**66**	2.4	**57**	38.0	**38.0**	500	**65**	84	**14.0**	0	**0.2**	5.6	**8.7**	.006	**.00015**
967190	**42**	4.2 : 1	**66**	2.4	**60**	39.9	**39.9**	476	**62**	80	**13.3**	0	**0.2**	5.6	**8.7**	.007	**.00015**
967191	**44**	4.4 : 1	**66**	2.4	**63**	41.8	**41.8**	455	**59**	76	**12.7**	0	**0.2**	5.6	**8.7**	.007	**.00015**
967192	**46**	4.6 : 1	**85**	2.4	**66**	43.7	**43.7**	435	**57**	73	**12.2**	0	**0.3**	6.7	**10.3**	.012	**.0004**
967193	**48**	4.8 : 1	**85**	2.4	**68**	45.6	**45.6**	417	**54**	70	**11.7**	0	**0.3**	6.7	**10.3**	.013	**.0004**
967194	**50**	5.0 : 1	**85**	2.4	**71**	47.5	**47.5**	400	**52**	67	**11.1**	0	**0.3**	6.7	**10.3**	.014	**.0004**
967195	**52**	5.2 : 1	**85**	2.4	**74**	49.4	**49.4**	385	**50**	65	**10.8**	0	**0.3**	6.7	**10.3**	.014	**.0004**
967196	**54**	5.4 : 1	**85**	2.4	**77**	51.3	**51.3**	370	**48**	62	**10.4**	0	**0.3**	6.7	**10.3**	.015	**.0004**
967197	**56**	5.6 : 1	**85**	2.4	**80**	53.2	**53.2**	357	**46**	60	**10.0**	0	**0.3**	6.7	**10.3**	.017	**.0004**
967198	**58**	5.8 : 1	**124**	2.4	**83**	55.1	**55.1**	345	**44**	58	**9.6**	0	**0.7**	11.3	**17.2**	.033	**.0028**
967199	**60**	6.0 : 1	**124**	2.4	**86**	57.0	**57.0**	333	**43**	56	**9.3**	0	**0.7**	11.3	**17.2**	.034	**.0028**
967200	**62**	6.2 : 1	**124**	2.4	**88**	58.9	**58.9**	323	**42**	54	**9.0**	0	**0.7**	11.3	**17.2**	.036	**.0028**
967201	**64**	6.4 : 1	**124**	2.4	**91**	60.8	**60.8**	313	**40**	52	**8.7**	0	**0.7**	11.3	**17.2**	.038	**.0028**
967202	**66**	6.6 : 1	**124**	2.4	**94**	62.7	**62.7**	303	**39**	51	**8.5**	0	**0.7**	11.3	**17.2**	.039	**.0028**
967203	**68**	6.8 : 1	**124**	2.4	**97**	64.6	**64.6**	294	**38**	49	**8.2**	0	**0.7**	11.3	**17.2**	.041	**.0028**
967204	**70**	7.0 : 1	**148**	2.4	**100**	66.5	**66.5**	286	**37**	48	**8.0**	0	**1.3**	17.1	**25.8**	.080	**.0063**
967205	**72**	7.2 : 1	**148**	2.4	**103**	68.4	**68.4**	278	**36**	47	**7.8**	0	**1.3**	17.1	**25.8**	.082	**.0063**
967206	**74**	7.4 : 1	**148**	2.4	**105**	70.3	**70.3**	270	**35**	45	**7.6**	0	**1.3**	17.1	**25.8**	.085	**.0063**
967207	**76**	7.6 : 1	**148**	2.4	**108**	72.2	**72.2**	263	**34**	44	**7.3**	0	**1.3**	17.1	**25.8**	.088	**.0063**
967208	**78**	7.8 : 1	**178**	2.4	**111**	74.1	**74.1**	256	**33**	43	**7.2**	0	**2.5**	28.3	**42.6**	.12	**.015**
967209	**80**	8.0 : 1	**178**	2.4	**114**	76.0	**76.0**	250	**32**	42	**7.0**	0	**2.5**	28.3	**42.6**	.13	**.015**
967210	**82**	8.2 : 1	**178**	2.4	**117**	77.9	**77.9**	244	**32**	41	**6.8**	0	**2.5**	28.3	**42.6**	.13	**.015**
967211	**84**	8.4 : 1	**178**	2.4	**120**	79.8	**79.8**	238	**31**	40	**6.6**	0	**2.5**	28.3	**42.6**	.13	**.015**
967212	**86**	8.6 : 1	**178**	2.4	**123**	81.7	**81.7**	233	**30**	39	**6.5**	0	**2.5**	28.3	**42.6**	.14	**.015**
967213	**88**	8.8 : 1	**178**	2.4	**125**	83.6	**83.6**	227	**29**	38	**6.3**	0	**2.5**	28.3	**42.6**	.14	**.015**
967214	**90**	9.0 : 1	**178**	2.4	**128**	85.5	**85.5**	222	**29**	37	**6.2**	0	**2.5**	28.3	**42.6**	.15	**.015**
967215	**92**	9.2 : 1	**178**	2.4	**131**	87.4	**87.4**	217	**28**	37	**6.1**	0	**2.5**	28.3	**42.6**	.15	**.015**
967216	**94**	9.4 : 1	**228**	2.4	**134**	89.3	**89.3**	213	**28**	36	**5.9**	0	**4.2**	36.9	**55.3**	.25	**.044**
967217	**96**	9.6 : 1	**228**	2.4	**137**	91.2	**91.2**	208	**27**	35	**5.8**	0	**4.2**	36.9	**55.3**	.26	**.044**
967218	**98**	9.8 : 1	**228**	2.4	**140**	93.1	**93.1**	204	**26**	34	**5.7**	0	**4.2**	36.9	**55.3**	.26	**.044**
967219	**100**	10.0 : 1	**228**	2.4	**143**	95.0	**95.0**	200	**26**	34	**5.6**	0	**4.2**	36.9	**55.3**	.27	**.044**
967220	**102**	10.2 : 1	**228**	2.4	**145**	96.9	**96.9**	196	**25**	33	**5.5**	0	**4.2**	36.9	**55.3**	.28	**.044**
967221	**104**	10.4 : 1	**228**	2.4	**148**	98.8	**98.8**	192	**25**	32	**5.4**	0	**4.2**	36.9	**55.3**	.28	**.044**
967222	**106**	10.6 : 1	**228**	2.4	**151**	100.7	**100.7**	189	**24**	32	**5.3**	0	**4.2**	36.9	**55.3**	.29	**.044**
967223	**108**	10.8 : 1	**228**	2.4	**154**	102.6	**102.6**	185	**24**	31	**5.2**	0	**4.2**	36.9	**55.3**	.30	**.044**
967224	**110**	11.0 : 1	**228**	2.4	**157**	104.5	**104.5**	182	**23**	30	**5.1**	0	**4.2**	36.9	**55.3**	.31	**.044**
967225	**112**	11.2 : 1	**228**	2.4	**160**	106.4	**106.4**	179	**23**	30	**5.0**	0	**4.2**	36.9	**55.3**	.32	**.044**

[1] Load types are mutually exclusive for comparison purposes. For combined loads & high loads, see Bearing Load Section.

Geared Bearing Dimensions & Specifications by Product Number

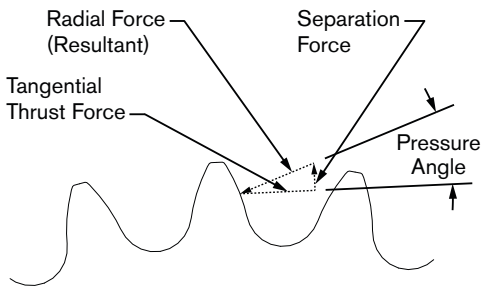


SECTION A-A

Dimensions shown in ***mm*** unless otherwise noted.

Basic gear dimensions shown for selection purposes only and subject to change.
Go to www.nexengroup.com for detailed drawings and CAD models.
If none of the products below meet your needs, contact Nexen and one can be designed to your specifications. Please contact Nexen for lead times.

System Reaction Forces Under Maximum Torque Condition



Common Attributes for All Gears	
Estimated Life	See ***System Life*** section.
Operating Temperature Range (°C)	-5 to 40
Tooth Grease	Part Number 853901
Gear Finish	Black Oxide
Bearing Finish	Steel
External Ratings/Standards	CE, RoHS
Operational Noise (dB)	up to 80 (speed dependent)

RPS 12

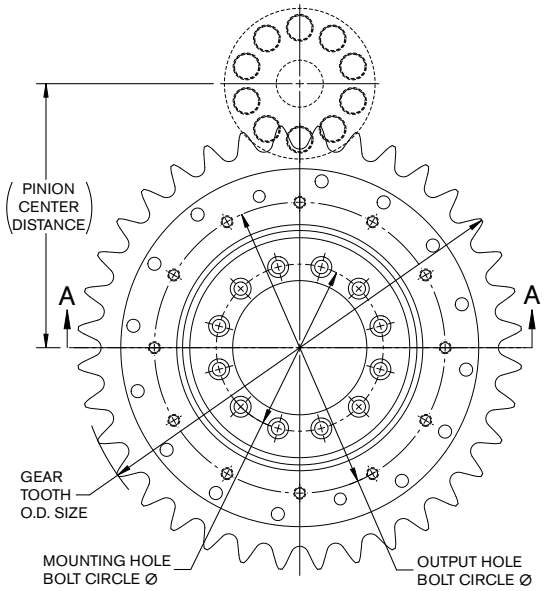
Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967185	**32**	129	**60**	50	**28**	20	**78**	38	**1.7**	160	**217**	536	**556**
967186	**34**	135	**60**	50	**28**	20	**81**	38	**1.8**	146	**212**	536	**558**
967187	**36**	143	**60**	50	**28**	20	**85**	38	**1.9**	152	**215**	536	**557**
967188	**38**	151	**85**	75	**45**	35	**89**	39.5	**2.5**	158	**218**	536	**557**
967189	**40**	157	**85**	75	**45**	35	**92**	39.5	**2.5**	146	**214**	537	**559**
967190	**42**	165	**85**	75	**45**	35	**96**	39.5	**2.6**	151	**217**	536	**558**
967191	**44**	173	**85**	75	**45**	35	**100**	39.5	**2.7**	156	**219**	536	**558**
967192	**46**	179	**107.5**	95	**65**	55	**103**	39.5	**3.4**	146	**215**	537	**560**
967193	**48**	187	**107.5**	95	**65**	55	**107**	39.5	**3.5**	151	**218**	537	**559**
967194	**50**	195	**107.5**	95	**65**	55	**111**	39.5	**3.6**	155	**220**	537	**559**
967195	**52**	201	**107.5**	95	**65**	55	**114**	39.5	**3.7**	146	**217**	537	**560**
967196	**54**	209	**107.5**	95	**65**	55	**118**	39.5	**3.8**	151	**219**	537	**560**
967197	**56**	217	**107.5**	95	**65**	55	**122**	39.5	**3.9**	155	**221**	537	**559**
967198	**58**	225	**150**	135	**97**	80	**126**	44	**6.0**	158	**223**	537	**559**
967199	**60**	231	**150**	135	**97**	80	**129**	44	**6.1**	150	**219**	537	**560**
967200	**62**	239	**150**	135	**97**	80	**133**	44	**6.2**	154	**221**	537	**560**
967201	**64**	247	**150**	135	**97**	80	**137**	44	**6.4**	157	**223**	537	**559**
967202	**66**	253	**150**	135	**97**	80	**140**	44	**6.5**	150	**220**	537	**561**
967203	**68**	261	**150**	135	**97**	80	**144**	44	**6.6**	153	**222**	537	**560**
967204	**70**	269	**195**	165	**112**	90	**148**	45.5	**9.8**	157	**223**	537	**560**
967205	**72**	275	**195**	165	**112**	90	**151**	45.5	**9.9**	150	**220**	537	**561**
967206	**74**	283	**195**	165	**112**	90	**155**	45.5	**10.0**	153	**222**	537	**561**
967207	**76**	291	**195**	165	**112**	90	**159**	45.5	**10.0**	156	**223**	537	**560**
967208	**78**	297	**220**	195	**139**	115	**162**	47	**12.0**	150	**221**	537	**561**
967209	**80**	305	**220**	195	**139**	115	**166**	47	**12.0**	153	**222**	537	**561**
967210	**82**	313	**220**	195	**139**	115	**170**	47	**13.0**	155	**224**	537	**561**
967211	**84**	321	**220**	195	**139**	115	**174**	47	**13.0**	158	**225**	537	**560**
967212	**86**	327	**220**	195	**139**	115	**177**	47	**13.0**	152	**223**	537	**561**
967213	**88**	335	**220**	195	**139**	115	**181**	47	**13.0**	155	**224**	537	**561**
967214	**90**	343	**220**	195	**139**	115	**185**	47	**13.0**	157	**225**	537	**561**
967215	**92**	349	**220**	195	**139**	115	**188**	47	**13.0**	152	**223**	537	**562**
967216	**94**	357	**275**	250	**184**	160	**192**	51	**18.0**	155	**224**	537	**561**
967217	**96**	365	**275**	250	**184**	160	**196**	51	**18.0**	157	**225**	537	**561**
967218	**98**	371	**275**	250	**184**	160	**199**	51	**18.0**	152	**223**	538	**562**
967219	**100**	379	**275**	250	**184**	160	**203**	51	**19.0**	154	**224**	537	**561**
967220	**102**	387	**275**	250	**184**	160	**207**	51	**19.0**	156	**225**	537	**561**
967221	**104**	393	**275**	250	**184**	160	**210**	51	**19.0**	152	**223**	538	**562**
967222	**106**	401	**275**	250	**184**	160	**214**	51	**19.0**	154	**224**	537	**562**
967223	**108**	409	**275**	250	**184**	160	**218**	51	**19.0**	156	**225**	537	**561**
967224	**110**	417	**275**	250	**184**	160	**222**	51	**20.0**	158	**226**	537	**561**
967225	**112**	423	**275**	250	**184**	160	**225**	51	**20.0**	154	**224**	538	**562**

Geared Bearing Specifications by Product Number

RPS 16																	
General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m^2)	Moment of Inertia INNER (kg/m^2)
967100	**26**	2.6 : 1	**42**	3.4	**159**	159	**88**	577	**75**	97	**16.2**	0	**0.0**	0.4	**1.0**	.004	**.00002**
967101	**28**	2.8 : 1	**42**	3.4	**171**	171	**94**	536	**70**	90	**15.1**	0	**0.0**	0.4	**1.0**	.005	**.00002**
967102	**30**	3.0 : 1	**42**	3.4	**183**	183	**101**	500	**66**	85	**14.2**	0	**0.0**	0.4	**1.0**	.006	**.00002**
967103	**32**	3.2 : 1	**66**	3.4	**196**	196	**108**	469	**62**	80	**13.3**	0	**0.1**	4.4	**7.5**	.009	**.00015**
967104	**34**	3.4 : 1	**66**	3.4	**208**	208	**115**	441	**58**	75	**12.5**	0	**0.1**	4.4	**7.5**	.011	**.00015**
967105	**36**	3.6 : 1	**85**	3.4	**220**	220	**121**	417	**55**	71	**11.8**	0	**0.2**	5.5	**9.1**	.016	**.00039**
967106	**38**	3.8 : 1	**85**	3.4	**232**	232	**128**	395	**52**	67	**11.1**	0	**0.2**	5.5	**9.1**	.018	**.00039**
967107	**40**	4.0 : 1	**85**	3.4	**244**	244	**135**	375	**49**	63	**10.6**	0	**0.2**	5.5	**9.1**	.021	**.00039**
967108	**42**	4.2 : 1	**85**	3.4	**257**	257	**142**	357	**47**	60	**10.1**	0	**0.2**	5.5	**9.1**	.024	**.00039**
967109	**44**	4.4 : 1	**85**	3.4	**269**	269	**148**	341	**44**	58	**9.6**	0	**0.2**	5.5	**9.1**	.027	**.00040**
967110	**46**	4.6 : 1	**124**	3.4	**281**	281	**155**	326	**43**	55	**9.2**	0	**0.6**	10.2	**16.0**	.043	**.0028**
967111	**48**	4.8 : 1	**124**	3.4	**293**	293	**162**	313	**41**	53	**8.9**	0	**0.6**	10.2	**16.0**	.047	**.0028**
967112	**50**	5.0 : 1	**124**	3.4	**306**	306	**169**	300	**39**	51	**8.5**	0	**0.6**	10.2	**16.0**	.052	**.0028**
967113	**52**	5.2 : 1	**124**	3.4	**318**	318	**175**	288	**38**	49	**8.2**	0	**0.6**	10.2	**16.0**	.058	**.0028**
967114	**54**	5.4 : 1	**148**	3.4	**330**	330	**182**	278	**36**	47	**7.8**	0	**1.2**	16.0	**24.7**	.095	**.0063**
967115	**56**	5.6 : 1	**148**	3.4	**342**	342	**189**	268	**35**	45	**7.6**	0	**1.2**	16.0	**24.7**	.10	**.0063**
967116	**58**	5.8 : 1	**148**	3.4	**354**	354	**195**	259	**34**	44	**7.3**	0	**1.2**	16.0	**24.7**	.11	**.0063**
967117	**60**	6.0 : 1	**178**	3.4	**367**	367	**202**	250	**33**	42	**7.0**	0	**2.4**	27.3	**41.5**	.15	**.015**
967118	**62**	6.2 : 1	**178**	3.4	**379**	379	**209**	242	**32**	41	**6.9**	0	**2.4**	27.3	**41.5**	.15	**.015**
967119	**64**	6.4 : 1	**178**	3.4	**391**	391	**216**	234	**31**	40	**6.6**	0	**2.4**	27.3	**41.5**	.16	**.015**
967120	**66**	6.6 : 1	**178**	3.4	**403**	403	**222**	227	**30**	39	**6.4**	0	**2.4**	27.3	**41.5**	.17	**.015**
967121	**68**	6.8 : 1	**178**	3.4	**415**	415	**229**	221	**29**	37	**6.2**	0	**2.4**	27.3	**41.5**	.19	**.015**
967122	**70**	7.0 : 1	**178**	3.4	**428**	428	**236**	214	**28**	36	**6.0**	0	**2.4**	27.3	**41.5**	.20	**.015**
967123	**72**	7.2 : 1	**228**	3.4	**440**	440	**243**	208	**27**	35	**5.9**	0	**4.1**	35.8	**54.3**	.29	**.044**
967124	**74**	7.4 : 1	**228**	3.4	**452**	452	**249**	203	**26**	34	**5.7**	0	**4.1**	35.8	**54.3**	.31	**.044**
967125	**76**	7.6 : 1	**228**	3.4	**464**	464	**256**	197	**26**	34	**5.6**	0	**4.1**	35.8	**54.3**	.32	**.044**
967126	**78**	7.8 : 1	**228**	3.4	**477**	477	**263**	192	**25**	33	**5.4**	0	**4.1**	35.8	**54.3**	.34	**.044**
967127	**80**	8.0 : 1	**228**	3.4	**489**	489	**270**	188	**25**	32	**5.3**	0	**4.1**	35.8	**54.3**	.36	**.044**
967128	**82**	8.2 : 1	**228**	3.4	**501**	501	**276**	183	**24**	31	**5.2**	0	**4.1**	35.8	**54.3**	.39	**.044**
967129	**84**	8.4 : 1	**228**	3.4	**513**	513	**283**	179	**23**	30	**5.0**	0	**4.1**	35.8	**54.3**	.41	**.044**

[1] Load types are mutually exclusive for comparison purposes. For combined loads & high loads, see Bearing Load Section.

Geared Bearing Dimensions & Specifications by Product Number

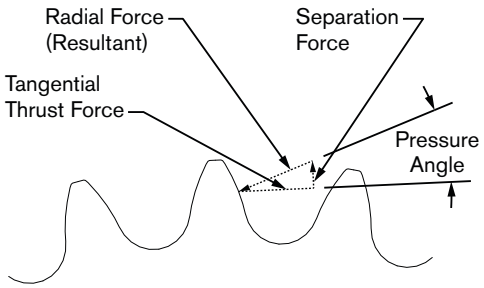


SECTION A-A

Dimensions shown in ***mm*** unless otherwise noted.

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System Reaction Forces Under Maximum Torque Condition



Common Attributes for All Gears	
Estimated Life	See ***System Life*** section.
Operating Temperature Range (°C)	-5 to 40
Tooth Grease	Part Number 853901
Gear Finish	Black Oxide
Bearing Finish	Steel
External Ratings/Standards	CE, RoHS
Operational Noise (dB)	up to 80 (speed dependent)

RPS 16

Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967100	**26**	141	**60**	50	**28**	20	**88**	41	**2.2**	760	**1041**	2613	**2708**
967101	**28**	151	**60**	50	**28**	20	**93**	41	**2.4**	771	**1050**	2613	**2708**
967102	**30**	159	**60**	50	**28**	20	**97**	41	**2.6**	696	**1024**	2614	**2720**
967103	**32**	169	**85**	75	**45**	35	**102**	42.5	**3.2**	710	**1033**	2614	**2720**
967104	**34**	179	**85**	75	**45**	35	**107**	42.5	**3.4**	722	**1042**	2614	**2720**
967105	**36**	189	**107.5**	95	**65**	55	**112**	42.5	**4.1**	733	**1049**	2614	**2720**
967106	**38**	199	**107.5**	95	**65**	55	**117**	42.5	**4.3**	743	**1056**	2614	**2720**
967107	**40**	209	**107.5**	95	**65**	55	**122**	42.5	**4.6**	751	**1062**	2614	**2720**
967108	**42**	219	**107.5**	95	**65**	55	**127**	42.5	**4.9**	759	**1068**	2614	**2720**
967109	**44**	229	**107.5**	95	**65**	55	**132**	42.5	**5.2**	767	**1073**	2614	**2720**
967110	**46**	237	**150**	135	**97**	80	**136**	47	**7.0**	718	**1054**	2616	**2728**
967111	**48**	247	**150**	135	**97**	80	**141**	47	**7.3**	727	**1060**	2616	**2728**
967112	**50**	257	**150**	135	**97**	80	**146**	47	**7.7**	735	**1065**	2616	**2727**
967113	**52**	267	**150**	135	**97**	80	**151**	47	**8.0**	742	**1070**	2616	**2727**
967114	**54**	277	**195**	165	**112**	90	**156**	48.5	**11.0**	749	**1074**	2616	**2727**
967115	**56**	287	**195**	165	**112**	90	**161**	48.5	**11.0**	755	**1078**	2616	**2727**
967116	**58**	297	**195**	165	**112**	90	**166**	48.5	**12.0**	761	**1082**	2616	**2727**
967117	**60**	307	**220**	195	**139**	115	**171**	50	**14.0**	767	**1085**	2616	**2726**
967118	**62**	315	**220**	195	**139**	115	**175**	50	**14.0**	731	**1071**	2618	**2732**
967119	**64**	325	**220**	195	**139**	115	**180**	50	**14.0**	737	**1075**	2618	**2732**
967120	**66**	335	**220**	195	**139**	115	**185**	50	**15.0**	743	**1078**	2618	**2732**
967121	**68**	345	**220**	195	**139**	115	**190**	50	**15.0**	748	**1081**	2618	**2731**
967122	**70**	355	**220**	195	**139**	115	**195**	50	**16.0**	754	**1084**	2617	**2731**
967123	**72**	365	**275**	250	**184**	160	**200**	54	**20.0**	759	**1087**	2617	**2731**
967124	**74**	375	**275**	250	**184**	160	**205**	54	**20.0**	763	**1090**	2617	**2731**
967125	**76**	383	**275**	250	**184**	160	**209**	54	**21.0**	734	**1078**	2619	**2736**
967126	**78**	393	**275**	250	**184**	160	**214**	54	**21.0**	739	**1081**	2619	**2735**
967127	**80**	403	**275**	250	**184**	160	**219**	54	**22.0**	744	**1084**	2619	**2735**
967128	**82**	413	**275**	250	**184**	160	**224**	54	**22.0**	748	**1087**	2619	**2735**
967129	**84**	423	**275**	250	**184**	160	**229**	54	**23.0**	753	**1089**	2619	**2734**

Geared Bearing Specifications by Product Number

RPS 20

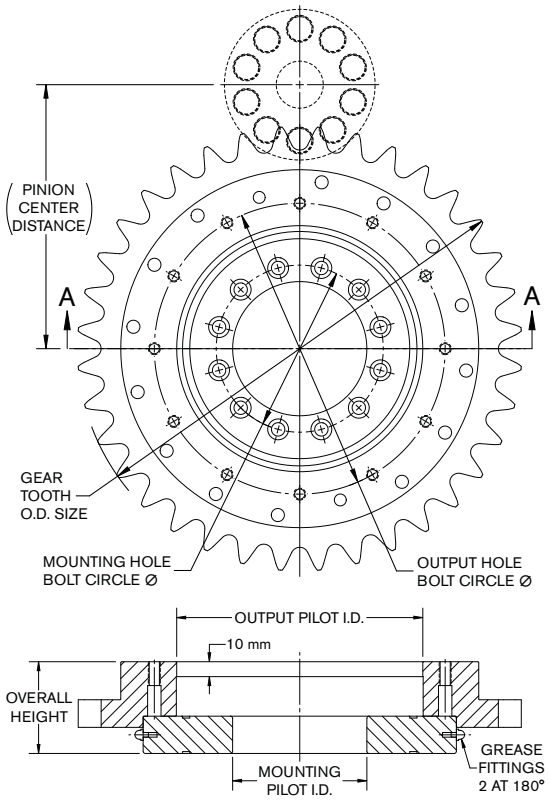
General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967147	**22**	2.2 : 1	**42**	4.2	**210**	203	**116**	545	**71**	92	**15.4**	0	[2]	[2]	[2]	.006	**.00002**
967148	**24**	2.4 : 1	**42**	4.2	**229**	222	**126**	500	**65**	84	**13.9**	0	[2]	[2]	[2]	.008	**.00002**
967149	**26**	2.6 : 1	**66**	4.2	**248**	240	**137**	462	**60**	77	**12.9**	0	**0.1**	3.8	**6.9**	.012	**.0002**
967150	**28**	2.8 : 1	**66**	4.2	**267**	258	**147**	429	**56**	72	**12.0**	0	**0.1**	3.8	**6.9**	.014	**.0002**
967151	**30**	3.0 : 1	**85**	4.2	**287**	277	**158**	400	**52**	67	**11.2**	0	**0.2**	4.9	**8.5**	.021	**.0004**
967152	**32**	3.2 : 1	**85**	4.2	**306**	295	**168**	375	**49**	63	**10.5**	0	**0.2**	4.9	**8.5**	.025	**.0004**
967153	**34**	3.4 : 1	**85**	4.2	**325**	314	**179**	353	**46**	59	**9.9**	0	**0.2**	4.9	**8.5**	.03	**.0004**
967154	**36**	3.6 : 1	**124**	4.2	**344**	332	**189**	333	**43**	56	**9.3**	0	**0.6**	9.7	**15.6**	.05	**.003**
967155	**38**	3.8 : 1	**124**	4.2	**363**	351	**200**	316	**41**	53	**8.8**	0	**0.6**	9.7	**15.6**	.05	**.003**
967156	**40**	4.0 : 1	**124**	4.2	**382**	369	**210**	300	**39**	50	**8.4**	0	**0.6**	9.7	**15.6**	.06	**.003**
967157	**42**	4.2 : 1	**124**	4.2	**401**	388	**221**	286	**37**	48	**8.0**	0	**0.6**	9.7	**15.6**	.07	**.003**
967158	**44**	4.4 : 1	**148**	4.2	**420**	406	**231**	273	**35**	46	**7.6**	0	**1.1**	15.5	**24.2**	.11	**.006**
967159	**46**	4.6 : 1	**148**	4.2	**439**	425	**242**	261	**34**	44	**7.3**	0	**1.1**	15.5	**24.2**	.12	**.006**
967160	**48**	4.8 : 1	**148**	4.2	**458**	443	**252**	250	**32**	42	**7.0**	0	**1.1**	15.5	**24.2**	.14	**.006**
967161	**50**	5.0 : 1	**178**	4.2	**478**	462	**263**	240	**31**	40	**6.7**	0	**2.4**	26.8	**41.1**	.18	**.015**
967162	**52**	5.2 : 1	**178**	4.2	**497**	480	**273**	231	**30**	39	**6.4**	0	**2.4**	26.8	**41.1**	.20	**.015**
967163	**54**	5.4 : 1	**178**	4.2	**516**	498	**284**	222	**29**	37	**6.2**	0	**2.4**	26.8	**41.1**	.22	**.015**
967164	**56**	5.6 : 1	**178**	4.2	**535**	517	**294**	214	**28**	36	**6.0**	0	**2.4**	26.8	**41.1**	.24	**.015**
967165	**58**	5.8 : 1	**228**	4.2	**554**	535	**305**	207	**27**	35	**5.8**	0	**4.0**	35.4	**53.9**	.33	**.044**
967166	**60**	6.0 : 1	**228**	4.2	**573**	554	**315**	200	**26**	34	**5.6**	0	**4.0**	35.4	**53.9**	.36	**.044**
967167	**62**	6.2 : 1	**228**	4.2	**592**	572	**326**	194	**25**	32	**5.4**	0	**4.0**	35.4	**53.9**	.39	**.044**
967168	**64**	6.4 : 1	**228**	4.2	**611**	591	**336**	188	**24**	31	**5.2**	0	**4.0**	35.4	**53.9**	.43	**.044**
967169	**66**	6.6 : 1	**228**	4.2	**630**	609	**347**	182	**24**	30	**5.1**	0	**4.0**	35.4	**53.9**	.46	**.044**

RPS 25

General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967130	**20**	2.0 : 1	**42**	5.4	**352**	318	**179**	455	**62**	81	**13.5**	0	[2]	[2]	[2]	.011	**.000019**
967131	**22**	2.2 : 1	**66**	5.4	**387**	350	**197**	414	**57**	73	**12.2**	0	**0.1**	2.8	**5.9**	.017	**.00015**
967132	**24**	2.4 : 1	**85**	5.4	**422**	382	**215**	379	**52**	67	**11.1**	0	**0.2**	4.0	**7.6**	.027	**.00039**
967133	**26**	2.6 : 1	**85**	5.4	**458**	414	**233**	350	**48**	62	**10.4**	0	**0.2**	4.0	**7.6**	.033	**.00039**
967134	**28**	2.8 : 1	**85**	5.4	**493**	446	**251**	325	**44**	58	**9.6**	0	**0.2**	4.0	**7.6**	.042	**.00039**
967135	**30**	3.0 : 1	**124**	5.4	**528**	478	**269**	303	**41**	54	**8.9**	0	**0.5**	8.8	**14.7**	.067	**.0028**
967136	**32**	3.2 : 1	**124**	5.4	**563**	509	**286**	284	**39**	50	**8.4**	0	**0.5**	8.8	**14.7**	.080	**.0028**
967137	**34**	3.4 : 1	**124**	5.4	**598**	541	**304**	268	**37**	47	**7.9**	0	**0.5**	8.8	**14.7**	.094	**.0028**
967138	**36**	3.6 : 1	**148**	5.4	**634**	573	**322**	253	**34**	45	**7.4**	0	**1.1**	14.7	**23.4**	.15	**.0063**
967139	**38**	3.8 : 1	**148**	5.4	**669**	605	**340**	239	**33**	42	**7.0**	0	**1.1**	14.7	**23.4**	.17	**.0063**
967140	**40**	4.0 : 1	**178**	5.4	**704**	637	**358**	228	**31**	40	**6.7**	0	**2.3**	26.0	**40.3**	.22	**.015**
967141	**42**	4.2 : 1	**178**	5.4	**739**	669	**376**	217	**30**	38	**6.4**	0	**2.3**	26.0	**40.3**	.25	**.015**
967142	**44**	4.4 : 1	**178**	5.4	**774**	700	**394**	207	**28**	37	**6.1**	0	**2.3**	26.0	**40.3**	.29	**.015**
967143	**46**	4.6 : 1	**178**	5.4	**810**	732	**412**	198	**27**	35	**5.8**	0	**2.3**	26.0	**40.3**	.32	**.015**
967144	**48**	4.8 : 1	**228**	5.4	**845**	764	**430**	190	**26**	34	**5.6**	0	**3.9**	34.6	**53.1**	.44	**.044**
967145	**50**	5.0 : 1	**228**	5.4	**880**	796	**448**	182	**25**	32	**5.4**	0	**3.9**	34.6	**53.1**	.50	**.044**
967146	**52**	5.2 : 1	**228**	5.4	**915**	828	**465**	175	**24**	31	**5.2**	0	**3.9**	34.6	**53.1**	.54	**.044**

[1] Load types are mutually exclusive for comparison purposes. For combined loads & high loads, see Bearing Load Section.
[2] Contact Nexen

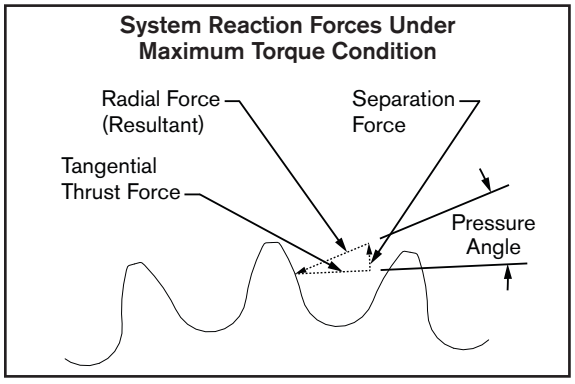
Geared Bearing Dimensions & Specifications by Product Number



SECTION A-A

Dimensions shown in ***mm*** unless otherwise noted.

Basic gear dimensions shown for selection purposes only and subject to change.
Go to www.nexengroup.com for detailed drawings and CAD models.
If none of the products below meet your needs, contact Nexen and one can be designed to your specifications. Please contact Nexen for lead times.



Common Attributes for All Gears	
Estimated Life	See ***System Life*** section.
Operating Temperature Range (°C)	-5 to 40
Tooth Grease	Part Number 853901
Gear Finish	Black Oxide
Bearing Finish	Steel
External Ratings/Standards	CE, RoHS
Operational Noise (dB)	up to 80 (speed dependent)

RPS 20

Part ID.		Dimensions								System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967147	**22**	152	**60**	50	**28**	20	**98**	42	**2.6**	824	**1202**	3125	**3245**
967148	**24**	166	**60**	50	**28**	20	**105**	42	**3.0**	911	**1244**	3124	**3237**
967149	**26**	178	**85**	75	**45**	35	**111**	43.5	**3.6**	896	**1244**	3125	**3242**
967150	**28**	190	**85**	75	**45**	35	**117**	43.5	**4.0**	883	**1245**	3125	**3246**
967151	**30**	202	**107.5**	95	**65**	55	**123**	43.5	**4.7**	872	**1246**	3126	**3250**
967152	**32**	214	**107.5**	95	**65**	55	**129**	43.5	**5.2**	863	**1246**	3127	**3253**
967153	**34**	226	**107.5**	95	**65**	55	**135**	43.5	**5.7**	854	**1247**	3127	**3256**
967154	**36**	240	**150**	135	**97**	80	**142**	48	**7.4**	912	**1275**	3126	**3250**
967155	**38**	252	**150**	135	**97**	80	**148**	48	**8.0**	903	**1274**	3127	**3253**
967156	**40**	264	**150**	135	**97**	80	**154**	48	**8.5**	894	**1273**	3127	**3256**
967157	**42**	276	**150**	135	**97**	80	**160**	48	**9.1**	886	**1273**	3128	**3259**
967158	**44**	288	**195**	165	**112**	90	**166**	49.5	**12.0**	879	**1272**	3129	**3261**
967159	**46**	300	**195**	165	**112**	90	**172**	49.5	**12.0**	873	**1272**	3129	**3263**
967160	**48**	312	**195**	165	**112**	90	**178**	49.5	**13.0**	867	**1271**	3130	**3265**
967161	**50**	326	**220**	195	**139**	115	**185**	51	**15.0**	909	**1291**	3128	**3260**
967162	**52**	338	**220**	195	**139**	115	**191**	51	**16.0**	902	**1290**	3129	**3262**
967163	**54**	350	**220**	195	**139**	115	**197**	51	**17.0**	896	**1289**	3130	**3264**
967164	**56**	362	**220**	195	**139**	115	**203**	51	**17.0**	890	**1288**	3130	**3266**
967165	**58**	374	**275**	250	**184**	160	**209**	55	**21.0**	885	**1287**	3131	**3267**
967166	**60**	386	**275**	250	**184**	160	**215**	55	**22.0**	880	**1287**	3131	**3269**
967167	**62**	400	**275**	250	**184**	160	**222**	55	**23.0**	914	**1303**	3130	**3265**
967168	**64**	412	**275**	250	**184**	160	**228**	55	**24.0**	908	**1301**	3130	**3266**
967169	**66**	424	**275**	250	**184**	160	**234**	55	**25.0**	903	**1300**	3131	**3268**

RPS 25

Part ID.		Dimensions								System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967130	**20**	174	**60**	50	**28**	20	**115**	54	**4.0**	1156	**1662**	4311	**4473**
967131	**22**	190	**85**	75	**65**	35	**123**	55.5	**5.0**	1197	**1691**	4311	**4474**
967132	**24**	206	**107.5**	95	**65**	55	**131**	55.5	**6.0**	1232	**1715**	4312	**4474**
967133	**26**	220	**107.5**	95	**65**	55	**138**	55.5	**6.7**	1165	**1698**	4313	**4487**
967134	**28**	236	**107.5**	95	**65**	55	**146**	55.5	**7.4**	1199	**1720**	4314	**4486**
967135	**30**	252	**150**	135	**97**	80	**154**	60	**9.6**	1228	**1739**	4314	**4486**
967136	**32**	268	**150**	135	**97**	80	**162**	60	**11.0**	1254	**1756**	4314	**4485**
967137	**34**	282	**150**	135	**97**	80	**169**	60	**11.0**	1202	**1740**	4316	**4495**
967138	**36**	298	**195**	165	**112**	90	**177**	61.5	**15.0**	1227	**1755**	4316	**4494**
967139	**38**	314	**195**	165	**112**	90	**185**	61.5	**16.0**	1250	**1769**	4315	**4494**
967140	**40**	328	**220**	195	**139**	115	**192**	63	**18.0**	1206	**1755**	4318	**4502**
967141	**42**	344	**220**	195	**139**	115	**200**	63	**19.0**	1228	**1768**	4318	**4501**
967142	**44**	360	**220**	195	**139**	115	**208**	63	**20.0**	1247	**1780**	4317	**4500**
967143	**46**	374	**220**	195	**139**	115	**215**	63	**22.0**	1210	**1767**	4319	**4507**
967144	**48**	390	**275**	250	**184**	160	**223**	67	**26.0**	1229	**1778**	4319	**4506**
967145	**50**	406	**275**	250	**184**	160	**231**	67	**27.0**	1246	**1788**	4319	**4505**
967146	**52**	420	**275**	250	**184**	160	**238**	67	**28.0**	1213	**1776**	4321	**4512**

Geared Bearing Specifications by Product Number

RPS 32

General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967170	**24**	2.0 : 1	**124**	5.0	**880**	770	**437**	313	**41**	53	**8.9**	0	**0.4**	6.8	**12.7**	.08	**.003**
967171	**26**	2.1$\overline{6}$: 1	**124**	5.0	**953**	834	**474**	289	**38**	49	**8.2**	0	**0.4**	6.8	**12.7**	.11	**.003**
967172	**28**	2.$\overline{3}$: 1	**124**	5.0	**1027**	898	**510**	268	**35**	45	**7.6**	0	**0.4**	6.8	**12.7**	.14	**.003**
967173	**30**	2.5 : 1	**148**	5.0	**110**	963	**547**	250	**33**	42	**7.0**	0	**0.9**	12.8	**21.5**	.21	**.006**
967174	**32**	2.$\overline{6}$: 1	**178**	5.0	**1173**	1027	**583**	234	**31**	40	**6.6**	0	**2.1**	24.2	**38.4**	.27	**.015**
967175	**34**	2.8$\overline{3}$: 1	**178**	5.0	**1247**	1091	**620**	221	**29**	37	**6.2**	0	**2.1**	24.2	**38.4**	.32	**.015**
967176	**36**	3.0 : 1	**178**	5.0	**1320**	1155	**656**	208	**27**	35	**5.9**	0	**2.1**	24.2	**38.4**	.39	**.015**
967177	**38**	3.1$\overline{6}$: 1	**228**	5.0	**1393**	1219	**693**	197	**26**	33	**5.6**	0	**3.7**	32.9	**51.3**	.53	**.044**
967178	**40**	3.$\overline{3}$: 1	**228**	5.0	**1467**	1283	**729**	188	**25**	32	**5.3**	0	**3.7**	32.9	**51.3**	.61	**.044**

RPS 40

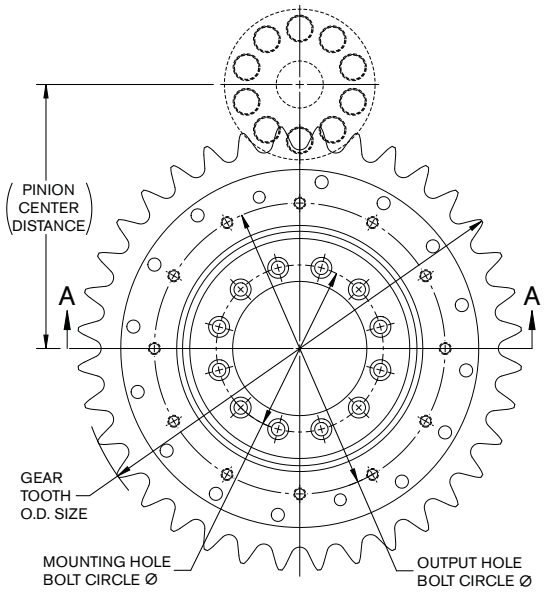
General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967179	**24**	2.0 : 1	**148**	6.8	**1834**	917	**917**	250	**32**	42	**7.0**	0	**0.7**	9.2	**17.9**	.28	**.006**
967180	**26**	2.1$\overline{6}$: 1	**178**	6.8	**1986**	993	**993**	231	**30**	39	**6.4**	0	**1.8**	20.7	**35.0**	.38	**.015**
967181	**28**	2.$\overline{3}$: 1	**178**	6.8	**2139**	1070	**1070**	214	**28**	36	**6.0**	0	**1.8**	20.7	**35.0**	.47	**.015**
967182	**30**	2.5 : 1	**178**	6.8	**2292**	1146	**1146**	200	**26**	34	**5.6**	0	**1.8**	20.7	**35.0**	.58	**.015**

RPS 4014

General Specs					Gear Torque			Speed		Precision			Load			Inertia	
Product Number	Number of Teeth	Gear Ratio	Bearing Number	Module of Gear Teeth (mm)	Static Torque (Nm)	Dynamic Torque at MIN Life (Nm)	Dynamic Torque at MAX Life (Nm)	Max Speed (RPM)	Max Lube-Free Speed (RPM)	Angular Accuracy (±ArcSec)	One-Way Repeatability (±ArcSec)	Angular Backlash (±ArcSec)	Max Dynamic Moment Load @ Max Life & Avg Torque (kNm)[1]	Max Dynamic Radial Load@ Max Life & Avg Torque (kN)[1]	Max Dynamic Axial Load @ Max Life & Avg Torque (kN)[1]	Moment of Inertia OUTER (kg/m²)	Moment of Inertia INNER (kg/m²)
967183	**28**	2.0 : 1	**178**	5.6	**3743**	2496	**2496**	214	**28**	36	**6.0**	0	**0.8**	9.2	**20.4**	.64	**.015**
967184	**30**	2.1$\overline{4}$: 1	**178**	5.6	**4011**	2674	**2674**	200	**26**	34	**5.6**	0	**0.8**	9.2	**20.4**	.79	**.015**

[1] Load types are mutually exclusive for comparison purposes. For combined loads & high loads, see Bearing Load Section.

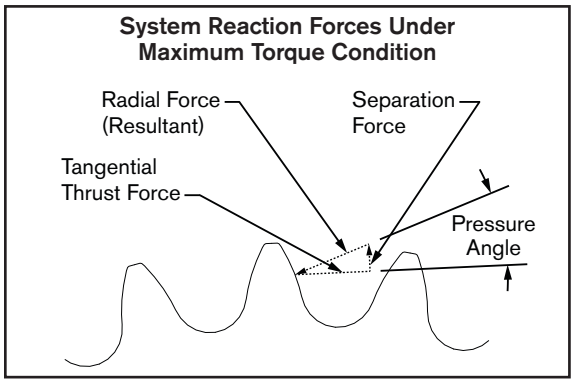
Geared Bearing Dimensions & Specifications by Product Number



SECTION A-A

Dimensions shown in ***mm*** unless otherwise noted.

Basic gear dimensions shown for selection purposes only and subject to change.
Go to www.nexengroup.com for detailed drawings and CAD models.
If none of the products below meet your needs, contact Nexen and one can be designed to your specifications. Please contact Nexen for lead times.



Common Attributes for All Gears	
Estimated Life	See ***System Life*** section.
Operating Temperature Range (°C)	-5 to 40
Tooth Grease	Part Number 853901
Gear Finish	Black Oxide
Bearing Finish	Steel
External Ratings/Standards	CE, RoHS
Operational Noise (dB)	up to 80 (speed dependent)

RPS 32

Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967170	**24**	260	**150**	135	**97**	80	**175**	65.5	**11.0**	1771	**2423**	6833	**7031**
967171	**26**	280	**150**	135	**97**	80	**185**	65.5	**13.0**	1809	**2454**	6834	**7032**
967172	**28**	300	**150**	135	**97**	80	**195**	65.5	**14.0**	1843	**2482**	6834	**7034**
967173	**30**	320	**195**	165	**112**	90	**205**	67	**18.0**	1872	**2506**	6835	**7035**
967174	**32**	338	**220**	195	**139**	115	**214**	68.5	**21.0**	1804	**2483**	6839	**7048**
967175	**34**	358	**220**	195	**139**	115	**224**	68.5	**23.0**	1834	**2505**	6839	**7049**
967176	**36**	378	**220**	195	**139**	115	**234**	68.5	**25.0**	1861	**2526**	6839	**7049**
967177	**38**	398	**275**	250	**184**	160	**244**	72.5	**29.0**	1884	**2545**	6839	**7050**
967178	**40**	416	**275**	250	**184**	160	**253**	72.5	**31.0**	1829	**2523**	6843	**7060**

RPS 40

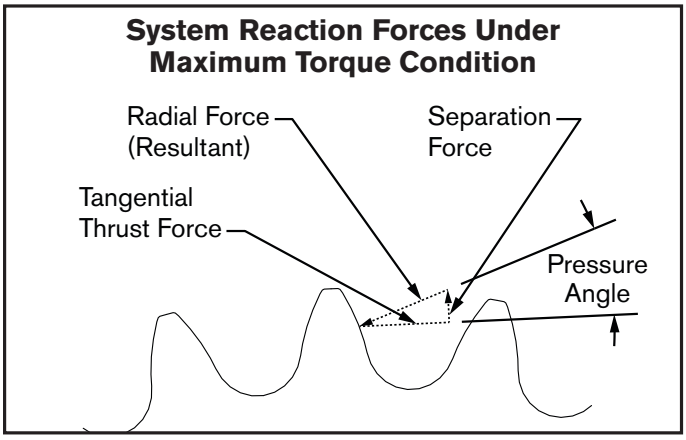
Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967179	**24**	331	**195**	165	**112**	90	**222**	84.5	**23.0**	1770	**2369**	6437	**6627**
967180	**26**	355	**220**	195	**139**	115	**234**	86	**27.0**	1749	**2371**	6440	**6636**
967181	**28**	379	**220**	195	**139**	115	**246**	86	**30.0**	1731	**2373**	6443	**6644**
967182	**30**	403	**220**	195	**139**	115	**258**	86	**33.0**	1715	**2374**	6446	**6651**

RPS 4014

Part ID.	Dimensions									System Reaction Forces (Under Max. Torque Condition)			
Product Number	Number of Teeth	Gear Tooth O.D. Size (mm)	Output Hole Bolt Circle Ø (mm)	Output Pilot I.D. (mm)	Mounting Hole Bolt Circle Ø (mm)	Mounting Pilot I.D. (mm)	Pinion Center Distance (mm)	Overall Height (mm)	Weight/Mass (kg)	Average Separation (N)	Max Separation (N)	Average Torque Induced Radial (N)	Max Torque Induced Radial (N)
967183	**28**	376	**220**	195	**139**	115	**258**	113	**39.0**	3744	**4870**	14984	**15305**
967184	**30**	402	**220**	195	**139**	115	**271**	113	**44.0**	3883	**4963**	14983	**15298**

Calculating RPS Geared Bearing Reaction Loading

The calculations in the following section will allow you to calculate the Reaction Loading of the Geared Bearing & Pinion. These calculations will be nessesary to calculate the System Life on the following pages.



Due to the unique rolling technology in the RPS system the pressure angle changes throughout the motion. Therefore, Nexen has provided both the average and maximum separation force and radial load force for each gear system. To calculate the values in your system simply multiple the catalog force by the ratio of your application torque/maximum torque. After the reaction forces are calculated, other application forces can be added to calculate bearing life and load. (See Bearing Loading section)

STEP 1: *Gather the "System Reaction Forces Under Maximum Torque Condition data from the Specifications section.*

Data from Specification Section	Customer Data	*Sample Data**
Average Separation Force Under Max Torque	N	*908 N*
Max Separation Force Under Max Torque	N	*1301 N*
Average Torque Induced Radial Force Under Max Torque	N	*3130 N*
Max Torque Induced Radial Force Under Max Torque	N	*3266 N*

*Sample Data is from Specifications section: RPS Size 20, 64 Tooth Geared Bearing, Part# 967168

STEP 2: *Enter the amount of torque needed for the application (up to, but not more than the maximum torque).*

Application Data	Customer Data	*Sample Data**
Amount of Torque Required for Application	Nm of Nm Max.	*54 Nm of 92.3 Nm Max.*

*Sample Data is from Specifications section: RPS Size 20, 64 Tooth Geared Bearing, Part# 967168

STEP 3: *Calculate Resultant Forces.*

Sample Application Data	Sample Data*				Sample Resultant Forces
Average Separation Force Under Max Torque	*908 (N)*	*	*54 (Nm)* /	*92.3 (Nm)* =	*531 N*
Max Separation Force Under Max Torque	*1301 (N)*	*	*54 (Nm)* /	*92.3 (Nm)* =	*761 N*
Average Torque Induced Radial Force Under Max Torque	*3130 (N)*	*	*54 (Nm)* /	*92.3 (Nm)* =	*1831 N*
Max Torque Induced Radial Force Under Max Torque	*3266 (N)*	*	*54 (Nm)* /	*92.3 (Nm)* =	*1911 N*

*Sample Data is from Specifications section: RPS Size 20, 64 Tooth Geared Bearing, Part# 967168

Application Data	Customer Data				Actual Resultant Forces
Average Separation Force Under Max Torque	(N)	*	(Nm) /	(Nm) =	N
Max Separation Force Under Max Torque	(N)	*	(Nm) /	(Nm) =	N
Average Torque Induced Radial Force Under Max Torque	(N)	*	(Nm) /	(Nm) =	N
Max Torque Induced Radial Force Under Max Torque	(N)	*	(Nm) /	(Nm) =	N

Static Bearing Load Capacity Calculations

STEP 1: GATHER APPLICATION DATA

Before you begin calculations, there are several key measurements that you will need from your application in order to calculate static safety factor. Collect the data and record it in the space provided.

Measurements for Bearing Calculations	Customer Data (*record your values below*)	Sample Data
Maximum Static Gear Torque of Application ($T_{staticApp}$)	Nm	200 Nm
Dynamic Gear Torque at Min Life (T_{accel}) (*from Specifications Section*)	Nm	306 Nm
Maximum Static Radial Load (F_{R0})	N	0 N
Maximum Static Axial Load (F_{A0})	N	5000 N
Maximum Static Moment Load (M_0)	Nm	1000 Nm

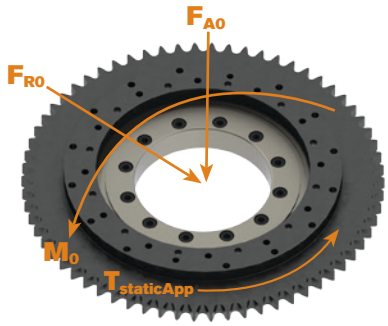


Table 1 Bearing Race Specific Data

Bearing Size			GB42	GB66	GB85	GB124	GB148	GB178	GB228
Basic Dynamic Load Rating (**C**)		N	7,350	17,500	20,300	33,100	49,100	80,300	104,000
Basic Static Load Rating (C_0)		N	8,350	22,300	29,500	50,900	76,800	135,000	173,000
Rolling Diameter of Cross Roller (**dp**)		m	0.0415	0.066	0.085	0.124	0.1475	0.178	0.2275
RPS Generated Load on Cross Roller Bearing (f_{rps})	RPS10	N	380	345	332	322	316	311	307
	RPS12	N	748	679	653	633	622	612	603
	RPS16	N	4,022	3,544	3,364	3,210	3,135	3,066	3,007
	RPS20	N	5,120	4,433	4,173	3,941	3,834	3,737	3,650
	RPS25	N	7,393	6,324	5,919	5,549	5,384	5,234	5,097
	RPS32	N				9,024	8,711	8,428	8,162
	RPS40	N					8,522	8,202	
	RPS4014	N						19,776	

STEP 2: CALCULATE THE STATIC EQUIVALENT RADIAL LOAD

Perform the following calculations using data from Table 1 and your application data from STEP 1.

MAXIMUM STATIC EQUIVALENT RADIAL LOAD

$$P_0 = F_{R0} + \frac{2 * M_0}{dp} + \frac{T_{staticApp}}{T_{accel}} * f_{rps} + 0.44 * F_{A0}$$

$$P_0 = (\quad N) + \frac{2 * (\quad Nm)}{(\quad m)} + \frac{(\quad Nm)}{(\quad Nm)} * (\quad N) + 0.44 * (\quad N)$$

Maximum Static Equivalent Radial Load

$P_0 =$ _____ N

Sample: $P_0 = (\ 0\ N) + \frac{2 * (1000\ Nm)}{(0.124\ m)} + \frac{(\ 200\ Nm)}{(\ 306\ Nm)} * (\ 3210\ N) + 0.44 * (\ 5000\ N) = 20{,}427\ N$

STEP 3: APPLY SAFETY FACTOR

The basic static load rating refers to the static load C_0 with constant direction and magnitude, under which the calculated contact stress in the center of the contact area between the roller and the raceway where the maximum load applied is 4,000 MPa (if the deformation exceeds this level, it will affect rotation). When a load is statically or dynamically applied, it is necessary to consider the static safety factor.

MAXIMUM STATIC EQUIVALENT RADIAL LOAD

Use Table 1 along with the calculation above to calculate the Maximum Static Equivalent Radial Load.

$$f_s = \frac{C_0}{P_0}$$

$$f_s = \frac{(\quad N)}{(\quad N)}$$

Static Safety Factor

$f_S =$ _____

Sample: $f_s = \frac{(\ 50{,}900\ N)}{(\ 20{,}427\ N)} = 2.49$

Table 2 Static Safety Factor

Service Condition	f_S
Normal Load	1.5 to 2
Impact Load	2 to 3

Sample: $f_S = 2.49 \rightarrow$ Sufficient safety factor for impact loads.

Bearing Drag Torque Calculations

STEP 1: GATHER APPLICATION DATA

Before you begin calculations, there are several key measurements that you will need from your application in order to calculate drag torque. Collect the data and record it in the space provided.

Measurements for Bearing Calculations	Customer Data (*record your values below*)	Sample Data
Maximum Dynamic Gear Torque of Application (T_{maxApp})	Nm	*501 Nm*
Dynamic Gear Torque at Min Life (T_{accel}) (*from Specifications Section*)	Nm	*501 Nm*
Maximum Dynamic Radial Load (F_{Rmax})	N	*0 N*
Maximum Dynamic Axial Load (F_{Amax})	N	*54,300 N*
Maximum Dynamic Moment Load (M_{max})	Nm	*0 Nm*

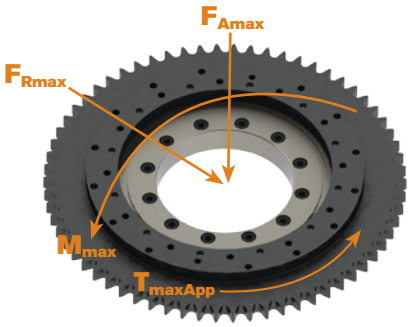


Table 3 Bearing Race Specific Data

Bearing Size			GB42	GB66	GB85	GB124	GB148	GB178	GB228
Basic Dynamic Load Rating (**C**)		N	7,350	17,500	20,300	33,100	49,100	80,300	104,000
Basic Static Load Rating (C_0)		N	8,350	22,300	29,500	50,900	76,800	135,000	173,000
Rolling Diameter of Cross Roller (**dp**)		m	0.0415	0.066	0.085	0.124	0.1475	0.178	0.2275
RPS Generated Load on Cross Roller Bearing (f_{rps})	RPS10	N	380	345	332	322	316	311	307
	RPS12	N	748	679	653	633	622	612	603
	RPS16	N	4,022	3,544	3,364	3,210	3,135	3,066	3,007
	RPS20	N	5,120	4,433	4,173	3,941	3,834	3,737	3,650
	RPS25	N	7,393	6,324	5,919	5,549	5,384	5,234	5,097
	RPS32	N				9,024	8,711	8,428	8,162
	RPS40	N					8,522	8,202	
	RPS4014	N						19,776	

STEP 2: CALCULATE THE MAXIMUM DYNAMIC EQUIVALENT RADIAL LOAD

Perform the following calculations using the data from Table 3 and your application data from STEP 1.

Loading Distribution	IF:	THEN: X	THEN: Y
$\frac{F_{Amax}}{F_{Rmax} + \frac{2 * M_{max}}{dp} + \frac{T_{maxApp}}{T_{accel}} * f_{rps}}$	≤ 1.5	1	0.45
$\frac{F_{Amax}}{F_{Rmax} + \frac{2 * M_{max}}{dp} + \frac{T_{maxApp}}{T_{accel}} * f_{rps}}$	> 1.5	0.67	0.67

MAXIMUM DYNAMIC EQUIVALENT RADIAL LOAD

$$P_{Cmax} = X * \left(F_{Rmax} + \frac{2 * M_{max}}{dp} + \frac{T_{maxApp}}{T_{accel}} * f_{rps}\right) + Y * F_{Amax}$$

$$P_{Cmax} = (\quad) * \left((\quad N) + \frac{2 * (\quad Nm)}{(\quad m)} + \frac{(\quad Nm)}{(\quad Nm)} * (\quad N)\right) + (\quad) * (\quad N)$$

Maximum Dynamic Equivalent Radial Load		
P_{Cmax} =		N

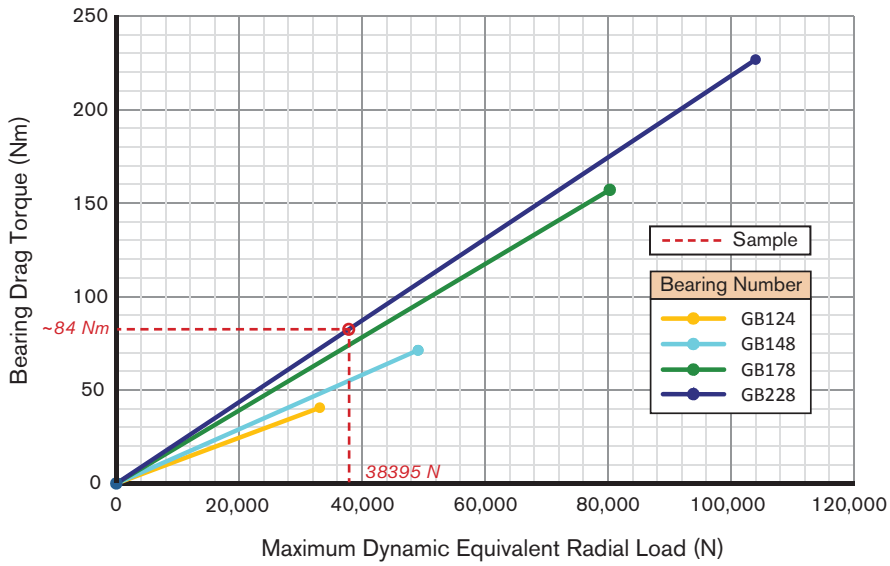
Sample: $P_{Cmax} = (.67) * \left((0\ N) + \frac{2 * (0\ Nm)}{(.2275\ m)} + \frac{(501\ Nm)}{(501\ Nm)} * (3007\ N)\right) + (.67) * (54{,}300\ N) = 38{,}395\ N$

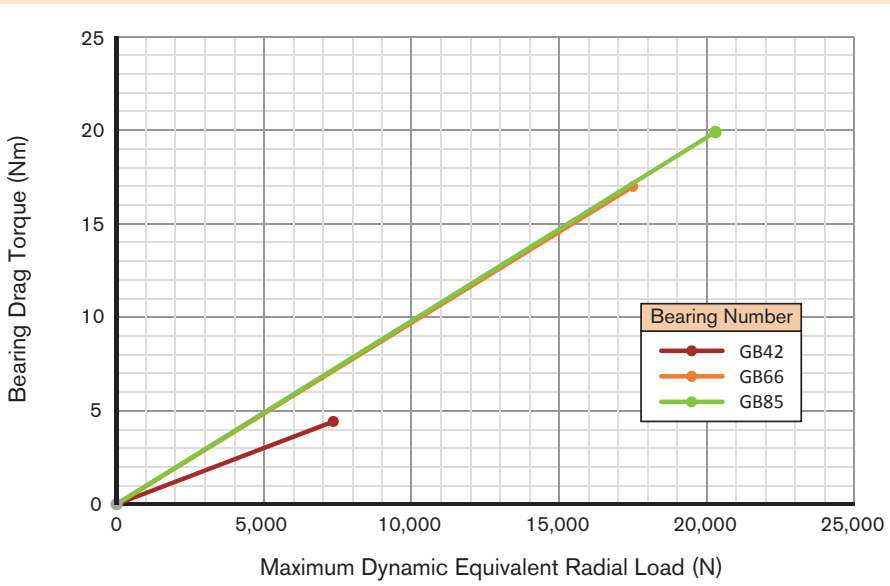
Bearing Drag Torque Calculations

STEP 3: DETERMINE BEARING DRAG TORQUE

The bearing drag torque can be estimated based on the dynamic equivalent radial load. Use the following charts to determine your approximate bearing drag torque. Add bearing drag torque to the application required gear torque to determine the total torque requirement. Verify your chosen geared bearing is still capable for the application.

MAXIMUM DYNAMIC EQUIVALENT RADIAL LOAD VS. DRAG TORQUE





Bearing Drag Torque
Nm

Sample: T_{BD} = *84 Nm*

TOTAL REQUIRED GEAR TORQUE

Use your Application Gear Torque (T_p) and Bearing Drag Torque (T_{BD}) calculated above to determine the Total Required Gear Torque.

$T_{Tgear} = (T_p) + (T_{BD})$

$T_{Tgear} =$ (Nm) + (Nm)

Total Required Gear Torque
$T_{Tgear} =$ Nm

Sample: **Total Required Torque** = *(501Nm)* + *(84 Nm)* = *585 Nm*

Calculating RPS Geared Bearing System Life

The calculations in the following section will allow you to calculate the expected life of the Geared Bearing & Pinion. These calculations will result in the same values as the charts on the following pages.

RPS Pinion Life Data & Calculations

Table 4 RPS Pinion Life Values

		RPS10	RPS12	RPS16		RPS20		RPS25		RPS32	RPS40	RPS4014
				premium	value	premium	value	premium	value			
Max Torque (T_{max})	Nm	4.0	9.5	61.1	12.8	92.3	23.9	159.2	43.8	385.0	458.4	1247.8
Torque at Max Life ($T_{final, pinion}$)	Nm	4.0	9.5	33.7	12.8	52.5	23.9	89.5	43.8	218.7	458.4	1247.8
Transition Point ($E_{T, pinion}$)	million contacts	60	60	8	2	8.2	2	8.5	2	9.2	60	60
Max Life ($N_{max\ contacts, pinion}$)	million contacts	60	60	60	2	60	2	60	2	60	60	60
Constant (C)		NA	NA	115.30	NA	179.43	NA	305.91	NA	747.91	NA	NA

Table 5 RPS Gear Life Values

		RPS10	RPS12	RPS16	RPS20	RPS25	RPS32	RPS40	RPS4014
Torque at Max Life ($T_{final, gear}$)	Nm	3.98	9.55	25.46	47.75	87.54	220.02	458.37	1247.78
Transition Point ($E_{T, gear}$)	million contacts	30	30	5	5	5	5	30	30
Max Life ($N_{max\ contacts, gear}$)	million contacts	30 Million Contacts							
Slope (m)		NA	NA	-1.43	-1.78	-2.87	-6.6	NA	NA
Intercept (b)	N	NA	NA	68.2	101.2	173.5	418.0	NA	NA

STEP 1: GATHER APPLICATION DATA

Before you begin calculations, there are three key measurements that you will need from your application. Collect the data and record it in space provided to the right.

Measurements Required for Pinion Calculations	Customer Data (record your values below)	*Sample Data*
Average Pinion Torque (T_{avg})	Nm	*85 Nm*
Pinion Revolutions Per Cycle (L)	rev	*1.3 rev*
Average Pinion Speed (V_{avg})	rpm	*2 rpm*

STEP 2: CALCULATE THE TOTAL NUMBER OF PINION CONTACTS ($N_{CONTACTS}$)

Perform the following calculations using the data collected from your application data in Step 1.

PINION ROLLER CONTACTS ($N_{contacts, pinion}$)

The total number of roller contacts ($N_{contacts, pinion}$) that a RPS Pinion can sustain before needing replacement is based on the average torque of your application. Determine which equivalency or inequality statement below is true for the average torque (T_{avg}) of your application. Then complete the corresponding pinion roller contact equation and record your value below.

IF T_{avg} is:	THEN $N_{contacts, pinion}$:
$\leq T_{final, pinion}$	$= N_{max\ contacts, pinion}$
$> T_{final, pinion}$ AND $< T_{max}$	$= (C \div T_{avg})^{3.333} = \left(\quad \div \quad \text{Nm} \right)^{3.333}$
$= T_{max}$	$= E_{T, pinion}$

PINION LIFE IN ROLLER CONTACTS

$N_{contacts, pinion} =$ million contacts

Sample: *(Evaluating RPS20 size)* $N_{contacts, pinion} = (179.43 \div 85\ Nm)^{3.333} = 12.07$ *million contacts*

STEP 3: CALCULATE THE TOTAL NUMBER OF TOOTH CONTACTS

Perform the following calculations using the data collected from your application and the values from Tables 7 & 8.

GEAR TOOTH CONTACTS ($N_{contacts,\ gear}$)

The total number of tooth contacts ($N_{contacts,\ gear}$) that a RPS Gear can sustain before needing replacement may be calculated with average pinion torque. Use Table 8 to determine which equivalency or inequality statement below is true for the average torque (T_{avg}) of your application. Then complete the corresponding gear tooth contact formula and record your value below.

IF T_{avg} is:	THEN $N_{contacts,\ gear}$:
$\leq T_{final,\ gear}$	$= N_{max\ contacts,\ gear}$
$> T_{final,\ gear}$ AND $< T_{max}$	$= (T_{avg} - b) \div m =$ (N − N) ÷
$= T_{max}$	$= E_{T,\ gear}$

Gear Life in Tooth Contacts

$N_{contacts,\ gear} =$ million contacts

Sample: *(Evaluating RPS20 size)* $N_{contacts,\ gear} = (85\ N - 101.2) \div -1.78 = 9.10$ *million contacts*

STEP 4: CONVERT ROLLER CONTACTS TO HOURS, METERS OR REVOLUTIONS

There are two options for converting contacts to other units: exact and estimated. Exact should be used whenever possible. The estimation is available for customers who do not have a well-defined distance per cycle.

EXACT OPTION: PINION LIFE IN HOURS (N_{hours})

Use Table 7 along with the data you collected above to calculate the total number of service hours your pinion can provide before needing replacement. First calculate E_1 to use in the N_{hours} equation.

$E_1 =$ round up L
Must round E_1 up to the nearest whole integer.

$E_1 =$ round up (rev) = rev

Sample: $E_1 =$ *Round up (1.3 rev) = 2 rev*

$N_{hours} = (N_{contacts,\ pinion} \bullet 10^6 \bullet L) \div (60 \bullet E_1 \bullet V_{avg})$

$N_{hours} =$ (million contacts $\bullet\ 10^6 \bullet$ rev) ÷ (60 $\bullet$ rev $\bullet$ rpm)

Pinion Life in Hours

$N_{hours} =$ hrs

Sample: $N_{hours} = (12.07 \bullet 10^6 \bullet 1.3) \div (60 \bullet 2 \bullet 2) = 65{,}379$ *hrs*

ESTIMATION OPTION & LIFE IN PINION REVOLUTIONS

These calculations assume the pinion travels nonstop in one direction throughout its whole life.

PINION LIFE IN PINION REVOLUTIONS (N_{rev})

$N_{rev} = N_{contacts,\ pinion}$

Pinion Life in Revolutions

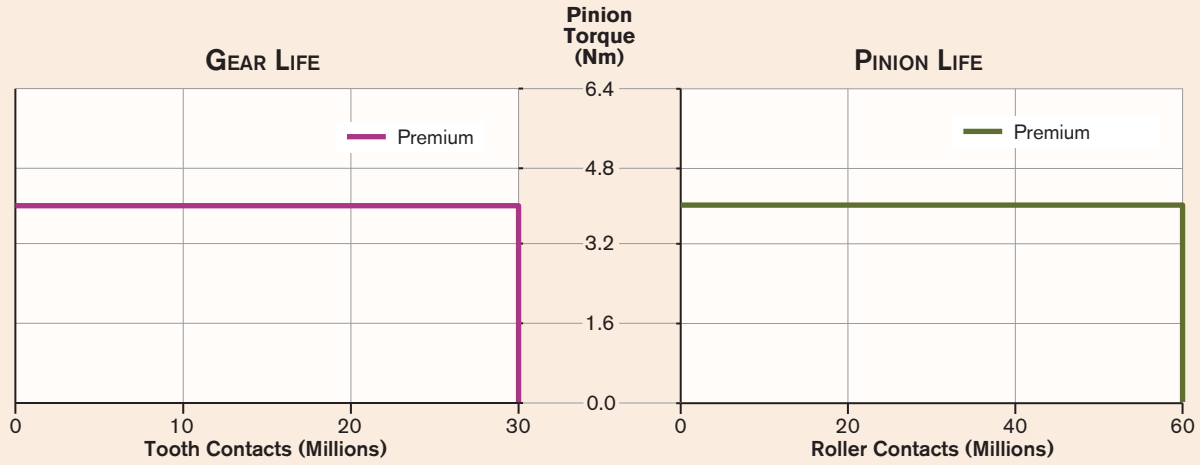
$N_{rev} =$ million revolutions

Sample: $N_{rev} =$ *12.07 million revolutions*

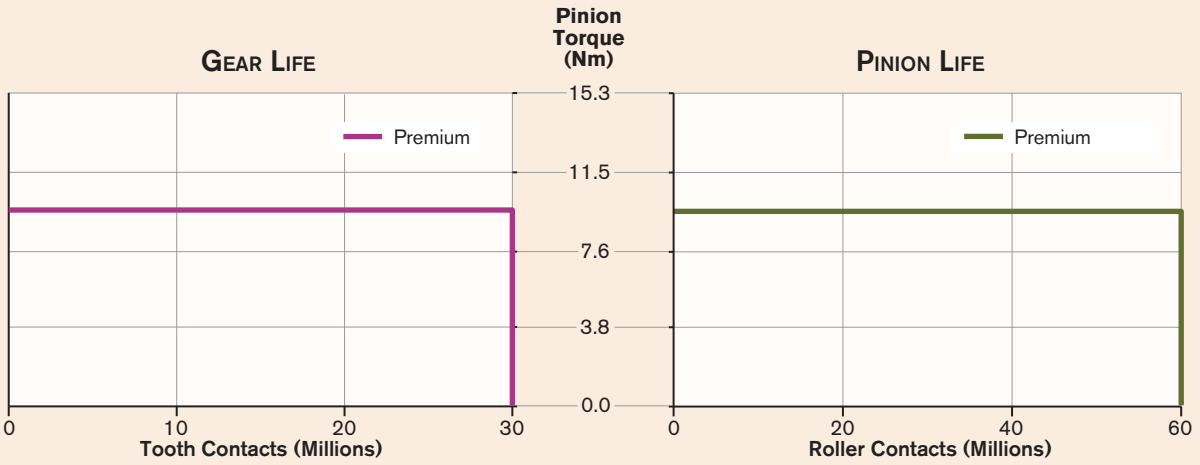
Geared Bearing System Life Graphs (RPS10, 12 & 16)

Refer to the following charts for a quick comparison of Life vs. Load for each RPS system. Exact calculations for the expected life of the Geared Bearing & Pinion are available on the previous pages.

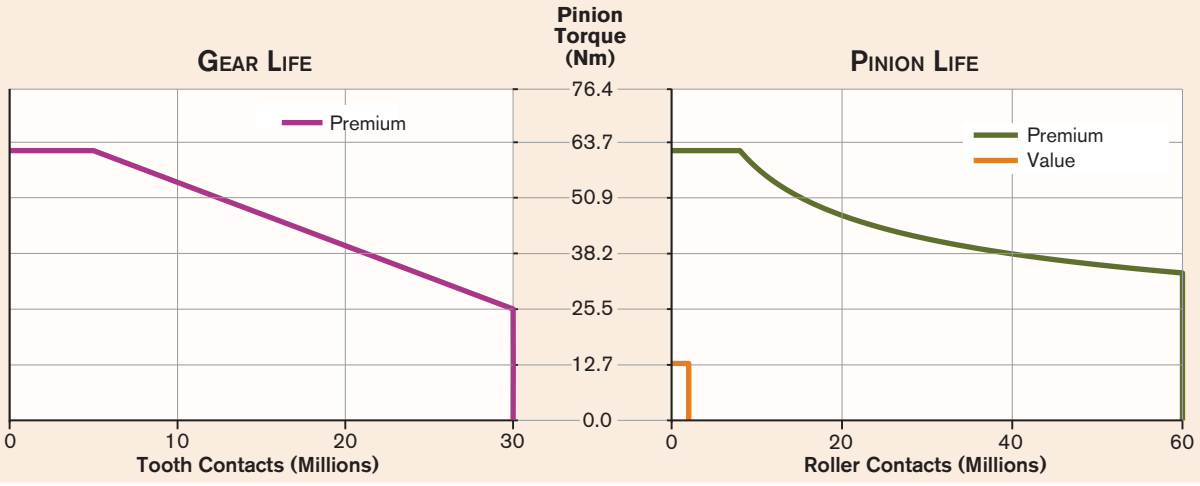
RPS10-GB System Life Graph



RPS12-GB System Life Graph

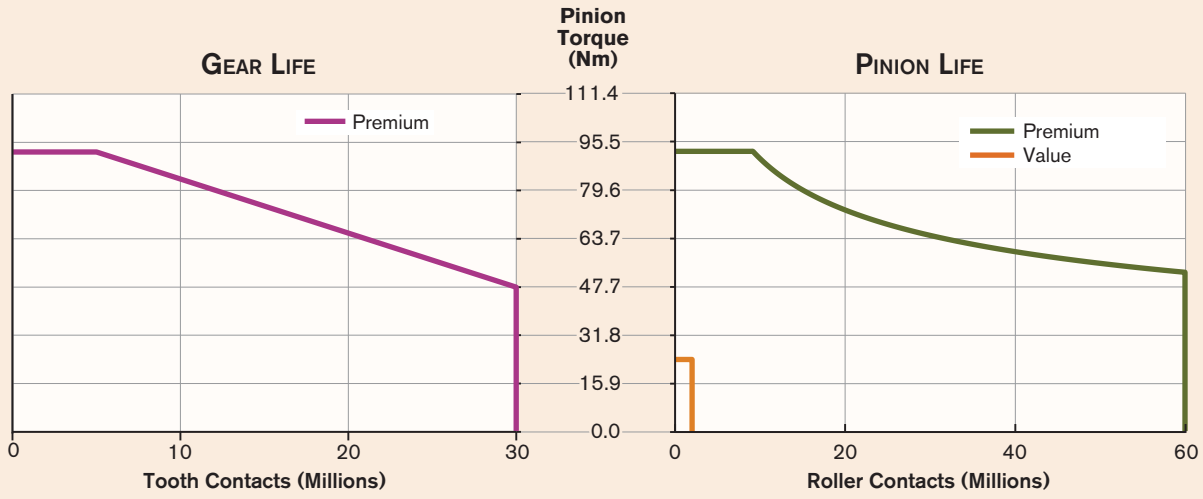


RPS16-GB System Life Graph

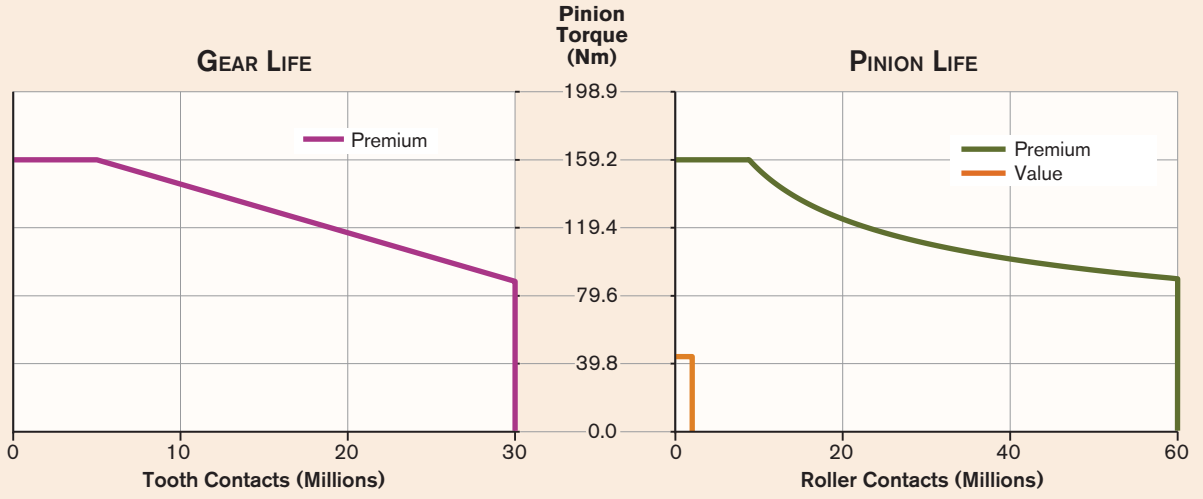


Geared Bearing System Life Graphs (RPS20, 25 & 32)

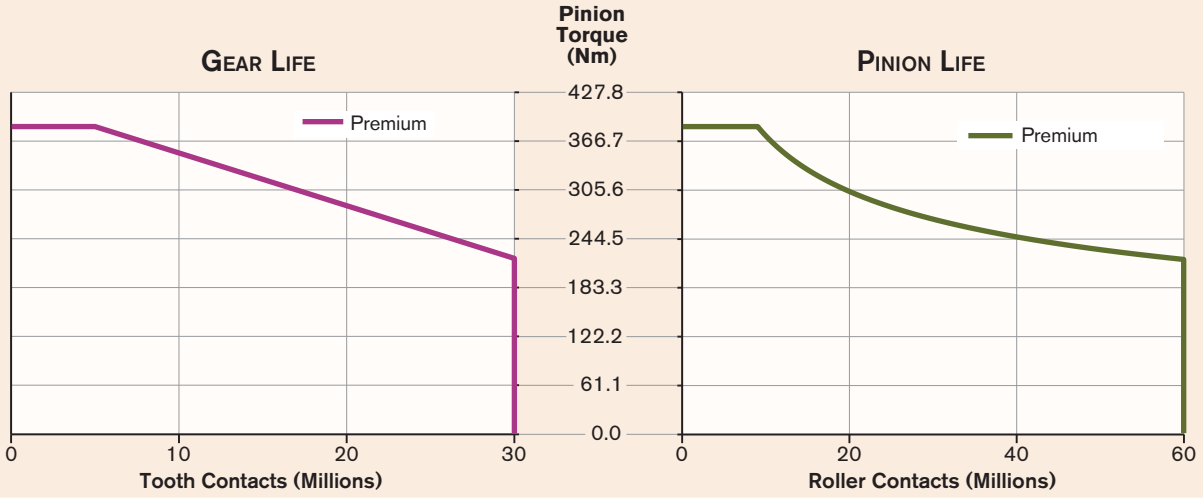
RPS20-GB System Life Graph



RPS25-GB System Life Graph

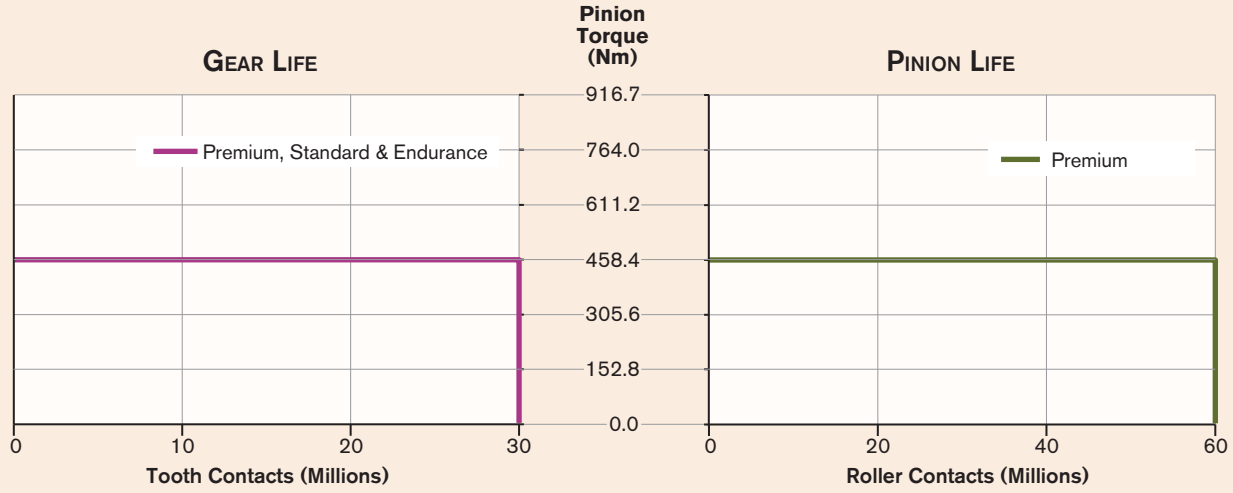


RPS32-GB System Life Graph

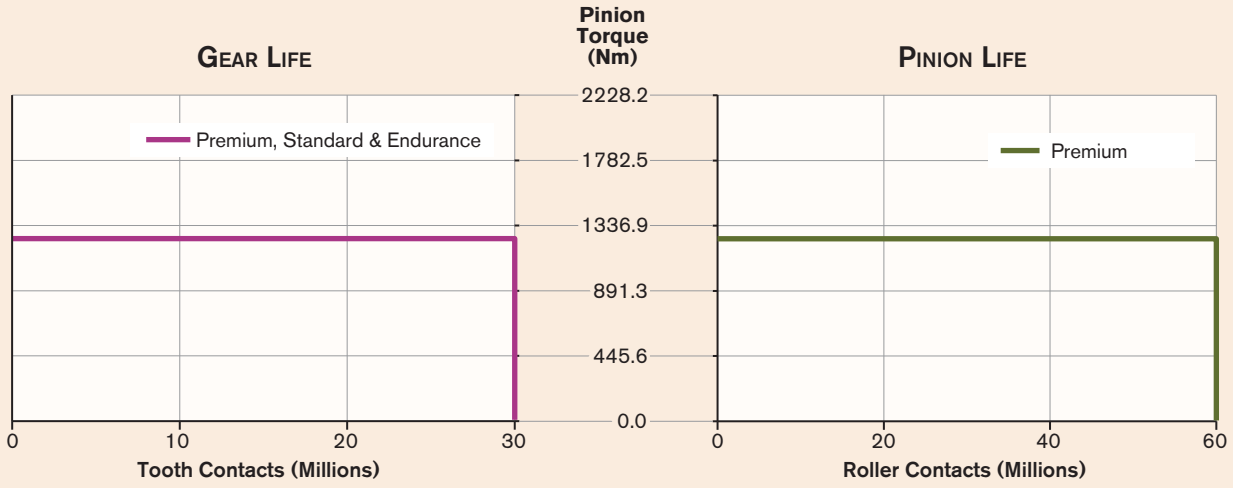


Geared Bearing System Life Graphs (RPS40 & 4014)

RPS40-GB System Life Graph



RPS4014-GB System Life Graph



Bearing Life Calculations

STEP 1: GATHER APPLICATION DATA

Before you begin calculations, there are several key measurements that you will need from your application in order to calculate bearing life. Collect the data and record it in the space provided.

Measurements for Bearing Calculations	Customer Data (*record your values below*)	Sample Data
Average Dynamic Gear Torque of Application (T_{avgApp})	Nm	276 Nm
Dynamic Gear Torque at Min Life (T_{accel}) (*from Specifications Section*)	Nm	501 Nm
Maximum Dynamic Radial Load (F_{Ravg})	N	12,000 N
Maximum Dynamic Axial Load (F_{Aavg})	N	0 N
Maximum Dynamic Moment Load (M_{avg})	Nm	3,000 Nm
Average Gear Speed (V_{avg})	rpm	20 rpm

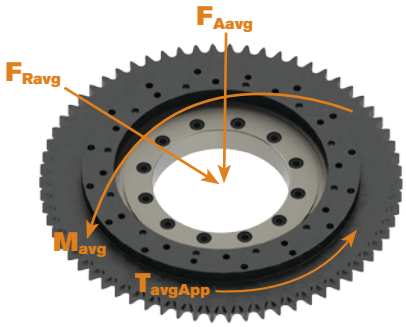


Table 6 Bearing Race Specific Data

Bearing Size			GB42	GB66	GB85	GB124	GB148	GB178	GB228
Basic Dynamic Load Rating (**C**)		N	7,350	17,500	20,300	33,100	49,100	80,300	104,000
Basic Static Load Rating (C_0)		N	8,350	22,300	29,500	50,900	76,800	135,000	173,000
Rolling Diameter of Cross Roller (**dp**)		m	0.0415	0.066	0.085	0.124	0.1475	0.178	0.2275
RPS Generated Load on Cross Roller Bearing (f_{rps})	RPS10	N	380	345	332	322	316	311	307
	RPS12	N	748	679	653	633	622	612	603
	RPS16	N	4,022	3,544	3,364	3,210	3,135	3,066	3,007
	RPS20	N	5,120	4,433	4,173	3,941	3,834	3,737	3,650
	RPS25	N	7,393	6,324	5,919	5,549	5,384	5,234	5,097
	RPS32	N				9,024	8,711	8,428	8,162
	RPS40	N					8,522	8,202	
	RPS4014	N						19,776	

STEP 2: CALCULATE THE AVERAGE DYNAMIC EQUIVALENT RADIAL LOAD

Perform the following calculations using the data from Table 6 and your application data from STEP 1.

Loading Distribution	IF:	THEN: X	THEN: Y
$\frac{F_{Aavg}}{F_{Ravg} + \frac{2 * M_{avg}}{dp} + \frac{T_{avgApp}}{T_{accel}} * f_{rps}}$	≤ 1.5	1	0.45
$\frac{F_{Aavg}}{F_{Ravg} + \frac{2 * M_{avg}}{dp} + \frac{T_{avgApp}}{T_{accel}} * f_{rps}}$	> 1.5	0.67	0.67

AVERAGE DYNAMIC EQUIVALENT RADIAL LOAD

$$P_{Cavg} = X * \left(F_{Ravg} + \frac{2 * M_{avg}}{dp} + \frac{T_{avgApp}}{T_{accel}} * f_{rps}\right) + Y * F_{Aavg}$$

$$P_{Cavg} = (\quad) * \left((\quad N) + \frac{2 * (\quad Nm)}{(\quad m)} + \frac{(\quad Nm)}{(\quad Nm)} * (\quad N)\right) + (\quad) * (\quad N)$$

Average Dynamic Equivalent Radial Load	
P_{Cavg} =	N

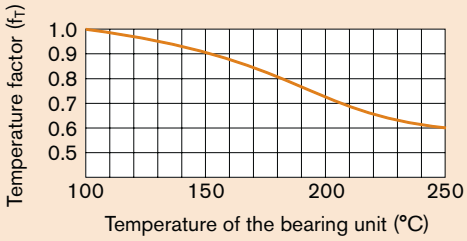
Sample: $P_{Cavg} = (\ 1\ ) * \left((12{,}000\ N) + \frac{2 * (3{,}000\ Nm)}{(.2275\ m)} + \frac{(\ 276\ Nm)}{(\ 501\ Nm)} * (3{,}007\ N)\right) + (0.45) * (\quad 0 \quad N) = 40{,}030\ N$

STEP 3: CALCULATE THE BEARING RACE LIFE

The bearing race life is the total number of revolutions or hours that 90% of a group of identical geared bearings independently operating under the same conditions can achieve without showing flaking from rolling fatigue on the cross roller raceways.

Service Condition, IF:	THEN: f_w
Smooth motion without impact	1 to 1.2
Normal motion	1.2 to 1.5
Motion with severe impact	1.5 to 3

Bearing Operating Temperature Graph



Note: The normal service temperature is 80°C or below.
If the product is to be used at a higher temperature, contact Nexen.

BEARING RACE LIFE IN REVOLUTIONS

Use Table 6 along with the data you collected above to calculate the Bearing Race Life in Revolutions.

$$N_{rev} = \left(\frac{f_T * C}{f_w * P_{Cavg}}\right)^{\frac{10}{3}}$$

$$N_{rev} = \left(\frac{(\quad) * (\quad N)}{(\quad) * (\quad N)}\right)^{\frac{10}{3}}$$

Bearing Race Life in Revolutions	
N_{rev} =	million revolutions

Sample: $N_{rev} = \left(\frac{(\ 1.0\ ) * (\ 104{,}000\ N)}{(\ 1.2\ ) * (\ 40{,}030\ N)}\right)^{\frac{10}{3}} = 13.1$ *million revolutions*

BEARING RACE LIFE IN HOURS

Use Table 6 along with the data you collected above to calculate the Bearing Race Life in Hours.

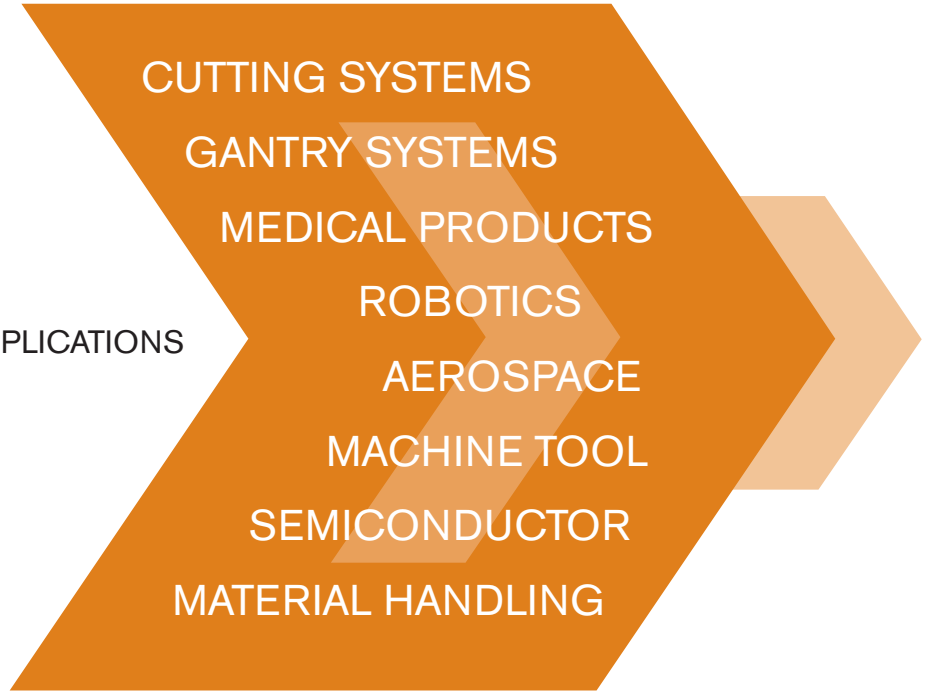
$$N_{hours} = N_{rev} \ / \ (60 * V_{avg})$$

$$N_{hours} = (\quad million\ revs) * 10^6 \ / \ \left(60 * (\quad rpm)\right)$$

Bearing Race Life in Hours	
N_{hours} =	hrs

Sample: $N_{hours} = (\ 13.1\ million\ revs) * 10^6 \ / \ \left(60 * (\ 20\ rpm)\right) = 10{,}917$ *hrs*

INDUSTRIES & APPLICATIONS



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